

RECLAIMING THE ESTRANGED:
IMAGINING AN ARCHITECTURE OF EXCESS

BY SYDNEY CINALLI

Bachelor of Design, Architecture
University of Florida, 2017

Submitted to the Department of Architecture
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MASTER OF ARCHITECTURE

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ABSTRACT

A consumer's contact with plastic is typically a brief affair, while plastic's intimacy with the earth is immortal. Our initial fondness fades into estrangement much like a tragic love story. We essentially *ghost* our waste by disassociating from it entirely. We force it beyond our immediate cone of vision. Our waste streams then veil plastic's journey into landscapes around the world, drawing it further out-of-sight, out-of-mind.

Humans have become experts in using, abusing, and discarding earth's natural resources. Our pricking and prodding of the earth coupled with the habitual estrangement of our waste has induced "slow violence" on our landscapes at large (Nixon 2).

This estrangement also occurs at the scale of our built environment. Architects are typically situated downstream of material production; this ultimately confines design to values held by the construction industry. Blanketing their concerns for capital in false claims of sustainable building practices, the construction industry deliberately fetishizes material optimization. However, when these building materials reach their expiration date, a collective admiration once again fades into disaffection.

This thesis reframes plastic waste as a resource rather than a contentious collection of artifacts. By speculating on its life beyond estrangement, this perversion is explored by conflating plastic's lifespan with socioeconomic, cultural, and environmental conditions unique to the Hawaiian Islands. These speculations actively consider site conditions that influence the built environment long after the architect leaves the table by acknowledging plastic as a material that operates across deep time scales. These themes are explored within three parafictions; each follows an oral history of an architectural intervention.

In the case of waste, *more is more*. With that said, we have the opportunity to do what we, as humans, do best. We can use more - not less - around this collective resource of plastic.

What if our deliberate estrangement from plastic waste was replaced with a newfound intimacy? What new forms of cultural value could these interventions engender?

Thesis Advisor: Brandon Clifford
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Although I met you in my last year at MIT, I'm thankful for the time we've worked with one another. Your vision and passion is present in everything you do; it rubs off on everyone you come in contact with. Thank you for taking this on with me and giving the thesis room to breathe at every stage.

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I am incredibly grateful that I've had the opportunity to meet and work with you here at MIT. Your perspective is refreshing and liberating, which has helped me maintain my excitement in times of stress and confusion. Thank you for always reading between the lines and for uncovering the heart of the project.

Cristina Parreño

I've always valued your words of encouragement and critical stance. Your work inspires me to push beyond what I believe I'm capable of. Thank you for bringing tough questions to the table, even when I feel I'm at a loss for words.

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Thank you for continuously re-centering my critical eye to the intersection of life and art. This thesis became a hybrid-baby of themes I've explored with you, but is by no means the end of the conversation. I'll cherish our times together, and I hope that our collective gatherings will continue for years to come.

Jaehun Woo + Ziyu Xu

Thank you for allowing me to geek out over plastics in our experiments from Core III. You both are incredible designers, and I feel fortunate to have had the chance to work with you. I look forward to seeing where you go from here.

ABSTRACT

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UNVEILING THE FLOW OF PLASTIC WASTE

Within capitalist society, the critique of the system often emerges following eras of progress. In result, we often find ourselves torn between two worlds. One world follows a discrete path we have built upon, while the other agrees to challenge those methods, systems, and preconceived notions. In reality, any system developed by humans is inherently imperfect in its influence. These systems frequently exercise binaries, which often encourage methods of division rather than collaboration.

Our plastic waste system is a great precedent for this phenomenon. While the promises of recycling have been deployed as a form of utopian propaganda for decades, the production of plastic products has only increased. By 2050, it is projected that the quantity of plastic will outweigh the quantity of fish in the ocean. (World Economic Forum 2016).

Global plastic production is over 270 million tonnes per year while global plastic waste is over 275 millions tonnes per year. This means that we are throwing away more than we are producing by roughly 5 million tonnes per year (Jambeck et al. 2015). According to the same data, our annual mismanaged plastic

waste is roughly 31.9 million tonnes, which is approximately 12% of annual plastic production. Apart from that, 8 million tonnes of that mismanaged plastic waste is directly input into our oceans. Our unreliable waste infrastructure places blame on the post-consumer. By failing to address the cracks within the system itself, we have crafted a grim reality. This mismanaged plastic waste contributes to toxic refuse territories, such as the Great Pacific Garbage Patch.

The notion that recycling will solve the world's problems is a complete fallacy; however, plastic pollution's bleak consequences on anthropomorphic and non-human life inject a note of caution. If we reframe our systems of thought to accommodate, reconsider, and play out these concerns, could we approach waste as a resource rather than an entity to be dealt with?

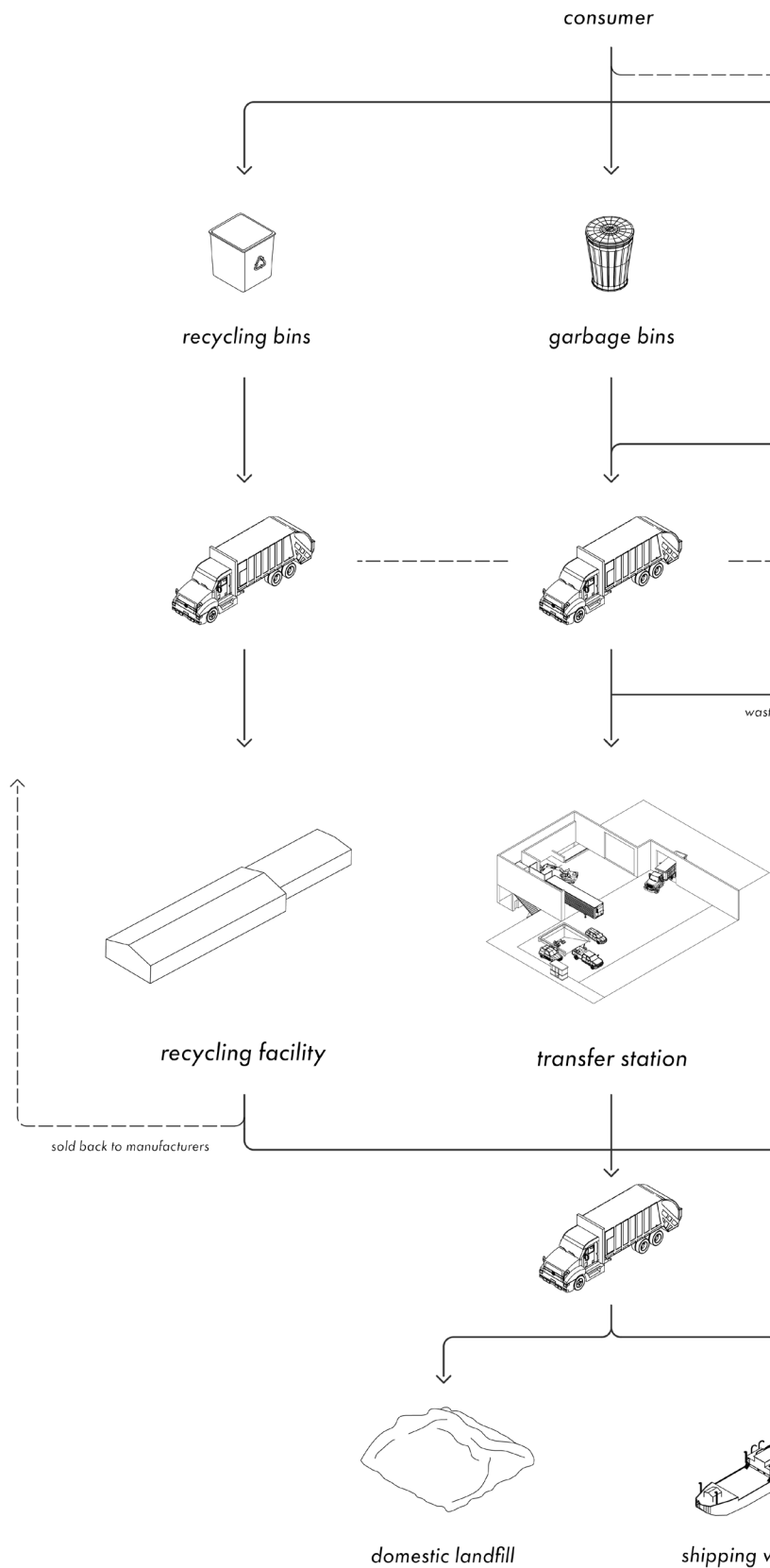
"Every piece of plastic ever made on earth is still on earth."

*E.G. Couzens and V.E. Yarsley,
The Plastics Age (1956), 286.*

HIDDEN FLOWS + DESTINATIONS

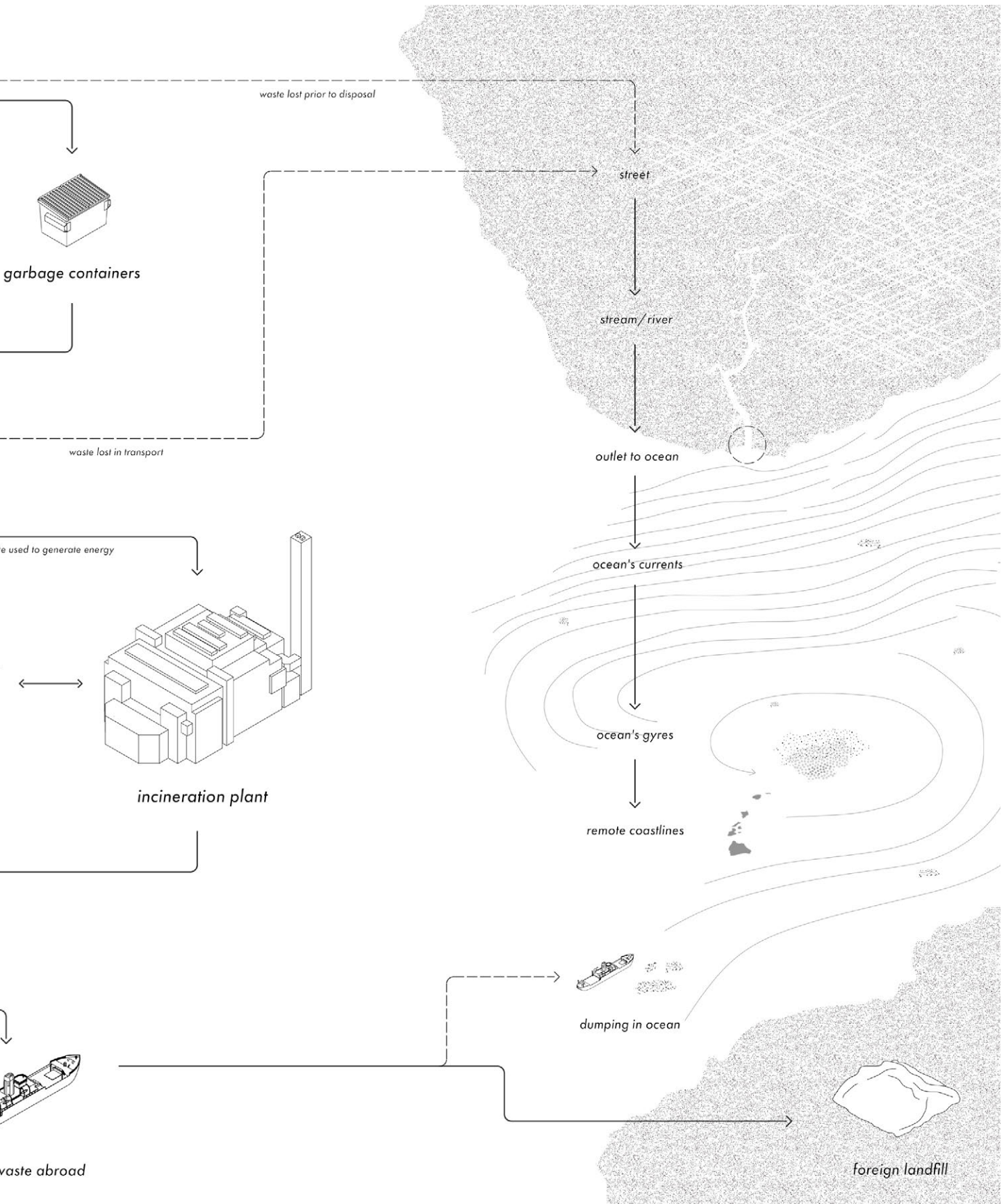
While a consumer's interactions with plastic are often brief, plastic's intimacy with the earth is immortal. The waste stream has veiled plastic's journey into landscapes around the world quite masterfully. By drawing it further out-of-sight and out-of-mind, our fondness for plastic quickly fades into estrangement. When this estrangement occurs, we have metaphorically *ghost* our waste in hopes it won't return with a vengeance. When these streams are blanketed with false claims of sustainable afterlives, the consumer then creates distance between themselves and the guilt of their behavior.

The Great Pacific Garbage Patch located in the North Pacific Gyre is just one of many toxic refuse territories that branch off of this waste infrastructure - one that demonstrates our inability to grasp the scale at which plastic pollution operates.



The average American consumer produces **127 kg** of plastic waste per year.

(Jambeck et al., 2015)



The background of the page is a stylized map of the Pacific Ocean. It features several large, circular ocean gyres represented by concentric, wavy lines. Landmasses, including North America, South America, and the Hawaiian Islands, are depicted with a stippled or dotted texture. The overall aesthetic is clean and scientific.

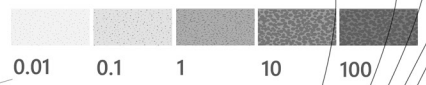
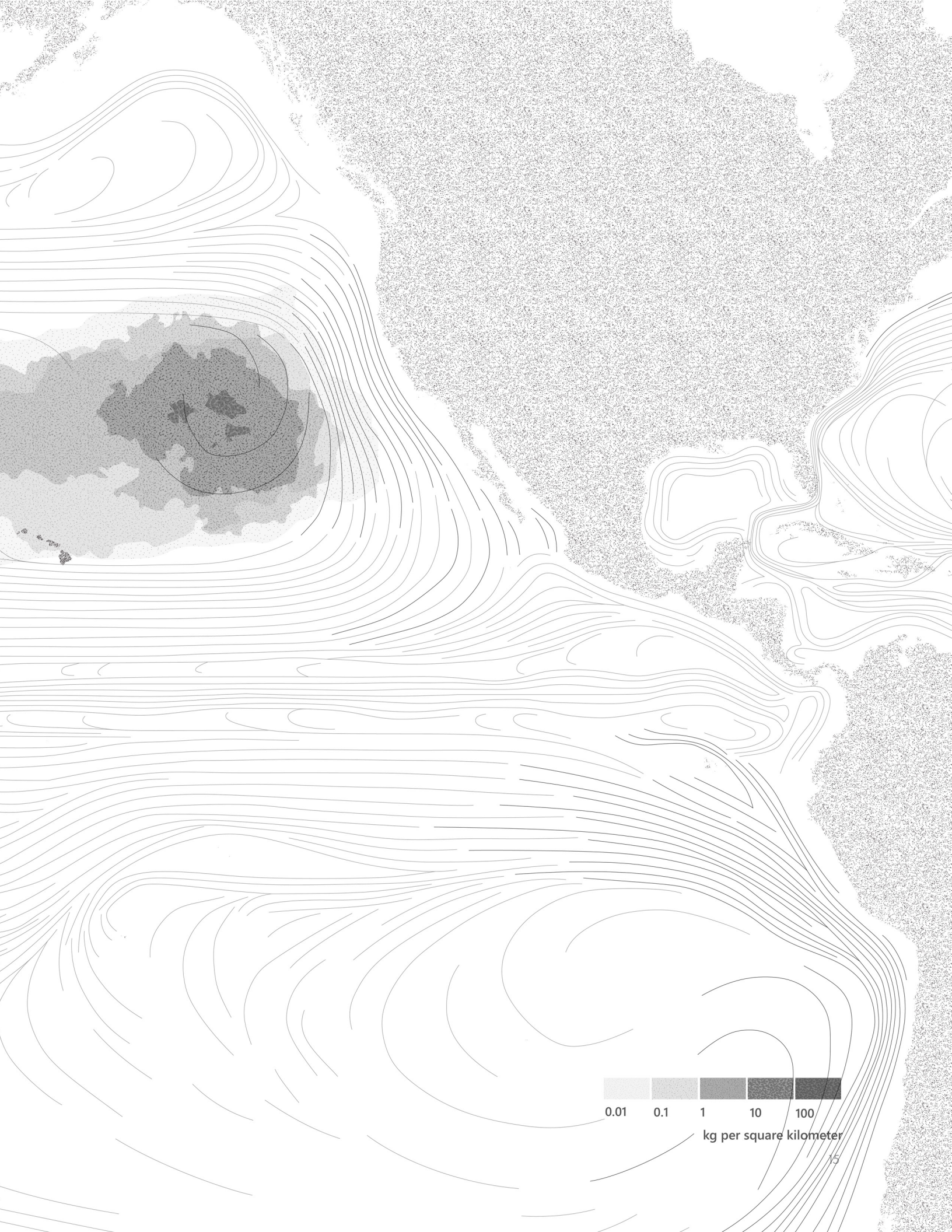
PLASTIC FLOTSAM

Glitches in the waste infrastructure have fed territories such as the Great Pacific Garbage Patch (GPGP).

The relentless human consumption of plastic has materialized as a toxic refuse territory, known as the Great Pacific Garbage Patch (or the GPGP). Located just north of the Hawaiian Islands and approximately double the size of Texas, it signifies that pollution knows no boundaries (Lebreton, et al. 2018).

The GPGP is one of five offshore accumulation zones in our oceans, but it is by far the largest. These five cumuli are situated within each of the ocean's gyres; these are the large circular currents formed by a combination of global wind patterns and Earth's rotational forces. Due to these forces, plastic is continuously deposited on remote shorelines, such as the Hawaiian Islands.

*Data Sources: NOAA Marine Debris Program,
The Ocean Cleanup, American Geological Society*



0.01 0.1 1 10 100
kg per square kilometer

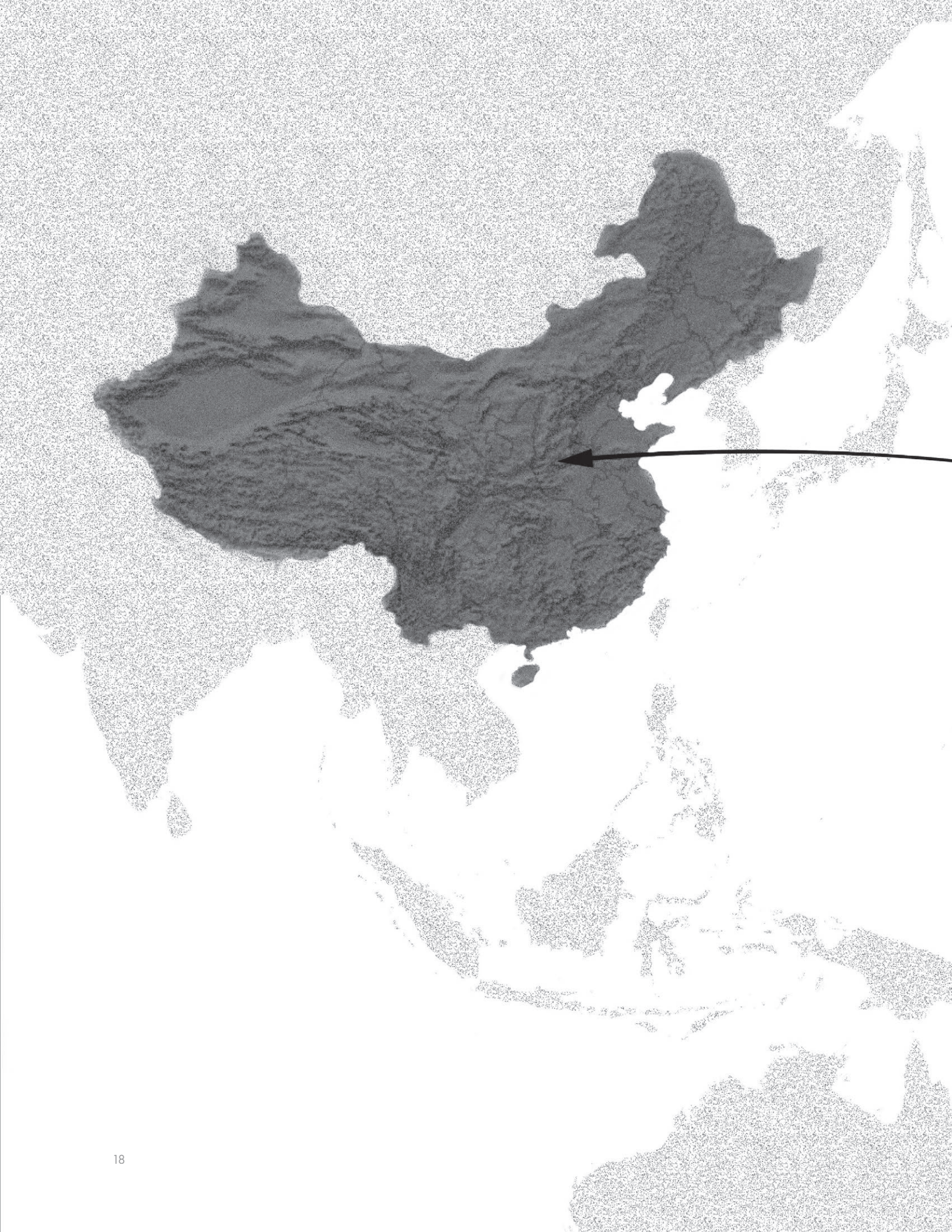
PLASTIC TIDES ARE TURNING

In 2019 - following China's new limits on plastic imports - Hawaii county officials announced that plastic recycling would no longer be accepted at transfer stations (Wu 2019).

This ultimately diverted - and continues to divert - thousands of tons of plastics to landfill, leaving a majority of this debris to be incinerated.









*By the end of 2019, Hawaii exported its last
1270 metric tons of plastic recycling to China.*

(DOH OSWM Materials Report, 2019)

INCINERATION + BEYOND

Although the process of incineration mines energy from the plastic waste, it simultaneously releases sizable amounts of toxic ash. Discharging not only CO₂ but also mercury, ammonia, and dioxins, incineration actually incentivizes waste production and produces minimal energy at a local scale compared to other methods of energy production (Miller and Shin 2017).





THE WOES OF CONSUMPTION

Evident in everything from social media to material goods, capitalism has bred a society dominated by consumption. However, consumption is not limited to products; it fuels consumer culture at large. While capitalist values continue to prosper, values not inscribed in socioeconomic systems gradually become obsolete.

The veiling of our waste streams is frequently complemented by carefully crafted illusions of our built environment. Concerns for sustainable afterlives of consumer products are cushioned by deceptive recycling processes; meanwhile, the construction industry actively adopts standardization to rationalize material choices. Both systems contribute to an estrangement that eases culpability and promotes unreliable waste streams. We essentially pat ourselves on the back while we watch our waste drift into the *poché* of our planet.

Whether or not the consumer cares to admit it, plastic has embedded oppression. It begins with the extraction of fossil fuels, wars over resources, and spills that devastate marine ecosystems. Its perceivable *end* concludes with a waste receptacle, a promise that the product will be granted a new life beyond your grasp. It will live a new life; however, that life extends beyond the waste stream into the ocean's gyres, into human and non-human organs, or back into the earth.

Many are preoccupied with cleanup efforts, with attempts to recharge consumer production, or with capturing its embedded energy. However, what have we gained from these approaches and what have we lost? What degree of estrangement has this engendered, and how can we reconcile with our losses?

STANDARDIZATION + CONSTRUCTION

A habitual estrangement occurs within the construction of our built environment. In our contemporary moment, building materials carry value based on several performance criteria.

We see this most evident in our rather religious use of the *CMU* (*concrete masonry unit*) and the *2X4*. These systems are fetishized for not only their efficient use of material but also for their deployability across various contexts.

