

No.	Title of Contract, Location	Brief Description of the project	Client, person to be contacted, adress, telephone number	Commencement of services	Completion of services	Total fee Geoconsult (in €)	Total construction costs (in €)	Services
1	Metro Santiago de Chile, Basic Engineering of Civil Works Line 8	development of the Basic Engineering of Civil Works for the Line 8 project, which includes fourteen (14) Stations, fifteen (15) Construction Shafts, twenty-eight (28) Ventilation Shafts and the Workshops and Garages. Additionally, the design of the Basic Engineering of Civil Works is contemplated for the development of a direct link tunnel between Line 8 and Line 9 below Av. Salvador Allende. Two (2) Construction Shafts must also be considered at this link	Wood Ingeniería y Consultoría Chile Ltda. Para Metro S.A. Felipe Fernandez felipe.fernandez2@woodplc.com	11/2022	ongoing	922 396 (CLP 839 381 220)	n.a.	Tunnels; structural design Stations and ventilation system - Basic Design.
2	Metro Santiago Line 7; Alternative construction design Access Gallery Parque Araucano station and Vitacura station, Dragados Besalco Consortium, Chile	development of the numerical calculations with the Flac3D version 4.0 software, incorporating the geometry of the access shaft, access gallery to the eardrum in the model. Maintaining the Metro requirements, the shaft will be modeled at the same time through the SAP model. The development of the model will consider the appropriate and sufficient dimensions to avoid edge effects. Similarly, the surface of the model, at street level, will be represented horizontally.	Piques y Tuneles S.A. Miguel Hernaiz mhernaizm@dragados.com	08/2022	ongoing	92 540 (CLP 83 708 762)	n.a.	Shafts and Tunnel Detailed Design
3	Metro Santiago de Chile QAQC for Geotechnical Explorations for Line 8 and Line 9, Chile	Technical, Administrative and Safety Inspection of the activities of the different Geotechnical Exploration Contracts for Line 8 and Line 9 defined in the Contract Conditions for said works, representing the interests of Metro S.A. Considering that it is about inspecting a soil investigation, the Inspection Professionals must demonstrate experience and knowledge with the matter.	Metro S.A. Rodrigo Nuñez RNUNEZA@metro.cl	03/2021	ongoing	584 004 (CLP 525 461 448)	n.a.	Quality and project management control
4	Extension of the Salzburg Regional Light Rail (S-Link), General Planning Works AP01 Salzburg Local Train Station to Mirabellplatz, Salzburg, Austria	Planning of the inner-city extension of the Salzburg local railway from the main station / local train station to Mirabellplatz as an underground double track section; cut and cover method and special mining construction (jet grouting) when crossing under the Austrian Railway's Fünfhauser Viaduct; Section length: approx. 1000 m	Salzburger Regionalstadtbahn Projektgesellschaft mbH Rathausplatz 1, 5020 Salzburg, Austria office@s-link.at Dipl.-Ing. Albert Greinmeister T: +43/(0)662 8042 4073 F: +43/(0)664 608222 4073 albert.greinmeister@s-link.at	01/2021	expected 2025	1 670 000	~ 200 000 000	Planning of pit and shell construction of the track tunnels and station; planning coordination according to Austrian laws concerning the health and safety of construction workers; tunnel safety; route and infrastructure planning. During the variant studies, consideration of further route sections (Messe Railway, Stiegl Railway, etc.) Preliminary investigation (variant study), preliminary project, environmental impact report, submission and detailed project (tender and implementation planning) Hydrogeological assessment of the route section in all phases, establishing hydrogeological prognoses, impact assessment, action planning, risk analysis, GIS, geothermal use via Thermo Active Building Systems
5	Metro Santiago de Chile; Conceptual and Basic Engineering Extension Line 6	Development of the Basic Engineering of the Extension of Line 6 of the Santiago Metro. It contemplates a terminal station, Construction and Ventilation Shafts, Galleries and Tunnels of the Line	Metro S.A. Sergio Rodriguez srodriguez@metro.cl	03/2020	12/2020	321 331 (CLP 303 879 217)	n.a.	Basic Engineering desing
6	Metro Santiago de Chile Detail Engineering Shafts, Galleries and Tunnels Lot C, Line 7	The Consultancy contemplates the development of the tunnels and structural Detail Engineering for Construction and Ventilation Shafts, tunnel Stations, Acces Galleries and running Tunnels of Line 7, for section C. Including six (6) Stations, seven (7) Construction Shafts, two (2) Ventilation shfats and 6,7 km of running tunnels.	Metro S.A. Gabriel Valenzuela gvalenzuela@metro.cl	09/2019	ongoing	1 386 828 (CLP 1 267 675 795)	n.a.	Details engineering and Site Supervision

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7	2 nd Suburban railway main line Munich, VE-41, Marienhof, Munich, Bavaria, Germany	Construction of 2nd "Stammstrecke", undertunnelling of the center of Munich, new construction and reconstruction of Munich Main Train Station; VE 30; "Hutch" West (63 m), Tunnel West (open cut; 130m), open cut tunnel Main Station, two tubes ; length of each approx. 1948 m with a rescue tunnel in between (TBM), rescue shaft (NATM) with lowering of groundwater table, tunnel section Main Station – Marienhof approx. 1073 m (TBM). Central Access Construction of Main Station in the shelter of a construction pit surrounded by slurry walls.	Geoconsult Deutschland Rudower Chaussee 48, 12489 Berlin, Germany	07/2019	ongoing	243 750	n.a.	Construction supervision, Geology, bored pile walls and overlap bored pile walls, foundation piles, well und water level gauge drillings, jet grouting and cementation grouting, trial operation of groundwater table lowering
8	Metro Tel Aviv, Line M3, Israel	Line M3 is part of a planned mass transit system for public transportation in the Metropolitan Tel Aviv region. The underground line is approximately 37.8 km long including a 3.1 km long extension to Ben Gurion International Airport. 24 no. underground stations constructed by cut & cover; turnback, crossover, turnout and pocket track structures by cut & cover; one depot site at Ariel Sharon Park. Twin tube single track running tunnels excavated by TBM. Geology: sandy soils under groundwater	YENON Design & Research Ltd. 3, Azrieli center, P.O.B. 67 67023 Tel Aviv Itai Yenon, MSc. T: +972/(4) 8569000 M: +972/(50) 8890089 Itai@yenon.co.il	02/2019	ongoing	966 700	n.a.	Preliminary Design, design for statutory approval
9	Blue Line Jerusalem, City Centre Underground Section, Jerusalem, Israel	Part of the 20 km LRT Blue Line connecting Ramot in the north to Malha and Gilo in the south; length of Underground Section 2 km, double track running tunnels constructed by NATM, 3 mined underground stations (NATM) – Bar Ilan, Tzfanya and Mea Shearim Geology: dolomite, dolomitic limestone and limestone of variable degree of weathering, karstic phenomena	Jerusalem Transportation Masterplan Team 97 Jaffa Street, Jerusalem, Israel Mr. Gilad Zwebner (Blue Line Project Leader) T: +972 (2) 633 1063 F: + 972 (2) 629 9888 GiladZ@jmt.gov.il	08/2017	ongoing	Basic assignment only: € 11,213,359 (€ 7,615,305 + NIS 15,169,020) Total incl. optional assignments: € 18.774.083 (€12,097,368 + NIS 28,148,365)	€ 195 million (ILS 703 million) Running tunnel: € 60 Mio. (ILS 217 million) Bar Ilan station: € 57 Mio. (ILS 205 million) Yehezkel station: € 38 Mio. (ILS 137 million) Strauss station: 40 Mio. (ILS 144 million)	Basic assignment: Preliminary, basic and detail design (incl. tender design) Optional assignments: Supervision of additional geological site investigation, preparation of tender documents, tender process assistance, supreme supervision of construction ongoing until 2028
10	Site Supervision (SDO) Construction Civil Works for the New Access Station Tobalaba: Access Tunnels and Connections, Line 4, Metro Santiago	Management of the execution of the tunnels based on detailed engineering developed, and engineering design for all modifications and project incidents.	Metro S.A Ing. Juan Humberto Cruz Tel.: +56 9 5002 2443 e-mail: jcruz@metro.cl	03/2017	05/2018	241 637 (CLP 220 635 287)	n.a.	Detailed design and On Site Supervision
11	Construction Managment for the Construction Works OO.CC. New Access Encomenderos - Tobalaba Station: Access Tunnels, After Platform and Connections, Line 4. Metro Santiago de Chile	Technical Inspection of Works of administrative aspects, technical, quality control and those related to the compliance with environmental and safety regulations.	Metro S.A Ing. Juan Humberto Cruz Tel.: +56 9 5002 2443 e-mail: jcruz@metro.cl	02/2017	02/2019	987 266 (CLP 902 352 877)	n.a.	Site supervision and consultancy
12	MRTS Lucknow, North – South Corridor, Phase 1, Contract LKCC-06, Uttar Pradesh, India	two ramps, twin bored tunnel of internal diameter 5.8m, TBM / Cut and Cover Type of soil in which the tunnel was constructed: Soil consisting of alluvium deposited from Gomati Rivers is expected along the LKCC-06 alignment. The soil consists mostly of clayey or sand Silt having low to medium plasticity with pockets or lenses of silty Sand material. No rock has been encountered along the alignment.	Gulermak –TPL JV c/o Tata Projects Limited 11th Floor, Hiranandani Knowledge Park, Technology Street, Powai, Mumbai. 400076, India T.: +91/(0)22-67402900 F: +91/(0)22-67402960 Daipayan Saha M: +91/74588 13001	2017	ongoing	1 307 939 (INR 105 000 000)	148 233 037 (INR 11 900 000 000)	Detailed design Services

