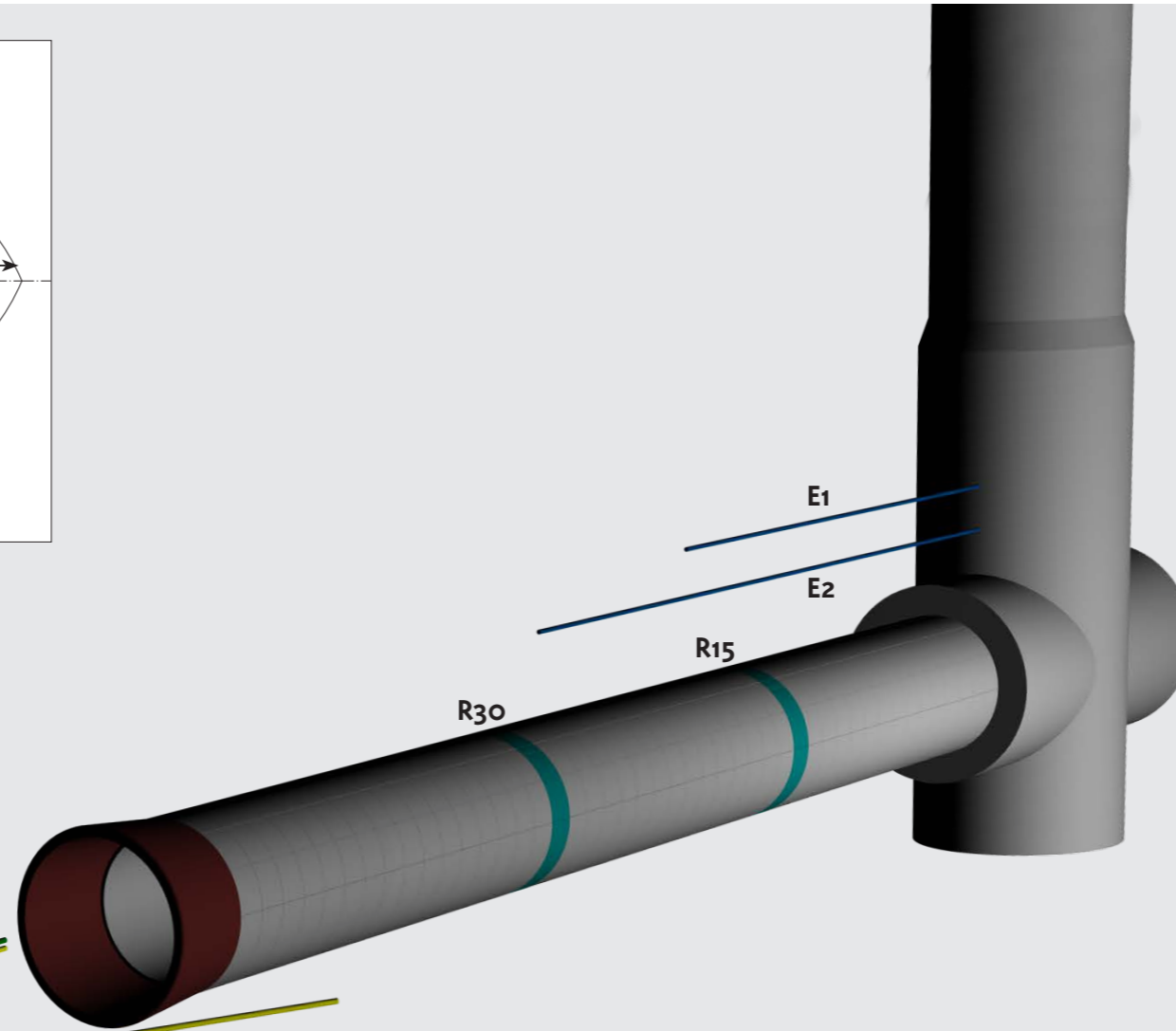
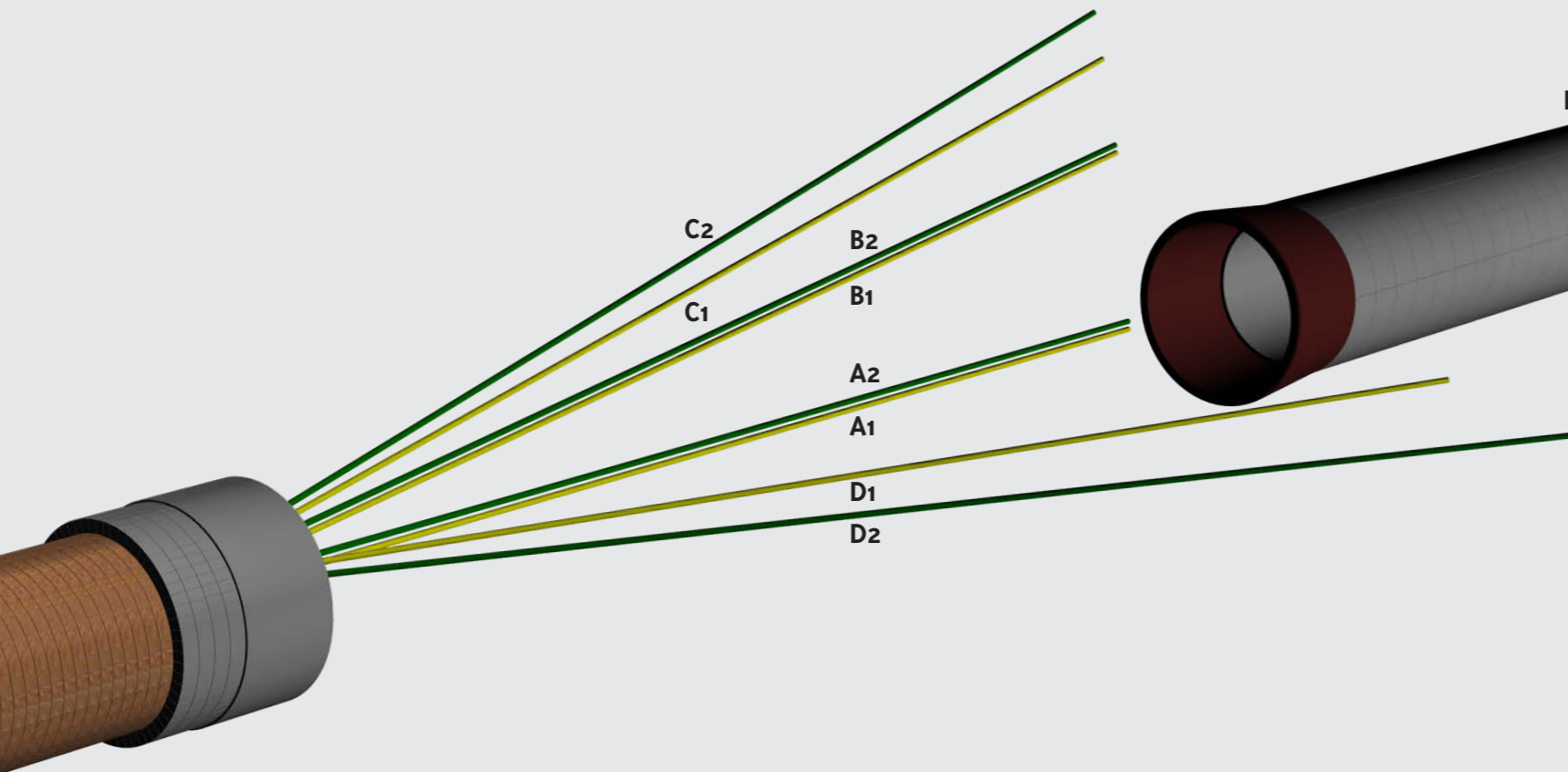
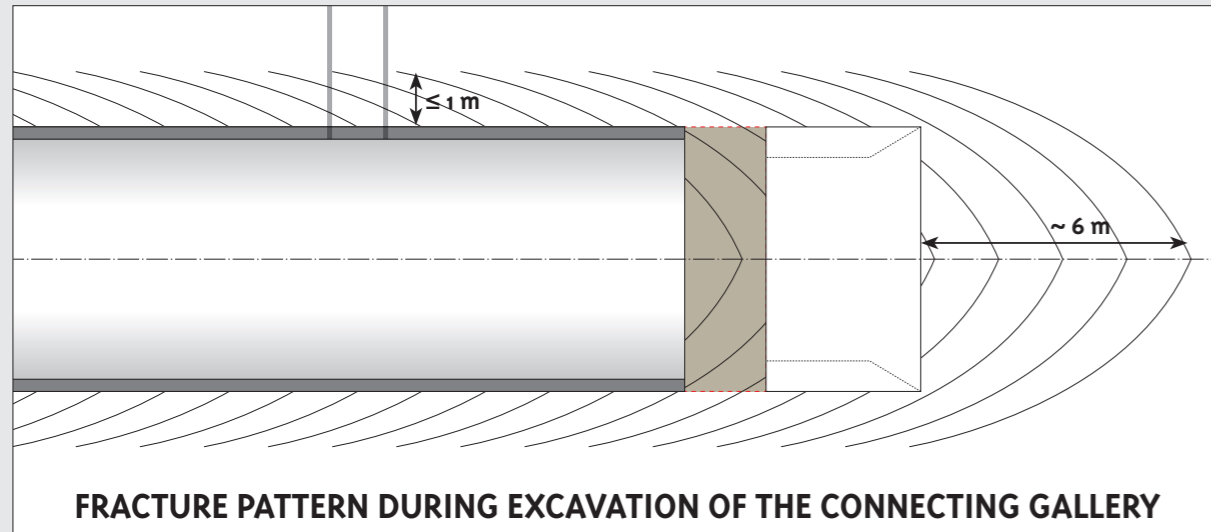


