PREDL – Manhole rehabilitation system

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- Manhole rehabilitation – Future-proof investment


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BADEN WÜRTEMBERG
ÖSTERREICH
PREDL® GmbH
D-04924 Bönitz
PREDL® AUSTRIA Ges. mbH
A-8072 Fernitz

Requirements for manholes :

- Reliably sealed
- Long-term corrosion resistant
- Easy maintenance

Synthetic lining - long-term corrosion protection for concrete manholes

Sewer manhole with and without corrosion protection in the channel after 15 years

Synthetic lining - long-term corrosion protection for concrete manholes

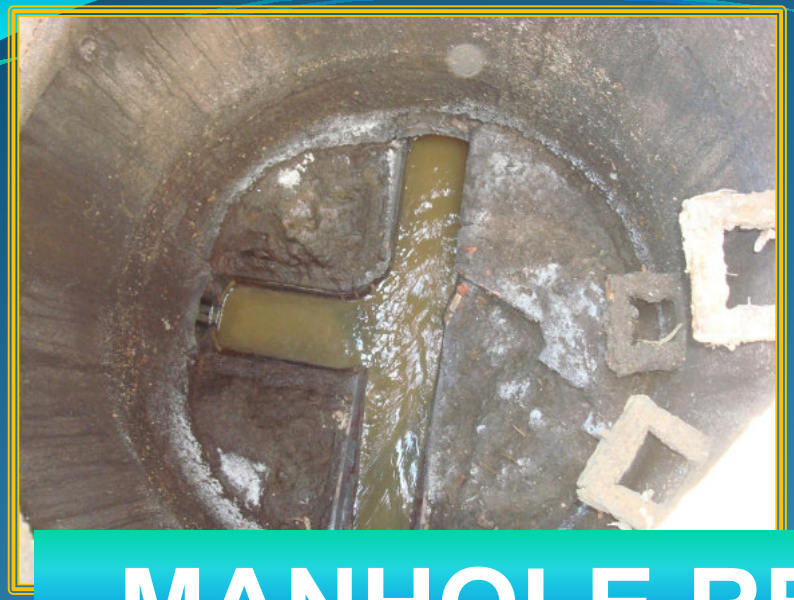
Coating – equivalent to the PREDL base-liner ?

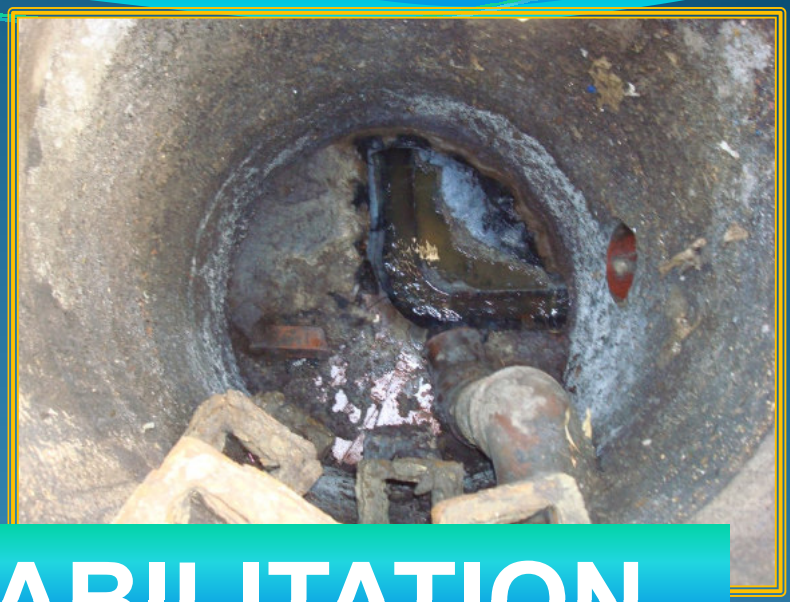
Disadvantages of the coating :

- Extensive preparation (clearing work, drying....)
- The manhole does not gain any structural strength
- Often insufficient strength of the bounding laminate

