

Europe

Expression of Interest for Multidisciplinary Project

It is estimated that over the next ten years €125 billion will be invested in underground construction in Europe. To preserve the European leadership in underground construction, a multidisciplinary integrated European project has been set up to get all major European tunnelling players to work together so that a critical mass can be established. The idea is to improve safety and reduce construction and maintenance costs. These objectives can only be met if the top European research bodies, innovative construction firms and authorities collaborate in civil engineering, mechanical engineering, electronics, geology, IT, materials science, etc. This is the scope of Tunconstruct – which stands for Technology innovation in UNderground CONSTRUCTION.

The core members who agreed to participate in the initiative are listed hereafter for each country:

Austria

- A research cluster on numerical simulation in tunnelling consisting of the Institute for strength of materials (University of Vienna), the Institute for structural analysis (University of Innsbruck), and four institutes within the University of Graz (structural analysis; rock mechanics and tunnelling; soil mechanics and foundation engineering; and machine vision). Visit www.fest.tuwien.ac.at and www.cis.tu-graz.ac.at/geotechnical_group
- Engineering consultancies D2 Consult and ILF Consulting Engineers. Visit www.d2-consult.at and www.ilf.com
- Contractors Porr and Strabag. Visit www.porr.at and www.strabag.at
- HL-AG, the public authority which is the main client for improving rail infrastructure. Visit www.hl-ag.com

Czech Republic

- Technical University of Ostrava, visit www.vsb.cz/en/vitejte_ewel.htm
- Stavební Geologie Geotechnika, visit www.sggg.cz

France

- Vinci, visit www.groupe-vinci.com

Germany

- Ruhr University in Bochum (Institute for structural mechanics and Institute of construction technology, tunnelling and construction management) and University of Stuttgart (Institute of geotechnical engineering). Visit www.sd.ruhr-uni-bochum.de
- Lahmeyer International, visit www.lahmeyer.de
- Herrenknecht, visit www.herrenknecht.com

Italy

- Politecnico di Milano (Department of structural engineering), visit www.stru.polimi.it/eng
- SELI, visit www.selitunnel.com

Netherlands

- Centre for Underground Construction (COB), visit www.cob.nl
- Plaxis, a leading developer of finite element software. Visit www.plaxis.nl

Spain

- Universidad de Cantabria and Universitat Politècnica de Catalunya (Department of ground engineering). Visit www-etc.upc.es
- Centro de Estudios y Experimentación de Obras Públicas (CEDEX). Visit www.cedex.es
- Dragados, visit www.dragados.com
- Gestor de Infraestructuras Ferroviarias (GIF), the

tunnelbuilder

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public entity responsible for the construction of high speed lines. Visit www.gif.es

Sweden

- Golder Associates, a consultancy involved in the underground nuclear waste disposal project. Visit www.golder.se

United Kingdom

- Imperial College of Science, Technology and Medicine and University of Birmingham (Department of civil engineering). Visit www.ic.ac.uk and www.eng.bham.ac.uk/civil

Visit www.e-core.org/frames/index_forum.html. E-mail Myriam Olislaegers mo@bbri.be and Prof. Beer, tel. +43 3168736180, fax +43 3168736185, e-mail beer@ifb.tu-graz.ac.at

World Digest of Tunnels Under Planning

China. Beijing is to invest \$7.7 billion in the construction of metro lines and suburban train lines for the 2008 summer Olympic Games. In total, over 156 kilometres of new metro lines are planned to bring the network's total length to 251.7 km. There are also plans for three new suburban railways which will bring the total length to 300 km. A 22 km-long line is under planning to connect the city centre with the airport. It is expected to cost \$665 million. Beijing is only served by three metro lines (1, 2 and 13). The first section of Line 13 has been opened in late September. Line 5 is under construction (read E-News Weekly # 26).

Japan-South Korea. The possibility of building a tunnel under the sea between Japan and South Korea has emerged again. A five-member Japanese delegation paid a visit last month to South Kyongsang Governor Kim Hyuk-kyu and briefed the southeastern provincial government on the Japanese plans for the undersea tunnel.

