



CAMPUS

Cadastre Application Management Processing Updating System

CAMPUS software is a product of cooperation between Government of Brcko District and Land Administration Project in BH.



Zemljišna administracija u BiH



Brčko Distrikt BiH



Project CAMPUS

Land Cadastre Maintenance Tool

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Company: BEOGIS [Belgrade, Serbia]

5th gvSIG Conference, Valencia, December 3rd 2009

Overview

- Project goals
- Architecture
- Extension Campus
- Directions of further development

Project goals

- Spreading of open source within public administration
- Exploit and extend widely used solutions
- Data storage in open source database
- Multi-platform support
- Multi-language support
- Extensibility

Why open source?

- Advantages
 - Lower development costs
 - GPL
 - Community
 - Existance of specific functionalities
 - Independence from manufacturer

Open source minuses

- Variety and incompatibility of versions
- Constant improvements need to be monitored – consulting needed
- Documentation



Geospatial data base

- Open source data base
- Geospatial data support
- Data base model
 - ER model
 - Procedures
 - Checks
 - Data consistency checks
 - Topology checks

Database implementation

- PostgreSQL database

- PostGIS

- Geo-spatial data
 - Point
 - Line
 - Poliline
 - Polygon
 - Multipolygon...
 - Geo-spatial functions
 - Intersection
 - Union
 - Difference
 - Buffer...



PostgreSQL



Opensource GIS

- Candidate solutions
 - GRASS
 - QuantumGIS
 - Kosmo
 - GvSig
- Criteria
 - Supported data sources
 - User-friendliness
 - Adaptability
 - Extensibility
 - Variety of functionalities

GvSig

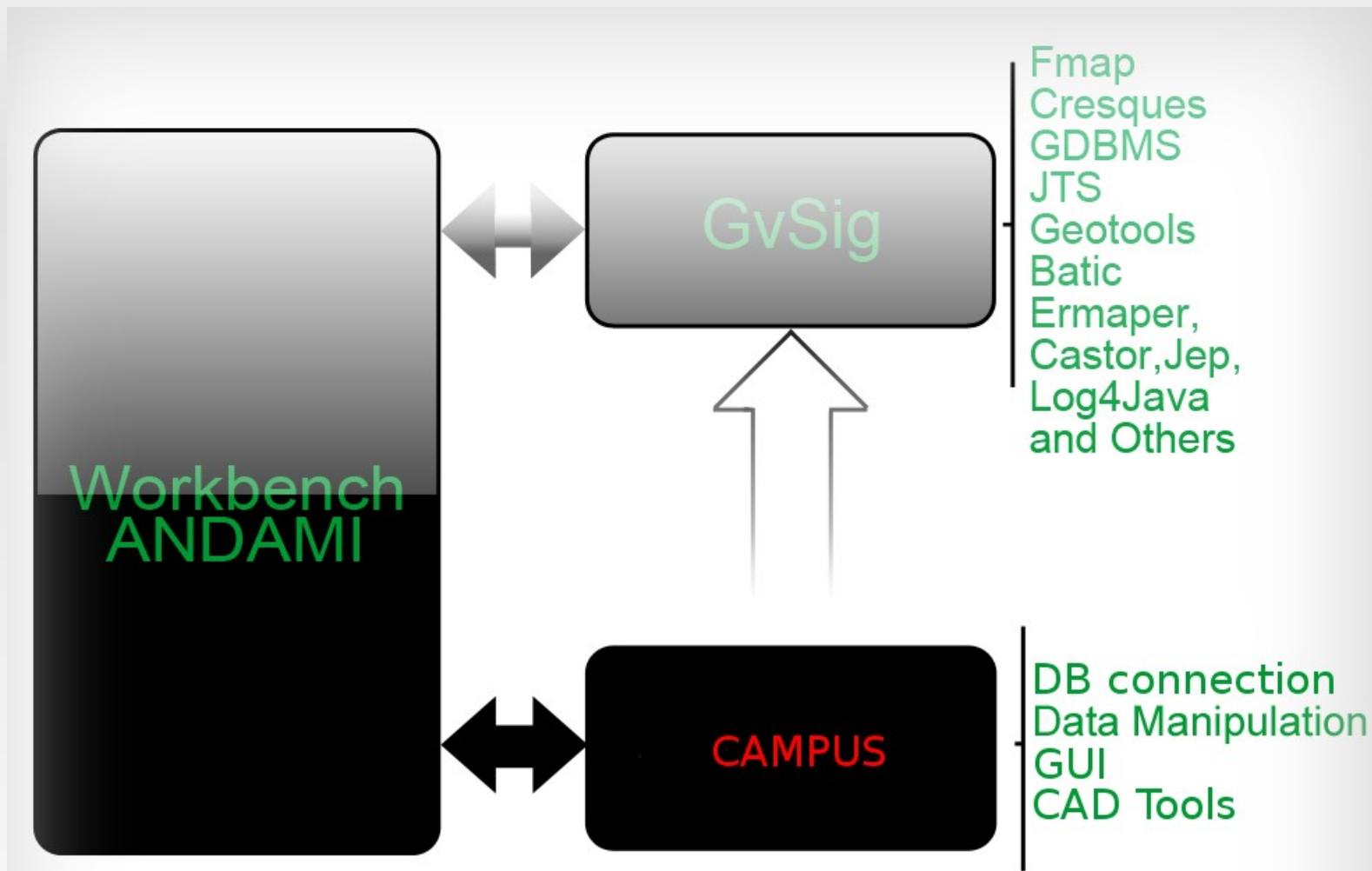
- Variety of supported data sources
- User friendly GUI
- Multi-language support
- Multi-platform orientation
 - Windows, Linux, OS X
- Extensibility
- www.gvsig.gva.es



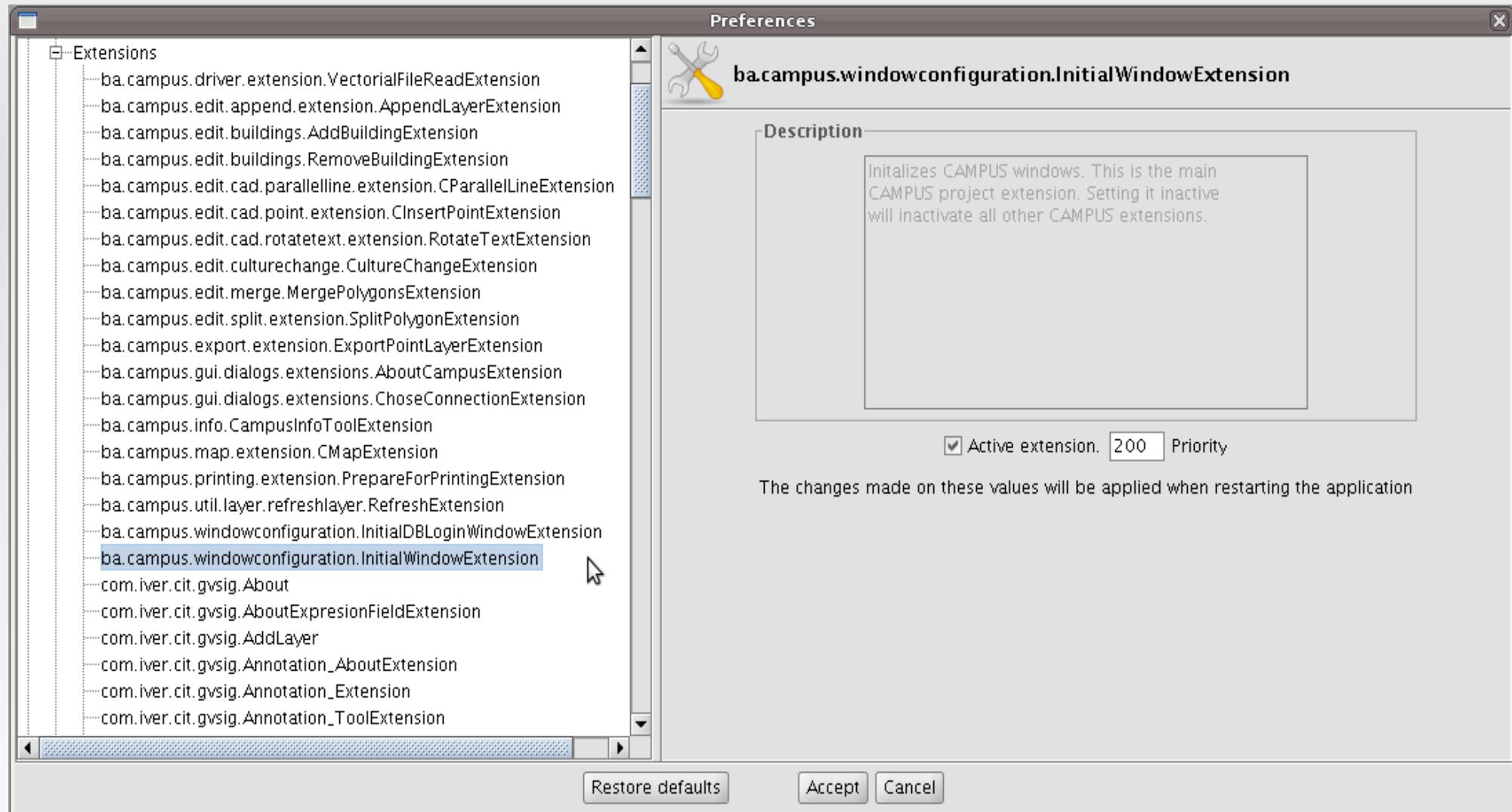
Extension CAMPUS

- Architecture
 - Database model
 - Applicative solution tends not to depend on database model
 - GvSig extensions
 - Custom CAMPUS extensions
 - Split polygon
 - CAD tools

Application architecture



Extensions



CAMPUS: Key features

- Multi-user surrounding
 - Client-server architecture
 - Data locking
 - Administrative features
 - Task history
- Automated procedures
- Additional user features
 - CAD tools
 - Specific files source support



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■ .txt point files

Automatized procedures

- Split / merge parcels
- Add / remove buildings
- Modify land usage / culture
- Copy of Cadastre plan

Other functionalities

- Topology checks
- Authomatic documents creation
- History survay
- Info tool
- Aditional drawing tools
 - Extension CAD
 - Extend line tool
 - Parallel line tool, distance set from a dialog
 - Text rotation tool

Extension CAD

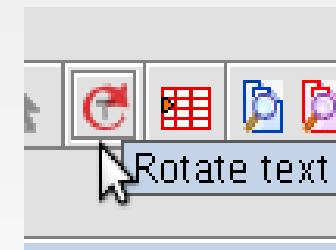
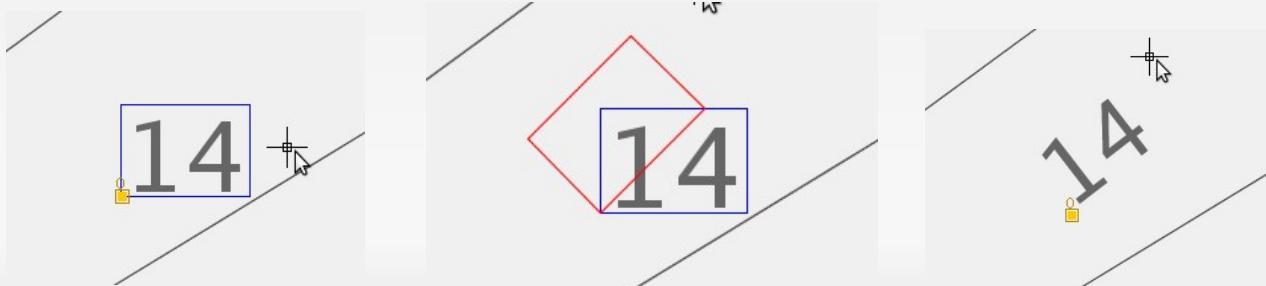
- Extend line tool



