BRITISH COLUMBIA | Ministry of Water, Land and Resource Stewardship

Introduction to the BC Dam Safety Program

June 23rd, 2026

Today's DIM Course Objectives

- Overview of the BC Dam Safety Program
- Overview of the BC Dam Safety Regulation
- Overview of Earthen Dams
- Tools and Resources available through BC Dam Safety

Acknowledgements

- British Columbia Small Water Systems Online Help Centre

- In no way does the completion of this course or viewing the content presented, provide all the necessary skills or knowledge criteria required to properly inspect and maintain a dam to reasonably safe standards.

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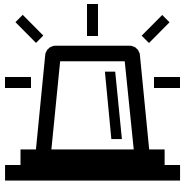
Overview of the BC Dam Safety Program

Involvement and Responsibility

Dam Owner

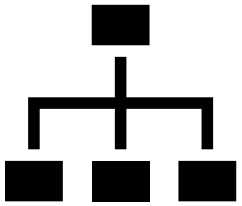


Emergency Management & Climate Readiness

Regulators

Local Emergency Authorities

BC Dam Safety Program



- Follows 4 pillars of dam owner compliance:
  - ✓Education & Awareness
  - ✓Prevention
  - ✓Compliance and Enforcement
  - ✓Emergency Preparedness and Response
- An authority of approval for various dam review procedures
- Works with EMCR and local governments for emergency response planning

BC Dam Safety Program – the team

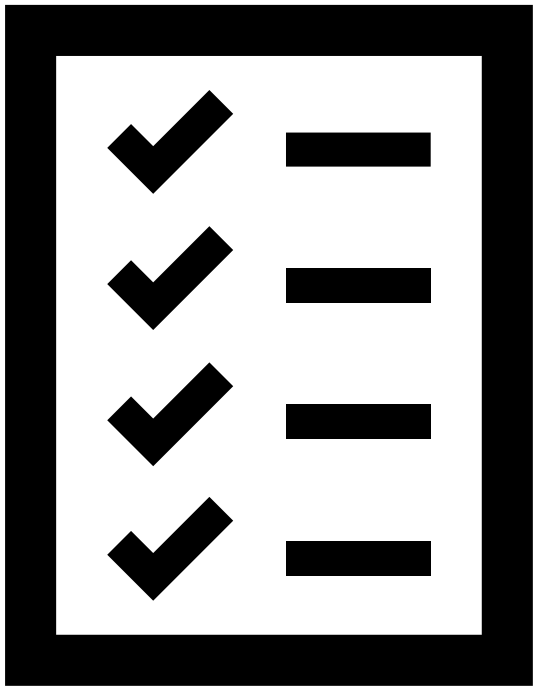
BC Dam Safety team members
Water Comptroller
Head of Dam Safety
Dam Safety Officers
• Various engineering backgrounds
Safety Specialist
Data & Geometrics Specialist
Compliance Specialist
Training Coordinator

Dam.safety@gov.bc.ca

BC Dam Safety Program- Audits

An Audit is conducted:

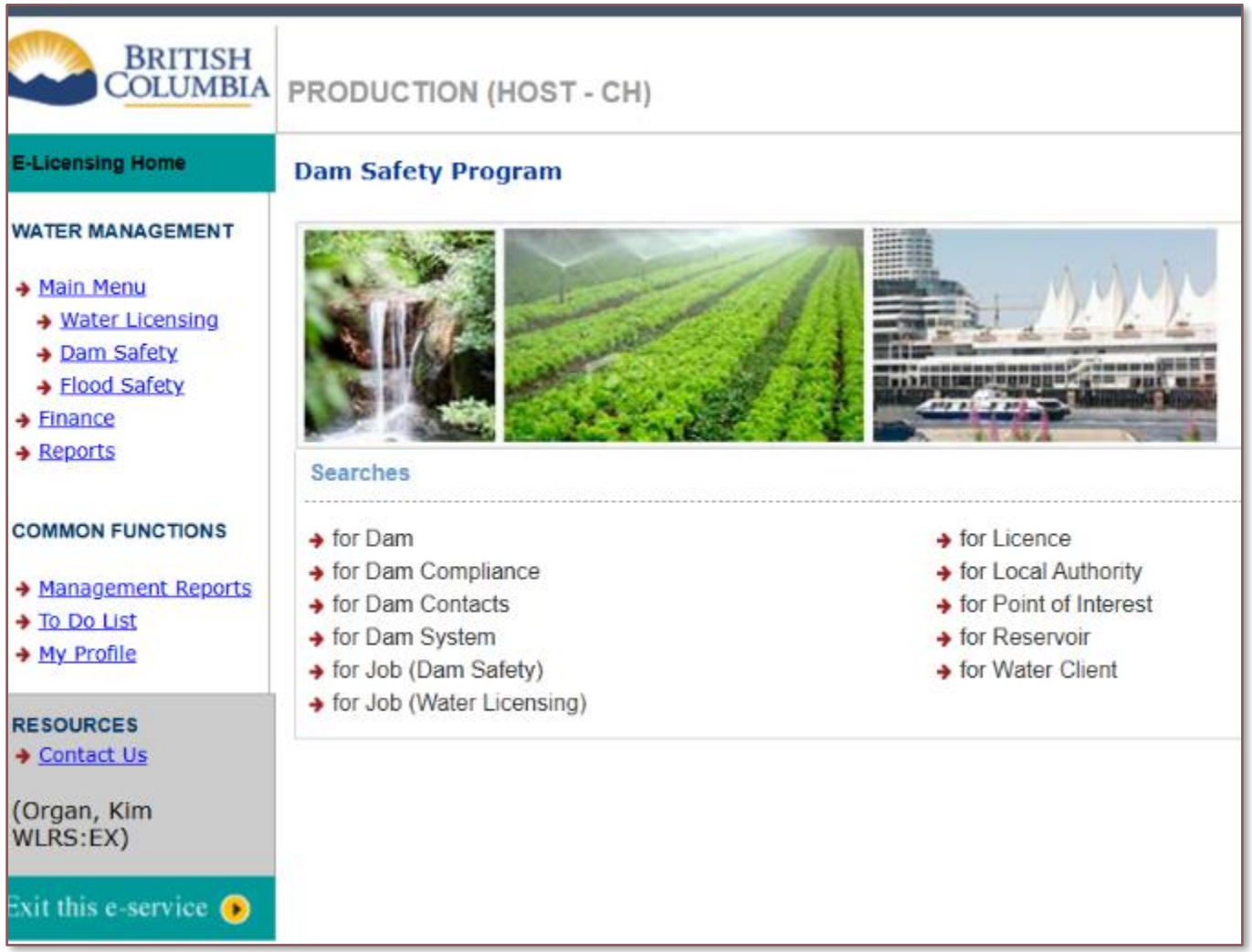
- by a Dam Safety Officer
- to ensure compliance and support dam owners/operators in applying the regulation to their dam
- Conducted regularly



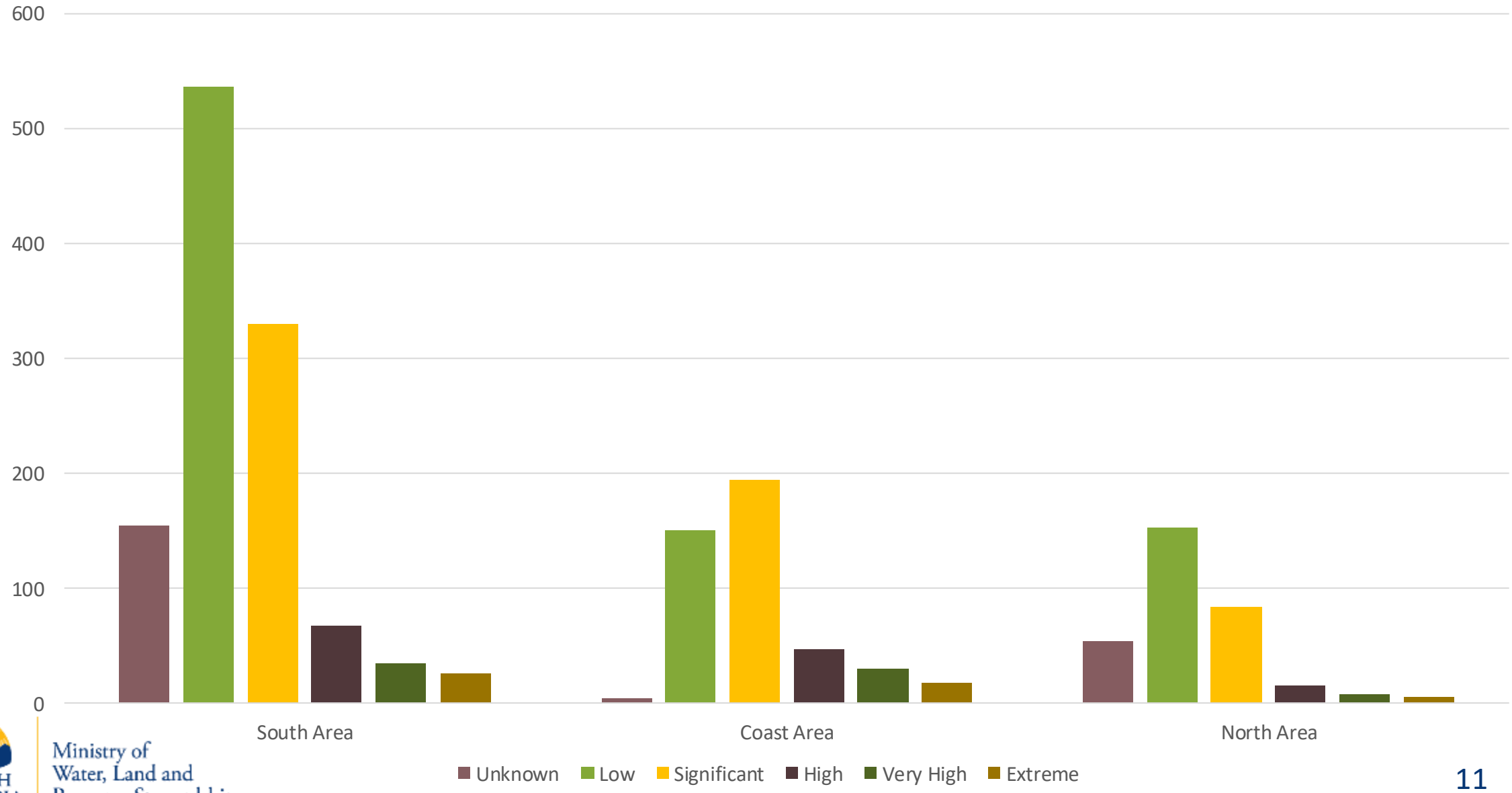
BC Dam Safety Program – Authority to accept

Acceptance of following documents:
Dam Emergency Plans
Dam Safety Review Reports
Invasive Investigation Plans
Decommissioning Plans
Operation, Maintenance, and Surveillance Manual
Plans to address potential hazards
Plans for installing, maintaining or replacing instrumentation
Completion reports following works to alter, improve or replace dam components

BC Dam Safety Program – Registry of BC Dams



Distribution of Regulated Dams in BC by Consequence Classification



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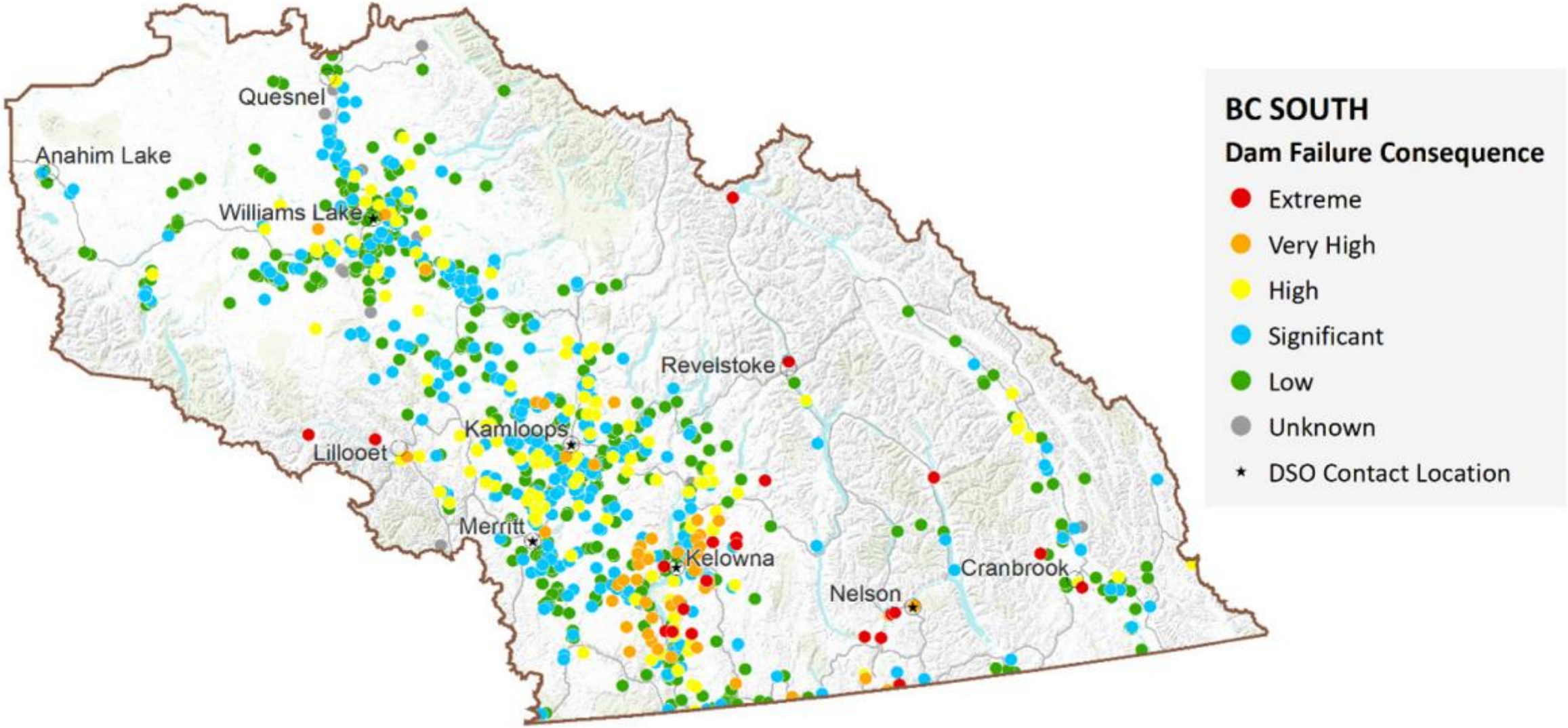
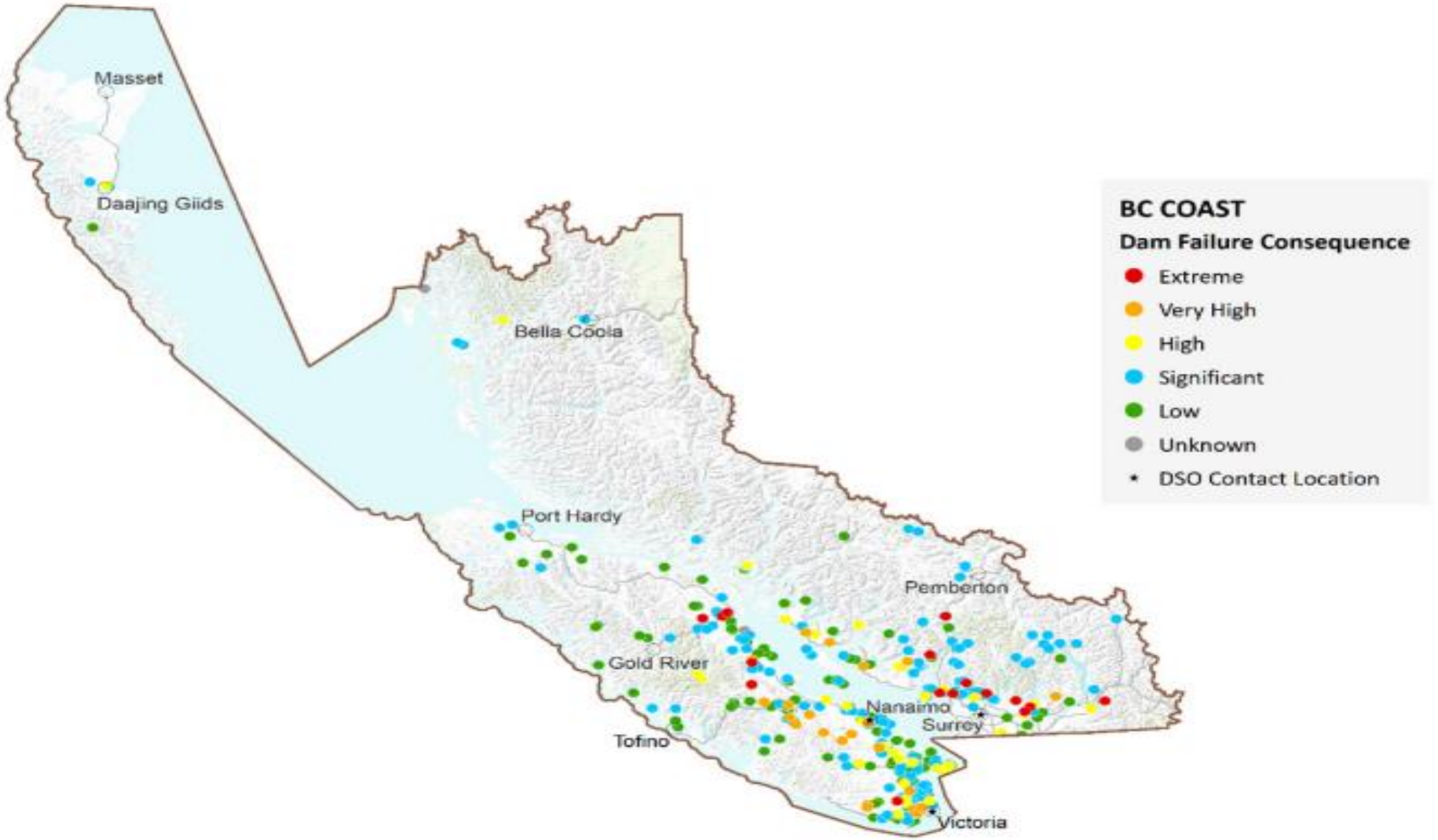
Southern Distribution of Dams by Consequence Classification

Figure 6 – Southern Distribution of Regulated Active Dams by Failure Consequence (note % is of Area Subtotal)



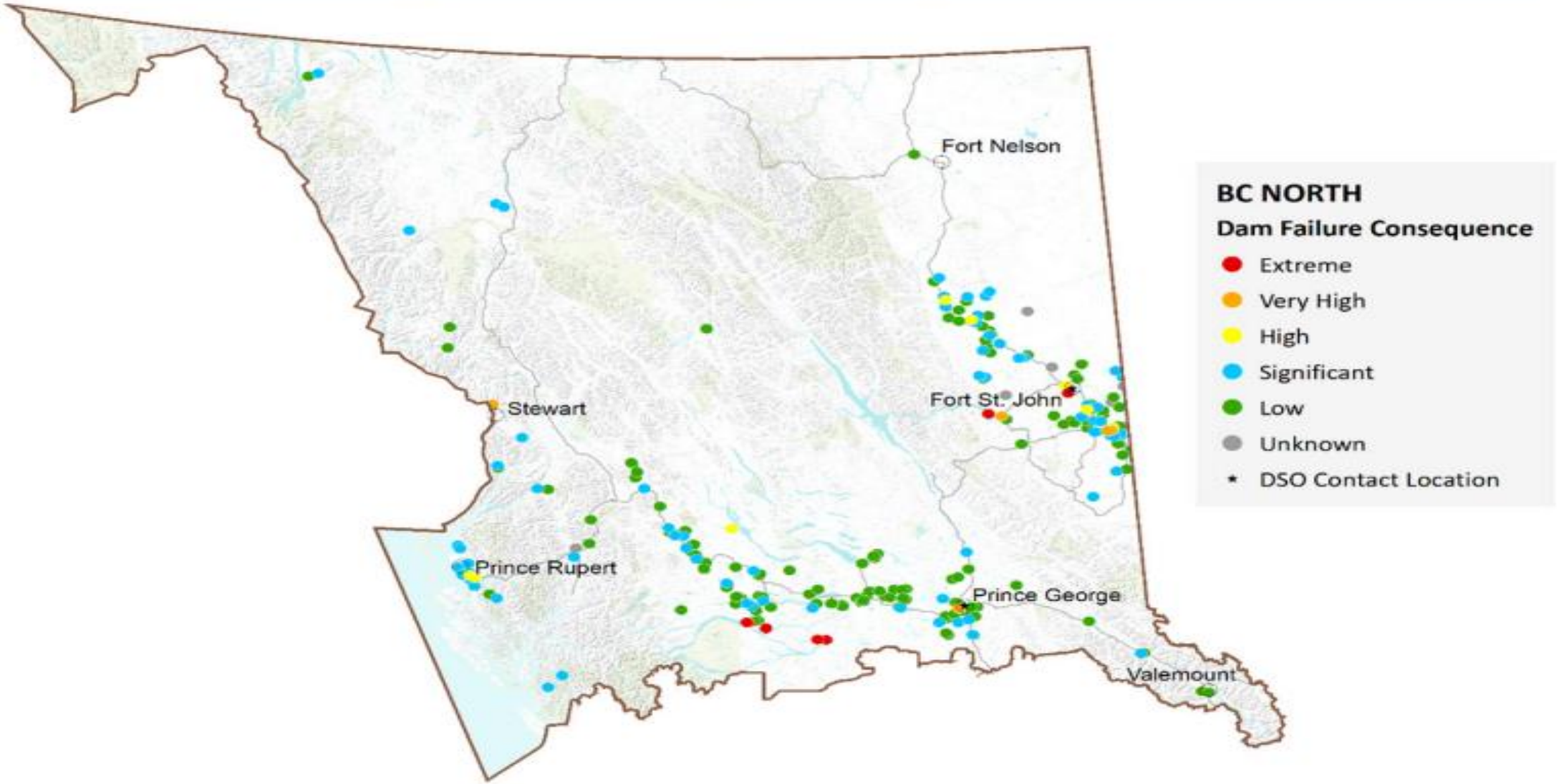
Southern Distribution of Dams by Consequence Classification

