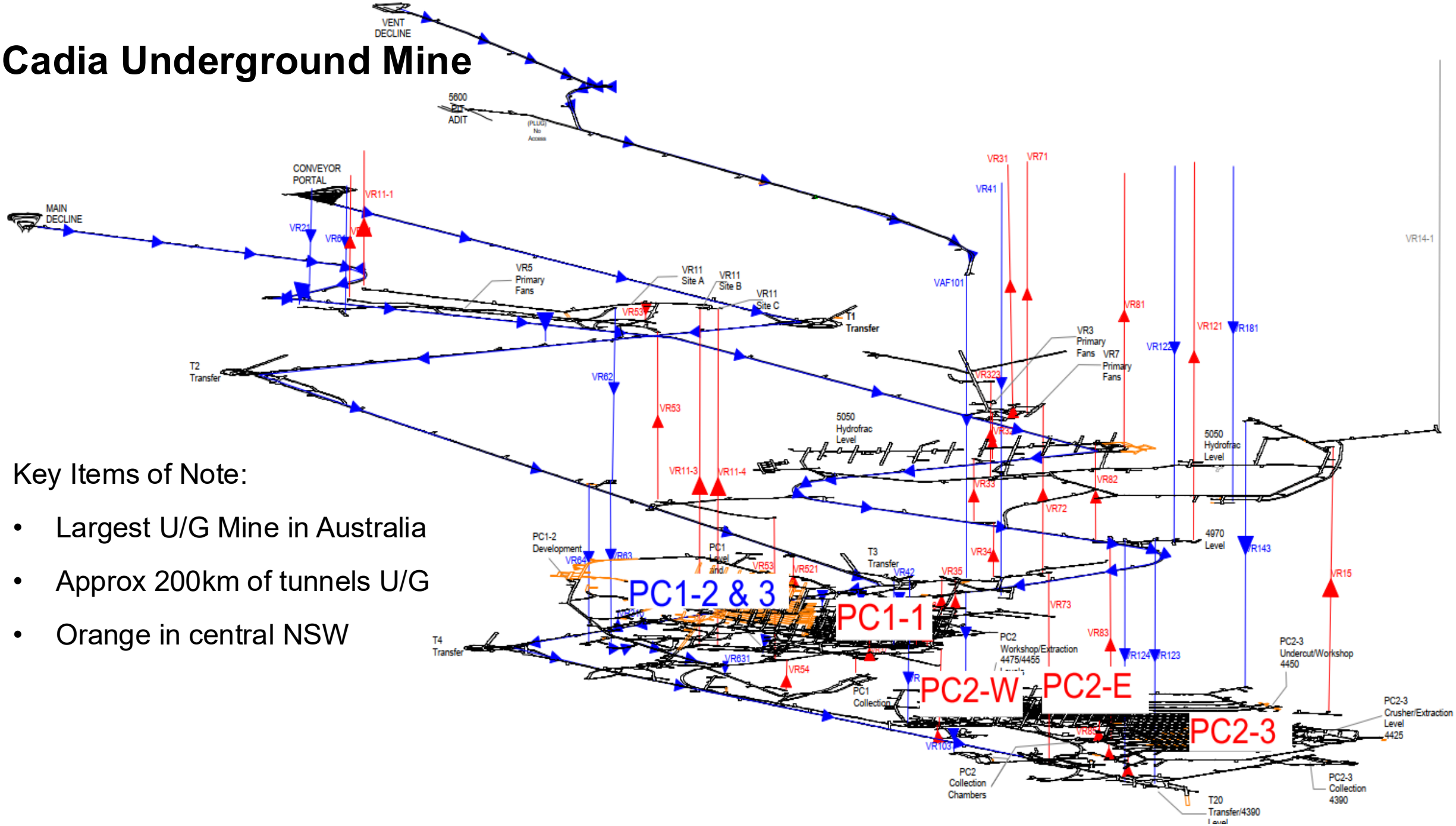
AusIMM Technology Series
Cadia PC1 Expansion T45 Tie In

Delivering a better world

aecom.com

Cadia Underground Mine

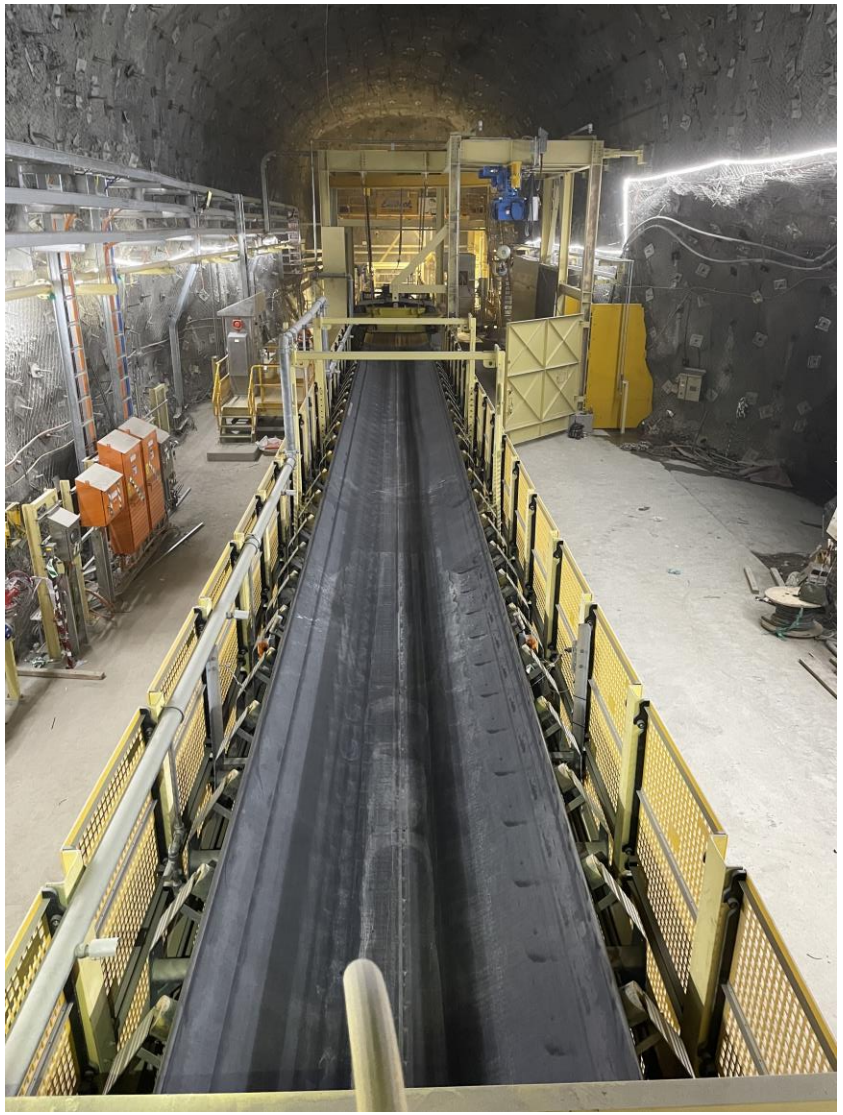


Key Items of Note:

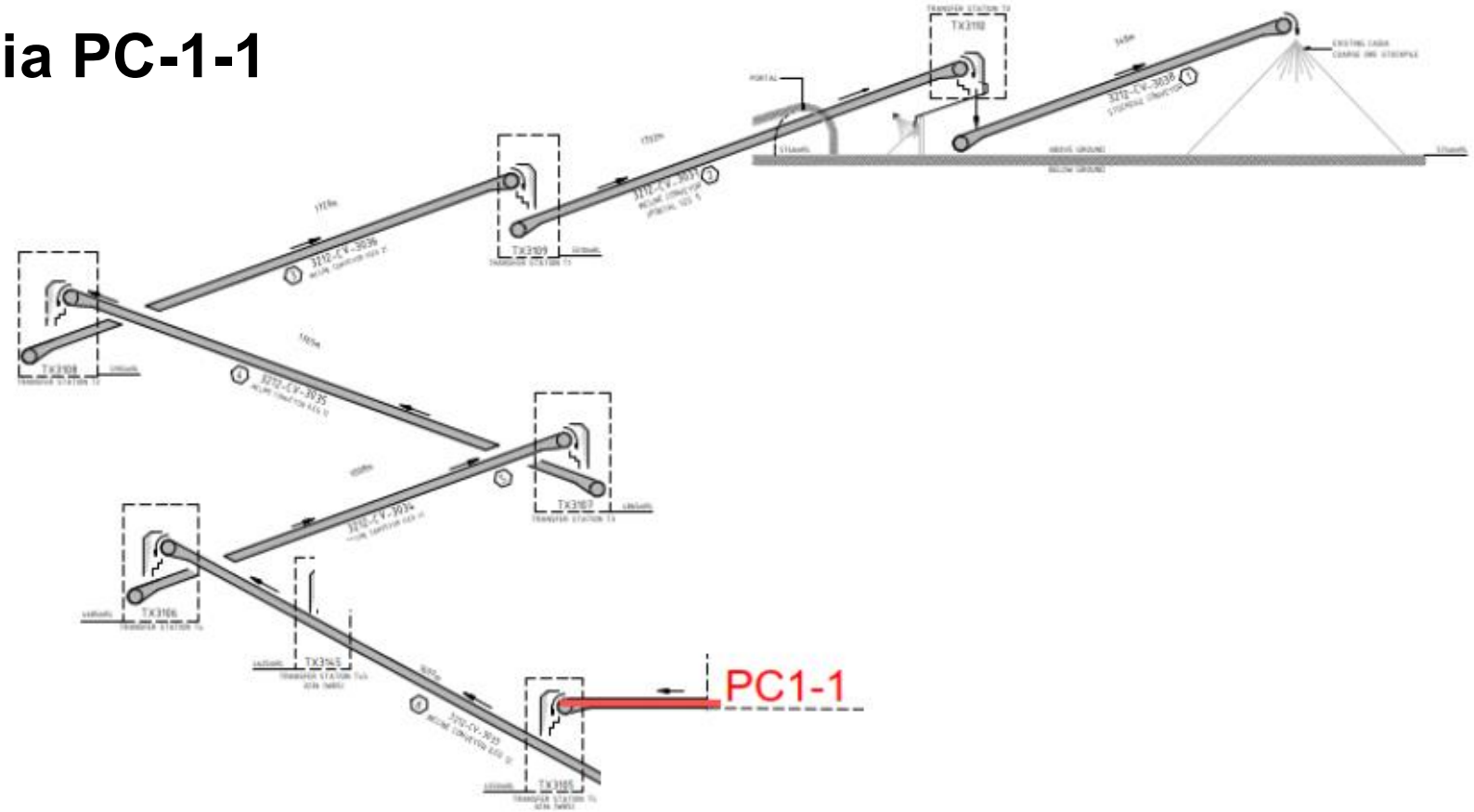
- Largest U/G Mine in Australia
- Approx 200km of tunnels U/G
- Orange in central NSW

Typical Crusher & Tramp metal removal.

