



FUTURE
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SUMMARY SESSION

CIVIL ENGINEERING FOR THE FCC

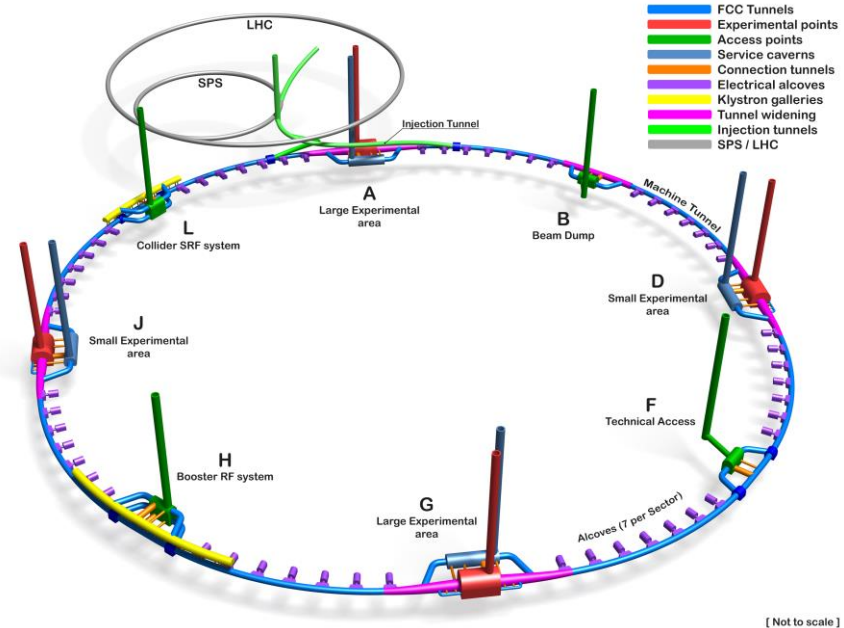
Timothy WATSON
Civil Engineering Coordinator

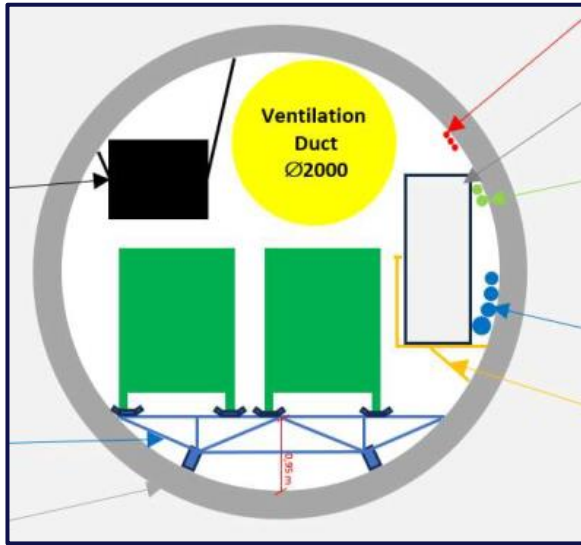
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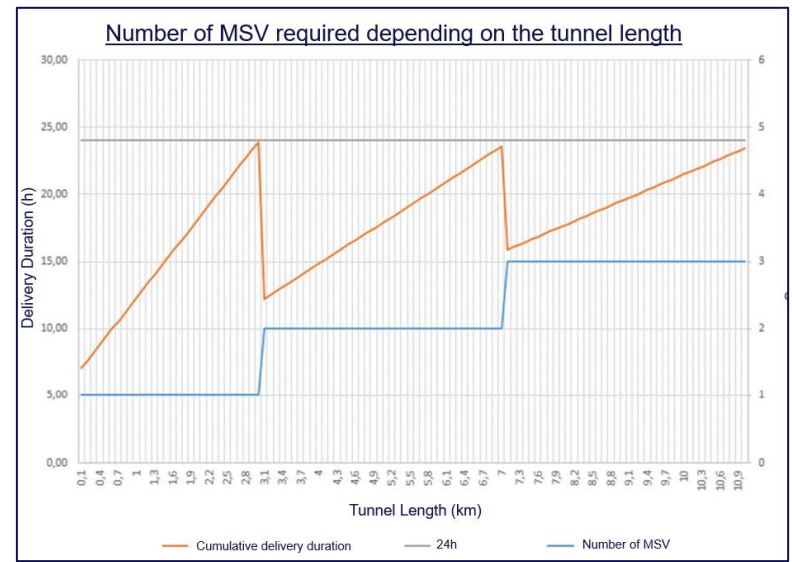
Underground Civil Engineering

