Samish Bay Oyster Farm: Overlapping Domains of Landscape and Architecture

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Dedicated to my wife, thank you Ariana.

SAMISH BAY OYSTER FARM: OVERLAPPING DOMAINS OF LANDSCAPE AND ARCHITECTURE

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INTRODUCTION

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The intersections of landscape and architecture as practices offers far more richness than evidenced in contemporary scholarship and practice. A framework that simultaneously draws on the unique qualities and divergences of the disciplines, while synergizing the intersections, holds promise to recover an increasingly resilient and dynamic middle ground.

The terms landscape and architecture are defined in large part by the complexity of their multiple interpretations and interconnectedness. Landscape is simultaneously a pictorial scene, a regional topography, a place where natural features are adapted for specific functions, and a quality that distinguishes a unique identity within a broader context. Architecture is similarly loaded with innuendo and breadth with connotations including form making, design of structures that host human activities, and a particular framework to help perceive space and place.

The influences of art, engineering, planning, politics, and a multitude of professions are long recognized as at times informing design with a delicate balance of precedent and trial driving the most successful and memorable.

Both landscape and architecture are inherently interdisciplinary fields reliant on an ability to draw connections among a range of distinct knowledge bases (Lawson 2004). A single design project relies on numerous modes of inquiry including ecological, societal, operational, experiential, and perceptual framings that are integrated through a iterative, nonlinear process. This process demands the inclusion of both quantitative and qualitative data input from clients, users, decision-makers, and experts (Despres 2011). Consequently, a designer's aptitude for absorbing, valuing, and prioritizing information from a range of affiliated professionals is crucial to success on increasingly complex design projects.

In his article, "Landscape is Our Sex", architect David Heymann critiques the use of landscape rhetoric used as a shallow justification for architectural form that does not truly align with ecological processes. He describes this as a current trend in the architectural profession for marketing and selling design ideas with a veneer of landscape or "cloaking the abstract with a mantle of landscape valor, while sidestepping the more contentious issue of language. Inadvertently or intentionally — it doesn't matter — many architects today equate landscape and architectural form to keep alive the tradition of a building's right to abstract sculptural presence" (Heymann

Lawson, B. (2004). What designers know. Oxford [England: Elsevier/Architectural Press.

Despres, C., G. Vachon, and A. Fortin. (2011). "Implementing Transdisciplinarity: Architecture and Urban Planning at Work". Transdisciplinary Knowledge Production in Architecture and Urbanism: Toward Hybrid Modes of Inquiry. Eds. I. Doucet and N. Janssens. Springer: New York.

2011). This is distinct from ‘greenwashing’ which is marketing a project based on sustainable features. The critique points out that architecttural form that is described as derived from a mapping of the landscape should still meet standards of form, legibility, and coherence that are expected of high quality architectural designs. This article highlights the necessity of understanding the extent of each profession, and each professional’s knowledge and understanding. Without a conception of boundaries, then language, methods, and processes that have been developed within each profession can be misconstrued and misapplied. The sustainability and green infrastructures movements argue for architecture and landscape professionals to collaborate more closely than in the past in efforts intended to yield more holistic, higher performing designs. However, there remains a critical fissure between landscape and architecture as urban practices, and most specifically as urban practices. The divide is reinforced by divergent working scales and discrete theoretical perspectives and thus far these collaborations have most often resulted in reliance on off-the-shelf green technologies.

Heymann, D. (2011). Landscape is our sex. Design Observer.

01 POTENTIALS / SIGNIFICANCE

POTENTIALS / SIGNIFICANCE

The potential of the discourse engaged in this thesis is to consider processes or tools that can bridge between theory as text and design as process. This requires interpretation and translation of ideas into tangible methods that can be used for thinking both spatially and graphically. Both architecture and landscape are distinct from many (but not all) traditional arts in that the final product must meet a broad range of demands including use requirements (program), site realities and environmental needs, , access, local codes, material sourcing, and many more. Addressing both landscape and architecture throughout the design process allows for a more coherent response to many, but not all, of these peripheral project demands.

There are additional potential benefits to design methods that actively engage in a dual lens approach. First, it would provide a common language for designing in a collaborative manner by responding to both professional spheres. Second, such methods would expose responses that are distinct from those that may emerge from landscape or architecture alone. Third, methods that address theory and practice enrich both academia and the profession by activating discussion between the two and across related disciplines. As described in her article "Cognitive Landscapes", Christine Boyer defines the value and role of 'place' in the context of current theories from both landscape and architecture. Boyer's article poses an important critique on the polarization of theory in addressing place and suggests that hybrid modes of inquiry can provide more comprehensive, hence more valuable information for designers (Boyer 2003).

Boyer, C. M. (2003). Cognitive landscapes. In C. Spellman (Ed.), Re-Envisioning Landscape/ArchitectureBarcelona: Actar.

02 STANCE

STANCE

In *The Natural and the Manmade*, author and historian Vincent Scully defines architecture in direct relation to what he describes as the 'natural' world. Architecture, he argues, is man shaping topography with structure, "...the first fact of architecture is the topography of place and the way human beings respond to it with their own constructed forms. Do they attempt, for example to echo the shapes of the landscape or contrast with them?" (1). This question sets up Scully's argument as a binary response, where architecture is either a mimicking of the surrounding landscape, or it is an overt contrast. He roughly describes pre-Greek architecture as attempting to fit within the natural world, with the Greeks as the first civilization to design an architecture that turned the paradigm of architecture mimicking nature on its head, where architecture became an arena to demonstrate human creation as distinct from the natural world. There are two notable distinctions: Frank Lloyd Wright and Le Corbusier, who Scully argues design architecture that is primordial and attempting to fit within the landscape.

To support this theory, Scully references select structures including Teotihuacan, Tikal, Ziggurats, the Great Pyramids, pit houses, and hogans to demonstrate their relationship to the surrounding topography. He contends that the Greek Temple was the hinge between architecture as a creation of structure embedded within landscape, subservient to it, and architecture as an intentional demonstration of humanity's connection to the gods, "The old imitation of the forms of the earth, older than written history, was given up...Architecture itself was never to be the same again" (39). Hyper architectural, this theory does not allow for understandings of landscapes and peoples as distinct as ancient Egyptians and the Pyramids to the Mayans and Tikal because of similarity of form.

Scully's argument is compelling in its simplicity and clarity, but fails to capture the complexity of pre-Grecian civilizations and defines 'nature' as nothing more than an inert, static topography. In addition to these shortcomings, this binary approach to understanding the built environment lacks the depth that would allow for a nuanced reading of designs that can draw additional comparisons and parallels that may lead to insights about the relationship between landscape and architecture that can be translated to future designs.

Architect David Leatherbarrow has also written extensively on the relationship between landscape and architecture. Leatherbarrow

Scully, V. (1991). Architecture: The Natural and the Manmade. New York: St. Martin's Press.

makes no distinction between structure (architecture) and landscape ('nature'). In sharing a dependence on physical and philosophical context for deriving meaning and cultural relevance, Leatherbarrow argues that architecture and landscape are in fact one, and their separation is misguided. In Topographical Stories: Studies in Landscape and Architecture, Leatherbarrow defines the world as a framework that is not divided into categories of structure and land. In order to break the tradition of false segregation of the built environment, Leatherbarrow proposes specific nomenclature that he proposes will delineate an unbounded approach to describe what is traditionally divided between landscape and architecture. The vocabulary described by Leatherbarrow is centered around the terms 'horizon' and 'topography'.

Leatherbarrow defines the horizon as "the outwardly extending level on which everyday affairs play themselves out." This definition is intended as a sharp distinction and critique, of the homogenous or reductive aspects of modernist theory, which he derides as an "all embracing framework of every particular circumstance the unlimited container of all possible contents, a perfectly intelligible plenum, devoid of secrets." The horizon, he argues maintains an aura of mystery, the potential of unexpected. It is a stage for discovery and exploration whose full extents cannot be entirely mapped or comprehended.

The second term described by Leatherbarrow is 'topography', intended to encompass the unexpected and the familiar, unfolding and revealing over time through movement: anticipation, memory, and discovery. Topography is a term meant to suggest viewing the built environment beyond the superficially apparent, but encompassing the latent qualities and potentials of place (Leatherbarrow 2004).

In sum, Leatherbarrows proposal of terminology to be used across the entirety of the physical environment in an all encompassing manner is a bold deviation from the status quo of distinct vocabularies in describing landscape and architecture. As a theoretical framing, Leatherbarrow intends to add to the dialogue between the fields. The shortcomings of this proposed terminology outlined by Leatherbarrow is rooted in a narrative that is eloquent and expressive, but lacks definition and linkages to examples in the tangible world. This gap between theory and tangible leaves room only for interpretation and little solid footing for critique or counterpoint. The breadth of the terminology and the poetics of the intent are successful in questioning the limits of both architecture and landscape, but

Leatherbarrow, D. (2004). Topographical stories: Studies in landscape and architecture. Philadelphia: University of Pennsylvania Press.

offer little in terms of applicable or transferable analysis of built projects.

The strength of Leatherbarrow's proposal is in the concept of latent potentials. Leatherbarrow challenges designers with the task of revealing these potentials held within the horizon and topography. This is a departure from Scully's binary approach of design categorized as either mimicking or contrasting the 'natural' world and opens to a limitless number of plausible interactions and dynamics in the physical world. Leatherbarrow's work hints at the complexity of a framing intended to capture both landscape and architecture. Without these fields serving as a narrowing lens, a more complete view comes into the frame. In order to capture this broader framing both Leatherbarrow and Scully use blurring of the boundaries between landscape and architecture as a method of conveying the most important ideas about a place or space in a conscise format.

The blurring of boundaries between landscape and architecture is an obscuring of defined edges that does not happen in a uniform or transcendental manner. The conception of these boundaries is a preliminary assumption that is then challenged or altered with intent and directionality. Most often the blurring of boundaries in the built environment trends from architecture into landscape. In her article "The Expanded Field of Landscape Architecture", landscape architect and theorist Elizabeth Meyer issued a response to the marginalization of landscape. Turning the assimilation of landscape terms for architectural applications on its head, Meyer plays with the mapping terminology of 'figure ground' often utilized in architecture practice as reclaiming of the 'figured ground'. Meyer illustrates landscape as a dynamic space in flux that does not interact with structure in a static or singular format. "The figured ground is that undulating body between the figural object and neutral field, between mass and void. It finds structure in the ground, its topographic and geological structure. The articulated space is the space between figural space framed by buildings and open space, homogeneous and undefined...it is a space of layering, ambiguity and change" (Meyer 1997). Meyer's description maintains the strengths of both Scully and Leatherbarrow's, the fluid and intertwined qualities of landscape and architecture. Her framing diverges in that it does not attempt to blur, but reinforces the division between landscape and architecture yet highlights the boundary not as a "neutral field between mass and void" but as a place of movement and connection, a gap that allows for push and pull. Meyer's argument should not be misconstrued as a retaliatory or territorial response.

Meyer, E. (1997). "The Expanded Field of Landscape Architecture." Ecological Design and Planning. Ed. George F. Thompson and Frederick R. Steiner. New York: John Wiley.

By focusing on the gap, the space between landscape and architecture, Meyer highlights an arena for engagement, a space of dialogue and interaction. In conversation, this space is the silence known as listening, in the brain, it is the synaptic cleft across which nerve impulses are transmitted.

A forceful argument for the value of distinction between landscape and architecture is detailed by Marpillero, Ponte and Pollak in "And: Teaching Landscape in Architecture." Responding to simplistic calls to merely blur the disciplines, they argue against intentional ambiguity because it forces simplifications that eliminate complexity. "Landscape is more than not-architecture. ..to blur is to let what used to be accepted as a boundary become less clear. Projects expand and attempt to control more territory, without necessarily having the techniques to address different scales" (Marpillero 2004).

The writing described thus far focuses on conceptualizations of how to frame the built environment in theoretical terms, without inclusion of methodology for critique or evaluation of actualized projects. In "Architecture and Landscape", Steenbergen and Reh offer a set of theoretical elements that can gauge the success of a built work. Projects are evaluated based on utilita, firmitas, and venustas, or utility, solidity and beauty. Each term refers to a dichotomy that Steenbergen and Reh suggest can be balanced in order to make the highest quality design. The authors argue that the success of a design is directly related to the harmony between these three dualities because it allows for multiple interpretations and readings of a place.

Utilitas is a reference to the cultural value and the economic value of a place while firmitas refers to its adaptability and flexiblity. This term describes the tension between the dynamics necessary to meet ecological and social needs, while maintaining a unique sense of permanence or stability. Venustas refers to the architectonic form and the local specificity of the particular site or landscape. It is the tension between the metaphorical or designed and the existing topography. Steenbergen and Reh outline a matrix of study framed according to various combinations of fixed and variable factors of landscape or context and object or 'villa'.

The matrix of combinations outlines frameworks that target a particular architectural 'object' or structure in its context or site. Typological research attempts to compare architecture by finding relationships and commonalities across a spectrum of sites. In identifying research "a composition scheme,

		OBJECT (VILLA)	
CONTEXT (LANDSCAPE)		**Fixed**	**Variable**
	Fixed	Design Research	Identifying Research
	Variable	Typological Research	Research by Design

Figure 1 Matrix of frameworks for research into architecture and the landscape (Adapted from Steenbergen & Reh 2003).

Marpillero, S., A. Ponte, and L. Pollak. September 2004. "And: Teaching Landscape in Architecture." Landscape Within Architecture. *306090 Architectural Journal*.

whether transformed or not, can be projected onto a new landscape to be organised in order to 'test' it in landscape architectonic terms. The objective of this is to detect the hidden formal qualities of the situation or the landscape. In research by design both the composition schemes and the landscape are transformed step by step. The purpose of this is the critical development of the internal logic of an experimental composition" (Steenbergen and Reh 2003).

In this framework the landscape and the villa are each treated as discrete objects that can be codified and addressed as independent spheres. This system quickly breaks down with complex ecosystems and programs that require that structure and environment are responsive entities and does not serve a paradigm where all of the elements are recognized for having dynamic qualities. When there is no 'fixed' variable, when architecture is no longer described as object, then the framework no longer serves.

The work of Steenbergen and Reh displays the struggle between design theory as an applicable methodology method or tool and theory as a conceptualization of understanding the built environment. The transition from theory to its application is a difficult path that includes few indicators of success. Although Steenbergen and Reh include formats for study in their work, it is presented independently from the theory of balanced dualities. The work does not propose the way in which the goal of balancing firmitas, utilitas and venustas transfers to the object/context matrix framework. Although both present, there is no direct link or application of one unto the other included in their work.

The richness of their contribution lies in the expansion of suggesting dualities or polarities that work across the fields. This is a break from Scully and Leatherbarrow, who suggest an elimination of boundaries between landscape and architecture and develop theories that blanket across the two. Meyer contributes the value of space between polarities, the gap between landscape and architecture. Steenbergen and Reh write about landscape and architecture using a series of polarities that are not inheretlyinherently of landscape or architecture, recognizing the value of the interstitial space of dialogue, but expanding it beyond the tropes of the professions.

A similar approach is taken by authors Berrizbeitia and Pollak in their collaborative work, Inside outside: Between Architecture and Landscape. Berrizbeitia and Pollak use a series of operations to investigate built projects. Each operation: reciprocity, materiality,

Steenbergen, C. M., & Reh, W. (2003). Architecture and landscape: The design experiment of the great European gardens and landscapes. Basel: Birkhäuser.

threshold, insertion, and infrastructure, is selected as a means to view the ways in which landscape and architecture correspond and relate with a renewed perspective. The operations are intended to reveal aspects of each case study that would otherwise go unnoticed if considered through a singular lens of either landscape or architecture (Berrizbeitia et. al. 1999). Organized as a series of case studies the work does not include an understanding of how these concepts may be applied to the process of design. As well they blur, disguise, and confuse the distinctions created by Meyer and others. While important as an approach, this framework suggests that landscape and architecture can be read by means of one simple language rather than two distinct languages that can be in dialogue.

In his article "The Messy Middle: Oppositional conditions creating a dynamic center" author Coy Howard describes both the challenge, and the bounty, of working at the center of two opposities. The edges of each discipline are places of innovation that can inform and interact with wisdom and specialization articulated at each center. Condensation, or the "fusion of opposites into higher order totalities" is the most elusive quality required of creative works. Howards insists that a process that moves between the center and the edge (or a cycle between introspection and exploration) is the process by which the elusive quality of 'condensation' can be attained. Howards argues that "only oppositional conditions creating a constantly transforming center can produce an architecture of multivalence and longevity" (Howard). The polarities are not about setting up simplified juxtapositions but instead an arrangement that embodies many oppositions as a coherent dynamic of transformation (Howard 2003).

Howard repeats the theme of balance as suggested by Steenbergen and Reh, but instead of outlining these polarities as specific elements or themes, the polarities are left open to interpretation. The ideas of multivariate interactions and setting balance or asymmetrical symmetries is proposed as an alternative way of engaging in dualities that serves as a counterpoint to simple juxtapositions.

There are texts that specifically address both fields in sum as a design critique, in terms of case studies , which have limited applicability to the design process. Directive works are the most limited scope of narrative that addresses both landscape and architecture. These types of work attempt to lead designers through specific steps, strategies, tasks, or methods guiding the process of design. One example is the work of Linda Jewell's article "The american outdoor theater: A voice for the landscape

Berrizbeitia, A., & Pollak, L. (1999). Inside outside: Between architecture and landscape. Gloucester, Mass: Rockport Publishers.

Howard, C. (2003). The messy middle: Oppositional conditions creating a dynamic center. In C. Spellman (Ed.), Re-Envisioning Landscape/ArchitectureBarcelona: Actar.

in the collaboration of site and structure". Linda Jewell lists tangible recommendations that have direct application on the design process Centered on outdoor theaters, Jewell argues that a series of steps can be applied to any site starting with visiting the site under many conditions, highlighting a memorable element of the site, deciding if the architectural juxtaposition will be a dramatic contrast or a subtle extension of existing form, creating a spatial sequence for the user to navigate, adjusting the design to accomodate new features and information, allowing for unpredictability and change, and finalizing with additions and adaptations to the design that are in alignment with the initial design parti (Jewell 2003). Despite the clarity of these steps, and the feasiblity of application, the article fails to provide sufficient, concrete arguments to describe the theory and thinking behind these steps.

