

TURNING THE MUSEUM INSIDE OUT:
PLACE AND PLACEMAKING AT ESOWISTA

By

CHRISTOPHER MIDGLEY

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M.E.S. York University, 2000

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ABSTRACT “*TURNING THE MUSEUM INSIDE OUT*” details a process of development that the Tla-o-qui-aht First Nation might follow in building into an expansion area granted by the Government of Canada near the reserve community of Esowista. The sensitive nature of the surroundings inspires an overall approach to community design that is dedicated to preserving or enhancing the health of existing ecosystems. To support this approach, a set of sustainable community design principles are proposed, and large scale strategies are identified. This project then narrows in focus to emphasize specific structures and processes associated with sustainable design in a remote setting. A fundamental aspect of sustainable design that has been given particular prominence in this project relates to the intertwined notions of authenticity and placemaking.

For the purpose of this project, sustainable design refers to the structures and processes that foster an intimate and regenerative relationship between the landscape and the community, and that promote self-sufficiency. There are three main reasons behind urging for self sufficiency at Esowista: cost savings; development of local skills in design, engineering, and construction; and the inherent connection between self-sufficiency and self-determination.

Embedded in this definition of sustainable design is the importance of the relationship between people and the place they call home. An authentic relationship between people and place relies on meaningful inhabitation. Meaningful inhabitation, in turn, hinges on participation in the community and with the environment (both natural and built), which together yield a deep rootedness in place. For many generations, governments in Canada have weakened the relationship between the Tla-o-qui-aht and their territory by preventing participation of this sort. The participatory process of making a community provides an opportunity to invigorate the relationship between the Tla-o-qui-aht and the place they call home.

The first step in considering the process of making a community became to design a works yard and construction centre. There, the future community is planned, machinery and tools are held and maintained, and timber taken from the land is transformed into the homes (or other structures) themselves. Additionally, at this construction centre, various skills ranging from construction practices, wood working, and first aid to traditional skills such as carving and weaving are learned. Out of this centre the community is built and as it is built, skills improve, residents and labourers become artisans, and the community as a whole takes on a unique identity. As the process unfolds, the community itself, as a place built intimately and artfully into the landscape by its residents, becomes a source of inspiration for its residents.

This brings us back to the beginning, and the title of this project: *Turning the Museum Inside Out*. While a museum is conventionally thought of as a building, place, or institution devoted to the acquisition, exhibition, and interpretation of objects having scientific, historical, or artistic value, here the museum is considered as it was originally named. The word ‘museum’ comes from the Greek word ‘muse’ referring to the spirit of inspiration, and ‘-eum’ which literally means ‘seat’, but refers more generally to ‘a place that one occupies’. Thus, in its original inception, a museum is simply a place of inspiration. With this understanding, the museum as an identifiable storehouse of artefacts is obliterated, and re-emerges, turned inside-out, as the community itself. The artefacts are the components with which the community is built, the relationship between the people and the place they have made, and the capacity to continue the process of placemaking into the future.

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Figure 1. SUNSET OVER T'AYIS

INTRODUCTION THIS PROJECT HAS TAKEN A roundabout route to become what it now is. Each time I look at it, new possibilities become apparent and the conclusions arrived at seem rather surprising, given where I began. These introductory pages explain the evolution of the idea, why I chose such an undertaking, the overarching principles that came to guide the project, and the structure of the paper that follows.

Initially, *Turning the Museum Inside Out* was borne out of a desire to create a place in which language would be taught. This desire was rooted in the idea that through its structure, idiom, and phonology, language reveals and represents how the universe is understood; an idea nicely expressed by Martin Heidegger when he stated that "language is the house of being, (Norberg-Schultz, 1985, p. 102)."

Given this prominence in representing and shaping how we understand the world, it is clear that language is deeply fundamental to our identity. This gives language a sacred significance, making learning and teaching language a sacred act. Consequently, the places in which languages are learned should reflect that sacredness. For these reasons, designing a place to learn language seemed to be rich in design possibilities.

In the summer of 2003, while contemplating this initial idea, CBC radio broadcasted a show highlighting various efforts to preserve First Nations languages in Canada. In one interview, the pride and happiness expressed by an adult student learning his native Cree was powerfully obvious. It was clear that learning language had a healing effect on this man and his classmates. Reconnecting with his own roots clarified his identity, an identity that had been threatened by the generations of state and church sanctioned abuse that sought to eradicate aboriginal culture from Canada¹. Beneath this hopeful story however, the sad risk to many Canadian First Nations of their languages being forgotten forever was also clear. Thus it seemed like a language related project would fit well into a First Nation community.

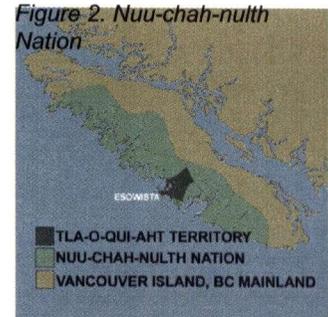
¹Suggesting that there was an intent to eradicate aboriginal culture in Canada is based on a close reading of the Indian Act, accounts of the Residential School System, and accounts of the establishment of the Reserve System.

This idea had a powerful personal resonance for me as well. As a child, my grandfather would tell me stories of his growing up on a Sarcee reserve near Calgary. He would talk about his grandmother and her strong friendship with the local medicine man. He would also tell stories about the local missionary, a man known as Mr. Tim. This name was a source of endless entertainment to the Cree speakers on the reserve, as *mistatim* is the Cree word for horse, particularly an old nag. Through these stories, my grandfather taught me to speak some Cree, though now the language has been all but forgotten; and though my grandfather has passed on, I still enjoy a strong relationship with him. It is because of him that I feel a powerful connection to Canada's First Nations and a desire to lend my strength to overcoming the conditions brought about by the generations of injustice described above.²

²On another level, I have a background in international development, focusing on improving the living conditions for impoverished people in developing countries. However, as a Canadian, I feel that I should direct my attention to similar problems here.

Before the innumerable complexities of designing a language facility in a First Nation community could be contemplated, good fortune brought the Tla-o-qui-aht³ community of Esowista to my attention. It is a community located on the west coast of Vancouver Island, at the northwest end of Long Beach, a place world renowned for its breathtaking beauty. Presently, Esowista is once again at a pivotal moment in its long history: 92 hectares of land adjacent to the existing community have been added to the reserve to alleviate overcrowding, and to welcome back Tla-o-qui-aht people who have had to move away from their traditional homeland. As a result, a community of up to 2000 people must be planned for the site. This seemed to be an ideal location for a language centre, and one that I embraced wholeheartedly.

³Tla-o-qui-aht is the preferred name of the group formerly referred to as the Clayoquot, one of the 14 groups that make up the Nuu-Chah-Nulth nation. The Map Below shows Esowista within the Nuu-Chah-Nulth nation.



In order to further the idea, it felt necessary to gain as clear an understanding of Tla-o-qui-aht and Nuu-chah-nulth culture as possible, as well as the status of the language (T'a:t'a'qsapa). A great deal of literature is available detailing appropriate curricula for teaching language, emphasizing who should teach, and how. There are also numerous texts containing stories, legends, and songs translated and transliterated; as well as other aspects of Nuu-Chah-Nulth life and language.

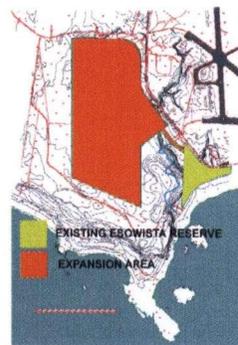


Figure 3. Aerial view of Esowista and the proposed expansion area.

Though inherently fascinating, two incontrovertible facts grew increasingly problematic as I continued along this path: Nuu-chah-nulth (and therefore Tla-o-qui-aht) social structure is intricate and highly complex; and I am not part of this social structure. The implication being that it would be exceedingly difficult for me to be confident about designing something I believe to be sacred for a people I would never really know. Undeniably, cracks were forming at the foundation of my idea.

⁴The individuals with whom I had these conversations will remain nameless. Their lack of interest in either me or this project is both understandable and predictable, and I would not want it to be interpreted that I am pointing blame toward those who chose to remain silent. All of the ideas presented here are my own, thus any fault is mine alone.

To complicate matters, I was unable to develop a relationship with anyone currently living at Esowista. As I began the project, I managed to have three phone conversations⁴, and while two were amicable the third was not, making it abundantly clear that there would be no formal connection to people living on the Reserve. Though remarkably brief, this third and final conversation had the effect of an earthquake, reducing my already crumbling idea to rubble. A project rooted in language by a person incapable of communication is, in the truest sense of the word, absurd⁵. While some may believe that pursuit of the absurd can lead to happiness, I had my doubts on the matter, and felt that a more appropriate project was possible.

⁵Absurd, according to the Oxford English Dictionary, is derived from the latin ab- meaning 'off', and surdus meaning 'deaf', connoting 'insufferable to the ear', and is defined as 'out of harmony with reason.' Perhaps even more relevant is Camus' assertion that the absurd is the notion that the world is meaningless since man has an unquenchable desire to understand, but the world is eternally unknowable; and that the absurd, like alienation conveys a deep sense of estrangement and detachment.

In reassessing how to approach a project at Esowista, I reverted to contemplating something that I do feel knowledgeable about, and that has always been of interest to me: sustainable design.

Sustainable design refers to the design of structures and processes that foster an intimate and regenerative relationship between the community and the landscape, and that promote self-sufficiency. This became the primary overarching theme to guide the rest of the project.

Structures that foster an intimate and regenerative relationship between the community and the landscape are those that facilitate positive interactions between people, and that engage people with their external environment while limiting, eliminating, or reversing negative environmental impacts. Given this definition, the program of a sustainable building is as important as its design. For example, proposing a community gathering hall, which provides a place for people to come together and eat, chat, or plan the future of the community is as important as deciding upon the material with which the hall is to be built, and where it is to be built.

Given that the expansion area at Esowista is presently unserved, and that the servicing of the existing community is mediocre at best, infrastructure emerged as a key structural consideration, both in terms of fostering the relationships between people and the community described above, as well as in promoting self-sufficiency. Rather than considering infrastructure as something outside of the realm of design, left for engineers to bury under the ground or fit in once the process of design has been completed, infrastructure is instead recognized as a valuable design opportunity.

Sustainable processes, alternatively, are the ongoing activities undertaken by people that foster or promote a regenerative relationship between a community and the landscape. They include systems of education and communication that enable local control over resource management, construction, skills development etc. Thus sustainable processes are the things that people do, and sustainable structures are the places where people do them.

Together these structures and processes combine to yield a self sufficient community with local control over its well being, from decision making to the provision of services such as water, waste management, and power to establishing avenues of communication and education. In order for this self-sufficiency to be complete, and for the design and construction to be sustainable, it is of utmost importance that the people that live in the community are the same as the people who build and maintain the community. This leads to another aspect of sustainability considered here, that of place and placemaking. The belief is that the process of making a place to live creates a powerful relationship between the maker and the place. There is a fundamental connection that emerges in knowing that you have participated in the design and development of where you live. This belief, made popular by such authors as Christopher Alexander, Ed Relph, and Kevin Lynch, lies at the heart of the proposal.

In order for the people who will live at the new community at Esowista to build it, the community begins as each a wood processing facility and construction planning centre. There, people interested will learn the design and construction of housing and infrastructure through doing. They will build their own homes first, then homes and facilities for other community members.

Also, the people living in the community will have complete control over their basic infrastructure systems, particularly water. This necessitates the presence of water towers. Instead of realizing this at a late stage, and including them as ugly objects that pollute the landscape, this attitude will be turned on its head, and the water towers will become strong design elements within the community.

This brings us back to the central issue of turning the museum inside out. There is no building proposed in this paper to serve as a museum. Rather, the community itself, built by its residents, for its residents is the museum, and the physical structures and processes of interaction are the artefacts. The remainder of this paper justifies this approach.

GUIDING PRINCIPLES *THERE ARE SIX* principles that guide this approach to a sustainable community:

- Be Gentle;
- Promote Flexibility;
- Build Autonomy;
- Follow the Flow of Water;
- Use Language as Inspiration; and
- Take Time

Be Gentle

Gentleness requires that the lightest touch on the land possible is made, and the intent behind development is to do no harm to existing ecosystems. At the large scale, this means designing the new community in a way that preserves or even enhances ecosystem health. Taken to the smaller scale, this prevents activities such as clearcutting land for homes, or excavating basements, or trenches for infrastructure. This is manifested in the community as houses that fit in and around trees, sit on posts and piers, and are connected by boardwalks. In lieu of basements, ample storage is available both privately and communally.

Promote Flexibility

Flexibility allows the community to adapt to changes in population and demographics, as well as to technological and environmental change. Promoting flexibility requires education, so that local residents can decide how to adapt to change. To ensure structural flexibility, the components the community is built with should be modular, easy to assemble, dismantle and replace, and they should be made within the community.

Build Autonomy

Autonomy, or self regulation, is a characteristic that can be built into a community by making specific choices about education and infrastructure. Education builds autonomy by ensuring that people within the community have the know-how to lead effectively, to make informed decisions, and to possess the hands-on skills needed to actually design, build, and maintain the community. With effective decision making by leaders, and local construction and maintenance skills, a range of choices about infrastructure become available. This is important because once in place, infrastructure is both difficult and costly to change. If infrastructure that requires specific external expertise, or significant external inputs is built, the system cannot be autonomous. If the infrastructure is supported by locally available expertise and inputs, then the community will be in control of the systems it relies on, and so will enjoy a considerable level of autonomy. This is a relationship that First Nations communities seeking self determination will capitalize on. While self determination may be a long way off as a legal reality, it can be achieved as a practical reality in the meantime.

Follow the Flow of Water

The flow of water underlies everything. It is the convergence of climate and landscape, and is the fundamental shaper of ecosystems. To change an ecosystem, change the flow of water, and to maintain its health, vow to follow the flow of water. Doing so has a profound impact on infrastructure. Roads are redesigned, houses are modified, and the system of water provision and disposal is radically transformed.

Use Language as Inspiration

The tattered remains of the original idea to design a place to learn language lingers in this principle. Though the overall idea is different, it remains true that language is our tool for conceptualizing the universe, so it is certainly a worthy muse. Both English and the Nuuchahnulth language Ta:ta:qsapa provide inspiration. For English, insights come from exploring the origins and meaning of words. Ta:ta:qsapa is influential on a number of levels. Place names, transliterated stories, and plant names all provide insights into how the world is represented, and one word in particular captures the essence of this project: describing how to make a canoe, dita:bfʔaʔaq means 'the process of making from the inside out'.

Take Time

Currently, much of the world has a pathological relationship to time. Everything must be done faster or sooner; time is money, and it is always running out. Two consequences of this are a high level of stress and a low level of quality in design. Doing things well takes time, so the time to learn how to do things well must also be

taken. Given the last two-and-a-half centuries, it is definitely worth taking the few extra years on a process based on quality rather than expedience - one that begins with learning how to build a house, and continues indefinitely as a self-sufficient, autonomous community.

STRUCTURE CHAPTER 1 OFFERS a brief history of Esowista, and the context of the land added to the reserve within the broader context of reserve lands that are currently held in the name of the Tla-o-qui-aht people. This broad context provides the rationale for suggesting that the addition to the reserve at Esowista should offer far more than space for housing. The expansion area will also provide access to, and control over the management of natural resources; and a place to tap into the potential of existing human resources.

Chapter 2, entitled "Chirping Frogs and Sphagnum Bogs" provides an analysis of the expansion area from an environmental perspective, identifying the initial broad moves that must be undertaken in order to preserve or enhance the health of the ecosystems existing in the area while also accommodating the influx of a large number of people.

Chapter 3, "Inside Out and Upside Down", articulates the belief that in the world of design final outcomes are too often misinterpreted as solutions. This is particularly relevant on First Nations reserves where, despite valiant efforts to improve the living conditions of communities suffering from a range of social problems, including wholesale relocation of entire reserves into newly built communities, social problems persist. No matter how liveable, loveable, or sustainable a community is purported to be by its designers, if the designers and builders are outside 'experts', the community remains external, and the 'existential outsidersness' that perpetuates violence and self abuse persists. To change this, an upside down, inside out approach to development is proposed. It is here that the role of community members in placemaking is discussed, emphasizing the importance of meaning, or relevance in people's lives. It is hoped that when people are actually important, they feel important. When they are needed, and are given a clear role in the well being of the community as a whole, the connection between people, the community and the land yields an 'existential insidersness' that roots people in their community, and leads to an authentic way of being in the world. The result shows the evolution and final design of the works yard and water tower as it becomes the community centre, and offers detailed design ideas for the components that the community is to be made with. In doing so, innovative ideas about infrastructure are expressed and justified.

Chapter 4, entitled "Sustainable Dishevelment", takes these components and this infrastructure and lets them loose on the landscape, and the title of the chapter captures the paradoxical nature of doing so. While a final plan for the community is offered in this chapter, it is meant as only one possible outcome of having

built the community from the inside out. Chapter 5 offers concluding remarks on the project.

Ultimately, I think that detailing an approach to making a community, and offering a set of possible parts and how they might fit together is an infinitely more useful, adaptable, and appropriate project than a singular centre for learning language. Despite the major gap in communication with the Tla-o-qui-aht people, I feel strongly that this is a valid and appropriate approach to the development of the site.

CHAPTER 1

A PAST LESS TRAVELED

HISTORY OF ESOWISTA *IT IS SAID, NOW*, that the village of Esowista has been a place of inhabitation for time immemorial, though it has not always been inhabited by the Tla-o-qui-aht.

The word **laʔu:kʷiʔ** (Tla-o-qui) means ‘different’ or ‘another’, and the suffix **aʔ** (aht) refers interchangeably as ‘people’ or ‘from such-and-such a place’. Thus the name **laʔu:kʷiʔaʔ** (Tla-o-qui-aht) is a double entendre, meaning both ‘the people from another place,’ and ‘the people who are different from how they were.’ It is said that this name comes from the understanding that the first people to live in the area were quiet and peaceful, but over time they became warlike, taking over neighbouring groups.

¹See “Appendix 1: Some Notes on Orthography” for a description of the symbols and sounds associated with the language T’a:t’a:qsapa, spoken for millennia along the mountains on the west coast of Vancouver Island.

The **laʔu:kʷiʔaʔ** were once centred around the fishery at the mouth of what is now called the Clayoquot River, but gradually, through a series of annual raids, expanded south and southeast along the coast to Long Beach, and inland to what is now Kennedy Lake. (The map “**laʔu:kʷiʔaʔ** Places” below shows the coastal territory of the **laʔu:kʷiʔaʔ**).

In these raids, many small groups were conquered and amalgamated under the **laʔu:kʷiʔaʔ** name². One such group that suffered a particularly brutal fate was a people called the **hisa:wist’aʔaʔ** (Esowista-aht). The **hisa:wist’aʔaʔ** were a wealthy and powerful people in the area, known for their abilities at seal hunting and catching herring, as well canoe making. They were in control of several fisheries, including the stream where the village of Esowista still stands. Some time ago, a conflict arose over the salvage rights to a drift whale between a great **hisa:wist’aʔaʔ** warrior, and the son of a **laʔu:kʷiʔaʔ** chief. While such conflicts were not entirely uncommon, on this day the chief’s son was killed in the wrangling over the whale, precipitating the war which saw the annihilation of the **hisa:wist’aʔaʔ**.

²These groups include the **u:kʷimin** (Okearmin); the **hupits’aʔ** (Opitsat); and the **ich’a:chist** (Echachis); whose names remain today as Reserve names in the Tla-o-qui-aht territory.

The name **hisa:wist’aʔaʔ** itself, in fact, captures this brutal history. The root word **hisa:wist’a** means ‘clubbed to death’, thus the **hisa:wist’aʔaʔ** are the ‘people who were clubbed to death.’ Presumably (though this remains speculation), this name evolved after the war which saw the end of the **hisa:wist’aʔaʔ**. As the spoils of war, the **laʔu:kʷiʔaʔ** took over the land, and ultimately the identity of the **hisa:wist’aʔaʔ**, resulting in the territorial boundaries recognized today.

The timing of these incidents is not known precisely, though it is known that Tla-o-qui-aht territory has included the village of Esowista since before the 1780s.