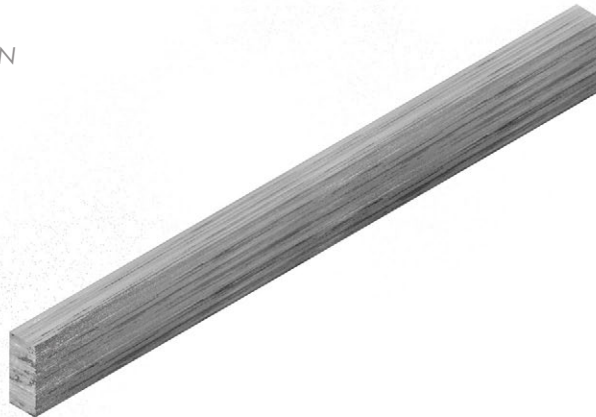
COST + EFFICIENCY

MODULARIZATION



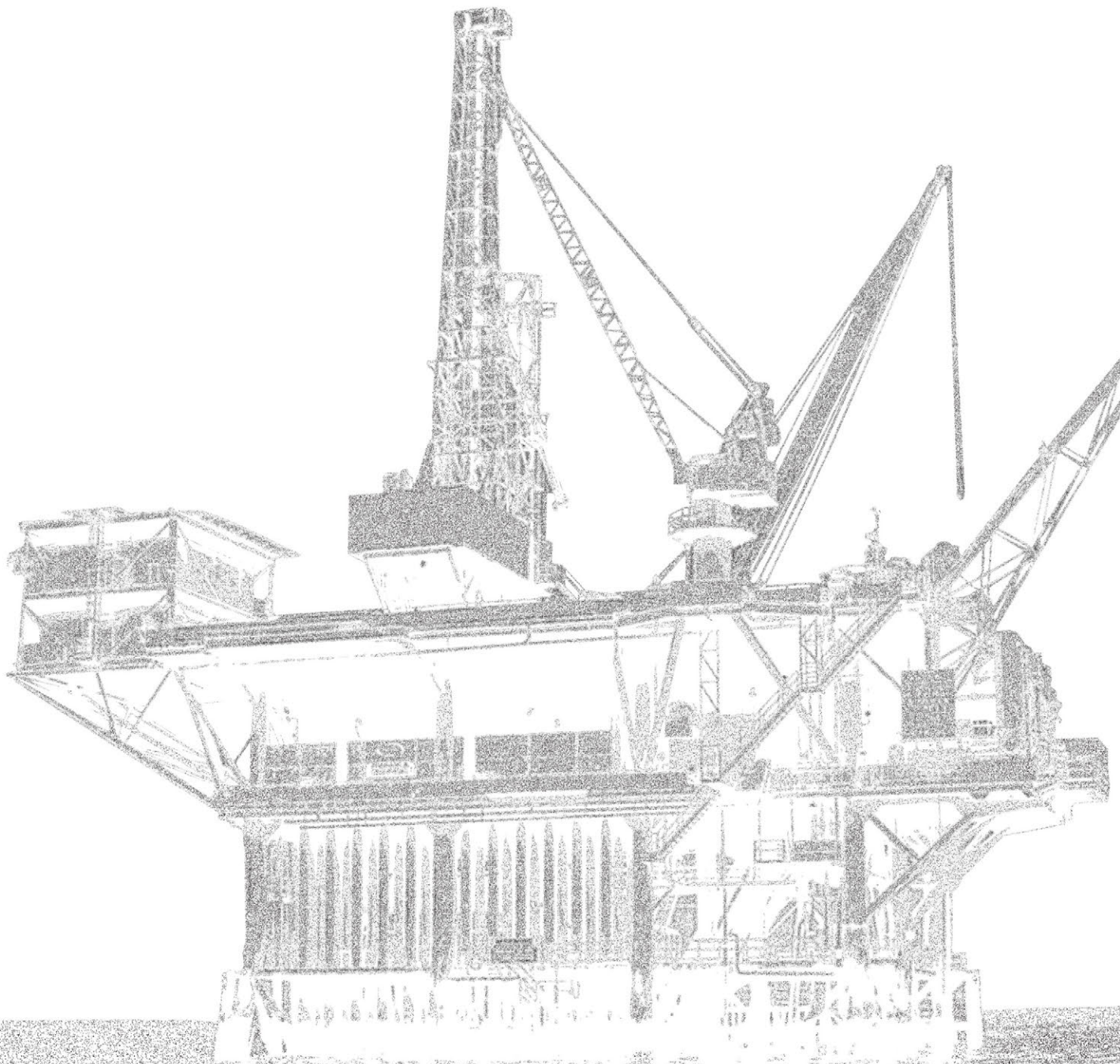
OPTIMIZATION
OF PROFILES

STANDARDIZATION
OF SIZE + FORM



DEPLOYABILITY + VERSATILITY

FAMILIARITY OF TECTONIC



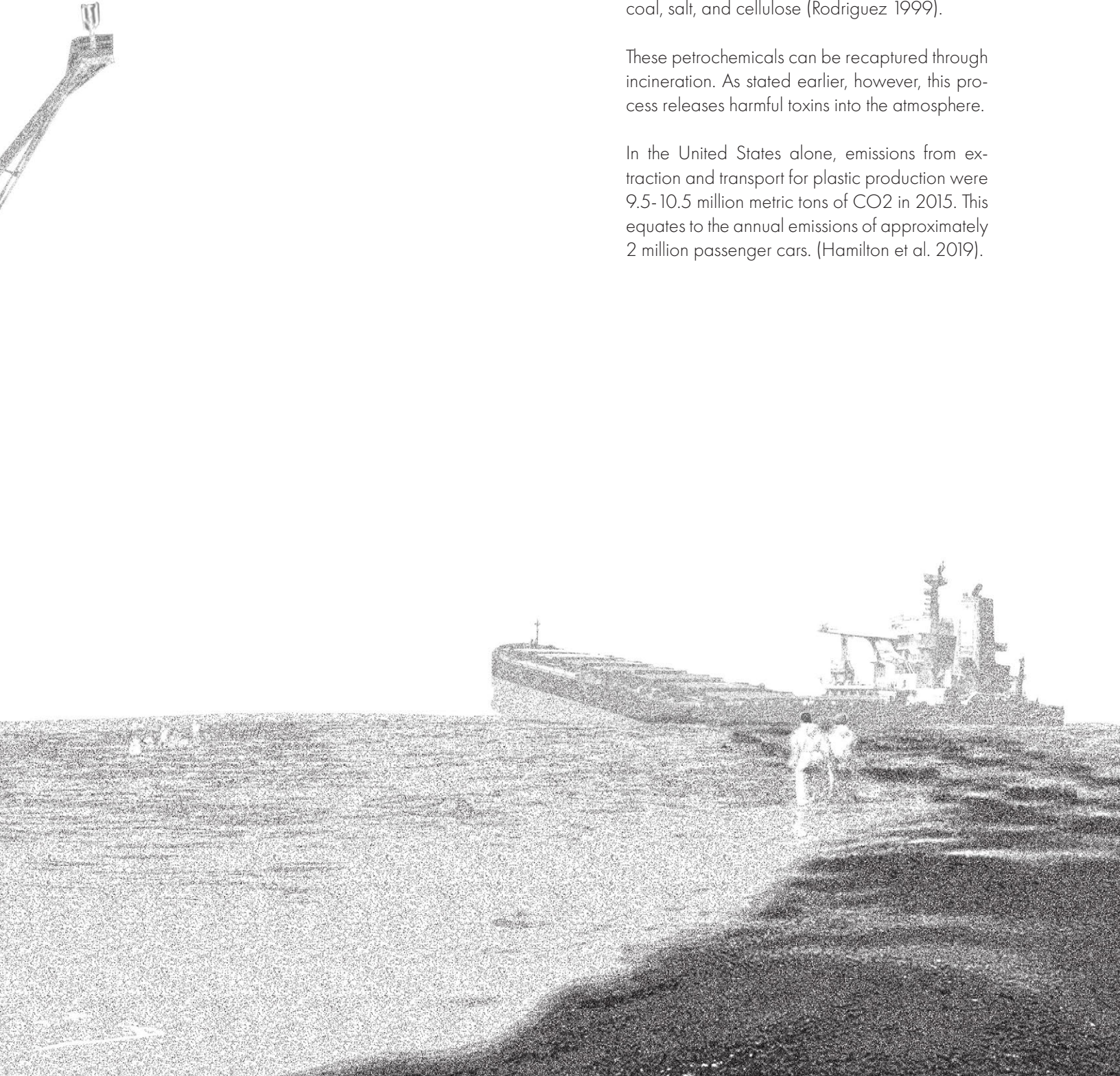
EXTRACTION + PRODUCTION

As we know well, humans have become experts in using, abusing, and discarding earth's natural resources. We have systematically pricked and prodded the earth's crust for materials that are rapidly slipping from our fingers.

Synthetic plastic production preys heavily upon natural resources such as crude oil, natural gas, coal, salt, and cellulose (Rodriguez 1999).

These petrochemicals can be recaptured through incineration. As stated earlier, however, this process releases harmful toxins into the atmosphere.

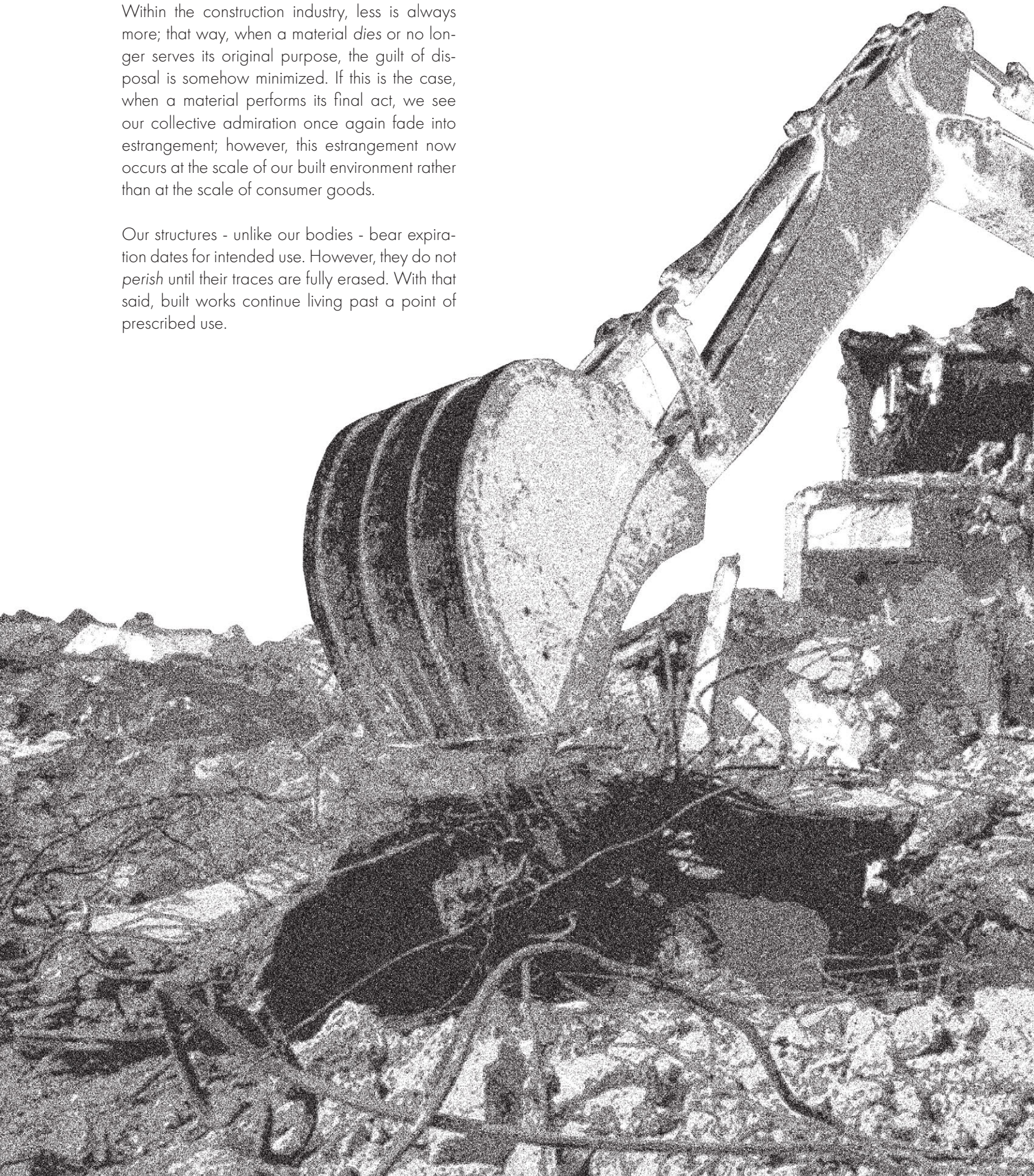
In the United States alone, emissions from extraction and transport for plastic production were 9.5-10.5 million metric tons of CO₂ in 2015. This equates to the annual emissions of approximately 2 million passenger cars. (Hamilton et al. 2019).



DEMOLITION + IMMORTALITY

Within the construction industry, less is always more; that way, when a material *dies* or no longer serves its original purpose, the guilt of disposal is somehow minimized. If this is the case, when a material performs its final act, we see our collective admiration once again fade into estrangement; however, this estrangement now occurs at the scale of our built environment rather than at the scale of consumer goods.

Our structures - unlike our bodies - bear expiration dates for intended use. However, they do not *perish* until their traces are fully erased. With that said, built works continue living past a point of prescribed use.



Mortal or singular uses of the built environment push back on desires of a society that longs for immortality and evolution. Often, value in architectural preservation is predicated on historical significance. However, premature demolition does not anticipate future historical events. What could the preservation of these memories and spaces yield across deep time scales?



LESS IS MORE
MORE IS MORE

Architects are habitually situated downstream of material fabrication. This means our built environment is frequently tethered to prudent, but frugal values. However, plastic waste's role in our contemporary moment poses a unique opportunity.

Our collective estrangement has led us to a point of inflection; we can either reject the systems we have built or we can choose to radicalize them. While the latter requires no changes in consumer behavior, it actually prompts the built environment to adopt a new mantra. In result, Mies van der Rohe's *less is more* dogma is traded for a *more is more* mentality. In doing so, we abandon a modernist ethic while reappropriating our consumer habits in pursuit of collective action.

More is more is applied not only to the plethora of material resource we are afforded but also to the systems that push back on the built environment. By embracing, resisting, and harnessing these forces, we begin to understand architecture as an ephemeral vessel for life.

In collectivizing efforts around this notion of post-consumer care, how could the reappropriation of plastic push back on its inherent obsolescence? This thesis acknowledges its limitations in solving widespread plastic pollution and instead addresses plastic waste on a local scale by engaging the cultural, social, and geological conditions of the Hawaiian Islands.

"The viewer's response is one of ambiguity: in the first instance the mind is seduced by a beautiful aestheticism absolved from contextual meaning, followed by the secondary reaction of repulsion, when the mind recognizes the object as rubbish on a beach and realizes it should not be there."

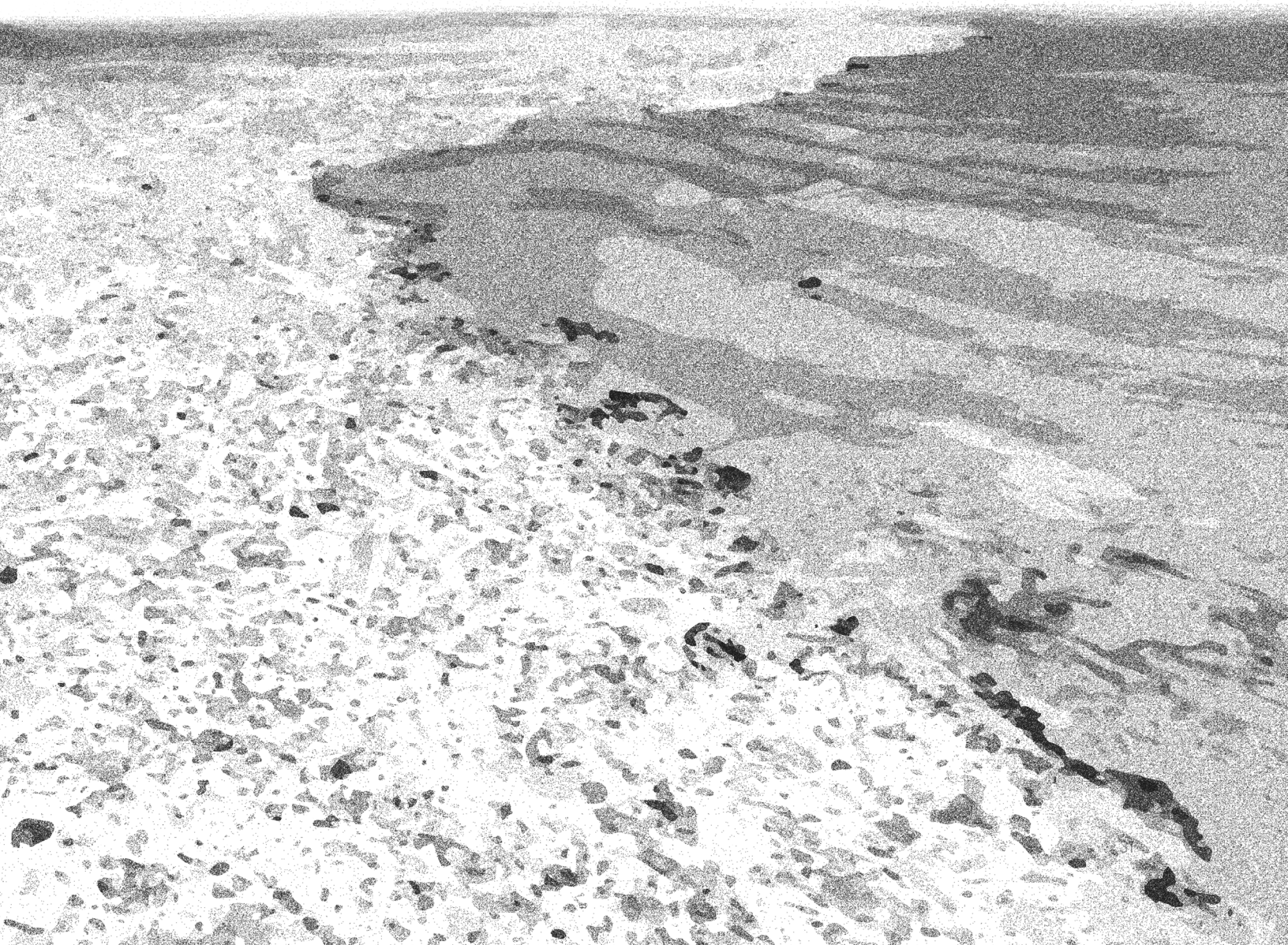
Andy Hughes, "Embedded" (2014), 189.

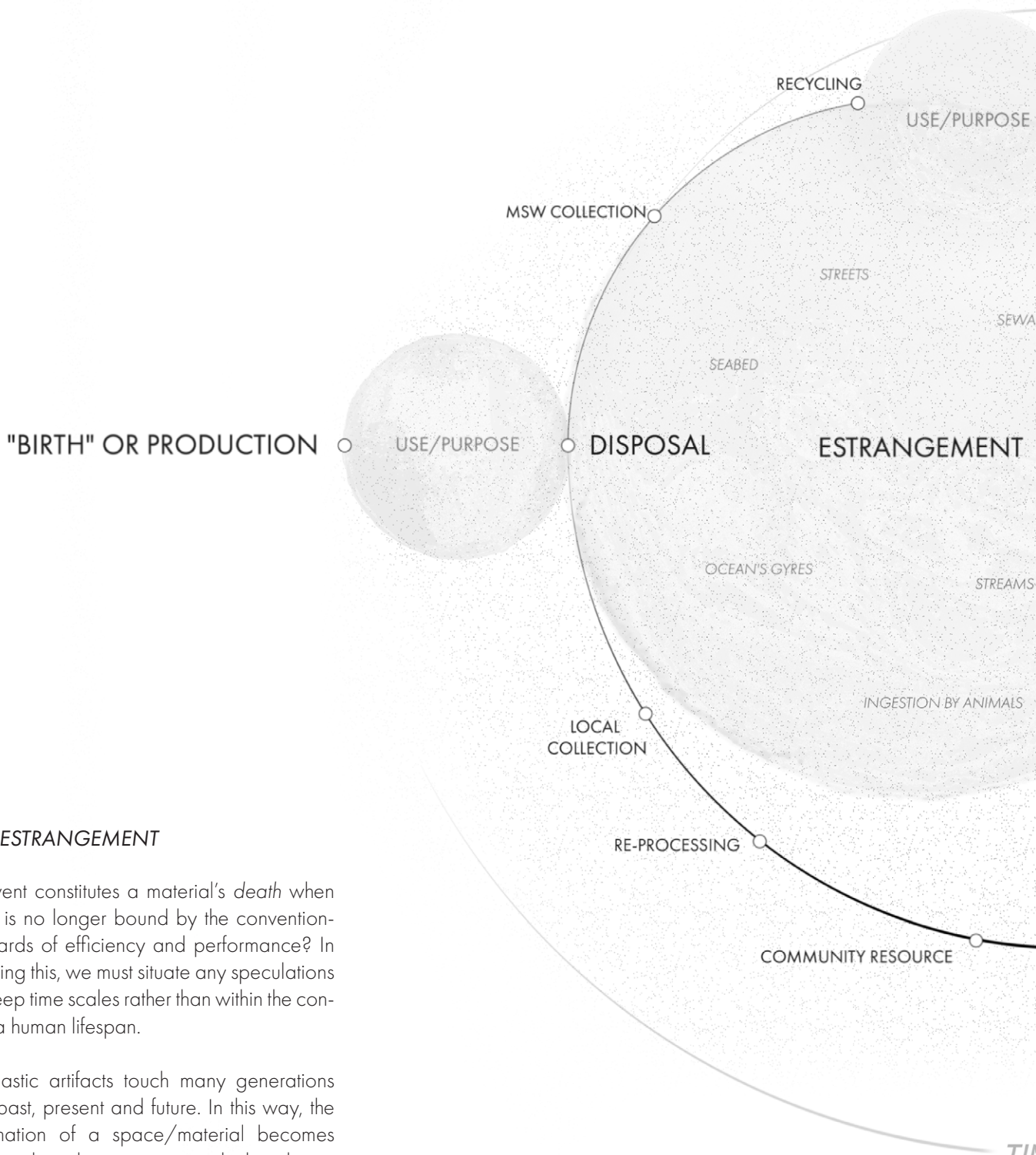


BEYOND PLASTIC WASTE

In the case of waste, *more is more*, and with that, we have the space to do what we, as humans, do best.

If we gather around this plastic waste as a resource, we transition from asking *what can't plastic do* to asking *what plastic could do* for our community at large. This inherently prompts us to work and situate any speculations at scales of greater magnitude - such as territories and landforms.

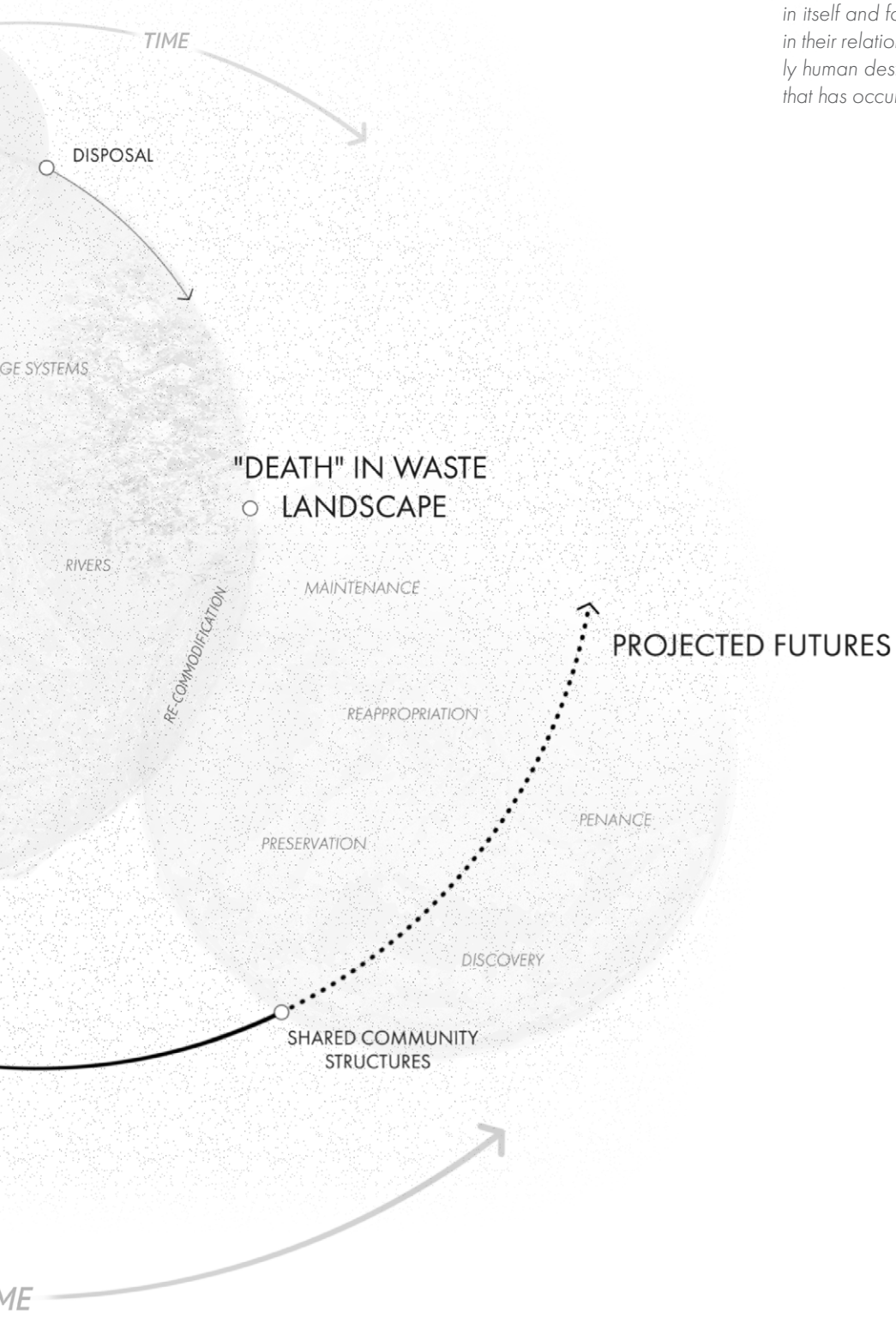




TIME & ESTRANGEMENT

What event constitutes a material's *death* when its value is no longer bound by the conventional standards of efficiency and performance? In considering this, we must situate any speculations within deep time scales rather than within the confines of a human lifespan.

These plastic artifacts touch many generations of life - past, present and future. In this way, the transformation of a space/material becomes something shared across time, whether that is through oral histories, in archaeological discovery, or in the preservation of ruin.



"An estrangement -- whether as cause or as consequence it is difficult to decide usually comes at the moment when this feeling of uniqueness vanishes from the relationship. A certain skepticism in regard to its value, in itself and for them, attaches to the very thought that in their relation, after all, they carry out only a generally human destiny; that they experience an experience that has occurred a thousand times before..."

Georg Simmel, "The Stranger"
from *Soziologie* (1908), 2.

What if our deliberate estrangement from plastic waste was replaced with a newfound *intimacy*?

Could these interventions yield new systems of *value* or perpetuate old ones?

PARAFICTIONS

Reclaiming the Estranged reframes plastic waste as a resource - rather than discarded objects of contention. This perversion conflates plastic's lifespan with socioeconomic, cultural, and environmental conditions unique to the Hawaiian Islands. By acknowledging plastic as a material that operates within deep time scales, these speculations explore the forces that surround and manipulate our built environment long after the architect leaves the table.

These themes are embedded in three parafictions, told from three points of view. Situated within the Hawaiian Islands, each narrative recounts an architectural intervention that contends with distinctive geological conditions as well as local constituents.

plucked, placed, then poached

The profit-driven economies born out of European colonization clash with the untampered forests of Kaua'i in this parafiction. Told by the great-grandchild of a Kaua'i Resource Center employee, this narrative follows the repetitive downfalls of consumer culture. The narrator recalls the devastation of deforestation, which becomes a theme that plagues this landscape for decades thereafter.

