

# Possibilities of use for old landfills

Referent:

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# Geografic position of the SBAZV

Founded 27.08.1993

Members of association:

- Landkreis Teltow-Fläming
- Landkreis Dahme-Spreewald

Area : 2 848 km<sup>2</sup>

Density of population : 99 inhab./km<sup>2</sup>

Inhabitants :

Teltow-Fläming : 163 553

Dahme-Spreewald : 117 228

Total : 280 781 inhabitants  
(June 2015)



Responsibility for 5 closed landfills (all after care)

## Preview to the situation

- The areas of most landfills are worthless for the institutions, which take care of them,
- Many landfills include a technical infrastructure, which could be used for energy production,
- Landfills in Germany are almost protected by a fence and were observed for many years during the period of after care,
- Especially in Brandenburg the landfill bodies are flat, normally the highest angle is 1:3 (height to length),
- Landfills mostly are well connected to the traffic system of roads and highways, sometimes even to railroad networks,
- So the conditions for reusing a landfill – especially the surface of it – often are very good.

## Examples for reusing some landfill areas in Brandenburg

- Installing photovoltaic or solarthermic power plants (eventually a combination of it),
- Using the place for buildings like plants for waste treatment or waste collecting stations,
- Installing wind power plants,
- Building a service point and parking location for a public bus company (not SBAZV region),
- Creating an area for public entertainment or local recreation (central park and meeting place in a village near Berlin – not SBAZV region)

