



Picture 1: Pieces of the Robbins/Mitsubishi TBMs loaded onto lorries in Malaga harbour.

## Spain

### Robbins TBMs for Abdalajis Tunnels Arrive in Malaga

The 23 heaviest pieces, totalling a weight of 1,223 tonnes, of the two Robbins/Mitsubishi TBMs transported by ship from the port of Gijón in northern Spain arrived in Malaga in southern Spain on 21<sup>st</sup> July to be hauled to the Abdalajis Valley on four trucks.

Another 160 trucks transported by road the smaller parts. Two months will be needed to assemble the two TBMs, each having a weight of 1,500 tonnes. They costed €18 million each.

The two machines, built in Duro Felguera's plant in Gijón, will excavate a pair of 7.5 km railway tunnels on the Cordoba-Malaga high speed rail line. Visit [www.tunnelbuilder.com](http://www.tunnelbuilder.com), es/41.

## World Digest of Tunnels Under Planning

**Australia.** The federal transport minister, John Anderson, released details of the long-awaited study into the proposed motorway link between Sydney's developing orbital road and the Newcastle freeway, revealing it will cost between A\$1.5 and A\$2.2 billion. The preferred route was due to be established by last November but extensive public consultation has delayed the project. There are four possible routes still on the table. The preferred route is not expected to be chosen until the end of the year, after a further round of community consultation ending on 12<sup>th</sup> September. The study abandons two other corridors, one which would have joined the Newcastle freeway north of Hornsby, and another that would have joined the freeway north of the Hawkesbury River, requiring a new crossing. All four options to provide a freeway-standard highway through Sydney rely on tunnelling under the heavily populated area. While all four options rely on between 5.5 and 8 km of tunnels, each could mean the acquisition of between 20 and 130 residential properties, particularly at the start and finish of the routes. The report expects the link could be built by 2011, after the M7 - the new name for the Western Sydney Orbital, due in 2006 - is finished. Visit [www.tunnelbuilder.com](http://www.tunnelbuilder.com), au/13.

**Australia.** The New South Wales Roads and Traffic Authority (RTA) is expected to call for expressions of interest to build the A\$1 billion M4 East extension in mid-2004, with completion anticipated in 2007. The project is to link the M4 tollroad to the Citywest link in Haberfield, although details of the route and length of any proposed tunnel have yet to be finalised.

An options paper detailing the various routes of the missing link is likely to be released over the next few months. The M4 East project is expected to have a two- to three-year construction time.

**France.** A 900 m one-way cut-and-cover tunnel will be built in Marseilles north to south to connect the La Major tunnel with the Vieux-Port tunnel. The draft design will start in early 2004 to be finalised in the second half of 2005. Tenders for construction will be invited in end-2005 for work start in mid-2006. Heavy goods vehicles will not be allowed.

## tunnelbuilder

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**Italy.** ANAS, the national road administration, has given its go-ahead for the preliminary studies of the 17 km Fortorina bypass in Benevento province from the Pietrelcina junction to San Marco dei Cavoti interchange. This €197.8 million project is for a two-way 6.5 m-wide dual-lane carriageway including six tunnels.

**Italy.** The €15.4 million project for the Santa Cristina bypass in Val Gardena, Bolzano province in south Tyrol has been officially presented by the JV of consulting engineers ILF, Eut and TAE Consulting. Two tunnels are planned, the Mount Pana tunnel (434 m) and the Saslong tunnel (235 m). Construction will start in April 2006. Read E-News Weekly 26/2003.

Picture 2: Artist's impression of the Santa Cristina bypass.



**Russia.** Construction of road tunnel is expected to commence in St. Petersburg in 2005. The 2 km-long tunnel will link the Admiralteysky district and Vassilyevsky Island. Construction will last three years and cost about 9 billion rubles. The construction will be financed entirely on the city federal budget.

**United States.** A special tax district downtown Austin could cover the costs to finally build the Waller Creek tunnel according to a financial study conducted by Austin engineering firm Kellogg Brown and Root Inc. It still must find a partner that will lend it about \$15 million so construction can start. The study simply confirms that the city and its partner likely would be able to pay off any debt incurred. Travis County is thought by city officials to be the most logical partner for the project. The city has three different cost estimates for the tunnel, depending on which design it chooses. Costs right now range between \$49.6 million and \$68.3 million. The city now has \$25.9 million earmarked for the project. Read E-News Weekly 20/2003.

