

Dewatering Task Force



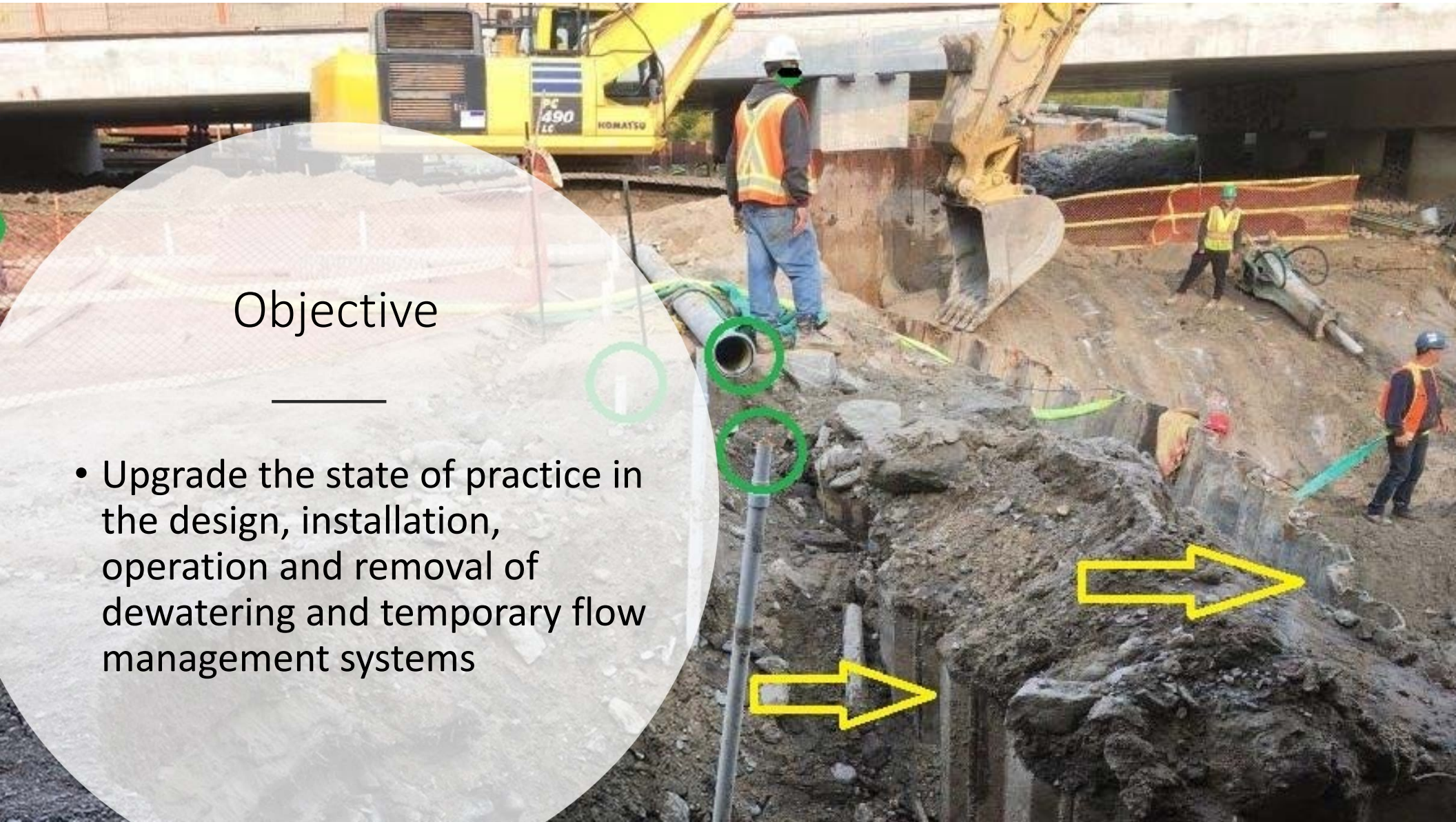
The background image shows a construction site at the edge of a lake. On the left, a red Link-Bell excavator is partially visible. In the center, a cofferdam is being constructed, featuring a row of white sandbags with yellow tarps on top, connected by a black chain. The cofferdam is situated on a dirt and rock embankment. The lake is in the middle ground, and a dense forest of green trees lines the far shore under a cloudy sky.

