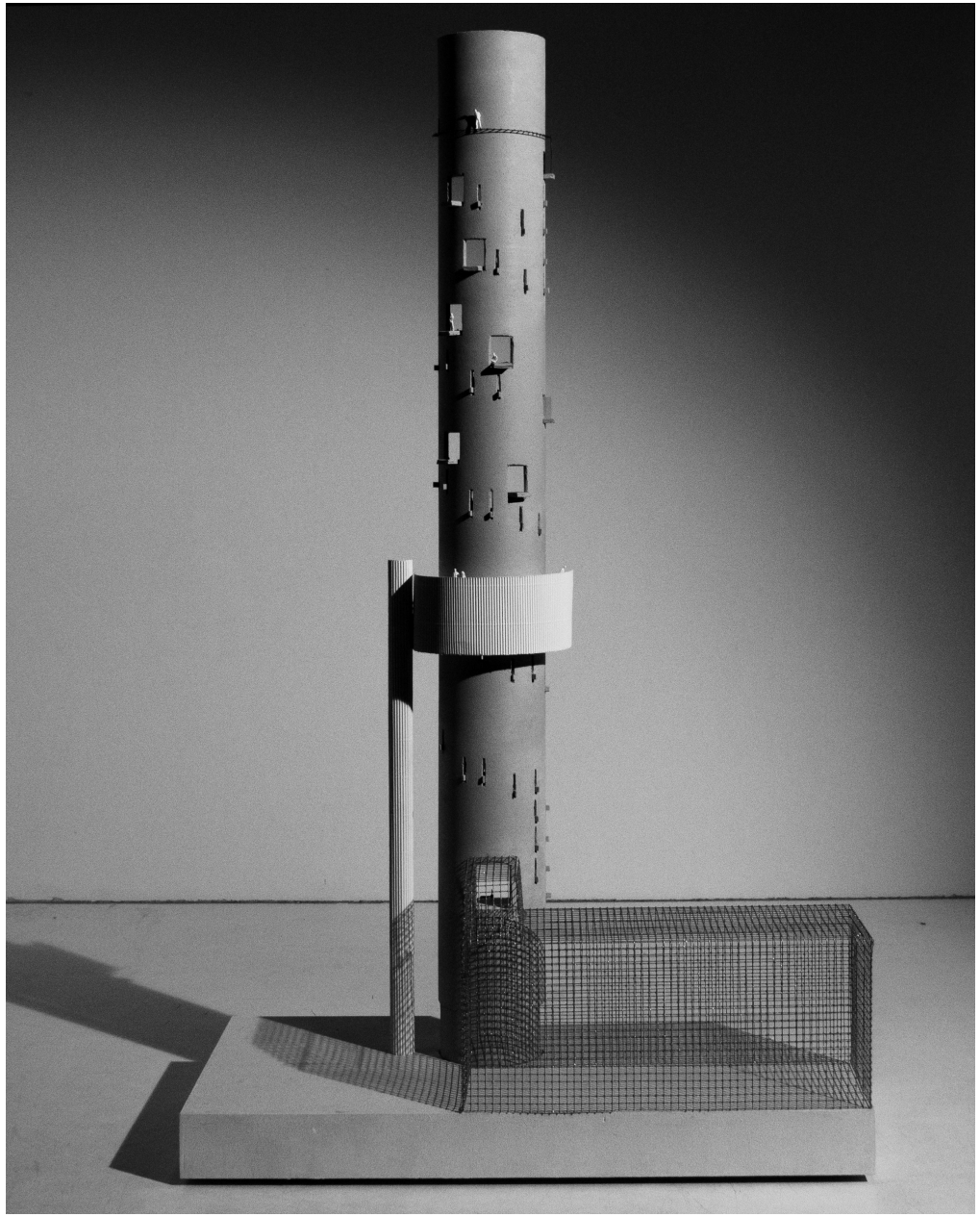
Zero Waste to Energy



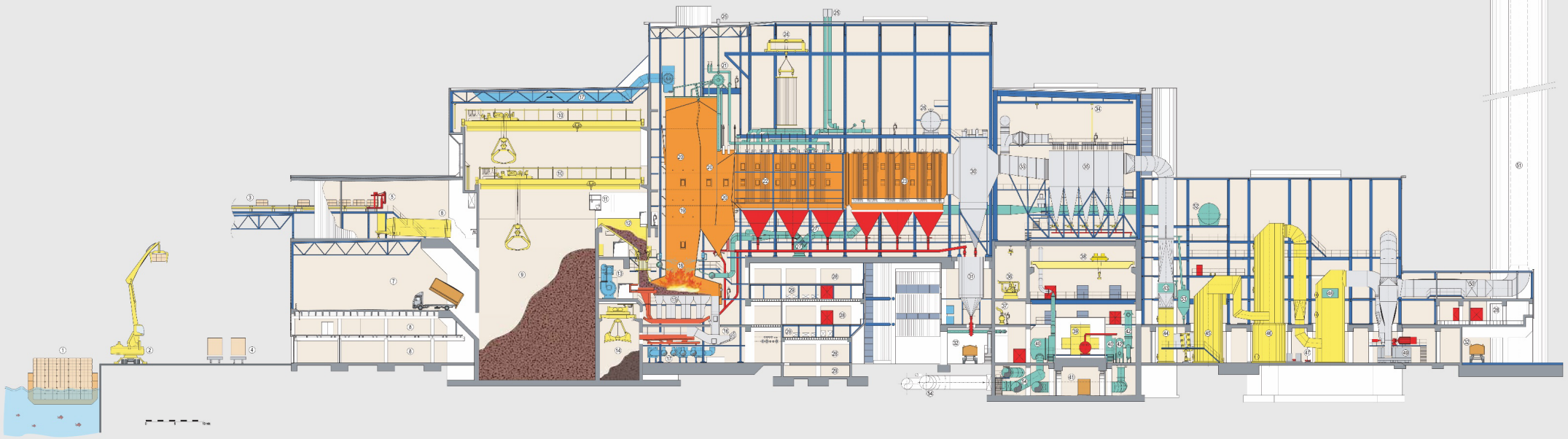
Kim Sinnige 4970519

19 January 2023

Photo: Mariette Carstens

HR Centrale

1 aanvoer per schip
2 mobiele kraan
3 transportband
4 aanvoer per trein
5 balen opener
6 homogenisatietrommel
7 storthal
8 magazijn
9 afvalbunker
10 afvalkraan
11 kraancabine
12 afvaltrechter
13 ventilator tertiaire lucht
14 slakkenbunker
15 rooster
16 primaire lucht
17 ontslakker
18 injectie reci-gas en tertiaire lucht
19 injectie ammonia t.b.v. $DeNO_x$
20 ketel, 1e, 2e en 3e trek
21 keteldrum
22 ketel sectie oververhitter
23 ketel sectie Economizer (ECO 1)
24 ketel servicekraan
25 veiligheidskleppen
26 ontgasser
27 ventilator reci-gas
28 instrumentatie, besturing en electrotechniek
29 kabelruimte
30 electrostatisch vliegasfilter
31 vliegas silo
32 verladstraat
33 injectie actief kool
34 servicekraan doekenfilter
35 doekenfilter
36 voedingswaterpomp
37 stoombalk
38 turbine servicekraan
39 turbogenerator
40 hoofd condensor
41 turbineolieruimte
42 herverhitter
43 Economizer 2
44 quench
45 HCl-wasser
46 SO_2-wasser
47 Economizer 3
48 fijnwasser
49 zuigtrek ventilator
50 emissie-meting
51 schoorsteen
52 noodwatertank
53 residu silo
54 hoofd koelwatertoevoer



Section: AEB

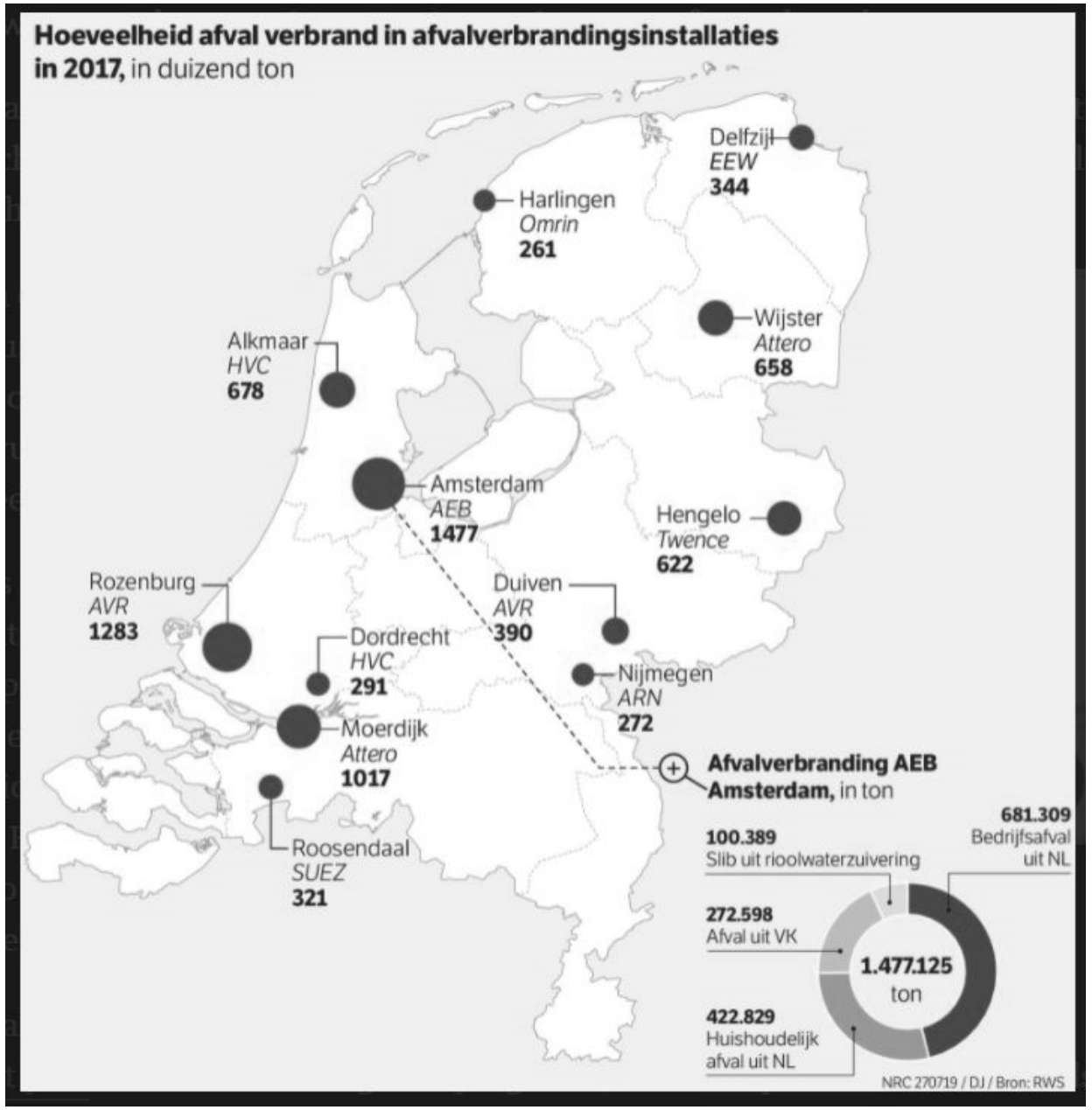
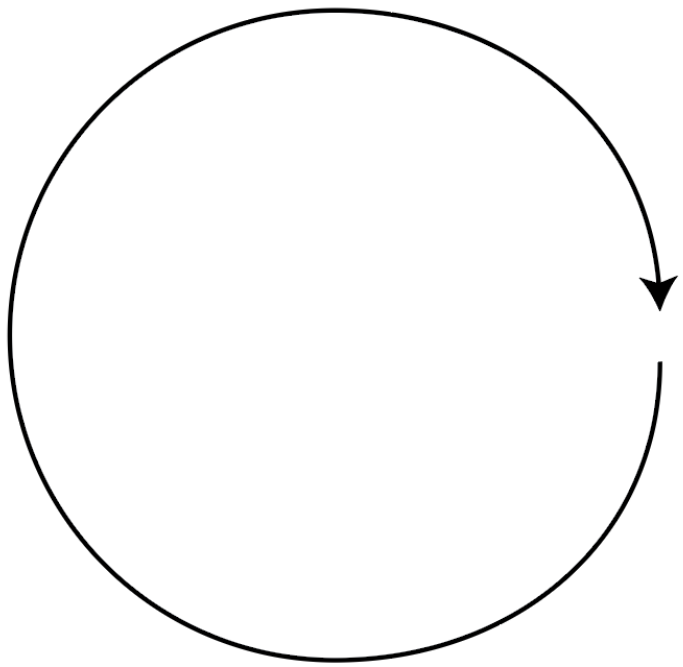

Hoeveelheid afval verbrand in afvalverbrandingsinstallaties in 2017, in duizend ton
Delfzijl
EEW
344
Harlingen
Omrin
261
Wijster
Attero
658
Alkmaar
HVC
678
Amsterdam
AEB
1477
Hengelo
Twence
622
Rozenburg
AVR
1283
Duiven
AVR
390
Dordrecht
HVC
291
Nijmegen
ARN
272
Moerdijk
Attero
1017
Roosendaal
SUEZ
321
Afvalverbranding AEB Amsterdam, in ton
100.389
Slib uit rioolwaterzuivering
681.309
Bedrijfsafval uit NL
272.598
Afval uit VK
1.477.125
ton
422.829
Huishoudelijk afval uit NL
NRC 270719 / DJ / Bron: RWS