The totems, in result, serve as socio-cultural objects in the landscape - stand-ins for what was lost - until they too bear value.

PRE-1800's

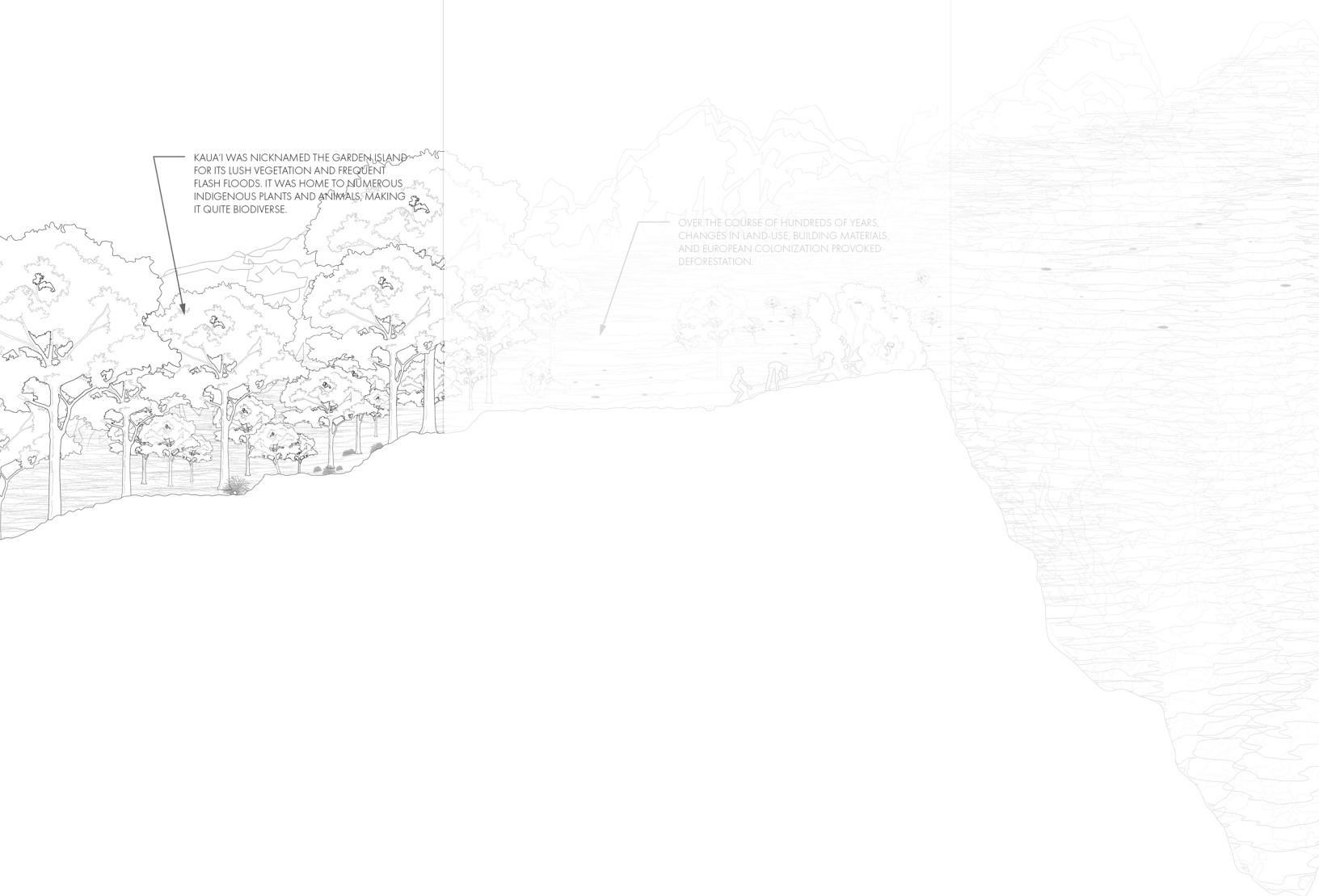
1820's - 1900's

THRIVING FOREST

RELENTLESS DEFORESTATION

KAUAI WAS NICKNAMED THE GARDEN ISLAND FOR ITS LUSH VEGETATION AND FREQUENT FLASH FLOODS. IT WAS HOME TO NUMEROUS INDIGENOUS PLANTS AND ANIMALS, MAKING IT QUITE BIODIVERSE.

OVER THE COURSE OF HUNDREDS OF YEARS, CHANGES IN LAND-USE, BUILDING MATERIALS, AND EUROPEAN COLONIZATION PROVOKED DEFORESTATION.





"Kaua'i was known for its lush landscape of tree canopies, which eventually faced the wrath of European settlers."

PRE-1800's

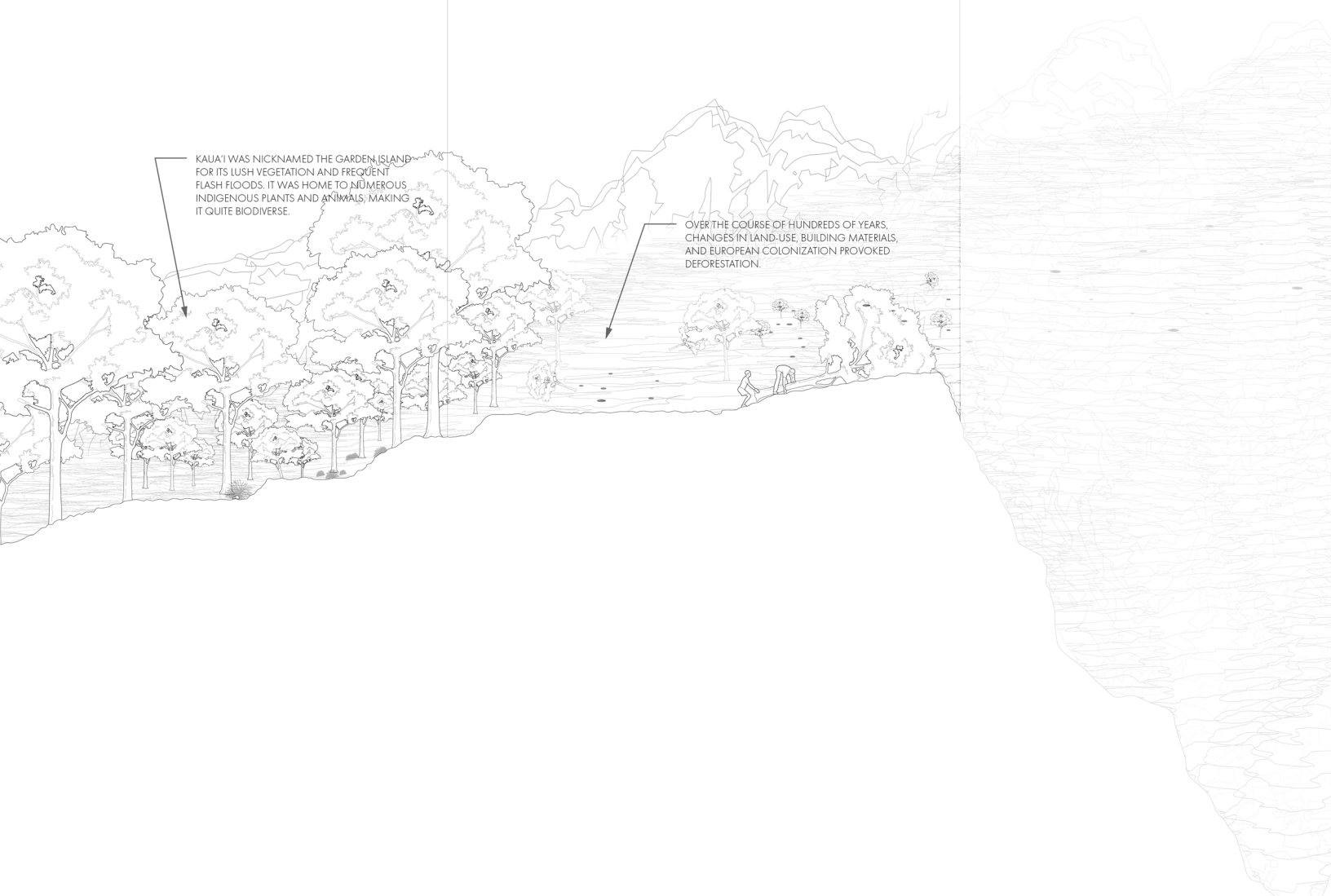
1820's - 1900's

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“Beginning in the 1800s, hundreds of acres of native forest were lost to ongoing deforestation, which occurred over just a few decades.”

PRE-1800's

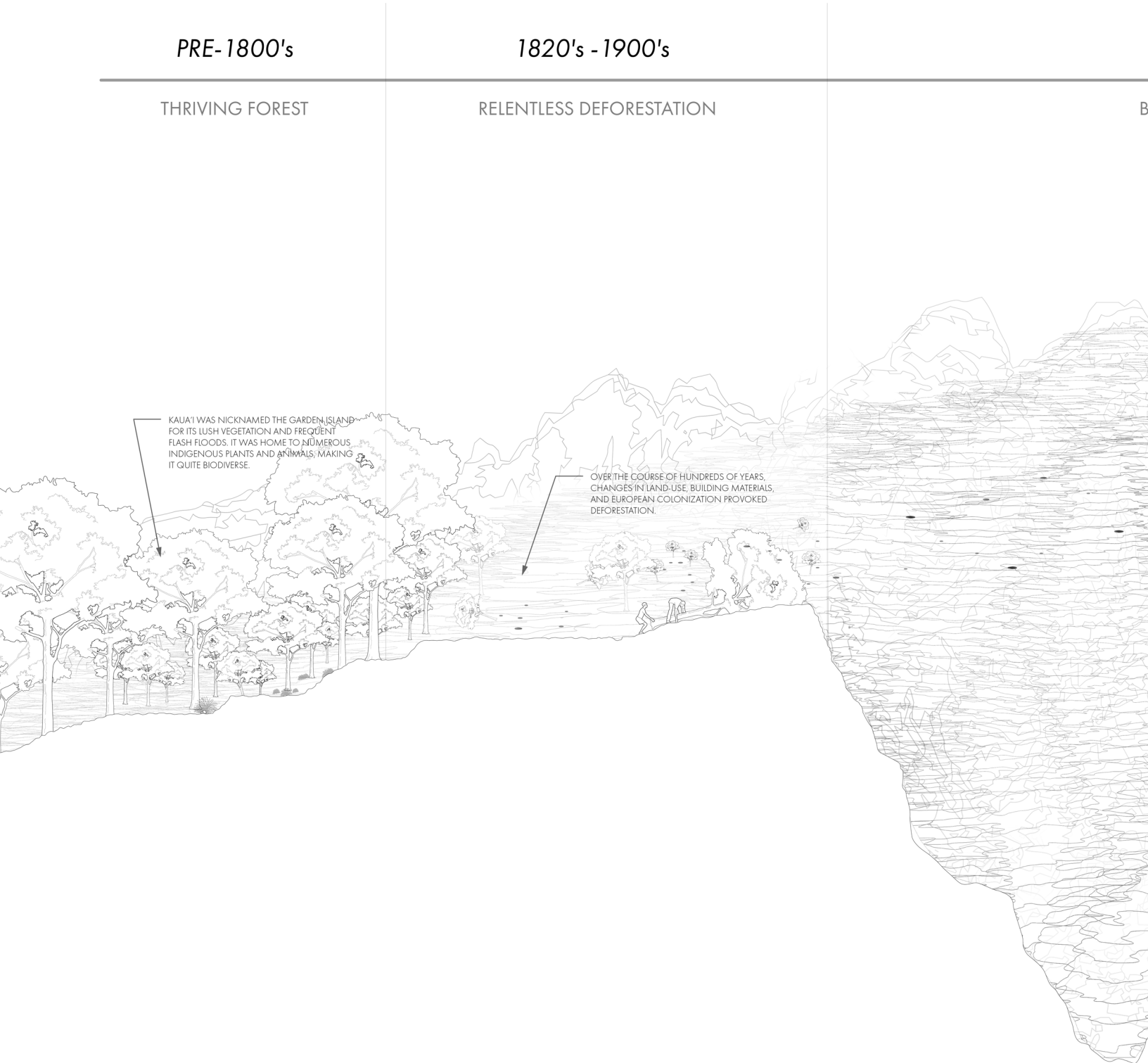
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1900's

2000's

2100's

BARREN LAND

RE-POPULATION

THE GREAT PLASTIC RUSH



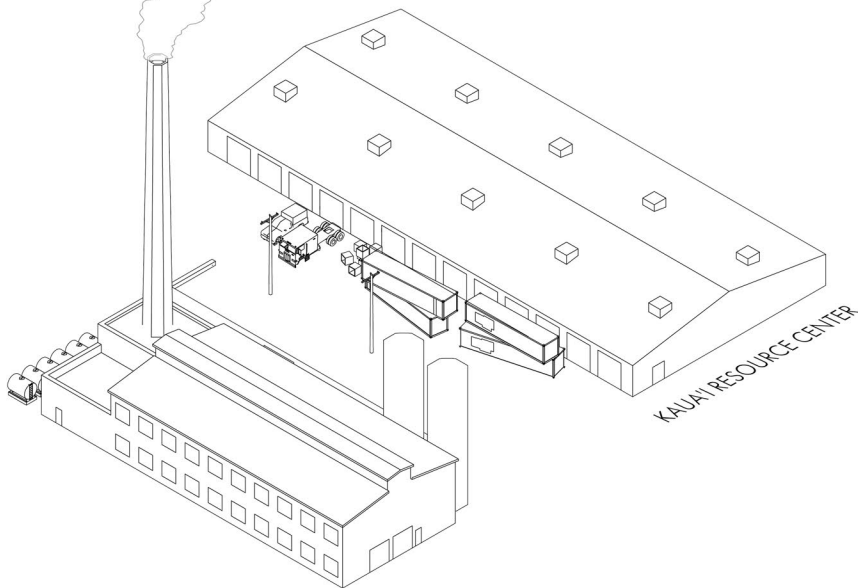
“Once the trees disappeared, all that remained were shallow impressions in the rocky terrain.

That’s why you’ll see empty holes across the mountain regions.”

“The barren terrain signified the community’s loss. In 2019, people weren’t sure what to do with their waste after plastic was no longer accepted at transfer stations.

There were efforts by locals to compile their debris together, which were backed by local recycling facilities such as my great-grandfather’s facility. The locals of Kaua’i wanted this waste to be visible to everyone who visited the island and to serve as an offering to the landscape.”

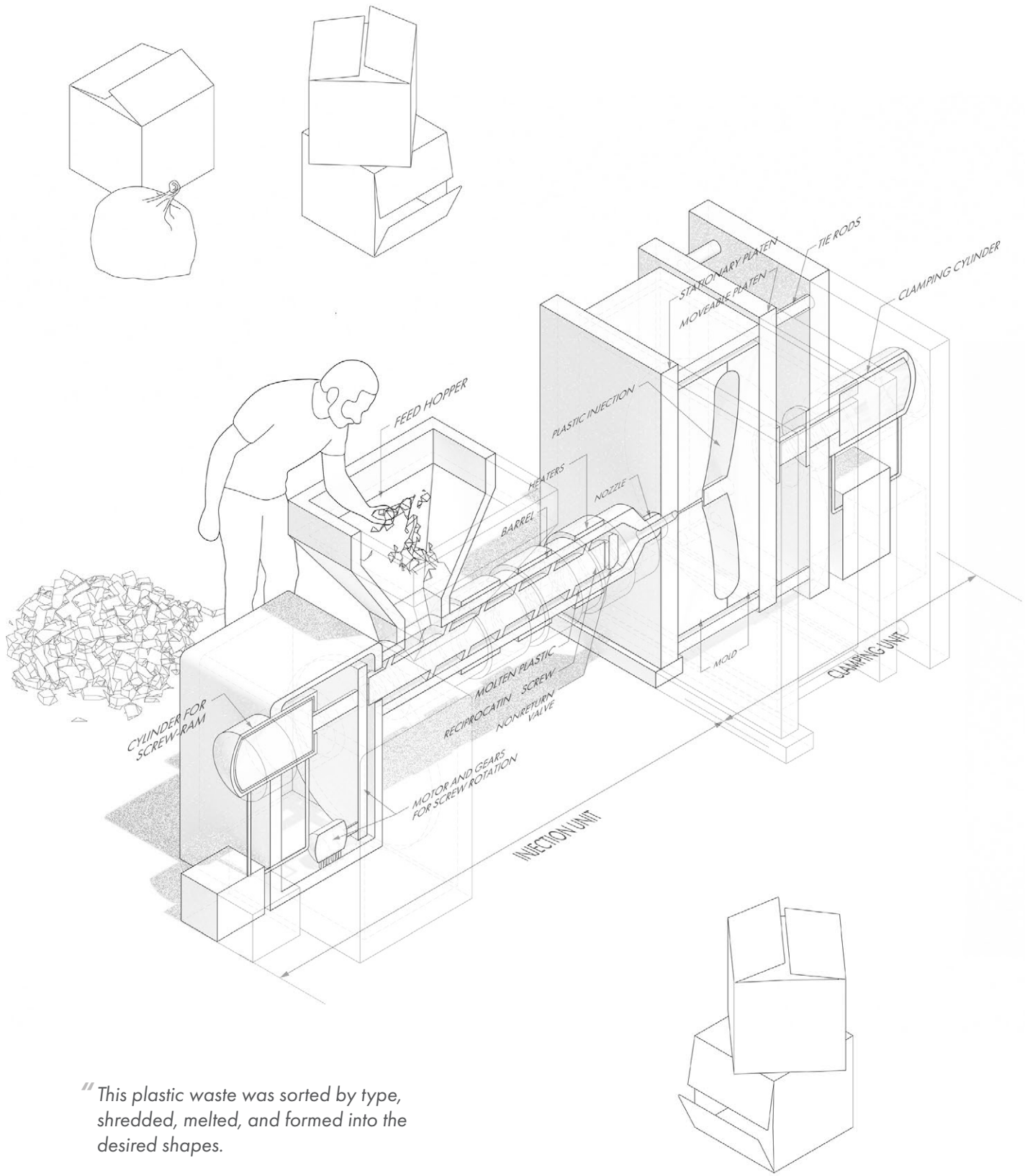
IN 2050, HAWAIIAN COUNTY OFFICIALS PASSED A MANDATE DETAILING THAT 80% OF PLASTIC WASTE DIVERTED TO LANDFILL MUST BE USED TO ERECT PUBLIC STRUCTURES.



“Although this would eject substantial amounts of CO₂ into the atmosphere, the local government urged us the resource center to comply, since plastic pollution was an urgent issue at the time.”

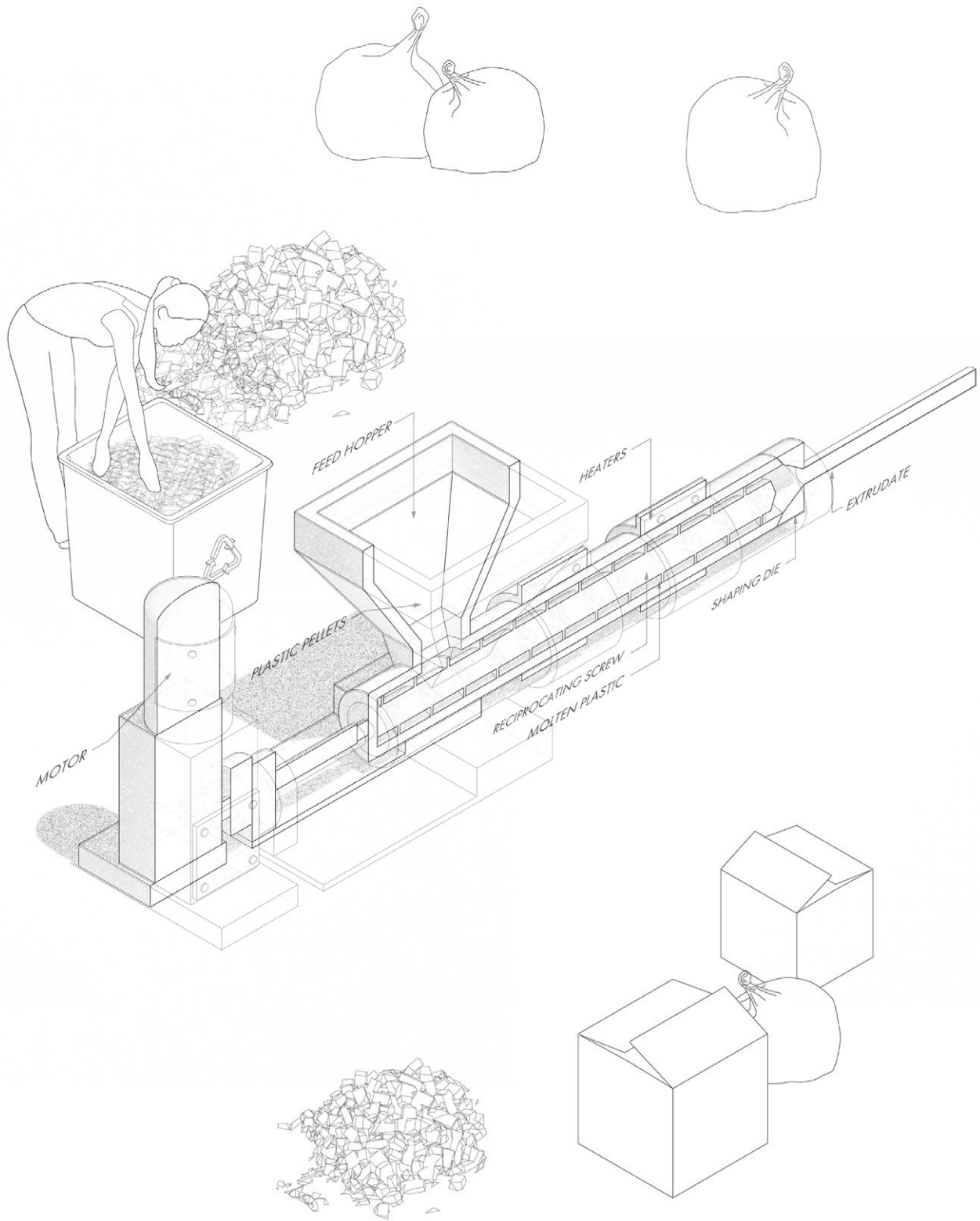


“So, with the help of the Kaua’i Resource Center, local residents voted to remold their annual household plastic waste.”

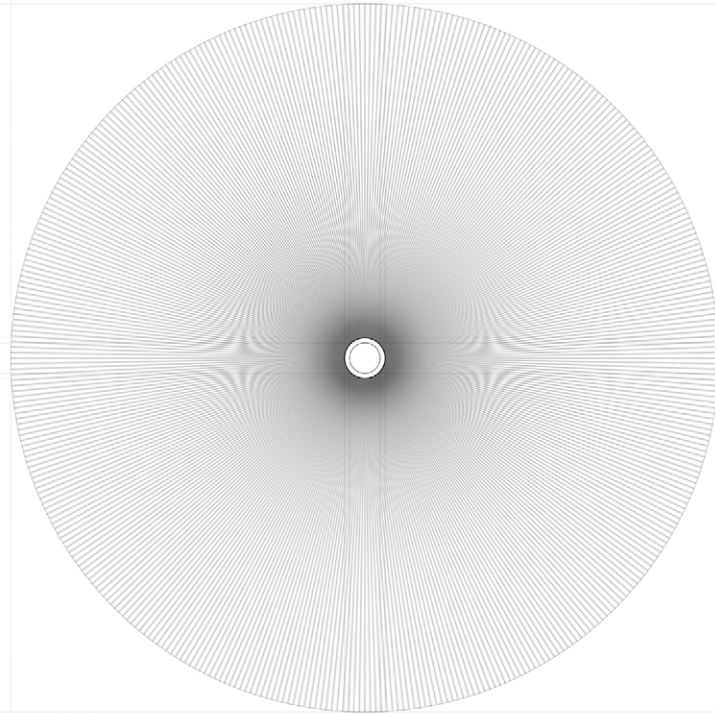


“ This plastic waste was sorted by type, shredded, melted, and formed into the desired shapes.

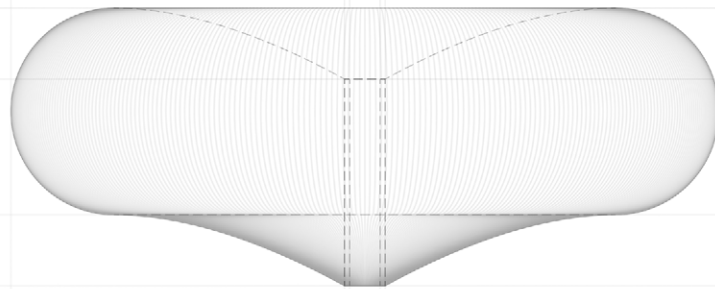
Injection molding and extrusion were used to produce unique but self-similar pieces. ”



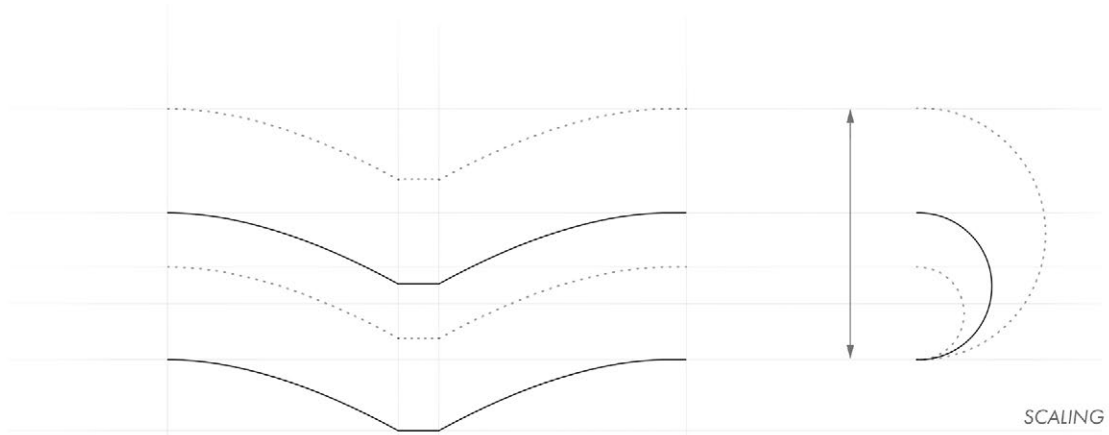
“These nestled pieces formed totems when stacked that varied in height, diameter, and character...”



