A RECHARGED 'HART'

Synergizing the Housing Pressure in the Depleted Landscape on the Fringe of the 'Groene Hart'

Design Language Booklet

COLOPHON

A RECHARGED ‘HART’

Synergizing the Housing Pressure in the Depleted Landscape on the Fringe of the ‘Groene Hart’

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Design Language Booklet
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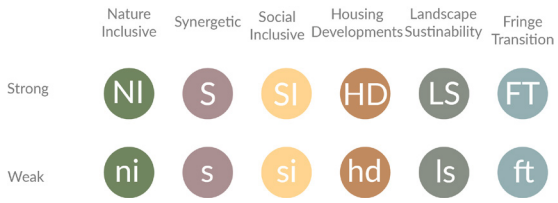
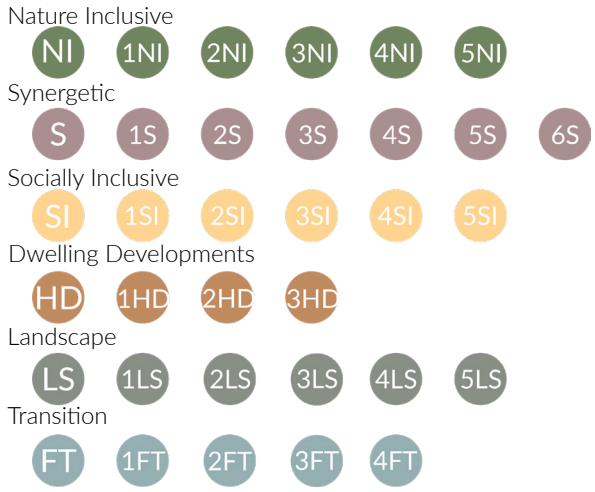
Urbanism

Patter Language
Pattern Sheet

To manifest the ecocentric paradigm's synergetic approach to a concrete design, a design language and accompanying pattern booklet have been developed to translate the theoretical underpinnings to a spatial design. The patterns range throughout the scales and in types of interventions and are categorised into two pillars, the theoretical means, and the spatial means, and add to one or more goals, aligning with the identified systems and the proposed synergetic design methodology. The goals are nature-inclusive, synergetic, socially inclusive, dwelling developments, landscape, and transition. The degree to which a pattern addresses the goal is illustrated by the difference between capitalisation among the symbols.



Amid the pillars a hierarchy of exchange and interdependency shapes the matrix of relationships allowing for the patterns to be translated into location-specific design. These design principles are structured for use in spatial negotiation within the synergetic design approach and highlight how fringe development could evolve under the influence of the right of nature. Due to the patterns being categorised based on their main goal, they exist out of five nature-inclusive patterns, six synergetic patterns, five social-inclusive patterns, three dwelling development patterns, five landscape patterns, and four transition patterns.



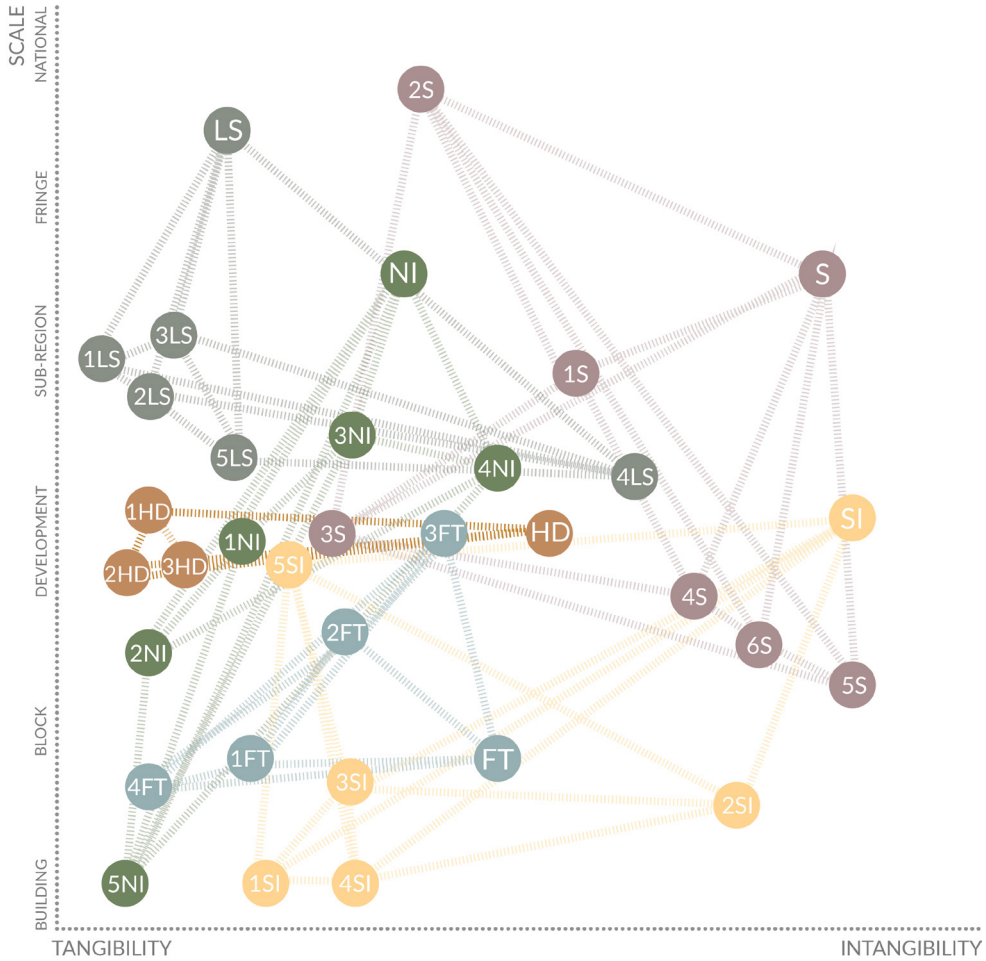


Figure 1, Pattern sheet of design language.

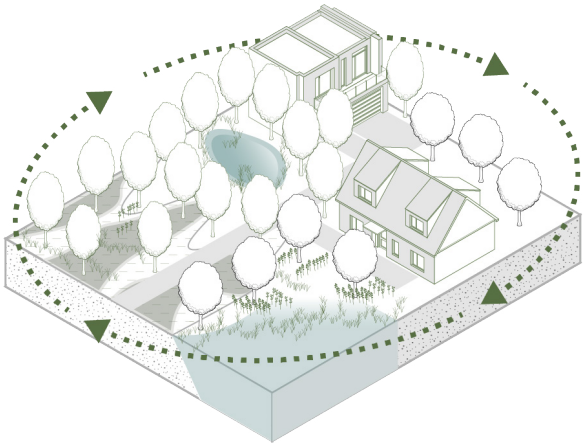
Patter Language

Theoretical Design Goals

Nature inclusive

NI

Nature-inclusive is the spatial manifestation of the ecocentric paradigm and centres around the design methodology of nature-inclusive design, the idea that natural elements are not just add-ons but integral parts of architecture. It emphasizes incorporating architectural elements that align with the site's potential (Dijkshoorn-Dekker, 2022; Vink et al., 2024; Vink et al., 2017). This approach shapes conditions rather than prescribing fixed outcomes, allowing natural systems to evolve alongside built forms as one (Vink et al., 2024).



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI HD LS FT

Figure 2, Nature inclusive.

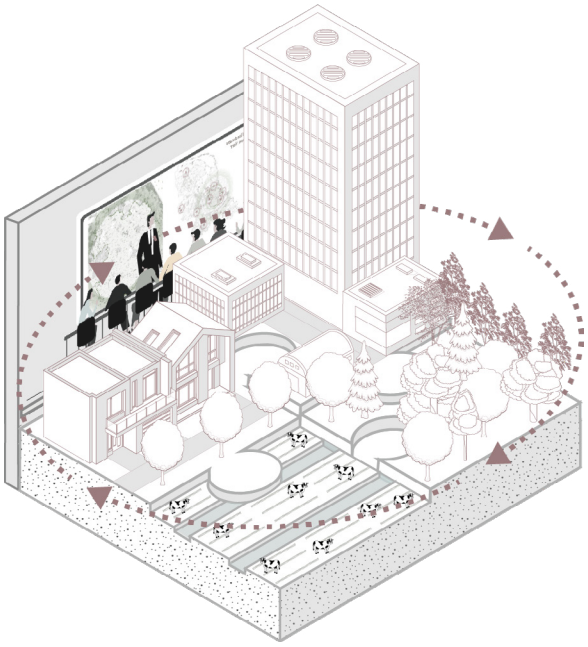
Patter Language

Theoretical Design Goals

Synergetic

S

The synergetic goal emphasizes achieving balance in the landscape (Tillie, 2018). It suggests that when multiple elements interact within a development's landscape, their collective impact exceeds that of each element. This involves implementing systems of recuperation and succession to foster regeneration among the development, its landscape, and its inhabitants (Tillie, 2018; Tisma & Meijer, 2018).



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

S HD LS FT

Figure 3, Synergetic.

