

Technical Sessions-at-a-Glance: Monday 25 April – Afternoon

		ROOM 130	ROOM 131	ROOM 132	ROOM 133	ROOM 121/122
		Safety in Design and Construction	SEM and Caverns	Underground Support - Controlling the Ground	Tunneling Advances through Innovation I	Case Histories and Difficult Ground
		Brian Fulcher, Kenny Construction Roland Leucker, ITA COSUF Chair, Germany	Vojtech Gall, Gall Zeidler Consultants Michael Cash, Tutor Perini Corp	Gregg Davidson, McMillen Jacobs Associates Martin Knights, ITA Past President, UK	Jack Brockway, Herrenknecht Tunnelling Lars Babendererde, ITA WG14 Amateur, Germany	Red Robinson, Shannon & Wilson Ross Dimmock, ITAtech Lining & waterproofing leader, UK
MONDAY 25 APRIL	14:00	Detailed Fire Safety Design of Subways for Arson - Initiated Design Fires - Innovation, Coordination, Implementation B. Bassi, M. Deevy, J. Fletcher, M. Morgan, N. Nayan and S. Upadhy, CH2M Inc	Recent Trends in Conventional Tunneling (SEM/NATM) in the US N. Munfah, HNTB Corporation and V. Gall and S. Matthei, Gall Zeidler Consultants	Tunnel Information Modelling in Most Recent Form - Applying BIM Technologies and Procedures in Tunnelling Environment M. Žibert, Elea iC Pty Ltd; S. Keniston, Skarpa Pty Ltd and J. Karlovšek, University of Queensland	Technical Approach to Lining Design for Internal Pressure and Fault Offsets on the JWPCP Effluent Outfall Tunnel J. Van Greunen, Y. Sun, G. Hughes, and R. Mikola, McMillen Jacobs Associates; J. Y. Kaneshiro, Parsons Corp and D. Haug and M. Vanderzee, Sanitation Districts of Los Angeles County	"They Want to Dig a 100 Foot Hole in Front of My House for Two Years!" Community Mitigation and Outreach for DC Water's First Street Tunnel W. P. Levy and C. M. Ray, District of Columbia Water and Sewer Authority; T. Lindberg, McKissack & McKissack and J. Carl, Greeley and Hansen
	14:20	A Comparison Among Different Techniques of the Fire Protection in the Field of Road Tunnels T. Elsamni, T. Takimoto and T. Otsuka, Nippon Civic Consulting Engineers Co and A. Bou-Krishna, National Authority for Tunnels	Design and Engineering During the Construction of Los Leones Station (Line 6, Santiago Subway, Chile) B. Celada, Geocontrol and J. Adasme and H. González, Metro	Centrifuge Modelling of Tunneling-induced Settlement Damage to 3D-printed Surface Structures S. Ritter, G. Giardina, M.J. DeJong and R.J. Mair, University of Cambridge	Synthetic-Fiber-Reinforced Concrete Segmental Lining-Laboratory and Field Testing Program and Results D. C. Wotring and M.G. Vitale, Mott MacDonald, LLC and D. A. Gabriel, Northeast Ohio Regional Sewer District	Tunnelling Under the Fraser River at 6 Bar-Design and Construction of the Port Mann Main Water Supply Tunnel S. Robillard, McMillen Jacobs Associates; S. Skelhorn, McNally Construction Inc; T. Langmaid, Mott MacDonald and A. Mitchell, Metro Vancouver
	14:40	Mechanical Ventilation of Underground Construction Works in France C. Norris, Cogemacoustic; A. Mercusot, CETU and P. Oriez	Upgrading of City of Genoa railway Junction Under-crossing with Shallow Distance of Existing Tunnels in Urban Environment A. Pigorini, E. Pedone, N. Beltrandi and H. Mohamed Dahir, Italfer S.p.A.	Design Diagrams for Estimating Tunnel Face Stand-Up Time in Water-Bearing Ground R. Schuerch, R. Poggiati and G. Anagnostou, ETH Zurich	Adaption of Protective Linings for Sewer Tunnels to Project Needs J. Riechers, Herrenknecht Formwork Technology GmbH; A. Lueghamer, AGRU Kunststofftechnik GmbH and G. Recher, Telene SAS	Pressurized Face Tunneling under Very High Groundwater Heads S. W. Hunt, CH2M
	15:00	Ventilation and Safety of Long and Deep Tunnels - State of the Art and New Perspectives M. Bettelini and S. Rigert, Amberg Engineering Ltd.	The Norsborg Metro Depot - Case Study of a Modern Urban Development in Stockholm H. Hogard and J. Alsen, Skanska Sweden AB	Investigations in the Field of Long-term Stability of Tunnel Constructions - Focusing on Deterioration of the Support Elements and Resulting Load Distribution Mechanisms S. Lorenz and R. Galler, Montanuniversität Leoben	Monitoring Mechanisms of Tunnel Lining Settlement Using Instrumented Bolts and Conventional Survey Method - Assessing Neutral Axis of Longitudinal Flexure M. Wilcock and K. Soga, University of Cambridge and P. Wright, CH2M	Reliability of Swelling Pressure Testing for Tunnel Support Evaluation B. Nilsen, Norwegian University of Science and Technology (NTNU)
