

# **Verification of high resolution soil sealing layer**

**- Qualitative assessment -**

**Prepared by:**

|Czech Republic

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<b>Expert name</b>	<b>Field of expertise</b>	<b>Institution</b>
Světlana Vachová	Land Use, GIS,	CENIA
Šárka Roušarová	Land Use, GIS,	CENIA
Stanislav Holý	Land Use, GIS	HELP SERVICE - REMOTE SENSING s. r.o.

## 2. Reference data

Please list the reference data that is used for this verification:

### 1. Topographic maps

No       Yes      Year:      Area: Please, select:

If only a subset, then please specify the area(s):

### 2. Aerial orthophotos

No       Yes      Year: 2004,2005,2006      Area: Full country

If only a subset, then please specify the area(s):

### 3. Very High Resolution satellite data

No       Yes      Year: 2006      Area: Full country

If only a subset, then please specify the area(s):

### 4. CLC2000

No       Yes

### 5. Other

Name:      Year:      Area: Please, select:

If only a subset, then please specify the area(s):

Name:      Year:      Area: Please, select:

If only a subset, then please specify the area(s):

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Name:

Year:

Area: Please, select:

If only a subset, then please specify the area(s):

Name:

Year:

Area: Please, select:

If only a subset, then please specify the area(s):

Comments concerning the reference data used (if any):

## B. Geometric quality

Please provide your qualitative assessment of the geometric quality of the data. The objective of this task is to perform a visual analysis of the soil sealing dataset concerning its co-registration when put in overlay with other reference datasets.

### 1. Check geometric accuracy:

Is there a visible shift?  Yes  No

If yes:

a. Is there a systematic shift?  Yes  No

b. Is there a local shift?  Yes  No

Where?

Please indicate the region, place name, coordinates or other description of location:

Objects are systematically moved about 20-30 meters to southeast.  
See appendix Pictures part 1)

2. Is the used projection correct?  Yes  No

3. Comments concerning geometric issues (if any), or in case the geometric quality could not be checked, please provide a short explanation:

### C. Thematic quality

Please provide your qualitative assessment of the thematic quality of the data. The objective of this task is to perform a visual comparison between available reference data and the soil sealing dataset. You are requested to verify for a number of land cover classes (similar to the CLC classes at levels 2 or 3) to check if any errors in the data can be identified. Please note that many land cover classes can include sealed surfaces, especially for features <25 ha.

For this part of the verification, it is recommended to use a binary mask (built-up/non-built-up area) that can be used in overlay with the reference data:

1. Apply a lookup table to map all pixels > 80% degree of soil sealing as built-up area;
2. Perform the checks on pixels > 80% degree of soil sealing by screening for each of the land cover classes if built-up or non built-up areas are correctly mapped. Feel free to add screenshots with examples to illustrate the quality judgement.

For your qualitative assessment, following examples of check boxes can be ticked:

- “excellent” meaning that you expect that the accuracy of the built-up data is reaching almost 100%; no errors could be found in the areas that were verified.
- “good” meaning that you are confident that the classification results are at least 85 % correct; only sporadic errors were encountered in the areas that were verified.
- “acceptable” meaning that you estimate that in most of the verified areas the classification results will probably reach an accuracy of 85 %; some minor errors could be detected in the areas that were verified.
- “insufficient” meaning that you do not expect that the classification results will reach the minimum of 85 % accuracy; you encountered several errors in different regions.
- “very poor” meaning that you are confident that the classification results are bad with regard to presence of built-up area; most of the areas verified are wrongly mapped.

#### Urban fabric:

a. Did you check if built-up/non built-up areas are correctly mapped within urban fabric (e.g. houses, buildings, streets, etc.)?

Yes       No       Not possible

b. How would you assess the quality of the mapped built-up area within the urban fabric?

very poor     insufficient     acceptable     good     excellent

- a. Short description of errors found (if any):

**Industrial or commercial units:**

- a. Did you check if built-up/non built-up areas are correctly mapped within industrial or commercial units (e.g. parking lots, buildings, etc.)?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor     insufficient     acceptable     good     excellent
- b. Short description of errors found (if any):

**Road and rail networks and associated land:**

- a. Did you check if built-up/non built-up areas within road and rail networks and associated land are correctly mapped (e.g. railway stations, highways >20 m width, etc.)?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor     insufficient     acceptable     good     excellent
- c. Short description of errors found (if any): Parts of roads are missing (especially highway approaches). See appendix Pictures part 3

