

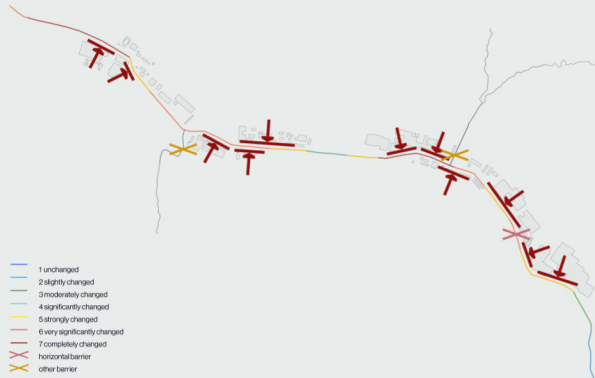
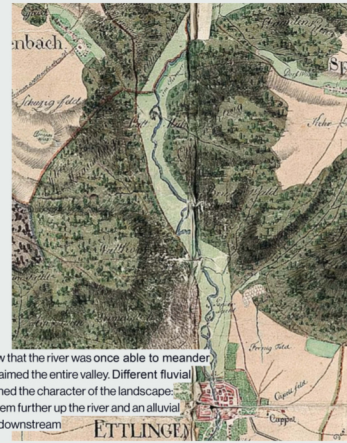
Airís Albā

(engl. caring for the Alb
widening of the Alb)

Initiating balanced suburban redevelopment
by restoring the spatial integrity of the river

Historic Alb

Historic maps show that the river was once able to meander more freely and claimed the entire valley. Different fluvial systems have defined the character of the landscape. A meandering system further up the river and an alluvial landscape further downstream



1:10000

Increasing constraints

In order to gain land, the Alb was increasingly canalized. Without proper urban planning oversight and no respect for the river integrity, additional commercial developments have led to ...

- ... limitations preventing the river to meander naturally
- ... a dramatic reduction of retention areas alongside the river
- ... a dramatic reduction of natural habitats
- ... migration barriers and limited connectivity of the ecosystem

- ... reduced accessibility and experiencability of the river
- ... a highly fragmented built environment
- ... large impermeable surfaces
- ... little to no public (sub)urban spaces with quality



1:10000

Rising flood levels and heavy rain fall runoffs

Recent developments have increased the vulnerability of the built environment in the Alb Valley to flooding and as simulations indicate, large parts of Ettlingen are currently highly vulnerable to flood-related risks. This situation is particularly concerning given that extreme weather events, such as intense storms, are expected to occur more frequently as a consequence of climate change.

In events of heavy rainfall natural streams turn into major currents flowing in the direction of the site. The separate sewer system of Waldbronn and Busenbach causes even larger runoffs that carry vast discharges.

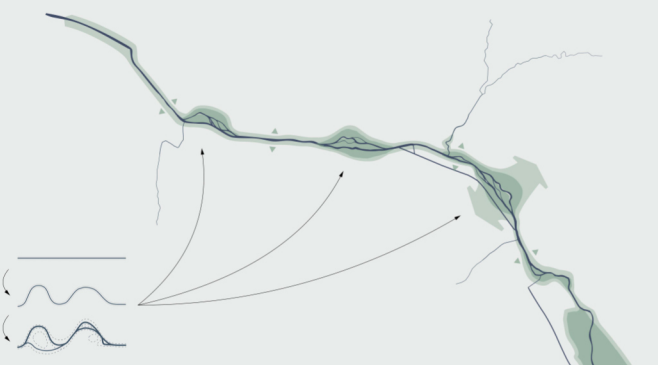


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Limiting the dam necessity and reassign based on HQ50 flooding level

The new dam that will be built approximately in 2027-2030 will provide flood protection for Ettlingen and Karlsruhe. However, its location within ecologically sensitive and protected areas raises significant environmental concerns. Closing the dam and hence filling up the retention basin behind would cause severe ecological damage...