	15:20	Swiss Quartz Dust Guideline - A Tool for Managing the Health Risk Related to Quartz Dust in Early Project Stages M. Neuschwander, Neuschwander Consulting Engineers; J. Singer and Ö. Ündül, Swiss Federal Institute of Technology; A. Theiler, Lombardi Consulting Engineers Ltd.; M. Weh, Marti Contractors and M. Vogel, P. Stehle and D. Martini, Swiss National Accident Insurance Fund	An Innovative Method of Large Space Underground Construction in Soft and Shallow Ground Using Concrete Arch Pre-supporting System, CAPS Method M. Hossein Sadaghiani, Sharif University of Technology	ACI Guideline on Design and Construction of Precast Concrete Tunnel Segmental Lining M. Bakhshi and V. Nasri, AECOM	High Performance Ground Prediction Ahead of TBMs - The NeTTUN System "TULIPS" T. Camus, NFM Technologies	Evaluation of Ground Improving Measures to Prevent TBM Jamming in Squeezing Ground R. Hasanpour, University of Applied Sciences; J. Rostami, Pennsylvania State University and J. Schmitt, University of Applied Sciences
	16:10	Experimental Quantification of Tunnel Fire Heat Flux T. Gibson, The University of Queensland and Arup Group Limited; T. Shaw, The University of Queensland and GHD and J. Karlovsek, R. Emberley and J. L. Torero, The University of Queensland	Construction of Expressway Branch Junction Structure Using Non-cut-and-cover Enlargement Method to Combine Two Shield Tunnels in Sedimentary Soft Rock K. Namikawa and Y. Terashima, Metropolitan Expressway Company Limited; T. Inoue, Hazama Ando Corporation; J. Koseki and Y. Miyashita, The University of Tokyo and M. Matsumoto, Nom Company Limited	Concurrent Segment Lining and TBM design: A Coordinated Approach for Tunneling Success E. Comis, The Robbins Company and M. Younis and R. Goodfellow, Aldea Services LLC	The Lee Tunnel Beckton London: An Innovative Use of FRC from Design to Construction Phase B. de Rivaz and J. Greenhalgh, Bekaert Maccaferri Underground Solutions	Construction Progress of the Ottawa LRT Line From Early Design Stages to Current Construction Milestones F. Wilhelmstoeffer and C. Karner, Dr. Sauer & Partners
	16:30	Ventilation Challenges During Construction of Emergency Galleries - Austria's Longest Road Tunnel (14km) Receives a Significant Renovation R. Antretter, BeMo Tunnelling	Technologies on SEM Tunneling in Hazardous Material-bearing Soft Rock with Small Overburden T. Kudo, City of Sapporo and A. Ishikuro, M. Shintaku and F. Kusumoto, Shimizu Corporation	Fire Design for the Concrete Lining of the Ohio River Bridges East End Crossing Tunnel W. Chen, Jacobs Engineering	Tunneling Under the Norris Cut Channel - World Firsts to Overcome the Adverse Ground of Miami B. Theron, Bessac and B. Caro Vargas, Nicholson Construction	Comparison Between Sprayed and Cast In Situ Concrete Secondary Linings at Bond Street and Farringdon Stations E. Baty, N. Bond, E. Kentish, A. Skarda and S. Webber, BAM Ferrovial Kier JV
	16:50	Economical Approach to Engineering Fire Durability of Structures T. Moon, S. Cassidy, J. Liu, S. Zlatanic and C. Devery, HNTB Corp	The Effect of Excavation Progress on the Behavior of Hakim Highway Tunnel Using Geotechnical Instrumentation M. Sadeghi and S. Mahdi Pourhashemi, Engineering and Development Organization of Tehran Municipality and A. Naghi Dehghan and K. Ahangari, Islamic Azad University	Performance of Macro Synthetic Fiber Reinforced Tunnel Lining A. Nitschke, Shannon & Wilson, Inc and R. Winterberg, EPC Elasto Plastic Concrete	Unique Characteristics for the Design and Construction of the New Twin Tunnel "Caltanissetta" on Highway 640 in Sicily, Italy. Practical Experience in Using 15.08 m. (50 feet) Diameter E.P.B. Machine G. Luca Menchini, P. Francesco Paglini and P. Francesco Boschi, Cooperativa Muratori & Cementisti C.M.C. di Ravenna Società Cooperativa	Pipeline Tunneling by Connecting Conventional and TBM Methods under High Groundwater Pressure K. Jimbo, INPEX Corporation and J. Mitsui, K. Toya, M. Matsumoto, T. Tsuji, and T. Shibata, Obayashi Corporation
	17:10	Sprayed Concrete Lining Falls and Exclusion Zone Management M. King, Crossrail/CH2MHill; A. St. John, Kier Infrastructure (part of BFK Joint Venture); D. Brown, Morgan Sindall (part of BBMV Joint Venture) and J. Comins, Dragados-Sisk Joint Venture	The Hirschhagen Highway Tunnel (BAB 44) in Germany: Pre-Support in Extremely Difficult and Inhomogeneous Ground Conditions G. M. Volkmann, DSI - DYWIDAG-Systems International GmbH	Utilizing Composite Action to Achieve Lining Thickness Efficiency for Sprayed Concrete Lined (SCL) Tunnels J. Su and A. Bloodworth, University of Southampton	Istanbul Strait Road Tube Crossing: Challenges, Risks and Mitigation Strategies N. Munfah, HNTB Corp; G. Clark, WSP/Parsons Brinckerhoff; B. Arioglu, Yapi Merkezi Construction Inc; S. Zlatanic, HNTB Corp and T. Togan, WSP/Parsons Brinckerhoff	Tunnel Excavation Solution in Highly Tectonized Zones - Excavation Through the Contact Between Two Continental Plates F. Stefano, Tunnelconsult SL (Formerly SWS Engineering SpA, Trento, Italy); Z. Raffaele and M. David, Brenner Base Tunnel and P. Andrea, Italfer SPA

Technical Sessions-at-a-Glance: Tuesday 26 April – Afternoon

		ROOM 130	ROOM 131	ROOM 132	ROOM 133	ROOM 121/122
		Instrumentation and Monitoring	Complex Projects in Rock and Related Technology I	Tunnel Interactions with Ground and Structures	Soft Ground TBMs & Microtunneling	Tunneling Advances through Innovation II
