LA503 Materials and Management

Georgiana Templeton

29/9/22 LA503 - Materials and Management.

The function and performance of the materials... from which a landscape is fashioned and how they are assembled is as important as their aesthetic impact and how their form and character are expressed in the design.

* marks based on planting & construction rather than aesthetics.

Group 3 - Duisburg-Nord by Peter Latz & partners.
↳ Charlie G, Sara, Charlie L & Hazel

Native Trees & Shrubs

° Elderflower → Sambucus

leaves - Dark green and matt on top, underside is paler. leaves are opposite along the stem. leaf shape is elliptical with regular teeth and a pointed tip.

Form & shape - appears tall & round or spreading, can grow up to 9m but most are a manageable 4m.

location - any soil that is not prone to waterlogging. sun or partial shade.

Flowers - often white flowerheads during May & June arranged in clusters - umbelliferae

Fruit - small black berries and yellow leaves in autumn.

Tree Bark - Greyish-brown. young bark contains lots of 'warts' called lenticles, as it ages it develops deep creases. young branches are very brittle & filled with creamy-white pithy tissue.

° Blackthorn - Prunus Spinosa

leaf - small and oval shaped with ribbed edges. Roughly 2cm across and up to 5cm in length. Sometimes sticky on top.

leaf arrangement - along the branch, the leaves alternate from one side to the other and are relatively close together.

Tree Shape & Form - Tree is shrubby with stiff wide angled branches. can grow up to 6m in height. long sharp thorns.

Flowers - late December / early spring around 1.5cm in diametre with 5 creamy-white petals.

Fruit - slow berries are about 1cm round balls, black / purple in colour - good for wildlife.

Bark - twigs are dark in colour and spiny with leaf buds along the spines formed from shoots. older the tree, the darker the bark.

- Common Hawthorns - Crataegus monogyna

leaf - palmate shape with smooth texture, alternate arrangement.

Tree shape - Round

Fruit - green fruit that turn Red in autumn called haw.

Flowers - white with a light-pink tint & 5 petals.

Bark - it is grey with shallow longitudinal fissures with narrow ridges.

- Common Holly - Ilex aquifolium

Foliage - large evergreen shrub or pyramidal tree growing up to 25m tall. Glossy, dark, wavy-edged, spiny leaves.

Flowers - small fragrant white flowers with four petals. Pollinated by insects.

Fruit - small red berries (occasionally yellow) contain four seeds ~~and~~ are dispersed by birds.

Bark

~~Free Form~~ - silvery / dark grey thin & smooth to touch.

- Bird Cherry - Prunus padus

leaves - 2 red glands at the top and have hairs on the underside in the vein axils. Oval shaped with fine sharp serrations & Pointed tips.

Flowers - clustered along short stalks, botanically known as racemes. Have both male and female parts. white in colour.

Fruit - Red or Black cherries

Form - trees can grow up to 25m in height

Bark - ~~smooth~~, grey and has etches.

- Common Beech - Fagus sylvatica

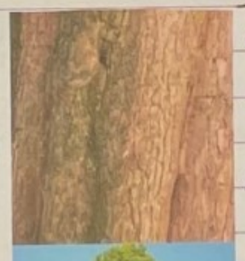
leaves - lime green with silky hairs. As they mature the colour darkens oval & pointed at the tips.

Flowers - Monoecious, Male catkins hang from long stalks at the end of twigs, female catkins grow in pairs surrounded by a cup.

Fruit - cup becomes woody once pollinated, enclosing 1 or 2 beech nuts. can come in groups of 4.

Form - ~~Evergreen~~ can grow up to 40m tall and form a huge domed crown.

Bark - smooth and grey with horizontal etches.


- Sycamor Maple - Acer Pseudoplatanus

leaves - 5 lobed, top 3 are the same size, palmate, green-red stem, 7-16 cm wide.

- leaf arrangement - stems are opposite and rotate 90° up the branch.

- Tree shape - 30m tall, broad rounded crown.

- Fruits - called samara's have two winged nuts.

- Flowers - small, green-yellow and hang in racemes.

- Bark - dark pink-grey and smooth when young but cracks and develops small plates with age.

- Silver Birch - Betula Pendula



leaves - diamond shaped, leathery, green toothed leaves turning yellow in autumn. Alternate.

Shape - multi-stemed, conical, 12-17m high, takes 20 years to reach max height.

Bark - young - skinny reddish brown, old - white, silvery

Flowers - male catkins are yellow with brown scales females are bright green and enlarge once pollinated.

Oak pedunculate - Quercus Robur.

leaves - 10cm long with 4 to 5 deep lobes and smooth edges. Arranged in bursts of leaves at the end of branches.

Shape - 20-40m tall, broad rounded tree tops.

Fruits - acorns 2-2.5 cm long, on long stalks in cupules

Flowers - long, yellow hanging catkins.

Bark - on older trees - blackish-brown with deep-fringed.

° Alder - Alnus glutinosa

leaves - ~~grey-green~~ Dark green leaves are racquet shaped and leathery with serrated edges. leaf tip is often dented. Alternate.

Tree shape - conical, growing up to 30m.

Bark - is dark and fissured & often covered in lichen.

Flowers - male catkins - pendulous 2-6cm, Female - green oval shaped grouped in numbers from 3 to 8.

~~Fruits~~ Fruits - once pollinated by wind, female catkins turn woody and appear like tiny, cone-like fruits in winter. They open up to release their seeds, dispersed by wind and water.

° Hazel - Corylus avellana

leaves - hairy, ovate leaves with double toothed margins, alternate arrangement along the branches.

Shape - reaches 12m high in a square / bushy shape when mature. Often found at understory level.

Fruits - nuts that ripen in early autumn they are clated in groups of up to 6.

Flowers - yellow male catkins expand and open in late winter. while female flowers appear like oval buds with pink-red string poking out.

bark - burnt bronze colour, harsh to touch and slightly peels. Old stems are pale brown with flat ridges.

Field Maple - Acer campestre

leaves - small, dark green & shiny with five lobed teeth. Turn golden yellow in Autumn. Opposite clusters.

Tree shape - ~~flat~~ Circular and can grow up to 20m & live for 350 years.

Bark - light brown and flaky & twigs are slender and brown and develop a corky bark.

Flowers - hermaphrodite (both male & female parts are contained within one flower). Small, yellow-green, cup-shaped and hang in clusters.

Fruits - after pollination by insects, flowers develop into large winged fruits, dispersed by wind.



Rowan - Sorbus aucuparia

leaves - pinnate, 5-8 pairs of leaflets and 1 terminal leaflet at the end. long, oval & toothed.

Flowers - hermaphrodite, dense clusters of 5 ~~little~~ white creamy petals.

Fruits - pollinated by insects, flowers develop into red fruits. Seeds are dispersed by birds.

Shape - grow up to 15m tall & can live for 200 years
Round & Bushy.

Bark - smooth & silvery grey.

- Hornbeam - Carpinus betulus



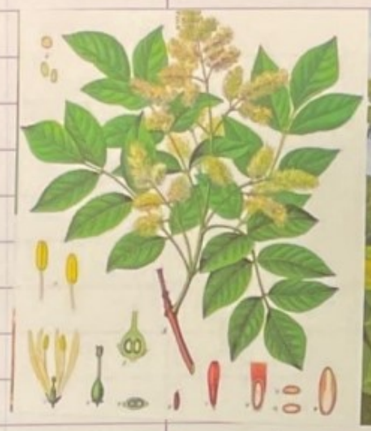
leaves - oval with pointed tips. small with deep lines and finely toothed edges. Golden yellow in autumn.

Flowers - monoecious. male- light green with pinky-brown tipped scales.

Fruits - after pollination by wind, female catkins develop into papery green winged fruits - samaras

Shape - deciduous, broadleaf tree. can grow up to 30m tall.

Bark - Pale grey bark with vertical markings and sometimes short, twisted trunk.



- Ash - Fraxinus excelsior

leaves - Pinate, opposite leaves. 3-6 pairs of light green leaflets. A single terminal leaflet at the end.

Flowers - dioecious (male & female flowers grow on different trees, but a single tree can also have male & female flowers on different branches). Male & female flowers are both purple and grow in spiked clusters.

Fruits - Pollinated by wind, flowers develop into winged fruits called 'keys'. Dispersed by birds & mammals.

Bark - pale brown with grey fissures

Shape - grow up to 35m tall with a domed canopy.

English Elm - Ulmus procera

leaves - 4-9cm long, round/oval, toothed with a rough hairy surface. Asymetrical base & taper to a sudden point.

Flowers - hermaphrodite, dark pink to red and hang in tassles.

Fruits - pollinated by wind, flowers develop into winged fruits, dispersed by wind.

Bark - grey, brown, rough and fissured. Twigs are finely hairy.

Shape - grow up to 30m, round and bushy.

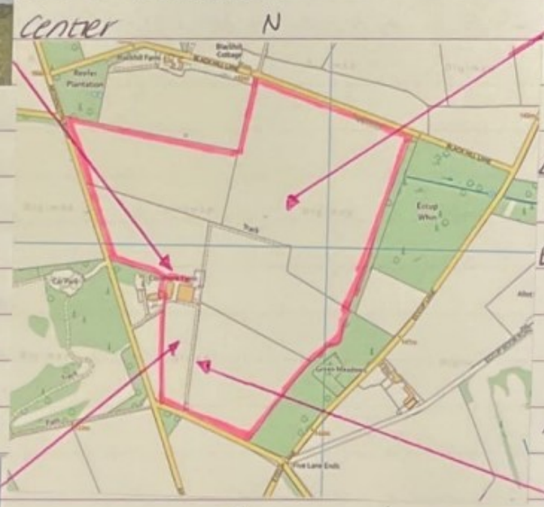
7/10/22 Site visit Golden Acre Park

Woodland Design Workshop

The site is currently ~~utilised~~ used for livestock farming resulting in the grassland having little diversity in plants and wildlife.

Old Farm sheds are unused, but could become central hub or education center

looking North East



View of neighbouring woodland.

Hedge can't be removed due to it's biodiversity and habitat.

looking South

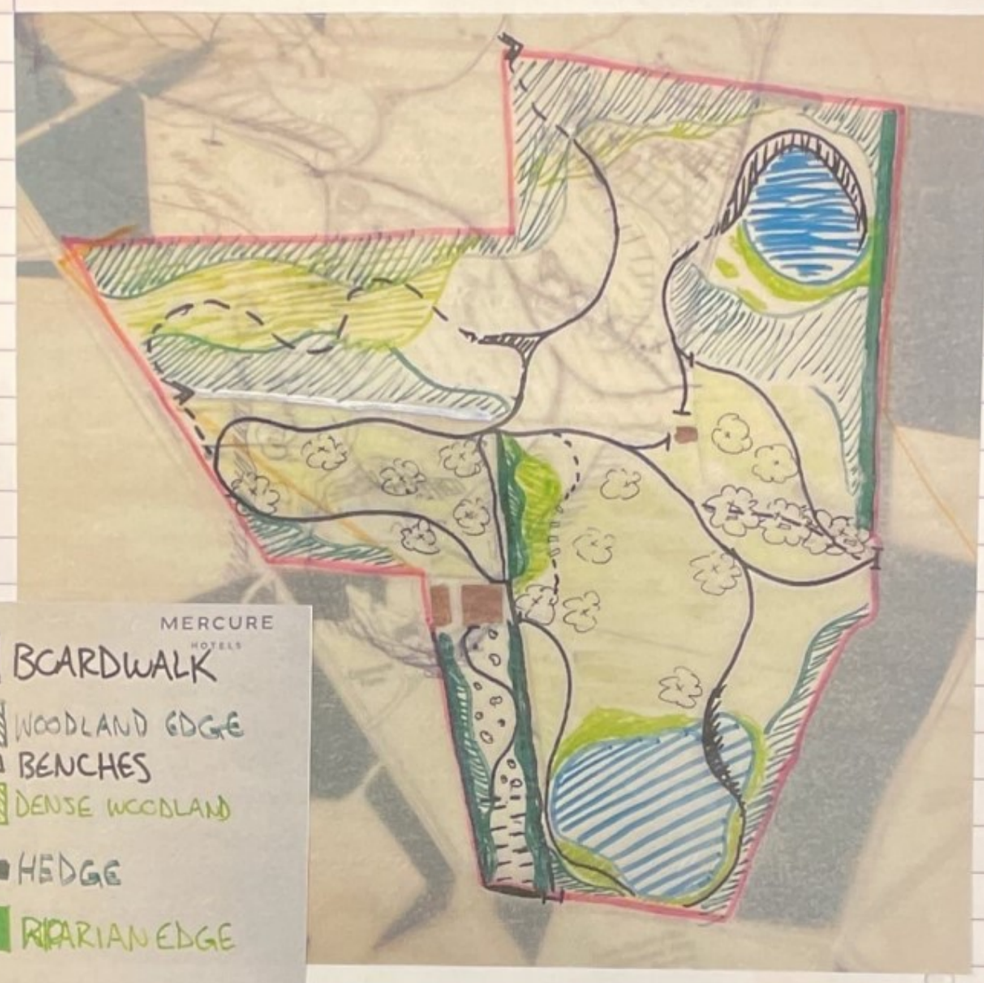
looking South

View of the road and traffic as well as vegetation and farmland

Scale 1:7900

Geology of the site is mainly clay, sand and gravel, with a smaller proportion of mudstone, silt stone and sandstone on the northwest side.

There is an old water pump and a historic stone wall that could be used as feature points in the landscape.
— = historic features



MERCURE HOTELS
BOARDWALK
WOODLAND EDGE
BENCHES
DENSE WOODLAND
HEDGE
RIPARIAN EDGE
WALL CROSSING
TREE
MAIN FOOTPATH
OPT. FOOTPATH
WATER
SITE EDGE
STRUCTURE
HIST. WALL
POWERLINES

Notes:
- Not intended to be a tourist attraction
- field boundaries? - opportunity?
- make it accessible (foot or car)
- how will people use the site

* Group 3 - biodiversity and nature

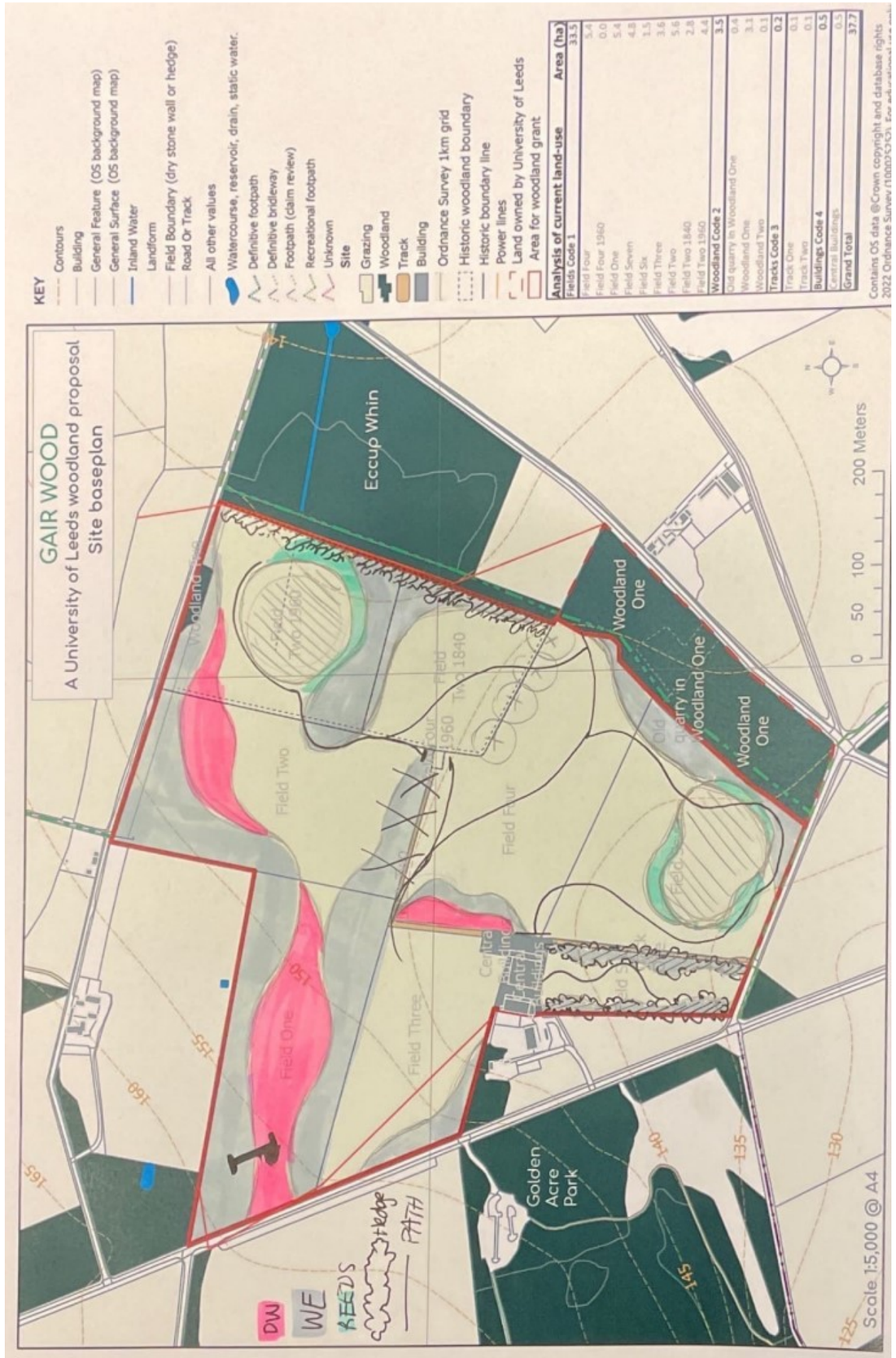
Constraints	Opportunities
• Boundaries	• Pre-existing structures
• Power lines	• tree planting
• water courses	• view points
• Road & traffic	• more cover
• Access points	• utilise heritage
• view points	• Natural succession
• Neighbours	• habitats

