Grass/ Greeting/ Gathering/

Ethical Papermaking and Suburban Community Engagement

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Abstract

Grass/Greeting/Gathering: Ethical Papermaking and Suburban Community Engagement seeks to observe the flux and vulnerability of nature in suburban environments, and to foster a sense of kinship and community through an ethical papermaking practice. This practice-based investigation crafts eco-friendly paper utilising locally foraged materials, specifically lawn clippings from neighbouring berms, emphasising the role of visual communication design in promoting environmental sustainability.

Ecologically intentional design thinking is central to this inquiry. The development of my practice was underpinned by daily cycles of walking, clipping, gathering, greeting, and papermaking. Interacting with the local natural environment not only enhances environmental awareness but also strengthens the internal relationships within the community. Furthermore, our exploration reveals how ecological design activities can establish a new form of community participation and social interaction, redefining and reshaping spaces on both physical and emotional levels and promoting a sense of community awareness and environmental stewardship.

Building upon the foundational insights garnered from the initial stages of the inquiry, this research culminates in advocating for an evolved design ethos inherently resistant to globalisation's adverse effects on the environment. It proposes a paradigm where localised, participatory, and materially engaged practices are not merely reactive but are proactive measures in cultivating sustainable ecosystems and communities. This investigation underscores the transformative power of even the minutest interventions, which, when aggregated, can challenge and redefine prevailing global narratives. This study offers a blueprint for future ecological design practices by embracing such grassroots approaches. It reaffirms the essential role of community engagement in fostering a deeper, more meaningful connection with our natural and social environments. Through this lens, we envision a future where design transcends its traditional boundaries, becoming a pivotal force in the global movement towards environmental stewardship and cultural renewal.

Figure 1. Wei Liao, *Lawn Clippings from My Neighbour*, 2023.

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ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the Acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed 5 / May 2024

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This project is a testament to the power of collective effort and support. I am deeply thankful to everyone who played a part in this journey. Recognising this as a collaborative endeavour, I will use "we" rather than "I" in my exegesis to accurately reflect the collective contributions of all involved in the making process.

Figure 2. Wei Liao, *My Letterbox*, 2023.

1 Introduction

Relocating from Shanghai's bustling metropolis to suburban Tāmaki Makaurau Auckland, my new place of residence, could be proven when I received my first letter in the post. Establishing a seemingly mundane address became a pivotal link to my new surroundings, establishing my residential status and leading to a deeper reflection on the interplay between place, communication, and identity. This contemplation found a focal point in the suburban letterbox, a modest yet profound symbol within the postal network, marking my location in this unfamiliar land.

The Kiwi letterbox located at the border between the front garden and suburban berm also marked everyday conversations with my neighbours. Gathering materials for my papermaking practice of garden waste and lawn clippings, led to a series of greetings from neighbours, and conversations about my communication-design project. These interactions sparked an interest in papermaking, transforming a design-led practice into a communal endeavour that united my family in creative pursuit and fostered connections within the community. This approach underscored the potential of ecological design practices to forge emotional bonds and cultivate a sense of place, enhancing environmental awareness and community cohesion.

Furthermore, the study explored how repurposing seemingly mundane grass clippings into paper could extend beyond creativity, transcend beyond "making", touching upon themes of home, place, suburban social fabric. Inspired by visual artists such as Ruth Moro, Birgit Moffatt, Sally Blake, Jane Ingram Allen and Katie Paterson, whose work with natural materials highlight the communicative potential of environmentally ethical design, this inquiry underscores the transformative impact such practices can exert on community, belonging, and stewardship.

By utilising local resources, this research demonstrates the viability of sustainable design and how community members can reacquaint themselves with their living environment. It aligns with scholarly discourse, showcasing how the integration of environmental sustainability and community participation can be achieved through creative exploration. Thus, this study contributes to the theoretical and practical understanding of ecological design and serves as a call to action for fostering deeper community ties and environmental responsibility.

This project is a testament to the power of collective effort and support. I am deeply thankful to everyone who played a part in this journey. Recognising this as a collaborative endeavour, I will use "we" rather than "I" in my exegesis to accurately reflect the collective contributions of all involved in the making process.

2 Chapter One: Literature Review

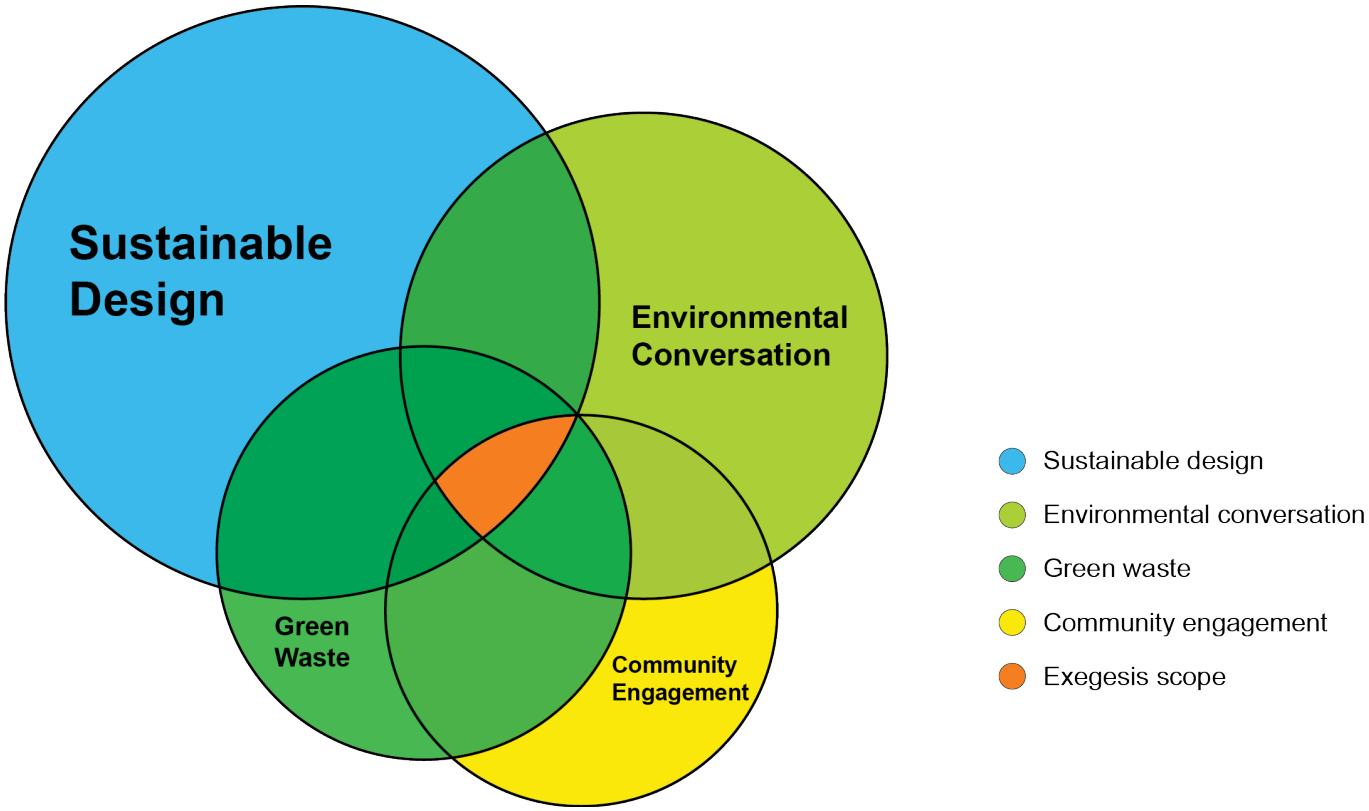


Figure 3. Wei Liao, *Graphic of Relative Contexts*, 2024.

2.1 Overview

As designers in the contemporary epoch, we are confronted with a formidable challenge—the imperative to counteract the despoliation of the global ecosystem.[1] The recent United Nations Climate Change "AR6 Synthesis Report: Summary for Policymakers Headline Statements (2023) " starkly accentuates the necessity for comprehensive changes across global, national, and individual tiers to foster sustainability.[2] The "2024 Climate Risk Landscape Report" advocates for the adoption of regulatory foresight and environmental vision to facilitate a paradigm shift in design practices towards resilience and sustainability.[3] Through the lens of my professional practice in papermaking, this research scrutinises the multifaceted phases of design and posits the use of green waste as a cornerstone for environmentally ethical design approaches. The ultimate aim is to engender widespread ecological consciousness within the community and champion environmentally sustainable processes amongst fellow natural-fibre-based papermakers.

The literature review confronts the dual crises of wood-based paper production and sustainability to navigate this terrain. It highlights the pivotal role of environmental ethics within sustainable design practices and delves into using lawn clippings as the primary material for this research. The objective is to fabricate final artefacts and examine social relationships through walking, clipping, gathering, greeting, papermaking, and exploring the creative exploits of other practitioners who harness green waste materials.

1 Suzanne Benn, Melissa Edwards, and Tim Williams, *Organizational Change for Corporate Sustainability* (Milton, UNITED KINGDOM: Taylor & Francis Group, 2018), http://ebookcentral.proquest.com/lib/aut/detail.action?docID=5450941.

2 "AR6 Synthesis Report: Summary for Policymakers Headline Statements," accessed May 12, 2023, https://www.ipcc.ch/report/ar6/syr/resources/spm-headline-statements.

3 "Climate Risk Landscape Report 2024," accessed April 7, 2024, https://www.unepfi.org/themes/climate-change/2024-climate-risk-landscape/.

Figure 4. WMO UNEP, *Climate Change 2023 Synthesis Report*, 2023.

Figure 5. UNEP, *Climate Risk Landscape Report*, 2024.

2.2 Localising Environmental Challenges and Project Motivation

Perched at the edge of the quintessential Aotearoa New Zealand suburban residence, the Kiwi letterbox is a modest yet crucial territorial beacon integral to residential placemaking. My research undertook a poetic odyssey, interlacing the vernacular architecture of these letterboxes with an experimental inquiry into green waste papermaking. Beneath its seeming simplicity, the project probes the urgent environmental challenges intersecting local and global spheres.

Tāmaki Makaurau Auckland, my home for the past two years, has suffered a troubling 18% decline in tree cover since 2000[4] —a local symptom of the broader scourge of deforestation that contributes 15% of greenhouse gas emissions worldwide.[5] These disconcerting figures bring the environmental crisis into stark relief, underscoring the critical need to confront deforestation in my locale.

As a visual communication designer, I maintain that our design practices go beyond simple visual artistry, representing a profoundly impactful form of social engagement instead. My foray into papermaking does not merely question the environmental contradictions presented by the Kiwi letterbox; it also delivers a powerful message about sustainability and environmental guardianship to a global audience. Echoing the sentiments expressed by Pivoted Pixel, “Graphic designers are empowered to utilise their capabilities to create environmentally friendly products, reinforce sustainable practices within businesses, and guide the general populace towards a more sustainable way of living.”[6] This cross-disciplinary method of design expands the potential paths for designers and heightens the social and environmental influence of design work.

4 Vizzuality, “Auckland, New Zealand Deforestation Rates & Statistics | GFW,” accessed May 17, 2023, https://www.globalforestwatch.org/dashboards/country/NZL/1.

5 Trevor Lewis, “The Effect of Deforestation on Ground Surface Temperatures,” *Global and Planetary Change* 18, no. 1 (July 1, 1998): 1–13, https://doi.org/10.1016/S0921-8181(97)00011-8.\\uc0\\u8221{} {\\i{} Global and Planetary Change} 18, no. 1 (July 1, 1998

6 Pivoted Pixel, “Graphic Design and Environmental Sustainability (The Ultimate Guide),” April 9, 2023, https://pivotedpixel.com/graphic-design/graphic-design-and-sustainability/.

Figure 6. Wei Liao, *My Neighbour's Letterbox*, 2023.

Visual communication designers have the ability and duty to shape public consciousness and actions concerning environmental conservation through their artistic contributions. Despite its limited scale, my initiative is deeply intertwined with the formidable dynamics of climate change—from deforestation and the overuse of natural resources to unsustainable consumption patterns—underscoring design's pivotal role in promoting environmental safeguarding and community participation.

The Kiwi letterbox, emblematic of a physical dwelling and a gateway to wider networks of communication, thus transforms into a microcosm reflective of vast environmental tribulations. In my experimental papermaking practice I dissect the many paradoxes of this unassuming structure—a marker of personal residence that is inextricably linked to the pervasive global narrative of environmental decline.

2.3 The Crisis of Sustainability

The urgent need to align human activity with environmental sustainability intensifies in the modern era. As the challenges mount, the discourse on sustainability shifts from optional to critical. Within this crucial framework, David W. Orr, a distinguished environmental studies scholar, highlights the extensive reach of the sustainability crisis. This crisis intricately weaves through global politics, economics, and public policy, emphasising:

> The sustainability crisis, the fit between humanity and its habitat, is manifest in varying ways and degrees everywhere on Earth. It is not only a permanent feature on the political agenda; for all practical purposes, it is the agenda. No other issue of politics, economics, or public policy will remain unaffected by the crisis of resources, population, climate change, species extinction, acid rain, deforestation, ozone depletion, or soil loss. Sustainability is about the terms and conditions of human survival...[7]

This broad perspective highlights the global implications of sustainability challenges, positioning ecological design as a key response. Orr's comprehensive view on sustainability informs the foundation of my practice, driving me to develop solutions that are not only innovative but inherently responsible.

In this milieu, design, particularly within architecture and engineering, emerges as a fundamental force in sustainability. The concept of "Just Enough Design" promotes a profound, eco-centric approach, encouraging rich observation and innovative thought.[8] Genuine sustainability contemplates a product's entire lifecycle, demanding an expansive vision that includes social and ecological impacts.[9]

The quest for sustainable and ecological design aims to cast light on and foster harmony with the natural world. Designers are becoming instrumental in sculpting sustainable lifestyles and advancing values, attitudes, and traits conducive to an enriched, balanced existence. Environmental ethics, pivotal to sustainable progress, dictate design paradigms that embody consideration and reverence for nature. Context-sensitive design works with local natural dynamics, nurturing a commitment to environmental accountability.