**Port areas:**

- a. Did you check if built-up/non built-up areas in port areas are correctly mapped (e.g. installations, dykes, etc.)?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor     insufficient     acceptable     good     excellent
- d. Short description of errors found (if any):

**Airports:**

- c. Did you check if built-up/non built-up areas in airports are correctly mapped (e.g. runways, buildings, etc.)?  
 Yes       No       Not possible
- d. How would you assess the quality?  
 very poor     insufficient     acceptable     good     excellent
- e. Short description of errors found (if any):

**Mine, dump and construction sites:**

- a. Did you check if built-up/non built-up areas in mine, dump and construction sites are correctly mapped (e.g. buildings, infrastructure, etc)?
- Yes       No       Not possible
- b. How would you assess the quality?
- very poor     insufficient     acceptable     good     excellent
- f. Short description of errors found (if any):

**Arable land:**

- a. Did you check if built-up/non built-up areas in arable land are correctly mapped (e.g. bare soil, large farm houses, roads>20m width, etc)?
- Yes       No       Not possible
- b. How would you assess the quality?
- very poor     insufficient     acceptable     good     excellent
- g. Short description of errors found (if any): Parts of villages are missing. See appendix Pictures part 2)

**Heterogeneous agricultural areas:**

- a. Did you check if built-up/non built-up areas in heterogeneous agricultural areas are correctly mapped (e.g. buildings, roads >20m, etc)?
- Yes       No       Not possible
- b. How would you assess the quality?
- very poor     insufficient     acceptable     good     excellent
- h. Short description of errors found (if any): Parts of villages are missing. See appendix Pictures part 2)

**Forest:**

- a. Did you check built-up/non built-up areas in forests are correctly mapped (e.g. clear-cuts, roads, etc.)?
- Yes       No       Not possible
- b. How would you assess the quality?
- very poor     insufficient     acceptable     good     excellent
- i. Short description of errors found (if any):

**Scrub and/or herbaceous vegetation associations:**

- a. Did you check if built-up/non built-up areas in scrub and/or herbaceous vegetation areas are correctly mapped (e.g. dry vegetation, rock outcrop, etc.)?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- j. Short description of errors found (if any):

**Beaches, dunes and sands:**

- a. Did you check if built-up/non built-up areas in beaches, dunes and sand areas are correctly mapped?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- k. Short description of errors found (if any):

**Bare rocks:**

- a. Did you check if built-up/non built-up areas in bare rock areas are correctly mapped?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- l. Short description of errors found (if any):

**Sparsely vegetated areas:**

- a. Did you check if built-up/non built-up areas in sparsely vegetated areas are correctly mapped?  
 Yes       No       Not possible
- c. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- m. Short description of errors found (if any):

**Glaciers and perpetual snow:**

- a. Did you check if built-up/non built-up areas in glaciers and perpetual snow areas are correctly mapped?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- n. Short description of errors found (if any):

**Inland wetlands:**

- a. Did you check if built-up/non built-up areas in inland wetlands are correctly mapped ?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- o. Short description of errors found (if any):

**Salines:**

- c. Did you check if built-up/non built-up areas in salines are correctly mapped?  
 Yes       No       Not possible
- d. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- p. Short description of errors found (if any):

**Intertidal flats:**

- a. Did you check if built-up/non built-up areas in intertidal flats are correctly mapped?  
 Yes       No       Not possible
- b. How would you assess the quality?  
 very poor    insufficient    acceptable    good    excellent
- q. Short description of errors found (if any):

**Coastal lagoons:**

- a. Did you check if built-up/non built-up areas in coastal lagoons are correctly mapped?  
 Yes       No       Not possible
- b. How would you assess the quality?

very poor  insufficient  acceptable  good  excellent

r. Short description of errors found (if any):

3. Comments concerning thematic content check (if any). Please indicate which part of the data was verified (full coverage or partial coverage, etc.):

- Full coverage.

We focused on parts of Czech Republic where had been the fastest development last few years – growing villages, cities, industry and roads.

#### **D. Overall qualitative assessment of the dataset**

The overall qualitative assessment is meant to support EEA in our contractual procedures with the service provider regarding the acceptance of the dataset. While the previous thematic quality assessment was looking at class by class, this section should provide your assessment of the quality for the whole territory.