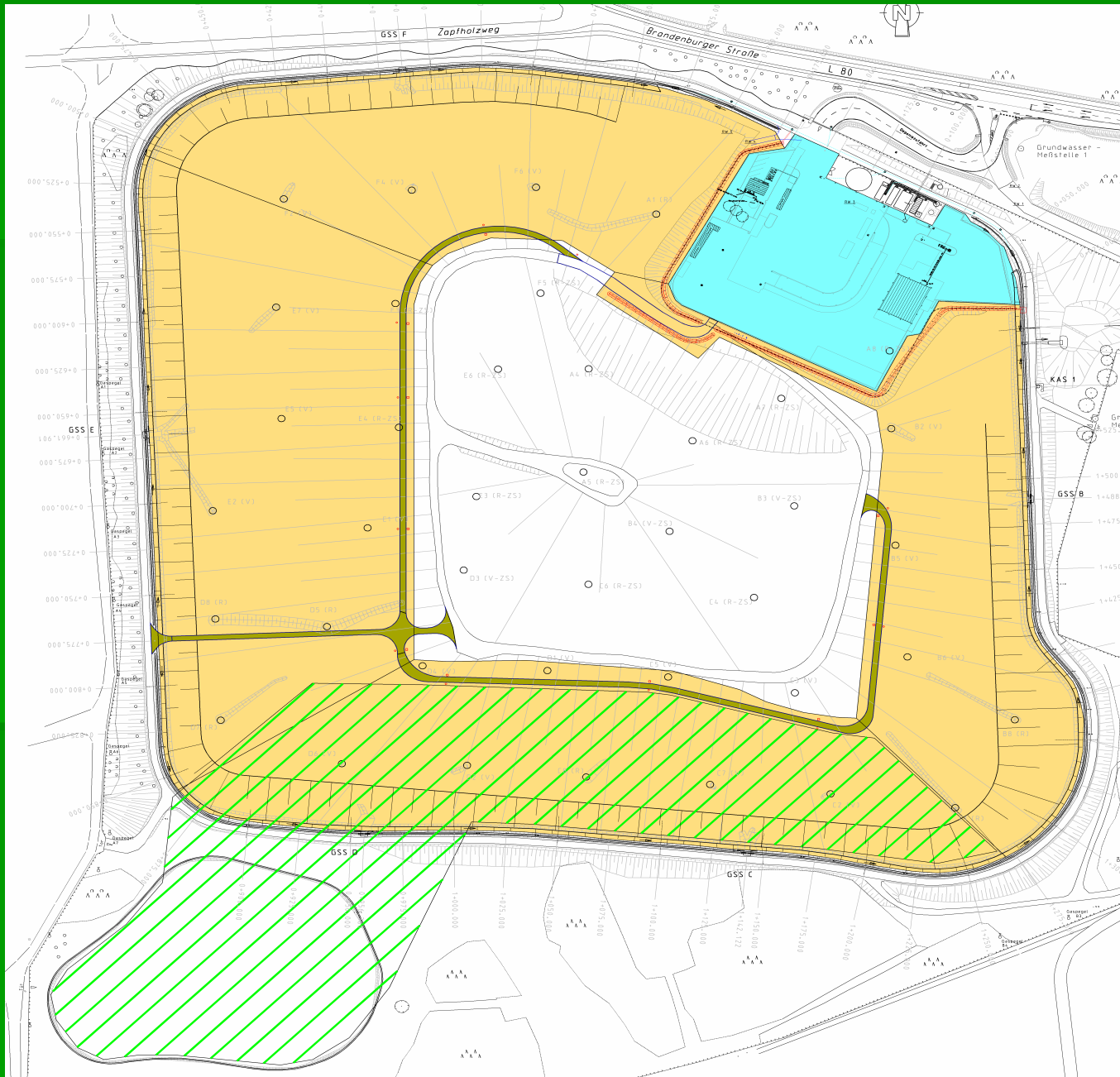
## **Advantages of reusing landfills**

- Saving costs of buying other areas for building projects,
- Saving areas and naturally resources,
- Probably generating profit for the company or government,
- Creating projects with positive medial outreach,
- Using the local facilities/utilities during a longer time.

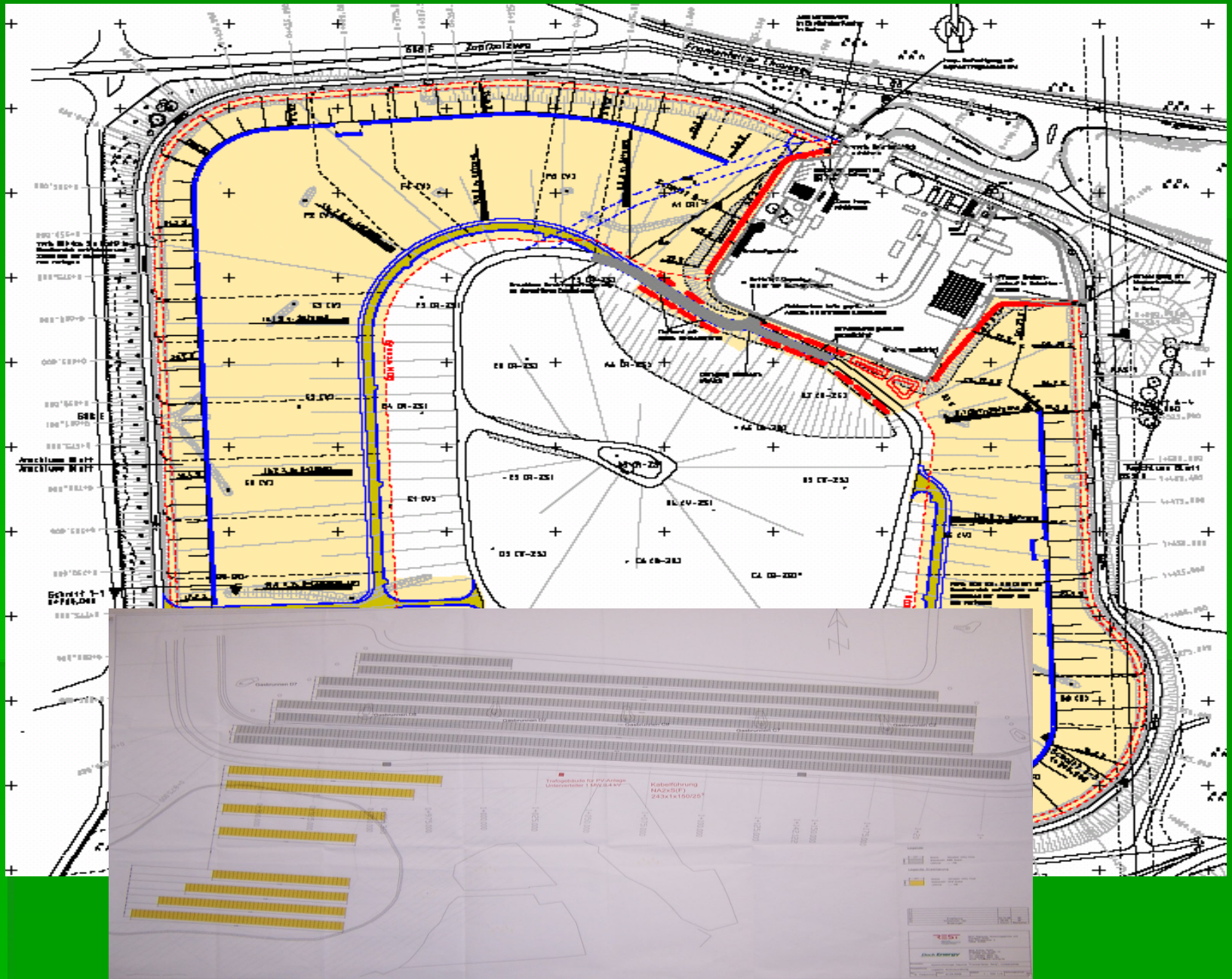
# Landfill „Frankenfelder Berg“ in Luckenwalde



