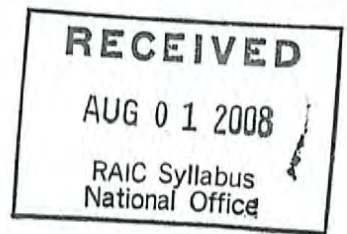


THE ROLE OF

ARCHITECTURE



IN FACILITATING
SCIENCE, EDUCATION, CULTURE AND OUR ENVIRONMENT
THROUGH THE DESIGN OF A

Salmon Hatchery & Learning Centre



ACKNOWLEDGEMENTS

I would like to thank Ryan Huston for being my mentor for the majority of my RAIC Syllabus program. Thank you for your continuing support and encouragements. I would also like to thank my thesis advisory committee which included Steve Rayner, M. Vaughan Hoy, and Ryan Huston.

I would also like to thank my wife and kids for their 13 years of support which has enabled me to complete the RAIC Syllabus program.

THESIS STATEMENT

The role of Architecture in facilitating research and promoting public awareness regarding the environment, with a focus on the historical and cultural context of the Chilliwack River Valley, explored through the design of a new Salmon Hatchery and Learning Centre.

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PART I

- Research Development and Introduction to Thesis Components

The role of Architecture in facilitating research and promoting public awareness regarding the environment, with focus on the historical and cultural context of the Chilliwack River Valley, explored through the design of a new Salmon Fish Hatchery.

Methodology of Study

The research portion of this graduation project can be broken down into four different areas. Two general areas of research, and two specific areas of study.

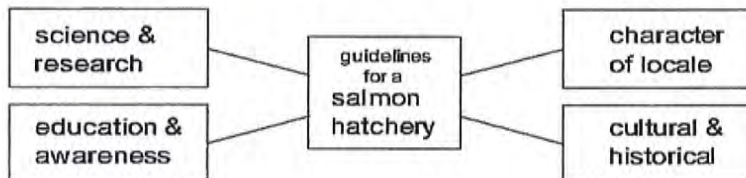
General areas of research

1. Scientific research and commercial applications. This will include an indepth review of how hatcheries function in today's enviroment. Looking at the research being done today and how it may affect the future, as well as examining architectural precedents.
2. Education : This area of research will include the public's awareness of the environment and how to parallel themselves with it rather than destroying it. Educating our children and up coming generations.



Specific areas of research

1. Character of locale. This will include the physical context of the area of study, such as the environment, land forms and man made modifications to the original landscape of the Chilliwack River Valley.
2. Historical and Cultural backgrounds. Research would be done on the culture and history of the Chilliwack River Valley. This will include the First Nations and the current fabric of the culture in this area.



These four areas of research will be used to develop guidelines for the role of architecture in facilitating research and promoting public awareness regarding our environment.

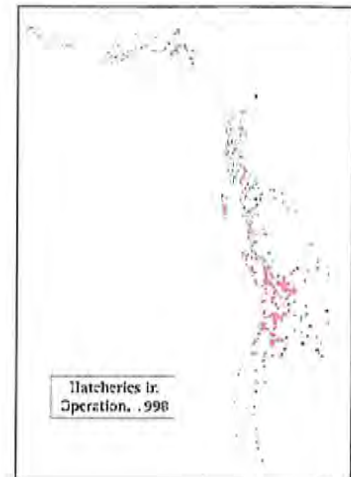
Proposed Graduation Project

Guided by the research laid out, I will aim to use a Salmon Hatchery as an example of a facility that provides the architectural challenge of combining practical intervention with scientific research and public education with the environment and cultural context.

Hatcheries were started as a temporary solution to help bring back the existing fish stocks to their historic levels because they were diminishing fast. This temporary goal was not achieved and now fish hatcheries have become a major contributor to the fishing industry today. This industry includes the community, economy, and First Nation's needs and demands. The 'public' needs to be more informed as to the importance of hatcheries and the role they play. The study of the migration, biology, and the ecology of fish today will help us plan for the future.

The Vedder / Chilliwack River is the most fished river in all of British Columbia, and a lot of people groups depend on it for various economical and social reasons. Fish Hatcheries are a main source of research and support to enable these functions to continue.

The project will include programming, site context evaluations, site usage, public interface, landscape architecture, technology applications and research components. There is an excellent opportunity to educate, research, and discover the 'cycle of life' of Salmon through the architectural design and planning of a Salmon Hatchery.



THE FUNCTION AND PURPOSES OF SALMON HATCHERIES

- Research completed on why salmon hatcheries are required today
- Research completed on release and return salmon

GRADUATION PROJECT

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THE FUNCTIONS & PURPOSES OF HATCHERIES

- The main function of the Hatcheries today is to help bring existing fish stocks back to their historic level. Hatcheries want to sustain and maintain fish stocks but not over ride existing wild fish stocks.
- Hatcheries are located according to the Water Shed they are in, therefore making them unique to their own environment.
- Hatchery fish are tagged to help monitor between wild stock and returning hatchery stock in times of spawning.
- Department of Fisheries is not only Hatcheries, but also Health and safety of water ways, Conservation and Sustainability of our fisheries, and Aqua Culture - monitoring big business.
- There has not been any new hatcheries since the mid 80's. If hatcheries were to be abandoned today we would see a steep decline of fish stock within three years.
- New ways of fish enhancement programs / fish conservation / disease control / water quality / and fish's upper and lower limits would improve how hatcheries function today.
- Hatcheries help to re-establish fish runs in areas that have been destroyed by natural or human accidents. Some examples of this could be toxic spills that kill off 'fry' in a creek, or flooding that wipes out spawning beds and channels.



Below is an example of juvenile salmonid releases compared to adult returns from the Chilliwack River Hatchery. Please note that the life cycle of different species varies in length. The hatchery needs about 500 'brood' stock (returning adults) in order to produce the required eggs and alevins. This brood stock is made up from hatchery stock and some wild stock.

Summer Red Chinook	418,105	1,150,811	1,150,811
Fall White Chinook	1,150,811	1,313,736	1,313,736
Coho	1,075,359	1,652,806	1,652,806
Chum	1,200,830	1,459,311	1,459,311
Steelhead	109,123	116,641	116,641

Summer Red Chinook	619	620	682
Fall White Chinook	7,905	2,801	2,314
Coho	8,311	7,360	22,720
Chum	3,791	1,923	9,560
Steelhead			



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INTERVIEW WITH BOB STANTON

- Mr. Bob Stanton is the Manager of the Chilliwack River Salmon Hatchery
- Interview included the purpose of the Chilliwack Hatchery, the operations of the hatchery, the management of the hatchery, and ideas and ways to improve the existing facilities.

INTERVIEW WITH BOB STANTON

Bob Stanton is the Watershed Enhancement (Project) Manager of the Chilliwack River Hatchery. During the interview we discussed multiple aspects of the hatchery and the direction it could go. Below are some comments given by Mr. Stanton.

Comments on the enhancement of Education

- More Kiosks on the hatchery site, better displays, and more graphic that would explain to the public what they are viewing. Displays should be able to change to describe different species as well as different phases of the cycle of life of salmon.
- Be able to explain and depict the entire cycle of the fish as the public flows through the hatchery.

Comments in regards to the management of the hatchery

- Management is a very important aspect of hatcheries.
- Management is responsible for keeping the balance of fish stock verses wild stock, marking program, the environmental impact that hatcheries have, timing and cycles of fish species, and water quality management.

Comments on alternative methods of integrating fish hatcheries

- Re-start abandoned side channels for spawning beds for salmon.
- Research and identify areas that salmon would identify as natural spawning beds. This would take more time, energy, and cost, but would have less impact on the local environment.

Comments regarding public awareness of hatcheries

- Salmon Hatcheries should cater more to schools and the education system. Integration of education in the classroom together with practical experience on the hatcheries would be a great benefit.
- The hatchery currently caters to work experience students. This program could be used better and alternate options could be looked at.

Comments regarding the scientific aspects and research of the hatchery

- Scientists want fish hatcheries to sustain the current fish amount by balancing the wild stock and hatchery stocks. Hatcheries need to be keenly aware of the amount of wild stock in order to produce the right amount of hatchery stock in order to not over populate the wild stock.
- The location and type of hatchery is very unique to its location in a watershed. Every watershed is different in geographical position, size, salmon species, and the number of stream and rivers that contribute to it.
- Fish protection and conservation - we should try and be less harmful to our environment.
- Fish enhancement - find the best ways to produce salmon.
- Disease and disaster control - find ways to correct and help in this area.
- Salmon species upper and lower limits - water quality, water flow, production, and food.
- Overall water quality and the amount required.

- Correct timing for changing of ponds and the timing of releasing salmon in the rivers.

Miscellaneous comments given

- If hatcheries would close today, you would see a steep decline in fish stocks within three years time. Wild fish stock could not re-produce enough fish to keep up on the demand today.
- Look at possibilities of having multiple hatchery sites that would only produce on salmon species rather than larger hatcheries that produce multiple species.
- Larger salmon hatcheries need to be more people friendly and not so geared to industrial style, so that people can understand and appreciate the purpose of hatcheries.
- The salmon that are produced support the first nations fisheries, sport fisheries, and the commercial fisheries. All three have a large impact on the economy.

THE CHILLIWACK RIVER SALMON HATCHERY

- Research completed on the origins of the Hatchery
- Research completed on the process and operations of the Hatchery

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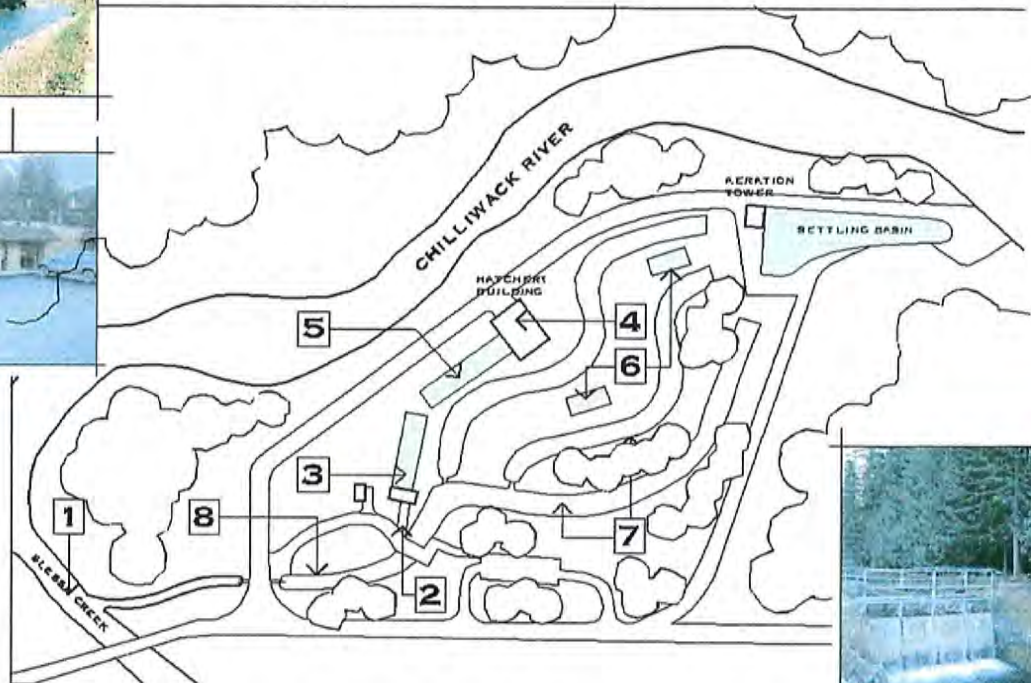
The Chilliwack River



Main Hatchery building



CHILLIWACK RIVER HATCHERY



Earthen rearing channels

- 1** Adult spawning fish come back up rivers and streams to the original place of birth to spawn.
- 2** Adult spawning fish climb the fish ladder where the fish are collected.
- 3** Adult spawning fish are sorted and held. The eggs and milk is removed from them.
- 4** The eggs are then put into a natural incubation in a controlled environment - building.
- 5** When the eggs have developed 'eyes' they are set in a gravel bedded channels as the embryo develops and hatches as Alevin.
- 6** Once the alevin's nutrients is used up they turn into 'fry'. At this stage they are 'clipped' or marked as hatchery stock.
- 7** The fry are then put into natural rearing ponds for up to a year or more.
- 8** When the 'fry' are ready to go back into the river and to the ocean they are called 'smolts'. Smolts migrate their way to the ocean.

CHILLIWACK RIVER HATCHERY INFORMATION

Development of the site was completed in 1981.

The hatchery produces up to 6 million smolts per year.

The hatchery produces Chinook, Coho, Chum, Pink & Steelhead Salmon.

The hatchery employs 7 full time staff with additional seasonal workers as required.

GRADUATION PROJECT

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CHILLIWACK RIVER HATCHERY

- The Chilliwack River Hatchery was built on an old side channel of the Chilliwack River under the Salmonid Enhancement Program (SEP).
- The Hatchery was completed in 1981 and was in keeping with the wishes expressed by the local residents which was to keep the hatchery site in its natural state as much as possible. The site is 2 km by 0.5km in size.
- The hatchery produces up to 6 million salmon smolts of chinook, coho, chum, and steel head per year.
- The salmon produced by the hatchery are for three main groups : First Nation fisheries, sport and recreational fisheries, and commercial fisheries.
- The hatchery has several styles of rearing ponds / containers : troughs, circular tubs, concrete ponds, and earthen channels.
- The hatchery site is a wildlife viewing area for animals such as great blue herons, wing fishers, water ouzel, bald eagles, black bears, otters, skunks, mink, and raccoons.

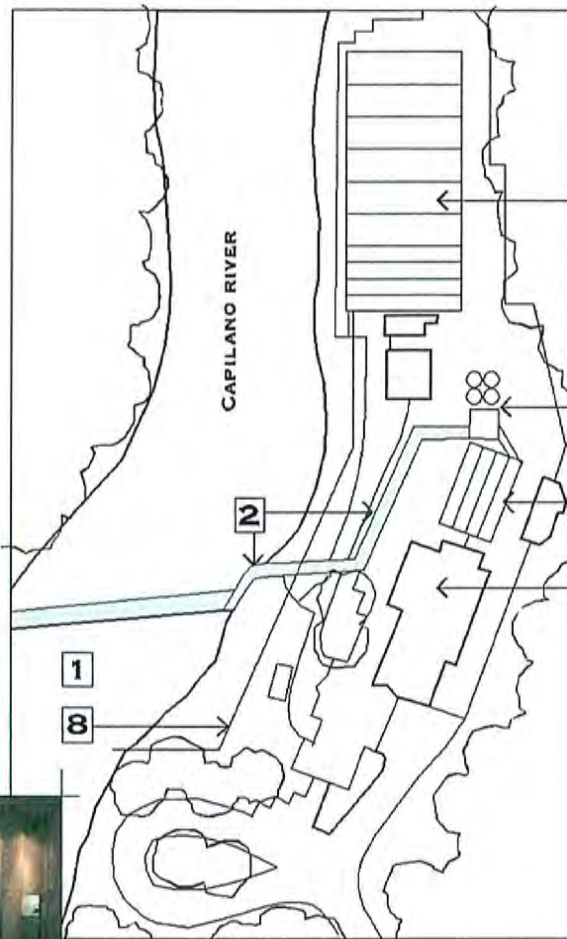
THE CAPILANO SALMON HATCHERY

- Research completed on the origins of the Hatchery
- Research completed on the process and operations of the Hatchery

CAPILANO SALMON HATCHERY



- 1 Adult spawning fish come back up rivers and streams to the original place of birth to spawn.
- 2 Adult spawning fish climb the fish ladder where the fish are collected
- 3 Adult spawning fish are sorted and held. The eggs and milk is removed from them.
- 4 The eggs are then put into a natural incubation in a controlled environment - building.
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- 6 Once the alevin's nutrients is used up they turn into 'fry'. At this stage they are 'clipped' or marked as hatchery stock.
- 7 The fry are then put into natural rearing ponds for up to a year or more.
- 8 When the 'fry' are ready to go back into the river and to the ocean they are called 'smolts'. Smolts migrate their way to the ocean.



River Weir on the Capilano River



Main Hatchery building & display



Juvenile display area in hatchery



Fish ladder displayed for public view

CAPILANO SALMON HATCHERY

Constructed and completed in 1971 because of the dam upstream.

The hatchery is known for producing Coho and Steelhead Salmon

The hatchery plays a role in public education and scientific research.

The hatchery employs 10 full time staff with additional seasonal workers as required.

