#### **URBAN GREEN SPACE AS A PREVENTATIVE HEALTH MEASURE**

Identifying Needs Within the Community and Meeting Those Needs Which are Specifically Explored Through Equestrian Sport and Support.

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#### ACKNOWLEDGEMENTS

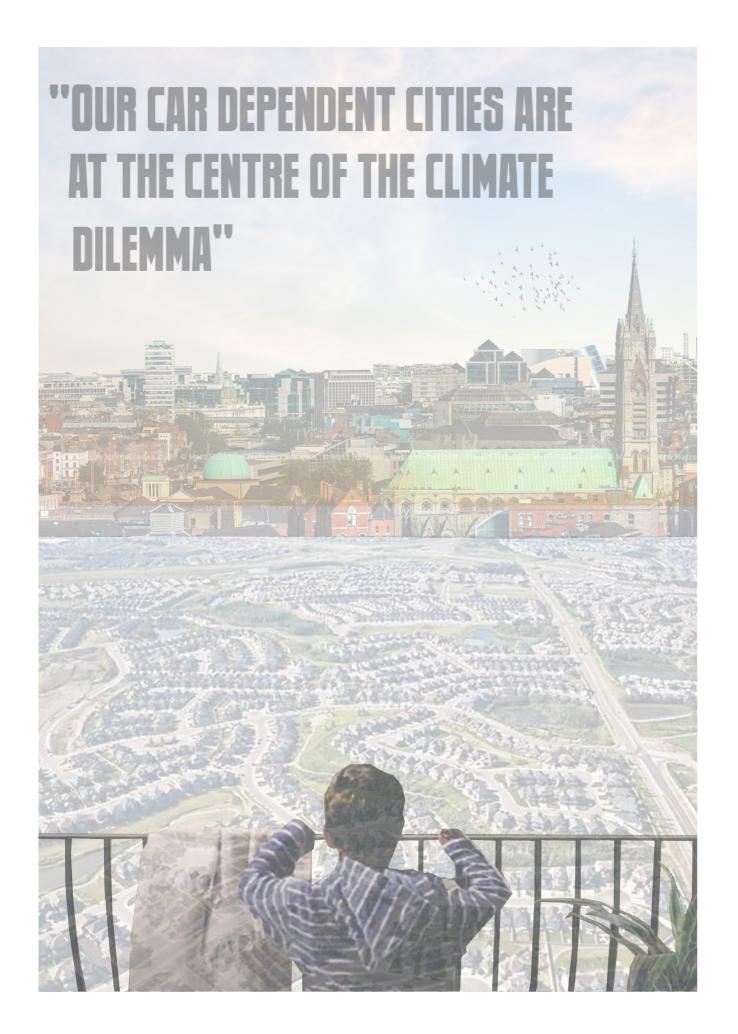
I would like to thank all the staff of The School of Architecture, Building and Environment for all of the encouragement and inspiration throughout the last six years of my education.

In particular I would like to thank my tutors Johanna Cleary and Calbhac O'Carroll for their guidance and support throughout the completion of this thesis project.

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Why are the majority of urban green spaces leftover space? Why is urban green space an afterthought in most developments?

My research paper began with an interest in urban sprawl, and why people move out of cities and into the sprawling surrounding suburbs. This in turn led me to notice the lack of good urban spaces in the city and its surroundings. From the research I was carrying out in Architectural Design Studio, Thesis Development, and my elective module, Strategic Urban Planning, I gained interest into the importance of urban green space and why the importance of urban green space is often overlooked.

The benefits provided by good urban green space in cities are critical for the health and wellbeing of people and they provide essential benefits for the environment. On reflection of the thesis theme, Radical Thinking Transformative Action, new and existing urban green space needs to be radical and transformative as it is not serving us the best it can as of now.

There are many urban green spaces across cities worldwide, but not all are of good quality. There is a high demand for smaller, well maintained parks, trees, allotments and playgrounds.



Current Condition

I would argue that the best urban spaces in the world are urban *green* spaces, for example The Georgian Squares of Dublin, or the tree lined Las Ramblas in Barcelona. These precedents give the people and the environment numerous benefits, and because of these benefits we should prioritise the planning and design of these spaces in our cities.

"It is hardly a coincidence that the criticism of functionalism, of the new urban areas, and of the sprawling suburbs primarily has been directed specifically toward the neglected, the destroyed, and the missing public spaces." - Jan Gehl

This thesis aims to investigate urban green space as a preventative health measure, by identifying needs within the community and addressing those needs through equestrian sport and support.

Lastly, the thesis is tested and explored through the context of the objectives that emerged out if the chapters previous.

### INTRODUCTION

Improving whats already there

**PART I** URBAN GREEN SPACE AS A PREVENTATIVE HEALTH MEASURE

7



Aspects of nature are essential for health in urban settings. Urban green spaces provide many aspects which are essential to maintain the health and well-being of people living in the urban area. The links between health and green space are evident in terms of improved air quality, increased social interaction, greater physical activity and stress reduction.

The World Health Organisation (WHO) recommends that urban residents have access to at least 0.5 - 1 hectare of public green space within 300m of their home. There are many health benefits of urban green space that are recognised for children. These include physical and mental development. The elderly also benefit from frequent visits to green and blue spaces, which have a positive impact through improved physical health and social well being. Locals use urban green spaces for physical exercise and social interactions. Usage of green spaces helps to reduce mortality, chronic diseases, mental health issues, obesity and improves pregnancy outcomes.

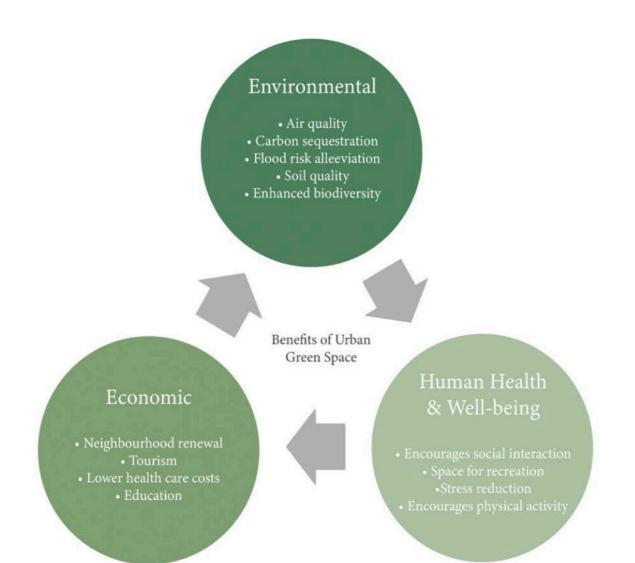
Currently, there is no one definition of green urban space in relation to its health and well-being factors. Urban green space can include urban greenery such as street trees, 'blue space' which represents water elements. Typically, urban green spaces in urban areas are public parks, private gardens, woodlands, children's play areas, roadside verges, riverside footpaths, beaches, sports pitches, residential open space, roof gardens - any place where there is a natural surface or where trees are growing.

Modern urban life is associated with high levels of stress, lack of physical activity and exposure to anthropogenic emissions. Many illnesses are linked to chronic stress and inactive lifestyles such as mental illness, cardiovascular disease, cancer and type 2 diabetes. These illnesses affect our health and well-being, but also put increased pressure and cost on our health care systems and reduce productivity in our workforces. Urban green spaces strategically placed and designed within our cities have potential to address many of these problems.

Urban green spaces can encourage positive social interactions. Increased social cohesion, which refers to the connectedness and solidarity among groups in society, can be associated with many psychological and physical health benefits. Urban green spaces are often where people gather for leisure, social activities and recreational purposes. Urban parks are viewed as places for social gatherings, especially during the Covid-19 pandemic, where people were encouraged to only meet outside.

Cities have highly modified and complex landscapes which have some natural habitats adjacent to highly manmade built environments. These places have the opportunity to be the home to a wide variety of different organisms. Biodiversity is important as it supports all life on Earth. Having a wide range of animals, plants and microorganisms allows us to have ecosystems which provide us with the air we breathe and the food we eat.

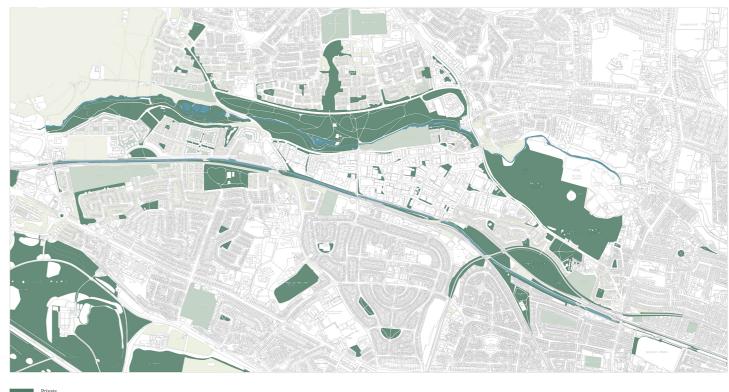
Vegetation is important in terms of climate change as it stores and sequesters carbon, which is important to offset typically high carbon emissions in cities. It also improves air quality, reduces pollutants and aids in flood alleviation.



#### TOLKA VALLEY AND THE NATURAL ENVI-RONMMET

Given the task of researching the natural environment aspect of the Tolka valley in semester I, the urban green spaces were of particular interest to me.

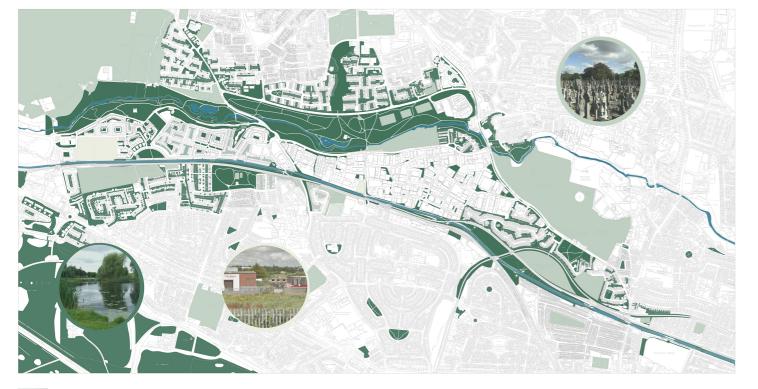
Fig. explores the public, semi private and private green spaces. Tolka Valley park would be public, the pitch and putt would be semi private and back gardens would be private. It is evident there is more private green spaces in the newer residential areas of ashtown than of the older residential areas.



Private Semi-private Private

> Fig. shows the intended uses for the green spaces around The Tolka Valley area. A square or park would be intended for pleasure. A playing field and graveyard would be intended for use, and wasteland is unintended green space. The industrial estate is evidently lacking in green spaces.

> With further research and investigation, I later come to the conclusion that, by and large, each type of space fell into the five different categories.



Intended for pleasur Intended for use Unintended

#### CATEGORISATION OF URBAN GREEN SPACE

Through investigation and research of urban green spaces I found that certain patterns started to emerge, allowing me to derive a categorisation to describe these urban green spaces.

With further research I came to the conclusion there was five categories that most urban green spaces fit into.

By and large, each type of space fell into the following categories:

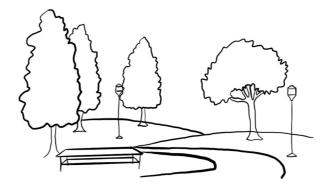
1. Intended for pleasure/ use: squares, parks, campus, botanical gardens, Gardens, tree-lined streets, flowerbeds, verges, productivity allotments, playing fields, cemeteries

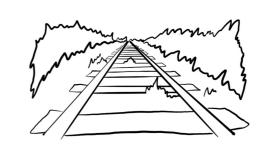
2. Unintended: disused railway lines, wasteland

3. Water features: rivers, streams, lakes, ponds, canals, dockyards and waterfronts

4. Natural: meadows, forests, heaths

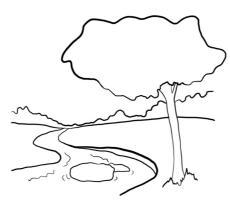
5. Controlled: green belt, nature reserves

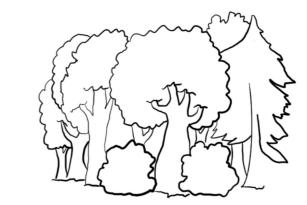




Intended for pleasure e.g. park

Unintended e.g. disused railway line





Water feature e.g. river



**Controlled e.g. nature reserve** 

Natural e.g. forest

# We need to prioritise the strategic planning and design of urban green spaces in Dublin.

Gemma Ryan

With the rise of health issues related to obesity and carbon emissions in cities like Dublin, strategically designed urban green spaces can mitigate these issues.

Dublin is a car centric city. Places are designed to accommodate cars rather than pedestrians. We must shift this narrative to protect the natural environment and the health and well-being of the people of our city and beyond.

Urban green and blue spaces provide many environmental benefits. These include parks, tree lined streets, allotments, river banks and coastlines. These spaces improve air quality, reduce noise and enhance biodiversity. So the question is, given their importance, why are the majority of urban green spaces leftover space, and an afterthought in most cities?