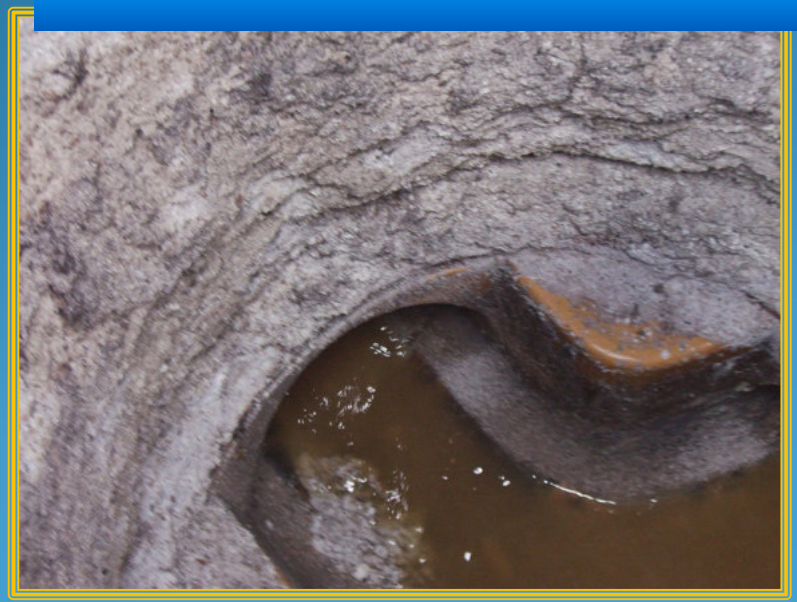
Optimal hydraulic – concrete or synthetic lining ?

Synthetic lining - long-term corrosion protection for concrete manholes



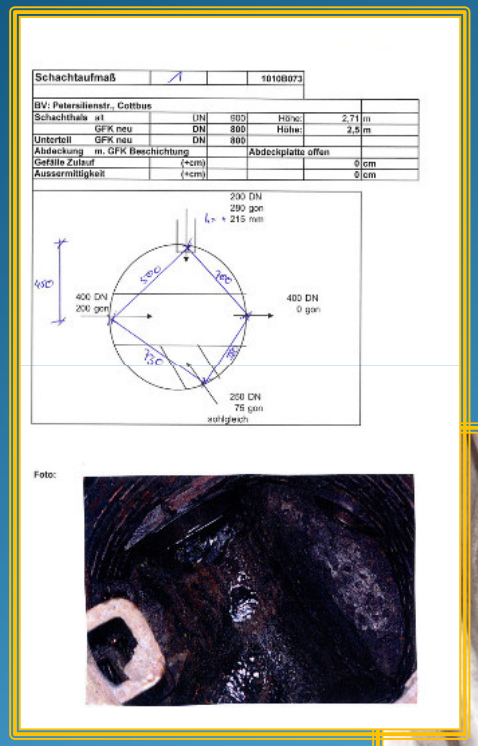


MANHOLE REHABILITATION



Modelling of the existing manhole – most important premise for every manhole rehabilitation

Manual measurement


Schachtaufmaß 10108073

BV: Petersilienstr., Cottbus

Schachthals	el	DN	800	Höhe:	2,71 m
	GFK neu	DN	800	Höhe:	2,5 m
Unterteil	GFK neu	DN	800		
Abdeckung	m. GFK Beschichtung			Abdeckplatte offen	
Gefälle Zulauf		(+cm)			0 cm
Aussermittigkeit		(+cm)			0 cm