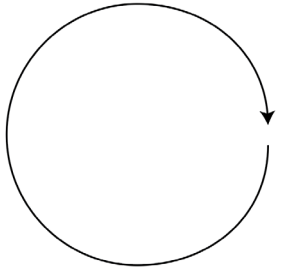
Diagram: NRC

Photo: NRC

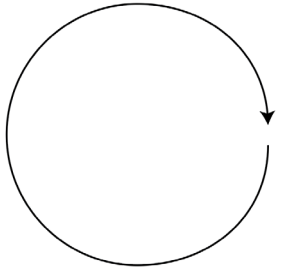
Photo: NRC

TAKE – MAKE – WASTE



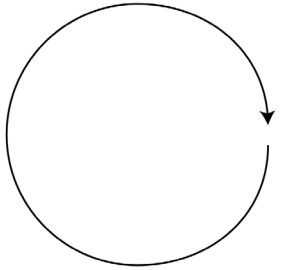


Eliminating waste



Eliminating waste

Keeping materials in circulation

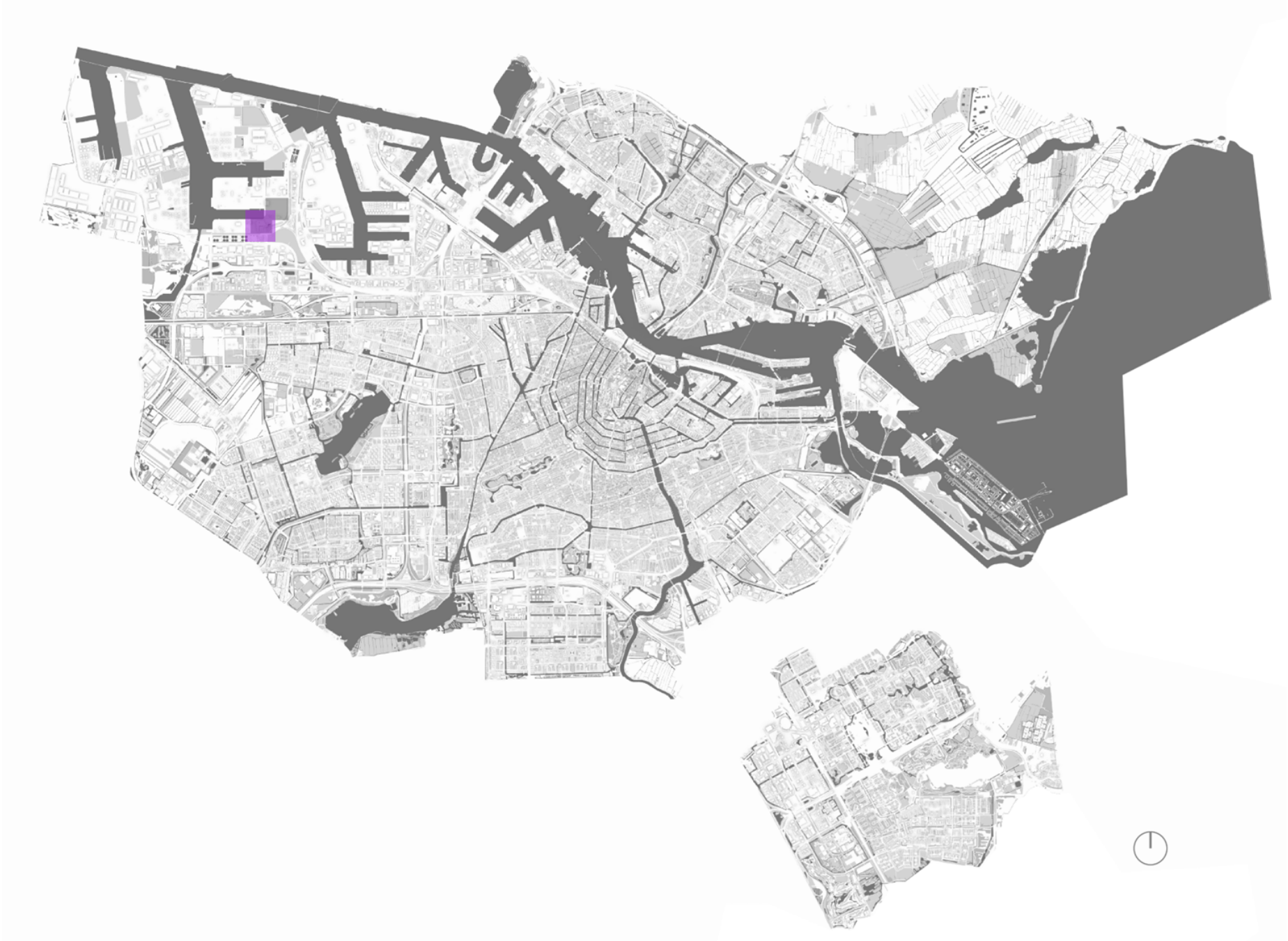


Eliminating waste

Keeping materials in circulation

Regenerating nature

Section: AEB



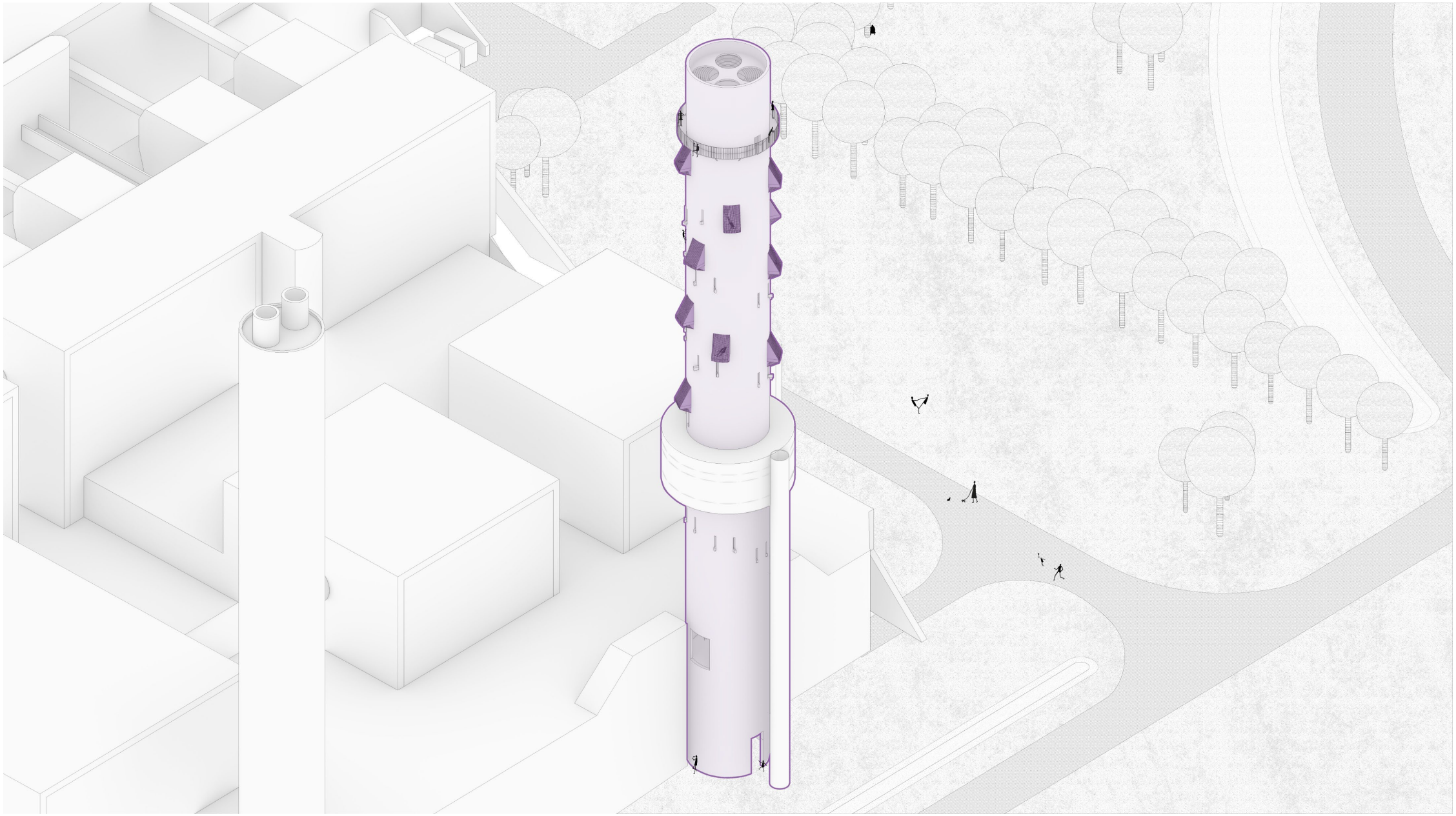
Project location

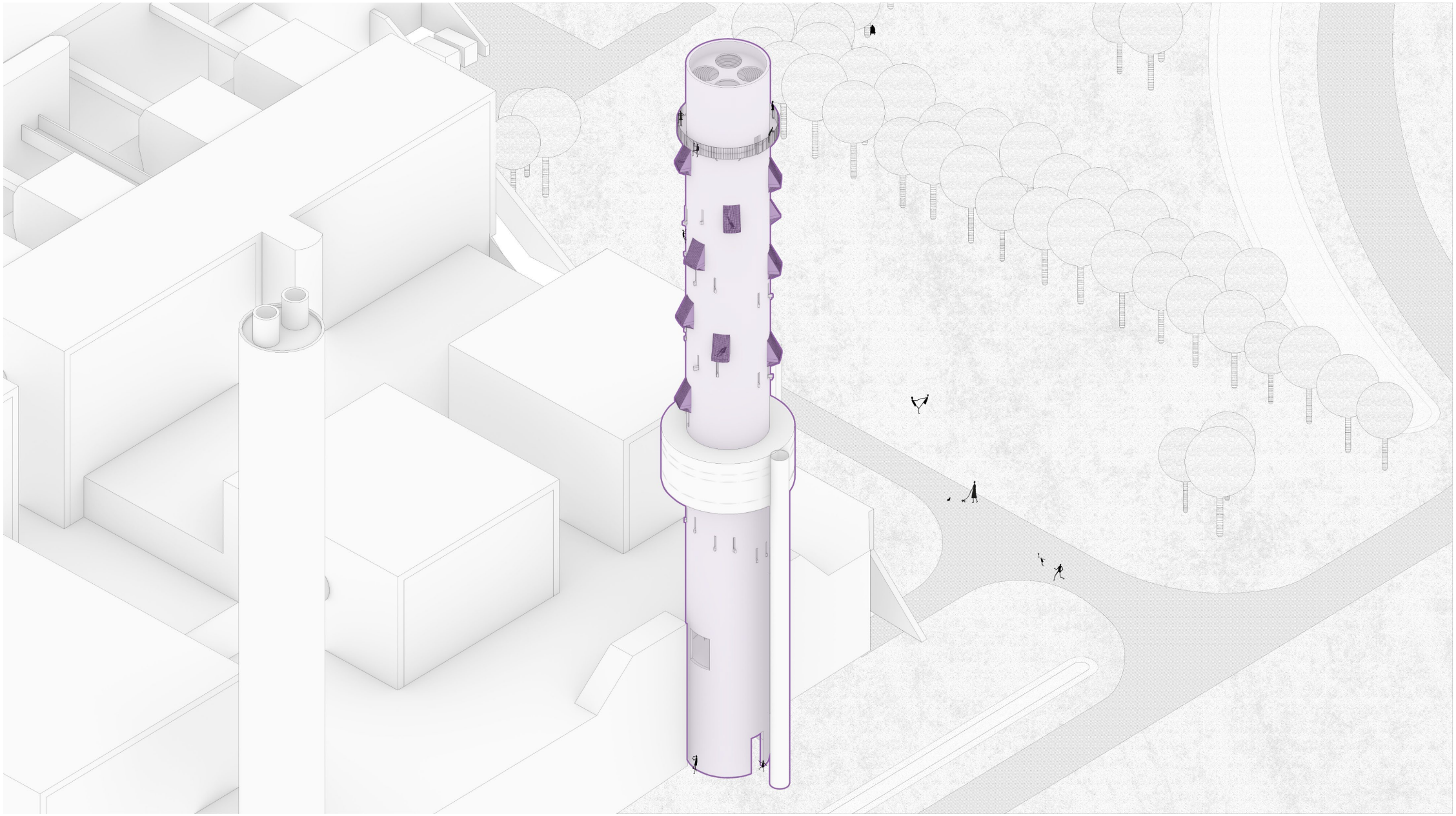
Section: AEB

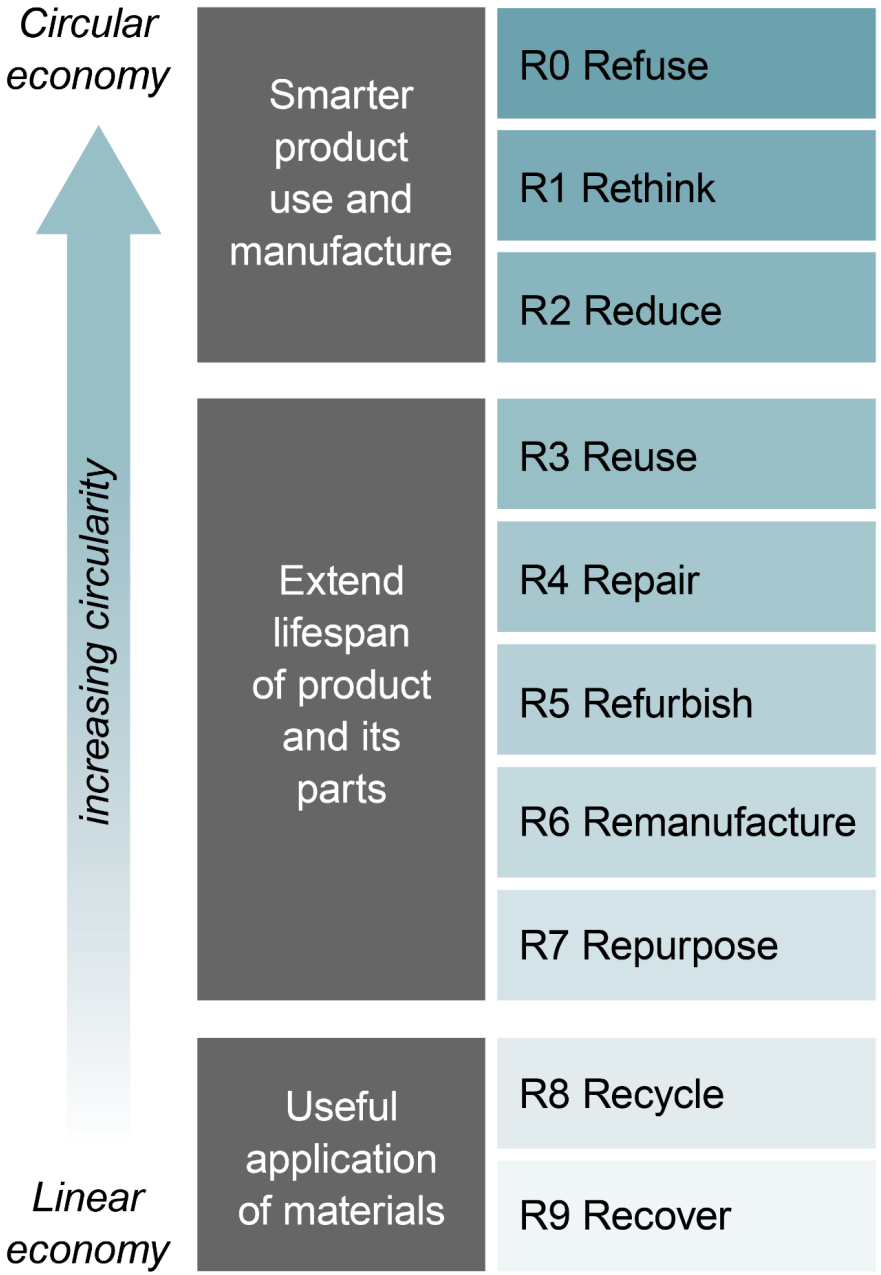
Photo: Robin Utrecht

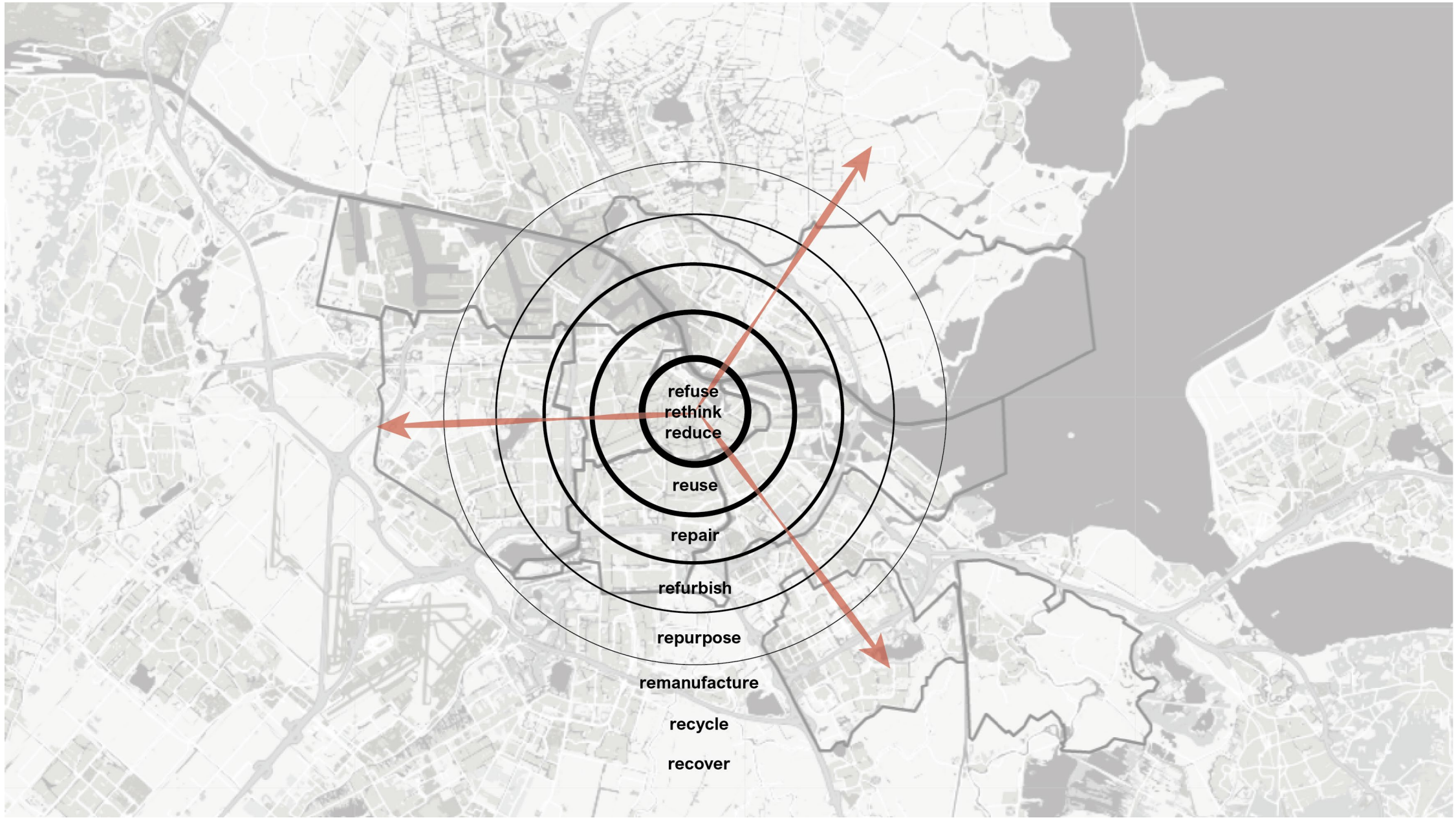
Photo: Simon Lenskens

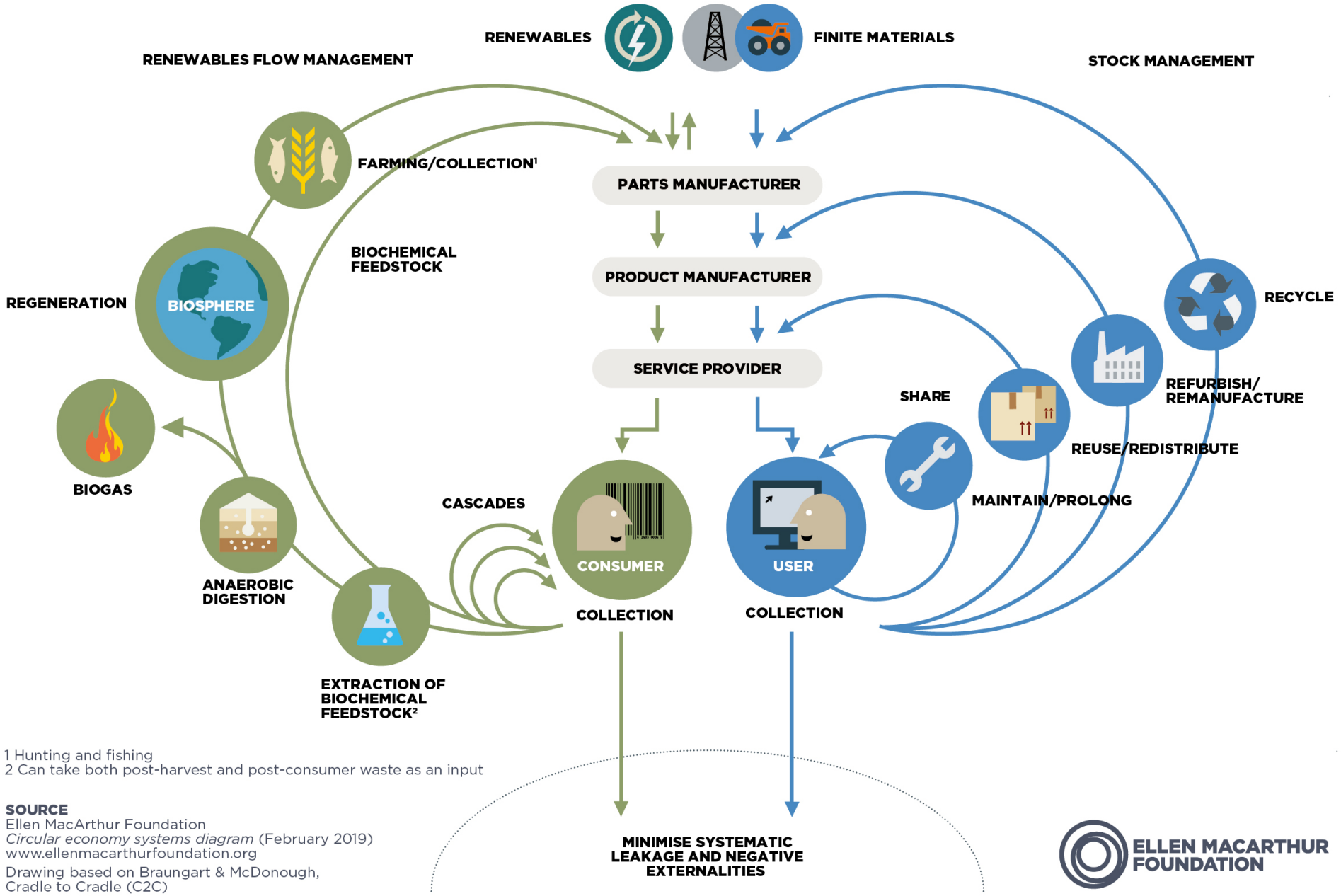
Photo: Jeroen Atteveld






Circular economy
increasing circularity
Linear economy
Smarter product use and manufacture
Extend lifespan of product and its parts
Useful application of materials
R0 Refuse
R1 Rethink
R2 Reduce
R3 Reuse
R4 Repair
R5 Refurbish
R6 Remanufacture
R7 Repurpose
R8 Recycle
R9 Recover

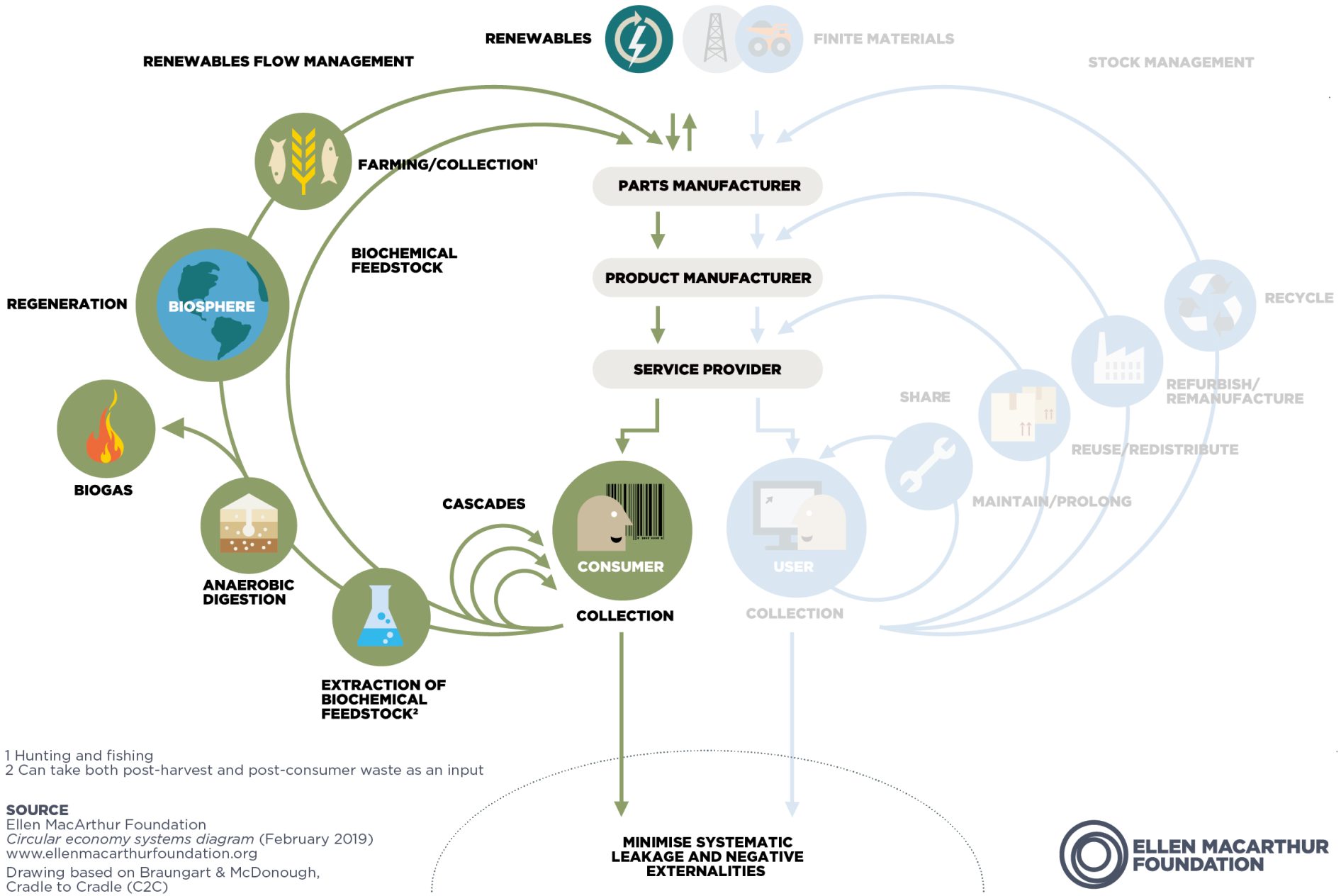

refuse
rethink
reduce
reuse
repair
refurbish
repurpose
remanufacture
recycle
recover



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough, Cradle to Cradle (C2C)

ELLEN MACARTHUR FOUNDATION



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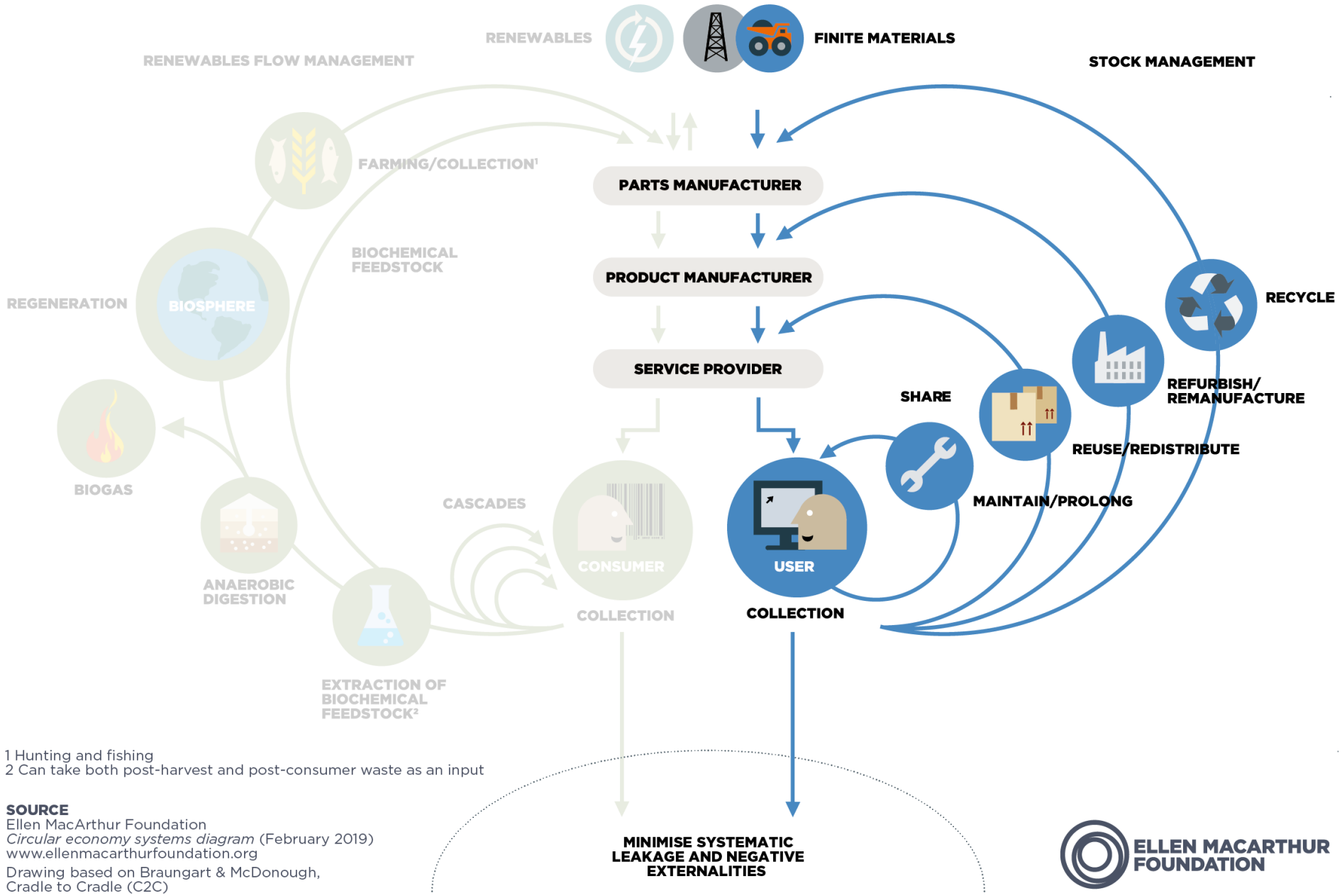

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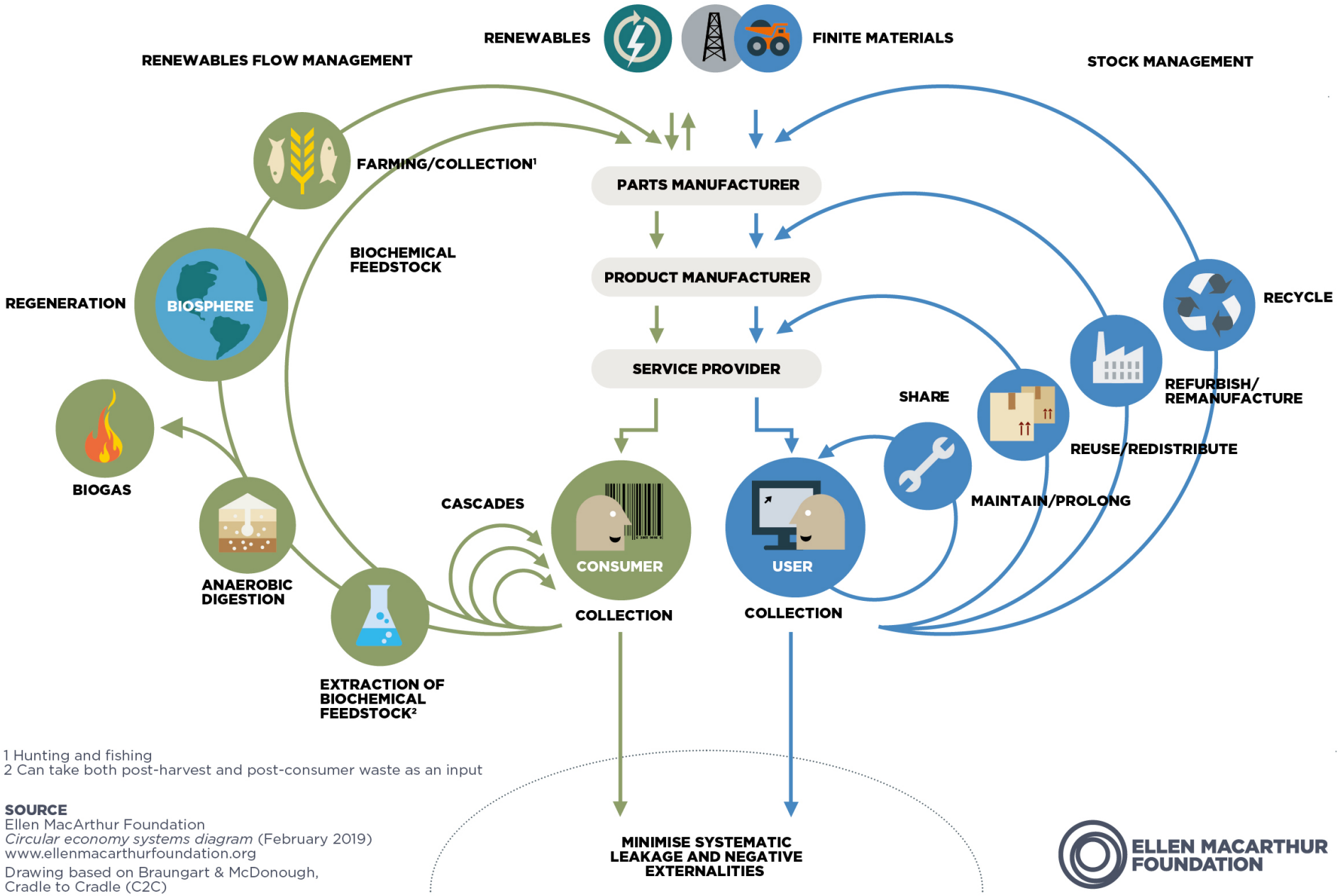