Design rationale and interventions

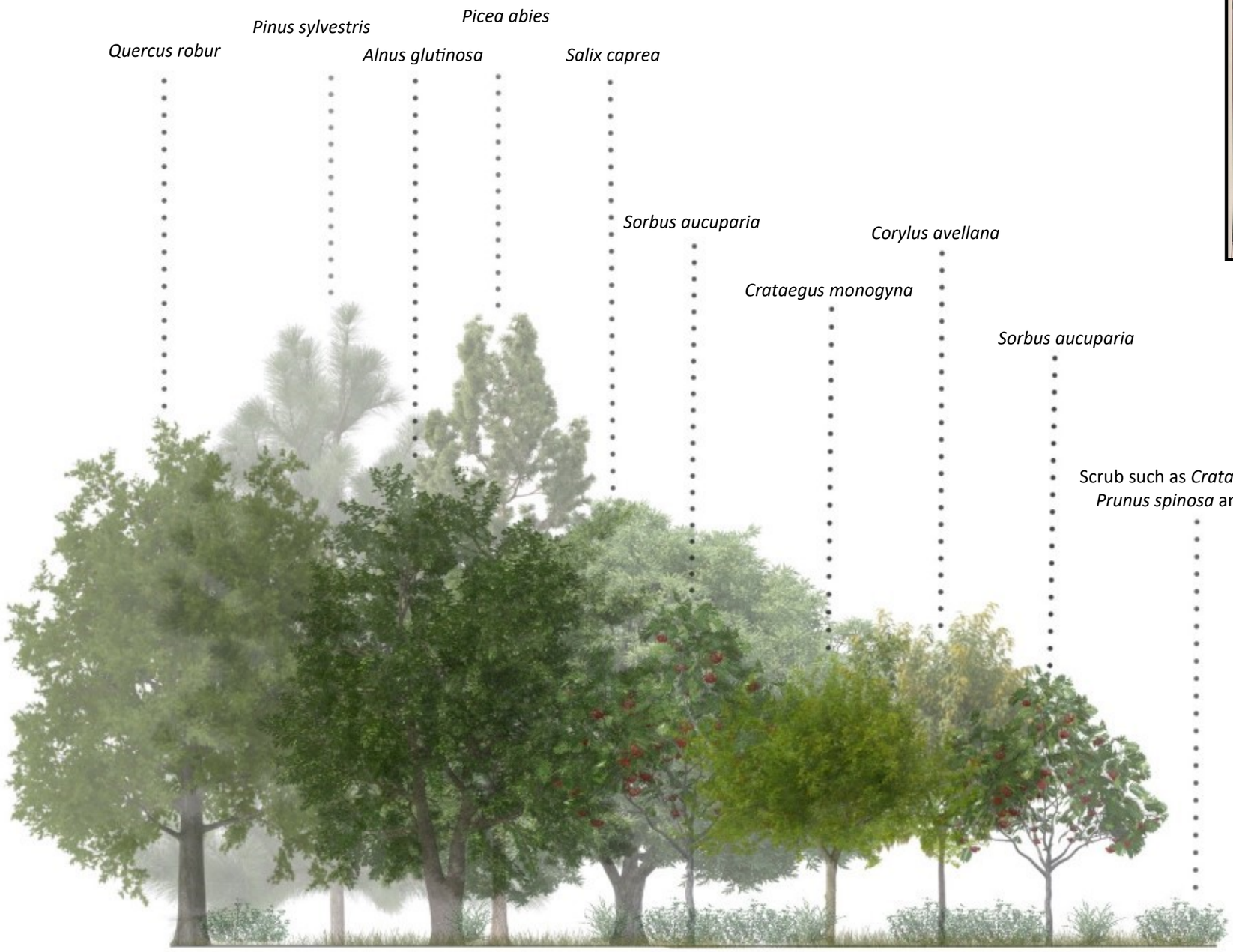
The best way to improve biodiversity is to create natural succession as it creates a wide variety of habitats for plants and wildlife to thrive.

Biodiversity

- Barn structure becomes a seasonal store containing fruits from the orchard.
- main structure used as an education centre & facilities.
- Bird, insect & Bat houses
- Dead wood left or scattered
- wildflower meadow around power lines & historic wall to prevent damages & allow access.
- use thick hedge in the North East to restrict access from recreational uses.
- create natural forest and pond succession
  - wildflower meadow provides insect pollination and habitats.
  - North pond promotes created newt populations
  - open grassland for recreational use
    - use native trees
    - retain historic water pump and hilight as a point of interest
    - left some open grassland with benches for recreational use.
  - lower pond is situated on saturated clay soil - surrounded by reed beds creating succession & habitats
    - styles for watering access
    - small car park within orchard



Woodland Section



Scrub such as *Crataegus monogyna, Prunus spinosa* and *Rosa canina*

Section

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Duisburg Nord Research

By Peter Latz

Peter Latz’s Philosophy

Peter Latz was born in Saarland Germany 1939 and was initially introduced to architecture by his father. But studied landscape architecture himself at the University of Munich in 1964. Followed by a Postgraduate study in Urban Planning in Ruth Aachen in 1968 and is best known for his emphasis on the conversion of former industrialised landscapes.

Philosophy and quotes:

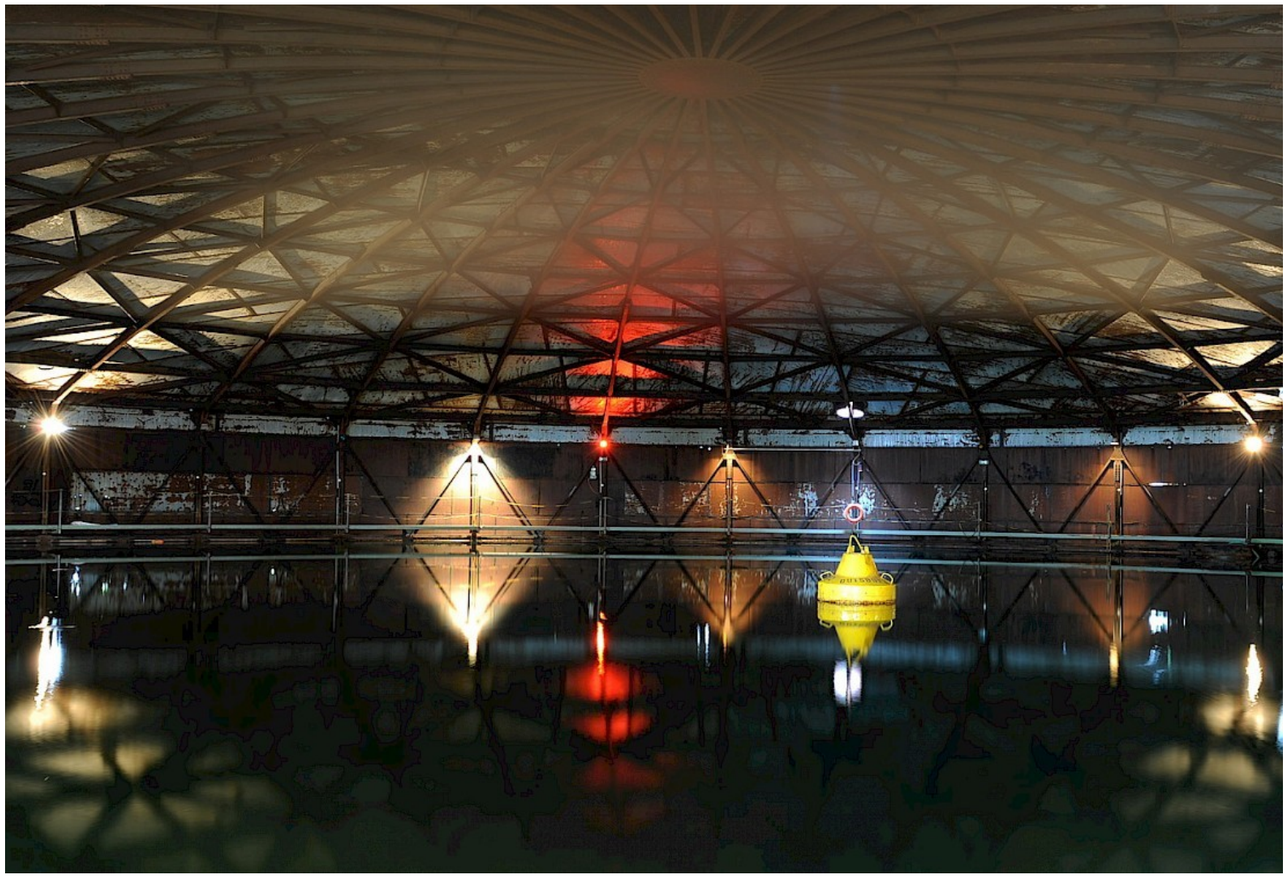
- He held the belief that materials had value and should be recycled or reconditioned in new developments as an act of sustainability.
- “Decisions must be made about what can be designed and what should be left unchanged. These decisions arise I deliberations and thereby assume the character of the design process”.
- Consideration of the existing site concurrently becomes the design process.
- Latz was chosen as the designer for Duisburg Nord due to his proposed appropriate working method rather than figurative and conspicuously coloured overall design.
- He aimed to promote the continued protection of processes in the future.

Locality

Duisburg Nord is located in the north west of Germany just north of Duisburg. The city is best know for it’s large harbour and waterfront which has become a nightlife and dining district. Along with its own Landscape park representing its industrial history.

The park is highly accessible from the city via, tram, bus, car and is part connected to the regional cycle trails (Emscher Park Cycle route or Industrial Heritage Cycle Route) which directly lead through the site.

Duisburg Nord Principle Ideas



Duisburg Nord, formally Meiderich Iron Works in Germany was an abandoned iron works and was transformed into a monument to the iron industry and cultural biotope. The ironworks were closed in 1985 and left untouched for five years until Peter Latz and Partners won the design competition and carried out their project until 2002.

Reusing and recycling demolition material in the park was one of the top priorities. For instance, they avoided "soil tourism," which involves bringing in or taking out materials. The recycled materials could be mixed into aggregate concrete mixtures, paths, or soil substrates for tree pits and plantings.

Not only did they reuse existing materials from the site but also repurposed many of the iron works structure too. The 45m wide gasometer has now become the largest indoor diving basin at a depth of 13m in Europe with an artificial reef and wreck.

Including the Community

The garden on Wittfelder Strasse known as the Town Garden offered an opportunity for the community to be involved with the project. Many participants were previous workers at the Meiderich Iron Works reinforcing Latz's ideology of retaining the memory of the iron industry.

When uncovering the site a row of overgrown hawthorns created a tunnel through the space suggesting that they were planted, and there was once a garden.

The community garden consists of remaining materials left over from the iron works laid within square compartments of recycled steel. Now over a decade later, the slates of waste material are now covered with a layer of furry moss implying that nature has now reclaimed the site.

Landscape Park Layout

The 230 hectares landscape park follows the layout of the original Meiderich Iron Works with increased connectivity with new bridges and walkways through out. The site can be split ito 10 separate character areas.

1. Baumplatz—Tree Plaza

Located between the blast furnace and the power station it became the central visitor centre. The slag sub-base allowed the designers to plant a variety of trees. Species include Quercus robur, Pinus nigra austriaca, Aesculus carnea ‘Briotti, and more. It now accommodates a broad range of events such as a beer garden, market, art work and seasonal events.

2. Schwarzer Fels - Black Rock

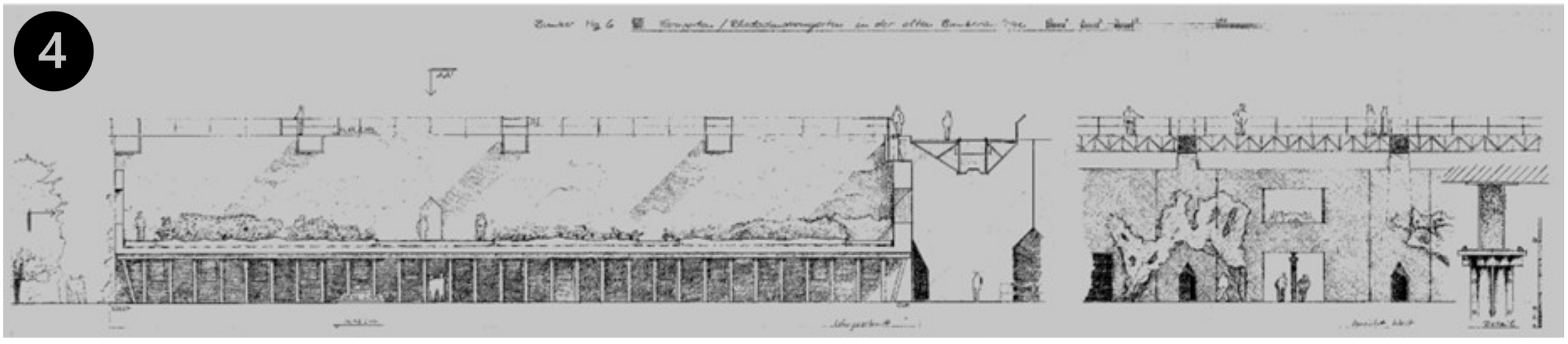
Rocks of slag made of ferromanganese casting appears as if the quarry had formed vertical walls. As an enclosed space dark space it traps heat creating the perfect environment for drought tolerant species to take root in the black sands. Species include clusters of Sedum acre, Papaver rhoeas and Chilopsis linearis.

3. Flugdach - Fly Roof

Iron clad dividers and light weight fly roof create a recreational space and meeting point for young people.

4. Bunkergalerie - Gallery

Composed of 21 compartments, enclosed by a 12m high concrete walls. . As a rocky landscape it was ideal for a climbing park now home to a local climbing club. They also created the ‘Alpine Ascent’, a park for children.



5. Bunkervoplatz—Forecourt

Maintained clipped hedges boarder self seeded birches and willows around the edge of the forecourt. The southern end maintains the old round clarifying basin as well as the cooling plant and its brightly painted fans. It is now suitable to hold large events and when not I use a rest and recreational space.

6. Steinhallenplatz - Plaza

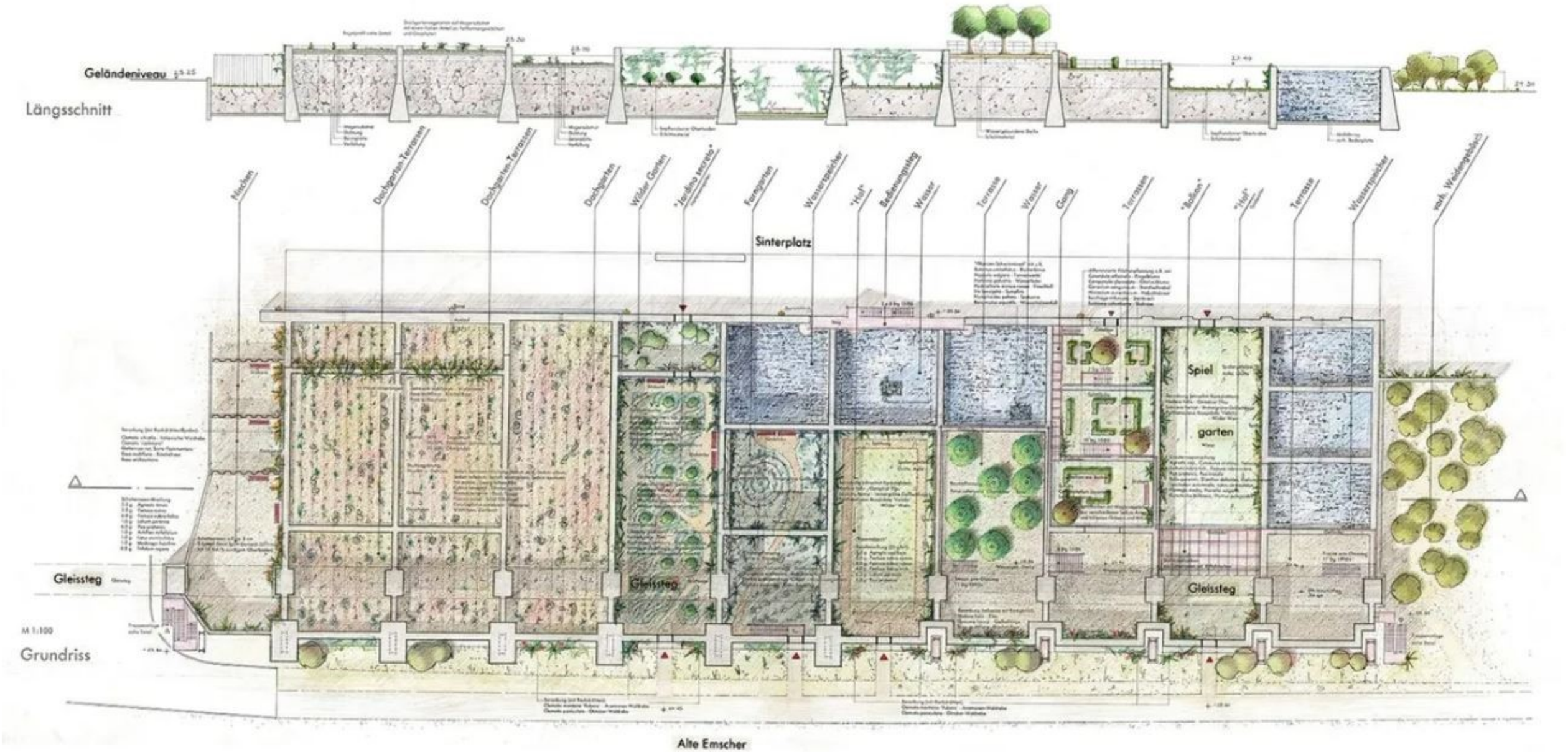
Named after the stone hall used for the production of slag brick, the building had to be removed as It had fallen ito a state of disrepair. Now a group of pine trees mark the boundary where the bunker forecourt and Steinhallen plaza meet. Rainfall often fills the remaining concrete swales creating a temporary water feature.

