



November 2, 2006

Appendix A: Community Site Planning Report

Gwa-yas-dums Village -- Gilford Island, BC

HITH-ALIS LAX GWA-YAS-DUMS



COMMUNITY PLANNING PROCESS



Kwicksutaineuk Ah-kwaw-ah-mish Band
(Kwikwasut'inuxw Haxwa'mis First Nations)



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1. Introduction

In June 2006, the Kwikwasut'inuxw Haxwa'mis First Nations (KHFN)¹ reached consensus on a new conceptual site plan for the Village of Gwa-yas-dums on Gilford Island. Once implemented, this new site plan will significantly and positively change the future of these First Nations. This site planning process was community driven, with community members participating at every level of decision-making and direction-setting. Working with planning, design, and engineering specialists from EcoPlan, a site plan was crafted to respect site constraints and take advantage of opportunities. The final plan, shown below, is instrumental to delivering the KHFN vision of becoming a healthy, sustainable community that is culturally vibrant and economically stable.²

For example, health and safety objectives manifest themselves in the site plan by avoiding construction of buildings in natural hazard zones, such as the 50m slide hazard setback from the base of the hill on the north end of the village. Instead the community agreed to put in a soccer field where exercise will promote healthy living and community pride. Other examples include relocating houses from some of the most highly desired areas of the village in order to make space for successful tourism and economic development in the village, essential to a self-sufficient community. Finally, other places in the village were identified as sacred and will be protected.

To achieve KHFN's vision and implement the site plan, much needs to be done. Currently, the community of Gwa-yas-dums is in crisis, with basic needs of water/sewer, housing and energy not being met. The site planning process and resulting plan are critical in overcoming this crisis and moving towards a brighter future.

This report, specifically, is about the community planning process related to site plan. It describes the approach taken, the findings and conclusions required to make the planning a reality.

Photo 1: Community Site Planning Workshops



¹ Officially recognized at INAC as the Kwicksutaineuk Ah-kwaw-ah-mish Band.

² Note that corresponding CAD drawings were also developed in order for conceptual plans to be as specific as possible.

Figure 1: Concept Site Plan for Gwa-yas-dums Village, Gilford Island BC

(see poster size map in report folder)



2. Project Background

The Kwikwasut'inuxw Haxwa'mis First Nations village of Gwa-yas-dums is a small community of between 27 and 70 permanent residents located on Gilford Island.³ The KHFN are currently addressing a number of urgent issues such as: lack of potable water (requiring the importation of bottled water); failing septic tanks (requiring on-going pump outs); inadequate electrification (due to worn-out diesel-electric generator); and housing (mould, causing health problems). In addition, the KHFN face a host of interrelated social issues such as: lack of employment; an aging permanent population; a transient population (higher during the summer months); limited administration capacity; and a lack of comprehensive health and recreational facilities (fostering an environment for health problems and related social concerns). The KHFN Council recognizes these concerns and, with the support of INAC, has entered into a comprehensive community planning (CCP) process to address the numerous issues affecting the Nations.

In 2005 KHFN retained EcoPlan to assist them with their CCP initiative aimed at the improving community of health and livelihoods. Funded by the KHFN through INAC, the project's goal is to establish and integrate both short- and long-term plans for five key areas: site planning, housing, water/ sewer, energy and solid waste. Important social, economic, cultural and governance issues will also be examined.

The CCP process was initiated at the same time KHFN was addressing the priority area of water. Working with Kerr Wood Leidal Consulting Engineers (KWL), the Council and community members have established a water management plan that will provide the KHFN with a three-phase reverse osmosis and chlorination system of water purification.⁴ The implementation of this project is scheduled for the fall of 2006. Paralleling this water planning process and with the assistance of EcoPlan, the KHFN have identified an approach to address the critical issue of energy/ electricity. The installation of a 300 KW genset upgrade was identified as the best short-term solution, required for the operation of the new water system as well as servicing the community needs. This is also to be installed in the fall of 2006.

EcoPlan was working concurrently with KHFN on a long-term community energy plan for the village. On October 5, 2006, with the technical support of EcoPlan, the community came to a consensus decision to implement a propane grid energy system to complete the energy requirements for the community. This decision is complementary to the power requirements related to the water treatment system. Also being considered, and consistent with sustainable energy goals of the community, are individual household solar systems and a potential harnessing of wind energy to complement the genset/ propane grid system. EcoPlan also assisted with housing related analysis, solid waste management and other infrastructure issues (see *Appendix B: Community Energy, Housing and Related Infrastructure Report* for more detail).

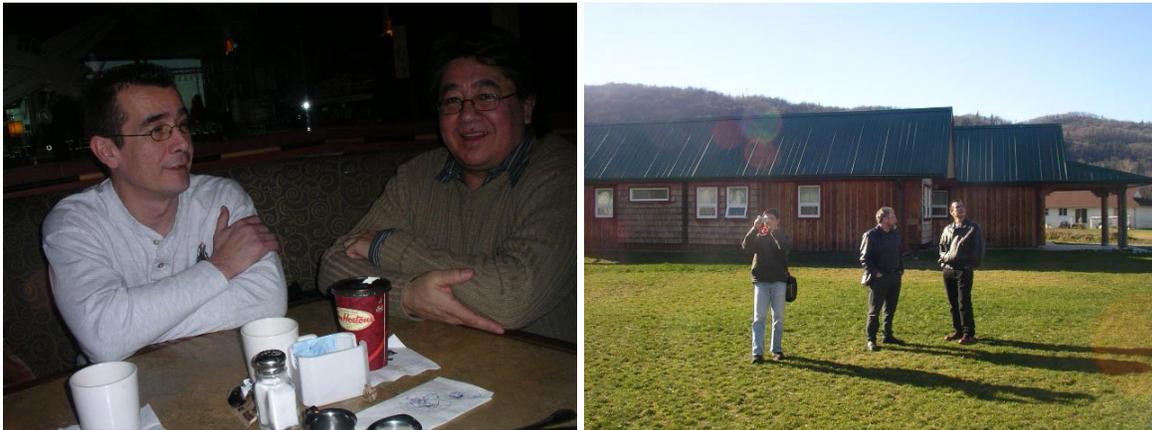
³ The number of people actually resident in the village varies annually and seasonally and is different from the INAC official resident figure of 66. Resident population has been in decline due to the unhealthy state of housing and water supply, also limited economic development opportunities and educational facilities.

⁴ Represent the interpretation of the writer.

3. Approach Summary

The approach to community planning has been a collaborative, internally driven planning process. Working with Chief and Council, residents of Gwa-yas-dums Village and off-reserve members, local values and preferences were identified and used to drive the process. Technical information also played a critical role in the final plan. Most significant, was the results of a geotechnical assessment that effectively removed approximately one-third of the current village site from possible construction. In all, over 10 community meetings were held to discuss the community plan, supported by a face-to-face survey of every house in the village as well as individual surveys for off-reserve members. Further, regular meetings with Chief and Council, study tours, information packages and informal discussions, provided the essential learning and background information for the community to make informed, value driven choices.

Photo 2: Study Tours



Study tours played an important part in the process. In all, four study tours were held including meeting with Council Member from Ouje-Bougoumou Cree Quebec and with CMHC at Seabird Island, BC

4. Site Constraints and Influences

The vision of the community for the future village design would necessarily be influenced or constrained by many factors such as geotechnical risk (e.g., slide hazards, flood hazards, debris flow, erosion), natural physical and environmental factors topography (wind/weather, erosion, stream setbacks, nesting grounds, solar orientation), infrastructure (power and water facilities, major utility mainlines) cultural factors (sacred locations, grave sites) and vehicle and people movement.

The main factors influencing the site are discussed below.

Geotechnical Hazards and Influences on the Process and Results

The geotechnical hazards uncovered throughout the community planning process proved to have a significant influence on the site planning options as well as the planning process (see

Appendix C: Terrain and Geologic Hazards Overview). After much preparation, a site planning community workshop was held on April 25th and 26th, 2006. This workshop utilized a draft geotechnical report dated April 13, 2006 by Cordilleran Geoscience. Several important constraints were identified in this report, but three were of critical importance: 1) a slide hazard on the northeast side of the village, 2) debris hazard on the north end of the village and 3) the tidal flood area for homes at lower elevations in the south portion of the village.

The April 13 report indicated that a 20m building setback from the toe of the hillside was required in order to achieve a reasonable safety for building. Peripheral to this is the issue of hazard trees on this hillside and how management of this issue should be addressed in order to enhance safety within the village. The geotechnical constraint alone eliminated a number of site planning options as it rendered a sizable area of the village uninhabitable. This meant that there was no longer the option to accommodate all of the existing homes within the footprint of the existing village site.

Furthermore, it precluded the opportunity to provide for new and returning members within the existing village footprint. New locations for residential buildings were tested utilizing the physical site model. The working group decided on one preliminary option that included a number of residential units on a narrow bench on the hillside behind the village. This conclusion acknowledged the difficulties in physically accessing the bench given the elevation of the bench.

The preliminary option also provided for a large number of residential units on the hillside at the south end of the site. The buildings were situated in an area bounded by the access road to the west, creek to the north and burial ground to the south. This area was referred to as the “upper village”. Conceptually, this area appeared to accommodate the residences that are required to be relocated from the lower village, while providing room for moderate level village growth. Given that the design scenario was conceptual, the feasibility of construction within the upper village would have to be tested in respect to geotechnical suitability and infrastructure design and would require survey work in order to ascertain the precise area available to accommodate buildings. Working with the geotechnical setback constraint and other physical site constraints, a number of design iterations were explored by the workshop participants. After two days of intensive work, the community came to a consensus decision on a preliminary site plan.

Subsequent to the village members and Band Council endorsing the plan that resulted from the April 25-26 Workshop, a follow-up report dated April 24th, 2006 was received and reviewed with one extremely significant change. In this report, the identified 20 meter geotechnical setback along a portion of the hillside was increased to 50 meters. Whereas the 20 meter setback created challenges for site planning and forced a number of new residential housing units to an upper village location, the 50 meter setback substantially exacerbated this constraint. *This new setback line meant that six existing houses would be required to relocate, most likely to a hillside location in the upper residential village. In addition, a seventh house would need to be relocated due to erosion concerns.* A second intensive site planning workshop, held on June 27, 2006, was required to address this major change which invalidated the April 25-26 site plan consensus.

Below is a summary of the key findings influencing and constraining the site plan. It is highly recommended that the final geotechnical report (final copy dated October 23rd, 2006) be

reviewed for a full discussion of geotechnical findings and recommendations (see Appendix C). See Figure 3 for associated number referring to the associated comments below

1. Debris Slide Hazard

The steep slope behind [north half of] the village site presents a moderate debris slide hazard. Slides consisting mostly of uprooted trees could impact the base of slope and could severely damage or destroy a building. The best way to prevent risk to life, limb or property is to define a setback from the foot of slope. Consistent with the location of the existing power-house (containing diesel generators), located at the base of slope in the north part of the village, buildings *not* for institutional, assembly, commercial or residential uses could be sited between 20-50 m from the base of slope. In this instance, signs should be placed in the buildings to warn operations staff of the potential hazard, and buildings should be evacuated when rainfall exceeds 100 mm/24 hours. Buildings for institutional, assembly, commercial or residential uses should be sited at least 50 m from the base of the steep rock slope.

2. Debris Flow Hazard

A debris flow hazard area exists at the mouth of the creek at the north end of the village. The hazard is greatest during periods of intense wind and rainfall. A 50 m radius from the mouth of the creek should be established as the hazard area. The hazard area would include a sector extending from the base of the hillslope in the north rotating south to the existing beach-front of the village site. From there the hazard area would follow the top of bank back toward the hillslope to a line projecting perpendicular from the hillslope located 25 m south of the creek mouth. No critical infrastructure or residential housing should be established in this hazard area. It was mentioned by locals that it is a convenient place to bring a scow in to the beach. Temporary activities such as this are acceptable, but signs warning of a debris flow hazard should be posted. No temporary activities in this area should be allowed when rainfall exceeds 100 mm/24 hours.

3. Flood and Tsunami Hazard

The flood construction level for buildings anywhere on Gwa-yas-dums IR1 should be set at, or above 5.6 m geodetic. The joist box, or top surface of a slab on grade, should be set at or above the designated flood construction level. A maximum of 3 m tsunami run-up might be expected for Gwa-yas-dums IR1. A 3.0 m tsunami run-up added to maximum observed tide of 3.05 m geodetic yields a water level of 6.05 m geodetic. This is 0.4 m higher than the recommended flood control level. If the village wanted to be more conservative, they could use 6.05-m geodetic as a flood control level.