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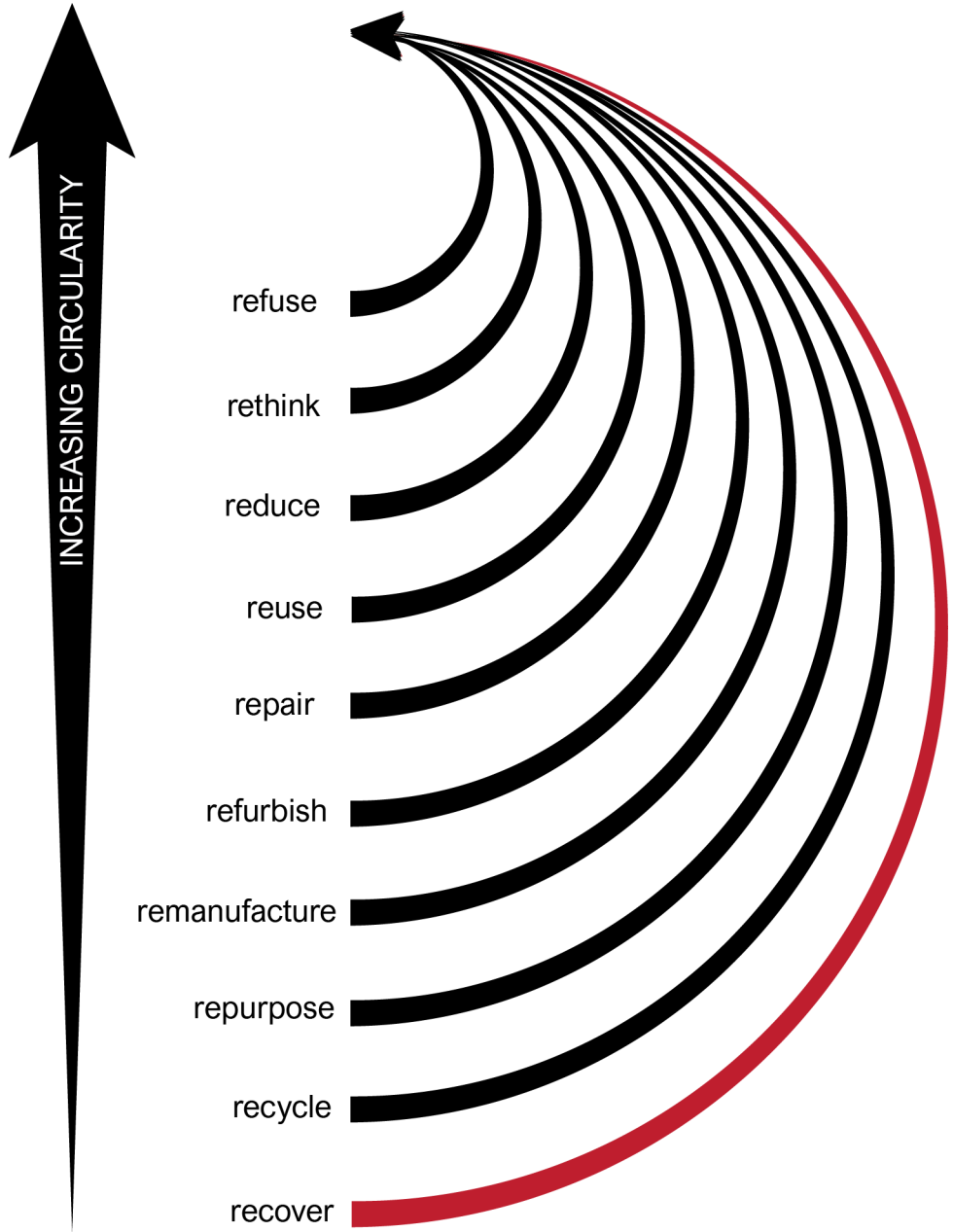
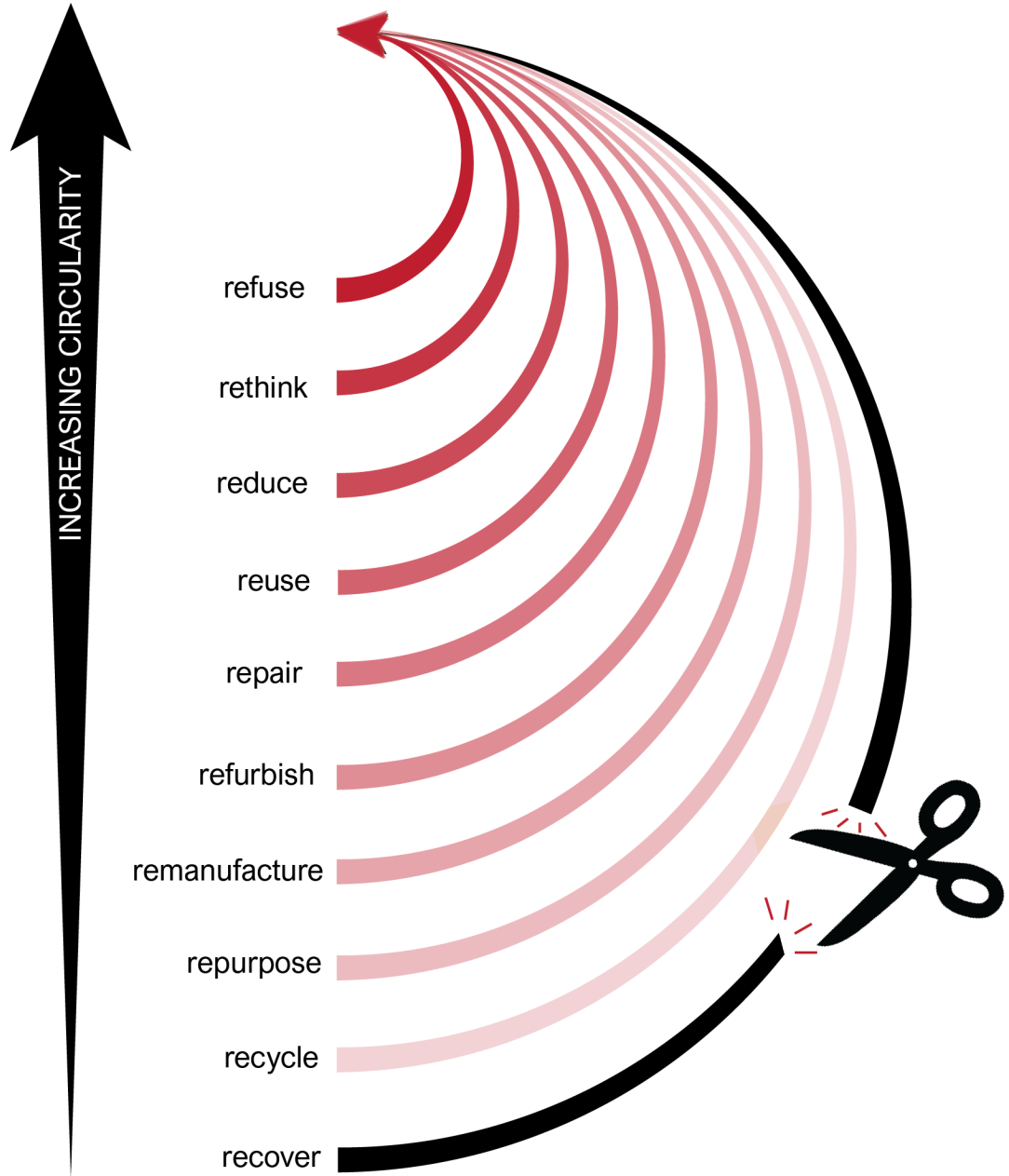

INCREASING CIRCULARITY
refuse
rethink
reduce
reuse
repair
refurbish
remanufacture
repurpose
recycle
recover


INCREASING CIRCULARITY
refuse
rethink
reduce
reuse
repair
refurbish
remanufacture
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recycle
recover

