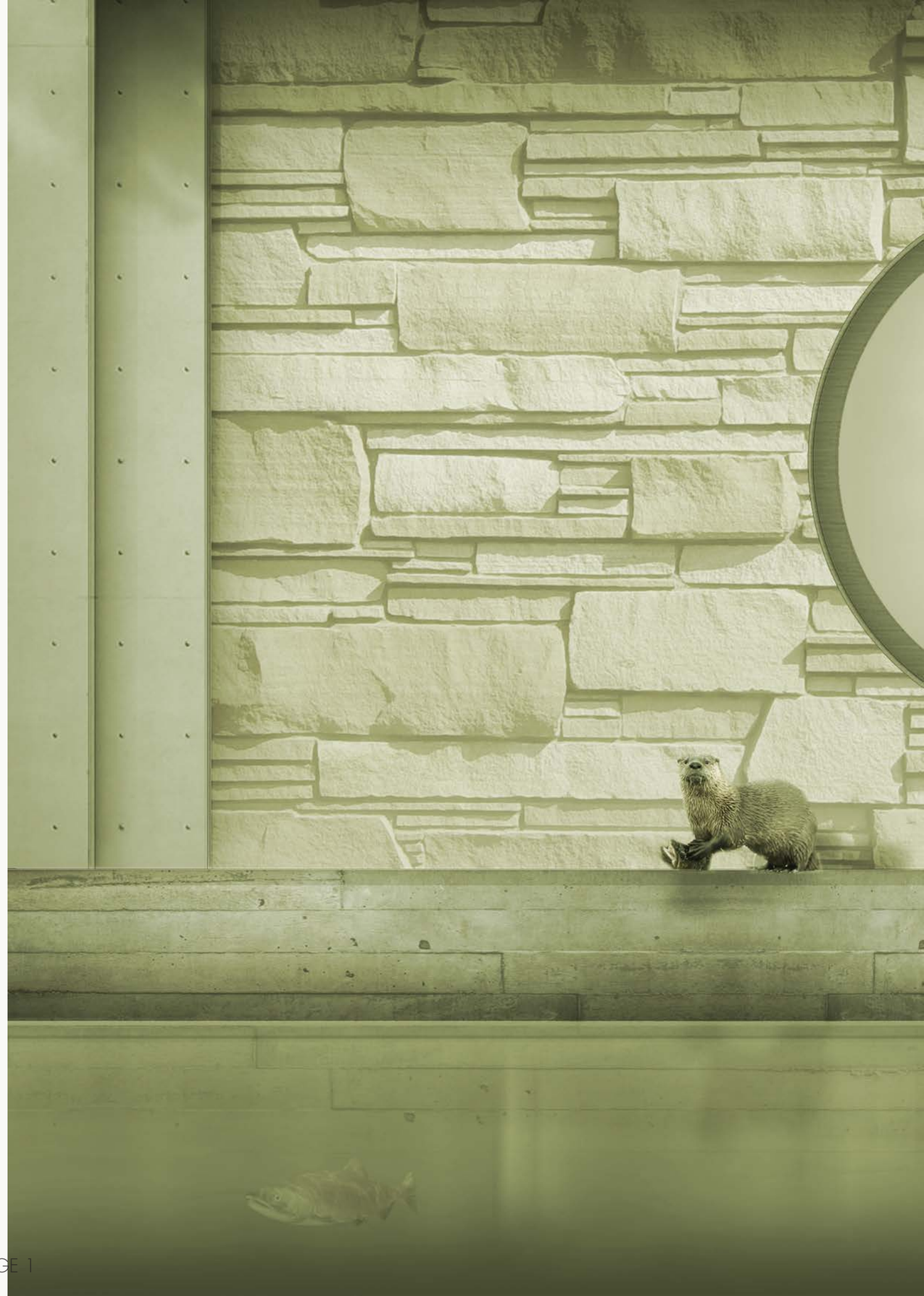
GO FISH

SAMUEL MASON
21392107

SOME KIND OF NATURE
PS2



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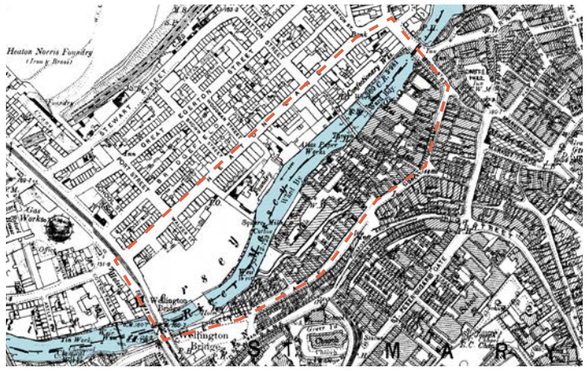
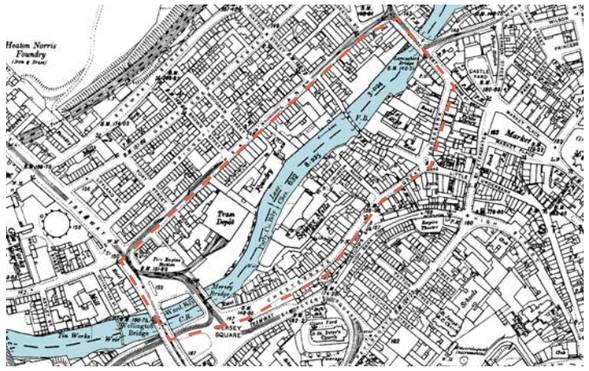
MERSEYWAY HISTORICAL TIMELINE

1890



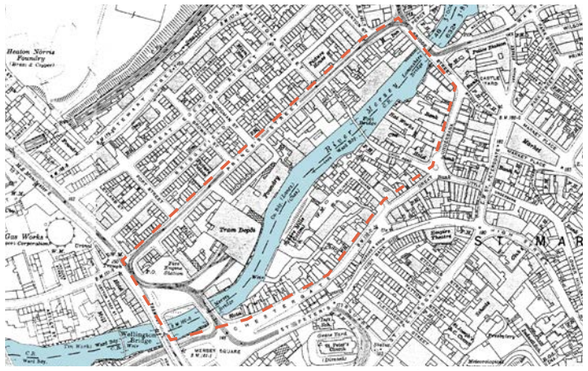
The River Mersey can be seen clearly on this map, surrounded mainly by shops to the east and terraced housing to the west. There is also a foundry on the west bank where residents from the terraced houses may have worked.

1910



Twenty years later, this map shows more development on the west bank of the River Mersey with a fire station to the north of Wellington Bridge as well as a tram depot with lines running across the river.

1920

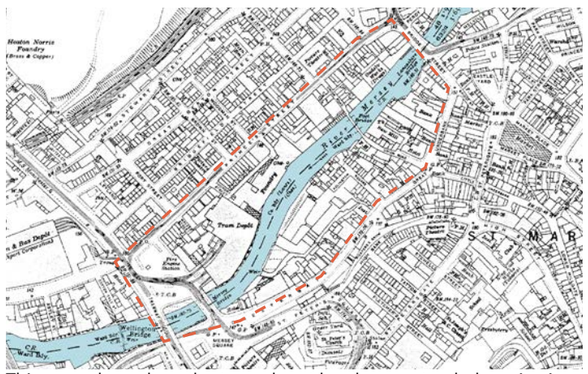


The tram depot has increased in size and added lines to its network. Most of the buildings around the river such as the shops and terraced housing remain the same.

1927

This aerial photograph shows Wellington Bridge (south), Mersey Bridge (north) with the tram depot building north of that. The River Mersey can be seen running to the east of the tram depot with factories and shops to the east.

1930



This map shows how the tram depot has been extended again since 1920 and how the smaller shops directly to the east of the river have been replaced by factories. The housing to the north-west remains largely unchanged.

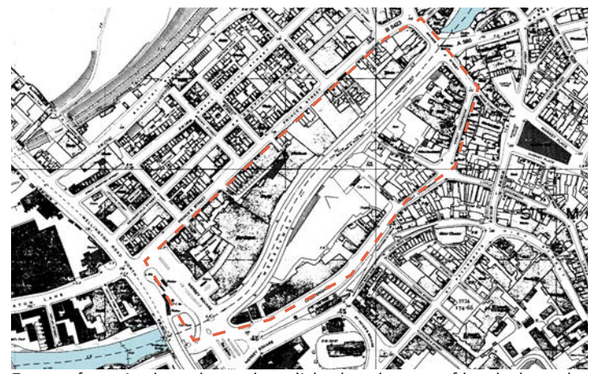
1948

The terraced housing on the north bank of the river shown in this photo has been demolished to make way for the M60 and its slip road. The large factory at the top of the photo has been replaced by the Stockport Pyramid.

1950-60

A large stretch of the River Mersey was built over in the 50s to make a highway connecting Bridge Street with Wellington Bridge. Today this is known as Merseyway.

1960

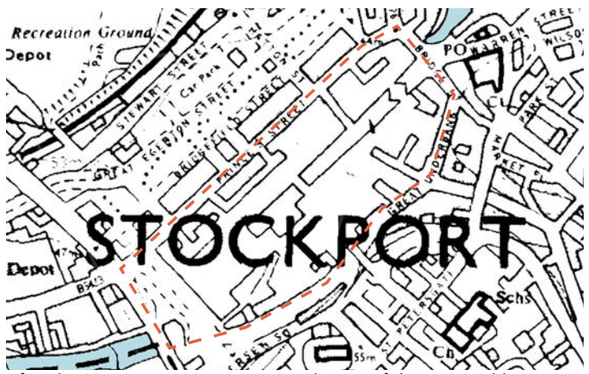


Former factories have been demolished and areas of land where the Merseyway shopping centre now stands can be seen to the south-east of the Merseyway. Car parks are now visible in the centre and the tram lines are no longer evident.

1965

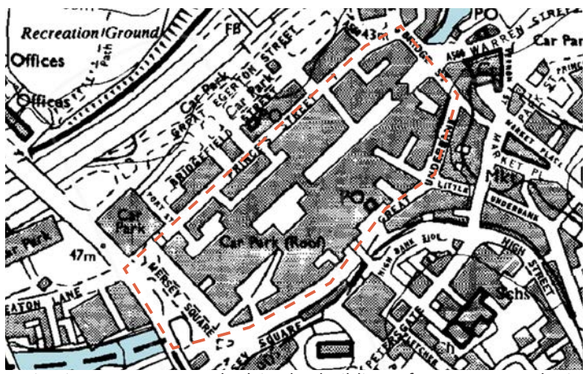
The Merseyway shopping centre opened in 1965 and the street became pedestrianised to allow visitors to wander around the shopping centre without having to cross busy roads. Rooftop car parks were built in for ease of access.

1970



After the Merseyway was constructed most of the terraced houses to the north of the site were demolished to make way for other buildings. The few remaining houses on Bridgefield and Prince's Street have since been converted into shops.

1980



A rise in car usage resulted in the building of more car parks in Stockport town centre and the demolishing of other buildings to make way for these. The Merseyway shopping centre went unchanged in

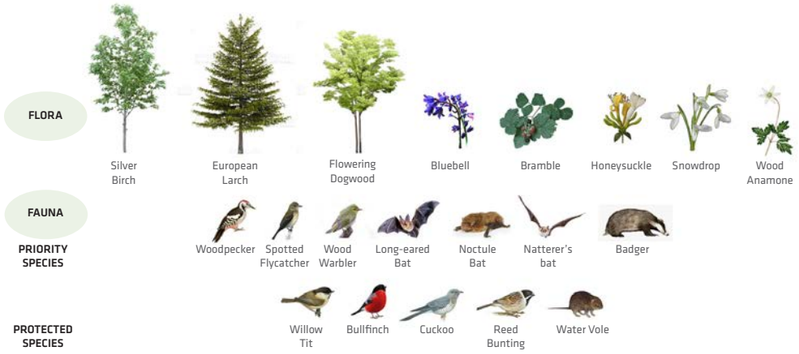
2022

The Merseyway shopping centre has been redeveloped numerous times since the 80s to keep up with various shopping trends, however nowadays there are a staggering amount of derelict shops perhaps

STOCKPORT BOROUGH ECOLOGICAL SYSTEMS

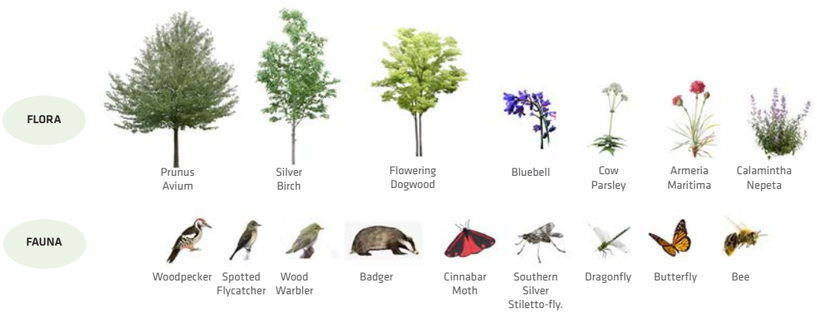
WOODLANDS

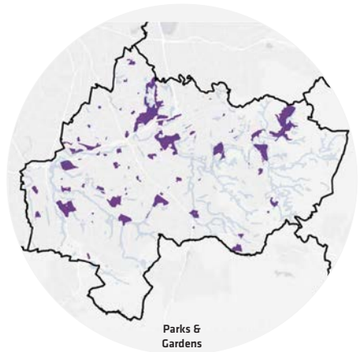
The borough has the highest proportion of Greater Manchester's broadleaved semi-natural woodland, much of which isclassified as ancient woodland. Stockport is one of the few districts where Ancient and/or Species rich hedgerows can be found.Target species for this broad habitat type listed in the 2018 GMSF Priority Green & Blue Infrastructure Report include lesser-spotted woodpecker, spotted flycatcher and wood warbler, brown long-eared bat, noctule bat, Natterer's bat and badger, as well as bluebell. Protected species records which overlay the ancient woodland mapping reflect both the target species and the close association of woodland and riparian habitats; willow tit, bullfinch and cuckoo, reed buntingand water vole are all recorded within this habitat type.



PARKS AND GARDENS

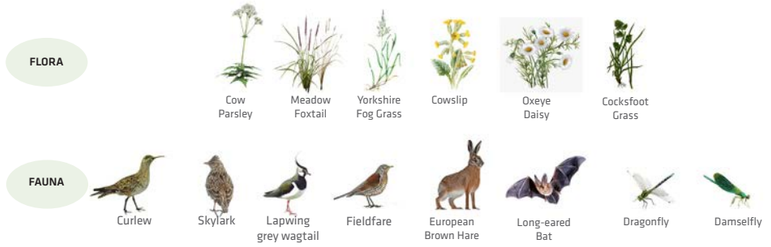
Numerous formal parks and gardens occur within Stockport, most of which lie within or adjacent to rivers, canals, and many of these are associated with designated sites. Target species for this broad habitat type is similar to that of woodlands and trees: lesser-spotted woodpecker, spotted flycatcher and wood warbler, brown long-eared bat, noctule bat, Natterer's bat and badger, as well as bluebell. Protected species records which overlay the formal parks and gardens mapping includes, for example, nine species of bat, a broad assemblage of birds including woodland, parkland and open habitat specialists, and the invertebrates butterflies, bees, dragonflies, cinnabar and the southern silver stiletto-fly.

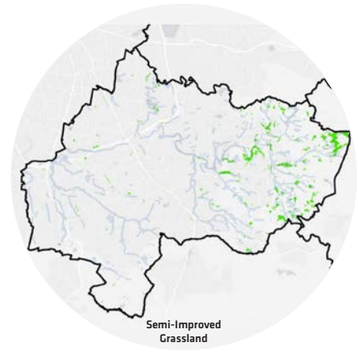


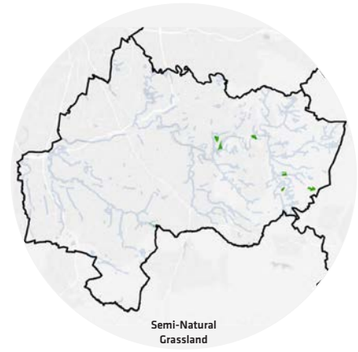


GRASSLANDS

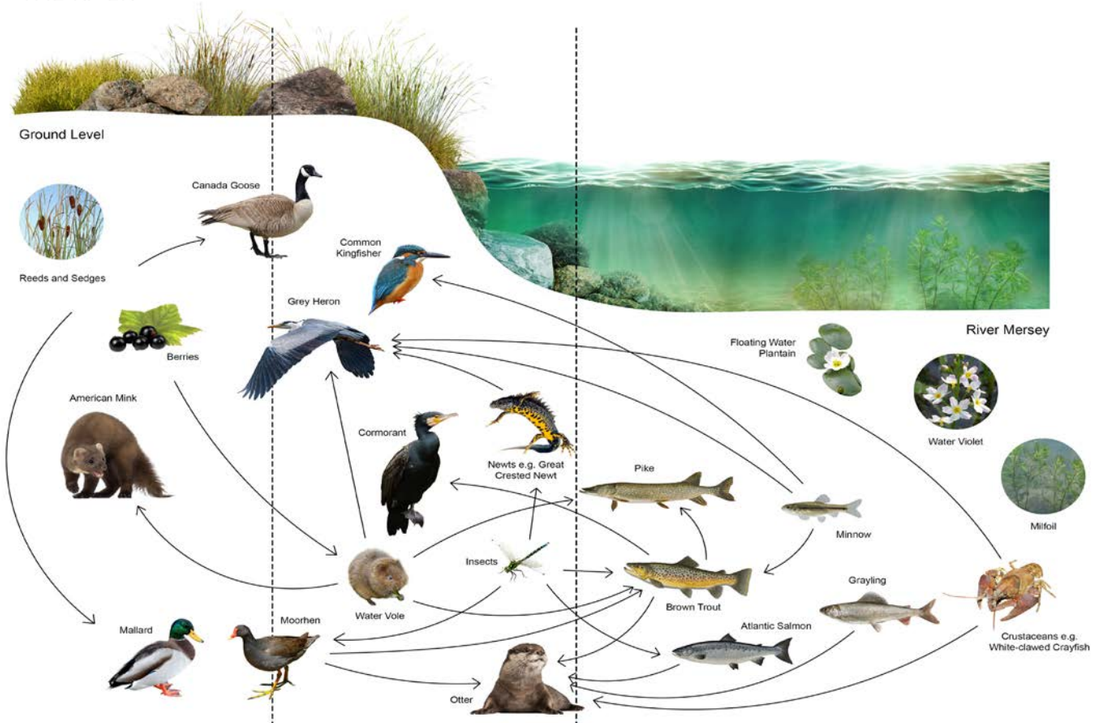
Grassland habitats support a wide range of species including BoCC Red listed curlew, skylark, lapwing grey wagtail, fieldfare and redwing; European brown hare, brown long-eared bat alongside dragonflies and damselflies. "







THE RIVER



MERSEYWAY ELEVATIONS

Prince's Street East

Prince's Street West

Bridgefield Street North Elevation

Merseyway North Elevation

Merseyway South Elevation

Deanery Way East and West Elevation

Merseyway North Elevation

Chestergate South Elevation

Underbank Square East Elevation

Chestergate North Elevation

Underbank North Elevation

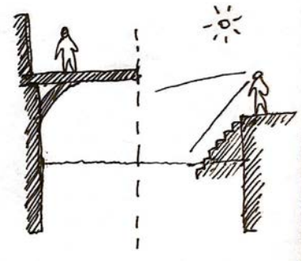
Vernon Walk East and West Elevation

Adlington Walk East and West Elevation

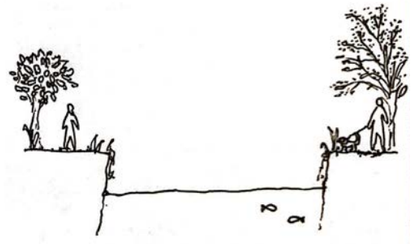
Great Underbank Square North Elevation

RIVERSIDE PRECEDENTS

Cheonggyecheon Stream
Seoul, South Korea



Deculverting or 'daylighting' the river will enable community and visitors to enjoy the river and allow wildlife to utilise this area more easily



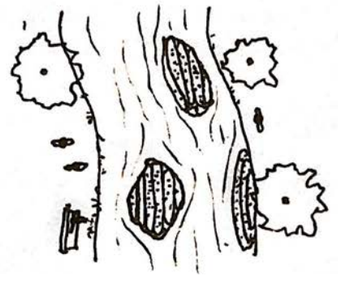
Walkways made of natural materials along either side of the river can connect to other pathways surrounding the site to create green corridors for animals and humans to travel along

Stepping stones will allow ease of movement across the river for humans and other animals

Bridgewater Basin Floating Ecosystems
Manchester, UK

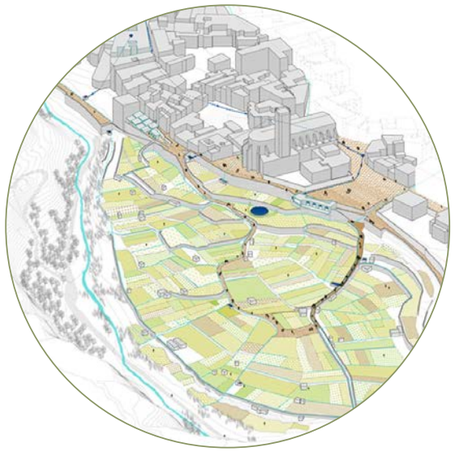
Nylon strands of artificial roots perfect for fish to hide in and spawn against. These roots also encourage bacteria colonisation which helps improve water quality and reduce pollution

Provides a valuable food source for bees and other insects, which in turn will feed birds and bats as well as improving aesthetic of surrounding area and encourage more visitors



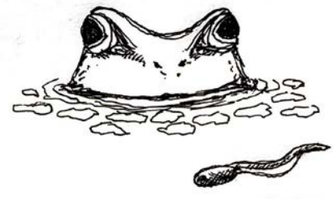
Floating islands of greenery provide habitats for various species, increasing quality and functionality of River Mersey

Cíclica + Cavaa Arquitectes
Irrigation System, Las Huertas Termales, Mexico



Create natural irrigation to surrounding areas especially in summer months or in times of drought

Ensure green spaces receive reliable and adequate amounts of water which they require to survive and thrive

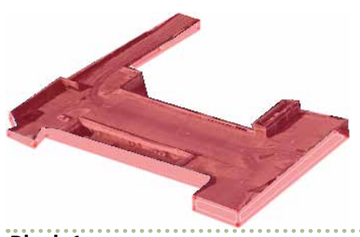


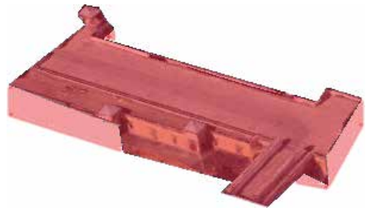
Pond life and species which require still waters can be encouraged to flourish to increase biodiversity in the area

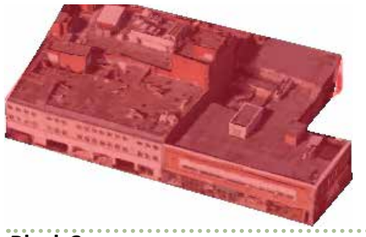
DEMOLITION STUDIES, PHASES AND PROPOSALS

Blocks

Breaking down Merseyway shopping centre into smaller blocks, we were able to analyse the tertiary materials utilised in various adaptions since the original genesis of the Merseyway. The primary structure for the towncentre is monolithic reinforced concrete with brick infils that has largely remained the same since the 1960's, however it is clear to see as you walk through the town centre there has been several regenerations through the years resulting in a patchwork of materiality and designs.







