HI-ECN3 DISMANTLING AND INSTALLATION STRATEGY

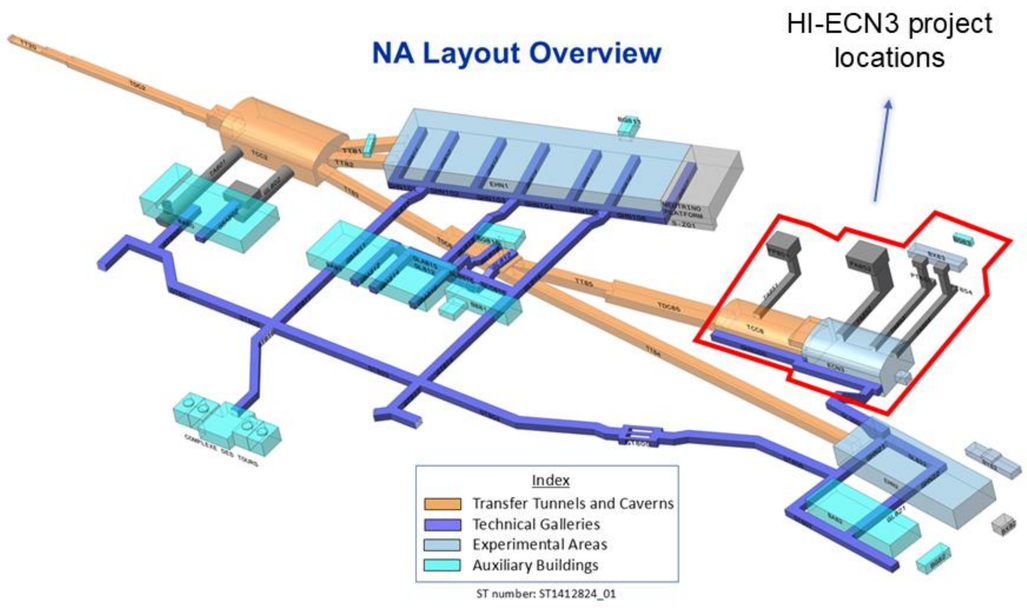
F. Dos Santos Pedrosa, I. Angulo Vaquero, M. Fraser
CERN, 1211 Geneva 23, Switzerland

CERN EDMS Doc. ID: 3460043

Project decision

The project to adapt an existing Facility (ECN3) to provide beam for the SHiP Experiment was approved in March 2024. Now called the HI-ECN3 project (HI for high intensity), the primary objectives are as follows:

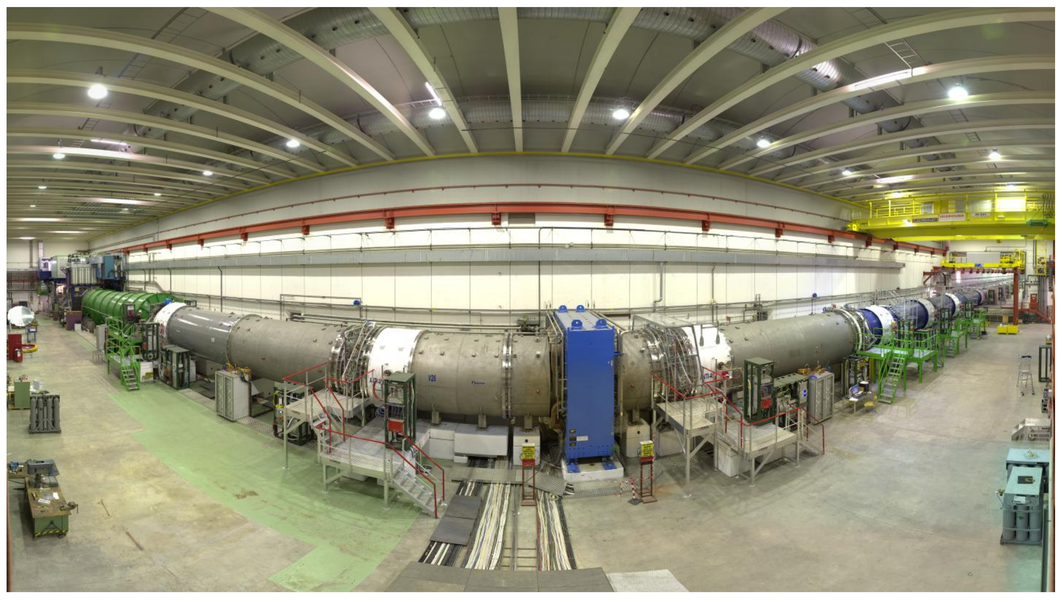
- Detail together with the SHiP collaboration their needs in terms of infrastructure and beam parameters;
- Coordinate with the NA62 collaboration the dismantling of their experiment;
- Specify all the infrastructure modifications needed together with the CERN groups;
- Ensure that all modifications are performed timely to allow the SHiP experiment to take data as soon as possible