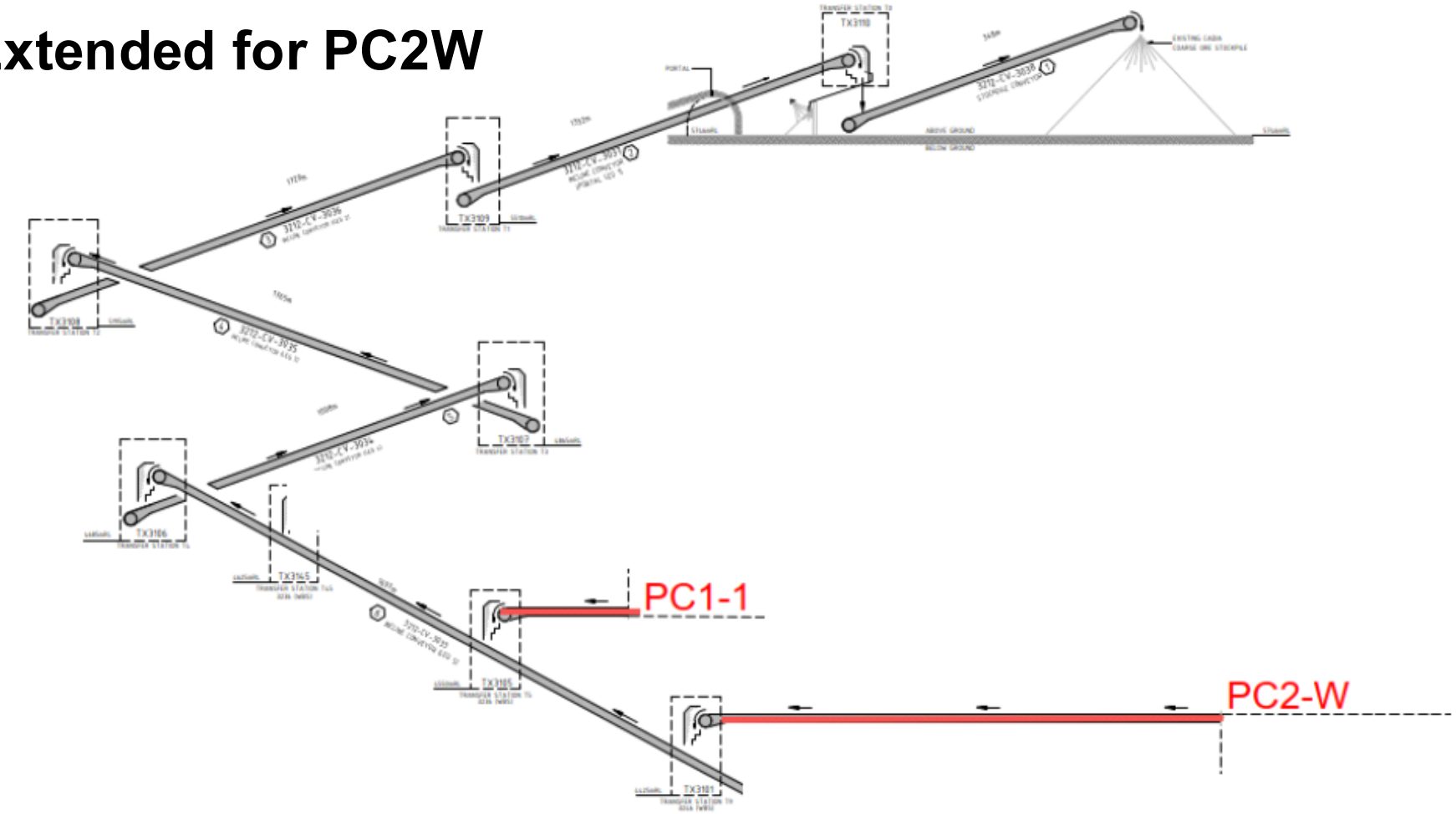




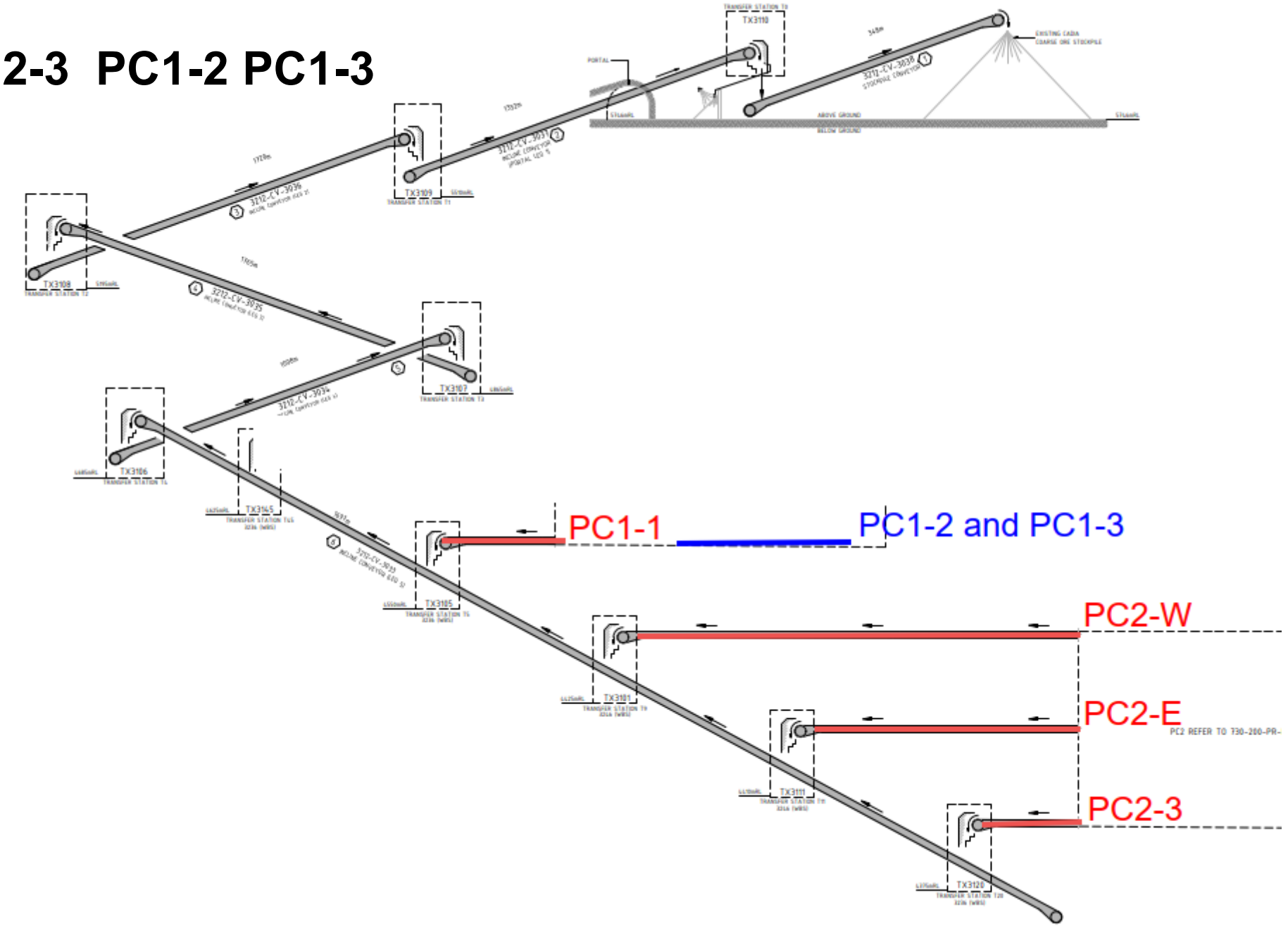
Original Cadia PC-1-1



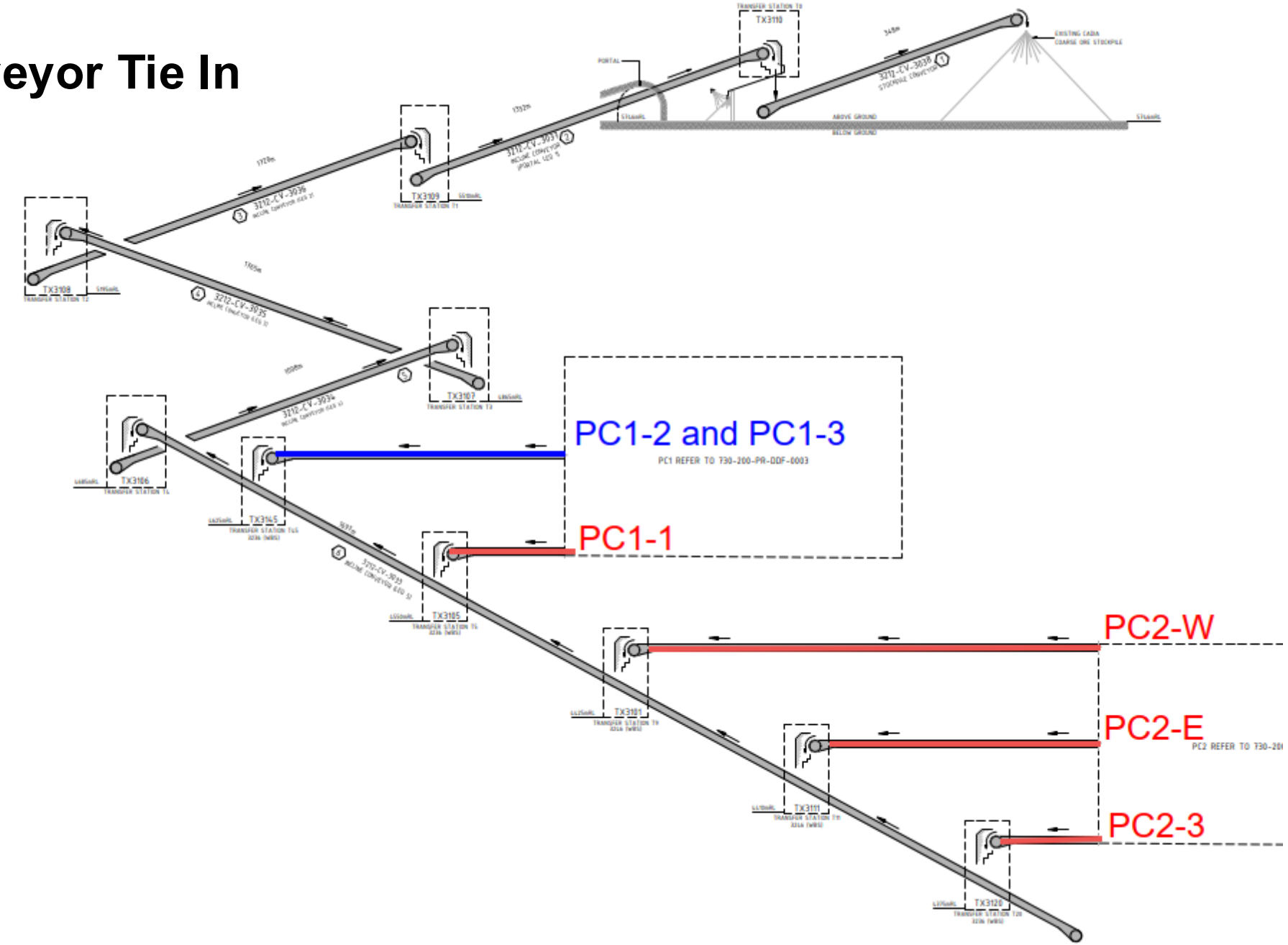
Conveyor Extended for PC2W



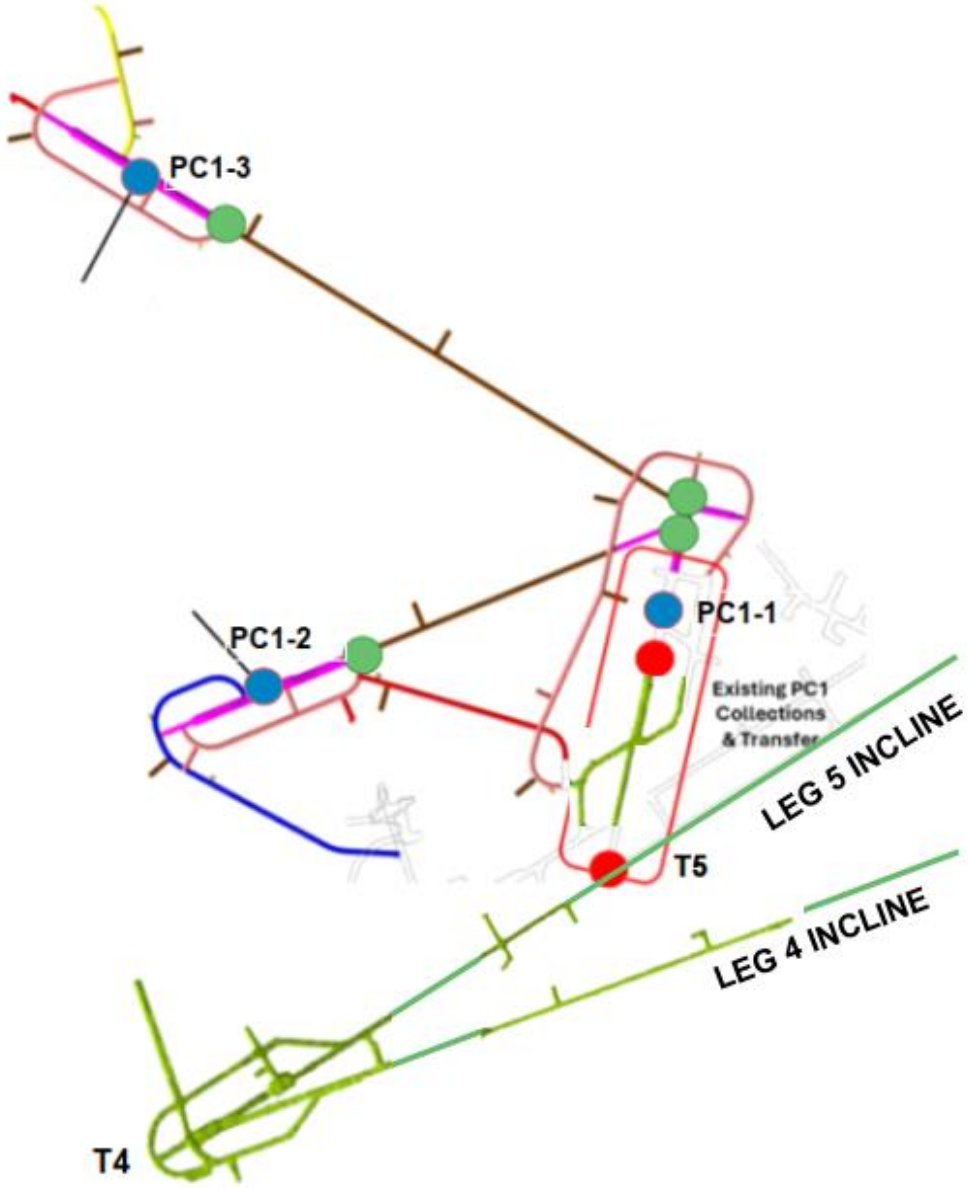
PC2-E PC2-3 PC1-2 PC1-3



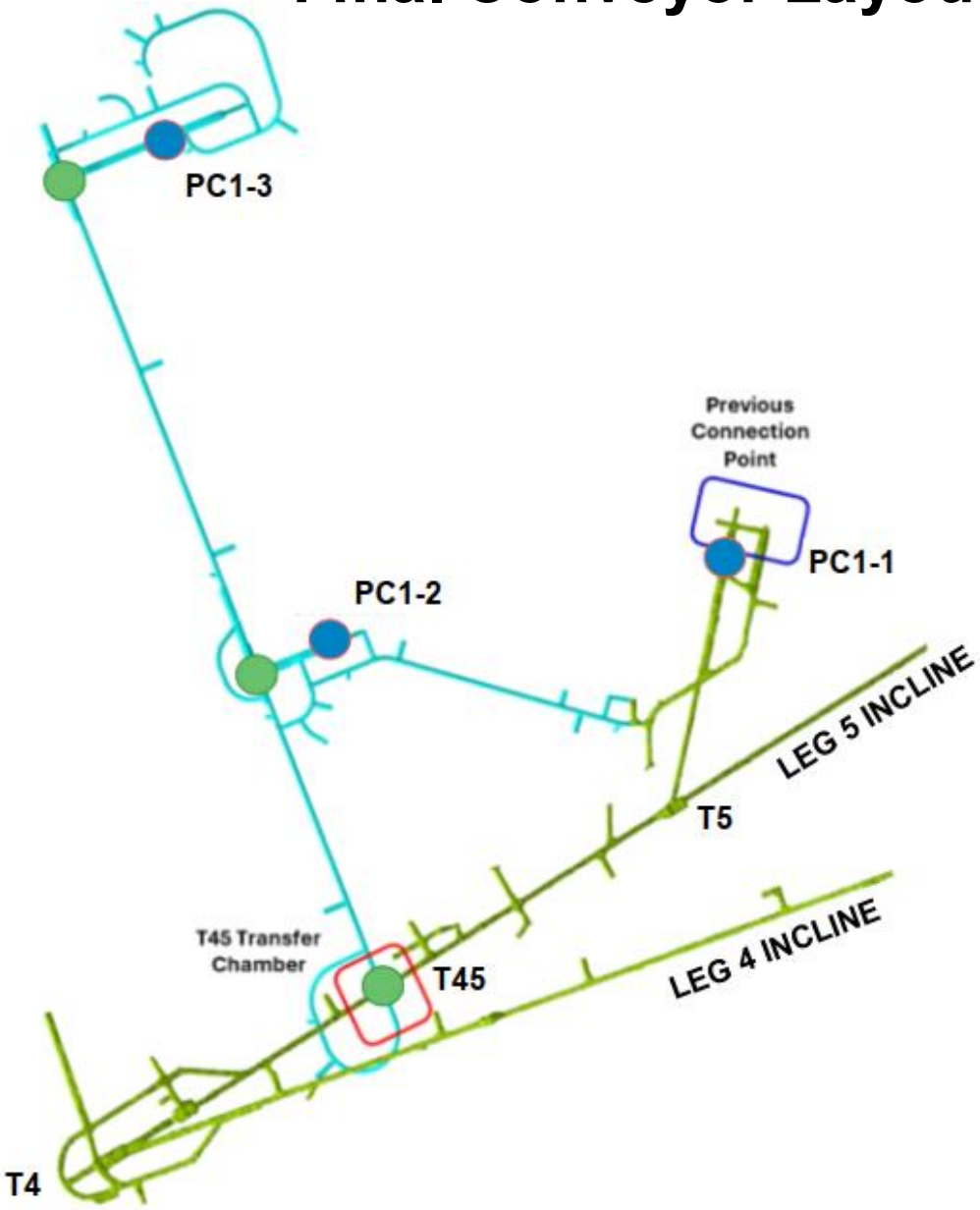
T45 Conveyor Tie In



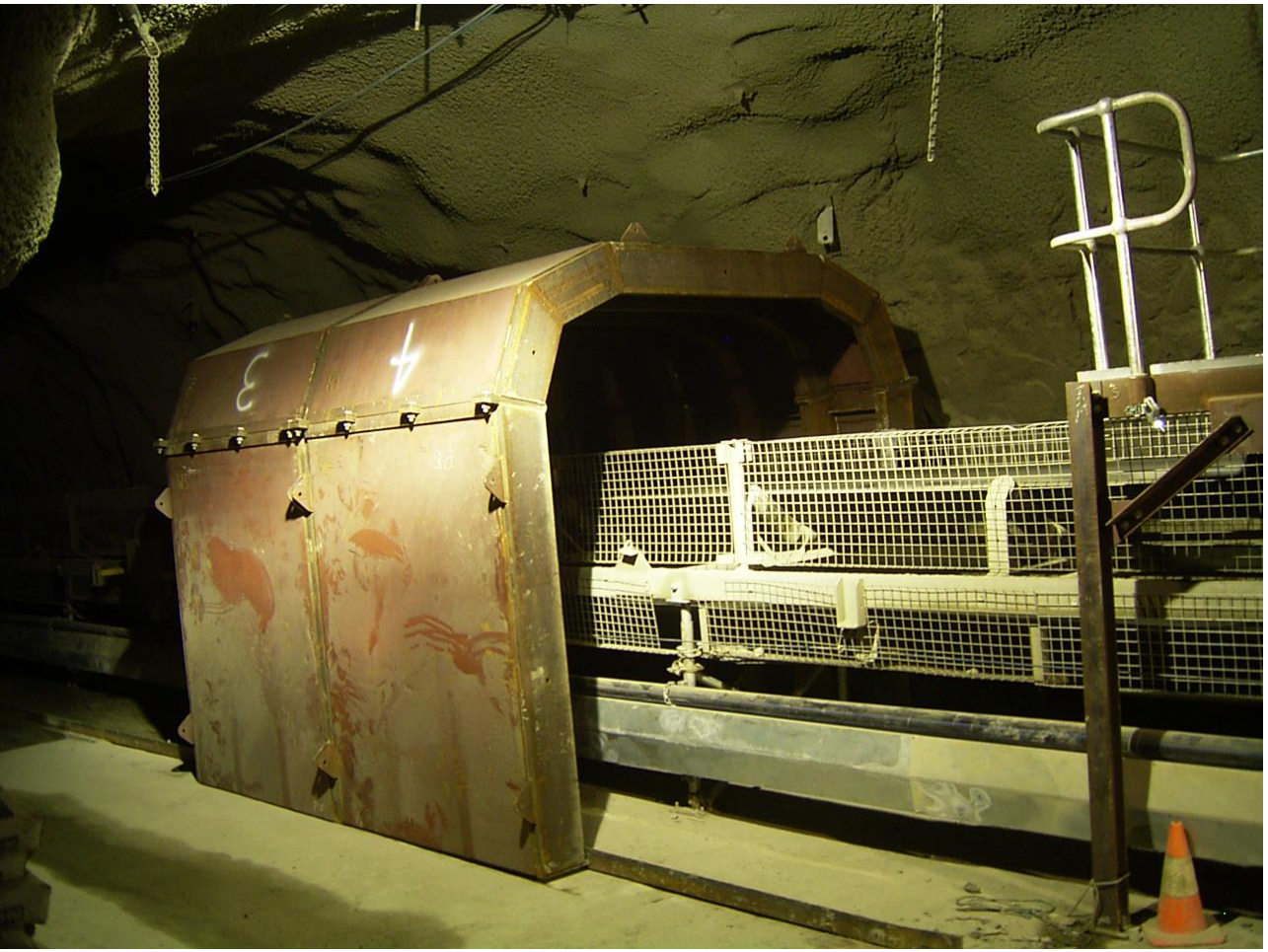
Initial Conveyor Layout



Final Conveyor Layout



Ridgeway Deeps Example



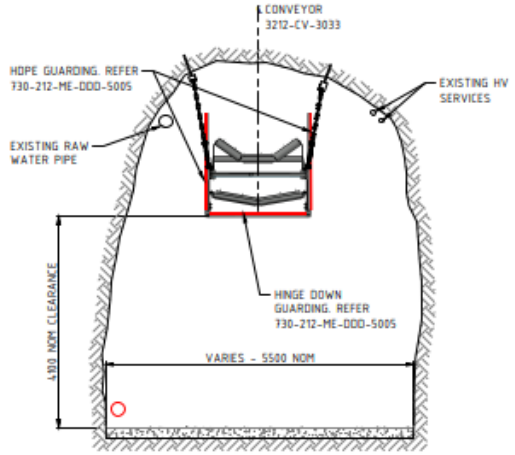


What can go wrong?





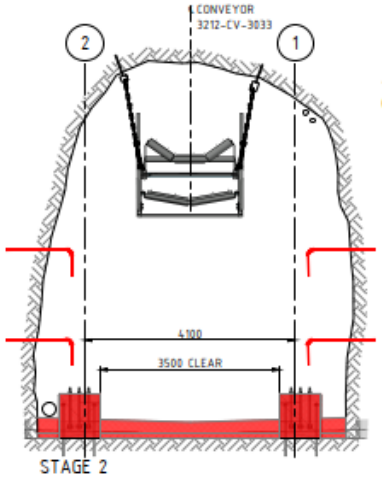
Protection Sheild Process



STAGE 1 - SHUTDOWN REQUIRED

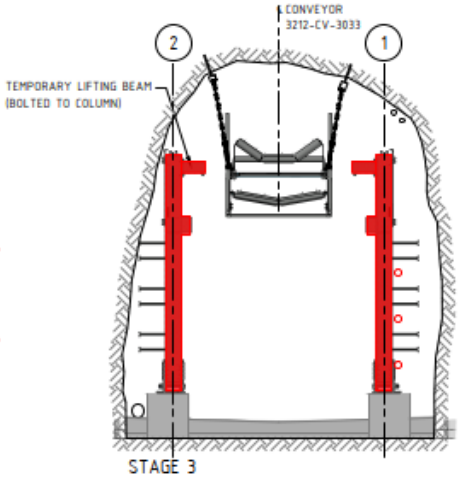
1.1 INSTALL HDPE GUARDING ON CONVEYOR DURING SHUTDOWN
1.2 RELOCATE EXISTING HDPE PIPING.

TO BE UNDERTAKEN IN SHUTDOWNS (SEPT 2022)



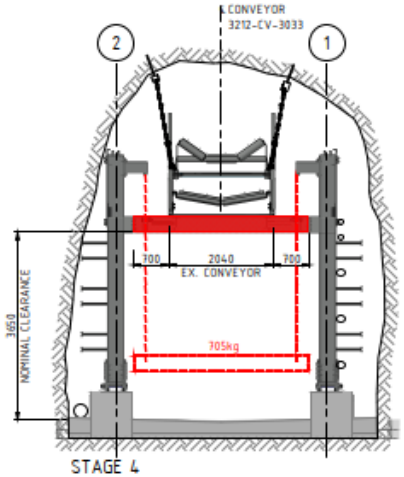
STAGE 2

2.1 REMOVE EXISTING ROADBASE
2.2 INSTALL CONCRETE PEDESTALS
