

NAUE

NEWS



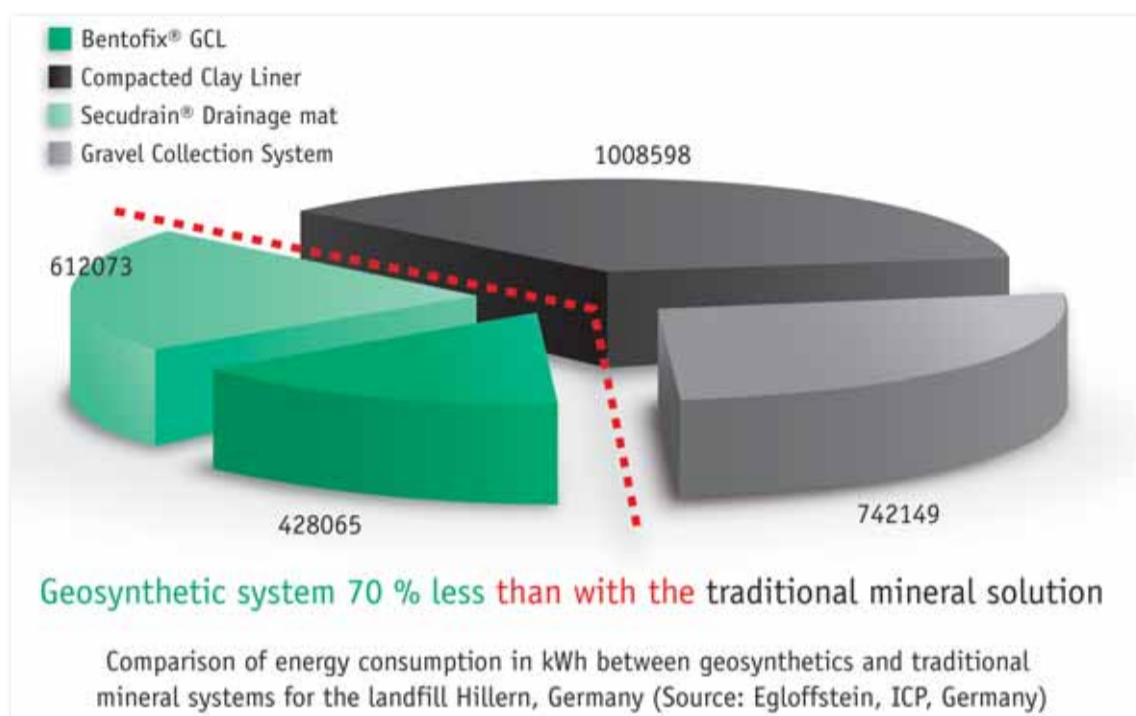
A cold start

After a long winter NAUE takes off with ecological benefits

The year began cold, very cold. The winter held Europe under its thumb until the middle of March. In East Europe, nearly all construction was stopped during this time, and that had an effect on our company's turnover. But as the weather improved, so did construction activities and strong production resumed.

In the middle of this upturn, NAUE's purchasing department observed an unprecedented phenomenon to recent manufacturing decades: raw material prices rose continuously and permanently. The price for polypropylene (PP), for example, went up about 40%. As price escalation clauses are not practicable in most construction projects, the price risk remains entirely with the producer, though the risk should be divided between the builder, construction company and manufacturer.

The present situation: good
Currently we are forecasting an increase in turnover of greater than a double-digit percentage. Leading the way in this production surge are the Far East, Middle East and North America regions. The weakness of the Euro is contributing positively to the increase in demand for



NAUE products in non-European countries. The current market situation in Southern Europe, however, is difficult, particularly in Spain and Italy. Many Southern European countries are still very engaged in coping with the financial crisis, and their construction sectors are not yet healthy. Also, the credit ratings of several construction companies are weak. The challenge nowadays is to identify the most solvent companies for stronger projects. NAUE's geosynthetic solutions

are contributing to the health of many sectors. These solutions are providing cost controls and other benefits that are helping to make these sectors more competitive. Some examples: Germany's federal government wants to reduce the intensity of goods transportation in Germany, but in 2008 the exact opposite occurred. The transportation intensity increased. Because of this, a reduction of over 20% is needed. The application of geosynthetics can help to achieve that aim. The installation of

NAUE Secugrid® and Combigrig® reinforcement geogrids can dramatically reduce the intensity of high volume soil transportation for depositing purposes of e.g. soil replacement material. The use of NAUE geogrids can additionally reduce the required aggregate thickness in roads and therefore contribute again to the reduction of the transportation intensity.