Block 1

Facade Treatment (indicative)

Brick 10 %
Glazing 15%
Pre-cast Concrete 60%
Steel 15%

Structural Frame
Reinforced concrete

Unit Occupation

Retail 80 %
Catering 10 %
Vacant 10

Number of Stores 17

Building Height 16m

Area m² 3019

Block 2

Facade Treatment (indicative)

Glazing 20 %
Block with Stucco finish 60 %
Steel 20 %

Structural Frame
Reinforced concrete

Unit Occupation

Retail 75 %
Banking 15 %
Vacant 10 %

Number of Stores 13

Building Height 16m

Area m² 2385

Block 3

Facade Treatment (indicative)

Brick 35 %
Glazing 15 %
Pre-cast Concrete 35 %
Steel 15 %

Structural Frame
Reinforced concrete

Unit Occupation

Retail 50 %
Catering 25 %
Vacant 25%

Number of Stores 4

Building Height 16m

Area m² 3151

Block 4

Facade Treatment (indicative)

Masonry 20%
Brick 25%
Glazing 15%
Pre-cast Concrete 35%
Steel 5% (tertiary structure)

Structural Frame
Reinforced concrete

Unit Occupation

Banking 5%
Retail 80%
Legal 5%
Vacant 10%

Number of Stores 8

Building Height 16m

Area m² 2139

Precast panels with mosaic tiles line the west alley between block 4 & 5. The panels depict a history of Stockport and key monarchs in history

Block 5

Facade Treatment (indicative)

Brick 30 %
Glazing 15%
Pre-cast Concrete 30%
Steel 15%

Structural Frame
Reinforced concrete

Unit Occupation

Retail 80 %
Banking 5 %
Catering 5 %
Vacant 5 %
Convenience 5 %

Number of Stores 7

Building Height 10m

Area m² 2743

Block 6

Facade Treatment (indicative)

Brick 10 %
Glazing 15%
Pre-cast Concrete 60%
Steel 15%

Structural Frame
Reinforced concrete

Unit Occupation

Retail 90 %
Catering 5 %
Vacant 5

Number of Stores 15

Building Height 16m

Area m² 2607

Block 7

Facade Treatment (indicative)

Brick 10 %
Glazing 15%
Pre-cast Concrete 60%
Steel 15%

Structural Frame
Reinforced concrete

Unit Occupation

Retail 80 %
Catering 10 %
Vacant 10

Number of Stores 9

Building Height 16

Area m² 3081

Block 8

Facade Treatment (indicative)

Brick 20 %
Glazing 15%
Pre-cast Concrete 40%
Steel 15%

Structural Frame
Reinforced concrete

Unit Occupation

Vacant 100 %

Number of Stores 1

Building Height 16m

Area m² 5079

Block 9

Facade Treatment (indicative)

Brick 10 %
Glazing 15%
Pre-cast Concrete 60%
Steel 15%

Structural Frame
Reinforced concrete

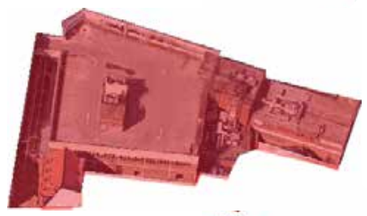
Unit Occupation

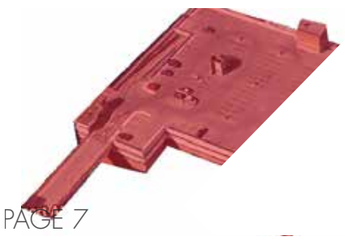
Retail 90 %
Vacant 10 %

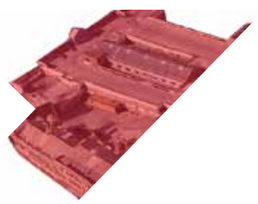
Number of Stores 18

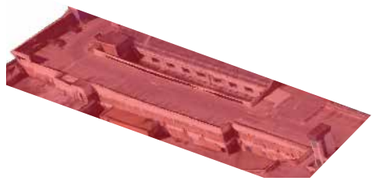
Building Height 16

Area m² 2809

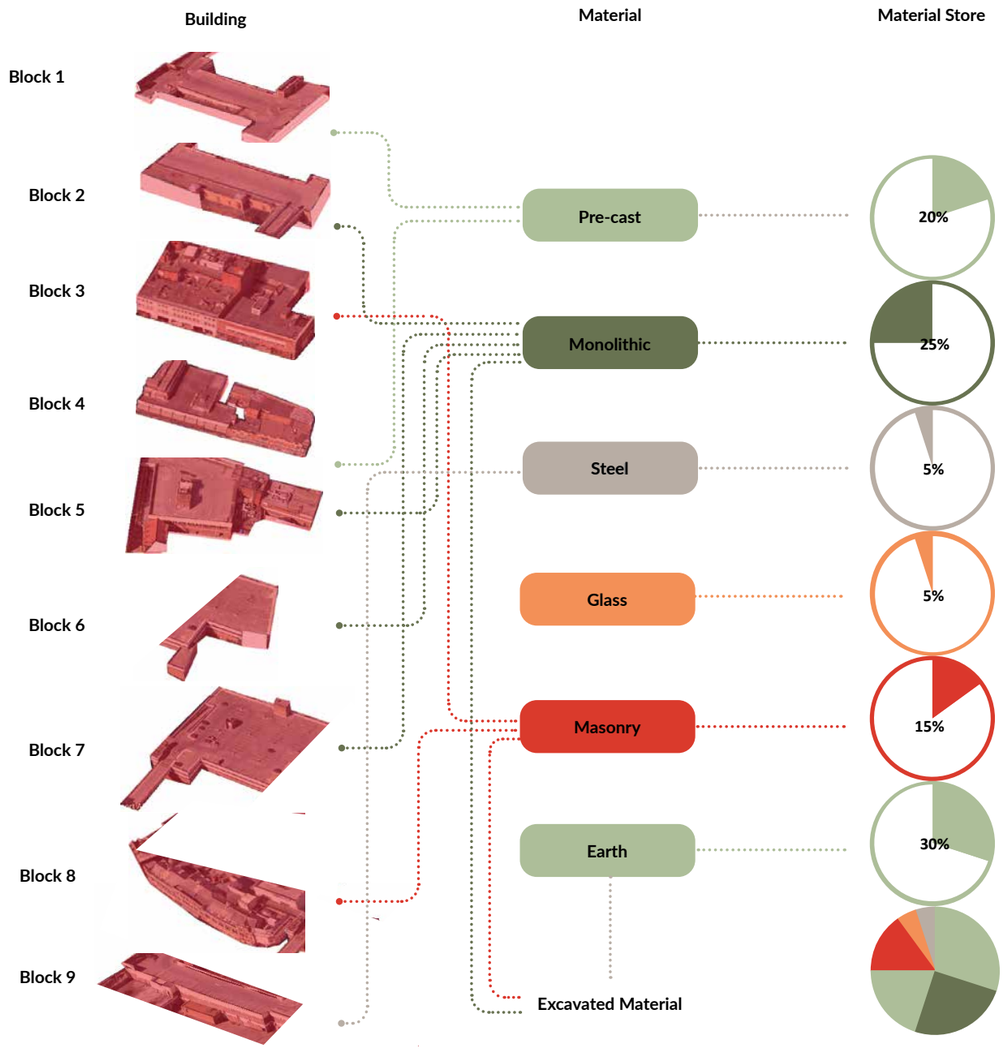








MATERIAL STUDIES



Material Storage
Redrock carpark to become material storage for the extracted materials from the demolition.

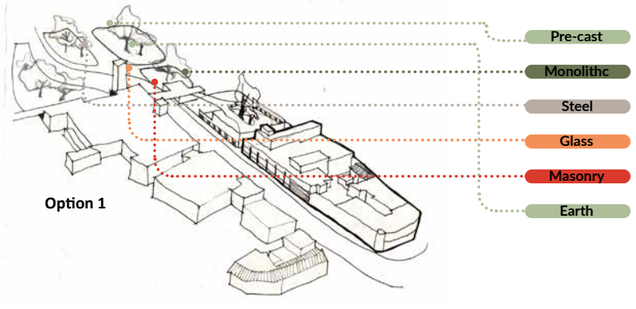
Phase 1 Demolition
Stripping the north west buildings back to the skeletal frame

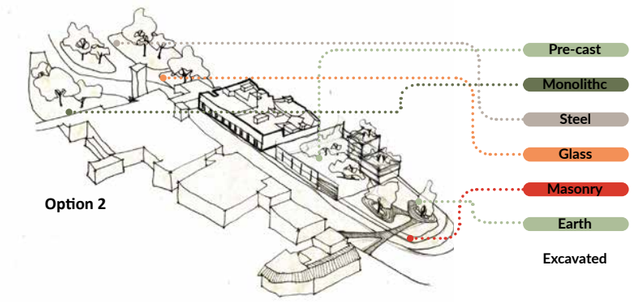
Phase 2 Demolition
Removing the west end of the area down to ground level, stripping the east to frame

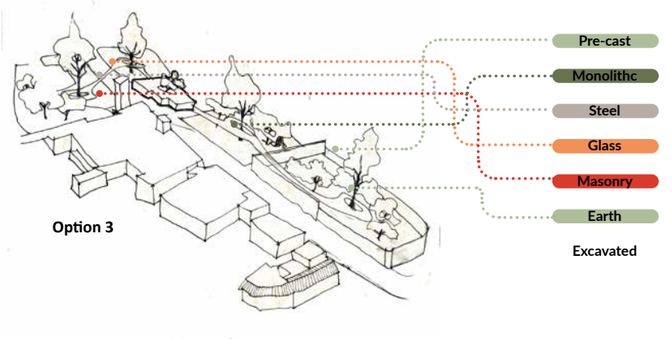
Phase 3 Demolition
Removal of east buildings while retaining the framework of the west building

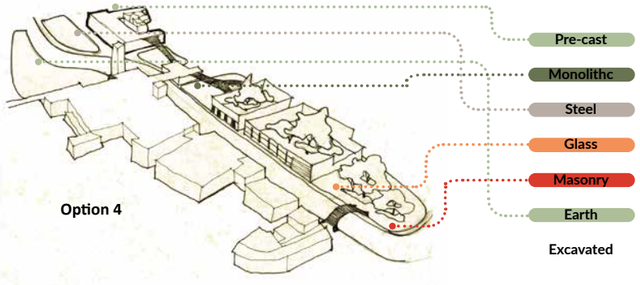
Phase 4 Demolition
Clearing the site only leaving the historical portion of the Primark building

Phase 5 Demolition
Daylighting of the Mersey river retaining the old Mersey bridge to the west of Merseyway









Re-use Precedents

KB Building

HofmanDujardin + Schipper Bosch

Arnhem , Netherlands

Adaptive Re-use

Office Building

Kamikatz Public House

Hiroshi Nakamura & NAP

Recycled windows from abandoned houses

Ningbo Historic Museum

Wang Shu, Amateur Architecture Studio

Ningbo History Museum

Recycled tiles utilised in the facade

Storage Barn

Gray Organschi Architecture

dimensionally economical and energy-efficient storage rack for heavy materials

https://www.archdaily.com/

Demolition precedent study

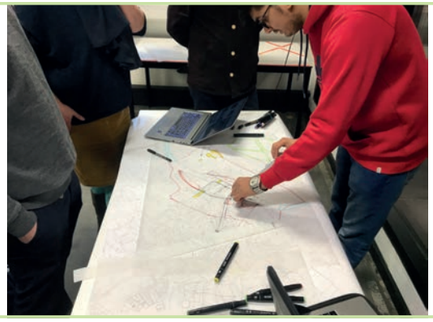
Qiaotou Ruin Garden
ARCity Office
Architects came up with the concept of 'reductive construction' to explore a new approach of urban renewal which goes beyond simple demolition and renewal.

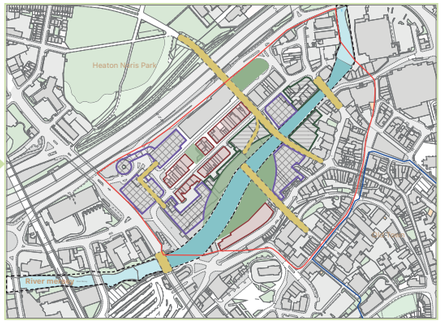
https://www.archdaily.com/

GROUP MASTERPLANNING EXERCISE

Group 1

Our masterplan's aim was to create new wildlife corridors into the regenerated Stockport town centre. Merseyway's rejuvenated centre engaged with the park on the north side of the M60 with a new green bridge that terminated at Merseyway's roof level. The intention was to retain large sections of the rooftop car park in order to create new green spaces, allotments and cycle parks to help mitigate the heat island effect.
On the south side of the River Mersey the intent was to create visual connections between the Mersey and Stockport's historical core by stripping back the 1960 shopping centre back to the skeletal frame while preserving the Sunwin House section.

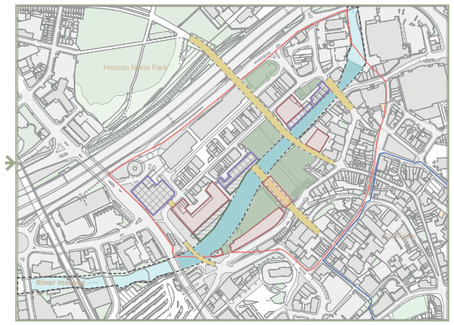





Group 2

The aim of our masterplan is to create connections between nearby green spaces with its existing species and the site through bridges and by creating green corridors and pathways along the river Mersey which runs across the site. The rooftop car parks and it's concrete frame structures are retained in order to provide an elevated pathway by foot as well as bicycles through the site. The shops facing The Heaton Norris Park and Stockport's old town are demolished in order to provide extensive views. These will then be replaced with green spaces which would be habitats for non human species as well as recreational spaces for humans.

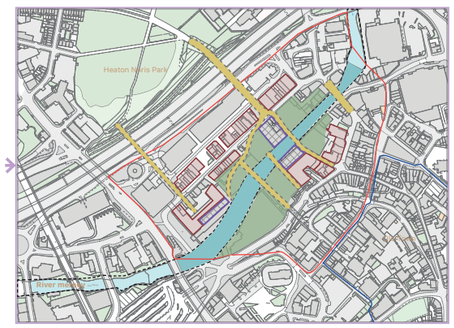


Group 3

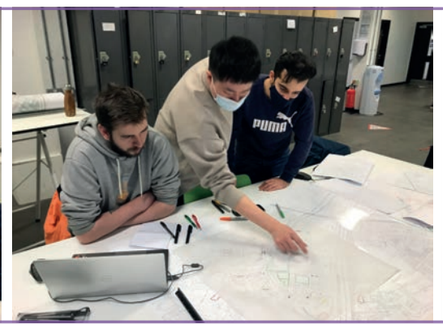
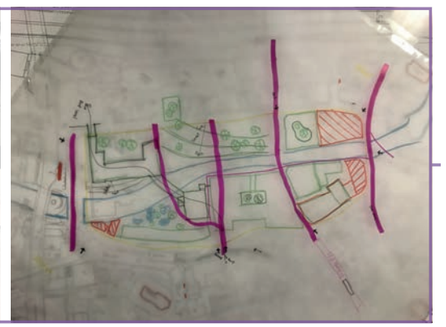
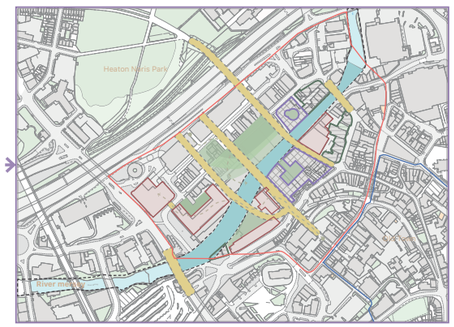
One of our aims was to create numerous routes throughout the site to allow humans and non-humans to navigate the areas around Merseyway more easily, such as the new bus station to the west of the site and Heaton Norris Park to the north.
We created 'follies' to encourage biodiversity within the semi-demolished spaces and 'al-fresco' areas for semi-shelter. We also created a slope down to the river for humans and non-humans to access the water more easily with stepping stones going across.



Group 4

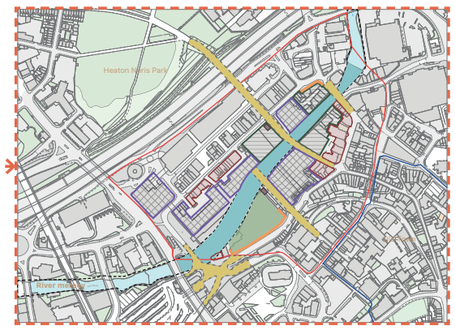
The main objective that we wanted to address within the masterplan was the interaction between society and the bio-diverse habitat that we are seeking to create.
Our focal point was the medium of access through differing paths and levels to produce a unique setting that is distinctive based on the route that the individual would take to arrive at the destination or pass through. The masterplan addresses this method through five separate and distinctive paths.

All Groups

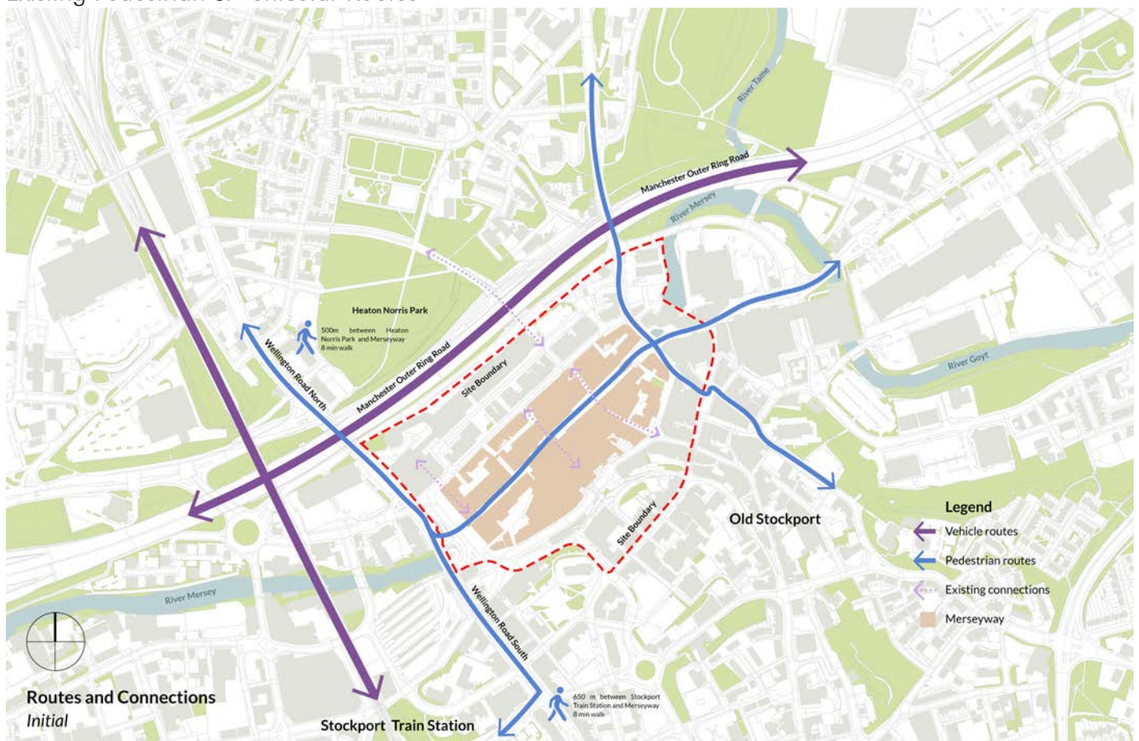
After our small-group masterplanning exercises we all came together to create a masterplan strategy that combined the most important features from our smaller groups' concepts.
All groups had proposed creating a connection from our site to Heaton Norris Park to the north by extending the existing motorway footbridge so this was carried forward into our developed masterplan. We then all agreed on which buildings were to be demolished and which ones we would retain the structures for in order to begin our individual re-use projects. We also agreed to include a pathway along the south river-front to connect the remaining buildings on the south side of the River Mersey and allow easier access to and views of the river.



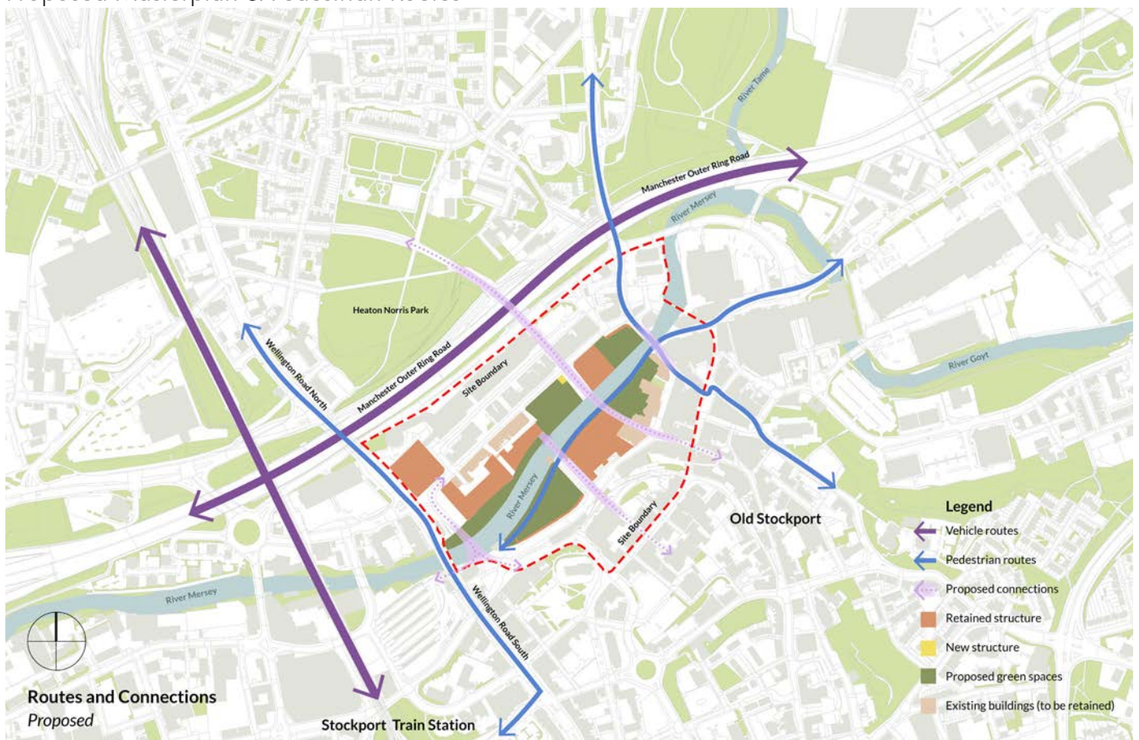



EXISTING SITE CONNECTIONS & PROPOSED MASTERPLAN

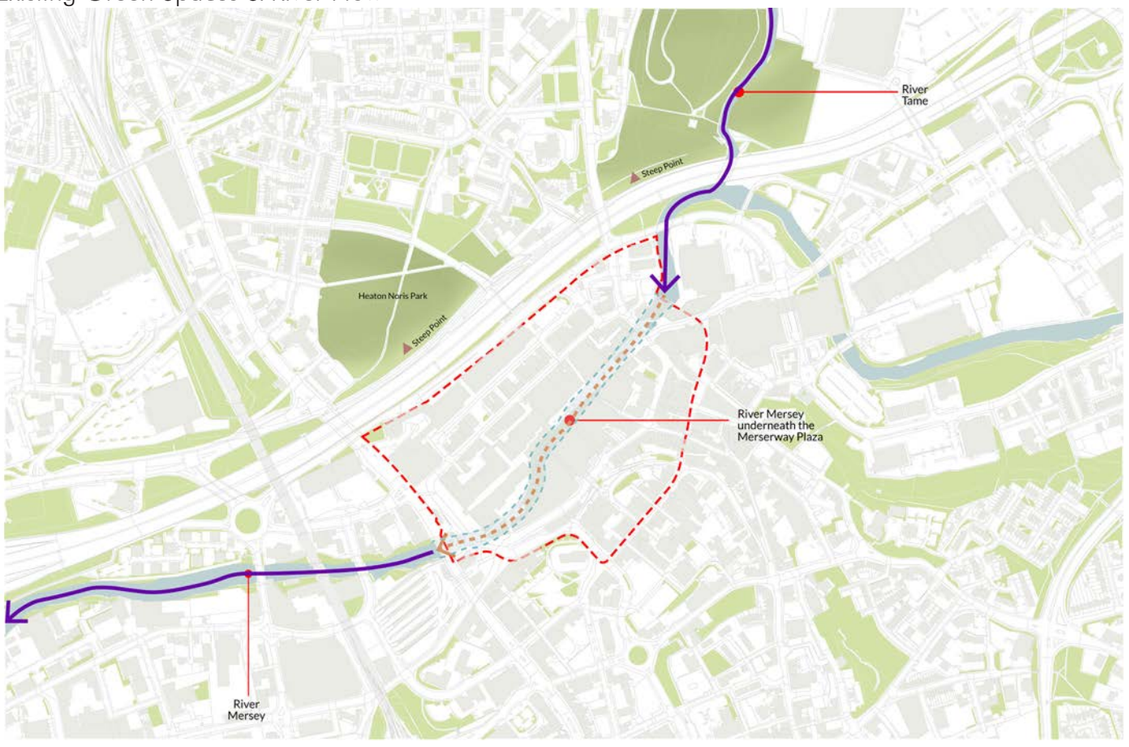
Existing Pedestrian & Vehicular Routes



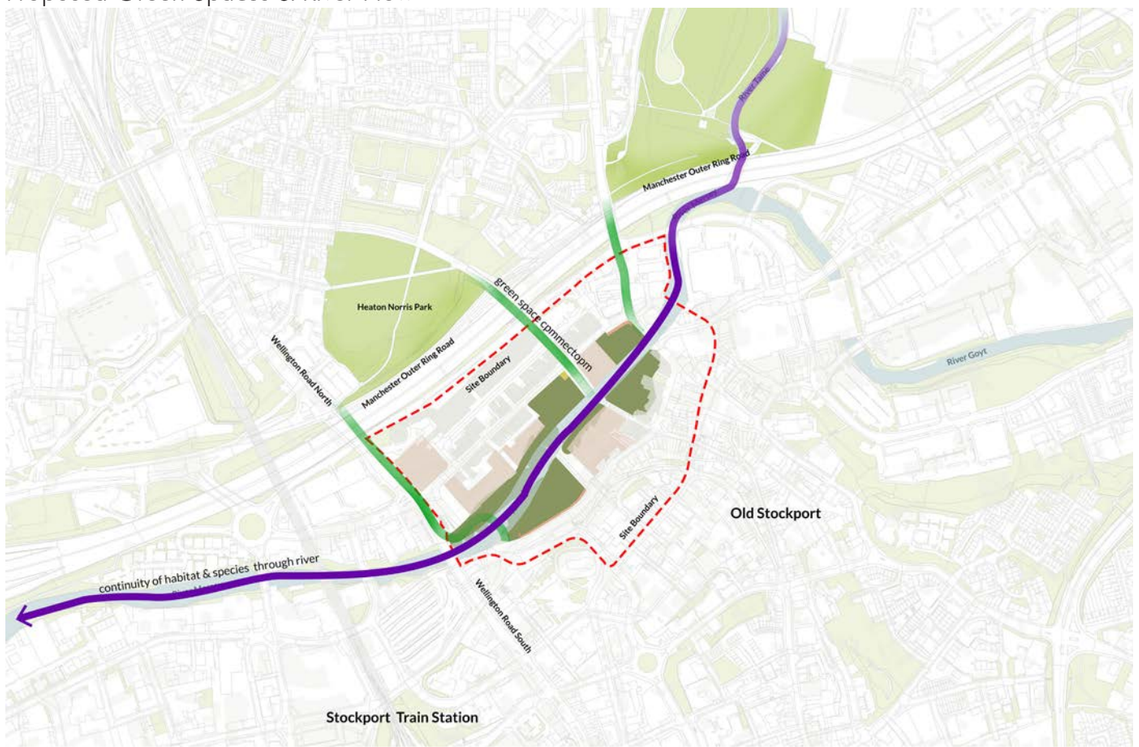
Proposed Masterplan & Pedestrian Routes



Existing Green Spaces & River Flow



Proposed Green Spaces & River Flow



PROOSED MASTERPLAN

Block 1 - Retain structure, remove facade

Block 2 - Retain structure, remove facade

Block 3 - Full demolition, recyle materials

Block 4 - Retain structure, recycle materials

Block 5 - Full demolition, recycle materials

Block 6 - Retain structure, remove facade

Block 7 - Retain structure, remover facade

Block 8 - Partial demolition of north block, retain south facing facade

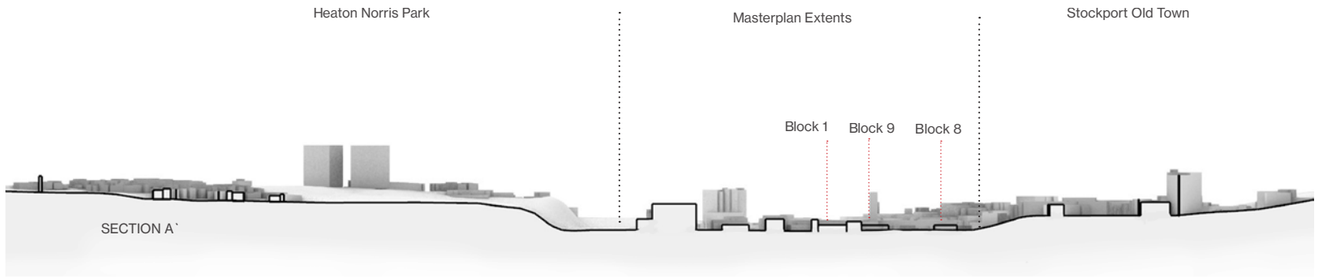
Block 9 - Full demolition, recycle materials

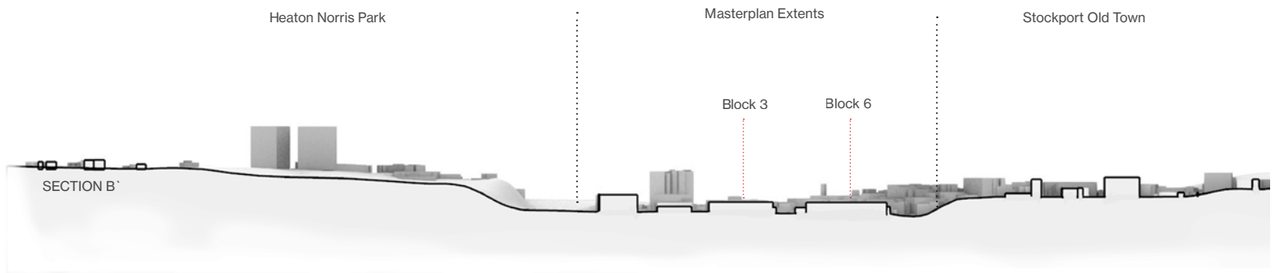
Old Town Extents

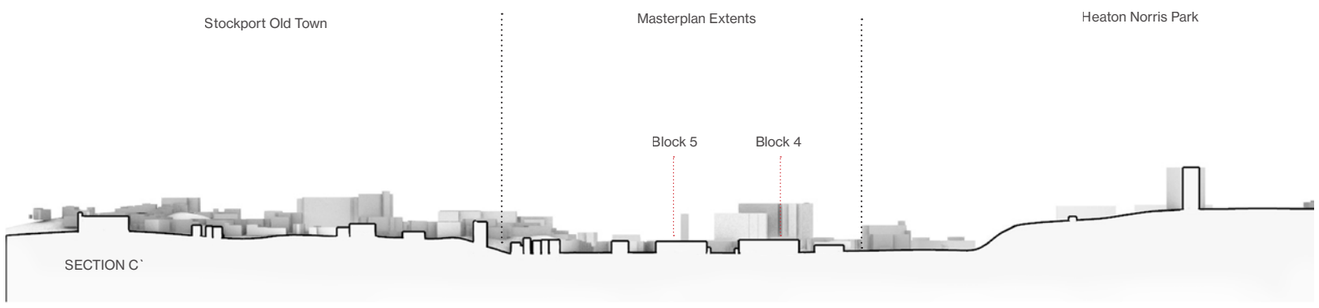
River Mersey Extents

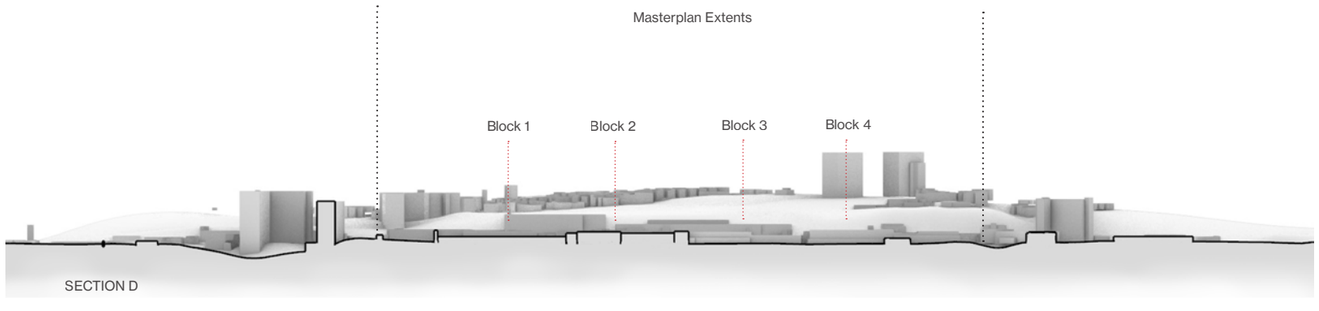
Proposed Development Boundary

Site Extents









IF YOU DAYLIGHT THE MERSEY, WHAT WILL YOU SEE?