200 DN
290 gon
+ 215 mm

400 DN
200 gon

400 DN
0 gon

200 DN
75 gon

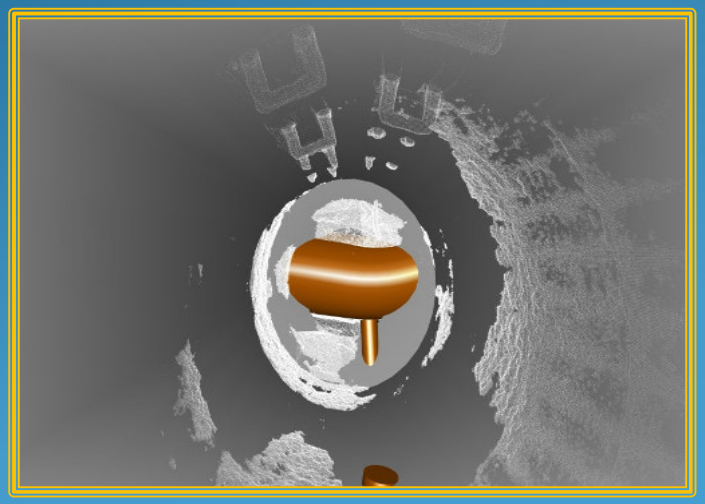
Foto:

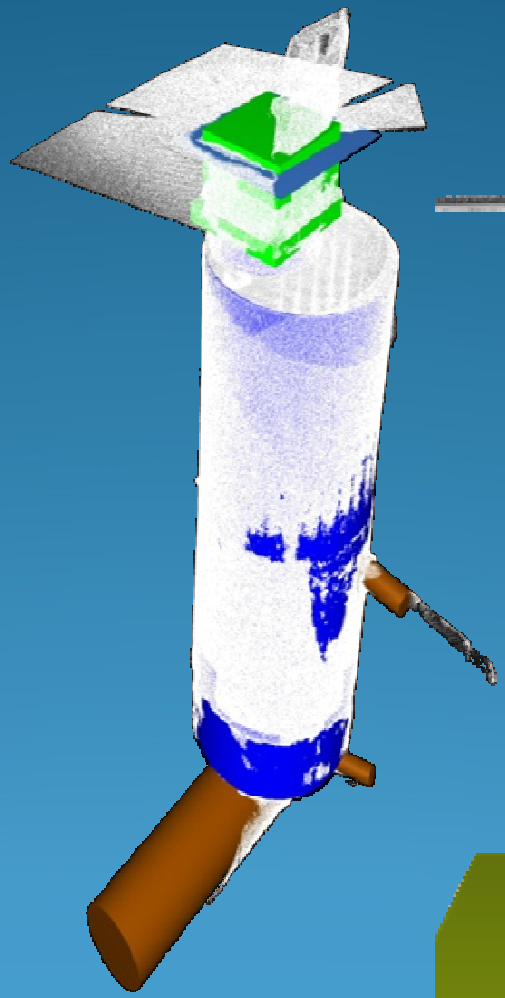
High error rate as manholes are often not walkable or only with great difficulty

