

Challenges for utility companies in Flanders to accommodate the new INSPIRE-based, cable and pipes exchange information model (IMKL)

Luc Van Linden

Geospatial World Forum – INSPIRE Conference

luc.vanlinden@hlconsulting.be

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KLIP



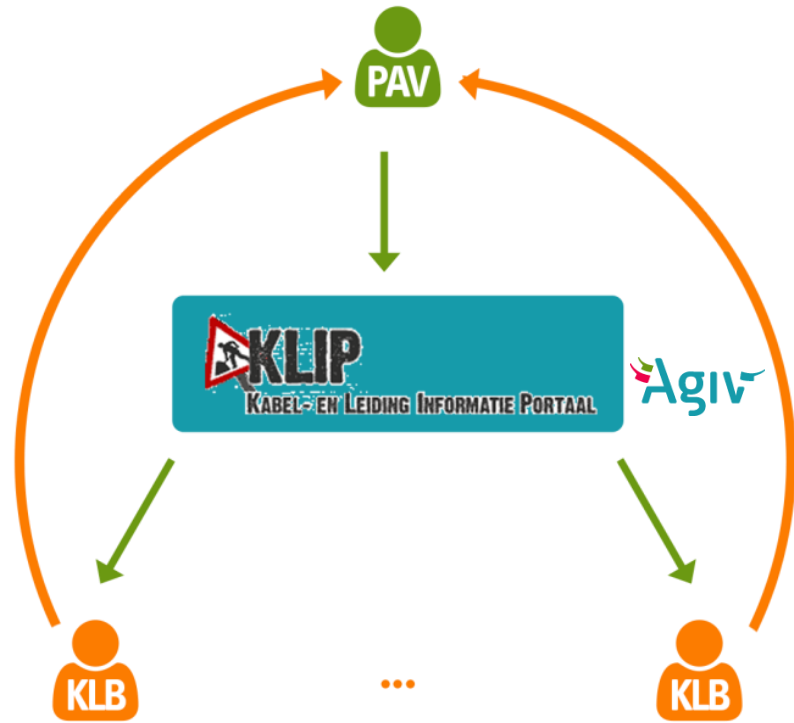
Cable and Pipe Information Portal (KLIP)

- Purpose precaution and avoiding accidents or damages to underground infrastructures.
- Contractor is legally obliged since 2009 to request upfront as-built information via a central portal (KLIP) hosted by the Flemish government.
- All infrastructure owners or maintainers need to register and supply plans for every request.

New KLIP 1st of January 2016

- Shortening maximum term from 15 to 7 working days
- Exchange only network elements
- Usage of 1 single data model (IMKL)
- Offer the requestor 1 single view of the underground infrastructure

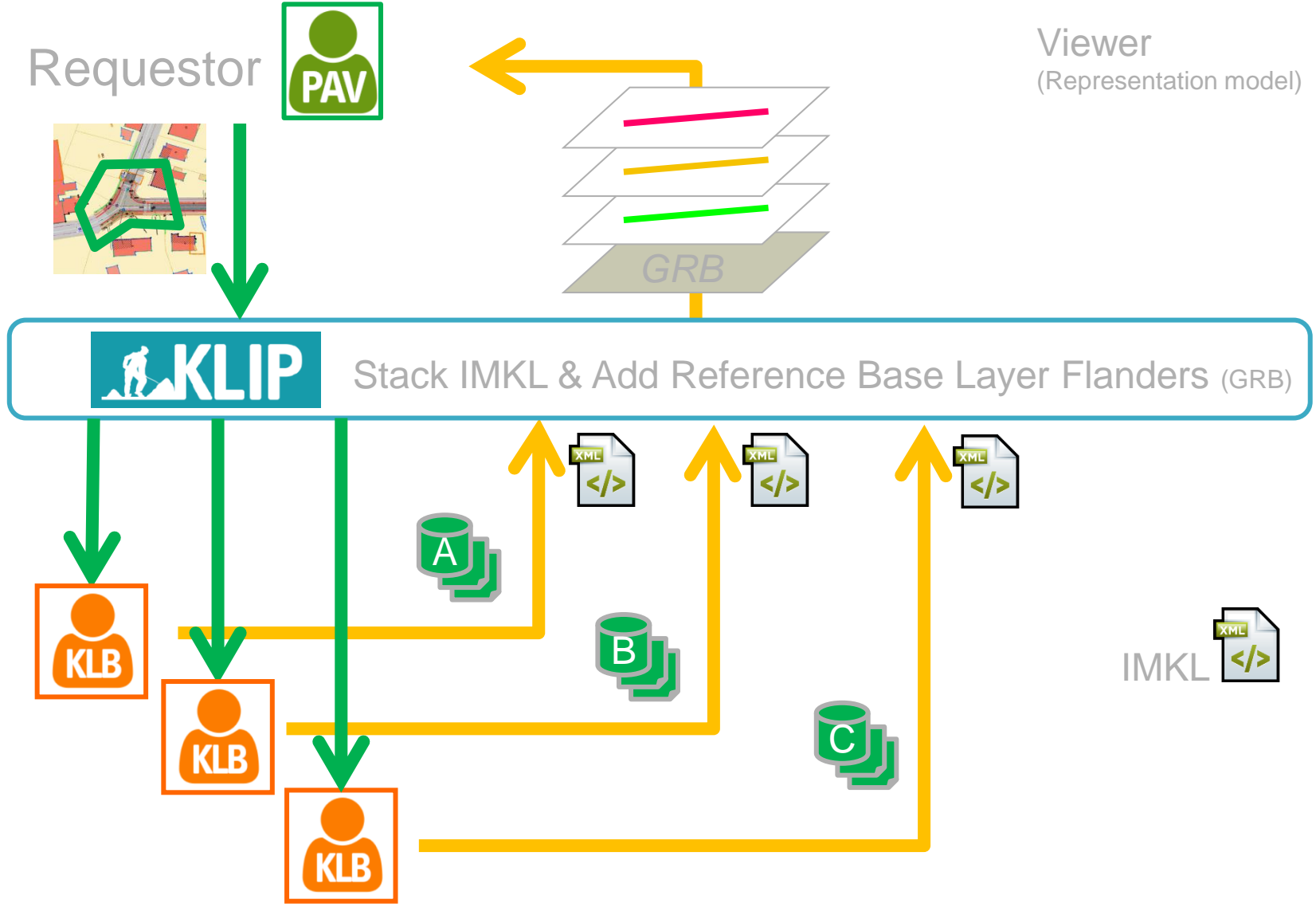
KLIP TODAY



KLIP DIGITAL JAN '16



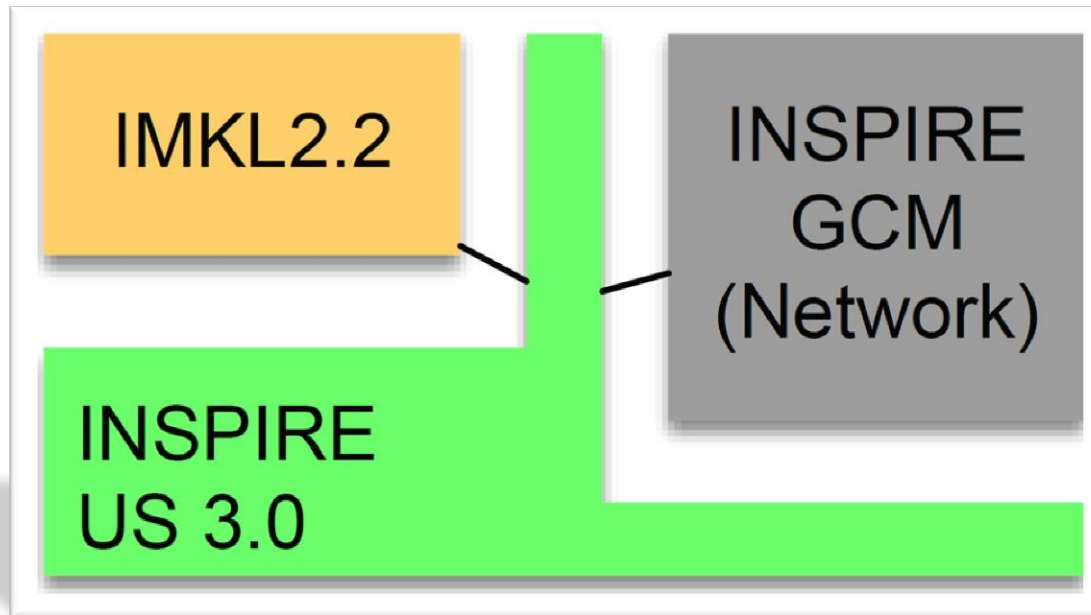
KLIP: CONCEPTUALLY



KLIP: IMKL MODEL

IMKL

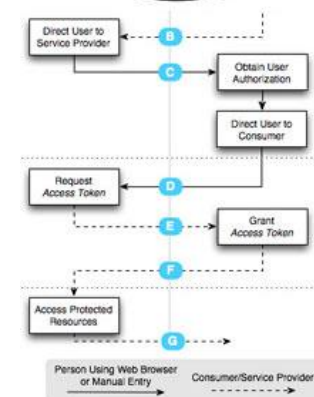
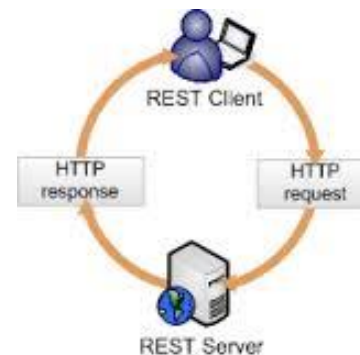
- Information model Cables & Pipes (IMKL)
- Extension to INSPIRE Utility Theme (INSPIRE US 3.0)
 - Additional classes, properties and relationships



