

norbis
park

Mini design guide

NORBIS PARK

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Aalborg
Forsyning

FRIIS & MOLTKE
ARCHITECTS

GREEN SUSTAINABLE LANDSCAPE

Prepared on behalf of Aalborg Forsyning

Design guide prepared by:



GREEN SUSTAINABLE LANDSCAPE

Reading guide

The basis for this Mini Design Guide Norbis Park can be found in Design Guide – Norbis Park. If you wish to gain a deeper insight into the underlying thoughts, we recommend reading Design Guide – Norbis Park in its entirety.

This mini edition constitutes a summary of the principal design parameters for the area and has been prepared with the purpose of providing a quick overview of those special attention points and measures that Aalborg Forsyning wishes to incorporate in future projects. As such, the Mini Edition constitutes a condensed guideline for architects, engineers, building owner consultants and contractors regarding the values that Aalborg Forsyning wishes to promote and how the execution of tasks in the area should be approached.

The design guide has been organized to first present a description of the overall approach to the topics that will

be touched upon in connection with the development of Norbis Park as a green test centre. Following this, analyses of the qualities of the existing conditions are presented. Taking point of departure in these analyses, the prepared concept for Norbis Park is presented, in which the principal aesthetic, technical and environmental qualities are described.

These qualities are examined in further detail in the chapter Urban and Landscape Structure, followed by the last chapter describing each individual district in detail.

The specifications in the mini edition must be read alongside the current local development plan that forms the regulatory basis for the area.

The layout has been set out with the purpose of enabling offline printing on two-page A4 with binding along the short side.

Photos, maps, and illustrations:

Unless otherwise specified, illustrations have been created by Aalborg Forsyning, Friis & Moltke Architects and Green Sustainable Landscape.

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III.1 - Aerial view

Vision

The vision is to open the area to the world and welcome people to a vibrant, diverse and experiential new city. Our focus has been on maintaining Aalborg Forsyning's idea of creating a new district in which everything is a resource and where new, green technologies can be developed and tested. The proximity to green electricity and heat production and CO2-containing waste gas offers excellent conditions for utilizing resources that would otherwise go to waste.

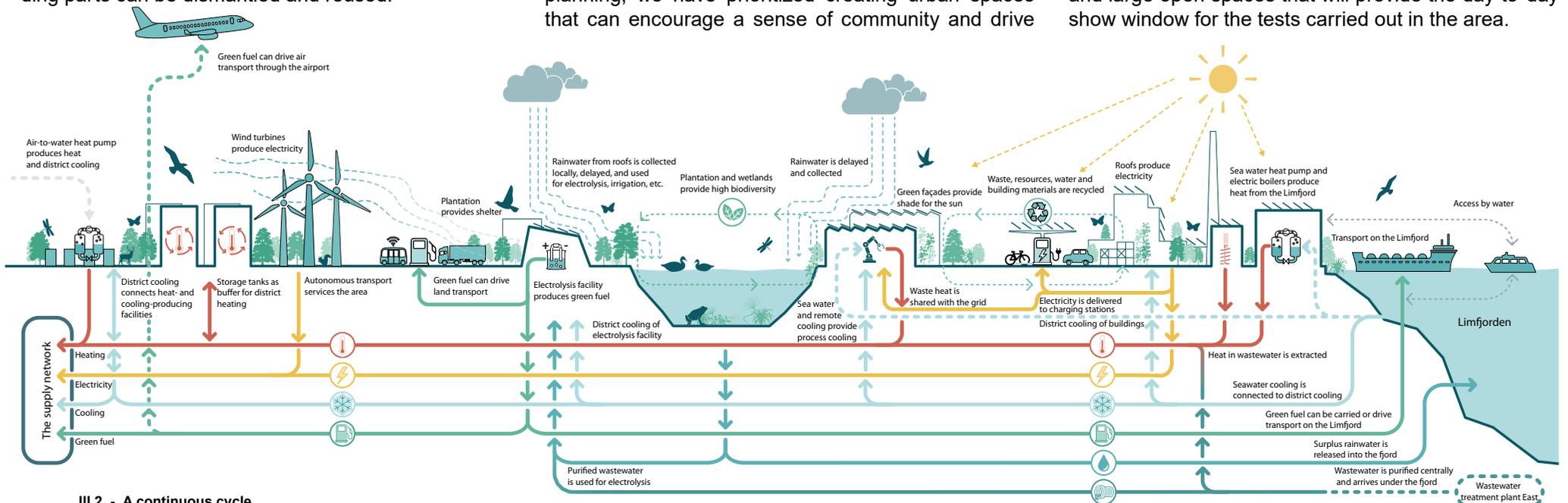
The architectural vision takes its point of departure in the resources already offered by the area: the forest, the salt meadow, the ground water, the biodiversity, Blok 3, the power transformers, the chimney, the proximity to sea water, etc. The city that will grow in Norbis Park over time will be a city based on local values and resources in combination with changeable structures and building systems. This has resulted in a design where disassembly and CO2 footprint are the primary points of measurement in an area grounded in circular economy, both regarding energy, resource flows and buildings in which a minimum of 90 percent of the building parts can be dismantled and reused.

The planning horizon of the city is long, perhaps more than 30 years, and places significant demands on the resilience of the planning. The vision is an industrial city where buildings and landscape merge and whose primary goal is to form the framework for a trail-blazer within the green transition in which attractive spaces go hand in hand with a synergy across sectors in everything from research and demonstration to large-scale tests and production.

In the arrangement, we have worked towards supporting knowledge exchange and co-creation, and in the planning, we have prioritized creating urban spaces that can encourage a sense of community and drive

sector coupling through shared resource flows and synergy across sectors. This will materialize into an industrial city that in the future will drive green growth in a framework of interesting urban spaces, where getting together is easy and walking is safe.

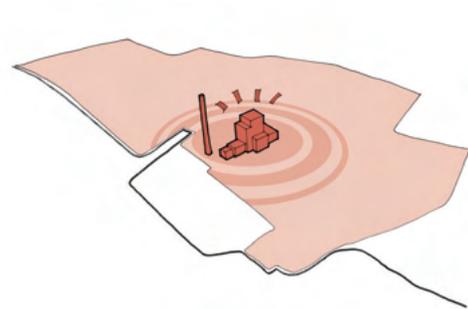
Similarly, we see the new industrial city and the story of the green technologies of the future, as well as the communication of them, as crucial drivers for the creation of the city. This will be staged around Kredsløbet – The Cycle - a communications walkabout that will lead you through every single district, and the local squares and large open spaces that will provide the day-to-day show window for the tests carried out in the area.