How would you assess the overall quality of the mapped built-up/non built-up areas for the dataset provided?

very poor  insufficient  acceptable  good  excellent

Please provide your final comments and additional remarks concerning overall qualitative assessment (e.g. difference in quality between regions e.g. mountains, agglomerations, coastal zones, etc), if any:

Most common mistake is misclassified new parts of cities, villages and highways by witch I mean they are not classified as built up.

On added pictures you can also see the shift of the layer.

See annex.

### **E. Quantitative validation**

Are you planning to carry out a statistical validation (quantitative assessment) of the national dataset?

Yes       No

If yes, it would be helpful to provide us information about the timing, methodological approach or any other additional information which might be available:

<p>We would use the methodology we have received from you. It is called “Recommendations Quantitative assessment high-resolution soil sealing layer”. We will do the validation of national project by the statistical approach at the same time as the validation of European product.</p>
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Are you willing to contribute to the final validation of the European dataset (actions scheduled from the second half of 2008 onwards)?

Yes       No

Only if the validation is going to be financed extra the agreement.

Filled in by Jana Petruchova

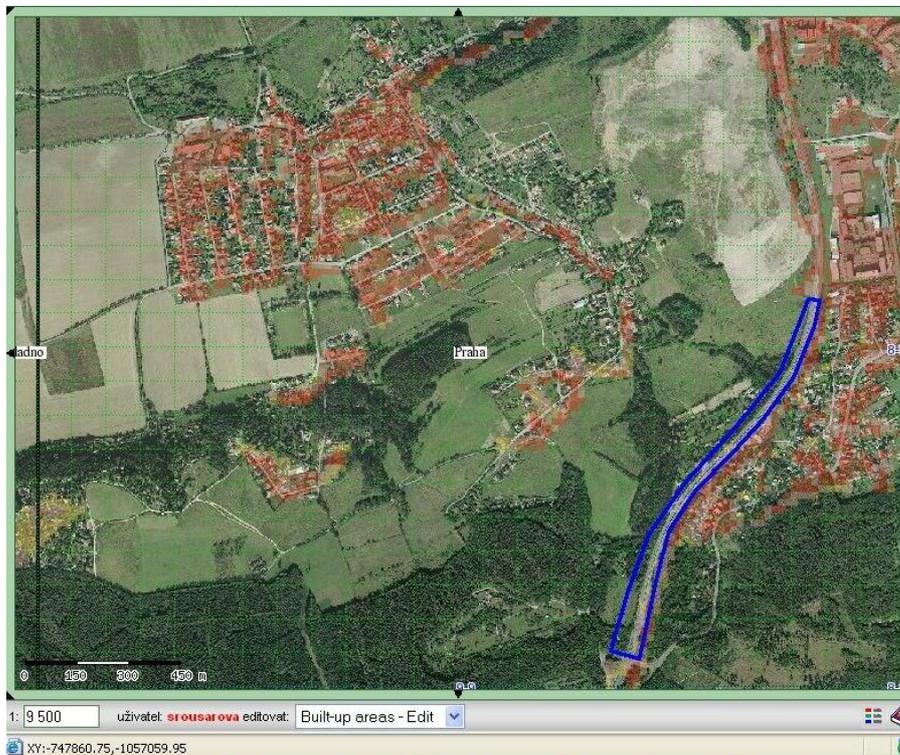
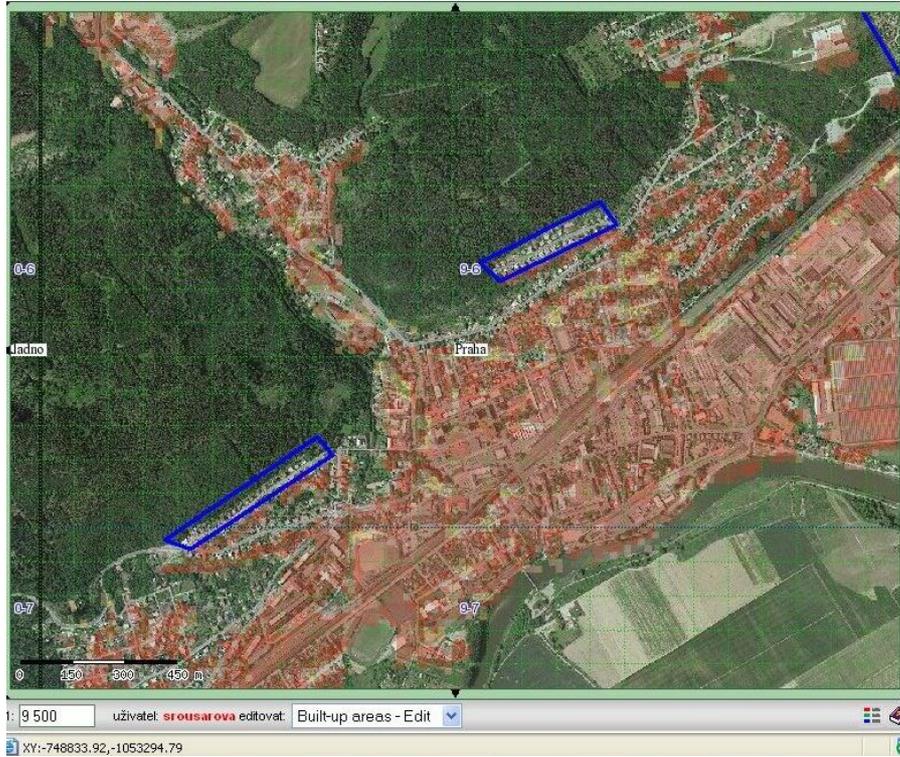
Telephone number: +420725505108