KLIP: COMMUNICATION

IMKL - PROTOCOL & API

- Exchange of network elements ONLY:
 - XML/GML 3.2.1 IMKL
 - Form & content compliant with IMKL model
 - No topography
- Communication with the KLIP platform only
- Portal
- Automated via REST web services
 - machine – machine
 - Transactional (per plan request)
- Security OAuth 2.0



KLIP: INTO A RESPONSE

IMKL XML:

- Geographical Markup Language
- Version 3.2.1
- Open International Standard of Open Geospatial Consortium



```
<?xml version="1.0" encoding="UTF-8"?>
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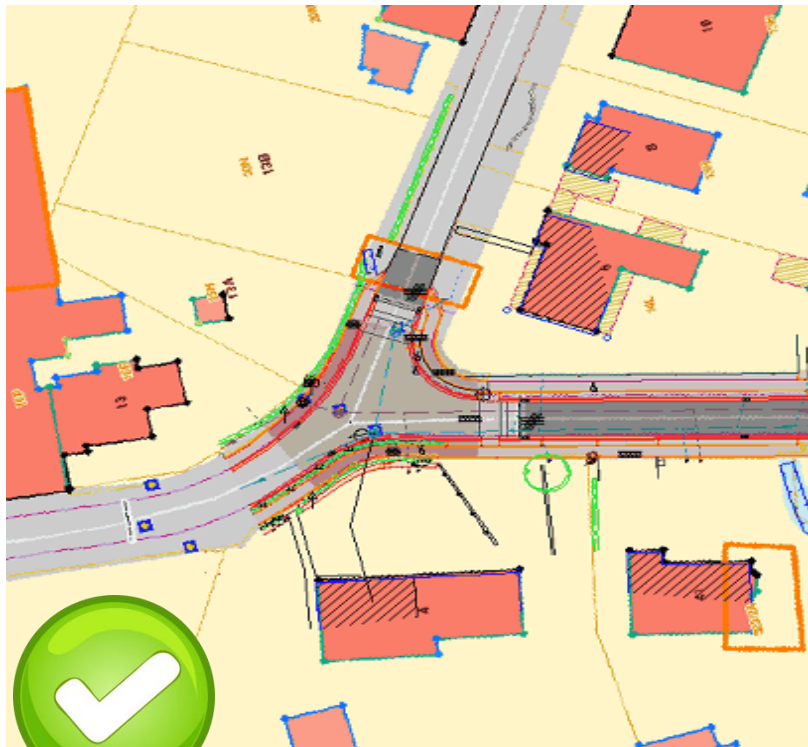
😊 Bedankt! Je IMKL werd goed verwerkt.

Je planaanvraag is succesvol beantwoord
Toch foutieve of onvolledige info doorgestuurd? Contacteer dan rechts



KLIP: CHALLENGE 1: FIT REFERENCE BASEMAP

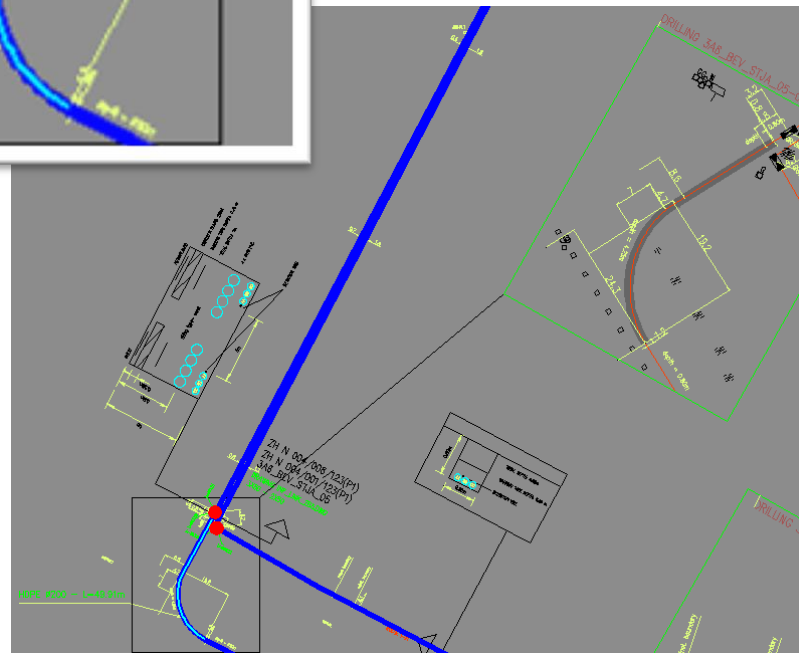
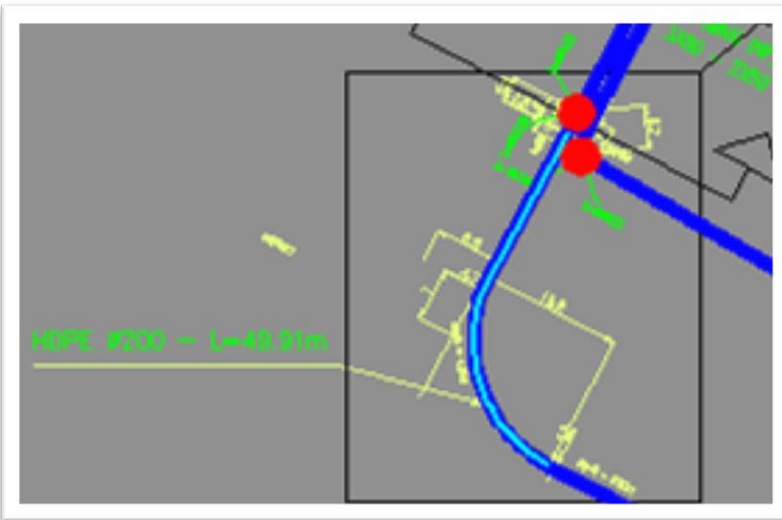