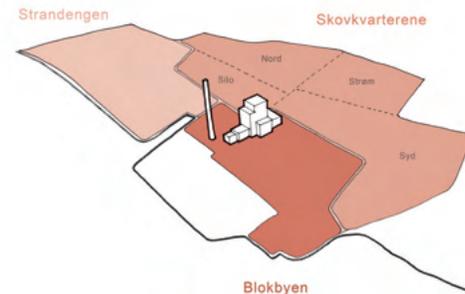
III.2 - A continuous cycle

Norbis Park will be a continuous innovative cycle focusing on green energy in which both technology, knowledge, nature and people will thrive.

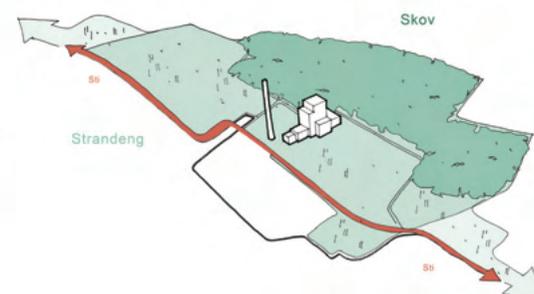
Main idea / Concept



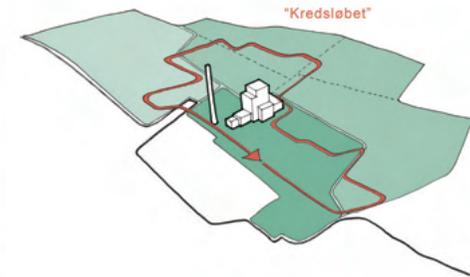
III.3 - Blok 3



III.4 - Districts



III.5 - Nature - Salt meadow - Forest



III.6 - Kredsløbet (The Cycle)

A closely connected area

The underlying idea for the new city builds on four primary concepts:

- Preserve Blok 3
- Re-establish the salt meadow and forest
- Districts
- Kredsløbet (The Cycle)

Blok 3 and its approx. 150-m-tall chimney is a distinct identity marker. Blok 3 will be phased out as a coal-fired power plant but will form part of the future stock of buildings, its height making it the monument of the area, visible from large parts of Vendsyssel and Himmerland in bright weather.

The salt meadow and the forest

The main concept takes its point of departure in re-establishing biotopes that have been cut off or ignored for several years. The idea is to establish distinct and recognizable types of landscape that each contribute to distinguishing the areas that they run through.

The salt meadow that forms a natural border along the coast of the Limfjord will be re-established. By breaking down surfacing, green passages are created, and an unbroken bio passage will be established. Windbreaks and forest will be established in the northwest part of the area. The woodland will be left alone and will supplement the existing plantation and form a 'ridge' that will provide shelter and new biotopes. Windbreaks will be established as a governing structure, drawing lines to the surrounding countryside.

Districts

We will create well-arranged units – districts: *Blokbyen* – “*The Block City*”, *Strandengen* – “*The Salt Meadow*” and *Skovkvarterne* – “*The Forest Districts*”. Through their different characteristics, the districts will provide diverse experiences in an enormous area. Each district will be developed according to differentiated design parameters that will inject the districts with recognizability, characteristics and a sense of community.

Kredsløbet (The Cycle)

Kredsløbet is a landscape system of paths and experiences that moves through the entire area and interconnects the districts of the city. *Kredsløbet* is a symbol of the conceptual basis of the area and constitutes the opening concept of the area.

The curvatures and amoeba shape of *Kredsløbet* will be visible from the air (the area's 5th façade) and will constitute an iconic unifying concept and a physical manifestation of the idea behind the area. *Kredsløbet* will be constructed as a coherent, experiential path system that runs both at ground level and in the air. It will function as a unifying feature where visitors, tourists, researchers, or employees can move around the entire area on foot, Segways or bicycles. *Kredsløbet* will be lit and furnished.

Phases

Due to the large size of the area, the development will take place over many years. The time frame and the uncertainty as to which companies will set up operations in the area have naturally led to the need for a high degree of flexibility in the design guide. The phases as described below will therefore mainly express the sequence of the main conceptual concepts that are of significance for the development of the area within each phase.



III.7 - Site plan phase 1

Phase 1

The natural and uncovered areas will be maintained, Kredsløbet will be established, and efforts will be focused on construction in Blokbyen. The opening move will be to establish the forest and Kredsløbet.

Through natural overgrowing, the focus will be on establishing a diverse and experiential forest-like biotope based on local, native species.

Kredsløbet will be laid out during this phase, forming green connections through Blokbyen, partly as path systems through the afforestation. The early stages of development will naturally take place around Blokbyen, where the intention is to establish a strong and urban centre. During this phase, major parts of traffic planning will be maintained in its current form.

During this phase, a “board/network group” will be established that will work on how to facilitate a sense



III.8 - Site plan phase 2

of community among the companies. This work will develop the idea of the (green technology) symbiosis to also include professional and human relations, the establishment of communal facilities, etc.

Phase 2

During this phase, the logistics network will be further developed and the infrastructure in the area will be connected. Traffic connections will be established across the sub-districts, enabling the development of these. In connection with these developments, the specific characteristics of each district will be ensured. The areas will be developed from the central parts out, and the buildings will grow from the existing facilities.

By now, the “board/network group” will be well established and will focus on facilitating new and established communities.



III.9 - Site plan phase 3

Phase 3

During phase 3, efforts will be focused on maintaining and completing the overall structure. At this point, all city districts will be established, logistics, communities and Kredsløbet will be fully developed.

The afforestation and windbreaks will now be distinctly visible, and the local communities will be fully formed. Kredsløbet will have reached its final form in which communication points, experience platforms and safe pedestrian and bicyclist connections will be complete.

During this phase, the work in the “board/network group” will be particularly important. Now, efforts will focus on maintaining and rethinking the ideas of community and symbiosis and discussing the further development of the area.

Point of departure

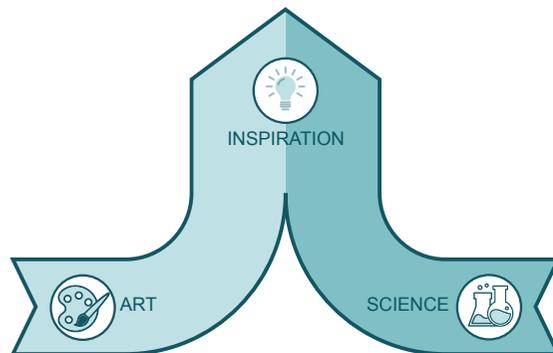
The area facilitates the notion of a symbiotic community. As such, the resources that the area provides – mainly water and the production of electricity and heat – can be distributed so that the companies utilize each other's surplus resources in an optimized cycle.