The use of 36,000 m² Bentofix® geosynthetic clay liner in the Hillern landfill has shown how

significantly fuel consumption can be reduced when compared to the transportation cost of conventional clay sealing to a landfill site. For Hillern, the savings were found to be about 64% - exactly 4,500 litres with the conventional sealing method versus just 1,600 litres with the Bentofix® GCL. Also at Hillern, the installation of Secudrain® instead of conventional gravel drainage has greatly reduced transportation costs to the site. A major reduction in CO₂ emissions was achieved in this project by installing Secudrain® along with Bentofix®. The overall reduction resulted in an 80% reduction in CO₂ emissions. Not only is the geosynthetic solution the right long-term, strong performance choice for the project, but significant environmental benefits are being realized.

These examples show once again that the utilization of geosynthetics help conserve resources, are eco-friendly, and reduce greenhouse gas pollution. With nearly 190 governments having signed the Kyoto Protocol for greenhouse gas reduction, and with an increasing body of research supporting the economic and performance benefits of greener engineering and life-cycle analysis, it is important for

geosynthetics and related professionals to be aware of the many ways geosynthetics meet these environmental goals. The word must get out. There is still a great deal of educational work left to do.

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Further information: www.naue.com

Back to the roots

ThyssenKrupp moves its administrative headquarters to Essen, NAUE seals off parts of the Krupp Belt

Essen, Germany. Rarely has a construction project received this much attention than the so-called Krupp Belt in Essen. The term refers to an area of 230 hectares that is situated between the western district of the inner city of Essen and the Altendorf district of Essen. Up until the end of World War II, the Krupp cast steel factories that were founded by Friedrich Krupp in 1811 were located here. When it was founded, the city of Essen counted 3,500 inhabitants, and roughly eighty years later there are 100,000, of which 30,000 work at Krupp. At the beginning of the 20th century, the number of employees even increased to 80,000. The company in the western part of town expanded and the Krupp Belt came ever closer to the centre of town. The square footage of the Krupp Belt is three times as large as the inner city of Essen itself.

Of the 1.5 million square metres of built-up area of the Krupp plant in Essen about two-thirds are completely destroyed and another third is partially destroyed after the end of WW II. The allied powers ordered many of the functioning machines to be de-installed and transported abroad for reparations. Ever since then, the huge area is an industrial wasteland at the centre of the Ruhr area. The turn came in 2006, when ThyssenKrupp AG decided to restructure its administrative sites and announced, that it would relocate its headquarters from Düsseldorf to Essen. Thyssen Krupp will locate a majority of its administrative buildings, with more than 100,000 square metres, in the so-called ThyssenKrupp quarters, an area that covers 29 hectares in the Krupp Belt. The four-lane Berthold-Beitz Boulevard cuts through the Krupp Belt and separates it into a west-



ern and eastern part. The person after whom the boulevard is named, Berthold Beitz, is the honorary chairman of ThyssenKrupp AG and an honorary citizen of the cities of Essen, Bochum and Kiel. The first two segments, with a total length of 1.3 kilometres were opened in 2009. The 22 hectares large Krupp Park, with five hills and a lake of almost one

hectare is on the west side of the Berthold-Beitz-Boulevard; on the east side of the Berthold-Beitz-Boulevard there are the already mentioned 29 hectares of ThyssenKrupp-Quartier. This short history is important to understand what special role the Krupp Belt has for the Ruhr area and just how gigantic the dimen-

sions of the area are. Because, the quantities of product that NAUE must deliver are just as gigantic. In order to dispel any doubts that rainwater will find a way through the industrial soil into the groundwater, the consortium of Heinrich Walter Bau GmbH Borken and EUROVIA Teerbau GmbH NL Bottrop assigned the von Witzke

GmbH & Co. KG company from Essen to lay out 150,000 square metres of needle-punched Bentofix® NSP 4900 geosynthetic clay liner, on both sides of the Berthold-Beitz Boulevard (Krupp-Park and ThyssenKrupp Quartier), wherever there are green or empty spaces. 150,000 square metres of the three-dimensional drainage system Secudrain® were installed on top of the clay liner to ensure that the water is drained off.

