



Statens vegvesen



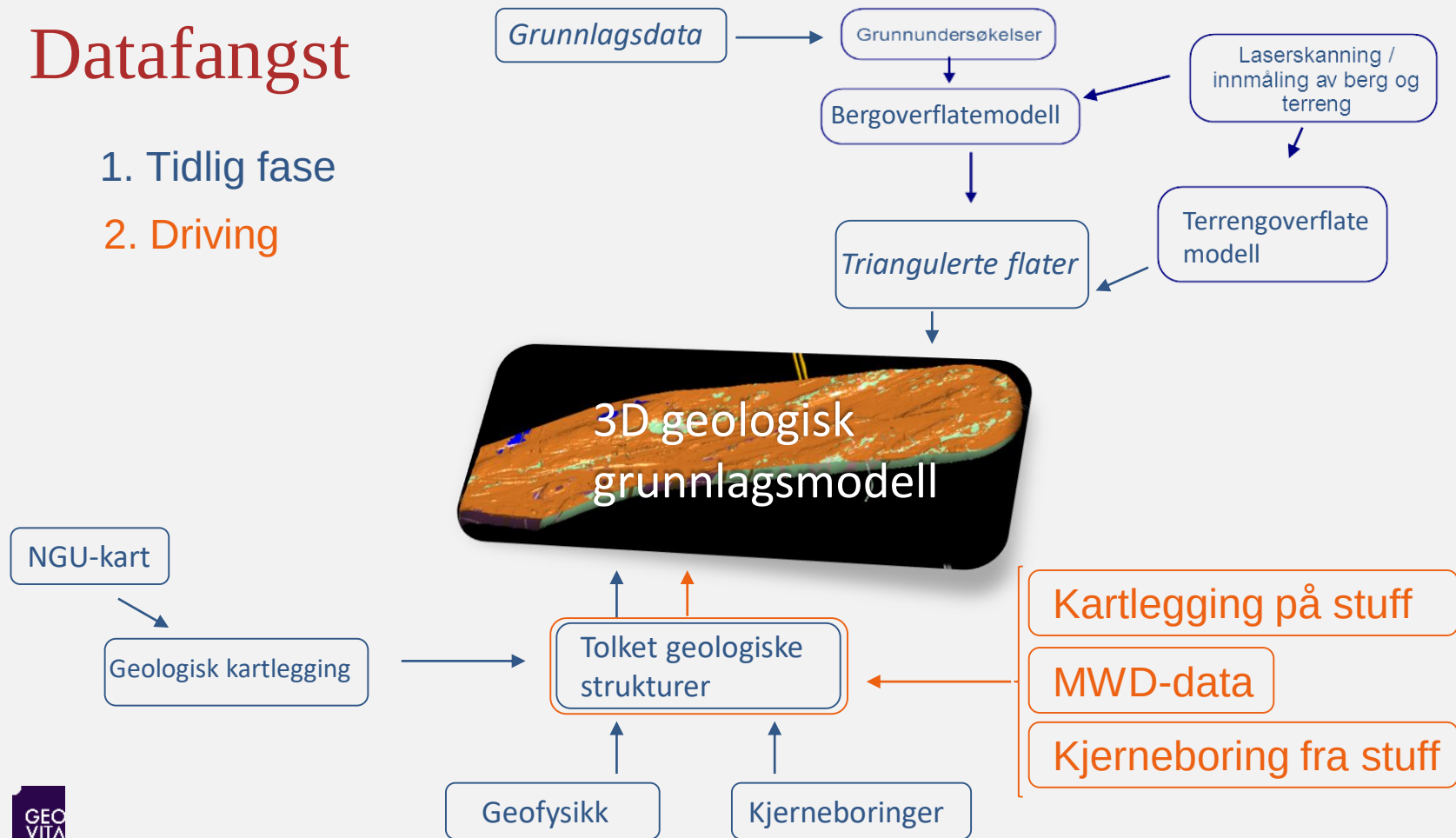
Modellering av geologi fra tidligfase

E18 Vest Korridoren
Etappe 1



Datafangst

1. Tidlig fase
2. Driving



Video av geologisk grunnlagsmodell

Modellering av geologi fra tidligfase

Steg for steg

KURSDAGENE 2020
Digitalisering i tunnelbransjen - del 2



Geologimodell