		<i>Allen Marr, Geocomp Corp and Olivier Schneider, ITATech Sub AG remote Measurement leader, Switzerland</i>	<i>Matt Swinton, Kiewit Infrastructure Co Dr Singh, President TAI, India</i>	<i>Matt Fowler, WSP/Parsons Brinckerhoff Eivind Grov, ITA WG 12 Animateur, Norway</i>	<i>Lester Bradshaw, Bradshaw Construction Corp Alan Howard, Brierley Associates</i>	<i>Matt Preedy, Sound Transit Gerard Seingre, ITA WG17 Animateur, Switzerland</i>
TUESDAY 26 APRIL	14:00	<p>Redefining Settlement Control Industry Standards with Modern Mechanized EPB Tunnelling: Eglinton Crosstown LRT Tunnel Case Study <i>A. Solecki and A. Taghavi, Mott MacDonald and I. Hassan, Metrolinx</i></p>	<p>Chicago TARP McCook Main Tunnel - World's Largest Live Tunnel Connection is Underway at Chicago's Tunnel and Reservoir Plan (TARP) <i>F. Oksuz and M. Sanchez, Black & Veatch; M. Padilla and D. Schiemann, U.S. Army Corps of Engineers, Chicago District; C. Scalise, Metropolitan Water Reclamation District of Greater Chicago and M. Trotter, Kiewit Infrastructure Company</i></p>	<p>Evaluation and Construction Impact of a Deep Excavation for the 73-story Wilshire Grand Tower on the Existing Metro Red Line Tunnels in Downtown Los Angeles <i>J. Yao and M. R. Crow, Los Angeles County Metropolitan Transportation Authority; Y. Sun, J. T. Waggoner, and R. Geraili Mikola, McMillen Jacobs Associates and M. B. Hudson, Amec Foster Wheeler</i></p>	<p>Pipe Jacking Big Time! <i>K. Rieker, Wayss & Freytag Ingenieurbau AG</i></p>	<p>The Widening of the "Montedomini" A14 Motorway Tunnel in the Presence of Traffic <i>G. Lunardi, S. Agresti, D. Basta, Rocksoil S.p.A. and R. Trapasso, Ghella S.p.A.</i></p>
	14:20	<p>Observed Loading Behavior During Cross Passage Construction - Brisbane Airport Link Project <i>J. Kuyt and M. Mooney, Colorado School of Mines; M. Mangione, Arup and Z. Li, Colorado School of Mines</i></p>	<p>A Novel Continuous Conveyor System and Its Role in Record-Setting Rates at the Indianapolis Deep Rock Tunnel Connector <i>D. Workman, The Robbins Company and D. Martz and S. Lipofsky, J.F. Shea</i></p>	<p>Effects of Tunnel Excavation on Historical Buildings by a Fully Coupled Soil-structure Interaction 3D Analysis - A Case Study from Copenhagen "Cityringen" Metro Line <i>A. Damiani, L. Alfieri and S. Cavagnet, Lombardi Ingegneria Srl and S. Notarianni and G. Fantauzzi, Copenhagen Metro Team</i></p>	<p>Pushing the Limits of Slurry Microtunneling and Direct Pipe in North America <i>G. Lang, Herrenknecht AG</i></p>	<p>New Mapping Technologies for Tunnel Inspections <i>B. Spoerl, Dibat Measuring Technique USA and C. Loughton, ILF Consultants</i></p>
	14:40	<p>Evaluation of Settlement Monitoring Over 6.75 Miles of Tunneling - Updating Prediction Methods and Designing Better Monitoring Programs <i>L. Salvati, C. LaVassar, and L. Sla, McMillen Jacobs Associates; J. Theodore, Sound Transit and L. Galisson, SolData</i></p>	<p>Avoiding Karst by Getting Under It – Jefferson Barracks Tunnel, St. Louis <i>P. Pride, Metropolitan St. Louis Sewer District and J. Raymer, K. Bettger and B. Haag, Jacobs Engineering</i></p>	<p>Construction of an Underpass Crossing in Proximity of a Railway Track <i>S. Honda, T. Takahashi, and H. Itoi, Tokyo Construction Office; M. Shimizu, East Japan Railway Company and H. Izumi, M. Kurisu and T. Nagao, Tekken Corporation</i></p>	<p>Shallow Microtunneling Below a Critical Runway <i>M. Grzelak and D. Chapman, Lachel & Associates, Inc and G. Erinc, Serka Taahhut İnşaat A.Ş.</i></p>	<p>A Comparison between Monitoring Solutions within SCL Tunnels at Crossrail Farringdon Station <i>P. Salak and A. Gakis, Dr. Sauer & Partners Ltd and A. St. John, Kier Infrastructure, part of BFK Joint Venture</i></p>
	15:00	<p>A Case History: Convergence in a Shear Zone at Devil's Slide <i>J. B. Decker, Kiewit Infrastructure Engineers Co and P. H. Madsen, Kiewit Infrastructure Co</i></p>	<p>Squeezing Ground: Conditions & Lessons Learned at the New Irvington Tunnel <i>A. M. Wirthlin, McMillen Jacobs Associates; R. Fusee, Mott MacDonald; R. Nolting and Y. Sun, McMillen Jacobs Associates and D. Tsztoo, San Francisco Public Utilities Commission</i></p>	<p>Seismic Performance of Wine Caves <i>A. Kositsky and S. Lewis, Condor Earth Technologies, Inc</i></p>	<p>Disaster Averted after TBM/Active Gas Main Collision: Utilizing Captivating Case Histories to Educate Stakeholders with Regards to Tunneling in Urban Environments <i>M. Dix, Orange County Sanitation District; R. Ball, Mott MacDonald and M. Briggs, Brown & Calwell</i></p>	<p>Evaluation of Alternative Techniques for Excavation Damage Characterization <i>J. van Eldert, Luleå University of Technology; H. Iltner, Svensk Kärnbränslehantering (Swedish Nuclear Fuel and waste management) and H. Schunnesson and D. Johansson, Luleå University of Technology</i></p>