- Parallel line on distance tool



- Text rotation tool

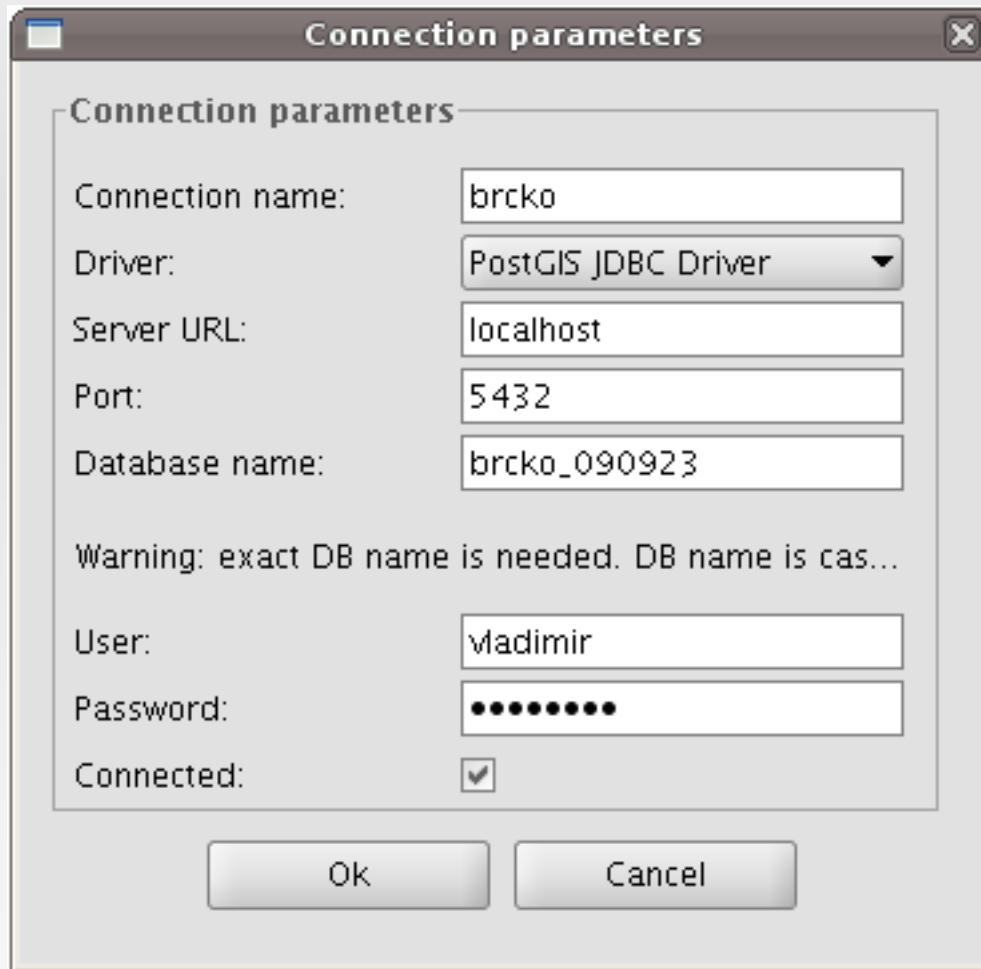


Topology checks

- Check conditions specified by db model
- Relationship table

	dbid [PK] bigseri	prva_tabela_naziv text	druga_tabela_naziv text	relacija_naziv text	bafer real
1	1	kat_parcela	kat_zgrada	Contains	0.001
2	2	kat_katastarska_opcina	kat_parcela	Contains	0.001
3	3	kat_parcela	kat_nacin_koristenja	Contains	0.0
4	4	kat_medjna_tacka	kat_medjna_tacka	Disjoint	0.001
5	5	kat_zgrada	kat_zgrada	Touches	0.001
6	6	kat_parcela	kat_simbol	Contains	0.001
7	7	kat_zgrada	kat_nacin_koristenja	Touches	0.001

Usage example: log-in



Project dialog

Edit requirement

Office tasks

Task/Job type: Choose job

Requirement number: 11061036

Requirement initiator:

Requirement start date: Nov 6, 2009

Requirement finish date: ---

DB user: Vladimir

Remark:

Jobs

- Split parcel - Input[76/1]
- Split parcel - Input[13/3]
- ... New job ...

