FORM 109 (RULE 22-2(2) and (7))

This is the 1st Affidavit
of J.KIPP in this case
and was made on 27 /May/2015

FILE: 2015-WAT-004

ENVIRONMENTAL APPEAL BOARD FOR BRITISH COLUMBIA

IN THE MATTER OF AN APPEAL UNDER SECTION 92 OF THE *WATER ACT*, R.S.B.C. 1996, c. 483

BETWEEN:

CITY OF NANAIMO

APPELLANT

AND:

COMPTROLLER OF WATER RIGHTS, *WATER ACT*

RESPONDENT

AFFIDAVIT

I, JIM KIPP, Municipal Councillor of 455 Wallace Street, Nanaimo, BC V9R 5J6, SWEAR THAT:

1. I have personal knowledge of the matters hereinafter deposed to save and except where those matters are stated to be based on information and belief, and to such latter matters I verily believe the same to be true.

2. I am a Municipal Councillor for the City of Nanaimo (the "City") and have held this role since December 1, 2008. I was also an alderman for the City between the years 1993 and 1996.

3. I am also an emergency management consultant and through J. Kipp and Associates, I have delivered many programs and services in the area of Emergency Management including emergency planning instruction, emergency program coordination, and protective services management.

4. I am swearing this affidavit in support of the City's application for a stay of the order of Glen Davidson, P. Eng., Comptroller of Water Rights (the "Comptroller"), Water Management Branch, Dam Safety Section, Ministry of Forests, Lands and Natural Resource Operations issued on April 29, 2015 (the "April 29 Order").

5. As a municipal councillor I am required to fulfill the responsibilities imposed on me by that office including those specified in section 115 of the *Community Charter*. When I consider, discuss and vote on matters before the City's Council I am mindful of the well-being and interests of the City and its community. As I have expressed at Council meetings, such consideration requires the City to adopt risk management policies with the appropriate priorities.

6. I have a number of concerns regarding the April 29 Order and its impact on the City and its community. I consider myself a person with reasonable balance in making decisions for the community without imposing an undue financial burden on ratepayers. My vote to appeal the April 29 Order is supported by my belief that alternative risk management standards for the Colliery Dams be explored and considered and that the City need not be wedded to what I consider the very high standards and costs imposed by the April 29 Order.

7. I am very concerned about the basis upon which the Comptroller concludes that significant remedial work is required for the Middle Chase River Dam and the Lower Chase River Dam (the "Colliery Dams").

8. I am very concerned about the inordinate cost of the remedial work specified in the April 29 Order and the consequent burden that it will impose on the City's ratepayers. Council has been advised that the remedial options will cost between $3 and $8 million dollars.

9. I am very concerned about the damage and interference to Colliery Dam Park that will occur if the City is required to comply with the April 29 Order.

10. I am very concerned about the decision making process that Council engaged in attempting to respond to the concerns of the BC Dam Safety Branch and the concerns of the electorate.

11. I have expressed my concerns to the other members of Council during deliberation of the Colliery Dams issue at public meetings. At a Committee of the Whole meeting on April 13, 2015 I made a presentation to Council that articulated many of my concerns. Attached to this Affidavit and marked as **Exhibit "A"** is a true copy of the slideshow that accompanied my presentation on April 13, 2015. I am presently of the opinion that a remedial action such as the one described in the attached presentation may be appropriate for the City to adopt, but I am also of the opinion that the City and its Council will need time to investigate this possibility.

12. The fate of the Colliery Dams and the response of Council and Councillor's to the Comptroller's requirement that remedial action be taken immediately has attracted significant attention from the local ratepayers and media. Attached to this affidavit and marked as the following exhibits are copies of articles and editorials in the Nanaimo News Bulletin and the Nanaimo Daily News that I have read online or in print form:

    (a) Nanaimo Daily News "Councillor ready to take part in 'civil disobedience'" May 13, 2015 – **Exhibit B**

    (b) Nanaimo News Bulletin "GSI earns Colliery dam contract" May 13, 2015 – **Exhibit C**

    (c) Nanaimo Daily News "Colliery dam protests could be 'hellish mess' for council" May 15, 2015 – **Exhibit D**

    (d) Nanaimo Daily News "Civil disobedience an interesting call for politicians" May 15, 2015 – **Exhibit E**

13. I am of the view that, at present, there is no appreciable risk to the public, BC Dam Safety Branch or Comptroller in investigating other less intrusive and better economic, environmental, social, cultural, historic and risk based viable options over the next six months.

SWORN BEFORE ME at Nanaimo, British Columbia, on 27/May/2015.

A Commissioner for taking Affidavits for British Columbia

Chris Jackson
Commissioner for taking
Affidavits of British Columbia
455 Wallace Street
Nanaimo, BC V9R 5J6

JIM KIPP

Young Anderson
Barristers and Solicitors
1616 - 808 Nelson Street
Box 12147, Nelson Square
Vancouver, BC V6Z 2H2
Telephone: 604.689.7400

1

COLLIERY DAMS

HISTORY, EMERGENCY MANAGEMENT REGULATION AND FUTURE

This is Exhibit "A" referred to in the Affidavit of TIM KIPP sworn before me at Nanaimo in the Province of British Columbia this 27 day of MAY A.D. 2015

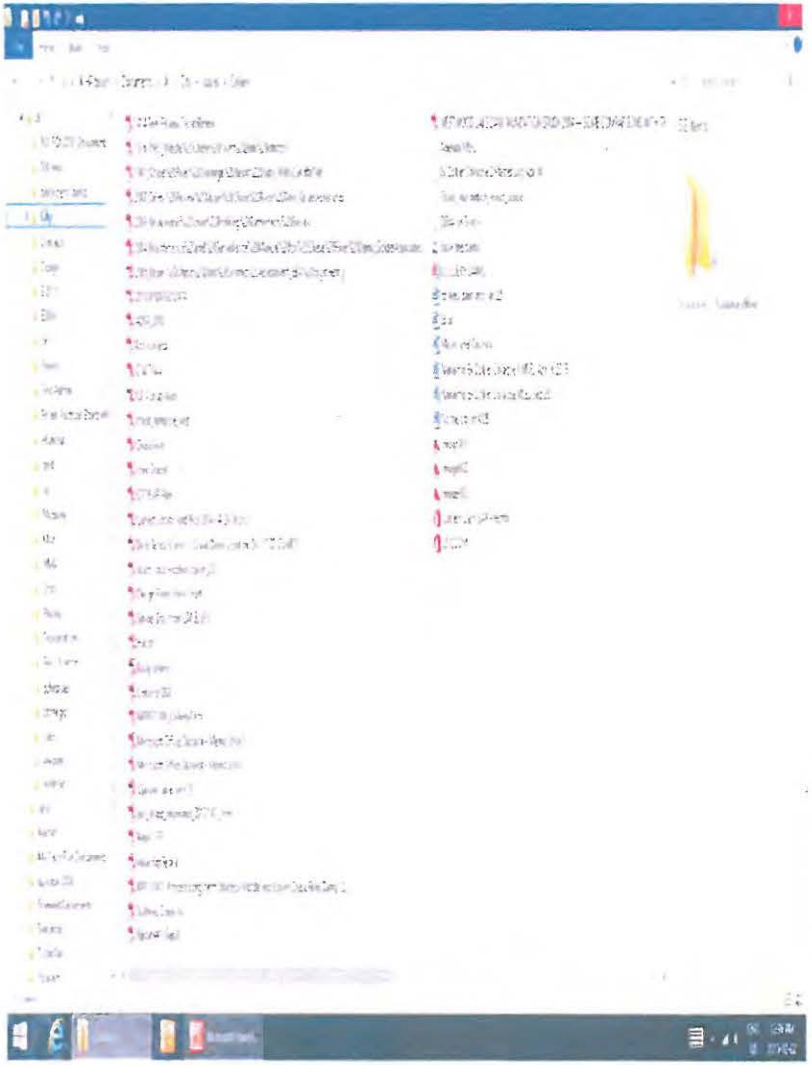
A Commissioner for taking Affidavits within British Columbia

Chris Jackson
Commissioner for taking
Affidavits of British Columbia
455 Wallace Street
Nanaimo, BC V9R 5J6

HISTORY OF COMPLIANCE

COLLIERY DAMS
100 YEARS
OF COMMUNITY
History, Culture, Recreation, Natural Environment, Social Equity and Risk

Decades of Colliery Dam files and studies



Chase River Study 5 August, 1980

HOWARD DAM NUMBER THREE

Upstream concrete wall on structure

LIKELIHOOD OF OCCURRENCE	HAZARD SEVERITY				
	Negligible (1)	Slight (2)	Moderate (3)	High (4)	Very high (5)
Very Unlikely (A)	LOW	LOW	LOW	LOW	MEDIUM
Unlikely (B)	LOW	LOW	LOW	MEDIUM	MEDIUM
Possible (C)	LOW	LOW	MEDIUM	MEDIUM	[illegible]
Likely (D)	LOW	MEDIUM	MEDIUM	[illegible]	[illegible]
Very Likely (E)	LOW	MEDIUM	[illegible]	[illegible]	[illegible]

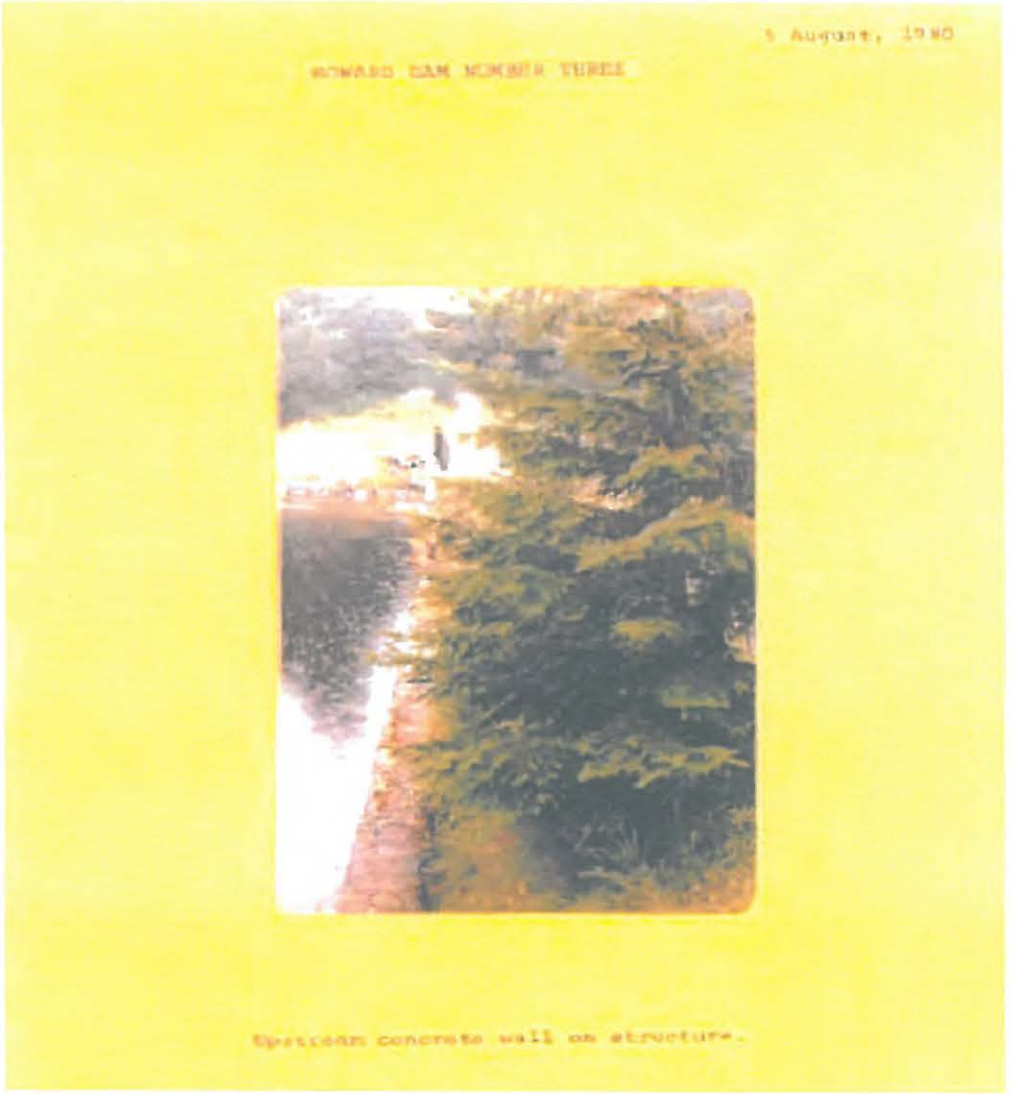
Chase River Drainage Basin Study
February 1981

a proposal to

THE CITY OF
NANAIMO

Willis Cunliffe DeLCan
Tait

CONSULTING
ENGINEERS &
PLANNERS



4

Watershed study 1981

Chase River Drainage Basin Study

a proposal to
THE CITY OF NANAIMO

February 1981
34 - 822

Willis Cunliffe Tait | DeLCan
CONSULTING ENGINEERS & PLANNERS

Upper chase river dam safety review 2003

Golder Associates Ltd.

Golder Associates

REPORT ON

UPPER CHASE RIVER DAM
2003 DAM SAFETY REVIEW

Submitted to

Greater Nanaimo Water District
450 Wallace Street
Nanaimo, B.C. V9R 5Y6

Revision	Status	Issued
0	Issued for comment by Water Management Branch	24 Nov 03
Final	Added plan from 1944 as revised Fig 1.2, and revised Fig 3	18 Mar 04

DISTRIBUTION

5 Copies - Greater Nanaimo Water District
1 Copy - City of Nanaimo, Engineering Library
1 Copy - City of Nanaimo, Public Works Library
1 Copy - Land and Water British Columbia, Victoria
Water Management Branch, Dam Safety Office
1 Copy - Land and Water British Columbia, Nanaimo
Vancouver Island Region Office
2 Copies - Golder Associates Ltd., Burnaby

March 2004 03-1411-003

9

Underwater Sonar Profiling Survey Of Westwood, Middle and Lower Chase Lakes November 4th and 18th 2003

December 5, 2003

For The City of Nanaimo

November 4th and 18th 2003

- Information regarding survey techniques and processing

Approval for disclosure of these practices to third parties must first be obtained in writing from

Prepared by

AquaCoustic Remote Technologies Inc..

Underwater Sonar Profiling Survey
Of Westwood, Middle
and Lower Chase Lakes
for
The City of Nanaimo

November 4th and 18th 2003

Information regarding survey techniques and processing contained within this report is proprietary information. Approval for disclosure of these practices to third parties must first be obtained in writing from AquaCoustic Remote Technologies Inc.

Prepared by
AquaCoustic Remote Technologies Inc
888 379 7601

December 5, 2003

OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL for CHASE RIVER DAMS

December 5, 2003

THE CITY OF NANAIMO

- •Upper Chase River Dam
- •Middle Chase River Dam
- •Lower Chase River Dams

THE CITY OF NANAIMO

OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL for CHASE RIVER DAMS

- Upper Chase River Dam
- Middle Chase River Dam
- Lower Chase River Dams

Revision	Date	Remarks
0	Nov/03	Draft for review
1	Apr/04	Issued for use, superseding 1992 "Data Books"

Distribution of this manual shown on next page

2003 DAM SAFETY REVIEW

REPORT ON UPPER CHASE RIVER DAM

Submitted to: Greater Nanaimo Water District Nanaimo, B.C. V9R 5J6

Issued for comment by Water Management Branch

Added plan from 1944 as revised Fig 1.2.; and revised Fig 3.2.

DIS1RIBUTION:

- 3 Copies- Greater Nanaimo Water District
- 1 Copy - · City of Nanaimo, Engineering Library
- 1 Copy - City of Nanaimo, Public Works Library
- 1 Copy - Land and Water British Columbia, Victoria Water Management Branch, **Dam Safety Office**
- 1 Copy- Land and Water British Columbia, Vancouver Island Region
- 2 Copies- Golder Associates Ltd, Burnaby.

March, 2004 24 Nov03 18 Mar04

03-1411-103

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

UPPER CHASE DAM SEISMIC ASSESSMENT
NANAIMO, BC

Submitted To:

CITY OF NANAIMO
NANAIMO, BC

Prepared by:

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON, ALBERTA

Project No. 0802-2800097

May 2005

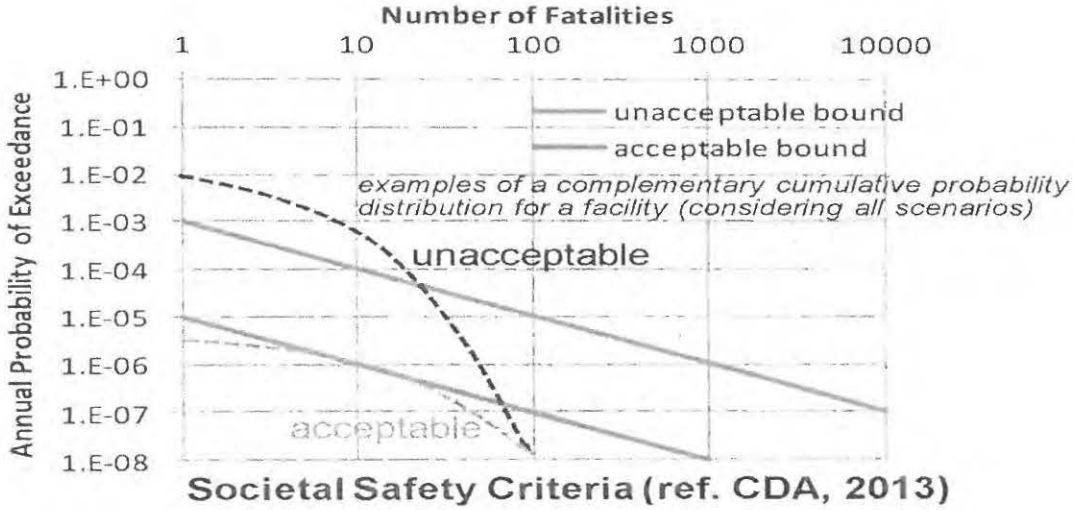
14940 - 123 Avenue, Edmonton, Alberta T5V 1B4 - Tel: (780) 451-2121 - Fax: (780) 454-5688
Email: edmonton@eba.ca - Web Site: www.eba.ca

UPPER CHASE DAM SEISMIC ASSESSMENT 2005

INVESTIGATIONS OF THE RISK

CATASTROPHY, MANIFEST DESTINY OR ACCEPTABLE RISK

Risk Assessment January 2014



21 Jan 2014

Colliery Dam (Nanaimo BC) Risk Assessment

by Dr. Bill Roberds

Golder Associates

Risk assessment 2014 January

Develop Colliery Dams (Nanaimo BC) Plan

- **13 Dec 2013 Meeting**
  - **Objectives** - identify *optimal* dam rehab option plan
  - **Criteria** - including (but not limited to) *safety* and *financial performance*
  - **Process** - conduct *risk assessment* to appropriately evaluate potential performance (rather than worst-case scenario) of any plan, per recent *dam safety guidelines*
  - **Risk assessment**
    - *performance model* translates *inputs* → *outputs*
    - inherent uncertainties in inputs and in model result in uncertainties in outputs
    - quantify uncertainty in terms of *probability*
    - assess probability *objectively* or *subjectively*

Risk assessment 2014 January

Risk Inputs (3 of 10)

- Dam "Failure" (cont.)
  - Dam failure/breach – overtopping (flow rate/duration) relationship
    - Middle Dam
    - Lower Dam

    Status: We do not have any overtopping "breach" analyses for either dam from previous studies. We need breach analyses at several overtopping values for each dam in order to subjectively develop the complete relationship (by interpolation/extrapolation), and subjective assessment of the uncertainty in that relationship.
  - Dam failure/breach – other causes (e.g., piping) relationship
    - Middle Dam
    - Lower Dam

    Status: We do not have any other failure analyses for either dam from previous studies nor reliable models to do such analyses. We need subjective assessment of probability of dam failure by other causes (not seismic or overtopping, e.g., piping).

