

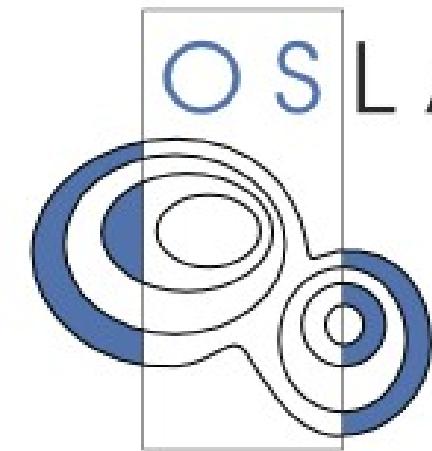
SIG métier OpenSource

pour la

Distribution d'eau

**Vincent Picavet
Oslandia**





**SIG OpenSource
depuis 2009**

**Conseil, audit, développement, formation,
assistance, support...**

**Environnement, transport, eau, énergie,
smartcity, logistique, geomarketing...**

**PostGIS, QGIS, MapServer, Mapnik, Routing,
calculs, simulation...**

www.oslandia.com

PLAN



Contexte

Besoin

Données

SIG

Terrain

- Matériel
- Logiciel

Versionnement

Simulation

Web

Futur



CONTEXTE



Valcea County, Roumanie

300 000 hab

Projet Européen Rénovation des réseaux d'eau

Remise à niveau du SIG

29

stations de captation

19

stations d'épuration

1000km distribution

350km assainissement



Ressources :

Fonds européens ponctuels

50K€ de prestations

1 ETP en interne

→ **Gestion**

→ **Développements**

4 techniciens SIG

→ **Relevés**

→ **Cartographie**

BESOIN



**Modèle métier
SIG bureautique
Données centralisées
Levés terrain
Gestion de versions et hors-ligne
Couplage simulation
Rendus carte + web**

Matériel + logiciel + expertise

DONNÉES



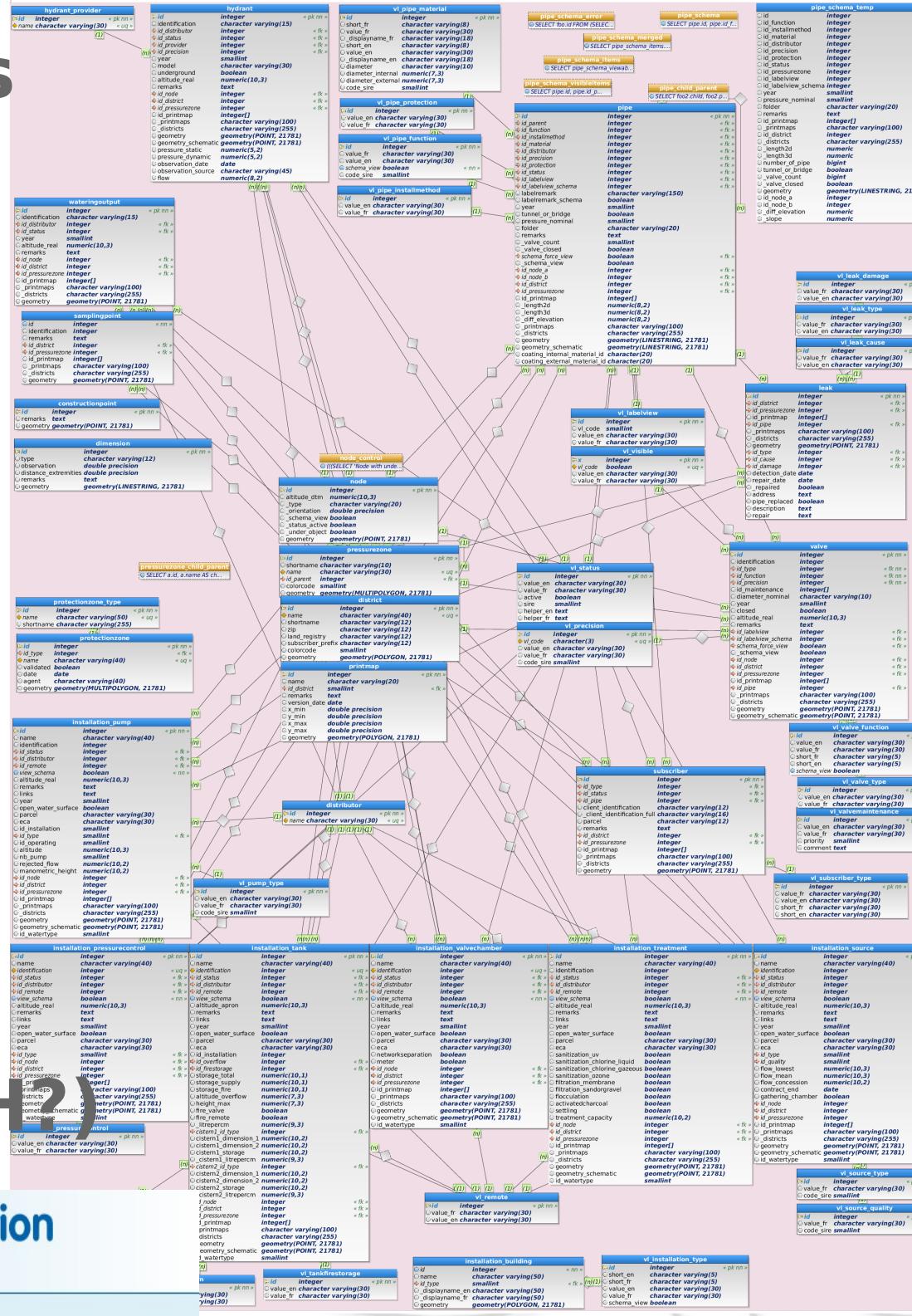
Modèle de données

- Distribution
 - Assainissement

Distribution : modèle du SIGE **Projet qWat**

Noeuds, pompes, valves, fuites, tuyaux, stations, zones de pression, réservoirs...

Assainissement : en cours (norme CEN)



SIG



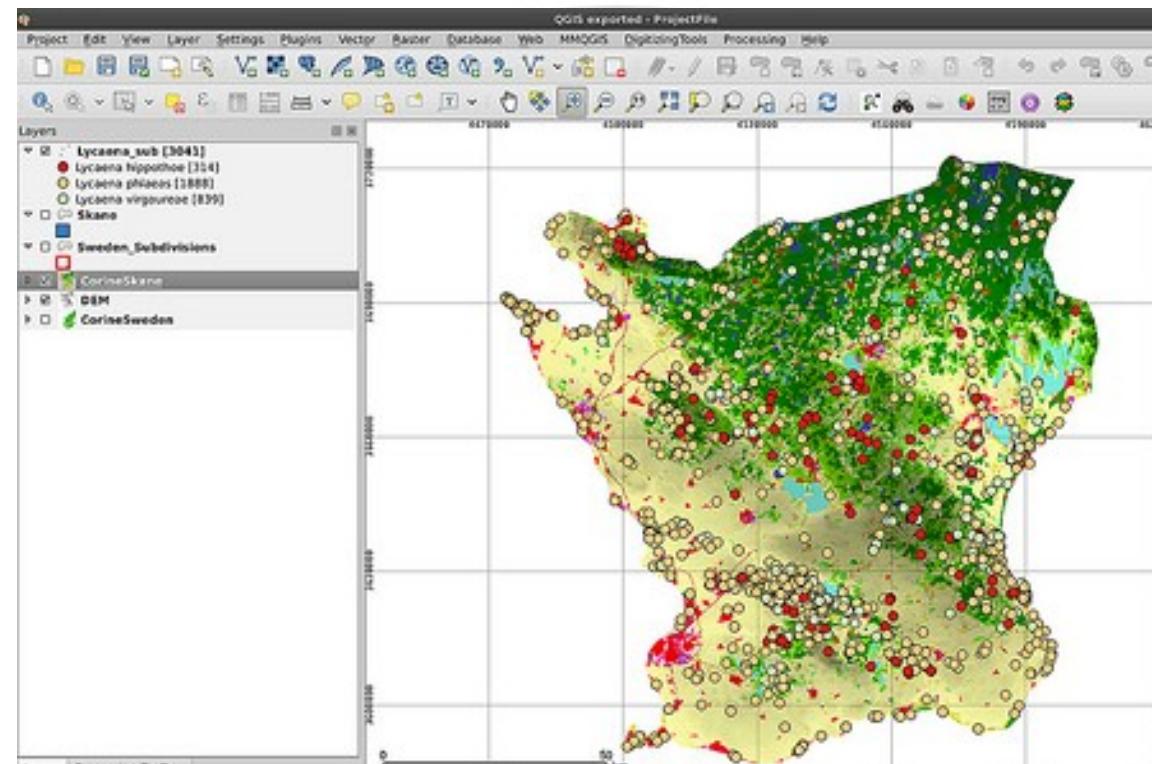


SIG Bureautique : QGIS

Développement des projets

- Objets
- Symbologie
- Compositions
- Formulaires

Formation aux extensions

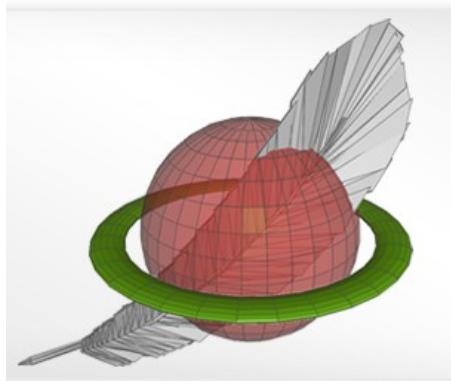




Référentiel de données : PostGIS

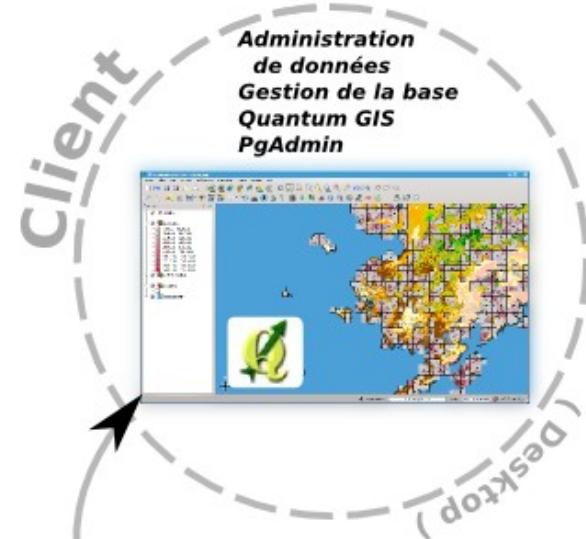
- Version 9.3
- Modélisation
- Formation