**Parcel \ DB Connection **

Commune: Bukvik Donji

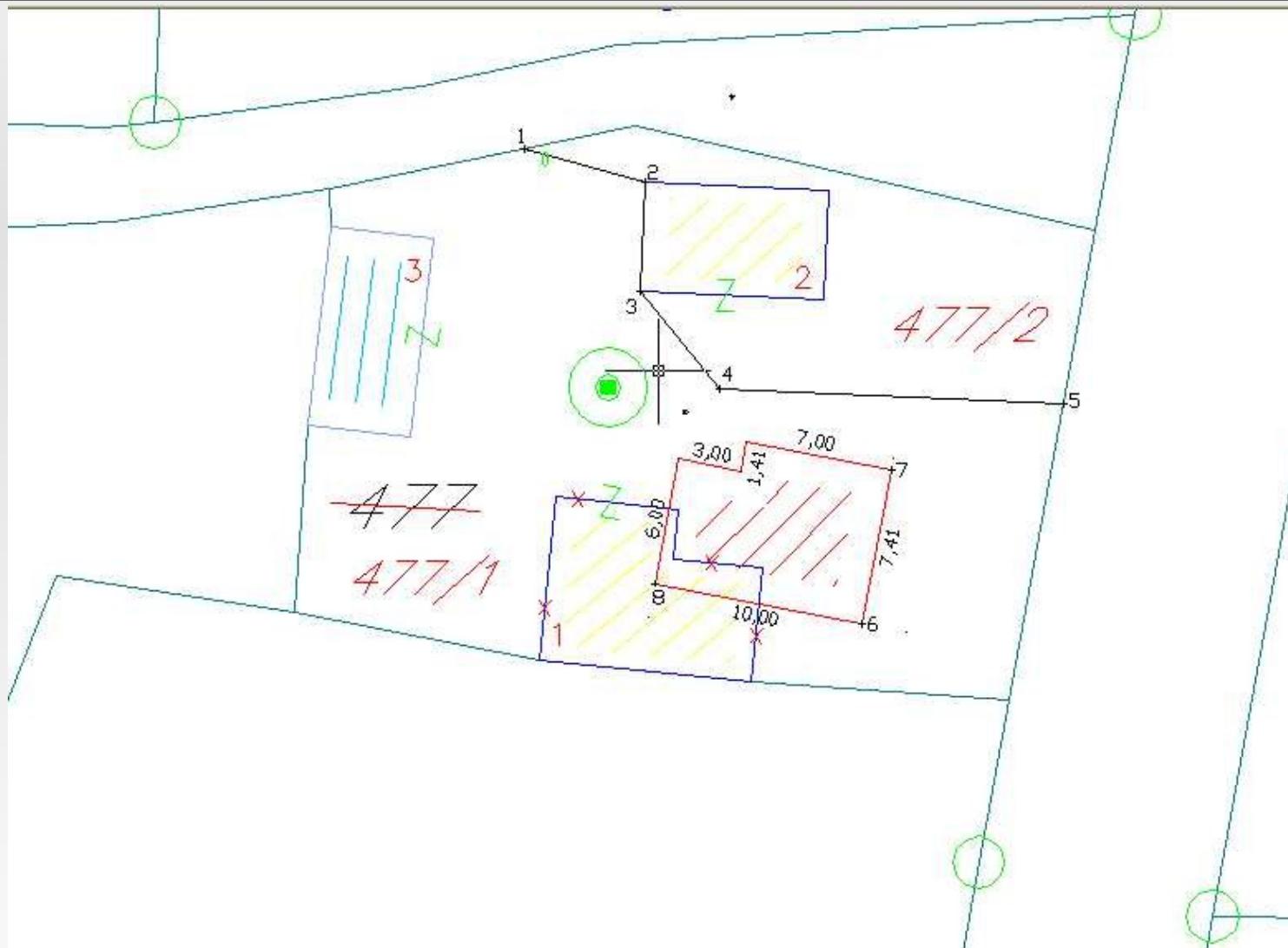
Number: 1

Subnumber: 0

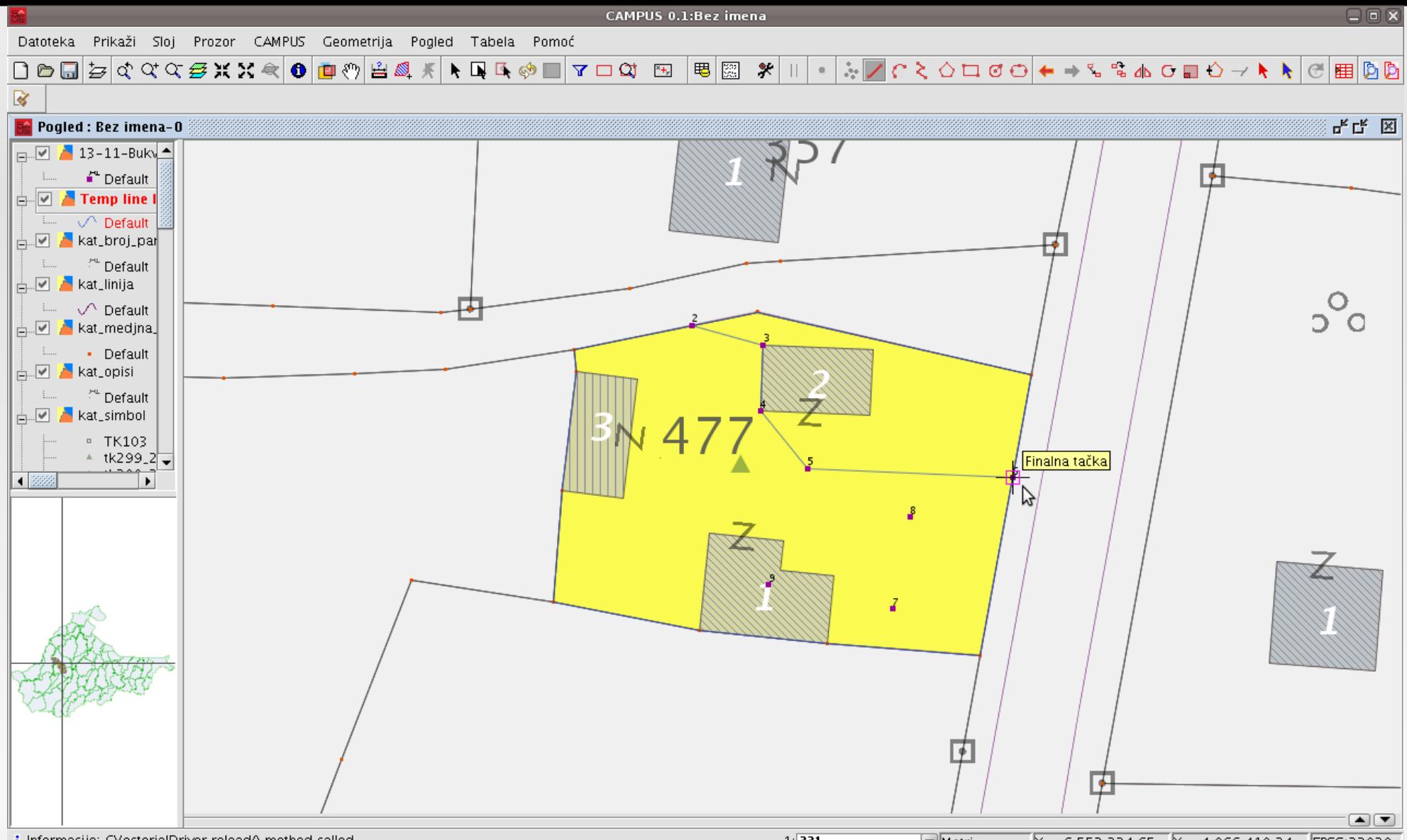
Add Remove

Add job Finish requirement Cancel

Task definition drawing

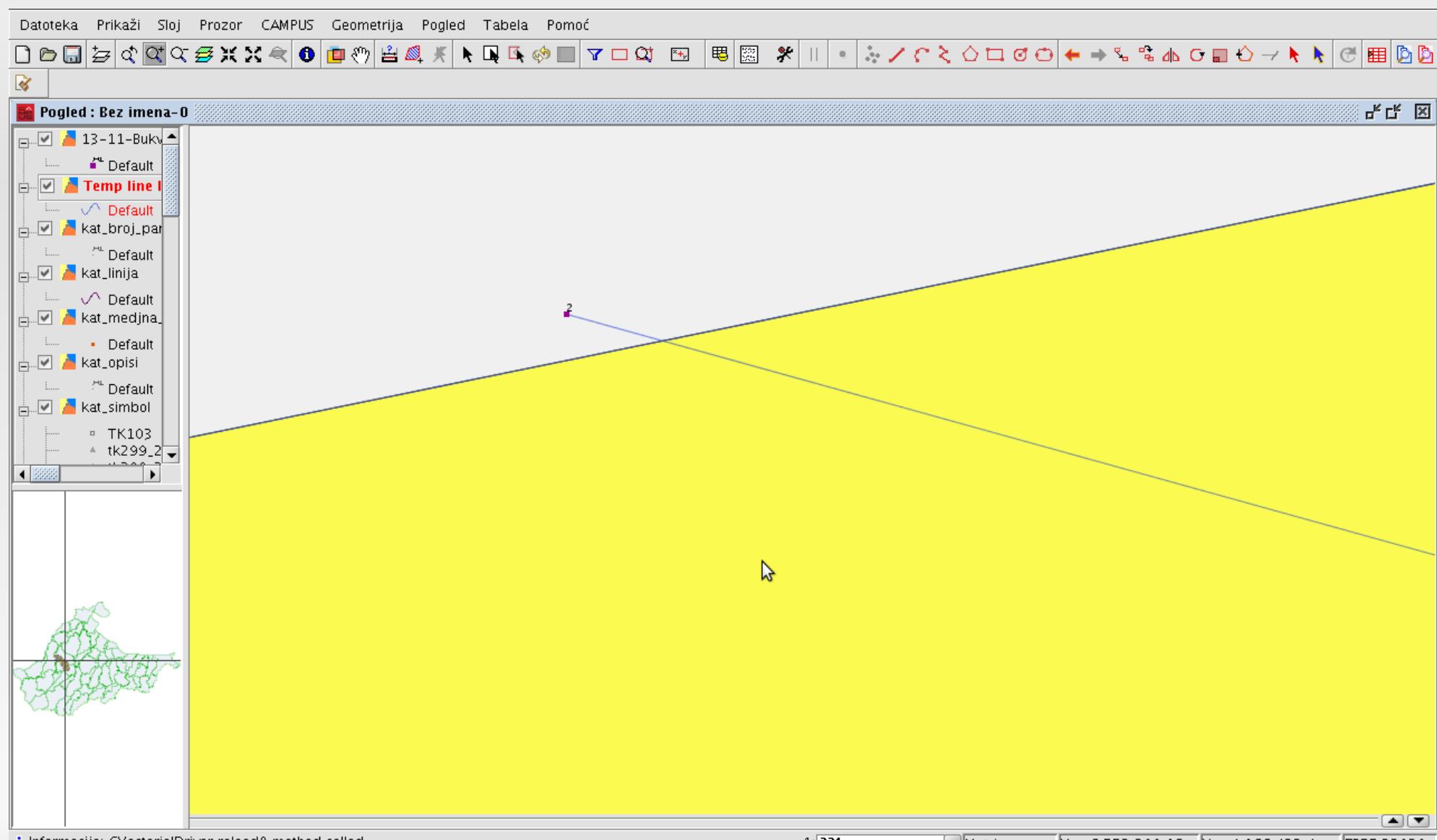


Split parcel procedure initialized



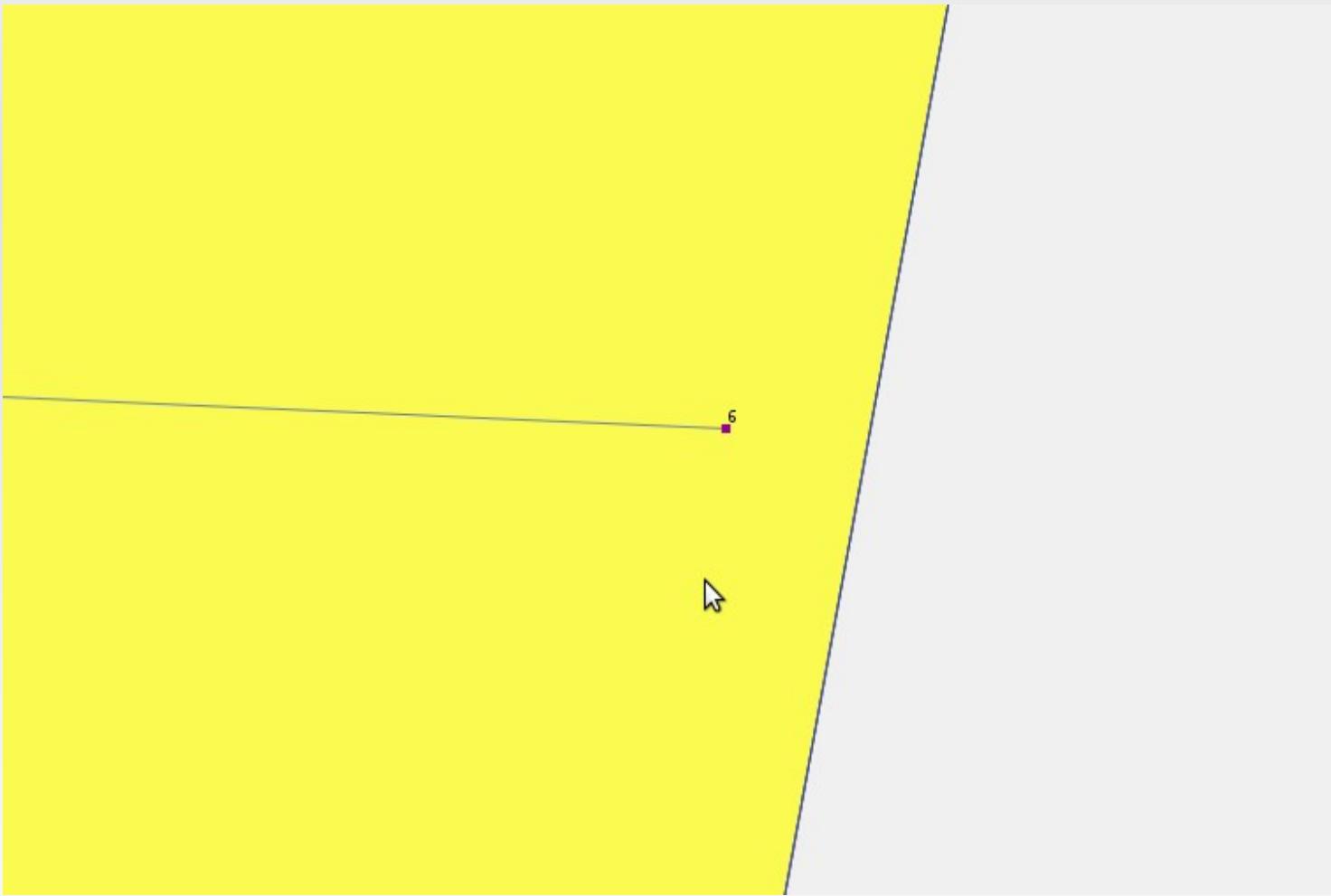
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Split parcel



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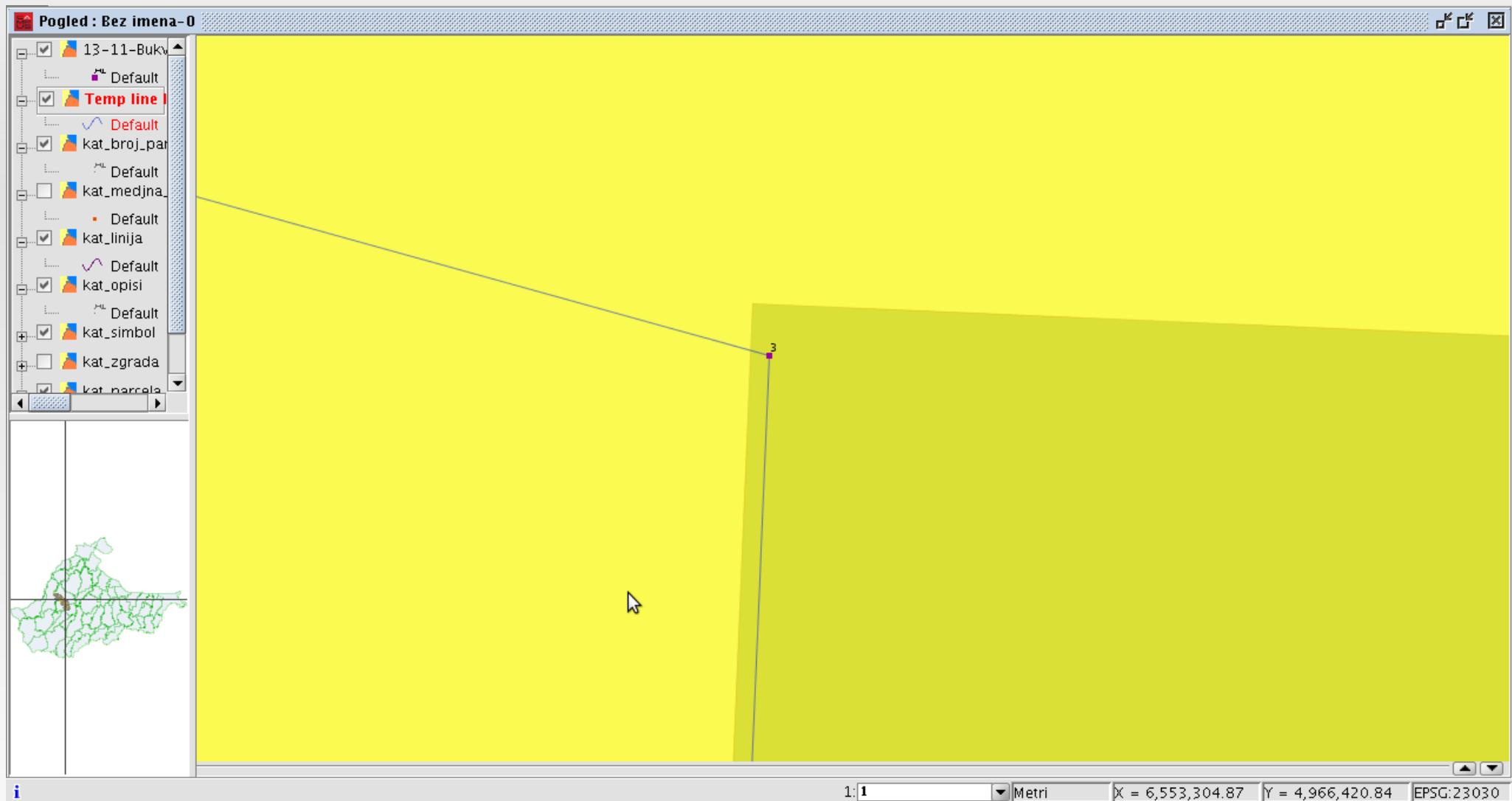
Extend line



