1. Preparatory work

1. Upload the data that will be made available by EEA via ftp server or sent by mail. Please inform EEA on reception of the data;
2. Check for available reference data that will be used during the verification;
3. List the experts/expertise that are involved in the verification task:

Expert name	**Field of expertise**	**Institution**
Stefan Kleeschulte	GIS, RS, land cover	GeoVille Environmental Services, Mertert, LU

The average time needed for this verification is estimated at one person/day per10.000 km^2. Please note that this time can vary depending on the experience of the interpreter, the availability of the reference data and the complexity of the landscape. The table below gives an indicative estimate for the EEA member countries.

Country	**Area (km^2)**	**Person days**	**Country**	**Area (km^2)**	**Person days**
Austria + Liechtenstein	83.855	9	Lithuania	65.200	7
Belgium	30.520	3	Luxembourg	2.586	<1
Bulgaria	110.994	11	Malta	316	<1
Cyprus	9.251	1	Netherlands	41.526	4
Czech Republic	78.864	8	Norway	323.878	33
Denmark	43.075	4	Poland	312.683	31
Estonia	45.200	5	Portugal	88.935	9
Finland	338.145	34	Romania	237.500	24
France	543.965	55	Slovakia	20.251	5
Germany	357.028	36	Slovenia	49.035	2
Greece	131.957	13	Spain	504.782	51
Hungary	93.030	9	Sweden	449.964	39
Iceland	102.820	10	Switzerland	41.293	4
Ireland	70.282	7	Turkey	789.452	79
Italy	301.245	30	United Kingdom	244.082	25
Latvia	63.700	6			

2. Reference data

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

1. Topographic maps

☐ No ☑ Yes Year: 2000 Area: Full country

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

2. Aerial orthophotos

☐ No ☑ Yes Year: 2004 Area: Full country

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

3. Very High Resolution satellite data

☑ No ☐ Yes Year: Area: Please, select:

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

4. CLC2000

☐ No ☑Yes

5. Other

Name: CLC2006 Year: 2006 Area: Full country

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

Name: OBS Year: 1999 Area: Full country

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):

Name: Year: Area: Please, select:

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

Comments concerning the reference data used (if any):

Topographic maps are available at scale 1:20.000 in digital raster format. They were used as backdrop for the overlay with the FTSP soil sealing information.

OBS = Occupation Biophysique du Sol; national land cover database at 1:10.000 scale, based on aerial images and field work.

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:

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): Some commission errors in case of fields within villages (e.g. Mertert).

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):

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):

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):

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.):

The full territory of Luxembourg was screened.

The areas >80% sealed match the actual built-up areas very well. The soil sealing layer differentiates even in the 1:10.000 OBS layer built-up from non-built-up land within one homogeneous polygon (e.g. industrial complex).
Mistakes (omissions) occur in areas under clouds where only monotemporal data were available (e.g. Troisvierges).
A few errors of commission were detected (Mertert).
Areas along the urban fringe area often not mapped, but in these areas the sealing degree is below 80%. Even when displaying pixels below 80% many of these urban fringe areas are not mapped.

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:

If an area is classified as built-up in the database the probability that it actually is built-up is rather high.

On the other hand, several areas (below 80% sealing) are missing. They are some of the more dynamic areas as they mostly represent (new) settlement areas (single houses) often at the urban fringe.

The transport network is discontinuous and only captured in larger complexes / contexts.

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:

Are you willing to contribute to the final validation of the European dataset (actions scheduled from the second half of 2008 onwards)?