## World Digest of Bids

**Bulgaria.** Tender notice, deadline 1<sup>st</sup> September, 2003 for supervision of construction of a 275 m tunnel parallel to the existing southbound tunnel on the dual two-lane carriageway on the Dupnitsa bypass. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=129312-2003>, OJ S 143, or contact Ministry of regional development and public works, Sofia, fax +359 29870737. E-mail [mgeorgieva@mrrb.government.bg](mailto:mgeorgieva@mrrb.government.bg)

**France.** Open call for bids, deadline 24<sup>th</sup> September, 2003 for construction of the 232 m-long 11.3 m-wide dual-lane Butte d'Osse tunnel in Pyrenees on road RN 134 to the Somport tunnel. Out of this length 39 m and 44 m will be built in cut-and-cover at each end. Drill/blast with rockbolts and shotcrete on 119 m and HEB steel arches and shotcrete on 30 m at each end. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=130683-2003>, OJ S 144, or contact DDE des Pyrénées-Atlantiques, Pau, fax +33 559808609. Read E-News Weekly 17/2003.

**France.** Restricted call for bids, deadline 1<sup>st</sup> September, 2003 for studies and construction of sewers in the city centre, using TBM, microtunnelling or other method. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=119996-2003>, OJ S 133, or contact City of Saint-Etienne, tel. +33 477487801. E-mail [commandepublique@mairie-st-etienne.fr](mailto:commandepublique@mairie-st-etienne.fr)

**Spain.** Open call for bids, deadline 9<sup>th</sup> October, 2003 for design of the A Zapateria-motorway A-6 section in La Coruña province including 4 cut-and-cover tunnels totalling 800 m. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=132014-2003>, OJ S 145, or contact Ministry of development, Madrid, fax +34 915978537 or 8470 or 8588. E-mail [flmenchero@mfomes](mailto:flmenchero@mfomes) and [plicas-carreteras@mfom.es](mailto:plicas-carreteras@mfom.es)

**Spain.** Open call for bids, deadline 30<sup>th</sup> September, 2003 for design of the Nueno-Congosto de Isuela

section on the Huesca-Pamplona highway, including two tunnels (155 m and 425 m). Tender value €626,000. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=130147-2003>, OJ S 143, or contact Ministry of development, Madrid, fax +34 915978537. E-mail [flmenchero@mfom.es](mailto:flmenchero@mfom.es)

## World Digest of Contract Awards

**Italy.** The renovation of the 4,384 m Belbo rail tunnel in Liguria has been commissioned to Luigi Notari SpA for €4.5 million. Read E-News Weekly 10/2003.

**Portugal.** A JV between Somague Engenharia, Construtora do Tâmega, and Tecnorocha will build the 1,442 m-long west access to Funchal, Madeira's capital, including a 117 m tunnel for €21 million. Read E-News Weekly 9/2003.

**Spain.** GPO Ingeniería has won a €645,250 contract to design the Palamos-Palafrugell section for the dualling of road C-31, including a 1 km tunnel in Montras.

**Sweden.** PEAB will build a 600 m cut-and-cover tunnel on road 48, section Borgunada-Skövde. Read E-News Weekly 9/2002. Visit [www.peab.se](http://www.peab.se)

## World Digest of Ongoing Tunnelling

**Greece.** Attiko Metro construction workers dug through to Aghios Antonios in western Athens on 4<sup>th</sup> July — the intended site of the first station on metro Line 2 extension westward from Sepolia, which is scheduled to be operational before next year's Olympic Games. The 2.8 km extension will eventually comprise three new stations at Aghios Antonios, Peristeri and Thivon Avenue. The station at Aghios Antonios is due to open by June 2004 and is expected to serve around 55,000 commuters travelling between western Athens and Olympic venues across Attica. The next two stations along the extension are expected to be ready in 2007. Visit [www.ametro.gr](http://www.ametro.gr)

**Ireland.** Tunnelling work on contract 3.1 on the 2.5 km Dock Road sewer tunnel in Limerick has been completed when it broke through at Howley's Quay. The tunnel is a central element of the Limerick main drainage scheme. The contractor J. Murphy & Sons used a Lovat TBM to drive this 2.82 m ID segmentally lined tunnel from Corcanree Business Park to Harvey's Quay in the city centre. Thirteen segmentally lined shafts sunk to depths of 15 m provide both access and connection points for existing sewers. The connections involve the driving of approximately 130 m of spur tunnels. The machine was designed to deal with both hard rock and soft materials in varying ground conditions, approximately one third of limestone bedrock and the overlying soft deposits and two thirds wholly in the limestone bedrock. The machine was equipped with 22 14" disc cutters which could be changed for ripper teeth when required.