	15:20	<p>Sarpolite to Hard Rock and Everything in Between: SEM Tunneling Through Corestone Laden Ground in Hong Kong <i>S. Pollak, H. Lager and F. Vasilikou, Arup USA, Inc and G. Cachia, Vinci Construction Grands Projets</i></p>	<p>Construction of Headrace Tunnel of Uma Oya Water Conveyance Project, Sri Lanka <i>A. Rahbar, Farab Co; J. Rostami, The Pennsylvania State University and M. Rouholamin and A. Mostajer Haghighi, Farab Co</i></p>	<p>Tunnel Deformation Mode and Loading Magnitude During Large Earthquake <i>A. Kusaka, Public Works Research Institute; K. Kawata, Oriental Consultants Co, Ltd. and N. Isago, Public Works Research Institute</i></p>	<p>Mechanized Tunnelling Driving Toronto's Big Move Eglinton-Scarborough Crosstown Tunnel Construction (ECLC1-15)</p>	<p>Non-destructive Approach for Shotcrete Lining Strength Monitoring <i>V. Ahuja and B. Jones, University of Warwick</i></p>
	16:10	<p>Underpinning and Instrumentation – Temporary Structures for Critical Solutions <i>E. Prantil, J. Isaacson, and F. Perrone, Mott MacDonald</i></p>	<p>Evaluation of the Performance of a Raise Boring Machine in Pb - Zn Underground Mine, Balya, Turkey <i>A. Shaterpour Mamaghani, Istanbul Technical University; T. Erdogan, Sargin Construction And Machinery Industry Trade Inc And E. Dogan And N. Bilgin, Eczacibasi Esan</i></p>	<p>Tunnel Deformations Caused by Compensation Grouting at Crossrail Farringdon Station <i>A. Gakis and T. Schwind, Dr. Sauer & Partners Ltd and B. Grau, Technical University of Graz & Dr. Sauer & Partners Ltd</i></p>	<p>Lessons Learned from EPB and Slurry Tunneling in Glacially Deposited Soils in Seattle, Washington, USA <i>S. Konda and G. Nishimura, The Robbins Company</i></p>	<p>Robotic Application of a 50mm Thick Sprayed Concrete Fireproofing Layer <i>E. Batty, E. Kentish, A. Skarda, BA&M Ferrovia Kier JV</i></p>
	16:30	<p>Assessment of Progressive Failure of an Expanded Concrete Segmentally Lined Tube Tunnel <i>P. Wright, CH2M Hill and A. Thomson, Atkins</i></p>	<p>Settlements due to Blasting Vibrations <i>W. Billfinger, Vecttor Projects; M. Waimberg EGT Engenharia and C. Nahas, Engcorp</i></p>	<p>Time Dependent Deformations of Excavations and Tunnels in the Greater Toronto Area <i>A. Cushing and J. Hurt, Arup and J. Carvalho, Golder Associates</i></p>	<p>Crossrail C310 Thames Tunnel – Mixshield TBM Tunneling in Alternating Ground Conditions With Low Overburden <i>A. Rädle, Arup; C. Ashton, McConnell Dowell and T. Aydogmus, Hochtief Engineering GmbH</i></p>	<p>Successful Completion of Major Large-Scale Tunnel Infrastructure Projects in the Southern Hemisphere with XXL Machines <i>K. Bäßler, Herrenknecht AG</i></p>
	16:50	<p>Evaluation of Rock Mass Stiffness Ahead of Tunnel Face by Small Diameter Inclometers <i>T. Tani, K. Sasaki and T. Aoki, Taisei Corporation</i></p>	<p>The Dynamic Response of the Taru-Toge Tunnel During Blasting <i>Ö. Aydan, Univ. of the Ryukyus; H. Tano, Nihon University; M. Imazu, Nuclear Damage Compensation and Decommissioning Facilitation Co; H. Ideura and M. Soya, Shimizu Corporation</i></p>	<p>Istanbul Strait Road Tunnel Project - Seismic Joint and Passive Fire Protection in Double Deck TBM Tunnel <i>J. Kim, D. Lee, M. Öztürk and J. Lee, YMSK Joint Venture and T. Kim and B. Arnoğlu, Yapı Merkezi İnşaat ve Sanayi A.Ş.</i></p>	<p>Tunneling with Full Face Shielded Machines: a Study on the Backfilling of the Tail Void <i>R. Shah and D. Pella, DIATI, Politecnico di Torino and A. Lucarelli, Itasca Consulting Group, Inc</i></p>	<p>An Advanced Shaft Construction Method to Install Ten Ventilation Shafts, as Applied in the Naples Metro Project <i>V. Manassero, Underground Consulting S.A.S; F. Cavuoto, Studio Cavuoto and A. De Risi, Metropolitana di Napoli S.p.A.</i></p>
	17:10	<p>Use of Satellite Radar Interferometry (InSAR) to Monitor Urban Tunneling Projects – Real Case Applications <i>L. Galisson, Soldata, Inc</i></p>	<p>Geotechnical Investigation of a Fault Zone Using a Horizontal Geotechnical Boring <i>G. Sanders, J. G. Shaughnessy and M. Gilbert, CDM Smith</i></p>	<p>Assessing the Interaction between the Excavation of a Large Cavern and Existing Tunnels in the Alps <i>M. Semeraro, E. Misano, M. Schivre and A. Bochon, Systra</i></p>	<p>Properties and Requirements of Two-component Grouts in Mechanized Tunneling <i>B. Youn, C. Schulte-Schrepping and R. Breitenbücher, Ruhr University Bochum</i></p>	<p>Istanbul Strait Road Crossing Tunnel - Project Challenges and TBM Solutions <i>W. Burger, Herrenknecht AG and E. Arioglu, Yapı Merkezi Inc</i></p>

Technical Sessions-at-a-Glance: Wednesday 27 April – Morning

	ROOM 130	ROOM 131	ROOM 132	ROOM 133	ROOM 121/122
	Planning, Finance, and Site Investigations	Risk Management and Contracting Practices	Ground Improvement and Shafts	Soft Ground TBMs - Prediction, Operation, and Analysis	TBM Tunnels and Alternative Approaches