Figure 5 - Coastal Distribution of Active Regulated Dams by Failure Consequence Classification (note % is of Area Subtotal)



Southern Distribution of Dams by Consequence Classification

Figure 7 – Northern Distribution of Regulated Active Dams by Failure Consequence (note % is of Area Subtotal)



Overview of the BC Dam Safety Regulation

BC Dam Safety Regulation

- Enforced under the Water Sustainability Act
- The current version is the 2016 Dam Safety Regulation and updates

- The Testalinden Dam Failure motivated the change

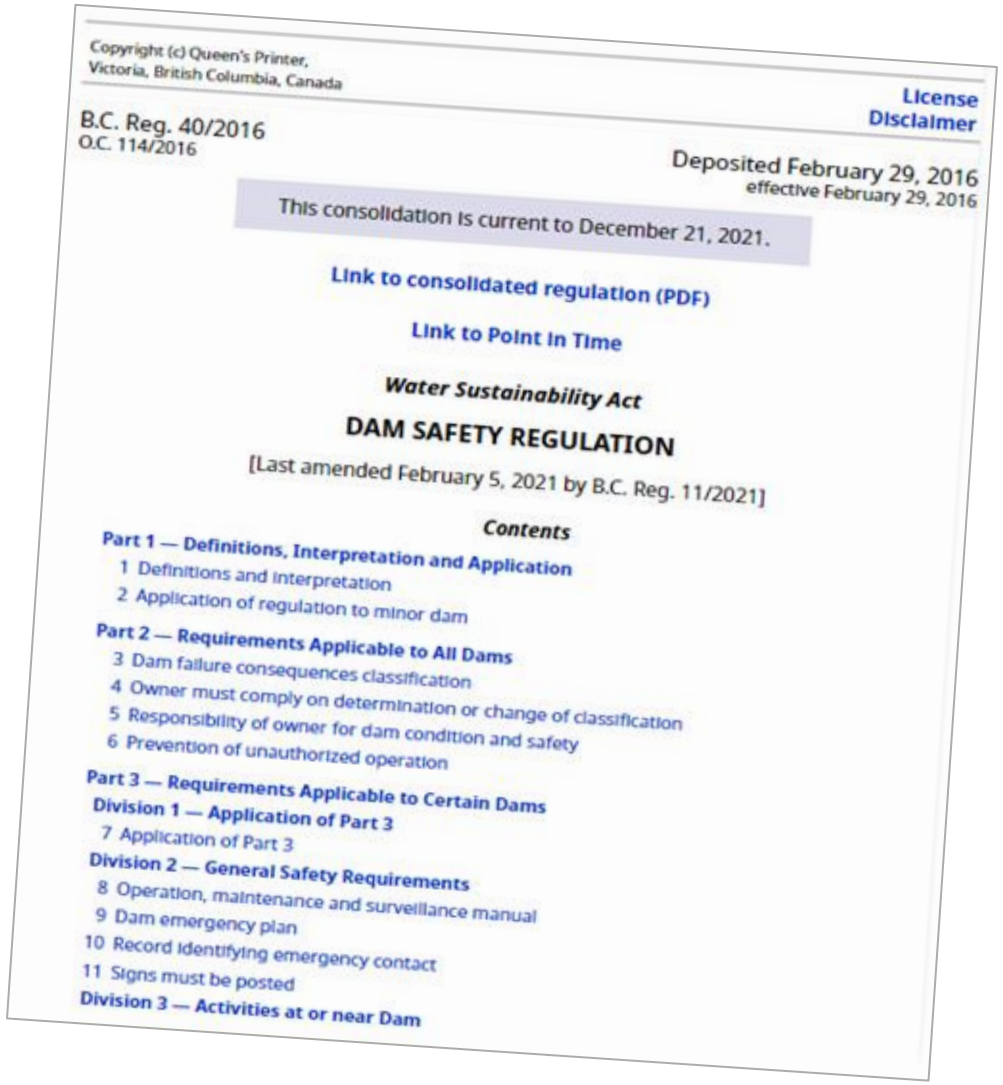
BC Dam Safety Regulation

- New 2016 guidelines reflected the Canadian Dam Association Guidelines and strengthened public safety

- The Dam Safety Regulation outlines the responsibilities of BC dam owners

Dam Safety Regulation Purpose

- Sets requirements and best practices
- All aspects of dam design, construction, operation, maintenance, removal and decommissioning of dams
- February 29, 2016



B.C. Reg. 40/2016
O.C. 114/2016

Deposited February 29, 2016
effective February 29, 2016

This consolidation is current to December 21, 2021.

Link to consolidated regulation (PDF)

Link to Point in Time

Water Sustainability Act

DAM SAFETY REGULATION

[Last amended February 5, 2021 by B.C. Reg. 11/2021]

Contents

Regulation – Part 1 – Definitions, Interpretation and Application

Part 1 – Definitions, Interpretation and Application

2 (1) Unless otherwise ordered under subsection (2), this regulation does not apply to a dam that meets both of the following criteria:

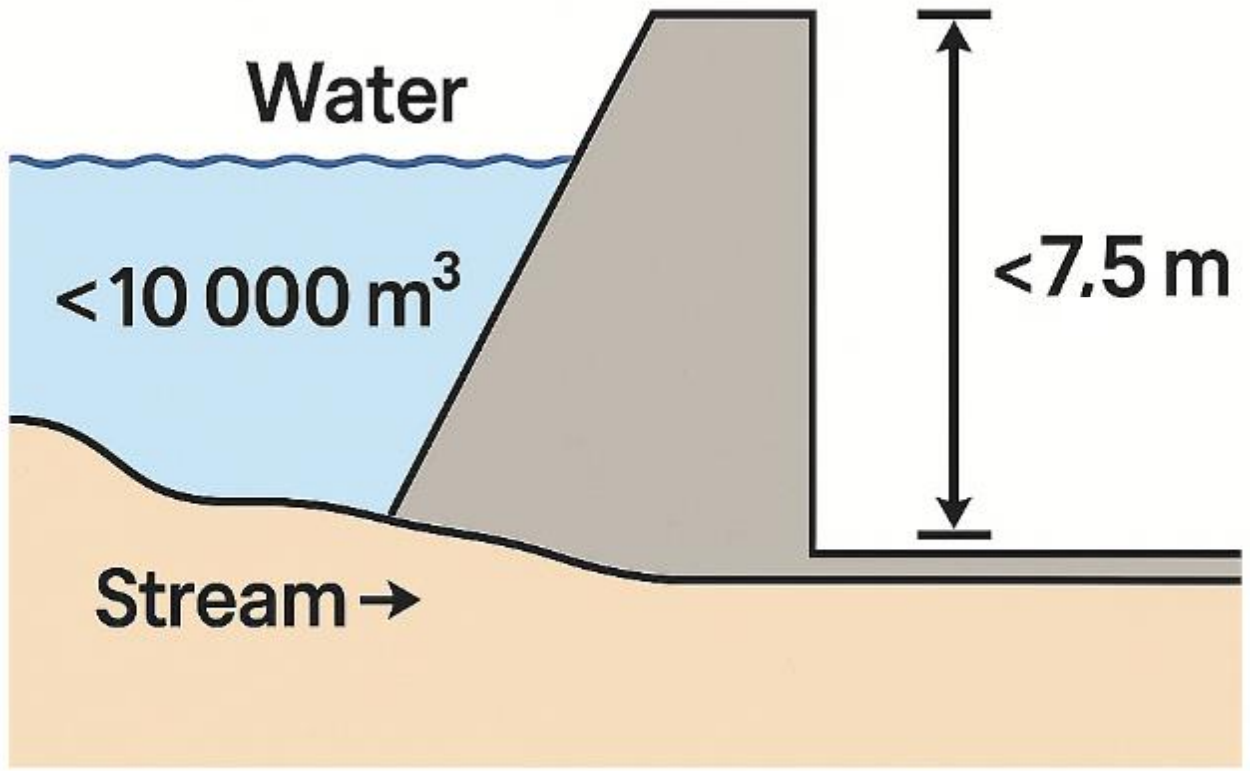
a) the dam is less than 7.5 m in height;

b) the dam is capable of impounding at full supply level a maximum total storage volume of water in the reservoir of the dam of 10 000 m^3 or less.

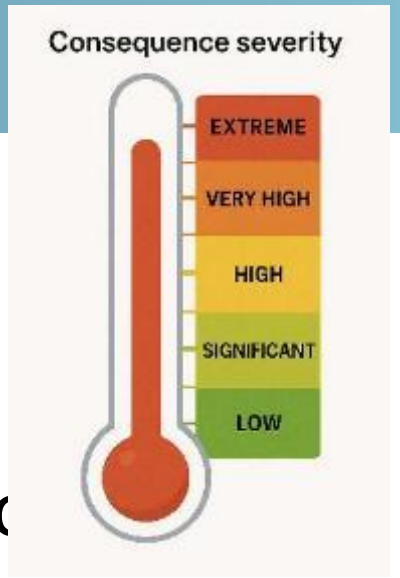
c) (2) Subject to section 7 *[application of Part 3]*, the comptroller or a water manager may order that this regulation applies to a dam described in subsection (1) of this section if the comptroller or water manager is satisfied that the dam is or may become potentially hazardous to

(a) public safety, (b) the environment, or (c) land or other property.

Note, if a small dam has *consequences*, the dam may still be regulated! (more on consequences later)



Regulation Part 2 Requirements



Dam owners have five main obligations directly related to the failure consequence classification:

1. Determine the dam failure consequence classificatic
2. Annually review the consequence classification
   a) Document the review
   b) Make any revisions
   c) Submit to DSO if necessary
3. Comply with all applicable parts of the regulation

Regulation Part 2 Requirements – con't

Dam owners have obligations continued

4. Ensure proper operating condition
   a) Surveillance and inspections
   b) Maintenance
   c) Repairs
5. Prevent unauthorized operation of the dam

Regulation Part 3 Requirements

Operations

Prepare, review, and update the **OMS** plan and **DEP**.

Submit dam information to local emergency authorities

Identify an emergency contact

Place proper signage on dam areas

Regulation Part 3 Requirements

Construction and Rehabilitation

Obtain authorization when requiring alterations

Obtain authorization before dam removal

Section 17 - Removing, Decommissioning, Deactivating and Stopping Dam Operations

Before beginning work:

- Give minimum 120 days notice to a DSO
- Submit plan to DSO minimum of 90 days before work begins
- Receive DSO approval for notice and plan

After completing work:

- submit a report of work performed within 60 days of completion

Regulation Part 3 Requirements

Emergency response

Prepare DEP to address all hazardous situations

Respond to hazardous conditions

Regulation Part 3 Requirements

Maintenance and Surveillance

Conduct **site surveillance** of dam on a routine basis

Test all mechanical components

Install **instrumentation** as needed

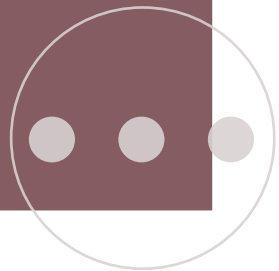
Conduct **dam safety reviews**

Submit all required records

Regulation – Parts 4 & 5

- Division 1 – Dams with Multiple Owners
- Division 2 – Records Managements
- Division 3 – Advice from Independent Expert
- Division 4 – Offences

Part 4



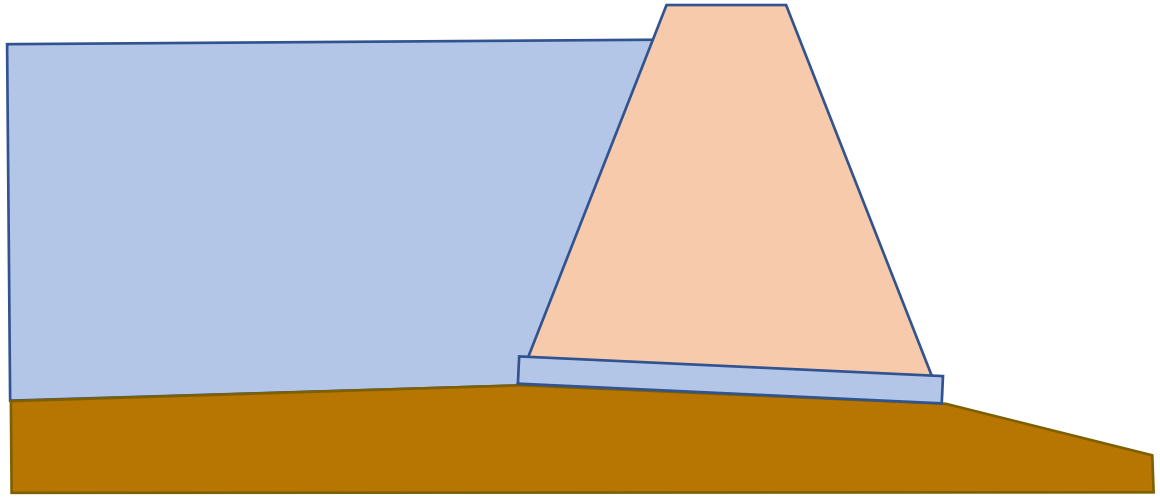
- Clarifies details of dams undergoing transitions such as construction or changes to classifications

Part 5

Consequence Classification– 2 factors

Two factors are used to determine how the regulation applies to your dam:

1. Dam **dimensions**

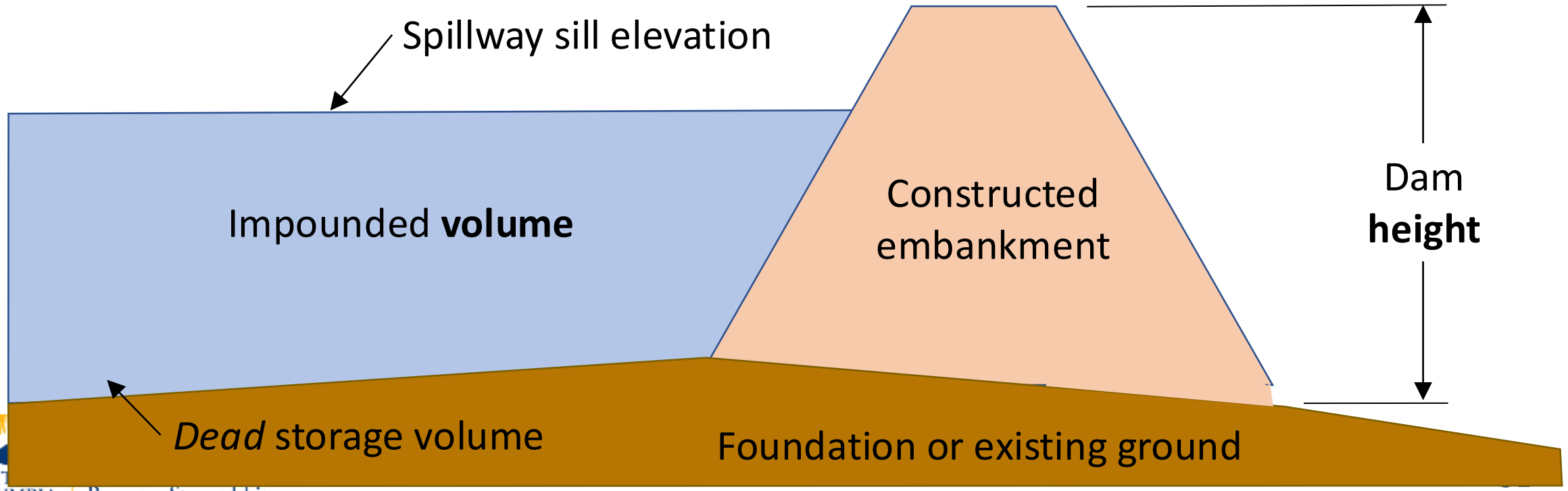


2. Dam failure **consequences**

Dam Safety Regulation - Dimensions

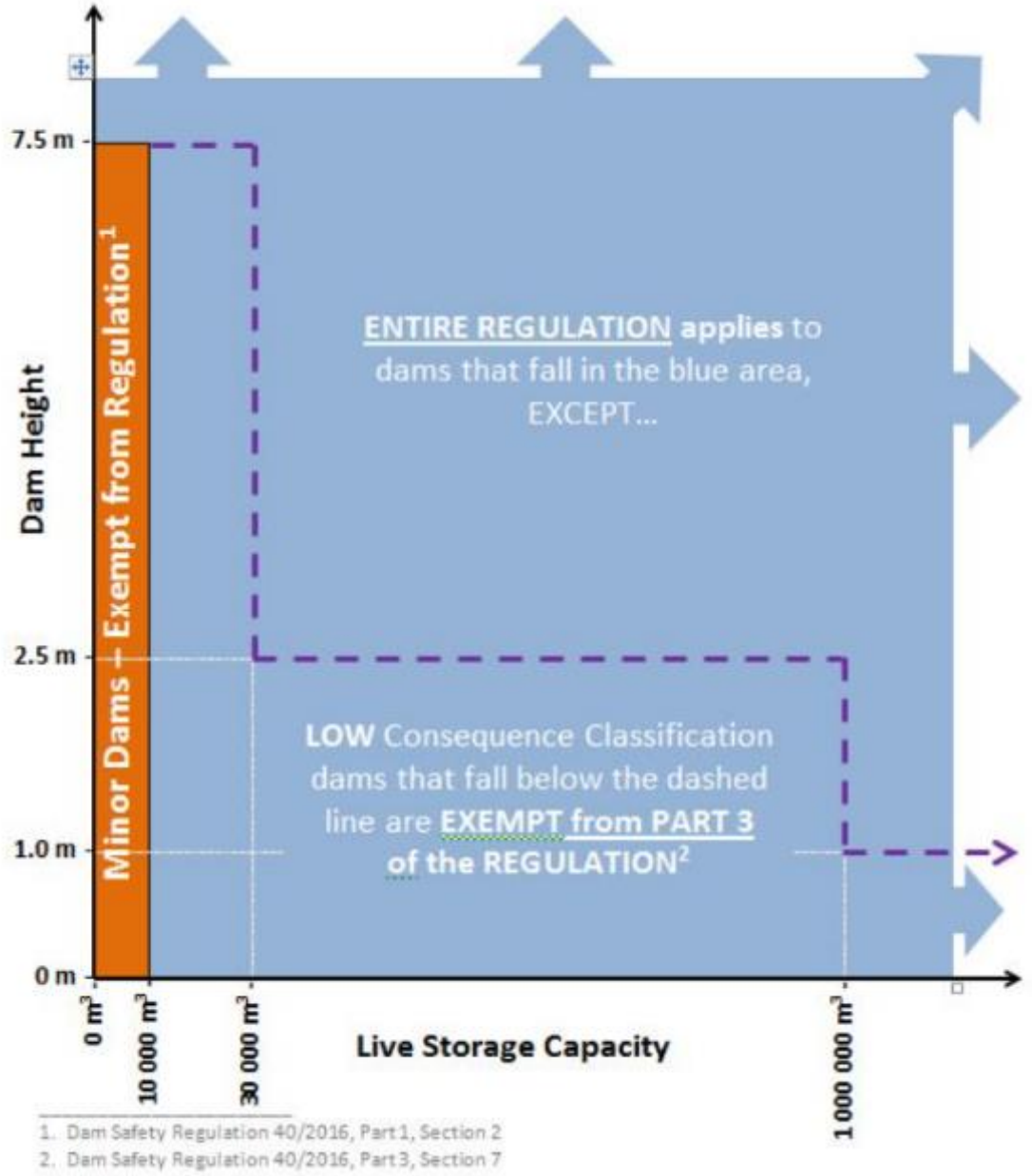
The following dimensions are required to determine *if* the regulation applies and whether Part 3 applies:

- Dam **height**
- Impounded **volume** (*live* volume)



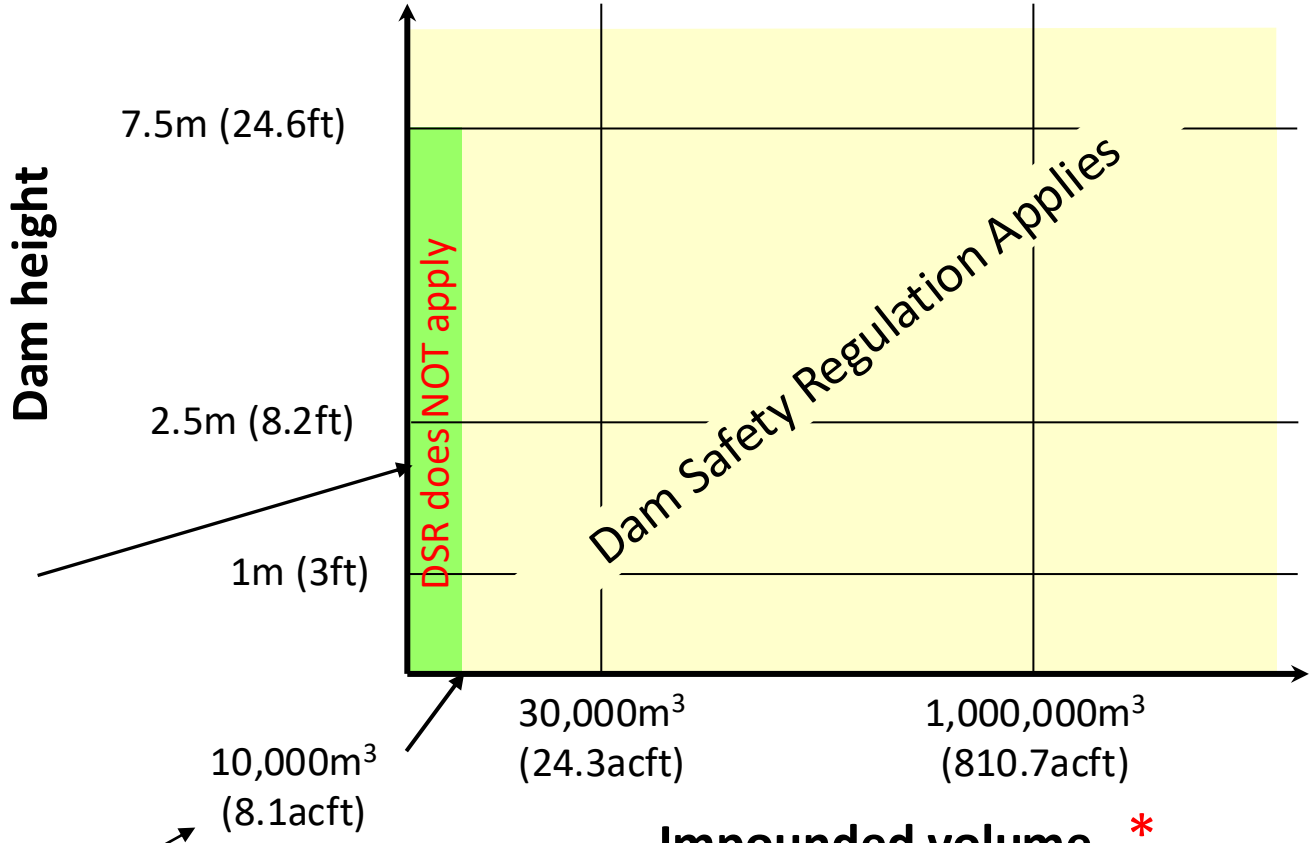
Visual Graph & Representation

- Dam height vs. the dam storage capacity helps determine if the regulation applies
- Must consider the context of the dam's location, inundation and size