[Note: the south portion of the village site, due to its lower elevation, is at a higher risk of flooding. Interviews with residents suggest that some flooding has occurred to residences in this area.⁵ See area #3 in Figure 3]

4. Erosion Hazard

Sea-wall reconstruction should be undertaken in consultation with a qualified engineer, and the design should consider impact from normal wave activity and tsunami run-up. The sea-wall is not intended to prevent flooding, only to prevent erosion, therefore it does not need to be constructed to the flood construction level. Its crest should be between the predicted 200-

⁵ Pers.Comm. Tim Willi, December 1, 2005.

year tide level (3.26 m geodetic) and the flood control level (FCL, 5.6 m geodetic). Foundations below 5.6 m geodetic should be resistant to erosion by waves overtopping the seawall. Foundation design should be determined in consultation with a qualified engineer.

5. Soil Stability

The existing village site foundation design needs to be based on bearing strength of shell-midden. This should to be determined in consultation with a qualified engineer.

In areas south of the village site, the terrain is gentle but there are some siting constraints. In the areas between the south end of the village and the existing dump there are three small creeks incised in glaciomarine mud. In this area proposed building sites need to be field verified to ensure they do not encroach on unstable creek sidewalls, and foundation design will need to be based on the bearing strength of marine clay. This needs to be determined in consultation with a qualified engineer. Elsewhere in the area to the south of the current village site, building sites should be located on well-drained soils. Rock or marine clay may be encountered, and foundation design needs to be determined in consultation with a qualified engineer.

6. Pollution Hazard

The existing dump location is in the watershed of a small creek that drains directly onto the village beach. To reduce beach contamination, the location of the dump should be reconsidered and the site remediated.

7. Gravesites and Burial Grounds

In addition to the formal cemetery, two additional burial locations were identified in the planning process. No building on these sites would be allowed and buffers as well as identifiers were recommended.

8. Storm Water Management

Storm water coming off the hill behind the village is a building construction and durability issue, as well as a site usability issue. In addition, seepage of water could contribute to mould development in houses.

8. Cultural

The village is situated on an archaeological resource. Since the village is under federal jurisdiction it is not subject to provincial legislation protecting archaeological sites. The midden is highly disturbed, but there are zones that could yield valuable information on the cultural history of the site. The band council may want to consider archaeological investigations as part of their village revitalization process.

The band has developed a cultural impact policy to address archeological or cultural issues that may arise during the re-development of the village site. It is oral and based on discussions with the community and respected elders.⁶

⁶ Pers. Comm. Chief Bob Chamberlin. October 25, 2006.

9. Environmental

In addition to the above related environmental constraints, the following existing or potential environmental issues were identified in the planning process. There is a tree hazard at the back of the village. Several tall trees are at risk of falling, putting human health and property at risk. At the time of this report, the band has consulted an arborist to address this issue. Band members in the proposed development area identified several important medicinal and berry plant species. However, it was agreed that these would not constitute a constraint to the village re-development process. In addition, one eagle nest was identified in a tree adjacent to the shoreline. This nest is adjacent to a burial site and has been protected.

In areas south of the village site, the terrain is gentle but there are some siting constraints. In the areas between the south end of the village and the existing dump there are three small creeks incised in glaciomarine mud. In this area proposed building sites need to be field verified to ensure they do not encroach on unstable creek sidewalls, and foundation design will need to be based on the bearing strength of marine clay. This needs to be determined in consultation with a qualified engineer. Building sites should be located on well-drained soils. Rock or marine clay may be encountered, and foundation design needs to be determined in consultation with a qualified engineer. (also see Point 6 above regarding pollution hazard).

10. Major Infrastructure (see infrastructure map below)

For cost reasons, siting of buildings was done with respect to major infrastructure. Individual housing hook-ups were not constrained by the current situation.

Figure 2: Major Infrastructure

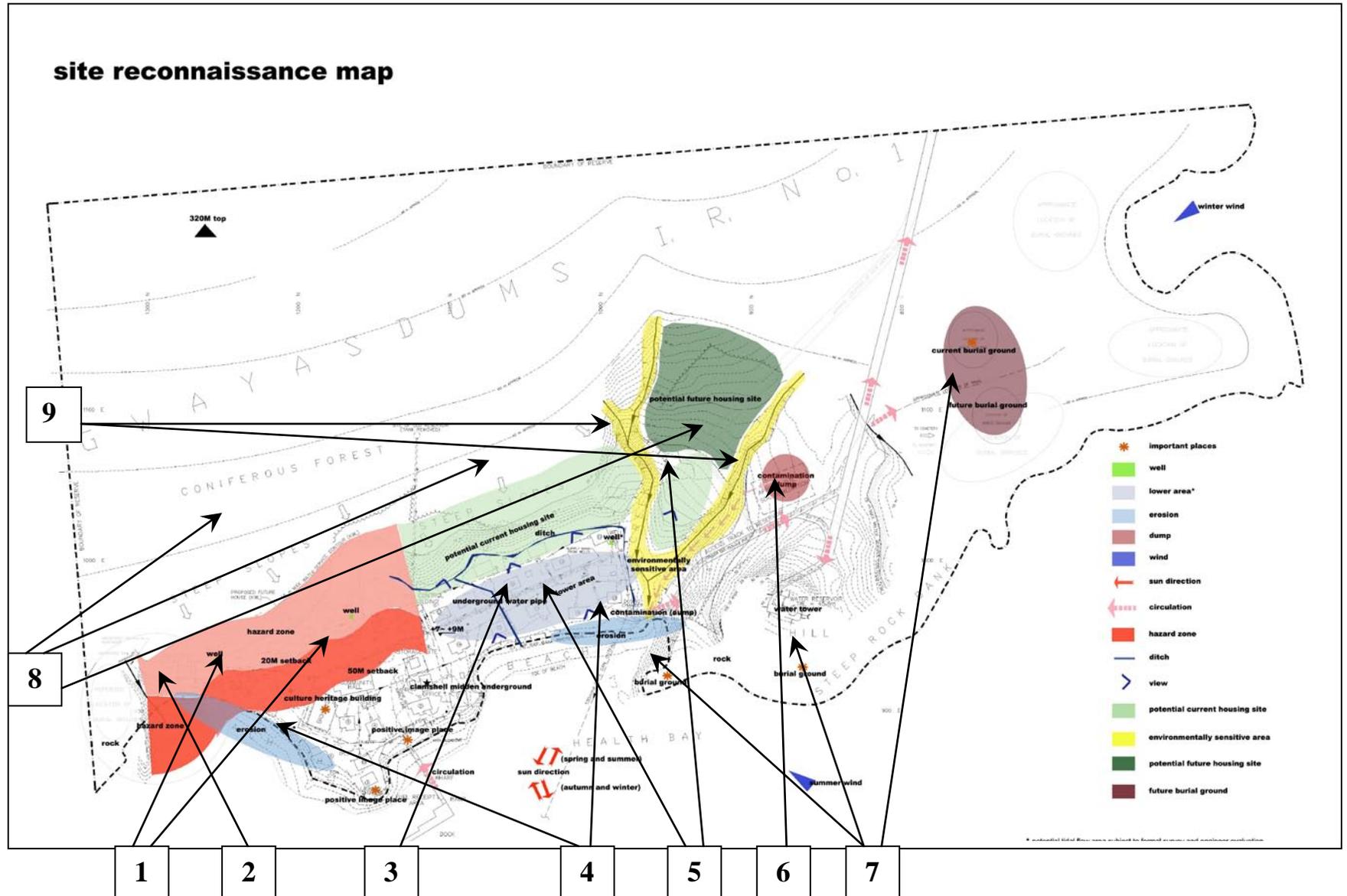


Other Findings

In addition to the above findings and recommendations, the geotechnical analysis did not find any aggregate resources on Gwa-yas-dums. Aggregate for concrete will have to be barged in or shot rock from local rock outcrops could be crushed. Shot rock from local rock outcrops could be used for sea-wall construction.

Finally, all housing and important infrastructure should be designed according to National Building Code standards for earthquake hazards considering the potential for great earthquakes. Hazard area setbacks and flood construction levels at Gwa-yas-dums Village will have to be established in the field according to the recommendations herein by a qualified surveyor as part of the feasibility, pre-design, design stages of the project.

Figure 3: Gwa-yas-dums Site Constraints and Influences

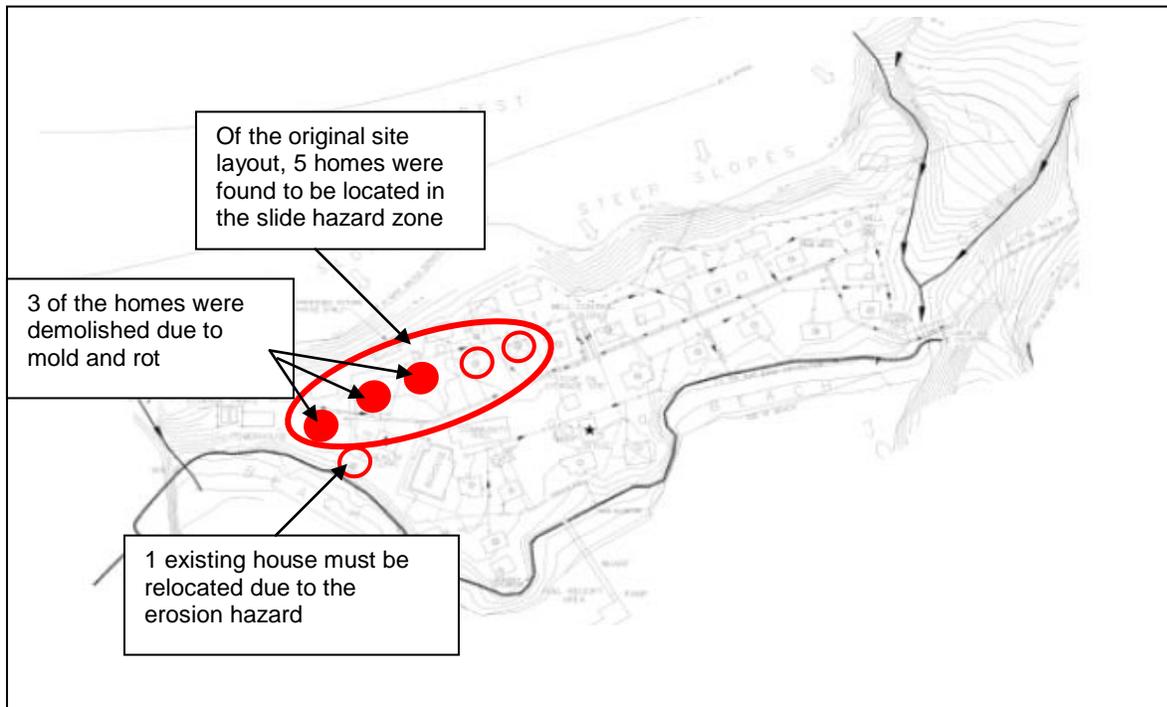


Key Findings from the Constraints and Influences Analysis

Many findings influenced the site planning work (e.g. locations of burial sites). However, several key findings have significant implications on the site planning process and outcomes, as noted below:

- Five existing homes would need to be relocated away from the debris slide hazard.
- One existing home would require relocation due to erosion hazards.
- In addition to standard engineering analysis, specific engineering work would be required to address tidal flooding, tsunami, soil stability in the existing village and in any new areas designated to accommodate the home that were forced to be relocated. Also cited were the need for pollution control on the old dumpsite and storm water management of the village as a whole.

Figure 4: Original Houses Required to be Relocated due to Hazards



5. Population, Households and Future Growth

The number of people living in Gwa-yas-dums, and the number of households, has varied over the course of recorded history. The population has varied from approximated 170 in the 1960s to between 27 and 70 in the first part of this decade. The numbers are dynamic and currently they are heavily impacted by health concerns related to moldy, rotten homes and non-potable water. However, it has always been an important location on a year-round basis, with an increasing population during clamming season, something that continues today. In addition, increases are currently also noticeable in the summer months when children and families come to visit. Due to the lack of economic opportunity and lack of schools, many families are unable to reside full time in the village and the summer months affords a chance for children to visit relatives for extended periods of time.

Houses have varied from 10 in 1834 to 35 in 1951⁷ to 21 at the initiation of the community planning process. During the course of the planning process, eight houses have been demolished and five trailers brought in for temporary transition housing.⁸ The type of housing has also changed over time from long house style where many lived under the same roof to inheriting used, small, wood frame “single family” air-force houses in the 1960 from Port Hardy.⁹

Current, Historical and Projected Population

According to the official INAC census, the Kwicksutaineuk Ah-Kwah-Ah Mish Band has a population of 267 members, with 66 members or approximately 25% of the total membership currently living in Gwa-yas-dums Village on Gilford Island.¹⁰ A majority of the remaining 201 live off-reserve in the surrounding region, especially in Alert Bay. Others are scattered throughout Vancouver Island and the lower Mainland.¹¹ Since 1972, the overall population has increased from 207 members to 267 (see Figure 5 below). This increase of 60 members over a 29 year period represents an overall increase in population of 29%. This represents an average yearly increase of 1% or 2 members per year.