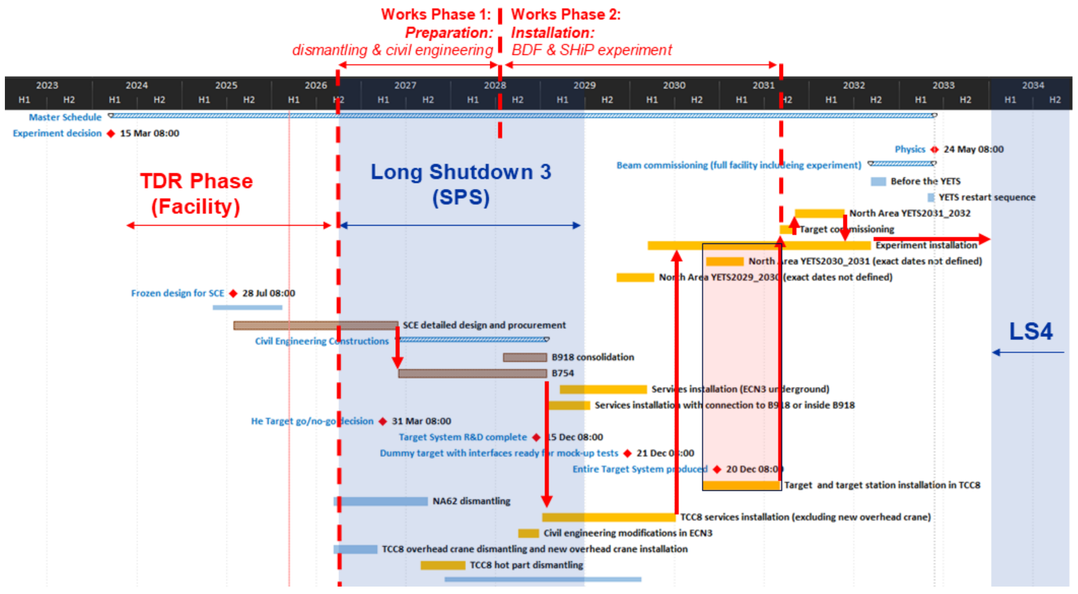
Adapt to the resources availability

With CERN approaching a very challenging long shutdown and a NA62 collaboration that is stopping, the project took different approaches to minimize the risks:

1. Anticipate works that are clearly needed, that don't affect the NA62 operation, that need the contribution from CERN groups that are heavily involved in the LS3 activities, and increase flexibility
   - New door in Building 911 – it allows to continue the dismantling while constructing the new building;
   - New trench – it allows to deviate the services from the existing trench (that is clashing with the new building) to the new trench at the beginning of LS3 giving the necessary flexibility to the civil engineering works
   - TT7 target shielding recovery
2. Prepare a detailed list of equipment present underground and in the associated surface buildings, while still in operation, which allows to:
   - Identify equipment that could be of interest to the SHiP Collaboration;
   - Identify the owner of all the equipment and ask them to prepare a Work Package Analysis (WPA) document
   - Identify any missing tooling
   - Identify if all logistic aspects are treated (e.g. final destination of all objects, radioactive waste, temporary storage needs, …)
3. Work in parallel on the Technical Design Report (TDR) while doing all these works



