

Sustainable Rainwater Management: What Does It Look Like?

2012 Water Balance Model Forum

Integrating the Site
with the Watershed
and the Stream



The 'Cowichan Valley Regional Team'
presents:

Rainwater Management in the
Cowichan Valley

Rainwater Management in
Central Saanich

Rainwater Management in a
Watershed Sustainability Context

An Introduction to the
Rebuilt Water Balance Model



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COLUMBIA
The Best Place on Earth

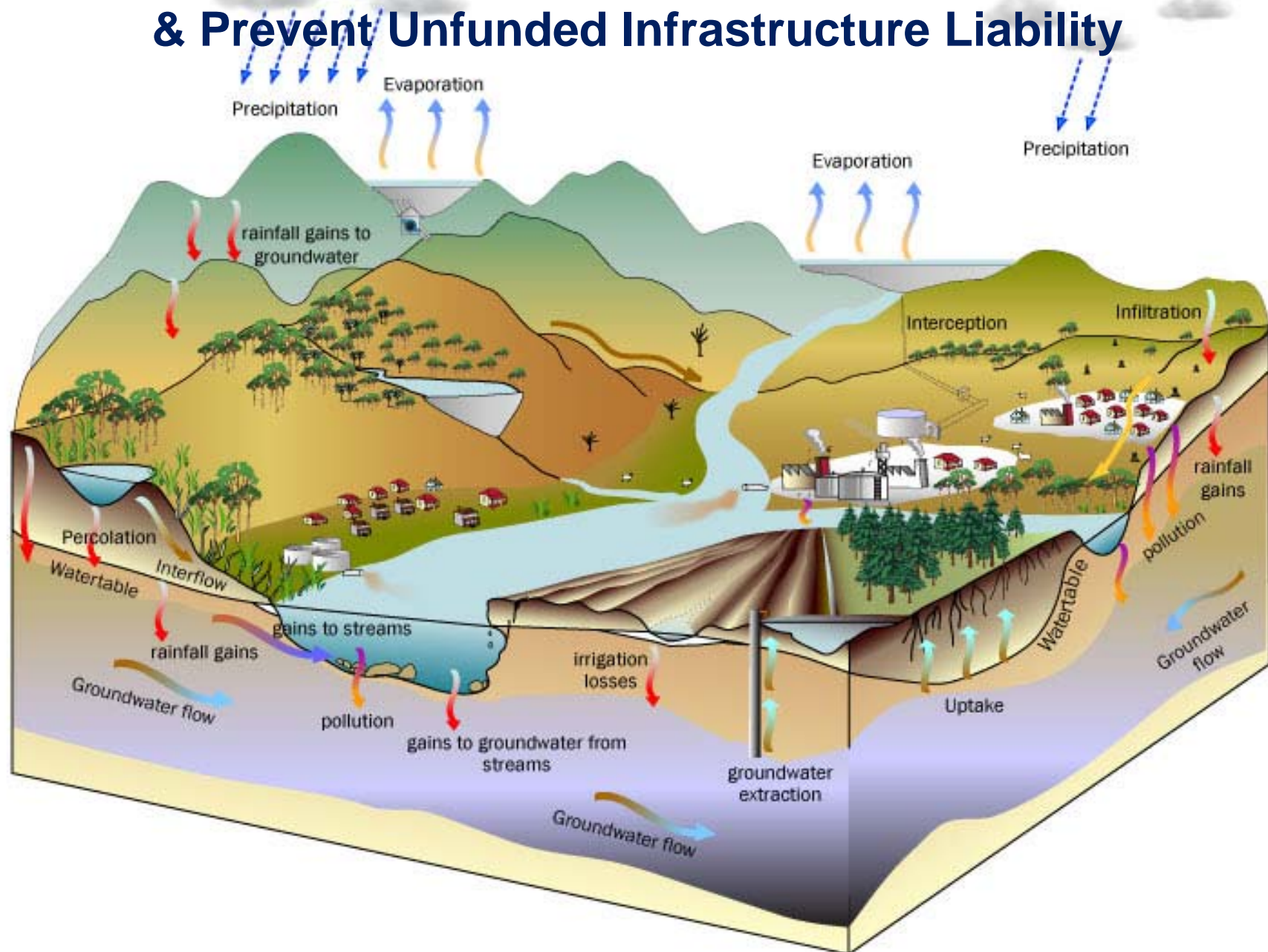


Released in 2008, “Living Water Smart” provides a water sustainability policy framework for local governments, in particular this goal:

“By 2012, all *land and water managers* will know what makes a stream healthy, and therefore be able to help *land and water users* factor in new approaches to securing stream health and the full range of stream benefits.”