Culture, communication, and temporality

The integration of art is to be an inherent part of the character of the area. In the interaction between art, technology, buildings, and landscape, effective and rewarding synergies will arise that can be conducive to development and innovation.

The scale and character of the area will allow for working at a very large scale and will potentially attract artists at an international level.

Works of art must be an integrated part of the planning of the area and at individual constructions. For instance, innovative art projects focusing on sustainable technologies will be presented on and around Kredsløbet.

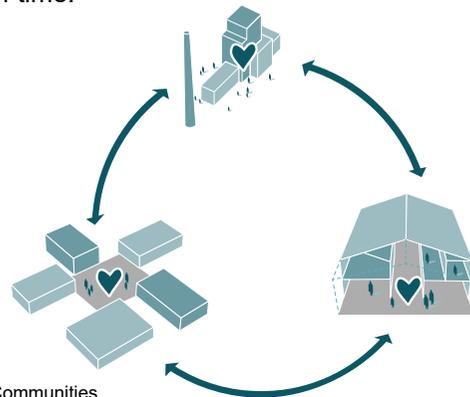


III.10 - Knowledge and art

Communities

The sense of community that arises from the exchange of knowledge and resources will be developed to form the city's spatial, professional, and social communities. In *Blokbyen*, communities may arise around the area's (test) squares and urban spaces, in company houses and, in the area's, large 'community centre', Blok 3. Blok 3 will, fully reused, function as a multifunctional community centre, programmable with communication activities, offices, café/restaurant, sport, and production.

In *Skovkvartererne*, the formation of communities will be initiated by small squares that will function as places of arrival for the adjacent companies. In addition, these squares – like in *Blokbyen* – are intended as areas where new technologies can be tested for specific periods of time.



III.11 - Communities

Nature and landscape features

The area is characterized by a high degree of industrialization without regard for the surrounding nature. The combination of the flat ice age landscape, younger field boundaries, the salt meadow and the fields constitute an important cultural landscape – and this concept contains important nature that is worth protecting.

This concept is continued in the development area. Taking point of departure in nature as form and value parameter, and a general wish to increase biodiversity, the salt meadow will be re-established, and the existing plantation expanded. The salt meadow will be lightly built on and several areas will be designated natural water reservoirs while the rest will be designated nature establishment. In *Blokbyen*, this type of nature will be interpreted as urban nature with a focus on creating green urban spaces, façades, and roofs with local plants.



III.12 - Nature characteristics

Logistics

The primary transport and arrival route for the area is Nefovej, while the other roads will primarily be used by the area's employees and local residents. The primary traffic will be established along a north-south arterial road with a connection to the areas belonging to Port of Aalborg. Pedestrians and bicyclists will in the early stages arrive by a newly established bicycle route. Kredsløbet will be the main internal means of travel for soft road users.

Employees and visitors in cars will park at central parking lots by Blokbyen. From here, it will be possible to move around by bicycle, scooters or on foot along Kredsløbet. All companies will have the option of establishing a limited number of parking spaces on their own land. Existing parking lots will be phased out during the development of the area.

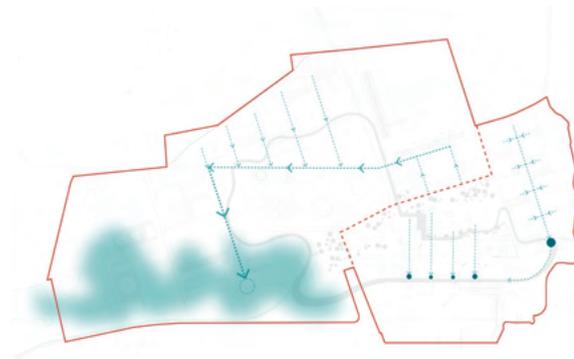


III.13 - Logistics

Water management

The development is situated on a raised impermeable area. Adjacent areas are situated in lower, partly impermeable areas where the ground water level is high. The area is situated by the fjord, which means that in the future it will be affected by the consequences of climate change.

Within the development area there will be a need for large amounts of technical, experimental water. The plant communities that are planned for common areas and at the companies' own land must utilize the water that is found locally through collection – in tanks, canals, and small lakes. In addition, the water in *Skovkvartererne* and *Strandengskvarteret* will play a significant role in the establishment of a wilder nature.

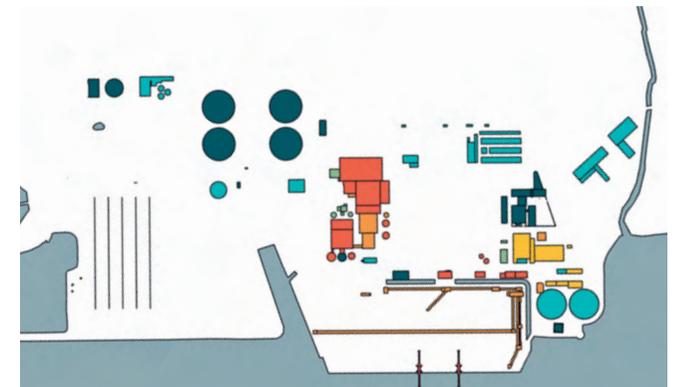


III.14 - Water management

Preservation

The area contains buildings of varying architectural quality. *Design guide – Norbis Park* classifies each building and its aesthetic potential in detail, along with its significance with regards to maintaining the identity of the area. Buildings will be assessed on the basis of their functional, architectural and historic value. At the initiation of any new project, each building must be assessed in relation to this.

Taking point of departure in the idea of reuse and design for disassembly, each building must be analyzed for whether it can be utilized for a different function before any demolition may be carried out. All buildings that are demolished must be screened for potential recycling of materials.



III.15 - Preservation

Site plan

Signaturforklaring

 New facility

 Existing facility

 Underground pipes



III.16 - Site plan
Site plan setting out current and known future functions

Overall guidelines



III.17 - Aerial view

History of the area

The area around Norbis Park constitutes a central piece in the telling of a significant part of Danish history. It is both the story of one of Denmark's best preserved industrial cities and the story of the historic energy development that has taken place in Denmark and will continue in Norbis Park.

History and identity

The new industrial city will be established on an area teeming with history. In the 1500s, the area was reserved for agricultural production, stored in Vesterladen, for Vor Frue Kloster monastery in Aalborg. Only a few traces of this cultural landscape are left today, but the main road to Vesterladen has been maintained and today appears as a strong asset in the storytelling. The same goes for the stream, Stae Bæk, where there used to be a ferry berth called Laden Sundsted at the mouth at Østerladen.

The area inserts itself in Aalborg's history of heavy industries that started in earnest with the foundation of Aalborg Spritfabrik (distillery) and C. W. Obel's tobacco factory. They were followed by the cement works; Aalborg Portland and Dansk Andels Cementfabrik at the beginning of the 20th century. From that point, Aalborg underwent a rapid development, and several shipyards were established along the fjord between the city centre and Aalborg Portland in the eastern part of the city.