Aspects of nature are essential for health in urban settings. Urban green spaces provide many aspects which are essential to maintain the health and well-being of people living in the urban area. The links between health and green space are evident in terms of improved air quality, increased social interaction, greater physical activity and stress reduction.

Cities have highly modified and complex landscapes which have some natural habitats adjacent to highly manmade built environments. These places have the opportunity to be the home to a wide variety of different organisms. Biodiversity is important as it supports all life on Earth. Having a wide range of animals, plants and microorganisms allows us to have ecosystems which provide us with the air we breathe and the food we eat.

Vegetation is important in terms of climate change as it stores and sequesters carbon, which is important to offset typically high carbon emissions in cities. It also improves air quality, reduces pollutants and aids in flood alleviation.

Recent developments in Dublin, such as the one picture below in Ashtown, are accompanied by a patch of green grass which lies adjacent to the building. The green rectangle is leftover space in the geometry of the building adjacent to it. This space is under utilised and is simply just a disused green rectangle surrounded by car parking spaces, where biodiversity and human interaction isn't encouraged to thrive.

This patch was located here as it simply fit in the space between the carpark and apartment building. The car parking at this development was prioritised over the pedestrians in this development. So how do we create successful urban green spaces that will benefit the natural environment and us as humans?

We need to ensure our urban green spaces are accessible for people of all abilities. This includes the strategic placement of ramps for wheelchair and buggy accessibility, ample seating and good lighting.

In larger green spaces nearby, such as The Tolka Valley Park, people are calling for better policing of greens because of scramblers and quad bikes. Local Maureen, who has lived adjacent to the park for 30 years, exclaims "The park is vast and generally quiet. There is antisocial behaviour in the park, this includes the use of scrambler bikes and loitering, it is not a pleasant place, I prefer visiting Glasnevin Cemetery as my local park is further away from me." The large areas of cut grass is a perfect environment for scrambler bikes, which is also negative in terms of biodiversity. These vast fields and uncontrolled entrances lead to these bikes entering the park and loitering from large groups which is intimidating. There are points in the park which lack visibility due to large hills and the undulating landscape. There have also been many reports of drug dealing and shooting incidents in and around the park in recent news. Unfortunately all of these incidents have led to people feeling unsafe in this park.

Tolka Valley Park and many other urban green spaces in Dublin experience similar problems. The park has so much potential to benefit our physical and mental health whilst also mitigating climate change.

Prioritising the strategic design and planning of our city's urban green spaces has so many benefits so my question is, why isn't this issue at the forefront of development plans for our city of Dublin?



Leftover urban green space in Ashtown, Dublin

#### WORLDWIDE LENSE

#### Vondelpark - Amsterdam, The Netherlands

Vondelpark is a public urban park of 47 hectares in Amsterdam, Netherlands. Surrounded by dense housing on the edge of the city centre, the park acts as a garden for the surrounding residents. The park has different areas of significance for specific groups of visitors. Vondelpark is an example of a successful urban green space.

Surrounded by dense housing, Vondelpark is the back garden of many of the residents in central Amsterdam. The park is easily accessible as it is close to major tram lines, and has great walking and cycling routes. The paths in Vondelpark are often used by cyclists to get from one area in the city to another.

The high density living areas surrounding the park rely on Vondelpark for the open green space. Vondelpark relies on the many surrounding residents for footfall and activity within the park. The park and the high density housing in Amsterdam are a good example of how each one is dependent on the other to thrive and succeed.

#### **Tolka Valley Park In Comparison**

In comparison, Tolka Valley park covers approximately 50 hectares, a similar size to Vondelpark. The park partly covers a former landfill. The park features woodlands, wetlands, a playground, playing fields and a pitch and putt course. The park is vast and generally quiet. There have been many reports of antisocial behaviour in the park, this includes loitering and the use of scrambler bikes. The large areas of cut grass is a perfect environment for scrambler bikes. These vast fields and uncontrolled entrances lead to these bikes entering the park and loitering from large groups which is intimidating. There are points in the park which lack visibility due to large hills and the undulating landscape. There have also been many reports of drug dealing and shooting incidents in and around the park in recent news. Unfortunately all of these incidents have led to people feeling unsafe in this park.

This large green space has great potential, it is unfortunate this park does not serve the local residents as well as it could. The park has a monotonous feel, this could be counteracted with pockets that allow more biodiversity to flourish. Steep rises in the landscape and lack of seating make the park intimidating for elderly people and people with disabilities. There is an obvious lack of public bins, which in turn has resulted in rubbish spread across the park. The points that lack visibility in the park could be elevated and given a safer, more secure feel with adequate lighting and landscaping. Having more secure entrances to the park will discourage antisocial behaviour related to scrambler bikes etc. Adding extra access points to the park will encourage more footfall in the park, thus making it safer and a more attractive and busy place to visit.

People in the area tend to visit Glasnevin Cemetery as their chosen park amenity rather than Tolka Valley Park. Glasnevin Cemetery has a lot more footfall than Tolka Valley Park. Glasnevin Cemetery is also equipped with tea rooms, a museum, and accessible smooth pathways. The pedestrian link to the Botanical Gardens is also another aspect that draws people to the cemetery rather than Tolka Valley Park.

Although more suburban than Vondelpark, aspects of this park can be implemented into Tolka Valley park to improve on whats there already.

If Tolka Valley park was adjacent to more attractive amenities, I have no doubt that there would be an increase in footfall at the park. Lining the park with services and activities will inevitably lead people to use the park more heavily. The extension of the green line Luas through the park will also bring more activity and make the park more accessible by public transport.



Satellite view of Vondelpark, Amsterdam, derived from Google Earth



Satellite view of Tolka Valley Park, Dublin, derived from Google Earth

#### DE HOLLANDSCHE MANEGE - RIDING SCHOOL

What facilities line Vondelpark and bring footfall to the park? Besides the extensive resiential buildings, this horse riding facility, complete with a museum, stables and cafe, indubitably brings footfall and activity to the park. De Hollandsche Manege Riding School is on the northeast edge of the Vondelpark, which was frequently used for horse riding in the past.

The building was built in 1882 and id inspired by the Winter Riding School (Winterreitschule) of the famous Spanish Riding School (Spanische Hofreitschule) in Vienna.

The present riding school has a stable of 35 horses and 15 ponies. There is weekly riding training sessions ongoing in the facility. The building is also used for dressage competitions.





Image derived from amsterdaminsights.com

Image derived from dehollandschemanege.nl

### DUBLIN LENSE

In Dublin, the majority of urban green space is leftover space, that is except for large parks such as The Phoenix Park, cemeteries and Georgian Squares.

The Dublin City Council Parks Department manages over 120 parks and green spaces across the city. These parks feature playgrounds, sports facilities, nature trails, tearooms and host festivals and events during the year. Weekly markets are held in many parks around the city. Some parks also have spaces that are available to rent. These spaces are rented for classes, meetings, exhibitions and more. Parkruns are a current popular event throughout many parks in Dublin.

Dublin City Council (DCC) manages over 125 playgrounds. These playgrounds are in both parks and housing complexes. DCC aims to provide accessible opportunities to play for children of all ages. DCC consults with children and young people to help achieve a child-friendly Dublin. DCC organises a number of play activities throughout the year to highlight the importance of play.

Dublin City Council also carries out maintenance work in a number of cemeteries around Dublin. "Parks and open space are vital to the 'liveability' of a city. The open spaces, gardens and trees canopy, are precious assets to Dublin. They make up the living component of the city." -DCC

The Office of Public Works (OPW) is also responsible for a number of parks in the city, for example, St. Stephens Green, The Phoenix Park and The Iveagh Gardens.

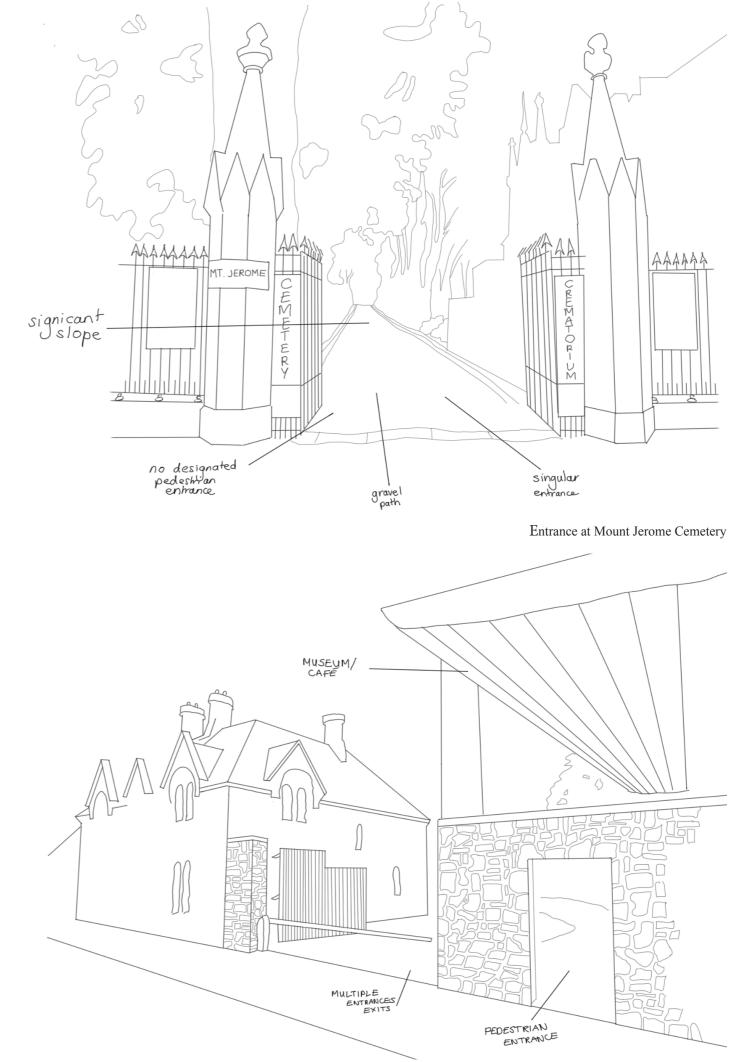


emeteries

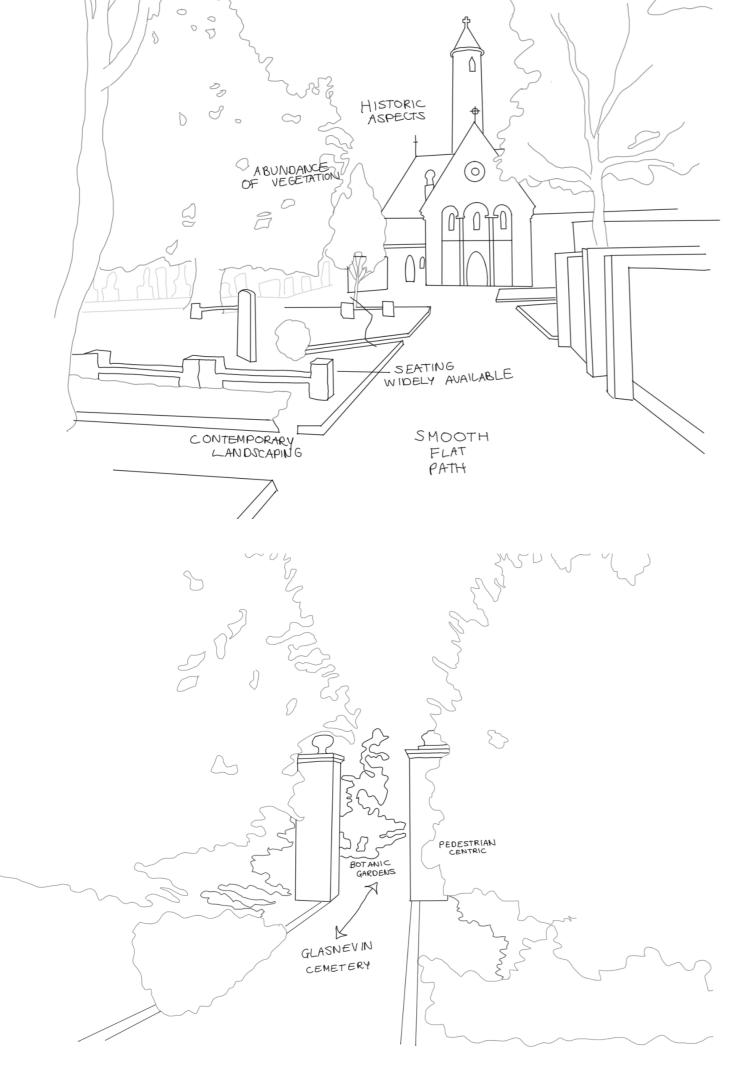
Cemeteries are important green spaces in Dublin. Cemeteries landscapes are often well maintained and preserved out of respect for the deceased. Cemeteries have forced people not to build on them, thus leaving vast urban green spaces in many parts of the city.

Glasnevin Cemetery holds a lot of cultural and historical significance.. People use this cemetery as a place of recreation as it has a coffee shop, lots of vegetation and it is easy to navigate. It serves the community as a gathering place as well as a special sacred place.