LAGOON INSIDE LAGOON ISLAND — where there is salt water — tup'alhhtin
 STREAM AND BAY ON THE WEST SIDE OF LEMMENS INLET — dark at end of bay — tumak'is
 LONE CONE MOUNTAIN — flukes of a whale when diving — wanachas
 LAKE AND CREEK ON WEST SIDE OF LEMMENS INLET — place of sockeye — hisnit
 ARAKUN ISLANDS — islands here and there — cha:lhchis

WEST SHORE OF LEMMENS INLET ACROSS FROM ARAKUN ISLANDS — place of young red cedar — ʔaʔa:is
 SLOMAN ISLAND — smooth shoreline — chimikhsis
 OPITSAT — sun rises on to it — hupits'ath
 NORTHWEST SIDE OF STOCKHAM ISLAND — just across — k''isuwat'aʔa
 LOCATED ON THE SOUTHWEST SIDE OF STOCKHAM ISLAND — (burial ground)

CAVE AT SCHINDLER POINT (CONTESTED BOUNDARY BETWEEN TLA-O-QUI-AHT AND AHOUSAT) — water spouting up — puxwpuwsh
 NEILSON ISLAND — land otter — wa:xp'inch'a
 DEADMAN ISLANDS — towing (burial grounds) — maʔa:kx
 BC PACKERS COMPANY WHARF SITE, TOFINO — NO TRANSLATION — hiiʔatu
 CLIFF ON THE SOUTHWEST SIDE OF GRICE POINT — looking down on something — nachiks

STUBBS ISLAND — ripples on the beach sand when tide goes out — ch'ach'atits
 SOUTHEAST END OF STUBBS ISLAND — water close to it — ch'aksit
 SUNSET BEACH ON THE SOUTHWEST END OF STUBBS ISLAND — outside beach — ʔa:ʔi:ʔi
 FELICE ISLAND — island inbetween — cha:tsa
 ALFRED BEACH — hand sticking up — ʔu:lhapi

NORTHERNMOST TIP OF WICKANINNISH ISLAND — purple sea urchin OR licorice fern — h'aytyaa
 SANDY BEACH ON THE NORTHEAST SIDE OF WICKANINNISH ISLAND — end of island — hitak'is
 STREAM ON THE EAST SIDE OF WICKANINNISH ISLAND — stream in the middle — ts'awin
 WICKANINNISH ISLAND — caves — ʔaʔaʔiʔis
 BAY SOUTH OF USATZES POINT — wind is sheltered OR wind blows from all directions — yu:sat:ush
 NARROW PASSAGE BETWEEN WICKANINNISH ISLAND AND ECHACHIS ISLAND — canoe passage — apswis
 ECHACHIS — land elevated above the ocean surface — ich'a:chisht
 FORMER VILLAGE ON EAST SIDE OF ECHACHIS ISLAND — NO TRANSLATION - once inhabited site — k''ayimt'a
 BEACH ON THE SOUTH END OF ECHACHIS ISLAND — white shells — ʔits'a:
 ROCK FORMATION ON THE SOUTH EAST END OF ECHACHIS ISLAND — water spouting up — puxwpuwsh

MACKENZIE BEACH — calm beach — tinwis
 TONQUIN ISLAND — wind blows against it — ʔitsa:pi
 CHESTERMAN BEACH — sound of ocean on the beach — ch'ahayis
 LENNARD ISLAND — left hand inside something — katsuk'tlh

FRANK ISLAND — bald eagle nests — ts'ix-wat:sats
 POINT OF LAND AT THE SOUTH END OF CHESTERMAN BEACH — needlefish around the point — nanak' u:ʔa
 SLOUGH ON THE EAST SIDE OF ESOWISTA PENINSULA SOUTH OF BROWNING PASSAGE — dig roots OR high tide — mulhmu:hsuʔis
 COX BAY — finning of fish — ch'u:chatswi:ʔa

SOUTH SIDE OF BROWNING PASSAGE — up this inlet — shi:waʔa
 MALTBY SLOUGH — hidden stream — ts'a:mita
 VARGAS CONE — bent at top a little bit — kishki:
 SLOUGH EAST OF MALTBY SLOUGH — red inside — ʔ'ihik:ʔats'us
 LAND BETWEEN RADAR BEACHES AND COX POINT — lump on a tree OR large burl on a spruce tree — hup'ich

LARGEST OF THE GOWLAND ISLANDS — grassy island — ʔakmakimlh
 SHELTERED PASSAGE NORTHWEST OF PORTLAND POINT — fish swimming through — ch'u:chilhswiʔa
 PORTLAND POINT — sandstone — tifimʔa
 SCHOONER'S COVE — anchorage — t'ayis

ESOWISTA — clubbed to death — hisa:wist'a
 HILL AT THE COMMUNITY OF ESOWISTA — little hill — ʔa:yi
 BAY INSIDE BOX ISLAND — resting place — waʔichulh'h
 SMALL ROCK ISLET OFFSHORE FROM ESOWISTA — NO TRANSLATION — ts'ashi:wa
 FORMER TRAIL CONNECTING GRICE BAY AND LONG BEACH — trail — t'ashi:
 ROCK ISLAND JUST OFFSHORE FROM LONG BEACH — island in the middle — chawinʔis
 GREEN POINT — burn — muʔap'alhh
 SEA LION ROCKS — place of sea lions — tuk''nit

SANDHILL CREEK — NO TRANSLATION — ts'its'ʔi:
 LARGE AREA OF SAND DUNES ON LONG BEACH NEW WICKANINNISH INN — sand dunes — ʔath'athis



as far as you can go — MOUNT COLNETT AND ADJACENT SHORELINE
 inside the inlet — LEMMENS INLET
 NO TRANSLATION - place where sardines were caught — ADVENTURE COVE
 burned around it — SHARP ISLAND
 floods easily — CREEK FLOWING INTO LEMMENS INLET

NO TRANSLATION - a creek — FORMER VILLAGE SITE
 place of seagulls — BAY ON THE SOUTH SIDE OF MEARES ISLAND
 NO PRECISE TRANSLATION - a forbidden place — GINNARD CREEK (NO FISH IN THIS CREEK)
 grassy beach — FORMER VILLAGE SITE NEAR GINNARD CREEK

ch'ayakimyas — water coming from all around — WINDY BAY
 ch'ihnit — place of chi'iha: (supernatural being) — SMALL BAY ON THE SOUTH COAST OF MEARES ISLAND
 ts'ak''u:ʔa — current at point — POINT ON THE SOUTH SIDE OF DAWLEY PASSAGE
 y:alhapis — something hanging there — TLA-O-QUI-AHT WINTER VILLAGE SITE
 ts'a:pi — place of strong current — TSAPEE NARROWS

ʔaʔuk^wiʔa'aht Places

ʔaʔuk^wiʔa'aht Placename — Translation — ENGLISH PLACENAME OR LOCATION

INDIAN RESERVE #3 BY 1890, THE ALLOCATION of reserves was well underway in British Columbia, and it was in that year that “Indian Reserve #3” was created at the community of Esowista. Like most reserves in BC, the reserve at Esowista was a tiny piece of land, amounting to approximately 7 hectares.³ At that time, Esowista was thought to be a fishing village occupied seasonally by only five or six families, perhaps justifying the small size of the reserve. However, during that same period, European settlers were granted 120 hectares per family of five, illustrating the obvious inequity of the reserve system.

³British Columbia was unique in Canada in how reserves were allocated. While in other provinces a few large tracts of land were reserved, in BC more than 2500 very small reserves were established. An informative resource on the history of reserves in British Columbia is *Making Native Space: Colonialism, Resistance, and Reserves in British Columbia*, by R. Cole Harris.

As a result of this inequity, chiefs across BC made their pleas to the provincial government and the crown for more land, citing the unfairness of the system, and the sadness that had gripped the hearts of their people at having been evicted from their territory and confined to meager, unproductive land. While they enjoyed support with a few impotent people, these pleas fell largely on deaf ears, and were in fact regarded as seditious for including such phrases as “the queen has not been a good mother to us,” (Harris, 2002, p. 194). Thus confinement remained, and eviction continued.

Demands for more land took place at Esowista in 1914, when Chief Thomas requested an addition to that reserve. His request was for a few acres of cleared land overlooking T’ayis (Schooner’s Cove), a historic village site obviously once a place of inhabitation for the Tla-o-qui-aht. Of course the request was denied, and the issue of land allocation did not re-emerge in a meaningful way until the creation of the Pacific Rim National Park Reserve, which opened in 1971.

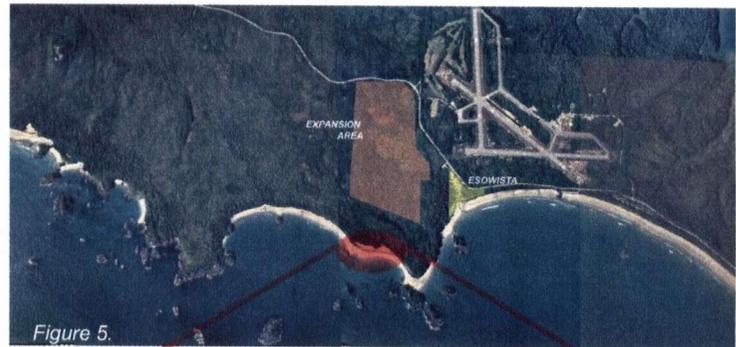


Figure 5.
GRASS BENCH OVERLOOKING T’AYIS
Former Village Site Requested for the
Esowista Reserve in 1914



TOFINO AIRPORT PRIOR TO THAT EVENT, however, significant change did take place in and around Esowista. The immediate landscape was dramatically and permanently altered over the course of World War II with the creation of the Royal Canadian Air Force Station, Tofino. As early as 1935, Canadian military leaders believed that the United States might become embroiled in a conflict with Japan, and considered the defence of the West Coast to be a high priority.

Defence planners, concerned that a daring and enterprising enemy might carry out a sea borne invasion and set up bases on Vancouver Island, identified the need for an airfield that could support fighter and bomber aircraft squadrons, always on the alert to provide an initial counter strike. (Hempsall, 2003, p. 33).

Despite the presence of an operational base at Ucluelet, on May 29, 1941 engineers inspected a proposed site immediately adjacent to Esowista. Five weeks later Coast Construction Company had been contracted and brought in the machinery and people to transform the marshy, forested landscape into a functioning airfield. The rest of that year was devoted to clearing the land and preparing the site to support runways for the largest bombers of the day. To accomplish this, Gordon Gibson, the aptly nicknamed 'Bull of the Woods' was hired. The following quote outlines his approach to site preparation:

We divided the area into 200 sections, each 400 feet square. Between the sections we put in roads, and set up spar trees so that our donkeys [donkey engines] could yard out the logs. The stumps were gathered into piles every 800 feet and burned; the residue was re-fed into the fire until there was nothing left of the undergrowth but ashes. We built a wharf for unloading our barges and brought in thousands of yards of gravel. Then, after our contract came to an end, Coast Construction levelled the ground and built the airport. (Hempsall, 2003, p. 34).

Driven by the urgency of war, on July 20, 1942 the base at Tofino was deemed to have "progressed sufficiently to establish it on a restricted Station basis" (Hempsall, 2003, p. 36); a gross overstatement given that at that point the site lacked such basic necessities as buildings. It wasn't until mid 1943 that the base was truly habitable, and April 1944 that it held its peak complement of 1,161 hands. Interestingly, almost immediately thereafter RCAF Station, Tofino began to disband, sending troops to other stations. By September 1, 1944 it was officially closed as an air force station. In November, 1945 it became a Signals Unit, employing 186 personnel, but no aircraft. Between 1954 and 1958, #52 Aircraft Control and Warning Squadron occupied the base, and on January 10, 1958 the Federal Transport Ministry assumed responsibility for the airfield. Recently the Alberni-Clayoquot Regional District purchased the airfield.

Throughout his account of the history of the Air Force Base at Tofino, Leslie Hemsall reiterates the harshness of the conditions endured by the men stationed there, with their main source of joy being transfer to another base. Nowhere, however, does he write about the native people living scarcely a few hundred metres away on the reserve at Esowista. Elsewhere it is written that 26 homes were constructed for the married officers on the Esowista reserve, and that more houses were built along the edge of the upland plateau overlooking T'ayis. Evidence of this remains today with a prominent decommissioned road, clearly visible in aerial photograph, that travels from the highway toward the ocean encompassing the area now granted to the Tla-o-qui-aht for expansion. Anecdotal evidence suggests that the housing here was poor, and that the ground was generally some manner of mud.

In the *Clayoquot Sound Indian Land Use* study, more clues are provided concerning the impact of the air base on the people living at Esowista. There, the authors state that in 1959, people returned to the reserve and began living in the officers' former homes. This triggers the inevitable speculation about where they might have gone during the war years, answers that remain elusive, though not irrelevant. Whatever the truth is, it is clear that the Canadian government proceeded hastily with the construction of the base at Tofino, with little regard for anyone.

The presence of the Tofino Airport remains significant today, and a great deal has yet to be said about its impact on the expansion area at Esowista, both negative and positive. So significant are these impacts that the airport will receive closer scrutiny in the next chapter, which examines the site from an environmental perspective. For now, we must return to another historical event which has had a profound effect on the community of Esowista: the creation of the Pacific Rim National Park Reserve.

THE PARK RESERVE *THE PACIFIC RIM NATIONAL*

Park Reserve enjoys a colourful history of political wrangling between federal and provincial governments, involving personal rivalries, industrial interests, and local citizens. A prolonged discussion of the history of the establishment of the park is not pertinent here. What is pertinent is the relationship between the Tla-o-qui-aht people and the two levels of government responsible for creating the park.

Firstly, the word 'Reserve' is of utmost importance in the name 'Pacific Rim National Park Reserve'. It does not mean that the area is preserved for all time, nor reserved for the protection of the wonderful biodiversity that lives in the park, as the word inevitably connotes. Rather, it refers to a legal status, or perhaps more accurately, the status of being in legal limbo. The word 'Reserve' means that the park will only achieve official status as a national park pending the resolution of outstanding First Nations claims to the land.



Figure 6. The Park Reserve Esowista, Tofino, and Ucluelet in Relation to the Long Beach Unit of the Pacific Rim National Park Reserve

The idea of establishing a national park on the west coast of Vancouver Island was first expressed in 1930, when, at the behest of the federal government, a reserve area was mapped as a potential park for government inspection. Three alternatives, centering on Nitinat Lake were outlined by interested groups: the forest industry; the Victoria chapter of the Sierra Group; and the Vancouver chapter of the Sierra Group. The area came to be called the Nitinat-Bamfield Reserve, but the idea of a park fell dormant during the Depression, and remained forgotten through the Second World War.

In 1944, the Federal government once again proposed the idea of a sea-level park on the west coast "as a health resort for the

people of the prairies. The Long Beach area was examined but deemed unsuitable," (Miller, 1972, p. 6). Again in 1947, a park extending from Strathcona Provincial Park to the Pacific Ocean at Wickaninnish Bay creating "a treasure that would rival Banff and be a boon to the entire island" (Miller, 1972, p. 6) was proposed. By this time, the forestry industry began to exert pressure on politicians to make a decision, with the BC Deputy Minister of Forests, Dr. C.D. Orchard reporting "that the timber was 'mature and ripe for logging... (and) should be used either as timber or definitely for a park," (Miller, 1972, p. 7). Yet again, the federal government articulated interest in a national park in the area, but required that the province acquire all the land, then relinquish it to Ottawa. This time, the federal Deputy Minister of Mines and Resources, Dr. Hugh Keenleyside, stalled the park by writing a letter to Orchard stating "that the west coast reserve areas would not be satisfactory national park sites because much of the timber was under lease, the area was remote from population and the water was too cold," (Miller, 1972, p. 7). Subsequently, the provincial government cancelled the park reserves it had established in the area "and the chance to establish a large national park in the Pacific Rim area, with few of the land acquisition problems which later plagued the park development process, was lost," (Miller, 1972, p. 7).

It wasn't until the late 1960s and early 1970s that a park on the west coast of Vancouver Island came to fruition. The key players at that time were Kenneth Kiernan (British Columbia Minister of the Department of Recreation and Conservation); Ray Williston (British Columbia Minister of the Department of Lands, Forests and Water Resources); and Jean Crétien (Federal Minister of the Department of Indian Affairs and Northern Development).

The intricacies of the negotiations have been expressed elsewhere, and were well documented in the news media of the time, therefore will not be repeated here. What is most interesting is the role and attitude of Jean Crétien. Perhaps naively, one would assume that the Minister of Indian Affairs and Northern Development would have at the forefront of his mind the costs, benefits, and implications that the park would have on the nearby Indian Reserves, and the people living in them. This was not the case for Jean Crétien. Documentation from the time suggests that Crétien's focus was trained very narrowly on establishing the park at whatever cost, and his attention was directed almost exclusively toward the lumber industry. While Canadians generally have benefited from the creation of the park, Crétien's myopia let down the groups for whom he should have shown the greatest concern: the First Nation people in the area, creating a situation where local bands were deeply displeased and felt threatened by the process which established the park.

Rather than examining these issues himself, Crétien's ministry, in conjunction with the West Coast District Council of Indian Bands commissioned a report entitled *Study To Determine the Effect of*

the Pacific Rim National Park Upon the Several Indian Reserves Located Within the Proposed Boundaries. At its outset, this report (commonly called 'The Schultz Report' after its authors) elaborates on the history of the Nuu-chah-nulth people, explaining that archaeological evidence points to established settlements in the area of the Long Beach Unit dating back over 4000 years, and suggests the language has a "time depth of 86 centuries". It goes on to reveal how the establishment of the reserve system in the 19th and 20th Centuries was based on lies and broken promises to the First Nations, resulting in a situation in 1971 whereby reserve land for the Tla-o-qui-aht amounted to 1.9 acres per person, and an attitude of profound distrust towards all levels of government prevailed in native communities.

The creation of the Pacific Rim National Park exacerbated these prevailing attitudes for two very significant reasons. Firstly, as stated above, Jean Crétien made apparently no effort to engage the First Nations in the area. Secondly, an option for dealing with Indian Reserves within park boundaries that was considered was the expropriation of land, and relocation of people. Regardless of the historical significance of the community at Esowista; regardless of the potential contribution of the Tla-o-qui-aht to the authenticity of the park, contemplation of a possibility so obviously unjust and morally wrong seems utterly baffling. Such a course was warned against in The Schultz Report: "The Indian reserves located within the proposed park have become the scene of a fundamental conflict which will not be resolved by expropriation," (Schultz, I/2, 1971).

The report offered an alternative recommendation, based on its research which revealed that the "band values the Esowista Reserve highly because of its historical significance, its present occupation, and its potential for future housing, employment, and commerce," (Schultz, IX/6, 1971). Rather than expropriation at Esowista, it recommended, the government should exchange the reserves at Indian Island and Kootowis (reserves with no permanent structures that would also be located within the park) for approximately 164 acres adjacent to Esowista, much of which is now part of the proposed expansion area.

Though expropriation did not take place, Crétien did not heed this recommendation in 1971, and Esowista was completely hemmed into the tiny area that still exists today. Access to the adjacent parkland became forbidden, and the lack of room for new housing has led to overcrowding and generally poor housing conditions today.

ESOWISTA TODAY TODAY[®]ESOWISTA HAS A population of 172 people and the largest age group falls between 10-14 years of age. 51 percent of the population is under twenty years old. This young character of the population is consistent with trends in other British Columbia First Nations and across Canada.

*These statistics, provided by David Nairne and Associates, are from May, 2001.

The lack of developable land at Esowista up until now has led to a significant housing shortage and overcrowding. There are 35 occupied houses on the reserve, and the household density is 4.91 people per household. David Nairne and Associates calculates that a 30% increase in housing stock (15 new houses) is needed to alleviate overcrowding on the reserve.

Approximately 60 percent of the members of the Tla-o-qui-aht First Nation currently live off reserve, and there are 350 people from 122 households on a waiting list for on-reserve housing once it becomes available. Providing access to housing within the Tla-o-qui-aht territory is a priority, and can be accomplished at the expansion area at Esowista. The greatest challenge relates to the population projections. By 2050, estimates for the entire Tla-o-qui-aht population range from 2300-2400 people (the current number is 754). Assuming that the reserve community at Opitsat remains the same, given its relative isolation on an island, and a similar problem of access to developable land, it is recognized the majority of Tla-o-qui-aht people that return to this area will locate at Esowista. Developing a way for the local population to adapt to this influx of people is important, and equipping them with the skills to participate in the construction of the community is essential.



*Figure 7. Esowista Today
Beachfront Housing at the Village of Esowista.*

CHAPTER 2

CHIRPING FROGS AND SPHAGNUM BOGS

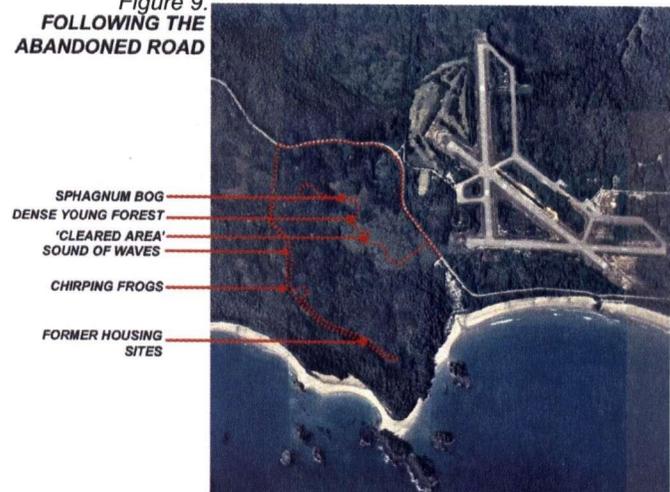
WANDERING ALONG AN OVERGROWN old road that once led to Officers Housing overlooking T'ayis, I sing, I whistle, and I thrash about loudly to ensure that cougars and bears and wolves are aware of my presence. Knowing that I am heard provides comfort. Feeling that I am seen does not. This road is now a Class A wildlife corridor: a major highway for predators and prey alike, and the only remaining connection between the north end of Long Beach and Grice Bay. The brush is thick with willow, and tangles of fern and salmonberry, but compared to the impossibly dense salal on either side, this road seems perfectly open. Little wonder it is the route of choice.



Figure 8. Decommissioned Road
An abandoned road that once led to Officer's Housing.

Glancing at my map, already soaked by the morning dew, I begin to calculate how long a loop walk from where I think I stand to the end of the road, then into the forest to find a large bog might take. For a bushwhacker as experienced as myself, a couple of hours should be plenty. Forgetting my best defence of chronic noise, I move along the road not noticing that the silence is gradually filling with the sounds of the ocean and the forest. Suddenly I realize that I can hear the repetitive washing of waves, and think that the bend in the road on my map must be imminent. It is not. The soundwaves made by the sound of waves carry deep into the forest.

Figure 9.
FOLLOWING THE
ABANDONED ROAD



Continuing along the road, I notice frequent animal tracks, mostly deer and what looks like racoon. Definitely not cougar. The road is becoming less like a road and more like a long, linear wetland. Hoping against hope to keep my boots from becoming buckets, I hop from high spot to high spot, and cling to trees hanging their branches over the edge. Now surrounded by water and accustomed to the sound of the ocean, I begin to notice another persistent sound. Beneath the waves there is a chorus of chirping frogs. It is shocking that this chorus has yet gone unnoticed. Several minutes later I reach the bend in the road. Water fills every depression on the ground, creating hundreds of little wetlands, and the gentle chorus has become a wonderfully loud cacophony.



Figure 10.
Road as Wetland.

Figure 11.
Wetland Home of Chirping Frogs

I creep into the forest, away from the ocean and come to the edge of a shallow wetland that would fit on a few acres. Though I have crept quietly, my presence is obvious and all but a few oblivious frogs have fallen silent. A short round of applause silences the rest.



Waiting for their song to begin again proves fruitless, and it is time to find the bog.

Returning up the road toward the highway, I decide upon a point to break into the forest. The choice is not arbitrary. I am guided by delightfully deliquescent shore pines, gnarled by a lack of calcium signifying the saturated, acidic soil of a sphagnum bog. Though these trees are visible from the roadway-cum-corridor, a formidable barrier of slash, salal and tightly packed second growth keeps all but the most committed of wanderers from finding the bog. Eventually the plants begin to clear, and soon I find myself in an extraordinary place.

The ground is cushioned with a thick layer of pink sphagnum moss. Walking here feels like walking on another planet. The ground responds to each step, first by enveloping the foot, then by springing back to conceal any evidence of travel. Track pads made firm by centuries of travel criss-cross the bog, betraying the invisibility of the animals adapted to life here. Clearly there is a wealth of creatures that move across this site.

This bog is the headwaters of Esowista creek, cleansing the water that converges here before releasing it into the ocean. Though I am permitted to stay, I feel like an interloper desecrating a sacred place. Keeping to the track pads, I turn sharply toward the ocean and make my way to another part of the forest.

With the bog behind me, I enter a dense stand of young trees. Movement here is easy as the lack of light has kept the ground free from a thick understory and I proceed quickly to the area that has been cleared to ensure safe take-offs and landings at the Tofino airport. Until now the going has been difficult but as expected, and I am managing to keep to my predicted schedule. In this cleared area, however, I discover new meaning to the word **dense**.

Freed from the impediment of a canopy, the full light of day has been shining on this section of the site for more than sixty years. In that time, salal has grown so thick and so high that it is virtually impenetrable. The uppermost leaves are 10-12 feet off the ground, and from knee to eye-level the world is a mesh of thin, pliable stems. The full weight of my body is needed to force an opening in the branches and soon I hone in on a method of movement that is strikingly similar to swimming, beginning with an initial dive followed by powerful arm-strokes. Periodically, slash piles consisting of fallen trees emerge out of the brush. These provide vantage points to survey the landscape: a sea of salal punctuated with young trees; and occasional snags, bleached almost to white, standing like ghosts haunting this clearcut. Descending back into the brush, I contemplate how naming this the 'cleared area' feels fraught with irony.



