

**Aachen, Philips, Germany**

Monitoring of a borehole with the acoustic ABF system (2010);
Client: Schützeichel GmbH & Co. KG

Aare Isle Beznau, Switzerland

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings of the project OPAL (2008);
Client: Interoil E&P Switzerland AG

ABS Aschaffenburg – Gemuenden, Section Hoesbach – Wiesthal, Germany

Execution and evaluation of flexible dilatometer tests, new railway line Aschaffenburg – Gemuenden, section Hoesbach – Wiesthal (1984);
Client: Arge Erkelenzer Bohrgesellschaft mbH, Celler Brunnenbau GmbH

ABS Hanau – Nantenbach, Detour Schwarzkopf Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, new railway line Hanau – Nantenbach, detour Schwarzkopf tunnel, station Heigenbruecken (1998);
Client: Schützeichel GmbH & Co. KG

ABS Hanau – Nantenbach, Detour Schwarzkopf Tunnel, 3. EKP, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, new railway line Hanau – Nantenbach (2000);
Client: Geomechanik Sachsen

ABS Leipzig – Dresden, Oschatz – Wurzen, Germany

Execution of borehole jack tests with flexible dilatometer and Ettlinger borehole jack (1994);
Client: Terrasond GmbH + Co. KG

ABS Leipzig – Dresden, boundary drift Riesa lots 1 + 2, Germany

Execution of borehole jack tests with Ettlinger borehole jack for pre-investigation of the new railway line (1996);
Client: ARGE ABS Bornitz - Riesa, Lot 1, Thüringer Bohrgesellschaft mbH

ABS Leipzig – Dresden, 2nd EKP Leipzig – Wurzen, Germany

Execution of borehole jack tests with Ettlinger borehole jack for pre-investigation of the new railway line (1996);
Client: Terrasond GmbH + Co. KG

ABS Leipzig – Dresden, Altenbach – Wurzen, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for pre-investigation of the new railway line (1997);
Client: BG Roßla

ABS Nuernberg – Ebersfeld, Burgberg Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2013);
Client: BOG GmbH



ABS Nuernberg – Ebensfeld, Freight Train Line 2. EKP, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack. Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2010);

Client: Arge Güterzugstrecke (Behringer + Dittmann, BOG)

ABS Nuernberg – Ebensfeld, VDE 8.1, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2012);

Client: BOG GmbH

ABS Nuernberg – Lichtenfels, Main Section South, Germany

Execution and evaluation of flexible dilatometer tests for pre-investigation of the new railway line (1993);

Client: Bohr-Knecht

ABS/NBS Karlsruhe – Basel, Tunnel Rastatt, Germany

Execution of borehole jack tests with Ettlinger borehole jack, delivery and installation of pneumatic pore water pressure transducers (2012);

Client: Arge Tunnel Rastatt (Terrasond GmbH & Co. KG, drillexpert GmbH)

ABS/NBS Plochingen – Guenzburg, Germany

Execution and evaluation of flexible dilatometer tests for pre-investigation of the new railway line (1987);

Client: Ivers Brunnenbau GmbH, Erkelenzer Bohrgesellschaft mbH

ABS/NBS Stuttgart – Augsburg, Alabstieg 3rd EKP, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack for pre-investigation of the new railway line (1999);

Client: Arge Alabstieg (Terrasond GmbH & Co. KG, Waschek, Menning KG)

ABS/NBS Stuttgart – Augsburg, Bossler Tunnel, Germany

Execution of borehole jack tests with Ettlinger dilatometer, monitoring of boreholes with the borehole camera (2014-15);

Client: Arge Tunnel Alaufstieg

ABS/NBS Stuttgart – Augsburg, Neu-Ulm 21, Lot 2, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for pre-investigation of the new railway line (1997);

Client: Arge Neu-Ulm 21 (Terrasond GmbH + Co. KG, Waschek GmbH)

ABS/NBS Stuttgart – Augsburg, Spoil Bank Aichelberg, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack (2014);

Client: Terrasond GmbH & Co. KG

ABS/NBS Stuttgart – Augsburg, Variant Hasental, Germany

Execution and evaluation of flexible dilatometer tests, installation of inclinometer- and Trivec measuring tubes, primary stress measurements according to the hard inclusion method for pre-investigation of the new railway line (1995-96);

Client: Sax + Klee GmbH



ABS/NBS Stuttgart – Augsburg, 1st EKP Ulm, Lot 2, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Ettlinger borehole jack for pre-investigation of the new railway line (1995-96);
Client: Terrasond GmbH + Co. KG

ABS/NBS Stuttgart – Augsburg, Optimised Line, Lot 1, Germany

Execution and evaluation of flexible dilatometer tests with Ettlinger dilatometer for pre-investigation of the new railway line (1998);
Client: Arge Schwäbische Alb, Los 1 (Menning, Sax + Klee, Celler Brunnenbau)

ABS/NBS Stuttgart – Augsburg, PFA 2.1a/b, 1. EKP Lindorf Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack for pre-investigation of the new railway line (2002);
Client: Arge Stuttgart 21 (Terrasond, Waschek, Menning)

ABS/NBS Stuttgart – Augsburg, NBS Wendlingen – Ulm, PFA 2.1, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack for the new railway line (2002-03 and 2009);
Client: Arge PFA 2.1 Albvorland (Terrasond, Waschek, Menning)

ABS/NBS Stuttgart – Augsburg, NBS Wendlingen – Ulm, PFA 2.2, Germany

Primary stress measurements with the triaxial cell CSIRO in depths up to 150 m for the new railway line (2003);
Client: Terrasond GmbH & Co. KG

ABS/NBS Stuttgart – Augsburg, NBS Wendlingen – Ulm, PFA 2.2, Filstal, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack for the new railway line (2009);
Client: Arge Bohrungen Filstal (BG Roßla, Terrasond GmbH & Co. KG)

ABS/NBS Stuttgart – Augsburg, NBS Wendlingen – Ulm, PFA 2.3, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, monitoring of drillings with borehole camera and optic scanner system ETIBS[®] for the new railway line (2002-03 and 2009);
Client: Arge PFA 2.3 (Schützeichel, Roßla, Daldrup, Ivers), Abt GmbH

ABS/NBS Stuttgart - Augsburg, NBS Wendlingen – Ulm, PFA 2.4, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack for the new railway line (2002-03 and 2009, 2010);
Client: Arge PFA 2.4 Alabstieg – Ulm (Terrasond, Menning), Terrasond GmbH & Co. KG

Adelsheim, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] for the federal highway B 292 detour Adelsheim (2012);
Client: RP Karlsruhe

Albruck-Dogern, Rhine Power Station, Germany

Borehole jack tests with Ettlinger dilatometer, primary stress measurements with HI-cell CSIRO, monitoring of drillings with the optic scanner system ETIBS[®], insertion of boreholes with multiple interstitial pressure transducers and electronic data loggers (2004);
Client: Terrasond GmbH & Co. KG

**Albstadt, Germany**

Execution and evaluation of borehole jack tests with Ettliger borehole jack and Ettliger dilatometer for pre-investigation of the Albstadt road tunnel (1996-97);
Client: Terrasond GmbH + Co. KG

Almonaster La Real, Spain

Primary stress measurements with the borehole slotter in exploratory drillings of the mine Minas De Aguas Tenidas, camera monitoring of the drillings (2008);
Client: Minas De Aguas Tenidas, SAU

Alsens Tunnel, Germany

Execution of borehole jack tests with Ettliger borehole jack, stress measurements according to the method of compensation, monitoring of underground drillings with the borehole camera, monitoring of surface exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Alte Burg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack and Ettliger dilatometer in exploratory drillings in the portal region of the Alte Burg tunnel, highway A71 Erfurt - Schweinfurt (1996);
Client: Nöring & Preißler

Arlberg Tunnel, Austria

Stress measurements according to the method of compensation in the concrete inner shell of the tunnel (2015);
Client: Montanuniversität Leoben

Arlinger Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017-18);
Client: RP Karlsruhe, BOG GmbH

Arnsberg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® for the expansion of the Sauerland Museum Arnsberg (2012);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Asbachtal Bridge, Germany

Monitoring of boreholes with the optic scanner system ETIBS® for structure and ground exploration of the Asbachtal bridge at motorway A4 (2008);
Client: Schützeichel GmbH & Co. KG

Asse, Salt Mine, Remlingen, Germany

Installation of borehole pressure cells type Glötzl and type AWID in a 630 m deep borehole, from the 750 m floor (1985);
Client: gsf - Gesellschaft für Strahlen- und Umweltforschung mbH, München

Asse, Salt Mine, Remlingen, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack and pressiometer according to Ménard to determine the moduli of deformation of fillings (1996);
Client: gsf - Forschungszentrum für Umwelt und Gesundheit, München

**Asse, Salt Mine, Remlingen, Germany**

Execution of stress measurements with HI-cell CSIRO in conjunction with the GIF borehole computer (1999-2001);

Client: GRS - Gesellschaft für Anlagen- und Reaktorsicherheit, Braunschweig

Atdorf Dam, Schluchsee Pump Storage Station, Germany

Execution of borehole jack tests with Ettlenger dilatometer. Monitoring of exploratory drillings with the optic scanner system ETIBS®. Determination of primary stress state with borehole slotter in exploratory drillings in the exploration gallery – cavern area for the Atdorf dam of Schluchsee pump storage station (2011);

Client: BG Roßla mbH

Attendorn, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® in exploratory drillings for the project Fernholte – Eckenbach (2013);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Auberg Tunnel, Federal Highway B 2, Germany

Borehole jack tests with Ettlenger dilatometer EDI 95, monitoring of drillings with the optic scanner system ETIBS® in the course of the pre-investigation for the Auberg tunnel, detour Altenmarkt (2005 and 2010);

Client: BOG GmbH, Plankel Grund- u. Bohrtechnik Ges. m.b.H.

BAB A 1n, Lommersdorf – Adenau, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2015-16);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

BAB A 3 Heidingsfeld – Randersacker, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2011);

Client: BOG GmbH

BAB A 3 Hoechststadt – Erlangen, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® and the acoustic ABF system (2016);

Client: Fontus Logging Service

BAB A 3 Lahn Bridge Limburg, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with the optic scanner system ETIBS® and the acoustic ABF system, gamma-measurements (2007 and 2010);

Client: Schützeichel GmbH & Co. KG, UniWork GmbH

BAB A 4 Eisenach Ost – Waltershausen, VKE 5522, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack in the course of pre-investigation (2003);

Client: Dr. Stadtbäumer GmbH

BAB A 4, Exit Schmoelln, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® (2007);

Client: BG Roßla

**BAB A 4 Interchange Kirchheim – Junction Wildeck 5.BA, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and caliber measurements with optic 4-arm-caliber (2012);

Client: BG Roßla mbH

BAB A 5, T+R Station Rimberg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2011);

Client: Wöltjen GmbH

BAB A 6 Amberg – Pfreimd, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2001-2002);

Client: Autobahndirektion Nordbayern

BAB A 7, PWC Site Pilgerzell, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2012);

Client: Geotechnik Heiligenstadt GmbH

BAB A 7, PWC Station Dirlos, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2011);

Client: Wöltjen GmbH

BAB A 7, Roadhouse Uttrichshausen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], calibre measurement (2013);

Client: BGN Bohr- und Geotechnik Nowack GmbH

BAB A 8 Hohenstadt – Ulm West, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system in the course of pre-investigation for the six-lane new motorway A8 (2016);

Client: BauGrund Süd GmbH

BAB A 8 Muehlhausen – Hohenstadt, Germany

Execution of borehole jack tests with Ettlinger dilatometer in the course of pre-investigation for the motorway BAB A8 Alaufstieg (2006);

Client: BG Roßla

BAB A 8 Pforzheim, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system, execution of caliber-logs (2015-16);

Client: drillexperts GmbH, Eder Brunnenbau GmbH

BAB A 17 Dresden – Prag, PA III, VKE 391.3, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in exploratory drillings (2002);

Client: BBA Bohr & Brunnenbau GmbH

**BAB A 30 Bad Oeynhausen, Germany**

Execution of borehole jack tests with Ettlenger borehole jack, monitoring of boreholes with the optic scanner system ETIBS[®] and the acoustic ABF system, logging of borehole running. Exploratory drillings for the tunnel Hahnenkamp (2008);
Client: BOG GmbH

BAB A 38 Breitenworbis – Bleicherode, Germany

Cavity measurement with acoustic log, camera monitoring with the optic scanner system ETIBS[®], execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings (2000-01);
Client: BOG GmbH

BAB A 38 Friedetal Bridge, Germany

Monitoring of boreholes with the acoustic borehole scanner ABF, caliber measurements, logging of borehole running. Insertion of boreholes to Trivec measuring points, Trivec measurement (2008);
Client: BOG GmbH

BAB A 38 Heidkopf Tunnel, Germany

Execution of TV monitoring in exploratory drillings (2007);
Client: BOG GmbH

BAB A 44 Boyneburg Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and monitoring of drillings with the optic borehole scanner system ETIBS[®] in the course of pre-investigation for the Boyneburg tunnel (2006);
Client: BG Roßla

BAB A 44 Kassel – Eisenach, Exit Sontra-Nord – Exit Sontra-Ulfen, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack and Ettlenger dilatometer in exploratory drillings (2000);
Client: Baugrunderschließung Grimme

BAB A 44 Kassel – Eisenach, Helsa Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, optic and acoustic borehole scans in the course of pre-investigation for the Helsa tunnel (2004);
Client: Arge Tunnel Helsa (BG Roßla, BOG)

BAB A 44 Kassel – Eisenach, Helsa Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system, Gamma and calibre measurements (2013);
Client: Arge A44 Bohrungen Tunnel Helsa (BG Roßla, Terrasond)

BAB A 44 Kassel – Eisenach, Hirschhagen Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, optic and acoustic borehole scans, Gamma-log and borehole development measurements in the course of pre-investigation for the Hirschhagen tunnel (2004 and 2006);
Client: Arge BOG-Roßla BAB A44 VKE 12, Anger's Söhne

**BAB A 44 Kassel – Eisenach, Kuechen Tunnel, Germany**

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings for the Kuechen tunnel (1999);
Client: Terrasond GmbH & Co. KG

BAB A 44 Kassel – Eisenach, Trimberg and Spitzenberg Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack, optic and acoustic borehole scans in the course of pre-investigation for the VKE 40.1 (2004);
Client: Schützeichel GmbH & Co. KG

BAB A 44 Kassel – Eisenach, Waldkappel – Hoheneiche, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack for pre-investigation of section Waldkappel - Hoheneiche (1998-99);
Client: Nöring & Preißler

BAB A 44 Ringgau – Sontra West, VKE 221, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017);
Client: Bohrgesellschaft Roßla mbH

BAB A 44 Sontra North – Sontra-Ulfen, VKE 50, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with the optic scanner system ETIBS® and the acoustic ABF system. Caliber, gamma, gamma-gamma measurements and logging of borehole running (2006-07);
Client: Arge BAB A44, VKE 50 (Bohrges. Roßla, BOG, Terrasond)

BAB A 44 Sontra West – Valley Bridge Riedmuehle, Germany

Execution of borehole jack tests with Ettlenger flexible dilatometer and Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2016-18);
Client: Geophysikalische Fachberatung Dr. Lux

BAB A 44, TB Riedmühle – Wommener Dreieck, VKE C 241, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, execution of Tracer Fluid Logging (TFL) (2015 and 2016-17);
Client: Arge A44 TB Riedmühle-Wommener Dreieck/BG Roßla mbH, BOG GmbH

BAB A 44, Velbert – Ratingen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, logging of borehole running and caliber measurements (2008 and 2010);
Client: Erkelenzer Bohrgesellschaft mbH, Schützeichel GmbH & Co. KG

BAB A 44, VKE 20, Hessisch-Lichtenau, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack (2003);
Client: HYDRO-Geotechnik GmbH

**BAB A 44, VKE 40.1 and 40.2, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, caliber and gamma-measurements (2010);
Client: BauGrund Süd GmbH