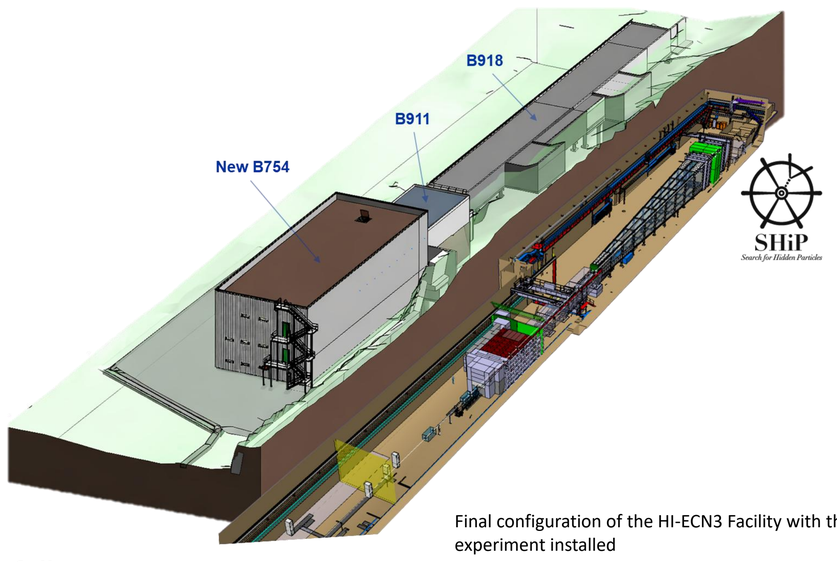
https://home.cern/fr/news/news/physics/na62-announces-its-first-search-long-lived-particles



HI-ECN3 project Master Schedule

Preparation:

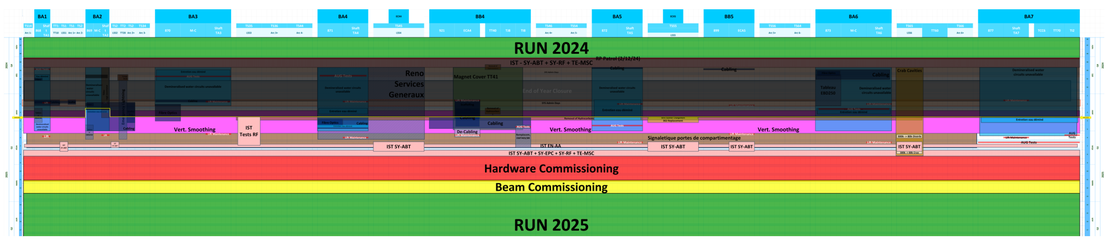
A detailed dismantling execution planning was prepared based on the list of equipment that was verified by all the teams, the information available in the WPA documents, specific dismantling procedures, the different Safety constraints, and on the teams availability.
The actual dismantling execution planning was sent for formal approval in CERN Engineering Data Management Service (EDMS) to all the concerned teams (CERN or collaboration) as part of the quality process, and once approved will be used as the baseline 1.
The detailed installation execution planning is for the moment limited to a few elements while the TDR is still under definition, with main goal being the resources optimization by grouping the works as much as possible.



Final configuration of the HI-ECN3 Facility with the SHiP experiment installed

Execution follow-up:

The execution of the works will be coordinated by a project central team that will act on behalf on the project leader to ensure the works are performed safely, timely and within budget.
The follow-up, monitoring and reporting methodology that will be applied is the same approach the EN-ACE group in the CERN accelerators complex coordination (IPAC2022 - Processes and Tools to Manage CERN Programmed Stops Applied to the Second Long Shutdown of the Accelerator Complex - https://cds.cern.ch/record/2845802/files/document.pdf)
All deviations to the baseline will be reported using the broken line methodology, and the planning will be adjusted if necessary. Any major change affecting the approved baseline dismantling end date will require a new baseline approval.



Example of a Broken Line used to report progress

Conclusion:

The HI-ECN3 is a challenging and very interesting project that demonstrates how CERN is increasing even further the resilience of its existing facilities. Using proven and familiar methodologies eases the adoption from the groups, makes communication fluid and ensures common understanding. The TDR for the infrastructure and for SHiP experiment will define a clear path for the installation phase and will allow to define a detailed sequence together with all the teams involved towards resources optimization.
The project is fully on track, is ready to start the dismantling and looking forward to see SHiP taking its first data.

Project webpage: https://hiecn3.web.cern.ch/