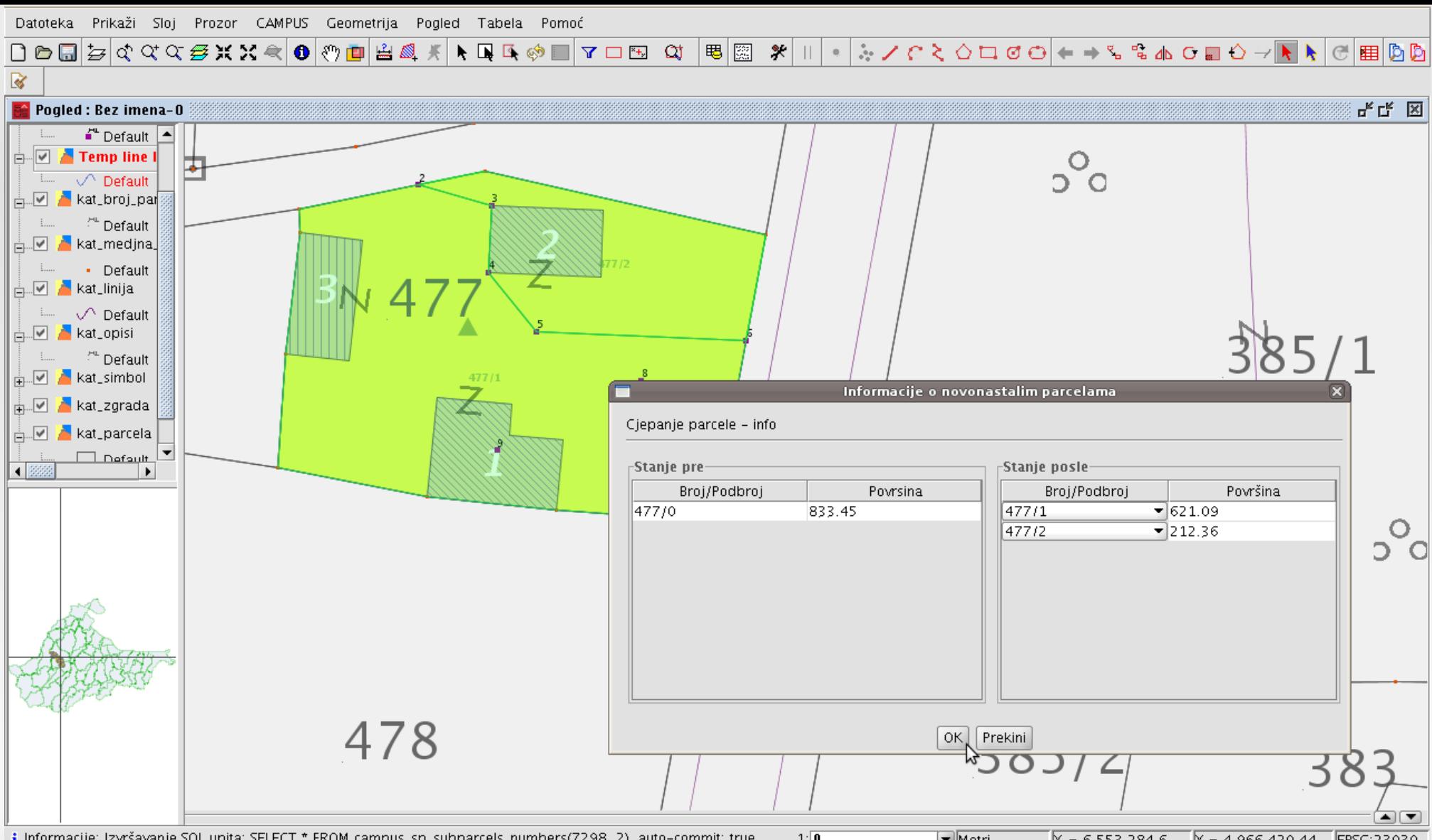
Extend line



Overlaying a building



Split parcel



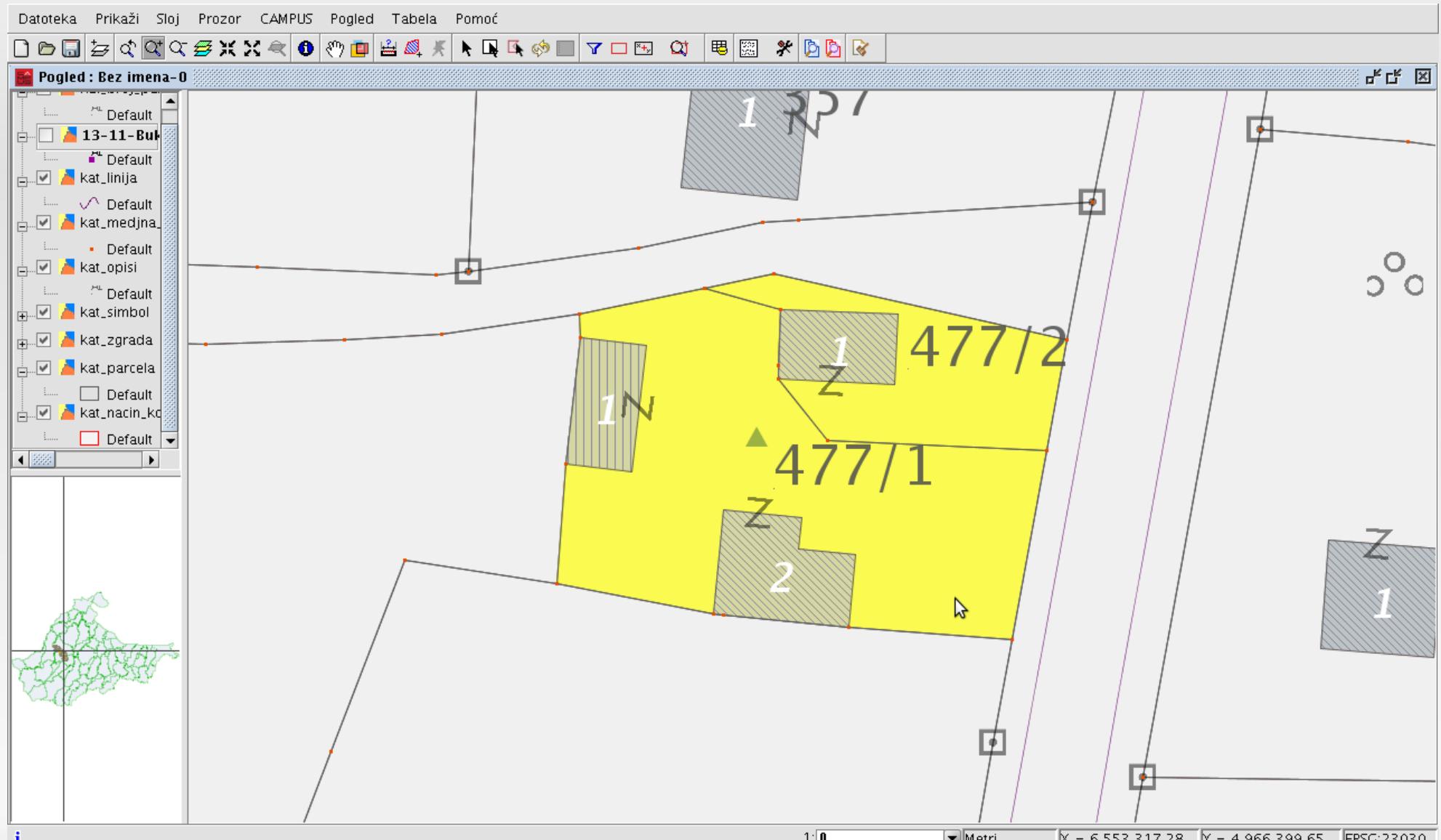
Informacije: Izvršavanje SQL upita: SELECT * FROM campus_sp_subparcels_numbers(7298, 2), auto-commit: true

1: 0 Metri X = 6,553,284.6 Y = 4,966,420.44 EPSG:23030



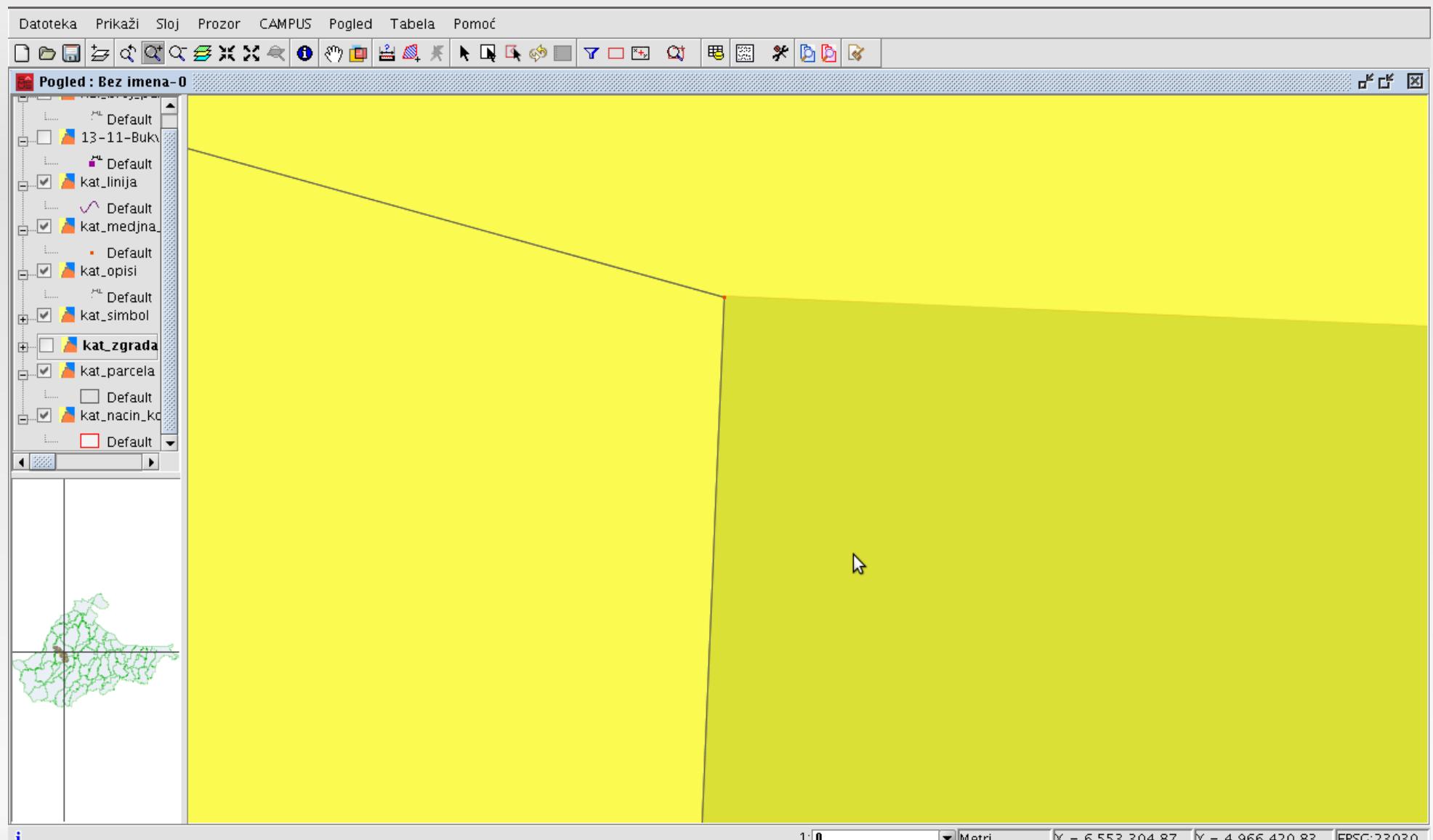
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Split parcel – new parcels created