⁷ Rohner, Ronald P. *The People of Gilford: A Contemporary Kwakiutl Village*. National Museum of Canada. Ottawa, 1967.

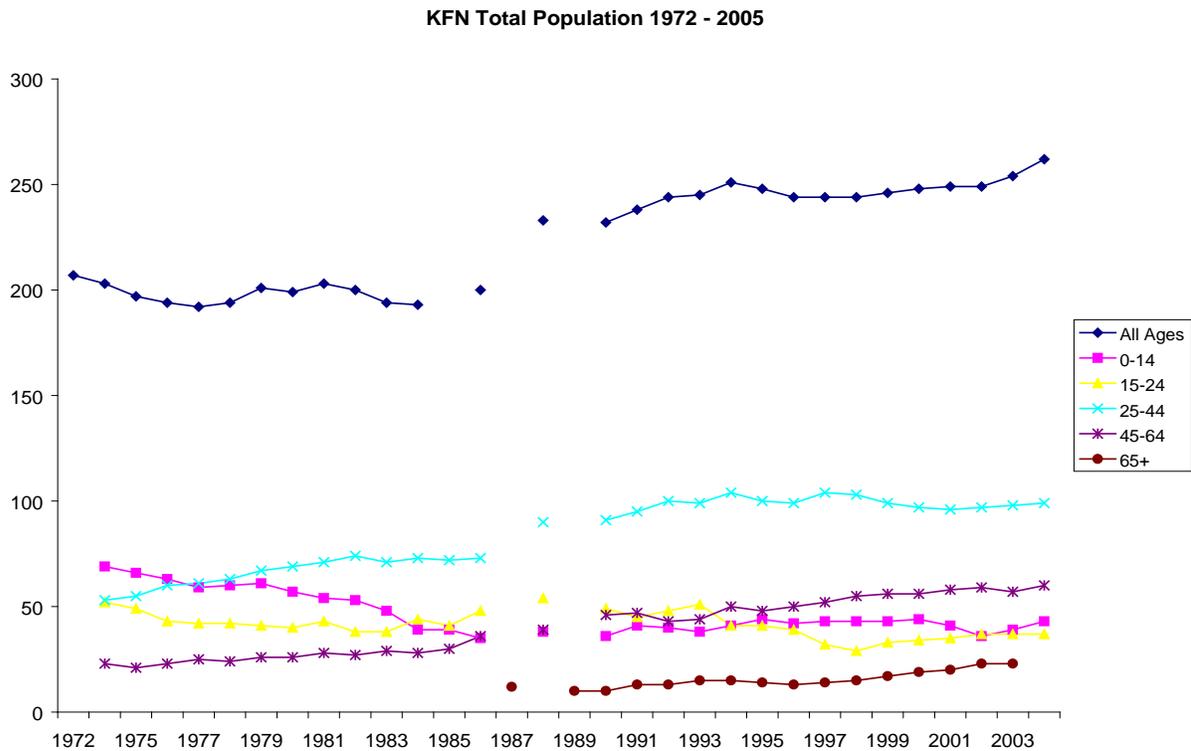
⁸ A transition replacement housing strategy, including number of home and where they will be built, is underway. This replacement is dependant in part on how quickly the urgent need for developing a new subdivision on the hill to the south of the current village site can be achieved. This situation is explained further detail in Section 11.

⁹ Rohner, Ronald P. *The People of Gilford: A Contemporary Kwakiutl Village*. National Museum of Canada. Ottawa, 1967.

¹⁰ It is important to note that KHFN member roster is not consistent with INAC, and they are currently updating their member list.

¹¹ KHFN membership list is currently out of date and it is not known what the exact regional distribution of population is.

Figure 5: KHFN Total Population by Age Cohort 1972 - 2005



Over the past 40 years, the age profile of the village population has changed significantly. In 1963, 75% of the village population was under 30¹² whereas in recent years there is a much more even distribution of community members across the age cohorts. Observations suggest that the trend is tending towards an aging community as young families, concerned about the health and safety regarding housing and water, as well as the limited economic opportunities and distant schooling, live off of Gilford Island.

KHFN's annual population growth is expected to be between 1.5% and 3.5%, bringing the total population over the next 25 years to between 400 and 560 members respectively, or between 5 to 12 new members annually.¹³

Village Housing Needs and Projections: Population and In-Migration Influences

The immediate need for housing exceeds the current number of units in Gwa-yas-dums Village. Funding for 26 houses has been secured to meet part of the pent-up housing demand. Surveys undertaken as part of the community planning process suggest that there is additional pent-up demand for between 10-20 additional homes at Gwa-yas-dums.

Looking at population projections, and based on 2.3 people per household, the estimated population increase of between 5 to 12 people per year will require between 3-6 new houses

¹² Rohner, Ronald P. The People of Gilford: A Contemporary Kwakiutl Village. National Museum of Canada. Ottawa, 1967. P. 20

¹³ These growth rates are based on five and three year historical averages.

per year for the total overall population. This represents a total 25-year housing demand of approximately 75-150 houses for the total membership.

It is impossible to accurately estimate the precise number of houses needed over the 25 year planning time horizon. However, it is clear that once local health issues are resolved (especially related to water), housing lots are made available, economic development is pursued and other social issues are confronted as indicated in the community plan, the demand for local housing will accelerate. A conservative estimate based on existing data indicates that in addition to the 26 homes already identified for implementation, there is pent-up demand from in-migration for an additional 10 homes. Annual demand from population pressure is anticipated to be 1 to 2 homes per year or an additional 25-50 homes over the 25 year planning period.

Water and power are currently being implemented for Gwa-yas-dums. These will represent significant site constraints to future housing, as will topography and buildable area. Depending on guidelines implemented for residential building design (e.g., energy conservation, low-flow appliances). It is currently estimated that between the proposed 26 and 80 houses could be serviced with existing infrastructure. Topographic and geological constraints will be determined during the pre-design and design phase.

A transition replacement housing strategy, including number of home and where they will be built, is underway. This replacement is dependent in part on how quickly the urgent need for developing a new subdivision on the hill to the south of the current village site can be achieved. This situation is explained further detail in Section 11.

Photo 3: Current Village with Temporary Trailers, April 26, 2006



6. Historical Perspectives

Visionary leadership, both formal and informal, recognized that the community planning process offered an unprecedented opportunity to positively change Gwa-yas-dums in a way that reflected the needs and desires of the community. It also offered a chance to empower community members to consider changes in their community and to take greater control of their future. This represents a new approach to planning and governance.

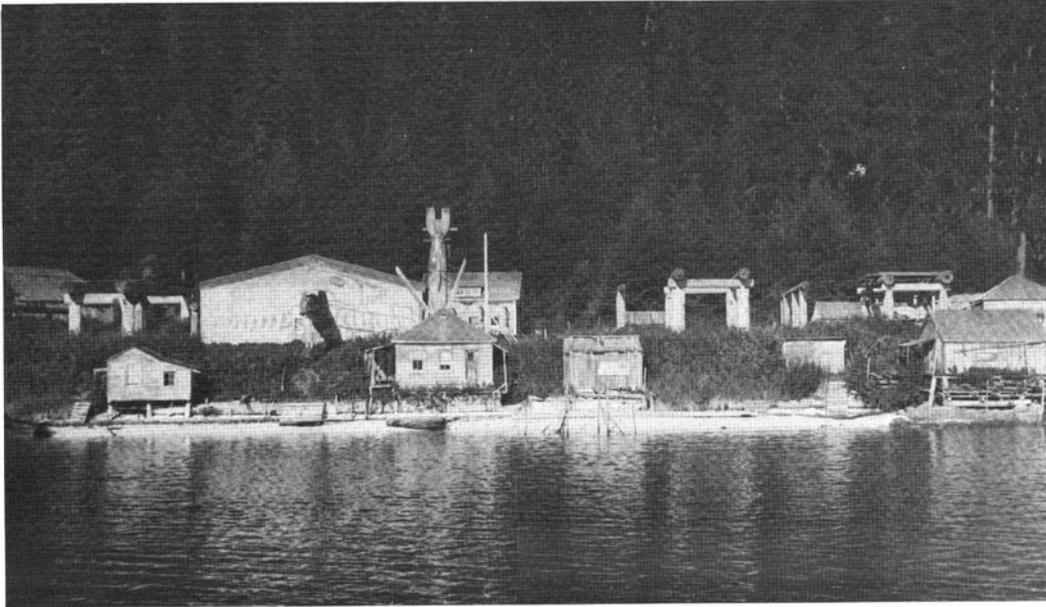
To assist the community in thinking about change, historical research and analysis was conducted and presented to the community, supported by visual aids. Photographs and written histories of how the village has evolved over time were presented. This stimulated a review of oral histories and discussion of values. Important historical issues that might affect current plans were noted, such as the 1856 (or 1857) devastating attack on Gwa-yas-dums by the Bella Coola that led to many local gravesites and the abandonment of the village by the Kwicksutaineuk; the historical importance of Gwa-yas-dums as a central gathering point in the region (especially to the Gwawaenuk and Tsawatainuk, in addition to the Ah-kwaw-ah-mish and Kwicksutaineuk); acknowledgement that even as long ago as 1948 the Kwicksutaineuk and Ah-kwaw-ah-mish bands were trying to get assistance to deal with the inadequacy of potable drinking water supply, the same year the formal joining of these two bands took place.

Photos were also used to initiate discussion about what was liked and disliked in the past, and how this information might be incorporated into future site plan alternatives. For example, the 1900 and 1933 photo series brought out the critical importance of architectural expressions of culture. The lack of privacy and crowding that was associated with living in these traditional long houses was particularly disliked. Reviewing the village 1963 suggested that close housing, the poor orientation of houses and the lack of privacy (with houses facing each other rather than the ocean) were all disliked and not practical. Below shows a sample of the photos that were used in the community planning process.

Photo 4: Gwa-yas-dums 1900



Photo 5: Gwa-yas-dums 1933



A portion of the village as it looked in 1933 (Courtesy of the Provincial Museum, British Columbia)

Photo 6: Gwa-yas-dums 1963

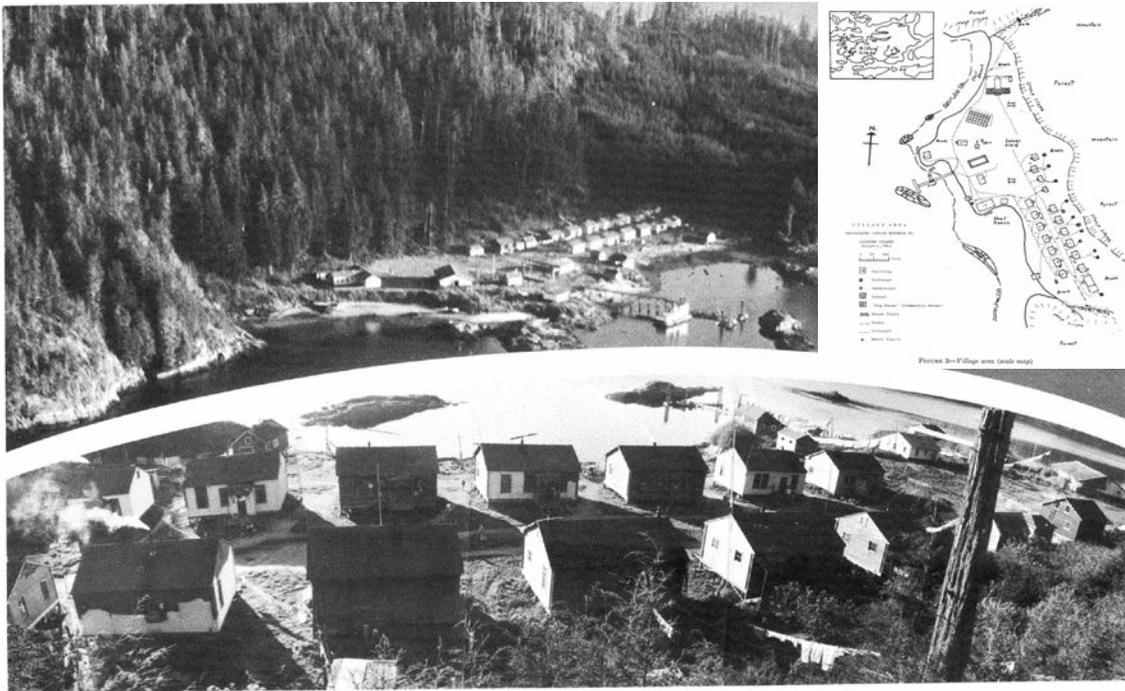


FIGURE 2—Aerial and panoramic photographs of the village

Photo 7: Gwa-yas-dums 2005**7. Values and Objectives**

The community planning process should be a value driven process, not a technical exercise. Technical analysis should support and help focus what is important to the community. The values of the community need to be explicitly addressed in the final plan. Structuring the community values in an organized way facilitates their inclusion in site design. And, where conflicts and tradeoffs between community values arise, structuring them facilitates clear choices. The ultimate goal is to craft a design alternative that satisfies the community and ultimately achieves not only consensus, but generates excitement in the anticipation of design and implementation.

