

Erosion at Adit 4 Tunnel Spoils Disposal Site North Fork Stanislaus River Hydroelectric Project

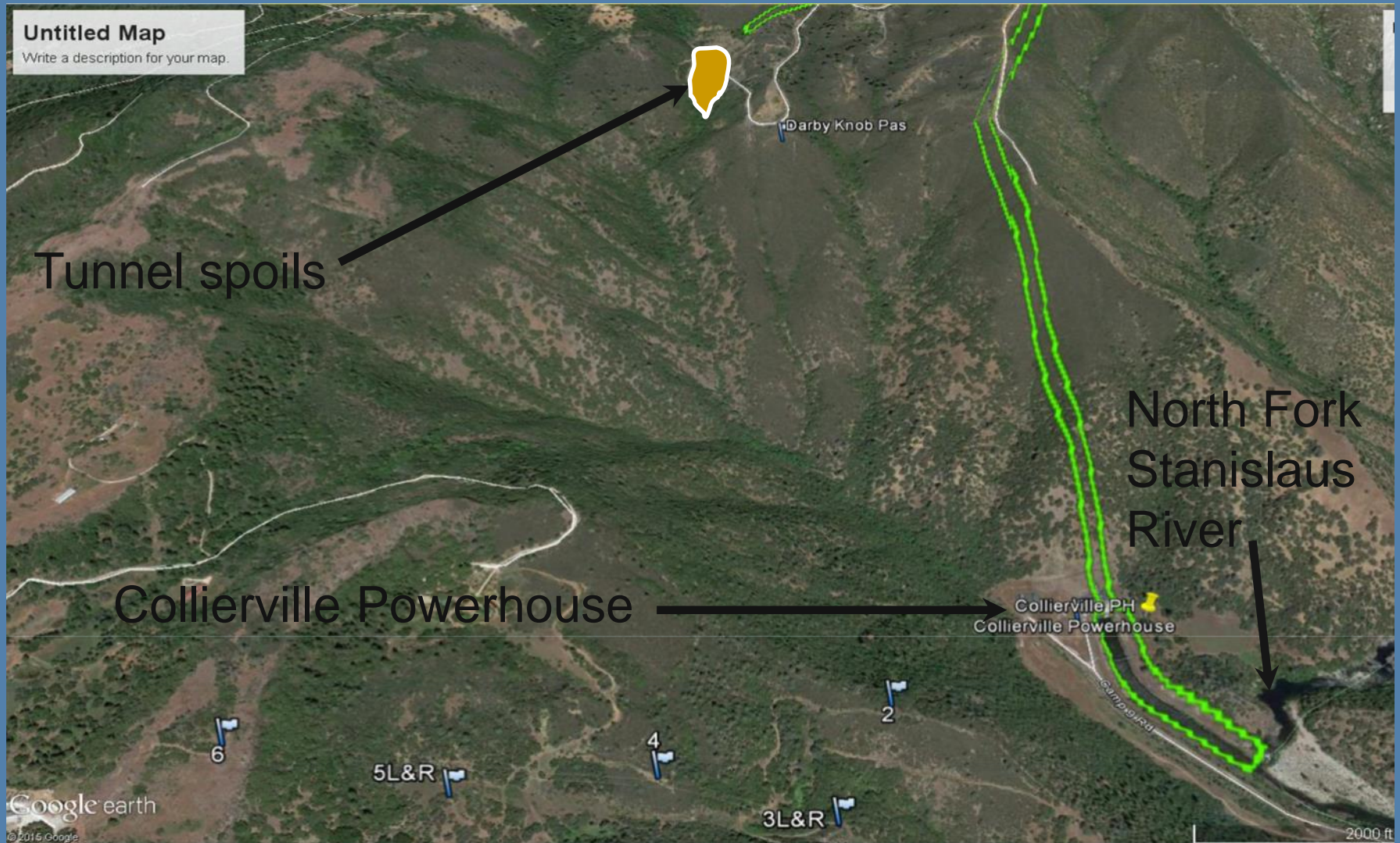


February 3, 2016
Facilities Committee Meeting

Background

- Adit 4 is part of the power tunnel connecting McKays Point Reservoir to Collierville Powerhouse
 - 1986 tunneling produced rock cuttings spoils
 - 240,000 cubic yards were loosely placed
 - Located over a creek bed on federal lands
 - Lost 2,000 - 4,000 cubic yards of spoils

