

M5

Building Network Construction Conference

Russell Saltmarsh – Project Director





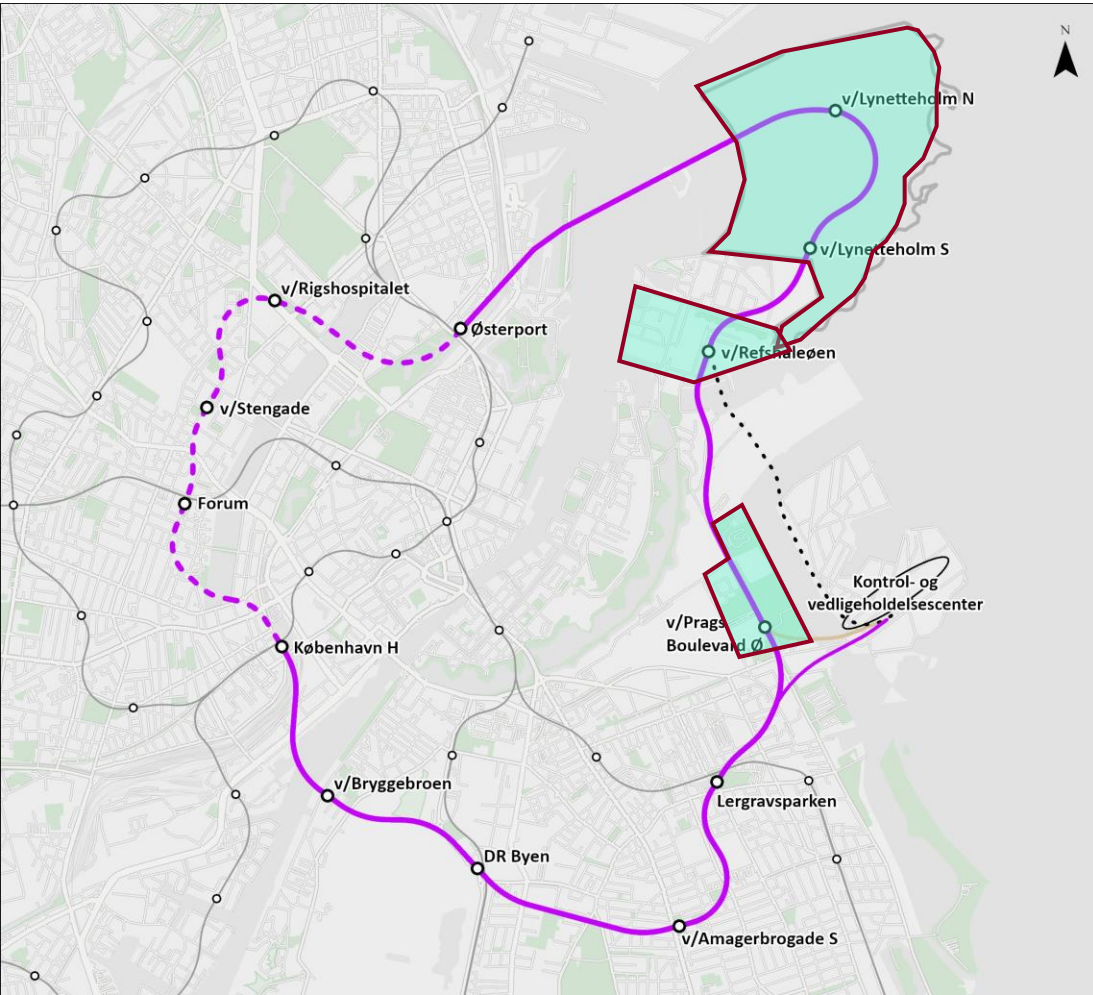
Background

Why M5?



Metroselskabet

M5 – Copenhagen's new metro line



Background:

- Metro capacity across the harbour will be a problem in 2035
- Copenhagen's population expected to grow by 130,000 by 2050
- Connect new city districts east of Copenhagen
- Need to strengthen sustainable mobility in the city to avoid congestion
- Provide a more robust transport network

M5 Objectives



Reduce **Climate Impact** and **Resource Use**



Improve **Passenger Experience** and **Operational Robustness**



Improve **Safety** and **Work Environment**



Contributing to the **City**

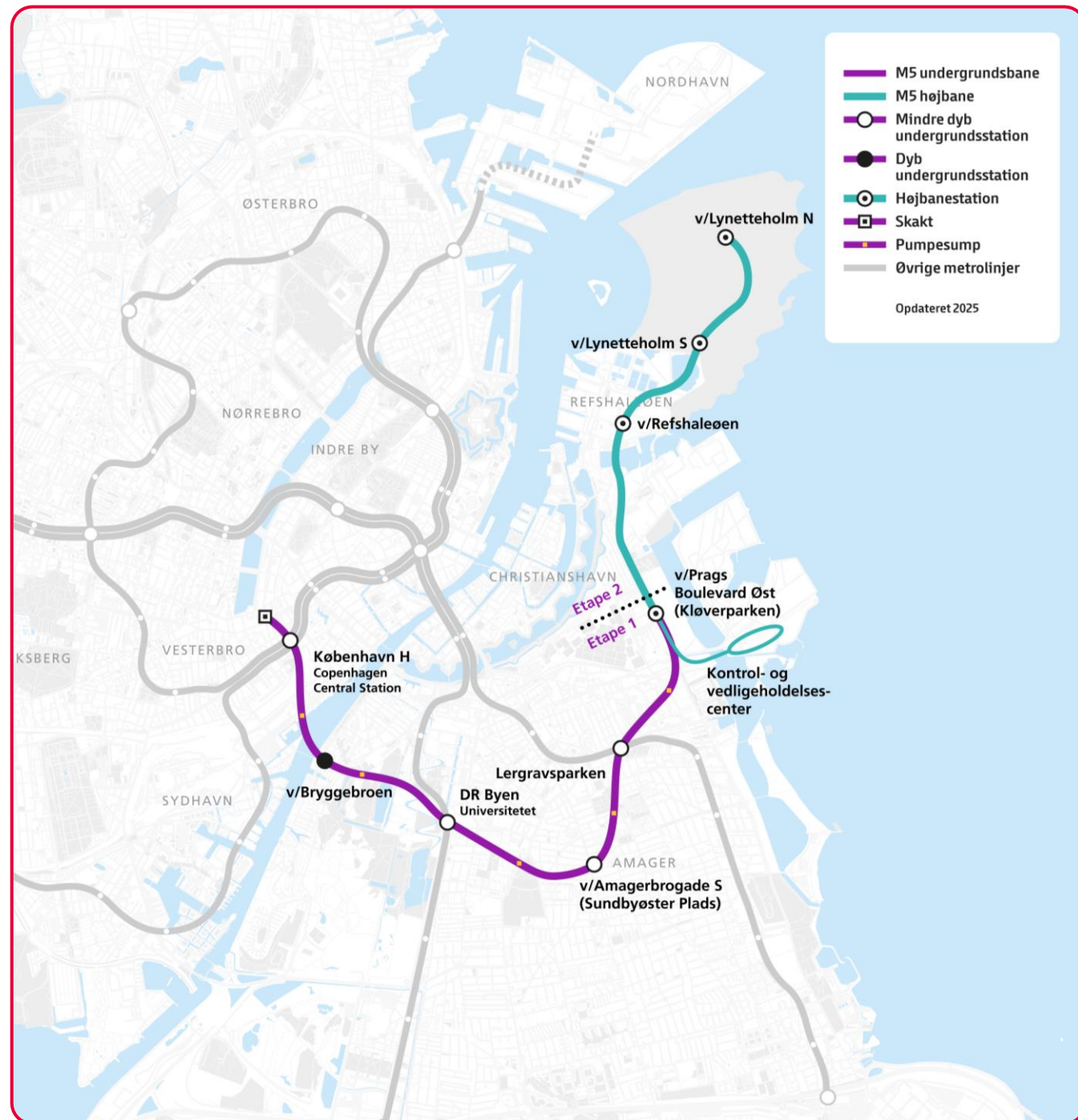


M5 Overview

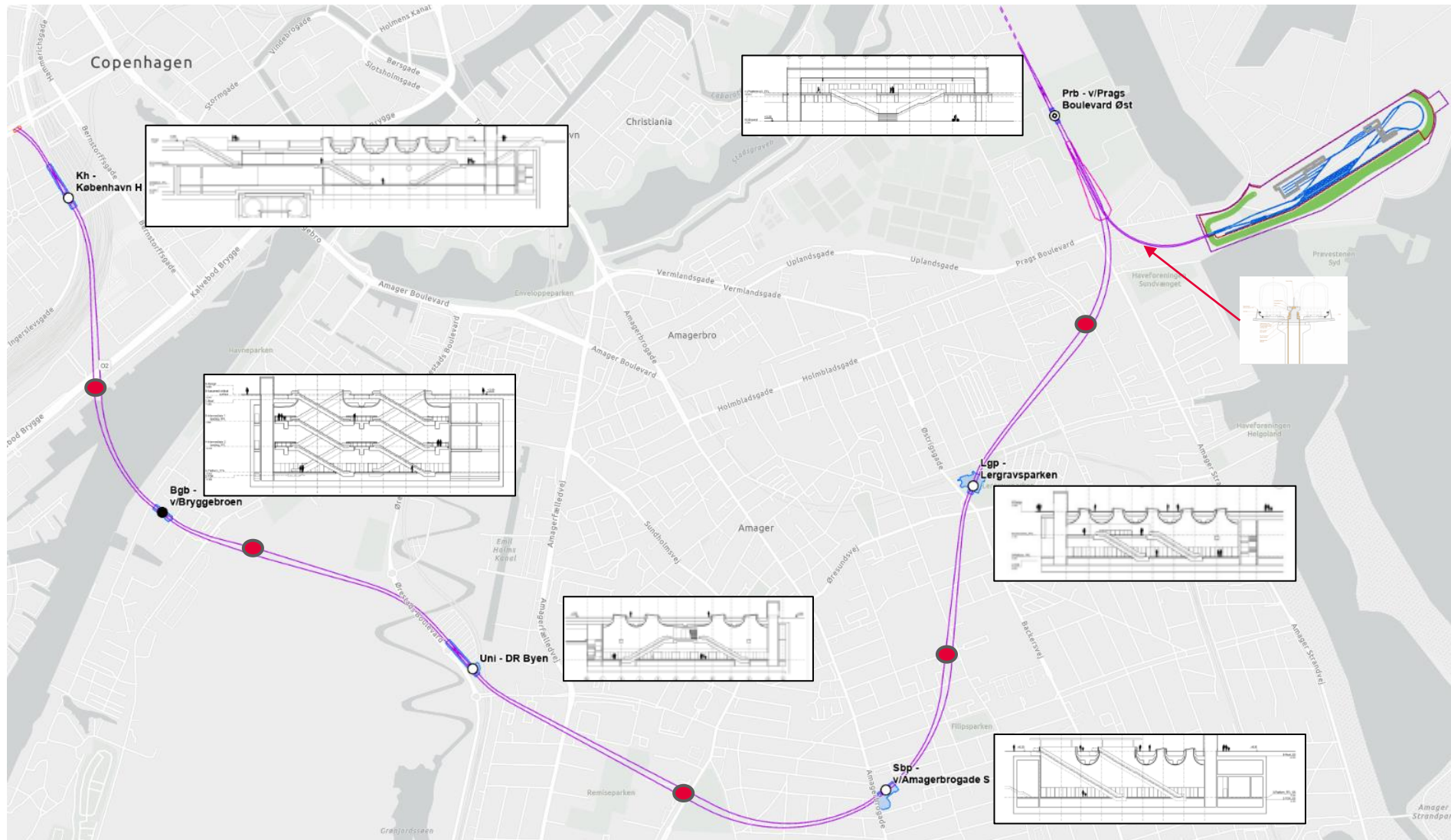
- Principle Agreement, March 2025
- EIA approved September 2025
- Construction Law expected end 2026