Desired Outcome: Create liveable communities;
Protect stream health!

Mimic the Water Balance to Protect Stream Health & Prevent Unfunded Infrastructure Liability



Collaboration via the **'Inter-Regional Education Initiative'**
will result in alignment and a consistent approach to
'Rainwater Management in a Watershed Sustainability Context'.
This will help everyone to go farther, more efficiently and effectively.

Georgia Basin Initiatives:

- 1** Comox Valley: *An Integrated Watershed Approach to Settlement*
- 2** Nanaimo Region: *Drinking Water & Watershed Protection Plan*
- 3** Cowichan Valley: *Cowichan Basin Water Management Plan*
- 4** Capital Region: *Integrated Watershed Management Implementation*
- 5** Metro Vancouver: *Integrated Liquid Waste & Resource Management Plan*



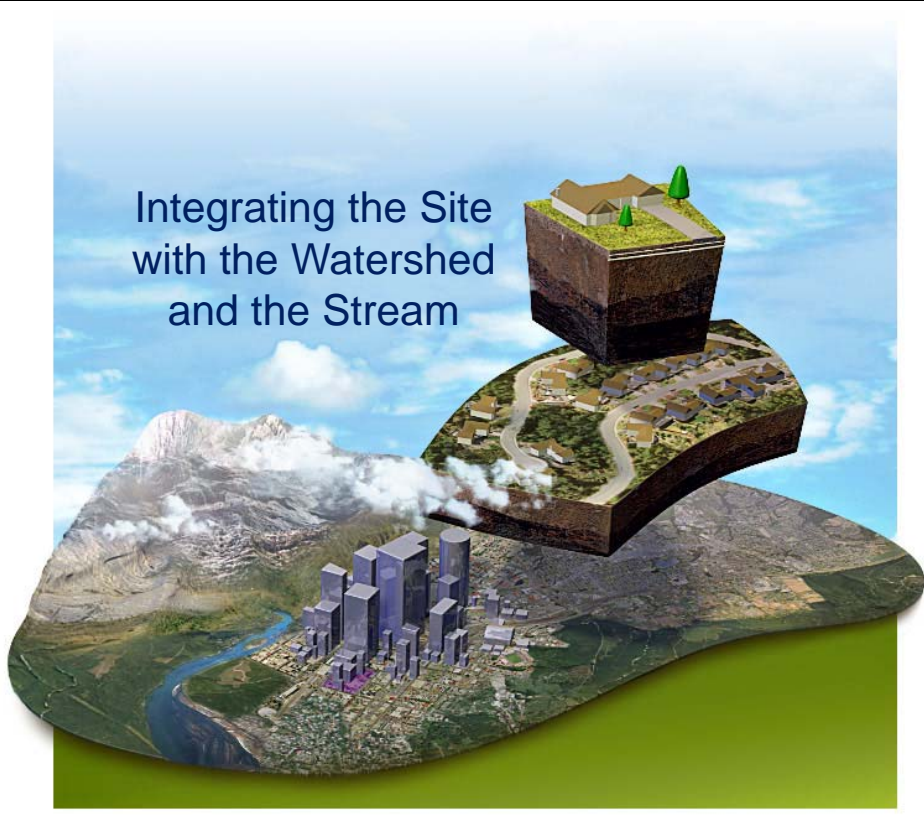
In October 2008, we brought together developers, their consultants, and local governments at the Cowichan Valley Water Balance Model Forum.

This pilot initiative established a provincial precedent; and was the springboard to the Metro Vancouver WBM Forum hosted by the City of Surrey in March 2009



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- ☐ Cowichan Tribes
- ☐ Cowichan Watershed Board



In 2008, the Cowichan Valley was the first demonstration region for the initial rollout of Living Water Smart, and also hosted the inaugural *Vancouver Island Learning Lunch Seminar Series*.

The Cowichan Valley Regional Team comprises five local governments, the Cowichan Tribes and Cowichan Watershed Board. This morning, we will report out on how each has progressed since 2008. Our emphasis will be on “targets and criteria”, lessons learned, and practices necessary to protect stream health.

Cowichan Valley – Flood 2009



No one wants to see this type of Water Balance!