Sustainable development hinges on environmental ethics, as Radwan A. Al-Weshah, Motasem N. Saidan, and Abbas S. Al-Omari suggest in their study on sustainable water resource management.[10] According to Madeleine Borthwick, Martin Tomitsch, and Melinda Gaughwin, design acts as a critical agent in shaping our surroundings and mirroring our collective ethos.[11] Our creations, as noted by Roger J. H. King and the Center for Environmental Philosophy at The University of North Texas, bear the potential to forge symbiotic coexistence with the natural environment.[12] A culture of environmental stewardship, as argued by Sim Van der Ryn and Stuart Cowan, necessitates designs that display attentiveness and respect for our ecological counterparts.[13] Mark DeKay underscores the imperative of context-sensitive design that synergises with local natural forces.[14] Environmental sociologist Frank Vanclay's view of "place" as "space" imbued with meaning further accentuates this point.[15] Comprehending the significance imbued in specific green wastes propels the creation of eco-conscious designs.

7 David W. Orr, *Ecological Literacy: Education and the Transition to a Postmodern World* (State University of New York Press, 1991), 83.

8 "AGI Open Aotearoa New Zealand 2023," AGI Open, accessed September 20, 2023, https://agi-open.com/.

9 Nathan Stegall, "Designing for Sustainability: A Philosophy for Ecologically Intentional Design," *Design Issues* 22, no. 2 (2006): 56–63, https://www.jstor.org/stable/25224047.

10 Radwan A. Al-Weshah, Motasem N. Saidan, and Abbas S. Al-Omari, "Environmental Ethics as a Tool for Sustainable Water Resource Management," *Journal AWWA* 108, no. 3 (2016): E175–81, https://doi.org/10.5942/jawwa.2016.108.0037.

11 Madeleine Borthwick, Martin Tomitsch, and Melinda Gaughwin, "From Human-Centred to Life-Centred Design: Considering Environmental and Ethical Concerns in the Design of Interactive Products," *Journal of Responsible Technology* 10 (July 1, 2022): 100032, https://doi.org/10.1016/j.jrt.2022.100032.

12 Roger J. H. King and Center for Environmental Philosophy, The University of North Texas, "Environmental Ethics and the Built Environment" *Environmental Ethics* 22, no. 2 (2000): 115–31, https://doi.org/10.5840/enviroethics200022230.

13 Sim Van der Ryn and Stuart Cowan, *Ecological Design, Tenth Anniversary Edition* (Durham, UNITED STATES: Island Press, 2007), http://ebookcentral.proquest.com/lib/aut/detail.action?docID=3317637.

14 Mark DeKay, *Integral Sustainable Design: Transformative Perspectives* (London, UNITED KINGDOM: Taylor & Francis Group, 2011), http://ebookcentral.proquest.com/lib/aut/detail.action?docID=1020362.

15 Frank Vanclay and Matthew Higgins, eds., *Making Sense of Place: Exploring the Concepts and Expressions of Place Though Different Senses and Lenses*, Pap/DVD edition (National Museum of Australia Press, 2008).

Figure 7. Wei Liao, *My Neighbour's Green Waste*, 2023.

Figure 8. Wei Liao, *My Neighbour's Lawn*, 2023.

2.4 Lawn

2.4.1 Rethinking Lawns Towards Sustainable Community Spaces

As crafted surfaces that utilize plant fibres, both lawns and paper represent cultural and material artefacts, shaped and inscribed by human activity—be it through a lawnmower or a pen. The lawn emerges as a cultural artefact, encapsulating the intricate interplay between society, nature, and the individual. The insight offered by Louis-Edmond Hamelin, that "terrain is more than an area; it is a passion,"[16] underscores our profound connection to these verdant spaces, reflecting both societal values and individual aspirations.

2.4.2 Historical and Cultural Evolution

Marshall McLuhan and Quentin Fiore have shed light on transforming natural landscapes into symbolic havens, stating, "The technology of the railway created the myth of a green pasture world of innocence."[17] Such evolution marks the lawn as a retreat from the urban milieu, embodying a Jeffersonian ideal of pastoral innocence. The designs propounded by Frederick Law Olmsted further extol lawns as tranquil, communal spaces within the urban sprawl, underscoring their role in American suburbia.[18] Yet, the historical trajectory of the lawn also intersects with burgeoning feminist narratives. The gardening practices of the late 19th and early 20th centuries, articulated by authors such as Elisabeth von Arnim and Louise Beebe Wilder, mirrored the shifting roles of women within society. Their narratives positioned gardening as an act of emancipation from domestic confines, subtly entwining the lawn with discussions around gender, autonomy, and space reclamation.

16 Caroline Rosenthal, "Locations of North in Canadian Literature and Culture," n.d, *Zeitshrift fur Kanada-Studien* 29 (2009), 25-38.

17 "Quotes from the Book — The Medium Is the Massage," accessed March 15, 2024, https://www.themediumisthemassage.com/the-book/,1.

18 Charles E Beveridge and Paul Rocheleau, *Frederick Law Olmsted: Designing the American Landscape* (New York: Universe Publishing, 1998).

Figure 9. Wei Liao, *Natural Lawn*, 2023.

2.4.3 Environmental Implications

The commendation of the open lawn as "the natural foundation of a natural landscape" by Frank A. Waugh stands in stark contrast with contemporary understandings of environmental sustainability.[19] The traditional lawn's dependence on excessive water use, chemical fertilisers, and pesticides is at odds with the pressing need for ecological equilibrium. In her seminal work "Silent Spring," Rachel Carson unveiled the hidden costs of these practices, urging us to reevaluate our engagement with the natural world.[20] The environmental footprint of lawns necessitates a critical reassessment, where aesthetic predilections must be reconciled with ecological realities. As environmental ethicist Aldo Leopold has articulated, "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."[21] This principle steers our quest for sustainable alternatives, honouring our bond with the earth.

2.4.4 Towards Sustainable Practices

Pursuing sustainable lawn alternatives resonates in the pronouncements of visionaries such as Christopher Tunnard and Garrett Eckbo. Tunnard, in *Gardens in the Modern Landscape*, advocates for a recalibration of landscape practices, emphasising the necessity to "reevaluate conventional landscape practices" to serve human and environmental needs.[22] Similarly, Eckbo's *Modern Landscape for Living* champions applying "scientific methods to landscape architecture," propelling the discipline towards ecological harmony.[23] Fletcher Steele's critique of the traditional lawn for its ecological inefficiency complements this shift, advocating for "diverse ground covers" to foster more adaptable and resilient landscapes.[24] These narratives collectively advocate for a landscape architecture that harmonises aesthet-

19 Frank Albert Waugh and United States Forest Service, *Landscape Engineering in the National Forests* (U.S. Government Printing Office, 1918).

20 Rachel Carson, "Silent Spring," in *Thinking About the Environment* (Routledge, 1996).

21 Christine Koggel, *Moral Issues in Global Perspective - Volume 3: Moral Issues - Second Edition* (Broadview Press, 2006).

22 Christopher Tunnard, *Gardens in the Modern Landscape: A Facsimile of the Revised 1948 Edition* (University of Pennsylvania Press, 1948), 9-10, https://doi.org/10.2307/j.ctt7zw76r.

23 Marc Treib and Dorothée Imbert, *Garrett Eckbo: Modern Landscapes for Living* (London England: University of California Press, 1997), 28-29.

24 Marc Treib, "Fletcher Steele, Landscape Architect: An Account of the Gardenmaker's Life 1885-1971," *The Journal of Garden History* 11, no. 3 (July 1991): 177–81, https://doi.org/10.1080/01445170.1991.10408304.

Figure 10. Wei Liao, *Lawn Space in My Community*, 2023.

ic, social, and environmental considerations, metamorphosing lawns from monocultural expanses into biodiverse habitats. Such approaches, lauded by environmentalists like Vandana Shiva for their capacity to "reconnect us with nature," forge a path towards lawns that positively contribute to local ecosystems and bolster community wellbeing.[25] Embracing these practices addresses the environmental quandaries posed by traditional lawns and enriches our communal spaces, inviting broader participation in ecological stewardship.

2.4.5 Integrating Sustainability into Design

Embedding sustainability within lawn design necessitates shifting from conventional aesthetics towards a more inclusive and environmentally cognisant outlook. Inspired by Janine M. Benyus's principles of biomimicry, sustainable lawn design aspires to replicate the resilience and diversity of natural ecosystems.[26] This stance is mirrored in the practice-based explorations of designers like Adrian Parr, who champions "design that serves all species, not merely human objectives."[27] By reconceptualising lawns as eco-conscious community spaces, we pioneer new forms of social and environmental interaction that underscore the critical role of design in realising sustainability objectives.

2.4.6 Envisioning the Future

Contemplating the lawn's evolution from a symbol of pastoral innocence to a focus of ecological reassessment, we uncover a narrative brimming with transformative potential. *World Heritage Cultural Landscapes, A Handbook for Conservation and Management* that discovered the sustainable landscape, expresses deep respect for natural processes and a commitment to the health of future generations.[28] Our examination highlights the lawn's capacity to mirror contemporary values of sustainability, community engagement, and inclusivity. By endorsing and advocating for sustainable alternatives, we envisage a future where lawns function as vibrant, ecologically sound environments that celebrate our collective dedication to the planet and one another.

25 Vandana Shiva, *Staying Alive: Women, Ecology, and Development* (Atlantic Highlands: North Atlantic Books, 2016).

26 Janine M. Benyus, *Biomimicry: Innovation Inspired by Nature* (New York: HarperCollins Publishers, 2002), http://ebookcentral.proquest.com/lib/aut/detail.action?docID=6931460.

27 Gemma DiCarlo, "How the Built Environment Could Help All Species Flourish," opb, accessed March 16, 2024, https://www.opb.org/article/2023/07/27/how-the-built-environment-could-help-all-species-flourish/.

28 Nora J. Mitchell et al., eds., *World Heritage Cultural Landscapes: A Handbook for Conservation and Management*, World Heritage Papers 26 (Paris: UNESCO World Heritage Centre, 2009).

Figure 11. Makoto Umehara,“しまんと地栗 ”， 2008

2.5 Creative Practice Context

In the voyage through sustainable design, my work became enriched by the influential creations of artists dedicated to environmental mindfulness. These artists have augmented the collective discourse on eco-friendly artistic expressions and societal participation through their diverse and singular methodologies.

Particularly noteworthy is Japanese graphic designer Makoto Umehara, whose “しまんと地栗” project exemplifies the embedding of design within the fabric of specific locales.[29] Umehara’s design philosophy, which focuses on leveraging the advantages of localities, such as the rich natural resources of the Shimanto area, to develop regionally resonant products, goes beyond the conventional scope of graphic design.[30] His multifaceted talents are displayed in product design, project production, corporate management, and regional revitalisation. Umehara accentuates the locale’s unique features and fosters environmental awareness and community engagement through meticulously designed chestnut-based products. His work illustrates the intimate connection between design, local culture, resources, and sustainability, offering invaluable insights for my research on promoting environmental sustainability through localised materials and community involvement.

The impactful creations of esteemed artist Katrin Sigurdardóttir, especially her installation *The Green Grass of Home* (1997), probe the complex nexus of memory, perception, and environmental spaces. Her fastidious miniature replications of local leisure parks and conservation areas urge a reevaluation of scale and representation,[31] inciting the audience to reassess their rapport with the environment. Recognising the motifs of space and recollection within her visual arts practice catalysed my research and conceptual generation at the outset of this Master of Design initiative.

Exploring miniatures and how they reflect real places, inspired by Sigurdardóttir’s work, aligns with my approach to design. This introspection naturally transitioned into my investigation of suburban expanses amid routine daily walks. Her crafted dioramas incited pivotal inquiries into our ecological perceptions—enquiries echoed during my green waste collection.

In the ostensibly prosaic clippings, we discerned an analogue to Sigurdardóttir’s miniatures—a self-sufficient actuality prompting meditations on the genuineness of our environs. Her artistry fostered a nuanced appreciation of the landscapes we traverse, influencing my method of identity delineation within suburban settings. By sculpting lawns and transforming clippings into symbolic artefacts, we were weaving a narrative of locale and self. The associations between human activity and the biosphere, spotlighted by Sigurdardóttir’s *oeuvre*, became interlaced into the tapestry of my inquiry into sustainable materiality.

29 “LOCALLOCAL しまんと地栗 | 梅原真デザイン事務所,” 梅原真デザイン事務所 - UMEBARA DESIGN OFFICE, accessed April 3, 2024, http://umegumi.jp/local_ziguri/.

30 “TAKEO PAPER SHOW 2023「PACKAGING—機能と笑い」,” TAKEO PAPER SHOW 2023「PACKAGING—機能と笑い」, accessed April 3, 2024, https://takeopapershow.com.

31 “Til Staðar – Svavar Guðnason Museum, Nýp Cultural Retreat, Sauðaneshús Historic Estate, Iceland – 2/2 -12/31, 2021 – Katrin Sigurdardottir,” October 5, 2021, https://katrinsigurdardottir.info/blog/?p=613.

Figure 12. Katrin Sigurdardóttir, *The Green Grass of Home*, 1997.

Figure 13. Birgit Moffatt, *Safe Space*, 2021

Figure 14. Sally Blake, *Eucalyptus Mantle (ACT)*, 2019.

Moreover, her examination of how human bonds with the natural world inform sustainable collectives deeply echoed my community interactions. The dialogues sparked by green waste collection transcended tangible exchanges; they reflected the communal bond with its habitat. Thus, Sigurdardóttir's influence traversed the artistic domain, evolving into an instrumental perspective in deciphering and informing the intricate symbiosis of humans, nature, and sustainable communities within the milieu of my design practice.