Risk assessment 2014 January

Risk Inputs (2 of 10)

- Seismic Load
  - Exceedance Frequency – Magnitude (pga) relationship

    Status: We have this relationship from previous studies, but need to develop site-specific seismic inputs and subjectively assess uncertainties.
- Dam "Failure"
  - Dam failure – seismic (pga) relationship
    - Middle Dam
    - Lower Dam

    Status: We have "performance" of each dam for several pga values from previous studies. However, we will collect additional geotechnical data from the ongoing investigation (geophysics & drilling), which will be used to develop parameters for re-analysis. We need performance at several pga's for each dam (also considering previous results) in order to subjectively develop the complete relationship (by interpolation/extrapolation), and subjective assessments of: a) the uncertainty in modeled performance; and b) the probability of failure - performance relationship and the uncertainty in that relationship. Note: not differentiating degree of dam failure.

Risk assessment 2014 January

Risk Inputs (5 of 10)

- Lower Dam Release (cont.)
  - Magnitude (flow rate/duration) for Lower Dam overtopping failure in combination with
    - No Middle Dam failure
    - Middle Dam overtopping failure
    - Middle Dam seismic failure
    - Middle Dam failure by other causes (e.g., piping)

  Status: We do not have any overtopping "breach" analyses to determine the magnitude of release for either dam if breached, from previous studies. We need breach analyses at several overtopping values for each dam (done elsewhere) in order to subjectively develop the complete relationship (by interpolation/extrapolation) of dam release magnitude to overtopping value, and subjective assessment of the uncertainty in that relationship, for each dam.

Risk assessment 2014 January

Risk Model

- Algorithms (outputs from inputs in chains) implemented in *MS Excel* with *@Risk* (commercial add-in) to do probabilistic analysis:
  - Inputs expressed probabilistically (representing their uncertainties)
  - Outputs calculated probabilistically (representing their uncertainties) via *Monte Carlo simulation* (many possible sets of input values are generated, each with known probability, from which outputs with known probability are generated)
- Simulation Sequence:

  Maximum precipitation and seismic events

  → Dam(s) failure mode (each with particular lower dam release, timing and warning/no warning)

  → Downstream inundation and downstream population/property

  → Downstream damage and casualties
- *Status:* In development

Maximum precipitation and seismic events

17

Watershed upstream reviews

Has the watershed be studied – hydrology and volumes of water calculated

LONG TERM INVESTMENT AND INVESTIGATION

Dam Removal Option– Middle and Lower Dams

Chris Gräpel, M.Eng., P.Eng. May 2013

Klohn Crippen Berger

Design Data 12

Hydraulic Capacity of Precast Concrete Boxes

[illegible]

Table 1 Standard Box Sizes

[illegible]

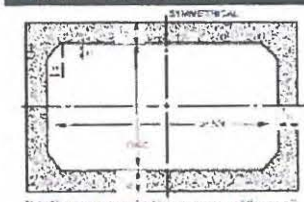
STANDARD DESIGNS

[illegible]

Table 2 Standard Thicknesses

[illegible]

Figure 1 Standard Box Section



HYDRAULICS OF SEWERS

[illegible]

CITY OF NANAIMO

REQUEST FOR PROPOSAL No. 1414

Cost Estimate Peer Review – Colliery Dams Rehabilitation/Renewal

Issue date: January 30, 2013

Closing Location:
Purchasing Department
2020 Labieux Road
Nanaimo, BC V9T 6J9

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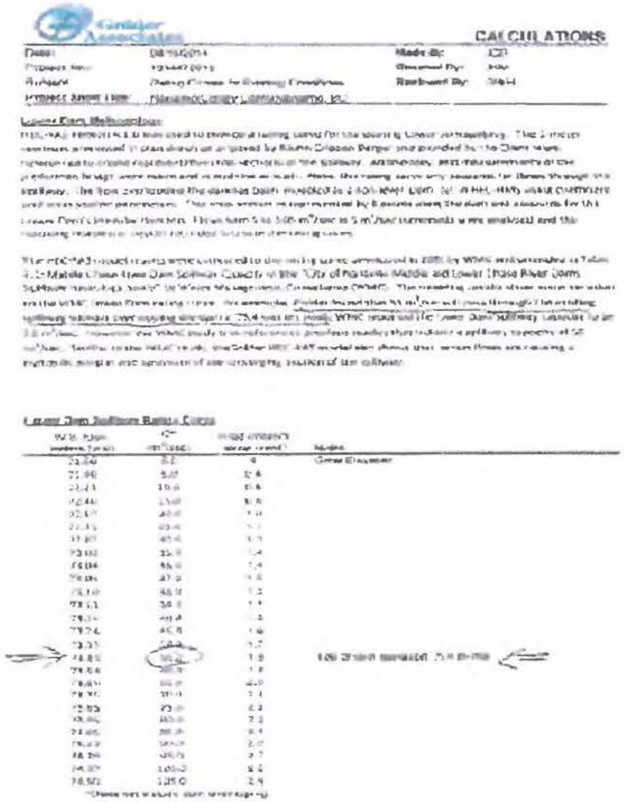
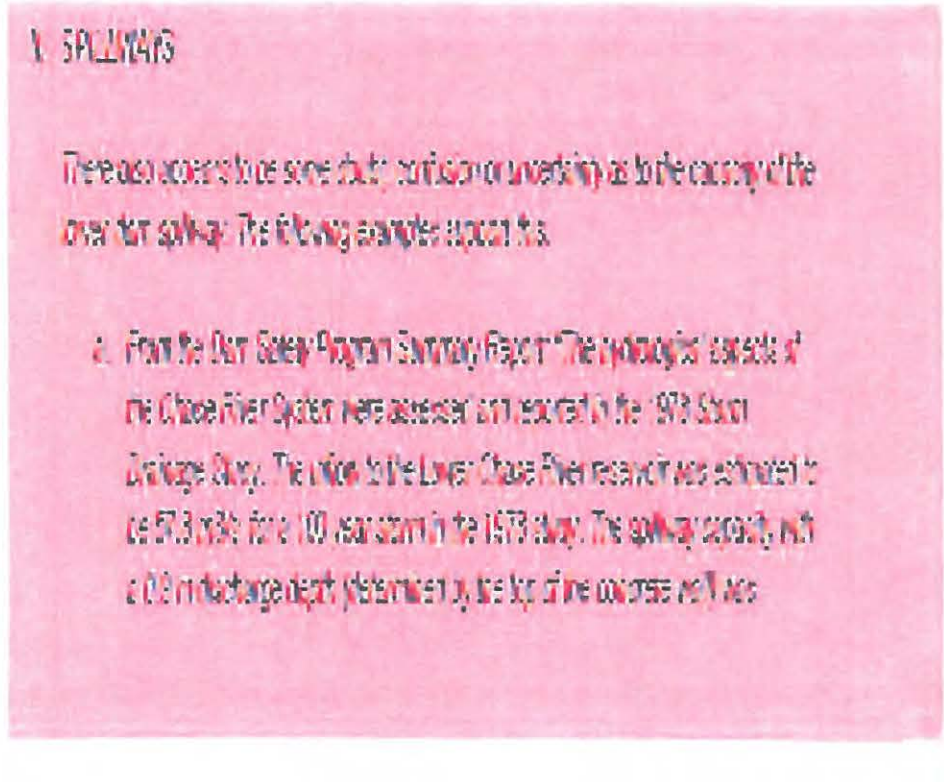
Many Spillway investigations

Lower Dam Existing Spillway Capacity

- WMC 2002 report:
  - 14 cross section HEC-RAS Model described and results tabulated, but details about model not available
  - Reference to prior EBA 2002 study that indicates maximum capacity of 55 m^3/sec
  - 35.0 m^3/sec capacity at elevation 73.4 (dam crest)
  - 25.0 m^3/sec maximum capacity without overtopping chute walls due to hydraulic jump
- Golder 2014 simple broad crested weir calculation:
  - This is a rough approximation presented only for reference
  - Equation: $q = clh^{3/2}$
  - c = 1.45 (from King and Brater)
  - l = 11 m (existing spillway width excluding center pier)
  - h = 1.8 m (vertical distance from low point in dam crest to spillway crest)
  - q = 38.5 m^3/sec maximum discharge capacity of existing spillway
- Golder 2014 HEC-RAS Model:
  - Created independently of description of WMC's 2002 model
  - Created using best available topographic information and photographs (to approximate bridge deck geometry)
  - 36.0 m^3/sec maximum discharge capacity at elevation 73.38
  - Hydraulic jump is observed in model similar to WMC's 2002 findings, but our model indicates that a 36 m^3/sec flow is contained (barely) by the existing spillway walls
- Summary:
  - There is very close correlation to each of these three efforts to determine the existing Lower Dam spillway capacity
  - We have a good handle on the capacity and performance of the existing spillway at the lower dam

After numerous reports confusion on spillway size

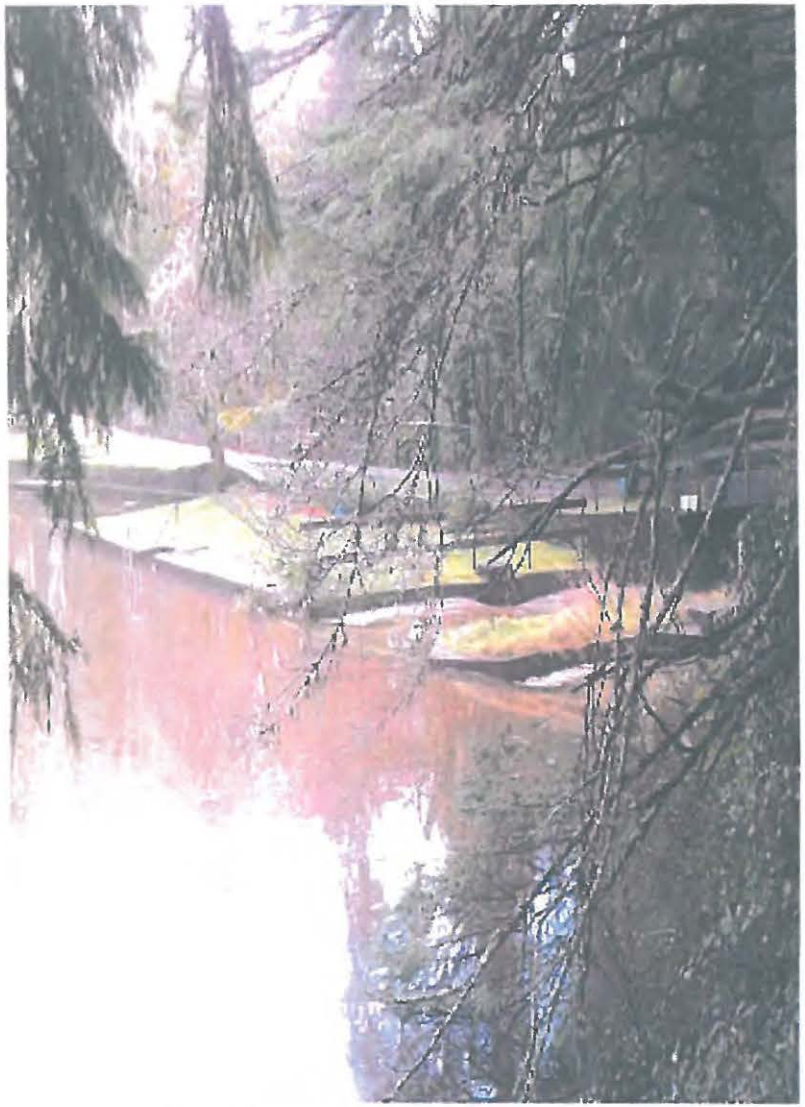




Originally 35 M3 P/Sec then determined to be 55 M3 P/Sec

Other method of calculation puts the spillway over 100 M3

Studies on flows and capacity



THE COMMUNITY EXCEPTS MANY RISKS AND STANDARDS

It is staff's professional obligation to provide accurate and relevant technical, financial and legal advice

From: Susan Clift
Sent: January 22, 2013 11:09
To: Mayor&Council; SENIOR LEADERSHIP TEAM
Cc: Philip Cooper; Bill Sims
FW: Engineering Work for the Colliery Dams Removal Project

Whether the dams will be remediate or removed or reconstructed is a decision that will be completely up to Council. **It is staff's professional obligation to provide accurate and relevant technical, financial and legal advice from which Council can make an informed decision**. Council has asked for more detailed costing information on the alternatives to dam decommissioning. In considering whether to change the current course of action, Council may weigh such factors as:

- public safety and Council's liability,
- tolerance for short term and long term risk,
- initial capital cost,
- tolerance for park disruption,
- tolerance for ongoing costs to upgrade the dams **as standards change over time**,
- the likelihood of professional assurance and regulatory approvals,

the desires of the affected communities: those that are in the inundation zone, those that are park users, and the SFN perspective. Staff will use best efforts to pull all of this information together and provide recommendations in an expeditious manner.

Susan Clift, P.Eng.
Director, Engineering & Public Works
(250) 756-5301 susan.clift@nanaimo.ca

3 MIN FAILURE 150 DEATHS

PROVEN INACCURATE

Planning based on catastrophic failure

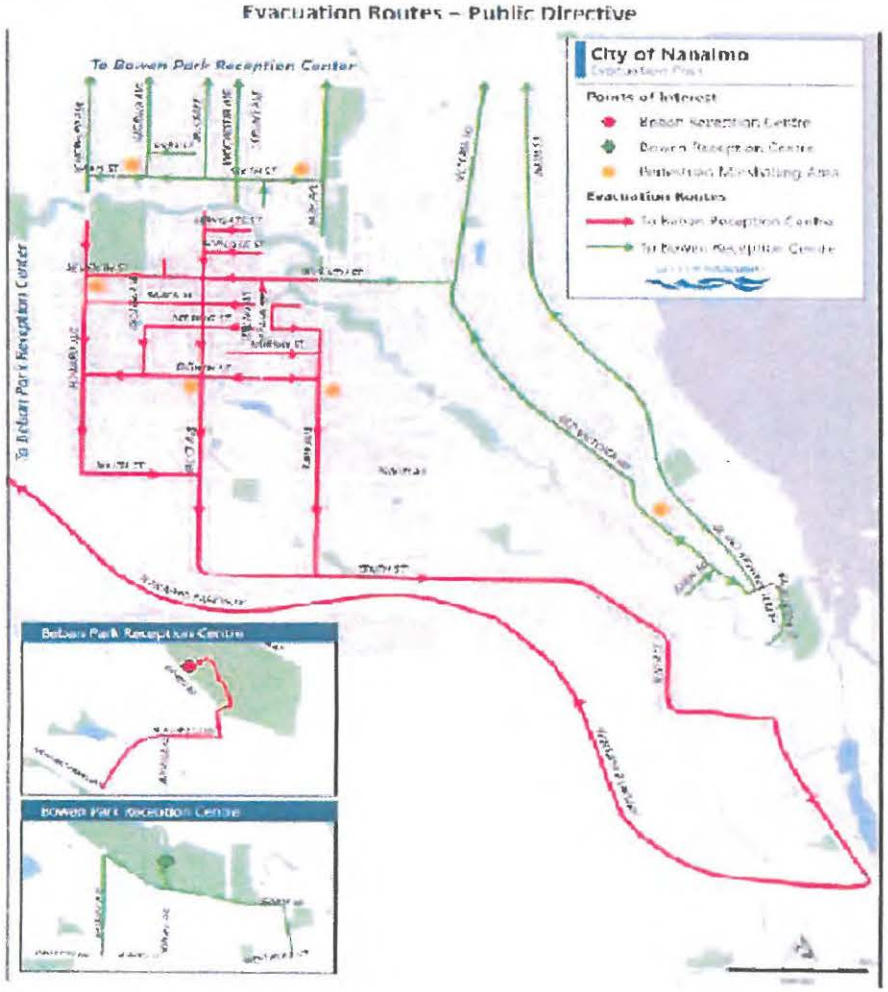
COLLIERY DAMS

(UPPER AND LOWER DAMS)

EMERGENCY ACTION PLAN

PREPARED BY: KAREN LINDSAY

Nanaimo Fire Rescue
Emergency Management Division



3 MIN FAILURE 150 DEATHS PROVEN INACCURATE

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EXERCISE COLLIER COLLAPSE
MASTER SEQUENCE OF EVENTS LIST
SEPTEMBER 20, EXERCISE COLLIER COLLAPSE

EXERCISE COLLIER COLLAPSE_MASTER SEQUENCE OF EVENTS LIST

- **Set Time From To Input Expected Action or Prompting Questions Teaching Points**
- 1300 **Exercise Introduction**:; Review of exercise goal, objectives and conduct;
- Goal: To practice the ECC Planning Section in managing information and conducting action planning
- Objectives: To review the following:The action planning process;Preparation of a Situation Report;Management of a master log; andManagement of graphic displays (maps, etc)
- Conduct: This exercise will be conducted using the tabletop exercise format. Over approximately a three-hour period various "vignettes" will be presented to exercise participants describing specific events. Participants will consider the event, describe their response, and the exercise director will facilitate a discussion of this response among the other exercise participants.This exercise will commence with a shift-change at the beginning of the second operational period. Rather than starting from the beginning of a response, the ECC Planning Section will plan the third and fourth operational periods. At the same time, they will continue to update the master event log and graphic displays.
- Exercise controllers will simulate non-Planning Section ECC functions.
- **Review the scenario:**
- ***Heavy rainfall threatened the dam structures and in anticipation of a possible collapse*** *an evacuation of the inundation area was ordered. Predications were accurate and approximately 30 minutes after ordering the evacuation the dams failed. Although the evacuation of the inundation area was generally successful and most residents were safely moved to higher ground some people refused to evacuate and a search-and-rescue operation is in progress. Fortunately the evacuation occurred outside school hours so staff and school evacuation was not required, however the school has suffered flood damage.Approximately*
- ***1000 persons have been evacuated to various locations outside the inundation area.***

October 17, 2012

File: D720001-00/Middle Chase
D720002-00/Lower Chase

Bill Sims, A.Sc.T.
Manager, Water Resources
City of Nanaimo
2020 Labieux Road
Nanaimo BC V9T 6J9

Dear Bill:

Re: Chase River Dam Breach Flood Inundation Study

Thank you for inviting Monty Miedriech, John Baldwin and myself to your Dam Safety Table Top Exercise on September 20th and 21st and for forwarding to us the Associated Engineering report entitled Chase River Dam Breach Flood Inundation Study (Inundation Study), dated July 2012. The Inundation Study has been reviewed by our office and its conclusions and recommendations were briefly discussed with you and your staff.