8. Cowper Platz - Cowper Plaza

A grid layout of cherry trees planted in front of the dark blast stoves called Cowper stoves. The trees were planted at the request of the mayor of Duisburg who wanted to create a yearly blossom event.

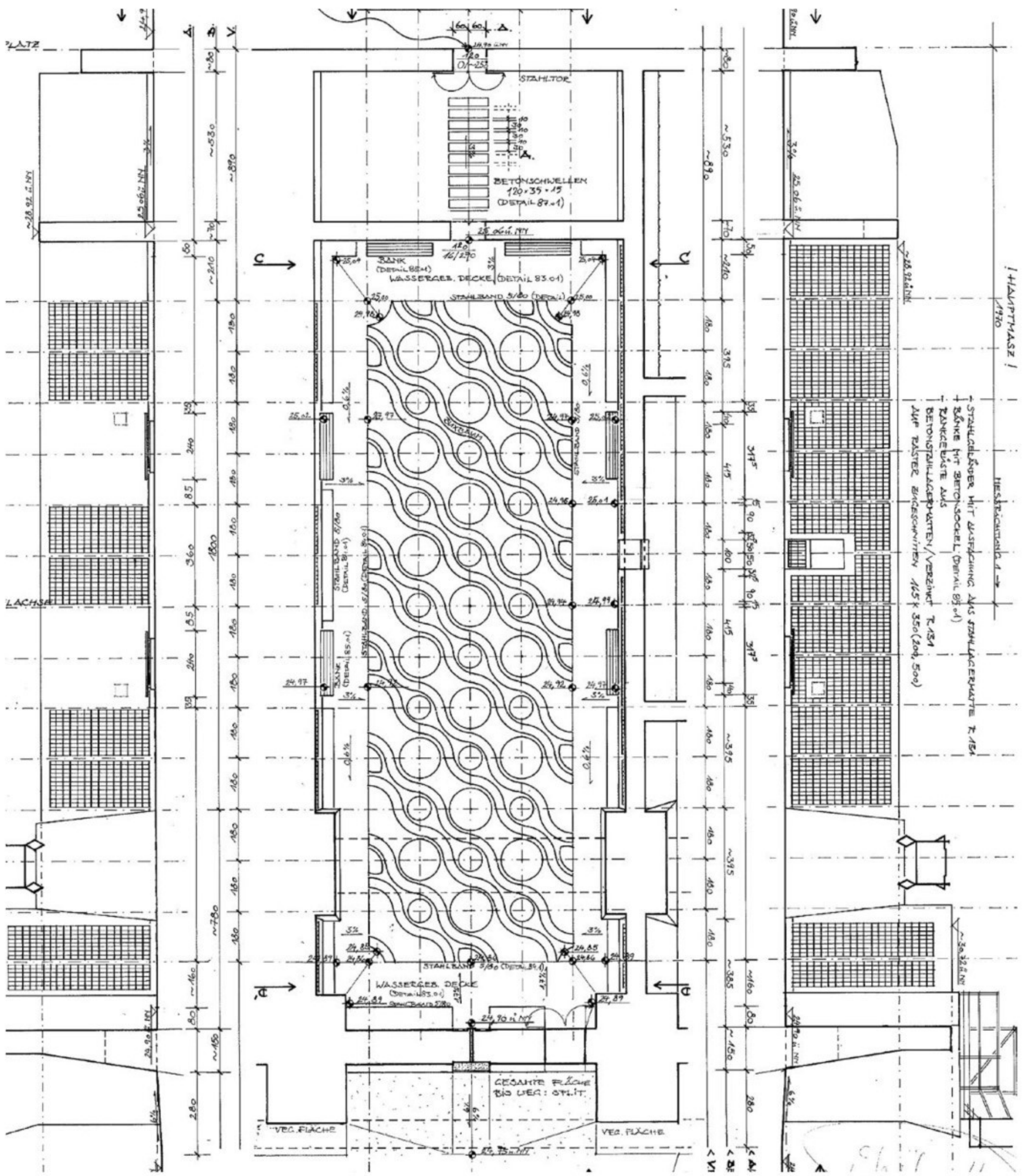
7. Sinterplaza - Sinter Plaza

Where coal and minerals were mixed together making ‘sinter cake’, increasing there iron component resulting in the process in the blast furnace becoming more efficient. 4000 cubic meters of recycled materials were produced and incorporated in the area (equivalent of 500 lorry loads). Elements of the sinter plaza were preserved and along with new elements create a plaza for recreational use.



9. The Sinter Gardens

Large store bunkers with over 30 compartments used to contain loads of ore, coke or lime and ashes. They have now been developed into the sinter gardens. Contaminated bunkers were filled to the top and are now home to roof gardens which ca be viewed via a bridge above. Other bunkers had doorways and gates cut into the walls encompassing renaissance styled gardens as they were surrounded by high walls and felt like an interior space.

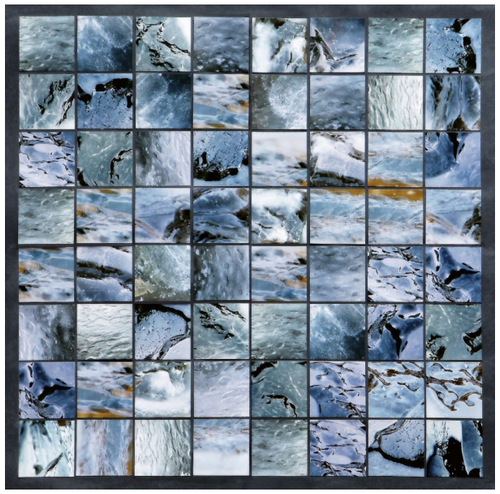


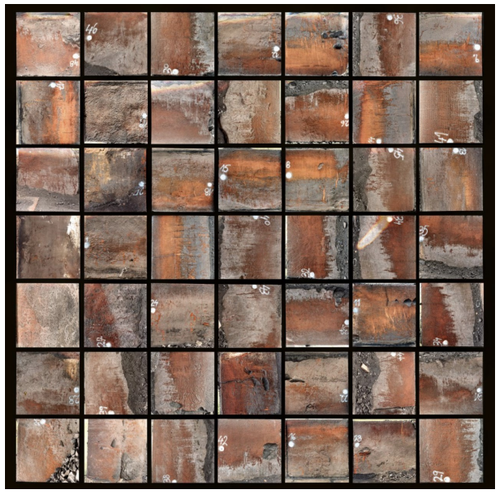
STAHLTOR
BETONSCHWELLEN
VEG. FLÄCHE

10. Piazza Metallica

Latz wanted to take the spirit of the place and make the process of iron production visible, illustrating how molten iron solidifies and is re-smelted. The smelting and solidifying process occurred in a water well which froze during winter creating unique patterns across the surface.

This process was carried out 64 times and recorded. The most dramatic patterned slabs were selected and arranged into a 7×7 grid layout. The slabs were cleaned with a hammer, steel brush and high pressure cleaner to uncover the patterns.





Duisburg Nord Group Presentation

Duisburg-Nord

By Peter Latz and partners

Sara, Georgie, Hazel, Charlie G and Charlie L

Designers

Peter Latz – born in Saarland Germany 1939. Latz was first introduced to architecture by his father, an architect. But studied landscape architecture himself at the Technical University of Munich in 1964. Followed by a Postgraduate study in Urban Planning in Ruth Aachen in 1968.

Peter and his wife, Annaliese, founded their landscape architecture firm in 1968 under the name Latz and Partner. They focused on repurposing abandoned infrastructures into spaces for public engagement.

As a child Latz grew up in a village destroyed by the war and learned early on the value of materials and used recycling long before it had been reinvented as 'sustainability'. Latz feels "obliged to recondition disused landscapes for the next generation – to rehabilitate them as sources of life".

Design Ideas

- Nature claiming back what has been changed by man.
- show the collaboration and metamorphosis of 'Tamed and Wild'.
- Promote the continued protection of industrial processes in the future.
- Consideration of the existing site concurrently became the design process.
- Transform the iron works into 'both a monument to the iron industry and a cultural biotope'.
- To retain large structures and recycle materials and reuse them in the park.
- Integrate, shape, develop, and interlink the existing patterns that were formed by its previous industrial use.

Response to context and experience of place

Challenges:

- Largest challenge was keeping the space both environmentally and ecologically balanced.
- Less control over the maintenance and growth of the site due to the size of the site (230 hectares)
- Safety concerns of industrial structures and contamination.
- The soil quality, Ph and type varied hugely across the site due to the different materials that were placed and/or left
- The water canal was heavily polluted with sewage and heavy metals

Opportunities:

- Space to implement a thoughtful design and allow frequent usage.
- Collaborated with locals.
- Created new spaces for public and are home to events and recreational activities.
- Increases biodiversity and created habitats.
- Lowered costs by recycling as much as possible.

Sites Landscapes and habitats

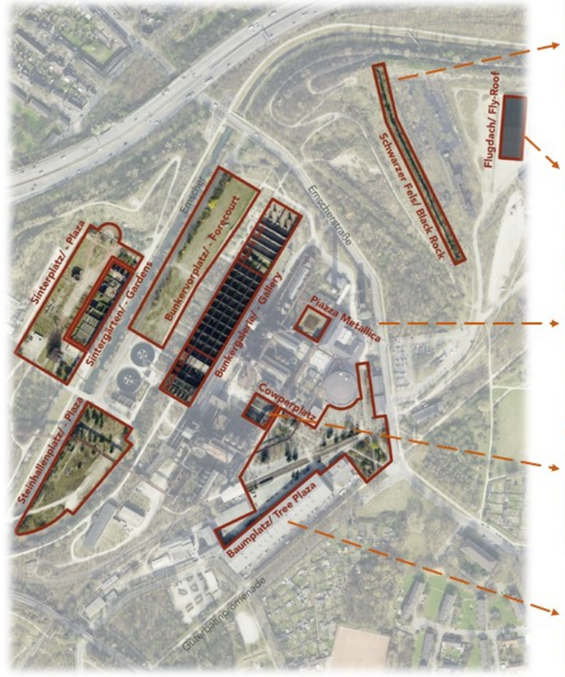
Forecourt – A space suitable for large events and when not in use a rest and recreational area.

Sinter Plaza - Where coal and ore minerals were mixed producing 'Sinter Cake' to increase the iron component making the reduction process more efficient. The sinter Plaza has not been allocated a specific use.

Sinter Bunker – large store bunkers with over 30 single compartments used to contain loads of ore, coke or lime and ashes. These have been developed into the Sinter Gardens.

Bunker gallery - Comprises of 21 compartments enclosed by 12-metre-high concrete walls. As a rocky landscape it was transformed into a climbing park. They also created the 'Alpine Ascent', a park for children.

Plaza - The building was constructed for the production of slag brick. The interior could not be retained as it had fallen into a state of disrepair. Rainfall turns the shallow swales and protruding concrete blocks into a temporary water garden.



Black rock – Rocks of slag protrude made of ferromanganese casting and appears as if the quarry had formed vertical walls. It is an enclosed space which traps heat. Resulting in drought tolerant species to colonise the black sands.

Fly Roof - An iron clad dividers and lightweight fly-roof provide a robust setting for action sports and as a meeting point for young people.

Piazza Metallica - They wanted to take the spirit of the space and make the process of iron production visible. They arranged a 7×7 grid layout of iron slabs into the centre of the plaza.

Cowper Plaza - A grid layout of cherry trees Infront of the dark blast stoves called cowper stoves.

Baumplatz (Tree Plaza) - In-between the blast furnaces and the power station became the central visitor centre. It was planted with a variety of trees including *Quercus robur, Pinus nigra austriaca, Aesculus carnea 'Briotii'* and more.

HARDSCAPE

Strategic aim was to develop new images based on the existing structures and learn about the different system of rules from which the existing site had evolved.

It was this holistic approach, trying various methods to establish whether regulatory patterns could be identified in what appeared to be a maze and randomized site layout. Many ideologies were used though were of little use in the overall site but did provide some patterns for the enclosed parts of the park.

HARDSCAPE

One of the priorities of the project and technical concept was to save demolition material and reuse it in the park. The goal was to avoid materials being taken away from site and materials being brought in, known as "soil tourism".

Soft scape

On the initial visit Latz noted much of the site had interesting ecological features. He found many endangered and red-listed species (e.g., spineless saltwort) and a large quantity of deadwood across the area.

The team's focus was to attract pioneer species to the site allowing natural restoration to take place. Due to an already large proportion of neophytes (30% of the total plant count) the design team worked with both native and imported species to help recover the landscape.

At the time, the ecological criteria they worked with was new and focused on the succession of the environment. They took this approach to allow the site to thrive environmentally in the future. They used layered planting and kept much of the flora already present on site.

The site has presently become an ecological stronghold for a large variety of species. It has now become a haven for many animals and plants such as:

- Bats
- Natterjack toads
- Over 100 species of beetles
- Over 45 species of birds
- 298 species of fern and flowering plants (9 red list threatened)

Species List

Commonly seen	Red-listed vascular plants	Rare Neophytes	Rare plant communities
• Poplar	• Wormwood	• Dense silky bent	• Thyme-leaved sandwort community
• Crab apple	• Black horehound	• Amborse	• Narrowleaf hawksbeard community
• Mock sweet orange	• Dwarf mouse ear	• Black eyed Susan	• Scentless camomile community
• Willow	• Great horsetail	• Spineless saltwort	• Dwarf snapdragon community
• Birch	• Dane's flower	• Evening primrose	
• Spineless saltwort	• Small cudweed		
• Narrow leaved ragwort	• Large flowered hemp nettle		
• Yellow mignonette	• Limestone fern		
• Buddleja shrub	• Field pepperwort		
• Evening primrose	• Sharp-leaved fluellen		
• Canadian goldenrod	• Reflexed saltmarsh grass		
• Narrow-leaved ragwort	• Field madder		
• Stinkwort			
• Butterfly bush			

Sustainability and management

Allowing for long term wildlife

The ecology of the site was another important factor. As a result, they organized their work according to an ecological criteria:

- Energy balance
- Secure a wide range of species
- Treat or remove contamination
- Restore natural water cycles

To undertake all the points of the criteria they used pioneer species for a natural and long-term environment change while planting different layers to increase resilience and biodiversity in the site.

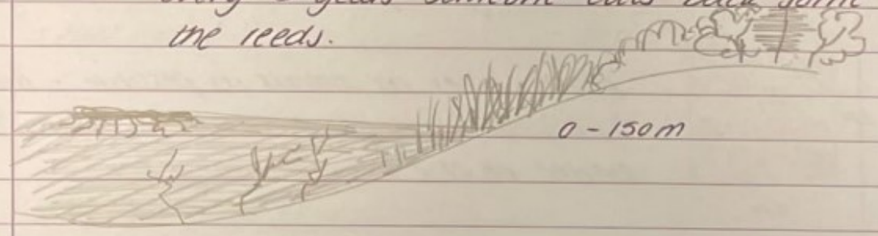
14/10/22 Habitat creation and management

'State of nature report'

- Global loss of insects is at a rate of 2.5% per year over the last 25-30 years. So in 50 years on....
- Creating habitats in schemes can enrich biodiversity.

wetland creation

Good habitat - a succession of a variety of areas providing as many habitats as possible.
- Importance of designing the waters edge for safety and wildlife
- Rain gardens and SUDS
- wetlands need management...
  - ↳ every 5 years someone cuts back some of the reeds.



meadows

- let the grass grow!
- Soils for meadows need to be poor otherwise meadow species can get outcompeted by other species.
- Remove (rotavate) the grass - allowing wildflowers mix to establish or plug plants.

woodland

F.C. Bulletin 112 Creating new native woodland
- create a variety of old and new growth - succession
- variety: structure - manage the woodland over time for a rich experience - assist with biodiversity
- Respond to the site in detail
  - ↳ importance of a good site survey and knowing the place, observing existing species...
- woodland edge - species rich canopy and understory
- group species and heights - plant in varied groups
- Alder & Birch - fast growing and create shelter for other more slow growing trees.
  - ↳ Alder - happy in wet environments & fixes nitrogen
- plant trees in a grid pattern

plant trees as small as possible - whips = 1m as it's cheaper and the tree will adapt better to the new environment.