2.3 INSTALL 100mm BLINDING
2.4 INSTALL CONCRETE SLAB
2.5 INSTALL ROCK ANCHORS (GRID LINES J, K, L & M ONLY)
2.6 INSTALL CONCRETE INFILL WALL BETWEEN PEDESTALS



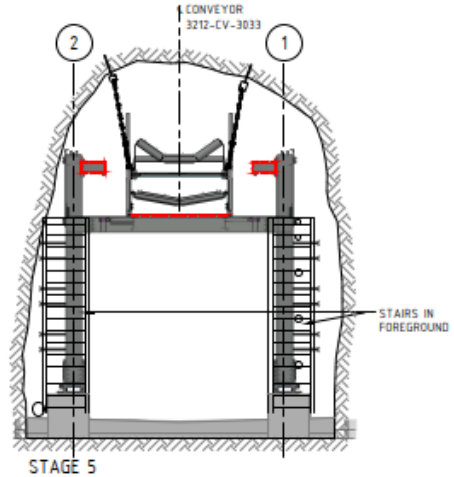
STAGE 3

3.1 INSTALL COLUMNS C/W TEMPORARY LIFTING BEAMS, PLATFORM STUBS, COMPOSITE REINFORCING, SIDE PANELS AND SLIDING RAIL. COLUMNS ON GRIDS B & C TO BE INSTALLED FIRST C\W BRACE, THEN INSTALL REMAINING FRAMES
3.2 LOCK COLUMNS IN PLACE



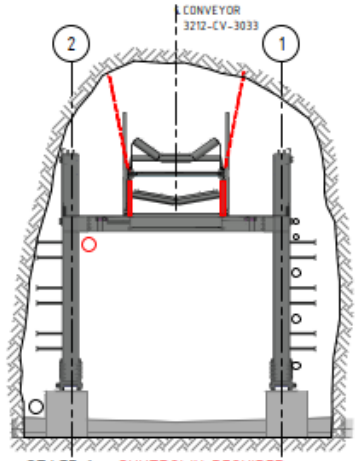
STAGE 4

4.1 INSTALL 5 OFF CONDUITS FOR ELECTRICAL SERVICES INTO CRADLES LOCATED ON COLUMNS.
4.2 INSTALL PLATFORM FRAME USING WINCHES OFF TEMPORARY LIFTING BEAMS.



STAGE 5

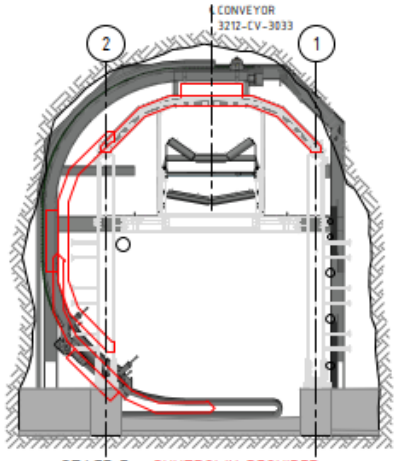
5.1 REMOVE TEMPORARY LIFTING BEAMS.
5.2 INSTALL STAIRS AT END OF PROTECTION SYSTEM
5.3 INSTALL 6m CABLE BOLTS AT THE BROW OF T45 AND INCLINE CONVEYOR DRIVE. REFER TO NEWCREST DRAWINGS FOR DETAIL.