The most compelling arguments emerging from this survey of literature identify the value in edge conditions, transition spaces and gaps. This space outside the comfort zone speaks to the potential of transdisciplinarity. "Transdisciplinarity as a less sanguine and more overtly theoretical approach than either disciplinarity or interdisciplinarity. Unlike interdisciplinarity which presumes an unproblematic sharing of methods or concepts, transdisciplinarity insists on the necessary value of distinct disciplinary identities. Unlike the call for a return to discipline, transdisciplinarity is in no way a retrenchment. Rather, transdisciplinary work happens at the edge or limit of our discipline, which is where we become acutely aware, in need of, and able to revise the tools, technologies, and discourses of architecture" ("Transdisciplinary Applications" 2006).

Jewell, L. (2003). The american outdoor theater: A voice for the landscape in the collaboration of site and structure. In C. Spellman (Ed.), Re-Envisioning Landscape/ ArchitectureBarcelona: Actar.

"Transdisciplinary Applications". (2006). Syracuse University School of Architecture.

03 DEVELOPING A PRAXIS

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DEVELOPING A PRAXIS

Emerging from this survey of writing that addresses landscape and architecture reveals a core theoretical approach suggesting a dual lens that does not blur, but intends to focus on particularities of place relying on the distinct approaches of each field to initiate a dialogue between the two in the design process. There remains, however, a lack of models for application of these theories. Theory based writing, described earlier, rely upon a philosophical and academic reflection on the design process maintaining a distance from praxis. There are benefits to this distance between theory and practice, wherein unlike practice, theory is forced to clarify predispositions and assumptions which invites debate and dialogue. Much of the theory addressing both landscape and architecture in sum lacks direction in applicability, limiting its impact on the design field in practice. In particular, these theories do not entirely clarify their distinctions from existing methods and modes of practice, "The theorist also has the larger and broader task to show how practices (e.g. architecture and theory) link up with, or contrast with, other practices of the same group or other groups" (Linder 1992). Putting theory to practice is fraught with challenges, often leading to authors to engage in either one or the other, but rarely both.

Illustrating the uncomfortable shift from theoretical stance to design application is the evolution of landscape urbanism. Landscape urbanism emerged in part from a series of large scale urban design competitions (Parc Villette, Downsview Park) that spurred dialogue within the fields of architecture and landscape (Czerniak 2001). The emerging rhetoric relied heavily on expanding and reframing terminology traditionally utilized in the field of landscape architecture as described by Heymann (landscape, topography, horizon, field, temporality, etc.) as well as influences from mathematical and computer theories of non-linear dynamics and the ability to simulate complex and connected fields across multiple scales (Wall 1999). In addition to expanding definitions, entirely new names were developed to describe practice and theory that struggled to capitalize on the success of the trend including 'landscape urbanism', 'ecological urbanism', 'network city', 'sustainable urbanism', 'instant urbanism', 'infrastructure urbanism', 'mat urbanism' and the like. Landscape (as an idea, as opposed to the profession) was presented as a lens that could address the complex and diverse questions of the contemporary city.

Landscape urbanism was for all intents and

Czerniak, J. (2001). CASE--Downsview Park Toronto. Munich: Prestel.

Waldheim, C. (March 2001) "Park = City? The Downsview Park Design Competition". Landscape Architecture 91:3, 82.

Wall, Alex. (1999). "Programming the Urban Surface." Ed. James Corner. Recovering Landscape: Essays in contemporary landscape architecture. New York: Princetown Architectural Press

Linder, M. (1992). Architectural theory is no discipline. In J. Whiteman, J. Kipnis & R. Burdett (Eds.), Strategies in architectural thinkingCambridge: The MIT Press.

purposes a highly successful as a theory. Highly controversial, its notoriety was more important than its acceptance, specifically as it argued with New Urbanism. Whether in agreement with, or in argument against, in the field of landscape, or architecture, a practicing professional or an academic scholar, all parties were aware of, and quite often a strong opinion on Landscape Urbanism. It engaged debate and dialogue in and across the fields of landscape and architecture. “For many, across a range of disciplines, landscape has become both the lens through which the contemporary city is represented and the medium through which it is constructed”. Emerging after 1990 as a method to engage issues of sustainability and rapid growth, Landscape Urbanism delineated a shift from a period of disciplinary introspection (Waldheim, 2006).

Despite this surge in theory and discourse, there have been few built projects that lay direct claim to using methods in alignment with the theory of Landscape Urbanism. These projects include work by West8, Field Operations / James Corner, and Stoss/Chris Reed (http://www.theconstructs.com/main/wiki/Landscape+Urbanism).

Waldheim, C. “Landscape as Urbanism”. (2006). Ed. Charles Waldheim. The Landscape Urbanism Reader. New York: Princeton Architectural Press.

*For an in-depth discussion of the debate between the Congress of New Urbanism and proponents of Landscape Urbanism refer to “GSD Throwdown: Battle for the Intellectual Territory of a Sustainable Urbanism” by Genevieve Sherman at Urban Omnibus , <www.urbanomnibus.net>.

PROJECT / TEST

PROJECT / TEST

Developing a praxis alters practice that is essential to addressing the complexity of issues apparent in the 21st century. This thesis attempts to apply theory to engage directly in the challenges of doing so. Although a thorough vetting does not fit within the scope of this project, a preliminary ground-testing in the form of a studio design project could serve as a starting point for investigation.

The design problem posed in this project is the expansion of an oyster farm in Bow, Washington, a rural agricultural town alongside a tidal bay of shallow mud flats. This proposal is emblematic of the messy complexity that architects are tasked with in much of their work. An investigation into the nature of design that straddles the spheres of landscape and architecture here is dependent upon both disciplines. Additionally, the Samish Bay oyster farm plays an important role in the local economy, community culture, history, and ecology, while also serving as a litmus to the global. These relationships are not features that are unique to the Samish Bay Oyster Farm, nor oyster farms in general. Similar connections can, in fact, be drawn between many typologies of projects that architects desgin on a regular basis. Selecting a site or project scenario that falls far outside the realm of typical would reduce its feasibility for a replication of methods; thus the Samish Bay oyster farm is a good fit in part because of its universal traits in addition to its unique qualities.

There are also peculiarities of oyster farming that offer up exciting potentials for design exploration. Shellfish farming is a labor-intensive, nature-dependent business with harvest plans aligned to growing cycles, tidal calendars, and market prices. Oyster farming is an ancient tradition, deeply rooted in our shared global history. Oysters are making appearances in competition design proposals as tools for structural flood protection and water pollution remediation. This mixture of pedestrian and extraordinary sets up the Samish Bay oyster farm as relevant to contemporary issues in architecture.

04 OYSTERS

OYSTERS

Humans have eaten oysters since the Neolithic and have cultivated oyster bed. They have raised oysters for at least 2,000 years marked in part by mounds of shell known as middens (Smith 2010). In fact, geologists use fossilized oyster-shells to date early human settlements (Stott 2004). Oyster consumption has endured a volatile history as an affordable food of the poor and conversely a delicacy of the wealthy and powerful, "...oyster flesh can be used as a way of marking changing food cultures from the Romans to the present day...As food, then, oysters have been all things to all people, rising and falling in popularity as prices have been effected by conditions of farming and supply and transport systems" (Stott 2004).
In the 19th century oyster production in the United States surpassed all other cultivators worldwide. With New York city hauling in over six million oysters each day the oyster was an American staple (Kurlansky 2006). This consumption was beyond the rate of supply with the rising demand exhausting the beds with rising levels of effluent and sedimentation from erosion. The final blow to the New York oyster beds came when oystermen, hungry for continued profit, introduced foreign oyster species and unintentionally imported disease and pests that eradicated the majority of the beds by the early 20th century (Smith 2010). The oyster was no less popular on the west coast. In the Pacific Northwest oyster middens have been estimated to be at least 4,000 years old with the size of the shells shrinking at the top of the pile. This evidence suggests that human consumption was already impacting the oyster population even before the Gold Rush. By 1910 the human population boom on the west coast decimated the native Olympia oyster in San Francisco Bay (Jacobsen 2009).The loss of the oyster in these regions had disastrous environmental impacts and economic hardship. The popularity of the oyster puts ever-increasing demands on wild oyster stocks. This scarcity drives up prices converting them from a working class food to an expensive delicacy (Matthiessen 2001).

Beyond its role as a food item linked to human history, the oyster has long captured the human imagination. Lessons about social morality have used the oyster as a metaphor, symbol, and even as a character in literature, oral tradition, urban legend, art, and clothing. Since the Roman Empire oysters have been farmed and their appearance in literature, historic documents, and art demonstrate a wide range of meaning and myth across a wide range of cultures. Common themes include warnings against greed and gluttony, references to sex and virility, and most recently the oyster has been used as a political pawn in the division between socioeconomic classes (Stott

Jacobsen, R. (2009). The living shore: Rediscovering a lost world. New York: Bloomsbury.

Smith, D. (2010). Oyster: A world history. Stroud: History Press.

Matthiessen, G. C. (2001). Oyster culture. Oxford [England: Fishing News Books.

Stott, R. (2004). Oyster. London: Reaktion.

Kurlansky, Mark (2006). The Big Oyster: History on the Half Shell. New York: Ballantine Books.

2004). These references speak to the role that oysters play in cultural traditions throughout human history. Entire texts are dedicated to exploring this topic in depth, but suffice to say the history of oyster, and the history of mankind are interconnected.

The oyster also had a profound impact on our environment. A long history of cultivation with a range of techniques, civilizations and coastal cities have included areas for oyster aquaculture that are distinct forms of dykes, berms, irrigation channels, and furrowed tidal flats. Their forms have varied based on distinct strategies over time and between cultures. Although a full history of oyster farming techniques is not the focus of this work, it is important to note that oyster aquaculture is distinctly linked to broader forces both man-made and otherwise. Oysters are valuable ecosystem engineers in by acting as filters, breakwaters that reduce shoreline erosion, and as a foundation for housing other important species (Beck, 2011). The oyster performs an impressive portfolio of ecosystem services. First, the oysters filter the water as they feed on phytoplankton, removing nitrogen and other nutrients improving water quality without the use of chemicals or antibiotics that could be harmful to human health. Additionally, oyster cultch and reefs provide habitat for a myriad of organisms that may not otherwise utilize the area enhancing the form and function of natural ecosystems. People involved in the culture of oysters, from production, distribution, to consumption, can serve as advocates in the community to address issues of ocean water pollution, from agriculture and sewage runoff to climate change. The more information provided for these individuals allows for connections between personal action and global impact (Fimlin 2010). The oyster is considered a keystone species because of the important ecological services they provide to maintain or improve water quality and clarity. All aquatic bivalves cycle nutrients between the water column and bottom dwelling species providing a crucial link. In fact, their diversity and abundance are often cited as indicators of the environmental quality and overall health of coastal ecosystems (Washington Sea Grant 2012). About 85 percent of the world's oyster reef populations have been destroyed due to human impacts since the late 1800s leaving oyster reefs as an imperiled habitat (Beck, 2011).

Population estimates indicate that population will grow from 6 billion to 9 billion by 2050 with coastal development projected to impact 91% of all inhabited coasts by 2050. These urban areas will contribute to more than 80% of all marine pollution accelerating the spread

Washington Sea Grant. (2012). <www.wsg.washington.edu>. Retreived 10 October 2012.

Fimlin, Gef, et. al. "Best Management Practices for the East Coast Shellfish Aquaculture Industry." USDA.

Beck, M. W., Brumbaugh, R. D., Airoldi, L., Carranza, A., Coen, L. D., Crawford, C., Defeo, O., Guo, X. (February 01, 2011). Oyster Reefs at Risk and Recommendations for Conservation, Restoration, and Management. Bioscience, 61, 2, 107-116.

Beck, M. W., Brumbaugh, R. D., Airoldi, L., Carranza, A., Coen, L. D., Crawford, C., Defeo, O., Guo, X. (February 01, 2011). Oyster Reefs at Risk and Recommendations for Conservation, Restoration, and Management. Bioscience, 61, 2, 107-116.

of marine dead zones, many in primary fishing grounds (Diaz and Rosenberg, 2008). Ocean pollution comes in many forms, but two primary concerns are ocean acidification and eutrophication. Eutrophication is a process where nutritive pollution caused by human activities leads to an explosive growth of algae. These excessive inputs of phosphorous and nitrogen are often through sewage and agricultural run-off into water systems. The decaying algae consumes the oxygen dissolved in water suffocating fish and other biota. Eutrophication combined with unsustainable fishing leads to degradation of aquatic food resources and has impacted the Gulf of Mexico, coastal China, the Atlantic coast, as well as the Pacific Northwest (Anderson et al., 2008; UNEP, 2008). A sessile species once mature, the oyster becomes an embedded indicator that is responsive to environmental change, including climate change with the shell of the oyster weakening under the abrasive conditions of ocean acidification, a by-product of ocean warming (Cheney 2011).

Oyster reefs are increasingly used as a soft infrastructure response to protect shorelines and improve water quality. Typically they require the placement of cultch made up of fossilized shell, coral or similar materials produced by living organisms designed to provide points of attachment for oysters. Cultch provides habitat for oyster colonization which in turn filter nutrients, fine sediments and toxins from the water column ("Oyster Restoration"). A design proposal that takes a bolder, more imaginative approach to the use of oysters as a design response to an environmental problem is Oyster-tecture from the MoMA Rising Currents Exhibition. A group of designers proposed "to nurture an active oyster culture that engages issues of water quality, rising tides, and community based development around Brooklyn's Red Hook and Gowanus Canal." Presented as an armature for the growth of native oysters, a living reef would be constructed from a field of piles supporting oyster and mussel growth. "The reef attenuates waves and cleans millions of gallons of Harbor water through harnessing the biotic processes of oysters, mussels and eelgrass, and enables neighborhood fabrics that welcome the water to develop further inland" (MoMA Rising Currents Exhibition, 2010).

Oyster aquaculture increases available seafood product without an increase in the harvest of wild resources. In their 2009 report on the global food crisis, UNEP warned that food access would be impacted by the population increase estimated to rise from six billion to over nine billion by 2050. The impacts will be heightened by loss of up to 25% of produc-

Anderson et al. (2008). Harmful algae blooms and eutrophication: Examining linkages from selected coastal regions of the United States. Harmful Algae 8: 39-53.

UNEP (2008). In Dead Water. Merging of Climate Change With Pollution, Over-Harvest, and Infestations in the World's Fishing Grounds. UNEP/GRID-Arendal, Arendal, Norway.

MOMA Rising Currents. www.moma.org/explore/inside_out/category/rising-currents.

Cheney, D., Suhrbier, A., Peabody, B., Hales, B., & Eudeline, B. (January 01, 2011). Monitoring Potential Impacts of Ocean Acidification on Oyster Larvae Survival and Recruitment on the U.S. West Coast. Journal of Shellfish Research, 30, 2, 494.

tion due to as a result of climate change, water scarcity, invasive pests and land degradation. In addition to providing alternative employment opportunities for fishermen, oysters are one of the world's most efficient protein producers, which may have beneficial implications in the face of a growing population and global food scarcity (Anderson et al., 2008; UNEP, 2008).

Anderson et al. (2008). Harmful algae blooms and eutrophication: Examining linkages from selected coastal regions of the United States. Harmful Algae 8: 39-53.

UNEP (2008). In Dead Water. Merging of Climate Change With Pollution, Over-Harvest, and Infestations in the World's Fishing Grounds. UNEP/GRID-Arendal, Arendal, Norway.

05
SITE ANALYSIS

SITE ANALYSIS

This broader understanding of oysters and their role in history and in contemporary ecologies has direct implications in building an understanding of the Samish Bay Oyster Farm. A site analysis that attempts to capture as much detail about the specifics of place allows for recognition of diversity and change of the site over time. It is a resistance to approaches to projects as a tabula rasa with an inclusive respect for all users, both current and past. This uncovers the competing histories and multiple narratives embedded and wedded to the site that inform designers on appropriate revisions and visions for design interventions (Woessner 2005). Additionally, a coherent, intentional recording of site history informs designers of the latent potentials that can be revealed through intervention as described by Leatherbarrow. In comparison to historic preservation which seeks to preserve, conserve and protect buildings, objects, landscapes or other artifacts of historical significance, there is value to an analysis of place that is inclusive of the commonplace and vernacular (Fitch 1990). Pedestrian elements of the past are at times those most susceptible to erasure and architecture has the potential to reveal and host both dominant and recorded histories as well as the uncelebrated, unrecorded pasts.

Fitch, James Marston. Historic Preservation: Curatorial Management of the Built World. Charlottesville, VA: University Press of Virginia, 1990.

Woessner, Martin. (2005).“Daniel Libeskind: From the End of Architecture to the Space of Memory” Eds. Gary Backhaus and John Murungi. Lived topographies and their mediational forces. Lanham : Lexington Books.