NPS - National Planting Specification
↳ www.gohelios.co.uk

- To establish trees you need to weed, fence, tube and stop grass overtaking - mulch mats.

woodland species selection

- Wetter warmer winters - more server
- prolonged dryer summers - increasing coppicing

- broard leaf species will remain suitable for forestry across england
- diversify woodland mix
- shade tolerant species
- select trees from further south - adapt better to climate change.
- diversify - structure - right plant right place
- understand soils, aspect, exposure and local habitats.

wetlands species

- hard rush
- iris
- water mint
- marsh marigold

} from waterlogged to fluctuating moisture

- Persicaria amphibium
- bur - reed
- Thypher augustifolia
- lesser spearwort

* & RSPB - plants for birds and wildlife

meadow species

- verbena
- Buddleia
- Euphorbia
- cornus Alba
- Eryngium

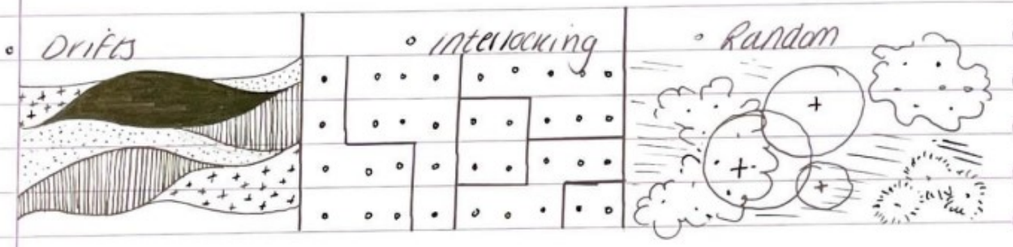
SUDS - free draining so need both drought resistant and water plants.

Perenial - dies back to ground level and sprouts again in spring.

21/10/22 # Planting Design

1) structure - what space do you want to create?
2) skeleton planting - add shruby material to add more structure, possible hebes or box hedges that will be there year round.
3) infill with more decorative plants - colour, textures, seasonal foci, architectural plants (feature plants).
4) further layer of decorative plants to give a certain effect.
5) seasonal bulbs - blue bells, snow drops, alliums.

Planting approaches



Graphics

- simple bold shapes
- appropriate scale & character for site
- ensure planting will not impede
- robust enough to deter movement
- desire lines & sight lines
- junctions between hard & soft
- Right plant, Right place

Group work—Plant Species Lists

Ground cover

Group 3 Plants – Georgie, Charlie L and Sara

Plants	Soil type	moisture	Exposure	Maturity spread	Maturity size	Ornamental qualities	Pictures
Geranium 'Brookside' - Cranesbill	Chalk, clay, loam, sand,	Moist but well drained	Full sun, partial shade	0.5m	0.5m	Blue, purple or white flowers in summer	
Brunner macrophylla – Siberian bugloss	Sand, clay, loam, chalk	Moist but well drained	Full shade/ partial shade	0.5m	0.5m	Blue-purple flowers in spring	
Hedera helix – Common Ivy	Sand, loam chalk and clay	Moist but well drained	Full sun/partial shade	50 cm	1m	Green, white or yellow in late spring	
Dianthus deltoides – Maiden pink	Clay, loam, chalk, sand	Well drained	Full sun/partial shade	60cm	45cm	Pink, red, white, purple in spring and summer.	

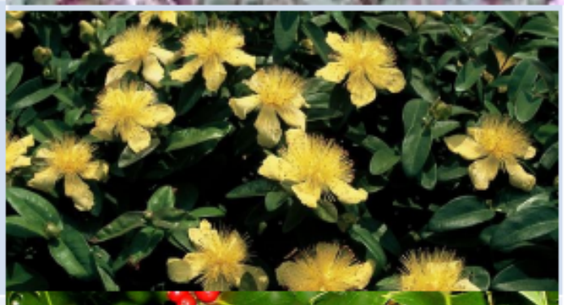
Perennials

Plants	Soil type	moisture	Exposure	Maturity spread	Maturity size	Ornamental qualities	Pictures
Iris germanica – Bearded Iris	Chalk, loam, sand	Well drained	Full sun	0.5m	1m	Purple and yellow flowers in spring.	
Helenium 'Moerneim beauty' - Sneezeweed	Chalk, clay, loam, sand	Moist but well drained	Full sun	0.5m	1m	Orange-red flowers in summer	
Helleborus argutifolius – Holly-leaved hellebore	Chalk, clay, loam	Moist but well drained	Full sun/partial shade	1m	1m	Green or red flowers in winter and spring	
Hemerocullis 'Stafford' – Daylily	Chalk, clay, loam	Moist but well drained	Full sun	0.5m	1m	Red flowers in summer	
Heuchera micrantha 'Palace Purple' – Alum root	Sand, loam	Moist but well drained	Full sun	50cm	60cm	Pink or white flowers in summer	

Grasses

Plants	Soil type	moisture	Exposure	Maturity spread	Maturity size	Ornamental qualities	Pictures
Helictotrichon sempervirens – Blue Oat grass	Chalk, clay, loam, sand	Moist but well drained	Full sun	1m	1.5m	Evergreen. Brown flowers in summer	
Miscanthus sinensis 'Flamingo' – eulalia	Chalk, clay, loam, sand	Moist but well drained	Full sun	1m	1.5m	Silvery, pink flowers in summer	
Carex testacea – Orange New Zealand Sedge	Chalk, Clay, loam, sand	Moist but well drained	Full sun/partial shade	1m	1m	Brown flowers in summer	
Stipa gigantea – Golden Oats	Chalk, loam, sand	Moist but well drained	Full sun	1m	2.5m	Purple summer flowers that turn brown in autumn	

Shrubs

Plants	Soil type	moisture	Exposure	Maturity spread	Maturity size	Ornamental qualities	Pictures
Hebe albicans – White Hebe	Chalk, clay, loam, sand	Moist but well drained	Full sun/ partial shade	1m	0.5m	Evergreen. White flowers in summer	
Hebe 'Mrs. winder'	Chalk, clay, loam	Moist but well drained	Full sun/ partial shade	1.5m	1m	Evergreen. Blue/purple flowers in winter	
Hypericum calycinum – Rose of Sharon	Chalk, clay, loam, sand	Moist but well drained	Full shade, partial shade, full sun	1.5m	1m	Yellow flowers in summer and winter. Red berries in autumn.	
Ilex aquifolium – Common Holly	Chalk, clay, loam, sand	Moist but well drained	Full sun/Partial shade	8m	12m	Evergreen. White flowers in spring and summer with red berries in autumn and winter.	

Playhouse Gardens, Leeds

@re-formlandscape.com

What worked well and are there any weaknesses?

+ the ramps and steps are interconnected creating both disabled access and a direct route through the site.

+ Planting had winter interest and a variety of colour and texture.

+ Grasses create movement and soften the hard landscape.

+ Resin bonded gravel creates changes in the hardscape and is a smooth surface for wheelchairs and/or bikes and scooters.

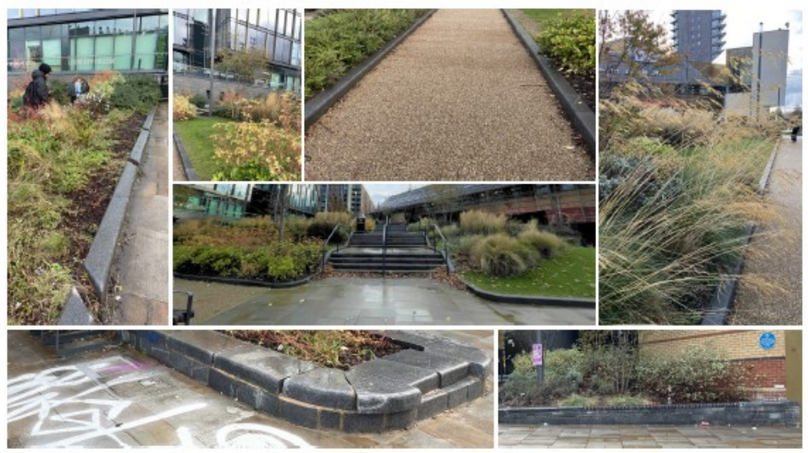
+ Patches of grass are mown within the planting, providing space to sit on the ground during summer.

+ gaps have been left between the slabs of curb to allow water drainage into the planting.

- The ramps could be quite windy and tedious. It would take a long time for someone on wheels to get from the top to bottom along five separate ramps and around tight corners.

- Maintenance is required as slabs have come loose and graffiti has been left on the paving.

- More bins are required on site as litter can be seen scattered on the ground and within the planting.



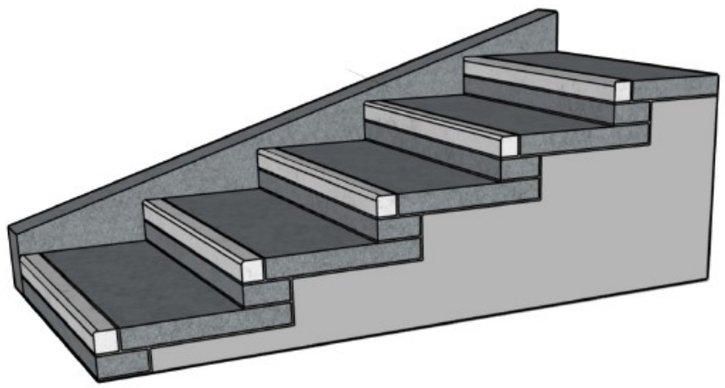
A hard construction detail that interests you?

1. Curb

The curbs have subtle rounded edges on the top and create a conjunction with the steps, whilst enclosing the soft material.

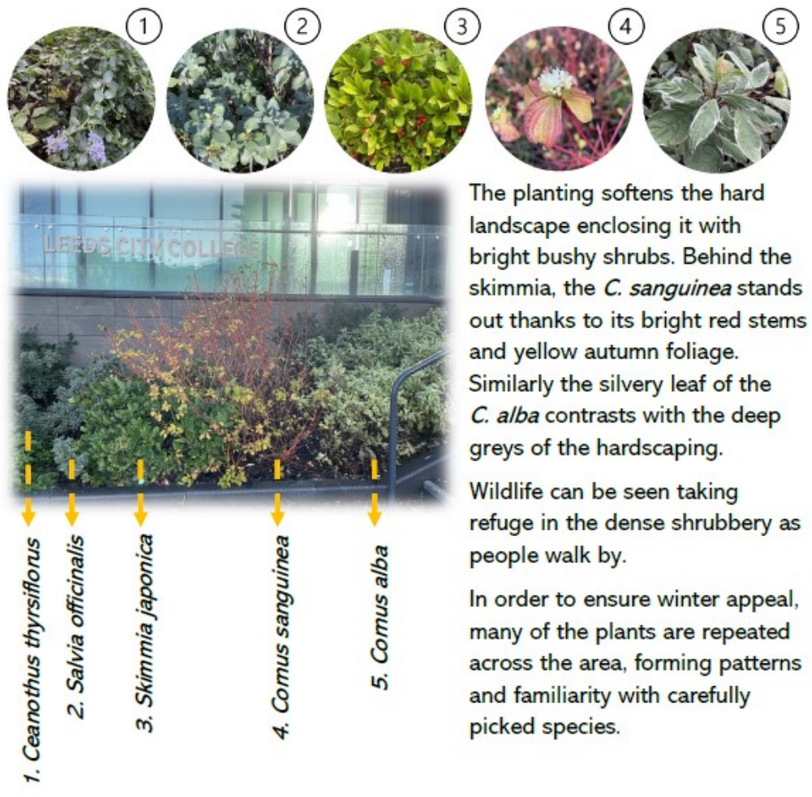
2. Stairs

The lighter granite strip along the edge of each step defines the space and makes people unconsciously aware of where they are placing there feet.



Plant Combinations

With the scent of *L. angustifolia*, the first planting produces a variety of colours that display winter interest. Low shrubs enclose the area while maintaining the view of the site. The orange and red leaves of the *C. Sanguinea* and *P. subhirtella* tree contrasts with the green foliage of the lower plants. Wildlife is attracted to the area by food from the red fruits of the *Skimmia*.
However, because the species were planted in rows, the planting has a blocky appearance.



The planting softens the hard landscape enclosing it with bright bushy shrubs. Behind the skimmia, the *C. sanguinea* stands out thanks to its bright red stems and yellow autumn foliage. Similarly the silvery leaf of the *C. alba* contrasts with the deep greys of the hardscaping.

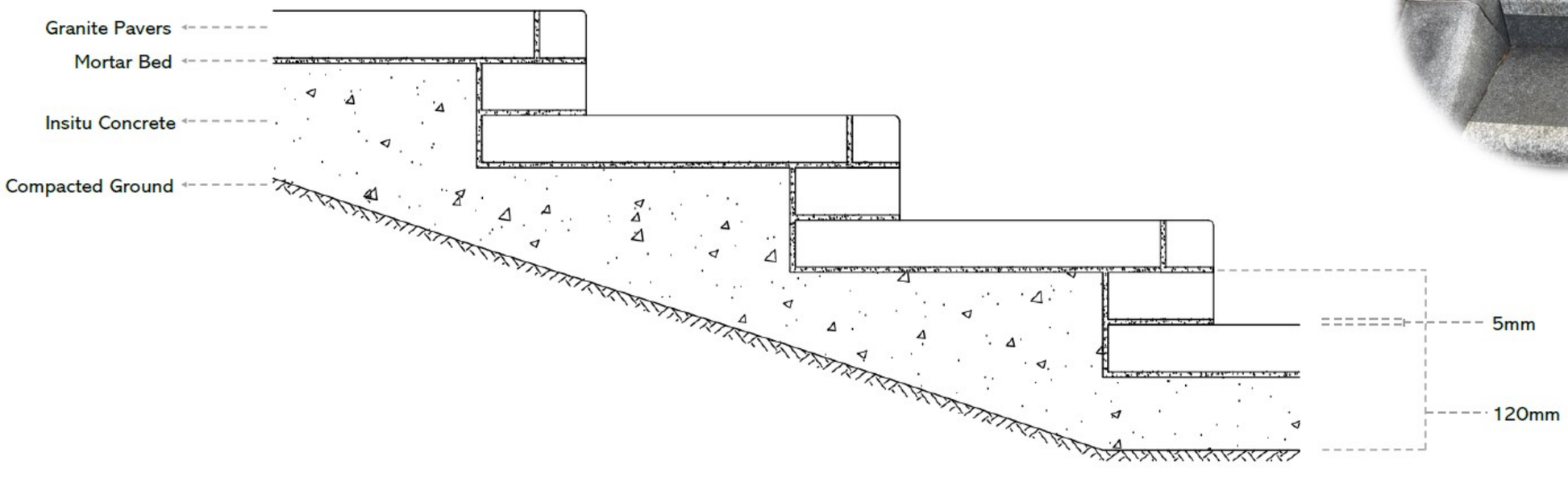
Wildlife can be seen taking refuge in the dense shrubbery as people walk by.

In order to ensure winter appeal, many of the plants are repeated across the area, forming patterns and familiarity with carefully picked species.

Playhouse Gardens, Leeds - Construction Drawings

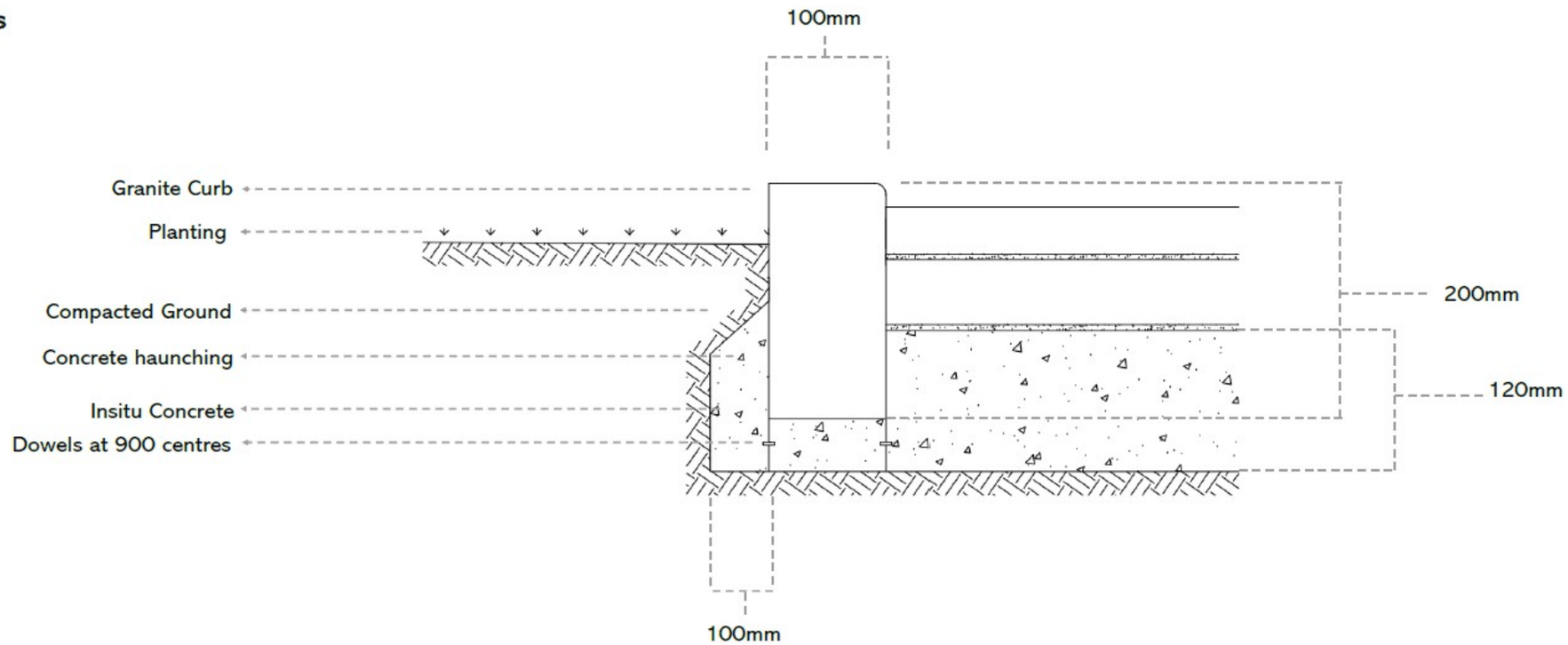
Granite Steps

Scale 1:10



Curb along steps

Scale 1:10



Aire Park, Leeds

@yorkshireeveningpost.co.uk

What worked well and are there any weaknesses?