Generally, but also during this period, supply companies have had a long tradition of building distinct structures. Examples include Aalborg Vandværk (waterworks), drawn by Holther Paludan in 1907, Nordkraft (a power station), now a culture house, constructed in 1947/1958 and Vendsysselværket (a power station) in 1967.

Parts of Aalborg's characteristic skyline have been marked by large chimneys, ranging from Nefovej in the east

to "Spritte" (distillery) in the west, hence the name "the city of the smoking chimneys".

To keep pace with the need for increased energy production, Vendsysselværket was established in 1967. In 1995, Vendsysselværket and Nordkraft merged to form Nordjyllandsværket. Since then, Blok 1 and 2 have been withdrawn from service and demolished, and today only Blok 3, built in 1998, is in service and will be phased out in 2028 at the latest.

This historic quality is a major and significant asset and should be a point of departure for the developments initiated in the area. The buildings' potential, cultural heritage, the interaction with the sustainability aspect and a symbiotic-industrial community will hold a strong position if presented as perfectly balanced, coherent storytelling.

As such, it is of utmost importance for the transformation of the area that disclosing and developing the potential of the existing buildings is given high priority. The transformation of industrial buildings is well-known locally from, among others, Nordkraft in Aalborg. In addition, there are a number of successful international examples, such as Tate Modern in London and the Emscher Park complex in Ruhr, where heavy industry has been profitably transformed into commercial purposes and experience economy, and cultural heritage has been used as a strategic resource.



Spritten, est. 1900



Østre Havn, est. 1920



Eternitten, est. 1930



Nordkraft, est. 1940



Vendsysselværket, est. 1960



Vendsysselværket, est. 1970



Nordjyllandsværket, est. 1980



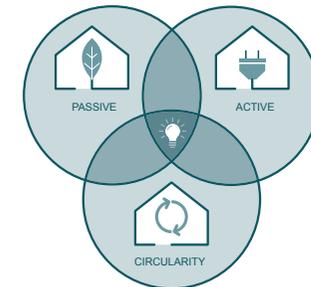
Norbis Park, the future

III.18 - Timeline, historical photos from Aalborg City Archives



Sustainability and environment

Sustainability is about making responsible decisions on behalf of the greater good. Both energy and construction are a major part of the challenge and an even bigger part of the solution. This is the motive behind several ambitious criteria for the future projects in Norbis Park.



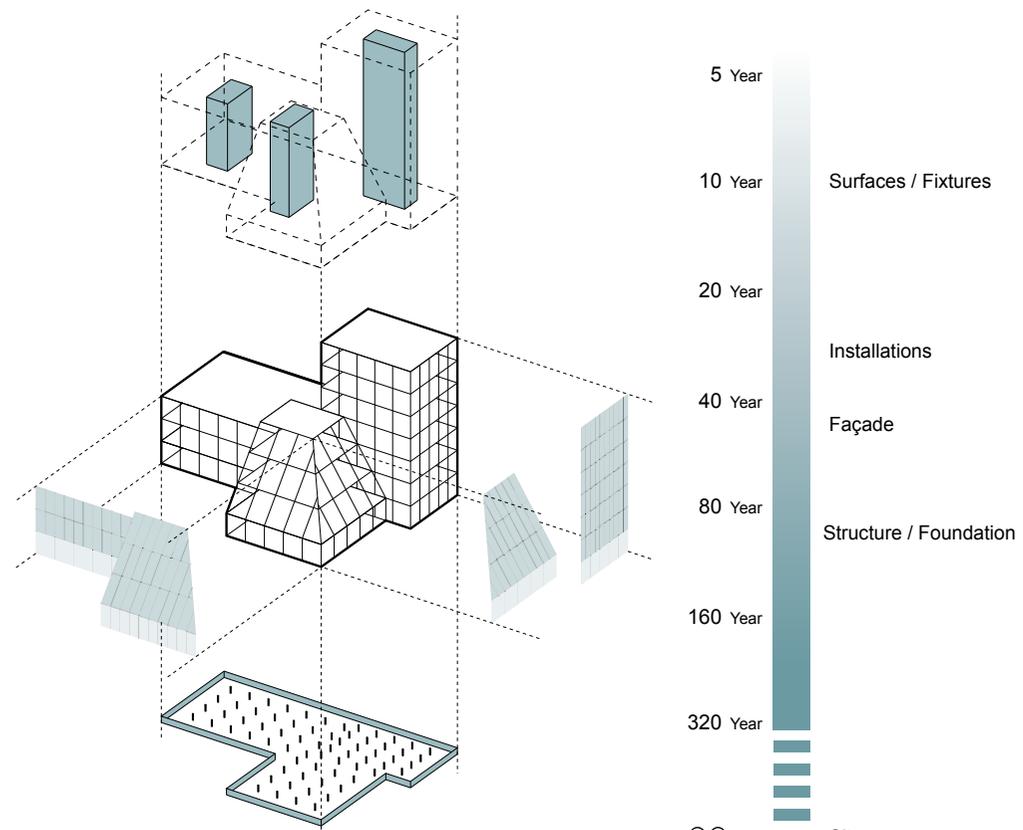
III.20 - Sustainability

Overall

For the sake of clarity, sustainability in the future projects in Norbis Park has been split into equal groups – Landscape, Building, Building structures and Materials.

- **Landscape** – The processing of the landscape must safeguard both flora, fauna, people and structures.
- **The building** – Any building must be flexible and adaptable to new uses over time.
- **Building structures and building techniques** – The joining of building parts and components must be beautiful and reversible.
- **Materials and resources** – The choice of materials must emphasize purity, recyclability, potential for disassembly and accessibility.

Circular economy and recyclability entail an obligation to carefully plan the entire lifetime of the project. Recyclability and lifetime are closely connected; the less recyclable and the larger CO2 footprint a material has, the larger the requirements for lifetime and flexibility must be. The most sustainable buildings are designed to be disassembled and to be flexible; this must be incorporated into all projects.



III.21 - Building structure and lifetime
Lifetime and recyclability are connected and must be incorporated

Landscape

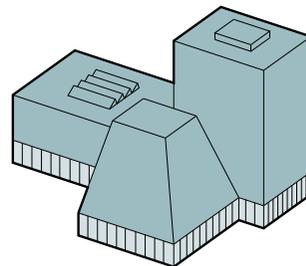
- The bio factor must be adhered to at the fixed level.
- Natural materials must stay within each plot of land and be used in the landscape or as a resource.
- Fertilizers and pesticides are not allowed.
- Windbreaks must appear wild and robust.
- Species must as a rule be native to the area.
- The terrain design must facilitate good conditions for flora and fauna.
- Road establishment must be carried out to ensure the roadbeds do not damage the surrounding root systems.
- Old and dead trees, as well as trunks, branches, and leaves, must be left and stay in the area.
- Natural food sources must be available at all plots of land.