Embarqué : SpatiaLite



PC

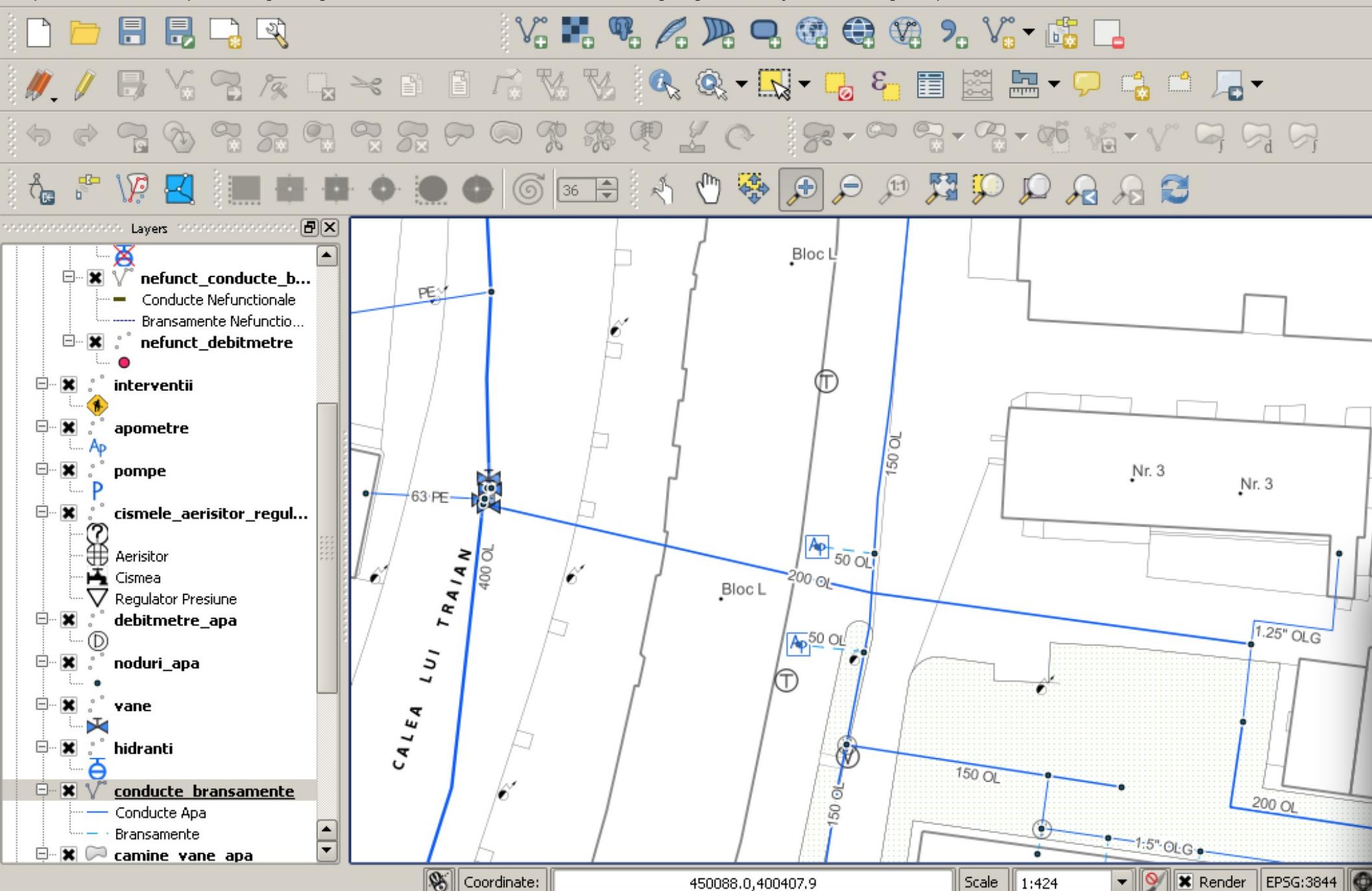
QGIS



ROAM



Synchronisation
Versionnement





Conductă/Branșament

Generalități Hidraulică Geometrie Randare

ID 10780

Distribuitor APAVIL

Dosar tehnic

Anul

Subtraversare sau Supratraversare

Funcția Conductă de distribuție

Stare Funcțional

Material OL 150

Metodă instalare Îngropare

Protectie

Îngropare

Aer liber

Sub Pod

Protejată

Betonată

Galerie

Necunoscut

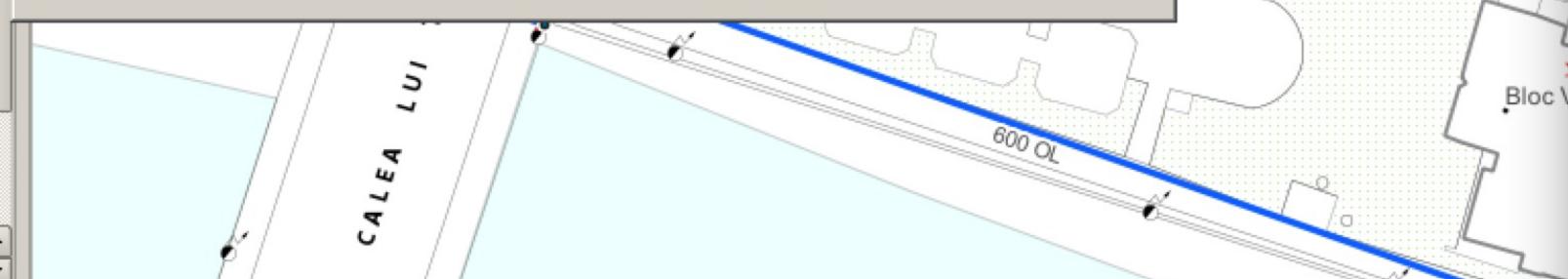
NULL

OK

Cancel

Layers

- intervenții
- apometre
- pompe
- cismele_aerisitor_regul...
- Aerisitor
- Cismea
- Regular Presiune
- debitmetre_apă
- noduri_apă
- vane
- hidranti
- conducțe_branșamente**
 - Conducțe Apă
 - Branșamente
- camine_vane_apă
- camine_apometre
- statii_pompare_apă



Conductă/Branșament

Generalități Hidraulică Geometrie Randare

ID (n. od_pipe_id_seq'::regclass)	Funcția (no selection)
Distribuitor APAVIL	Stare Funcțional
Dosar tehnic NULL	Material Nec
Anul	Metodă instalare Îngropare
Subtraversare sau Supratraversare	qqgis-bin
Tipul apei nu este ales!	
<input type="button" value="OK"/>	
NULL	

Conductă/Branșament

Generalități Hidraulică Geometrie Randare

Lungime 2D 255.49	Hărți print NULL
Lungime 3D	District
Dif. altitudine	Zonă pres. (no selection)
<input type="checkbox"/> Actualizează	Nod A 20000
Precizie Necunoscută	Nod B 20001
NULL	

Conductă/Branșament

Generalități Hidraulică Geometrie Randare

Tip apă (no selection)	Vane
Presiune	Număr
<input type="checkbox"/> Închisă	
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	
NULL	

OS LANDIA

TERRAIN - MATÉRIEL



Tablette



PANASONIC FZ-G1

**Windows 8
(ou 7, ouf)**
64b, 4GB RAM
128GB SSD
WIFI, Bluetooth
3G/4G
10" HD
tactile + stylet
Résistant



TERRAIN - LOGICIEL





Support trames GPS NMEA
Objets métier
Saisie géométries
Notes
Caméra
Ergonomie (touch / stylet)
OpenSource
Configurable
Traduction
« Compatible QGIS »

« ROAM »

**Application spécifique
Motorisé par QGIS**
Même projets
Même rendu
Vecteur / Raster
En ligne / hors ligne
Données SpatiaLite ou autres
Interface de gestion de projets

IntraMaps Roam: Mobile Data Collection

The map displays a street network with buildings labeled with numbers such as Nr. 1, Nr. 2, Nr. 4, Nr. 5, Nr. 6, Nr. 8, Nr. 10, Nr. 10A-Nr. 12, Nr. 11, Nr. 11A, Nr. 12A, Nr. 14, Nr. 16, Nr. 55, and Nr. 57. Several yellow lines represent sewer pipe segments, each marked with a circular icon containing 'CM'. One segment is labeled '250 PVC STR. VEGA' and another is labeled 'STR. STRAUBING'. Other segments are labeled '300 PVC' and '315 PVC'. A green circle with a plus sign and the word 'Cam' is located in the top right corner of the map area.

Map Center: 451919.853868, 400844.518249

Project: Canalizare Valcea User: Tableta.04

Map View

Home View

Aerial Photo

Pan

Zoom In

Zoom Out

Select

Cam

Capture

Capture at GPS

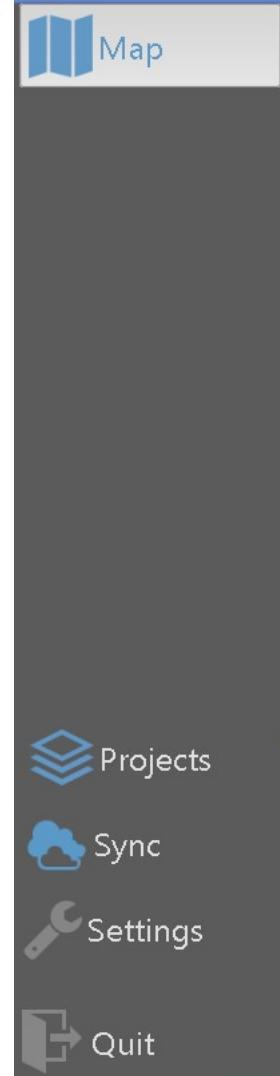
Projects

Sync

Settings

Quit

IntraMaps Roam: Mobile Data Collection



Home View Aerial Photo Pan Zoom In Zoom Out Select Cam Capture Capture at GPS

1 of 1

conducte_canal (Conducte Canal)

