

# Adaptive Permanence:

## A Structural Response to Energetic Vulnerability.



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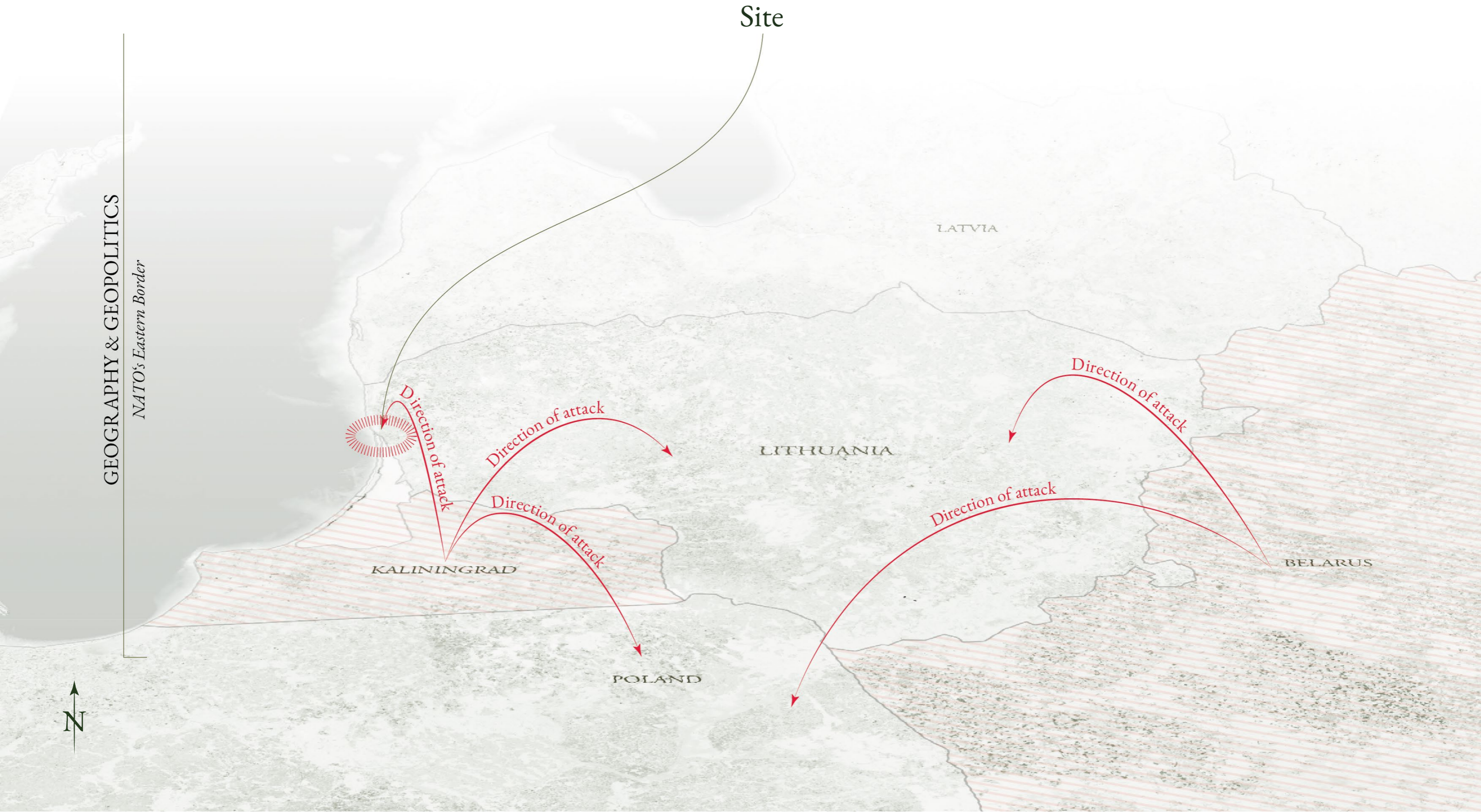
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# Overview

1. Geopolitical Context
2. Theoretical Frame
3. Site Context
4. Scale L: Masterplan
5. Scale M: Military Base
6. Scale S: Headquarters Building
7. Scale XS: Structure
8. Outlook

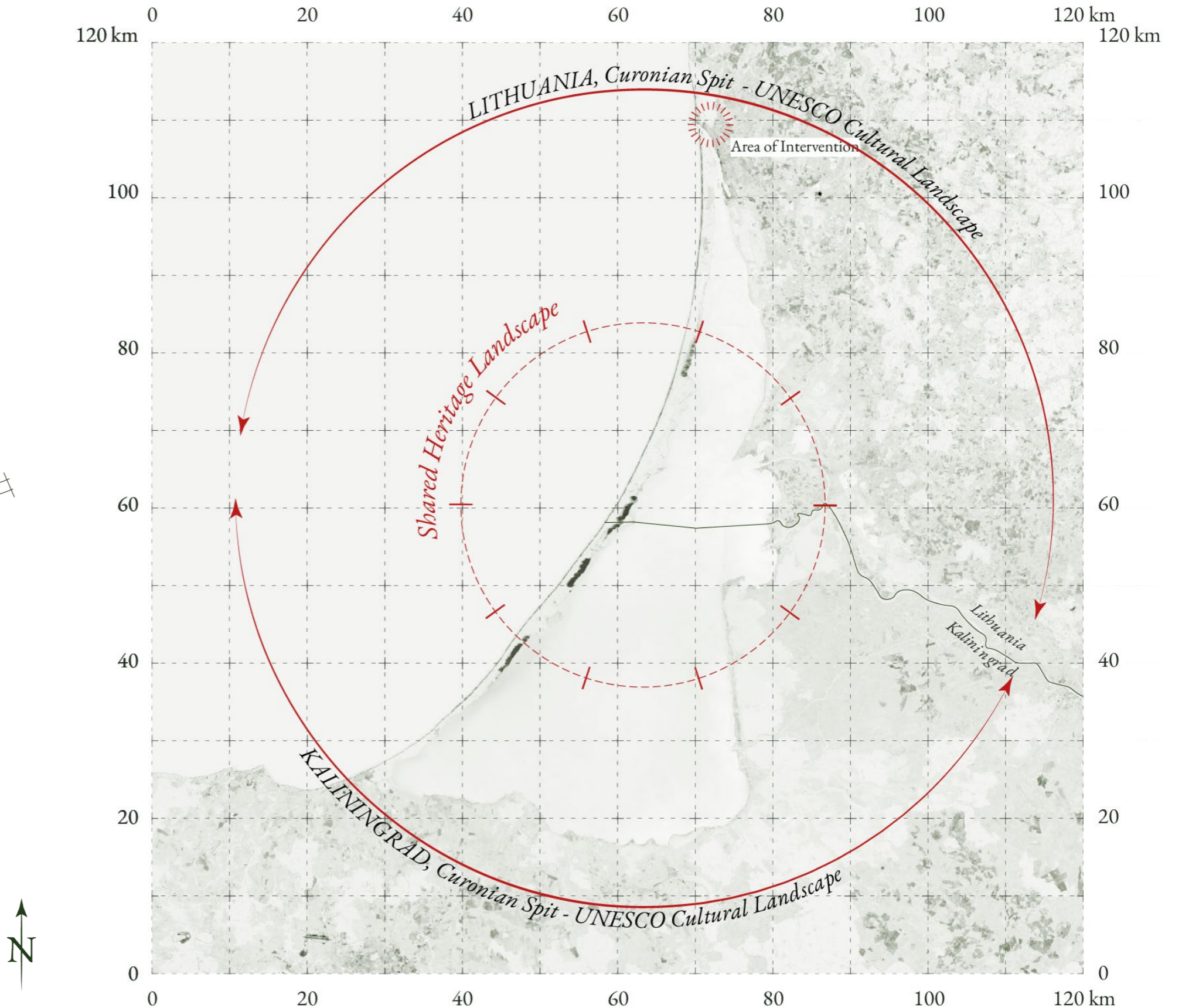
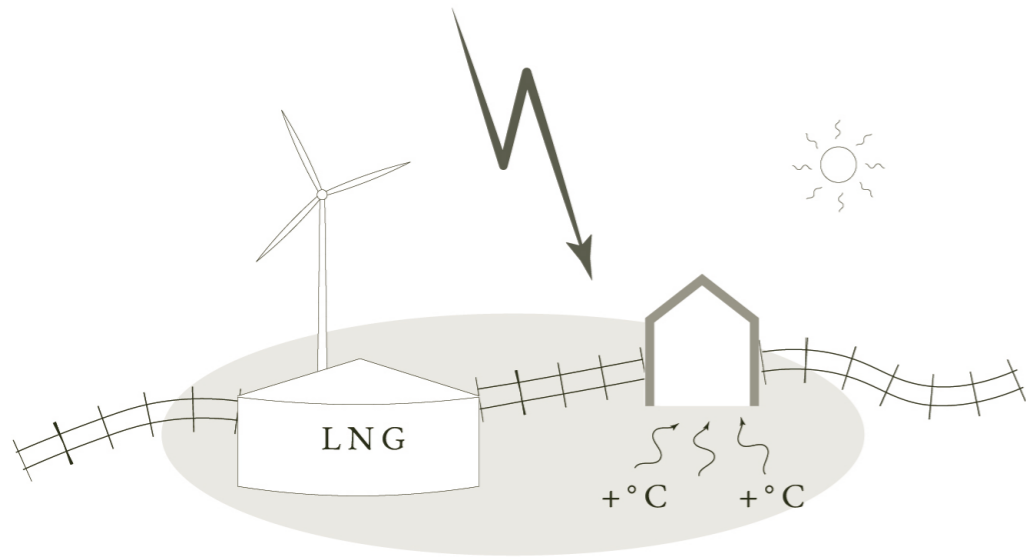
# Geopolitical Context

Lithuania



# Geopolitical Context

## Energetic Vulnerability in the Curonian Spit



# Geopolitical Context

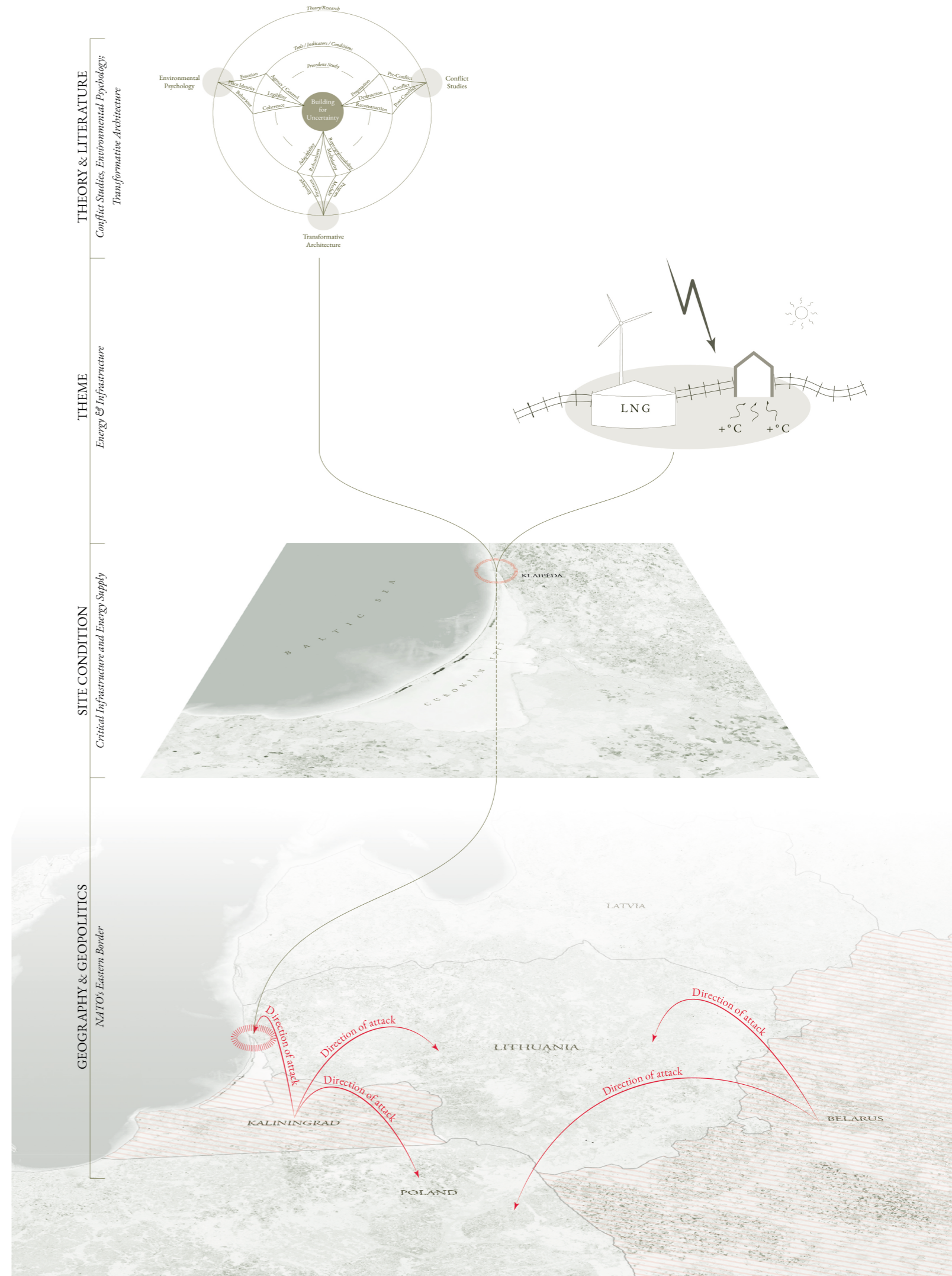
## Architectural Challenge

How can **architecture** not only contribute to *securing energy networks* but help *shape* a more *sustainable* and *resilient energetic future*?



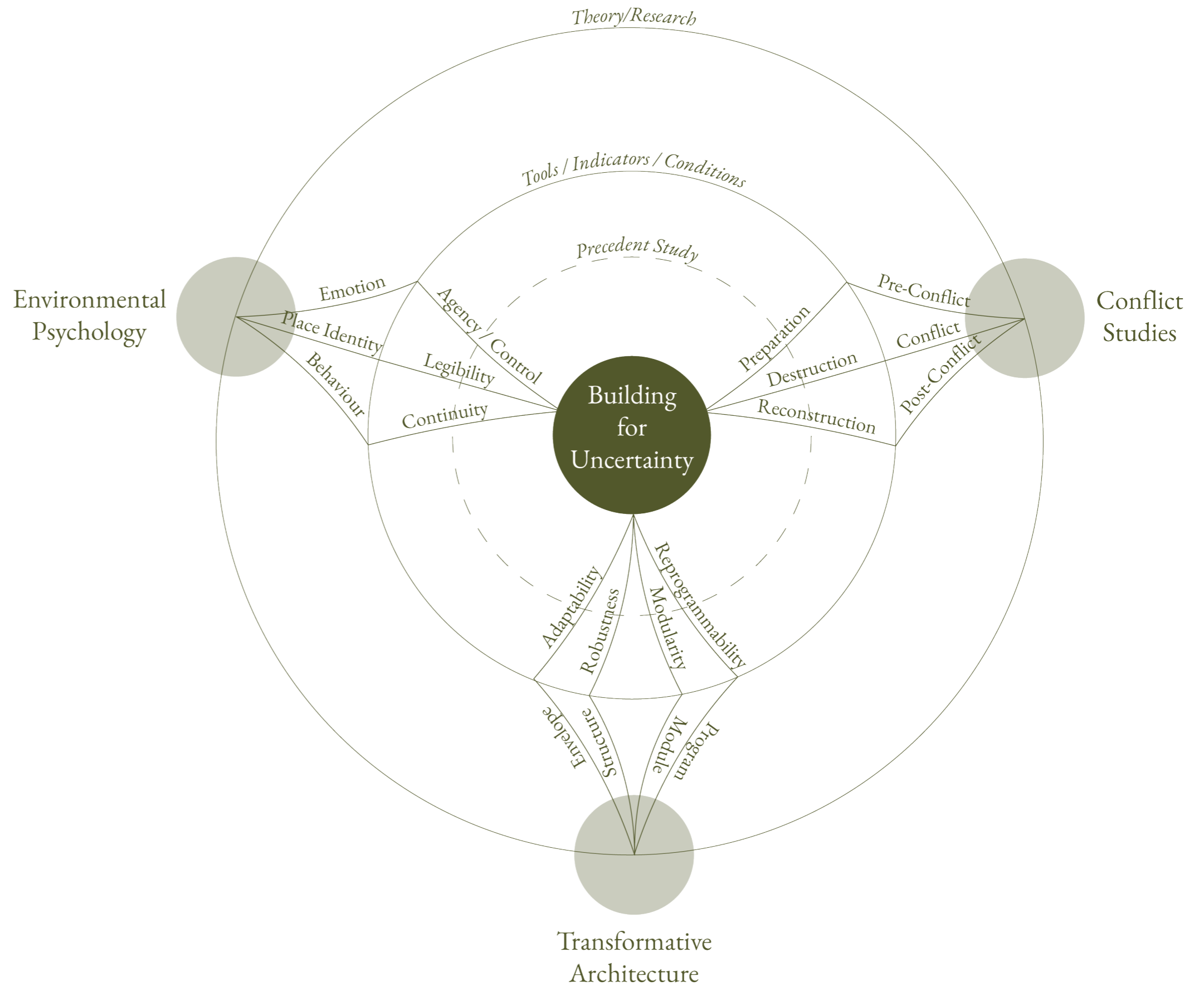
# Theoretical Frame

## Research Overview



# Theoretical Frame

Literature Research



# Theoretical Frame

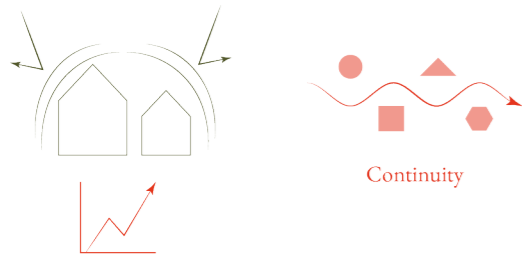
## Literature Research

The Design must be phase-responsive and is most successful when multiple architectural strategies are combined:

### TEMPORAL CONDITION

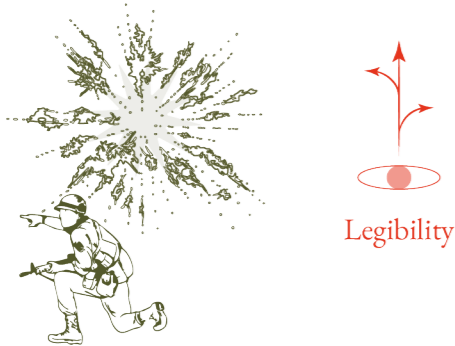
#### PRE - CONFLICT

*[Anticipation]*



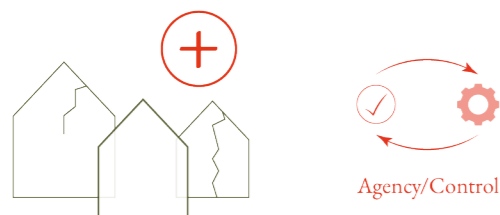
#### CONFLICT

*[Acute Threat]*

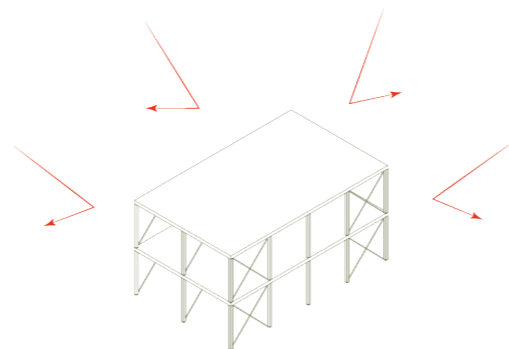
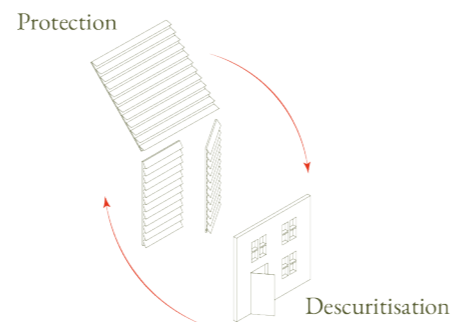
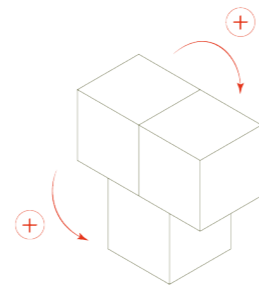
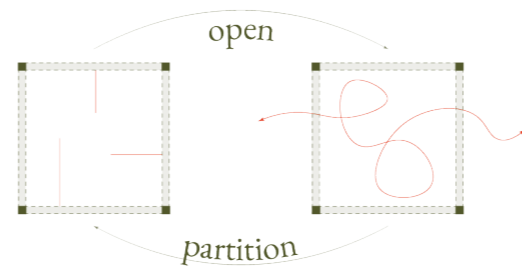


#### POST - CONFLICT

*[Transition]*



### MECHANISMS



### HISTORICAL EVIDENCE

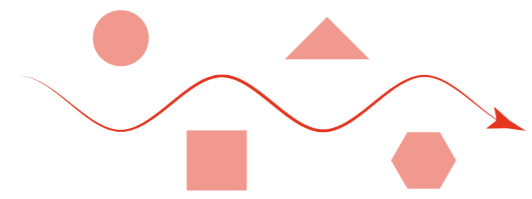
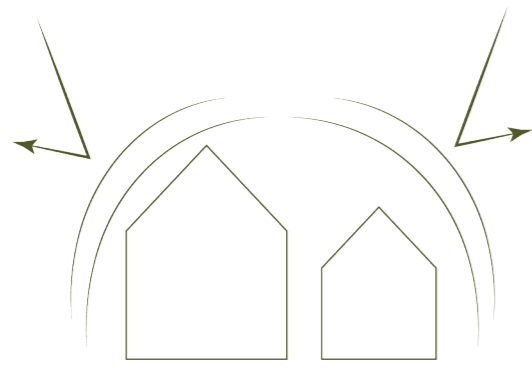
- Mechanisms have **different effects across Phases**
- Legibility; Agency/Control; Continuity = **decisive Measures for usefulness** of Mechanisms across phases
- **Combination of multiple Strategies** outperform Single Strategies

*DESIGN PRINCIPLES*

# Theoretical Frame

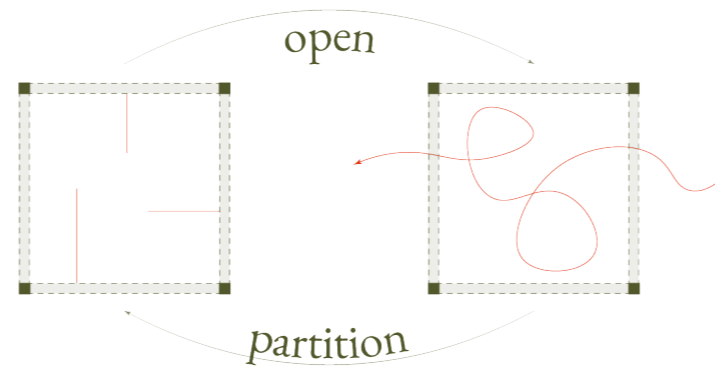
## Literature Research (Pre-Conflict)

*TEMPORAL CONDITION*

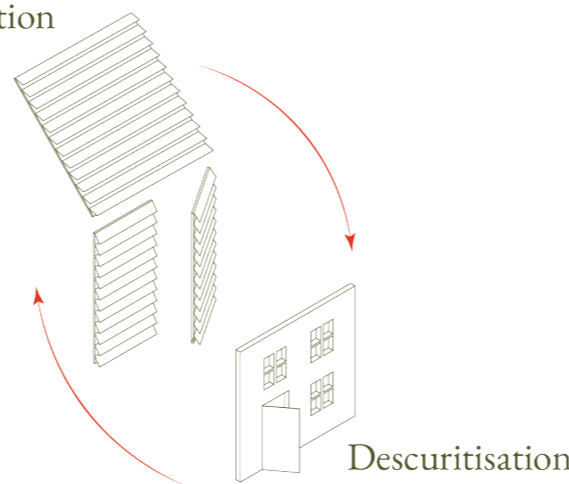


*Continuity*

*DOMINANT MECHANISMS*



Protection



Desecuritisation

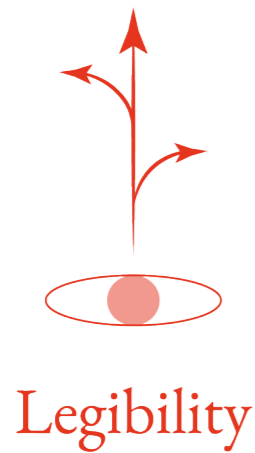
*AIM*

- Preserve Familiar Surroundings and Uses as much as possible
- Allow gradual Securitisation

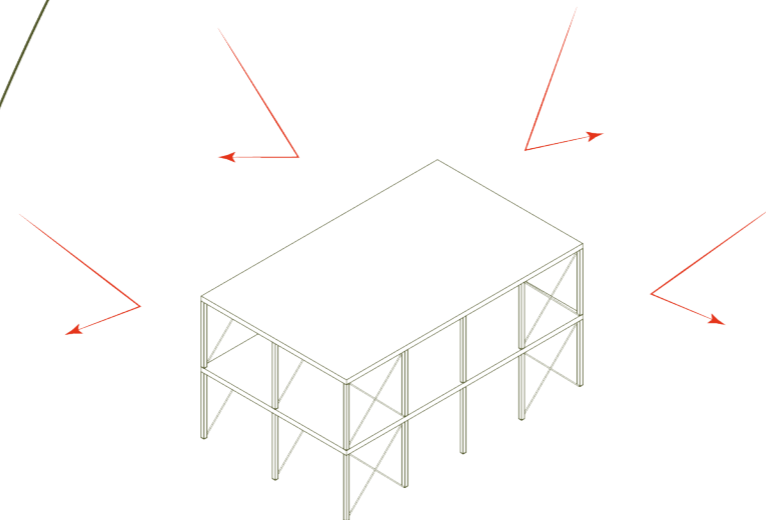
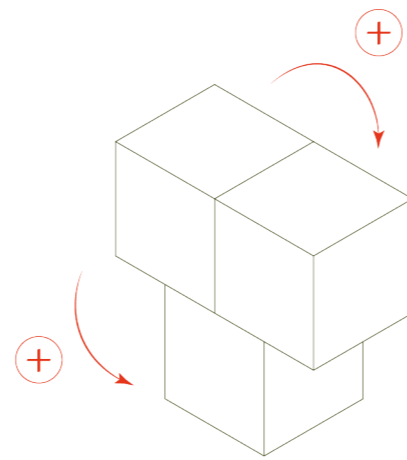
# Theoretical Frame

## Literature Research (Conflict)

*TEMPORAL CONDITION*



*DOMINANT MECHANISMS*



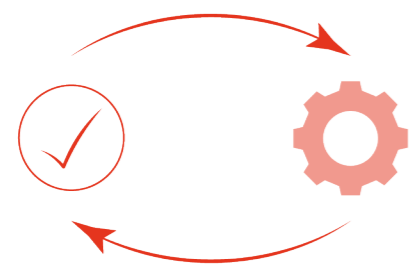
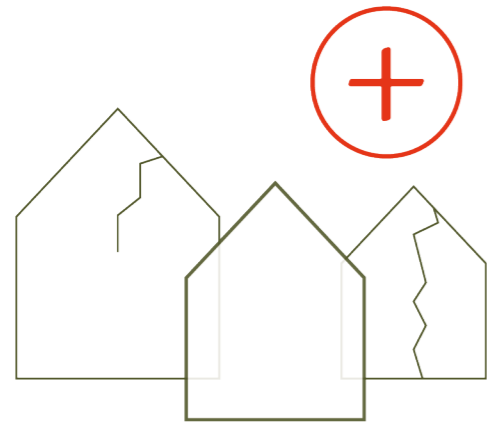
*AIM*

- Reliable and readable safe Zones
- Clear Orientation

# Theoretical Frame

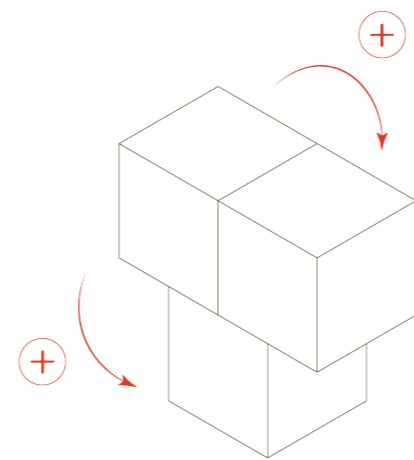
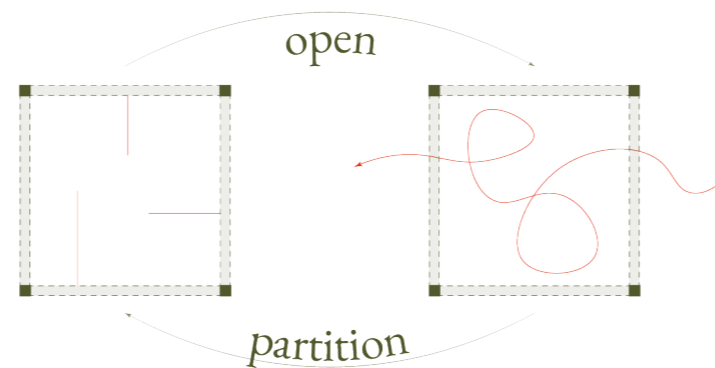
## Literature Research (Post-Conflict)

*TEMPORAL CONDITION*



*Agency/Control*

*DOMINANT MECHANISMS*



Protection

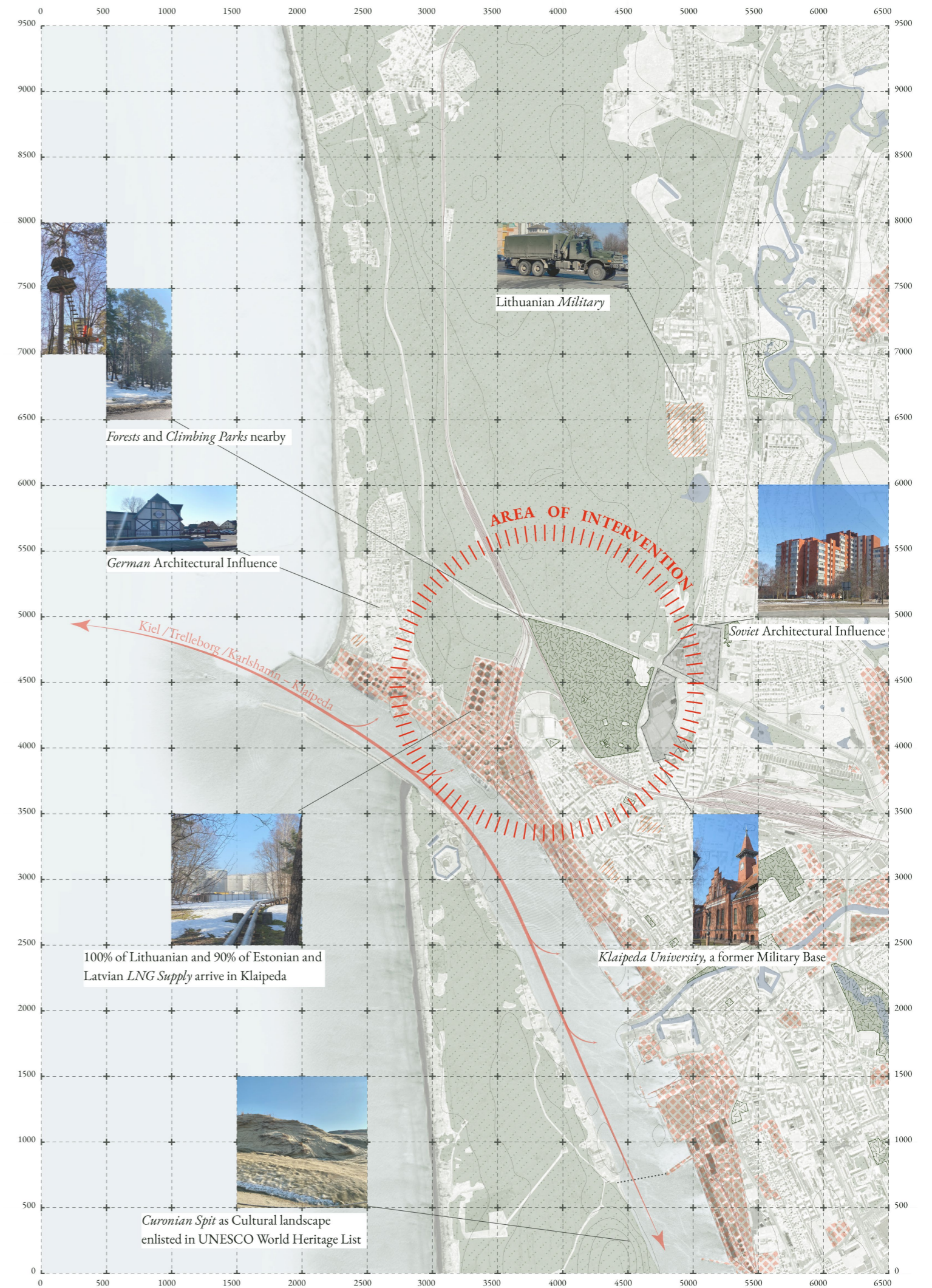
Desecuritisation

*AIM*

- Stitching fragmented urban Fabric
- Allow gradual Desecuritisation
- Enable civil Re-appropriation