- Built in phases
 - Phase 1 – Open 2036
 - Phase 2 – Open 2045

- Fully automated system GoA4
- New Control and Maintenance Centre (fully automated)
- 180 secs headway in 2036
- Able to operate at 70s headway
- 14 trains needed for Phase 1+2



M5 - Phase 1 - Overview



Project main components

- Approx 7,0 km twin bored tunnels
- 5 underground stations (incl. 3 transfer stations)
- 2 underground crossovers
- 5 cross passages
- 1 ramp
- Approx 2,0 km viaduct
- 1 elevated station
- 1 viaduct cross-over
- 1 elevated bifurcation
- Short embankment sections
- CMC (TSS)

Construction period

- 2028 - 2036



M5 - Enabling works / other contract works, separate contracts

Types of advanced works 2026 – 2029

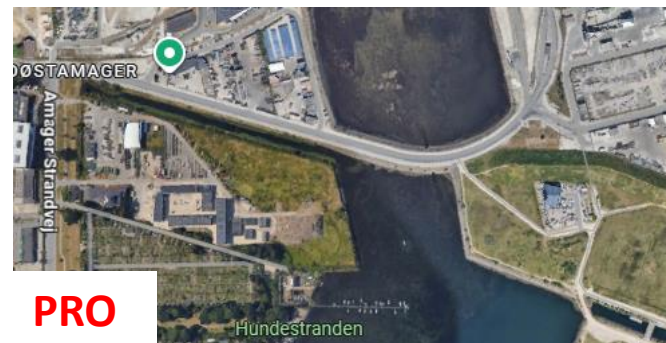
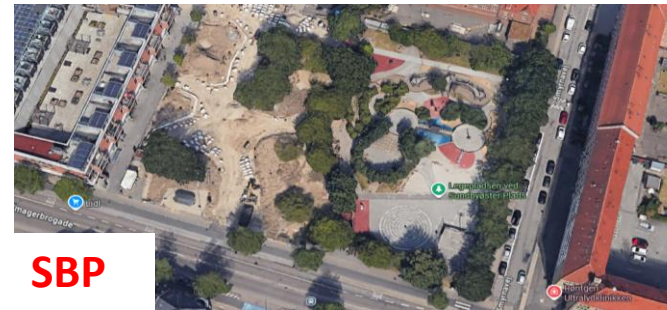
- Utility relocations, multiple locations
- Traffic diversions, multiple locations
- Archaeological surveys
- Kh: M3 existing station modifications / preparatory works
- Kh: Main station and residential buildings demolition and modification works, existing buildings and structures
- Uni: Relocating art work
- Sbp: Relocation of playground
- Lgp: Relocation of pitches and playground
- Lgp: M2 existing station modifications / preparatory works
- Pro: Relocation of amphibians, demolish buildings and wind mills, land reclamation, flood protection embankments and flood wall at CMC

Other contract works

- Station area surface works
- Bgb and Sbp Canopies

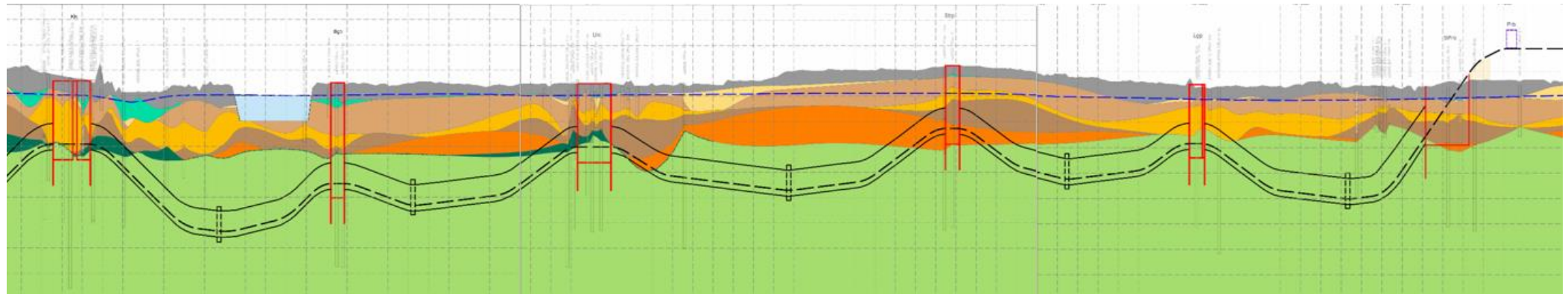
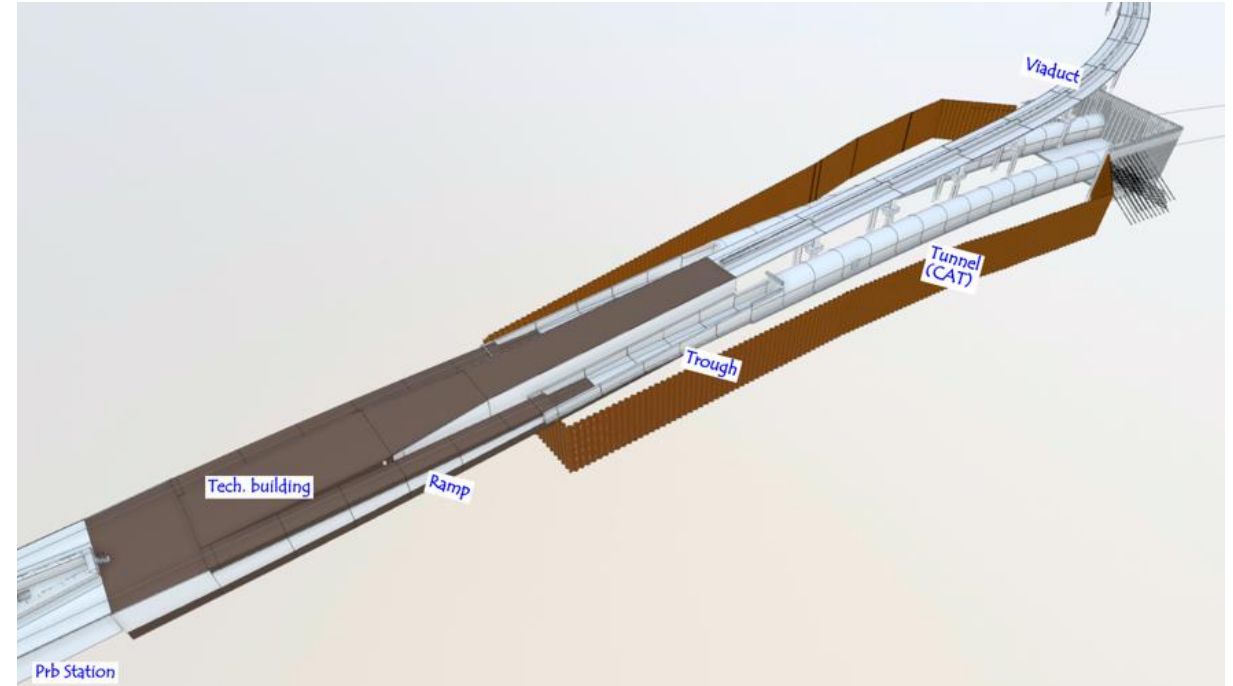