Email address: jana.petruchova@cenia.cz

Date: 20.2.2008

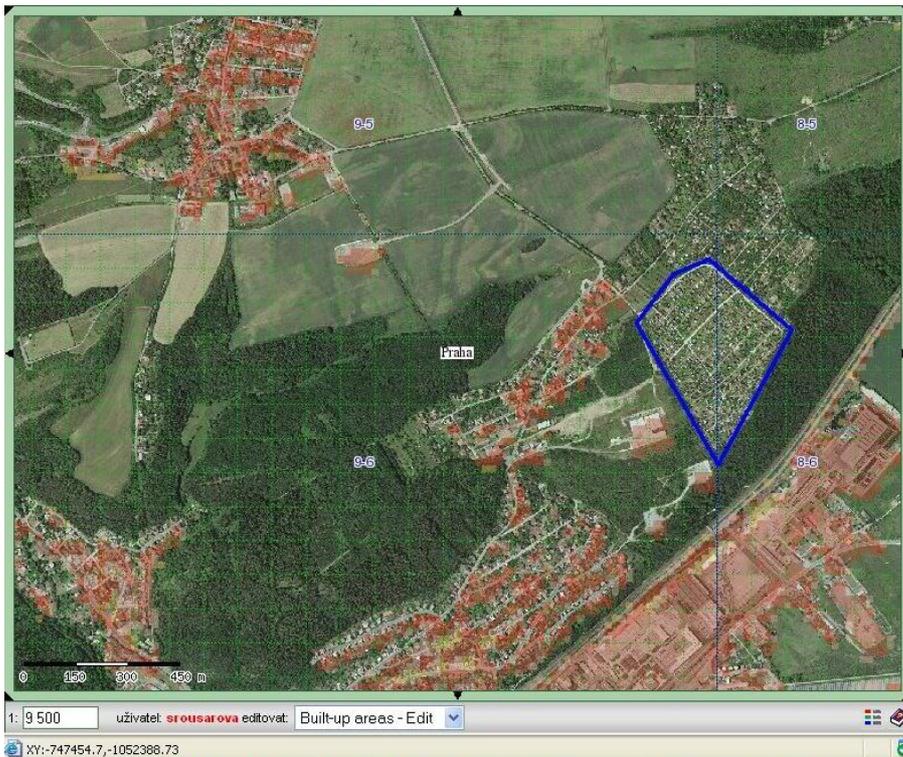
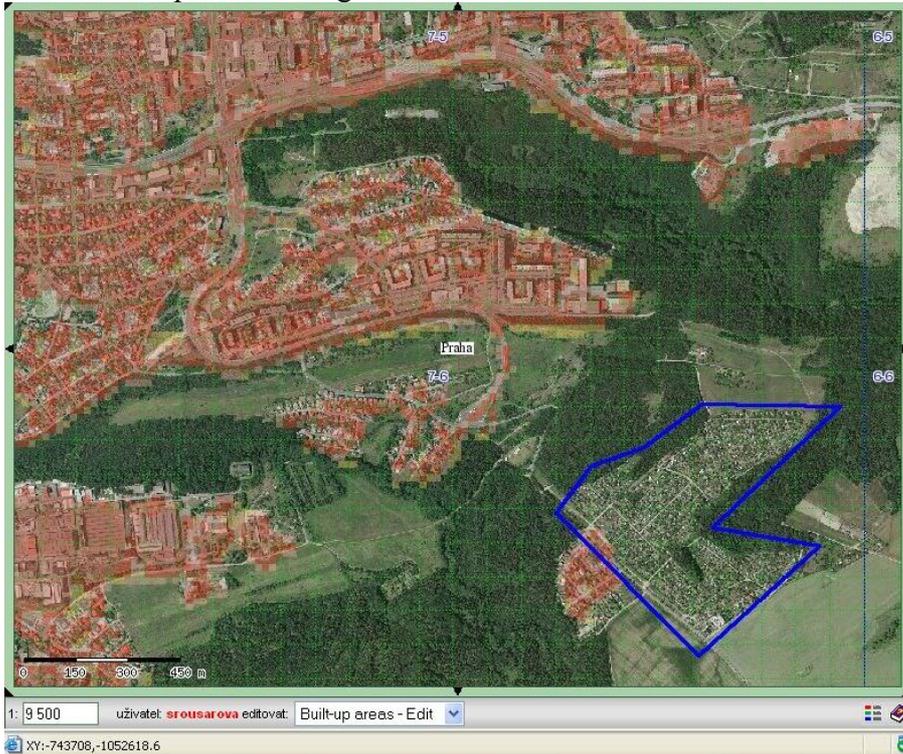
**Annex:**