# Site Context: Klaipėda

1:15 000



# Site Context: Klaipėda

LNG-Terminal



# Site Context: Klaipėda

University

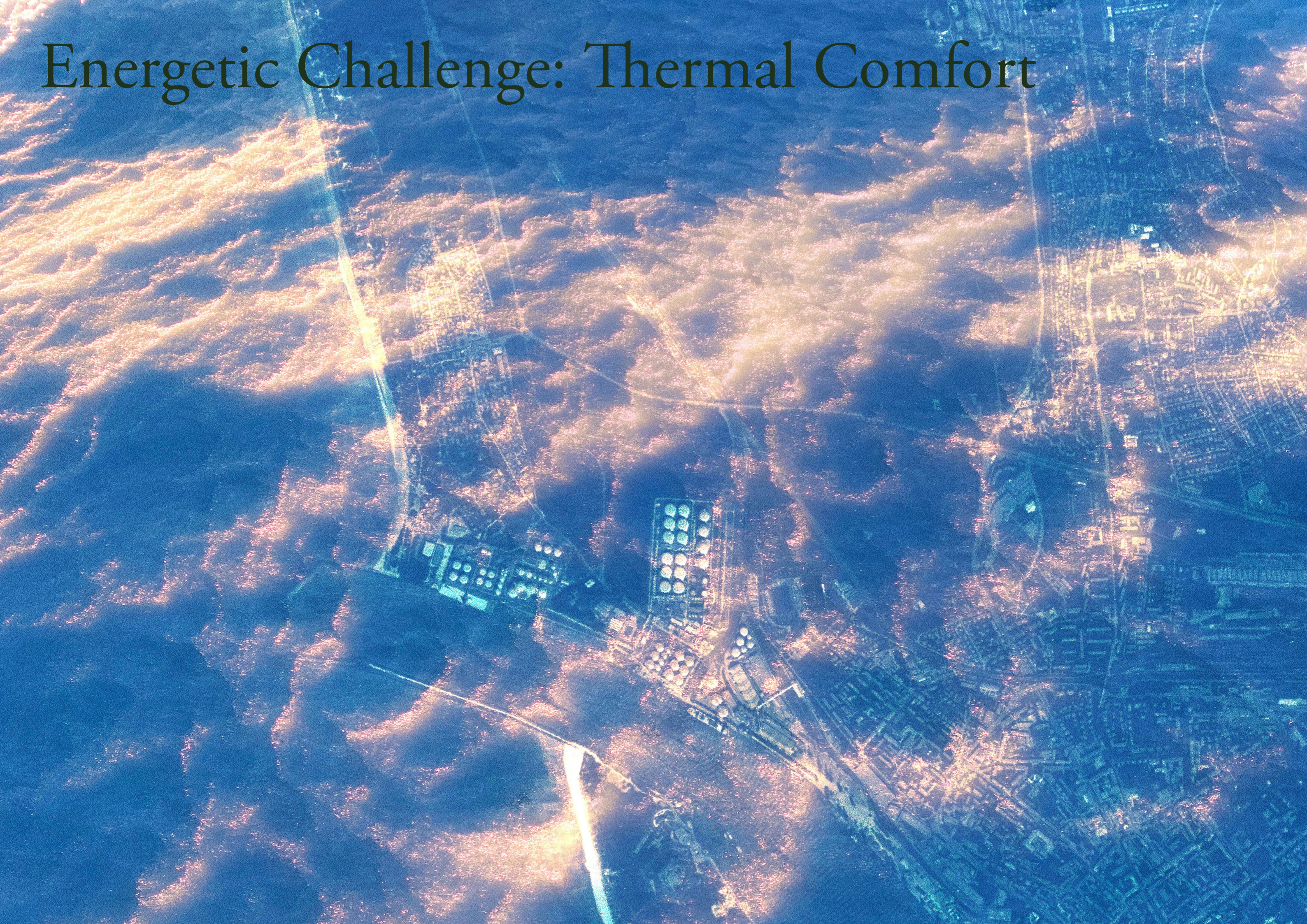


# Site Context: Klaipėda

Pine Forest



# Energetic Challenge: Thermal Comfort



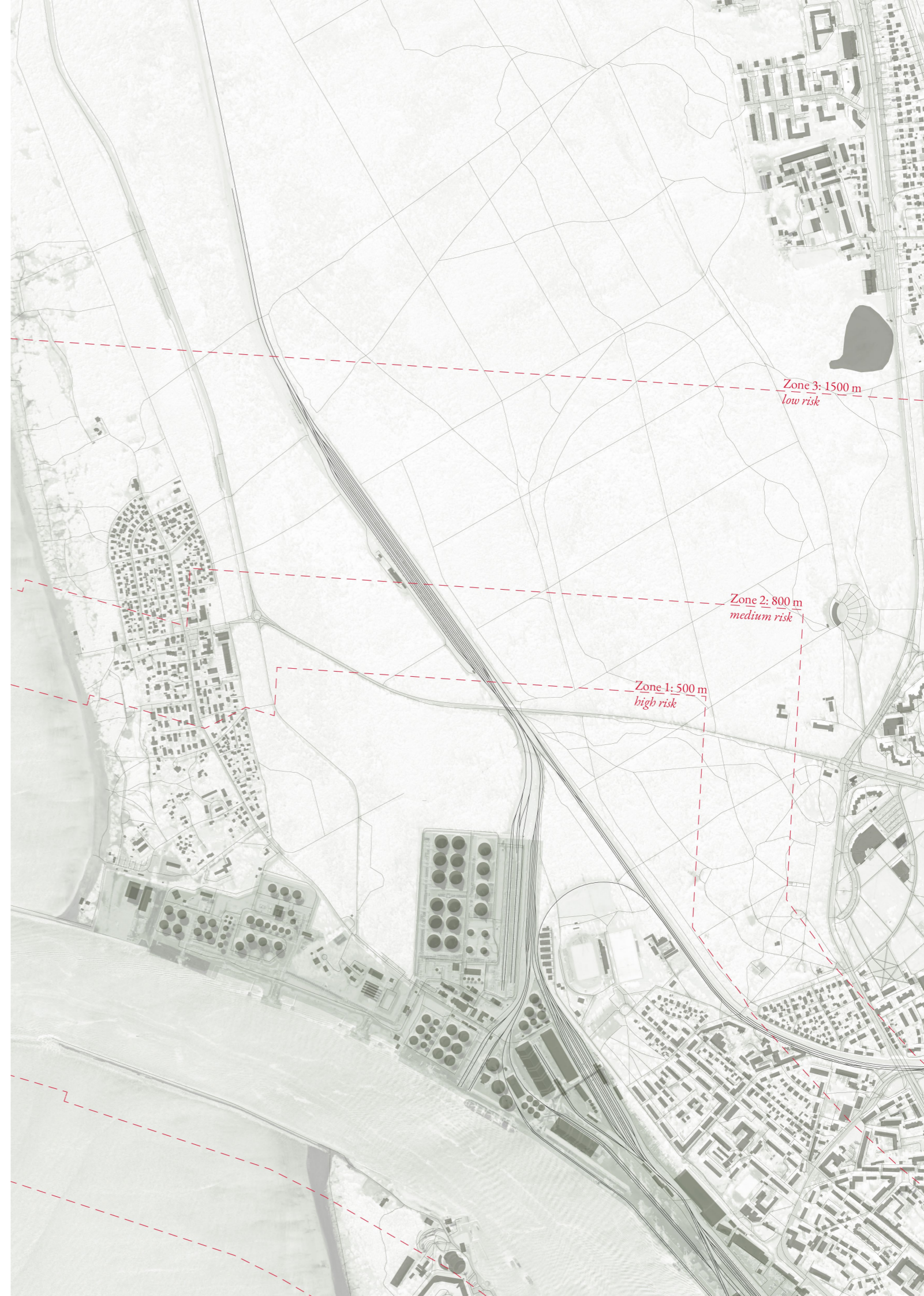
# Site Context: Klaipėda

1:10 000



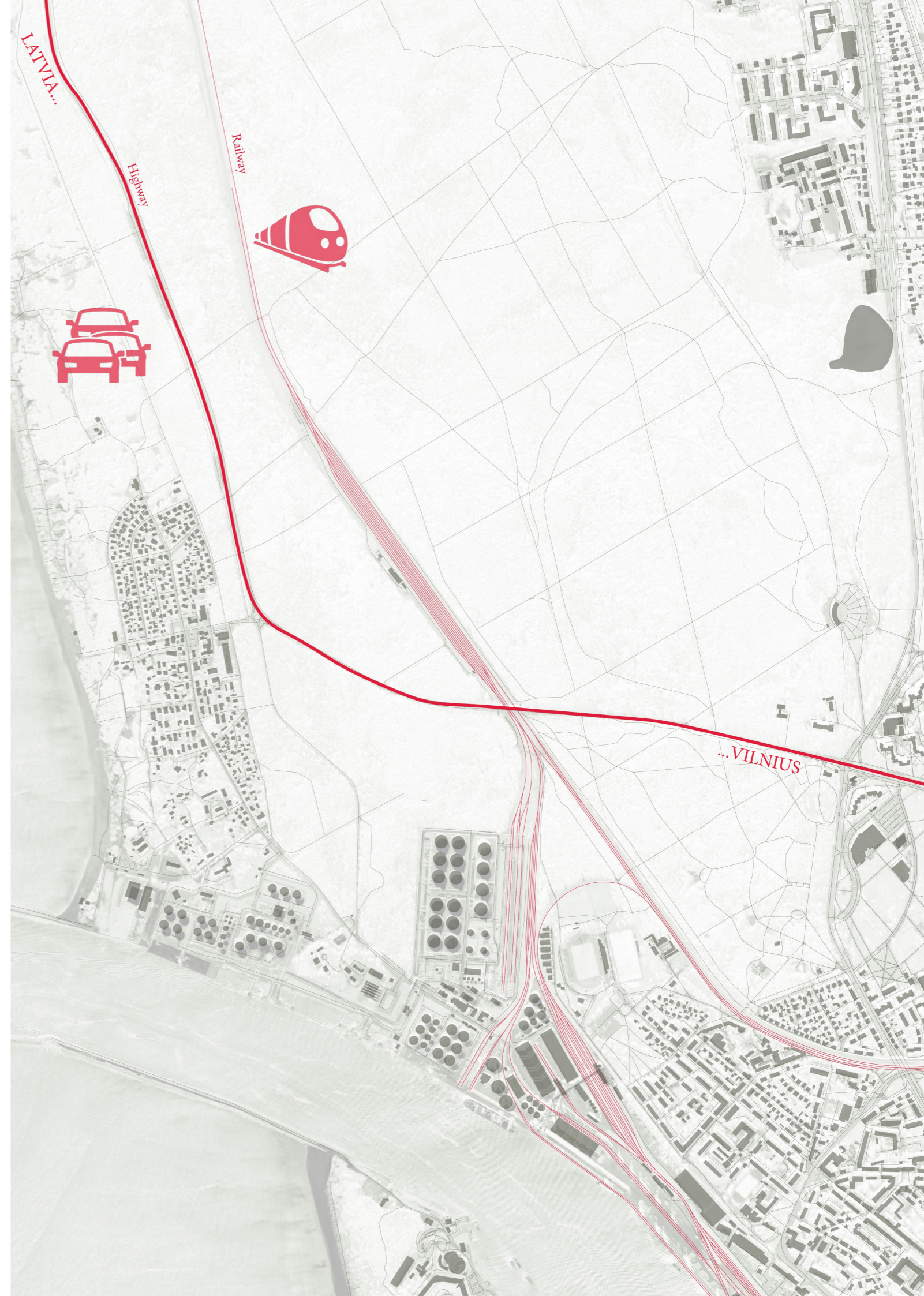
# Site Context: Klaipėda

VCE-Blast Zones, 1:10 000



# Site Context: Klaipėda

Relevant Infrastructure, 1:10 000



# Site Context: Klaipėda

Relevant Infrastructure, 1:10 000



# Site Context: Klaipėda

Renewable Energy Potentials 1:10 000

- Wind Energy (*biggest potential across the Baltic States*)
- Solar Energy (*seasonal*)
- Geothermal Energy (*challenging because of depth*)
- Biomass (*proximity to forests/waste*)



# Vulnerability to Resilience

Biomass as reliable Energy Source



# Scale L: Masterplan

Zones and Uses, 1:10 000

A military Base...

... that supports the energy transition (fossil -> renewable).