Laser scan

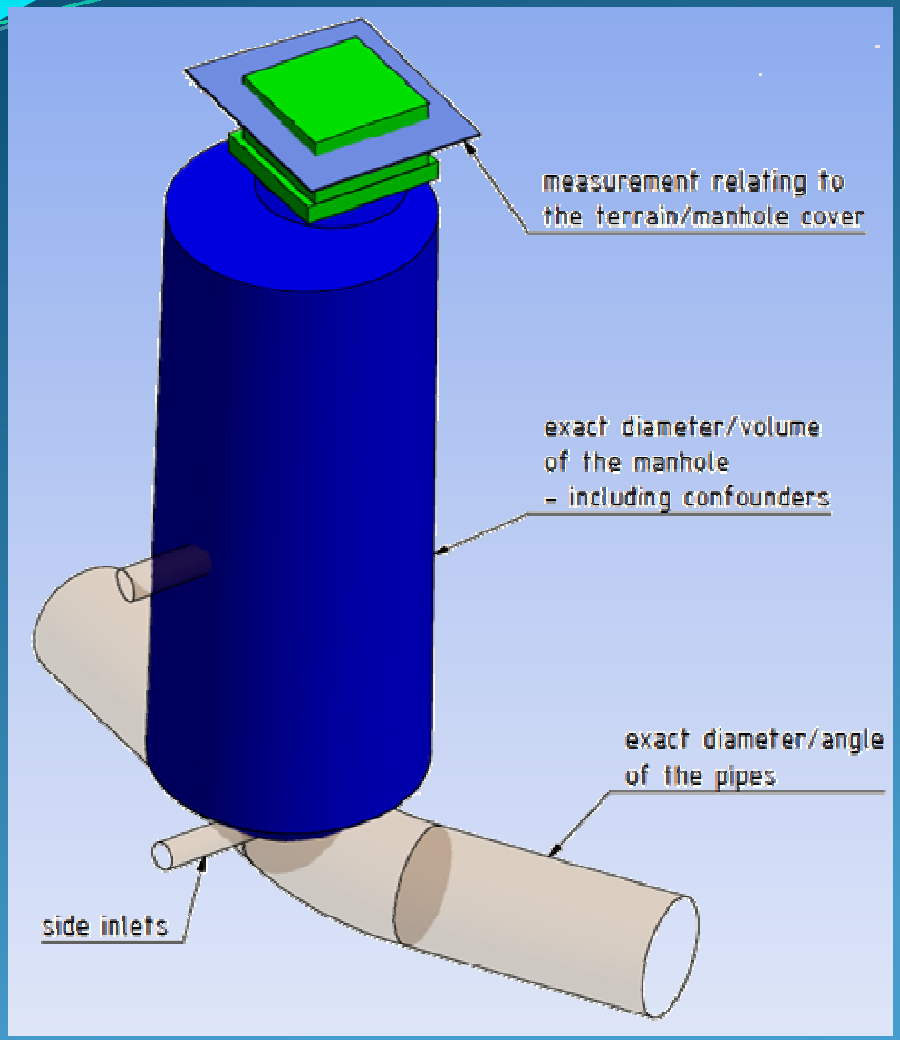
The most modern technology for a precise modelling

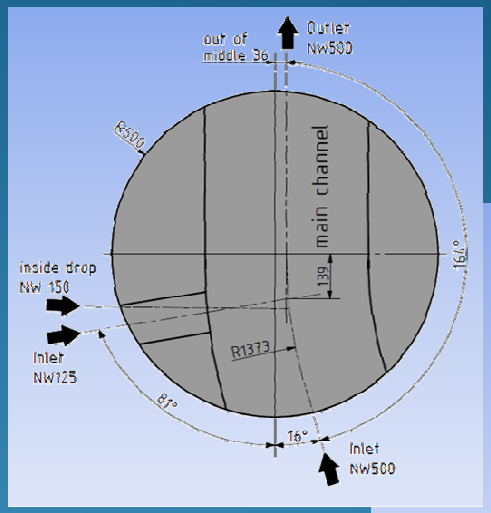
Laser scan – 3D modelling of the old manhole