- **Liam Bromiley** (Fellow SCE-SAM) presented ongoing work relating to the underground civil engineering for the FCC
- The results of the study into safety, ventilation and logistics aspects of driving a 5.5m diameter “blind” tunnel up to 11 km in length.
- Desktop study of recent tunnels where ground squeezing resulted in issues for the TBM drives
- Explanation of shaft sinking using ground freezing technique to minimize risk of groundwater contamination
- Summary of changes being considered since Mid-Term review, highlighting the need for all requirements to be frozen by interfacing systems (and Integration Team) before end of September 2025





Schematic View - Section Through Tunnel

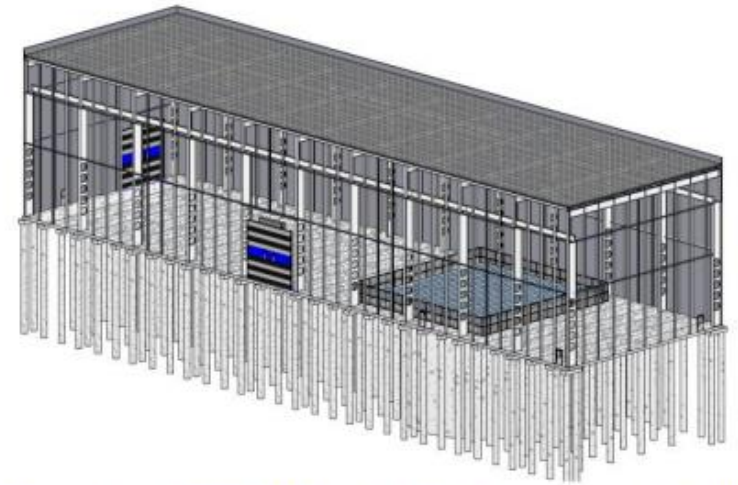


Number of MSVs needed vs Tunnel Length



Surface Civil Engineering

- **Antoine Mayoux** (SCE-PPM) presented ongoing work relating to the surface civil engineering for the FCC
- The results of the collaboration with Fermilab were shown.
- A number of schematic layouts for some of the Eight surface sites were presented.
- The strong coordination with the Implementation team and Integration team was highlighted.
- Layouts for all sites to be completed in July for handover to external consultants to undertake cost estimates as input for final feasibility study cost report.
- From the Environmental Initial State Analysis, in collaboration with Placement team and ecologists, integrate environmental constraints and opportunities.



Example of 3D BIM Model: FCC-ee assembly hall

Final Report ongoing updates - Drawing activities

Final material for Surface Sites:

Production of layouts for each surface sites with various level of details to serve as baseline to:

- Assess Cost & Schedule
- Confirm space compatibility
- Precise tunnel connexions



