



# AWAKE Run2c vs Run2a&2b Infrastructure Integration

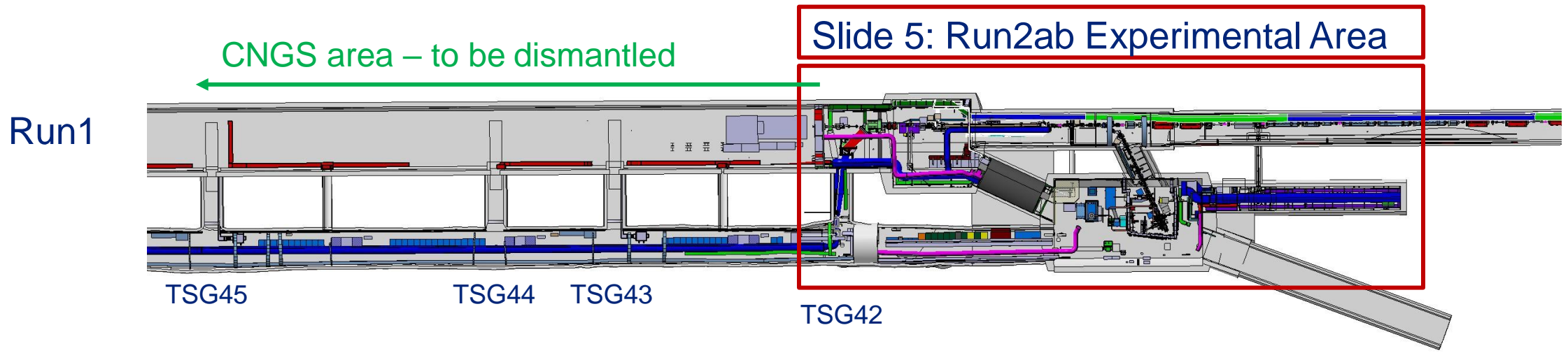
Integration Team: A. Pardons, E. Guran, V. Clerc (3D Drawings)

*Update from 2020 document (P. Wiwattananon)*

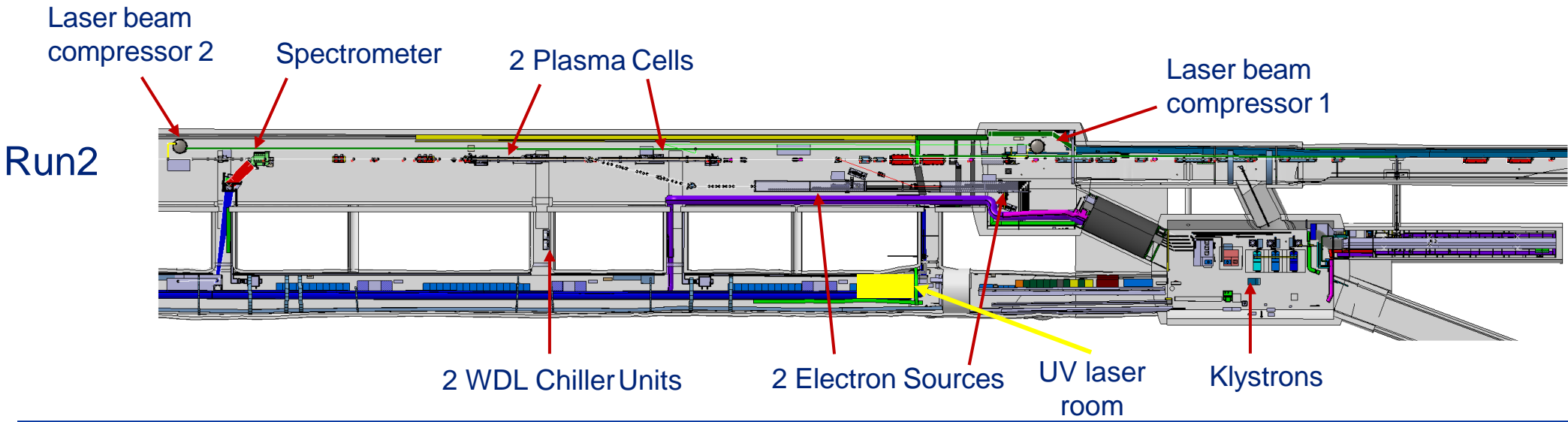
# Run 2ab vs Run2c

- Run2c has 2 times as many large/complex equipment than Run2ab
- Run2c requires at least x2 spaces/volume than Run2ab
- In Run2c integration design →take into account: the accessibility of equipment and foresee a minimum passage (800mm width free) for emergency evacuation
- In Run2c integration design →take into account: the transportation of equipment to the AWAKE experimental area: transportation width = 1.3m
- In TCC4, the overhead crane can bring in large equipment