Is the current as-built information correctly geo-referenced?



→ Re-digitise

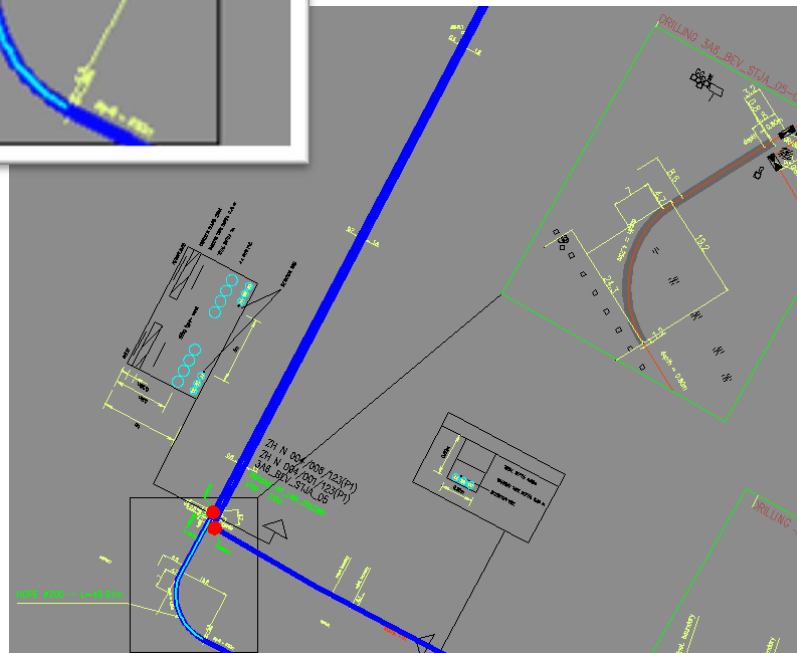
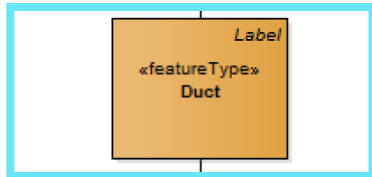
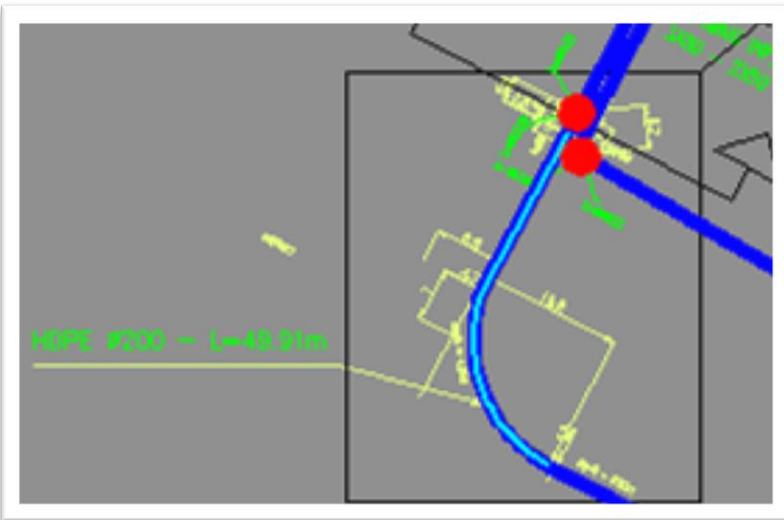
KLIP: CHALLENGE 2: FIT THE MODEL

Are all required elements, properties and relations available?



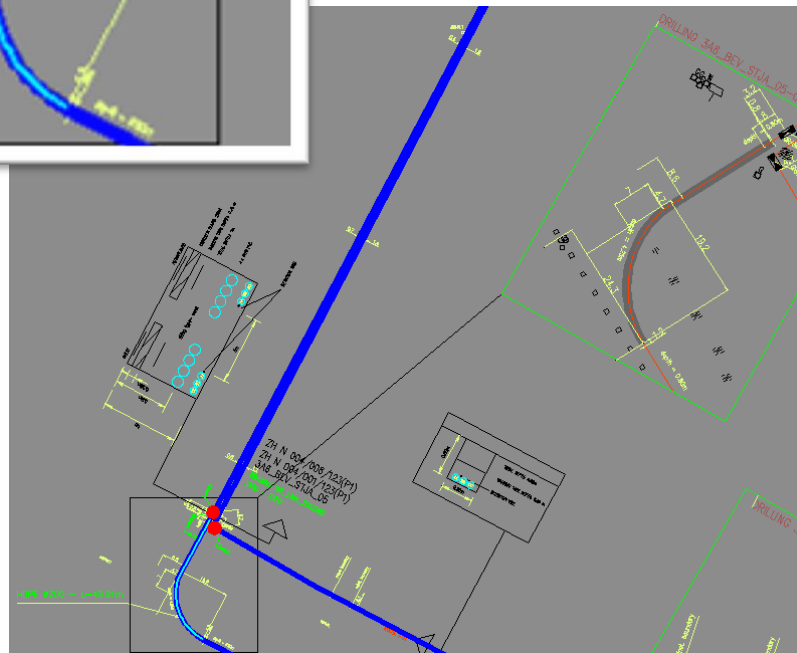
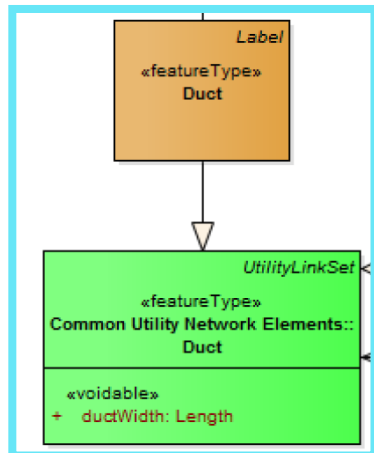
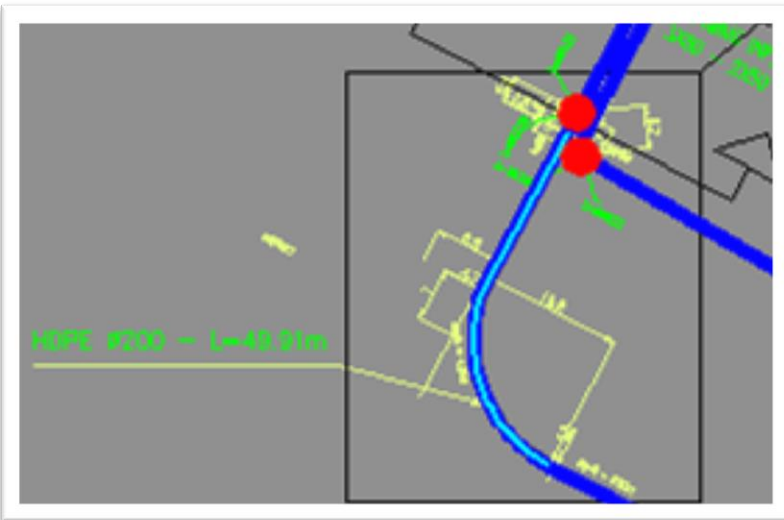
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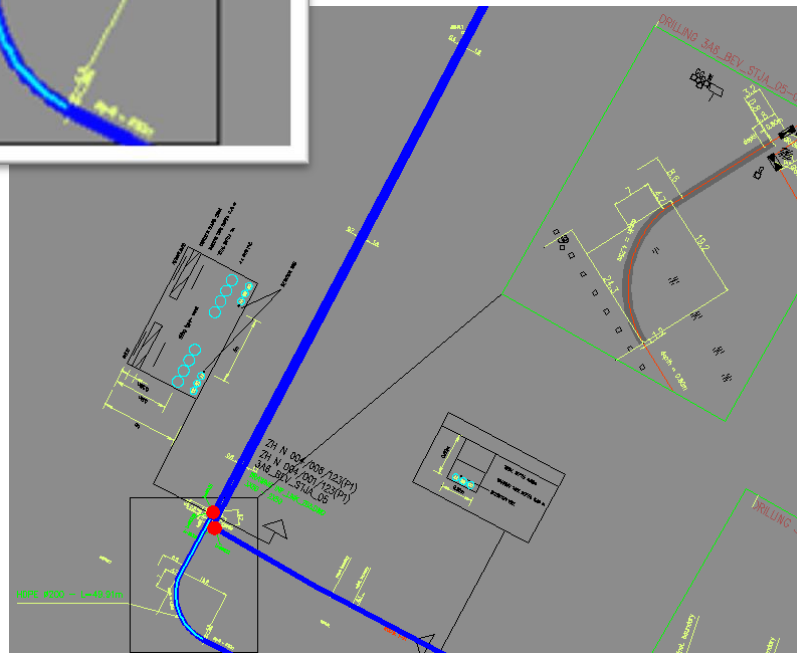
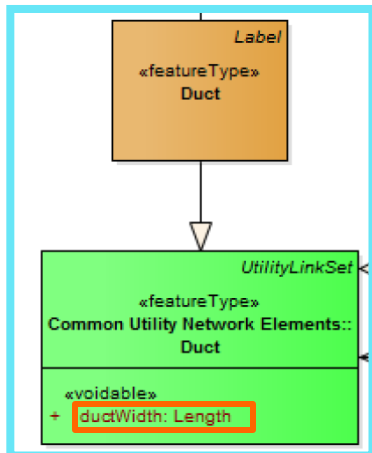
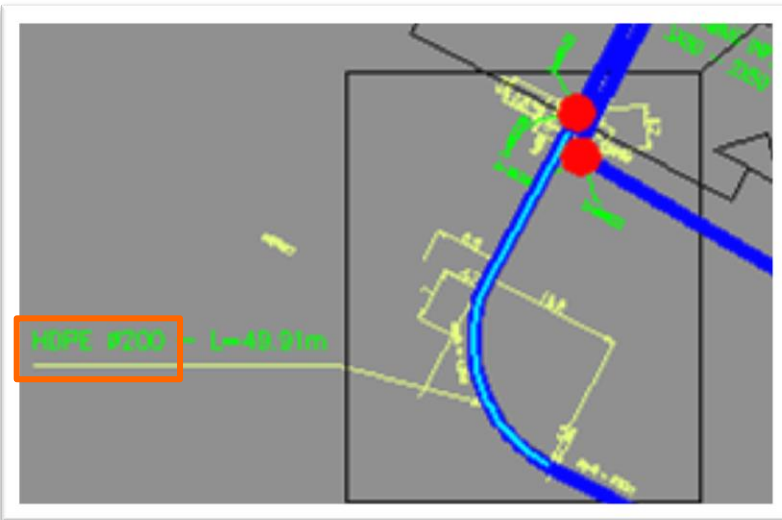
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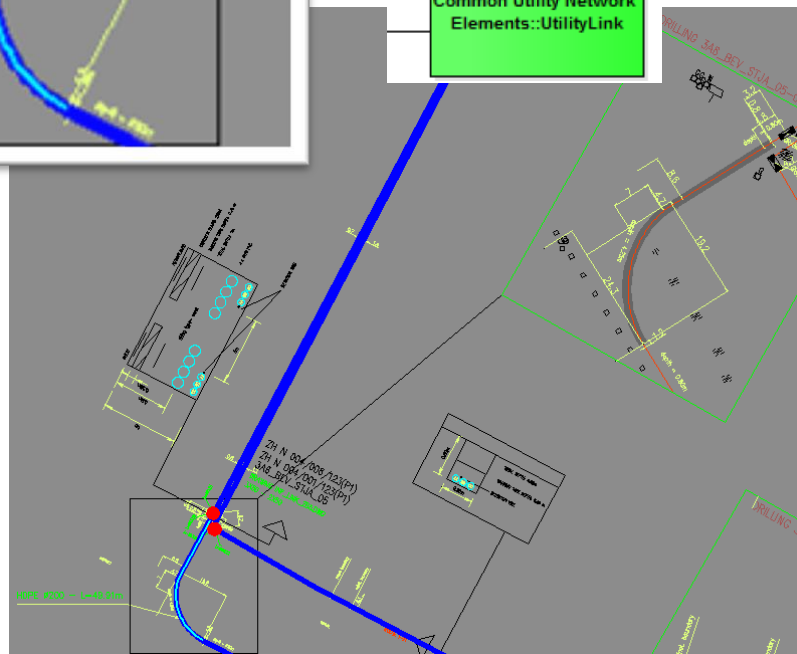
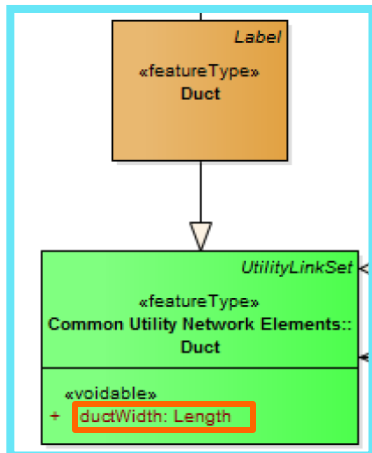
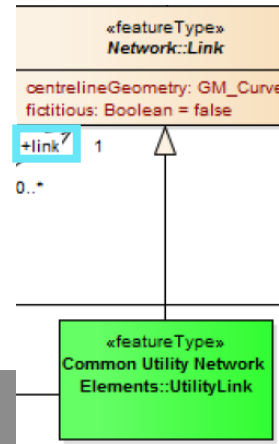
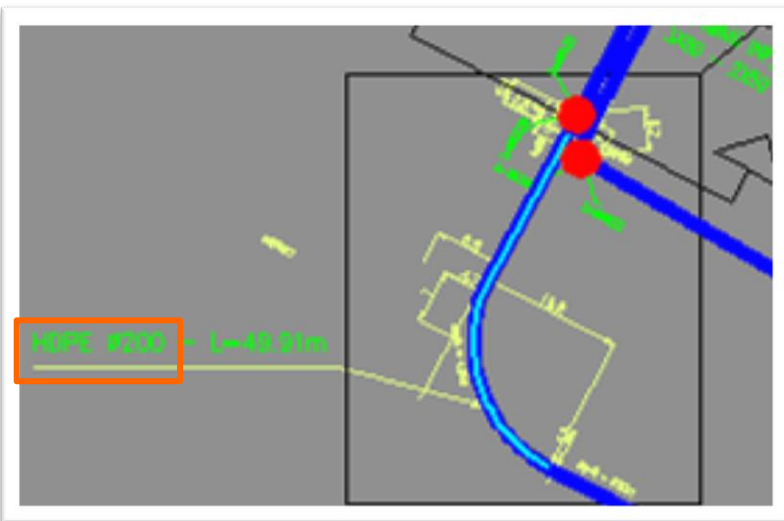
