

## Task Force Report „XFEL Installation ohne oberirdische Hallen“

**Norbert Meyners**  
**XFEL Project Board**  
**17.05.2010**



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The construction of the **surface halls** with the **cranes** on the shafts take about 6 month (XS1 7.5 month)!

→ **Question:**

**Can we do infrastructure installation (Technische Gebäudeausrüstung TGA) while the surface halls are under construction?**

# Remarks XTL

We started with the XTL!

Basis: Workflow Plan 2007; Current Installation Plan

> Discussion **Installation Workflow** in the XTL

→ **Goal:** Identify all objects that need

to be transported underground

→ More detailed workflow list / small changes in the concept

> Big concerns: **Safety demands** →

**inefficient / time consuming workflow**

→ WP36 stated that the safety concept is a living document that will be adapted to the situation

→ **First version of safety demands during TGA**

# Remarks XTL (Cont')

> **Floor slabs** - at the moment – can not be interchanged.

Due to the tight tolerances for the gaps (2mm) a plate will only fit to a certain location. (Scenario 1)

→ **Proposal for scenario 1:**

- Take out **ALL** floor plates
- Install a special crane and a gangway
- Finish utility installation below floor plates
- Reinstall floor plates

→ **More installation time (~months\*)**

→ **Recommendation: Revisit this item to get interchangeable floor plates**

\*) Installation Workflow 2007: 40 slabs/d = 48 m/d = 240 m/w, ½ of slabs ≈ 1750 slabs ≈ 44 d (3 shifts/d!)

# No Crane without Surface Building

- > First we look in the possibility...
  - to use temporary gantry cranes
  - to use a construction crane + an opening in the roof

## Proposal:

- > Start the surface hall construction immediately after the shaft has been handed over
- > Let the crane and the corresponding part of the hall be build and handed over first
- > Should be possible after about 2 month
- > Could gain some time by using a **car crane** or the **construction site crane** before the crane is ready

**Recommendation for all entrance halls! (XSE, XS1-4, XHEXP)**

# XTL Installation

- > Mid February 2012 XSE and XTL handed over (13. 2. 2012)
  - 2 month surface hall construction (only crane area)
  - 24 month for infrastructure and machine installation (workflow plan from 2007)
- ➔ **XTL installation finished Mid April 2014**

## Comments:

- > Be aware that the machine installation plan was very challenging (not to say aggressive)
  - It wasn't our mandate to revisit the 2007 planning
- > There is the open item with the **floor slabs tolerances** that may lead to additional installation time
  - > **Will the necessary components be delivered in time?**

(The times are rough estimates! The planning is just starting!)

- > The installation work is dominated by the infrastructure work around the experimental hall  
(power transformer + distribution, water, ventilation, power supplies)
- > This work – up to now – can **and should** start after the underground experimental hall is finished completely and handed over together with construction site (27.4.2013)
  - ~6,5 month utilities tunnel (Latest schedule; old: 4 month)
  - ~10 month infrastructure installation
- ➔ **Utilities (next experimental hall) finished ~End August 2014**
  - Auxiliary buildings + TGA finished at same time

**Should WP31 try to start the utilities tunnel earlier?**



(The times are rough estimates! The planning is just starting!)

## > Tunnels & shafts handed over 18.9.2012

- Crane and surface hall (partly) ~2 month

From current installation schedule:

- Infrastructure installation XTDs ~8 month
  - > Planning just started; duration under discussion
- Machine installation time ~12 month
  - > No detailed planning

➔ **Beam line “installed” End July 2014**

(= 1 month before infrastructure)

## > Will the necessary components be delivered in time?

# Conclusion

To the project management:

- > Is our proposal for the crane the way to go?
- > We need a good solution for the floor plate problem!
- > Should WP31 try to start the auxiliary buildings earlier?
  - This affects the valid contracts i. e.  
it means negotiations with the contractors