At the time the Executive Board of ThyssenKrupp AG, together with the more than 2,000 administrative employees, moves to its new quarters in the summer of 2010 and looks over the Berthold-Beitz-Boulevard to the Krupp-Park, then they will know that rain is particularly good for the Krupp Belt. Because the rainwater drained off by NAUE products feeds the large lake in the Krupp-Park.

Gravel columns carry a van

NAUE Secugrid® Proves Stability at University of Weimar Test

10 June 2010 – Roughly 120 visitors came to the renowned Bauhaus University Weimar recently for a Department of Civil Engineering event entitled "Energy. Experiment. Experience."



loading test in the laboratory

One of the event's highlights included the first public testing of geogrid-reinforced stone columns - using a 2.2-ton vehicle. NAUE GmbH & Co. KG, an international manufacturer of geosynthetics, worked with Prof. Dr.-Ing. Karl Josef Witt and Dipl.-Ing. Mary Noack from the Bauhaus University Weimar, to create the geogrid-reinforced stone columns on



which the car was supported. The geogrid used in the experiment was NAUE's Secugrid®.

The four columns, each 40 x 40 cm (16 x 16 x 16 in.), were constructed in front of the audience. Crushed gravel 8 mm - 32 mm (0.3 in. - 1.25 in.) was poured

into the formwork with NAUE Secugrid® 40/40 Q1 geogrid inserted every 10 cm (4 in.) to create three layers of reinforcement. When the forklift was ready to set the vehicle upon the Secugrid®-reinforced columns, a few doubting voices were heard in the audience. "A reinforcement

geogrid cannot support that," some said. "It will collapse," others agreed.

Two television crews were on hand to capture what would happen when the forms were removed and Secugrid's ability to absorb such direct forces was put to the test. And as the formworks

fell and the vehicle weight could be observed settling in the tires, the reinforced columns held. More than 2,200 kg (4,800 lbs) stood firmly and safely upon Secugrid's strength.

Test trials in the lab have been executed preliminary. The same columns have withstood a total load of more than 3,000 kg. This load refers to the pressure on the bottom of a family home.

The audience, media representatives and civil engineering professors were enthusiastic. The Bauhaus University Weimar, Department of Civil Engineering faculty, had successfully demonstrated how well modern geosynthetic reinforcement techniques perform. The soil-strengthening force of NAUE's Secugrid® 40/40 Q1 made it possible.

Video-Documentation at www.naue.com/video-en

Did you know...?

That NAUE took part in the 9th International Conference on Geosynthetics Brazil (ICG 2010 Brazil) from 23rd - 27th May with a booth and several interesting lectures were held by NAUE engineers?

NAUE also participated in the BRATISLAVA 2010, the XIVth Danube-European Conference on Geotechnical Engineering from 2nd - 4th June in Bratislava with a booth and contributed lectures to the programme. The main topic of the conference was "From research to design in European practice" and was meant to come up with new developments and experience in the geotechnical sector.

Reinforced embankment "Marina Isla de Valdecañas", Spain



The island "Valdecañas" is located in the middle of a 7,200 hectare water reservoir at the foot of an imposing mountain range, the Sierra de Gredos in Spain. The site is located approx. 160 km south-west of Madrid. The island is developed as 135 hectare big tourism complex, which consists of a golf resort, sailboat marina, holiday village, villas, sports complex and a congress centre. In the area of a planned access road, located in the north-eastern part of the island, it was required to fill up to 21 m to reach the desired height. To create as much space as possible for construction on top of the created plateau, the

slope sections needed to be built as steep as possible.

Conventional concrete retaining walls as a slope stabilisation measure were not an option as they would not create an attractive impression from a landscaping point of view. As an economic and ecologic alternative solution it was decided to construct the slopes as a 70° inclined steep Secugrid®-reinforced earth structure. To create an aesthetically more appealing facing, horizontal planting zones were embedded in the reinforced slope as 2 m wide berms, which were distributed over the slope in vertical intervals of approx. 3 m.

