

Portugal

Four Workers Killed in Tunnel Blast

Four workers aged 39, 25, 22 and 21 have been killed on 8th March by the untimely blast of explosives on the north drive of a tunnel under construction in Madeira between Ribeira da Lapa and Corral das Freiras. Four others have been seriously injured and admitted in hospital. The accident occurred 800 m inside a 2,520 m-long tunnel built on road ER 107 by a JV of Tâmega, Tecnorocha and Avelino Farinha & Agrela (AFA) (read E-News Weekly 30/2002). According to the first findings, the blast occurred while the explosives were already inside the holes drilled on the tunnel face for the next blast. One of the victims died in the cabin of the jumbo and the other three nearby the tunnel face. They all died instantly. This second tragedy follows another accident occurred on 13th July, 2002 which killed two workers in a tunnel under build on the Caniço-Camacha expressway when the roof collapsed while they were removing the debris (read E-News Weekly # 31/2002). Works have been suspended while an investigation to determine the cause of the casualties is underway.



Picture 1: The worksite of the Corral das Freiras tunnel has been shut down.

World Digest of Tunnels Under Planning

China. Chinese bridge and tunnel specialists gathered at a three-day symposium last week in Xiamen, an island city in east China's Fujian province, to study the feasibility of building a third road link between the island and the mainland. However, no consensus was reached on whether the link should be a bridge, a causeway or a tunnel. The symposium was organized by China International Engineering Consulting Company at the request of the State Development Planning Commission.

The proposed third link would begin at Wutong in the northeast of Xiamen and end at Liuwudian in Tong'an District on the mainland after traversing a tiny bay. It would shorten by 15 km the route from Xiamen City to cities including Fuzhou, the provincial capital and would significantly promote economic development in eastern Xiamen. The island, with an area of 132.5 square kilometres, is currently connected to the mainland by two bridges.

Spain. The ministry of environment has agreed to deliver the environmental impact statement for the construction of the 85 km Ourense-Santiago high speed rail section in Galicia. This section will require 16 tunnels. Read E-News Weekly 1/2002.

Spain. The ministry of environment has given its approval to the environment impact study for the Segarra-Garrigues canal in Lleida province (Catalonia), thus allowing its construction. This 85 km infrastructure will include six tunnels.

United States. The Delaware River and Bay Authority might study again the possibility of building a tunnel linking New Jersey and Delaware. The high cost always killed the project. A tunnel was proposed several times in the past by New Jersey, but this time the initiative is coming from Delaware. Senator George Bunting plans to ask the Delaware River and

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Bay Authority or the state of Delaware to conduct another study. The last study, in 1980, said it would cost between \$1 billion and \$1.3 billion if it were built in 1990. The cost would be considerably higher today. A new crossing, if it were ever constructed, would likely be somewhere between the Delaware Memorial Bridge and the mouth of the bay. One possibility is from Bridgeton to Dover. Visit www.drba.net



United States. Sound Transit, the Seattle transport authority, considers to bring light rail to the University District and Northgate. Under the routes being studied, the line would be tunnelled at least as far north as Ravenna Boulevard. The route has yet to be chosen and the agency hopes to start construction as early as 2006 and finish by 2012. The need is for a four-mile (6.45 km) tunnel. One option is a cut-and-cover tunnel beneath Eastlake Avenue East, which would serve the city's biotechnology district as well as the redevelopment by Paul Allen's Vulcan Inc. Another is a bored tunnel with stops near Seattle University and in the heart of Capitol Hill, to reach densely populated neighbourhoods. The board is scheduled to choose a preferred route in July.

Current plans are to start work on a \$2.5 billion, 14-mile (22.5 km) initial segment from downtown Seattle to Tukwila later this year provided the project receives a \$500 million Federal Transit Administration (FTA) grant. That line would be the easy part as it requires only a one-mile (1.6 km) tunnel through Beacon Hill. A tunnel to the University District would cost at least \$2.5 billion and a Northgate line an additional \$1 billion. Visit www.soundtransit.org

Picture 2: Proposed routes for the Seattle light rail to the University District.

United States. The Miami River Commission has proposed that two tunnels be built under the 5.5-mile (8.8 km) waterway that stretches from Biscayne Bay to Miami International Airport. The commission is recommending that tunnels replace the existing bridges at Northwest 12th and 27th avenues. Tunnels would improve vehicle and vessel traffic flows and encourage real estate redevelopment for about the same cost during the lifespan of both passageways. A study carried out by Weisskoff and Fauth has determined that the bridges at 12th and 27th avenues open 31 times a day total, interrupting street traffic for about 2 ½ hours everyday. A combined 77,000 vehicles use both bridges daily. The Florida Department of Transportation has plans to replace the 12th Avenue bridge within the next five years but does not have plans to replace the bridge on 27th Avenue. There are also plans for a Port of Miami tunnel and the idea of a downtown Miami tunnel promoted by city officials.

United States. Plans to build a joint Dearborn/Detroit tunnel to keep sewer overflow out of the Rouge River have collapsed after Dearborn decided not to partner with Detroit on the project. The decision

means the two cities will have to pay \$100 million more to build separate tunnels, and more sewer water will pour into the Rouge River each year. The cities have no choice but to build the tunnels, which are required by the Michigan Department of Environmental Quality to meet federal regulations for controlling pollution.