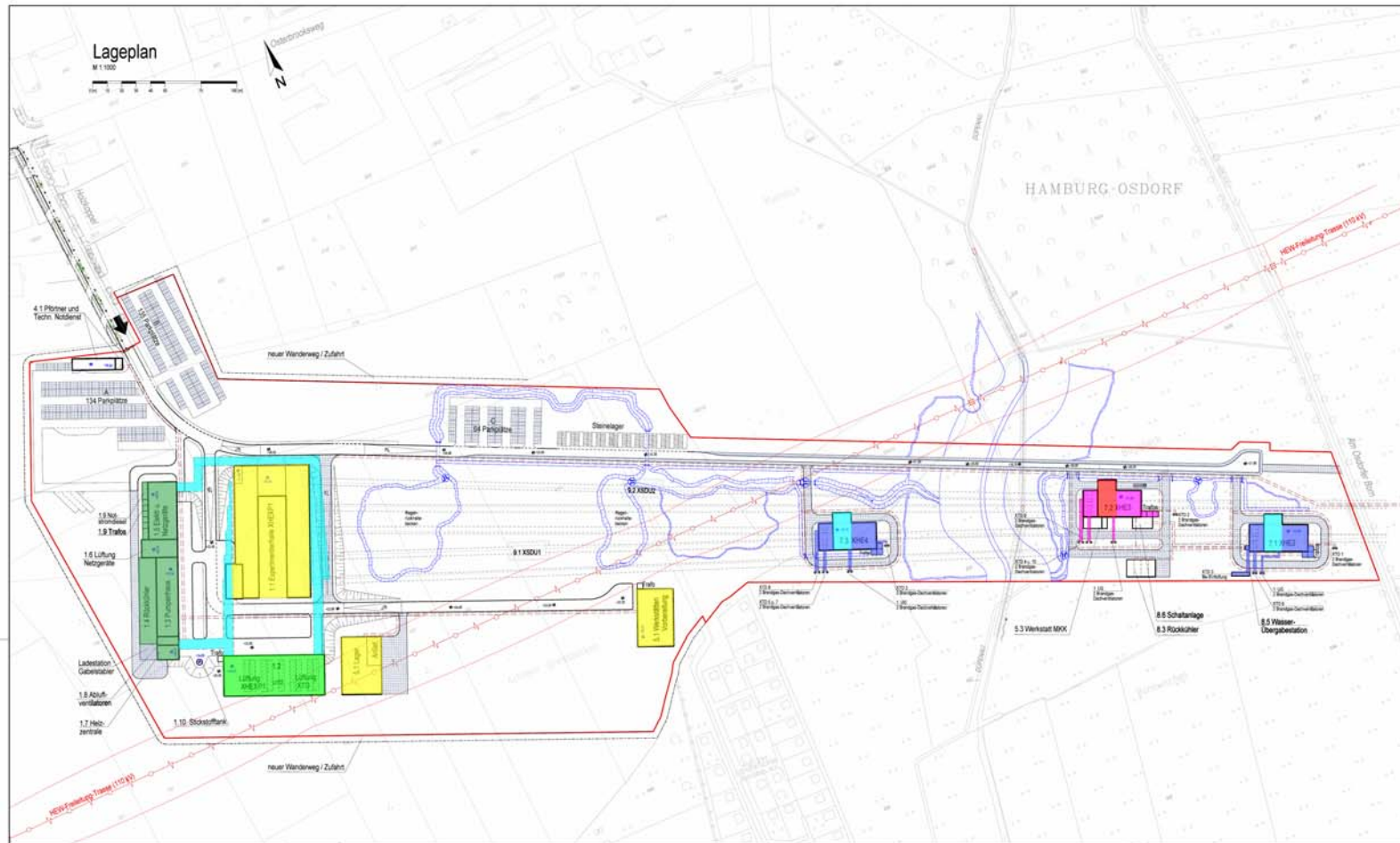
It should be checked ...