The facing of the reinforced embankment was built using the so called "wrap around method" in combination with steel mesh facing elements, which were used as formwork during the installation and compaction of the fill soil. To be able to analyse the realistic stresses developed in the constructed reinforced slope and to compare those to the stresses determined in the design, a monitoring programme was carried out using strain gauges, which were applied to a selected geogrid layer in the lower part of the reinforced soil structure.

The results show clearly that the largest deformations have taken place during the construction process of the reinforced earth structure. The development of the measured strains across the monitored geogrid also shows that the peak strain is developing near the facing and decreases with increasing embedment length. This indicates that the line of maximum tension inside the reinforced earth structure is also close to the surface, which confirms the calculation results in the carried out design calculations. Interpretation of the present data and ongoing measurements will be made at a later stage in a separate paper.



Safety for a rail tunnel in Kaunas The next 100 years

Kaunas is the capital of its same named district and with its 415,700 inhabitants and 156 square km it is the second largest city of Litauen. It is located in the centre of Litauen, on the junction of the two biggest rivers Memenas and Neris, 100 km away from the capital Vilnius and 250 km away from the seaport of Klaipeda.

The waterside of the river Nemunas is mountainous and one of these enormous hills is transfixed by a 1,285 m long and single-tracked rail tunnel. It is an old heritage-protected work from 1862 with brickwork lining of the inner surface.

But the swelling minerals in the structure of the mountain caused instability and danger of collapse or water could infiltrate the tunnel.

A main part of this reconstruction program was the deficient base point of the channel, which was moving, and the danger of caving-in was steadily growing. In the first step of the renovation the tunnel was sealed with a NAUE geomembrane Carbofol®. For the stabilisation of the base it was decided to use injection



anchors. These, however, left penetrations in the Carbofol® sealing system, but they could easily be plugged up on the basis of a patch welding construction. To provide cover of the Carbofol® geomembrane a protection layer made of non-woven Secutex® geotextile was integrated. Working started at the arch and was completed on the sides in the same manner. Quality assurance engineers checked after-

wards if the Carbofol® geomembrane layers were welded professionally and if the sealing system serves the purpose.

After this enhancement the tunnel in Kaunas will now be fully functional with the use of NAUE products and usable for the next 100 years.

Did you know...?

That we have recently published new flyers to give you detailed information about projects and the advantages of NAUE products?

You can get the following flyers:

- Tunnel Construction: Sealing Suspended Inner Shells
- Project: Waterproofing of an Airport Hotel in Thailand
- Advantages of Secutex®/Terrafix® Soft Rock Sand Containers
- Sealing of a landfill
- Erosion Control Secumat® The Green Skin and Desert Skin Solution for Slopes

Please contact us if you are interested in any of them. E-Mail: info@naue.com



NAUE shores up Schwarze Elster's detour



Senftenberg/Kleinkoschen. Lusatia is a region in Germany and Poland. The original meaning of Lusatia is something along the line of "swampy, wet meadows." Lusatia is separated into two parts that, in terms of the landscape, are completely different: Upper Lusatia and Lower Lusatia.

In the Northwest, Lower Lusatia is bordered by the Fläming ridge; and in the West it's bordered by the Schwarze Elster ("Black Magpie") River, a 179-km long tributary of the Elbe River. The Schwarze Elster River flows through Senftenberg and Kleinkoschen, two villages in the South of Brandenburg (Lower

Lusatia). The small river curves to the left around Lake Senftenberg (Senftenberger See), and leaves Lake Geierswald (Geierswalder See) to the right of it. Both lakes are artificial lakes and were once part of the lignite (brown coal) pits during the time of the German Democratic Republic. Both artificial lakes receive their water from the Schwarze Elster River.

Navigable artificial channels connect approximately 6,500 hectares of water. And one of these navigable channels is currently being constructed between Lake Senftenberg (1,300 hectares) and Lake Geierswald (620 hectares), in the aforementioned village of Kleinkoschen.

The Lusatian and central German mining management company Lausitzer und Mitteldutsche Bergbau-Verwaltungsgesellschaft mbH gave the order to connect these lakes. The connecting channel is approximately 1 km long. Its bottom is 6 m wide, and the surface is 70 m from side to side. A lock compensates for a height difference of approximately 2 m.