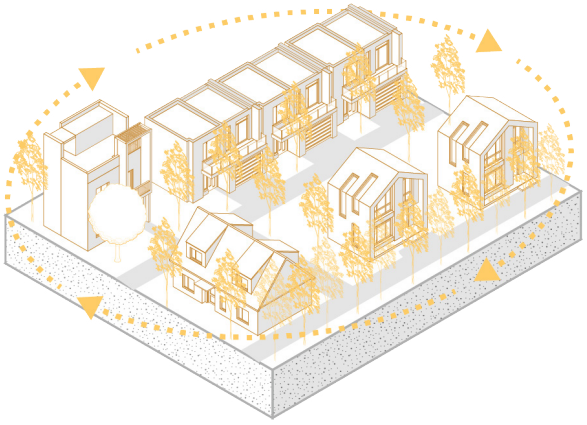
Patter Language

Theoretical Design Goals

Social inclusive

SI

The social inclusive goal demarcates the shift pseudo-countryside developments must undergo, to cope with prospects inherent in societal demand. Highlighting that housing development goes beyond the traditional form to include a landscape, and its wider society to allow them to become societal and ecologically inclusive (BPD, 2021a; Centraal Bureau voor de Statistiek, 2019; Jansen, 2020; Sanne van Manen, 2024). This involves creating location-specific housing fitting to their context and demography (Zuid-Holland, 2020).



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

SI HD LS FT

Figure 4, Social inclusive.

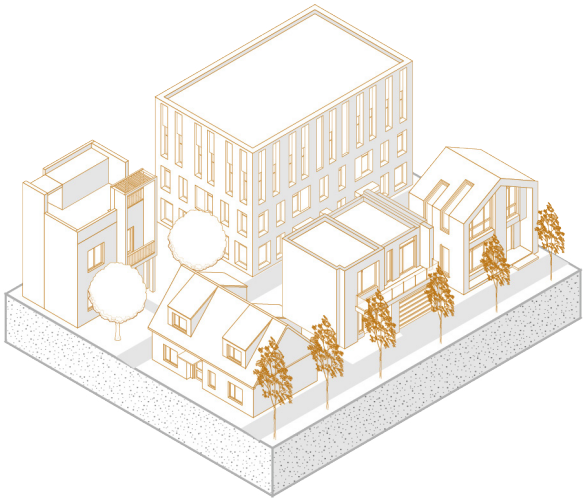
Patter Language

Spatial Design Goals

Housing Developments

HD

The Dwelling development goal demonstrates how nature inclusive housing development can be combined with ambitious afforestation, agroecology, rewetting, increased biodiversity, and circular resource thinking to create healthy and socially connected fringe morphologies (Jansen, 2020; Vink et al., 2017). Comprising of cluster of small communities that put the environment, biodiversity, and sharing of resources at the forefront, while meeting the continued demand for fringe dwellings (Centraal Bureau voor de Statistiek & Planbureau voor de Leefomgeving, 2022; Stoeldraijer et al., 2023). In meeting the demand, the housing developments will comprise an obligatory set of rules based on prospects stressed, obstructing the formation of ambiguous guidelines. Entail the following housing stock, 30 % single housing, 30 % two-person housing, and 40 % single-family housing, of which 40 % of affordable housing is realised through three exemplary housing morphologies (Boeijenga et al., 2008; Hoff, 2006; Jansen, 2020; Lörzing et al., 2006; RIGO Research et al., 2006; Sanne van Manen, 2024; Zuid-Holland, 2020). In doing so it showcases an alternative pseudo-countryside model.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

HD NI S SI

LS FT

Figure 5, Dwelling developments.

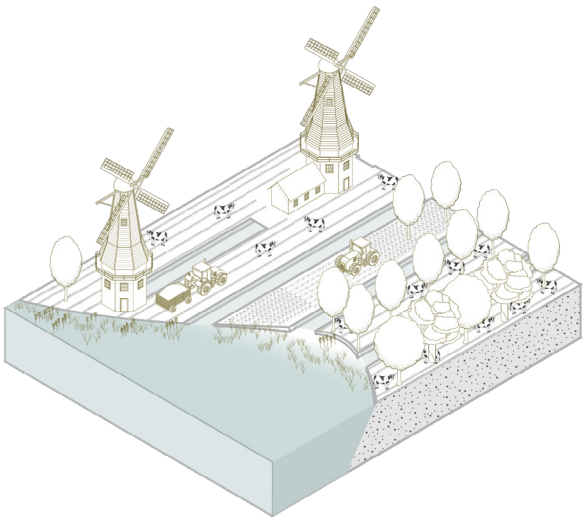
Patter Language

Spatial Design Goals

Landscape of sustainability

LS

The landscape of sustainability goal circumscribes the reinvention of the original blend of agricultural, cultural, and economic significance inherent within the fringe. Showcasing a landscape of sustainability that prioritizes soil fertility, hydrological function, and a harmonious blend of housing, natural abundance, and agriculture (Pierre & Klok, 2015; Stiphout et al., 2019). This involves incorporating location-specific agroecological and natural areas (Altieri, 2018; Gliessman, 2021).



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

LS NI S SI

FT HD

Figure 6, The landscape.

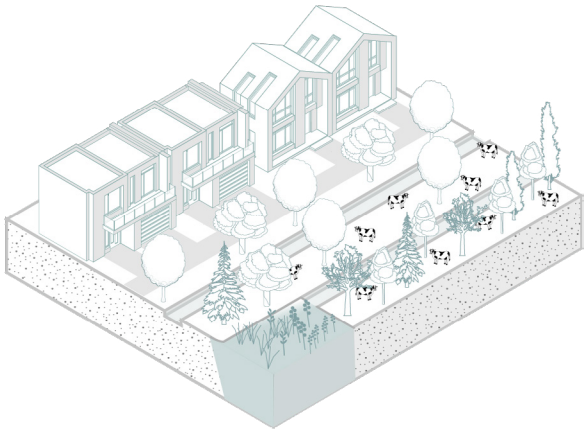
Patter Language

Spatial Design Goals

Fringe of transition

FT

The transition goal turns the existing mosaic of urban-rural edge into a dynamic transition zone, fostering natural-inclusive housing for diverse households. Prioritizing local communities and farmers, it envisions an ecocentric synergetic shift where the landscape integrates with other land uses (Vink et al., 2024). This involves transforming bare agricultural fields or current mosaics into ecocentric districts within inclusive landscape deltas.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

FT NI S SI

HD LS

Figure 7, Transition.

Patter Language

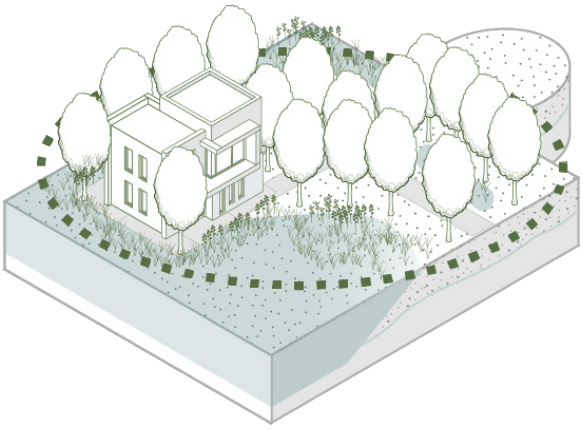
Theoretical Design Means

Nature inclusive

1NI

LOCATION-BASED DEVELOPMENT

A location-based development implies that the development is embedded within the local natural and social systems inherent within the landscape site. Entailing that the developments are integral parts of the location, intricately connected to the environment, forming an entity of shared co-evolution and operationalisation within the habitats of diversity (Curry, 2011; Daly, 2014; Rolston III, 2020; Vieira & Sampaio, 2022; Vink et al., 2024; Washington & Maloney, 2020; Washington et al., 2017; Yigitcanlar & Dizdaroglu, 2015). Hence The development is grounded on the location's inherent soil, water, and natural capital, the development follows what the location can support, and its physicality alters to become inherently part of the location (Vink et al., 2024).



Scale

National	Fringe	**Sub-region**
Development	**Block**	**Building**

Values the pattern reflects

NI S HD LS

Figure 8, Location-based developments.

Patter Language

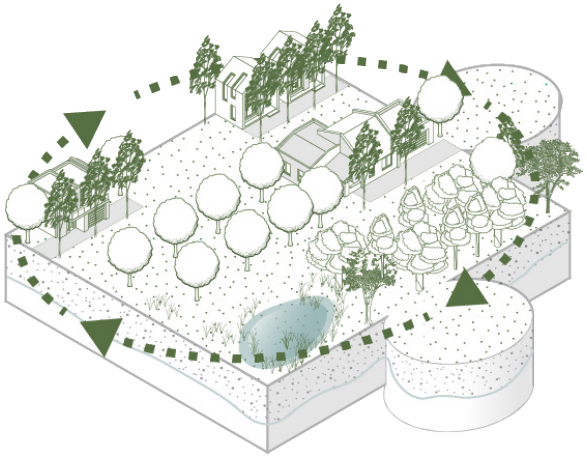
Theoretical Design Means

Nature inclusive

2NI

NATURE-BASED SOLUTIONS

Nature-based solutions imply the usage of integrating natural elements and processes into the operationalisation of the landscape through physical design implementations and focus predominantly on improving a location's ecosystem, and hydrological and ecological functions (Vink et al., 2024). These solutions leverage the benefits provided by nature to enhance resilience, sustainability, and liveability beyond human centricity (Vink et al., 2024; Vink et al., 2017). Physical implementations focus on improving the green-blue networks and are Integrated landscape management, Assisted natural regeneration, rain gardens, cross-slope barriers, Bio-retention cells, (Bio-)Swales, Wadis, and Green Roofs (Vink et al., 2024; Vink et al., 2017).



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S hd LS ft

Figure 9, Nature-based solutions.