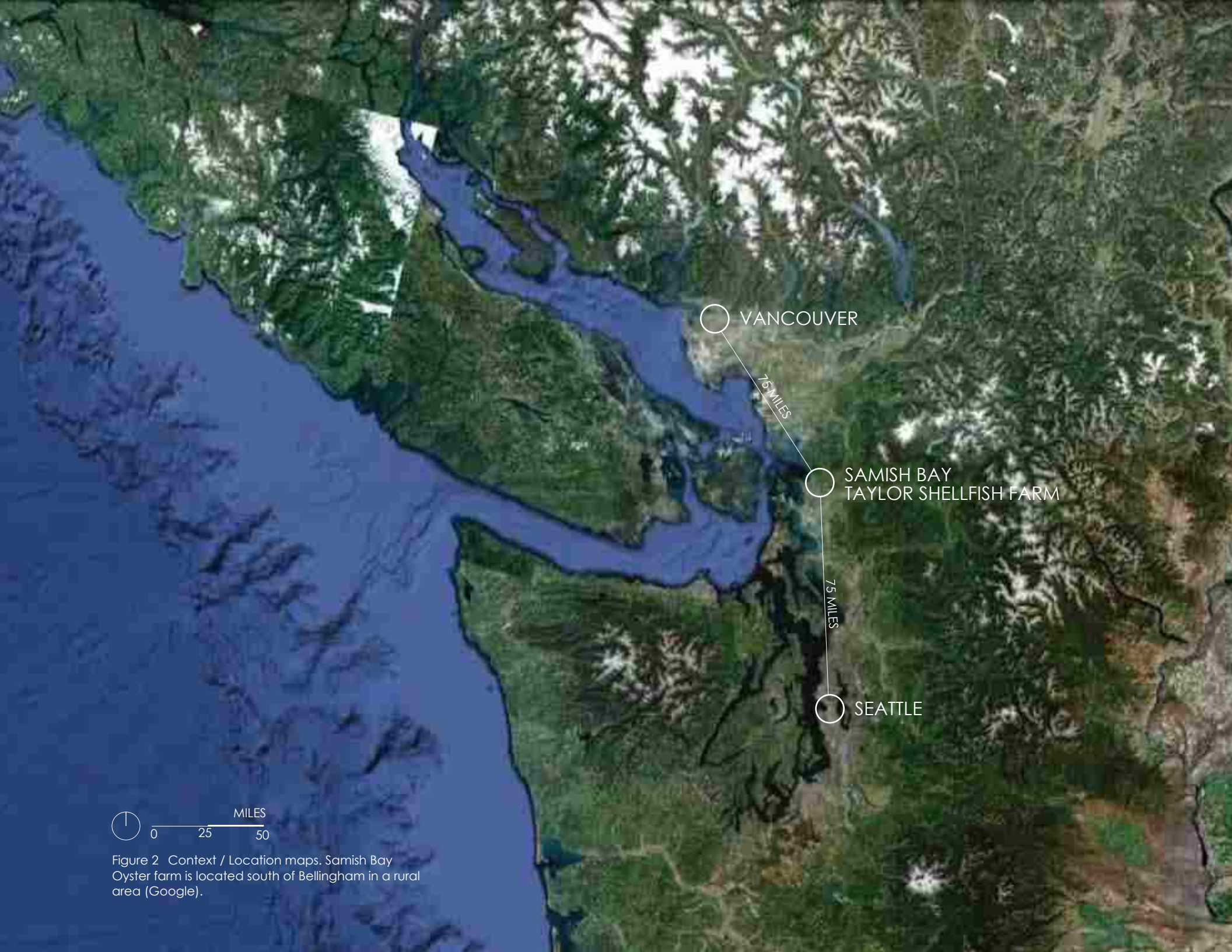


Figure 2 Context / Location maps. Samish Bay Oyster farm is located south of Bellingham in a rural area (Google).


SAMISH BAY TAYLOR SHELLFISH FARM
MILES
0
0.5
1


FEET
0
250
500

Figure 3 Pre-1800s Plan and section

PRE 1800S

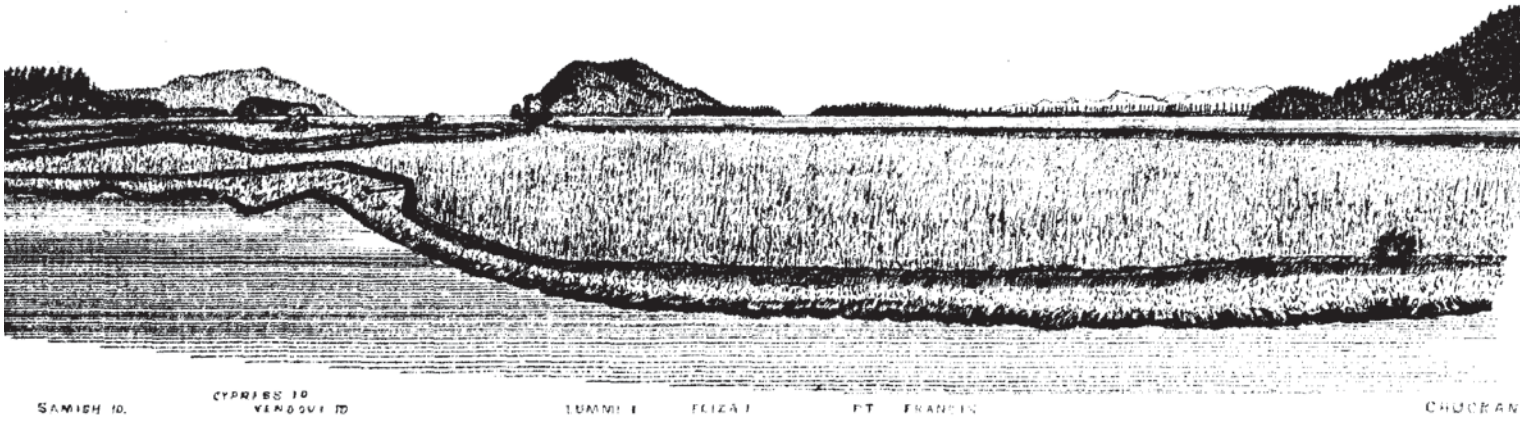
About 50 million years ago, the entire region from southern Canada to Everett, Washington was a giant swampy flood plain and river system. Layers of sediment, predominately fine-to-medium grained arkosic sandstones, accreted and through a process of compacting, cementing, and hardening or lithification. Samish Bay was carved by the advance and retreat of continental glaciers. The mudflats were created by wave action on alluvial deposits creating a combination of clays, silts, and sands. The topographic gradient is slight, changing only about one foot per mile with water depths reaching an average of five to six feet (Stelling 2007). The shore was lined with short, shallow beaches that supported salt marshes. Salt marshes develop in coastal areas sheltered from the ocean's surf in the lower intertidal fringes of coastal rivers primarily in sand and mudflats. Salt marshes act as a transition zone between estuarine and upland ecosystems serving as an essential habitat to a wide range of species. "Tides are the life blood of these unique habitats (Oregon's Salt Marshes 2010). Salt marshes also help stabilize coastlines because the plant roots anchor the otherwise highly erodible soil ("Salt Marsh Decline Due to Nutrient Levels" 2012). The Samish River is the largest single tributary to Samish Bay, contributing 83 percent of the total freshwater discharge to the bay. The 25 miles river drains nearly 140 square miles of land (Stelling 2007). At the north of the site, Pigeon Point of the Chuckanut Mountains pushes out into the mudflats of Samish Bay. The mountains dropped steeply to a tidal wetland fed by Oyster Creek, quickly giving way to an expanse of mud tidal flats that were intermittently covered with shallow waters. The estuarine conditions created ideal conditions for wildlife, particularly salmon and oysters, which were likely harvested by Native Americans living in the area including, but not limited to those who now identify with the Lummi Nation, Swinomish, and Upper Skagit Tribe (Ruby 1986). Although I have used currently accepted tribal designations, some would consider them to be vast oversimplifications, or even largely artificial constructs, made for the sake of convenience by the early white settlers and perpetuated ever since.

Stelling, P. L., & Tucker, D. S. (2007). Floods, faults, and fire: Geological field trips in Washington State and southwest British Columbia. Boulder, Colo: Geological Society of America.

"Oregon's Salt Marshes". (2010). South Slough National Estuarine Research Reserve. [www.oregon.gov/dsl].

"Salt Marsh Decline Due to Nutrient Levels". (October 2012). Marine Biological Laboratory at Woods Hole.

Ruby, R. H., & Brown, J. A. (1986). A guide to the Indian tribes of the Pacific Northwest. Norman: University of Oklahoma Press.



OUTLOOK FROM THE TOWN OF EDISON UP BELLINGHAM BAY.

Edison Slough in the foreground. Distant Mountains are in British Columbia.

Figure 4 Tribal map

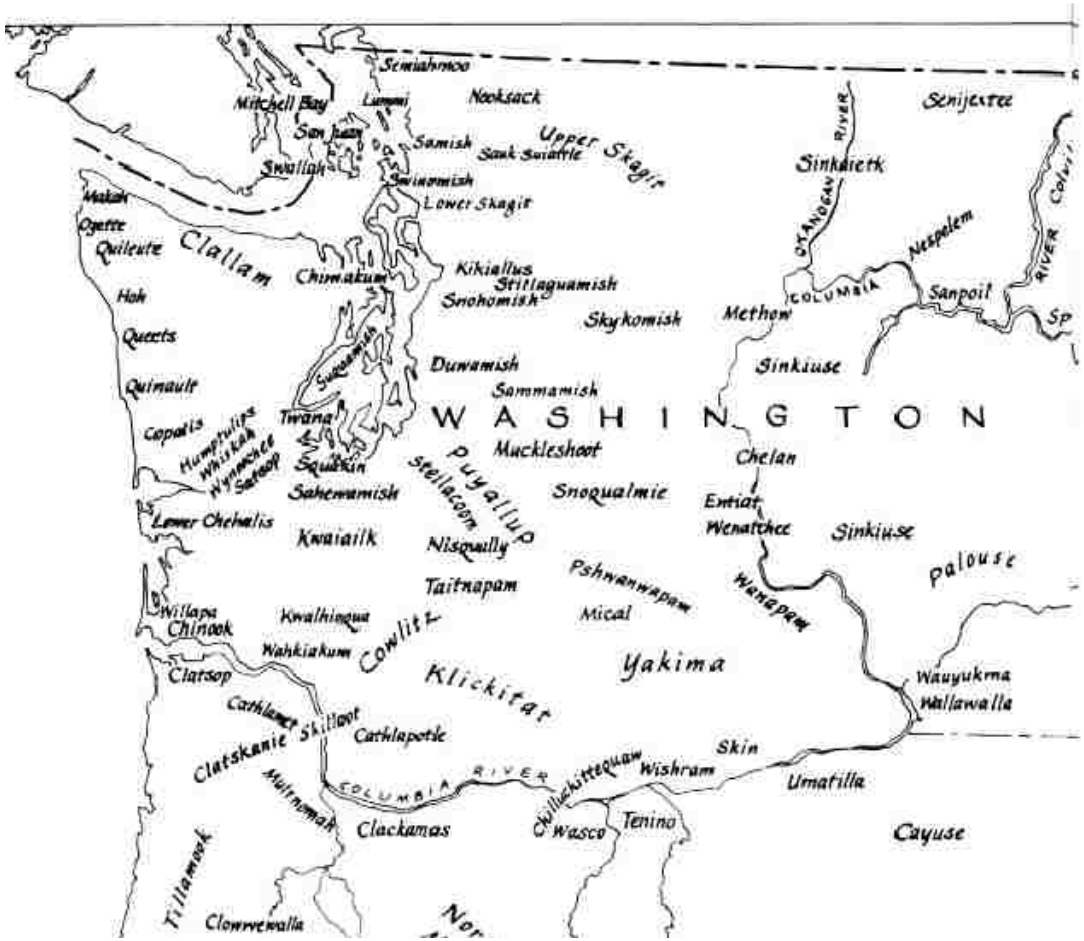


Figure 5 1800-1900 Plan and section (Author).

Figure 6 Raking mudf ats with skows in background (UW Special Collections).

1800-1900

The Great Northern Railway bought the right of way in 1892 and it was officially discontinued. Since the 1860s there had been a road between Fairhaven (Bellingham) and Blanchard (three miles northeast of Edison). It was unpaved, and portions along the shore were often submerged during high tide (Dougherty 2011). An official road linked the rural agricultural and logging towns of the area to Bellingham in the north. The route ran along the shoreline, with some sections inaccessible during high tide. An 1887 geodetic survey of the Pacific Coast Captain J.J. Gilbert describes Samish Bay in detail, noting the existence of oyster beds occurring naturally at the base of the Chuckanut Mountains, "the shoreline .. to within ½ mile of McElroy Slough is rocky, and the ledges of rock, bare and precipitous appears here and there rare fragments all over the hills. It is sandstone, much of it mixed with gravel and pebble stones. The only ravine is an Oyster Creek, a fine stream of water. There are some Oyster beds off the mouth of the creek." He writes on describing the bay, and the nearest town, "The only settlement as fancy to be called a town or village is Edison, on the slough of the same name, it is four or five years old has two hotels, two or three stores and eight or ten dwellings. It is the post office, and trade center for the surrounding community" (Gilbert 1887). The oysters at that time were likely Olympia oysters, which were native to the area and grew extensively from Canada down through California (Steele 1964).

Dougherty, P. "Chuckanut Drive". HistoryLink.org. June 20, 2011.

Gilbert, J.J. (1887). U.S. Coast and Geodetic Survey. Skagit County.

Steele, E.N. (1964). The Immigrant Oyster. Pacific Coast Growers Association / Washington SEA Grant.

Figure 7 Logging railroad in Skagit County (UW Special Collections).

Figure 8 Loading oysters onto skows (Dewey).

Figure 9 Digging ditches for oyster mudf ats (Dewey).

Figure 10 1800-1900 Plan and section (Author).

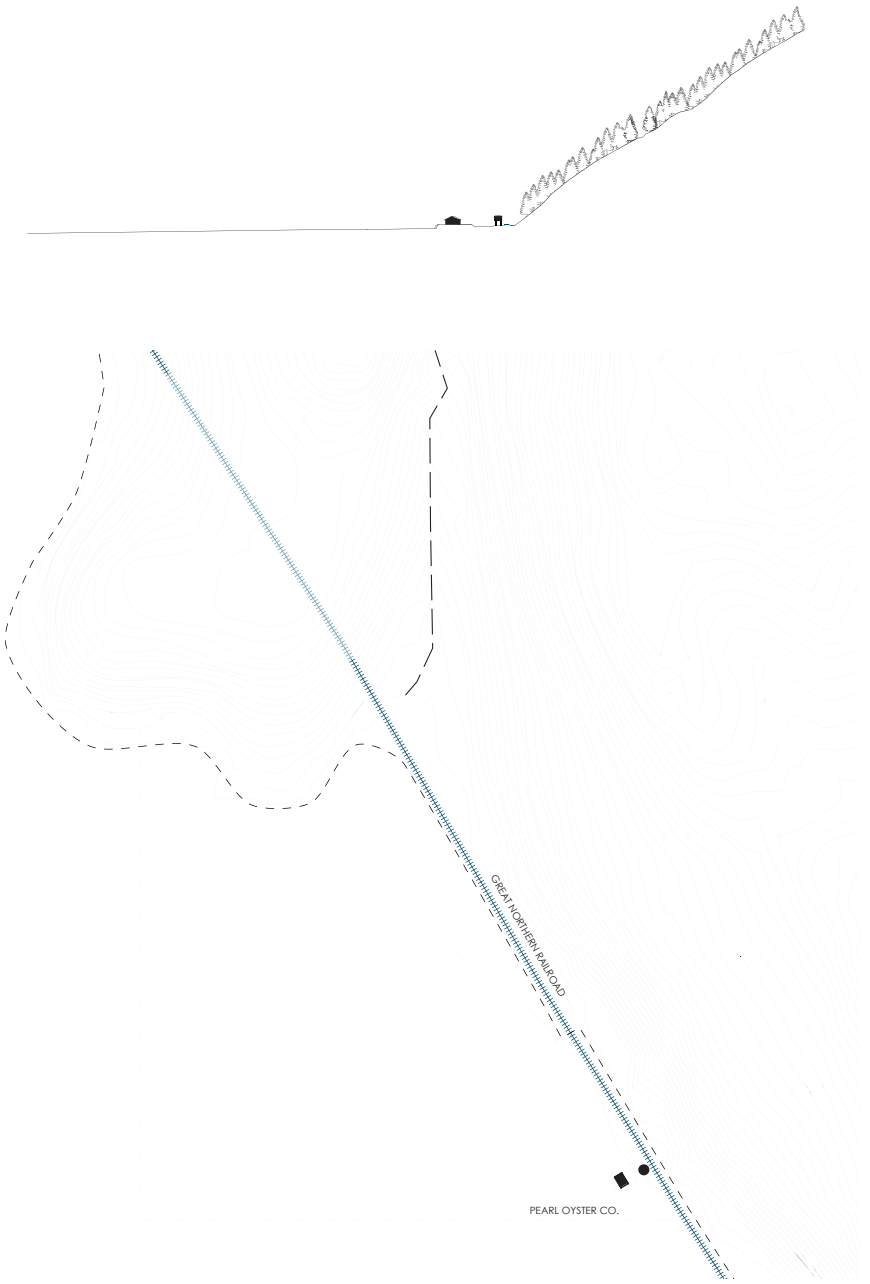


Figure 11 Preparing shells on long lines for oyster cultch

1900-1910

In 1890 the Great Northern Railway constructed a railroad to transport timber from the flourishing logging industry. This included blasting a tunnel through the Chuckanut Mountain to the north.A water tower was constructed alongside the rail-line for the locomotive steam engines (Great Northern Railway Historical Society). A small cabin, was constructed on the rocky outcrop near Oyster Creek. The property delineation indicates that the impetus for siting the building was easy access to the mudflats where oysters could be easily harvested for sale. This modification to the shoreline effectively reduced net shore-drift input from the bluffs which dramatically changed the ecosystem dynamics at the site. The short, shallow beaches that provided a small elevation gain had allowed for the salt marshes to maintain their foothold. These beaches, now became "sediment starved." The beaches also become more coarse-grained as sand and fines were transported away slowly converting the shore to a gravel beach which does not provide the same quality of habitat as a finer grain beach (Johannessen 2006). The salt marshes began to decline, with lack of sediment, although unknown at the time, salt marshes maintain or improve water quality and furnish abundant food to countless organisms, supporting commercial and recreational fisheries, particularly the oyster industry (Oregon's Salt Marshes 2010). Most likely the oysters harvested here were sold under by Pearl Oyster Co. In 1896 an unpaved road was built to replace the original road for the logging industry. In 1905 the Washington State Legislature allocated funds for an improved road to run from Bellingham to Bow, but funding ran out after only a few miles were completed. Two wealthy Bellingham residents Charles X. Larrabee and Cyrus Gates stepped in to create a scenic drive along Samish and Chuckanut bays.In 1910 convicts were used to begin construction of the road with funding from the state. Barracks were constructed to house them and they were watched by armed guards. The convict labor constructed five miles of the roadway, but the process was too complicated for them to complete as the work included blasting of cliffs (Dougherty 2011).