Pictures part 1)  
Systematic shift of the layer



Pictures part 2)

Unclassified parts of villages



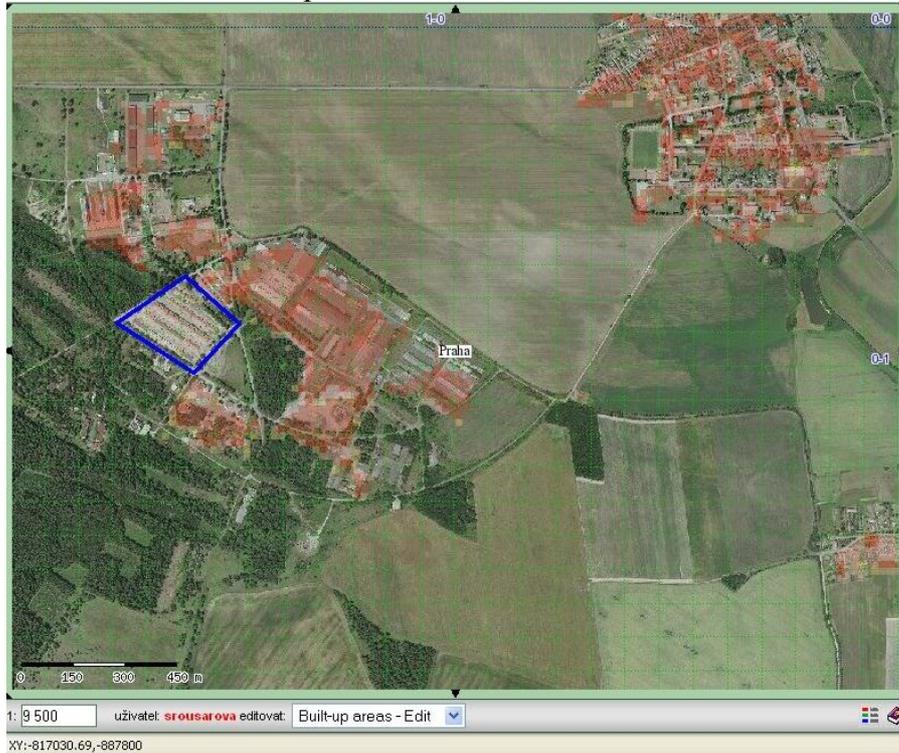
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These 3 following pictures are demonstrating the most common mistake.

Unclassified new parts of villages showed on all reference data:

- Satellite coverage from year 2000,
- Satellite coverage from year 2005
- ortophoto 2005.

Ortophoto 2005 – new part of a village showed also on satellite picture 2005 but it is not classified as built up



Satellite 2000 – as you can see it is non built up area yet



Satellite 2005 – as you can see it is new built up area



Pictures part 3)

Unclassified new parts of roads and new big buildings



Satellite 2000 – as you can see it is not built up in 2000



Satellite 2006– it is built up in 2006