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13	Metro Mumbai Line 3, UGC-06, Mumbai, Maharashtra State, India	Package UGC06 comprises 3 Underground Stations: CSIA Domestic, Sahar Road and CSIA International And associated twin bored tunnels of approximately 3.7 km length along with Cross passages and NATM Subway at CSIA Domestic Station, inner diameter: 5.8m	J. Kumar - CRTG JV c/o J Kumar Infra Projects Ltd. 16-A, Andheri Industrial Estate, Veera Desai Road Andheri (West), Mumbai-400053, India	09/2016	2021	1 658 510 (INR 132.5 Million Design GC Share)	390 696 000 (INR 28.3 BIO, USD 442.2 million)	Detailed design Services (in JV with Tandon Consultants Pvt.Ltd.): Bored tunnel, 3 nos. underground metro stations (Remark - aFter Variation - NATM Cross Over) Geoconsult: GIR, TBM tunnel design, Cross Pasasages, NATM subway, temporary works for rock excavations, Instrumentation and Monitoring Plans, Construction Impact Assessment, Settlement analysis
14	Metro Mumbai Line 3, PKG UG-4, Mumbai, Mharashtra State, India	Tree underground metro stations at Siddhi Vinayak, Dadar and Shitladevi Temple and Associated Bored Tunnels 5.8m dia TBM twin tunnels, Shitladevi Station is part NATM	CIT CEC-ITD Cementation – TATA Projects Limited JV 7th Floor, Tower – B, Signature Tower, Sector – 29, Gurgaon – 122002, Haryana, India	09/2016	2021	1 658 510 132.5 Million INR (Design GC Share)	390 696 000 (INR 28.3 BIO, USD 442.2 million)	Detailed design Services (in JV with Tandon Consultants Pvt.Ltd.): Bored tunnel, Mined station tunnels, 3 nos. underground metro stations Geoconsult: GIR, TBM tunnel design, Cross Pasasages, NATM station part, temporary works for NATM stations, Instrumentation and Monitoring Plans, Construction Impact Assessment, Settlement Analysis
15	Metro Vienna, U2/17 Matzleinsdorfer Platz - Lerchenfelder Strasse, Vienna, Austria	Package U2/17 consisting of 2 single track TBM (EPB) tunnels with approx. 3,5 km length each; 3 underground mined crossover structures, 4 emergency exit shafts and a mined underground train parking structure; general, tender and detail design of all civil structures	Wiener Linien GmbH & CoKG Erdbergstraße 202 1031 Vienn, Austria Dipl.-Ing. Gerhard Hobiger T: +43 (1) 7909-67400 F: +43 (1) 7909-67409 M: +43/(0)664 3812788 gerhard.hobiger@wienerlinien.at	03/2016	ongoing	1 600 000	147 000 000	Preliminary design, Tender design and detailed design
16	Klang Valley MRT (KVMRT), Line 2, Kuala Lumpur, Malaysia	Subway, 27km TBM bored tunnel (13.5km per bore), Tunnel outer diameter: 6.7m, 2 intervention shafts (diameter: 16m - 22m), 3 escape shafts (2 circular with diameter: 15m, 1 rectangular with footprint: 29m x 31m), 9 cross passages & tunnel sumps, 5 mined tunnel adits (depth: 20m - 30m) 2 portal structures, 3 slurry TBMs	MRT Corporation Sdn Bhd Malaysia MMC – Gamuda KVMRT (T) Sdn Bhd Level 8, Corporate building (Block E) Pusat Komersial Southgate No 2 Jalan Dua, Off Jalan Chan Sow Lin 55200 Kuala Lumpur, Malaysia Mr. Keith Chong Tel: +603 23858000	2016	2021	4 521 640 (SGD 7.000.000)	3 300 000 000 (SGD 5 084 937 000)	Detail design of bored tunnel segmental lining incl. cross passage and adit tunnel openings, escape shafts, intervention shafts, cross passages and tunnel portals.
17	Klang Valley MRT Sungai Buloh-Serdang-Putrajaya Line, Malaysia	Tunnel Diameter: 6.684 m (excavation). Bored Tunnel Segmental Lining: Inner diameter 5.8 m, 1.4 m rings (7+1); 275 mm thick. Total Tunnel Length: Approx. 11.7 km twin tunnel, TBM Type: 10 x Variable Density (VD) and 2 x Earth Pressure Balanced (EPB) machine, 9 cross passages and 5 adits, Ground Treatment: Jet Grouting, Deep Soil Mixing, Fissure Grouting, Compaction Grouting. Escape Shaft ESC1: 22.5 m width, 30 m length, depth 18 m. Escape Shaft ESC2: Int. diameter 11.5 m, depth 35 m. Escape Shaft ESC3: Int. diameter 11.5 m, depth 53 m. Intervention Shaft IVS2: Int. diameter 17 m, depth 58 m. Intervention Shaft IVS3: Int. diameter 18.2 m, depth 33 m.	MMC-GAMUDA KVMRT (T) JV Malaysia	2016 (Design) 2017 (Construction)	2019 (Design) 2021 (Construction)	n.a.	3 296 231 310 (RM 16.71 billion)	Bored tunnel segmental lining, TBM thrust frame, cradle, seal ring, gantry & rail support, arrange-ments for TBM pull & push through, Ground surface settlements and impact assessments, Temporary and permanent works at cross passages and adits, TBM face pressures, Ground treatment and enabling works for integrated future Transit Oriented Development (TOD)
18	Charbagh Metro Station - K.D.Singh Babu Stadium Metro station Contract LKCC-06, Lucknow, Uttar Pradesh State, India	Contract LKCC-06: Tunnel from start of underground ramp (near Charbagh Metro Station) to end of underground ramp (near K.D.Singh Babu Stadium metro station) including three underground metro stations (viz. Hussainganj, Sachivalaya and Hazratganj) Bored tunnel, 3 nos. underground metro stations, Cut & Cover Tunnels including ramps	Gulermak - TPL JV C/o Tata Projects Limited 11 th Floor, Hiranandani Knowledge Park, Technology Street, Powai, Mumbai. 400076, India T.: +91/(0)22 6740-2900 F: +91/(0)22 6740-2960	2016	2019	434 874 (INR 31 500 000 Design: GC Share)	164 286.000 (INR 11.9 BI, USD 185,93 million)	Detailed design Services (in JV with Tandon Consultants Pvt.Ltd.): Bored tunnel, 3 nos. underground metro stations Geoconsult: GIR, TBM tunnel design, Cross Pasasages, Instrumentation and Monitoring Plans, Construction Impact Assessment, Settlement analysis

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19	MRT Singapore, Thomson Line, Contract T227, Singapore	Subway, 2 x 770m TBM Bored Tunnel, Tunnel internal diameter: 5.8m, excavation diameter: 6.65m, Overburden 20m - 37m, Segment thickness: 275mm 1 EPB TBM, 1 TBM launching shaft, 1 cross passage (length: 10m, diameter: 4.5m), 2 tunnel sumps (diameter: 4.5m), 1 underground station	LTA Singapore, Contractor: Sinohydro-Sembcorp JV 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233	2015	2019	129 190 (SGD 200.000)	315 223 000 (SGD 488 MIL)	Geotechnical assessment / ground treatment; TBM face pressures for 1 EPB TBM (2 drives); compressed air recommendations; Analysis of compressed air flows; Advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, temporary tunnel support bracing, Prediction of segment ring selection Detail design for contract T-227 (Marina South Station and Tunnels) including detail design of temporary shotcrete lining for cross passages and pumps, construction impact assessment to CST tunnel and 1.5m sewer pipe, TBM face pressure calculations and KPI drawings, detail design of ground treatment for TBM launching and receiving, TBM driving advice including recommendation of unplanned cutter head intervention.
20	MRT Singapore, Thomson Line, Contract T221, Singapore	Subway, 150m TBM Bored Tunnel for station & entrances 1 rectangular EPB TBM (7.5m x 5.5m), Segment thickness 500mm 5 entrances (approx. 10m)	LTA Singapore, Contractor: China Rail Tunnel Group (CRTG) 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233	2015	2019	581.353 (SGD 900.000)	20.670.300 (SGD 32 MIL)	Station and entrances, no tunnel, Geotechnical assessment; Detail design of underpass linkway. Excavation using rectangular TBM. Retaining walls and strutting for station entrances Detail design for contract T-221 (Havelock Station), i.e. only station and entrances (no tunnel), including geotechnical assessment, detail design of underpass linkway, excavation using rectangular TBM, retaining walls and strutting for station entrances.
21	MRT Singapore, Thomson Line, Contract T222, Singapore	Subway, 2.3km TBM Bored Tunnel (approx. 1.16km + 1.13km), Tunnel internal diameter: 5.8m, excavation diameter: 6.65m. Segment thickness: 275mm 1 cross passage (diameter: 4.5m), 2 tunnel sumps 2 mined linkways underpassing running MRT tunnels	LTA Singapore, Contractor: Daelim Corporation 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233	2015	2019	519 649 (SGD 800 000)	194 430 000 (SGD 301 Mil)	Detailed Design, Consulting Geotechnical assessment / ground treatment; TBM face pressures for 3 EPB TBM (4 drives); compressed air recommendations; Analysis of compressed air flows; Advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, temporary tunnel support bracing, construction impact assessment of existing MRT tunnels Detail design for contract T-222 (Outram Park Station and Tunnels) including geotechnical assessment / ground treatment, detailed design of ground support and excavation sequence, TBM face pressures for 3 EPB TBM (4 drives), compressed air recommendations, analysis of compressed air flows, advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, temporary tunnel support bracing, construction impact assessment of existing MRT tunnels, and review of geotechnical monitoring scheme.
22	Metro Santiago de Chile, Expert technical advice for arbitration CCL3, Chile	Advice for Metro S.A. in arbitration for section 3 of Metro line 3 regarding terms, costs and defense against a claim by the contractor consortium CCL3, made up of Corsan – Corvian and Copasa S.A. Complete length of 2,873 m with 3 stations and 4 shafts. Excavation by NATM method	Metro S.A Ing. Edgardo Salazar. Tel.: +56 9 5002 2443 e-mail: esalazarf@metro.cl	12/2015	09/2016	179 727 (CLP 165 490 199)	n.a.	Consultancy