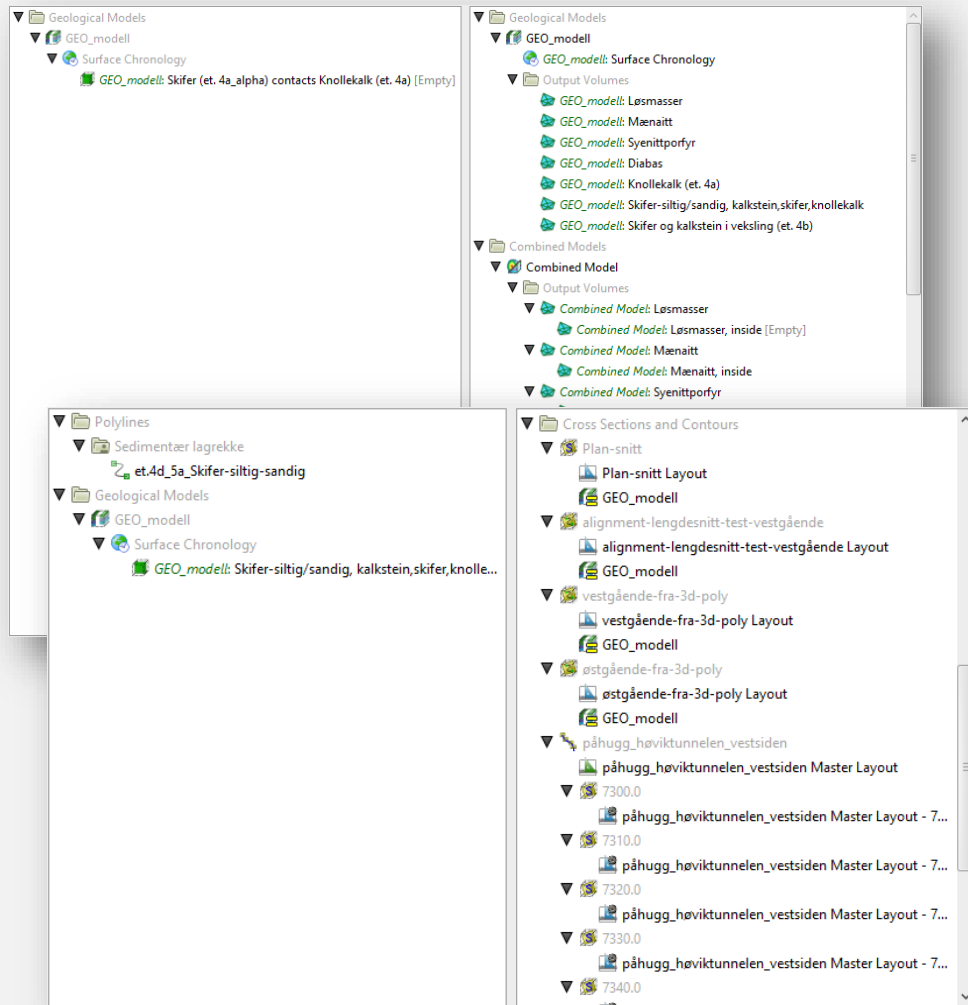
➤ Dynamisk

- Objekter er linket
- Lav brukerterskel
- Sammenstille en rekke dataformater
 - Ifc/landxml/dwg/dxf/shp/msh/obj/pdf/png/jpg/geotiff

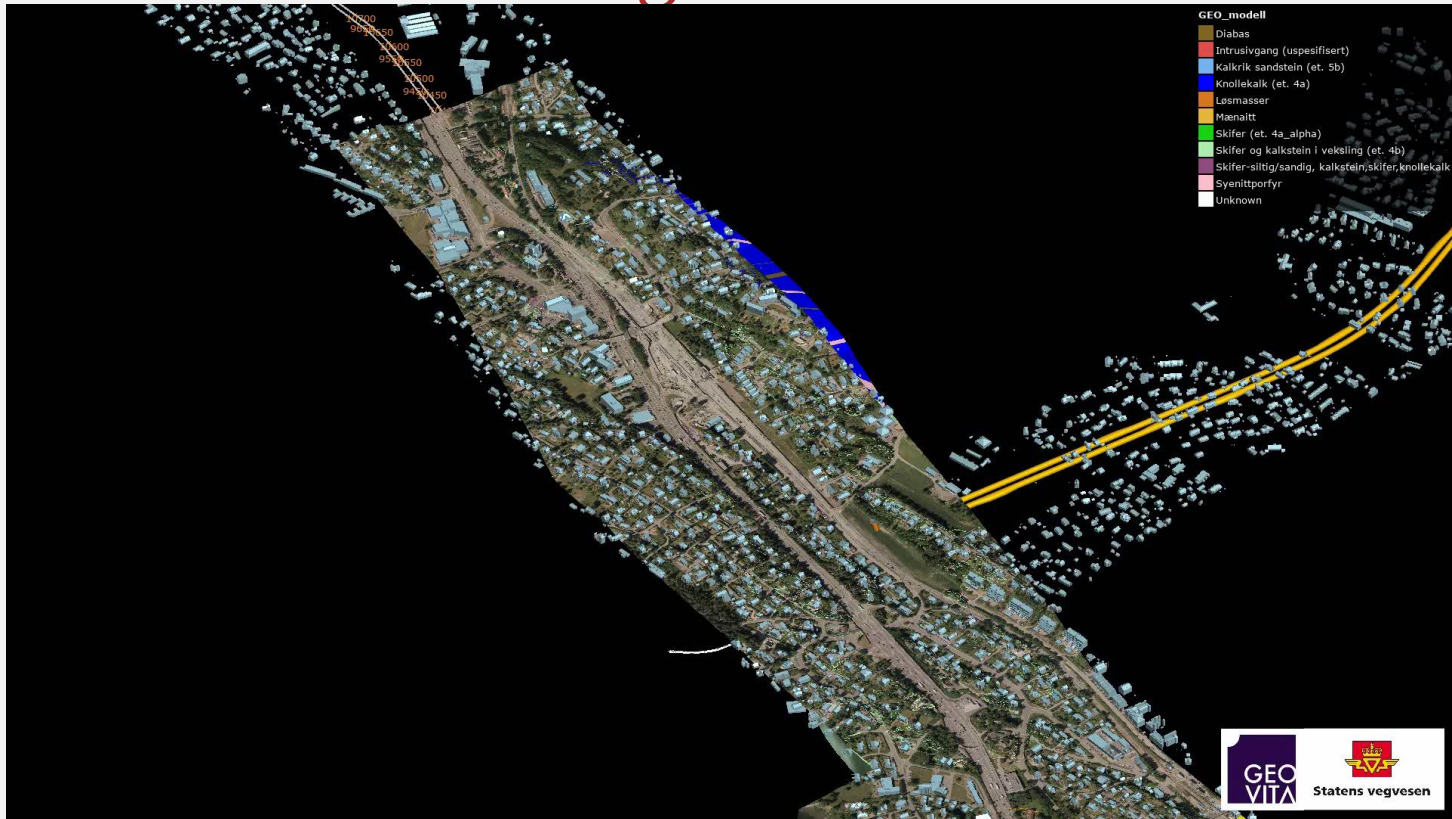
➤ Alltid oppdatert modell

➤ Dokumentasjon

- F. eks. håndbok N500
 - Modell oppfyller krav
 - Tegningsløse prosjekt?
 - Fremdeles krav til tegninger