In preparation of the site planning workshops, EcoPlan worked with the community to draw out what they value in the community currently and what would make Gwa-yas-dums a better place. Using elicitation techniques through surveys, informal discussions and meetings, a list of core values was generated. The list itself was shared with the community members, but visual aids were also developed using drawings and photos to help describe what the members were indicating. The list acted as a 'checklist' during the site planning workshops, and was used to structure workshop agendas. Below is the list of site design relevant KHFN values that were elicited in meetings, surveys, interviews and workshops. These were validated and utilized as part of the site planning workshops. In addition to the lists, KHFN posters describing their values in graphics (photos, drawings) were hung around the meeting room and referred to during the process.

Photo 8: Visioning Poster – Graphic Representation of the Community Site Planning Objectives

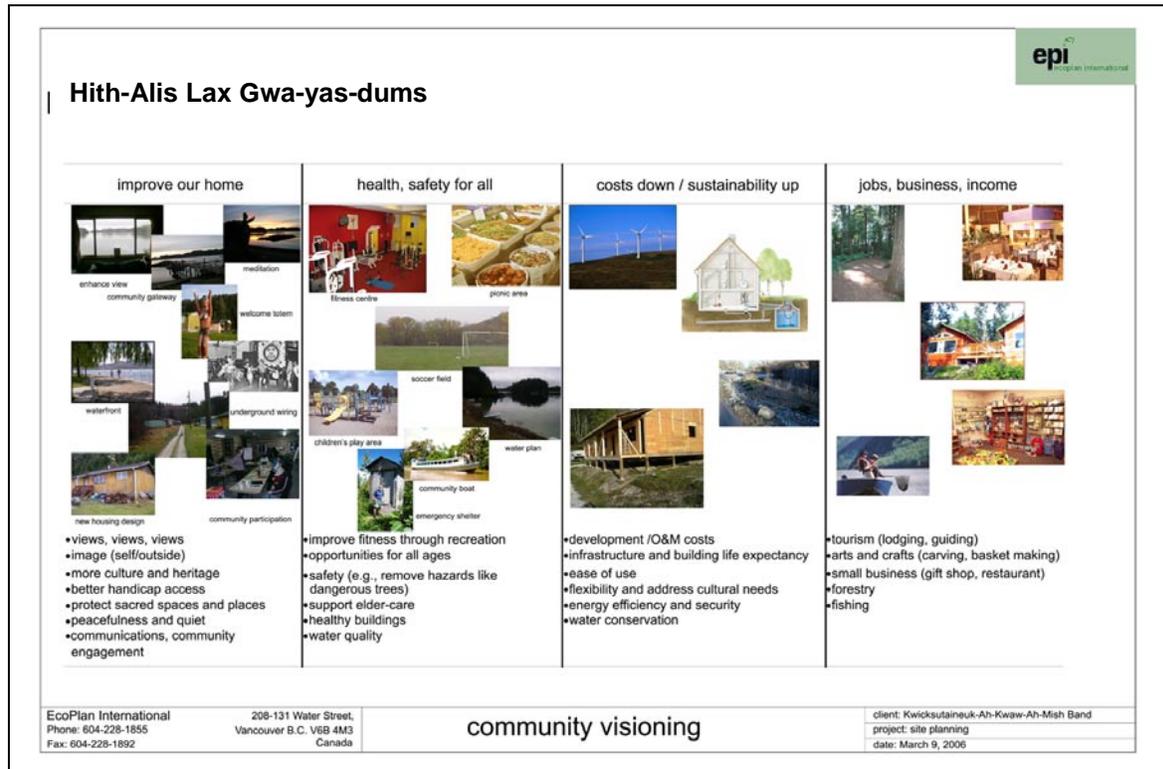


Table 1: Site Planning Objectives and Related Comments

Note: these objectives are related to site planning only

Improve our Home (views, image, culture, social interaction, wide range of ages/vibrancy environment/sacred place protection)

Objective	Comments
Incorporate culture & heritage ("tangible expression of culture")	<ul style="list-style-type: none"> All major public buildings have cultural design aspects Cultural entryway to village and visible cultural images from air and water Cultural images (totems, canoes, public art, playground) throughout village Shape of site layout is culturally significant Signage/storyboards explaining teaching culture (on the walking trail e.g. plants)
Create positive image/beautify community	<ul style="list-style-type: none"> Strong entrance to village -- welcome signage or symbols Eliminate bad smells (e.g., sewage, exhaust) Enhance good smells: Flowering plants – berries, other Beautiful buildings made of local materials (shake roofs, cedar siding) Beautification elements (sidewalks, focus points) No litter

Improve wheelchair/handicap accessibility	<ul style="list-style-type: none"> All of village accessible by wheelchair – including any waterfront walkway
Maintain /Maximize views	<ul style="list-style-type: none"> Orientation and spacing gives all houses have a view to ocean through the windows of living room without unsightly visual disruptions Electrical wiring underground or back of village
Enhance personal privacy (visual, sounds, smells)	<ul style="list-style-type: none"> Noise, visual, housing spacing acceptable (enough manmade barriers or natural block to decrease visual disruptions and noises) Functioning sewage system
Promote peacefulness	<ul style="list-style-type: none"> Separate tourism sites from village Reduced noise from genset
Encourage (Build) positive internal relationships & communications	<ul style="list-style-type: none"> Community gathering places that are accessible to all (healing centre, alcohol & drug addiction/use centre, recreational options, elders & elders center, post office)
Improve communication and access to & from Village	<ul style="list-style-type: none"> Upgrade existing dock Add additional dock(s) Improve barge loading area
Make Gwa-yas-dums a more affordable place to live for members	<ul style="list-style-type: none"> Cogen/District heating to reduce energy costs
Protect (& Expand?) grave sites/burial grounds	<ul style="list-style-type: none"> Unknown – needs to be determined Widely accepted preservation of all cultural areas (clam midden, burial grounds) NOTE: Uncertainty of quantity and location of sites as well as level of protection required – specifically the point. (Note: currently there is no formal protection for grave sites outside of graveyard)

Maximize our health and safety

Objective	Comments
Improve fitness and recreation opportunities for all ages	<ul style="list-style-type: none"> Waterfront walkway; complete circular loop through Soccer field Elders walkway w benches Playground Fitness center (weights, treadmill, etc.) Redevelopment of rec center to meet current needs Programs: cultural, art, food prep, sports, education classes etc. Swimming? Other activities? Different times of year?
Address emergency and hazards	<ul style="list-style-type: none"> Expanded Emergency Preparedness/Evacuation/Shelters

	<ul style="list-style-type: none"> • Improve fire response time • Address hazards through location, engineering, other (tidal flooding, fire, trees, landslides)
Support elder-care	<ul style="list-style-type: none"> • Build Elders facilities – Elders social center • Hospice care, terminal illness, end of life issues, care giving, and grief • (Note: Elders have some home care. Sick or dying elders must leave village for Alert Bay or Port Hardy)
Promote healthy buildings	<ul style="list-style-type: none"> • Buildings located or engineered above highest high tide level to avoid flooding, slope of land for good drainage, avoid swamp. • Building/house locations integrate positive natural elements (wind, solar etc) to buildings
Improved drinking water infrastructure	<ul style="list-style-type: none"> • Electrical wires to new water treatment plant preferably buried, or at least at back of community against hillside • Surface water treatment system (natural runoff, detention ponds, etc)

Encourage Business and Economic Development (Jobs, local residents, income, self esteem)

Objective	Comments
Promote nature & culture tourism	<ul style="list-style-type: none"> • Year round tourism activities, peaking in summer months • Commercial/retail area and welcome area at dock • Small multi-use guest accommodation • Development of eco-tourism site at sawmill bay • (Note: Currently there are minimal visitors to Guilford and no spending)
Promote micro and small enterprises	<ul style="list-style-type: none"> • Build on existing micro economy. • Smaller Arts/Carving House & Retail Centre for Artists & Carvers; Basket makers; Singers/Music • (Currently: No retail/commercial buildings or space, no business or stores.)

Keep costs down

Objective	Comments
Minimize development costs	<p>Not yet estimated</p> <ul style="list-style-type: none"> • Clustering buildings could reduce infrastructure costs • Developing new areas will increase development costs • Keeping houses below water tower will eliminate need for water pumping • Reduce district heating loop size by clustering close to genset • Don't move or bury overhead wires
Reduce O&M costs	<p>Not yet estimated</p>

Ensure Sustainability and Appropriateness of change

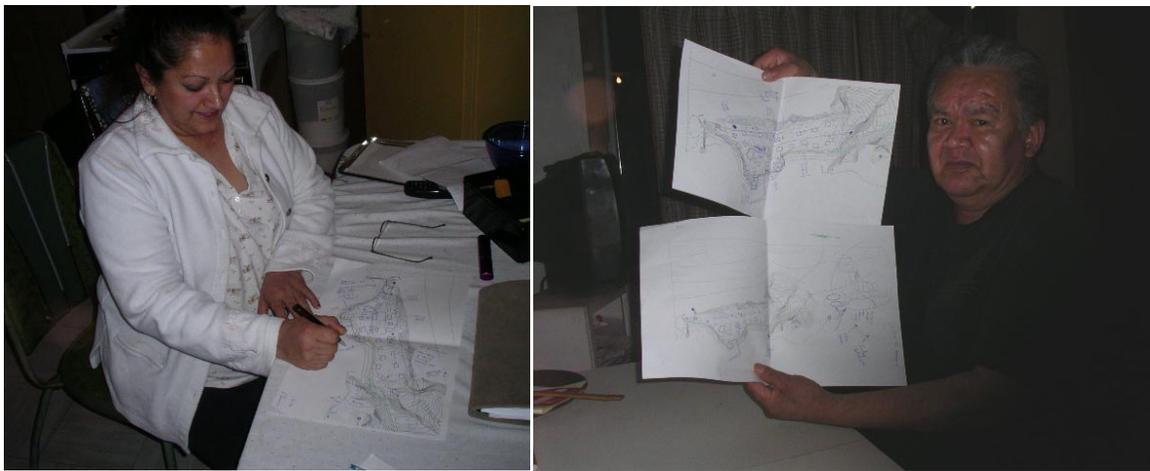
Objective	Comments
<p>Ensure adequate protection of (minimize impact to) cultural areas/features</p>	<ul style="list-style-type: none"> • Locate buildings and infrastructure so as to minimize cultural areas/features and sites such as clam middens (under entire existing community) and burial grounds (also under existing houses and in other locations). • Add protection to sacred sites and special features.
<p>Ensure adequate protection of (minimize impact to) natural features/areas</p>	<ul style="list-style-type: none"> • Locate buildings and infrastructure so as to minimize impact to natural/ecological areas/features and sites such as streams, trees, nesting areas. • Add protection where needed
<p>Promote Energy efficiency</p>	<ul style="list-style-type: none"> • Locate and orient buildings to maximize passive solar opportunities (windows facing south, reduced shading of adjacent buildings) • Reduce distance between buildings

8. Developing Alternatives

The next step in the process was translating the vision and objectives of the community into a tangible plan. This required many meetings, interviews, surveys, study tours and four specific site planning workshops.

To initiate the process, first EcoPlan asked each KHFN member interviewed to draw their own vision of what Gwa-yas-dums village could be site plan. This moved the discussion from objectives and values to what could be done (i.e. potential options) to achieve these objectives and satisfy community values.