The initial response to the site was to consider what would you see if you did open up the river mersey in the centre of the merseyway. the conclusion form the visiting the site and exploring the mersey upstream where its is exposed was that it would be a unattrtice river frontage due to the large scale of plastic pollution and other waste debris. This led to the idea that in order to create a vibrant and thriving water front for both humans but more importantly to encourage nature back into the heart of thestockport and the masterplan proposal something would need to be done about the plastic pollution.

The concept for the project therfore is to create a system/ facility that will begin the process of depolluting the mersey and help encourge and restore marine and wildlife back into the heart of stockport while aslo creating a attractive river front for the community to enjoy, promoting well being and sustainabilty.

"WHERE ARE ALL THE FISH? THATS MY FIFTH PLASTIC BAG TODAY"

"PLEASE LORD CAN SOMEONE CLEAN UP THE MERSEY"

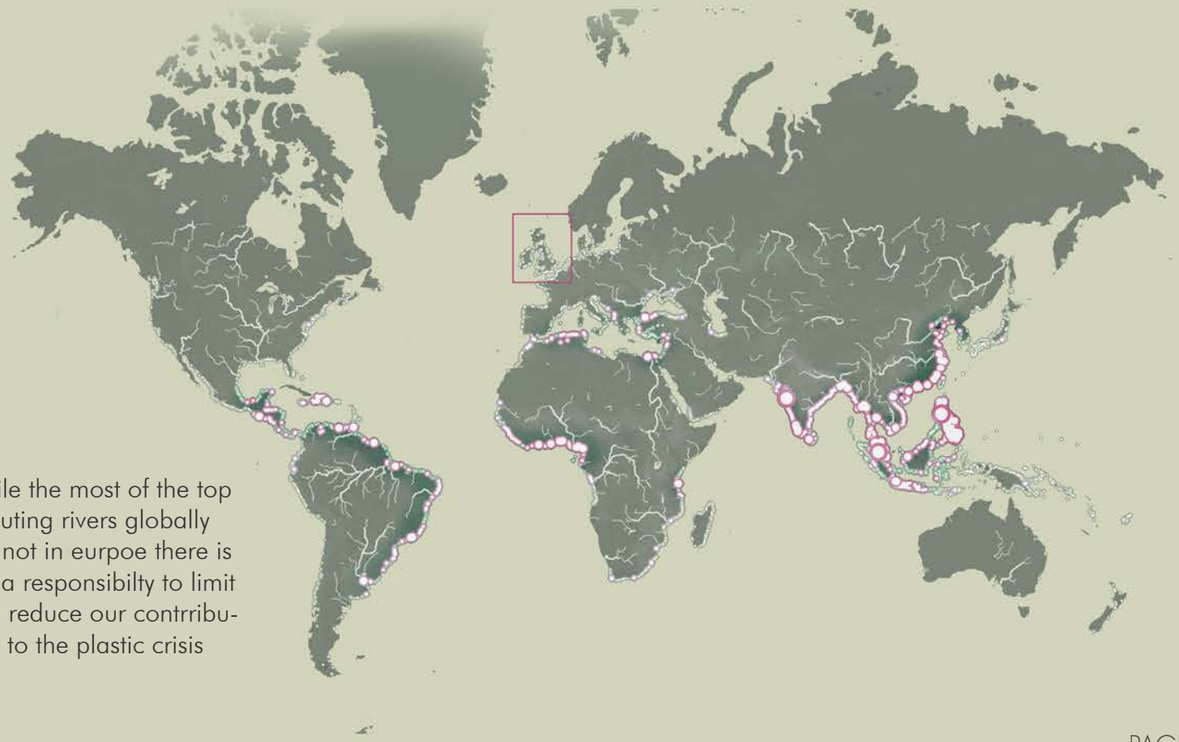
PLASTIC POLLUTION A GLOBAL ISSUE

‘80% of all plastic that ends up in the ocean comes from less than 1% of the worlds rivers’

Plastci Emission ME per Country in 2015

A large majority of plastic waste in our oceans come from tributary rivers that feed into them. Globally there is massive envirimnetal issue that is disrupting large marine ecosystems and harming wildlife as well as having an impact on human lives as well. There has been a regonition in recent times that this growing issue is only going to escalet unless drastic interventions are put in place.

These interventions starts with the source of the pollution which is are river-systems.In the UK the river Mersey is rankd as the most polluting river and the river tame, a tributary to the mersey is ranked as the 5th. It seems that cleaning up the mersey would be a good place to start to taek responsibilty for our corner of the planet,



While the most of the top polluting rivers globally are not in eurpoe there is still a responsibilty to limit and reduce our contrribution to the plastic crisis

Top 5 Most pullutant rivers in the UK

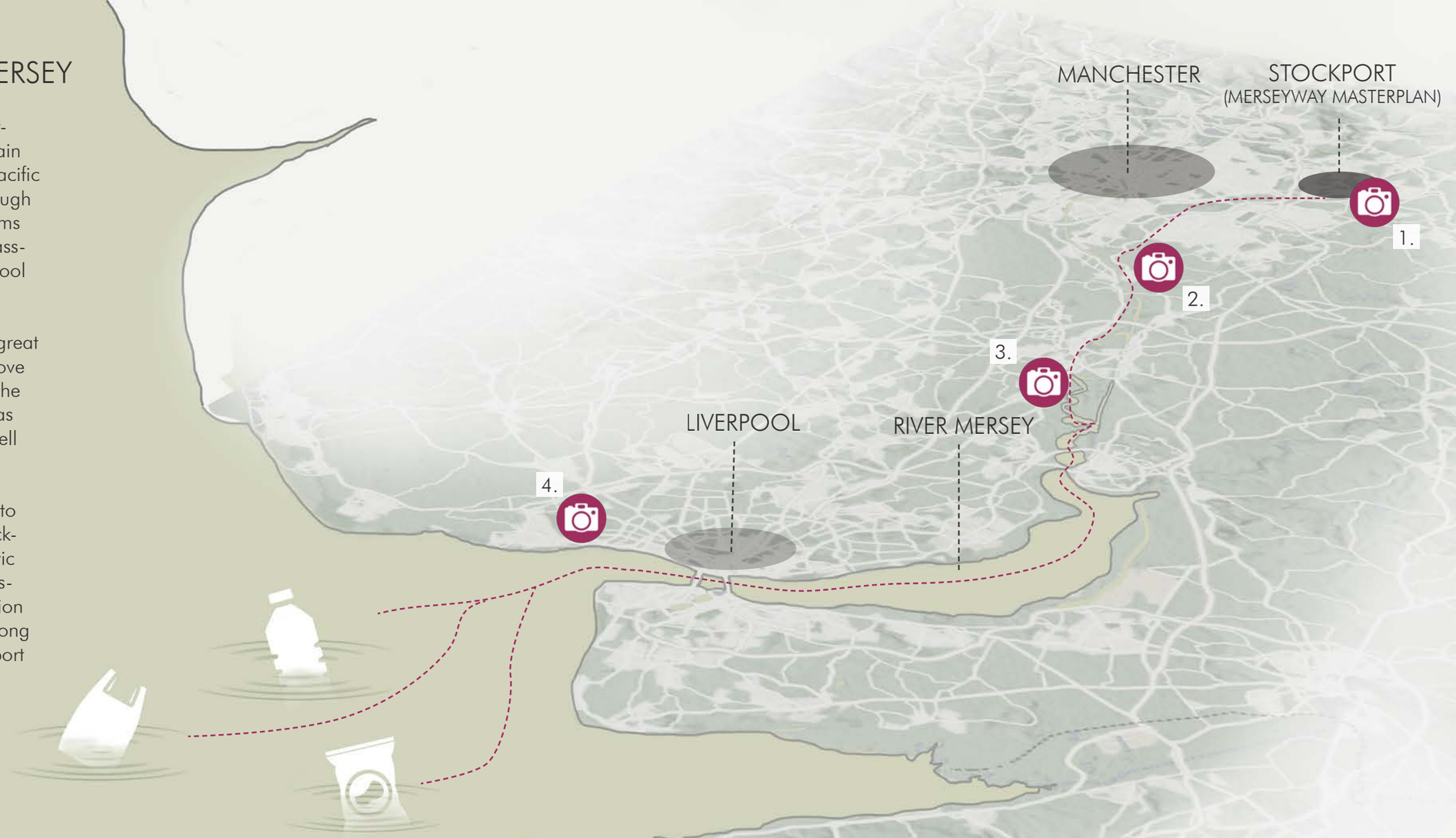
What are the top 10 pollutants?

WE NEED TO TALK ABOUT THE MERSEY

As previously stated the river Mersey is the most polluted river in the UK and when tested was found to contain more microplatsics per square meter than the great pacific garbage patch. The point at which the river flows through the site in Stockport it is already littered with many forms of plastics and other man-made waste even before passing through the major cities of Manchester and Liverpool and exiting into the Irish sea.

The Merseyway site in Stockport therefore provides a great opportunity as a location on the river to begin to remove as much of the polluting plastic as possible and limit the amount that reaches both Manchester and Liverpool as creating more inviting waterfronts for both cities as well as Stockport itself.

The key motive for treating the river Mersey though is to help promote and increase the biodiversity within Stockport and the proposed masterplan development. Plastic has a big detrimental effect to aquatic health when discarded into the waterways through ingestion, suffocation and entanglement. Removing this pollutant will go a long way to help bring back nature into the heart of Stockport



Mersey riverbank druing cannoaing site visit
Photo credit to Ami


1.


3.


2.


4.

EXISTING PLASTIC REMOVAL SYSTEMS - MACRO

The Interceptor - Ocean Cleanup

The Ocean Cleanup's 'The Interceptor' is their answer for tackling river plastic waste. Its is a scalable solution that helps prevent plastic from entering the worlds oceans from rivers. The Interceptor is 100% solar-powered and extracts plastic autonomously, being capable of operating in the worlds most polluting rivers.

- Autonomous device so minimal human labour, only required to empty the waste

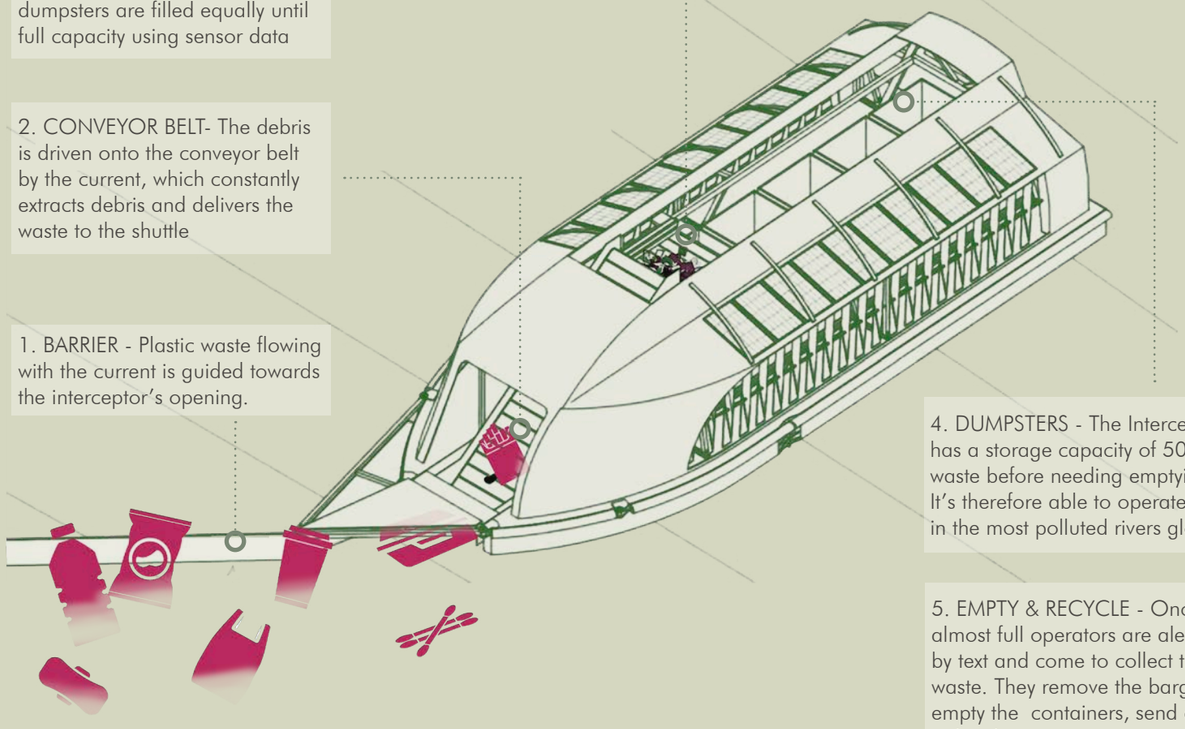
- Fully solar powered so required no power source and reduces cost

- Potentially to large and expensive to suit the river Mersey and tributaries

3. SHUTTLE - The Shuttle automatically redistributes the plastic waste across 6 containers. The dumpsters are filled equally until full capacity using sensor data

2. CONVEYOR BELT- The debris is driven onto the conveyor belt by the current, which constantly extracts debris and delivers the waste to the shuttle

1. BARRIER - Plastic waste flowing with the current is guided towards the interceptor's opening.



4. DUMPSTERS - The Interceptor has a storage capacity of 50m^3 of waste before needing emptying. It's therefore able to operate even in the most polluted rivers globally

5. EMPTY & RECYCLE - Once almost full operators are alerted by text and come to collect the waste. They remove the barge, empty the containers, send debris to local waste management and return barge to the Interceptor

Plastic Barrel Barrier - Sungai Watch

Sungai Watch is an environmental organisation with a mission to clean rivers, starting in Indonesia. They have been testing, designing and deploying more than 100 barriers on the island of Bali as a test study.

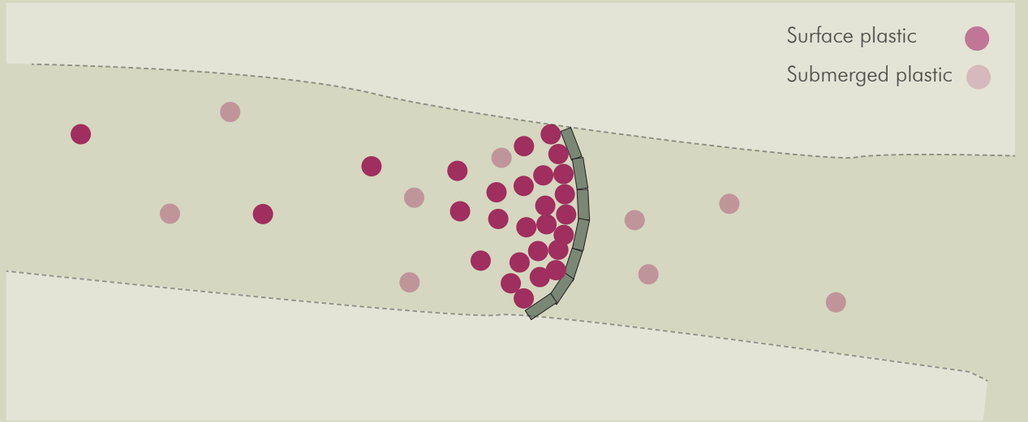
They have developed three kinds of barriers systems: the floater, the mini floater and the walker each designed to handle strong currents and high water pressure. Both floaters consist of metal grids which site 30-40cm below the surface to catch most of the debris.

- Solution has no impact on marine life such as fish and other species can travel underneath the barrier

-System is cheap to create and effective at catching debris as well as being flexible and removable

- Barrel Barrier blocks the entire river so boats or other aquatic forms transport are unable to pass through

- Low surface depth of the grids means waste is still able to pass underneath



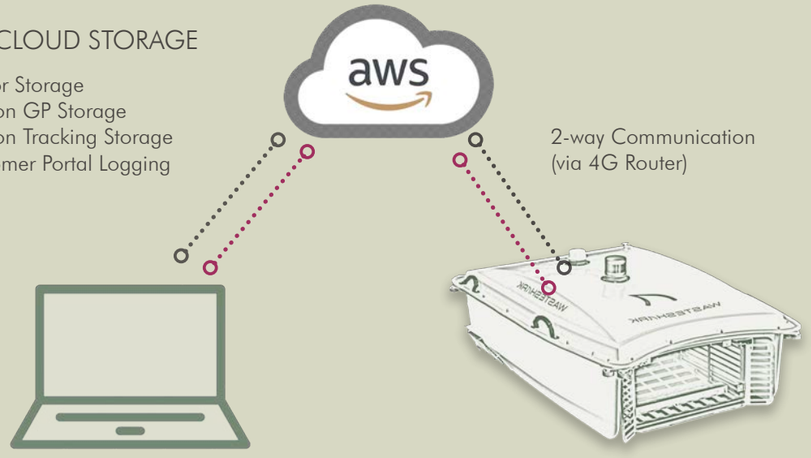
Walker Barrier in Bali, By Sungai Watch

EXISTING PLASTIC REMOVAL SYSTEMS - MICRO

WasteShark - RanMarine Technology

RanMarine specialise in developing controlled and autonomous drones called Sharks, based out of the Netherlands. These drones act as an intelligent waste collector, swimming through water, eating plastic and extracting alien and pest vegetation. It also gathers marine environment data and monitors toxicity levels of the waterways. The device is designed to operate with minimum effort and maximum efficiency and perform in any climate effectively. Built to be agile in water, able to cover large areas as well as reach hard spaces.

- Non intrusive to marine life and boats and helps monitor water toxicity
- Cheap and more viable in terms of scale to suit the river Mersey
- Can be operated manually or programmed to run autonomously. meaning it can always be operational
- Potentially limited in capacity to clear the whole river and may be lost or damaged easily




WasteShark collecting plastic

'The WasteShark can capture up to 60Kg of waste per load'

Paddleboard plastic pick up - Plastic Patrol

Plastic Patrol is a non-profit charity seeking to clean up Britain's waterways and raise awerness of the impact of single use plastic. The charity uses activities such as paddle boarding to try and help clear plastic from our rivers and retrevie water samples to analyse micro plastic levels and water quality. This data is then analysed by scientists at the university of Nottingham to gain insights into trends and patterns and develop evidence to inform public policy on packaging solutions.

Participation is free and accessible for all levels of experience. Volunteers are asked to pay a 'nature tax' by logging there waste collection with the Plastic patrol app.

- Free and accessible way to get involved with cleaning up the environment
- Great way to socialise within the community and get more immersed in nature
- Can make a difference to the water quality and levels of plastic in your local area
- Potentially limited as permanent solution to clear the river and relies on volunteers sacrificing their free time.
- Events limited to a select few weekends each year

PLANET PATROL REPORT

'Over the last three years Planet Patrol volunteers around the world have collected nearly 300,000 pieces of litter in nature and recorded it all in the Planet Patrol app.'

'The impact report makes a number of recommendations, including a nationwide ban on plastic bags, and a call for much clearer waste producer responsibilities.'

'With ongoing data real-time crowd sourced data collection, which empowers citizens to 'police' the system, it provides an opportunity to monitor and regulate the framework of a circular economy.'


Planet Patrol paddleboading clean up event , by Host

THE GREAT BUBBLE BARRIER - ALTERNATIVE STRATAGIES

‘A smart sollution to plastic pollution’

The Great Bubble Barrier is based on existing technology, so it is easy to apply. The system can be used in rivers as well as canals and channels.

‘A pilot instillation showed that the Bubble Barrier can retrieve over 80% of the floating debris and plastic in the river’

80%

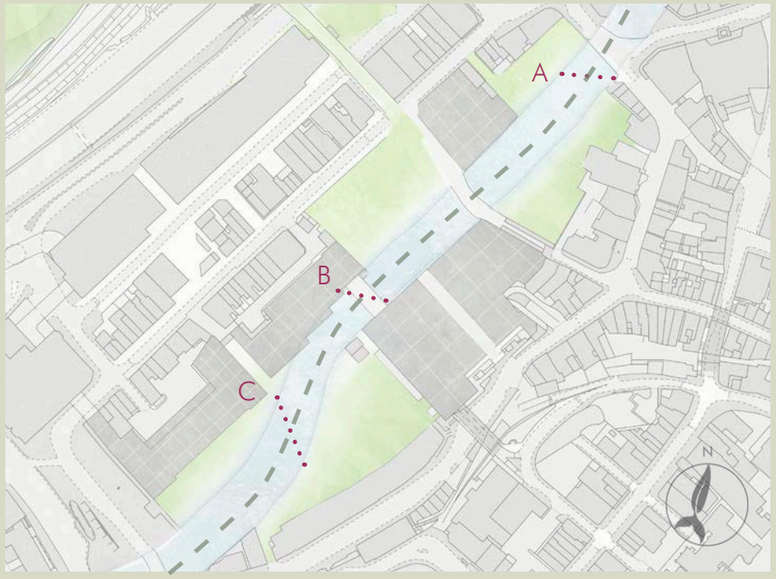
POTENTIAL LOCATIONS WITHIN THE MASTERPLAN

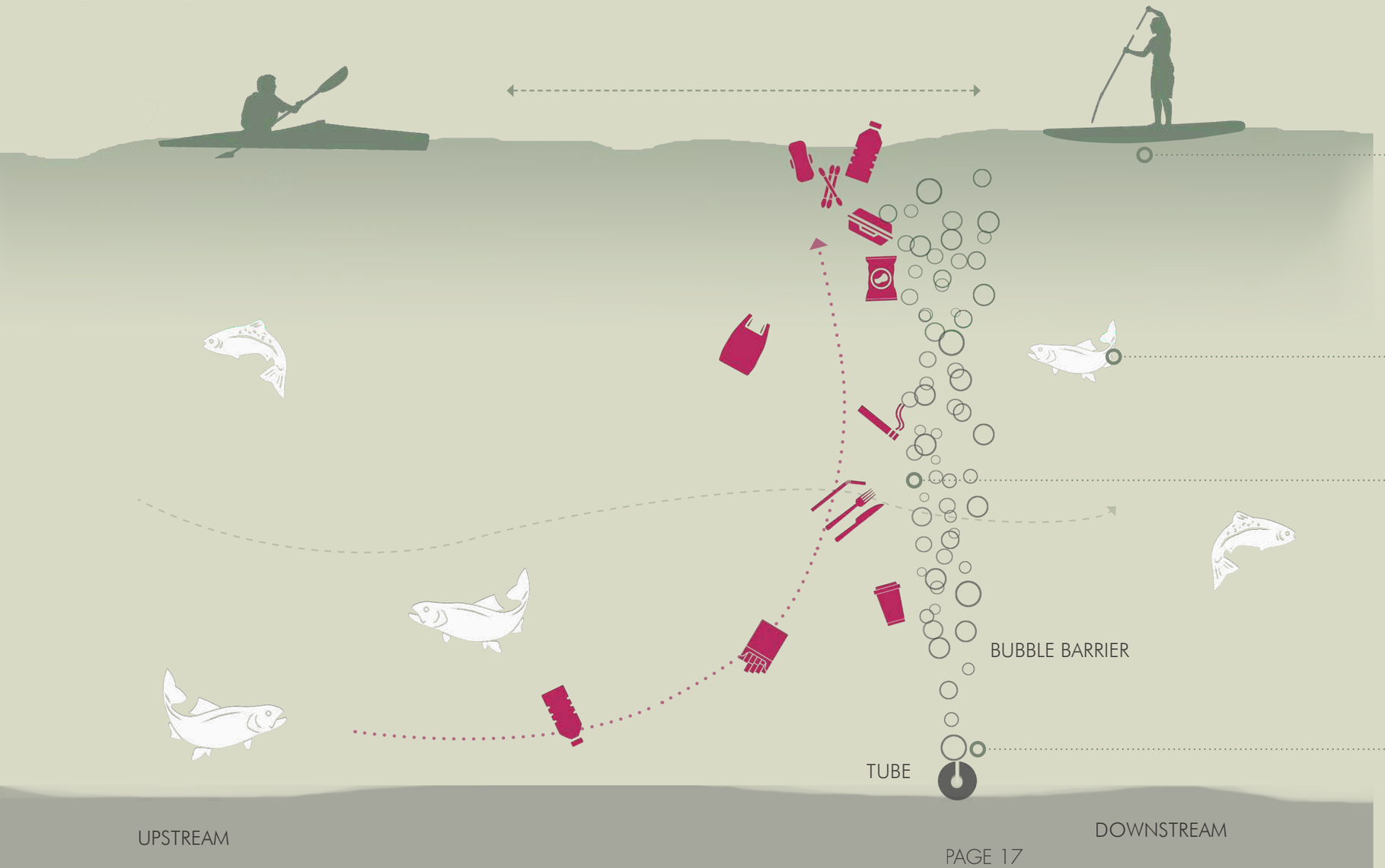
Through daylighting the river there is plenty of opportunity to introduce the bubble babier system into the masterplan scheme.