BAB A 44 Waldkappel – Hoheneiche, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS®, 4-branch caliber measurement in the construction sections 1 – 3 (2012 and 2013);
Client: Arge A44 (BG Roßla mbH, BOG GmbH, Terrasond GmbH & Co. KG)

BAB A 44 Waldkappel – Hoheneiche – Sontra-Nord, VKE 40.1 and 40.2, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, primary stress measurements with the triaxial cell CSIRO, monitoring of drillings with the optic scanner system ETIBS® in the course of pre-investigation (2002-2003);
Client: Arge BAB A44, VKE 40.1/40.2 (J. Schützeichel, Erkelenzer BG)

BAB A 44 Waldkappel – Ringgau, VKE C 212, Germany

Execution of borehole jack tests with Ettlenger flexible dilatometer and Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2015 and 2016);
Client: Arge A44 AS Waldkappel-AS Ringgau (BG Roßla mbH, BOG GmbH)

BAB A 45 Klangstein Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, Gamma measurements and logging of borehole running off (2012, 2013 and 2014);
Client: Terrasond GmbH & Co. KG, UniWork GmbH

BAB A 45 Marbach Viaduct, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2012);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

BAB A 45 Roadhouse Sauerland, Germany

Execution of borehole jack tests with Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® (2013);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

BAB A 45 Roadhouse Sauerland East, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2009);
Client: Schützeichel GmbH & Co. KG

BAB A 45 Valley Bridge Eisern, Germany

Execution of borehole jack tests with Ettlenger flexible dilatometer and Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

**BAB A 45 Valley Bridge Landeskrone Weiher, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

BAB A 45 Valley Bridge Rinsdorf and Raelsbach, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS®, borehole development measurements (2015);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

BAB A 45 Wilnsdorf – Siegen South, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of exploratory drillings with the acoustic ABF system (2017-18);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

BAB A 46 Hemer – Menden, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, monitoring of drillings with the optic scanner system ETIBS® and the acoustic system ABF, Gamma-Log and logging of borehole running (2009);

Client: Arge Baugrunderkundung BAB A46 (Stölben GmbH, BOG GmbH)

BAB A 46 Velmede – Nuttlar, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic system ABF. Caliber and borehole loggings (2007-08);

Client: Schützeichel GmbH & Co. KG, Terrasond GmbH & Co. KG

BAB A 49 Kassel – Gemuenden, VKE 30, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2010);

Client: Eder Brunnenbau in Deutschland GmbH

BAB A 49 Kassel – Marburg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® in the section Maulbach – Homberg (Ohm) (2001-2002);

Client: BLM GmbH

BAB A 49 Ohmtal – Stadtallendorf Triangle, Lot 2, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017);

Client: Arge A49 (Terrasond GmbH & Co. KG, BOG GmbH)

BAB A 49 Stadtallendorf Exit – Schwalmstadt Exit, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2017);

Client: BOG GmbH

BAB A 49 Valley Bridge Jossklein, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2017);

Client: Terrasond GmbH & Co. KG

**BAB A 52 Essen, Germany**

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with the acoustic ABF system (2009);
Client: Celler Grundbau GmbH

BAB A 61, Interchange Rheinboellen – Roadhouse Hunsrueck, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings (2013-14);
Client: Süd-West-Bohr GmbH

BAB A 62 Quirnbach Dam, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, exploration of the drainage of the motorway A 62 (2017);
Client: Terrasond GmbH & Co. KG

BAB A 66, Salzbach Valley Bridge, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2015);
Client: Terrasond GmbH & Co. KG

BAB A 71 Schweinfurt – Erfurt, VKE 5344, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack in the course of exploratory works in the area of the exit to the B85 and the exit Soemmerda (2002-2003);
Client: Arge BOG-Terrasond-Roßla

BAB A 73 Coburg – Ebersdorf, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® for the Maintal bridge near Lichtenfels (2002);
Client: Dr. Stadtbäumer GmbH

BAB A 73 Suhl – Lichtenfels, Germany

Execution of borehole jack tests with flexible dilatometer and Ettlenger borehole jack, monitoring of drillings with the optic scanner system ETIBS® in exploratory drillings in the region Suhl-Sued - Schleusingen (2001-02);
Client: ARGE BAB A73, VKE5212 (Terrasond-Roßla-BOG)

BAB A 73 Suhl – Lichtenfels, VKE 5213, Germany

Monitoring of exploratory drillings with the borehole camera and with the optic scanner system ETIBS® (2002-2003);
Client: Arge BAB A73, VKE 5213 (Terrasond, Roßla, BOG)

BAB A 73 Viaduct Bruenn, Germany

Monitoring of drillings with the optic scanner system ETIBS® and the acoustic ABF system, caliber measurements (2007);
Client: BOG GmbH

BAB A 81 Engelberg Base Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in drillings for the special measuring program Engelberg Base Tunnel. Monitoring of a drilling with borehole camera (2012-13);
Client: Terrasond GmbH & Co. KG

**BAB A 96 Munich – Lindau, Germany**

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in exploratory drillings for closing the gap between Leutkirch – Gebrazhofen and Kisslegg - Duerren (2005);

Client: Dr. Stadtbäumer GmbH

BAB A 98, Murgtal Bridge, Germany

Monitoring of drillings with the optic scanner system ETIBS® (2005);

Client: Ingenieurgruppe Geotechnik GbR

B2, Oberau Tunnel, Germany

Execution and evaluation of flexible dilatometer tests for pre-investigation of the Oberau tunnel (1998);

Client: BLM, München

B2, Oberau Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for pre-investigation of Giessenbachtal (1998);

Client: Autobahndirektion Südbayern

B9 new, Detour Nierstein, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2017-18);

Client: Handke Brunnenbau GmbH

B10 Gingen East – Geislingen East, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, measurement of the natural gamma radiation (2017);

Client: Arge B10 (Terrasond GmbH & Co. KG, BOG GmbH, Abt Wasser- und Umwelttechnik GmbH)

B23, Echelsbacher Bridge, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2015);

Client: BG Roßla mbH

B38, Detour Moerlenbach, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system in the course of the exploration for the detour Moerlenbach (2017);

Client: BauGrund Süd GmbH

B48n Detour Imsweiler, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017);

Client: BOG GmbH

**B240, Detour Weenzen North – Marienhagen, Germany**

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, Gamma-Ray-Log and loggings of borehole running off for the detour Weenzen – Marienhagen (2011);

Client: BOG GmbH

B240, Ith Tunnel, Germany

Execution of borehole jack tests with Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2014);

Client: Keller Grundbau GmbH

Bad Bergzabern, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for the B427 detour of Bad Bergzabern (2002-03 and 2016);

Client: Stölben GmbH, Arge B427 (BG Roßla mbH, Terrasond GmbH & Co. KG)

Bad Berleburg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® at the bluff of the county road L553 (2006);

Client: Schützeichel GmbH & Co. KG

Bad Camberg, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack for new railway line Koeln - Rhein/Main of the Deutsche Bahn (1998);

Client: Schützeichel GmbH & Co. KG

Baden-Baden, August-Schriever-Alley, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2007);

Client: Erkelenzer BG

Baden-Baden, Caracalla Thermal Bath, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® (2013);

Client: Burkhardt GmbH & Co. KG

Baden-Baden, Department Store Wagener, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® (2005);

Client: Hettmannsperger GmbH

Baden-Baden, Paedagogium Boarding-School, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2005);

Client: Terrasond GmbH & Co. KG

Baden-Baden, SWR radio station, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2013 and 2017);

Client: drillexpert GmbH

**Bad Duerkheim, Germany**

Monitoring of wells with the optic scanner system ETIBS® and the gamma probe to determine the clay seals and the condition of the filter slots, dump of BASF in Bad Duerkheim (2016);
Client: Stölben GmbH

Bad Honnef, Germany

Monitoring of boreholes for inclinometers with the optic scanner system ETIBS®, Adenauer House Bad Honnef (2009);
Client: Stölben GmbH

Bad Kissingen, Germany

Camera monitoring of drillings in the foundation of the lobby with the optic scanner system ETIBS® (1999);
Client: Staatl. Hochbauamt Bad Kissingen

Bad Koesen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, logging of borehole running off. Exploration for the Federal Highway B 87n, detour Bad Koesen – Saale bridge (2010);
Client: BOG GmbH

Bad Lauterberg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2007);
Client: Wöltjen GmbH

Bad Neuenahr, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the B 266 detour Bad Neuenahr (2008);
Client: Erkelenzer Bohrgesellschaft mbH

Bad Reichenhall, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for the detour of Bad Reichenhall (2002);
Client: BOG GmbH

Bad Salzungen, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the B 62 detour Bad Salzungen (2012-13);
Client: BOG GmbH

Bad Wimpfen, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack in the course of pre-investigation for the detour of Bad Wimpfen (2003);
Client: Terrasond GmbH & Co. KG

Baarenstein / Biela, Germany

Monitoring of drillings with the optic scanner system ETIBS® and the acoustic ABF system. Exploratory drillings for the flood detention basin Baarenstein / Biela (2006 and 2007);
Client: BOG GmbH

**Bamberg, Sluice, Germany**

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack (2004);

Client: Wilhelm Knappe Bohrunternehmen

Bamberg, Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2016-17);

Client: BOG GmbH

Barrages Erlabrunn, Harrbach, Steinbach, Freudenberg, Lots 3 + 4, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2014);

Client: SBI Ingenieurgesellschaft Nieste (Lot 3), Arge Mainwehre – Lot 4 (Terrasond, BOG)

Bataszek Tunnel, Hungary

Execution of borehole jacking tests in exploratory drillings at the tunnel construction site Bataszek (2008);

Client: Terrasond GmbH & Co. KG

Bebenroth Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack, monitoring of drillings with the optic scanner system ETIBS[®] and with the borehole camera (2002-03);

Client: Schützeichel GmbH & Co. KG

Beihingen, Barrage, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the acoustic ABF system at the Neckar barrage Beihingen (2012);

Client: BG Roßla mbH

Bensberg, Market Gallery, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2014);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Berchtesgaden, Germany

Execution of borehole jack tests with Ettliger borehole jack in an exploratory drilling for the Rottmayr Gymnasium (2016);

Client: Eder Brunnenbau GmbH

Berghau Tunnel, Germany

Camera monitoring of drillings in the tunnel in the course of exploratory drillings (2005);

Client: Schützeichel GmbH & Co. KG

Bergisch Gladbach, Germany

Monitoring of drillings with the optic scanner system ETIBS[®] in exploratory drillings for the evangetic hospital (2004);

Client: Knauber GmbH

**Bernkastel/Lieser; Germany**

Execution and evaluation of borehole jack tests with Ettliger borehole jack for pre-investigation of flood precautionary measures Lieser (1995);
Client: Stölben GmbH

Bertoldshofen Tunnel (B16), Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, execution of Gamma-logs (2015);
Client: BauGrund Süd

Betzdorf, Tunnel Siegkreisel, Germany

Execution of borehole jack tests with Ettliger dilatometer, primary stress measurements with HI-cell CSIRO, camera monitoring of drillings with the optic scanner system ETIBS® (1999);
Client: Erkelenzer Bohrgesellschaft

Bibra Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer, installation of electric and pneumatic interstitial pressure transducers with electronic data logger, pre-investigation for the new railway line Erfurt - Halle/Leipzig (1996);
Client: Terrasond GmbH + Co. KG

Bildstock Tunnel, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Ettliger borehole jack for pre-investigation of the new Bildstock tunnel (1995);
Client: Saarbergwerke AG, Saarbrücken

Bitterfeld, Dump BRIFA, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack (2002);
Client: Vormann & Partner GmbH

Blankenburg, Germany

Execution of borehole jack tests with Ettliger borehole jack and Ettliger dilatometer. Monitoring of boreholes with the optic scanner system ETIBS® and the acoustic ABF system. Exploratory drillings for the Heidberg tunnel, B 81 detour Blankenburg (2008-09);
Client: BOG GmbH

Blaubeuren, Pumped-Storage Power Station Blautal, Germany

Execution of borehole jack tests with Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS®, Gamma-Log (2005);
Client: Wöltjen GmbH

Blaubeuren, Pumped-Storage Power Station Blautal, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, Gamma Log, stress measurements with stress monitoring stations (2012-14);
Client: Wöltjen GmbH

Bleicherode, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack, pre-investigation for the motorway BAB A38 Goettingen - Halle, lots 3 + 4 (1996);
Client: Thüringer Bohrgesellschaft

**Blessberg Tunnel, Germany**

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack for the new railway line Ebensfeld – Erfurt, BA 3211/3212, additional exploration Blessberg tunnel (2002-03);

Client: Arge Terrasond & BOG

Blintendorf-Saaletal, Motorway BAB A 9, Germany

Execution and evaluation of flexible dilatometer tests (1994);

Client: Bobac GmbH, Chemnitz

Bochum, Suburban Train Bochum - Recklinghausen, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer (1999);

Client: Fluhme & Sohn GmbH

Booser Tunnel, Germany

Execution of borehole jack tests with Ettliger borehole jack, monitoring of the underground drillings with borehole camera (2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Bopfingen, L1070, Recultivating of Construction Facility Area, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2014);

Client: Geotechnik Aalen

Bosruck Tunnel, Austria

Stress measurements according to the method of compensation in the concrete inner shell of the tunnel (2013);

Client: Montanuniversität Leoben

Bossler Tunnel; Steinbuehl Tunnel, Germany;

Execution and evaluation of flexible dilatometer tests in boreholes up to the depth of 300 m, new railway line Stuttgart - Ulm (1993-1995);

Client: Sax + Klee, E + M Bohr GmbH, J. Menning GmbH, Geomechanik GmbH

Braemericher Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer, monitoring of the underground drillings with borehole camera, stress measurements according to the method of compensation, development measurement of the drillings on the surface (2016-17);

Client: BG Roßla mbH

Brandenstein Tunnel, Germany

Stress measurements according to the compensation method, assessment of stability and evaluation of reconstruction necessity of the tunnel (1990-91);

Client: DB Bundesbahndirektion Frankfurt/Main

Brandenstein Tunnel, Germany

Execution of borehole jack tests with Ettliger borehole jack, monitoring of drillings with the optic scanner system ETIBS® and the acoustic ABF system in exploratory drillings for the new Brandenstein tunnel (2005 and 2007-08);

Client: Terrasond GmbH & Co. KG

**Brandenstein Tunnel, Germany**

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of the underground drillings with borehole camera, stress measurements according to the compensation method, monitoring of surface drillings with the optic scanner system ETIBS® and the acoustic ABF system (2017-18);

Client: BG Roßla mbH

Brandleite Tunnel, Germany

Borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, stress measurements according to the compensation method, execution of a double plate load test, installation of convergence measuring sections with distometer for pre-investigation and documentation in the area of the planned crossing by the Rennsteig tunnel (1998);

Client: Schützeichel GmbH & Co. KG

Branich Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack and Ettlinger dilatometer. Monitoring of boreholes with the acoustic ABF system. Exploratory drillings for the Branich tunnel L 536, detour Schriesheim (2008.09);

Client: Schützeichel GmbH & Co. KG

Bremer Pond, Germany

Execution of borehole jack tests with Ettlinger borehole jack in the course of ground exploration (2007);

Client: Terrasond GmbH & Co. KG

Brenner Railway Axis, Austria

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in the course of the ground exploration Kundl/Radfeld – Baumkirchen (2002);

Client: Solexperts AG

Broetzinger Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of underground drillings with borehole camera, stress measurements according to the compensation method, monitoring of surface drillings with the optic scanner system ETIBS® (2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Bruettener Tunnel / Shaft Steig, Switzerland

Execution of horizontal double plate load tests in the course of pre-investigation for the Bruettener tunnel (1990);

Client: Solexperts AG

Buehl, Sand Brook, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2005);

Client: Dr. Ing. Orth GmbH

Bure, France

Execution of stress measurements according to the compensation method, extension of the test points for repeated measurements to record the changes of stress in the gallery of the Andra test site Bure (2010-17);