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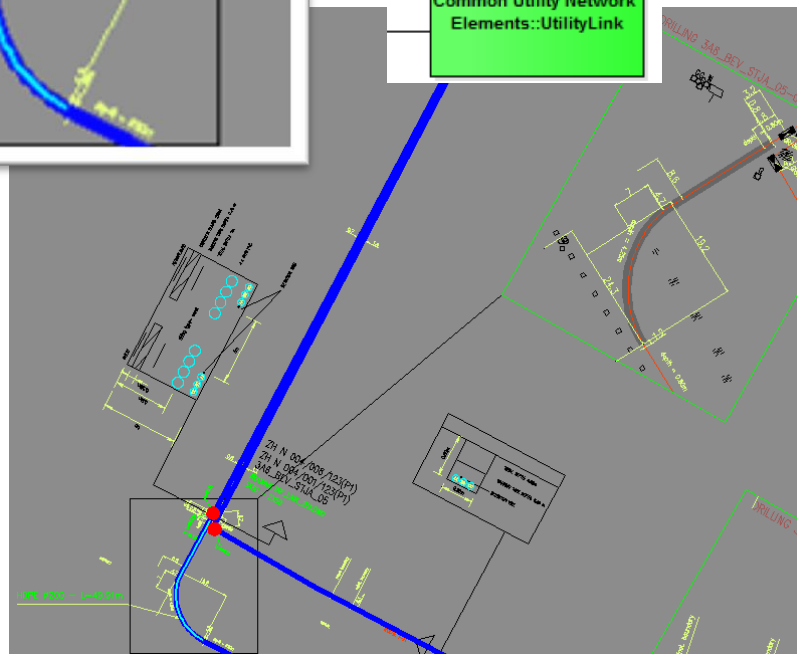
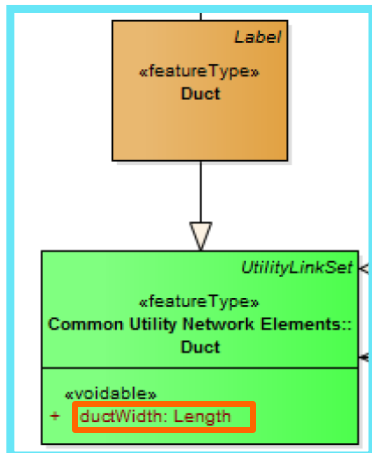
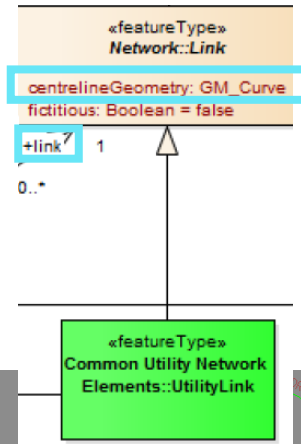
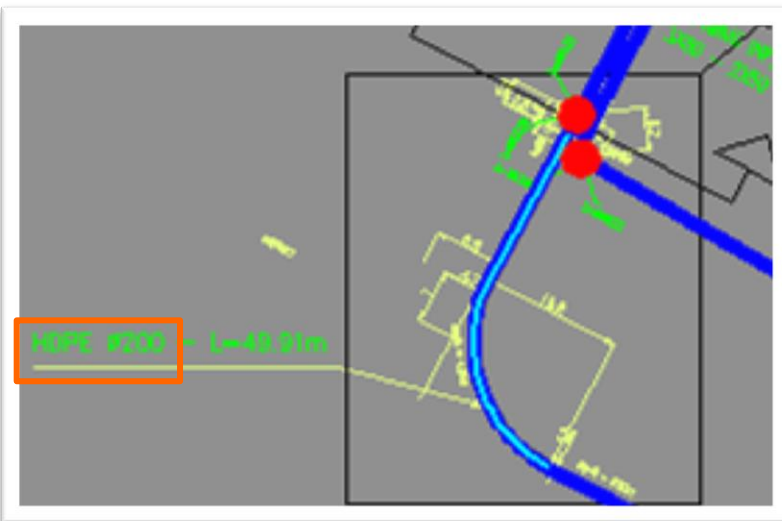
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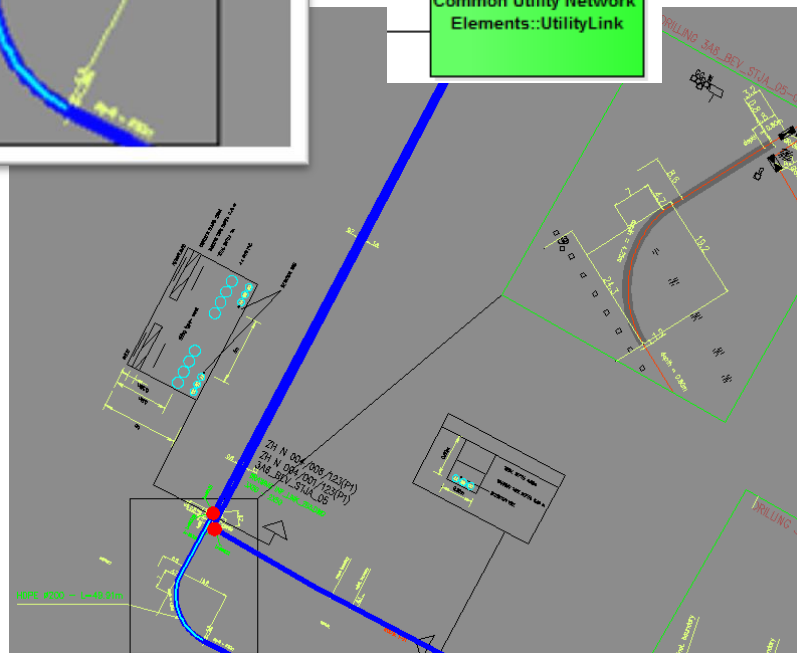
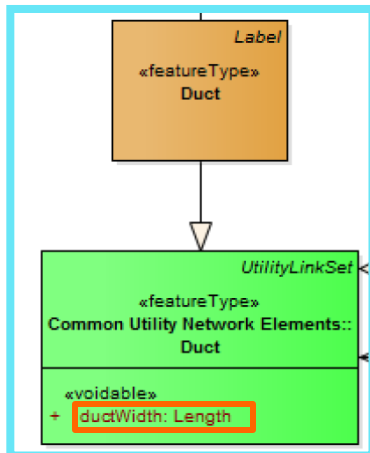
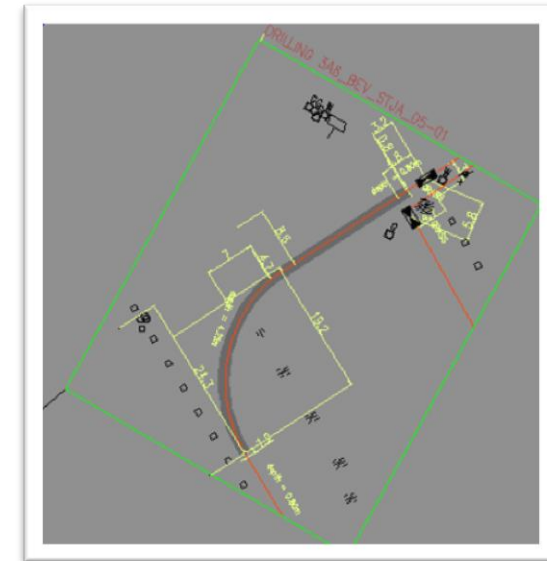
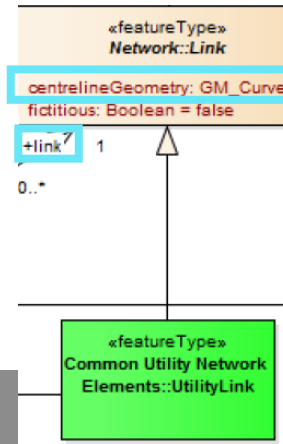
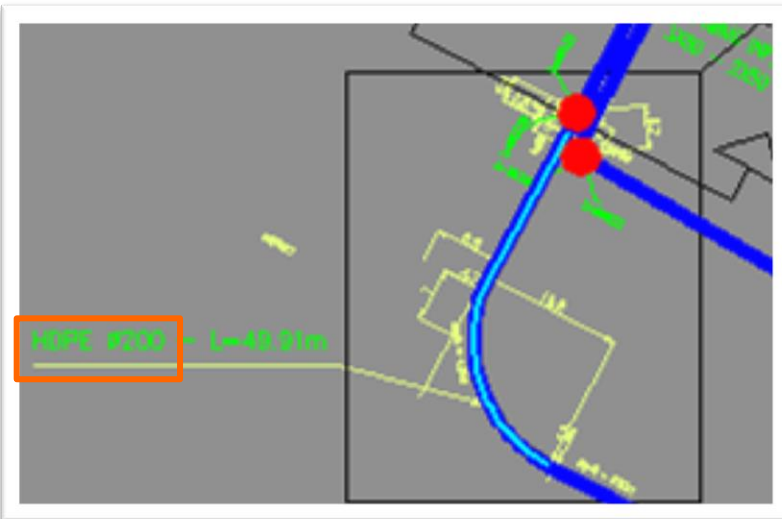
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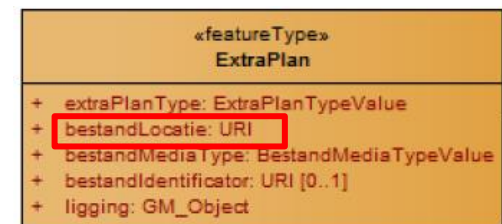
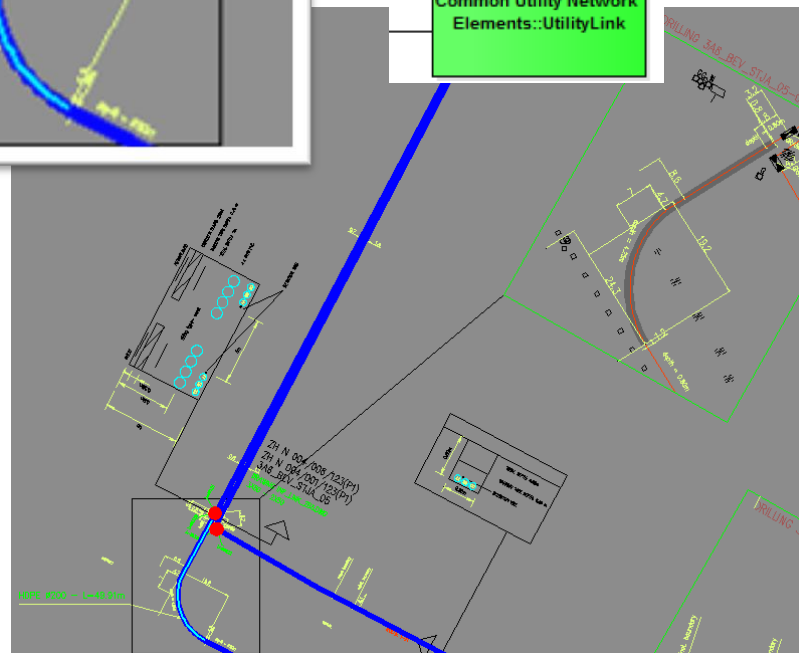
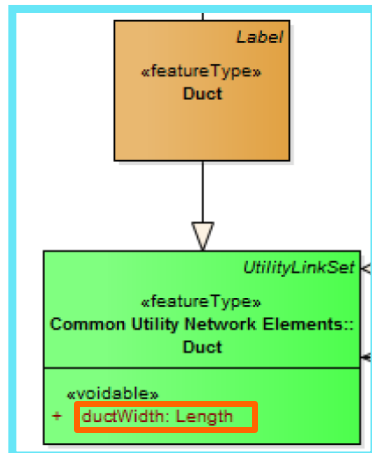
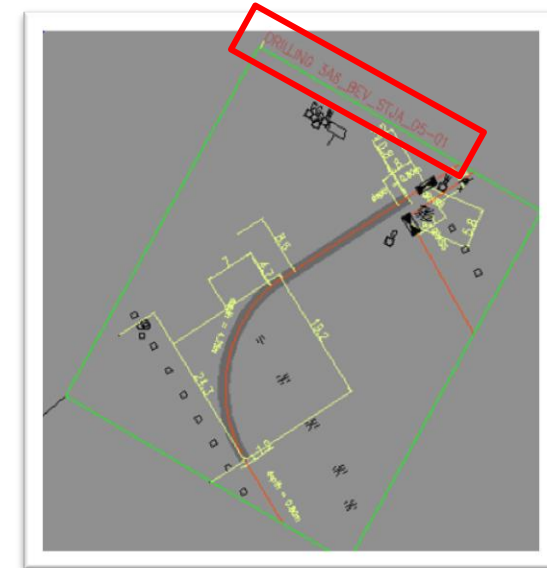
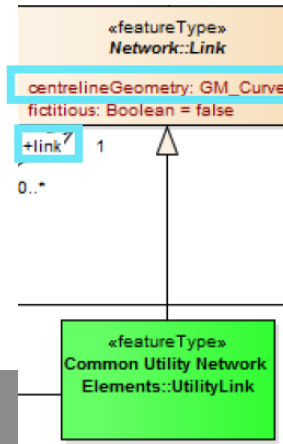
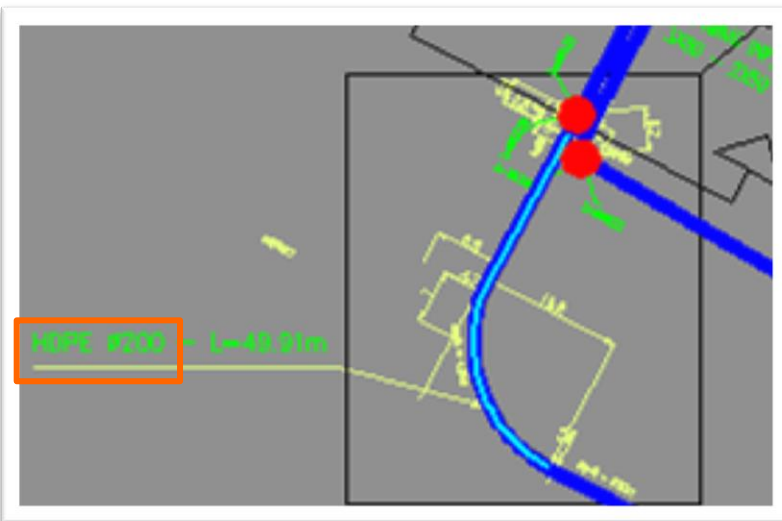
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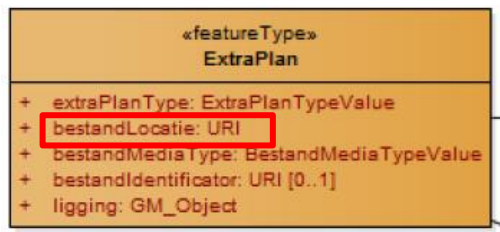
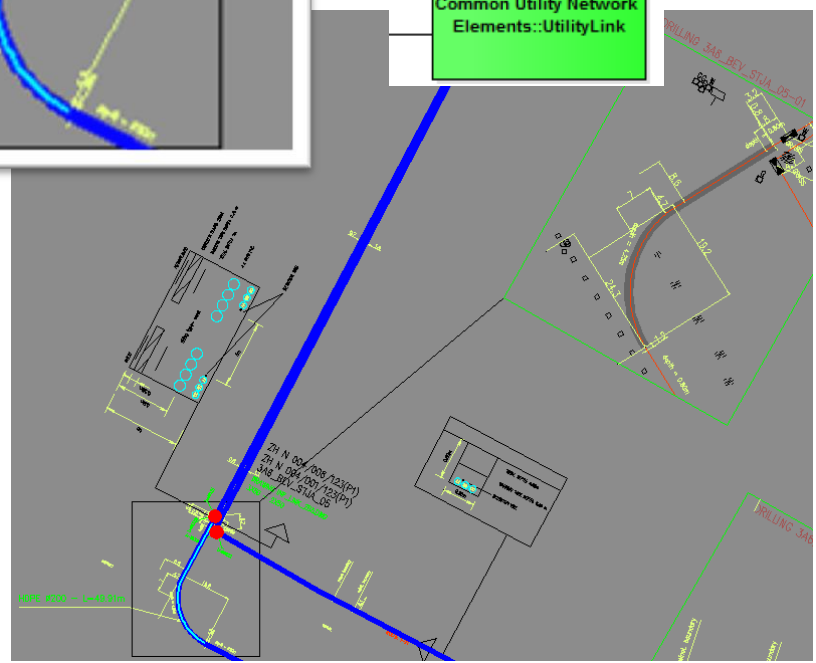