A - Highest point upriver so limits the amount of plastic that passes through into the masterplan

B - Narrowest point within the site so maximum efficiency in retrieval of plastic and waste

C - Lots of available space for collection but longest stretch across the river and furthers downstream





4. The bubble barrier allows boat and oth-er water vessels such as kayaks and paddle boards to pass and therefore does not obstruct daily river activities

3. The bubble barrier stops plastics but fish and other marine life can pass through system and the bubble curtain also reduces surface noise pollution in the marine environment

2. The rising bubbles creates a screen of bub-bles and an upward current that blocks plastic waste and directs suspended plastics to the surface. Water low directs it to the side of the river, preventing it from floating further down-stream

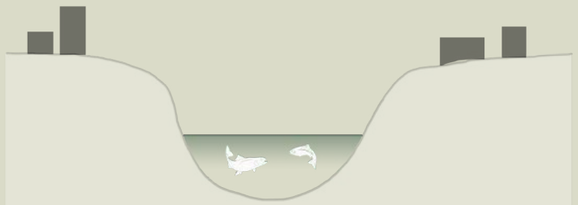
1. A curtain of bubbles or ‘ bubble barrier is created by pumping air through a perforated tube laid on the bed of the river. The bubbles created also help to re oxygenate the water way and benefit the ecology.

THREAT OF CLIMATE CHANGE ON RIVER SYSTEMS

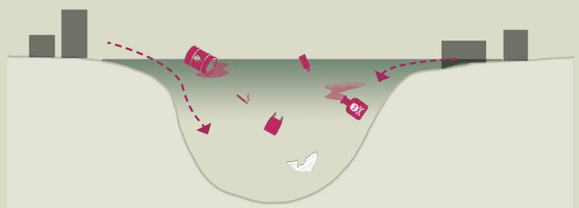
Removing the toxins and large plastics within our river systems is only the first part of addressing the pollutions and threat to aquatic life. The increasing effects of the climate emergency are already and will start to have a big impact on the health of our marine ecosystems. Two big concerns are increasing water temperature and the greater risk of severe and frequent flooding.

FLOODING

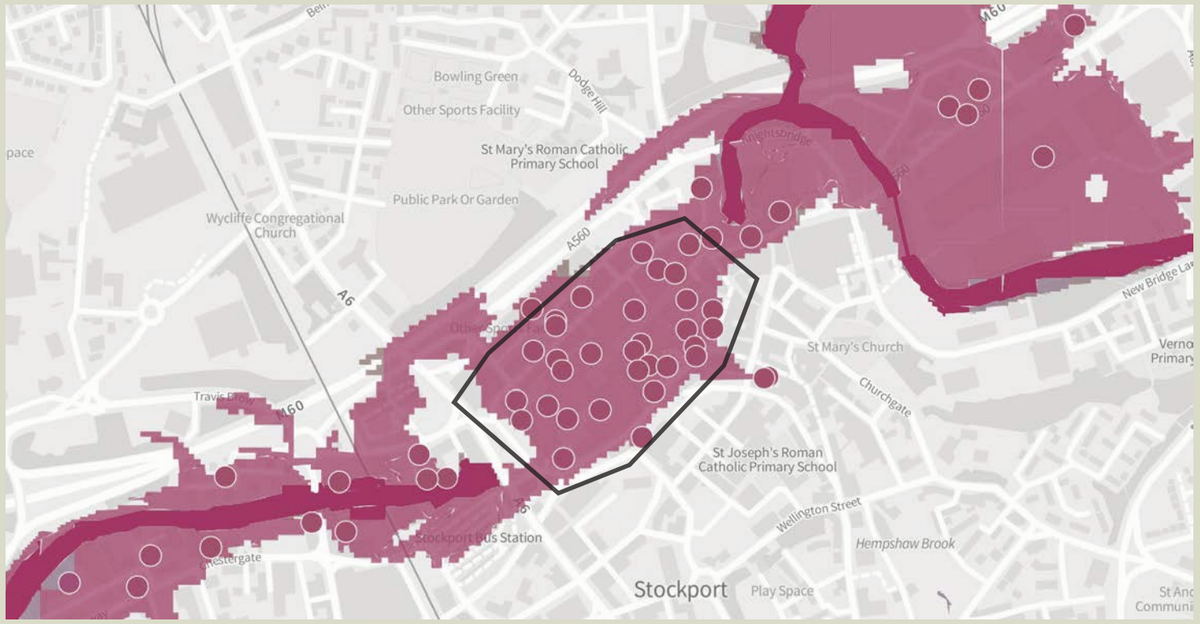
The increased occurrence of flooding due to changing climates leads to large amount of surface run off and breaking banks which introduces many pollutants and chemicals into the river. The map below shows the flood risk for Stockport and the masterplan site. It indicates the risk to not only humans but to the local ecology with built up areas surrounding the river bank increasing the risk of dangerous and toxic run off pack into the river



Average Water Level

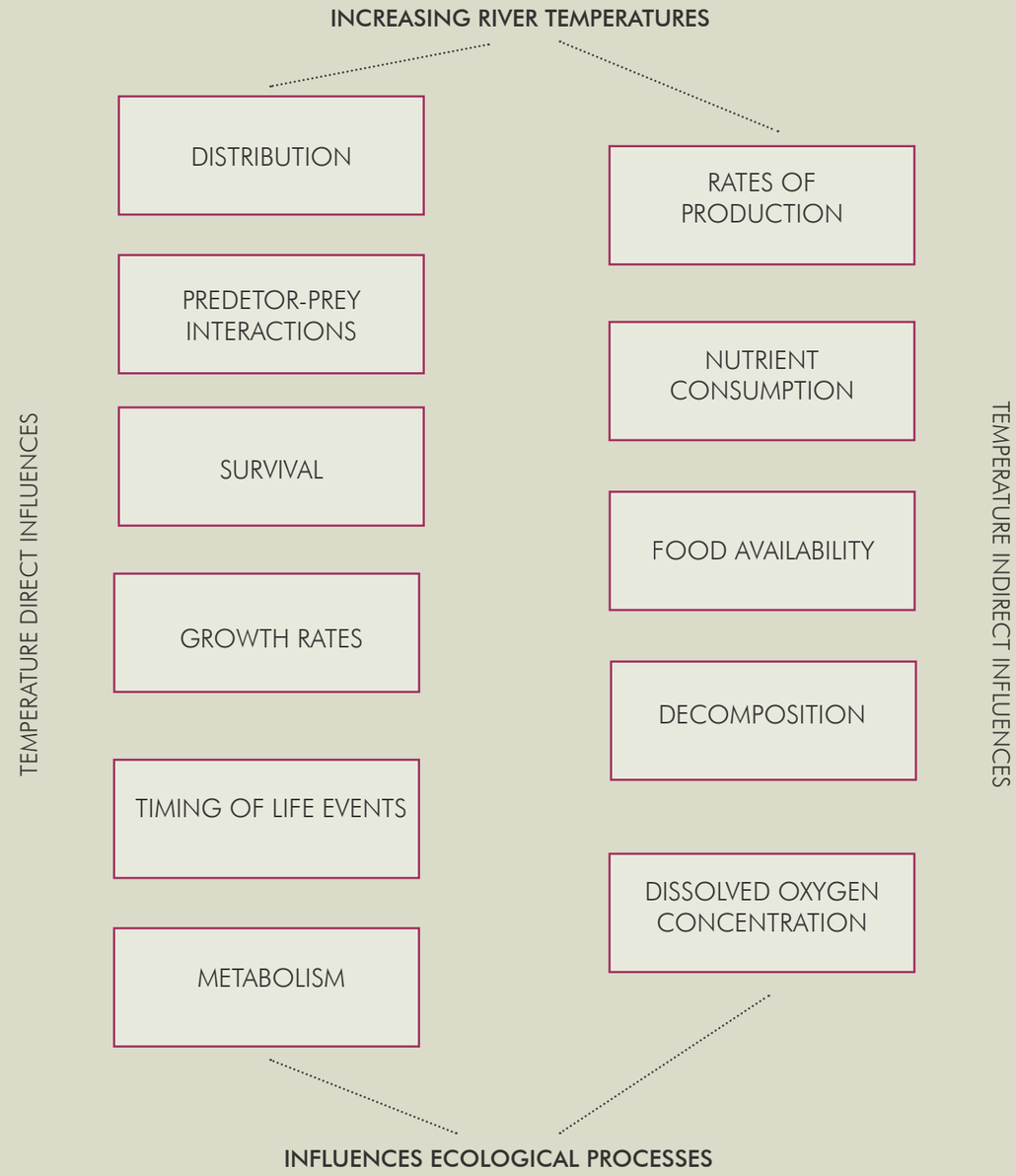


High Water Level



RISING WATER TEMPERATURE

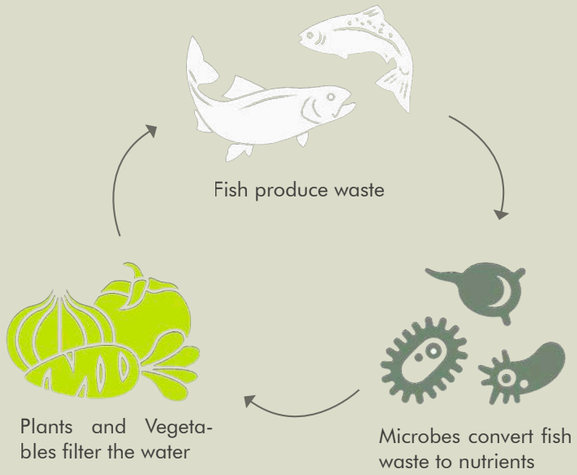
The second mayor risk to aquatic life in river systems is increasing water temperatures due to a general rise in global temperatures. The marine environment can be very sensitive to water temperature changes and even small increases can have a severe effect on the entire ecosystem. Water temperature is recognized by scientists as a 'master' variable in water quality.



CLIMATE MITIGATION THROUGH AQUAPONICS

A solution to filtering and removing the remaining pollution from the river Mersey could be achieved through the utilisation of naturally occurring waste cycling ecosystems. Aquaponics is a system that couples aquaculture and hyrdoponics or simply the cooperation between fish and plants in a closed loop system where nitrifying bacteria convert ammonia into nitrates.

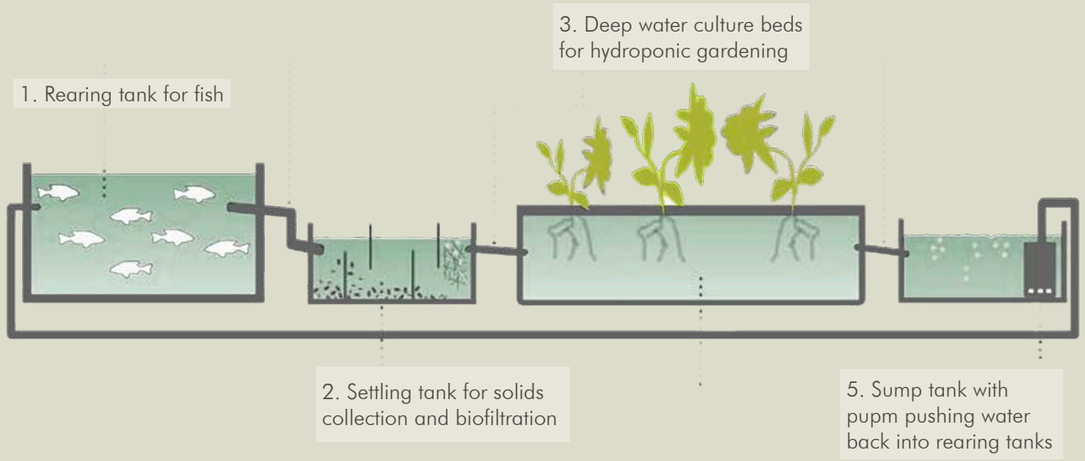
There is a potential to harness these ecosystems to convert polluted water into nutrient and oxygen filled water on site and fed that back ino to the river system whilst also benefiting form the produce that the cycle provides.



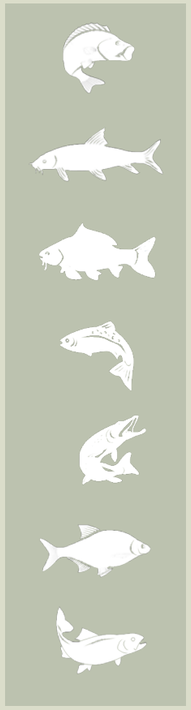
- Sustainable intensive food production system
- Extremely water efficient, requiring 1/16th of the water to produce 8X more produce than traditional agriculture
- Creates little waste as it mimics natures circular approach
- No fertilization or chemical pesticides used in production
- Easier than soil to control on production leading to lower losses
- From a nutritional point of view, aquaponics provides food in the form of of both protein and vegetables

- Higher level of biosecurity and lower risks from outer contaminants
- Requires daily tasks, harvesting, and planting which are labour saving and therefore can include all genders and ages
- High initial start up coast compared with soil production systems
- Daily management is needed meaning organization is critical
- Requires deep expertise in the natural world in order to be successful

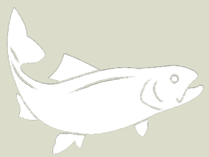
AQUAPONICS SYSTEM



FISH FOUND IN THE MERSEY



FISH USED MOST IN AQUAPONICS



SALMON

- Social fish and tolerant and friendly with other species
- They have a high tolerance for cold conditions
- Delicies and very health to eat
- Require more food than other fish
- More liklely to contract diseases than many other fish species

TROUT

- Tastes good and is loaded with protein and omega fatty acid
- Ideal in colder climates
- Varied diet including fish, incests and invertebrates
- Slow growth rate
- Require plenty of space to ensure proper growth
- High dissolved oxygen levels

PERCH

- Very tolerant of temperature changes, PH and ammonia levels
- Extremely tolerant fish providing of similar size
- Nice tasting fish
- Difficult to breed in an aquaponics system and requires lowering the water temperature
- If conditions are right they breed fast

*Opportunity for fish spawned through the aquaponics system could be released back in to the Mersey to increase local populations if the system becomes full due to over breeding.

AQUAPONIC SYSTEMS TYPES

OPEN SOURCE

Open source aquaponics systems are usually in the form of floating wetlands that are using technology that biomimics nature, using biomaterials and plant biology to restore and remediate natural balance through non toxic and sustainable processes.

These floating aquaponics systems help to support wildlife by providing fish habitats within the root zones of the plants, protection from predatory birds, nesting sites for endangered water birds and spawning protection for eels and frogs. They also operate as a source for food production which brings another yield source for fish farmers will simultaneously prevents build up of nutrients, with plant roots up-taking excess nitrogen and phosphorus, assisting with de nitrification underneath the raft. They take the best of what nature has developed naturally to tackle pollutants that run-off from farming, industrial and urban areas and are up to x200 times more efficient than conventional constructed wetlands

The added benefit for the farmers is that due to their flotation they are safe from the risk of floods that would devastate soil based crops.

AquaBiofiler floating wetlands project, Australia

Potential for introduction of floating aquaponic systems into the river Mersey within the proposed masterplan. Many benefits for aquatic and non aquatic species and also helps with the de nitrification of the body of water. Potential limitations however could be the scale and accessibility. Many of these existing successful systems are on large bodies of water and are largely effective due to the vast area they can cover. There is also the fact the Mersey may be too polluted to support this aquaponic cycle in the immediate term and the river would need to be cleaner before this fully open source system could be viable.

Growing rice aquaponics on fish ponds in China

CLOSED LOOP

Closed loop aquaponics is the more traditional system used for large scale commercial farming and food production. Within a closed loop system the water is recycled and circulated around the system and through this process naturally cleans itself as well as providing all the nutrition and food sources for the fish and plants to thrive. These systems typically operate in controlled environments such as large greenhouses or outdoor environments with suitable climate conditions. This system doesn't require the energy or labour demands that soil based or open source farming systems need.

For a productive and efficient system that produces hight yields of both fish and produce the closed loop system would be the most effective. However there are several potential limitation to consider. The climate in Stockport is not best suited for an outdoor open weather facility therefore a more climate controlled environment would need to be set up to generate quality yields. The other factor to consider is the aim of the scheme is to help process and clean the river and in a closed system the water only cycles through the aquaponics and wouldn't be beneficial to the Mersey or the external ecosystem . With that in mind a potential hybrid system that uses the river water as the source for the auqaponic cycle which filters clean water back into he Mersey could be a viable solution.

SCALE OF CROPS GROWN:

SMALL

- LETTUCE
- BASIL
- WATERCRESS
- KALE
-OTHER HERBS

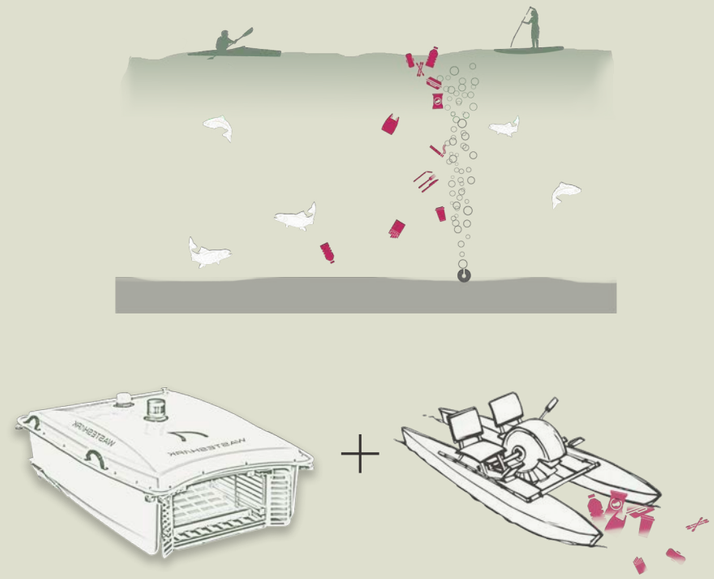
LARGE

- TOMATOES
- PEPPERS
- CUCUMBERS
- CAULIFLOWER

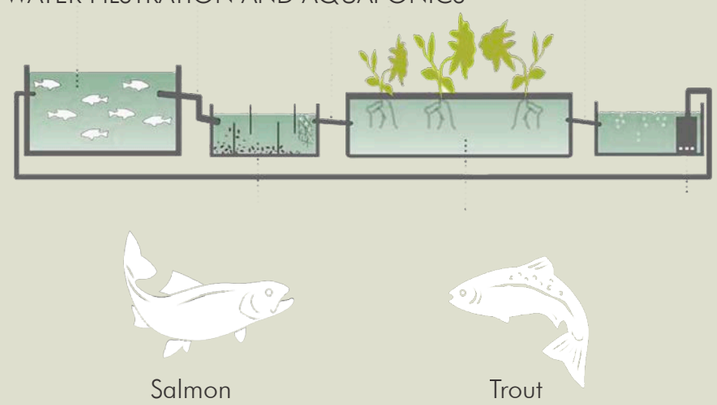
SITE LOCATION AND CONCEPT PROPOSAL

For the location of the site within the masterplan it made logical sense to place the water treatment and plastic collection as far up stream as possible to help try and clean up the river for use further down the masterplan . I Therefore have looked at using potentially three plots for the whole process. Plot 5 as a way of managing the water level and diverting part of the river into the site, primary purification and plastic collection. Plot 4 will re use the existing concrete structure to create the auqaponics systems and related services and public access. Finally plot 3 will be a landscaped bank that filters the water back into the river through a series of external aquaponic ponds.

PLASTIC COLLECTION STRATEGY



WATER FILSTRATION AND AQUAPONICS



EXCHANGE

SEWAGE DISCHARGE NETWORK

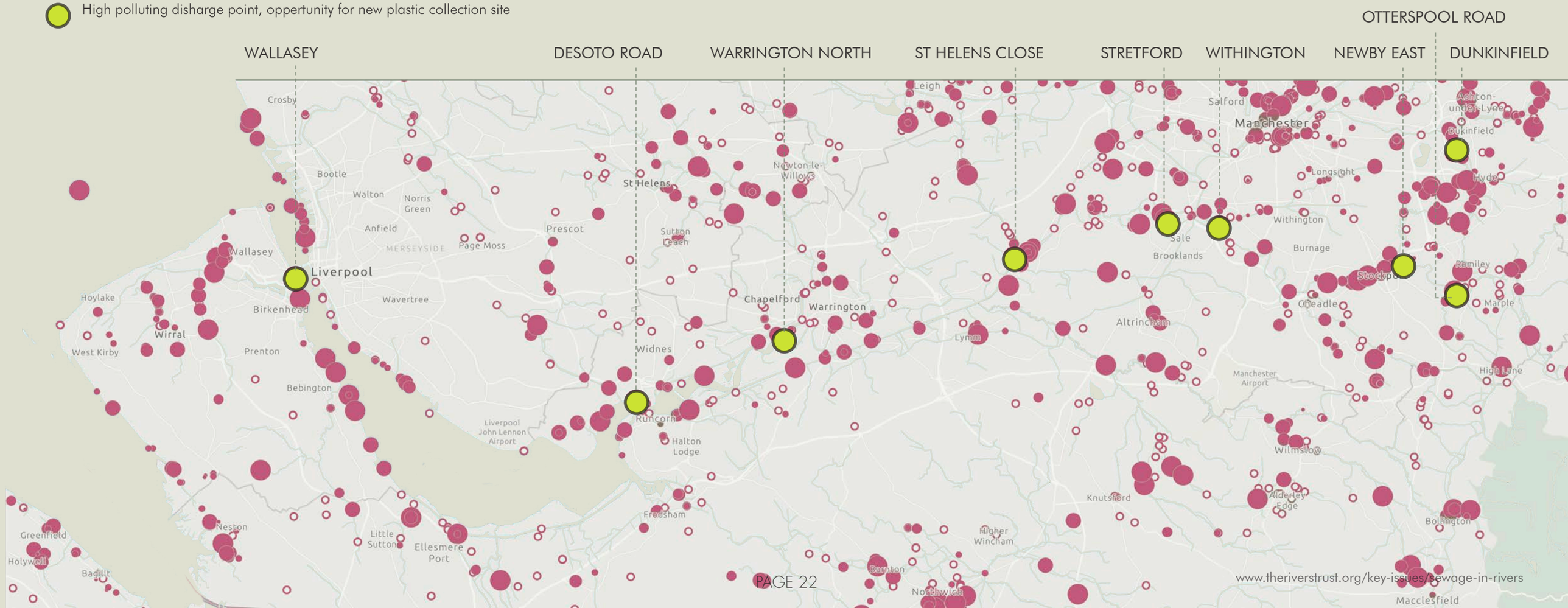
The other issue facing Britain waterways which is affecting both people and wildlife is the the sewage that is discharged into the rivers on a daily basis. The map detailed below shows (in purple) the locations of sewage discharge across the north east and highlighting in particular the main contributors to the sewage spilled into the rover Mersey.

I have identified 9 of the worse polluting sites, seven of which sit downstream of the Merseyway proposed site. these locations could be used to identify possible sites for a an expanded scheme with future facilities being placed near the source of these polluting points to mitigate the damage they are having on the natural environment. My proposed scheme in Stockport could be used to respond to the discharge locations upstream with the site at Dunkinfield spilling inti the river Thame and Otterspool Road feeding into the river Goyt. These rivers both merge just before the masterplan site and form into the river Mersey.