Figure 12.
Deliquescent Shore Pines



Figure 13. *Sphagnum Moss Cushions the Ground and Envelops the Foot*



Figure 14. *The Whole Bog Hummocky, Mossy Ground with Gnarled Trees and Dense Forest in the Distance*

Figure 15. *Snag Sun-Bleached Snags Tower Over the rest of the Site.*



Blindly, I make my way through the salal until I happen upon a survey line flagged with bright orange tape cutting straight through the forest. Though it makes the walking easy, this feature is a disconcerting disruption, foreshadowing the change that is about to transform this place. The line is a straight shot directly to the highway, and I emerge a few hundred meters away from the parking lot at the head of the Schooner Cove Trail.

Now well behind schedule, and tired from battling salal, I sit and think about this site. It is a special place, yet it is hard to imagine a community here.

This section examines the site from an environmental perspective so that a community can exist here without harming the ecological health of the area.

INTEGRITY VERSUS HEALTH THE MANDATE of Parks Canada is to maintain the ecological integrity of national parks. This demands an exploration of what is meant by 'integrity'. Integrity means 'wholeness'; 'completeness'; or 'uncorrupted', and is derived from the word 'integer'. Integer transliterated from the Latin is a compound word comprised of in- not; and tangere- touched, thus integrity is the property of possessing wholeness or completeness due to not having been touched, or otherwise corrupted. In the dynamic systems of ecology, where flux is the norm, integrity is a challenging property to observe. The death of a single organism can conceivably represent a diminishment of integrity, thus when a cougar kills a deer, or when a gust of wind blows down a tree, we are forced to wonder if ecological integrity has been negatively impacted. After all, the whole population of deer (or trees) has been reduced. Conventional wisdom, intuition, and common sense, however, say that despite these fluctuations, the ecosystem remains whole, and integrity has not been affected. By contrast, there seems to be a difference when a person wantonly cuts down a tree, or kills an animal, and it is reasonable to suggest that in such cases ecological integrity has been compromised, and the wholeness of the ecosystem has been lessened. Therefore, it is the human touch that impacts ecological integrity.

This is a contentious claim with numerous potential exceptions, but rather than debating the idea further, I offer the following implications. Firstly, with respect to Parks Canada and their mandate, maintaining ecological integrity amounts to ensuring that people refrain from killing things (be they plant, animal, or other) while visiting national parks.¹ Secondly, and likely a greater conceptual challenge, is the need to embrace the notion that impacting ecological integrity is perfectly fine in non-park settings. In fact, impacting ecological integrity **properly** is something that humanity ought to be trying to do. J. Baird Callicott and Karen Mumford offer a lucid justification for this. In the article "Ecological Sustainability as a Conservation Concept", they articulate the impossibility of maintaining ecological integrity in 'humanly impacted' ecosystems, and suggest that



Figure 16. Survey Line
Survey line Flagged and
Measured

¹Certainly, people concerned with parks would go several steps further and argue that when introduced species start to take over parks, preventing indigenous species from surviving, ecological integrity is being harmed, thus human involvement is unnecessary. Such an argument fails because the mechanism of introduction has not been considered. If people are in some way responsible for introducing the species, then the human touch is involved and the definition provided encompasses the example. If the human touch is not in any way involved, the argument still fails. The invasion of a prolific species represents a fundamental systemic transformation, impacting entire species and groups of species, altering innumerable interdependencies. To think this represents an impact to ecological integrity is to conflate ecological integrity with ecological health, as will soon become evident.

ecosystem health is a more appropriate goal in striving for ecological sustainability. According to them, it is clear that the death of individual organisms at the hands of human action is inevitable. What is important is to maintain the functions and processes that characterize an ecosystem. An analogy to the body is appropriate given the reliance on the concept of health. In our bodies, individual cells may die, but as long as the organs and the regenerative systems that support them continue to proceed, the body continues to function and we remain the picture of health. As soon as the process of cell creation ceases to function, health deteriorates and the body passes away. If we accept the analogy of bodies to ecosystems, organs to species, and cells to individuals, maintaining ecological health requires that species and their interactions must be preserved, though there is no equivalent need to preserve the life of this or that individual within a species.

Maintaining ecological health in the expansion area at Esowista requires understanding the movement of water and animals across the site, as well as the state of the vegetation on the site. To provide this, an examination of topography, soils, hydrology, wildlife corridors, and vegetation patterns follows. The Tofino Airport also receives particular attention owing to its significant environmental impact on the expansion area.

TOPOGRAPHY *THE EXPANSION AREA* that has been granted to the Tla-qui-aht for Esowista sits on an extensive upland plateau that typifies the landscape between Tofino and Ucluelet. This raised plateau, which sits between 15 and 30 metres above sea level is believed to have developed as a result of the uplift of land that follows the recession of a glacier. The result is a steep bench immediately adjacent to the beach that gradually descends back to sea level at Grice Bay. Aside from occasional hills, there are few distinguishing topographic features on this generally flat plateau. The most significant topographic feature is the lip which has developed at the westernmost edge of the plateau above the beach. Here, sand blowing inland has been intercepted by the towering Sitka Spruce trees and has accumulated on the ground. Over the centuries, this has created a subtle rise in the ground which prevents water from flowing toward the ocean. Instead, water flows inland. Combined with the general flatness and the soil characteristics, this has allowed hundreds of bogs and wetlands, ranging from small pools to large sphagnum bogs to develop across the plateau.

Figure 17.
Profile of Expansion Area

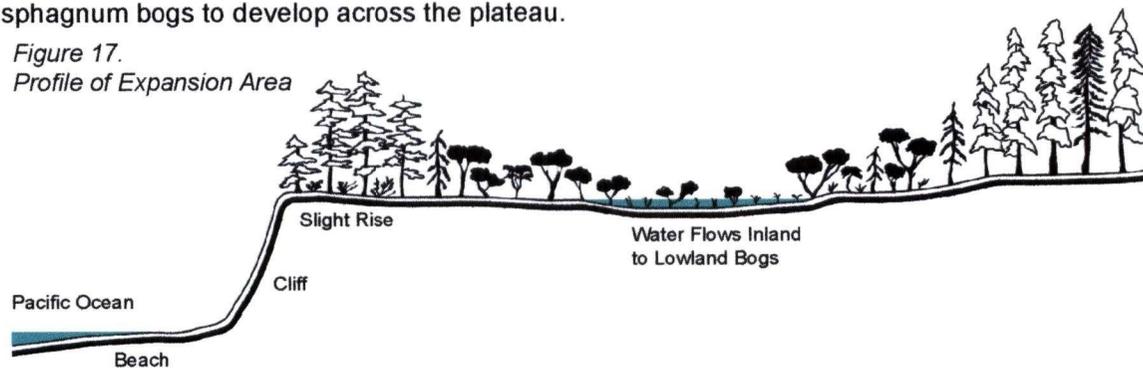


Figure 18
SITE SECTIONS



- Existing Reserve
- - - - - Expansion Area

The existing reserve at Esowista sits at the north end of Long Beach, overlooking Wickanninish Bay, with homes inland as far as the Pacific Rim Highway. The expansion area is located entirely inland on a gently undulating upland plateau between that sits between 15 and 20m above sea level.

Section A: 1000m



Section B: 1000m



Section C: 875m



Section D: 850m



Section E: 2000m



SOILS IN 1974, TED EDGAR BAKER examined the soils of the Tofino area for his doctoral thesis. Two of the sites he studied were in the vicinity of the expansion area for Esowista, one in a forested area, and one in an area adjacent to the large sphagnum bog located close to the centre of the expansion area. This section borrows exclusively from his research.

At the forested site, the water table is located 1.5m below the surface to surface level and fluctuates dramatically. The uppermost layer (identified as the L-H horizon) is comprised of moderately decomposed litter and abundant roots. It is a dark reddish brown and ranges from 12-46cm thick.

The first layer of mineral soil, (the Ae Horizon) is a reddish grey sandy loam. It ranges in thickness from trace amounts to 8cm thick, and has a pH of 4.5 (acidic). The Bh horizon occurs at a depth between 5 and 20 cm, and is a dark reddish brown sandy loam. It is firm to very firm, and has a pH of 4.7.

Beneath this, at a depth between 20 and 20.4 cm, is a continuous band of impervious reddish black vitreous material that ranges in thickness between 1 and 4mm. This is the critical layer. Water infiltrates to this point then moves as subsurface interflow until it reaches a wetland or sphagnum bog where it accumulates for an extended period, recharging groundwater, evapo-transpiring, or flowing back to the ocean via Esowista creek. Below this impervious layer are stratified sands that extend to an unspecified depth.

At the site adjacent to the sphagnum bog, the water table lies at or near the surface. The uppermost layer of the soil profile is dark reddish brown and consists of fresh, decomposed organic matter, abundant with medium and fine roots. It has an acidic pH of 3.8 (very acidic) and is approximately 12 cm thick. Below this is a similar layer up to 15cm thick, but is less slightly acidic with a pH of 4.3. Below this are successive layers of brown, yellow, and grey sandy loams increasing in pH (becoming more neutral).

The key feature here is the lack of the impervious layer. Water is able to penetrate deep into the ground, slowly recharging groundwater allowing the bog environment to function as a massive sponge, storing, recharging, and releasing water year round.

Baker points out that "any change in the groundwater level in this zone, either directly by diversion of surface water, or indirectly by wells in the adjacent area, could cause considerable change in the ecology of the entire area." (Baker, 1974, p. 184) He also notes that "if the water table drops, and hard pans are formed (by dessication), the area will no longer recharge groundwater."

HYDROLOGY THE DISCUSSION OF TOPOGRAPHY

and soils provide the context for understanding the hydrology of the site. Given the flat nature of the site, the lip at the edge of the plateau, and the imperviousness of the soil; the water that falls on the expansion area accumulates in numerous small and large wetlands, and flows across the site at or near the surface in a large swirl. This swirl follows the decommissioned road and eventually leads into the large bog near the centre of the site. From there it recharges groundwater, evapo-transpires, or is released back into the ocean via Esowista Creek. This hydrology creates openings in the forest in areas of standing water, providing a diverse range of habitat types and edge conditions. Also, the persistence of water along the abandoned road strengthens its value as a wildlife corridor. There is an abundant supply of water, though it remains shallow (less than 3 feet deep), and high, brush covered areas along the sides of the road ensure that it is entirely passable to large and small animals.

Another hydrological feature of obvious importance is Esowista Creek. The creek itself has a low volume of flow, but the bog at its headwaters ensures a continual, year round flow. The banks are deep incisions into the plateau and create a lush riparian area of considerable width. At one time, Esowista Creek supported coho salmon, but accumulation of a large amount of driftwood at the creek's mouth now prevents passage of almost all fish. Reopening this passage is feasible and appropriate, though not the subject of this paper.

Figure 21.
Pattern of Water Flow



Figure 19. Bogs
Location and extent of bogs
in the Expansion Area



Figure 20. Creeks
Location and extent of creeks
in the Expansion Area



Figure 22. High Spots
Water flows around
high spots

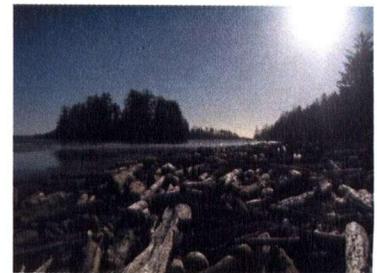


Figure 23. Driftwood Accumulation
Driftwood at the Mouth of Esowista
Creek

WILDLIFE CORRIDORS *THE ESOWISTA CREEK*

system also functions as a wildlife corridor, though of lesser significance than the decommissioned road. Animals also move toward and across the large sphagnum bog near the centre of the site. While many animals are able to move across the Pacific Rim Highway and around the airport, these features constitute a major disruption in the corridors, and fragment Long Beach from Grice Bay. Developing the community into the expansion area creates an opportunity to build a land bridge that straddles the highway, reconnecting these two significant habitat zones. Such a structure should be constructed at the end of the decommissioned road. It would be a visually interesting intervention that could also double as a signal to visitors that they are now within the traditional territory of the Tla-o-qui-aht. A road crossing for wildlife is also essential given a commitment to ecological health. Copious amounts of research demonstrate that death by motor vehicle collision causes a disproportionate rate of mortality for cougar, as well as large ungulates and amphibians. Also, for small animals roads can be a complete barrier to passage. This increases the likelihood of local extinction due to predation or random catastrophe (i.e. drought) without the influx of organisms; and vulnerability to disease or infertility as a result of genetic isolation and drift.

Figure 24.
Wildlife Corridors

Location for Land Bridge—
Class A Corridor—
Class B Corridor—
Class C Corridor—

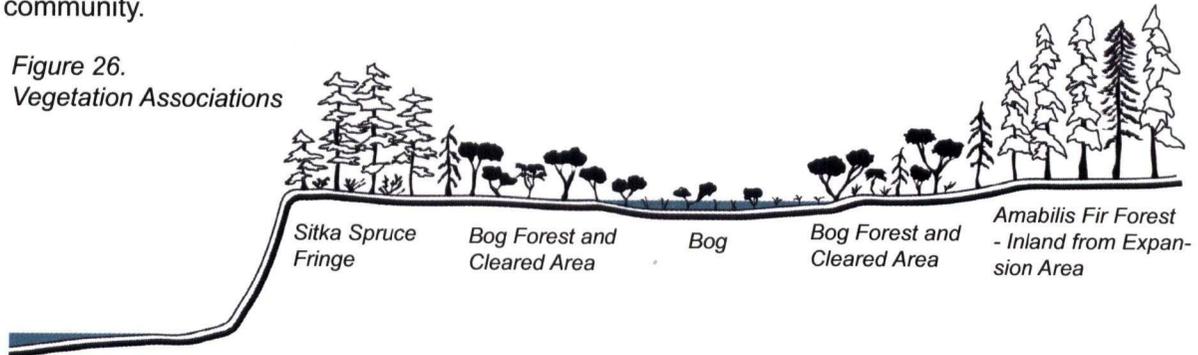


Figure 25.
Bear Denning Areas



VEGETATION THE VEGETATION ASSOCIATIONS in and around the expansion area can be classified into four broad types: the Sitka Spruce Fringe ecosystem; the bog forest, the bog; and the cleared areas. (The Amabilis Fir Forest lies inland of the expansion area and is not reviewed here.) These each have ecological and cultural significance, and all will be preserved within the newly built community.

Figure 26.
Vegetation Associations



The Sitka Spruce Fringe ecosystem is a narrow band of forest that hugs the coastline. The trees there (generally *Picea sitchensis*) typically reach 70m in height, and have a trunk diameter of 2m. The ecosystem is very rare, and threatened by human use. The tall Sitka Spruce trees protect the interior forest from the salty air and the high winds coming off the ocean, serving a critical ecological function. Parks Canada wishes for this ecosystem to be protected, and the boundary for the expansion area does not include the Sitka Spruce Fringe ecosystem. The plant was known by the Hesquiat (a Nuu-chah-nulth band) as tu`hmapt, literally 'scaring plant', coming from the root tu`huk^w meaning 'being scared'. This name relates to the role of the plant in winter dances where boughs were used to 'scare' onlookers. If people refused to play the scared role, they were hit with the prickly boughs, instilling real fear the next time around. (Turner, 1983, p. 72)

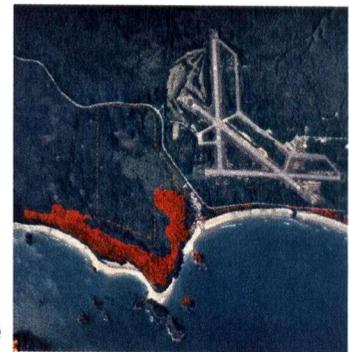


Figure 27.
Sitka Spruce Ecosystem

The bog forest consists largely of shore pine (*Pinus contorta* var. *contorta*), and yellow cedar (*Chamaecyparis nootkatensis*), with some western redcedar (*Thuja plicata*) and western hemlock (*Tsuga heterophylla*). (Traditional uses of these plants are extensive. Nancy Turner is a wonderful author for anyone interested in West coast ethnobotany. Rather than identify the multiple uses of these plants, only native names are provided in the table below.) Shore pine are the dominant species in the bog forest, ranging from 15-25m in height, and have a peculiar, deliquescent form that more resembles a deciduous tree than a conifer. Leslie Keith Wade suggests that this form results from the "early loss of the apical shoot, with subsequent increased growth of the lateral branches," (Wade, p. 51, 1965). The cause of this is thought to be a lack of availability of calcium in the soil, a deficiency which has made all of the coniferous trees in bog forest remain relatively stunted and bushy.



Figure 28.
Old Growth

The shrub layer of the bog forest is dominated by salal (*Gaultheria shallon*). Other common plants include Labrador Tea (*Ledum groenlandicum*) and lingonberry (*Vaccinium vitis-idaea*).

Figure 29.
Profile of Bog Forest

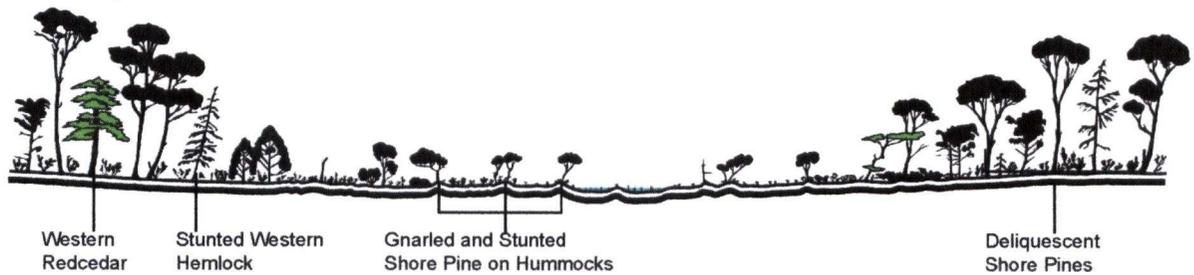


Table 1.
Plant Association of the Bog Forest

Botanical Name	Common Name	Hesquiaht or Ditidaht Name
Constant Dominants		
<i>Pinus contorta</i>	Shore pine	Λ'akmapt ('needle plant')
<i>Chamaecyparis nootkatensis</i>	Yellow cedar	'afmapt
<i>Thuja plicata</i>	Western redcedar	humi's (standing tree) picup (inner bark)
<i>Gaultheria shallon</i>	Salal (originating from the Chinook word klkwu-shala for the plant)	yam'a (fruit) ʔayi'pt (leaf) yam'apt (whole plant when fruiting) ʔayipqmapt (whole plant when not fruiting)
Constant Non-Dominants		
<i>Tsuga heterophylla</i>	Western hemlock	k'wi'laqmapt ('fire-goes-out-tree')
<i>Vaccinium ovatum</i>	Evergreen huckleberry	si'namuxs ʔis (berries) si'namuxs ʔicmapt (plant)
<i>Maianthemum dilatatum</i>	False lily-of-the-valley	ku'wi'kmapt (thief plant)
<i>Vaccinium parvifolium</i>	Red huckleberry	his ʔinwa (fruit) his ʔitqmapt (plant) ac anixsmapt (two pronged plant)
<i>Menziesia ferruginea</i>	False azalea	ʔa ʔalaqapt (Ditidaht)
<i>Hylocomium splendens</i>	Step moss	pu ʔup (general term for mosses and liverworts)
<i>Rytidiadelphus loreus</i>	Lanky moss	pu ʔup
<i>Scapania bolanderi</i>	Yellow-ladle liverwort	Not identified, probably pu ʔup
<i>Lepidozia reptans</i>	Little hands liverwort	Not identified, probably pu ʔup
<i>Sphagnum recurvum</i>	Peat moss	pu ʔup
<i>Eurhynchium oreganum</i>	Oregon beaked moss	Not identified, probably pu ʔup
Constant Non-Dominant Epiphytes		
<i>Isoetes stoloniferum</i>	Cat tail moss	Not identified, probably pu ʔup
<i>Herberta adunca</i>	Common scissor leaf liverwort	Not identified, probably pu ʔup
<i>Frullania nisquallensis</i>	Hanging millipede liverwort	Not identified, probably pu ʔup
<i>Antitrichia curtipendula</i>	Hanging moss	Not identified, probably pu ʔup
<i>Dicranum scoparium</i>	Broom moss	Not identified, probably pu ʔup
<i>Cornus canadensis</i>	Bunchberry	hasta ci (berries), hasta ciqmapt (plant) (from hastak 'bright coloured', 'bright crotch')
<i>Scapania bolanderi</i>	Yellow-ladle liverwort	Not identified, probably pu ʔup
<i>Hypnum circinale</i>	Coli-leafed moss	Not identified, probably pu ʔup
<i>Vaccinium parvifolium</i>	Red huckleberry	his ʔinwa (fruit) his ʔitqmapt (plant)
<i>Polypodium glycyrrhiza</i>	Licorice fern	hihit'a ('crawling root on trees')
Sporadic Vascular Plants		
<i>Malus diversifolia</i>		ha'plis from English apples
<i>Goodyera oblongifolia</i>	Rattlesnake plantain	Not identified
<i>Gentiana sceptrum</i>	King gentian	Not recognized

The bog itself has a diverse range of vegetation. Within it there are eight variants of what Wade refers to as the *Pinus – Sphagnum capillaceum*² association. These are:

²Now generally referred to as *Sphagnum capillifolium*.