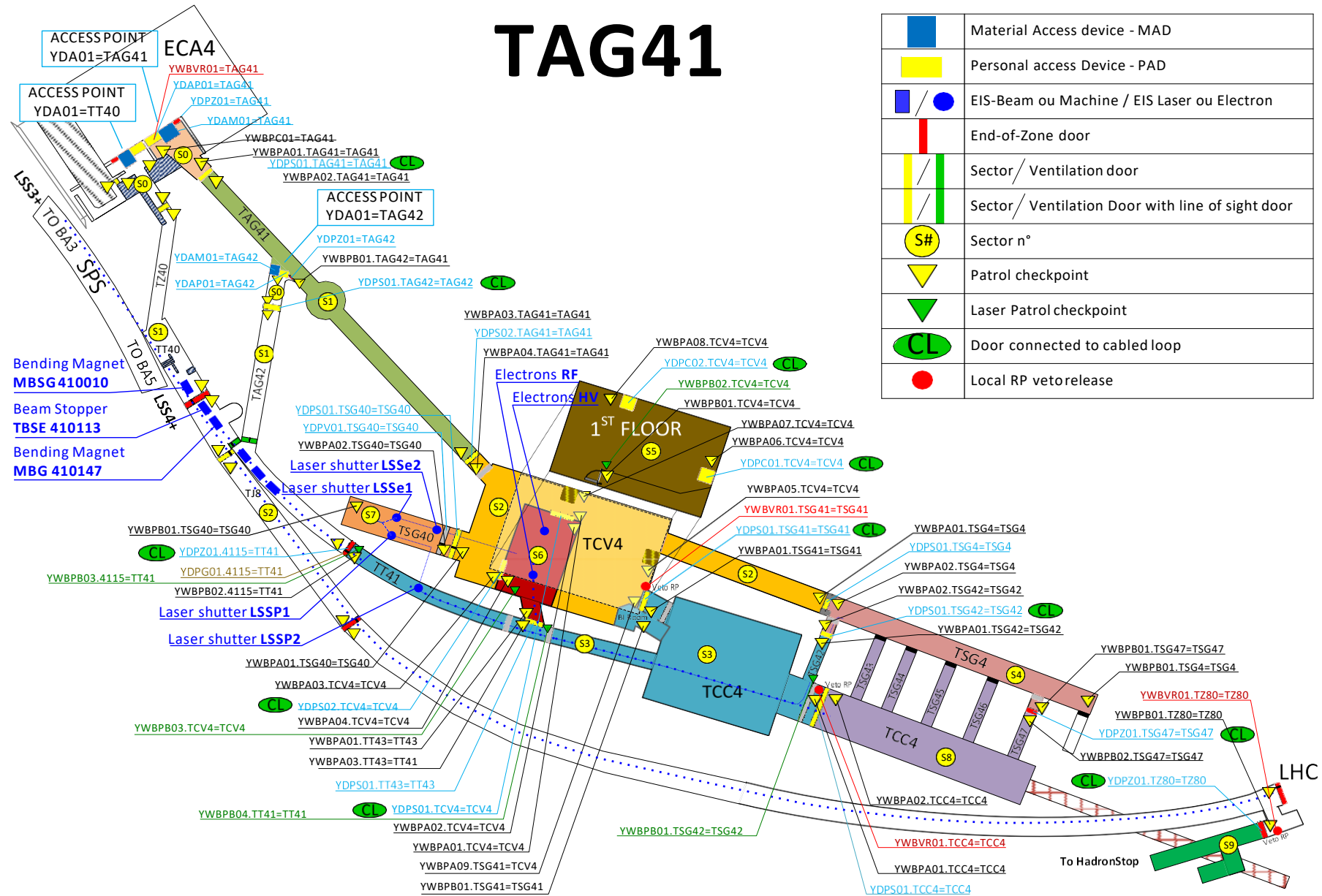
# Run2c vs Run2ab



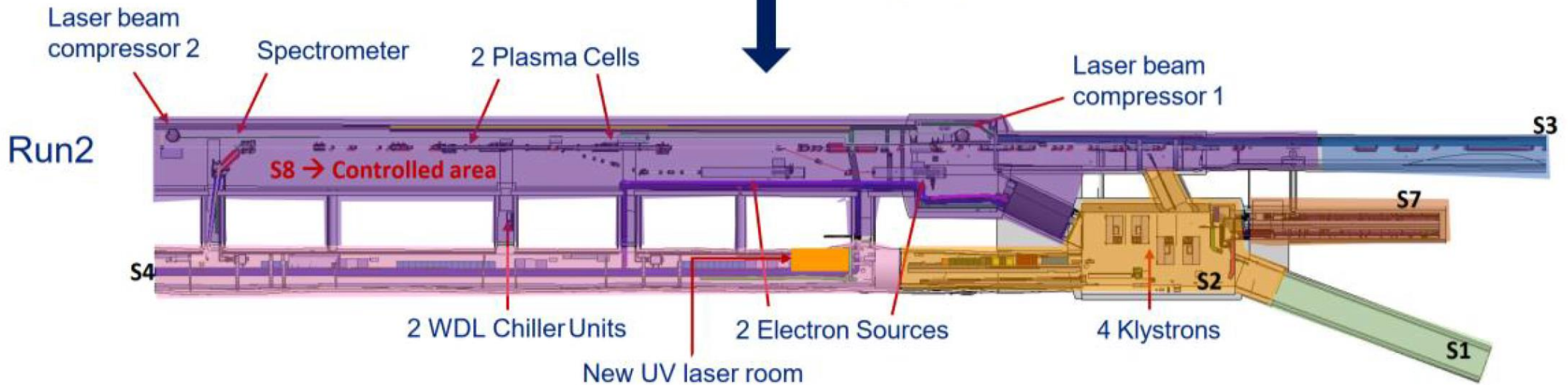
AWAKE CNGS Area Dismantling is before & during LS3 (2025-2026)  
 Run2c Integration/installation is during LS3 (2026-2027)