There are three routes for the tunnel contemplated by the Society for the Japan-Korea Tunnel Research, a private group set up in 1983 and financed by the Unification Church of the Reverend Moon Sun-myung. Two out of the three routes run from Koje to Karatsu in Saga Prefecture, southwestern Japan, while the remaining route connects Busan, South Korea's second biggest city, to the Japanese city of Karatsu. All three options call for the tunnel to run via the Japanese islands of Iki and Tsushima located in the middle of the waters between the two neighbours. If the submarine tunnel is built, Japanese railroads could be linked to European cities through an inter-Korean railroad, the Trans-Siberia Railway (TSR) and the Trans-Chinese Railway (TCR).

The South Korean ministry of construction and transportation commissioned three research institutes to study the feasibility of the project earlier this year. A tunnel across the Korean Strait, with a length of 200 km, would be the world's biggest if built. Japanese experts estimate completion of the tunnel will take 15 years and cost \$77 billion.

Spain. The government of Andalusia and the City of Malaga have agreed to set up a follow-up commission to determine the technical solutions and the financing of Lines 1 (PTA-Plaza General Torrijos) and 2 (Palacio de los Deportes Martín Carpena-General Torrijos) of the Malaga metro. This is the first step to get the project to move forward again. Bids could be invited in the summer next year with construction scheduled to begin in early 2004. Visit www.tunnelbuilder.com, es/58.

Spain. The ministry of development has given its go-ahead on 14th October to the €104.4 million project for a new 5 km suburban rail tunnel between Nuevos Ministerios and the Atocha station in Madrid. The scheme will be built under a concession contract. The Nuevos Ministerios-Chamartín section has yet to be approved. The ministry is currently studying the feedback received during the public inquiry which ended in September. Atocha and Chamartín stations will also be connected by a second tunnel for high speed trains. Visit www.tunnelbuilder.com, es/68.

Spain. The Murcia autonomous community is studying alternatives to the high speed line alignment from Murcia to Cartagena because the planned 10 km tunnel under Sierra de Carrascoy is too costly. The tunnel would cost €300 million. Instead of crossing the Carrascoy massif, the regional government

plans to border it via Librilla and Alhama. Visit www.tunnelbuilder.com, es/71.

United States. The Metropolitan Transportation Authority has approved credits to launch a \$40.8 million preliminary study on an extension to Line 7 of the metro between Time Square and west Manhattan and the south of 33rd Street. Visit www.mta.nyc.ny.us

United States. A 4.8 km tunnel beneath the Coast Range, connecting the upper Tualatin river to Henry Hagg Lake, is being considered in Washington County, Oregon. The Sain Creek tunnel could go as deep as 274 m below the surface. The tunnel is just in the idea stage but is one of the options considered to help meet a growing need for drinking and irrigation water in the next 50 years. Officials will study the tunnel idea as well as the effects of climate change on water demand. The Water Managers Group, consisting of the Tualatin Valley Water District, Clean Water Services and nine cities (Hillsboro, Beaverton, Tigard, Forest Grove, Sherwood, Tualatin, North Plains, Cornelius and Banks) are in the process of approving \$60,000 to finance the tunnel study. The cost will be shared proportionally, based on the amount of water each agency would use. The group also plans to pay \$50,000 for a study of the effects of climate change on water needs in the county. Once the environmental issues are addressed, the consultant will study the geologic formations and determine the better method for tunnelling, either TBM or drilling and blasting. Officials hope to have the results of the tunnel study in March 2003. The climate change study should be finished in June. Preliminary estimates assess the cost of the Sain Creek tunnel between \$7 million and \$10 million, depending on the tunnelling method and the length. Visit www.co.washington.or.us, www.tvwd.org and www.cleanwaterservices.org

World Digest of Bids

China. A joint venture between Impregilo and local firm Chun Wo Construction & Engineering is believed to be neck and neck in the race with France's Dragages & Travaux Publics for the US\$190 million construction of the Sheung Shui rail tunnel. The scheme is part of the 7.3 km Sheung Shui-Lok Ma Chau spur line planned by Kowloon-Canton Railway Corporation (KCRC). Work includes the construction of a 4.3 km tunnel between Sheung Shui and Chau Tau, with ventilation buildings, cross passages and enabling works for a future station. Dragages is favourite as it owns the EPB TBM that KCRC wants to use on the project. Visit www.kcrc.com/eng/default.htm and www.tunnelbuilder.com, cn/34.