PROJECT GOALS

PROJECT GOALS

REFUSE – RETHINK - REDUCE

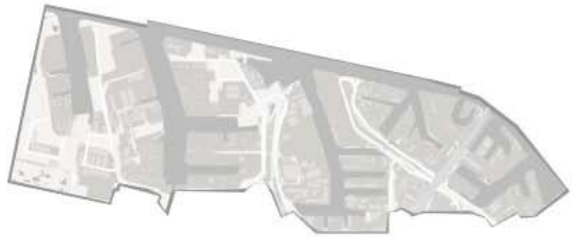
Value shift

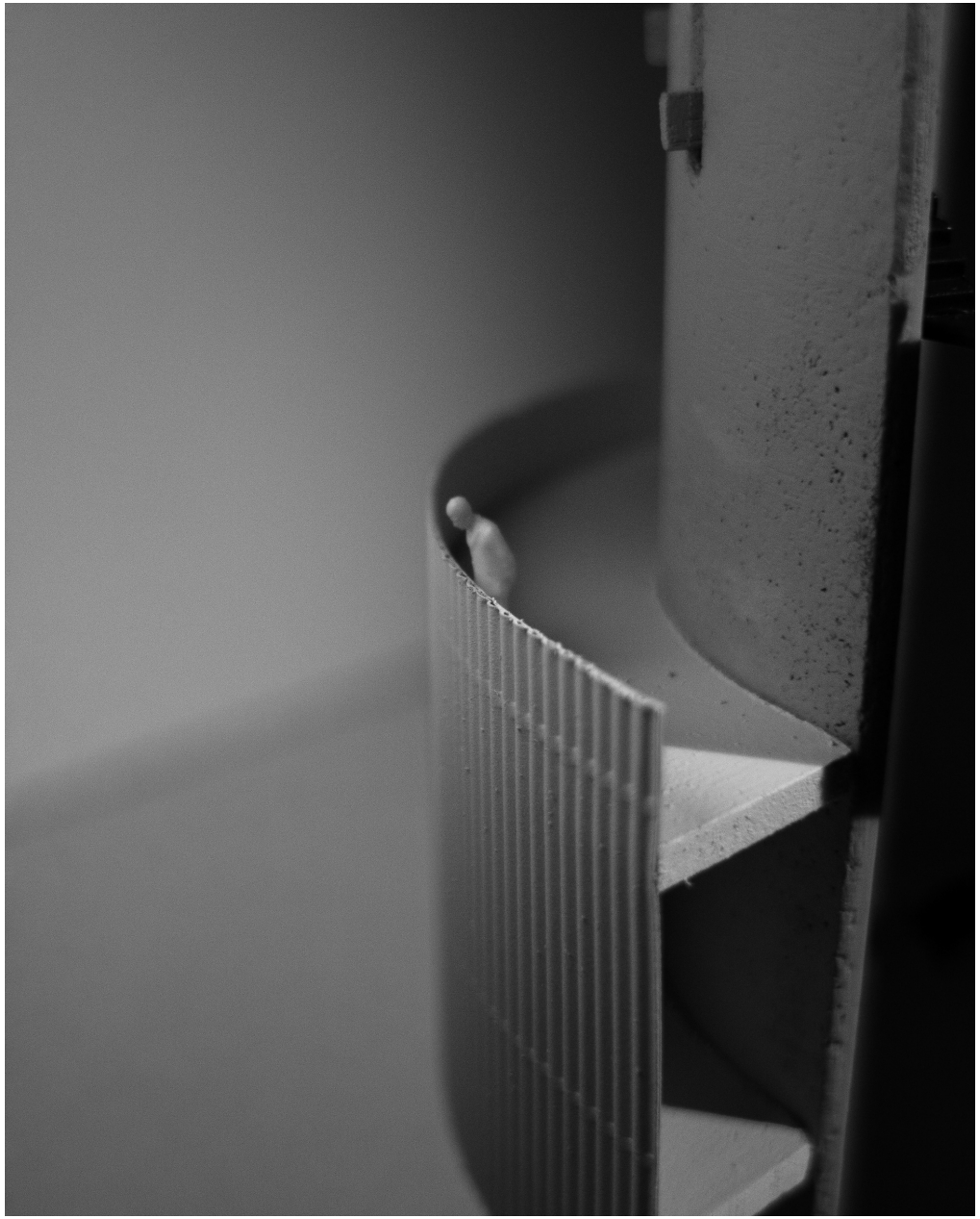
PROJECT GOALS

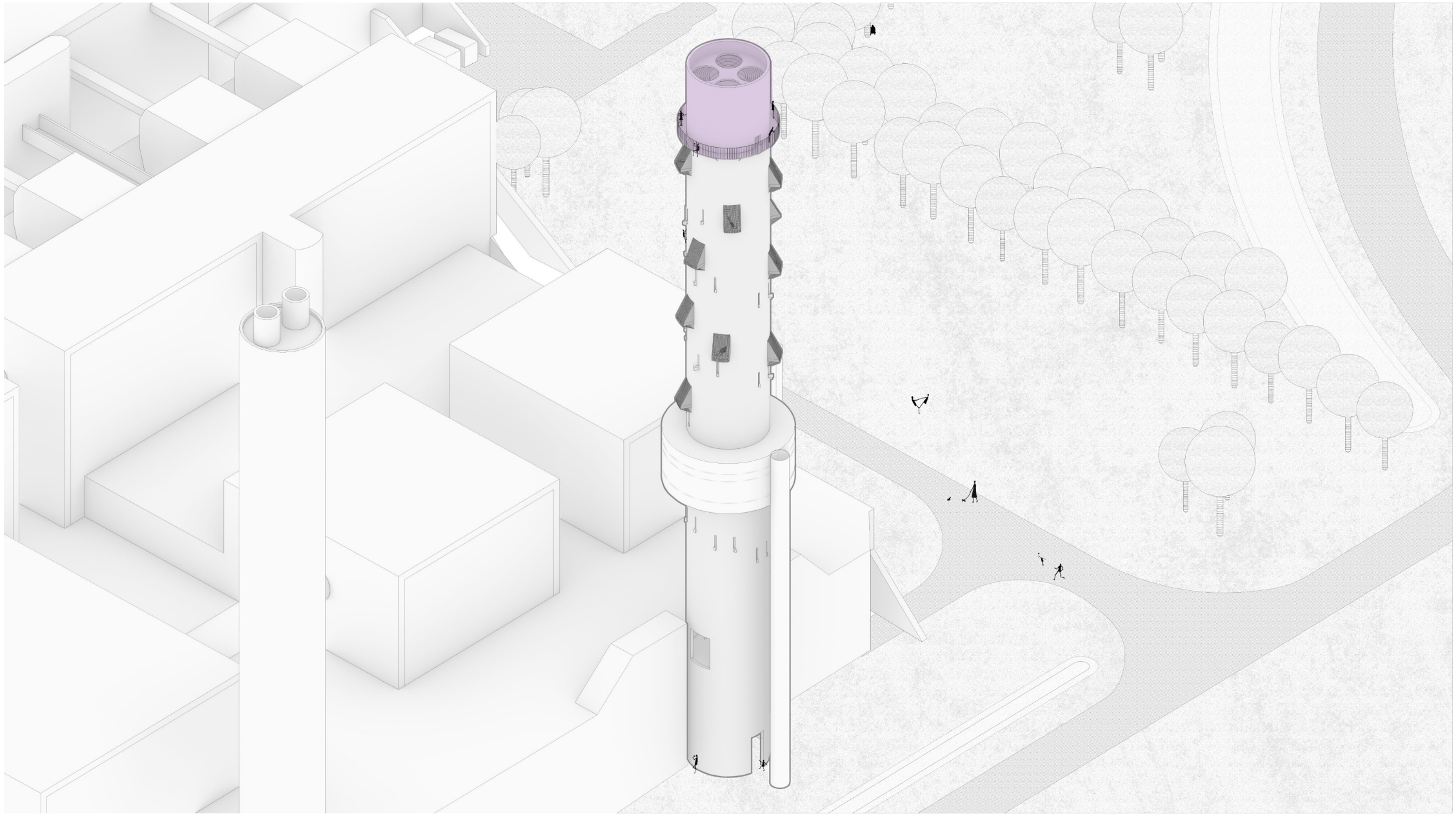
REFUSE – RETHINK - REDUCE

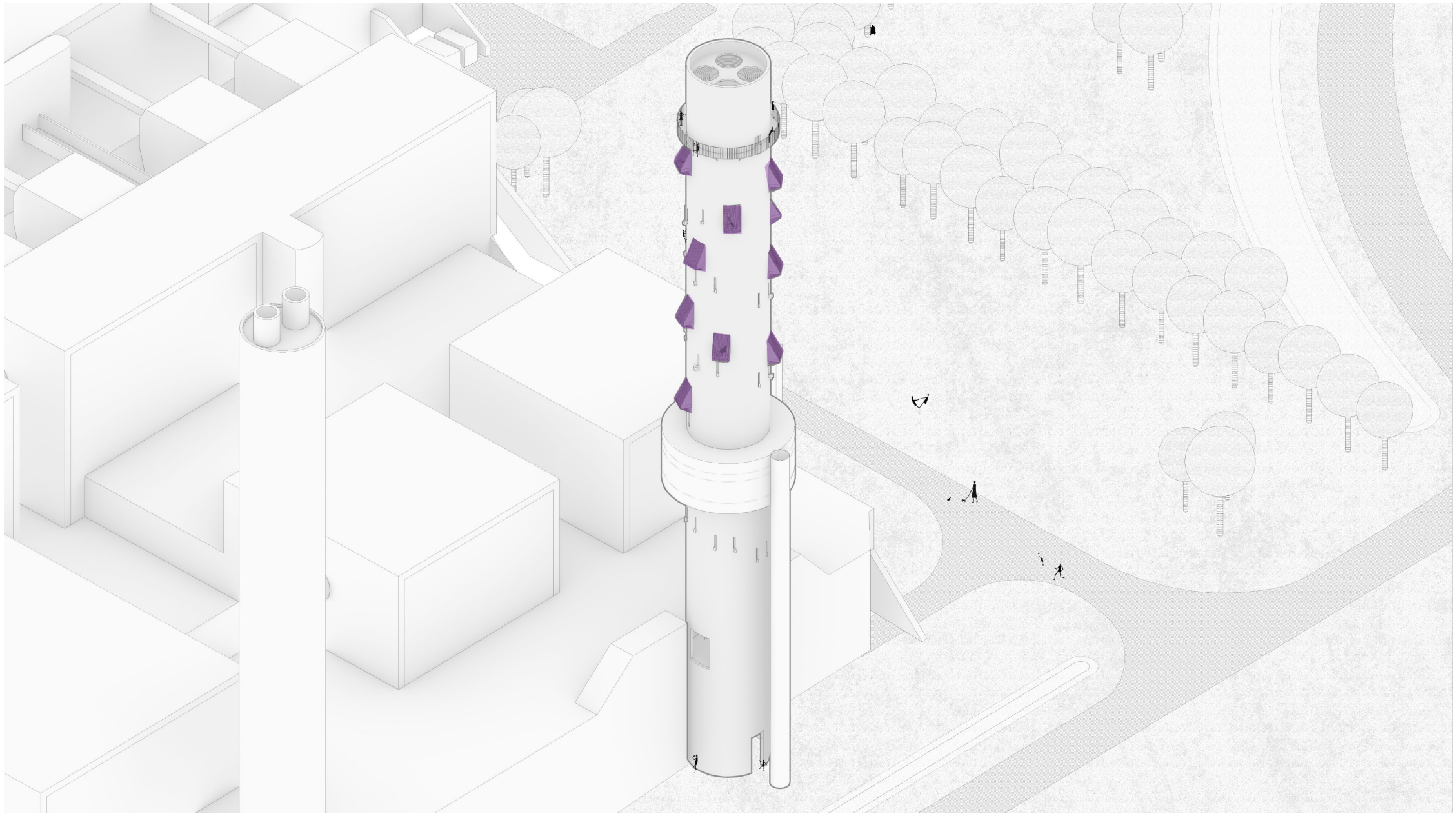
Value shift

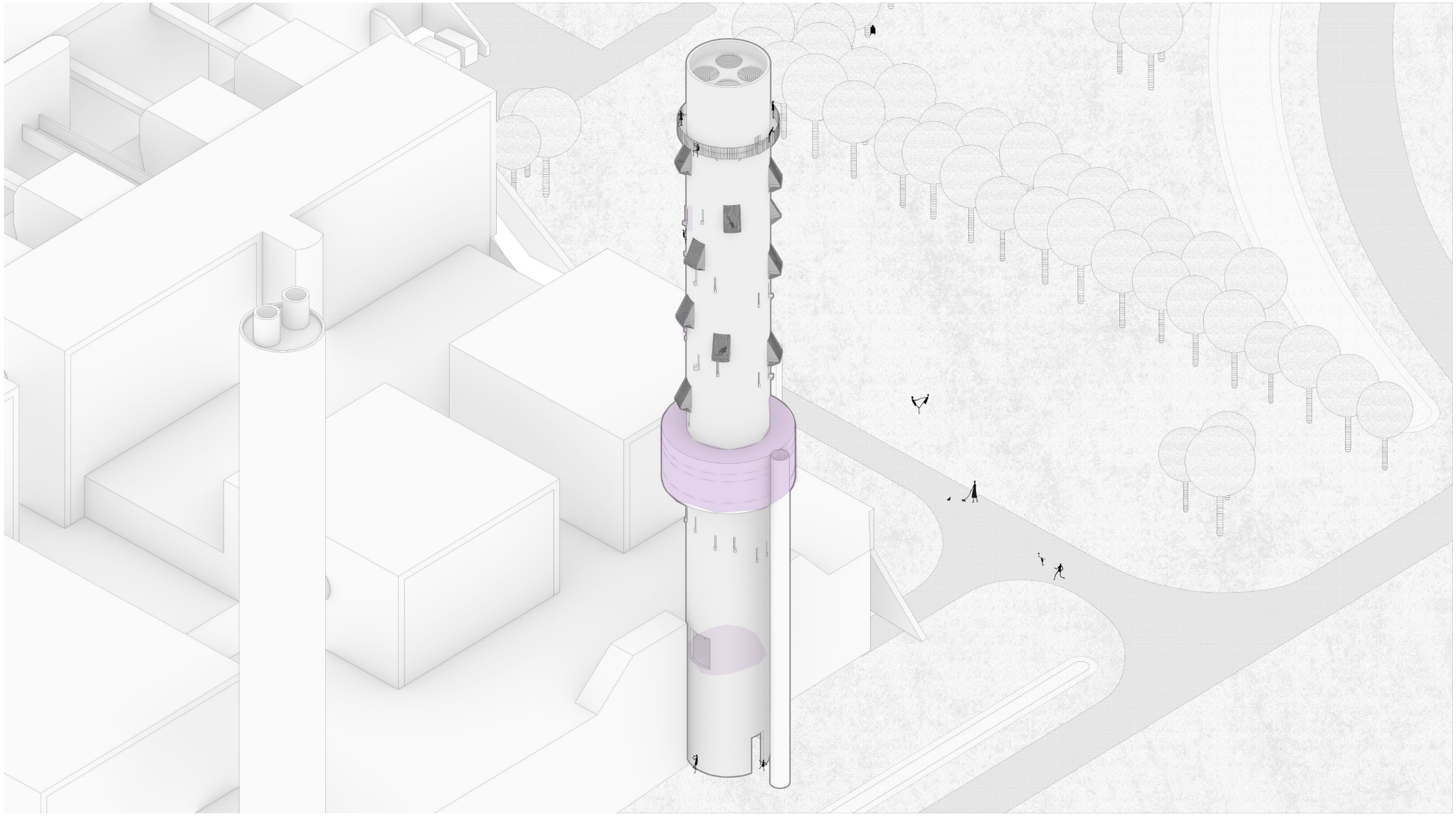

VERZAMELPLAATS
1





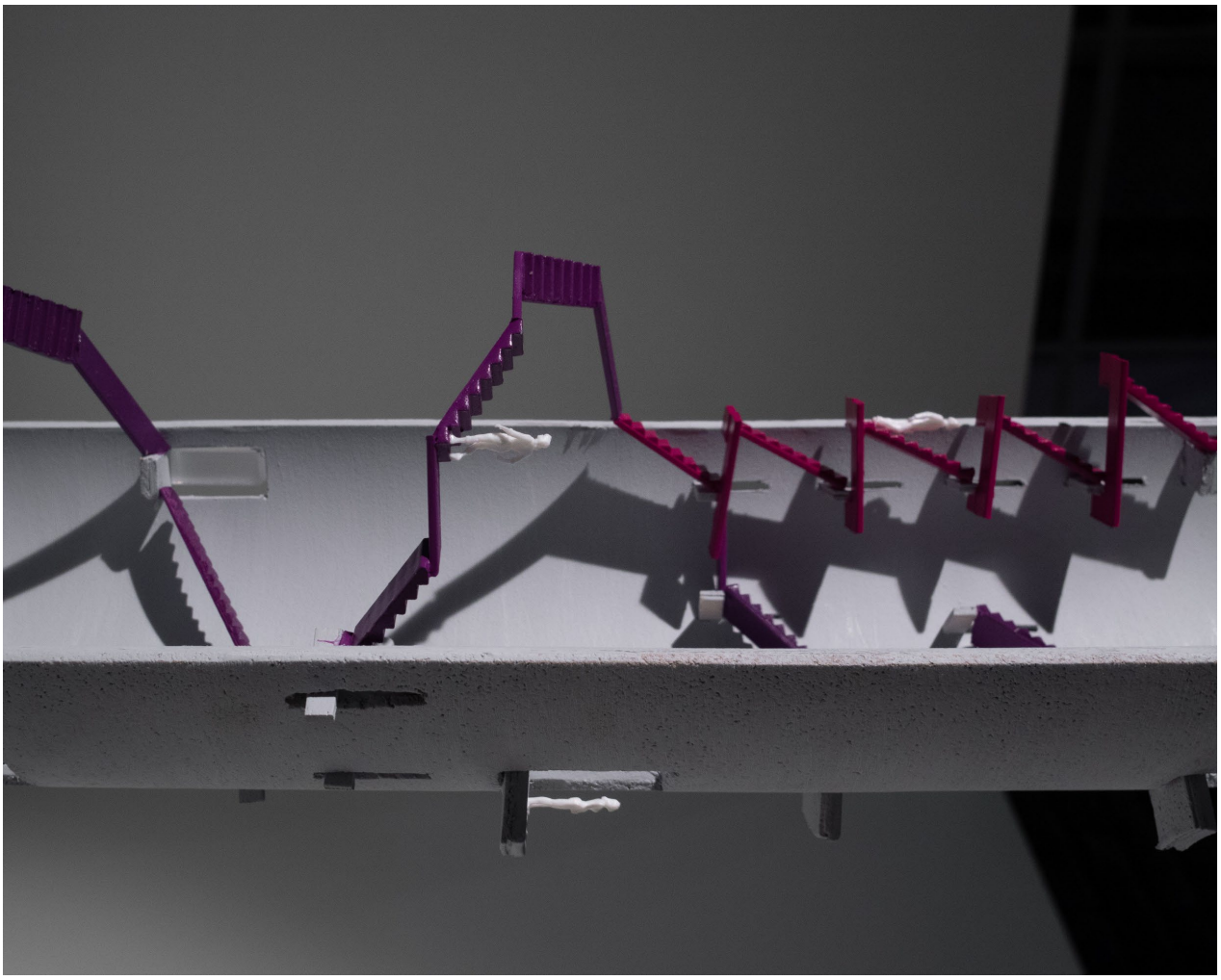






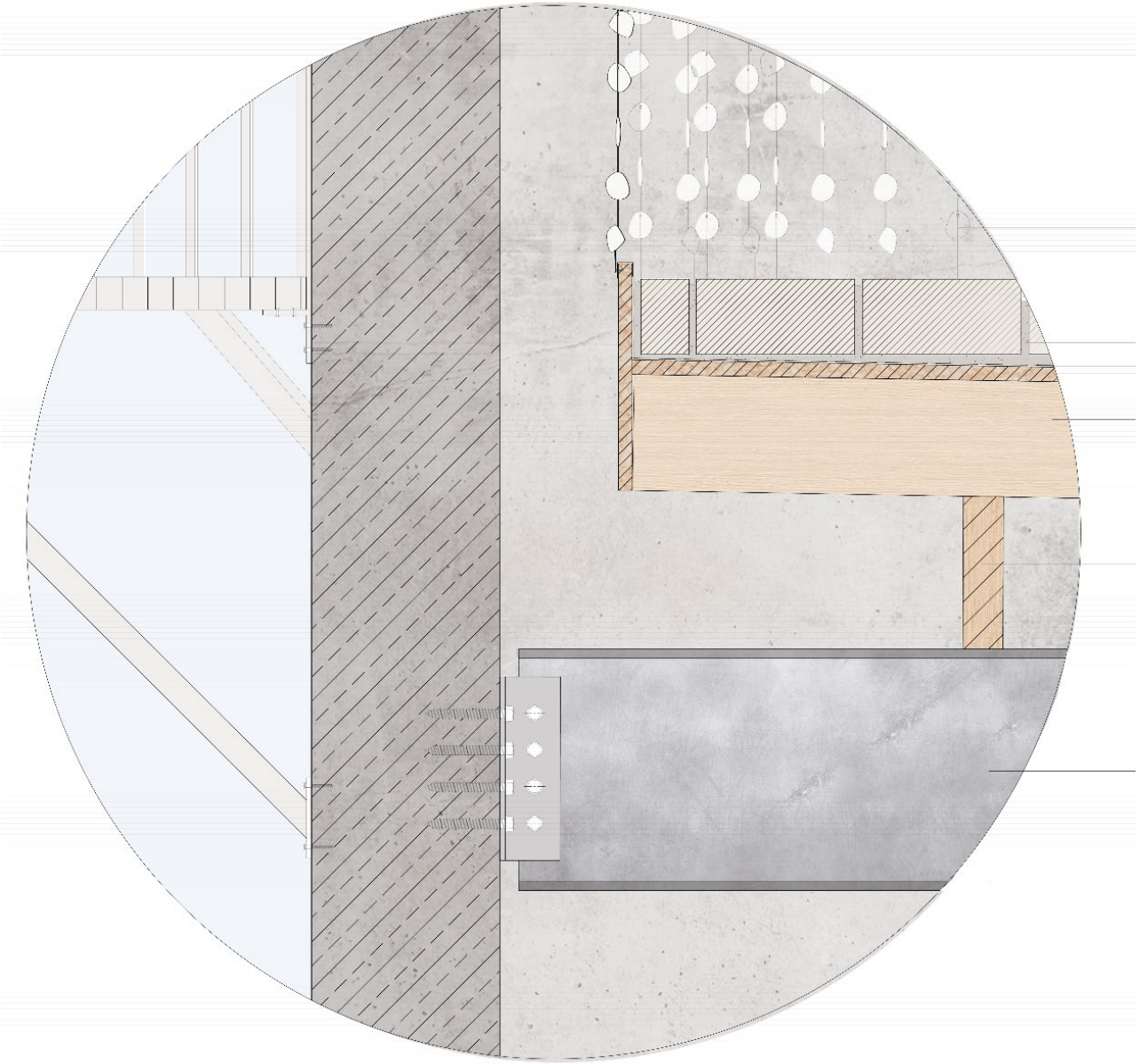
DESIGN GOALS

1. Emphasize the legacy of the site

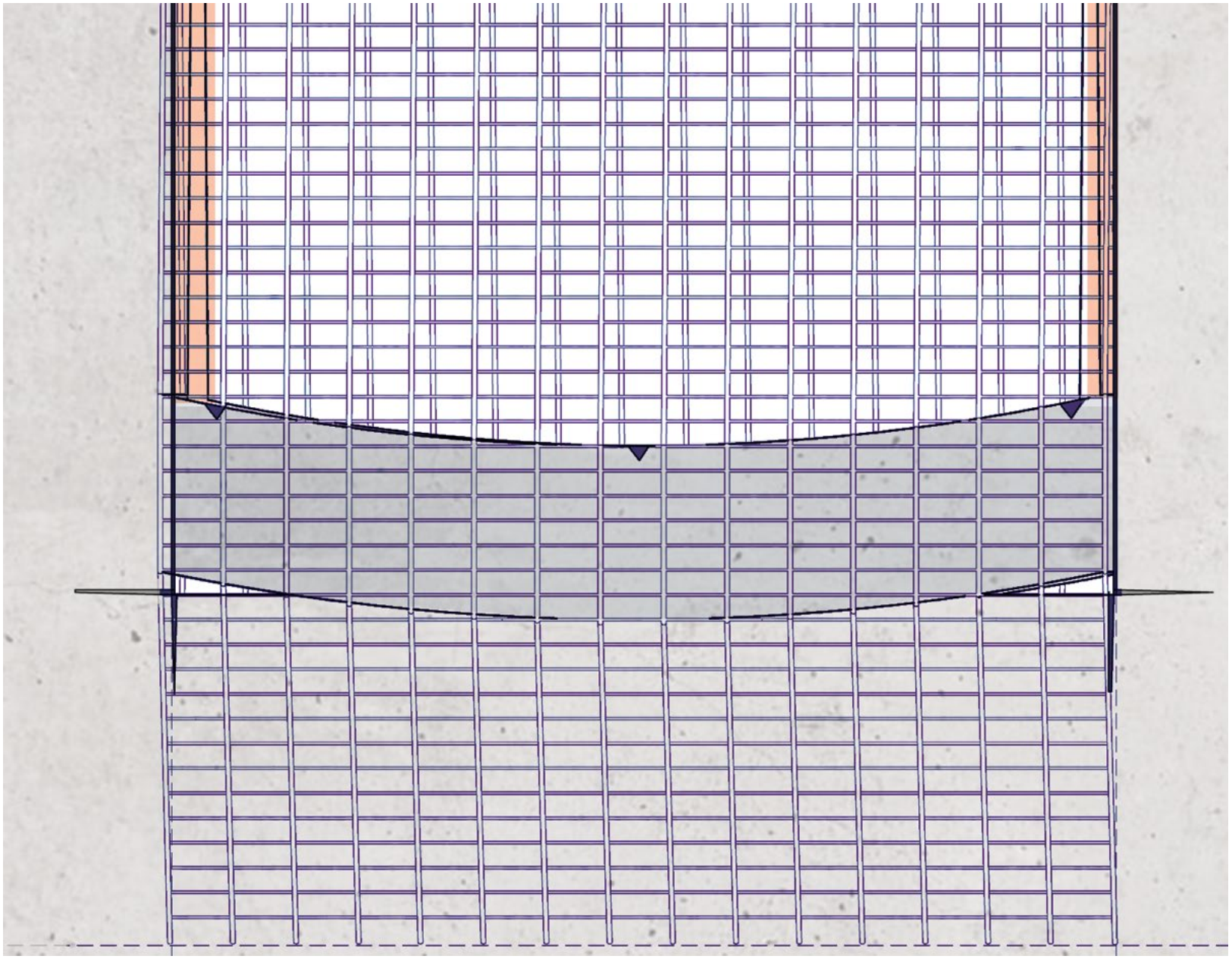


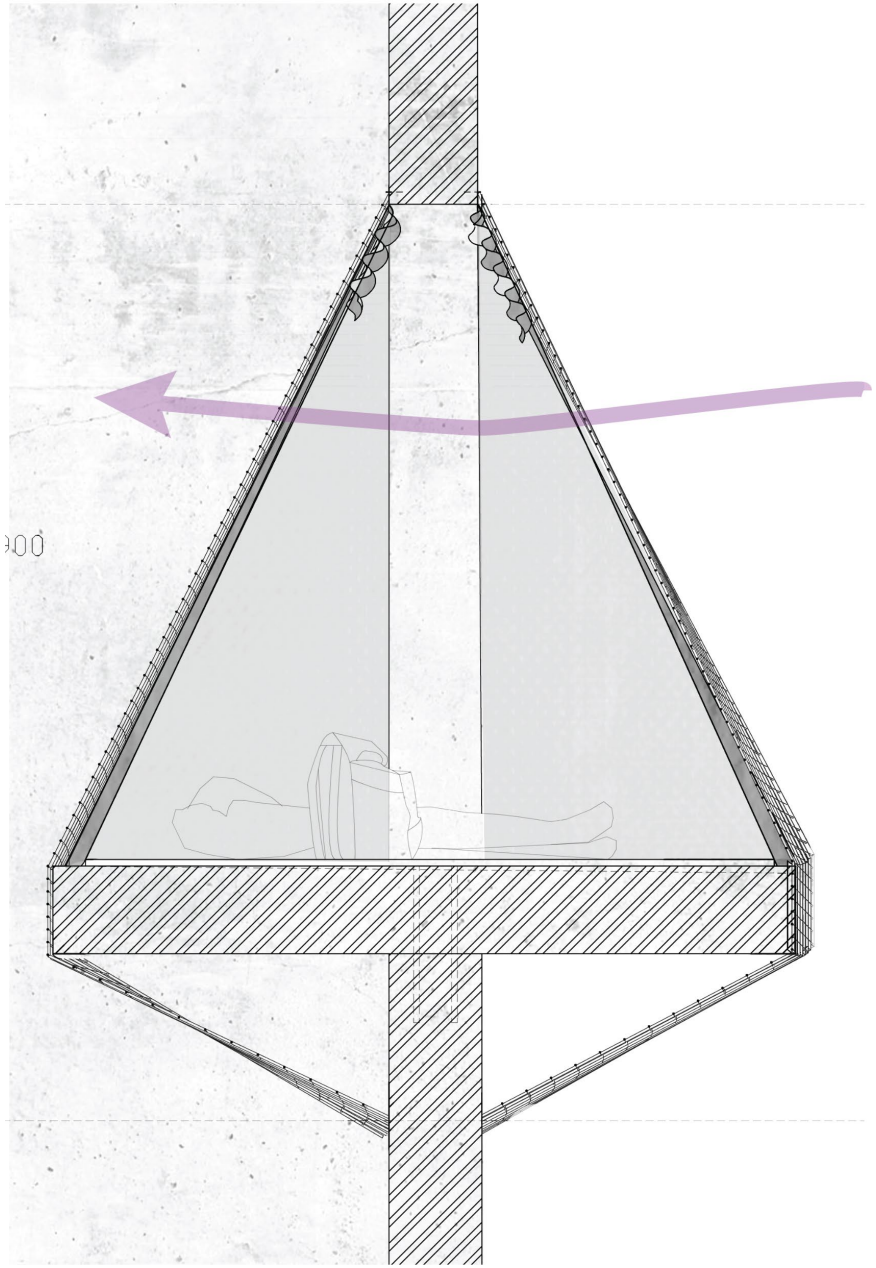

P

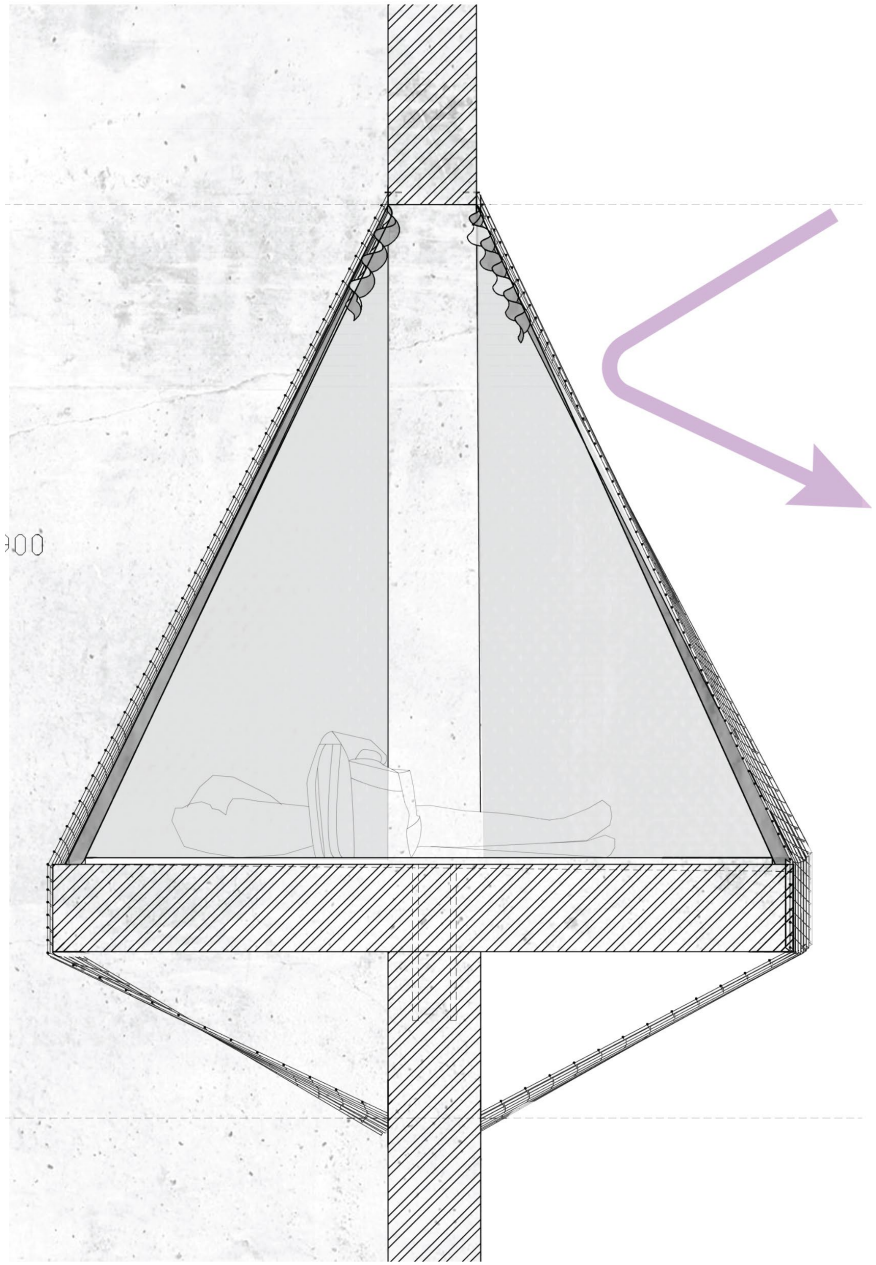
1. Emphasize the legacy of the site
2. Make people feel connected to it



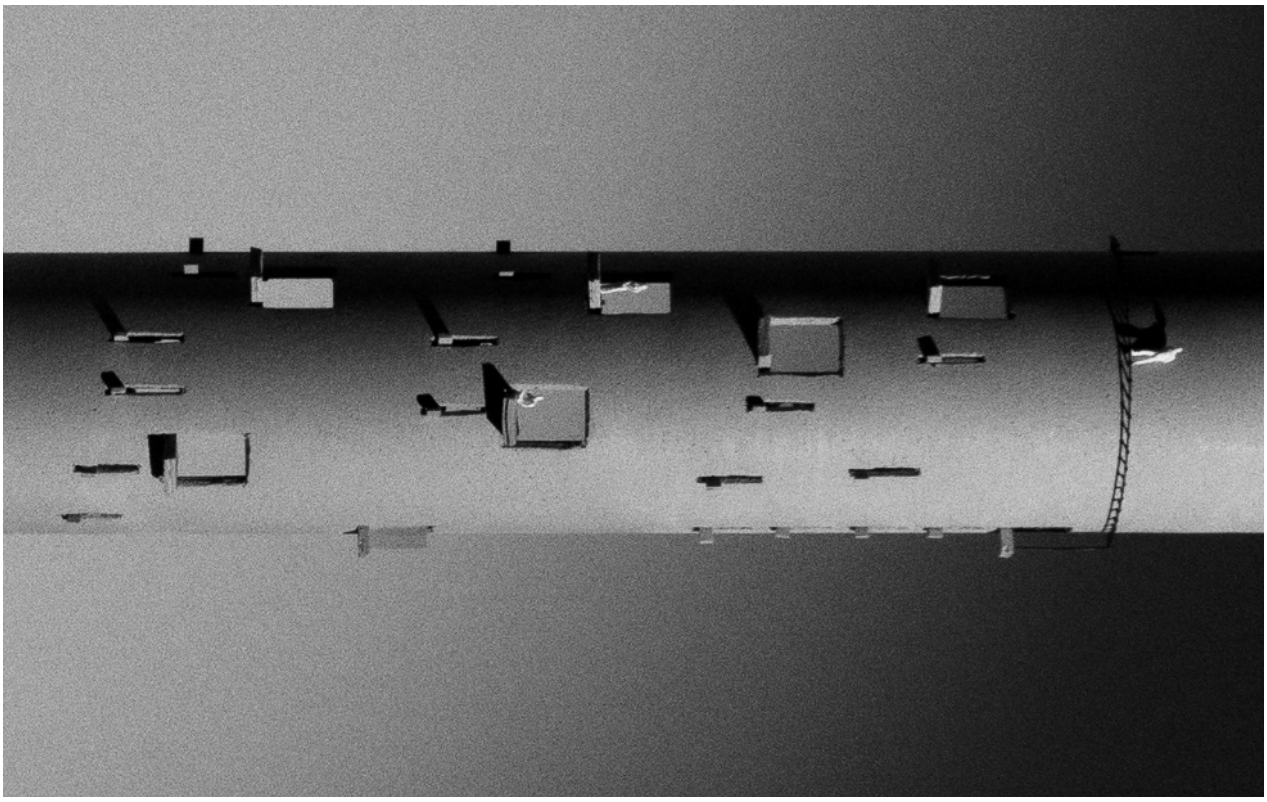
1. Emphasize the legacy of the site
2. Make people feel connected to it
3. Create a sense of refuge