Patter Language

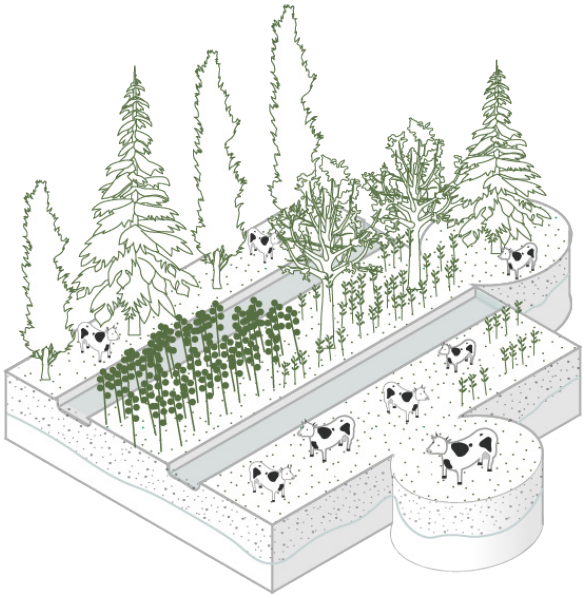
Theoretical Design Means

Nature inclusive

3NI

AGROECOLOGICAL FOUNDATION

Agroecological foundation means implementing ecological principles as the core of agricultural practices, as a part of landscape development (Altieri, 2018). This signifies a departure from traditional intensive input-dependent farming practices towards a holistic regenerative community approach that emphasizes and utilises the interconnectedness of ecosystems and biodiversity at each location (Altieri, 2018; Gliessman, 2021). Examples are agroforestry, food forestry, and Silvoarable.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI S si LS ft

Figure 10, Agroecological foundation.

Patter Language

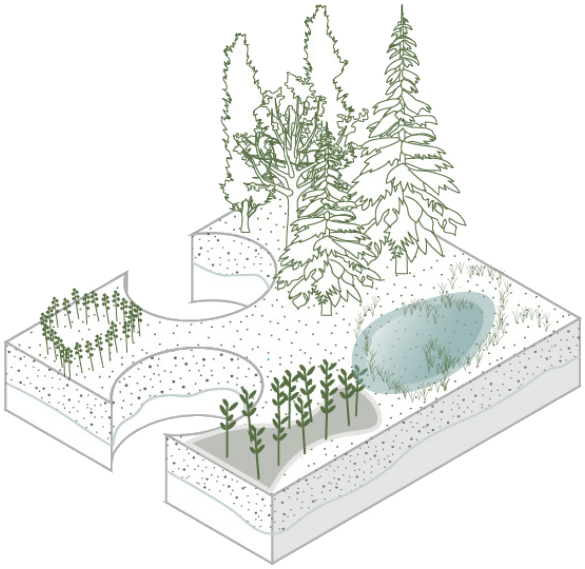
Theoretical Design Means

Nature inclusive

4NI

HABITAT OF DIVERSITY

Habitats of diversity refer to environments that comprise a wide range of different biomes supporting a variety of different species. These habitats exhibit high levels of biodiversity and operate as an ecological network of steppingstones, allowing for the shared operation of the entire system and flow exchanges (Stiphout et al., 2019). Therefore, they are essential for the health of the entire ecosystem as they support functions like nutrient cycling, pollination, and pest control (Vink et al., 2024). Protecting and preserving habitats of diversity is critical for maintaining biodiversity and ensuring the long-term sustainability of ecosystems (Vink et al., 2024; Vink et al., 2017). Epitomizing the diversification of monocultural systems inherent within today's fringe landscapes.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI S LS

ft

Figure 11, Habitat of diversity.

Patter Language

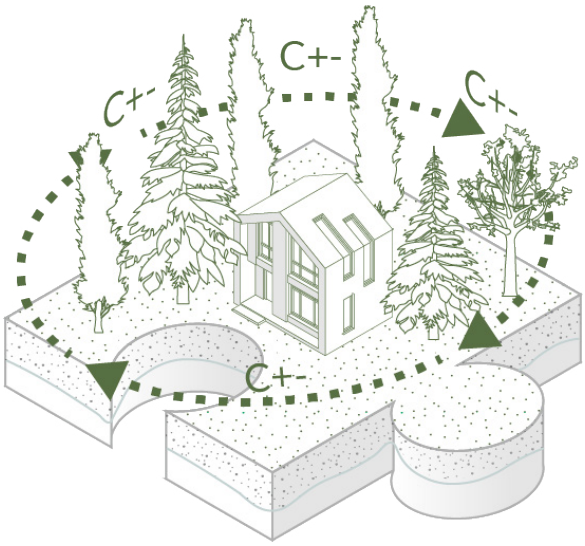
Theoretical Design Means

Nature inclusive

5NI

CARBON-POSITIVE MATERIALS

Adopting carbon-positive materials aligns with the envisioned substitution of environmentally detrimental building materials with nature-based alternatives, a fundament for the implementation of the ecocentric future (Vink et al., 2024). This involves utilizing locally sourced or recycled materials such as bricks, natural stone, or wood from nearby production forests or queries (Stiphout et al., 2019; Vink et al., 2024).



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S SI

HD Is ft

Figure 12, Carbon-positive materials.

Patter Language

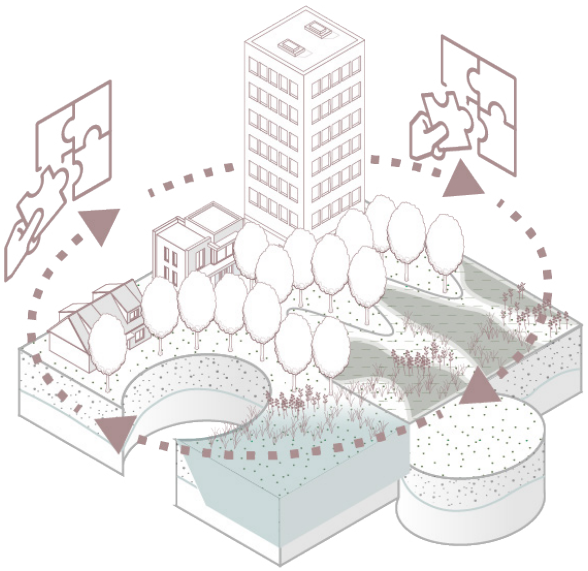
Theoretical Design Means

Synergetic

1S

SPATIAL NEGOTIATION OF SYSTEMS

Spatial negotiation of systems means synergizing the social, economic, and ecological systems and designates the denotation of the design as a process, not a fixed product, involving a methodology with strategic implementations, incorporating diverse habitat and species gradients. Implemented through spatial negotiation of the site systems to find its synergy (Vink et al., 2024; Washington & Maloney, 2020). While integrating its temporality through co-evolution and interweaving the built form, fostering a seamless integration as time progresses (Vink et al., 2024). In a physical sense, this principle means the spatial integration of separated systems loops into an integrated loop of cooperation.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI S SI

HD LS FT

Figure 13, The spatial negotiation of systems.

Patter Language

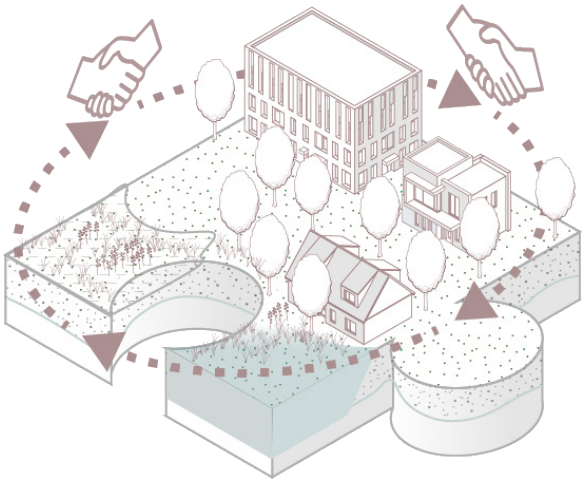
Theoretical Design Means

Synergetic

2S

LEGISLATIVE FOUNDATION

A legislative foundation entails the creation of a comprehensive transition strategy grounded in specific policy that considers the spatial characteristics of the terrain with policy and stakeholder backing. It leverages landscape and social attributes to dictate the nature and approach of the transition, like developer-based environmental thematic contracts. Implying the need for achieving consensus, through spatial unity, by implementing a collaborative partnership within legislation (National Park City foundation, 2019; Stuurgroep Van Gogh Nationaal Park et al., 2020). For the fringe, this implies the introduction of policies that legally back the fringe designation as a national park, and its collaborative partnership governance, of the Parliament of things and its foundation. The legislative foundation is embedded within het Rijk and strengthens inter-municipal, provincial and waterboard cooperation.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S SI
HD LS FT

Figure 14, Legislative foundation.

Patter Language

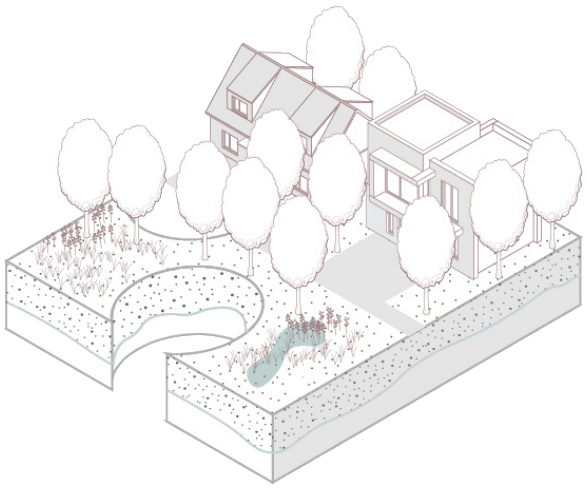
Theoretical Design Means

Synergetic

3S

A NATURE OF TRANSITION

A nature of transition demarcates a fringe, as a passage of changeover where the outskirts are no longer defined by strict urban boundaries, but rather transition into a balanced mix of urban and rural elements. This involves creating a gentle transitional area featuring local landscapes with values tailored to both the community and the location (Vink et al., 2024; Vink et al., 2017). It seeks to transform the current mosaic into a vibrant transition area and envisions a harmonious blend where the landscape merges with other land uses as inclusive landscape deltas.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S HD

LS FT

Figure 15, A nature of transition.