The Inundation Study has highlighted an unacceptable deficiency in both the Middle Chase River Dam and Lower Chase River Dam and states the probability of an extreme failure of these dams is very high. The Inundation Study concludes a 'do-nothing' option is unacceptable and recommends modifications to the dam that include upgrading, replacement or removal of the dams. The Inundation Study also recommends reclassifying both the Middle Chase River Dam and Lower Chase River Dam to an extreme consequence rating based on the estimated number of casualties resulting from a probable seismic event. Our records have now been updated to reflect this recommendation.

At this time we are asking for a decision on your course of action for the Middle Chase River Dam and Lower Chase River Dam by November 30, 2012. Please refer to Section 4 of the BC Dam Safety Regulation on requirements for upgrading or replacement of the dams and Section 9 on the requirements for dam removal.

.../2

Ministry of Forests, Lands & Natural Resource Operations **Resource Stewardship Division**	Water Management Branch Dam Safety Section	Mailing Address: PO Box 9340 Stn Prov Govt Victoria BC V8W 9M1 Telephone: 250-387-3265 Facsimile: 250-952-6792	Location: 3rd Floor, 395 Waterfront Cres Victoria BC V8T 5K7

Risk based on flawed information

no catastrophic collapse

We are pleased with the level of response the City of Nanaimo has shown towards the findings of this Inundation Study to date. We look forward to continuing our close working relationship with you and your staff in resolving this issue.

Yours truly,

Scott Morgan
Dam Safety Section Head

pc: John Baldwin, Dam Safety Officer, West Coast Region

Dam Safety based their risk on the catastrophic collapse that was proven false.

26

From: Morgan, Scott FLNR:EX [Scott.Morgan@gov.bc.ca]
Sent: November-24-14 7:47 AM
To: 'cliffmarcil@telus.net'
Subject: Middle Chase River Dam and Lower Chase River Dam, Colliery Park

2014 November DSS still classified as extreme

Ref: 210330
Cliff Marcil
Nanaimo, BC
Email: cliffmarcil@telus.net
Dear Cliff Marcil:

Re: Middle Chase River Dam and Lower Chase River Dam, Colliery Park

Thank you for your email of November 13, 2014 regarding the dams in Colliery Park, Nanaimo. I have been asked to respond on behalf of Glen Davidson, Comptroller of Water Rights.

In the Province of British Columbia, dams are regulated under the *Water Act*, BC Dam Safety Regulation. The objective of the Regulation is to minimize the risk of loss of life and damage to property and the environment from a dam breach by requiring dam owners to inspect their dams, undertake proper maintenance and ensure that these dams meet current engineering standards. The *Act* and Regulation are available under the "Legislation" section of the Dam Safety Program website: http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/index.html .

Our office is awaiting new information from the City of Nanaimo regarding the consequence classification based on recent engineering studies. Failure consequence classification is based on the potential for loss of life and impacts to infrastructure and the economy should one of the dams fail. Until we are able to review the new information, both of the Colliery Park dams remain classified as extreme failure consequence under the BC Dam Safety Regulation.

As you mention, many engineering studies have been undertaken by the City of Nanaimo on the Colliery Park dams. Undertaking these studies is consistent with the requirements for a dam owner under the BC Dam Safety Regulation. The studies have determined there are potential safety hazards for both the Lower and Middle Colliery dams. The Regulation requires that should a potential safety hazard be revealed, the dam owner must prepare a plan that identifies and prioritizes any actions required to correct the potential safety hazard in a timely manner. The City of Nanaimo has identified a plan and is currently moving forward to address the potential safety hazards found with the Colliery Park dams. Although our office has not issued specific timelines, we are working closely with the City of Nanaimo to resolve the issue with the Colliery Park dams in a timely manner.

Yours truly,
Scott Morgan
Head, Dam Safety Section

DSS, Never retracting letters to the newspaper on catastrophic collapse, 1800 impacted and 150 deaths

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2010 INSPECTION COMPLIANCE FORM FOR OWNERS OF HIGH & VERY HIGH CONSEQUENCE DAMS

SUBMIT FORM TO:

By email at:

By Mail at: Dam Safety Section, Water Stewardship Division
Ministry of Environment, Victoria BC V8T 5K7

By Fax at: 250 953-3748

Please read the information overleaf (page 2) before completing this form. You will find more information online at: www.env.gov.bc.ca/wsd/public_safety/dam_safety/

1. Has your Formal Inspection for 2010 been completed? Yes ☑ No ☐
   Inspected By: Owner ☐ Other ☐ - Who? BAM Engineering Ltd.
   Comments:
2. Have any Dam Safety Concerns been identified? Yes ☐ No ☐ If yes please elaborate.

3. [illegible]
   Are plans being prepared to address the safety concern(s)? Yes ☐ No ☐ N/A ☐
   Comments:
4. Did you complete the [illegible] page 2) Site Safety Plan? Yes ☐ No ☐
   Comments:
5. Status of your Dam Safety Review? Complete ☑ Started ☐ Not Started ☐
   Expected Completion Date: (We will be undertaking next Dam Safety Review in 2015)

Additional comments or suggestions:

Submitted by: Scott Parfitt-Wright Date: 18-Jan-2011
Position: Water Resources Technologist Phone: 250-754-6238
Email:

JAN. 18 2011 DAM INSPECTION FOR 2010 RECEIVED AT DAM SAFETY

NO CONCERNS

1. Has your Formal Inspection for 2010 been completed? Yes ☒ No ☐

   Inspected By: Owner ☐, Other ☒ - Who? BAM Engineering Ltd.

   Comments:

2. Have any Dam Safety Concerns been identified? Yes ☐ No ☒ If yes please elaborate.

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2011 INSPECTION COMPLIANCE FORM FOR OWNERS OF HIGH, VERY HIGH & EXTREME CONSEQUENCE DAMS

Water Management Branch
Date Received:
JAN 11 2012

SUBMIT FORM TO:

By Mail at: Dam Safety Section, Water Management Branch, Ministry of Forests, Lands and Natural Resource Operations, Victoria BC — Please use pre-paid, self addressed envelope if address below

By Fax at: 250 952 4752

By email at: dam.safety@gov.bc.ca

OFFICE USE ONLY

LOWER CHASE RIVER DAM

SCOTT PAMMINGER
CITY OF CAMPBELL
PUBLIC WORKS YARD
CAMPBELL, BC V8T 5J9

File Number for correspondence: 0720002-00

Is Contact Name and Address correct?
YES ✓ NO ___ Please correct below

Please include contact phone # & e-mail
Phone 250 756 5338
Email scott.pamminger@campbell.ca

Please read the Attachment Guide (page 2) before completing this form. You will find more information on dam safety at www.gov.bc.ca/env/wat/dam_safety/

1. Has your Formal Inspection for 2011 been completed? Yes ☑ No ☐
   Inspected By: Owner ☐, Other ☑, Who? BMA Engineering Ltd
   Comments:
2. Have any Dam Safety Concerns been identified? Yes ☐ No ☑ If yes please elaborate.
3. If yes to #2:
   Has a plan been prepared to address the safety concern (s)? Yes ☐ No ☐ N/A ☑
   Comments:
4. Did you undertake regular (see page 2) Site Surveillance? Yes ☑ No ☐
   Comments:
5. Has a Professional Engineer completed your Dam Safety Review? Y ☑ No ☐ Started ☐
   If "Started DSR" scheduled completion date is:
6. Have you submitted your Dam Safety Review? Yes ☑ No ☐
7. Do you have a current OMS & EPP? Yes ☑ No ☐
8. Have you completed the annual EPP review? Yes ☑ N ☐ Year last reviewed 2012

Additional Comments or Suggestions: Updating EPP in progress.

Submitted by: Scott Pamminger Date January 5, 2012
Position: Water Resources Specialist Phone 250 756 5338

JAN. 8 2012 DAM INSPECTION FOR 2011 RECEIVED AT DAM SAFETY

NO CONCERNS

1. Has your Formal Inspection for 2011 been completed? Yes ☑ No ☐

   Inspected By: Owner ☐, Other ☑, Who? BMA Engineering Ltd.

   Comments: _____

2. Have any Dam Safety Concerns been identified? Yes ☐ No ☑ If yes please elaborate.

FEB 24 2012
EMAIL FROM
CITY
DESCRIBES THE
PONDS AND

DSS ASKED…
HELP
NEEDED
TO KEEP FOCUS
ON RISK…
THAT DID NOT
EXIST

30

FEB 24 2012 EMAIL FROM DSS

DAM SAFETY OFFER TO DO OUR BEST TO HELP OUT

RISK THAT DID NOT EXIST

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Show me the money

by doing the right thing

DEFICIENCY CHECKLIST

If you find deficiencies with any component of your dam, use the following table to guide you to the relevant section of the *SELF-HELP GUIDE* in the Appendix of the Inspection and Maintenance of Small Dams booklet.

IS THERE ANY APPARENT...	YES	NO	IF YES THEN...
CRACKS			
• embankment cracks on the crest?	☐	☐	section 2.4, 2.5 & 2.6
• embankment cracks on the u/s slope?	☐	☐	section 3.5
• embankment cracks on the d/s slope?	☐	☐	section 1.1
VEGETATION GROWTH AND DEBRIS			
• excessive vegetation growth on the embankments?	☐	☐	section 2.1, 3.4 & 5.2
• floating debris?	☐	☐	section 1.2
• vegetation or debris blocking the spillway channel?	☐	☐	section 8.2
STRUCTURAL PROBLEMS			
• settlement on the crest?	☐	☐	section 2.3
• slough, slides or bulges on the u/s slope?	☐	☐	section 3.6
• slough, slides or bulges on the d/s slope?	☐	☐	section 4.2
• slough, slides or bulges on the reservoir shore?	☐	☐	section 1.1
• slough, slide or erosion of spillway channel?	☐	☐	section 8.1
• animal hole on crest?	☐	☐	section 2.8
• animal hole on u/s slope?	☐	☐	section 3.7
• animal hole on d/s slope?	☐	☐	section 3.9
• displaced or broken down riprap armor?	☐	☐	section 3.2
SEEPAGE			
• wet areas or seepage on the d/s slope or toe?	☐	☐	section 4.3 & 5.1
• ponded water at the downstream toe?	☐	☐	section 5.2
• wet areas or seepage along d/s abutments?	☐	☐	section 6.1
ANIMAL ACTIVITY			
• signs of livestock traffic across dam embankment?	☐	☐	section 4.5
• rodent burrows in dam embankment?	☐	☐	section 2.2 & 3.3
• beaver dams in reservoir or across spillway channel?	☐	☐	section 1.3
OUTLET PROBLEMS			
• outlet operating problems?	☐	☐	section 7.1
• deterioration of the outlet conduit?	☐	☐	section 7.2
SPILLWAY PROBLEMS			
• spillway blockage?	☐	☐	section 8.3
• channel blockage?	☐	☐	section 8.2
• inadequate capacity?	☐	☐	section 8.3

No deficiencies can be determined by DSS self help guide checklist

EMERGENCY MANAGEMENT

In the Business of Emergencies and Emergency Management

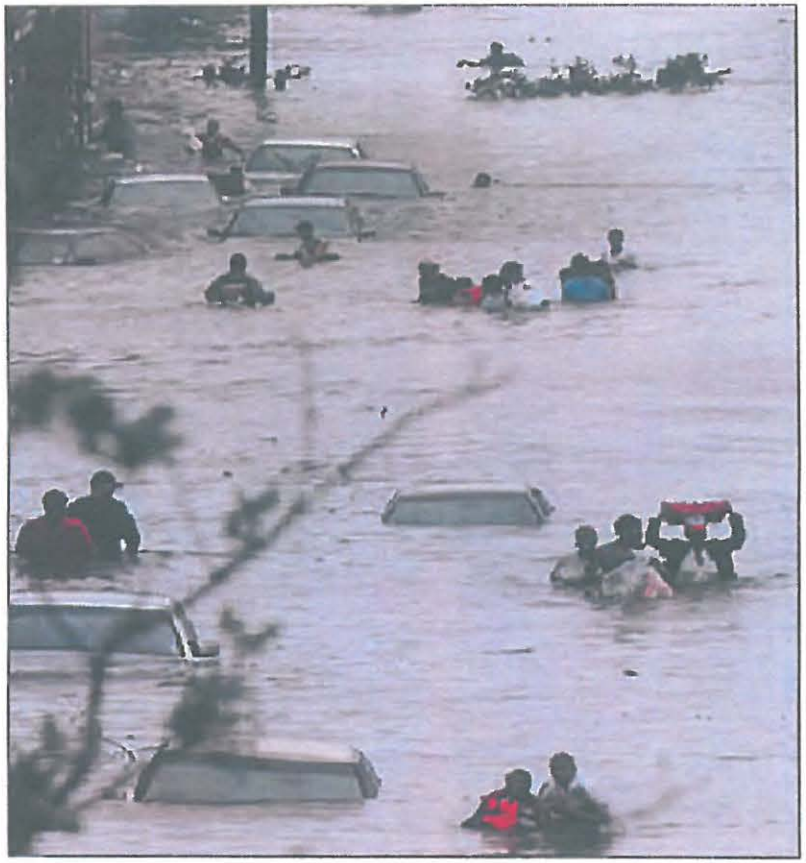
There is usually no next time, no 2nd chance
And there is no time out

We know some events build slowly!

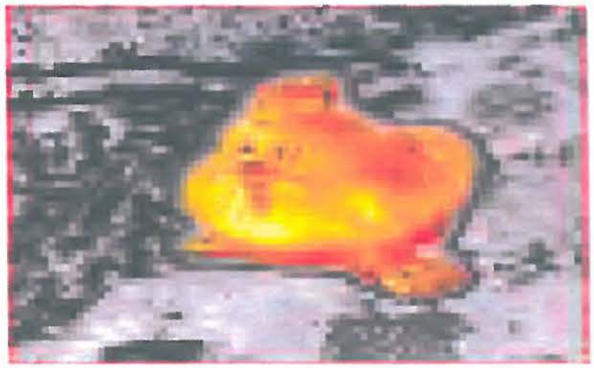
With FLOODING for example:

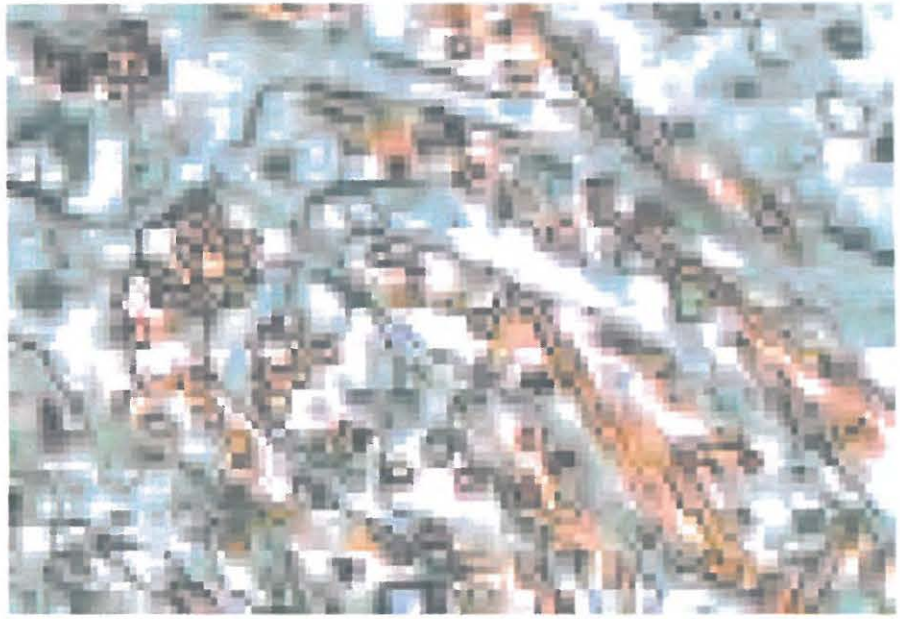
there will be a next time, but still no 2nd chance,

or time out



And some events just build!