GRADUATION PROJECT

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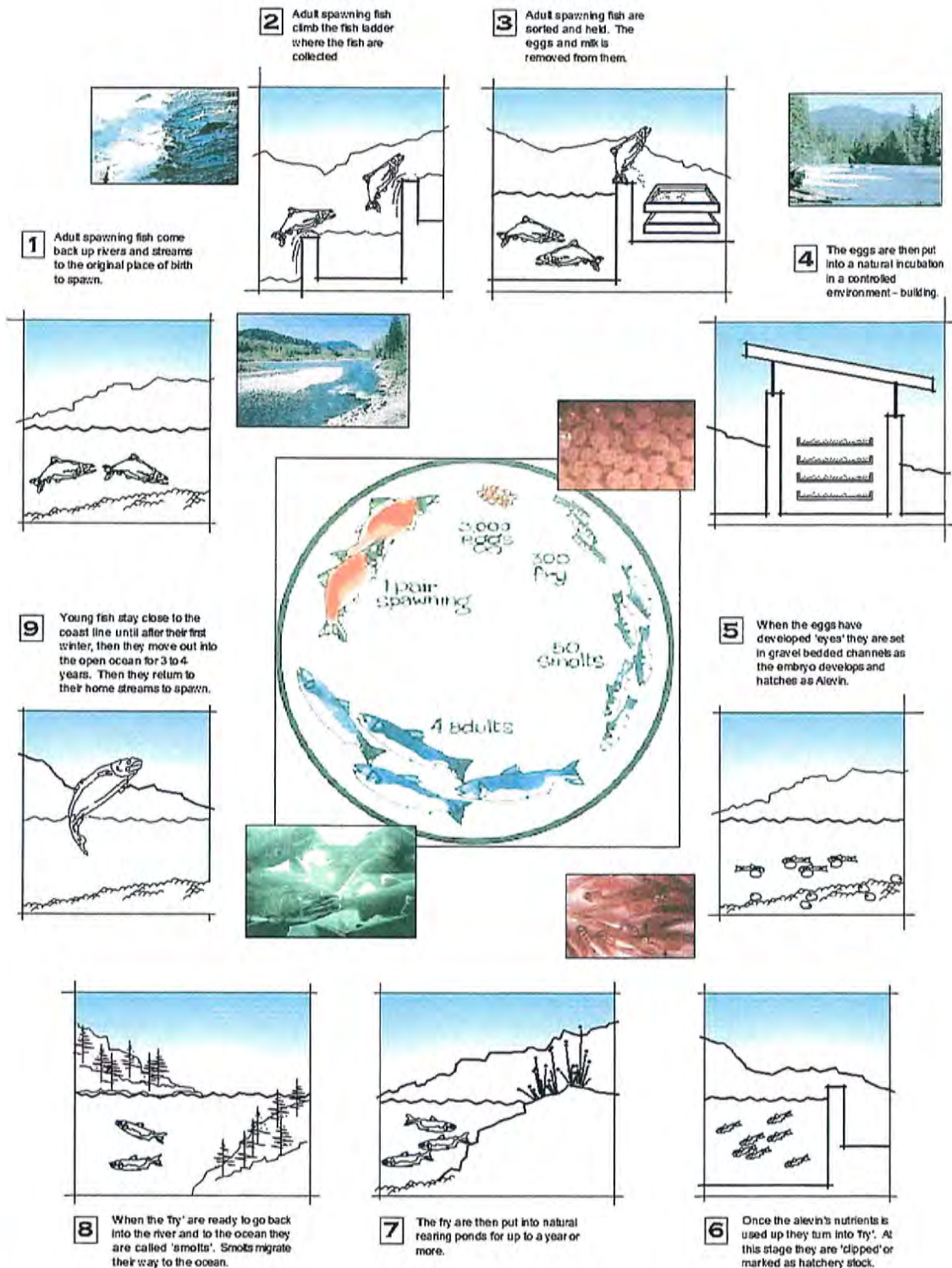
CAPILANO SALMON HATCHERY

- In 1954 construction of the Cleverland Dam was completed 6 kms from the ocean, creating a reservoir that supplies 40% of Vancouver water.
- The construction of the dam blocked the route of coho and steel head as well as 95% of the spawning and 75% of the rearing habit was lost.
- To mitigate the loss, the Greater Vancouver Water District constructed a concrete river weir and fish ladder. This system collected adult salmon returning to spawn. They were then transported to above the dam so they could continue their journey. However, young salmon migrating down stream suffered high loss as they travelled back over the dam.
- To address this problem, the Department of Fisheries and Oceans decided to build a hatchery below the dam. The 3 million dollar facility was completed in 1971.
- Capilano Salmon Hatchery is now famous for its contributions of coho and steel head to the sport fishery in the Burrard Inlet.
- Scientific research is an important aspect of the hatchery. Salmon and working facilities are provided at the hatchery for research projects.
- Public education is another important aspect to the Capilano Salmon Hatchery. Coho eggs and adults are used in educational programs in local schools.

A REVIEW OF THE CYCLE OF LIFE OF A SALMON AND SALMON SPECIES

- Research completed on the cycle of life of a salmon and how the salmon hatcheries participate
- Research completed on the different types of Pacific Region Salmon
- Integration of Education into Salmon Hatcheries

' THE PROCESS - LIFE CYCLE OF A SALMON '



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PACIFIC REGION SALMON



CHINOOK SALMON

- The chinook is the largest of the Pacific salmon species, the world record is 126 pounds.
- Chinook are also known as 'spring' salmon because they return to some rivers earlier than other Pacific salmon species.
- The chinook salmon is known to eat other fish.
- After hatching, the chinook stays 3 months to a year in fresh water before migrating to the ocean. The age of returning adults range from 2 to 7 years.



CHUM SALMON

- Chum salmon are found throughout the Pacific Rim, from Oregon to Alaska and as far as Japan and Korea.
- Chum are the poorest jumpers of the Pacific salmon and can often impede their upstream migration.
- Chum are the least sought-after Pacific salmon species, though they have long provided food for coastal peoples.
- Chum emerge from gravel spawning beds in the spring as fry and move directly into the sea.
- Most chum spend 2 to 3 summers at sea before returning to spawn.



COHO SALMON

- There are more distinct populations of coho than any other Pacific salmon in B.C.
- Although coho tend to remain close to the coastline, they have been found as far as 1600 km from shore.
- Juvenile coho defend their territories through a series of maneuvers including a complex shimmy - shaker or 'wig-wag' dance.
- Young coho spend 1 to 2 years in fresh water before migrating to the ocean. They spend up to 18 months in the sea before returning to streams to spawn.



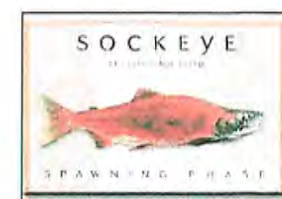
PINK SALMON

- Pink salmon are the most abundant of these species of salmon in BC waters.
- Pinks have a short 2 year life span. Immediately after they emerge from the gravel in the spring, the fry enter the ocean.
- Pinks travel in large schools and feed on invisible animals called zooplankton, which gives their flesh the bright pink colour for which they are named.



STEELHEAD SALMON

- Steelhead were at one time considered a trout species but have been discovered by biologists to be more closely related to the Pacific salmon.
- The fresh water variant of steelhead is known as rainbow trout.
- Unlike most other Pacific salmon, some steelhead individuals live to spawn more than once.
- Steelhead are known as legendary fighters amongst the angling community.
- Young steelhead live up to 3 years in fresh water before migrating and can live up to 9 years old.



SOCKEYE SALMON

- The best known Pacific salmon. Sockeye are the most sought after for their superior flesh, colour and quality.
- Sockeye were the first salmon to be harvested commercially in the Pacific region.
- The rich colour and oil content of sockeye may be attributed to their diet which includes a lot of shrimp.
- Young sockeye may remain in fresh water for a year and then in the second or third year migrate to the ocean. They can travel as far as 4000 km from the coast line.

INTEGRATION OF EDUCATION INTO HATCHERIES

- Provide an architectural solution that would engage and enlighten the public in the life cycle of the salmon species and their environment.
- Provide programs and facilities that would educate our young children and upcoming generations.
- Provide a facility to educate post secondary and work experience students with hands on education.
- Provide exhibition space to explain the history and character of the area in which the hatchery is located. Express the rich history and culture of the region.



PRECEDENTS RESEARCHED RELATED TO THIS TYPE OF PROJECT

- The Maritime Museum in Fremantle, Australia
- The Monterey Bay Aquarium in Monterey California

MARITIME MUSEUM - AUSTRALIA



Building type : Maritime Museum

Location : Fremantle, Australia

Designed by : Cox Howlett & Bailey
Woodland

Designed for : Western Australian Maritime
Museum

Completed : December 2002

The architectural imagery of the museum draws on the simple association of a boat stranded on a sandy promontory



Materials used : chosen applicable to their environment?

- Timber : decking / floor, structure - enhanced marine feel
- Stone & precast concrete : floors, walls, structure
- Steel : structure
- Metal cladding : prefinished composite panels, zinc panels - industrial aesthetic of the slipways
- Glass : glazing system - maximize transparency into the interior



Objectives of the project :

1. Provide a world class maritime museum to tell the story of the Western Australia's Maritime history.
2. Embody design excellence that takes advantage of the landmark setting to become an architectural icon.
3. Satisfy the operational requirements of the WAMM and to accommodate the changing needs of its growing endeavors.



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MONTEREY BAY AQUARIUM



Building type : Aquarium

Location : Monterey, California

Designed by : EHDD, Esherick, Hornes,
Dodge, Davis
Designed for : Monterey Bay Aquarium
Foundation - Founded By David Packard
Completed : Oct. 1984 & 1996

The mission of the Monterey Bay Aquarium is to inspire conservation of the ocean.



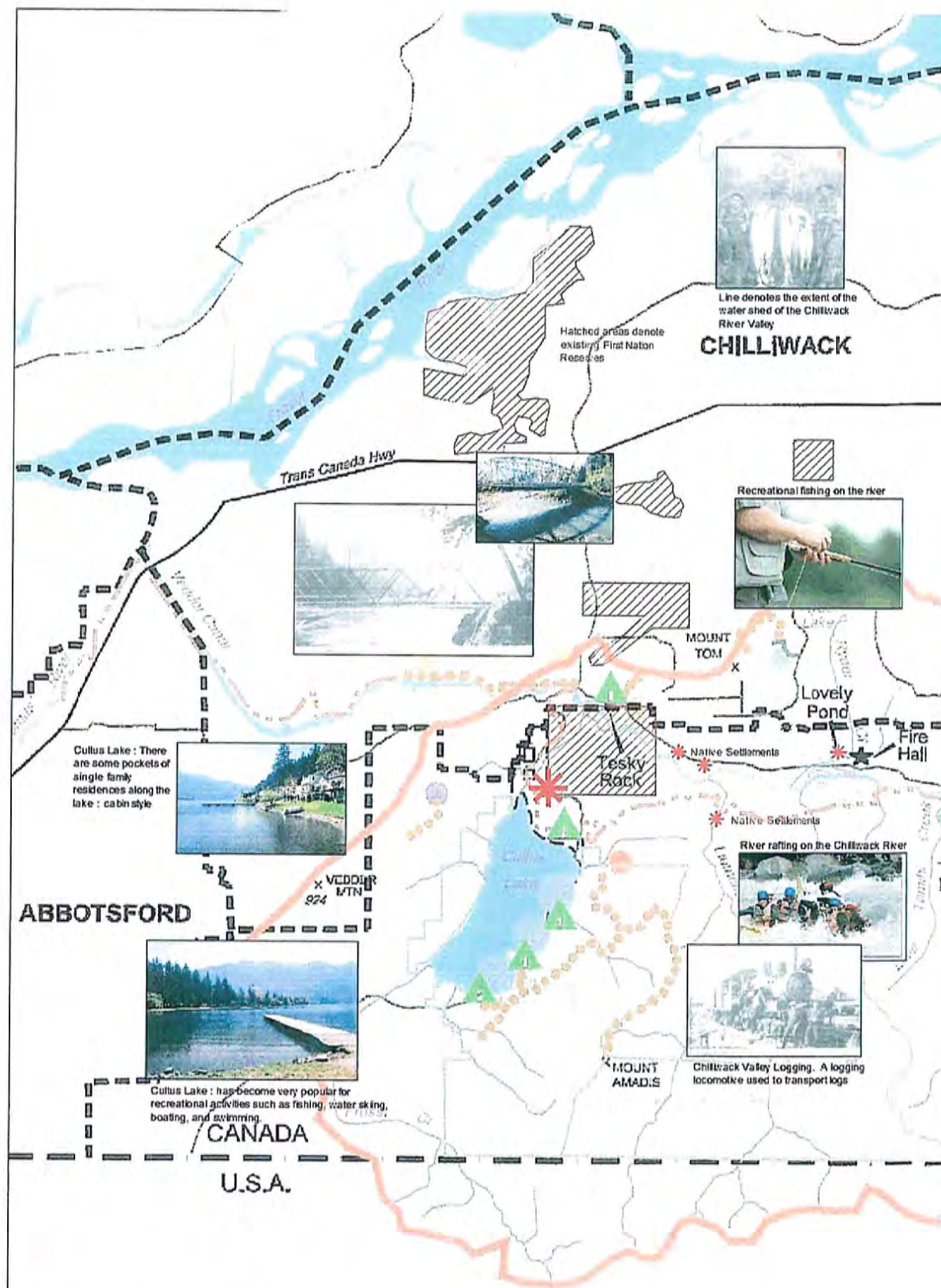
Monterey Bay Aquarium remains one of the most state of the art aquatic museum of the world. Combining non-tradition aquarium architecture with high exhibit technology.

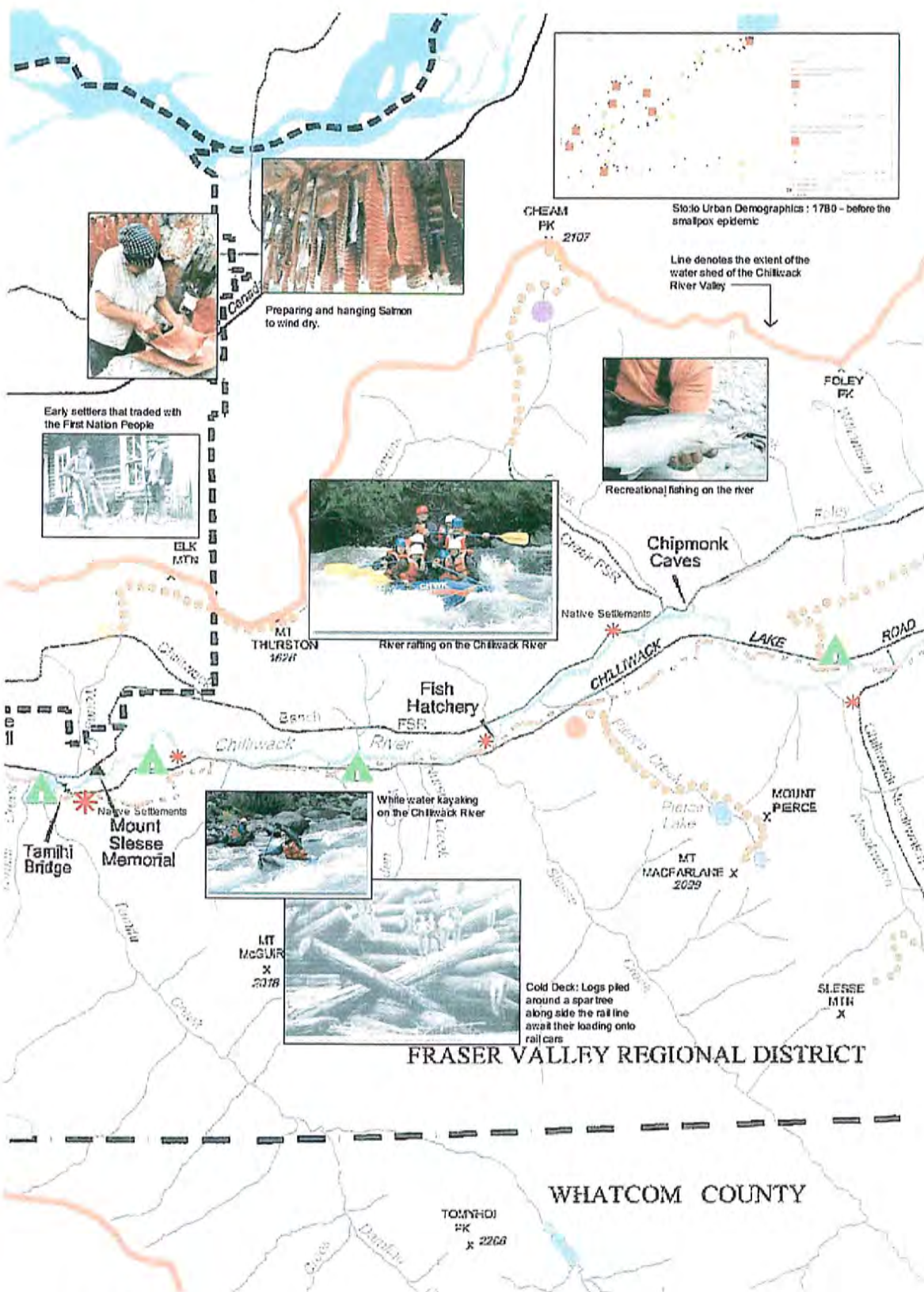


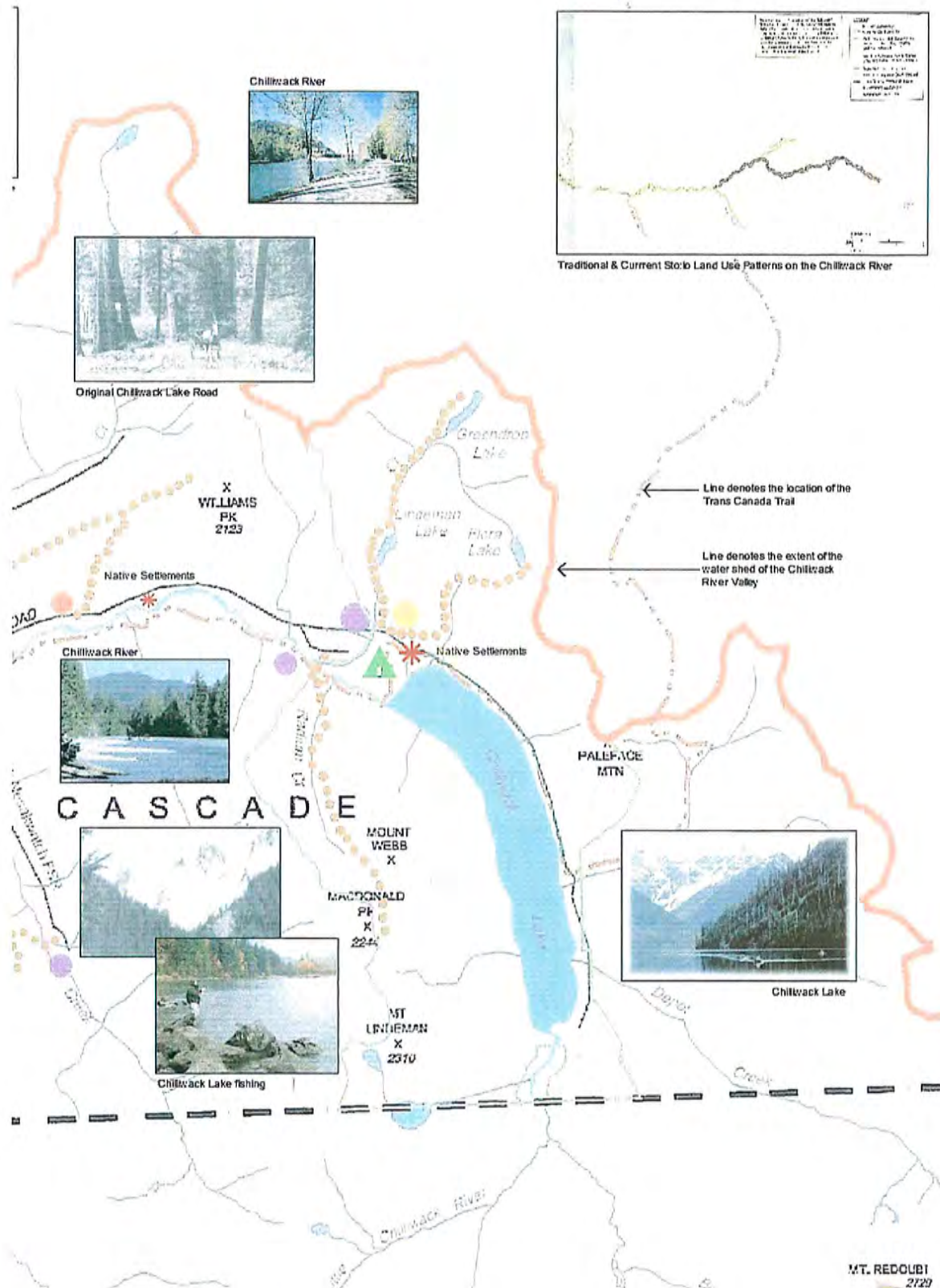
The aquarium incorporates many new and experimental construction technologies, like the 3 storey Kelp Forest exhibit