III.22 - Landscape

The building

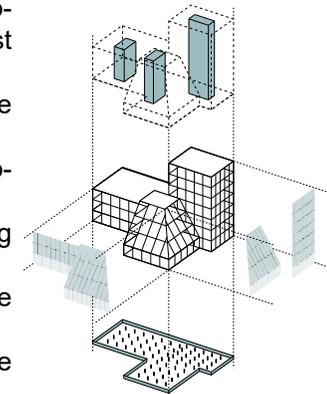
- Flexibility must be incorporated in both plan alterations and potentials for further development.
- Lifetime and recyclability must be integrated, and permanent building parts must be flexibly included in future building structures.
- The CO2 footprint and GWP (Global Warming Potential) of projects must be charted.
- Operations and maintenance must be incorporated into the project.
- Location and orientation must be incorporated early in the design process for the sake of energy consumption.
- At the start of each project, it must be determined whether and in which form certification, if any, should be performed.



III.23 - The building

Building structures and building technique

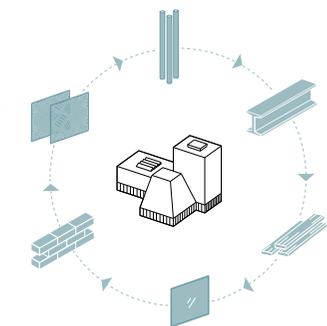
- Circular economy must be incorporated in all projects, and 90 percent of the building stock must be fit for disassembly and recycling.
- Reversibility and design for disassembly must be ensured.
- Resource collection must be incorporated in roofs and façades for water, energy, etc.
- Foundation work and unnecessary earthmoving must be minimized.
- The joints between building parts must be visible for easy service and disassembly.
- Joints made by gluing and pointing should be avoided.



III.24 - Tectonics

Materials and resources

- Resource consumption must be reduced as much as possible, e.g., regarding water, heat, paper and waste.
- Recycling must be incorporated, first of existing and then of new materials.
- Purity of materials must be ensured to enable use and disassembly in unprocessed form.
- Local materials must be prioritized to minimize transport.
- Passive strategies must be incorporated with the purpose of energy reduction.
- Active technologies must be incorporated for the purpose of energy production.



III.25 - Materials



III.26 - Visualization interior

Guidelines for each district



III.27 - Aerial view

Blokbyen

Blokbyen is the area's high-density housing, planned according to a grid based on the existing buildings and infrastructure lines. The dominating elements in this area are Blok 3 and the current administration building that will form a significant part of this area's character. Blokbyen has been organized on the basis of a wish to add a human scale to the area that will encourage outdoor life and social contact. The area will be characterized by dense, low building volumes and will be regulated by distinct façade lines, squares and road systems.

Guidelines

Test facilities

- Test facilities and temporary installations are not covered by these stipulations and must be individually assessed.

Materials and colouring

- External surfaces must be actively used for resource collection or energy production.
- The choice of material must reflect an industrial, diverse and dynamic urban area.
- The greening of façades must be incorporated in the areas specified on the plan diagram.
- Ground floors must be set out from the rest of the building mass and must have a transparency of minimum 60 percent in the areas indicated on the plan diagram.

Planting and soil

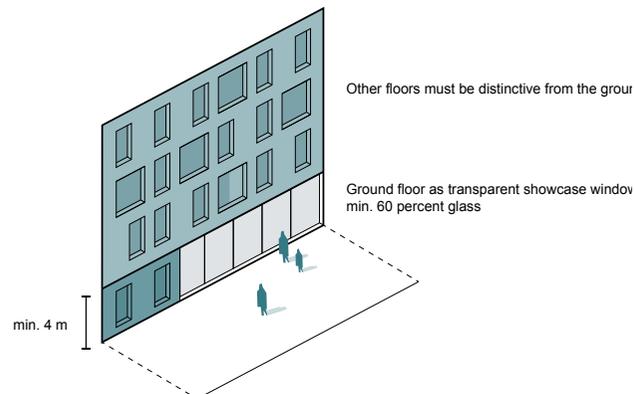
- Nature characteristics must be forest and salt meadow, from the north and the south, respectively.
- Planting must be urban and innovative and must be integrated in the terrain and buildings.
- Undergrowth and trees must be established in the ground and planting holes, respectively, with sufficient distance to the buildings.
- Planting holes in road tracks will be established asymmetrically for larger planting hole volume.

Paving

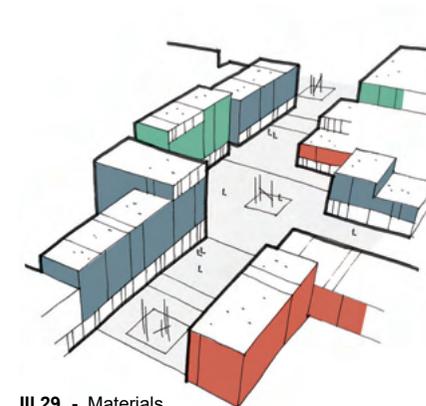
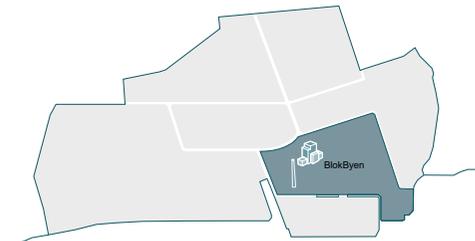
- Paving must be reduced as much as possible.

Water management

- Water must be collected and made visible through storage (lakes, basins, etc.) and transport (streams, etc.)
- All surplus water must be seen as a resource to be collected and recycled for technical water, experiments, irrigation or other similar purposes.