Storm drain location	Number of Spills (2020)	Total hours of discharge
Dunkinfield	217	3640
Otterspool Road	174	1280
Newby East	92	200
Withington	182	523
Stretford	119	1212
St Helens Close	217	2871
Warrington North	135	1352
Desoto Road	123	1089
Wallasey	281	1301

Location of sewage disharge point

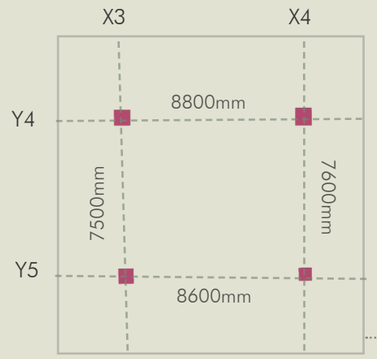
High polluting disharge point, oppertunity for new plastic collection site

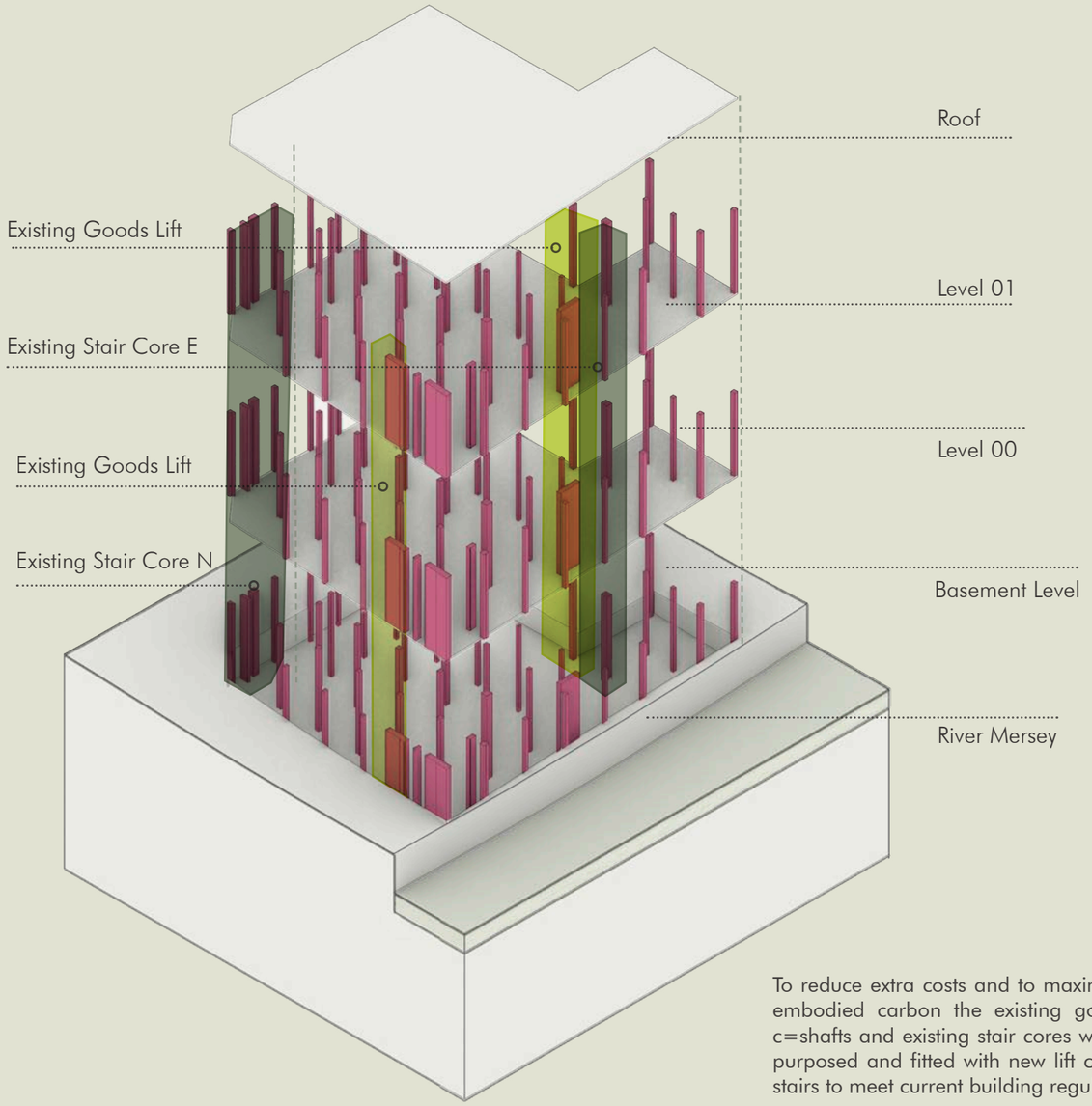


www.theriverstrust.org/key-issues/sewage-in-rivers

EXISTING STRUCTURAL ANALYSIS - Why so Wonky?

Once stripped back to its core concrete frame it is clear to see a lot of irregularity within the structural grid and column sizes of this site. Discussions with structural engineer provided possible explanations for the unusual state of the existing structure. The various difference in column sizes potentially could have been due to over cladding of columns, covering services and pipework that when surveyed where drawn as the dimension of the column itself. The irregular structural grid may have been caused by the phasing of the building and the surrounding construction of other sites. The reuse project will work within the existing structure and accommodate the quirks of the concrete frame.





To reduce extra costs and to maximise the embodied carbon the existing goods lift c=shafts and existing stair cores will be re purposed and fitted with new lift cars and stairs to meet current building regulations

EXISTING PLAN

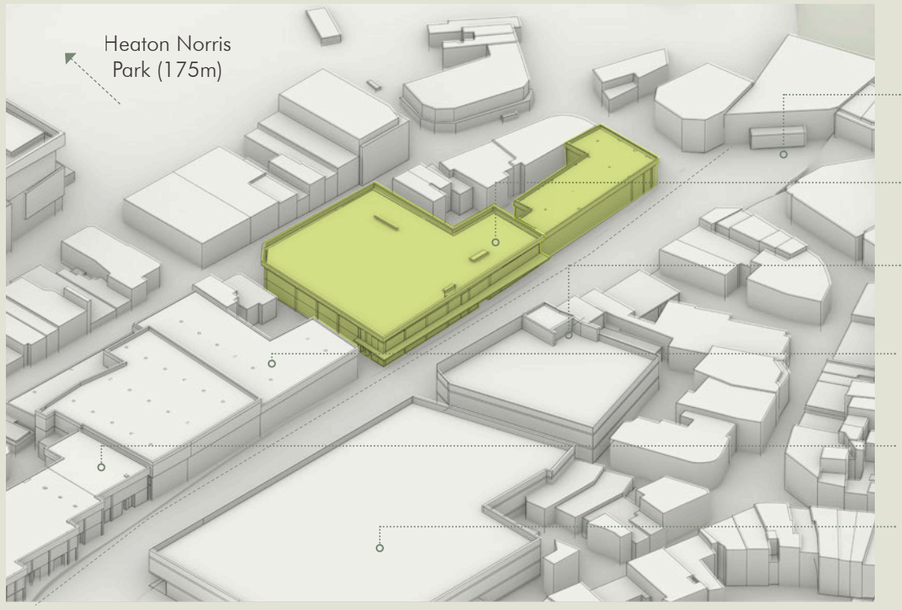
COLUMN STUDY

STRUCTURE MATERIALITY

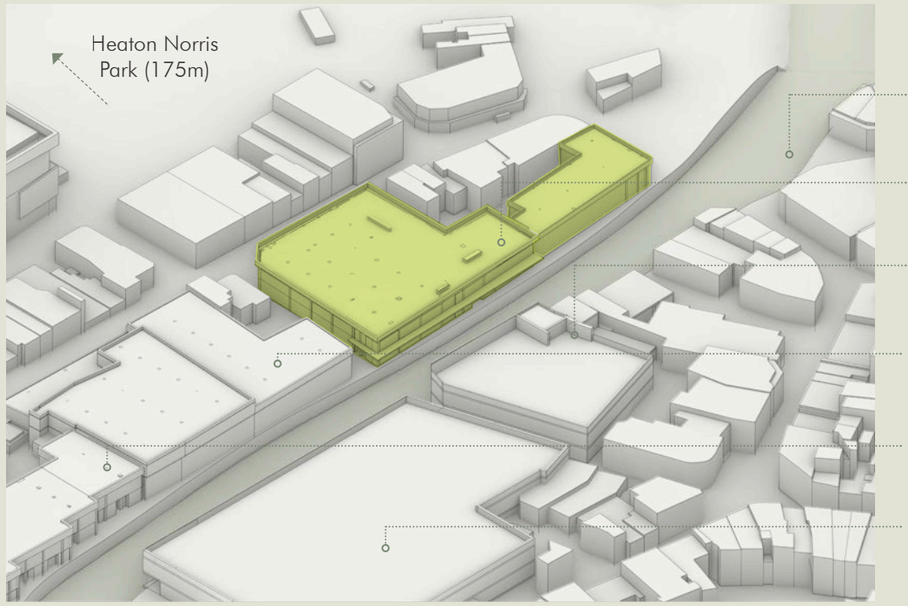
The existing structure of plot 4 consists of a pre cast concrete structural framework. The columns sizes vary across the floor plate but are within a range of 550mm to 700mm. The floor slabs are pre cast concrete 300mm. Due to limited existing drawings some of the structure is unknown but conversations with structural engineers they can be assumed that there are a series of edge beams around the perimeter and the basement ground slab is projected to be 500mm thick with concrete footing foundations.

MASTERPLAN DEMOLITION STRATEGY

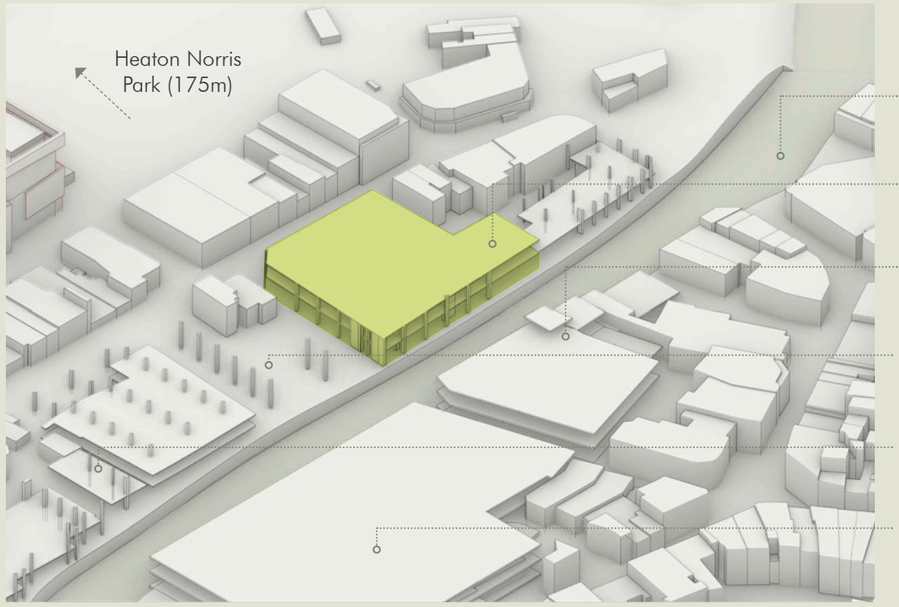
1. EXISTING MERSEYWAY



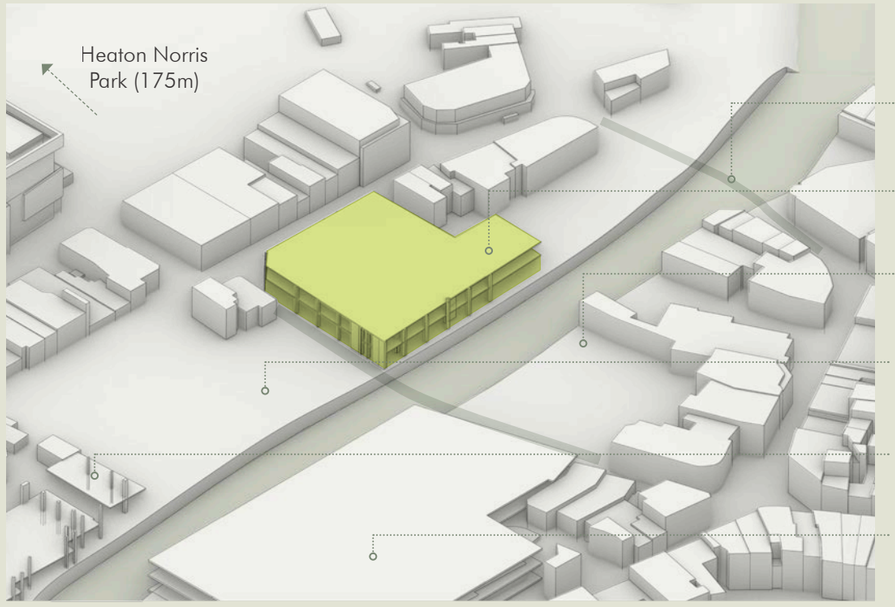
2. DAYLIGHTING THE MERSEY



3. EXPOSING THE STRUCTURE



4. DEMOLITION OF STRUCTURES



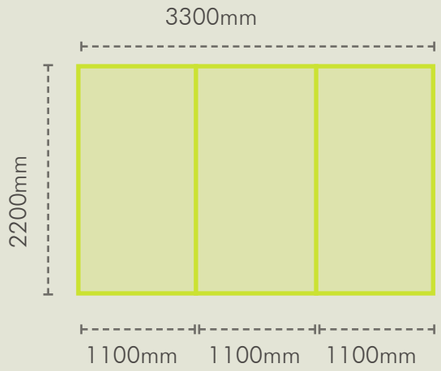
MATERIAL REUSE STRATEGY - ENVELOPE

GLAZING

As part of the environmental and sustainability goals for the project the reuse of glass from the existing merseyway shopping centre atrium could be re purposed and fitted within the new structure. Helping to reduce energy of construction and boosting the embodies carbon remaining within the masterplan.

Merseyway Shopping Centre Roof

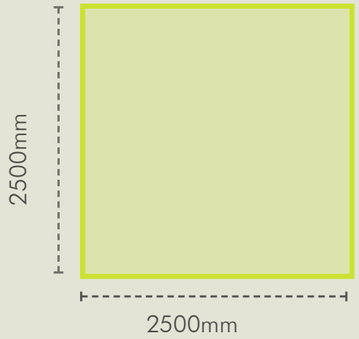
A feasibility study would need to be completed to analyse the existing glass type and condition to understand if it would be practical and energy efficient once repurposed.



X156

Existing roof glazing panels on the merseyway atrium could be extracted and re purposed within the new scheme. There are 156 pains of 3000mm x 1000mm to be salvaged

Merseyway Shopping Centre Entrance

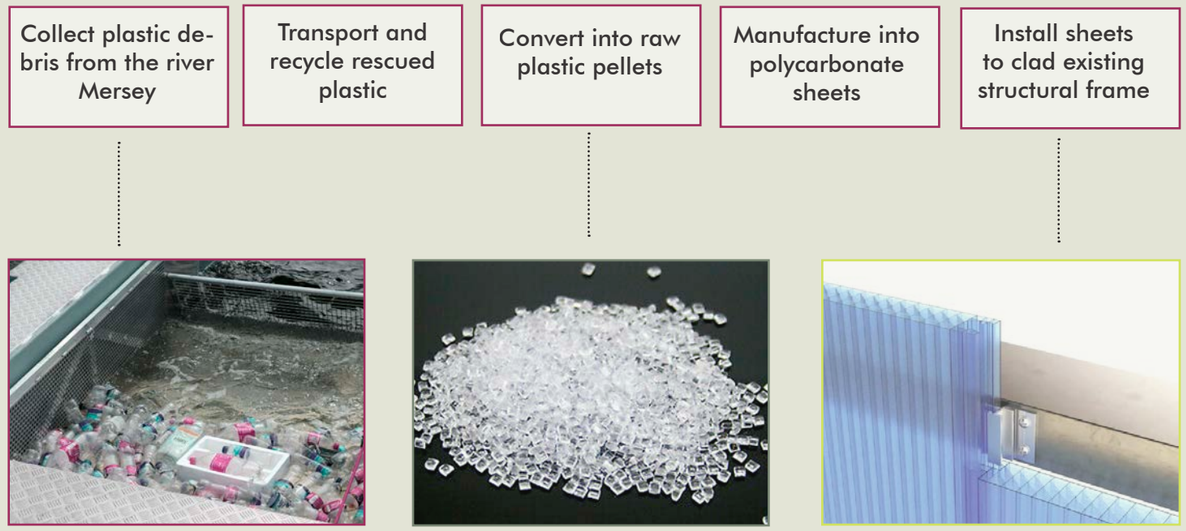


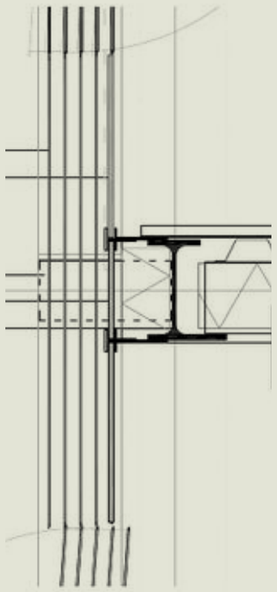
X25

There are potentially 25 larger pains of 25000mm x 2500mm available for reuse from the main entrance of the Mersey way as well as the corresponding internal elevation

CLADDING

A strategy for creating a sustainable facade involves collecting the plastic debris that is collected form the river mersey and recycling the plastic to create polycarbonate sheets that an be used to clad the existing structure.





SPACIAL REQUIREMENTS

SCALE OF REQUIRED SPACES & EQUIPMENT

BUBBLE BARRIER - 30m
Runs diagonally across the bed of the river and is angled towards the riverside at plot 5. Bubbles oxygenate the water and push plastic towards conveyor belt.

PEDALO DOCKING STATION - 3.7m x 26m
Running parallel to the river Mersey, the docking area can accommodate 6 -7 pedalos. These pedaloes are used by the public for recreation but also collect plastic waste

PLASTIC CONVEYOR BELT
The Conveyor Belt extracts the plastic waste from the river at the end of the bubble barrier and transfers it out of the water in waster containers.

WASTE STORAGE CONTAINERS
Plastic waste from the river is deposited into a number of containers that once full are transferred to a larger waste storage and sorting facility.

FISH REARING TANKS - 3.5m diameter
Tanks used to spawn and rear young fry before being transferred to the larger river water tanks

RIVER WATER FISH TANKS - 3.5m x 17.5m
Tanks that are fed by the river water passing through. These house the older fish and contribute to the aquaponics cycle. They help filter the water and allow the fish to acclimatise to the river water before being released or sold.

SEDIMENT TANK - 2.2m diameter
Removes the large solid sediments from the fish tanks and filters harmful waste out of the system

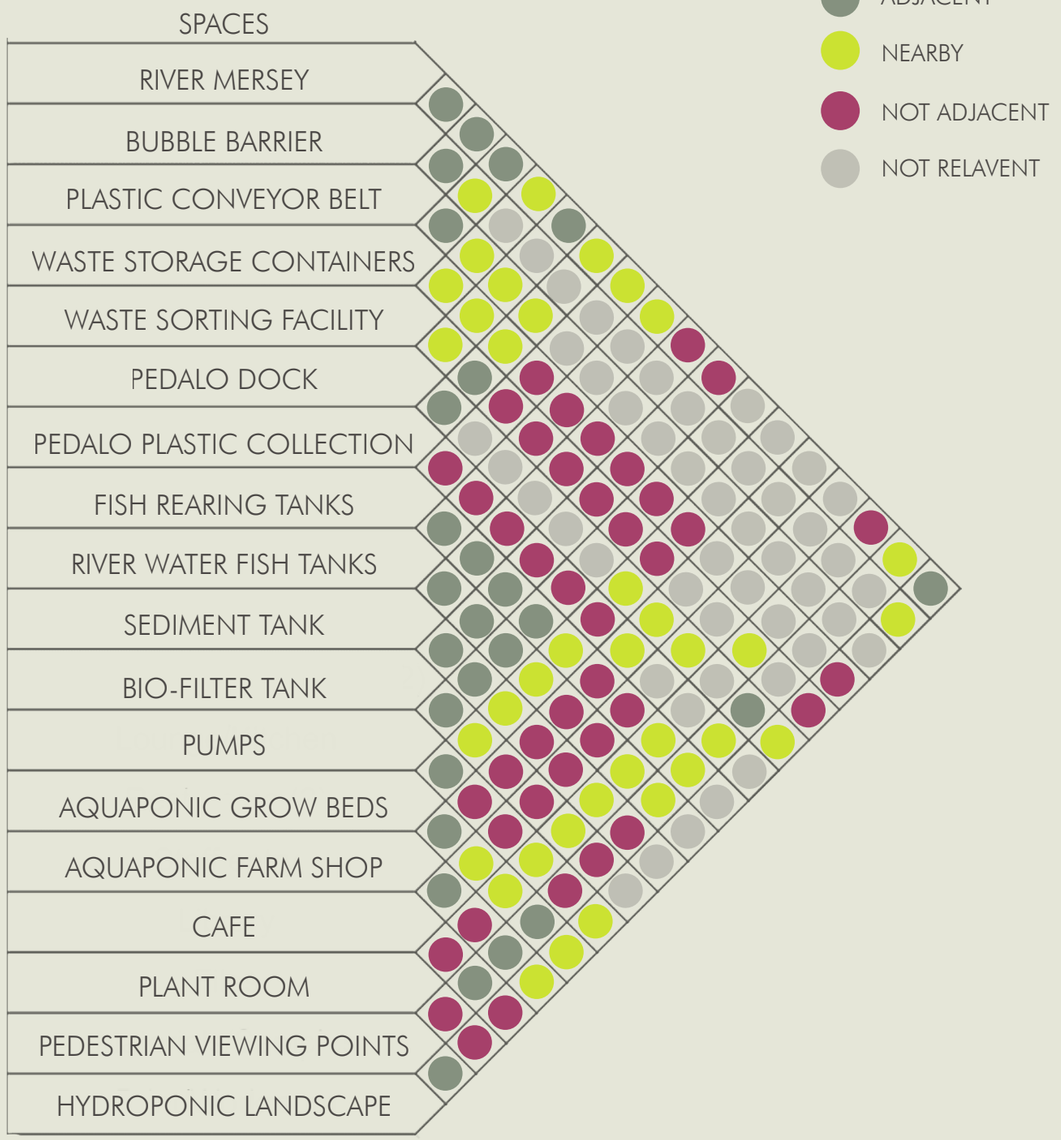
BIO-FILTER TANK - 2.2m diameter
Large surface area filters converts waste into nitrites, other bacterium then turns that nitrite into nitrates which fertilisers plants and cleans the water

PUMPS - 3m
Pumps water around the system from basement to level 00, while gravity brings water back down to complete cycle.

HYDROPONIC GROW BEDS - 1.5m x 21m
Grow Beds produce the food from seedling to finished item using long horizontal tanks where the grow trays pass down

VERTICAL HYDROPONICS -
Growing produce vertically through voids and setting up systems that span beams and around columns

ADJACENCY MATRIX



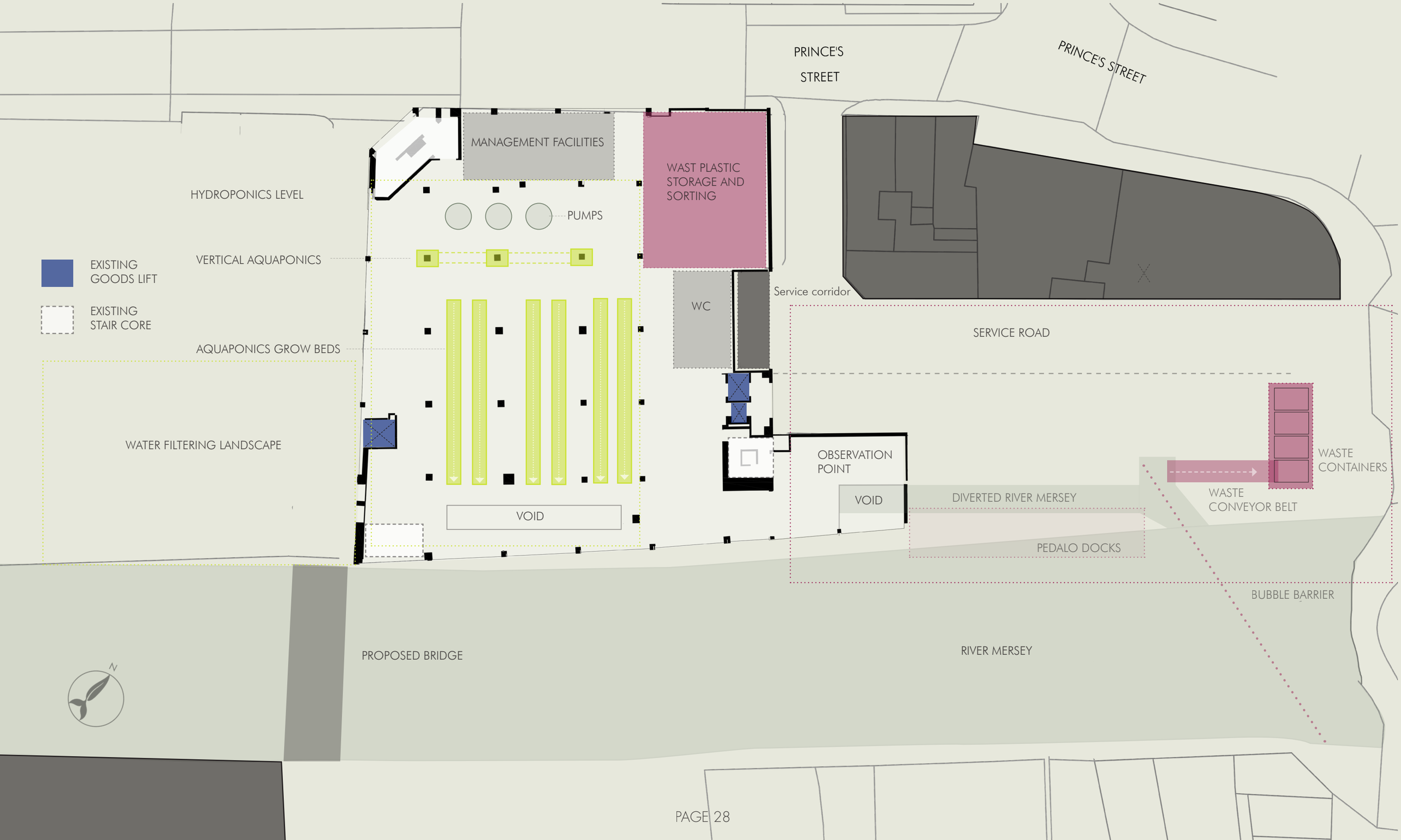
This adjacency matrix diagram analyses which spaces and types of equipment need to either be adjacent to each other within the site, nearby whether visually or physically or they need to be separated. It is clear there are clusters of spaces that need to neighbour each other which makes sense for a farming system which include the aquaculture equipments along with the hydroponic systems. However due to the addition of the river plastic collection concept of the programme there are certain spaces that would be ideal to separate for various reasons. This matrix will help to inform the initial spacial plan for the whole scheme and help optimise the success of the proposal.