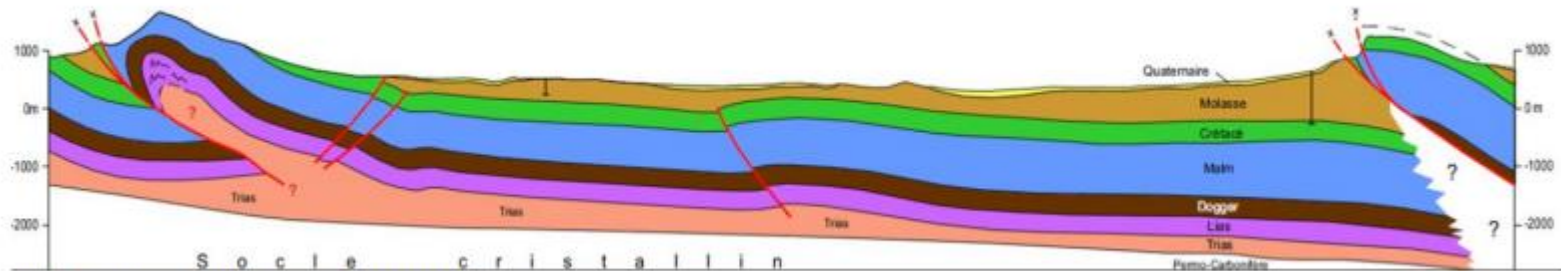
Technical layouts: Baseline for the final report



Simplified versions: For integration discussions

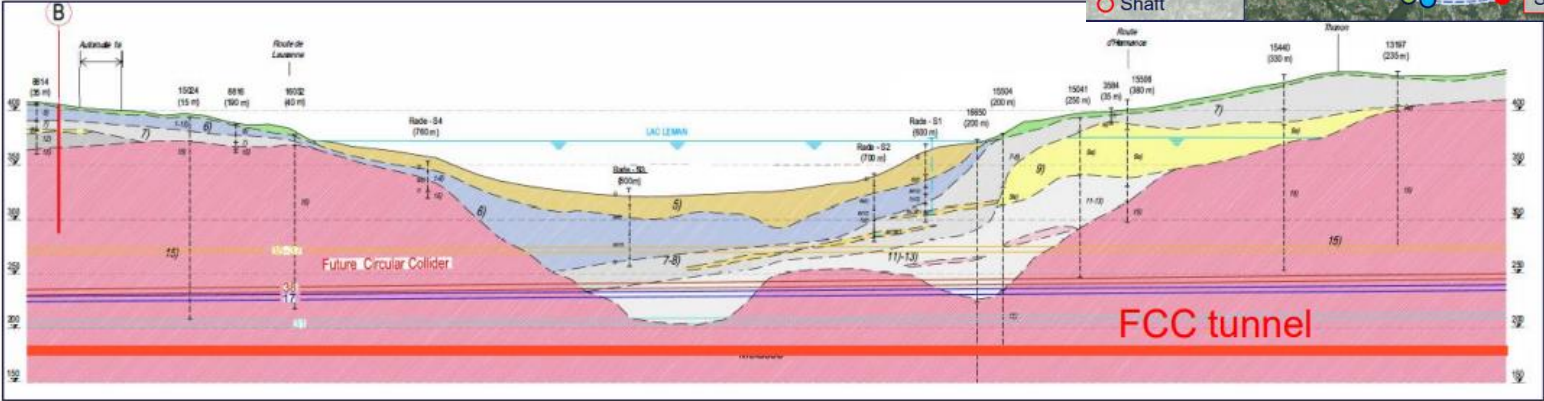
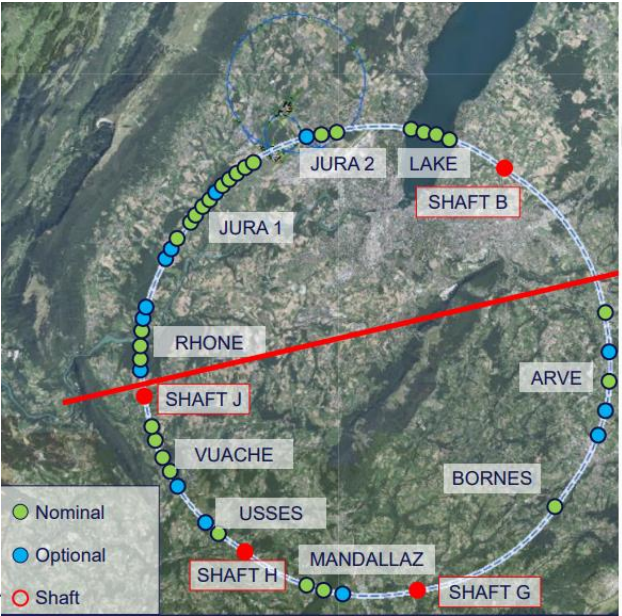
Underground Civil Engineering