Aotearoa New Zealand artist Birgit Moffatt, seamlessly integrates her artistry with the spirit of the natural environment, drawing upon materials gleaned from her daily excursions. Her method resonates with mine, wherein daily walks serve as a critical ceremony for collecting green waste, fueling conversation and fostering enriching exchanges within my neighbourhood.

Moffatt's focus on cultivating a deep relationship with materials via tactile engagement harmonises with my pursuit of sustainable design, underpinned by community involvement and environmental consciousness. Her distinguished piece, *Safe Space*, showcases eco-dyed paper installations adorned with local foliage, inspiring my eco-handcrafted paper series.[32] The intricate practice of eco-dyeing and employing locally harvested elements in Moffatt's creations prompted me to probe further into the ecological implications of my chosen materials. Moffatt's passion for encapsulating the tranquility of forested realms in her artwork also echoes my ambition to imbue my papers with natural calm.[33]

I aspire to amplify the discourse on sustainable practices and ecological guardianship by aligning Moffatt's artistic ethos with our design aspirations.

Australian artist Sally Blake fuses textile techniques with her exploration of personal identity and the natural environment, a synergy reflective of the nuanced colour system of my papermaking series. Echoing Blake's ventures into dyeing, basketry, and weaving, my initiative investigates a colour palette derived from locally sourced lawn clippings, crafting a vivid mosaic reflective of my suburban milieu environmental and seasonal shifts.

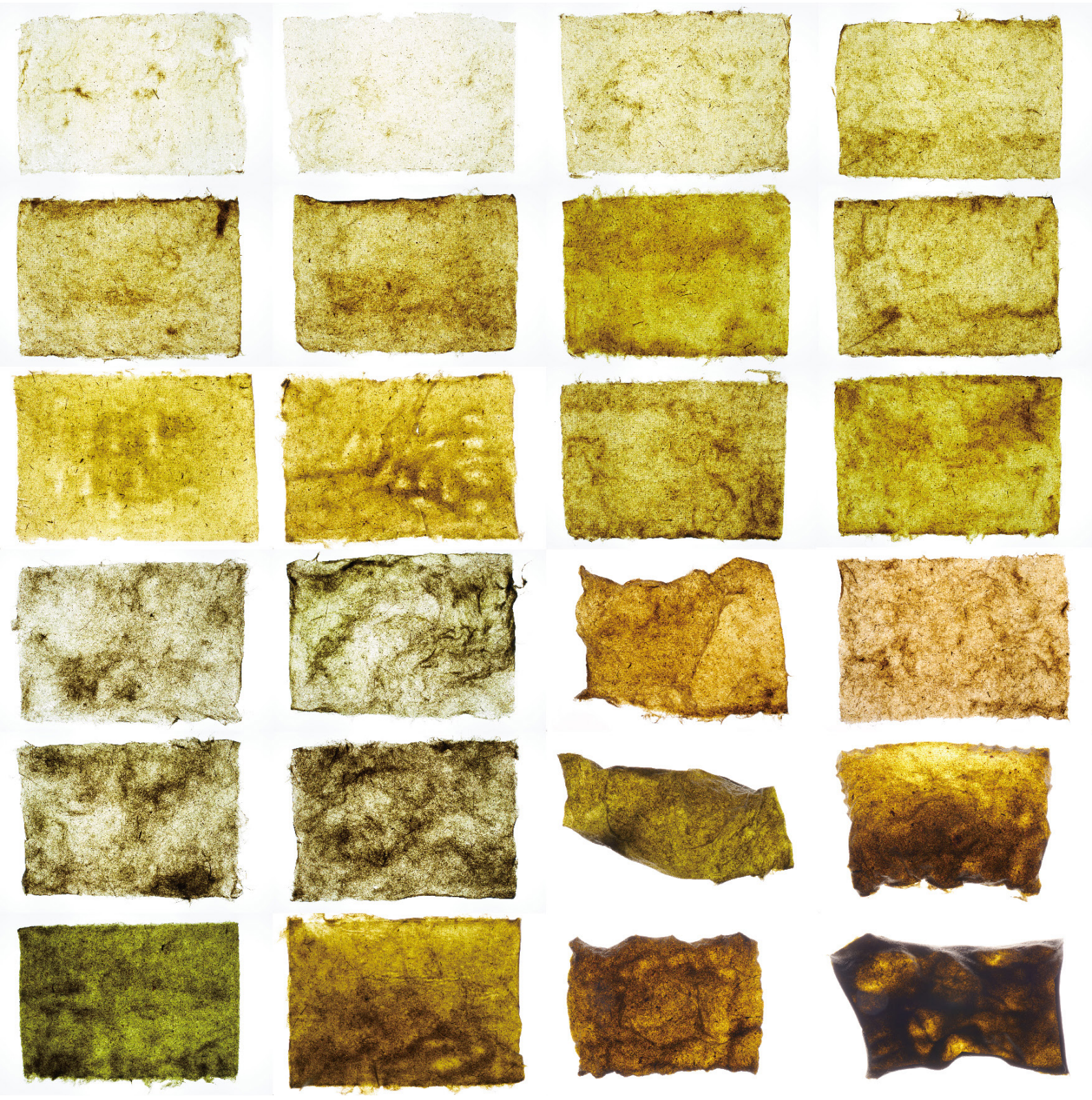
The Eucalyptus Dye Database, a seminal project by Blake, assiduously records natural dye hues from an extensive array of eucalyptus species, resonating with my study philosophy.[34] Blake's allegiance to eco-conscious methods parallels my ambition to craft eco-friendly paper, spotlighting our mutual dedication to promoting sustainable design and communal interaction.

Like Blake's works articulating the convergence of identity with the natural world, my papermaking endeavours to narrate a story surpassing conventional design confines. Blake's investigations and my project articulate the capacity of substances to manifest ecological sensitivity and communal artistry through the metamorphosis of lawn trimmings, into a polychromatic array.

32 "Safe Space," *Artnow*, accessed May 22, 2023, https://artnow.nz/exhibitions/safe-space.

33 "About," Birgit Moffatt, May 11, 2016, https://www.birgitmoffatt.com/about/.

34 Georgina Reid, "Artist Profile: Sally Blake," *Wonderground*, April 22, 2020, https://wonderground.press/artdesign/artist-profile-sally-blake/.



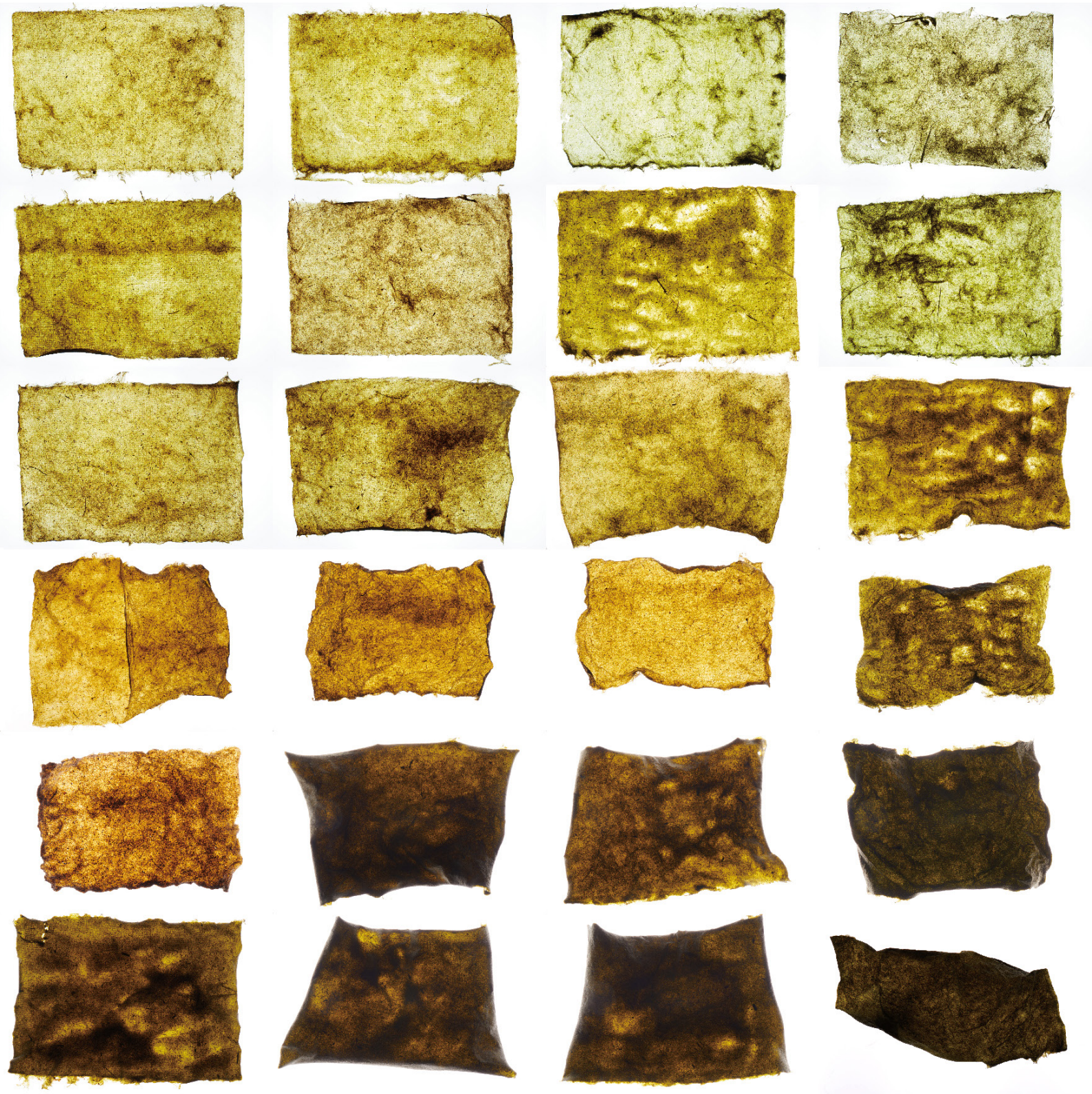


Figure 15. Wei Liao, *Papermaking Series*, 2023.

Figure 16. Jane Ingram Allen, *Living Quilt for Santa Rosa*, 2018.

Figure 17. Katie Paterson, *Future Library*, 2014.

Figure 18. Lee Mingwei, *The Letter Writing Project*, 2023.

American artist Jane Ingram Allen's projects exemplify the regenerative essence of hand papermaking with natural, compostable substances. Her *Living Quilts* project embraces the cradle-to-cradle approach, repurposing refuse as sustenance for the earth.[35] Allen's methodologies inspired me to fabricate handmade papers from local grass clippings, embracing her commitment to ecological enlightenment.

Moreover, Scottish artist Katie Paterson's *Future Library* project adds a unique and far-reaching perspective to my exploration. In Norway, a forest has been planted to supply paper for a unique anthology of books to be printed in 100 years.[36] From now, 2024, until 2114, one writer will contribute a text each year, with the writings held in trust, unread and unpublished, until 2114. The manuscripts will be kept in a specially designed room in the new public library in Oslo. Contributors to date include Margaret Atwood (2014), David Mitchell (2015), Sjón (2016), Elif Shafak (2017), Han Kang (2018), Karl Ove Knausgård (2019), Ocean Vuong (2020), and Tsitsi Dangarembga (2021), with Judith Schalansky being the 2022 author.[37]

This project by Paterson resonates with a profound ecological consciousness and contemplation on the future, challenging our conventional understanding of time, creation, and the use of natural resources. By directly linking literature with nature's life cycle, it pioneers a new dialogue between art and the natural world, fostering deep reflections on nature, time, and cultural legacy.[38] This commitment to long-term ecological projects and imaginative thinking about the future provides invaluable insights into my design practice, emphasising the importance of sustainability, heritage, and deep engagement with the natural world.

Taiwanese artist Lee Mingwei, particularly through *The Letter Writing Project*, has profoundly influenced my approach to papermaking. His participatory installations engage individuals in deep explorations of trust, intimacy, and self-awareness, facilitated by simple acts of letter-writing and conversation.[39] Similarly, my work engages these themes through evocative, non-participatory forms, transforming passive observation into active contemplation of environmental and communal connections. Echoing Katie Paterson's *Future Library*, the green grass paper in my series serves as a metaphorical blank canvas, subtly engraved by the dynamics of light and shadow to narrate ecological stories. The meticulously crafted paper letterboxes, sealed with flower resin, act as reflective voids, prompting viewers to reevaluate their interactions with both the environment and the community.

As my exploration intertwines with the narratives of these artists who illuminate the pathway for my design practice-led investigation, a collective theme surfaces—a dedication to eco-aware design philosophy connecting with local ecological systems.

35 "Living Quilt for Santa Rosa," *The CSPA* (blog), August 19, 2019, https://www.sustainablepractice.org/2019/08/19/living-quilt-for-santa-rosa/.

36 "She Planted a Forest That Will Become a Library – in 2114!," accessed March 27, 2024, https://www.visitnorway.com/things-to-do/art-culture/literature/the-future-library/.

37 Hello Monday- www.hellomonday.com, "Future Library, 2014 - 2114," accessed March 15, 2024, https://www.futurelibrary.no.

38 "Future Library | Katie Paterson," accessed March 15, 2024, https://katiepaterson.org/artwork/future-library/.

39 "LEE MINGWEI," accessed March 28, 2024, https://www.leemingwei.com/.

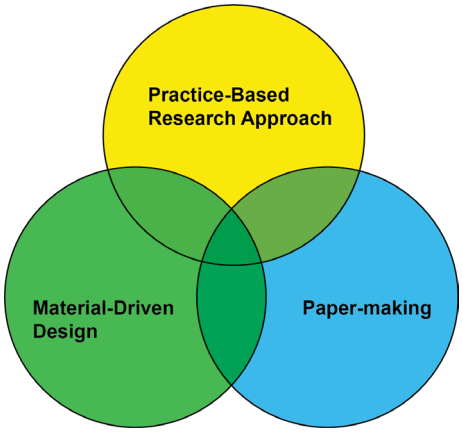


Figure 20. Wei Liao, *Methodology Design*, 2024.