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23	Charbagh Metro Station - K.D.Singh Babu Stadium Metro station Contract LKCC-06, Lucknow, Uttar Pradesh State, India	3 Stations and approx 1800m of twin tunnels (TBM) Pretender Design for Design and Construction of Tunnel from Start of underground ramp (Near Charbagh Metro Station) to end of under-ground ramp (near K.D. Singh Babu Stadium Metro Station) including three underground metro stations (viz. Hussainganj, Sachivalaya And Hazratganj) including Architectural Finishes, E & M, TVS, ECS etc. On North-South Corridor Of Lucknow mrts, Phase 1A Project at Lucknow	Hindustan Construction Company Ltd. (NHAI) Hincon House 247park, Lbs Marg, Vikhroli West Mumbai 400 083, India Mr. Satish Kr. Sharma Head Engineering Management T: +91/(0)22 2575 1000 / 1244 F:+91/(0)22 2577 0070	12/2015	01/2016	2 875 000	167 724 193	Pretender Design
24	Metro Santiago de Chile, Ventilation Shaft Tobalaba Station, Chile	Detail engineering for the new additional access to the existing Tobalaba Station by means of an access tunnel, a transanden tunnel and various horizontal connection tunnels and inclined for escalators. Cross under existing interstation tunnel of L1 of Subway with 35 to 40 cm of cover and crossing with several tunnels under Canal San Carlos. Cross sections of the different tunnels between approx. 12 m ² to 46 m ² with method NATM (New Austrian Tunneling Method) in firm and breakable gravel.	HWQ Ingenieros Asociados Ltda.	09/2015	10/2015	35 641 (CLP 32 788 239)	n.a.	Detailed Design
25	Metro Santiago de Chile, Technical Consulting Services Specialized in Engineering for Arbitration Demand - Works, Chile	Technical Consulting Services Specialized in Engineering for Arbitration Demand - Works Execution Contract No. PL6-0602-02-12 "Construction of Civil Works Shafts, Galleries and Tunnels Sections 1 and 2 of Line 6 Metro de Santiago	Metro S.A Ing. Juan Humberto Cruz T.: +56 9 5002 2443 jcruz@metro.cl	04/2015	08/2015	343 550 (CLP 316 209 560)	n.a.	Consultancy
26	Metro Santiago de Chile Expert technical advice on arbitration ABI - METRO, Chile	Advice for Metro S.A. in arbitration for sections 1 and 2 of Metro line 3 regarding terms, costs and defense against a claim by the contractor consortium ABI, made up of Acciona, Brotec and Icafal S.A. Complete length of the two sections 6,626 m with 4 stations and 11 shafts. Excavation by NATM method	Metro S.A Ing. Edgardo Salazar T: +56 9 5002 2443 esalazarf@metro.cl	04/2015	05/2015	181 576 (CLP 167 155 517)	n.a.	Consultancy
27	Metro Santiago de Chile, New Plaza Egaña Mall Connection Shaft, Chile	Detail Engineering Project for the construction of the shaft and connection between Mall Plaza Egaña and the Access Gallery of Plaza Egaña Station on Line 4 of the Metro de Santiago	Metro S.A.	01/2015	04/2015	23 803 (CLP 21 882 111)	n.a.	Detailed design and on Site Supervision
28	Metro Santiago de Chile, New Access Encomenderos Tobalaba Station	Tobalaba Station Connection Gallery Mesanina Level with Territoria tercer subteranean project. Design for the construction of a tunnel behind the platform parallel to the Tobalaba station platform (Line 4), passing parallel to and under the San Carlos canal and crossing under the Tobalaba Line 1 station. 6 access tunnels to the existing station and an access tunnel to Encomenderos Street and Apoquindo Av.	Amec-Cade para Metro S.A. Santiago de Chile Sergio Rosales Tapia Representante Legal T. 226406600	06/2014	02/2015	382 765 (CLP 352 331 347)	n.a.	Detailed design
29	MRT Singapore, Thomson Line, Contract T218, Singapore	Subway, length: 2 entrances (56m x 12m x 8.5m) , Dimensions-Entrances: approx. 10m Station and entrance 1, no tunnel, Geotechnical assessment; Retaining walls and strutting for station entrance	LTA Singapore, Contractor: KTC 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233 Mr. Chau Lai Seng (Managing Director)	2014	2019	322 974 (SGD 500 000)	266 776 000 (SGD 413 MIL)	Detailed design Geotechnical assessment; Retaining walls and strutting for station entrance "Detail design for contract T-218 (Orchard Boulevard Station), i.e. only station and entrances (no tunnel), including geotechnical assessment, retaining walls and strutting for station entrance.

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30	MRT Singapore, Thomson Line, Contract T217, Singapore	Subway, TBM face pressures for 1 slurry TBM (2 drives); compressed air recommendations; 1.5km Bored Tunnel (742m + 756m) TBM launch shaft, Sumps, Cross passages	LTA Singapore, Contractor: Sinohydro 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233 Mr. Shuichi Onodera (Tunnel Manager)	2014	2019	193 784 (SGD 300 000)	122 084 000 (SGD 189 MIL.)	Detailed Design, Consulting Advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, temporary tunnel support bracing Detail design and tunnel consultant for contract T-217 (Napier Station and Tunnels) including geotechnical assessment / ground treatment, TBM face pressures for 1 slurry TBM (2 drives), compressed air recommendations, analysis of compressed air flows, advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, temporary tunnel support bracing.
31	MRT Singapore, Thomson Line, Contract T216, Singapur	Length: TBM Bored Tunnel (SB): 2 x 2.938 km, TBM Bored Tunnel (NB): 2 x 2.935 km, 4 TBMS/Slurry Type, Cross passage: 8 nos, escape shafts Dimensions-Excavation dia. 6.65m, internal dia. 5.8m, segment 275mm thk	LTA Singapore, Contractor: Daewoo Engineering Company 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233 Mr. Lee Soo Kil (Project Director)	2014	2019	1 195 000 (SGD 1 850 000)	258 276 000 (USD 317.4 million SGD 441 MIL)	Detailed Design, Consulting Geotechnical assessment; TBM face pressures for 4 slurry TBM drives; compressed air recommendations; Analysis of compressed air flows; Advice for cutter head interventions; Sinking shafts, Underpass linkway with Rectangular TBM Detail design for contract T-216 (Stevens Station and Tunnels) including geotechnical assessment, TBM face pressures for 4 slurry TBM drives, compressed air recommendations, analysis of compressed air flows, advice for cutter head interventions, sinking shafts, and underpass linkway with Rectangular TBM.
32	MRT Singapore, Thomson Line, Contract T212, Singapore	Twin bored tunnel, cut & cover tunnels, TBM launching shaft, 5 cross passages (2 mined, 1 cut & cover), 2 pump sumps	LTA Singapore Land Transport Authority (LTA) 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233 Mr: Kitano Suyuske kitano@satokogyo.com.sg	2014	2019	431 309 (SGD 664 000)	242 936 000 (SGD 374 MIL)	Geotechnical assessment / ground treatment; TBM face pressures for 3 EPB TBM (4 drives); compressed air recommendations; Analysis of compressed air flows; Advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, temporary tunnel support bracing Detail design and bored tunnel consultant for contract T-212 (Upper Thomson Station and Tunnels), including geotechnical assessment / ground treatment, TBM face pressures for 3 EPB TBM (4 drives), detail design of mobile crane foundation for TBM assembly at launching shaft, compressed air recommendations, analysis of compressed air flows, advice for cutter head interventions, excavation detailing for cross passage and in-line tunnel sump, and temporary tunnel support bracing.
33	MRT Singapore, Thomson Line, Contract T211, Singapore	3.8km Bored Tunnel (2 x 1.1 km and 2 x 0.8 km). Tunnel excavation diameter 6.65m, internal diameter 5.8m, overburden 15m - 28m, Segment thickness 275mm, 4 slurry TBMs, 5 cross passages, 1 station structure	LTA Singapore, Penta Ocean Corporation 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233 Penta Ocean Construction Co Ltd, 1 Kim Seng Promenade, #13-01/03 Great World City, Singapore 237994 Mr. Manesh Joshi (Tunnel Manager) joshi@mypenta.net	2014	2019	97 434 (SGD 150 000)	297 009 000 (USD 365 MIL SGD 454 MIL)	Detailed Design, Consulting Detail design for contract T-211 (Sin Ming Station and Tunnels), including geotechnical assessment, TBM face pressures for 4 slurry TBM drives, compressed air recommendations, analysis of compressed air flows, and advice for cutter head interventions.

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34	MRT Singapore, Thomson Line, Contract T207, Singapore	Length: 3.16km twin bored tunnels, 4 EPB TBMs Tunnel excavation diameter: 6.67m, outerlining diameter: 6.35m, inner diameter: 5.8m, overburden 20m-35m, 2 escape shafts (ESC1: 6.6m diameter, 35m deep, ESC2: 12mx20m, 28m deep), 1 adit tunnel, 7 cross passages (diameter: 7m, length: 7m-45m), 2 pump sumps (approx. 27m deep), 1 RTS building above ESC2 Thickness of shotcrete lining for adit tunnel, cross passages and pump sumps: 200mm-300mm	LTA Singapore, Contractor Shimizu Corporation 8 Kallang Avenue, #05-01 Aperia Tower 1, Singapore 339509 Dr. Peerapong T: +65/(0)6220 0406 F: +65/(0)6220 4181	2014	2019	491 693 (SGD 800 000)	111 470 000 000 (SGD 189.8 mil)	Detail design and consultant for contract T-207 (Tunnels between SBAB and Springleaf Station), including detail design of all temporary works at shafts and cross passages, detail design of SFRC segmental lining for TBM thrust forces and segmental handling and all other temporary conditions, detail design of all ERSS for escape shafts, detail design of temporary shotcrete lining for cross passages and pumps, detail design of GFRP tunnel launching soft eyes, detail design of all ground improvement works, TBM face pressure calculations and KPI drawings, design of slope cuts up to 45m high, TBM drive advice including recommendation of unplanned cutterhead intervention, and settlement analysis and construction impact assessment.
35	MRT Singapore, Thomson Line, Contract T216, Singapore	Construction of Stevens Station and associated shafts and tunnels for Thomson Line TBM Bored Tunnel: 2 x 5.8 km; 4 Slurry TBMs; Excavation diameter: 6.65m; Internal diameter: 5.8m; Segment: 275mm thk; Cross passages: 8 nos; 1 works shaft; 1 escape shaft, 1 rectangular TBM (50m long)	LTA Singapore Daewoo Engineering Company 11A White House Road Singapore 257586 Mr. Lee Soo Kil (Project Director) T: +65/(0)6334 4216 F: +65/(0)6334 6372	2014	2019	2 000 000 (SGD 1 850 000)	286 000 000 (SGD 441 mil.)	Geotechnical assessment; TBM face pressures for 4 slurry TBM drives. Recommendations for compressed air cutter head interventions Design of shaft sinking. Design and build design for underpass linkway using Rectangular TBM.
36	MRT Singapore, Down Town Line 2, Senja Linkway, Contract 9057, Singapore	Subway, 2 shafts (14m x 43m and 29m x 15m), 120m pipe jacking tunnel, 120m underpass, 35.5m foot bridge over 21m wide canal	LTA Singapore, Contracto Ed. Zueblin AG 47 Scotts Road, #17-02 Goldbell Towers, Singapore 228233 Dr Saltik Tahir Mehmet T: +65/(0)6339-0436 F: +65/(0)6339-0460	2014	2017	519 649 (SGD 800 000)	31 685 000 (US\$ 44 Mio, SGD 46 Mio.)	Consulting, detailed design, electrical design, mechanical design Detail design and A/E Consultant for contract C-9057 (Entrance and Underpass Linking to Bukit Panjang MRT Station and Covered Linkway at the Junction of Bukit Panjang Road and Woodlands Road / Upper Bukit Timah), including detail design of temporary and permanent works for underground structures (cut&cover method with steel struts excavation), permanent underpass, permanent underground structure, footbridge, and covered linkway.
37	Advice Metro Connection Mall Plaza Egaña	Detail Engineering at the temporary work level of the west wall of the access shaft located on the access gallery and advice to the company RCP for the design of final walls. The shaft will connect the Mall with the tympanum of the northern access gallery of the Plaza Egaña station. At the same time, the elaboration of the plans and documents of the demolition of the tympanum and the reinforcements of the north access gallery, with their respective construction methods, are considered.	CAAD	05/2014	08/2014	22 984 (CLP 21 102 299)	n.a.	Detail engineering and consultancy