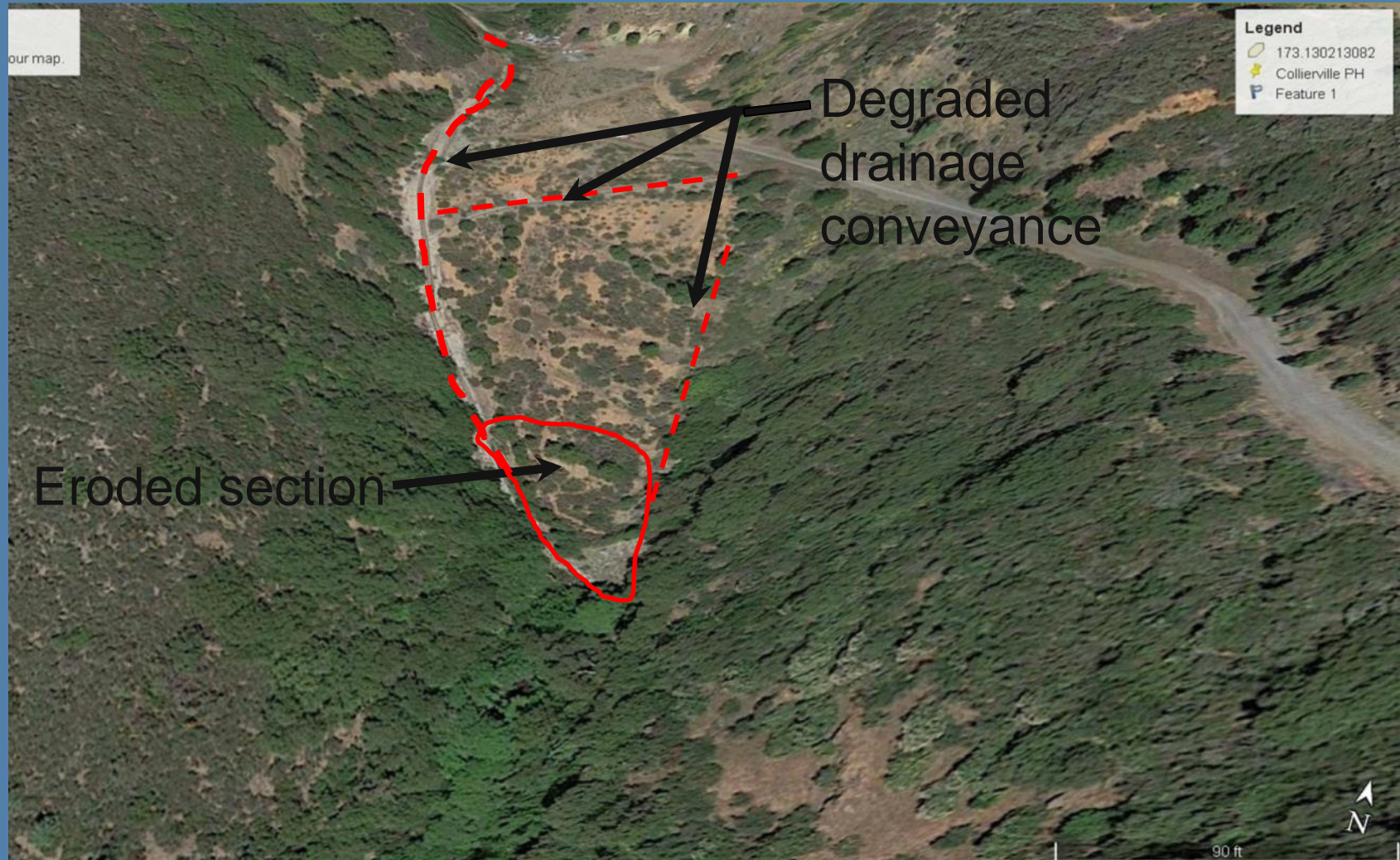
Location



Adit 4



Spoils



Spoils Erosion



Eroded Section



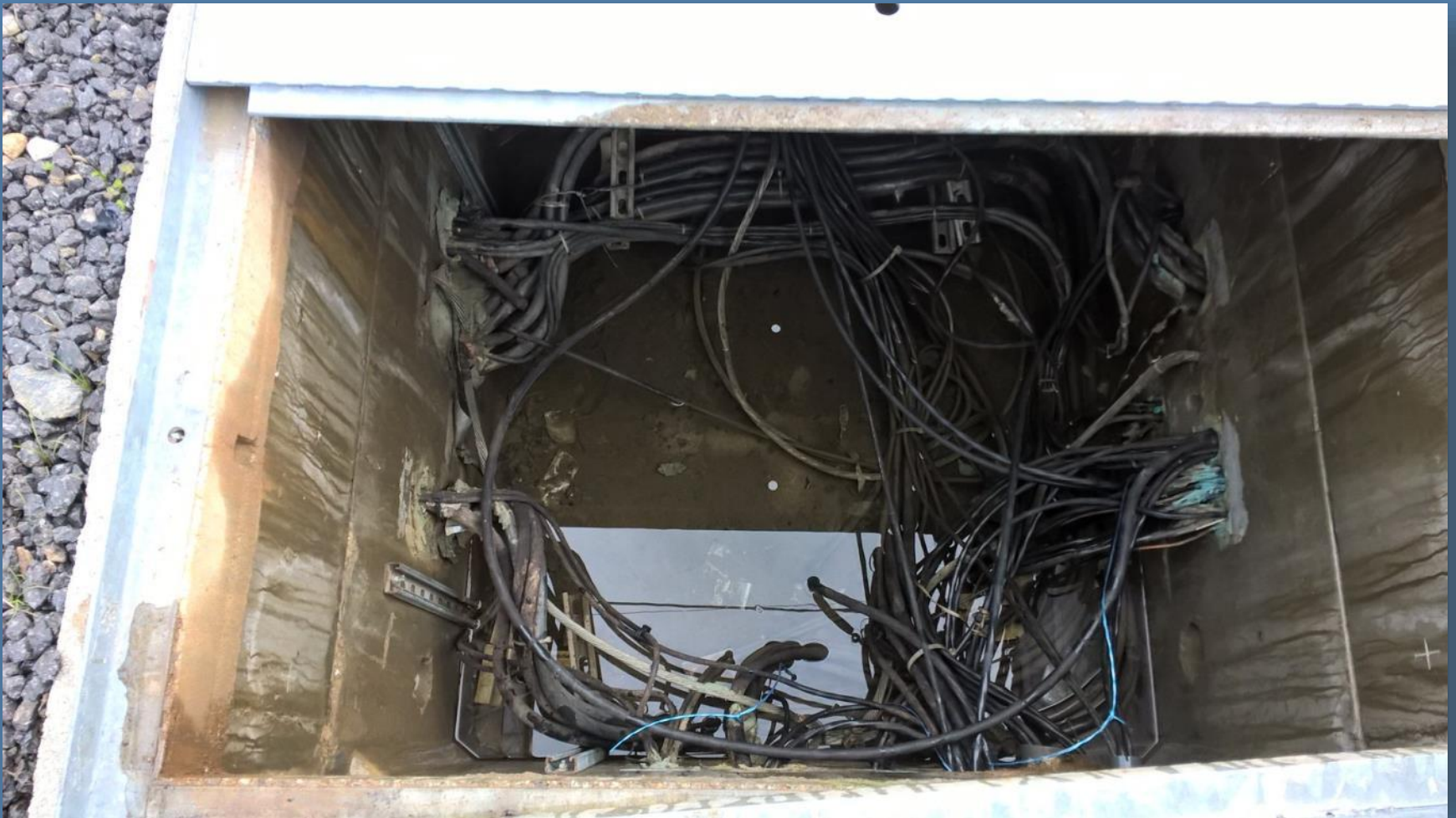
Downstream Deposition



Downstream Deposition



