List of loose odds and ends in the baseline design of Linac4 that need to be addressed before a final layout is sealed:

1) LEBT :
   - Allow for iris(es) space to produce pencil beam needed for commissioning: two configurations are possible, either one iris with downstream solenoid re-matching to the RFQ input or two irises. With the study carried out (one iris + re-matching) emittance was reduced by a factor of 10 and current by 100. **Need to establish what is the minimum current limit for diagnostics devices to work.**

   - Ppm beam intensity reduction: reduce focusing on the first solenoid and intercept beam on the second with rematching to the RFQ input. Linac2 standard ppm window range is limited to 10% of nominal settings. With this limitations a reduction of 1/3 in beam intensity can be achieved (down to 20mA). **Should assess whether the ppm window range can be extended beyond 10% (as for PSB operation for example) to reach even lower current values.**

2) Chopper :
   - New optics was implemented to have smoother matching to the DTL in the transverse planes and avoid emittance increase at transition. The polarity of one of the chopper quads is changed and the first PMQ of the DTL is skipped.
   -
   - Ppm beam intensity reduction: any current value could in principle be obtained by changing quads focusing and blowing up the beam at the dump (chopper off). However with the chopper on, the chopping efficiency is reduced. **Need to assess how much scope is there to increase the voltage on the chopper plates (and improve efficiency) or else how much in terms of ghost beams arriving at the PSB can be tolerated.**
   - Chopper line/DTL steering space : for transverse acceptance studies with a pencil beam need to position one steerer at the place of the chopper dump (to change beam position) and a second steerer right before the entrance of the DTL (to change the beam divergence). The possibility of this change should be taken into account during installation.

3) DTL:
   - DTL intertank quads: beam dynamics 'alternative' solution with $3\beta\lambda$ between last gap of tank1 and first gap of tank2 without inter-tank quadrupole. Don't expect big effects from error studies, though the last quad of tank1 might need to be special (stronger gradient) if the downstream focusing scheme is not changed from baseline. **To be further discussed in future BCC meeting.**
   -

4) CCDTL:

Inter-module layout: the layout can accommodate an alternation of quadrupole-steerer-pickup and quadrupole-wirescanner-pickup modules. This will standardize the support and entails no compromises for the BD.
Quadrupole clear bore (including the reduction due to pick-up): the baseline is 40 mm . Studies done with 34mm showed that this should be still ok for loss control and steering, but the **preferred solution is the baseline value of 40mm.**

5) PIMS :

An extra 10cm has been added between PIMS structures: this results in bigger beam envelopes but no big consequences from beam dynamics point of view. However should still **make sure there is enough space for the transfer line elements** once the overall length of the PIMS has been increased (by ~1m).

6) Transfer line:

Moving debuncher position downstream by 13.3m (from the baseline layout) has the effect of reducing the beam energy spread by 50% (with the same cavity voltage, 700kV). However the phase slippage that needs to be compensated during the energy ramping increases from 70 to 100 deg. **Need to check whether this is possible for the RF.**

-