PRO

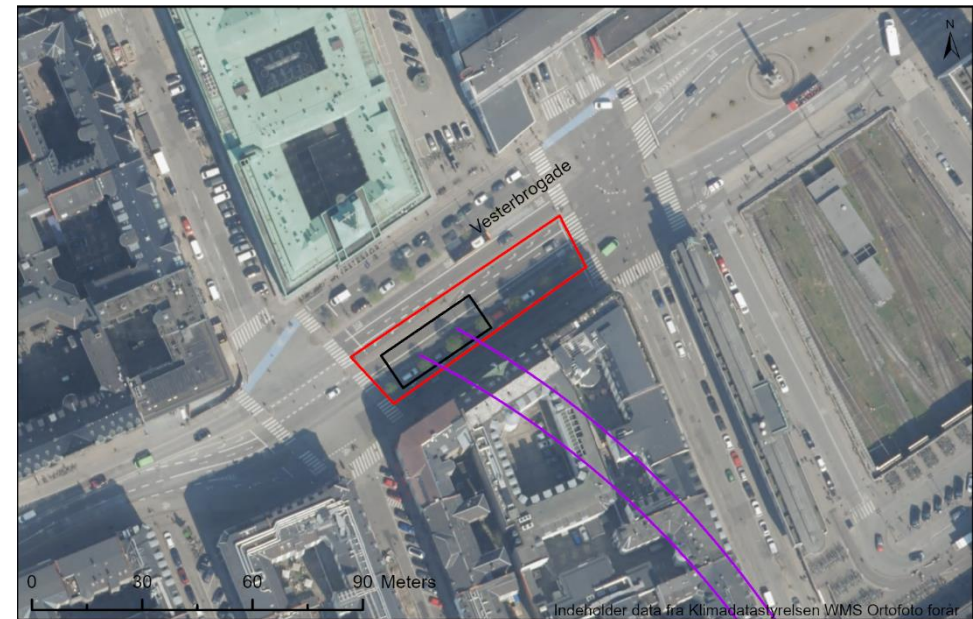
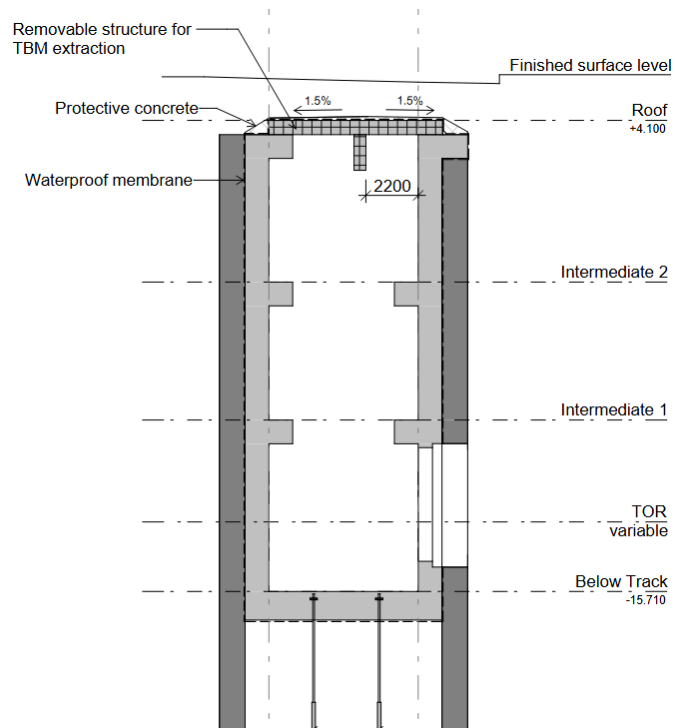
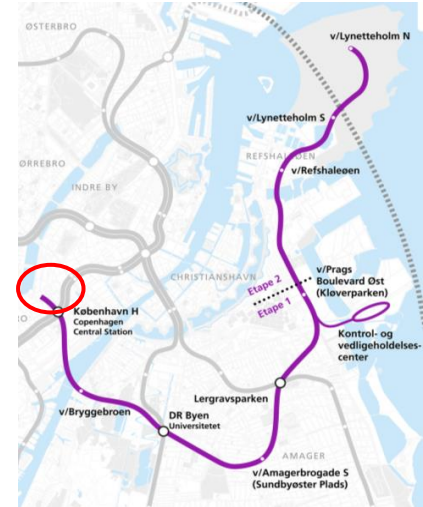
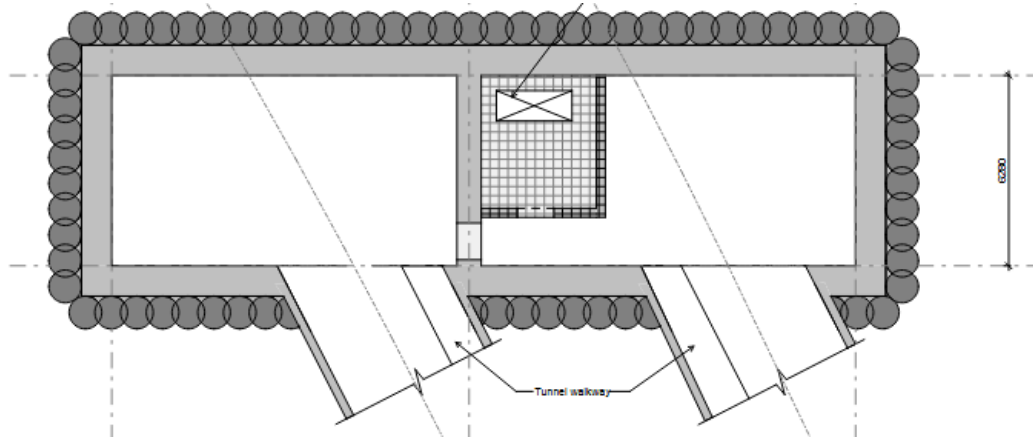


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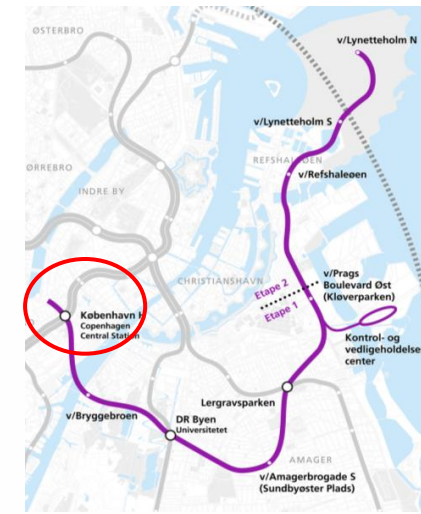
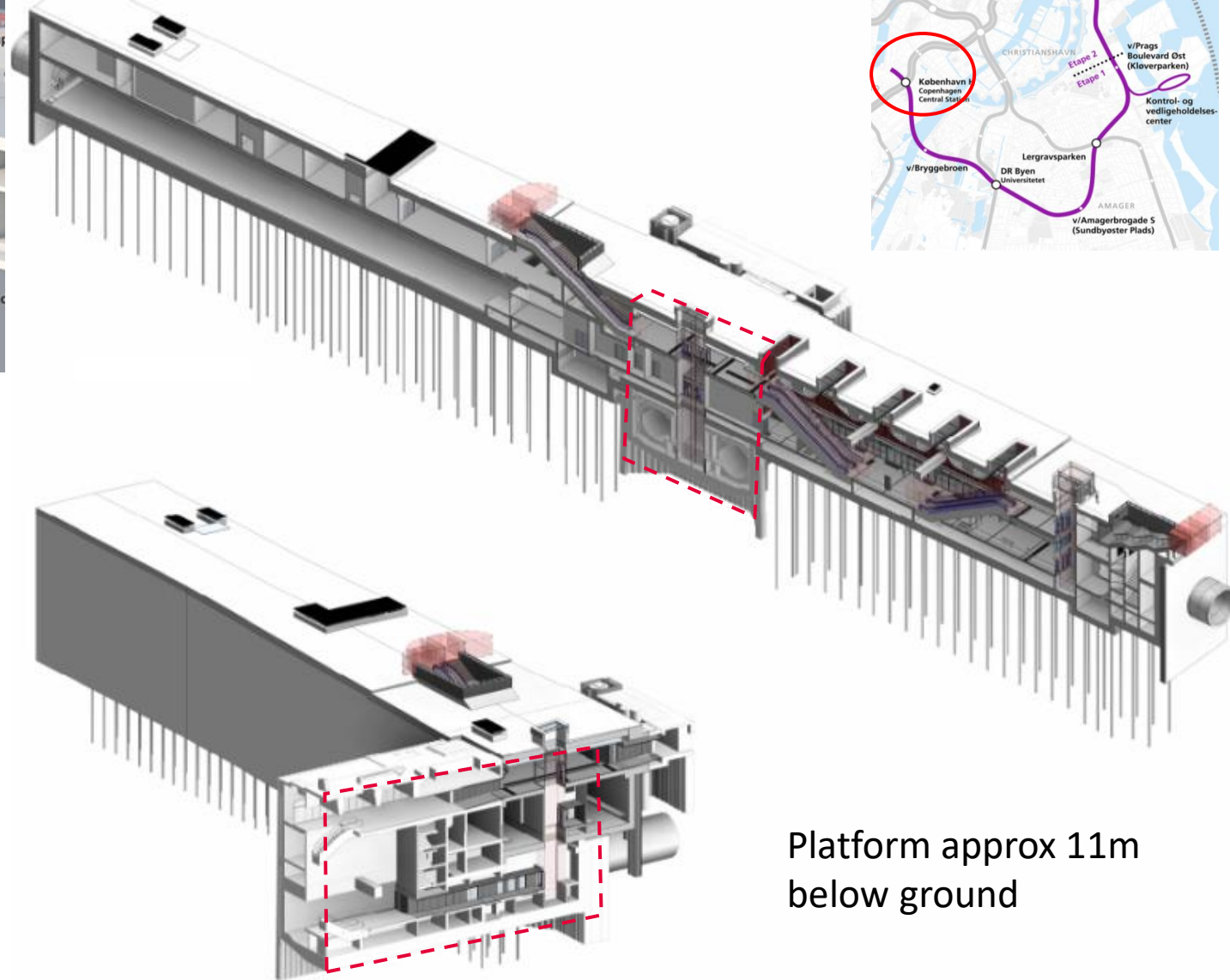
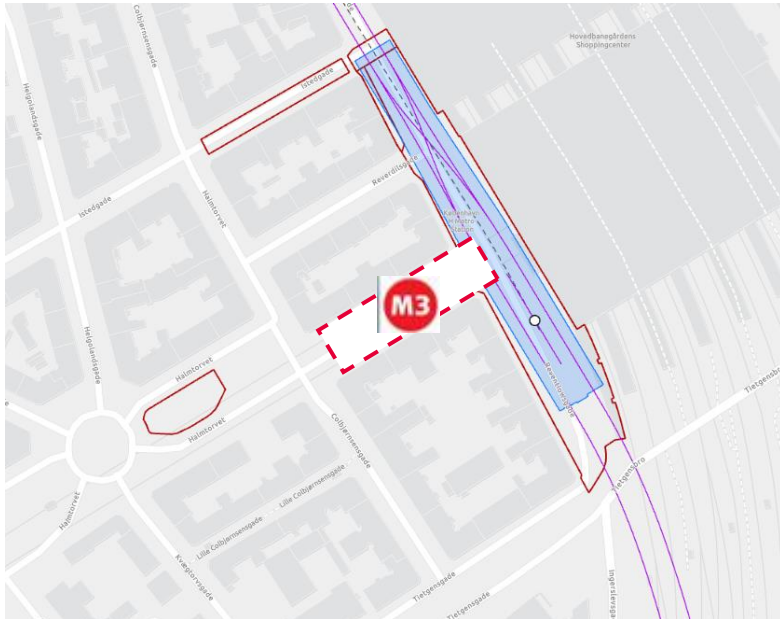
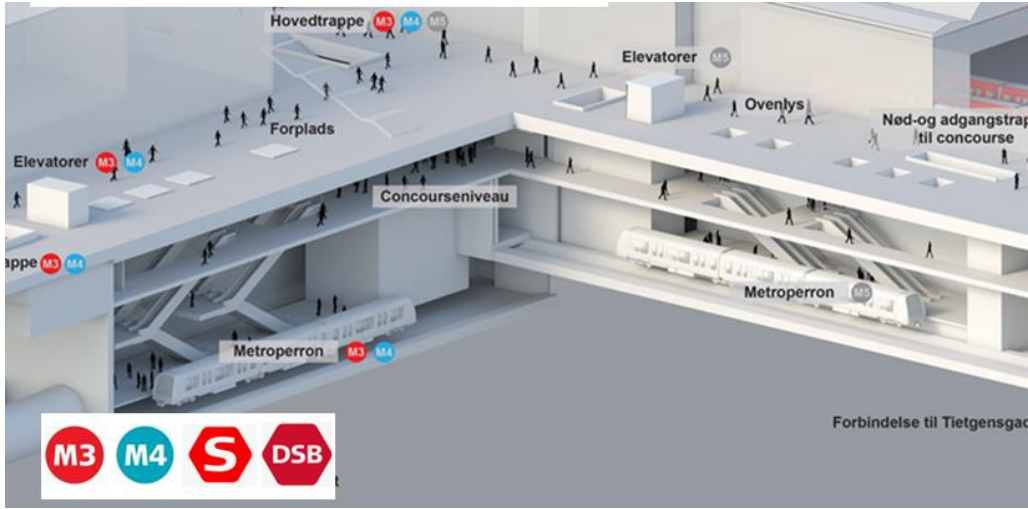
Tunnel Worksite and Ramp



