

Mapping Status of of near-surface raw materials of Mecklenburg-Vorpommern (NE-Germany)

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From 2002 to 2004 mapping of near-surface raw materials had been carried out for the whole State territory in the Map of Mineral Resources Mecklenburg-Vorpommern (**K**arte der **o**berflächennahen **R**ohstoffe M-V = KOR50 M-V). This map bases on the so far existing knowledge about the geology of raw materials in M-V, especially contained in exploration-documents in the archives of LUNG M-V and of the State mining authority M-V (BERGAMT M-V). The distribution areas of raw materials (deposits, occurrences, prospecting areas) were mapped and interpreted with regard to their potential of future supply (BÖRNER 2006a).

The map series KOR-50 M-V is basically structured into a geometric section and into a data section. The geometric section consists of layers of digital information, each belonging to the represented subjects within KOR-50 M-V, such as mapped distributional areas of the respective near-surface raw materials (prospecting areas, occurrences, deposits), the legal mining status, and others (GEOPROJEKT 2006).

Within the data section information of the single subjects of KOR-50 M-V are managed in tables of determined standard in an ACCESS-database. The the generation of data follows a standard which allows the overall availability of data for the users.

The KOR 50 map series consists of the following special map sheets which were mapped by uniform methods and are worked out on the topographical map 1:50.000 for each sheet (BERGAMT et al. 2002):

- **basic map „A“**, showing

- **Map sheet of distribution of near-surface raw materials** (sand, gravel sand, tertiary quartz sand, marine sand and gravel sand, clayish raw materials, limestone, peat and meadow iron ore).
- **map sheet of thickness** of the sandy and gravel sandy raw materials
- **map sheet of thickness** of clayish raw materials and limestone or limy raw materials.

The thicknesses of the other raw materials are not shown in the basic map set **A** but is registered in the data base.

- **basic map B - map of the mineability**

map of the mineability of sand and gravel sand, clayish raw materials limestones and limy raw materials. The other raw materials are not assessed by their mineability.

- **basic map C - legal status of areas**

map regarding the legal status of areas supervised by the Mining authority in M-V (BERGAMT M-V, Stralsund)

- **basic map D – level of protection-ability**

map regarding the workable condition of sand and gravel sand, clayish raw materials, limestones, limy raw materials and peat.

The assessment of the raw material's potential in place is of great importance for making decisions by the responsible authorities for land use planning in present time and in the future (BÖRNER 2006b). Furthermore, in this context the deposits underlying active miningactivities, the different restrictions for mining by conflicting land use, the already existing areas of priority (Vorranggebiete) as well the areas of providence (Vorsorgegebiete) for safeguarding of raw materials supply, and others were considered (BÖRNER & GRANITZKI 2006).

The Map Series KOR 50 is important for a better recording and interpretation of the raw materials potential of the State of Mecklenburg-Vorpommern. It bases on an modern and uniform method and establishes an excellent database in applied geology, especially for an efficient and sustainable supply with raw materials in M-V. Moreover, it allows the deduction of proposals and measures for a better and more effective use of regional raw material potentials (BÖRNER 2007).

Literature (References)

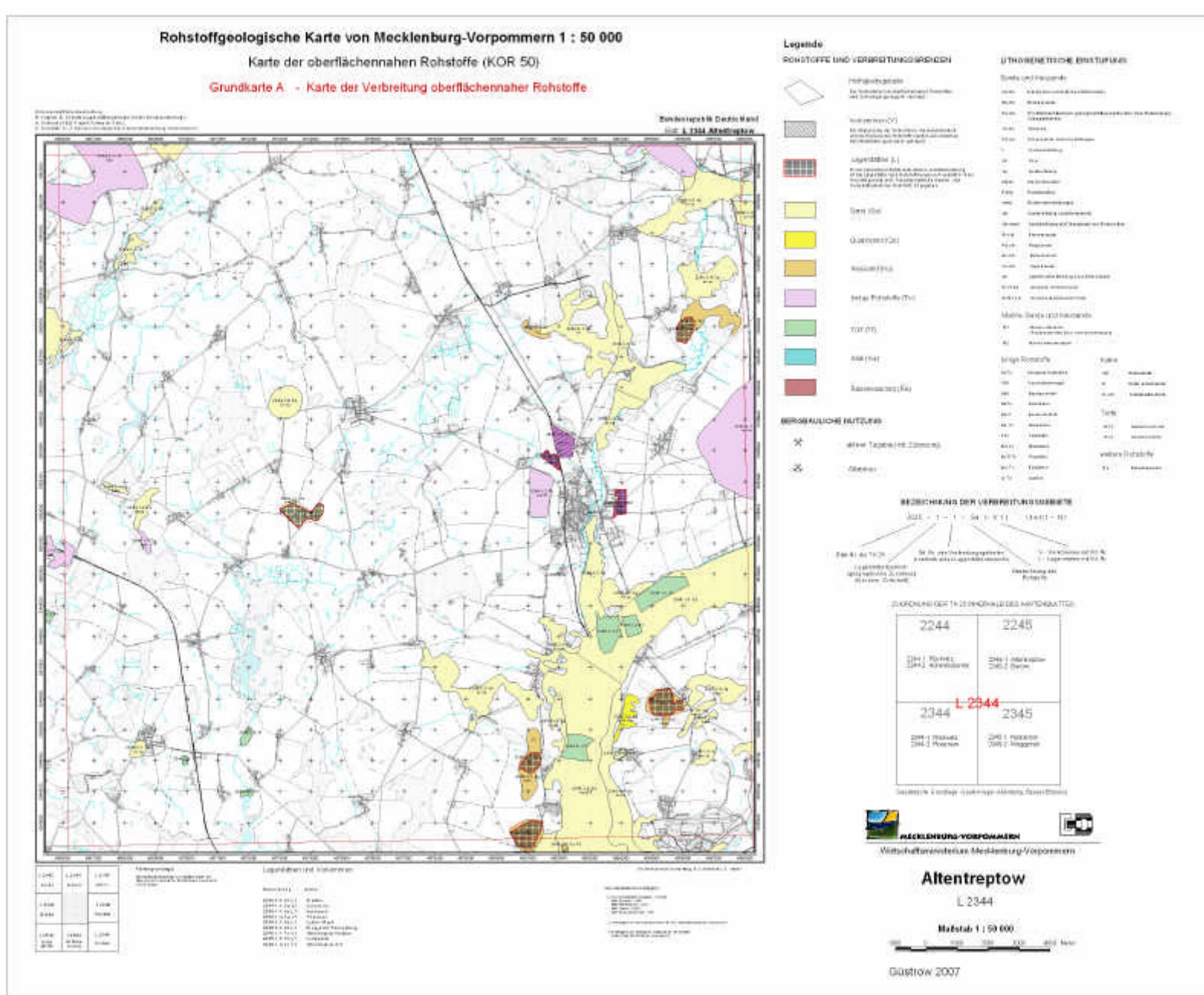
BÖRNER, A. (2006a) Rohstoffgeologische Landesaufnahme von oberflächennahen Rohstoffen in Mecklenburg-Vorpommern - aktueller Stand und Perspektiven. - Vortrag im Rahmen des 2. Rohstoffforum Mecklenburg-Vorpommern, Schwerin.