+ Increasing biodiversity and encouraging wildlife to the site with bug hotels built within stone gabion's and bird boxes hung on trees.

+ Broader number of species used with winter interest.

+ Curb slopes down allowing visitors to cross onto the mown lawn without tripping.

+ More and obvious bins within the site reducing litter.

+ Wood sits above (rather than on) the concrete block stopping water from getting trapped between the materials and rotting wooden planks.

+ The pale concrete walkway offers a more interesting route and view through the site.

+ Organic shaped planting schemes lined with steel to retain gravel.

- However, loose gravel has overspilled and merged with different gravel.

- The site is dark due to being shadowed by the taller buildings.

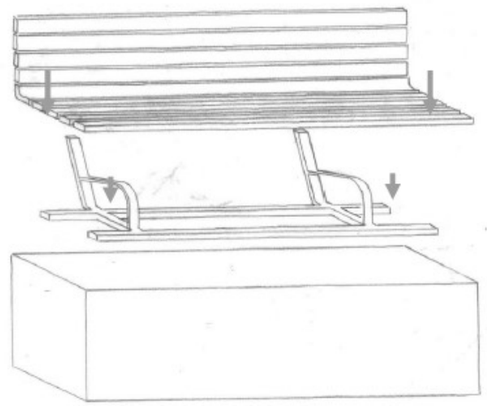
- One of the trees appeared to be infested with mealybugs.

- Plant density is not high enough resulting in some of the planting beds looking patchy.

A hard construction detail that interests you?

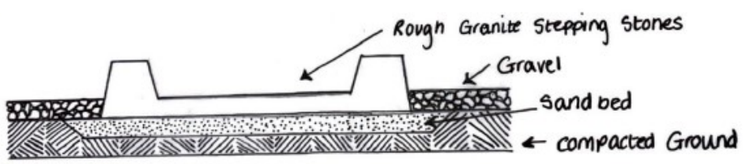
1. Bench

The wooden bench had been fixed onto a metal frame on top of a concrete block. This stops water from getting trapped between the wood and concrete which would resultantly rot the wooden planks.



2. Concrete Walkway

Surrounded by gravel, the walkway appears to have gaps in-between the steppers. The gravel is enclosed by steel to stop it spilling out.



Plant Combinations

Towards the entrance *C. sanguinea* creates a colourful approach to the site. Amongst the sparse plants bark mulch covers the ground, protecting plant roots by locking in water during summer and warmth throughout winter. *A. japonica* and *C. pendula* have a bushy form filling out the ground cover.

A well-drained environment is established by the gravel in the planting. The light foliage of *S. alba* and *B. pendula* trees allows light to pass through the canopy. Because the shrub layer is low, users can see the entire site clearly. Winter interest is added by *C. sanguinea* and *B. amplexicaulis*, producing a diverse planting arrangement. Although *P. acaulis* appears sparse and patchy at the edges, suggesting the planting density is not high enough.

Task	Frequency	Notes
Litter picking	Weekly	Collect litter off of the street and from planting beds.
Inspections	Weekly	Check the site for hazards, damages, irrigation system, cleanliness and uses.
Bins	Weekly	Weekly cleanse and removal of rubbish.
Clean Benches	Monthly	Ensure benches and seating arrangements are maintained.
Lawn Mowing	Weekly	Mow grass weekly during the spring and summer, but only when required during the autumn and winter.
Pressure washing	Yearly	Pressure wash paving to maintain colour of the stone.
Weeding	Every six weeks from April to October	Remove any unwanted plants within the site.
Mulching	Every six months	Ensure planting depth of 50mm is not lost.
Clear Leaves	Weekly through Autumn and Winter	Clear leaves from paths, gutters and drains.
Watering	When required	Only water plants during periods of prolonged drought.
Pruning	Annually	Prune trees, shrubs and herbaceous plants to retain certain shapes and sizes. Complete when specific plant species are dormant.
Dead Head	Monthly from May to October	Dead head all flowering herbaceous plants to retain aesthetic and encourage plants to flower again throughout the season.
Trim Hedges	Twice a year	Trim according to the growth rate of the species, but typically cut during the growing season.
Divide plants	Monthly in Autumn	Remove self seeded species or plants that are dominating the scheme to retain the planting design.

Nursery visit

Red Flags in choosing plants:

- Lack of leaves
- Reddening of leaves
- Stems are grey or woody - means roots are not growing as actively
- Don't leave roots out in open air as they dry out, instead protect roots by putting them in a plastic bag or cover with soil to retain moisture.
- Stems brown inside and shrivelled, no buds
- Die back in upper stems
- very little white root
- Brown loose root

Green Flags in choosing plants:

- White roots
- Green stems underneath bark

- Specify plants on their height and pot size / root ball. With trees when older specify by girth as you can get better equivalent sizes.

- Rootball is heavier than pot or bag plants - can't see what your going to get, roots may be bad and false root balls (where soil is placed around the root to disguise as a root ball).

- Multi-stems — how many stems, height, how much clear stem. Be as picky as possible if you want a specific aesthetic. Cheaper if your less picky.

- Transplants are more expensive because they have two or three more years in the ground. Nursery's take half of a crop and sell them, the other half get taken out and planted else where with more room - transplant.

- Plants planted close together to encourage them to grow upright and be efficient with space.

- Feathered transplant (TRF) - after a year once there, means that it has all it's branches. Looks like a mini tree rather than removing the lower stems.

4/11/22 Hard Landscape Detailing

Tasks so far:
- Native trees & shrubs - GW ✓
- woodland exercise - GW (section)
- Designer case study - GW ✓
- Urban site visit - analysis of hard & soft scape

P1: Detailing Principles

* Hal Moggridge - simplicity & thoughtfulness
  - less is more

* Edward Cullinan - Fountains abbey
  ↳ detailing and choice of materials can express sensitivity to place ... context & scale.

Construction principles:

- Bedding layer allows paving to be leveled
* ↳ hardcore (crushed stone) and/or concrete provide the foundations - structural support.

- Edges - needed alongside paths & roads, otherwise end up like country roads - pot holes
  ↳ e.g. piece of steel could hold everything together

- connections - structural & aesthetic junctions - how will things connect together.

- Finishes - practical & aesthetic, appearance or feel, health & safety?
* ↳ Diana memorial Hyde park - different textures express smooth or turbulent times in her life.

- Design with understanding of materials and techniques.

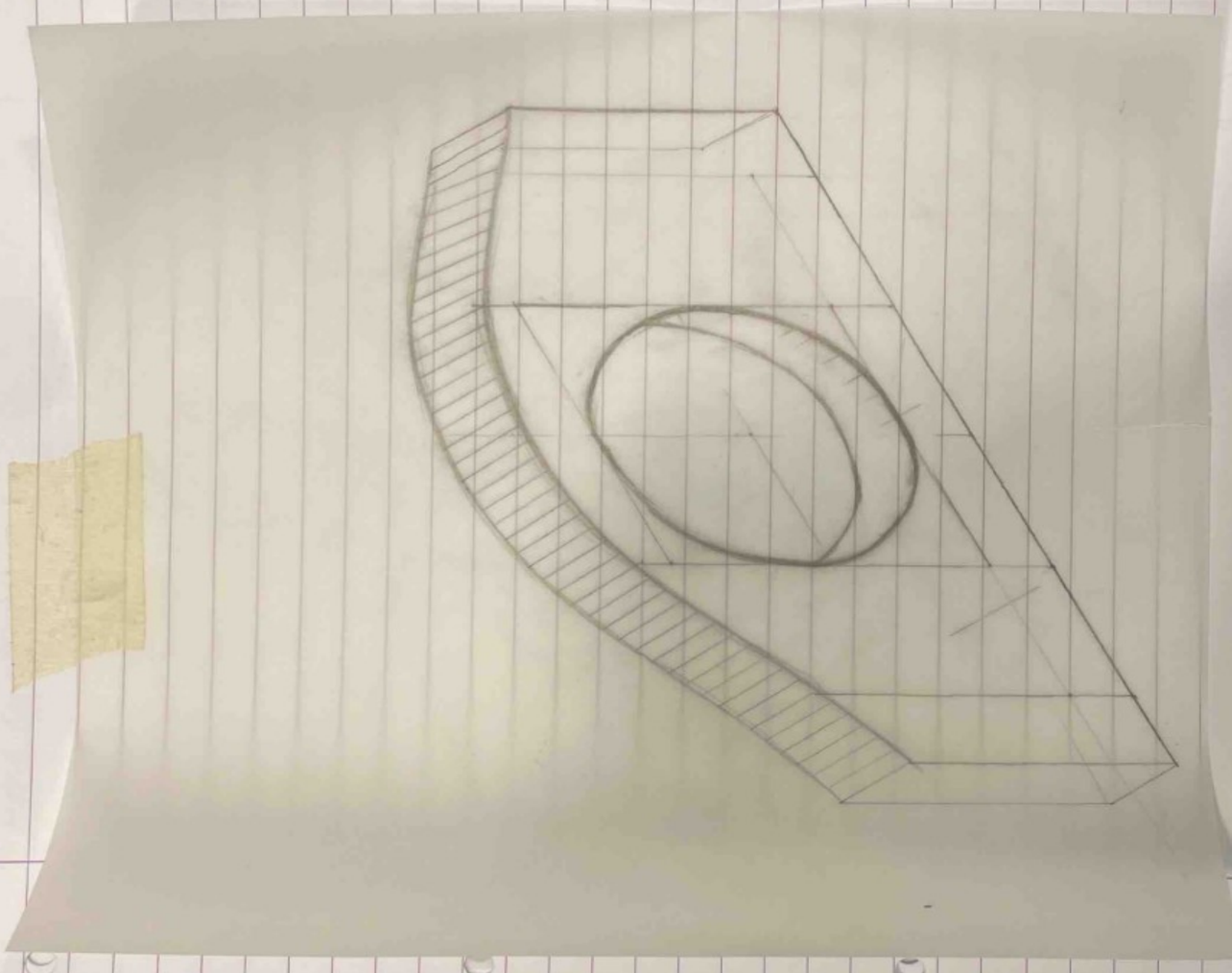
Paving

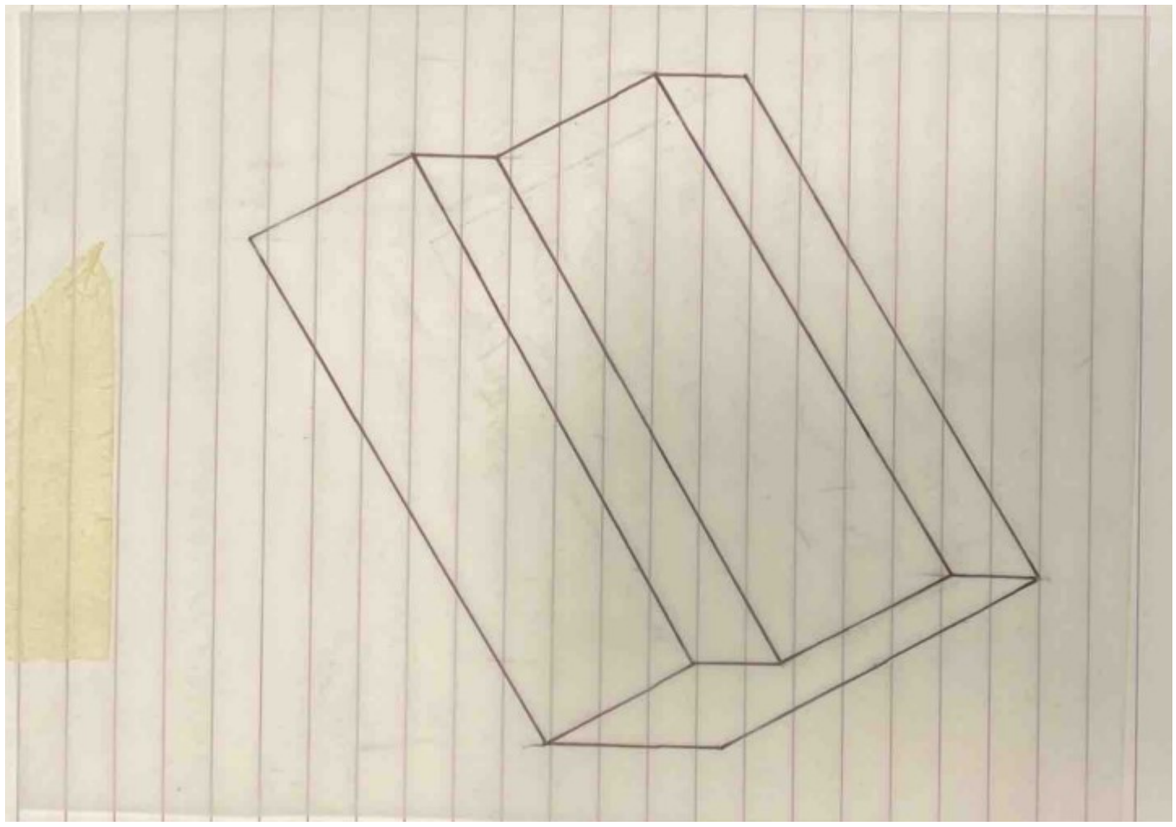
1. wearing course / surface
2. Bedding layer
3. sub base - often crushed stone (concrete or basalt)
4. sub grade - earth on site.

Structures

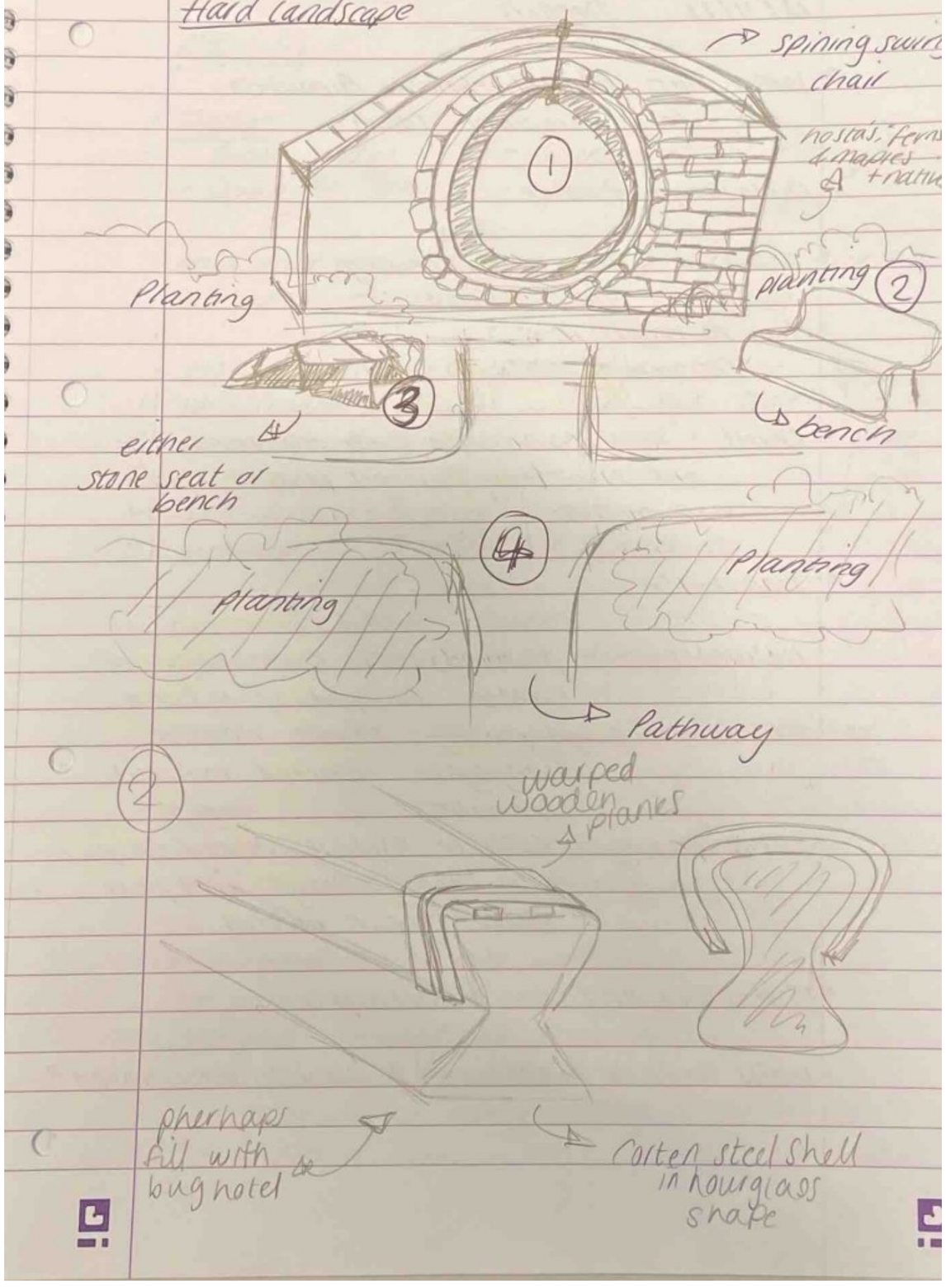
1. foundations & fixings
2. depths look solid & like they will hold up
3. alignment of plan & section
4. dimensioned materials

Tree pit





Hard Landscape



18/11/22 Details

- James Plats, Hansted Horsaher Architects
  - large simplistic stones
- Carlo Scarpa - venice
- Think in 3D - Ikea drawings
- How materials meet :
  - connections between materials
- Levels - how people can view the landscape and how they can get from one place to another.
- finishes :

Natural stone - diamond sawn, bush hammered, flamed, cropped / split faced.

manufactured rigid paving - smooth, exposed aggregate, coloured, marbled, specialists.