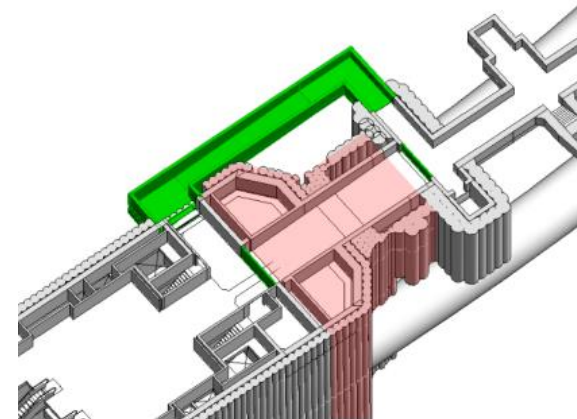
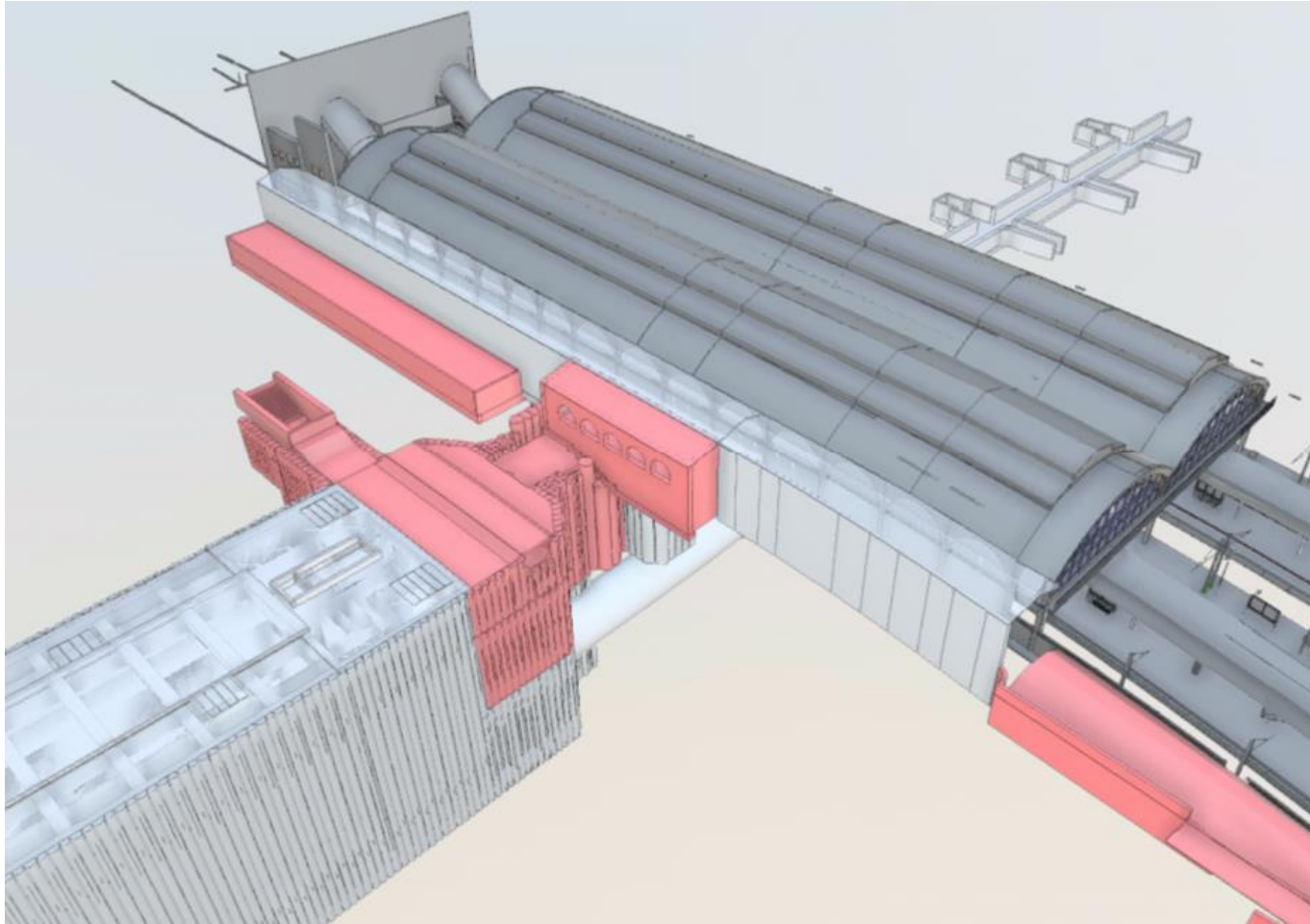
M5 – end shaft



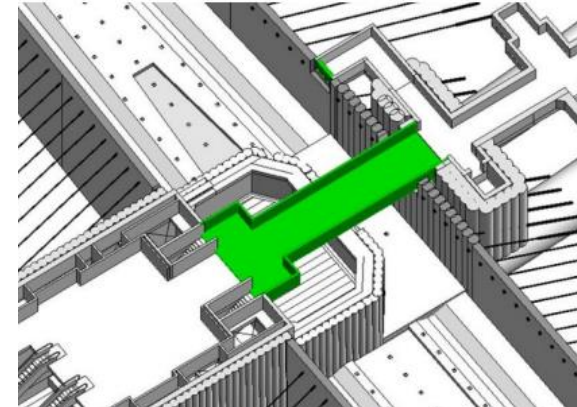
M5 – København H Station and crossover box