Patter Language

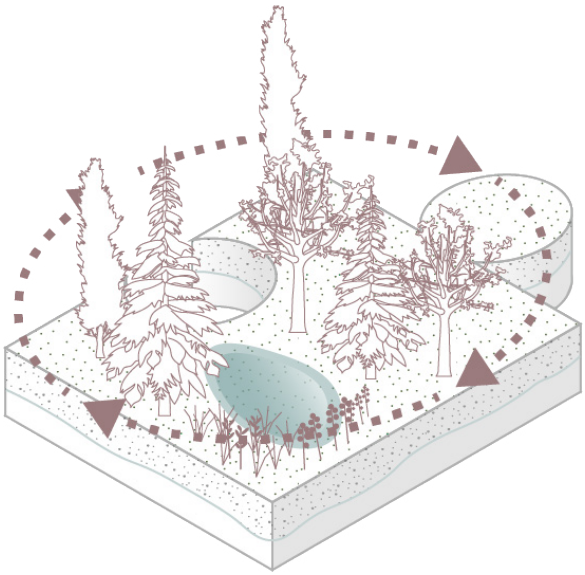
Theoretical Design Means

Synergetic

4S

NATURE VALUE

The natural value of the former and perceived landscape is deeply valued within society and the ecological operationalisation (Pierre & Klok, 2015). However, due to the inherent nature of the intensive agricultural or urbanised landscape, the need for constant landscape alteration and climate change, the current depleted landscape requires resurfacing its intrinsic value and mutual reliance on the revitalisation of the ecosystem (Curry, 2011; Vieira & Sampaio, 2022; Yigitcanlar & Dizdaroglu, 2015). It necessitates using the location's intrinsic natural operation, instead of a human-altered one.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI S LS

ft

Figure 16, Nature asset.

Patter Language

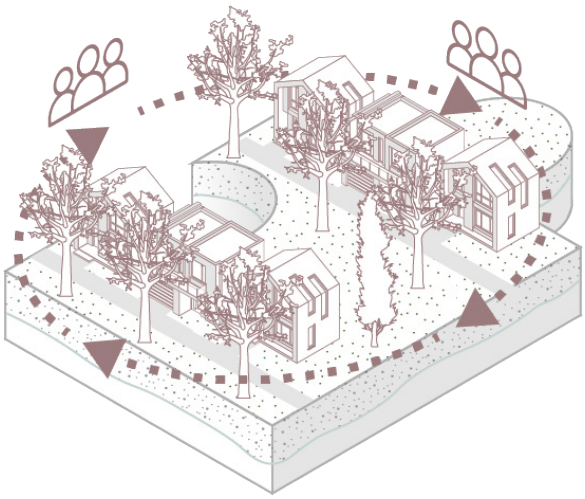
Theoretical Design Means

Synergetic

5S

SOCIETAL VALUE

The societal value echoes the cultural appropriation and affection inscribed within the current agricultural rural landscape, its economy, and society. Entailing a landscape of homogenous elongated pastures with small rural village communities, the quintessential Dutch countryside place identity with strong societal value. With the implementation of the ecocentric synergetic system, these landscapes and communities transform to being included within the developed fringe (Vink et al., 2017). Utilising its current place identity, communities, and its societal residual identity to its advantage without catering to further polarization, forcing human inclusion as an inherent societal value (Lörzing & Tisma, 2023).



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

S SI HD

Is

Figure 17, Social asset.

Patter Language

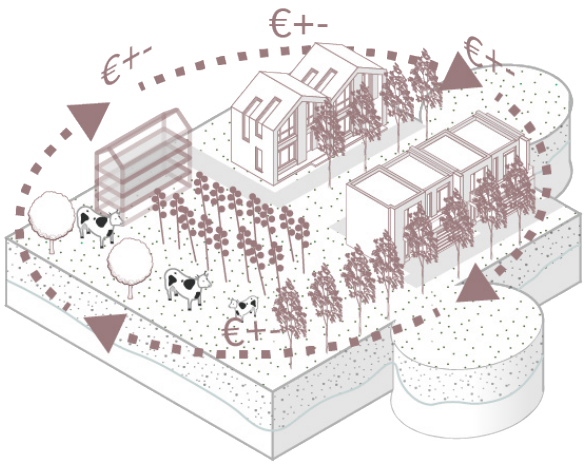
Theoretical Design Means

Synergetic

6S

ECONOMIC VALUE

The economic value is deeply inscribed within the current operationalisation of the pseudo-countryside mechanism and its inherent single-family house emphasis embodying the fringe (Eerenbeemt & Smit, 2018; Heins, 2004). Subscribing monetary system of value pent up in houses as accumulations of wealth. Wealth to developers and homeowners, who would want to continue to cherish their operationalisation. Moreover, the locations possess an attractive force to people who want to live there, a given which will continue to exist in the future (Centraal Bureau voor de Statistiek & Planbureau voor de Leefomgeving, 2022; Stoeldraijer et al., 2023). Prescribing the necessity to include housing in the landscape, to both meet future demands and to comfort dwellers.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

S SI HD

Is

Figure 18, Economic asset.

Patter Language

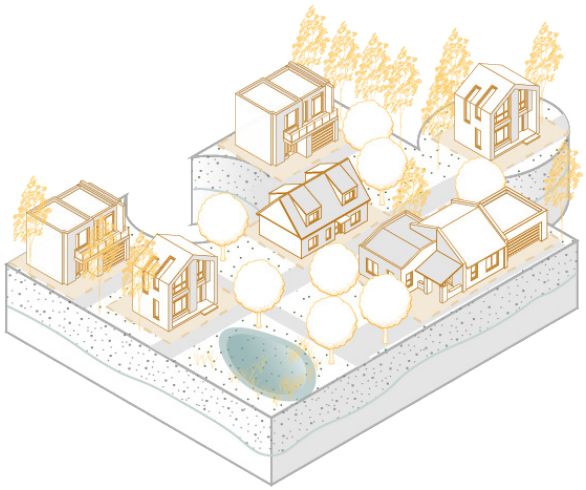
Theoretical Design Means

Social inclusive

1SI

DIVERSE HOUSING PALLET

Diverse housing options require unique, location-specific architecture and a range of housing types, moving away from the standard single-family homes often seen in typical suburban developments. Tailored architecture reflects local identity and fosters a sense of belonging, enhancing community cohesion (Centraal Bureau voor de Statistiek, 2023e; Michielsen et al., 2019; Voogd & Cuperus, 2021). Offering various housing styles prevents areas from becoming uniform and ensures they meet societal and architectural preferences (BPD, 2022). Recognizing a gap in housing for seniors and first-time buyers, there's a need for smaller, more affordable homes beyond traditional single-family dwellings (CBS, 2023b, 2023c, 2023d; Langenberg & Jonkers, 2022; Nijskens & Lohuis, 2019; Obbink, 2020). To address this demand, housing developments must adhere to specific guidelines regarding affordability and size.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

S SI HD

Figure 19, Diverse housing pallet.

Patter Language

Theoretical Design Means

Social inclusive

2SI

COMMUNAL FOUNDATION

Communal foundation implies the embodiment of the method of societal negotiation and inclusion within the synergetic process, asking for further dialogue about the topic, before finalising the spatial translation of different design principles and embedded processes (Alexander et al., 1977; Hamers et al., 2023; PBL, 2020). Serving as a reminder that choices must be made, cause compromises are no longer an option to tackle anthropogenic urgencies (Hamers et al., 2023; PBL, 2020). Subsequently, both within governance and within the development there must be a form of communal, communal care, and communal participation (Hamers et al., 2023; PBL, 2020). Hence, it embodies a spatial stakeholder puzzling process.

Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

S SI HD

Figure 20, Communal foundation.

Patter Language

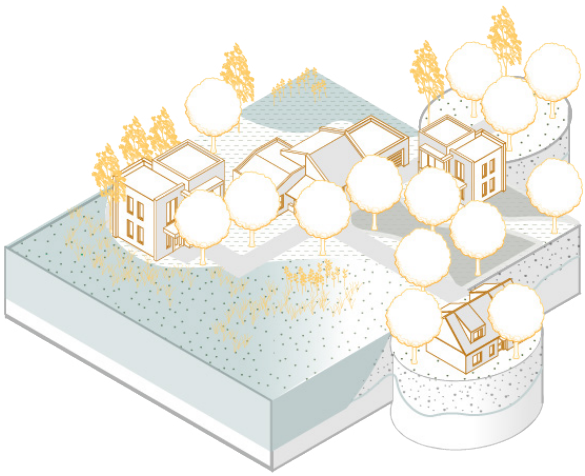
Theoretical Design Means

Social inclusive

3SI

COMMUNAL MORPHOLOGIES & DENSITIES

Communal morphologies and densities imply a housing system fitting to the location's place identity and societal demand. Making the built fabric breathe local identity, resources, and needs.
By tapping into the interconnected networks of the area, the ecological effect of the site is enhanced to be included within the fabric, location, and society (Vink et al., 2024). Consequently, local landscape characteristics and societal demand determine the form of the built fabric, fostering networks that support collaborative efforts within the community, aligning with its temporal and social fabric.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

S SI HD

Figure 21, Communal morphologies & densities.