Id	1092
Tip Conducta	Menajera
Material	PVC
Diametru	300
Stare Functională	Functional
Strada	STR. STRAUBING
Forma Conductă	Circular
An Execuție	2010
Descriere	NULL
Ult Editor	postgres
Ult Data	2014-03-11 09:44:00
Ar lesire	266
Ar Intrare	285

Project: Canalizare Valcea User: Tableta.04

Map Center: 451909.701333, 400848.282672

Nr. 5

250 PVC C160

STR. VEGA

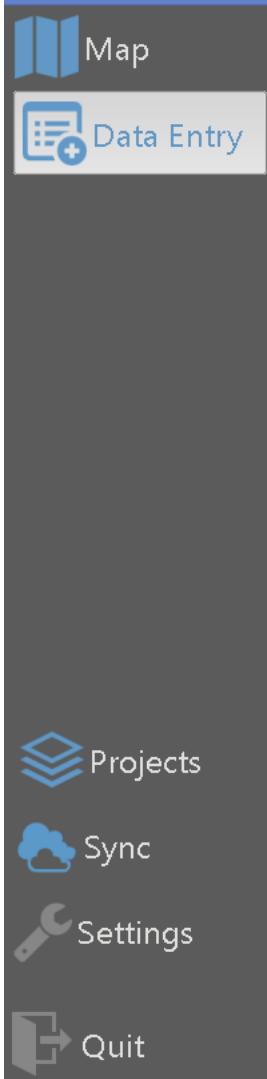
300 PVC

STR. STRAUBING

Nr. 6

Nr. 8

Nr. 12A



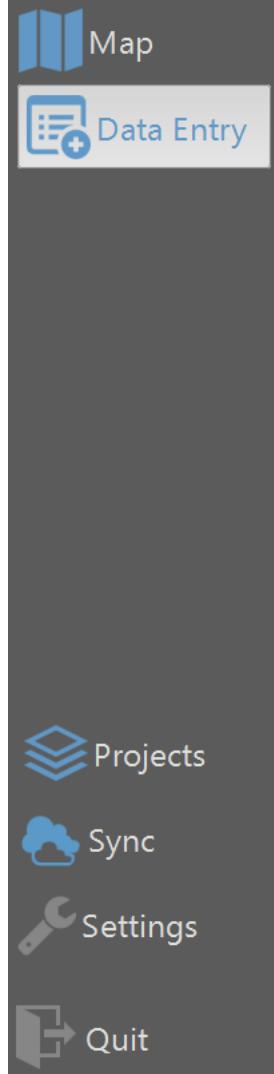
Delete



Cancel

Save

Diametru	<input type="text" value="300"/>
Material	<input type="text" value="PVC"/>
Stare Funcțională	<input type="text" value="Functional"/>
Forma Conductă	<input type="text" value="Circular"/>
AR intrare	<input type="text" value="285"/>
AR ieșire	<input type="text" value="266"/>
Descriere	<input type="text"/>

ID Conducta Stare Functie Precizie Precizie alti Tip Observatii

Precizie alti

Imprecisa

Mai buna de 100 cm

Mai buna de 50 cm

Mai buna de 10 cm

Mai buna de 5 cm

Necunoscuta



Cancel



Save

IntraMaps Roam: Mobile Data Collection

Map

Data Entry

Cancel

Save

Functie: Conducta de distributie

Metoda de instalare: Ingropare

Material/Dimensiuni: Polietilena 80

Distribuitor: APAVIL

Precizie: Precisa

Stare: Functional

Tip apa: Potabila

Remark:

Projects

Sync

Settings

Quit

Project

1 q 2 w 3 e 4 r 5 t 6 y 7 u 8 i 9 o 0 p

a s d f g h j k l ; Enter

↑ z x c v b n m , . ? ↑

&123 Ctrl ☺ < > ☰

2:26 PM
4/8/2014

IntraMaps Roam: Mobile Data Collection

Map Home View Aerial Photo Pan Zoom In Zoom Out Select Cam▼ Capture Capture at GPS

camine_canal (Camin Canal)

conduite_canal (Conduite Canal)

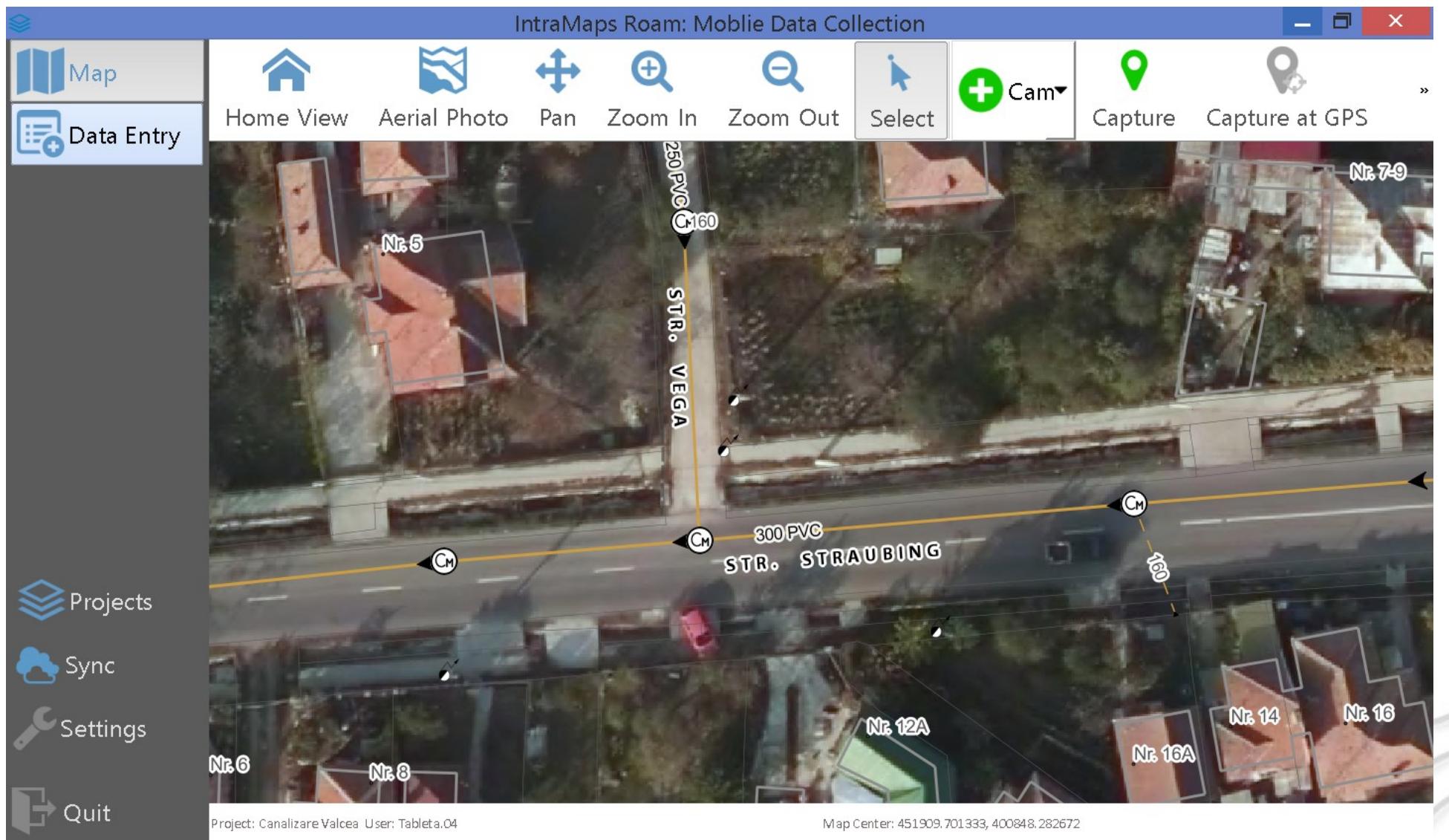
Id	1091
Tip Conducta	Menajera
Material	PVC
Diametru	300
Stare Functională	Functional
Strada	STR. STRAUBING
Forma Conductă	Circular
An Execuție	2010
Descriere	NULL
Ult Editor	postgres
Ult Data	2014-03-11 09:44:00
Ar lesire	285
Ar Intrare	281