	<i>Erika Moonin, Southern Nevada Water Authority Harvey Parker, ITA Past President, USA</i>	<i>John Reilly, John Reilly Associates Arnold Dix, ITA WG3 Amateur, Australia</i>	<i>Paul Schmall, Moretrench Chungsik Yoo, ITA WG2 Amateur, South Korea</i>	<i>Dennis Ofiara, The Robbins Co Damian Mc Girr, ITA WG 20 Vice Amateur, UK</i>	<i>David Caiden, Arup Elena Chiriotti, ITA WG2 Vice Amateur</i>
8:30	Risky Business: Repackaging a Critical Contract to Move a Program Forward <i>C. Purcell, Mott MacDonald and M. Pujdak, AECOM</i>	Resolving Difficult Public Transportation Tunneling Problems Through the Conduct of Industry Peer Reviews <i>M. P. Schroeder, American Public Transportation Association</i>	Construction of the SR-99 TBM Recovery Shaft <i>J. Starcevic, L. Rasband and R. Hanke, Malcolm Drilling Company Inc</i>	Rheology of Foam-conditioned Sands in EPB Tunneling <i>M. Galli, Ingenieurbüro Dipl.-Ing. H. Vössing GmbH and M. Thewes, Institute for Tunneling and Construction Management</i>	DSU TBM for Vishnugad Pipalkoti - TBM Design Development for Large Diameter Rock Tunnels Under the High Covers of the Himalaya <i>R. Grandori, SELI Overseas Spa</i>
8:50	Advanced Planning for Northeast Ohio Regional Sewer District's Clean Lake Program Yields Cost Savings and Reduces Risks - A Case Study in Balancing Hydraulic Performance and Tunnel Engineering Challenges <i>K. Rotunno and D. Lopata, Northeast Ohio Regional Sewer District; T. O'Rourke and K. Vander Tuig, Wade Trim and D. Dobbels and R. Vincent, McMillen Jacobs Associates</i>	Risk Management in Tunneling: A Review of Current Practices and Needs for Future Development from the Designer's Perspective <i>P. Grasso, M. Pescara and L. Soldo, Geodata Engineering</i>	Inclined Shafts Drilled by a Raise Boring Machine and MGS Magnetic Guidance Equipment – Paratrack II <i>M. Cortinovis and G. Gelmi, Edilmac dei F.lli Maccabelli Srl</i>	A Model to Predict the Performance of EPB-TBMs in a Complex Geology in Istanbul <i>N. Bilgin, Istanbul Technical University; M. Namlı, Medeniyet University and H. Copur, C. Balci, A. Shaterpour Mamaghani, Istanbul Technical University</i>	Comparison of Shear Elements for Cross Passages in TBM-tunnels <i>B. Ring, Mairl Tunnelconsultants</i>
9:10	Procurement, Program Management, Risk, and Financing of Underground Projects: Changing the Paradigm <i>M. Wone, DC Water; D. H. Corkum, McMillen Jacobs Associates; C. M. Ray, DC Water and W. W. Edgerton, McMillen Jacobs Associates</i>	Multiphase Risk Management Method (MRMM) and its Application in Quasi Rectangular Shield Tunnel in China <i>A. Chen and Y. Bai, Tongji University; Y. Zhu and G. Li, Xiangdong, Shanghai Tunnel Engineering Co., Ltd., Hu, Tongji University</i>	Slurry Walls, Tiebacks, and Tiedowns: Maximizing the Efficiency of Underground Station Space <i>J. Parkes and J. Wisniewski, WSP/Parsons Brinckerhoff</i>	Pressure Distribution Along the TBM Body in EPB Tunneling <i>B. Hagan, E. Alavi, G. Frank and M.A. DiPonio, JayDee Contractors, Inc and L. Mori and M. Mooney, Colorado School of Mines</i>	Jinhae Geoje Subsea Tunnel TBM Design and Performance Evaluation <i>D. Young Kim, E. Farrokh, K. Chang Hyun and J. Ho Lee, Hyundai Engineering and Construction</i>
9:30	Istanbul Strait Road Tunnel Project – From Concept to Operation <i>B. Arioglu, Yapi Merkezi; S. Jae Seo, SK&EC and M. Tanriverdi, Yapi Merkezi</i>	Use of Numerical Modelling and GIS to Analyse and Share the Risks Related to Urban Tunneling Greater Paris - Red Line – South Section <i>S. Mahdi and F. Hounmyia, SYSTRA and E. Chiriotti</i>	Ground Treatment for Risk Mitigation during Tunneling at the Port of Miami <i>R. Storry, Dragages Hong Kong Ltd; D. Bruce, Geosystems, L.P and A. Hochart, Bouygues TP</i>	Analysis of Effect of Waterhead on Stability of Excavation Face of Slurry Balanced Shield <i>Z. Yang, Qingdao University of Technology; Q. Liu, West Coast Railway Transportation Co. Ltd and M. Zhang and X. Guan, Qingdao University of Technology</i>	Encapsulated Oil Additive Application in Earth Pressure Balanced (EPB) Tunneling – A Case Study <i>L. Mori, Colorado School of Mines; E. Alavi, JayDee Contractors Inc and C. Baratta, T. Dobbs and B. Sullivan, Solazyme Inc</i>
9:50	Large-scale Renovation Work to Improve Operation in the Tokyo Subway Network Plans to Improve Turn-back Facilities Between Iidabashi Station and Kudanshita Station <i>Y. Arai and A. Numata, Renovation & Construction Department</i>	Risk Management – Correlation and Dependencies for Planning, Design and Construction <i>P. Sander, RiskConsult GmbH; A. Moergeli, Moergeli Consulting, Ilc. and J. Reilly, John Reilly International</i>	Measurement of Grout Injection Pressure in Situ <i>L. Tunbridge, A. Aaset and E. Tannesen, Norwegian Geotechnical Institute</i>	Shield Tunneling in Pure Sands - Merging the Application Fields of EPB and Slurry Shield Technology <i>U. Mairl and M. Comulada, Mairl Tunnelconsultants and A. Mahfuz Monteiro, C. Henrique Turolla Maia and J. Claudio Di Dio Pierri, Constructora Norberto Odebrecht, Brazil</i>	Experimental Study on the Effects of High-concentrated Loads Exerted by TBM Hydraulic Jacks <i>A. Conforti, G. Tiberti and G. Plizzari, University of Brescia and S. Moro, BASF Construction Chemicals Italy</i>