With our planning, we cannot provide a valid alternative to the dam and closing it will still be necessary in extreme flooding events (HQ100 & HQext). We can still try to make the necessity of a closure less frequent. Instead of working against the river, we take a look at the areas that will be flooded in the event of a 50 year flooding (HQ50) and start the reassignment process generously from here onwards. Partially removing buildings will be necessary but is reduced to a minimum.



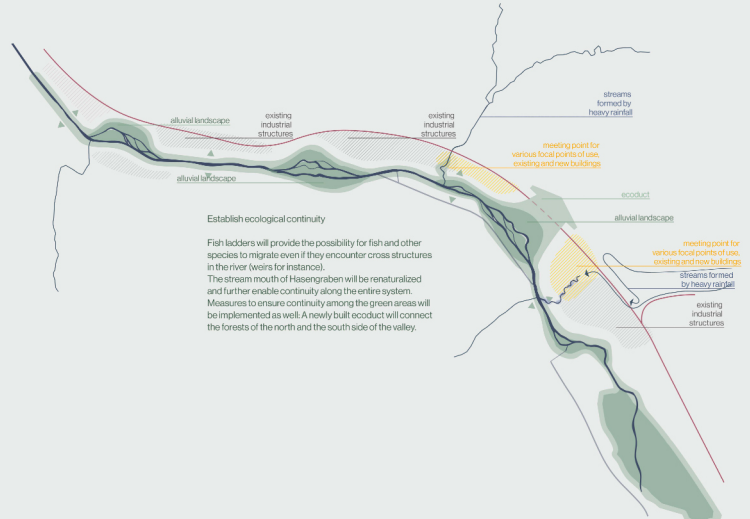
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Widening the riverbed and creating self-dynamic alluvial landscapes

The alluvial landscapes will provide additional space for the river where the water is allowed to overflow its banks more frequently. Some parts will become recreational spaces with social value, others will be designated only to nature.

Within these areas the goal is to initiate a habitat-rich, self-dynamic development of the waterbody. So called dormant bank protections (dt. "schlafende" Ufersicherung) will limit the natural dynamic processes and avoid undesired extension.

Renaturation efforts extend beyond the alluvial zones, as other river sections will also be widened and restored, improving the potential discharge capacity at the same time. High discharge volumes overflow the meandering system, creating a direct flow path, thereby ensuring that floodwaters can pass through unhindered.



Area Alte Spinnerei

Extending the river-centric planning logic into the neighborhood is more than a requirement and serves as a catalyst to generate high quality adaptive outdoor spaces that integrate nature. It includes ecological enhancement on a smaller level, a water infrastructure adapted to the topography and a responsible handling of the available water resources across various scales.

The area around the Alte Spinnerei in the east is characterized by its existing industrial buildings, which are rooted in the area's textile industry heritage and that will continue to be used for on-site textile production. Adjacent to these large commercial structures, 84 residential units, distributed across two building complexes appear somewhat isolated in relation to the expansive halls. Currently, the fragmented functions lack integration and do not facilitate interaction or connectivity within the site.

According to the principles of the resource protection hierarchy, existing resource consumption takes priority. Preserving existing structures and applying a responsible, equitable approach to their treatment—recognizing the importance of resource preservation as well as social factors—is vital and must be taken seriously when addressing ecological responsibility from a comprehensive perspective. Consequently, demolishing the existing residential units is not a viable option. Instead they are complemented by additional housing that partially integrates commercial and research functions. By taking the urban configuration of the existing residential buildings as the basis for the placement of the complementing units, the existing structures are woven into new qualities and systems. Later they promote social diversity within the neighborhood and contribute to a prevention of gentrification and a stabilization of rents.

