

# LAGUNA – extraction from LSS6

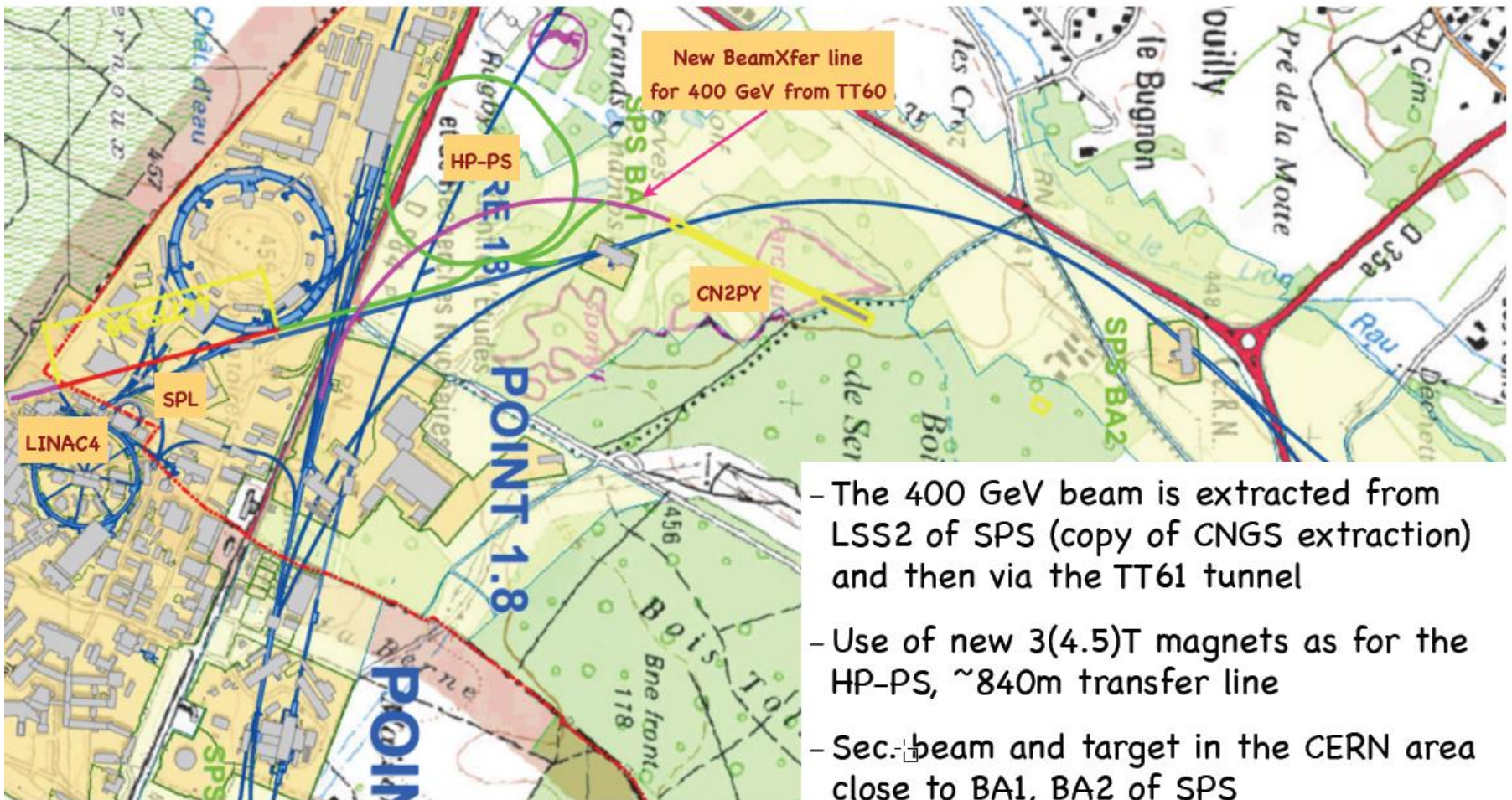
B.Goddard 5/7/13

# Features

- Fast extraction installed in LSS6 with MKE kickers
  - Needs adapting to CNGS configuration with double batch extraction, no technical issue
- Switch needed from TT60 somewhere, or TI2
  - TT60 better in that TL apertures compatible with FT beams
- Interlocking concept to update
  - HiRadMat, LHC and LAGUNA in one extraction...
- Transfer line bends above 2 T
  - Imposes SC dipoles
  - Exploit synergies with HP-PS ring, energy consumption, ...