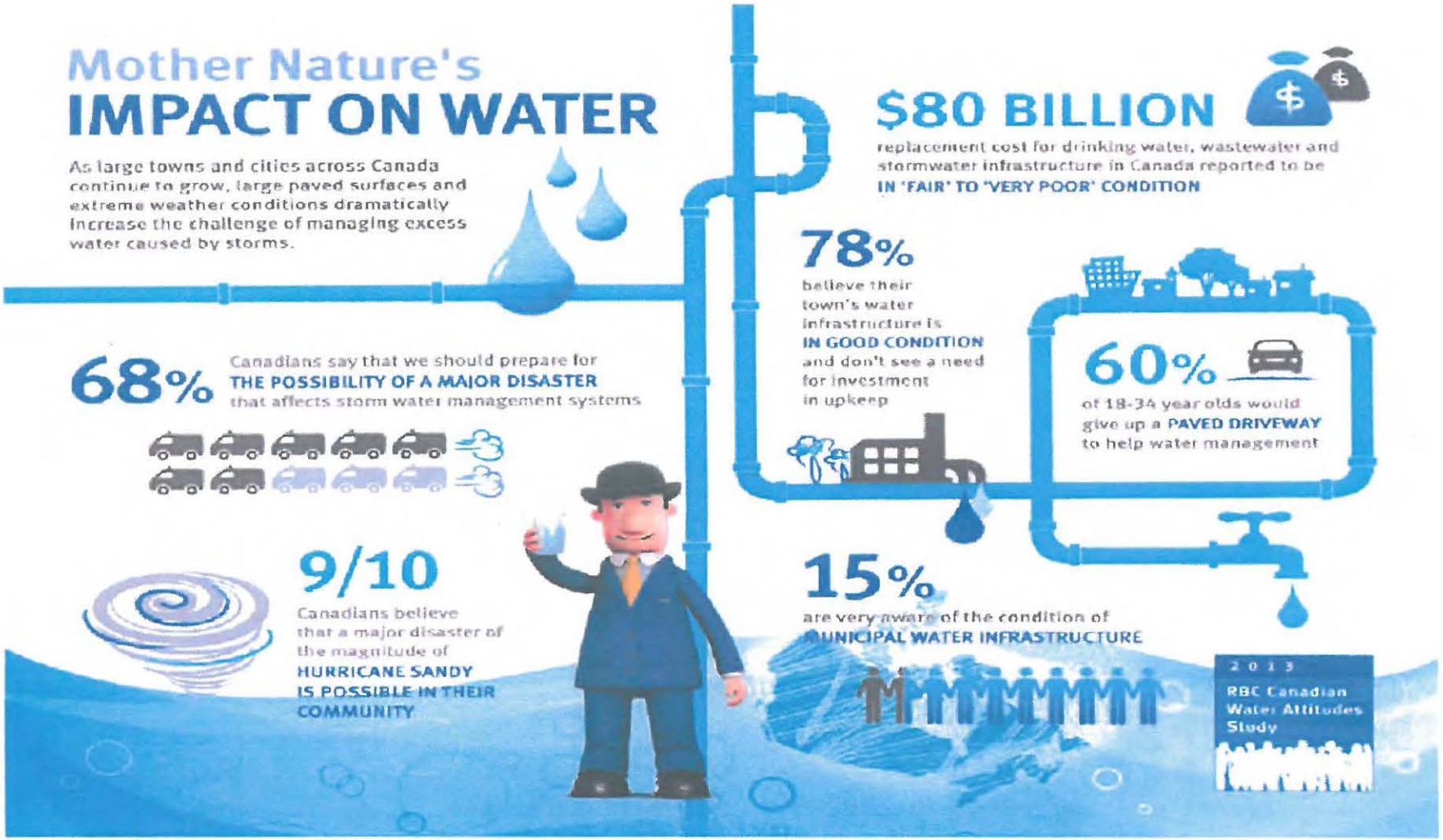


With Pandemic Influenza for example:

there will be a next time, but still no 2nd chance,

or time out

There are far greater concerns facing Nanaimo drought, water interruptions, earthquakes

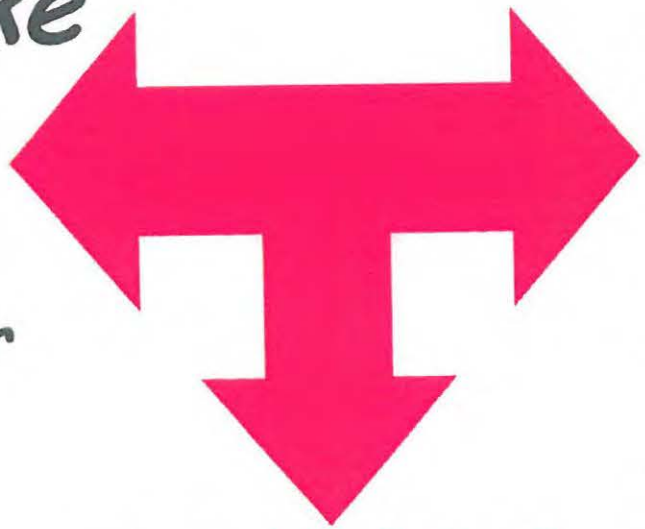


Categorized Disasters

Natural

Earthquake

Flood
Forest Fire
Landslide
Severe Weather
Wind Storm



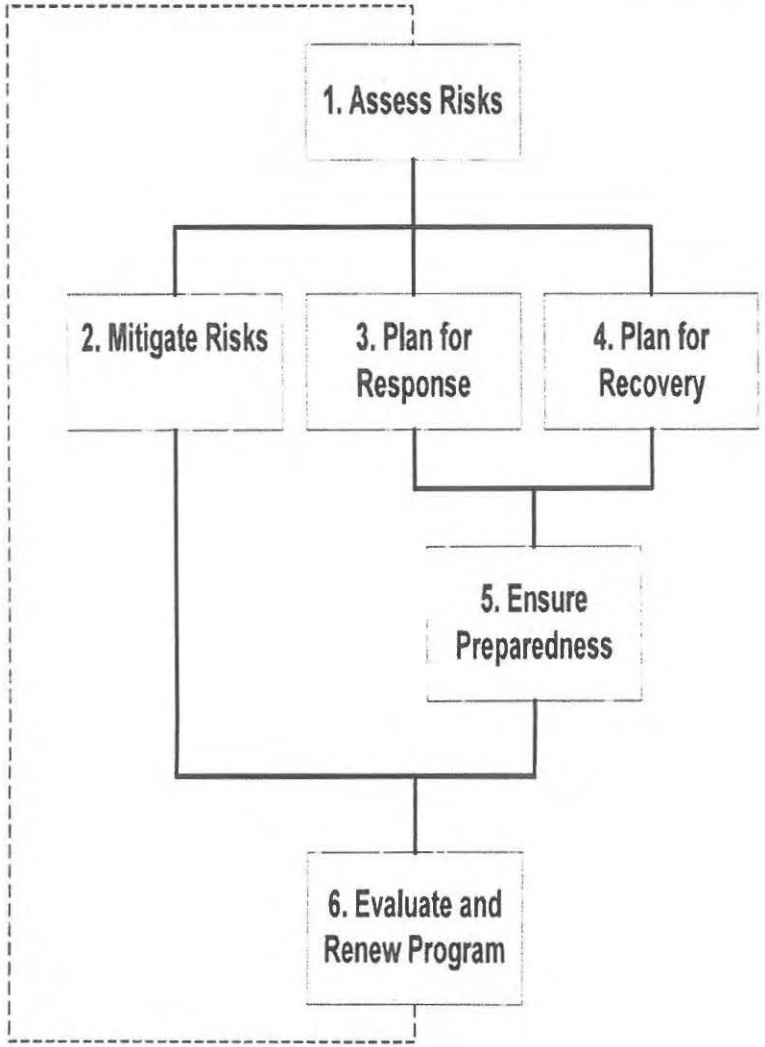
Industrial

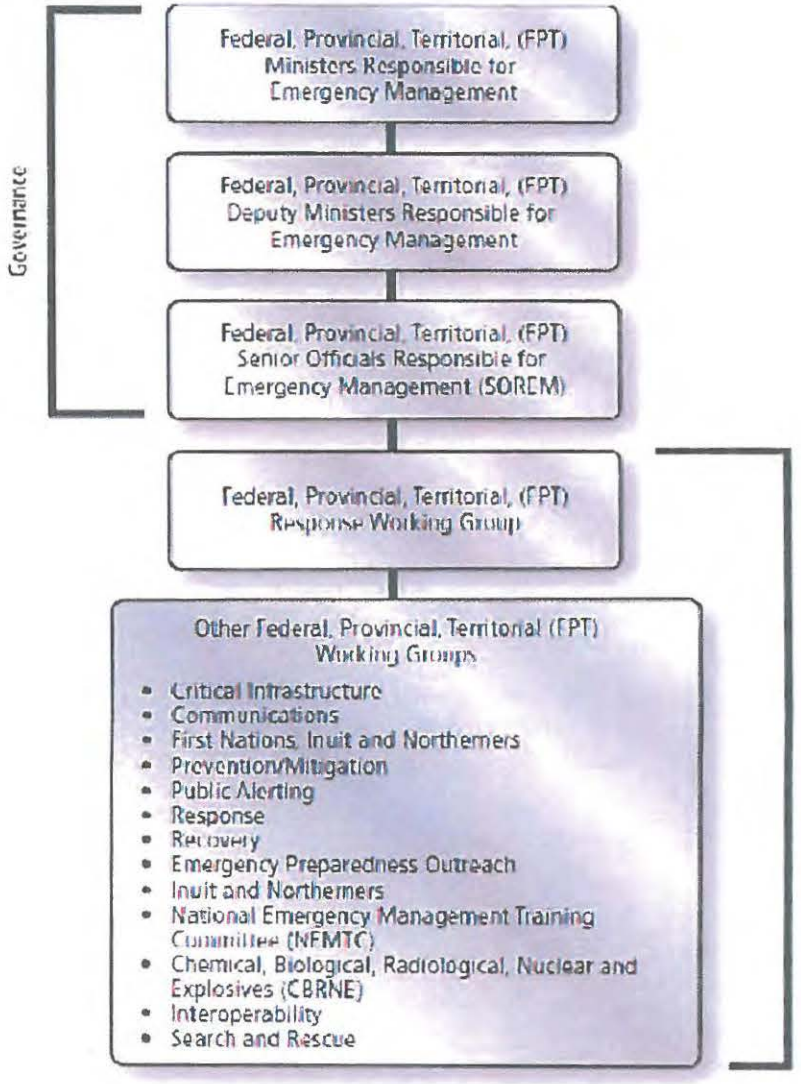
Urban Fire
Hazardous Materials
Explosion
Structural Collapse
Transportation

Social/Political

Bomb Threat
Sabotage/Terrorism
Riot

EMERGENCY PLANNING OBJECTIVES





LOCAL AND INTERGOVERNMENTAL PLANNING OBJECTIVES

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Emergency Program Guide
Strategies for the Six objectives.

Objective 1 — Assess Risks 1-1 Identify and Map Vulnerabilities 1-2 Research Risk Questions, Record Results 1-3 Identify and Map Risk Areas 1-4 Upgrade Risk Assessment Report	**Objective 4 — Plan for Recovery** 4-1 Establish Recovery Procedures 4-2 Identify Sources of Assistance 4-3 Adopt Community Redevelopment Plans
Objective 2 — Mitigate Risks 2-1 Identify Mitigation Options 2-2 Promote Fire Safe Community Program 2-3 Mitigate Dangerous Goods Risks 2-4 Facilitate Flood, Landslide Program 2-5 Revise Land Use Plan to Mitigate Risks	**Objective 5 — Ensure Preparedness** 5-1 Identify ECC Members and Alternates 5-2 Establish ECC Facilities and Equipment 5-3 Train ECC and Other Personnel 5-4 Conduct Exercises and Debrief 5-5 Advise Public on Preparedness
Objective 3 — Plan for Response 3-1 Verify Resource Contact Information 3-2 Update Agency Plans and Agreements 3-3 Plan for Evacuations 3-4 Facilitate ESS Program 3-5 Update Plan 3-6 Verify Response Capabilities	**Objective 6 — Evaluate & Renew Program** 6-1 Develop Record-Keeping Systems 6-2 Design Annual Report 6-3 Develop and Recognize Volunteers 6-4 Upgrade Program Guide

There are far greater concerns facing our NANAIMO and region

- Aircraft Crash
- Atmospheric Hazards
- Dam Failure
- Disease and Epidemics
- Drought
- Explosion
- Fire
  - Urban
  - Industrial
- Flooding
- Hazardous Materials
- Landslide or Debris Flows
- Lost Persons
- Marine incident
- Motor Vehicle crashes
- Power Outages
- Rail Crashes
- Seismic Event
- Social disturbance
- Structural Collapse
- Telecommunications failure
- Terrorism
- Volcanic Ash Fallout
- Wildfires

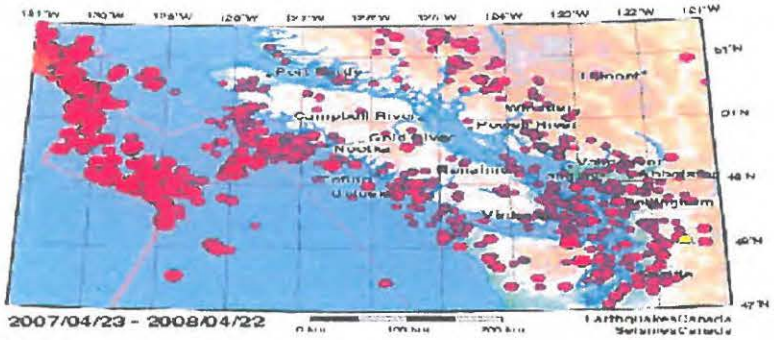
Manifest Local Threats

Getting back to Life or Business as usual.

Simple subjective numeric risk calculations

Consequence

- 4 Catastrophic
- 3 Major
- 2 Serious
- 1 Minor



Earthquake 4 x 2 = 8

Probability

- 4 Certain
- 3 Probable
- 2 Possible
- 1 Unlikely

Hazmat 3 x 3 = 9

Simple subjective numeric risk calculations for ***dams***

Consequence

- 4 Catastrophic
- 3 Major
- 2 Serious
- ***1 Minor***

Q 1000 yr 1 x 1 = 1

Probability

- 4 Certain
- 3 Probable
- ***2 Possible*** worst
- ***1 Unlikely***

at worst 1 x 2 = 2

Risk Assessment - WTSHTF

- Aircraft Crash
- Atmospheric Hazards
- **Dam Failure**
- Disease and Epidemics
- Drought
- Explosion
- Fire
  - Urban
  - Industrial
- Flooding
- Hazardous Materials
- Landslide or Debris Flows
- Lost Persons
- Marine incident
- Motor Vehicle crashes
- Power Outages
- Rail Crashes
- **Seismic Event**
- Social disturbance
- Structural Collapse
- Telecommunications failure
- Terrorism
- Volcanic Ash Fallout
- Wildfires

Getting back to Life or Business as usual!

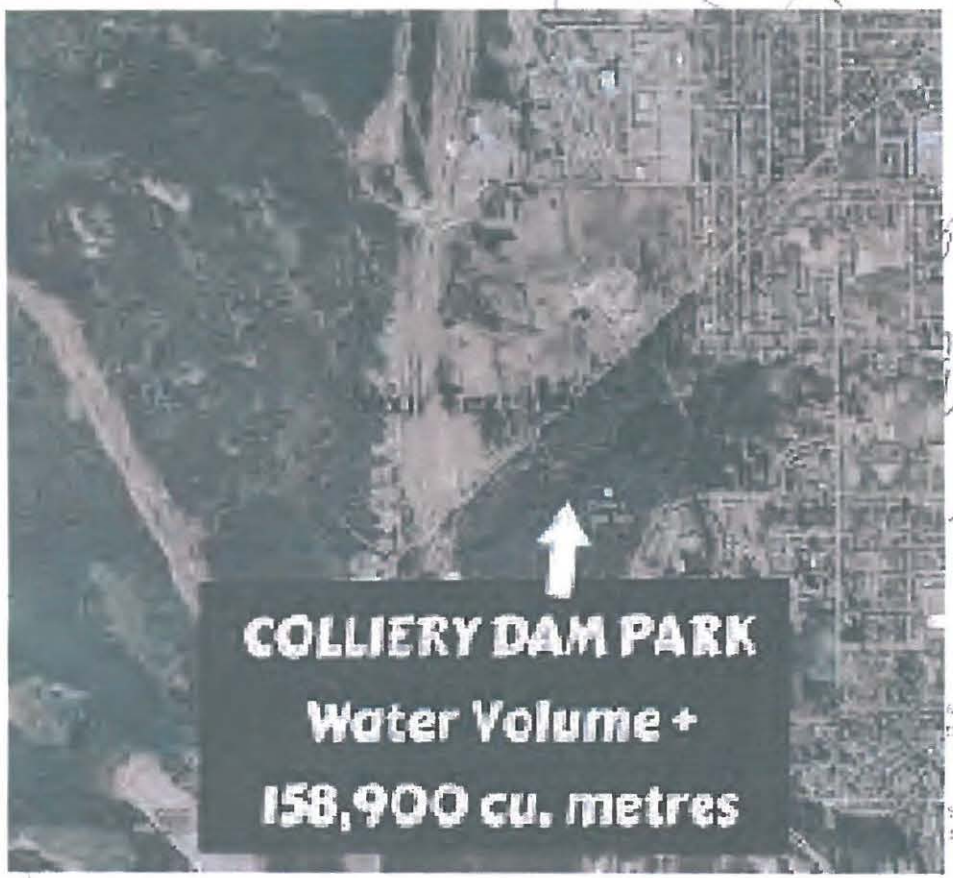
RISK IS ACCEPTABLE

- Under this BC regulation, emergency plans prepared by local authorities must reflect an:

...assessment of the relative risk of occurrence and the potential impact on people and property of emergencies or disasters...

- Identify threats
- To Provide framework for identifying and managing risks.
- Identify risks associated with a particular course of actions designed to deliver a particular outcome.
- Once identified those risks are managed to limit the potential of adverse results and achieve the desired outcomes.
- Risk management is a cyclical process.