- BÖRNER, A, (2006b) Rohstoffmonitoring und rohstoffgeologische Vorgaben für die Raumplanung. - Vortrag im Rahmen des Seminars "Rohstoffabbau in M-V - Vorsorge und Nachsorge aus Umweltsicht" 2006 Landesamt für Umwelt, Naturschutz und Geologie M-V, Güstrow.
- BÖRNER, A. (2007) Karte der oberflächennahen Rohstoffe Mecklenburg-Vorpommern 1:500.000, ed. Landesamt für Umwelt, Naturschutz und Geologie M-V, Güstrow.
- BÖRNER, A.; GRANITZKI, K. (2006): Das Rohstoffpotenzial in Mecklenburg-Vorpommern. – In: Rohstoffsicherung in Mecklenburg-Vorpommern, ed. LUNG M-V, p.5-23, Güstrow.
- BERGAMT M-V, LAGERSTÄTTENGEOLOGIE NEUBRANDENBURG, LUNG M-V, (2002) Kartieranleitung für das Kartenwerk oberflächennaher Rohstoffe Mecklenburg-Vorpommern im Maßstab 1 : 50.000 KOR 50 M-V, unpubl., 76 p., Güstrow.
- GEOPROJEKT SCHWERIN (2006) Summary of instructions for the mapping of raw materials close to the Earth's surface in Mecklenburg-Vorpommern (NE-Germany) on scale 1 : 50.000 KOR 50 M-V, unpubl., 10 p., Schwerin.

Mapping status of of near-surface raw materials in Mecklenburg-Vorpommern (NE-Germany)

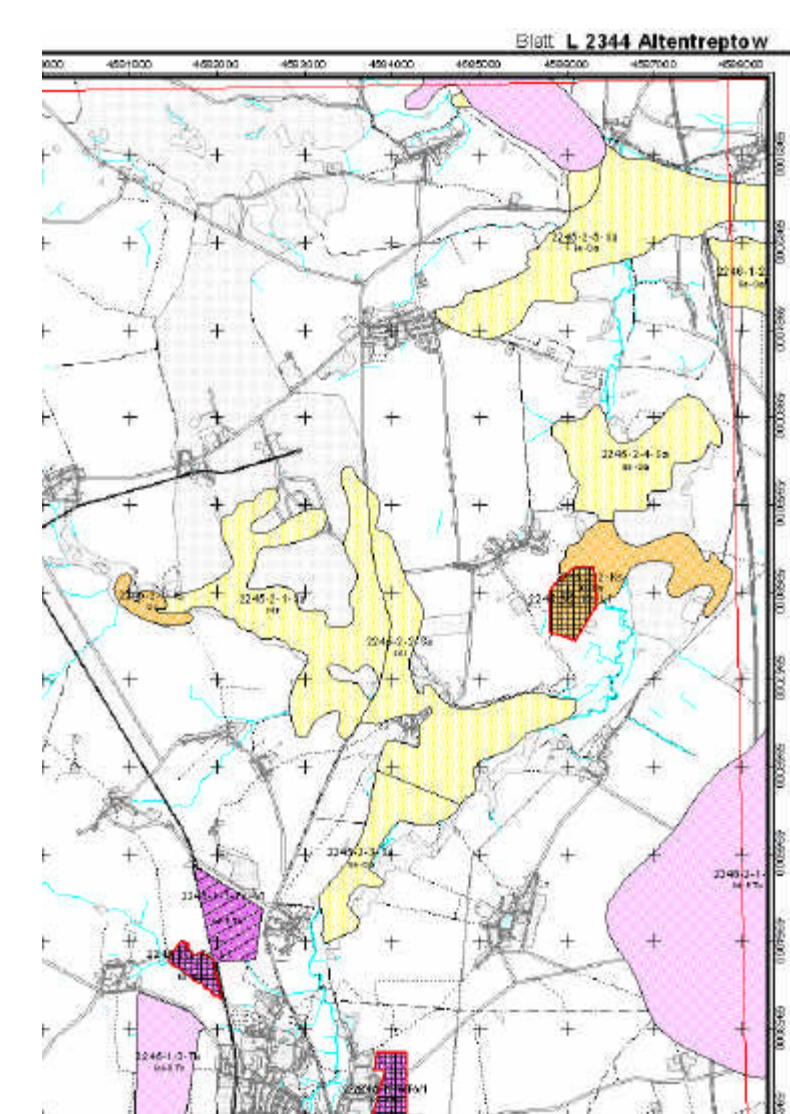
Andreas Börner

State office for Environment, Nature protection and Geology Mecklenburg-Western Pomerania