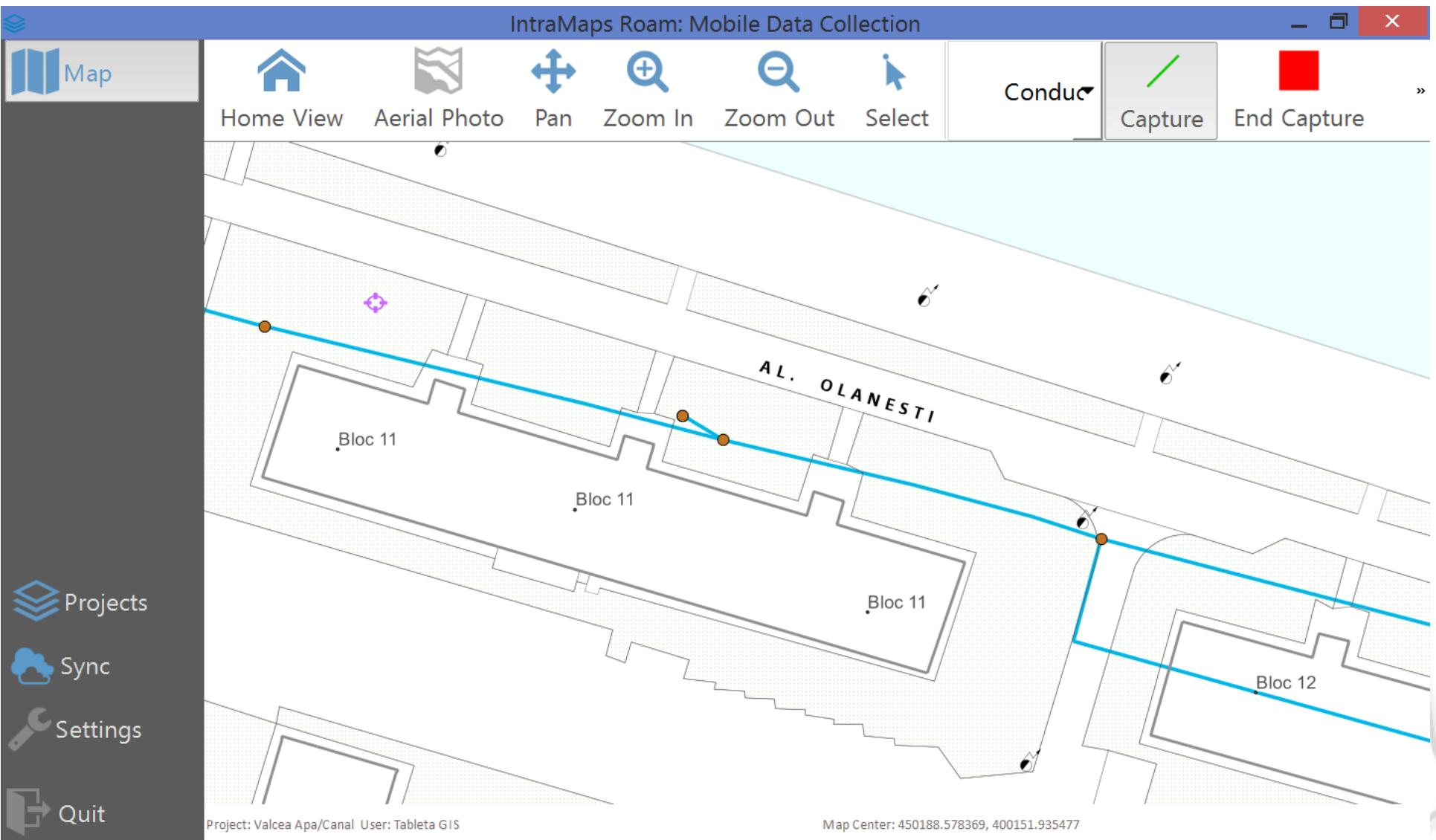
1 of 3

Projects Sync Settings Quit

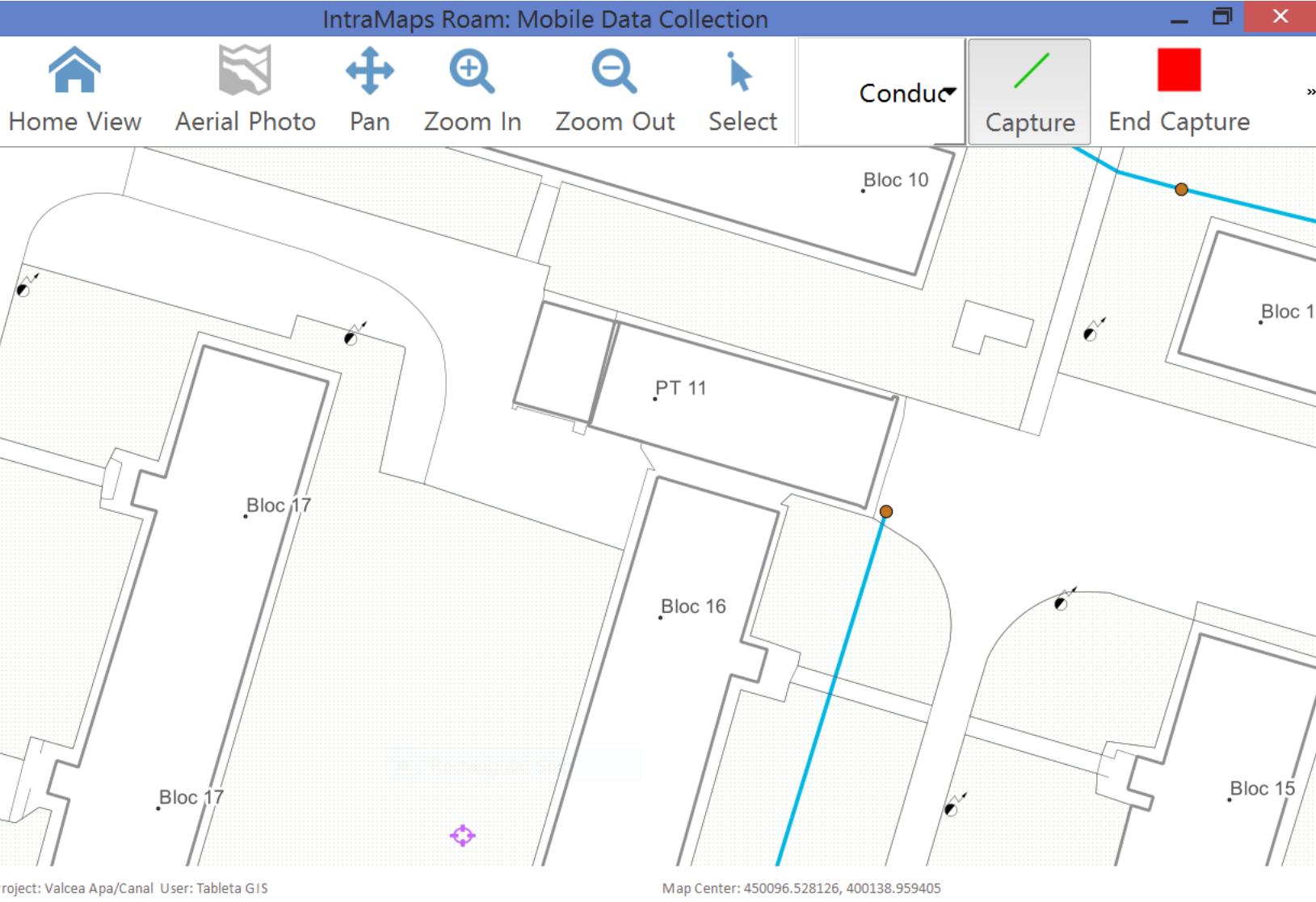
Project: Canalizare Valcea User: Tableta.04