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38	Metro Delhi, Phase III Delhi Gate & Jama Masjid Station, DMRC CC-05, India	Length of section: 1065 m, Tunnel length: 2 x 1065 Cross section: 29 m ² , Overburden: 12.5 –15.5 m TBM & Cut & Cover Method, Ground conditions varying from alluvium (sandy sit, silty sand) to highly to completely weathered quartzite; groundwater level approx. 8 to 10 m below ground level with considerable fluctuations due to rainy season	Metro Tunnelling Delhi-L&T SUCG JV. 1st Floor, 211 Okhla Industrial Estate, Phase-III, New Delhi-110020 India T: +91-11-41295600	04/2014	2014	34 576 (INR 2 737 610)	84 255 743 (INR 7 188 699 992,76)	Review/Study of the Building Condition Survey, Review and suggestions to the Monitoring program, Site visits to assess situation; Suggestions for further geological investigations and tests, Review of Settlement Analysis and Assessment on impact on structures, Vibration impact estimate, Building Protection Plan including suggestion of ground treatment, other measures to reduce settlements induced by tunnelling with TBM; Measures to be taken to protect buildings (e.g. propping etc.). Review and study of the machine data vis-a-vis geological situation; Suggestions for improvements in driving; Suggestions for probing investigations during driving, Suggestions to satisfy required ground loss to limit settlement; According to the ground profile possible parameter variations, advice on vibration control and on optimization of cutter use; Services of one dedicated TBM expert.
39	Metro Santiago de Chile, Front stability analysis Line 3 Station Universidad de Chile	Analysis of the stability conditions of the advance fronts of the tunnel of the future Universidad de Chile station on Line 3. The purpose is to verify the feasibility of eliminating the front support fiberglass bolts and reducing and/or eliminating the marchiavanti foreseen in the outline of the platform tunnel key, as indicated in the reference project.	Metro S.A Avda. Libertador Bernardo O'Higgins n°1414, Santiago, Chile Sr.Hernan Corsssen T: +56/(0)2 250 3507 T: +56/(0)2 250 6023 F: +56/(0)252 6078	01/2014	03/2014	29 036 (CLP 26 794 102)	n.a.	Feasibility study, preliminary design
40	Metro Delhi, Phase III Delhi Gate & Jama Masjid Station, DMRC CC-05, India	Length of section: 1065 m, Tunnel length: 2 x 1065 Cross section: 29 m ² , Overburden: 12.5 –15.5 m TBM & Cut & Cover Method, Ground conditions varying from alluvium (sandy sit, silty sand) to highly to completely weathered quartzite; groundwater level approx. 8 to 10 m below ground level with considerable fluctuations due to rainy season Building Condition assessment, Monitoring program, TBM consultancy	Metro Tunnelling Delhi-L&T SUCG JV. 1st Floor, 211 Okhla Industrial Estate, Phase-III, New Delhi-110020 India T: +91-11-41295600	2014	2014	45 942 (INR 3 900 016)	n.a.	Professional design services related to NATM tunnel, NATM Methodology and Approval Preparation; Concept Design and Detailed Design; Shaft Design, NATM Junction Design and NATM Detailed Design.
41	Metro Delhi, Phase III Delhi Gate & Jama Masjid Station, DMRC CC-05, India	Tunnel between Jama Masjid & Delhi Gate to MTD L&T SUCG Working Site New Delhi, TBM inner dia 5.8m TBM drives, Settlement analysis, building protection concept, construction impact assessment	Metro Tunnelling Delhi-L&T SUCG JV. 1st Floor, 211 Okhla Industrial Estate, Phase-III, New Delhi-110020 India T: +91-11-41295600	09/2013	2014	42 085 (INR 3 559 970)	n.a.	Pre Construction measures/consultancy and TBM drive consultancy
42	Metro Lima Perú Line 2 and Line 4 from Av. Faucett to Av. Gambetta Lima, Perú	Advanced basic engineering for tender for the construction of Line 2 and Line 4 underground, Metro Lima. The construction of 27 stations for Line 2 and 8 stations for Line 4, which include projected: interstation tunnels, tunnels for maneuver, tunnels (intermediate) for ventilation and emergency exit. It is contemplated digging through TBM (Tunnel Boring Machine) for interstation tunnels both the Line 2 and Line 4. Just as the construction using the New Austrian Method (NATM), tunnels to maneuver line 2, tunnels third way, intermediate tunnels for ventilation and emergency exit, mainly.	Queiroz Galvao S.A Av. Rivera Navarrete N°501 oficina 502, Distrito San Isidro Lima - Perú Ing. Chafi Chaib Paganelli T: 51/(1)2046363	08/2013	03/2014	281 575 (CLP 217 335 957)	4 166 630 000 (USD 4 500 000 000)	Study of Basic Engineering Tunnels in Soil and ventilation shafts and emergency. Maintenance areas.

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43	Metro Santiago, Alonso Ovalle Polyduct and Board Building 20 KV Santiago, Chile	Channeling electrical wiring through two tunnels; Alonso Ovalle pipeline Pipeline and Neptune. Design substation in Neptune 2 x 80 MVA and voltages of 220 KV to 20 KV for power. Design Building Room 20 KV Boards (STNEP), whose purpose is to contain the equipment needed to distribute and transfer loads and make links in 20 KV.	Metro S.A Avda. Libertador Bernardo O'Higgins n°1414, Santiago, Chile Sr.Hernan Corssen T: +56/(0)2 250 3507 T: +56/(0)2 250 6023 F: +56/(0)252 6077	02/2013	02/2015	262 094 (CLP 162 721 524)	n.a.	Detailed design and site consultancy for the construction, structural and geotechnical design of portals
44	Klang Valley MRT (KVMRT), Line 1, Kuala Lumpur, Malaysia	1.198 km of twin Bored Tunnel from Pasar Seni Station to Merdeka Station (2x0.55 km) and from Merdeka Station to Pudu Launching Shaft (0.648 km). Tunnel excavation diameter: 6.65m, internal diameter: 5.8m. Segment thickness: 275mm	CEC Intenrational Malaysia, SDN. BHD	2013	2014	64 956 (SGD 100 000)	n.a.	General Studies, Consulting, Detail Design Services included analyses of compressed air requirements, analysis of TBM driving face pressures, and assessment of structural impact on segmental lining caused by driving of second TBM.
45	MRT Singapore, Down Town Line 2 C915, Singapore	Total bored tunnel length: 2x 2.1km, 7 cross passages, excavation dia. 6.65m, internal dia. 5.8m, segment 275mm thk	SK E&C Singapore Branch 200 Petir Road Singapore 678271 Mr. Han Ji Hoon T: +65/6763-2729 F: +65/6767-2673	2012	2013	149 874 (USD 197 107)	193 337 976 (USD 180 Mil. SGD 225 Mil.)	Detailed face pressure analysis and consultancy during construction bored tunnel section
46	Metro Delhi, Phase III, DMRC CC-34, India	Metro tunnel length: 4.356 km in the state of New Delhi, length of Stations: 765 m, cross section: ~ 26.4 m ² , TBM Method	ERA Infra Engineering Ltd. & China Railway First Group Co. Ltd. JV	10/2012	11/2012	25 714 (INR 1 777 802)	148 775 989 (INR 10 386 423 732)	Tender consultancy for bored tunnel, stations and cut & cover stretches
47	Metro Delhi, Phase III, DMRC CC-32, India	Metro tunnel, length: 3.397 km in the state of New Delhi. Cross section: ~ 26.4 m ² , TBM Method Design and Construction of Tunnels by Shield TBM, Palam and I.G.D. Airport underground Stations by Cut & Cover Method between Palam (including) and Shankar Vihar (excluding) on Janakpuri West – Kalindi Kunj Corridor	Larsen & ToubroLtd., Consturction, Infrastructure, Mount Poonamallee Road, Manapakkam, P.B.No.979, Chennai – 600 089 T: +91/(0)44 2252 6000 T: +91/(0)44 2252 8000 F:+91/(0)44 2249 3317	07/2012	08/2012	7 232 (INR 500 020)	123 378 730 (INR 8 530 405 392,2)	tender consultancy
48	Metro Delhi, Phase III, DMRC CC-30, India	Metro tunnel, length: 1.195 km in the state of New Delhi. Cross section: ~ 26.4 m ² , TBM Method	Simplex Infrastructure – Mosmetrostroy JV Simplex Infrastructure Ltd. Vaikunth, 2 nd Floor, 82-83, Nehru Place, New Delhi – 110019, India	07/2012	08/2012	7 913 (INR 626 525)	876 123 (INR 59 076 974)	Tender consultancy
49	Metro Thessaloniki, Line 2, Kalamaria Extension, Greece	Metro with twin tubes and stations 2,4 km TVM Tunnel, 5 Cut&Cover Stations, shafts, crossover	Terna, FCC, Alpine JV 85 Mesogeion Avenue, 11526 Athens, Greece Irene Stergiou T: +30/210 6968656	03/2012	06/2012	80 000 (GRD 27 260 000)	~ 4.000.000 (GRD 1 363 000 000)	Tender design for contractor
50	Metro Delhi, Phase III, DMRC CC-20, India	Metro tunnel, length: 1.067 km in the state of New Delhi. Cross section: ~ 26.4 m ² , TBM Method	Mosmetrostroy JV - Simplex Infrastructure JV Simplex Infrastructure Ltd. Vaikunth, 2 nd Floor, 82-83, Nehru Place, New Delhi – 110019, India T: +91/(0)11 2621 9536 T: +91/(0)11 4932 1400 T: +91/(0)11 4944 4300 T: +91/(0)11 4944 4200	02/2012	03/2012	7 961 (INR 533 467)	752 435 (INR 50 420 669)	Tender consultancy