Chase river water shed



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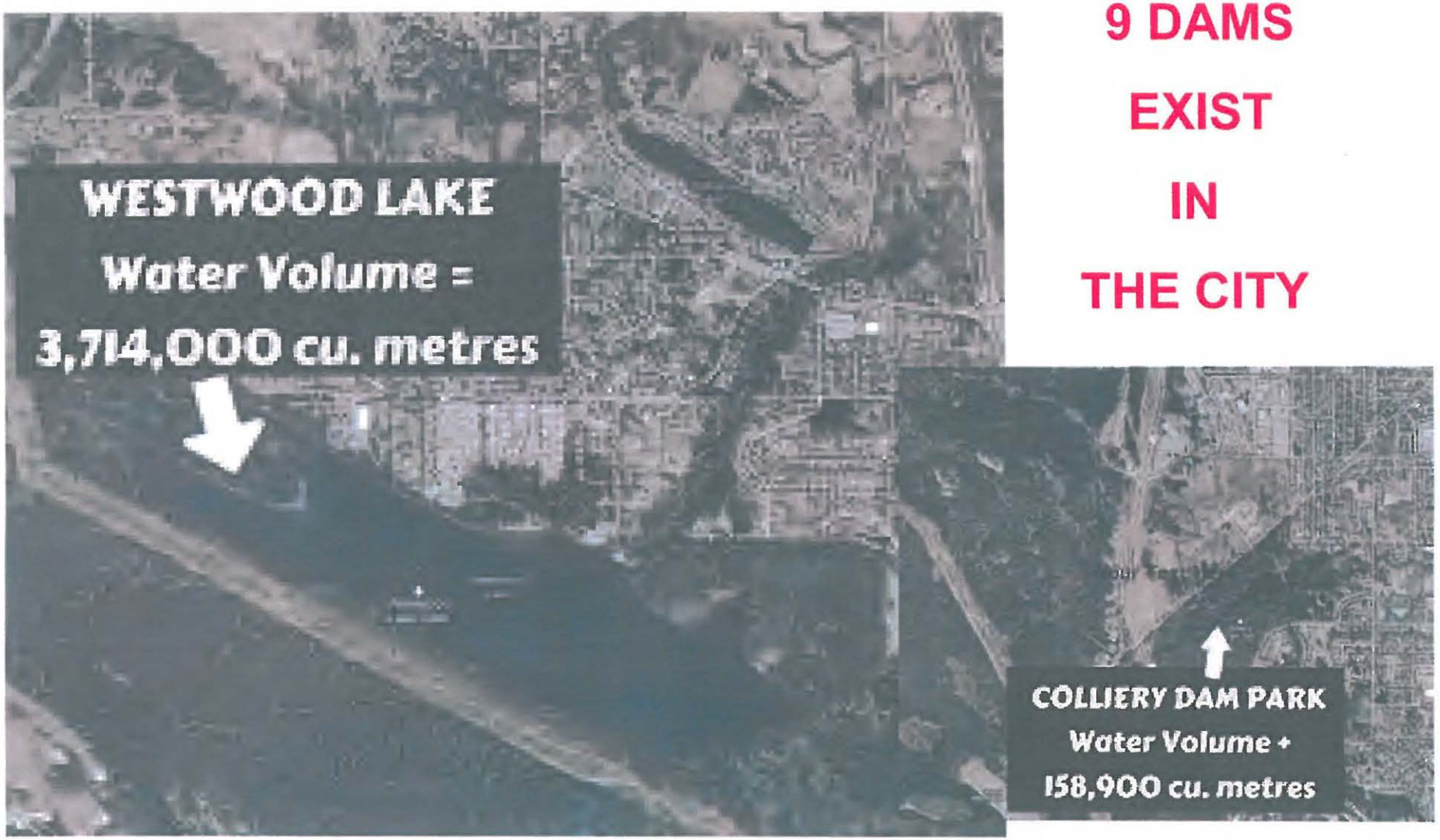
REMINDER OF WESTWOOD LAKE, COLLIERY DAM



9 DAMS EXIST IN THE CITY

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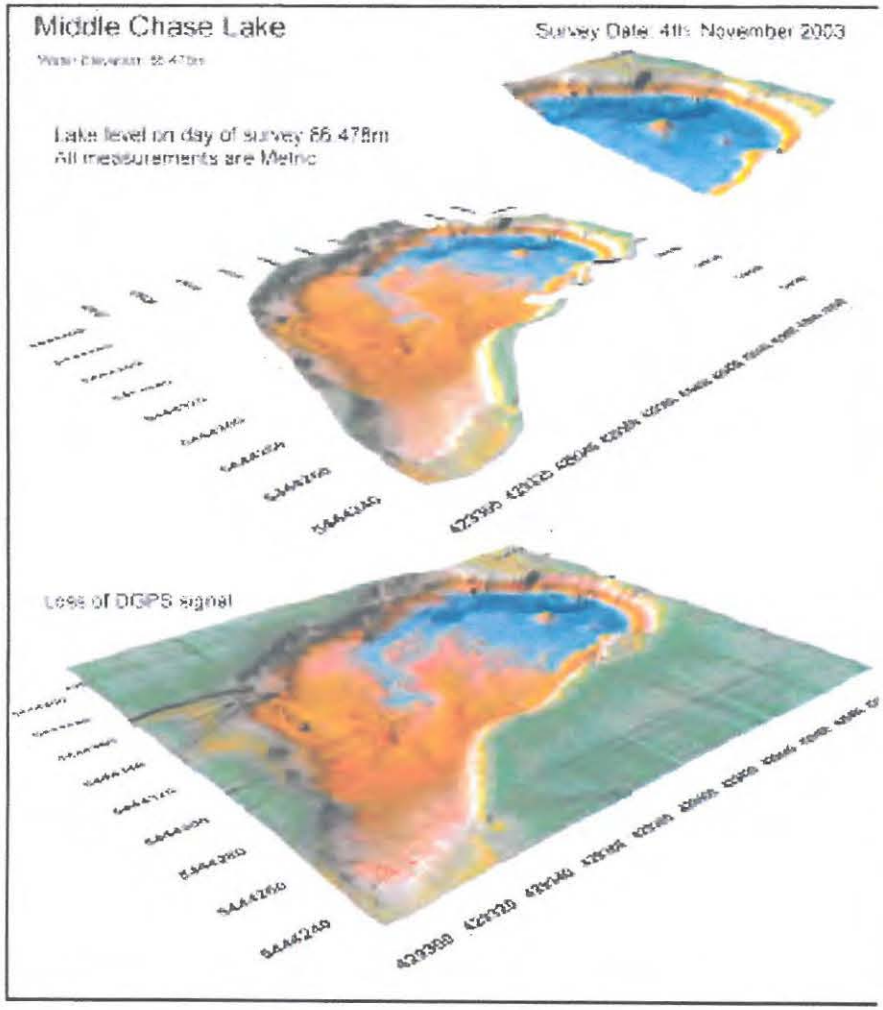
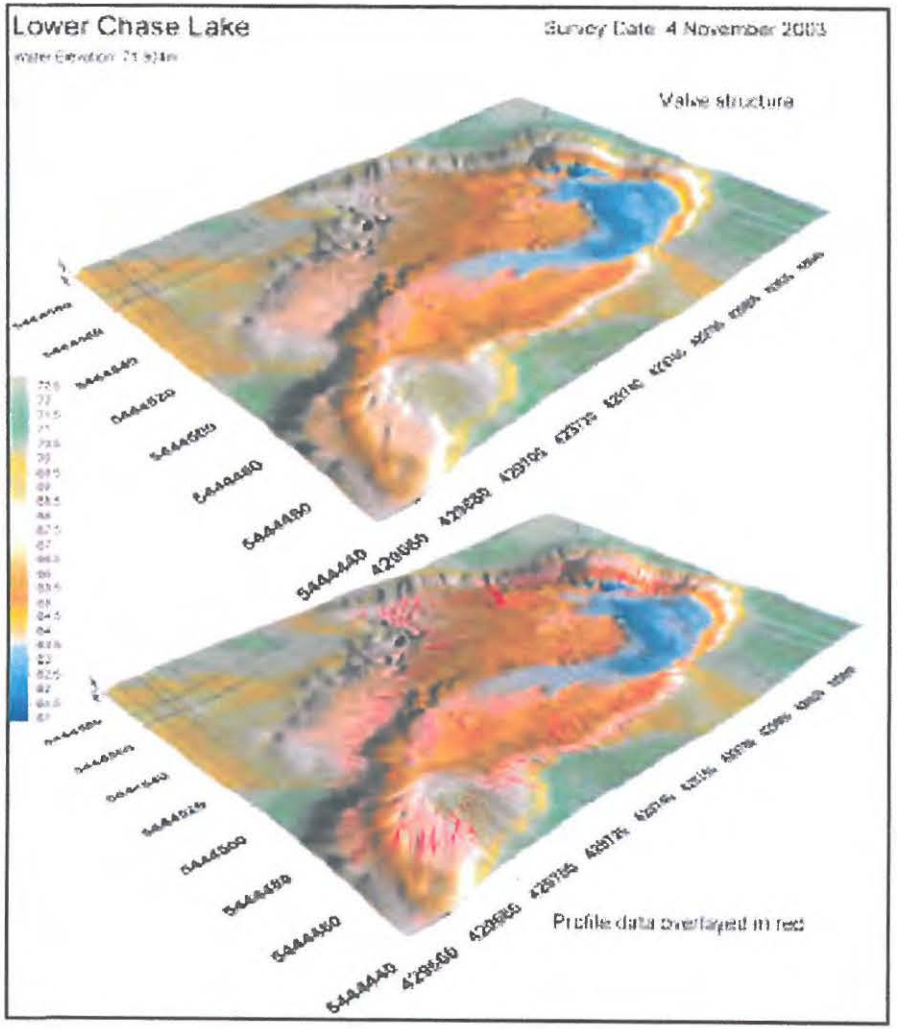
Watershed catchments the ponds

Westwood, Middle and Lower Chase Lakes Profiling Sonar Bathymetry PO = 2150



Westwood, Middle and Lower Chase Lakes Profiling Sonar Bathymetry PO = 2150



7 Principles of Risk Management

1. Global perspective
2. Forward-looking view
3. Open communication
4. Integrated management
5. Continuous process
6. Shared product vision
7. Teamwork

ASK YOURSELF IF A FEW PRINCIPALS GOT MISSED IN THE PROCESS??

DO THE LEAST INTRUSIVE

CULTURALLY SIGNIFICANT TREES AND AREA…

SPILLWAYN PLAN MILLIONS OF $'S PLUS VERY INTRUSIVE

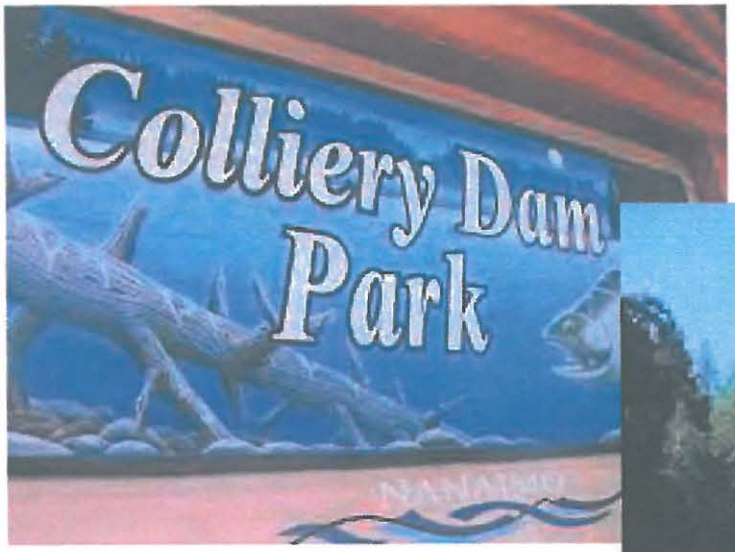
LABERINTH ESTIMATE TO START AT $ 8 MILLION

AND LOWER THE LEVEL OF THE LAKE 15 M

50

THAT'S THE HISTORY

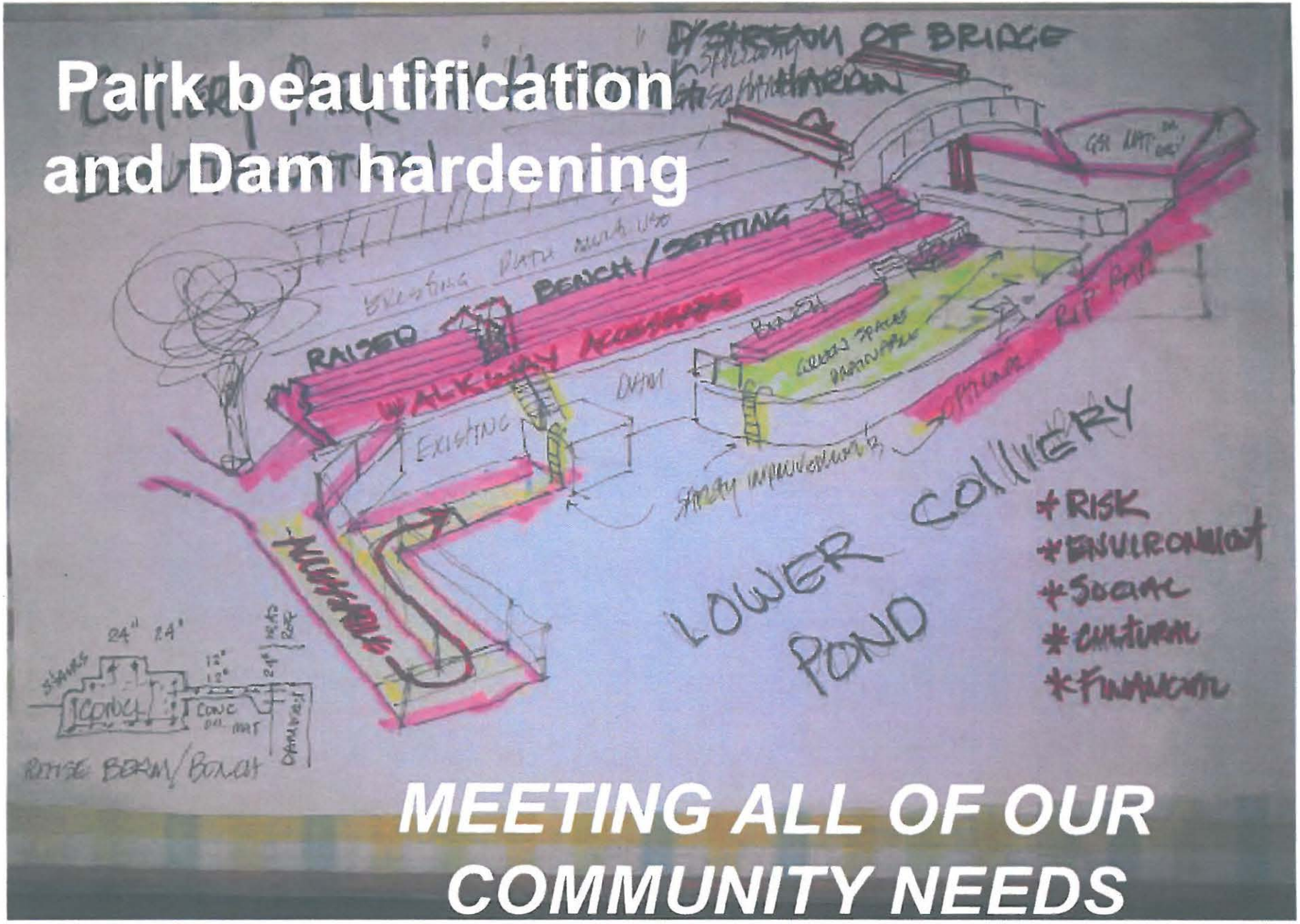
NOW THE FUTURE



MANAGE THE OVERTOPPING???

BY MASSIVE EXCAVATION AND WIDENED SPILLWAY?

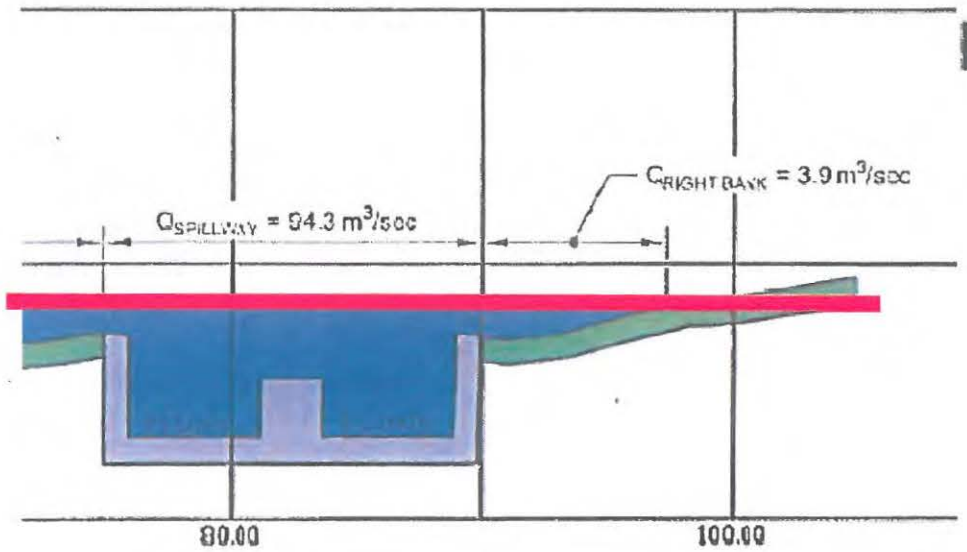
Park beautification and Dam hardening



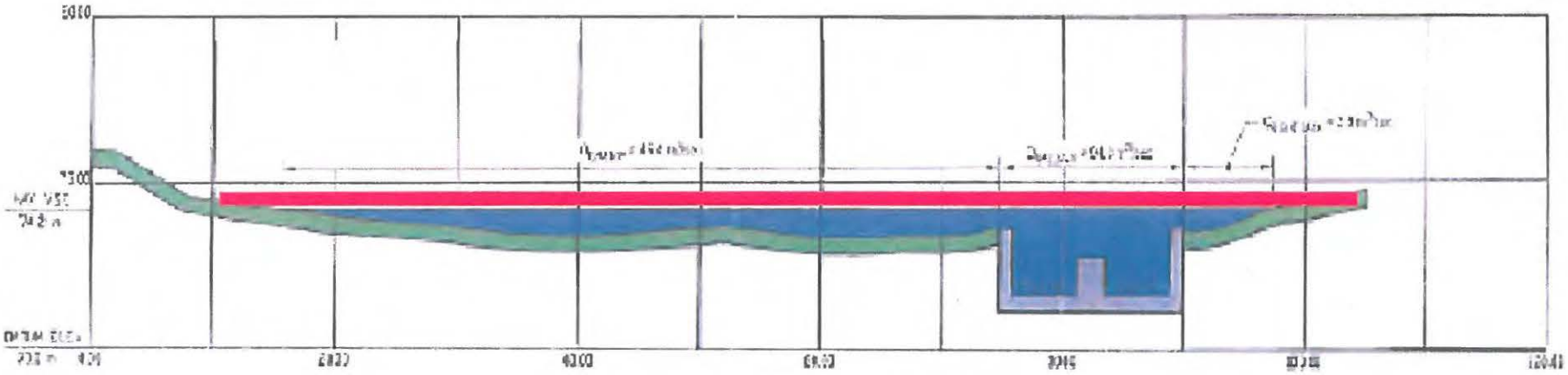
MEETING ALL OF OUR COMMUNITY NEEDS

LOWER COLLIERY DAM OVERTOPPING

$Q_{1000\text{-YR}}$ + 2/3 PMP

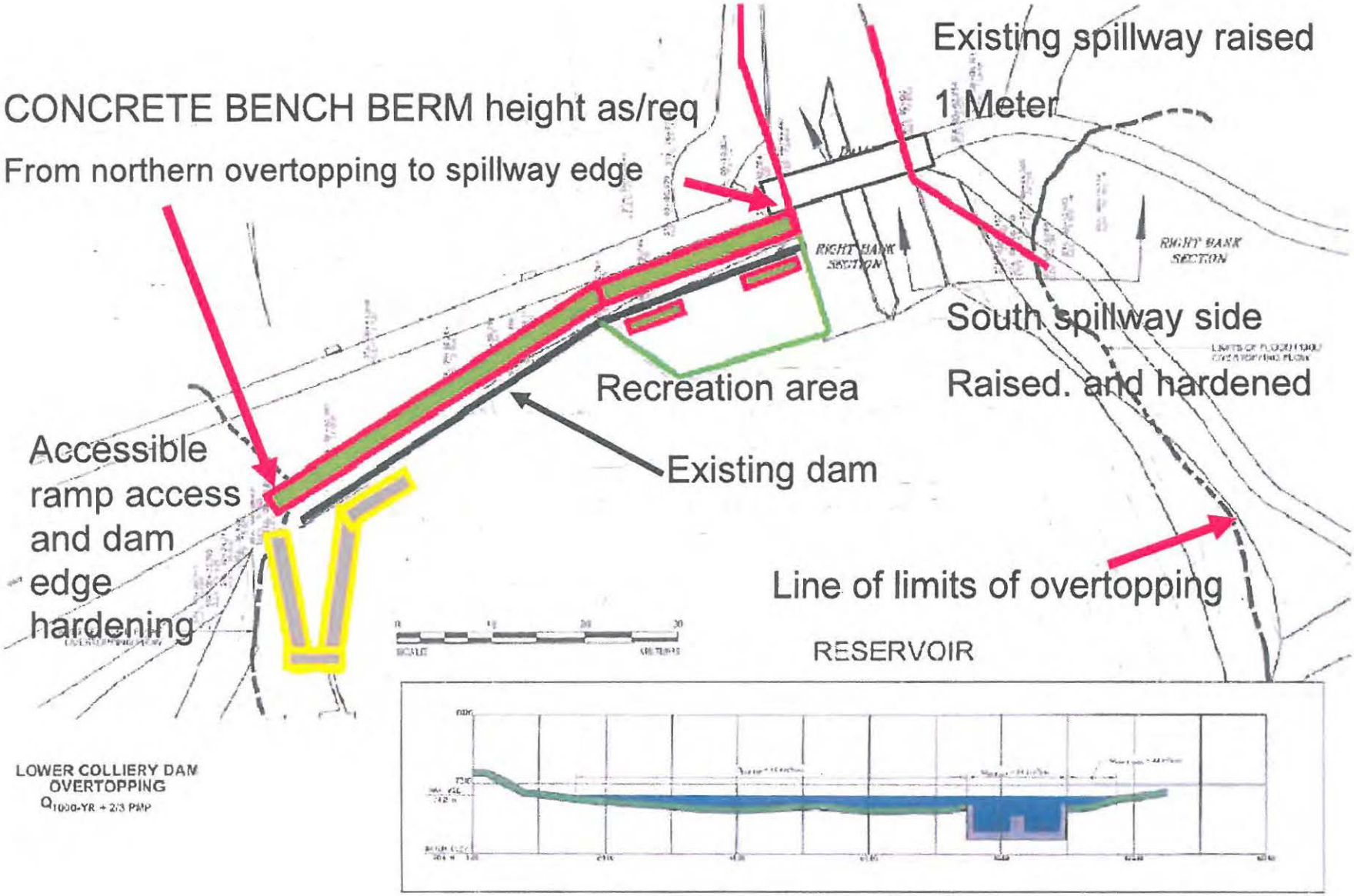


BASICALLY RAISE THE DAM MAX. HEIGHT 1 M.