Map Center: 451909.701333, 400848.282672



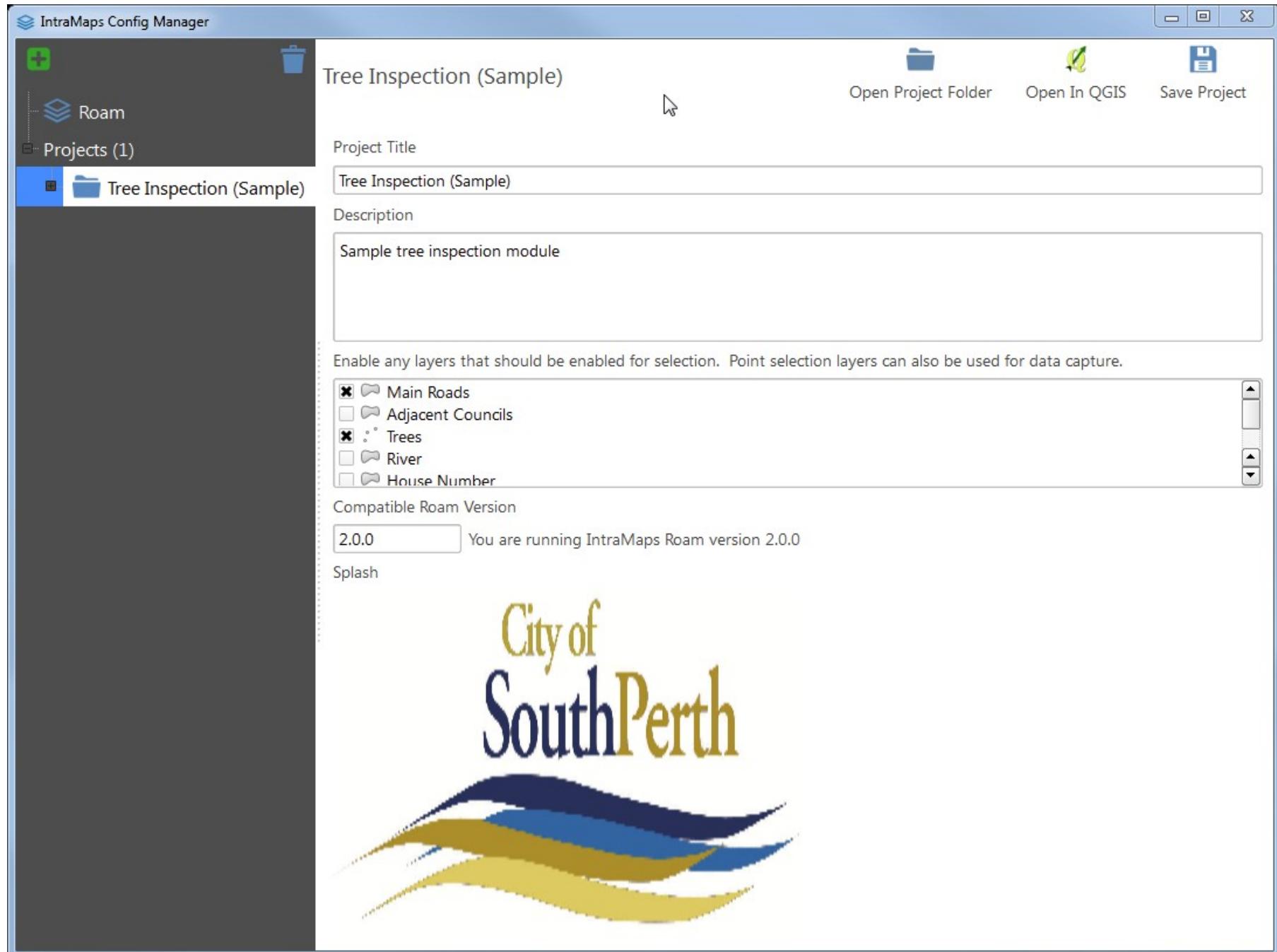


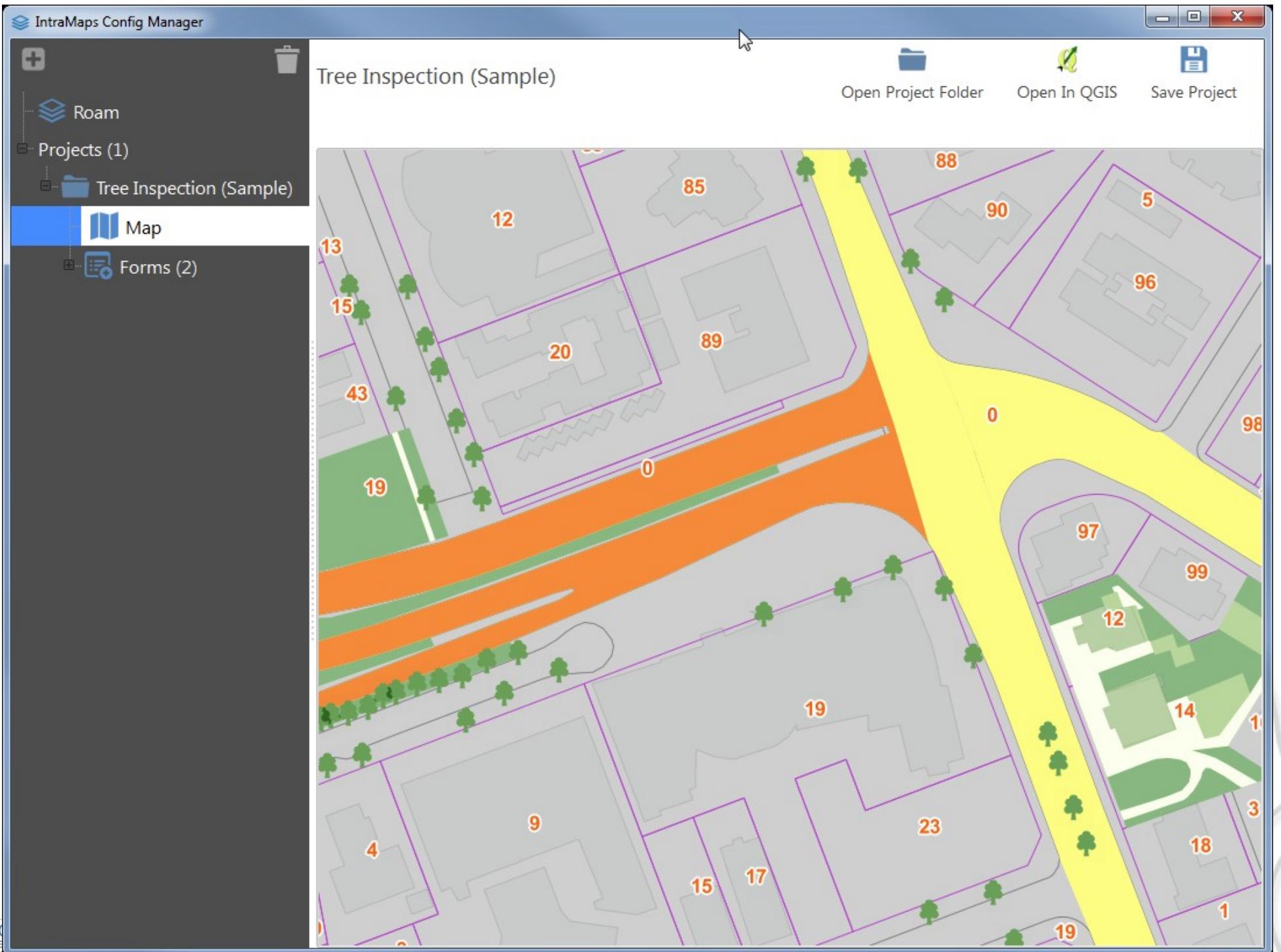
IntraMaps Roam: Mobile Data Collection



Interface de gestion









Roam

Projects (1)

Tree Inspection (Sample)



Forms (2)

Second Inspection

Tree Inspection



Tree Inspection (Sample)



Open Project Folder



Open In QGIS



Save Project

Form folder [trees2](#)

Label Second Inspection

Capture Layer Trees

Type auto

Form

Preview



Add Attribute



Remove Attribute

ID (Text)

Ward (List)

Photo (Image)

Inspection Date (Date)

Powerlines over head? (List)

Suburb (List)

Tree height (m) (Text)

Condition (List)

Botanical Name (List)

Attribute

Field ward (TEXT)

Name Ward

Control List

Required?

Hidden?

Read Only Never

Default Value

 Allow Null Value From layer From pre-defined list

Single item per line. Descriptions can be added after the item using a semicolon e.g Test ; My Testing

Sub Type;Como Beach

Sub Type2;Mill Point

Sub Type3;Moresby

Sub Type4;Manning

VERSIONNEMENT



Contraintes fortes du projet :

- historisation
- travail déconnecté
- création de scénarios

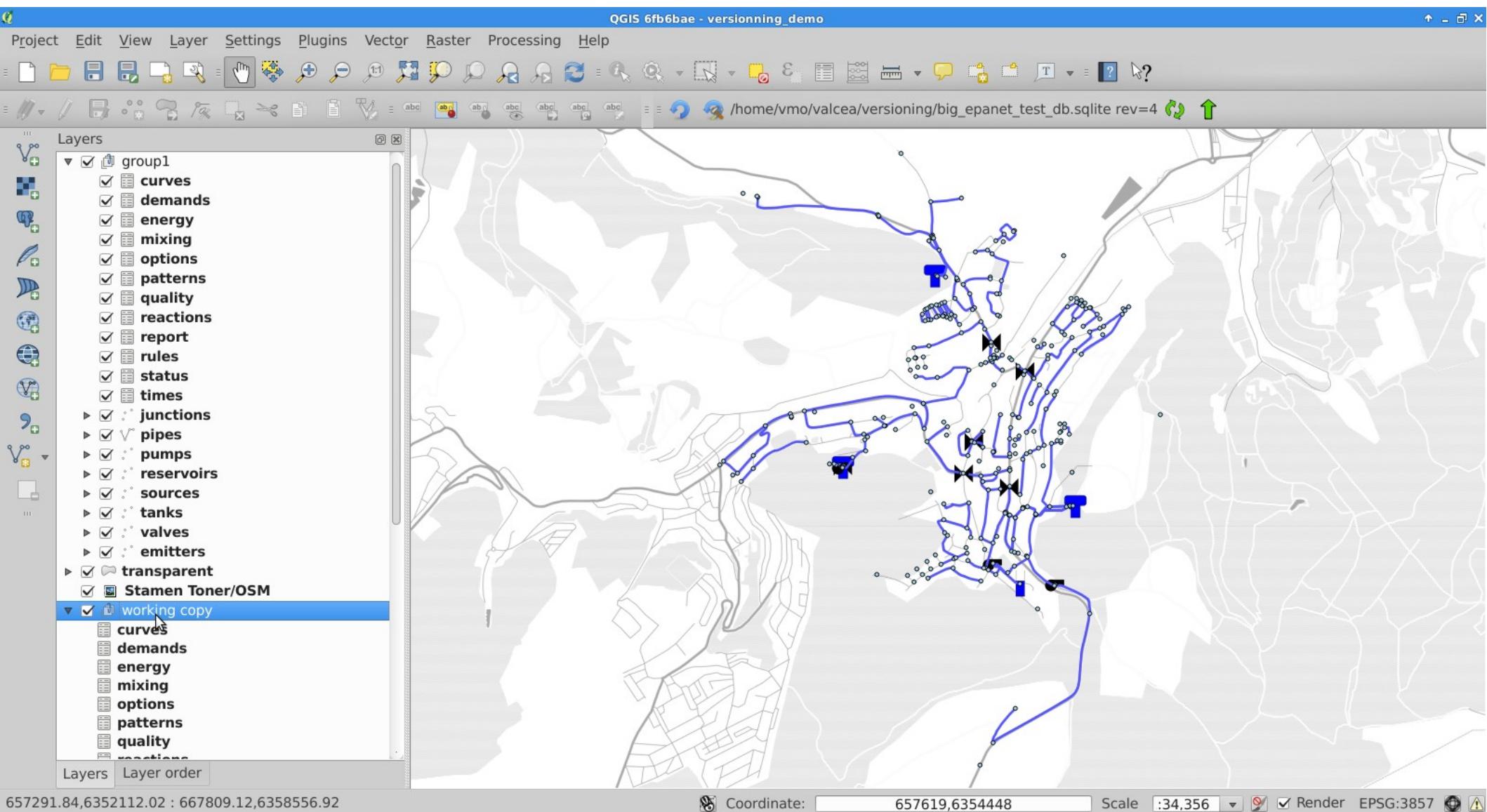
=> versionnement de donnée

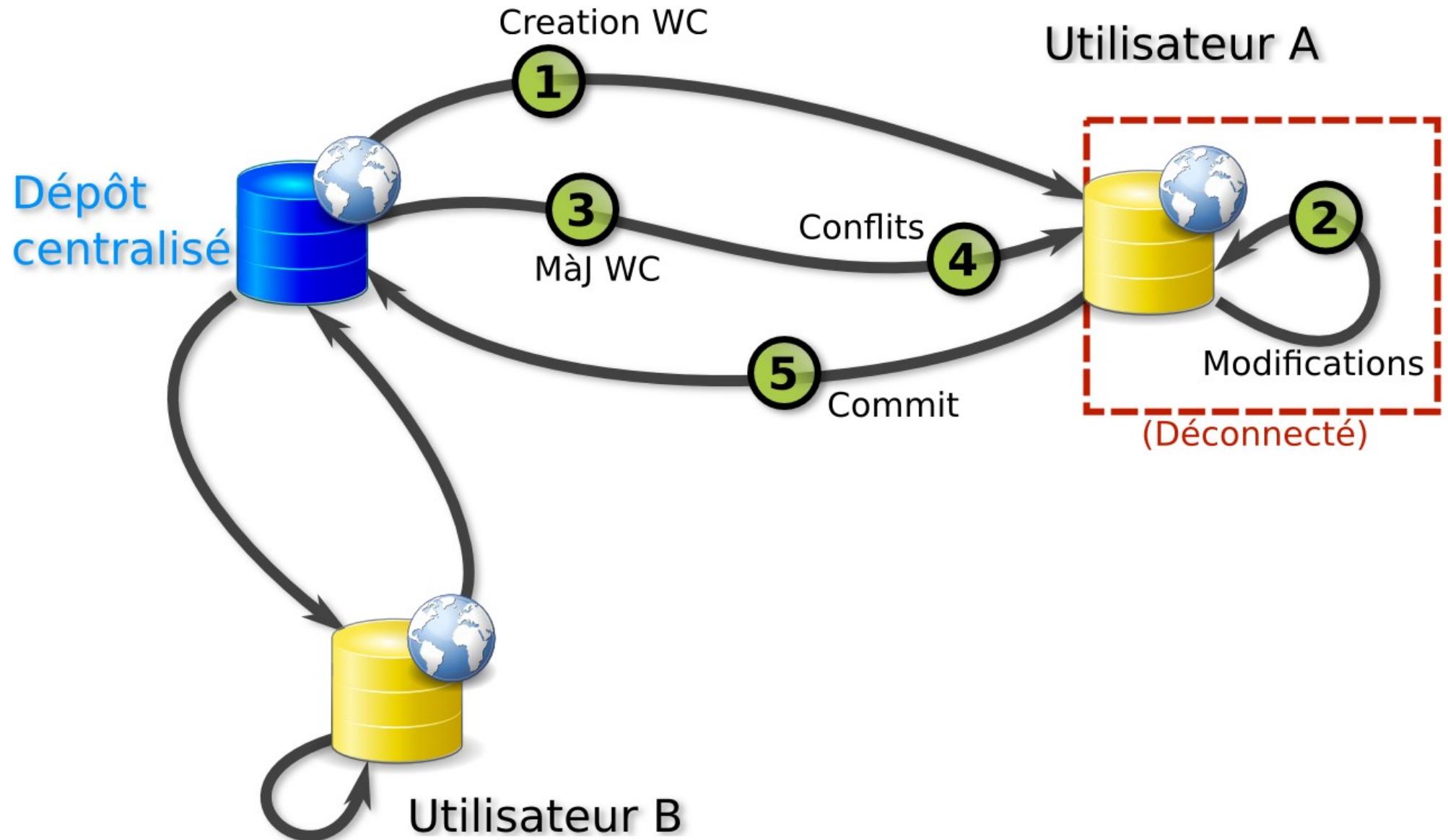
- PostGIS / SpatiaLite
- commits
- branches
- résolution de conflits