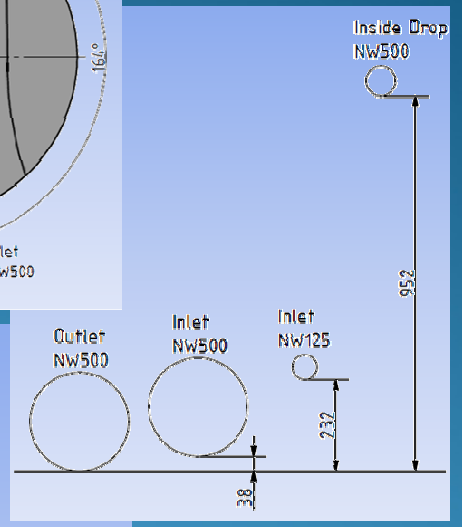


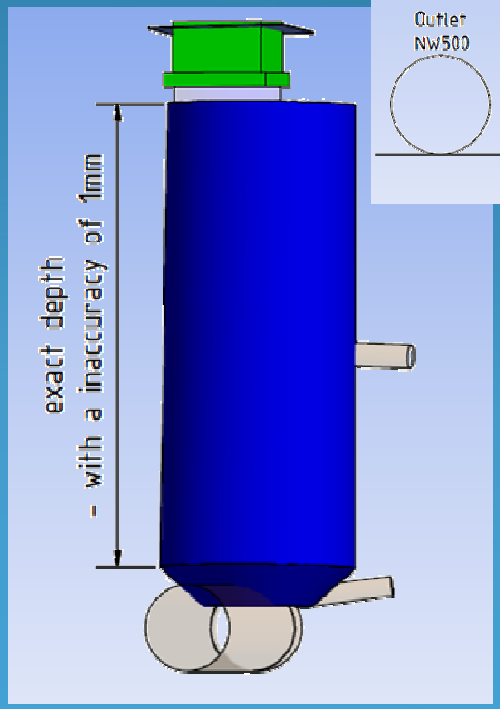


Laser scan – 3D modelling of the old manhole

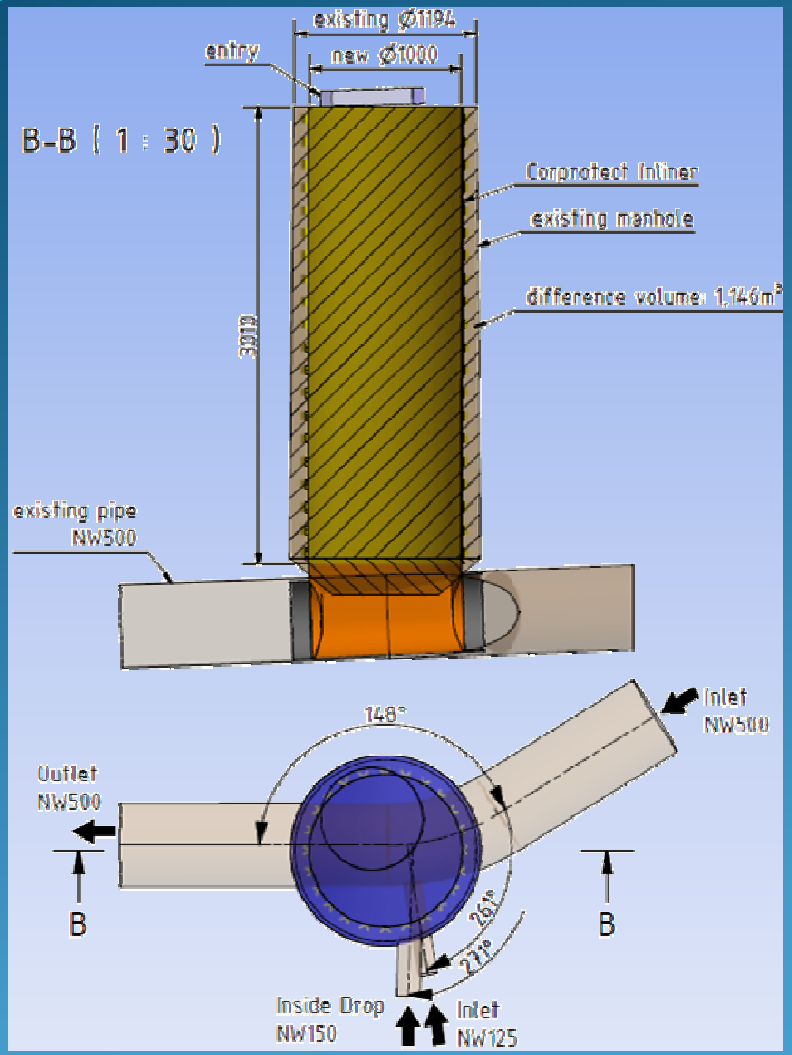


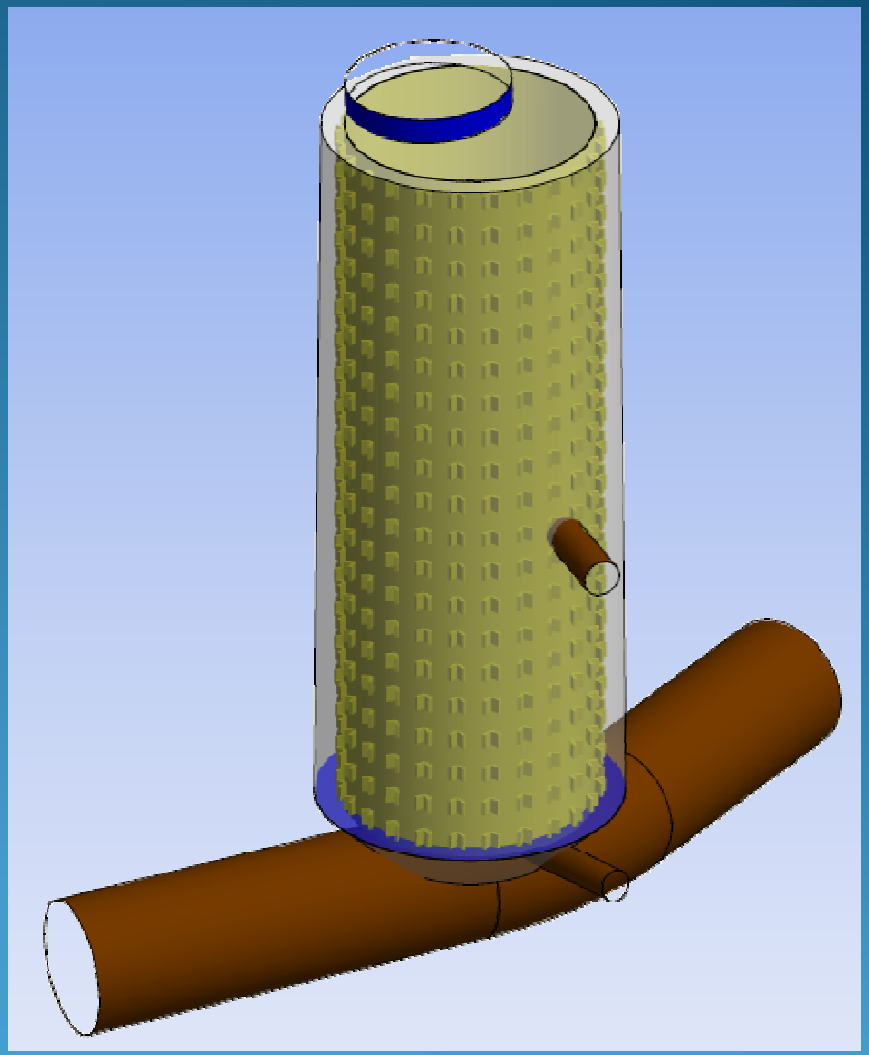






Laser scan – 3D modelling of the old manhole





The modelling of the old manhole allows a very accurate construction of the rehabilitation components.

Preparing the manhole for rehabilitation

- Extraction of the steps
- Chisel out the benching (approx. 100 mm) and the channel (at least 50 mm under the invert level)
- Clean the manhole (water jetting or sandblasting) and remove all the loose pieces
- If not watertight, fix using appropriate procedure

Manhole rehabilitation procedures by PREDL GmbH

Rehabilitation with CORPROTECT PP lining
(coverslab off or through entry hole)

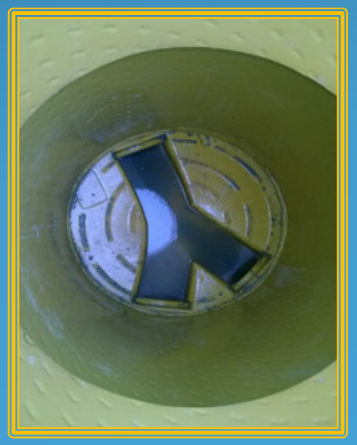
Rehabilitation with GRP base-liner +
CORPROTECT liner