Dam Safety Regulation - Unregulated

Per the regulation, a dam is generally **NOT** regulated if it less than 7.5 m AND 10 000 m^3 or less



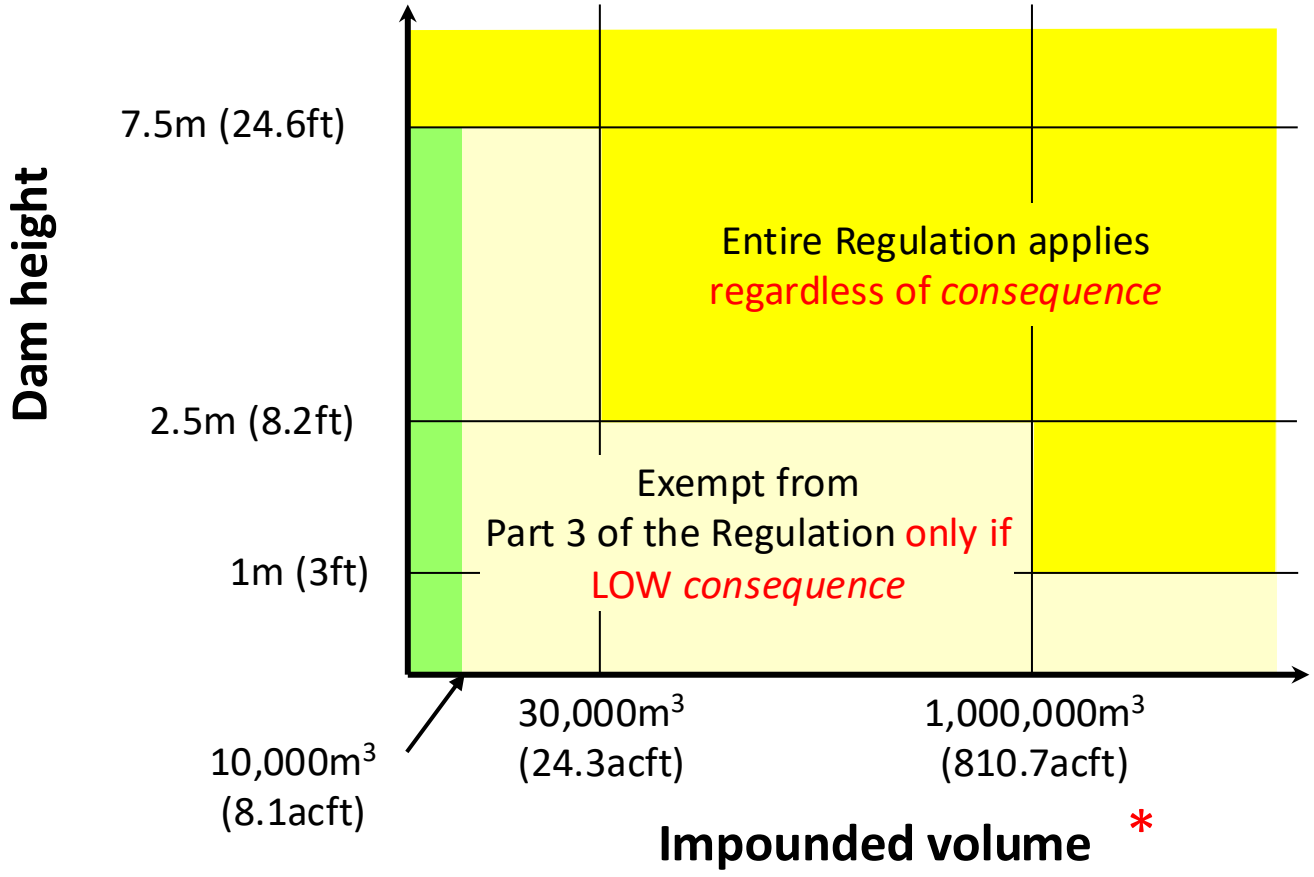
Defined as ***minor dams*** and are exempt from the Regulation (still requires a water license)

For example, 1-hectare reservoir with an average depth of 1 m

*Impounded volume refers to *live* storage

Dam Safety Regulation – determining Part 3

The regulations applicable for a dam include Part 3 if: 1 000 000 m^3 and 1m *or* 30 000 and 2.5 m *or* >7.5 m

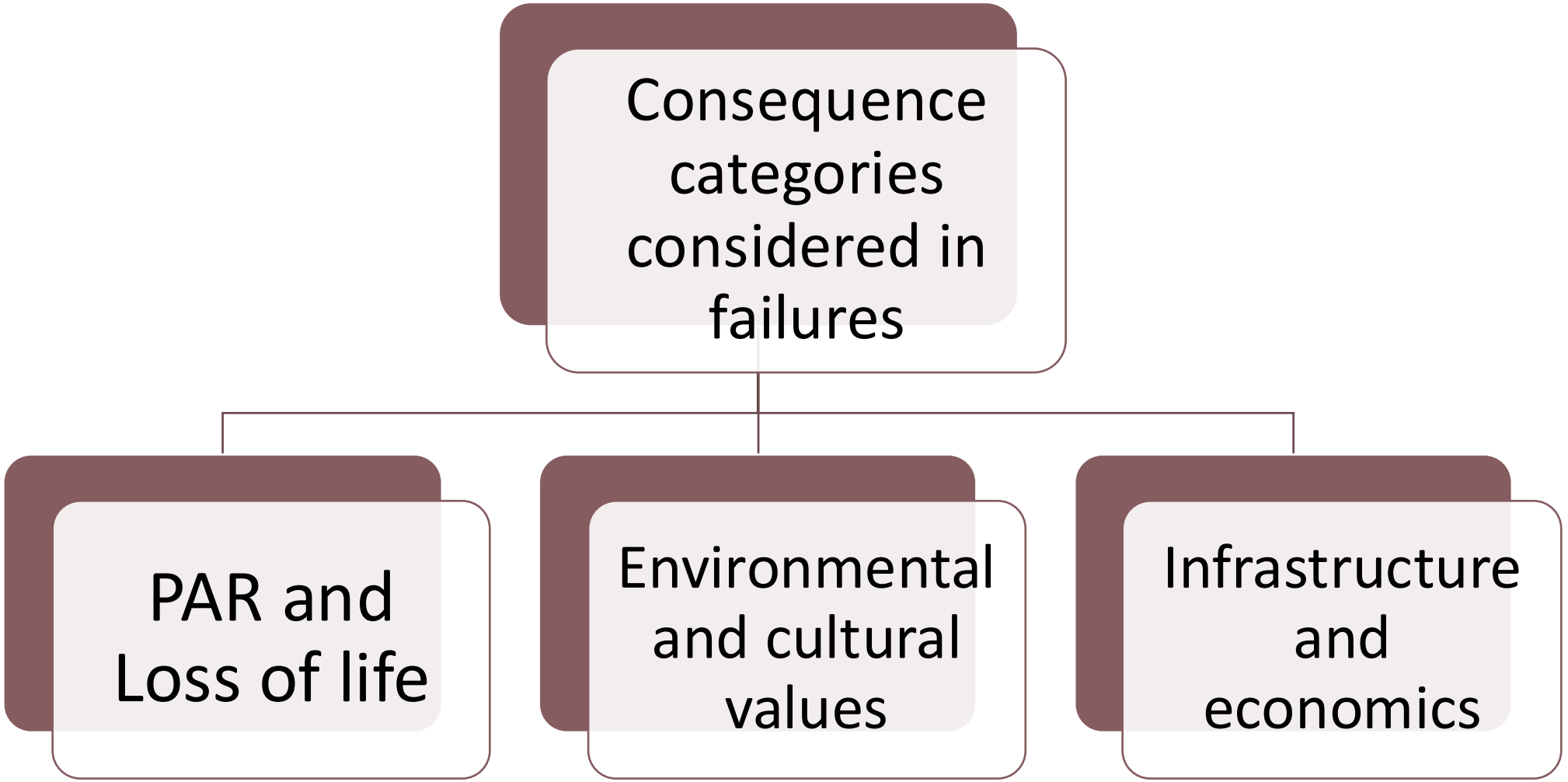


*Impounded volume refers to *live* storage

Consequence classification drives owner activities

Schedule 2	Low	Significant	High	Very High	Extreme
Redetermination		Annually			
Site surveillance	Quarterly	Monthly	Weekly		
Inspections		Annually			Semi-annually
Test operations		Annually			
DEP contacts review	NA	Annually			
Review emergency contact list	Annually	NA			
OMS & DEP review	NA	10 years	10 years	7 years	7 years
Dam safety review	NA	NA	10 years	10 years	7 years

Dam Safety Regulation - Consequences



Dam Safety Regulation – Consequences of failure

The term "consequences of failure" is defined in the Dam Safety Regulation and the CDA Guidelines as follows:

"Consequences of failure" means losses or damages that are caused by a failure of a dam

"Failure" in relation to a dam, means an uncontrolled release of all or part of the water impounded by the dam, whether caused by a collapse of the dam or not

Need to consider impacts on the downstream or upstream area of a dam resulting from a failure of the dam or its appurtenances

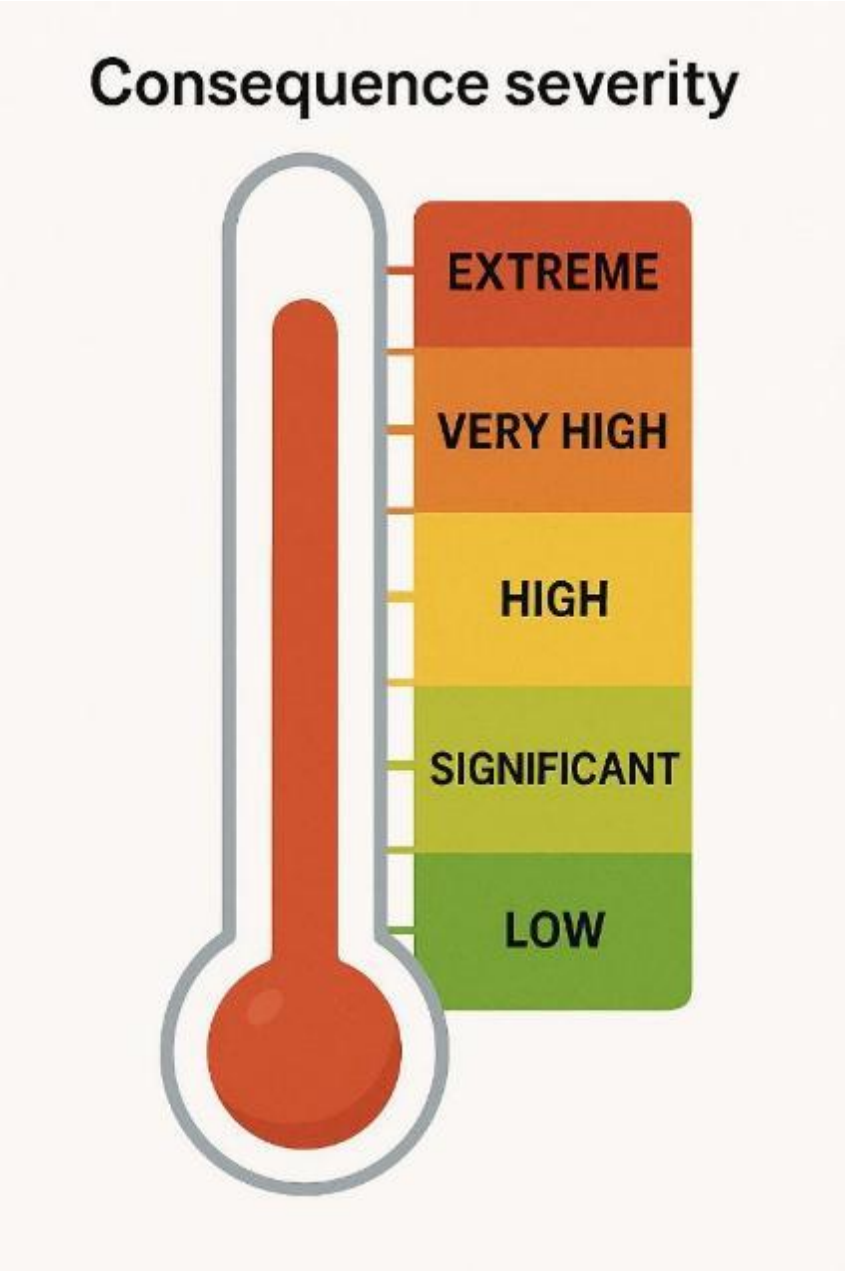
The term 'consequences' refers to the damage exceeding that which would have occurred in the same natural event or conditions had the dam not failed; these may also be called incremental consequences of failure

For "flood-induced failures", not all losses and damages are caused by the **impounded** volume. (More on this later)

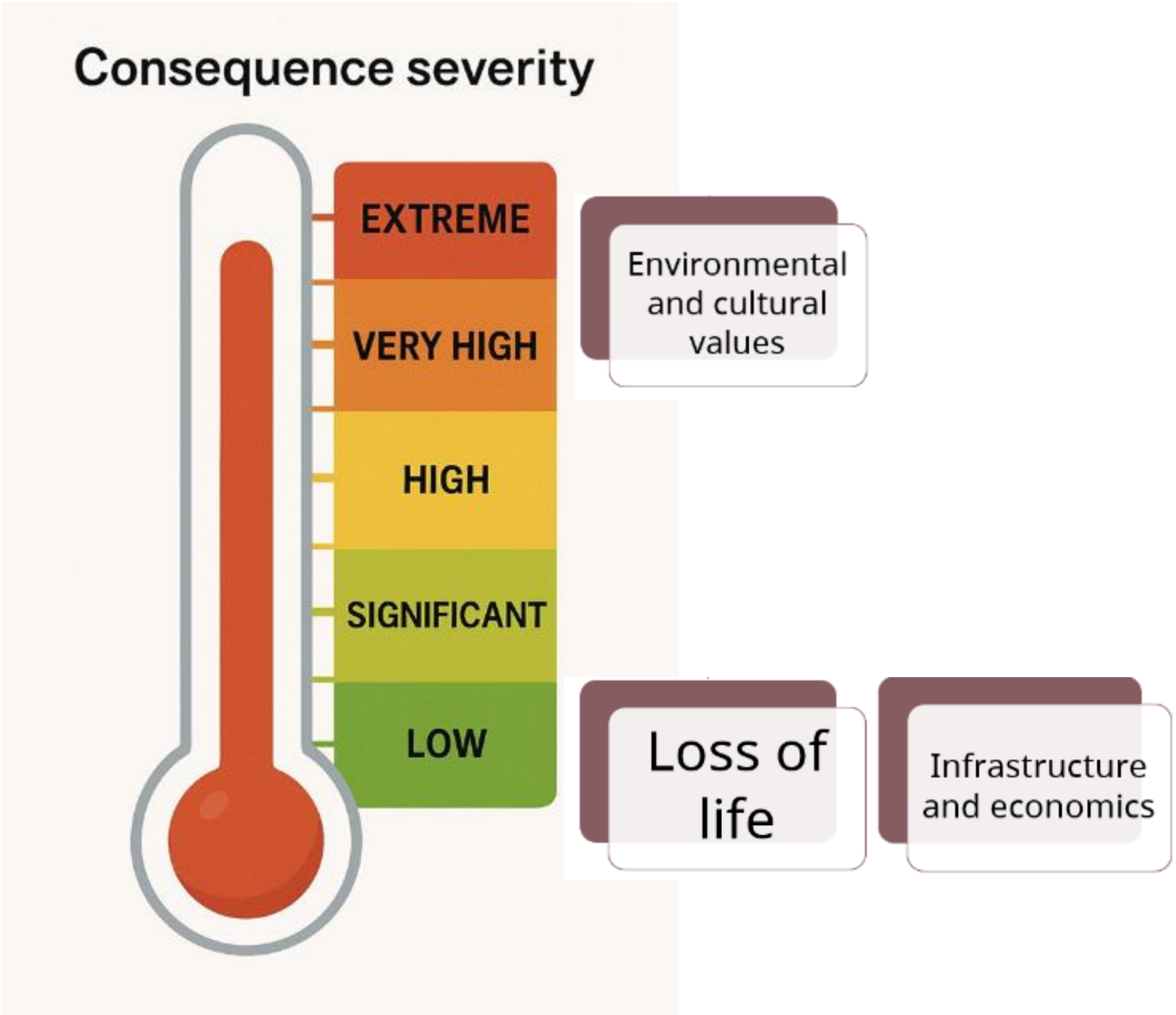
Dam Safety Regulation – Consequence severity

The “severity” of these consequences correspond to classifications defined by the Regulation as:

- Extreme
- Very high
- High
- Significant
- Low



Dam Safety Regulation – Consequence categories



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Consequence Classification – Regulation Table

REQUIREMENTS

Dam class	Population at risk	Incremental losses		
		Loss of life	Environmental and cultural values	Infrastructure and economics
Low *If small, Part 3 DOES NOT apply* *All dams, Part 3 DOES apply*	None[1]	No possibility of loss or life other than unforeseeable misadventure	Minimal short-term loss or deterioration and no long-term loss or deterioration of (a) fisheries habitat or wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value	Minimal economic losses mostly limited to the dam owner's property, with virtually no pre-existing potential for development within the dam inundation zone
Significant *Does NOT require Dam Safety Reviews* *Requires Dam Safety Reviews*	Temporary only[2]	Low potential for multiple loss of life	No significant loss or deterioration of (a) important fisheries habitat or important wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value, and restoration or compensation in kind is highly possible	Low economic losses affecting limited infrastructure and residential buildings, public transportation or services or commercial facilities, or some destruction of or damage to locations used occasionally and irregularly for temporary purposes
High	Permanent[3]	10 or fewer	Significant loss or deterioration of (a) important fisheries habitat or important wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value, and restoration or compensation in kind is highly possible	High economic losses affecting infrastructure, public transportation or services or commercial facilities, or some destruction of or some severe damage to scattered residential buildings

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Table cont'd

Consequence Classification – Regulation Table continued

REQUIREMENTS

Dam class	Population at risk	Incremental losses		
		Loss of life	Environmental and cultural values	Infrastructure and economics
Very High	Permanent[3]	100 or fewer	Significant loss or deterioration of (a) critical fisheries habitat or critical wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value, and restoration or compensation in kind is possible but impractical	Very high economic losses affecting important infrastructure, public transportation or services or commercial facilities, or some destruction of or some severe damage to residential areas
Extreme	Permanent[3]	More than 100	Major loss or deterioration of (a) critical fisheries habitat or critical wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value, and restoration or compensation in kind is impossible	Extremely high economic losses affecting critical infrastructure, public transportation or services or commercial facilities, or some destruction of or some severe damage to residential areas

1 There is no identifiable population at risk

2 People are only occasionally and irregularly in the dam-breach inundation zone, for example stopping temporarily, passing through on transportation routes or participating in recreational activities.