Presentation

- Background
- Major Updates

Objective

- Upgrade the state of practice in the design, installation, operation and removal of dewatering and temporary flow management systems



Committee Members

ORBA / Contractors

- Aecon Construction & Materials Limited
- Atlas
- Aquatech
- Bot Construction Limited
- Cement Association of Canada
- Facca Incorporated
- Graham Bros. Construction Limited
- Looby Construction Limited

Association of Consultant Engineering

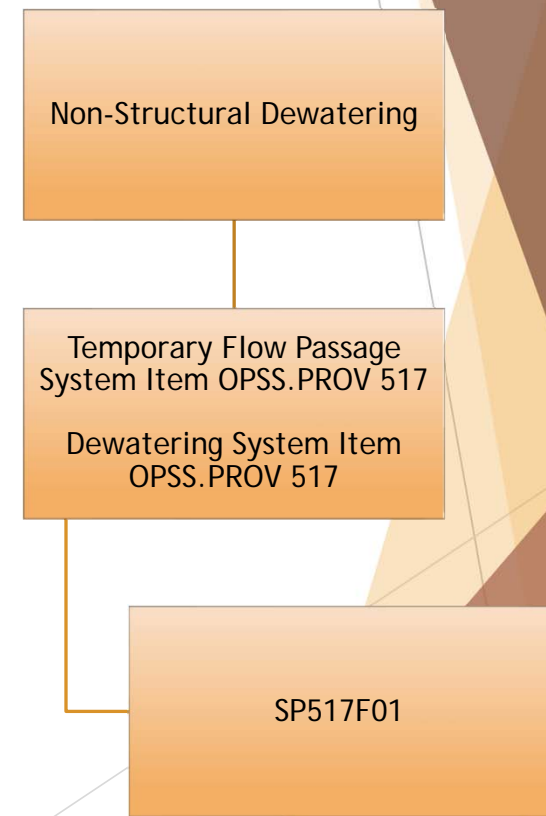
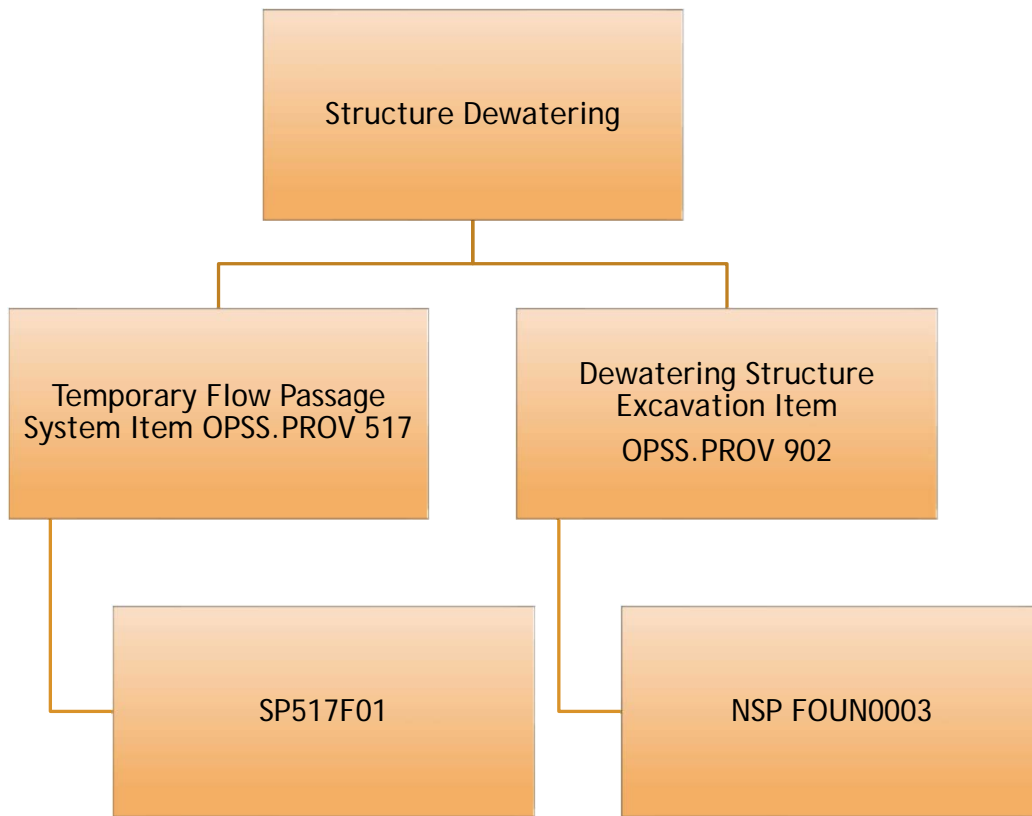
MTO