- > ... if the necessary components will arrive in time  
(including time for quality control)

# XFEL Schenefeld Site

LEGENDE BAUBEGINN

- 19.09.2012
- 18.10.2012
- 29.04.2013
- 29.05.2013
- 26.06.2013
- 07.08.2013
- 04.11.2013

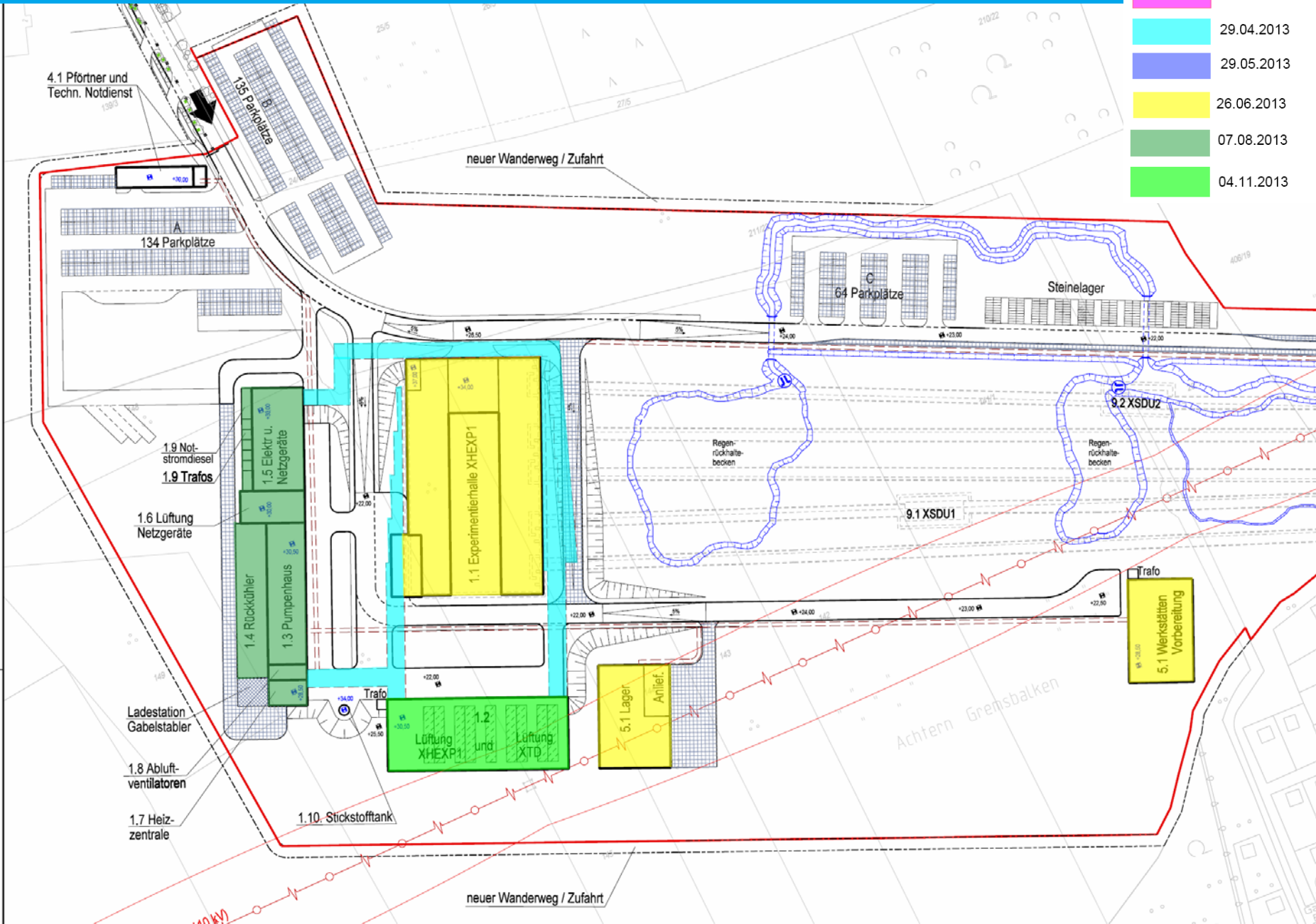


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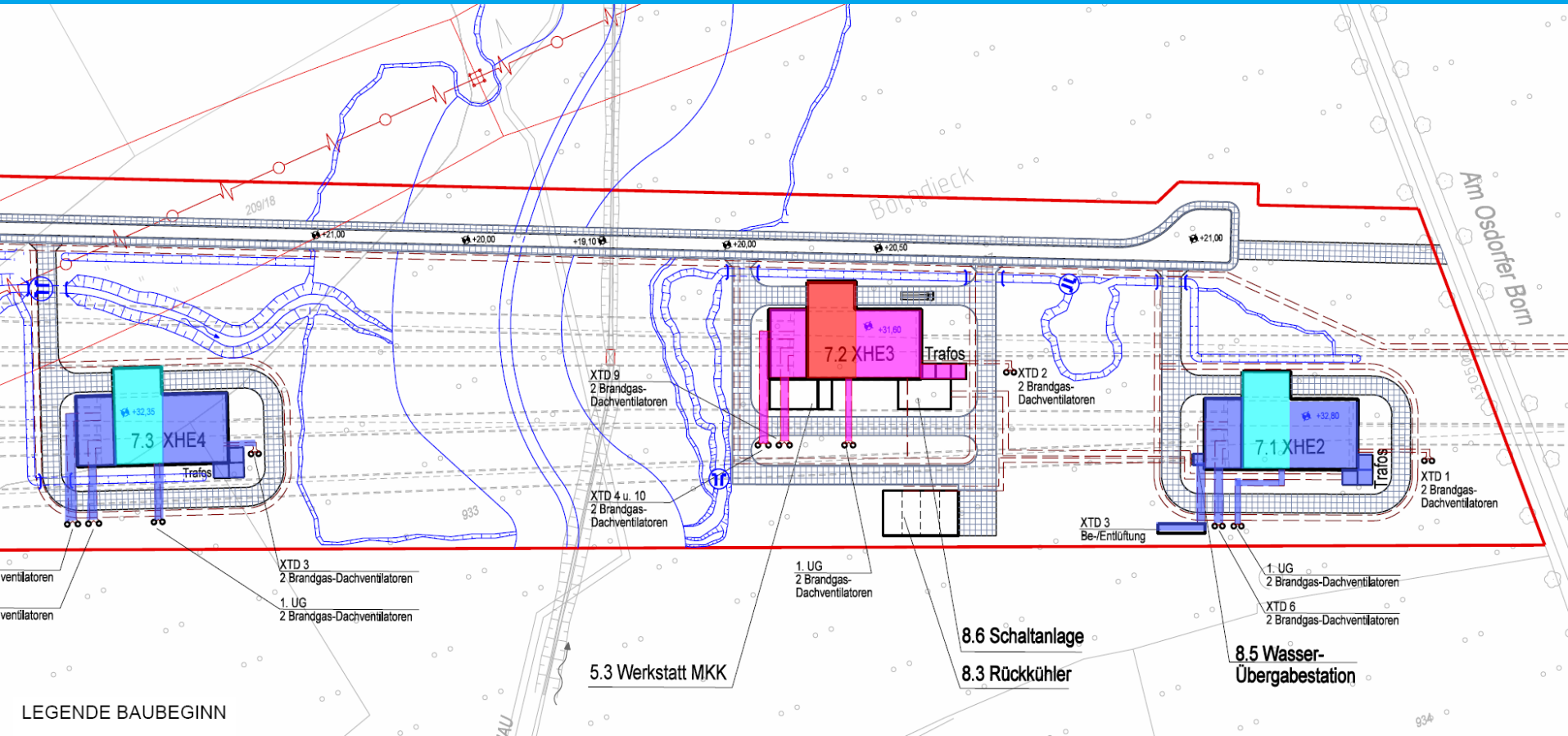
# XFEL Schenefeld Site Experimental Hall