Patter Language

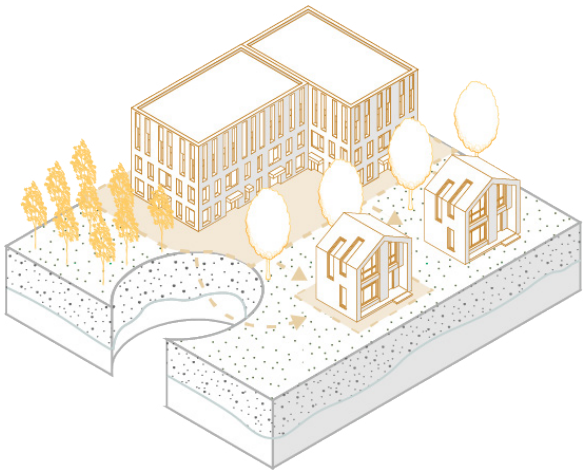
Theoretical Design Means

Synergetic

4SI

REDUCED BUILDING FOOTPRINT

Reducing the footprint of the building entails the implementation of the place optimisation theory proposed by Barend Jansen entailing a system of increased density and diversity within the build form which allows for the decrease in paved surfaces while meeting the demand for community-based centrum villages (Jansen, 2020). Freeing up space for carbon and water-sequestering landscapes and requiring fewer resources (Jansen, 2020; Vink et al., 2017; Zuid-Holland, 2020).



Scale

National	Fringe	Sub-region
Development	Block	**Building**

Values the pattern reflects

NI S si HD Is

Figure 22, Reduced building footprint.

Patter Language

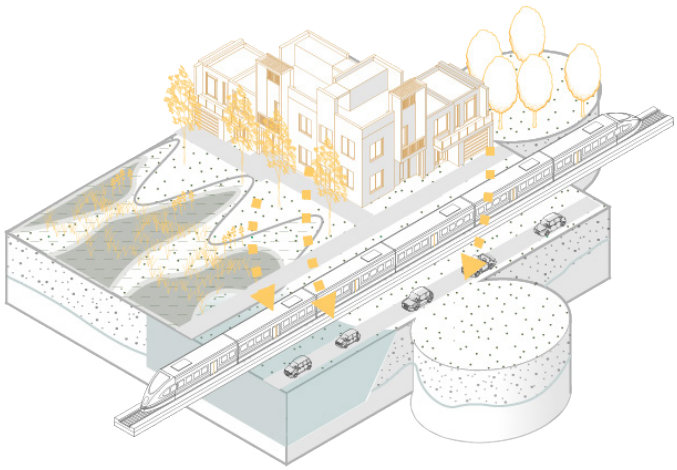
Theoretical Design Means

Social inclusive

5SI

ACCESS TO MOBILITY

Access to mobility implies that within the fringe and its proposed housing developments sufficient mobility infrastructure needs to be present. With the focus on public transport networks supported by the bike as the last-mile solution, to prevent the VINEX pitfall of car-centric housing developments from repeating (BIJN, 2004; Boeijenga et al., 2008; Hoff, 2006; Lörzing et al., 2006; RIGO Research et al., 2006). While simultaneously those who would like to dwell within these neighbourhoods desire infrastructural connectivity.



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

S SI HD

Figure 23, Access to mobility.

Patter Language

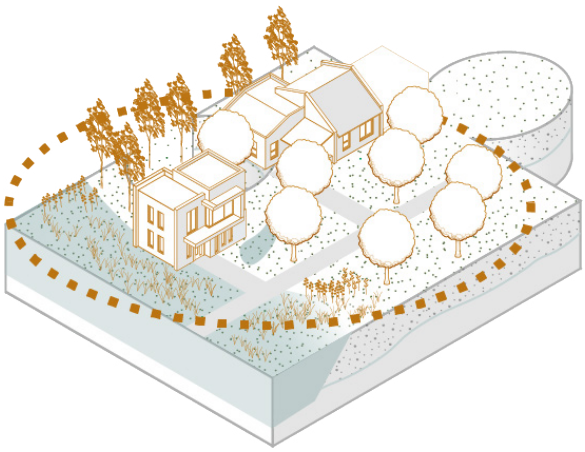
Spatial Design Means

Housing developments

1HD

THE NATURE-INCLUSIVE HOUSING TYPOLOGIES

The nature-inclusive housing typology entails rural morphologies with dwellings embedded within the landscape in its most extreme form (Pierre & Klok, 2015). With a community density of up to 50 houses per hectare, the development embraces the atmosphere of the rural to one of 'off the grid-like', self-sufficient housing which stimulates the circular production of food and resources taking the nature-inclusive notion of ecocentric design literally (Vink et al., 2024; Washington & Maloney, 2020).



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S SI

HD LS FT

Figure 24, The Nature-inclusive Housing Typologies.

Patter Language

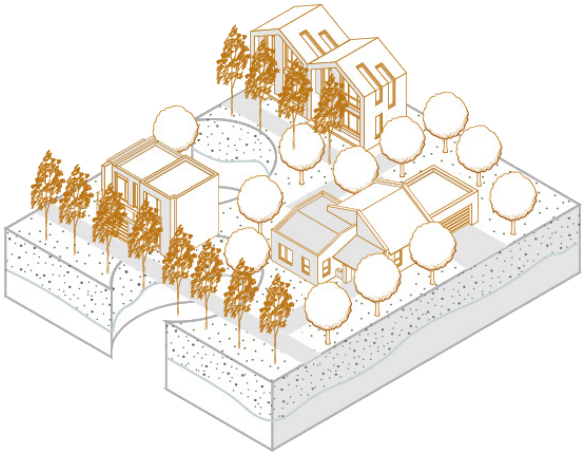
Spatial Design Means

Housing developments

2HD

THE VILLAGE-INCLUSIVE HOUSING TYPOLOGIES

The village-inclusive housing typology entails village-like quarter morphologies with small-scale community developments scattered in and around existing villages, connecting local communities, and creating a village-like atmosphere location (Centraal Bureau voor de Statistiek, 2023e; Michielsen et al., 2019; Voogd & Cuperus, 2021). With Up to 60 houses per hectare in housing clusters with small shops, and amenities mixed in between.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S SI

HD LS FT

Figure 25, The Village-inclusive Housing typologies.

Patter Language

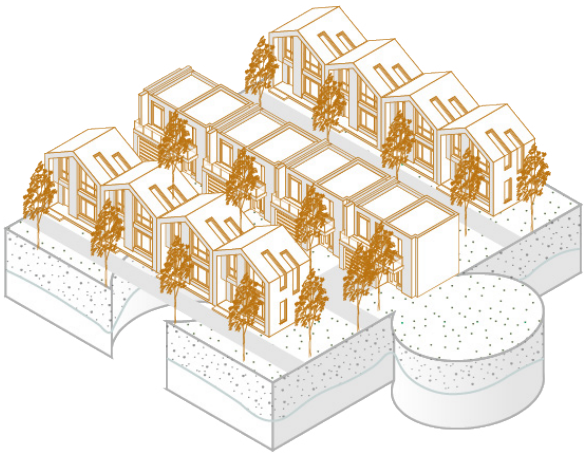
Spatial Design Means

Housing developments

3HD

THE URBAN-INCLUSIVE HOUSING TYPOLOGIES

The urban-inclusive housing typology entails a dense urban morphological model. This type is not found within the fringe and should be achieved through urban renewal or construction within the wasteland of the urban, denoting that when this type is chosen by the synergetic method, it entails realisation outside of the scope of the project (Jansen, 2020; Vink et al., 2017; Zuid-Holland, 2020). Densities should be above 75 hectares per dwelling within mixed-use neighbourhoods (Jansen, 2020; Michielsen et al., 2019; Vink et al., 2017; Zuid-Holland, 2020).



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S SI

HD LS FT

Figure 26, The Urban-inclusive Housing typologies.

Patter Language

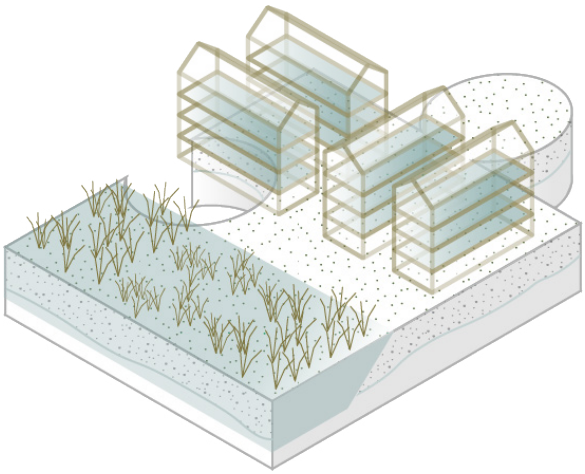
Spatial Design Means

Landscape of sustainability

1LS

WET AGRICULTURE

Wet agriculture refers to farming practices conducted in water-rich environments, often involving the cultivation of crops in flooded or waterlogged fields. Within the fringe, it entails agricultural production in the prospected rewetted areas and comprised of the techniques of Paludiculture, and Aquaculture (Bureau Peter de Ruyter landschapsarchitectuur et al., 2022; Buro Sant en Co et al., 2019).



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI S si LS

Figure 27, Wet agriculture.