CONTEXTUAL MAPS OF THE CHILLIWACK RIVER VALLEY

- Research completed on the Culture of the area
- Research completed on the Historical aspects of the area
- Research completed on the Character of the Locale





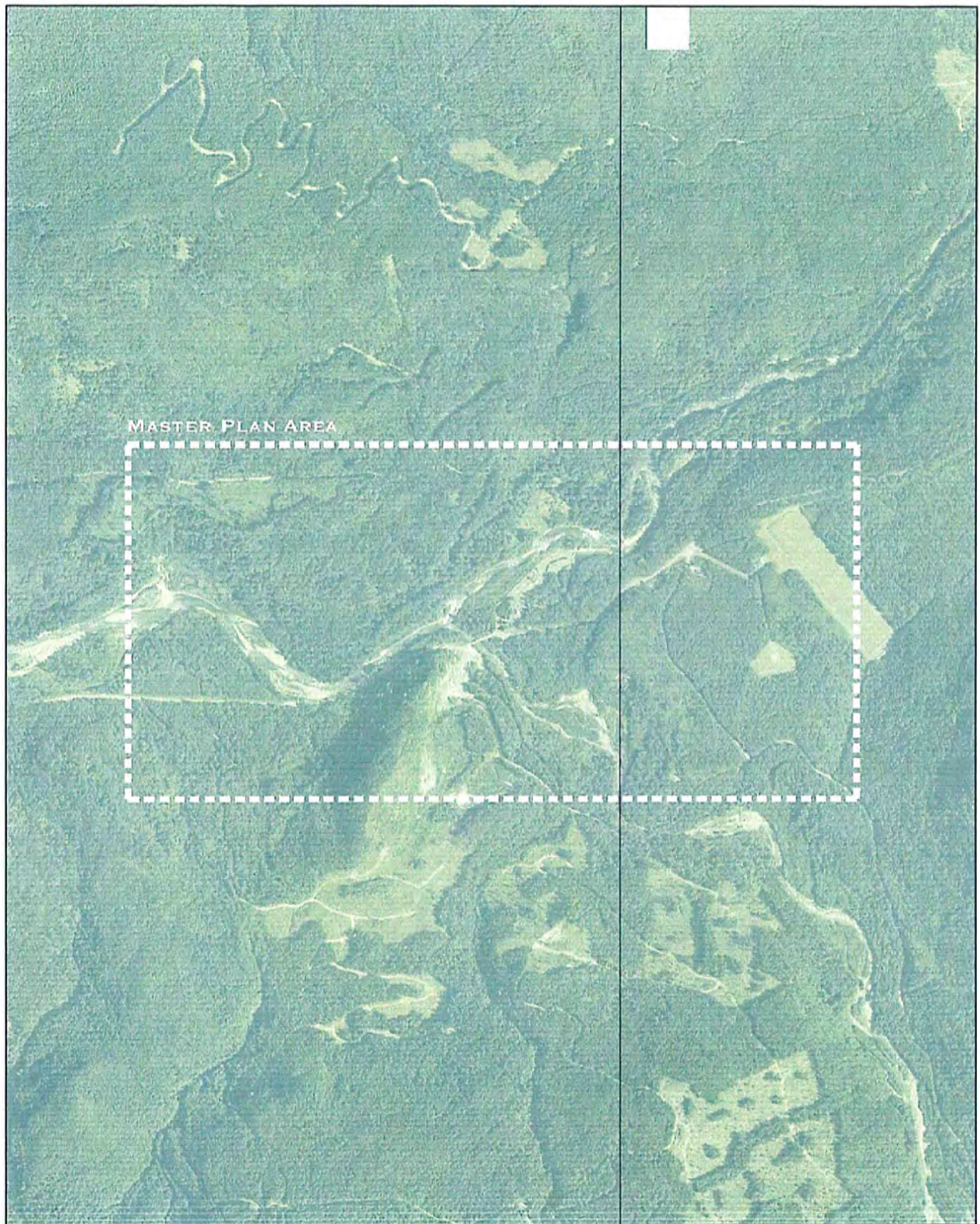


ARIAL PHOTOS OF THE CHILLIWACK RIVER VALLEY

- Arial pictures of the Chilliwack River Valley
- Enlarged picture of the Chilliwack River Salmon Hatchery area







WORKS CONSULTED

- Works consulted for the research portion of this Thesis

WORKS CONSULTED

- International Congress on Biology of Fish, at UBC Van. B.C. - Congress 2002 :
Fish Migration and Passage : Physiology and Behavior - website
- In the Arms of the Mountains - A History of the Chilliwack River Valley
- Fisheries and Oceans Canada - Oceans, Habitat and Enhancement Branch -
website
- A Sto:lo - Coast Salish Historical Atlas - Editor : Keith Thor Carlson
- You are asked to witness : The Sto:lo in Canada's Pacific Coast History - Editor :
Keith Thor Carlson
- National Fish Hatchery System, U.S. Fish and Wildlife Service - website
- Critical Analysis of "Towards a Critical Regionalism" by Kenneth Frampton
- Interview conducted with Bob Stanton from the Government of Canada Fisheries
and Ocean - Chilliwack River Hatchery. Mr. Stanton has indicated that he would
be very willing to help with the research of hatcheries and their role in today's
eco-system.
- Visited the Capilano Hatchery. Will return to interview personnel, and study their
facility.

PART II

- Based on the research completed in Part I of this thesis, I have selected the western end of the Chilliwack River Salmon Hatchery for the final Design Solution.
- I will start with the larger context and then narrow the scope down to a single building that displays the main objectives.

THESIS STATEMENT AND REVIEW

- Review of main objectives and areas that will influence the design solution
- Review of the site selection

' THESIS STATEMENT '

The role of Architecture in facilitating research and promoting public awareness regarding the environment, with focus on the historical and cultural context of the Chilliwack River Valley, explored through the design of a new Salmon Fish Hatchery and Learning Center.

METHODOLOGY OF STUDY

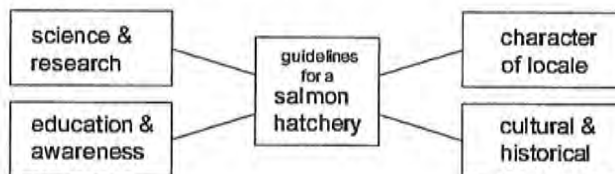
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GENERAL AREAS OF RESEARCH

1. Scientific research and commercial applications. This will include an in-depth review of how hatcheries function in today's environment. Looking at the research being done today and how it may affect the future, as well as examining architectural precedents.
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SPECIFIC AREAS OF RESEARCH

1. Character of locale. This will include the physical context of the area of study, such as the environment, land forms and man made modifications to the original landscape of the Chilliwack River Valley.
2. Historical and Cultural backgrounds. Research would be done on the culture and history of the Chilliwack River Valley. This will include the First Nations and the current fabric of the culture in this area.



These four areas of research will be used to develop guidelines for the role of architecture in facilitating research and promoting public awareness regarding our environment.

' SITE SELECTION '



A review of the entire Chilliwack River Valley. A review of the existing location of the Hatchery. It is placed in the middle of the Chilliwack River Valley water shed. It is also placed at the junction of Chilliwack River and Slesse Creek.



I do not want to look at the inner workings and most efficient ways (scientific aspects) of how a hatchery operates, but how one could engage, experience and explore the process salmon go through.



Leave the main components of the hatchery where they are, such as earthen channels, settling basin, and water source.



Look at how other program elements could complement and work together with a Salmon hatchery to enhance the Chilliwack River Valley experience.



The existing Salmon Hatchery is located at the start of the total fishing prohibition zone. This was done for the fish themselves as well as for the Sto:lo land use pattern.



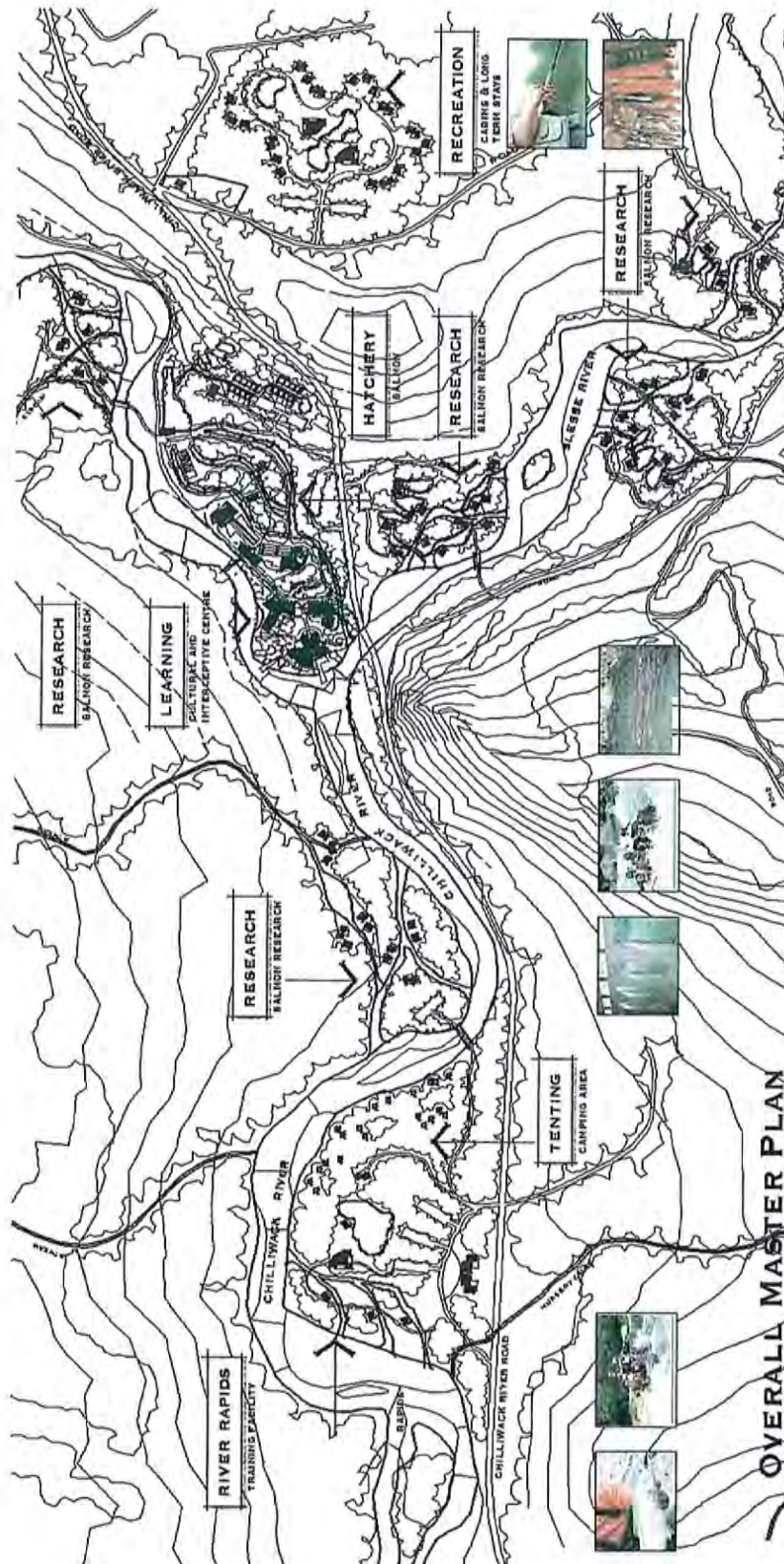
By leaving the hatchery in the same place one could practically revamp it while keeping it operational. This would include salmon coming back several years later to the current location.