Photo 9: Community Site Design Input

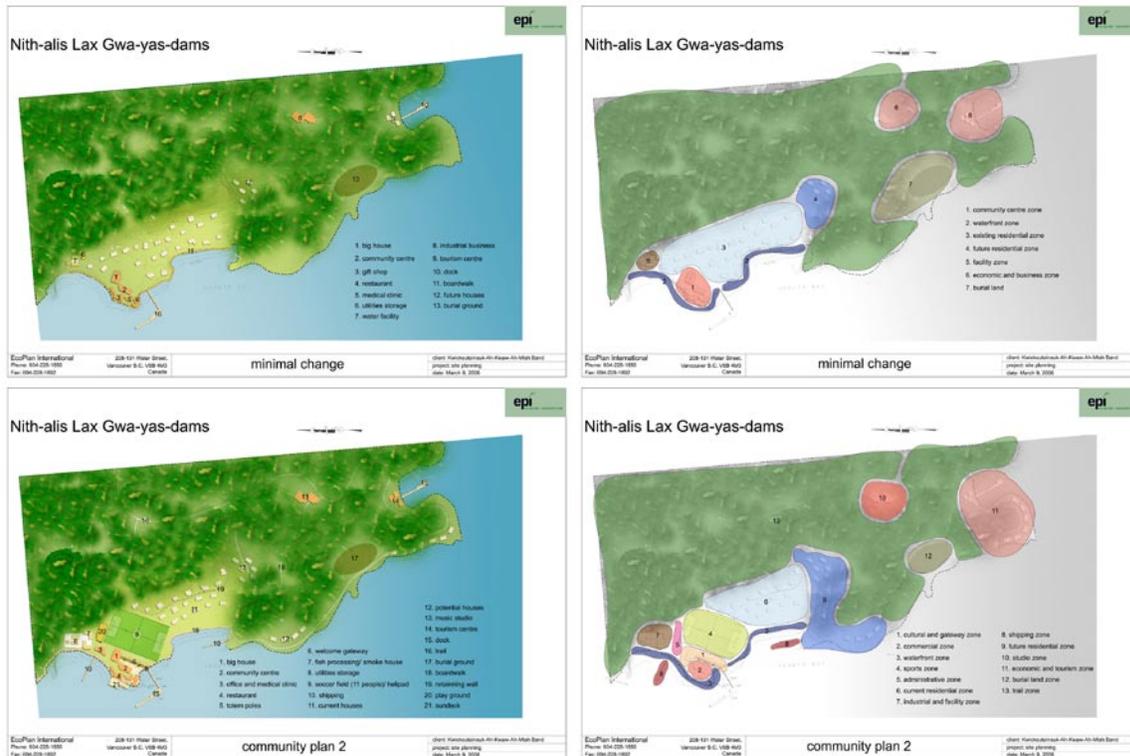


Councilor Lucy St. Germaine (left) and community resident Calvin Johnson (right) show their individual visions of what Gwa-yas-dums village could be

The planning team then analyzed the results of the community input, including the individual site plans and combined these individual visions into three alternative site plans. A fourth site plan was developed by the planning team to introduce new concepts in site design and new ideas from a site design professional's perspective. The ultimate goal of developing these alternatives was to expand the range of possible alternatives, make sure good ideas were represented, show that there are many form and character options for Gwa-yas-dums to achieve their objectives and to provide a starting place for the workshop.

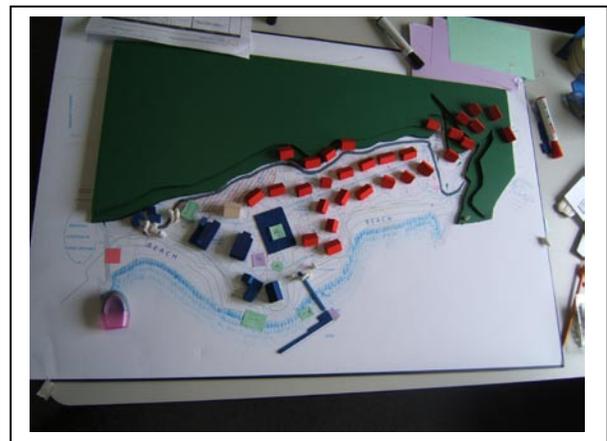
On March 10th and 11th, 2006 a study tour and the first site planning workshop were held. The alternatives developed from the individual interviews were presented to the community to initiate discussion in the community and thought about the broad range of potential options for the future of Gwa-yas-dums. Figure 6 below shows an example of two of the site plan options developed.

Figure 6: Examples of some of the many site design options developed by residents for Gwa-yas-dums.



On April 25th and 26th, the second site planning workshop was held. This was an intensive two day meeting where analysis of the initial site plans took place and numerous new design iterations were developed. In addition, a physical model of the Gwa-yas-dums village was made. This model was developed to provide an alternative to drawing site plan alternatives and was used throughout the site planning and design process in conjunction with site maps and perspective drawings. All the core issues were addressed at this meeting and consensus was reached on a conceptual site plan.

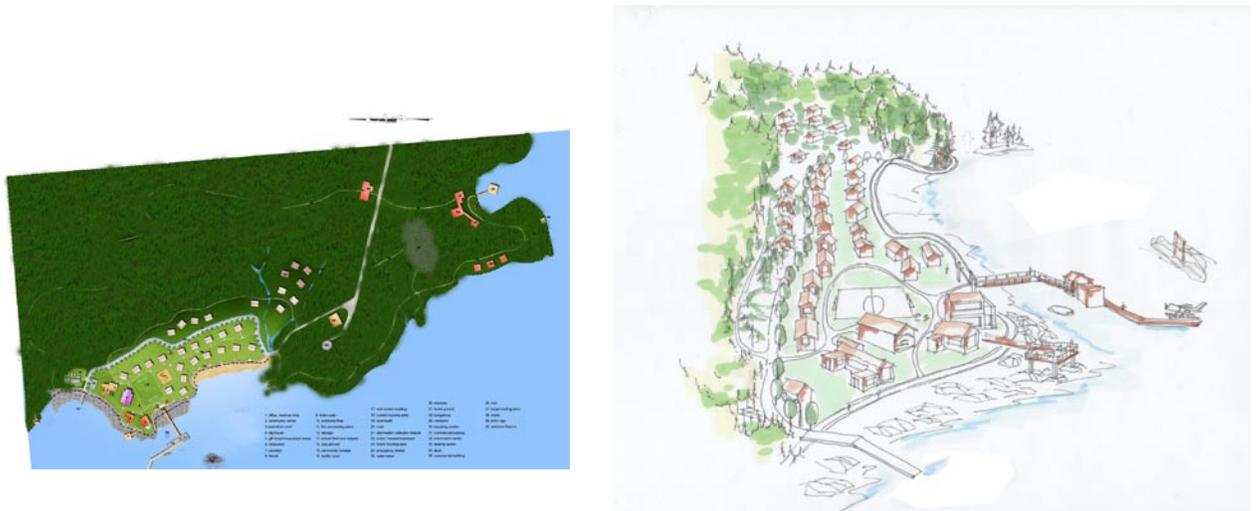
A third site planning workshop was held on June 27th, 2006 to address the updated geotechnical report that moved the setback at the north end of the village from 20 meters to 50 meters and invalidated the site plan of April 25th and 26th. At the onset of the workshop the objective was to respond to the INAC request that two site plans be developed for a technical evaluation (engineering and economic). However, after new and challenging issues were overcome by the community and two options were developed, one option became the clear favorite and no



A physical model of the site was constructed to support site maps and drawings. The model above shows the first consensus site plan.

community member wanted to pursue the alternative option. With consensus reached for a second time, it was agreed that one site plan would be presented to INAC for engineering review to assess options *internal* to the concept plan. The final meeting took place on July 24, 2006 and was to confirm and validate the plan. The following section discusses relevant issues and conclusions related to the final conceptual site plan.

Figure 7: Consensus Site Plan #1 and Perspective Drawing, invalidated by revised geotechnical analysis



9. Final Conceptual Site Plan for Gwa-yas-dums Village

This section explains the final site plan, reached by community consensus on June 27-28, validated and confirmed by the KHFN on July 24, 2006. In all, the community agreed on a site plan with seven distinct land use designations: residential, commercial, industrial/utilities (powerhouse, drinking water), administration, tourism, entry, outdoor space/recreation. In addition, cultural identity, storm water management, emergency shelter, and other issues were addressed. The discussion below articulates the key issues raised and the site planning responses. All numbers in this section in parenthesis reference corresponding numbers on the concept site plan. The estimate acres for the site are: Current/ Lower Village: 4.8 acres; Upper Village: greater than 6.0 acres, Side Hazard: 1 acre.

Residential

The current housing situation in Gwa-yas-dums is desperate, thus housing is a priority issue for the village residents. Inadequate and moldy housing, causing ill-health and abandonment, have put great pressure on a immediate response. To date, five homes have been demolished and residents moved to temporary trailers in the village. Homes are currently being demolished in anticipation of the site plan being implemented, and based on need (i.e. mold) rather than rebuild logistics. Based on the geotechnical analysis of the site, six existing homes need to be relocated away from the debris slide hazard and one existing home needs to be relocated due to erosion hazards.

The community identified a fundamental need to generate economic development. Tourism was identified as one of the few opportunities available to the village, although they would like to explore other opportunities as well. The need for, and importance of, economic development is reflected by the fact that the most desirable land area in the village for housing (based primarily on views and access) was dedicated to commercial and tourism use. Village residents made this possible due to admirable concessions. In particular, village resident Beatrice Smith agreed to move to a new home in the proposed upper village on the hill, and Calvin Johnson agreed to relocate to where Beatrice Smith's home currently is located. Without this agreement, which is dependant on giving implementation priority to the proposed upper village, the consensus site plan would not be possible. The land area dedicated to economic development and administration requires relocation of four existing homes.

In all, eleven of the twenty-six homes need to be relocated as designated in the conceptual site plan, due to the limited land area available in the village area after consideration of hazards, and administration, commercial and cultural use. There is only room for seventeen homes of the twenty-six replacement homes in the current, lower village. At least nine homes must be relocated elsewhere on Gwa-yas-dums IR1 reserve. This is true even with closer lot spacing, a minimum of twenty-three feet, agreed to by the community. New land for housing is urgently needed. The only contiguous area available for new housing development is on the gently sloping hill to the south of the existing village, what is commonly referenced as the "upper village".

To accommodate current housing, two areas have been designated for residential use (#18). The southern portion of the current village site, and the upper village located adjacent to the south of the current village. The upper village will also provide land for future housing, essential for achieving the vibrancy desired for the village and accommodating KHFN members who currently live off-reserve but would like to move home to the Village. Site analysis indicates that all 26 replacement homes will be able to be located below the 18m pressure zone (#45), a "jockey pump" or other method is required in order to facilitate development above this zone.

An issue that needs to be resolved prior to implementation of the site plan is the status of Dave Johnson's Veteran's Affairs housing allotment, apparently located in the south of the current village site. Questions still remain if it has been formally registered, and regardless, has it been formally resolved within the community.

Views and privacy were two values that the community emphasized in the planning process. The KHFN are a marine oriented culture and contact with the ocean, including visual, is of great important. Currently in the village many of the houses in the back row do not have a view of the ocean but instead look directly into neighbors houses or other buildings. The lot locations and house orientation were analyzed (see Figure 8). Under the proposed lot layout, all houses have as good or better view than the present situation. A basic orientation of housing was agreed to that suggests the front row of houses to be reoriented so that roof peaks are perpendicular to water creating better views for the back row.

Figure 8: View Shed Analysis



Two concepts were given serious consideration but were not included in the final site plan. First, an elder care facility was discussed and many community members agreed that it was a good idea. Upon closer analysis, it became apparent that no one would want to live in an elders care facility themselves. Therefore, the community agreed to not build dedicated elder care facilities on site, but instead to design all residential housing with elder care in mind and to use current age demographic statistics (from surveys) to garner funding for improved home care for elders in the village. This would allow for improve in-residence elder care, which is a priority issue for residents. Second, floating homes, including lodges were also considered in the planning process. Several locations were evaluated and deemed possible but in the end the community was not in favor of this type of housing.

Cultural identity

There is a pressing desire to reintroduce iconic or cultural motifs for the new village. The community felt that the physical cultural references once abundant in the village have been lost over time, which has lead to a loss in the sense of place and cultural identity. Influencing the discussion were study tours and interaction with other bands across Canada who have successfully incorporated cultural identity into village plans.¹⁴ These interactions

¹⁴ Chief Bob Chamberlin meeting with the Chiefs from other nations at the World Planers Congress in Vancouver (June, 2006) and Council member from Oujé-Bougoumou Cree.

supported the concept that it is important to create a strong sense of place with the visual appearance of the band office at the entrance to the community and with impact issues such as community pride, negotiating with private sector and government, economic development opportunities, among others. The group explored how and where such cultural references could be accommodated.

In general, an application of traditional motifs should be incorporated into the design program of the overall village. Nowhere is the visual expression of culture more important than in the village entry.