3 Chapter Two: Methodology

3.1 Methodological Design

The objective of scrutinising the efficacy of ecological design-led practices in fostering environmentally conscious social consumer behaviours was pursued through three methodological frameworks:

3.1.1 Practice-Based Research Approach: Engaging Community Through Visual Communication Design

Embracing a practice-based approach, this inquiry delves into the nuances of green waste, viewing it not merely in terms of its physical attributes but as a social engagement and dialogue conduit.[40] Activities such as walking, gathering, greeting and papermaking transcend conventional design tasks, nurturing distinctive social interactions and participatory endeavours fundamental to this research. Visual communication design emerges as a critical facet within these practices, intertwining material experimentation with communal dialogue and engagement. This methodological stance facilitated a profound nexus between the practitioner and the materials,[41] whilst forging an innovative mode of community engagement. In this context, the acts of walking and gathering extend beyond mere material collection, evolving into potent

40 Maarit Mäkelä, "Knowing Through Making: The Role of the Artefact in Practice-Led Research," *Knowledge, Technology & Policy* 20 (October 1, 2007): 157–63, https://doi.org/10.1007/s12130-007-9028-2.

41 Elizabeth B.-N. Sanders and Pieter Jan Stappers, "Co-Creation and the New Landscapes of Design," *CoDesign* 4, no. 1 (March 1, 2008): 5–18, https://doi.org/10.1080/15710880701875068.

catalysts for conversation. Thus, the role of visual communication design is accentuated, functioning as both the medium and the message and highlighting the capacity of design to foster environmental guardianship and social exchange.

3.1.2 Material-Driven Design

The pursuit of sustainability in creative endeavours found resonance in identifying, exploring, and utilising locally available renewable materials.[42] This ethos aligned with the sustainable imperative of "making with" or "making kin," embodying a collaborative alliance between human ingenuity and the environment.[43] The crux of this research lay in the reciprocal relationship forged between the researcher and green waste—a symbiotic journey wherein the green waste paper became both the medium and the outcome. This collaborative approach, where the material actively guided the procedural trajectory, echoed traditional craftsmanship principles, as evidenced in woodworking. Drawing inspiration from Chi'ing's ancient woodworking philosophy in the fourth century BC,[44] this research aligned with the notion of harmonising one's innate capacities with the inherent nature of the material at hand.

42 Elvin Karana et al., "Material Driven Design (MDD): A Method to Design for Material Experiences," *International Journal of Design* 9, no. 2 (August 2015): 35–54, https://search.ebscohost.com/login.aspx?direct=true&db=aft&AN=109342510&site=ehost-live&scope=site.

43 Stephanie Bunn, "The Importance of Materials," *Journal of Museum Ethnography*, no. 11 (1999): 15–28, https://www.jstor.org/stable/40793620.

44 Klaas Ruitenbeek, "Craft and Ritual in Traditional Chinese Carpentry," *East Asian Science, Technology, and Medicine* 7, no. 1 (August 13, 1986): 1–23, https://doi.org/10.1163/26669323-00701002.

3.1.3 Papermaking

The methodology explored various papermaking processes, modelling letterbox forms from paper and developing construction techniques through paper prototyping. This presented a technical challenge and facilitated a deep exploration of material potential.

During the prototyping phase, we observed unexpected material transformations, notably the crumpling of paper sheets due to evaporation and the behaviour and transformation of fibre-based structures in wet and dry conditions. These serendipitous discoveries enriched our understanding of material behaviour and provided new perspectives and inspiration for our design practice.

Moreover, we adhered to certain specific constraints in our experiments, including the dimensions and weight of the paper, as well as the environmental impact of our production processes. Considering the New Zealand Post's recommendation that letters sent overseas should not exceed 200 grams, imposed additional requirements on our design schemes and material selection. Additionally, we consciously chose to avoid using alkaline chemical additives in the papermaking process to minimise the environmental impact of wastewater. This approach presented a technical challenge and tested our design flexibility and innovation, underscoring our commitment to sustainability and reducing the ecological footprint of our creative practices.

Figure 21. Wei Liao, *Cordyine Australis Fibres*, 2023

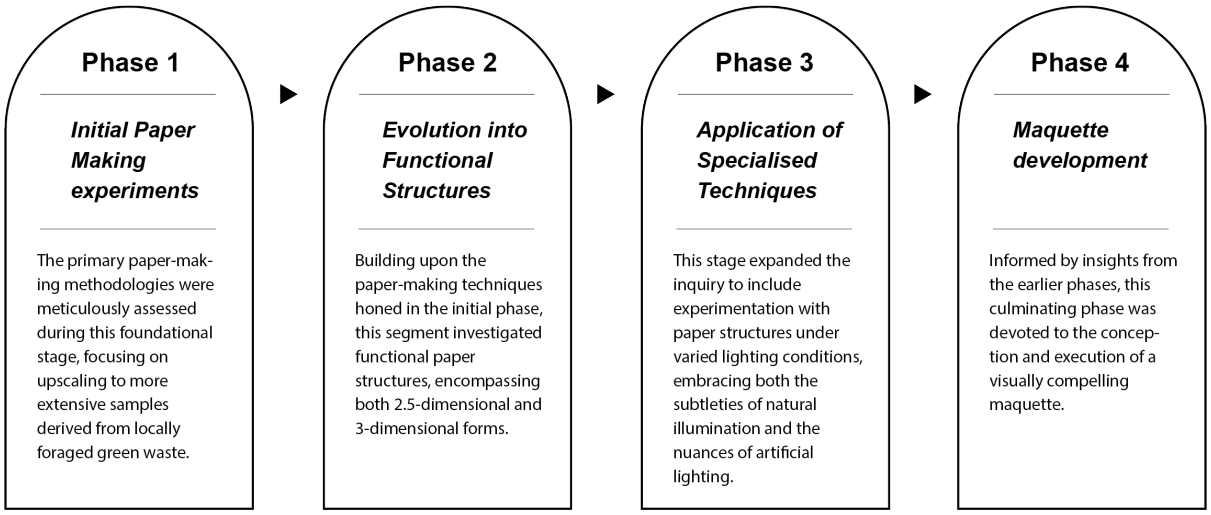


Figure 22. Wei Liao, *Phases of The Project*, 2024.

3.2 Phases of The Project: Overview

The research unfolded across four methodically delineated phases, each integral to the exhaustive exploration of the untapped potential within green waste materials.

As outlined in the subsequent sections, it was observed that modifications introduced at any juncture within these phases could significantly impact the eco-paper outcomes.

3.2.1 Phase 1: Papermaking Experiments

The research's inaugural phase was dedicated to deciphering the subtleties of green waste as a material, harnessing its intrinsic qualities by creating eco-paper from communal greenspaces within walking distance from my house. Except for additive usage, this endeavour followed Helen Hiebert's established papermaking methodologies. The papermaking sequence entailed several crucial steps:

Papermaking process:

- Preparation: Equipping the workspace with the necessary tools and materials for papermaking.
- Collection and Preparation of Fibre: Harvest green waste from community domains and condition it for the process ahead.
- Beating Pulp: Utilizing techniques to macerate the fibres, achieving a pulpy consistency suitable for paper formation.
- Making Paper: Conducting the papermaking operation, converting the treated pulp into A4-sized eco-paper sheets.

The samples yielded from this process unveiled initial perceptions of the complexities of papermaking, elucidating the significant influence of elements such as raw material selection, exposure to light, boiling, beating, mixing, and moisture evaporation. These elements dictated the paper's textural, chromatic, smoothness, and structural characteristics, providing a fundamental comprehension of green waste's material properties.

3.2.2 Phase 2: Functional Structure Experiments

From the elementary discoveries of Phase 1, Phase 2 was dedicated to upscaling basic papermaking practices to probe into functional paper structures, encompassing both 2.5-dimensional and 3-dimensional formations. The primary aims of this phase were:

- Refinement of Papermaking Techniques: This involved enhancing and optimising fundamental papermaking processes to support the fabrication of larger and more intricate constructs.

— Exploration of Dimensionality: The investigative scope was broadened to include experimentation with 2.5-D[45] and 3-D paper structures, endeavouring to comprehend the full spectrum of the material's potential in varied manifestations.

This critical phase marked the transition from preliminary paper experimentation to the generation of complex, functional forms, significantly enriching the comprehension of the green waste material's versatility and prospective utility across different design arenas. The insights garnered here established a solid groundwork for the ensuing phases of eco-paper development.

3.2.3 Phase 3: Application of Specialised Techniques Experiments

During Phase 3, the research incorporated specialised techniques to augment the visual appeal of eco-paper and its structural integrity under varying environmental settings. The pivotal objectives for this stage included:

— Illuminating Eco-Paper's Dynamics: Rigorous lighting experiments highlighted the eco-letterbox design and texture in varied light settings, showcasing its interaction with light and adaptable elegance.

— From Utility to Artistry: Merging sustainable materials with innovative lighting, the eco-letterbox exemplifies how sustainable design can elevate ordinary items to artistic marvels.

The ambition of this phase was to expand the frontiers of eco-paper's aesthetic and practical possibilities by applying specialised techniques. These explorations provided essential insights for its prospective use in artistic maquettes and pragmatic design applications. The experimentation carried out in this phase was vital in fostering a comprehensive understanding of the material's performance and its constraints within various environmental and situational contexts.

3.2.4 Phase 4: Maquette Development

Phase 4, the Maquette Development stage, represented the culmination of this research journey, weaving together the insights and discoveries from the initial phases into a unified and visually arresting narrative. To transform the nuanced attributes of eco-paper into an experiential maquette, this phase focused on several key aspects:

— Integration of Eco-Paper Variants:

This involved the meticulous selection and combination of different eco-paper variants developed through Phases 1–3. The selection process was guided by the need to align the materials with the thematic and conceptual goals of the intended maquette.

— Spatial Arrangement and Composition:

The exploration of spatial dynamics and compositional strategies was crucial. Determining how the eco-paper interacted with various spatial arrangements and environmental conditions was vital in making informed decisions about placement, lighting, and interaction with viewers.

— Narrative Development:

At this stage, constructing a narrative for the maquette was paramount. The narrative imbued the maquette with more profound meaning and symbolism, transforming the eco-paper from a mere material into a vessel for storytelling. This narrative aimed to reflect the core sustainability themes, the interplay between human actions and the environment, and the project's ethical considerations.

— Refinement through Iteration:

The maquette development involved an iterative process, allowing continuous refinement based on evaluative observations and feedback. This approach ensured a fine-tuned balance between the aesthetic appeal, functional integrity, and the conceptual richness of the maquette.

Phase 4 was pivotal in realising the overarching objectives of the research, namely, to integrate eco-conscious methodologies within artistic practices and to stimulate discourse around the intersections of material innovation, creative expression, and environmental stewardship. The Maquette Development phase stood as a testament to the project's journey, translating the multifaceted explorations of eco-paper into a coherent, impactful visual statement.

45 The term "2.5-D" in this exegesis refers to employ certain techniques to enhance the depth and dimensionality of the paper's surface without fully transitioning into three-dimensional design.

Figure 23. Wei Liao, *Eco-paper Series 1*, 2023.

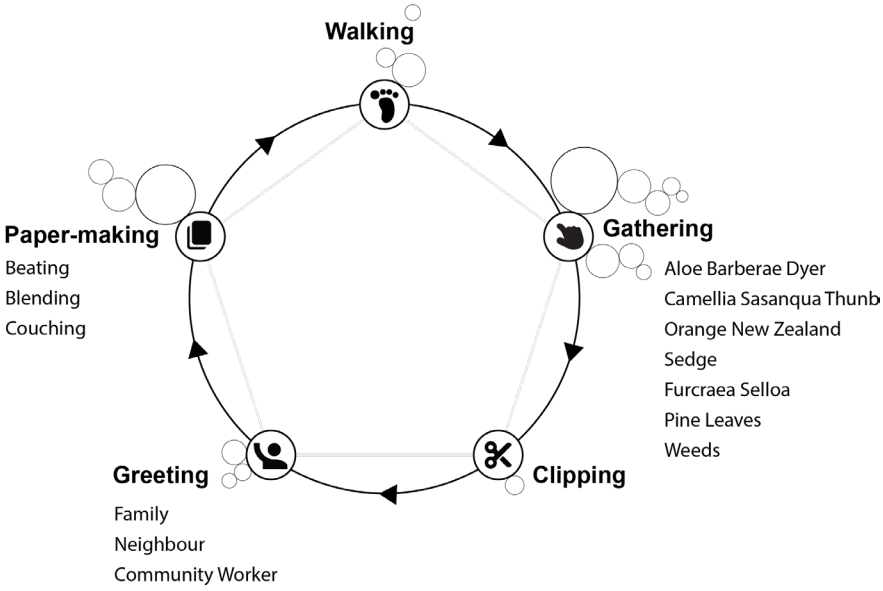


Figure 24. Wei Liao, *Circular methods*, 2024.

Figure 25. Wei Liao, *Foraging with My Kid Andy*, 2023.

Figure 26. Wei Liao, *Encounter Clipped Grass*, 2023.

3.3 Methods

3.3.1 Walking

As Ingold highlighted in *Lines: A Brief History*, walking offered a unique method for perceiving and understanding the environment, allowing researchers to construct knowledge and understanding in motion.[46] This insight was applied and deepened in this study, where walking facilitated the collection of local grasses for paper material and promoted direct contact and sensory experience with the environment. This methodological choice underscored the importance of a connection with place and environmental responsibility in design practice. It also demonstrates how to design actions which could foster community interaction and awareness of sustainable living. Adopting walking as a research method provided a distinctive perspective to explore and comprehend the environment, community interactions, and the interrelationships therein, bringing new insights and directions to design practices.