Client: Solexperts AG

**Burgberg Tunnel, Pilot Tunnel, Germany**

Execution of anchor tensile tests according to DIN 4125, new railway line Mannheim - Stuttgart (1985);

Client: PrGr M/S der Bahnbauzentrale, Bundesbahndirektion Karlsruhe

Busch Tunnel, Germany

Stress measurements according to the compensation method for evaluation of the reconstruction necessity of the tunnel (1996);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Busch Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for an investigation programme of a „new“ Busch tunnel (1996-97);

Client: Terrasond GmbH + Co. KG

Calw, Germany

Execution of borehole jack tests with Ettlinger dilatometer, monitoring of drillings with optic scanner system ETIBS[®] and acoustic ABF system, Gamma-Log, exploratory drillings for the tunnel Calw (2009);

Client: RP Karlsruhe, Sachgebiet Straßenbau und Geotechnik

CERN, Switzerland

Execution and evaluation of flexible dilatometer tests and primary stress measurements with the triaxial cell CSIRO, exploratory drilling (1995);

Client: Waschek GmbH

Charlottenfels Tunnel, Germany

Stress measurements according to the compensation method to estimate the stability of the tunnel (2009);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Chemnitz, Dump Weisser Weg, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in exploratory drillings (2001);

Client: Kling Bohrtechnik

Chile, Mina El Teniente, Chile

Stress measurements according to the method of compensation and delivery of a complete sawing and test equipment up to 1000 bars (2015);

Client: Glötzl GmbH

Cirata, Cavern, Indonesia

In situ triaxial tests; entrance tunnel of the Cirata cavern (1985);

Client: PP-TC-MC Joint Operation, Jakarta, Indonesia

Comarapa, Bolivia

Execution and evaluation of flexible dilatometer tests for pre-investigation of a barrage (1998);

Client: CES - Consulting Engineers Salzgitter GmbH

**Cornberg Tunnel, Germany**

Execution and evaluation of borehole jack tests with Ettliger borehole jack and Ettliger dilatometer, stress measurements according to the compensation method for evaluation of the reconstruction necessity of the tunnel (1997);
Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Cornberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, primary stress measurements with the triaxial cell CSIRO in the course of the exploration programme for new construction and renewing of the Cornberg tunnel of the Deutsche Bahn (2002-03);
Client: Bohrgesellschaft Finowfurt

Cornberg Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2015);
Client: BOG GmbH

Cotapata, Bolivia

Execution and evaluation of flexible dilatometer tests for pre-investigation of a road tunnel for the Cotapata - Santa Barbara Road (1998);
Client: Lahmeyer International

Cramberg Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, stress measurements according to the method of compensation, monitoring of exploratory drillings with borehole camera (2015);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Cronheim, Waste Dump, Germany

Execution and evaluation of flexible dilatometer tests (1989);
Client: Osel Bohr GmbH, Bamberg

Dagash, Sudan

Execution of flexible dilatometer tests in exploratory drillings for the hydraulic power station Dagash. Monitoring of drillings with the optic scanner system ETIBS® (2008);
Client: DIU, Dams Implementation Unit

Dal, Sudan

Monitoring of exploratory drillings for the hydraulic power station Dal with the optic scanner system ETIBS® (2008);
Client: DIU, Dams Implementation Unit

Dam Complex of Upper Atbara Project, Sudan

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack (2010);
Client: DIU, Dams Implementation Unit

**Darmsheim, Germany**

Execution of borehole jack tests with Ettlenger borehole jack and Ettlenger dilatometer. Monitoring of drillings with the optic scanner system ETIBS[®] and the acoustic scanner ABF, logging of borehole running and Gamma Ray measurements, exploratory drillings for the tunnel Darmsheim L1182 northern detour Darmsheim (2008);

Client: Stölben GmbH

Darmstadt Wixhausen, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the GSI-project FAIR (2007);

Client: Terrasond GmbH & Co. KG

Deining, Germany

Execution of borehole jack tests with Ettlenger borehole jack in the area of the retaining structure km 52.6 – 52.7 Regensburg – Nuernberg (2017);

Client: BOG GmbH

Denkendorf, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] in the graveyard wall of Denkendorf (2015);

Client: Bewer Ingenieure

Deschlberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack. Monitoring of drillings with the optic scanner system ETIBS[®]. Exploratory drillings for the detour Furth im Wald (2006);

Client: Behringer + Dittmann GmbH

Dettingen Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and borehole jack, installation of electrical interstitial pressure transducers with electronic data logger. Investigation programme of the Deutsche Bahn new railway line Stuttgart - Augsburg PFA2.16, 1. EKP (1997-98);

Client: Arge Tunnel Dettingen (geo-Bohrtechnik, Kling)

Diemelsee, Germany

Monitoring of exploratory drillings at the district waste disposal site with the optic scanner system ETIBS[®] (2008);

Client: Schützeichel GmbH & Co. KG

Dietershan Tunnel, Pilot Tunnel, Germany

Installation of measuring cross sections and execution of rock mechanical tests, joint venture with Interfels, Bad Bentheim (1982);

Client: PrGr H/W Mitte der Bahnbauzentrale, Bundesbahndirektion Frankfurt/M.

Diez, Detour, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack. Monitoring of drillings with the optic scanner system ETIBS[®] (2006-07);

Client: Schützeichel GmbH & Co. KG

**Diez, Volksbank, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], ground exploration for the enlargement of the Volksbank (2007);

Client: Schützeichel GmbH & Co. KG

Donau Restoration Straubing – Vilshofen, Germany

Execution of borehole jack tests with Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2012);

Client: Terrasond GmbH & Co. KG

Donaueschingen, Jaegerweg 4, Germany

Monitoring of a drilling for geothermic probes with Gamma-Ray (2005);

Client: Moräne Bohrgesellschaft

Dorsten, Sluice, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack, monitoring of drillings in the concrete of the chamber walls with camera system (2000);

Client: Schützeichel GmbH & Co. KG, BAW Karlsruhe

Dortmund, Germany

Execution and evaluation of flexible dilatometer tests to pre-investigate the tunnel B 236n (1997);

Client: Fluhme & Sohn GmbH

Drachenfels, Germany

Monitoring of exploratory and anchor drillings with the optic scanner system ETIBS[®] (2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG, Sidla & Schönberger GmbH

Dresden, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings for the CUB superstructure C4 Bump at AMD Dresden (2000);

Client: BAUGEO GmbH

Dresden, Airport Terminal 2000, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings (1999);

Client: Terrasond GmbH & Co. KG

Duisburg, Schul Street, Germany

Monitoring of two wells with borehole camera before and after the well regeneration (2015);

Client: Stölben GmbH

Durlach, Steinlesweg, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS[®] (2004);

Client: Hettmannsperger GmbH

Durlach, Parkschoessle Nursing Home, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2005);

Client: Hettmannsperger GmbH

**Ebertsberg Tunnel, Germany**

Stress measurements according to the compensation method, assessment of stability and evaluation of reconstruction necessity of the tunnel (1990-93);

Client: DB Bundesbahndirektion Frankfurt/Main

Ebertsberg Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of underground drillings with borehole camera, stress measurements according to the method of compensation, monitoring of exploratory drillings on the surface with the optic scanner system ETIBS® and the acoustic ABF system (2016-17);

Client: BG Roßla mbH

Edertal Dam, Germany

Execution of flexible dilatometer tests in the concrete wall and in the foundation for reconstruction works (1985);

Client: GKN Keller, Niederlassung Bremen

Effolderbacher Tunnel, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack. Monitoring of drillings with a borehole camera and with the optic scanner system ETIBS®. Stress measurements according to the compensation method (2010);

Client: Schützeichel GmbH & Co. KG, Erkelenzer Bohrges. mbH

Egge Tunnel, Germany

Execution of stress measurements according to the compensation method in the shotcrete shell of Egge tunnel, new railway line Kassel - Paderborn (1998 and 2000);

Client: gbm - Ges. für Baugeologie und -messtechnik mbH

Ehningen, Germany

Execution of borehole jack tests with Ettlinger borehole jack in two exploratory drillings (2012);

Client: Terrasond GmbH & Co. KG

Ehrenbreitstein, Fortress, Germany

Monitoring of exploratory drillings with a borehole camera and the optic scanner system ETIBS® (2010, 2013-15, 2017);

Client: Schützeichel GmbH & Co. KG, Pressbau Erfurt GmbH

Eichen-Dieckenscheid Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack; new railway line Koeln - Rhein/Main (1998);

Client: gbm - Ges. für Baugeologie und -messtechnik mbH, Limburg

Eichstaett Lueften, Germany

Execution of borehole jack tests with Ettlinger borehole jack, ground exploration for a wind energy plant (2011);

Client: Terrasond GmbH & Co. KG

Eierberge Tunnel, Germany

Stress measurements according to the compensation method in the shotcrete of the outer lining of the tunnel Eierberge (2010);

Client: Arge NBS Eierberge (PORR, Hinteregger, Östu-Stettin, Jäger)

**Eisgrub Tunnel, Germany**

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the tunnel Eisgrub of the new highway B 15 (2007);

Client: Ivers

Elbbach Valley Bridge, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in the zone of the abutment of the planned bridge (1998);

Client: Hochtief AG, Frankfurt

Elleringhauser Tunnel, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, inspection of drillings in the tunnel with borehole camera, stress measurements according to the method of compensation, DB-section 2550 (2013 and 2016);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Emscher Sewer, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the Emscher sewer, lot 1 (2005-09);

Client: Arge AK Emscher Los 1 (Schützeichel GmbH & Co. KG, Terrasond GmbH & Co. KG)

Engelberg Tunnel, Germany

Execution of stress release measurements according to the compensation method in shotcrete for advance works of the new Engelberg tunnel (1996);

Client: Glötzl GmbH

Engelberg Tunnel, Germany

Monitoring of injection drillings with the borehole endoscope system GIF (1997);

Client: Arge Engelbergtunnel

Engelberg Tunnel, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of non-modified boreholes and boreholes modified to measuring points, stress measurements according to the compensation method and with the borehole slotter in the concrete lining of the tunnel (2012-13 and 2014);

Client: Terrasond GmbH & Co. KG, RP Stuttgart

Ennepetal, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system for the pipe drive Rahlenbecke (2016);

Client: BauGrund Süd GmbH

Ennericher Tunnel, Germany

Execution of stress measurements according to the compensation method for evaluation of the reconstruction necessity of the tunnel (1997 and 1998);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

**Eppstein, Germany**

Monitoring of an exploratory drilling with the optic scanner system ETIBS® in the course of a rock hillside support (2015);
Client: Stölben GmbH

Eppstein Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer, monitoring of drillings with the optic scanner system ETIBS® for the reconstruction of the Eppstein tunnel (2003);
Client: Schützeichel GmbH & Co. KG

Eppstein and Buedesheim Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, stress measurements according to the compensation method, investigation to evaluate the reconstruction necessity of the tunnel (1998);
Client: Schützeichel GmbH & Co. KG, gbm – Ges. für Baugeologie und -messtechnik mbH

Erdinger Ringschluss, Germany

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings for the improvement of the rail link of the airport Munich (2007-08);
Client: Arge Erdinger Ringschluss Paket B (Terrasond, Behringer-Dittmann, Abt)

Erlangen and Kriegenbrunn, Sluices, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack (2010 and 2013);
Client: Terrasond GmbH & Co. KG, Behringer + Dittmann GmbH

Erwitte, Cement Plant, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2011);
Client: Schützeichel GmbH & Co. KG

Erzhausen, Germany

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings for the pump storage station Statkraft Erzhausen (2013);
Client: U+B Wöltjen GmbH

Essen, Frohnhauser Street, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS®, borehole deviation measurements (2012);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Essen, University Hospital, Germany

Monitoring of an exploratory drilling with the acoustic ABF system (2010);
Client: Schützeichel GmbH & Co. KG

Essleben, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in an embankment for the new railway line Erfurt - Halle/Leipzig (1996);
Client: Terrasond GmbH + Co. KG

**Ettlingen, Germany**

Monitoring of a measuring point with the optic scanner system ETIBS® during the soil rehab of the former Rheinland barracks (2012);
Client: Heilit Umwelttechnik GmbH

Euerwang Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in the course of the tunnelling, new railway line Nuernberg - Ingolstadt of the Deutsche Bahn (2000);
Client: Arge Tunnel Los Mitte (Hochtief, Universale)

Fachinger Tunnel, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, stress measurements according to the method of compensation, monitoring of underground drillings with borehole camera. Monitoring of surface drillings with the optic scanner system ETIBS® (2017)
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG, Vormann Bohrgesellschaft mbH & Co. KG

Fankel, Sluice, Germany

Monitoring of exploratory drillings with the optic borehole scanner (2001);
Client: Conrad Brunnenbau GmbH

Farchant, B2, Farchant Tunnel, Germany

Execution and evaluation of flexible dilatometer tests for pre-investigation of the Farchant tunnel (1993);
Client: Terrasond GmbH + Co. KG, Süd-Bohr Grundbauges. mbH

Fasanenhof Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack out of the tunnel in rocks of the Lias $\alpha 1$ (2008);
Client: Institute for geotechnics of the University of Stuttgart

Fehmarn Belt Crossing, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2016);
Client: Ivers Brunnenbau GmbH

Fieni, Romania

Execution of borehole jack tests with Ettlinger borehole jack in an exploratory drilling for the Clincker Silo 4 of Carpat-Cement Fieni (2007);
Client: Terrasond S.R.L. Timisoara

Finne Tunnel, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and pressuremeter according to Ménard, installation of electrical interstitial pressure transducers with electronic data loggers (1992-93);
Client: Sax + Klee GmbH, Terrasond GmbH + Co. KG

Flaschenhals Tunnel, Koblenz, Germany

Execution and evaluation of borehole jack tests with the borehole jack. Installation of Trivec measuring tubes for soil investigations at the Federal Highway B42 Bendorf - Lahnstein (1993-1994);
Client: Günther Eder GmbH, Hebertsfelden

**Fohren-Linden, Wind Farm, Germany**

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the wind farm Fohren-Linden (2016);

Client: GICON-Großmann Ingenieur Consult GmbH

Forbach, Pump Storage Station, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, gamma ray, flowmeter, primary stress measurements with the triaxial cell CSIRO, installation of electric pore water pressure transducers with electric data loggers in the course of exploratory drillings for the extension of the EnBW pump storage station Forbach (2010-11);

Client: Arge PSW Forbach (drillexpert, Terrasond, Roßla, E+M)

Frankenhain Tunnel, Germany

Monitoring of drillings with the optic scanner system ETIBS® in the course of the investigation for the motorway BAB A49 Frankenhain tunnel (2003);

Client: Wöltjen GmbH

Frankfurt Hahn, Airport, Germany

Execution of borehole jack tests with Ettlinger borehole jack, ground exploration for the ATC-Tower (2011);

Client: Schützeichel GmbH & Co. KG

Frankfurt 21, 1st Exploratory Step, Germany

Execution of borehole jack tests with Ettlinger borehole jack, installation of multiple interstitial pressure transducers and borehole pressure cells in the course of pre-investigation for the project Frankfurt 21 of the Deutsche Bahn (2000);

Client: Versuchsanstalt für Geotechnik, TU Darmstadt

Frankfurt/Main, Brewery Radeberger, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® to control the injection success (2012);

Client: Stump Spezialtiefbau GmbH

Frankfurt/Main, East Harbour, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® to explore the quay wall (2010);

Client: Schützeichel GmbH & Co. KG

Frankfurt/Main, East Harbour, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and loggings of borehole running off to control the injection success in the quay wall (2011, 2012, 2014, 2015, and 2017);

Client: Stump Spezialtiefbau GmbH, Himmel und Papesch

Frankfurt/Main, European Quarter City Railway, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2015);

Client: BOG GmbH

Frankfurt/Main, Fraport, Germany

Execution of borehole jack tests with Ettlinger borehole jack in the course of exploratory drillings for the baggage tunnel (2016);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