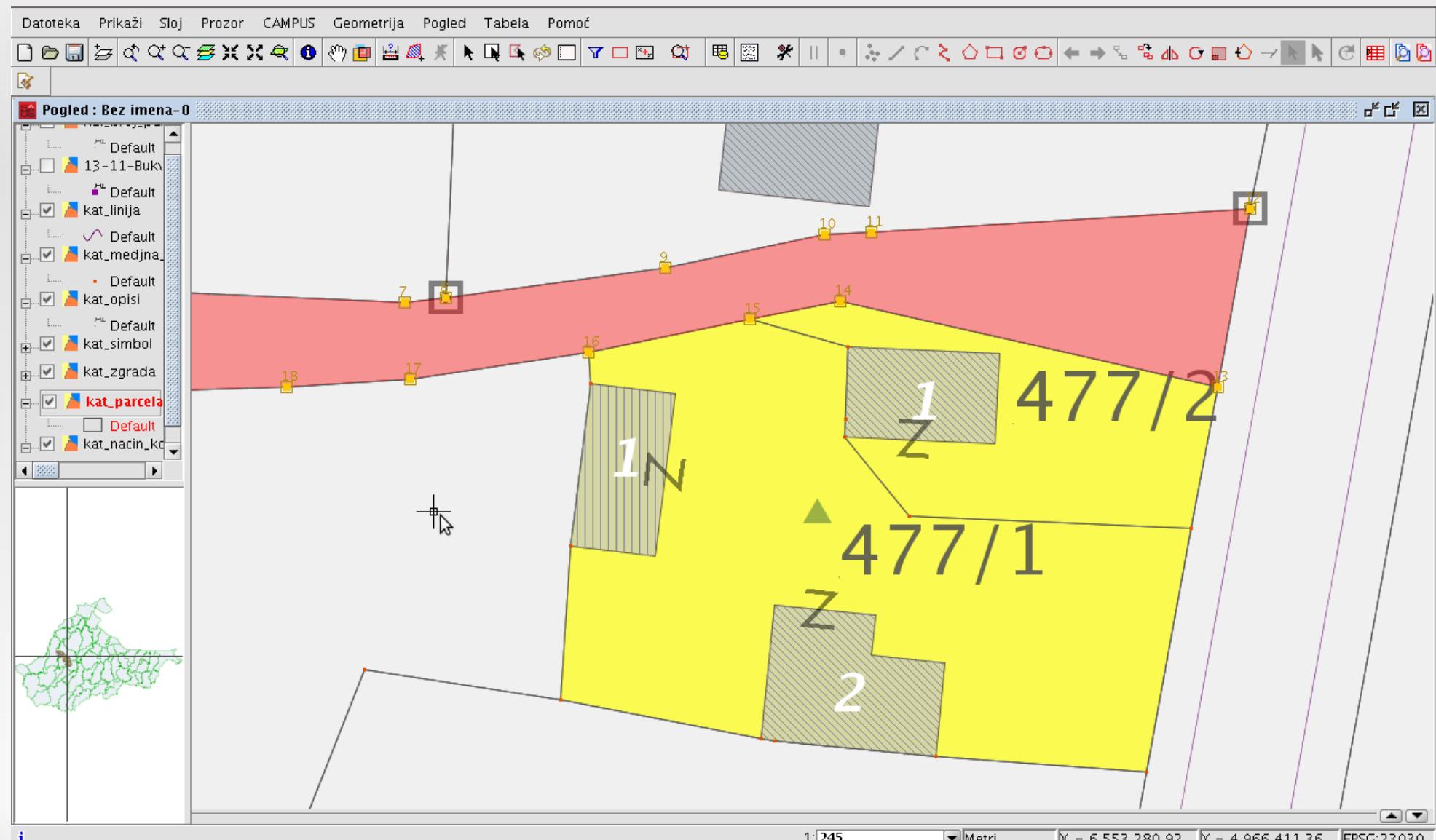
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Split parcel – new parcels

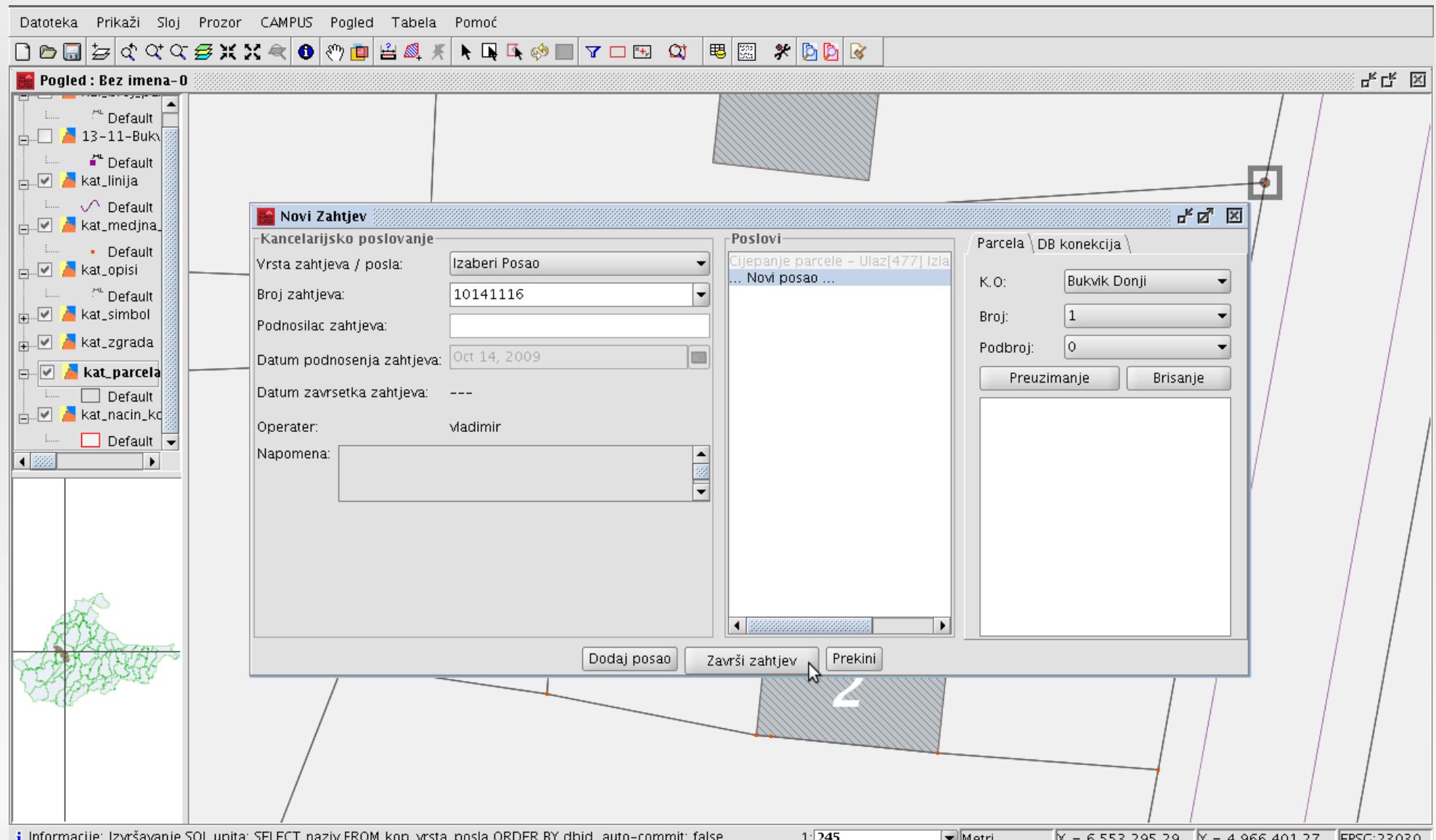


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Split parcel – neighbour parcel



Task finalization



Informacije: Izvršavanje SQL upita: SELECT naziv FROM kop_vrsta_posla ORDER BY dbid, auto-commit: false