Flood 2009 – On the Ground



“When I bought the house and landscaped my garden, I did not realize that there would be this much water coming down the creek!”



Flood overflow – “And now the liability kicked in!”

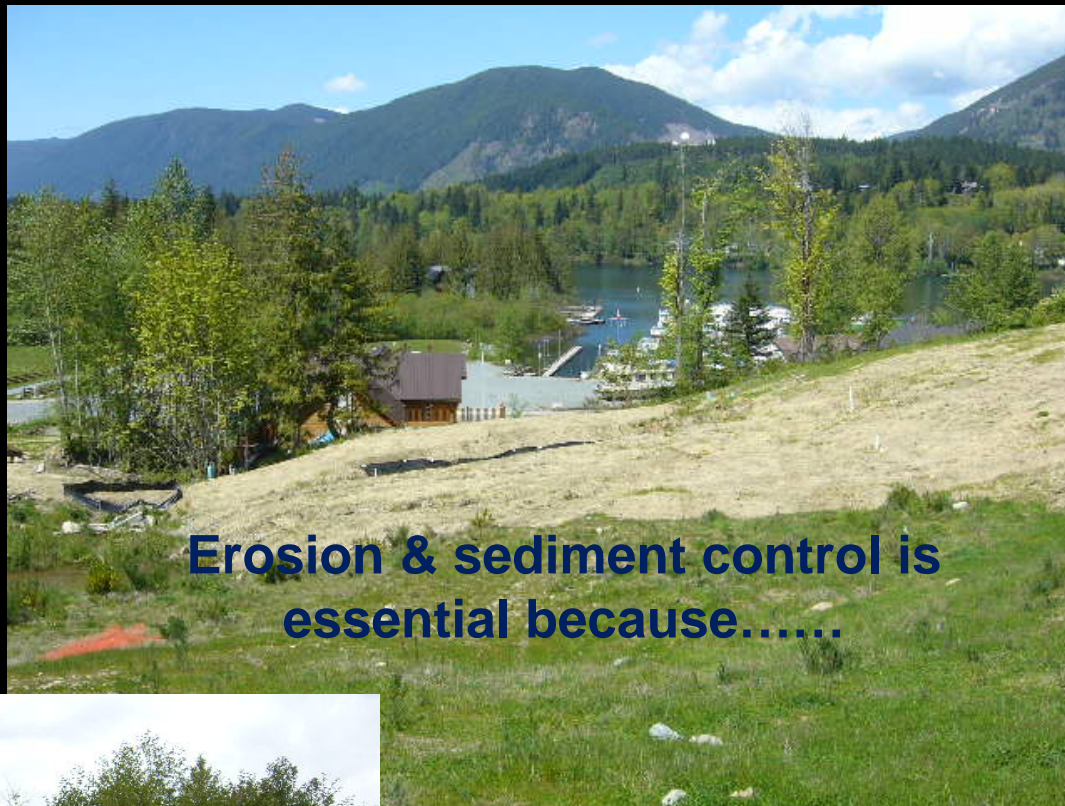
“We solved the culvert overflow problem upstream. Then, a year and a half later, we got a call a little further downstream.....”