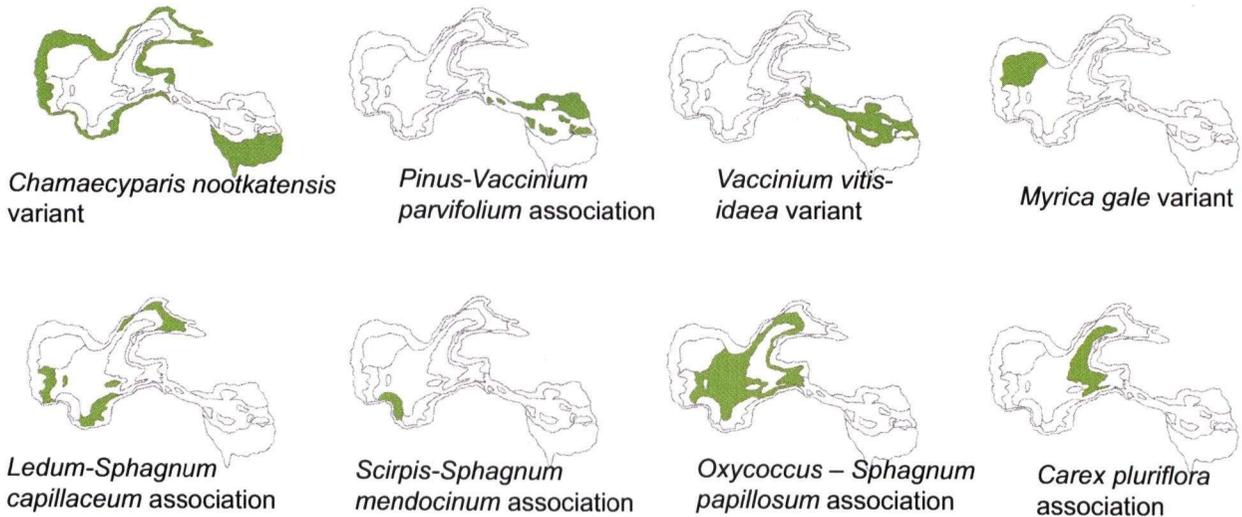
- | | |
|--|--|
| <i>Carex pluriflora</i> association | <i>Myrica gale</i> variant |
| <i>Scirpis-Sphagnum mendocinum</i> association | <i>Chamaecyparis nootkatensis</i> variant |
| <i>Oxycoccus – Sphagnum papillosum</i> association | <i>Vaccinium vitis-idaea</i> variant |
| <i>Ledum-Sphagnum capillaceum</i> association | <i>Pinus-Vaccinium parvifolium</i> association |

The map below, reveals the extent and location of each of these associations, and illustrates how the bog transforms from a forest at its edges to a treeless bog toward its centre. The most interesting features on the bog are the large areas of *Sphagnum* moss, and the stunted twisted conifers that have only grown to 3-5m in height despite 200 years of life. Rather than detailing these areas, it is only important to point out that the bog will be protected owing to its sensitivity, though a boardwalk path will surround the bog providing access for community members to explore the ethnobotanical roots of their history.



Figure 30.
Location of the Largest *Sphagnum* Bog

Figure 31.
Eight Variants



Lastly, the cleared area beneath the flight path of the Tofino Airport should be considered as a vegetation type of its own. All trees more than 10m tall have been removed the area, and trees beyond that height will not be grown. Management for timber will therefore be pointless. The remaining shrub layer (almost exclusively salal) is extremely dense. Salal has traditional value as a food source, and it is reasonable to assume that medium to large scale harvesting of salal berries could provide the foundation of a small industry. Other shrubs and small trees of traditional value that can become part of a community based value added forestry industry should also be considered, making ethnobotany an important source of economic strength.



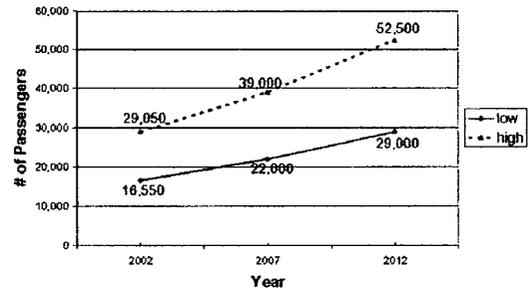
Figure 32.
Approachways

TOFINO AIRPORT - REPRISE THE TOFINO airport is a major disruption in the local environment, and presents obvious challenges for the development of the community into the expansion area at Esowista. At the same time, the airport brings tourists to the area in a healthy stream that is expected to increase as Tofino gains popularity as a year round destination. The closeness of the airport to Esowista therefore also presents certain opportunities for the new community. Balancing the negative impacts with the positive possibilities is essential for the success of the new community at Esowista.

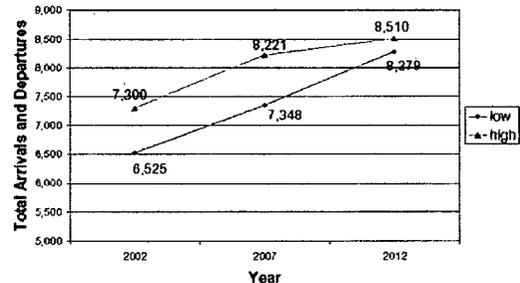
The environmental impact of the airport must be considered on two fundamental levels: ecological and cognitive. The ecological impact of the airport relates to the landscape alterations that such a major use causes. During construction of the airport, a sizable portion of wetland forest was buried under gravel and has been lost forever. Additionally, the connection between the Pacific Ocean and Grice Bay was dramatically narrowed. Planes pose a risk to birds, an important factor given the rich bird habitats in the immediate vicinity of the airport, and the presence of noise from aviation can be a disturbance to a wide number of species (including people). Lastly, to ensure safe take-offs and landings, large tracts of land in line with either end of all runways must be kept free of tall trees. This requires ongoing management, and in the case of the Tofino Airport has led to the removal of hundreds of hectares of old growth forest.

The cognitive impacts of the airport are more speculative. Since the emergence of the reserve system in the 1800s, the land allocated to first nations has been remote and isolated by a lack of roads. Once reserves were established, industrial uses (especially forestry) were permitted up to their borders, degrading adjacent landscapes. These factors make it easy to interpret a general lack of concern toward the well being of first nations. In the case of Esowista, the haste with which the airport was built, without regard to the community that was located so close by, is representative of this indifference, and its existence can be considered an ever present reminder that the interests of the community are a very low priority. In the present situation of an approved reserve expansion, the suggestion that the expanded community be located on the area clearcut for approachways³, directly beneath the flight path of an ever growing volume of air traffic represents the logical continuation of this indifference. Once again, a reserve is to be located on post-industrial derelict land, in this case land that will be increasingly impacted by noise and traffic. Clearly an alternative relationship between the expanded community and the airport must be explored.

Graph 1.
Estimates for Passenger Travel to Tofino



Graph 2.
Aviation Movement Forecast (flights)



³The suitability analysis conducted by parks Canada identifies the land cleared for approachways as the most suitable for community development. Though it is understandable that Parks Canada would make such a suggestion, given their concern for the ecological integrity of the park, it is a terrible mistake to locate the majority of the homes on this portion of the site.

There are three runways at the Tofino Airport. Presently, two of the runways are in poor shape and need reconstruction. The main runway, overshooting the golf course, is in the worst condition. The runway that overshoots the Esowista expansion area (07-25) is the primary runway for the summer time, but it is also in need of a major overhaul within the next 20-30 years. The north-south runway is in good condition, but does not face the prevailing wind. It is only used during adverse weather conditions such as storms or fog. Given this situation, several alternatives for the airport should be considered including closing down the airport completely, redirecting runway 07-25, and closing runway 07-25. Each of these options, however, must be rejected.

Used in fog and storm conditions.

Main runway, but in worst condition.

Main runway in summer, overshoots expansion area

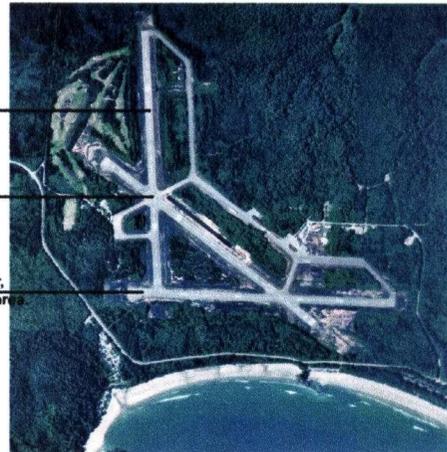


Figure 33. Runways at the Tofino Airport

Closing down the airport was rejected on the grounds that the nearest alternative for air travel is Port Alberni. Unfortunately, geography conspires against Port Alberni becoming a safe destination for a high volume of air traffic. Fog from along the coast is funnelled up the Alberni Inlet and settles on that city creating what is referred to as a fog hole. Also, the recent increase in air travel to Tofino, combined with the area's heavy reliance on tourism demands that the airport continues to serve as a source of visitors.

Redirecting runway 07-25 was rejected because of the enormous cost and severe ecological impact that would entail. Clearing new approachways would destroy the habitats that have evolved in the sixty years since the construction of the airport, and would further degrade the visual quality of the landscape around Long Beach. Furthermore, one cannot simply redirect a runway. The location and position of a runway is dictated by wind direction, and at the Tofino Airport, engineers did a very good job at positioning the runways correctly with respect to wind⁴.

Personal communication with Mark Fortune, Manager of the Tofino Airport.

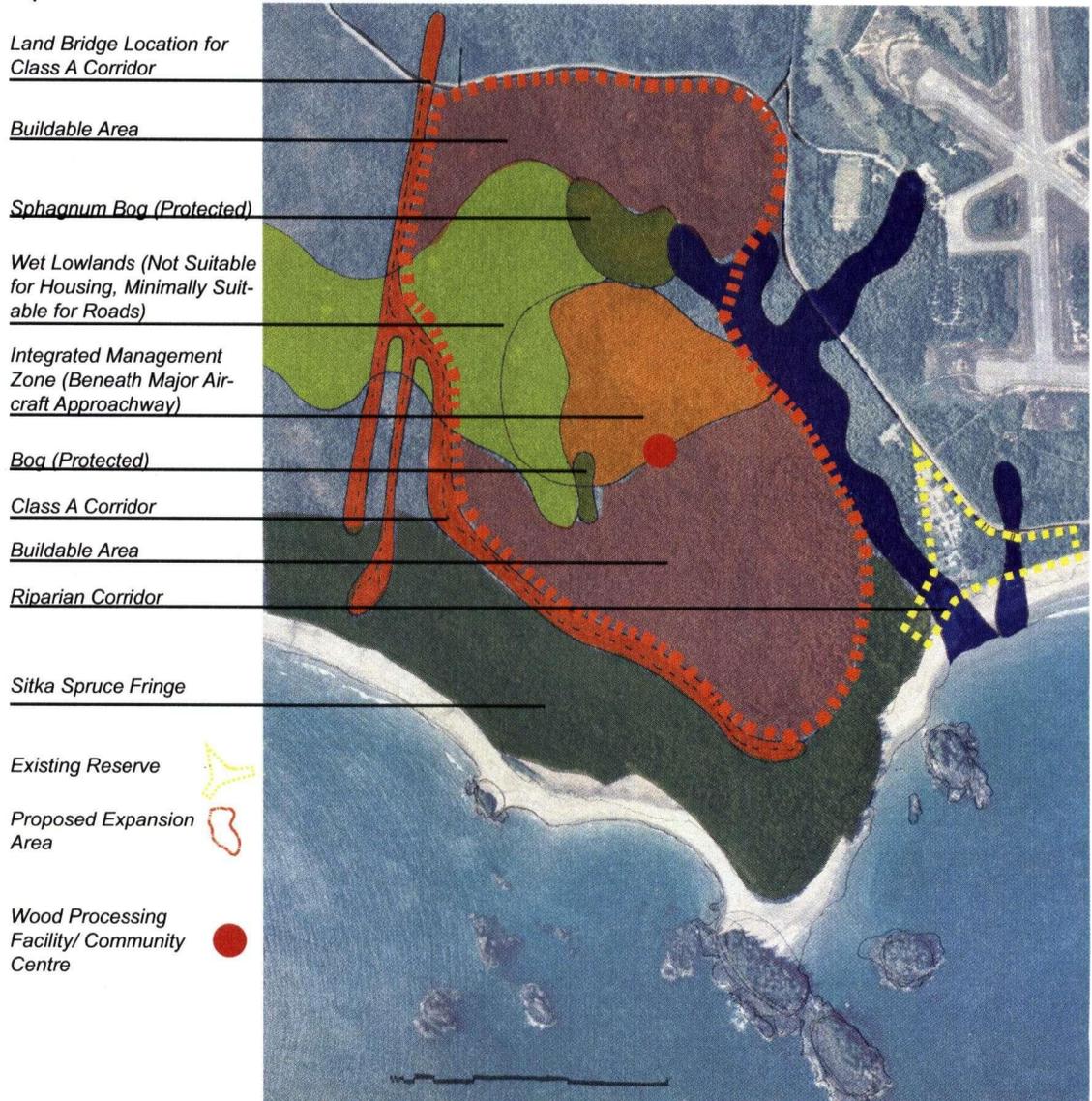
Closing down only runway 07-25 was rejected because of the recognition that such a course of action relies on governments keeping promises. The runway would still have to exist to allow planes to taxi to and from the remaining runways, which would still require rebuilding. If crews were going to rebuild a runway, it would seem imprudent to make that investment without ensuring the capacity to accommodate planes, even if it was agreed that the runway would be used only for taxi-ing. And if the runway could accommodate planes, it is foolish to believe that it would never be used for take-offs and landings. The four year election cycle makes government promises exceedingly short lived, thus not worth planning around.

Therefore, the community at Esowista must be built in a way that mitigates against the presence of the adjacent airport. The most reasonable way to do this is to consider the land cleared for approachways as industrial land, rather than post-industrial land.

This portion of the site will become an integrated management zone focused on optimizing adaptive, community based forestry; wildlife habitat and corridors, and ethnobotanical learning. Additionally, industrial buildings will be located on the edge of this portion of the site. In particular, a wood processing facility will be located there, serving as a centre for the new community. Noise generated from a wood processing facility will not be a detriment given the pre-existence of aircraft noise. People will have the opportunity to learn skills associated with resource and environmental management, design, and construction, as well as whatever traditional skills desired or deemed appropriate by the community. Possibilities include language development, carving, weaving, boatbuilding, etc. When homes are built, they will incorporate measures to protect against noise, particularly thick roofs that incorporate sound insulation.

This discussion captures the essence of the local environment around Esowista, and provides the basis for the design that follows.

*Figure 34.
Management Zones for the
Expansion Area at Esowista*



CHAPTER 3

INSIDE OUT AND UPSIDE DOWN

INSIDE OUT A MUSEUM IS CONVENTIONALLY understood as a building, place, or institution devoted to the acquisition, exhibition, and interpretation of objects having scientific, historical, or artistic value. This definition of museum is simplistic and deprives itself of the essence of the word. The word 'museum' comes from the Greek word 'muse' referring to the spirit of inspiration, and '-eum' which literally means 'seat', but refers more generally to 'a place that one occupies'. Thus, in its original inception, a museum is simply and quite elegantly, a place of inspiration.

In its more conventional sense, as a storehouse of objects, the answer to the basic question: Is there a museum in the new community at Esowista? is No, there is no museum there. The reason for this lies in the belief that such a building would contain artefacts that have deep personal significance for members of the Tla-o-qui-aht first nation. The need to separate people from their hereditary treasures and store the objects in a closed setting fragments the relationship between these objects and the people who give these objects significance. In the storing, the objects lose the power that makes them treasures. As a result, a conventional museum could ultimately separate people from their cultural history. While the objective may be conservation, the result is quite the opposite.

In the alternative view of a museum as a place of inspiration, the question of whether or not there is a museum in the community becomes categorically incorrect, like asking if there is an ocean in the Pacific. The community itself is the museum, and everything built in the community is an artefact. Again reflecting on the essence of words, this is more in keeping with the idea of the artefact as well. Artefact comes from the Latin *arte* meaning 'by skill' and *factum*, referring to 'a thing made'.

In the case of the expanded community at Esowista, the artefacts are the board walks, the retaining walls, roads, house posts and beams, and any other spot where a person has laid hammer to nail, chisel to wood, or cast to concrete, even where silt fencing has been laid to protect wetlands. (Components in this kit-of-[p]arts¹ are detailed below). The relationships that develop through building the community incrementally, on site, by residents, make it a meaningful place for the residents. Its well functioning existence is a mark of success, which is another source of inspiration. It is in this way that the museum is turned inside-out².



Figure 35. Prototype for a New Understanding
Brian Jungen is a contemporary native artist who toys with the connection between museums and the commodification of culture. In his "Prototype for a New Understanding", he tears apart Nike running shoes and reconstitutes them to look like west coast masks, then presents them in very formal glass vitrines. The result is a playful but powerful commentary.

¹ Playing off the idea of the 'Kit-of-Parts' and the meaning of *artefact*, the pieces that make up the community will be referred to from here on as the 'Kit of Arts'.

² This has a decidedly deconstructivist tone. For an overview of the connections between landscape architecture and deconstructivist architecture, see "Appendix 2: Landscape Architecture is Deconstructivist Architecture."

Another key aspect of a museum is the idea of openness; it is generally understood that a museum has visitors. This will not work at Esowista for the simple reason that no community wants to be a spectacle, with untold strangers peering into private lives. The community will remain as private as the residents demand. This may contravene conventional understanding of what a museum ought to be, but remains true to the understanding that a museum is a place of inspiration. As long as the residents remain inspired by their setting, the museum is present.

Nevertheless, it is assumed that the new community would serve as a case study for self-sufficient remote living, creating a demand for visitors that want to learn about this type of design and the process that produces it. Promoting visitors is entirely at the discretion of the community leadership, but it would be an ideal way to spread this approach and the local expertise to other places in Canada and the world.

The foundation that turning the museum inside out rests on is the willingness of the residents to participate in the construction of the new community, and this paper proceeds with the assumption that members of the Tla-o-qui-aht First Nation are interested in developing the practical skills associated with design, construction, and development. The implication on the ground is that the new community emerges first as a works yard, evolving into an advanced wood processing facility that employs people to make the community's Kit-of-Arts. This spot evolves further into a social and infrastructural centre of the community as educational opportunities are woven into the fabric of this centre, and as the community at large begins to grow.

This process of residents building a community from the inside-out is recognized as unconventional, but it is considered an ideal strategy for placemaking by thinkers such as Kevin Lynch, Christopher Alexander, and Ed Relph:

They [Christopher Alexander and Kevin Lynch] have found it necessary to make proposals for place making that owe very little to conventional approaches. Within most of these proposals lies a straightforward idea that is central to all issues of place and place making—one that offers the possibility for the emergence of *genius loci* and that challenges the environmental machine without simply being co-opted by it. This idea is simply that places have to be made largely through the involvement and commitment of the people who live and work in them; **places have to be made from the inside out.** (Relph, 1993, p. 34) (my emphasis)

The alternative is to build with what Relph refers to as the 'instant environmental machine,' the system that works to create an immediate, wholesale transformation of a place under the assertion that the new place is better than the old place. This may be true in that new infrastructure and well built buildings can provide better places to live than mouldy, dilapidated, unserviced buildings, but it is not entirely true if 'better' includes "connecting ourselves...with a place on the planet that belongs to us, and to which we belong". A new building cannot acknowledge a broken relationship between people and place.

This failure of the instant environmental machine stems from its design around the belief that the solution to a particular problem is a particular outcome rather than knowing how to reach the outcome. In the case of First Nation reserves, the use of the instant environment machine is well documented and easily demonstrable as how not to proceed. A hypothetical example based on several recent accounts reveals this:

A reserve community is characterized by extremely poor housing conditions, geographic isolation, and persistent health problems. To solve this, new houses are built in a new, isolated location. The community moves all at once. The new reserve community is now characterized by relatively good housing conditions, geographic isolation, and persistent health problems.

Obviously a fundamental component of the problem has been ignored, showing that new housing stock may be a necessary, but not a sufficient condition to address quality of life problems in First Nation communities. I believe that another necessary condition is to rebuild a set of relationships between individuals and the community, and between people and the landscape. Gaston Bachelard reflects on this idea:

We do not improve our situation through great plans, but by taking care of what is close to us, that is, of things. The things trust us for rescue, Rilke says. But we can only rescue the things if we first have taken them into our hearts. When that happens, we dwell, in the true sense of the word. (Bachelard, p.135, 1994)

Giving individuals a role in the construction and well being of the community demands that people take great care of what is closest to them, and creates an intimate belonging to the community. Being able to say with pride "I built that," will have a powerful effect on the connection one has with a place; invariably [a good] dwelling begins with careful construction.

Below is the conceptual design for the works yard as it first emerges, containing a construction planning centre, storage, a small mill, and machinery parking and fuelling.

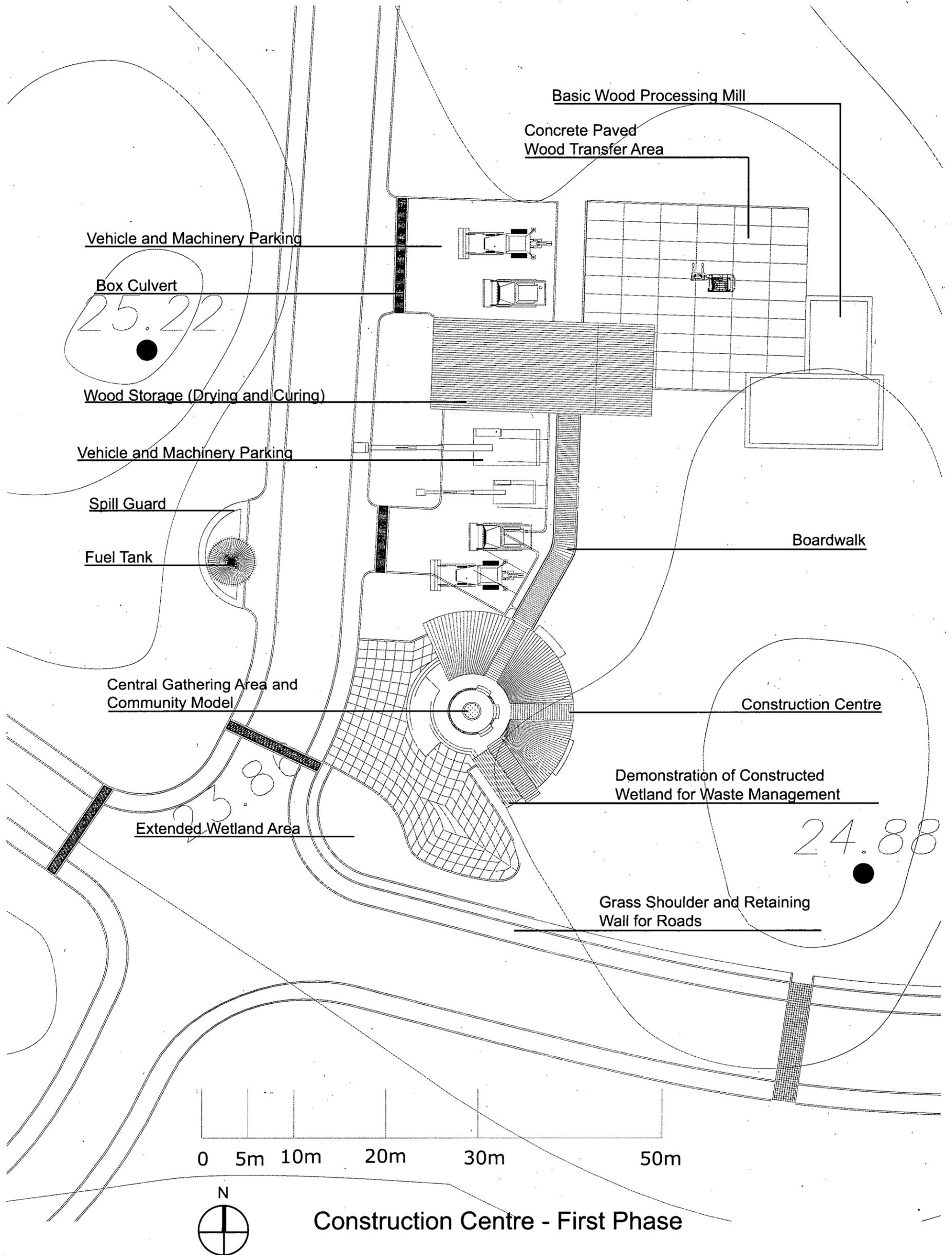
As the site is built out³, the mill grows into a wood processing facility modeled after UBC's Centre for Advanced Wood Processing, In time, educational facilities and the central component in a self-sufficient water system are added. Once the community is fully built out, the centre becomes a social, educational, and infrastructural hub, as documented in the second plan.