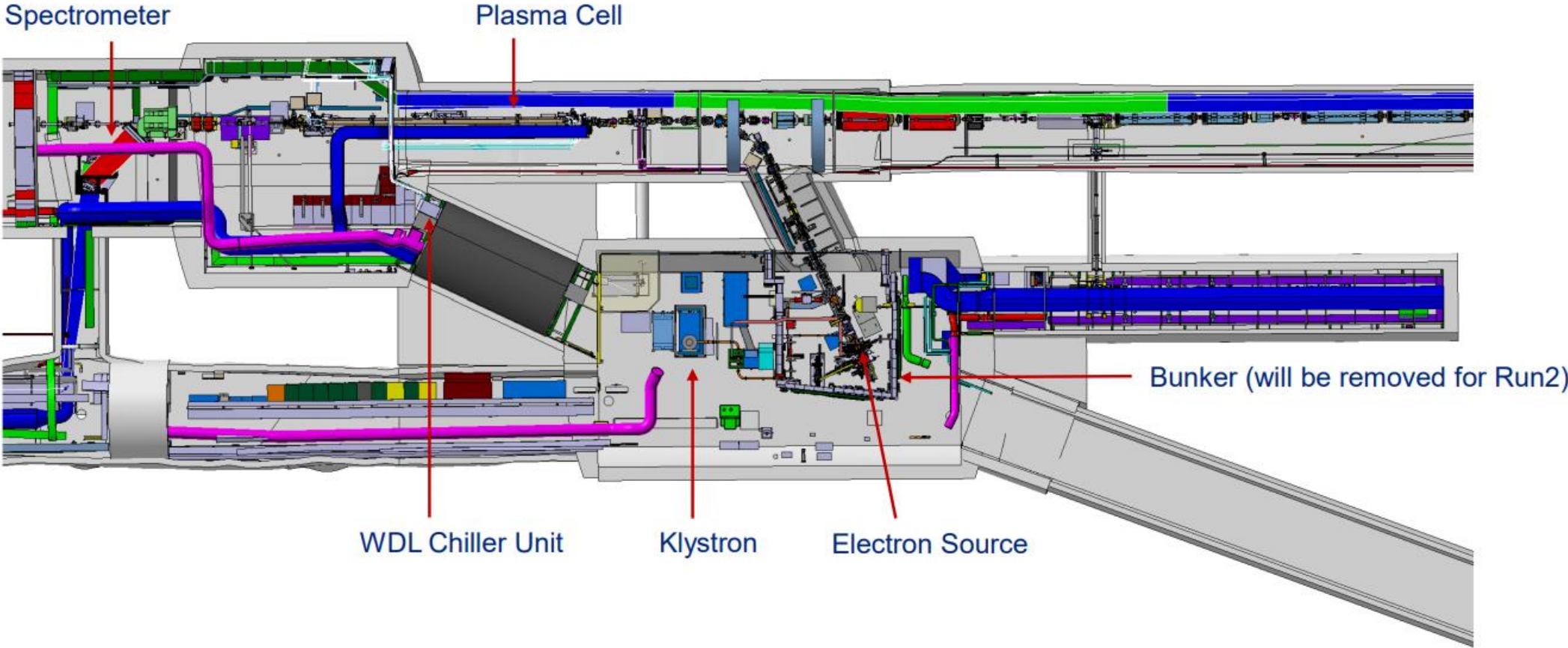
# TAG41



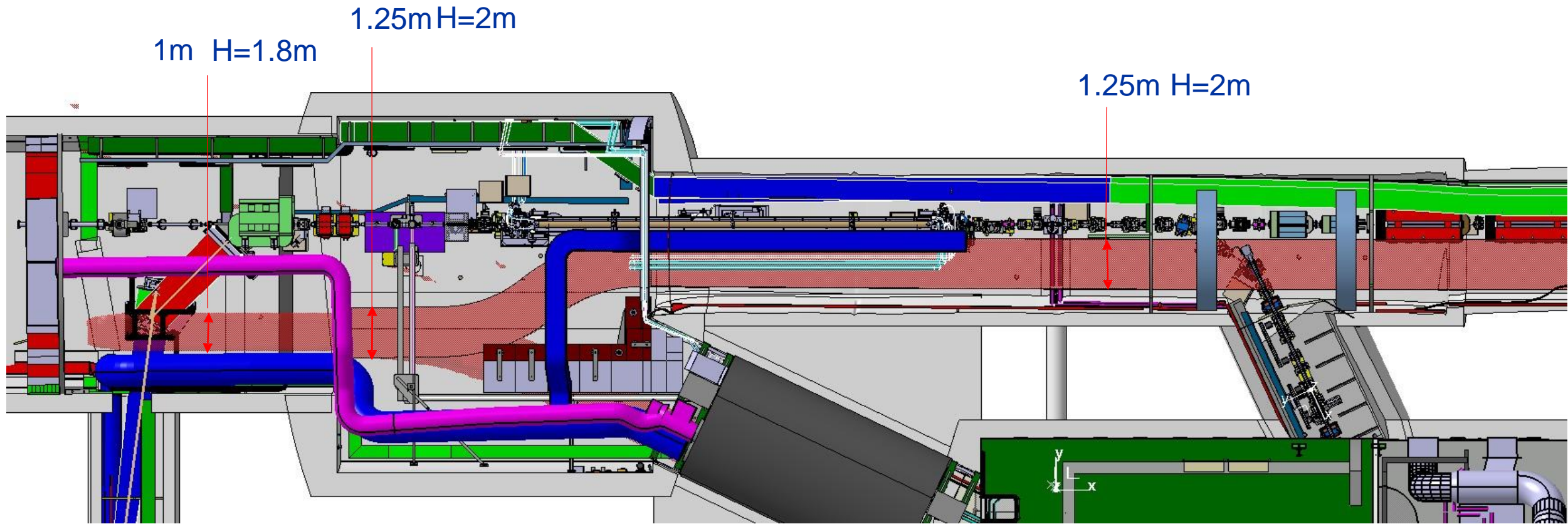
Run 2 proposed sectorisation



# Run 2ab



# AWAKE Run2ab – Transportation Path



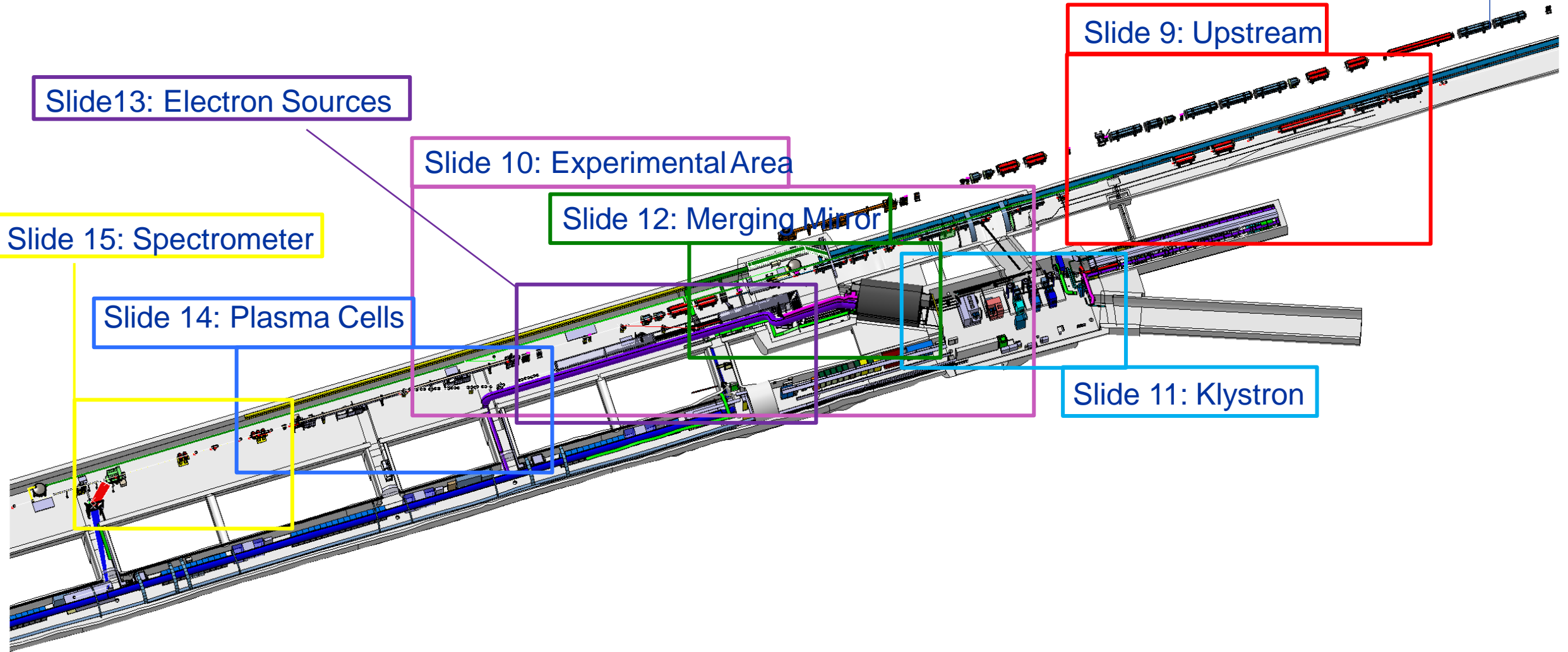
# Extra Slides AWAKE Run2c

Run2c Plasma Cell1 Moves 40m Downstream Relative to Run1 Plasma Cell

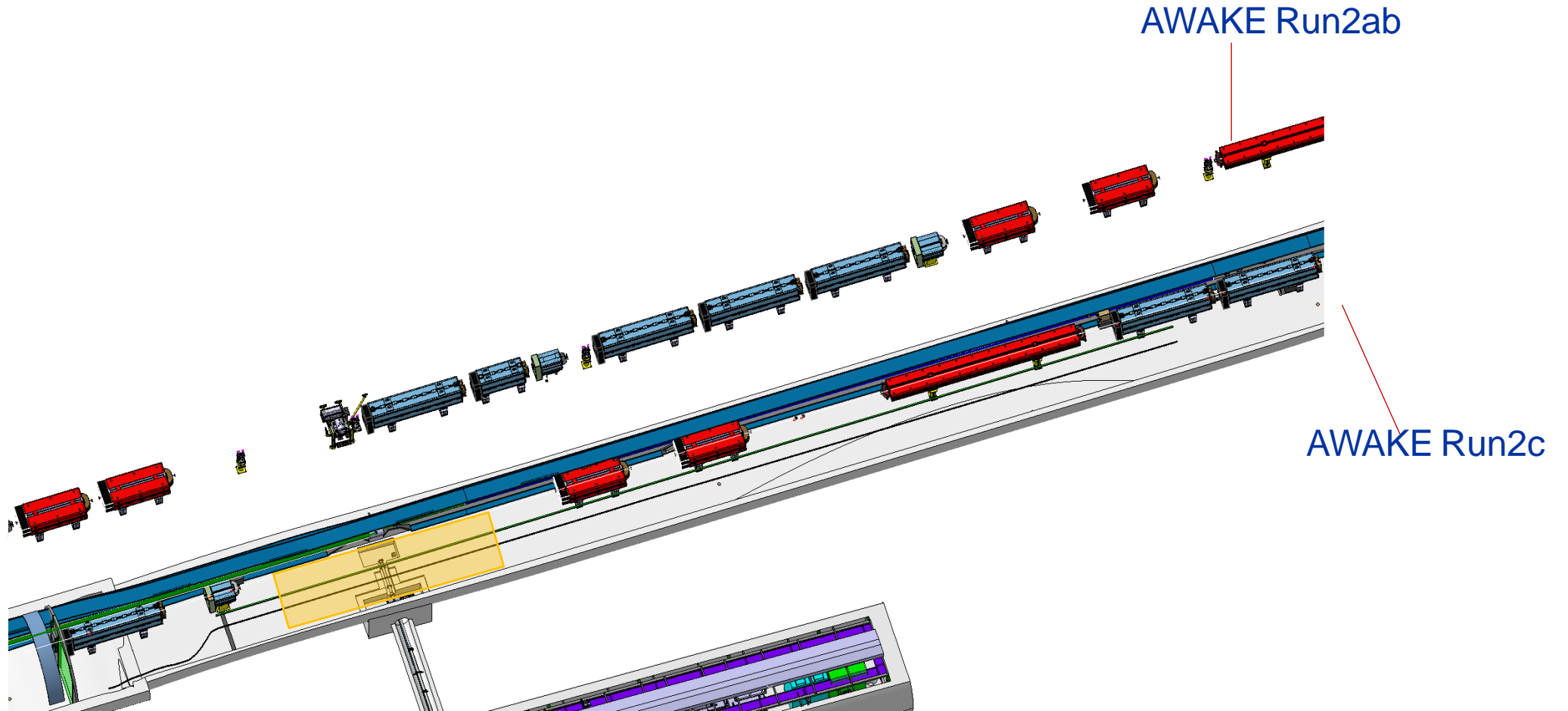


# AWAKE Run2c Infrastructure

AWAKE Run2ab

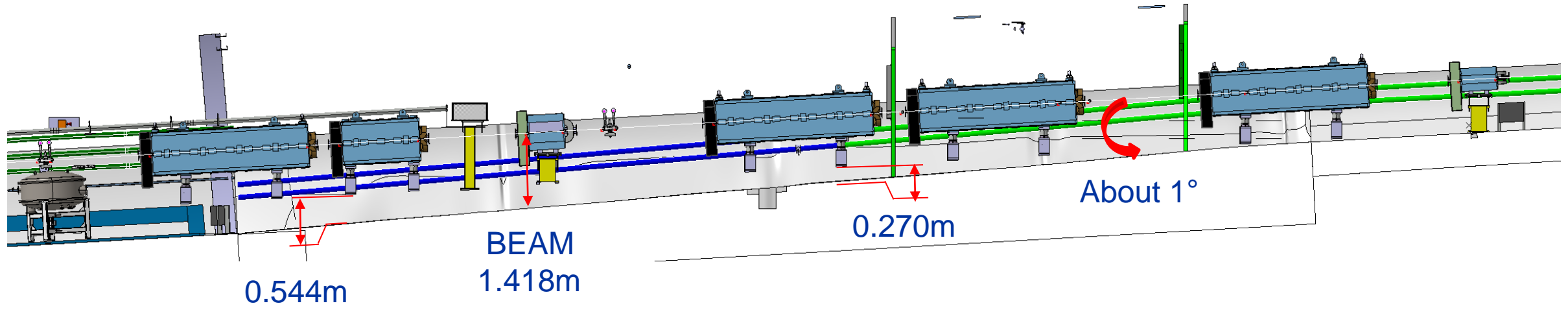


# Upstream – TT41



Laser Merging Mirror Equipment → move 35m downstream relative to Run2ab position.  
Proton beam magnets → relocate to support the Run2c plasma cell1 location and avoid conflicts with infrastructure, e.g. doors, in the tunnel.