Flexible paving - concrete, Asphalt, sprayed chip, resin bound / epoxy ?, wet pour rubber, resin bonded

- Ergonomics and other functions ... ?
- walls - Stone ? textured ? structure ? climbers ?

Materials :

- Timber
  - Board walks - Boundaries - locks in carbon
  - Decking - Handrails

Hard wood → deciduous trees - outdoor decking
Soft wood → coniferous trees - fencing

external lifespan : untreated

1) very durable - 25 yrs + - ~~IR~~ Iroko, Teak
2) Durable - 15-25 yrs - oak
3) moderate - 10-15 yrs - Larch
4) non-durable - 5-10 yrs - Elm
5) perishable - 5 yrs - Beech, Ash

↳ A Pocket Book

Laminated timber : columns
Engineered wood : street furniture

- Planed, sawn, split, sanded, oiled, varnished ?

- Metals
  - Strong - manufactured off site
  - allows slender design - bespoke design

- Fabricated sheets and pannels
  ↳ perforated...
- cast iron - poured into a mould
- steel - alloys of various elements
  ↳ Mild Steel - iron + carbon
  ↳ Stainless steel - iron + chrome - 316 grade

Steel shapes & sizes :
- Hot rolled
- Solids, Squares, rounds, hexagons
- I-beams / universal beams
- Hollow sections - Squares, rectangles, tubes

- Corten & Stainless steel - no finish needed

- Aluminium - anodised (electro-chemical treatment) a hard shell that doesn't deteriorate and can be coloured or etched.

- Painting lasts 4 to 6 yrs
- powder coating lasts up to 30 yrs
- Zinc coating

- construction - welded; bolted, jointed

concrete

- exposed aggregate } huge carbon
- in-situ concrete } footprint

~~fail~~

Sustainability

energy use and lifespan; manufacturers carbon footprint data. Is it reusable, repairable, recyclable, where does it come from?

SUDS & WSUDS (water sensetive urban design) are essential for flooding & climate change.

It's also about adapting cities for the future, removing cars and replacing it with cyclists and public transport, creating livable cities and neighbourhoods.

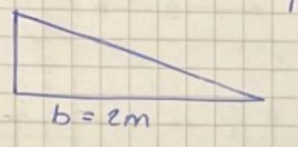
* BREEAM - Building Research Establishment's Environmental Assesment Method.
  - ↳ values measured against a series of categories
  - ↳ Pathfinder carbon calculator

* Vista, AILA - climate positive Design Guidelines

- Little less hard design, encourage soft landscaping
- reuse / repurpose materials
- recycle water
- management & maintenance.
- Using local materials or sustainable materials

Working out gradients:

$\frac{1}{20} = 0.05$

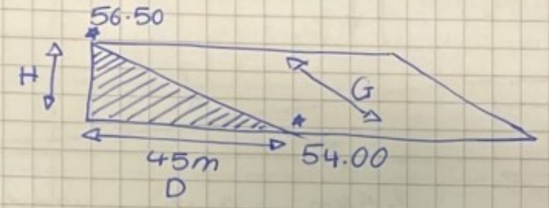


If the base is 2 m long

2 x

① Gradient = height ÷ distance

G = H ÷ D



56.50 - 54 = 2.5 H

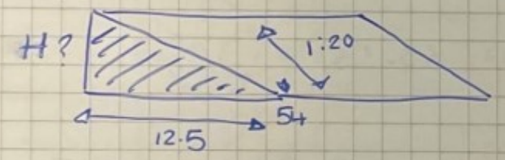
2.5 ÷ 45 = 0.055

0.05 x 100 = 5% slope

$\frac{1}{0.055} = 18.18 = \frac{1}{18}$ slope

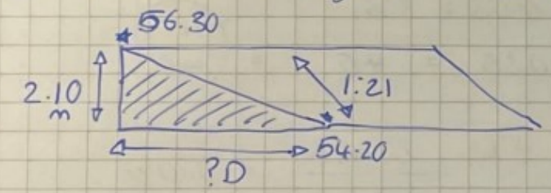
② Height = Gradient x Distance

G = 1:20 → $\frac{1}{20} = 0.05$ x 12.5m = 0.625



Height = 0.625

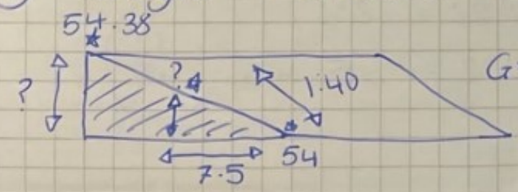
③ Distance = height ÷ Gradient



G = 1:21 → $\frac{1}{21} = 0.048$

2.10 ÷ 0.048 = 43.75

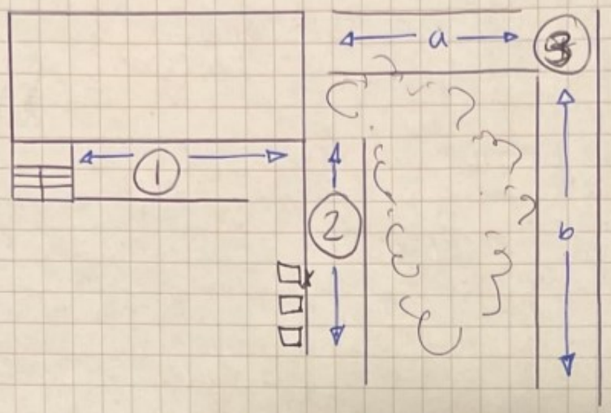
④ Height = Gradient x Distance



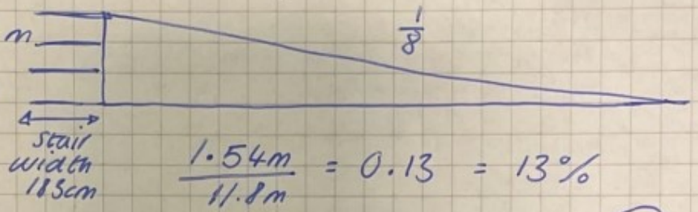
G = 1:40 → $\frac{1}{40} = 0.025$

0.025 x 7.5 = 0.1875

measurements of Existing site :

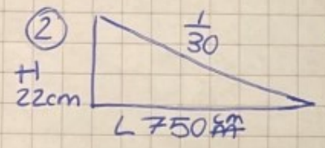


① Height = 1.54 m
length = 11.8 m
G = H ÷ L



$\frac{1.54m}{11.8m} = 0.13 = 13\%$

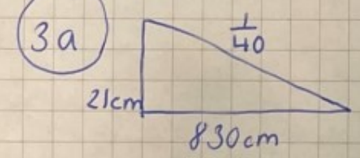
$1 \div 0.13 = 7.69 = 8 = \frac{1}{8}$ slope

② 

G = H ÷ L $\frac{0.22m}{7.5m} = 0.029 = 0.03$

0.03 = 3%

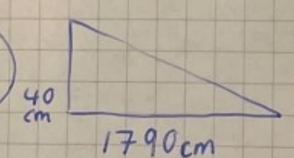
$1 \div 0.03 = 33.33 = \frac{1}{30}$

3a 

G = H ÷ L $\frac{0.21m}{8.3m} = 0.025$

Round to 0.03 = 3%

$1 \div 0.025 = 40 = \frac{1}{40}$

3b 

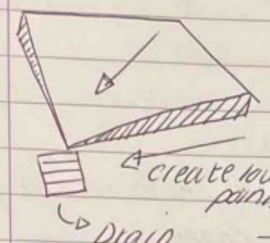
G = H ÷ L $\frac{0.40m}{17.90m} = 0.022$

Round to 0.02 = 2%

$1 \div 0.022 = 45.45$ $\frac{1}{45}$

Levels and Drainage

Drainage - water flows downwards



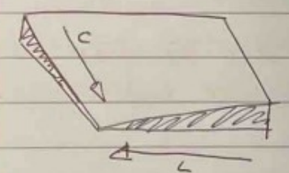
- when working next to buildings we need to ensure water doesn't get into the building causing damages and damp.

→ drain surfaces - gullys, channels, or slot drains

Ground levels are typically 150mm below the DPC - Damp proof course.

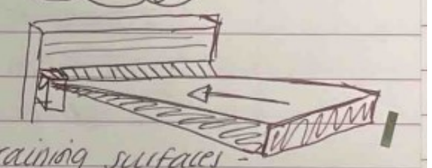
- we don't want water to pool & collect on the surface - we want it to drain away or percolate
- we need to connect with the levels and earth around it - Ramps & steps.

Basic Principles



C - cross fall - aprox 1:50
L - longitudinal fall - approx 1:1000

Drainage



Draining surfaces - slot drains, dished channels or covered channels

Field Drainage

water seeping in from the side or from a high water table can be drained by using a ditch or 'French drain' (porous pipes with gravel fill in trench).

Sustainable urban drainage

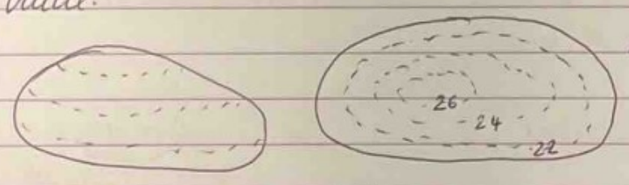
SUDS include :
- Rainwater harvesting
- Green roofs
- Sustainable drainage methods
- permeable paving
- Rain gardens
- swales
- drainage ponds

* important to use SUDS wherever possible

* Sheffield Grey to Green

contours and levels on plan

Contours of topography illustrate heights of equal value.



imagine forms in water.

visualising the existing site and its contours allows you to determine where water will flow.

LRC Study site Soft Scape

plant identification :
- ilex Aquifolium → common holly
- Taxus baccata → common yew
- ~~Be~~
- hedera helix → common ivy

Other plants on site :
- Berberis bealei - leather leaf mahonia
- Lamium galeobdolon - yellow archangel
- vinca minor - lesser periwinkle
- Acer palmatum - Japanese maple
- variagated holly -
- Rubus ulmifolius - Elmleaf blackberry
- Hypericum androsaemum - Tutsan
- Cyrtomium falcatum - House Holly Fern
- common sage (salvia officinalis)
- Galanthus nivalis - snowdrops
- prunus persica - peach
- Crocus tommasinianus - woodland crocus
- Erica cinerea - Bell heather
- Aucuba japonica - Japanese laurel

Levels Workshop

1:3 Slope

Steepest slope for mowing grass

1:4 Slope

Steepest slope for walking by able bodied people

1:6 Slope

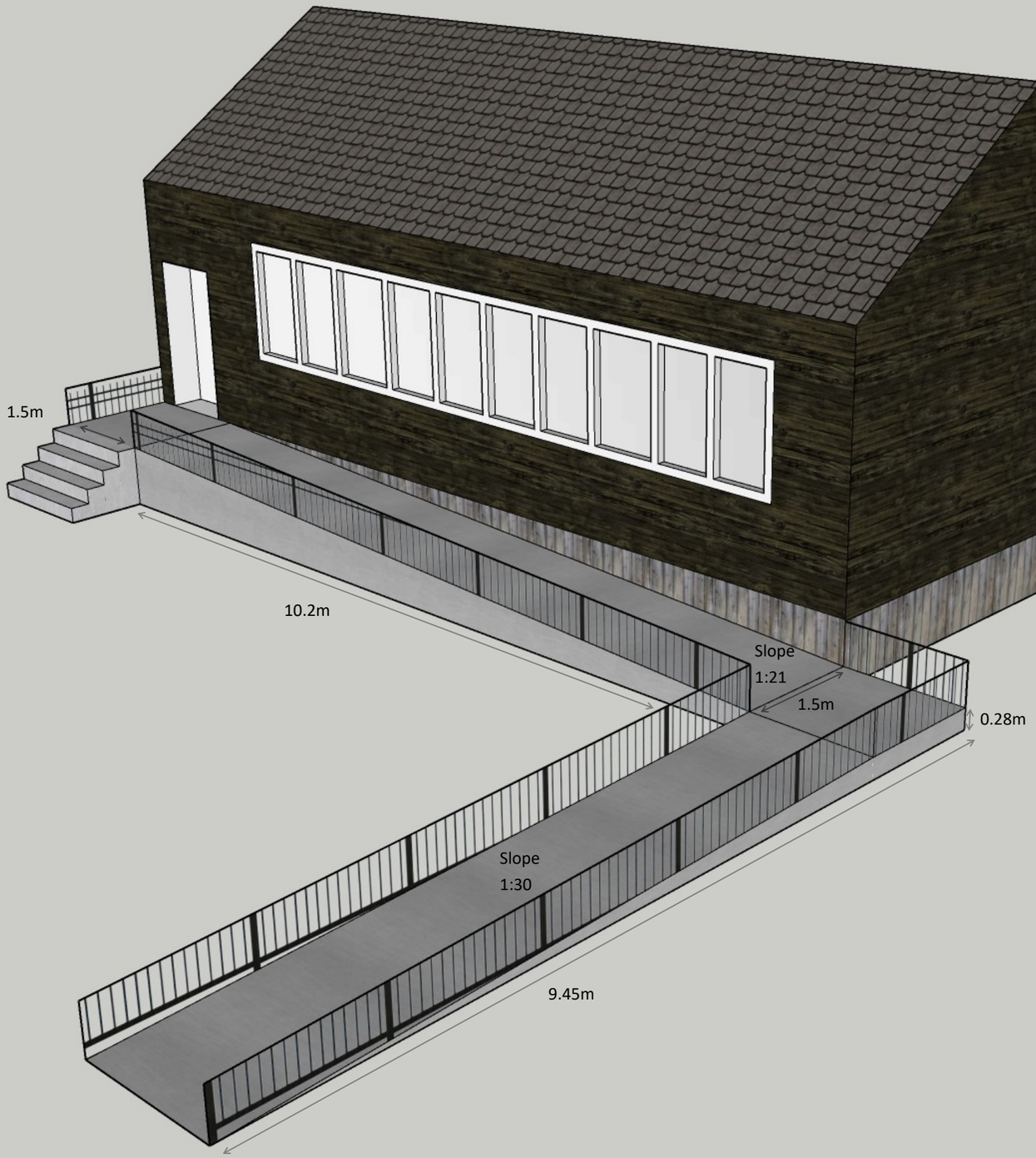
Slope for vehicles

1:12 Slope

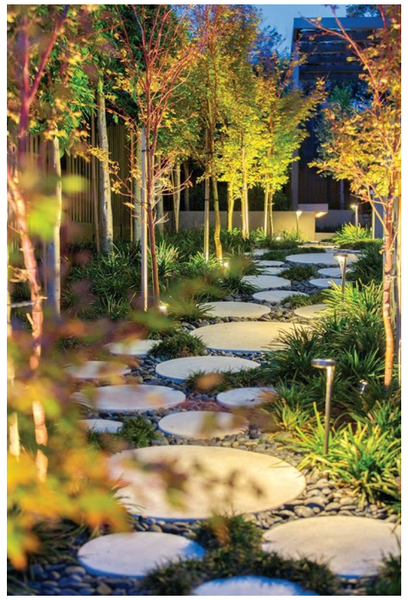
Maximum gradient for DDA compliant disabled access

1:20 Slope

Maximum gradient for slope requiring DDA compliant approach for disabled access

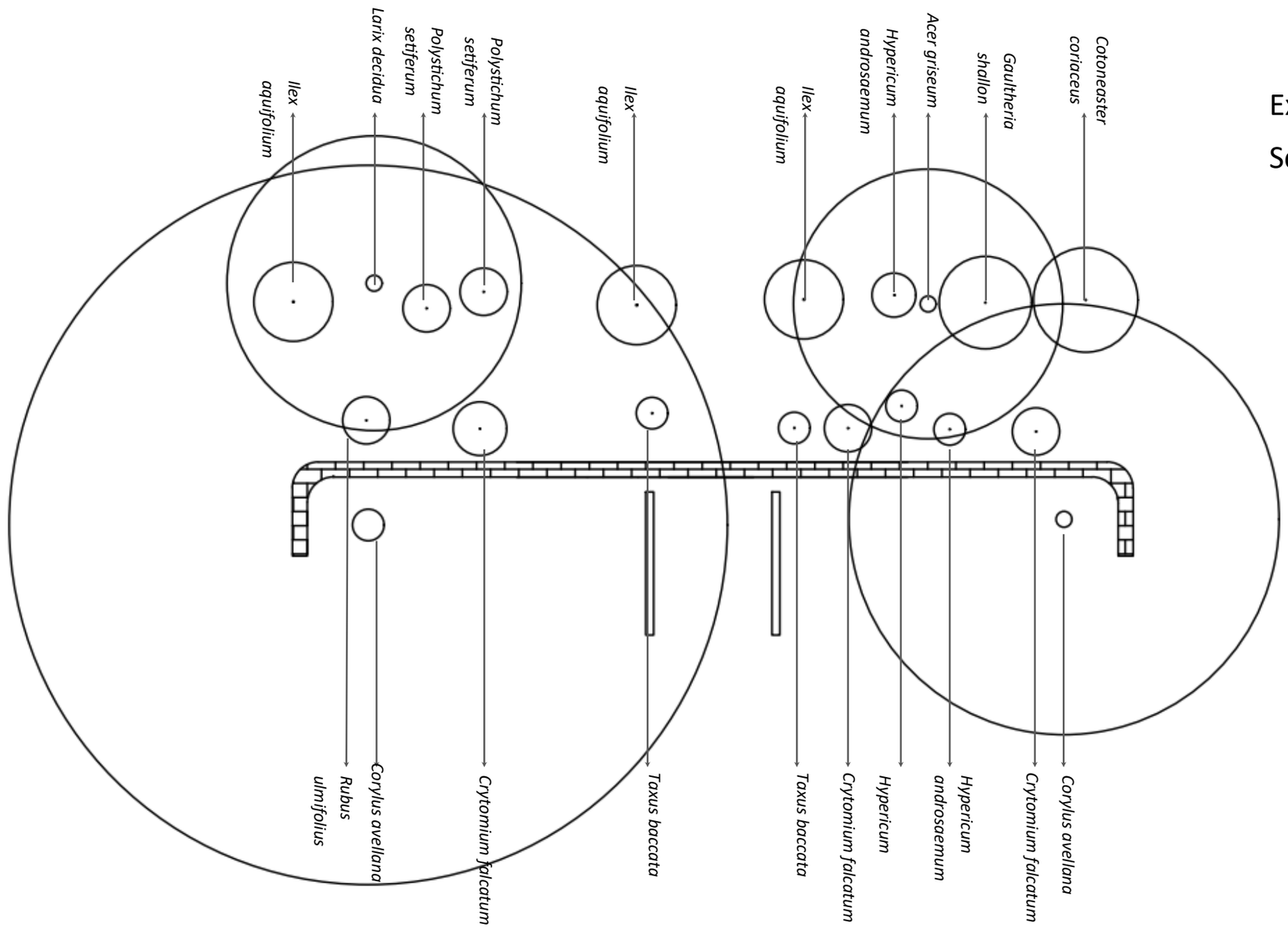

1.5m
10.2m
Slope
1:21
1.5m
0.28m
Slope
1:30
9.45m

LRC Design Inspiration



Peter Latz, designer of Duisburg Nord, inspired my Landscape Resource Centre (LRC) design through his thoughtful approach to an existing site. Latz approached Duisburg Nord with the aim to preserve the history and character of the iron industry by maintaining key components of the site or repurposing materials.