3 The population at risk is ordinarily or regularly located in the dam-breach inundation zone, whether to live, work or recreate

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Consequence Classification-initial determination

Consequence classification determination is the responsibility of the owner

Completed by consultants on behalf of the dam owner:

- Submit to DSO for acceptance
- Dam break or inundation study is required

Annual Redetermination of the Consequence Classification

- Completed by dam owners or consultants during Dam Safety Reviews or inspections.
  - Only submitted if changed
  - Record the re-determination with a clear rationale/justification

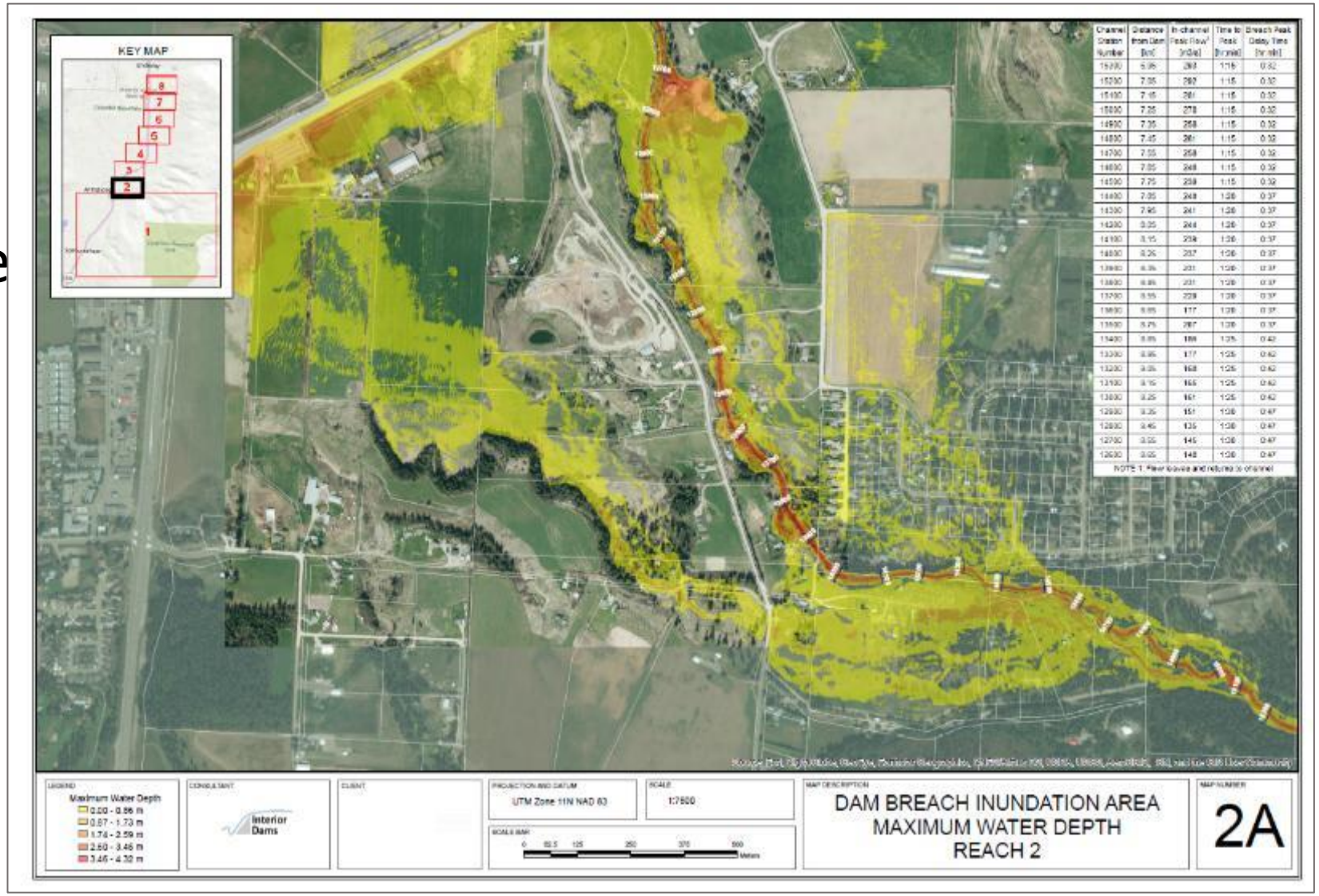
*The DSO may order the consequence classification to be reviewed by a qualified professional if the consequence classification has become out-of-date or appears to be inappropriate

Consequence Classification- record of initial determination

A record of the initial determination with:

- Breach flow estimate
- Flood mapping
- Clear rationale/ justification

Example water maximum depth map from a “flood-induced” failure (2016)



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Consequence Classification – failure types

"The initial hydrologic conditions for a dam breach are categorized as flood induced failure and sunny day failure"

Some Factors To Consider

Consequences compound in extreme events

Other Rules of Thumb – Infrastructure and Economics

Consequence Creep

Schedule 2	Low	Significant	High	Very High	Extreme
Redetermination		Annually			
Site surveillance	Quarterly	Monthly	Weekly		
Inspections		Annually			Semi-annually
Test operations		Annually			
DEP contacts review	NA	Annually			
Review emergency contact list	Annually	NA			
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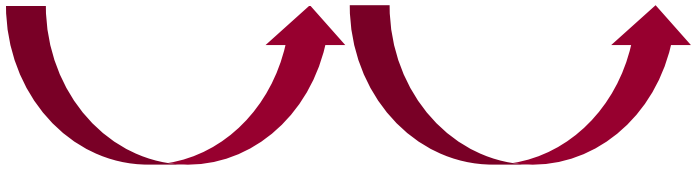

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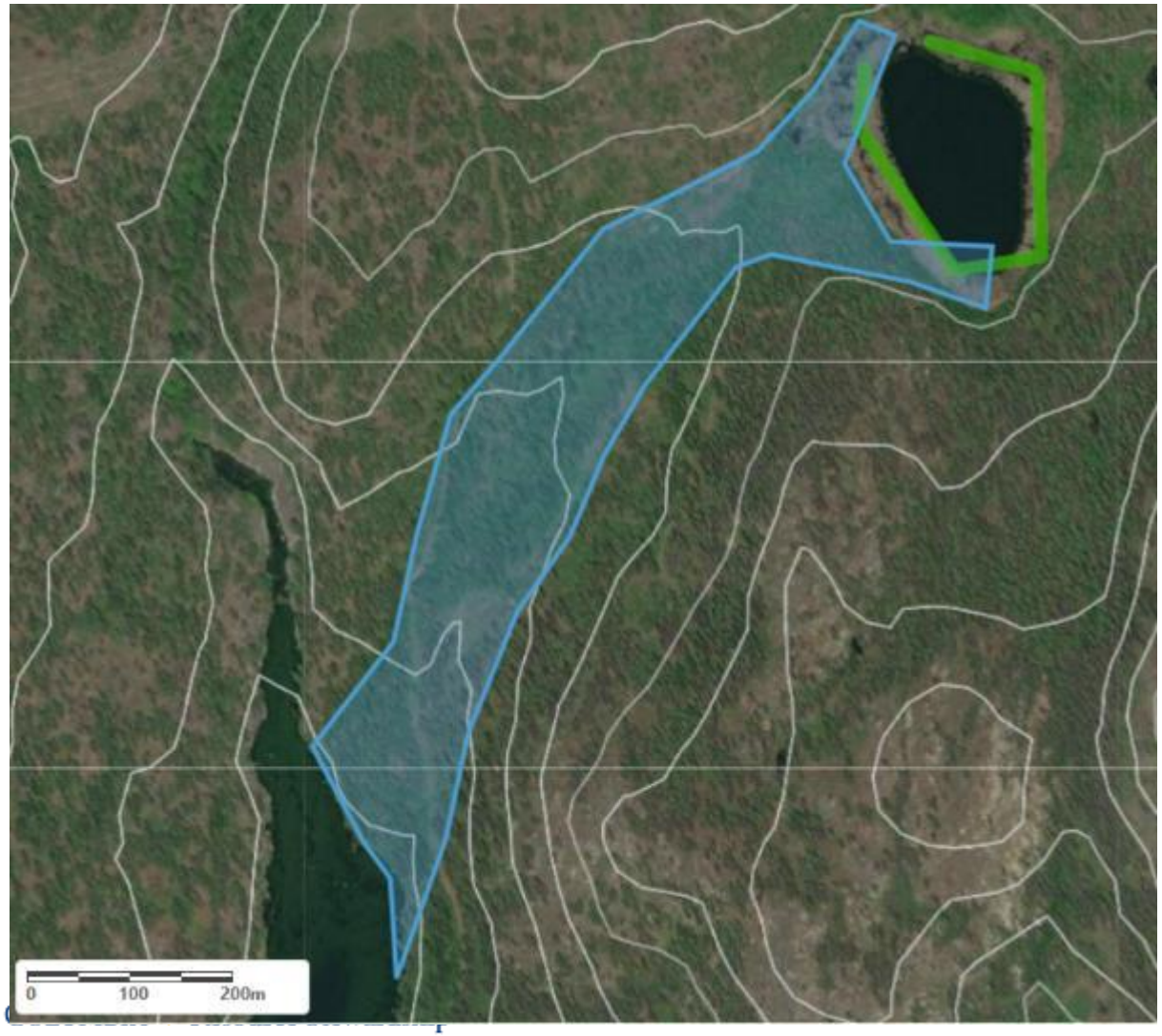
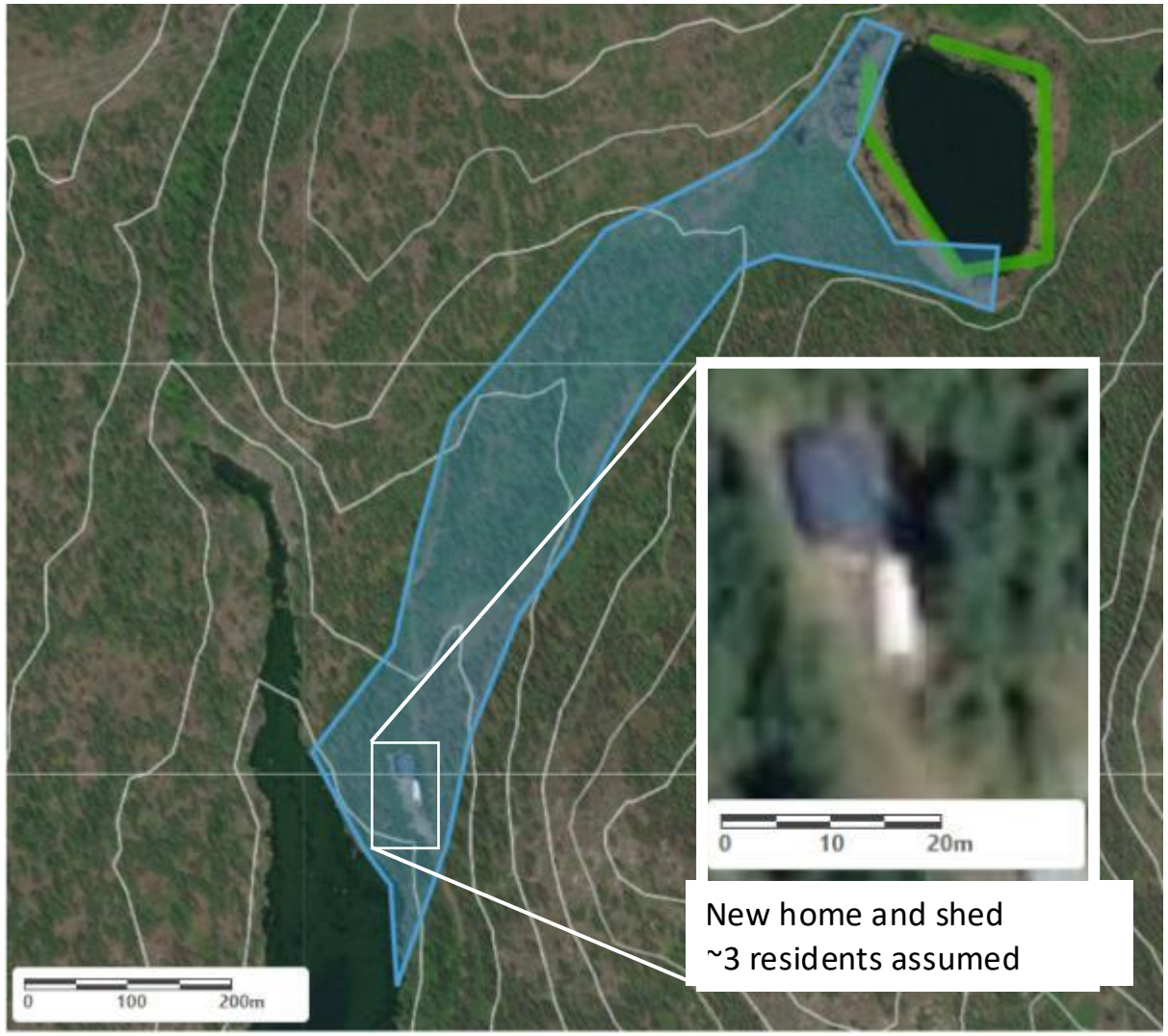
Consequence Creep

You own a LOW consequence dam and…

- The last 2 years your dam was reviewed and re-determined as LOW and records are on file based on simple inundation mapping.
- A new development of one (1) home was just completed directly in the path of your dam break flood mapping.
- How does this re-determine the classification of your dam

Consequence Creep continued





Example 3 – incremental losses

- Using the Schedule 1 table, the classification of HIGH most clearly describes 2 categories
- Highest classification of all category's dictates

Therefore:

HIGH

Dam class	Population at risk	Incremental losses		
		Loss of life	Environmental and cultural values	Infrastructure and economics
Low	None[1]	No possibility of loss or life other than unforeseeable misadventure	Minimal short-term loss or deterioration and no long-term loss or deterioration of (a) fisheries habitat or wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value	minimal economic losses mostly limited to the dam owner's property, with virtually no pre-existing potential for development within the dam inundation zone
Sig ant	Tem ary o 2	Low p ntial for multi loss of e	No significant loss or deterioration of (a) important fisheries habitat or important wildlife habitat, (b) rare or endangered species, (c) unique landscapes, or (d) sites having significant cultural value, and restoration or compensation in kind is highly possible	Low economic losses affecting limited infrastructure and residential buildings, public transportation or services or commercial facilities, or some destruction of or damage to locations used occasionally and irregularly for temporary purposes
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Consequence Creep

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Site surveillance	Quarterly	Monthly	Weekly		
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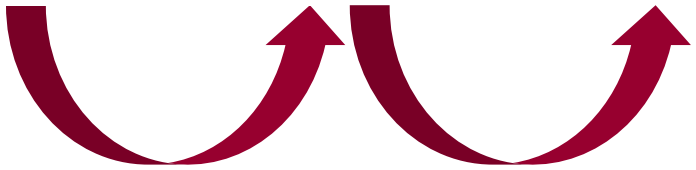

Overview of the Earthen Dams

Reminder

In no way does the completion of this course or viewing the content presented, provide all the necessary skills or knowledge criteria required to properly inspect and maintain a dam to reasonably safe standards.

Dam Safety Background

- A dam is defined as a "*man made barrier constructed for the purpose storing water*"
- Focus on reducing the risk of any potential failure to a minimum
- Preventing damage to residents, environments, infrastructures, and sacred spaces
- Dam failures are avoidable, but cannot be eliminated

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W.A.C Bennett Dam, Peace River BC

- An example of a large ***earthfill dam***
- Over 30% of BC's power comes from this dam
- One of BC's most critical pieces of infrastructure

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Typical BC earthen embankment dam

Common terminology helps us identify, describe, and trouble shoot common deficiencies.

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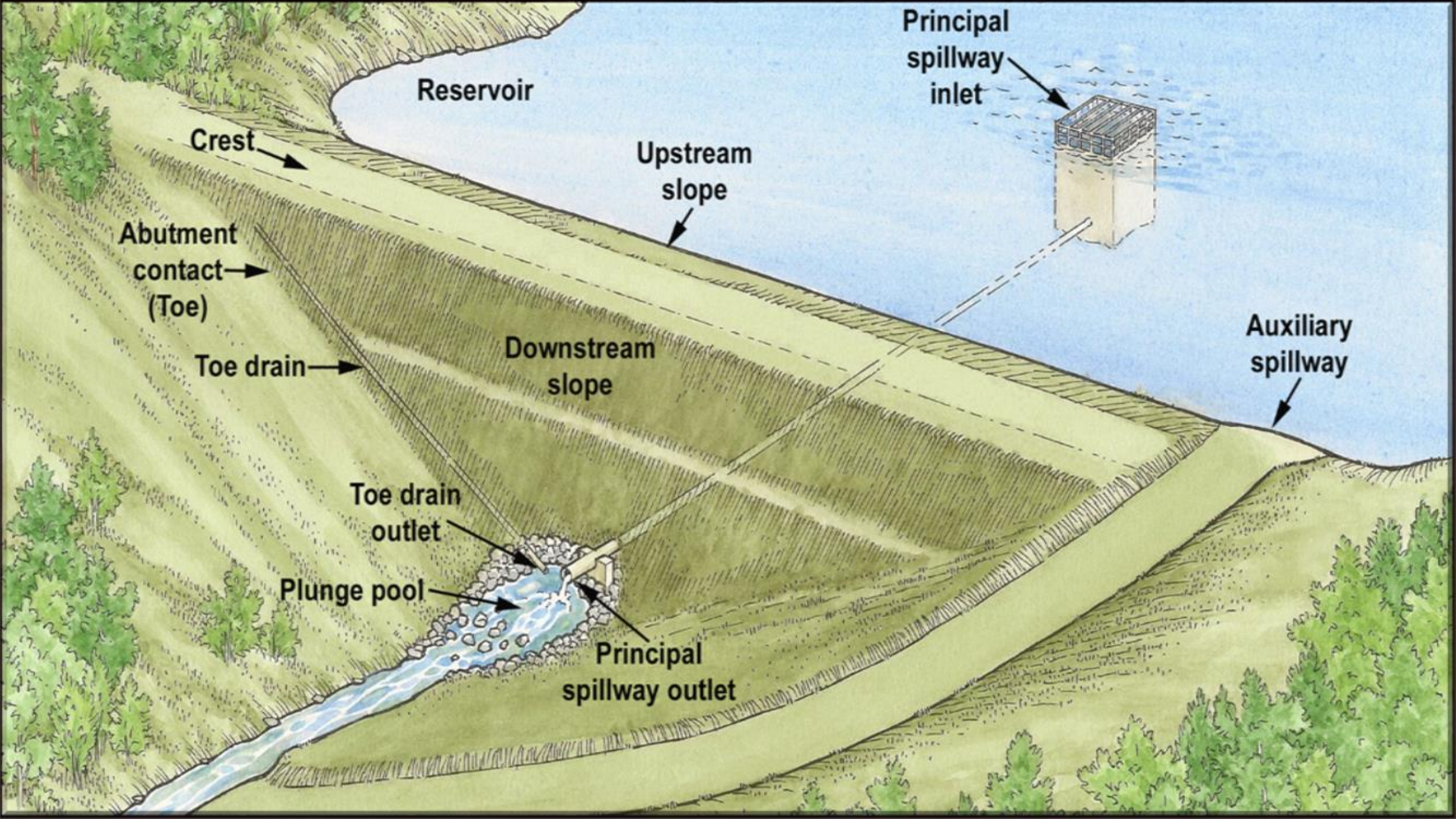
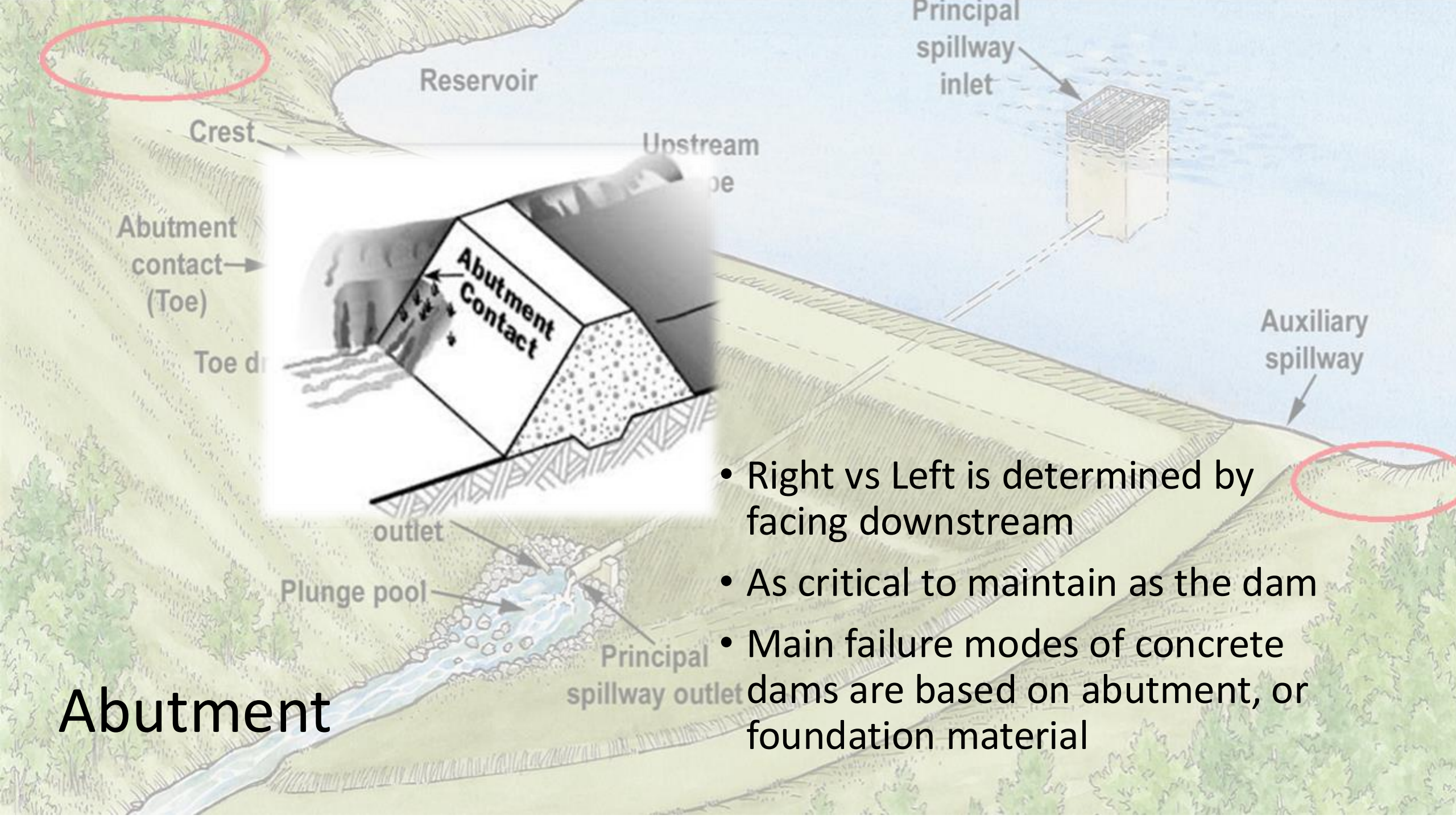
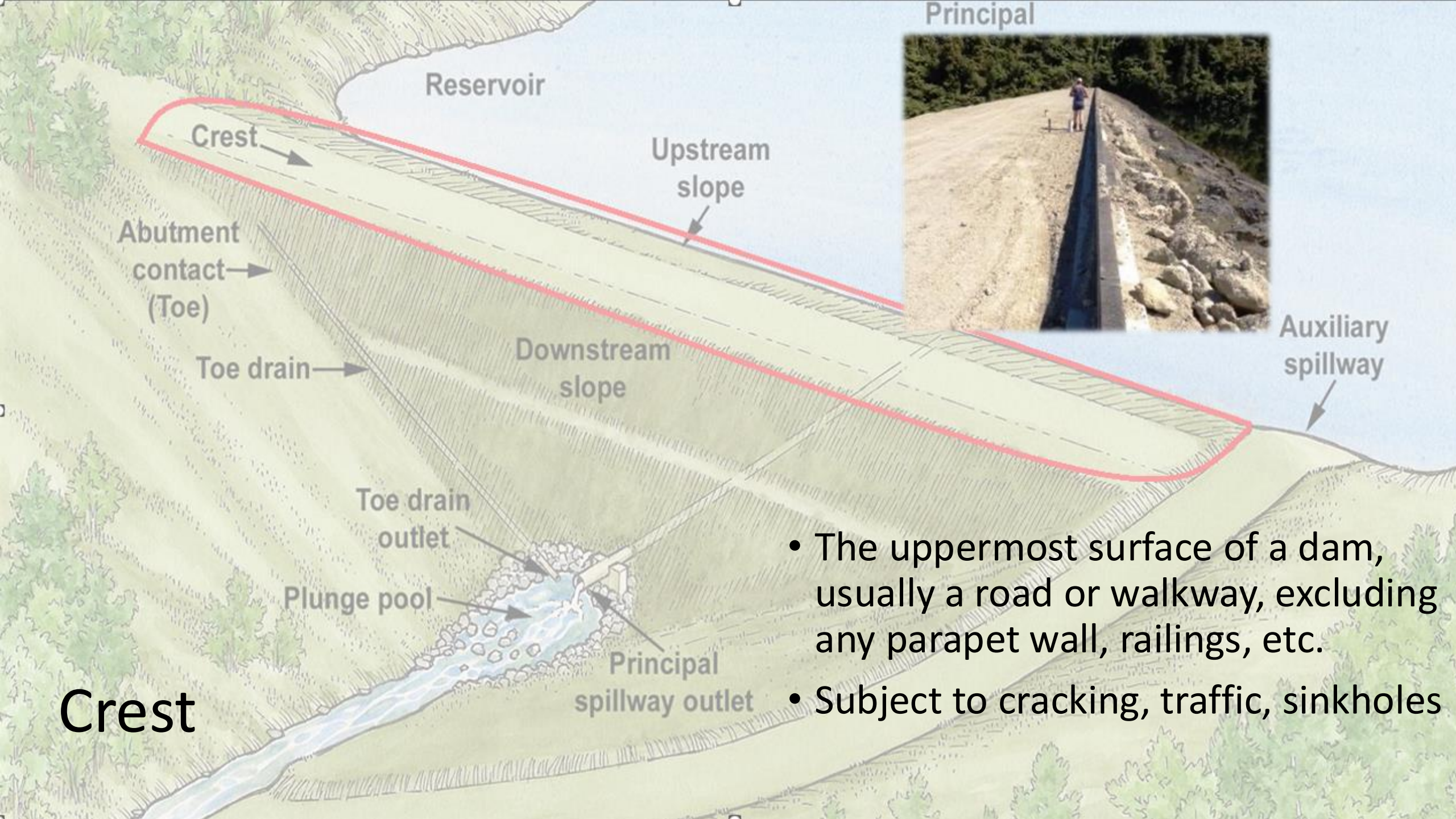