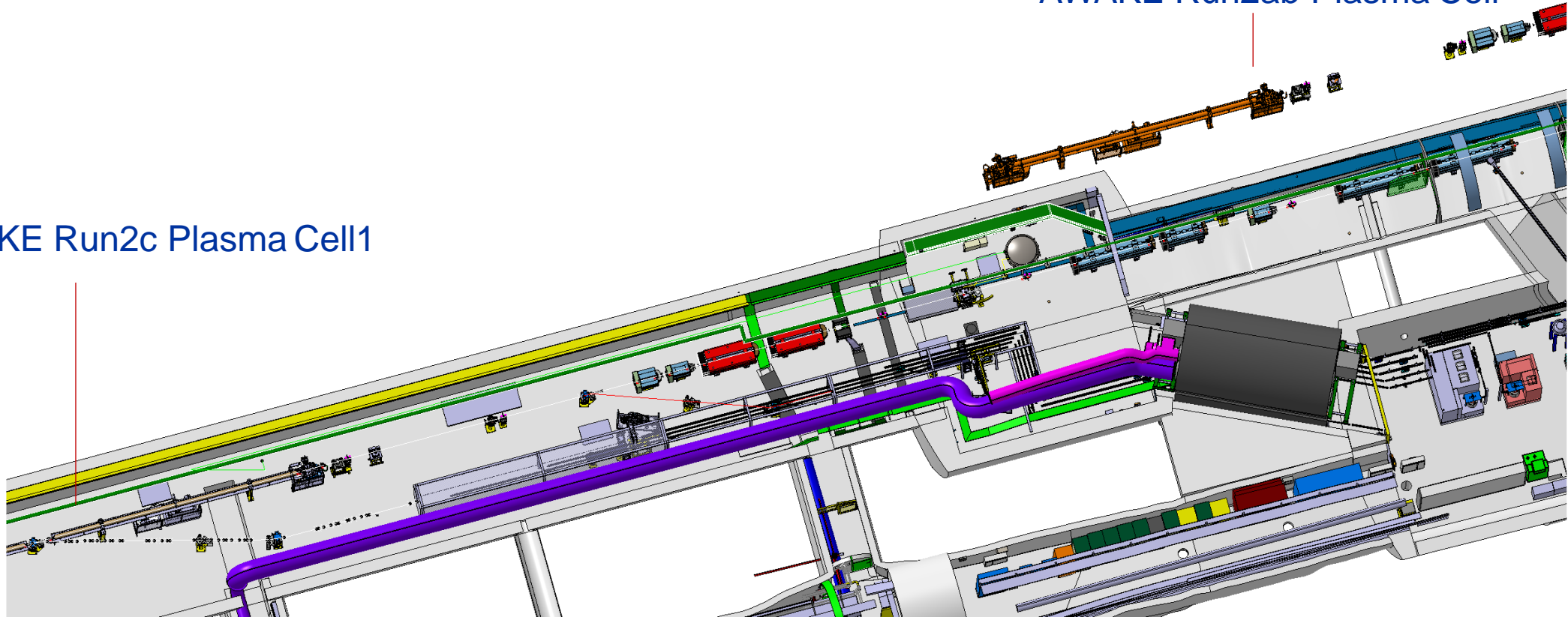
# BEAM HEIGHT – TT41



# Experimental Area – TCC4

AWAKE Run2ab Plasma Cell

AWAKE Run2c Plasma Cell1



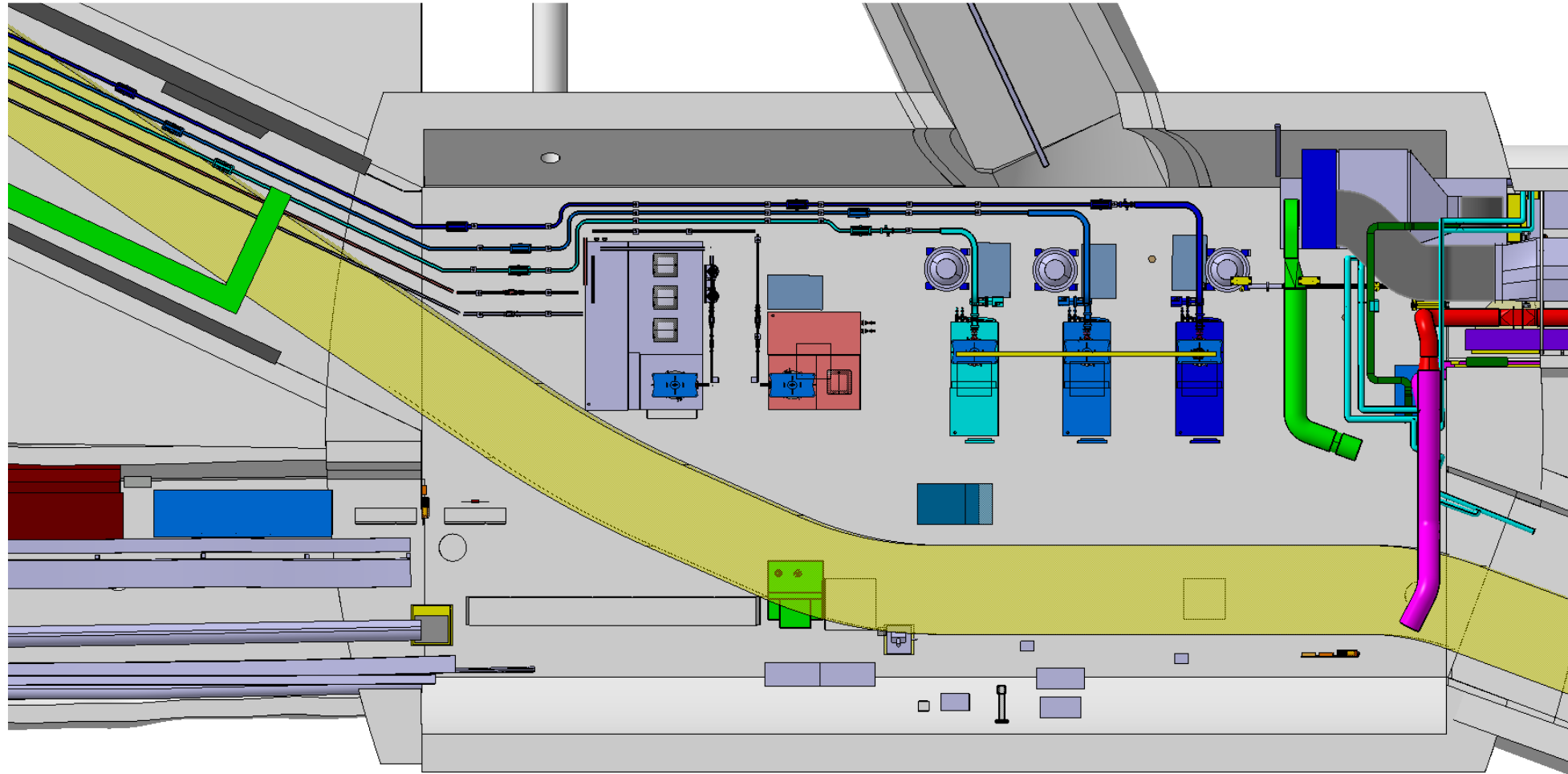
AWAKE Run2ab Plasma Cell moves 40m downstream → AWAKE Run2c Plasma Cell1

Working spaces around the laser merging mirror, compressor1, and electron sources obey the safety passage rule!