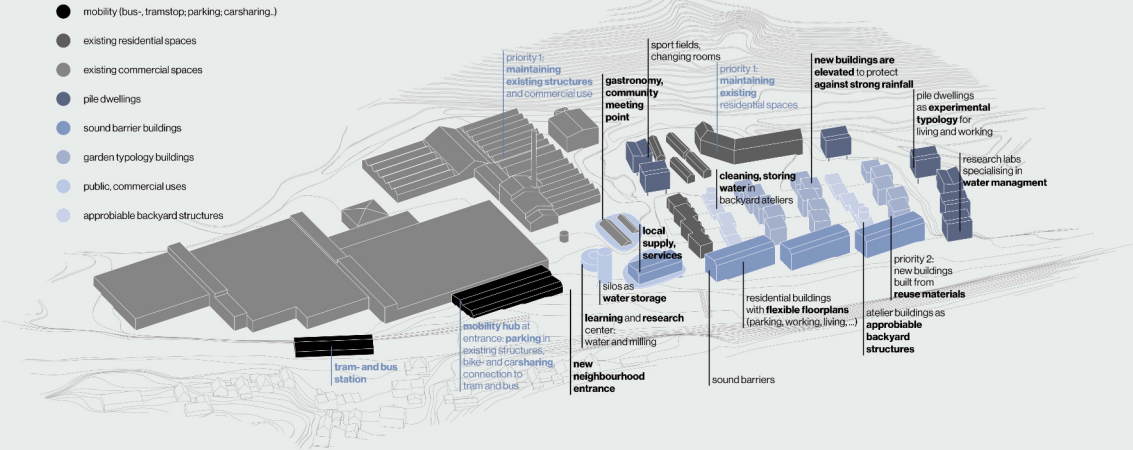
The buildings scheduled for deconstruction are being integrated into the material cycle with a focus on reuse. Two large storage halls are to be dismantled, as they are not only threatened by flooding but also contribute to it due to their high level of surface sealing. A component reuse assessment was carried out, highlighting the high potential for reuse. The collected materials form the starting point for the construction of the new buildings and make use of the steel components, masonry bricks, trapezoidal sheet metal, used windows, and interior fittings. Additionally, the excavated soil is seen as a resource with the potential to produce adobe bricks.

Located where the new residential and the existing commercial areas converge, cleansing biotopes treat rainwater from Waldbrunn and Busenbach to remove contaminants prior to its discharge into the Alb. Rainwater is made visible and becomes an integral element that can be experienced directly from the adjacent main public space that is located just at the entrance of the neighborhood. In periods with low precipitation rainwater collected from the roofs of the commercial buildings will be released from the large vertical cistern and activates the space. The square serves as a meeting point for the various groups of users and contains a local grocery store, gastronomy and a new mixed use social space in a circular building. The space opens up along two axes, accommodating access for all modes of transport. Fast cycle ways connect with tram services and an expanded road network. A mobility hub with parking areas in both existing and new structures, as well as bike- and car-sharing options, is planned. From here, the residential part of the neighborhood is designed to be car-free—except for logistics, emergency and house move. Parking areas on the ground floor of the residential noise barrier buildings in the north serving as a residential neighborhood garage.

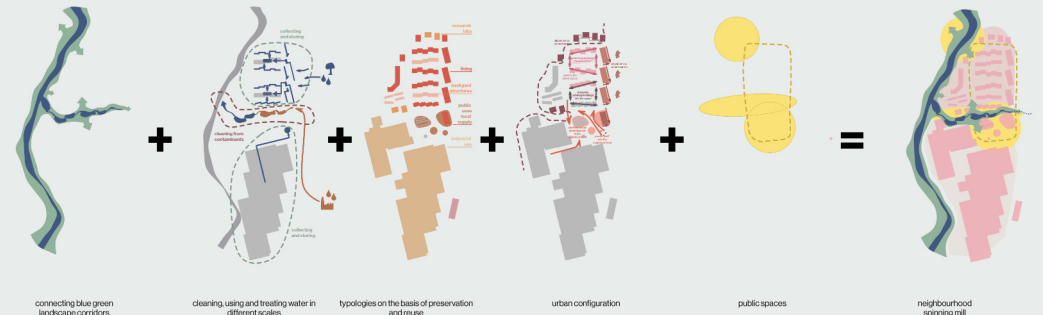
The main finely-grained residential typology is designed in a dynamic way inspired by the meandering of the river. Within the residential areas the primary focus is to collect and store the available water resources. The buildings orient toward each other across the gardens, tapering toward the public space in a funnel-like manner to create a clear spatial hierarchy. Between the rows, single-story studio structures are constructed above large domestic cisterns, which are supplied by rainwater harvested from rooftops and runoff from the surrounding forest. These studios can be freely appropriated by residents as an extension of their gardens, also offering the possibility of rooftop additions. Community and social interaction are closely intertwined with responsible water management, as the studios house several greywater treatment stations.