Projet développé spécifiquement (OS)

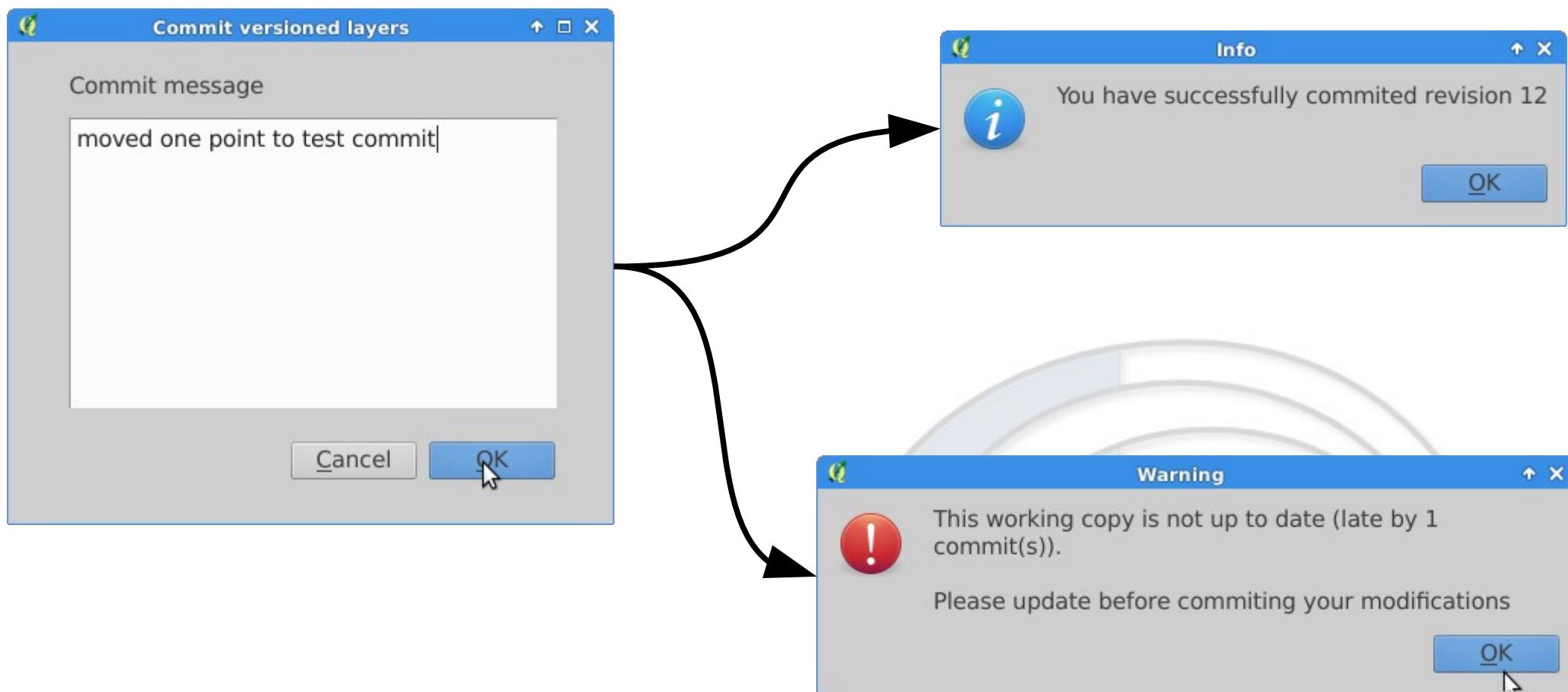
Copie de travail (WC)

- déconnectée (SpatiaLite) → Tablette
- en base





Commit



Warning

Unresolved conflicts for layer(s) junctions.

Please resolve conflicts by opening the conflict layer attribute table and deleting either 'mine' or 'theirs' before continuing.

Please note that the attribute table is not refreshed on save (known bug), once you have deleted the unwanted change in the conflict layer, close and reopen the attribute table to check it's empty.

OK

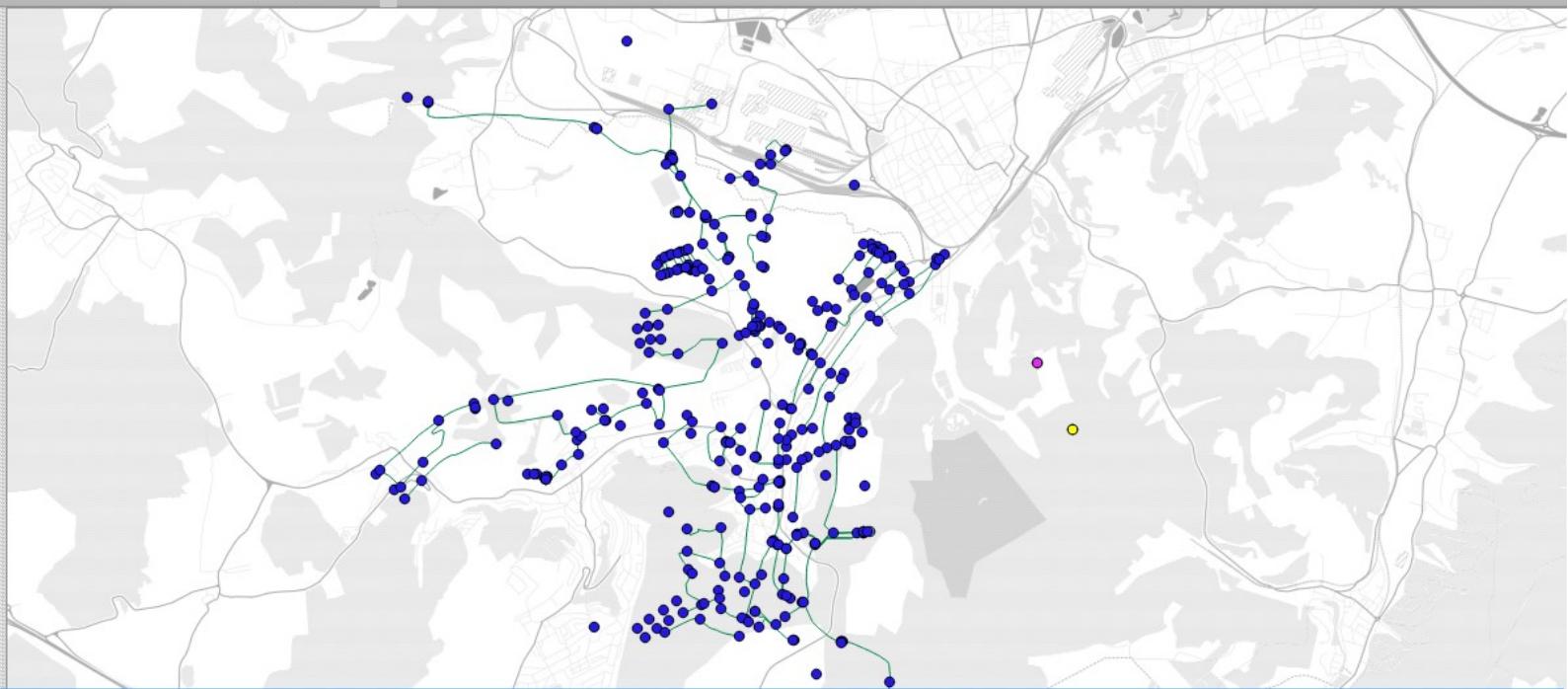
Résolution de conflits

b6bae - versionning_demo

No group selected

Layers

- junctions conflicts
 - group1
 - working copy
 - curves
 - demands
 - energy
 - mixing
 - options
 - patterns
 - quality
 - reactions
 - report
 - rules
 - status
 - times
 - junctions
 -
 - pipes
 - pumps
 - reservoirs



Attribute table - junctions_conflicts :: Features total: 2, filtered: 2, selected: 1

conflict_id	origin	action	OGC_FID	id noeud	altitude	emande bas	irbe modulat	unk_rev_beg	runk_rev_end	trunk_parent	trunk_child	branch_rev_b	branch_rev_e	/branch_pare	iybranch_c
0	329	mine	modified	331	N18b2	315.67	0.081346...	DOM_AUD...	12	NULL	329	NULL	NULL	NULL	NULL
1	329	theirs	modified	330	N18b2	315.67	0.081346...	DOM_AUD...	11	NULL	329	NULL	NULL	NULL	NULL