In general, the shafts have been sunk as caissons through the overlying alluvium and glacial deposits and then founded into the bedrock. Excavation has then continued by drill/blast techniques and underpinning of the segmental rings. Ground treatment and jet grouted piles were used in sinking the drive shaft due to the depth of the overlying soft strata and high ground water pressure. Visit [www.lmdpo.com](http://www.lmdpo.com), [www.murphygroup.co.uk/pdf/Tunnelling/LimerickMainDrainage.pdf](http://www.murphygroup.co.uk/pdf/Tunnelling/LimerickMainDrainage.pdf) and [www.lovat.com](http://www.lovat.com)



**Italy.** The Cadine bypass in Trento province, south Tyrol comprises two sections. The first section Sopramonte-Trento comprises two separate carriageways connecting with Trento-bound and Riva del Garda-bound trunk road SS45 bis, including a 320 m-long dual tunnel. The tunnel on the Trento-

Picture 3: Breakthrough of the Cadine tunnel.

bound road broke through on 25<sup>th</sup> July. The contractor Collini SpA used the drill/blast method. The 1.1 km second section Sopramonte-Cadine comprises two parallel carriageways with a twin cut-and-cover, 630 m in length. Read E-News 44/2002 & 15/2002.

**Italy.** Pietro Lunardi, the minister for transport and infrastructure, has launched the construction of the 1,130 m-long Vado tunnel on 24<sup>th</sup> July. This twin tunnel, together with the 1.7 km Alloco tunnel, is for contract 3 awarded to Toto Costruzioni and Carena. It is located on the 59 km Sasso Marconi-Barberino del Mugello section of motorway A1 linking Bologna to Florence. Lunardi also visited the 2.2 km 13.5 m-wide Monte Mario tunnel on contract 2 built by Grassetto Costruzioni. One kilometre has already been excavated.

The project includes 28.6 km of tunnels, the longest of which is the recently awarded 8.6 km base tunnel on a new 32.5 km motorway portion to bypass the Citerna Pass between La Quercia and Aglio. Visit [www.tunnelbuilder.com](http://www.tunnelbuilder.com), it/21.



Picture 4: Portals of the Vado tunnel on the Sasso Marconi-Barberino del Mugello section of motorway A1.

**Switzerland.** The Laives tunnel on the Moutier north-Moutier south section of the Transjurane N16 highway broke through on 28<sup>th</sup> July. It is a 225.7 m-long 13m-wide tunnel to access to the highway. Construction was difficult and is behind schedule due to a cave-in during which a 30 m-deep shaft appeared. Opening is programmed for February 2005. Read E-News Weekly 35/2002. Visit [www.jura.ch/services/pch/rn/roches\\_court/tunnel\\_aux\\_laives.htm](http://www.jura.ch/services/pch/rn/roches_court/tunnel_aux_laives.htm)

## World Digest of Inaugurations

**Italy.** The Colle Giardino tunnel on trunk road SS 4 in Rieti province, Latium has been inaugurated on 25<sup>th</sup> July by Pietro Lunardi, minister for infrastructure and transport. This 8 m-wide double-tube tunnel, 4,347 m and 4,242 m in length, was first proposed in 1988. The two bores are cross-connected by ten galleries. It is located on a 5.5 km bypass connecting SS 79 Ternana with Via Salaria in San Benedetto, west of Rieti and has been built by Todini, Asfalti Sintex and Gemmo Impianti for an overall cost of €71.4 million.

## World Digest of Tunnel Renovation & Maintenance

**Hungary.** Invitation to prequalify, deadline 2<sup>nd</sup> September, 2003 for rehabilitation of metro line 2 in Budapest. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=129331-2003>, OJ S 143, or contact Metrőber Kft, Budapest, fax +36 12108882.

**France.** Safety work is needed in the 750 m Condamine tunnel on local road RD 2204B in Alpes-Maritimes to comply with the new safety regulations. Tenders for engineering are being assessed for lot 2 (ventilation) and lot 3 (safety equipment). Read E-News Weekly 12/2002.

**Germany.** Open call for bids, deadline 29<sup>th</sup> August, 2003 for renovation of the Harras tunnel. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=129764-2003>, OJ S 143, or contact Regio Infra Service Sachsen, Chemnitz, fax +49 3712361412. E-mail [info@infra-service-sachsen.de](mailto:info@infra-service-sachsen.de)