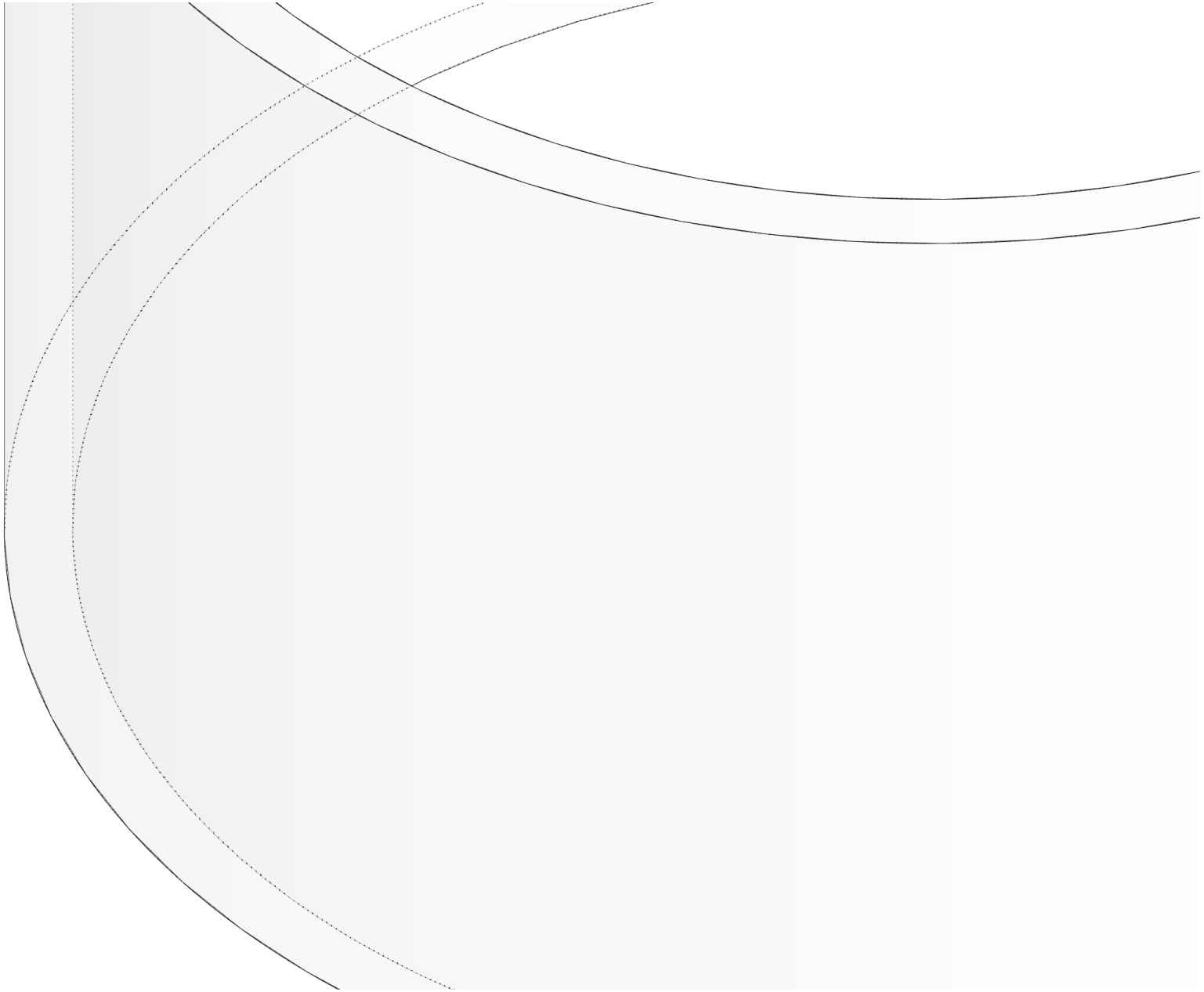


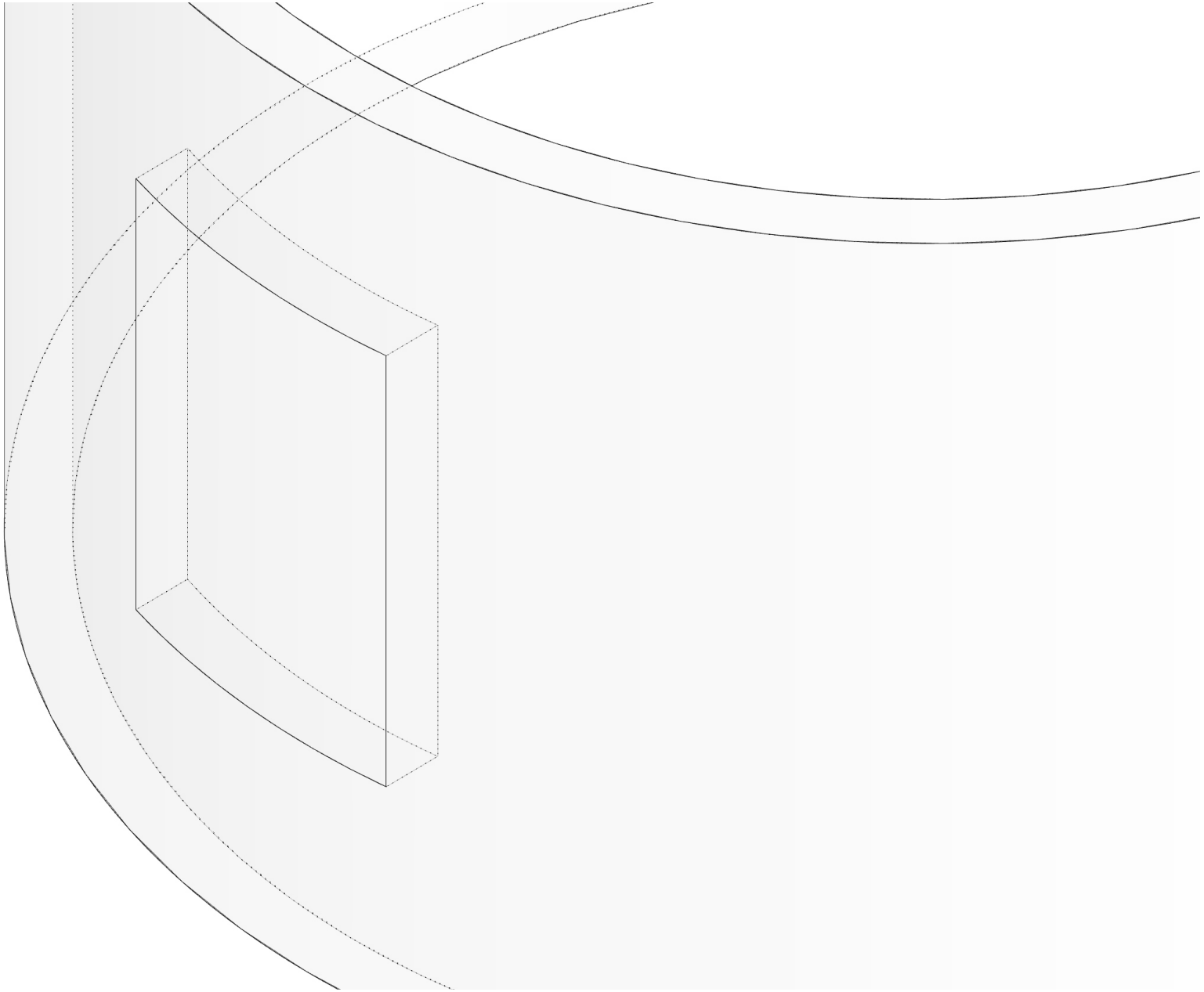


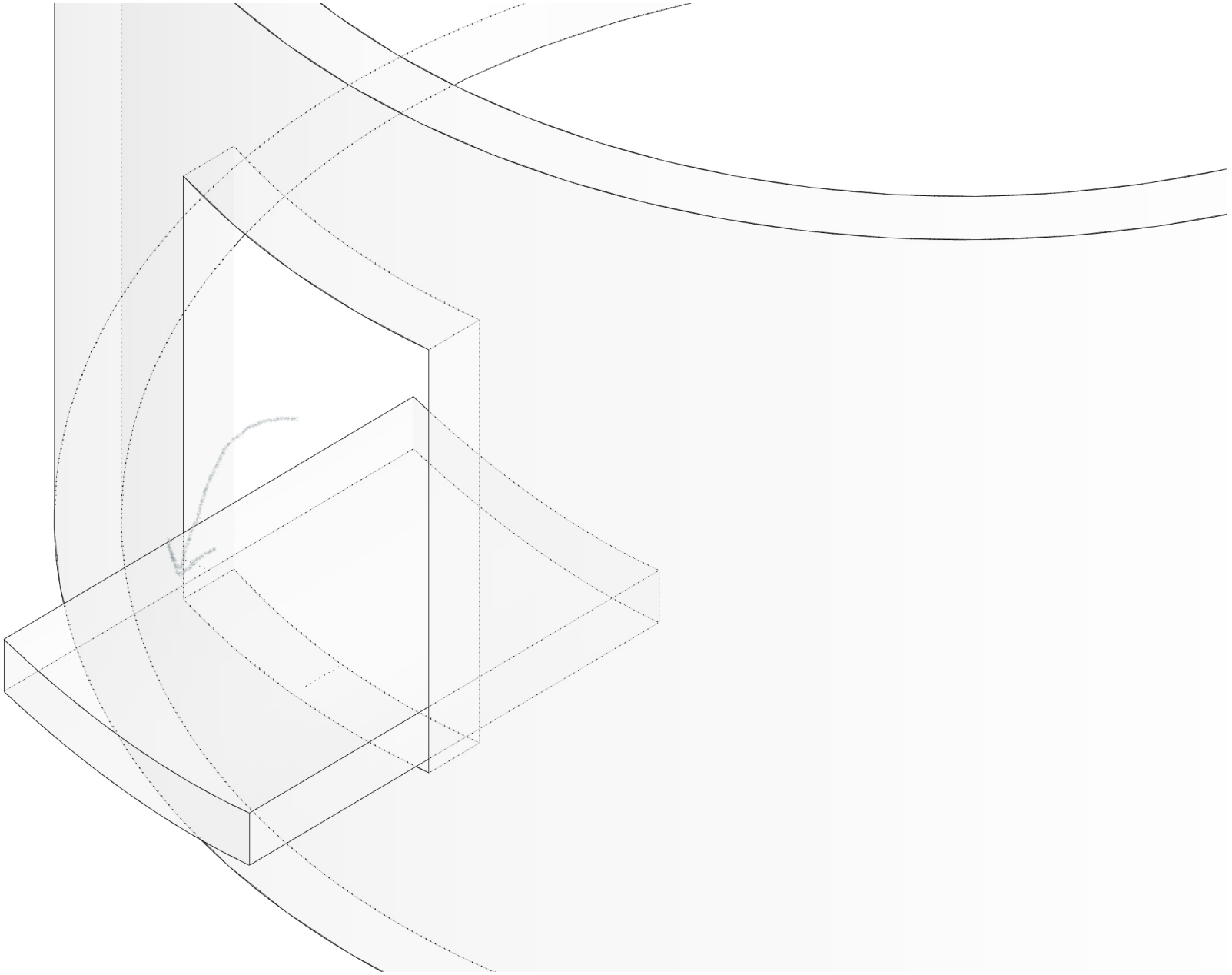


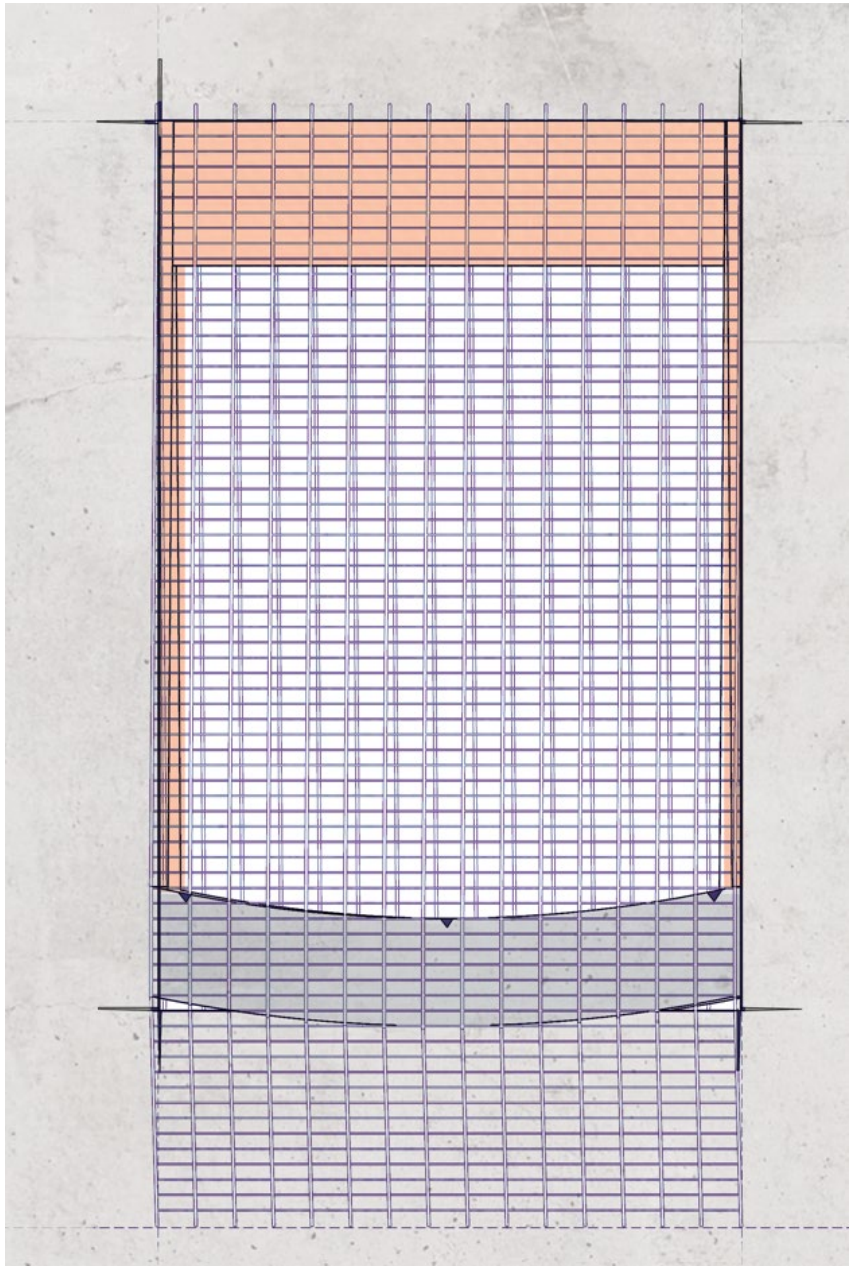
1. Emphasize the legacy of the site
2. Make people feel connected to it
3. Create a sense of refuge
4. Practice what I preach: circularity

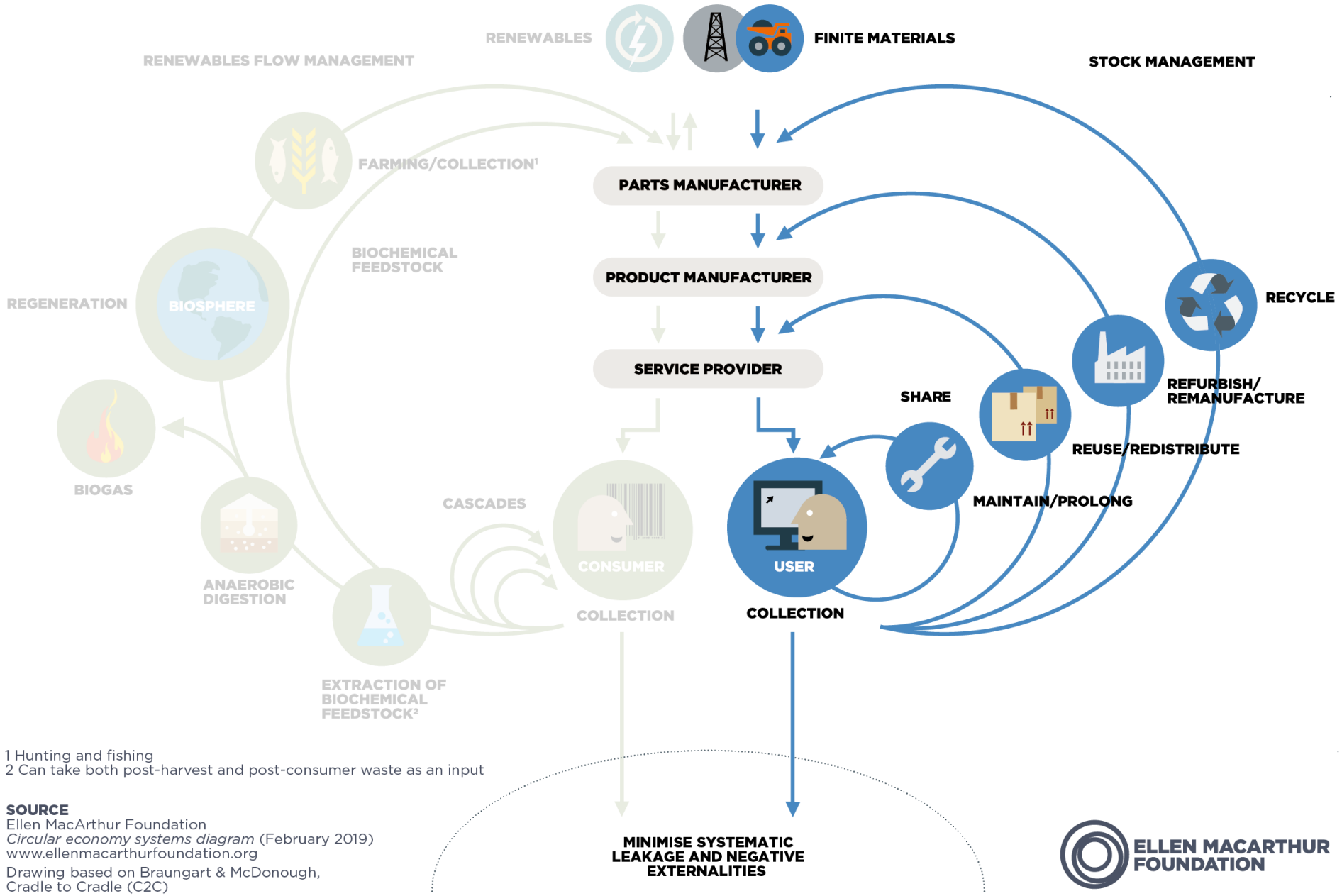












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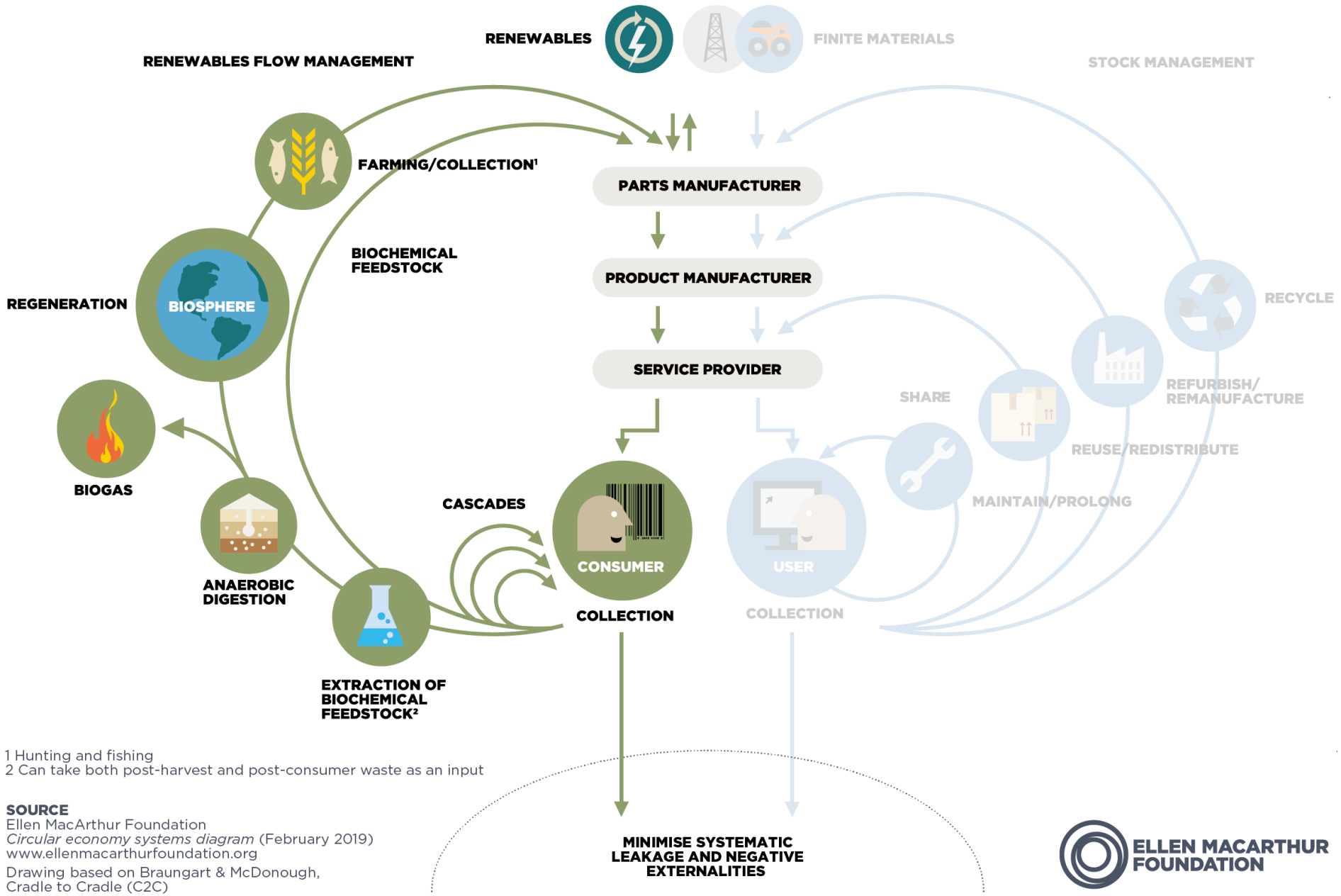

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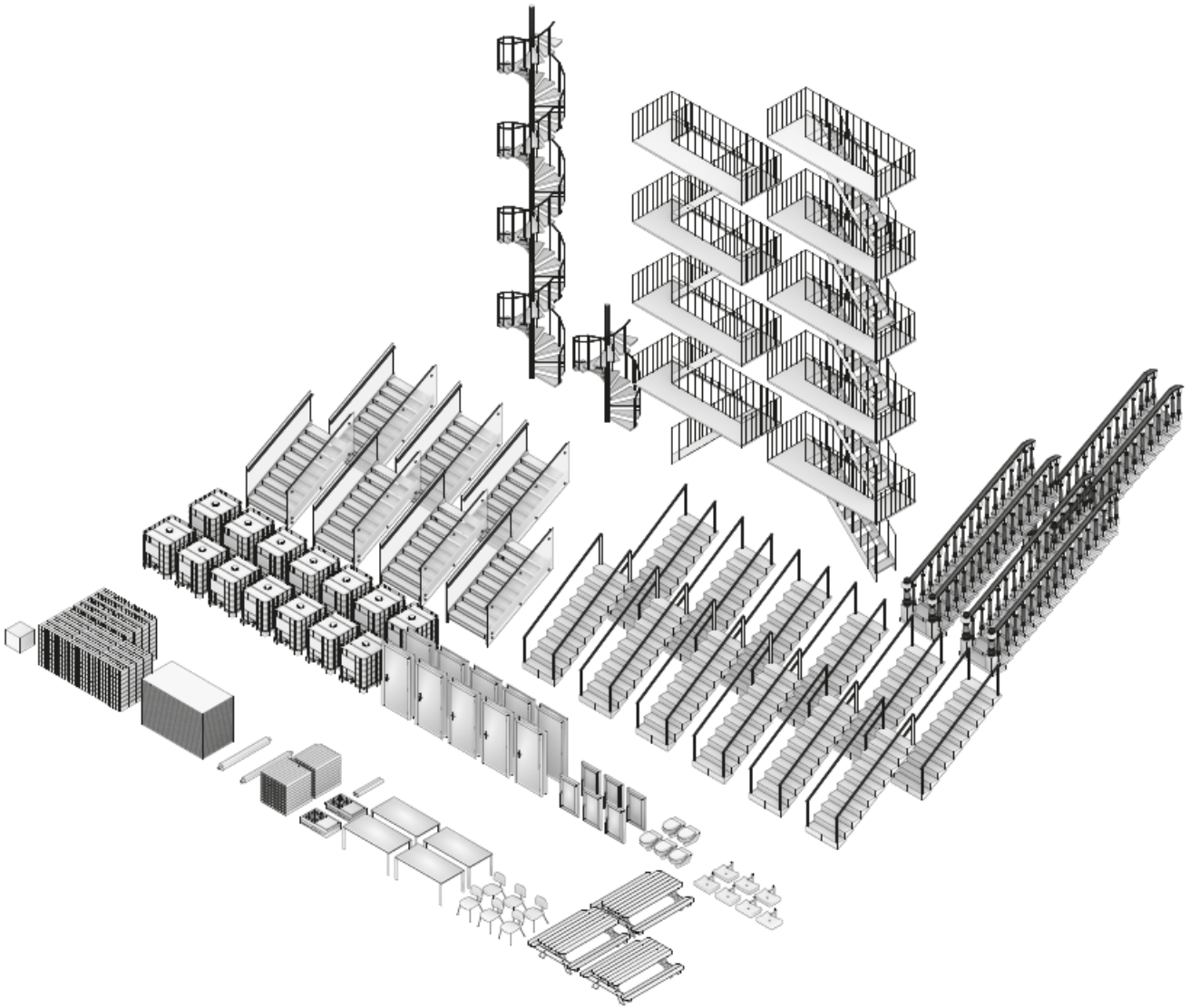