Show All Features

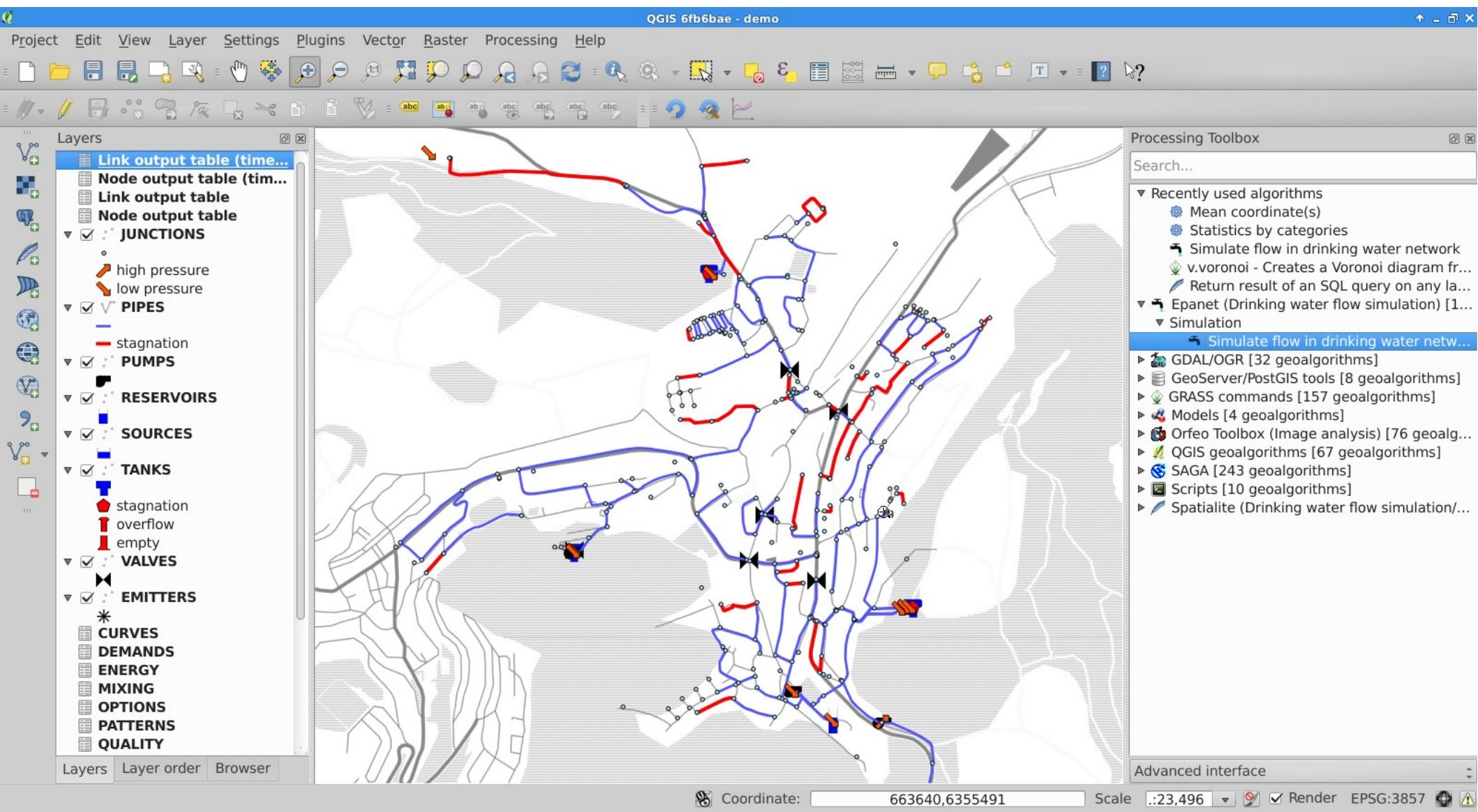
SIMULATION



Intégration EPANET

Simulation hydraulique

Processing = géotraitements

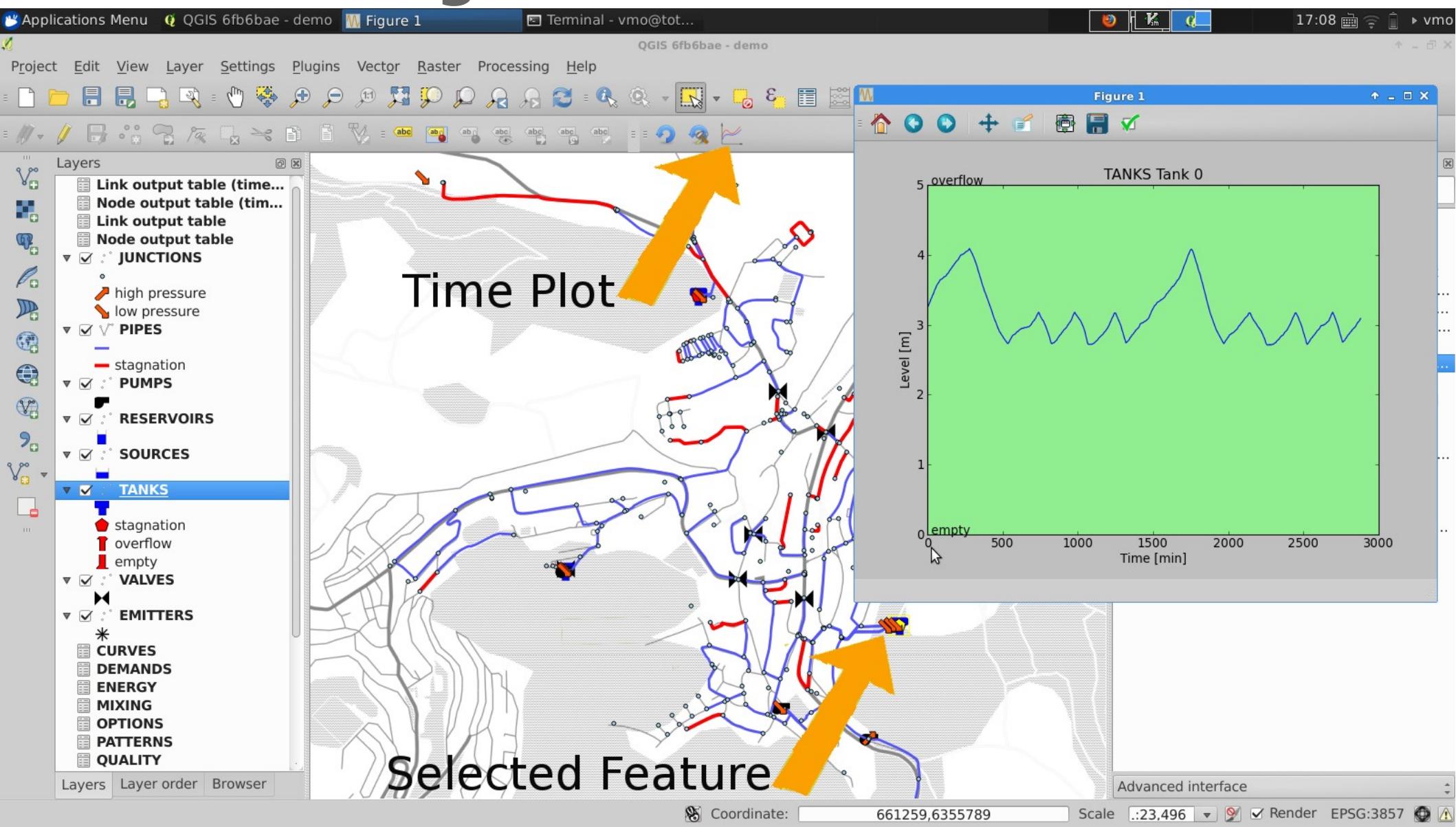


Cartographie des résultats

Plugin de visualisation temporelle

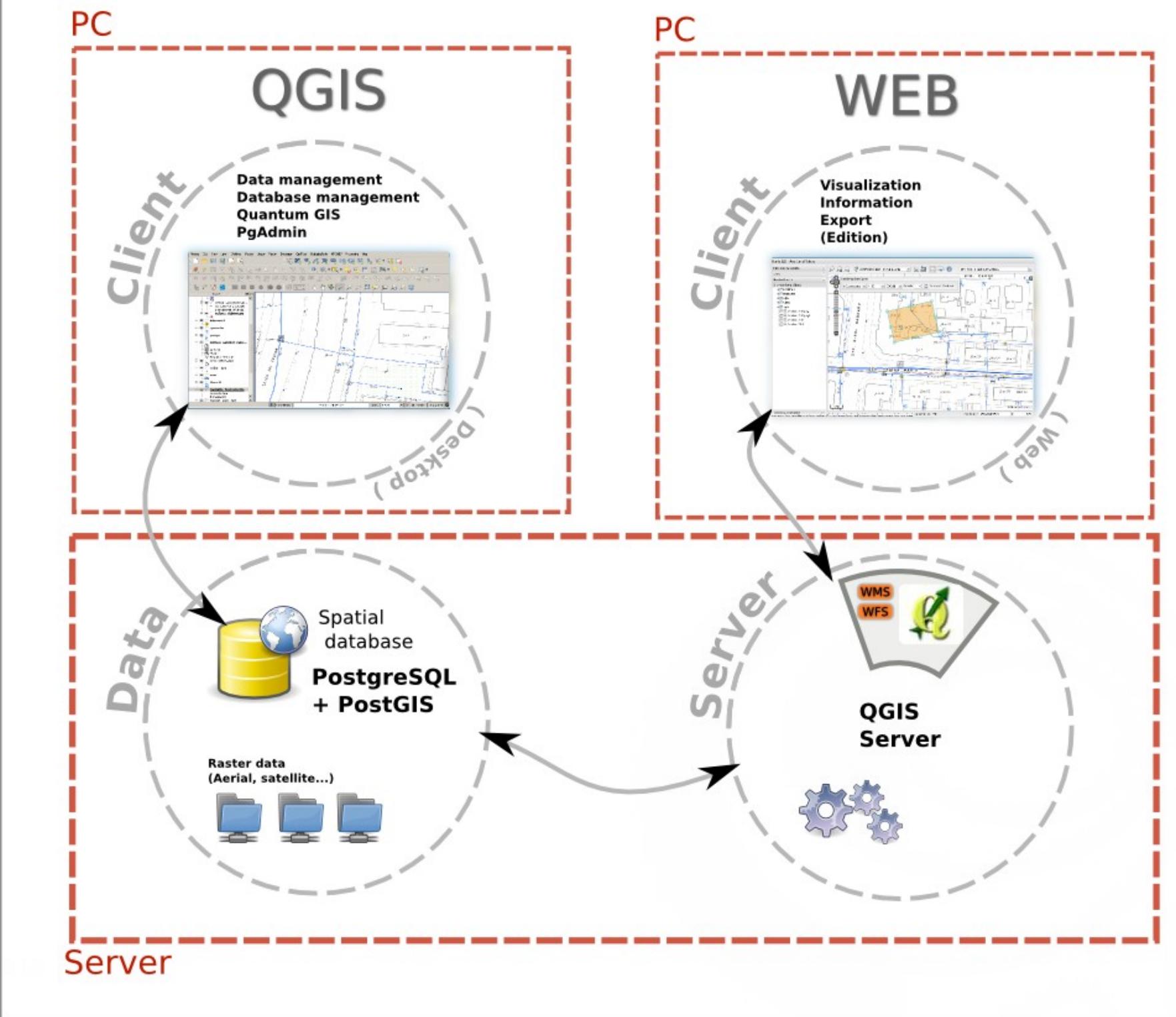
Intégration BdD

Intégration SWMM à venir



INTERFACE WEB





Harta GIS - Apa-Canal Valcea

Informatii și unelte

Identificare obiect: Stratul superior

STR. REGINA MARIA, Rm. Valcea

Straturi harta

- Apa-Canal Valcea
 - Dictionare
 - Proiectate
 - Apa
 - Canal
 - Topo
 - Ortofoto 2012 png
 - Ortofoto 2012 png8
 - Ortofoto 2012
 - Ortofoto 2008

interventii

id:	464
descriere:	Pierdere apa
reparatii:	S-a montat un colier ø100mm.
data:	2010-01-08 00:00:00
strada:	STR. CERNA
stare_funcionala:	Functional