Q1000 AS ACCEPTABLE COMMUNITY RISK

Hardening. Stabilization and Beautification



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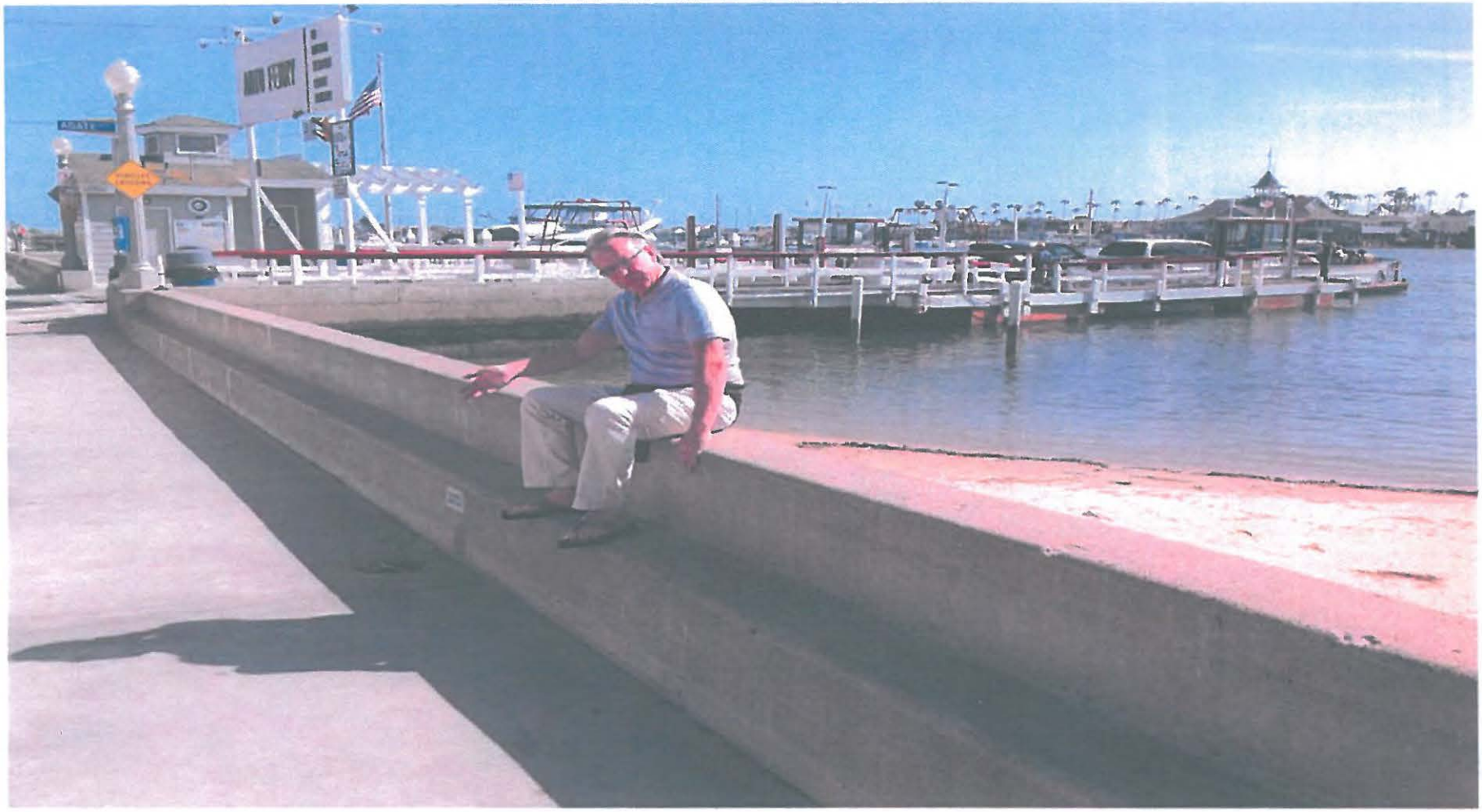
DAM BENCH/BERM SPILLWAY ENHANCMENT



Example of bench Berm in California for flooding from global warming.

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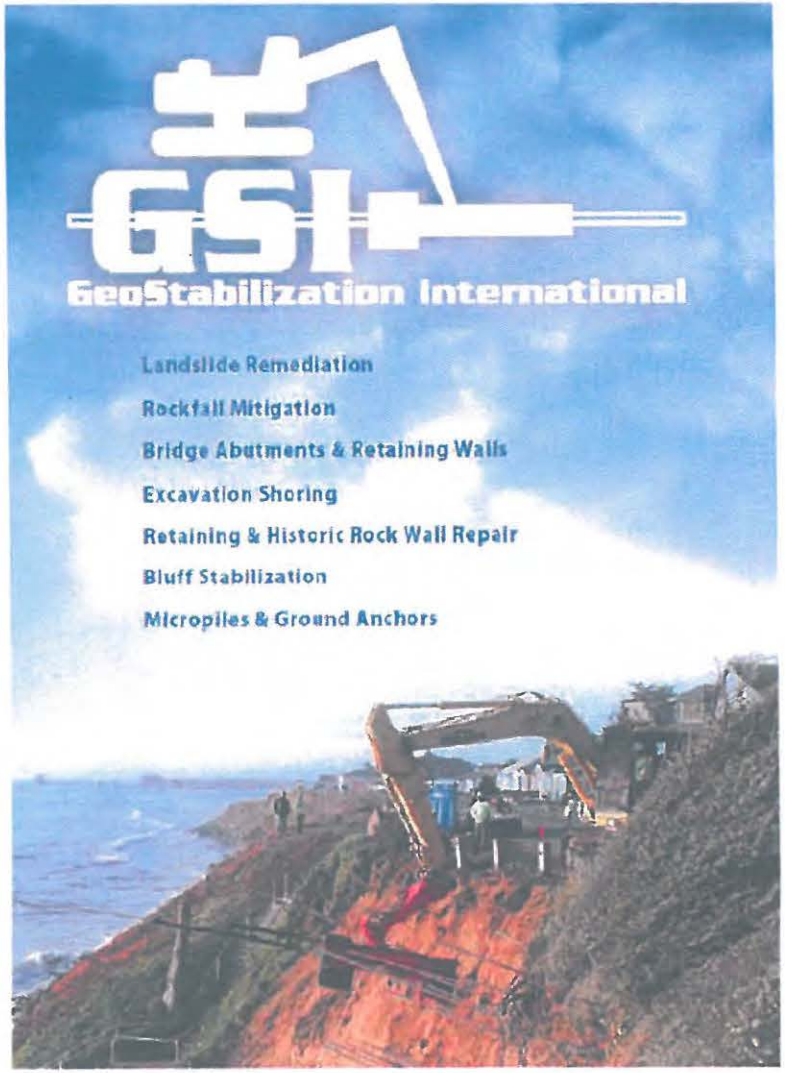
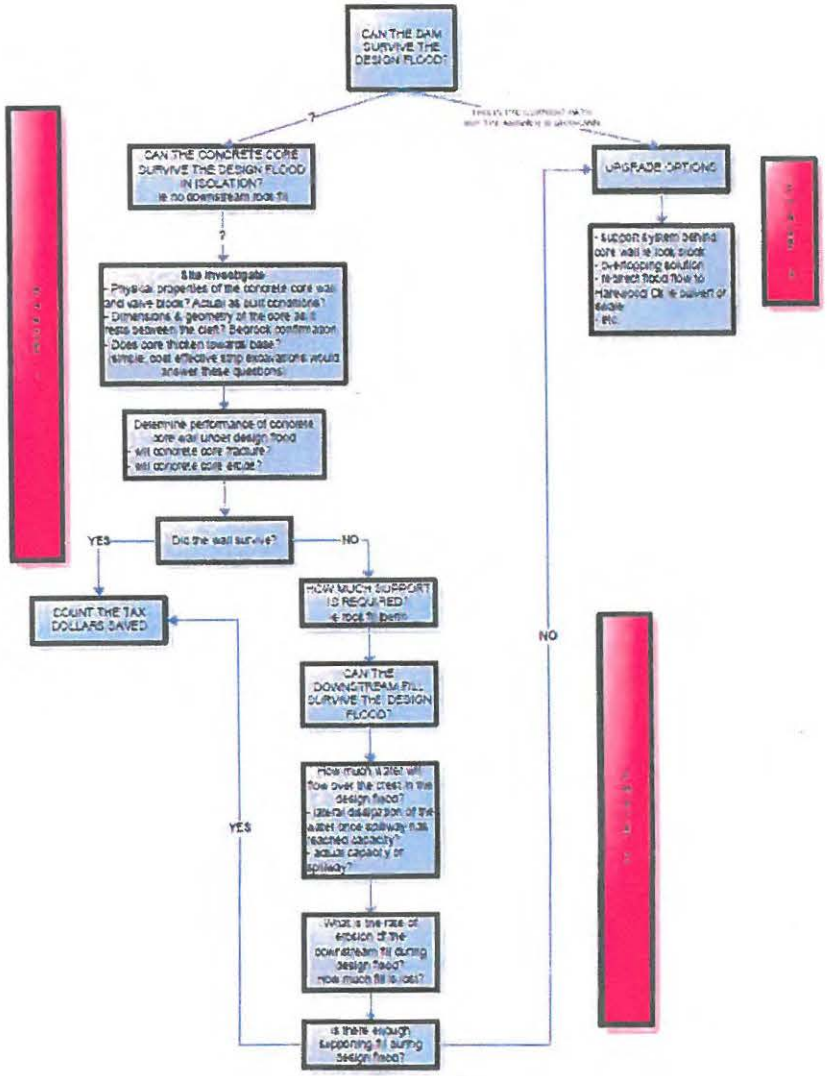
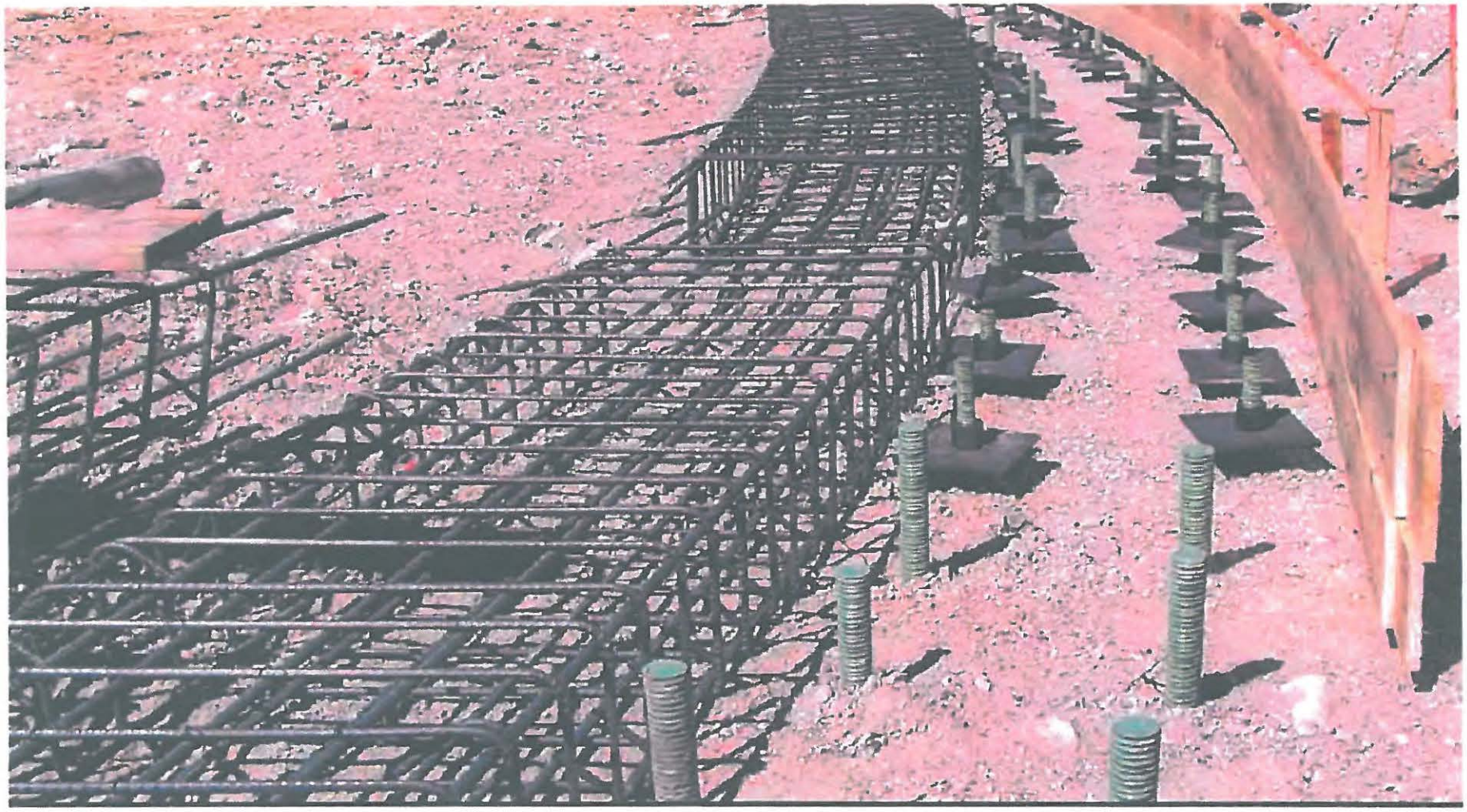




GeoStabilization to manage the risk

OVERTOPPING RISK MANAGED



GSI ANCHORING OF THE BERM BENCH

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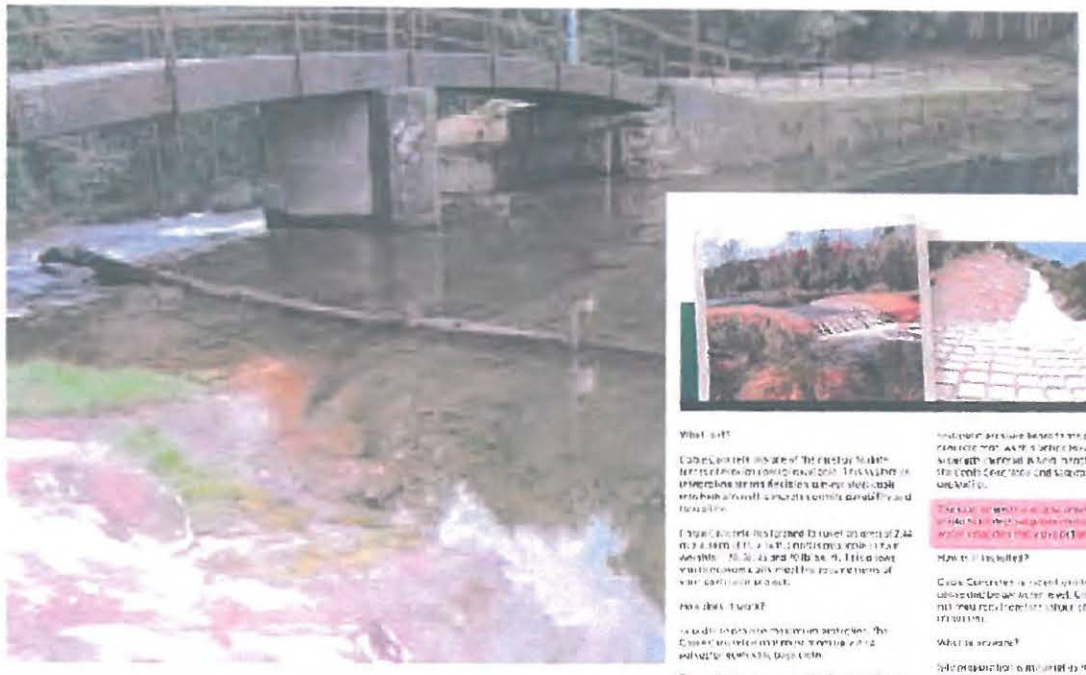
GEOSTABILIZATION FOR THE MIDDLE DAM

GEOSTABILIZATION FOR THE MIDDLE DAM



Addressing the overtopping failure

MIDDLE DAM AND DOWNSTREAM MITIGATION

Landslide Repair

Launched Soil Nail arrays can stop movement in shallow landslides—without excavation, drill cuttings or fluids, or significant site disturbance—and require only one lane of traffic closure during working hours. That translates to decreased environmental impact, a much reduced carbon footprint and significant project time and cost savings compared with more traditional repair techniques. GSI® can typically provide design-build-warranty landslide repairs. That means that GSI® engineers or technicians will provide a no-cost consultation visit to any landslide.