5.4 REMOVE HINGED GUARDS FROM THE UNDERSIDE OF THE CONVEYOR MODULES.



STAGE 6 - SHUTDOWN REQUIRED

6.1 INSTALL SUPPORT LEGS AND LEG BRACES FOR CONVEYOR DURING SHUTDOWN
6.2 REMOVE SUSPENSION CHAINS
6.3 RELOCATE HDPE PIPING TO FINAL LOCATION

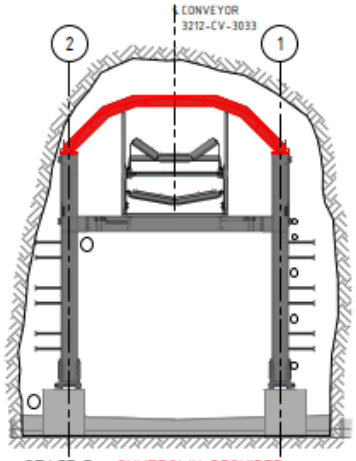
TO BE UNDERTAKEN IN SHUTDOWN (DECEMBER 2022)



STAGE 7 - SHUTDOWN REQUIRED

7.1 LIFT PROTECTION SHIELDS INTO POSITION.

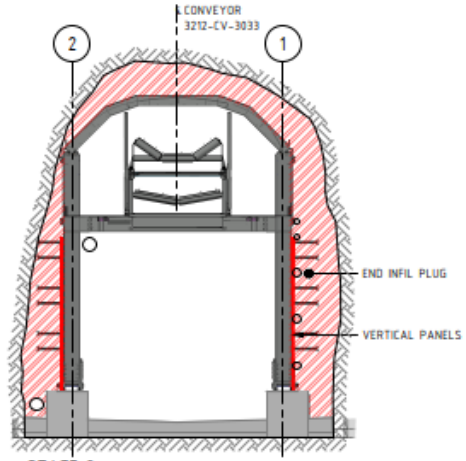
TO BE UNDERTAKEN IN SHUTDOWNS (MARCH 2023 AND JULY 2023)



STAGE 7 - SHUTDOWN REQUIRED

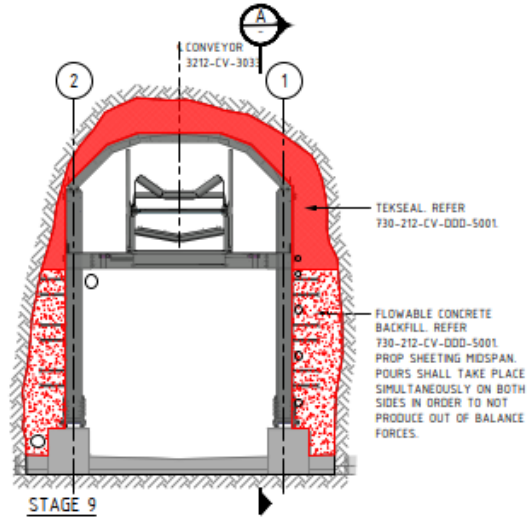
7.2 INSTALL PROTECTION SHIELDS ONTO SLIDING RAILS AND WINCH INTO FINAL POSITION (BOLTED TO COLUMN CAP PLATE)

TO BE UNDERTAKEN IN SHUTDOWNS (MARCH 2023 AND JULY 2023)



STAGE 8

8.1 INSTALL VERTICAL INFILL PANELS AND PLUG GAPS IN BONDEK TO ENSURE NO CONCRETE BLOWOUT.
8.2 INSTALL END INFILL PLUG. REFER 730-212-ST-DDD-5001.