M5 - København H – M3 Passenger Access during construction



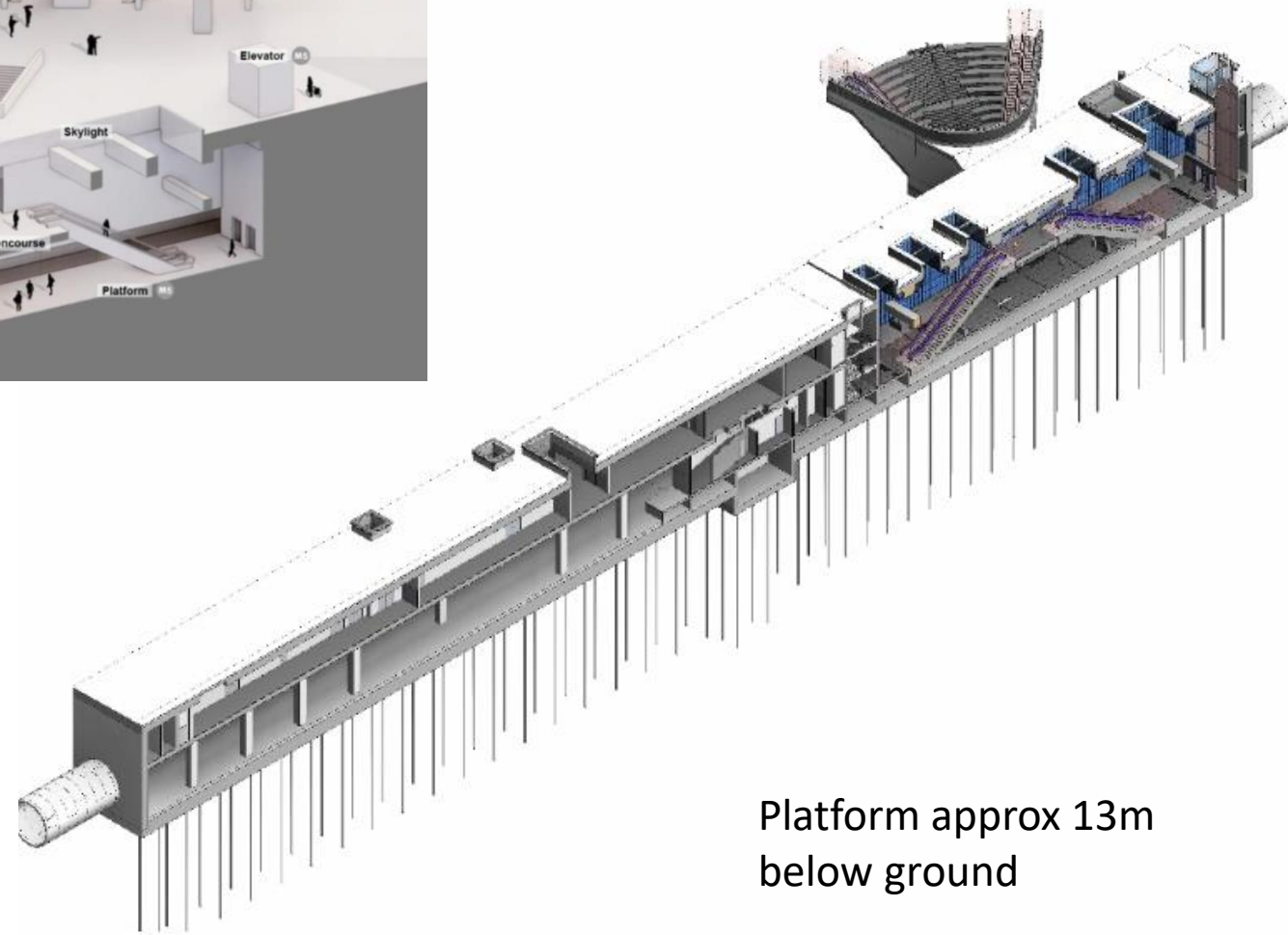
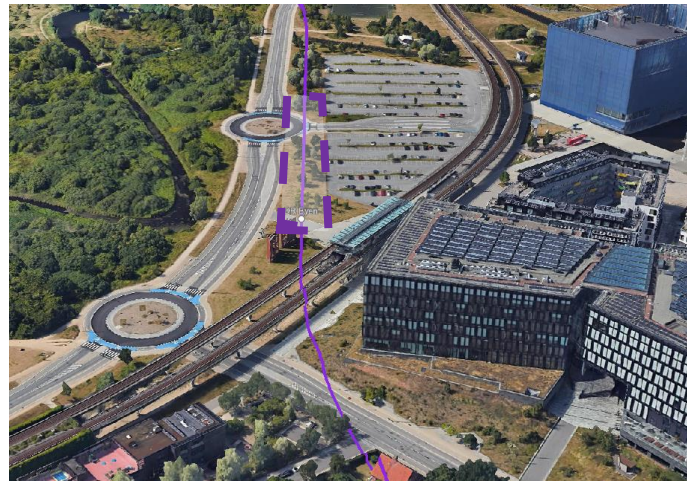
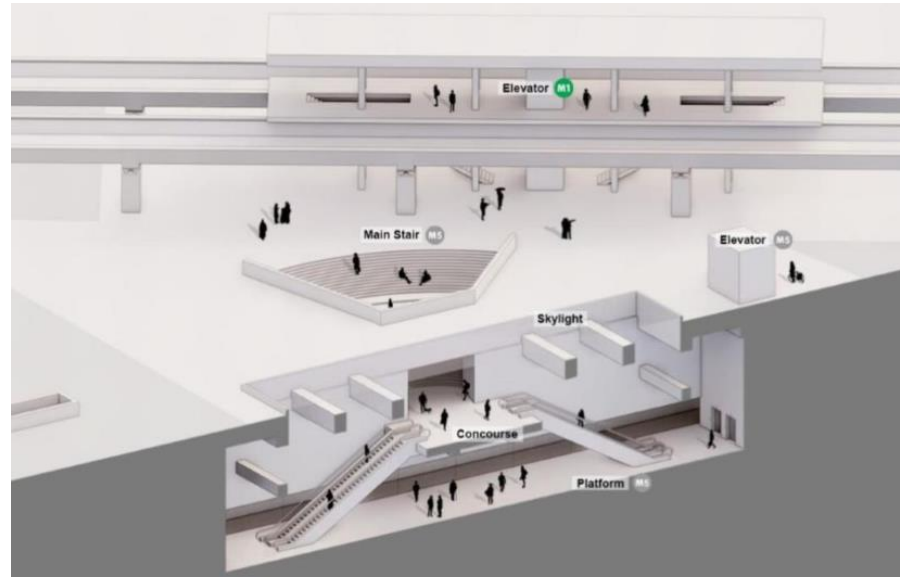
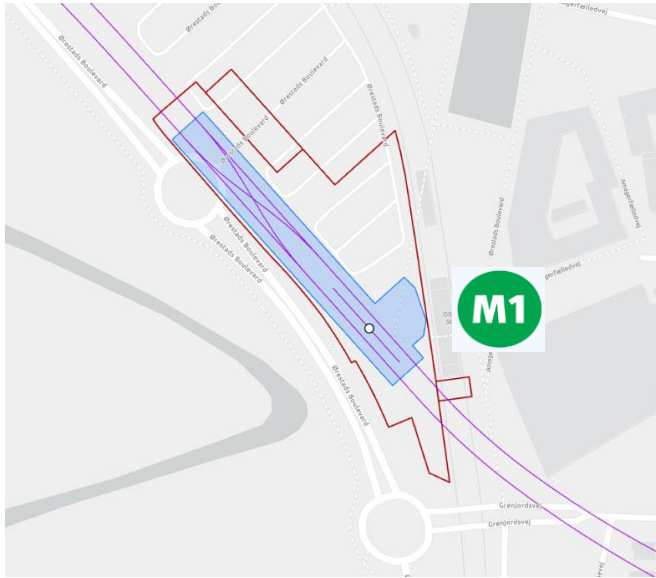
13/M4 transfer passage 1 of 2 (construction phase 3-10)



13/M4 transfer passage 2 of 2 (construction phase 11-15)

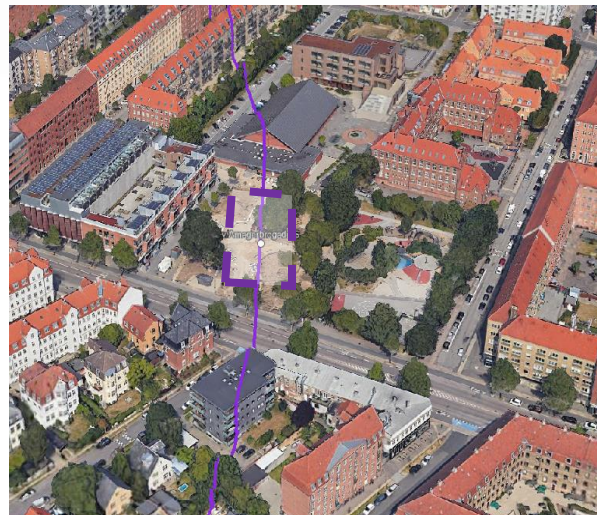
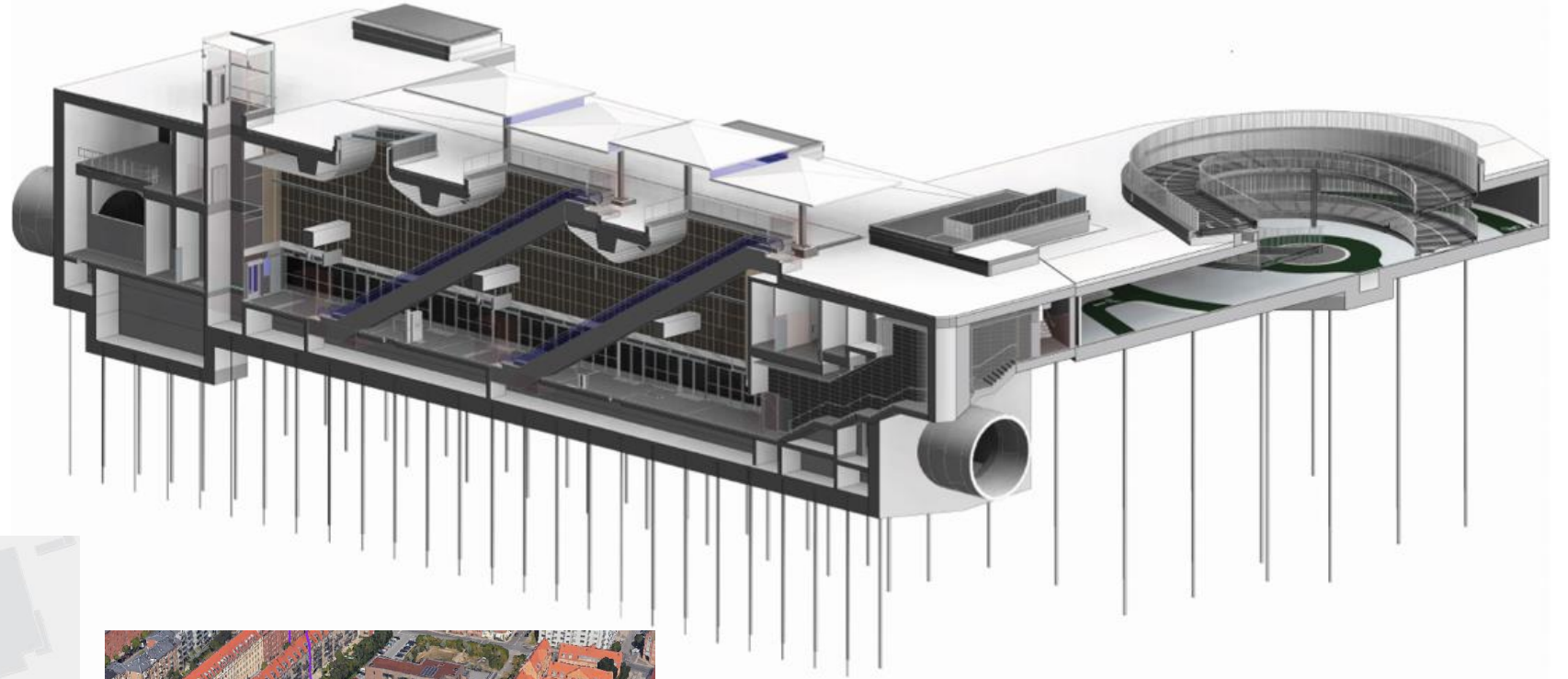