**Tandem
Tire track**

**The thickness of the
pavement was a life-saver!**

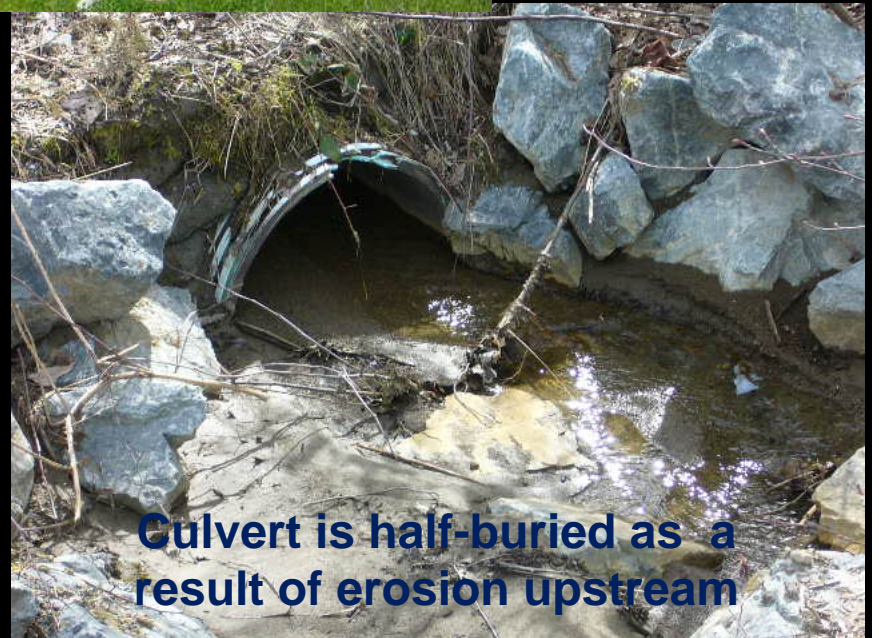




Erosion & sediment control is essential because.....



Fisheries Officer



Culvert is half-buried as a result of erosion upstream

“We are doing business differently.”