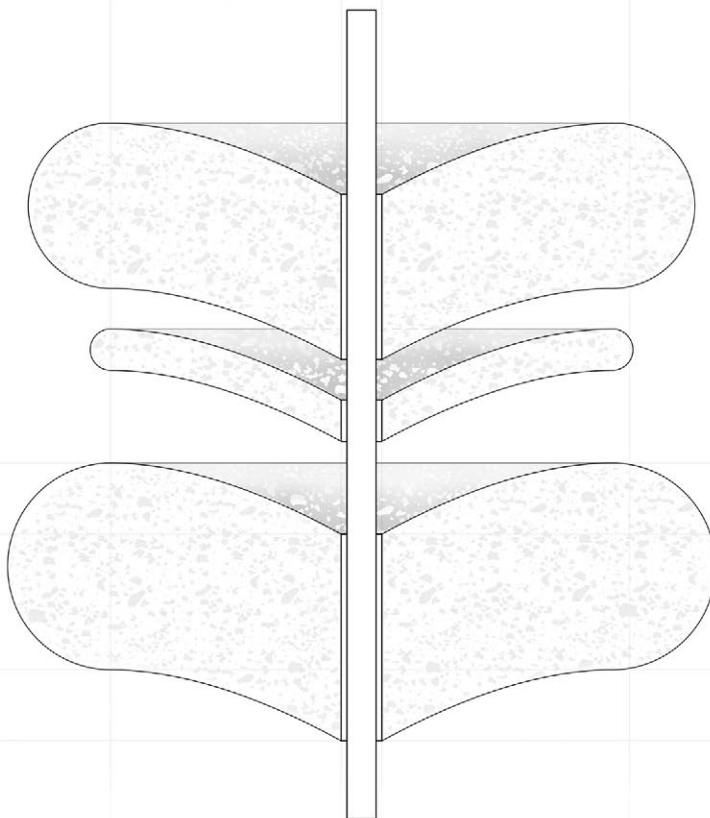
PLAN



ELEVATION

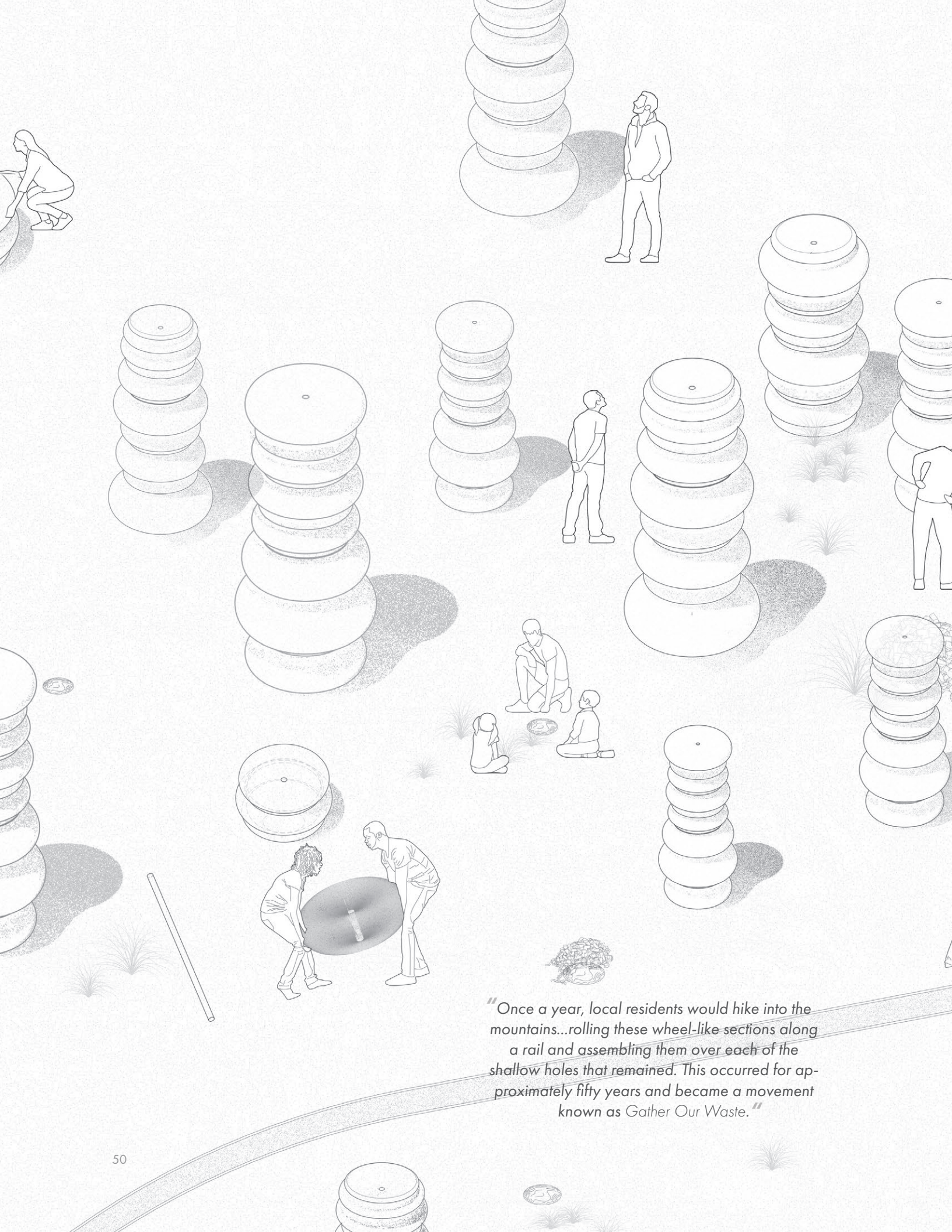


SCALING

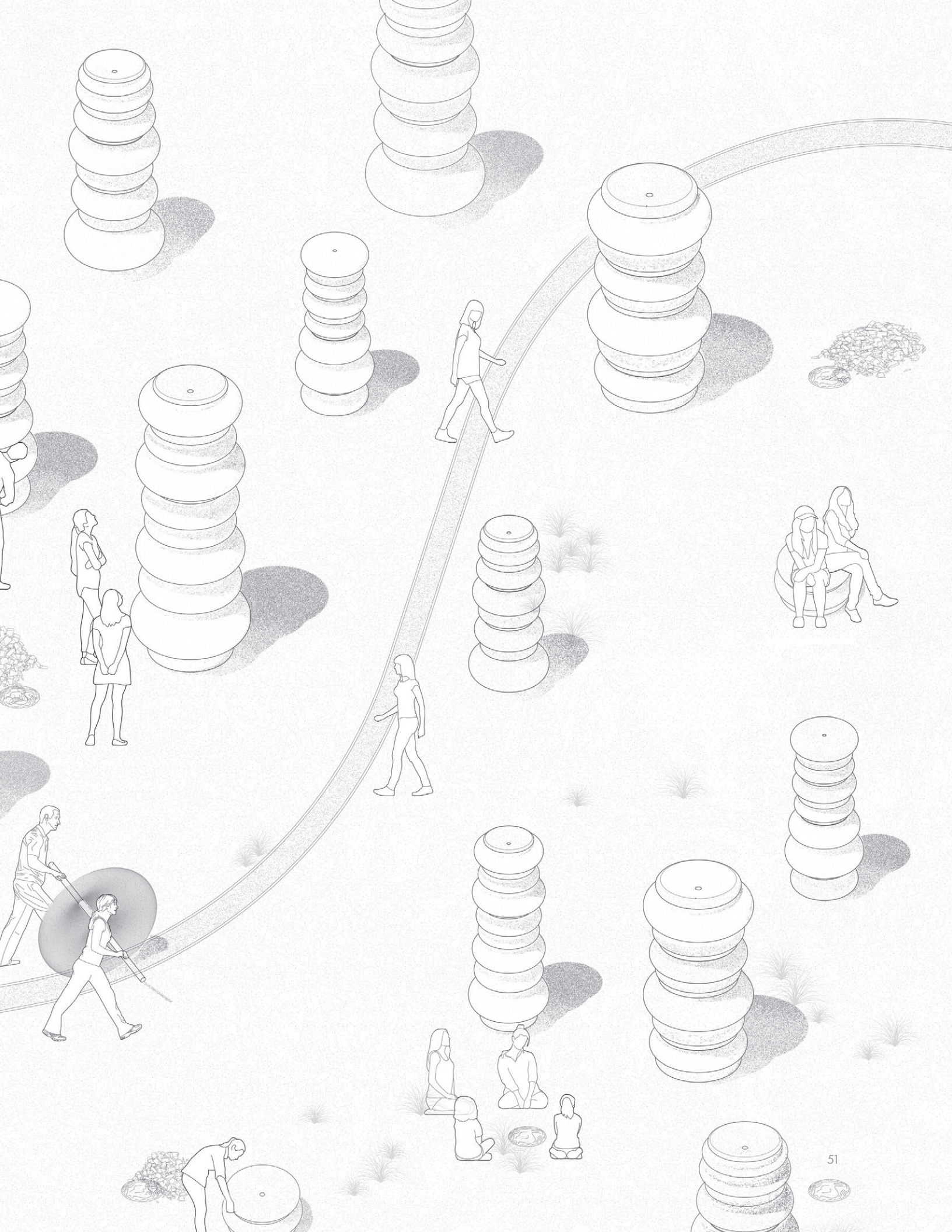


SECTION

... each totem held the annual waste of one household, which made each layer unique in scale based on the quantity of plastic type."



"Once a year, local residents would hike into the mountains...rolling these wheel-like sections along a rail and assembling them over each of the shallow holes that remained. This occurred for approximately fifty years and became a movement known as Gather Our Waste."



PRE-1800's

1820's - 1900's

THRIVING FOREST

RELENTLESS DEFORESTATION

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1900's

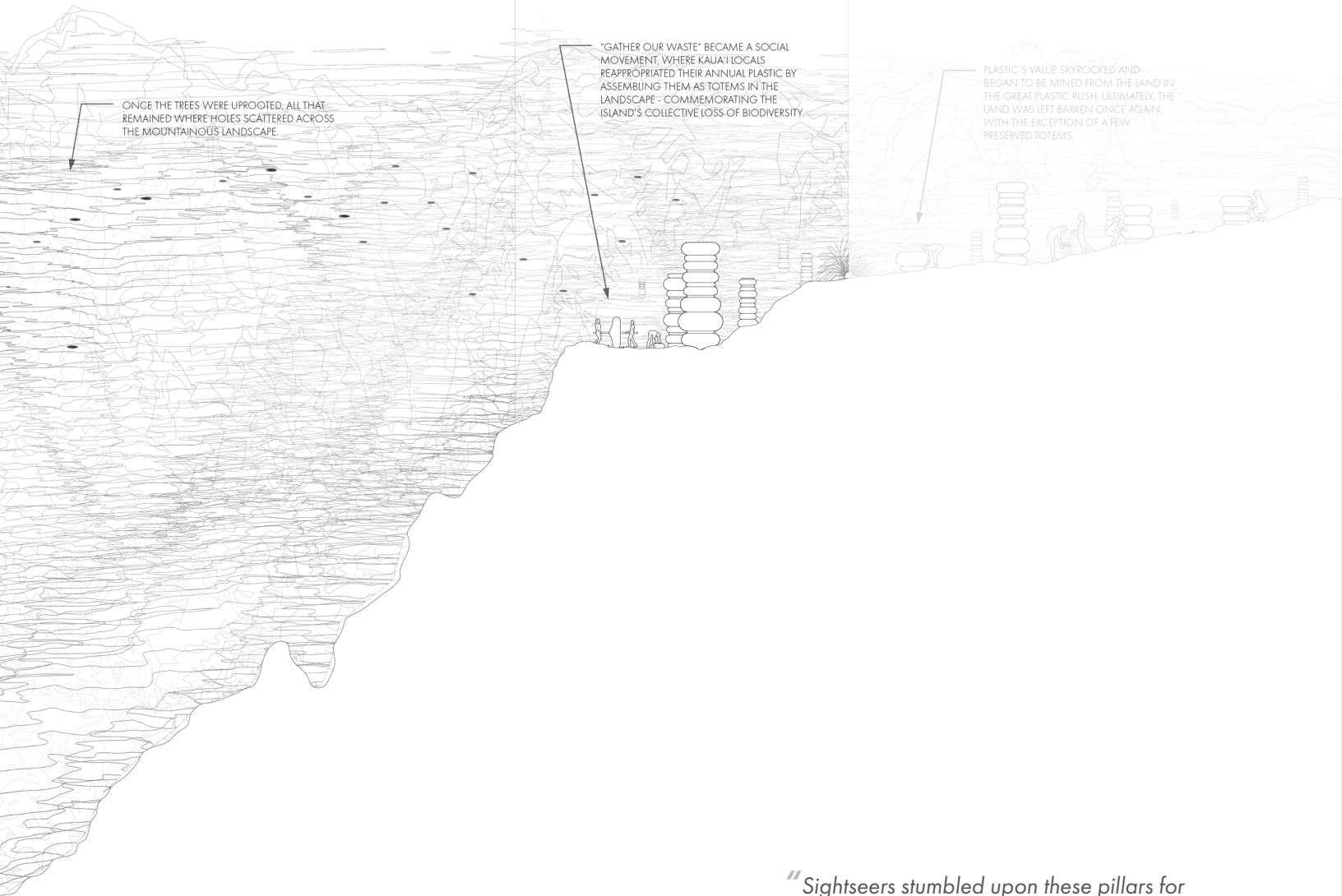
2000's

2100's

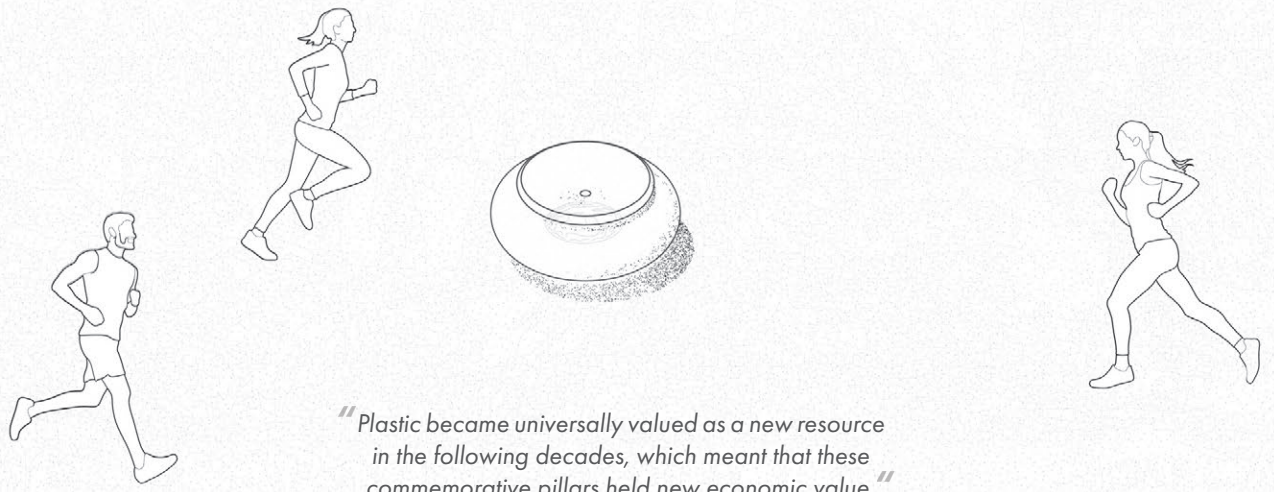
BARREN LAND

RE-POPULATION

THE GREAT PLASTIC RUSH



"Sightseers stumbled upon these pillars for decades and questioned their significance since few were able to observe the annual collective act of assembly."



“Plastic became universally valued as a new resource in the following decades, which meant that these commemorative pillars held new economic value.”



“The totems were slowly mined, estranged from their previous owners, and commodified once again. People arrived from all over the world to mine this plastic...hoping to bring fortune home with them.”



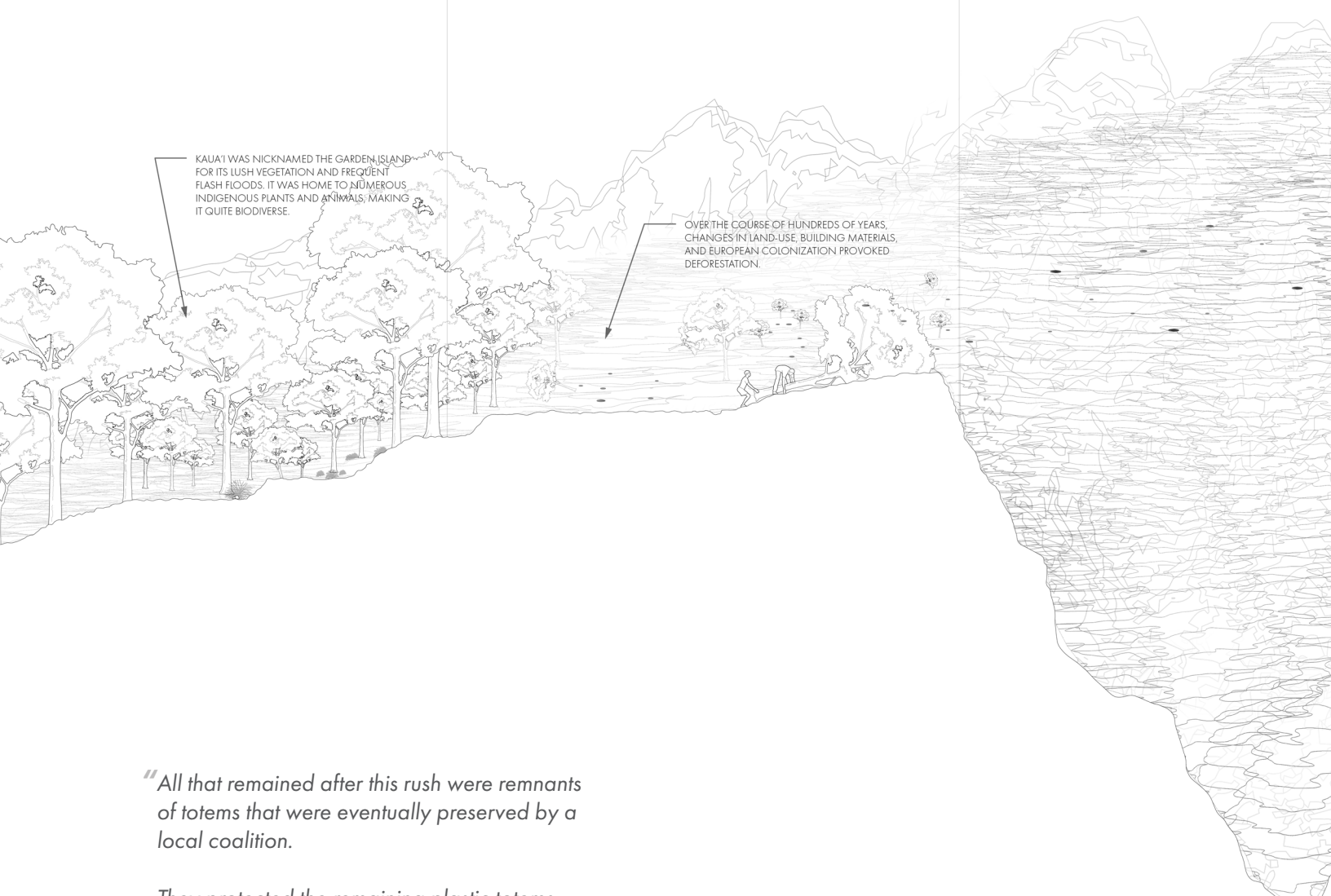
“As these tensions heightened during the Great Plastic Rush, Kava’i locals corralled themselves around this issue - one that felt all too similar to the greedy extraction of natural resources from the previous decades.”

PRE-1800's

1820's - 1900's

THRIVING FOREST

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KAUAI WAS NICKNAMED THE GARDEN ISLAND FOR ITS LUSH VEGETATION AND FREQUENT FLASH FLOODS. IT WAS HOME TO NUMEROUS INDIGENOUS PLANTS AND ANIMALS, MAKING IT QUITE BIODIVERSE.

OVER THE COURSE OF HUNDREDS OF YEARS, CHANGES IN LAND-USE, BUILDING MATERIALS, AND EUROPEAN COLONIZATION PROVOKED DEFORESTATION.

"All that remained after this rush were remnants of totems that were eventually preserved by a local coalition.

They protected the remaining plastic totems from further human intervention; however, the memory of the forest was gone...yet again."

1900's

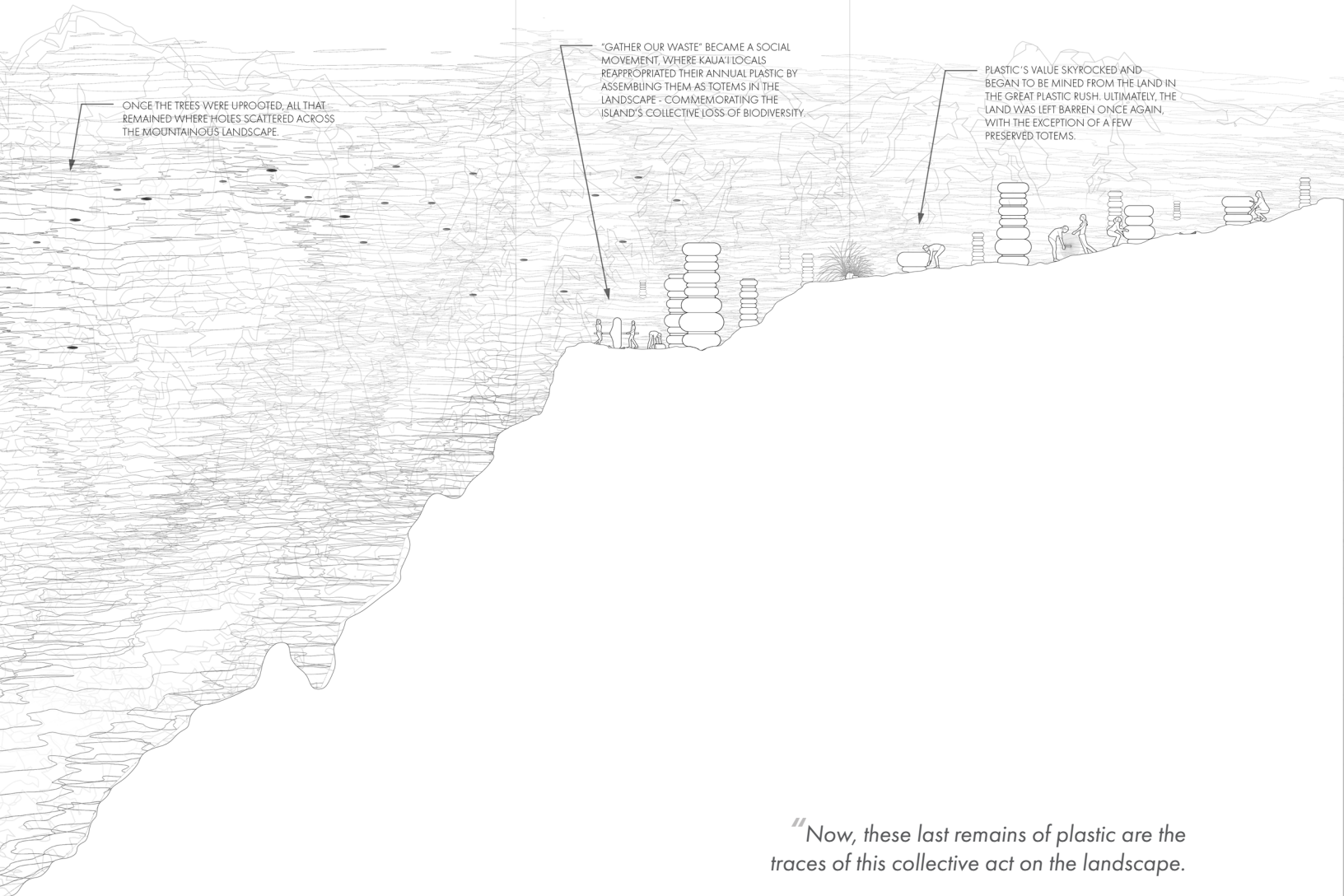
2000's

2100's

BARREN LAND

RE-POPULATION

THE GREAT PLASTIC RUSH



"Now, these last remains of plastic are the traces of this collective act on the landscape.

The empty holes and few totems that remain demonstrate the collective loss and repeated commodification that took place in Kaua'i."

we reap, they sew

Recounted as an oral history, this parafiction is told from the perspective of a *Kanaka Maoli* - a descendant of the Polynesians who first settled in Hawaii in 400 CE.

They recall the mythological figure of the *Menehune* and how they served, and continue to serve, the islands across generations.

The intersection of mythology and the built environment occurs at the scale of a communal infrastructure - one made entirely of plastic waste. These plastic artifacts become embedded in the oral histories told across generations, nestled in a valley that eventually becomes a forgotten city.

According to the Rice (Kaua'i) legend, the Menehune fled to the Lanihuli Valley - or La'au - after they were troubled by thieving. Many took wives among Hawaiian women, which destroyed their "purity" of race.

According to Rice (Kaua'i) legend, the Menehune served Olo as expert builders and craftsmen. During this time, their population increased to the point where men could farm two rows from Makaweli to Wailua.