**Frankfurt/Main, Gateway Gardens, Germany**

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings (2012);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Frankfurt/Main, Skyscraper City West, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack in an exploration drilling for the skyscraper City West (1999);

Client: IBO Tech GmbH

Frankfurt/Main, Holzmann Skyscraper, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack and pressiometer according to Ménard (2000);

Client: Versuchsanstalt für Geotechnik, TU Darmstadt

Frankfurt/Main, Suburban Train Nordmainische, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings for the suburban train Nordmainische (2008);

Client: Arge NM-S-Bahn (Schützeichel KG + Terrasond GmbH & Co. KG)

Frankfurt/Main, UEC-Center, Germany

Execution of borehole jack tests with pressiometer according to Ménard (2000);

Client: Versuchsanstalt für Geotechnik, TU Darmstadt

Frankfurt/Main, Deep Foundation of a Skyscraper, Germany

Measurement of pile butt and pile foot forces, pile extension, extensometer and in-cline measurements, delivery and installation of measuring instruments (1983);

Client: Ing.-Büro Prof. Sommer, Darmstadt

Frankfurt/Oder, Germany

Camera monitoring in boreholes of pillars and in the abutment of the Oder bridge with the GIF borehole endoscope (1997);

Client: Schützeichel GmbH & Co. KG

Frauenberger and Kupferheck Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack and Ettlenger dilatometer. Recording of exploratory drillings with a borehole camera (2008);

Client: Schützeichel GmbH & Co. KG

Freienohler Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack, inspection of drillings in the tunnel with borehole camera, stress measurements according to the method of compensation, DB-section 2550 (2013 and 2016);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Freising, West Tangent Road, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2012);

Client: Eder Brunnenbau in Deutschland GmbH

**Freudenberg, Germany**

Execution of borehole jack tests with Ettliger borehole jack and Ettliger dilatometer, monitoring of drillings with the optic scanner system ETIBS[®] and the acoustic scanner ABF. Exploratory drillings for the L2310 detour Freudenberg (2008);

Client: Terrasond GmbH & Co. KG

Freudenstadt, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer in exploratory drillings for the tunnel Freudenstadt (2016);

Client: Burkhardt GmbH & Co. KG

Freudenstein Tunnel, Germany

Execution of double plate load tests in the crown of the section west and middle, new railway line Mannheim - Stuttgart (1988);

Client: PrGr M/S der Bahnbauzentrale, Bundesbahndirektion Karlsruhe

Freudenstein Tunnel, Germany

Engineering geological consulting, execution of rock and soil mechanic investigations and geotechnical measurements, new railway line M/S (1985-90);

Client: PrGr M/S der Bahnbauzentrale, Bundesbahndirektion Karlsruhe

Fuerth, Underground Railway, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in boreholes for foundation investigation of BA 3.1.1 (1998);

Client: Behringer GmbH

Gaggenau, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], B 462 Gaggenau – Bad Rotenfels, Rotherma link road (2006);

Client: Dr. Ing. Orth GmbH

Gargellen Mountain Railways, Austria

Execution of borehole jack tests with Ettliger borehole jack for the project water reservoir Schafbergsee II (2017);

Client: Reisinger GesmbH

Geesthacht, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] in the course of the condition investigation of the armored concrete barrage Geesthacht (2016);

Client: Sieberns & Stephanowicz GmbH

Geisberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings for the Geisberg tunnel, new railway line Nuernberg - Ingolstadt of the Deutsche Bahn (1999);

Client: Schützeichel GmbH & Co. KG

Gelbingen, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings for the western bypass road B19 (1999);

Client: Andreas Goller Bohrtechnik

**Gernsbach, Tunnel, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2012-13);

Client: GHJ Ingenieures. für Geo- u. Umwelttechnik mbH & Co. KG

Gevelsberg, New Building Bridge Eichholtzstreet, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Giswil, Switzerland

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack in an exploratory drilling at the tunnel Kaiserstuhl (2016);

Client: Polymetra GmbH

Glauchau, Motorway BAB A 4 Chemnitz - Glauchau, Lots 1-3, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack, inclinometer measurements (1993);

Client: Terrasond GmbH + Co. KG, Geomechanik Sachsen GmbH

Gleen Valley Bridge, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for the motorway BAB A49 (2002);

Client: Schützeichel GmbH & Co. KG

Gleinalm Tunnel, Austria

Stress measurements according to the method of compensation in the concrete inner shell of the tunnel (2014);

Client: Montanuniversität Leoben

Gloesinger Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, inspection of drillings in the tunnel with borehole camera, stress measurements according to the method of compensation, DB-section 2550 (2013);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Goeggelsbuch, Pilot Shaft, Germany

Execution of a double plate load test until 4 MPa, installation of multiple extensometers, new railway line Nuernberg - Ingolstadt (1995-96);

Client: Bilfinger + Berger AG

Goerzhausen, Germany

Monitoring of drillings with the optic scanner system ETIBS®, exploratory drillings for Novartis Behring, building project Goerzhausen II (2008);

Client: Schützeichel GmbH & Co. KG

Goesgen, Switzerland

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings of site investigations for KKG & ATEL (2008);

Client: Interoil E&P Switzerland AG

**Gondelsheim, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system for the noise protection wall B35 Gondelsheim (2017);
Client: Baustoff- und Bodenprüfstelle RP Karlsruhe

Gotthard Base Tunnel, Switzerland

Stress measurements according to the compensation method in the course of the excavation in the tunnel section Bodio (2005 and 2006);
Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Grafenwoehr, Military Training Ground, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system in exploratory drillings for the program Contamination Clean Up #621 Phase 9 (2011, 2014, 2015, and 2016);
Client: Wayss & Freytag Ingenieurbau AG, LGA Institut für Umweltgeologie und Altlasten GmbH

Grauer Stein Tunnel, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Ettlinger borehole jack, stress measurements according to the compensation method and with the triaxial cell CSIRO, TV monitoring of drillings, investigation to evaluate the reconstruction necessity of the tunnel (1995);
Client: Schützeichel GmbH & Co. KG

Grauer Stein Tunnel, Germany

Camera monitoring of drillings in the tunnel in the course of repair works (1999);
Client: Arge Tunnel Grauer Stein (Hochtief, Universale)

Grimsel, Test Site, Switzerland

Execution of primary stress measurements and monitoring of stress variations (1983);
Client: NAGRA, Nationale Genossenschaft für die Lagerung radioaktiver Abfälle, Baden/Switzerland

Grimsel, Test Site, Switzerland

Installation of a stress monitoring equipment in a borehole of a thermic simulation test (1984);
Client: gsf - Gesellschaft für Strahlen- und Umweltforschung mbH, München

Grimsel, Test Site, Switzerland

Camera monitoring of drillings with the optic scanner system ETIBS® (1999-2000);
Client: BGR, Bundesanstalt für Geowissenschaften und Rohstoffe; NAGRA, Nationale Genossenschaft für die Lagerung radioaktiver Abfälle, Baden/Switzerland

Großkrotzenburg, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings at the site of the Eon power station Staudinger (2008);
Client: Terrasond GmbH & Co. KG

**Guggenberg Tunnel, Germany**

Execution and evaluation of flexible dilatometer tests in exploratory drillings for the detour of Peissenberg Federal Highway B472 Schongau - Biehl (2001);
Client: GEO-Bohrtechnik GmbH

Hagen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2013);
Client: Stölben GmbH

Hallein, EMCO Private Clinic, Austria

Execution of borehole jack tests with Ettliger borehole jack (2016);
Client: Eder Brunnenbau GmbH

Hamburg, DESY, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings for the project PETRA III (2005);
Client: Nortmann GmbH

Hannoversche Klippen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2009);
Client: Geopartner S.à.r.l.

Heidelberg, Building Project Neunheimer Landstr. 48, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2016);
Client: HIC Holzhäuser Ingenieur Consult GmbH

Heilbronn, Laepple, Germany

Execution of borehole jack tests with Ettliger borehole jack (2014);
Client: Goller Bohrtechnik GmbH & Co. KG

Heilbronn, Power Station, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for district heating Campina (1998);
Client: Terrasond GmbH + Co. KG

Heilbronn, Underground Waste Dump, Germany

Execution of plate load tests until 4.5 MPa (1993);
Client: Südwestdeutsche Salzwerke AG, Heilbronn

Heilbronn, Waste Dump Vogelsang, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack (1996);
Client: Entsorgungsbetriebe der Stadt Heilbronn

Heimbach, Catchment Basin, Germany

Execution and evaluation of flexible dilatometer tests (1997);
Client: Schützeichel GmbH & Co. KG

Heimbach, Pump Storage Station, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack in the course of exploratory works for the pump storage station Heimbach (2016);
Client: Daldrup & Söhne AG

**Heimhausen, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® for the country road L 1025 in Heimhausen (2012);

Client: Henke und Partner GmbH

Heldrungen, Germany

Monitoring of drillings with the acoustic and optic scanner system in the course of pre-investigation for the motorway BAB A71 VKE 5343 (2004 and 2005-06);

Client: BOG GmbH, BG Roßla

Hermann Hesse Railroad, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system and borehole camera (2014-15);

Client: Heinz Burkhardt GmbH & Co. KG, Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Hermsdorfer Kreuz/Triptis, Motorway BAB A 9, Germany

Execution and evaluation of flexible dilatometer tests (1993);

Client: Terrasond GmbH + Co. KG

Hessigheim, Germany

Borehole explorations in anchor boreholes near the rock gardens of Hessigheim (2002);

Client: Ing.-Büro Menzel

Hinterzarten, Germany

Borehole investigation with the Eastman TV camera for soil investigation of the planned Hotel Tannenhain (1994);

Client: H. Christian Welle

Hippach, Zillertal, Austria

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings for the artificial snow machine Penken – Reservoir (2011);

Client: BG Roßla mbH

Hirschau, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in the course of pre-investigation for the transport gallery Hirschau of the Amberg kaolin factory (2005);

Client: Terrasond GmbH & Co. KG

HKM, Krupp Mannesmann Smelting Works, Germany

Borehole jack tests in exploratory drillings for the new building of the coking plant of the HKM in Duisburg (2005);

Client: Schützeichel GmbH & Co. KG

Hoellental Train, Germany

Inspection of drillings with the borehole endoscope in the tunnels Doegging, Finsterbuehl, Hoernle, Kapf and Setze (2012);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

**Hoenebach Tunnel, Germany**

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack in exploratory drillings (2015);
Client: BOG GmbH

Hollrich Tunnel, Germany

Execution of stress measurements according to the compensation method, borehole jack tests with Ettlinger borehole jack, camera monitoring of drillings in the Hollrich tunnel, railway section Wetzlar – Niederlahnstein of the Deutsche Bahn (2003 and 2006);
Client: gbm – Ges. für Baugeologie und -messtechnik mbH, Schützeichel GmbH & Co. KG

Homericher and Enzweiler Tunnel, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, stress measurements according to the compensation method (2012);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG, gbm – Ges. für Baugeologie und -messtechnik mbH

Hongkong

Stress measurements with the triaxial cell CSIRO in exploratory drillings for the extension of the sewage system of Hongkong (2016);
Client: Gammon Construction Ltd.

Horchheimer Tunnel, Germany

Inspection of exploratory drillings in the tunnel with borehole endoscope and from the surface with the optic scanner system ETIBS[®], execution of borehole jack tests with Ettlinger flexible dilatometer (2012-13);
Client: BOG GmbH

Horkheim, Barrage, Germany

Monitoring of drillings with the optic scanner system ETIBS[®] in piers of the barrage Horkheim (2003);
Client: Winkler und Partner GmbH

Horkheim, Barrage, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2013, 2014, and 2017);
Client: Pruy KG, Terrasond GmbH & Co. KG, Sieberns & Stepanowicz GmbH

Hoyerswerda, Germany

Execution of borehole jack tests with Ettlinger borehole jack in loosely filled dump material (2011);
Client: TU Bergakademie Freiberg

Ibbenbueren, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] in exploratory drillings at the area of the power station Ibbenbueren (2011);
Client: Schützeichel GmbH & Co. KG



Idar-Oberstein, Klotzberg Barracks, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and monitoring of boreholes and wall openings with a borehole camera (2011 and 2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Immendingen, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the Daimler test ground (2013 and 2014);

Client: Terrasond GmbH & Co. KG

Ingolstadt, College, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2011);

Client: Terrasond GmbH & Co. KG

Inntal Tunnel, Austria

Stress measurements according to the method of compensation (2016);

Client: Montanuniversität Leoben

Irlahuell Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack to explore the strength of carst cavity fillings. Monitoring of drillings and carst cavities with the borehole endoscope (2001 and 2003);

Client: Arge Tunnel Irlahüll (Terrasond GmbH & Co. KG, Schützeichel GmbH & Co. KG),

Arge Tunnel Los Mitte (Hochtief, Alpine Bau)

Irlahuell Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for the Irlahuell tunnel, new railway line Nuernberg – Ingolstadt of the Deutsche Bahn (2002);

Client: Arge Tunnel Los Mitte (Hochtief, Alpine Bau Deutschland)

Iserlohn, Parking Hall, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2016);

Client: Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Isola Dam, Switzerland

Stress measurements according to the method of compensation to judge the stress conditions of the dam (2013 and 2014);

Client: Axpo Power AG

Istanbul, Marmaray Project BC1, Turkey

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack in exploratory drillings for the Marmaray Project BC1 (2008);

Client: Taisei Corperation, Turkey-Istanbul Branch

Itter 1 + 2 Tunnels, Germany

Stress measurements according to the compensation method in the masonry of the old railway tunnels, camera monitoring of exploratory drillings from the tunnel direction (2005);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

**Izmit Bridge, Turkey**

Execution of borehole jack tests with Ettlenger dilatometer in an exploratory drilling for the construction of Izmit Bridge (2010);

Client: FUGRO Consult GmbH

Jaehroder- and Mausemuehlen Tunnel, Germany

Stress measurements according to the compensation method in the masonry of the old railway tunnels, flexible dilatometer tests in drillings from the tunnel direction, camera monitoring of the drillings (2005);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Jagdberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with the optic scanner system ETIBS® in exploratory drillings for the motorway BAB A4 Eisenach – Goerlich (2002-03 and 2006);

Client: BOG GmbH

Jochenstein Power Station, Energy Store Riedl, Germany

Execution of borehole jack tests with Ettlenger dilatometer in exploratory drillings (2010);

Client: Eder Brunnenbau in Deutschland GmbH

Kachlet, Sluice, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2010)

Client: Wöltjen GmbH

Kaiser Wilhelm Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, primary stress measurements with the triaxial cell CSIRO, hole deviation measurements, camera monitoring with borehole endoscope and with the optic scanner system ETIBS® in the course of the exploration for the reconstruction and general redevelopment of the Kaiser Wilhelm tunnel (2001-02 and 2007);

Client: Arge Kaiser Wilhelm Tunnel (Schützeichel, Terrasond GmbH & Co. KG)

Kaiserslautern, Waste Dump Kapiteltal, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2010);

Client: Erkelenzer Bohrges. mbH

Kajbar, Sudan

Execution of flexible dilatometer tests in exploratory drillings for the hydraulic power station Kajbar. Monitoring of drillings with the optic scanner system ETIBS® (2008);

Client: DIU, Dams Implementation Unit

Kakanj, Bosnia

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the Clinker Silo 3 of the cement plant Tvornica cementa Kakanj (2009);

Client: Tvornica cementa Kakanj

**Kalkofen Tunnel, Germany**

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, stress measurements according to the method of compensation, monitoring of underground drillings with borehole camera (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Kalmut and Talberg Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of the boreholes with borehole TV camera, stress measurements according to the method of compensation (2014);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Kammereck-, Bett-, Bank Tunnel, Germany

Execution and evaluation of flexible dilatometer tests, stress measurements according to the compensation method, TV monitoring of the boreholes, investigation to evaluate the reconstruction necessity of the tunnel (1996);
Client: Deutsche Bahn AG Frankfurt