SPACE PLAN - BASEMENT

Design development

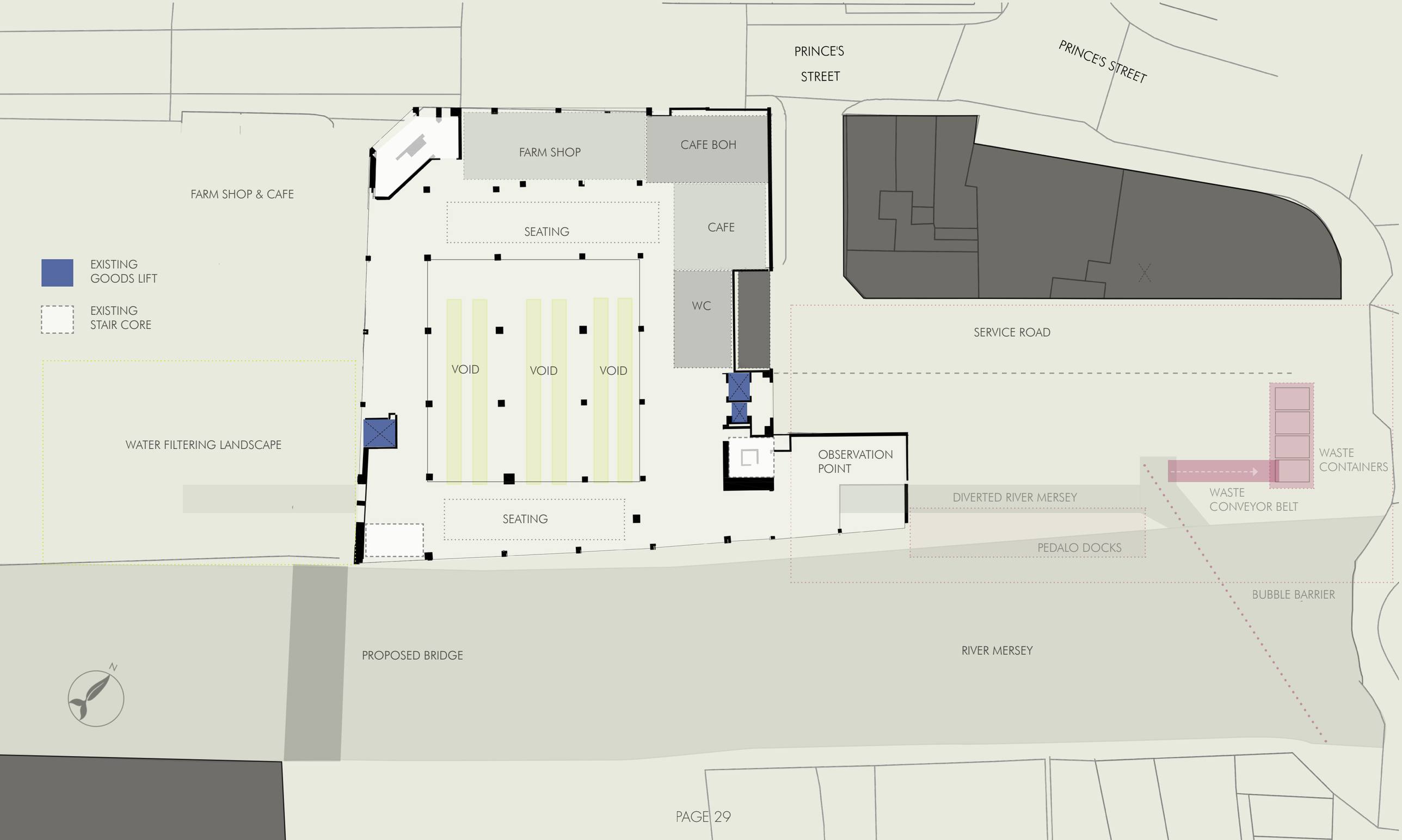
SPACE PLAN - LEVEL 00

Design development



SPACE PLAN - LEVEL 01

Design development



PLASTIC COLLECTION SYSTEM - CLEANING THE MERSEY

The Plastic recovery system uses inovative tehcnolgy mixed with old fashion enhinerering to help depollute the mersey from hazardouus plastic waste. The cleaner the river becomes the more effecient the aquapnics system and the more nature can be encourged into the masterplan. The system can be constantly running to remove as much plastic as possible and can operate all year round. The Water wheel which scoops the plastic from the river is turned using the flow of the river water and therefore will also generate renwable energy which can be distributed within the building to power other enerrgy demands.

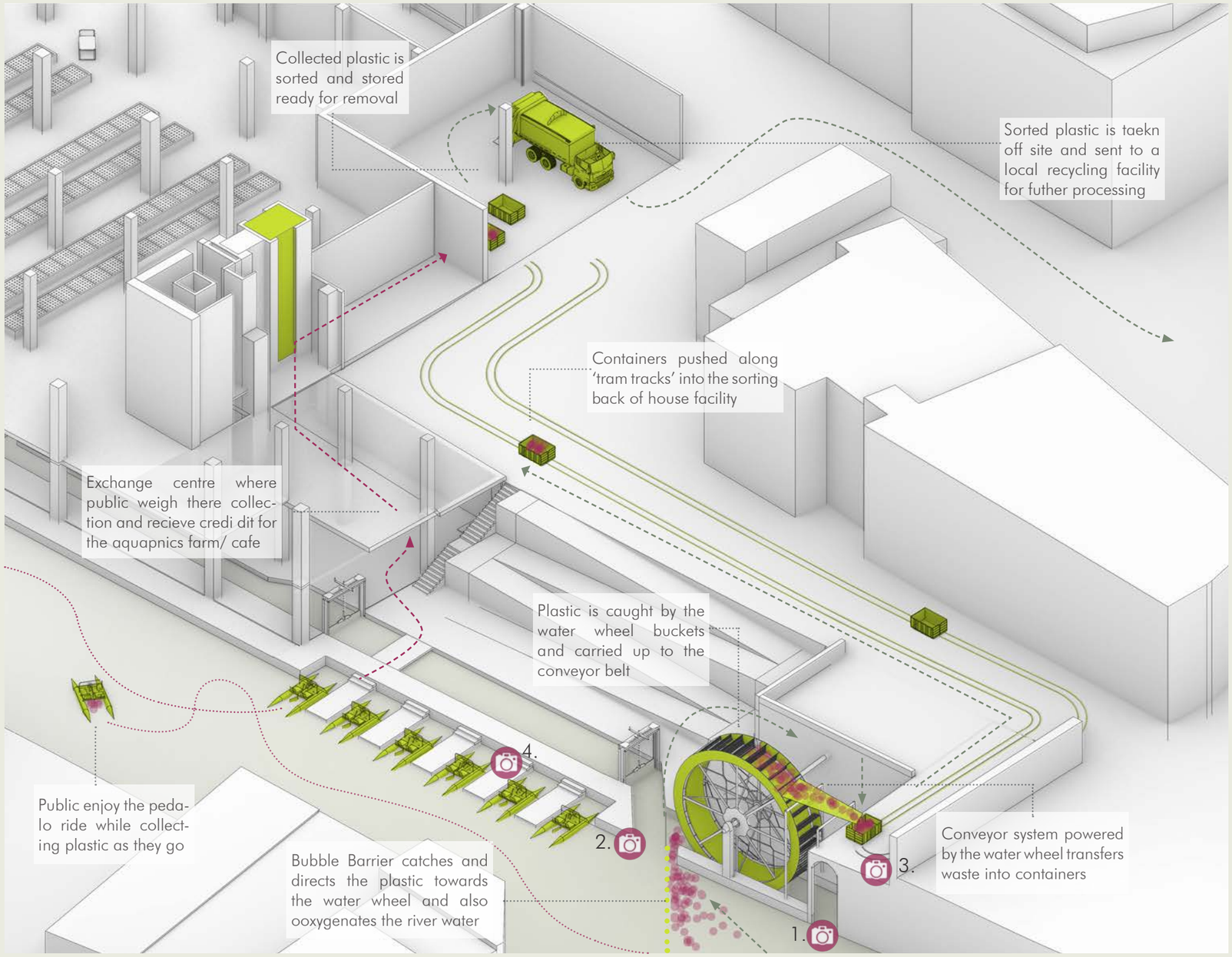
STAKEHOLDERS

PUBLIC/ COMMUNITY - Collect plastic on pedalos, help clean up there local environment

PLASTIC COLLECTION MANAGEMENT

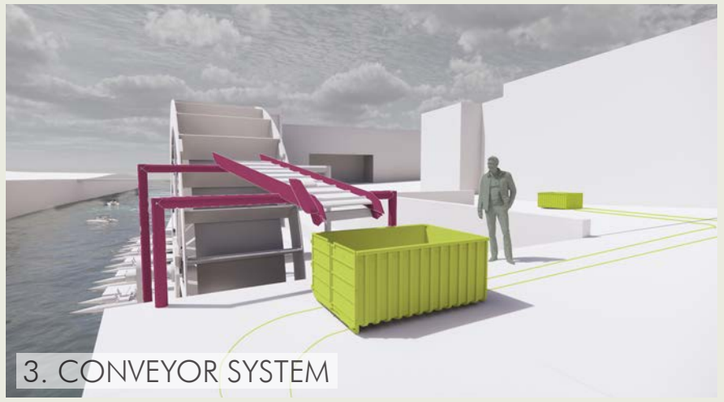
AQUAPONIC FARM EMPLOYEES

WASTE RECOVERY COMPANY



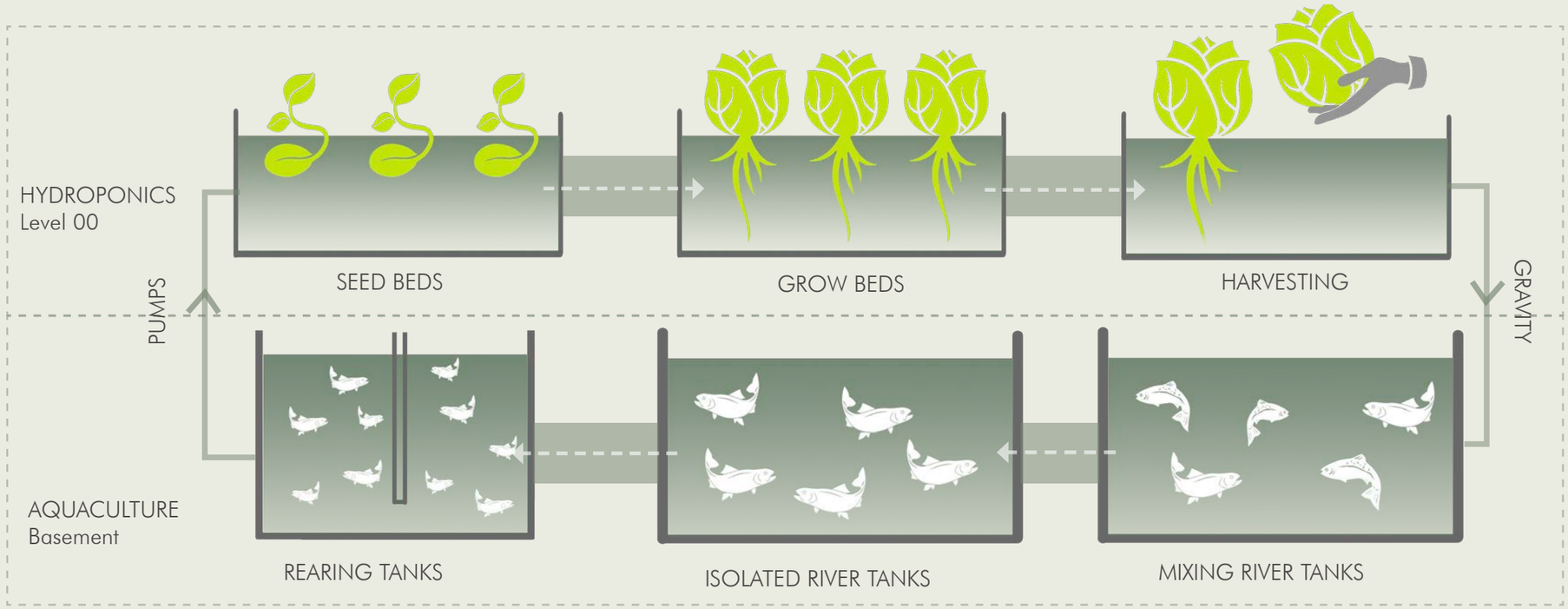

1. BUBBLE BARRIER


2. WATER WHEEL


3. CONVEYOR SYSTEM

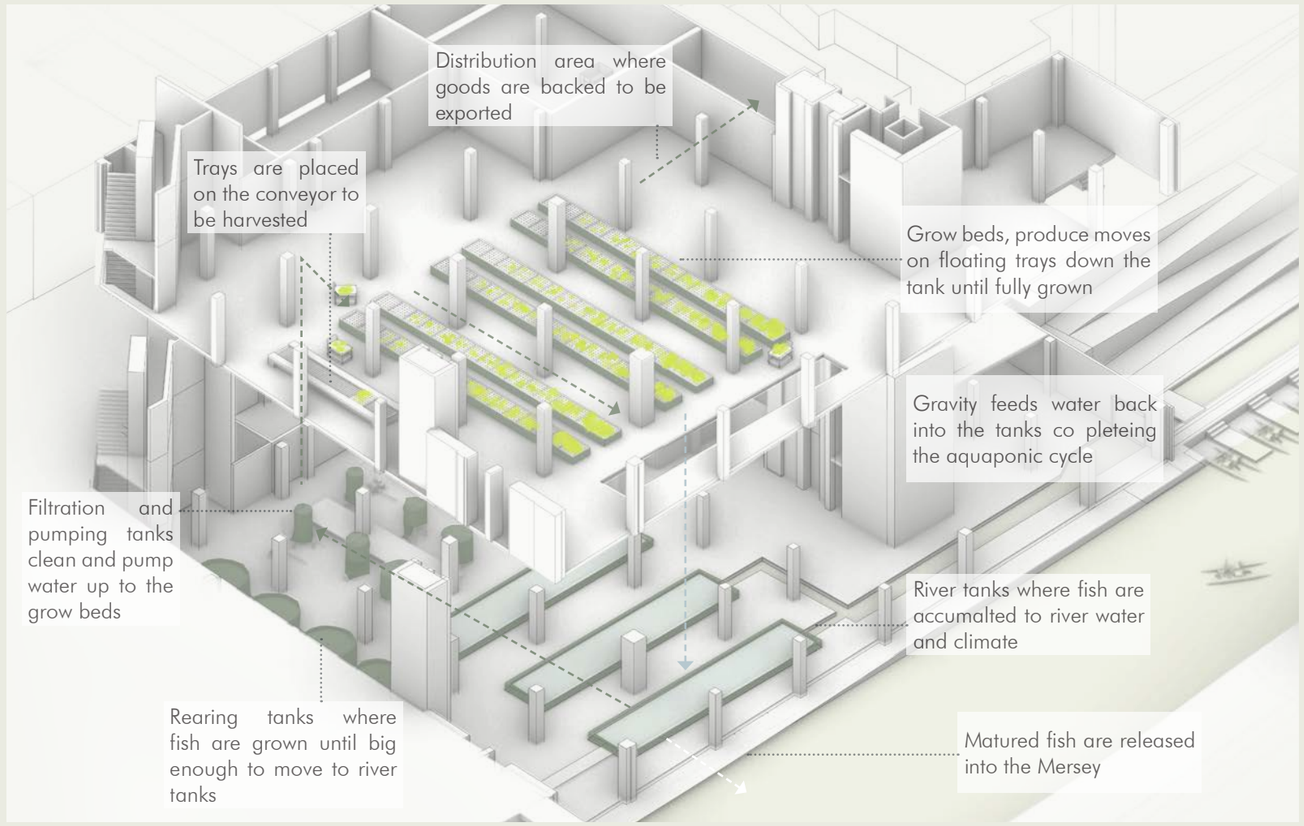

4. PEDALO COLLECTION

AQUAPONICS LIFE CYCLE - COMMUNITY ECONOMY



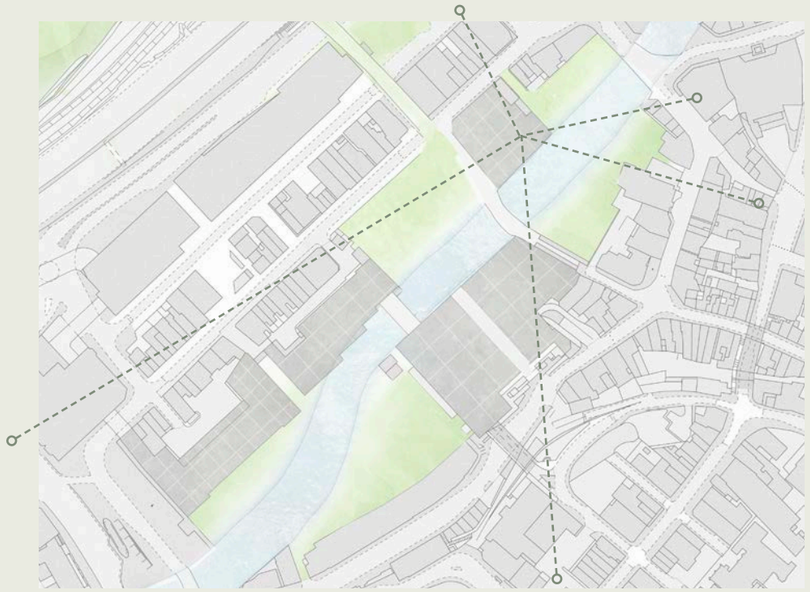
Percentages

	VEG	FISH
EXCHANGED ON SITE	10%	
SOLD ON SITE	20%	5%
COMMUNITY COM-MERCIAL OUTLETS	70%	15%
RELEASED INTO MERSEY		80%



POTENTIAL COMMUNITY PARTNERS NETWORK

- Where the Light Gets In
- Stockport Market Hall
- The Forester's Arms
- Rozaya
- Laco Cafe & Bistro
- Aquaila Nera Restorante
- The Easy Fish Co.



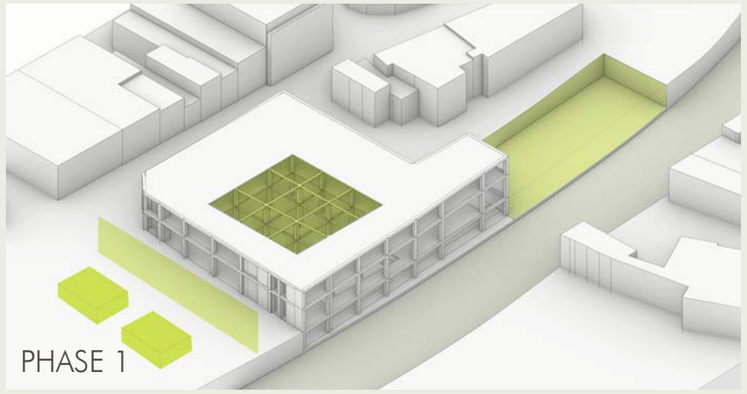
RIBA PLAN OF WORKS/ SUSTAINABILITY GOALS TRACKER

0 STRATEGIC DEFINITION	1 PREPARATION & BRIEFING	2 CONCEPT DESIGN	3 SPACIAL COORDINATION	4 TECHNICAL DESIGN	5 MANUFACTURING & CONSTRUCTION	6 HANDOVER	7 USE
The best means of achieving the client requirements confirmed This stage is more strategic, focusing on studying the pros and cons , risks and budgets to allow for a comprehensive analysis of available options to the client. The most suitable option is chosen. The development of the client requirements and business case should involve the key project stakeholders as well	Project Brief approved by client, & confirmed that it can be accommodated on site	Architectural Concept approved by the client and aligned to the project brief	Architectural & Engineering information spatially coordinated	All design information requires to manufacture & construct the project	Manufacturing construction & commissioning complete	Building handed over, After-care initiated, building contract concluded	Building used, operated and maintained efficiently
RIBA SUSTAINABLE OUTCOMES		Prioritising retro fit/ reusue of existing building and retianing the structural form Creating 'productive landscapes' for urban food production through the aquaponics system Leaveing the site in a better ecological condition through the cleaning of the mersey	Re-use of on site materials such as precast concrete, masonary stone and glazing panels Prioritieses maximum use of onsite renewables through the water wheel to generate hydro power Providing spaces with strong visual conetion to outside through windows and balconies.	Prioritise low embodied carbon through recycling of plastic to create polycarbonate facade system Building desisned to be disassmbled with facade and interal equipment recycled in circular economy	Creating sustainable urban drainage that supports nartual aquatic habits and human amenity through river and aqyaculture system Flood resisting basement walls to mitigiate against the increase risk of floods due to climate change	Providing infastructure for electric vechiles such as charging and Creating places for local interation through the exchange programme of plastic to produce Offering a rnage of green spaces such as green roofs, internal planting and external landscaping	Creates habitats that enhance bio-diversity through the depollution of the river and reintroduction of fish into the ecosystetm Monitoring opperational maintiance, managemnt and energy costs of building
CLIENT TEAM	Specialists to help refine Project Brief and carry out feasibility report. Engineers or surveyors to asses project risks	PRE-PLANNING ADVICE	Client team involved in areas where client decision is required	Client monitoring team may be appointed to review information	Contributions depend on Procurement strategy and how client decides to carry out construction quality checks	Building handed over to the client	Those involved in ongoing Asset management and facilities management will support the users
Consists of client representative, advisors, consultants and mangers CLIENT REQUIREMENTS & BUSINESS CASE	PROJECT BRIEF						
DESIGN TEAM		ARCHITECTURAL CONCEPT ITERATIONS Concept is developed with feedback from key project stakeholders and specialists	DETAILING & DESIGN STUDIES Lead designer & design team are key during this stage	Design team and specialist subcontractors employed by contractors to complete design at this stage	Contributions depend on procurement strategy	Project team required for a project performance session	Design team no longer involved but design team members may carry out post occupancy evaluation
CONSTRUCTION TEAM			Contractors or specialist subcontractors may be involved at this stage to provide some input	TENDER DRAWINGS & SPECIFICATIONS Design team and specialist subcontractors employed by contractors to complete design at this stage	CONSTRUCTION SET OF DRAWINGS BUILDING CONTRACT Construction team are primary contributors at this stage	FINAL CERTIFICATE Construction team closes the building contract and finishes the project	

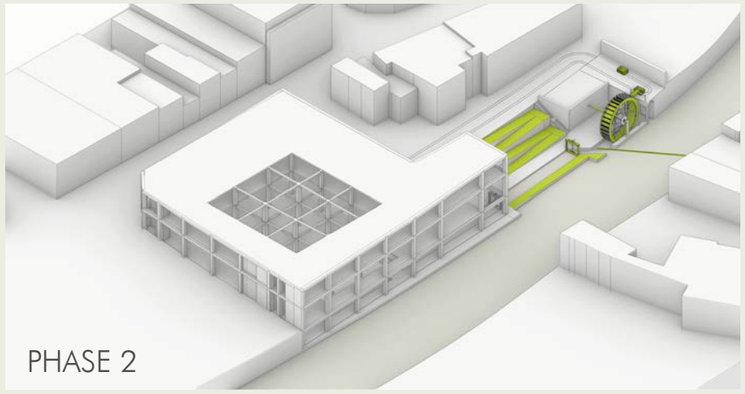
CRITICAL REFLECTION

Based on the plan of work procured it has been indicated that the projetc would take 2 years, 5 months. However this could be subject to change due to the complex nature of the scheme there may be mitigation circumstances at certain stages that could result in set backs in the project timeline.

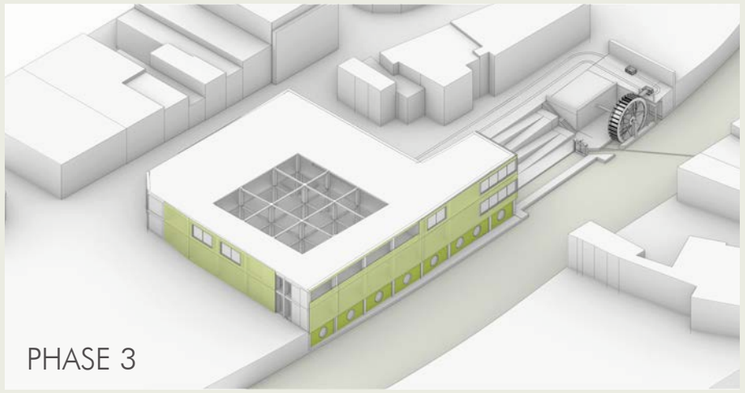
CONSTRUCTION PHASING AND PROJECT SCHEDULE



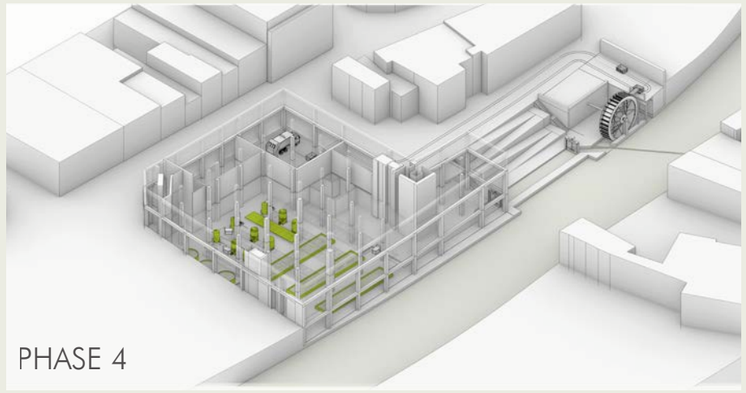
Masterplan demolition and daylighting the river Mersey. Stripping of existing facade with storage of reusable materials on adjacent plot 3. Survey of remaining structure to establish condition and possible repairs. Removal of existing stair access and lifts. Punch voids through existing floorplates.



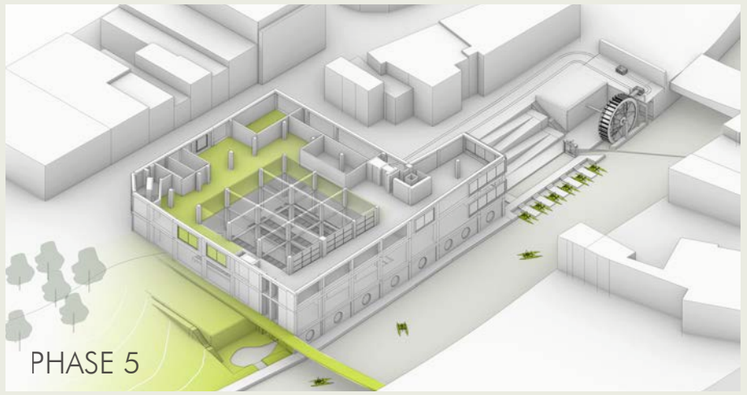
Excavation of plot 5 to divert river into the site. Instillation of waterwheel and plastic collection system with conveyor system and plastic waste sorting and storage. Begin the recycling process and river clean up. Plastic collected to be used to recycle and create part of polycarbonate facade system.



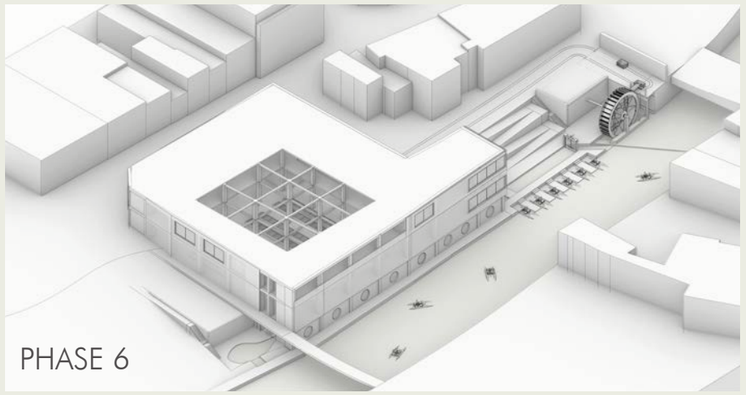
Installation of facade system. Recycled masonry and concrete used for flood proof basement cladding. Reuse of concrete to clad services areas. Polycarbonate panels manufactured of site installed around levels 0 and 1. Glass panels reused from merseyway entrance integrated into polycarbonate and roof glazing systems



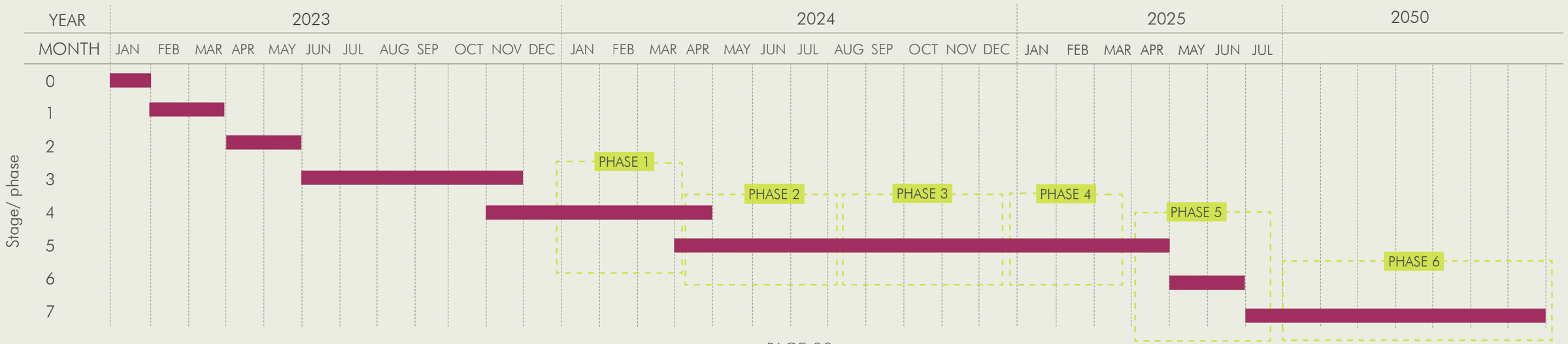
Instillation and set up of Aquaponics system (aquaculture and hydroponic) with diversion of river into the basement level. Pumps and other mechanical and electrical services installed. Start the water cycle through the system to check water levels and test quality. let system settle and begin filtering water before adding the fish and plants into the system once all checks are cleared.