301 C.E.

900 C.E.

Arrival of the Marquesans (Menehune)

Waimea Canyon, Kaua'i

900 C.E.

1400 C.E.

Menehune construct Ulupō Heiau

Kailua, O'ahu

1020 C.E.

1440 C.E.

Menehune construct Alekoko Fishpond

Niumalu, Kaua'i

301 C.E.

1200 C.E.

Menehune construct Kikiaola Ditch

Waimea, Kaua'i

1200 C.E.

Arrival of the Tahitians (Polynesians)

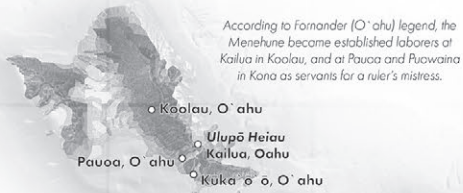
Ka lae, Hawaii

“Once home to the Menehune, who were known to have dwelled in Hawaii long before the arrival of the Polynesian voyagers in 400 CE, the island of Maui bears the last record of the Menehune’s mark on the landscape.

Over time, the Menehune people were flattened into mythological figures with their contributions to Hawaiian life often left undetected. Westerners have crafted the stories of the Menehune, portraying them as mischievous little people who ranged from six inches to two feet tall.”

“Oral histories passed down through generations recall them as skilled craftspeople who erected magnificent structures overnight.

The story of one of the last remaining structures is also shrouded in European myth, but it bears traces of where the Menehune came from and their continuous migration across territories.”



According to Migration (O'ahu) legend, the Menehune had a heiau at Kūka'ō'ō.



Pa o ka Menehune
Kahalu'u Bay, Hawaii

1701 C.E. 1899 C.E.

Menehune construct Pa o Ka Menehune ("Wall of the Ancients")

Kahalu'u Bay, Hawaii

1778 C.E.


Arrival of the Europeans (Captain James Cook)

Waimea, Kaua'i

1820 C.E.

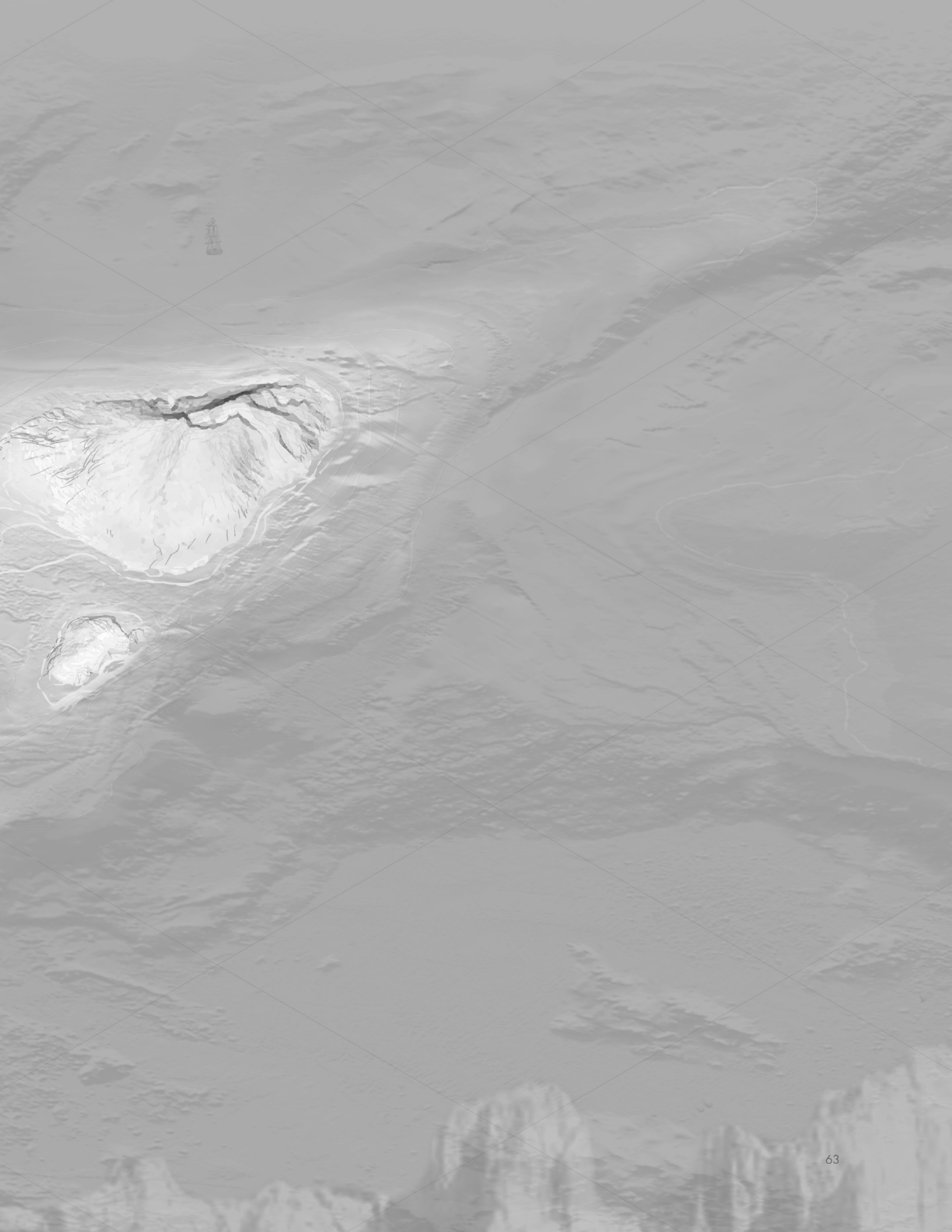
Census records 65 remaining Menehune

Waipihia, Kaua'i



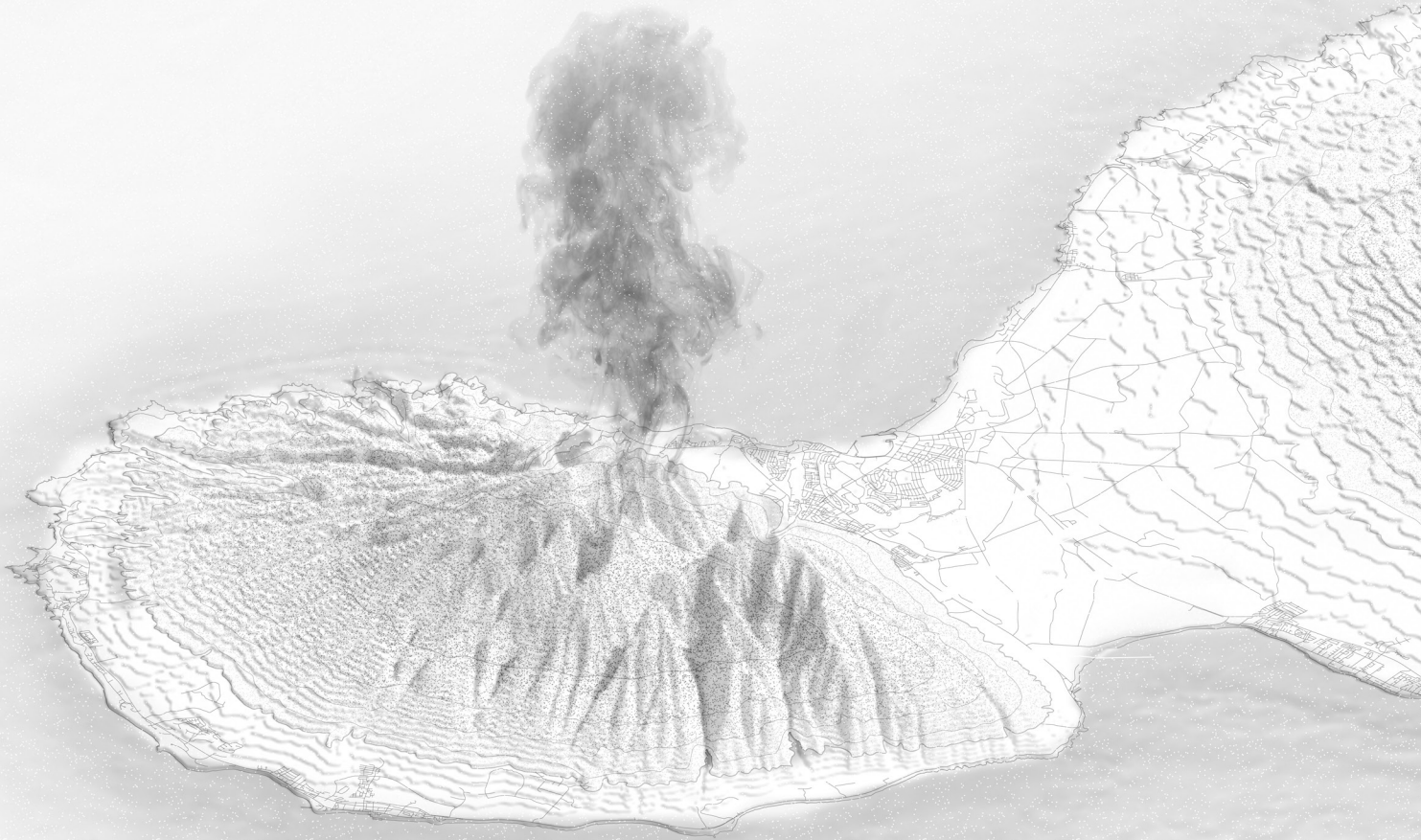
"Tens of thousands of years ago, what we know as Maui was actually joined with the neighboring islands of Molokai, Lanai, and Kahoolawe. We came to know this as Big Maui - or Maui Nui.

A mini ice age caused the sea level to drop significantly, but after some time the sea level rose. The islands slowly eroded as the Pacific Ocean intruded the land, splitting Maui Nui into four separate islands."



“When Maui became its own island, its valley region was straddled by two volcanoes. For thousands of years, this area remained just above sea level.

The Menehune found themselves in a constant state of migration, which made this temporary home in Maui’s valley region a perfect place to seek refuge from human settlement.”



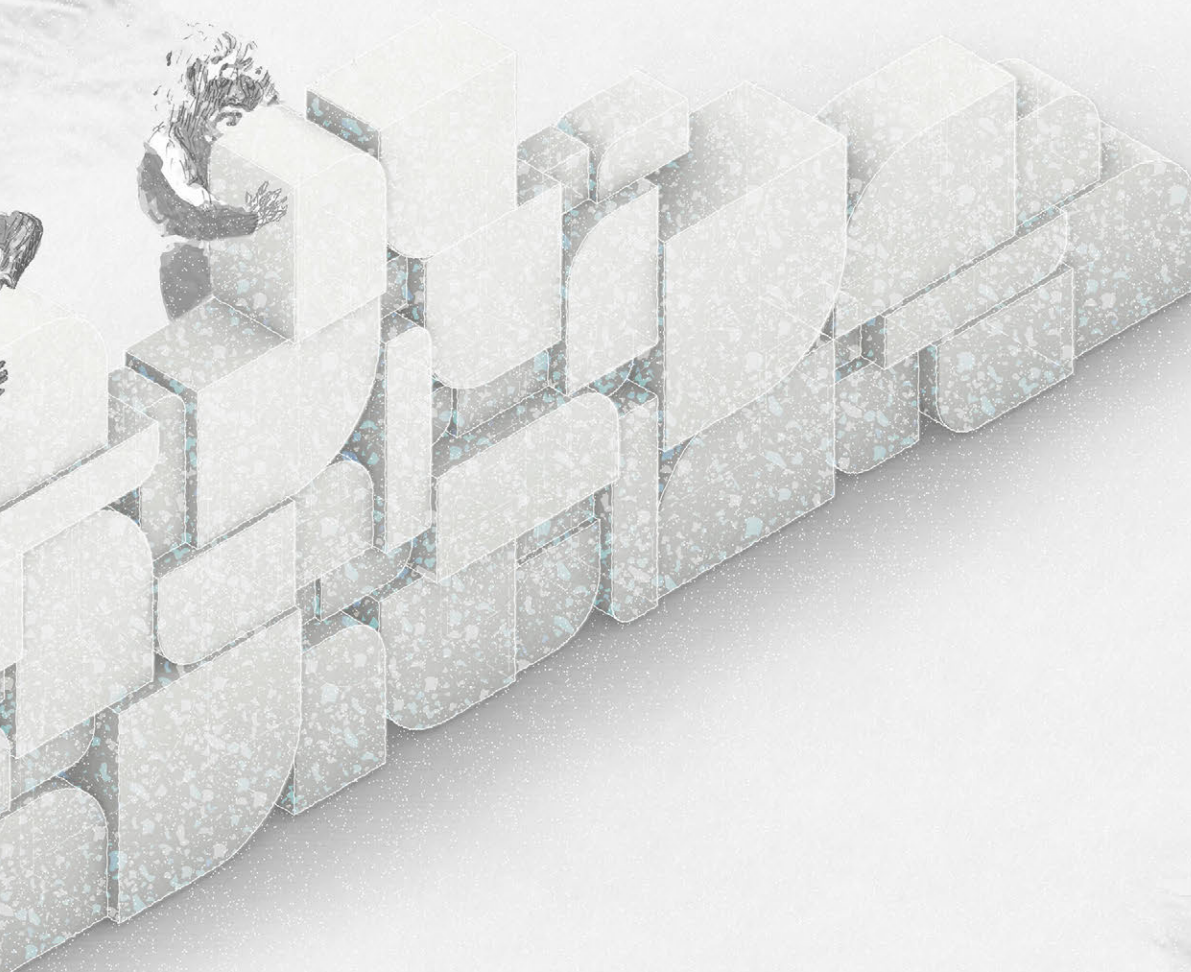


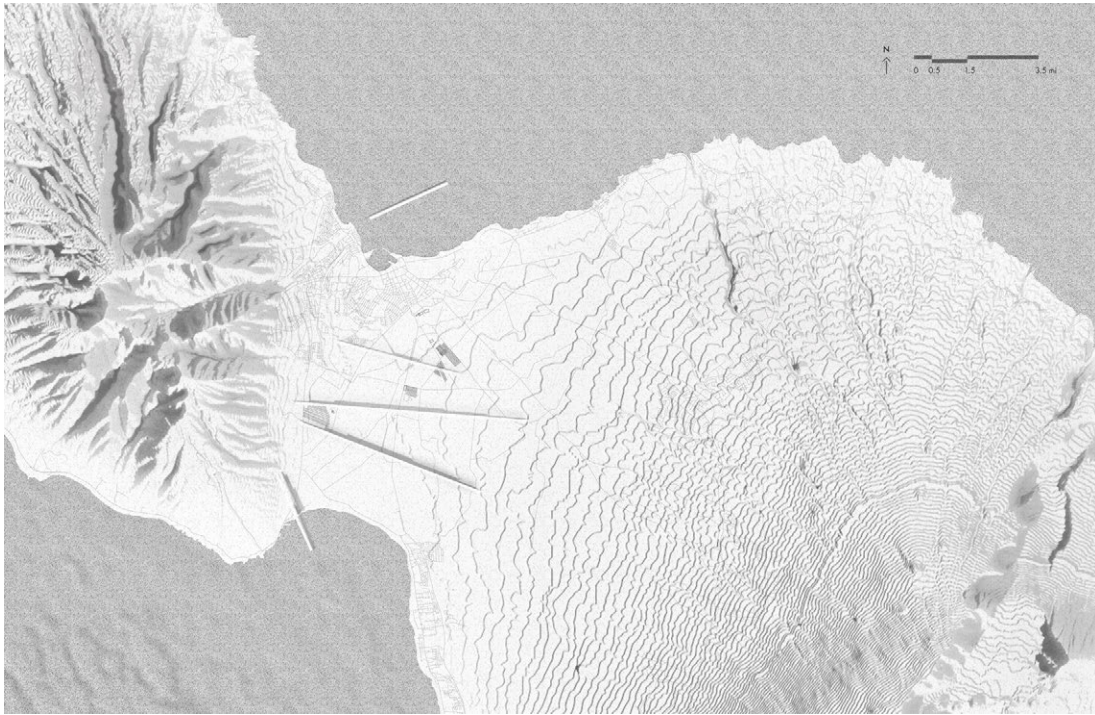


“The sugar and pineapple plantations located here provided sustenance to neighboring cities for centuries.”

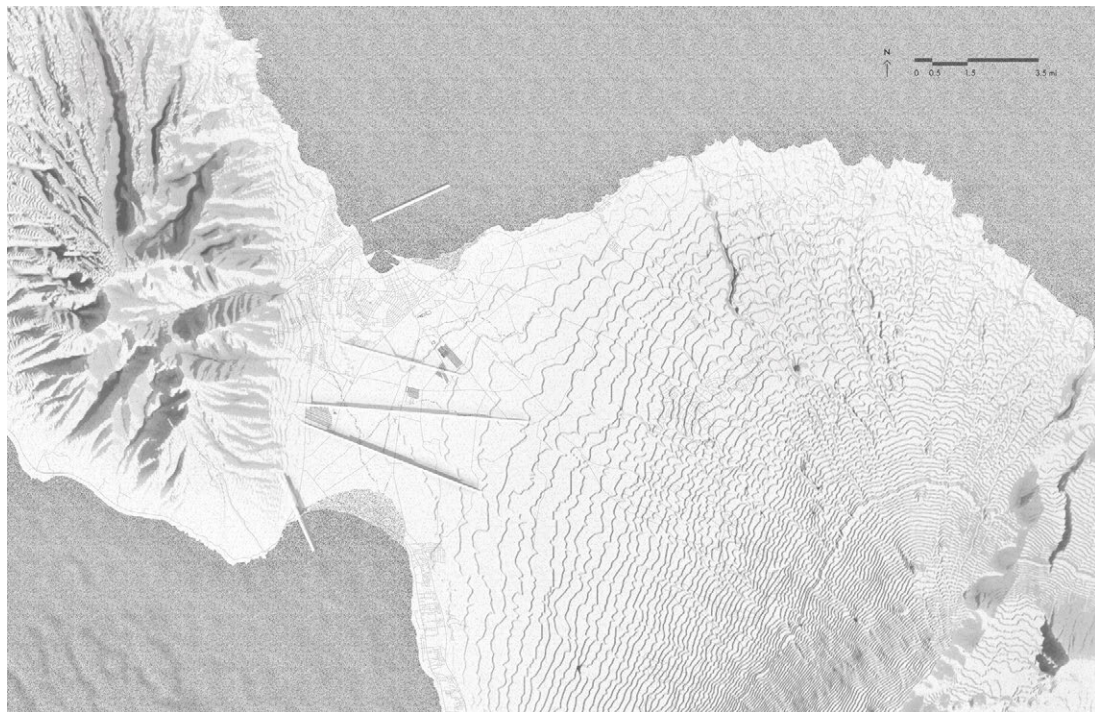
“According to the myth, one quiet night in the valley, the Menehune collected thousands of solid plastic blocks leftover from the local government’s failed effort to build a structure along the southern coast.

They used these blocks to erect a series of massive walls...three of which sliced through the valley and two of which anchored to the ocean floor.”

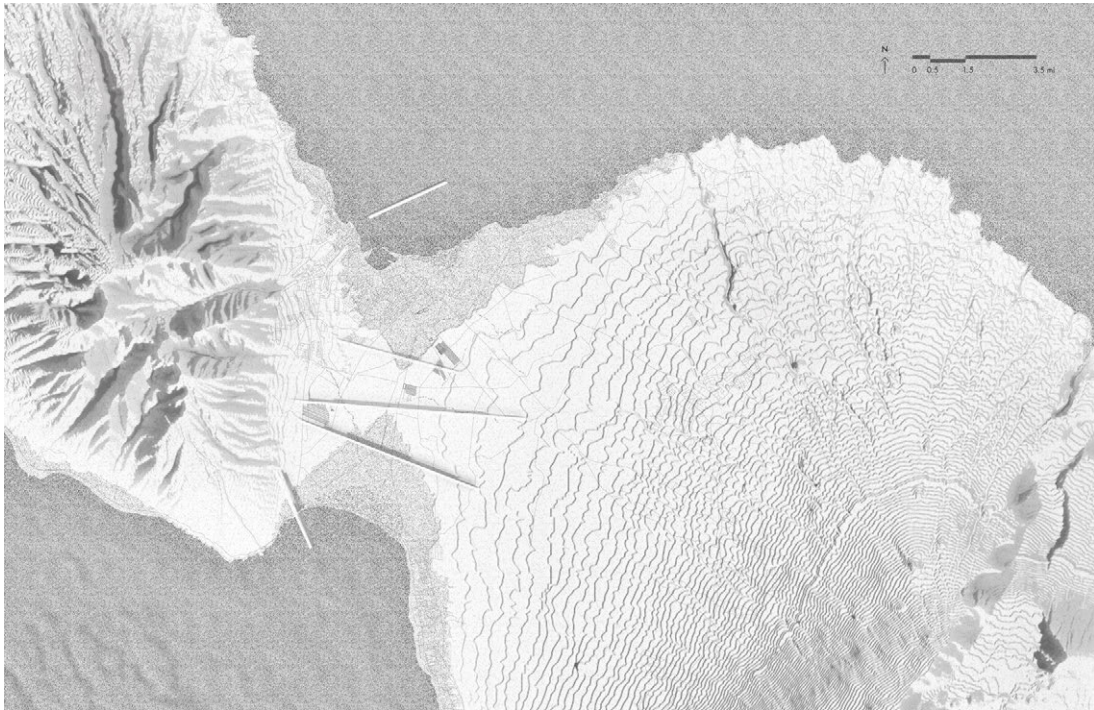




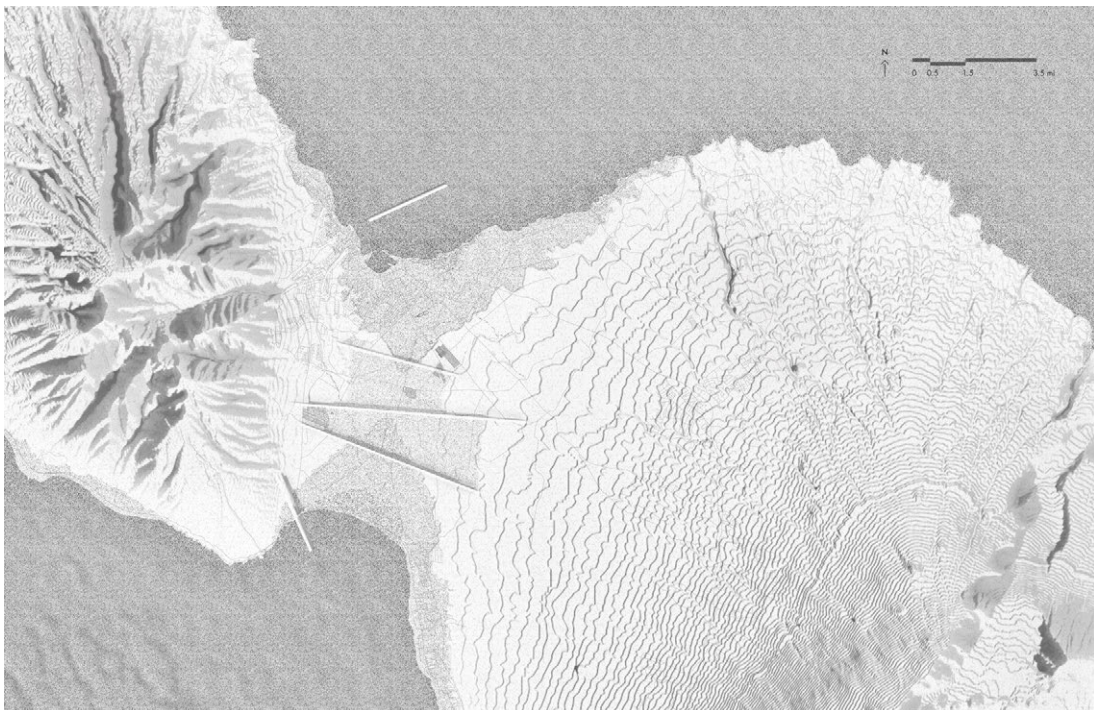
“As water intruded over the course of thousands of years, the valley’s fertile soil became flooded.”



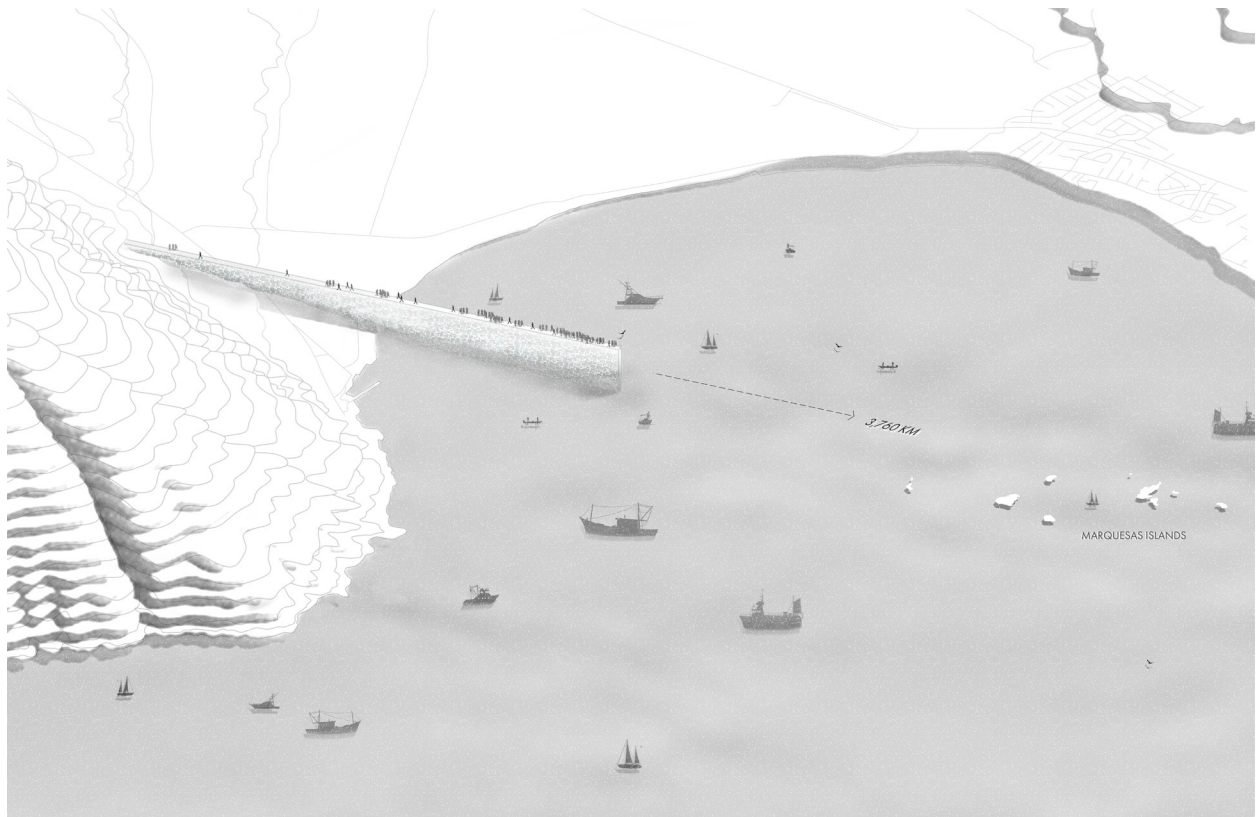
“It’s been said that the Menehune predicted the sea would rise again, much like it did thousands of years prior with Maui Nui. And it did. The water intruded through the streams first...”