# Klystrons - TCV4

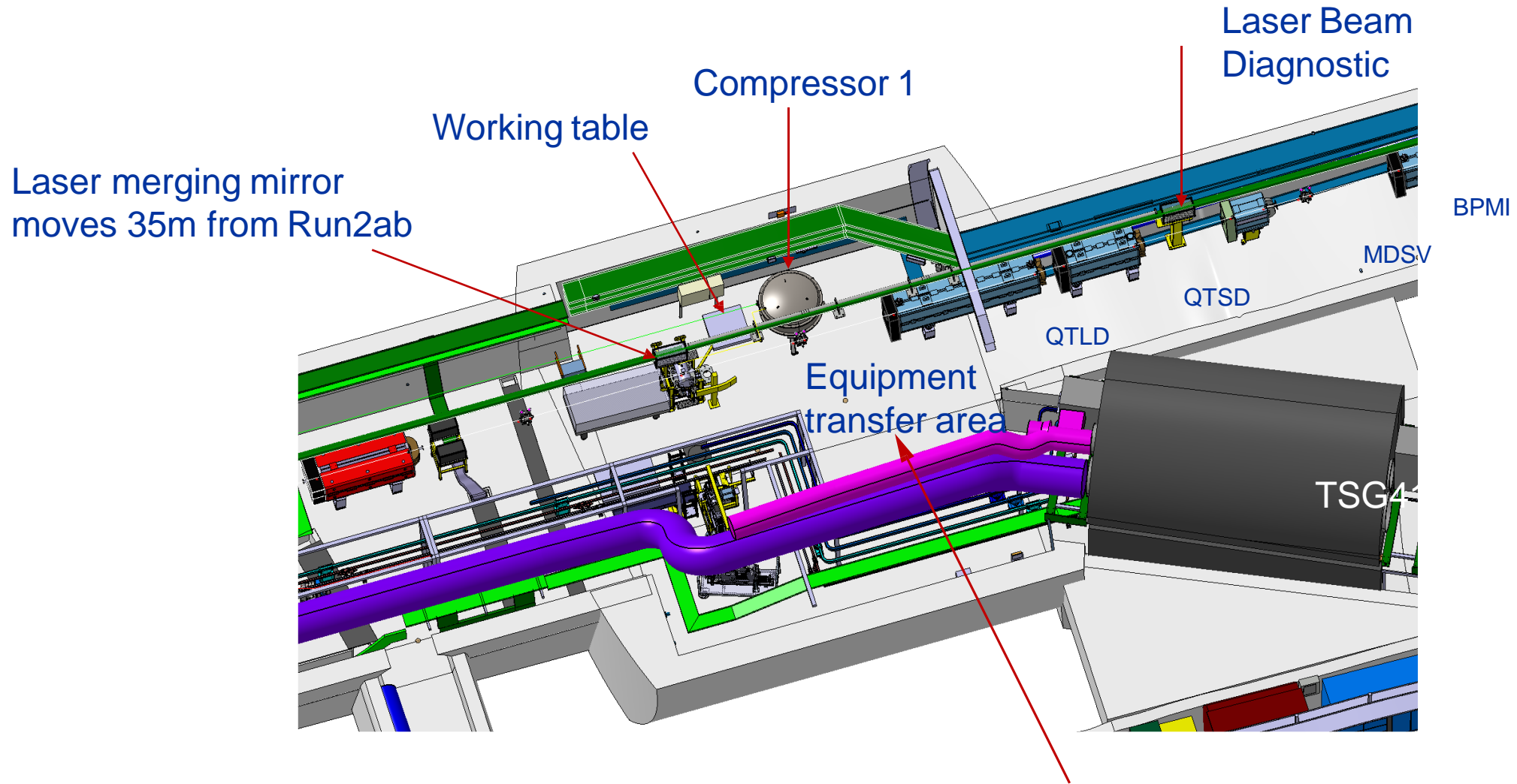
Transportation Path

TSG41

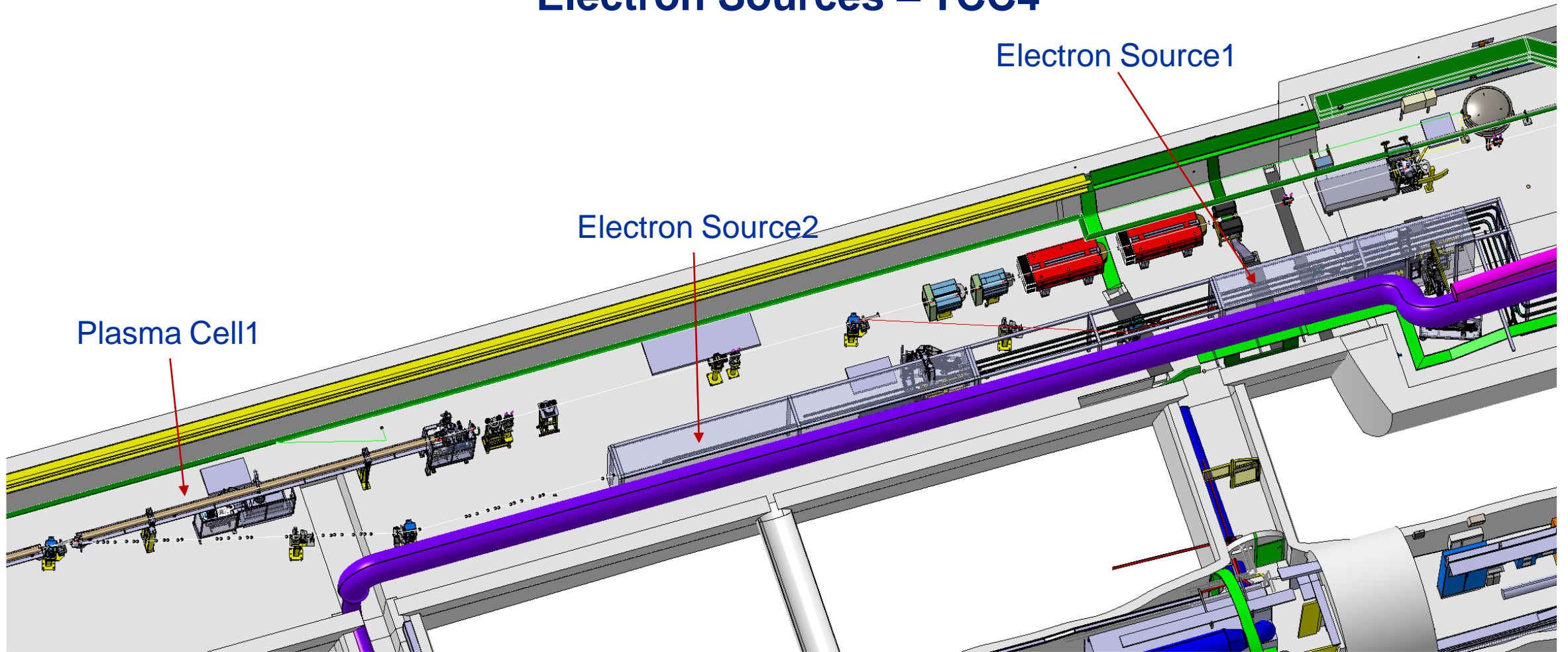


Double spaces required for Run2c (additional) klystrons → TCV4 allows a perfect location with optimum waveguide length.