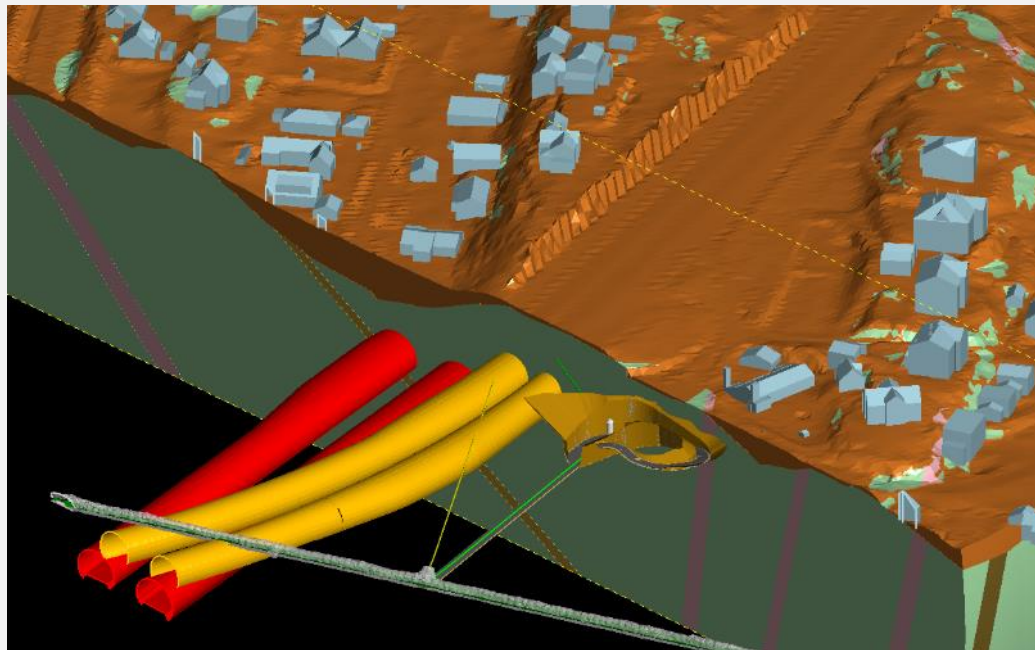


Video av samordningsmodell

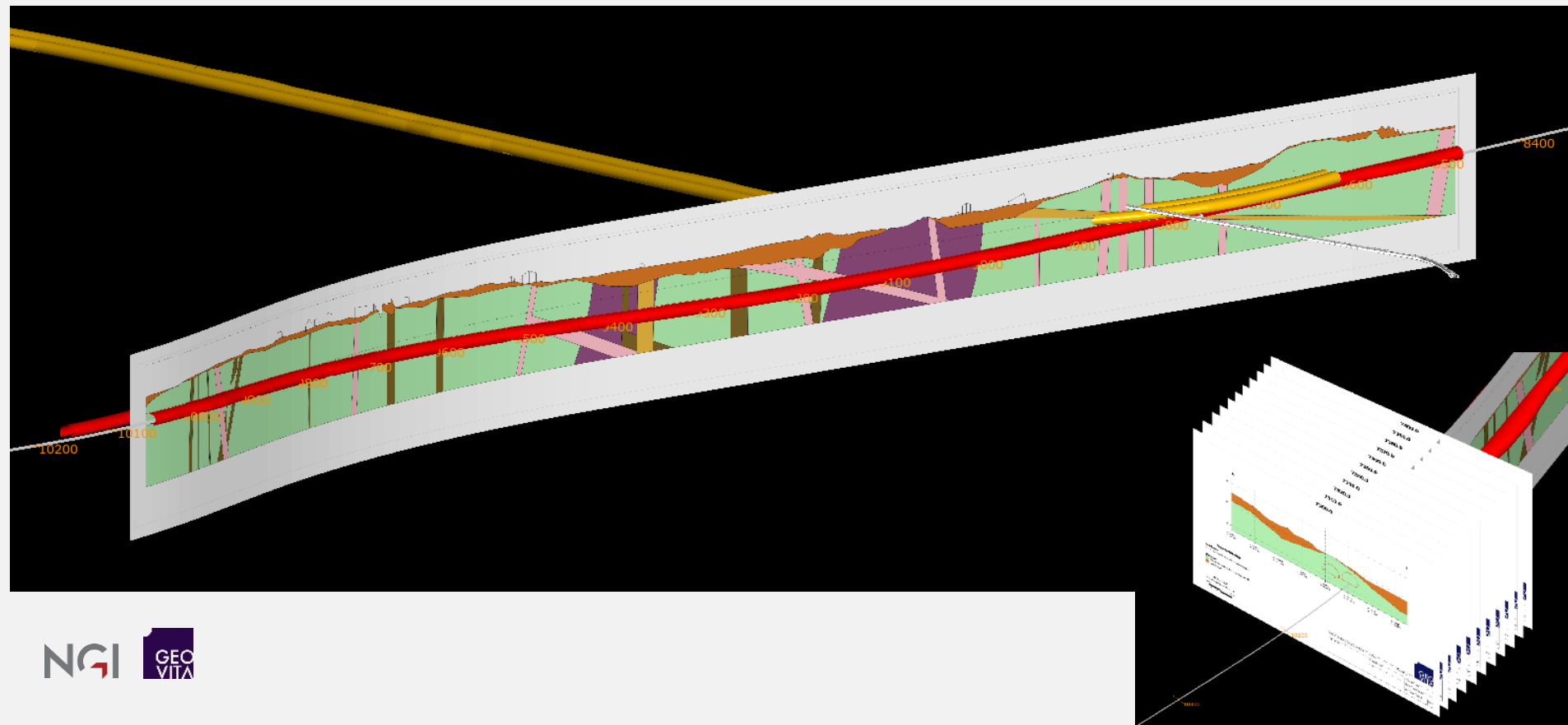


Visualisering av data

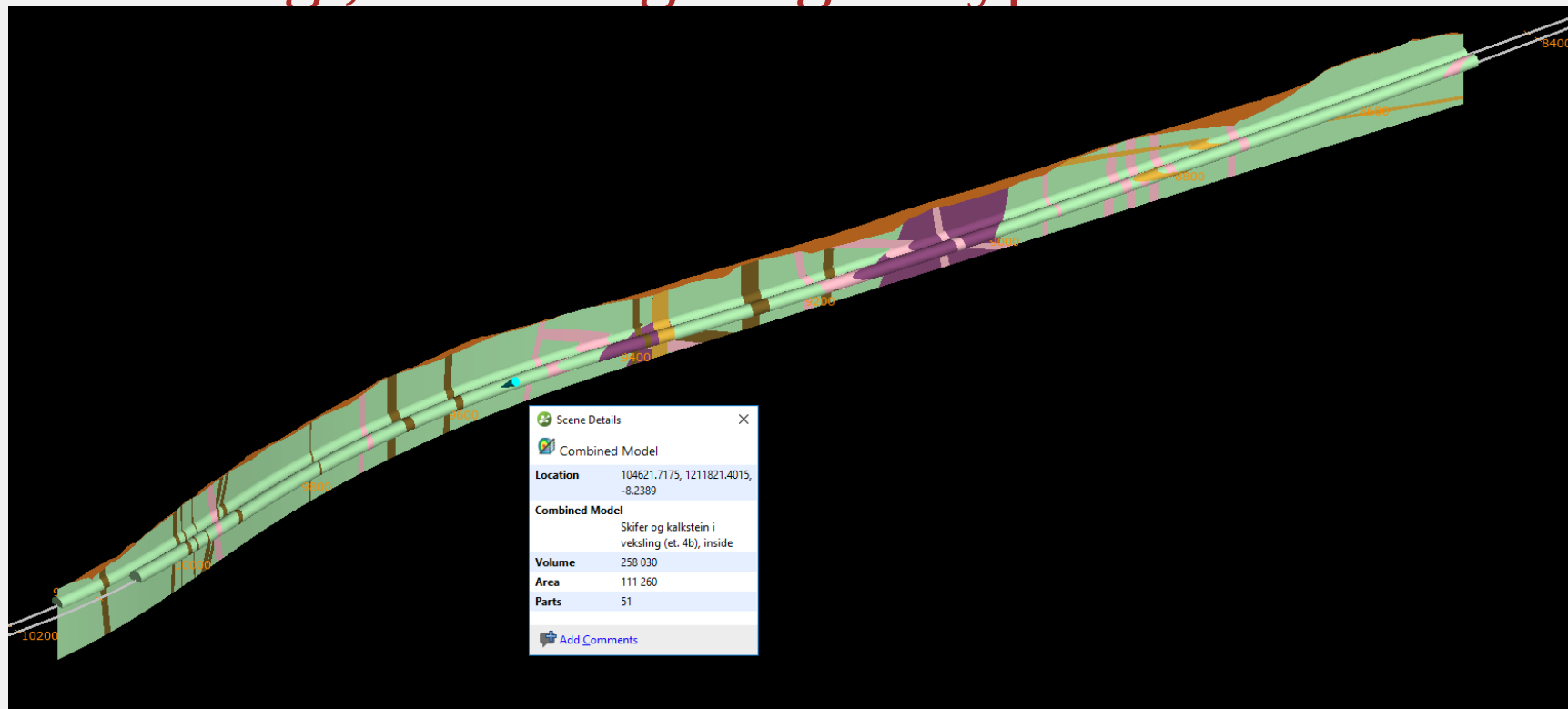
- Predefinert views
- Tegninger (krav i N500)
 - Lengdeprofil
 - Tverrsnitt
 - Plantegning av geologi
- Konstruksjoner
 - Fundamenteringsforhold
- Volum
 - Type masse

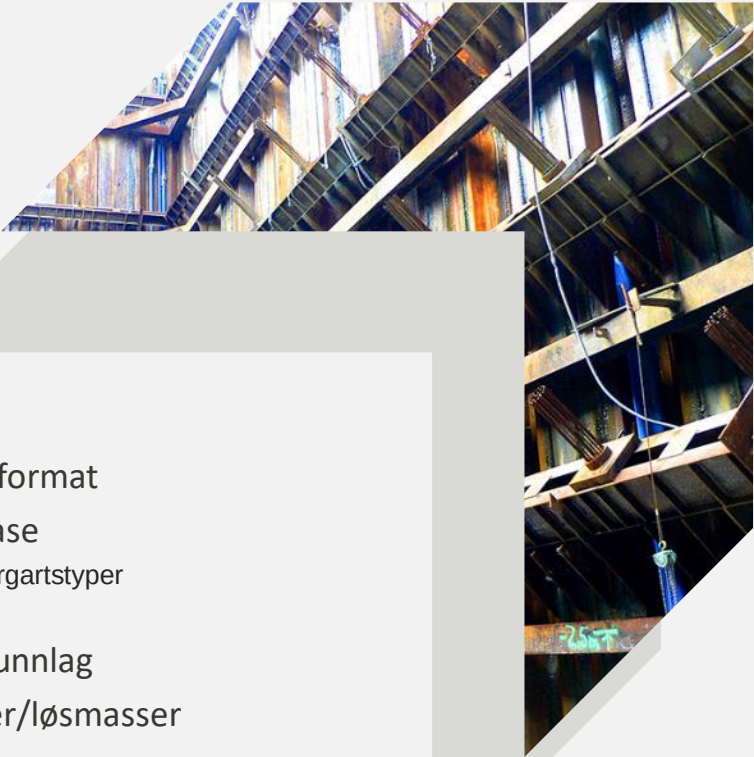


Lengdesnitt og tverrsnitt



Geologi, volum og bergartstyper





Fordeler

- ↗ Dynamisk modell
- ↗ Eksport ifc/åpent format
- ↗ Trasévalg i tidlig fase
 - Basert på geologi/bergartstyper
 - Masseberegning
- ↗ BIM – alltid ett grunnlag
- ↗ Volum av bergarter/løsmasser



Statens vegvesen



#påsikkergrunn

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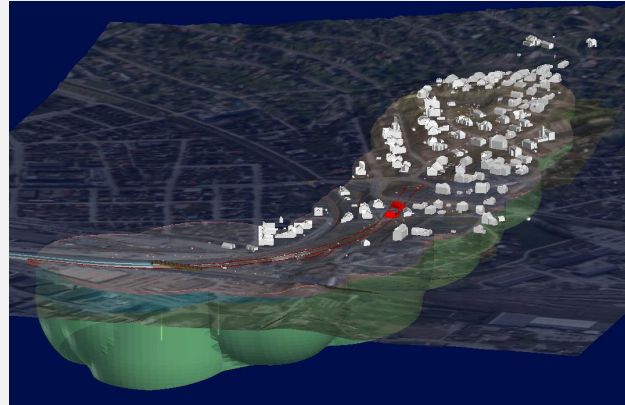
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Modellering av geologi i tidligfase