Basic map A - distribution of raw materials

Spreading areas of raw materials with marking of today's and former mines

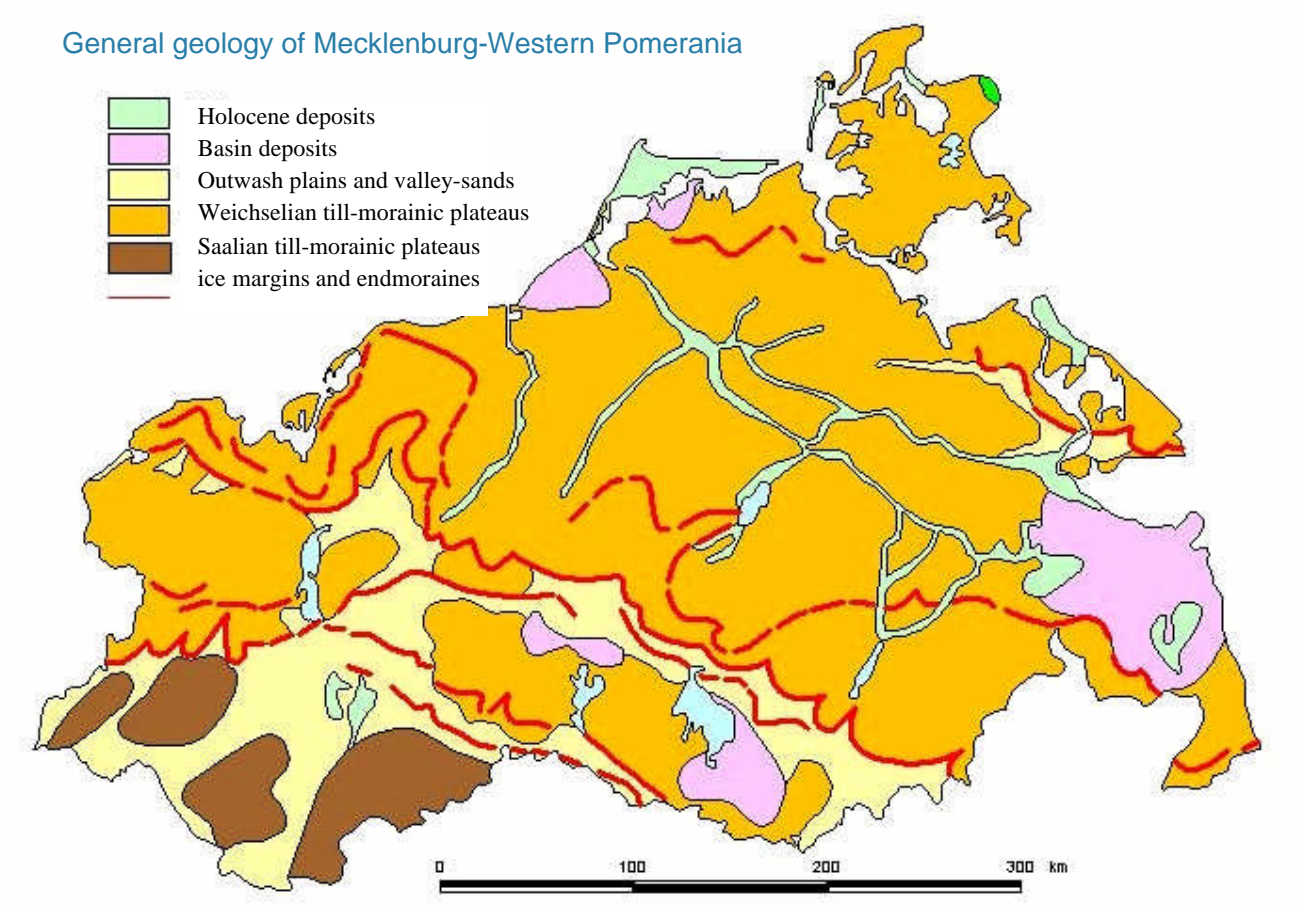


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Actual data from mapping of near surface raw materials in KOR 50 Mecklenburg-Western Pomerania in scale 1 : 50.000 (2002 - 2005)

KOR 50 M-V = standardized mapping instructions for complete country

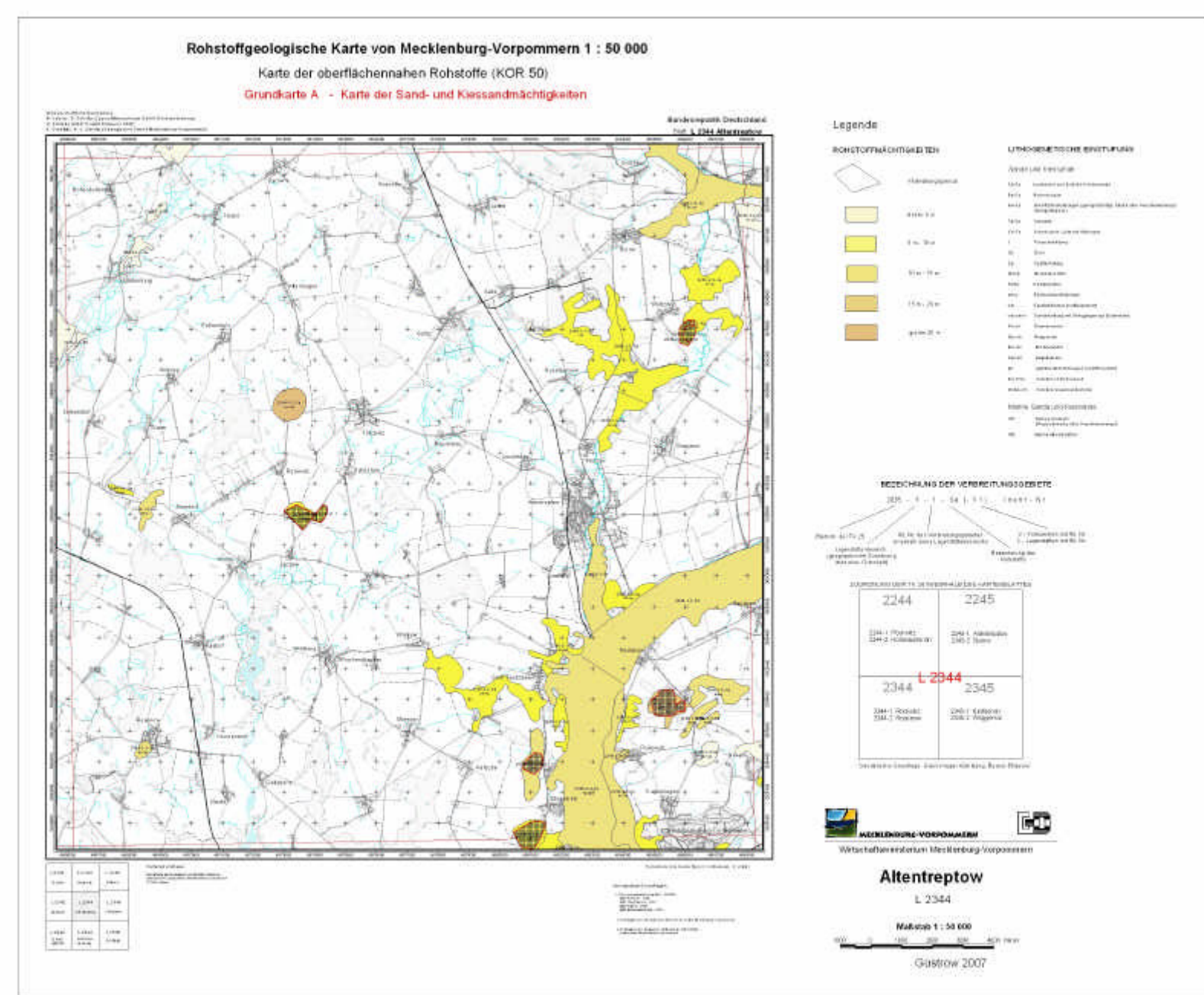
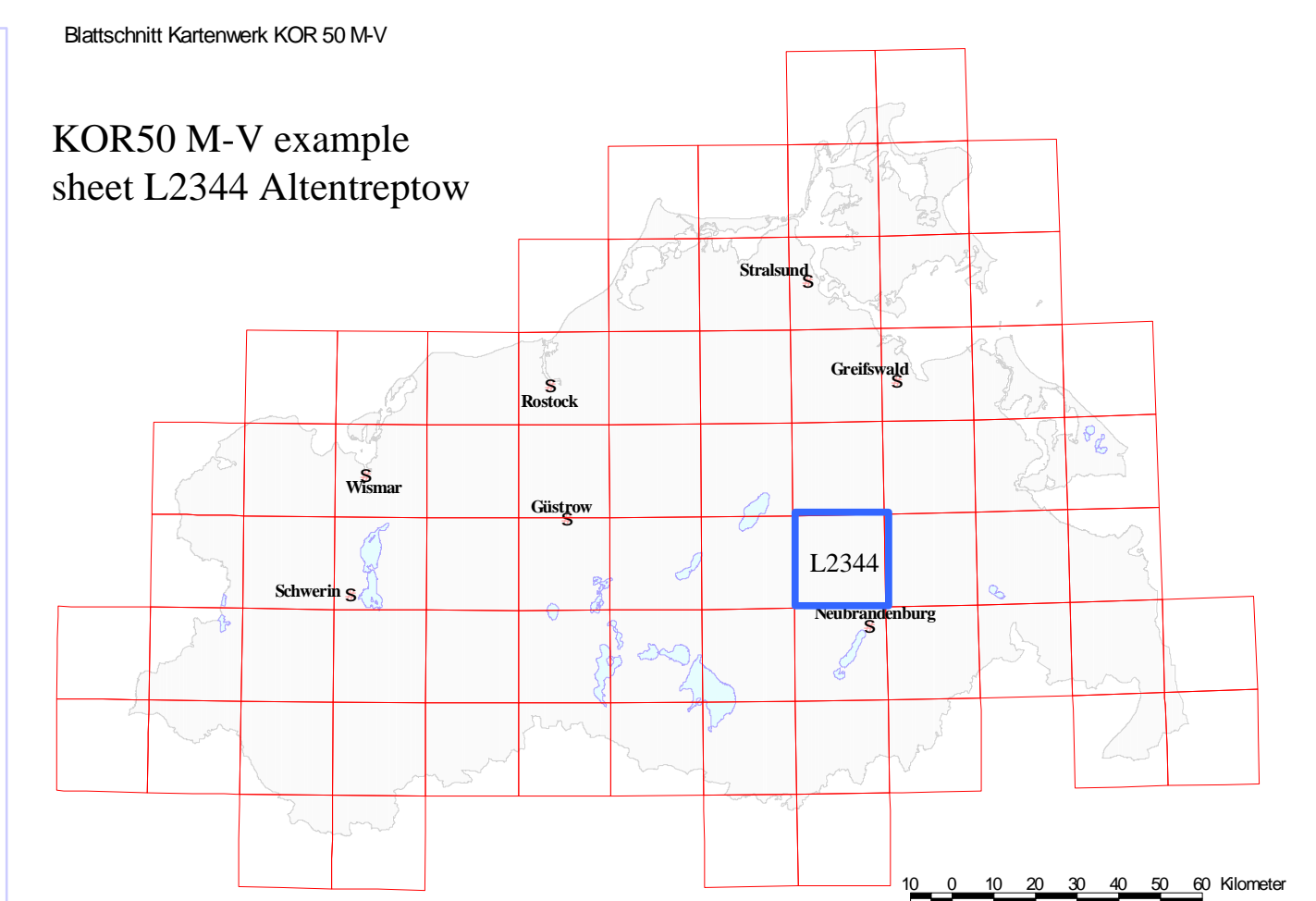
Data-input to homogeneous KOR 50 M-V database