Great Northern Railway Historical Society. http://www.gnrhs.org/. Retreived January 12, 2013.

Johannessen, J. and M. Chase. (2006). Whatcom County Feeder Bluff Mapping and Drift Cell Ranking Analysis. Whatcom County Planning & Development Services.

(UW Special Collections).

Figure 12 Building on rock outcrop was the first experimental oyster hatchery in Washington (UW Special Collections).

Figure 13 First structure built on site at rock outcrop (UW Special Collections).

1900-1910

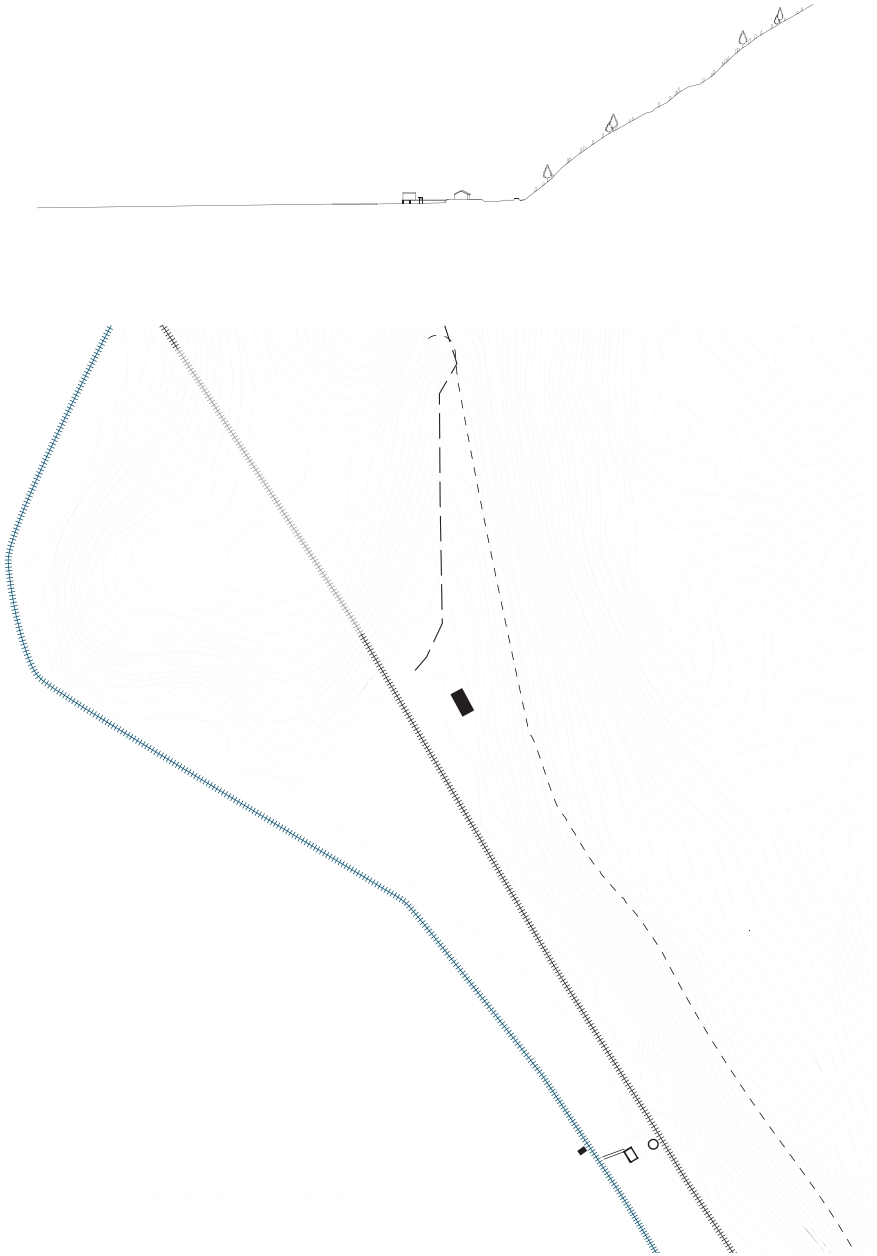


Figure 14 1910s Plan and section (Author).

1910S

In 1910 Pearl Oyster Co. began to struggle with the same challenges of overharvesting that were rampant throughout the U.S. Attempts to seed both European and Japanese oysters ended in failure and the industry was in peril. In 1915 eight Japanese partners purchased six hundred acres of oyster land from now bankrupt Pearl Oyster Co. changing the name to Samish Bay Oyster Company. They imported four hundred cases of oyster seed from Japan and began to methodically experiment with seeding oysters (Fry 2011).

In 1911, the Interurban Railway began construction linking Mount Vernon to Bellingham, expanding the existing network from Seattle. With the land along the shore already taken by the Great Northern Railyway, forcing the line to be located in the shallow bay using trestles. 5,000 cedar piles were barged in during high tide to support the four miles of track. This trestle became the source of the company's slogan; "the trolley that went to the sea" (Wing 1986). In 1912 the Interurban freight and passenger service began service between Bellingham and Mount Vernon. The all-steel cars built by The Northwest Traction Company had hourly service, carried up to seventy-five passengers, and reached speeds of up to sixty-five miles an hour. The train was electric and there were twenty stops between Bellingham and Mount Vernon (Koert 2003).

A wooden bridge connected the rock outcrop to the Interurban Railway trestles. Alongside this bridgeway a small processing building was constructed that was convenient for mooring oyster collection skows. The informal logging roads connecting Bellingham south to Seattle was formalized as Chuckanut Drive and given funding for paving as a scenic roadway.

In 1910 convict barracks were built to pave, but this failed and the professionals were hired to blast the bluffs for the road. Still incomplete, Chuckanut Drive was designated part of the Pacific Highway in 1913. Still incomplete, in 1913 the road was designated part of the Pacific Highway, and with further funding the road was eventually finished in 1916 By the time it opened, renamed Chuckanut Drive. It was instantly popular as it was advertised in Seattle newspapers and motor tourism was a common recreation. Paving and widening to meet the demand began in 1919 and by 1921 it was mostly complete, with the exception of a two-mile stretch between Oyster Creek and Blanchard, paved in 1930. Chuckanut Drive was also popular for smugglers bringing both narcotics and liquor from Canada into the U.S. during the Prohibition. A 1922 Seattle

Fry, K. (2011). Farming the Water: Japanese Oyster Laborers in Washington State and the Creation of a Trans-Pacific Industry. Doctoral Research for Washington State University.

Wing, W. W. (1988). To Seattle by trolley: The story of the Seattle-Everett Interurban and the trolley that went to sea. Edmonds, Wash: Pacific Fast Mail.

Figure 15 Convict stockade at Oyster Creek seen from above railroad tunnel. Convict labor was used to help build Chuckanut Drive (Blanchard Historic Society).

Figure 16 The Great Northern Railway was built to transport timber to Bellingham (Whatcom Museum).

Times article, describing a cocaine bust in Seattle, detailed the drugs transported from Vancouver "along Chuckanut Drive, the liquor runners' road" (Chuckanut Road). Capitalizing on the popularity of this route in the 1920s, and the ample oyster beds, E. N. Steele and J. C. Barnes started the Rockpoint Oyster Company (Wing 1988).

Figure 17 View of Interurban railroad from Chuckanut Drive connecting with Pigeon Piont. Cabin and water tower at present location of Taylor Shellf sh farm at Oyster Creek (Blanchard Historical Society).

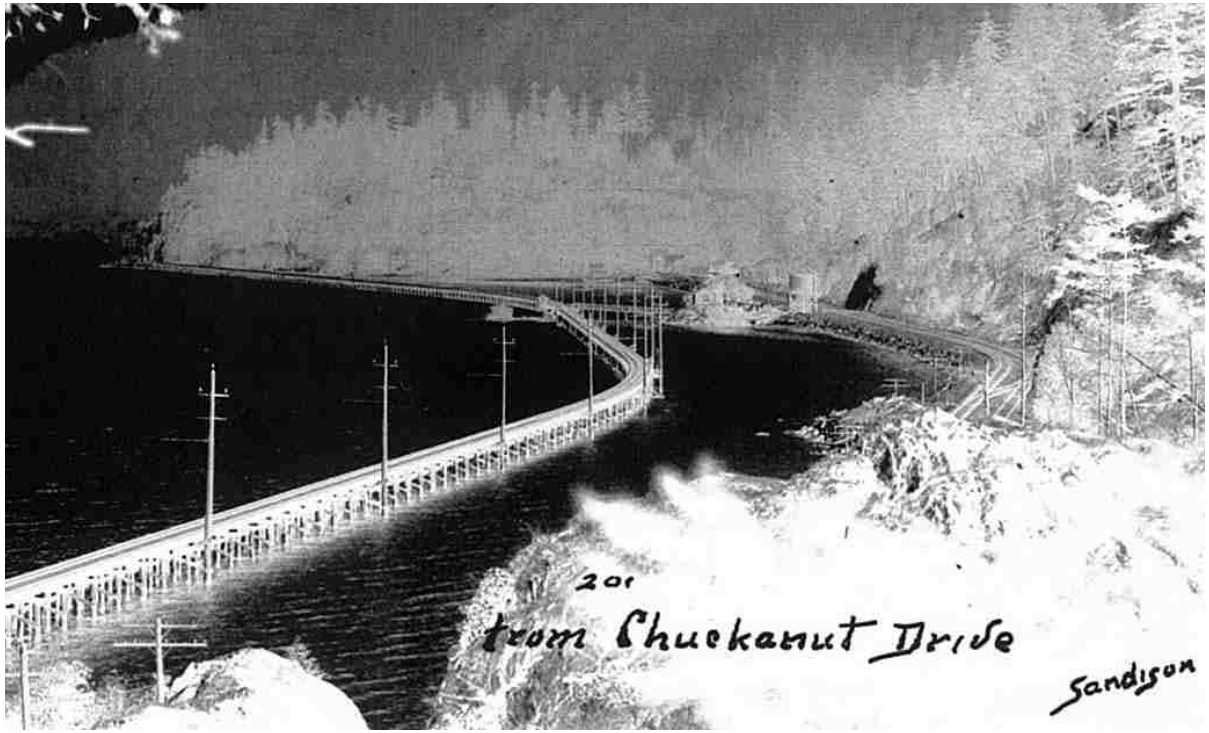


Figure 18 Interurban, Oyster Creek, Pigion Point, Great Northern RR. Note the water tower along side of the Rail Road tracks for the use of steam locomotives (Blanchard Historical Society / Sandison).

"Chuckanut Road". (2012). Online History of Washington State. HistoryLink File #9855. <www.historylink.org>.

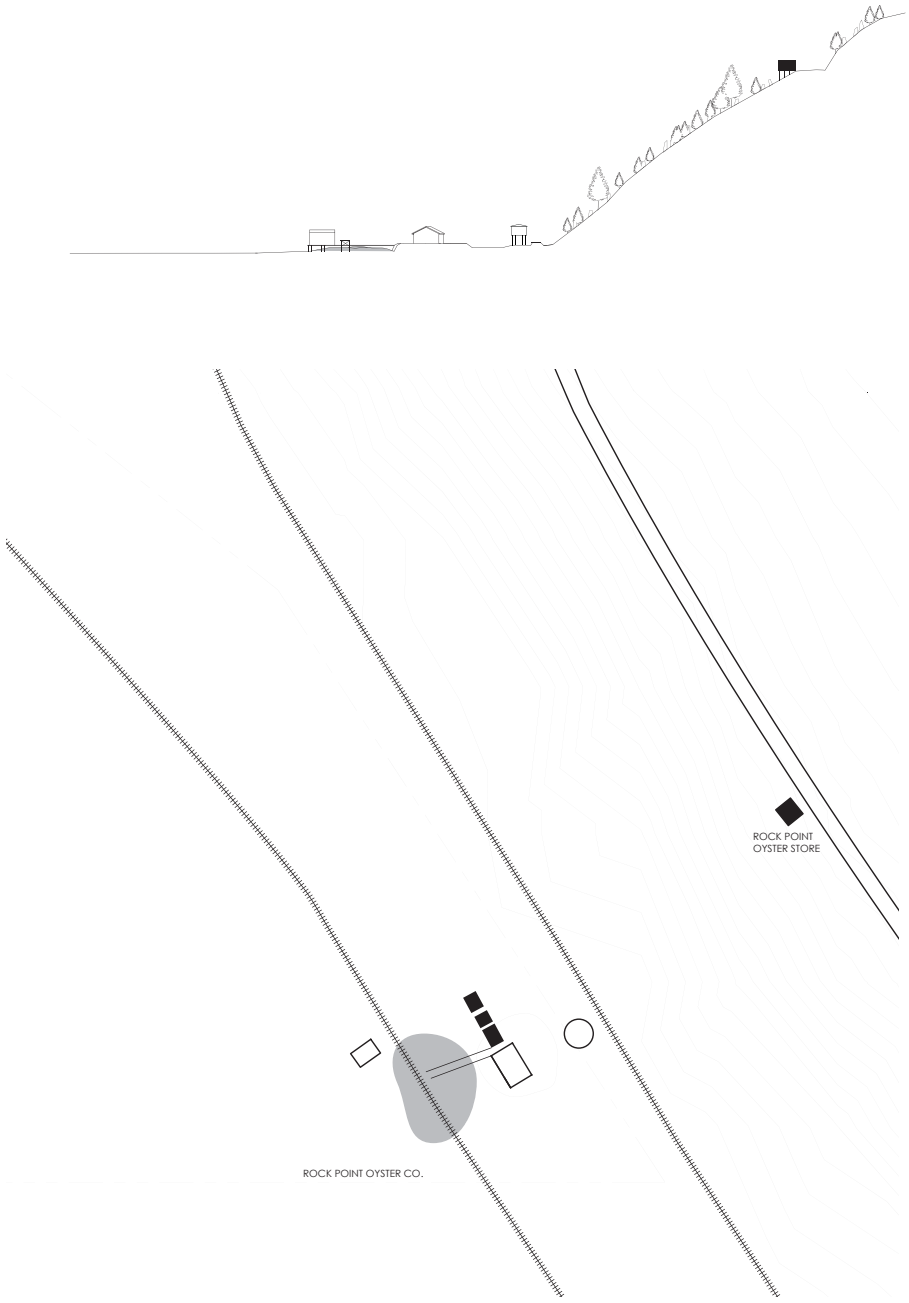


Figure 19 1920s-1930s Plan and section (Author).

1920S & 1930S

Tsukimoto and MIyagi developed a method for seeding Japanese oysters and in the 1920s, the Japanese oyster appeared to be the answer to Washingtons oyster growers' economic woes. Despite this significant achievement, they faced considerable difficulty in continuing to operate as independent oyster producers in the U.S. due to growing anti-Japanese sentiment and legislative action.

EN Steele and JC Barnes bought the company in 1923 and renamed it Rockpoint Oyster Company (Fry 2011). Chuckanut Drive paved in most areas by 1921, this stretch was not completed until 1930. This created high demand and some slow traffic through the area (Dougherty 2011). To capitalize on the success of the farm and the touring traffic along the well advertised scenic roadway, they opened an oyster store run by their farm manager Zenzabaro Maekawa (Oyster Bar 2012). In the shucking process oyster shells were carted by wheelbarrow and dumped in the shallow bay surrounding the rock outcrop, slowly accreting to create new 'land' (B. Dewey, N. Hopper, I. Fadden, personal communication, 2013). Buildings were added to house workers and expand processing, and these were built mostly on piers. In the 1930s they constructed a shack along Chuckanut Drive that served as a storefront to sell oysters (Oyster Bar 2012). The store was run by the Maekawa family, who eventually purchased the store, and it was successful with travelers along the road. During World War II the Maekawa family was interned leaving the restaurant empty from 1942-1946. Otto Amos bought the restaurant in 1946 and renamed it the Oyster Bar (Oyster Bar 2012).

"Oyster Bar". (2012). www.oysterbar.com.

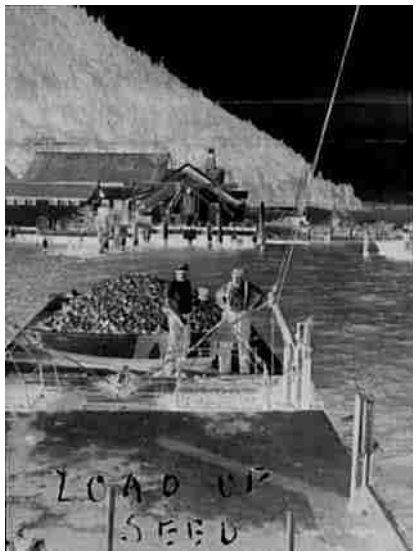


Figure 20 Dick Steele owner of Rock Point Oyster Company with load of oyster seed (Blanchard HIstorical Society).