Photo 10: View to West from Gwa-yas-dums Village, December 2005.



Figure 9: West to East Perspective of Gwa-yas-dums Village



Village Entry

It is important to create a sense of entry and flow through the village in a manner that reflects a sense of place to residents and communicates the history/ story of the people. The village entry experience sets the stage for achieving this. It is also a key component in attracting visitors and tourists into the village, which will be a cornerstone of the village economic development strategy. Community participants identified key words to describe feeling upon arrival: natural, welcoming, friendly, traditional, inviting, fulfilled, peaceful, tranquil, warm. Ideas of some key elements that would capture this and should be included in the entry way are described below (note that these are also key to aspects of cultural identity). Imagine entering the village, by sea or air, and experiencing these aspects of Gwa-yas-dums:

- A memorial totem/welcome sign on Southern point, possibly another totem on the Northern point for boats entering from that side.
- An culturally significant welcome feature on the rock island in front of the village which functions as the village front door (#40).
- All major buildings have visible cultural aspects (motifs, etc.). In particular, the building facing the ocean will incorporate art/design similar to and the Big House shown in the 1900 photo. Important buildings to incorporate these aspects would include the Big House (#4), the gift shop/ museum/ art studio (#5) and the restaurant

(#6).

- A totem pole located on the rocky point of land at the south portion of the village to show respect to a burial site located there. It was also agreed that this site should be fenced to protect it and to keep visitors using the proposed boardwalk from disturbing the site (#22).
- A properly maintained, repaired and expanded dock with storage (#12) and an open air but covered fish cleaning shelter (#11) and an additional angled dock for better float plane access.
- Entry archway at lower dock, a carved welcome sign (e.g. Sisiulth) at the top/end of the dock (#39).
- Totem poles, a feature representative of unity with the four tribes, with similar identifiers in each of the other villages (e.g. totem poles at the land end of the dock, beside walkway at top of dock) (#9).
- Big House poles that form striking gateway entry between dock and new administration/ health/ recreation building (#46).
- Architecturally impressive administration multiplex building with traditional cultural features (#1).
- A fire pit and open space, a traditional gathering area for the community and a central feature to the village (natural wood with convertible benches so people can face into the fire or out onto the water and stone fire pit (#8).
- An interpretive map (maybe include snapshot of village history) at entry way, this could act as community bulletin board as well.



Improved dock with expanded float plan landing dock

Figure 10: Perspective of dock and entryway



Village Economic Development and Commercial

The area along the water from north of dock around to northern point was designated as commercial area (flanked by administration multiplex and open gathering space in entryway). The commercial area would include:

- A year-round restaurant (#6) with a seasonal sundeck (#7). This would target boat traffic in the summer months and special events and cultural use year-round. Rental rooms would be located above the restaurant for independent visitors or small visitor groups such as family visitors, consultants, tourists. Larger groups would stay in “Will Bay”, discussed in the Ecotourism section below. Restaurant and associated buildings were envisioned to have exposed beam, post and beam construction with a solarium like space in front overlooking the water.



Cultural artists are active on Gilford. The left shows a totem pole being carved; the right is a canoe undergoing final painting

- A gift shop, museum and art studio (#5) where summer travelers and tourists could restock as well as purchase local crafts. The art studio would provide needed space for resident artists and carvers, who would also display their skills as a living heritage demonstration area for visitors. The studio should provide enough space, as does the ean-two on the outside, for bigger carving pieces.
- Finally, a bed and breakfast (#42) was suggested for the commercial area, located to capture the view, provide a local residence and business opportunity.

Figure 11: Perspective of the commercial area and Big House



Ecotourism and Healing Center

An area of the reserve known as “Sawmill Bay” or “Will Bay” located in the far southern part of the reserve was designated an eco-tourism zone during the tourism season, and a healing center and retreat area for the remainder of the year (#28-34). The location away from the village was important as it provides privacy for both the tourists and the local residents, minimizing the adverse impacts of tourism. The tourism zone would be connected to the main village and commercial area by a trail system linking to the boardwalk (#19).

As an interim development, low impact tourism (e.g. kayaking tours) could begin immediately by building tent platforms in Will Bay. Longer term plans would include buildings. Longer term ideas included the development of a full kayak tripping service (water taxi from Port McNeill or Campbell River, outfitting, accommodation, meals) that could be tied into other services, cultural activities and showcasing, interpretive tours and hiking. The band was interested in considering partnerships with eco-tourism companies to fund the development of tourism facilities and services in the village/ in Will Bay. All of the tourism and commercial activity would need to be subject to economic analysis and strategic planning.

Utilities and Roads

There is a desire to relocate all above ground utilities to underground. There are several reasons justifying this. First is short and long term maintenance and reliability. Above ground utilities located in the slide hazard zone and exposed to falling trees and weather increase maintenance costs and exacerbate exposure to outages. Second, there has been discussion around approaching BC Hydro to assist with remote energy needs. BC Hydro prefers underground electrical utilities. Third, KHFN is determined to pursue economic development opportunities available to them at Gwa-yas-dums. One of the few opportunities available is tourism. Creating a visually attractive site by avoiding degradation of natural views and respecting the natural setting of the village is important. The above ground electric utilities located in the center of the village are not consistent with this vision. If below ground utilities are not possible, the community would like to relocate power poles to the back of the village (see Figure 12). Envisioned in association with this concept is moving all vehicle access to a rear corridor in back of the site (#20). Finally, the opportunity to address proper storm water management is another a factor related to this concept.

The site plan also took into consideration the development of the new water system (#41 and #43). The site plan attempted to respect the current water service limitation line, but it is anticipated that new homes will be required to be built above this line in the new upper village residential subdivision. The entire subdivision will be subject to engineering feasibility, pre-design and design and will address this and other related issues.

Figure 12: Perspective of possible back of village road, drainage ditch and above ground power



Stormwater Management

Stormwater management is a problematic issue for the village. Stormwater cascades off the mountain behind the village and settles at the rear of the village, making this area unusable and marshy. Water then finds its way under the village or enters into a pipe that empties into the south beach – assisting in the drainage of some of the water. Recently, a good intentioned heavy machinery worker associated with moving the trailers attempted to assist the community by making a temporary ditch at the back of the village. During one of our visits this ditch was already beginning to collapse and standing water had been collecting. A properly engineered, integrated stormwater management system is required, not only for the mountain behind the village but also for the proposed upper village and the lower village itself.

It was envisioned that control of the drainage from storm water within the village and off the hillside was possible by constructing an engineered receptor and drainage canal along the toe of the slope draining into the creek at the south end of the village (#21). It was felt necessary to consider this project in the context of an integrated stormwater management plan for the overall village – existing lower village and the new upper village area.



Industrial, Barge Access and Helicopter Access

The powerhouse is currently located in the northern portion of the site (#16). Although this is in a designated debris slide zone, because it is established and is not high occupancy (e.g. residential, commercial or assembly) it is recommended that the powerhouse not be moved but that proper notification of the debris hazard be posted.

There is a need for a community storage area, and a staging area for the construction of new homes. Space has been designated in the industrial area for a storage facility/shed (#15).

There is an identified need to improve the barge-loading area (#37) combined with a road that leads from this deep-water port around the back of village and up to the logging road. This will ease flow of loading/ unloading with the barge and ensure vehicles/ machinery do

not cause damage to the site. There is particular concern related to the construction phase of new homes where the current informal road located through the center of the village will be used and destroyed, causing massive mud in the winter and dust in the summer. This has been the case with the recent placement of the trailers.

Regular helicopter access is required for medical reasons. The current helicopter pad is located in front of the Big House (#4). While not a significant issue, as it does not block water view lines to the building, the community did envision re-locating the helicopter pad to the center of the soccer pitch.

Administration/Medical/Community Multiplex Center

A multiplex cluster of administration buildings (#1) was designated directly in front of the dock. This would orient visitors to the village as they would be greeted by the architecturally impressive and culturally relevant building. Based on preliminary measurements, the administrative multiplex is safely located outside of the 50 m slide zone. Administration and health portions are not to be within 50 m slide zone. However, if follow-up survey work concludes that a portion of the building is within slide zone the community agreed that this was acceptable, specifically if the portion of the building in the zone was the community/recreational center. There was broad support for implementing a rainfall monitoring alarm to alert the community of 100 mm in 24 hr rainfall events per the geotechnical report.

Recreation /Outdoor Spaces/ Circulation

Essential to improved health and social well-being for village residents are opportunities for recreation and gathering. The community examined developing opportunities for all ages. The physical site opportunities are discussed below.

- Youth and Adult: The back of the multiplex would be a community center (#2) that would have indoor recreational facilities (e.g., a weight and exercise room) and would tie into the outdoor basketball court (#3) and soccer pitch (#13) behind the building.
- All Ages: Soccer is central to the KHFN recreation and social life. The *Breakers* soccer team is much heralded and being able to practice and host games would provide health benefits and be an important entertainment/ social experience. Furthermore, the soccer pitch takes advantage or utilizes a portion of the village that would otherwise be un-used due to the debris slide hazard.
- Children and Youth: The long-term vision of the community is to have more families move back to the village. Economic development is of course essential to this, but considering the youth and providing recreation for them is also important. Furthermore, families with children do visit, sometimes for extended periods especially during the summer. Therefore two areas have been designated a play yards (#14).

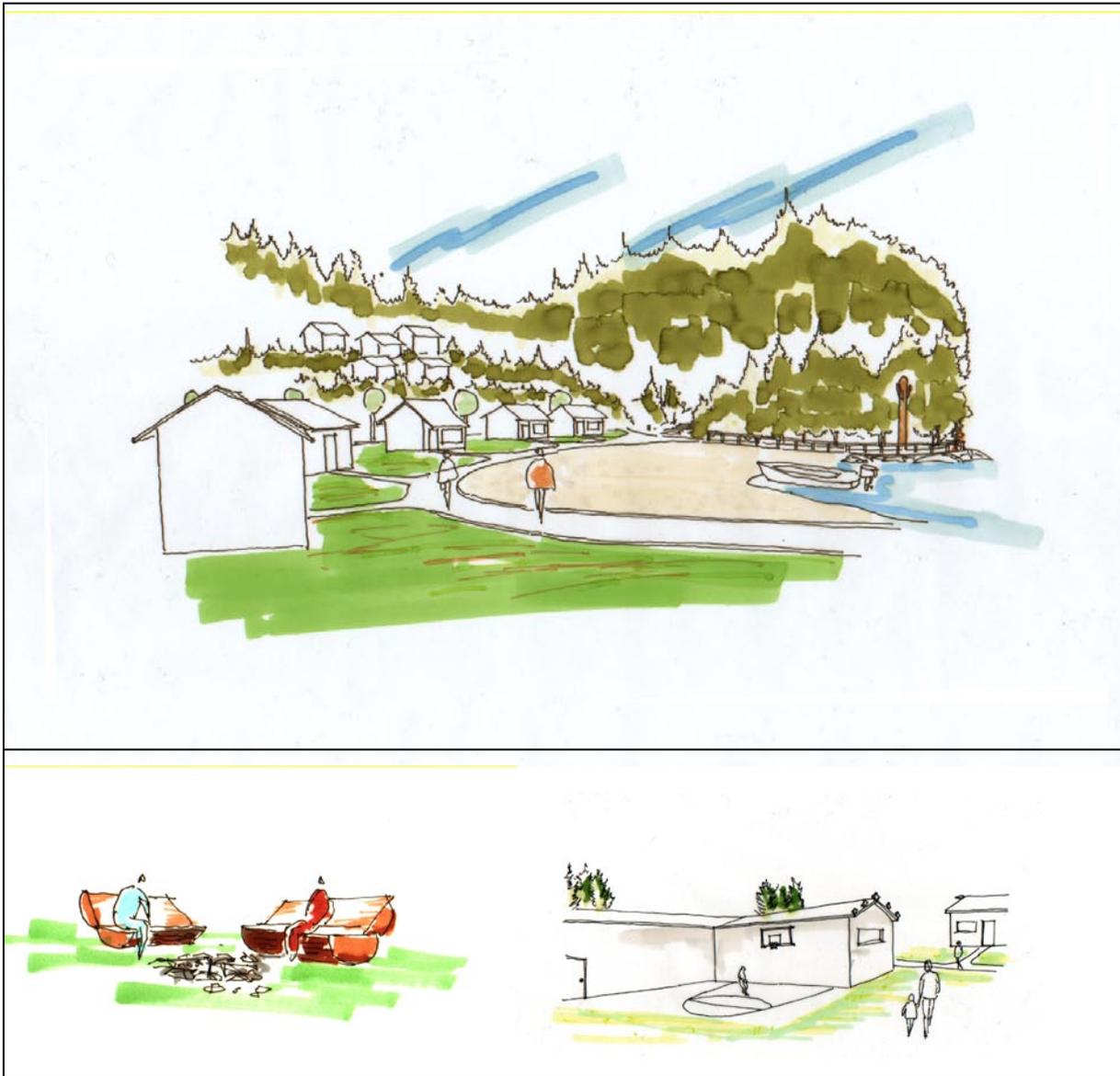
- All Ages, including visitors: Another important recreational component, which also ties in with the pedestrian flow and access, is the boardwalk (#19) and trail system (#36). Currently there is limited opportunity for exercise and having an enjoyable and accessible walkway was considered to be very important to the residents. This should be wheelchair accessible and have benches to provide opportunities for resting and enjoying the views. Also, interesting key gathering places, destinations and specific viewpoints should be linked by the boardwalk such as the viewpoint to the north of the village (#29). The walkway should be made of traditional materials such as broken clamshells. The use of cedar planks should be limited to minimize long-term maintenance due to rotting and to avoid slipping when wet. The walkway would also tie into a larger and more challenging trail system.