Data-ouput in KOR 50 M-V maps in scale 1:50.000

anlogue maps

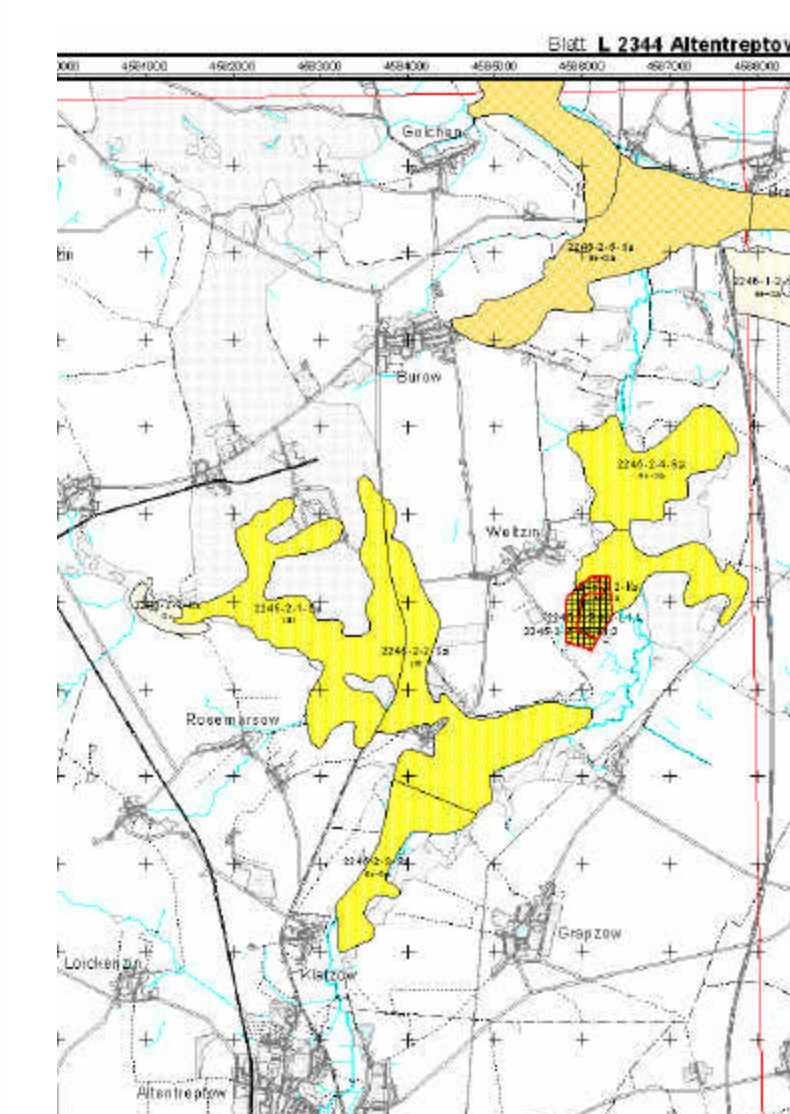
digital GIS-datas (ArcView)

Sheet line system of KOR 50 Map of near surface raw materials in Mecklenburg-Western Pomerania in scale 1 : 50.000



Basic map A - M1

map of thickness of the sandy and gravel sandy raw materials



Area cutting and separation of possible mining areas

To create the maps of minability (basic map B) and the maps of workable condition (basic map D) it is necessary to eliminate spreading areas blocked by areas of different land use:

infrastructure (the following distances (in meter) are to be considered)

- motorways (Autobahn) 50 m on both sides,
- other roads 25 m on both sides,
- rail ways 25 m on both sides,
- towns, villages, building sites 125 m round