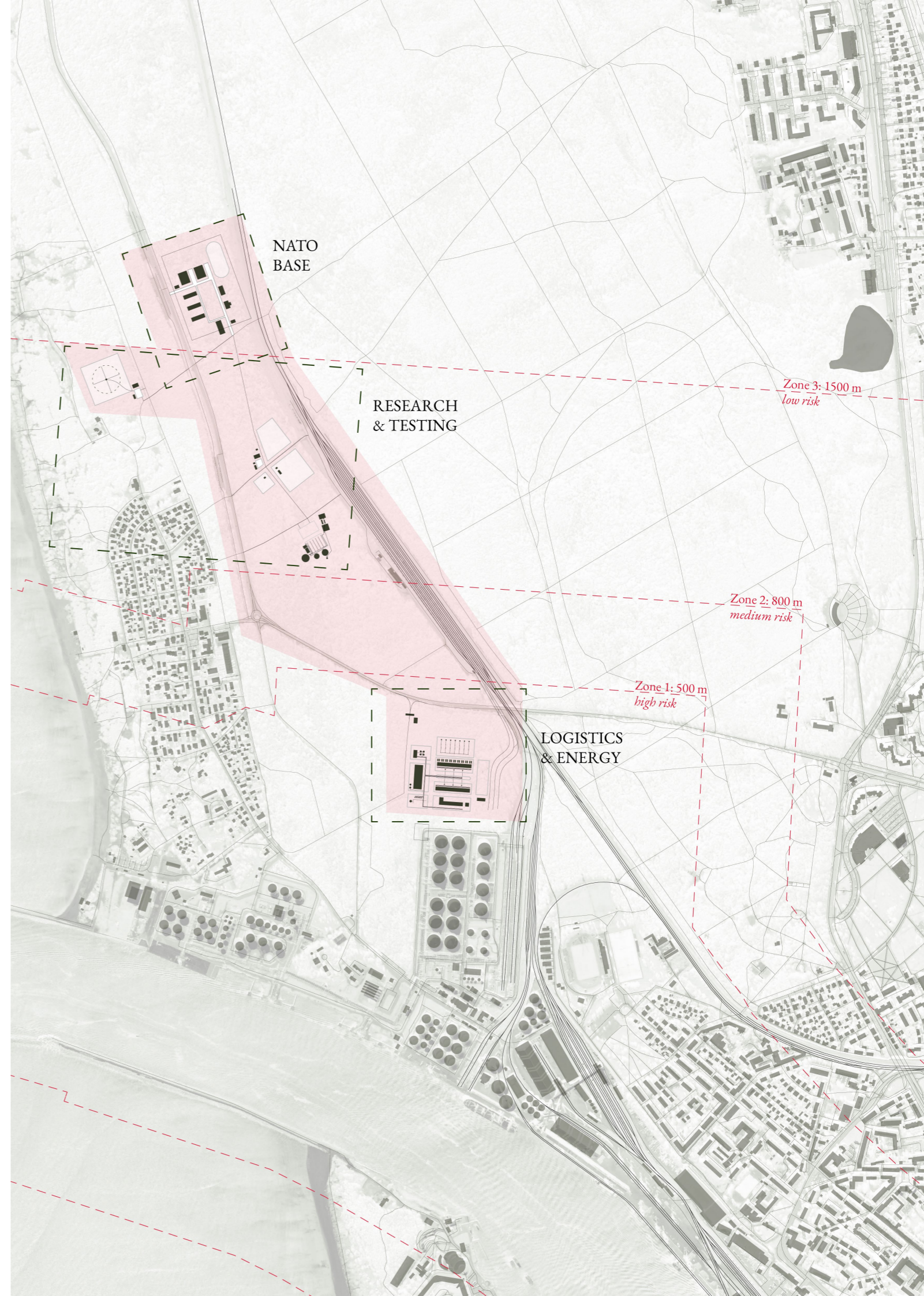
Military Base



Research and Testing



Logistics and Energy

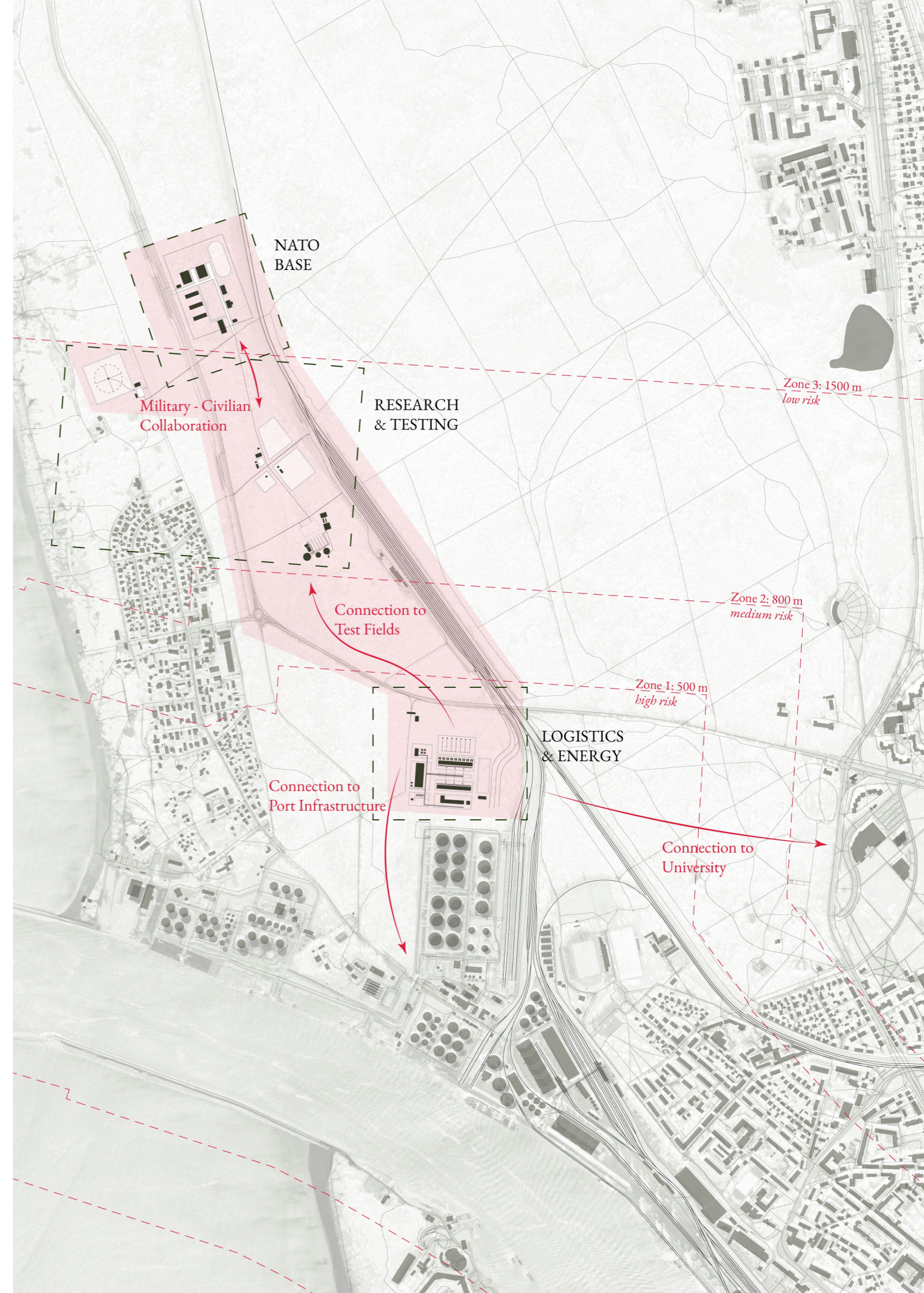


# Scale L: Masterplan

Zones and Uses, 1:10 000

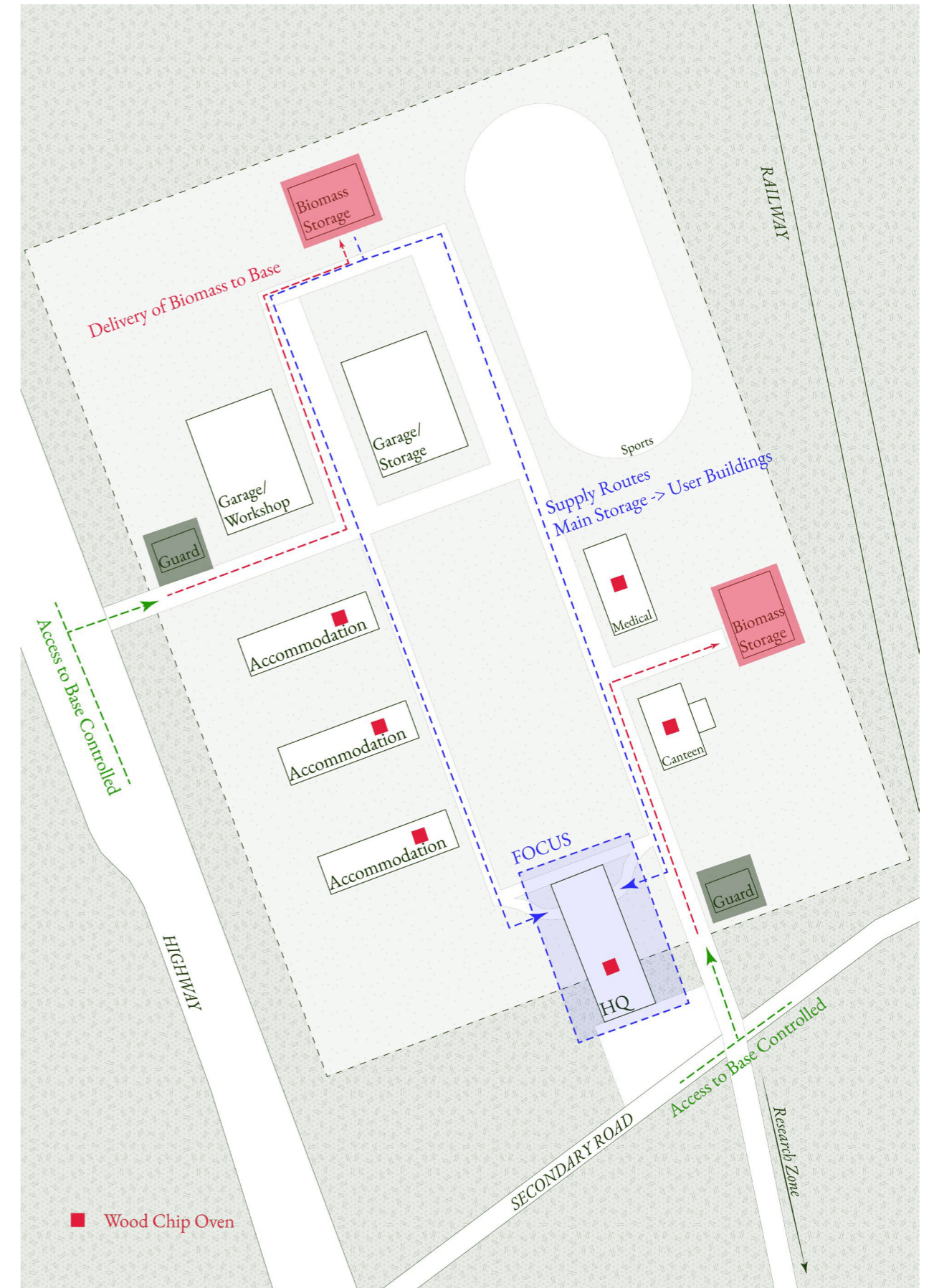
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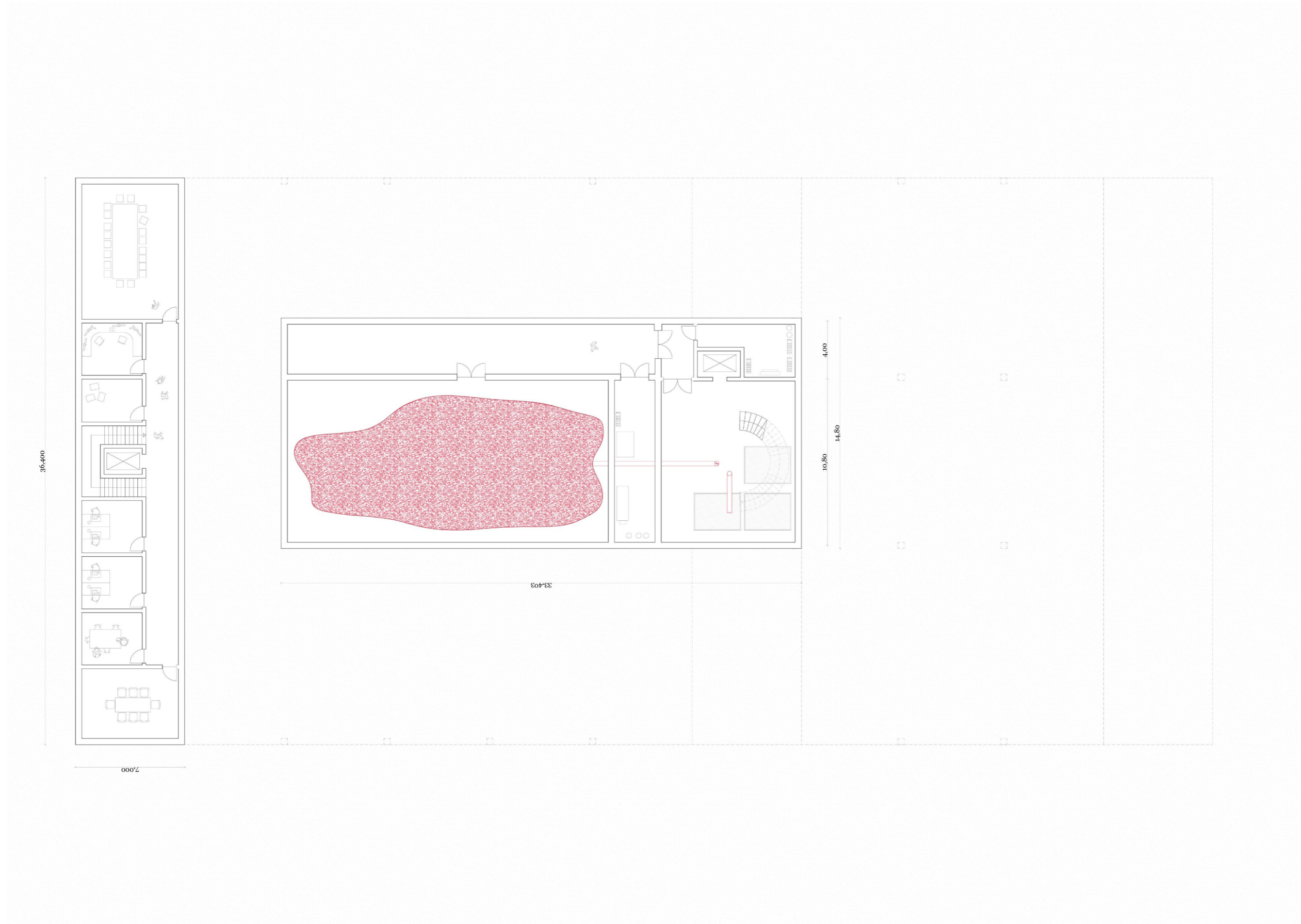
# Scale M: Military Base