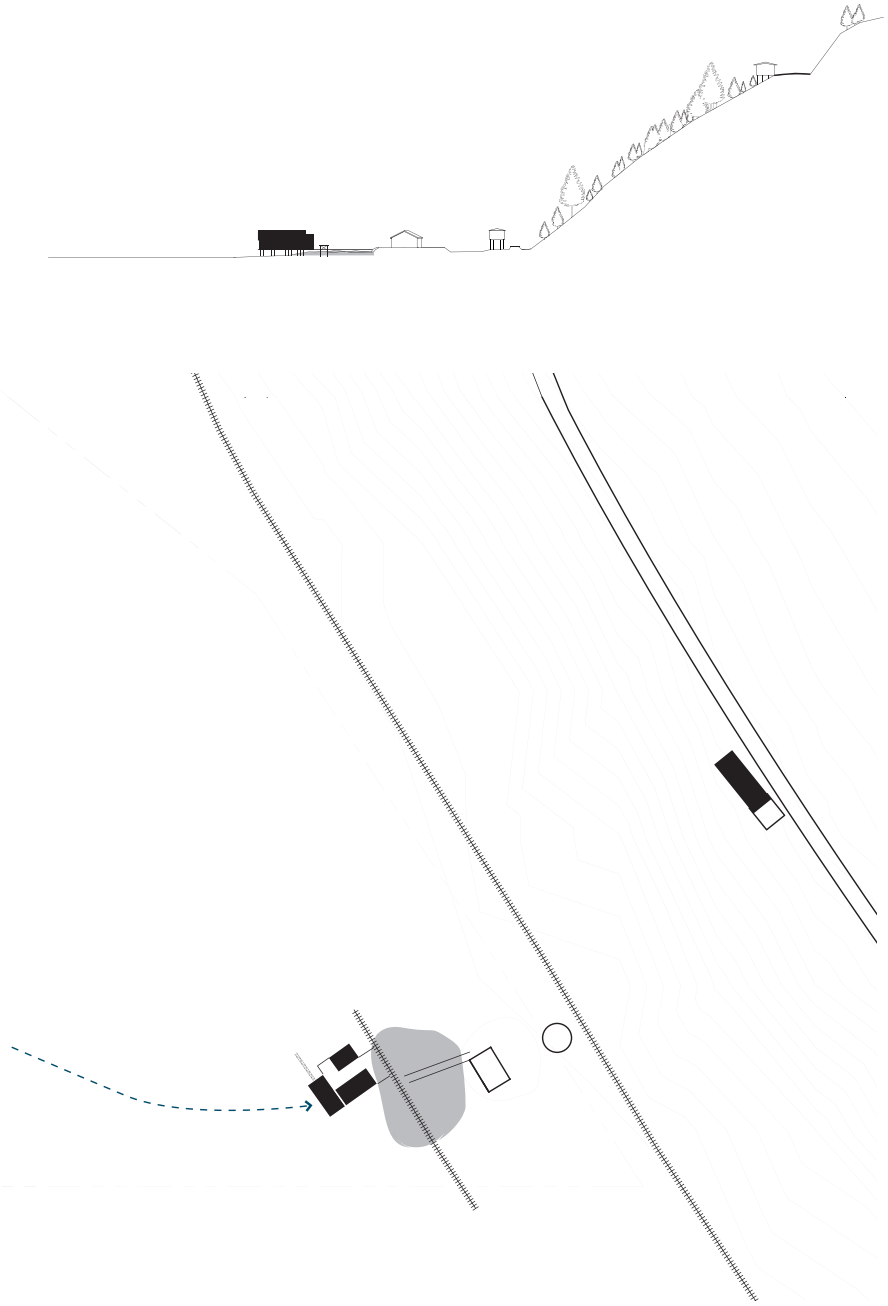


Figure 21 1940s Plan and section (Author).

1940S

Chuckanut was widened with increased investment in the automobile, meanwhile the interurban rail service to Seattle was terminated. The raised railway was left partially intact at the site (Chuckanut Road). The success of oyster production led to expanded need for space for processing oysters, expanding the number of structures built on piers alongside the remains of the interurban railway. The structure currently used for processing, located at the western edge of the grouping of buildings, was purchased from a fish processing plant on Eliza Island. It was deconstructed and hauled on barges to its current location where it was reassembled for use (B. Dewey, personal communication, 2013). Oysters were loaded by a crane on the westernmost building into a sorting and shucking areas. Shucked oysters were passed through to the connecting building to the east via a window where they were cleaned and canned for sale. A small storefront and office were at the very east of the cleaning and canning area (B. Dewey, N. Hopper, I. Fadden, personal communication, 2013). The process produced even greater quantities of midden, continuing to build land around the piers where shells were carried via wheelbarrow and dumped in to the mudflats. A number of the structures constructed alongside the rock outcrop were moved (likely they were housing for workers) to the area where the barracks once stood. The Maekawa family expanded the oyster store to a lunch counter, eventually making it a full restaurant. In 1942 the Maekawa family was interned and the restaurant was empty until 1946 when it was purchased by Otto Amos (Fry 2011).

Figure 22 Aerial view of oyster farm with oyster shell midden pile (Steele).

Figure 23 Rock Point Oyster Company looking Easterly from bay (Blanchard Historical Society).

Figure 24 Processing oysters at Rock Piont Oyster Company (Blanchard Historical Society).

Figure 25 Clara Anne dredging in Samish Bay (Steele).

Figure 26 Bonnie Jean and Clara Ann loading oysters (Steele).

Figure 27 Rock Point Grading Room (Steele).

Figure 28 Shucking oysters (Whatcom Museum).

Figure 29 Canning oysters (Whatcom Museum).

Figure 30 O.L. Amos, Rock Point Manager (Steele).

Figure 31 Rock Point Plant looking West from Oyster Bar (Steele).

Figure 32 Rock Point shucking crew (Steele).

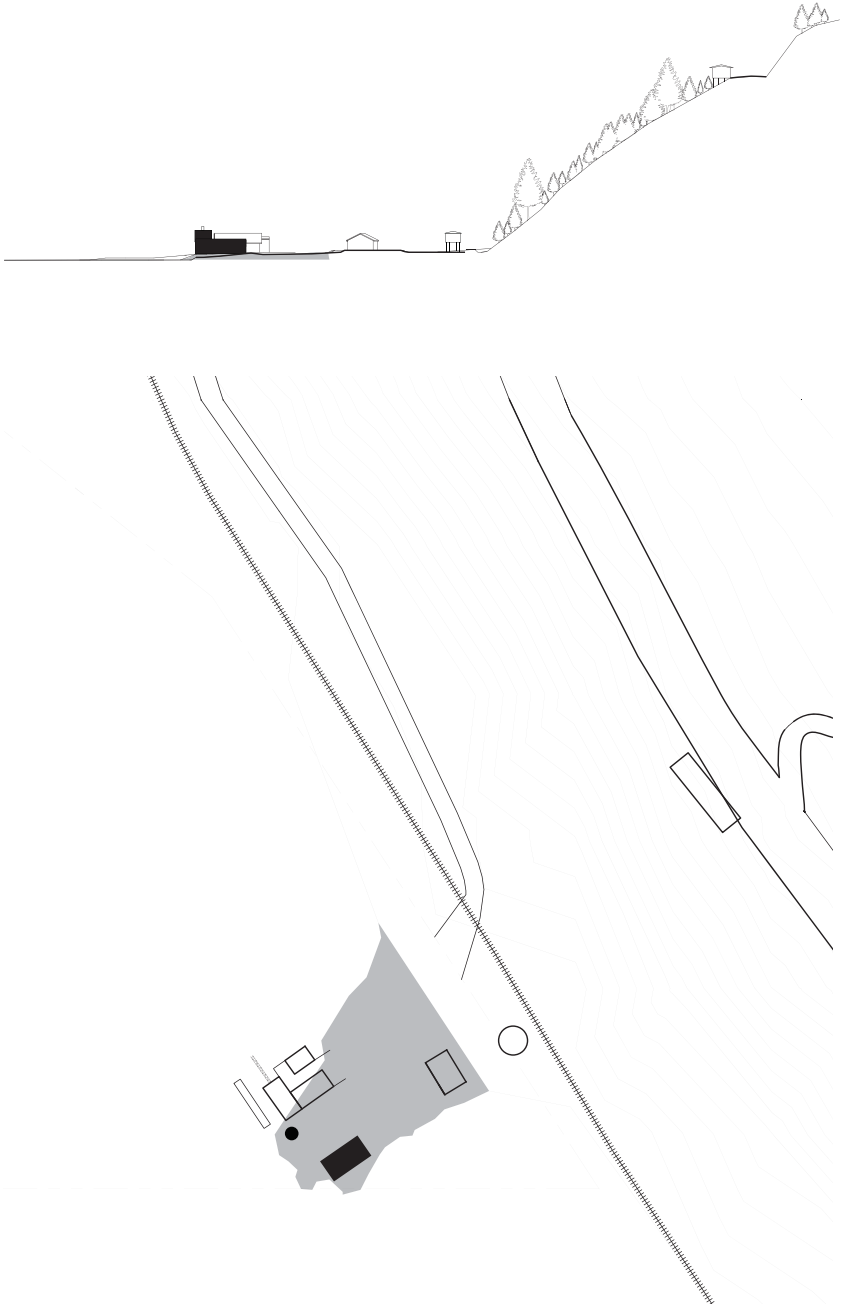


Figure 33 1950s-1960s Plan and section (Author).

1950S & 1960S

During this timeperiod the midden pile was paved to support increased auto traffic and larger equipment and machinery (Steele 1964). Larger trucks were now used to transport the oysters from the processing areas. Additional structures were built for storage. A silo tower was erected outside the processing buildings to provide water for the processing. Floating, moveable docks were moored to piers to facilitate the use of two oyster boats that replaced the skows previously used (B. Dewey, N. Hopper, I. Fadden, personal communication, 2013). The remaining portions of the now defunct interurban railway were removed (Wing 1988).

Figure 34 Crew of Rock Point Oyster company aboard oyster scow (Blanchard Historical Society).

Figure 35 Marshall Hinton, a partner in the Rock Point Oyster Company, hand seals glass containers f lled With oysters for retail sale (Steele).

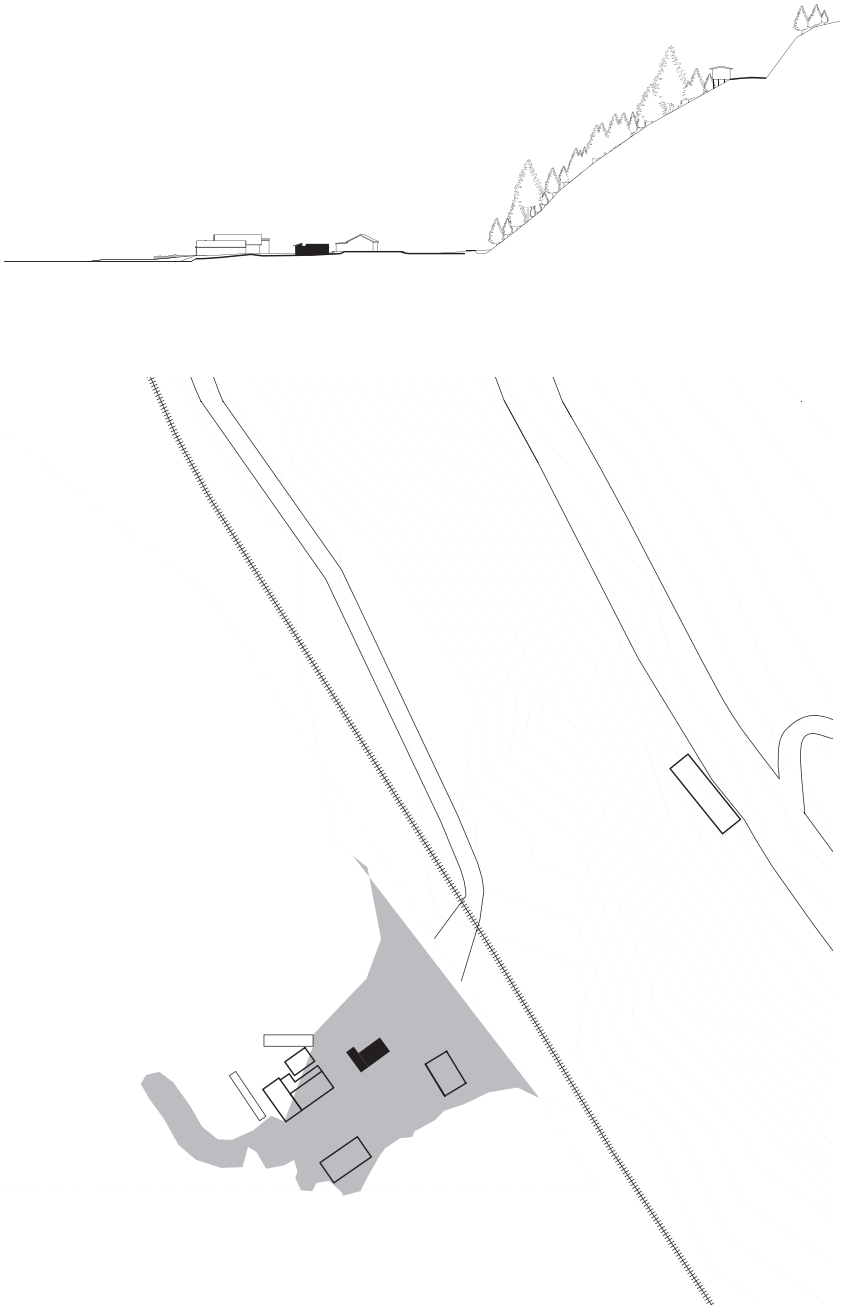


Figure 36 1970-2000 Plan and section (Author).

1970 - 2000

Taylor Shellfish purchased the farm, shifting most processing to an alternate location, with the Samish location primarily serving as a farm (Taylor Shellfish 2012). Retail operations continued to expand. With increased regulations on employees and consumers the buildings were expanded to provide break areas for workers, more formalized restroom facilities, and additional refrigeration equipment. Careful scrutiny of oyster quality and production linked farm profitibility to environmental health, and water pollution became a primary concern. The Skagit River Valley saw increasing populations as well as intensified argricultural production. About 75 percent of the lower Samish basin is used for agriculture, including dairies, heifer and beef cattle operations, crop farms, and noncommercial farms with the lower mainstem Samish River receiving direct runoff and drainage from agricultural ditches. This lead to Samish Bay being eutrophic as direct result of Skagit River inputs (Samish Bay Watershed Fecal Coliform Bacteria Total Maximum Daily Load 2009).

Over time the original structure that had provided worker housing since the 1900s was shifted to office space. A jetty was constructed to protect moored boats and equipment. The crane equipment was removed, replaced by the use of conveyor belts. Both water towers, now unused were removed (B. Dewey, N. Hopper, I. Fadden, personal communication, 2013).

Figure 37 Water silo and storage sheds at site (Whatcom Museum).

Taylor Shellfish. (2012). <www.TaylorShellfish.com>.

“Samish Bay”. (2004). Washington State Dept. Ecology.

1970 - 2000

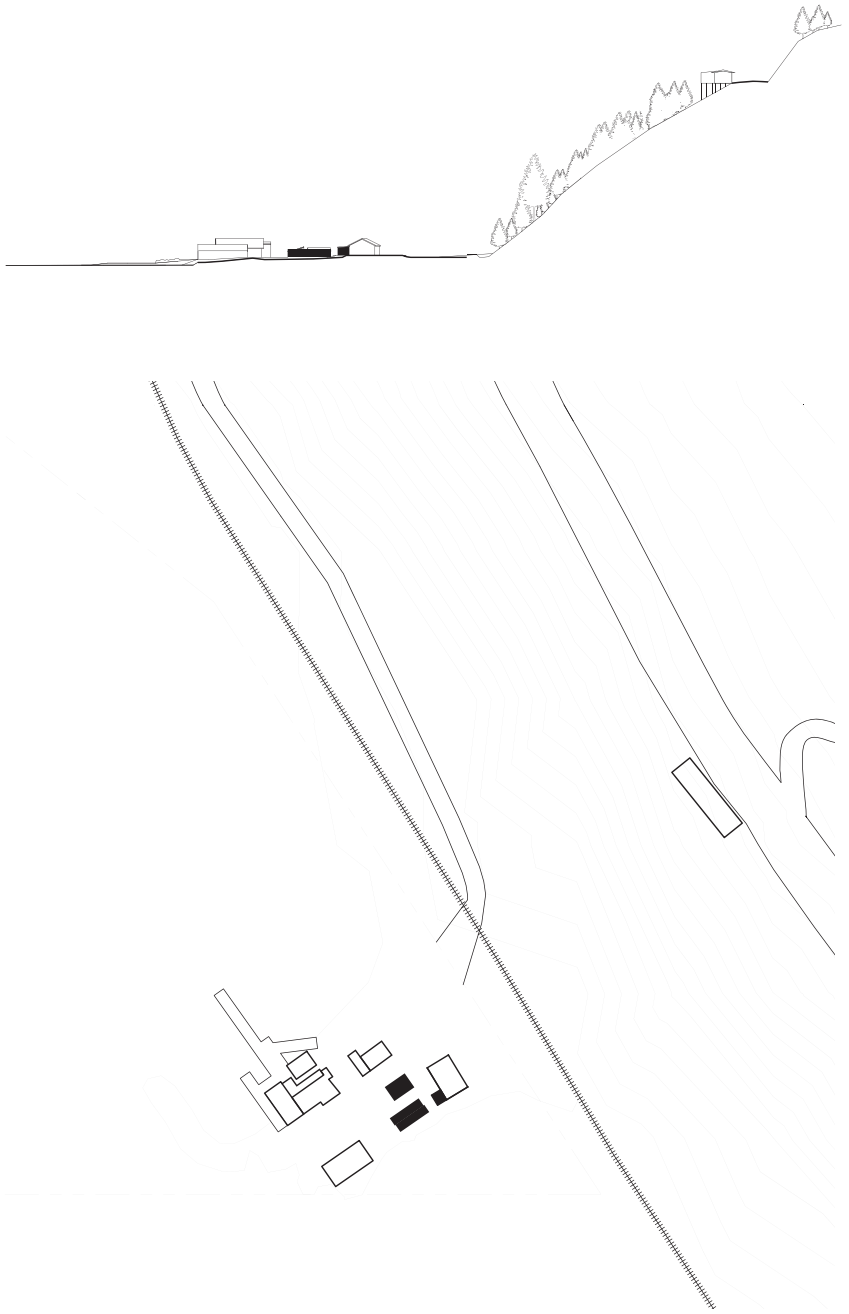


Figure 38 2000-Current Plan and section (Author).