Existing Site



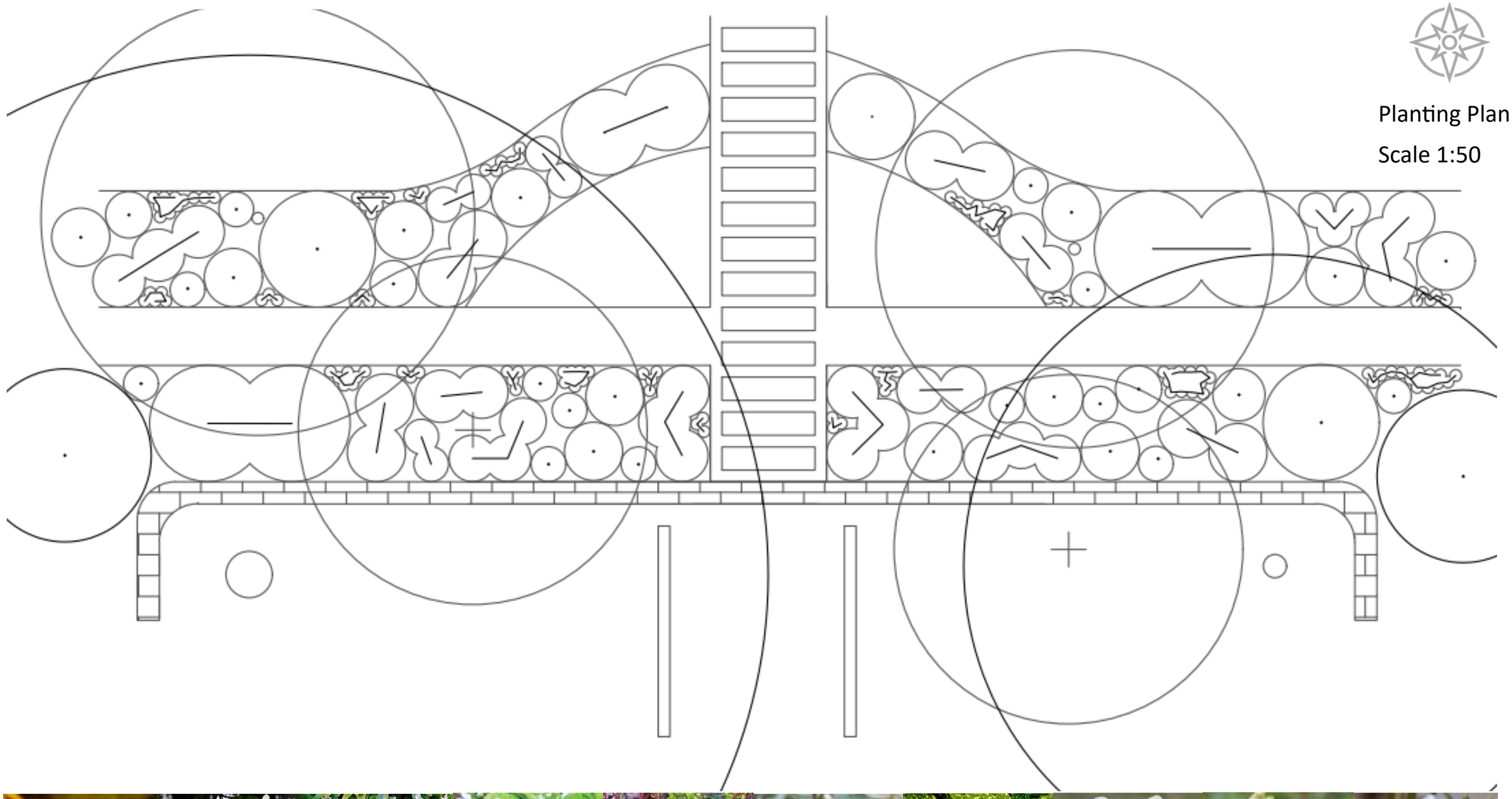
N

Existing Site

Scale 1:100

Opportunities	Constraints
Moon Gate is a centre piece and view point within the garden.	Northern planting hasn't been maintained, resulting in the shrubs growing tall and enclosing the area.
Surrounding trees are mature.	Pathways consist of dirt tracks.
Brick wall is still fairly sturdy.	Mature trees create a lot of shade.
Ivy covers a lot of the wall softening the hard materials.	Wall planting is low and has little variation in species and layers.

Soft Materials



Planting Plan

Scale 1:50

Acer palmatum
'Orange Dream'

Cornus angustata

Pachysandra terminalis

Hosta
'Rainforest Sunrise'

Euphorbia amygdaloides
'Purpurea'

Hebe 'Red Edge'

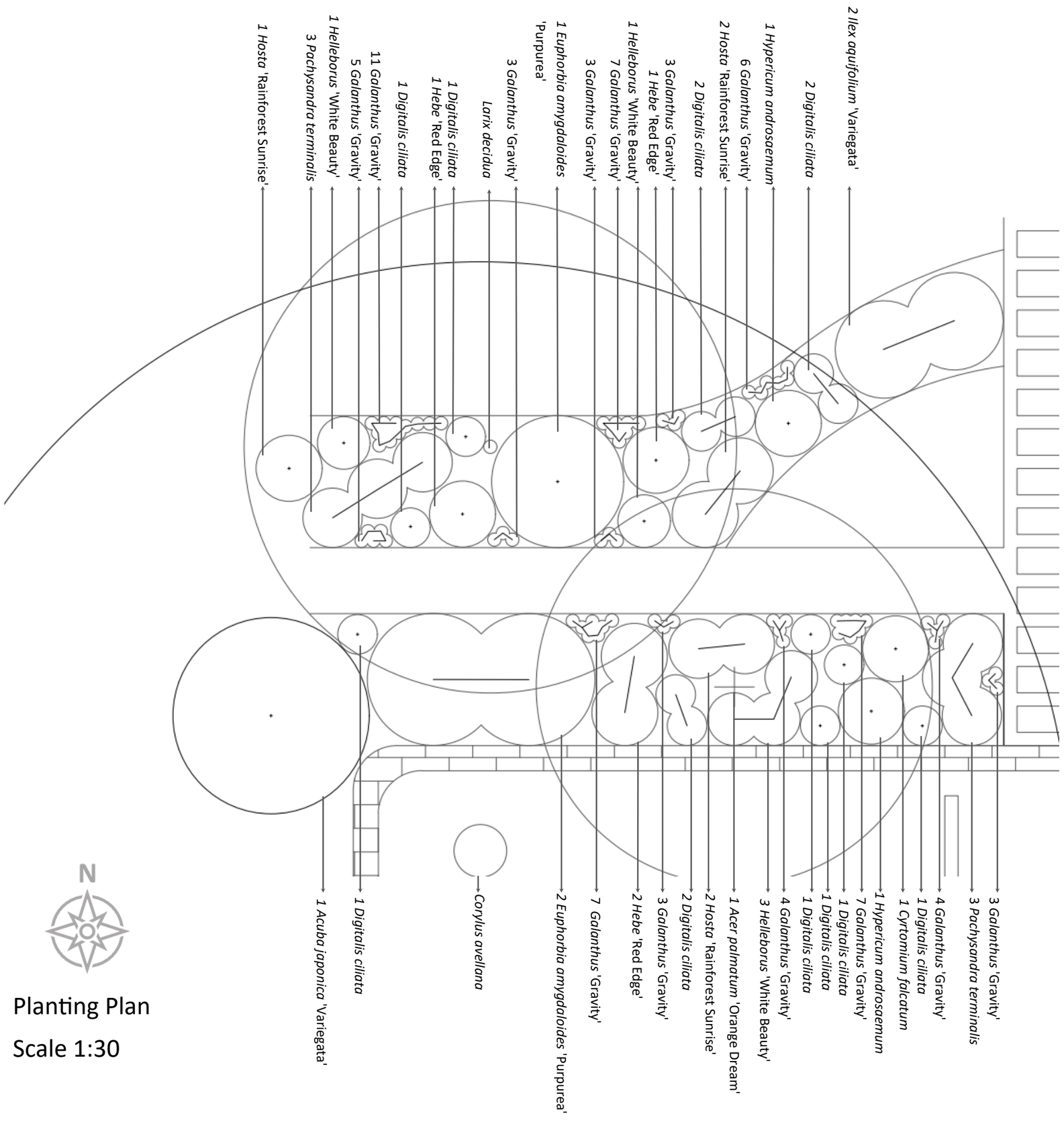
Acuba japonica
'Variegata'

Helleborus
'White Beauty'

Digitalis ciliata

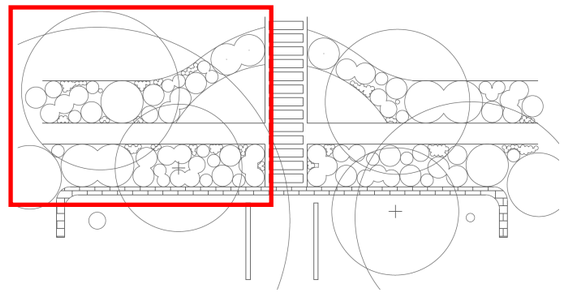
Galanthus 'Gravity'

Planting Plan



Planting Plan

Scale 1:30

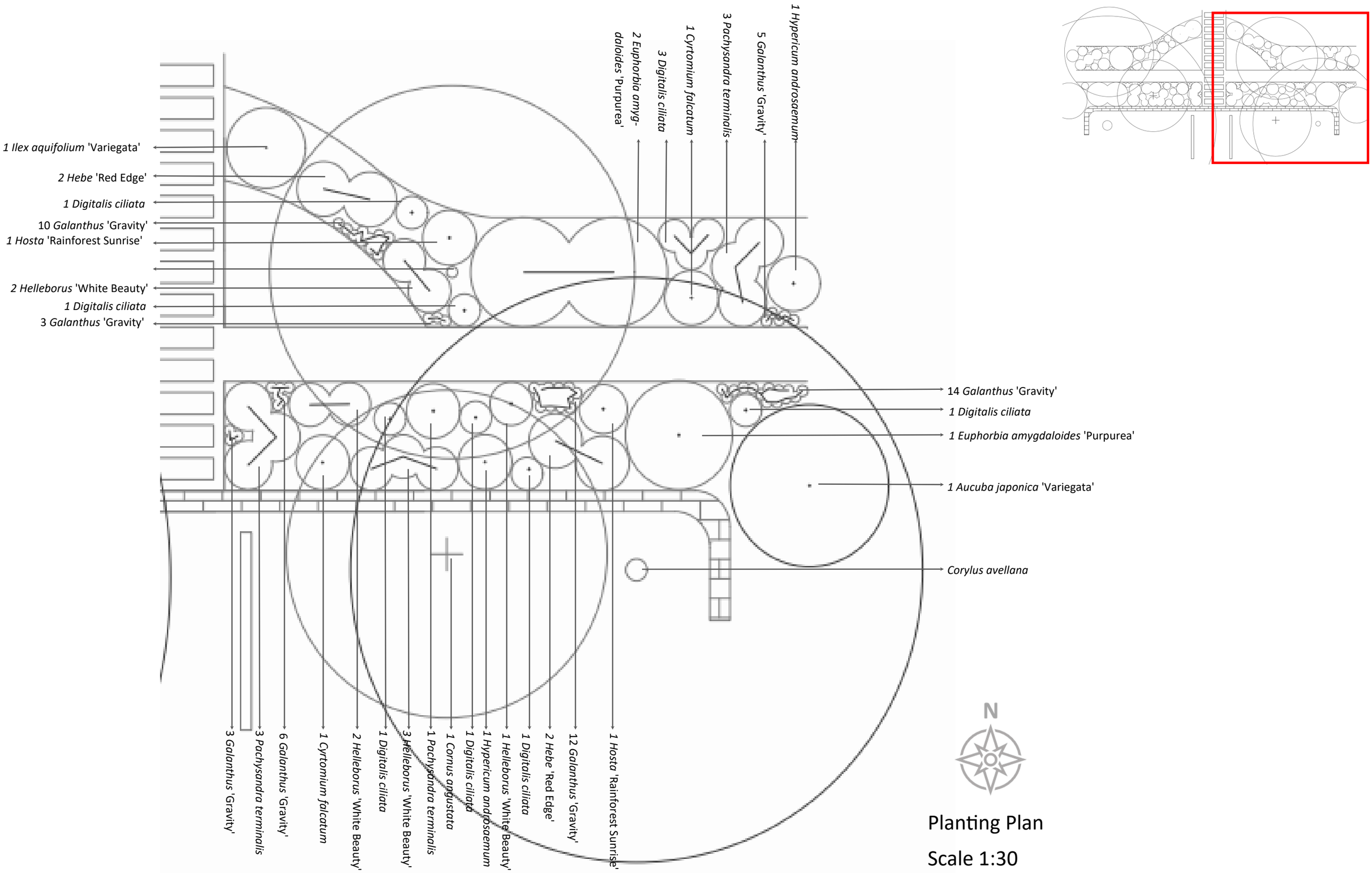


Peter Latz's approach to planting in Duisburg Nord started with looking at the existing plants. His philosophy was to retain most of the softscape or simply move existing plants around within the site. As a result when looking at my site I chose to keep some of the existing plants such as *Ilex aquifolium* (Variegated Holly), *Cyrtomium falcatum* (House Holly Fern) and *Hypericum androsaemum* (Tutsan).

Many of the other plants I have introduced can also be found within the LRC ensuring that they will thrive in my sites environment. In addition to this the plants could also be grown from seed from the existing plants in the area reducing the cost of buying in plants and keeping the genetic material of the species the same.

The section of plants ensure all year interest with a variety of ever-greens and different plants flowering throughout the year.