# Laser Merging Mirror Area – TCC4

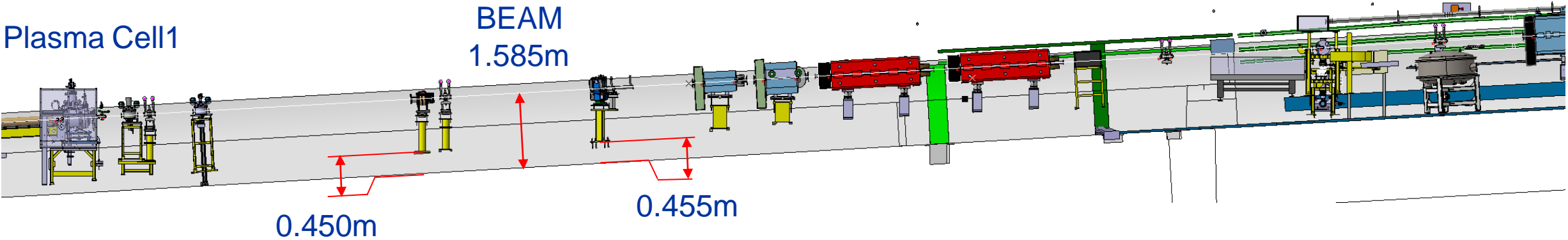


# Electron Sources – TCC4



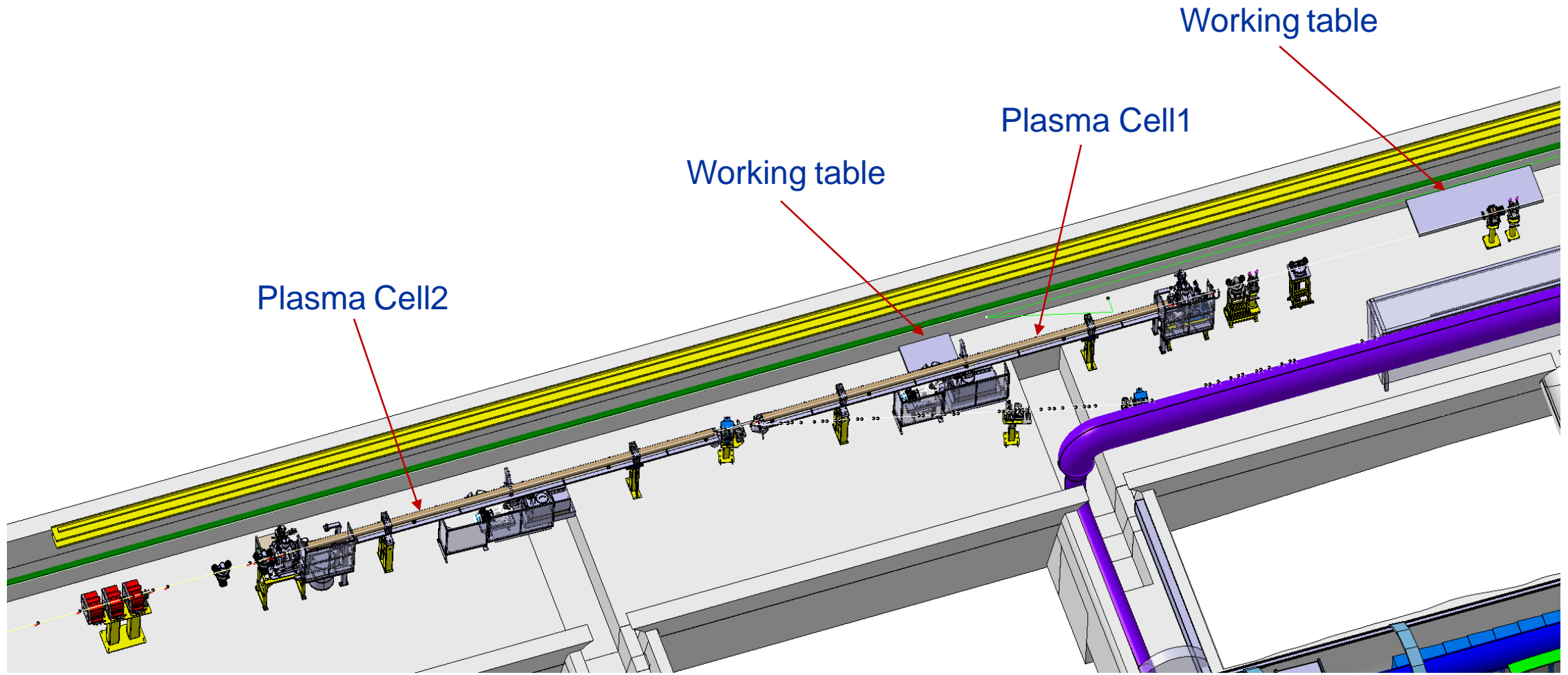
Working spaces around the electron sources obey the safety rule!  
Electron beams geometries obey technical requirements.