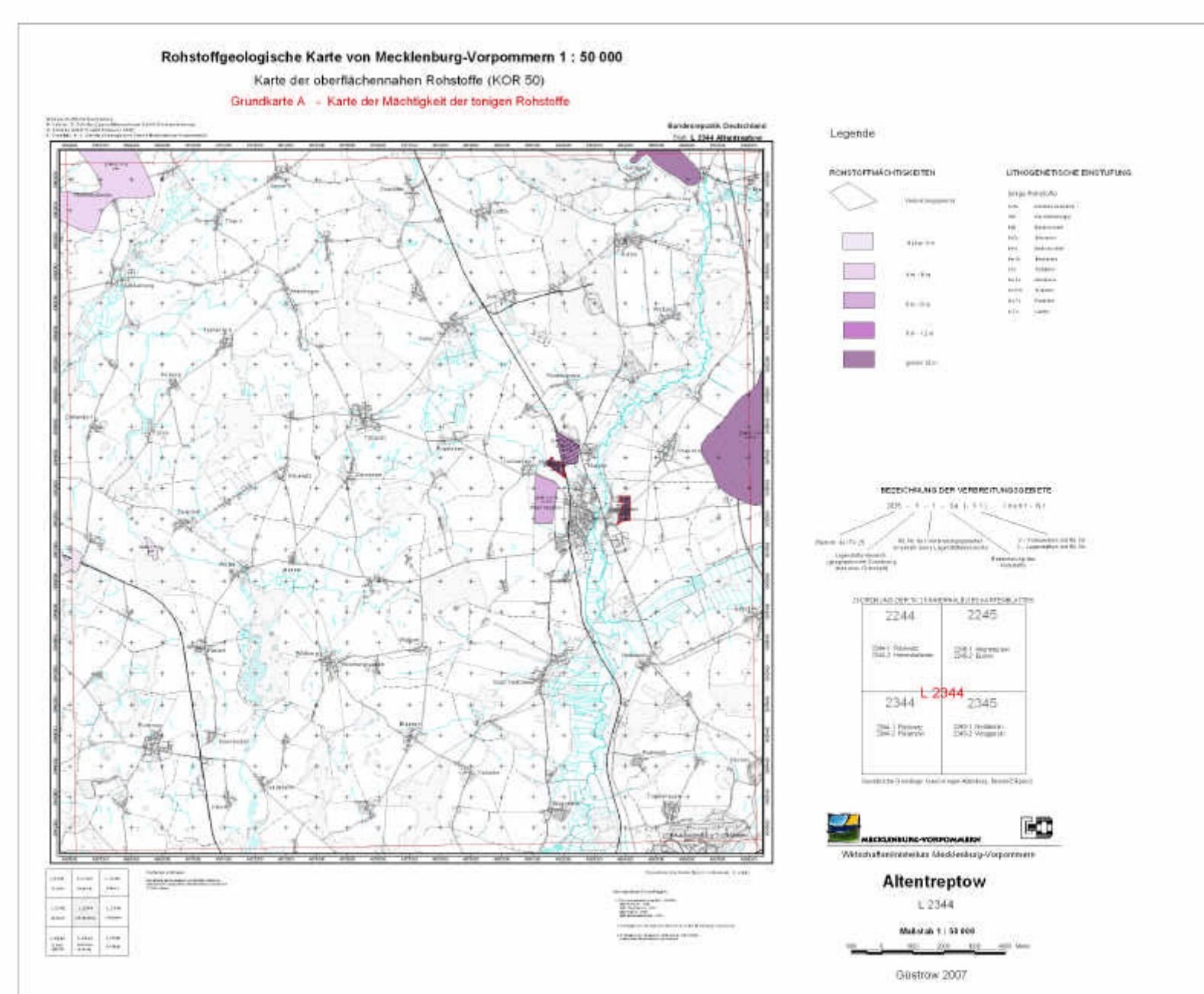
lakes, rivers and streams (distance for area cutting = 50 m)

protection zones for drinking water

- protection zone III-A (no area cutting within this zone but mentioned in the data table)
- protection zone II

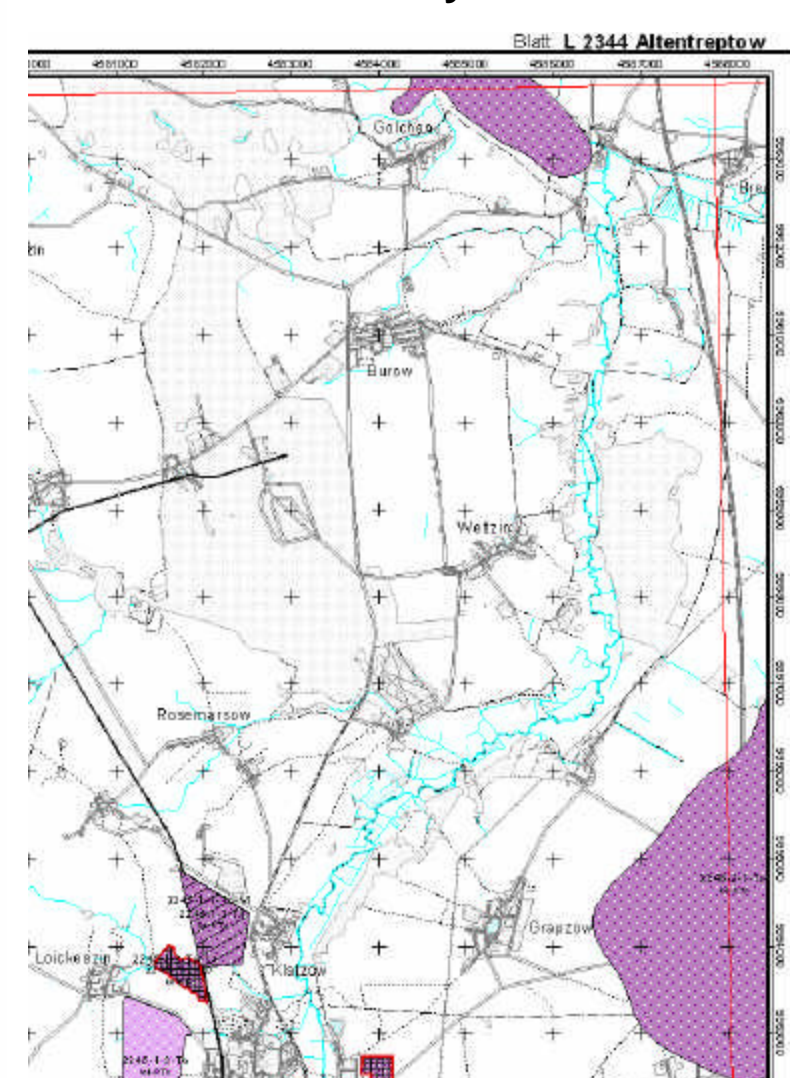
nature reserves and conservation areas

military areas



Basic map A - M2

map of thickness of the clayish raw materials respectively map of the thickness of clayish raw materials and limy raw materials



- prospective areas, occurrences and deposits of raw materials close to the surface: sand, gravel sand (contains > 10 % of gravel), tertiary quartz sand, clayish raw materials, limy raw materials, peat and meadow iron ore;
- today's mining exploitation: mines in process with licence, former mines which are no longer operating,
- the lithogenetic classification of the prospective areas

Those data being part of the basic map A are recorded and filed in the Access data table. This data table contains:

- IDENT-Nº,
- area of deposit,
- raw material,
- thickness of overburden,
- thickness of raw material layer,
- prospective area / occurrence / deposit,
- genesis,
- short name for genesis
- remarks

BEZEICHNUNG DER VERBREITUNGSGEBIETE

2035 - 1 - 1 - S0 [- V.1] Ident-Nr.