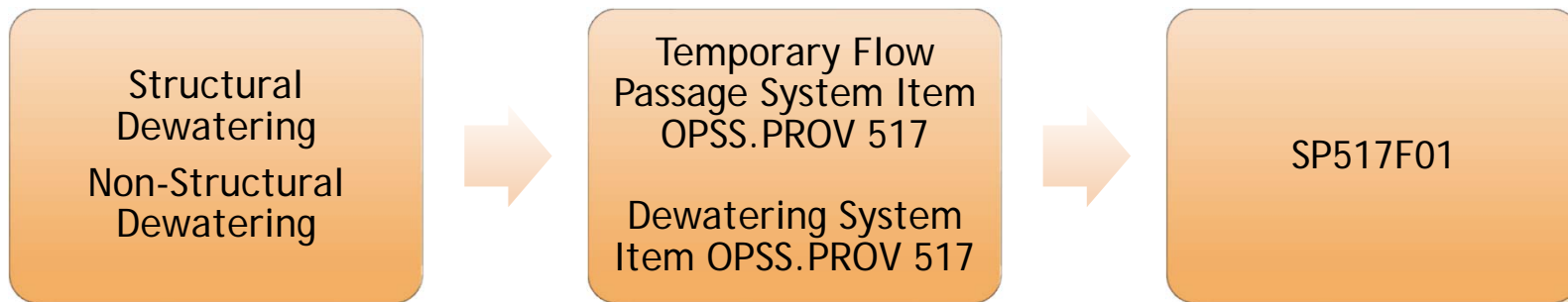
Major Updates to Specifications

- ▶ Streamlining of Dewatering Items and Specifications
- ▶ Increased Clarity and Simplification
- ▶ Increased Responsibility for the Contractor
- ▶ Increased the Emphasis on Dewatering During MTO's Design

Streamlining - Current Specification



Streamlining - New Specification



Increased Clarity and Simplification

New Definitions

- ▶ **OLD - Dewatering System** means the components required to control water to permit construction work to proceed under specified conditions, and may include a groundwater control system, impermeable barriers, pumps, and/or equipment to carry out unwatering.

- ▶ **NEW - Dewatering System** means the components required to remove groundwater and/or carry out unwatering from within an excavation or work area to permit construction work to proceed under specified conditions, and may include a groundwater control system, impermeable barriers, pumps, and/or equipment.

Increased Clarity and Simplification

New Definitions

- ▶ **OLD - Temporary Flow Passage System** means temporary flow control devices, channels, pipes, and other materials used to convey or divert water past an area under construction.
- ▶ **NEW - Temporary Flow Passage System** means the temporary flow control devices, channels, pipes, pumps and Operation Plans used to manage sustained flow and flow resulting from precipitation events in order to separate and/or isolate a work area within an existing waterbody to permit construction as specified in the Contract Documents. A Temporary Flow Passage System may include temporary drainage facilities (e.g. channels, pipes, culverts and bridges) constructed as a temporary alignment of a natural watercourse.

Increased Clarity and Simplification



More information provided to the contractor

- ▶ Source of Return Period Flow Estimates
- ▶ Requirements for Fish Passage
- ▶ Minimum Lowered Groundwater Depth below the base of the excavation
- ▶ Groundwater assessment report under challenging dewatering conditions

Increased Responsibility of the Contractor

- ▶ Temporary flow passage systems shall be designed in accordance with TW-1 – Temporary Flow Passage Systems and Temporary Drainage Facilities from the Highway Drainage Design Standards.
- ▶ For dewatering and temporary flow passage system locations where working drawings have been provided, the Contractor's Engineer shall inspect and verify that the system was installed and subsequently removed according to the working drawings and contract documents.
- ▶ A Certificate of Conformance shall be submitted to the Contractor Administrator after installation and removal of the systems

Increased Emphasis on Dewatering During MTO's Design

- ▶ Currently the dewatering item is used:
 - ▶ For all new, or rehabilitated bridges and structural culverts,
 - ▶ If dewatering volumes required a PTTW, or
 - ▶ If recommended by the foundations engineer
- ▶ The new spec will assume dewatering is required for all excavations and structure rehabilitations
- ▶ A dewatering system item may be removed if the Geotechnical Engineer or the Foundations Engineers recommends the removal of the item
- ▶ Removal of the dewatering system item is based on site specific conditions and the level of dewatering efforts required

Increased Emphasis on Dewatering During MTO's Design

- ▶ When a dewatering item is used, designers need to determine the minimum lowered groundwater depth below the base of the excavation and provide this information to the contractor.
- ▶ Where complex groundwater conditions are present (artesian conditions, potential boiling or heave of the subgrade etc) the designers should consider preparation of a Groundwater Assessment Report which can be included in the contract.



Next Steps for Dewatering Committee

- ▶ Submit documentation for TCP Review (expected by the early October)
- ▶ Finalize changes to Standards and Specification based on comments



Discussion