# BEAM HEIGHT – TCC4 – BEFORE PLASMA CELL

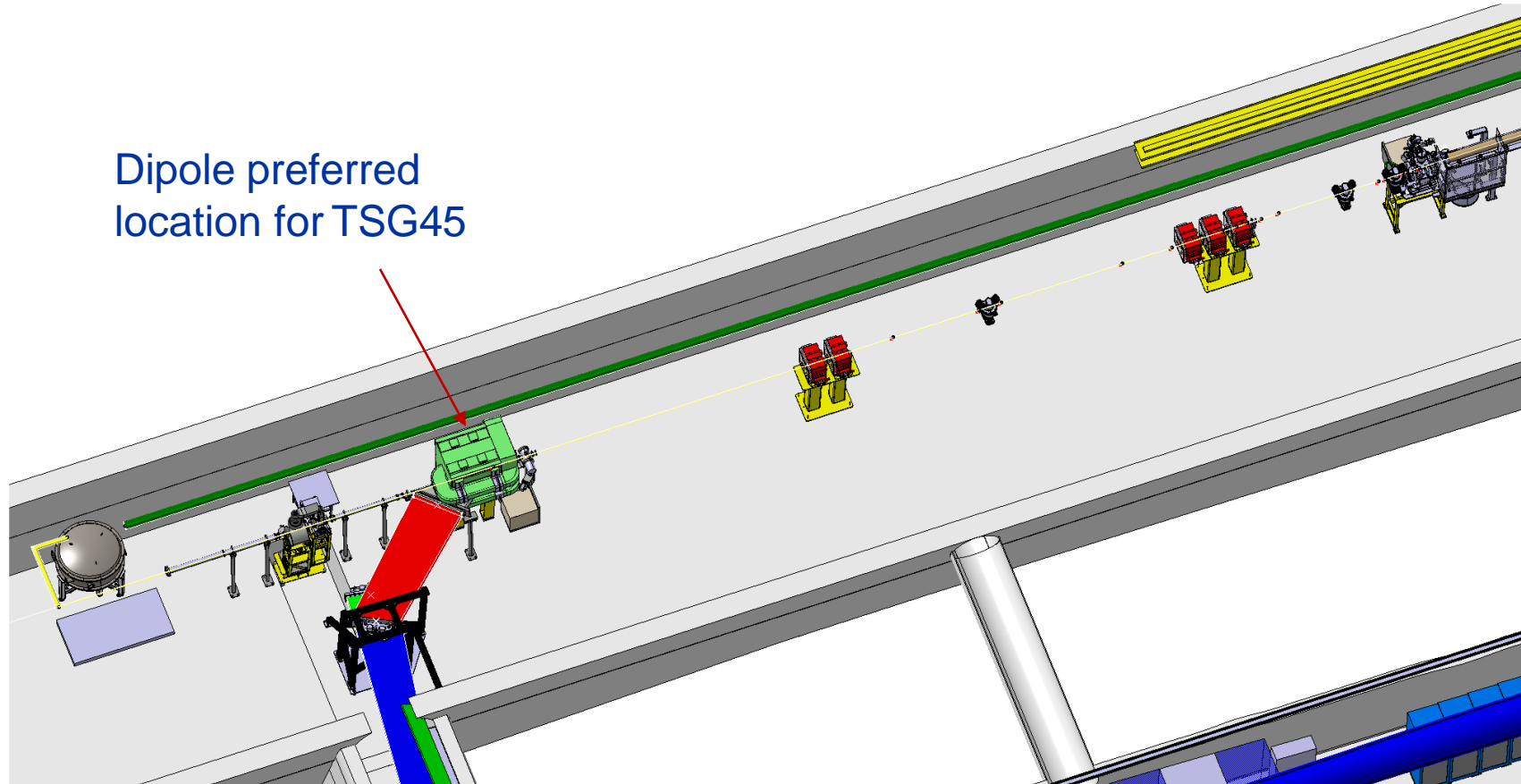




# Plasma Cells – TCC4



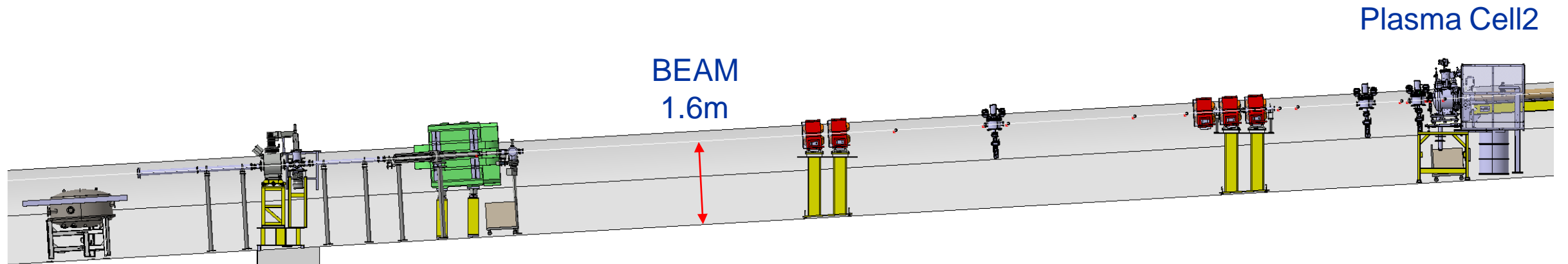
# Spectrometer – TCC4



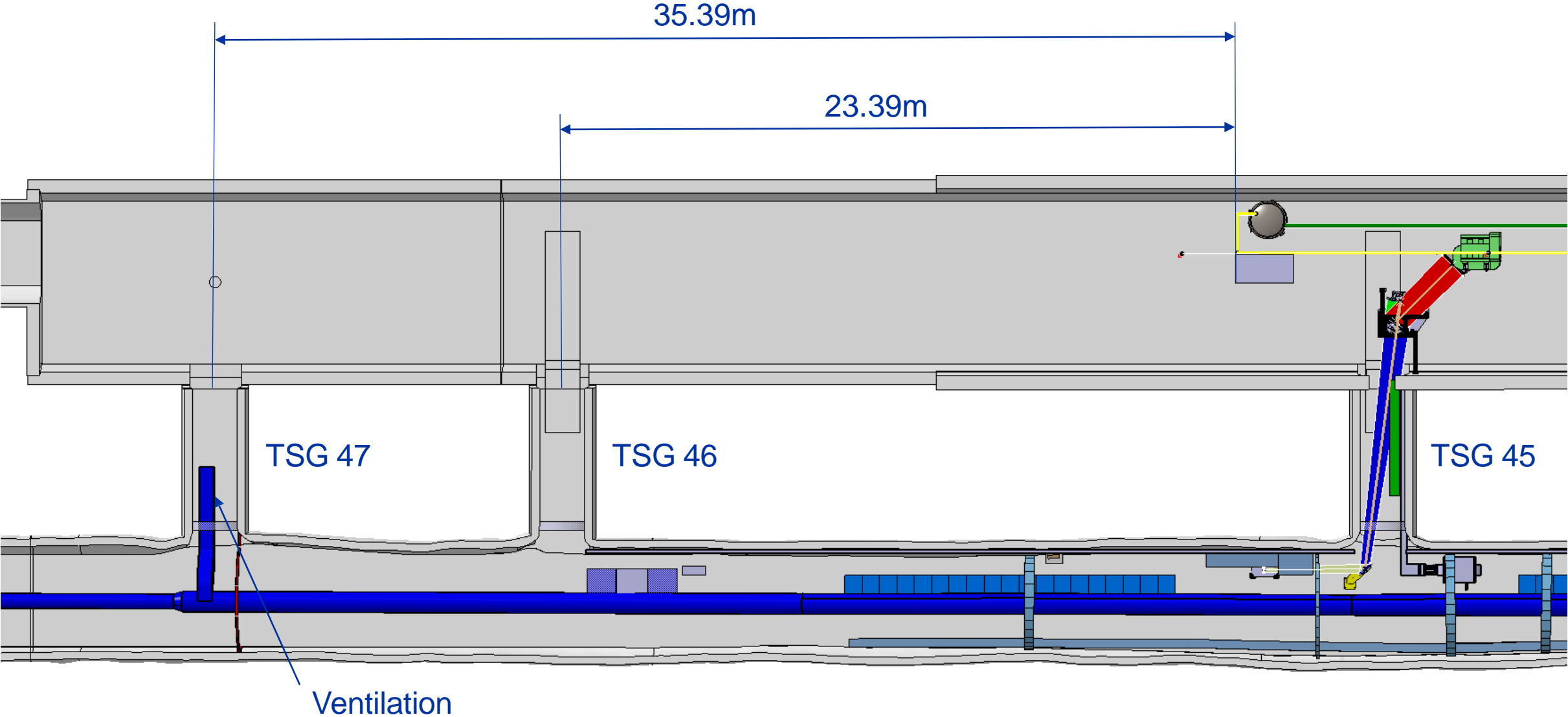
Dipole preferred  
location for TSG45

TSG45

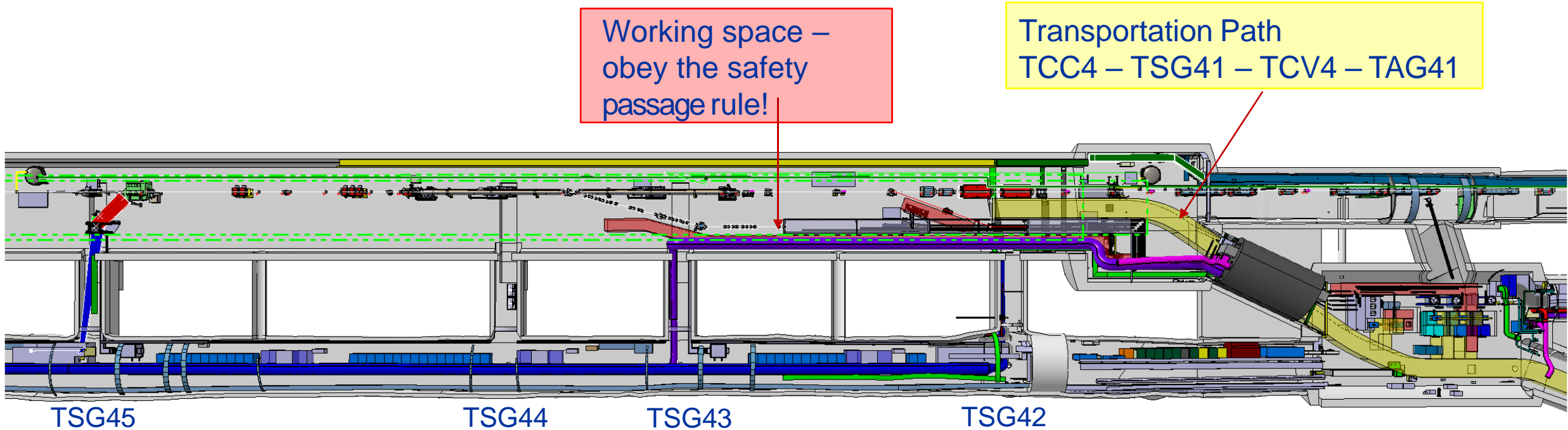
# BEAM HEIGHT – TCC4 – AFTER PLASMA CELL