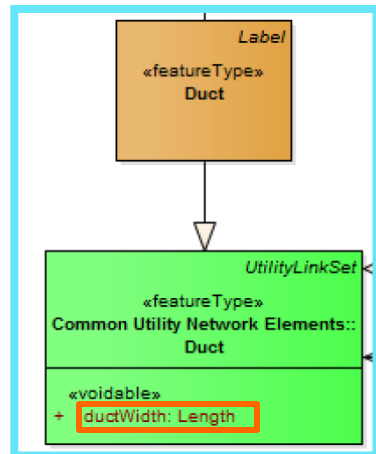
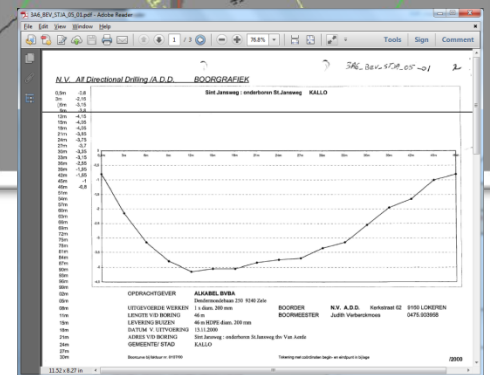
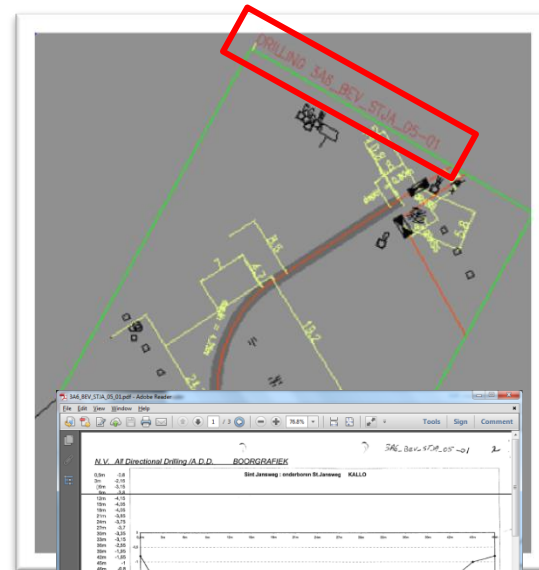
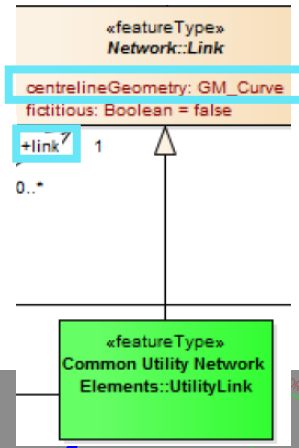
KLIP: CHALLENGE 2: FIT THE MODEL

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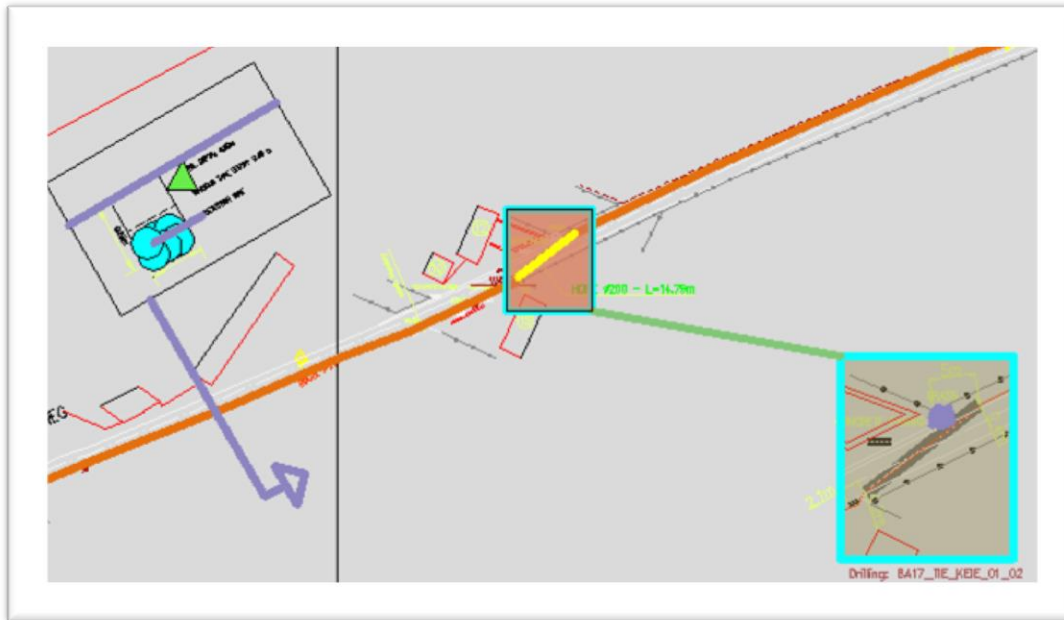
KLIP: CHALLENGE 2: FIT THE MODEL

Are all required elements, properties and relations available?



KLIP: CHALLENGE 3: TRANSFORMABLE

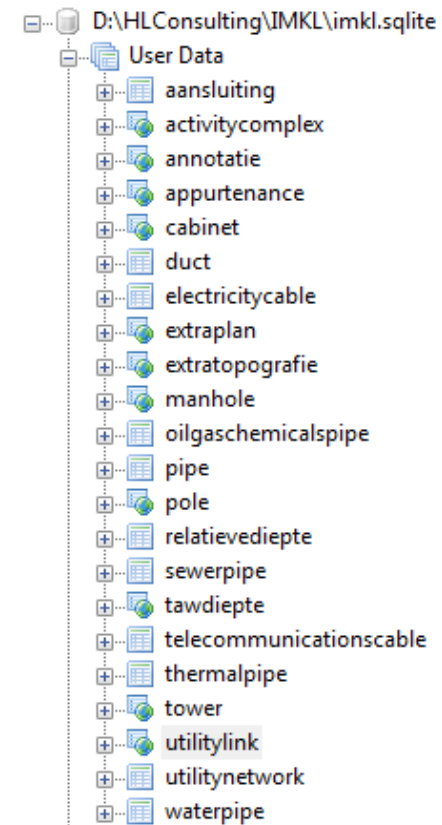
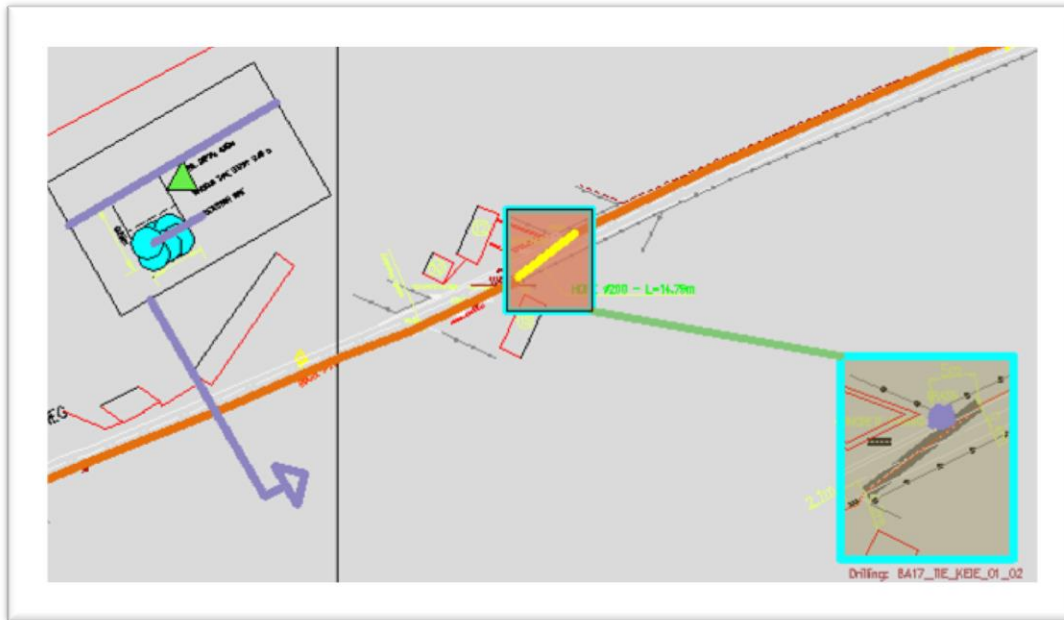
Is all source information normalised, well structured and mappable?



KLIP: CHALLENGE 3: TRANSFORMABLE

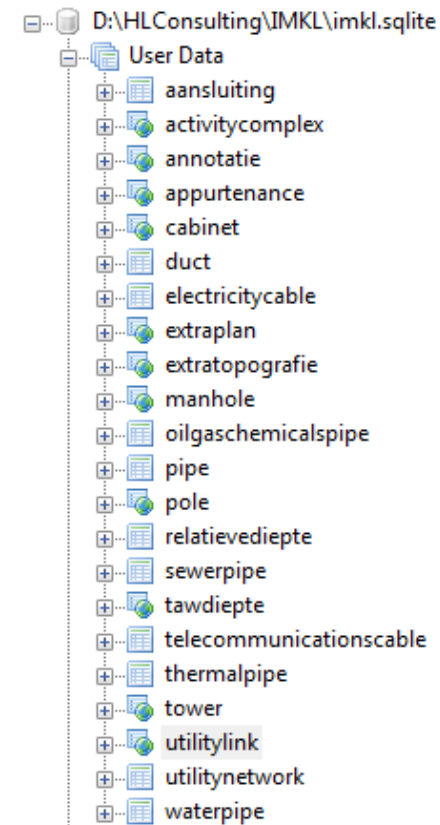
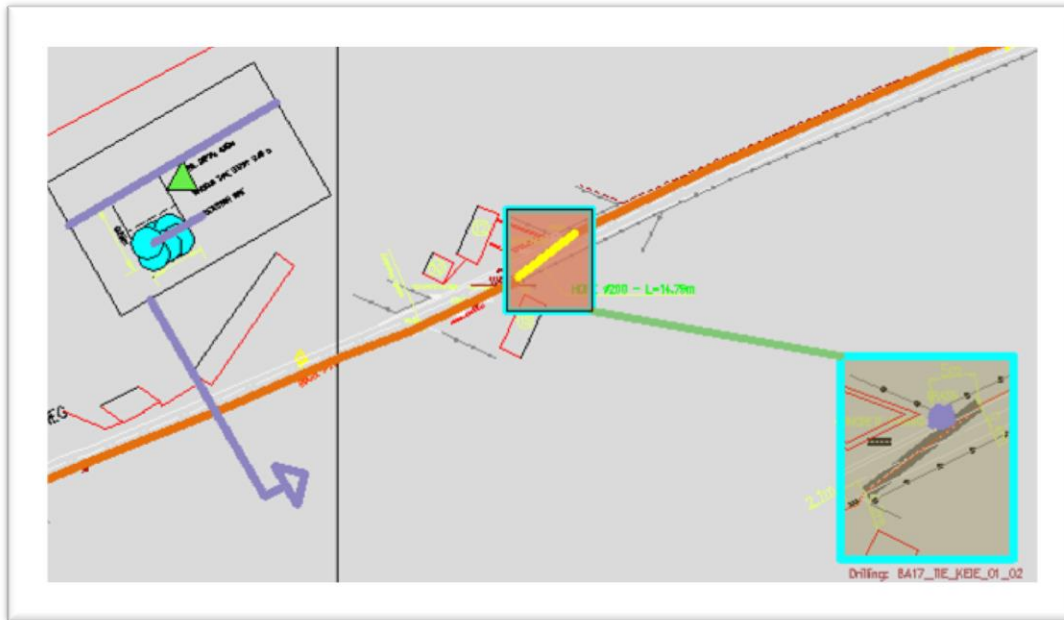
Is all source information normalised, well structured and mappable?

Mappable to what? To the IMKL Model!



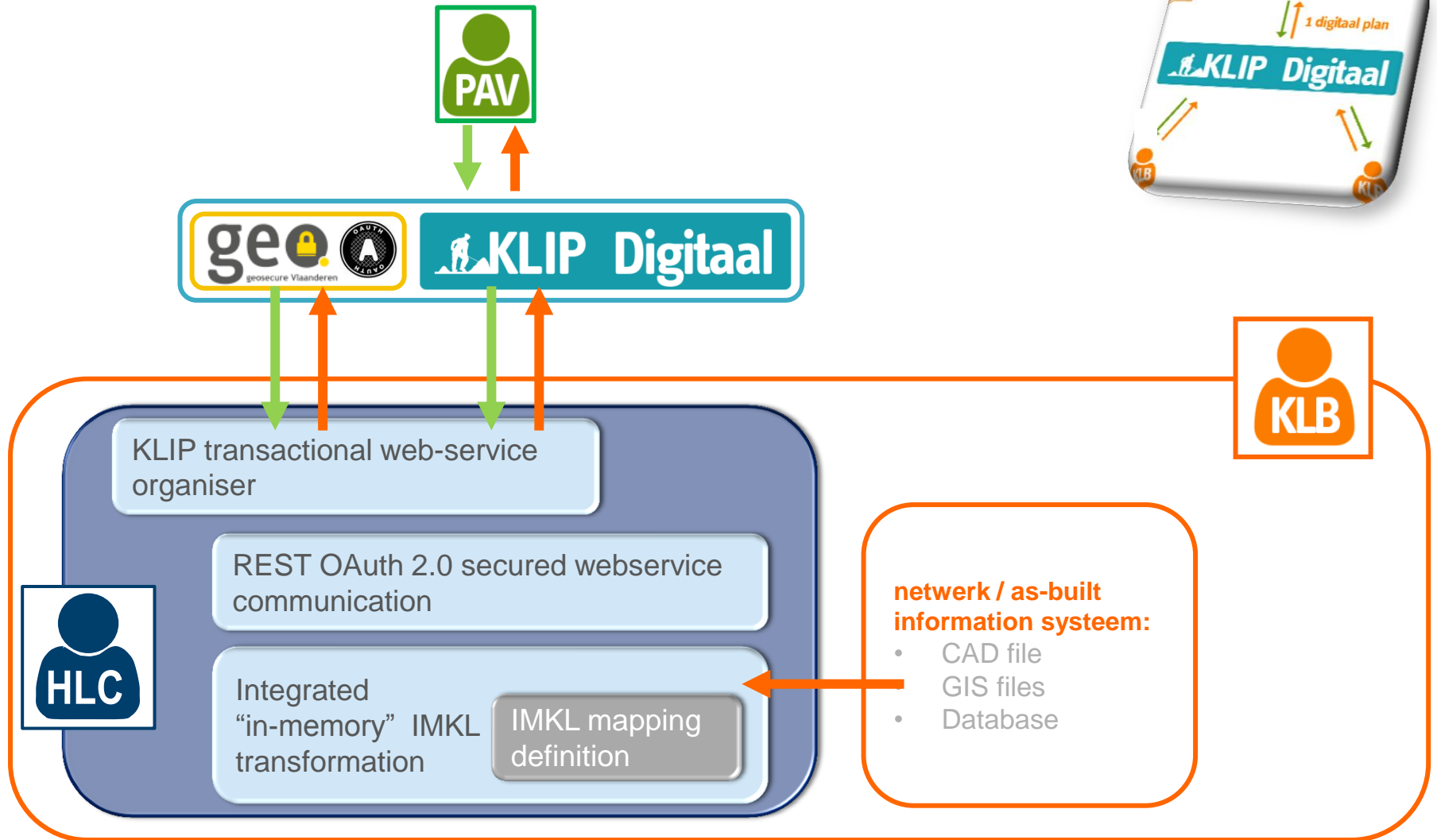
KLIP: CHALLENGE 3: TRANSFORMABLE