... then after thousands of years, in 10000 CE ...



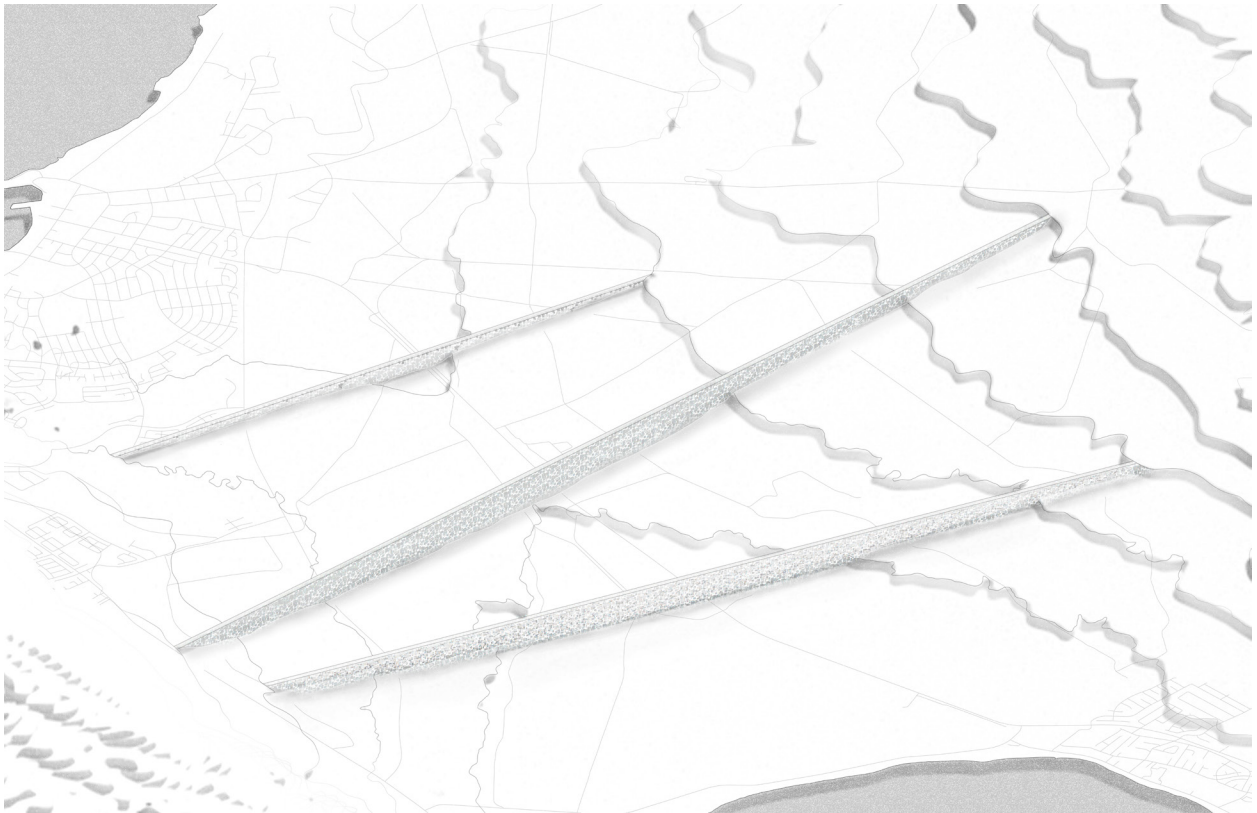
...Maui's valley region became completely submerged in water."



“For several centuries, the southern wall served as a pier and lookout, which was oriented towards the Menehune’s original home - the Marquesas Islands.”



“The northern wall served as a breakwater...piercing the ocean’s surface...occupiable only by drones and birds. It was pointed towards the Great Pacific Garbage Patch. It’s rumored that this was the last place anyone saw the Menehune before they fled the Hawaiian Islands.”



"The three central walls were peculiar in that they cut through the landscape quite dramatically and measured over one hundred feet tall in deepest part of the valley."



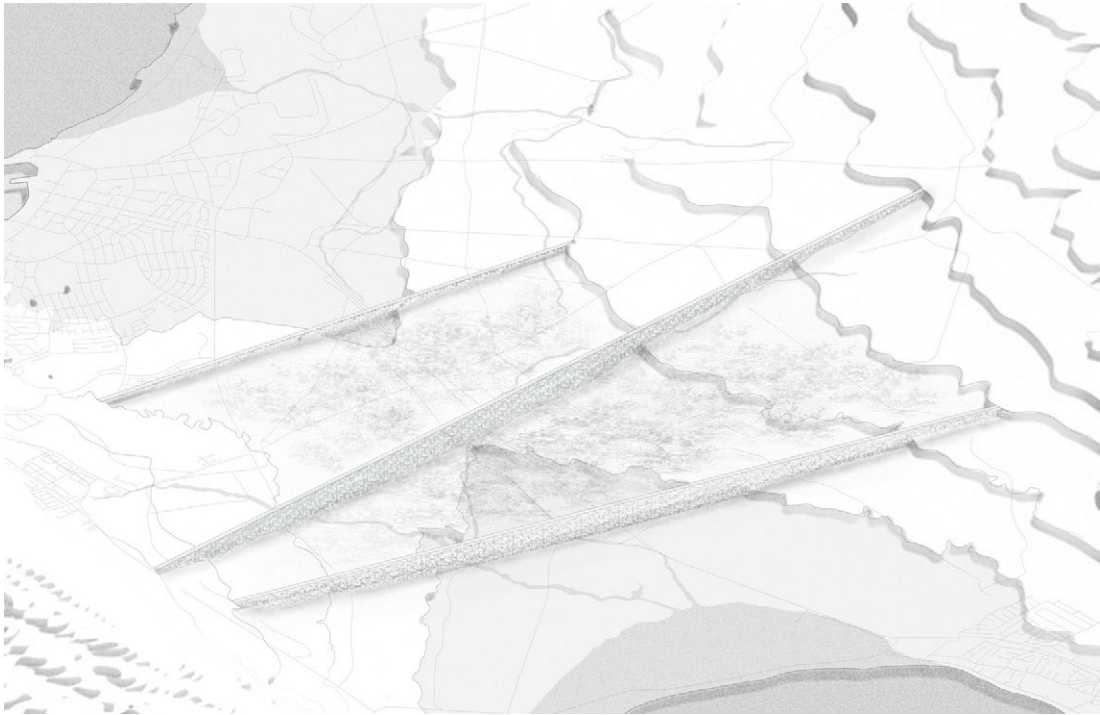
“These walls, although massive, were arranged so that small fish could slip between the crevices and become trapped once large enough. The Menehune re-interpreted traditional Hawaiian fishponds, which were typically constructed of reeds and stone, by arranging the stones in this way.”



"As the water intruded the land..."



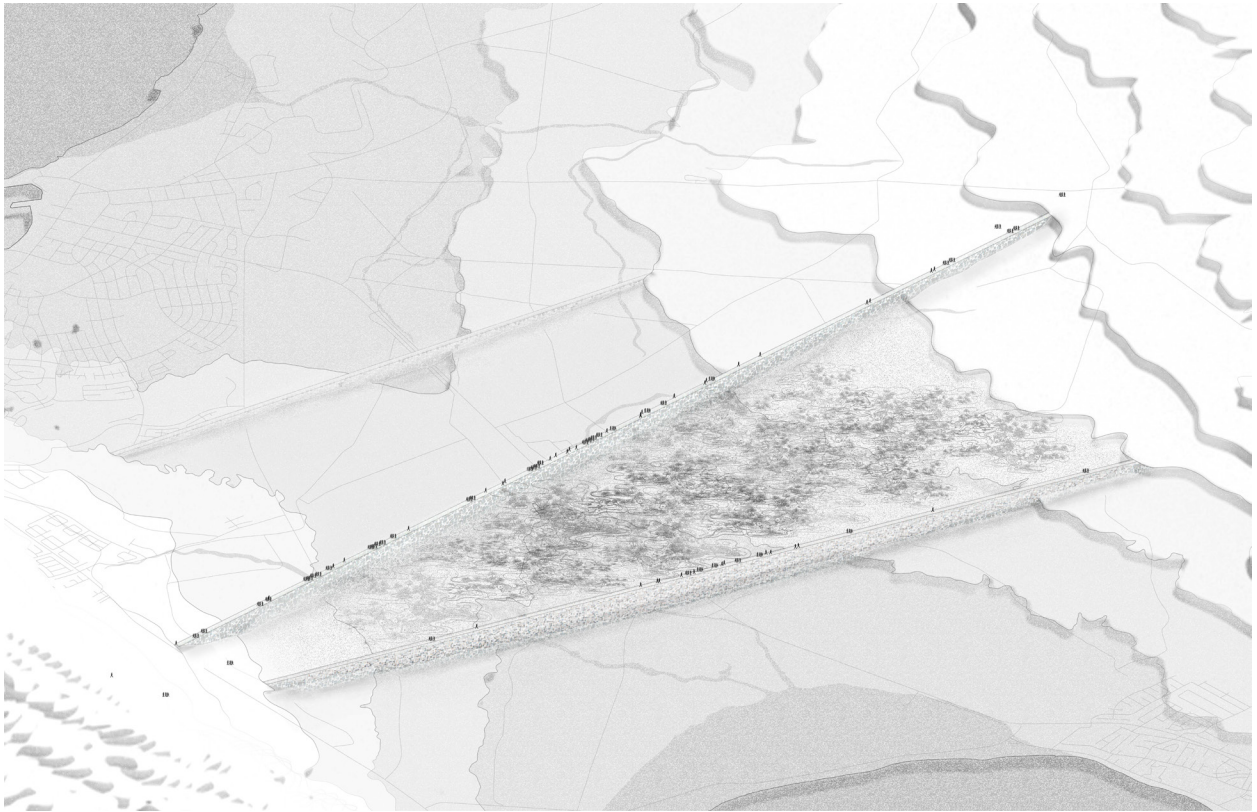
*...the spaces between the permeable walls began to populate with fish,
fulfilling the Menehune's prediction."*



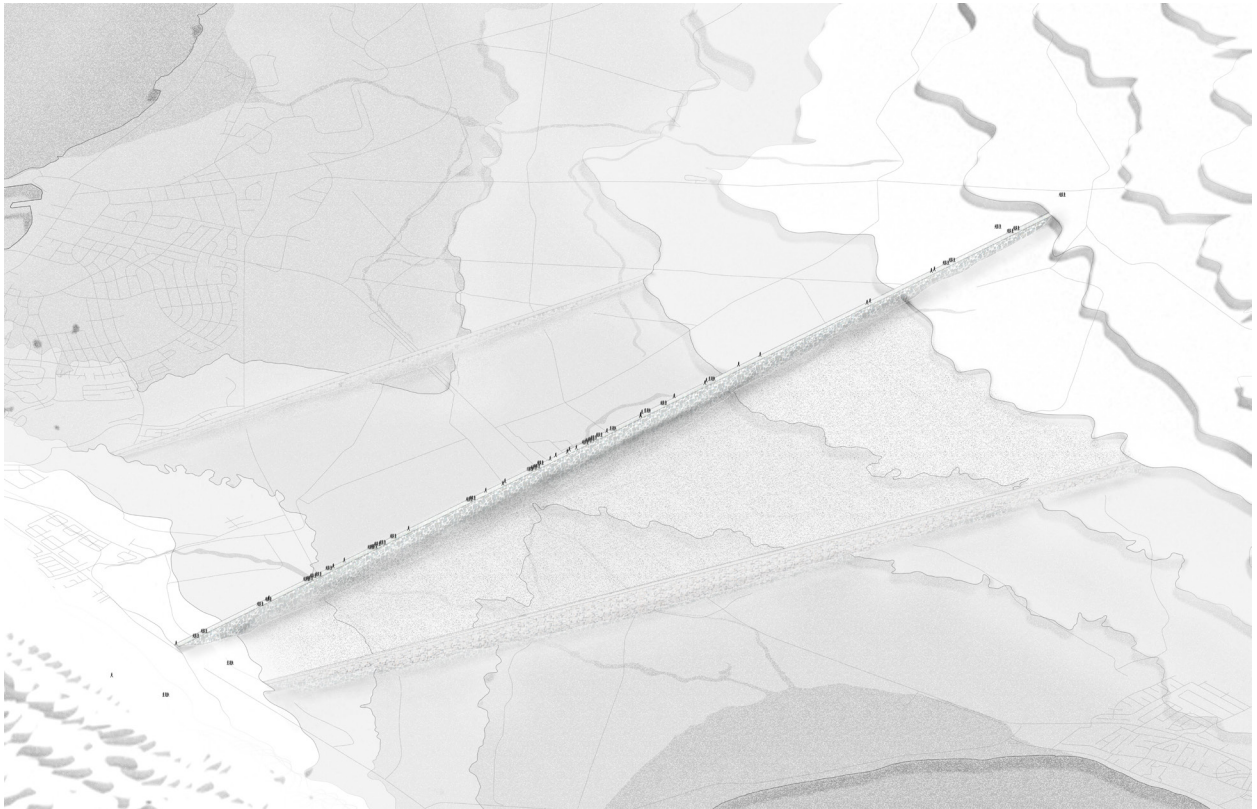
"These fishponds became the largest source of Hawaiian aquaculture in the region, that will serve the community for generations to come..."



...or at least until the sea rises again."



“And when it does, it will encapsulate the valley entirely, splitting Maui into two separate islands.”



“The only remaining connection will be the rim of the tallest wall...used as a bridge that will stitch both sides together. The Menehune should - and will - be remembered for their miraculous offerings to the islands.”

synthetic earth

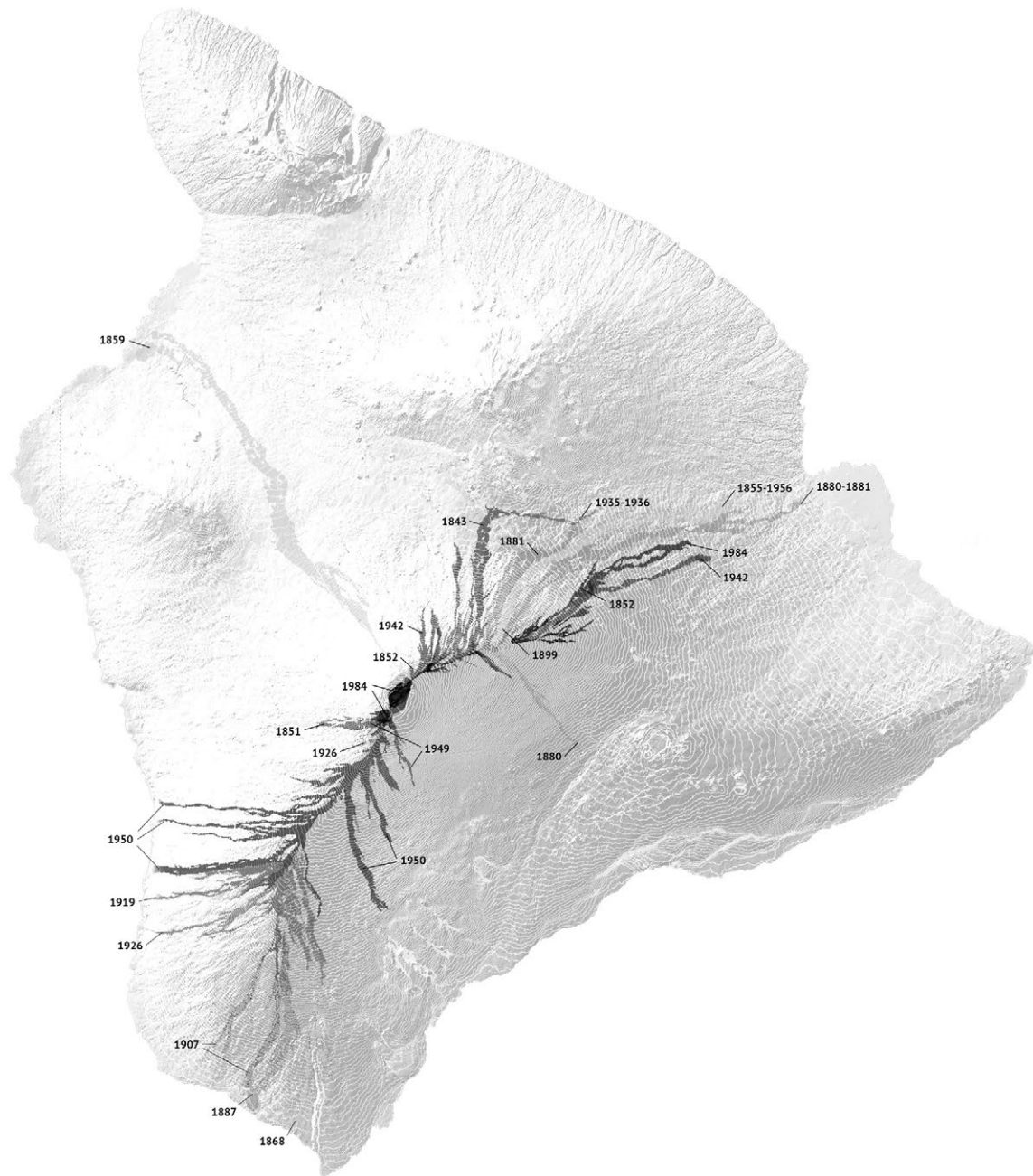
A team of archaeologists happens upon peculiar landforms in a familiar ground. Years of transformation are brought to light through the excavation of earth, where the narrator finds evidence of a new material - one that feels oddly nostalgic.

The mounds in the landscape hint at a previous life of the volcano - one that posed danger to neighboring communities. This parafiction reflects on an effort to tame a landscape refuses to be docile.

“Our team of archaeologists ventured from Texas to Hawaii to uncover the remains of Hawaii’s past civilizations, since the islands have been essentially abandoned - apart from the animals who have survived.”



“In our archaeological dig, we unearthed a mysterious fragment that was embedded in the ground.”

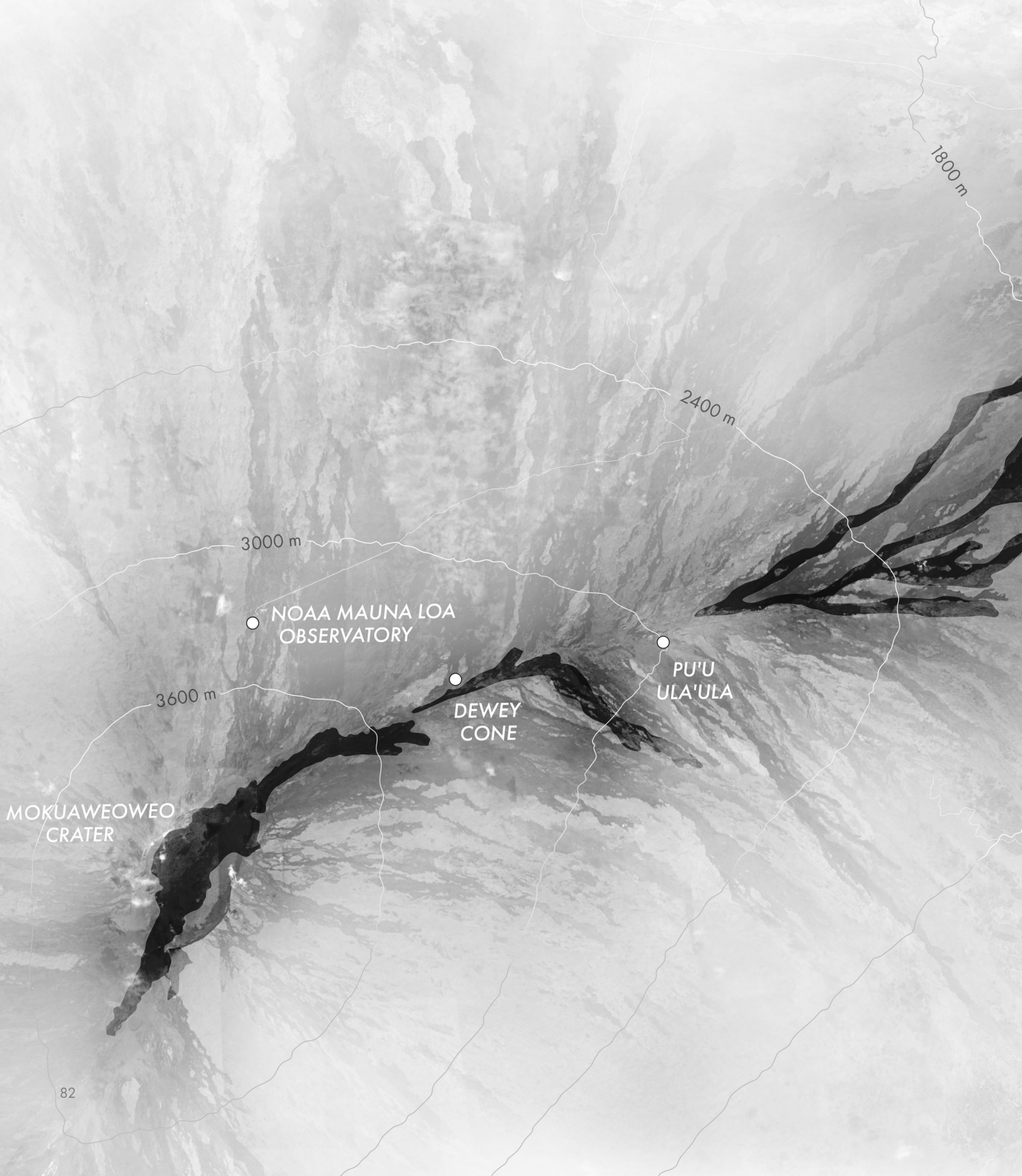


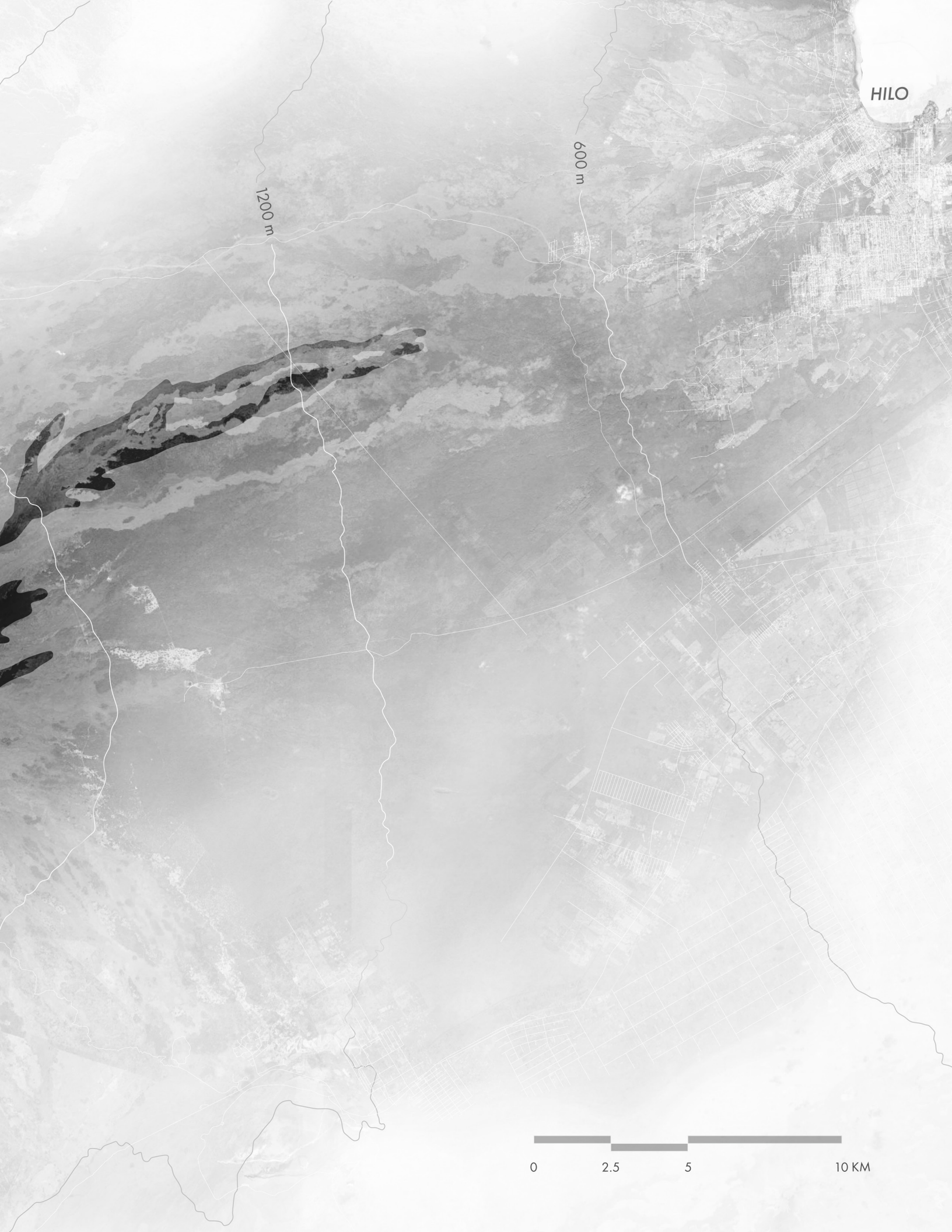
“Upon further digging, we brushed up on our history of the island - particularly its geology.