10:40	Comparison Between Bored Tunnel and Immersed Tunnel Options Developed for the Silvertown Tunnel beneath the River Thames <i>J. Baber, Mott MacDonald Ltd; J. Saldanha, Transport for London and A. Evans, Mott MacDonald Ltd</i>	Risk Management of Long and Deep Tunnels The European Experience <i>Y. Boissonnas and M. Bettelini, Amberg Engineering Ltd</i>	Breaking Through: Shaft Design and Construction Considerations from Miami's Norris Cut Project <i>B. Caro Vargas, Nicholson Construction Company and R. Giffen and T. Carroll, Arup</i>	Study of Wear in Conditioned Granular Soil by Using a New Test Device <i>C. Oñate Salazar, D. Martinelli, C. Todaro and D. Peila, DIATI and A. Boscaro, UIT, Mapei SpA</i>	DCCR Case Study on Guidelines for Achieving an Extended Design Life in CSO Projects <i>C. Caruso, Z. Spera and T. Hennings, McMillen Jacobs Associates; J. Kantola, JCK Engineering; R. S. Kinchen, Protecht Consulting and W. Levy and M. Wone, DC Water</i>
11:00	Geotechnical Investigations and Preliminary Design for the LBNF Far Site Conventional Facilities <i>J. Hurt and S. Pollak, Arup; M. Hovekost and J. Schick, McMillen Jacobs Associates and D. Vardiman, Sanford Underground Research Facility</i>	Risk Management for Soft Ground Tunnels in New York <i>A. Thompson and F. Perrone, Mott MacDonald</i>	Ground Freezing to Repair Leaks in a Slurry Wall Shaft <i>S. P. Coughlin, Moretrench American Corporation; J. Leonardo Tello del Pino, Odebrecht Infraestructura and M. A. Schimmenti, Moretrench American Corporation</i>	Earth Pressure Balance TBM Soil Conditioning: It's About the Pressure <i>M. Mooney, Y. Wu, L. Mori and R. Bearce, Colorado School of Mines, and M. Cha, Texas A&M University</i>	120-year Design Lifetime of Plastics <i>S. Lemke, Sika Services AG and M. Eckl and M. Lonschien, Sika Technology AG</i>
11:20	Ground Investigation and Tunnel Design for the Liantang / Heung Yuen Wai Boundary Control Point and Associated Works <i>G. Bridges, O. Ng, E. Ko, G. Chang, and R. Anderson, Aecom Asia Co Ltd. and C. Ting Ning, The Government of the HKSAR</i>	Avoiding Disputes on Challenging Ground Conditions in the Lake Mead Intake No. 3 TBM Starter Tunnel <i>J. Nickerson, Salini-Impregilo, S.A. Healy and M. Jensen and E. Moonin, Southern Nevada Water Authority</i>	Ground Freezing for Construction at the Port of Miami Tunnel <i>R. Storry, Dragages Hong Kong; O. Martin, Bouygues Travaux Publics; D. Harris, D I Harris Geotechnics and A. Hochart, Bouygues Travaux Publics</i>	Performance Optimization in Clogging Soils Through Process Controlling <i>U. Mairl, M. Comulada and J. Stascheit, Mairl Tunnelconsultants</i>	Challenges in the Design of Segmentally Lined Tunnels for Combined Sewer Outfalls <i>R. D. Aradas, J. M. Fernandez, A. Harding and D. Tsingas, CH2M</i>
11:40	The 3D geological Model of the Karavanke Tunnel, Using Leapfrog Geo <i>T. Živec and M. Žibert, Elea iC d.o.o.</i>	Risk Sharing Principles in Tunnel Contracts <i>E. Grov, SINTEF/NTNU</i>	Conventional Excavation of Connecting Tunnels in C13 Metro Station (Poland-Warsaw-Line 2) - The Complex History of the Construction of Three Connecting Tunnels <i>M. Bringiotti, F. De Angelis, and M. Aurelio Piangatelli, CIPA S.p.A.</i>	Transient Face Support in Slurry Shield Tunneling Due to Different Time Scales for Excavation Sequence of Cutting Tools and Penetration Time of Support Fluid <i>M. Thewes, B. Schoesser and Z. ZIZKA, Ruhr-University Bochum</i>	Influence of Fibres on the Creep Behaviour of Reinforced Sprayed Concrete <i>C. Larive, CETU; D. Rogat, Sigma Béton; D. Chamoley, CETU; A. Regnard, Asquapro and T. Pannetier, CETU</i>
12:00	Recent Swedish Studies on the Extent of Blast Damage after Excavation <i>H. Ittner, Swedish Nuclear Fuel and Waste Management Company (SKB) and Luleå University of Technology; U. Åkeson, Swedish Transport Administration (TRV); R. Christiansson, Swedish Nuclear Fuel and Waste Management Company (SKB); M. Olsson, EDZ-consulting AB and D. Johansson, Luleå University of Technology</i>	Road Testing the ITA Contractual Practices Checklist <i>A. Hodgkinson, SoftXS GmbH; D. Caiden, Arup and P. Fortsakis, Deutsche Bahn International</i>	Combined Ground Freezing Application for the Excavation of Connection Tunnels for Centrum Nauki Kopernik Station - Warsaw Underground Line II <i>A. Balossi Restelli, Studio Ingegneria Balossi Restelli e Associati; A. Pettinaroli, Studio Ing. Andrea Pettinaroli s.r.l. and E. Rovetto, Studio Ingegneria Balossi Restelli e Associati</i>	Assessment of EPB Soil Conditioning on Two TBMs by Using Apparent Density <i>L. Mori and M. Mooney, Colorado School of Mines and E. Alavi, G. Frank and M. DiPonio, JayDee Contractors Inc</i>	Design of Inclined Braceless Excavation Support with Inclined Buttress Applicable to Deep Excavation <i>Y. Shimada, Obayashi Corporation; K. Nishida, Hokuriku Electric Power Company and Y. Okada, S. Sugie, S. Takahashi, T. Terui, K. Oshiro, and Y. Nakamichi, Obayashi Corporation</i>