Site Logic, 1:500



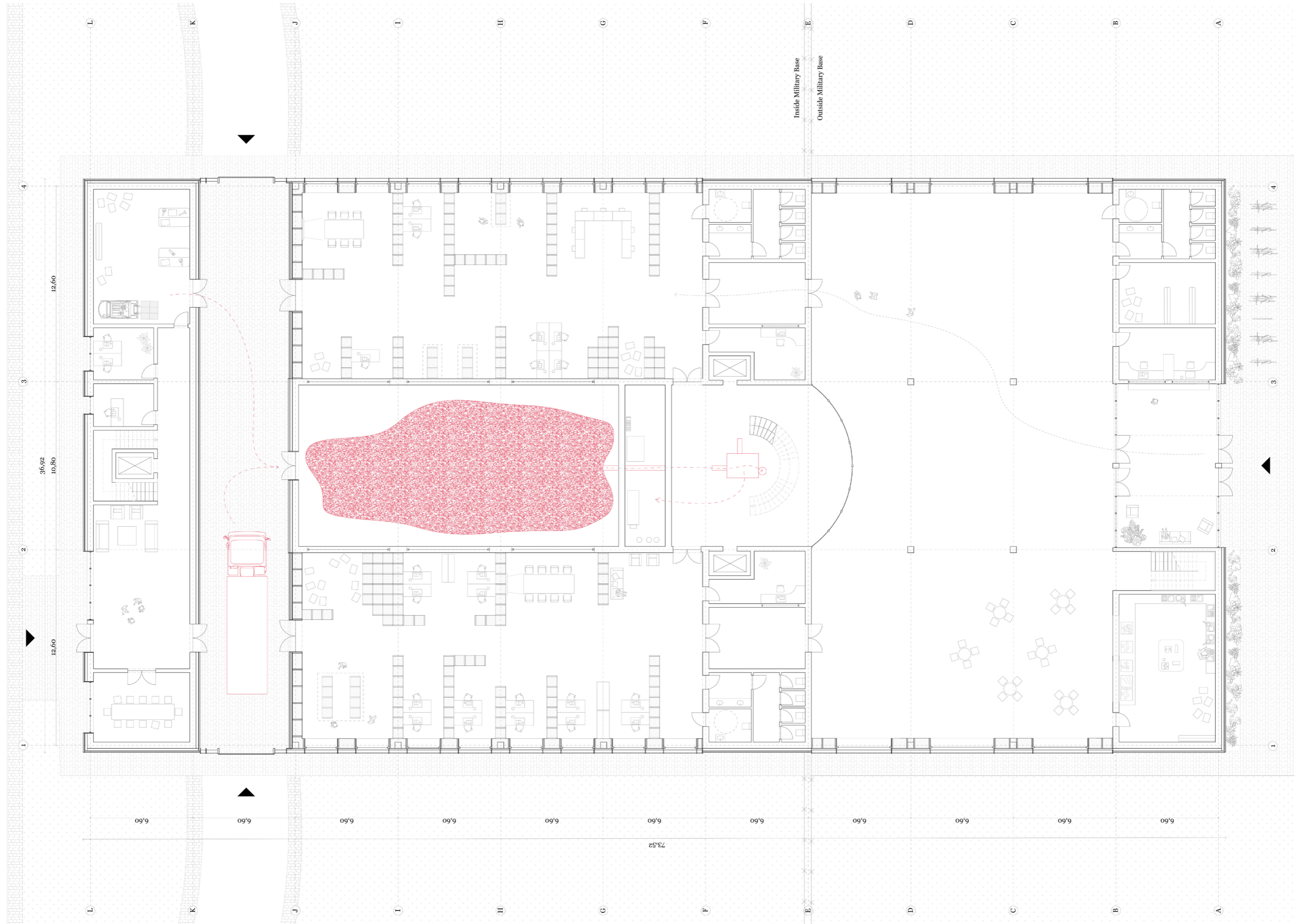
# Scale S: Headquarters Building

Basement, 1:100



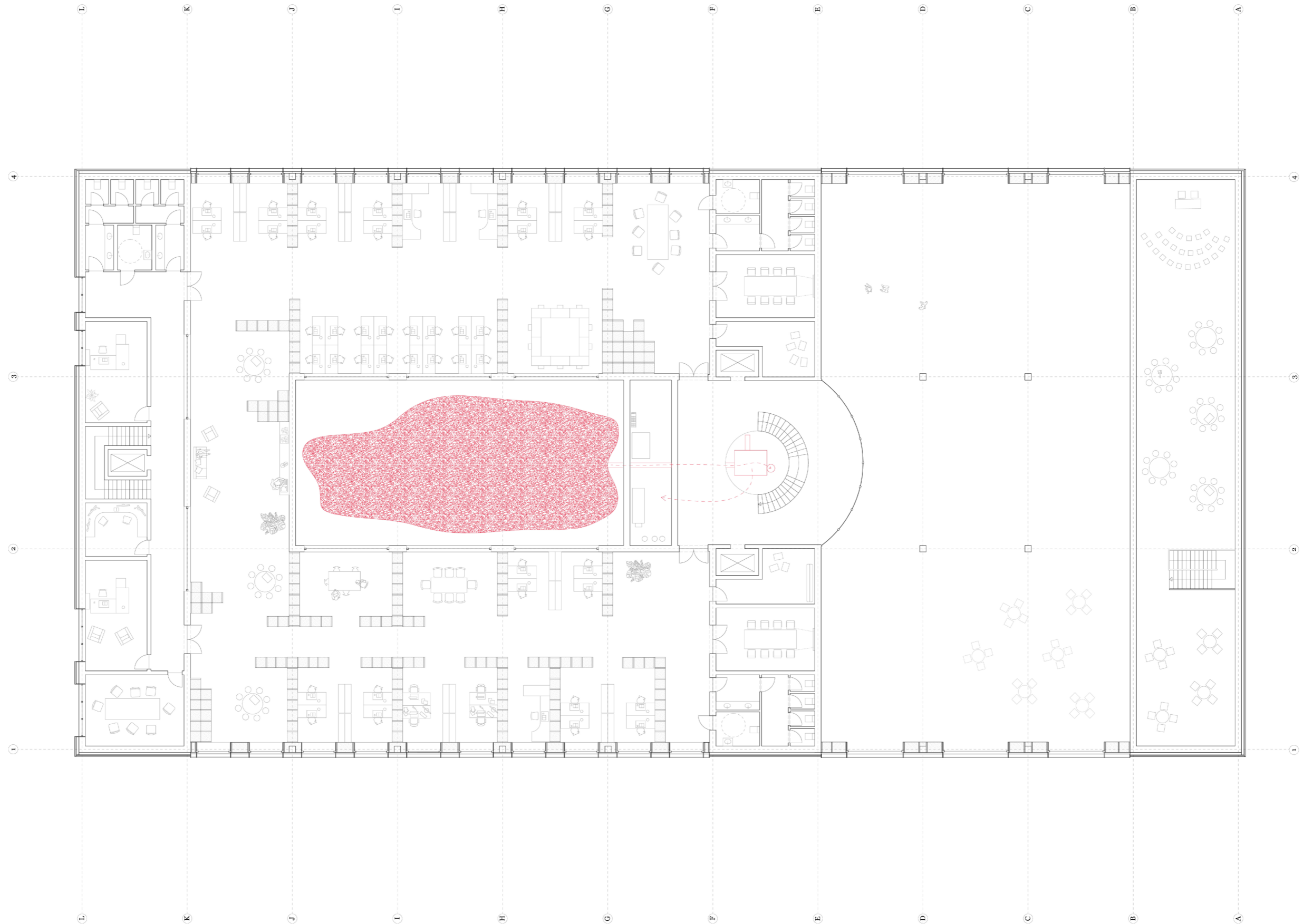
# Scale S: Headquarters Building

Ground Floor, 1:100

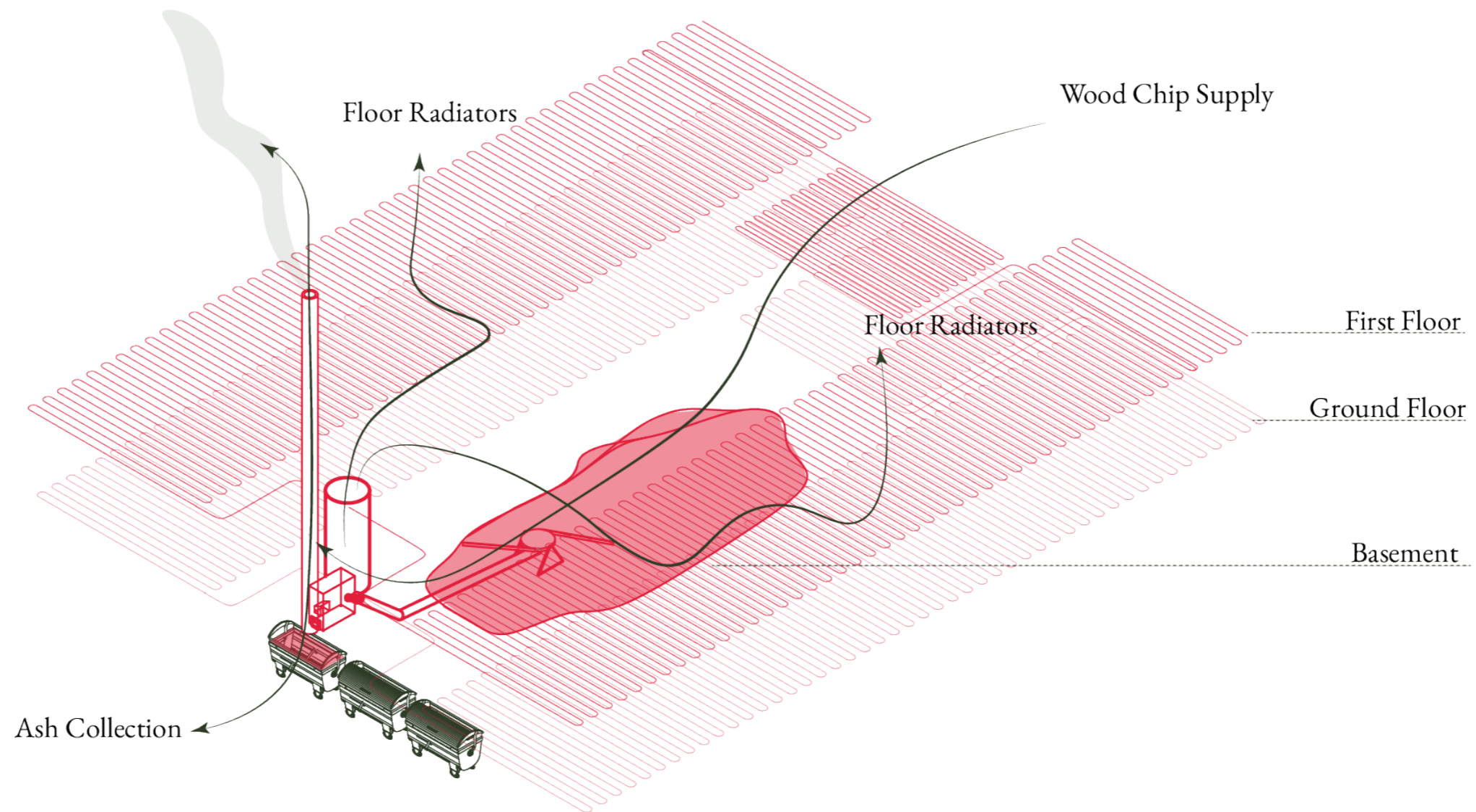


# Scale S: Headquarters Building

First Floor, 1:100

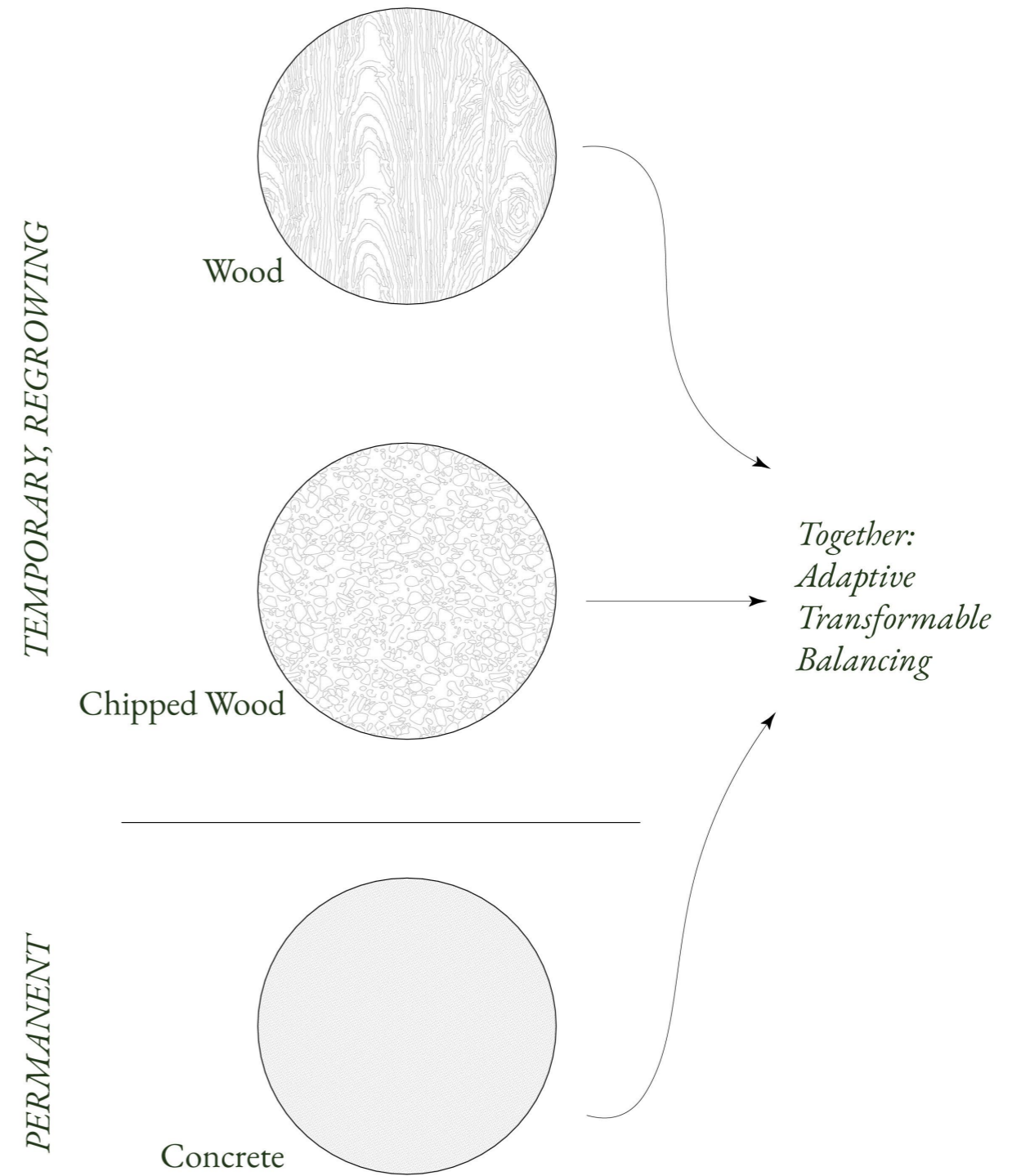


# Scale S: Headquarters Building



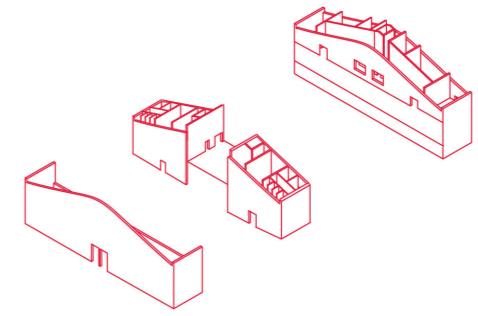
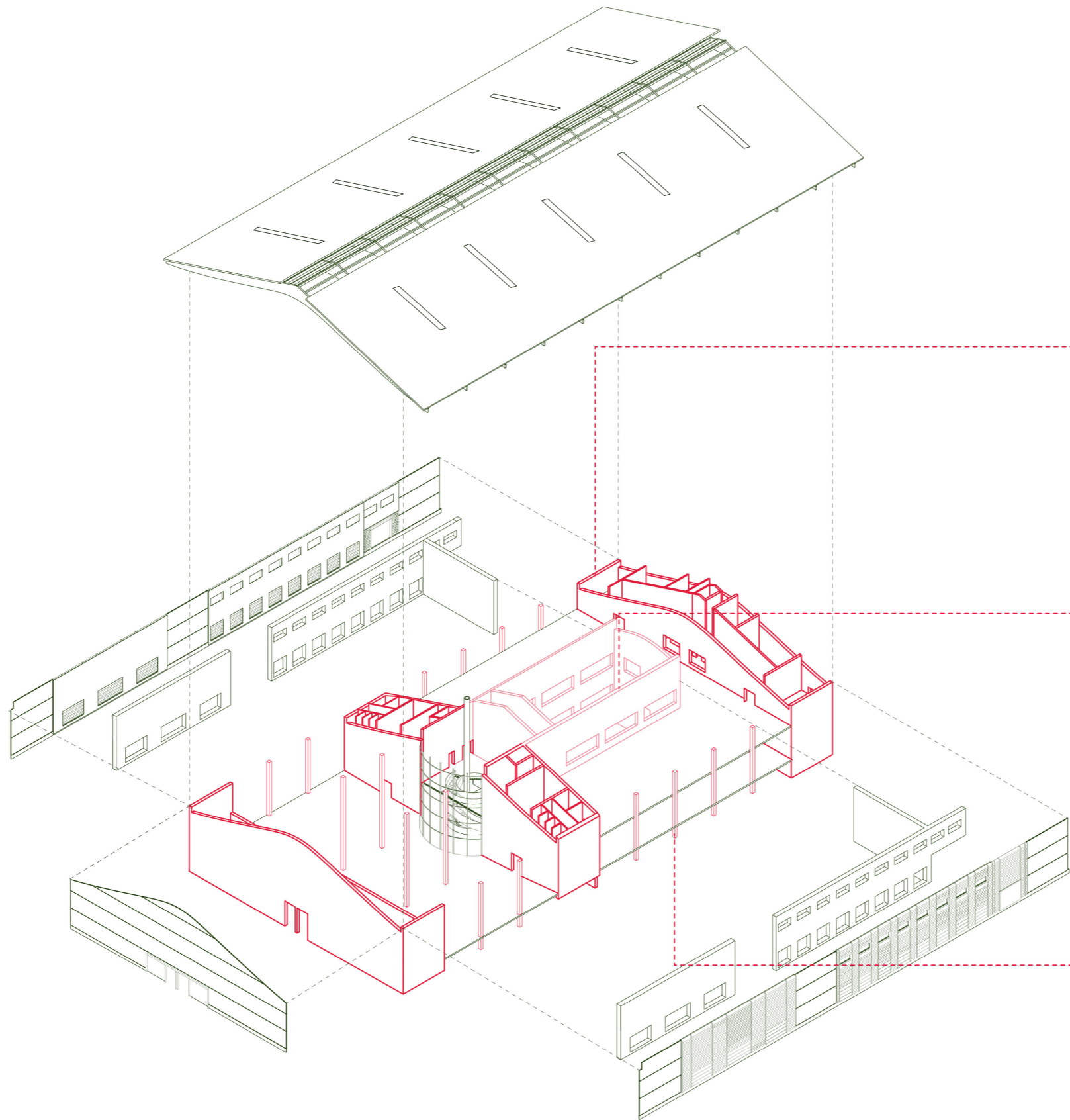
# Scale S: Headquarters Building

Structural Hierarchy and Material Choice

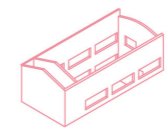


# Scale S: Headquarters Building

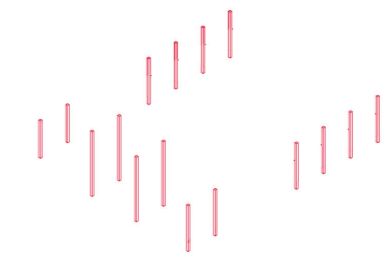
## Structural Hierarchy and Material Choice



*Filter & Control*  
three linear cores facilitate checkpoints for controlled access and serve as anchors to fulfill technical and sanitary demands.



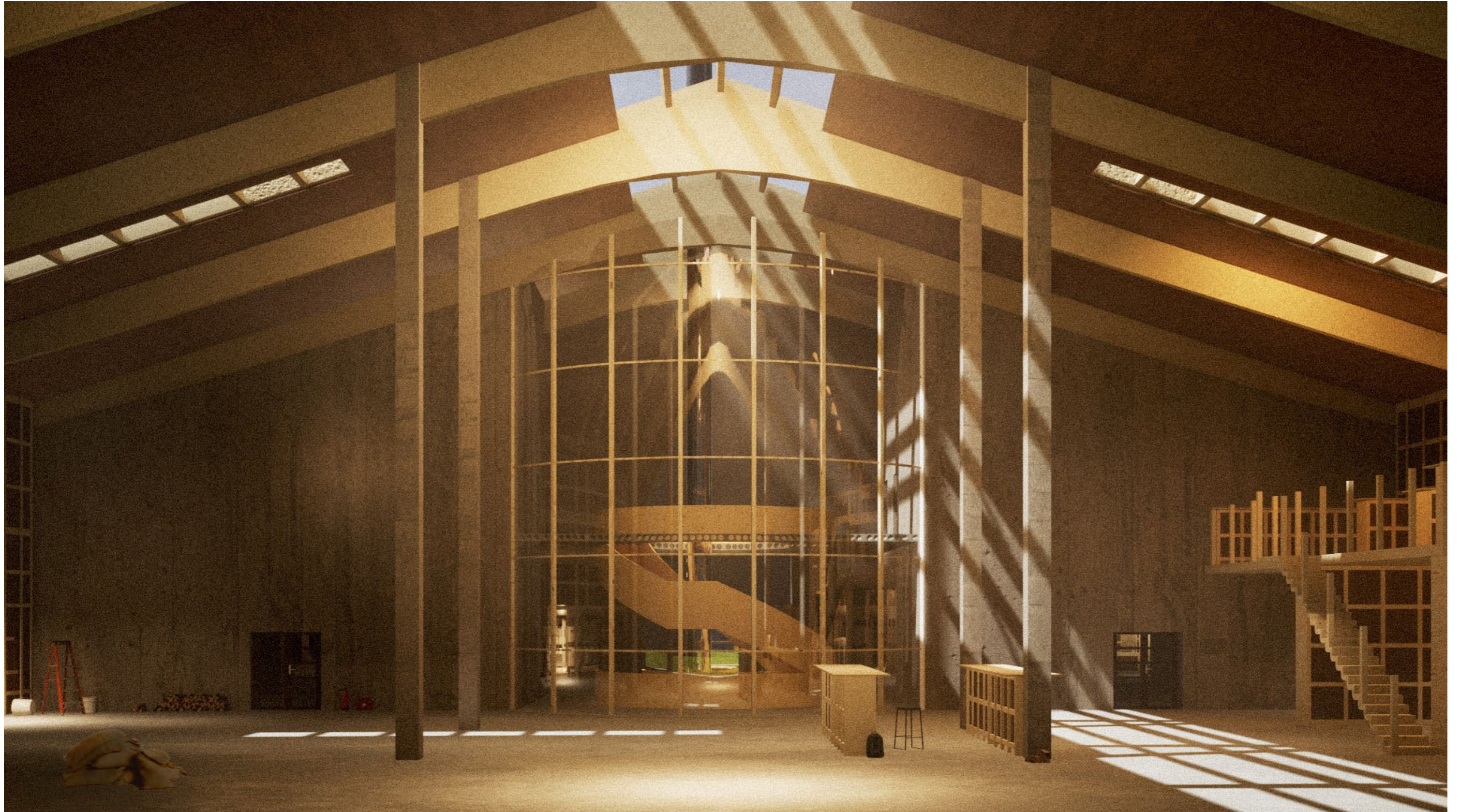
*Storage & Safety*  
an atrium exposes the main biomass storage, creating both proximity and distance to provide a safe environment that revolves around critical infrastructure.



*Flexibility & Openness*  
While relying on the same material structurally, it is reduced to a minimum, focussing on biomass-based infills that translate critical infrastructure into the space as a work environment.

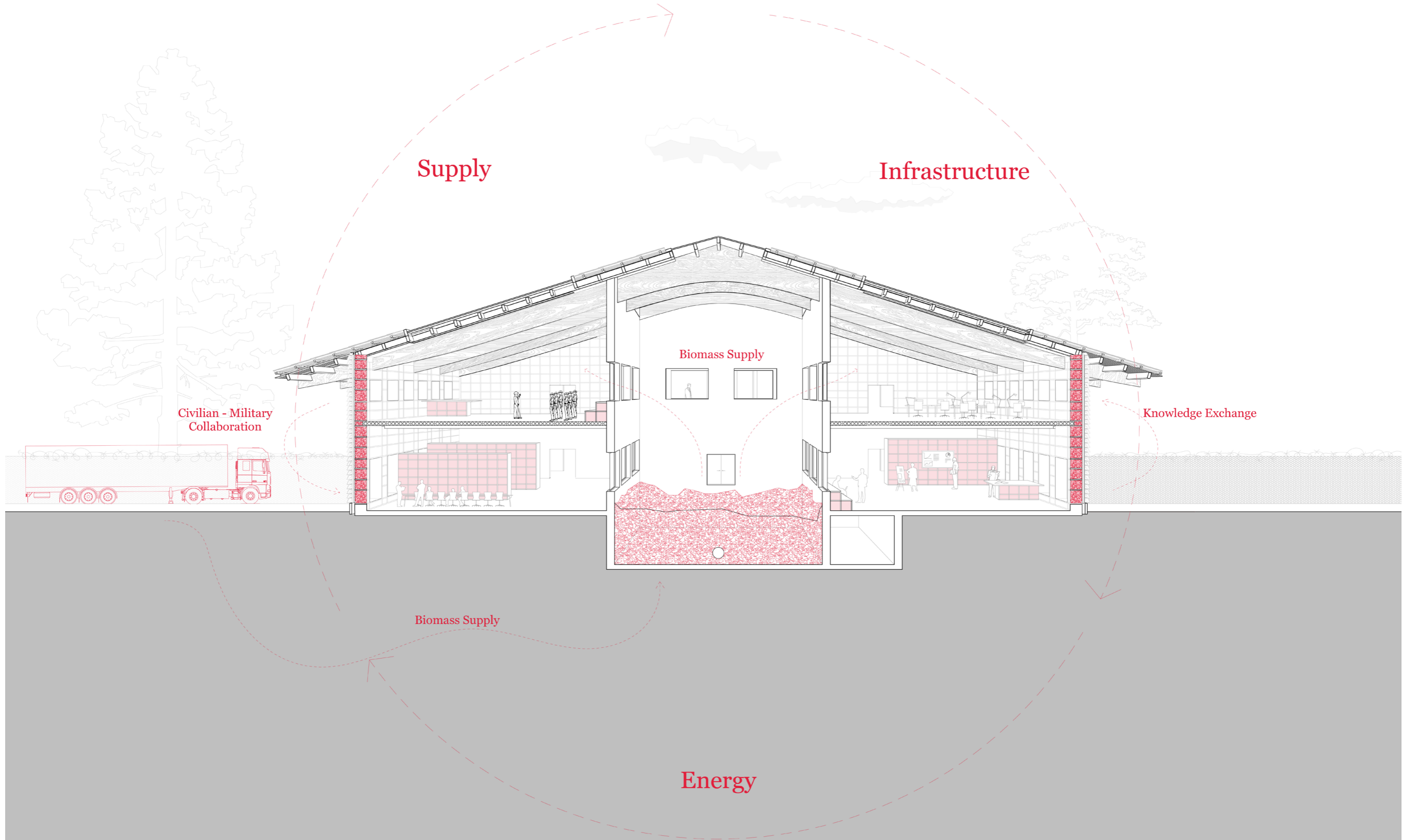
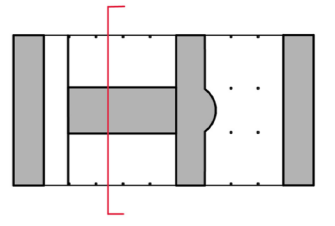
# Scale S: Headquarters Building