In comparison Mount Jerome Cemetery in Harold's Cross isn't used for recreation as often. It has significantly less vegetation and it is harder to navigate. Mount Jerome only has one entrance and exit and it is very car centric. There is no designated pedestrian footpath. There is a significant slope and gravel path at the entrance making the cemetery difficult to access for people in wheel-chairs or people using buggies. In comparison, Glasnevin Cemetery has multiple entrances. The paths throughout the cemetery are generally smoother thus making them more accessible.



Entrance at Glasnevin Cemetery



The Huguenot Cemetery, located on Merrion Row, dates back to 1693. The descendants of the Huguenots were buried here. They fled persecution in France after the revocation of the Edict of Nantes which guaranteed religious freedom. The Huguenots created a thriving community in Ireland as they were skilled in textiles, watchmaking and finance. It is believed 600 people were buried here up to 1901. Only 34 headstones remain. The cemetery sits between the Huguenot House (left) and the Department of Finance (right). Unfortunately, the cemetery is not open to the public. The cemetery has such potential to be a wonderful public green space. This cemetery is a space of serenity on the busy Dublin city streets.

Wanting to investigate this space further, I contacted Dublin County Council (DCC), who manage this cemetery. I was then put in contact with DCC gardener, John Roche, who agreed to meet me and give me the chance to access the cemetery. Upon meeting John, he gave me details on the history of the cemetery. I learned there is no plan for the cemetery to reopen to the public. It is closed to preserve the rich history of the space and due to privacy reasons with the cemetery being adjacent to a government building.

It is important we activate these disused urban green spaces as they have a high potential to benefit us health wise. Sites such as The Huguenot Cemetery may be more difficult to allow the public to use as they have a historical significance that may need to be preserved. Visiting and analysing this site led me to start to speculate that a site that is a disused urban green space would be interesting to work with and a good place to test my thesis position.



Images from site visit, November 2022

#### WHAT IS A GOOD URBAN GREEN SPACE?

An Taisce is a non-governmental organisation active in the areas of the environment and built heritage in Ireland. An Taisce manages the Green Flag for Parks Award Scheme. Looking at the criteria set out by An Taisce is a good starting point to see what constitutes a worthy green space.

1. A welcoming place: positivity, well prepared for visitors, feedback welcome

2. Healthy, safe and secure: well lit, few invisible areas, security, passive surveillance

3. Well maintained and clean: regular rubbish collection, rubbish cleaning, gardening

- 4. Sustainability: biodiversity, designated areas allowed to wild
- 5. Conservation and heritage: castle, historical house, museum etc
- 6. Community involvement: regular events, meetups

7. Marketing: advertisement

8. Management: designated staff members to manage park/ urban green space

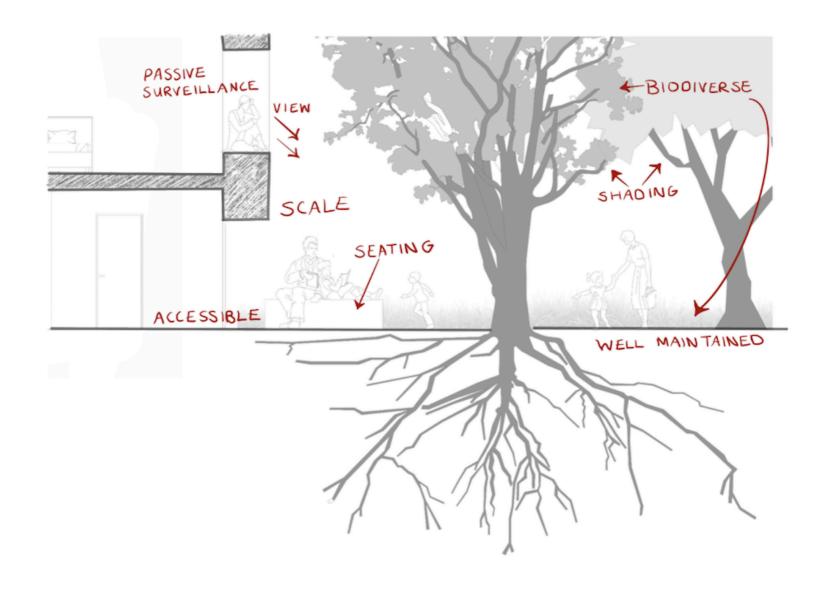
Another point I think is missing from this criteria that I would add is: 9. Easily accessible by walking, cycling and public transport

#### **Critical Lens:**

What this criteria doesn't take into account is the type and size of the green space. For example, not all green spaces have features like castles and historical houses. Within this system, there should be a hierarchy of things. Each urban green space should be assessed on a case by case basis, as some of the points here are not applicable to all spaces.

Architects and planners promote or prevent isolation and contact in many different ways according to Gehl; to promote isolation they include walls, to promote contact there is no walls, where they don't want interaction to happen, there is high speeds, where they want interaction to happen there are low speeds, multiple levels don't allow as much interaction than an area that is all one level, orientations that are facing away from other don't foster interaction as much as orientations that are towards each other and so on. All of these factors are relevant in designing urban green spaces and are important to consider to ensure the benefits of the urban green space are maximised.

Accessibility is an extremely important point left out of the criteria above. Making urban green spaces accessible to people of all abilities is really important so we can make sure all groups in each community have access to these spaces. Low maintenance landscaping with planting that doesn't require lots of trimming and are not prone to disease. Adequate lighting is important for safety and security and it also helps to prevent falls. Ramps ensure accessibility for a wider group of people. Adequate shade can be achieved with strategically placed shade trees. Ample seating areas are important for social space, they are also good if older or people with a disability need to take breaks from walking often. Seating can also be a good bird and animal watching spot if placed strategically.



#### **PART II** IDENTIFYING NEEDS WITHIN THE COMMUNITY



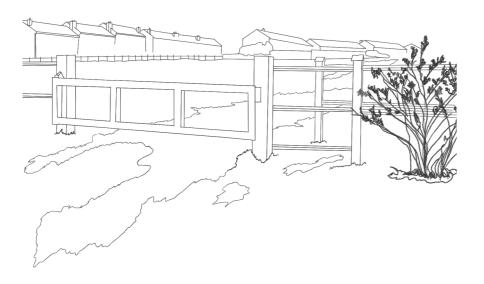
### SITE

The largest urban green space is Tolka Valley is Tolka Valley park, which I was inevitably drawn to. As one of my project objectives is to brong footfall to Tolka Valley park, sites lining the park were of particular interest to me. The large 'leftover' space north of Tolka Valley park sparked my interest.

The site is sloped and undulating. The site is 47,000m2. It takes 6 minutes approximately to walk from south of the site, to the north of the site. There is a lack of biodiversity and footfall. There is a lot of litter on the site, and the gates are currently locked to the public, however people still access the site through gaps in the fencing. The many surrounding roads adjacent to the site have no direct access to this green space, possible entrances are blocked by walls and fencing.

When visiting the site and surrounding area, there was evidence of equine activity. Unfortunately the animals observed were in poor condition, some tied to fences with rope and lacking shelter.

With this evidence, the need for equestrian facilities in the area was apparent.



We gained access to the site by the gate at the south of the site, which was unintenionally left open

























#### **BRIEF**

So how will architecture be used as a tool to explore urban green space as a preventative health measure by identifying needs within the community? The design aspect of this thesis explores

By testing this design thesis, the resulting project has attempted to apply the following objectives in a method that aims to support people and animals in the Finglas West area by the reconceptualization of existing urban green space.

Needs in the community have been identified. These needs are support for equestrian sport and care, meeting spaces and biodiversity in urban green space.

Choosing of this 'leftover' and generally under utilised urban green space, allows us to recieve full benefit from an existing urban green space.

The ongoing Climate Crisis has greatly influenced the formation of this brief. There are many urban green spaces in The Tolka Valley area, yet these spaces seem to lack biodiversity.

The criteria I have set out for what makes a positive urban green space will act as a guide in creating positive external spaces for people and animals in my design project.

The urban green spaces of my project will provide a place for people of the community to socialise and improve social cohesion in the area.

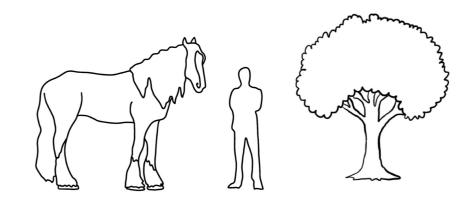
There will be dedicated urban green spaces for equestrian use and dedicated externals places for community use and enjoyment.

The areas for equestrian sport aim to foster community engagement and involvment.

In turn, these aspects aim to improve the physical and mental health of the residents in the area whilst attempting mitigate climate change by carbon sequestration in the form of materials and planting for biodiversity.

#### The thesis research inspired design ideas that focus on a set of project objectivces:

- To meet the challenge of climate change by providing opportunities for biodiversity in green space.
- Preventative health: health of society, health of community through proven needs of communal activity through horse riding and care facilities. Specifically dealing with strategic development goal number 3; good health and wellbeing, 11; sustainable cities and communities, 13' climate action, 15; life on land.
- Highlighting the value of communal activity through sport and care of animals by contributing to mental health and enhancing existing activities specifically the horse culture and horse riding and care.
- Improve social cohesion by the provision of meeting spaces/ cafes.
- Bring footfall to Tolka Valley Park through a system of bridle paths combined with new and existing paths and give more linkages and make Tolka Valley park more accessible.



Equestrian sport and support, social cohesion, biodiversity



Character Collages

### SITE ANALYSIS

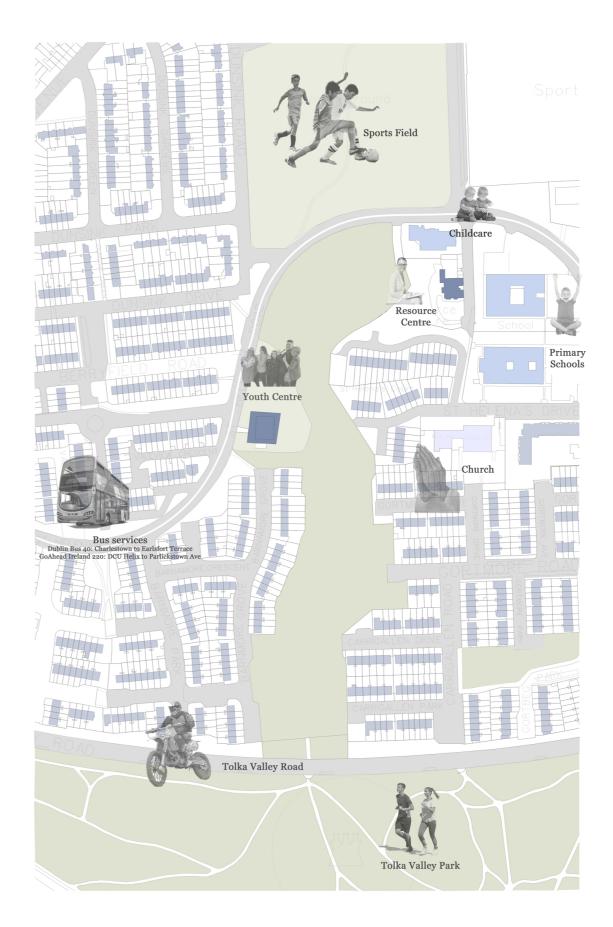
The vacant site, surrounded by large areas of housing. There is evidently a lack of services surrounding the site. Inevitably, the future light rail line will indubitably bring growth to the area.

From the south of the site, it takes 17 minutes to walk to an area of shops on Cardiffsbridge Road. They include a supermarket, post office, pharmacy, butcher, beauty salon etc. It takes 12 minutes to walk to Clearwater shopping centre, on Finglas Road.

Finglas West is lacking a 'central meeting place'. With development plans featuring the new Finglas Luas route, this is a perfect opportunity to cater for present and future demands of the area, whilst dealing with problems of antisocial behaviour.

Being adjacent to Tolka Valley park, this proposal aims to bring more footfall and activity to the park. The park is generally quiet, which allows for loitering and antisocial behaviour. Scrambler bikes are rampant here in the park also, as there are large areas of cut grass and the landscape is undulating.

The introduction of the new Finglas Luas line, a new corridor of urban growth, and site proposal will bring more footfall and activity into Tolka Valley Park. With the evidence showing us that green spaces have such a positive effect on our physical and mental health and well being while also mitigating climate change, we need to maintain and use these spaces to their full potential for maximum benefits.





Previous stop: Broombridge

The site is the proposed site for the new St. Helena's Luas stop, for the extension of the green line luas. The site is sloped, (17 metre slope north to south) and undulating. The proposal for the Luas cuts through the centre of the site. This is divisive both physically and psychologically.

In collaboration with another student in the class, Mairead, who is working within the park, we saw value in raising the Luas on a viaduct.



New Bridge over the Tolka River

### RAISING THE LUAS

Initial concept for raising the Luas on the viaduct

#### Dear Dublin County Council,

As a final year Architecture student in the process of completing a thesis project that is based in The Tolka Valley area, I am writing to the Planning and Urban Form Strategic Policy Committee regarding raising the proposed extension of green Luas line in Finglas West above ground level.

Finglas West is lacking in services and quality urban green space. Raising of the proposed extension of the Luas Green line on a viaduct from The Tolka Valley River in Tolka Valley Park to St Helena's stop in Finglas West would ensure the Luas is less divisive and allows for further positive development of Finglas West. Providing a viaduct for the Luas passage allows more services to be provided underneath.