While this centre retains many of the attributes of typical community centre (gathering places, places to meet, recreational facilities), its primary purpose is industrial, serving as a work area that can evolve as skills evolve, and as project ideas emerge. This in turn creates endless opportunities for the new community. Skills in the ceremonial arts might promote cultural pride, and as these arts infuse general construction practice, there will be opportunities to ceremonialize activities such as raising a house. Also, from an economic standpoint, such a centre will allow the Tla-o-qui-aht to arrange contracts with the Park for the upkeep of boardwalks and facilities, and to provide high end value added furnishings for homes and hotels in Tofino.

³To see to the final built out example proposed in this paper, see Figure 69: One Outcome on page 52.

To read a schedule of events for the emergence of this outcome, see Appendix 3 "Community Emerging".

Construction Centre - First Phase



Construction Centre - First Phase

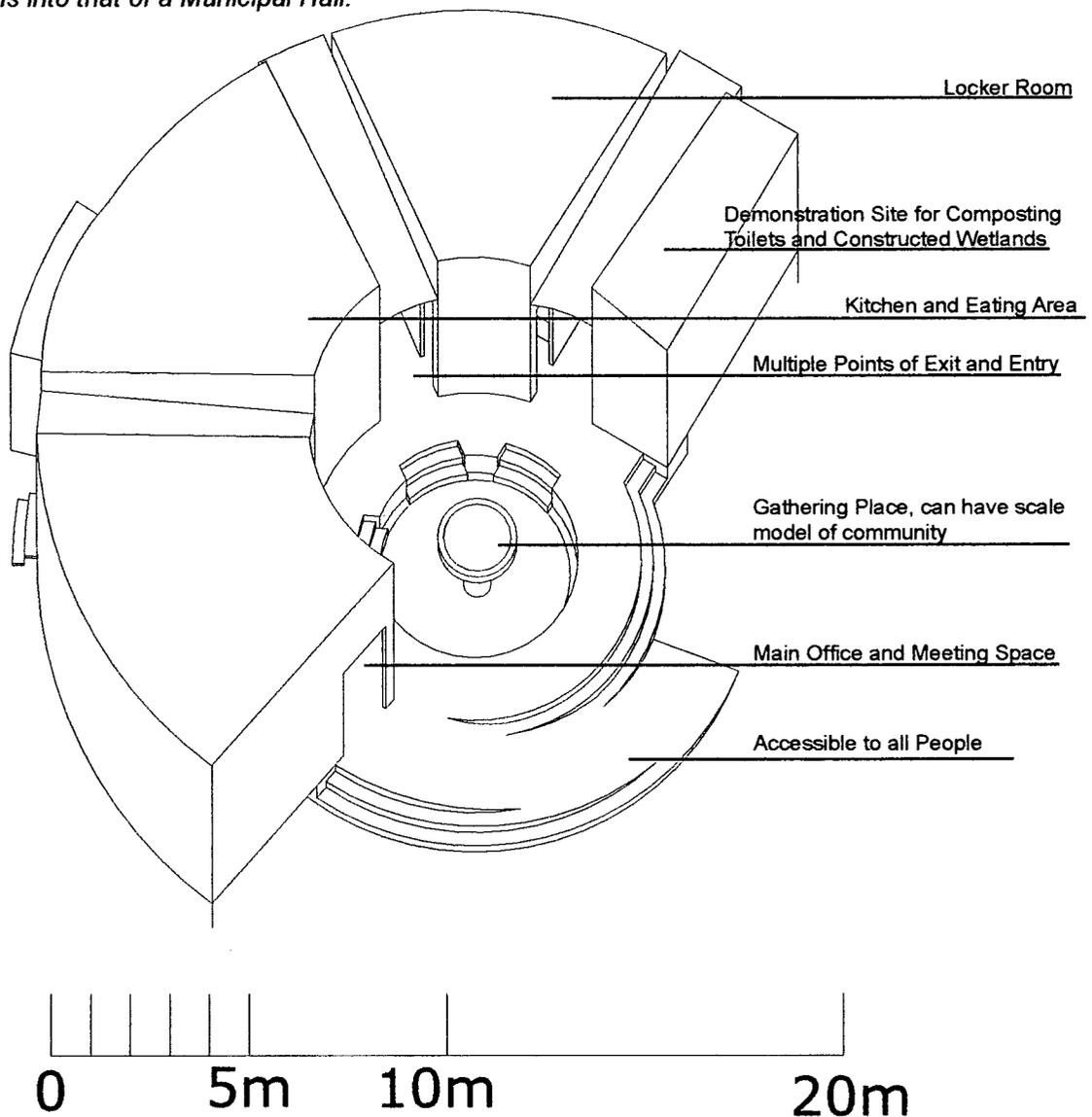
In its first phase, the construction centre provides the staging point for the construction of the community. Here, workers gather to plan the days projects, as well as for meals and to clean up after work. This is where machinery is delivered, where vehicles are fueled up and stored, and where all workers go in the event of an emergency. Also at the centre is a wood storage area, and a basic mill that can cut timber into dimensional lumber. Layered into the centre is a demonstration of the constructed wetland that can be used to manage household washroom waste.

Figure 37.
Construction Centre

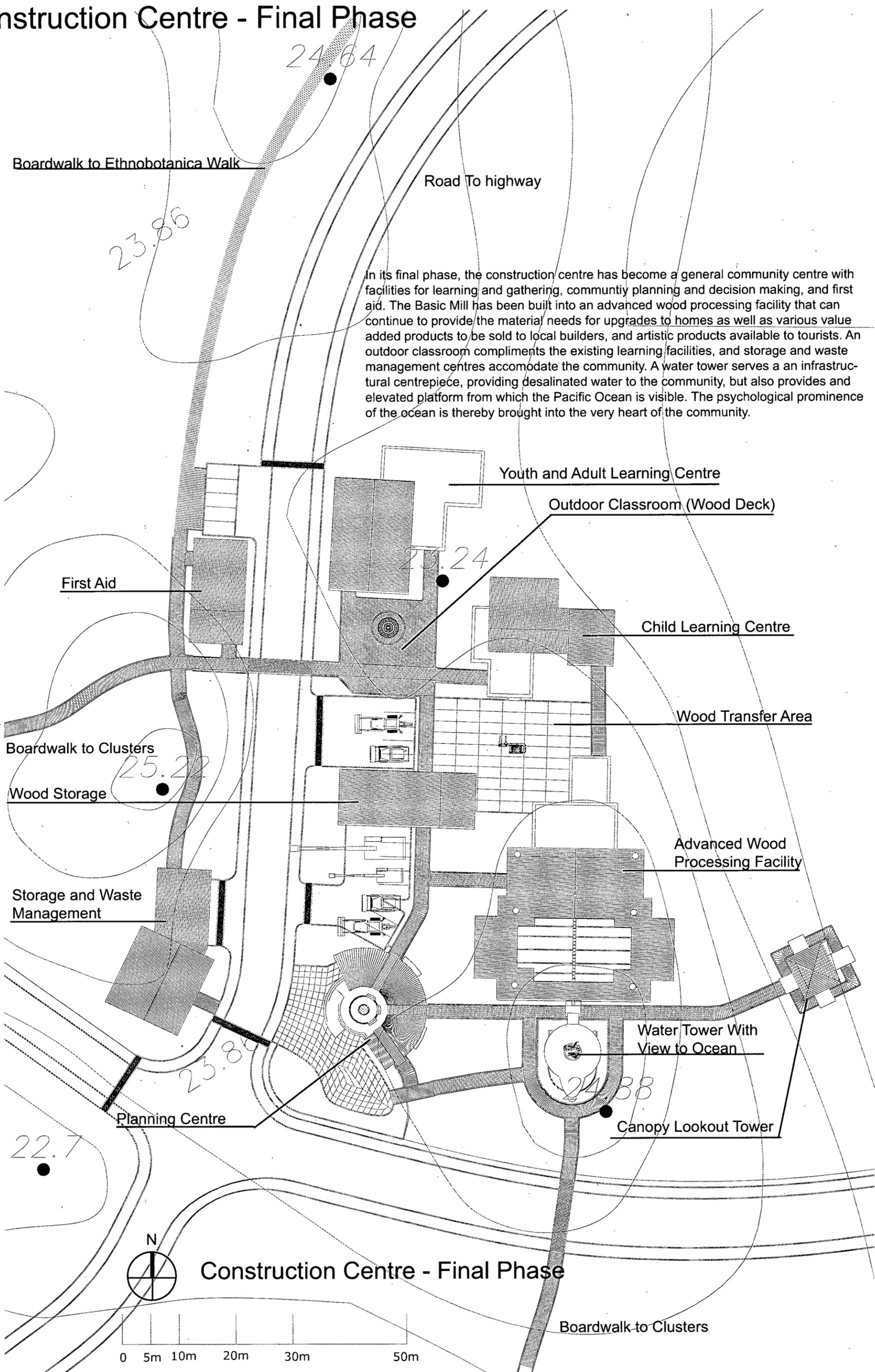
The first building to be built is the Construction Centre, the 'nerve centre' centre for the construction of the new community. Each morning, everyone involved meets to plan the day, and site supervisors conduct meetings there, and make arrangements for deliveries of materials and machinery. It also houses a locker room and a kitchen for workers.

At the centre of the structure, a pedestal displays a model of the community in its current state of development. This serves as a tactile planning tool, as well as a gathering for people.

Once the community is built, the program of the Construction Centre transforms into that of a Municipal Hall.



Construction Centre - Final Phase



In its final phase, the construction centre has become a general community centre with facilities for learning and gathering, community planning and decision making, and first aid. The Basic Mill has been built into an advanced wood processing facility that can continue to provide the material needs for upgrades to homes as well as various value added products to be sold to local builders, and artistic products available to tourists. An outdoor classroom compliments the existing learning facilities, and storage and waste management centres accommodate the community. A water tower serves as an infrastructural centrepiece, providing desalinated water to the community, but also provides an elevated platform from which the Pacific Ocean is visible. The psychological prominence of the ocean is thereby brought into the very heart of the community.

Construction Centre - Final Phase

UPSIDE DOWN NOT ONLY DOES THIS PROPOSAL involve turning a museum inside out, it also involves turning a conventional community planning approach upside down. The rationale for doing this lies in the fact that the existing approach eradicates distinctive places by relying on standardized landscapes, an approach that comes from an insensitivity to the significance of place⁴. As Relph suggests, “distinctive landscapes have been demolished, or, if exceptionally distinctive, copied everywhere else,” (Relph, p. 32, 1985). Predictably, the result is an inadequate product in which dislocation, eviction, and placelessness prevail. Therefore, if following the conventional approach gets the opposite of what is desired, then trying the opposite might provide exactly what is wanted.

⁴ Place is defined as “a specific landscape, a set of social activities, and webs of meanings and rituals, all inseparably intertwined.” (Relph, p. 31, 1985). “A place is above all a territory of meanings.” (Relph, p. 36, 1985).

Typically, a development site will have a predetermined zoning, housing stock and density, and (to a greater or lesser extent) road network. Into that predetermined structure, conventional infrastructure is fit. The result is at best invisible, often awkward or ugly, and sometimes worse. Cookie cutter homes punctuate the land and once they are built, the landscape is formatted to fit the remaining open space.

The results of this approach are evident at Esowista. There, fitting conventional infrastructure into a predetermined road system forced a barb wired fenced pumphouse to be built on what should be the most significant open space in the southern part of the Tla-o-qui-aht territory—a flat of open land at the mouth of Esowista creek overlooking the whole of Wickaninnish Bay. Near the road, a massive green drum contains the community’s water supply; and in between, wires criss-cross above a cracked and broken road. The wires and the drum are unfortunate, but tolerable. The road may be an annoyance, and may indicate a low level of priority given to improving infrastructure at Esowista, but the presence of marginal roads in Ucluelet lightens the weight of this argument. The road’s poor condition is therefore tolerable as well. The pumphouse, however, is an affront to this entire community. It indicates a profound lack of caring toward this landscape, and the people that inhabit it.



Figure 39. Existing Infrastructure

An Archetypal Example of how not to Approach Infrastructure: A Pumphouse at Esowista.

Rather than dwelling on this fact, or seeking someone to blame, it is far more constructive to decide simply to never do such a thing again. This is assured by starting with the landscape, then contemplating how homes are built and arranged. The infrastructure is considered next and finally a road pattern is developed, the reverse of the typical approach.

For the expanded community at Esowista, the first step is to rethink the nature of the community itself. Rather than thinking of the community as a place to live, the community is understood as a context for a way of living. Most importantly, it is the context for living in gentle and intimate participation with the landscape. Rather than beginning with a predetermined community population

and density, the first look is to the land to identify the areas suitable for development, areas that can support wildlife, and areas for industrial or local economic activity. By looking at clearings in the forest, locating wetlands and high spots, and protecting wildlife corridors, a clear picture begins to emerge dictating the locations for homes and zones suitable for varying types of resource management (The map identifying these areas was the culmination of the last chapter).

In this expansion area, the protection of sensitive habitats such as old growth forests and wetlands demands that houses be grouped in clusters. In addition to posing the least risk to ecosystem health, this decision offers the possibility of maintaining the tradition of grouping families together without compromising the amenities of a private single family home.

The homes in the community will be built at the wood processing facility and assembled at the building site. In order to simplify the process of design and construction, and to ensure relative equality, six simple structures plus a backyard enclosure are recommended as the basis for each home. These structures can be arranged in innumerable ways to fit around trees, or to sculpt open spaces, balancing the benefits of mass production and infinite variability.

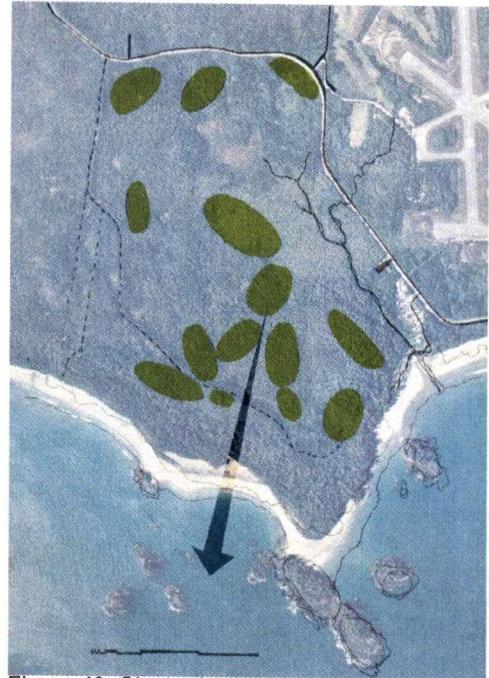


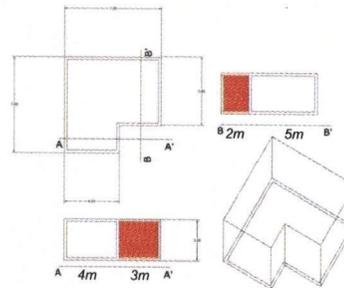
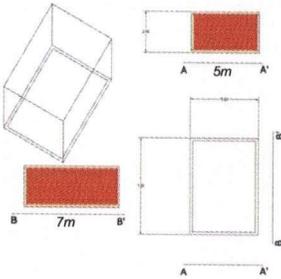
Figure 40. Cluster Locations

Organizing the community in clusters has a number of advantages, and allows the flow of water to be a major feature that gives structure to the community. High spots form the basis for cluster locations, and permit the community centre to have a potential view out to the ocean.

Figure 41.

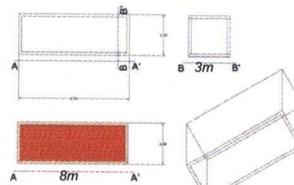
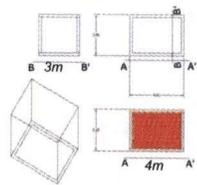
6 Simple Structures

Basic Unit
At 5m by 7m, the Basic Unit is suitably scaled to serve as a small bedroom, den, or office space.



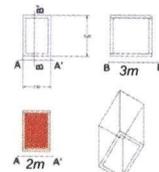
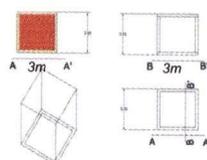
Articulated Unit
The Articulated Unit, 7m on its long edges, can house a master bedroom, a kitchen, or a large family room.

The Spacemaker Unit
The Spacemaker Unit is a 4m by 3m structure that can be added to another unit to make it feel larger, or it can serve as a very small bedroom for an infant or young child.



The Bridge Unit
The Bridge Unit serves as a linkage between distinct volumes created by the other units, or can push out an entire wall making the house feel much bigger.

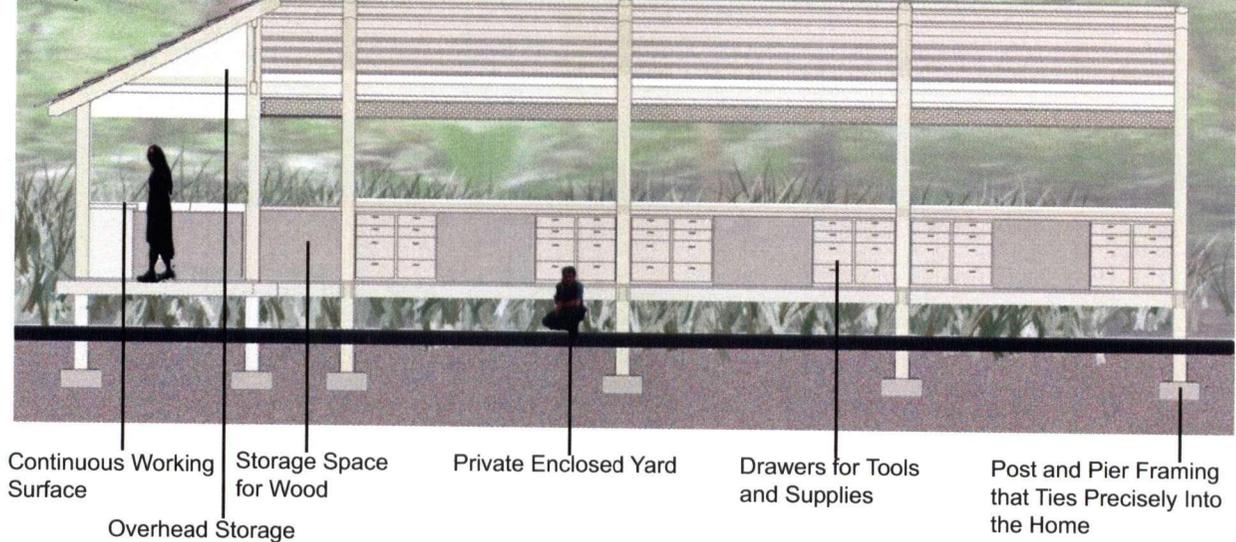
The Alcove Unit
The Alcove Unit is a 3m by 3m multipurpose addition for any part of the house.



The Pocket Unit
The Pocket Unit is a small addition that can fit virtually anywhere. It is an ideal washroom, laundry, or storage room.

Figure 42.

Backyard Enclosure



The Backyard Enclosure creates a private yard protected within the forest allowing for a small play space or work area. The ground area for the yards will be cleared of overgrowth and planted with a grass-moss mix. A suitable grass is *Festuca ovina*, a low growing grass that does not require mowing.

As illustrated in the diagram above, the Backyard enclosure also serves as a shed and covered workspace, including storage for tools, wood for working and for fuel, and drawers. This space reinforces the skills developed during the construction of the community, and enables easy ongoing design, maintenance, and construction.

Included as part of the backyard enclosure is a small structure that is meant to serve a smokehouse. This can serve a practical function in making food, or can provide a place of private significance for each family, It may be necessary for rituals to take place here, or simply to provide a place of solitude. The design of this particular structure relies on inputs from the community. All that is proposed here is that each house have a smokehouse, that the smokehouse is connected to the main house by the backyard enclosure, and that the smokehouse have the tentative dimensions of 3m by 4m.

Together, these six simple units and the backyard enclosure can combine in innumerable ways to create clusters that are closely connected to the immediate landscape. The images below demonstrate how this is the case.

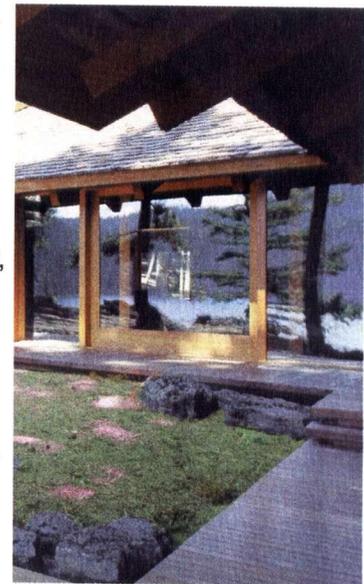


Figure 43. Portland Precedent

A precedent example from Portland demonstrating the feel of the backyards proposed for Esowista.

The line diagrams to the right reveal how the modular elements proposed can be combined and stacked to create interesting homes with a strong relationship between indoors and outdoors, and that can be built around existing large trees. These models are taken from one of the clusters that was developed. In them, the units are discernible, as is the backyard enclosure and the smokehouse.

It is also worth noting that the houses were designed to have a balcony overlooking a communal centre. The structure of the clusters will be described more closely later. For now, it is only important to recognize that the homes are responsive to the environment, and offer a gradient between public and private space.

Below are precedents of houses that possess a similar attitude towards dwelling. The house at the top-right, located on Hornby Island is nestled in and among trees, and is built to maximize views out. There are two distinct volumes to this house, with communal space on one side and private rooms on the other.

Below-left is the Mooloomba House, in Brisbane Australia. It has many of the attributes of the homes proposed for Esowista. Pictured below is the balcony peering over vegetation from the second floor of the house. Such a move has been incorporated into virtually all of the homes at Esowista.

Figure 44. Possibilities

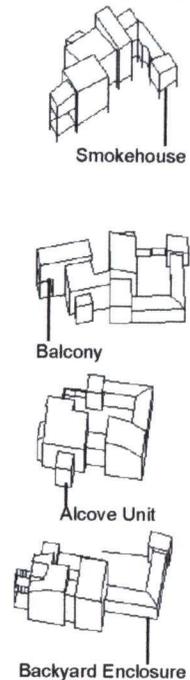


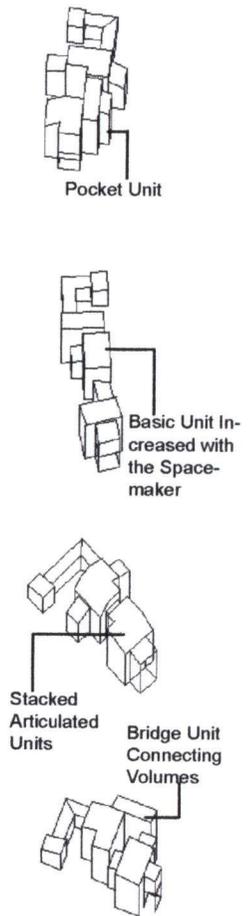
Figure 45. Hornby Precedent

Right: House Precedent from Hornby Island. Volumetric spaces capitalize on views.