In alignment with the natural logic of the rivers, a third typology is introduced along the riverfront. This typology features pile-supported structures situated at the floodplain level, within the area prone to flooding during a 50-year flood event. The idea of collecting water is foregrounded and these buildings serve as pioneering experimental models, testing autonomous water management systems integrated within their design. In addition to residential functions, they accommodate research laboratories focused on water management, wastewater treatment, and the study of the river's ecosystem and its associated threats.

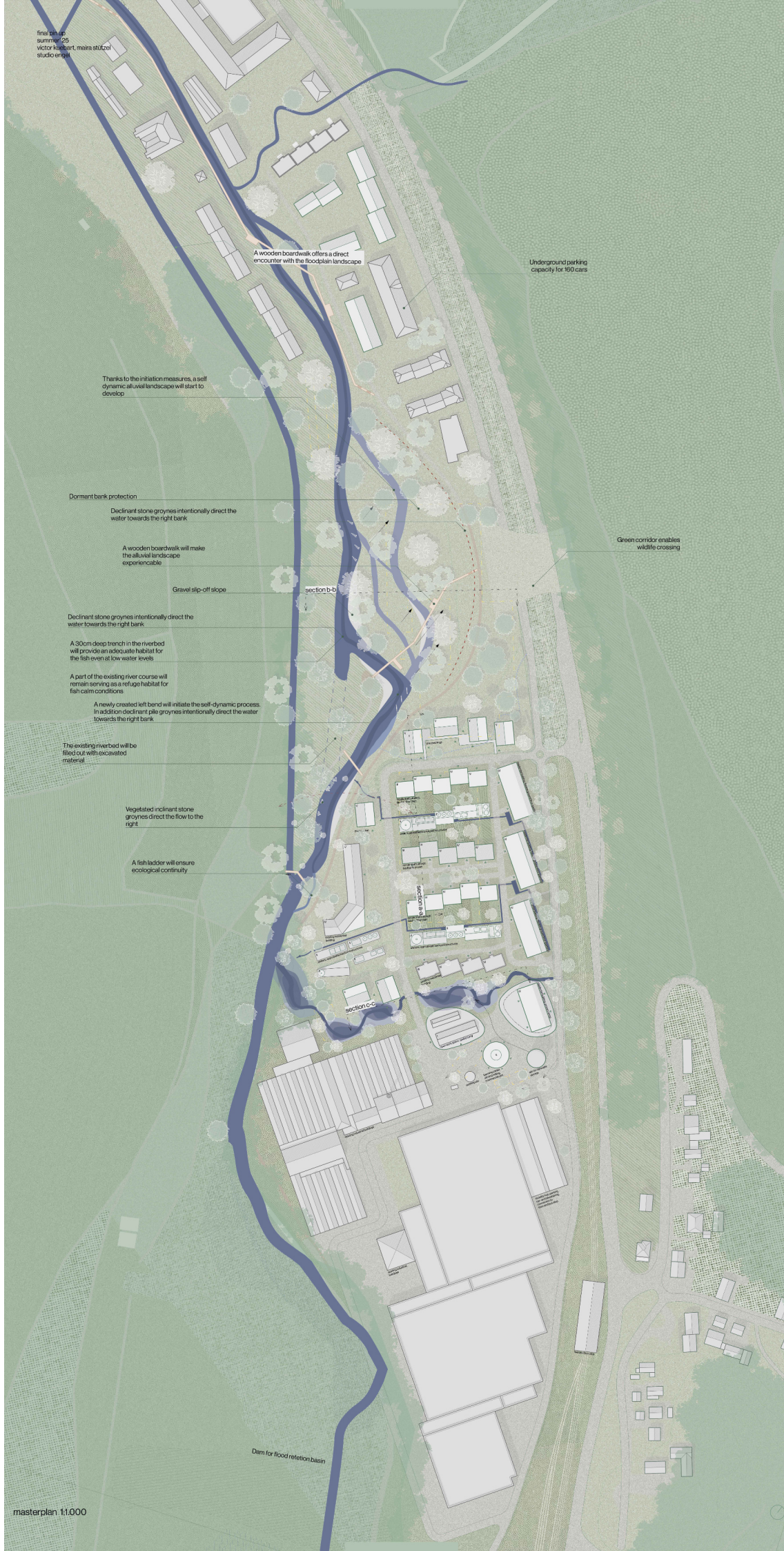
Figures
mix of uses; 40% residential, 60% non-residential: Commercial, office, educational, cultural, social, (15 min. city), approx. 350 residential units (variety of housing types: approx. 1,000 residents) Micro / community clusters, multi-generational living, 30 sqm of living space p.p., 51,500 sqm roof area for PV / greenery, approx. 30,000 square metres of retention area, approx. 500 new trees, 25 sqm public green space / inhabitant (with floodplain landscape), 10 sqm public green space / inhabitant (in the neighbourhood), 5.8 ha retention area, GFZ = 0.7, GRZ = 0.45, 2 mobility hubs, 0.7 car parking spaces / residential unit, 5 bicycle parking spaces / residential unit, 10-minute rail interval