STAGE 9

9.1 BACKFILL PROTECTION SHIELDS WITH CONCRETE AND TEKSEAL. ALLOW TO CURE FOR 28 DAYS PRIOR TO T45 CHAMBER MINING. REFER DRAWING 730-212-CV-ST-DDD-5001 FOR POUR SEQUENCE.

T45 Protection Shield – Additional Ground support then Guarding.

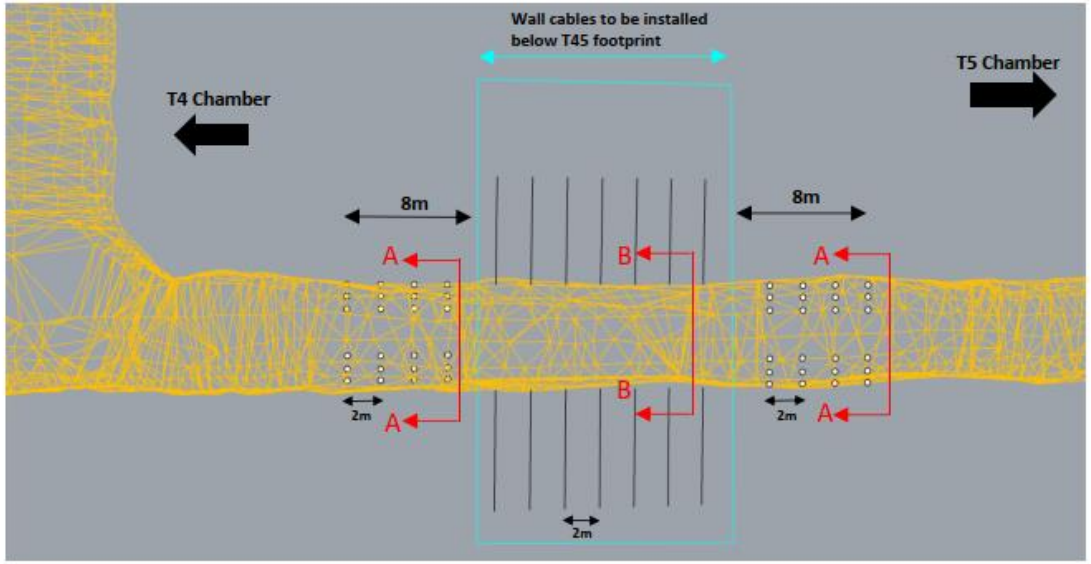


Figure 1: Plan view of GSM area in 4540-CVD-005

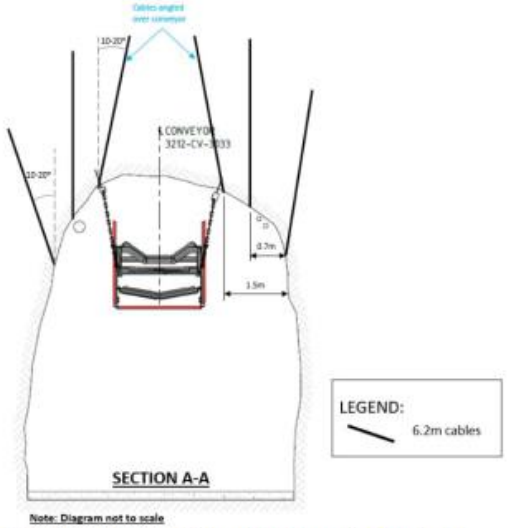


Figure 2: Section view outside of T45 chamber footprint

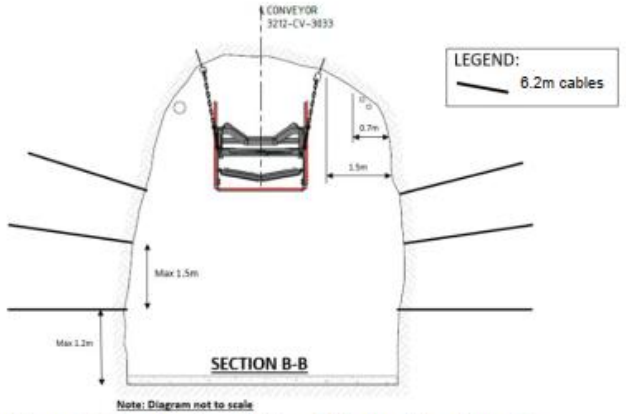
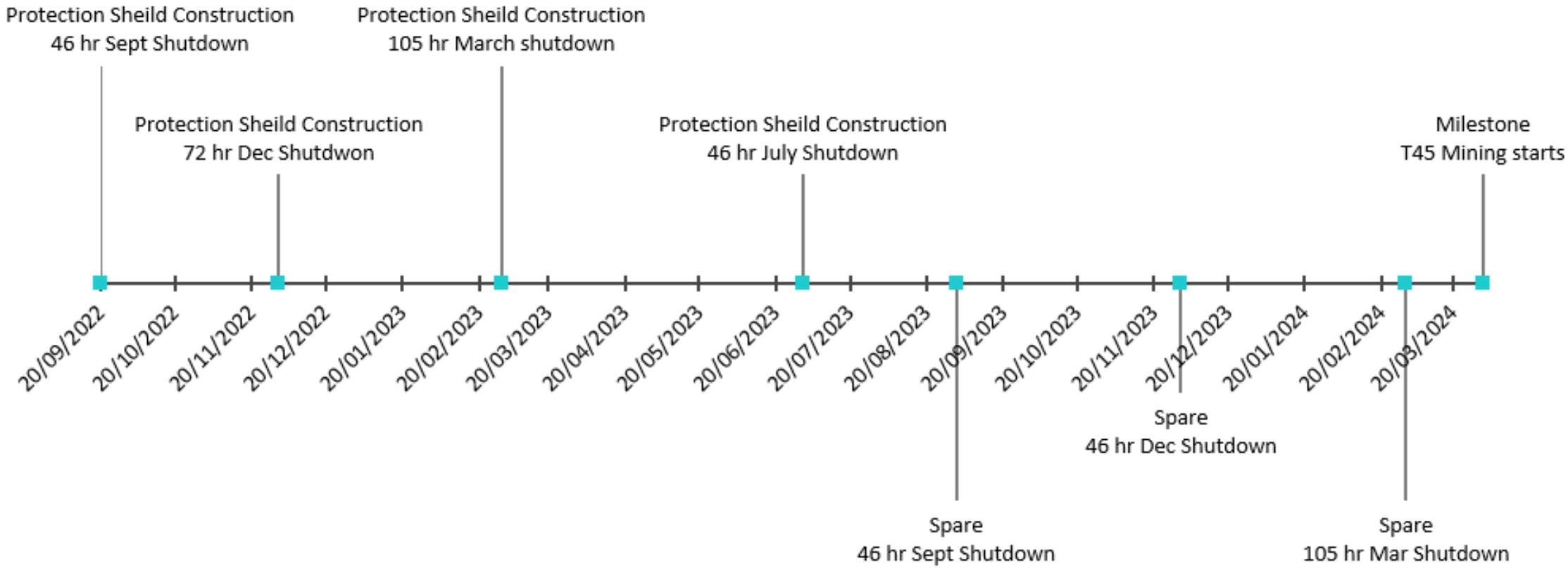
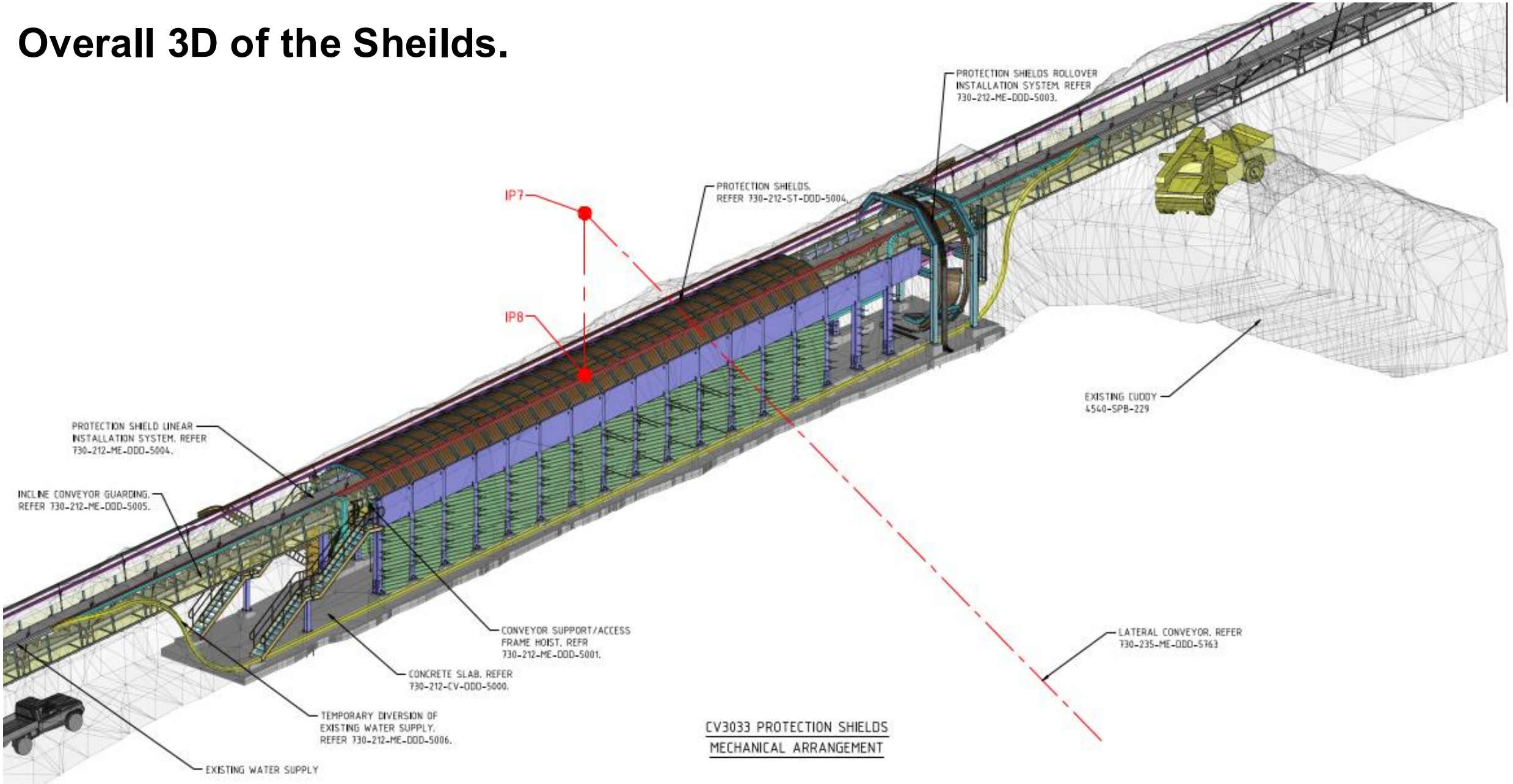


