# Response to RFI ‘underground maps and models‘

<http://www.opengeospatial.org/standards/requests/155>

Robin Dainton, 12.3.17

**Introduction**

I am responding to this RFI to ensure the experience of the Swiss is not overlooked. I have over 20 years experience as a wastewater engineer, 7 of which in Switzerland and have good experience and contacts in the industry here. Feel free to ask for further information, experience/opinion (independent and unbiased), contacts, summary translations if required. Hopefully you have been contacted already by Swiss institutions.

1. **Description of responding organization**
* Private individual, Bachelor in Civil Engineering (UK).
* Master in Geomatics student part time (CH).
* Employed as project manager for civil engineering consultancy in Switzerland.
* English mother-tongue.
* Experience in implementation and use of Swiss national underground infrastructure geo-models.
1. **Use cases for underground mapping and modeling**
* Modeling of public and private underground services.
	+ Water, Wastewater, Gas, Electric, Telecom., heating.
* Establishing rules for minimum information requirements in data.
* Testing that data accords with minimum requirements.
* Exchange of data between service owner and authorities, engineers, other infrastructure owners, public.
* Consistent display of different services.
1. **Architectures, standards and technologies**
* The Swiss use a national standardized Interlis language for modeling and data transfer (<http://www.interlis.ch/index_e.htm>).
* The Swiss Society of Engineers and Architects (SIA) (<http://www.sia.ch/en/the-sia/>) use Interlis in their standard specifications for modeling, exchange and display of underground service data – titles roughly translated form german (<http://www.sia.ch/de/dienstleistungen/sia-norm/geodaten/>):
	+ SIA 405 - Geodata for Underground Services
	+ SIA 2015 – Objects and Display Catalog for Underground Services
	+ SIA 2016 – Data-models for Underground Services
	+ SIA 2045 – Geo Services (standardizes WMS and WFS use)
* The Swiss (waste) Water Association <https://www.vsa.ch/en/news/> have extended the wastewater model considerably to form the VSA-DSS (<https://www.vsa.ch/fachbereiche-cc/siedlungsentwaesserung/vsa-dss/>) which covers information for planning, inspection, simulation results, associated eater bodies, potential pollution sources etc…
* This is supported by legislation at federal and local levels forcing standardized modeling of data and exchange.
	+ <https://www.admin.ch/opc/en/classified-compilation/20050726/index.html>
	+ <https://geoinformation.tg.ch/kataster/leitungskataster.html/1888> (regional example)
1. **Implementation**
* Different models have been in use since 1998. Water and wastewater tends to be supplied by small local authorities, therefore sees higher level of use than other models.
	+ Due to relatively new regional laws for exchange of all underground service data, other undertakers are modifying their systems to ensure compliance.
* Import, Modeling and Export of data in these formats is well supported by the main GIS software providers.
* Different Cantons are providing legislation for standardized exchange at different speeds.