2000 - CURRENT

Retail to individual customers and tourists became a focus with picnic tables and barbecue grills, a covered deck and art that commemorated popular community events that promote oysters. The store entry was moved in order to make space for a stair entry the attic and to put in a second ice machine. Wet storage needs also expanded with cargo containers used instead of permanant structures. The office area was expanded and began to serve additionally as a space for community education work about the farm and local environmental issues that impact its success, particularly water quality (B. Dewey, N. Hopper, I. Fadden, personal communication, 2013). The Samish Bay aquaculture industry currently maintains over forty full time employees directly at the shellfish farms adding $1.2 million to the annual payroll with many more seasonal employees with the Samish Bay farms are responsible for $3 million-plus annual sales of oysters and clams (Samish Watershed Initiative 2011). Samish Bay Farm is directly linked to a global commercial oyster market as well heavily impacted by both global and local environmental degradation.

Samish Watershed Initiative: A progress report. (2011). Washington State Senate Energy and Environment Committee Samish Update.

2000 - CURRENT

Figure 39 Existing current site panorama (Author).

2000 - CURRENT

Figure 40 Existing site conditions at westernmost edge of site viewing west towards mudf ats (Author).

Figure 41 Exsiting site conditions viewing west. from left to right: storage, existing retail and dock (Author).

Figure 42 Existing site conditions, view towards north, from left to right exterior customer spaces, processing, retail, restrooms, and workshop (Author).

Figure 43 Existing site conditions, view towards south, from left to right railway, parking, off ce, containers (Author).

05 PROCESS/DESIGN INTERVENTION

2000 - CURRENT

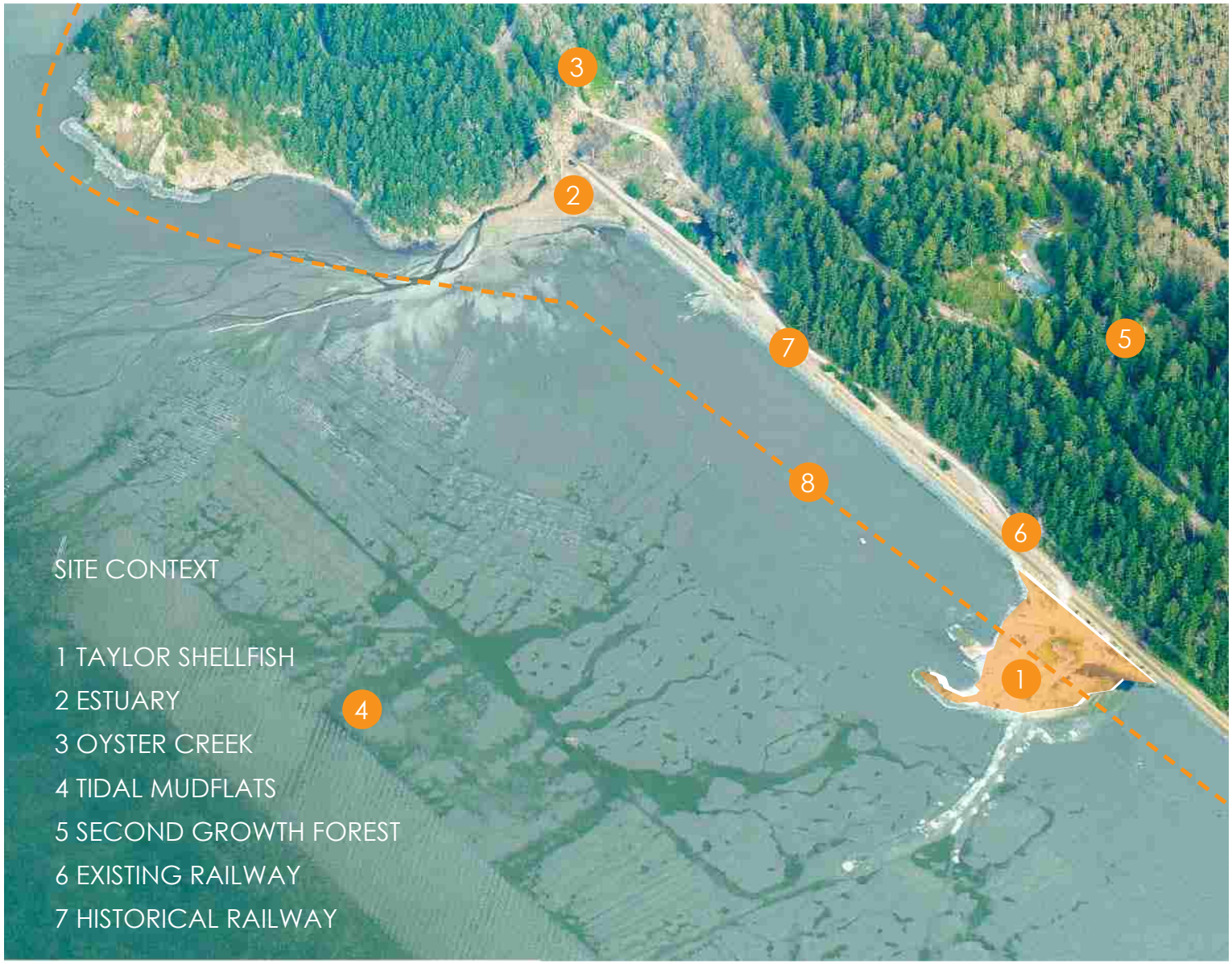


Figure 44 Site context and processes drive the preliminary design interventions (Author, base image Google Maps).

PROCESS / DESIGN INTERVENTION

An understanding of the site in context of its history, as well as its role in the global context provides a stage for a design intervention that intends to engage in theory of landscape and architecture as a shared lens. This framework is intended to draw on the unique qualities and divergences of the disciplines, as a format for creating a design that is dynamic in its ability to adapt and respond to current and future conditions with relevance and respect for existing site history.

In this project, the use of sytems or processes thinking has been selected as a (primarily) divergent quality of landscape architecture. Understanding processes can reveal locations and methods for design interventions intended to shift, alter, and break selected cycles. Landscape architecture theory is long recognized for a foundation that embraces change and dynamic behaviour of the environment. This celebration of the unforseen alongside the cyclical events is fundamental to landscape architecture pedagogy and practice. It is, in essence, inescapable in landscape architecture design (Corner 1999). These forces are also apparent in architecture, yet they are easier to mask, delay and repress through careful detailing and selection of materials. Within architecture theory, change is often linked to ideas of adaptive reuse and accomodation for changing programs, and change is perceived and presented in antrhopocentric terms. Human control remains at the core of these theories with ephemeral qualities of place framed as a perceived threat. “Transformation is working on a design project where the context is both more obvious and more demanding...In an architectural world that seems divided between the strict preservationists and the advocates of what is fashionably new, transformation is an essential middle ground that offers both continuity and change (Gisolfi 2008). The term transformation continues to maintain a program-focused approach to change, but Gisolfi begins to highlight a ‘gray’ area that reflects a more nuanced perception of change as a force that can induce a range of reponses that include designs that support new while retaining ingrained qualities and elements of old. The spatiality of time, embedded in the culture of landscape architecture, has potential architectural applications, particularly in addressing rapid changes in urban fabric (Marshall 2004).

The challenge described by theory that addresses both landscape and architecture in sum suggests a challenge to the standard reliance

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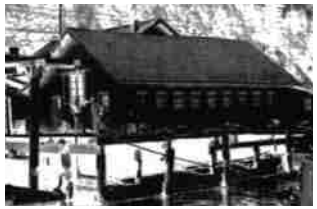
A

OFFICE

B

STORAGE & BREAK

C



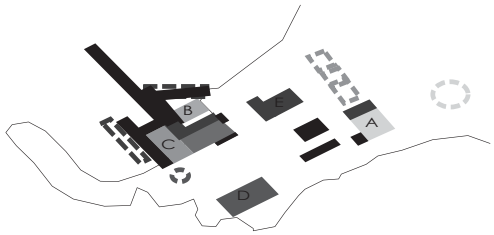
PROCESSING

D

STORAGE

E

Figure 45 A detailed site history and building inventory delineated which buildings to retain and select structures for replacement (Current images: Author / Historical Images UW Special Collections, Whatcom Museum, Dick Steele)



DATE OF CONSTRUCTION
- 2000-CURRENT
- 1970-2000
- 1950-1960s
- 1940s
- 1920-1930s
- 1910s
- 1900s

CONSTRUCTION METHOD
- WOOD FRAME LAP SIDING
- PRE-FAB / SHIPPING CONTAINER
- SHED / CORRUGATED METAL

BUILDING CONDITION
- AVERAGE
- BELOW AVERAGE
- POOR

on landscape as ephemeral and architectue as stable. In “How Buildings Learn: What Happens After They’re Built” architect Stuart Brand highlights the creative potential in the process of aging,“If you think about what a building actually does as it is used through time—how it matures, how it takes the knocks, how it develops, and you realize that beauty resides in that process—then you have a different kind of architecture. What would an aesthetic based on the inevitability of transience actually look like?”

The design insertions, some traditionally understood as landscape, others as architecture, are strategic in altering site processes utilizing a formal vocabulary that are related. Their alignments are based on flows of people, sediment, tides, and processing of oysters, creating arrangement that puts each element in dialogue with the broader context, manifest at human scale. Taking the form of lines that vary in width, permeability, and directions of flow: salt marsh, oyster reef, conrete wall, wood framed structure, each is responsive to process.

The particular pattern or process selected to interrupt or alter at the Samish Bay Oyster Farm is the introduction of conditions that will allow for the re-establishment of salt marsh ecologies in Samish Bay. Salt marsh creation through addressing sediment quality and retention was selected for intervention because of the potential beneficial impacts on oyster health for harvesting (program) as well as environmental health (habitat creation, water quality, decreased eutrophication). These are areas where architecture and landscape can not only shift current conditions, but also hold potential to create visual cues and spatial experiences that can bring to bear questions about sediment, littoral drift, and networked ecologies. The intent is to set in motion a new process, while using form to develop an “awareness of process” that involves not only the design process, but also the formative processes that went before - whether they be human driven (urbanization, resource consumption, adaptive reuse) or non-human (erosion, decay, photosynthesis). In short, “landscape architectonic design approaches the landscape as a space in time, as a space that is subject to natural cycles, and moreover that is in development” (Steenbergen 2003).

An oyster reef is proposed that would run parallel to the shoreline, tracing the route of the now removed historical Interurban railway. A permeable structure built from a formwork of cultch and concrete, then seeded with oyster, it would be constructed to set just below the height of the mean high high tide. This is the highest of the four daily tides in Samish

Bay, and would allow water to carry sediment over the permeable structure, where sand and fines from Skagit River would be captured as the tide recedes out to the mudflats. Serving as a pathway, the oyster reef structure would continue to the site where it would act as a thickened threshold between the structures retained on site and the proposed building.

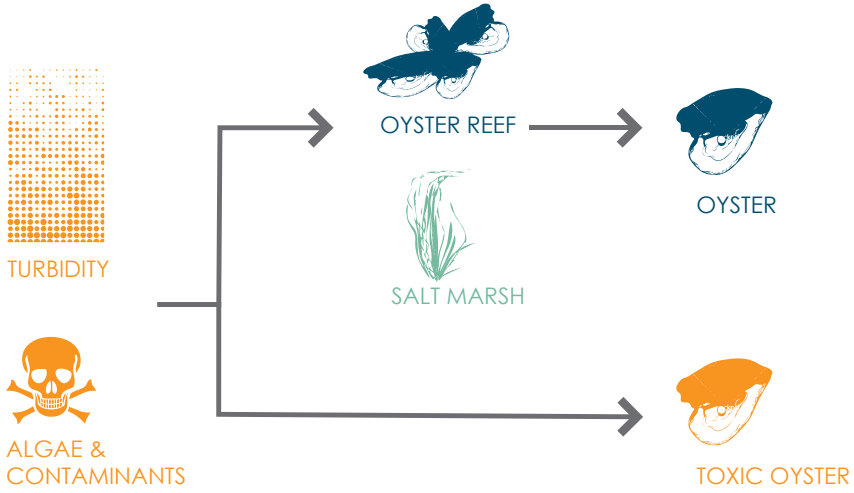


Figure 46 Pollutants negatively impact oyster harvest. Meanwhile, salt marshes directly support shellf sh farming through absorption of raw or treated sewage, seepage from septic systems, animal wastes, and fertilizers used in agriculture (Author).

Figure 47 Aquatic farm Samish Bay is directly linked to terrestrial farms in Skagit Valley due to river runoff contributing to water and sediment pollution that impact oyster health and causing High Algal Blooms (Author).

Figure 48 Terrestrial farm in Skagit Valley(Flickr Creative Commons)

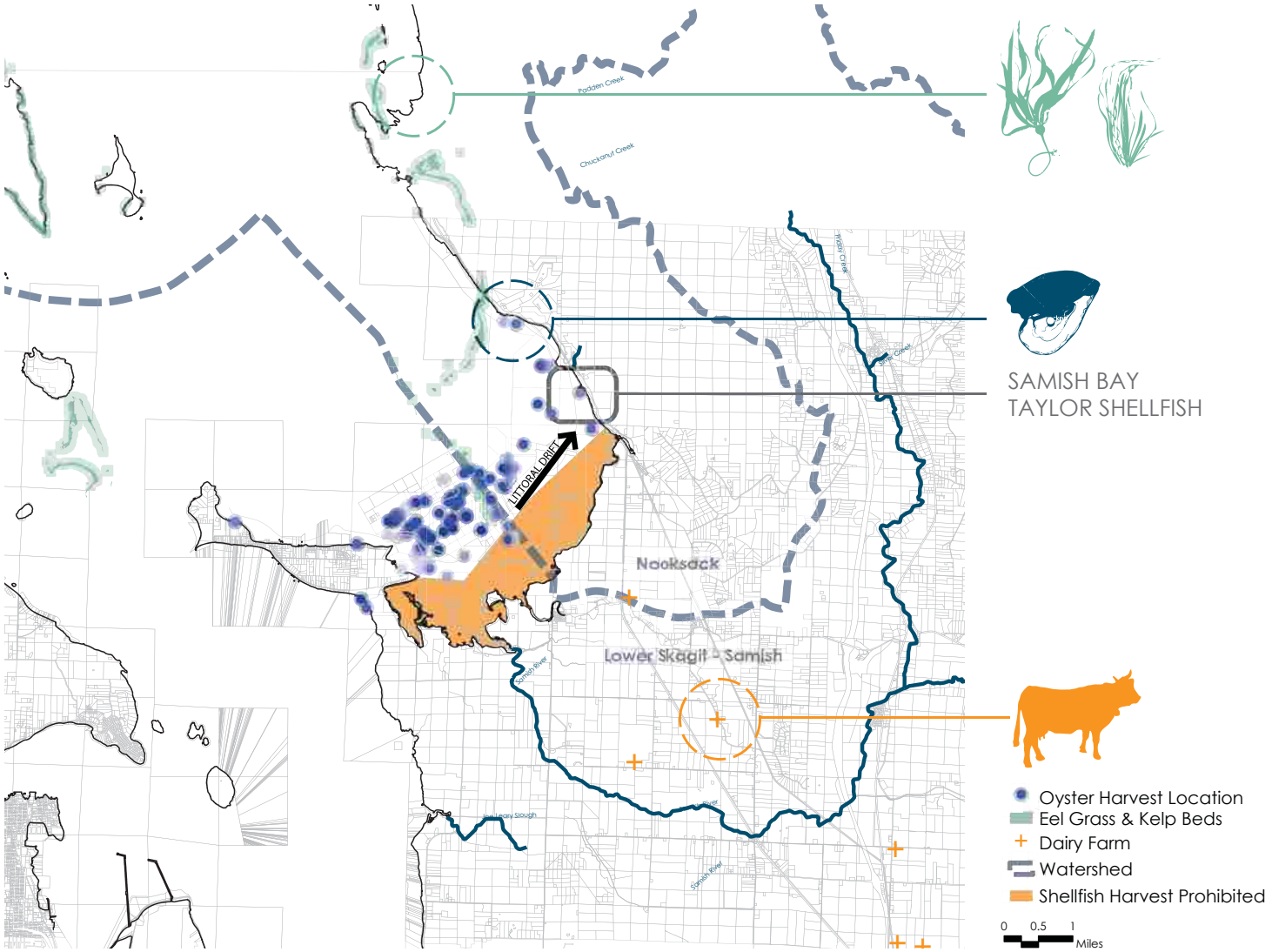


Figure 49 Map of dairy farms, rivers, oyster harvest sites, and polluted waters demonstrating the networked relationship between terrestrial farms and aquatic farms through water and sediment pollution (Author / GIS data UWAGDA & Whatcom County).

Figure 50 Oyster reef path allows for high high mean tide to carry sediment over and tide to recede through, trapping sediment intending to create conditions (shallow topography change) that allows for re-establishment of salt marsh ecologies (Author).