The proposed extension of the Luas Green Line from Broombridge to Charlestown via Fingals is a positive gesture in connecting the northside areas to the city centre and beyond, discouraging the use of private cars. I am positive that the extension will also encourage growth and development along the new proposed route.

However, there are some worries among the communities along the new routeway. In the July 2021 consultation regarding the route for the extension of the Luas Green Line from Broombridge to Charlestown via Fingals, there were concerns among residents who were apprehensive about the Luas cutting through parks and taking up green space.

The site just north of Tolka Valley Park, where the proposed stop 'St Helena's' is, is of particular concern. The site is large (47,000m2) extremely sloped (17 metres). Running the Luas along this site is extremely divisive. The proposed Luas line will undoubtedly divide the site physically and socially. The area is already facing some barriers to social cohesion, which we certainly do not want to add to. Connections through this site are detrimental to cohesion of the site.

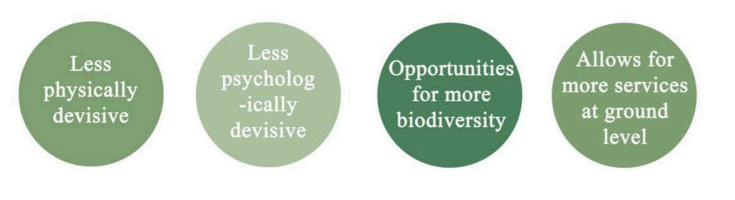
Through detailed analysis of the immediate area, I have observed that there is presence of traditional equine activity, and some degree of neglect. With a history of horses on site, it would be beneficial to the community to provide necessary services for these animals on site. I am proposing to turn this green space into an area for equestrian care, small animals care, an area for recreation through horse riding, and an equestrian sensory garden for children with disabilities.

The Luas would serve the community more effectively if it was raised above ground level onto a viaduct, similarly seen at the Nine Arches Bridge in Milltown. The viaduct would span from The Tolka Valley River in Tolka Valley Park to St Helena's stop on the said site.

This site has huge potential to provide the community of Finglas West with amenities they are much in need of. As the Finglas West area is already lacking in facilities and services, freeing up ground space with the use of a viaduct allows for services and circulation routes to be provided at ground level. We do not want to see this site decimated as it would be a huge loss to the community. The value of raising the Luas line is worth the contribution.

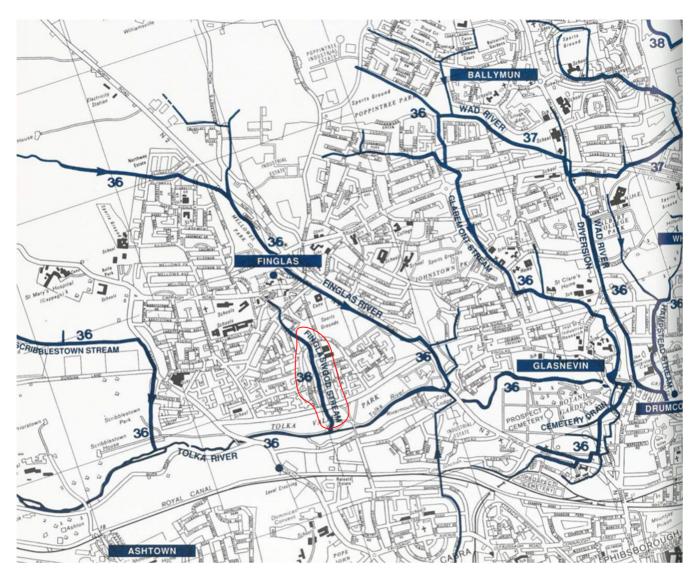
> Sincerely, Gemma Ryan **Final Year Architecture Student**

#### Benefits to raising the Luas through Tolka Valley Park and The St. Helena's Site





The underground river, The Finglaswood Stream (number 36 on map below) flows down through the site and then it flows into the integrated constructed wetlands where the pollution is reduced before flowing into The Tolka River. The ICW is maintained by the Parks Department (Dublin County Council). The stream has been polluted by misconnected domestic drains. The pipe flows down through the site in 900mm pipe at the top to 1,050mm pipe at the bottom depth to bottom of it is 2.7m to 5.4m, according to Gerard O'Connell, senior engineer at Dublin County Council.



#### FINGLASWOOD STREAM

Source: Book - Rivers of Dublin by Clair L, Sweeney

#### **PART III** REIMAGINING HORSE CULTURE IN FINGLAS



### **IRISH HORSE CULTURE & EQUINE ACTIVITY**

From detailed analysis of the site and surrounding areas, there is a evidence of equine activity and some degree of neglect. Horses were observed on the site tied up by rope and lacking shelter. It would be beneficial to the community to provide necessary services and facilities for these animals on site.

Travellers, or Irish gypsies, are widely credited with re-introducing the horse to Dublin. The prestige that went with owning a horse and the lack of residential alternatives in ill-planned estates helped to make a horse the adolescent status symbol of the eighties.

Therese Cunnningham of the DSPCA estimates the city's horse population to be several thousand.

In council estates in counties all over the country, people are growing up alongside horses, raising and racing them - often illegally. Many horses can be seen grazing around Finglas West and The Tolka Valley area. Horse ownership is one of the few remaining links to the nation's fading agrarian heritage.

A much loved but controversial part of inner city life, the culture has been in decline since the Control of Horses Act was introduced in 1996 to address widespread overbreeding and welfare issues.

I mapped the places that there is equine activity and proposed a bridle trail connecting these locations to eachother and to the facility that I am proposing in this thesis project.

Starting with my chosen site, marked as **Tolka Valley Road site**, I observed equine activity myself during one of my site visits. The animals were standing in bad weather conditions lacking shelter. They also appeared to be tied by rope to fencing and standing in areas that were heavily littered. Desk research also allowed me to find photos of the site from the past, where horses were also present.

**Fergal's Field** is another place where I observed equine activity while conducting another site visit. There was 8 horses here, in heavily littered conditions and again, lacking shelter.

**Dunsink Lane** is an area that is occupied mainly by members if the travelling community. The information I gathered on equine activity around Dunsink Lane was from the animal welfare organisation; 'My Lovely Horse Rescue'. The organisation estimnates that almost 100 horses live in the Dunsink area.

**The Pony Club at Scribblestown Lane** promote responsible horse ownership. The club also work with the DSPCA to try and educate young people around topics related to equine care. People regularly use the laneway to ride horses from the pony club. The laneway itself is an asphalted street with a maximum speed of 30 kilometres per hour.

Horse culture is an important part of our culture, and it is important to embrace and enhance these current activities for people who wish to part-take in them, providing these people and animals with education and support.

Wanting to get a deeper understanding for equestrian architecture and how people and horses use spaces in this typology, I conducted a number of site visits to existing equine facilities.



Youth horse riding in Molyneaux yard near Vicar Street flats. Image derived from: jameshoranshootspeople.com



Smithfield horse fair, a bi-yearly somewhat controversial horse fair due to animal welfare concerns and past violent incidents. Image derived from thejorunal.ie



Friends pose with a horse retrieved from an illicit grazing site. Image derived from strangersguide.com

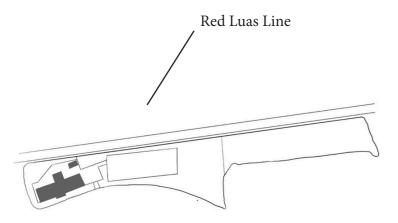


Speculative



#### SITE VISIT A: FETTERCAIRN

Fettercairn Youth Horse Project is a community run stables and horse riding facility located in Tallaght, Dublin. There is 20 stables in an American style barn with an olympic style arena, constructed in 1999. The aim of this facility is to provide opportunity for young people to develop skills in animal welfare, stable management and horse riding. Some of the horses are rescues, while some are owned by members of the community. A lot of visitors have disabilities and there is different types of therapy that can aid these people through horse riding and care.



The red line Luas also runs adjacent to the site and the horses are generally unbothered by the noise.



Equestrian Trainer Lynn, Fettercairn Youth Horse Project











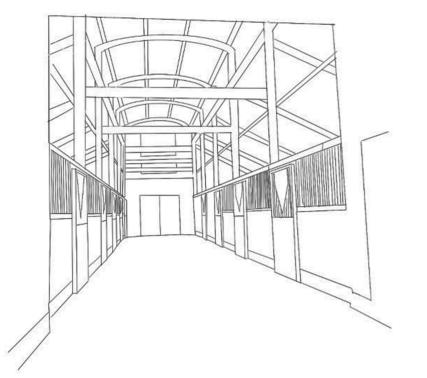












Horse trainer Lynn informed me of specific requirements of working stables.

The individual stables are separated by concrete block walls (1300mm height) with a resistant coating. The steel grills fixed on the walls allow a view into other stables and across the building. The V shaped grill sliding door allows the animals to have the opportunity to socialise as horses are generally very social animals.

The individual stable floors have rubber mats laid above the concrete flooring for comfort and ease of cleaning.

Each stable is 4m x 4m, however some of the very large horses cannot lie down as this size is to small for them to do so comfortably.

Ventilation is important and there is a series of vents to allow for this.

The tack room is a secure locked room as the leather goods (saddles etc) are expensive.

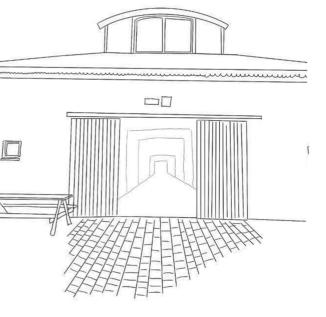
Sketch of stables interior

The large sliding doors allow two horses to pass in opposite directions with ease.

There is limited grazing space but animals are supplemented with hay.

The council are responsible for taking away the horse waste, this is also used for compost in the adjacent community garden.

There is a sensory area that is used by people with sensory issues and people with disabilities including autism. There is different types of gravel for the horse to walk on and the sensation for the rider aids in these issues.



Sketch of stables sliding door

#### SITE VISIT B: CHERRY ORCHARD EQUINE CENTRE

Cherry Orchard Equine Centre is a purpose built training centre, with facilities such as an indoor arena, outdoor arena, sensory riding trail, cross country training area and training classroom.

Stable Hand Derek explained the facilities and the inner workings of the centre. There is a similar amount of horses at this facility to the previous site visit.

The indoor arena is an excellent amentity this facility has. It allows training and riding to go ahead in any weather condition. This is something I knew I wanted to include in my scheme, given the unpredictable and often raining weather conditions in Dublin.

The outdoor horse walker is frequently used in lunging horses, which is a method of having the horse exercise in a large circle. Lunging is excellent for settling high strung horses and establishing control.

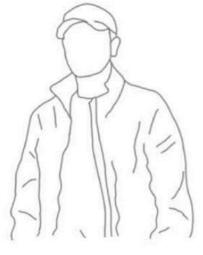
Like Fettercairn, there is facilities here for children and adults with additional needs. Hippotherapy is a form of physical therapy for children and adults that uses the motion of a walking horse to provide therapeutic movement to the rider.











Stable Hand Derek, Cherry Orchard Equestrian Centre











### SITE VISIT C: THE NATIONAL STUD

Although a very different context to Fettercairn, Cherry Orchard and Finglas, my visit to The National Stud was extremely valuable in informing some of my later design decisions.

The Irish National Stud is a Thoroughbred horse breeding facility in Tully, Kildare. Patricia, one of the tour guides, showed the group around the grounds.

The stables for the stallions have multiple roof lights as these horses travel to different time zones multiple times each year, they reorientate themselves by the stars. Outside the stables for the stallions, the ground is made of a soft surface of recycled tyres, which makes walking a lot more comfortable for the horses.

Other stables are arranged around courtyards, creating enclosed exterior spaces for visitors and horses to circulate.

Foaling boxes are slightly larger than standard stables to allow for medical intervention if needed.

All stable doors are sliding and have a wire grill.

Each stallion is put into a separate paddocks for grazing to avoid fighting.











Tour Guide Patricia, Irish National Stud







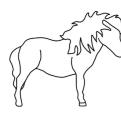


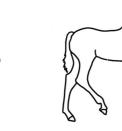


After experiencing equestrian care and support in my previous site visits, I learned the ergonomics of a horse is important in creating an efficient facility design for them. Given that us as humans will be using these animals to our own benefit, I believe their comfort is of the upmost importance.

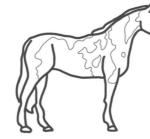
equestrian facility.



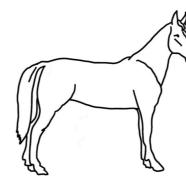




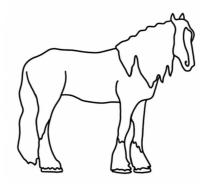




Pie bald 15.5 hands 1600mm



Thoroughbred 17 hands 1750mm



Shire 19 hands 1900mm



Foal 9.5 hands 1000mm

Shetland pony 11 hands 1100mm

14.5 hands

1500mm

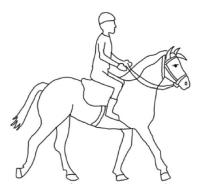
Colt

# EQUESTRIAN ERGONOMICS

Below I looked at a number of common breeds, many I saw during my site visits. The dimensions listed here will inform my decisions during the design of my



Human 17 hands 1750mm



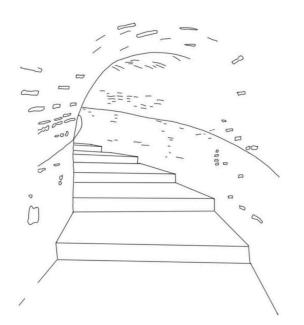
Human riding thoroughbred

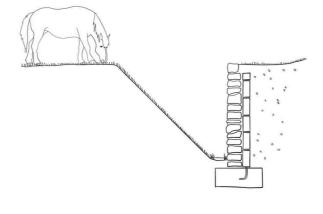
2900mm

Given the chosen site is very sloped, I started researching landscape features that would aid in horses moving through and around the site.