Figure 46. Australia Precedent

Left: The Mooloomba House in Brisbane, Australia. A balcony overlooks the lush surroundings, and projects the interior outside.



INFRASTRUCTURE *THE DIVISION OF THE* community into clusters also enables a dramatic decentralization of infrastructure. In particular, water distribution and waste management can be brought down to the scale of the cluster, creating self-sufficient subsets within a self-sufficient community. If something goes wrong in one place, the collective network remains resilient.

This leads to the second step, which explores ways that infrastructure can build autonomy into the new community. This includes exploring mechanical systems as well as human interactions. From a mechanical standpoint, autonomy depends on decentralized water, waste, and power management systems, and the design of the infrastructure becomes a major opportunity. From the standpoint of human interaction, autonomy requires effective communication and strong leadership. The location and program of buildings will have an effect on the means and method of communication between people, as well as the level of connectedness between the community and the landscape. Providing opportunities for people to come together is therefore essential.

The provision of domestic water is a particularly interesting problem that can address each of these issues. Examining the issue of the human connection to the landscape, the expansion area for Esowista is located well away from the ocean, in a place that would never have been occupied by Tla-o-qui-aht. The traditional pattern was to site communities on or near beaches, where a stream meets the ocean (precisely as the existing community at Esowista is structured). This ensured access to water, food, and transportation, and created a profound connection to the ocean. Having been distanced from the ocean represents a significant concession on the part of the community, and new ways of bringing the ocean into the community must be imagined.



Figure 47. Traditional Pattern at Esowista

The existing community at Esowista retains traditional settlement characteristics near the beach, overlooking the ocean, but further inland, a more conventional predominates. In the expansion area, there are no opportunities for a direct visual connection between homes and the ocean.

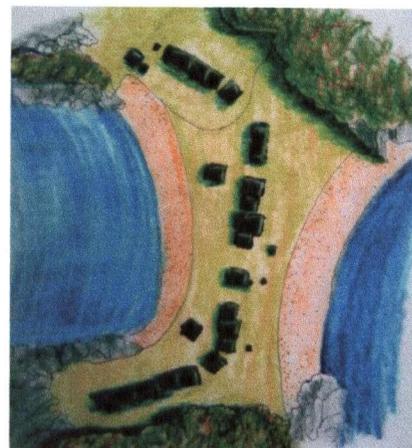


Figure 48. Traditional Settlement Pattern

The historic village of Yuquot demonstrates a strong relationship to the ocean.

DESALINATION THE OCEAN CAN BE BROUGHT into the community visually by giving people a towering platform on a high spot at the community centre where glimpses to the ocean are possible. This can create a place of quiet social interaction, or a powerful meeting place. The ocean can also be brought into the community literally, as a water source. This requires desalination. Combining the spiritual value of seeing the ocean with the mechanics of desalination puts a seawater desalination tower at the centre of the community, creating a very internal water cycle. As described by experts in the field, a desalination process that is a flexible to the site, appropriate to the scale of Esowista, and requires a tower is the Humidification-Dehumidification (HD) process.

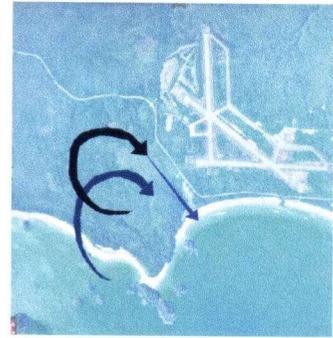


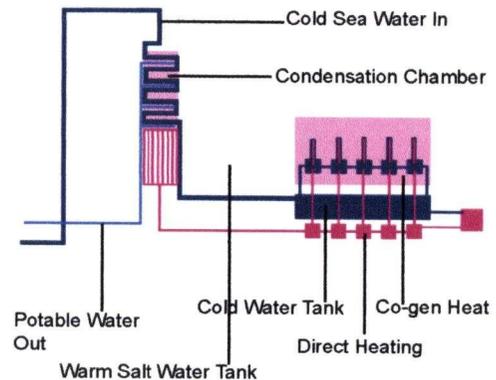
Figure 49. Water Cycle

The humidification-dehumidification process (HD) is an interesting technique adapted for water desalination when the demand is decentralized. This technique presents several advantages such as flexibility in capacity, moderate installation and operating costs, simplicity, possibility of using low temperature energy, (geothermal, solar, recovered energy, or cogeneration), etc. (Bourouni, 2001, p. 167)

A water system that relies on the ocean for sustenance and the land for cleansing creates a water cycle in which water flows from the ocean through people, into the land, and back into the ocean. In doing this, a unique bond is created between people and the surrounding world.

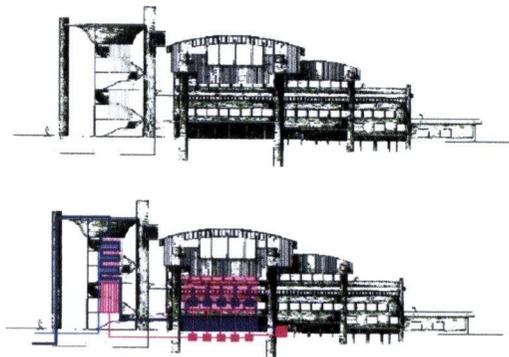
In this process, cold sea water is sand filtered and brought to the top of a tower. It cycles through condensation coils on its way down to a storage tank. From the storage tank the water is heated and pumped to an insulated tank for warm water. Evaporating water condenses on the coils of cold sea water and is collected in a third, smaller tank. From there, pure, potable water is distributed.

Figure 50. Schematic Diagram of the H-D Process



A recurring argument against desalination is the high demand for energy to drive the process. Bourouni points out, however, that the HD process can be driven by cogeneration, and the adjacent wood processing facility is an ideal heat source. The cold sea water will be used as a coolant for machinery, maintaining their operating temperature and for moderating the building temperature. This will preheat the seawater, which is brought to the full temperature for desalination by incinerating wood waste in ultra-efficient wood stoves.

Figure 51. Diagram of the H-D Process as it Fits into the Wood Processing Facility



The flexibility of the HD process is another benefit. As the community grows, the volume of desalinated water could adapt accordingly. With fewer homes, the system might provide for general domestic needs, but as the community grows, desalinated water might only be used for potable water and bathing, with rainwater meeting remaining demand. Alternatively, the volume of

desalinated water could be expanded so that Esowista becomes a sustainable source of water for facilities at Long Beach, the airport, and other local developments.

Elaborating on the point of simplicity, Bourouni et al tells us that “[t]he HD units are characterized by great functioning simplicity and flexibility, ensured by a low number of apparatus,” (Bourouni, 2001, p. 169). This simplicity allows the system to be operated by a local population, rather than by highly trained outside experts. From a financial perspective, “for small capacity systems, simplicity in design and operation was found to be the most important cost factor. (Gluekstern, 1999, p. 140) For these reasons, an HD desalination water tower is an ideal component in the expanded community at Esowista.

RAINWATER THIS DISCUSSION HAS RAISED an important question surrounding the use of rainwater. The 3000+ mm (more than 10 feet) of water that falls on this site annually should be an ample source of water, and harvesting rainwater would be dramatically cheaper and more decentralized than desalinated water. Why, then, is the system not based on rainwater?

Firstly, desalination does not preclude the harvesting of rainwater. In fact, rainwater will be harvested for domestic water uses such as flushing, laundry, dishwashing, and outdoor uses. These account for the majority of household water use, but demand a lower level of purification than water for drinking.

Furthermore, in using a desalination system the volume of water provided is entirely predictable, and comes from an inexhaustible, readily available resource. Relying on rainwater, by contrast is less predictable, forcing the community to consider the size of tanks required to meet water needs that will cover the longest period of drought. The reality of climate change makes this difficult to predict. If climate change affects this area, all that can be predicted is that it will either rain more, or less, and that storms and droughts will be either more or less frequent, and more or less intense.

Each of these scenarios has implications for a rainwater harvesting system, particularly storage capacity. If climate change results in fewer, more intense storms, and the period of drought between storms lengthens, tank size must be scaled accordingly. The purification system must also be designed accordingly, as water will be stagnating in a storage tank for potentially significant periods of time. Also, it seems unwise to base a system of infrastructure on the climate when it is known that the climate is changing. The high cost of altering infrastructure once it is in place demands close consideration for the system that is put in place.

Relying on rainwater solely for non-potable uses eliminates the need for purification, and ensures that the comparatively costly desalinated water is not wasted on uses such as flushing.



Figure 52. Rainwater Collection

In the rainwater collection system, water is conveyed to a gravity driven plug flow filtration system. From there it is pumped to the cluster centre where water undergoes final treatment before returning to the home for use.

Rainwater will therefore be collected from rooftops, conveyed to a water management centre in each cluster, where it is stored, distributed, and/or released as necessary. There, it can also form the core of an emergency back up system, including fire protection. From the cluster centre, potable, and non-potable water will be pumped separately back to each home.

This differentiation between potable and non-potable water also creates an opportunity to spiritualize water. Setting a volume of water apart as special is a powerful universal idea. In the case of the Tla-o-qui-aht, drinking water from the ocean and returning it to the world through the self links the earth, the ocean, and the person together. When all water is equal, the intensity of this special connection is diminished.

GROUNDWATER ANOTHER ARGUMENT AGAINST the use of desalinated water is based on the fact that groundwater should be used. Unfortunately, groundwater in this area is contaminated with iron and manganese. While the health threat posed by this contamination may be limited, the odd taste and discolouration have severe negative impacts on the perception of the community. Additionally, in the previous chapter, it was revealed that drawing down groundwater could lower the water table. Even a small reduction in the water table could have a dramatic effect on local hydrology. If the water table falls below a certain level, the upper layers of the bog will dry out, creating an impermeable surface. Water will no longer penetrate into the ground and groundwater will not be recharged. There would be severe consequences for wildlife, and a new well would have to be found to provide for people. If this well was found on adjacent land, i.e. at the airport, the community would no longer have authority over their water, and the autonomy of the community would be compromised. Therefore, relying on groundwater is imprudent.

MUNICIPAL WATER THE ONLY OTHER VIABLE source of water is the existing municipal water system that feeds Tofino. To tie into this system, a main pipeline would have to connect Esowista to Tofino. The costs for such an undertaking are enormous, on the order of 1 million dollars per kilometre. The distance between Tofino and Esowista is 25 kilometres, creating a frightening price tag. Ongoing maintenance is an additional concern, as is the lack of flexibility of the system once it is in place underground. Tying into Tofino also builds reliance on an unreliable system. As Tofino continues to develop and grow, issues surrounding water management and distribution will intensify, and a small outlying community with comparatively fewer resources will, in all likelihood, suffer the poorest quality of service.

This discussion of water use leads to a discussion of water waste, thus a decentralized waste water system is the next factor to consider in this upside down planning process.

WASTE WATER A DECENTRALIZED WASTE WATER management system is an ideal way to maintain flexibility in the face of changing population, and to ensure autonomy. An adaptable system that grows as the community grows will ensure that the system is neither too big, nor overwhelmed. An outdoor septic field is not a good option for waste water management at Esowista. The high water table, vast abundance of flowing surface water, immense volume of rainfall, and ease with which water can eventually penetrate into deep groundwater all pose significant challenges to such a system.

Instead, a system of 'living machines', as envisioned and designed by the pioneering ecological engineer John Todd is proposed. This system will integrate plant life and aquaculture to assimilate grey and black water that flows out of homes. The system will have two dimensions: an at-the-house dimension and a cluster-centre dimension. From the house, grey water will move to a plug flow constructed wetland adjacent to the house, where preliminary removal of suspended solids, phosphates, and nitrogen is possible. Toilets will be clivus multrum composting toilets that incorporate a flush mechanism. The solids remain in the compost, while the tea flows to the constructed wetland. From the constructed wetland, the pre-treated waste water is pumped to the cluster centre, where a water treatment facility is housed. Contrary to popular imagination, this will be a lush, greenhouse environment with the capacity to manage the waste water from 10 households. Rainwater will also be managed at this part of the centre, and the waste treatment facility will be marginally oversized so that excess rainwater can be introduced to dilute the system.



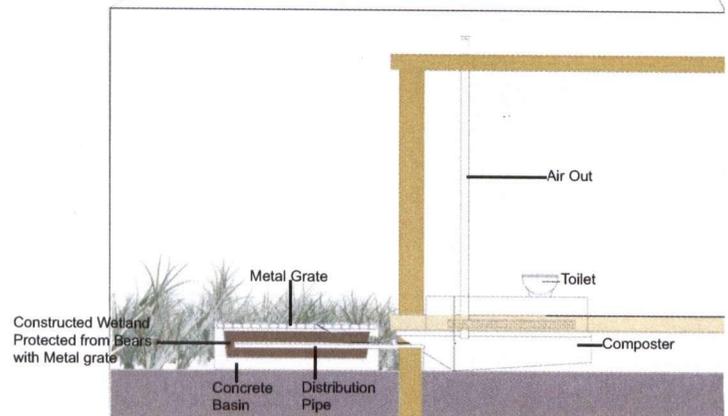
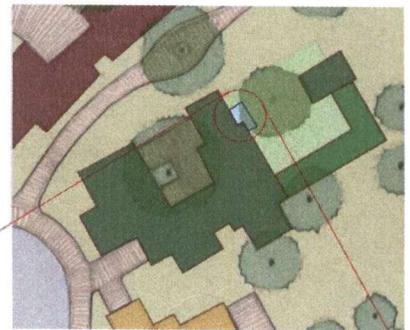
Figure 53. Waste Facility
Waste treatment Facility housing living machines.

Figure 54. Living Machines
Typical Living machines that can be developed at Esowista.



Figure 55. Washroom Water Waste

For the homes at Esowista, a flush toilet is connected to a clivus multrum compost where solids are digested. The tea is pumped through a plug flow wetland then sent to the living machines at the cluster centre.



In addition to a water tower located at the centre of the community as a whole, this system creates the need for a much smaller water tower at the centre of each cluster as part of the decentralized water management facility. Once again, viewing the development of this infrastructure as an opportunity rather than an unfortunate inevitability presents interesting possibilities. The water towers at the centre of each cluster will use art and structure as identifiers for the cluster. Also, the tops of the towers will be accessible, providing a place to survey the landscape, and in some instances a vantage point to see the ocean. This small tower will create resilience by ensuring the availability of water and the functioning of the waste system in the event of glitches elsewhere in the system. Autonomy, therefore, trickles down to the scale of the cluster.

KIT-OF-ARTS THE REMAINING COMPONENTS that are described are the modular, flexible pieces that can be locally made and fitted together as needed. These components integrate local resource management, and enable the development of skills relating to construction and wood craft, as well as traditional skills such as carving and weaving; hence the transformation from the idea of the kit-of-parts into the idea of the kit-of-arts.

BOARDWALKS HAVING ESTABLISHED CLUSTER locations, and a central wood processing facility, and having designed a decentralized system of water provision and treatment, the next step in this upside down approach is to connect the clusters with foot paths. Rather than giving priority to the vehicle and planning a system of roads, this step gives priority to the person, ensuring easy movement of people between clusters. (This section describes the boardwalk on its own. The following chapter provides an overall community plan.)

In keeping with the principle of 'be gentle', preservation of the plant life and water flow demands that the footpaths take the form of boardwalks throughout the site. This will also ensure mobility as paths at ground level would generally be muddy.

A moderately elevated boardwalk also creates a conduit for infrastructure relating to water and power distribution. Placing piping for water, wastes, and wiring on the underside of an easily assembled boardwalk ensures that each of these systems are flexible and easy to maintain, far more so than a buried system. This is analogous to the concept of the 'utilidor' used in the far north where permafrost precludes the possibility of excavation. Boardwalks will be built when a cluster begins to be developed

From a practical standpoint, to keep the wood from becoming slippery, metal grating can be added on the top of the boardwalk very easily when the winter begins. This would be an ideal job for younger members of the community. Lighting will maintain a low level of illumination overnight, and the posts elevating the boardwalk off the ground will incorporate an outlet for power so that a drill to put together, or take apart the boardwalk can be used anywhere



Figure 56. Small Water Tower
A Water Tower at the centre of each cluster provides infrastructure as well as a public amenity.

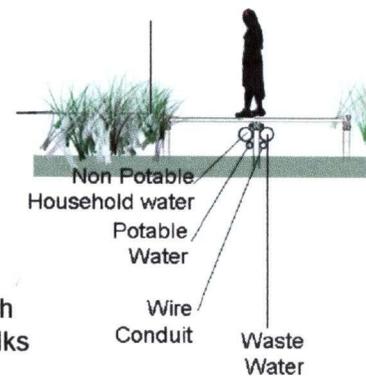
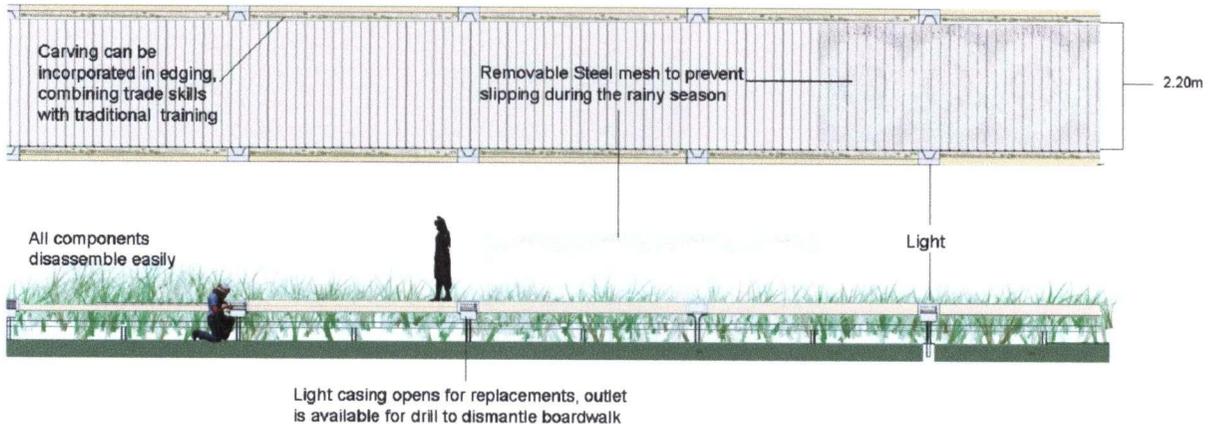


Figure 57. Boardwalk Elevation
An Elevated Boardwalk provides an accessible route between all clusters, and acts as a conduit for infrastructure.

along its length. From a more historical standpoint, the boardwalk is evocative of the traditional pattern of settlement which included a large boardwalk uniting all homes, and creating a major social amenity overlooking the ocean.

Developing the capacity to shape the parts and put the boardwalk together could also translate into larger opportunities to maintain the boardwalks throughout the Pacific Rim National Park Reserve.

Figure 58.
Boardwalk Plan and Elevation



SILT FENCING GIVEN THAT THIS PROPOSAL suggests an incremental approach to making the community, it is reasonable to anticipate that there will often be construction taking place in some place or another. In an area such as the expansion area at Esowista, where surface water flow is a constant feature, construction sites will have to be surrounded with silt fencing to prevent wetlands from being choked out by dirty runoff. Silt fencing will therefore be a constant feature in the community. Rather than an unsightly by-product of construction, silt fencing should be recognized as a strong design opportunity.

Here carving and weaving are incorporated into the design of silt fencing, and it can be assembled by people of any age. Initially it can be made with the typical black filter cloth, but opportunities to integrate weaving as a way to make a filter could produce a wonderful element in the landscape, and could revive the skill with purpose among youth.

Figure 59.
Silt Fencing

- Wood members provide sturdy carvable surfaces
- Intricate woodworking reveals skillful labour.
- Construction using local materials and traditional skills blends nicely into the environment.



CONCRETE WHILE WOOD (BOTH DRIFTWOOD and locally available timber) is the main building material for the new community, there is a predicted need for some concrete. Places where concrete is proposed is for pavers to provide a consistent, level hardscape at the centre of each cluster, as a poured beam along roadsides to create a clean edge that will keep the roadside from cracking, and as the modular components of a retaining wall. The retaining wall is worth additional mention. On the steep banks on either side of Esowista creek, a prominent feature is an apparent wall of ferns. This natural structure provides the inspiration for the retaining wall, which is built as a series of linked planters creating a wall of ferns up to 1.2 m high.

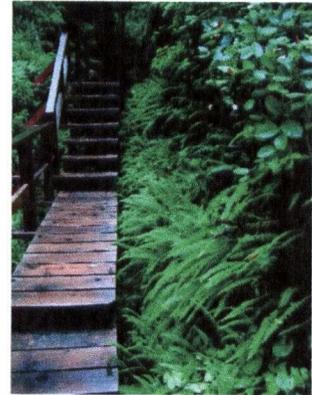
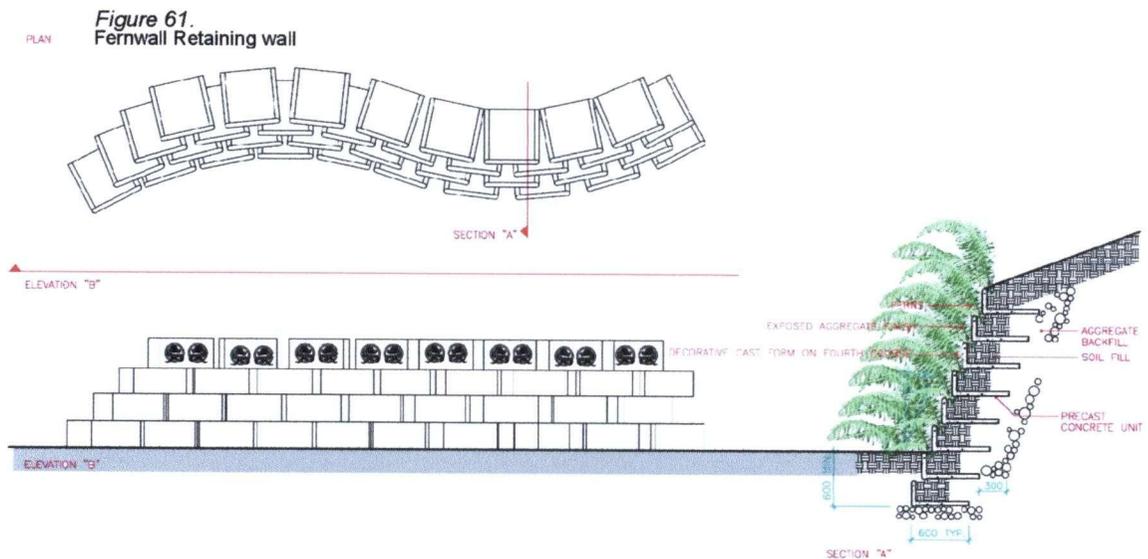


Figure 60. Natural Fern Wall
Naturally Occurring Fern wall
in the Esowista Creek riparian
area.