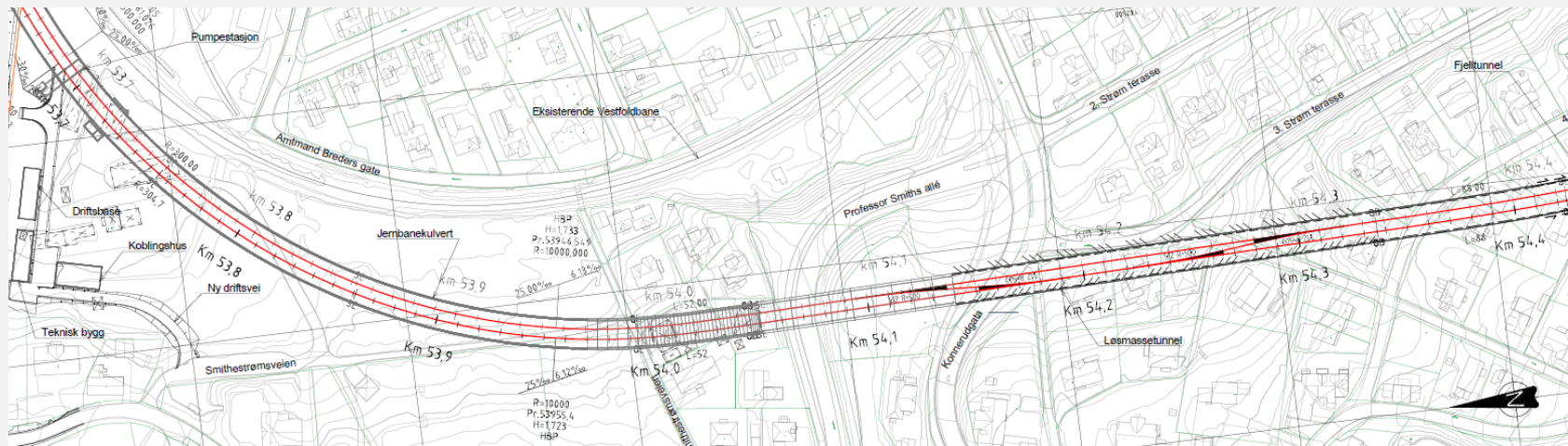
Lagdeling i løsmasser



Introduksjon



- Programvare: Leapfrog Works
- Eksempel prosjekt: InterCity Drammen - UDK02
 - 540m kulvert åpen byggegrøp og 270m løsmassetunnel

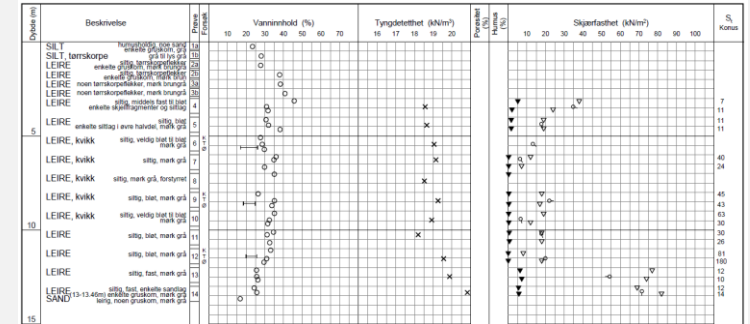
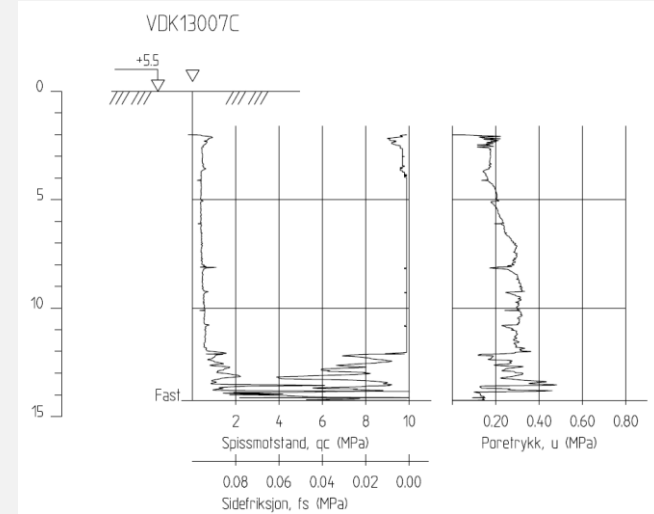
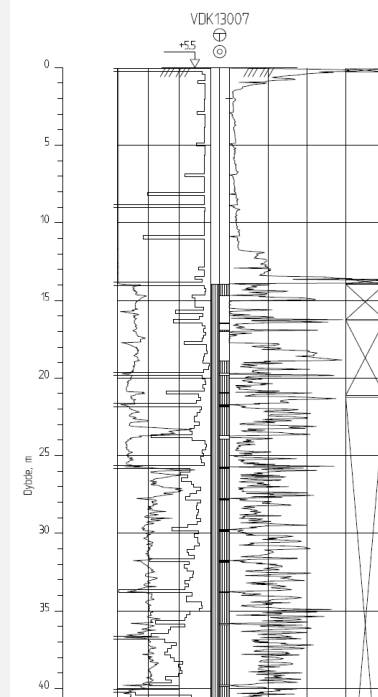