Ordinea straturilor

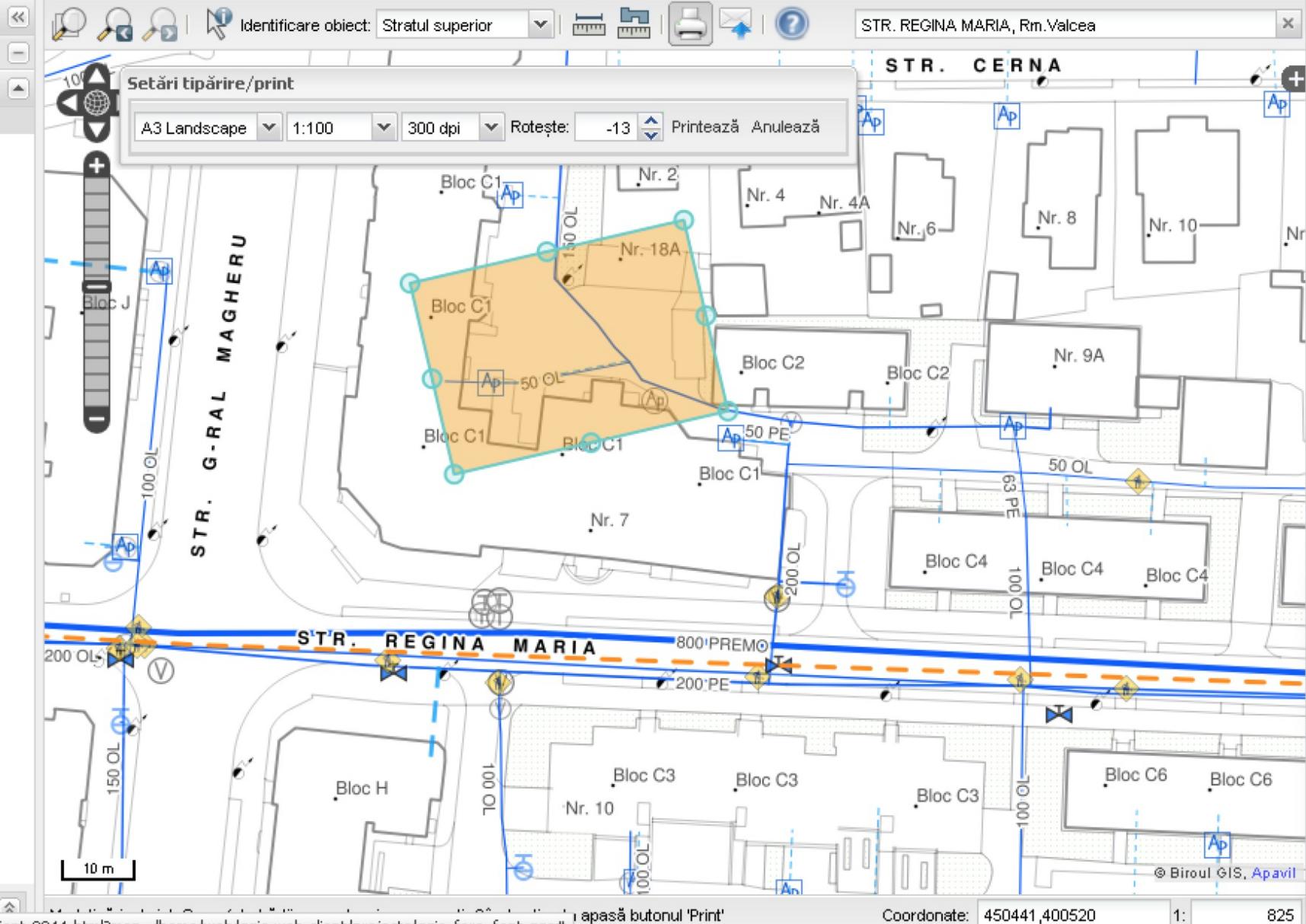
Mod: identificare obiect. Pentru aceasta se pune mouse-ul pe el; se poate da click pentru a-i vizualiza atributele

Coordonate: 450441,400603

1: 825

© Biroul GIS, Apavil

Informații și unelte



Harta GIS - Apa-Canal Valcea

Informații și unelte

Harta

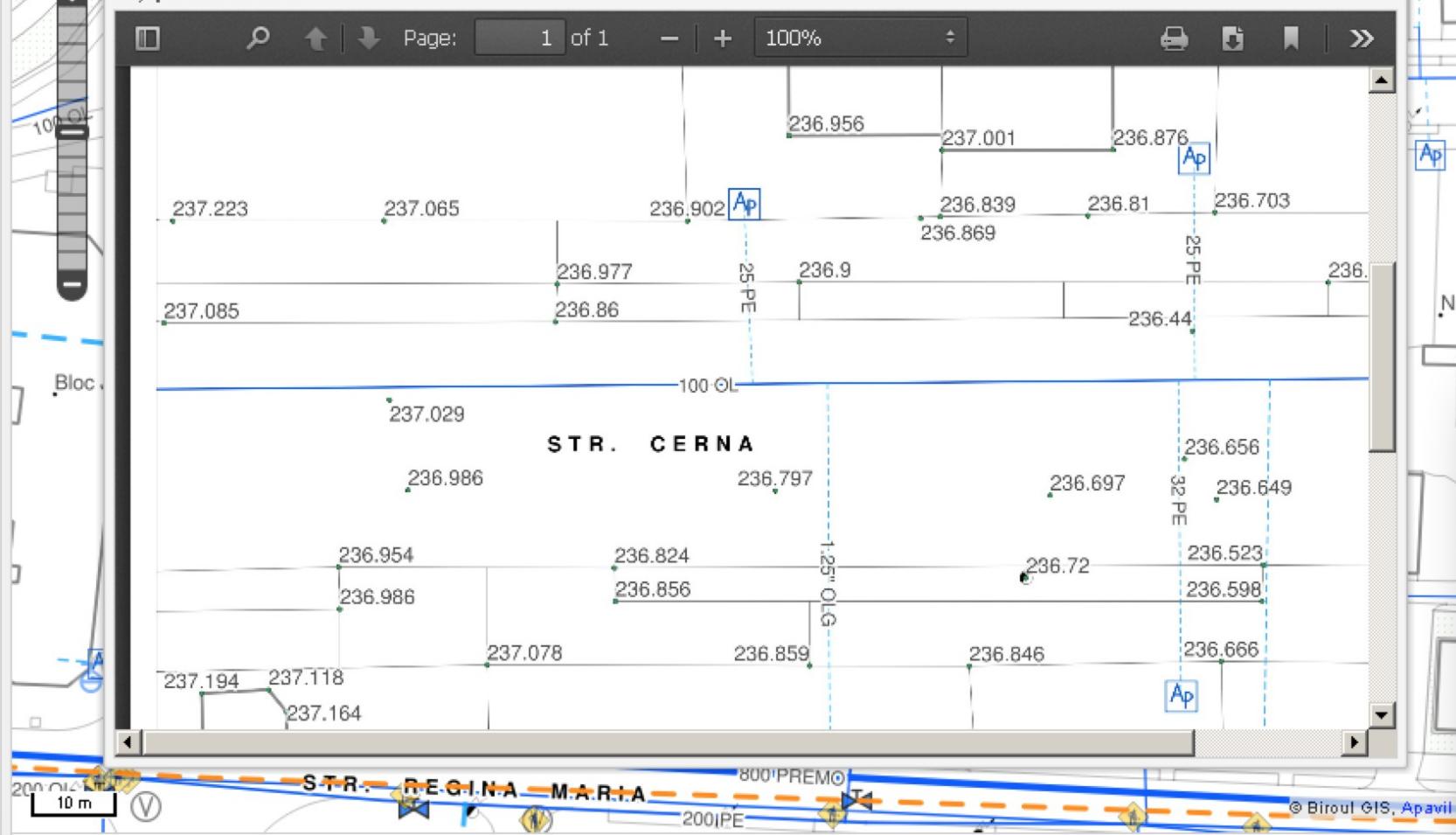
Straturi hartă

- Apa-Canal Valea
 - Dictionare
 - Proiectate
 - Apa
 - Canal
 - Topo
 - i Ortofoto 2012 png
 - i Ortofoto 2012 png8
 - i Ortofoto 2012
 - i Ortofoto 2008

Identificare obiect: Stratul superior

STR. REGINA MARIA, Rm. Valcea

Serverul generează un fișier PDF. Pentru o imprimare la scară corectă deactivați opțiunea 'Fit to Page/Incadrare pe pagină' când dati print la acesta!



Mod: navigare. Shift+desenează un dreptunghi sau rotita mouse pentru zoom.

Coordinate: 450264,400515

1: 825

FUTUR



Amélioration objets métier

Modèle de données (+assainissement), interface QGIS

Amélioration logiciel terrain

Suivi et infos GPS, capture sur canvas...

Connexions SCADA

Pile applicative intégrée

Communauté

Utilisateurs, contributeurs, financeurs

Questions ?

@vpicavet

@Oslandia_fr

infos@oslandia.com

www.oslandia.com

Merci à

Vincent Mora

Hugo Mercier

Tudor Barascu

Denis Rouzaud

GIS Office of Apavil

Nathan Woodrow (DMS)