The channel's construction is interesting because two legs of it require tunnels. The first tunnel is 64 m long and routes the channel

beneath Federal Highway 96. A longer tunnel (96 m) takes the channel underneath the Schwarze Elster River.

This is, in effect, a loop detour. The project's general contractor, STRABAG AG, with a subsidiary in Senftenberg, tasked NAUE with providing geosynthetics to seal off the detoured Schwarze Elster River. NAUE delivered approximately 24,000 m² of Bentofix® NSP 4900 geosynthetic clay liner (GCL) to Kleinkoschen for installation. A levelling layer, as well as a protective layer of bulk fill covered by breakwater stones, was placed above the GCL seal.

Since the bed of this connecting channel lies below the groundwater level, the project's construction team installed a special sand bal-

last mat as the foundation for the breakwater stones. Authorised by the German Federal Waterways Engineering Office (Bundesanstalt für Wasserbau [BAW]), crews installed NAUE's quartzsand infused Terrafix® B 813 nonwoven fibre mat. Terrafix® sand ballast mats possess excellent hydraulic engineering properties: flexibility, filtration, and abrasion resistance. Also, Terrafix® materials can be installed under water. In this case, underwater installation was necessary. Possessing a filtering effectiveness against soil types one through four, the mats were installed on the floor and embankment of the channel with an overlap of 1 m.

The entire construction project is scheduled to be completed in 2011.

Exhibition and seminar schedules

September

09. - 11.09.10	Philconstruct Visayas	Cebu, Philippines
13. - 17.09.10	IFAT Entsorga	Munich, Germany
14. - 15.09.10	6th Biomass Energy conference	Kyiv, Ukraine
15. - 16.09.10	3rd Geosynthetic Barrier Conference	Würzburg, Germany
12. - 16.09.10	GEO2010	Calgary, Canada

October

04. - 08.10.10	WasteCon 2010	Johannesburg, South Africa
06. - 09.10.10	Pollutec Maroc	Casablanca, Morocco
13. - 14.10.10	Irish Water Waste & Environmental Show 2010	Dublin, Ireland
14. - 17.10.10	IGEM 2010	Kuala Lumpur, Malaysia
13. - 16.10.10	WindTech 2010	Istanbul, Turkey
27. - 29.10.10	WASMA-2010	Moscow, Russia

November

02. - 03.11.10	ICGESM 2010 Intern. Conference on Geotechnical Engineering and Soil Mechanics	Teheran, Iran
02. - 04.11.10	BWEA 32, Renewable UK 2010	Glasgow, UK
02. - 04.11.10	ECOTECH 2010	Almaty, Kazakhstan
03. - 05.11.10	DepoTech 2010	Leoben, Austria
03. - 05.11.10	Viet Transport	Hanoi, Vietnam
08. - 12.11.10	6 ICEG 2010	New Delhi, India
09. - 12.11.10	CommunTech 2010	Kyiv, Ukraine
11. - 13.11.10	Geoprotecta 2010	St. Gallen, Switzerland
16. - 18.11.10	1st GSI Asia Geosynthetics Conference	Taichung, Taiwan
16. - 18.11.10	AVTODOREXPO 2010	Kyiv, Ukraine



NAUE helps transform a former ash landfill

The Upper Palatinate in southern Germany's Bavaria region is renowned for its beauty. When the energy company E.ON entered closure on a former ash landfill situated near Schwandorf, north of Regensburg, it sought to transform the site into an exemplary project of environmental restoration. The idea is to return the former industrial site to "the environment and the people," as an E.ON representative said.

To protect this massive reclamation project and ensure its success, NAUE sealing and drainage management technologies are being utilized: Bentofix® geosynthetic clay liners (GCLs) and Secudrain® geocomposites.

The Westfeld ash landfill lies, in part, below the groundwater level in a former strip mine. Pump systems keep the water level low. For surface drainage, ditches and pipes redirect rainwater into the neighbouring Hirtlohwieher bird sanctuary. Though the landfill stopped accepting ash from the now-shuttered Schwandorf-Dachelhofen coal-fired power plant until 2002, initial, larger-scale earthmoving and reclamation activities did not begin until 2009, when 17 ha (42 acres) of the site were reclaimed.