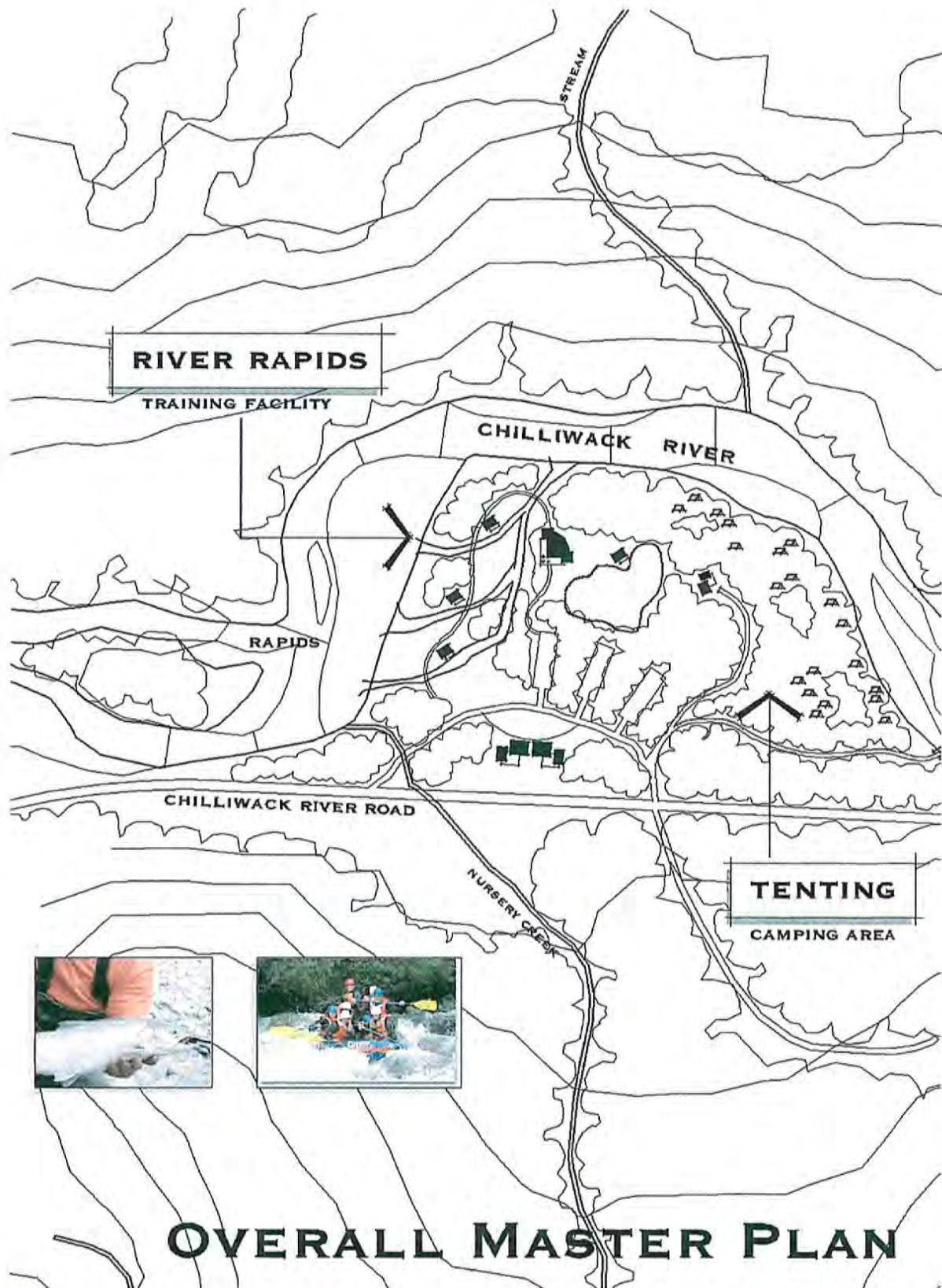
GRADUATION PROJECT

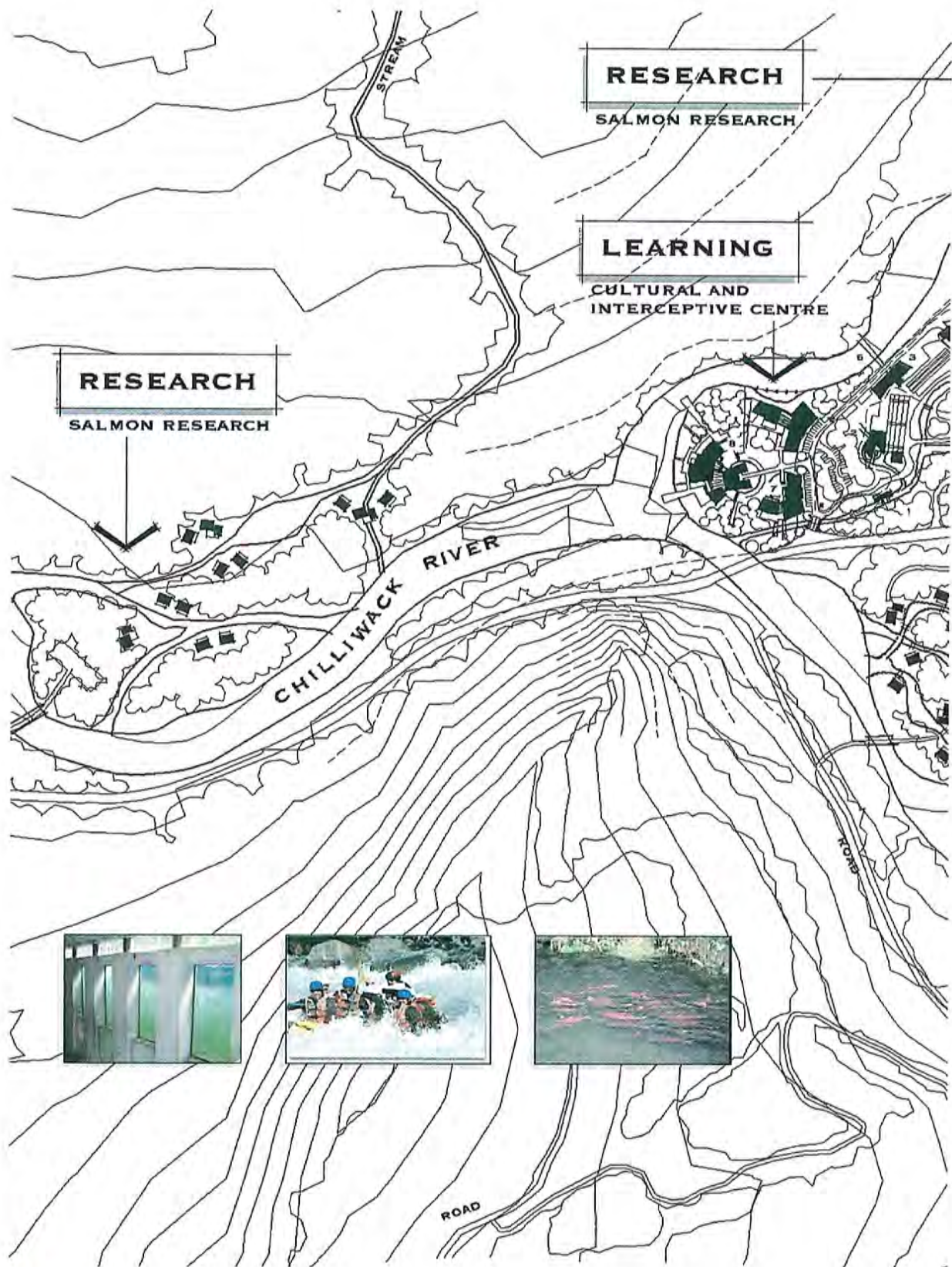
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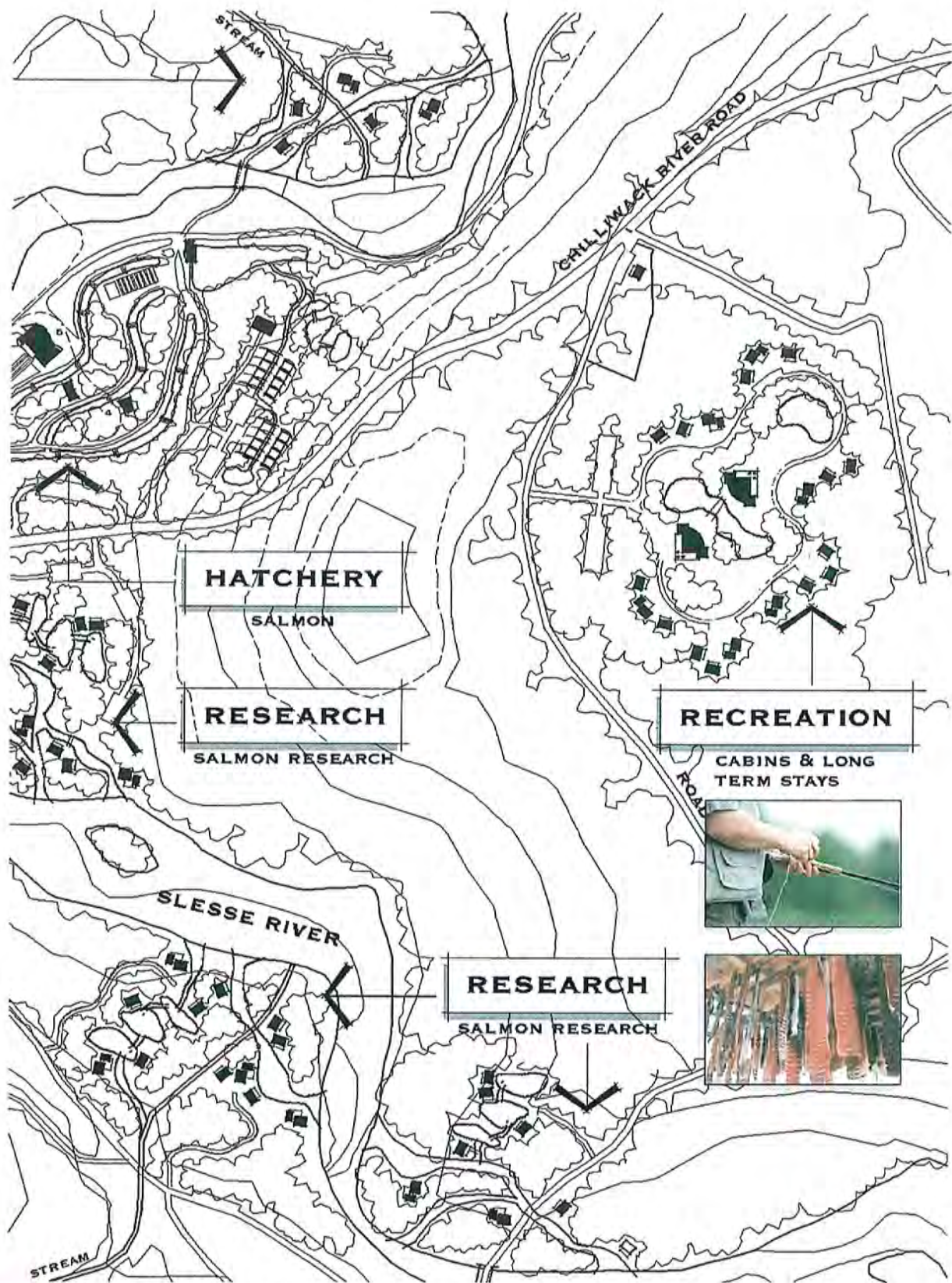
OVERALL MASTER PLAN OF THE CHILLIWACK RIVER SALMON HATCHERY AREA

- Research suggested that other forms of activities need to be planned to support the Salmon Hatchery to make it more economically viable.
- Some of these activities could include : a learning centre, a research centre, alternate research areas close to the main hatchery, and recreational activities.
- The proposed master plan explores different possibilities of the above mentioned activities and how they relate to the Salmon Hatchery.









MAIN PROGRAM COMPONENTS

- A review of the main program components : Salmon Hatchery, Research and Interpretive Centre, and Recreational Centre
- A detailed look at the program requirements for each main component

MAIN PROGRAM COMPONENTS

- SALMON HATCHERY

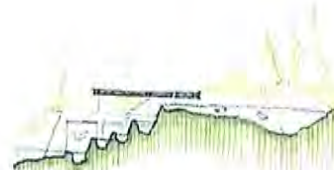
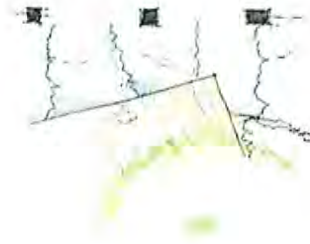
Design a fully functioning Salmon hatchery that engages the public as well as enables to experience the 'cycle of life' of a salmon.

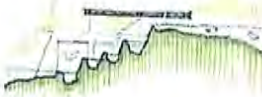








- RESEARCH & INTERPRETIVE CENTRE

Provide areas for research near the main hatchery. Research new ideas and concepts in the field. Connect an Interpretive Centre to the Hatchery to help explain and discover the hatchery. This would also include the history and culture of the area.

- RECREATIONAL CENTRE

Provide alternate facilities that would complement the Salmon Hatchery and the current uses of the Chilliwack River such as fishing and river rafting.

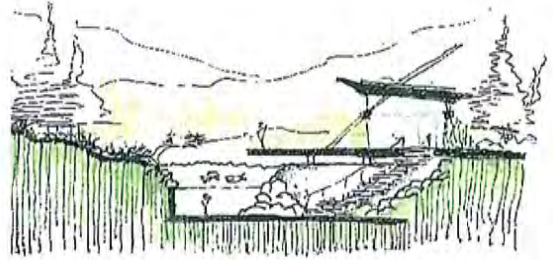
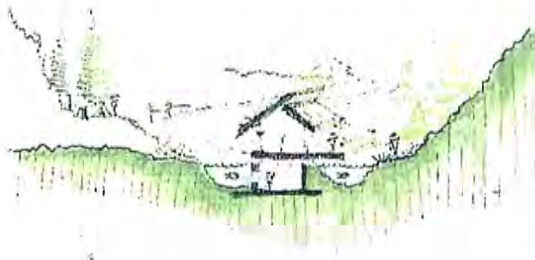


SALMON HATCHERY		
		
A. Intake Channel or Rker		
1. Viewing of this area from above and in section	Size & location : as per its existing natural setting.	
2. Adult salmon returning		
3. Smolts being released into channel		
B. Fish Ladder		
1. Viewing of this area from above and in section	Size : as it works on the site as it relates to the elevation and length.	
2. Adult salmon returning		
3. Smolts being released into channel		
C. Adult salmon holding area		
1. Facilities to hold and sort fish species	This area will include a natural pond and a pond that the staff could use to sort the fish. Area : 2 ponds of 75 sq.m.	
2. Area to retrieve the eggs and milk from adult salmon		
3. Should be able to view this area from above and in section		
4. Should have some covered areas		
D. Building requirements		
1. Egg handling and cleaning area	50 sq.m. +/-	
2. Incubation area	100 sq.m. +/-	
3. Lab area : testing and controlled environment?	70 sq.m. +/-	
4. Storage area for hatchery	100 sq.m. +/-	
5. Shop area : maintenance	100 sq.m. +/-	
6. Pump room : monitoring of water quality and quantity	30 sq.m. +/-	
7. Administration area : offices / management / w.c.	150 sq.m. +/-	
E. Water Source		
1. Water source location and water pumps	Natural source - up river As per existing conditions 75 sq.m. +/-	
2. Reservoir or settling pond		
3. Aeration tower , pumps, and filters		
F. Salmon Development Phase 1		
1. Channels where eggs are placed to hatch Alevins	5 runs @ 2m x 30m 300 sq.m. total	
2. These are typically simulated gravel beds with excellent water quality and quantity control. Alevins stay in this area until their nutrient sack is used up.		
3. Observation for the public : from above and in section		
G. Salmon Development Phase 2		
1. Once the Alevins have become 'fry' they are moved to rearing channels.	As per existing site. Will modify to allow observation	
2. These can be man made or earthen. This is where they will be feed and monitored for a longer period - 1 year +/-		
3. Observation for public : from above and in section		
H. Salmon Development Phase 3		
1. All salmon are tagged - to monitor them after release and upon return.	As per existing site. Will modify to allow observation	
2. Salmon are released back into the river - They are called 'smolts' at this stage and swim towards the ocean.		
3. Some salmon are transported to other lakes and rivers - provide a loading area.		

GRADUATION PROJECT

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RESEARCH & INTERPRETIVE CENTRE

A. Research Centre - components		
1.	Administration area : scientists / biologists / support area.	300 sq.m. +/-
2.	Science labs - fully equipped	4 labs @ 80 sq.m. +/- = 320 sq.m.
3.	Classrooms for training and educating	7 @ 80 sq.m. +/- = 560 sq.m.
4.	Experimental and simulation areas / rooms : indoor and outdoor	300 sq.m. +/-
B. Interpretive Centre		
1.	Main entry	100 sq.m. +/-
2.	Small theatre and back up space	140 sq.m. +/-
3.	Display areas - for large and small exhibits	1,000 sq.m. +/-
4.	Inter connected to the hatchery and its flow	
5.	Info centre & tour guides	100 sq.m. +/-
6.	Gift shop and Public washrooms	100 sq.m. +/-



C. Historical Displays		D. First Nation History	
1.	The History of the Chilliwack River Valley	100 sq.m. +/-	1. Local history on the First Nations people
2.	Link to the small theatre		2. Ritual and customs of the First Nations people
3.	The history of salmon in B.C. Where we are now and where we are going.	100 sq.m. +/-	3. Display of housing form / dances / fishing styles / hunting styles / beliefs

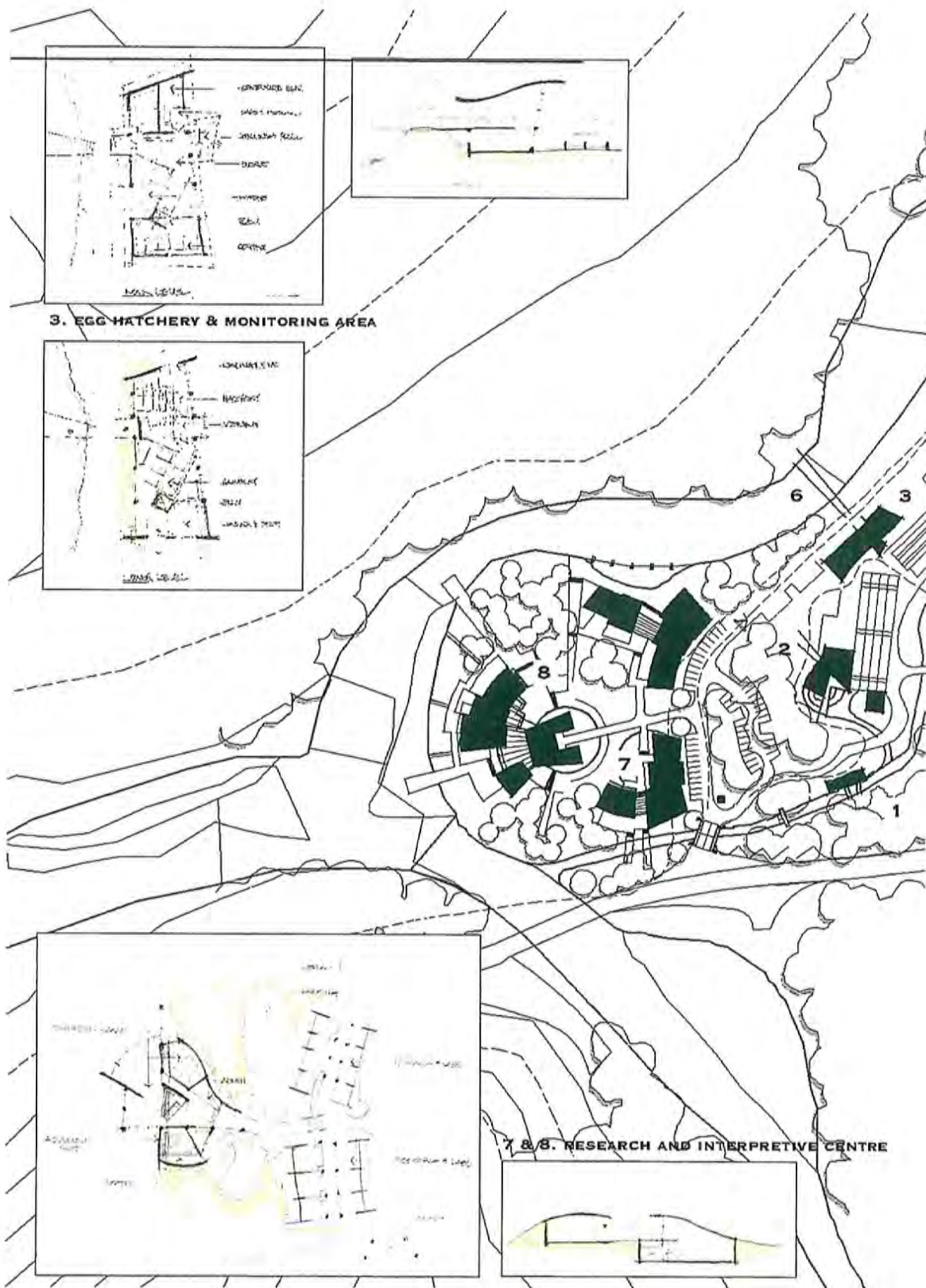
RECREATIONAL AREAS

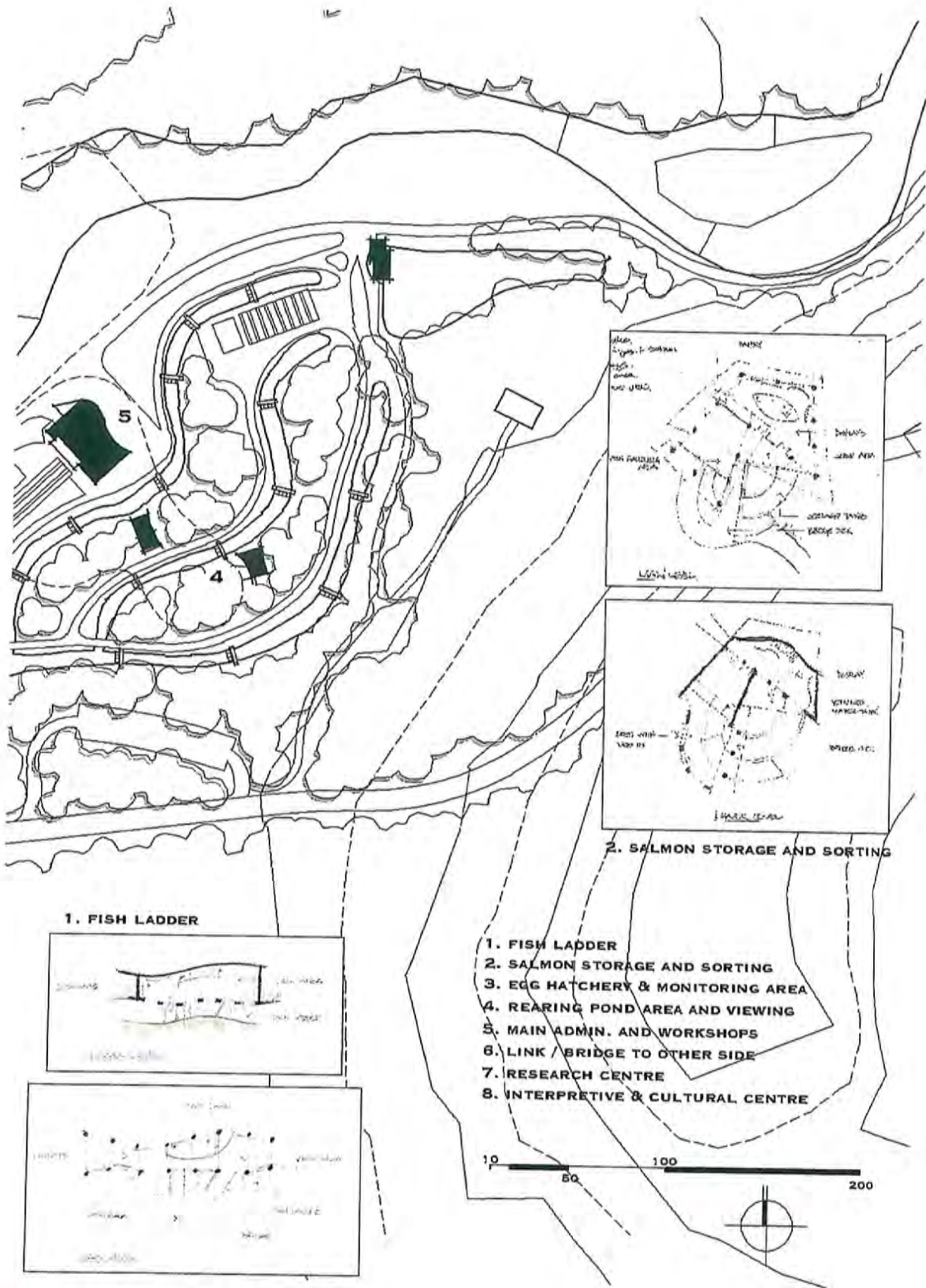
A. Camping style		
1. Walking / hike in camping style 2. Minimal impact on existing grounds and forest 3. Provide small structure for washrooms		
B. Cabin style		
1. Provide cabins with-in a forest setting 2. Provide parking clusters 3. Provide a common dinning hall / rec area 4. This style of housing could facilitate multiple uses such as : long term students, organized groups, or short term educational trips.		The number of cabins as per site location
C. Trails - the nature of things		
1. Public trails for people to enjoy nature 2. Trails could be used to link different activities together 3. Trails could lead to other rivers / lakes / mountain peaks		Look at improving the existing trails and complement them with new ones
D. Sport Fishing		
1. Plan for locations for sport fishermen- guides / tours 2. Provide a tackle shop - equipment and licenses		
		E. River Rafting
		1. White water river rapids - group trips 2. White water kayaking - individual sports 3. Provide training facilities for kayaking sports