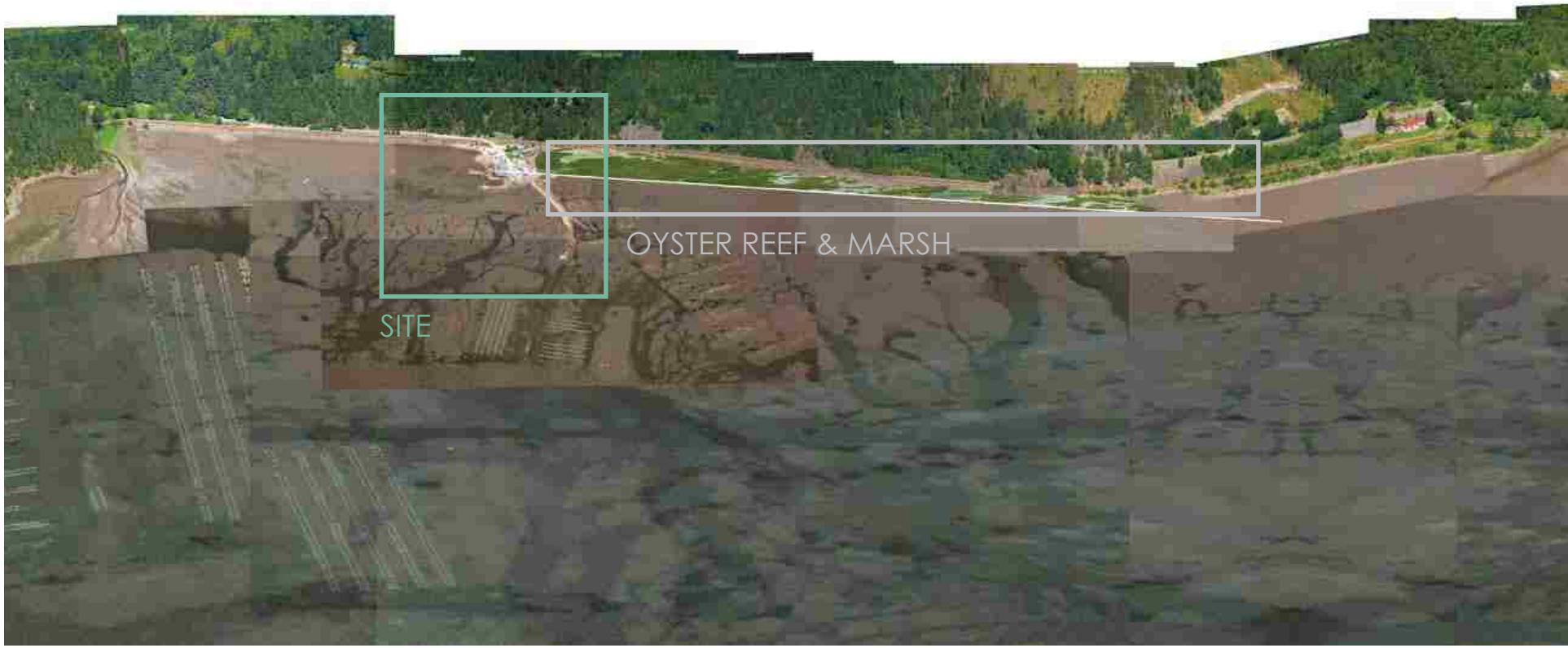


Figure 51 Oyster reef path follows route of historical Interurban Railway, creating conditions that allow for re-establishment of salt marshes along the shoreline (Author / Base photographs from Washington State Shoreline Survey)


POLLUTION & SEDIMENT SOURCE

Architecture can bring to bear distinct qualities and methods in regards to detailed, specific responses with simplicity and clarity of form. "A building in Milan will be different if it is to be used for offices rather than for dwelling - this is natural - but also if it is on one terrain rather than another, next to certain preexisting buildings rather than others. The synthetic characterization of the different technical elements unmistakably expresses an artist's style, nor can these elements fail to acknowledge in the very act of creation all those factors that are at play in the field of their own actions. The context is the place of these preexistences and anything that did not feel their influence would be vague and indeterminate" (Rogers 1993). The particular form chosen to engage as a contextual response to the site conditions is a concrete wall that will act as a bulkhead to create the harbor for the oyster boats as well as a shear structure to host a wooden frame housing oyster processing and an aquaculture research lab.

The overall alignment of the wall is in response to littoral drift flows, blocking fill of sediment into the harbor. The wall is penetrated at select locations: in the form of a dock to allow for unloading of oysters, in the form of stairs to allow water scientists to step down onto the mudflats for sediment and water samples (conversely water can flow up the stairs, 'penetrating' the built environment), as a window that is centered at the end (or beginning) of the oyster reef path. Sitting perpendicular to the oyster reef path, the penetrations are distinct and at a scale that allows for a very different type of controlled permeability than that of the oyster reef path.

The proposed building is set on piers behind the oyster reef path. Removal of the paving at the site, with the exception of the parking and loading dock areas, will set back into motion the process of accretion and flow that previously existed at the site. The interior of site is proposed as a oyster shell curing area, with middens allowed to form. This serves the utilitarian purpose of killing of bacteria on the shells before re-using them as cultch in seeding oysters, or as an extension or repair of the oyster reef path. Experientially, the scale of the middens will be a direct response to the intensity of production at the site, revealing the extent of not only the harvested area of the farm, but also responsive to the global demand for oysters in the broader commercial market.

Access to the site, and building become subject to methods and scale of production, tides, and sediment flows. The building is no longer object, and the context is no longer exterior to the site itself. The design intervention is intended to converge these currently disparate qualities at the site.

Rogers E.N. (1993). "Preexisting Conditions and Issues of Contemporary Building Practice". Architecture culture, 1943-1968: A documentary anthology. New York: Columbia University Graduate School of Architecture, Planning, and Preservation.

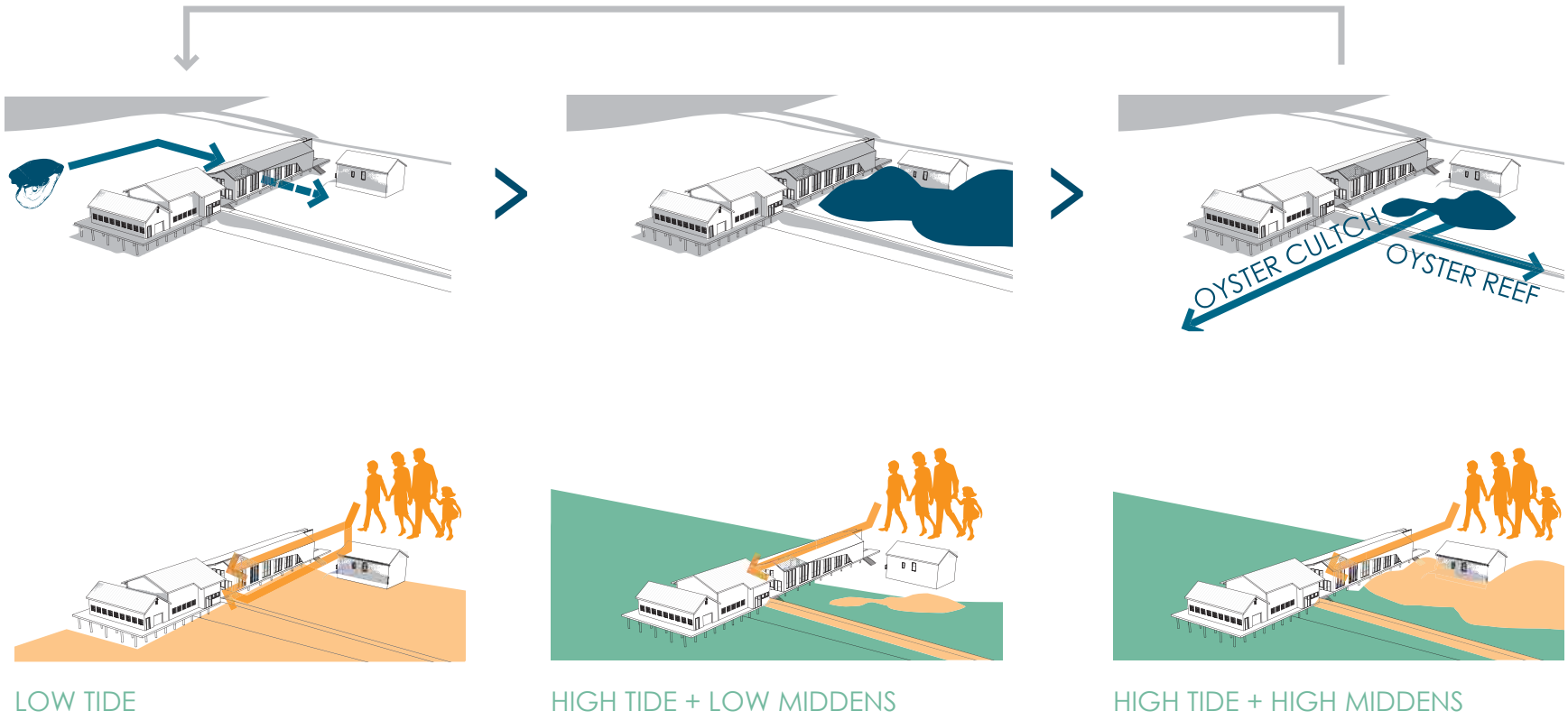


Figure 52 The use of site for curing oyster shells to remove bacteria for re-use creates a condition where production is spatialized. Visitors to the site engage with building and site in part as response to the global commercial market for oysters. High tides and midden size impact how and when visitors access the retail space, using the building as a corridor to avoid high tides and large midden piles (Author).

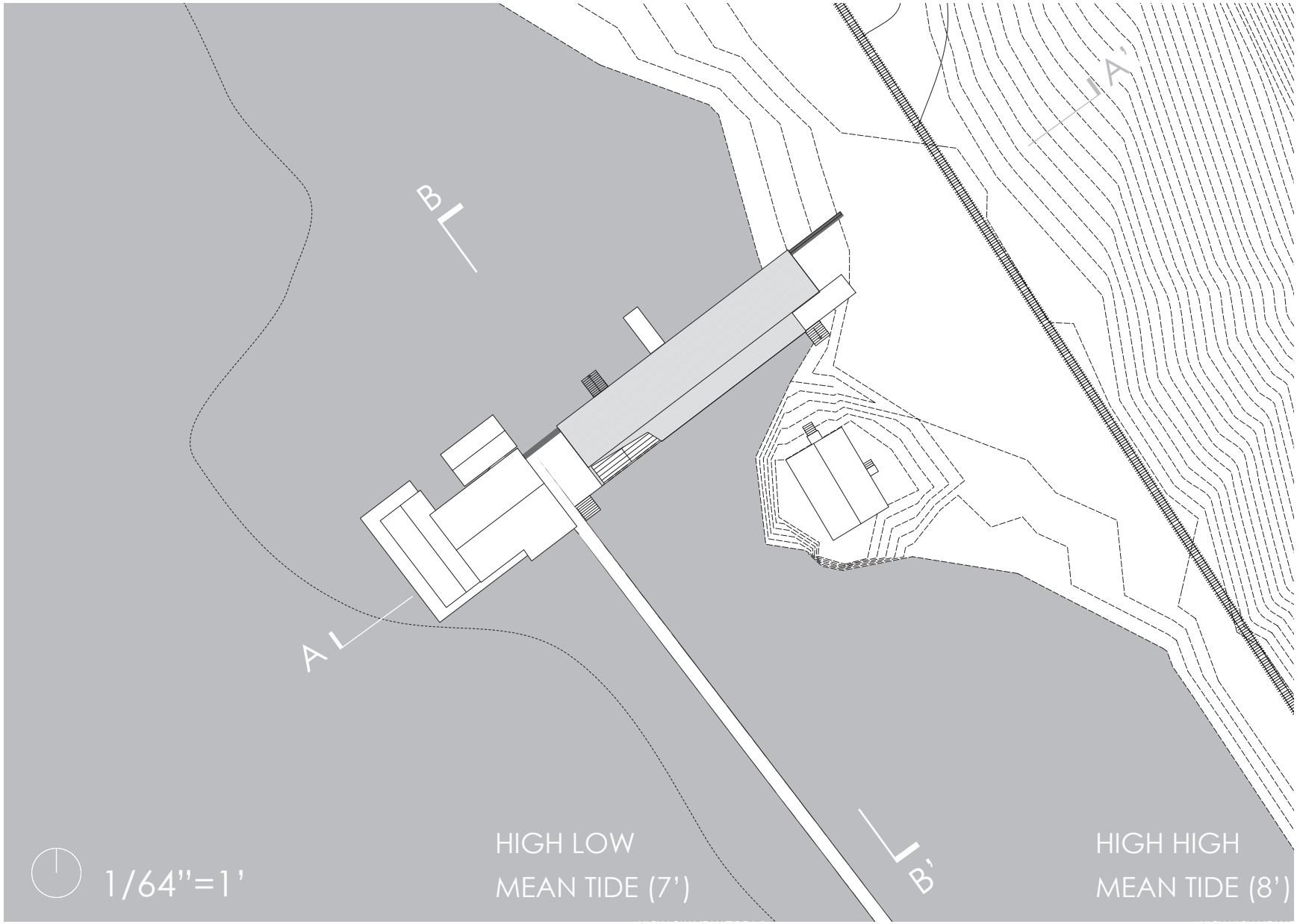
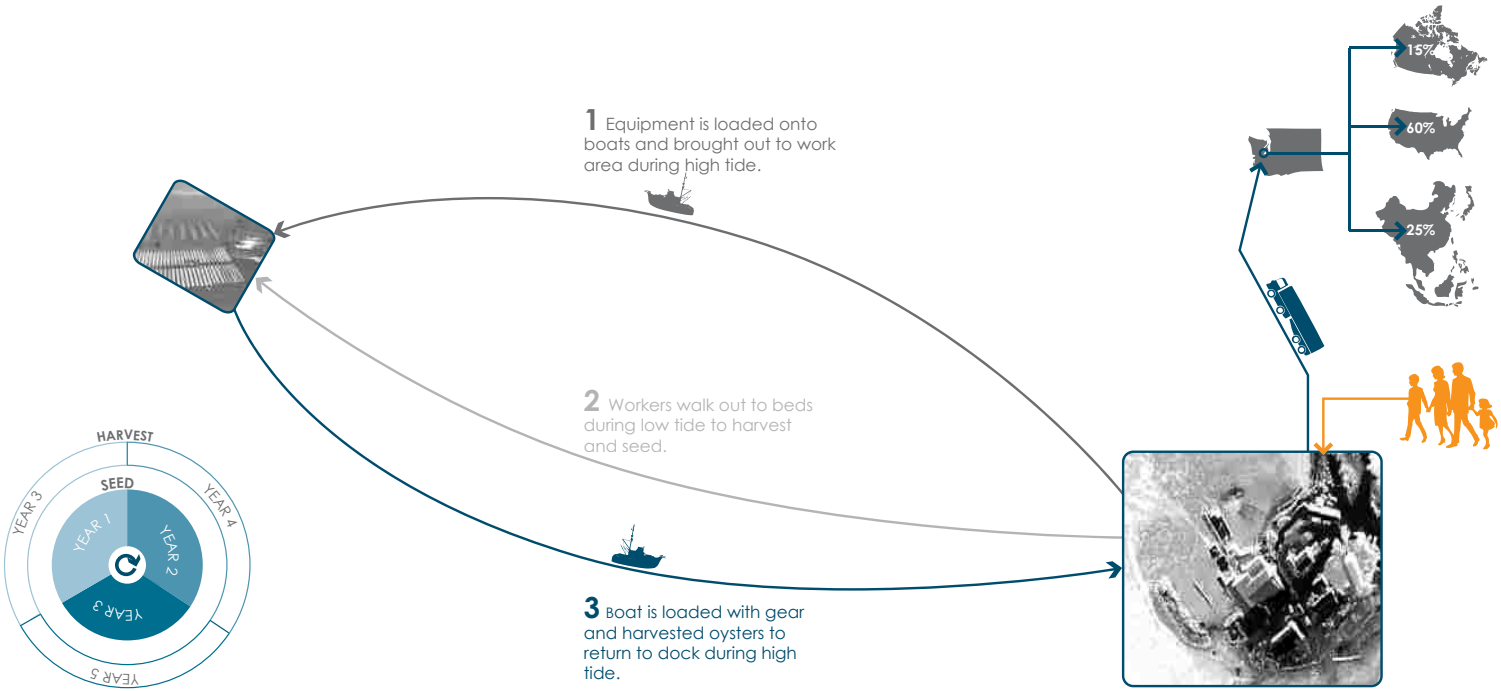


Figure 53 Site plan. Removal of the paving that covers the midden piles that form the land at the site, re-engages with the littoral f ows and sediment transport. Over time the newly exposed piers supporting the existing buildings will be revealed, while the piers supporting the new construction will be covered and recovered beneath a cycle of midden piles (Author)



SEED

GROW

HARVEST

SHUCK

Figure 54 The building is a launching point to a much broader geography in regards to acres farmed, but also in relation to global sales, with the design attempting to engage and reveal these broader systems at a human scale (Author).

Figure 55 Perspective: Exterior (Author).