# Overview of the technical units on the landfill „Frankenfelder Berg“



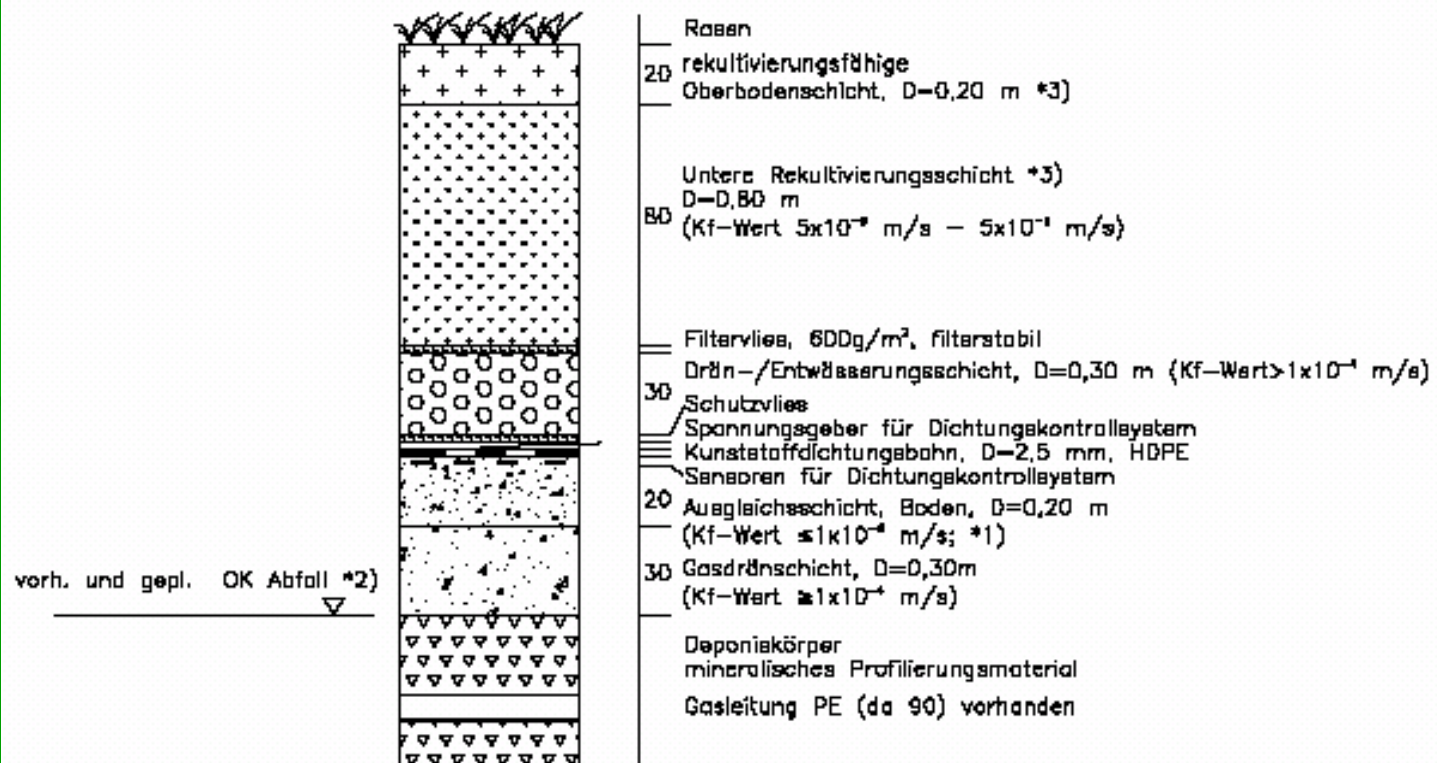
# Lokalisation of the solar powerplant on the landfill