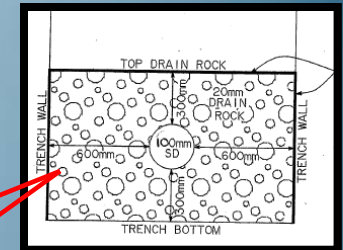
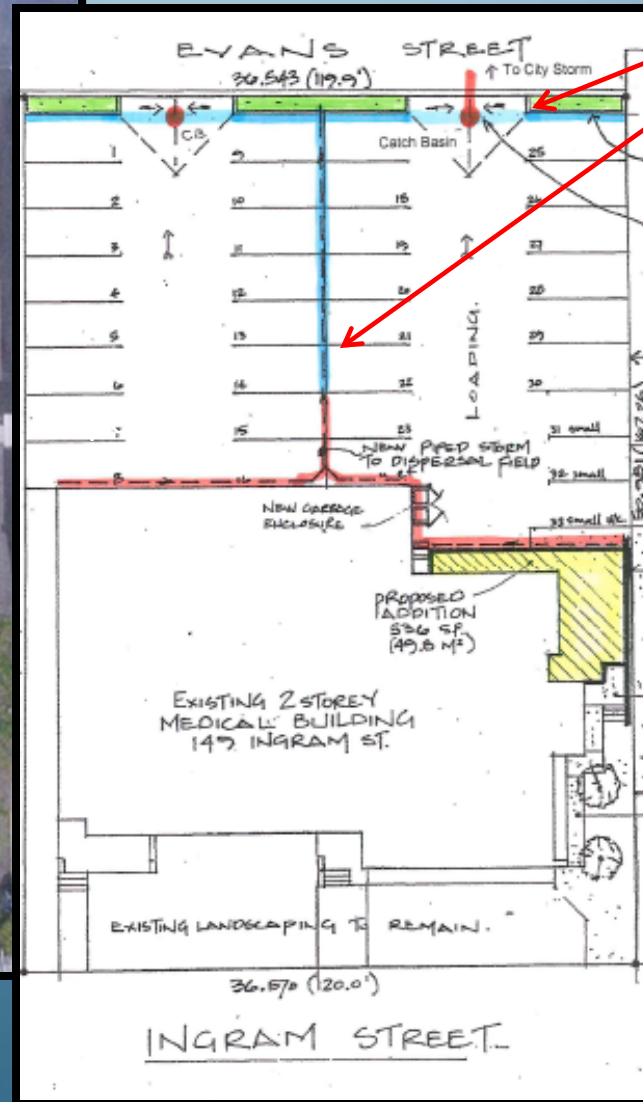
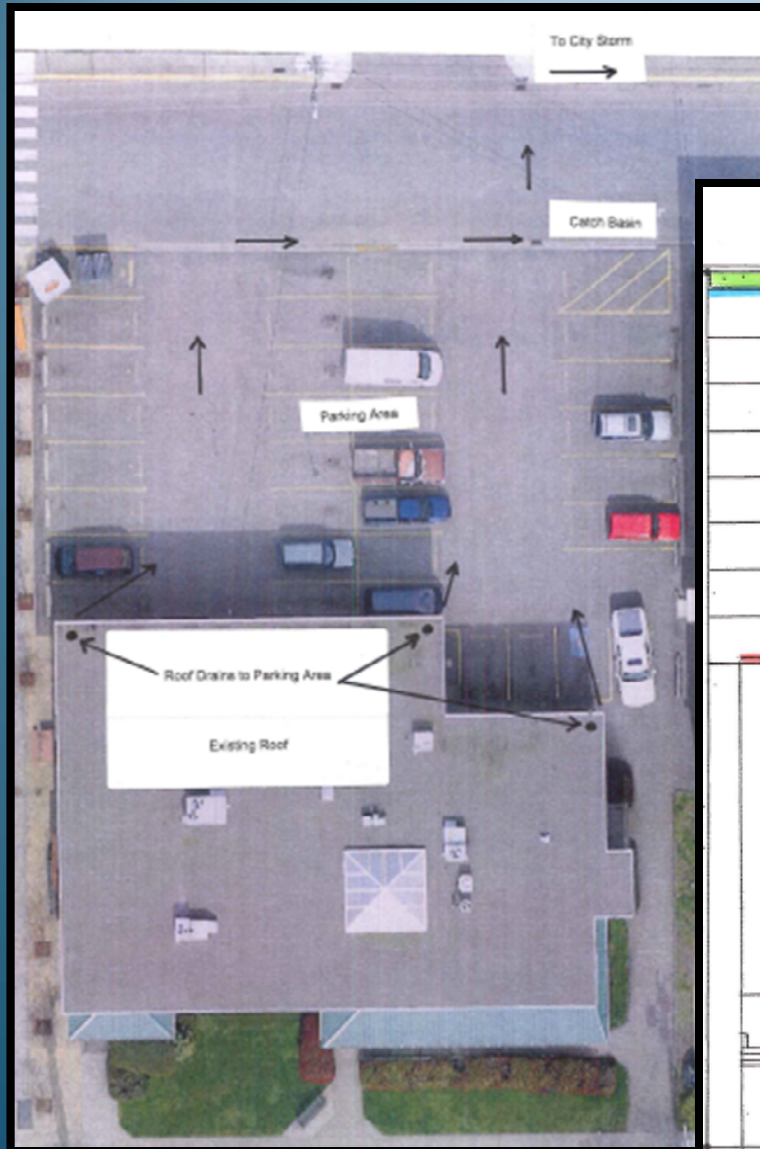
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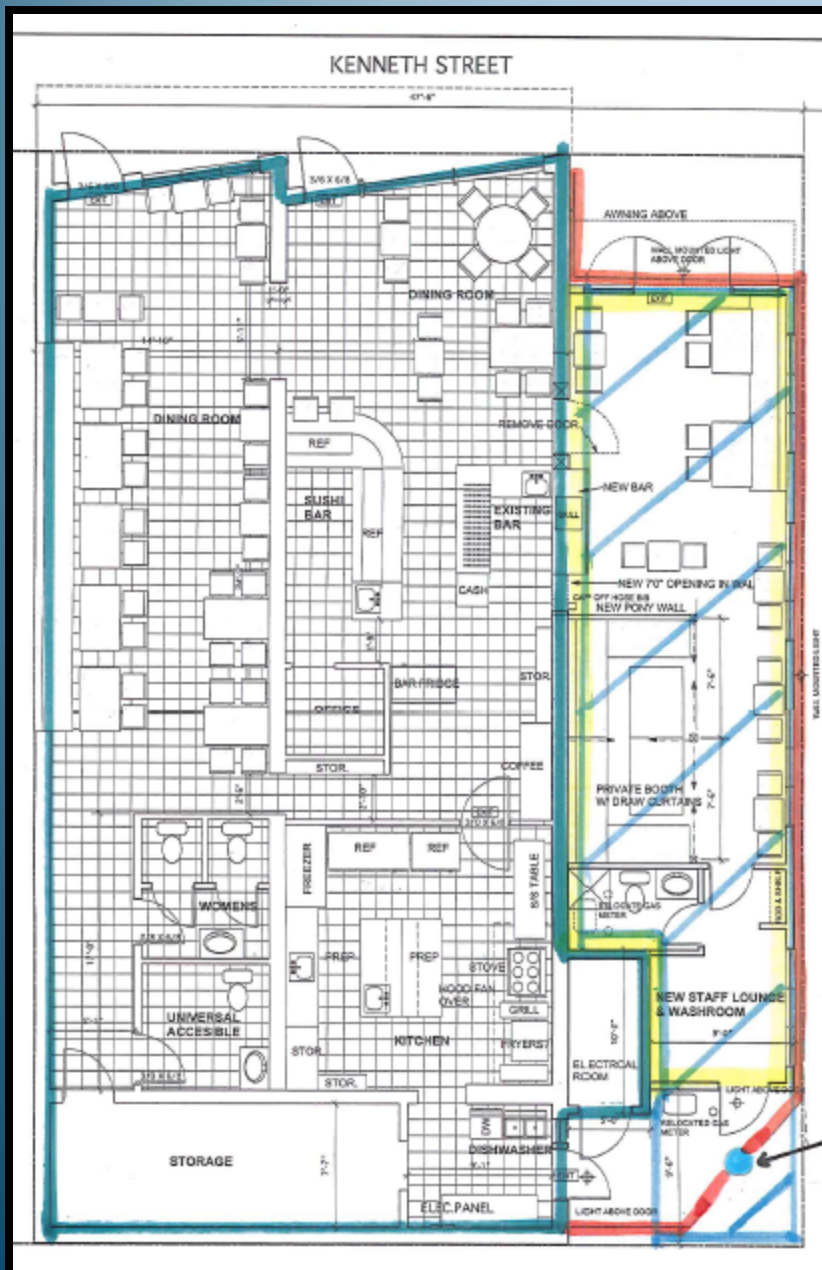
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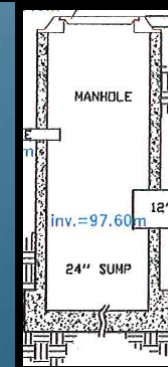