After surveying the site and gathering data, a design and guaranteed fixed-cost proposal will be submitted to the client. In emergency situations, we routinely have crews installing nails three days or fewer after a failure and often have the road open to traffic within the week. With over 1000 landslides repaired to date, no other company has the experience, tools, rapid response time or guarantee of GSI®.

GSI® engineers use the most cutting edge limit equilibrium and finite element analysis programs to evaluate slope stability. The models are powerful tools, but only when coupled with proper input data and the experience and intuition to understand the results. At any given time, our team is involved in several research projects sponsored by the company or by public entities. That translates into the newest methods and technologies going from concept to verification to implementation with no delays and with significant cost and time savings to our clients.

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HISTORIC AND CULTURAL VALUES

Historic Rock Wall Repair

GSI® has an impressive resume of historic rock wall preservation projects. Working in conjunction with roadway owners and local historical societies, our team of design engineers, operators and skilled masons can repair and restore even the most deteriorated of structures.

If the facing is mostly intact, an array of SuperNails® can provide reinforcement for the structure. If the wall has deteriorated badly, a combination of permanent stabilization and skilled re-stacking of the salvaged stone can return the wall to its original appearance. GSI® employs masons who can emulate a wide variety of stacking patterns.

18th Century Rubble Wall Repair, Princeton, NJ

GSI financial proposal

Collieries Dam Overtopping Erosion Protection proposal

Based off all that we have been privy to and our extensive experience, our preliminary fee estimates indicate we can complete all the necessary works to protect

BOTH the Lower and the Middle dams from the catastrophic overtopping failure **for $3 Million or less.**
this fee would include:

- All engineering and sign off, based off the Golder flood flow calculations, and other engineering completed to date.
- Supply and installation of the matts, anchors and landscape works required to complete the works

This total project cost projection indicates a SAVINGS of:

- **$5.1+ Million savings,** as compared to the Proposed Spillway option, for Lower Dam only,
- **$4.2+ Million savings**, as compared to the Alternative Overtopping Option, for Lower Dam only.

As mentioned before, GSI fee estimates are an all inclusive cost for the project as a whole and due to extraordinary efficiencies found within our project delivery model this 50% cost saving are our norm and not unexpected.

If the City was to give us confirmation that they would entertain our proposal, we would be most pleased to:

- complete the final design and fee estimate; pro bono,
- Present the proposal to the City in a document format,
- and present our proposal in a live presentation meeting.

Thank you kindly for your consideration.
Sincerely,
Peter Bullock, P.Eng., M.Eng. Principal Engineer

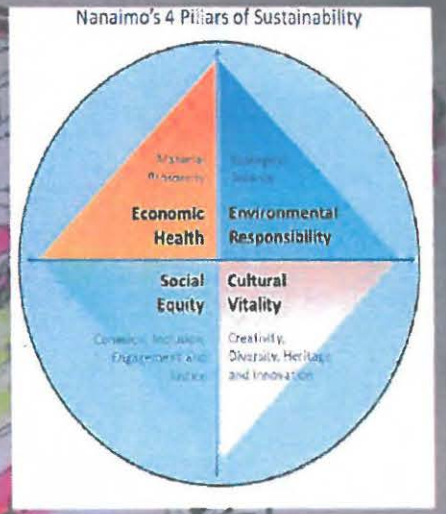
RISK, MANAGEMENT OF OVERTOPPING

ENVIRONMENT, LIMITED INSTREAM WORK

SOCIAL, PARK ENHANCEMENTS AND SAFETY

CULTURAL, HISTORIC VALUES PROTECTED

FINANCIAL, LEAST INTRUSIVE AND ECONOMICAL



MEETING ALL OF OUR COMMUNITY PILLARS

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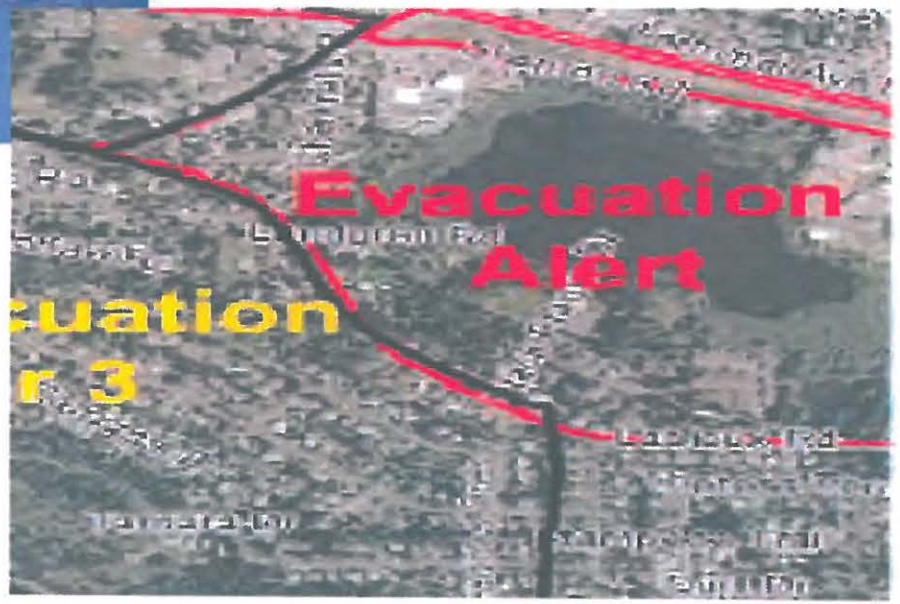
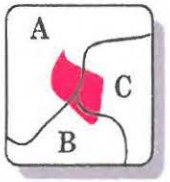
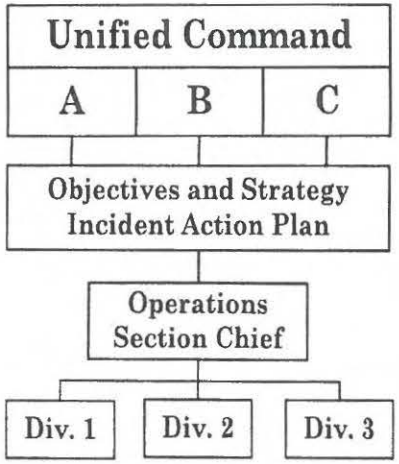
Evacuation planning mapping, response and recovery





Hazardous Materials Incident



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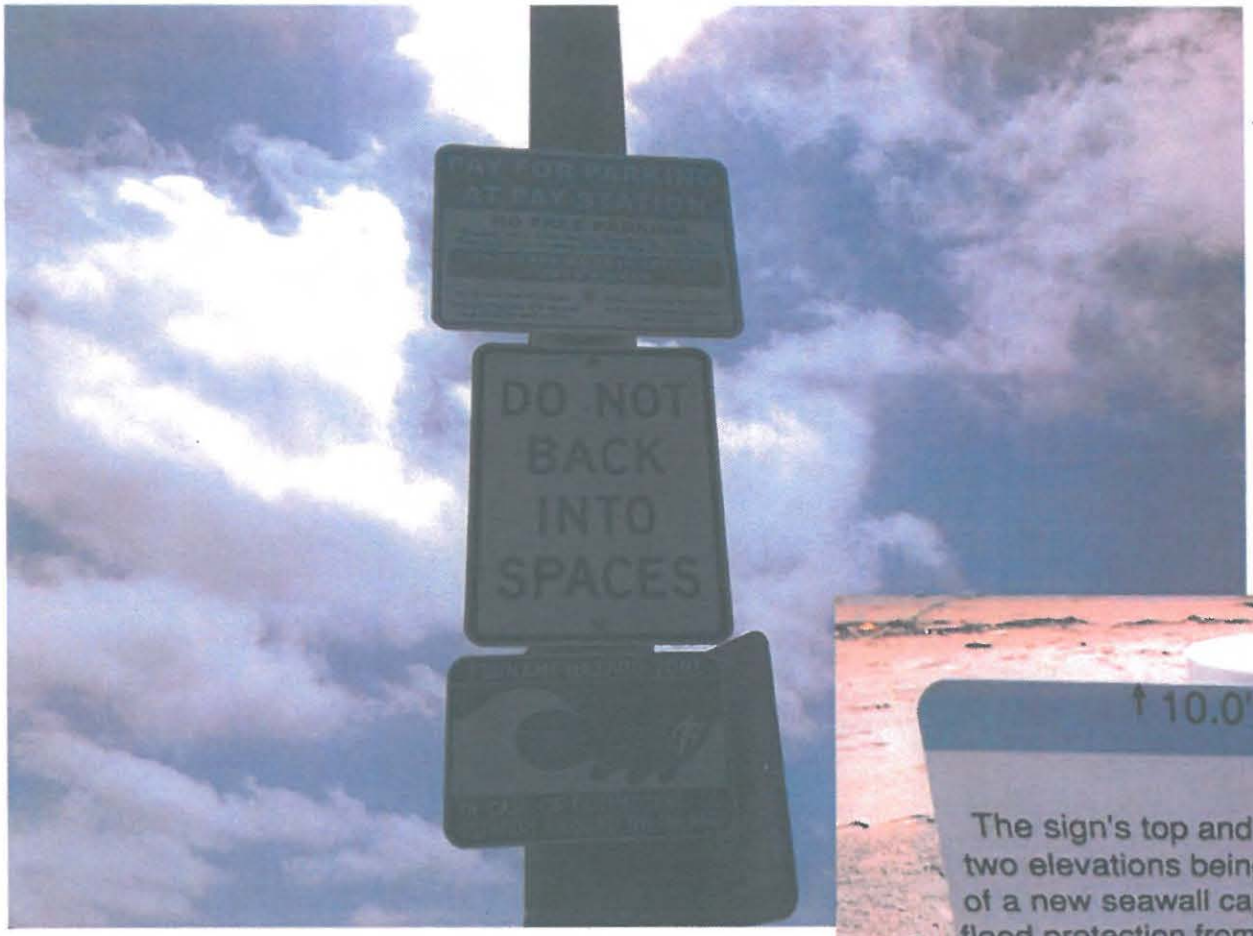
SIGNAGE AND NOTICES



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MANAGE THE RISK

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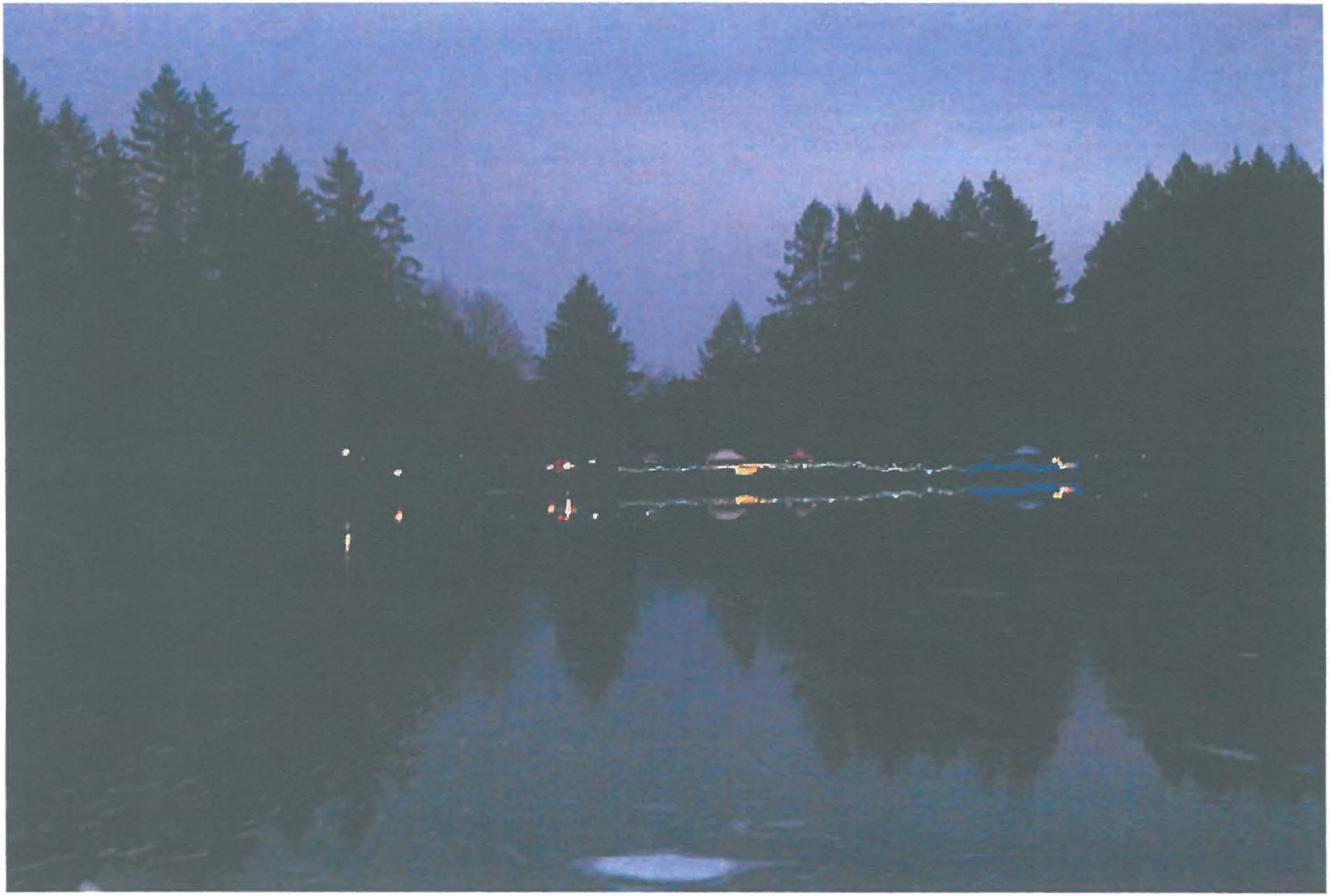
SAFETY FOR SOCIAL EVENTS



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PROTECT THE HISTORY

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Protect the Social Equity

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Societal norms of acceptable risk

Table 6-1 CDA Dam Safety Guidelines 2007

Table 6-1: Suggested Design Flood and Earthquake Levels (for Use in Deterministic Assessments)

Dam class [note 1]	AEP	
	IDF [note 2]	EDGM [note 3]

[illegible] 1/3 between 1/1000 year and PMF" has no defined AEP.

Note 6. The EDGM value must be justified to demonstrate conformance to societal norms of acceptable risk. Justification can be provided with the help of failure modes analysis focused on the particular modes that can contribute to failure initiated by a seismic event. If the justification cannot be provided, the EDGM should be 1/10,000.

Note 3. AEP levels for EDGM are to be used for mean rather than median estimates of the hazard.

Note 4. Selected on the basis of incremental flood analysis, exposure, and consequences of failure.

Note 5. PMF has no associated AEP. The flood defined as "1/3 between 1/1000 year and PMF" or "2/3 between 1/1000 year and PMF" has no defined AEP.

Note 6. The EDGM value must be justified to demonstrate conformance to societal norms of acceptable risk. Justification can be provided with the help of failure modes analysis focused on the particular modes that can contribute to failure initiated by a seismic event. If the justification cannot be provided, the EDGM should be 1/10,000.

Societal norms of acceptable risk

The overall dam safety framework should ensure that no individuals or communities are unduly affected in the interest of the broader societal interests. On the other hand, society does not have infinite resources to spend on managing risks and often the resource spent inefficiently in one area is the same resource that is missing in another area where investment could be more beneficial. Effective application of the balanced equity-efficiency approach requires acknowledgment that both economic efficiency and social equity are legitimate goals that society wants to pursue.

- ***Individual risk*** relates to concerns of how individuals see the risk from a particular hazard affecting them and their property. It is usually defined as the risk to a hypothetical member of the public living in the zone that can be affected in the event that a hazard occurs. The criteria for individual risk depend on such factors as whether or not the exposure is voluntary, whether the individual derives benefit from accepting the risk, whether the individual has some control over the risk, and whether the risk engenders particular dread.
- ***Societal risk*** generally refers to hazards that, if realized, could impact society and thus cause socio-political response. Societal risk may be seen as a relationship between the frequency of a particular hazard and the number of casualties if the hazard is realized. In applications dealing with hazards from engineered installations where the predominant issue is life safety, societal risk is characterized by graphs showing frequency of events that could cause multiple fatalities.

An action to reduce the risk is clearly necessary if the risk is not acceptable. The ALARP principle is based on the duty to reduce risks to life to the point where further risk reduction is impracticable or requires action that is grossly disproportionate in time, trouble, and effort to the reduction of risk achieved.

ACCEPTABLE CONSEQUENCES

Table 6-1B: Flood and Earthquake Hazards, Standards-Based Assessments

2013 Revision

(Target Levels for Initial Consideration and Consultation between Owner and Regulator)

Dam Class [note 1]	Annual Exceedance Probability – Floods [note 2]	Annual Exceedance Probability - Earthquakes [note 3]
Low	1/100	1/100
Significant	Between 1/100 and 1/1000 [note 4]	Between 1/100 and 1/1000
High	1/3 between 1/1000 and PMF [note 5]	1/2475 [note 6]
Very High	2/3 between 1/1000 and PMF [note 5]	1/2 between 1/2475 [note 6] and 1/10,000 or MCE [note 5]
Extreme	PMF [note 5]	1/10,000 or MCE [note 5]

This table addresses two major natural hazards only, and does not consider the many other types of hazard that must be considered in dam safety assessments.