Principal spillway inlet
Reservoir
Crest
Upstream slope
Abutment contact (Toe)
Toe drain
Downstream slope
Auxiliary spillway
Toe drain outlet
Plunge pool
Principal spillway outlet



Abutment

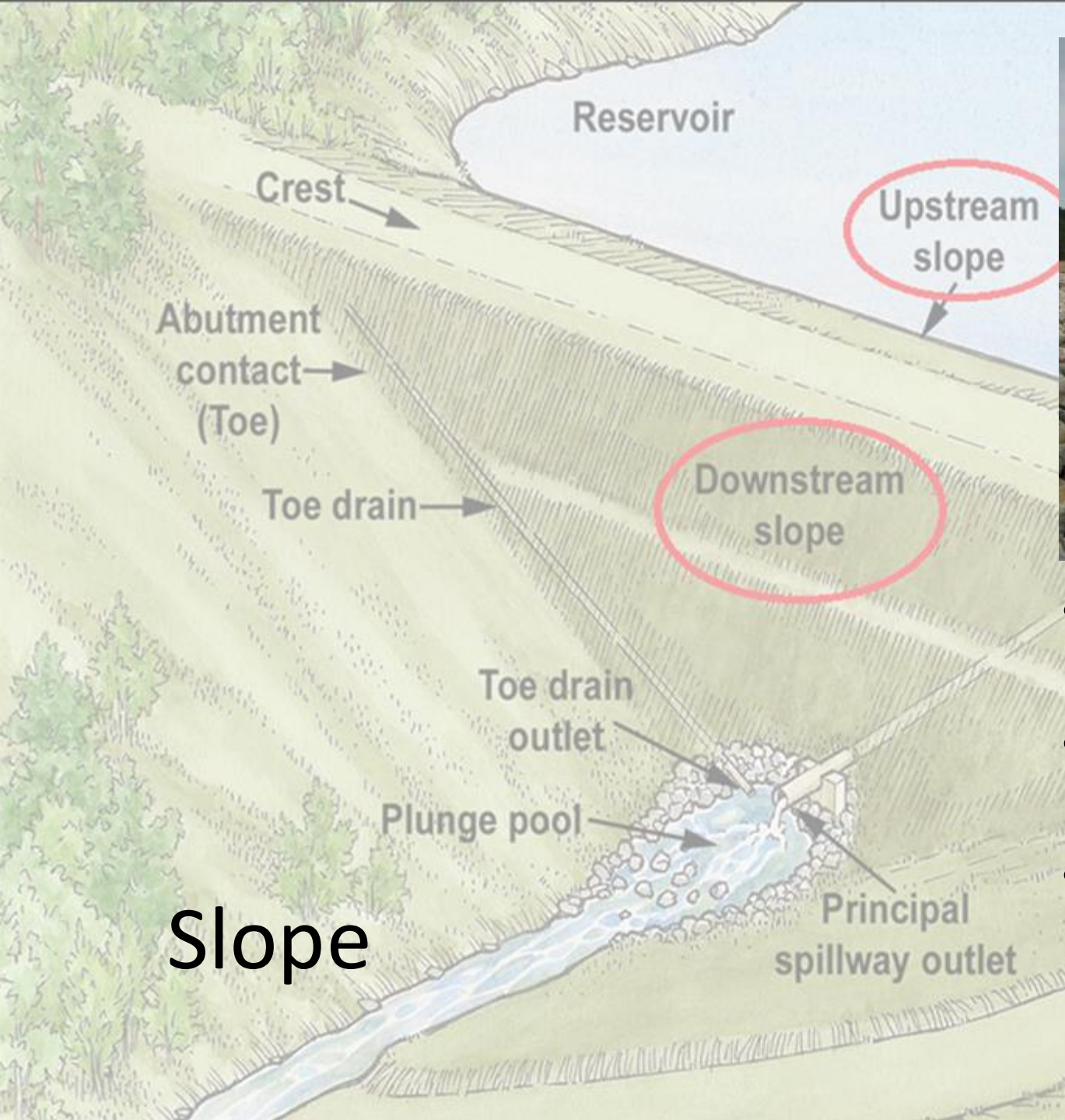
- Right vs Left is determined by facing downstream
- As critical to maintain as the dam
- Main failure modes of concrete dams are based on abutment, or foundation material



Crest

- The uppermost surface of a dam, usually a road or walkway, excluding any parapet wall, railings, etc.
- Subject to cracking, traffic, sinkholes

Slope



- The vertical inclination from the crest to the toe
- Upstream slope can be protected by riprap or a concrete face
- Downstream slope is subject to seepage, erosion, and animal burrowing

Spillway

- The structure or work that allows excess water to pass and flow around the dam
- The main mode of flood protection
- Critical to the dam's integrity and function
- Subject to debris, cracking, erosion, and vegetation

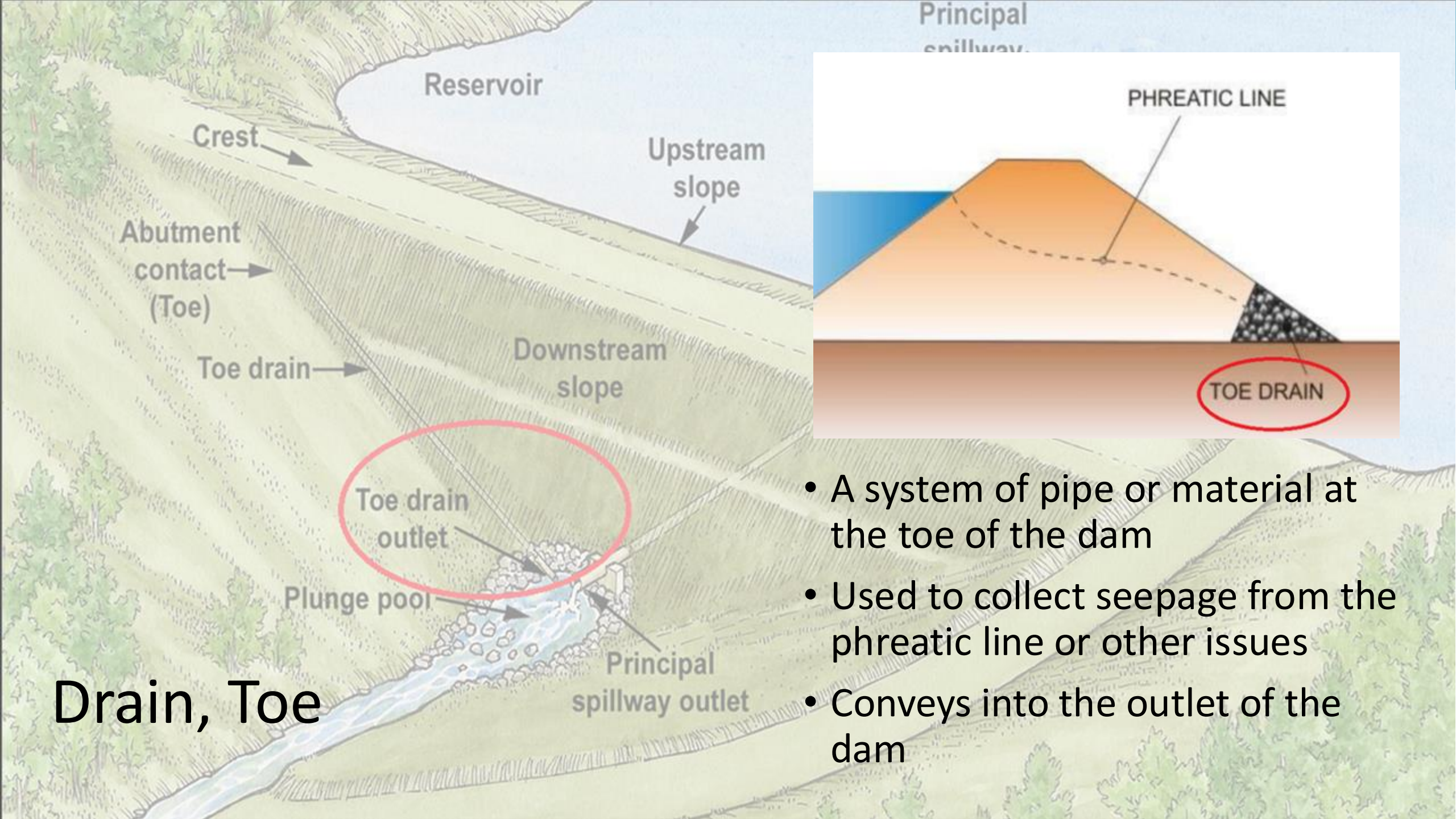
Reservoir
Crest
Upstream slope
Principal spillway inlet
Auxiliary spillway
Toe drain outlet
Plunge pool
Principal spillway outlet

Low-level outlet

- A closed channel to convey water through, around, or under a dam
- Pipe is considered a discontinuity within the dam
- Huge critical issue – subject to compaction issues leading to seepage, cracking, erosion, and piping

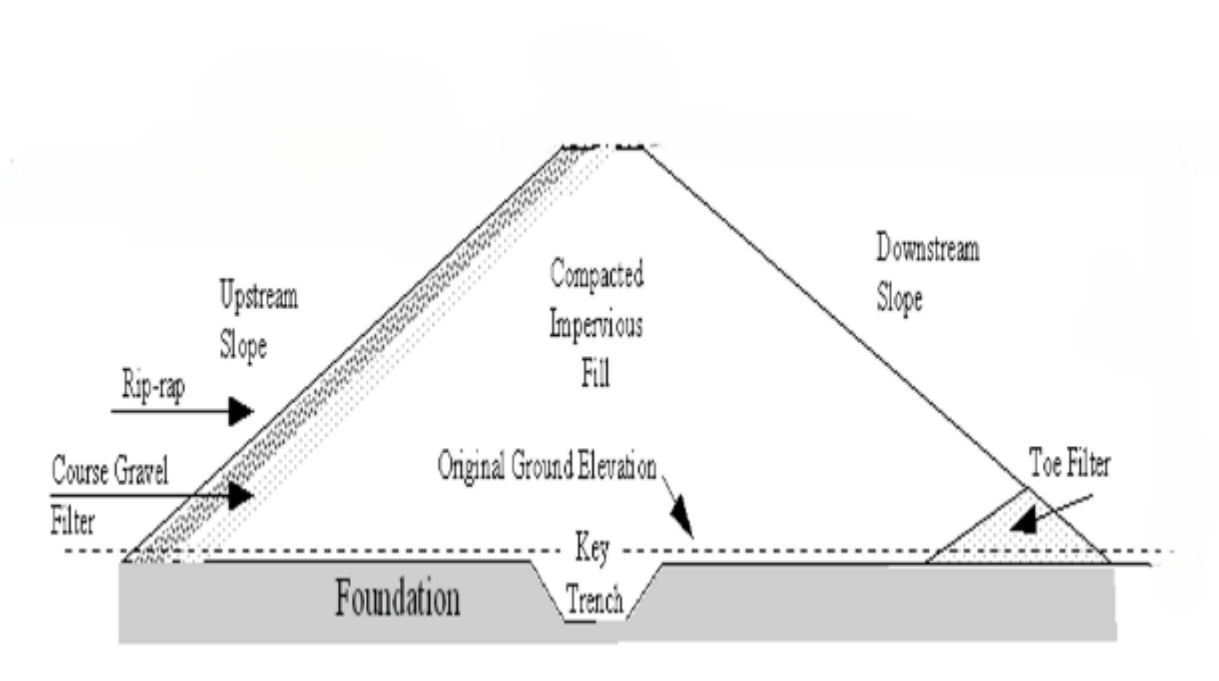
Reservoir

- The body of water impounded by a dam
- Space in which water can be stored.
- Capacity and depth affects water pressure on the dam
- In turn, directly affects seepage and erosion
- Lowered upon discovery of a major issue



Drain, Toe

- A system of pipe or material at the toe of the dam
- Used to collect seepage from the phreatic line or other issues
- Conveys into the outlet of the dam

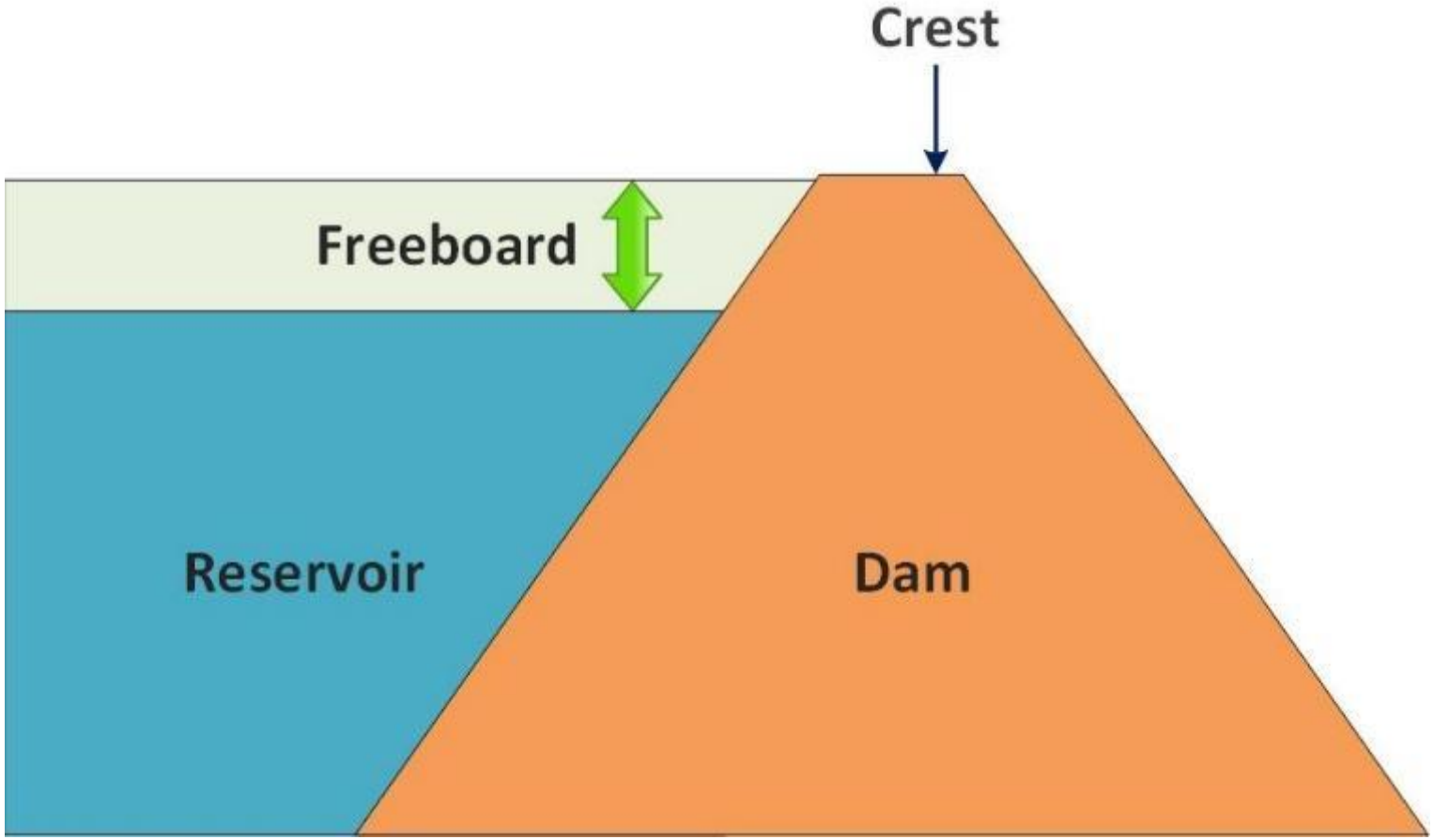


Foundation

- The portion of the valley floor that underlies and supports the dam structure
- Based on material and permeability, subject to seepage and compaction issues

Freeboard

- Provided as a buffer against uncertainty
- Adjusted to accommodate forecasted rainfall, flooding, and freshet



Intake

- Intake establishes the drawdown level of the reservoir
- Can be towers, drop inlets, submerged, and box structures
- Prone to plugging

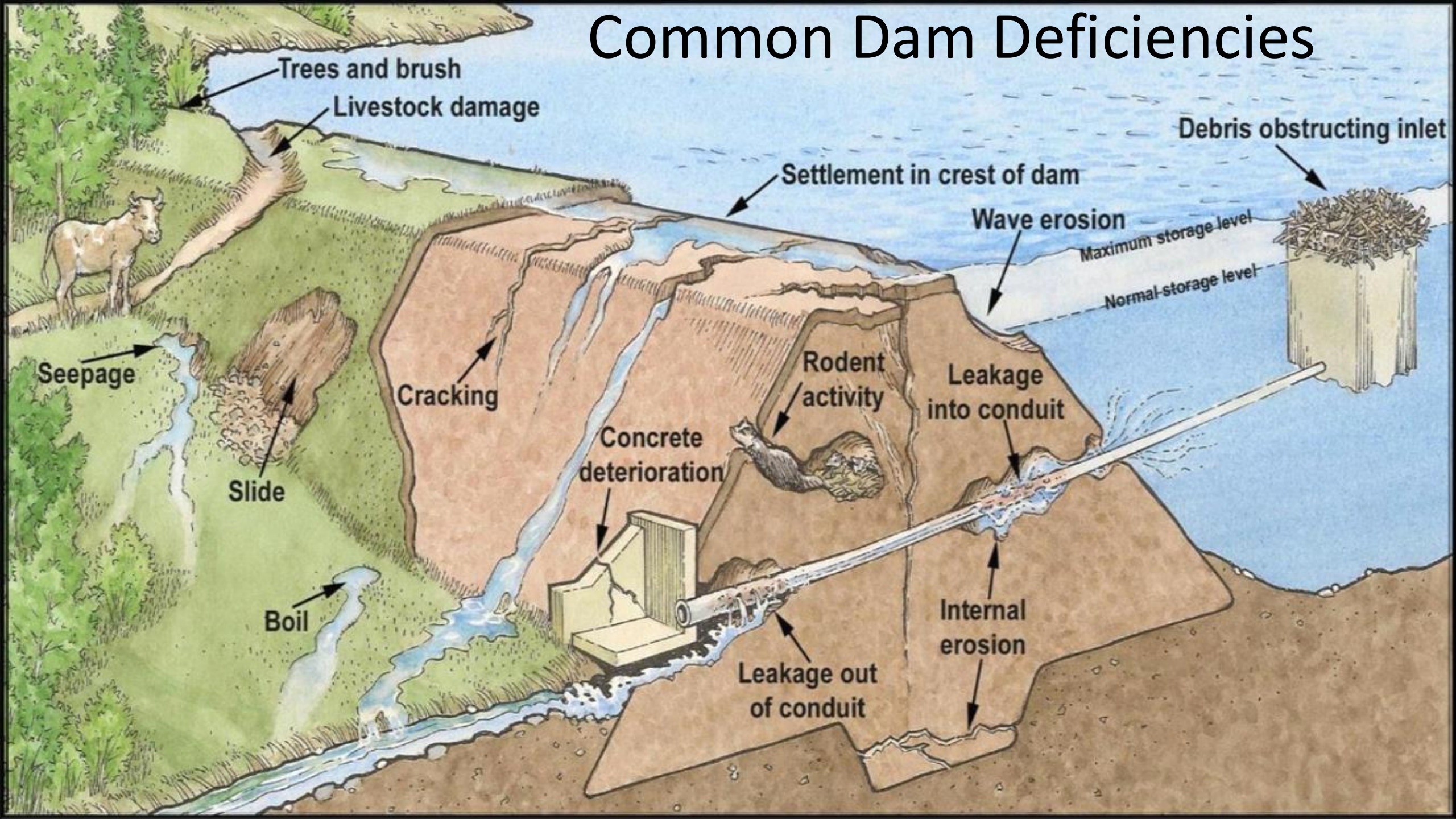
Reservoir
Crest
Upstream slope
Abutment contact (Toe)
Toe drain
Downstream slope
Toe drain outlet
Plunge pool
Principal spillway outlet

Riprap

- Layer or armor of large stone to protect slopes from water erosion
- Must be maintained due to deterioration and shifting.