M5 – DR Byen station and crossover box



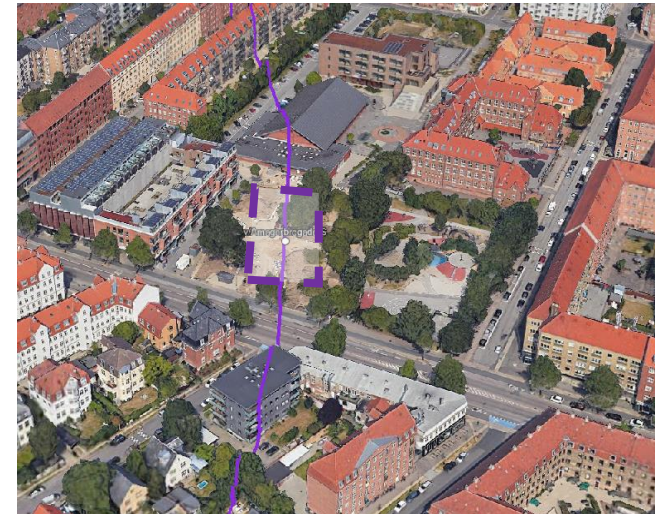
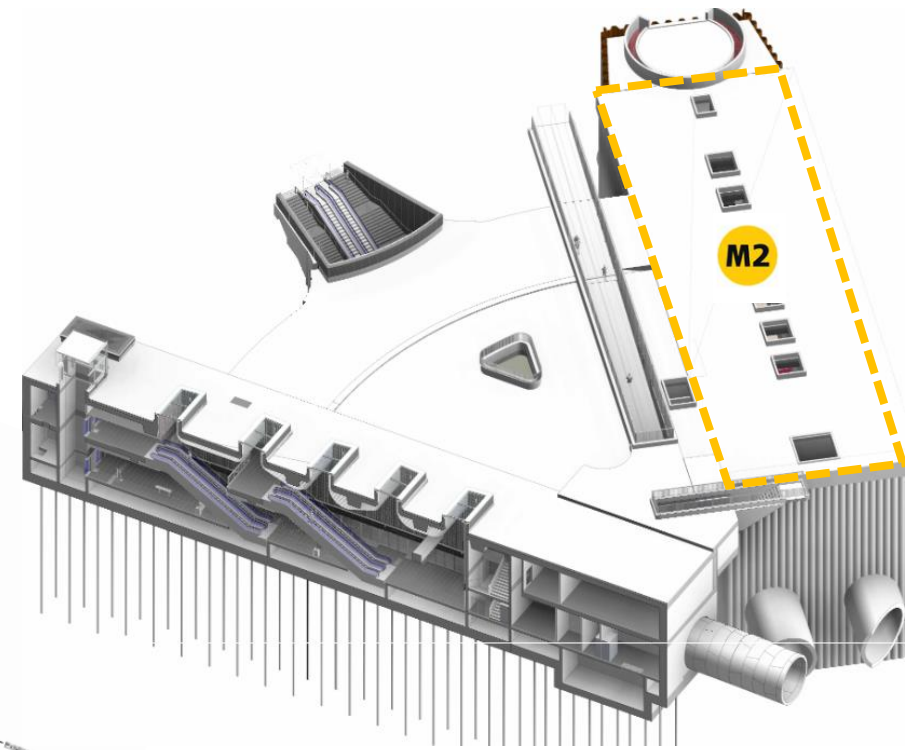
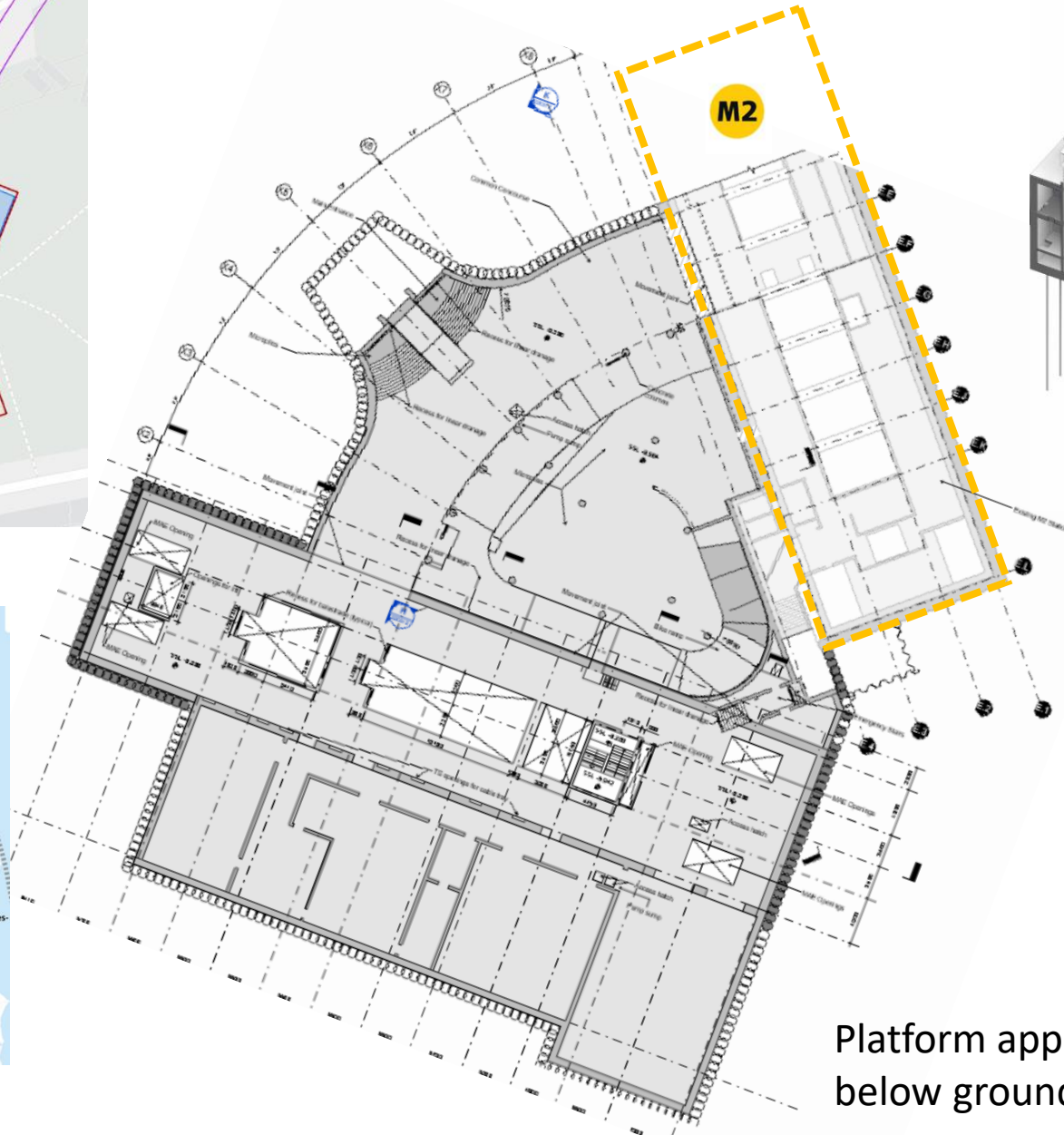
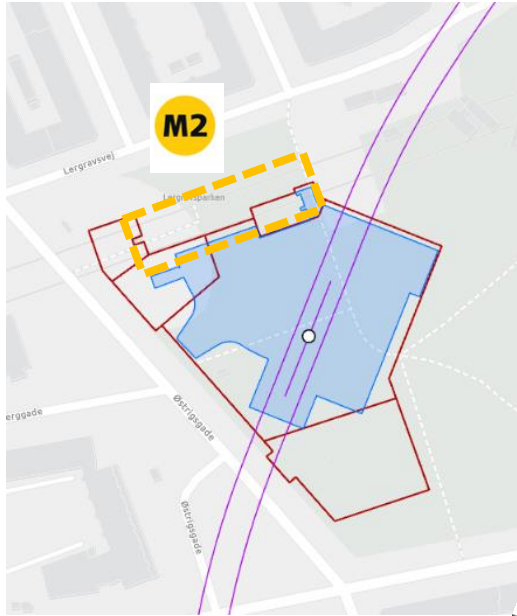
Platform approx 13m below ground