46 Tim Ingold, *The Life of Lines* (New York, Routledge, 2015).

3.3.2 Gathering

In this study, the method of "gathering" transcended being merely a practical means for material acquisition, embodying more profound methodological significance. It involved a conscious process of collecting, selecting and curating materials from the environment, reflecting a nuanced understanding of local ecology and resources. As highlighted in *Ecological Design* by Sim Van der Ryn and Stuart Cowan, integrating natural processes and life systems into the design minimises environmental impact.[47] Gathering, thus, was rooted in ethical considerations, sustainability, and fostering a closer relationship with the natural world. Understanding material origins, environmental impact, and contributions to sustainable design practices guided each collection choice we made and action. This methodological stance underscored the importance of conscious material engagement, urging us to consider our material choices' broader ecological and social impacts, promoting a more responsible and sustainable design practice.

Figure 27. Wei Liao, *My Neighbour's Green Waste*, 2023.

3.3.3 Clipping

In this study, the method of "clipping" transcended mere physical cutting and organising of materials, representing a precise and intentional selection process that reflected an understanding and consideration of materials within ecological design practices. As Rossi, Germani, and Zamagni emphasised in their research, the effective implementation of eco-design methods and tools underscored the application of software tools during the material selection phase, aligning with this study's objective of meticulously choosing and applying materials that adhered to sustainable design principles through the clipping process.[48] Furthermore, Kibert, in his book *Sustainable Construction: Green Building Design and Delivery*, discussed the design and implementation of sustainable buildings, including material selection and building envelope design, providing theoretical support for the use of "clipping" as a method to select and utilise materials that conformed to sustainable design principles.[49] This approach demonstrated thoughtful interaction and engagement with the environment and highlighted the attention to detail and respect for natural resources within a broader context of sustainable design.

Figure 28. Wei Liao, *Picking Some Pine Leaves*, 2023.

47 Van der Ryn and Cowan, *Ecological Design, Tenth Anniversary Edition*. [Island press, 2013.]

48 Marta Rossi, Michele Germani, and Alessandra Zamagni, "Review of Ecodesign Methods and Tools. Barriers and Strategies for an Effective Implementation in Industrial Companies," *Journal of Cleaner Production* 129 (August 15, 2016): 361–73, https://doi.org/10.1016/j.jclepro.2016.04.051.

49 Charles J. Kibert, *Sustainable Construction: Green Building Design and Delivery* (John Wiley & Sons, 2016).

3.3.4 Greeting

In this research, “greeting” was employed as a methodological tool, primarily facilitated through in-depth interactions with family members, neighbours, and community workers. The aim was to introduce the project, disseminate ecological design concepts, and establish new community relationships. As Caperon, Saville, and Ahern highlighted, developing a socio-ecological model through community engagement could effectively promote health programs in underserved urban areas, aligning with our objectives of enhancing community connections and spreading ecological design principles through conversation.[50] Moreover, the research by Fox and Cundill underscored that increasing community-engaged ecological restoration identified and addressed factors that might hinder long-term sustainability, thereby strengthening community bonds and providing a social support foundation for sustainable design practices.[51]

Such interactive methods facilitated the transmission of information and sharing of concepts and deepened the connections among community members. As noted by Phillips et al., fostering community engagement through design could activate community participation, enhance resilience, and promote sustainable environmental changes.[52] Therefore, through such dialogues, this study not only gained further understanding of community members’ views and acceptance of ecological design but also encouraged the practical application and development of design concepts within the community. This approach solidified the foundation for sustainable design practices and community development, offering a robust framework for advancing ecological design principles within a communal context.

Figure 29. Wei Liao, *Encountering Community Workers*, 2023.

Figure 30. Wei Liao, *My Son Enjoy Clipping Camellia Sasanqua Thunb*, 2023.

50 Lizzie Caperon, Fiona Saville, and Sara Ahern, “Developing a Socio-Ecological Model for Community Engagement in a Health Programme in an Underserved Urban Area,” *PLOS ONE* 17, no. 9 (September 26, 2022): e0275092, https://doi.org/10.1371/journal.pone.0275092.

51 Helen Fox and Georgina Cundill, “Towards Increased Community-Engaged Ecological Restoration: A Review of Current Practice and Future Directions | Ecological Restoration,” accessed February 26, 2024, https://er.uwpress.org/content/36/3/208.short.

52 Robert Phillips, Amina Abbas-Nazari, and James Tooze, “Designing for Active Engagement, Enabling Resilience and Fostering Environmental Change | Intellect,” accessed February 26, 2024, https://intellectdiscover.com/content/journals/10.1386/dbs_00004_1.

Figure 31. Wei Liao, *Beating Lawn Clippings*, 2023.

Figure 32. Wei Liao, *Papermaking in My Garage*, 2023.

3.3.5 Papermaking

The method of “papermaking” was enriched by integrating the historical depth and scientific insights from MA Hubbe and C Bowden, alongside the practical guidance provided by Helen Hiebert. This approach emphasised the selection and preparation of diverse fibres, manual sheet formation, and the crucial steps of drying and pressing. It acknowledged the significance of fibre quality, the balance between tradition and innovation, and the craft’s environmental and artistic value. Hiebert’s work further enhanced this method by detailing pulp preparation, sheet formation, and paper embellishment techniques, encouraging creativity and experimentation in producing customised, high-quality handmade paper.

4 Chapter Three: Research Practice

OVERVIEW

This chapter detailed the process of eco-paper production. It offered an in-depth analysis of the outcomes achieved in alignment with the four distinct phases outlined in the methodology section. These phases were:

4.1 Phase 1: Papermaking Experiments.

In the inaugural phase, foundational experiments unfolded, scrutinising essential methods for pulp disposal while crafting eco-paper from diverse foraged green waste sources—ranging from Aloe barberae (Dyer), Camellia sasanqua Thunb, Carex testacea (Orange New Zealand Sedge), Furcraea selloa to Pinus (pine leaves) and weeds. This stage probed the viability of eco-paper production, drawing insights from a synthesis of academic publications and shared knowledge from online platforms like YouTube and Xiaohongshu.

The phase centered on the meticulous exploration of four critical processes: sourcing equipment, gathering and preparing fibres, pulp beating, and the technical craft of papermaking. Nuances within each process were examined, emphasising the transformative impact of alterations on the material's properties and visual characteristics during the drying phase. The section below delved into a detailed exploration of these integral processes, unveiling their role in shaping unique qualities of the eco-paper.

4.1.1 Getting Equipped

The foundational step of preparing the essential tools and materials lay at the heart of eco-paper creation. The fundamental papermaking process involved immersing a screen, snugly framed within a mould and deckle, into a vat of pulp. As the screen was lifted, a delicate procedure ensued—shaking it in various directions to interlock and weave the fibres atop the screen surface while the water drained away. The nascent sheet of paper was then deftly transferred onto a surface, typically a felt, where it underwent the crucial pressing and drying processes.

The initiation of this phase necessitated the upgrade of tools and the transformation of a garage into a dedicated paper lab. This transition was facilitated through visits to the bookbinder and screen print labs at level 7 WE Building and crafting papermaking tools in the 3-D lab at level 3 WF Building, AUT. The strategically organised paper lab, partitioned into distinct zones for pulp material, papermaking, rag, and pressing, empowered the creation of A4, A5, and A6 size papers efficiently and precisely.

Figure 33. Wei Liao, *The Papermaking Zone*, 2023.

Figure 34. Wei Liao, *The Blending Green Waste Pulp Zone*, 2023.

Figure 35. Wei Liao, *The Couching Paper Zone*, 2023.

Aloe Barberae Dyer

1

Neighbor1: "Hi there, I see you've been collecting those green wastes. What are you up to?"

I: "Hello! Yes, I'm collecting these to make eco-friendly paper. It's part of my project."

Neighbor1: "That's fascinating! You know, I've just trimmed my hedge. You might find the trimmings useful for your project."

Murrays Bay

Camellia Sasanqua Thunb

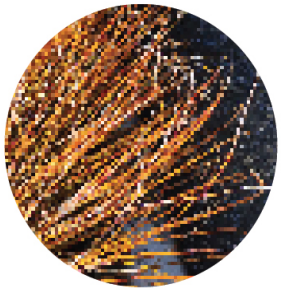
2

I: "Your lawn is incredibly neat and tidy, like a painting. Great job!"

Neighbor2: "Oh, thank you! I spend a lot of time on it. Glad you noticed."

I: "It really shows. It's the best-looking lawn in Mairangi Bay, if you ask me."

Neighbor2: "That's very kind of you to say. It makes all the effort worth it."



Orange New Zealand Sedge

3

Passing Neighbor: "Wow, your lawn looks fantastic! Giving it a good trim, I see."

I : "Thank you! Yes, it's important to keep it neat. Makes the whole place look better."

Passing Neighbor: "Absolutely. A thumbs-up for your hard work. It really pays off!"

I : "I appreciate it. It's nice to hear that from a neighbor."

Furcraea selloa

Mairangi Bay

Pine leaves

Mower weed

Cordyline australis

Mairangi Bay Park

Home

ROUTE1

ROUTE2

ROUTE3

ROUTE4

ROUTE5

COLLECTING AREA

NON-COLLECTING AREA

4

I: "Hi! I'm collecting green waste for a project. Do you mind if I take some from the park?"

Community Worker: "Hello! We didn't know about your project. Sure, feel free to take what you need. How often do you need it?"

I: "Thank you! I might need it every few weeks. I'm making eco-friendly paper."

Community Worker: "Interesting! We trim every four weeks. Just let us know, and we can set aside some for you."

I: "That would be perfect. I really appreciate your help!"

0 200 400 600 800 1000

N

Figure 36. Wei Liao, *Gathering Map*, 2023.

4.1.2 Gathering and Preparing the Fibre

The creation of paper extended beyond conventional materials, spanning recycled paper, plant fibres like flax, corn husks, and iris leaves, to processed pulps such as cotton linter, cotton, and linen rags. Aligning with Auckland Council's vision of zero waste to landfill by 2040,[53] this project strategically gathered green waste from community areas within walking distance from my home.

Along avenues and paths accompanied by family, various materials were foraged; Aloe barberae (Dyer), Camellia sasanqua Thunb, Orange New Zealand Sedge, Furcraea selloa, pine leaves, and weeds. These materials were a testament to community engagement, collected from local areas, neighbours, and green spaces like Mairangi Bay Park. Interactions with neighbours and council staff fostered suggestions and emphasised the collaborative spirit inherent in sustainable place-making creative practices. This foundational step laid the groundwork for understanding the character of these materials, making them integral to the eco-paper's unique narrative.

53 "Waste Reduction for a Zero Waste Auckland," Waste Nothing, accessed January 12, 2024, https://www.wastenothing.co.nz/.

4.1.3 Beating Pulp

In the intricate process of making eco-paper, the *beating pulp* phase emerged as a transformative journey through a rich palette of foraged green waste. Plant fibres were coaxed into papermaking using diverse methods like beating, steaming, and cooking. Each material demanded a unique approach, resulting in a complex interplay of appearance, opacity, strength, durability, longevity, colour, and texture within the final paper.

Leaf fibres, sourced from Cordyline australis (New Zealand cabbage tree, tī), pine leaves, Furcraea selloa, and Aloe barberae, offered a spectrum of textures. While the softness of pine leaves allowed for use of the entire leaf the toughness of Furcraea selloa and Aloe barberae necessitated a meticulous extraction process, rewarding with whiter, more substantial paper. Collecting at least one dry pound of leaf fibre involved carefully curating fresh green leaves post-flowering or brown and wilted leaves. Soft, flexible leaves underwent immediate cooking or drying, while more rigid ones demanded retting or scraping before fibre extraction.

Grass fibres, exemplified by Carex testacea and lawn grass, presented simplicity in processing, albeit yielding the least pulp. The challenge arises when crafting with flowers and tree leaves, requiring additional fibre to form cohesive sheets. Though unable to stand alone, flower petals and tree leaves lent decorative flair when immersed in a substantial pulp vat. Notably, the delicate flowers of Camellia sasanqua Thunb, foraged in abundance even in early winter, were meticulously separated into petals and stamens, offering dual layers to enrich the pulp. This phase, akin to alchemical mastery, unveiled the artistry of transforming raw plant fibres into the exquisite medium of eco-paper.

Figure 37. Wei Liao, *Beating Carex Testacea for Pulp*, 2023.

Figure 38. Wei Liao, *Beating Furcraea Selloa for Pulp*, 2023.

Figure 39. Wei Liao, *Aloe Barberae Dyer for Pulp*, 2023.

Figure 40. Wei Liao, *Beating Lawn Clippings for Pulp*, 2023.

Figure 41. Wei Liao, *Beating Pistils of Camellia Sasanqua Thunb for Pulp*, 2023.

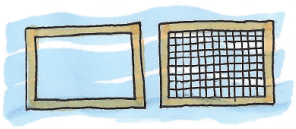
Figure 42. Wei Liao, *Beating petals of Camellia Sasanqua Thunb for Pulp*, 2023.

Filling the Vat

- The vat, a reservoir of potential, was filled with a concoction of pulp and water. The ratio, a delicate dance, determined the thickness of the sheets.
- Starting with a thin pulp for a test sheet, I gauged the desired thickness, tweaking with incremental additions of pulp or water.

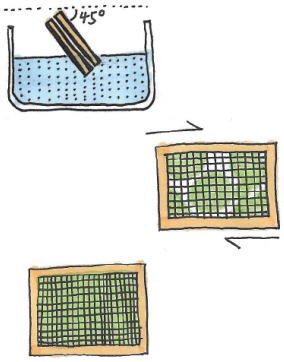
Agitating the Pulp

- Pulp, prone to settling, demanded the rhythmic dance of "hogging the vat." My hands plunged into the pulp-water slurry, and I orchestrated a vigorous mix, ensuring uniform dispersion before sheet creation.