ecoreality, 11.500



konzept graphics, 11.500



final top up
summer 20
victoria street, main street
stuckengal

The renaturalized stream mouth is
located where commercial and
residential functions converge

"Dormant bank protection" limits
the dynamic processes and
avoids uncontrolled extension

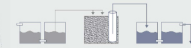
Domestic cisterns are located in the centre of each
residential complex just below the garden structures.
Rainwater from the roofs (1), runoff from the forest
(2) and the cleaned greywater (3) will be collected
here. A UV-disinfection unit is installed.

Excess water from the cisterns
will be released into the Abt

A biofilter system cleans rain water from paved
surfaces coming from Waldbrunn & Busenbach /
contaminants: heavy metals, tire wear
particles & oil / plants: *Carex riparia*, *Iris
pseudacorus*, *Noccaea caerulea*

Rainwater from commercial roofs is led to
this cistern with a total volume of ca. 2
mio L (2000m³). It will be released in
periods of low precipitation to ensure
the biofilter system and its plants remain
in a good condition.

Rainwater from roof: High quality water
resource that does not require much
treatment. Total water potentially
collected annually by commercial roofs:
ca. 33 mio. L



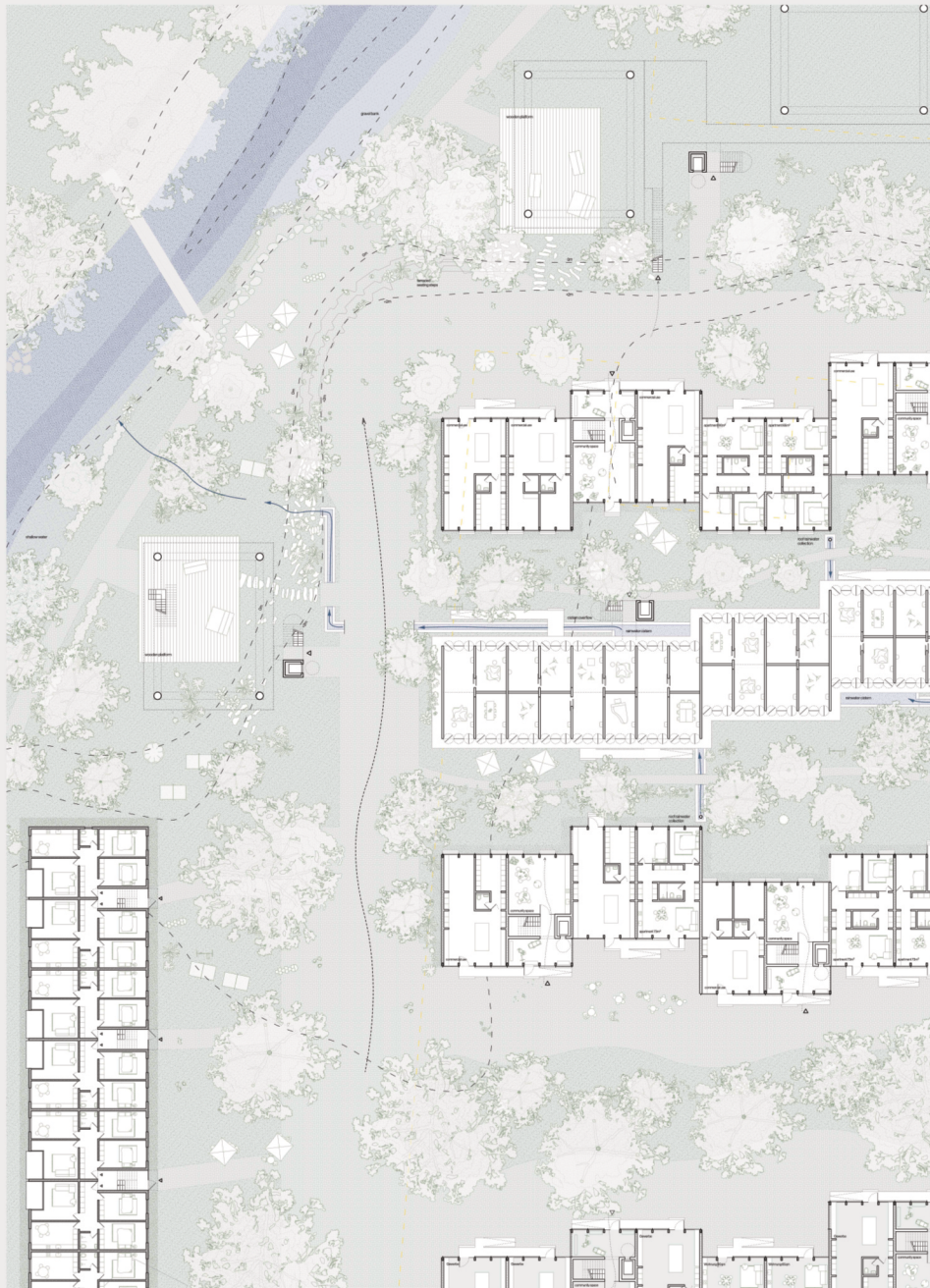
The garden structures contain several greywater
treatment stations. In here greywater from
handwashing, kitchen & showers will be directed
through a planted biofilter *Phragmites australis*,
Typha latifolia, *Juncus effusus* to clean the
domestic contaminants: surfactants, fats,
microorganisms

Runoff from forest (drainage
area ca. 14ha): high quality
water
monthly event: 0.07m³/s
Runoff 15 year event: 0.2m³/s

Rainwater drainage pipe
below the railway tracks

Runoff from Waldbrunn &
Busenbach (drainage area ca.
32ha) containing
contaminants such as heavy
metals, tire wear particles &
oil (paved surfaces, industry)
monthly event: 2.8m³/s
Runoff 15 year event: 8.8m³/s

A rainwater duct directs
the runoff into the
biofilter system





section 8-a, 1750.

see first 2001 175

percentage 1.75.