Base Technologies GmbH is leading the site's planning engineering. Its team envisioned a multiple-layer reclamation system. Bentofix® BZ 6000 GCLs provide the first layer of sealing

protection. It's an appropriate choice, as it has been approved for Class I and II landfills in Germany. It replaces the mineral clay seal stipulated in traditional regulations. It's also more economical and stronger, and Bentofix® layers perform better than clay-only. On top of this GCL layer, a Secudrain® geocomposite drainage layer was installed. Secudrain® R201Z WD601Z and R201Z comes with a certificate of suitability from BAM, the Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung). The three-part construction of this particular Secudrain® provides a strong seepage control core with geotextile filtration layers on both sides. This non-slip,

fully-bonded surface construction protects the cap system's drainage layer from clogging and keeps rainwater out of the

reclamation sealing layers. A cohesive soil layer with a thickness of one metre is also part of the cap design. Subse-

quently, the area is to be planted such that it is seamlessly incorporated into the surrounding nature.



A roadway noise barrier inspired by landfill design

NAUE contains contaminated soil in a multi-purpose embankment

Long-awaited and hard-fought, a 6.5 km section of the A33 motorway south of Bielefeld was finally approved. Noise protection, contaminated on-site soil and environmental protection were the contentious issues—and geosynthetics from NAUE provided the solution and made this project possible.

With the opening of this motorway section by the end of 2010, another chapter will close in the difficult history of A33's construction. The German motorway runs from Osnabrück via Bielefeld to Paderborn and connects Eastern Westphalia with the North Sea, the Netherlands and Saxony. Project planning for this important transportation route began in the 1960s, and since then three-fourths of the total 100 km length are currently in use. The second-to-last section is now under construction.

Finally, an agreement

The ongoing segment south of Bielefeld was time-consuming.

The first route had been determined by 1973, but the approval procedure was not started until 2003 after several corrections and tests. Roughly 1,900 written objections had to be checked individually. Finally, a decision was come to in March 2006 on the A33 section for which NAUE's solution has provided the answer.

The 6.5-km-long stretch includes 23 bridges and has cost, overall, about Euro 95 million. Bridge construction started in 2007 and road construction followed in the summer of 2009.

ARGE Neubau A33 - a consortium comprised of the companies Knoll GmbH & Co. KG (technical management), Beton- und Monierbau GmbH (commercial management) and Gröschler GmbH - is responsible for this project.

An intelligent solution

Noise is a sensitive issue in nearly every new highway construction project. The A33 was no different. To alleviate these concerns while

simultaneously confining heavy metal-contaminated soils from the construction zone, noise protection barriers with a special feature were built. The barrier at



Postheide took up 40,000 m³ of soil, which even included PFTs (perfluorated tensides). These pollutants are the result of dumping actions by an old textile manufacturer. The polluted soil arose during the excavation of the roadway.

For the safe and final disposal of these soils, NAUE GmbH & Co. KG provided its extensive experience from the landfill construction sector and converted it to a

truly unique roadway solution. The barrier is 12 m high and 300 m long. It has been equipped with a four-component cover, sealed by the subsidiary company NAUE Sealing GmbH & Co. KG according to the contaminated soil handling technical bulletin,

"Notice on structures for technical safeguards in the use of soil and building materials with environmental constituents in earthmoving (M T S E) of 2009."

Secutex® R 404 nonwoven geotextile serves as the sealing base and protection for the Carbofol® 509 MegaFriction (2 mm thick with embossed structure and DIBt-approval). The third layer, Secudrain® 201 WD 601 201, assures safe and long-term drainage of the rainwater. The top layer is secured with the high-strength Secugrid® 120/40 R6 geogrid which prevents the filled up soil (50 cm) from sliding.

The entire embankment in this system is characterized by enormous stability.

NAUE'S geosynthetics are manufactured from raw materials that are highly resistant to chemicals and offer long-term performance and durability. This combination of top-quality manufacturing and deep experience in both transportation and waste containment helped persuade residents to allow

for the construction, finally believing that dry, long-lasting disposal of the contaminated excavation is possible.

Moreover, the landfill-style embankment is not only for noise protection; it also enables the collection stormwater runoff in retention basins built specially for this project.

Did you know...?

Latest News from the geosynthetic market, interesting projects, new products – from June 2010 on the NAUE group offers this in their e-mail newsletter. The NAUE E-NEWS will only be sent when we have relevant news for you, concentrated information is the main idea.