1:245

Metri

X = 6,553,295.29

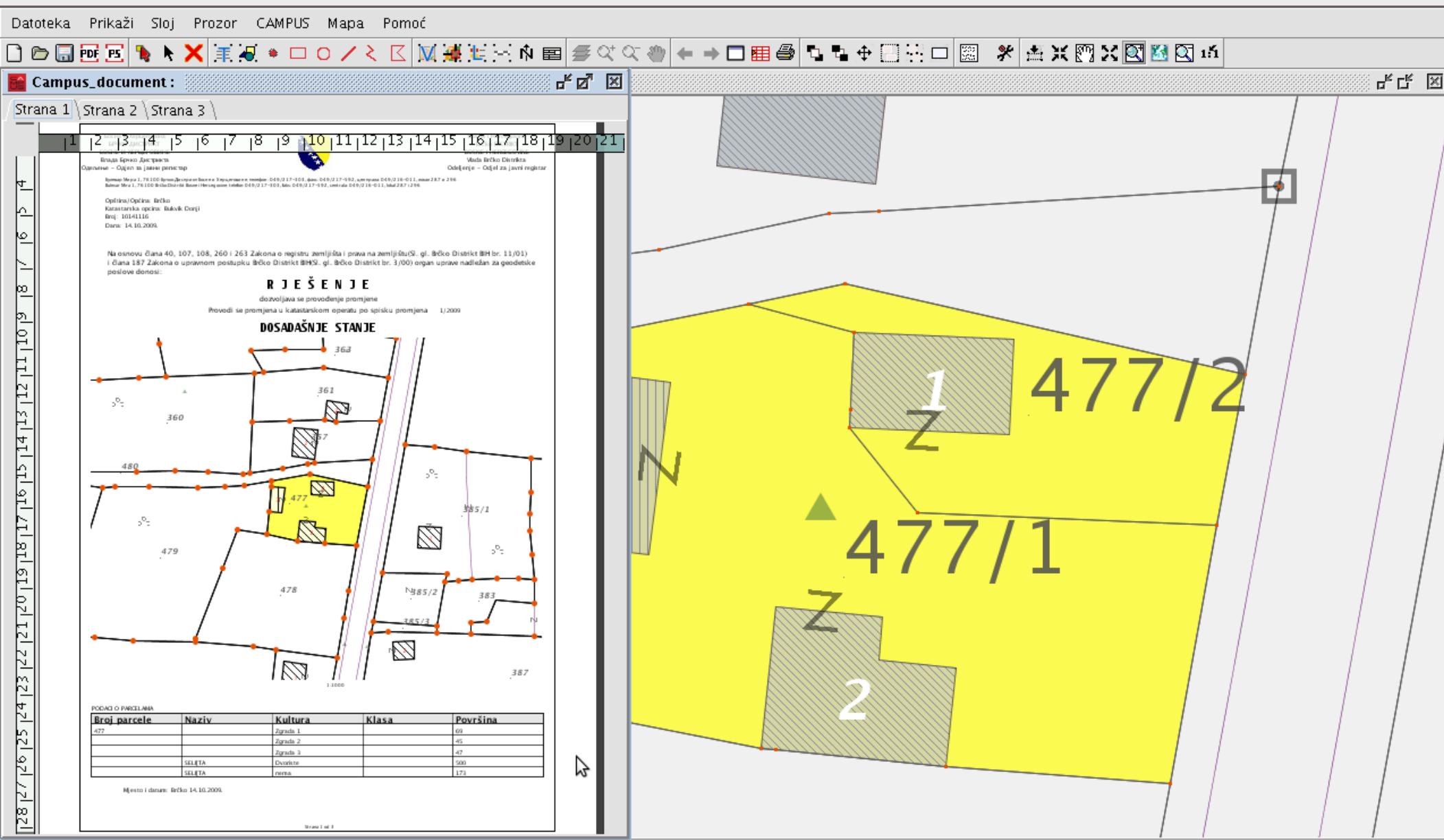
Y = 4,966,401.27

EPSG:23030

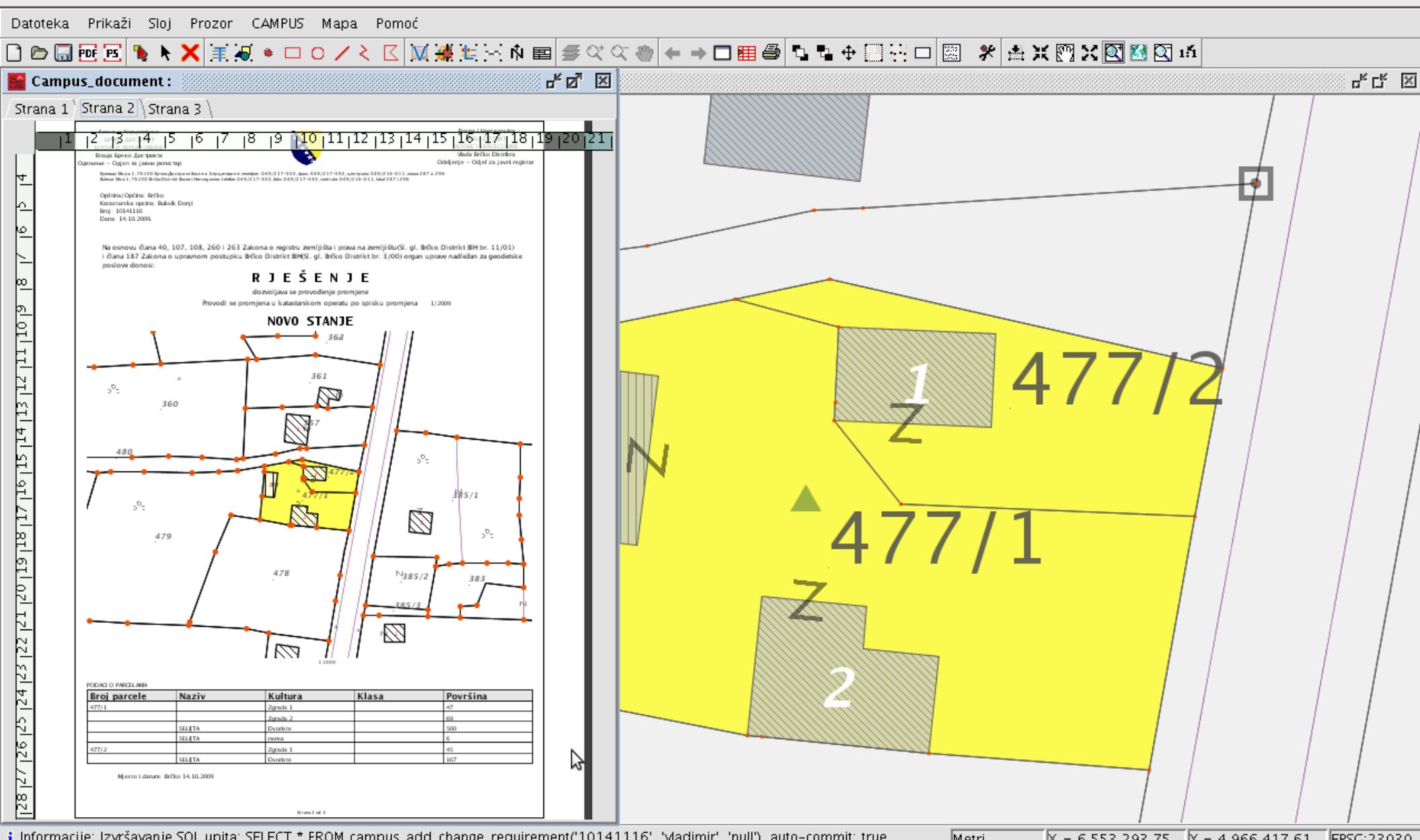


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Document creation: Before state



Document creation: After state



Project results

- User friendly graphical interface
- Multi-user surrounding
- Specific user privileges
- History tracking
- Documents creation
- Editing tools

Futher development directions

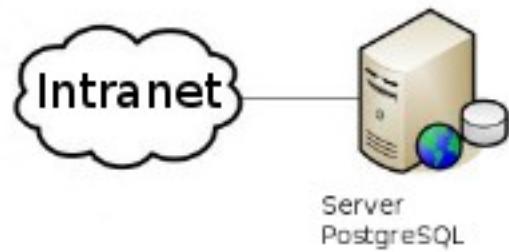
- Integration with other projects
 - Public administration databases
 - DMS (Lotus)
- Public web service for publishing data
- Complete independence from data model used
- Publishing single extensions suitable for other GvSig users