Improvements
to on site
rainwater
management

Roof top and
Parking lot
Rain water
Collection



Storm dispersal
manhole



Pump Station



Outfall



FISH GUT ALLEY



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Fields & Forest



In the forest





The Story of the Cedar Tree

Infiltrator Installation









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Cobble Hill Train Station Park



Lake Cowichan Rec Centre



Cowichan Bay Estates

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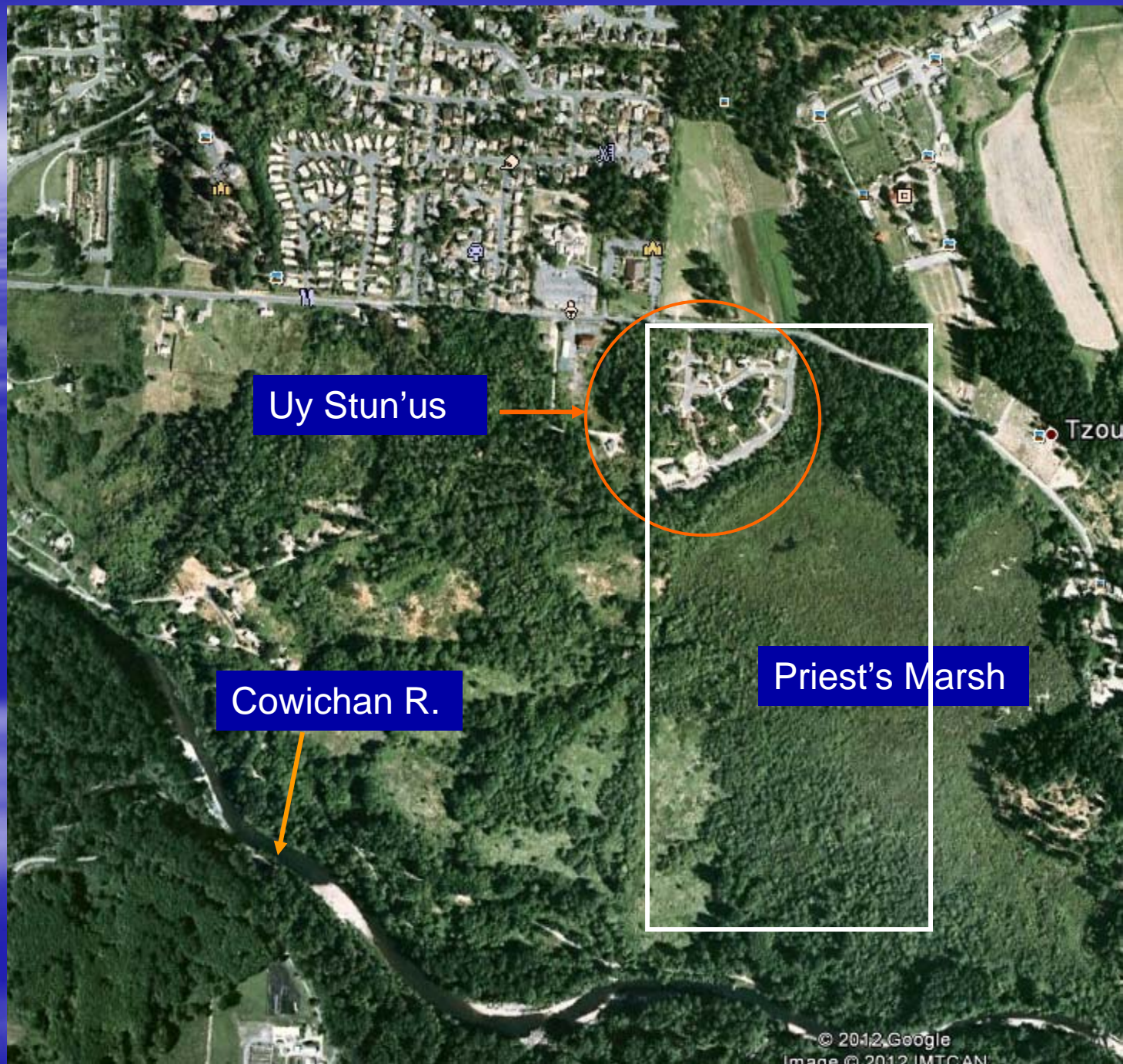
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Cowichan Tribes Low Impact Development 2001