Example of a boardwalk from
Gwa-yas-dums 1917

- All ages: swimming is important to the community. A dedicated area should be provided for this activity. Historically swimming has happened inside the elbow of the dock. The community recommended that an anchored floating dock for swimming use be built (#10).

Figure 13: Perspective of boardwalk, fire pit and basketball court



In the long term, it is envisioned that trees/ greenery will be planted and act as a way to separate the industrial area from the rest of the village (#44). In the near term this area could act as a staging area for new construction.

Emergency

Tsunami's, slide debris and other hazards are a threat that the community must address, especially due to their rural location and need for self-sufficiency during an emergency situation. In the case of tsunamis, run-up hazard is conventionally managed on the basis of sufficient warning through the tsunami warning system in conjunction with evacuation to higher ground following receipt of the warning. This method assumes the warning will be received and that the community has a response plan in place and a place to go. For Gwa-

yas-dums Village, there is a designated person with a radio who is responsible for receiving and broadcasting the tsunami warning throughout the community. Other emergencies would be dealt with on an event-by-event basis. Although formal and informal systems of communication and response exist, they are based on communication only. There is no infrastructure to support the community in the event of an emergency. Therefore the community has designated space in the proposed upper village for an emergency shelter that would be able to service the community (#24). On word of warning is that if the designated hazard response person, with the communication to the tsunami warning center away from the village, it is not clear that the warning will be received and effectively communicated in time. Thus there may be a weakness in the warning and response system.

Pollution Abatement

The existing dumpsite up the hill to the south of the lower village is located in the watershed of a small creek that drains directly onto the main village beach. While no longer the primary source of waste, some dumping and burning still goes on there. For the purpose of developing the proposed upper village and to reduce beach contamination, waste should all be removed consistent with solid waste management plan, and the contaminated dump site should be remediated.

Cemetery and Other

There is a need to protect and expand gravesites and burial grounds, Only 6 graves remain unused and these gravesites have been cleared but not finished (#27).expansion could occur adjacent to the existing cemetery. There is also a need to protect a mark other burial areas within the village (e.g., #22).

Figure 14: North to south perspective of the proposed re-development of Gwa-yas-dums Village



Figure 15: Conceptual plan overview of the re-development of Gwa-yas-dums Village



10. Conclusions

The conceptual land use plan developed through the participatory community based process resulted in a consensus decision on the creation of a new village concept that reflects collective community values, lifestyles, and vision. This conceptual site plan also respects important site considerations and constraints (geotechnical risk, social, economic, cultural, orientation). There are a series of next steps necessary to ground truth the conceptual design and determine whether adjustments are required and how they are to be accommodated within the spirit of the design program as the plan moves to the implementation phase.

11. Next Steps: Implementation – The Integration of Design and Development

In order to translate the conceptual development plan into a physical reality, the site plan needs a technical evaluation (engineering and economic) so feasibility can be tested and trade-offs internally consistent with the site plan can be made by the community and INAC (such as short and long term cost issues, community values) and complementary components be integrated. The process has already been initiated with KWL researching a funding submission for the new subdivision.¹⁵

Given the associated complexity of such a process, it is critical that overall project coordination is accounted for. This will ensure seamless integration of the various components and avoid a problematic, piecemeal approach to the coordination and implementation of the project. Of particular importance is consideration of the village plan as one integrated development program. For example, pre- and post-construction issues such as stormwater drainage, roads, trails and pedestrian flow, utilities and housing transition all need to be integrated and coordinated between the current lower village and the proposed upper village. It is critical that the overall design development consider and account for all of these issues and as such be executed as a sensitive iterative process of place making.

Integration of design and development services is considered critical through the implementation phases of the village redevelopment program. Caution must be exercised to ensure that specific infrastructure design considerations or short-term efficiencies do not take precedence over the overall vision and experience of place that resulted from the visioning process. For example, the geotechnical report indicated that a flood control level of 5.6-m geodetic level is required for the site, but that a tsunami crest level of 6.05m would also be prudent. The geotechnical report also indicated that the sea wall would be for erosion control only and that flood control should be addressed in the housing foundations, subject to engineering review. Engineers have commented that a seawall should act as a flood control dike as well. These issues have many tradeoffs associated with them, such as cost, impacts on views both to and from the village and how they tie-in with other site features. Both scenarios require trade-off consideration by community members. If this is to be constructed, preliminary input suggests that this would be a new capital project with a funding submission required by INAC.

¹⁵ Stated at July 10 meeting with KHFN, INAC, KWL and EcoPlan and confirmed at a Aug 15 meeting.

Through coordinated integration, necessary tradeoffs associated with infrastructure requirements can be identified and resolved while being consistent with the village design direction developed through the community visioning/ workshop process. It is expected this will become more acute in association with finalizing the location of buildings. It is imperative that there is sufficient flexibility through all components of the infrastructure design process to ensure that incremental and complementary changes can be achieved without compromising key village design principles (e.g. adherence to this process will ensure that the quality of the spatial relationship between buildings and the corresponding quality of place will not be compromised in favor of below or above ground infrastructure).

Housing design is the final major consideration that concludes the design phase of the project. This can occur through the use of a housing designer or qualified architect.

New Subdivision Requirement – The Upper Village

One of the most significant conclusions to arise from the community site planning process is the need for a new subdivision. The site plan developed through the community consultation process resulted in the designation of a hillside residential village area in order to accommodate existing community residents and future village members. Because of its importance, the rationale is reviewed below.

- One of the most significant findings of the community planning process was related to geotechnical risk. Geotechnical investigations discovered that there is a moderate debris slide hazard affecting the north portion of the village.¹⁶ Buildings for institutional, assembly, commercial or residential uses need to be sited at least 50m from the toe of the steep rock slope.
- **Debris slide hazard affectively removes approximately one-third of the village from development.** To put this in perspective, under the current land use plan, six home sites need to be relocated away from the debris slide hazard.
- Erosion of the current village land area from ocean activity is a concern, requiring the relocation of one current home and an erosion control seawall. Additional hazards identified are flooding and tsunami hazards, especially for the southern half of the current village site. Addressing these requires further engineering analysis and mitigation.
- The community has also identified a fundamental need to generate economic development. Tourism was identified as one of the few opportunities available to the village, although the community would like to explore other opportunities as well. The need for, and importance of, economic development is reflected by the fact that the most desirable land area in the village for housing (based primarily on views and access) was dedicated to commercial and tourism use, with the entry into the village from the dock and the new administration and commercial buildings designed to incorporate traditional cultural imagery. Village residents made this possible due to

¹⁶ Cordilleran Geoscience, Terrain and Geologic Hazards Overview, Gwayasdums IR 1, Gilford Island, BC. Draft Report April 24, 2006. (Final Report October 23, 2006 no significant changes).

admirable concessions. In particular, village resident Beatrice Smith agreed to move to a new home in the proposed upper village on the hill, and Calvin Johnson agreed to relocate to where Beatrice Smith's home currently is located. Without this agreement, which is dependant on giving implementation priority to the proposed upper village, the consensus site plan would not be possible. Contiguous to the identified commercial area in the village will be the location of administration/health/recreation/cultural use.

- The land area dedicated to economic development and administration/ health/ recreation/ cultural use requires relocation of four existing home sites.

In all, the current "lower village" will allow for seventeen homes of the twenty-six replacement homes. At least nine of the urgently needed twenty-six homes must be relocated elsewhere on Gwa-yas-dums IR1 reserve. This is true even with the closer, high efficiency lot spacing (a minimum of 23 feet) agreed to by the community.

New land for housing is urgently needed. The only contiguous area available for new housing development is on the gently sloping hill to the south of the existing village, which is commonly referenced as the "upper village". The upper village will also provide land for future housing; essential for achieving the vibrancy desired for the village and accommodating KHFN members that currently live off-reserve but would like to move home.

Housing Transition Plan

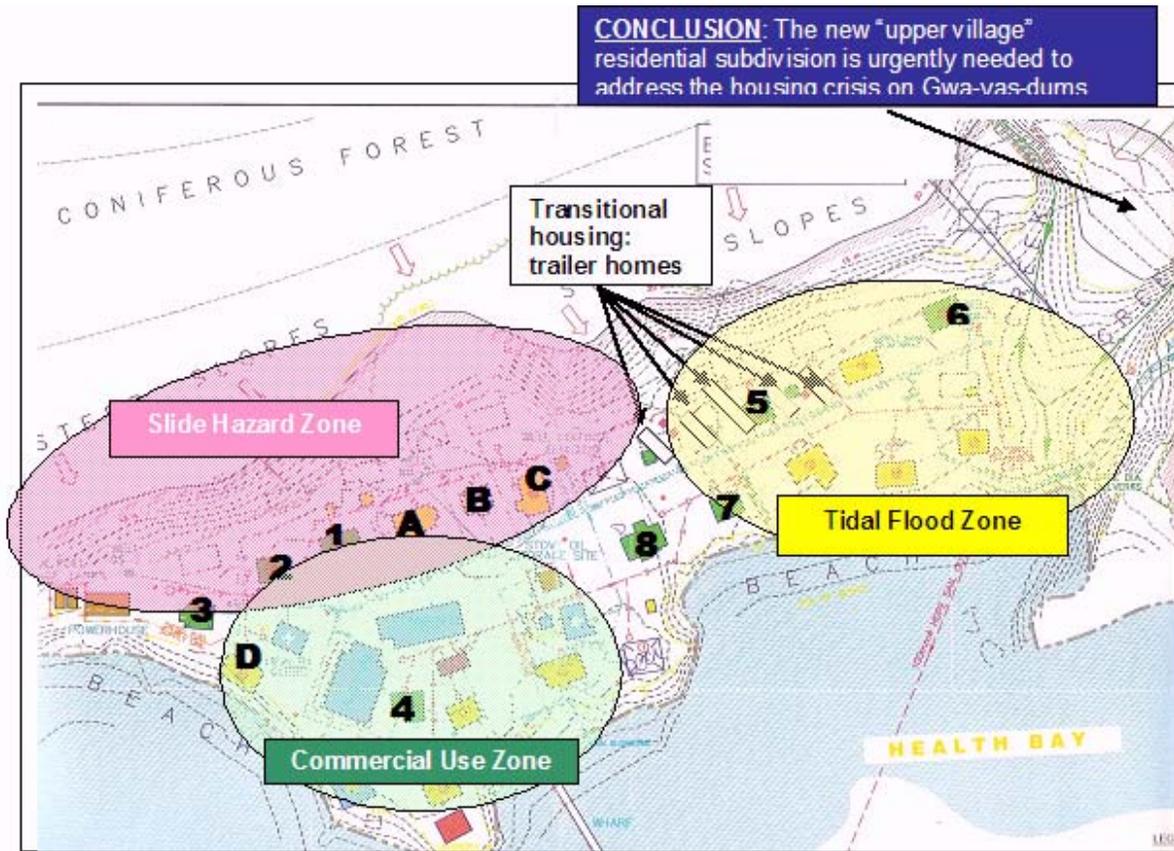
The proposed new subdivision in the upper village is an urgent priority, as it must accommodate the first round of replacement homes. Due to natural hazards and land use designations, there is available land in the current village to immediately accommodate only one or (possibly) two replacement homes. The development of a **proposed new subdivision located to the south of the current village site, is an urgent priority and essential for a successful housing transition plan.** The reason for this situation is described below.

As a first step in the housing transition, eight of the most unhealthy homes, based on mold or rot, have been demolished and five trailer-homes have been moved to the village to provide transitional housing. Note that the existing homes were demolished based on immediate health concerns, not on housing transition logistics or future site plans, which had not been completed at the time of demolition. Referencing the Figure 16 below, the current situation is explained. All homes in green have been demolished and have been given numbers for explanatory purposes. Additional concern in the transition plan is health and safety. Homes that are exposed to health and safety risk are identified by capital letters.