Foyer: Civil-Military Interface



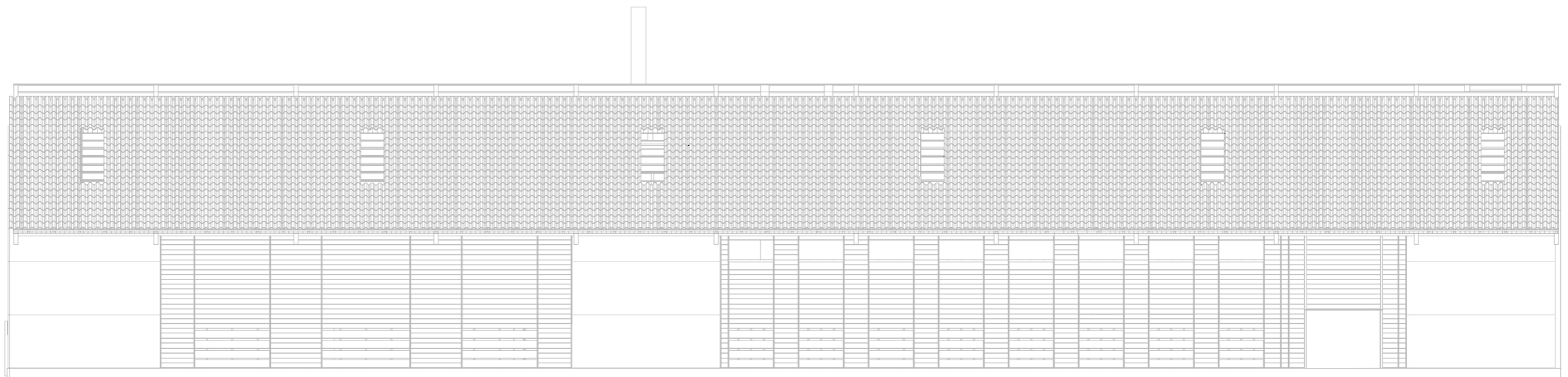
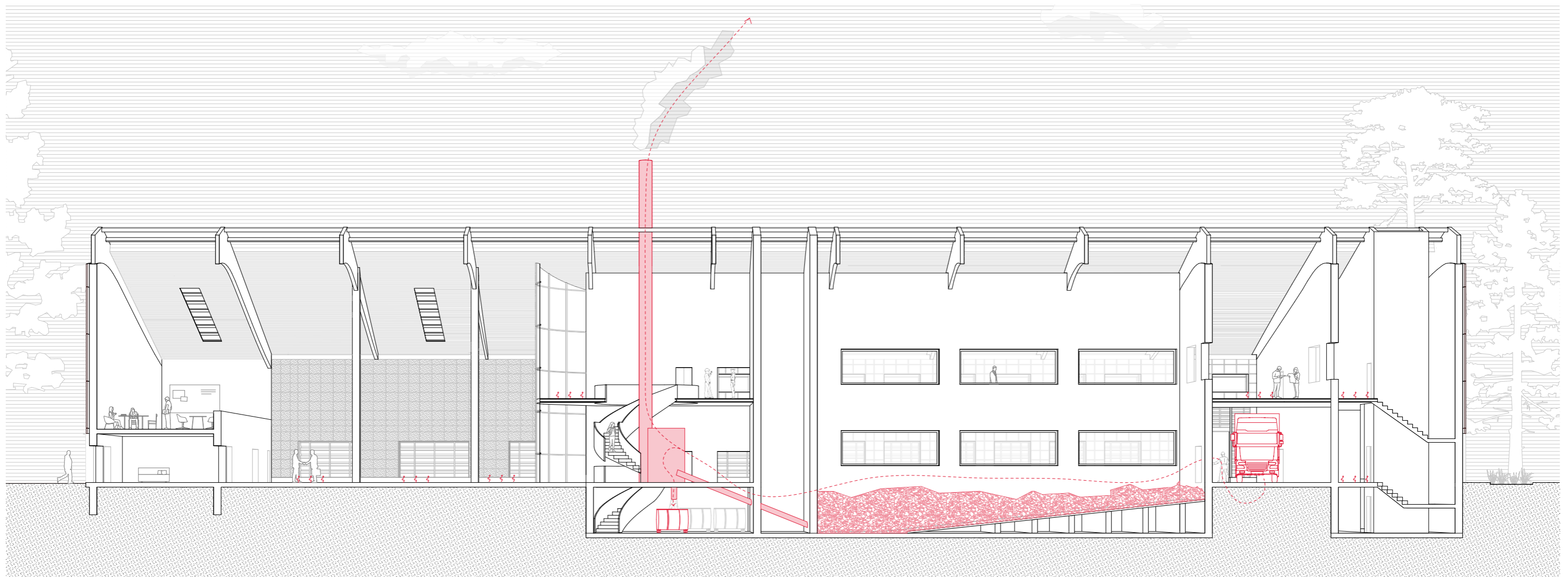
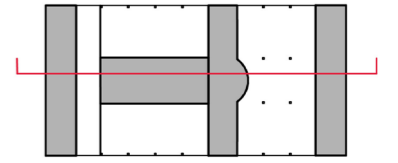
# Scale S: Headquarters Building

Section, 1:100



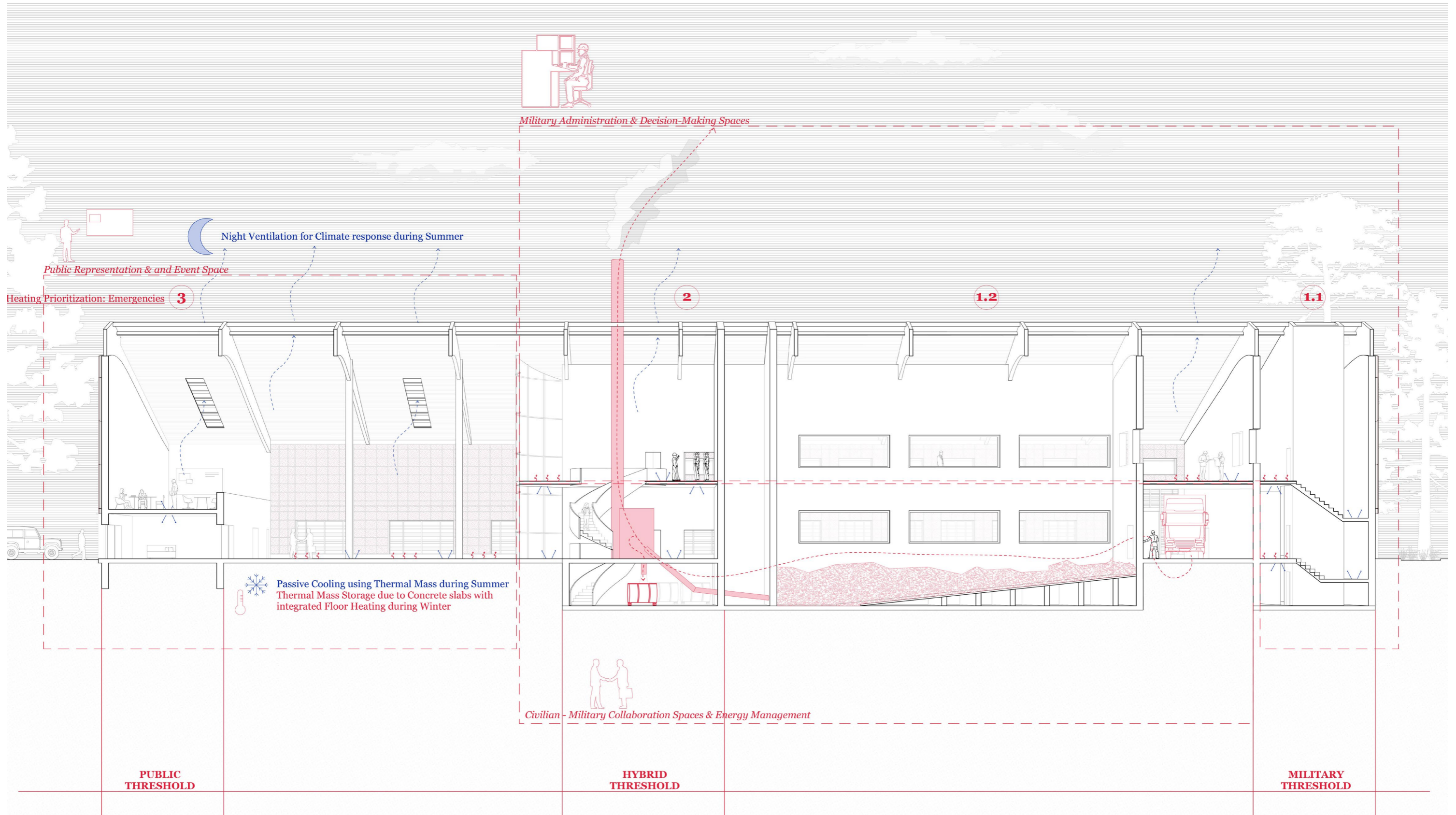
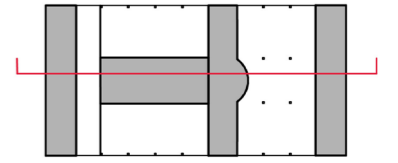
# Scale S: Headquarters Building