Collierville Powerhouse Flooding



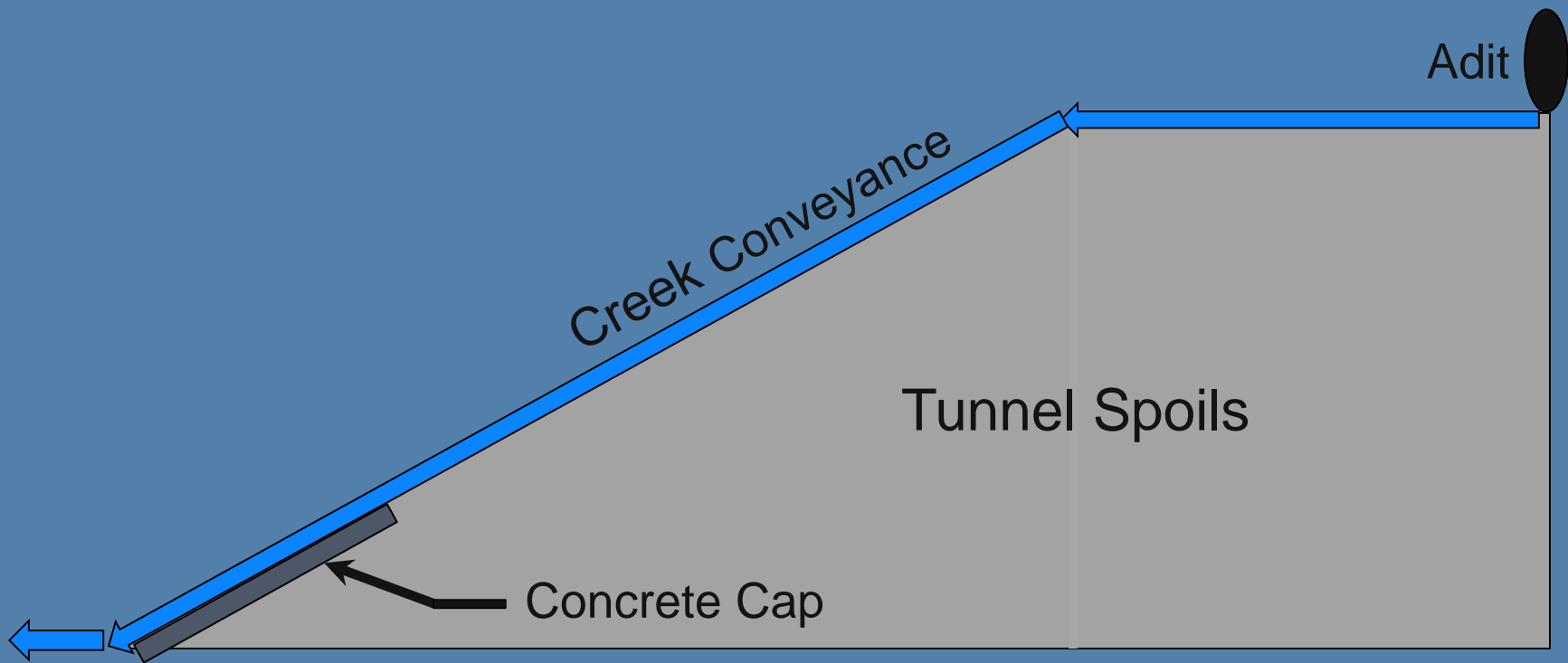
Degraded Drainage Systems



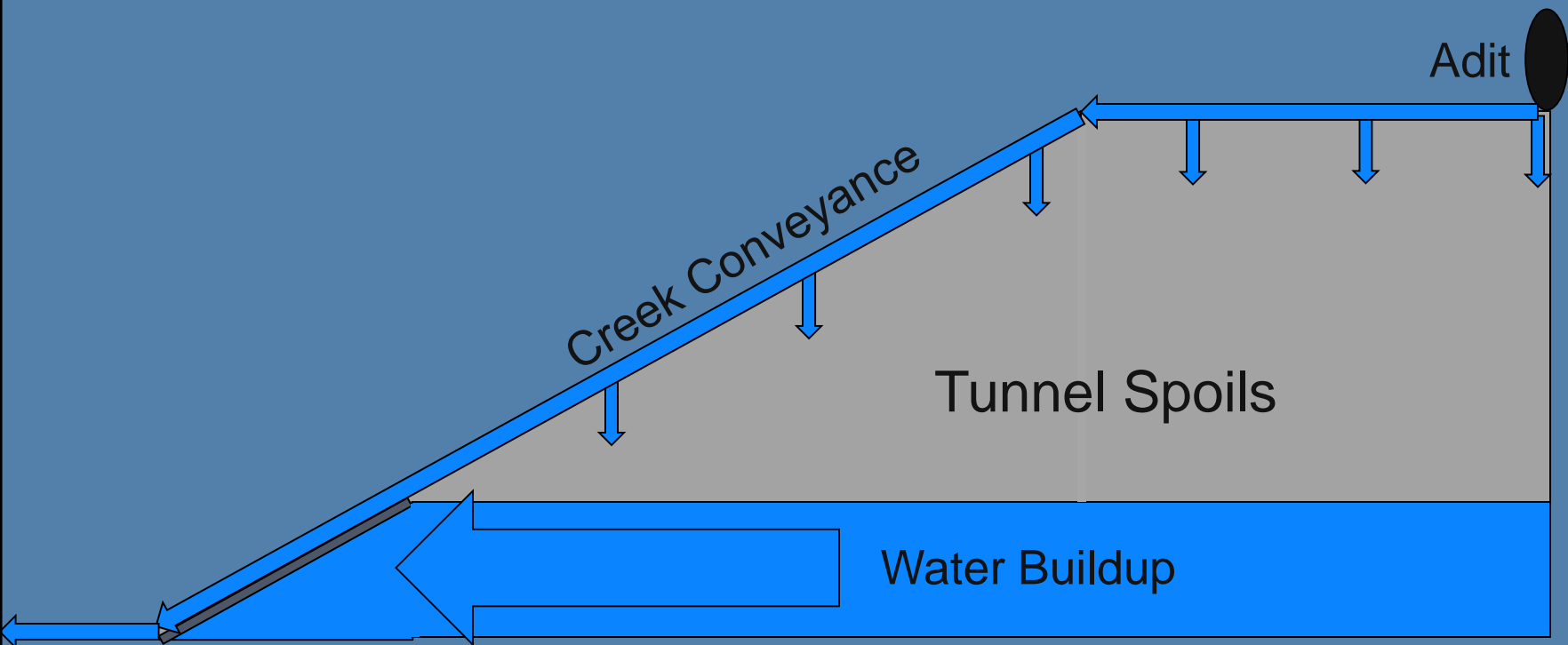
Spoils Failure

- No observers witnessed failure
 - Catastrophically most likely on December 22nd
- Notified CA Dept. of Fish and Wildlife and Federal Bureau of Land Management
- Original installation included a reinforced concrete toe cap for erosion protection
- Inadequate to withstand hydrostatic loading
 - Initial assessment is water intrusion into Spoils from perforations/plugging of water conveyance features