Example – Mackin Creek Dam

Common Dam Deficiencies



Embankment Dams

Embankment dams have 3 specific failure modes that owners should be aware of:

External Erosion- overtopping, waves, surface erosion

Internal Erosion- Piping within the structure

Structural- Foundation, upstream or downstream slope, spillways, outlet, reservoir banks

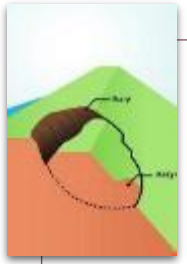
Be proactive!

Stay aware of these failure modes to prevent future dam catastrophes!

Embankment Dam Deficiencies

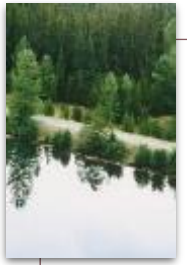
Longitudinal Cracking

Transverse Cracking



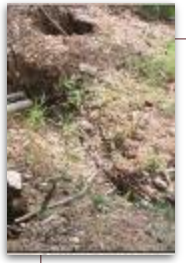
Slides and Sloughs

Sinkholes



Vegetation

Riprap Issues



Animal Burrowing

Erosion

Seepage

Longitudinal Cracking

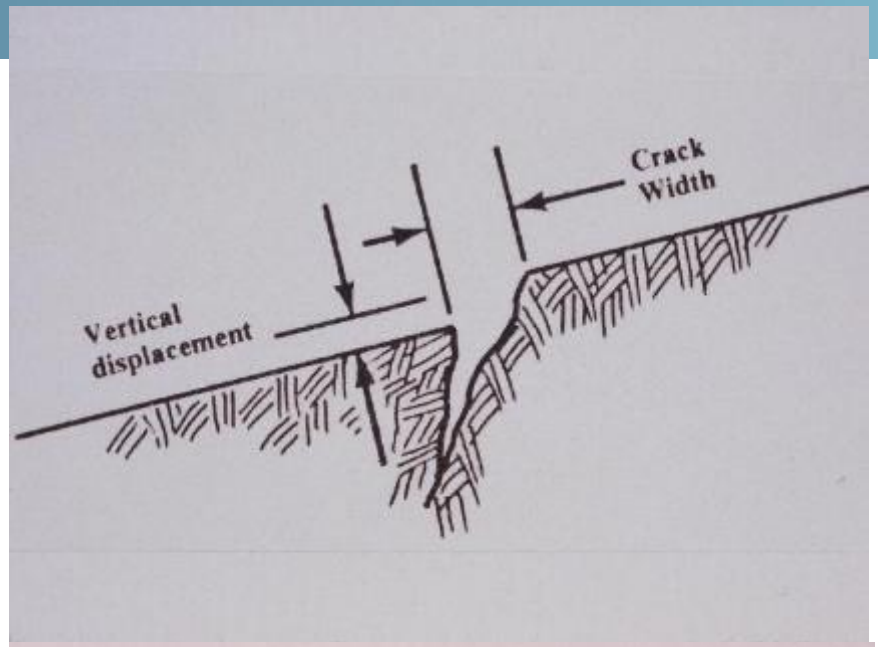
Cracks parallel to the crest of the dam can occur for various reasons such as:

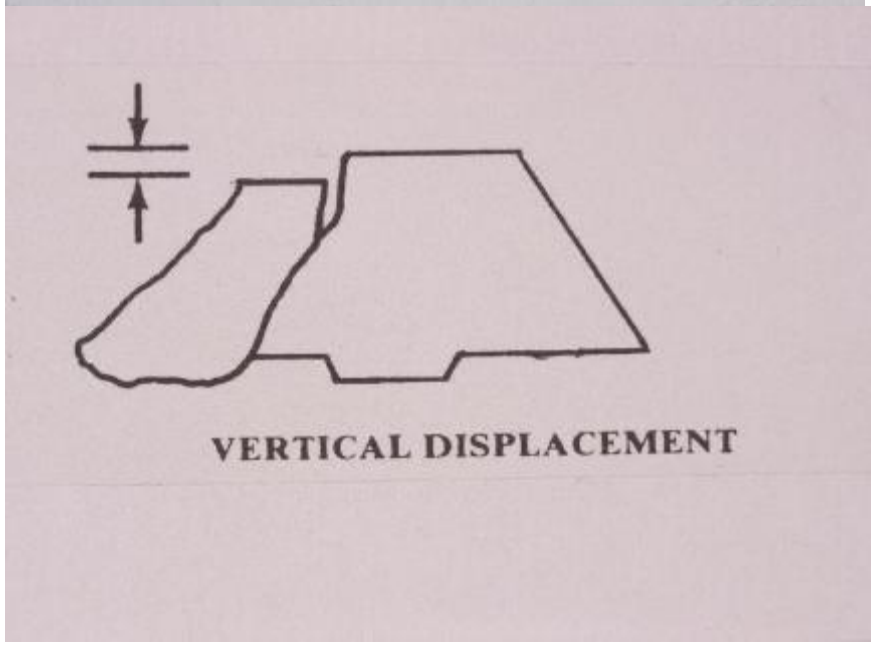
- Poor compaction
- Progressive settlement of foundation
- Traffic on crest
- Seasonal changes that affect the reservoir level and freeboard level

This can result in **vertical displacement** and dam failures

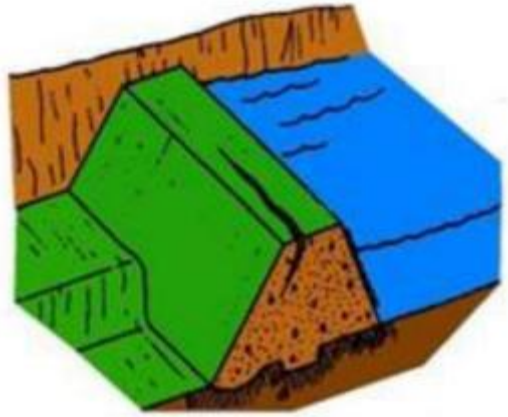
Vertical Displacement

- Occurs on the upstream or downstream slopes
- These deficiencies are as serious as those located on the crest

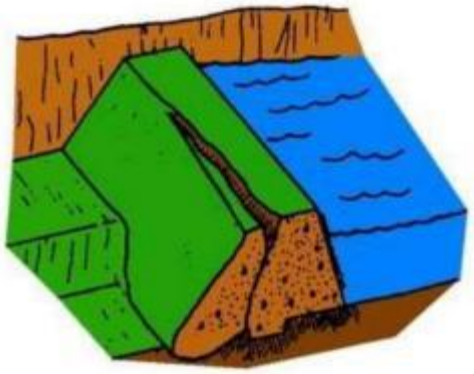




- Measure the width of the crack as well as the horizontal length
- Document and record the displacement using the **SMPL** method
- Immediately forward to a DSO



Longitudinal Cracking

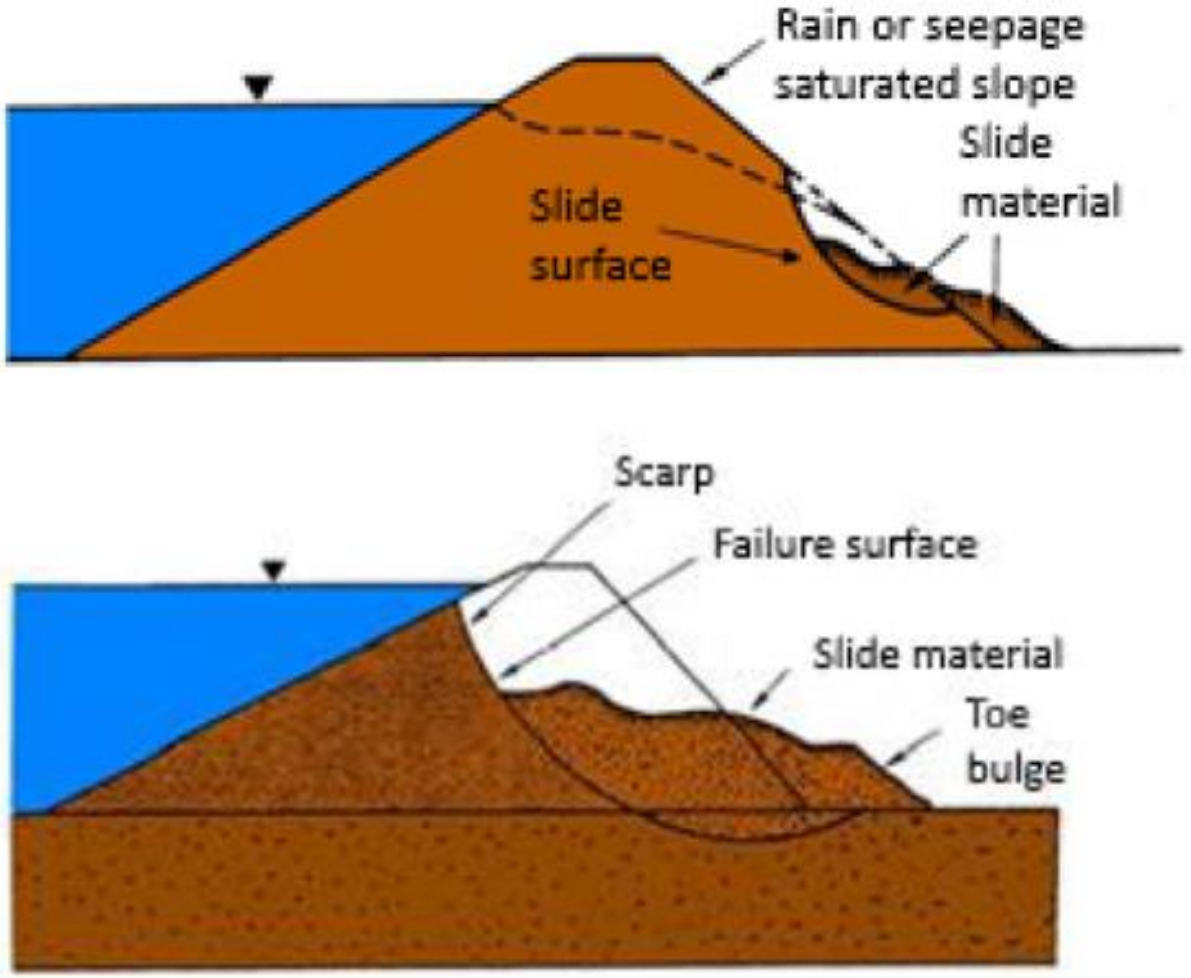


Vertical Displacement

Slides / Sloughs

- Due to saturation of weakened slopes
- Normally avoided with proper design of the dam and a rock-filled toe
- Inspections and surveillance allow for tracking the rate of change as cracks appear and develop
- Severe cases require consultation with an engineer

Phreatic Line



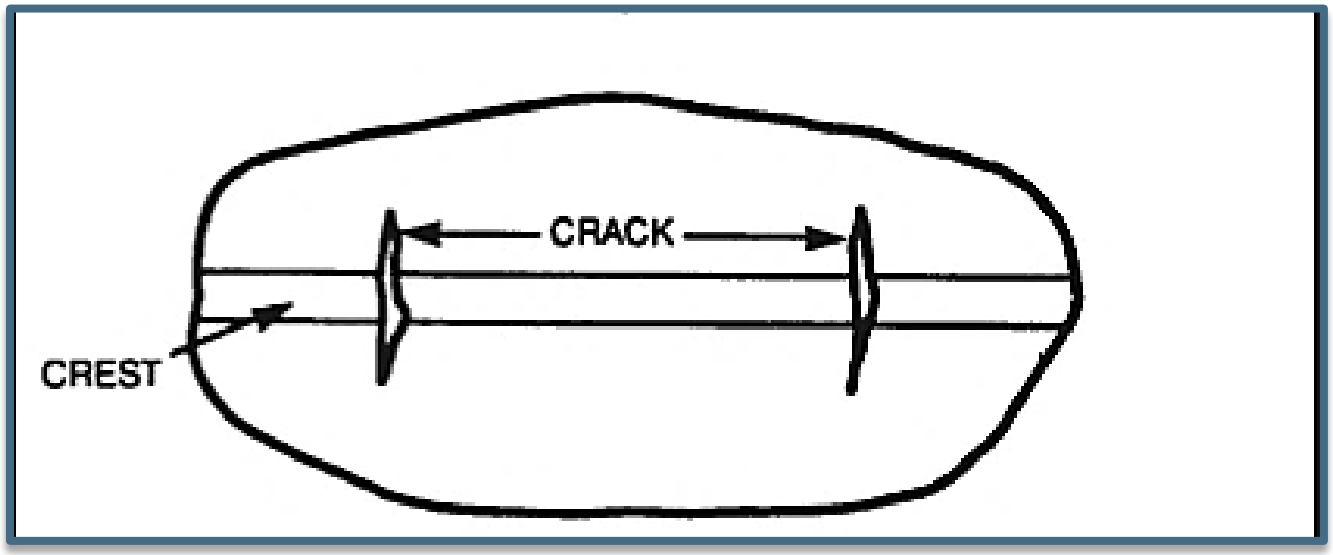
Hamilton Lake Dam

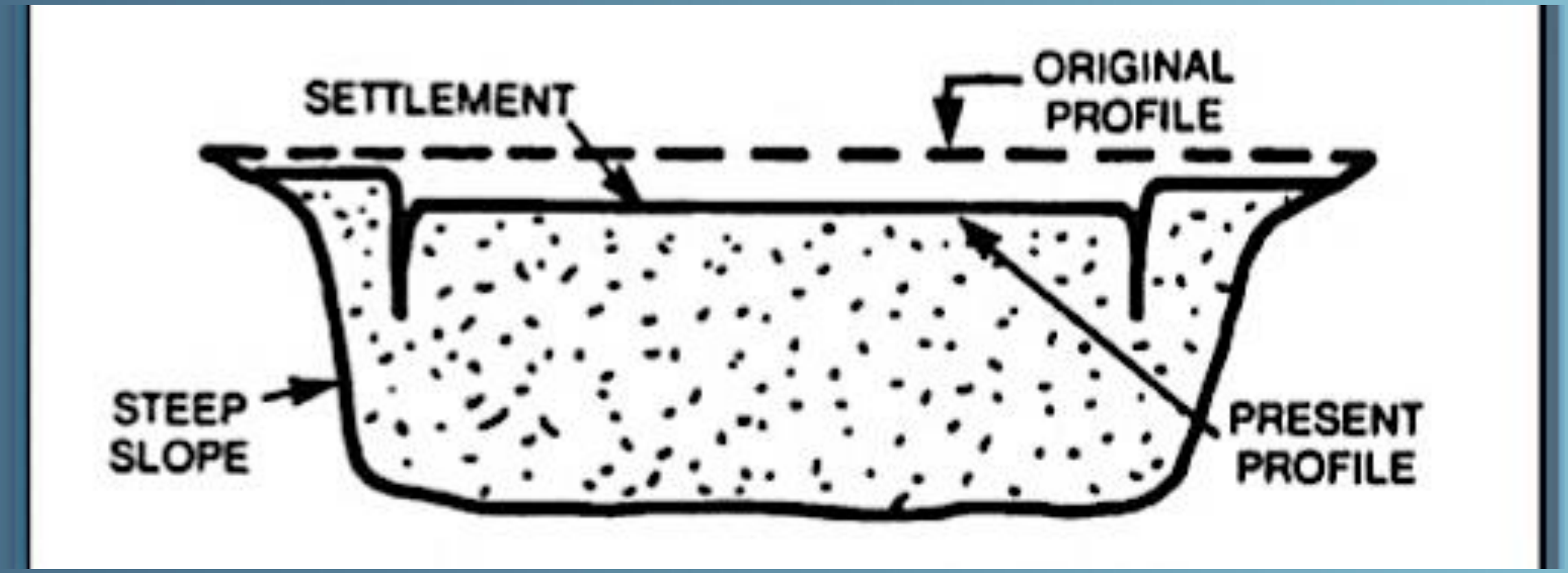
BRITISH | Ministry of Water, Land and

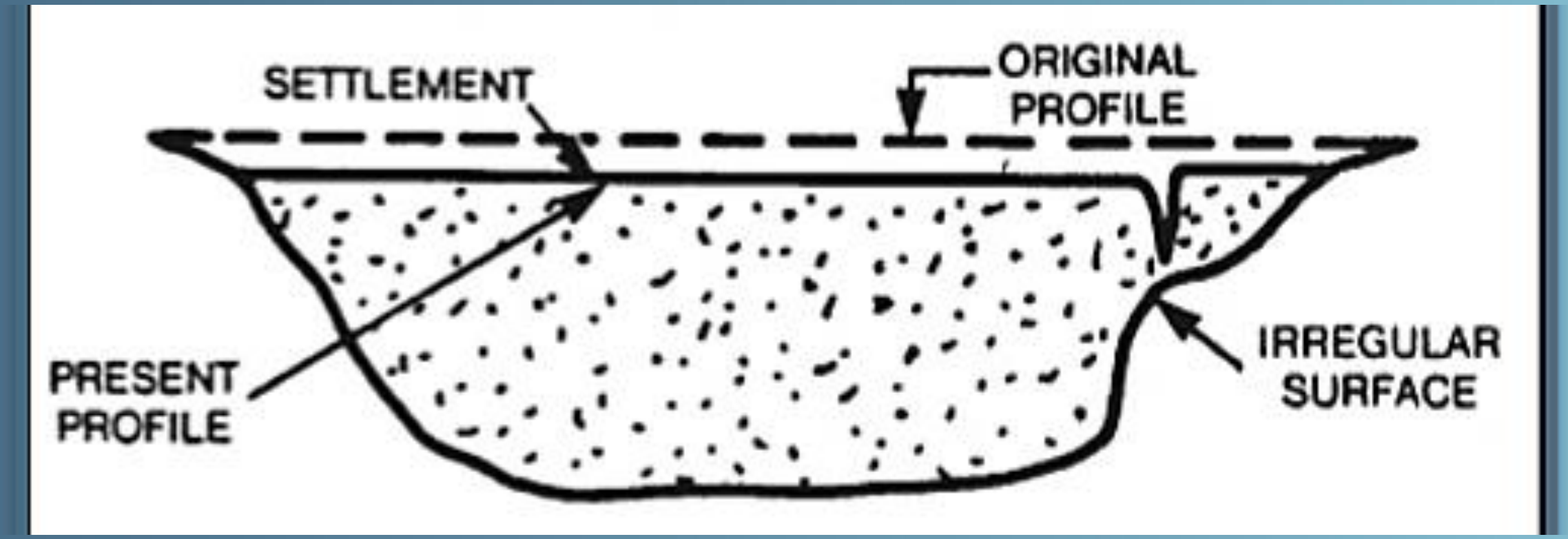
A slough and aftermath of a vertical displacement crack

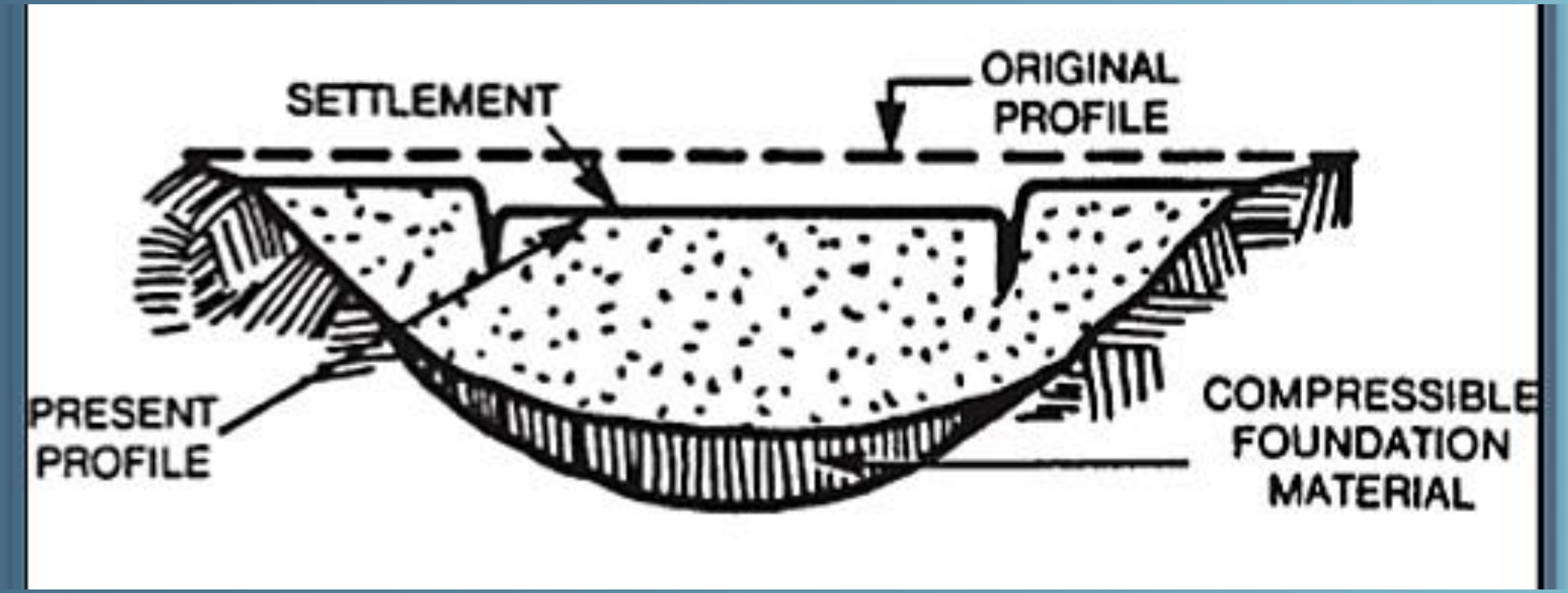
Transverse Cracking

- Occurs perpendicular to the crest
- Results in sinkholes, puddling, and low areas