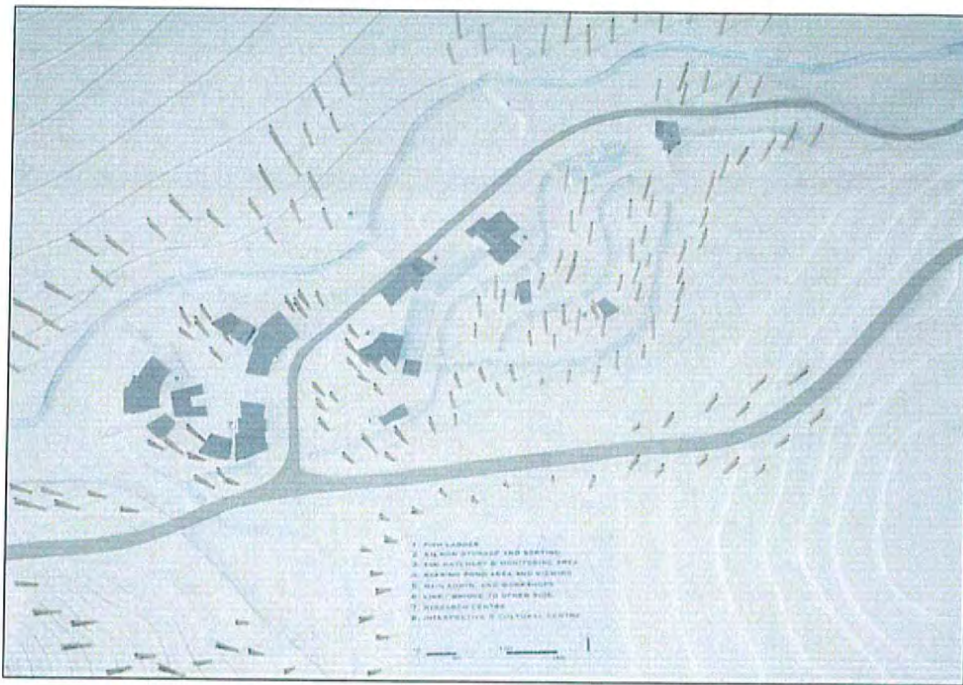


THE CHILLIWACK RIVER SALMON HATCHERY

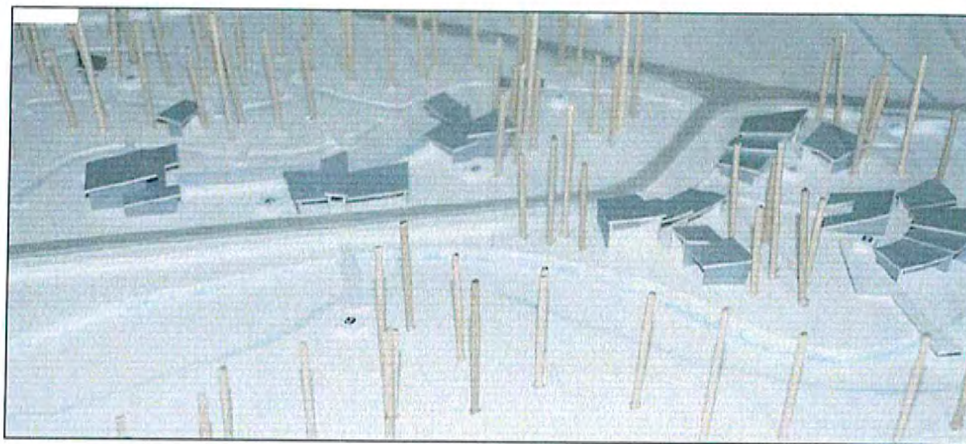
- An overview of all the main components of a salmon hatchery.
- Some conceptual ideas on how to integrate the public with the workings of a salmon hatchery
- Pictures of the overall model built to show context.







OVERALL VIEW OF SALMON HATCHERY



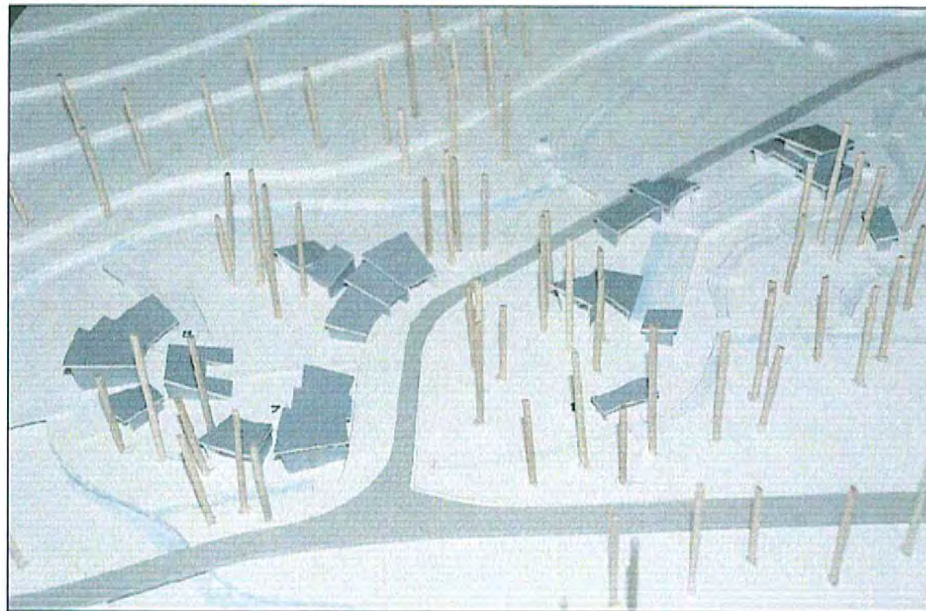
LOOKING SOUTH EAST



LOOKING EAST AT THE INTERPRETIVE CENTRE



LOOKING EAST FROM THE WATER RESERVOIR



WEST END OF THE SITE



EAST END OF THE SITE

CONTEXTUAL PICTURES OF THE CHILLIWACK SALMON HATCHERY AREA

- Pictures taken of the natural setting that the Chilliwack River Hatchery is situated in.



WEST END OF THE SITE WHERE SLEESE CREEK MEETS THE CHILLWACK RIVER



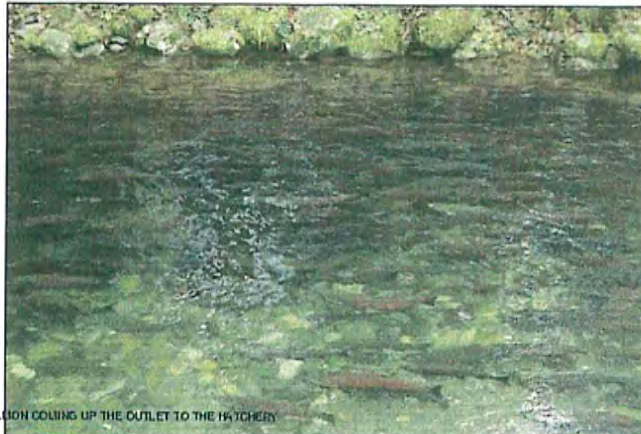
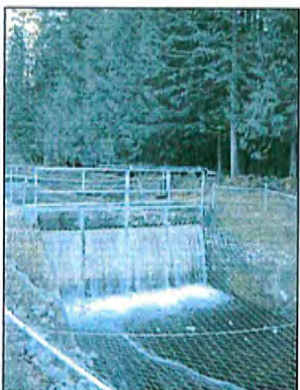
ON BRIDGE LOOKING SOUTH : SLEESE CREEK



ON BRIDGE LOOKING NORTH : SLEESE CREEK



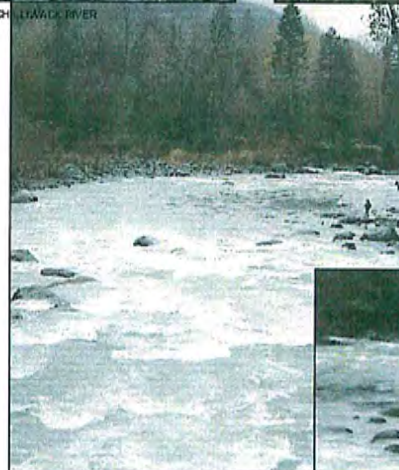
OUTLET CREEK OF HATCHERY INTO SLEESE CREEK



SALMON COILING UP THE OUTLET TO THE HATCHERY



WHERE SLEESE CREEK MEETS THE CHILLWACK RIVER

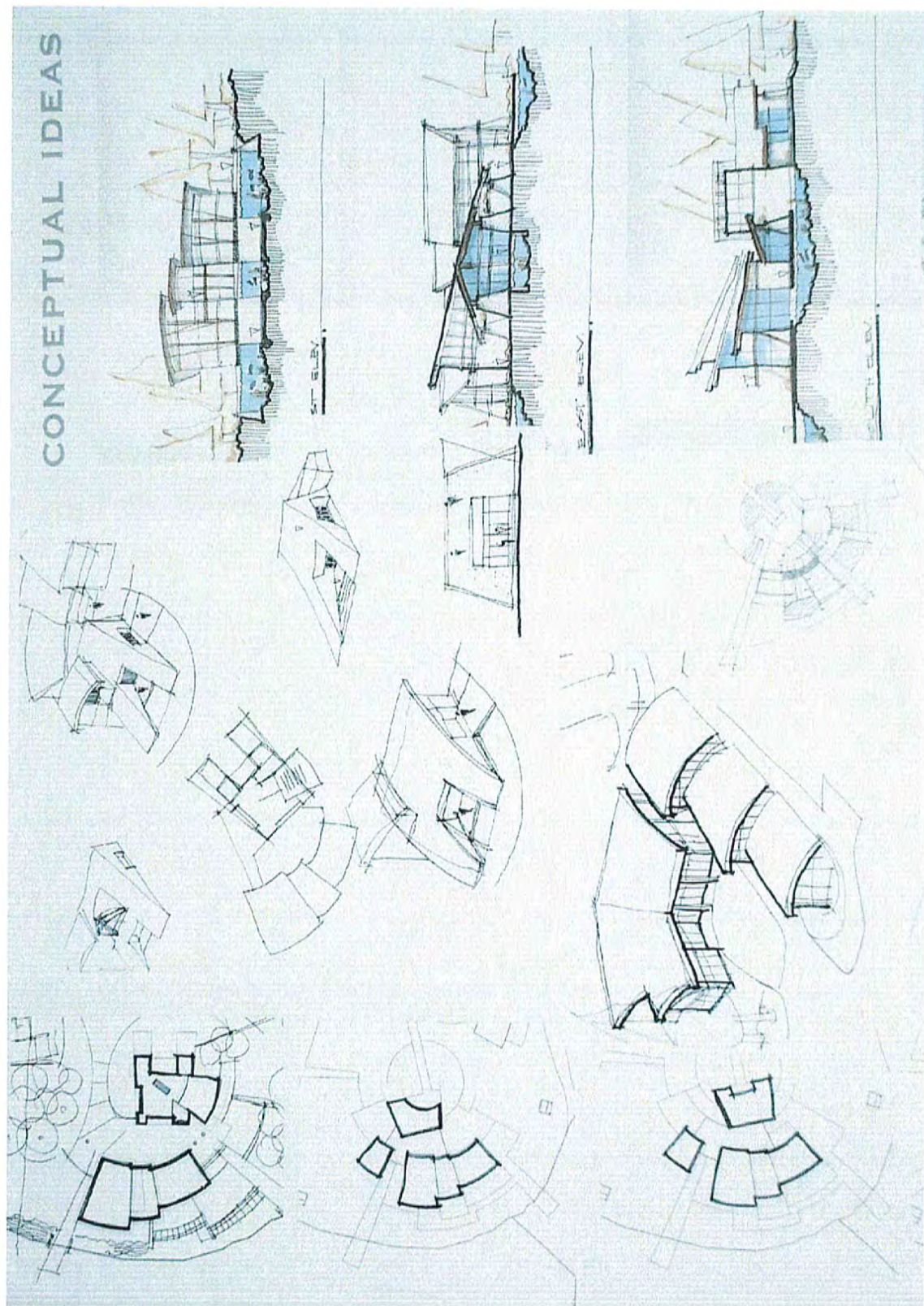


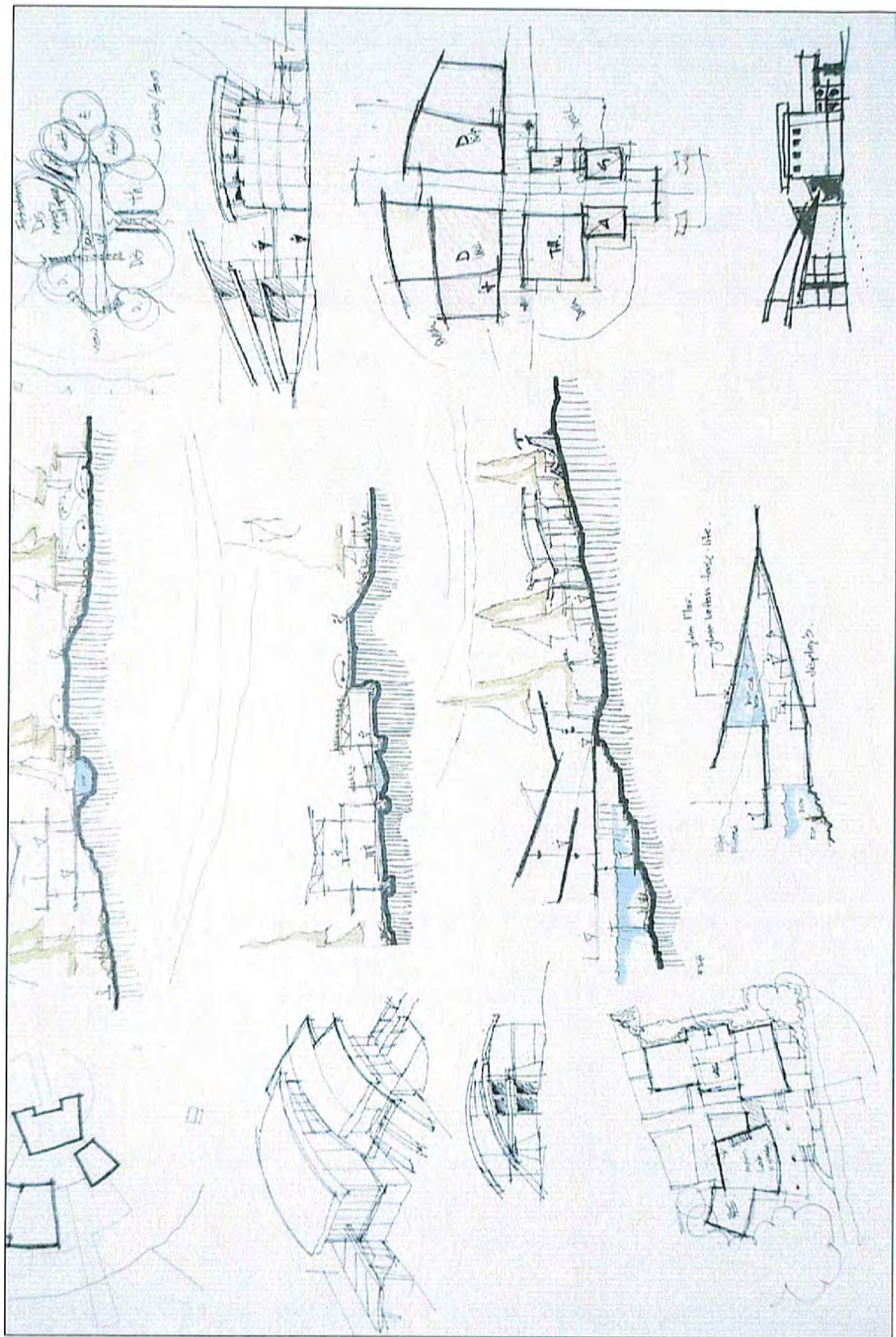
FISHING ALONG THE CHILLWACK RIVER



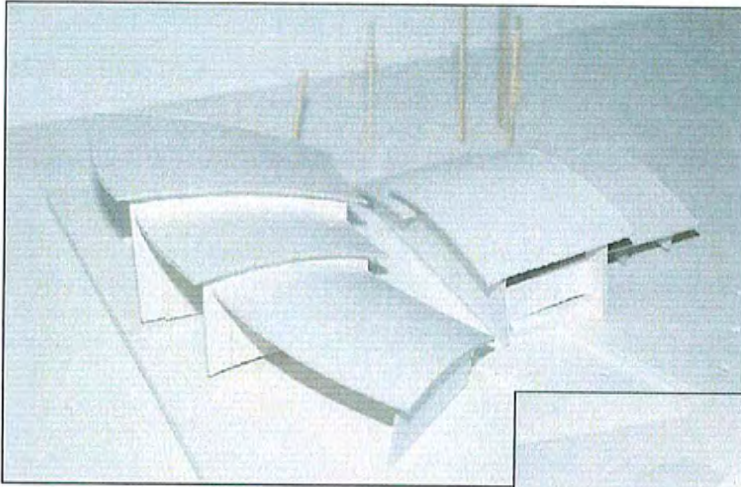
INTERPRETIVE AND CULTURAL CENTRE

- Some conceptual sketches and ideas
- Conceptual Model no.1 - looking at massing and program placement
- Conceptual Model no.2 - refining ideas