Section, 1:100



# Scale S: Headquarters Building

Section Interior Climate and Use, 1:100



# Scale S: Headquarters Building

Logistical Access for Biomass

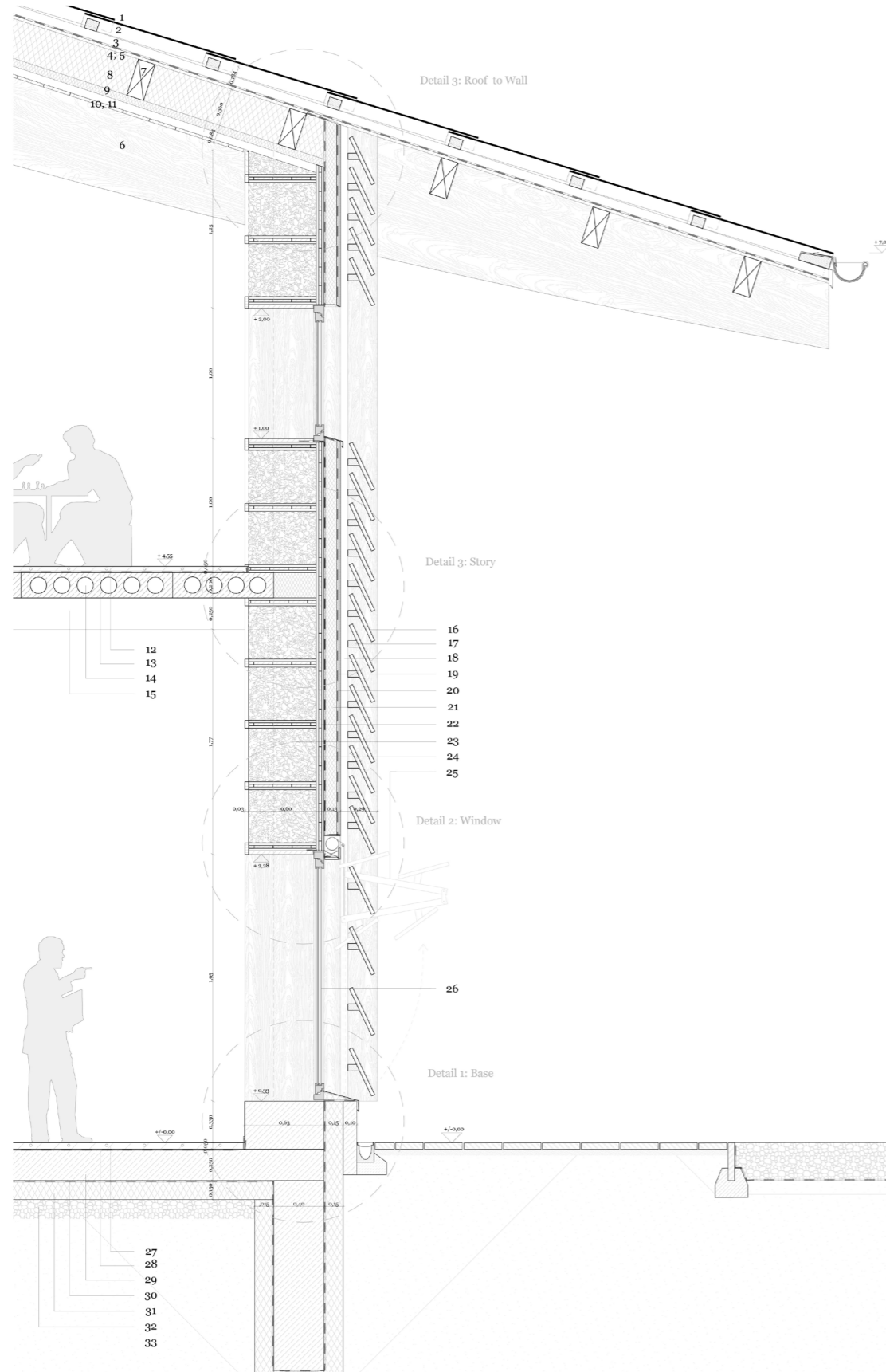


# A Structural Response

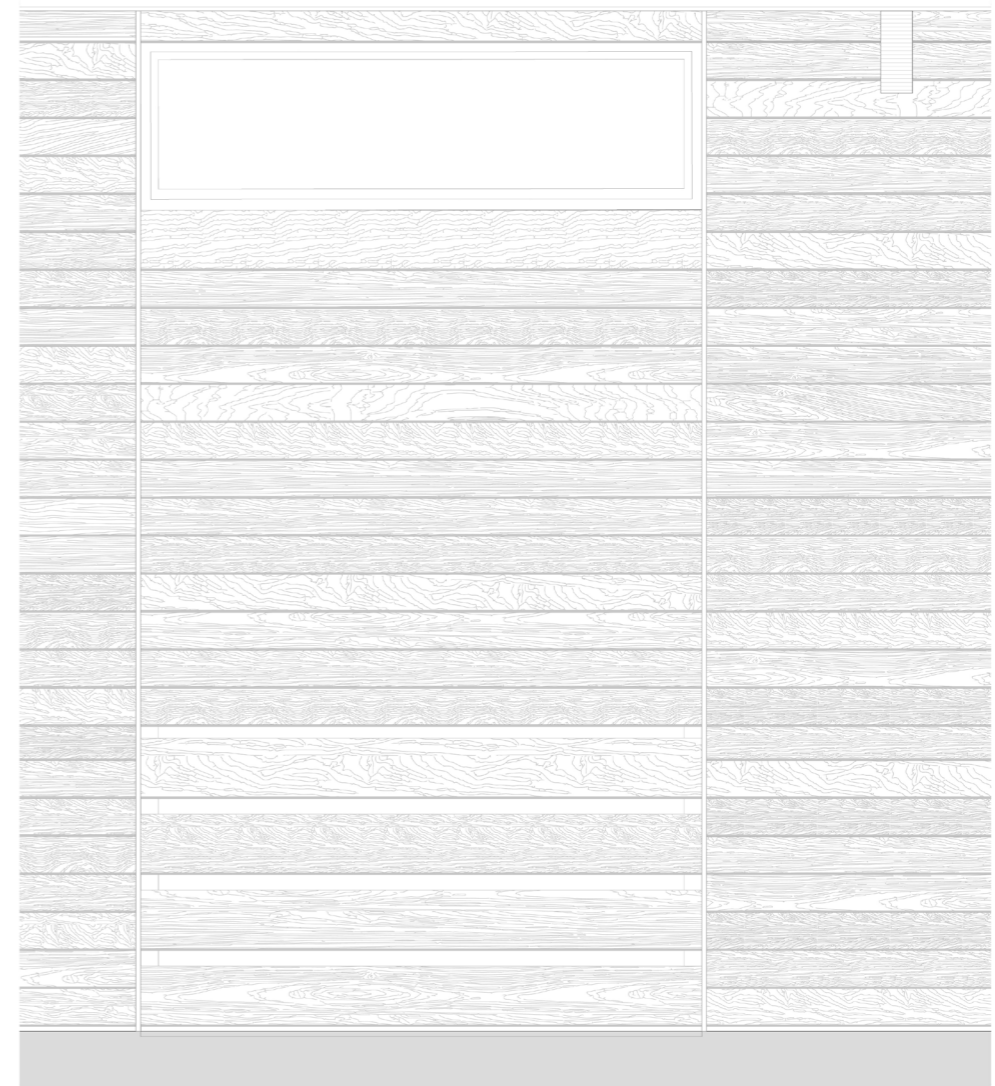


# Scale XS: Structure

## Facade Section 1:20

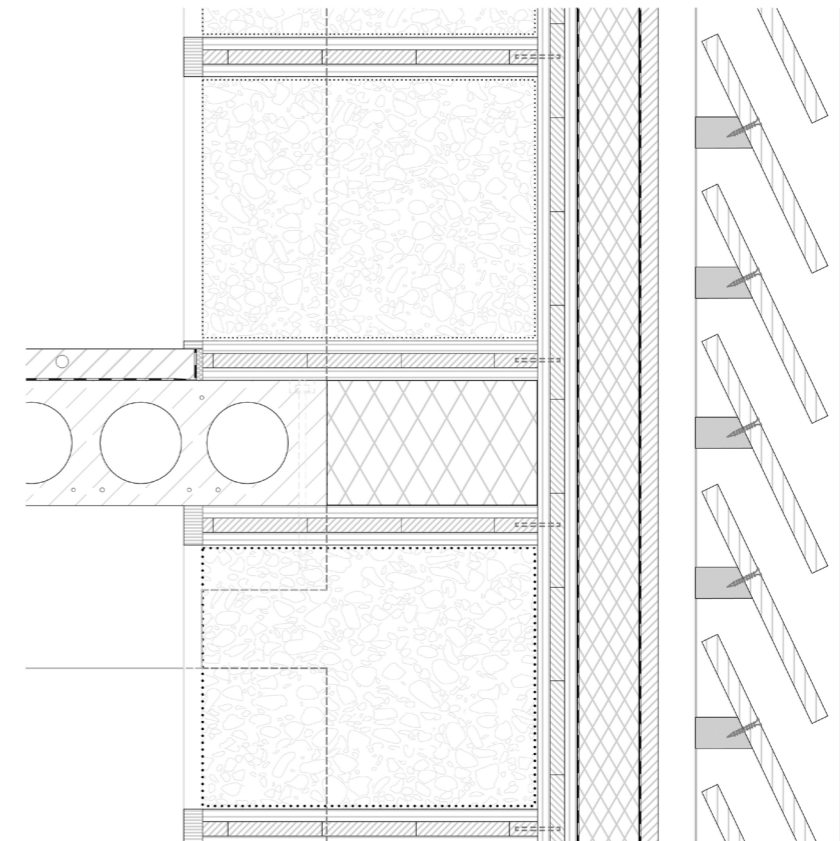
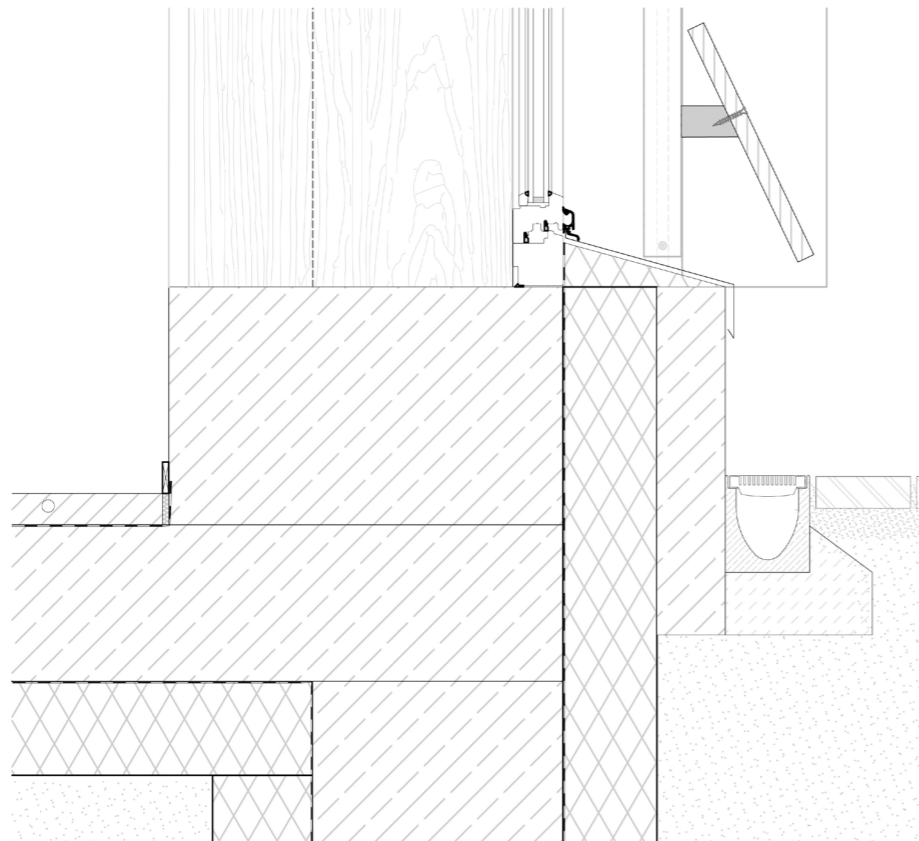
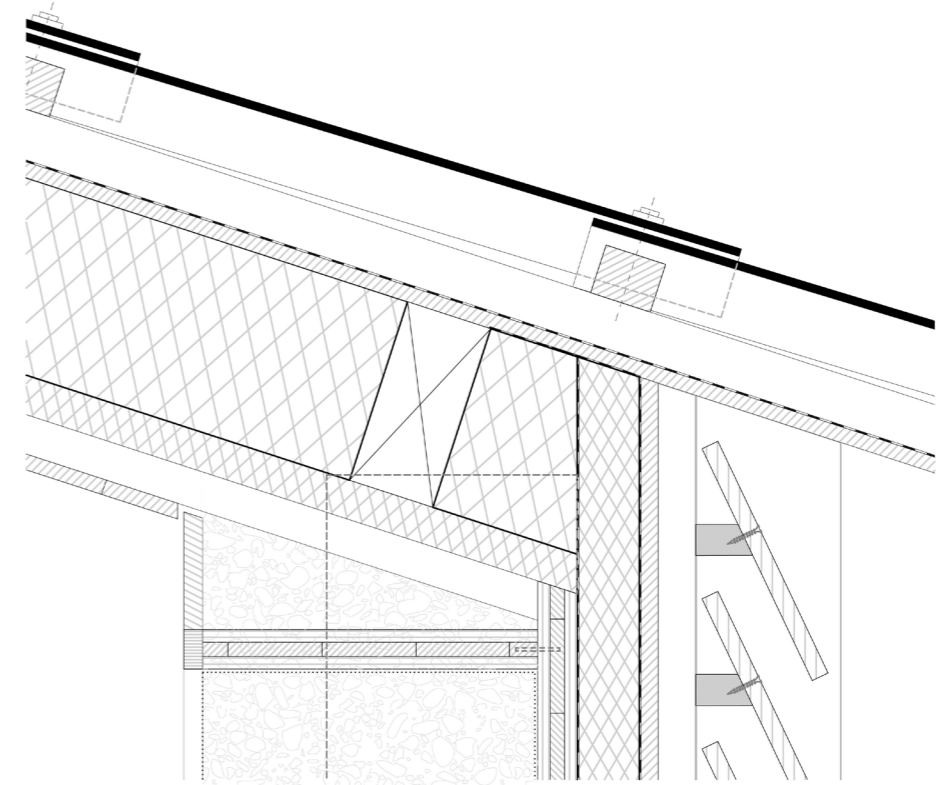
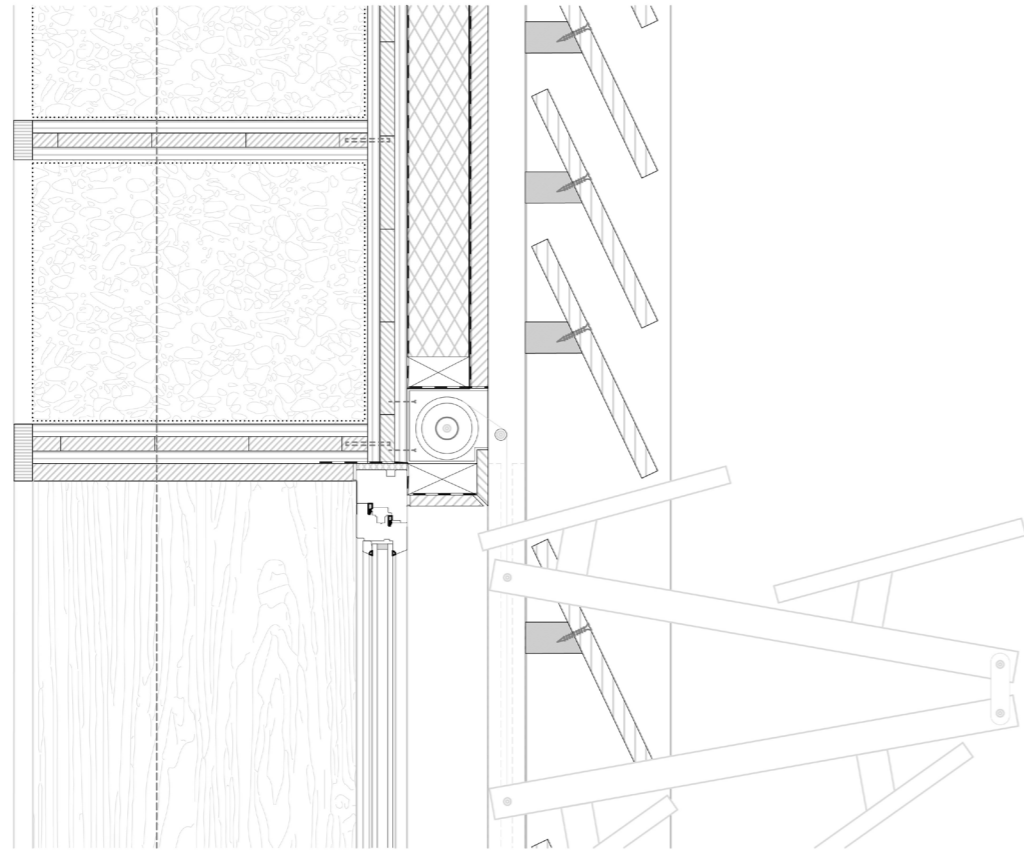


- Roof**
- 1 Corrugated fibre cement sheet
- 2 Battens, pine, 80 mm x 60 mm
- 3 Counter-battens, pine, 80 mm x 60 mm
- 4 Vapor barrier
- 5 Sheating, pine, 24 mm
- 6 Glue-laminated timber beam, pine, 200 mm
- 7 Purlin, pine, 140 mm x 300 mm
- 8 Insulation between rafters, wood fiber, 300 mm
- 9 Counter-battens, pine with under-rafter insulation, wood fiber, 80 mm x 60 mm
- 10 Interior cladding, pine, 30 mm
  
- Storey**
- 12 Screed with underfloor heating, 50 mm
- 13 Separation layer
- 14 Prestressed voided slab, reinforced concrete, precast, 200 mm
- 15 Beam on corbel, 250 mm x 400 mm, precast, reinforced concrete
  
- Wall**
- 16 Sheating, pine, 20 mm
- 17 Counter-battens, pine, 60 mm x 60 mm
- 18 Battens, pine 60 mm x 60 mm
- 19 Cladding, pine, 20 mm
- 20 Vapor Barrier
- 21 Insulation, wood fibre, 100 mm
- 22 glue-laminated timber shelving, pine, 63 mm
- 23 Loose-fill insulation in a wire-mesh box, wood-chip, 600 mm
- 24 Precast reinforced concrete column 400 mm x 400 mm
- 25 Vertical folding shading system
- 26 Window, double-glazed
  
- Floor**
- 27 Screed with underfloor heating 50 mm
- 28 Separation Layer
- 29 Reinforced concrete slab, precast, 250 mm
- 30 Vapor barrier
- 31 Perimeter insulation, XPS, 150 mm
- 32 Gravel
- 33 Soil