Patter Language

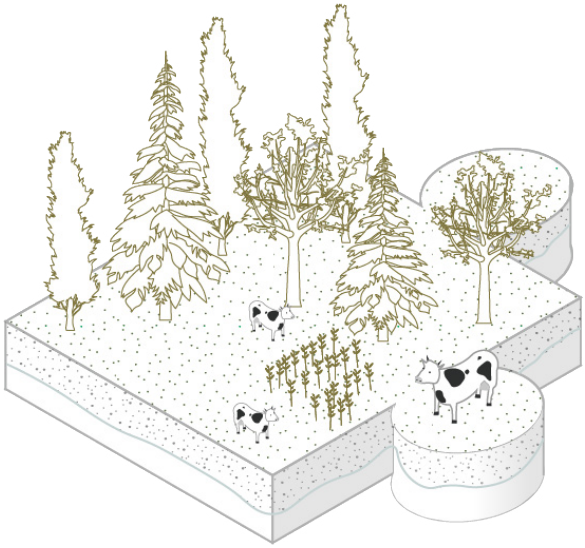
Spatial Design Means

Landscape of sustainability

2LS

(WETLAND) SILVO AGRICULTURE

Silvo (wetland) agriculture entails the techniques of Silvoarable, Silvopasture, and Silvoculture, agricultural utilises the production of forest as the basis for the landscape. Signifying the combination of crop or animal cultivation with the management of forests aiming to create a sustainable and multifunctional system that benefits both agricultural production and environmental conservation. These forests serve the purpose of producing carbon-positive building material while stabilising the soil's carrying capacity and restoration (Altieri, 2018; Buro Sant en Co et al., 2019).



Scale

National	Fringe	**Sub-region**
Development	**Block**	**Building**

Values the pattern reflects

NI S si LS ft

Figure 28, (Wetland) silvo agriculture.

Patter Language

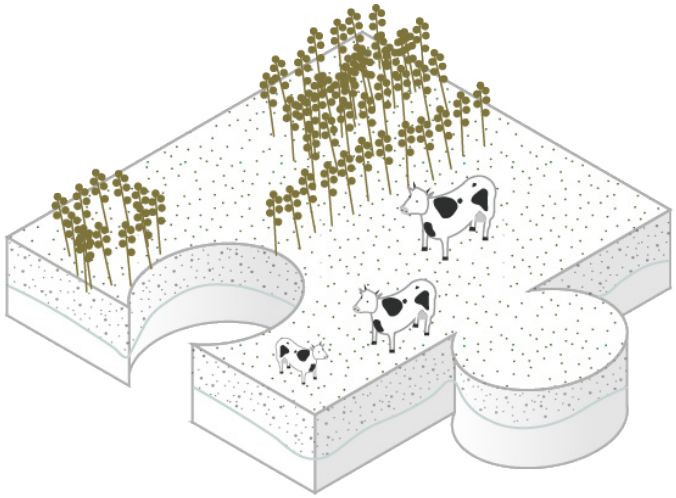
Spatial Design Means

Landscape of sustainability

3LS

DRY AGRICULTURE

Dry agriculture implies the continuation of current agricultural practices such as Greenhouses and derry or arable farming, in an extensive form. Embracing the notion of agroecology within traditional forms of agriculture with minimal inputs and low intensity of management. It emphasizes utilizing vast expanses of land to maintain extensive practices, promoting biodiversity conservation (Altieri, 2018; Buro Sant en Co et al., 2019).



Scale

National	Fringe	**Sub-region**
Development	**Block**	**Building**

Values the pattern reflects

NI S si LS ft

Figure 29, Dry agriculture.

Patter Language

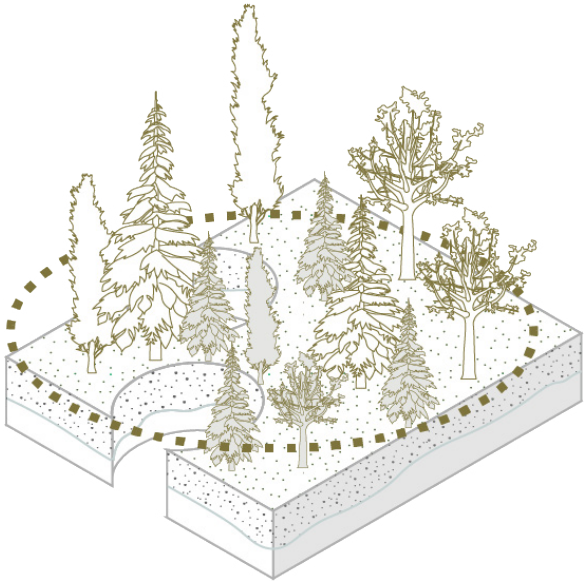
Spatial Design Means

Landscape of sustainability

4LS

NATURE RESTORATION

Nature restoration implies the formation of green buffers forming an antithesis to the urban. Revitalizing natural ecosystems to create a protective barrier between human activities and the environment. Aimed to enhance biodiversity, mitigate environmental impact, and provide a sustainable buffer zone that safeguards ecosystems and promotes resilience in the face of human-induced changes (Stiphout et al., 2019; Vink et al., 2017).



Scale

National	Fringe	**Sub-region**
Development	**Block**	**Building**

Values the pattern reflects

NI S si LS ft

Figure 30, Nature restoration.

Patter Language

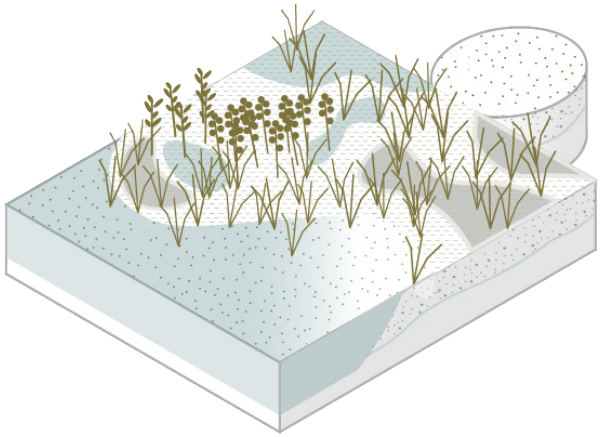
Spatial Design Means

Landscape of sustainability

5LS

REWETTING

Rewetting implies the formation of water buffers by restoring and maintaining waterlogged conditions in former peat meadow ecosystems, aimed at enhancing water retention, reducing soil degradation, and supporting biodiversity. Rewetted areas serve as a buffer against drought and contribute to the health and resilience of aquatic and terrestrial habitats (Bureau Peter de Ruyter landschapsarchitectuur et al., 2022; Ministerie van Infrastructuur en Waterstaat et al., 2023).



Scale

National | Fringe | Sub-region

Development | Block | Building

Values the pattern reflects

NI S LS FT

Figure 31, Rewetting.

Patter Language

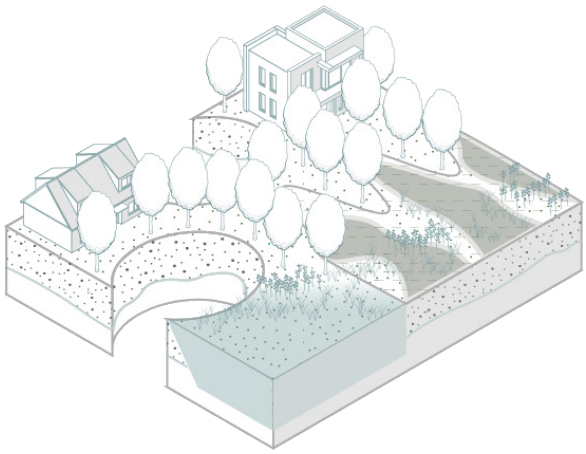
Spatial Design Means

Fringe of transition

1FT

URBAN-RURAL DELTA

The Urban-rural delta landscape entails that the fringe comprises Wedges or Scheggen penetrating through the fringe in a meandering fashion to meet the urban. This entails that the fringe comprises of nature infilling within its core which gradually transitions, openers towards the 'Groene Hart'. The core nature infilling follows the path of the fringe trail and is of the most tick nature around the built-up development clusters. Gradually towards the outside of the fringe by increments of 10 % the landscape openers. Encapsulating a landscape of habitat diversity comprising thriving natural rich systems with intertwined resilience (Stiphout et al., 2019).



Scale

National	Fringe	Sub-region
Development	Block	Building

Values the pattern reflects

NI S LS FT

Figure 32, Urban-rural delta.

Patter Language

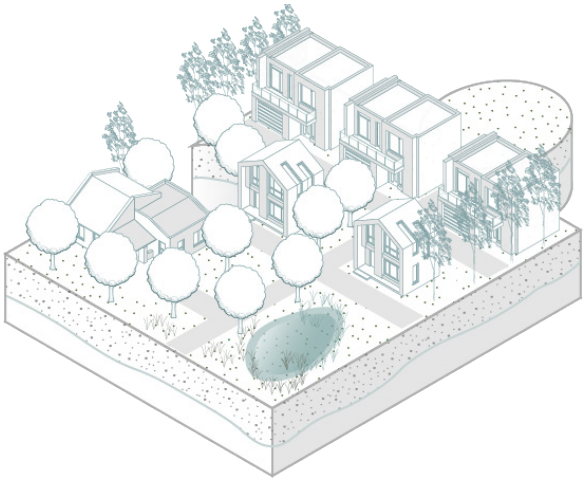
Spatial Design Means

Fringe of transition

2FT

A GRADUAL TRANSITION OF DENSITY

A gradual transition indicates that the fringe is no longer denoted by terrestrial walls of urbanisation but evolves into a balanced denotation of urbanity and rurality suitable for linear passage. Entailing a soft transitional space comprised of local environments with case-specific values appropriate for both the society and the site (Centraal Bureau voor de Statistiek, 2023e; Michielsen et al., 2019; Voogd & Cuperus, 2021). This means that the built-up density is situated within the core of the built-up clusters. These clusters are located within the first two-thirds of the fringe from the urban side. With the density decreasing with intervals of 20% at each interval.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S LS FT

Figure 33, A gradual transition.