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51	Metro Delhi, Phase III, DMRC CC-18, India	Metro tunnel, length: 1.994 km in the state of New Delhi. Cross section: ~ 26.4 m ² , TBM Method	Gammon India Ltd. Gammon House, Veer Savarkar Marg, Prabhadevi, P.O. Box 9129 400025 Mumbai, India Mr. R. L. Telang T: +91/(22) 6744 4000	02/2012	03/2012	15 200 (USD 20 000)	194 808 521 (USD 255 506 960)	Tender consultancy
52	MRT Singapore, Down Town Line 3, C927, Singapore	Excavation dia. 6.65m, internal dia. 5.8m, segment 275mm thk; Detailed design of NATM Alternative for passange linkway (side drift), construction deck, traffic decking, drain diversions, detailed EPB TBM face pressure analysis and consultancy during construction bored tunnel section 47m - NATM passage linkway with pipe roof	CMC di Ravenna Singapore - Branch Office 67 Beach Road #02-02 Bulk Haul House Singapore 189688 Mr. David Vaggi T: +65/(0)6336-1046 F: +65/(0)6336-1793	2011	2015	190 000 (SGD 800 000)	123 000 000 (SGD 196 MIL.) USD 157 MIL.	Detailed design of construction and traffic decking drain diversions, detailed face pressure analysis and consultancy during construction bored tunnel section
53	MRT Singapore, Down Town Line 3, C932, Singapore	Excavation dia. 6.65m, internal dia. 5.8m, segment 275mm thk, NATM method, 1.6km tunnel and cross passage; 2 nos. of EPB TBMs	Sato Kogyo Site Office Bedok Industrial Park C, Singapore 419612 Mr. Hideki Kureyama T: +65/6448-5536 F: +65/6449-8729	2011	2014	110 000 (SGD 300 000)	121 431 000 (SGD 199 MIL.) USD 159 MIL.	Detailed design of cross passage shaft using NATM detailed face pressure analysis and consultancy during construction bored tunnel section
54	Metro Santiago de Chile, Diagnostic Study Los Leones Station, Chile	Estimation of the deformations that the excavation of the new Los Leones station of Line 6 would cause over the existing station of Line 1.	Metro S.A Avda. Libertador Bernardo O'Higgins n°1414, Santiago, Chile Sr.Hernan Corssen T: +56/(0)2 250 3507 T: +56/(0)2 250 6023 F: +56/(0)252 6078	12/2011	02/2012	1 240 (CLP 1 144 781)	n.a.	Consultancy
55	Metro Buenos Aires Extension Line H, Sections A1, C2, Tail and Workshop Argentina	"Section A1: 1,3 km 2 track running tunnel & 2 stations, all in C&C construction Section C2: 2 km 2 track running tunnel & 3 stations, all in NATM; 1 additional C&C station Tail and Workshop: both elements preliminarily proposed as underground C&C structures, still to be confirmed " Services provided to Contractor.	Techint Compañía Tecnica Internacional S.A.CI. y Dycasa Sociedad Anónima- Unión Transitoria de Empresas (Joint Venture), Hipólito Bouchard 557, piso 16°, Ciudad Autónoma de Buenos Aires, Argentina; T: +54/11 4018 4100	11/2011	2013	Design: approx. € 725 000.- Addenda 2014 - Design: approx. € 621 800.- Supervision: approx. € 225 000.- +VAT (amounts only for GC)	310 000 000	Detail design of all temporary and permanent underground works which are in contact with the ground; Supervision during construction
56	Metro Santiago de Chile, Design Criteria, Chile	Preparation of the Design Criteria for the underground works of the Santiago Metro. Definition and evaluation of the criteria, thus creating a base or starting point for future designs of Metro underground works.	Metro S.A Avda. Libertador Bernardo O'Higgins n°1414, Santiago, Chile Sr.Hernan Corssen T: +56/(0)2 250 3507 T: +56/(0)2 250 6023 F: +56/(0)252 6078	11/2011	02/2012	129 991 (CLP 119 946 849)	n.a.	Detailed design

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57	Metro Buenos Aires, Line H Extension, Section C2-A0/A1 Argentina	Section A0, in Cut & Cover construction, with diaphragm walls, comprising: 1 Station (Pompeya), 2 track running tunnel L= 143 m, Ventilation shafts and accesses to station. This Section is awarded, but we did not start with its design, since most probably it will not be constructed. Section A1, in Cut & Cover construction, with diaphragm walls, comprising: Station (Sáenz), 2 track running tunnel L= 1153 m, Ventilation shafts and accesses to station, 1 Underpassing Main Sewer, 2 Underpassings of rainwater channels. Section C2, primarily in mined excavation with NATM Method, comprising:3 Stations (Córdoba, Santa Fe and Las Heras), 1 station in cut & cover construction (Facultad de Derecho). 2 track running tunnel L= approx. 2 km, Ventilation shafts and accesses to stations.	UTE Techint & Dycasa (Private Company); Argentinien, Buenos Aires City, Brigadier Facundo Quiroga 910. CP1425 Ing. Marcelo Arias T: 54 11 4018-1680 (int 50441)	10/2011	12/2015	~ 1 967 360 (ARS 11 783 995)	~ 402 414 000 (ARS 2 410 359 257)	Detailed design of all underground structures, (excluding inner structures, platforms, etc.). Including geotechnical site assessment during construction
58	Metro Delhi, Phase III, DRMC CC-05, India	Metro tunnel, length: 2.561 km in the state of New Delhi. Cross section: ~ 26.4 m ² , TBM Method	Alpine Bau India Pvt. Ltd. R-45, First Floor Greater Kailash Part - I New Delhi - 110 048 India Mr. Erich Golger	09/2011	10/2011	21 000	104 619 391	tender consultancy
59	MRT Singapore, Down Town Line 3, C926, Singapore	Excavation dia. 6.65m, internal dia. 5.8m, segment 275mm thk, shaft dia: 25 m Subway, 2.9 km twin bored tunnels (Expo & Bukit Panjang bound); TBM launching from two remote tunnel circular shaft; 4 nos. of EPB TBMs	CMC Cooperativa Muratori Cementisti Ravenna 11A Tampinese Avenue 1, 528693 Singapore T: +65 6784 5101 F: +65 6784 7491 Mr. John Heffernan (PM) T: +65 9022 92569 john.heffernan@cmcra.com	06/2011	12/2014	389 737 (SGD 600.000)	137 882 000 (SGD 226 MIL USD 181 MIL)	detailed design of construction and traffic decking drain diversions, detailed face pressure analysis and consultancy during construction bored tunnel section
60	Metro Delhi, DMRC CC-04, Access Corridor Mukund Pur-Yamuna Vihar, Phase III, India	Metro tunnel, length: 1.994 km in the state of New Delhi. cross section: ~ 26.4 m ² , TBM Method design and Construction of Tunnel by Shield TBM, Tunnel by Cut & Cover, Underground Station at Azadpur by Cut & Cover Method & Ramps at Mukundpur and Shalimar Bagh for Underground Works on Mukund Pur-Yamuna Vihar Corridor	Alpine Bau India Pvt. Ltd. R-45, First Floor Greater Kailash Part - I New Delhi - 110 048. India Erich Golger	06/2011	08/2011	27 603 (INR 2 190 350)	79 366 434 (INR 468 583 395)	tender consultancy
61	MRT Bangkok, Blue Line Extension Project, Contract 1, Thailand	double track running tunnels: length: 2,8 km and 2 stations in C&C (Wat Mangkon and Wang Burapha)	Ove Arup & Partners International Ltd., 13 Fitzroy Street, London W1T 4BQ, United Kingdom Mr. Timothy Suen T: +852-2268 3838 timothy.suen@arup.com	04/2011	2013	509 993 (USD 702 154)	400 000 000 (USD 593 516 000)	Preliminary design, detail design, tender design,
62	MRT Singapore, Down Town Line 3, C928, Singapore	Excavation dia. 6.65m, internal dia. 5.8m, segment 275mm thk Two bored tunnels length 0.8km and 0.65km respectively	Sato Kogyo Site Office Bedok Industrial Park C, Singapore 419612 Mr. Hideki Kureyama T: +65/6448-5536 F: +65/6449-8729	2011	2013	129 912 (SGD 200 000)	175 382 000 (SGD 270 MIL) USD 216 MIL.	Detailed face pressure analysis and consultancy during construction bored tunnel section
63	Metro Santiago de Chile, Line 6 - Soil Mechanics project	Technical opinion on the results of the soil mechanics of sections I and II for the Line 6 Project, Vitacura-Cerrillos Sector". Forecast of the probable geotechnical behavior of the ground during the excavations of the underground works of the future Line 6.	MSA Geoconsultores	04/2011	06/2011	6 160 (CLP 5 689 009)	n.a.	Consultancy