WEDNESDAY 27 APRIL

Technical Sessions-at-a-Glance: Wednesday 27 April – Afternoon

	ROOM 130	ROOM 131	ROOM 132	ROOM 133	ROOM 121/122
	Rehabilitation and Operations & Maintenance	Future Projects	Environmental and Urban Planning	Soft Ground TBMs - Urban Challenges	Complex Projects in Rock and Related Technology II
	<i>Mike Rispin, Normet Americas Inc Werner Burger, ITAtech Sub AG Rebuilt Equipment leader, Germany</i>	<i>Brett Campbell, JF Shea Antonia Cornaro, ITACUS Vice Chair, Switzerland</i>	<i>Ray Sterling, Louisiana Technology University Laetitia d'Aloia, ITA WG 21 Vice Animateur, France</i>	<i>Kellie Rotunno, Northeast Ohio Regional Sewer District Colin Lawrence, Mott MacDonald</i>	<i>Brett Zernich, Traylor Bros Inc Magali Schivre, ITA WG17 Vice Animateur, France</i>
14:00	National Tunnel Inspection Program Manual for Tunnel Operations, Maintenance, Inspection, and Evaluation <i>W. Bergeson, Federal Highway Administration</i>	The Shortcut - A Subsea Rail Tunnel Between Sweden and Germany <i>R. Sturk Skanska Sverige AB, Major Projects and K. O Halvorsen, Deutsche Bahn International GmbH and Coinco e.V.</i>	Turning Gray into Green - Emphasizing the Sustainable Benefits of Tunnel Projects <i>B. Gettinger, A. Noronha and J. Schlaman, Black & Veatch</i>	The First EPB TBM Tunneling Application in New York City and Its Completion Through Superstorm Sandy <i>A. Cho, C. Moon and R. Flanagan, WSP/Parsons Brinckerhoff and B. Larsen, New York City Economic Development Corporation</i>	TBM Technology for an Australian Coal Drift: The Grosvenor Project <i>E. Dal Negro, MAPEI S.p.A.; R. Schulkins, Mapei Far East PTE LTD and R. Marks, Mapei Australia & New Zealand</i>
14:20	Optic Fiber Structural Monitoring System for Pavoncelli Bis Hydraulic Tunnel <i>G. Echer, SWS Engineering S.p.A.; M. Caponero, Enea; R. D'Angelis, Consortium: Vianini Lavori S.p.A. - Ghella S.p.A. - Gluzio S.r.l and P. Cucino, SWS Engineering S.p.A.</i>	The Brenner Base Tunnel <i>R. Insam, Brenner Basetunnel SE (BBT SE) and M. Rehbock-Sander, JV BBT North, Amberg Engineering Ltd</i>	Service Life Prediction for the Ohio River Bridge East End Crossing Tunnel <i>W. Chen, Jacobs Engineering</i>	The Second Metro Line in Warsaw – Lessons Learned <i>M. Mitew-Czajewska and A. Siemi ska-Lewandowska, Warsaw University of Technology</i>	Hard-Rock TBM Cutter Life Evaluation: A Case Study of NS3 Project Mixshield TBM <i>K. Chang Hyun, E. Farrokh, D. Young Kim and S. Bo Kyung, Hyundai Engineering and Construction</i>
14:40	Inspection Equipment Study on Subway Tunnel Defects <i>Y. Sun, Y. Xue, H. Huang and F. Wang, Tongji University</i>	The Planning for Ultra Long Subsea Tunnel Project Under High Water Pressure <i>S. Kim, K. Kim, E. Hong, C. Kim, Y. Lee, J. Lee and K. Jeong, Yooshin Engineering Co</i>	The Crossrail Experience <i>B. Tucker, Bechtel Ltd. and M. Black, Crossrail Ltd.</i>	Port Mann Main Water Supply Tunnel – Ground Freezing the TBM face Under the Fraser River <i>J. A. Sopko, Moretrench and B. Khorshidi and B. McInnes, McNally Construction Inc</i>	Double Disc Cutter Consumption of an EPB TBM in Tuzla Wastewater Tunnel <i>U. Gumus and U. Altay, Nas-Akad Construction Joint Venture; A. Rüfai Bilgin, Istanbul Water and Sewage Authority (ISKI) and E. Bostanci and H. Copur, Istanbul Technical University</i>
15:00	Innovative Rehabilitation Approach for Overstressed Existing Linings Using an Adaptable Yielding Support System <i>A. G. Nitschke, Shannon & Wilson, Inc.; W. Dolsak, DSI Underground Systems, Inc.; V. Gall, Gall Zeidler Consultants, LLC; J. Dase, Rio Tinto Kennecott Copper and I. Ossenbühl, BUM Beton - und Monierbau GmbH</i>	Design for the Bolted and Gasketed Segment Lining for the Bypass Tunnel with High Head Conditions <i>P. M. Brion, New York City Department of Environmental Protection and Z. B. Sozer, McMillen Jacobs Associates</i>	Copenhagen Cityringen Project: Urban Mining Challenges in Contaminated Ground <i>V. Violo, A. Raschilla and L. Cicinelli - Seli Tunneling Denmark</i>	Soft Ground Tunneling Under a Major Provincial Highway in Ontario - Sheppard East LRT, Toronto <i>H. Mahdavi and V. Nasri, AECOM and K. Akbarpour, CH2M</i>	Aged Hard Rock TBM Proves its Value for Second Avenue Subway Project in New York City <i>T. Kim and C. Moon, WSP/Parsons Brinckerhoff and A. Parikh, MTACC-NYC</i>