For each of these examples, concrete products can be poured, stored, and used as necessary. The use of concrete also provides a valuable training ground for carving. The casting forms for each of these elements can be carved in any number of ways. As the apprentice carvers improve, the improvements are manifested as more intricately cast concrete. The concrete formed by early efforts at carving should be seen in a humorous rather than a humiliated light, and there will be a strong element in the community that reveals the process of improvement. Eventually, castings along roads and retaining walls could tell entire stories as community members pursue that skill to its utmost application.

ROADS FINALLY, A ROAD NETWORK IS PROPOSED. The much discussed prevalence of surface water makes a conventional road network impossible. It would be continuously flooded, and would bend and buckle as water would cause the substrate to shift regularly. The pattern for roads throughout the Park and along the highway is to pour anywhere from 45cm – 100cm of gravel as a road bed, then pave this strip with asphalt. Water sheds off the road easily onto the adjacent native substrate.

This is a simple solution, but has one major problem: it radically alters the way water moves across the site. Naturally flowing water would reach a road edge, then as if hitting a dam, it would be diverted along the length of the road until it could be infiltrated or conveyed across the road. The technical solution for moving the water across the road by culvert is not particularly challenging, the real problem is the impact on wildlife, especially amphibians, but also small mammals, and other organisms that exhibit a strong reluctance to cross roads and culverts.

The particular problem for amphibians is that they require connectivity between wetlands. Connectivity allows for animal migration, a fundamentally important behaviour that maintains genetic diversity, and combats local extinctions that occur due to random acts of nature or human insensitivity. For example, a population of frogs might be living contently in a relatively small wetland. One particularly unfortunate morning, a strong gust of wind may blow over a large tree nearby, landing squarely on this humble amphibious abode. The impact itself would have killed a great number of the frogs, and splashed much of the water out of the wetland. Compounding the disaster, some crows overhead, some snakes nearby, and any other opportunistic predators would soon discover this trove of treats and react relentlessly. As a result of the single, random act of a tree falling, this small wetland would suffer a sudden extinction of frogs. In time, of course, water would seep back into the depression, and frogs and tadpoles from other pools would eventually make their way here again. Such is life if you are a frog. If, however, there was no route that could lead the creatures back to this wetland, it would remain lifeless for an indeterminable amount of time.

To accommodate this need for connectivity, and to follow the flow of water, box culverts with an open metal grate top and the natural ground as the bottom, are to be placed every hundred metres along the main roads.

Intercepting water from the surface of the road is also important, as it is contaminated with hydrocarbons and heavy metals. To do this, roads are lined on both sides with a narrow grass shoulder and the fern retaining wall. This will provide a linear visual element as well as green infrastructure, and will maintain the integrity of the road by holding it tightly together.

The path that the road follows is also significant. Rather than unselfconsciously proposing a right of way, it is envisioned that directing the road becomes an important activity of someone who can read the landscape from a cultural standpoint. In this way, culturally important trees can be preserved, significant wetlands can be avoided.

The result will be a 'wild woonerf' where the path of vehicles is dictated by natural features. This is based on the Dutch concept of the woonerf, which gives priority to the pedestrian and is based on the street as a play space for children. Here, however, the road may split and converge, or bend to preserve trees, or even massive stumps or nurse logs.

Figure 62. Road Section

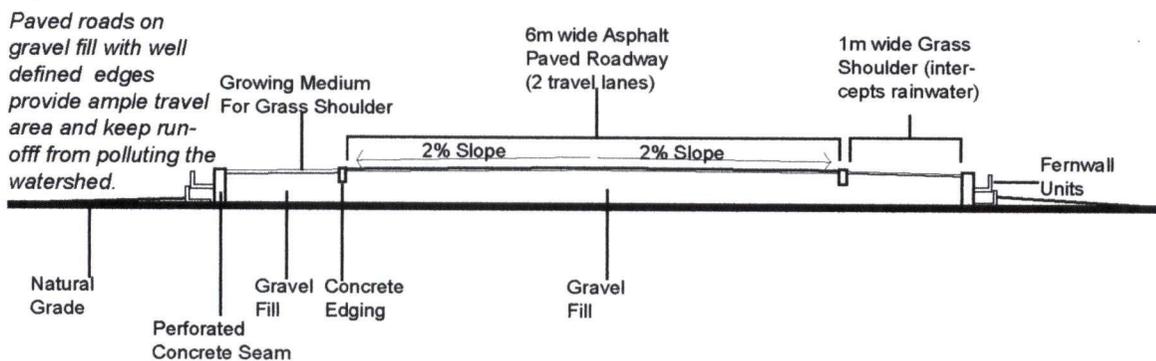


Figure 63. Road Plan

Box culverts every hundred metres permit the free-flow of organisms across the site. Design opportunities exist for the metal grate, as well as for the cast concrete seams and edging.

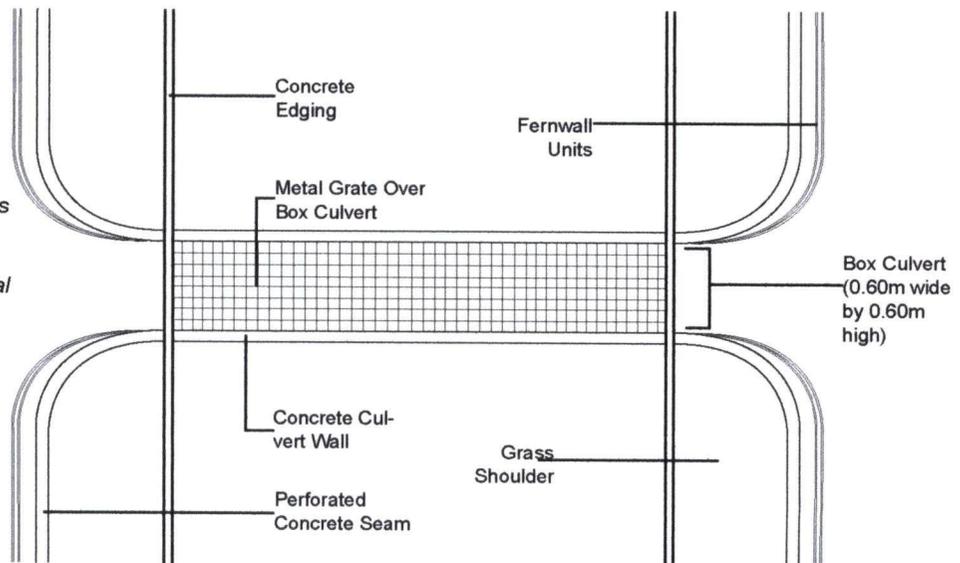


Figure 64. Illustrative Sketch

This sketch illustrates how the road will be diverted around trees, or other significant features.



CONCLUSION *THIS APPROACH, WHICH TURNS* conventional planning upside down, will result in the development of a community that represents the intertwining of the landscape, its meaning for people, and the skills of the residents. This requires designing the capacity to create the parts, which takes the form of a construction planning centre, a wood processing facility, and educational facilities; as well as designing the capacity for autonomy and self-sufficiency, which is manifested as decentrilized infrastructure.

With modular parts, it is possible to build a whole that is adaptable, flexible, and considerate to various environmental restraints. There are innumerable possibilities as to the shape the whole community could take. The following chapter examines one possibility for the design of the community.

CHAPTER 4 SUSTAINABLE DISHEVELMENT

*DISHEVELMENT IS A WORD THAT SUGGESTS DISARRAY, or extreme disorderliness, and so feels appropriate to use here. The inside-out, upside down approach to sustainable development advocated thus far feels a little more like sustainable dishevelment than anything else. Exploring word roots and meaning further, we learn that dishevelment is actually a very particular type of disarray. The word dishevel comes from the French *descheveler* meaning 'to let down, or disarrange the hair' (*des* meaning 'apart', and *chevel* meaning 'hair'). Dishevelment is therefore more of an intentional unleashing than a generalized disorderliness.*

This chapter takes the kit-of-arts proposed in the previous chapter and unleashes them on the environment to form the community centre, 22 clusters, a network of boardwalks, a road system, and open space amenities. The open space amenities include play fields near the community centre, an ethnobotanical walk that leads out of the centre and into the special resource management zone, a trail along Esowista creek that connects with the Schooner's Cove trail and proceeds to the existing community at Esowista, and a trail to the grassy clearing that overlooks T'ayis.

Though a fully built out plan is presented here, it must be regarded as just one of innumerable possibilities. Every person who uses these variable parts to design a community in this landscape will end up with a different outcome. For myself, mistakes are inevitable, and the worst mistakes come from a general ignorance about the site. Half a dozen site visits cannot provide an understanding comparable to the thousands of years of living here enjoyed by the Tla-o-qui-aht. It is a fact that I cannot know about the sacred elements in the landscape, and it is entirely possible that the plan below indicates clusters of houses built on top of significant sites. In lieu of cultural ignorance, I proceeded with ecological awareness.



Figure 66. Clusters
Clusters of 10 houses, with parking and infrastructure are located on subtle high spots throughout the site.

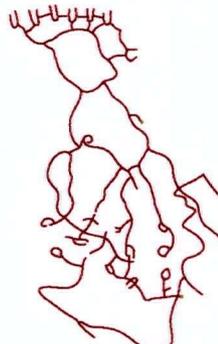


Figure 67. Boardwalks
Boardwalks provide accessible pathways within and between clusters, and convey infrastructure across the site.

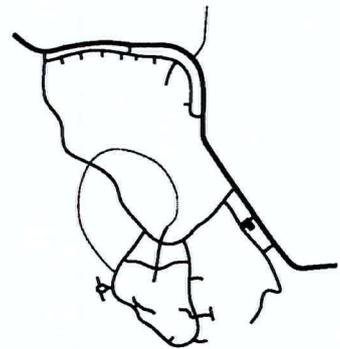


Figure 68. Roads
Roads reach each cluster at their centres, providing access for vehicles as well as machinery as required for ongoing upkeep.

Figure 65. Conceptual Community Plan



Figure 69.

One Outcome:

Conceptual Community Plan for the Expansion Area at Esowista

Three 'Villages' result from this plan: the existing village at Esowista, a roadside village between the highway and the large bog, and the forest village immediately south of the New Community Centre.

Big Bogwalk

Great Sphagnum Bog

Esowista Creek

Creekside Trail

Creekside Landing

Lookout Point

Schooner's Cove Trail-head and parking with store and gallery.

New Community Centre

Little Sphagnum Bogwalk

Schooner's Cove Trail

Existing Community at Esowista

Hardscape Playspace at the Centre of each Cluster

T'ayis T'ashi: (Anchorage Trail) breaks off from Schooner's Cove Trail

Wickaninnish Lookout ("He Messed it up Completely")

T'ayis T'ashi: emerges at old village site.

T'ayis (Schooner's Cove

Wa?ichul'h (Resting Place)

Box Island

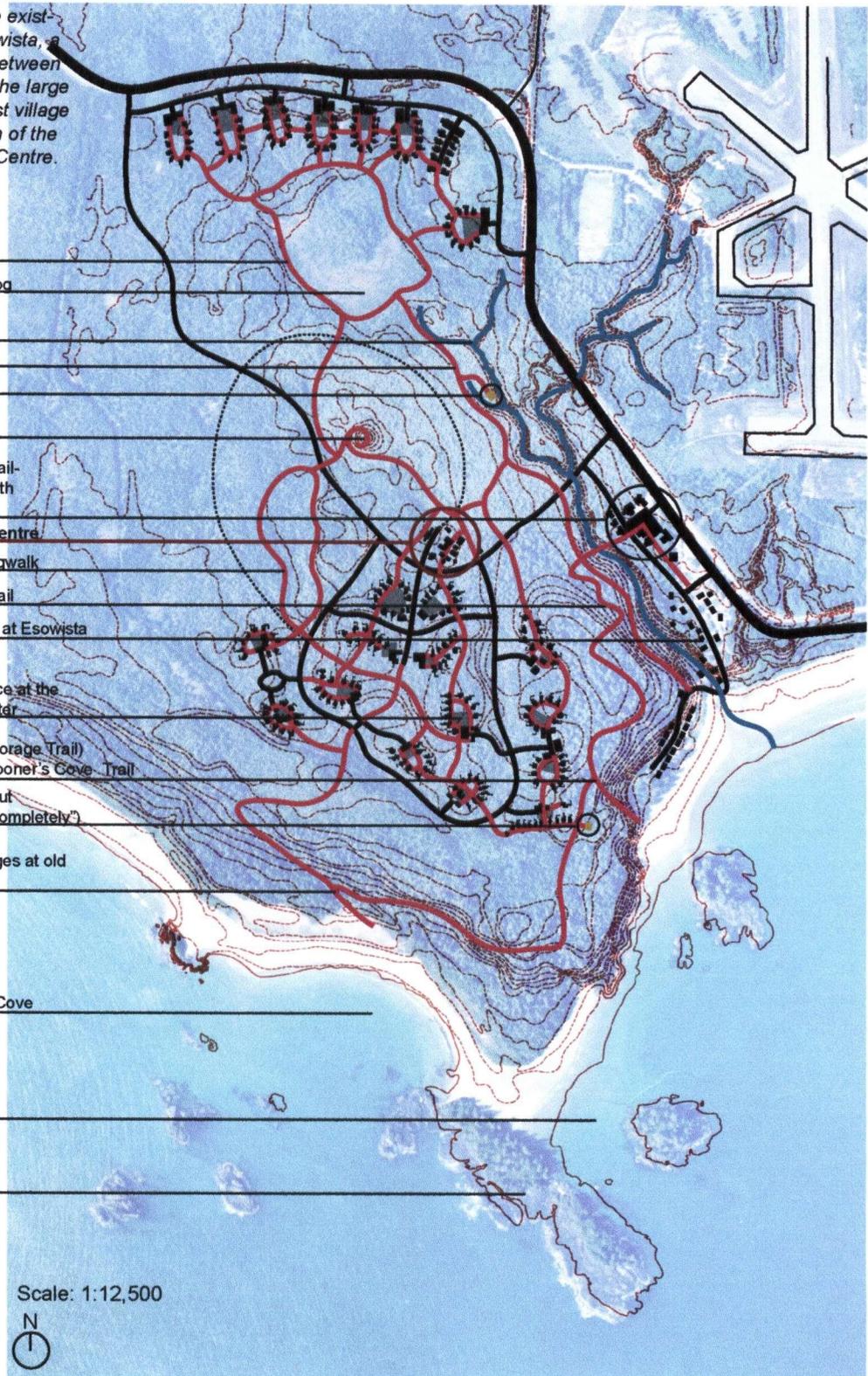
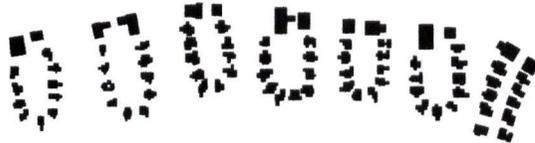


Figure 70.
Cluster Plan
Three Villages

The Plan for clusters illustrated below provides housing for 858 people, based on an optimum household density determined by David Nairne and Associates. This meets almost half of the housing need for the Tla-o-qui-aht Band projected for 2050. The large blank area in the centre is beneath the airport approachway and has been deemed unsuitable for living. However, if the need arises this area can become part of the built community.

Number of Clusters: 22
Number of Homes: 220
People Per Household: 3.9
Population: 858



Roadside Village:

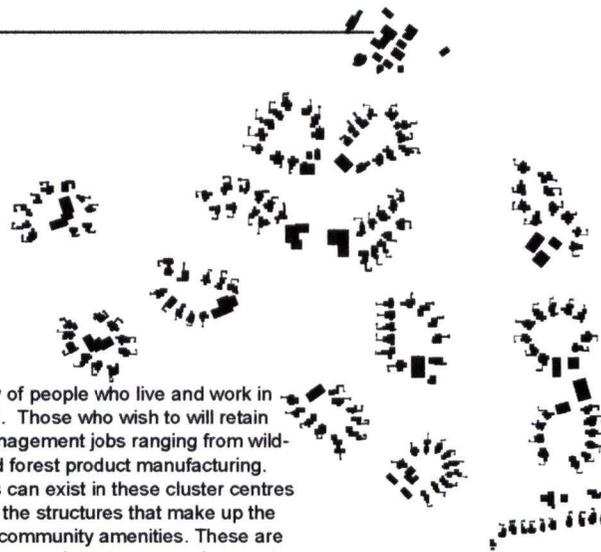
This portion of the community can capitalize on the adjacency to the airport, the road to Grice Bay, and the Highway with small businesses located at cluster centres. Examples include co-operative car rental or tourist accommodations. This is also an ideal place for health care facilities. Easy road access and the nearness to Long Beach allows for rapid response to emergencies there, and the closeness to the airport allows for quick airlifts. The presence of the airport also creates an opportunity to institute a system of health care specific to remote or isolated native communities in the area. People receiving care could be accommodated in structures located at a cluster centre.



Existing Village:

The most significant opportunities at the existing village at Esowista relate to the fact that it has been a community for centuries upon centuries. For this reason, it is the sacred centre for this entire area. The fact that it is somewhat removed from the other two villages strengthens this sense. This is particularly true for the portion of Esowista Village directly adjacent to the ocean and the mouth of Esowista Creek. When the time comes to upgrade existing infrastructure, this should be turned into a major open space amenity for the Tla-o-qui-aht people. If there is a desire to generate income here, some ideas include having a Salmon festival where people on the beach can buy dinner and enjoy an evening of Tla-o-qui-aht culture in the open air, or possibly surfboard storage for people staying nearby (if this can be made without profanizing the site).

Community Centre:
Wood Processing
Facility and Water
Towers



Forest Village:

This village houses the majority of people who live and work in the expansion area at Esowista. Those who wish to will retain community based resource management jobs ranging from wildlife conservation to value added forest product manufacturing. Though economic opportunities can exist in these cluster centres as well, it is recommended that the structures that make up the cluster centres here remain as community amenities. These are ideal social gathering places, places where teenagers hang out, or where adults come together to make decisions about how to plan the community.

Figure 71.
Boardwalk Plan
Making Connections

All clusters are connected to one another by a modular boardwalk that can be built as the community evolves over time. Potable, household, and waste water as well as electric and communications wiring are all conveyed to each home under this boardwalk. Below is the boardwalk plan that emerges when clusters are placed on high spots, and the area beneath the airport approachways is left undeveloped.



Big Spahgnum Bogwalk

Creekside Trail to Esowista Village

Creekside Landing

Lookout Point on Ethnobotanical Walk

New Community Centre

Little Spahgnum Bogwalk

Schooner's Cove Trail (Part of the Pacific Rim National Park Reserve).

T'ayis T'ashi: (Proposed public trail that actually takes visitors to Schooner's Cove (T'ayis)).

Lookout over Wickaninnish Bay or "He Messed it up Completely"

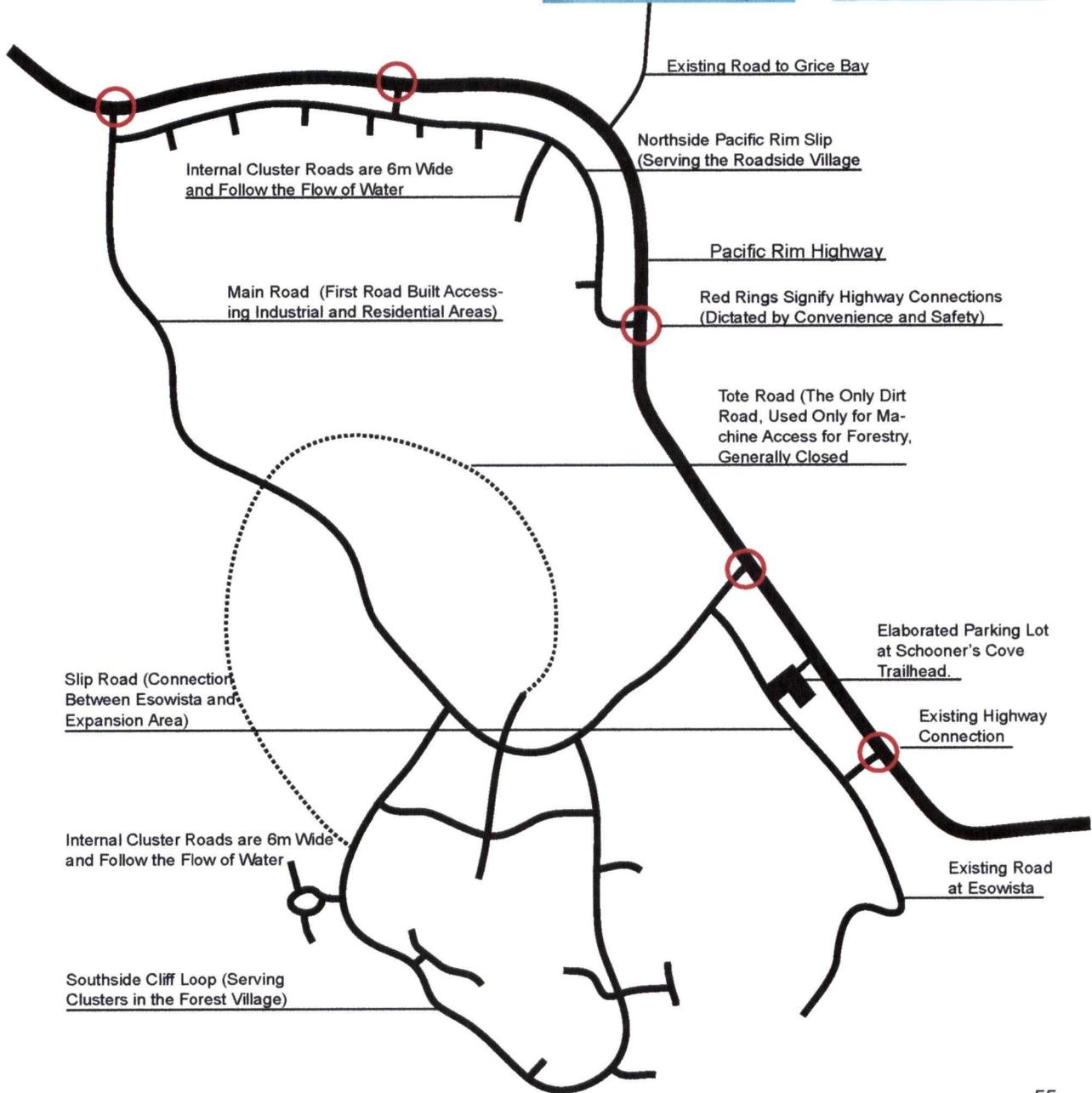
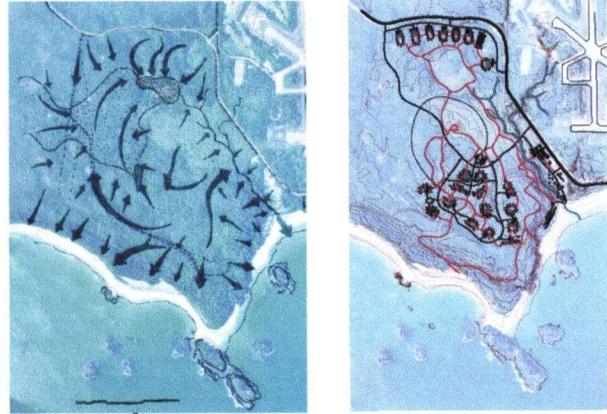
Boardwalk ends at the Grassy Bench that used to be a village site.



