1. CONTEXT

Issues:
- A low point (no gravity outfall)
- Existing drainage networks (regulation required)
- Vulnerability / trafficability

Standards require risk analysis and specific studies:
- French high speed lines standards (2006 + 2008)
- European common safety methods (CE 352/2009)

2. RISK ANALYSIS (bottom of cutting)

a) Analysis of flood risk in nominal situation = with correct maintenance
   "Derailment following a flood event" at the highest level of gravity
   Frequency of occurrence T100 + 2xFAILURE (hourly probability):
   \[ P = 1.49 \times 10^{-14} \]

b) Flood risk analysis in case of general failure = absolute case with T100 + no pumps/alarms
   Failure + T100: Storage volume T100 in 5h44 with water level in the pond
   Failure + pond filled T100 + T100: 2nd V100 in 5h44 with water level < track

3. SPECIFIC STUDIES (top of cutting)

Geotechnical verification of the stability (static, critical, seismic)
Hydraulics / Hydrologic check and adaptation

4. CONCLUSION / FEEDBACKS:
- This case-study is an example of methodology for the choice of the scenario until extreme occurrences
- Specific hazard areas has to be monitored closely as soon as possible due to long processing times