M5 – v/Sundbyøster Plads Station



Platform approx 11.5m below ground

M5 – Lergravsparken

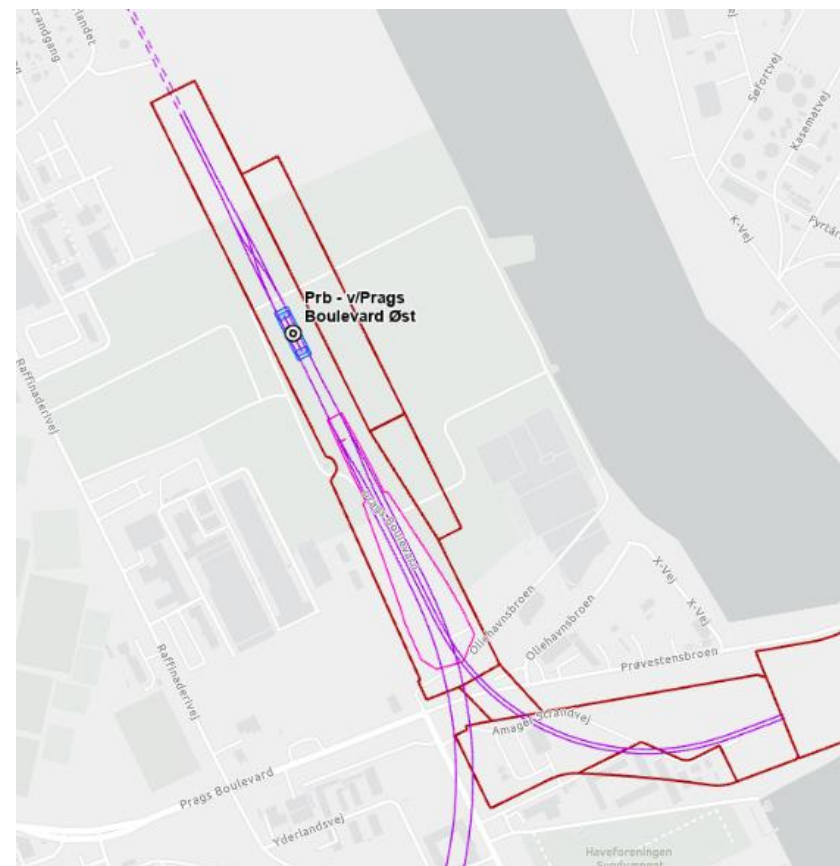
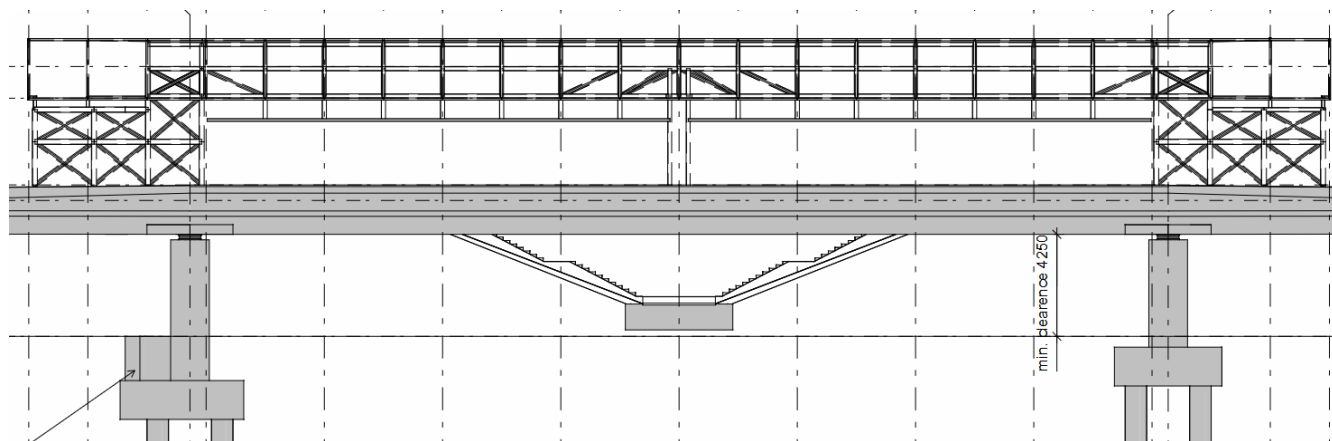
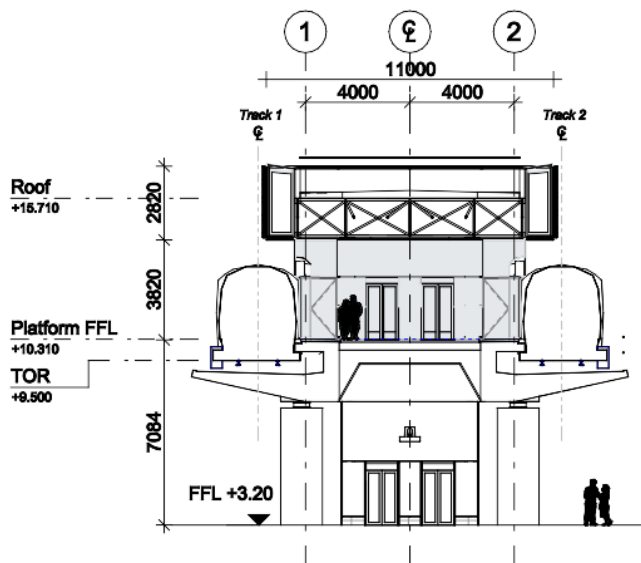


Platform approx 11m
below ground



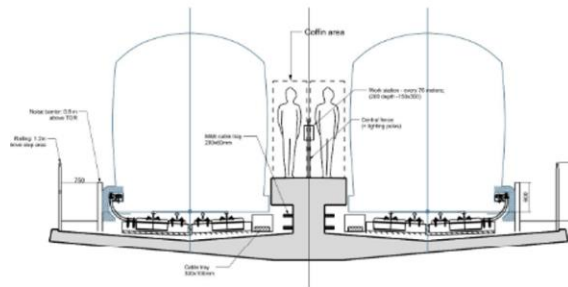
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M5 – v/Prags Boulevard Øst



M5 - Viaducts

- Mainline viaduct with two tracks
- Support will be with two columns
- Typical span app 28 m
- Special viaduct elements
 - at station
 - at cross-over
 - at transitions



Standard Spans - Simply supported



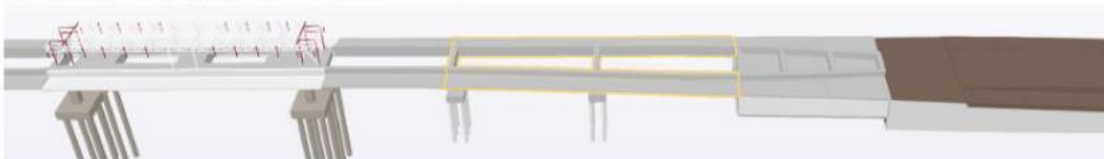
Crossover - Four spans expansion section



Station - Three spans continuous articulation



Approaching Ramp Spans- Continuous articulation



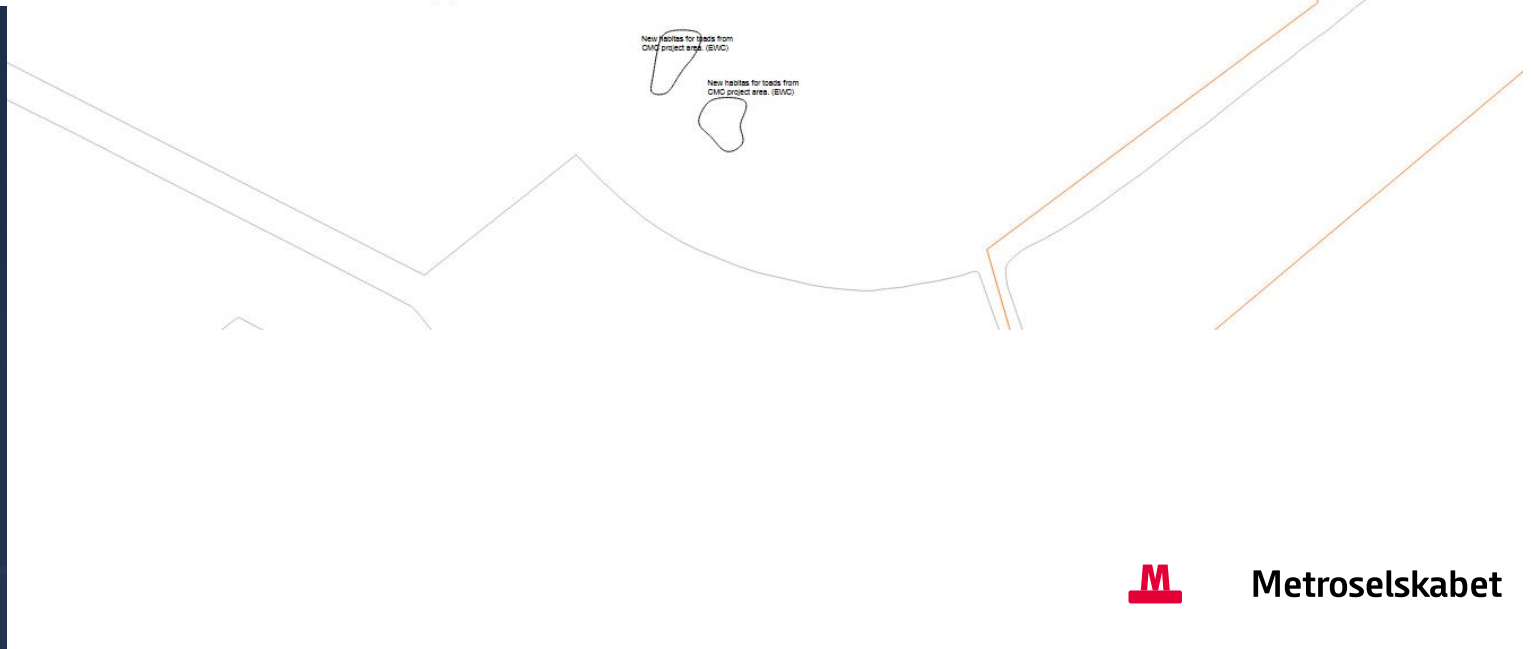
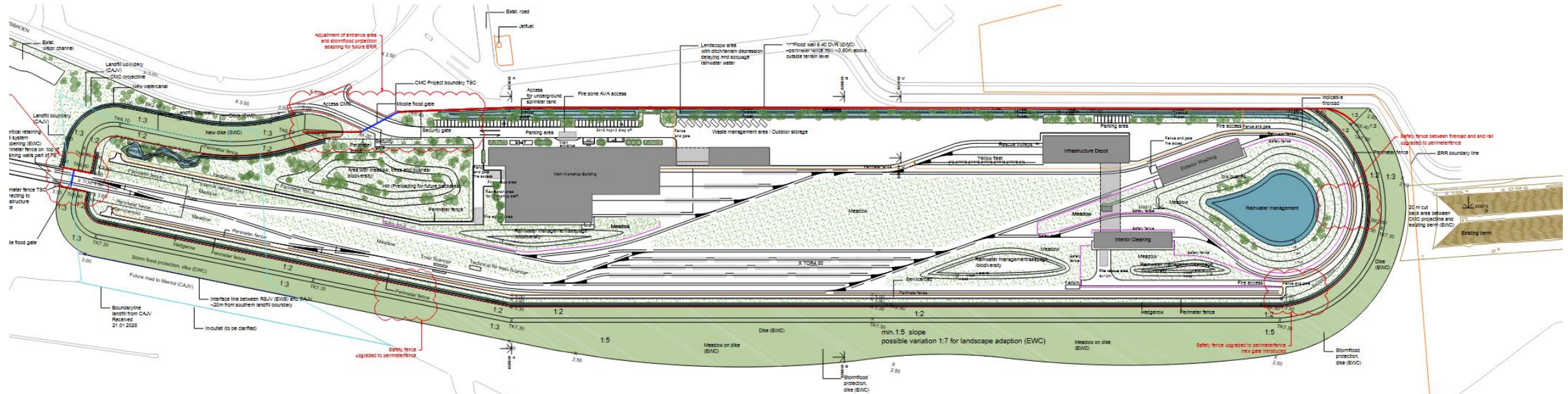
Technical Room