# Sealing system of the landfill „Frankenfelder Berg“ with geomembrane (pehd) and leakage detektion system

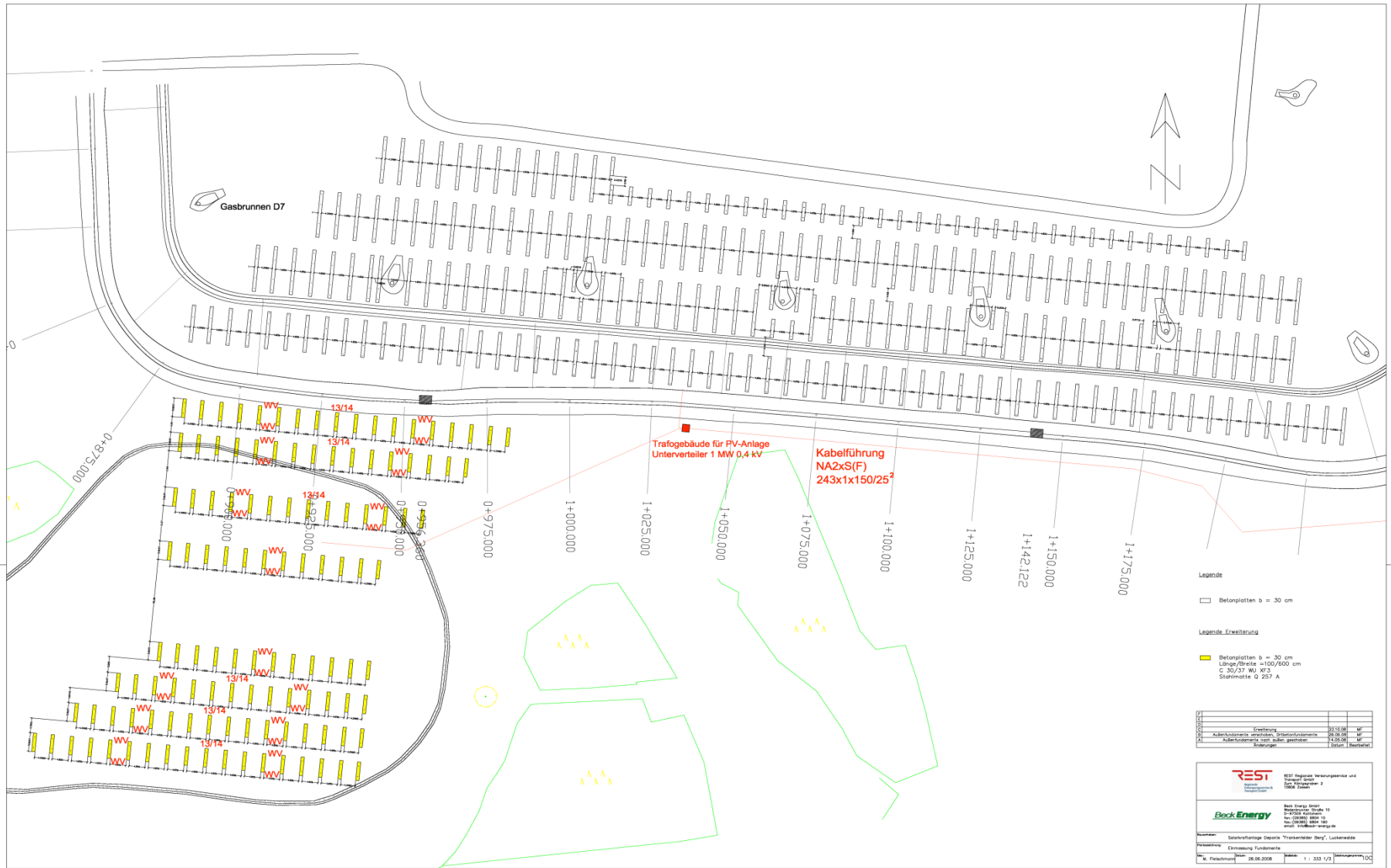
## Regelaufbau Oberflächenabdichtungssystem