- **Roddy Cunningham** (SCE-SAM) presented ongoing work relating to the underground civil engineering for the FCC.
- Background to the currently planned Site Investigation was given with focus on locating the interfaces between Moraine/molasse and Molasse limestone.
- The procurement process and scope of the current planned site investigation was given. It consists of about 30 Boreholes and 80 km of seismic investigation.
- A look ahead to future site investigations that will be necessary prior to detailed design and construction phases of the project.



West-East geological section of the Geneva region

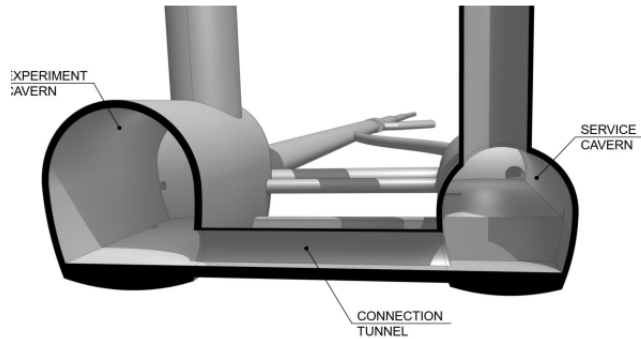
Underground Civil Engineering



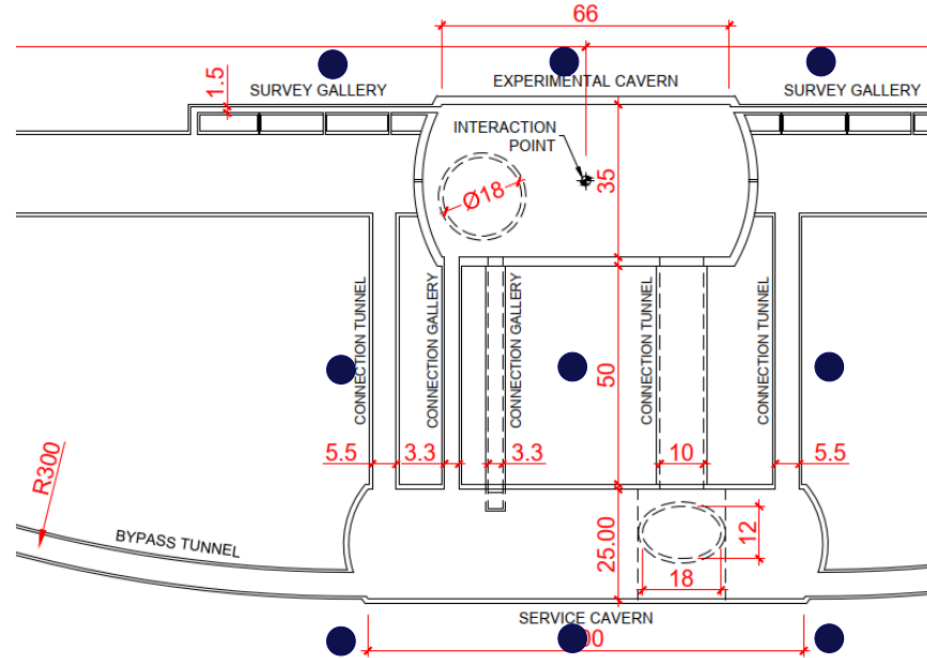
Geological profile below Lake Geneva

Future Site Investigation

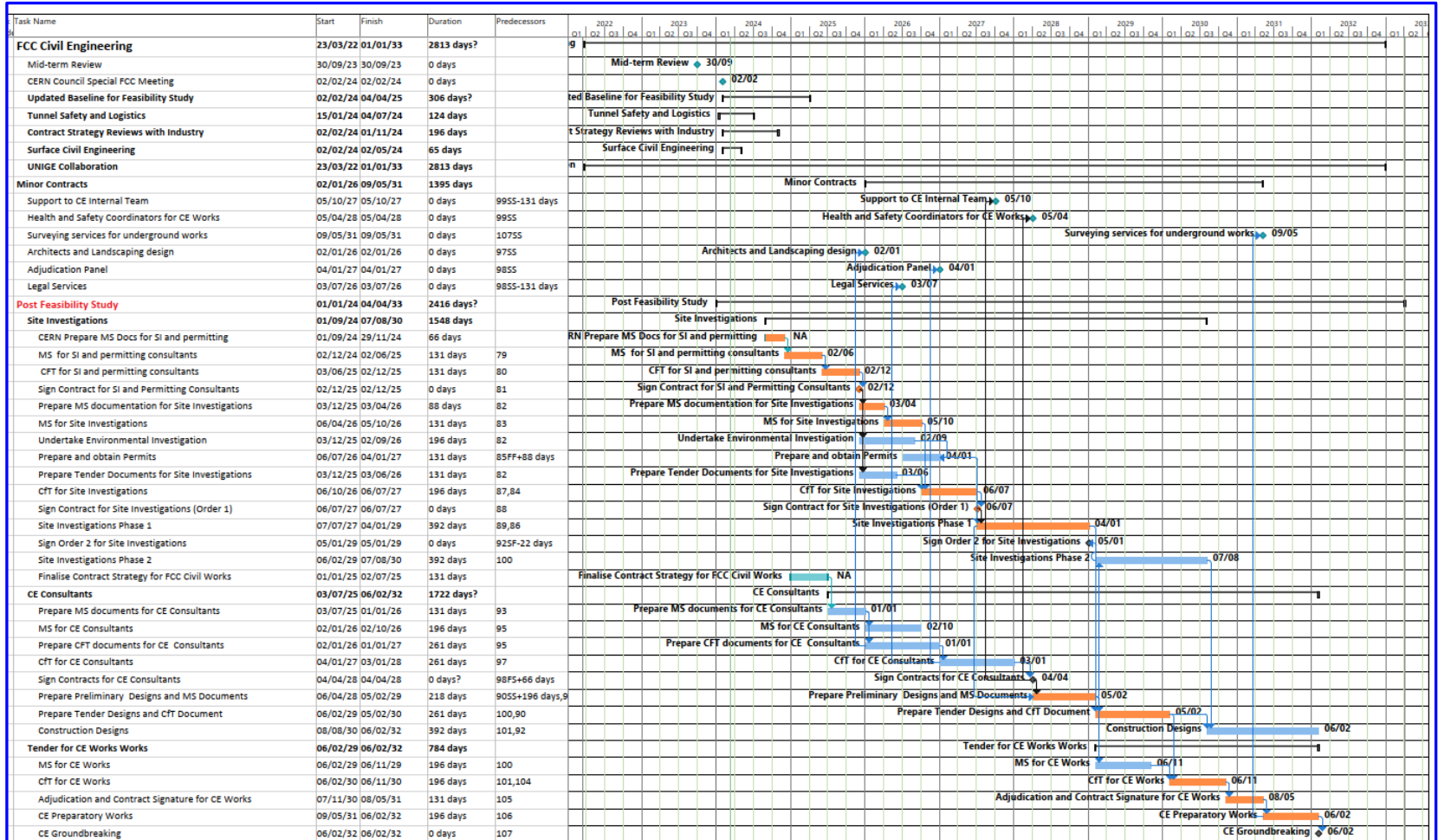
- A 3x3 layout of targeted boreholes will allow a detailed 3d model of the cavern complexes to be created



Schematic of FCC IP cavern complex



Critical Path Scope to Construction Start





Thank you
for your attention.