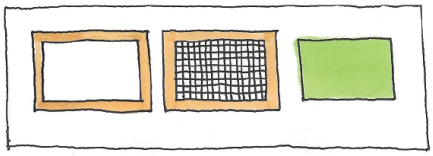
Preparing the Mold and Deckle

- Wetting the mould and deckle was a prelude to even distribution. Aligning edges and corners, these tools stand ready, poised for the alchemy of transformation.



Making a Sheet of Paper

- Dip and Scoop: With a 45° angle, the mould and deckle gracefully submerged, scooping underneath the pulp surface.
- Shake and Interlock: Emergent from the vat, the duo engaged in a dance of shakes, left to right, back to front—fibres interlocking in a delicate choreography.
- Balanced Settling: Fibers, settling on the screen, harmonised under my watchful eye, ensuring uniform thickness.
- Deckle Dance: The deckle departed, leaving the nascent sheet on the mould.
- Tilt and Observe: The delicate tilt revealed the sheet's readiness. Returning to the horizontal position beckoned further draining or graceful reinitiation if it slipped.
- Couching Elegance: Holding at an angle, I watched the stream's rhythm, knowing the sheet was ready for the next step—toward becoming an exemplar.



Couching

- Begin the process by moistening a felt and laying it out gracefully in the couching tray. The damp embrace aided in the elegant release of the paper sheet from its mould.
- Gently place the driest edge of the mould (the top edge during drainage) onto the felt, letting the wet sheet meet its fibrous partner.
- The grand descent followed—held the mould at the midpoint of its lengthy sides and laid it gently, ensuring its entirety graced the felt.
- The crescendo applied uniform pressure to the back of the mould's edges and screen. I witnessed the ballet unfold as the sheet gracefully transferred, a hint of water unveiling through the mould's back.
- As the mould's edge rose, I glanced beneath, ensuring the sheet had embraced its newfound freedom. Lifted the mould and was careful not to shower droplets upon the nascent creation.
- Enter the encore: laid another felt atop the freshly minted sheet, continuing the rhythmic composition. I aligned each sheet meticulously, orchestrating a seamless performance.

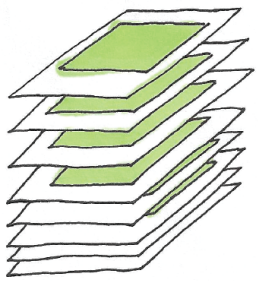


Figure 43. Wei Liao, *The Papermaking Process*, 2024.

Figure 44. Wei Liao, *Transfer of Couching*, 2023.

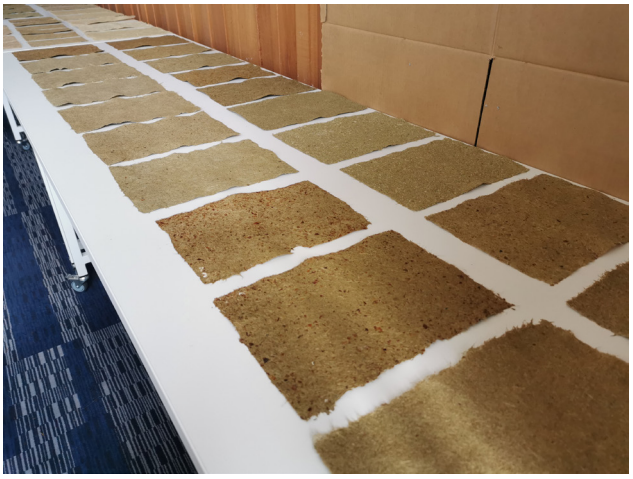


Figure 45. Wei Liao, *Eco-paper Series 2*, 2023.

Figure 46. Wei Liao, *Eco-paper Series 3*, 2023.

4.1.4 Making Paper

The *making paper* phase unfolded precisely in an intricate methodology of papermaking, employing the Western-style technique—a European legacy and now a ubiquitous choice among professional papermakers globally. This process, a symphony of vat filling, pulp agitation, and sheet formation, commenced with a meticulously prepared environment.

Reflection:

In the delicate process of papermaking, handling pulp was an art form. Freshly beaten, it embodied its peak potential. Caution reigned supreme—avoiding the genesis of knots and clumps, lest they weave into our eco-paper's narrative as impurities. The pulp was suspended in the aqueous stage, and bits of dried pulp were banished from clinging to vessel walls with a gentle swipe with a brush.

When diverse pulps graced the stage, individual preparation became paramount. Each might demand a unique culinary journey, from cooking formulas to beating times. Carex testacea, an epicurean delight, simmered for 3 hours, while the brisk lawn grass craved only a two-hour sojourn in the culinary realms. The marriage of different fibres or additives should have been a last-minute affair, just before the grand reveal of paper sheet formation.

However, in the pursuit of perfection, dissatisfaction might loom. The remedy was an elegant farewell—a technique called "Kissing Off." A dissatisfactory sheet need not have been reincarnated; instead, we used to separate the deckle gracefully, invert the mould, and, with a gentle smack, release the sheet onto the water's surface. The ever-forgiving vat awaited the artistic endeavour afresh, ready to craft a new narrative.

As each sheet emerged, gracefully lifted from the watery stage, the pulp was gently plucked from the vat, a cadence to the papermaking. However, in this dance, replenishment is a keynote. After every three or four sheets, a replenishing ritual unfolded. Pulp, the lifeblood of this watery performance, was poured back into the vat. A moment of pause—adding more pulp was akin to composing a bridge between movements.

The vat, now enriched with the essence of fresh fibre, beckoned for a stirring performance. A thorough stir followed each swirl, and an invitation was given for the new and the old to dance together. The uniqueness of each ensuing sheet depended on this choreography, the mixed ratio of past and present, pulp and water.

The endless paper waltz continued, a dance of creation and continuity until the final curtain descended.

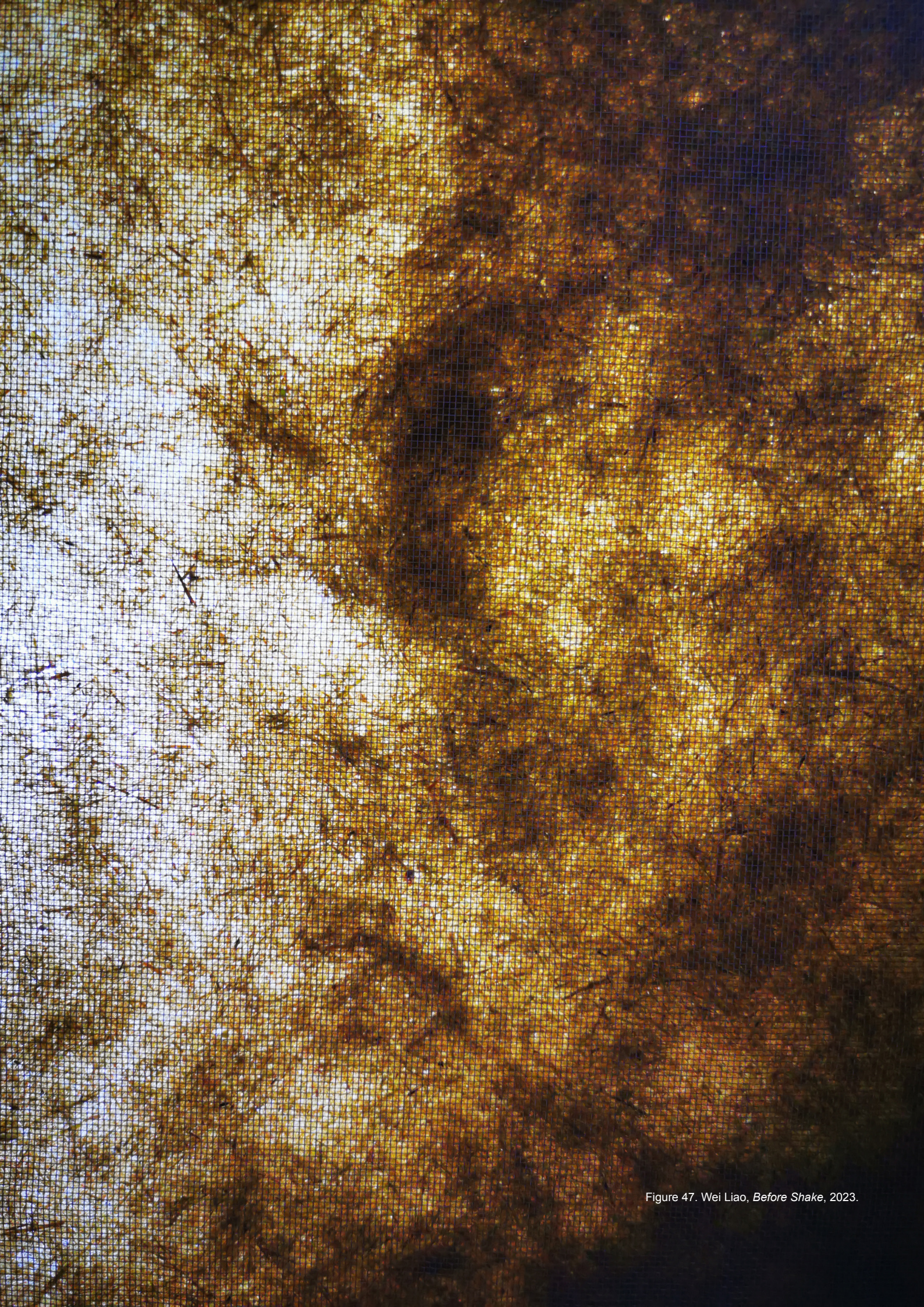


Figure 47. Wei Liao, *Before Shake*, 2023.

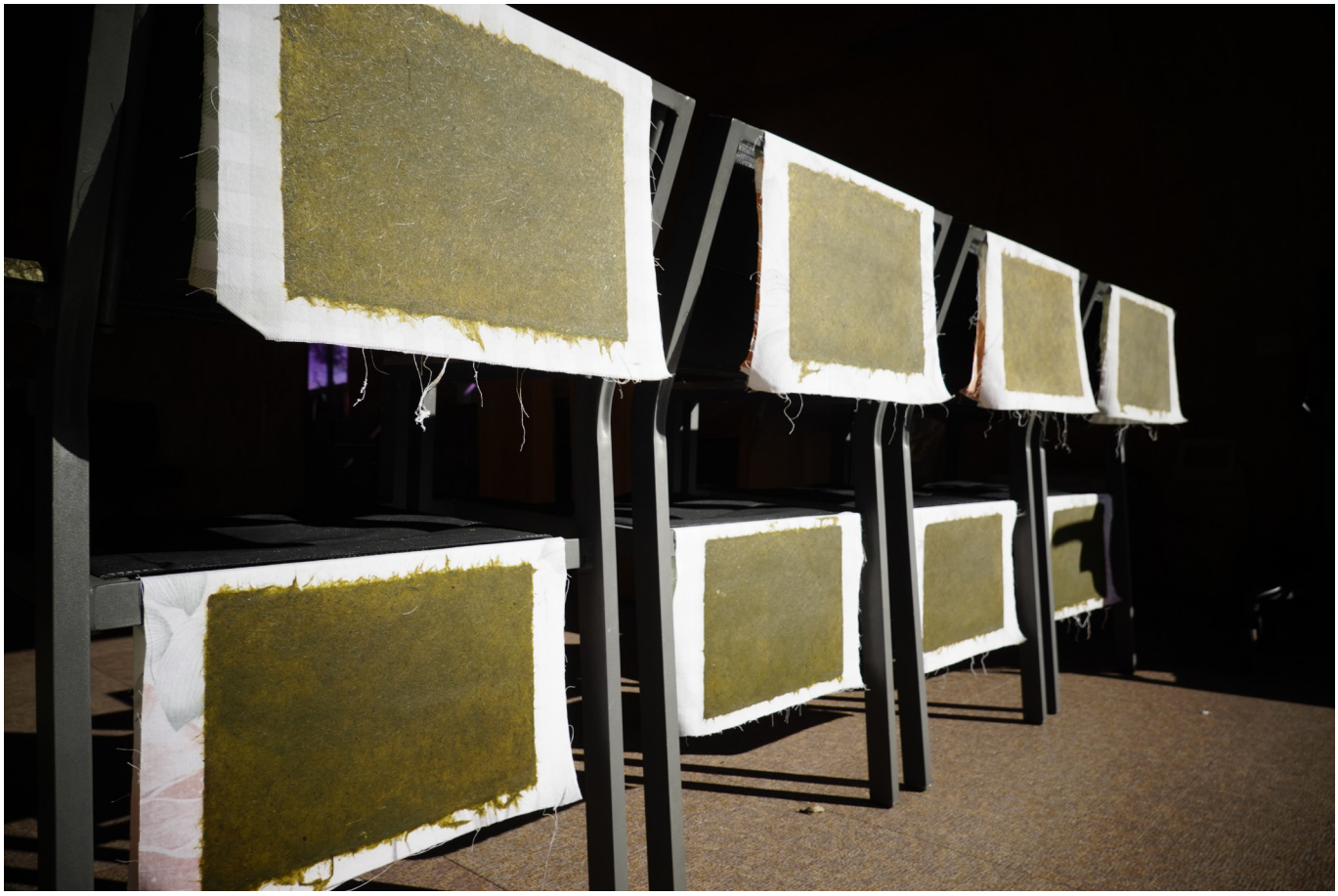


Figure 48. Wei Liao, *Drying 2-hours*, 2023.

4.2 Phase 2: Functional Structure Experiments

This experiment unfolded in the delicate interplay of pressing and drying the paper—a pivotal moment where the material's form became a canvas for artistic expression. The shape of the paper, meticulously controlled during pressing and before the final drying phase, became the foundational choice for crafting compelling art or design pieces. This manipulation served as a gateway to unravel the expressive potential inherent in the material.

Figure 49. Wei Liao, *Drying 5-hours*, 2023.

Figure 50. Wei Liao, *Drying 8-hours*, 2023.

4.2.1 2.5-D Method

Within pressing and drying, a unique dimensionality emerged—neither purely two-dimensional nor fully three-dimensional but a fascinating amalgamation I term 2.5-D. This approach allowed for nuanced control and shaping of the paper, offering a spectrum between flatness and depth.