Planting Plan



Planting Plan

Scale 1:30

Planting Schedule

Trees								
Number	**Species**	**Common Name**	**Size**	**Girth**	**Height**	**Clear Stem**	**Root**	**Pot Size**
1	*Acer palmatum 'Orange Dream'*	Japanese maple 'Orange Dream'	Multi Stem	3 trunks	2-3m	Feathered	container	50L
1	*Cornus angustata*		Multi Stem	3 trunks	2-3m	feathered	container	50L

Ground cover								
Number	**Species**	**Common Name**	**Size**	**Root**	**Pot size**	**Habit**	**Spacing**	**Density**
9	*Pachysandra terminalis*	Japanese spurge 'Green Carpet'	100-500mm	Container	3L	Well filled pot	500mm	5/m2
7	*Hosta 'Rainforest Sunrise'*	Plantain lily 'Rainforest Sunrise'	100-500mm	Container	3L	Well filled pot	500mm	5/m2
4	*Cyrtomium falcatum*	House Holly Fern	100-500mm	Container	3L	Well filled pot	500mm	5/m2

Ornamental Shrub Planting								
Number	**Species**	**Common Name**	**Size**	**Root**	**Pot Size**	**Habit**	**Spacing**	**Density**
6	*Euphorbia amygdaloides 'Purpurea'*	Wood Spurge 'Purpurea'	500-1000mm	Container	5L	Well filled pot	450mm	5/m2
7	*Hebe 'Red Edge'*		100-500mm	Container	5L	Well filled pot	450mm	5/m2
2	*Acuba japonica 'Variegata'*	Variegated Japanese Laurel	500-750mm	Container	5L	Bushy	1000mm	1/m2
4	*Hypericum androsaemum*	Tutsan	100-500mm	Container	5L	Well filled pot	450mm	5/m2
3	*Ilex aquifolium 'Variegata'*	Variegated Holly	500-750mm	Container	5L	Bushy	1000mm	1/m2

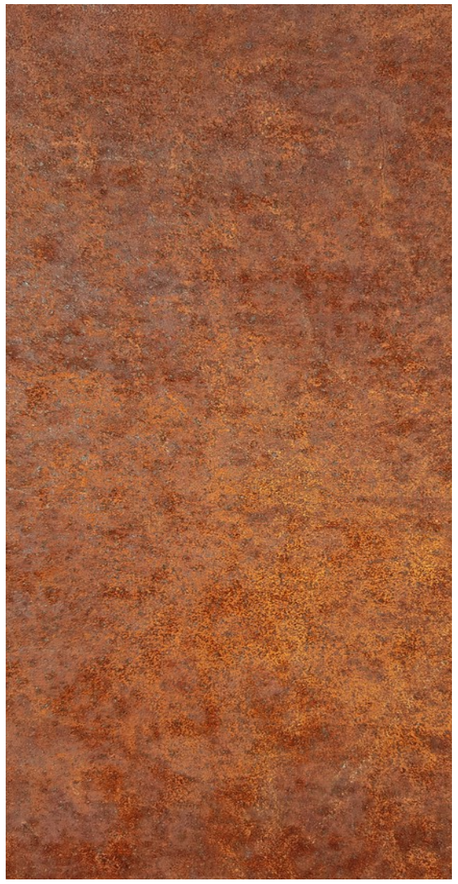
Perennials								
Number	**Species**	**Common Name**	**Size**	**Root**	**Pot Size**	**Habit**	**Spacing**	**Density**
13	*Helleborus 'White Beauty'*		100-500mm	Container	2L	Well filled pot	500mm	5/m2
21	*Digitalis ciliata*	Hairy Foxglove	100-500mm	Container	2L	Well filled pot	500mm	5/m2

Bulbs					
Number	**Species**	**Common Name**	**Size**	**Placement**	**Density**
120	*Galanthus 'Gravity'*	Snowdrops 'Gravity'	100-200mm	Planted in groups where ground is sparse on the edge of the beds.	25/m2

Maintenance Plan

Task	Frequency	Notes
Clean Benches	Monthly	Ensure benching and/or seating arrangements are well maintained removing any graphiti, bird faeces or rubbish.
Litter picking	Monthly	The site is not used regularly, but still must be inspected for litter once a month.
Inspections	Yearly	Check site for hazards, damages, cleanliness and uses.
Pressure washing stepping stones	Yearly	Retain the colour and texture of the Indian sand stone.
Rake Gravel	Monthly	Check for any gravel that may have escaped the pathway. Rake it back to retain the gravel for longer.
Weeding	Every six weeks from April to October	Remove any unwanted plants within the site.
Clear Leaves	Fortnightly through autumn and winter	Remove leaves from the gravel.
Water	When required	Only water plants through period of prolonged drought.
Pruning	Annually	Prune trees, shrubs and herbaceous plants to retain certain shapes and sizes. Complete when specific plant species are dormant.
Dead Head	Monthly from May to October	Dead head all flowering herbaceous plants to retain aesthetic and encourage plants to flower again throughout the season.
Divide Plants	Monthly in Autumn	Remove self seeded species or plants that are dominating the scheme to retain the planting design.

Hard materials



Corten Steel

Teak Wood

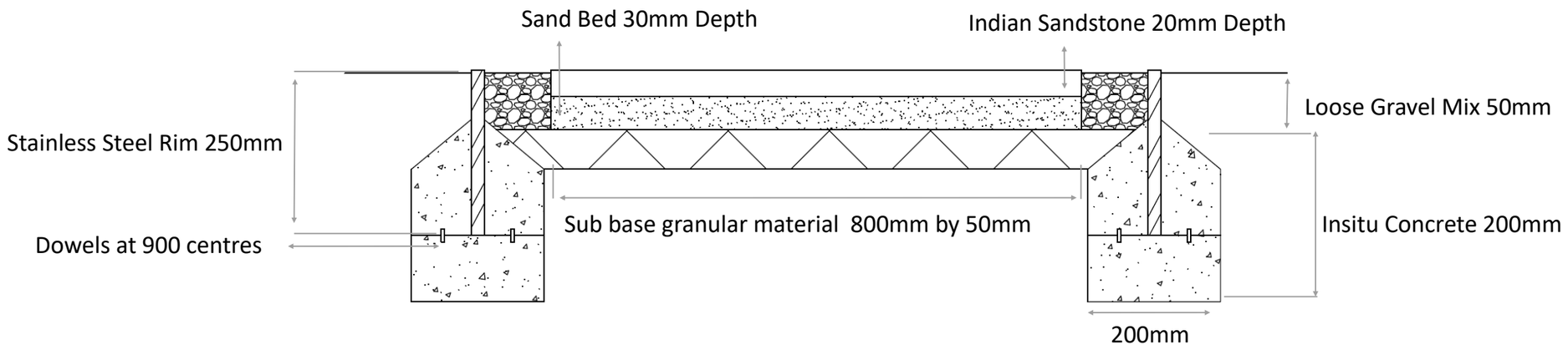
Gravel Mix

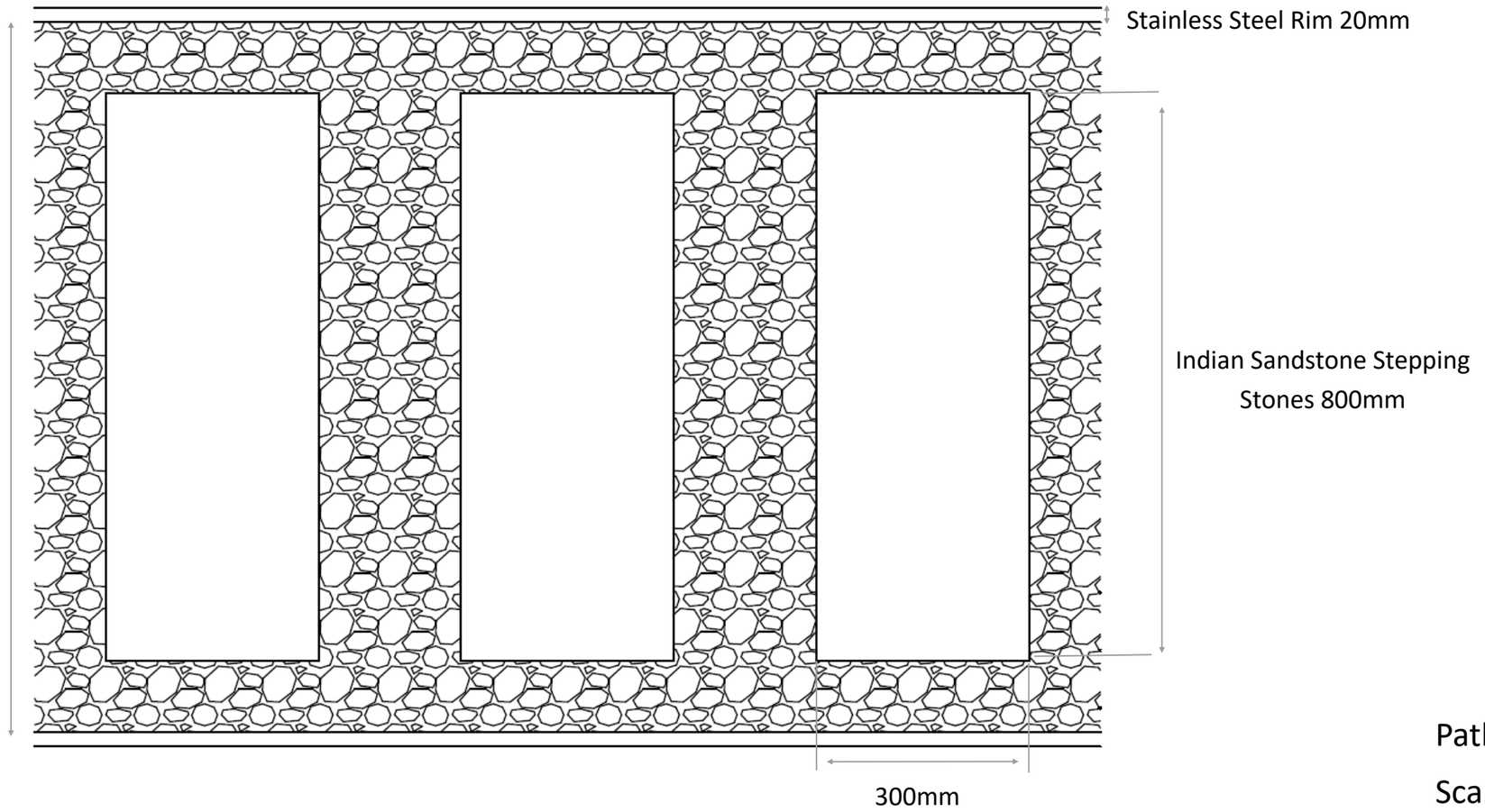
Polished Stainless Steel

Indian Sandstone

When approaching the hardscape I chose materials which would compliment the sites existing materials. The orange tones of the Corten steel, teak wood and Indian sandstone produce a sense of warmth and comfort within the space whilst creating a variety of patterns and textures. The Gravel mix is encompassed by the Stainless steel rim. I chose the gravel path with stepping stones to create a defined pathway through the site and draw your view up towards the moon gate.

Path Detailing





Path Construction

Scale 1:10

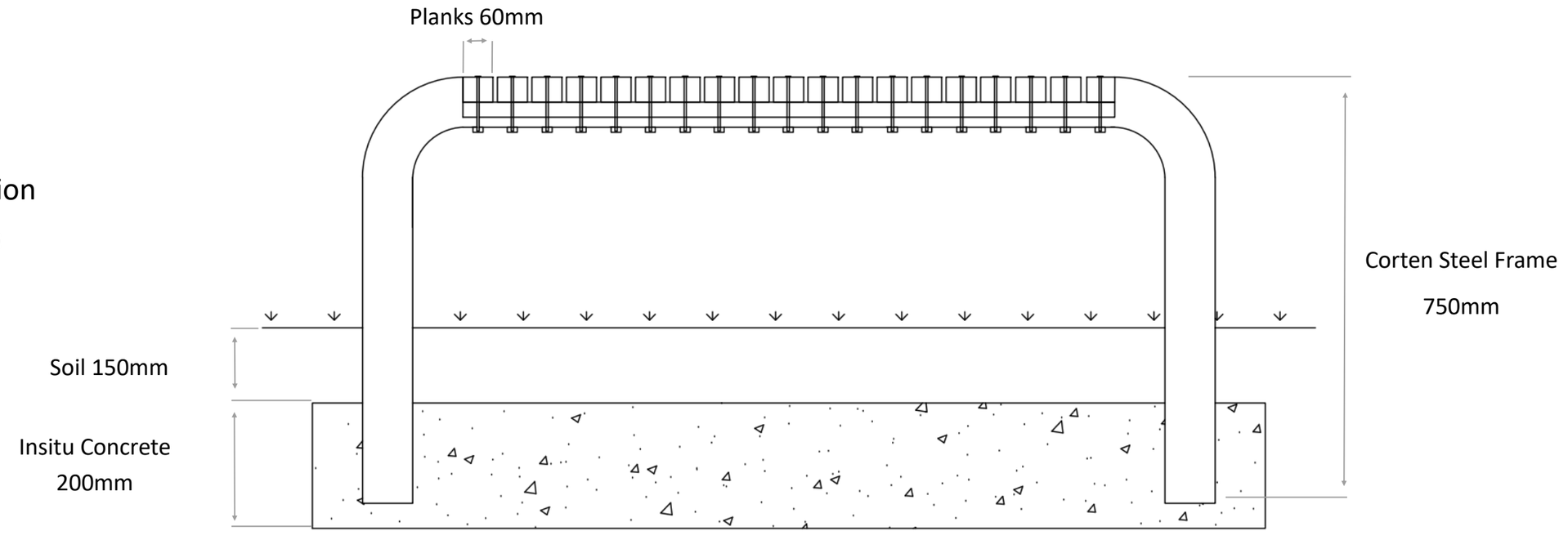
The mixed gravel path creates a different texture to the hardscape and is encompassed by the stainless steel rim. Indian sandstone stepping stones line the path and guides the users eye up towards the moon gate.

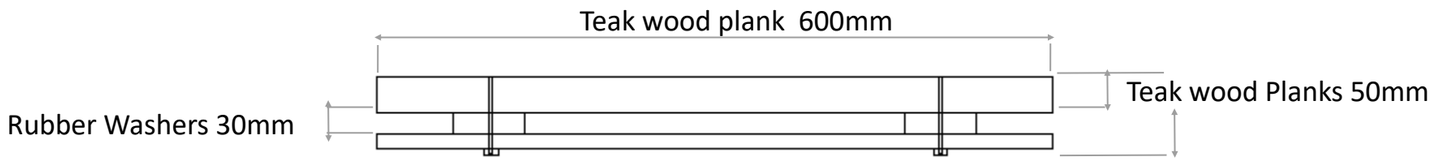
Bench Detailing

Bench

Construction

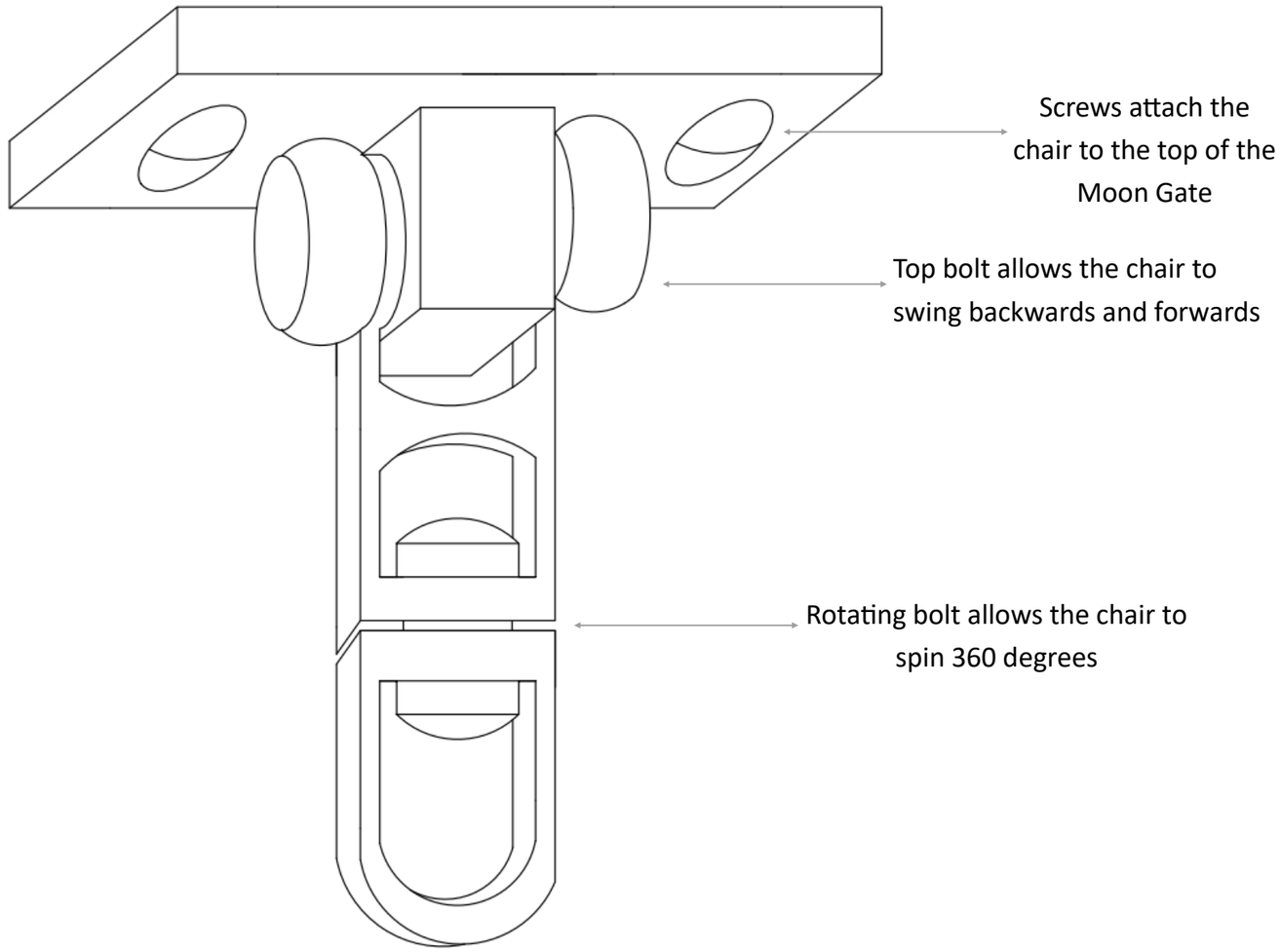
Scale 1:10





The Corten steel bench creates a rough texture in contrast to the smooth teak wood planks along the top. To prevent the wood rotting, rubber washers separate the planks from the bottom of corten steel and secured by screws. As a result water is able to drain from between the planks increases the durability of the wood. The legs of the bench are secured by concrete underground to stop the heavy structure from sinking into the ground when moist in winter.

Rotating Bolt Detailing



The bolt design allows the swing chair to move forwards and backwards and sing 360 degrees, but restricts it from swinging from side to side as it would crash into and potentially damage the existing moon gate around it. The swing chair will be constructed from teak wood due to its durability and painted with a varnish to intensify the warm brown tones.

Sketch up Detailing