## Basic facts of the pv power plant

- Whole area about 27000 m<sup>2</sup>
- Modules about 17.000 m<sup>2</sup>
- Maximum power 1,718 MWp
- Thin layer modules produced by Nanosolar, Luckenwalde
- 165 AC-DC converter
- Baseplates as foundation (ferroconcrete)
- 2 central transformers

# Plan of foundation



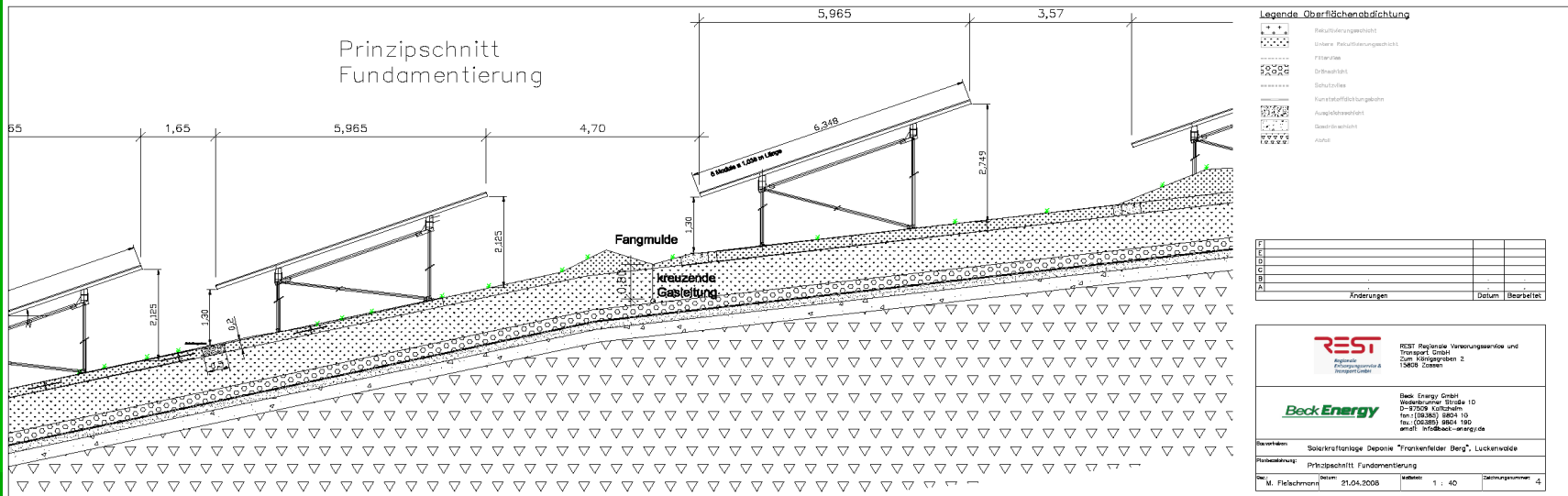
Objekt	Erstellung	20.03.08	W
Autoren	entworfen	20.03.08	W
	überprüft	20.03.08	W
	gezeichnet	20.03.08	W
	geprüft	20.03.08	W
	freigegeben	20.03.08	W

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Projektname: Solarthermische Anlage "Trankocher Berg", Luckenwalde  
 Zeichnung: Einmessung Fundamente  
 M. Felschmann 28.06.2008 Maßstab: 1 : 333 1/2

# Supporting Construction with PV-Modules



## Basic Construction (View from the eastern side)



# Frontal View on the PV-Modules



# Public waste collecting and transfer station



# Preparing the foundation and basic sealing of the waste transfer station



- Sealing with hdpe geomembrane against gas migration
- Foundation on cylindric bodies of crushed rock and ferroconcrete
- Maximum height of the hall 13,2 m
- Maximum differential settlement about a few millimeters





# State four weeks before opening the station



# Bus Service Station and Depot in Bad Freienwalde



- Old Landfill containing only mineralic waste (clay, slag, bricks, concrete, ceramic waste)
- Profiling the landfill body preparing for technical function layer
- Owner and operator of the Station is Barnimer Bus Company (public traffic company in Brandenburg)

# Installing Wind Power Plants

- Different systems with vertical or horizontal rotor,
- Grounding in a higher layer or on a flat plate of ferroconcrete,
- No connection to the sealing , no damage of the geomembrane