# Available Space Downstream



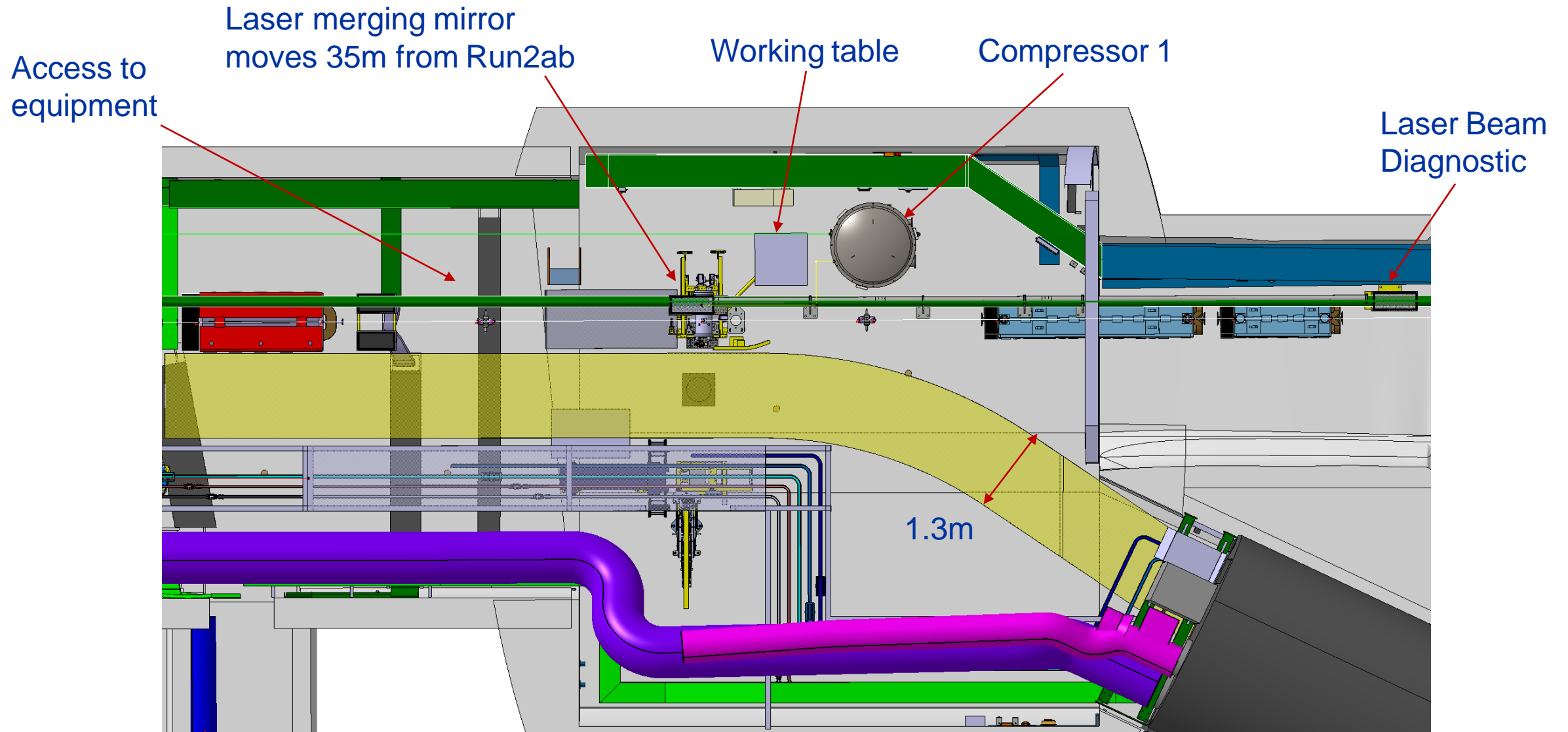
# Transport and Handling



### Transportation of Large/Complex Equipment:

- ✓ **Plasma Cells:** via TAG41, TAG42 and TT41 - follow Run2ab procedures.
- ✓ **Electron Sources:** via TSG41, TCV4, TCC4 – follow Run2ab transportation procedures.
- ✓ **MBXFD (dipole) at the spectrometer:** follow Run2ab transportation procedures.
- ✓ **Klystrons:** subcomponents must be assembled at the TCV4. No foreseen transportation issues.

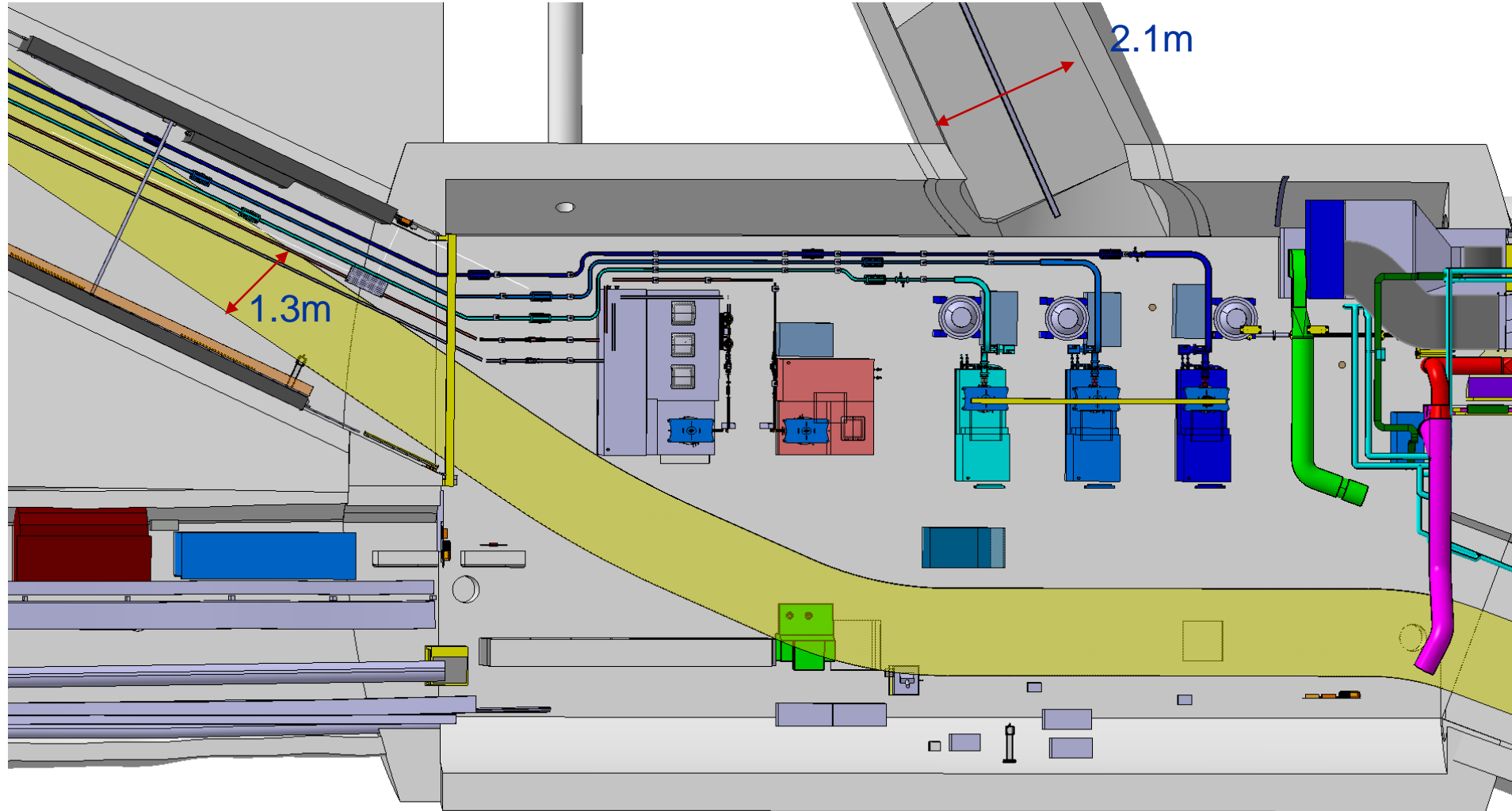
✓ Discussed, no blocking points.



Meet required transportation width of 1.3m.  
No equipment conflicts.

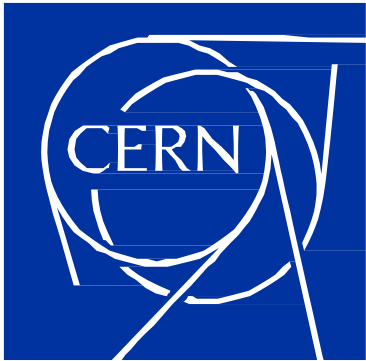
# TCV4

TSG41



Klystron subcomponents can be transported via TAG41 and assembled onsite at the TCV4.





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