Figure 3: Section view below T45 chamber footprint

Schedule


Protection Sheild Construction
46 hr Sept Shutdown
Protection Sheild Construction
105 hr March shutdown
Protection Sheild Construction
72 hr Dec Shutdwon
Protection Sheild Construction
46 hr July Shutdown
Milestone
T45 Mining starts
20/09/2022
20/10/2022
20/11/2022
20/12/2022
20/01/2023
20/02/2023
20/03/2023
20/04/2023
20/05/2023
20/06/2023
20/07/2023
20/08/2023
20/09/2023
20/10/2023
20/11/2023
20/12/2023
20/01/2024
20/02/2024
20/03/2024
Spare
46 hr Dec Shutdown
Spare
46 hr Sept Shutdown
Spare
105 hr Mar Shutdown

Overall 3D of the Sheilds.



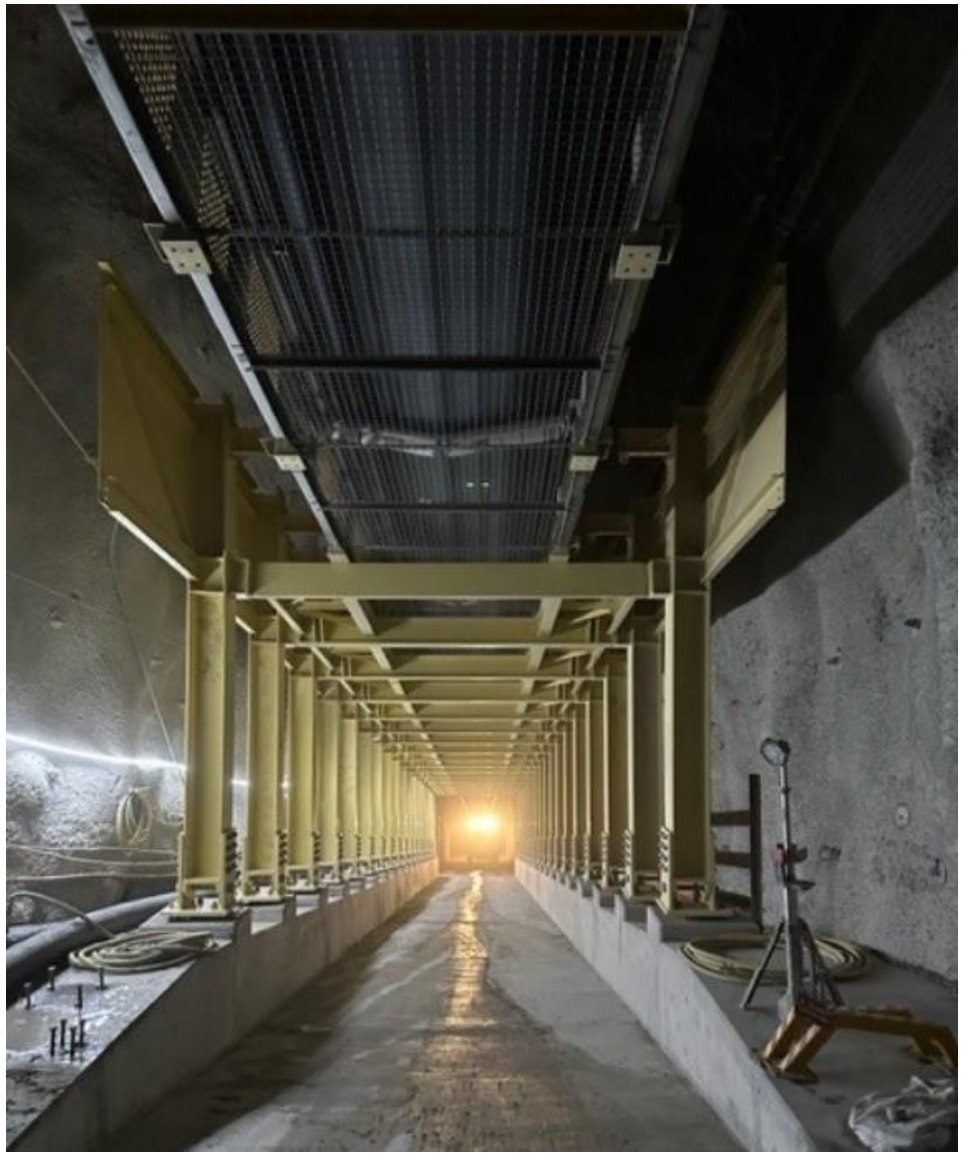
T45 Protection Shield – Additional Ground support then Guarding.