- Over half Cowichan Tribes members live off Reserve – housing crisis – Cowichan Tribes identified reserve land for housing
- Partnership between Environment and Housing Departments of Cowichan Tribes
- Agreement to identified Environmental issues before building
- 80 Acre parcel – 20 acres logged upland, 60 acres shallow water wetland, ravines/tributaries



Uy Stun'us

Cowichan R.

Priest's Marsh

Tzou



Challenges

- Parcel divided by busy road – developed lower section first (upper section still not developed)
- 2 small streams needed to be crossed by access road – approval required from DFO for work outside of the fisheries window
- Old designated road runs through existing marsh
- Slopes in some sections having 30% gradient
- Short funding window – construction start before winters end

Solutions

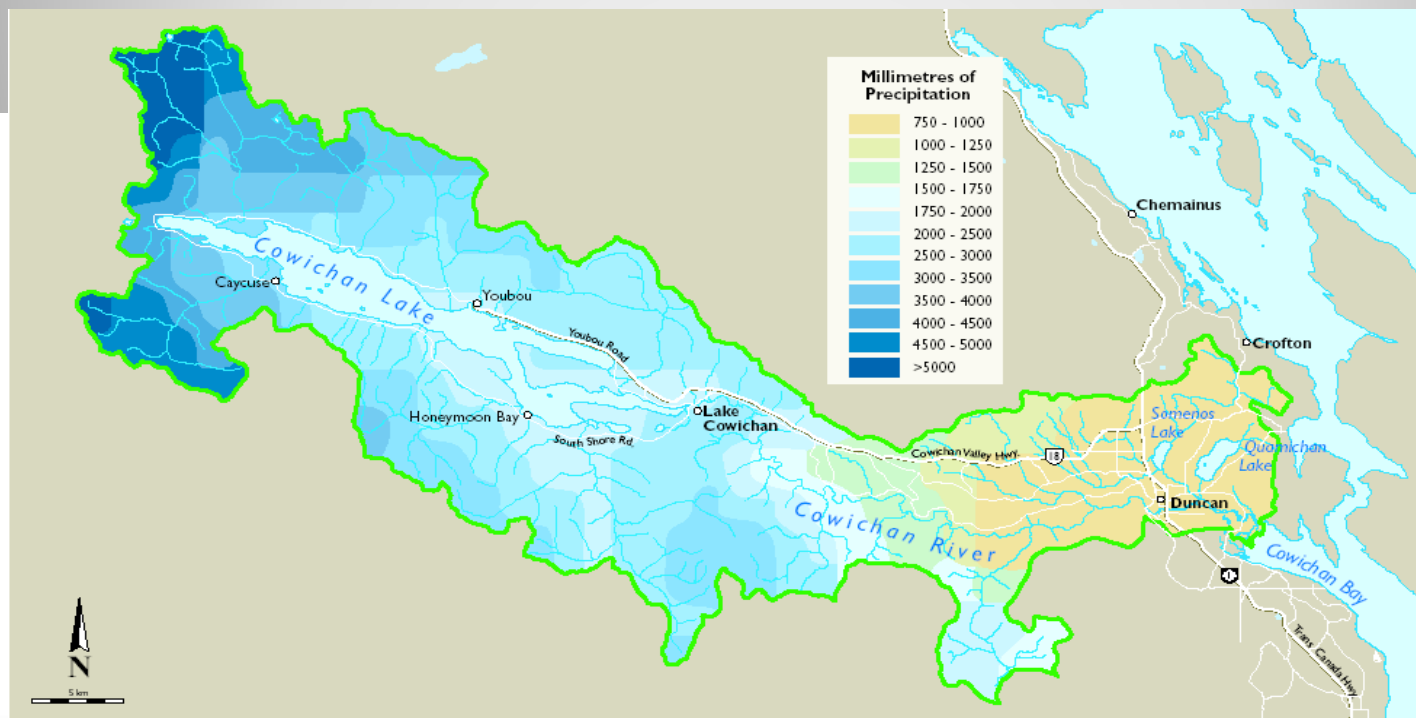
- Agreement that protecting marsh and tributaries overall priority
- 30m buffer around marsh and largest tributary. 10m buffer for smaller spring fed tributary
- Lots downsized to $\frac{1}{4}$ acre to maintain more green-space and compensate for marsh and stream buffers
- Rainwater/stormwater routed through open ditch network to maximize absorption to ground before entering a *Storm-ceptor* to remove sediment. Rooftop to ground were possible.
- Road re-aligned out of marsh