Input

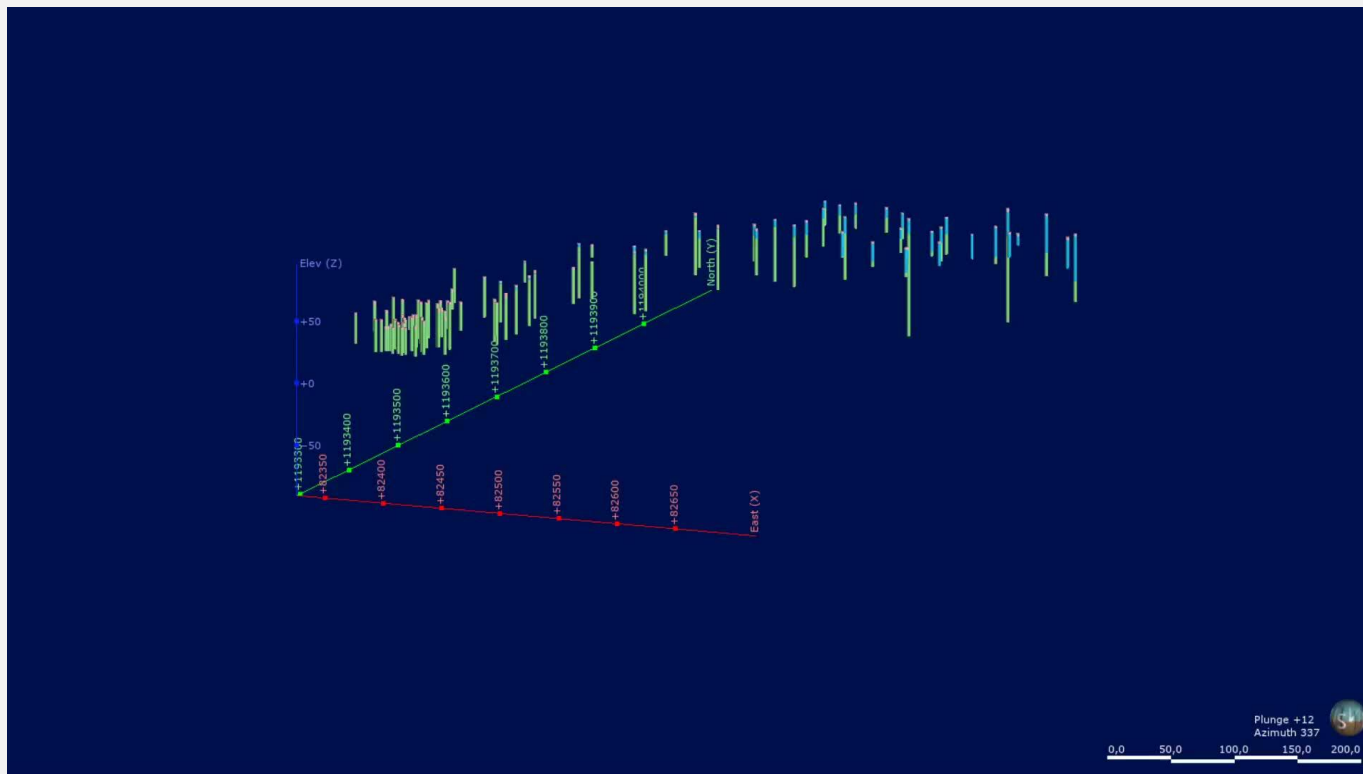
➤ Borhull for UDK02

- Totalsondering
- CPTU
- Prøveserier

	A	B	C	D
1	Hole-ID	From	To	Interpretation
2	20190507-1-T	0	1,7	Topsoil
3	20190507-1-T	1,7	19,8	Clay
4	20190507-1-T	19,8	20,83	Moraine
5	20190507-2-T	0	1,4	Topsoil
6	20190507-2-T	1,4	9	Clay
7	20190507-2-T	9	20,05	Moraine
8	20190507-3-T	0	1,7	Topsoil
9	20190507-3-T	1,7	16,2	Clay
10	20190507-3-T	16,2	20,23	Moraine
11	20190507-4-T	0	1,3	Topsoil
12	20190507-4-T	1,3	16,4	Clay