If you would like to receive the E-NEWS, please send an e-mail with the subject line "I order E-News" to info@naue.com.

NAUE circumnavigates Polish city



One of many beautiful cities in Poland, Wrocław, is to benefit from a new ring road that will significantly improve its transportation links. NAUE's products are an important part of the construction.

Covering a distance of just under 27 km, the A8 motorway is almost completely new. It does, however, incorporate a 0.5 km-long section of an existing 'fast' road, which is being widened to provide two lanes in each di-

Did you know...?

Just in time for the FIFA World Cup 2010 in South Africa NAUE introduced GoalGrid to the international market. Over 500 players aimed their football shots and tried to score goals against the gridator with the use of the computer mouse. Meanwhile the top ranked 28 players have been informed about their success and received their prizes. Thank you to all others for playing GoalGrid. This game, as well as the last two welcomed games 4-for-Secugrid and BallGrid can still be played. Just visit: www.naue.com/games

rection. Also, the work has included two linkage roads (a total of 8.15 km) at Kobierzyce and Długoleka.

Over 1.5 million m² of NAUE 60 kN strength, biaxial Secugrid® reinforcement geogrid has been specified to meet the project's soil reinforcement demands. Secugrid® was used for the embankment construction, slope reinforcement (wrap around method with a biodegradable erosion control mat) and base course reinforcement.

Project Goals

The main aim of the road is to relieve the congestion occurring in the city itself and improve the safety of a number of sections of road in the area. Specific tasks have been undertaken by Poland's General Directorate for National Roads and Motorways. Rafal Ciesielski, managing director and Konrad Rola-Wawrzecki, the regional sales director for Geosyntetyki NAUE, the Polish daughter company of NAUE GmbH & Co. KG, have both been instrumental in

advising on the NAUE products that will satisfy the demands of the Roads Directorate.

"Our extensive range of products allows us to ensure we can meet the demands of all soil reinforcement tasks," says Konrad Rola-Wawrzecki. "And this is not the only road project in Poland where you will find NAUE products."

Once all the work has been completed, the traffic congestion in the city centre will be greatly eased. Wrocław is a city that boasts a number of architectural influences including Bohemian, Austrian, and Prussian. The traffic easing and the reduction in harmful emissions from vehicles will undoubtedly help maintain the architectural beauty of the city.

These long-term goals are being reinforced by the long-term performance and durability of Secugrid®.



Picture: G. Kilian

NAUE America receives honor from Emergency Training Center



19 July 2010 - The expansive Smokey Hill Air National Guard Range near Salina, Kansas provides 34,000 acres for realistic environment training for both active and reserve military organizations. This unique facility includes a 156-acre zone for crisis response training. For the construction of a collapsed structure simulation, site coordinators sought a subgrade reinforcement material that would not require the addition of a separate nonwoven weed barrier. The Kansas Department of Transportation suggested Combigrid® 20/20 Q1 151GRK 5, a material with which KDOT has previous experience.

NAUE Combigrid® geogrids combine the excellent stress/strain characteristics of Secugrid® geogrids with the three-dimensional, high-elongation, nonwoven fiber matrix of Secutex® geotextiles in single layer product for reinforcement and control of fines in weak subsoils, such as those with a CBR of less than 3%. For the Guard, Combigrid® provided support to the simulated structure collapse, a pile that included significant amounts of

heavy concrete blocks, pipes, and debris such as crushed and trapped vehicles. NAUE shipped the material from its Buena Vista, Virginia facility in February 2010 and the Kansas Guard began work on the installation and pile building.

Sgt. Greg Kober of the Army National Guard, Kansas said that they found Combigrid® "to be a great product that was easily installed by hand." The geogrid was covered by 6 in. of AB-3 rock base (typical in KDOT road designs), and on 13 July 2010 the combined training exercise was carried out successfully.

In conjunction with this, Michelle Jenkins accepted on behalf of NAUE America a Certificate of Appreciation along with a military coin from Brigadier General Norman Steen, along with Angie Morgan and Frank Coats of the Kansas Emergency Management Team. It is a military custom to give tokens of thanks, and a coin is regarded as a gift of honor showing respect and gratitude.