It turns out that Mauna Loa formed a majority of what we knew as the Big Island of Hawaii over the course of several thousand years.”

“In 1984 CE, its eruption buried about twenty-five kilometers of land owned by the state of Hawaii.

This was just one instance of how the landscape resisted the demands of the built environment.”





HILO

1200 m

600 m



0

2.5

5

10 KM

“Prior to 1984, Mauna Loa was known to erupt roughly every six years. Its next eruption did not occur until 2025 CE though.

After nearly forty years of inactivity, this eruption devastated the town of Hilo, which was a rather easy target since it was situated in a lava hazard zone.

This devastation was followed by substantial reconstruction efforts; however, the concern for future eruptions became ever-present.”





HILO

1200 m

600 m



0

2.5

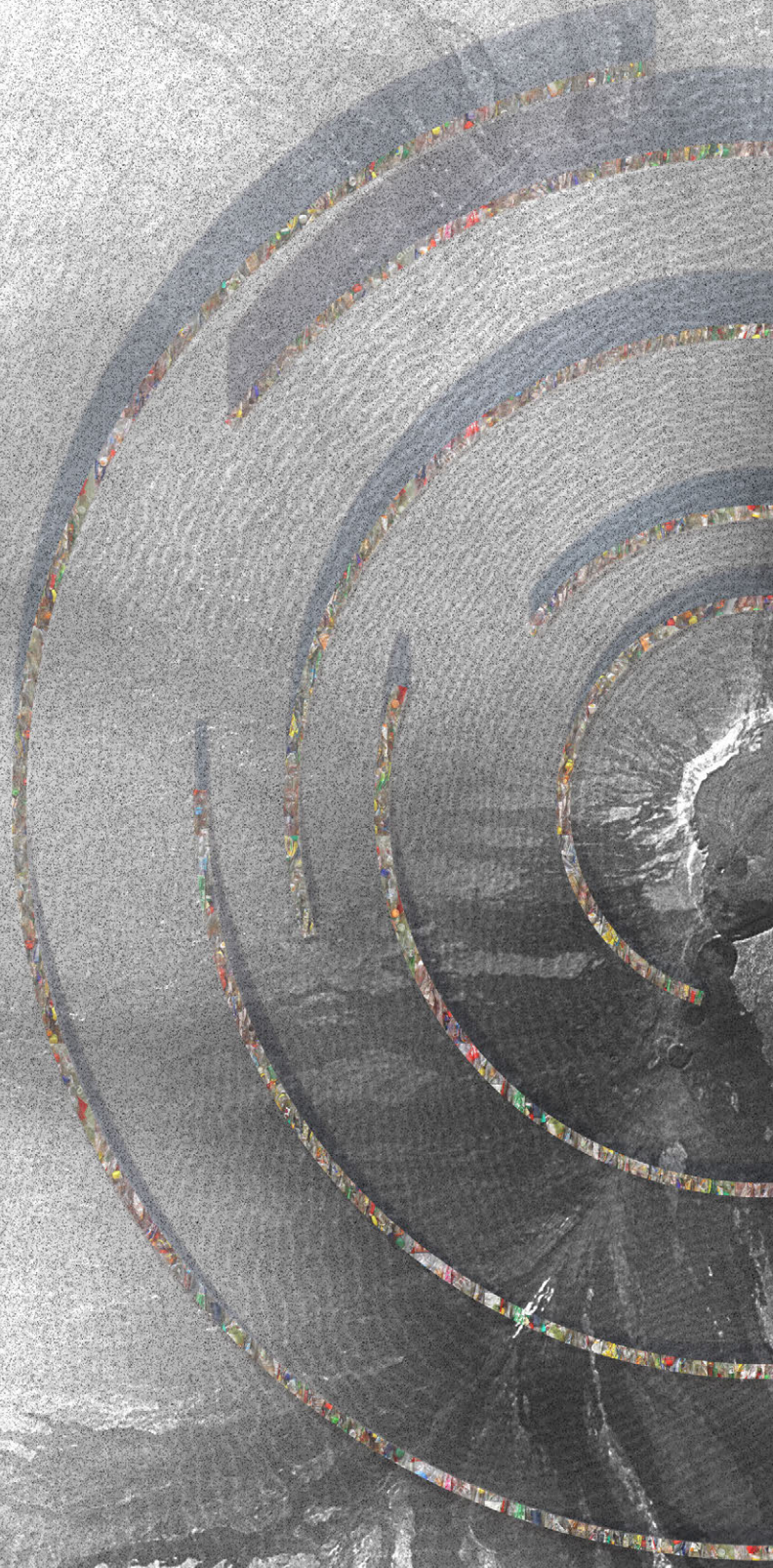
5

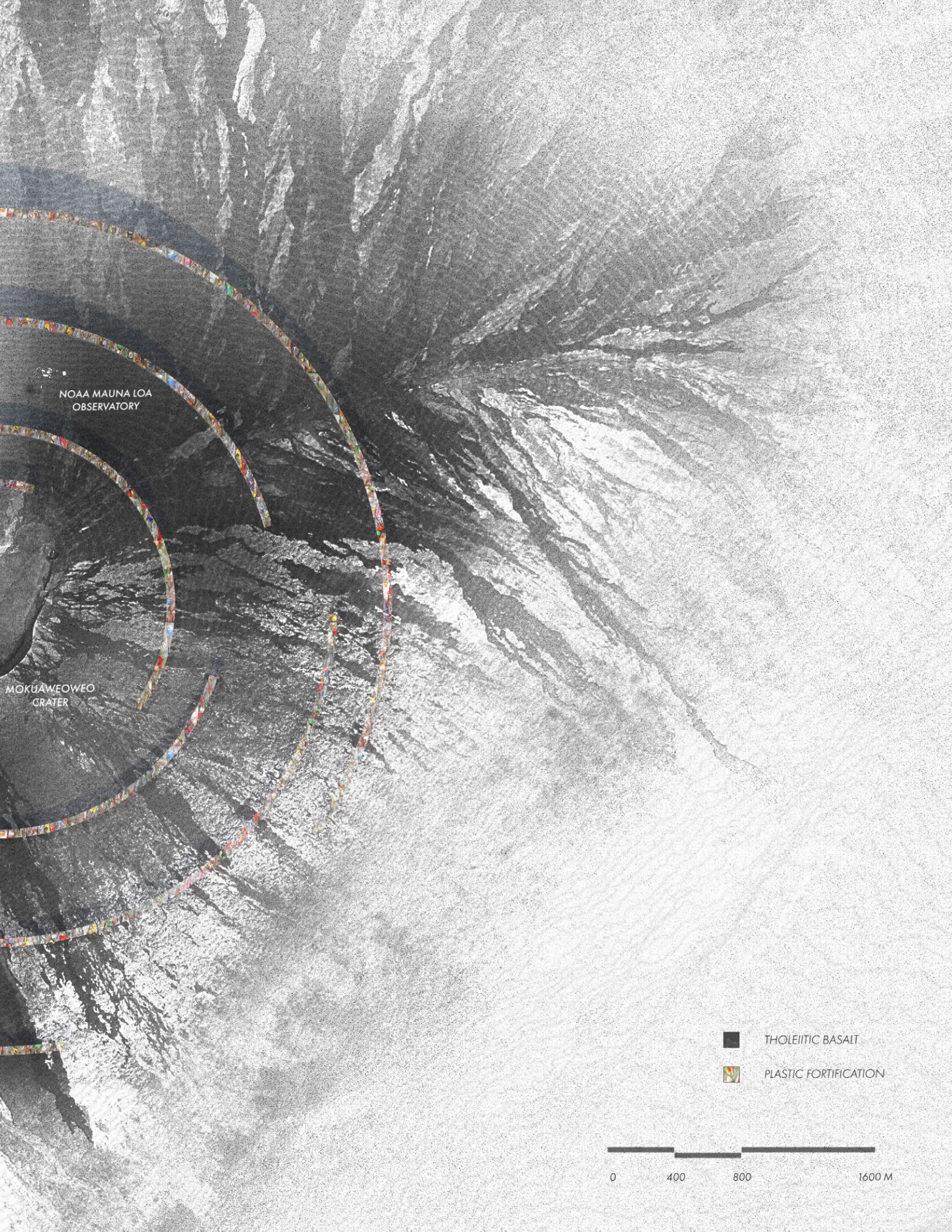
10 KM

“What we gathered from the USGS Hawaiian Volcano Observatory’s archive is that they seemed to have the most stake in the territory surrounding Mauna Loa since their laboratory was located just 800 km from the volcano’s crater.

After the destruction of the town of Hilo, they quickly embarked on a project to mitigate the destruction of cities situated within the lava hazard zones.



The USGS Observatory group opted for a fortification made entirely of plastic, which was a material popularized during these years when fossil fuels neared extinction. They speculated that the plastic would fuse with the surrounding rock to create a rigid barrier and to prevent the deluge of lava.”

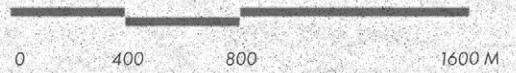




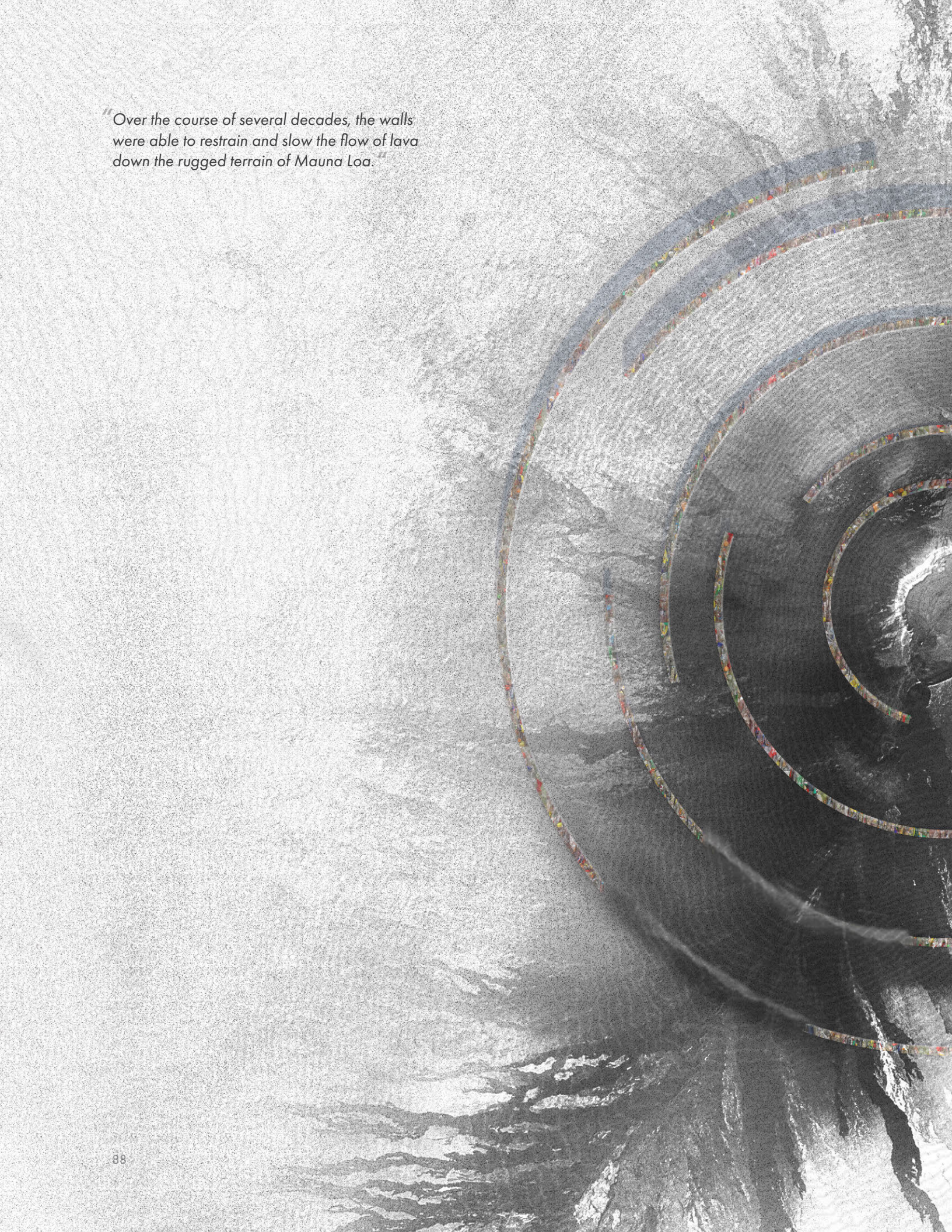
NOAA MAUNA LOA
OBSERVATORY

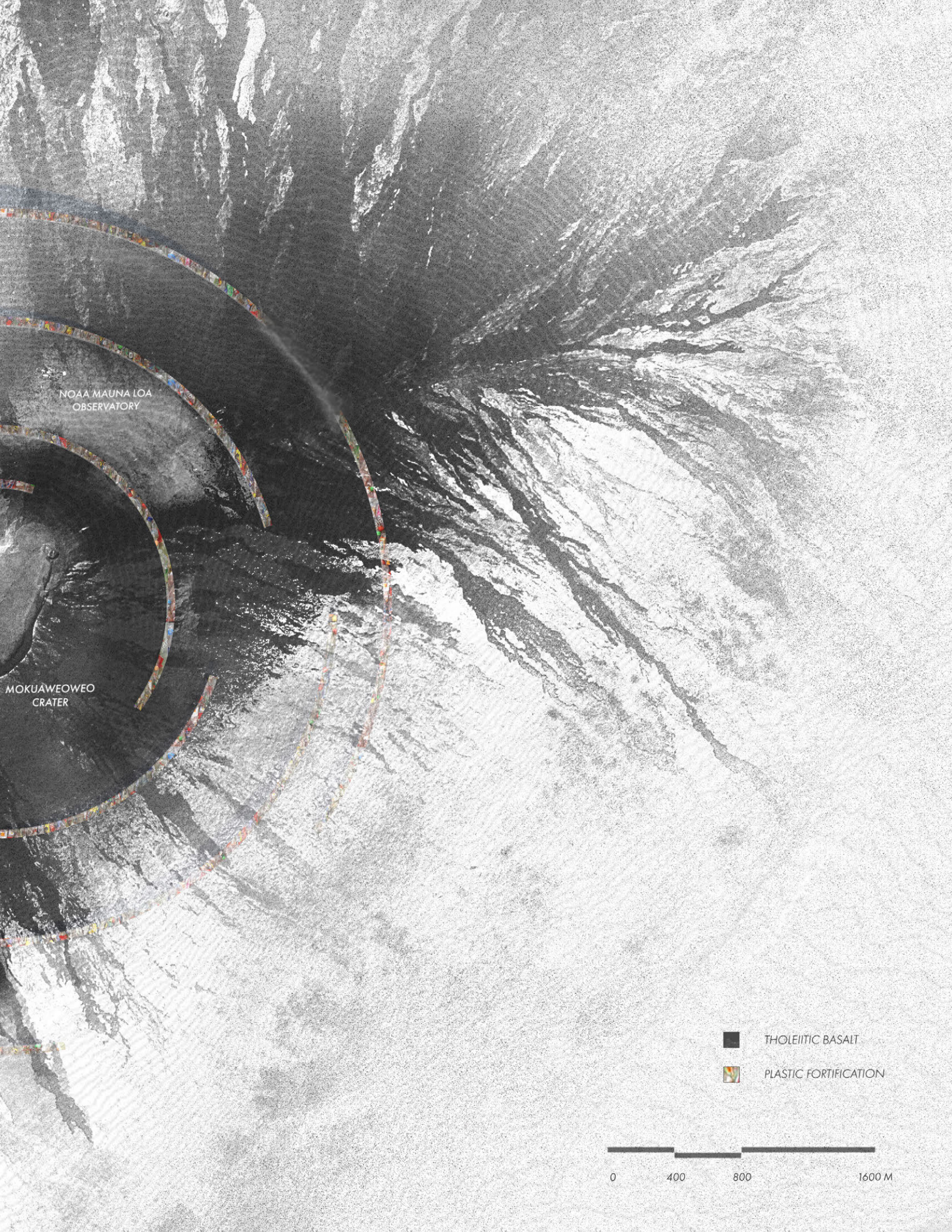
MOKUAWEO WEO
CRATER

-  THOLEIITIC BASALT
-  PLASTIC FORTIFICATION



"Over the course of several decades, the walls were able to restrain and slow the flow of lava down the rugged terrain of Mauna Loa."

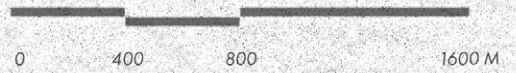




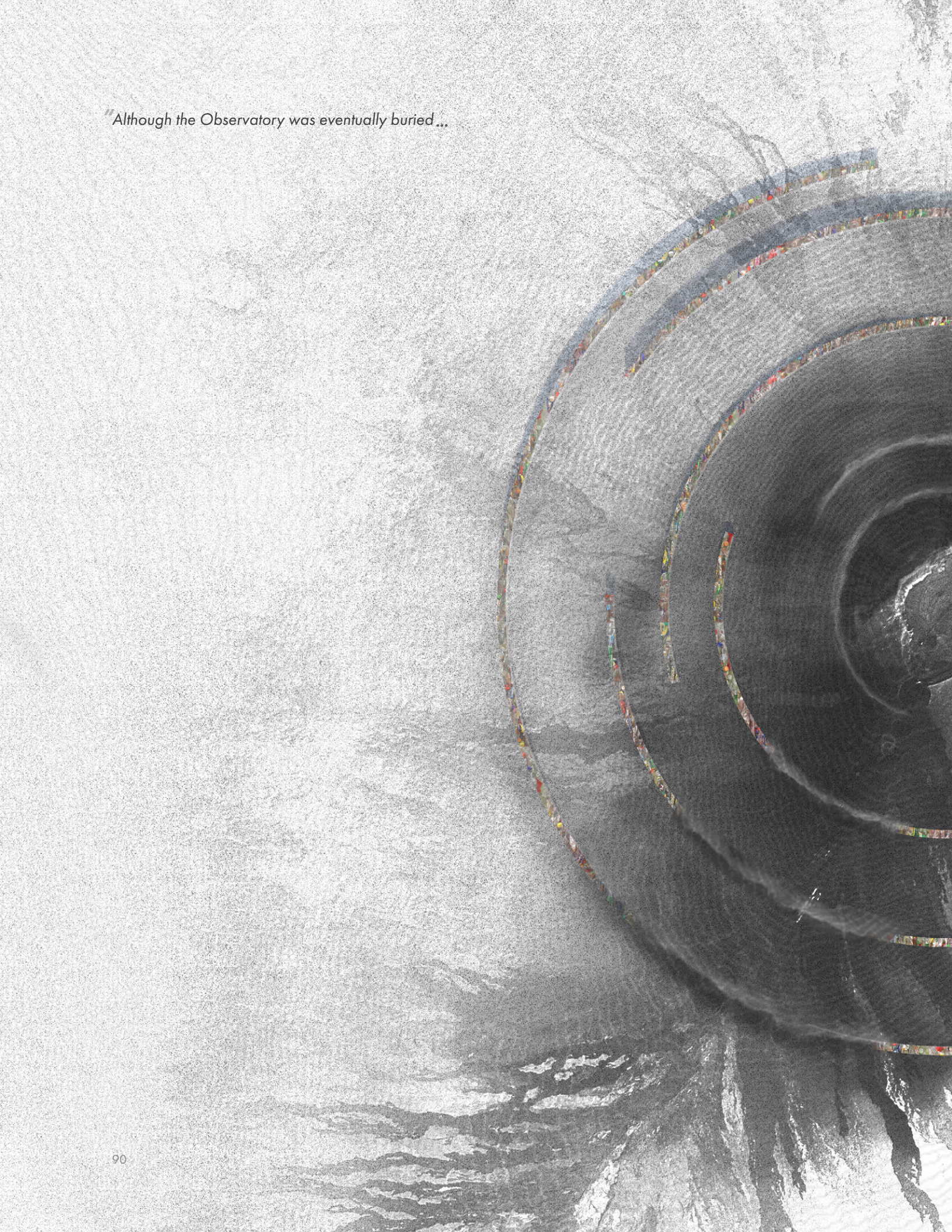
NOAA MAUNA LOA
OBSERVATORY

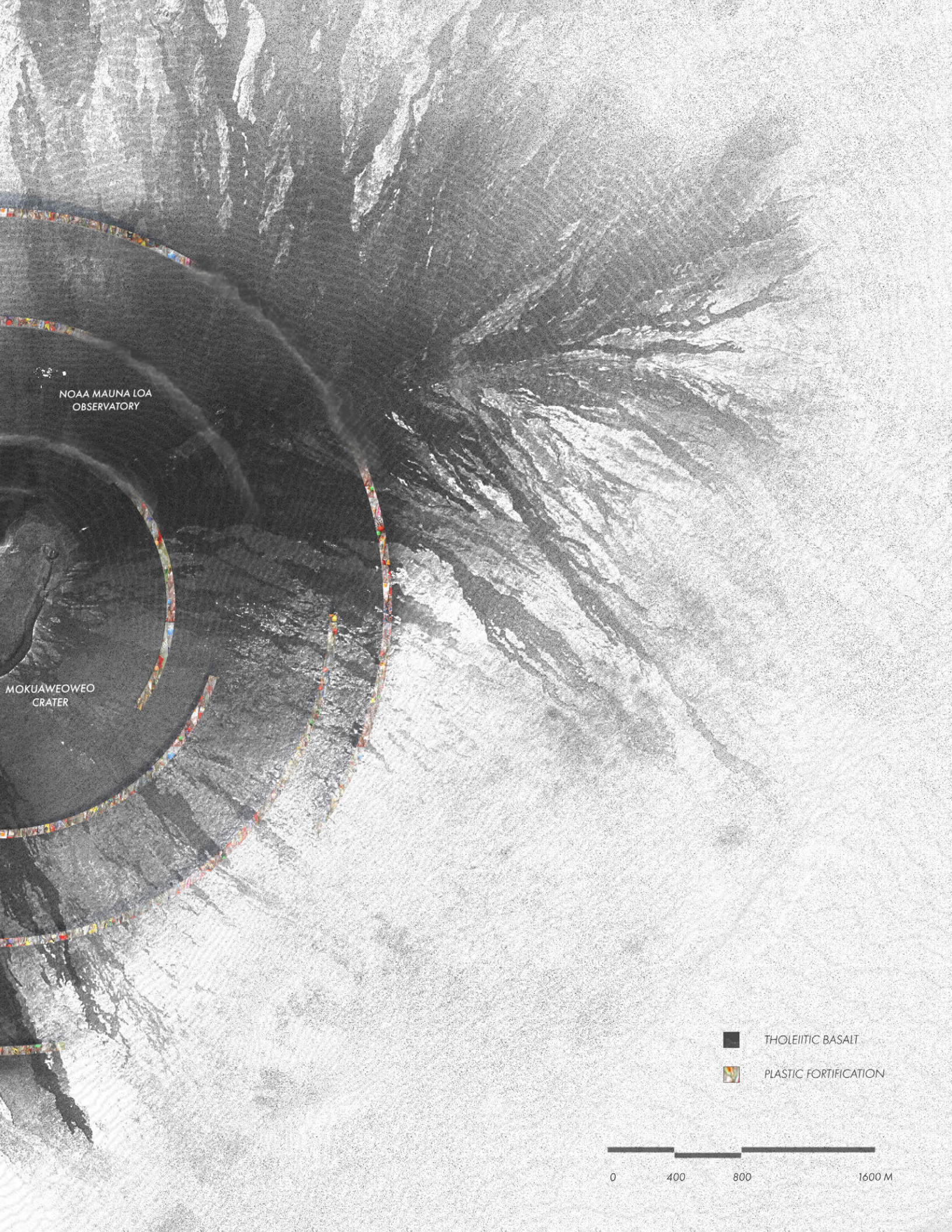
MOKUĀWEWEO
CRATER

- THOLEIITIC BASALT
- ▨ PLASTIC FORTIFICATION



“Although the Observatory was eventually buried ...