Further development: network

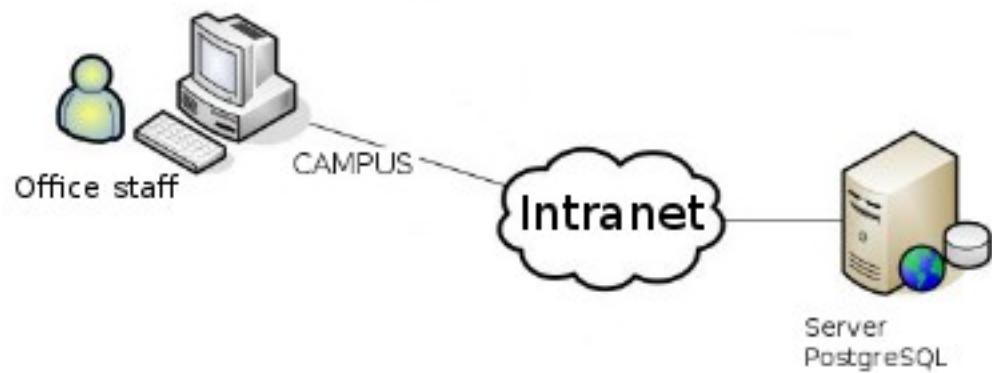


Server
PostgreSQL

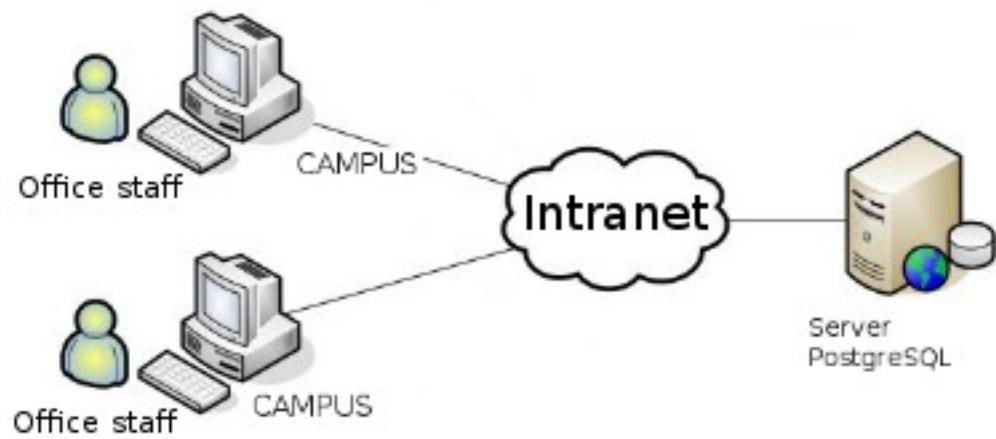
Further development: network



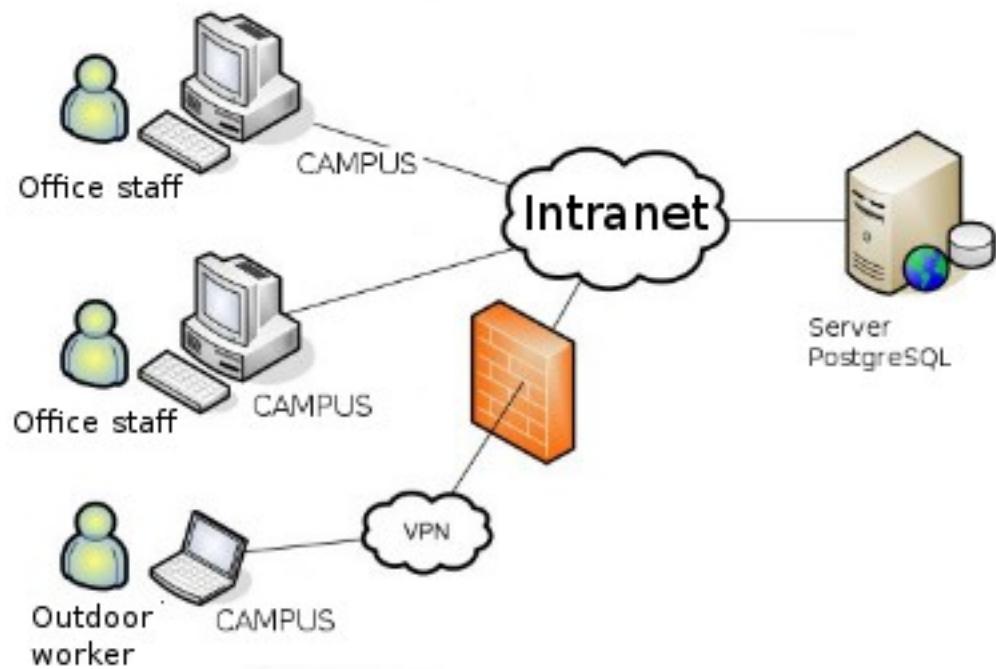
Further development: network



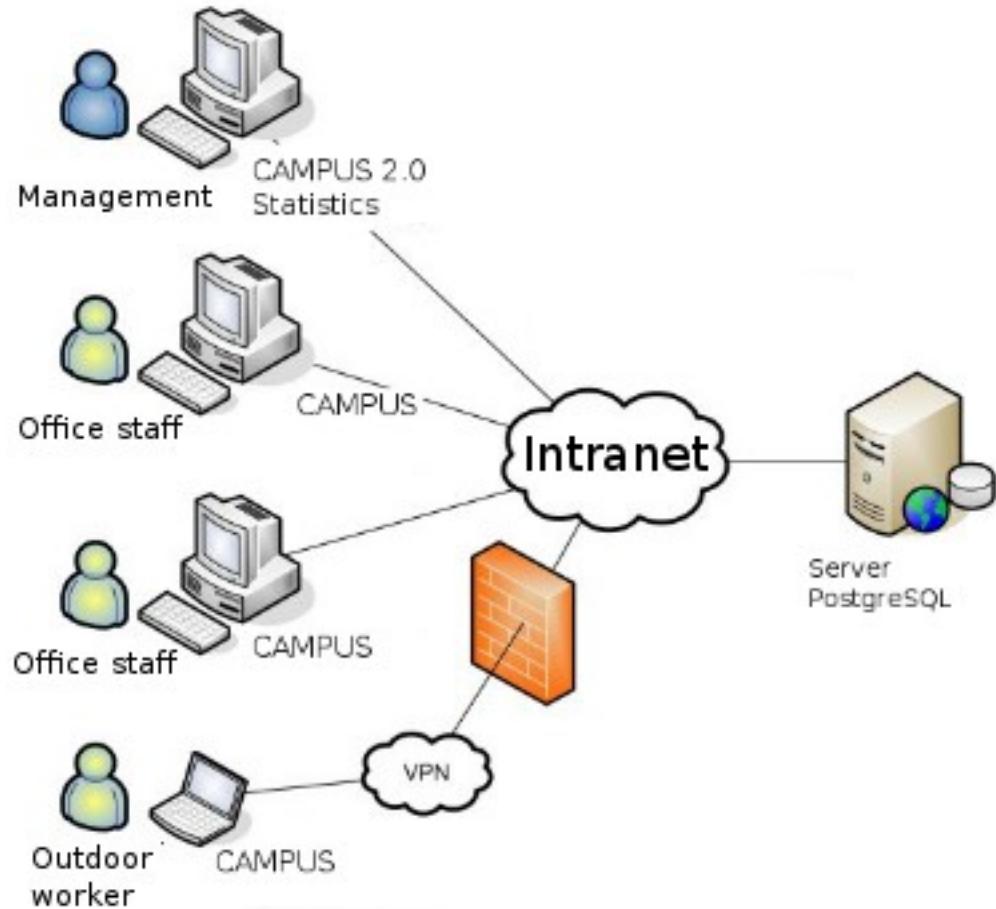
Further development: network



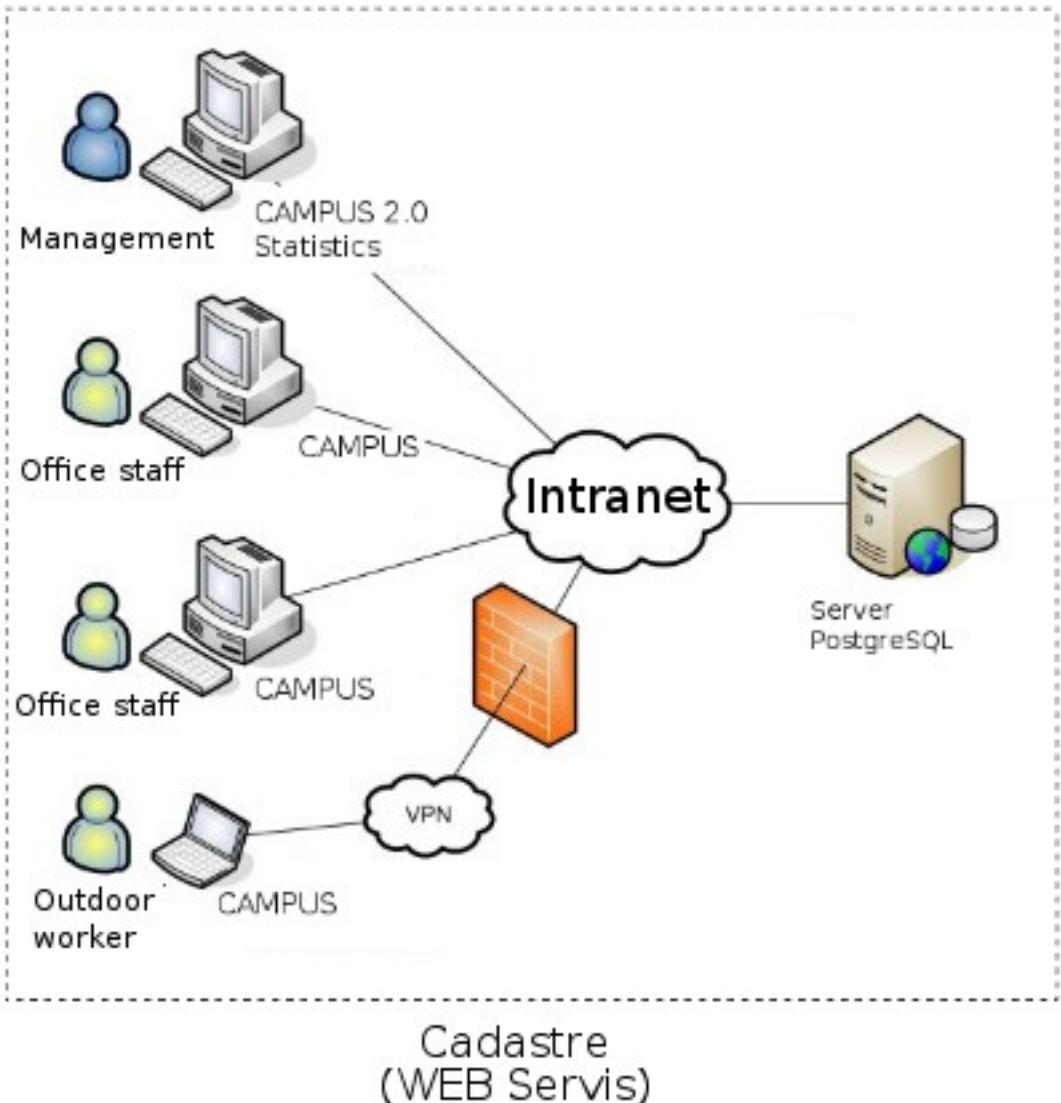
Further development: network



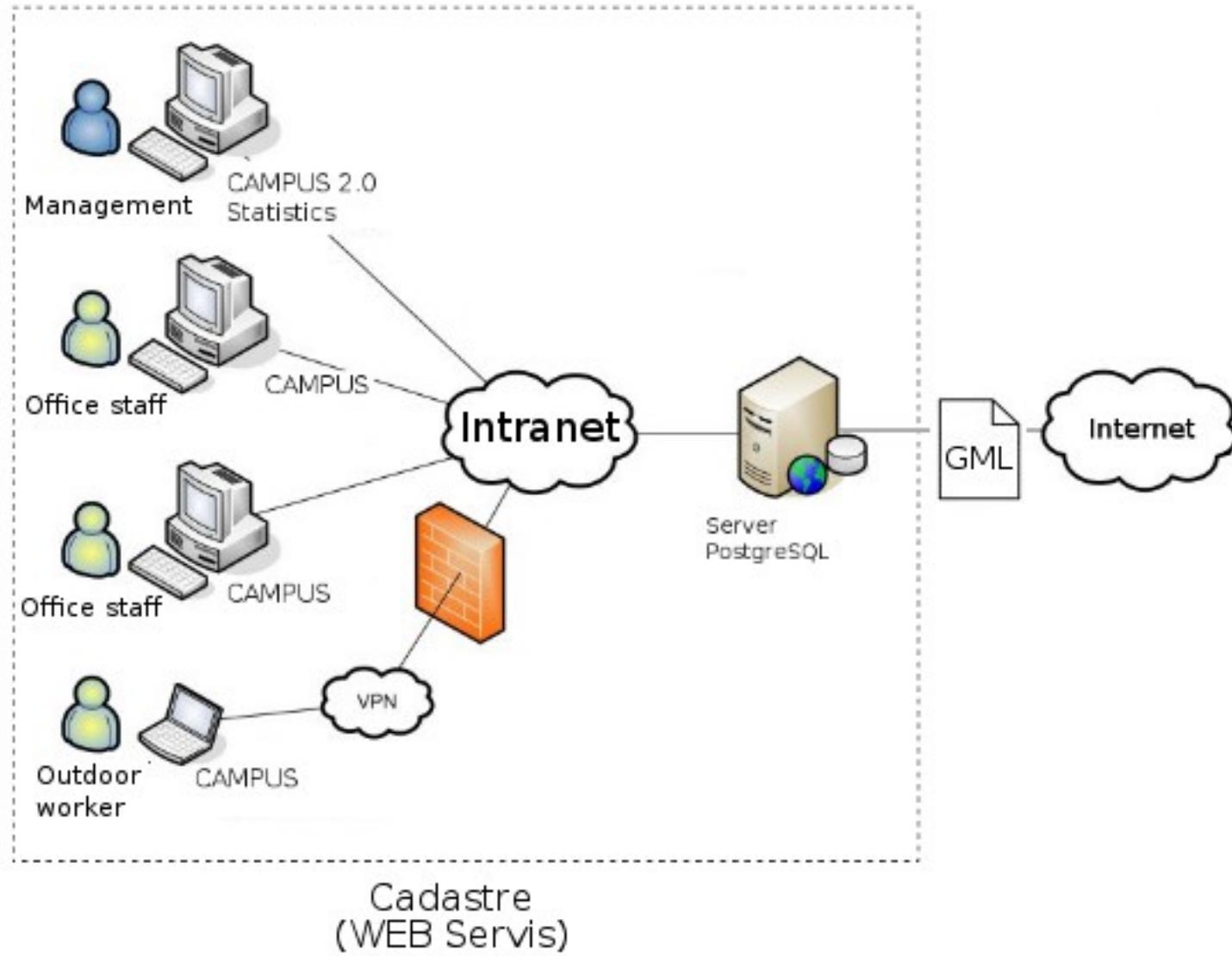
Further development: network