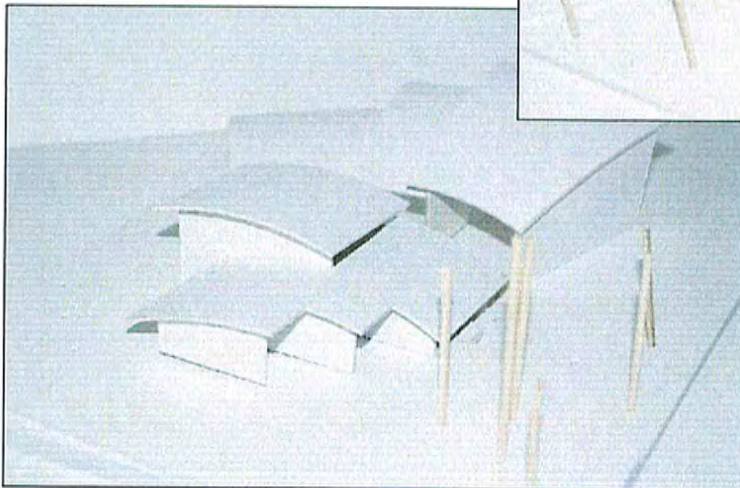
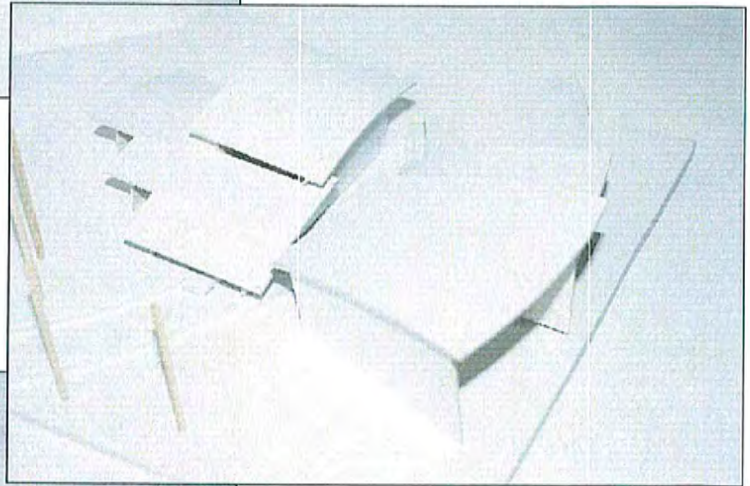




' CONCEPT MODEL - 1 '

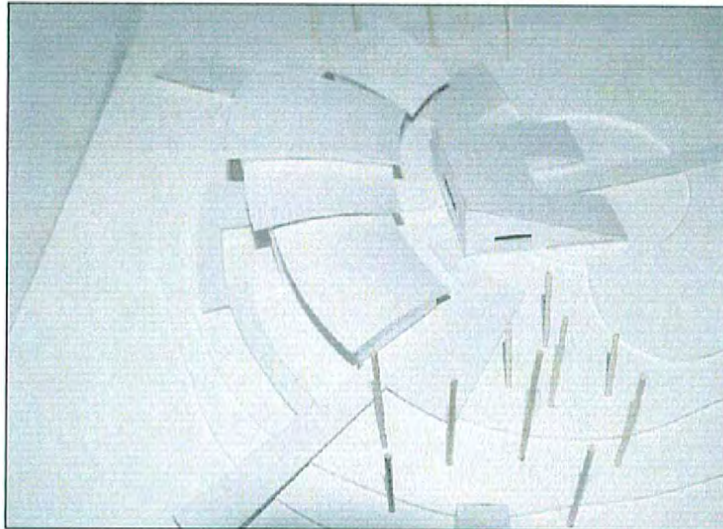


CONCEPTUAL MODEL : EXPLORING SHAPES AND PLACEMENT OF PROGRAM

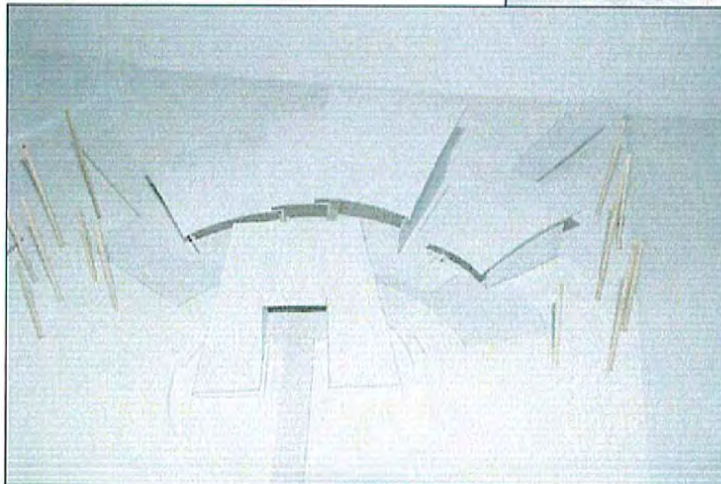
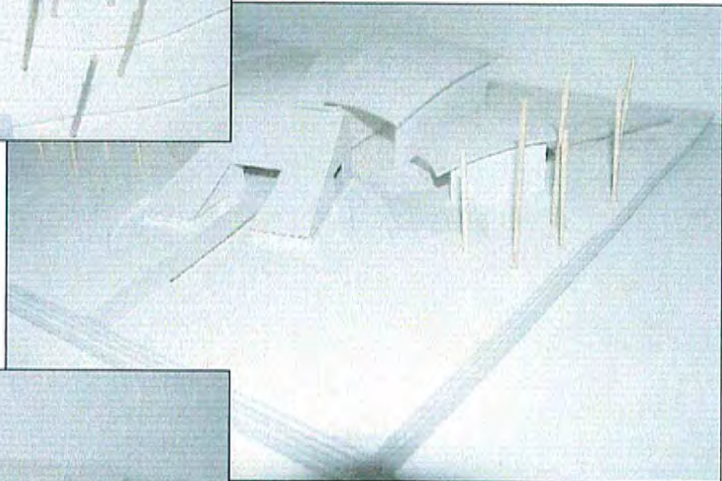


CURVED SHAPES : ADDRESSING THE RIVER - TO BE EXHIBITION SPACES

' CONCEPT MODEL - 2 '

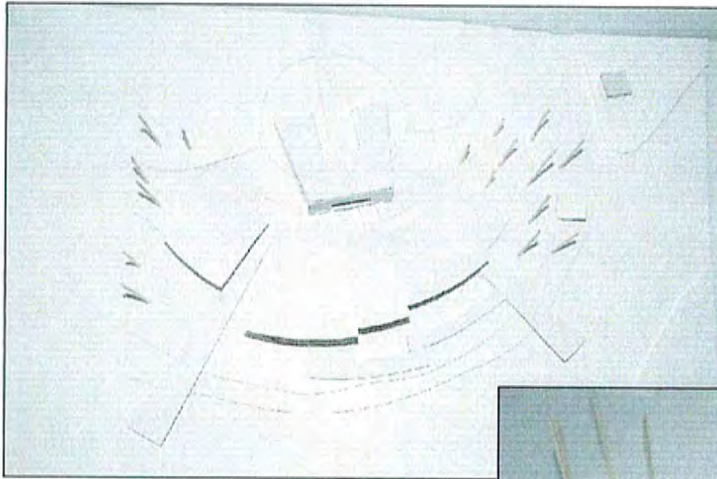


LOOKING AT WAYS TO INTEGRATE
THE BUILDING WITH THE RIVER
AND THE NATURAL LANDSCAPING

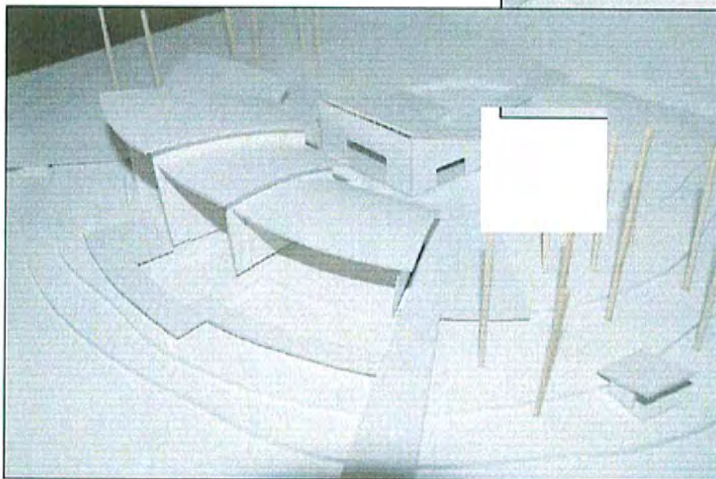
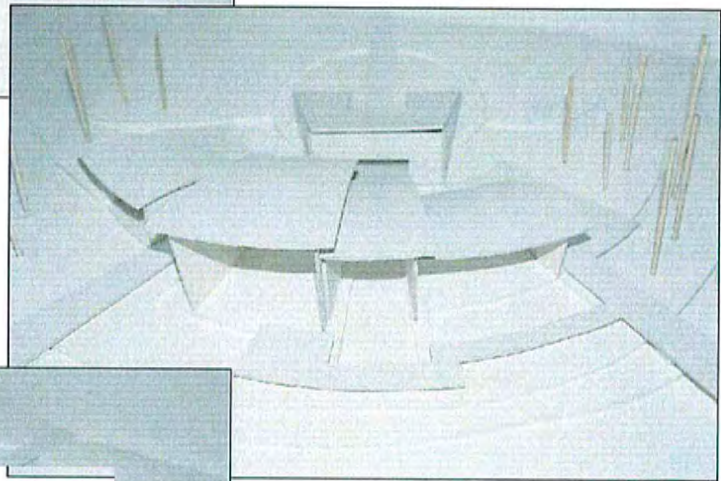


REFINED CONCEPTUAL MODEL :
EXPLORING SHAPES TO
COMPLEMENT THE EXHIBITION
SPACES

' CONCEPT MODEL - 2 '



REFINED CONCEPTUAL MODEL :
EXPLORING SHAPES TO
COMPLEMENT THE EXHIBITION
SPACES

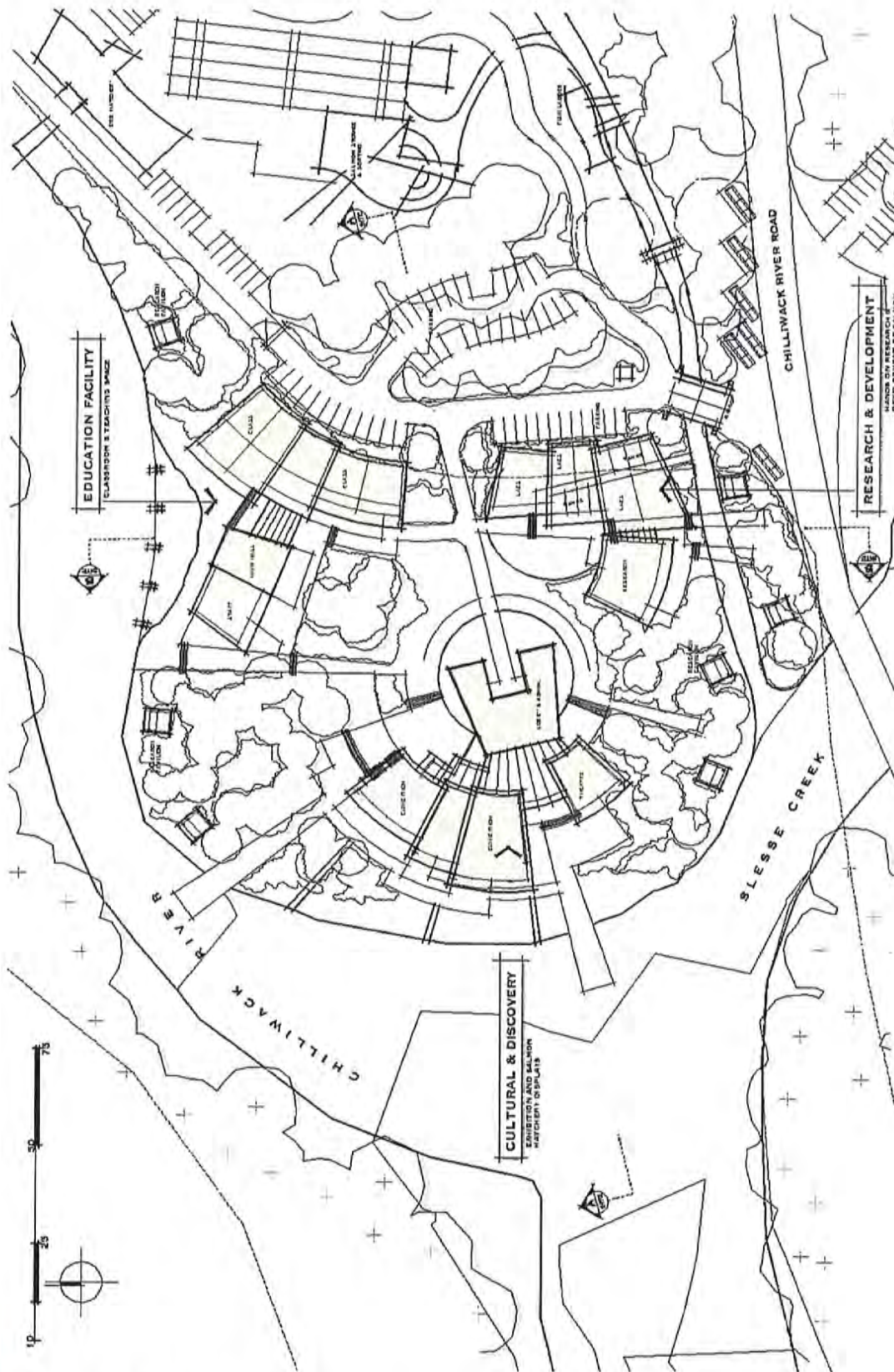


LOOKING AT WAYS TO INTEGRATE
THE BUILDING WITH THE RIVER
AND THE NATURAL LANDSCAPING

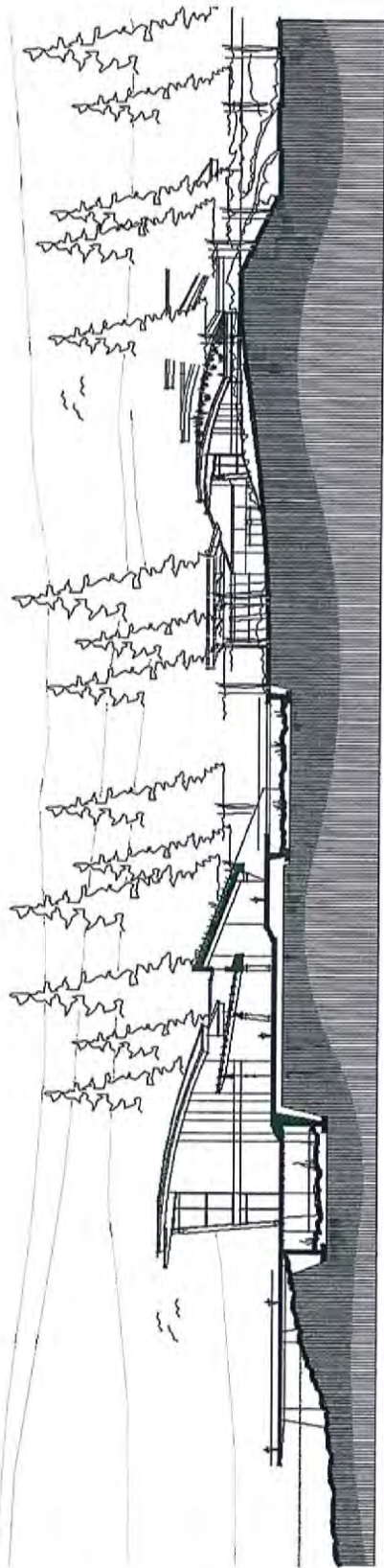
INTERPRETIVE AND CULTURAL CENTRE

- OVERALL SITE -

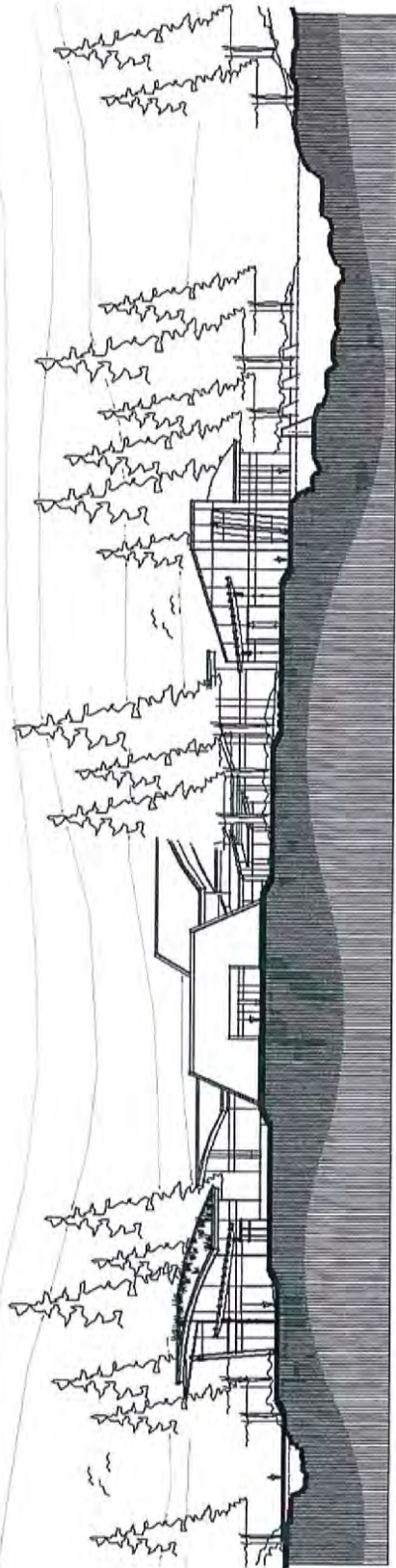
- Overall site plan of the western end of the Chilliwack River Salmon Hatchery and how different building pods could work together.
- A review of the vehicular traffic flow including roads and parking.
- Overall site sections of this area



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OVERALL SITE SECTION - A
SCALE: 1/20