Kammereck-, Bett-, Bank Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2014);
Client: Terrasond GmbH & Co. KG

Kammereck, Retaining Structure K128, Germany

Monitoring of drillings with borehole camera (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Kammquerung (Ridge Crossing), Motorway BAB A 81, Germany

Execution of borehole jack tests with flexible dilatometer and Ettliger borehole jack, primary stress measurements with the triaxial cell CSIRO (1994);
Client: Schützeichel GmbH & Co. KG

Karlsruhe, City Railway Tunnel, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] to check the success of injections measurements, execution of a borehole jack test with Ettliger borehole jack (2011 and 2012);
Client: Stölben GmbH, Grund- und Sonderbau GmbH

Karlsruhe Groetzingen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] for Augustenburg Street (2015);
Client: drillexperts GmbH

Karlstadt, Old Main Bridge, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system in exploratory drillings at the old Main bridge (2011);
Client: Terrasond GmbH & Co. KG

Karun 3, Barrage, Iran

Double plate load test until 10 MPa with an 800 t equipment in the exploration gallery G2 (1992);
Client: Geotehnika, Zagreb, Croatia

**Katterbach, Germany**

Monitoring of exploratory drillings on the airfield Ansbach with the optic scanner system ETIBS® (2015);

Client: Fontus Logging Service

Katzenberg Tunnel, Germany

Execution and evaluation of flexible dilatometer tests for pre-investigation of the Katzenberg tunnel variant, new railway line Karlsruhe - Basel (K/B) (1987);

Client: Arge Sax + Klee, Waschek GmbH, Terrasond GmbH + Co. KG

Katzenberg Tunnel, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Ettliger borehole jack, installation of combined sliding deformeter - / inclinometer measuring casings and multiple extensometers in the course of the exploration for the reconstruction of Katzenberg tunnel, new railway line Karlsruhe - Basel (2001-2003);

Client: Menning KG

Katzengraben, Canal Bridge, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® at the Main-Donau-Canal in Erlangen Huettendorf (2013)

Client: Pruy KG

Kauerndorf Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of drillings with the optic scanner ETIBS®; exploratory drillings for the tunnel Kauerndorf, B 289 Kulmbach – Münchberg (2006);

Client: BOG GmbH

Kauner Valley, Austria

Execution of borehole jack tests with Ettliger flexible dilatometer in the exploratory drilling Runserau (2013);

Client: GLS Bau & Montage GmbH

Kauner Valley, Austria

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack in exploratory drillings for the extension of the power station Kauner Valley, the extension Prutz-Imst and the Inn dam Imst-Haiming (2014-15);

Client: BG Roßla mbH

Kehrenbach Bridge, Germany

Static load tests of concrete piles, execution of measurements, delivery and installation of measuring instruments and devices (load measurement, strain measurements with wire resistance strain gauges, pile foot forces, pile incline measurement), new railway line H/W Middle, joint venture with Glöttl Baumesstechnik Company (1983);

Client: Grund- und Pfahlbau GmbH, Frankfurt/Main

Keyal Khwar HPP, Pakistan

Execution of borehole jack tests with Ettliger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS®, stress measurements with the borehole slotter, exploration for the hydroelectric power plant Keyal Khwar (2014);

Client: Lahmeyer International

**Kiel, Sluice Holtenau, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2017);
Client: Sieberns & Stepanowicz GmbH

Kiel, Viaduct Levensau, Germany

Execution of borehole jack tests with Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2015);
Client: Dipl.-Ing. Peter Neumann Baugrunduntersuchung GmbH & Co. KG

Kirchheimer Motorway Interchange, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2007);
Client: Schützeichel GmbH & Co. KG

Kirchholz Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system. Exploratory drillings for the Federal Highway B 21 detour Bad Reichenhall (2010);
Client: BOG GmbH

Kirschhofener Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, stress measurements according to the method of compensation, monitoring of underground drillings with borehole camera, monitoring of underground drillings with the optic scanner system ETIBS® (2017-18);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG, Vormann Bohrgesellschaft mbH & Co. KG

Klingenberg, Barrage, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer, primary stress measurements with the triaxial cell CSIRO in exploration drillings (1997);
Client: ARGE Pruy, Thüringer Bohrgesellschaft

Knorren, Reservoir, Austria

Execution of borehole jack tests with Ettliger borehole jack (2013);
Client: GLS Bau & Montage GmbH

Koblenz, Germany

Borehole jack tests with Ettliger borehole jack to prove the success of injection when redeveloping the pump shaft of the waste dump Eiterkoepfe (2004);
Client: Bilfinger Berger Umwelt GmbH

Koblenz, Flood Protection, Germany

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings for the flood protection Koblenz (2007);
Client: Schützeichel GmbH & Co. KG

Koblenz, Flood Protection, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® (2006);
Client: Schützeichel GmbH & Co. KG

**Koblenz, Fortress Kaiser Franz, Germany**

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings (2007);

Client: Schützeichel GmbH & Co. KG

Koblenz, Mosel Bridge, Germany

Camera monitoring of an exploratory drilling in the bridge pier (2000);

Client: WPW Geoconsult

Koblenz, Pfaffendorf Bridge, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2014);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Koblenz, Rittersturz, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2013);

Client: BOG GmbH

Koblenz, Ship Sluice, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack (2010 and 2012);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Kochav Hayarden Pumped Hydro-Energy Storage, Israel

Execution of borehole jack tests with Ettlinger dilatometer in an exploratory drilling for the pump storage station. Test depth until 518 m (2013);

Client: FUGRO Austria GmbH

Kochendorf and Lauffen, Sluices, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2010-2011);

Client: Arge Terrasond-Eder

Kochendorf, Sluice, Germany

Monitoring of exploratory drillings with the acoustic ABF system for the FAA Kochendorf (2015);

Client: BOG GmbH

Kockelsberg Tunnel, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Stuttgarter borehole jack, new railway line Leipzig - Dresden (1992);

Client: Thüringer Bohrgesellschaft mbH, Rudolstadt

Koeln, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the restoration of the Linde wall (2015);

Client: Erdbohr und Handel-GmbH

Koenigstein, Germany

Monitoring of drillings with the optic scanner system ETIBS[®] in the course of pre-investigation for the new building of the Konrad-Adenauer underground car park in Koenigstein (2005);

Client: Franke-Meißner und Partner GmbH

**Koepruebaşı HEPP, Turkey**

Primary stress measurements with the borehole slotter in exploratory drillings in the access gallery to the machine cavern of the water power project Koepruebaşı, camera monitoring of drillings (2009);

Client: Yüksel Enerji Elektrik Üretim ve Ticaret A.S.

Kohlberg Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system. Exploratory drillings for the Federal Highway B 172 detour Pirna, Kohlberg tunnel (2010);

Client: Bohrgesellschaft Roßla

Konrad, Shaft, Germany

Monitoring of drillings with the optic scanner system ETIBS® and the TV borehole camera. Shaft station 2nd bottom -763 mNN (2010);

Client: Pruy KG

Kramer Tunnel, Germany

Borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for the B23 detour Garmisch-Partenkirchen (2005 and 2006-07);

Client: Terrasond GmbH & Co. KG

Kramer Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for the B 23 detour Garmisch-Partenkirchen (2012);

Client: Terrasond GmbH & Co. KG

Krefeld, Germany

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings at the area of Bayer Krefeld (2009);

Client: Schützeichel GmbH & Co. KG

KTB Continental Deep Drilling Programme, Germany

Feasibility study for the installation of the "Deep-Earth-Observatory" in the test drilling of the continental deep drilling project (depth about 5000 m); prototype development of a primary stress and hydraulic monitoring station. Long-term measurements of interstitial pressure, temperature, electrical conductivity (1988-90);

Client: Projektleitung der Kontinentalen Tiefbohrung der BRD, im Auftrag des Bundesministerium für Forschung und Technologie, BMFT

Kuckuckslay Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, stress measurements according to the method of compensation to judge the stability of the tunnel, monitoring of the boreholes with borehole camera and optic borehole scanner ETIBS® (2013);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG, gbm – Ges. für Baugeologie und -messtechnik mbH

Kulmbach, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack in exploratory drillings for the B 289 valley bridge Schorgast (2012);

Client: Ing. Büro Jung Geotechnik GmbH

**L 338 Unterreichenbach – Engelsbrand/Grunbach, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2008);
Client: Dr. Ing. Orth GmbH

Laemmerbuckel Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer, monitoring of the boreholes with the optic scanner system ETIBS® and the acoustic system ABF, Gamma-measurement (2009-10);
Client: Stölben GmbH

Lago Bianco, Pumped Storage Station, Switzerland

Execution of borehole jack tests with Ettliger dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS®, Gamma- and loggings of borehole running off, hydro tests and hydrofrac, stress measurements with the borehole slotter. Exploratory drillings for the cavern out of a exploratory gallery (2012);
Client: Lagobianco SA

Lahr, Bruennle Area, Germany

Recording with borehole camera of drilled cellar rooms of a former brewery (2008);
Client: Terrasond GmbH & Co. KG

Landeck, Austria

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings for the power plant Sanna (2014);
Client: Plankel Bohrungen GmbH

Landruecken Tunnel, Entrance Gallery, Germany

Double plate load tests, new railway line H/W south (1982);
Client: IGI, Ingenieur-Geologisches Institut, Dipl.-Ing. S. Niedermeyer, Westheim

Lange Issel Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings of the new railway line Koeln - Rhein/Main of the Deutsche Bahn (1999);
Client: Schützeichel GmbH & Co. KG

Langsur, Germany

Monitoring of exploratory drillings for the flood protection in Langsur with the optic scanner system ETIBS® (2009);
Client: Geopartner S.à.r.l.

Lauffen, Sluice, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2014 and 2016);
Client: Stölben GmbH, ELE Beratende Ingenieure GmbH

Lautertal, County Coburg, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic system ABF. Exploratory drillings for the project Lauter bridge (2007-08);
Client: BOG GmbH

**Lechbruck am See, Germany**

Execution of borehole jack tests with Ettlenger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS® (2015);

Client: BOG GmbH

Lehmen, Sluice, Germany

Execution of borehole jack tests with Ettlenger dilatometer, monitoring of drillings with optic scanner system ETIBS®, installation of pore water pressure transducers with el. data loggers (2009);

Client: Erkelenzer BG

Leipzig, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack for pre-investigation of suburban train Leipzig (1997);

Client: Sächsischer Brunnen- und Spezialtiefbau GmbH

Leutenbach Tunnel, Germany

Execution and evaluation of flexible dilatometer tests in exploratory drillings for the Leutenbach tunnel B 14 (2001);

Client: Abt GmbH, Gräfelfing

Limburg, Lahntal Bridge, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings for the Lahntal Bridge, new railway line Koeln - Rhein/Main of the Deutsche Bahn (1999);

Client: Schützeichel GmbH & Co. KG

Lohberg Tunnel, Germany

Execution of flexible dilatometer tests, new railway line H/W middle (1983);

Client: Ingenieurbüro Dr. F. Hug, Kronberg

Lohmeberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer for the new railway line Ebensfeld – Erfurt, additional exploration BA 3220 (2002);

Client: BOG GmbH

Loreley Tunnel, Rossstein Tunnel, Germany

Execution and evaluation of flexible dilatometer tests with Ettlenger dilatometer, TV monitoring of the boreholes, investigation to evaluate the reconstruction necessity of the tunnels (1996);

Client: Schützeichel GmbH & Co. KG

Lower Songwe Dam, Malawi / Tanzania

Execution of borehole jack tests with Ettlenger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2014-15);

Client: Kimani Minerals Ltd., Lahmeyer International

Ludwigsburg, Police Department, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2015);

Client: Terrasond GmbH & Co. KG



Ludwigshafen, BASF, Pile Load Test, Germany

Design and planning of the load equipment for a static load test of concrete piles with stress/strain cyclic load of 5000 or 2000 kN. Execution of load tests (1989);
Client: Friedel Bohrunternehmen GmbH, Mannheim

Ludwigsstadt, Retaining Wall, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Ettliger borehole jack (1994);
Client: Geomechanik, Woringen

Lueg Bridge, Austria

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings for the new building of the Lueg bridge, Brenner motorway A13 (2017);
Client: Plankel Bohrungen GmbH, Felbermayr Bau GmbH & Co. KG, Framak Bohrtechnik GmbH

Magdeburg, Elb Bridges, Germany

Execution of borehole jack tests with Ettliger borehole jack (2014);
Client: Landsberger Bohr- und Brunnenbau GmbH

Mainz, Custom Harbour, Germany

Monitoring of exploratory drillings with an optic borehole camera (2011);
Client: Stölben GmbH

Mainz – Laubenheim, Germany

Execution of borehole jack tests with Ettliger borehole jack in exploratory drillings in the quarry of Heidelberger Zement (2011);
Client: Stölben GmbH

Mainz, Old Mainzer Tunnel, Germany

Execution and Evaluation of borehole jack tests with Ettliger borehole jack (2003);
Client: GEOEC GmbH

Mainzer Circle, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack, soil investigation for the reconstruction of the motorway BAB A60 (1993-94);
Client: Schützeichel GmbH & Co. KG, Neustadt

Mainzer Tunnel, New Railway Line Mannheim - Koeln, Germany

Execution and evaluation of borehole jack tests with Stuttgarter borehole jack for pre-investigation of the new Mainzer tunnel (1992);
Client: Erkelenzer Bohrgesellschaft mbH, Schützeichel GmbH & Co. KG

Mainzer Tunnel, Germany

Execution of borehole jack tests with Ettliger borehole jack (2015);
Client: BOG GmbH

Manching, Germany

Monitoring of boreholes in a retaining wall with the borehole TV camera (2014);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

**Marbach, Sluices Poppenweiler and Untertuerkheim, Germany**

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings, monitoring of drillings with the borehole camera (2015);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Marl, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings at the stockpile Brinkfortsheide (2013);

Client: Daldrup & Söhne AG

Martinstein, Detour, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], pre-investigation for the B 41 detour Martinstein (2007-08);

Client: Erkelenzer BG

Masjed Soleiman, Iran

Execution and evaluation of stress measurements according to the method of compensation in the ventilation gallery of the hydropower station Masjed Soleiman (2005-06);

Client: Payab Zamzam Co., Teheran

Meiningen, Germany

Monitoring of drillings with the optic scanner system ETIBS[®] in the course of pre-investigation for the B19 detour Meiningen (2005);

Client: BOG GmbH

Meisa Tunnel, Meissen, Germany

Execution of borehole jack tests with flexible dilatometer for pre-investigation of the Meisa tunnel B 101 (1995);

Client: Geomechanik Sachsen GmbH, Stump Bohr-GmbH

Meistern Tunnel, Bad Wildbad, Germany

Stress measurements according to the method of compensation in the concrete inner lining of the tunnel (2012);

Client: Montanuniversität Leoben

Misov, Czech Republic

Execution of borehole jack tests with Ettlenger dilatometer in exploratory drillings for the project EMR 15% Design of the US Army (2008);

Client: GEO-Bohrtechnik GmbH

Mograt, Sudan

Execution of flexible dilatometer tests in exploratory drillings for the hydraulic power station Mograt. Monitoring of drillings with the optic scanner system ETIBS[®] (2008);

Client: DIU, Dams Implementation Unit

Moembris, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system in the course of a channel project (2017);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

**Moerlenbach, Germany**

Borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with the optic scanner system ETIBS® in the course of pre-investigation for the detour Moerlenbach (2005-2006);

Client: Schützeichel GmbH & Co. KG

Montabaur, Germany

Monitoring of boreholes with the optic scanner system ETIBS® at the castle of Montabaur (2008);

Client: Schützeichel GmbH & Co. KG

Morsleben, Germany

Execution of stress measurements with the triaxial cell CSIRO in connection with the GIF borehole computer near the shafts of ERAM and in the zone of the cross section sealing test (1997-99);

Client: DBE, Peine

Morsleben, Germany

Measurement of partially packed underground cavities with laser scanner to determine the morphology and the residual volume. Presentation as a 3d-model (2001);