Blatt-Nr. der TK25

Bl. Nr. des Verbreitungsgebietes innerhalb eines Lagerstättenbereichs

Lagerstättenbereich (geographische Zuordnung über eine Ortschaft)

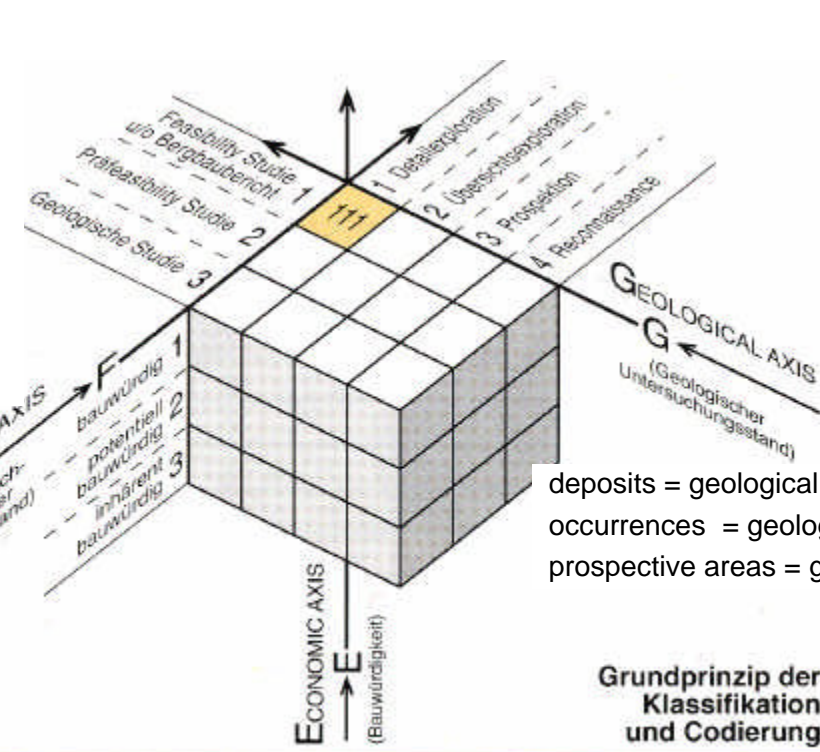
V.-Vorkommen mit Bl. Nr. L-Lagerstätten mit Bl. Nr. Bezeichnung des Rohstoffes

Principles of classification of mineral resources areas

Description and valuation of minability

- thickness of raw material layer
- ratio between thickness of overburden and thickness of raw material layer
- quality of raw material
- geological reserve,
- recoverable reserve,
- classification of reserves,
- degree of exploration,
- infrastructure

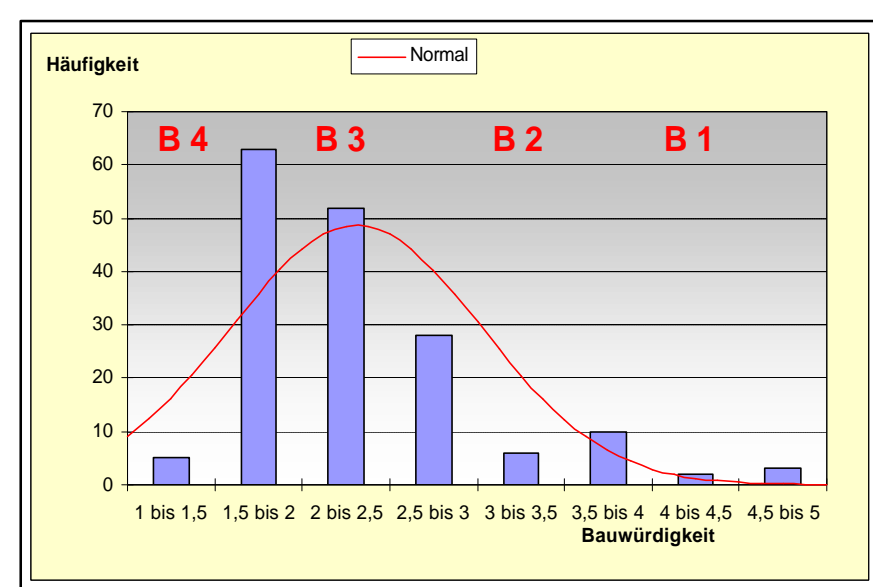
Valuation of minability



class of minability	description
B 1	very high
B 2	high
B 3	average
B 4	low

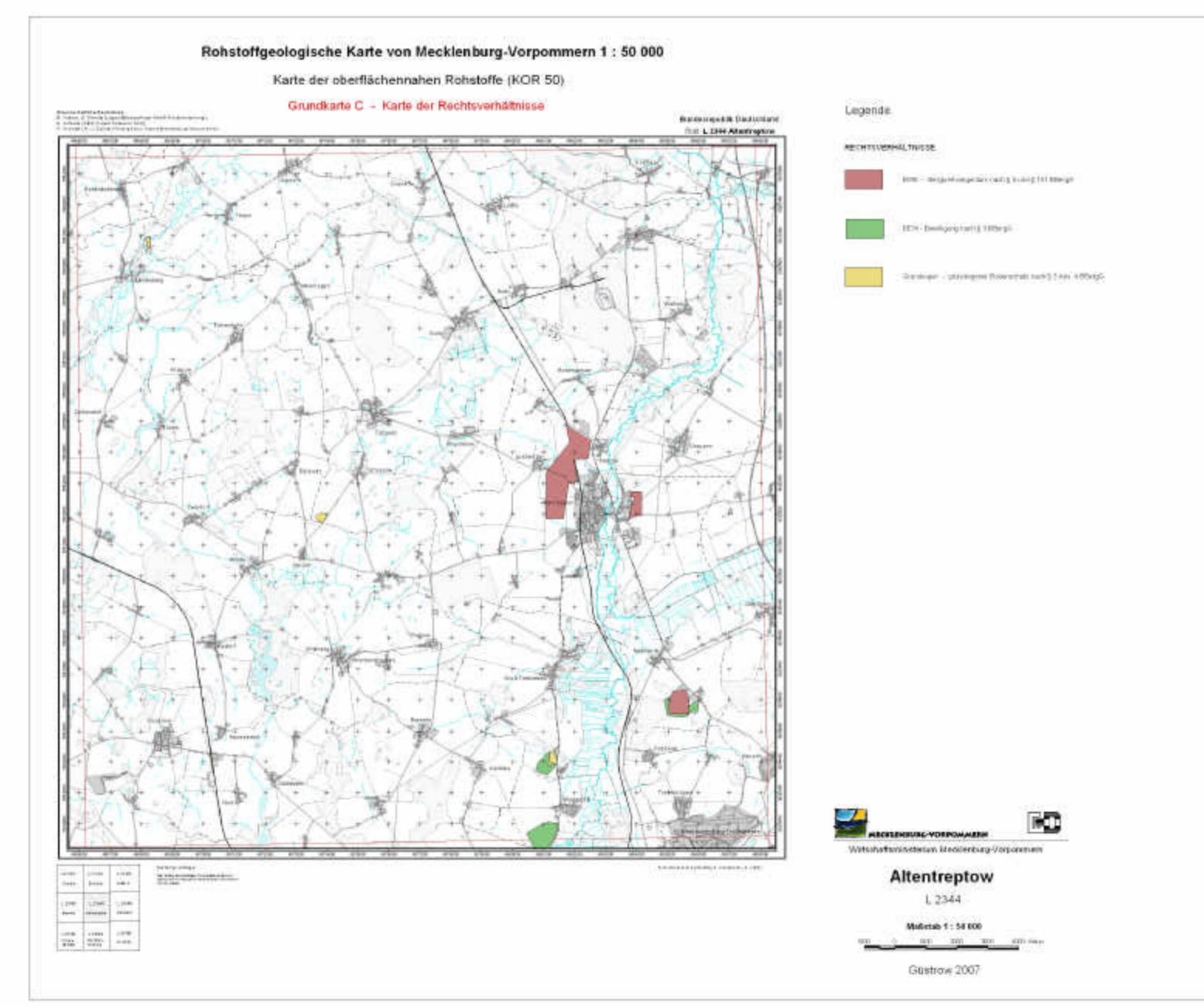
Principle of determination of minability classes