OVERALL SITE SECTION - B
SCALE: 1/20

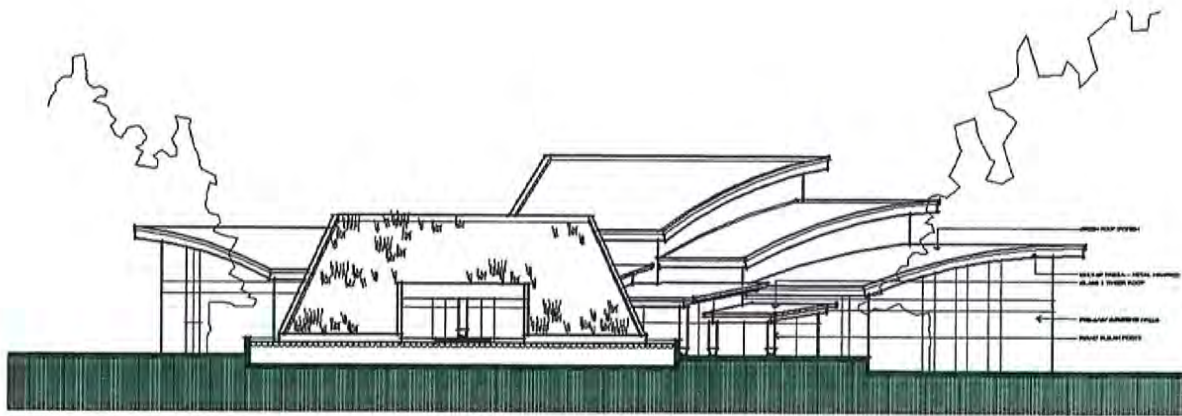
INTERPRETIVE AND CULTURAL CENTRE

- FLOOR PLANS AND EXTERIOR ELEVATIONS -

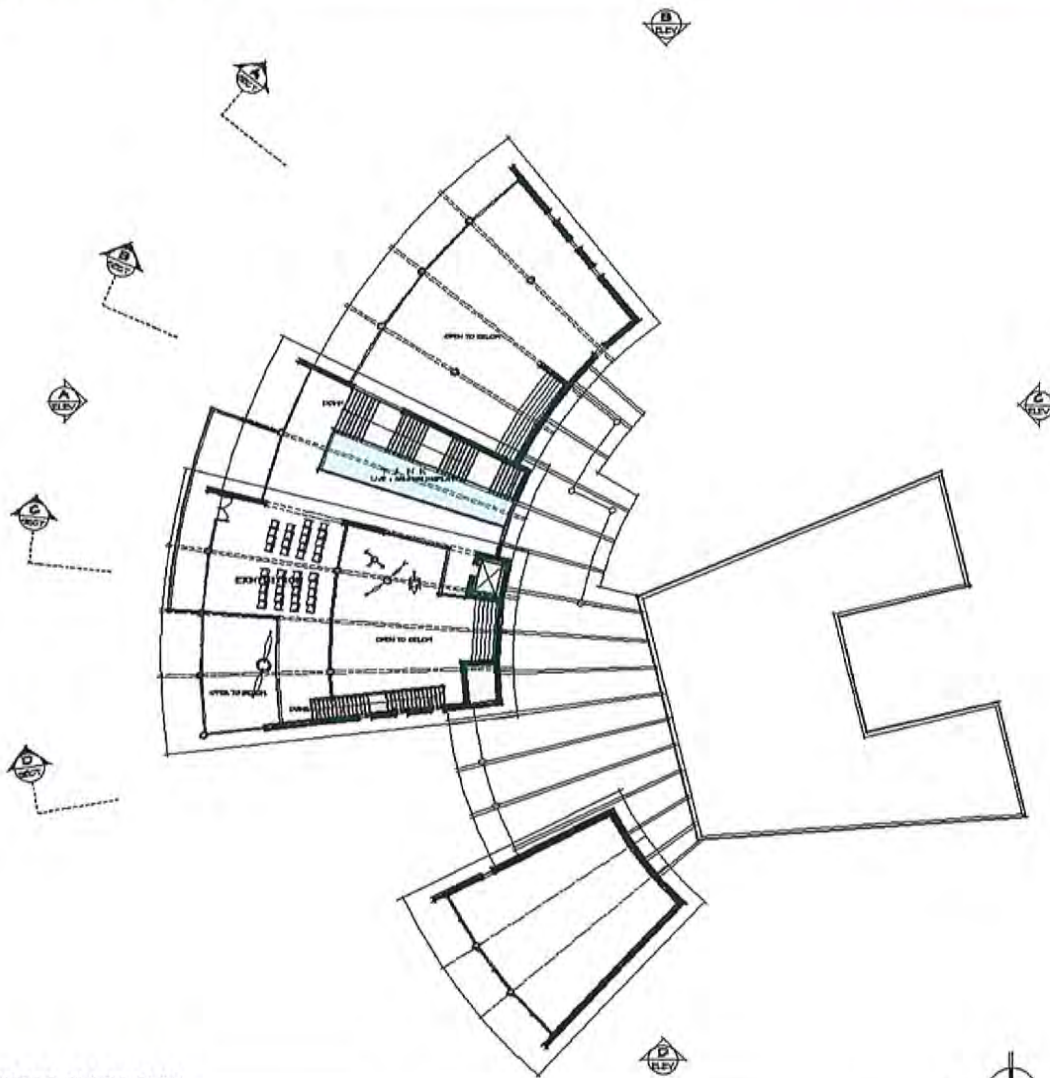
- The Main Floor Plan is composed of six main components : 2 storey exhibition space, 1 storey exhibition space, interior tank / stair feature, interior street / link space, and main entry / administration area.
- The Upper Floor Plan is composed of additional exhibition space and viewing areas.
- The Lower Floor Plan is composed of additional exhibition space as well as galleries that can look into fish tanks.
- The Exterior design is to be elegant and clean in its approach to structure and planning. Materials used would be concrete, glu lam wood structure, and glazing.



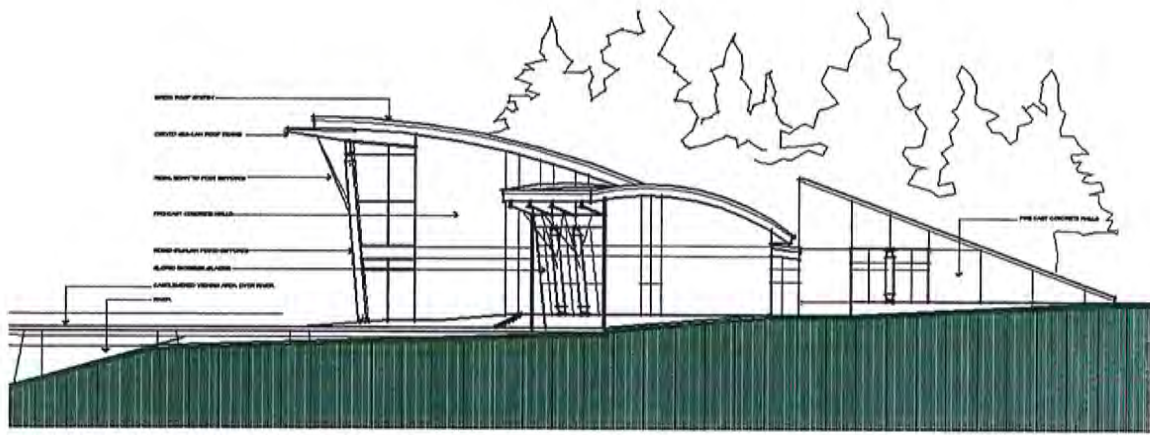
Page 67



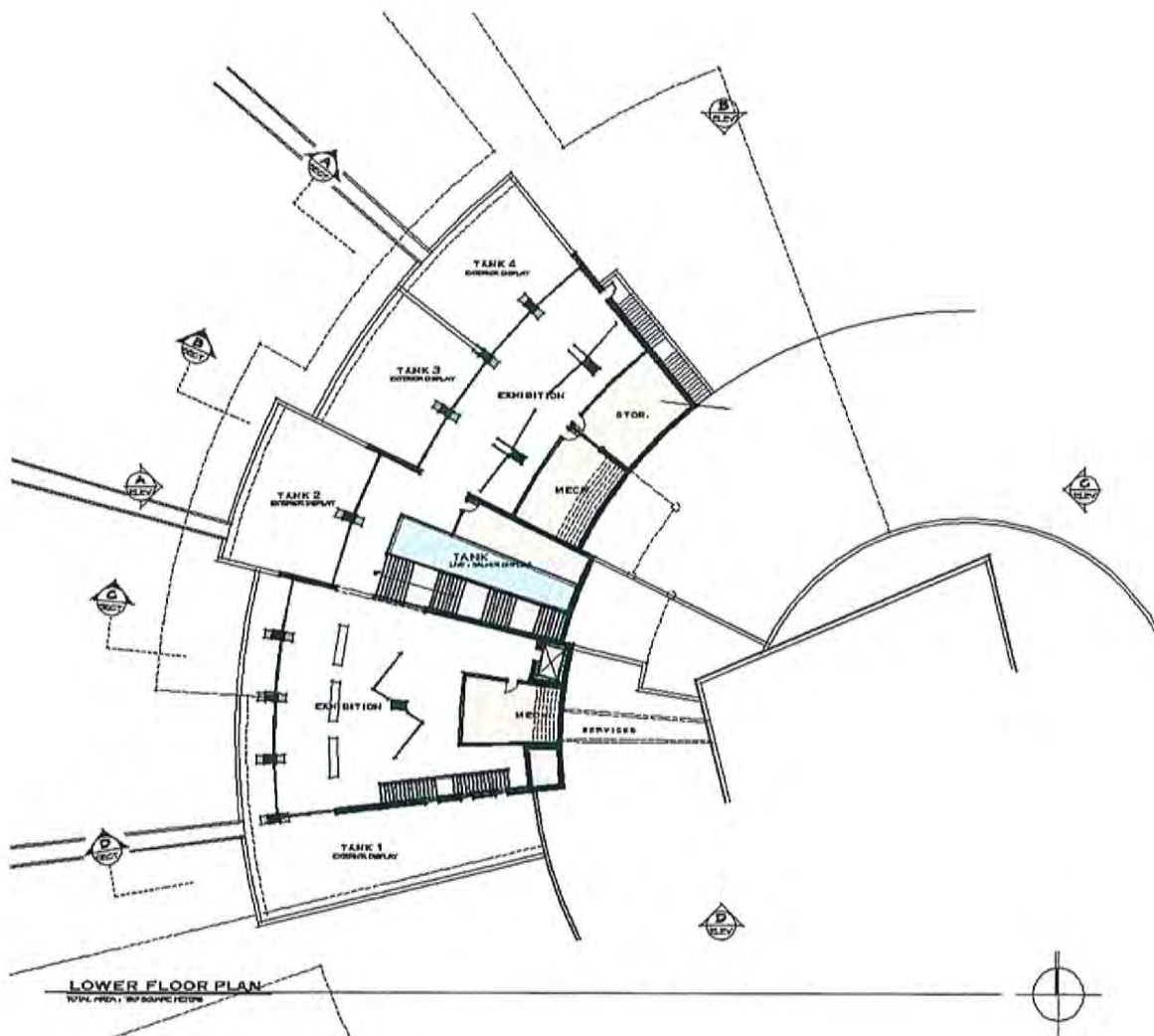
EXTERIOR ELEVATION - C
 ELEVATION SEEN ON APPROACH TO THE OUTLETS
 SCALE 1:80



UPPER FLOOR PLAN
 TOTAL AREA: 300 SQUARE FEET



EXTERIOR ELEVATION - D
ELEVATION THAT FACES THE ROAD
SCALE: 1/8" = 1'-0"



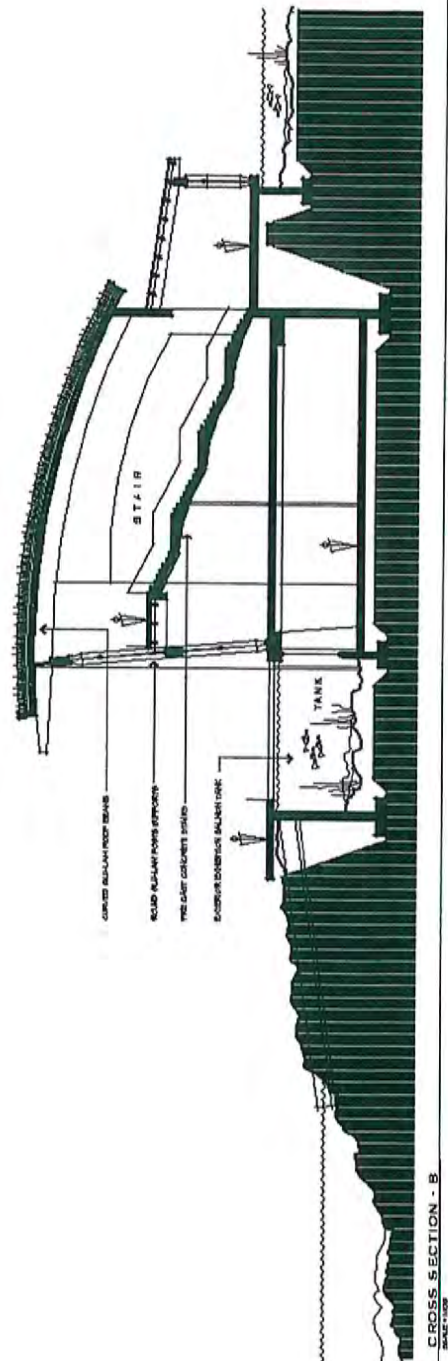
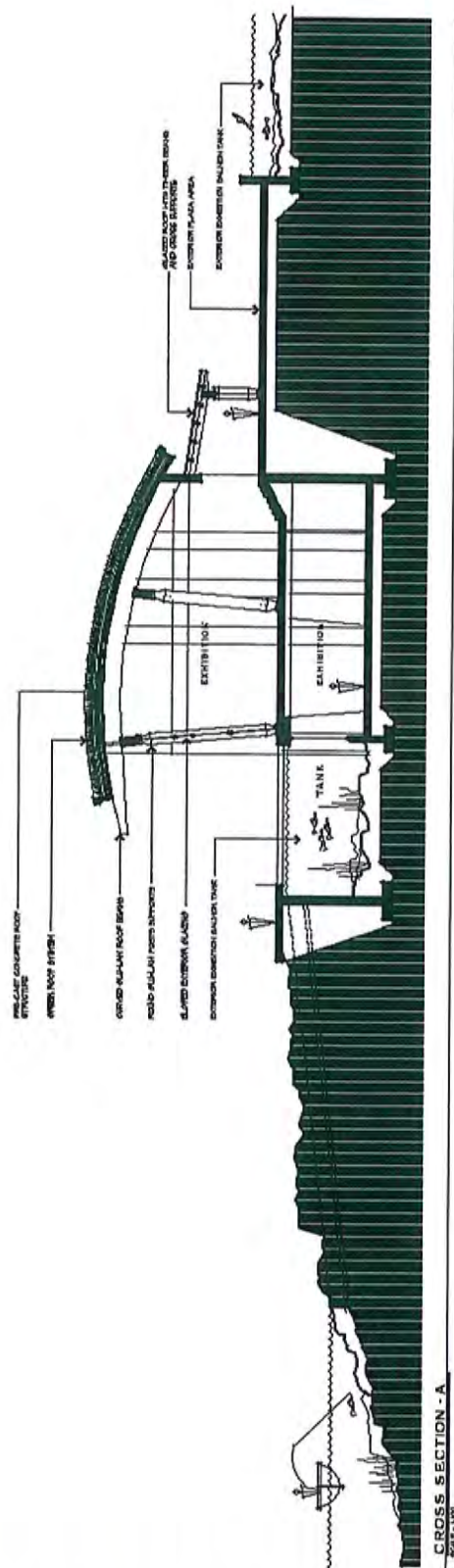
LOWER FLOOR PLAN
TOTAL AREA: 10,000 SQ. FT.