Client: DBE, Peine

Morsleben, Germany

Stress measurements according to the method of compensation in the lining of the shaft Bartensleben. Support of the test points for permanent measurement and connection to data acquisition system (2007, 2013, and 2018);

Client: DBE, Peine

Mosel Bridge, Uerzig – Zeltingen, Germany

Execution of borehole jack tests with Ettlenger borehole jack and Ettlenger dilatometer. Insertion of two drillings to inclinometer measuring points with special steel tubes (2007);

Client: Erkelenzer BG

Mt. Terri, Test Site, Switzerland

Camera monitoring of drillings with the optic scanner system ETIBS® (1999);

Client: NAGRA, Nationale Genossenschaft für die Lagerung radioaktiver Abfälle, Baden/Switzerland

Muehlacker, Herrenwaag Bridge, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2014);

Client: Dr. Ing. Orth GmbH

Muehlberg, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the new Elbe bridge Muehlberg (2004);

Client: BLZ Geotechnik GmbH

Muellheim, New Construction of Day Nursery, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2012);

Client: Terrasond GmbH & Co. KG

**Muenchholzhausen, Viaduct, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2016);
Client: Terra Control GmbH

Muenchingen, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings for the detour of Muenchingen (2000);
Client: Terrasond GmbH & Co. KG

Mulda, Flood Control Basin, Germany

Execution of borehole jack tests with Ettliger dilatometer, monitoring of drillings with optic scanner system ETIBS® and acoustic ABF system, caliber measurement and borehole camera in exploratory drillings for the flood control basin Mulda (2009);
Client: IFB Eigenschenk, BG Roßla, BOG GmbH

Mulda, Diversion Tunnel, Germany

Monitoring of boreholes with the optic scanner system ETIBS®, exploratory drillings for the diversion tunnel Mulda (2008-09);
Client: Geomechanik Sachsen GmbH

Mulda, Diversion Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system in exploratory drillings, caliber measurements and borehole camera for the diversion tunnel Mulda (2009 and 2011);
Client: BOG GmbH

Muldenberg Barrage, Germany

Execution and evaluation of in situ shear tests at the quarrystone work of the barrage Muldenberg for stability control (1999);
Client: Kubens Ingenieurgesellschaft mbH

Munich, Garden Tower, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in the course of foundation exploration for the Garden Tower at Georg-Braeuchle-Ring (1998);
Client: Ing.-Büro Dr. G. Hafner, Stuttgart

Munich, Daimler/Chrysler, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack (1999);
Client: Ost-West Bohr

Munich, Magnetic Speed Railway, Lots 1 – 3, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for the magnetic speed railway (2004-05);
Client: Arge MSB München Los 1, Arge MSB München Los 2, Arge MSB München Los 3

Munich, 2nd Regular Line of Suburban Train, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings for the section Munich – Laim – Station East (2004-05);
Client: Ivers Brunnenbau GmbH, Terrasond GmbH & Co. KG



Munich, 2nd Regular Line of Suburban Train, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings of the 4th investigation program (2008 and 2009);
Client: Terrasond GmbH & Co. KG

Munich, Publishers "Sueddeutscher Verlag", Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in exploratory drillings (2005);
Client: Terrasond GmbH & Co. KG

Munich, Underground Railway Station Sendlinger Tor, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2014);
Client: Abt Wasser- und Umwelttechnik GmbH

Munich, Underground Railway Line U5, Germany

Execution of borehole jack tests with Ettlinger borehole jack (2017);
Client: BauGrund Süd GmbH

Mutschelbach, Germany

Monitoring of exploratory drillings for the Grün-Bridge Mutschelbach with the optic scanner system ETIBS[®] (2009);
Client: RP Karlsruhe, Sachgebiet Straßenbau und Geotechnik

Muzizi Hydropower Project, Uganda

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2017);
Client: ILF GmbH

Nagold Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack to explore the railway fly-over Herrenberg Street (2007);
Client: Hettmannsperger

Nagold, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the Jet gas station in Nagold (2009);
Client: Andreas Goller Bohrtechnik

Nagold Barrage, Ore Mine, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack (2004);
Client: Schützeichel GmbH & Co. KG

Neckar Bank Tunnel Heidelberg, Germany

Execution of borehole jack tests with Ettlinger borehole jack and Ettlinger dilatometer. Insertion of boreholes to groundwater and pore water pressure measuring points with electrical data loggers (2008-09);
Client: Arge Neckarufertunnel (Eder GmbH, J. Menning KG)

Neckargemünd, Barrage, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2014);
Client: SBI Ingenieurgesellschaft Nieste

**Neckarsulm, Germany**

Execution of borehole jack tests with Ettliger dilatometer, monitoring of exploratory drillings with the acoustic ABF system, caliber measurement, tracer-fluid-logging (2011);

Client: BG Roßla mbH

Neckarzimmern, Underground Dump, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings, monitoring of exploratory drillings with the optic scanner system ETIBS® (2007-08, 2010, 2013, and 2017);

Client: Schützeichel GmbH & Co. KG, BOG GmbH

Neuberg Tunnel, Germany

Execution of flexible dilatometer measurements, new railway line H/W south (1983);

Client: Osel Bohr GmbH, Bamberg

Neuenbuerg, Germany

Borehole monitoring with the optic scanner system ETIBS® in exploratory drillings for a retaining wall (2002);

Client: Terrasond GmbH & Co. KG

Neuenrade, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® in the course of pre-investigation for the detour of Neuenrade (2002);

Client: Schützeichel GmbH & Co. KG

Neumuehle – Lehnammuehle, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2010);

Client: BOG GmbH

Neustadt Hohenacker, Waste Dump, Germany

Execution of borehole jack tests with Ettliger borehole jack (1998);

Client: Geotechnik Hundhausen

New Railway Line Ebensfeld – Erfurt, BA 3122 Roedental, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack (2002);

Client: Kling Bohrtechnik GmbH

New Railway Line Ebensfeld – Erfurt, Valley Bridge Froschgrundsee, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2007);

Client: Stoelben GmbH

New Railway Line Erfurt - Halle/Leipzig, Section 3, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and pressuremeter according to Ménard. Instrumentation of boreholes with electrical interstitial pressure transducers and delivery of electronic data loggers, (1993);

Client: Erkelenzer Bohrgesellschaft mbH

**New Railway Line Erfurt - Halle/Leipzig, Saale-Elster Bridge, Germany**

Execution of borehole jack tests with Ettlinger borehole jack (2013);

Client: BOG GmbH

New Railway Line Hannover - Wuerzburg, Lot PA 14, Germany

Plate load tests in test pit (1982);

Client: Arge Los PA 14

New Railway Line Koeln – Rhein/Main, Lot PA 3, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and Ettlinger borehole jack; new railway line Koeln – Rhein/Main

(1993-95);

Client: Waschek GmbH

New Railway Line Koeln – Rhein/Main, Lots PA 2, PA 4, PA 5, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and Ettlinger borehole jack; new railway line Koeln – Rhein/Main

(1993-95);

Client: Schützeichel GmbH & Co. KG

New Railway Line Koeln – Rhein/Main, Lot PA 6, Germany

Execution of primary stress measurements with the triaxial cell CSIRO. Camera monitoring with the borehole scanner system CORE BSS. Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and Ettlinger borehole jack; new railway line Koeln – Rhein/Main (1993-95);

Client: Erkelenzer Bohrgesellschaft mbH

New Railway Line Koeln – Rhein/Main, Lot PA 7, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and Ettlinger borehole jack; new railway line Koeln – Rhein/Main

(1993-95);

Client: Waschek GmbH

New Railway Line Koeln – Rhein/Main, Lot PA 31, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and Ettlinger borehole jack; new railway line Koeln – Rhein/Main

(1993-96);

Client: Erkelenzer Bohrgesellschaft mbH

New Railway Line Koeln – Rhein/Main, Lot PA 32, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Stuttgarter borehole jack and Ettlinger borehole jack, new railway line Koeln – Rhein/Main

(1992-1993);

Client: Waschek GmbH



New Railway Line Lichtenfels - Erfurt, 3rd phase, Lots 1, 2, 3, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Goodman jack and Ménard pressuremeter. Execution of primary stress measurements with the triaxial cell CSIRO up to a depth of 150 m (1994);

Client: Arge Los 1, Arge Los 2, Terrasond GmbH + Co. KG

New Railway Line Stuttgart - Ulm, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Stuttgarter borehole jack, new railway line Stuttgart - Ulm (1992-1993);

Client: Prakla-Seismos Geomechanik GmbH

New Railway Line Nuernberg - Ingolstadt, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Stuttgarter borehole jack, new railway line Nuernberg - Ingolstadt (1992 and 1994);

Client: Abt GmbH & Co., Interfels GmbH, Keller, Hahn u. Co. GmbH, Dr. Stadtbäumer GmbH, Kling Bohrtechnik GmbH, Waschek GmbH

New Railway Line Rhein/Main – Rhein/Neckar, PA2, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in the course of pre-investigation (2003);

Client: BOG GmbH

Niedernhausen Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack for investigation of the deformation characteristics of the rock in the pre-cut of the Niedernhausen tunnel (1997-98);

Client: Schützeichel GmbH & Co. KG

Nieder-Ramstadt, Germany

Execution of flexible dilatometer tests and primary stress measurements with the triaxial cell CSIRO in exploratory drillings (2001);

Client: Stölben GmbH

Niederseidewitz, Germany

Execution of borehole jack tests with Ettlinger dilatometer in exploratory drillings for a flood control basin (2009);

Client: Bohrgesellschaft Roßla GmbH

Niederstetten Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack in the course of investigating the Niederstetten tunnel, section Crailsheim - Bad Mergentheim (1998 and 2007);

Client: Schützeichel GmbH & Co. KG

Niederwennerscheid, Germany

Monitoring of an exploratory drilling with the acoustic ABF system (2013);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

**Nittel Tunnel, Germany**

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack. Monitoring of drillings with the optic scanner system ETIBS[®] and the acoustic system ABF (2006);

Client: Schützeichel GmbH & Co. KG

Nordhalben Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack, monitoring of underground drillings with borehole camera (2017);

Client: Bohrgesellschaft Roßla mbH

Nossen, Castle Nossen, Germany

Camera monitoring of drillings for anchors (1995);

Client: Pressbau GmbH, Erfurt

Nuernberg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] in a drilling for the research project "geothermal test field" (2011);

Client: Behringer + Dittmann GmbH

Nuernberg – Ansbach, Suburban Train, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in the course of pre-investigation for the suburban train Nuernberg – Ansbach (2006);

Client: Arge Behringer + Dittmann / Terrasond GmbH + Co. KG

Nuernberg, Airport Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack. Monitoring of drillings with the optic scanner system ETIBS[®]. Exploratory drillings for the BAB A3 airport tunnel in Nuernberg (2006);

Client: LGA Bautechnik GmbH

Nuernberg, Airport Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system in exploratory drillings for the B4f-link airport Nuernberg to the motorway BAB A3 (2011);

Client: Staatliches Bauamt Nürnberg

Nuernberg, Franken Expressway, Germany

Execution of borehole jack tests with Ettlenger flexible dilatometer and Ettlenger borehole jack in the course of the exploration "Tiefe Gradiente" (2017);

Client: Behringer + Dittmann

Oberbillig, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack in exploratory drillings of the flood precautionary measures Oberbillig/Mosel (1997);

Client: Knauber GmbH

Oberbobritzsch, Germany

Execution of borehole jack tests with Ettlenger dilatometer in exploratory drillings for the flood control basin Oberbobritzsch (2009 and 2010);

Client: Landsberger Bohr- und Brunnenbau GmbH, BOG GmbH

**Oberbobritzsch, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® in exploratory drillings for the flood control basin Oberbobritzsch (2011);

Client: BOG GmbH

Oberkirch, Germany

Monitoring of boreholes with the optic scanner system ETIBS® and the acoustic ABF system, exploratory drillings for the Federal Highway B 28 near Oberkirch (2009 and 2012);

Client: Terrasond GmbH & Co. KG

Obernau, Diversion Dam, Germany

Execution of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of boreholes with the optic scanner system ETIBS® (2008);

Client: Wöltjen GmbH

Oberrohrn, Subrosion Depressed Area, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® in a sinkhole, execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack (2015 and 2016);

Client: BOG GmbH

Oehringhausen, Viaduct, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® B55 Viaduct Oehringhausen (2016);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Ohra, Barrage, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer for a geomechanical test programme for investigation of the deformation characteristics of the rock (1996);

Client: Thüringer Talsperrenverwaltung

ONKALO, Finland

Primary stress measurements with the triaxial cell CSIRO in underground exploratory drillings for the planned repository for radioactive waste (2006);

Client: Posiva Oy

Osann – Monzel, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and borehole camera to explore boreholes for the restoration of a retaining wall (2014);

Client: BIS Engineering GmbH

Ostelsheim, Germany

Monitoring of drillings with optic scanner system ETIBS® and acoustic ABF system, pre-investigation for the Ostelsheim curve of the Deutsche Bahn (2009);

Client: Dr. Spang GmbH

Ovella Weir System, Austria

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack in exploratory drillings of the common power station Inn (2015);

Client: BG Roßla mbH

**Passau, ZF Plant 1, Germany**

Monitoring of an exploratory drilling to prove the successful creation of HDI-pillars with the optic scanner system ETIBS® (2015);

Client: BAUER Spezialtiefbau GmbH

Perjen Tunnel, Austria

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, inclinometer measurements in exploratory drillings for the second tube of the Perjen tunnel S 16 Arlberg expressway (2012);

Client: Bohrgesellschaft Roßla mbH

Pervari Dam, Turkey

Execution of borehole jack tests with Ettlenger dilatometer (2012 and 2014);

Client: Insitu Ltd. Co., Ankara

Petersberg Tunnel, Germany

Execution of borehole jack tests with Ettlenger flexible dilatometer and Ettlenger borehole jack, inspection of drillings with borehole camera, stress measurements according to the method of compensation (2013 and 2016);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG, gbm – Ges. für Baugeologie und -messtechnik mbH

Pfaender Tunnel, Austria

Stress measurements according to the method of compensation in the concrete inner lining of the tunnel (2012);

Client: Montanuniversität Leoben

Pflanzwirbach, Support Works at the B85, Germany

Execution and evaluation of flexible dilatometer tests for soil investigation of the tunnel variant detour of Pflanzwirbach (1995);

Client: Terrasond GmbH + Co. KG

Pforzheim Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack and Ettlenger dilatometer. Monitoring of exploratory drillings with a borehole camera. Installation of convergence measuring sections with Distometer (2007-09, 2010, and 2015);

Client: Schützeichel GmbH & Co. KG

Philippsthal/Hattorf, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the KALI+Salz KKF-plant Hattorf (2015);

Client: Terrasond GmbH & Co. KG

Pians, Alpine Road, Austria

Execution and evaluation of borehole jack tests with Ettlenger dilatometer, installation and measurement of an inclinometer for investigation of a sliding slope near Pians (1996);

Client: Preussag, Wien

Pleidelsheim, Barrage, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2014);

Client: Terrasond GmbH & Co. KG

**Poerzberg Tunnel, Germany**

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of drillings with the optic scanner system ETIBS[®]. Pre-investigation for the Poerzberg tunnel, county road L 1048 detour of Schaala (2001-02, 2004-06);
Client: BOG GmbH

Pont Adolphe, Luxembourg

Monitoring of numerous boreholes (all directions) in the masonry of the bridge with the optic scanner system ETIBS[®] to explore the condition of the masonry (2009);
Client: Geopartner S.à.r.l.

Poschberg, Pump Storage Station, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] for the projected pump storage station Poschberg (2011);
Client: BOG GmbH

Raffelberg, Ruhr Sluice, Germany

Stress measurements according to the method of compensation and with the tri-axial cell CSIRO in the lower part of the southern chamber wall to determine the state of stress (2001);
Client: BAW, Karlsruhe

Ramholz Tunnel, Germany

Stress measurements according to the compensation method in the brickwork of an old tunnel (1990);
Client: DB Bundesbahndirektion Frankfurt/M.