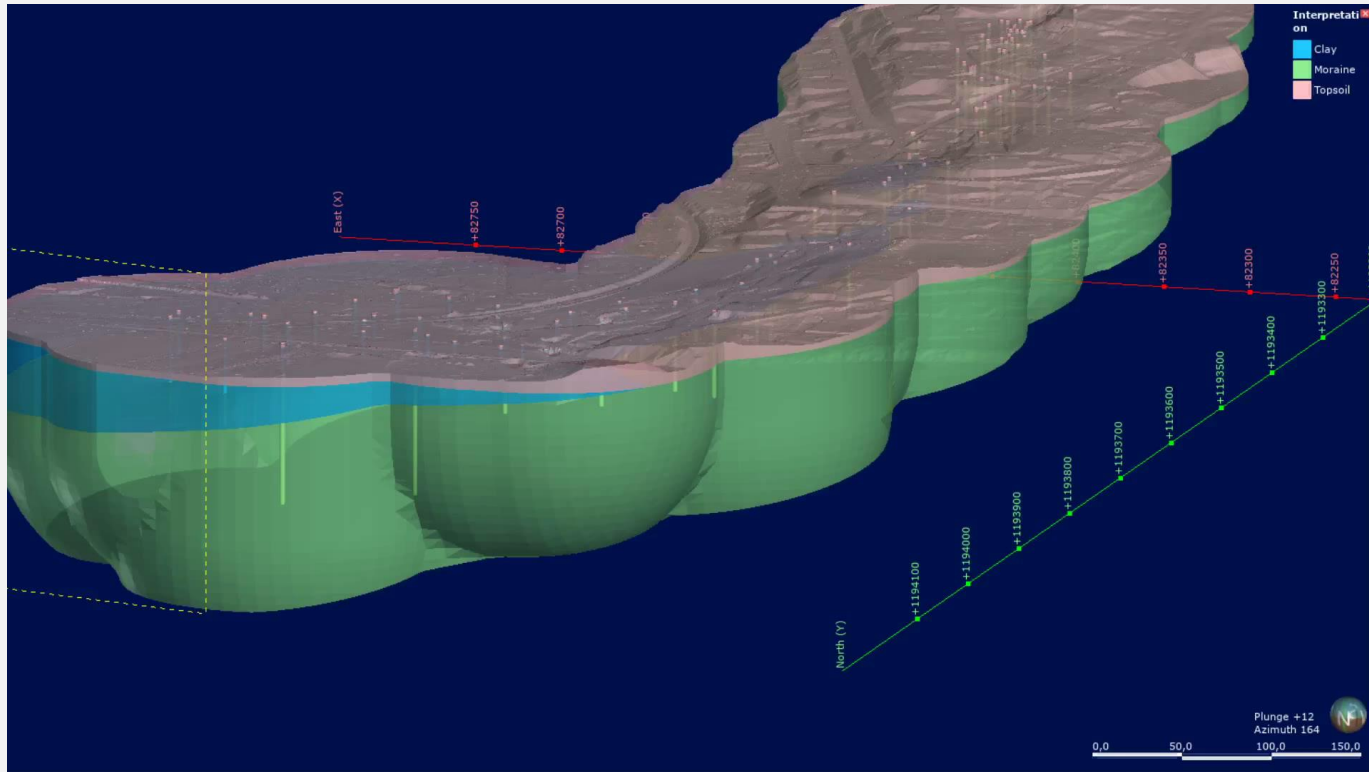
Tolkningsarbeidet



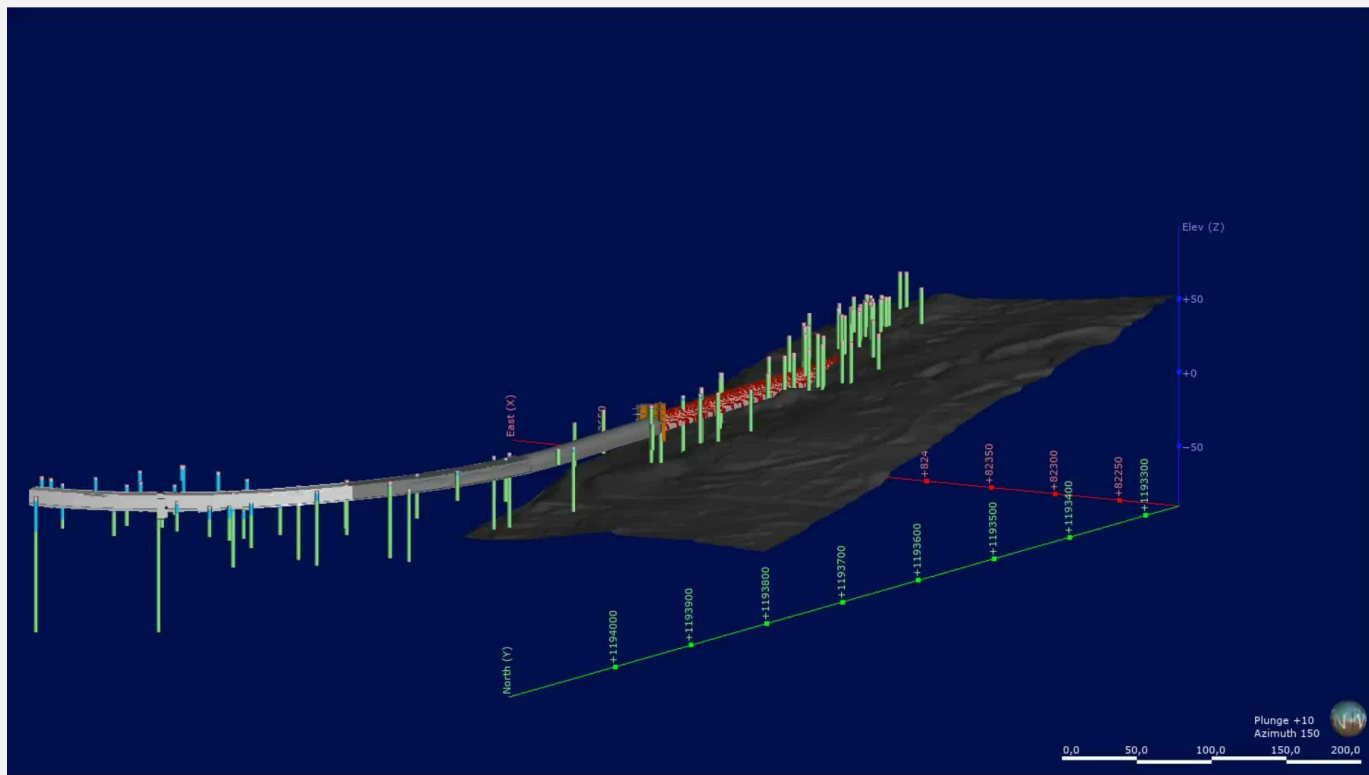
Bergoverflate, terreng og grunnvannstand



3D Modell

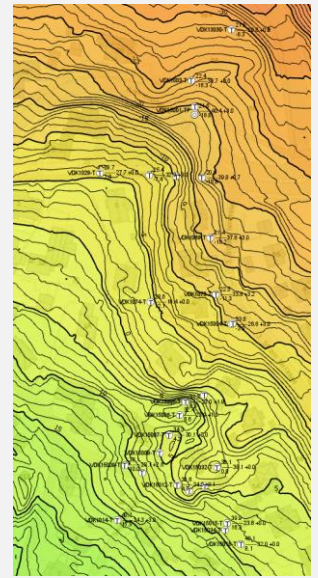
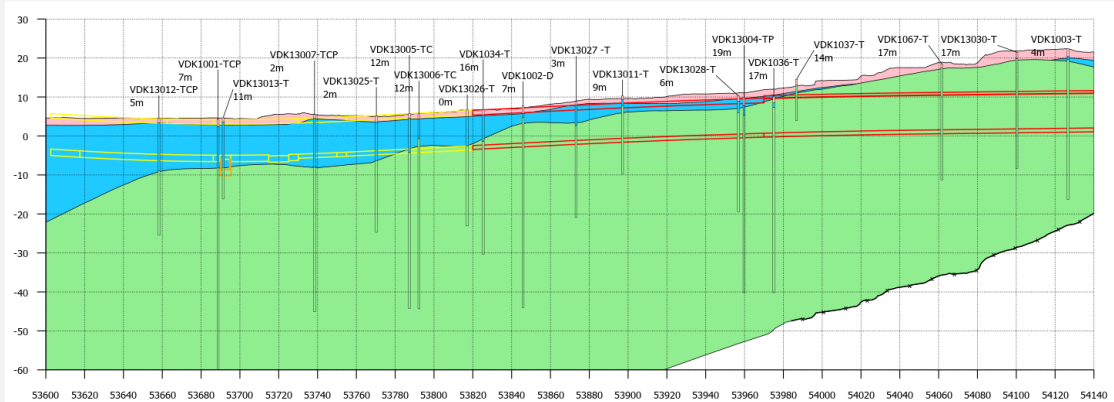
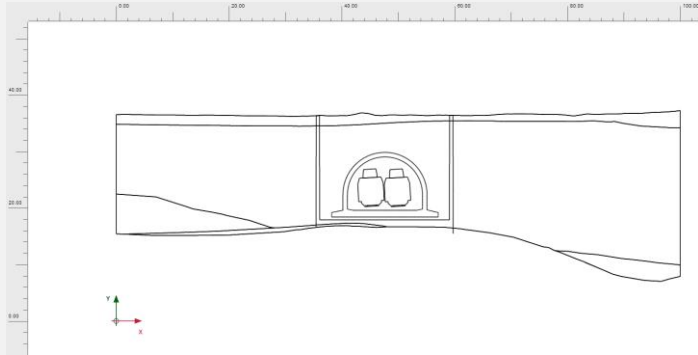