Acronyms: PMF, probable maximum flood; AEP, annual exceedance probability; MCE, maximum credible earthquake

Note 1. As defined in Table 2-1, Dam Classification (Section 2.5.4)

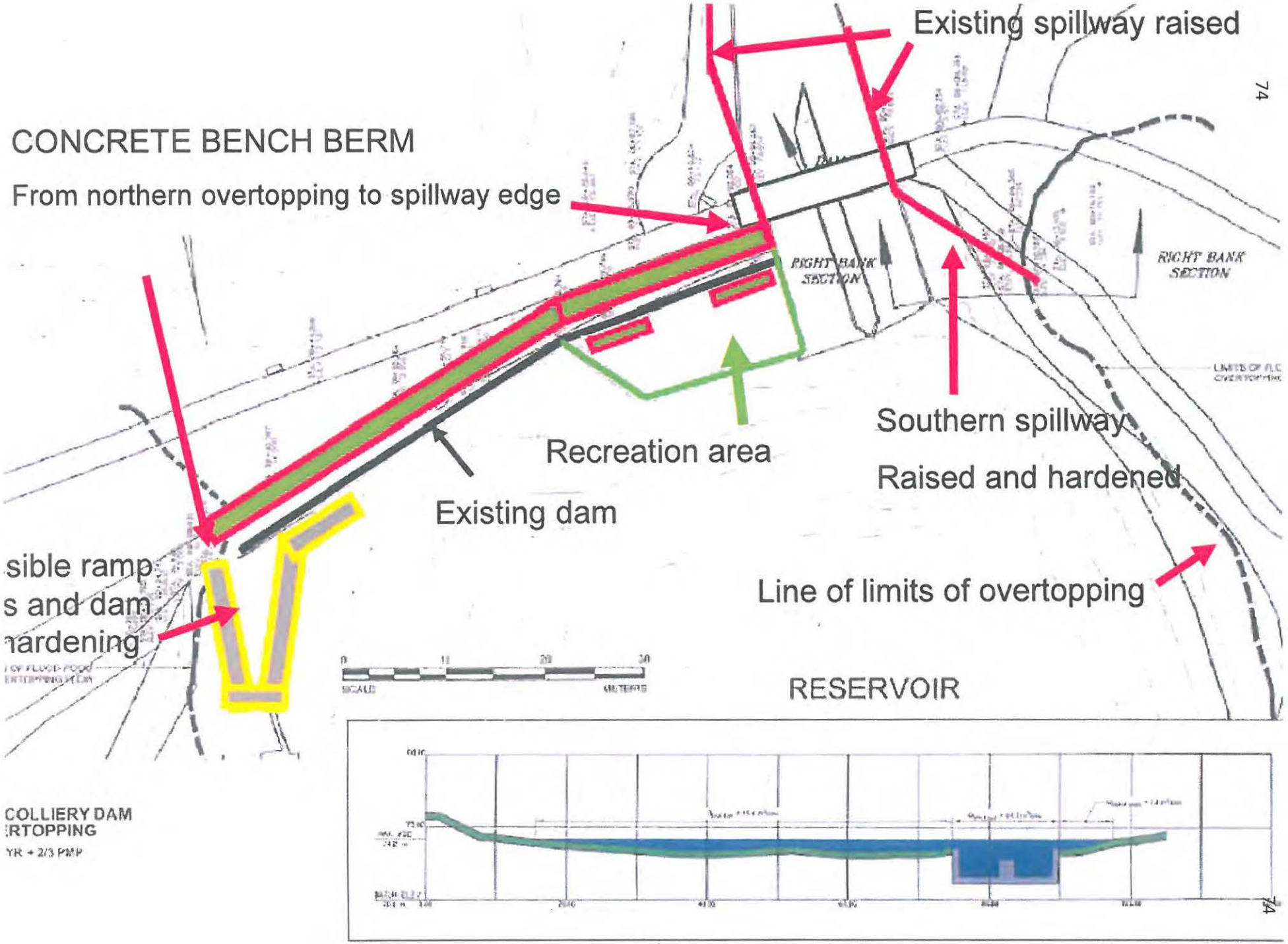
Note 2. Simple extrapolation of flood statistics beyond 10^{-3} AEP is not acceptable.

Note 3. Mean values of the estimated range in AEP levels for earthquakes should be used. The earthquake(s) with the AEP as defined in Table 6-1B is then input as the contributory earthquake(s) to develop the Earthquake Design Ground Motion (EDGM) parameters as described in Section 6.5 of these guidelines.

Note 4. Selected on basis of incremental flood analysis, exposure, and consequences of failure

Note 5. PMF and MCE have no associated AEP.

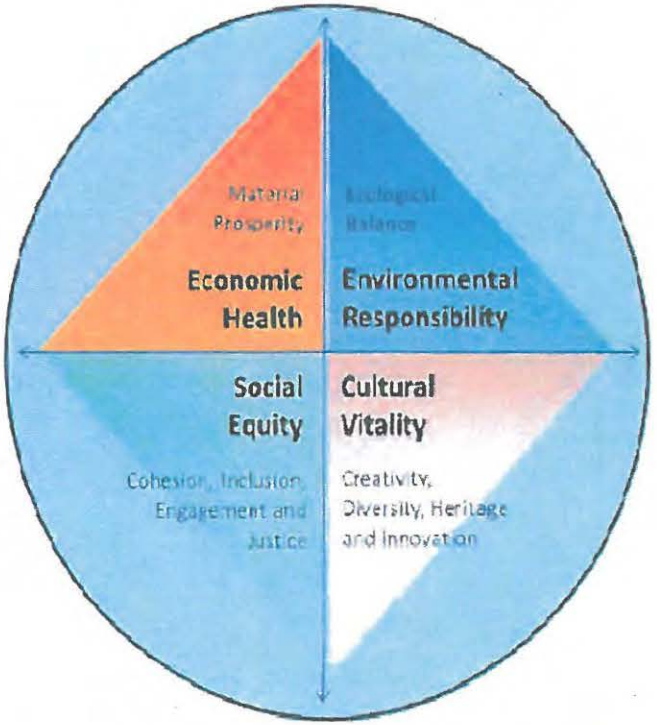
Note 6. This level has been selected for consistency with seismic design levels given in the National Building Code of Canada.


Existing spillway raised
CONCRETE BENCH BERM
From northern overtopping to spillway edge
RIGHT BANK SECTION
RIGHT BANK SECTION
Recreation area
Existing dam
Southern spillway
Raised and hardened
sible ramp
s and dam
ardening
Line of limits of overtopping
RESERVOIR
COLLIERY DAM
RTOPPING
YR + 2/3 PMP
74
74

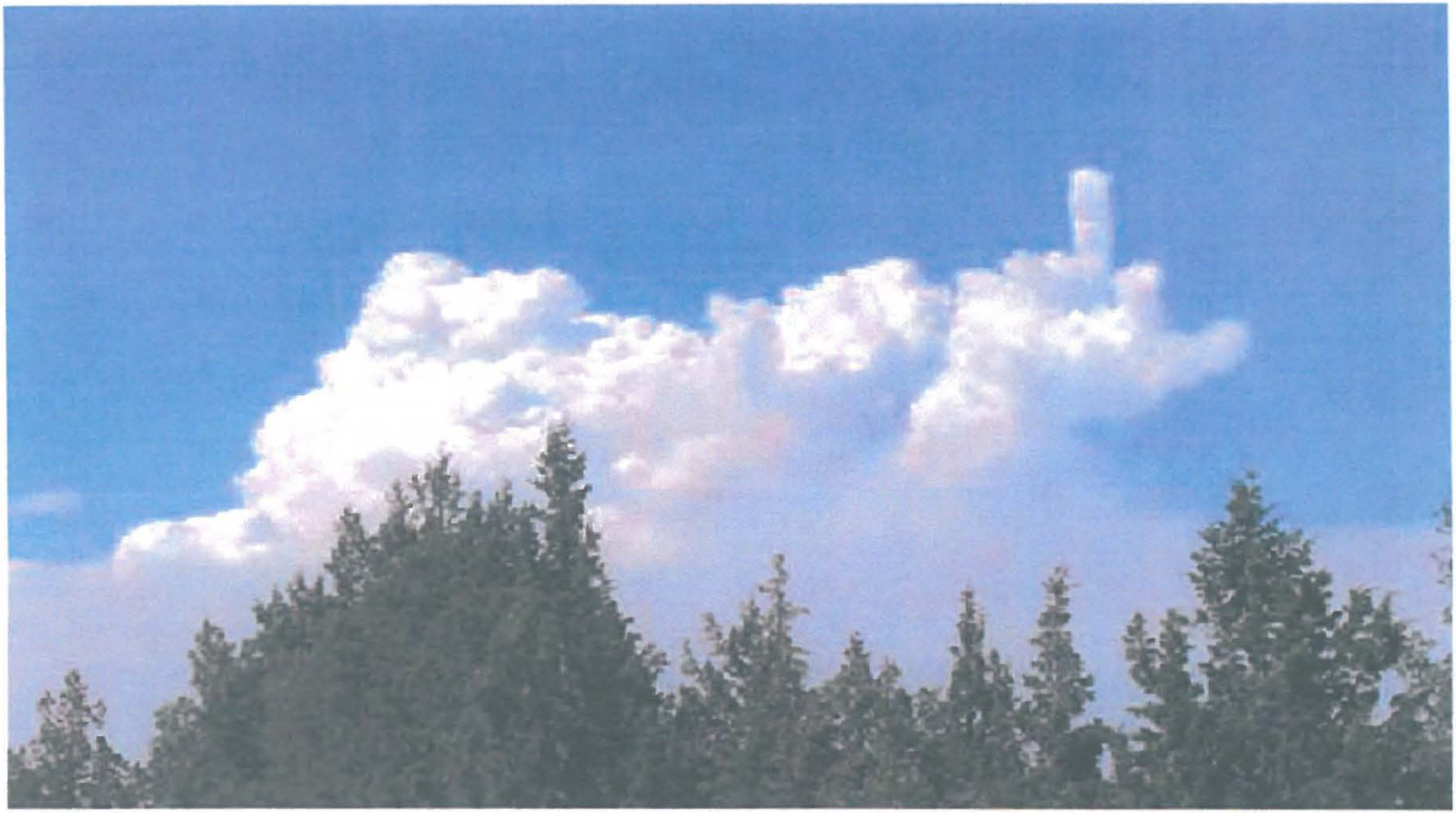
Do the right thing – meet the greater needs

- ***Risk by management of overtopping***
- ***Environment concerns with limited in stream work***
- ***Social equity, park enhancements and public safety***
- ***Cultural, Historic values protected***
- ***Financially MOST economical AND***
- ***Least intrusive***

Nanaimo's 4 Pillars of Sustainability



And You Know it's Bad Storm Coming When…….



Pleased to take any questions

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Nanaimo Daily News. HARBOUR CITY STAR

Councillor ready to take part in 'civil disobedience'

Gord Fuller would join Colliery dams protests

Spencer Anderson / Daily News
May 13, 2015 12:00 AM

This is Exhibit "B" referred to in the affidavit of JIM KIPP sworn before me at Nanaimo in the Province of British Columbia this 27 day of May A.D., 2015

A Commissioner for taking Affidavits within British Columbia

Chris Jackson
Commissioner for taking
Affidavits of British Columbia
455 Wallace Street
Nanaimo, BC V9R 5J6

Nanaimo Coun. Gord Fuller says he is prepared to participate in civil disobedience if a proposed 'overtopping' remediation at the lower Colliery dams is rejected. Photograph By Spencer Anderson/Daily News

Dissatisfaction with the process to address the Colliery dams issue in Nanaimo dominated debate during a committee of the whole this week, with two city councillors indicating they will a support public protest if a proposal to reinforce the embankment of the lower dam is rejected by the province or council.

Coun. Gord Fuller said Tuesday he will take part in protests at the park if city council is forced or decides to undertake more intrusive measures to address safety concerns with the dams, including forms of "civil disobedience."

Council approved a recommendation from staff to directly award construction and design work to reinforce the embankment of the lower dam to Geo-Stabilization International, a firm that specializes in erosion control.

GSI has proposed using a grid system of metal anchors and concrete to protect the embankment of the dam from eroding in a flood scenario, a method referred to as overtopping.

City staff have repeatedly said they have been told by engineers that additional work to raise the spillway of the dam would also be required for the proposal to be accepted by provincial regulators, who have ordered the city to fix the lower and middle dam.

The province's dam safety section has also required the city to have an independent engineer to sign off as the overtopping method, as it has not widely been used in dam applications. Getting an independent engineer's approval is a major hurdle for the project, city staff have said, and is far from certain.

City council voted in late April to authorize up to $400,000 in spending to retain GSI, as well as the city's consultant Golder Associates and a third consultant, Herold Engineering, to prepare to complete design work that will ultimately need to be approved by the province.

The city successfully sought an extension to a provincial order to remediate the lower dam so that it could pursue the overtopping option.

Months of engineering work have resulted in two other proposals. One is to replace the lower dam spillway with a larger 'labyrinth' design at a cost estimate of $8.1 million. The other is to build an auxiliary 'swale' spillway, estimated to cost between $3 million and $6 million.

Both methods have been approved in principle by the province, but opponents says they are costly and invasive to the park. Fuller said that if the province does not accept the GSI proposal, "it's going to come down to the labyrinth and the swale."

Referring to protests in the park, he said: "And I'll be out there with the rest of them."

Coun. Jim Kipp also alluded to disruption in the park.

"There is a fourth option on the table, and it's right in front of you right out there," Kipp said during the council meeting, looking out into the public gallery.

"That's the fourth option right there," he said. "People standing in front of machines. People having signs. People complaining that council isn't doing what they want. So don't skip the fourth option. And some of us will be around for a while to hang on to that option."

The city has until June 1 to choose a remediation option.

Spencer.Anderson@nanaimodailynews.com
250-729-4255

Nanaimo News Bulletin PRINTTHIS

GSI earns Colliery dam contract

By Nanaimo News Bulletin
Published: **May 13, 2015 08:00 PM**
Updated: **May 13, 2015 02:552 PM**

The city is prepared to sole-source the contract for Colliery dam remediation.

Nanaimo city council voted 7-2 to sole source to GeoStabilization International if it chooses to move ahead with an alternative overtopping option to address potential safety hazards at the dams.

Councillors Wendy Pratt and Diane Brennan were opposed to the move, which Brennan said provides absolutely no protection to taxpayers.

Pratt made it clear she'll vote against anything to do with GSI, frustrated with how communication has gone with a process she no longer wants to be a part of.

Councillor Thorpe said he'd normally be opposed to sole sourcing, calling it a dangerous precedent but would accept it in this case because sole sourcing is needed to meet timelines the city is under by the Dam Safety Section.

Coun. Jim Kipp said he'd support the motion with the belief GSI will stay with prices they have quoted and "will only raise them as staff adds work to their plate."

During discussion at an open meeting Monday, city manager Ted Swabey said increasing spillway height will likely be required on top of dam hardening to meet dam safety regulations and the cost will be more expensive than $2 million. A report is expected back on the GSI dam hardening option and a decision on which remediation route will be taken has to be made on June 1.

Find this article at:
http://www.nanaimobulletin.com/news/303657671.html

This is Exhibit" C "referred to in the affidavit of JIM KIPP
sworn before me at Nanaimo
in the Province of British Columbia this
27 day of May A.D., 2015

A Commissioner for taking Affidavits within British Columbia

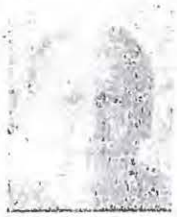
Chris Jackson
Commissioner for taking
Affidavits of British Columbia
455 Wallace Street
Nanaimo, BC V9R 5J6

2015 MAY 15

Colliery dam protests could be 'hellish mess' for council

SPENCER ANDERSON DAILY NEWS

Planning for potential protests are underway for Colliery Dam Park, with the suggestion now that more than one city councillor may be taking part should a protest happen.



FULLER

Coun. Gord Fuller, has already publicly declared he will be among protestors if council is forced or chooses to abandon a proposal to reinforce the embankment of the lower Colliery dam with steel and concrete, a method called 'overtopping.'

Overtopping is seen by some as a less-invasive, costly method to address concerns from the provincial dam safety section that the lower dam cannot adequately handle extreme floods and does not meet safety regulations.

However, an independent dam engineer needs to sign off on the proposal in order for the province to approve the method.

Two other proposals include replacing the existing spillway or building an additional, auxiliary spillway to handle water flows in a flood. Some park users and council members says those options are more costly and will significantly alter the park.

Fuller said Monday he would take part in protest or civil disobedience if either of the less-popular options were chosen.

"Hypothetically, I think I would be willing to be arrested," he said Thursday.

Nanaimo resident Dave Cutts, who is taking the lead in organizing a series of protests that may be launched to oppose work on the dams, said he is also aware of other council members who may take part in protest action. That could place the remainder of council in a tight spot if one or more of their colleagues are involved, said Cutts.

"This is just going to be a hellish mess if this can't be dealt with," he said.

However, the city is still in the process of completing design and engineering work and must choose an option to upgrade the dams by June 1.

Spencer.Anderson@nanaimodailynews.com
250-729-4253

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This is Exhibit" D "referred to in the affidavit of TIM KIPP
sworn before me at Nanaimo
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27 day of May A.D., 2015

A Commissioner for taking Affidavits within British Columbia

Chris Jackson
Commissioner for taking
Affidavits of British Columbia
455 Wallace Street
Nanaimo, BC V9R 5J6

Managing Editor: Philip Wolf 250-729-4240 PhilipWolf@nanaimodailynews.com

» *Our View*

Civil disobedience an interesting call for politicians

The passions around saving the Colliery Dams Park is understandably running high.

As council considers its options that will see them altered, either by accord with demands of the province or by council's own decision, others are also looking at their options.

There is talk, which included Coun. Gord Fuller, about civil disobedience to protect the integrity of the park.

The idea of civil disobedience is not new in this issue, and is part of the background of this ongoing controversy.

For those who don't recall, as the council of the day sought to move forward with the plan — made in camera — to get rid of the dams, talk at that time produced a second foolish move on the part of the city. They went to court seeking a "John or Jane Doe" injunction, meaning anyone who tried to hinder the work would be breaching the order and subject to arrest.

That, quite rightly, was bounced out of court since it constituted abuse of process.

As the prospect of cutting trees and altering the park is becoming a possibility, and many now are willing to contravene any legal injunction against preventing that work, the question now arises whether it is appropriate that an elected official breaks the law.

Fuller was elected in large part on a promise to protect Colliery Dams Park, and no small part of those who voted for him did so on that account. So it's understandable, and admirable, that he stands on preventing damage or alteration to the park.

But any elected official needs to think very carefully whether potentially breaking the law is consistent with the responsibilities of an elected representative, including to uphold the laws and statutes of the land. If those we elect to help make the laws, even at the local level, break them — even for what is perceived as a just cause — it raises questions.

A fundamental tenet of democracy is that we use debate and discourse in place of force to implement decisions. It's one thing for the average citizen to take a stand and engage in civil disobedience. But when someone we elect chooses disobedience over the democratic process, it is natural to ask questions.

If (and it remains only a hypothetical at this point) this happened, would it undercut someone's ability to work within the democratic framework?

Should any of them break the law, do they forsake debating from an unbiased position?

It is one thing to be adamant about protecting the park — but would taking that one step would demonstrate an unwillingness to compromise or consider any other option that may be in the interests of taxpayer?

Fuller can certainly stand by and support those who may wish to go to that length as he fulfils his campaign promises. But he was neither elected as the park protector, nor did the electorate given him that mandate, despite the amount of support he has from that constituency.

All councillors are elected to serve the entire city. They are called to look at all sides of every issue and act in the best interest of the taxpayer.

Any of them can continue to act in the interests of the park and those who want it preserved. But should they break the law, do they risk losing the ability to be an effective advocate?

We all want to see this issue settled, quickly.

But any elected official being arrested isn't a solution any of us should hope for.

» We want to hear from you. Send comments on this editorial to letters@nanaimodailynews.com.

Information about us

Nanaimo Daily News is published by Black Press Ltd., B1, 2575 McCullough Rd., Nanaimo, B.C.

This is Exhibit "2" referred to in the affidavit of JIM KIPP sworn before me at Nanaimo in the Province of British Columbia this 27 day of [illegible] A.D.

Chris Jackson
A Commissioner for taking Affidavits for British Columbia
455 Wallace Street
Nanaimo, BC V9R 5B6

MY SON'S AN