The equestrian staircase is a very gently sloping flight of steps that can be negotiated by horses. Below is a sketch of an equestrian staircase in the White Tower of Thessaloniki. Equestrain staircases can also be found in Prague Castle.

Hahas, also known as sunk fences are a recessed landscape design element that creates a vertial barrier while preserving an uninterrupted view of the landscape beyond from the other side. Instead of using standard timber fencing for the paddocks and grazing areas on the site, I want to encorporate hahas as they create uninterrupted views across the site, while also preventing the animals from wandering.





Haha landscape feature

Equestrian staircase

# LANDSCAPE FEATURES

### STABLES IN CHILE BY MATIAS ZE-**GERS ARCHITECTS**

The skylight that runs along the ridge of this stables allows natural light to flood into the laminated truss timber trusses that support its curved ceiling.

This allows for minimal artifical light to be used.

This skylight also creates a nice ambienance for the horses in the stable as there is no direct harsh sunlight where the stable boxes are situated.

As we are using the horses in my thesis project to benefit us as humans, their comfort and ease is very important to this precedent is something I looked at closely in the design of the stables, where the horses spent a large portion of the day.



Image derived from deezen.com



Image derived from deezen.com

produce.





# SHAKER BARN

This round stone barn was built in Massachusetts in 1826. Hay was unloaded from wagons into the wooden lined central storage area on the top floor. One level down 50 cattle were kept in stanchions. The bottom level is the manure pit. The original barn was burnt in 1864 and rebuilt.

The circular shape allows the ease of movement for animals, food and waste. Although this building is used for cows, the roundness is definitely something I wanted to incorporate into my scheme. The efficient layout is something I aim to incorporate in my stables building, given the large amount of hay horses consume and the large amount of waste they

Image derived from nps.gov



Image derived from youtube.com

# BISHOP EDWARD KING CHAPEL BY NIALL MCLOUGHLIN ARCHITECTS

The elliptical chapel near Oxford contains a group of arching timber columns behind the textured stone facade.

The clerestory windows bring light across the ceiling.

The clerestory windows is a great example of bringing light into a building while having the walls at eye level clear of glazing. This is something I think would be great to incorporate into equestrian buildings to avoid horses getting distracted or spooked from aspects outside the building.

The clerestory glazing is something I will implement as a moti across buildings in my scheme.



Image derived from deezen.com



Image derived from deezen.com

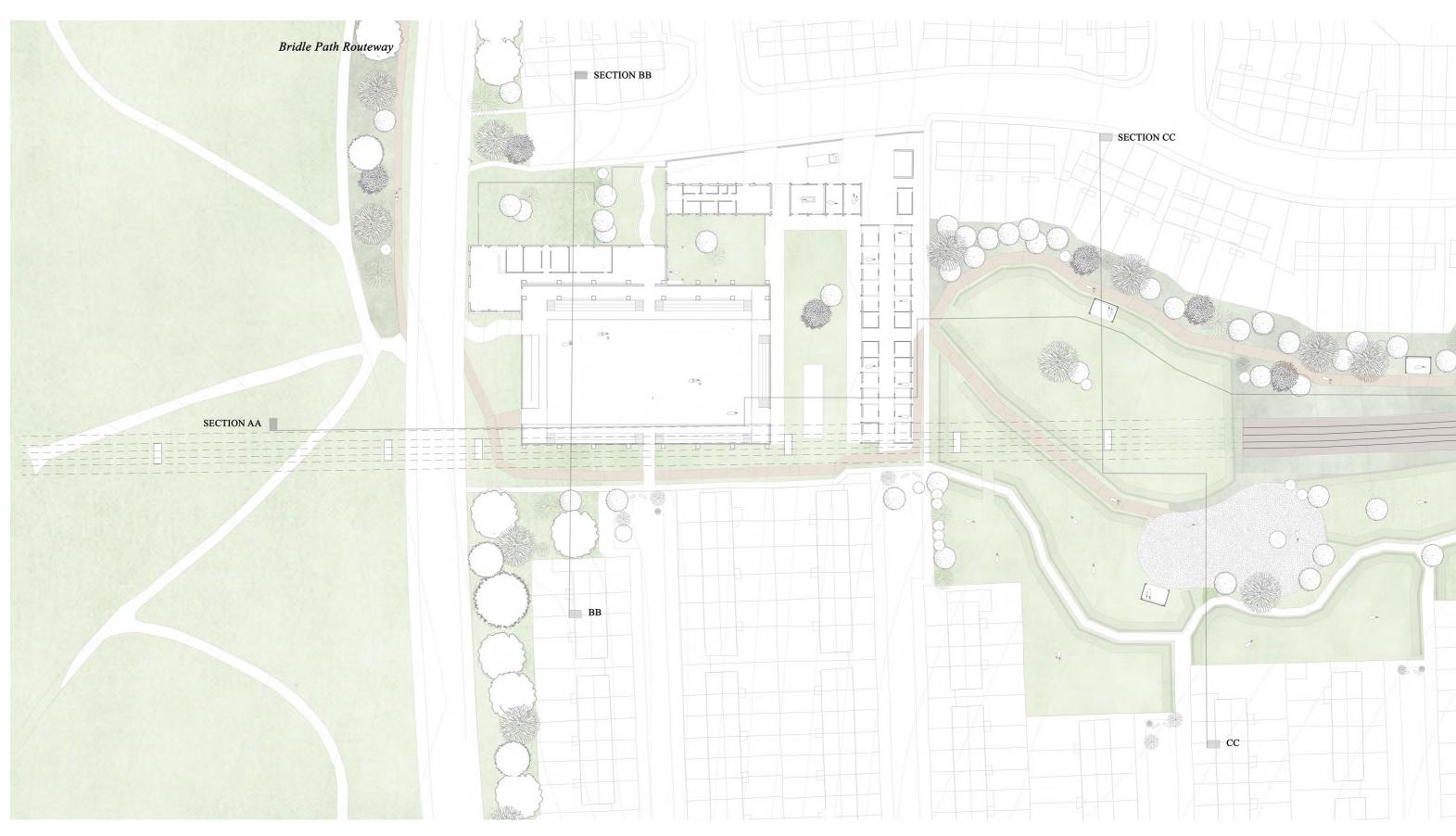


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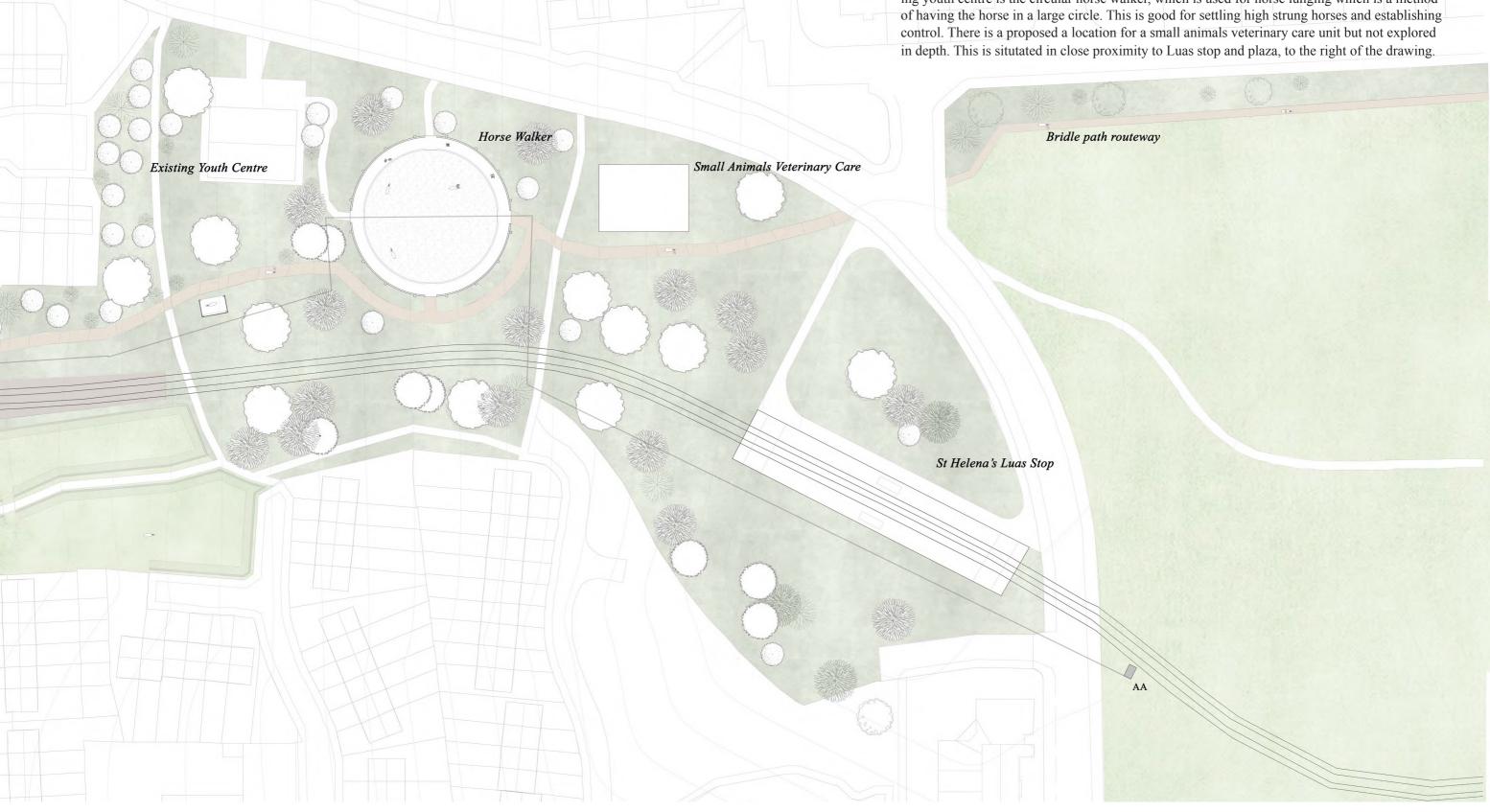
### **PART IV**

# THE STRATEGY

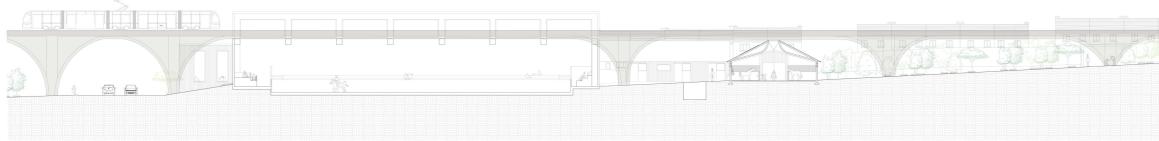
Finglas West Equestrian Centre, the reconceptualization of an existing urban green space in relation to climate whilst identifying needs within the community and addressing those needs to equestrian sport & supoort.



The proposed viaduct is conveyed in a dashed line with the columns in white. The primary area of building is to the left of the drawing, here we have the main ridinarena, cafe, veterinary facilities and stables. The areas darker green are dedicated for biodiversity. Moving up through the site on bridle trails (brown) or new pedestrian pathways (white) you come to the grazing areas with shelters and hahas to deter horses from wandering. The sensory area is where hippotherapy is practiced. Hippotherapy is a form of physical therapy for children and adults that uses the motion of a walking horse to provide therapeutic movement to the rider. It is also helpful for people with sensory issues and conditions like autism. This is something I became familiar with from the Fettercairn and Cherry Orchard Equine centre visits. Adjacent to the existing youth centre is the circular horse walker, which is used for horse lunging which is a method of having the horse in a large circle. This is good for settling high strung horses and establishing control. There is a proposed a location for a small animals veterinary care unit but not explored in depth. This is situtated in close proximity to Luas stop and plaza, to the right of the drawing.

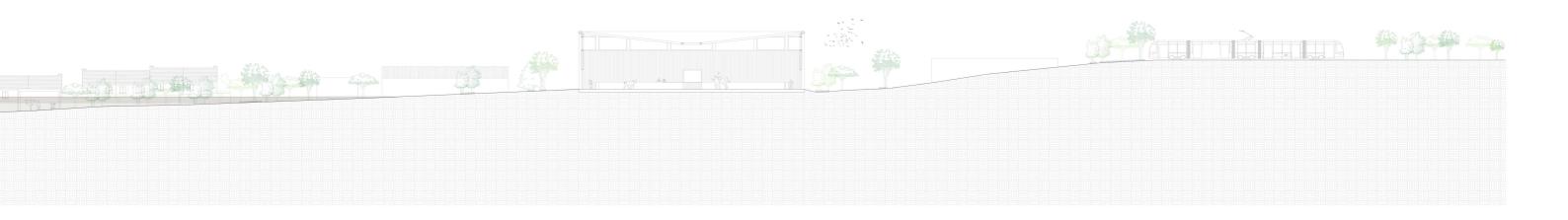


SITE PLAN



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The site is sloped, 17 metres in total and undulating. The proposed a viaduct for the Luas passage, is shown here. This allows for more services, circulation routes and biodiversity underneath this span.