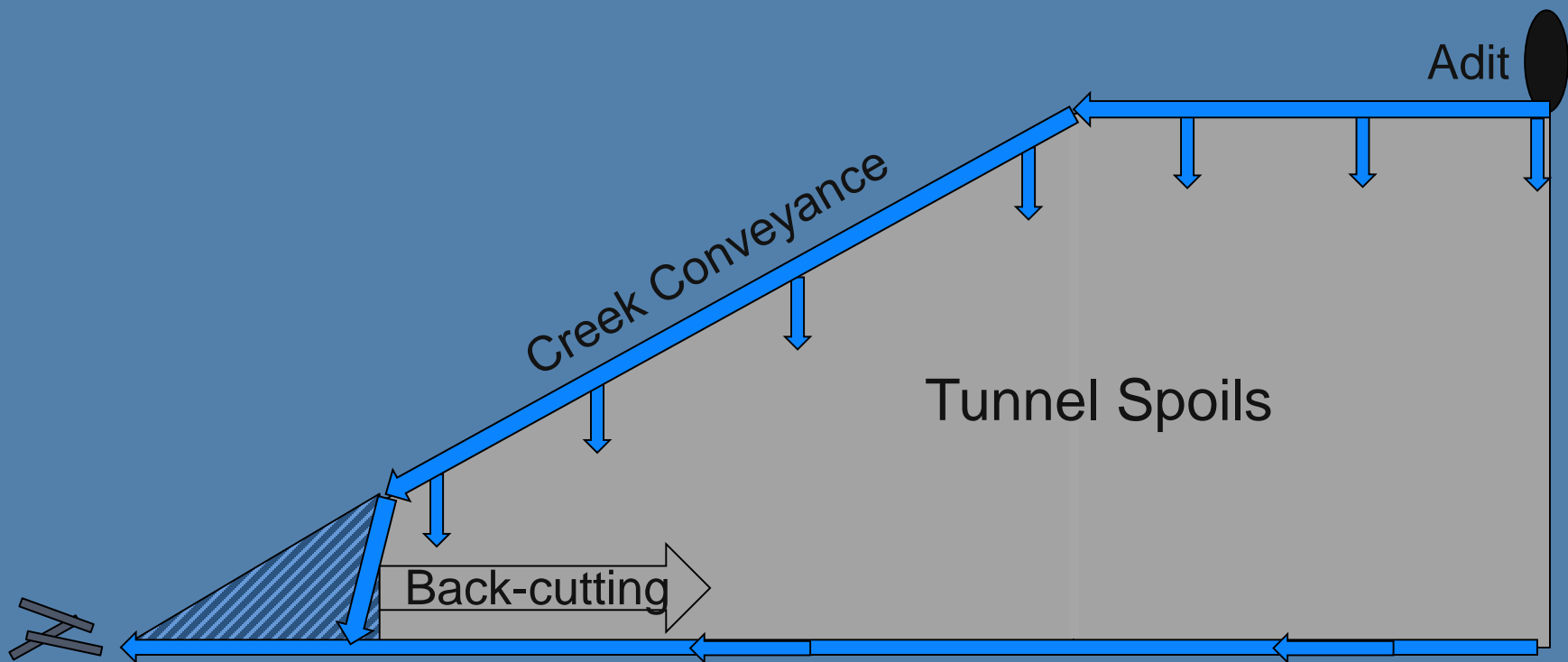
Spoils



Spoils Failure



Spoils Failure



Liabilities

- \$3,000 direct damage to Collierville control room due to flooding
 - “Near-miss” with extensive nearby electrical equipment
- Debris clean-up at Collierville needed
- Environmental impacts to be determined
- Edge of slope failure unstable and unsafe
- Scope of damages and environmental impacts likely to increase without interim water bypass measures

Interim Mitigation Measures

- Water bypass scheduled to stem erosion
- Requested Utica Water and Power Authority to avert spillway discharges

Project Work

- Phase I: Interim site stabilization
 - CEQA Notice of Exemption filed January 27th
 - Negotiated a time and materials contract
 - Control active erosion and minimize impacts of planned repair
 - \$129,200 hybrid lump sum and time/materials contract
 - On-site work planned to begin February 8th
 - Investigating potential insurance claim
 - Initial site visit February 2nd -additional planned
 - Marsh retaining 3rd party engineer

Project Work

- Phase II: Design and construct permanent repairs
 - Basis of design analysis (BODR) needed
 - RFP issued February 2nd to engineering consultants
 - Develop a safe and cost-effective design
 - Early contractor involvement to address unique issues
 - BODR expected in May-June
 - Permitting required
 - Implementation timelines under development

Next Steps

- Control erosion
- Progress the BODR
- Address insurance and resource agency questions
- Provide Committee briefings as project progresses