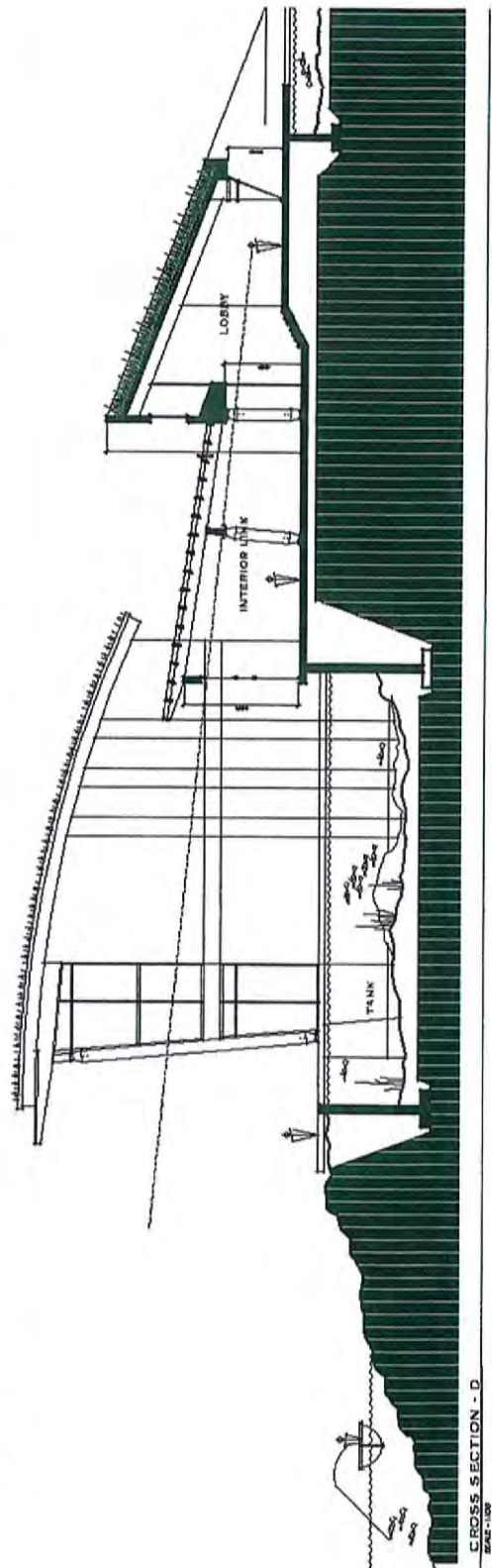
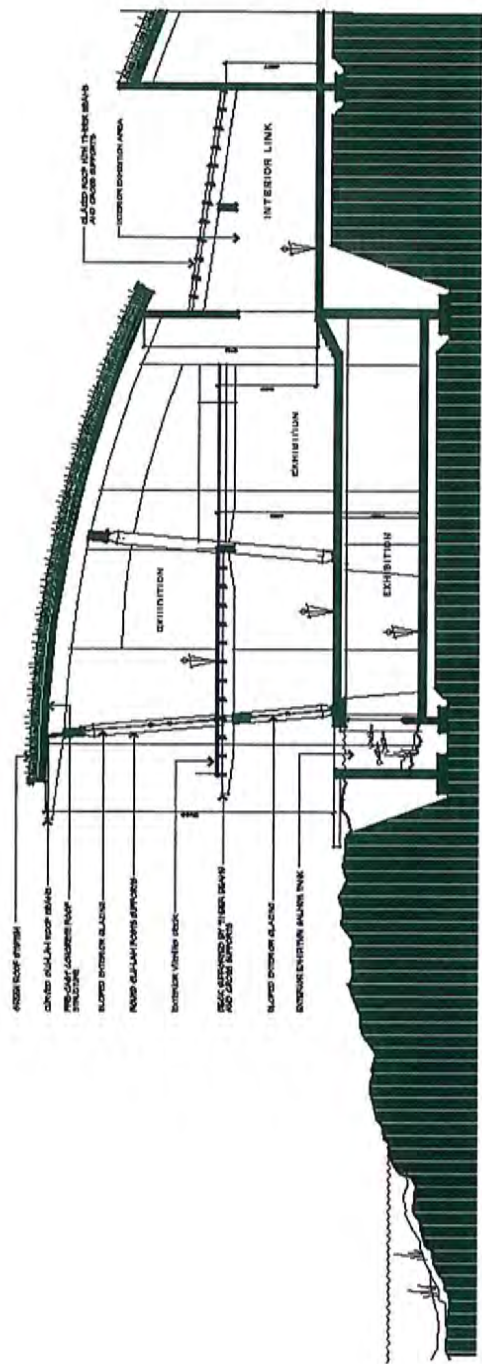
INTERPRETIVE AND CULTURAL CENTRE

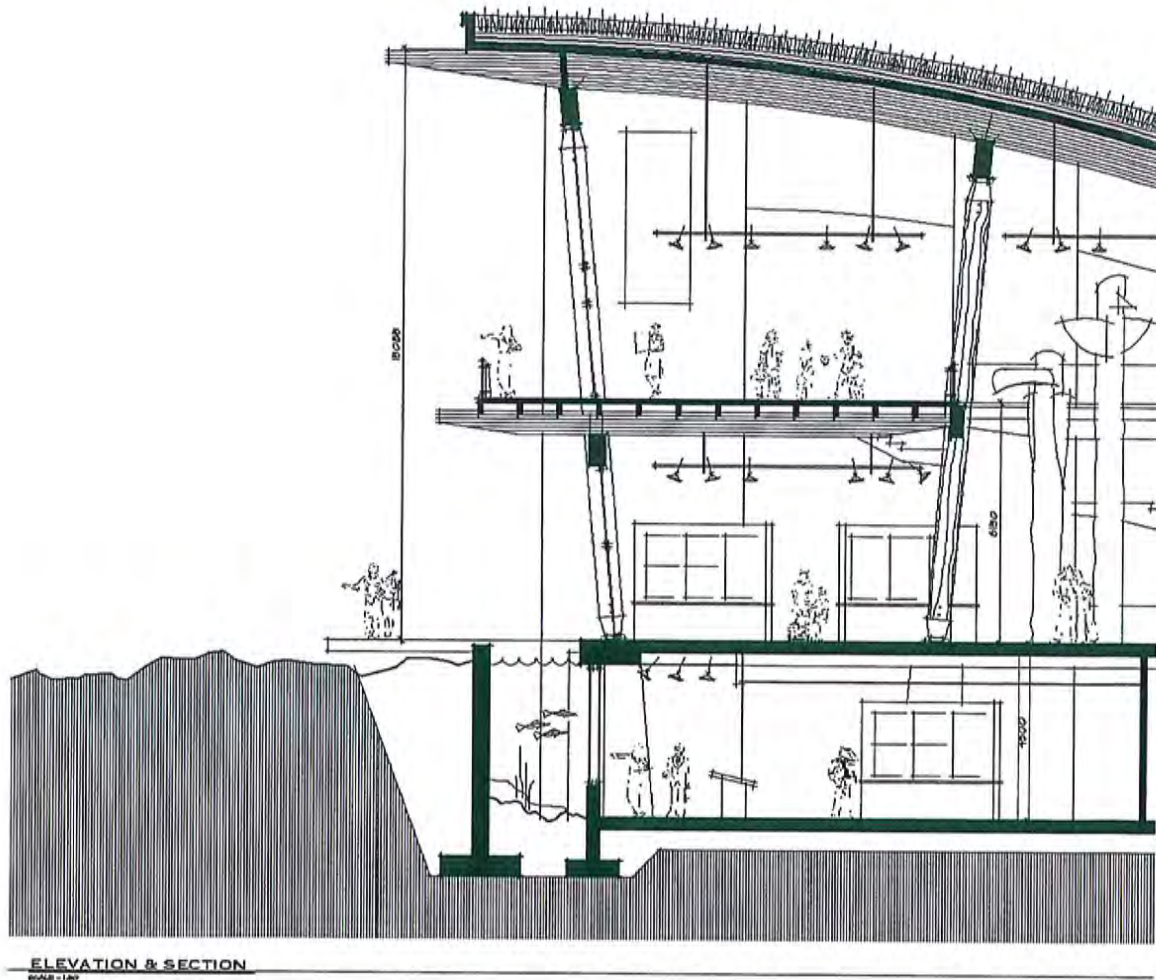
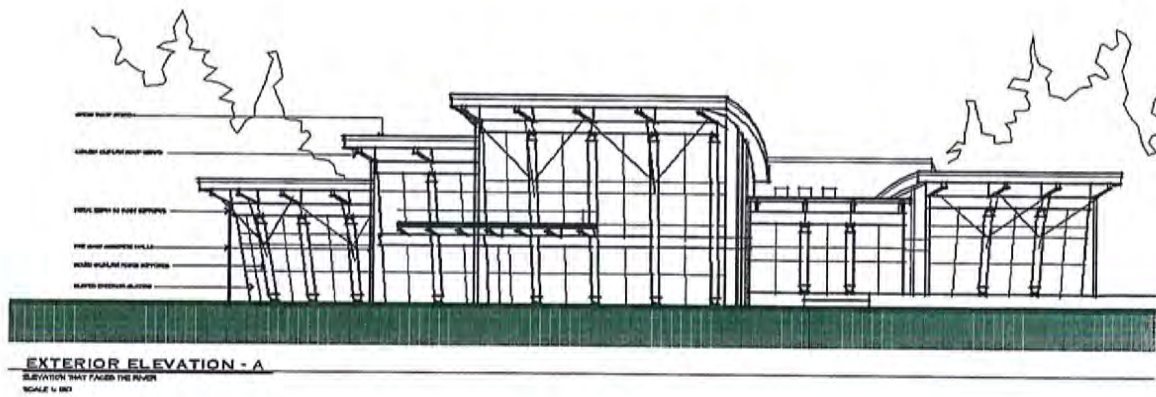
- CROSS SECTIONS AND DETAILS -

- The design sections depict the volume and size of the different spaces.
- The sections also illustrate the different relationships as they relate to people exploring the building.
- The sections indicate the type of structure and atmosphere desired.









INTERPRETIVE AND CULTURAL CENTRE

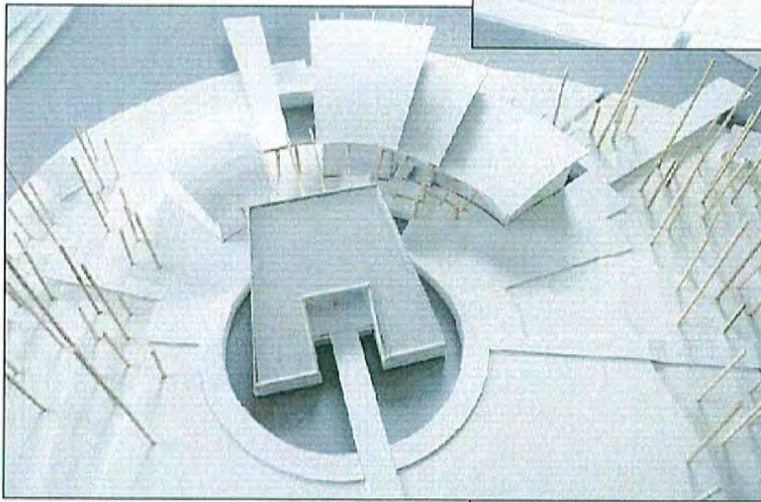
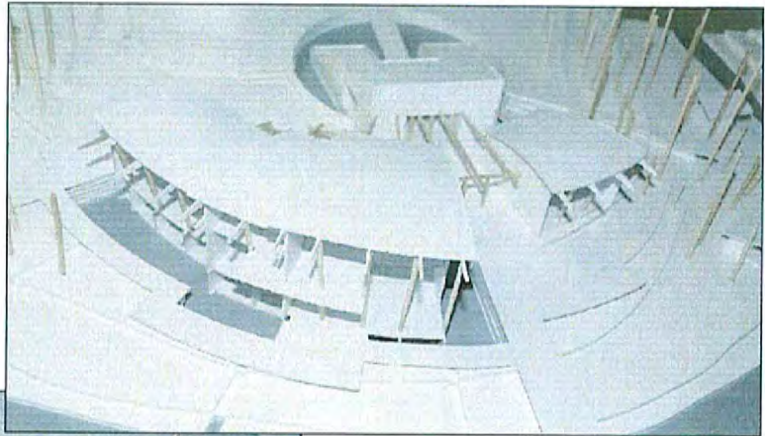
- FINAL MODEL -

- Final model completed at 1:250 to illustrate the buildings with-in their context and style of architecture.



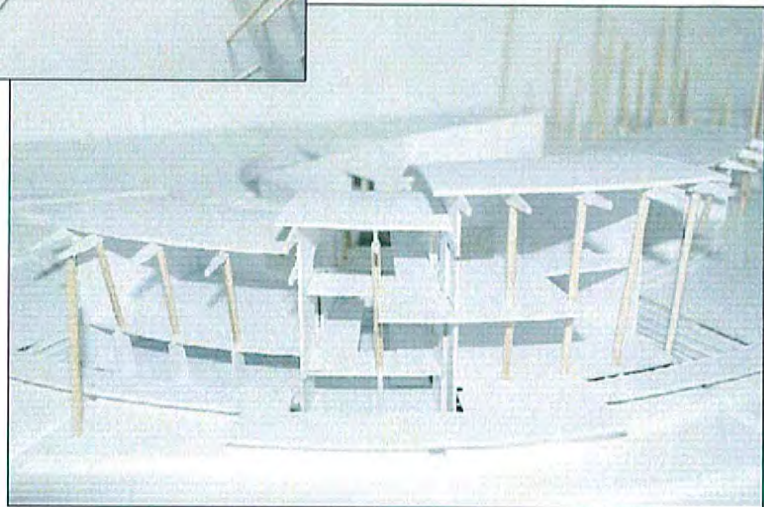
' FINAL MODEL '

ONE CAN SEE THE EXTERIOR TANKS
ALONG THE EDGE OF THE BUILDING
THAT CAN BE VIEWED FROM INSIDE
ON THE LOWER LEVEL AND FROM THE
BOARD WALK.

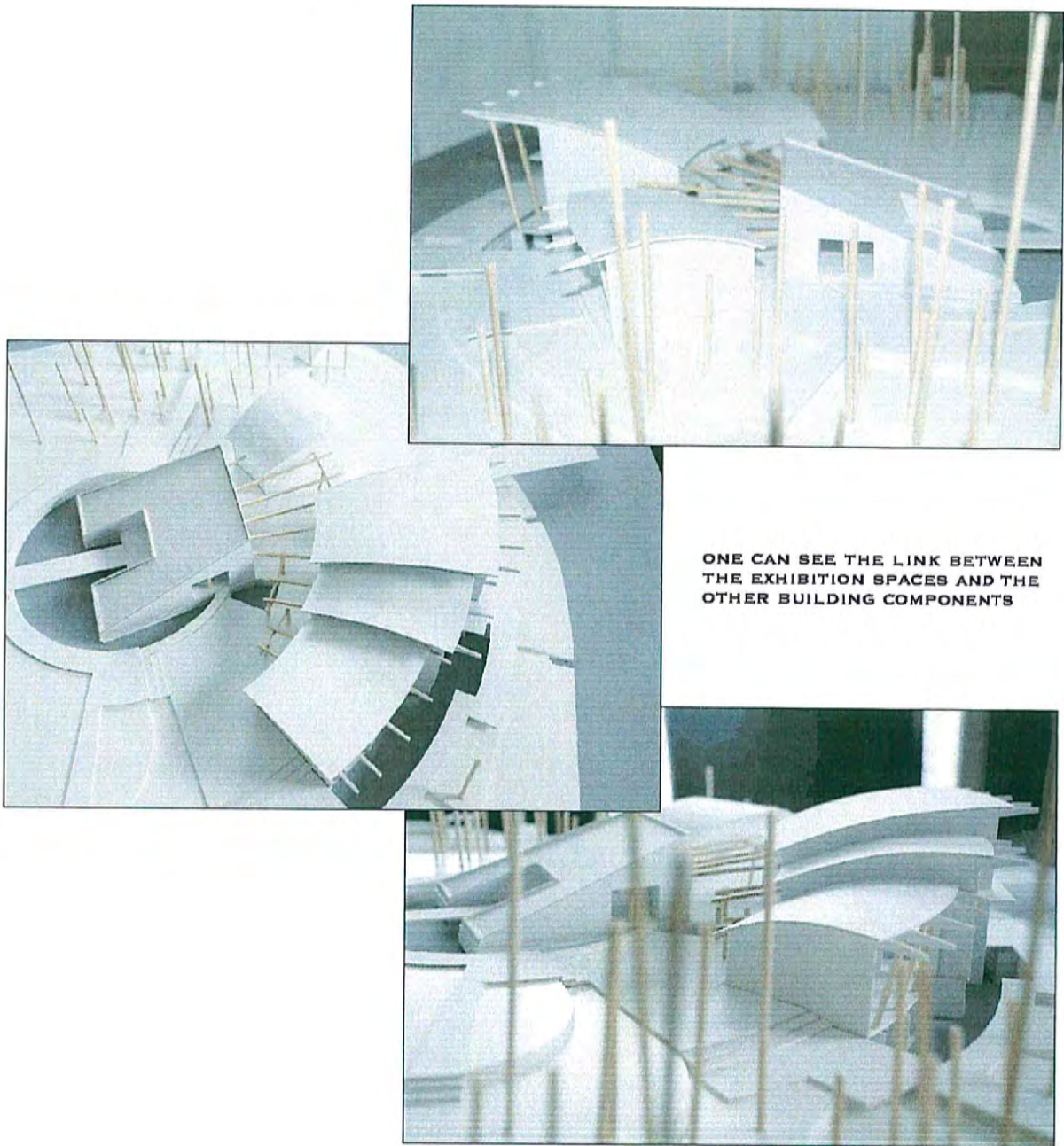


ONE CAN SEE THE DELIBERATE
ORIENTATION OF THE MAIN ENTRY AND
VIEWING PLATFORM. THIS ANGLE
ALIGNS ITSELF WITH THE RIVER

ONE CAN SEE THE PROPOSED
STRUCTURE AND ARCHITECTURE OF
THE BUILDING



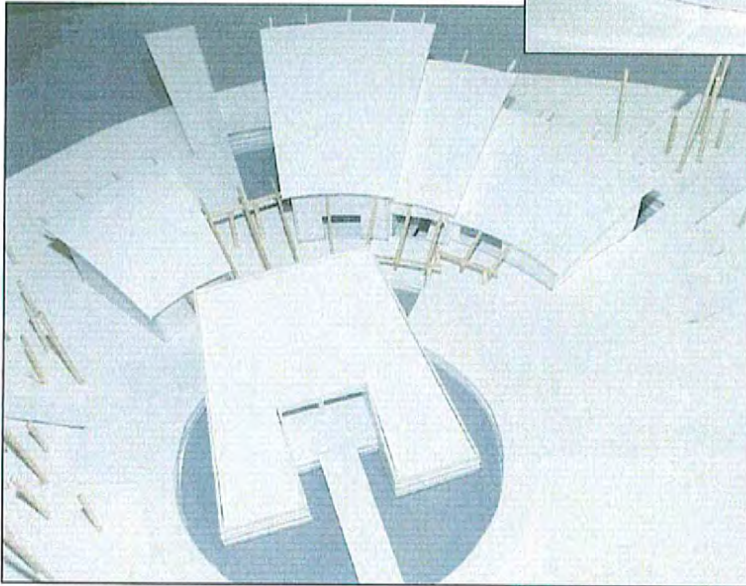
' FINAL MODEL '



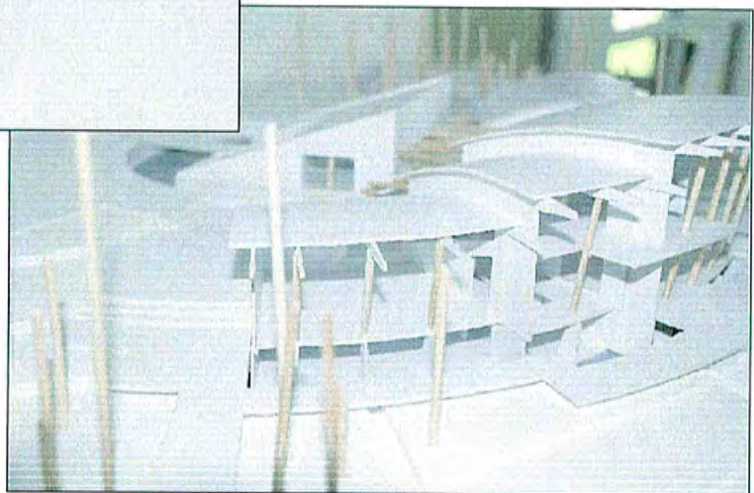
ONE CAN SEE THE LINK BETWEEN
THE EXHIBITION SPACES AND THE
OTHER BUILDING COMPONENTS

' FINAL MODEL '

**VIEW FROM THE RIVER LOOKING EAST
AT THE PROPOSED BUILDING**



**ONE CAN SEE THE BRIDGE OVER A
CIRCULAR SALMON POND TO
CELEBRATE AND DEFINE THE ENTRY**



GRADUATION PROJECT



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