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64	Tel Aviv LRT, Green Line, Israel	LRT line, total length 35 km, Central section 4 km tunnels and 5 underground stations, two single track running tunnels, 6.50 m internal diameter, cross passages every 250 m; construction methods: running tunnels NATM/TBM options, stations cut & cover.	Levy & Shtark Engineering Consultants	03/2011	12/2017	604 000	n.a.	Preliminary and Final (tender) design for underground structures
65	Tel Aviv LRT, Red Line, Running Tunnels Israel	LRT line, total length 22 km, 8,5 km underground, two single track running tunnels, 6.50 m internal diameter, 10 underground stations and C&C structures between Geha Junction in the east and the Turkish Alignment (elifellet) in the south/west, excavation in sandy soils under groundwater using 8 shielded TBMs; pre-cast segmental lining; cross passages every 250 m	NTA – Metropolitan Mass Transit System Azrieli Center, Holon 1, Building A, 9 th floor, 26 Harokmim Street, Holon 5885839, Israel T and F: +972 (3) 724 3000 nta@nta.co.il Gilad Buimovich, Divison Manager of Engineering T.: +972 (3) 724 3071 giladb@nta.co.il	02/2011	06/2018	958 160	1 290 000 000 (civil works, status 2016)	Preliminary and tender design incl. preparation of tender documents for design & build contracts, construction permits
66	Metro Tel Aviv, Red Line Israel	Preliminary and final design of bored tunnels for the Red Line; construction impact assessment. Length: 2 x 7.6 km bored tunnel, 24 cross passages, 10 u/g stations Dimensions - Tunnel iD 6.5m, length of cross passages is about 15m	NTA, Tel Aviv Metropolitan Mass Transit System 53 Yigal Alon St., Tel Aviv 67062, Israel	02/2011	2015	558 623 (SGD 860.000)	n.a.	Consulting, preliminary design, detail design, cost estimate, tender documents, environmental services
67	Metro Santiago de Chile, Line 2 North. Underground Parking Metro Patronato	Verification study of the effect generated by the construction of underground parking lots, projected on Av. Recoleta, in the sector of the Patronato station, belonging to Line 2 North of Santiago de Chile.	Constructora Pérez-Valenzuela	12/2010	12/2010	5 821 (CLP 5 368 286)	n.a.	Verification Study and Consultancy
68	Stuttgart 21, Wendlingen-Ulm, PA 2.5a1, Reconstruction Mainstation Ulm, Germany	Reconstruction of rails of the main railway station of Ulm. 100 construction stages under operation, length: 8,5 km, 83 switches, EM/communication, civil structures	Deutsche Bahn AG Beschaffung TEC 5 Räpplenstr. 17, 70191 Stuttgart, Germany Dr. Stefan Kielbassa T:+49 (711) 93319-230	11/2010	03/2019	418 400	n.a.	Construction supervision, checking of tender documents
69	Metro Buenos Aires, Extension Line H, Section North and South, Argentina	Detailed design of all civil works that are in contact with the soil in the extension of Line H. Including Sections A1 (South), construction with walls cast and previous slab, with the Sáenz station and around 1.1 km of 2-way tunnel, a garage in a 4-way underground cavern of around 250 m long; and Section C2 (North), including 3 underground stations in cavern and 1 station with previous slab, each 135 m long, and around 2.4 km of 2-way underground tunnel, ventilation, access ramps, etc.	UTE Techint & Dycasa Hipólito Bouchard 557 1110 - CABA, Argentina Ing. Marcelo Arias macapozzo@UTEDycasa.techint.com	10/2010	07/2018	3 193 970 USD 3 550 000 (Ingeniería) 305 901 USD 340 000.- (Asesoría construcción) Sólo parte de Geoconsult	n.a.	Detail Engineering of all civil works in contact with the soil of the North and South Extension of the Subway H Line in Buenos Aires.
70	MTR South Island Line, Contract 901 SIL(E) Admiralty station and SCL Enabling Works, Hongkong	Target Cost Tender Submission for Admiralty Integrated Station: Geotechnical engineering, specialist design and associated consultancy services for station cavern and tunnels Length : Cavern: 110m, Platform Tunnels: 320 m, span app. 24m Overrun Tunnel including Bifurcations: 325 m, Galleries and Adits: 200 m Dimensions - Excavated Cross Section: Cavern: 320 m ² , Platform Tunnels: 85 m ² .Overrun Tunnels: 70 - 210 m ² , Galleries and Adits: 15 - 45 m ²	Vinci-Alpine-Chun Wo Joint Venture 3/F, Chung Name Building 1 Lockhart Road, Wanchai, Hong Kong Mr. Andrew J. Narramore F: +852/2824 2991	07/2010	2011	40 000 (USD 52 165,60)	212 429 000 (USD 260 Mil.)	General Studies, consulting, geological Services NATM Design
71	Shatin Central Link (SCL) Los C1105 Hong Kong	subwayline (MTR), design for tunnels of section form Sung Wong Toi to Lok Man and Ho Man Tin Station, running tunnel: 2500 m; TBM single track Tunnels 2 x 1,1km, ID: 6500 mm, slurry shield machines, segmental lining NATM section from Shansi Shaft to Lok Man station	Ove Arup & Partners Hong Kong Ltd Level 5 Festival Walk, 80 Tat Chee Avenue Kowloon Tong, Kowloon, Hong Kong James Musgrave Timothy Tsuen T: +852/(3)/2528-3031	02/2010	03/2011	~ 1 000 000 (SGD 300 000)	525 683 000 (USD 730 Mio.)	develop tender documents to be issued for two D&B contracts for bored tunnels and NATM tunnels

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72	MRT Express Rail Link - Lot C824, Hong Kong	2 single-track Metro Tunnels in rock (Tuff), Drill&Blast excavation (Q-System) with up to 200m overburden, including crossover and bifurcation sections for existing lines, 2 shafts with maximum 80m depth, Tunnel length: 2x 2600m, Cross Sections: 60m ² (single track) - 350m ² (crossover)	CEC-Paul-Y Joint Venture c/o Continental Engineering Corporation Hong Kong Branch Office Suite No. 16078, Silvercord, Tower 2 No. 30, Canton Road, TST Kowloon, Hong Kong Ralf Kaemmerer T: +91/(99)/7111-2098	2010	2011	35 000	n.a.	tender works for the construction companies including cycle times for drill and blast excavation development of time construction schedules
73	Metro Singapur, Downtown Line 2, C911, Singapore	Accredit Checker Services, new depot for DTL 200 m long of cut and cover tunnel	Ronnie & Koh Consultants Pte Ltd 28 Sin Ming Lane, Midview City #06-138, Singapore 573972 Mr. Ronnie Chong T: +65/6225 7128 F: +65/6225 7182	2009	ongoing	n.a.	194 431 000 (USD 270 Mio.)	consulting, geological services
74	MRT Singapore, Downtown Line 2, C919 Botanic Gardens and Stevens Singapore	2 stations, 35 m deep, Botanic Garden Station: 104 x 45 m Stevens Station: (Stacked) 106 x 40 m, 1 bored tunnel: 2 x 1 km, inner Ø - 5,8 m, excavation diameter: 6.65 m, 2 cross passages, 2 nos EPB TBM	Sembawang Engineers and Constructors Pte. Ltd. 460 Alexandra Road #27-01 PSA Building Singapore 119963 T: +65/6305 8788 F: +65/6305 8568 Mr. Low Chye Chin (Project Director) 31A Evans Road, #01-01, Singapore 259373 T: +65/6594 5400 F: +65/6594 5445 lowcc@sembawangenc.com	07/2009	07/2015	3 894 615 (SGD 7 908 989)	230 255 000 (Construction: SGD 375 Mio.) 4 667 330 (Design: SGD 7,5 Mio)	detail design of temporary and permanent works, bored tunnel, cross passages, tunnel sump
75	MRT Singapore, Downtown Line 2, C918, Tan Kah Ke, Sixth Avenue, Singapore	Three sections of bored tunnel (2 x slurry TBM, 1x EPB TBM) + 3 mined cross passages; all temporary and permanent works 920m (BTN to TTK Station); 555m (CCT at TTK Station to SAV Station); 2 slurry TBMs, 1 EPB TBM, Tunnel ID = 5.8m, Segmental lining thk=275mm	Alpine Bau GmbH No 16A Fourth Avenue #01-01 Singapore 268671 Mr. Dietmar Rimml T: +65/(0)6603 0484 C918 - later completed by SK E&C Mr Yoon Jeong Wook T: +65/(0)6294 7177	2009	2015	1 230 210 (SGD 2 000 000)	230 665 000 (SGD 375 mil.)	detail design of temporary and permanent works, bored tunnel, cross passages, tunnel sump, assessment for the underpassing of existing CCL MRT tunnel and DTSS tunnel
76	MRT Singapore, Downtown Line 2, C917 King Albert Park, Sixth Avenue, Singapore	1 bored tunnel section + 3 cross passages, 1386m (SAV to KAP Station); 2 nos. EPB TBM, Tunnel ID = 5.8m, Segmental lining thk=275mm	Alpine Bau GmbH No 16A Fourth Avenue #01-01 Singapore 268671 C917 - later completed by McConnel Dowell Mr Ryan McDonough T: +65/(0)6603 0400	2009	2015	1 045 680 (SGD 1 700 000)	230 665 000 (SGD 375 mil.)	detail design of temporary and permanent works, bored tunnel, cross passages, tunnel sump, assessment for the underpassing of existing CCL MRT tunnel and DTSS tunnel
77	Metro Vienna, U1/9 Section "Altes Landgut", Vienna, Austria	two 500m mined running tunnels (37m ²), two 120m mined platform tunnels (77m ²), two 20m mined ventilation cross passages (31m ²) and three C&C shaft constructions (max A = 1.600m ² , max. Depth = 30m)	Wiener Linien GmbH & CoKG Erdbergstraße 202 1031 Vienna Gerhard Ullmann T: +43/664-248-9232	2009	2014	565 564	47 000 000	independent checking engineer, review of detailed, preliminary and tender design of the mined tunnel structures (by application of NATM) and the shaft constructions, Project Supervisor Health & Safety

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78	MRT Singapore Downtown Line 2 C921 Rochor Road & Little India Singapore	Little India Station: 165m length, 25-30m deep, diaphragm wall Rochor Station: 158m length, 25-30m deep, diaphragm wall Cut & cover tunnel: 337m length, 30m deep, diaphragm wall with 6 rows of struts. Mined tunnel: 5.8m inner diameter, 58m length, 30m depth. Segmental lining: inner diameter 5.8m, 1.5m rings (5+1); 275mm thick. Total TBM tunnel length: app.293m; TBM type: Earth pressure balanced (EPB) shield. Ground treatment: jet grouting, TAM grouting in the station area	Sanyong Engineering & Construction Co. Ltd. No. 2 Mayne Road, # 01-01 Singapore 227963 Mr. Song Chung Han T: +65/(0)6572 9674 F: +65/(0)6572 9699 Email: chsong@ssyenc.com	2009	2014	311 790 (SGD 480.0009)	449 623 200 (SGD 800 MIL.) USD 600 Mil.	detail design of temporary and permanent works, bored tunnel, cross passages, tunnel sump
79	Metro Shiraz Line 2 Iran	double- and single-track running tunnels (subway with design speed 90 km/h) in soft rock (alluvium, sandy to clayey silt) under shallow overburden: ~15 m. TBM tunnel - single track: length approx. 4.700 m, outer Ø: 6,88 m, NATM tunnel - double track: length: approx. 450 m, cross section: 80 m ² cut & cover tunnel: length approx: 890 m + 9 stations (120 m each)	SURO - Shiraz Urban Railway Organization Chamran Blvd. No. 249 Shiraz 71437 Iran Ing. Farajoillah Rajabi T: +98/(711)/ 627-2091 F: +98/(711)/ 627-2092	07/2009	2013	1 964 100	964 100 000	conceptual design of the line and all its relevant civil and technological components preparation of tender documents and assistance to the client during tendering procedures.
80	MRT Singapore Downtown Line 2 C916 Beauty World Singapore	1 station, 2 x 1000 m bored tunnel, 2 cross passages, (one with pump sump), TBM, 1 cut&cover tunnel, 1 bored tunnel: inner Ø - 5,8 m, excavation diameter: 6.65 m	Worley Parsons Ptd. Ltd. 111 Somerset Road, # 12-05 Tripleone Somerset, Singapore 238164 Mr. Vince Goh T: +65/6735 8444 F: +65/6735 7444 vince.goh@worleyparsons.com	06/2009	05/2013	1 250 000 (SGD 2 200 000)	175 353 048 (SGD 340 000 000)	detail design and construction of stations and tunnels, cross passages, tunnel sump, building damage assessment, ground treatment, under passing of expressway viaduct
81	Downtown Line DTL3 – Downtown Line Package A, Singapore	Downtown Line Stage 3 (Package A) with respect to mined station at Bencoolen Street. Length: 200 m; 40 m deep, 12 Cross Passages, 2 Escape Shafts. Review of Segmental Lining 2 x 5 km. Dimensions - Station: 24 m wide, 42 m deep	Arup Singapore 10 Hoe Chiang Road #26-01 Keppel Towers Singapore 089315 T: +65/6411 2499	2009	2013	604 577	497 225 000	Engineering Consultancy Services for Proposed Downtown Line Stage 3 (Package A) with respect to mined station at Bencoolen Street Professional architectural and engineering services including architectural and advanced engineering study, detailed design, design services during construction, prepare, endorse and submit as-built drawings
82	MRT Bangkok Blue Line Extension Project Contract 1 and 2 Thailand	17 km long extension of the existing MRTA Blue Line in Bangkok, total length of underground section: 5,5 km 4 stations and adjoining single track twin running tunnels running tunnels: construction by EPB shield type TBM stations: by cut&cover method using diaphragm walls; two stations only limited space can be used for open excavation and plat form tunnels will be established by underground construction	AECOM Asia Co.Ltd 8/F Grand Central Plaza, Tower 2 138 Shatin Rural Committee Road Shatin, Hong Kong Bob Frew bob2.frew@aecom.com	2009	2012	702 154	275 000 000	tender design for bored and mined tunnels and stations
83	Metro Sydney Line 1 Australia	single track running tunnels with seven (7) stations are connecting the central station and the suburb Rozelle via CBD running tunnels - length: appr. 7.2 km, cross section: 35 m ² , 7 stations, cross section: 180 m ² ; construction method: TBM (between White Bay and Central Station) mined tunnel (NATM) - west of White Bay Stations - excavated by road header; excavations of 6 stations, 7 ventilation caverns, 3 all cross over caverns and tun out caverns - designed as NATM sections, 1 station as cut&cover construction (White Bay Station) Mostly sandstone (Hawkesbury Sandstone); alluvium sediments and sediments in the area between the White Bay Station and the existing White Bay Power Station and in a short section near the Central Station	Leighton Contractors Pty Limited 799 Pacific Hayway Tower A, Level 4 2067 Chatswood NSW Australia Mr. Rob Vusic T: +61/(2)9414-3333	2009	2010	142.231 (~ SGD 224.404)	n.a.	Design for Tender Submission involving geotechnical design, excavation sequences, temporary support and final lining design for roadheader tunnels and associated structures; instrumentation and monitoring; building protection measures for historical power station; retaining walls and final lining design for cut and cover station box.