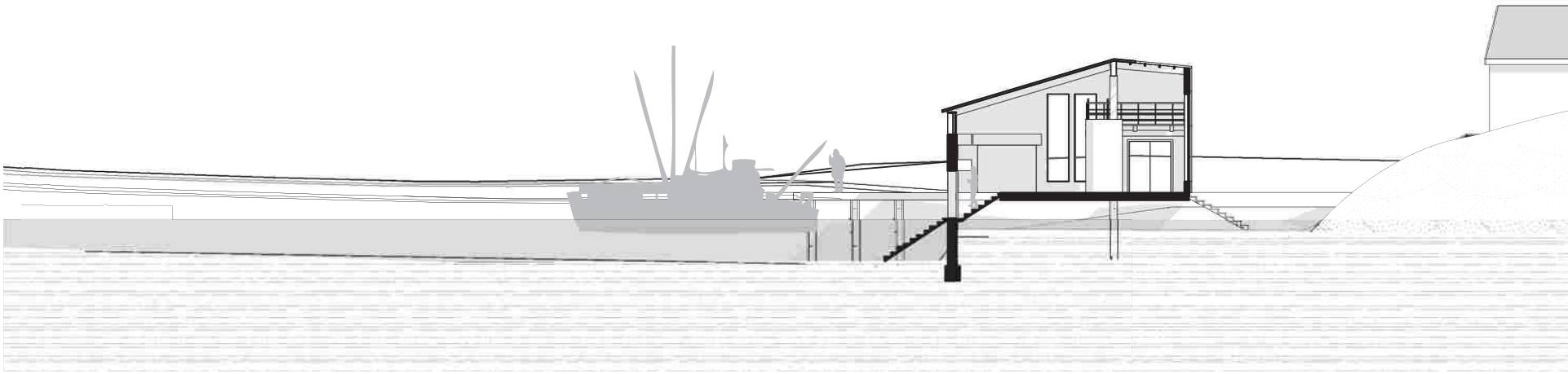
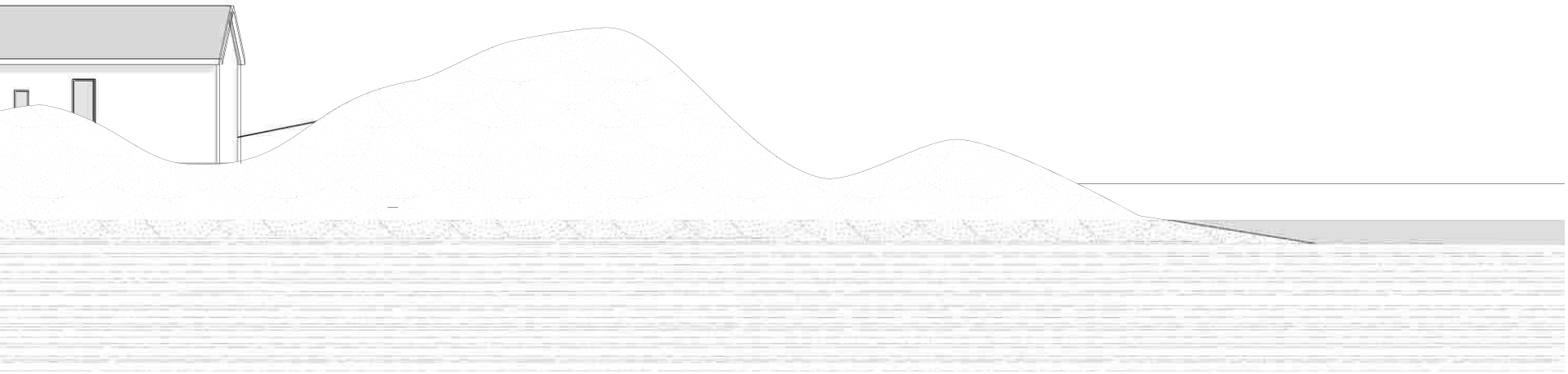


Figure 56 Section B



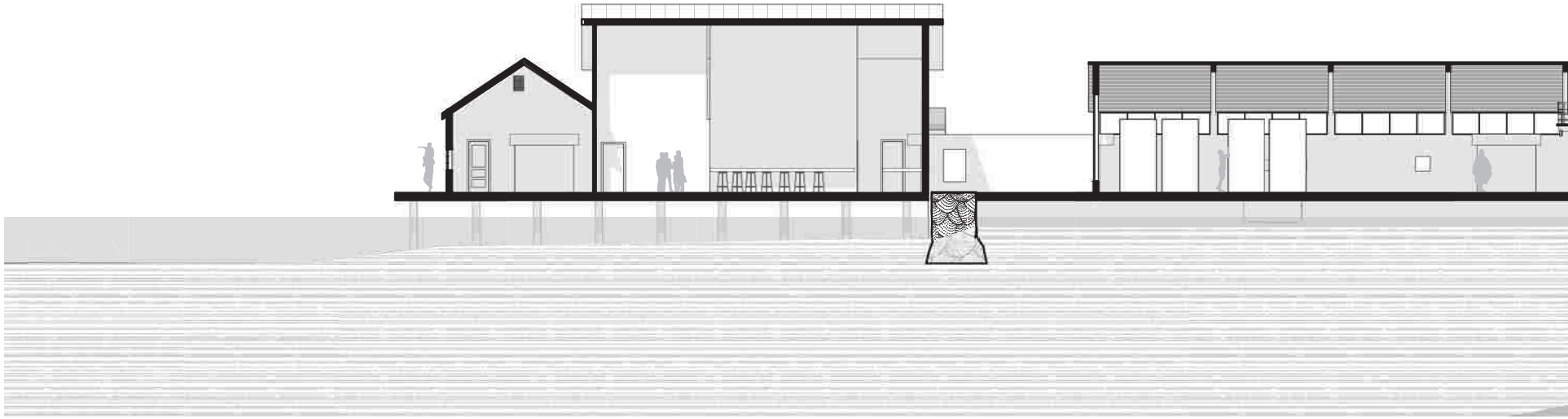
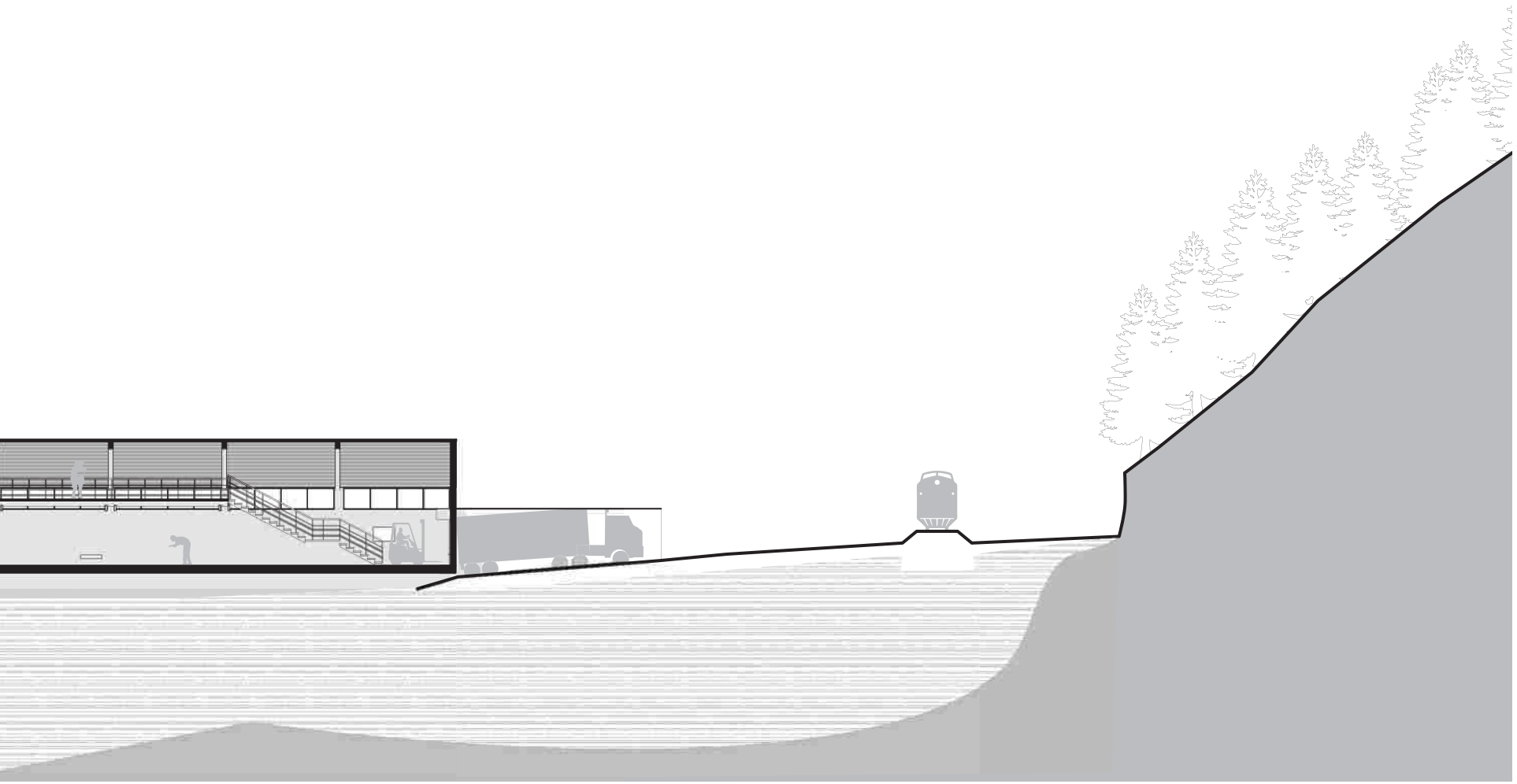
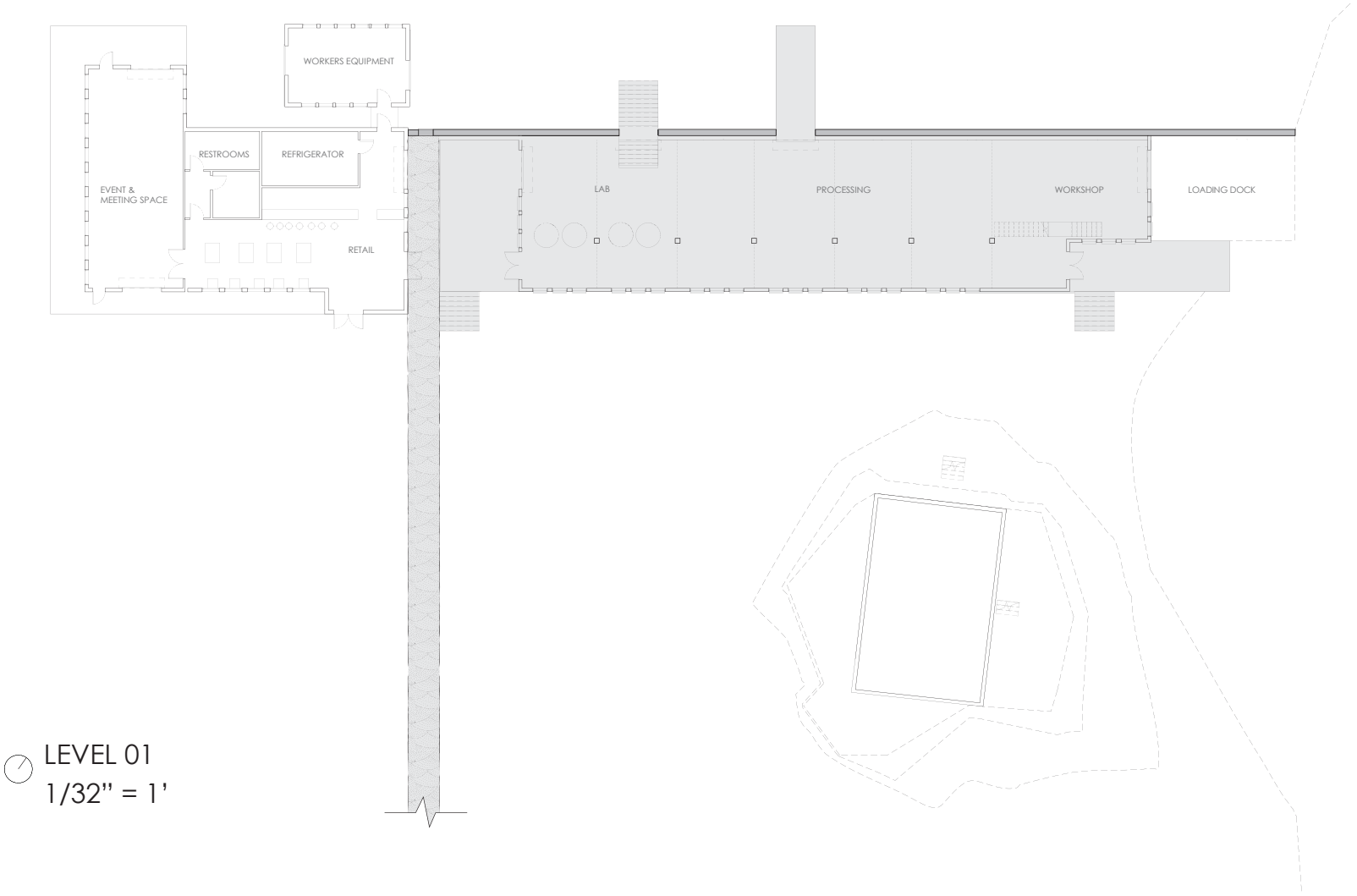


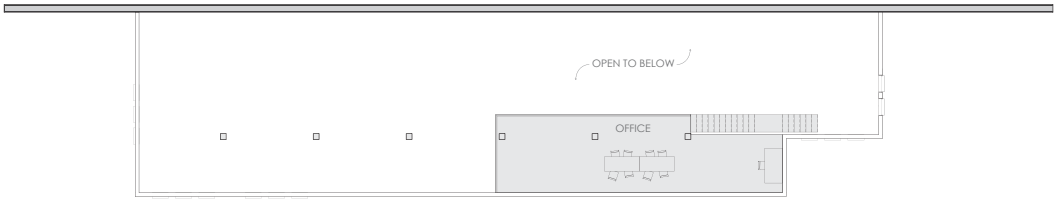
Figure 57 Section A





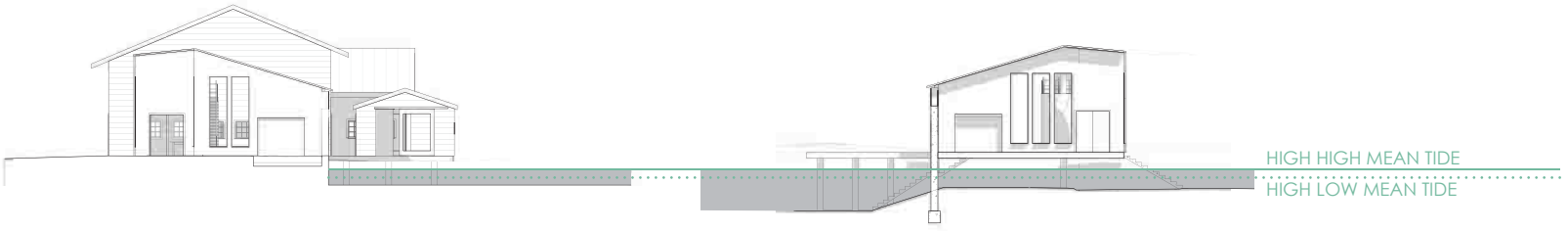
LEVEL 01
1/32" = 1'

Figure 58 Building plans



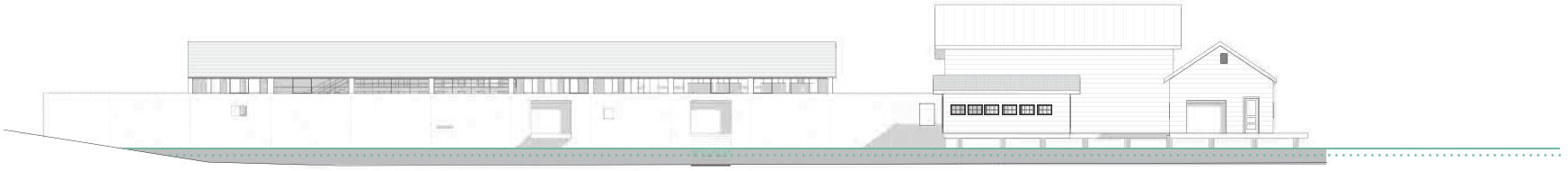
LEVEL 02
1/32" = 1'

PROCESS / DESIGN INTERVENTION



EAST ELEVATION

WEST ELEVATION



NORTH ELEVATION

SOUTH ELEVATION

Figure 59 Elevations 1/32"=1'

Figure 60 Interior perspective

Figure 61 Detail Section A 1/8"=1'

CONCLUSION

The building is a site response, one that is engaged in existing dynamics, recognizing patterns of development over time, and situating architecture within this complex narrative. The design intention focused on engages in continuing particular site trajectories (accretion of builidings, re-inscription of historic railway) while altering others (sediment retention for salt marsh establishment, removal of paving). The building is most compelling when viewed within its specific context, never intended to be evaluated or read as a solitary object.

Landscape and architecture, though at times divided professionally, experientially act in sum. "We know far more about cars and rockets, widgets and window panes, than we do about temporality and change, about, in short, experience. Architecture is perhaps the best example of this curious fact. More often than not, architecture is discussed in terms of substance-stone, steel, concrete, and glass-when, in reality, architecture is, in its most fundamental sense, a negotiated process of place-making. As such, architecture is about meaning and existential experience" (Woessner 2005). Architecture is more than tectonics and engineered solutions, it is always an act of change and discourse. Built design interventions are always in dialogue with the existing, whether that dialgoue is one of domination (tear down and rebuild) or more nuanced. The negotiation is one that happens with the most obvious of processes (solar) as well as the hidden (sediment). Architecture uses material form to express ideas about the world and is imbued with preconceptions, assumptions, and default responses that should be under constant question and critique to keep pace with the rapid growth of our cities and the places that feed them. The lowest common denominator in architecture is the material substance, whose correct application and qualities allow for astute design responses that are often the most formally handsome -- but architecture cannot be studied through this lens alone, as it often misleads designers into believing that the question they should be addressing is that which lends itself to a particular designed object / building. More inclusive framings that encompass site processes reveals a unique set of questions that are rich territory for designers to intervene through strategic, geographically precise interventions.

As distinct fields, landscape and architecture professionals and academics are best served through meaningful dialogue pursued with sincere curiousity and respect for the areas of

Woessner, Martin. "Daniel Libeskind: From the End of Architecture to the Space of Memory" Eds. Gary Backhaus and John Murungi. Lived topographies and their mediational forces. Lanham : Lexington Books, 2005.

distinction between the two in terms of scholarship and skills. In her introduction to *The Modern Architectural Landscape*, Caroline Constant illustrates this point. "Only when architects and landscape architects understand the scope and complexity of their individual areas of expertise, as well as their potential points of convergence and conformity, will the two forms of discourse succeed in formulating significant contributions to contemporary culture" (2012).

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