# Scale XS: Structure

Details 1:5

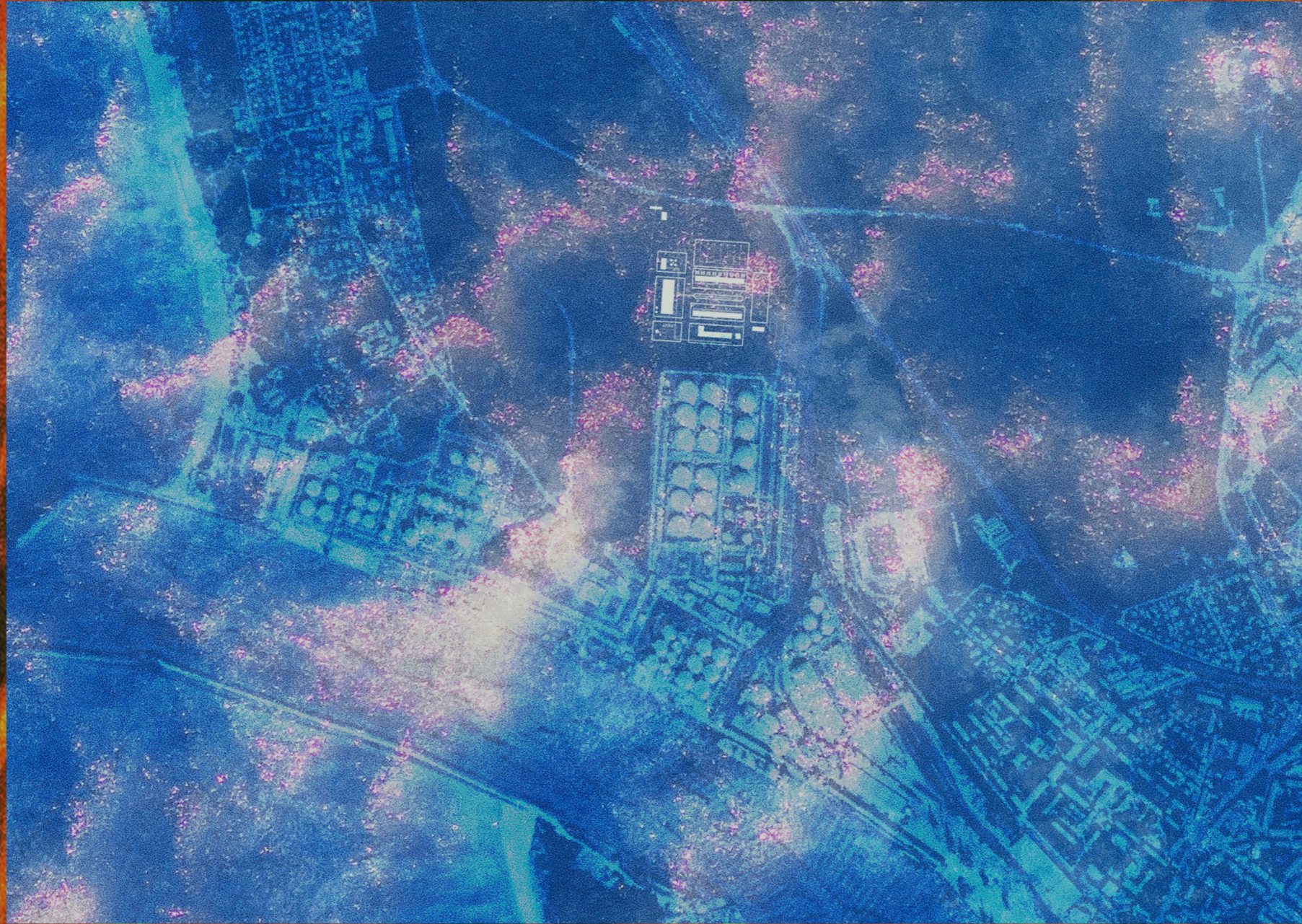


# Scale XS: Structure

Interior exposed Wood-Chip Insulation

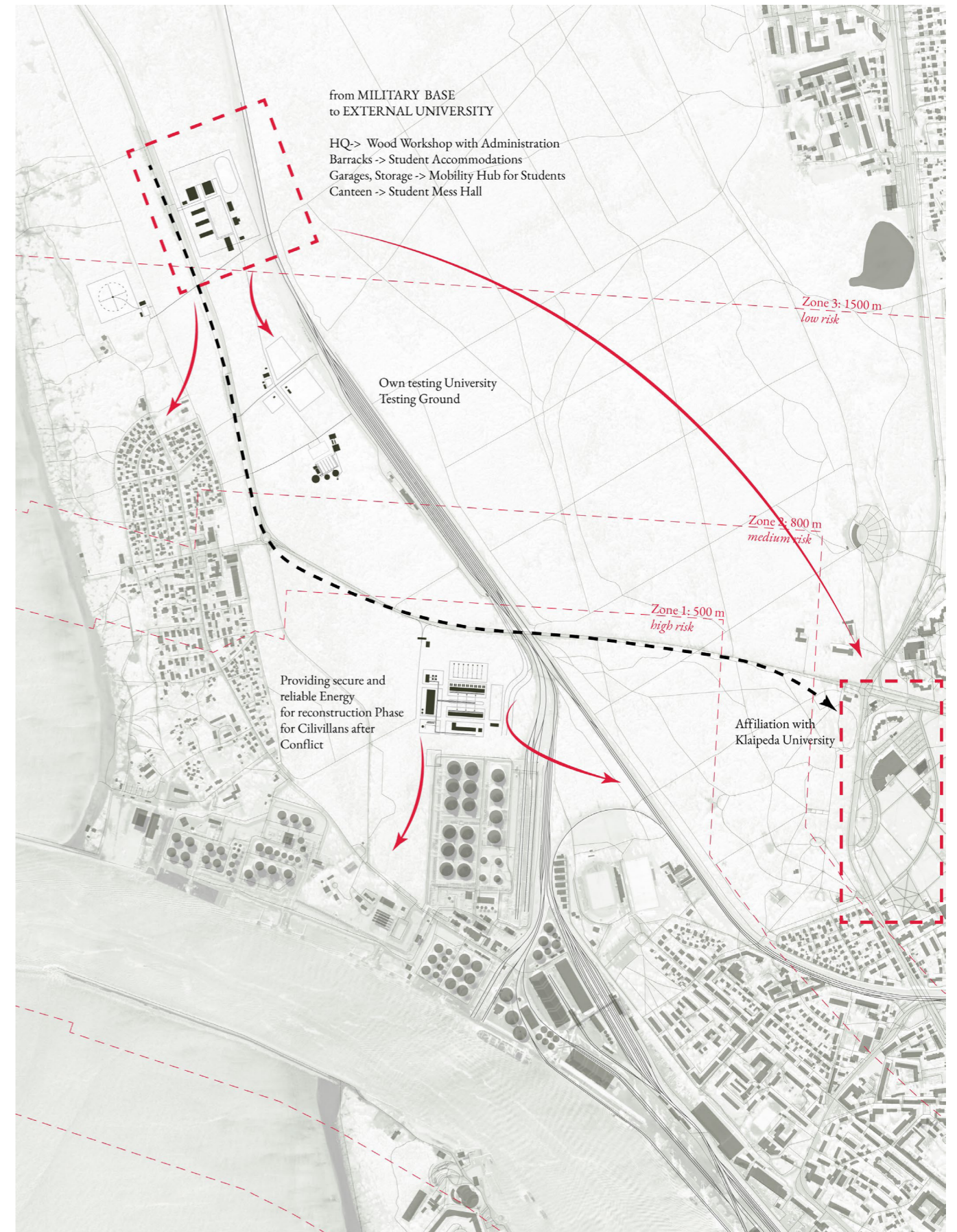
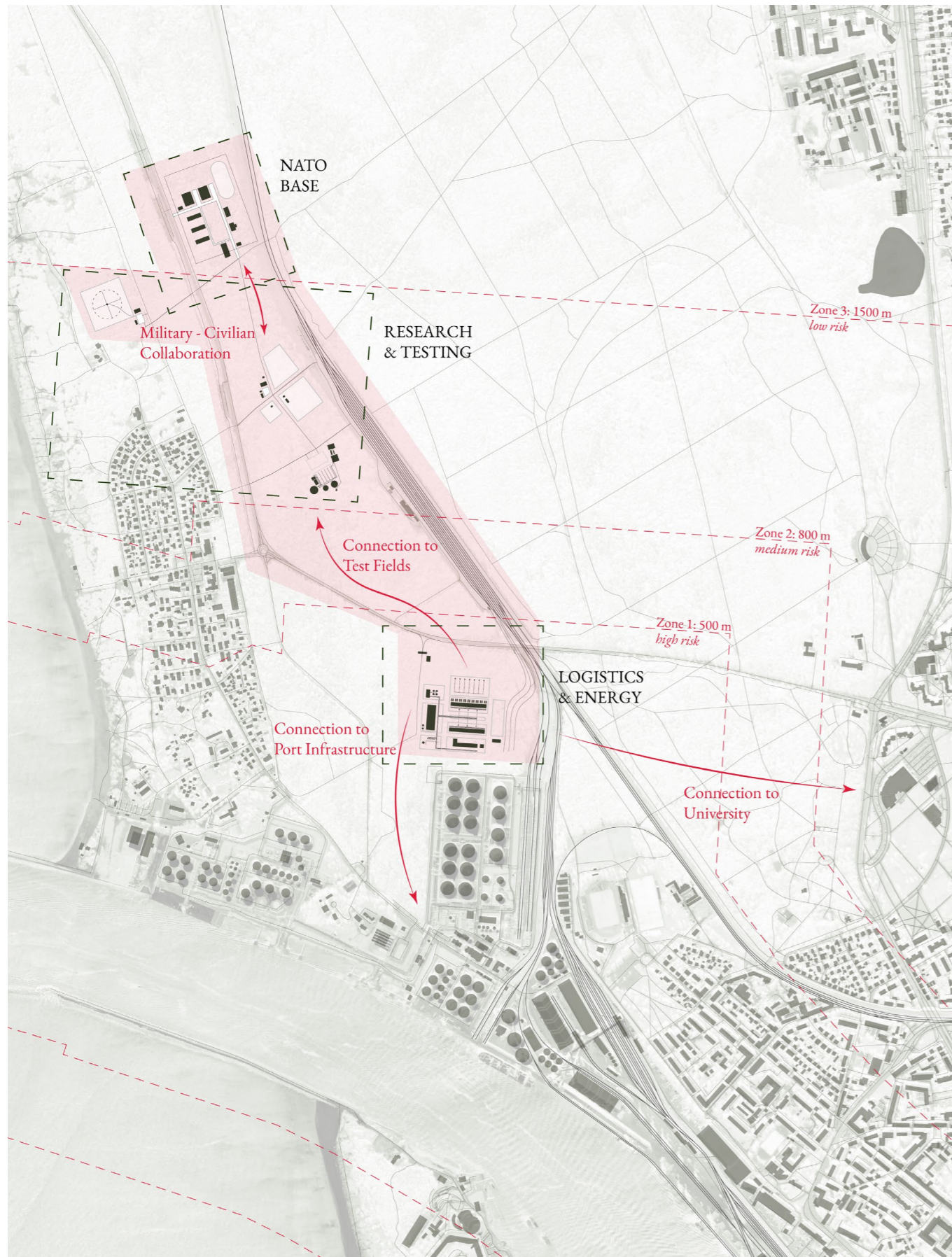


# Adaptive Permanence



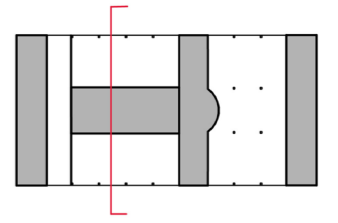
# Outlook

## Phase Transitions: Scale L/M (urban)

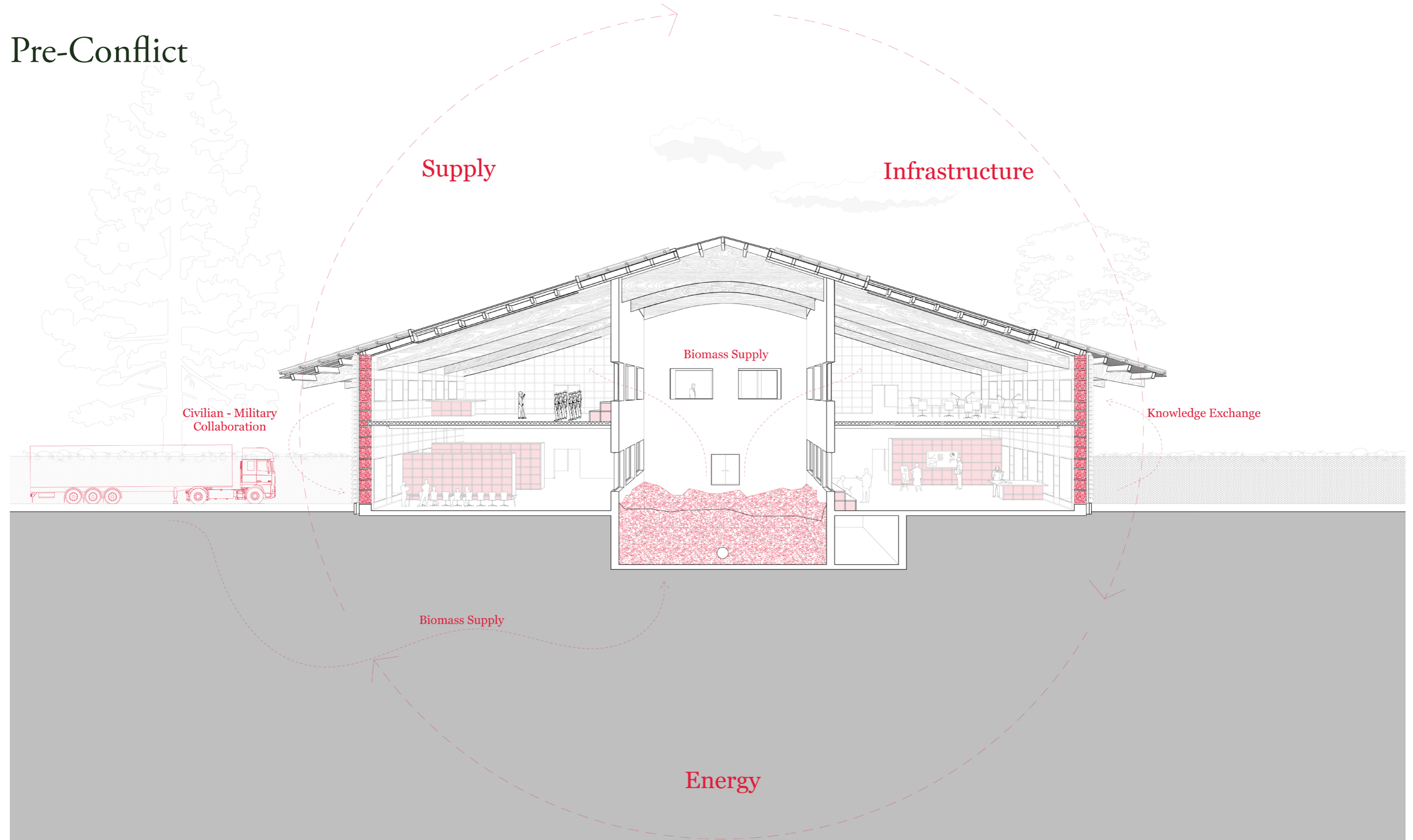


# Outlook

Phase Transitions: Scale S (architectural)

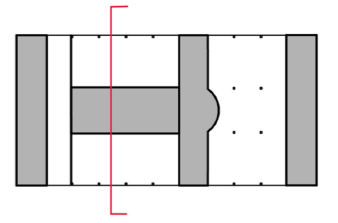


Pre-Conflict

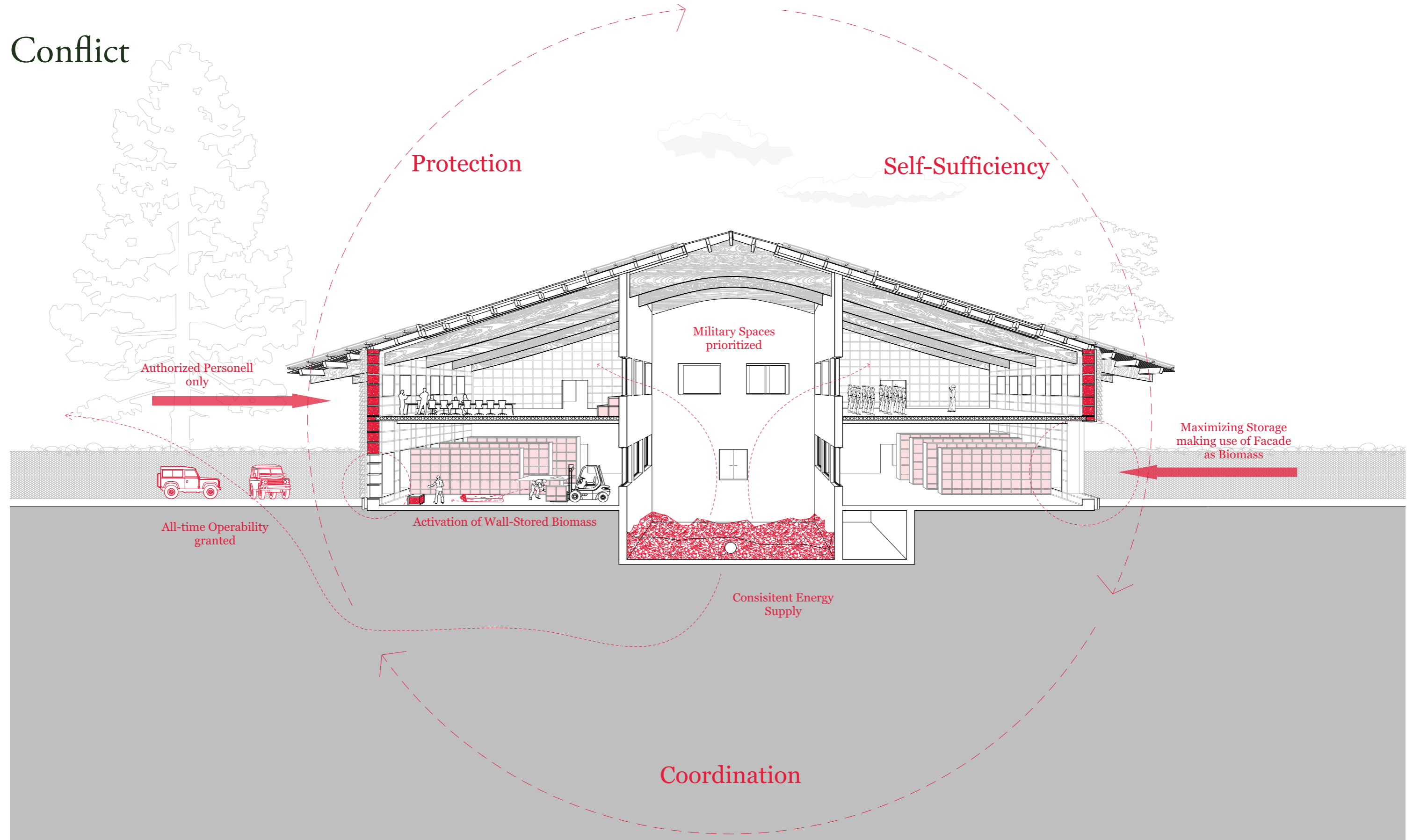


# Outlook

Phase Transitions: Scale S (architectural)

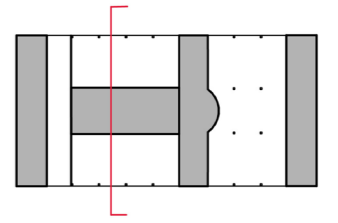


Conflict

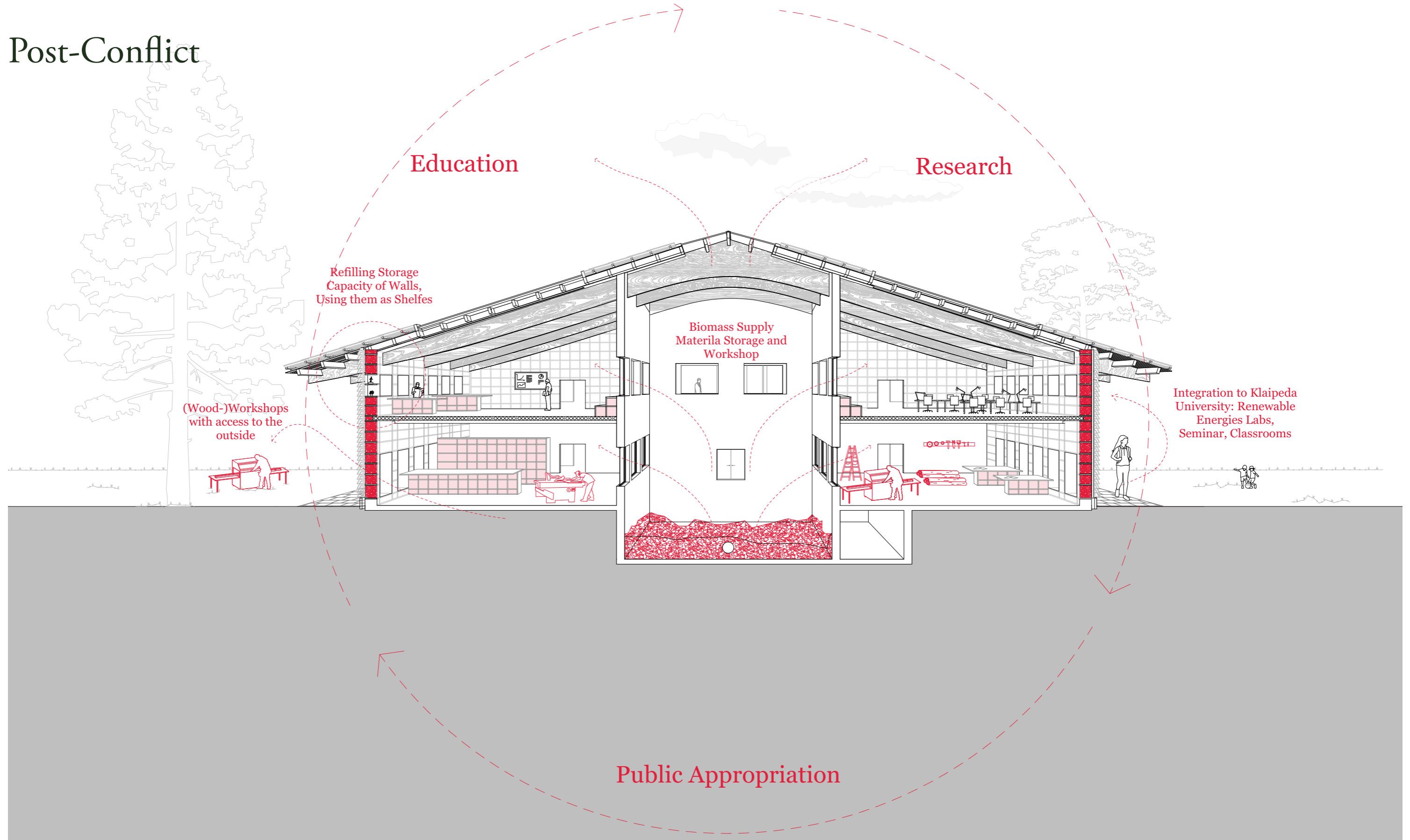


# Outlook

Phase Transitions: Scale S (architectural)



Post-Conflict



# Adaptive Permanence:

A Structural Response to Energetic Vulnerability.