27 staircases

3 fire escapes

32 OSB sheets

7 sinks

4 tables

3 picnic benches

200m of piping

10 doors

14 IBC tanks

1800 bricks

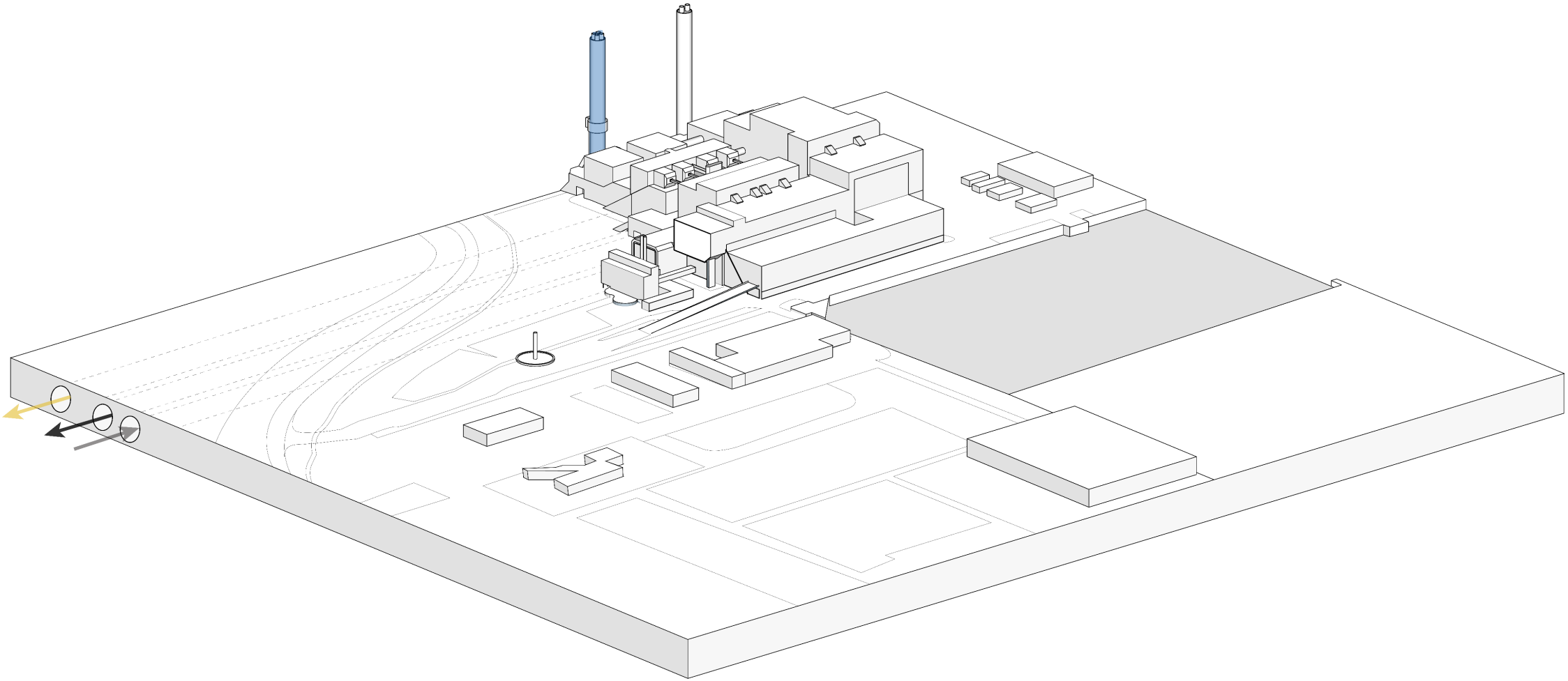
6 chairs

2 stove tops

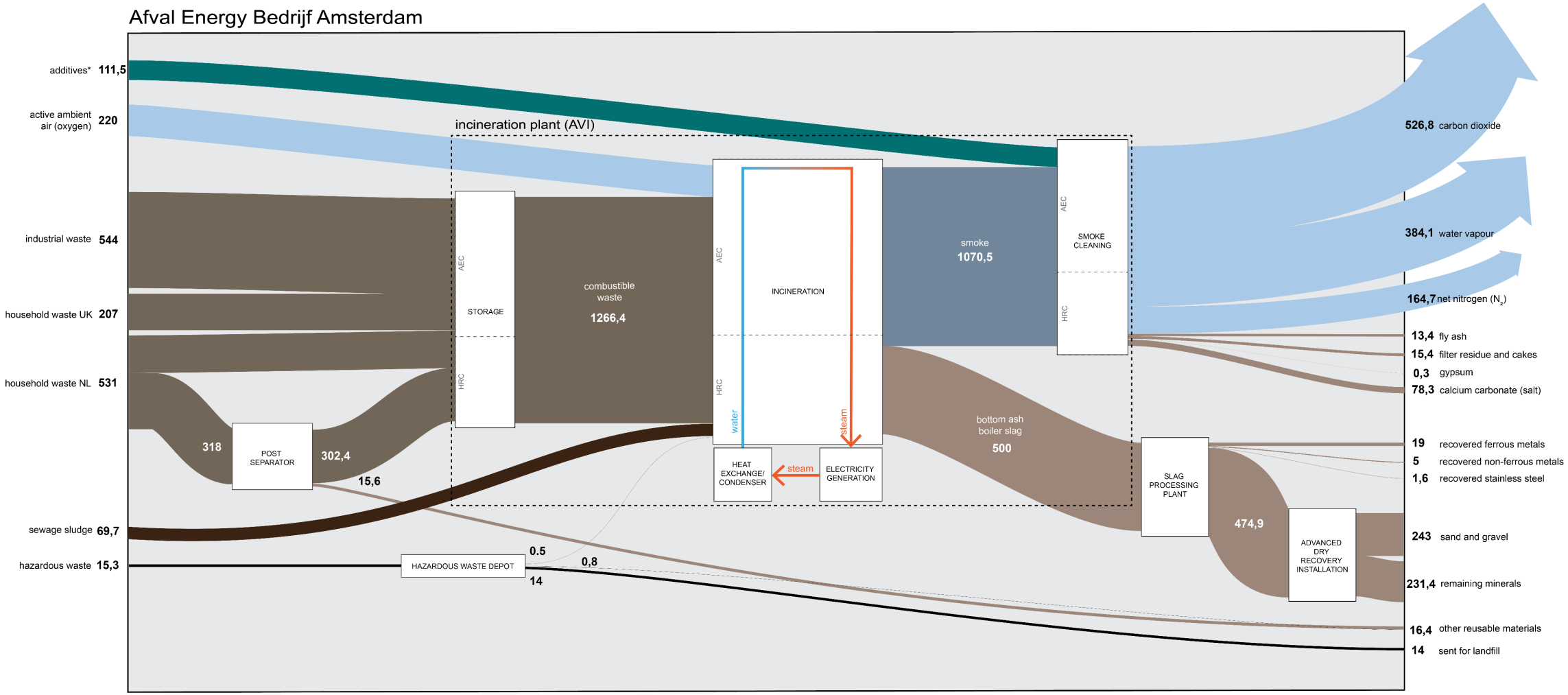
300m2 fishing net

260 m2 tarpaulin

16,303 pairs glasses lenses



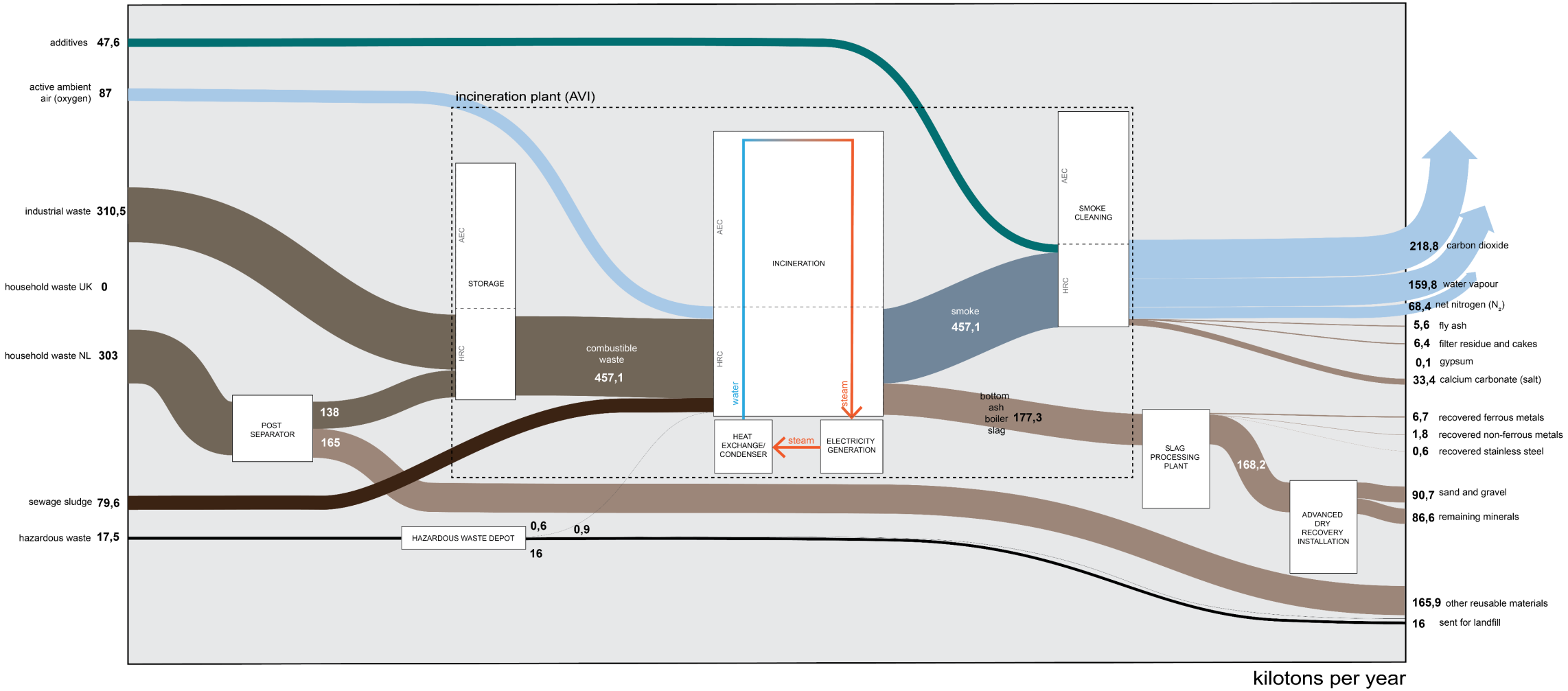
Afval Energy Bedrijf Amsterdam



*constituents: nitrogen (91), calcium carbonate (6,3), caustic soda (6,2), ammonia (5), chlorine bleach (1,5), and other smaller quantity excipients (1,4)