After a meticulous 24-hour pressing session, we unburden the grass paper from its cocoon-like compression. Despite their apparent delicacy, these papers exhibited unexpected resilience and a mesmerising translucency. Their surfaces bore an enchanting, uneven texture, so much so that even my phone's camera recognised them as resembling a mountainous landscape. The most delicate among them unfolded a tactile quality akin to plastic.

Through these experiments, a revelation emerged—this material possessed inherent plasticity, adapting to diverse shapes and styles under the influence of sheet and microfibre tension; each crease and fold became a brushstroke in the narrative of the paper's structural journey.

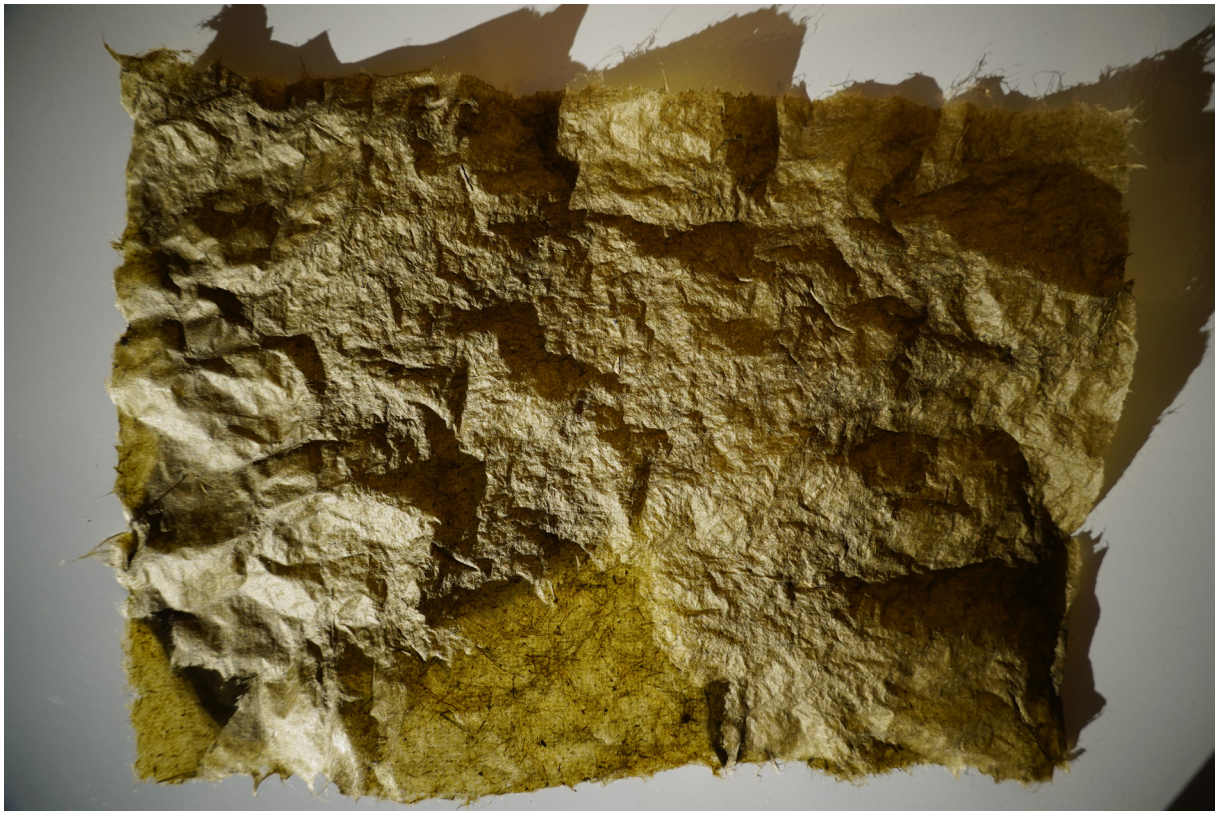


Figure 51. Wei Liao, *One Mountainous Landscape*, 2023.

52. Wei Liao, *Another Mountainous Landscape*, 2023.

Figure 53. Wei Liao, *Another Mountainous Landscape*, 2023.

Figure 54. Wei Liao, *Standardised Dimensions*, 2023.

4.2.2 3-D Method

The Paper Hinge Elegance

In pursuing three-dimensional artistry, we created paper hinges, elevating the humble eco-paper to stand upright in paper space. This method employed hinges crafted entirely from paper, mimicking the robust structure of a door. The stems of tī cabbage tree leaves were artfully integrated, adding strength and an organic touch to these hinges. The door's skeletal framework, a marriage of two square-formed eco-papers and resilient stems, showcased the surprising robustness of eco-conscious materials.

Scale Precision Unveiled

The meticulous art of measurement unfolded a fascinating phenomenon—as the papers dried, subtle shrinkage occurred. Adhering to standardised dimensions (approximately W 170 mm and H 170 mm), we sculpted the door precisely, acknowledging the challenge of maintaining accurate proportions in eco-conscious design. This attention to scale underscored the intricate process of translating conceptual designs into tangible, environmentally specific creations.

Nature-Infused Connectivity

A revelation surfaced in the crafting process—paper hinges fortified with natural stems were pivotal in maintaining structural integrity. Beyond functional connectors, these hinges added an organic authenticity to the eco-conscious design. The ingenious use of stems ensured the structure's practicality and celebrated the seamless harmony between human creation and nature. This innovative approach encapsulated the essence of eco-conscious crafting, where form met function in a dance of sustainability and creativity.

Figure 55. Wei Liao, *Paper Hinges Test*, 2023.

Petal Fusion Technique

In exploring the papers inherent structural potential, we ventured into a method where papers would fold and adhere, orchestrated by the delicate fusion of petals and pistils. Aligned with the precision of standardised dimensions, as highlighted in the Scale Precision Unveiled section, the papers were meticulously prepared for this transformative endeavour. The blending of petals and pistils became the artisanal glue, a concoction born of flowers and water.

Figure 56. Wei Liao, *The Artisanal Glue*, 2023.

The Alchemical Blend

The technique's magic lay in the alchemy of flowers and water, weaving a sticky substance that delicately bonded the papers. Initially, the paper yielded softness and pliability, but it was vulnerable to collapse when immersed in the floral blend. However, a poetic metamorphosis unfolded as water took flight in evaporation. Gradually, the structure gained resilience, embracing stability and preserving its form.

Rhythmic Application

A patient cadence marked the process—six to seven hours waiting between each application. The papers were immersed multiple times, ensuring a thorough and consistent coating, a delicate dance of moisture and evaporation. This ritual epitomised the harmonious fusion of natural elements and meticulous craftsmanship. The resulting structure was a testament to the fragile equilibrium achieved through the union of the ephemeral and the enduring, a synthesis where form and function combined in elegant unison.

Figure 57. Wei Liao, *The Alchemical Blend*, 2024.

4.3 Phase 3: Application of Specialised Technical Experiments

In advancing ecologically aware design inquiry, we fashioned an environmentally amicable letterbox by amalgamating sustainable materials with avant-garde illumination methodologies. This endeavour commenced with the fabrication of functional constructs, harnessing locally procured green waste to generate eco-paper. Subsequently, the project delved into the expressive capacity of these substrates through meticulously regulated lighting experiments, accentuating the letterbox's configuration and texture across varied luminous contexts. The interplay between luminescence and shadow unfurled the subtle elegance and malleability of the eco-paper, stressing its vibrant interaction with illumination. These investigatory exercises highlighted the capability of sustainable design to metamorphose functional items into artistic entities, showcasing the eco-paper's flexibility and significance in advancing environmentally conscious design paradigms.

4.3.1 Illuminating Fragility: Photographing the Poetry of Light

In the delicate process of revealing the essence of the eco-letterbox, three (professional) Broncolor studio photography lighting setups, were choreographed to caress the top, front-left, and front-right facets. This orchestrated interplay of light illuminated the physical form and cast a metaphorical spotlight on the nuanced relationship between suburban life and the environment.

At first glance, the paper letterbox presented a facade of deceptive solidity, a testament to the transformative power of craftsmanship. However, beneath this initial impression lies its true nature—a fragility revealed upon tactile interaction. The fibrous tension within the material generated an organic, uneven surface, bestowing upon the letterbox an intentionally weathered and worn appearance.

This aesthetic weathering served as a poignant metaphor, narrating the subtle complexities of suburban life. The eco-letterbox became a tangible symbol in its apparent fragility and weathered demeanour. It encapsulated the intricate interplay between human intervention and the inexorable forces of nature. Much like the delicate state of the letterbox, this balance reflected the subtle and often understated dynamics embedded in the suburban experience. It was an artful reflection of the inherent connections and dissonances in our interaction with the environment.

4.3.2 Harmonizing Radiance: A Symphony of Light for Eco-Letterbox

In creating the eco-letterbox's luminous display, a balanced interplay of light unfolded, combining the clarity of flash photography with the softness of a camping light. This blend aimed to illuminate and narrate the eco-letterbox's story through light and shadow.

The flash, a precise spotlight, revealed the eco-letterbox's intricate details and craftsmanship, highlighting its textures and design artistry. In contrast, the camping light's soft glow added depth and warmth, creating a welcoming atmosphere that encouraged closer inspection of its design.

Together, these lighting methods crafted a visual harmony, presenting the eco-letterbox as an object and a testament to sustainable design and artistic ingenuity. This approach went beyond simple illumination, offering an immersive experience that underscored the beauty and intention behind the eco-letterbox design.

Figure 58. Wei Liao, *Lighting the Sample Eco-letterbox with Flash*, 2024.

Figure 59. Wei Liao, *Lighting the Sample Eco-letterbox with Flash and a Camping Light*, 2024.

4.4 Phase 4: Maquette Development

4.4.1 Design Philosophy and Motivation

Inspired by Lee Mingwei's *The Letter Writing Project*, this project explores the demarcation between public and private realms, facilitating emotional exchanges and environmental consciousness within the community through artistic projects. Our design ethos is deeply entrenched in the belief that visual communication can act as a conduit for fostering emotional bonds between individuals and inciting profound contemplation on environmental conservation. Through this maquette, we aspire to craft a visually captivating piece and establish a platform that ignites community engagement and discourse by bringing together green material/ grass clippings from neighbourhood lawns to create sustainable papers from which to build eco letterboxes that mimic the letterboxes of those same neighbours.

4.4.2 Spatial Layout and Interaction Strategy

We have adopted an innovative approach by aligning eco-paper letterboxes along the boundary walls of the gallery, in a linear sequence. This arrangement visually echoes the demarcations of suburban plots, reflecting the unique character of suburban living whilst probing the intersection of public and private spaces. By wall mounting the eco-paper letterboxes on cantilevered twig posts, my paper series resonates with the conventional maquette of letterboxes in suburban streets. It symbolically challenges the traditional forms and regulatory norms of gallery spaces.

Moreover, our design delves into how spaces delineate individual and community relationships and how these demarcations are perceived and experienced in reality. Simulating suburban letterbox configurations within the highly regulated space of the gallery, we invite viewers to ponder the boundaries between public and private realms within physical and societal structures and how these boundaries influence interactions between individuals and a community. The exhibited twig posts and green paper constructions juxtapose the vitality of eco-materials against the white wall of the art institution.

In this endeavour, particular emphasis was focused on the transition from two-dimensional to three-dimensional forms and how this metamorphosis enriches our spatial layout and interactive strategy. By crafting eco-paper letterboxes to function within the two-dimensional confines of the walls whilst creating an illusion of three-dimensional relief, the maquette transcends conventional two-dimensional limitations, unveiling to the viewers the boundless possibilities of material transformation and visual perception. This method not only physically alters the interaction between viewers and the work but also conceptually proposes a new understanding of space—that the boundaries of two-dimensionality can be expanded through the innovative application of materials and design.

Furthermore, the arrangement of the letterboxes emphasises the nexus between environment and community, probing the constructs of human habitation and their impact on community relations and individual identities. Through this setup, we encourage viewers to contemplate how altering our spatial practices can foster tighter community bonds and more sustainable interactions with the environment, prompting a reconsideration of our roles within the community and the social significance of residential space. This comprehensive spatial layout and interactive strategy unveil our deep exploration into the demarcations between public and private spaces and our focus on the interconnection between the environment and the community, offering viewers an opportunity to reevaluate and experience space anew.

4.4.3 Consideration of Environmental Factors

In the final exhibited series, special attention was paid to selecting lighting and materials (eco-paper) to ensure they augment the visual impact and enhance the viewer's experience. The use of eco-paper underscores our commitment to environmental stewardship. At the same time, the strategic utilisation of natural light near windows is designed to emulate the natural variations of light in suburban life, creating a captivating textural experience. Additionally, we explored how environmental interactive strategies, such as the interplay between light and material, influence the presentation and experience of the maquette, thereby encouraging reflection on environmental interventions.

Simplicity was the guiding principle in the arrangement of the letterboxes, displaying the natural evolution of colours and forms influenced by seasonal changes through a sequential arrangement based on the production timeline. The meticulous drilling of 2 mm holes in the exhibition wall for maquette supporting branches created an effect of the letterboxes seemingly floating in mid-air. This setup showcases the material's lightness and the design's minimalist aesthetics and reflects a philosophy of close integration with the natural world. Each letterbox, integral to the collective narrative, recounts the passage of time, illustrating the seasonal shifts in colours within the natural world and our lives from spring to winter.

Through this design approach, the lawn letterboxes serve as a bridge connecting time, nature, and community. Viewers are invited to observe the unique design and craftsmanship of each letterbox, and to consider the impact of time on our living environments and how we can respond to these changes through eco-conscious design practices.

Figure 60. Wei Liao, *My Neighbours' Letterboxes*, 2023.