T45 Protection Shield - Foundations and support structure





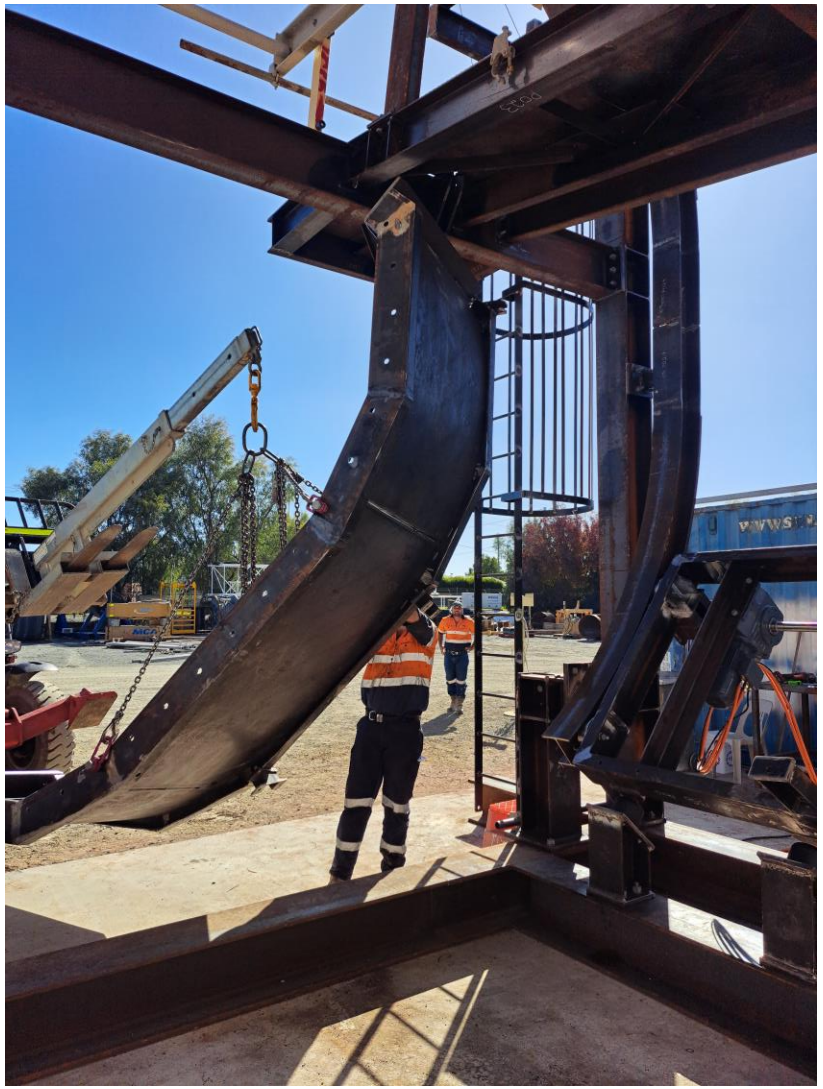
T45 Protection Shield Pictures



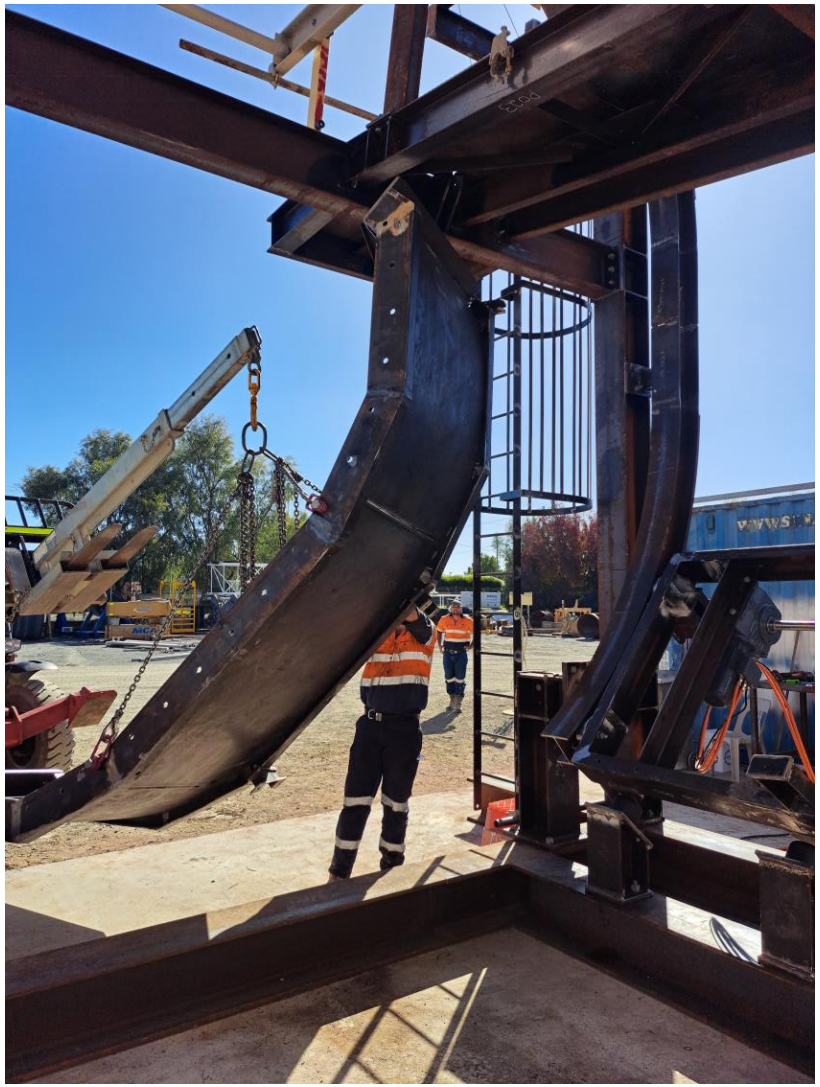
Surface Trial

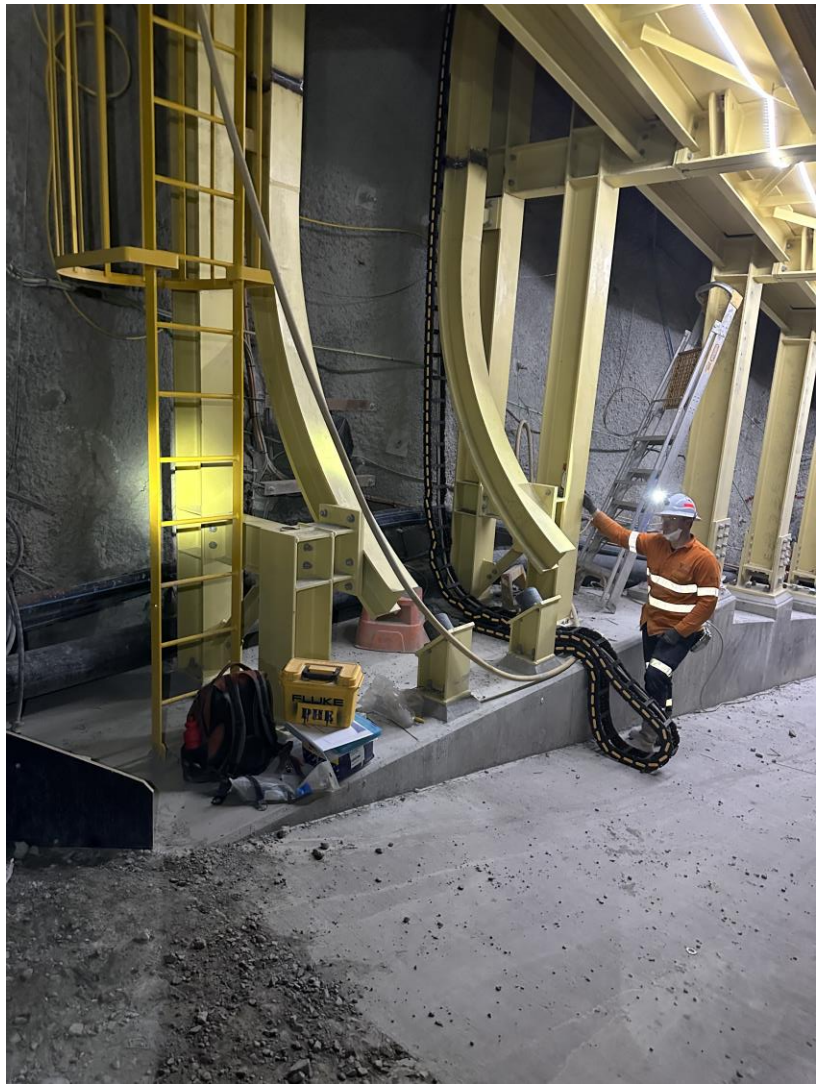


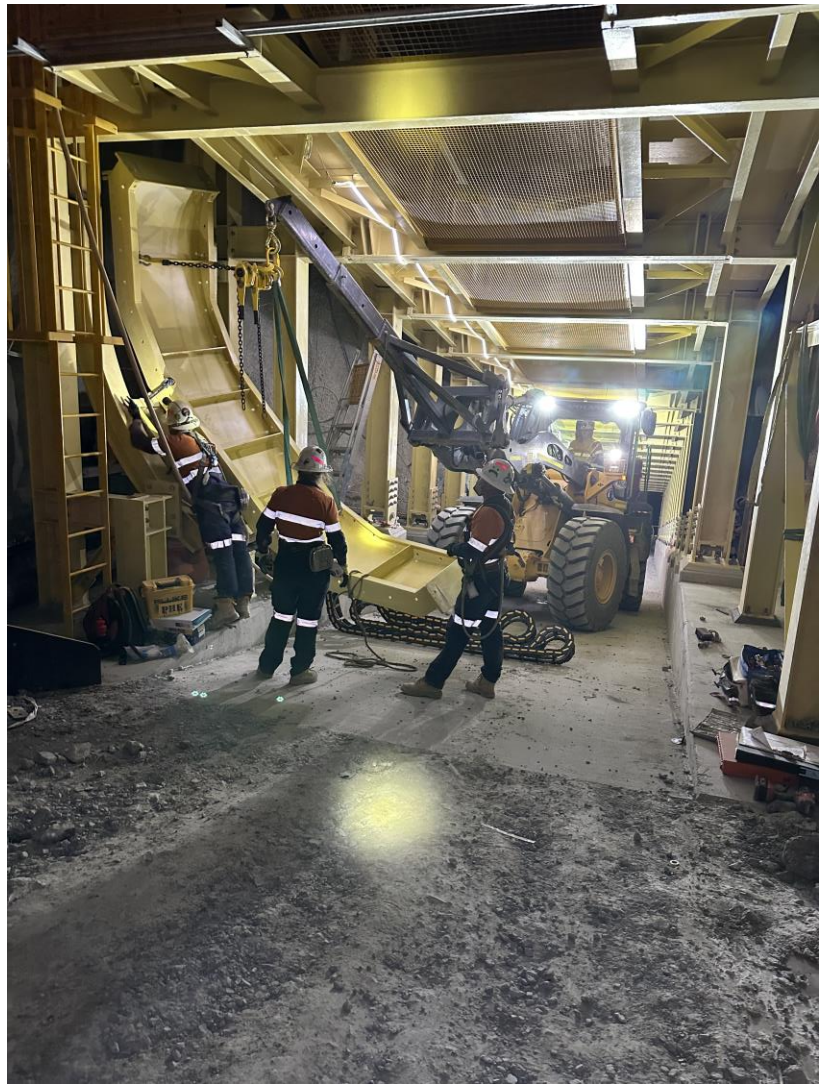




Sheild installation



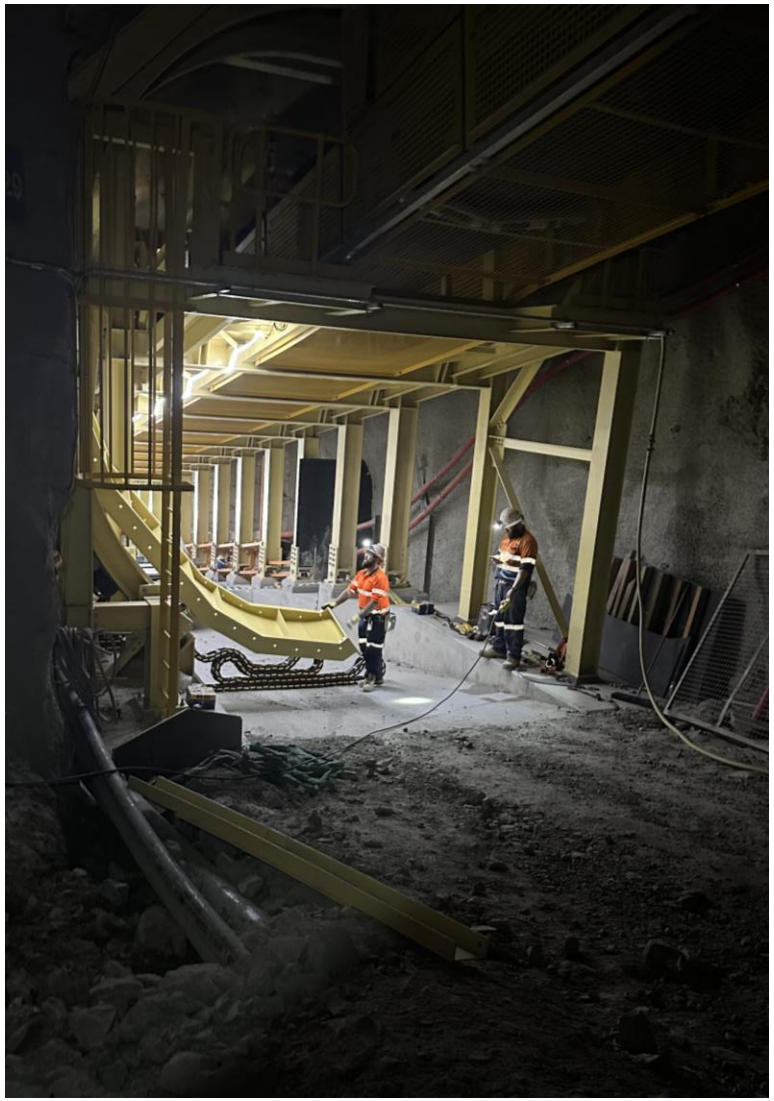