Figure 72.
Road Plan
Following Water

The road network can be minimized due to the predominance of boardwalks and the reliance on pedestrian travel within the community and to the existing village at Esowista. The first road built runs through the centre of the site, providing access for machinery. With it built, the community centre can be established, to which the rest of the community is connected.

A guiding principle for the roads is to follow the flow of water. Comparing the diagram of water flow at right to the road network below shows how this principle guides the design.



CLUSTER TYPES HAVING DEVELOPED A conceptual plan, attention was then given to the arrangement of homes within clusters. This began as an abstraction of how homes might be arranged, and how they would relate to the cluster centre, which includes open play space, a cluster hall, waste management facilities, and a water tower with an accessible roof.

With these abstract arrangements in mind, the task of designing the clusters as they were located on the plan began. It became obvious very quickly that designing each cluster would be an impossibly long task, and the underlying belief that it just might be completely wrong made the task feel futile, so two clusters were selected for specific elaboration. The characteristics of these clusters that make them ideal choices are that they are significantly different in level of vegetation (one is heavily treed, and one was relatively open); and they have varying degrees of open-ness to the general public: one is separated from the public, and one has a fairly direct connection to Schooner's Cove Trail.

Despite potentially infinite variation in abstract cluster types, when the task of fitting houses into the landscape with a minimal removal of trees was actually done¹, there was a tendency to create a looping cluster focussed on the central open space and communal amenities. This led to a specific decision to be made about the relationship between the cluster and the home. Houses will be built with a significant balcony on the second floor overlooking the central area. This will create a place for parents to look outside and keep an eye on kids, for kids to look outside and see who is about, and to create a covered sitting area near the front door.

¹ Fitting homes into the landscape was accomplished by using air photos and ground reconnaissance to identify significant trees in each cluster –significant trees being those with a canopy diameter of 4m or more, and a trunk diameter at breast height of 20cm or more. After mapping the clusters for trees, the six simple parts of each house and the backyard enclosure were put together such that as few trees as possible would be removed, and so that each home would have a balcony overlooking the communal space.

The first cluster is organized as a loop around a central 'forest courtyard' hardscaped with concrete pavers. Seating is placed around this section, in which any number of activities is possible, ranging from significant community gatherings to daily rounds of road hockey or basketball.

Vehicles can move into this paved courtyard in order to pick up household garbage dropped off at the waste management facilities in the cluster centre, or to access the facilities for general maintenance or repairs.

Parking is provided at the very entrance to this central courtyard, under covered bays. The parking is designed so that it is occupiable by people when cars are absent, offering an outdoor space to use when it is raining.

All of the homes look over the central area in which hardscaping and natural land are side by side. Like all clusters, a water tower with an accessible roof, waste management facilities, as well as a small cluster hall provides the social core of the cluster.

Figure 73.
Inward Cluster



Covered Walkway - serves as a shed, connects the home to the smokehouse, and creates an enclosed yard

Smokehouse - Each family has a smokehouse attached to their home

Boardwalk - connects people and infrastructure to neighbouring clusters

Water Tower - the infrastructure of sustainability is celebrated with a water tower as the focal point for each cluster.

Courtyard - an lively, central gathering area for social events and games such as road hockey or tag

Waste Centre - household garbage is dropped off in this centre, which also receives household water waste treated in a series of indoor constructed wetlands

Cistern - water storage also serves as a visual amenity

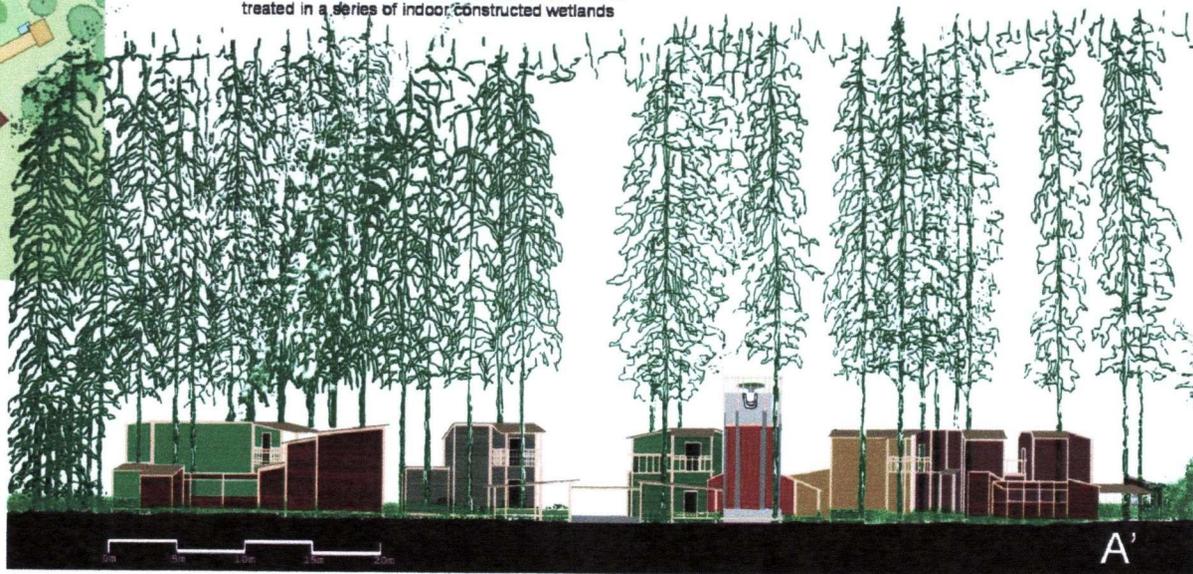
Carports

Cluster Hall - an open program indoor centre for the cluster, Mail is delivered to the Hall

Deck - an elaborated boardwalk creates a welcoming entrance

Swale - carries rainwater overflow and road runoff

Driveway - 6m wide paved connection to main road



A'

To break out of this loopy pattern, a radically different organizing principle was considered for the second, more open cluster by asking the question: What if the boardwalk was the primary open space? This specifically references the traditional settlement pattern in which a beachside boardwalk is prominent. Taking this approach allowed for the design of a very linear cluster, and involved removing very few trees. The overlooking balcony is also included for these homes, but in this scenario glimpses are out, possibly to the ocean, rather than over communal space.

The lack of the loop demands giving particular attention to the endpoints of the boardwalk. Topography assists with the decision making here. The northwest end of the boardwalk is the lowest point in this cluster. The location of the houses, and the nature of the decentralized water management system requires a pumphouse to be located at the end of this boardwalk. This addresses the practical reality that water moves down, and ensures that if there is a back-up in the system, there is no flooding in the homes.

At the other end of the boardwalk, an intermediate, semi-public space is needed to provide a transition from the nearby public trail called T'ayis T'ashi: proposed as a connection between the Schooner's Cove Trail and T'ayis (Schooner's Cove) and the existing community. It is easy to imagine someone unintentionally wandering off the trail toward the community, thinking that they are permitted to do so. A small space located near houses where people obviously gather can serve as a strong signal to accidental trespassers, indicating that they ought to turn back. Here a story-telling circle is proposed. This is a small gathering place where people can come together very casually, and will incorporate mythological imagery and traditional artwork in its design.

To accommodate the need for a larger play space, as well as the communal amenities required for each cluster, and to provide a strong point of entry, a peripheral community centre is proposed. In addition to simple necessity, this also allows for a certain level of separation for kids who might not want to be watched by adults, and for adults who are tired of hearing kids running around.

Another interesting opportunity that emerged in this arrangement was a lone, solitary home, apart from the rest. In every community there are particularly private people and this allows for that, hence the subtext 'Solitary Contentment'.

These clusters represent different ways to approach how homes can be fit into the site. It is imagined that when the time comes to develop the community, people who would live together in a cluster would begin by planning out a basic structure for the community. Using maps, models, and going to the site with stakes and flagging tape would provide the basis for the final organization of the cluster. While this may feel disorganized, and while it may be disconcerting to unleash people into the environment planning how to piece together a community, there is every reason to believe that this is a necessary step in building a healthy, long term relationship between the Tia-o-qui-aht and the new community at Esowista. Sustainable dishevelment is therefore fundamentally important as a step in placemaking, particularly in the context of first nations reserve communities.

Figure 74.

Boardwalk as Gathering Place – or Solitary Contentment



In this cluster, which builds on the historic pattern of development for the Nuu-Chah-Nulth, the boardwalk rather than a courtyard becomes the main social space. While maintaining the same structures as the courtyard cluster, this organization allows for the construction of a solitary home, isolated from the others, hence the name.



CHAPTER 5

CONCLUSION

THIS PROJECT HAS PROVIDED AN ALTERNATIVE approach to development in First Nations communities that is based on reinvigorating the relationship between people and the place they call home. The expectation is that through active engagement in development, people will develop a close connection to place, as well as the skills to continue development resulting in a sense of relevance within the community, and an understanding of the close relationship between community and environmental structure. This literal act of placemaking creates an authentic community rather than a standardized one, and creates an authentic way of dwelling in the world intimately related to place. This ongoing relationship provides an aspect of sustainability that is often neglected in planning communities.

Furthering the sustainability of this community is the dedication to preserving ecosystem health, which ensures the ongoing functioning of the ecosystems in and around the community. The interconnectedness of all things is maintained and enhanced by building incrementally rather than all at once, and by incorporating specific elements that address the needs of a wide range of species.

Developing appropriate, self sufficient infrastructure also supports sustainability and provides the potential for autonomy, an important feature for communities striving for self-determination. Thus the water system proposed here, while most unconventional, is a necessity.

At the outset of this project, cost savings was identified as an underlying reason supporting the proposal, yet there is virtually no numerical cost analysis. Also, the development of untested technology such as Humidification - Dehumidification Desalination can be extremely expensive. The financial costs of development are of less concern in this project than the opportunity costs associated with failure to develop local skills, and expertise in community and resource management. There is an opportunity here to set in motion a knowledge based system that can perpetuate itself, and generate significant income and employment over the long term. The consistently recurring need to rebuild first nations communities is already a high cost, and the failure to turn that transformation into a permanent system dramatically increases the social costs. This proposal alters that history.

For this reason, turning the museum inside out, and building an inspirational place to live is an appropriate and justifiable way to develop the new community at Esowista.

APPENDIX 1

SOME NOTES ON ORTHOGRAPHY

ORTHOGRAPHY IS THE BRANCH of grammar which deals with letters and their combinations to represent sounds and words.

The language originally spoken by the Nuu-chah-nulth is called T'a:t'a:qsapa; a language in the Southern Wakashan language group. It is a language that lacked an orthography until the ethnographers Edward Sapir and Morris Swadesh transcribed its sounds into a series of symbols in 1911, based on Franz Boas' system. This system was revised in 1939, then again in 1955. The reason for these revisions relate to changes in standards used by ethnographers and linguists to make reading unknown languages with unique phonemes more simple (Thomas and Ayima, 1970, p. 32).

Alexander Thomas, grandson to chief **Sa:ya:č'apis** (*Stands-up-high-over-all*), was Sapir's primary informant on Nuu-chah-nulth language and culture. Unhampered by a keyboard, Thomas developed his own handwritten orthography based on Sapir's earliest alphabet. This orthography was also revised in 1970 into an alphabet that would work on a typewriter keyboard, published in the document T'a:t'a:qsapa: A Practical Orthography for Nootka.

Though in the interest of simplicity, these various revisions have in fact made T'a:t'a:qsapa orthography somewhat confusing. Additionally, the consistent attempts to simplify the symbols into those that can be typed on an English typewriter have taken away some of the more beautiful elements, particularly the λ (*tl*), but also the š (*sh*), č (*ch*), and † (*thl*). I advocate for the use of these non-roman symbols for no reason other than the fact that they have an aesthetic quality not captured by the typewritten alternatives. Surely a well educated ethnographer or linguist can remember these few elements.

Furthermore, the effective extinction of the typewriter demands another reassessment. In particular, on a typewriter the glottal stop/breath-catch that sounds like the break in the middle of the English affirmation *uh-uh* was made by filing off the lower dot in the question mark (?). While filing keys was seen as an immensely practical solution on a typewriter in 1970, attempting the same on a computer in 2004 undoubtedly constitutes some form of illegal operation. Instead, the symbol ʔ is readily available on a computer, and possesses an aesthetic beauty already advocated for.

The following table indicates the T'a:t'a:qsapa orthography (and corresponding phonology) used in this paper:

Table 2. Orthography

Orthographic Symbol	Phoneme
p, t, k, m, n, w, y,	Same as in English
š	sh as in <i>ship</i>
c	ch as in <i>chip</i>
ts	Same as English, as in <i>Tsar</i>
λ	tl as in <i>Tla-o-qui-aht</i>
†	thl as in <i>athlete</i>
q	'k' sound made deep in the back of the throat
x (lower case)	Rubbed sound in front 'k' position as in German <i>ich</i>
X (upper case)	Rubbed sound in back 'k' position as in German <i>ach</i>
H	Like English 'h' but with the tongue drawn back narrowing the throat passage as in imitating the hiss of a cat
ʔ	Glottal stop or breath-catch, like the break in the middle of <i>uh-uh</i>
' (apostrophe)	Similar to ʔ, but with the tongue drawn back narrowing the throat passage
ʔm, ʔn, ʔw, ʔy	Combinations of ʔ with m, n, w, and y
p', k', ts', λ', etc	Sounds as indicated with 'cracked' emphasis
!	Follows consonants indicating glottal closure followed by glottal release creating a cracked sound with explosive emphasis
i, e, a, O, o	Short vowel as in <i>pít, pet, putt, pot, and put</i> , respectively
i:, e:, a:, O:, o:	Long vowel as in <i>feed, bad, father, fog, and food</i> , respectively
i::, a::	Extra long emphasis
k ^w , k ^w , q ^w , X ^w ,	Voiceless sounds as indicated with a sharp 'w' sound eg k ^w forms <i>qu</i> as in <i>quick</i>

Table 1 indicates that λ forms the sound *tl* as in *Tla-o-qui-aht*. This may beg the question: why is *Tla-o-qui-aht* not written as *λa-o-qui-aht* throughout this paper? Firstly, according to the above orthography, *Tla-o-qui-aht* would in fact appear as *λa ʔu:k^wi ʔa†*. Similarly, the community of Esowista would be written as *hisa:wist'a* (or *hisaawist'a*), *Nuu-chah-nulth* would be *nu:ca:nu†*, *Ucluelet* would be *Yu:λʔitʔa†*, and so forth. Clearly, adhering to this orthography would not contribute to an easy reading of this paper. Secondly, the *Tla-o-qui-aht* themselves write their name as *Tla-o-qui-aht*, and the write the name *Esowista* as *Esowista*. Thus, in this paper, proper names are given in their preferred anglicized form (i.e. *Tla-o-qui-aht* instead of *Clayoquot*, *Nuu-chah-nulth* instead of *Nootka*, etc.). In instances where the *T'a:t'a:qsapa* orthography felt appropriate, as in word lists, discussions pertaining to distant histories, on maps of original place names, and in people's 'native' names, it is used. The intention being that the reader be kept aware of the uniqueness of the language without being interrupted with periodic 'unreadable' words.

APPENDIX 2

LANDSCAPE ARCHITECTURE AND DECONSTRUCTIVISM

THIS PROJECT TAKES A DECIDEDLY DECONSTRUCTIVIST approach, a controversial and much reviled branch of architecture. Revulsion for deconstructivism stems from its radical departure from archetypal forms, a gesture sparked by the material and technological advancements that enabled the abandonment of structural geometries such as rectangles and ellipses. This move coincided with the philosophical realization that though apparently stable, a building of any sort is actually a chaotic component in a chaotic world. Inevitably, its uses cannot be predicted, and it just might collapse at any given moment. Stability, balance, and perfection become illusions, so are considered monstrosities. The resultant designs were unusual, uncomfortable looking spaces. This discomfort is the manifestation of the failure of architects to follow deconstructivism to its logical conclusion. Deconstructivist architects produced designs for buildings, when in fact they should have produced anything but. A far more confident idea would have emerged if architects contemplated how the program they were designing for fit in anything other than a building. An obvious other place to contemplate program is the landscape, fittingly, the archetypal opposite of the building.

Understanding architectural programs as spaces in the public realm and as landscape interventions is the clear conclusion for deconstructivist architecture. It demands pulling apart the language of architecture as expressed structurally as well as programmatically, and casting the parts about in space. This toying with the language of architecture is also more true to the connection with deconstructivism as a branch of linguistic philosophy, which examines language, communication, and the inherent instability of meaning.

The father of Deconstructivist philosophy is Jacques Derrida. What is most interesting and relevant here is that Derrida participated in architecture, and that the first of his architectural projects was a park: Parc de la Villette, in Paris. This park is also controversial, both loved and reviled. The important point is not the design of the park, but the fact that Derrida's first foray into to the realm of design was to help with the realization of a park, not a building.

Examples of how the park is deconstructivist include the red follies that punctuate the landscape evoking industry obliterated, and the uncovering of urban infrastructure and the reinterpretation the noises of sanitary systems as music. The fact that the project was not a building only strengthens the case.

Critics focus on the apparent arbitrariness of the park, and the lack of connection or concern with context. Others say that it is simply awkward, and creates uncomfortable spaces. I think that if the park

fails, it is because the extruded program is a fantasy one, making initial conceptual moves arbitrary, a characteristic that cannot avoid notice in the final outcome. The connection between landscape and deconstructivism requires refinement so that the appropriate program choices can be made.

I suggest that the architecture of infrastructure has an immensely deconstructable program. Power plants, water treatment and distribution facilities, large scale dams each contain layers of infrastructure that can be decentralized, cast out into the urban and social fabric, and can fall within the purview of landscape architecture. This attitude towards infrastructure will facilitate the development of green infrastructure, self-sufficient homes, clusters, blocks, and communities. The water towers, and waste facilities located in each cluster represents the exploration of this attitude in the expanded community at Esowista.

APPENDIX 3

COMMUNITY EMERGING

The outline below provides a basic approach that one could take in implementing the community development approach advocated in this paper. It is a time consuming approach that relies heavily on close participation of local residents. Trade skills, construction, resource management, and traditional knowledge are weaved together in a series of seminars, field studies, and workshops that provide the ability to build this community from the inside out. These seminars and studies will also provide valid certifications for the participants. Outside experts are needed initially to serve as facilitators giving support to ensure that the process unfolds safely and responsibly. Their goal is to play a gradually diminishing role as local individuals learn the construction management skills needed to lead teams of builders.

1. Community Visioning and Endorsement of Conceptual Plan and Process

The fundamental first step is for the community to come together to develop and endorse a conceptual plan and the process to achieve it. This will ensure grassroots support within the community as well as a basic structure to strive towards so that there is a tangible, understandable goal that everyone is working toward.

2. Industrial First Aid Course

Construction and trades are dangerous professions. Knowledge of safety and first aid are essential and are a prerequisite for use of any machinery. Each seminar will begin with a safety review pertaining to the specific dangers associated with the practices learned.

3. Sustainable Forest Practices Seminar and Field Study

The first seminar will provide training in safe machinery operation, bucking and falling, fire suppression, as well as identifying significant wildlife trees and useable timber. Principles of ecology and sustainable resource management will provide the foundation for building a community that has a sensitive relationship to the environment. At the end of this workshop, participants will be able to identify trees to protect and to fall, and how much timber fallen trees will yield. They will be able to safely cut down trees, to create wildlife trees, and to remove logs once they are down.

4. Road Building and Environmental Design Seminar and Field Study

Planning the Main Access Road that comes off the Highway, runs through the community centre, and connects to the existing Reserve at Esowista will provide an opportunity to learn the basics of surveying and layout, the design and construction of roadways, retaining walls, and box culverts, and environmental mitigation strategies such as silt fencing.

5. Timber to Lumber Seminar and Workshop

Participants will learn the use of the 'Alaska Mill' to turn fallen trees and driftwood into dimensional lumber suitable for construction.

6. Construction Plans and Framing Seminar

Beginning with the construction of a small shed to cover the Alaska Mill, and for a Lumber Storage structure, participants will learn how to read framing plans, and how to plan the construction of relatively simple structures. Over time increasing complexity is added. This is a long term, ongoing seminar and workshop series.

7. Building Landscapes - The Kit of Arts Workshop

Participants will already have a basic understanding of building retaining walls, and framing for boardwalks so this workshop will be a creative outlet for participant to start to brainstorm

the various components that will start to give structure to their community. They will design the boardwalk, begin considering artful opportunities for casting concrete, and other items in the kit-of-arts. They will also begin to develop an understanding of spatial organization to ensure that when homes are built the outdoor environment is structured to create interesting spaces, views, and paths of movement.

8. Interiors and Finishing Workshop Seminar

Developing skills in building pleasing interiors is important to creating liveable homes, and it is anticipated that there would be significant interest in this aspect of design, particularly for people less interested in the manual labour of construction. At the same time, it is essential for people to learn about electrical systems and wiring. This Seminar and Workshop will serve to ensure that interior designers have a keen understanding of the functioning of a home, and that emerging electricians will have a deft hand at design.

9. Water Systems and Ecological Waste Management Field Course

In this Field Course, participants will learn how to design and build the constructed wetlands that are associated with each home, and how to install the living machines at the centre of each cluster. Rather than learning the entire desalination process, people will learn about the connections and the overall distribution system. Learning the maintenance and upkeep of the desalination plant will be a more long term learning process.

To support these seminars while they are taking place, people will be building the construction planning centre and the first phase of the wood processing facility. Once it is complete, people will be able to move throughout the expansion area and identify appropriate areas for clusters. With cluster areas identified, houses can be staked out, silt fencing can be placed, trees can be removed, and roads and boardwalks can be marked out. With these basic plans established, the units that the homes are to be built with can be ordered from the processing facility, as can the wood needed for the boardwalks.

Slowly but surely, people will be able to take over the planning and construction of the community. Eventually, experience will give residents themselves the role of facilitator as more people begin to participate in development. The skills developed will also enable locals to go out into the larger community and work in Tofino, Ucluelet, and in the Park, producing beautiful and well crafted items from the land they live on.

Ideally, as more and more people start to capitalize on developing these skills, the pace of construction will be able to keep up with the desire to live in this new community. Once the community is completely built out, each home will have its own small work area built into the backyard. This will ensure that each resident has the opportunity to continue developing their design and construction skills, maintaining their own home, or providing services to others.

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