15:20	Hydraulic Assessment and Rehabilitation of a Deep Stormwater Tunnel <i>M. Haggerty and B. Barnes, Barr Engineering Co</i>	Espejo de Tarapacá - An Innovative Pumped Hydro Storage Facility in Chile with Many Challenges from a Rock Mechanical Point of View <i>T. Marcher, SKAVA consulting ZT-GmbH; S. Bauer, SKAVA Consulting S.A.; C. Mathiesen, Poch S.A. and M. Allende, SKAVA consulting S.A.</i>	Spoil Management at AlpTransit Ceneri Base Tunnel - Key Elements for a Successful Natural Resource Management <i>P. Lanfranchi and E. Catelli, Pagani + Lanfranchi SA, Bellinzona; M. Pettit, Betontechnologie und Materialbewirtschaftung B+G AG and P. Vicentini, AlpTransit San Gottardo SA</i>	From Building Information Modeling to Real time Simulation in Mechanized Tunneling an Integrated Approach Applied to the Wehrhahn-line Düsseldorf <i>A. Alsahly, V. E. Gall, A. Marwan, J. Nini , G. Meschke, A. Vonthron and M. König, Ruhr-University Bochum</i>	Subsea Tunnels Supply Water to the Driest Place on Earth <i>S. O'Connell, C. Hirner, R. Webb and D. Lopez, Black & Veatch</i>
16:10	Life-Cycle Costing - An Economic Approach to Evaluate the Operational Equipment of Tunnels <i>H. Adden and M. Thewes, Ruhr University Bochum; A. Lehan, Federal Highway Research Institute and J. Schwarz, University Bundeswehr Munich</i>	Digging to the Beach: The Final Design of the JWPCP Effluent Outfall Tunnel Project <i>D. Haug, Sanitation Districts of Los Angeles County; D. Yankovich and J. Kaneshiro, Parsons Corporation and G. Hughes, McMillen Jacobs Associates</i>	On the Vibration Induced by Shield Tunneling Through Gravel Formations <i>K. Shou and P. Chen, National Chung-Hsing University</i>	TBM Operation Challenges at DTL3 C931 Project in Singapore <i>E. Farrokh, D. Young Kim, B. Kyung Sim and J. Won Lee, Hyundai Engineering and Construction</i>	The Follo Line Project - A large Project That Includes a Complex Excavation of the Longest Railway Tunnel in Norway <i>A. K. Kalager, The Follo Line Project, Norwegian National Rail Administration</i>
16:30	Rehabilitation of Farnworth Tunnels-Modifying Victorian Tunnels for the 21st Century <i>E. Murphy and S. Beauchamp, OTB Engineering Ltd and S. Cowell, J Murphy & Sons Ltd</i>	Planning and Construction of Tunnels Below the Suez Canal in Very Soft Soil Conditions Under Complex Circumstances <i>R. Trunk, Y. Boissonnas, J. Vesely and M. Imbach, Amberg Engineering Ltd, Switzerland</i>	High Quality Rebuilds for Ensuring Resource and Ecological Efficiency in Tunnelling <i>O. Kraft and O. Kortz, Herrenknecht AG</i>	Influence of EPB-TBM Heading Confinement Pressure on Surface Settlements: Comparison Between 3D FE Numerical Predictions and in Situ Measurements <i>J.P. Janin, Terrasol ; P. Renier, EDF and A. Bergère and H. Le Bissonnais, Terrasol</i>	Lake Mead Intake No. 3 - The TBM Tunneling Experience <i>R. Schuerch and P. Perazzelli, ETH Zurich; J. Nickerson and C. Cimioti, JV Salini-Impregilo S.p.A and S.A. Healy Co and G. Anagnostou, ETH Zurich</i>
16:50	The Four Fates of the 140-Year-Old Baltimore and Potomac Tunnel <i>K. R. Ott, WSP/Parsons Brinckerhoff; W. A. Prosser, Jr., Amtrak and P. Rice, WSP/Parsons Brinckerhoff</i>	Design of the Underground Structures of the Railway Link between the Town of Thumrait and the Port of Salalah: Segment 4c of the "Oman National Railway Project" <i>P. Ezio Michele and M. Dahir Holad, Italferr SpA</i>	Planning the Underground - How Underground Solutions Can Inform Contemporary City Urban Design <i>S. Ceccotto, MSAUD, LEED AP BD+C and E. Trussoni, Geodata S.p.A.</i>	Experiences Gained in Heterogeneous Ground Conditions at the Twin Tube EPB Shield Tunnels in Sao Paulo Metro Line 5 <i>M. Comulada and U. Maidl, Maidl Tunnelconsultants; M Peixoto Silva and G. Aguiar, Consórcio Linha 5- Lilás and A. Ferreira, Metro Sao Paulo</i>	Study of TBM Performance Prediction Using Rock Mass Classification <i>A. Salimi and C. Moormann, University of Stuttgart and J. Rostami, Pennsylvania State University</i>
17:10	The Light at the End of a 40-Year-Old Tunnel - Retrofitting of an Existing Tunnel as part of The New Second Ave Subway Project, New York <i>M. Trabold, AECOM; R. Giffen, Arup, and P. Lemus, 3EE cruz Co Inc Contractors & Engineers</i>	Advanced Technical Studies for Tunnel Enlargement in Hong Kong <i>R. Storry, D. Altier and V. Tricot, Dragages Hong Kong Ltd.</i>	Challenges in Metro Construction in India <i>P. Nicholas, AECOM and R. Gottummukala, AECOM India</i>	Impact of Tunneling on Pile Structures Above the Tunnel Experimental Study on a 1g Reduced Scale Model of TBM <i>J. Bel, D. Branche and H. Wong, Université de Lyon and G. Viggiani and N. Losacco, University of Rome 'Tor Vergata'</i>	MDC's Hartford, Connecticut South Tunnel Project: Integrating Site Investigation Technology, Geology and Geotechnical Engineering for Effective Ground Characterization <i>R. Dill, L. Martin and W. Song, AECOM and A. Perham, The Metropolitan District Commission</i>