4.4.4 Production Process and Technical Details

Creating the eco-paper letterboxes involved many techniques and methods, all stemming from our thorough experimentation with materials and forms. Each step was imbued with innovation and challenges, from waste collection to making an eco-paper, culminating in the final construction of the letterboxes. Particular emphasis was placed on integrating these techniques into our design philosophy to ensure the maquette is visually alluring and conceptually rich. Throughout this process, the beauty of unexpected balance, irregular design transformations, and the unique forms resulting from material shrinkage were celebrated, extolling the unpredictable beauty of natural matter.

Developing this creative series, guided by structural and formative experiments with eco-paper and inspired by neighbour's letterboxes, incorporated a sense of familiarity and communal essence into the design. The amalgamation of experimental techniques, environmental consciousness, and community impact allowed the art installation to transcend its materiality, evolving into a narrative deeply resonant with fostering community connections and ecological stewardship through eco-conscious artistic practices. The encounter with unexpected balance and harmony in the design showcased the power of considered design and mirrored the aesthetic equilibrium commonly observed in neighbourhood letterboxes.

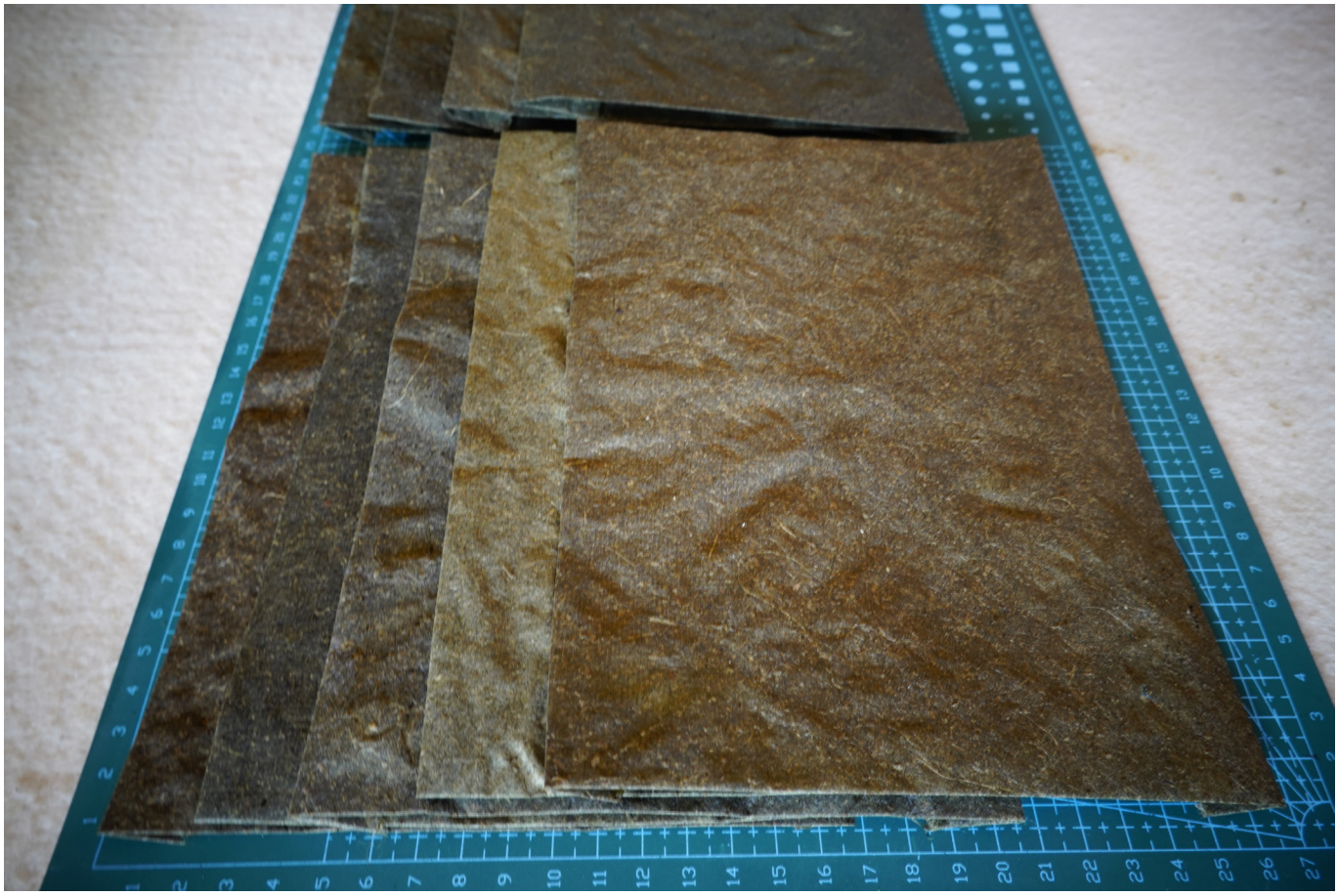


Figure 61. Wei Liao, *Standard Size*, 2024.

The pursuit of eco-conscious design throughout crafting 23 unique letterboxes evolved into a weekly ritual of this applied research. Each letterbox witnessed the transformation from collected green waste to a meticulously designed eco-paper, narrating its distinct story. The production of each letterbox, akin to a symphony of nature and design, often necessitated the alchemical conversion of six to twelve sheets of eco-paper. This adaptability and openness became valuable in our design practice, emphasising the dynamic interplay between design, community engagement, and environmental sustainability.

Ensuring consistency in the produced eco-paper involved a precise methodology. The binding stage was crucial for the structural integrity of each letterbox, necessitating patience and meticulous repetition. In particular, incorporating an homage to material-driven aesthetic principles and roof designs influenced by natural forces highlighted the interaction between human creativity and natural variations.

A suite of tools, including rulers, knives, brushes, and homemade flower adhesive, played pivotal roles in the transformation process. Thus, crafting the letterboxes by applying specific tools and techniques evolved into a weekly pilgrimage, celebrating the transformative potential of eco-conscious design. This process redefined the function of the letterbox as an everyday object. It transformed it into a medium for fostering community dialogue and environmental contemplation, emphasising the project's commitment to environmental stewardship and fostering connections through design practice.

In this crucial phase, the focus shifted from exploratory research to realising an art maquette, synthesising insights from earlier phases into a unified artistic expression. Commitment to eco-conscious materials became central to my professional practice and the broader study.

Attention moved towards developing key maquette components and finalising the design concept, with efforts concentrated on producing eco-papers to achieve this vision. This stage highlighted the role of sustainable materials in creating a comprehensive, immersive experience, extending beyond the tangible to enhance artistic communication within the research context.

Figure 62. Wei Liao, *Parts of Letterboxes 1*, 2024.

Figure 63. Wei Liao, *Parts of Letterboxes 2*, 2024.

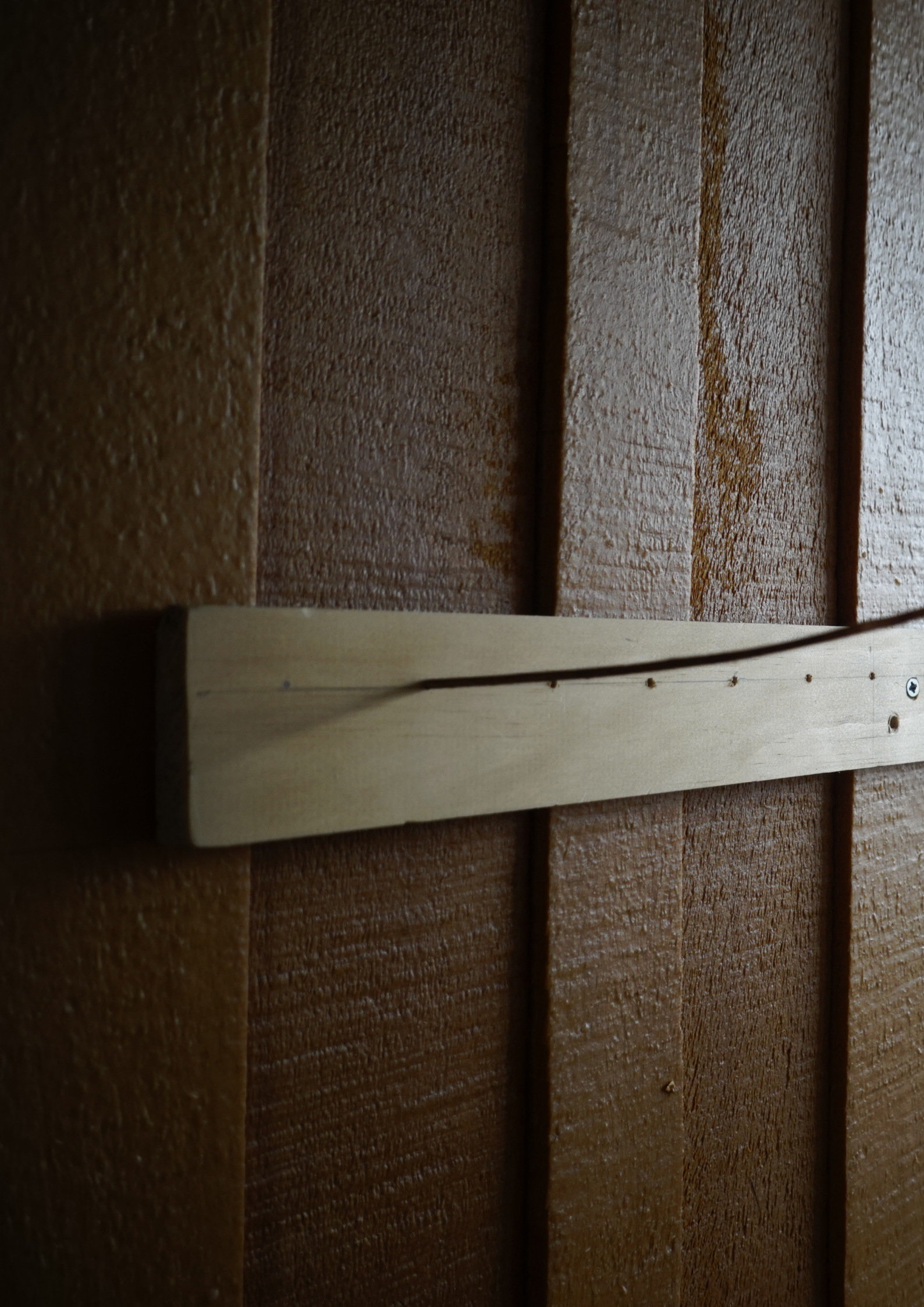


Figure 64. Wei Liao, *2 mm Diameter Holes With a Branch*, 2024.

4.4.5 Reflection on the Lawn Letterbox Series

This project has unveiled the immense potential of eco-materials utilised with creativity and care. It has disclosed a fundamental equilibrium between time, environment, and creativity. The subtle influence of the seasons on this endeavour has imparted the significance of patience and adaptability, enriching my design practice and fostering a deeper comprehension of the interplay between creative vision and temporal dynamics. A deliberate focus on the concept of locality has deepened my engagement with the spatial elements of the project and underscored the role of community participation and spatial awareness in design, advocating for conscious interaction with our surrounding environment.

Although the exhibition has yet to officially open, the preparation and execution of this maquette practice has profoundly demonstrated design as a powerful medium for exploration, expression, and connection. I hope that the exhibition will inspire attendees to deeply contemplate and discuss the interactions between individuals and the community, humanity and the environment. Through direct participation and experience of this maquette, viewers will be presented with the opportunity to reflect on their communities and environments with a new perspective to be encouraged to take action towards fostering a more harmonious and sustainable coexistence.

5 Conclusion: Research Findings

Through a series of practice-led design experiments, this study explored how ethical papermaking practices can facilitate community building and engagement within suburban environments. By gathering, greeting, utilising green waste, we demonstrated the creation process of an environmentally friendly innovative material. We underscored the role of visual communication design in promoting environmental sustainability. The practical component of this research encompassed four main stages: paper structure experiments, specialised technical application experiments, and maquette development, each providing valuable insights and methodologies for the conception and creation of the final art maquette.

This research shows that even minor interventions can play a transformative role in challenging and reshaping the narrative around global environmental issues. My exploration focused not only on the technical and creative potential of ecological design practices but also on how these practices can foster emotional connections among community members and enhance the perception of local identity. By directly interacting with the local natural environment, this practice not only heightened environmental awareness but also strengthened the internal relationships within the community. Furthermore, our exploration revealed how ecological design activities could establish a new form of community participation and social interaction, redefining and reshaping spaces on both a physical and emotional level, thus promoting a sense of collective awareness and environmental stewardship.

Based on foundational insights gained from the initial stages of our enquiry, this research advocates for an evolved design ethos inherently resilient to the adverse effects of globalisation on the environment. We propose a paradigm where localised, participatory, and material-centred practices are not merely reactive measures but play an active role in cultivating sustainable ecosystems and communities. This study provides a blueprint for future ecological design practices by adopting such grassroots approaches. It reaffirms the fundamental role of community engagement in fostering a deeper, more meaningful connection with our natural and social environments. Through this lens, we envisage a future where design transcends its traditional boundaries, becoming a pivotal force in the global movement towards environmental stewardship and cultural renewal.

In conclusion, this study highlights the potential of practice-led design experiments to explore and utilise local green waste materials. It emphasises the significant role of design in driving community participation, enhancing environmental consciousness, and promoting sustainable development. Future research may further investigate how this practice-led design approach can be applied to other community and environmental projects to achieve broader social and ecological benefits.

6 Appendix

Figure 66. Wei Liao, *Graduating Exhibition, NGUTU KAKA*, 2024.

Figure 67. Wei Liao, *Paper Prototyping & Flower Glue*, 2024.

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Figure 68. Wei Liao, *Eco-letterbox*, 2024.

Figure 69, 70 & 71. Wei Liao, *Eco-letterbox*, 2024.

Figure 72. Wei Liao, *Letterboxes Supported by Cantilevered Branches*, 2024.

Figure 73 & 74. Wei Liao, *Graduating Exhibition, NGUTU KAKA*, 2024.

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