Status of the ILC Lattice Files and Near-Term Plans

PT

With *lots* of help from Mark Woodley

SLAC

Previously…

- Situation at ALCPG
  - **Mark had collected all of the ILC files**
  - **Connected them**
  - **Adjusted geometries to get mostly correct layout**
    - Need to match DR-turnaround distance to turnaround-IP distance, implement 14 mrad x-ing angle, etc.
    - Probably broke some lattice matching – didn't check that at this point in the process
    - Several geometry problems remain, mainly related to e+ source
      - Impacts e- RTML, which shares tunnel with e+ source
    - Didn't include vertical offset between DRs (!)
    - No attempt to get correct path-length relationships between e- and e+ systems

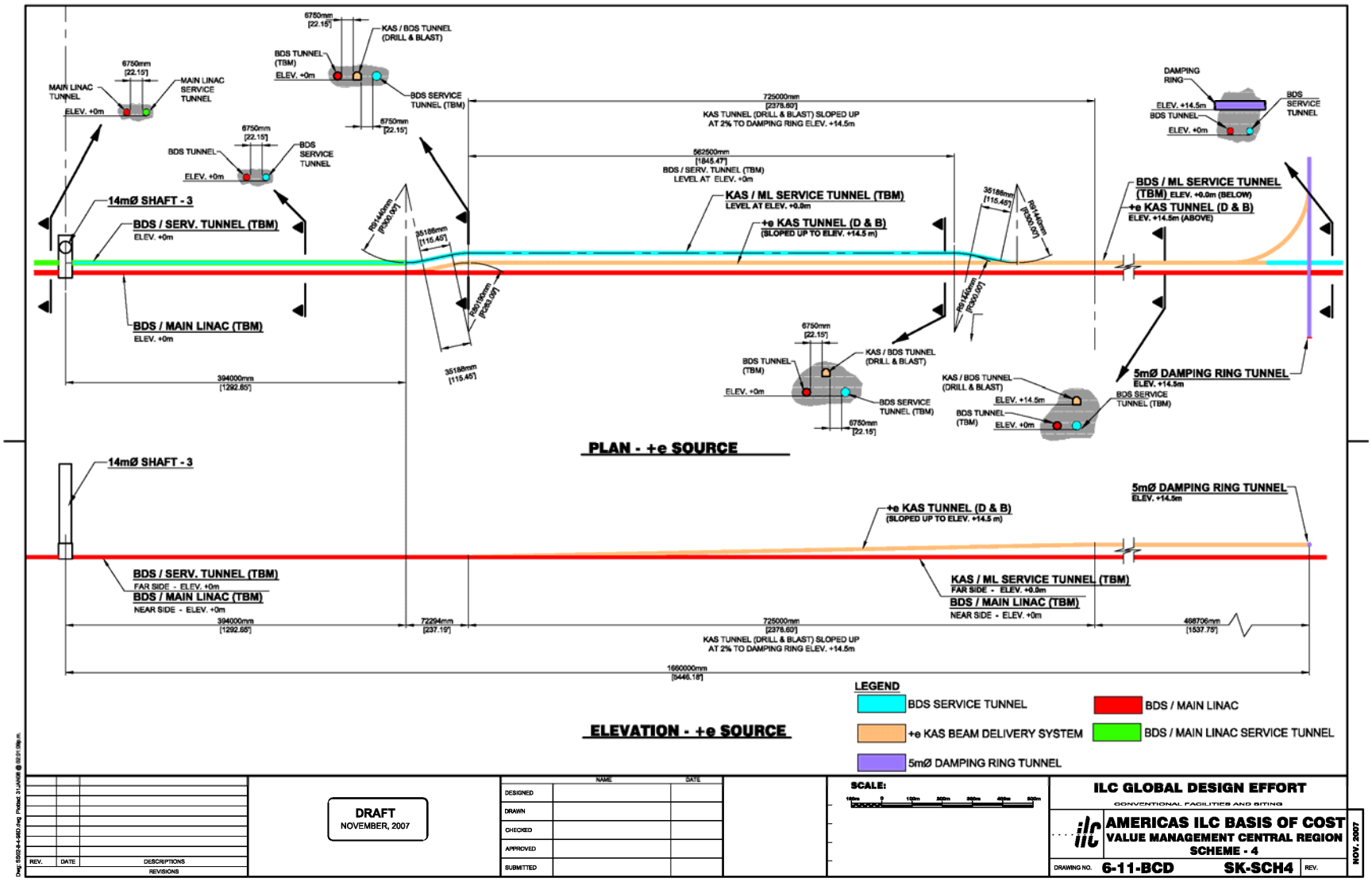
For more details, see Mark's talk from October:

http://ilcagenda.linearcollider.org/getFile.py/access?contribId=0&sessionId=1&resId=1&materialId=slides&confId=2319

Since ALCPG: Tunnels

- At ALCPG, CFS group presented several options for how to bring injector tunnel and linac tunnel together
- Working decision made on preferred solution
  - **Injector tunnel connection is in *horizontal* plane**
    - Doglegs towards service tunnel
    - Service tunnel doglegs away from linac tunnel
  - **Horizontal dogleg followed by escalator**
    - Service tunnel doglegs back towards linac tunnel
  - **Distances and radii of curvature determined**

Since ALCPG: Tunnels (2)



Since ALCPG – Task Force

- Lattices compiled by Mark are not satisfactory as a starting point for ED phase
  - **Geometry mismatches**
  - **Missing pieces**
    - Example: Keep Alive Source (!)
    - Example: Pulsed extraction lines
  - **Out of date**
    - Example: New DR optics coming in the next couple of weeks?
  - **Unfeasible design choices**
    - Example: RTML matching between weak and strong lattices
- System Integration group convened a task force of the deckmasters
  - **Goal: produce a complete, self-consistent set of lattices which match the CFS site layout**
    - Goal: end of January
      - (No way!)
  - **Later goals**
    - Improvement of the lattice files – bring into compliance with lattice file coding standards (under development)
    - Keep lattice complete and self-consistent as design evolves

Task Force Collaboration tools

- Website for EDR lattices:

  http://www.slac.stanford.edu/accel/ilc/lattice/edr/

  - **Folder ILC2007b has lattices, etc**
  - **Folder doc has other useful information, including:**

- Lattice files “punch list”

http://www.slac.stanford.edu/accel/ilc/lattice/edr/doc/LatticeFilesPunchList.html

  - **Lists all of the known problems in the lattices**
    - As problems get corrected, they are crossed off the list
      - Hasn’t happened yet!
    - As new problems appear, they are added to the list
    - Several categories of problems

Task Force Collaboration Tools (2)

- Regular meeting
  - **Thursdays at "GDE Standard" time**
    - 6 AM SF, 8 AM Chicago, 9 AM Ithaca, 2 PM UK, 3 PM Geneva, 11 PM Tsukuba
- Website on ILCAgenda

http://ilcagenda.linearcollider.org/categoryDisplay.py?categId=136

  - **Under Machine Design, Areas, System Integration**
  - **Minutes of all meetings are posted**

Implications for LET Studies

- RTML optics will be changing over the next several weeks
  - **Implement new scheme to get into linac tunnel**
  - **Other corrections from punch list**
  - **May take longer**
    - Some changes must be coordinated with e+ source
    - No deckmaster for e+ source right now
- Probably will be some changes to the linac lattice as well
  - **Not as drastic**
- Lattice files for all areas are available at a public web site
  - **Plan to move to EDMS but no schedule for this at present**