LEGENDE BAUBEGINN

- 19.09.2012
- 18.10.2012
- 29.04.2013
- 29.05.2013
- 26.06.2013
- 07.08.2013
- 04.11.2013



# XFEL Schenefeld Site XHE2-4



## LEGENDE BAUBEGINN

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- 18.10.2012
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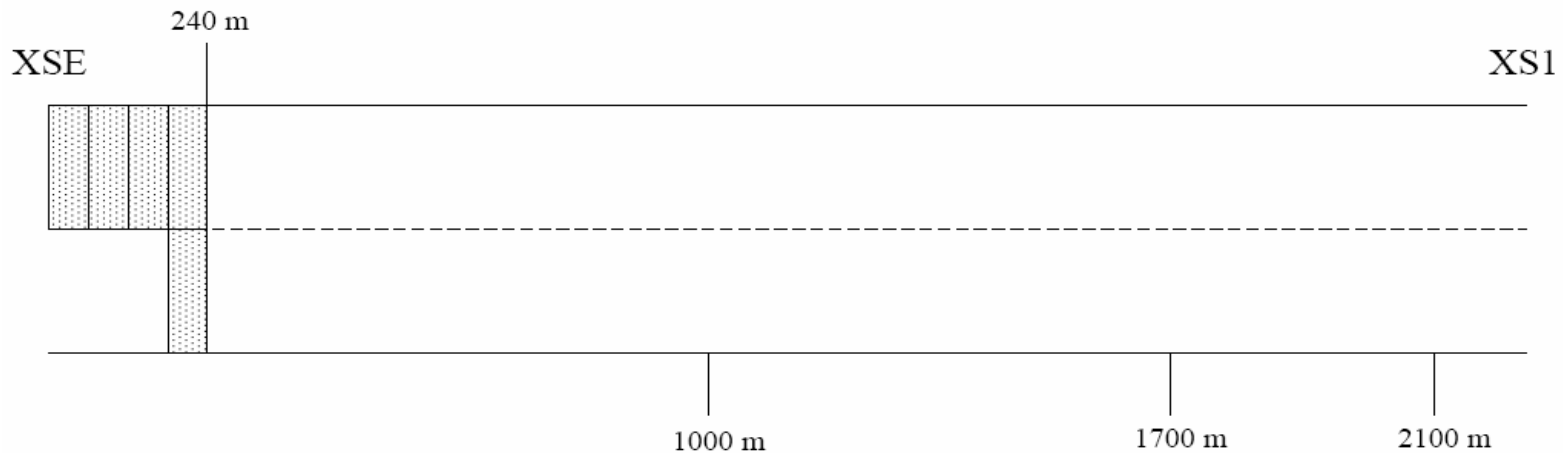
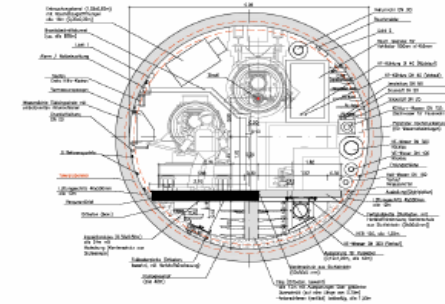
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# Floor Slab Installation Speed

**Week 1** Feb. 2011 (start at Mo. 7<sup>th</sup>) **XTL Primary Installation - Workflow**

- Start laying left floor lane: 240 m/w
  - > 40 slabs/d = 48 m/d,  $\approx$  1750 slabs in total  $\approx$  44 d in total
  - > Set up storage areas (e.g. each 80 slabs ->  $\approx$  each 100 m)



T. Hott, 15 Jan. 07