# SITE SECTION AA



The entrance for pedestrians and horses (from the bridle trail) is to south of the site beside cafe. There is also the option for pedestrians to enter through the courtyard and prefunction area to the Horses can also enter the area directly across from the stables.

The arena has a capacity of 1,040. This includes 20 wheelchair accessible spaces.

This proposal aims to improve social cohesion by the provision of meeting spaces. I have proposed a cafe as meeting spaces are lacking in the area.

A lecture room is provided to allow for classes on equine care and education to take place.

The vehicle and horse box drop off is to west, in front of the veterinary area. I consulted with veterinary surgeon, Megan, of Greystones Veterinary Practice about how injured horses arrive on site. She informed me they almost always arrive in a horse box. The treatment room and sick boxes are adjacent to the drop off zone for quick treatment in case of emergency.

There are 2 sick/ foaling boxes.

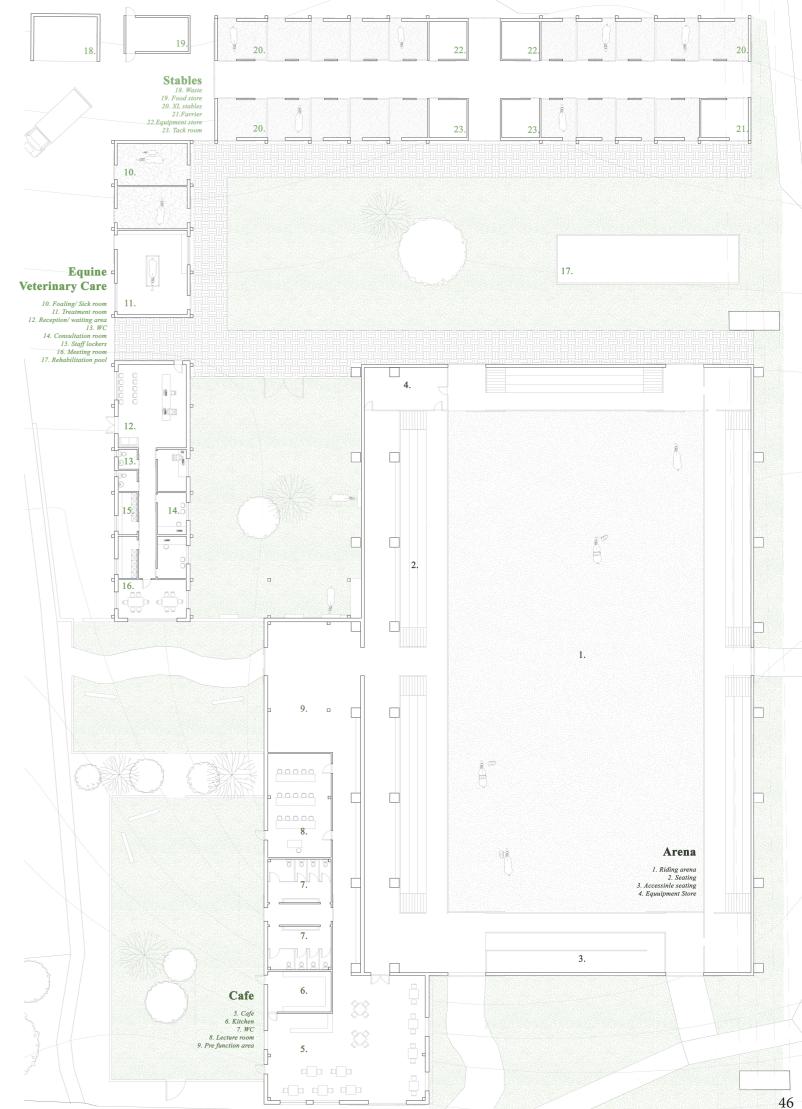
The food store and waste store in located adjacent to the stables and srop off zone for easy access to both points.

The stables consist of 19 stables. There is 3 stables of a larger size, to cater for larger horse breeds, for example a Shire or a large Thoroughbred. Within the stables is the tack rooms, the farrier room and multiple points for storage.

There are a series of courtyards within the plan. Two are for human use and two are primarily for equestrian use.



Veterinary Surgeon Megan, Greystones Veterinary Practice

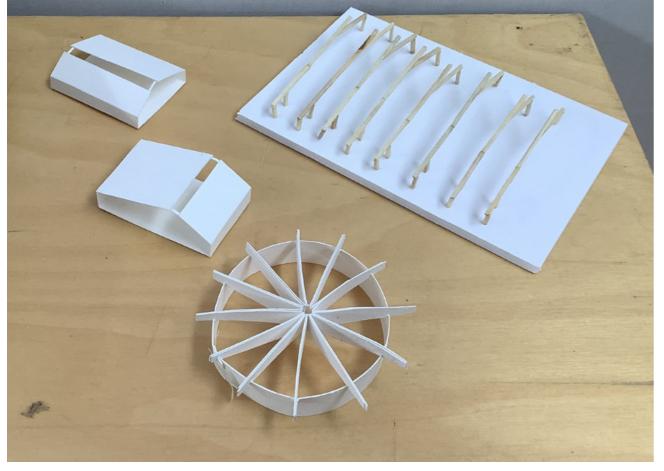


# ROOF PLAN ()

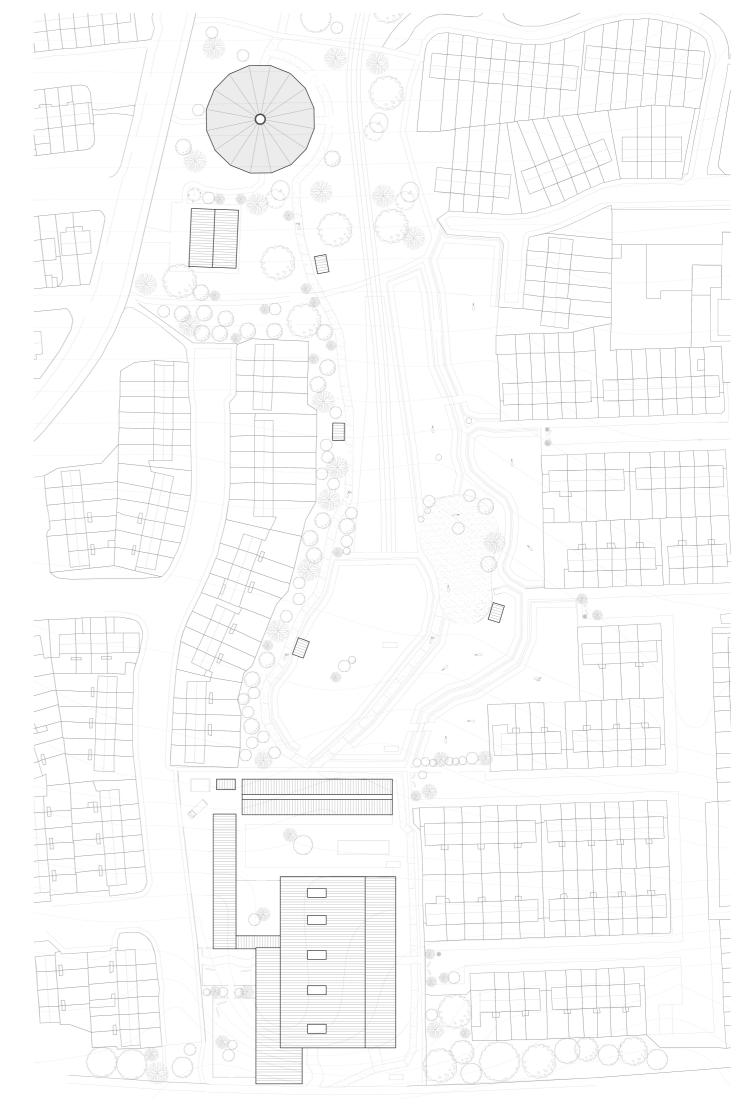
The roof panels are hemp fibre corrugated panels. These are sourced from Cambridge. They are a carbon friendly alternative to many corrugated metal roof panels.

The relationship between the main arena building and proposed viaduct is an important junction. The roof I have proposed allows for a view of the passing Luas from some of the seating areas in the arena.

In the horse walker structure, a tension ring room structure is used to achieve the clear span.



Sketch Models - Roof Exploration



# ARENA DETAIL SECTION

#### Structure

Coming back to the main arena space in greater detail, the structure is glulam portal frame with a reciprocal beam arrangement to achieve the large span.

This provides a clean gable roof soffit with deep timber beams extending into the availabke volume above.

The columns are kept outboard of the seating tiers to give spectators clear lines of sight and height over the arena.

To make a portal frame work, the moment connection at the apex of the roof beams is easy to achieve with the reciprocal beam arrangement.

The clearstory glazing allows a glimpse of the passing luas on the viaduct from some of the seating areas.

The prop near the clerestory glazing completes a triangle that makes moment resistance easy to achieve for each of the beams framing from apex to perimeter.

The knot of beams and prop at the roof ridge are connected with simple bearing and shear connectors.

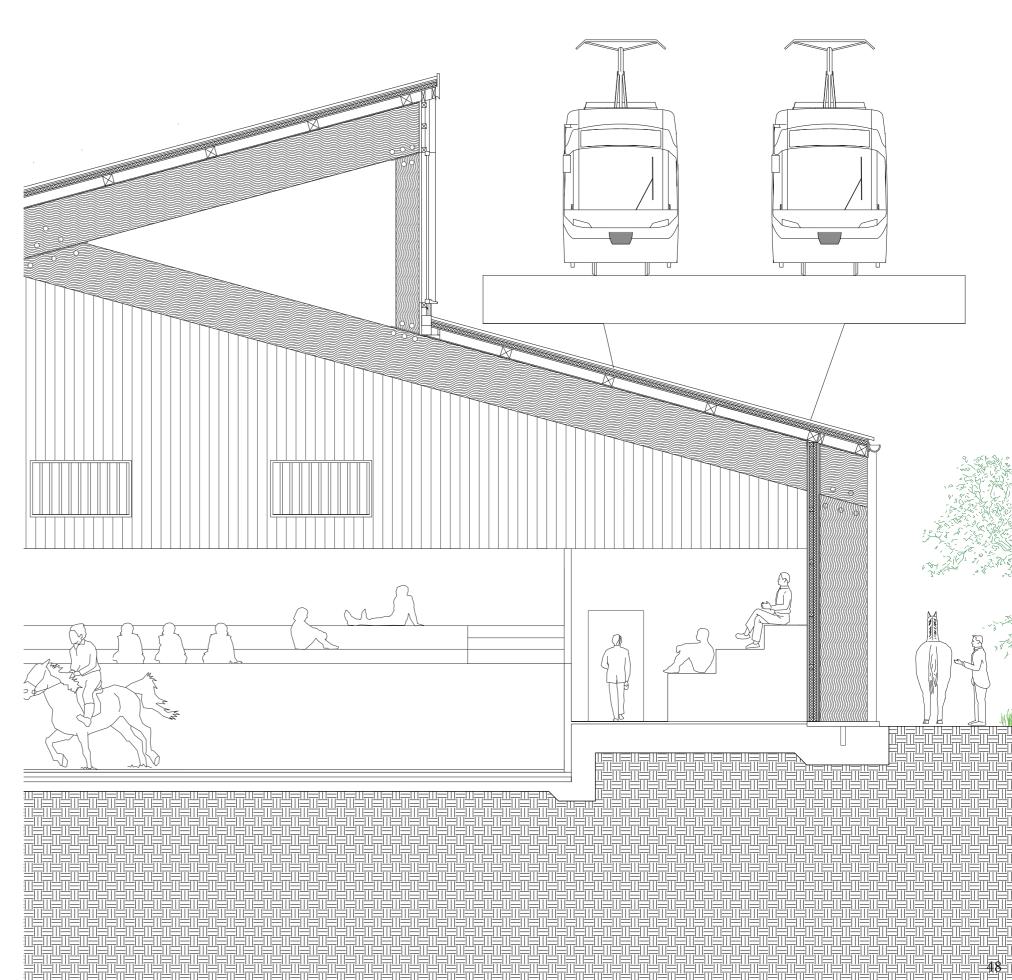
At the building perimeter, rigid, moment connected joints using knife plates and dowels would complete the simple portal frame arrangement.

There is a small bit of insulation as to prevent condensation on the windows.

Ventilation is important and yorkshire boarding vents are used to allow for this.

The clerestory glazing appears as a motif throughout the buildings in this proposal.

The cladding is larch as larch is very resistant to horse waste. As larch is a timber material, it is also sequestering carbon.





# STABLES SECTION

Drawing upon the previously discussed precedent Stables in Chile by Matias Zegers, Phave incorporated the roof light, which provides a large amount of natural light so that minimal artifical lighting is needed.