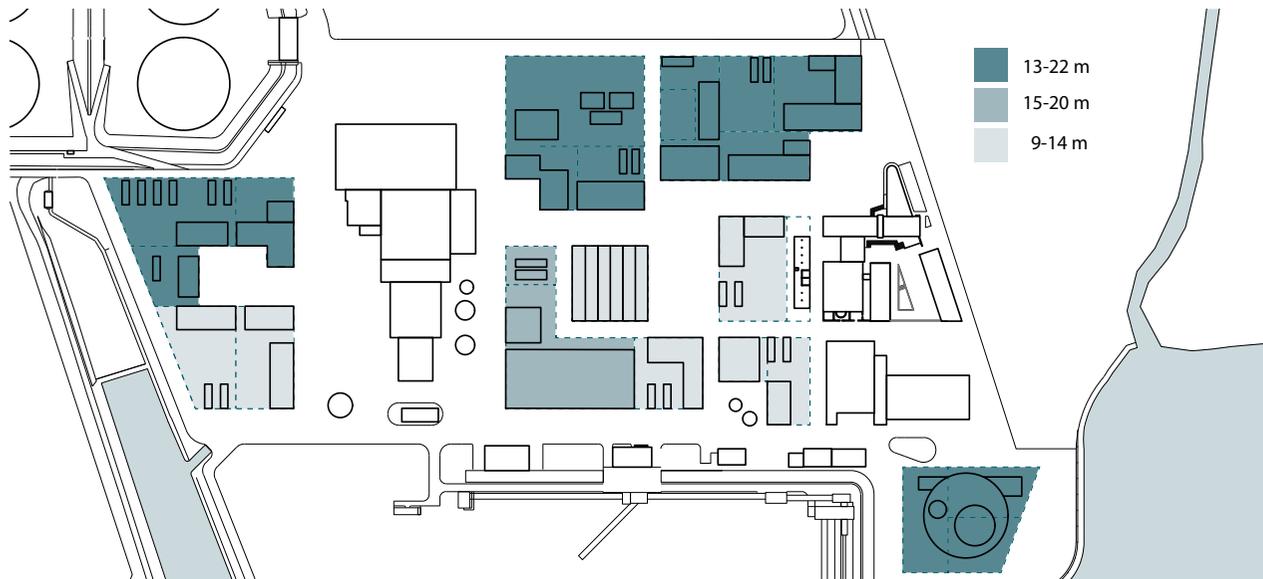
III.28 - Façades



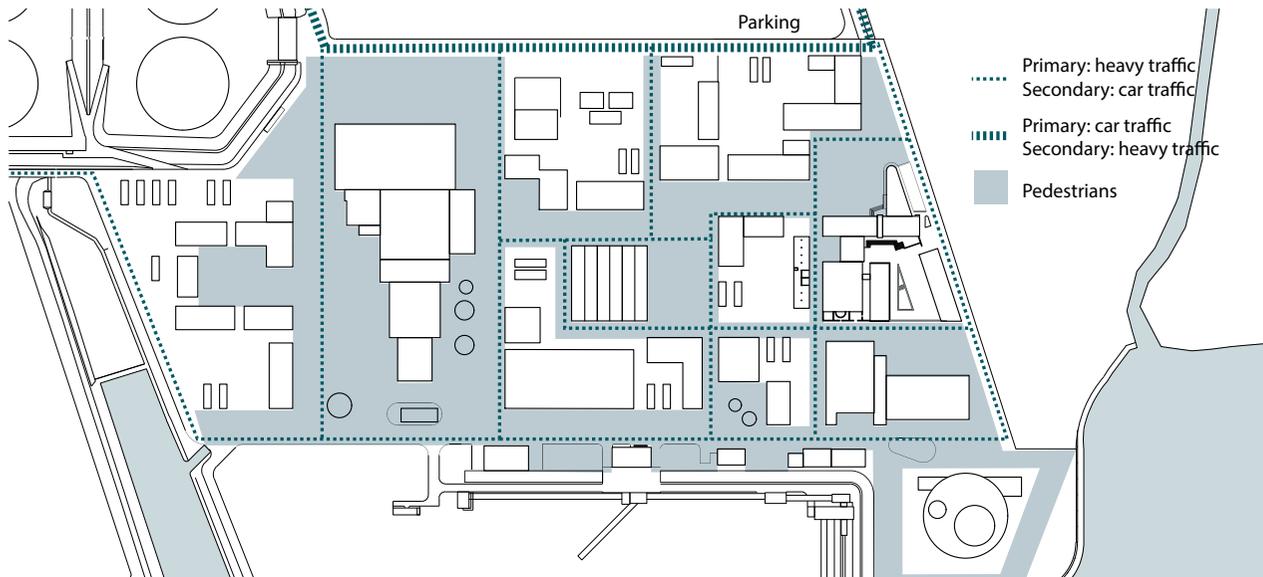
III.29 - Materials



III.30 - Bio façades



III.31 - Building heights



III.32 - Infrastructure

Infrastructure

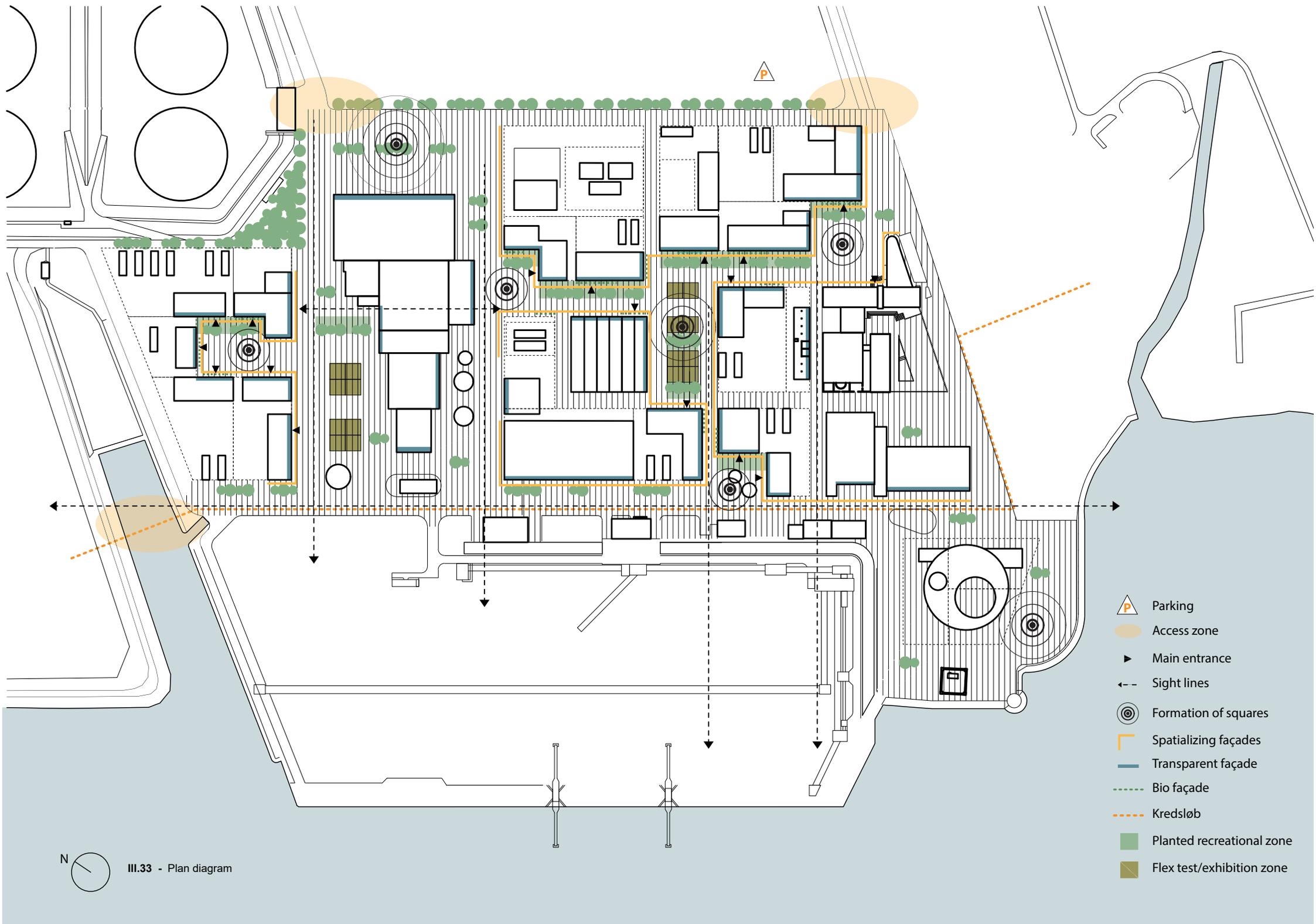
- Access to building plots is determined by the infrastructure diagram
- Soft road users take priority over car traffic.