# Location of LAGUNA target?

- Near SPS BA1, under the golf course (3<sup>rd</sup> hole, tricky par 3)
- **Stage-1 and Stage-2 Layout**



- The 400 GeV beam is extracted from LSS2 of SPS (copy of CNGS extraction) and then via the TT61 tunnel
- Use of new 3(4.5)T magnets as for the HP-PS, ~840m transfer line
- Sec. beam and target in the CERN area close to BA1, BA2 of SPS

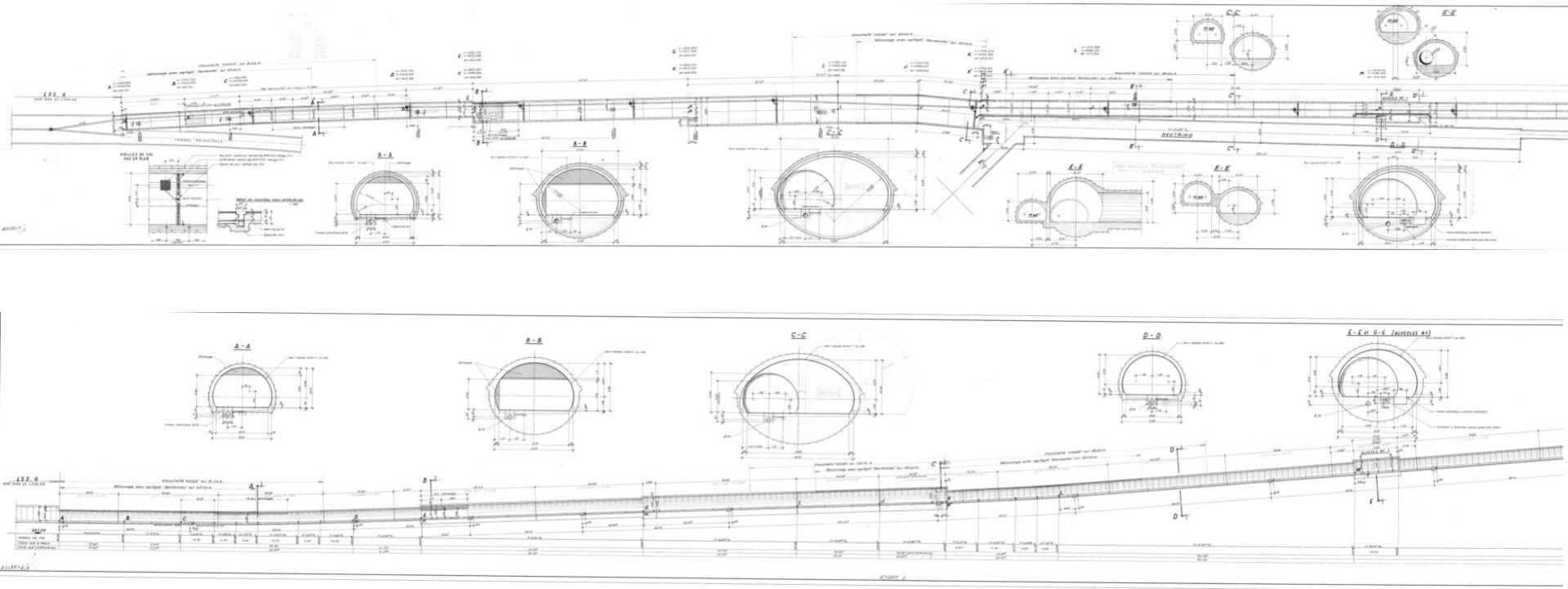
# Beamlines needed

1. 450 GeV beamline from SPS LSS6 (in fact the TT60/HiRadMat area) to the HP-PS target
2. 4 GeV H- beamline from SPL to HP-PS injection;
3. 50-75 GeV beamline from HP-PS extraction to LAGUNA target (or to join the line 1/ above).