In the distribution frequency the determined minability of all spreading areas (prospective areas, occurrences, deposits; n = xxx) are presented



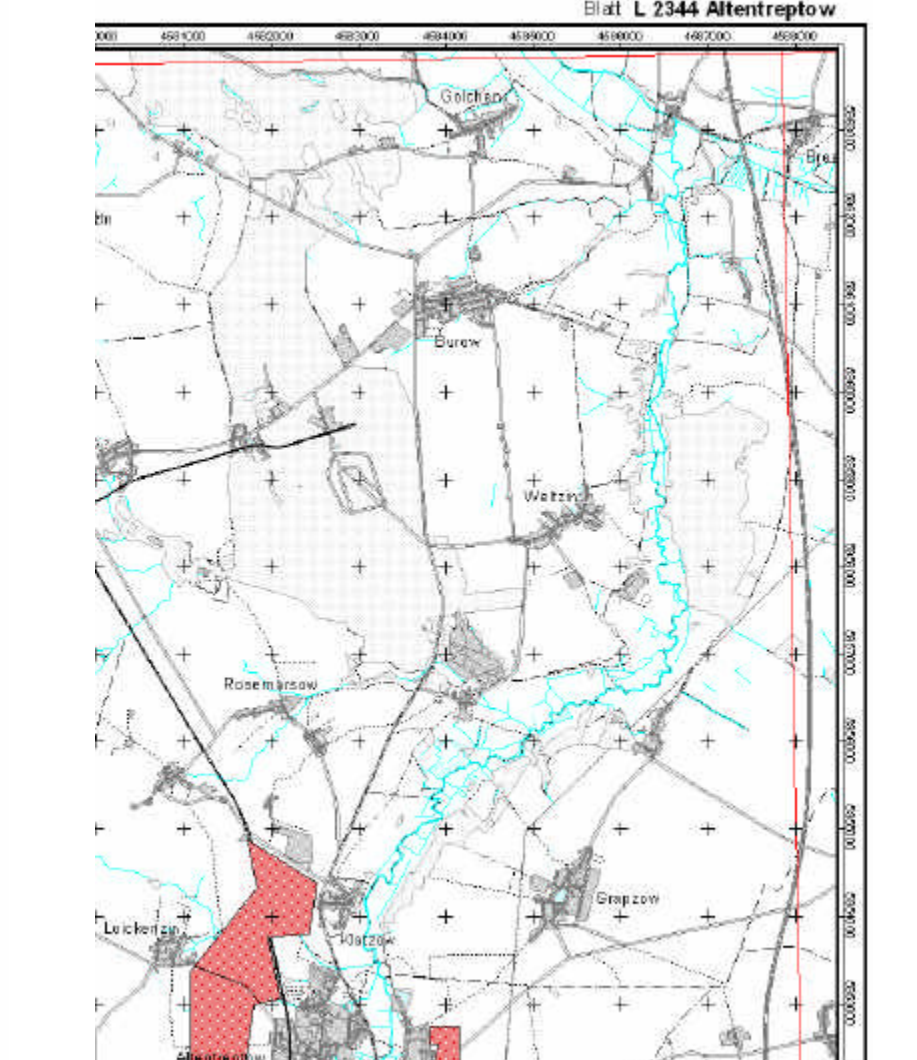
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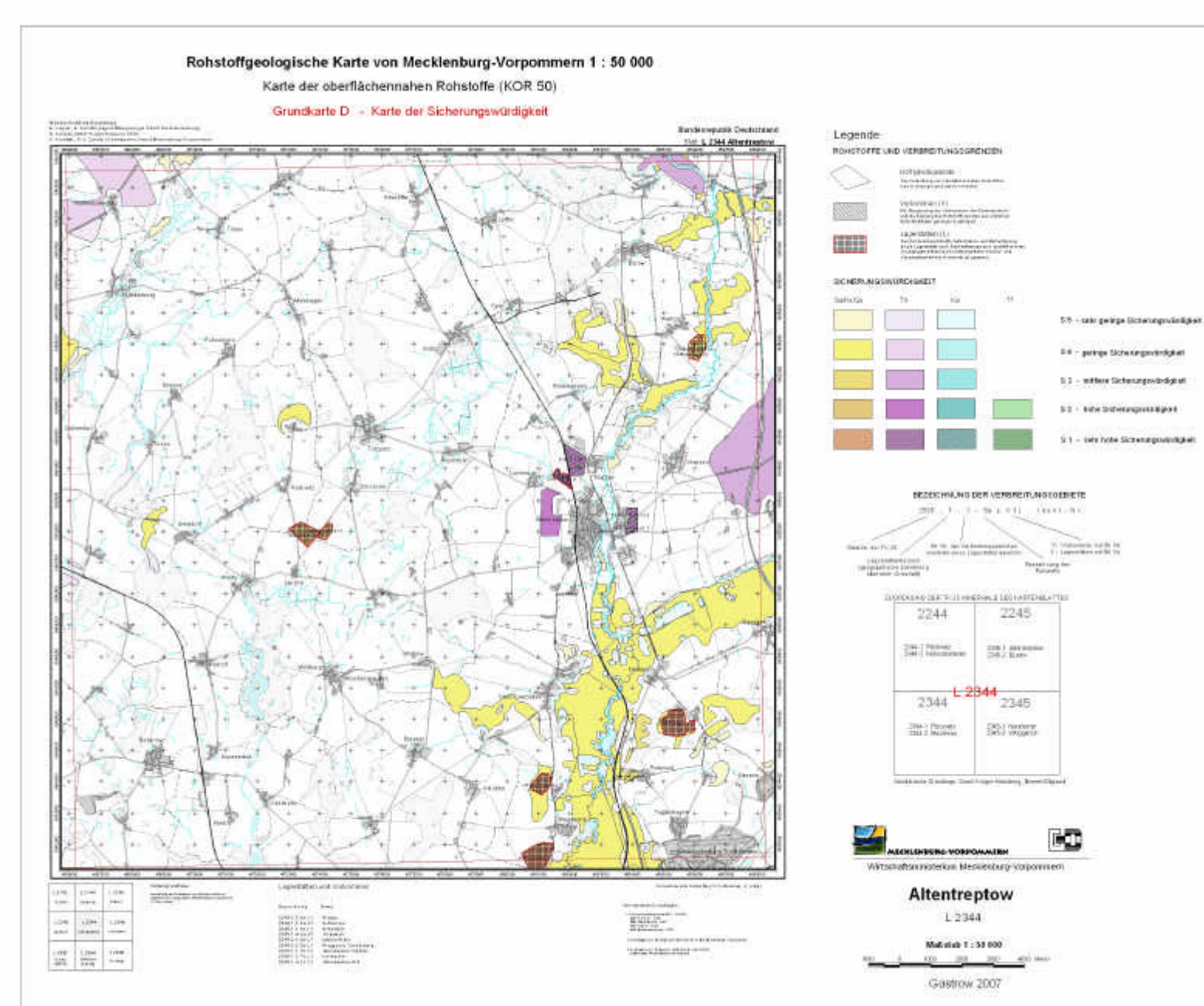
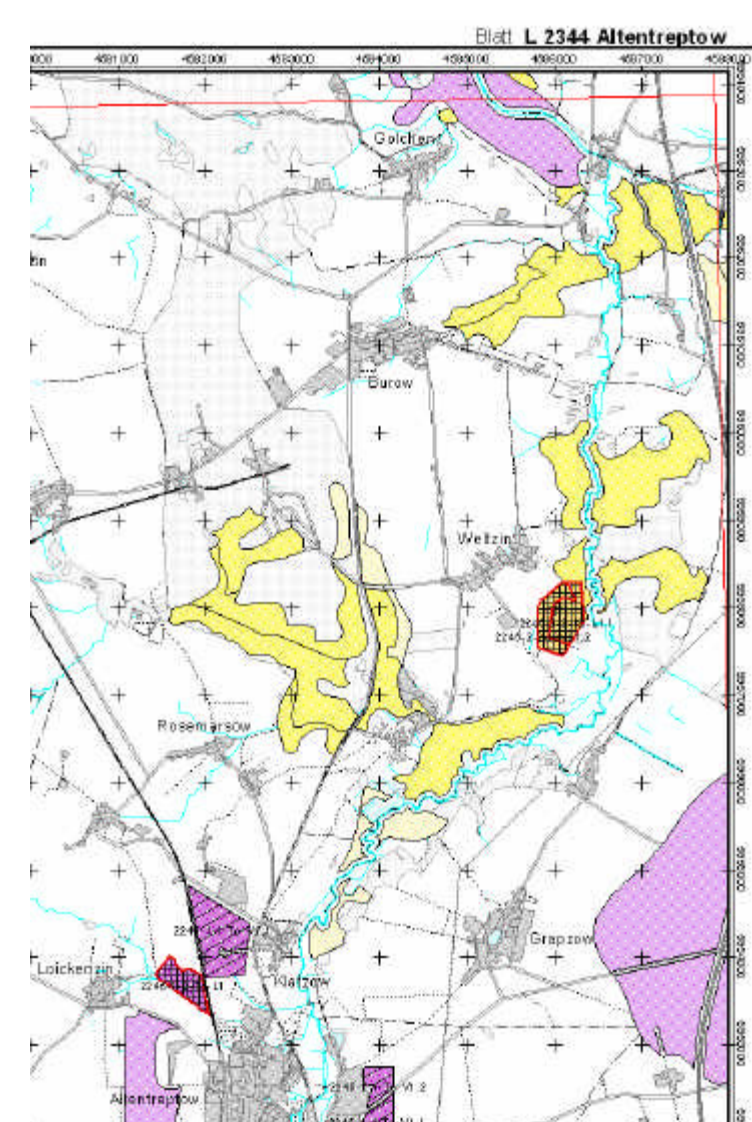
Basic map C