Ramstein, Airbase, Germany

Monitoring of drillings and probes with the optic scanner system ETIBS[®] (2001);
Client: GFL

Ramstein, Airbase, Germany

Monitoring of drillings and gauges with the optic scanner system ETIBS[®] and the acoustic ABF system (2010);
Client: Fontus Logging Service

Rangoon, Pile Load Tests, Burma

Pile load tests for the Yangon Pathein Road Project in Rangoon (1990);
Client: ITECO, Affoltern/Switzerland

Rappenstein Tunnel, Germany

Camera monitoring in exploratory drillings of the tunnel and in the retaining wall in front of the tunnel (1998 and 2013);
Client: Terrasond GmbH + Co. KG, Schützeichel GmbH & Co. KG

Ratingen, Germany

Camera monitoring of seepage water shafts at the dump Ratingen (2007);
Client: Ing. Büro Zirfas

**Ratingen, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, measurements with the optic 4-arm-caliber. Exploration of Erdgas AL Uerdingen and CO-Pipeline (2012-13);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Rauenthaler Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of the drillings with borehole camera, stress measurements according to the method of compensation (2016-17);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Rauheberg Tunnel, Germany

Execution of stress measurements according to the compensation method (2011);
Client: Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, inspection of drillings in the tunnel with borehole camera, stress measurements according to the method of compensation, DB-section 2550 (2013);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Regen, Detour B11, Germany

Execution and evaluation of flexible dilatometer tests for pre-investigation of the tunnel near Regen (1993);
Client: Terrasond GmbH + Co. KG

Rehberg Tunnel, Germany

Stress measurements according to the method of compensation in the masonry of an old railway tunnel (2004);
Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Reichenstein Tunnel, Germany

Stress measurements according to the method of compensation, installation and measurement of extensometer- and distometer measuring sections in the course of the documentation (2001-10 and 2016);
Client: gbm - Ges. für Baugeologie und -messtechnik mbH

Reichshof, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2016);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Reitersberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack for the new railway line Ebenfeld – Erfurt, BA 3122, additional investigation Reitersberg tunnel (2003);
Client: Arge Tunnel Reitersberg (BOG, Terrasond)

Reitersberg Tunnel, Germany

Stress measurements according to the compensation method in the Shotcrete of the outer shell of the tunnel (2010);
Client: Arge Tunnel Reitersberg

**Remscheid-Lennep, Germany**

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for the Federal Highway B 229 between Remscheid and Remscheid - Lennep (2000);

Client: Schützeichel GmbH & Co. KG

Rennsteig Tunnel, Germany

Primary stress measurements with the triaxial cell CSIRO for pre-investigation of the new motorway BAB A71, ridge crossing Thueringer Wald (1995-96);

Client: BOG GmbH

Reutlingen, Scheibengipfel Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer, monitoring of boreholes with the optic scanner system ETIBS[®], primary stress measurements with the HI-cell CSIRO. Exploratory drillings for the Scheibengipfel tunnel detour Reutlingen (2008);

Client: Stölben GmbH

Rheinfelden, Rhine Footbridge, Germany and Switzerland

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2016);

Client: drillexpert GmbH

Riedensheim, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system for the polder Riedensheim (2014);

Client: Terrasond GmbH & Co. KG

Rieneck, Detour, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and borehole TV camera for underground reconnaissance (2014);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Rieneck and Ruppertsberg Tunnel, Germany

Execution of borehole jack tests with Ettliger flexible dilatometer and Ettliger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®] and borehole TV camera in the tunnel boreholes (2014 and 2015);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Riesenbeck, Dortmund-Ems-Canal, Germany

Camera monitoring with the borehole scanner CORE BSS in exploratory drillings (1996-97);

Client: Wasser- und Schifffahrtsamt Rheine

Rockenau Barrage, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2013);

Client: SBI Ingenieurgesellschaft Nieste

Roggiasca, Barrage, Switzerland

Stress measurements according to the method of compensation to evaluate the stress condition of the masonry dam (2016);

Client: Elettricità Industriale SA

**Rollenberg Tunnel, Pilot Tunnel, Germany**

Installation of measuring cross sections and execution of geotechnical measurements and tests, new railway line M/S (1983-1985);

Client: PrGr M/S der Bahnbauzentrale, Bundesbahndirektion Karlsruhe

Rosenfeld, Germany

Monitoring of boreholes in the masonry of the cemetery chapel in Rosenfeld (2014);

Client: Bewer Ingenieure

Rosenheim, Building Project Klepperstreet, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2016);

Client: GEOPLAN GmbH

Rosenthal, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], exploratory drillings for the L3077 (2014);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Rosberg and Steinberg Tunnel, Germany

Execution of flexible dilatometer tests, new railway line H/W south (1983);

Client: Arge Anger`s Söhne, Waschek GmbH

Rossla, Germany

Execution and evaluation of flexible dilatometer tests to pre-investigate the new motorway BAB A38 Goettingen - Halle (1997);

Client: Terrasond GmbH + Co. KG

Rothenfels Barrage, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2013);

Client: Terrasond GmbH & Co. KG

Rothenstein, Detour B 88, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with the optic scanner system ETIBS[®] (2004);

Client: Nöring & Preißler GmbH

Rottbitze Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack for the post-investigation programme of the Rottbitze tunnel, new railway line Koeln – Rhein/Main (1998);

Client: Schützeichel GmbH & Co. KG

Rottenburg / Neckar, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings on the area of the jail Rottenburg (2016);

Client: Goller Bohrtechnik GmbH & Co. KG

Rudersdorf Tunnel, Germany

Stress measurements according to the compensation method to estimate the lining strain (2007);

Client: gbm – Ges. für Baugeologie und –messtechnik mbH

**Rudersdorf Tunnel, Germany**

Stress measurements according to the method of compensation to estimate the stress of the lining. Monitoring of all exploratory drillings with borehole camera (2013-14);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Rudersdorf Tunnel, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack (2014);

Client: Arge Tunnel Rudersdorf (Vormann, Ivers)

Ruedesheim, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® for the removal of the railroad crossing (2015 and 2016);

Client: Terra Control GmbH

Ruegen, Germany

Execution of borehole jack tests with Ettlinger borehole jack in the course of pre-investigation for the renewing of a 20 KV electro cable from Seehof to Heiderose (2008);

Client: Vormann & Partner GmbH

Ruesselsheim, Adam Opel AG, Germany

Execution and evaluation of borehole jack tests with Ettlinger borehole jack in an exploratory drilling in the hall K62 (1999);

Client: Terrasond GmbH & Co. KG

S7, Krakau – Zakopane, Tunnel Maly-Lubon, Poland

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system for the tunnel Maly-Lubon, Poland (2009-2010);

Client: BOG GmbH

S10, Expressway Unterweikersdorf – Wullowitz, Germany

Monitoring of drillings with the optic scanner system ETIBS® and the acoustic ABF system before and after primary stress measurements with Hydraulic Fracturing to detect the frac-orientation in the borehole (2005);

Client: Golder Associates

S31, Mattersburg Crossroads – Weppersdorf Interchange, Austria

Execution of borehole jack tests with Ettlinger borehole jack (2016-17);

Client: Urban Brunnenbau & Tiefbohr GesmbH

Saarbruecken, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS® for the foundation ground expertise for the ministry for education and sports (2011);

Client: Geotechnik Dr. Heer

**Saarbruecken, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS® to explore the cross-way building of the Deutsche Bahn (2017);
Client: Bohrgesellschaft Roßla mbH

Saarbruecken, Johannis Bridge, Germany

Camera monitoring of an exploratory drilling under the foundation of the bridge pier with the optic scanner system ETIBS® (1999);
Client: WPW, Saarbrücken

Saarbruecken - Guedingen, Noise Abatement Wall, Germany

Measurement of a pile load test with an inclinometer (1994);
Client: Ing.-Büro Rogmann GmbH

Saarbruecken, Diversion Dam, Germany

Execution and evaluation of an in situ shear test (1992);
Client: Bundesanstalt für Wasserbau, Karlsruhe

Sabaloka, Sudan

Execution of flexible dilatometer tests in exploratory drillings for the hydraulic power station Sabaloka. Monitoring of drillings with the optic scanner system ETIBS® (2008);
Client: DIU, Dams Implementation Unit

Sannerz, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system. Investigation for the backfill of debris in the ancient clay pit Paul (2010);
Client: Stölben GmbH

Saukopf Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the rescue gallery (2008);
Client: Terrasond GmbH & Co. KG

Scharnitz, Austria

Execution of borehole jack tests with Ettlinger flexible dilatometer in exploratory drillings for the detour Scharnitz (2013);
Client: BG Roßla mbH

Scheibenberg Tunnel, New Railway Line Paderborn - Kassel, Germany

Execution and evaluation of borehole jack test with Stuttgarter borehole jack, new railway line Paderborn - Kassel (1992);
Client: H. Anger's Söhne GmbH & Co. KG, Hessisch Lichtenau

Scheuerfeld, Germany

Monitoring of drillings with the borehole camera in the tunnel of the Westerwald railway line (2002);
Client: gbm - Ges. für Baugeologie und -messtechnik mbH

**Schluechtern Tunnel, Germany**

Execution and evaluation of borehole jack tests with flexible dilatometer and Stuttgarter borehole jack, inclinometer measurements, primary stress measurements with the triaxial cell CSIRO according to the method of hard inclusion, construction planning of the new Schluechtern tunnel (1992-94);

Client: Waschek GmbH

Schluechtern Tunnel, Germany

Execution of stress measurements according to the method of compensation in the tunnel masonry in the course of current repair works (1999);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Schluechtern Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, camera monitoring of ascending boreholes of the tunnel in the course of exploratory works for the reconstruction and renewing of the Schluechtern tunnel (2000-01);

Client: Arge Terrasond/Schützeichel

Schmitten-Brombach, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2014);

Client: Bodenmechanisches Labor Gumm

Schmuecke Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, monitoring of drillings with the optic scanner system ETIBS® in the course of pre-investigation for the motorway BAB A71 (2003-04);

Client: Arge Schmücketunnel (BOG-Roßla)

Schnarrenberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings for recovery of the tunnel (1998);

Client: Schützeichel GmbH & Co. KG

Schuerzeberg Tunnel, Germany

Execution of borehole jack tests with Ettliger dilatometer, monitoring of the drillings with the optic scanner system ETIBS® and the acoustic ABF system, gamma measurements and loggings of borehole running (2010);

Client: BG Roßla mbH

Schulberg Tunnel, Germany

Execution and evaluation of flexible dilatometer tests in exploratory drillings for the Schulberg tunnel, motorway BAB A44 Kassel - Herleshausen (2001);

Client: Bohr- und Brunnenbau GmbH, Stedten

Schwaebisch Hall, Tunnel, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2011);

Client: Stölben GmbH

Schwarze Pumpe, Power-Station Schwarze Pumpe AG, Germany

Execution of an in situ plate load test (1992);

Client: Geo, Büro für Geotechnik Romberg GmbH, Darmstadt

**Schwarzer Berg Tunnel, Germany**

Execution of borehole jack tests with flexible dilatometer and Ettlenger borehole jack, camera monitoring with the optic borehole scanner in the course of pre-investigation for the motorway BAB A70 of Autobahndirektion Nordbayern (2001);
Client: Terrasond GmbH & Co. KG

Schwarzkopf Tunnel, Germany

Execution and evaluation of flexible dilatometer tests, stress measurements according to the compensation method, investigation to evaluate the stability of the tunnel (1997-98);
Client: Schützeichel GmbH & Co. KG

Schwoerstadt, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system for the project TENP deodorisation site (2017);
Client: Terrasond GmbH & Co. KG

Seckach, Plaster Mine, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings above the abandoned plaster mine (2011);
Client: H. Anger's Söhne

Seeheim – Jugenheim, Germany

Monitoring of drillings with the optic scanner system ETIBS®, exploratory drillings for the Lufthansa training center (2007);
Client: Stölben GmbH

Serfaus, Austria

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the reservoir HOEG (2011);
Client: BG Roßla mbH

Shereik, Sudan

Execution of flexible dilatometer tests in exploratory drillings for the hydraulic power station Shereik (2007);
Client: DIU, Dams Implementation Unit

Shiabishe, Underground Powerhouse, Iran

Execution of in situ stress measurements with the triaxial cell CSIRO and flexible dilatometer tests in the investigation tunnel (1985-86);
Client: Soletanche, Nanterre, France

Siegen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® for the new building of the university canteen (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Sinaia, Romania

Execution of borehole jack tests with Ettlenger dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, borehole deviation measurements. Exploratory works for the tunnel Sinaia-Comarnic (2011-12);
Client: Terrasond GmbH & Co. KG

**Solingen, Germany**

Execution and evaluation of flexible dilatometer tests in exploratory drillings at the L 407 - Solinger Street (1999);
Client: Knauber GmbH

Sooneck Castle, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2006);
Client: Schützeichel GmbH & Co. KG

Spitzeich Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with borehole camera and optic scanner system ETIBS[®]. Drillings on the surface and underground (2009);
Client: Erkelenzer BG, Schützeichel GmbH & Co. KG

Stadtberg Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack. Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system. Exploratory drillings for the Federal Highway B 21 detour Bad Reichenhall, Stadtberg tunnel (2010);
Client: Terrasond GmbH & Co. KG

Staffel-Siehrshahn, Arched Bridges Westerwald Railroad, Germany

Underground reconnaissance with borehole TV camera in exploratory drillings in the abutments of the arched bridges (2014);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Starnberg, B2 By-Pass Tunnel, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack (2009);
Client: Abt GmbH

Staufen, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack, monitoring of drillings with optic scanner system ETIBS[®] and acoustic ABF system, primary stress measurements with the triaxial cell CSIRO (2009);
Client: Anger's Söhne GmbH

Steinebach Valley Bridge, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack, pre-investigation for the motorway BAB A71 (1996);
Client: BOG GmbH, Thüringer Bohrgesellschaft

Stetten am Heuchelberg, Germany

Execution of borehole jack tests with Ettlenger borehole jack in an exploratory drilling in the waste dump Stetten (2012);
Client: Terrasond GmbH & Co. KG

Stetten am Kalten Markt, Germany

Execution of borehole jack tests with Ettlenger dilatometer, recording of the drillings with the optic scanner system ETIBS[®]. Exploratory drillings at the training area Heuberg (2007);
Client: Stölben GmbH

**Straßberg, Germany**

Monitoring of drillings with the optic scanner system ETIBS® in the course of pre-investigation for a flood detention basin (2006);

Client: Stölben GmbH

Stress Measurements in old Tunnels of the Deutsche Bundesbahn, Germany

Possibilities and limits of stress measurements use on strain assessment of old tunnel supports; study (1990);

Client: BZA München

Stuttgart 21, Lots 1 + 2, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer, Ettliger borehole jack and pressiometer according to Ménard (1995);

Client: Arge Lot 1 (Terrasond GmbH + Co. KG, Waschek GmbH, Geomechanik GmbH), Abt GmbH & Co

Stuttgart 21, 3rd EKP, Lots 1 - 7, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, primary stress measurements with the triaxial cell CSIRO, new railway line Stuttgart - Augsburg (1996-98);

Client: ARGE Stuttgart 21 (Waschek GmbH, Terrasond GmbH + Co. KG)

Stuttgart 21, 4th EKP, Lots 1 - 7, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, new railway line Stuttgart - Augsburg (1997-99);

Client: ARGE Stuttgart 21, 4. EKP and Hettmannsperger GmbH

Stuttgart 21, 5. EKP, Lots 1 – 7, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack, new railway line Stuttgart – Augsburg of the Deutsche Bahn (2002-03);

Client: Arge Stuttgart 21, 5. EKP

Stuttgart 21, PFA 1.3b, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2016);

Client: drillexpert GmbH

Stuttgart, City Railway Terminal Fasananhof, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings (2003);