The timber lined ceilings on either side of the skylight are curved to allow light to diffuse gently over their surfaces.

Again yorkshire boarding is used for ventilation.

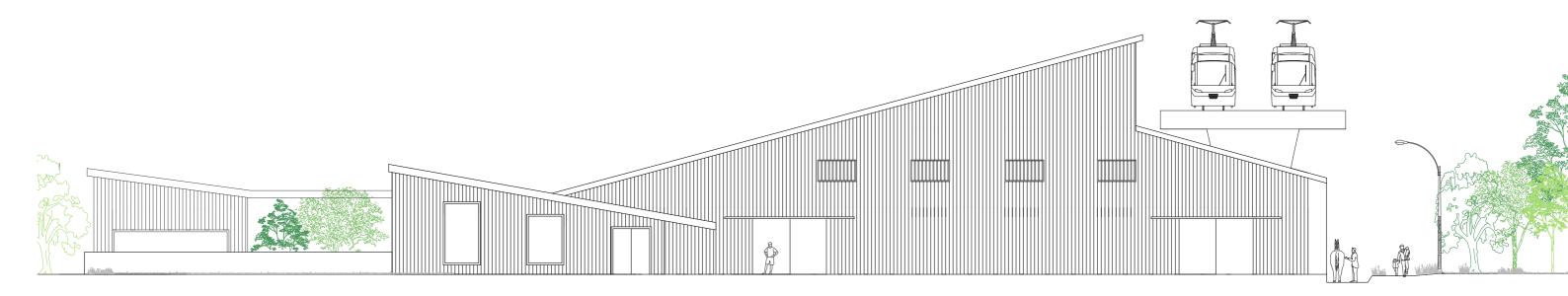
Stable boxes are ever so slightly sloped to allow liquid run off to drain.

The gutter collects water which flows directly into the horses drinking troughs adjacent to the building as rainwater is safe for horses to drink.

The interiors are clad in larch as this material is very resistant to horse waste.