Is all source information normalised, well structured and mappable?
Mappable to what? To the IMKL Model!

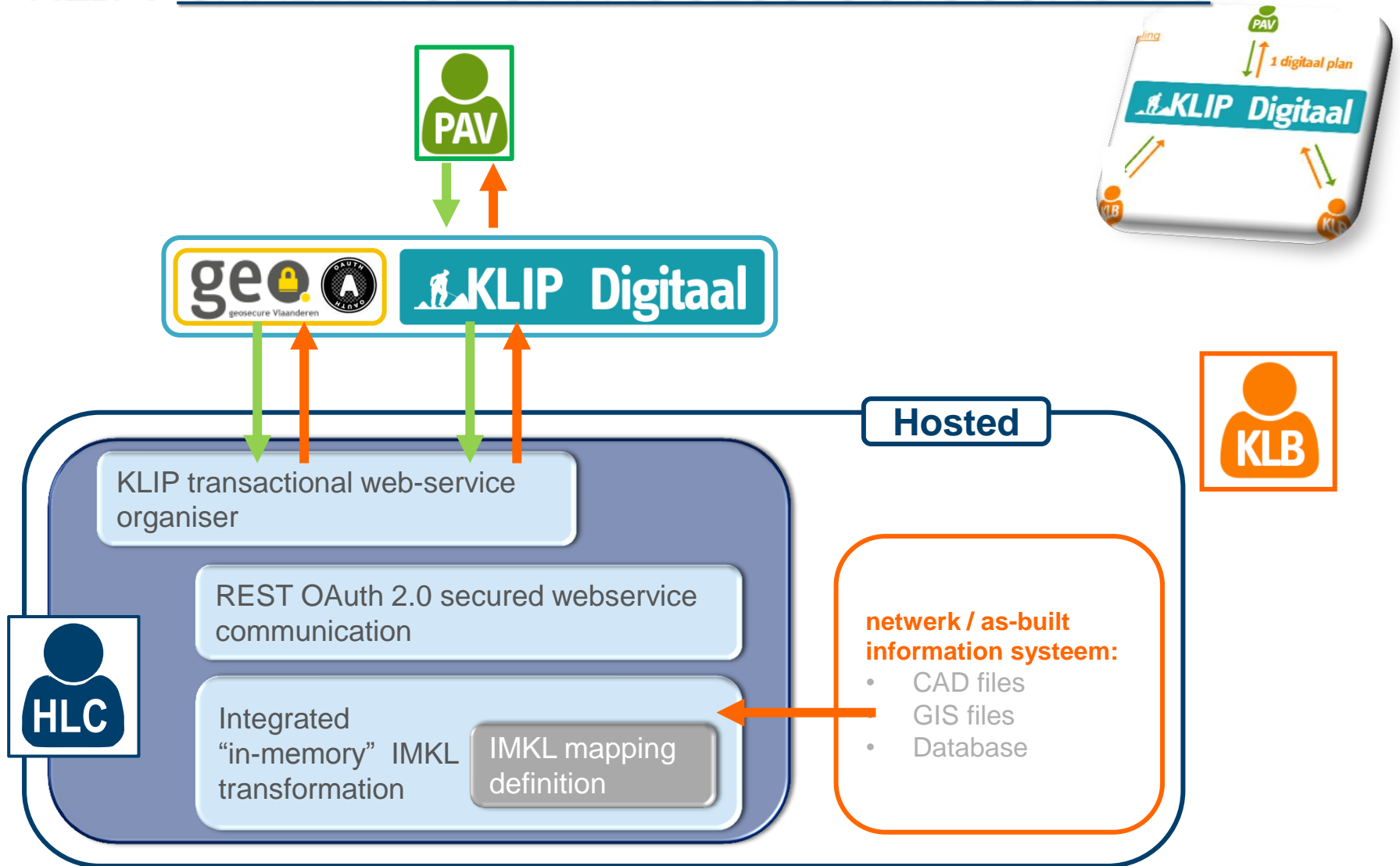


→ Facilitated by a flattened IMKL/INSPIRE Utility model

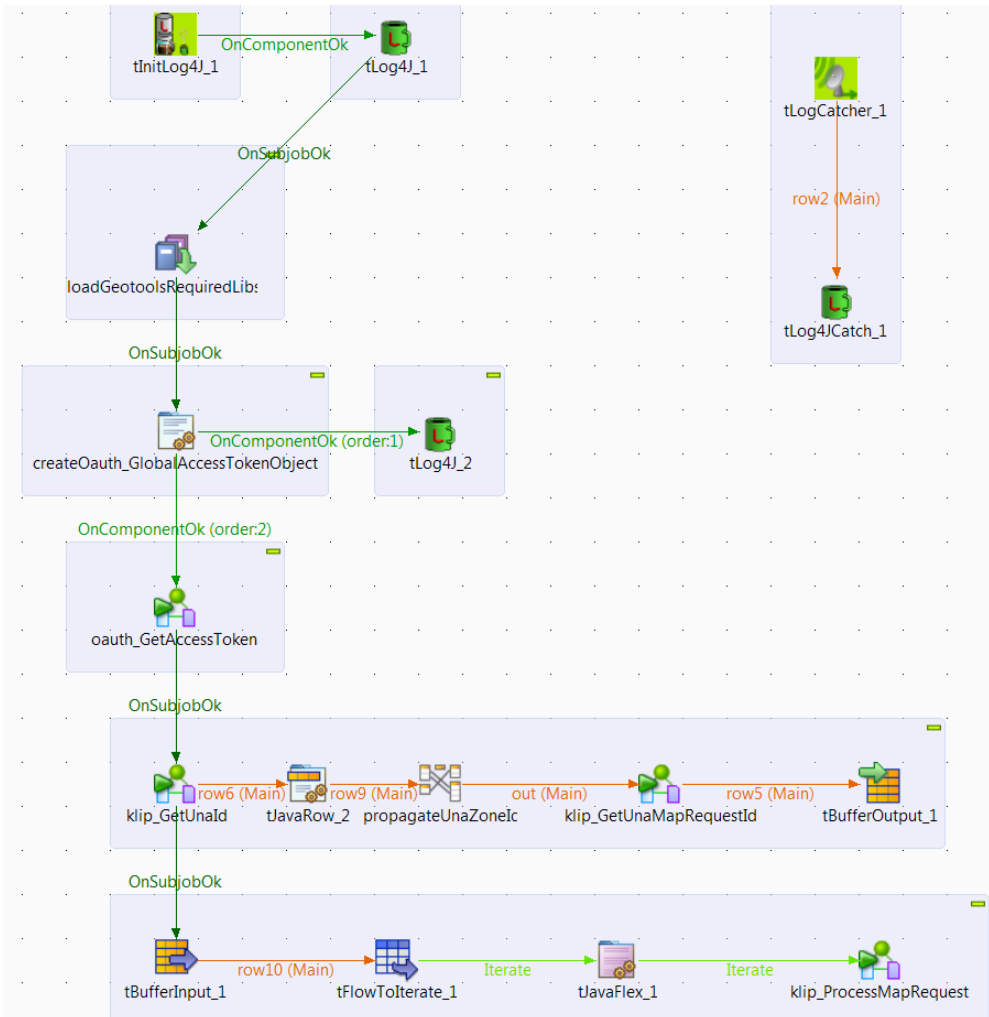
KLIP: CHALLENGE 4: AUTOMISATION?



KLIP: CHALLENGE 5: PROCESS OUTSOURCED?



USE OF OPEN SOURCE



Mainstream IT Open source
Data Integration & ESB platform



Spatial extension for Talend
OPENSOURCE GEOSPATIAL ETL

<https://github.com/talend-spatial>



GDAL/OGR

hale

data
parquet

BENEFITS

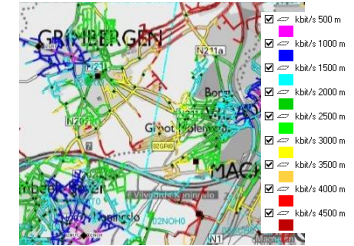
IMKL

- Meeting over all requirements Health & Safety, security, insurance, avoid damages
- Standardised handover information model (depending on project stage)
 - Not only with the platform
 - Plan, Design, Build, Operate fase
 - equally when infrastructure changes (partially) from owner, as-built information can be exchanged in a similar way