Introduction of pedalos, cafe and farm shop to complete the exchange programme. Aquaponics system in full production and producing produce and fish. Building operational while landscaping is sculpted and planted on plot 3, once complete the site and exchange programme open to the public.



2050: Project in full operation, de polluting the river through plastic collection and water filtering through the Aquaponics system. Due to higher water quality the system is operation more efficiently and producing higher yields of produce and restocking the fish population of the Mersey with the release of salmon and trout back into the ecosystem. Landscape has rewilded and matured.



CONSTRUCTION DETAILS - TECHNICAL DRAWINGS

MATERIAL STUDY

MOSS ROOF

Green roof finsih allowing moss to grow across the entire roof. Not accessable by humans to allow nature to take over and rewild the top level of the building.

POLYCARBONATE

Polycarbonate glazing system recycled using plastic collected from the river. Panels of 40mm thick by 400mm wide.
- Filters 99% of harmful UV light.
- B-s2-d0 Euroclass fire rated equivalent UK class 0 (Part B2 compliant)
- Low thermal transmittance, U value of 0.82W/m2
-Withstands extreme temperature
- Fully recyclable post use

FLOOD GLASS

Special bespoke flood defence glazing pains that are desinged to withsatnd large flooding event. Only new glazing in the sheme all other windows are resuing glass panels from the Merseyway entrrance

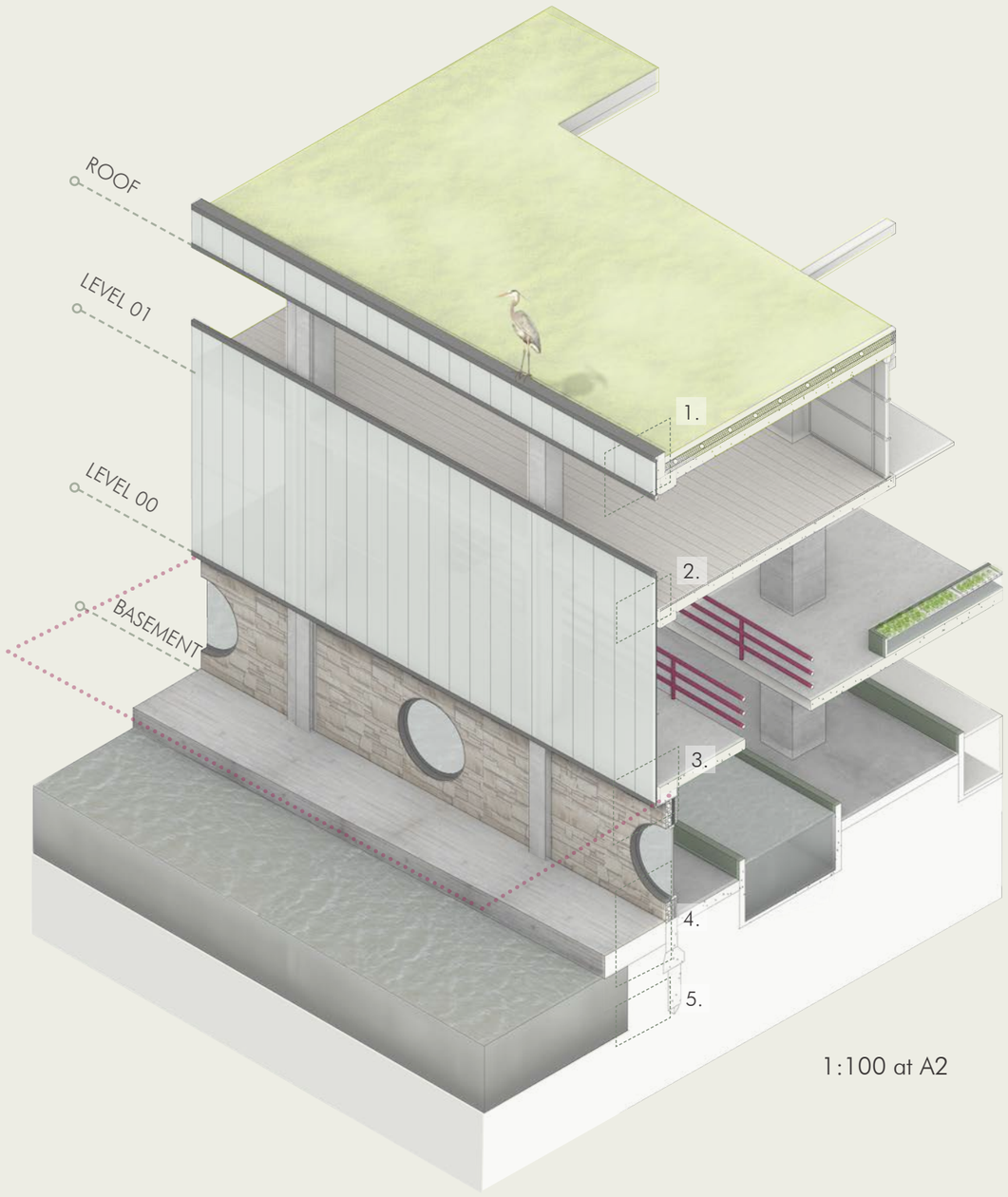
PRE CAST CONCRETE

Reatained precast concrete structural frame exposed cocnrete columns on the basment level facing the river walkway. Retaining embodied carbon on site by retaining the old buildings frame

REUSED STONE

Recyled masinary stone from the dmolished east part of clock 4. Used as a retaining wall and treated with waterproof membranes to defened against flooding. Ensuring the basment level facade can be submerged by the river and not flood internally

CONSTRUCTION AXONOMETERIC



1:100 at A2

1. ROOF DETAIL

- Growth medium 150mm
- Geotexile membrane
- Rainwater storage units 150mm
- Geomombrane
- Waterproof membrane
- Rigid insulation
- Vaopour membrane
- Concrete floor slab

2. LEVEL 01 FLOOR

- Timber flooring
- Rigid insulation 50mm
- Aluminium frame support
- Polycarbonate sheet 40mm
- Concrete floor slab 300mm

3. LEVEL 00 FLOOR

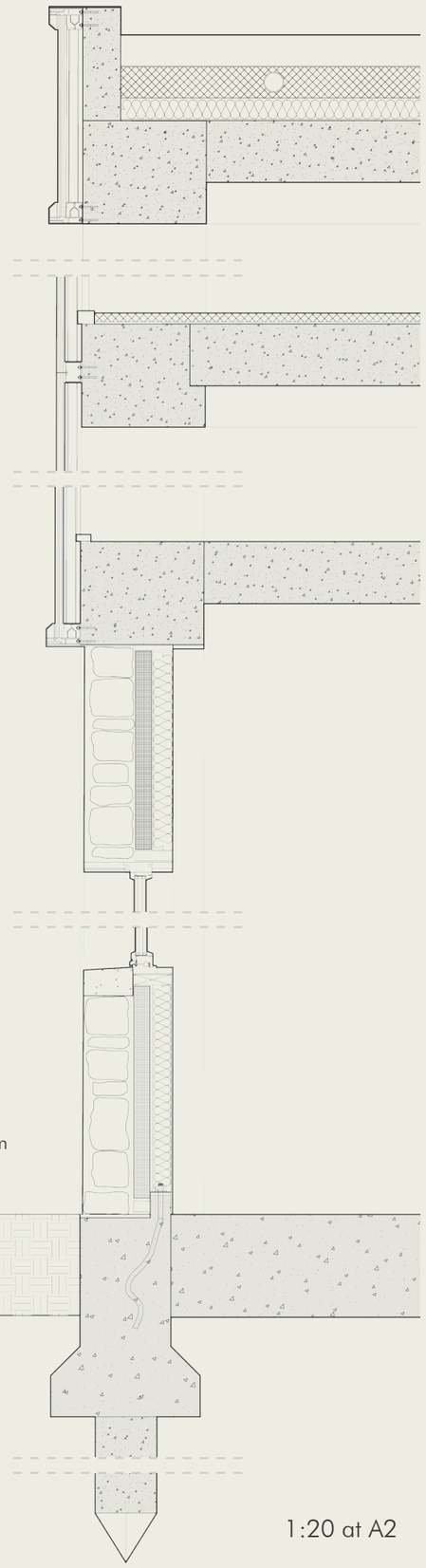
- Concrete floor slab 300mm
- Polycarbonate sheet 40mm
- Aluminium lower profile frame
- Recyled stone masonry wall 200mm
- Cavity drainage system
- Rockwoll slab90mm
- Lapjoint and approved sealant at air and vapor barrier
- Rockwool batt insulation 90mm
- Firecode core painted exterior
- Flood defense glazing 60mm

4. BASEMENT FOUNDATION

- Recyled stone masonry wall 200mm
- Cavity drainage system
- Rockwoll slab90mm
- Lapjoint and approved sealant at air and vapor barrier
- Rockwool batt insulation 90mm
- Firecode core painted exterior
- Flood defense glazing 60mm
- Concrete floor slab 500mm
- Concrete foundation footing 700mm
- Concrete piling (300x900mm)

5. PILING

- Concrete piling (300x900mm)



1:20 at A2

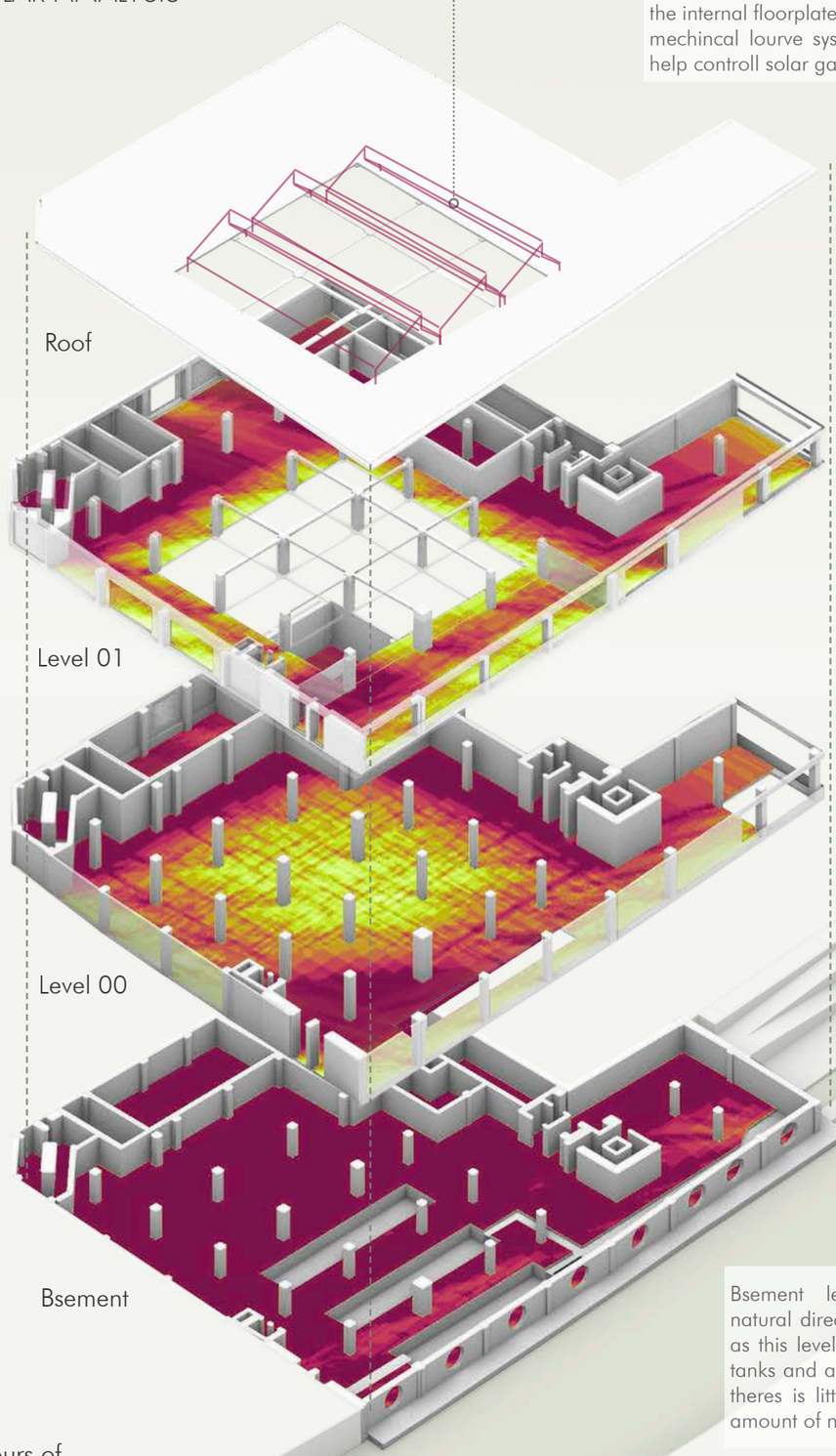
ENVIRONMENTAL STUDIES

SITE SOLAR ANALYSIS

The roof reuses glazing panels from the merseyway shopping centre and helps to daylight the internal floorplates and hydroponis plants. A mechincal lourve system could be installed to help controll solar gains in the summer months

Level 01 recieves a good amount of natural light although the balcony set back on the south east facade offers large amounts of solar shading in peak months to limate solar gains and mitigate agianst potential overheating

Level 00 used for the aquaponics growing beds reciives lots of direct sunlight which the plants need for growing via the large void in level 01. There is also a large amount of diffused light that would come throught he polycarbonate facade that is not included in the dayligting model



Average hours of direct sunlight

Bsement level receives little natural direct sunlight. However as this level is used for the rish tanks and aquapnics equipment theres is little need for a large amount of natural light

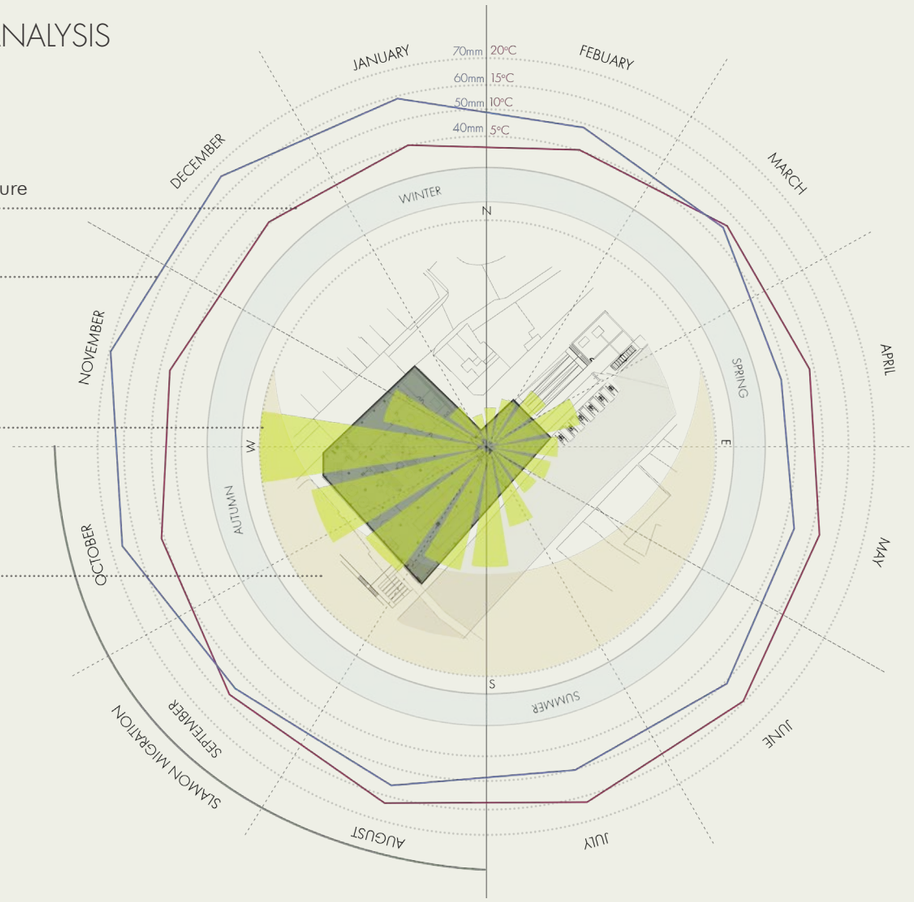
SITE CLIMATE ANALYSIS

Average Temperature

Average Rainfall

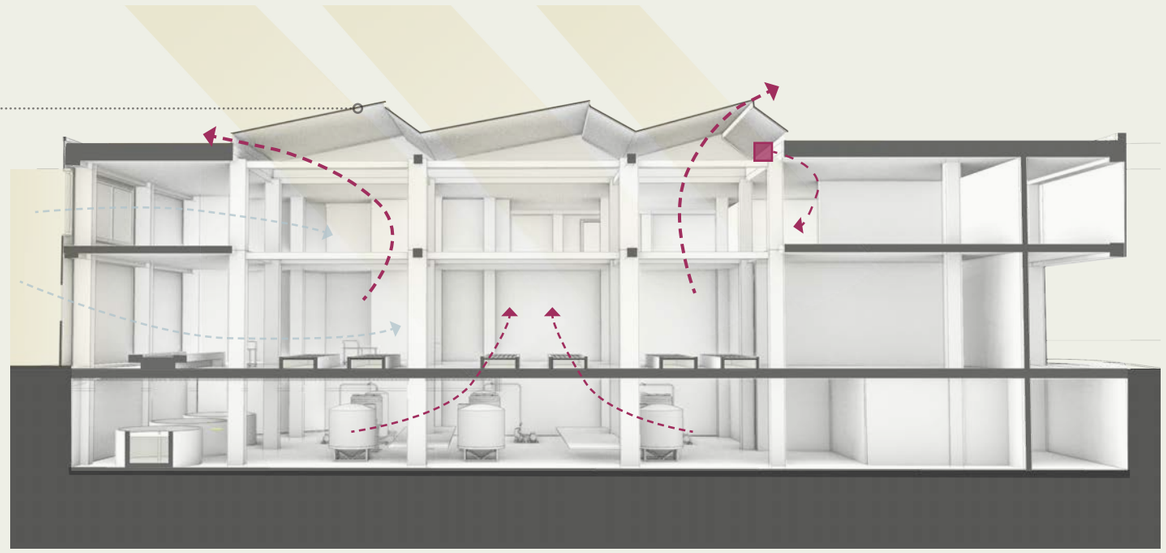
Wind Rose

Sun Path



Most of the sunlight needed for the aquaponics plants will be directly from the roof skylight and the void in level 01. When there is no direct sunlight the building will still for light due to the diffused light that will come through the polycarbante fcade panels

The ventialation strategy uses a combination of openable windows and vented polycarbonate facde panels. Teh roof system has openable windows to allow the hot air to escape



MEP STRATEGY

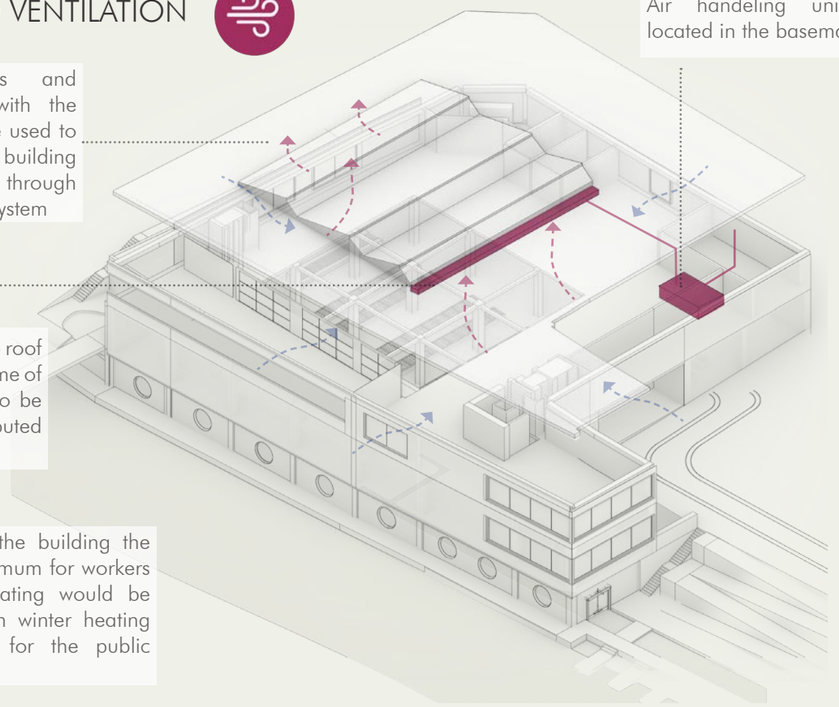
HEATING AND VENTILATION

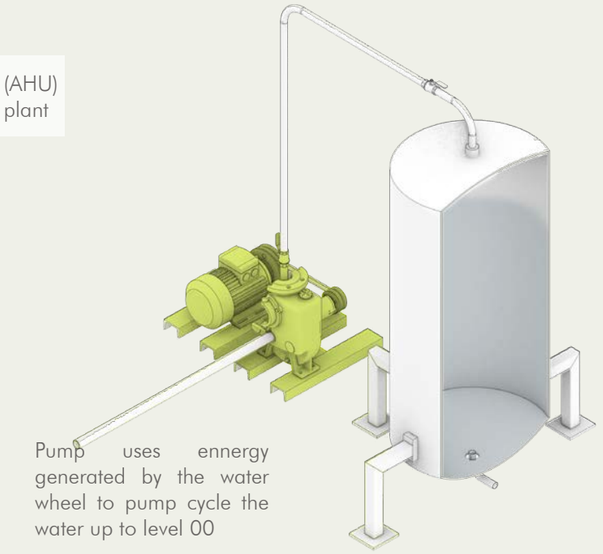
Wwindow openings and ventialltion panels with the polycarbonate facade used to bring cool air into the building . Heat can escape through vents within the roof system

Air handeling unit (AHU) located in the basemant plant

MVHR system with the roof panel can reclaim some of the escapeing heat to be recycled and redistributed to appropriate areas

Due to the use of the building the thermal comfort minimum for workers is 12°C so less heating would be required. However in winter heating would be required for the public spaces on level 01



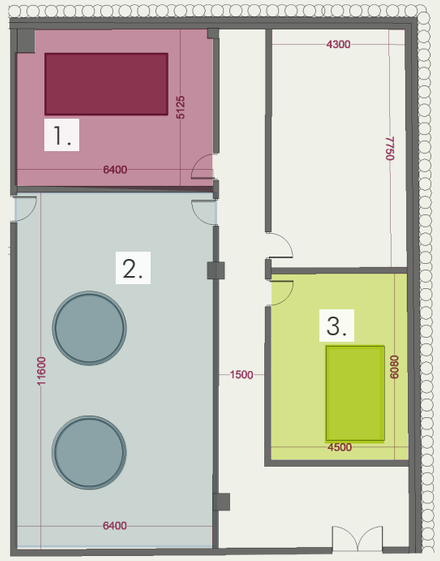


Pump uses ennergy generated by the water wheel to pump cycle the water up to level 00

1. Air handeling unit (AHU)

2. Water storage tanks

3. Generator



BASEMENT PLANT LAYOUT

1:200 at A3

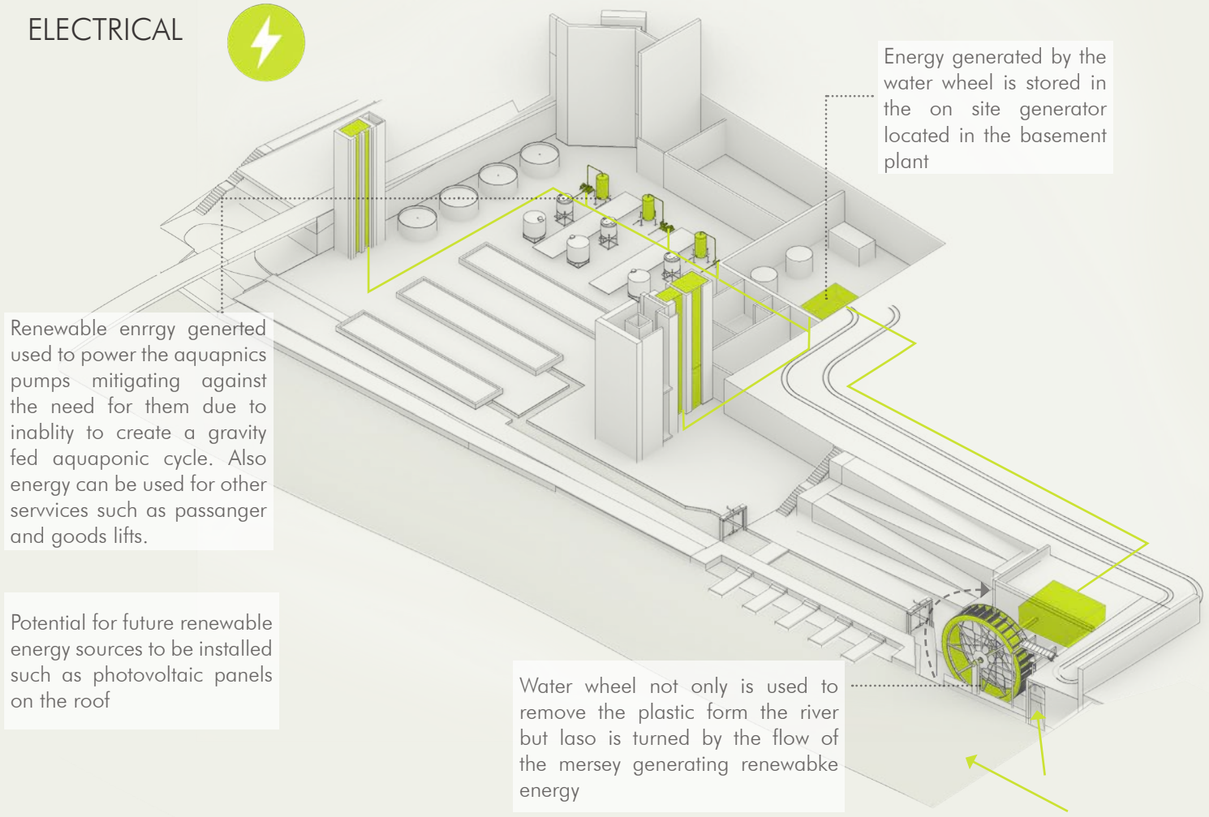
ELECTRICAL

Energy generated by the water wheel is stored in the on site generator located in the basement plant

Renewable enrrgy generted used to power the aquapnics pumps mitigating against the need for them due to inablity to create a gravity fed aquaponic cycle. Also energy can be used for other servvices such as passanger and goods lifts.