Patter Language

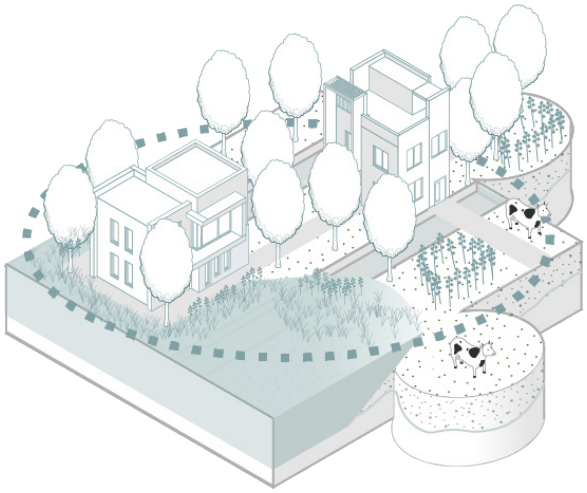
Spatial Design Means

Fringe of transition

3FT

LOCALLY BASED PROGRAM

The programme of the fringe is based on local identity, availabilities, and needs. Embracing embedded networks of the locality to elevate the ecological potential of the site by integrating it within the present blue, green, and brown networks (Vink et al., 2024). Extending the focus beyond the site tangible to establish networks that facilitate the collaborative functioning of the system both within the temporality and within its embedded social and perceived place identity.



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S SI

HD LS FT

Figure 34, Locally based program.

Patter Language

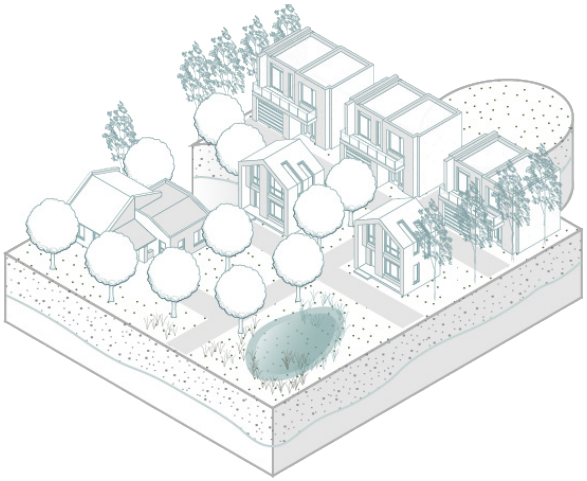
Spatial Design Means

Fringe of transition

4FT

NATURE IN THE FOOTSTEPS

Nature on the Footsteps entails the further inclusion of the natural system within the built environment, as a shared co-construct. Through the inclusion of Nature-based solutions and green-blue networks throughout the dwelling environment (Vink et al., 2024). Hence, the natural system and the building form the architecture as a notion of succession (Stiphout et al., 2019; Vink et al., 2017).



Scale

National	Fringe	Sub-region
Development	**Block**	**Building**

Values the pattern reflects

NI S HD LS FT

Figure 35, Nature in the footsteps.

Patter Language

Matrix

Principle conclusion

Consequently, this design language initiates discussion for the ‘Recharged Hart’ future, a fringe housing concept embracing an ecocentric approach, fostering a renewed connection with the landscape and its natural processes. Emphasising the regenerative potential by promoting synergetic fringes.

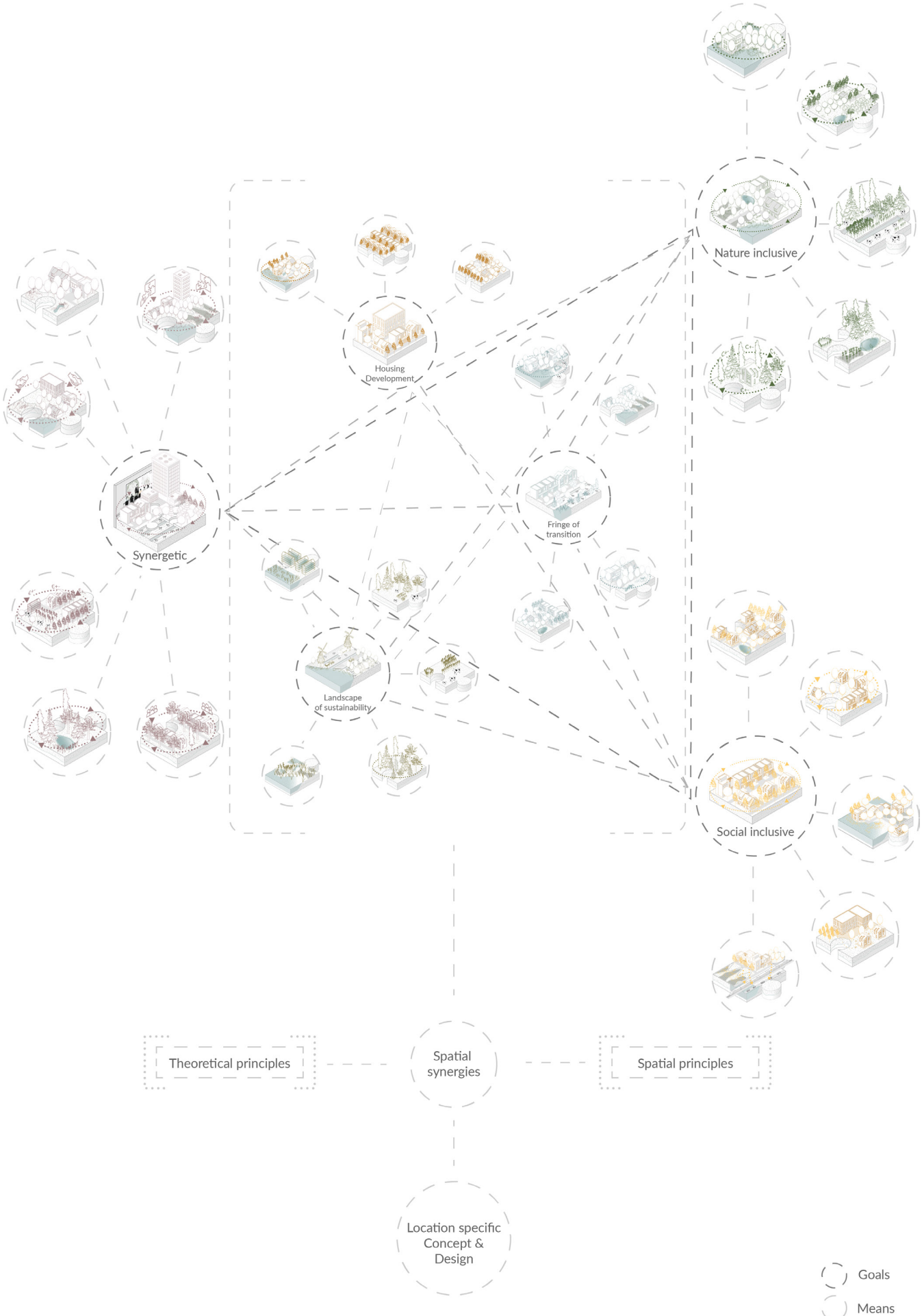


Figure 36, Matrix of design sheet.

Bibliography

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). A pattern language : towns, buildings, construction. Oxford University Press.

Altieri, M. A. (2018). Agroecology: the science of sustainable agriculture. CRC Press.

BIJN, S. (2004). Handvest VINEX-locaties. vinex-locaties. Retrieved 24-08-2022 from http://www.vinex-locaties.nl/Infocorner/handvest_vinex_locaties.htm

Boeijenga, J., Mensink, J., & Kirkpatrick, J. v. E. e. (2008). Vinex atlas. 010 Publishers.

BPD. (2021). Landschappelijk ontwikkelen voor de woningbouwopgave. https://www.bpd.nl/actueel/nieuws/landschappelijk-ontwikkelen-voor-de-woningbouwopgave/

BPD. (2022). Biobased bouwen: de sleutel tot duurzame gebiedsontwikkeling. https://www.bpd.nl/actueel/nieuws/biobased-bouwen-voor-duurzame-gebiedsontwikkeling/

Bureau Peter de Ruyter landschapsarchitectuur, onderzoek;, A. W. e., & Hollants;, A. d. (2022). Visie klimaatbestendige veenlandschappen. https://www.klimaatbuffers.nl/uploads/visie-klimaatbestendige-veenlandschappen-cnk-lres.30e240.pdf

Buro Sant en Co, FabriCations, Plambeck, P., Wijnakker, R., Munnik, N. d., Yang, J., LaFontaine, M., & Krolak, J. (2019). Groene Hart, ontwerpend onderzoek naar een adaptief en gedifferentieerd landschap met de bodem als conditie, het watersysteem als instrument en het landgebruik als resultante. B. S. e. C. FABRICation. https://www.santenco.nl/wp-content/uploads/2019/06/juli-2019-SANT-en-CO-FABRICations-Groene-Hart-Ontwerpend-Onderzoek-Rapport-DEF.pdf

CBS. (2023a). Voorraad woningen en niet-woningen; mutaties, gebruiksfunctie, regio StatLine. https://opendata.cbs.nl/statline/#/CBS/nl/dataset/81955NED/table?fromstatweb

CBS. (2023b). Voorraad woningen; eigendom, type verhuurder, bewoning, regio StatLine. https://opendata.cbs.nl/#/CBS/nl/dataset/82900NED/table?dl=56FB1

CBS. (2023c). Voorraad woningen; standen en mutaties vanaf 1921 Centraal Bureau voor de Statestiek. https://opendata.cbs.nl/#/CBS/nl/dataset/82235NED/line?ts=1696585705029

Centraal Bureau voor de Statistiek. (2019). Sterke groei in steden en randgemeenten verwacht. Retrieved 09-01-2024, from https://www.cbs.nl/nl-nl/nieuws/2019/37/sterke-groei-in-steden-en-randgemeenten-verwacht

Centraal Bureau voor de Statistiek. (2023). Woningmarkt CBS. https://www.cbs.nl/nl-nl/visualisaties/dashboard-economie/woningmarkt

Centraal Bureau voor de Statistiek, & Planbureau voor de Leefomgeving. (2022). Regionale bevolkings en huishoudensprognose PBL/CBS - 2022. https://themasites.pbl.nl/o/regionale-bevolkingsprognose/

Curry, P. (2011). Ecological ethics: An introduction. Polity.