Interaksjon mellom ulike fag

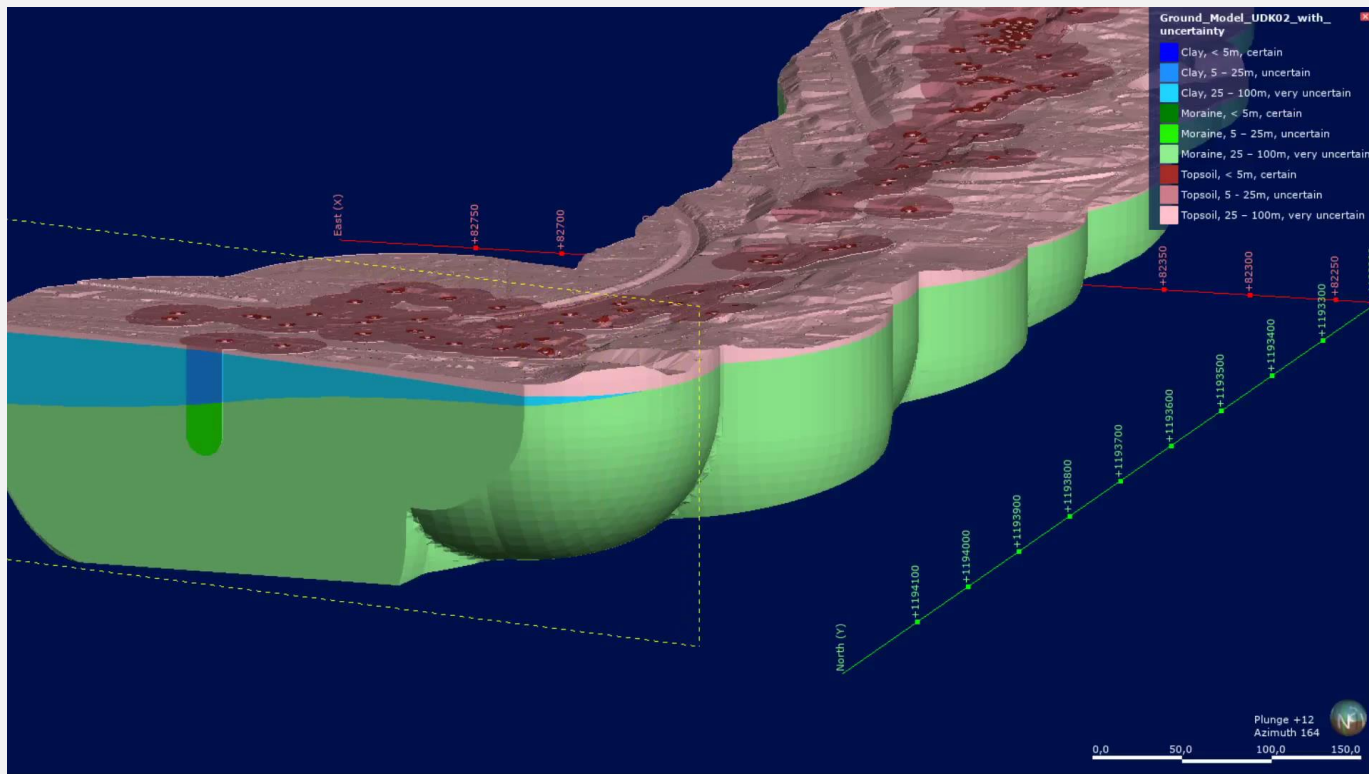


Eksport fra modell

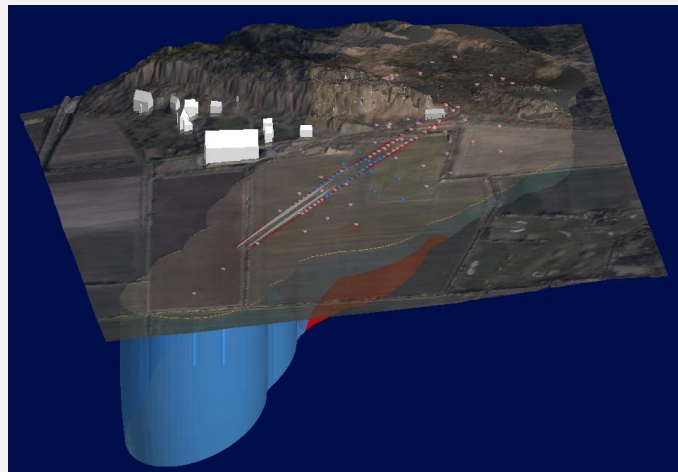
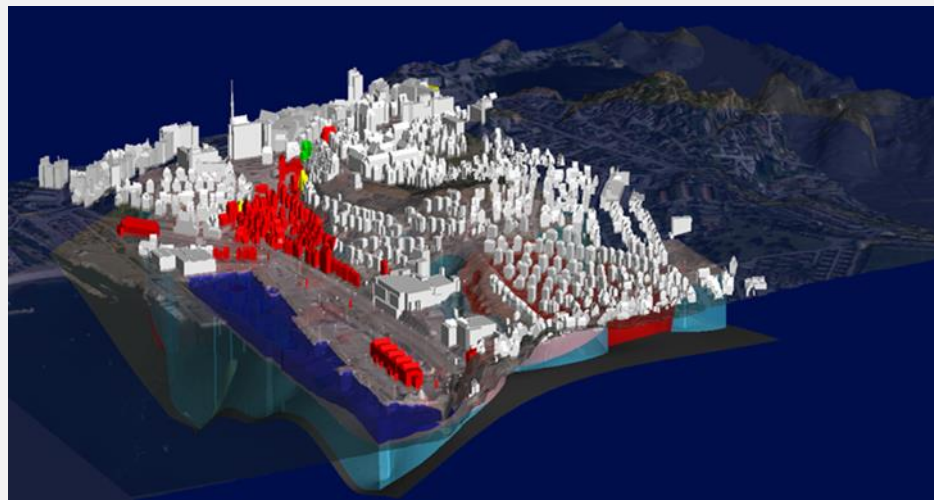
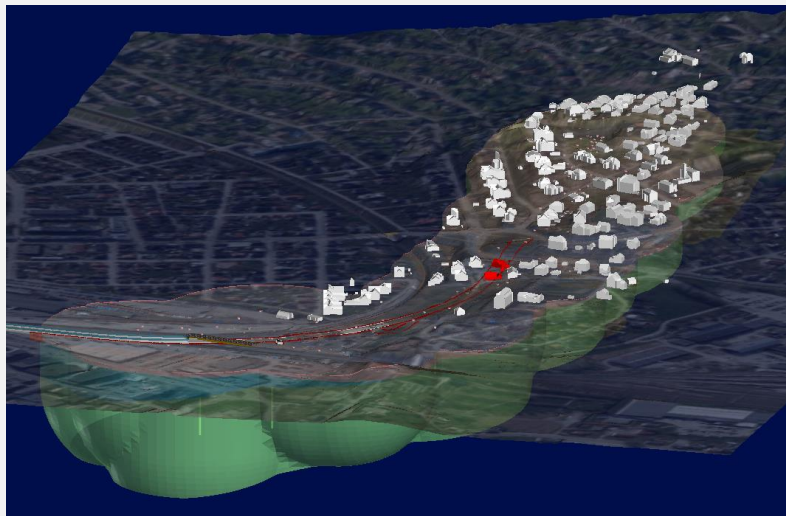
- Snitt og profiler
- Eksport til beregningsprogramvare (Plaxis, GS Stability)
- Eksport for 2D tegning (AutoCAD, ArcGIS)



Visualisering av usikkerhet



Takk for meg





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