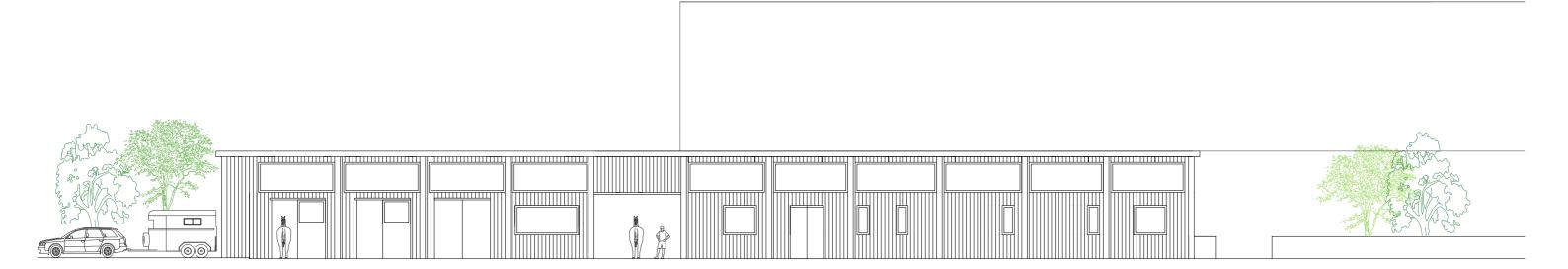


Cafe, arena

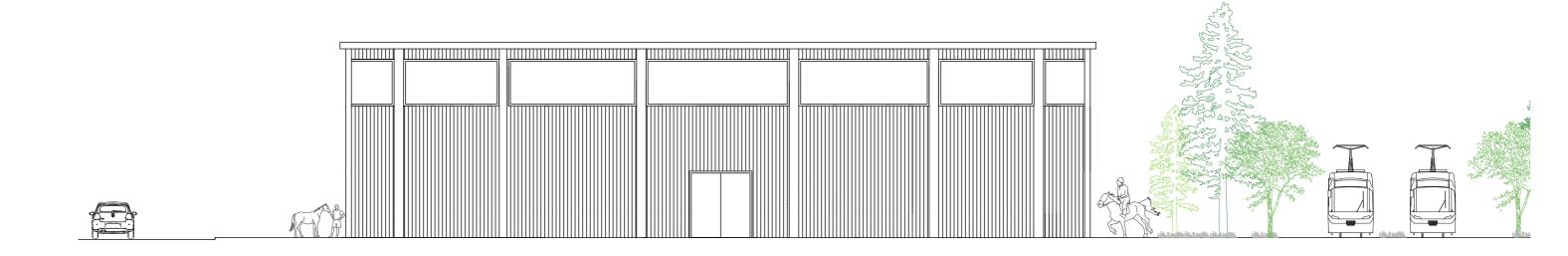


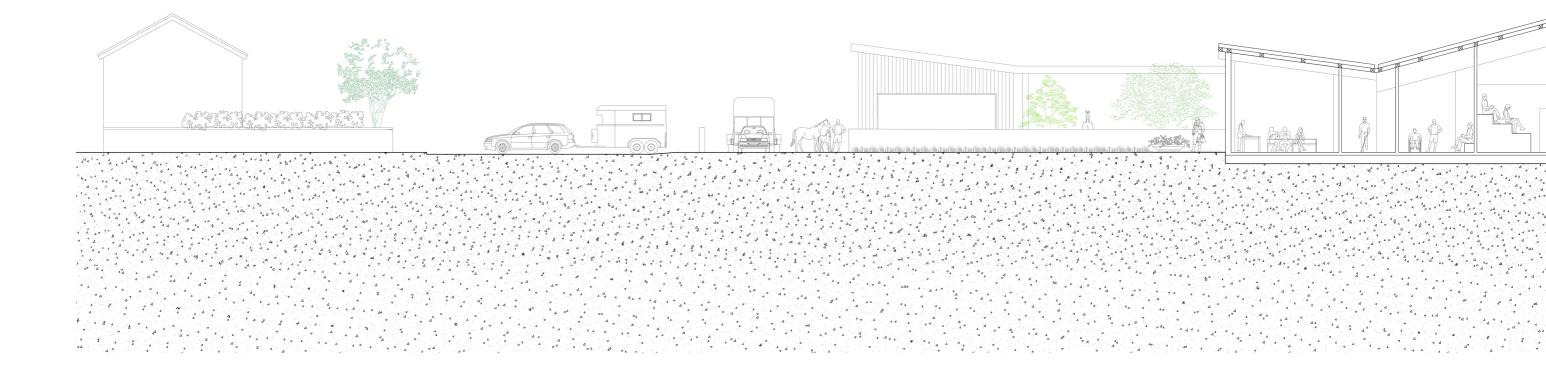
# WEST ELEVATION

Sick/ foaling boxes, treatment room, equestrian veterinary services

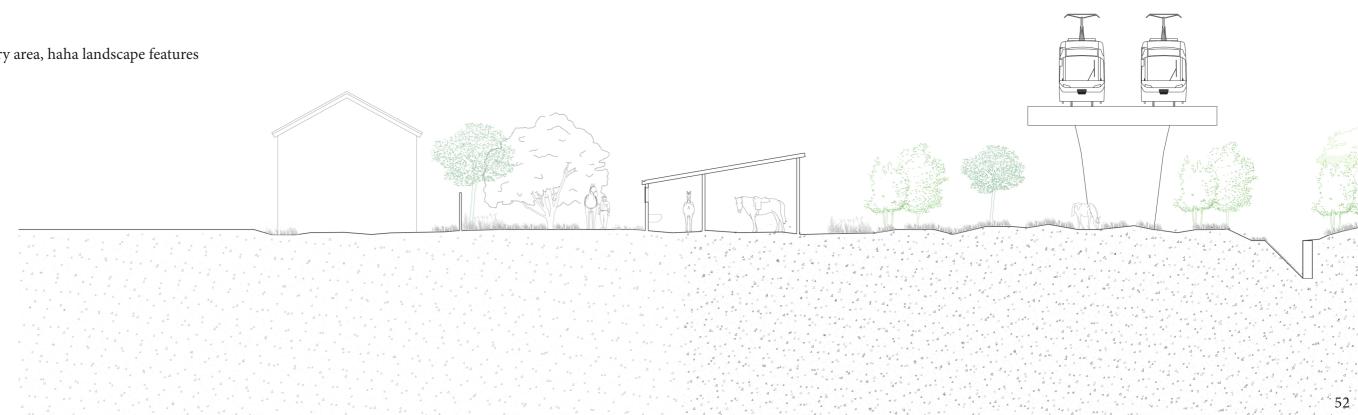


# HORSE WALKER SOUTH ELEVATION

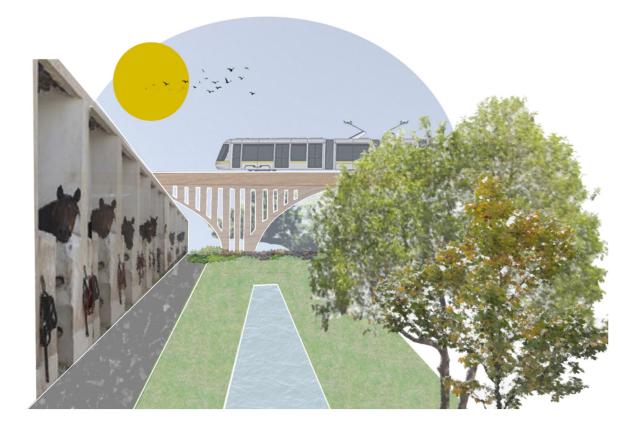




# SECTION CC Horse shelter, viaduct, sensory area, haha landscape features





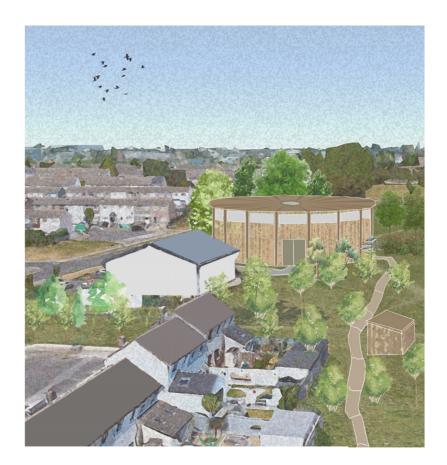




Character collage

Arena Atmospheric

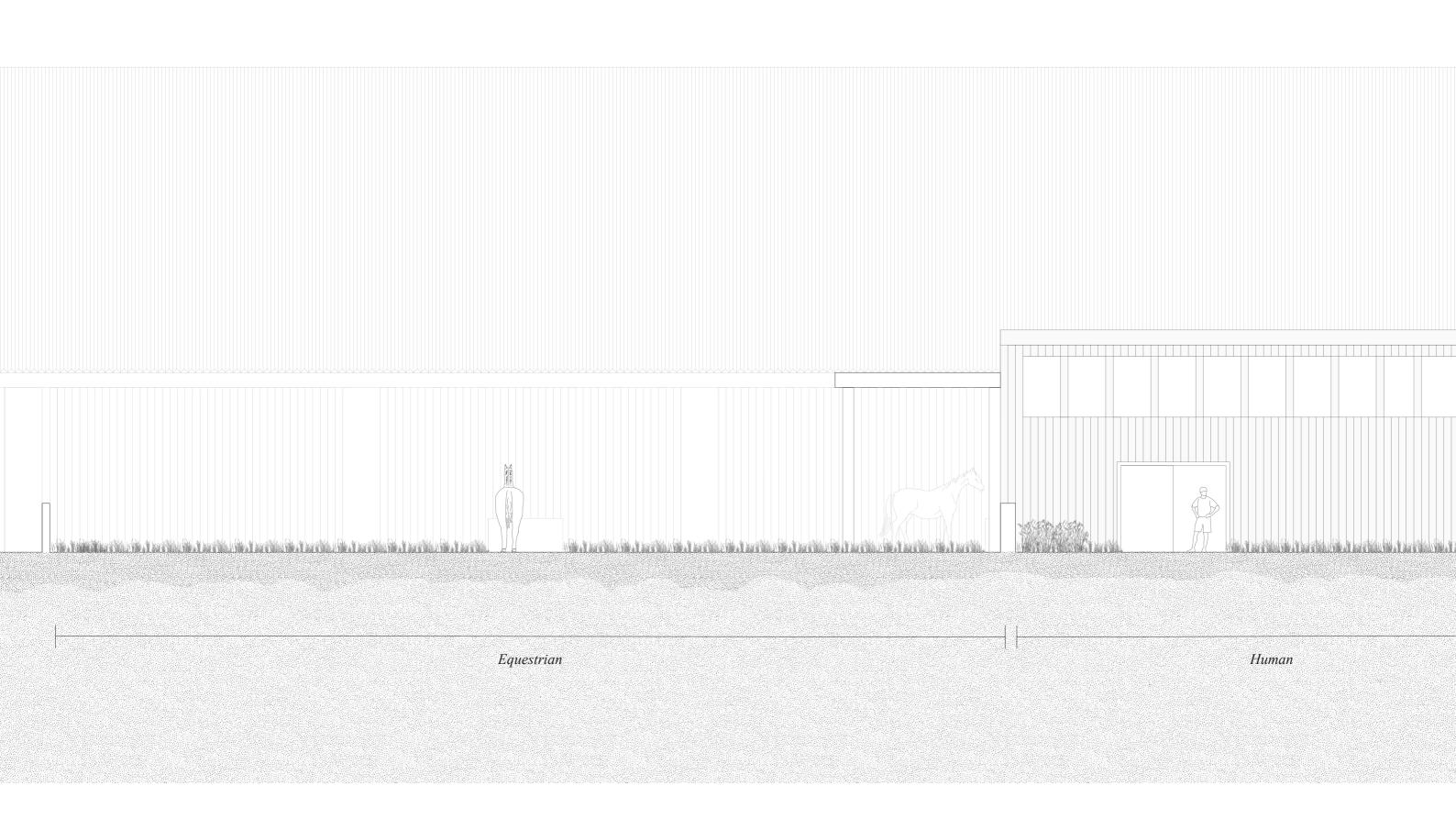


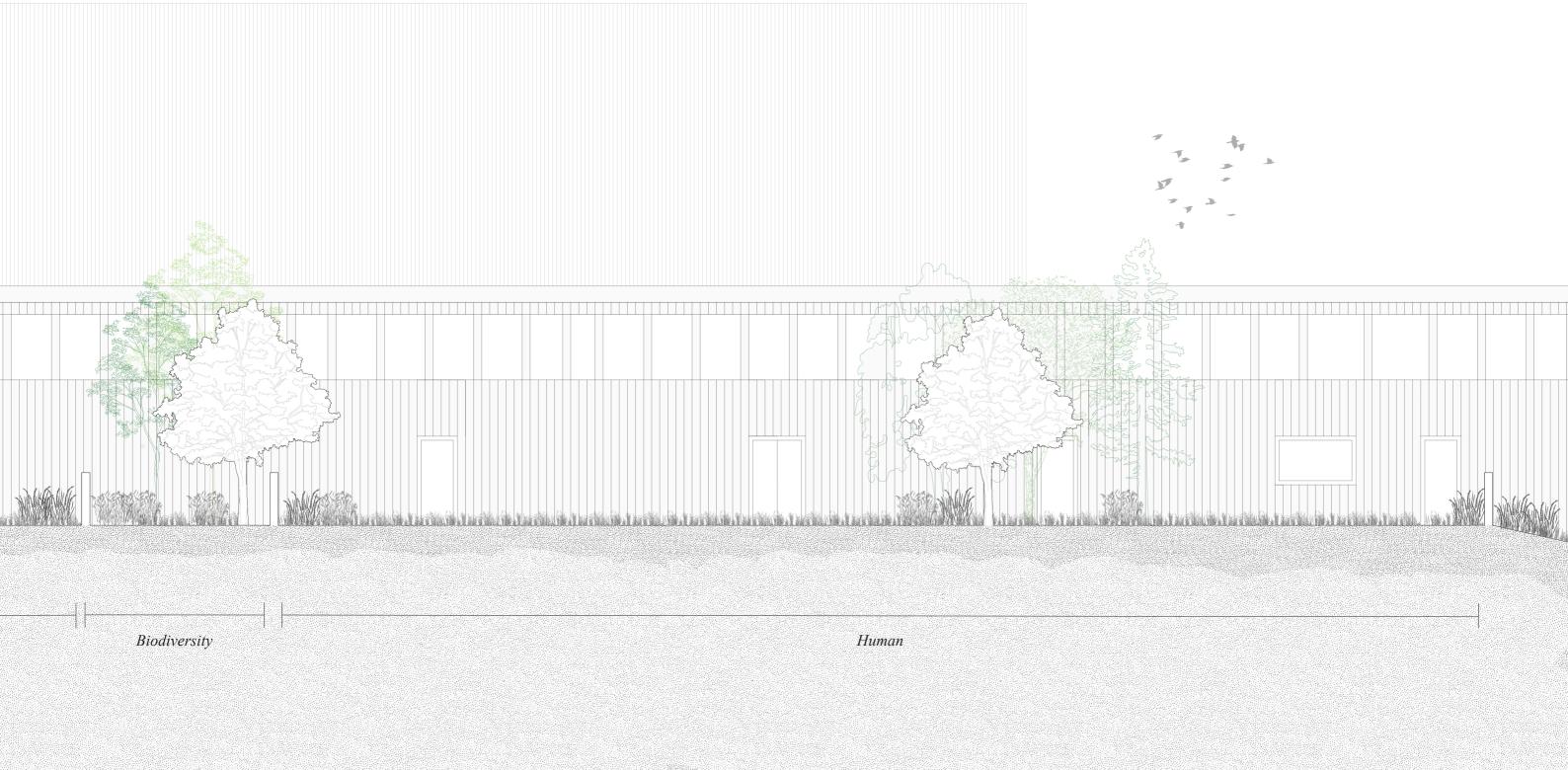


Bridle trail

Horse Walker

# COURTYARDS SECTION





# MODEL MAKING



Site Model 1:1000



Site Model 1:1000

### Urban Green Space as a preventative health measure by identifying needs within the community, meeting those needs through horse riding and care facilities.

Biodiversity

nity needs

unal activity

### CONCLUSION

This project came from an enquiry of health and wellbeing by identifying needs within the community. I aimed to highlight the value of communal activity and improve social cohesion through sport and care of animals by contributing to mental health and enhancing existing activities.

As I previously set out criteria for what makes a good urban green space during the research stage, there are some points which this thesis proposal has significantly improved on.

• A welcoming place: positivity, well prepared for visitors, feedback welcome: The existing site is a somewhat intimidating place, with scrambler bikes and low footfall. Now there is new meeting spaces, opportunitys to view and take part in equestrian sport and support, whilst embraing and enhancing Dublin horse culture.

• Healthy, safe and secure: well lit, few invisible areas, security, passive surveillance: *The proposal encourages lots of passive surveillience as the proposal will bring activity to the area and the park.* 

• Sustainability: biodiversity, designated areas allowed to wild: *There are designated areas for biodiversity* 

• Community involvement: regular events, meetups: The community are welcome to part take or watch in the events carried out throughout the scheme.

• Easily accessible by walking, cycling and public transport: There are direct bus routes from the city centre to the site and the new extension of the green line Luas will bring visitors directly to the site.

By taking this large 'leftover', under utilised urban green space whilst identifying needs within the community and enhancing existing activities, this urban green space is now serving the people and animals of the community and also being a bene-fit to climate change also.

The ongoing health and climate crisis have opened our eyes wider and pushed us to appreciate nature and green space within cities like we haven't before. My project is one example of how nature and architecture can mutually benefit one another.

I hope our appreciation and respect for the natural environment strengthens and people utilise green spaces to their full potential - reaping all the benefits.

### BIBLIOGRAPHY

Corrian, D. (2020). Green Space Is Good - But Not All Green Spaces Are Created Equal, Some Say. [online]. Accessed at: https://dublininquirer.com/2020/04/08/green-space-is-good-but-not-all-green-spaces-are -created-equal-some-say Accessed on 5/11/2022

Green Flag Awards 2021. (2021). Green Flag for Parks Award Ireland. [online video]. Accessed at: https://www.youtube.com/watch?v=T9NEueMgBKc Accessed on 5/11/2022

Niall. F. (2022). Sports & Recreation - Tolka Valley Life & Society: Slide 36. [College Presentation]. Watched at Linenhall, Dublin on 14/10/2022. Cullen, E. (2022). Green Flag for Parks Award. [online article]. Accessed at: https://www.antaisce.org/green-flag-for-parks#:~:text=The%20Green%20Flag%20for% 20Parks,of%20parks%20and%20green%20spaces. Accessed on: 5/11/2022

Cassidy, L. (2012). Huguenot Cemetery, Merrion Row, Dublin 2. [online article]. Accessed at: http://builtdublin.com/huguenot-cemetery-merrion-row-dublin-2/ Accessed on: 5/11/2022

Meeting House Square. [online article]. Accessed at: https://www.dublintown.ie/business/meeting-house-square/ Accessed on 5/11/2022

O'Keeffe, C. (2021). Fresh calls for action on scrambler bikes after hit and run. [online article]. Accessed at: https://www.irishexaminer.com/news/arid-40729479.html Accessed on 5/11/2022

Hughes, N. (2022). Brutal and Beautiful - The Story of London's Barbican. Accessed at:

https://heritagecalling.com/2022/02/28/brutal-and-beautiful-the-story-of-londons-barbic an/ Accessed on 5/11/2022

European Environment Agency, (2022). Who benefits from nature in cities? Social inequalities in access to urban green and blue spaces across Europe. [online article]. Accessed at: https://www.eea.europa.eu/publications/who-benefits-from-nature-in Accessed on 13/11/22

Ryan, G. (2022). Tolka Valley & The Natural Environment. [class document]. Accessed via class drive. Accessed on 13/11/2022

Harris, M and Hochstrasser, T. (2021). Mapping of Dublin urban green spaces (UGS) and historical land use change to determine habitat continuity. [online document]. Accessed at:

https://cieem.net/wp-content/uploads/2021/05/Mapping-of-Dublin-urban-green-spacesandhistorical-land-use-change-to-determine-habitat-continuity.pdf Accessed on 13/11/2022

World Health Organisation. Regional Office for Europe. (2016). Urban green spaces for health. [online document]. Accessed at: https://apps.who.int/iris/bitstream/handle/10665/345751/WHO-EURO-2016-3352-4311 1-60341-eng.pdf?sequence=1&isAllowed=y Accessed on 19/11/2022

Jennings, V and Bamkole, O. (2019). The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion. [online article]. Accessed at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6388234/ Accessed on 29/11/2022

Sadler, J. and Bates, A. and Hale, J. and James, P. (2010). Urban Ecology - Chapter 10 [online book]. Accessed at:

https://books.google.ie/books?hl=en&lr=&id=Vp6 VAZaXwAC&oi=fnd&pg=PA230& dq=urban+green+spaces+biodiversity&ots=afu5J9EEmJ&sig=RT0UPQZtSeZfGSK11x QtEVVQ8rA&redir esc=y#v=onepage&q=urban%20green%20spaces%20biodiversity &f=false Accessed on 29/11/2022

Office of Public Works. (n.d.) Iveagh Gardens. [online]. Accessed at: https://iveaghgardens.ie Accessed on 30/11/2022

Rae, R. (2021). Cemeteries as public urban green space: Management, funding and form. [online]. Accessed at:

https://www.sciencedirect.com/science/article/abs/pii/S1618866721001035 Accessed on 30/11/2022

Winkless, Laurie. (2022). The '15 Minute City': What They Are And How To Build Them. [online]. Accessed at: https://www.forbes.com/sites/lauriewinkless/2022/09/30/the-15-minute-city-what-theyareand-how-to-build-them/?sh=b3462b96bdd7 Accessed on 28/12/2022

McManus, Claire. (2020). Urban Sprawl to Compact Growth. [online document]. Accessed at:

https://councilmeetings.dublincity.ie/documents/s29770/4.Compact%20City%20Housin g%20Presentation%20-%20RIAI.pdf Accessed on 28/12/2022

Perrett, C. (2021). The New York City MTA sparked backlash for saying it removed benches from subway stations to 'prevent the homeless from sleeping on them'. [online]. Accessed at:

https://www.businessinsider.com/nyc-mta-removed-benches-to-prevent-homeless-fromsleeping-2021-2?r=US&IR=T Accessed on 03/01/2023

Starolis, H. (2020). Hostile Architecture: The Death of Urban Spaces. [online journal]. Accessed at:

https://www.proquest.com/docview/2346651786?pq-origsite=gscholar&fromopenview= true Accessed on 03/01/2023

Bridgers, L. (2017). The Green Belt: what is it and why does it matter? [online]. Accessed at: http://www.highlivingbarnet.com/green-belt-matter/ Accessed on 03/01/2023

What Is Hippotherapy? (n.d.) https://www.leckey.com/blog/2021/september/what-is-hippotherapyand-how-can-it-help-children-with-special-needs

Dundon, R. (n.d.). Pony Boys: Irish horse culture in the inner city. Accessed at: https://strangersguide.com/articles/pony-boys/ Accessed on 31/1/2023

Nowness, (2020). Dublin's working class fight gentrification with horses. [video]. Accessed at: https://www.youtube.com/watch?v=OU2BB1 9oJE Accessed on 31/1/23

Sweeney, CL. (2017). The Rivers of Dublin [book]. Irish Academic Press.

Hollandsche Manege. (n.d.) https://www.amsterdamsights.com/attractions/manege.html Accessed 3/3/2023

Griffiths, A. (2018). Elongated skylight illuminates stables in Chile by Matias Zegers Architects. [online article]. Accessed at: https://www.dezeen.com/2018/07/29/chile-stables-matias-zegers-architecture/ Accessed on 3/4/2023

Hancock Shaker Village. [online article]. Hancock Shaker Village. Accessed at: https://www.nps.gov/places/han-cock-shaker-village.htm Accessed on 2/5/2023.

Frearson, A. (2013). Bishop Edward King Chapel by Niall McLaughlin Architects. [online article]. Accessed at: https://www.dezeen.com/2013/06/19/bishop-edward-king-chapel-by-niall-mclaughlin-architects/ Accessed on 5/5/2023