Solutions Con't

- Paving and curbs minimized and lot driveways graveled
- Lots developed in phases – only cleared and grubbed if being built within next month. Lots on steeper slopes left to develop in dry
- Natural vegetative buffers left undisturbed on each lot. All existing trees were maintained on-site by realigning houses and driveways during construction
- Sediment and erosion control plan developed by geotechnical engineer
- Disturbed slopes protected during construction and re-vegetated ASAP

Water Balance Model

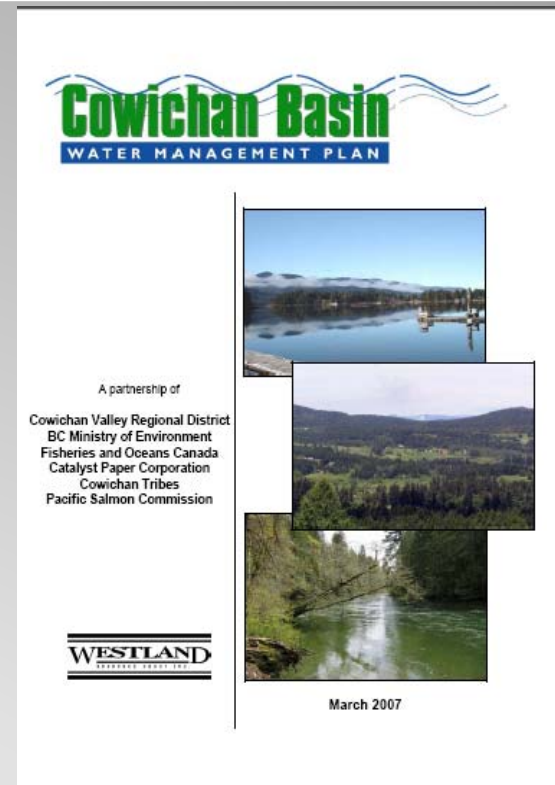
Cowichan Watershed Board Perspectives



Context

The Water Management Plan

- Completed early 2007
- 6 Goals, 23 Objectives, 89 Actions
- For 3 yrs implementation scant due to governance/leadership issues



Cowichan Watershed Board

Cowichan Watershed Board Created 2010

Purpose

- Implement Watershed Plan
- Provide Leadership/
Direction for
Managing Watershed
- Engage Communities



Cowichan Watershed Board

Targets

- ✓ Estuarine Health
- ✓ Water Quality
- ✓ Fish Sustainability
- ✓ Water Conservation
- ✓ Protect Riparian Areas
- ✓ Watershed IQ
- ✓ Summer Flow



Cowichan Watershed Board

Town-Hall Sharing

What Do You Wonder?

What Story Would You Like to Tell?

Everyone needs to agree on expectations and how all the players will work together, and after that each community can reach its goals in its own way



“The ‘regional team approach’ is founded on partnerships and collaboration; and seeks to align actions at three scales – provincial, regional and local.”

Glen Brown, Executive Director
BC Ministry of Community , Sport & Cultural Development