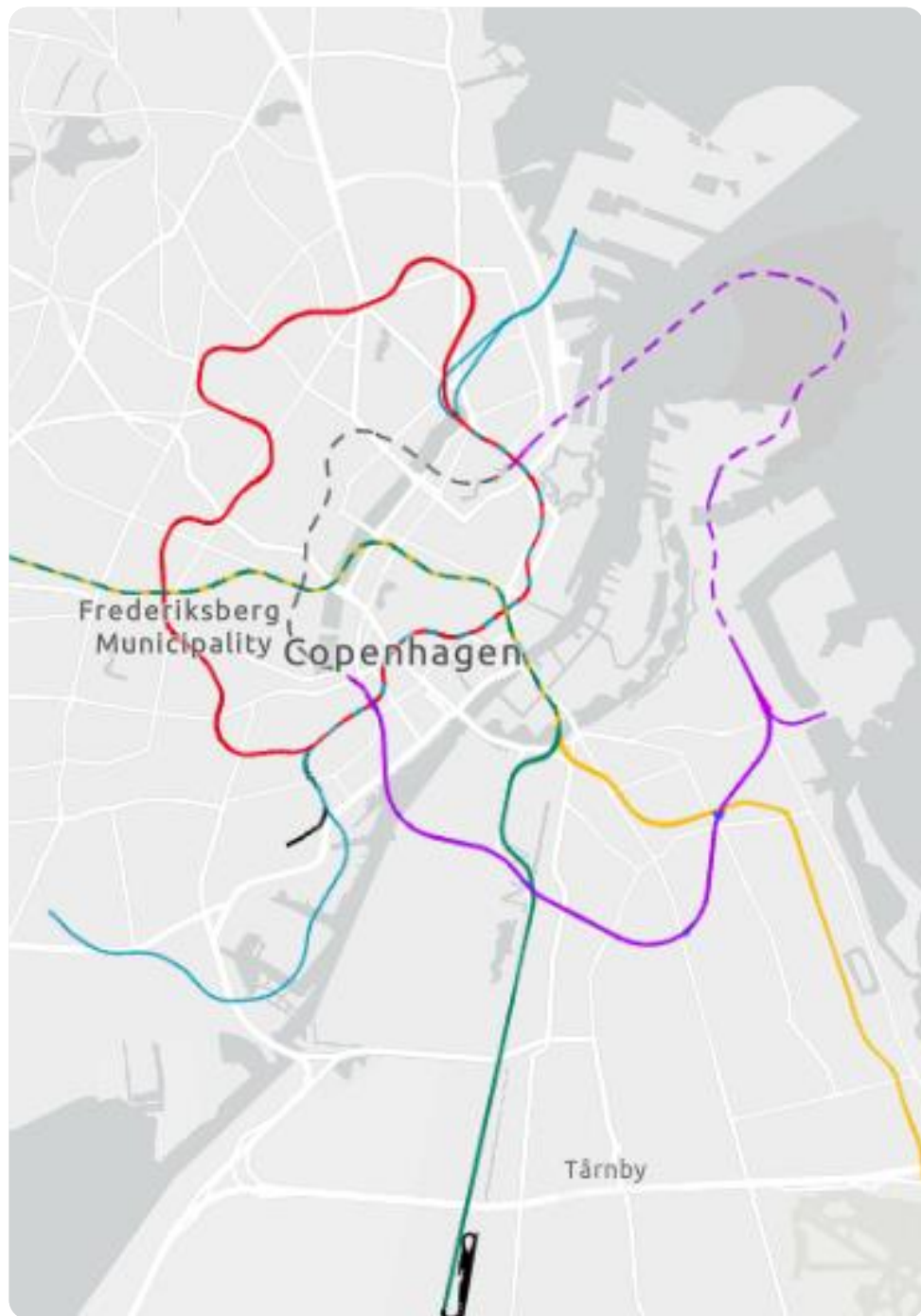
Standard Spans - Simply supported



Control and Maintenance Centre

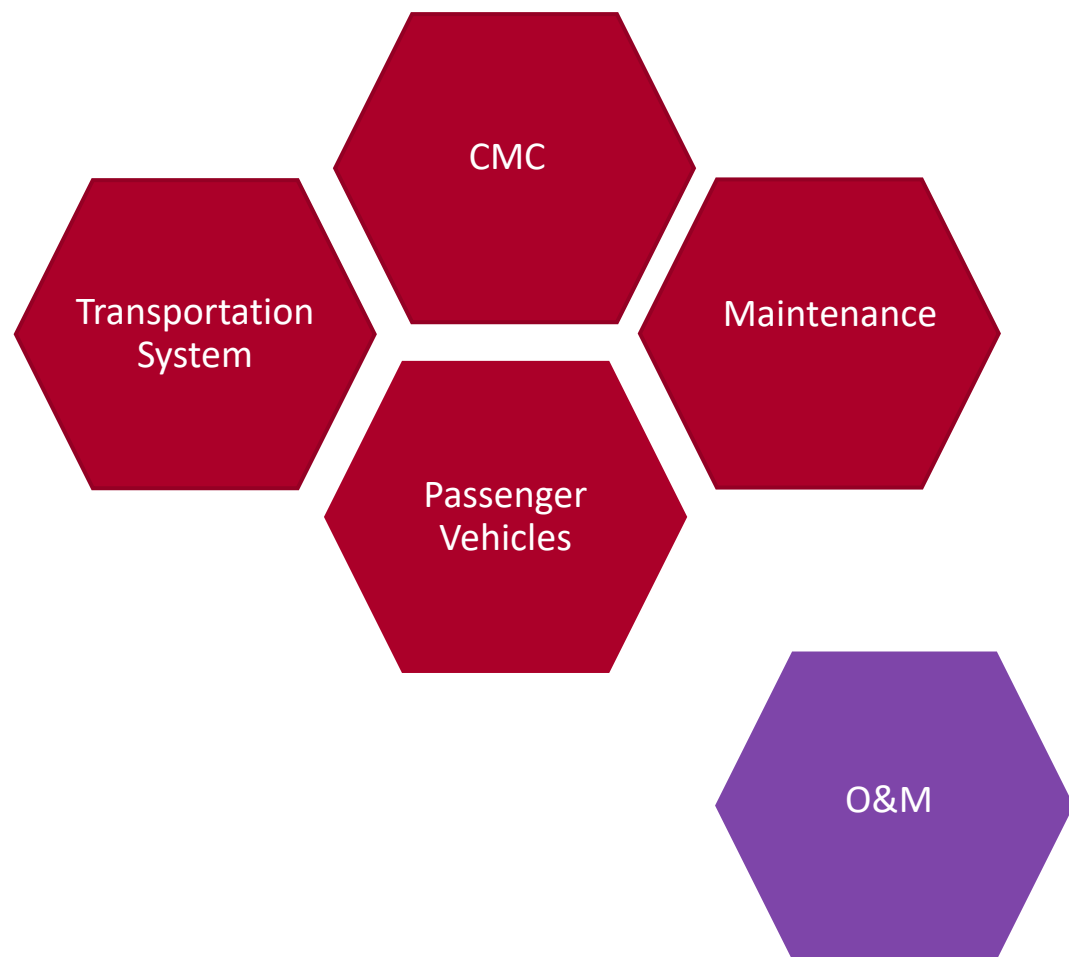


Procurement



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Contract Split



Civil Works

Civil Works -Tunnels, viaducts, stations, M&E, Permanent way

- Design and Build (ABT18)
- **Procurement Procedure**
 - *Negotiated Procedure*
 - 3 prequalified
 - *Award Criteria:*
 - 50% Price / 50% Quality
- Fee for compliant tender



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Transportation Systems

- One contract for signalling, sub-systems, rolling stock, CMC and TSSSA
- Based on ABT18 (with adaptations to TS)
- **Procurement procedure:**
 - *Competitive dialogue*
 - 3-4 prequalified
 - *Award criteria:*
 - 30-40% price
 - 60-70% quality
 - Fee for compliant final tender



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Operation and Maintenance (O&M)

Operation & Maintenance (O&M)

- To be tendered in 2029/30
- One contract for operation and maintenance for M5
- **Procurement procedure:**
 - Negotiated procedure
 - 3-4 prequalified
 - *Award criteria:*
 - 30-50% price
 - 50-70% quality



Other Contracts & Advanced Works



Civil works – Other Contracts

- E.g. station surface areas, Canopies
- Typically, Build only contracts and in close cooperation with the municipality of Copenhagen
- Based on AB18
- Smaller contracts below the threshold for EU tender

Civil works – Enabling works

- E.g. utilities, building modifications, removal of DSB façade, road diversions, etc.
- Typically Build only contracts
- Based on AB18
- Smaller contracts below the threshold for EU tender

Thank you



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