Map regarding the legal status of areas supervised by the Mining authority in M-V (Bergamt)



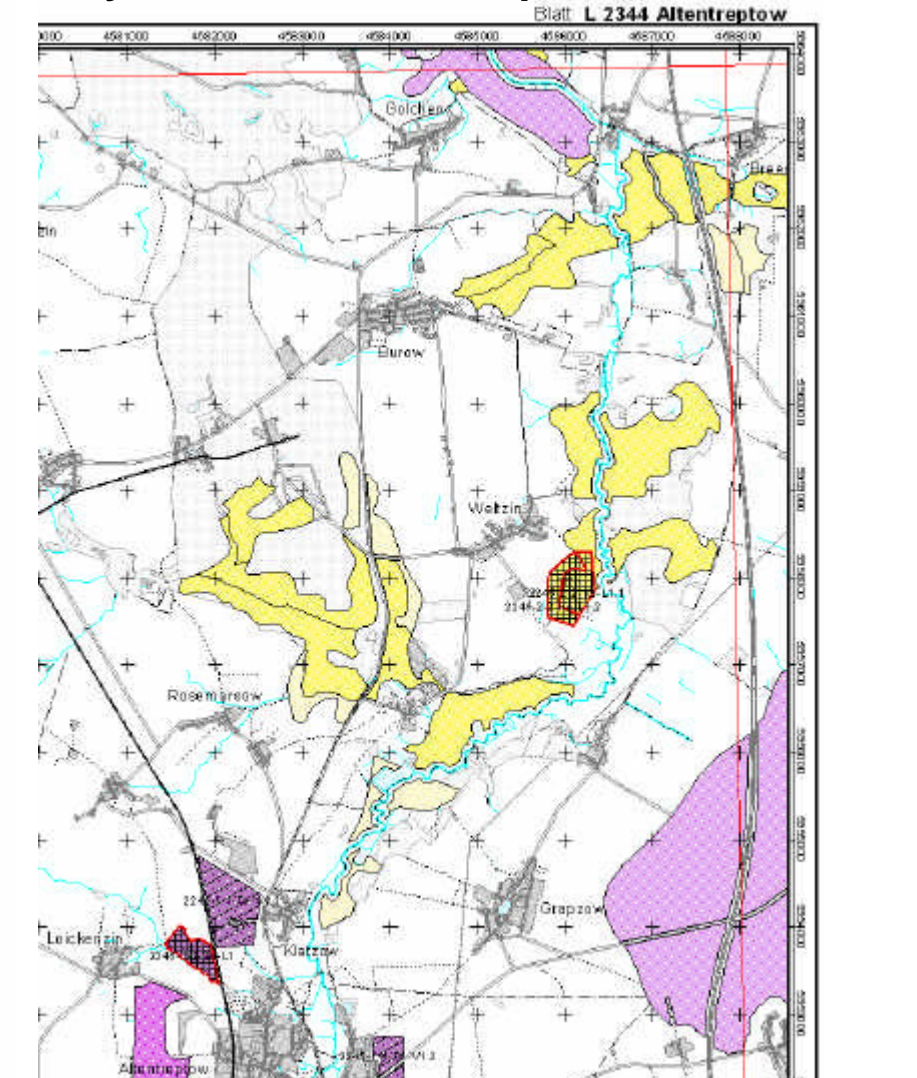
Basic map B - map of the mineability

due to area cutting already exploited parts of deposits are removed and thus not included in the further evaluation



Basic map D - level of protection-ability

Map regarding the workable condition of sand and gravel sand, clayish raw materials, limy raw materials and peat.



Literature (References)

Börner, A. (2006) Rohstoffgeologische Landesaufnahme von oberflächennahen Rohstoffen in Mecklenburg-Vorpommern - aktueller Stand und Perspektiven. - Vortrag im Rahmen des 2. Rohstoffforum Mecklenburg-Vorpommern, Schwerin.

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United Nations – Economic and Social Council (ed.) (1997): classification for reserves/resources – solid fuels and mineral commodities. GE.97-30188, 23. p., 7. session, 3-5. Nov. 1997.