Czech Republic. Works procurement notice, deadline 25th November, 2002 for a 3.5 km dual two-lane section of motorway D5 between Cernice and Útusice (section 0510/lb) including the 380 m-long Válik tunnel to be built using NATM. Co-financing by the Czech government and the European Investment Bank. Visit <http://ted.eur-op.eu.int/udl?request=Seek-Deliver&language=en&docid=158113-2002>, OJ S 201, or contact road and motorway directorate, Prague, fax +420 284009194. E-mail alois.lichnovsky@rsd.cz

France. Open call for bids, deadline 20th November, 2002 for engineering services for safety improvements in the Lyon north ring road tunnels: Caluire (2 x 3.7 km), Rocheardon (2 x 1.1 km), and Duchère (2 x 1.1 km). The tunnels will be equipped with closing barriers, speed limiter systems and information panels. Visit <http://ted.eur-op.eu.int/udl?request=Seek-Deliver&language=en&docid=153151-2002>, OJ S 194, or contact Communauté urbaine de Lyon, fax +33 437912959.

Germany. Preinformation notice for road construction and related works construction of a motorway feeder including a 120 m cut-and-cover tunnel and its equipment. Visit <http://ted.eur-op.eu.int/udl?request=Seek-Deliver&language=en&docid=155977-2002>, OJ S 198, or contact Straßenbauamt, Dresden, fax +49 3512851-245 / -352.

Italy. Preinformation notice for project financing for a pedestrian tunnel under the Giudecca canal. This new notice follows the previous one, which was declared void (read E-News Weekly # 23). Contact Roberto Benvenuti, tel. +39 0412748537, fax +39 0412748166. Visit <http://ted.eur-op.eu.int/udl?request=Seek-Deliver&language=en&docid=157621-2002>, OJ S 200, or contact City of Venice, fax +39 0412748712. Also visit www.comune.venezia/gare

World Digest of Contract Awards

United Kingdom. The National Trust has condemned government plans for a 2 km cut-and-cover tunnel at Stonehenge, calling instead for a longer 4.5 km bored tunnel to minimise archaeological damage to the area. The controversial cut-and-cover option for the A303 in Wiltshire has brought protests from the Wiltshire Association of Taxpayers. The trust is urging the government to undertake further analysis of the tunnel option to examine its feasibility and environmental impact. A joint venture between Balfour Beatty and Costain has been awarded the construction contract by the Highways Agency. The JV will be supported by designers Halcrow and Gifford. Visit www.tunnelbuilder.com/uk/34.

World Digest of Ongoing Tunnelling

Spain. Section 6 of the Jerez-Los Barrios motorway in Andalusia is under construction by a joint venture of ACS and Construcciones Sando at a cost of €67 million. The 10.7 km section stretches from Alcalá de los Gazules to Los Barrios. There are two cut-and-cover tunnels totalling 500 m. Work control is carried out by Tyspa. Visit www.jerez-losbarrios.com

Switzerland. Excavation of the Lötschberg tunnel in Ferden have been suspended by BLS AlpTransit for ten days further to the discovery of asbestos in the rock on 6th October. In April, workers in Steg already detected actinolite rock containing asbestos. The dangerous fracture has been sealed with concrete, the rock debris has been mucked out without being crushed and air measurements have been ordered. Visit www.blsalptransit.ch

World Digest of Inaugurations

Thailand. The Metropolitan Electricity Authority (MEA) has opened the country's first large-scale tunnel for power cables, which stretches for 8 km underground between Lat Phrao and Vibhavadi. The 3.94 billion baht tunnel will deliver 900 megawatts of electricity around the capital, as well as to Nonthaburi and Pathum Thani provinces. To ensure the foundations of buildings above were not damaged, the tunnel had been laid 15 m below street level.

World Digest of Tunnel Renovation & Maintenance

France. Negotiated procedure, deadline 30th October, 2002 for jet grouting repairs of the Voltaire-Malaquais-Conti tunnel between the Orsay museum and the Austerlitz station in Paris, on Line C of the RER suburban train service. The job requires 100 jet grouting columns, 1.3 m-diameter x 6.5 m-long and 264 columns, 1.3 m-diameter x 3.5 m-long. Visit <http://ted.eur-op.eu.int/udl?request=Seek-Deliver&language=en&docid=157323-2002>, OJ S 199, or contact SNCF, Paris, fax +33 140480192.