Detroit will spend \$500 million to \$600 million to build its own tunnel, about \$85 million more than a joint tunnel would have cost. About 17% of that will be evenly distributed among 70 suburban communities, including Dearborn, that buy sewer service from Detroit. Detroit will build a 7 ½ mile (12 km) tunnel to follow the Rouge River from Pembroke to Warren. The Detroit tunnel has not been designed yet, but must be built by 2007.

Dearborn will pay about \$211 million to build its tunnel, about \$15 million more than a joint tunnel would cost. Dearborn's tunnel will be 5.6 miles long (9 km), and 15 to 17 feet wide (4.6 to 5.2 m). It will be constructed underground in soft clay, and follow the south branch of the Rouge River from Silvery Lane to Greenfield Avenue.

World Digest of Bids

Finland. Helsingin Energia has invited tenders for a 4 km-long 30 sq m district heating tunnel to be blasted in solid rock between Kamppi, Erottaja and Kruunuhaka in Helsinki. Construction will take place between May 2003 and December 2005. Contact Helsingin Energia, Mr. Markku Vetterranta, fax +358 96172360. Read E-News Weekly # 50/2002.

France. Preinformation notice for construction of the La Parette cut-and-cover tunnel on the L2 west expressway in Marseille including a 536 m dual four-lane section, a 235 m three-lane section and a 214 m dual two-lane section. Cost ranging from €40 to €50 million. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=045765-2003>, OJ S 53, or contact DDE des Bouches-du-Rhône, fax +33 491500954.

France. Open invitation to tender, deadline 29th April, 2003 for fire tests in the Foix tunnel in southwest France. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=047914-2003>, OJ S 55, or contact DDE de l'Ariège, Foix, fax +33 561024747.

World Digest of Ongoing Tunnelling

Colombia. The first stage of the Paseo Río Salitre sewage scheme has been inaugurated in Bogota at the end of February by Empresa de Acueducto y Alcantarillado de Bogotá (EAAB). Its design and construction lasted four years for a cost of Ps235 billion. This is a 37 km east-west infrastructure. An 11 km-long 14 m-deep tunnel has been bored to cross Suba. Visit www.eaab.com.co

Spain. The green light has been given by the government authorities in Soria to Obras Subterráneas and Teconsa to start the first blasts to drill the Piqueras tunnel. It is estimated that 300,000 kg of dynamite will be needed on the drive on the Soria side, which is 65% of the total required quantity. Visit www.tunnelbuilder.com, es/91.



Venezuela. Construction of the Caracas-Cúa railway has resumed after a 4-week stop due to the shortage of financing. Out of the \$400 million planned this year for the job, only \$80 million is secured. One shift instead of two is back at work. The La Rinconada tunnel is 7% complete and the Las Mayas tunnel is 2% complete. Building of this line by consortium Contuy Medio started in 2000. Read E-News Weekly # 4, 39 & 49.

Picture 3: Work has resumed on the Caracas-Cúa railway.

World Digest of Inaugurations

Italy. The first section of the new Val d'Ega road in Trentino-South Tyrol province has been inaugurated on 7th March, 2003 by province governor Luis Durnwalder and public works adviser Florian Mussner. The new road section consists mainly of the 1,143m Cornedo tunnel, northwest of Cardano. Breakthrough by contractor Condotte d'Acqua took place in February 2002.



Picture 4: Trentino-South Tyrol officials Durnwalder and Mussner cutting the ribbon of the Cornedo tunnel.

World Digest of Tunnel Renovation & Maintenance

France. Open invitation to tender, deadline 5th May, 2003 for rehabilitation of the 1,510 m RAPP main sewer in the 7th district of Paris. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=047551-2003>, OJ S 55, or contact City of Paris, fax +33 142768710.

France. Two preinformation notices published for rehabilitation of main sewers in the Marcadet-Poissonniers area in the 18th district of Paris, length 8.2 km with variable sections ranging from 1.05 x 2 m to 2.6 x 2.8 m. First notice is for rehab works and second for assistance to work control. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=048551-2003> and <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=048871-2003>, OJ S 56, or contact City of Paris, fax +33 142768710.

France. Two preinformation notices published for rehabilitation of the south branch of the Sebastopol main sewer, 340 m-long 5 to 6 m-high and 4 to 5 m-wide in the 4th district of Paris. First notice is for rehab works and second is for assistance to work control. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=048554-2003> and <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=048869-2003>, OJ S 56, or contact City of Paris, fax +33 142768710.

France. Two preinformation notices published for rehabilitation of the Orsay-Université main sewers in the 7th district of Paris, length 3.3 km with variable sections ranging from 1.05 x 2 m to 2.6 x 2.8 m and from 2.55 x 2 m to 3.4 x 4 m. First notice is for rehab works and second for assistance to work control. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=048555-2003> and <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=048870-2003>, OJ S 56, or contact City of Paris, fax +33 142768710.

Romania. Open tender, deadline 8th May, 2003 for rehabilitation of Pajura metro station in Bucharest. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=045391-2003>, OJ S 53, or contact Metrorex, 38 Dinicu Golescu Blvd., 9th floor, Room 16, Sector 1, Bucharest. Fax +40 213125149.

Romania. Open tender, deadline 7th May, 2003 for consolidation works in tunnels of the Bucharest metro from Nicolae Grigorescu to Linia de Centura. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=045392-2003>, OJ S 53, or contact Metrorex, 38 Dinicu Golescu Blvd., 9th floor, Room 16, Sector 1, Bucharest. Fax +40 213125149.