SETTLEMENT
ORIGINAL PROFILE
STEEP SLOPE
PRESENT PROFILE


SETTLEMENT
ORIGINAL PROFILE
PRESENT PROFILE
IRREGULAR SURFACE


SETTLEMENT
ORIGINAL PROFILE
PRESENT PROFILE
COMPRESSIBLE FOUNDATION MATERIAL

Sinkholes

- Circular shaped cracks
- Due to seepage, piping, or loss of embankment fill
- Outer cracks indicate the area affected by the underground removal of material
- Filling the hole with rock and gravel can be a temporary

  and emergency measure

Vegetation

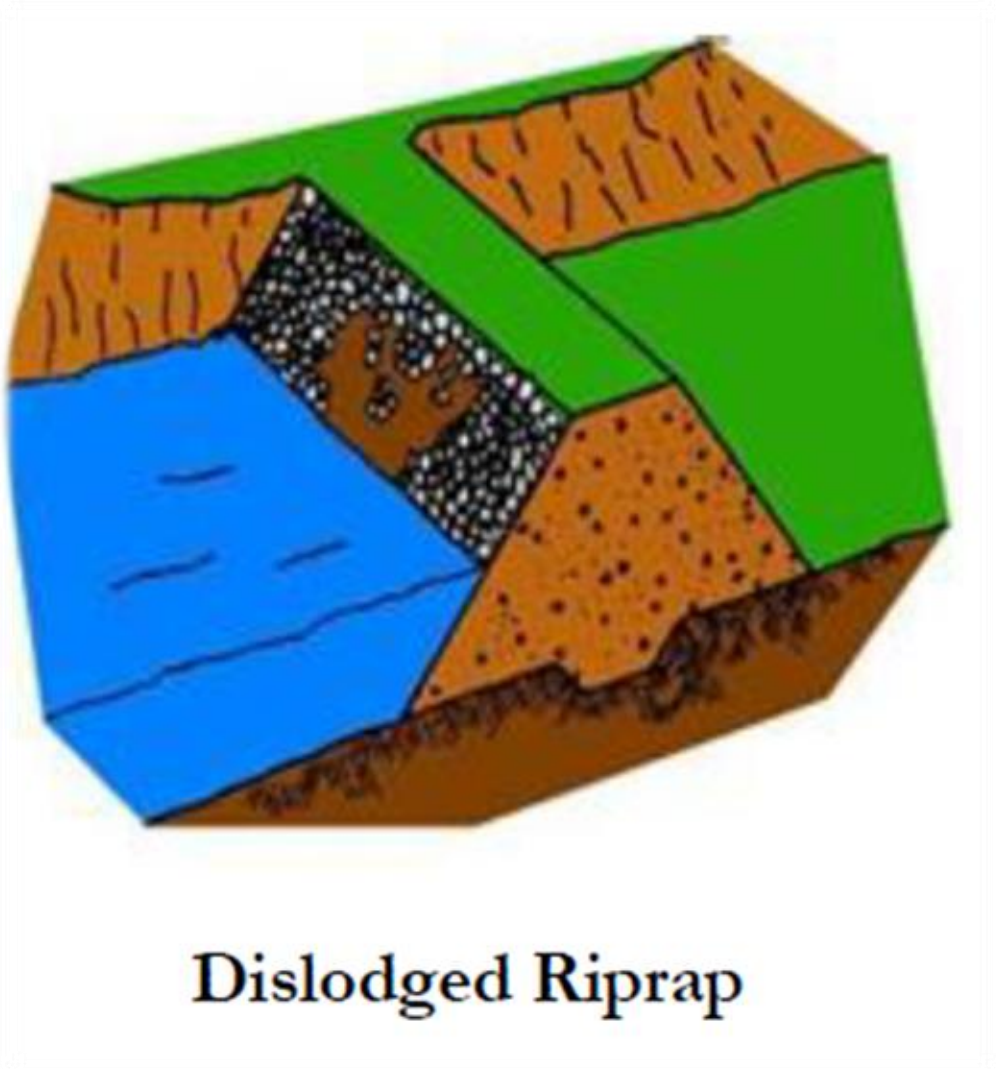
- Caused by lack of maintenance
- Interferes with surveillan and inspection
- Results in other deficien

Dalzall Creek Dam Failure

- Caused by high winds and large trees on embankment

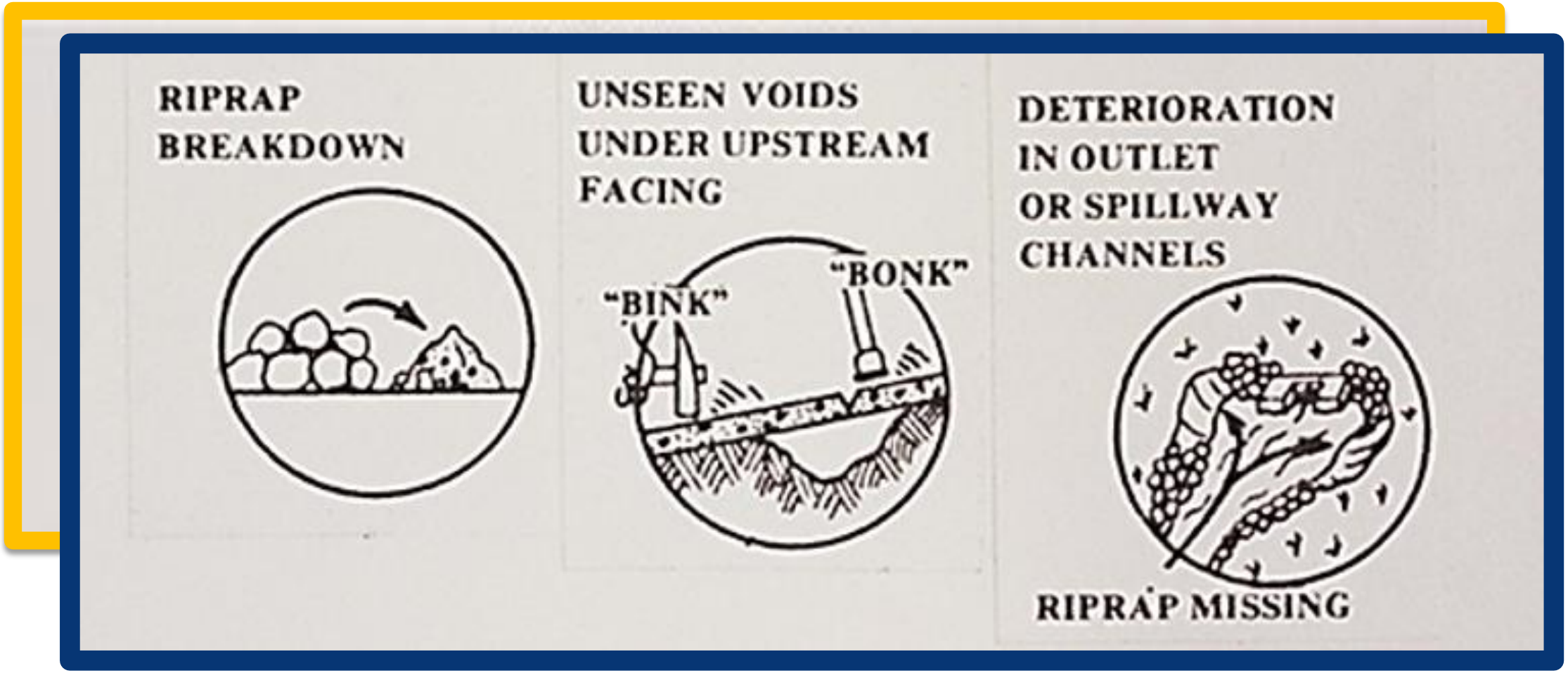
Riprap Deterioration

- Rock or similar material used to armor shorelines or abutments of dams from water and ice erosion
- Can be dislodged if the slope is too steep or if the riprap material is too small



Dislodged Riprap

Riprap Issues



Riprap Deterioration

The slope protection has been broken down into piles of sand.

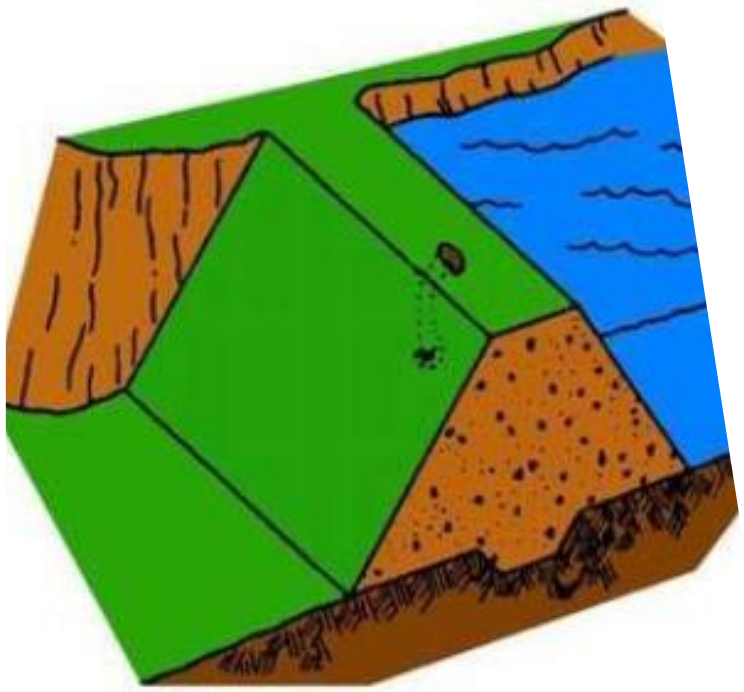
Riprap Deterioration

The retaining wall was failing, causing the embankment to collapse

Riprap Deterioration

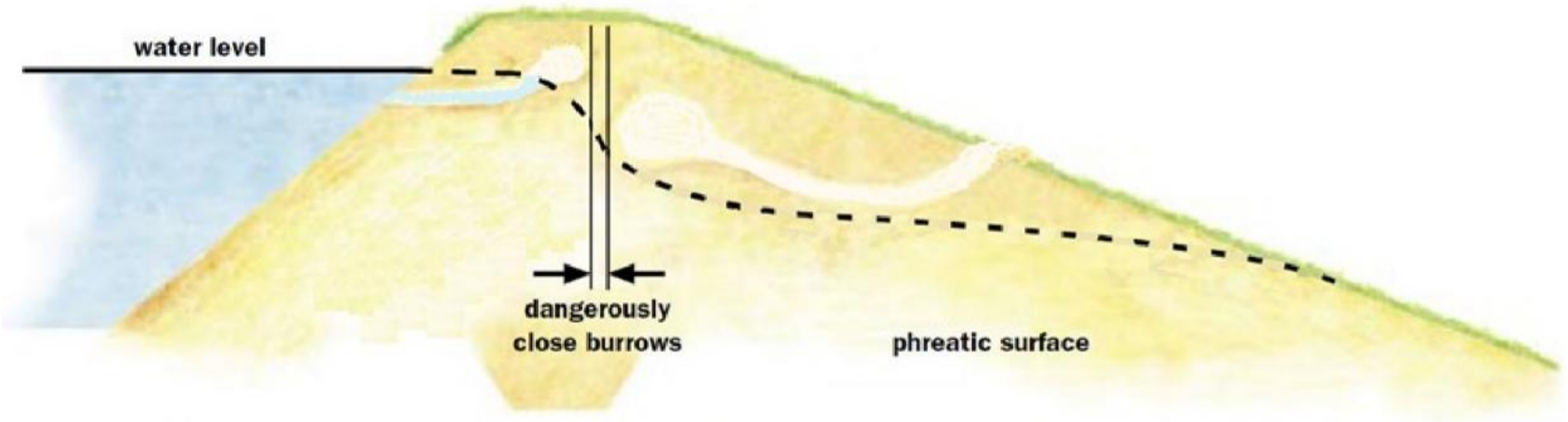
Ineffective riprap and fines being eroded away by small waves.

Animal Infestation



Rodent Activity on Crest

- Often hidden under vegetation
- Rodent control programs can reduce future damage to the dam
- Determine the exact location and extent of each tunneling deficiency


water level
dangerously
close burrows
phreatic surface

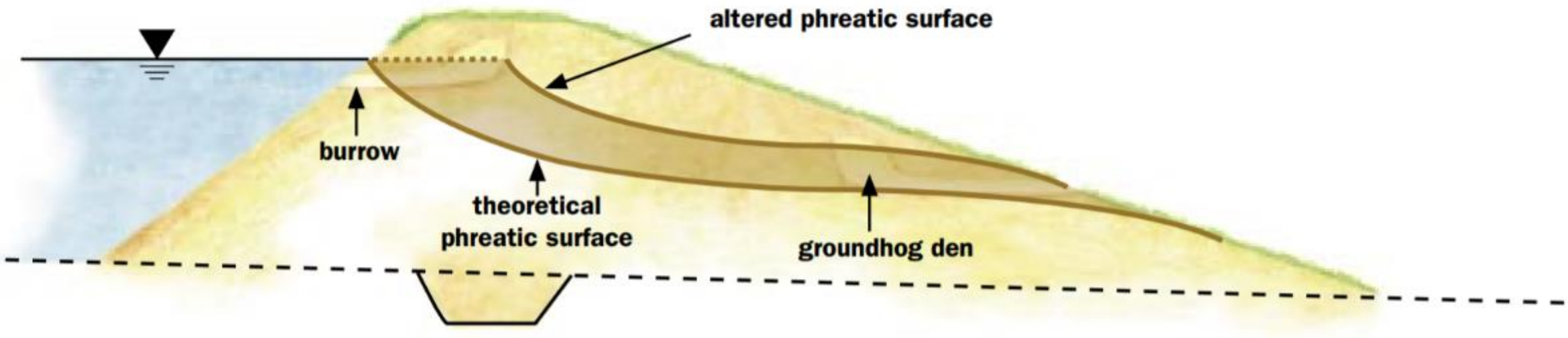


Figure 2-2. Burrows can alter dam hydraulics by shortening seepage paths.

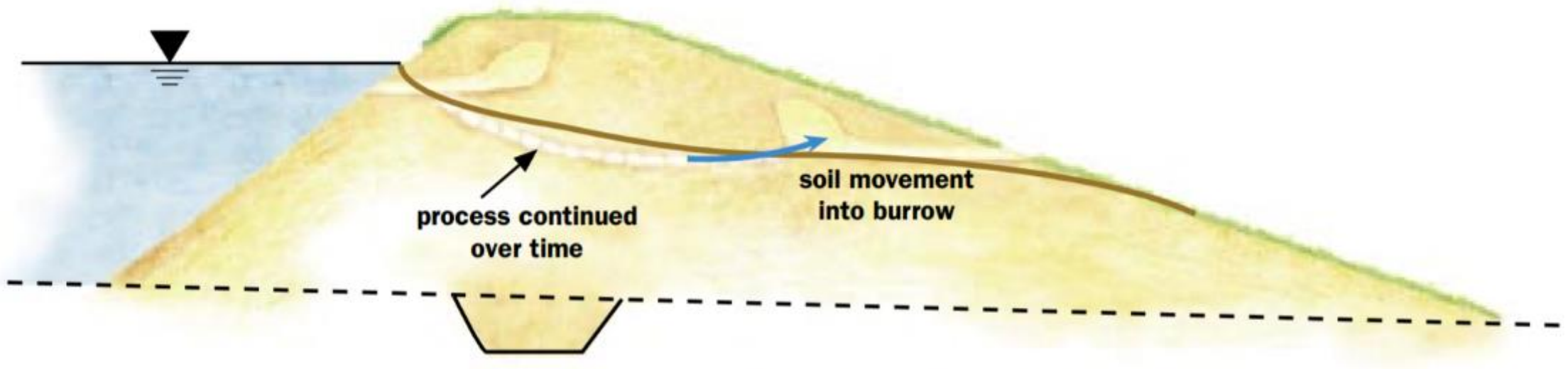


Figure 2-3. Burrows can lead to piping within an embankment.

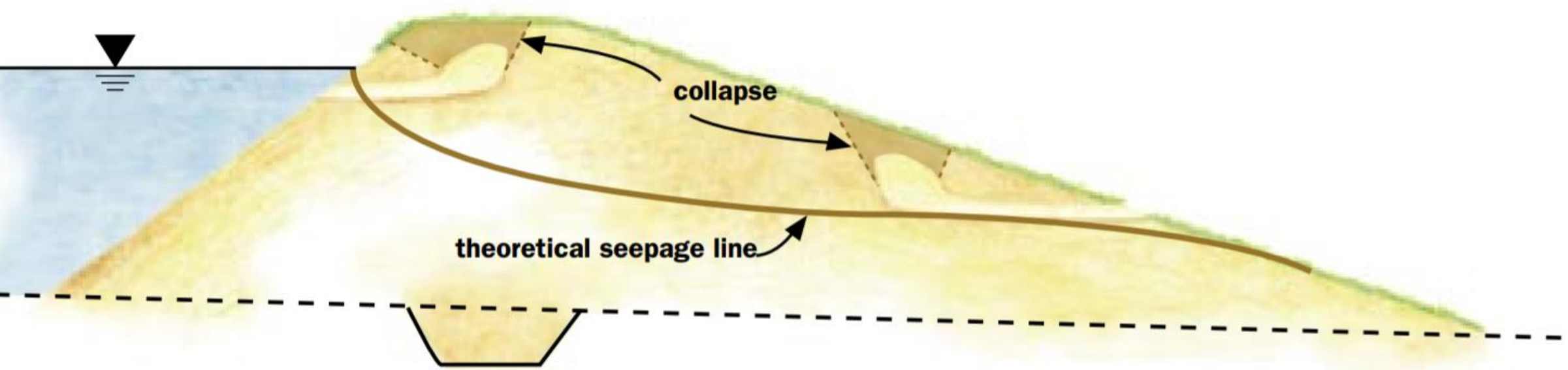
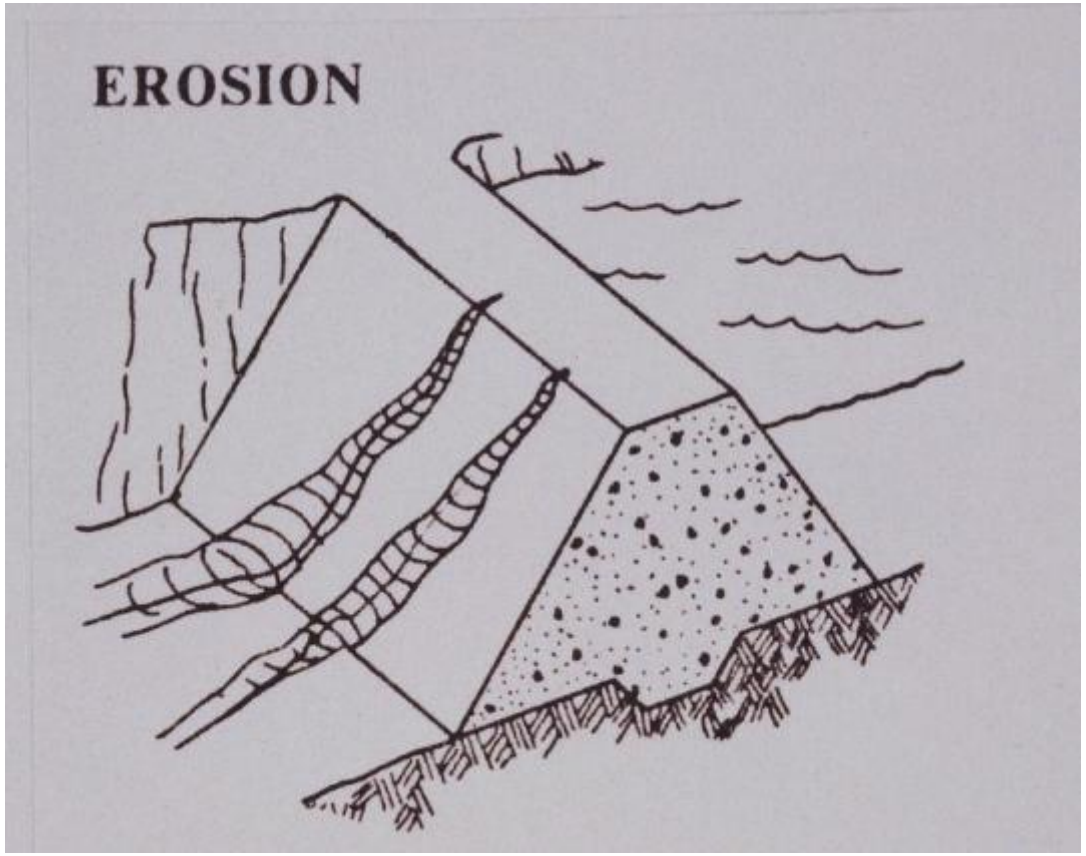


Figure 2-4. Burrows can collapse, leading to formation of sinkholes and loss of structural integrity.

Erosion



Causes include:

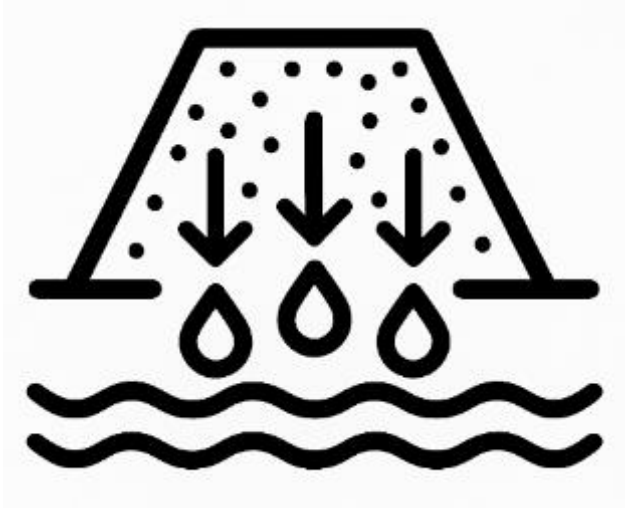
- Weather
- Traffic across the slope
- Excessive overtopping

Can be resolved if detected early

- protective grasses, rock, or riprap is the typical solution

Erosion due to trespassing

Seepage



- Indicated by wet areas downstream from dam
- Occurs at all dams in some capacity
- Becomes a concern when:
  - It carries material
  - Flow rate/volume changes
- Should always be controlled to prevent erosion and a potential dam failure

Detecting Seepage

- Easier to see following light snowfall
- Flows either through the dam or foundation
- Accurate measurements over a long period of time will establish a baseline seepage flow


Angle 1


Angle 2

Surveillance & Inspection

Surveillance

the monitoring of a dam and the surrounding or adjacent to the dam (a) through visual observation, and (b) if there is instrumentation relating to the dam, through the systematic collection of instrumentation readings and analysis and interpretation of the readings

AKA Routine Inspections (CDA)

Inspection

a thorough on-site inspection of the dam and dam site conducted by a person who is an owner of the dam or an agent of an owner of the dam who is responsible for the safety of the dam

AKA Engineering Inspections (CDA)

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Surveillance & Inspection: Purpose

Dam Failures are often preceded by warning signs.