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84	Metro Buenos Aires Línea "B" - Section "C" Extension Argentina	Mined excavation with NATM method; Total length= 695 m; Train depot cavern, 21 m of width and 459 m of length, with 4 tracks for the parking of trains; 2 single track tunnels, length 26 m, as connection between the train depot cavern and the existing Station Villa Urquiza, end station of Line B; Workshop, consisting of a 2 track tunnel, length 210 m.	Roggio S.A (private Company); Argentina, Buenos Aires City, L. N. Alem 1050 9º Floor. C1001AAS Ing. Pablo Tisselli T: +54/(11)/60917300 T: +54/(11)/60917301	12/2008	12/2011	555 342 (USD 782 771 ARS 2 696 918)	28 573 300 (USD 40274 924 ARS 138 761 088)	Tender Design, Detail Design (including Architectural Design), 3D Displacement Monitoring and Site Assessment during construction
85	Metro Buenos Aires Line "B" - Train Depot & Workshop Argentina	detailed design of the Main Cavern for train depot, cross section >200m ² and length: 400 m and a double track tunnel section for workshop appr. length: 300 m 2 temporary construction accesses, ventilation shafts, escape shafts. Temporary and permanent drainage design. Design developed for Contractor. NATM	Roggio S.A. Av.F.Roosevelt 5170 C1431CDS, Buenos Aires, Argentina Ing. Pablo Tiselli T: +54/(11)/4523/7974/78/83 e-mail: ptiselli@broggio.com.ar	12/2008	07/2011	302 667 (USD 435 568 ARS 1 469 848)	38 605 500 (USD 55 557 1759 ARS 187 480 662)	detailed design of the main cavern for depot, double track tunnel for workshop & complementary works including geotechnical and construction site assessment
86	Metro Buenos Aires Línea "E" Extension Argentina	2 Single track running tunnels, Length 1.918 m each, mined excavation with NATM method; 3 Stations (Correo Central, Catalinas and Retiro)m cut & cover construction; For station Correo Central, a mixed alternative –half mined, half in c&c construction- was evaluated, but discarded; 2 underpassings of existing Metro Lines "B" and "C" 2 access ramps for construction; Ventilation shafts and accesses to stations	Roggio S.A (private Company); Argentina, Buenos Aires City, L. N. Alem 1050 9º Floor. C1001AAS Ing. Pablo Tisselli T: +54/(11)/60917300 T: +54/(11)/60917301	12/2008	02/2010	108 095 (USD 147 265 ARS 524 944)	€ 158 866 000 (USD 216 434 272 ARS 771 504 133)	technical advice during design in terms of construction procedures, geotechnical issues, primary support, groundwater treatment
87	Metro Delhi Airport Link, Package C6 India	double track metro tunnel (NATM) length: 2.5 km, diameter: approx. 10 m shallow overburden with varying ground conditions ventilation shaft 28 x 32 m , underground tunnel ventilation building, NATM construction shaft, cut & cover and ramp sections	Alpine HCC JV (DMRC - AMEL C6) 2, Jain Mandir Road New Delhi 110001, India Ralf Kaemmerer T: +91/(99)/7111-2098	01/2008	07/2010	918 811	42 466 050	tender and detailed design, design coordination, assessment and evaluation of monitoring results, assistance to contractor during construction
88	Metro Santiago de Chile, Extension Line 5 to Maipú, Chile	Detail Engineering and Supervision of sections 0 and 1 Line 5 to Maipú. 3.8 km tunnel with NATM method, including 3 underground stations (140 m ² cross section) and several intermediate access shafts.	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	01/2008	04/2009	153 479 (CLP 120 970 120)	4 700 000 (CLP 3 225 915 500)	detailed design, site supervision
89	MRT Singapore, Downtown Line Phase I, Contract C905 between Promenade Station and Marina Bay, Singapore	4 x 800m bored tunnel (iD 5.8m), 5 shafts between 25 to 45 m deep. 2 TBM launching chambers (NATM), 3 NATM running tunnels. Shaft area: 300 - 400 m ²	Shimizu Corporation, 78 Shenton Way # 04-03 Singapore 079120 Dr Suthiwarapirak Peerapong Tel: +65 6220 0406 Fax: +65 6224 9890 Email: suthi.peerapong@shimz.biz	08/2007	12/2011	1 606 810 (SGD 3 Million (basic design fee)	60 617 700 (SGD105 000 000)	detail design of all temporary and permanent works
90	Metro Santiago de Chile, Extension Line 5 to Maipu including Station Gruta de Lourdes, Blanqueado and Lo Prado, Chile	3 Metro Stations with lengths of 3 x 140 m, 3560 m running tunnel with cross sections between 65 m ² and 162 m ² with NATM (New Austrian Tunnelling Method) in sandy silt, gravel and cemented sand called Pumicita. Excavation Depth: 16.7 m, Excavation Volume: 573.000 m ³ Concourse Detail: Public, Ground Water Table: >70m	Cade-Idepe, José Domingo Canas 2640, Nuñoa, Santiago, Chile Sr. Sergio Rosales T. T: +56/2-640 6643	04/2007	06/2009	461 469 (USD 630 000)	€ 53 838 015 (USD 73 500 000)	detailed design and constuction supervision, consultancy
91	Metro Dubai Green Line UAE	Total length: approx. 23.1 km, TBM stretch: 6,184 m Ø 10 m shield, advance in sand and sandstone 8 underground stations (incl. 2 transfer stations to Red Line), ground treatment, instrumentation & monitoring	JT Metro JV (Obayashi-Kajima-Yapi JV) Union Square, Junction Al maktoum Road & Omar bin Al Kattab Road P.O.Box 183170 - Dubai, UAE Mr. Junichiro Nakayama T: +971/(4)/2212121-829	2007	2009	450 000 (SGD 906 219	~ 3.800.000.000 (est. for completed metro system with all lines SGD 7.652.516.000)	consulting for bored tunnel management + supervision of instrumentation and monitoring works interpretation of results

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92	Metro Santiago de Chile, Extension Line 5 to Maipú, Chile	3 underground stations, cross section: 137 - 140 m ² , running tunnels, cross section: 52 - 67 m ² , length: 3,8 km, access shafts, cross section: ≈ 315 m ² , access galleries, cross section: 56 - 123 m ² ventilation tunnels, cross section: 42 - 69 m ²	Cade-Idepe, José Domingo Canas 2640, Nuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	2006	2009	243 645 (CLP 192 595 419)	n.a.	basic and detailed engineering site supervision
93	Metro Santiago de Chile, Extension Line 5 to Maipú, Chile	8 shafts and access galleries for the main station and 5 shafts and intermediate accesses, including 500 m running tunnel and 800 m of main station tunnels side-drifts. Underground works with NATM method, cross sections station 125 - 150 m ² . Running tunnel	Cade-Idepe, José Domingo Canas 2640, Nuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	07/2006	03/2008	252 074 (CLP 174 517 908)	74 250 000 (CLP 47 669 040 000)	detailed design and site supervision of initial works
94	Subway Singapore, Circle Line 4, Contract C855 Construction Holland, Buona Vista and NUH Stations and Tunnels, Singapore	Design of temporary ground support for TBM launching chamber underneath expressway, Total length: 25 m, 8.5m ∅ ID tunnel	Woh Hup -STEC - Alpine JV 217 Upper Bukit Timah Road, Woh Hup building Singapore 588185 Mr: Yong Mee Him T: +65/(0)6385 5858 F: +65/(0)6272 3322 yong-meehim@wohhup.com	2006	2008	150 000 (SGD 236 662)	~ 259 790 000 (~SGD 450 mil.)	detailed design of excavation support for large NATM TBM launching chamber (95m ²) and underpassing of Ayer Raja Ave in rock and soil, construction supervision/assistance
95	Metro Santiago de Chile Extension Line 1 - Dominicos Chile	4 shafts + access galleries for the main station 4 shafts + intermediate accesses underground works with NATM method cross section: station 125 - 150m ² , running tunnels: 60m ² , length: 4 km	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2006	2008	127 846 (CLP 100 766 602)	74 250 000 (CLP 51 183 198 000)	detailed design, geotechnical consultancy services, site supervision
96	MRT Singapore Downtown Extension, Line 1, Contract C905, Singapore	tender design of bored tunnels (4 tubes internal diameter 5.8 m; each 580 m long using 2 EPB TBMs) including 5 shafts, 4 escape passages and three 7m diameter NATM tunnels in soft ground.	Shimizu Corporation, 78 Shenton Way # 04-03 Singapore 079120 Dr Suthiwarapirak Peerapong Tel: +65 6220 0406 Fax: +65 6224 9890 Email: suthi.peerapong@shimz.biz	2006	2007	1 573 570 (SGD 3 348 321)	68 843 600 (SGD 146 480 854)	tender design, preliminary design NATM design, construction supervision incl. segmental lining design
97	Metro Santiago de Chile, Extension Line 5 to Maipú, Chile	19 access shafts and tunnels. cross section 70 - 150 m ² . NATM construction	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2006	2007	270 000 (CLP 171 490 500)	4 700 000 (CLP 3 090 268 800)	detailed design, site supervision
98	Subway Singapore Circle Line 5, Contract C856 Construction & Completion Pasir Panjang, Alexandra, Telok Blangah Station and Tunnels Singapore	Running tunnel and construction shafts (26,4 m ²) detailed design of temporary works, cross passages, temp tunnel bracing, ground treatment, calculation of TBM face pressures. Total length: 5500 m including 4 stations using cut and cover method , 2 cut and cover tunnels and 5 bored tunnel drives. Within the contract there are totally about 6 nos NATM Cross Passage. Cross Passage: 1400 mm x 2250 mm (id=perm) = 4.5m ID circular tunnel (temp)	Sembawang Engineers and Constructors Pte Ltd. 60 Admiralty Road West #03-01 Singapore 759947 Mr Chua Sey Kok T: +65/6754 6678	2006 2005	2011 2009	120 000 (USD 158 106)	151 000 000 (USD 197 Mil.)	detailed design
99	Metro Budapest Line 4 - Phase 1 Hungary	Station St. Gellert Square Station, mined station, platform tunnels, shafts construction method: NATM excavation, cross section: 70-140 m ² Total length of construction lot: ~ 750m 6 km TBM running tunnel alignment, overburden: 15 - 20 m, excavation Depth 25m, excavation Volume: ~ 80.000 m ³ , groundwater level: 3 - 5 m	BAMCO Kkt. (BAMCO JV) Petzvál József street 31-33 H-1119 Budapest, Hungary Gerd Blümel (Project Manager) T: +36/(1)5777-842 F: +36/(1)5777-898 gerd.bluemel@bamco.hu	2005	09/2009	930 000	29 600 000	Tender design and detailed design (Gellert Station and all NATM underground related structures) particulate proposal for NATM surface settlement predictions along 6 km TBM running tunnel alignment surface settlement predictions for crossover structure