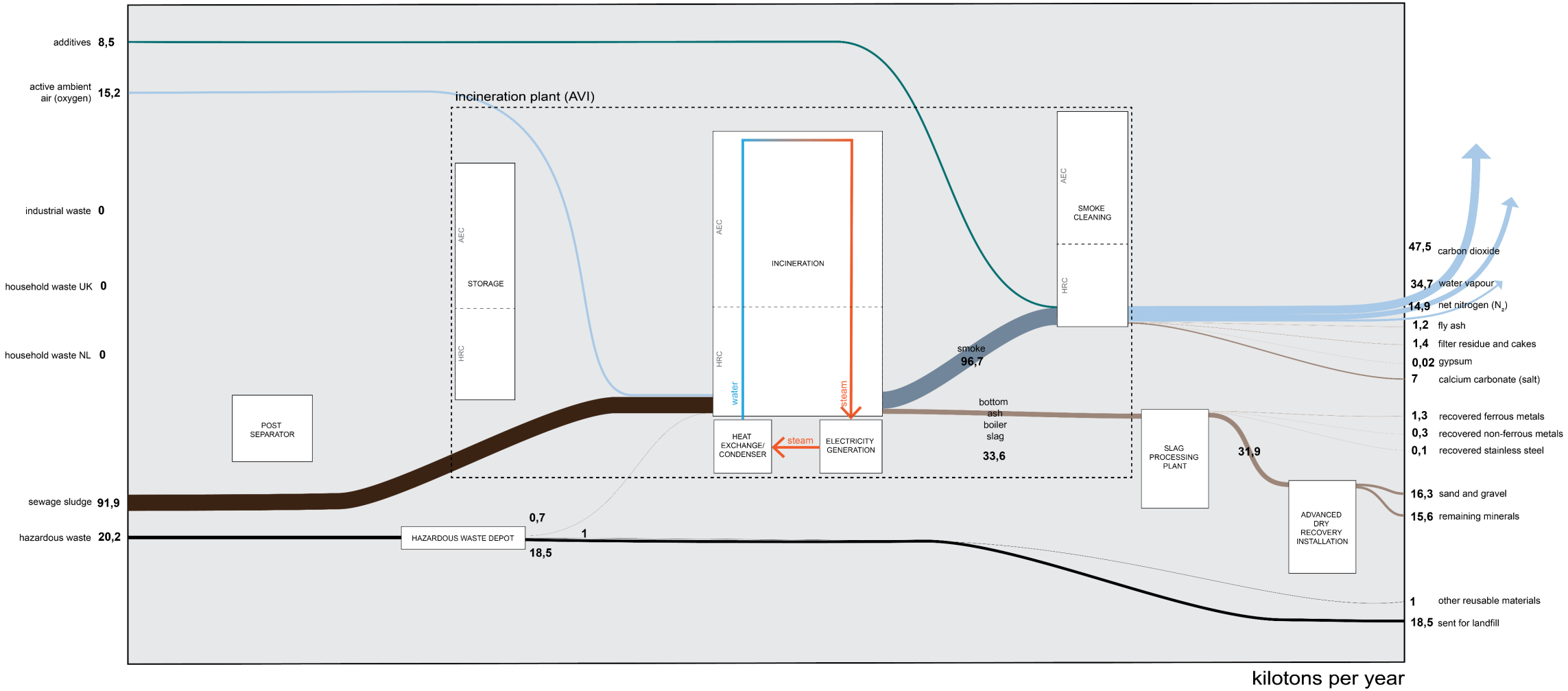
kilotons per year

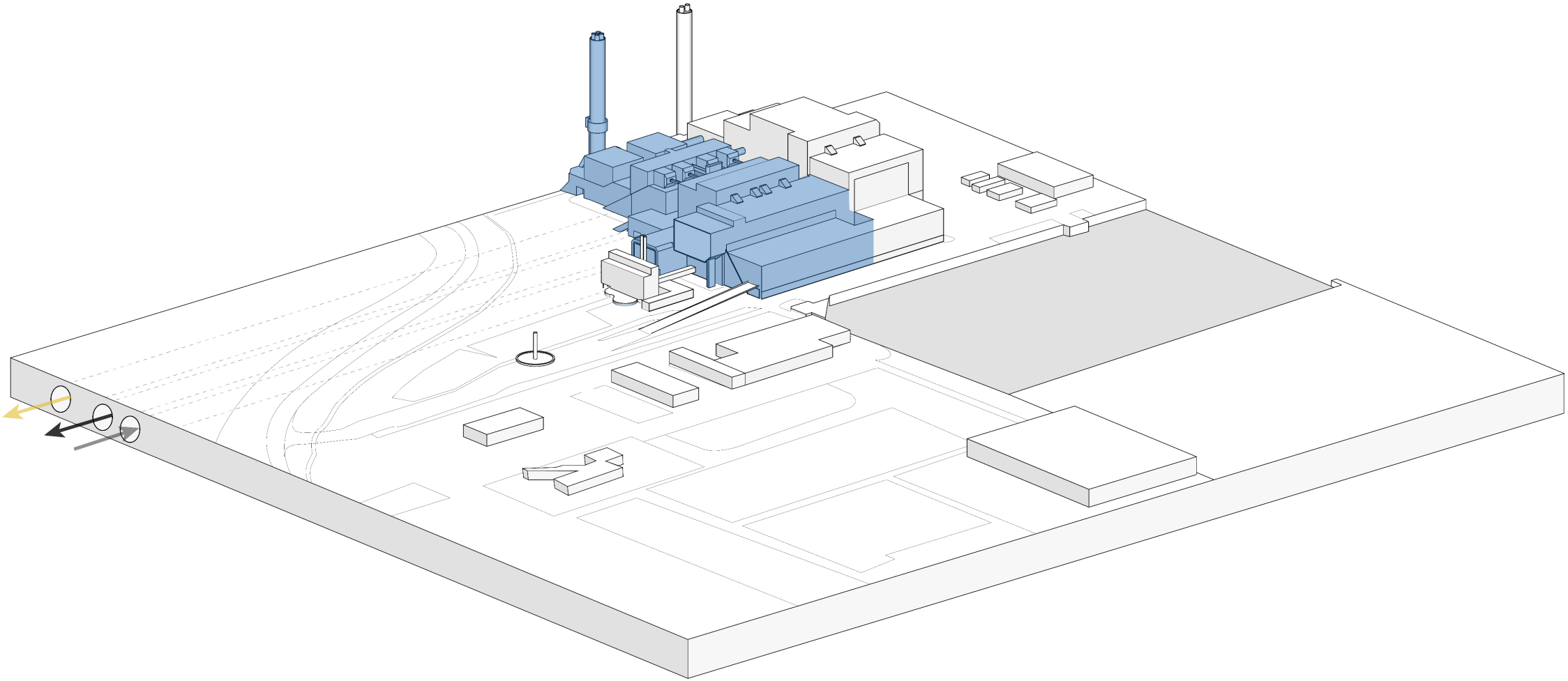
Afval Energy Bedrijf Amsterdam

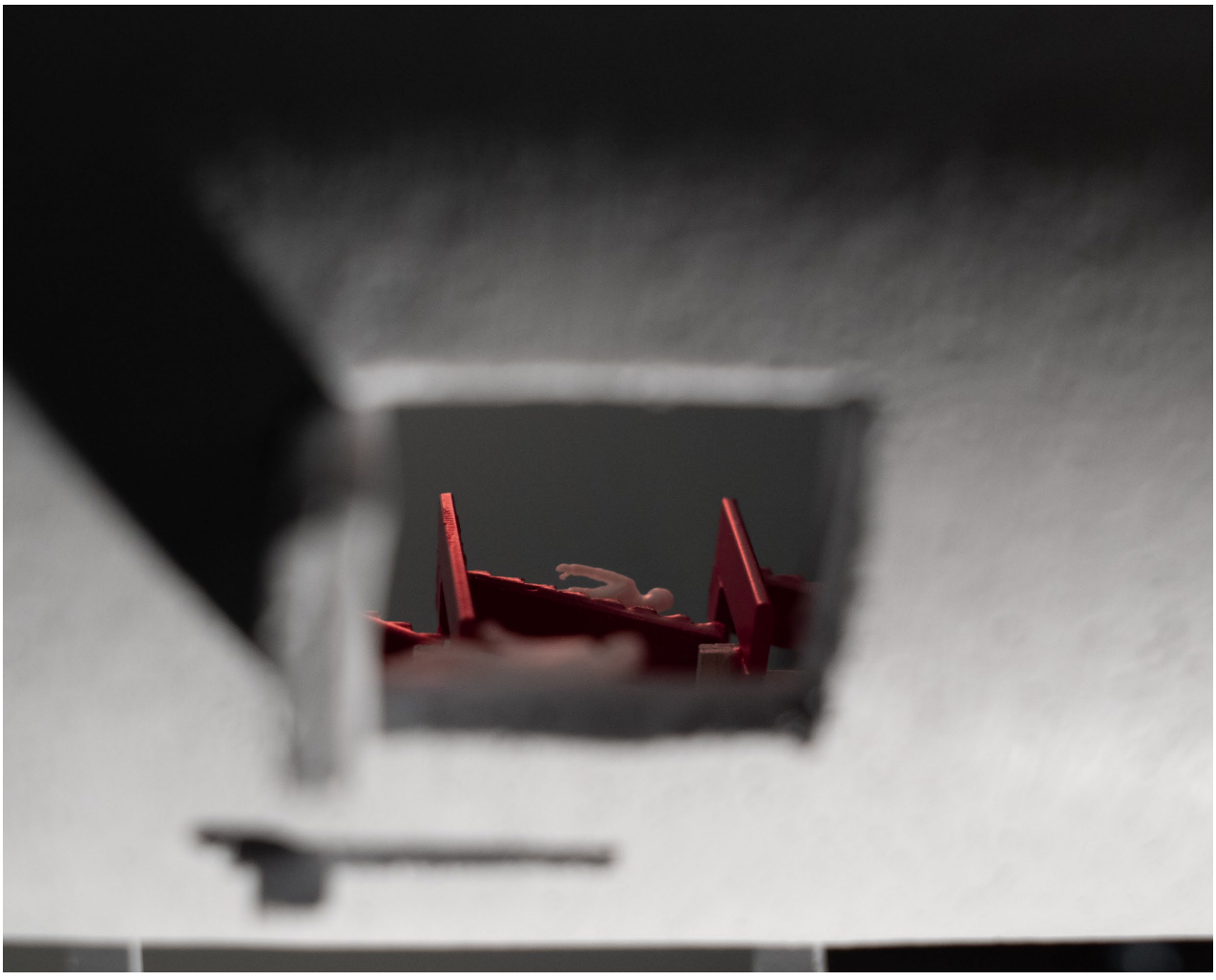


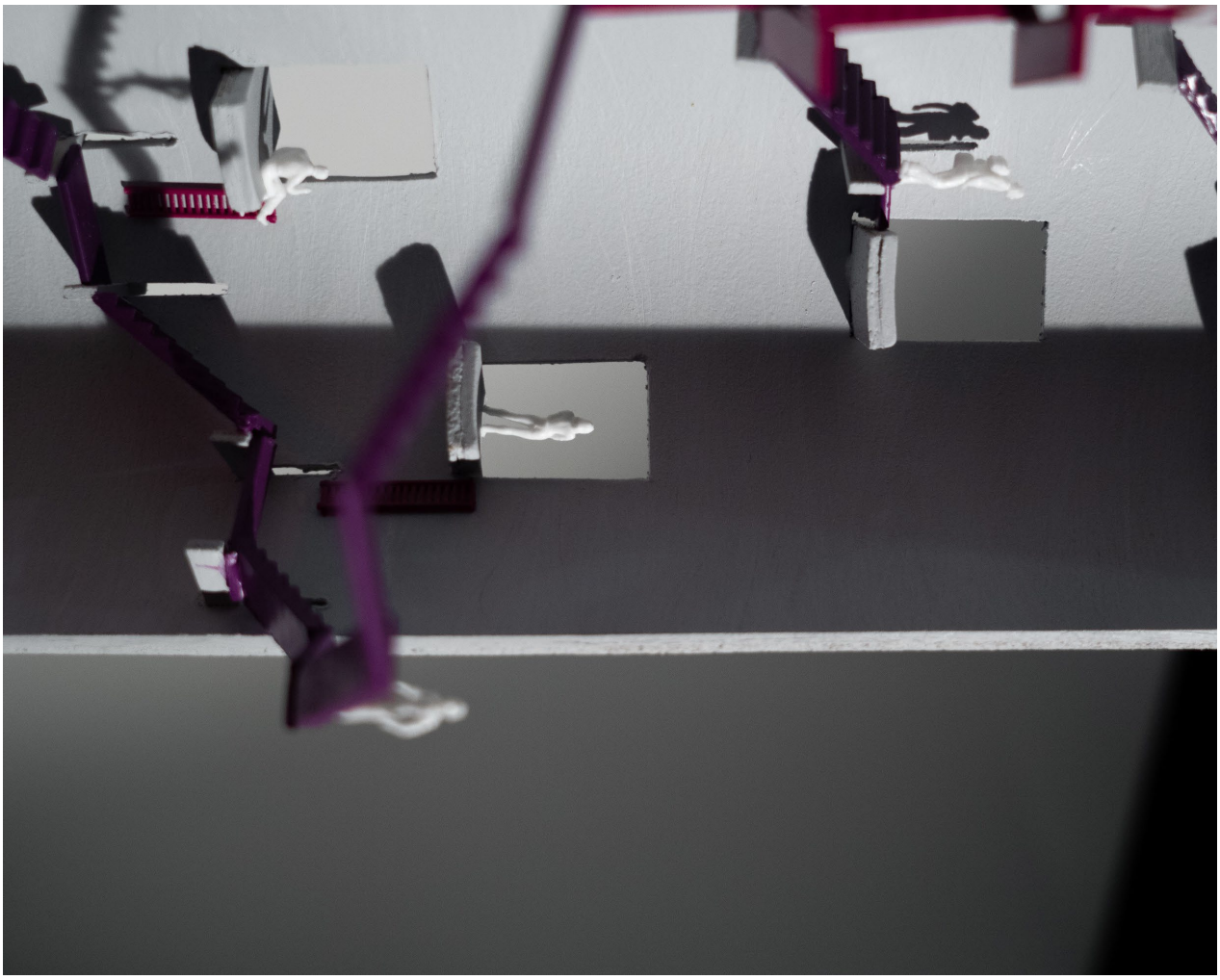
kilotons per year

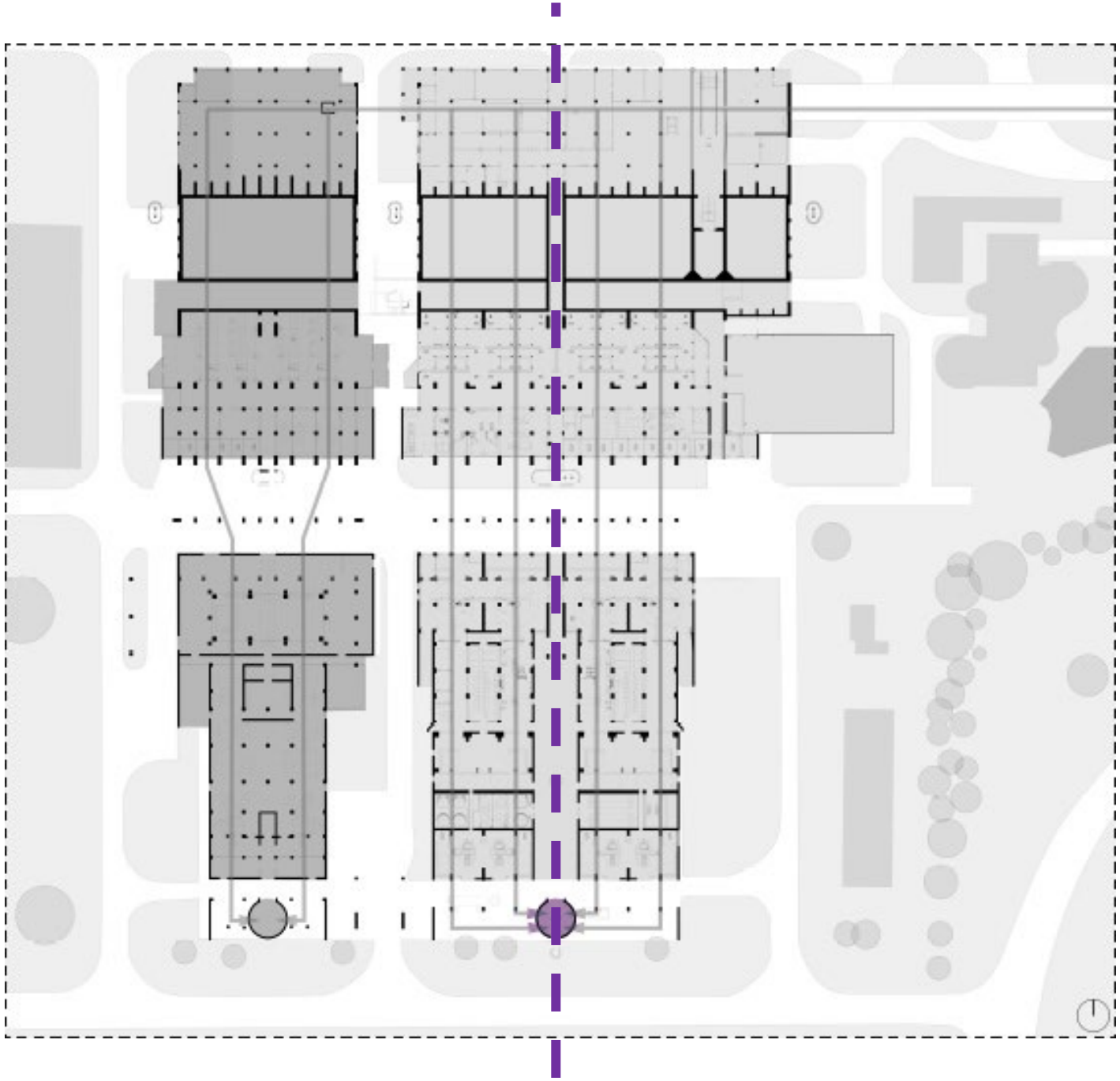
Afval Energy Bedrijf Amsterdam

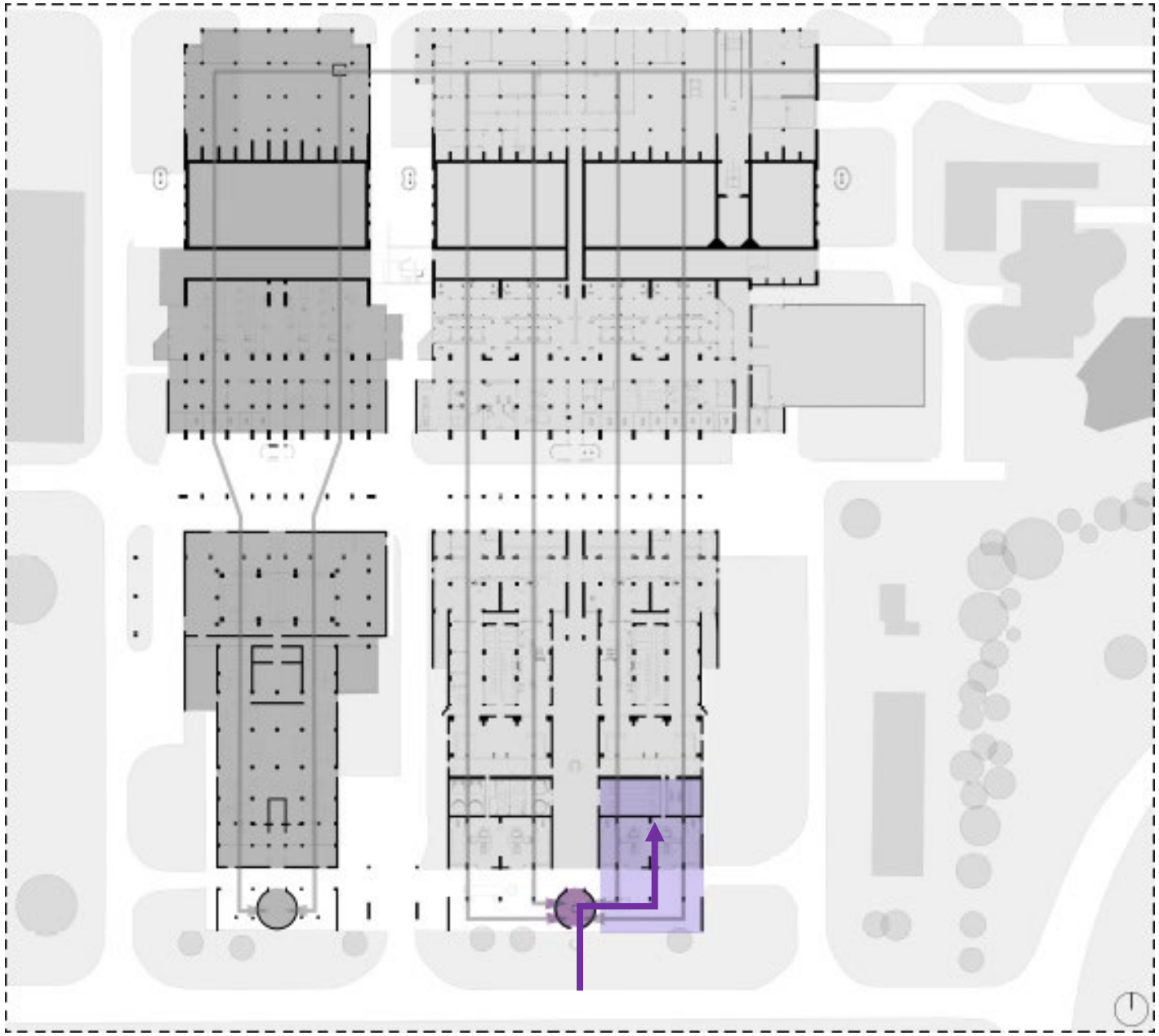


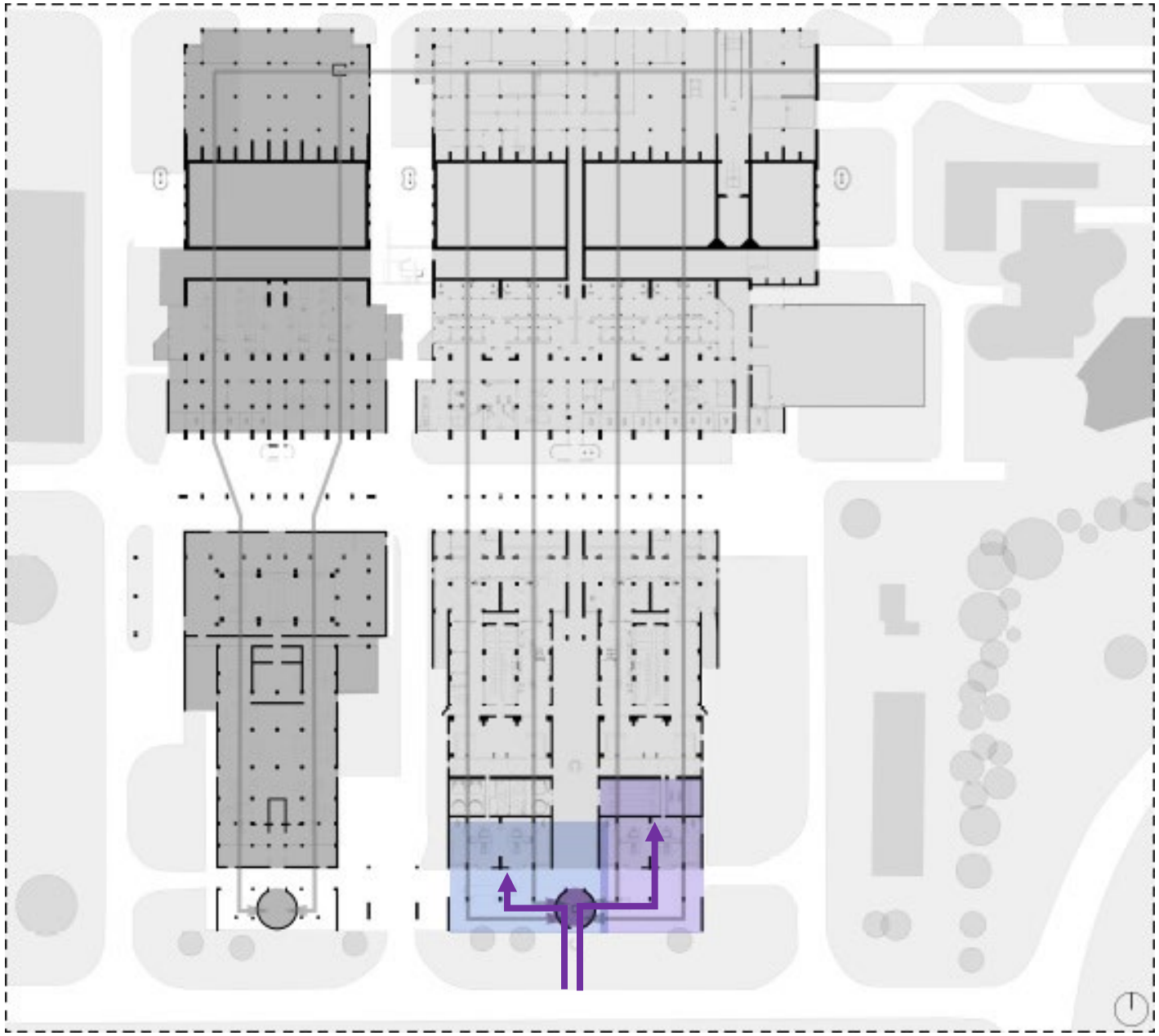


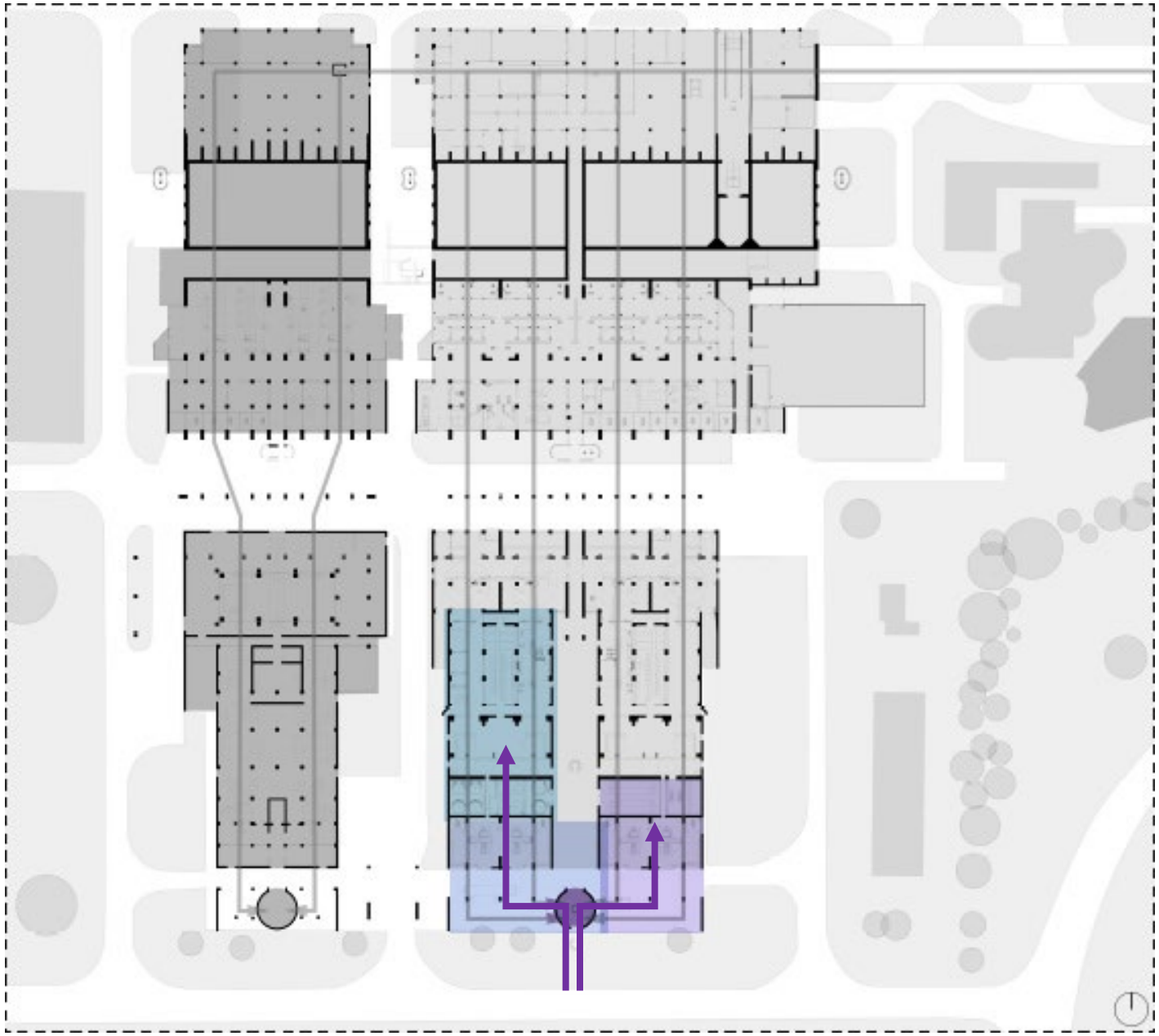


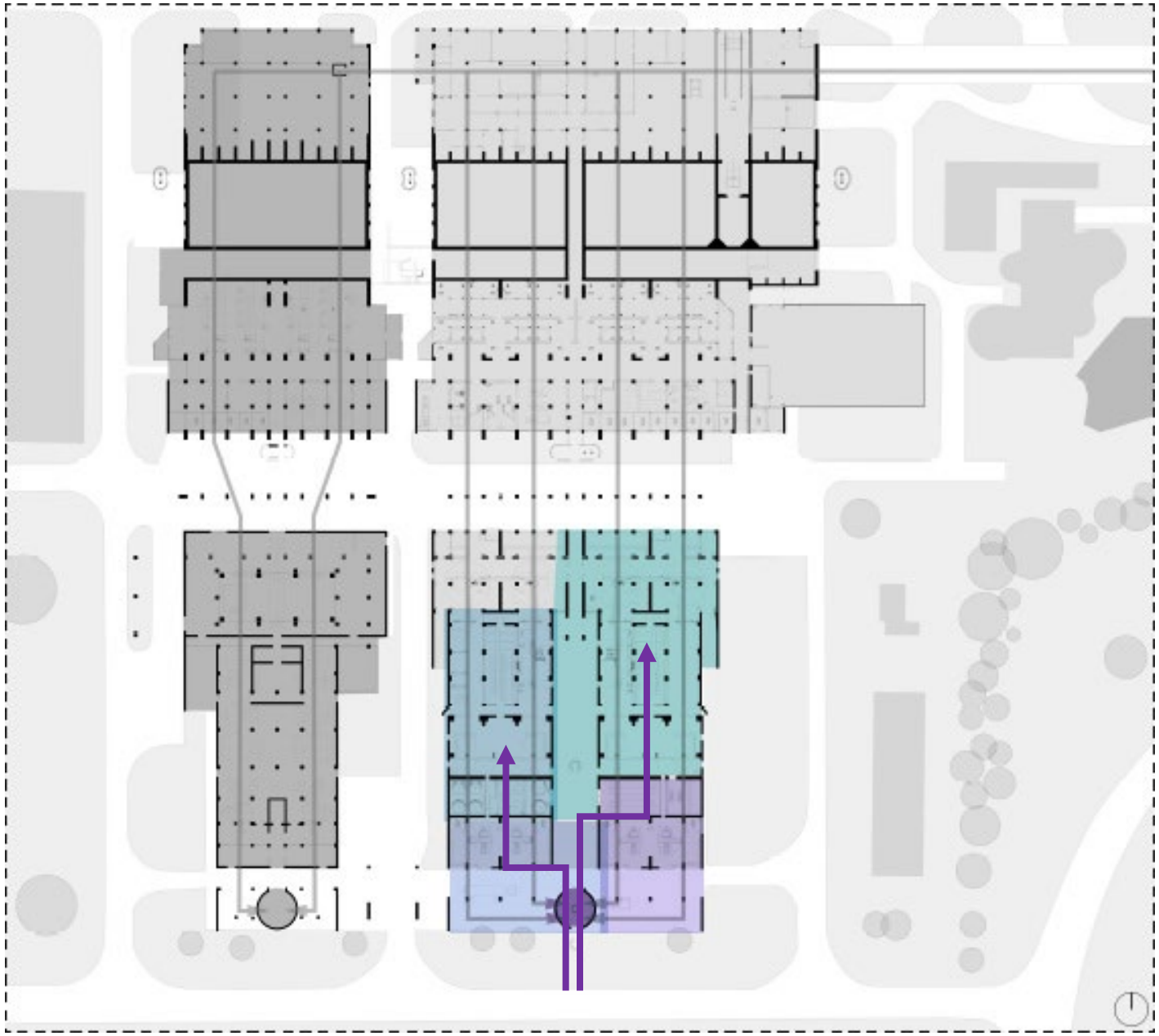


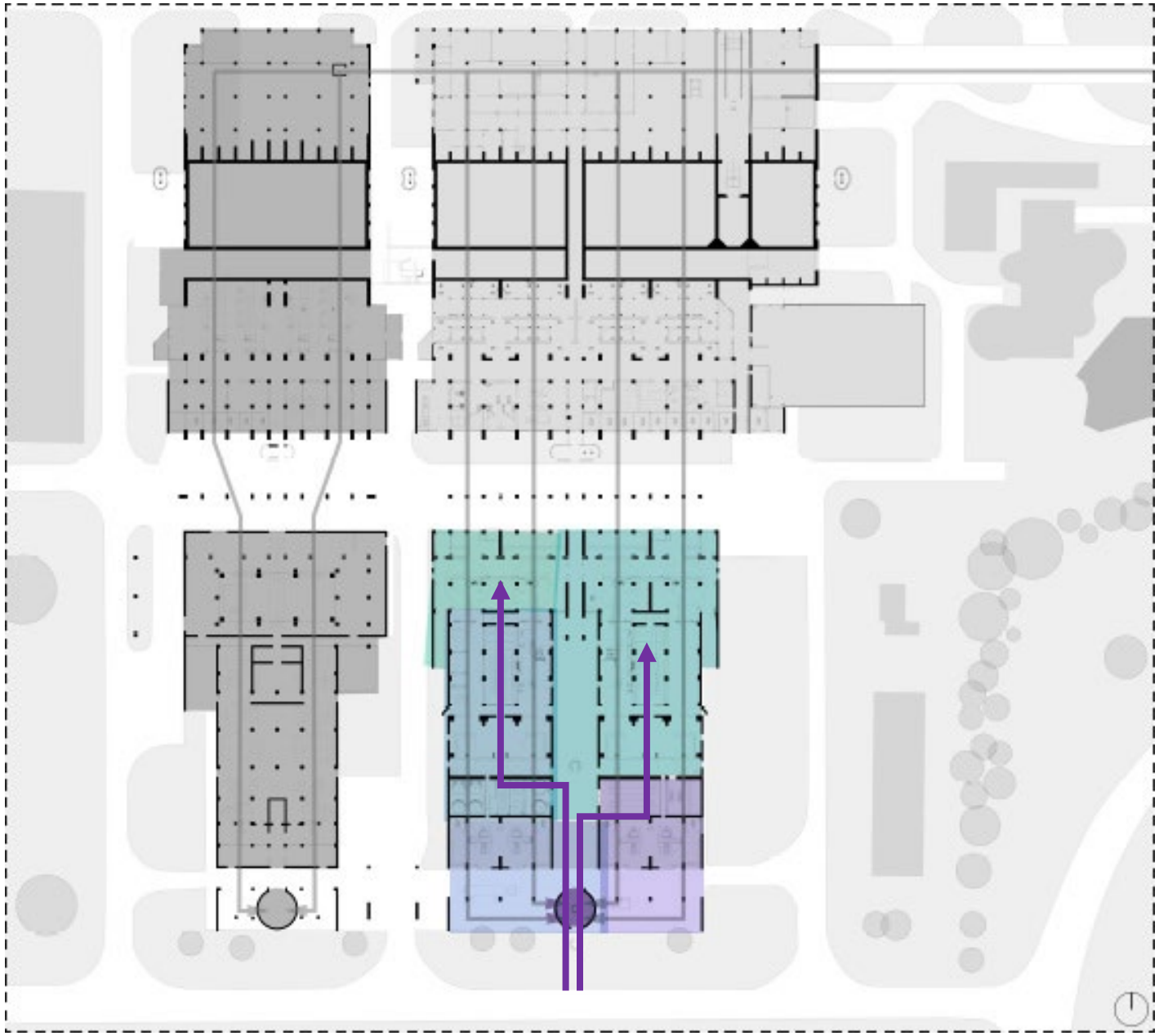


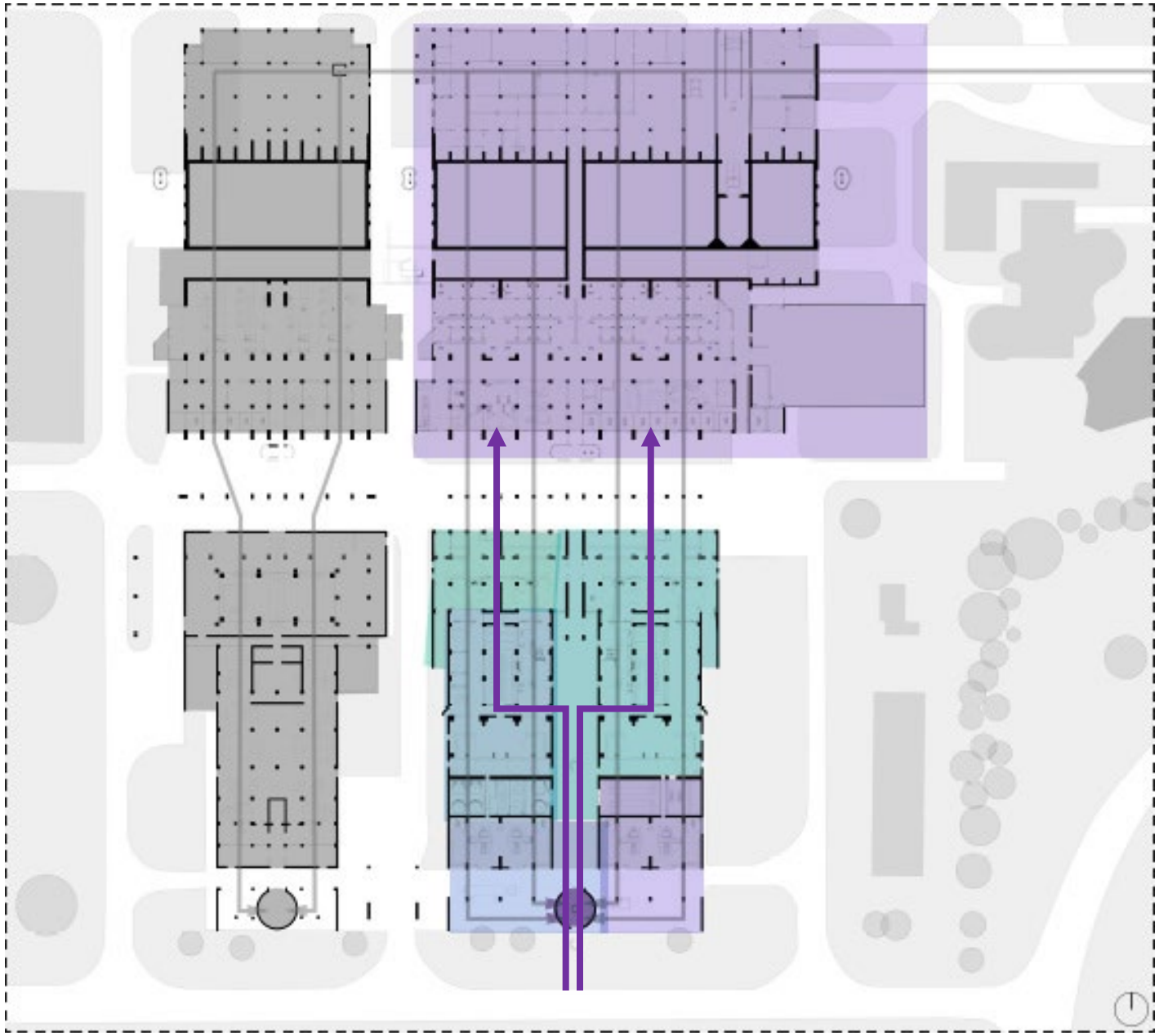




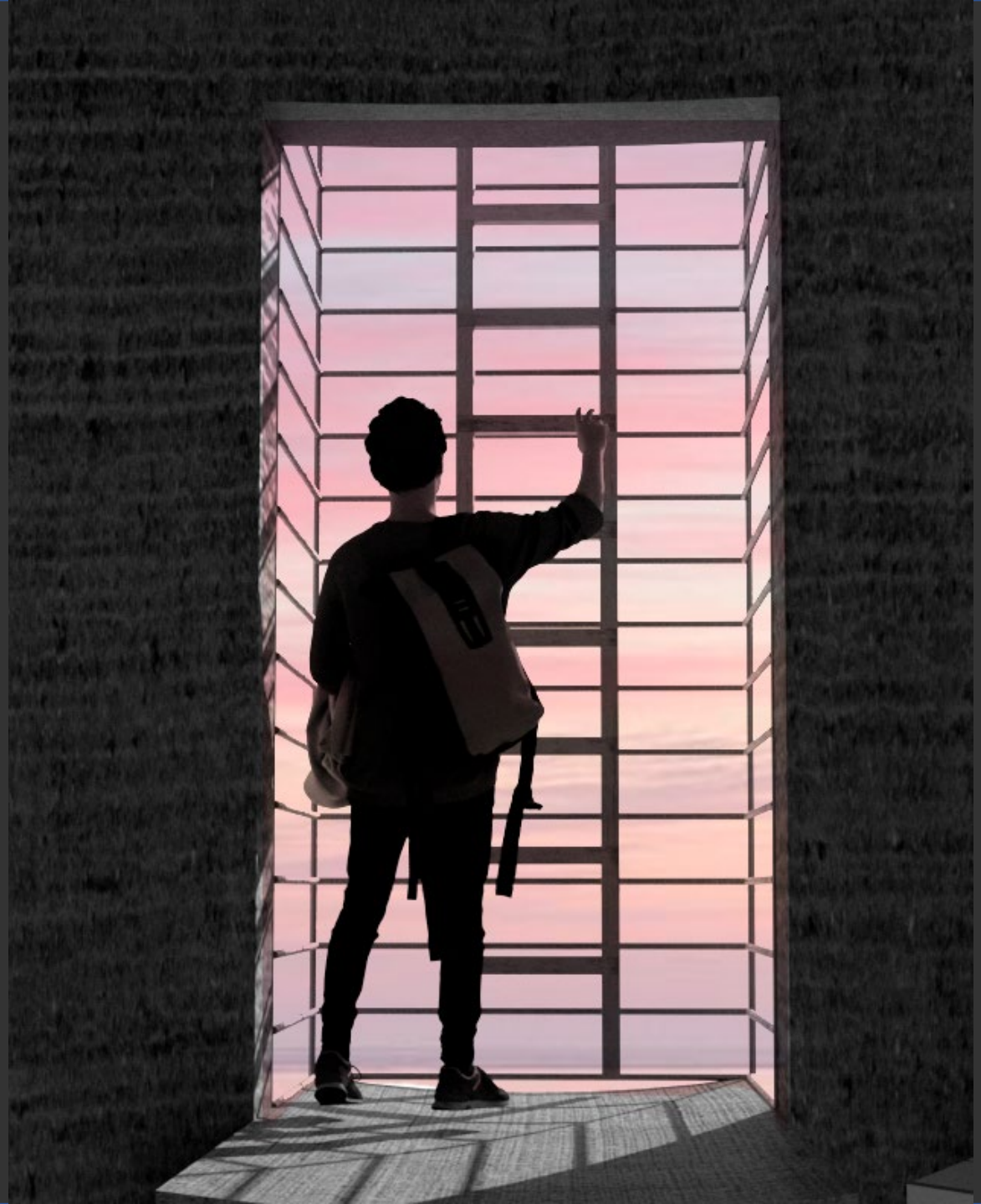


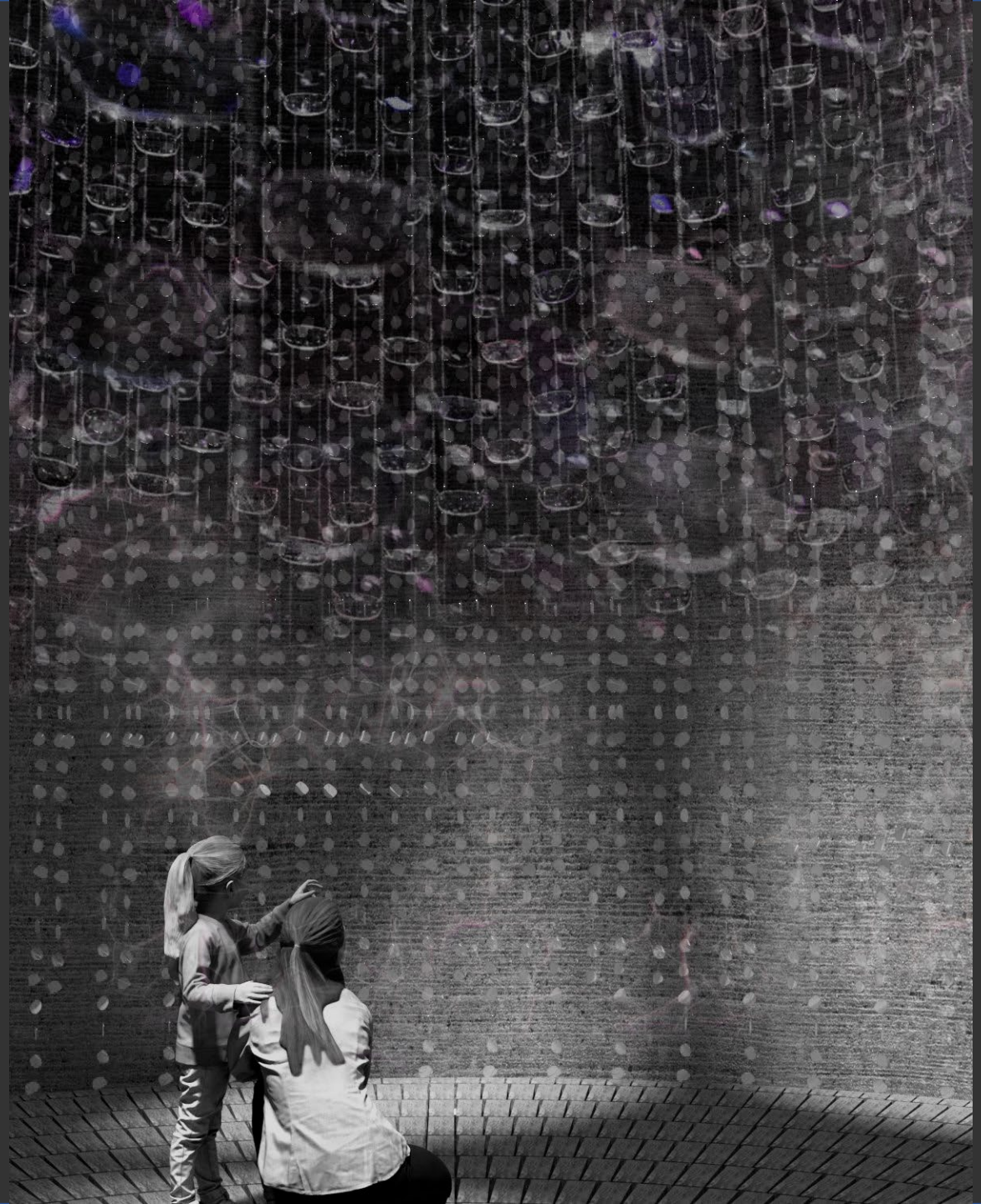