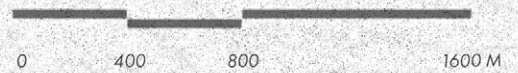




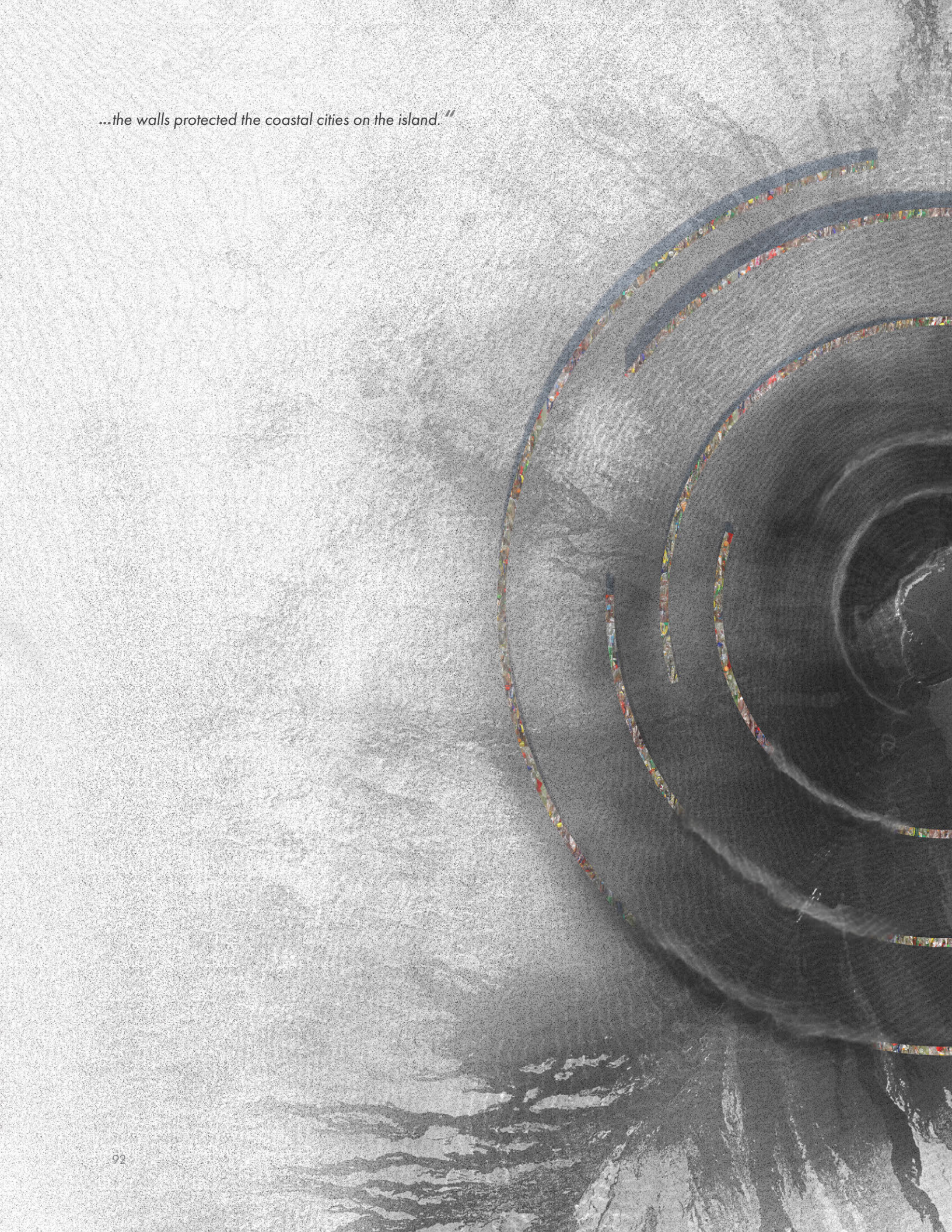
NOAA MAUNA LOA
OBSERVATORY

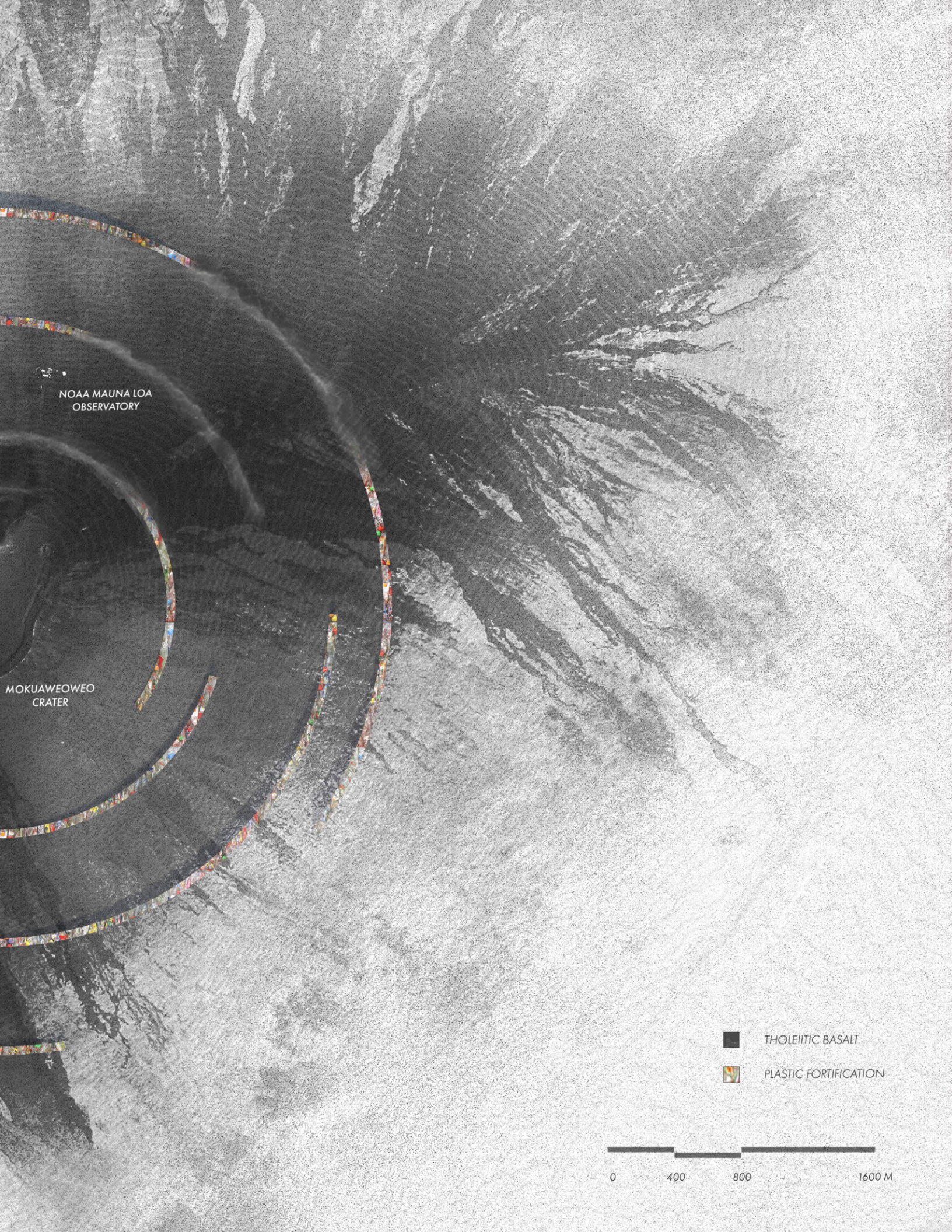
MOKUĀWEWEO
CRATER

- THOLEIITIC BASALT
- PLASTIC FORTIFICATION





...the walls protected the coastal cities on the island."





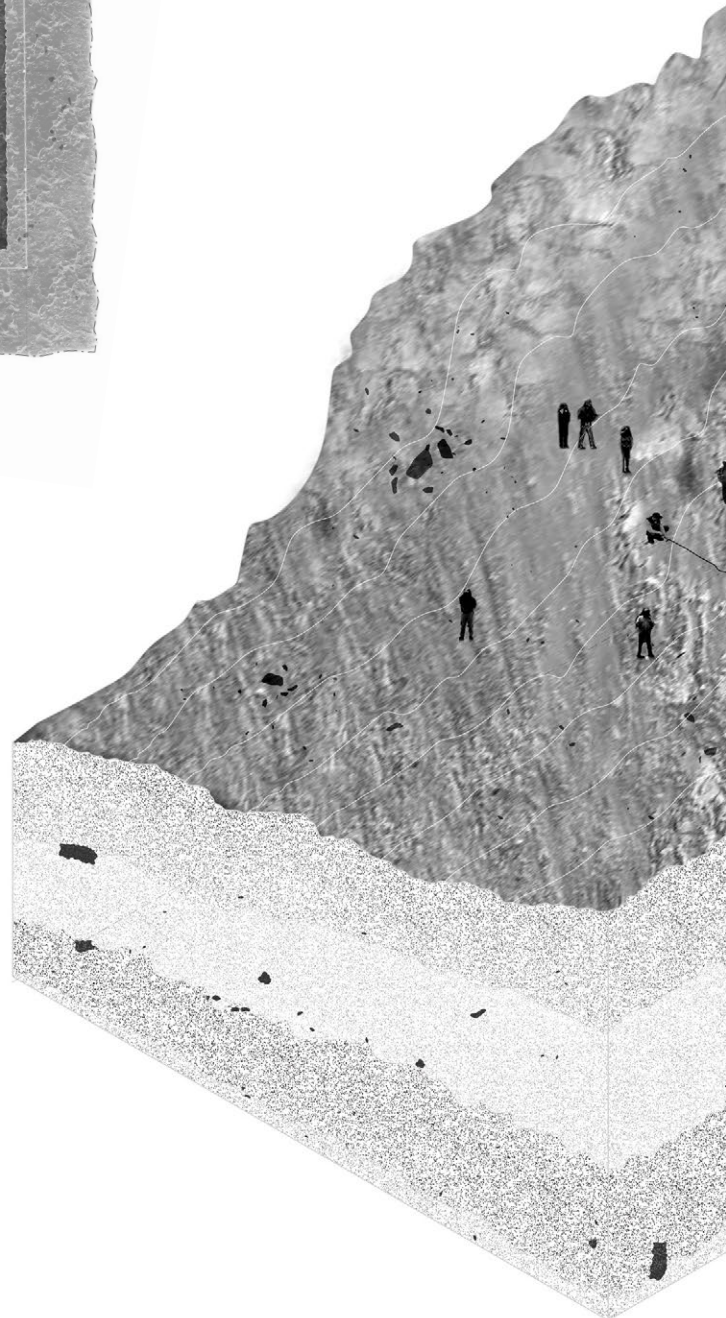
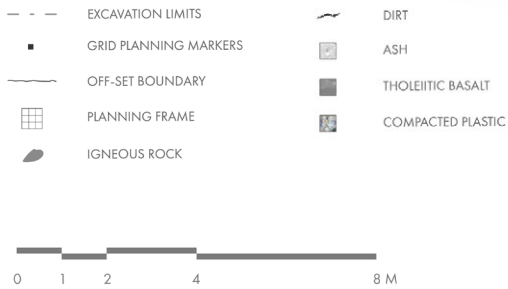
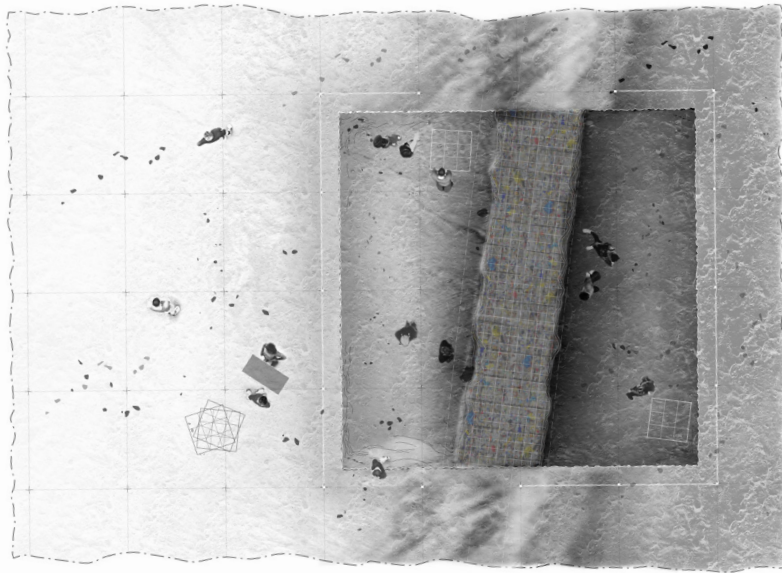
NOAA MAUNA LOA
OBSERVATORY

MOKUJAWEO WEO
CRATER

-  THOLEIITIC BASALT
-  PLASTIC FORTIFICATION

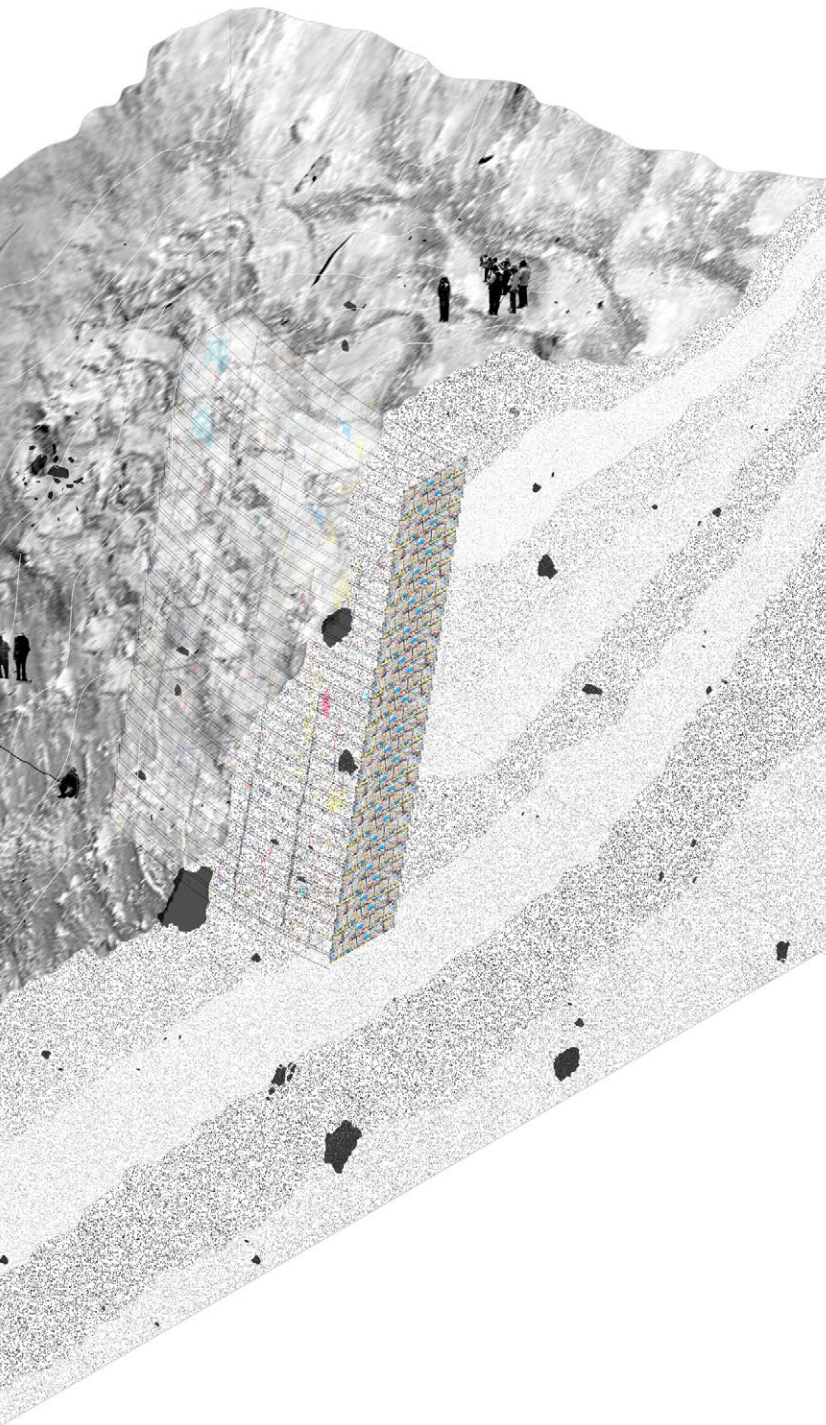


“In our dig, we found that after several decades, subsequent eruptions formed stratified layers of lava, which hardened to form tholeiitic basalt.”



“However, they could not anticipate what came much later. Mauna Loa’s eruption in 2156 CE engulfed the entire island of Hawaii in thick ash and lava...essentially rendering it unoccupiable.

After surveying the land post-eruption, we noticed a dramatic shift in the ground, which tells us that its height ranged anywhere from 10-15 meters tall. It appears to have fluctuated based on the surrounding topography. According to the archive, a series of compacted plastic piles bound with fishing nets were stacked much like gabions...continuously added until the local recycling facilities ran out of plastic waste.”



2156 C.E. In 2050 C.E., Hawaiian officials passed a mandate that 80% of plastic diverted to landfill was required to erect new public structures.

2093 C.E. The USGS Observatory Group aimed to mitigate the destruction of cities situated within Mauna Loa's lava hazard zones through the construction of several fortifications.





2072 C.E.

2068 C.E.

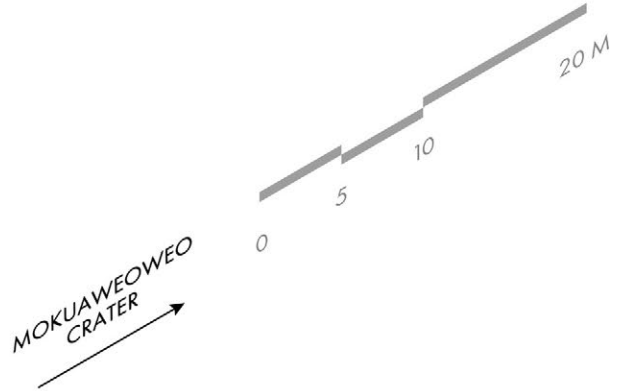
2056 C.E.

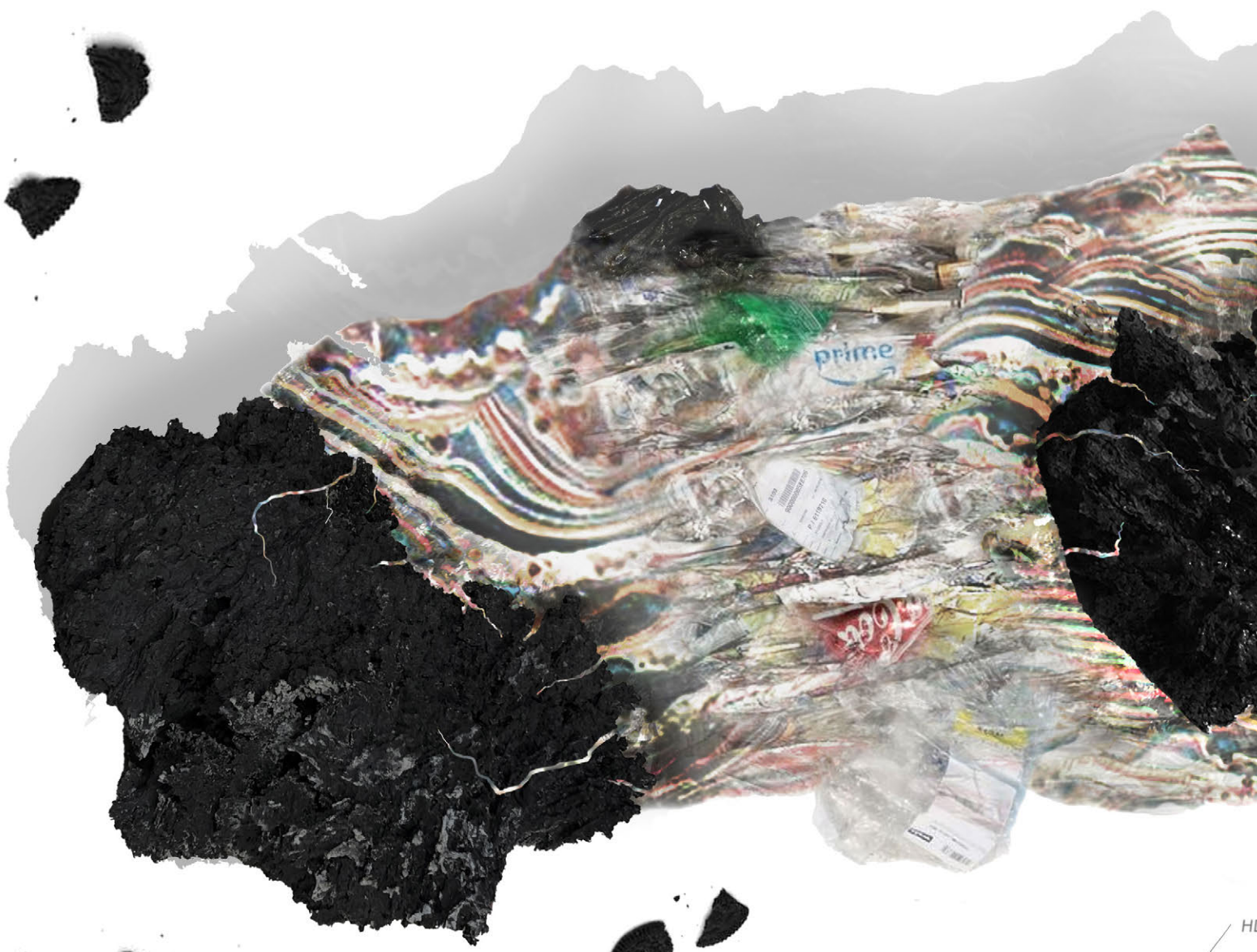
2025 C.E. In 1984 C.E., Mauna Loa's eruption buried approximately sixteen miles of land owned by the state of Hawaii.

1984 C.E.

-  IGNEOUS ROCK
-  OFF-SET BOUNDARY
-  THOLEIITIC BASALT
-  COMPACTED PLASTIC

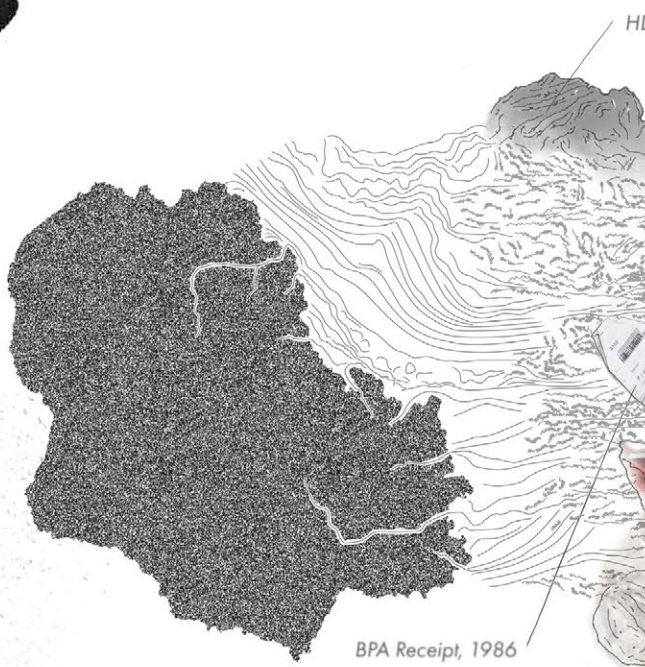
1975 C.E.





"In fact, in our excavation we found and documented an artifact of such characteristics. It appeared to be a fusion of compacted plastic, melted plastic, and igneous rock.

Upon further inspection, we noticed the remnants of consumer goods embedded in these layers and were able to perform radiometric dating. The oldest remnant was a Coca-Cola bottle dating back to 1978 CE."



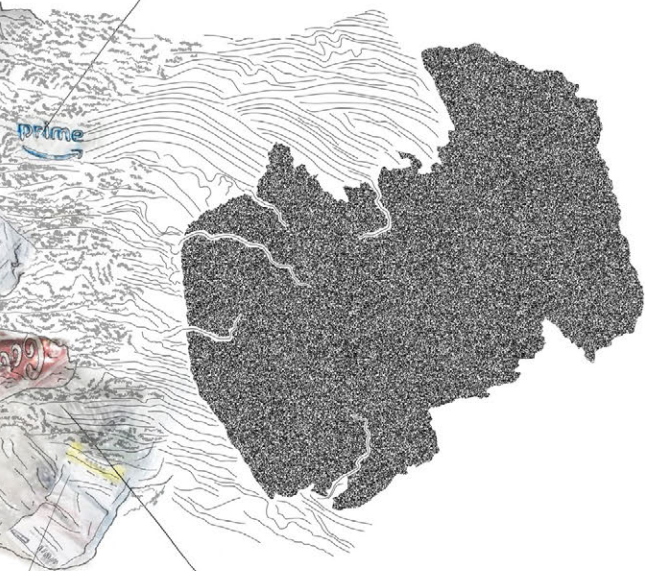
BPA Receipt, 1986

LDPE Plastic Bag, 1993



PE Trash Bag, 2018

HDPE Amazon Mailer Envelope, 2012



PET Coca-Cola Bottle, 1978



-  THOLEITIC BASALT
-  COMPACTED PLASTIC
-  FUSED PLASTIC



“Although the plastic portion of the wall was damaged due to its reaction with the scorching lava, the wall itself became rigidly fused with igneous rock.

Ultimately, the entire fortification was overtaken and buried, forming mounds around the volcano’s crater, which can still be seen to this day.”

NOAA MAUNA LOA
OBSERVATORY

ARCHAEOLOGICAL DIG



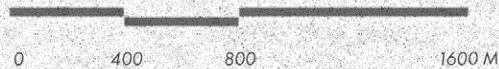
MOKUAWEOWEO
CRATER



THOLEIITIC BASALT



PLASTIC FORTIFICATION



REFLECTION

If you've made it this far into my thesis book, I'd like to thank you for your time and interest. This work was heavily influenced by and completely entrenched in a period of time that felt overwhelming. Speaking to the impacts of COVID-19 feels oddly cliché but completely necessary in contextualizing my work.

While a majority of our time this past semester was spent within a 12" X 8" computer screen, I am thankful for the challenge that isolation provided to my personal growth as a designer. I can't speak in totality for my thesis cohort, but the isolation prompted me to reach outward while also reaching inward for critique, support, and clarity. While the world collapsed around us, I actively attempted to channel my frustration into the work and into my consciousness.

The high's were high and the low's were low. There were downfalls to this workflow. There were times I was screaming at my laptop, fighting my lack of disc space, yearning to glue some sticks together, and mourning the absence of our studio culture.

Although there were inherent drawbacks to this shift in workflow, I was fortunate enough to surround myself with creative, intelligent, and diligent students who will continue to inspire my work beyond thesis. I would like to thank them for their continued dedication to the discipline of architecture and for their inquisitive, critical eyes.

There were fleeting moments I wish I could return to...the end of our thesis review, when the screen went black...when the accomplishment of a graduate thesis faded into Zoom oblivion. The review was a challenge in itself. Just like any design problem, the constraints were provided, and it was a matter of captivating and engaging your audience. The conversations that ensued were critical and inspired. I can say with certainty that those conversations will be carried forward in any work I produce hereafter.

I cannot thank my committee enough for their continued dedication to my work and for allowing me the space to explore my interests as a designer.

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