Daly, H. E. (2014). From uneconomic growth to a steady-state economy. Edward Elgar Publishing.

Dijkshoorn-Dekker, M. (2022). 'Nature-inclusive construction will become the norm'. Retrieved 26, from https://www.wur.nl/en/show-longread/nature-inclusive-construction-will-become-the-norm.htm

Dovey, K. (1990). The pattern language and its enemies. Design Studies, 11(1), 3-9. https://doi.org/https://doi.org/10.1016/0142-694X(90)90009-2

Eerenbeemt, M. v. d., & Smit, P. H. (2018). Bouwen in het Groene Hart? Door de woningnood lijkt het geen taboe meer. De Volkskrant. https://www.volkskrant.nl/economie/bouwen-in-het-groene-hart-door-de-woningnood-lijkt-het-geen-taboe-meer~b91112e7b/

Gliessman, S. R. (2021). Package price agroecology: The ecology of sustainable food systems. CRC press.

Hamers, D., Kuiper, R., Dam, F. v., Dammers, E., Evenhuis, E., Gaalen, F. v., Hollander, G. d., Hoorn, A. v., Minnen, J. v., Nabielek, K., Pols, L., Rijken, B., Rood, T., Snellen, D., Dirkx, J., & Wolters, H. (2023). Ruimtelijke Verkenning 2023 - Vier scenario's voor de inrichting van Nederland

in 2050. P. v. d. Leefomgeving. https://www.pbl.nl/sites/default/files/downloads/pbl-2023-vier-scenarios-voor-de-inrichting-van-nederland-in-2050-4832.pdf

Heins, S. (2004). Rural Living in City and Countryside: Demand and Supply in the Netherlands. Journal of Housing and the Built Environment, 19, 391-408. https://doi.org/10.1007/s10901-004-3042-4

Hoff, M. v. t. (2006). Via Vinex : straatbeeld van 10 jaar Vinex. Episode.

Jansen, B. (2020). QuickScan planoptimalisatie suburbane plannen. P. Zuid-Holland. www.zuid-holland.nl%2Fpublish%2Fpages%2F25330%2Fquickscan_planoptimalisatie_versie_april_2020.pdf&usg=AOvVaw0nrEEwwORFZVXvH7MrwYL0&opi=89978449

Langenberg, H., & Jonkers, W. (2022). Achtergrond bij de huizenprijsstijgingen vanaf 2013. Retrieved 05-10-2023, from https://www.cbs.nl/nl-nl/longread/de-nederlandse-economie/2022/achtergrond-bij-de-huizenprijsstijgingen-vanaf-2013/3-demografische-ontwikkelingen-en-de-woningvoorraad

Lörzing, H., Klemm, W., Leeuwen, M. v., & Soekimin, S. (2006). vinex! een morfologische verkenning. https://www.pbl.nl/sites/default/files/downloads/VINEX_Een_morfologische_verkenning.pdf

Lörzing, H., & Tisma, A. (2023). Dutch Landscape The Ultimate Guide for Study, Professional and Personal Use. nai010.

Michielsen, T., Groot, S., & Veenstra, J. (2019). Het bouwproces van nieuwe woningen. C. Planbureau. https://www.cpb.nl/sites/default/files/omnidownload/cpb%20boek%20woningmarkt%20-%20boek%2033.pdf

Ministerie van Infrastructuur en Waterstaat, Ministerie van Landbouw Natuur en Voedselkwaliteit, & Koninkrijkrelaties, M. v. B. Z. e. (2023). National Delta Programme 2024 - NOW FOR

THE FUTURE. Deltacomissie. https://english.deltaprogramma.nl/documents/publications/2023/09/19/delta-programme-2024-english https://dp2024.deltaprogramma.nl/data/DP2024_Nu_voor_later.pdf

National Park City foundation. (2019). WHAT IS LONDON NATIONAL PARK CITY? https://nationalparkcity.london/london-national-park-city

Nijskens, R., & Lohuis, M. (2019). The Housing Market in Major Dutch Cities. In Hot Property: The Housing Market in Major Cities (pp. 23-35). Springer International Publishing. https://doi.org/10.1007/978-3-030-11674-3_3

Obbink, H. (2020, 09-09-2020). Zo kwam Nederland aan een tekort van 331.000 woningen. Trouw. https://www.trouw.nl/economie/zo-kwam-nederland-aan-een-tekort-van-331-000-woningen~b04d8d53/?referrer=https%3A%2F%2Fwww.google.com%2F

PBL. (2020). Rehearsing the future - Scenarios for urban development, infrastructure and mobility in the Netherlands in 2049. https://www.pbl.nl/uploads/default/downloads/pbl-2020-rehearsing-the-future-4197_0.pdf

Pierre, L. S., & Klok, H. L. (2015). Ecocentric Design. The International Journal of Design in Society, 9, 13-19. https://doi.org/10.18848/2325-1328/CGP/v09i01/38557

RIGO Research, Amsterdam, A. B. t., & Delft, O. (2006). Evaluatie Verstedelijking VINEX 1995 tot 2005. M. VROM. https://zoek.officielebekendmakingen.nl/kst-27562-10-b1.pdf

Rolston III, H. (2020). A new environmental ethics: the next millennium for life on earth. Routledge.

Rooij, R., & Van Dorst, M. (2020). A Pattern Language Approach to Learning in Planning. . Urban Planning, 5 (1), 58-64. https://doi.org/https://doi.org/10.17645/up.v5i1.2961

Salingaros, N. A. (2000). The structure of pattern languages. Architectural Research Quarterly, 4(2), 149-162. https://doi.org/10.1017/S1359135500002591

Stiphout, M. v., Lehner, M., & Havik, G. (2019). First guide to nature inclusive design. nextcity.nl.

Stoeldraijer, L., Feijten, P., & Duin, C. v. (2023). Bevolkingsprognose 2023-2070: minder geboorten, meer migratie. Centraal Bureau voor de Statistiek. https://www.cbs.nl/nl-nl/longread/statistische-trends/2023/bevolkingsprognose-2023-2070-minder-geboorten-meer-migratie

Stuurgroep Van Gogh Nationaal Park, West8, & Overland. (2020). Masterplan Van Gogh Nationaal Park. Schetsboek voor het landschap van de 21e eeuw. S. V. G. N. Park. https://assets.citynavigator.nl/kuma-van-goghnp/uploads/media/62389ac17dc07/masterplan.pdf

Tillie, N. (2018). Synergetic Urban Landscape Planning in Rotterdam: Liveable Low-Carbon Cities. https://doi.org/10.7480/abe.2018.24

Tisma, A., & Meijer, J. (2018). LESSONS LEARNED FROM SPATIAL PLANNING IN THE NETHERLANDS

In support of integrated landscape initiatives, globally. Planbureau voor de Leefomgeving. https://www.pbl.nl/sites/default/files/downloads/PBL_-_Lessons_learned_from_spatial_planning_in_NL_-_20181108_-_3279.pdf

Vieira, P. H. F., & Sampaio, C. A. C. (2022). Ecosocioeconomies at the Crossroad of the Anthropocene. A Systemic-Transdisciplinary Perspective [Article]. Historia Ambiental Latinoamericana y Caribena, 12(1), 168-208. https://doi.org/10.32991/2237-2717.2022v12i1.p168-208

Vink, J., Vollaard, P., & Zwarte, N. d. (2024). Stadsnatuur bouwen. Nai010 uitgevers. (15-12-2023)

Vink, J., Vollaard, P., Zwarte, N. d., Tee, J., & Vink, J. (2017). Stads natuur maken = Making urban nature. Nai010 uitgevers/publishers.

Voogd, J. d., & Cuperus, R. (2021). Atlas van Afgehaakt Nederland. M. v. B. Z. e. Koninkrijksrelaties. https://www.kennisopenbaarbestuur.nl/documenten/rapporten/2021/12/17/atlas-van-afgehaakt-nederland

Washington, H., & Maloney, M. (2020). The need for ecological ethics in a new ecological economics [Note]. Ecological Economics, 169, Article 106478. https://doi.org/10.1016/j.ecolecon.2019.106478

Washington, H., Taylor, B., Kopnina, H., Cryer, P., & Piccolo, J. J. (2017). Why ecocentrism is the key pathway to sustainability. The Ecological Citizen, 1(1), 35-41.

Yigitcanlar, T., & Dizdaroglu, D. (2015). Ecological approaches in planning for sustainable cities: A review of the literature. Global Journal of Environmental Science and Management, 1, 159-188. https://doi.org/10.7508/gjesm.2015.02.008

Zuid-Holland, P. (2020). Planoptimalisatie. https://www.zuid-holland.nl/onderwerpen/ruimte/versnellen-woningbouw/planoptimalisatie/