Building plots, urban spaces, and road systems

- Squares, streets, and pedestrian streets are seen as common areas and may be used for recreation and test activities by the users of the area.
- Buildings must adhere to building plots and façade lines as depicted on the plan diagram.
- Building plots must be a minimum of 500 square meters.
- Main entrances must be oriented towards streets, pedestrian streets and squares as depicted on the plan diagram.

Heights and façades

- Building heights according to the diagram Building heights. The point of departure is a wish to create most height on the north side of street spaces, towards the boulevard and around squares.
- Façade lengths over 50 meters must show variation with a minimum of 2 meters' leaps in height.
- Façades over 25 meters must be broken by recesses, overhangs or other forms of façade shaping.





III.34 - Visualization Blokbyen (The Block City)

Skovkvartererne (The Forest districts)

Skovkvartererne are the area's two super-flexible industrial areas that offer space for companies of all sizes. The areas consist of Skovkvarter Nord and Syd, Strømlunden and finally Siloparken. The arrangement of the area takes its point of departure in a simple structure that draws nature into the area and manages transport and logistics. All building plots have a clearly exposed front and a functional service area.



Guidelines

Materials and color scheme

- The materiality around each common square must reflect a sense of cohesion around the square.
- The material expression of the different squares may vary.
- Towards squares, the building must open and provide a glimpse into production or development.

Planting and soil

- The planted areas will be "hollowed out" for each building plot, windbreaks will be maintained.
- Sufficient minimum separation distance must be allowed for towards the planting in windbreaks.
- Within building plots and squares, open plantations will be established.
- Plantation will be carried out with native species.
- Existing plantations must wherever possible be included in new projects.
- Old and dead trees and plantation must be left in the area for natural decay.

Paving

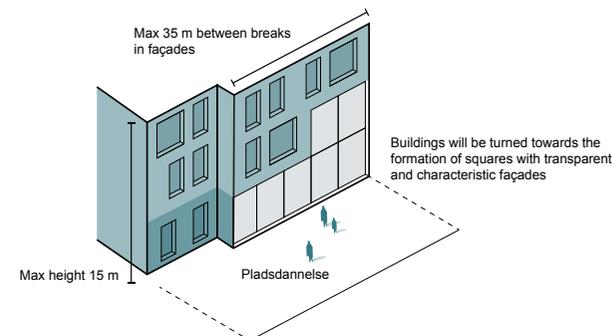
- Paving must be minimized.
- Paved areas with base layer construction cannot take up more than 25 percent of the plot acreage.

Water management

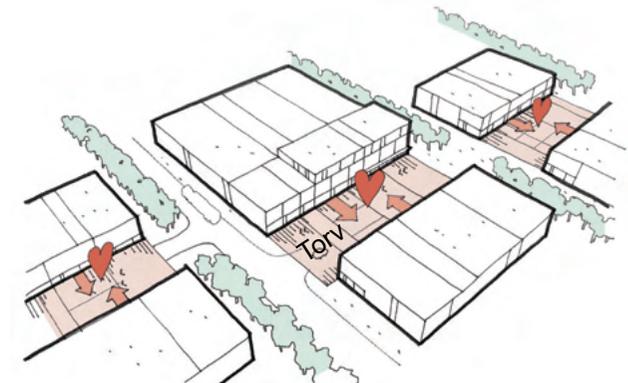
- Water must be collected and led on to Strandengen or utilized on each plot of land.

Heights and façades

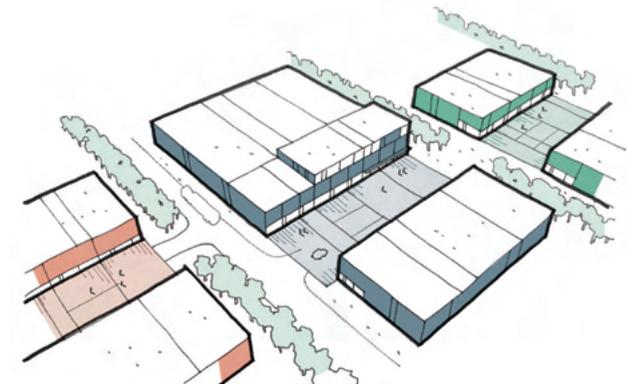
- The maximum building height is 15 meters, any technical facilities or test installations may diverge from this.
- Façades towards common squares must be broken at least every 35 meters by recesses, overhangs or other forms of façade shaping.
- The squares between buildings constitute the faces and showrooms for the buildings; main entrances will be oriented towards them, and the buildings will open towards them.
- Buildings will be turned towards squares with characteristic and open façades.