- Demolished homes #1, #2, and #3 are located in the debris slide zone and are unavailable for residential housing.
- Demolished home #4 is located in the future commercial zone (see Figure 1).
- Demolished home #5 is located where the transitional trailer-homes now stand.

- Demolished homes #6 and #7 are located in the tidal flooding area and require further engineering and mitigation (i.e., flood control diking or elevated foundations).
- Demolished home #8 allows land area for one or two immediate replacement homes.
- In addition, homes “A” and “B” are currently standing and occupied, with human health at risk from debris slide hazard. These homes should be relocated out of the slide hazard zone as soon as possible. Note that home site “C”, while not available for future housing is currently an empty lot with a totem pole in respect to a suicide that took place there.
- Home “D” is also occupied and in danger from erosion hazard. This home should be relocated as soon as possible, but will need to be relocated out of the commercial use zone.
- **With only one to two residential building sites available in the current village area, and with eight homes already demolished, three others occupied but exposed to identified hazards, the proposed new subdivision located in the upper village, to the south of the current village site, is an urgent priority. It must accommodate the first round of replacement homes.**

Figure 16: Transitional Housing Issues, analysis of current village



However, given that the conceptual framework which the site plan was created, it is necessary that the concept plan be ground-truthed to ensure that it is viable and, if not, to what degree it is viable, what choices face the community and what, if any, mitigation strategies would be necessary. Within the proposed development area, there are a number of physical features that should be assessed in order to determine the potential unit yield that could be achieved.

Of specific concern is the watercourse at the base of the slope, the north-south creek bed, and general topographic considerations. In order to finalize the buildable area and the ultimate potential housing yield, a geotechnical review is required to determine soil stability and necessary setback requirements. In association with this, a topographic and boundary survey is necessary to tie in key points on site. This will be important through the engineering design phase. The boundary survey should be extended to include the lower village to tie in key reference points such as the high water mark, top of bank, toe of slope etc. This information will then be used through the design phase for the installation/relocation/ replacement of shallow utilities/ infrastructure. It will also be necessary for development of the lotting layout for both the upper and lower village areas. This work will confirm the overall development scheme as currently agreed to by village members.

Coordinating Professional

Given the complexity of the various design-build programs and the potential overlap of design-build elements as discussed above, it is recommended that a coordinating professional be retained to ensure that the project proceed into and through the implementation phase as efficiently as possible.¹⁷ Without this position, there is the potential that some of the design subcomponents may conflict. Furthermore, in the interests of time and/or efficiency, the spirit of the village design program may be compromised or lost due to inadequate consideration of the guiding values and principals.

The role of this position would be to manage the integration of the technical and qualitative aspects of the village design program. The professional would be responsible for quality control and quality assurance in the coalescing of project components. This will ensure that the program comes together seamlessly and that any gaps in process are resolved and necessary tradeoffs occur in compliance with the vision of the village. In so doing, the project has a greater likelihood of proceeding without unforeseen surprises and will better translate the vision of community members into final built form.

It is important to underscore the fact that the village design program has been developed utilizing strategic place making principles, and driven by the community itself, to create opportunities for positive social interactions and positive identity with place. This has been achieved through the careful juxtaposition of physical site elements and the overall

¹⁷ The BC Building Code requires a "coordinating registered professional" for Part 3 (large or assembly type) buildings to coordinate all design work and field reviews of the registered professionals required for the project. The BC Building Code does not require this for Part 9 buildings (ie the new houses on Gilford), however KHFN would benefit from someone playing a similar role to "coordinate all design work and field reviews of the registered professionals required for the project", and to keep everything on track. They wouldn't necessarily have to be a registered professional. The BC Building code would require a "coordinating registered professional" for larger assembly type buildings such as the admin/health/rec multiplex center.

relationship of parts; through the careful arrangement of buildings and space all of which comprise a carefully crafted design program intend to promote KHFN values and to enhance the quality of life and daily experience for the residents and visitors to the village. As such, adjustments to the physical design concept must be considered carefully in this context and weighed against the potential loss or compromising of the critical linkage or network of design elements.

12. Physical Development Task List

A Task List was prepared to identify some of the necessary next steps required to move the project forward sequentially and in a way that ensures that the values underlying the design program are adhered to through the implementation phase. This task list was developed by EcoPlan to facilitate the transition from planning to engineering and implementation. It was circulated to KHFN, INAC and other consultants working on the physical development plan (KWL, Jacques Whitford) for their input. It is anticipated that this list will act as a starting point to help organize and coordinate professionals and KHFN. Ultimately, this list is seen as a jumping off point for the proposed coordinating professional, as discussed above.

Kwikwasut'inuxw Haxwa'mis First Nation

Gwa-yas-dums Village Physical Development Plan

Task List | Original - July 31, 2006 | Revised October 23, 2006

Task	Start	Length	Type (sequential or parallel)	Dependent on	Funding	Responsible	Comments
Site Planning							
1	Development of Community Based Conceptual Site Plan for village		-	1	✓	EPI	Conceptual phase completed. Ground truthing is required next step to confirm buildability.
2	Housing Analysis		P	-	✓	EPI	EPI has conducted "how to" analysis on housing. Decision to develop an RFP for architect/designer and assist with proposal is underway as well as development of design guidelines.
3	Community Energy Analysis		P	1	✓	EPI	This has been a participatory, community decision, developed with the technical support of EcoPlan and in coordination with KWL. On Oct 5, 2005 the community chose a propane grid. A draft energy analysis report has been completed.
4	Solid waste analysis		P	-	✓	EPI	EPI has conducted an analysis of recycling and solid waste options
5	Waste water analysis		P	-	✓	KWL	KWL is doing analysis of conformance to revised requirements for existing permit and for subdivision expansion.
6	Commercial development area analysis		S	1	✓	EPI	Ground truth and detail the economic aspects of the site plan – part of KHFN economic development strategy.

								An economic development proposal was prepared by KHFN with the assistance of EcoPlan in response to a call by INAC, but will not be submitted until march, 2007 due to limited INAC funds.
Policy and Finance								
7	Develop housing transition plan for village residents			P	1		KHFN Housing Committee	This is primarily dependant on the development and timing of the proposed upper village residential subdivision, however internal issues are now being dealt with by the community. For example, the order of transition (who, when, how), ownership issues, development issues with the upper village and other outstanding housing issues need to be resolved.
8	Develop housing policy			P			KHFN	Assistance from consultants may be available.
9	Develop Village Renewal Finance Plan			P			INAC, KHFN, Subs	On-going planning (e.g. economic development strategy), art and engineering feasibility work
Architectural								
10	Coordination of pre-design/ design phases with project architect or designer			S	1	?	Sub	Need to provide input into infrastructure issues as they might affect housing design and community surroundings. EcoPlan has offered to develop an RFP and architect proposal for INAC, subject to discussions with INAC.
11	Building design by an architect or designer			P	9	?	Sub	
12	Building design guidelines (particularly for energy efficiency and indoor air quality)			P	9	?	Sub	October note: In response to a request by KHFN, EPI has completed this in addition to initial floor plans and perspectives for discussion and to help with the transition to an architect or designer.

Geotechnical Investigation								
13	Housing in existing village needs foundations designed for bearing strength of shell-midden, and flood height			P	9	✓	KWL	KWL will confirm if this will be addressed by proposed geotech and survey work
14	Geotechnical investigation/ mitigation particularly of the upland area – the new proposed upper village residential subdivision, -- to determine location of suitable building sites			S	1	✘	Sub	<p>This is critical in assessing to what degree the upland area is buildable.</p> <p>In the areas between the south end of the village and the existing dump there are three small creeks incised in glaciomarine mud. In this area proposed building sites need to be field verified to ensure they do not encroach on unstable creek sidewalls, and foundation design will need to be based on the bearing strength of marine clay. This needs to be determined in consultation with a qualified engineer. Elsewhere in the area to the south of the current village site, building sites should be located on well-drained soils. Rock or marine clay may be encountered, and foundation design needs to be determined in consultation with a qualified engineer</p>
15	Debris flow hazard risk and slide risk			?	?	✘	KWL	This is currently proposed by a KWL funding submission for feasibility level analysis of debris flow and slide risk mitigation. Scope of submission should be checked with final conceptual site plan of KHFN, which complies with Cordilleran Geoscience report recommendations on passive mitigation (i.e. no occupied buildings are in slide path).
Engineering								
16	Preparation of a storm water management plan for construction and post construction phase.			S	1			This will include engineering design for storm water/ slope water collection swale along toe of the slope and discharging into the creek. This will also include

								sustainable stormwater strategies such as discharging roof leaders into the swale on the flatland and uplands sites.
17	Develop full rationale for underground electrical wiring			P	-	✓	EPI/KWL	Initial rationale is included in EPI site report, final should assessed in engineering analysis and engineering drawings. Verbal confirmation has been given (June 28 meeting with INAC, KWL, KHFN, EPI) that any changes to overhead electrical wiring is temporary. Rationale being developed for justifying underground wiring (hazard, site plan, BC Hydro preference, long term maintenance)
18	Community decision on preferred energy option (nothing, propane grid, district heating)			P	-	✓	<u>EPI</u>	October note: On Oct 3, 206 the community decided on a propane grid. The energy report has been completed.
19	Feasibility study of district heating system (if chosen as preferred option)			P	-	?	<u>SUB</u>	N/A
20	Development of a site grading plan for the upland site (including creek crossing design)			S	1	?	KWL?	
21	Pre-design/ design for overall road system			S	1	?	KWL?	Need to ensure road profiles are acceptable and can be easily and cost-effectively maintained in the long term
22	Pre-design/ design for trail system			S	1	?	KWL?	
23	Hazard areas and flood construction levels need to be determined by engineer			P	-	✘	KWL	This will be addressed by KWL funding submission but only for Items C and D above with respect to Hazard Areas but flood construction levels only for the subdivision (not existing community). We expect that flood issues related to the existing community would be part of the Sea Wall as per #1

24	Sea wall design and construction			P	-	*		If this is to be constructed, this would be a new capital project with a funding submission required by INAC. Analysis should be done to confirm the role of the sea wall. Is it for erosion control only for also for flood control? If erosion only (per Cordilleran Geoscience report), then housing foundations would need to be adjusted. What are the tradeoffs between these two (costs, views, aesthetics, and visibility to village)? Also Should a 5.6-m geodetic level be used or 6.05? What are the cost implications? A flood control seawall was not recommended by the geotech, is this an engineering option?
25	Foundation design below 5.6 m geodetic should be engineered for wave erosion protection			S	23			See sea wall comments above (#24).
26	Subdivision site feasibility and pre-design/ design			S	1, 13	*		This will be addressed by KWL funding submission per July 10, 2006 meeting (attending: INAC, KWL, EPI, KHFN)
27	Construction of WTP			P	-	*	KWL	
28	Feasibility level analysis of wastewater system			P	-	*	KWL	
Technical Background/ Other								
29	Comprehensive topographic survey from shoreline through upland development site.			S	1	*	KWL?	Essential for enabling community to position preferred locations for houses
30	Environmental assessment of two creek corridors			S	1	*	Sub	Need to assess prefer streamside setbacks. DFOC, although they do not have jurisdiction over FN lands, would like comments and do have influence over approval process.

31	Vegetation retention management strategy for upland site			S	1	*	Sub	Need to retain as much natural vegetation as possible from an aesthetic and storm water perspective
32	Construction management plan including materials sourcing			P	1, 2, 6,8, 9, 10	*	KHFN and Project Manager	KHFN has developed some contacts with logging companies for reduced cost supply of cedar shingles and possible cedar siding
33	Confirm status of Dave Johnson's Veteran's Affairs housing allotment			P	7,8		KHFN	This might have been completed. Need to ascertain ASAP as there could be implications for the conceptual site design.
34	Detailed coordination of site design with infrastructure design - this includes managing potential trade-off strategy			P	-	*	EPI	Completed regarding the WTP, suggested that an overall project manager be designated to coordinate overall project – no funding currently exists for this.
35	Identify an overall project manager to coordinate/ integrate activities of all consultants/subs through to construction phase.			P	-	*	?	Considered critical
36	Consider remediation and relocating dump site location			P	1	?	KHFN/EPI/KW L	Does Jacques Whitford have dump site cleanup included in their scope of services with hazardous disposal of first houses?
37	Seek input on conceptual site plan from other actors and technical groups							This could include health, transportation (dock upgrades, helipad location issues, barge docking issues, etc)