Potential for future renewable energy sources to be installed such as photovoltaic panels on the roof

Water wheel not only is used to remove the plastic form the river but laso is turned by the flow of the mersey generating renewabke energy



WATER COLLECTION, CIRCULATION AND STORAGE

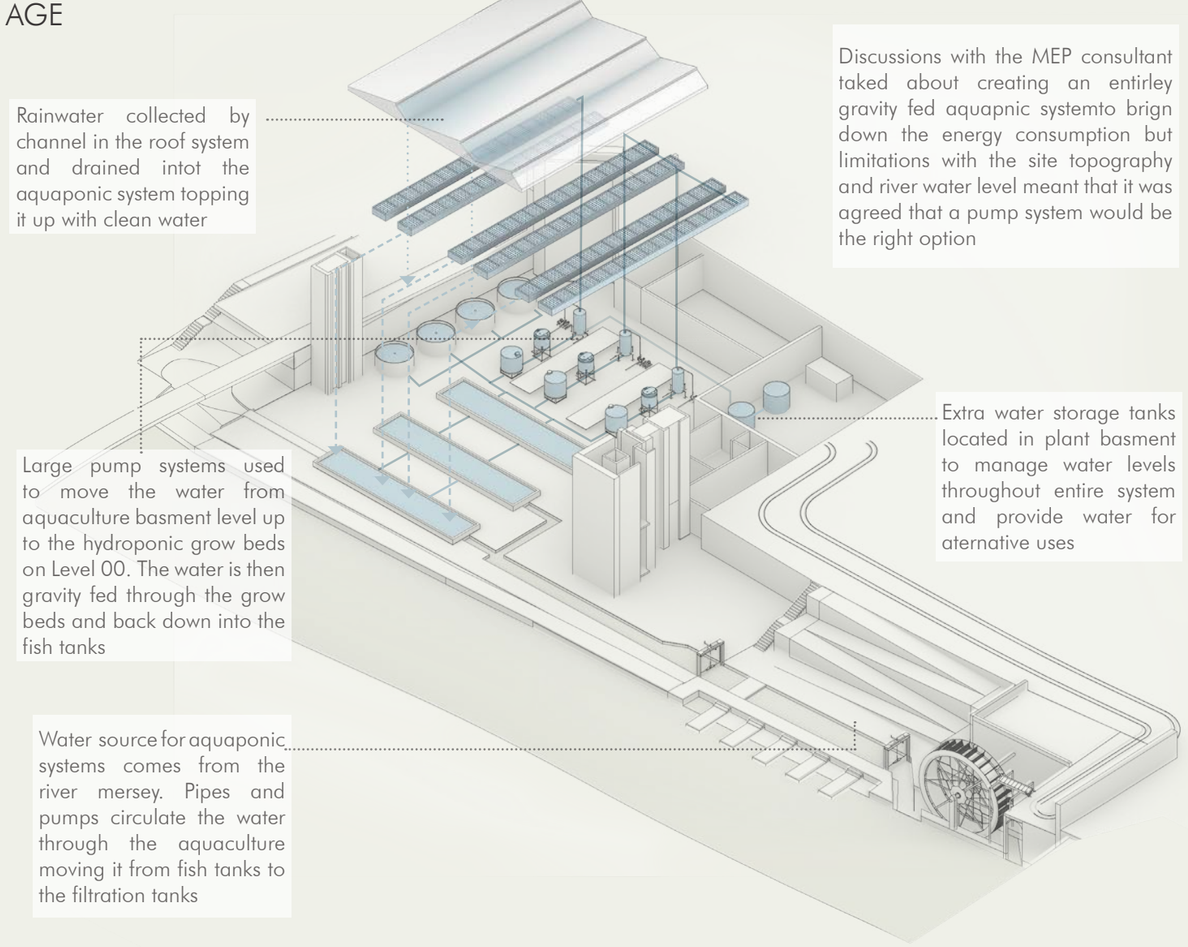
Rainwater collected by channel in the roof system and drained intot the aquaponic system topping it up with clean water

Discussions with the MEP consultant taked about creating an entirley gravity fed aquapnic systemto brign down the energy consumption but limitations with the site topography and river water level meant that it was agreed that a pump system would be the right option

Large pump systems used to move the water from aquaculture basment level up to the hydroponic grow beds on Level 00. The water is then gravity fed through the grow beds and back down into the fish tanks

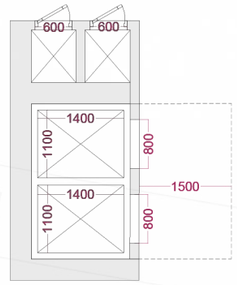
Extra water storage tanks located in plant basment to manage water levels throughout entire system and provide water for aternative uses

Water source for aquaponic systems comes from the river mersey. Pipes and pumps circulate the water through the aquaculture moving it from fish tanks to the filtration tanks



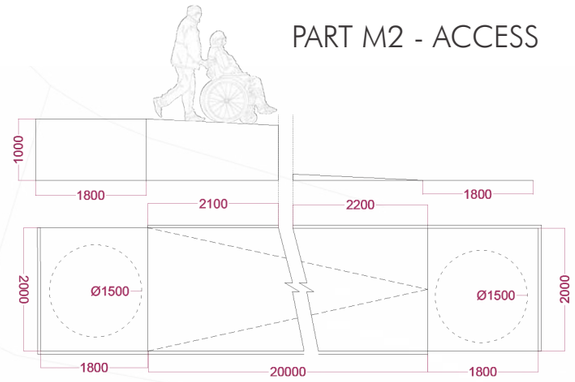
GA PLANS - LEVEL BASEMENT

1. Bubble Barrier
2. Water Wheel
3. Water Wheel Generator
4. Pedalo Dock
5. Exchange Centre
6. River Fish Tanks
7. Rearing Fish Tanks
8. Sediment Tanks
9. Biofilter Tanks
10. Pumps
11. WC
12. Management Facilities
13. Plant Room
14. Equipment & food store
15. Service corridor



- 3.34 Communal passanger lifts
A. clear landing of 1500mm infont and adjacent to the lift opening
C. Doors have clear wdith of 800mm
D. Lift cars exceeded the minimum requirments of 900x1250mm

PART M2 - ACCESS



- 1.19 Ramps
Externalramps down to the water fornt and pedalo doocks have been desinged at a gradient of 1:20. At this gradient there are no required number of landings however every 20m there is a break

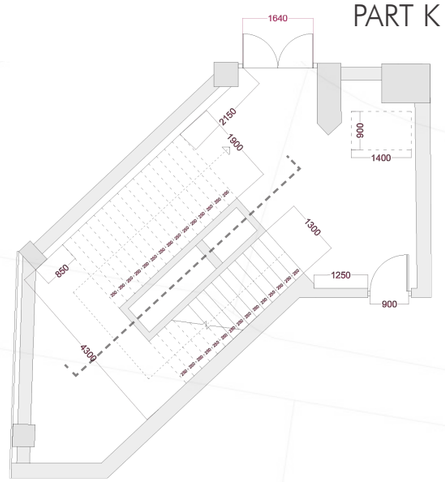
1:200 at A2

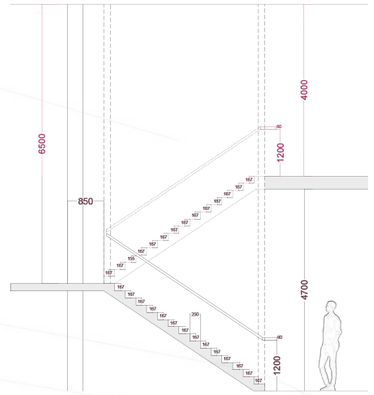
GA PLANS - LEVEL 00

PART K

1. Service Yard
2. Plastic Sorting & storage
3. Eletric vehicle charging
4. Observation garden
5. Plastic Conveyor
6. Container Tram system
7. Grow Beds
8. Vertical Aquaponics
9. Harvesting Converyor
10. Seed Store
11. Packing and distribution
12. WC
13. Cycle Storage
14. Management Facilities
15. Landscaping
16. Bridge Connection

PART K - PROTECTION FROM FALLING





- 1.11 Headroom for stairs
Exceeds minimum headroom requiremnts of 2000mm for stairs .

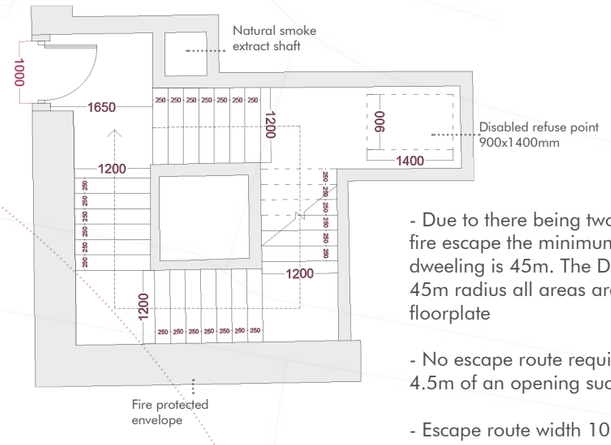
- 1.15 Width of flights of stairs
A. Minimum stairwidth of 1200mm between enclosing walls
B. Minimum width of 1000mm between handrails

- 1.3 Rise and Going
All stairs within the building comply with the part k. The risers sit at 166.7mm and the going distance is 250mm across all stairs. This meets the both requirments for for gernal access and utility stairs

1:200 at A2

GA PLANS - LEVEL 01

1. Cafe BOH/ Kitchen
2. Cafe
3. Service Corridor
4. WC
5. Farm Shop
6. Exchange Centre
7. Seating
8. Void down into Aquaponics
9. Look out to Pedalos
10. Inset Public balcony garden
11. Fire Escape

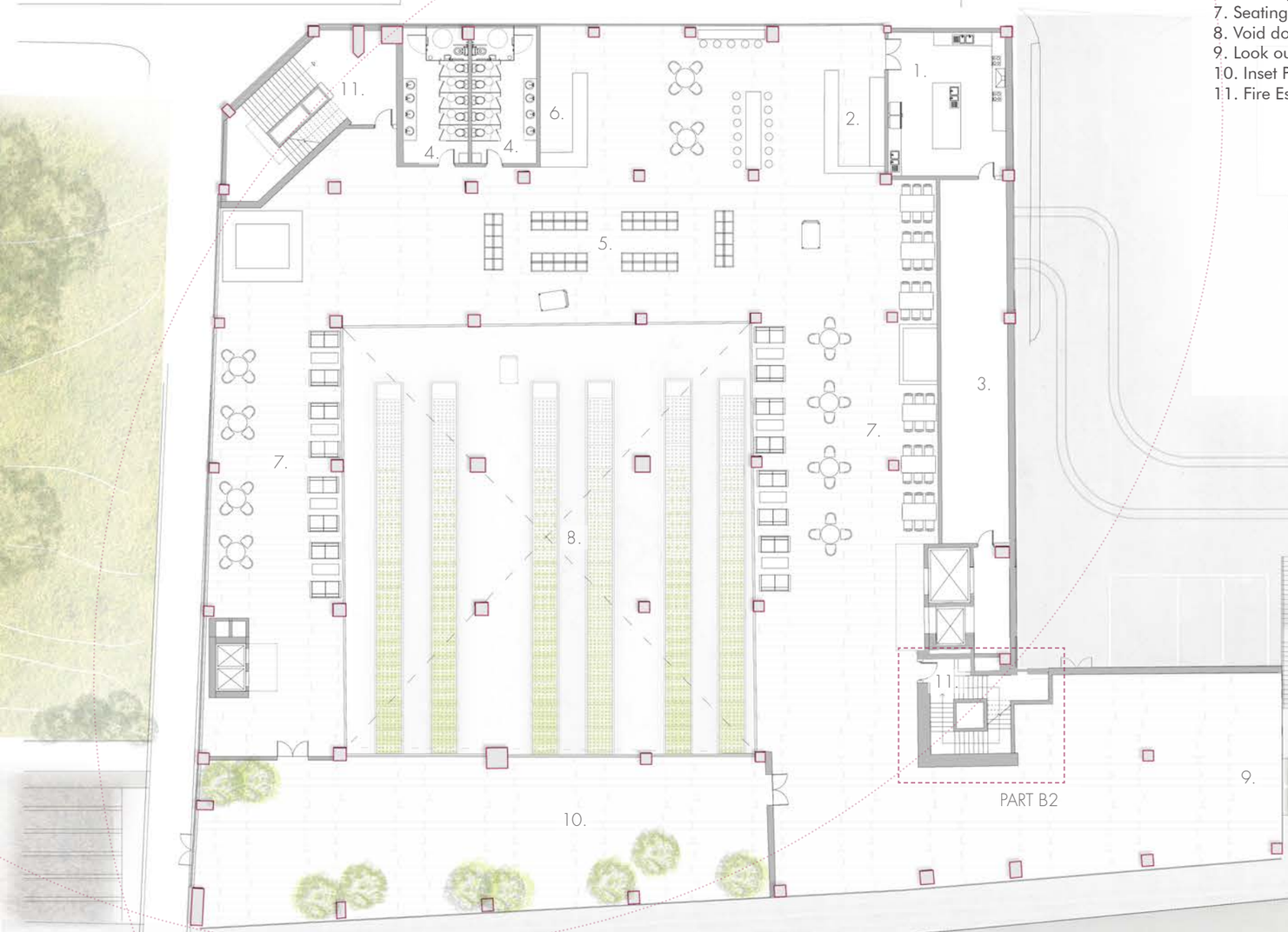


- Due to there being two forms of protected fire escape the minimum distance with a non dweeling is 45m. The Dotted circles indicate a 45m radius all areas are covered withn every floorplate

- No escape route requires the crossing within 4.5m of an opening such as the viod on Level 01

- Escape route width 1000mm. Wide enough to accomade an occupancy of 220 people. more than the expoected occupancy rate

- Natural Smoke shaft gretaer than 1.5m² avoids the need for a mechanical vent on the roof



1:200 at A2

GA SECTIONS

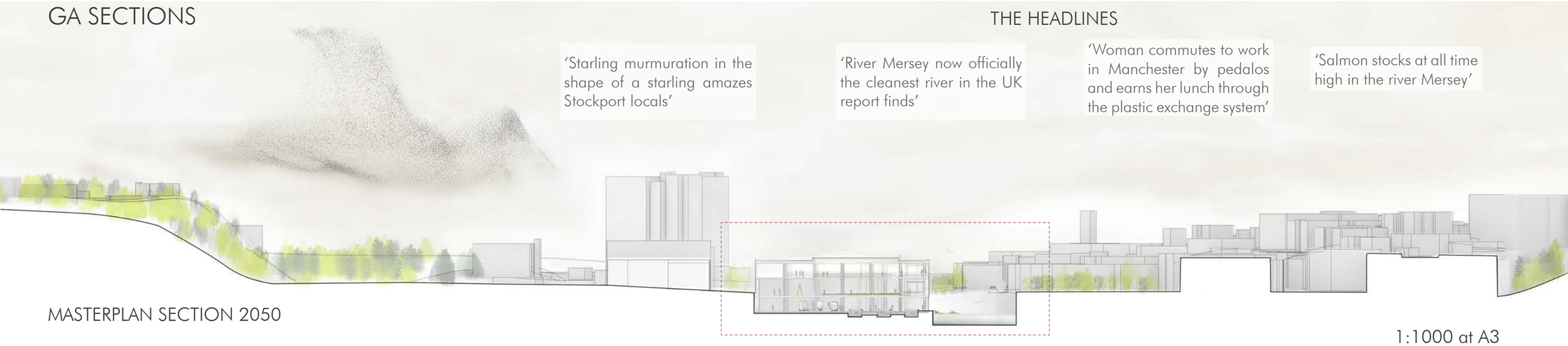
THE HEADLINES

'Starling murmuration in the shape of a starling amazes Stockport locals'

'River Mersey now officially the cleanest river in the UK report finds'

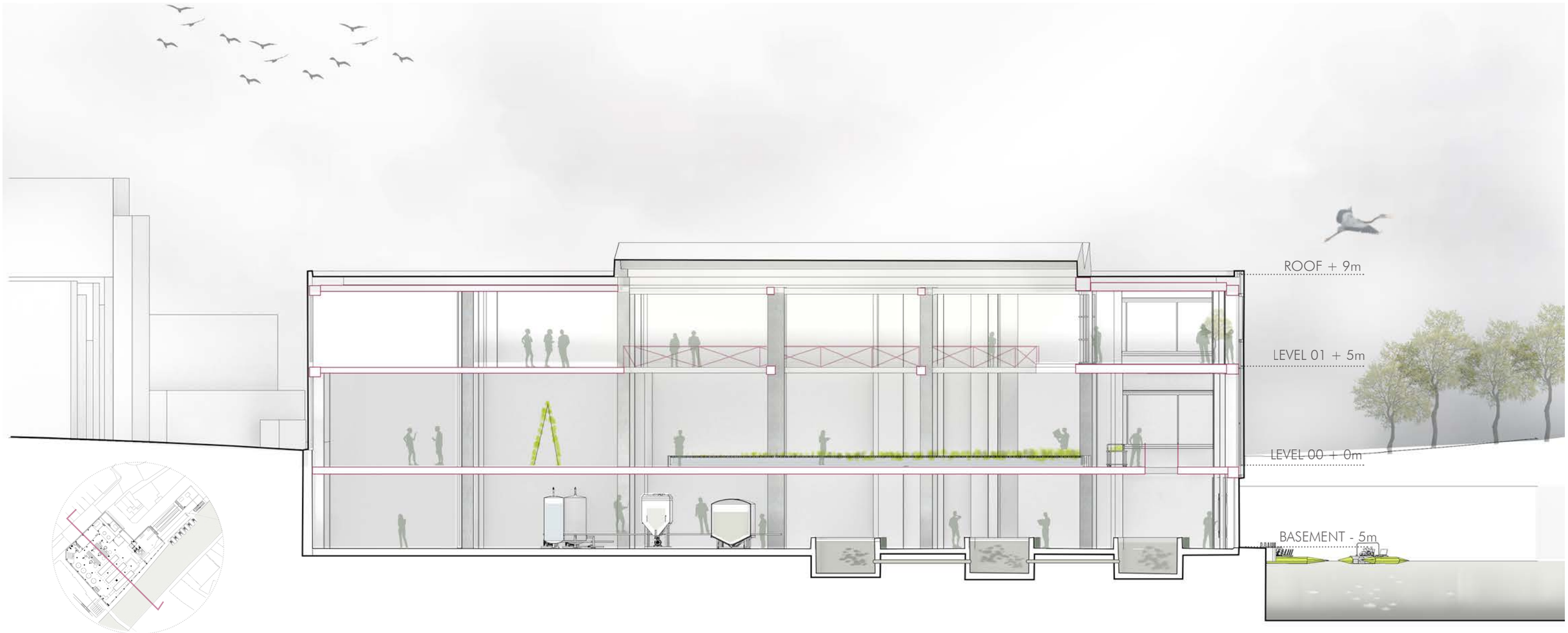
'Woman commutes to work in Manchester by pedalos and earns her lunch through the plastic exchange system'

'Salmon stocks at all time high in the river Mersey'



MASTERPLAN SECTION 2050

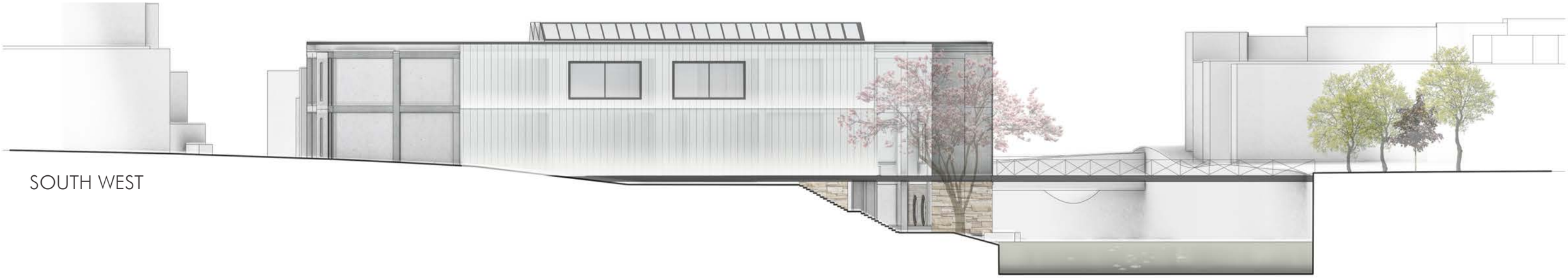
1:1000 at A3



SITE SECTION AA

1:200 at A3

GA ELEVATIONS



SOUTH WEST

NORTH EAST

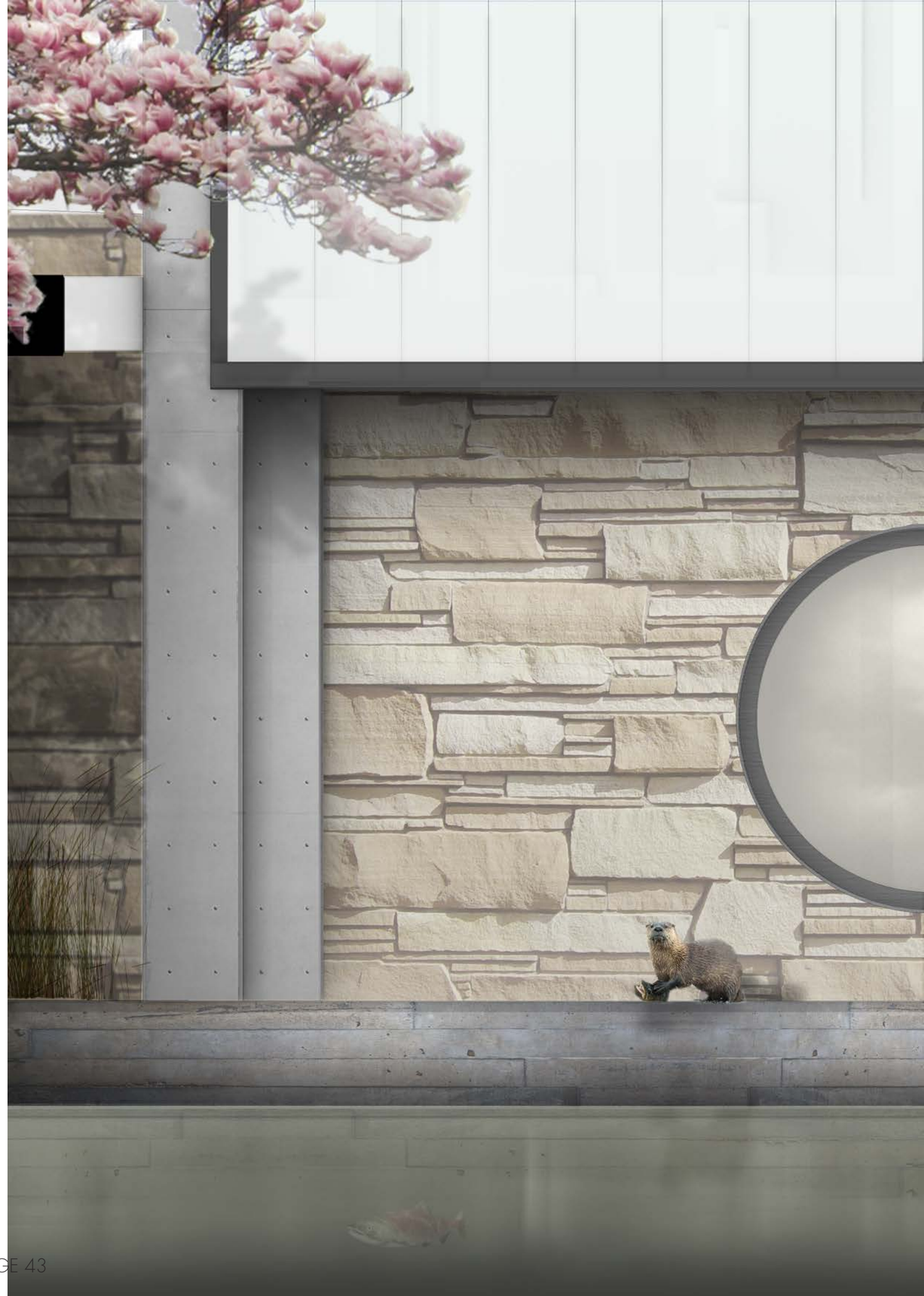
SOUTH EAST

1:200 at A2

GA MASTERPLAN (w/ROOF)

1:500 at A3

EARLY MORNING BY THE MERSEY
07:31



MIDDAY ON THE MERSEY
12:16

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REFLECTION

In reflection I think this project was both challenging but equally if not more rewarding. The groupwork at the start of was a good way to break into the project. I feel as a atelier group we developed a clean and convincing masterplan for the Merseyway shopping centre which gave everyone including myself a good foundation for own personal proposals.

The feel the brief was well defined and gave me a clear idea of where I needed to go and how I can relate my thoughts to the themes of some kind of nature. The concept that first came to me of needing to clean the Mersey as a starting point was a response to the site visit and then further research and was a strong narrative that I feel I manged to carry through the project. My response involving the use of plastic collection in tandem with an aquaponics filtration system was challenging due to the complexity of both these types of systems can could in themselves be an entire project respectively. This is where I believe I struggled at some points during the project potentially trying to tackle a too large concept and proposal in a short time frame. I feel this project could therefore definitely be developed further however I do believe the proposal I delivered had strong narrative and resolution considering the time frame and this being a solo submission this time round.

The PS2 studio was an enjoyable process and both Anna and Neil were very supportive through the entire during of the proposal and push me to think bigger, more creatively and achieve a higher quality of design.