☐ Yes ☑ No

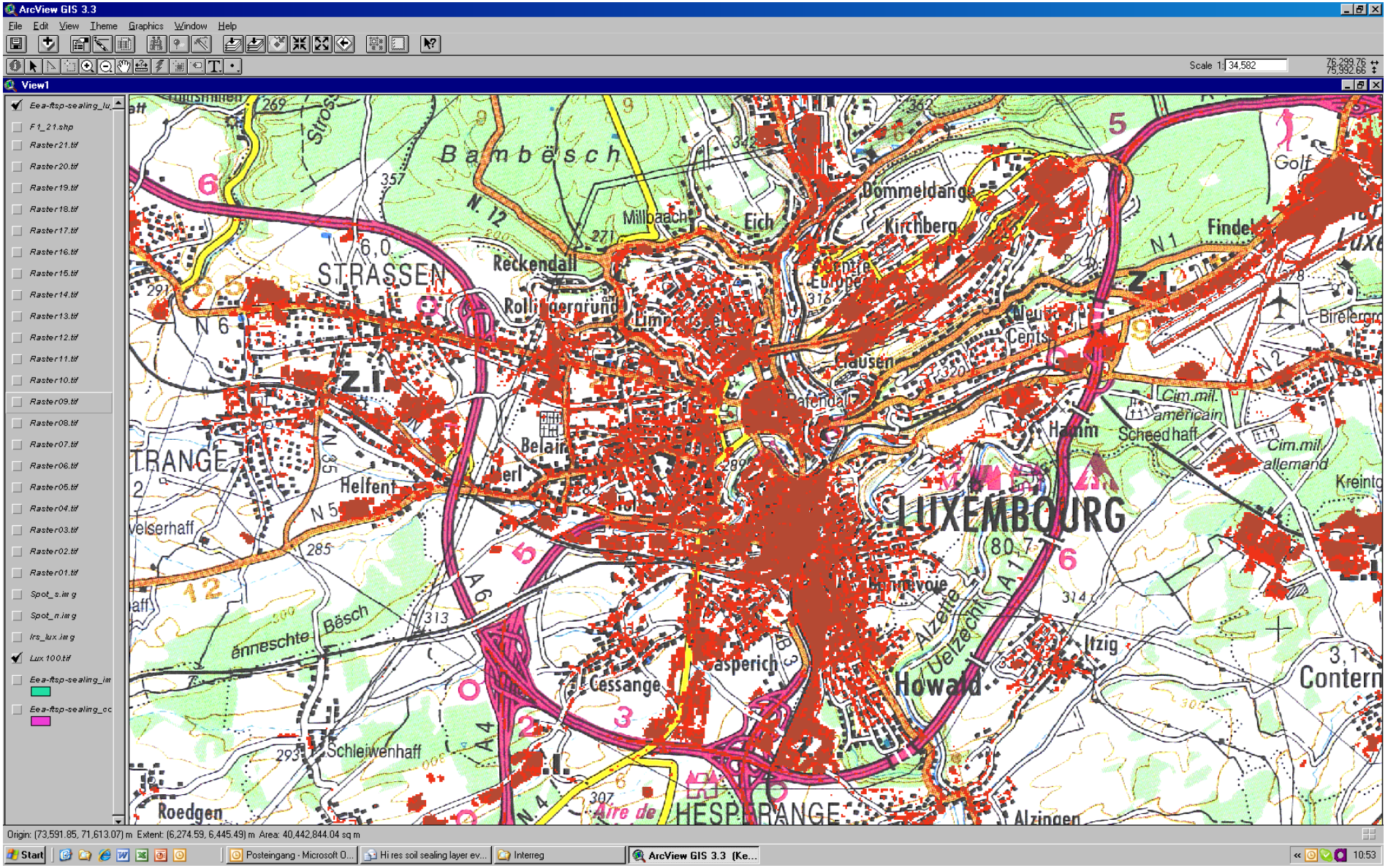
Filled in by Stefan Kleeschulte

Telephone number: +352 26 71 41 35

Email address: Kleeschulte@geoville.com

Date: 03/01/2008

Thank you!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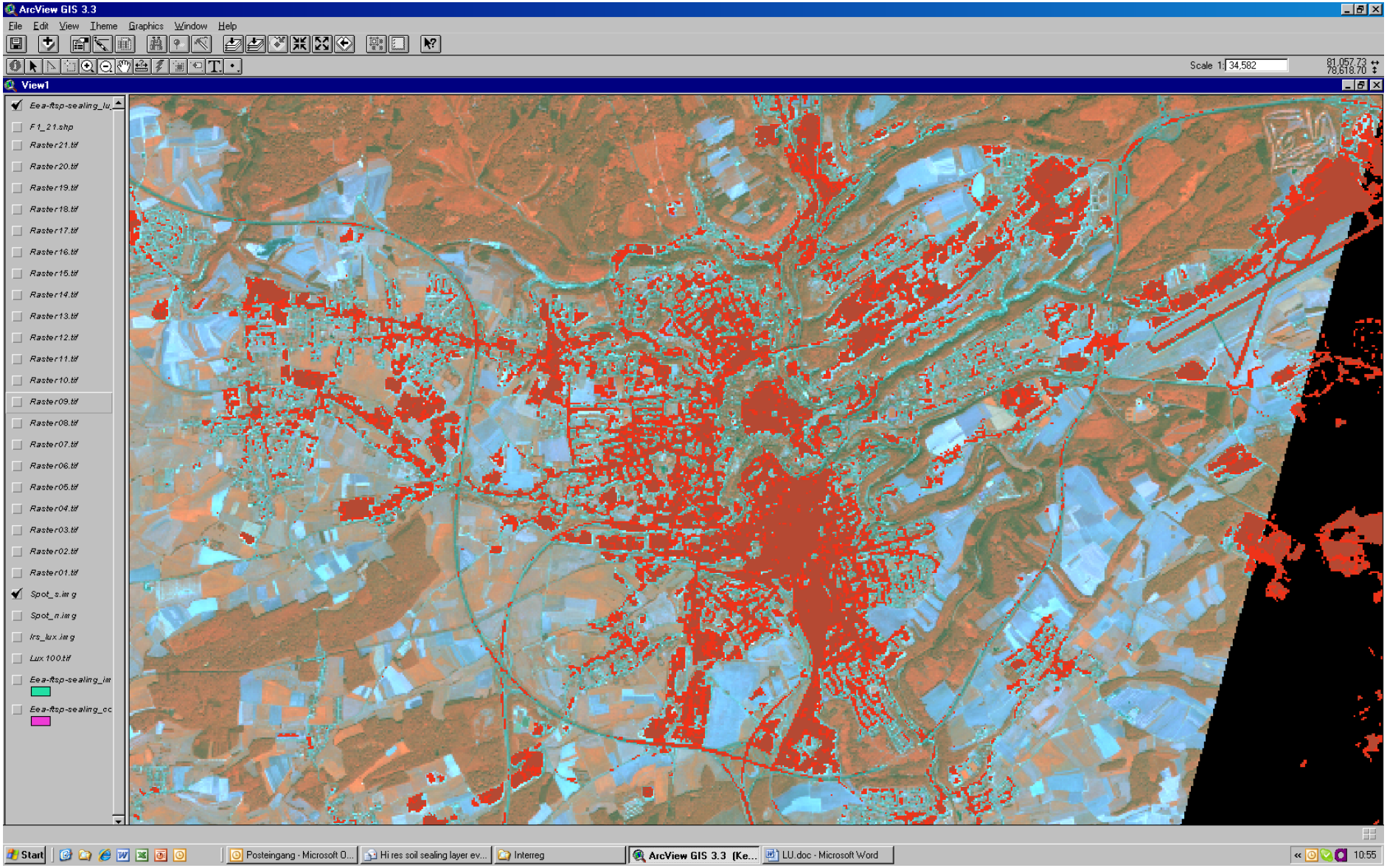
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