 - Sharing network information for specific needs
- Opening up the cad silos
 - Allows easier fulfillment other tasks
 - Facilitate online & real-time access to large scale information
 - Use network information in a geo-referenced context
 - field (using GPS)
- Improve & help asset management
- Opportunity to rethink or re-engineer data maintenance processes
- External Added Value
 - Build & deploy generic toolset

HL CONSULTING

Know-how & experience in GIS domain

- Analyses & geomarketing, commercial & open-source gis
- GIS data modeling, data management & engineering, spatial databases
- Fiber and Network documentation systems



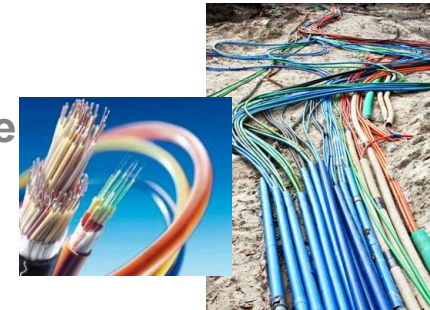
Know-how & experience in as-built management

- Management and standardization of As-Built plans, processes, workflows
- Automatisation “call before you dig” (KLIP & KLIM)



Know-how & experience operational management of infrastructure

- Operational management Fiber optic & transmission networks
- Budget & negotiation contractors, suppliers, implementation
- Project Management Fiber delivery



Know-how & experience INSPIRE specifications

- Different data themes (among Utilities ~ IMKL)
- Involved in the INSPIRE transformation prototype
 - [INSPIRE Schema Transformation Network Service Technical guidance](#)
- Involved in the [ESDIN project](#) (INSPIRE @ National Mapping Agencies)



Know-how & experience on using OGC (standards)

- Individual Member Open Geospatial Consortium (<http://www.opengeospatial.org/ogc/members>)



CONTACT

HLCONSULTING

Luc Van Linden
Managing Consultant

M: + 32 (0)486 50 75 78
luc.vanlinden@hlconsulting.be

Georges Lobertstraat 59
9700 Oudenaarde
Belgium
Tel: +32 (0)55 21 03 60