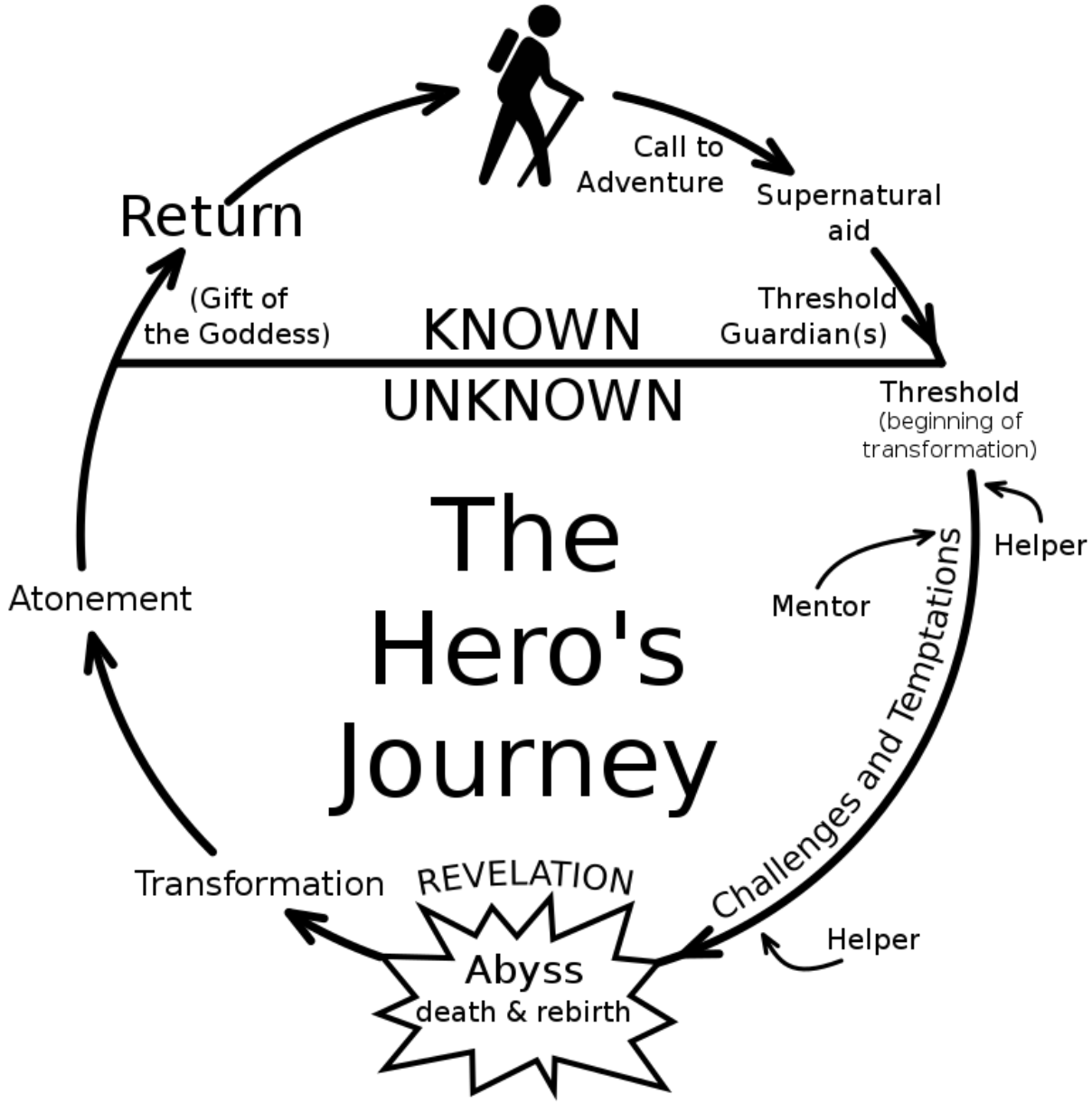




ROUTING







Cambell's monomyth

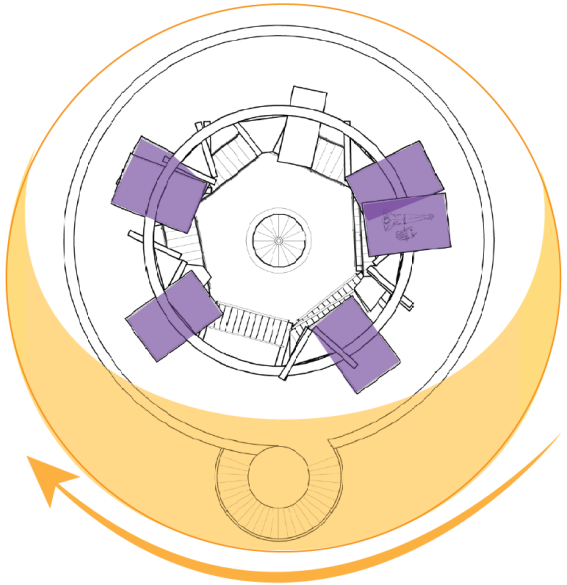

refuse
rethink
reduce
reuse
repair
refurbish
repurpose
remanufacture
recycle
recover
2020

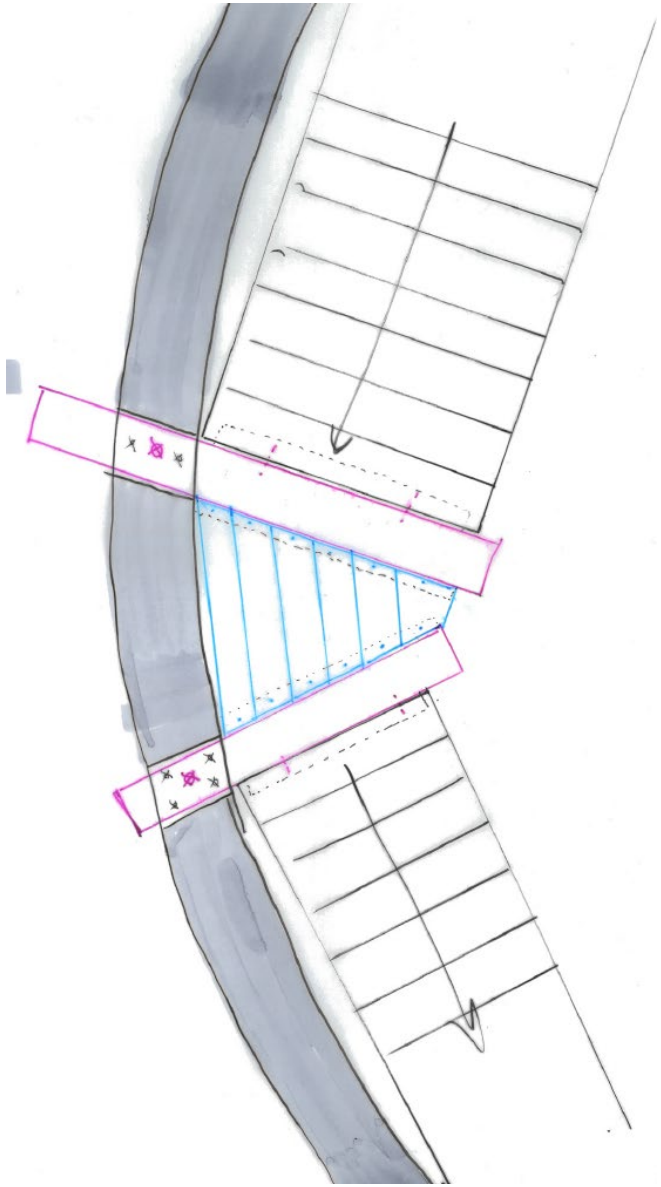
Photo: Jeroen Atteveld

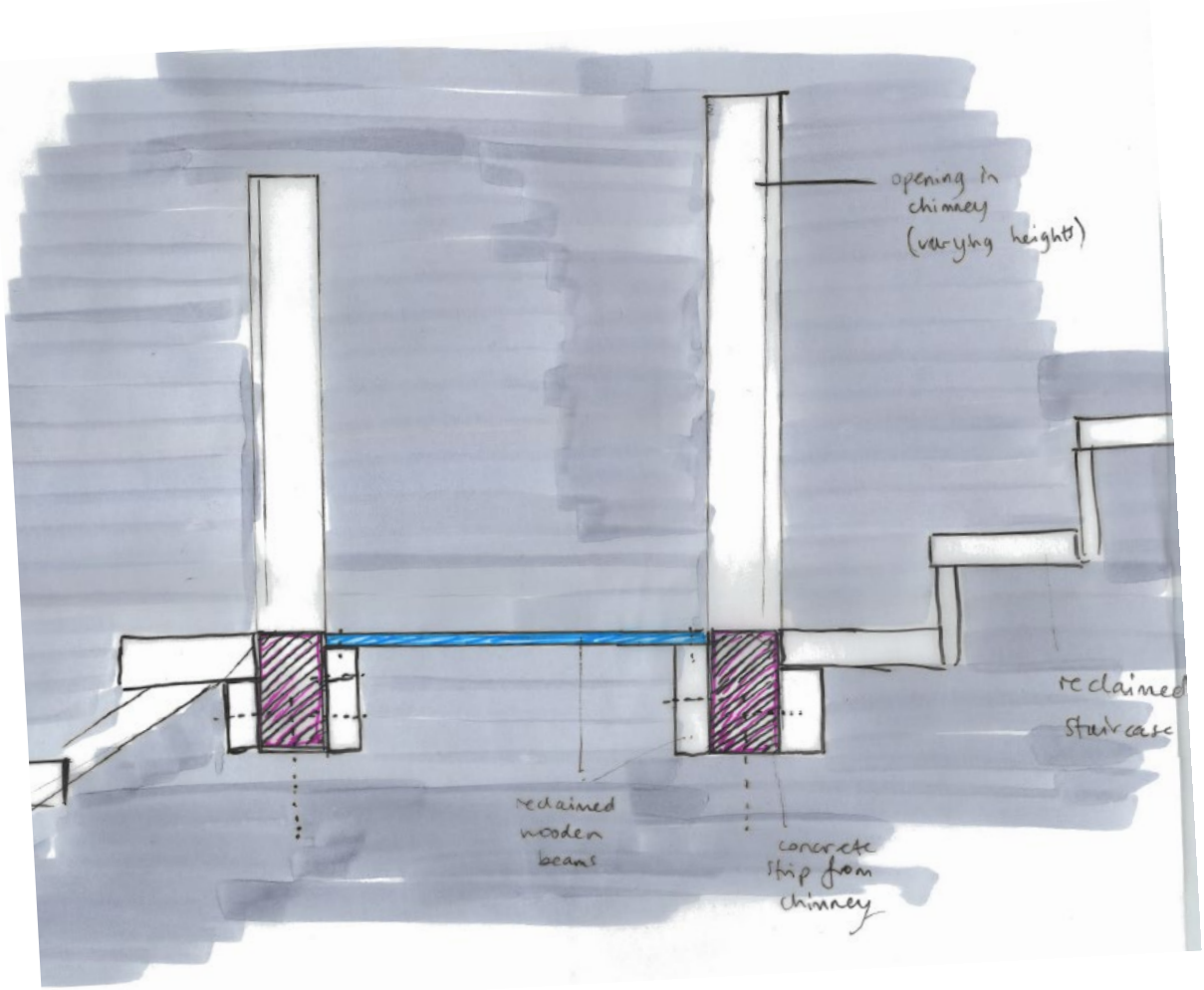

THANK YOU

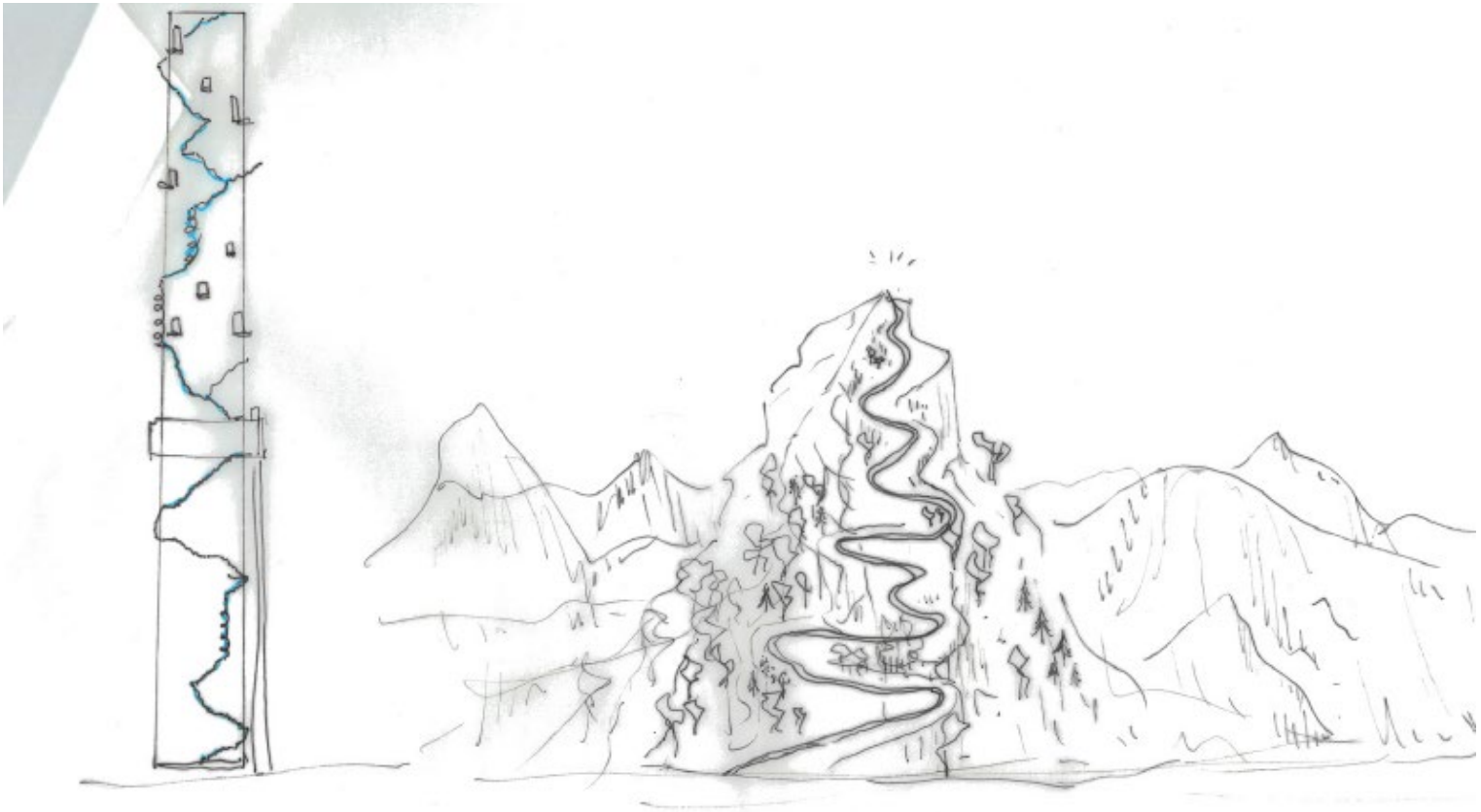
ADDITIONAL SLIDES


Husqvarna

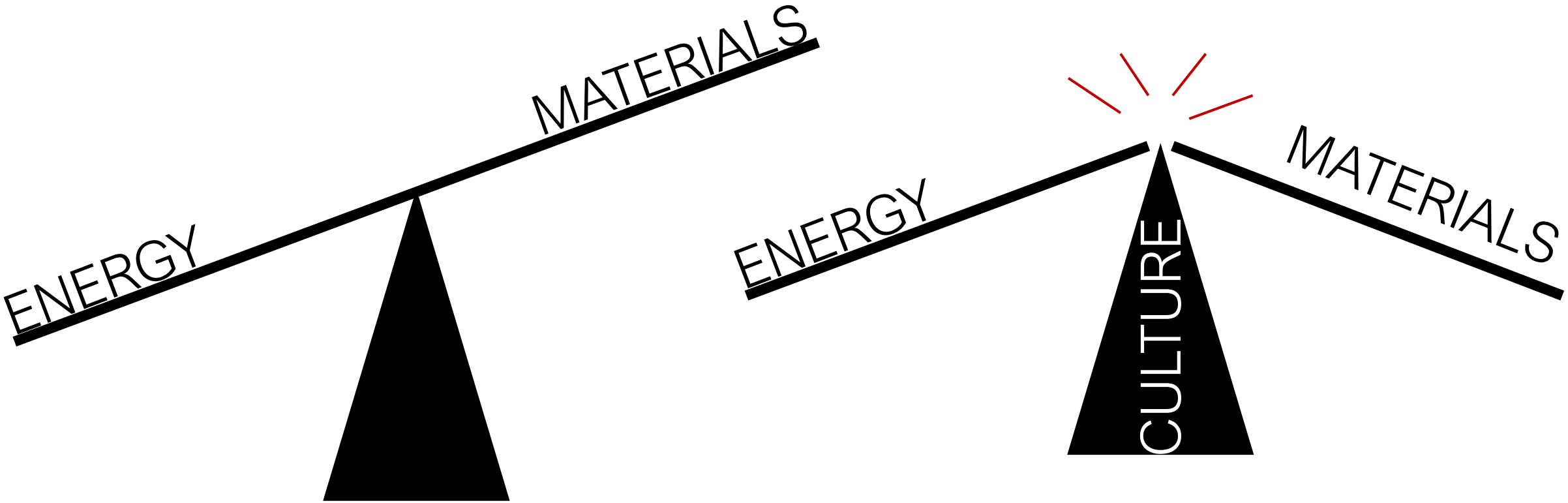





opening in chimney (varying heights)
reclaimed staircase
reclaimed wooden beams
concrete strip from chimney




KLOK
KLOK


ENERGY
MATERIALS
ENERGY
CULTURE
MATERIALS