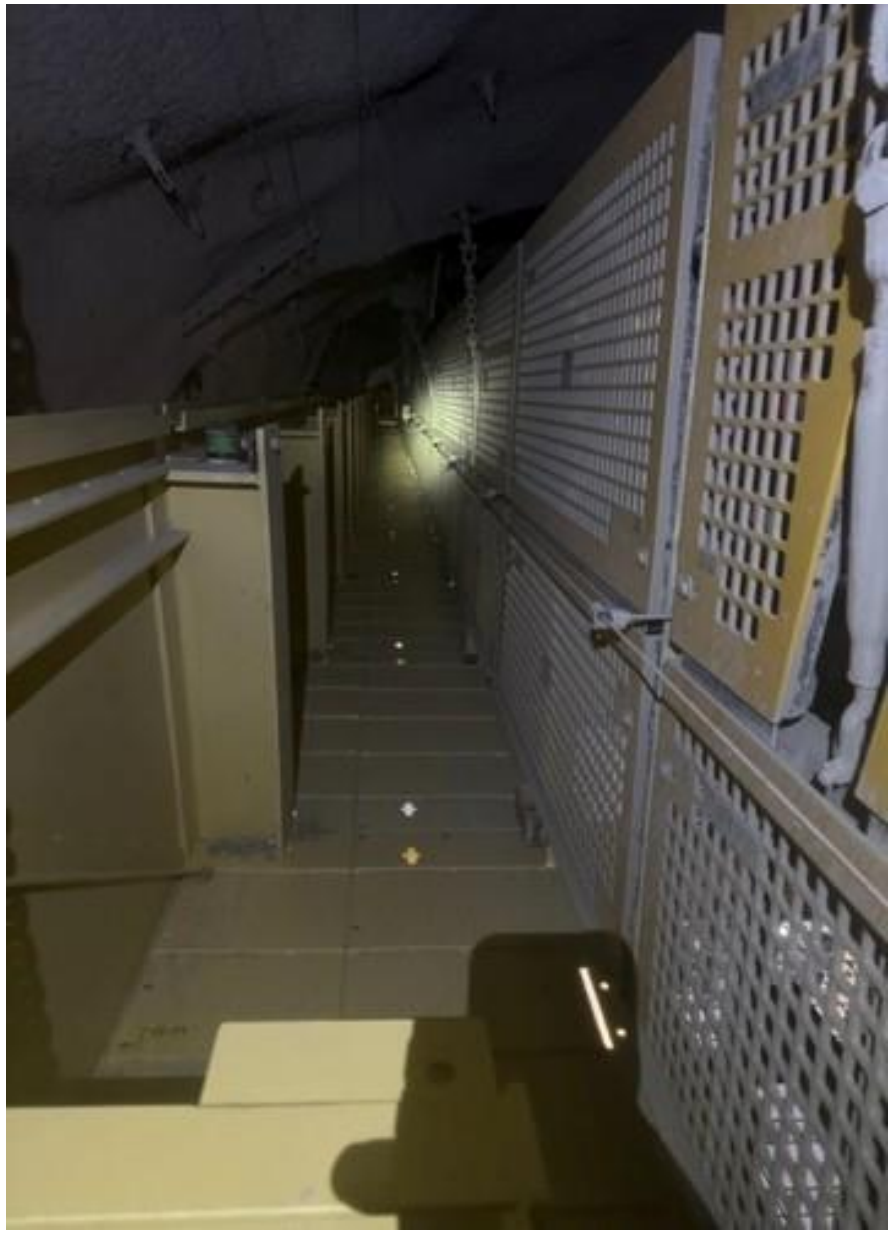
Sheild installation

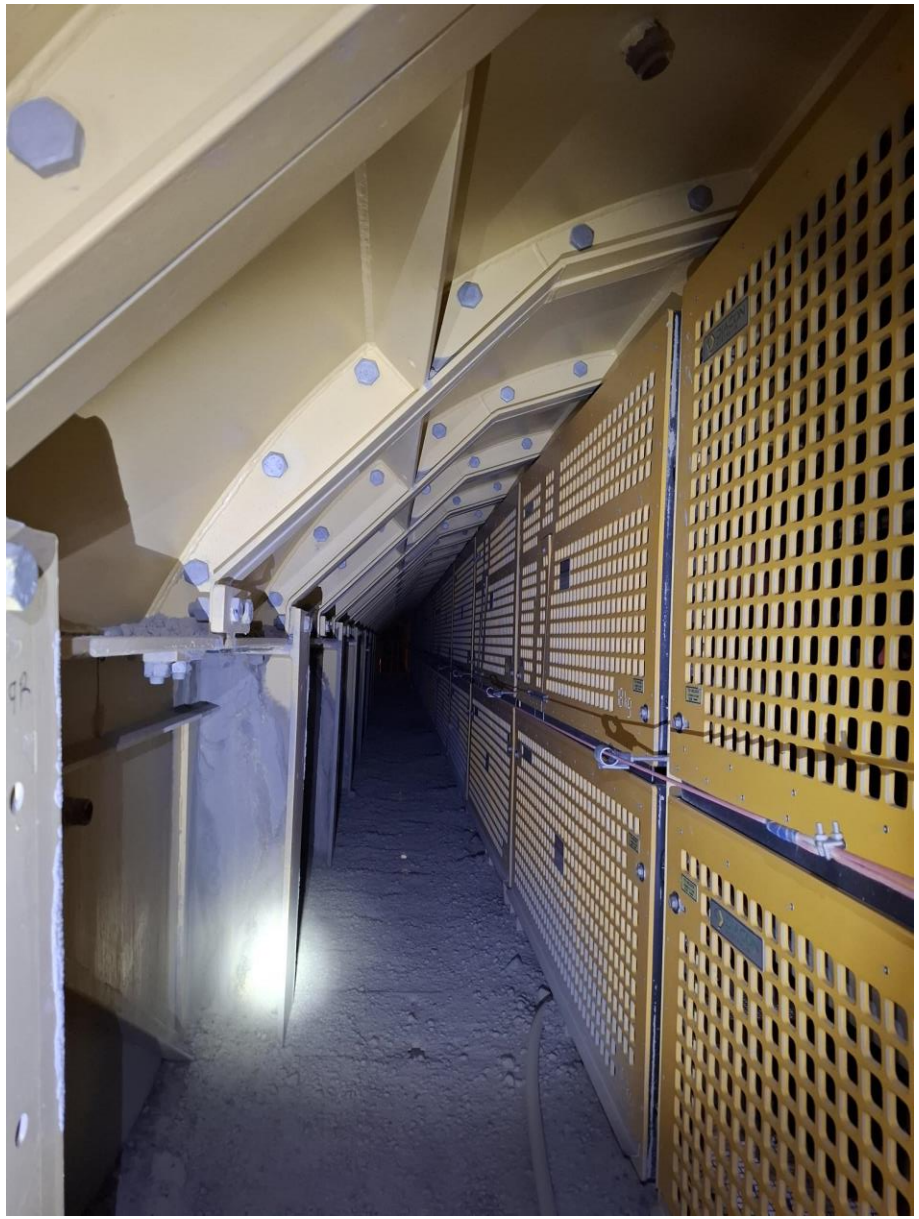






T45 Protection Shield Pictures



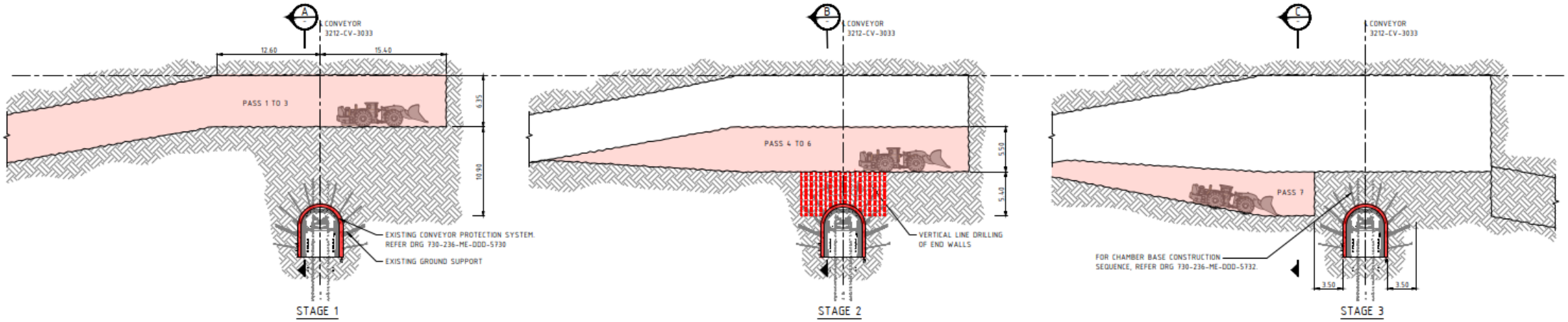


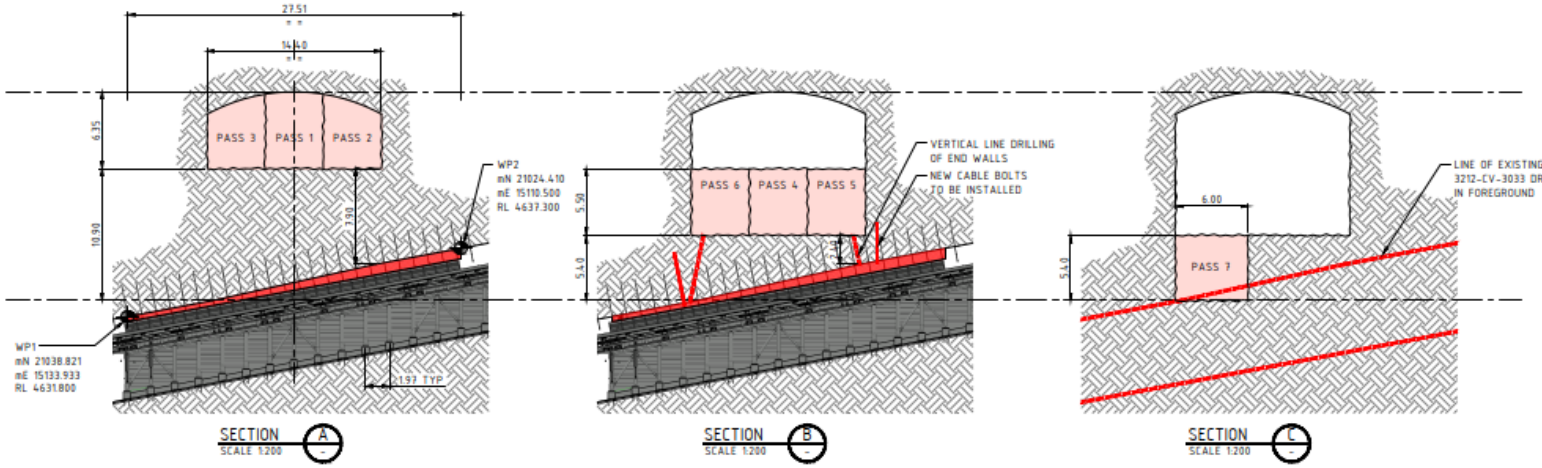
T45 Protection Shield Pictures

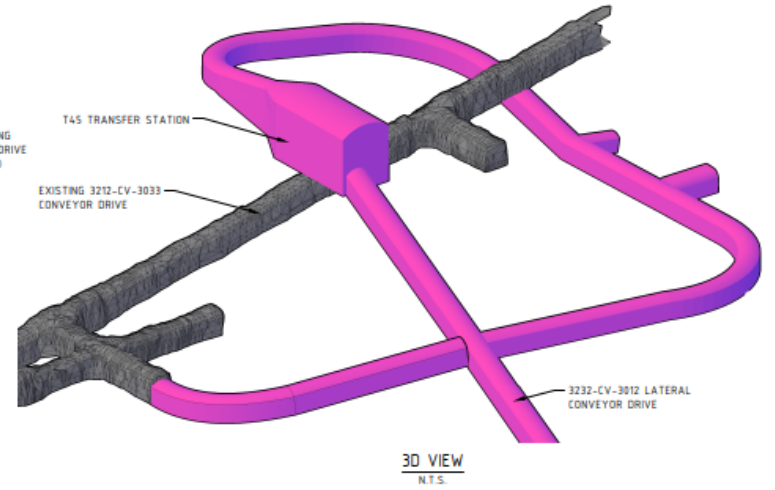




T45 Mining Sequence







Delivered Chamber and Final Infrastructure