Rehabilitation with GRP base-liner +
GRP shaft lining 3 mm

Manhole in manhole solution with GRP
manhole base + GRP pipe

Advantages of the PREDL rehabilitation process

1. Sewer water resistant protection throughout the entire manhole
2. Aggressive effluents or gazes have no contact with the concrete structure
3. Joint free high-performance synthetic lining allows no contact point for aggressive wastewater
4. The problematic in coating capillary-effect of the concrete is inhibited
5. The manhole can be put back into service immediately after finishing the rehabilitation work without any after-work, sometimes just after rehabilitating the base only



Manhole rehabilitating with CORPROTECT lining

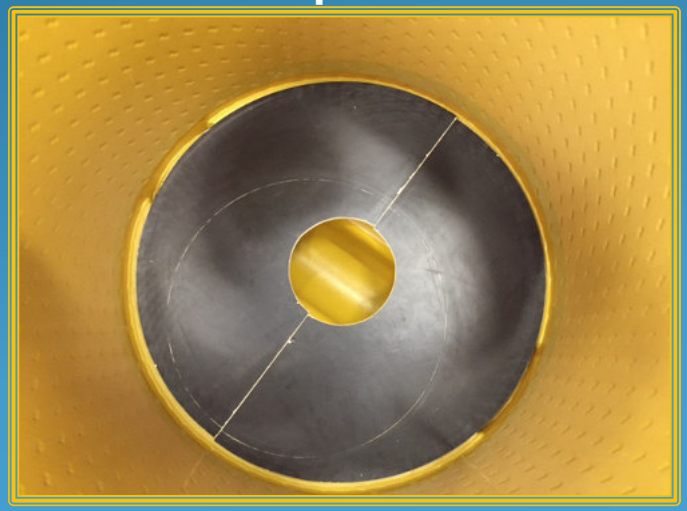
Large choice of base-liners from the wide PP standard programme range

Rehabilitation components : PP base-liners, CORPROTECT PP liner also for coverslab, EPS shuttering

Manhole rehabilitating with CORPROTECT lining

Rehabilitation with CORPROTECT

In an open field **or** **through the entry hole**



Abstützung der CORPROTECT-Auskleidung mit EPS

Manhole rehabilitating with CORPROTECT lining

Manhole rehabilitating with CORPROTECT lining

Before - afterwards

PREDL rehabilitation with GRP

Manhole-in-manhole system
With GRP base-liner + GRP pipe

Manhole rehabilitation through the entry hole
With GRP base-liner
+ GRP shaft lining 3 mm

PREDL manhole rehabilitation : manhole-in-manhole system

Components of the system : PREDL rehabilitation base-liner, GRP pipe, grout and T-profile seals

PREDL manhole rehabilitation : manhole-in-manhole system

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PREDL GRP rehabilitation through the entry

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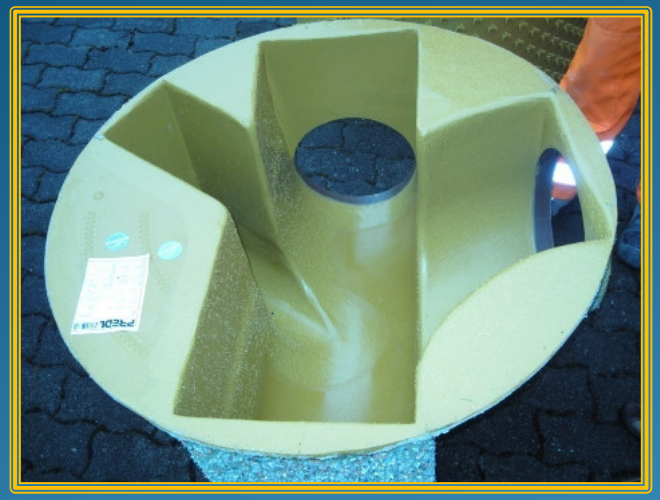

Components of the system: PREDL Rehabilitation base-liner, GRP shaft liner and GRP cone liner approx. 3 mm thick

PREDL GRP rehabilitation through the entry

PREDL rehabilitation of specials

Rehabilitation done in Niederkassel / Germany Manhole 5,80 m x 2,40 m through opening of 1 m x 1,40 m