III.35 - Façades



III.36 - Shared façades towards squares



III.37 - Materials



Infrastructure

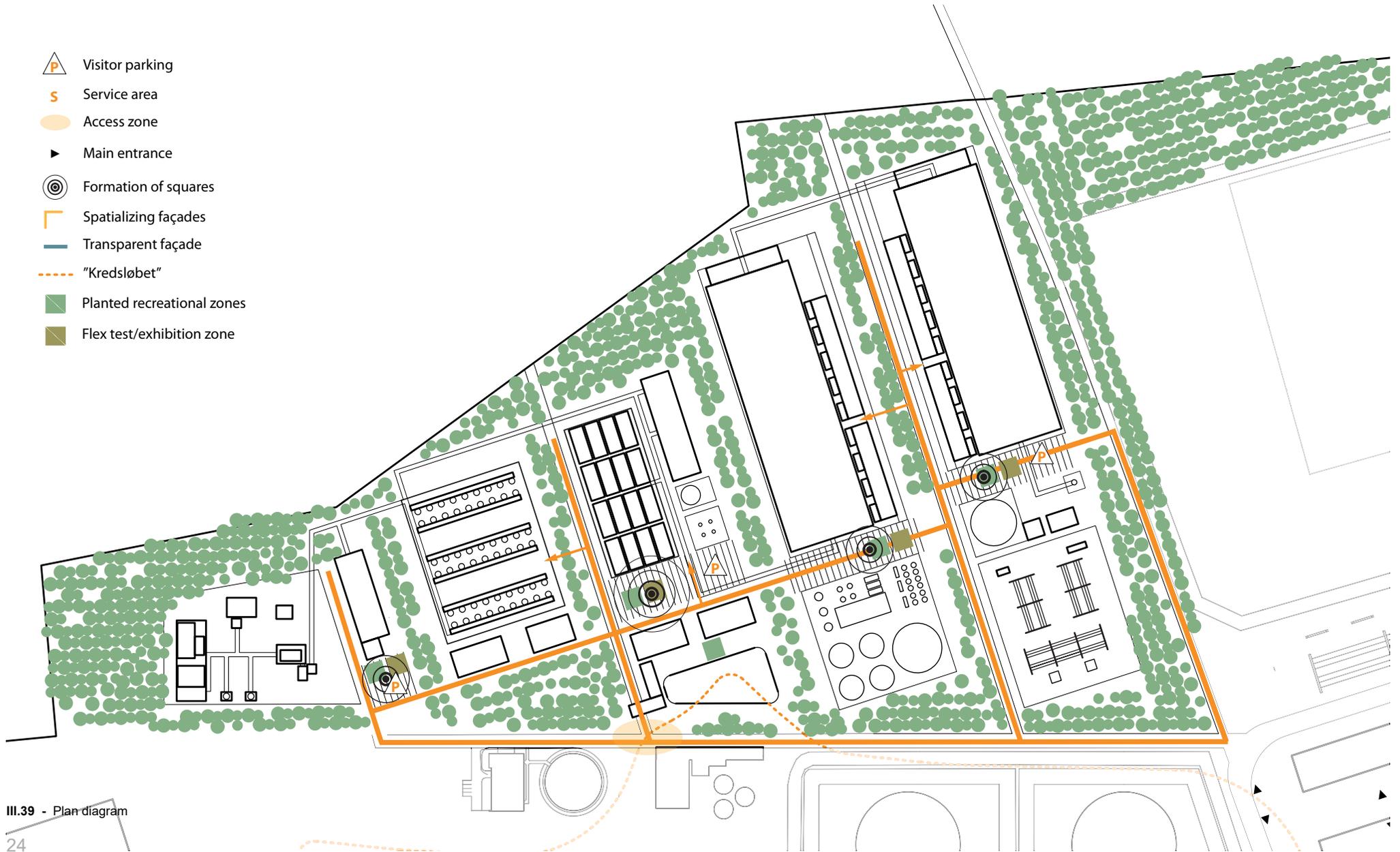
- Roadbeds must be established prior to plantation to prevent damage to root systems.
- Traffic must be affected as shown on infrastructure and plan diagrams.
- Parking must be kept to one's own land.

Plots of land, urban spaces, and road structures

- Plots of land cannot be subdivided into parcels less than 1500 square meters, however, building plots with no surrounding area may be subdivided into smaller units.
- Buildings and paving must observe the flex zone of 2 meters on the squares, however, selected areas may extend beyond this.
- The squares between buildings will be activated for joint and/or temporary purposes.

Skovkvarter Nord

-  Visitor parking
-  Service area
-  Access zone
-  Main entrance
-  Formation of squares
-  Spatializing façades
-  Transparent façade
-  "Kredsløbet"
-  Planted recreational zones
-  Flex test/exhibition zone



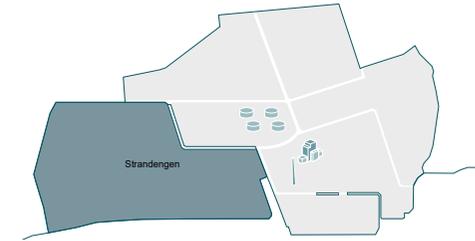
Skovkvarter Syd



III.40 - Plan diagram

Strandengen (The Salt Meadow)

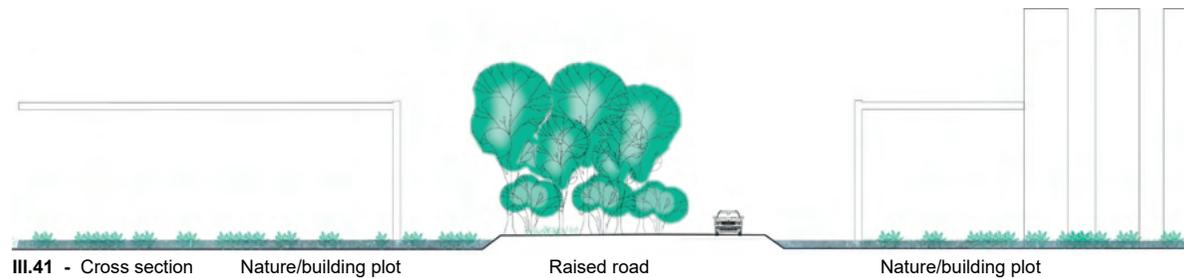
Strandengen has its own unique character and forms the overall area's buffer for the large amounts of water that will occasionally occur. The area is more open than Skovkvartererne where only the windbreaks run towards the water. Strandengen is placed under beach protection. The area forms part of a united band of salt meadow that runs from Nørresundby to Hals and will be laid out with a diverse and robust flora that will be affected by both a high water level and drought.



Guidelines

Buildings and communication

- Production facilities must be oriented towards Kredsløbet and communicate the green transition.
- The guidelines for building design are the same as for Skovkvartererne.
- Safety distances must be reduced as much as possible and must be made safe through natural elements such as plantation, terrain and wetlands.



Nature characteristics and plantation

- The nature characteristics of salt meadow must be ensured.
- Plant species must be robust and native to the area.
- The upkeep of the area can be managed through grazing.
- Windbreaks will be established along roads and will merge with the forested area.
- Open areas and safety zones must be established as nature where flora and fauna can develop on their own.



Water management

- The area is a wetland and will continue to be so.
- Roads in the area will be established as raised dikes that ensure continued upkeep and logistics.
- Paving will be reduced to the absolute minimum.



III.43 - Visualization Strandengen

norbis park