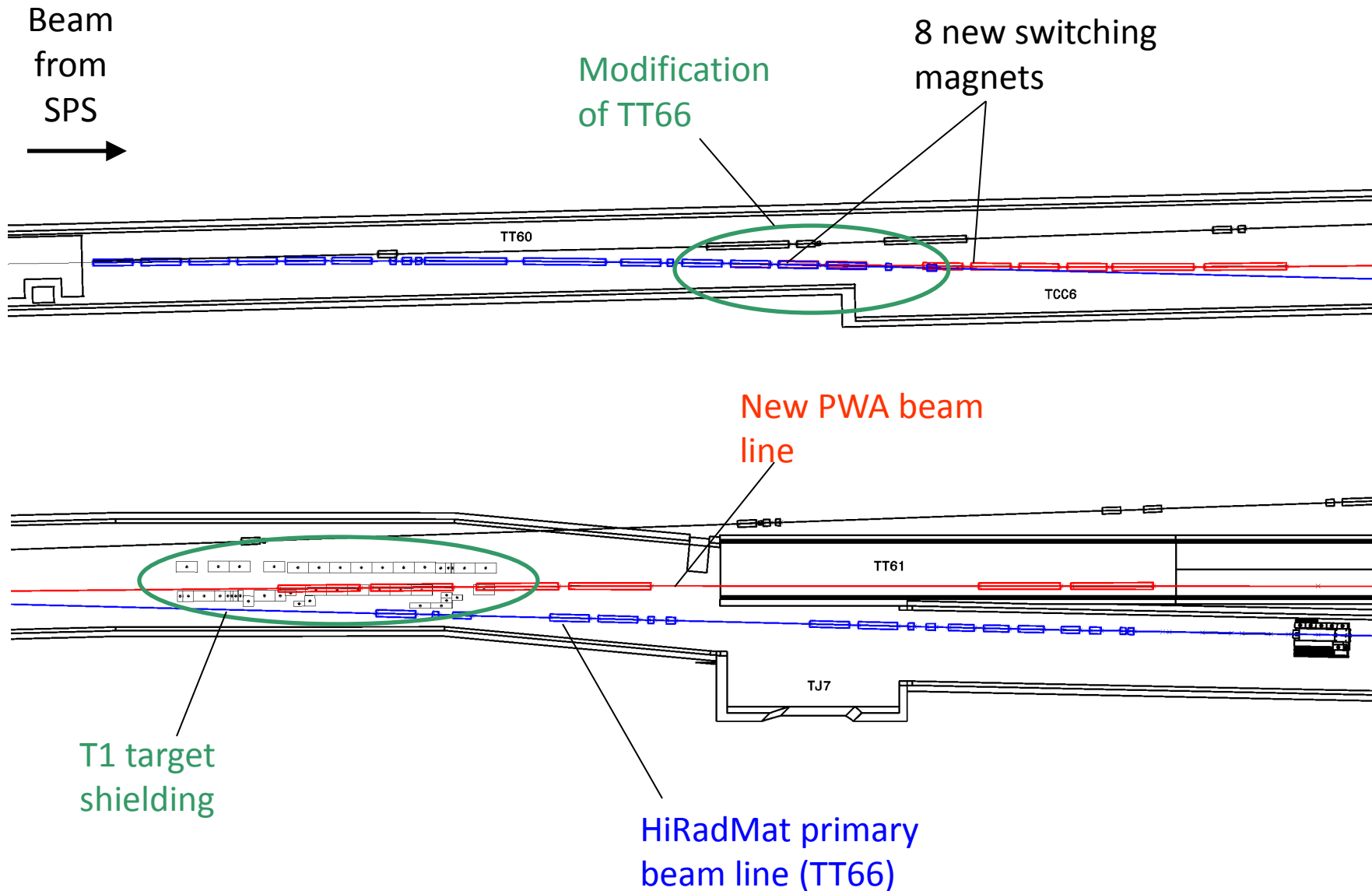
# Information available

- HP-PS geometry and sequence
- TT60/TI2 sequences and geometries
- PS2 injection straight
- SPL-PS2 transfer line
- Angles required for neutrino target
- Drawings of TT60/HiRadMat

# TT60/61 tunnels



# Compatibility with TT66 Beam Line – to TT61



# Switching point to decide

- Earlier is better for lower dipole field in TL
- Later is better in terms of clearance from SPS
- Branch from either TT60, TT66, TT61 (new line to build) or T12?
- To the right hand side would be much easier in terms of angles and total bend, but a lot of potential interferences to avoid...(TJ7...)