Client: Waschek Bohrtechnik GmbH & Co. KG

Stuttgart, City Railway U 15, Germany

Execution and evaluation of borehole jack tests with Ettliger dilatometer and Ettliger borehole jack in exploratory drillings (2003);

Client: Kling Bohrtechnik GmbH

Stuttgart, City Railway U 15, Germany

Execution and evaluation of borehole jack tests with Ettliger borehole jack in exploratory drillings (2007);

Client: Terrasond GmbH & Co. KG

**Stuttgart, Daimler Benz, Germany**

Execution and evaluation of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the Daimler Benz Technology Center (2002);
Client: Ing.-Büro Dr. Hafner

Stuttgart, EBG Dorotheen Quarters, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2014);
Client: Stölben GmbH

Stuttgart, Gaeubahn, Germany

Execution and evaluation of flexible dilatometer tests (1997);
Client: geo-Bohrtechnik GmbH

Stuttgart, Heilbronner Street, Germany

Monitoring of an exploratory drilling with the optic scanner system ETIBS® (2012);
Client: Goller Bohrtechnik GmbH & Co. KG

Stuttgart Neugereut, Germany

Execution and evaluation of flexible dilatometer tests and borehole jack tests in exploratory drillings for the Steinhaldenfeld tunnel of the city railway line U2 (2000);
Client: Terrasond GmbH & Co. KG

Stuttgart Panorama Street 25 – 27, Germany

Execution of borehole jack tests with Ettlenger borehole jack (2017);
Client: Goller Bohrtechnik GmbH & Co. KG

Stuttgart, Rosenstein Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in the course of exploratory drillings for the B 10 tunnel Rosenstein (2006);
Client: Terrasond GmbH & Co. KG

Stuttgart, Rossbollengaessle, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the underground car park Rossbollengaessle (2009);
Client: Terrasond GmbH & Co. KG

Stuttgart, Suburban Train Stuttgart - Airport Bernhausen, Germany

Execution of borehole jack tests with flexible dilatometer, primary stress measurements with the triaxial cell CSIRO, execution of air injection tests with online control of 13 levels with electrical pressure loggers and data recording unit (1995);
Client: Erkelenzer Bohrgesellschaft, Schützeichel GmbH & Co. KG

Stuttgart, SWR Radio Station, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings for the new building near the broadcasting studio (2006);
Client: Südwestrundfunk

**Stuttgart, Trump Tower, Germany**

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings for the Trump Tower (2002);
Client: Terrasond GmbH & Co. KG

Stuttgart / Vaihingen, Germany

Execution of primary stress measurements with the triaxial cell CSIRO for pre-investigation of the planned detour of Vaihingen (1995);
Client: Waschek GmbH

Suhl, Germany

Execution and evaluation of primary stress measurements with the triaxial cell CSIRO, borehole jack tests with Ettlenger dilatometer, camera monitoring with borehole scanner CORE BSS for investigation of an area damaged by mining (1997);
Client: Thüringer Bohrgesellschaft

Sylvenstein Reservoir, Germany

Execution of borehole jack tests with Ettlenger dilatometer in exploratory drillings (2009); ;
Client: Stölben GmbH

Tai Chung, Taiwan

Instrumentation and measuring of test piles with pile bottom load cells, dia 1.500 for pile loading tests until 2000 t for the Taiwan Highspeed Rail Project C 250 (2000-);
Client: HBP Joint Venture, THSE Lot C 250

Tanahu HPP, Nepal

Execution of borehole jack tests with Ettlenger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS[®], stress measurements with the borehole slotter in the exploratory gallery for the Tanahu HPP (2017);
Client: Lahmeyer International

Tauernkraftwerke AG, Austria

Determination of the primary stress condition for an underground powerhouse according to the borehole-slotter-method (1989);
Client: Tauernkraftwerke AG, Salzburg, Austria

Taunusstein, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®], ground exploration for Feinkost Dittmann (2008);
Client: Schützeichel GmbH & Co. KG

Tournemire, France

Monitoring of drillings with the optic scanner system ETIBS[®] (2007);
Client; TU Clausthal

Trier, 2nd Sluice of the Mosel, Germany

Camera monitoring of drillings with the optic scanner system ETIBS[®] (1999);
Client: Wasser- und Schifffahrtsamt Trier



Trier, 2nd Sluice of the Mosel, Germany

Execution of borehole jack tests with Ettlenger borehole jack and Ettlenger dilatometer. Insertion of boreholes to interstitial pressure measuring points with automatic data acquisition (2007);

Client: Erkelenzer BG

Trier, Pump Storage Power Station RIO, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system, monitoring of a drilling with borehole camera, borehole development measurement (2013);

Client: Geopartner S.à.r.l.

Tuebingen, B 27 Junction of Tuebingen, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack. Monitoring of drillings with the optic scanner system ETIBS[®]. Exploratory drillings for the Schindhau base tunnel (2006);

Client: geo-Bohrtechnik GmbH

Tuellinger Tunnel, Germany

Stress measurements according to the compensation method in the brickwork of an old tunnel(1990);

Client: BZA München und Bundesbahndirektion Karlsruhe

Tuellinger Tunnel, Germany

Stress measurements according to the method of compensation, assessment of tunnel stability (2013);

Client: gbm – Ges. für Baugeologie und -messtechnik mbH

Ulm, Germany

Monitoring of an exploratory drilling with the acoustic ABF system in the course of the reconstruction Nordkopf Ulm (2016);

Client: BauGrund Süd GmbH

Ulm, Cathedral, Germany

Stress measurements according to the compensation method in the steeple dome of the southern chancel steeple (2003);

Client: Glötzl GmbH

Urft Barrage, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer in boreholes inside the barrage (1998);

Client: Wasserverband Eifel-Rur

Venhaus, Sluice, Germany

Execution of borehole jack tests with Ettlenger dilatometer. Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic ABF system (2010);

Client: Arge BG AA DEK Nordstrecke

Vianden, Pump Storage Station, Germany

Execution of flexible dilatometer tests, monitoring of boreholes with the optic scanner system ETIBS[®] in exploratory drillings for the extension of the pump storage station Vianden (2008);

Client: Feldhaus Bergbau GmbH + Co. KG

**Viereth, Weir System, Germany**

Monitoring of exploratory drillings with a borehole camera (2016);
Client: Sieberns & Stepanowicz GmbH

Vomp/Fiecht Investigation Galleries, Austria

Execution of horizontal double plate load tests, primary stress measurements with the triaxial cell CSIRO, execution and evaluation of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack in investigation galleries of the railway axis Brenner, access section north, section Kundl/Radfeld-Baumkirchen (2002);
Client: Brenner Eisenbahn GmbH, Insond Ges. m.b.H.

Wagrain, Austria

Execution of borehole jack tests with Ettlinger borehole jack in exploratory drillings for the ponds Wagrainer Hoehe II and Hoellenstein (2012 and 2013);
Client: BG Roßla mbH

Walchensee, Barrage, Germany

Camera monitoring of exploratory drillings in the course of stability controls of the water castle dam, installation of packers with pneumatic foundation water pressure transducers (1998);
Client: Terrasond GmbH + Co. KG

Waldau, Germany

Execution and evaluation of flexible dilatometer tests during the pre-investigation for the new motorway BAB A73 between Schleusingen and Eisfeld North (1996);
Client: Terrasond GmbH + Co. KG

Waldbaerenburg, Germany

Execution of borehole jack tests with Ettlinger dilatometer in exploratory drillings for the flood control basin Waldbaerenburg (2010);
Client: Terrasond GmbH & Co. KG

Waldeck I, Power Station, Germany

Monitoring of drillings with the optic scanner system ETIBS[®] and execution of borehole jack tests with Ettlinger borehole jack in the course of investigation for the new building (2004 and 2006);
Client: Lahmeyer International GmbH, Bilfinger Berger

Waldeck II, Power Station, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] and the acoustic system ABF, execution of borehole jack tests with Ettlinger dilatometer for the extension of the Power Station Waldeck II (2009-10);
Client: Arge PSW Waldeck (Terrasond, Schützeichel, BOG), Bohrgesellschaft Roßla

Waldeck II, Power Station, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS[®], determination of primary stress state with borehole slotter, borehole development measurements in underground exploratory drillings for the transformator and machine cavern (2011);
Client: BG Roßla mbH

**Waldrems, Germany**

Execution of borehole jack tests with Ettlenger borehole jack, geophysical measurements (caliber, flowmeter, temperature and conductivity) in exploratory drillings for the B14 tunnel Waldrems (2011);
Client: Andreas Goller Bohrtechnik

Wambach, Federal Highway B260, Germany

Execution of borehole jack tests with flexible dilatometer and Ettlenger borehole jack, installation of multiple extensometers (1995);
Client: Waschek GmbH

Wank Tunnel, Federal Highway B 2, Germany

Execution of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings for the rerouting of the Federal Highway B2 east of Garmisch-Partenkirchen (2010 and 2011);
Client: BG Roßla mbH, Arge Wanktunnel (E+M, Abt)

Warstein, Federal Highway B55n, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in the course of pre-investigation for the B55n detour of Warstein (2003-04);
Client: Knauber GmbH

Wasungen, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system, execution of borehole jack tests with Ettlenger flexible dilatometer and Ettlenger borehole jack, exploratory drillings for the B19 detour Wasungen (2013 and 2016);
Client: BOG GmbH

Wasseraffingen, Detour, Germany

Execution and evaluation of flexible dilatometer tests (1990);
Client: Keller & Hahn, Insingen

Weida, Barrage, Germany

Execution and evaluation of borehole jack tests with flexible dilatometer and Ettlenger borehole jack in the course of preparatory works for redevelopment of the anticlinal wall (1995);
Client: Anger's Söhne GmbH & Co. KG

Weida, Barrage, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer in boreholes downstream of the barrage and in the control gallery (1997);
Client: BOG GmbH

Weilburg, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® for the projected pump storage station Weilburg (2011);
Client: Schützeichel GmbH & Co. KG

**Weilburg, Germany**

Monitoring of an exploratory drilling for the school of Weilburg with the optic scanner system ETIBS® (2010);
Client: Schützeichel GmbH & Co. KG

Weingarten, Germany

Monitoring of drillings with the optic scanner system ETIBS® for the building project Goerner (2006);
Client: Hettmannsperger GmbH

Weinsberg Tunnel, Germany

Execution of in situ stress measurements in the tunnel wall for reconstruction works (1989);
Client: DB Bundesbahndirektion Stuttgart

Weissach, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® for the enlargement of the Porsche factory in Weissach (2013);
Client: Henke und Partner GmbH

Weissensteiner Tunnel, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer and Ettlinger borehole jack, stress measurements according to the method of compensation, monitoring of underground drillings with borehole camera (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Wetzell, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack in the course of foundation exploration for the satellite station Wetzell (1998);
Client: BOG GmbH

Wetzlar, Germany

Execution of borehole jack tests with Ettlinger dilatometer and Ettlinger borehole jack, exploratory drillings for the enlargement WEST at the waste dump Eulingsberg (2009);
Client: Schützeichel GmbH & Co. KG

Wildberg – Kengel Tunnel, Germany

Execution of borehole jack tests with Ettlinger borehole jack, monitoring of the boreholes with borehole camera, stress measurements according to the method of compensation (2016);
Client: BG Roßla mbH

Windeck, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® in the course of pre-investigation for the extension of the county road K 23 (2000);
Client: BLM GmbH

Winden, Germany

Execution of borehole jack tests with Ettlinger flexible dilatometer, monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system in the course of the pre-investigation for the detour B294 Winden (2016);
Client: drillexpert GmbH

**Wintrich, Sluice, Germany**

Camera monitoring with the borehole scanner CORE BSS in exploratory drillings for the sluice Wintrich (1996);

Client: Wasser - und Schifffahrtsamt Trier

Wisenta and Walsburg, Dams, Germany

Execution of borehole jack tests with Ettlenger dilatometer. Monitoring of exploratory drillings with the optic scanner system ETIBS® (2008);

Client: BOG GmbH

Witten, Old Deposit "An der Schlinke", Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® and the acoustic ABF system (2015);

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Wittighausen Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack, monitoring of exploratory drillings with the optic scanner system ETIBS®. Monitoring of drillings in the tunnel with borehole camera (2015-16)

Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Woergl West, Inn Crossing, Austria

Execution of borehole jack tests with Ettlenger borehole jack in an exploratory drilling for the Inn crossing Woergl West (2017);

Client: Plankel Bohrungen GmbH

Woerth, Sound-proofing Wall Maximiliansau, Germany

Execution of pile load tests (1995);

Client: Reif GmbH & Co. KG

Wolfach, Clinical Center, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2007);

Client: Erkelenzer BG

Worringen, Canal, Germany

Execution of borehole jack tests with Ettlenger borehole jack in exploratory drillings for the canal Worringen, town drainage Cologne (2008);

Client: Schützeichel GmbH & Co. KG

Wuennenberg, Detour, Germany

Execution of borehole jack tests with Ettlenger dilatometer, monitoring of boreholes with the optic scanner system ETIBS® and the acoustic scanner ABF, borehole development measurements (2008 and 2013);

Client: Terrasond GmbH & Co. KG, BOG GmbH

Wuerzburg, Wintershaeuser Source, Germany

Execution and evaluation of borehole jack tests with Ettlenger borehole jack (1996);

Client: Ost-West Bohr-Equipment Vertrieb GmbH

Wuppertal, Helios Hospital, Germany

Monitoring of exploratory drillings with the optic scanner system ETIBS® (2003);

Client: Erkelenzer Bohrgesellschaft mbH

**Wuppertal, Kiesberg Tunnel, Germany**

Monitoring of exploratory drillings with the optic scanner system ETIBS[®] (2009);
Client: Schützeichel GmbH & Co. KG

Yedigoel & Aksu HPP, Turkey

Execution of borehole jack tests with Ettlenger dilatometer, monitoring of drillings with the optic scanner system ETIBS[®], determination of state of stress with the borehole slotter. Exploratory drillings in the pressure galleries for the power station projects Yedigoel and Aksu (2010);
Client: Eren Jeoteknik

Zelgenberger Tunnel, Germany

Execution of borehole jack tests with Ettlenger borehole jack, stress measurements according to the method of compensation, monitoring of underground drillings with borehole camera (2017);
Client: Gerätebau Wiedtal Schützeichel GmbH & Co. KG

Zeltingen, Sluice, Germany

Camera monitoring with the borehole scanner CORE BSS in exploratory drillings for the sluice Zeltingen (1996);
Client: Bundesanstalt für Wasserbau

Ziegenberg Tunnel, Germany

Stress measurements according to the compensation method, evaluation of the stability and assessment of reconstruction necessity of the tunnel (1990-1991);
Client: DB Bundesbahndirektion Frankfurt/M.

Zierenberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack in exploratory drillings of the Zierenberg tunnel, camera monitoring of drillings (1999);
Client: Schützeichel GmbH & Co. KG

Zierenberg Tunnel, Germany

Execution and evaluation of borehole jack tests with Ettlenger dilatometer and Ettlenger borehole jack. Monitoring of drillings with the optic scanner system ETIBS[®]. Exploratory drillings for the new Zierenberg tunnel (2006);
Client: Bohrgesellschaft Roßla

Zierenberg Tunnel, Germany

Camera monitoring of exploratory drillings in the tunnel, borehole jack tests with Ettlenger borehole jack and optic investigation with the scanner system ETIBS[®] of surface drillings (2003-04);
Client: Schützeichel GmbH & Co. KG

Zuffenhausen, Germany

Execution of borehole jack tests with Ettlenger borehole jack in an exploratory drilling in the area of Porsche Zuffenhausen (2016);
Client: drillexpert GmbH

**Zweibruecken, Airfield Area, Germany**

Execution of borehole jack tests with the pressiometer according to Ménard and with Ettlenger borehole jack before and after the dynamic intensive soil compression to control the effectiveness of the compression (1997);

Client: Geotechnik Hundhausen