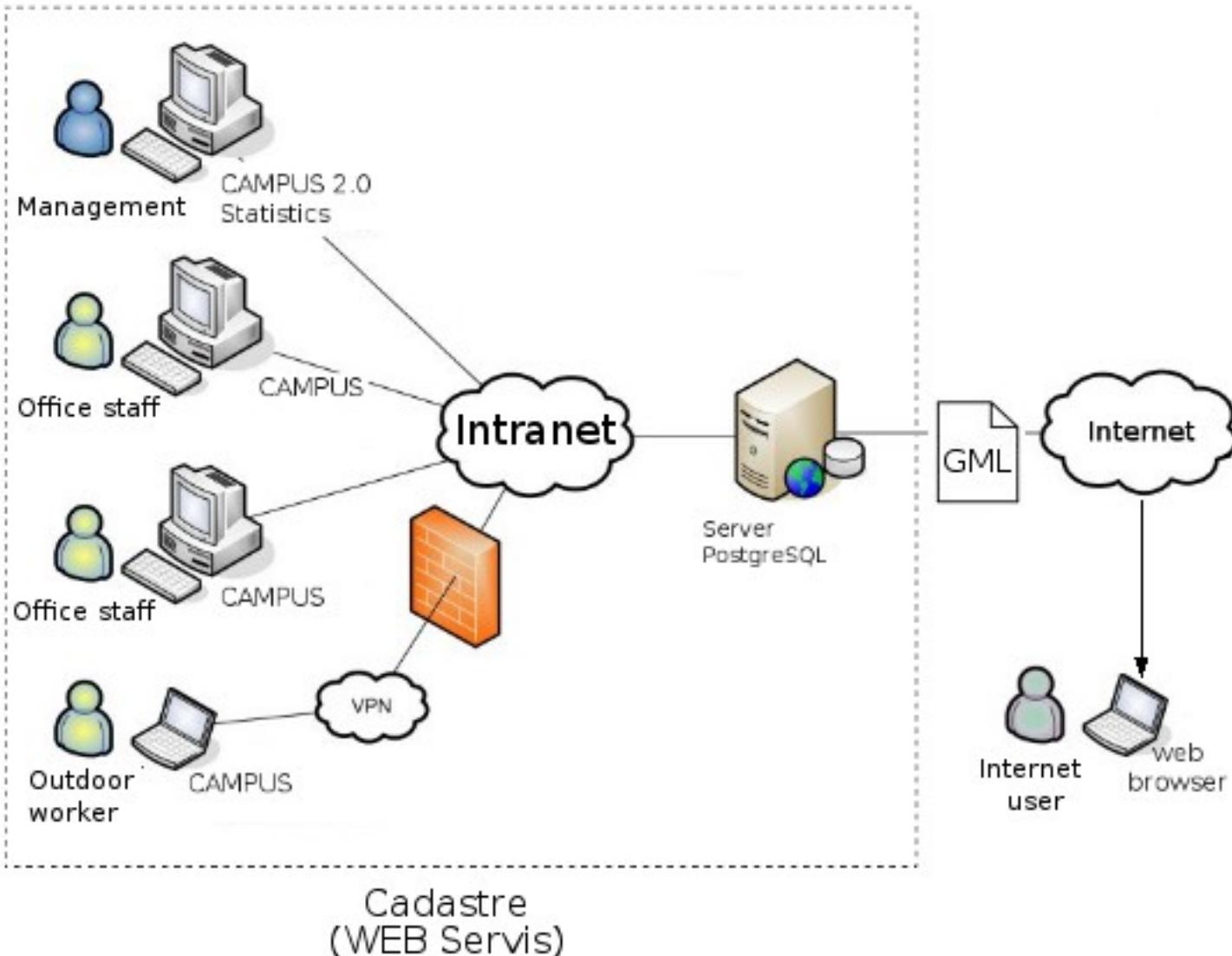
Further development: network



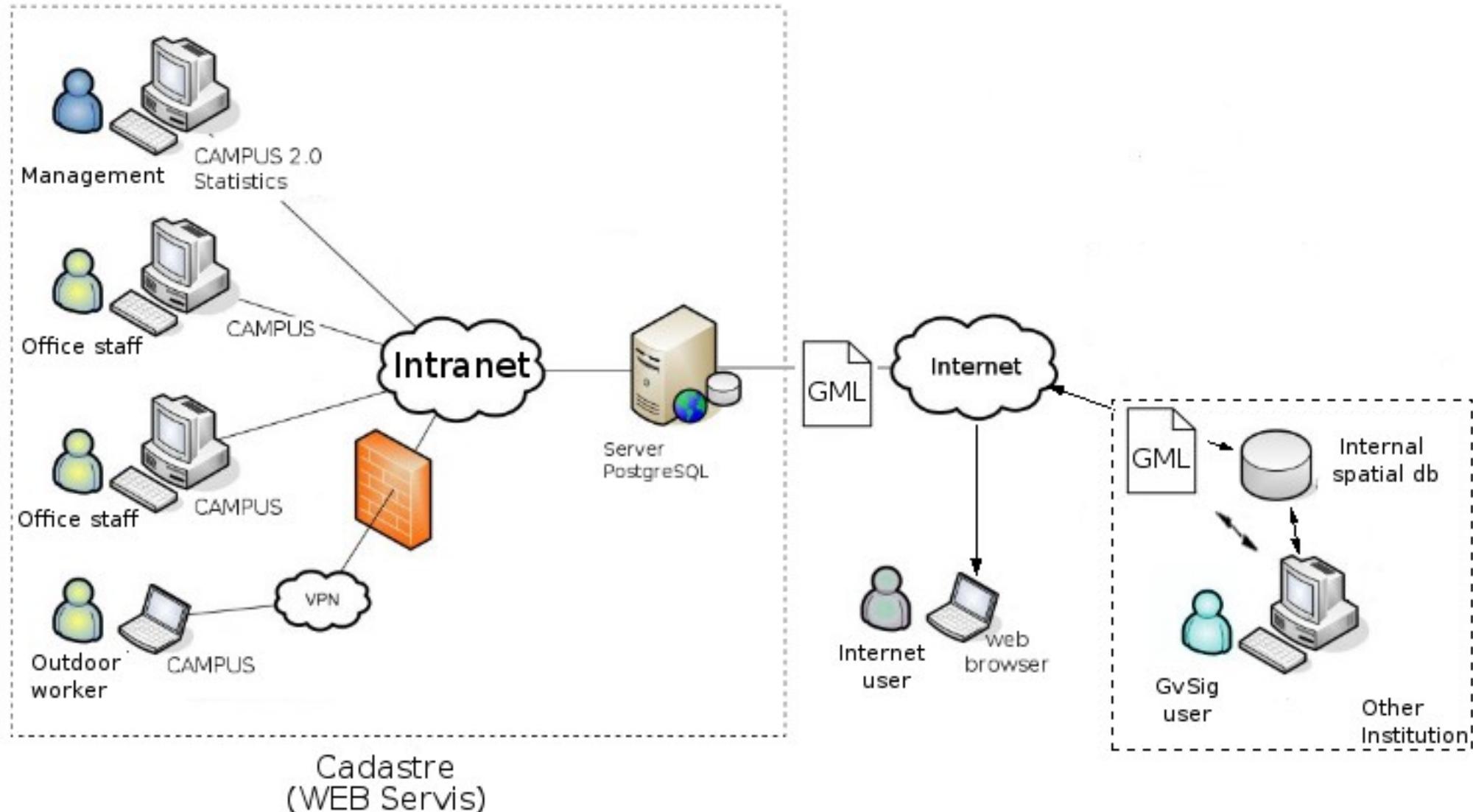
Further development: network



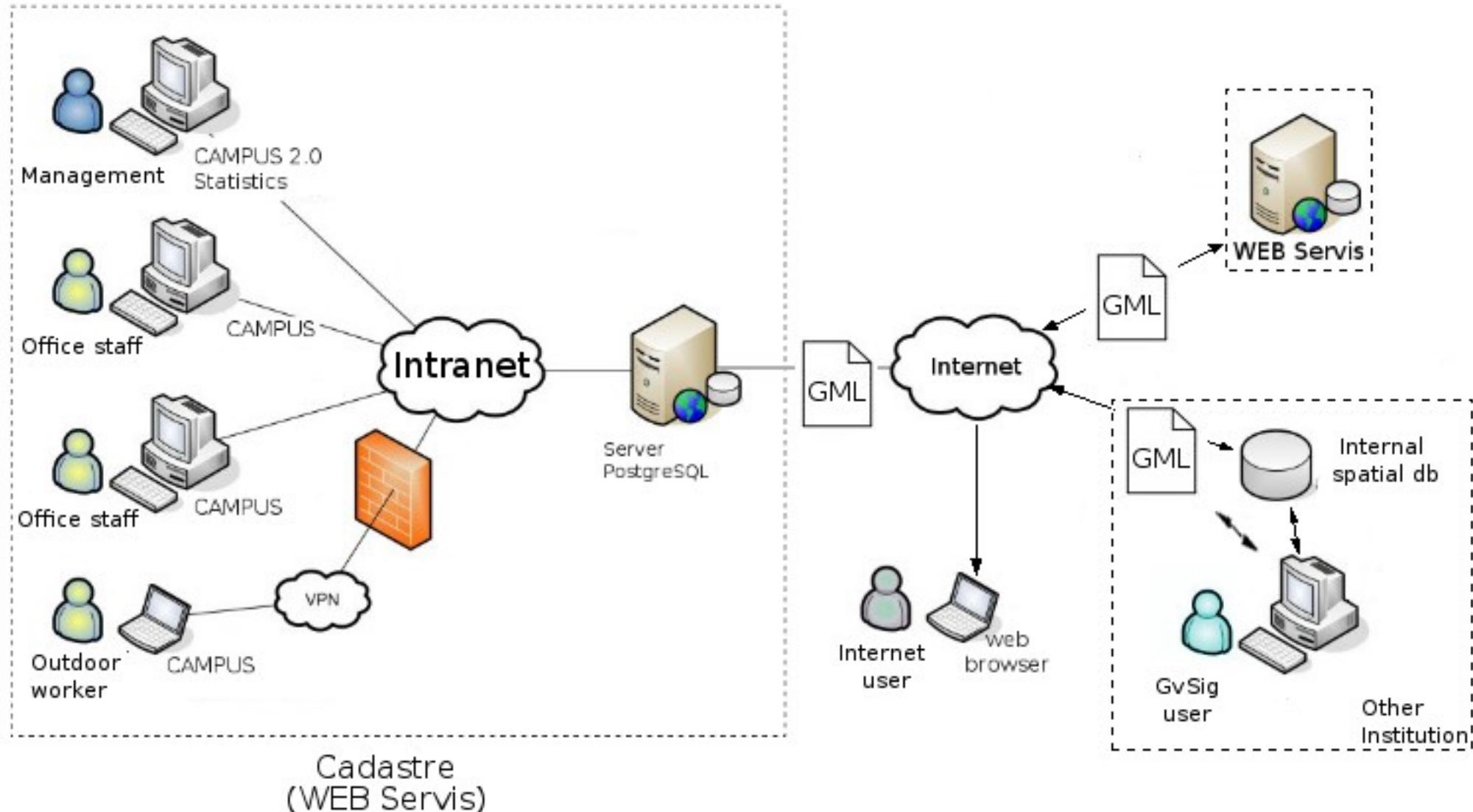
Further development: network



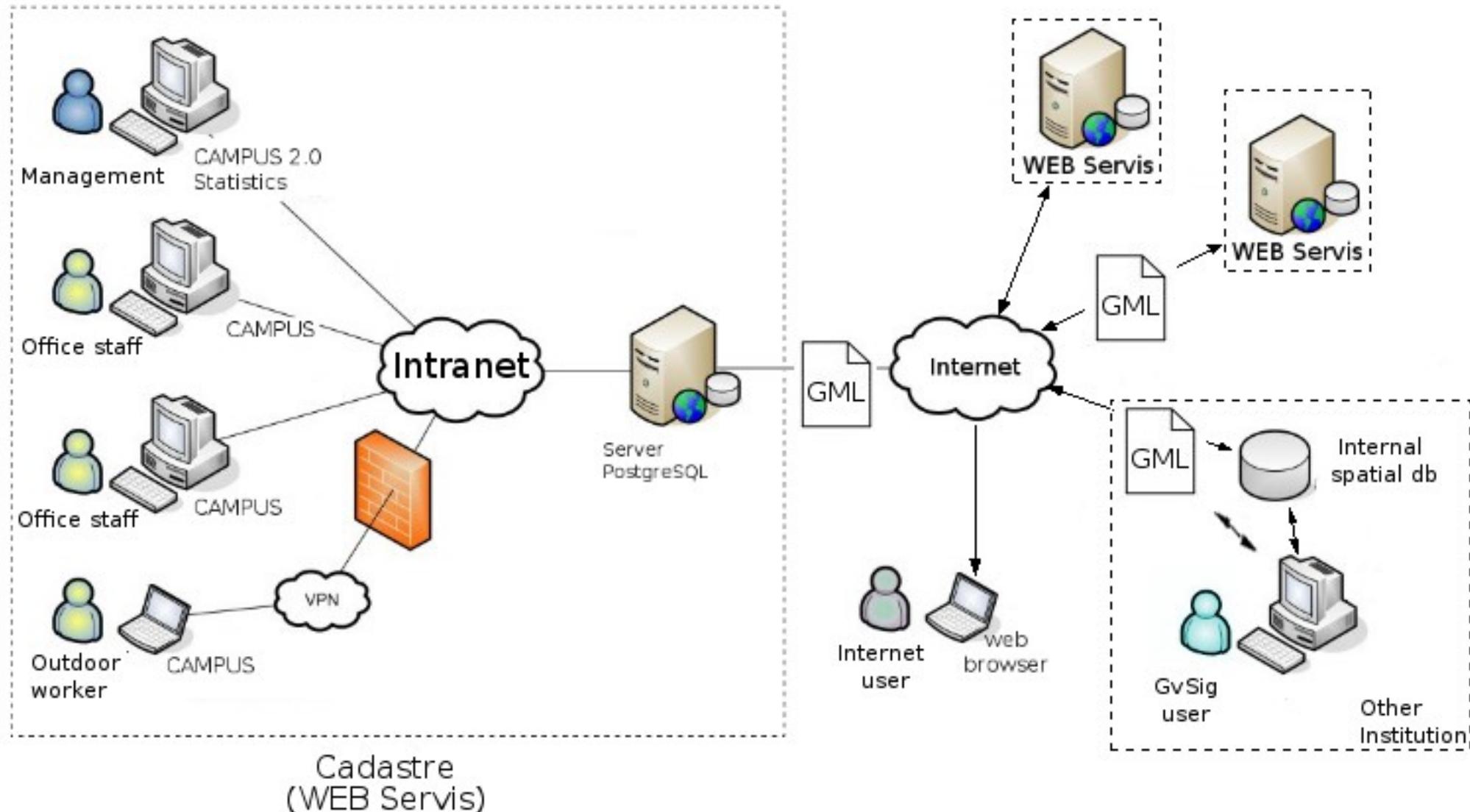
Further development: network



Further development: network



Further development: network



Thank you!

More info about the CAMPUS project can be found on site:

<http://trac.beogis.com/campus>