A comprehensive visual inspection can identify issues and provide the opportunity to perform mitigative measures.

Surveillance & Inspection: Purpose con't

The goal is to identify deviations in performance conditions so corrective, or risk

mitigation, measures

can be implemented…

Overview General Inspection & Maintenance

Be comfortable contacting your DSO

Commitment is key to the improvement of the inspection process of all dams

Due diligence may successfully prevent future dam failures and will reduce the liability on owners

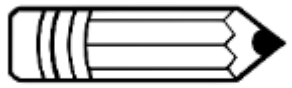
Exercise reasonable care - Section 29 of the Water Act & Section 5 of the Dam Safety Regulation

Inspections - **SMPL**

A very useful and common practice to use when conducting inspections and surveillance is the SMPL (Simple) method:

Tools and Equipment needed: a camera, tape measure, clipboard, flashlight, and other tools.

Sketch and Note



Measure

Photograph

Locate and Reference

Ministry of Water, Land and Resource Stewardship

Equipment for Visual Inspections

Common equipment to carry with you in an inspection:

- **Clip Board / Notebook**
- **Tape Measure**
- **Camera**
- **Flashlight**
- **Guidebook – Self Help Guide**

Photos Take photos from the same angle

Flashlight Invest in high-quality

Reference Use guides and pocketbook

Safety Preparations

Take time to be prepared

Bring proper safety equipment and appropriate gear

- steel toe boots, hard hats, vests, etc.

Always follow WCB regulations. Include the inspection process in your workplace WHMIS manual / procedures.

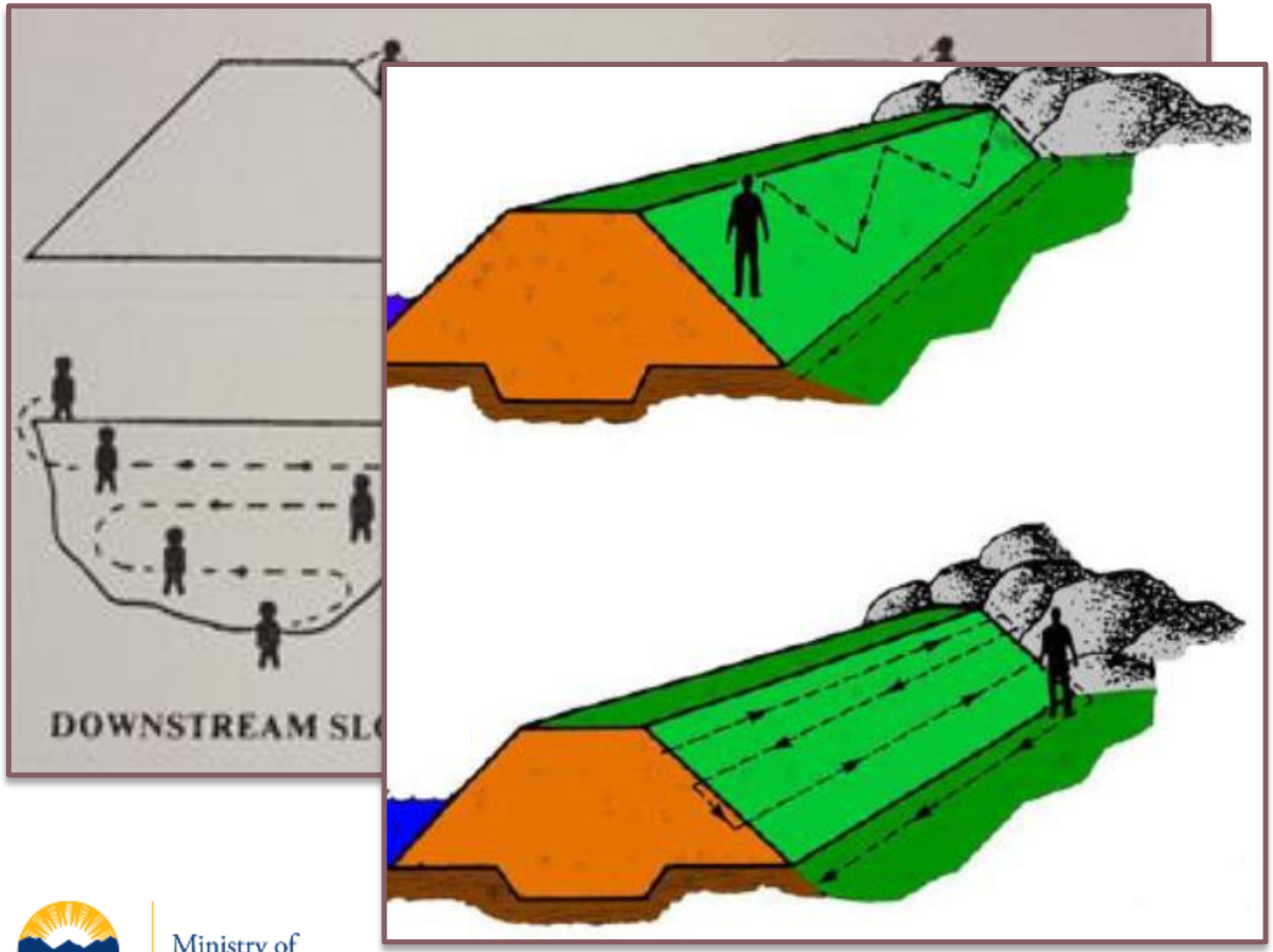
Inspections – Operating Level

Best reservoir stages for a formal inspection:

- ***Maximum***
- ***Average / Normal***
- ***Minimum***

- Vary the timing of annual inspections
  - Consistent timing may lead to missing critical deficiencies
- Varied timings increases accuracy for assessing:
  - reservoir levels
  - spillway flows
  - soil saturations

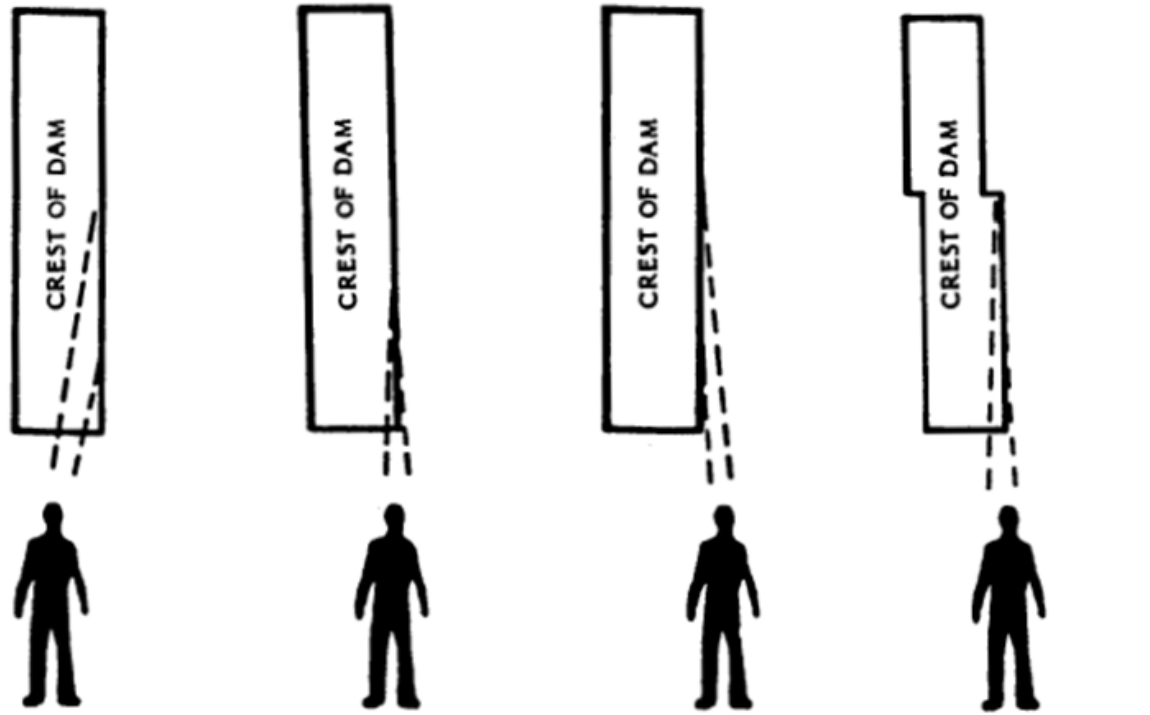
Inspection Techniques



- Various routes for inspecting a downstream slope
- Move around to gain different perspectives
- Consistent Vantage points for pictures for comparing images over time

Inspection and Monitoring

- Regular inspection and monitoring
- Assess interior conditions of spillway conduits
- Document all deficiencies
- Monitor change of deficiencies
- Vary the inspection vantage points



Sighting Techniques

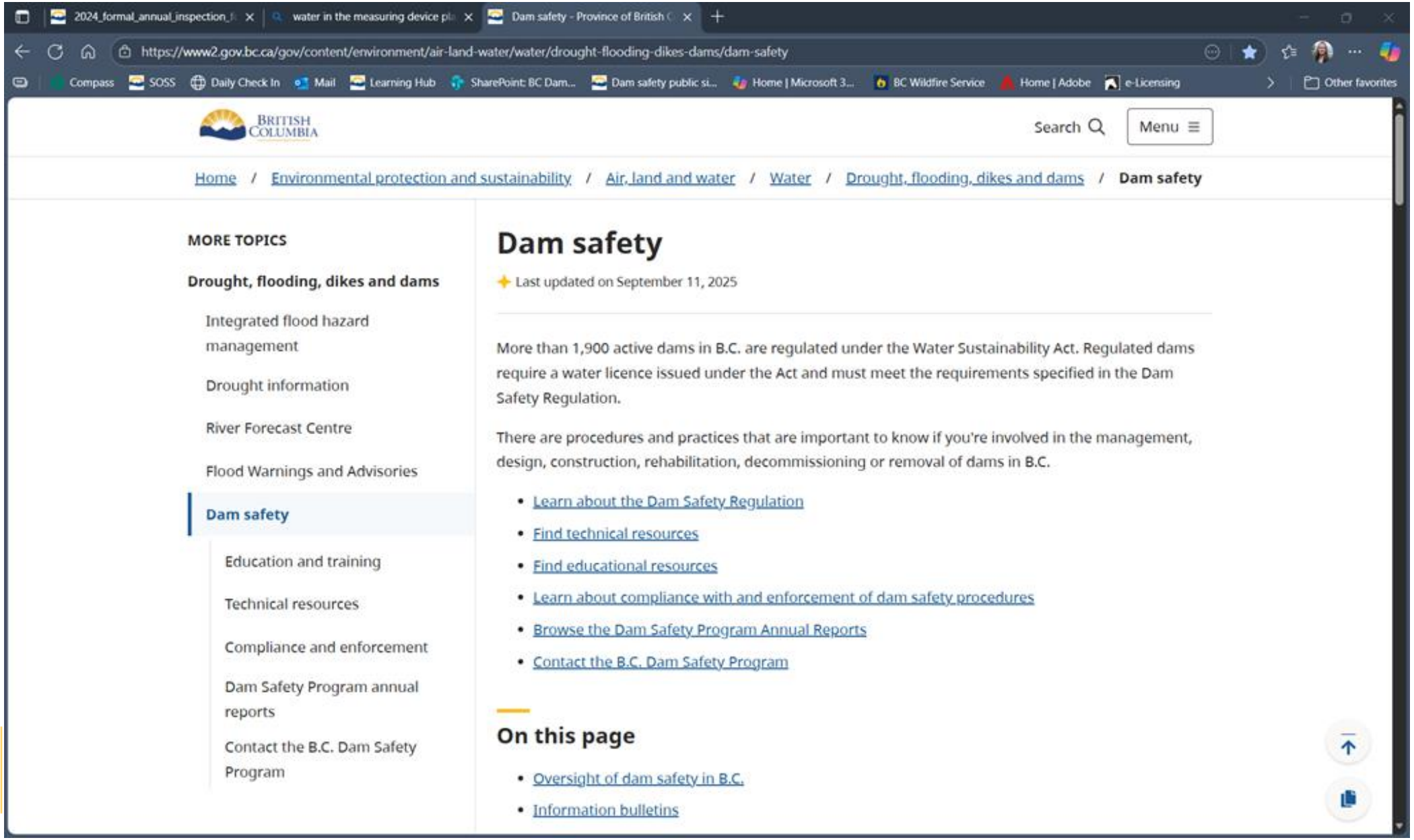
Sighting An Offset

Tools and Resources

Creating a Dam Safety Maintenance System – 3 Phases

1. Planning
    1. Identify OMS activities
    2. Develop operating procedures
    3. Establish a records management system
2. Implementing
    1. Identify required resources
    2. Administer the program
3. Evaluating
    1. Identify standards
    2. Collect information
    3. Assess effectiveness

BC Dam Safety Program Resources



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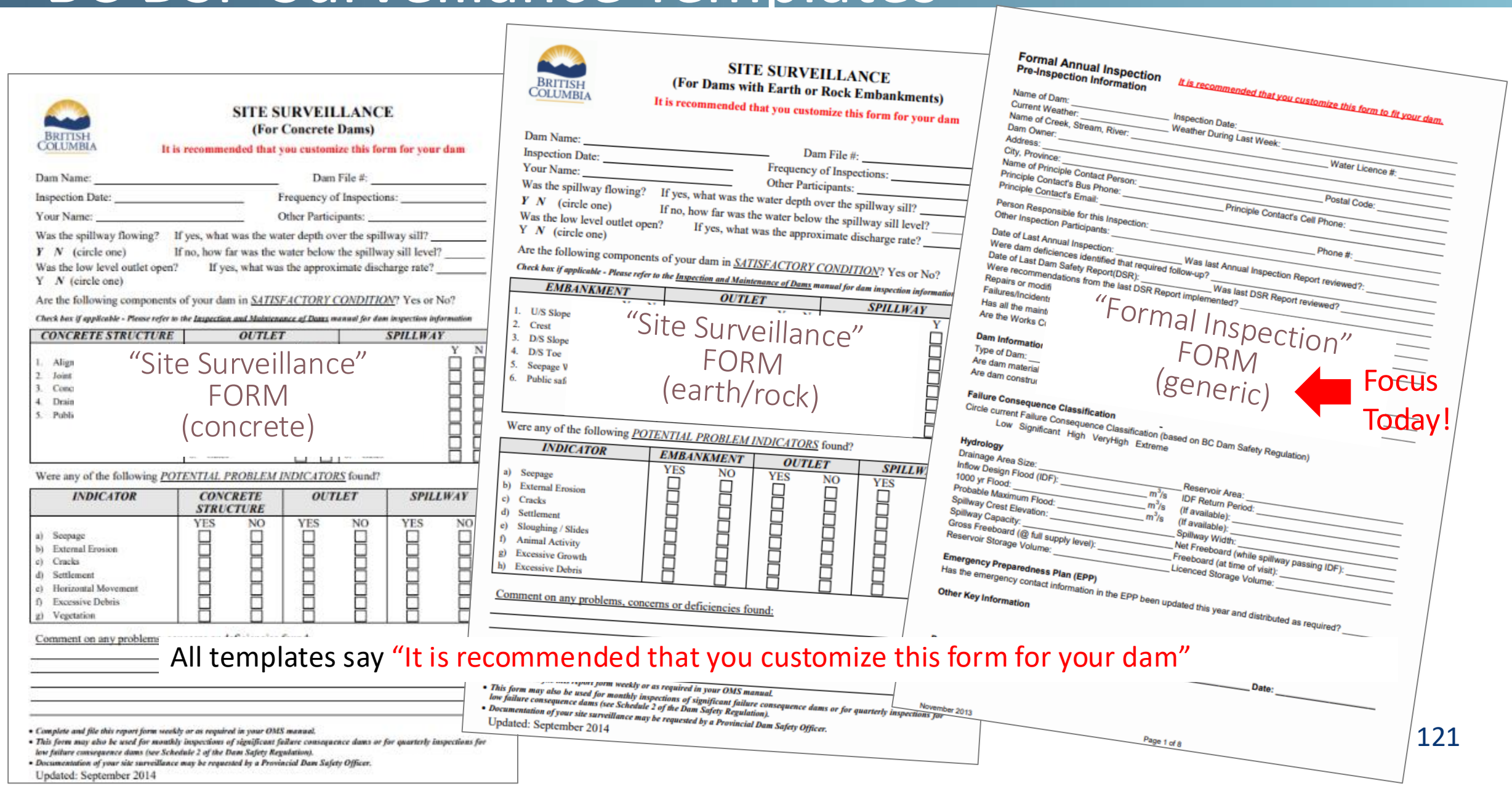
Guides, Templates, Bulletins and Checklists

BC DSP Surveillance Templates

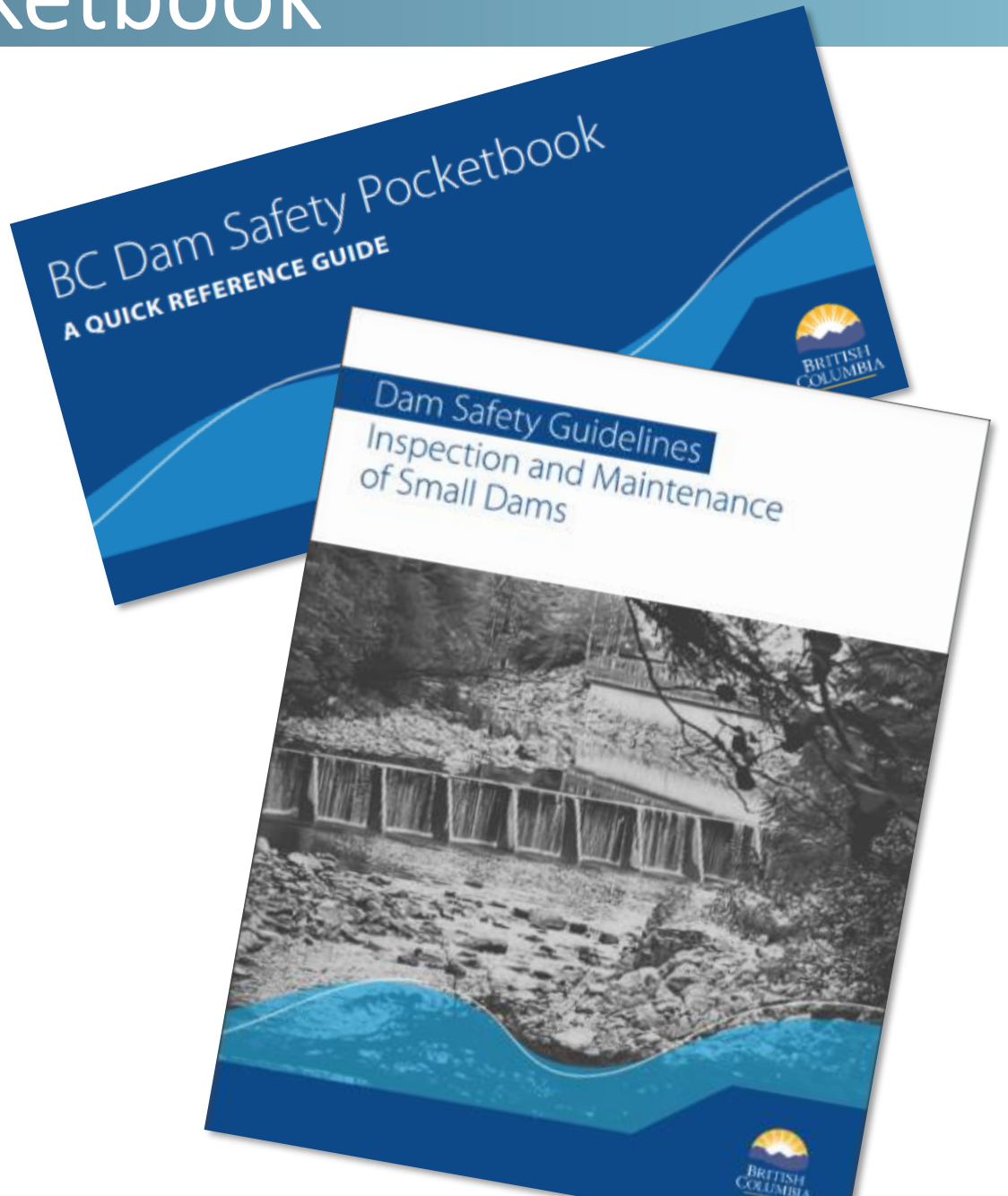


Self Help Guide and Pocketbook

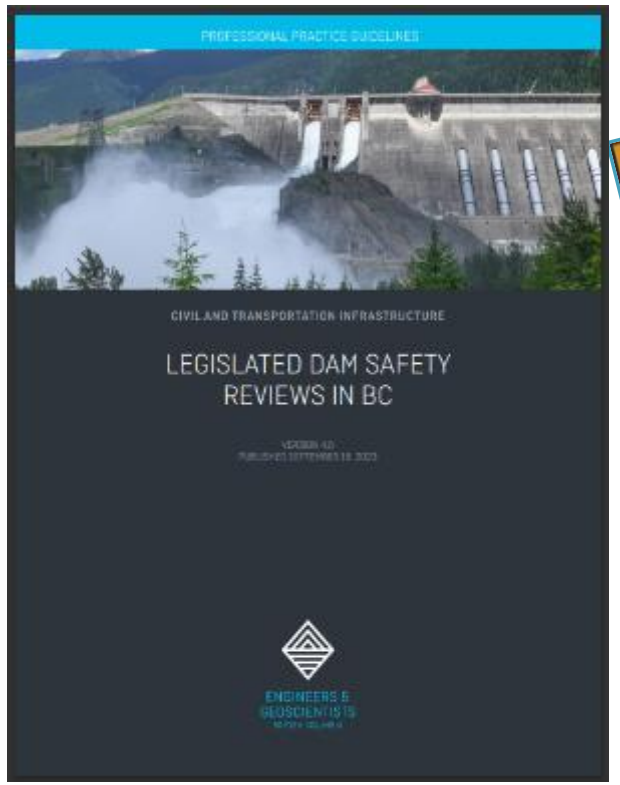
The Safety Pocketbook Quick Reference Guide

&

the Inspections and Maintenance of Small Dams manual



Best Practice Guidance



Dam Safety Training

Visit the BC Dam Safety Education and Training webpage for training opportunities or use the QR code to request training for your team.

Questions

Reach out to dam.safety@gov.bc for specific questions for a Dam Safety Officer