## Clay Instrumentation Programme for the EXtension of an underground research laboratory



**A1 - E1:**  
Boreholes for displacement measurements

**A2 - E2:**  
Boreholes for porewater & total stress measurements

**R15 and R30:**  
Instrumented lining rings with embedded vibrating wire strain gauges

### GOAL

**Monitoring the hydro-mechanical response of the Boom Clay to the excavation of the Connecting gallery.**

**March 1997**  
Characterization program

**April - May 1998**  
Installation of sensors from Test drift front (A-D)

**2000**  
Installation of sensors from second shaft (E1, E2)

**2002**  
Construction of the Connecting gallery  
Installation of the instrumental lining segments (R15, R30, R50 and R75)

**8 INSTRUMENTED BOREHOLES (A - D) DRILLED FROM TEST DRIFT AND TWO (E1 & E2) FROM THE 2<sup>ND</sup> SHAFT TO MONITOR THE VARIATION IN TOTAL STRESS, POREWATER PRESSURE AND DISPLACEMENTS IN BOOM CLAY**

**FOUR INSTRUMENTED LINING RINGS TO MEASURE THE STRAIN EVOLUTION IN THE GALLERY SEGMENT LINING AS A RESULT OF THE INSTALLATION PROCEDURE AND THE PRESSURE EXERTED BY THE CLAY HOST ROCK**

**CHARACTERIZATION OF THE FRACTURE PATTERN DURING AND AFTER EXCAVATION BY VISUAL OBSERVATIONS OF THE EXCAVATED WALL AND FRONT AND BY ANALYSIS OF CLAY CORES**