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100	Metro Dubai Red Line UAE	Total length: 52.0 km, TBM stretch: 3,725 m, Ø 10 m shield advance in sand and sandstone, 4 underground stations escape and ventilation shaft structures (annex structures) including connections to TBM tunnels, ground treatment instrumentation & monitoring, assessment of construction impact for all buildings, structures and services along the underground alignment instrumentation & monitoring	JT Metro JV (Obayashi-Kajima-Yapi JV) Union Square, Junction Al maktoum Road & Omar bin Al Kattab Road P.O.Box 183170 - Dubai UAE Mr. Junichiro Nakayama T: +971/(4)2212121-829	2005	2009	1 500 000	13 500 000 ~ 3 800 000 000 (est. for completed metro system with all lines)	Detailed design for bored tunnels and annex structures Construction supervision for cross passages Management and supervision of instrumentation and monitoring works Interpretation of monitoring results
101	Subway Singapore, Circle Line 4&5, Contract 854 Singapore	detail design of temporary works, ground support for cross passages, temporary tunnel bracing, ground treatment, tunnel pump sump, detail design and consultancy for launching and retrieval of 2 slurry and 2 EPB TBMs	Taisei Corporation 500 Jalan Mashhor #01-02 S(299175) Mr. Yoshimitsu Aya	2005	2009	325 000	n.a.	detail design, consultancy
102	Subway Singapore Circle Line 3, Contract 853A Bishan Interchange Station (NSL) Singapore	passenger linkways below existing Bishan Station steel supports, underpinning of existing station platform Linkway: 2 x 16m, Escalator: 2 x 17.5m (on plan) and 1 x 9m Linkway: 5 x 6m, Escalator: 4 x 6m	Eng Lim-Ho Lee JV Contractors 13A Bishan Place #01-01 579840 Singapore Mr. Teng Yau San	2005	2008	125 000 (SGD 250 000)	156 625 000 (SGD 125 Mil.)	preliminary design, detailed design, consulting NATM design, construction supervision
103	Subway Singapore Circle Line 3, Contract C852 Singapore	underpassing of existing Serangoon Station with NATM advance tunnel and construction of cross passages	Woh Hup - STEC - Alpine JV 1 Fifth Avenue # 03-01 Guthrie House Singapore 268802 Mr. Yong Mee Him	2005	2007	265 000 (SGD 500 000)	78 488 500 (USD 97,5 Mil.)	detail design consultancy
104	Metro Santiago de Chile, Extension Line 2 North including Station Zapadores and Americo Vesputio , Chile	double track NATM running tunnels in gravel formation; cross section: 60 m ² , length: 1,7 km, including 2 mined stations with permanent shotcrete lining, cross section: 120 m ² to 160 m ² ; length: 135 m each, large access tunnels, ventilation shafts	Cade-Idepe, José Domingo Canas 2640, Ñuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	03/2005	09/2005	72 358 (CLP 48 517 184)	59 500 000 (CLP 45 062 146 500)	basic and detailed design site supervision
105	New Metro Rail City Project Contract 27/03 Perth / Australia	inner city works for southern suburbs railway, 800m twin tube bored tunnel (EPB shield machine), 1.5km cut & cover tunnel, 2 underground stations: c&c, top down method	Leighton Kumagai JV 1 Altona Street WA 6005 West Perth Australia Mr. Robert Wallwork T: +61(8)9327-6376	2004	2007	2 200 000 (SGD 4 681 270)	275 492 000 (SGD 420 000 000)	design of ground treatment including deep soil mixing and jet grouting detail design of compensation grouting underneath buildings including auxiliary shaft detail design of groundwater control system including dewatering and recharging wells detail design of the TBM launching shaft consulting related to bored tunnelling under live railway station geotechnical interpretative report ground settlement analysis and damage assessment building protection measures instrumentation and monitoring risk assessments
106	Metro Santiago de Chile, Line 4 (G and H sections), including Plaza Egana, Los Orientales and Rotonda Grecia Underground Stations, Chile	Metro Project: Mined stations with adjoining running tunnels and shafts. Cross section: 60 m ² to 70 m ² for running tunnels and 150 m ² to 160 m ² for stations, length of sections 2,2 km and 0,7 km. NATM construction with shotcrete combi-shell for running tunnels and stations. Twin tunnel with centre row of pillars for stations Plaza Egaña and Los Orientales.	Cade-Idepe, José Domingo Canas 2640, Ñuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	08/2003	11/2004	195 917 (USD 242 175 USD)	95 500 000 (USD 104 868 550)	detailed design and construction supervision
107	Subway Vienna Line 2, section 5 "Stadion" Vienna, Austria	Subway section consisting of elevated alignment 2 tracks, large station with elevated tracks, elevated section with 4 tracks and 1750 m bored single track tunnel TBM excavated, bored tunnel (5,8m i.D.), 60m C&C tunnel and 3 emergency exit shafts (max depth = 22m)	Wiener Linien GmbH & CoKG Erdbergstraße 202 1031 Vienna, Austria Gerhard Ullmann T: +43/664-248-9232	2002	2009	988 075	55 800 000	independent checking engineer, review of detailed, preliminary and tender design of the mined tunnel structures (by application of NATM) and the shaft constructions, Project Supervisor Health & Safety

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108	MRT Singapore, Circle Line Stage 2, MRT Contract C822, Singapore	temporary works for 2 MRT stations, Cut & Cover tunnels, Bored tunnel (EPB), Shafts for link sewer pipe jack. Length : C&C tunnel - 3.4 km (Incl. Dep. & Turn.) Bored tunnel - 4.1 km, 4 cross passages. Diaphragm and sheet pile with soldier pile walls Dimensions - 5.8 m ØiD BT, C&C: 9-35 m wide, 18-25 m deep	NCC - ECON JV 10B Circuit Link Singapore 378962 Mr. Choo Ket Weng T: +65/(0) 6741 7462	2002	2009	951 240 (SGD 1 503 168)	196 286 000 (USD 206 Mil. SGD 340 Mil.)	consulting, preliminary design, tender docs, detailed design launch shafts, TBM launching/retrieval, face pressures, settlements
109	Metro Delhi Line 2, Vishwa Vidyalyaya (Delhi University) - Central Secretariat Line, Contract MC1B Chawri Bazar Station India	Lot MC1B Metro Delhi, consisting of 7 stations between Central Secretariate and Kahsmere Gate; detailed design for all primary support measures at station complex at Chawri Bazar Station, consisting of two large shafts (cross section 1600 m ²), platform tunnels and cross adits in urban densely populated area, shallow overburden approx. 20 m, two NATM running tunnels between New Delhi Station and Chawri Bazar Station (approx. 400 m), one NATM running tunnel between Chawri Bazar Station and Delhi Main Station (approx. 150 m), platform tunnel cross section: 95 m ²	IMCC (International Metro Civil Contractors) 8 Jantar Mantar Marg, near Connaugh Place, New Delhi 10 001 India Mr. Norbert Gall T: +91/(11)23340542	04/2002	10/2005	1 460 000	385 000 000	geological investigations detailed design construction supervision geotechnical engineering
110	MRT Singapore, Circle Line MRT Contract 825, Singapore	detail design of MRT overrun tunnels and ventilation cavern cross passage, 2 x 107 m; 2 x EBP TBMs, 5.8 m AE iD	Who Hup – NCC – Shanghai Engineering JV Beach Road Site Office Mr. Christer Noren	2002	2005	125 000 (SGD 100.000)	32 000 000 (SGD 581 769 600)	detailed design of NATM overrun tunnels in soft ground
111	Metro Santiago de Chile, Puento Alto Station and running tunnels, Chile	two main mezanine access tunnels, (cross section 150 m ²), mined platform tunnels (cross section 180 m ²), NATM running tunnels, cross section 60 - 70 m ²	Cade-Idepe, José Domingo Canas 2640, Nuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	08/2002	07/2004	81 283 (USD 100.475)	37 500 000	detailed design and construction supervision
112	Metro Santiago de Chile Extension Line 2 North Section A2 - A5 Chile	3 access shafts: length: 40 m , cross section: 150 m ² 1 access tunnel: length: 40 m, cross section: 70 m ² 2 underground stations: cross section: 150 165 m ² 1 running tunnel: length 1,15 km	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	05/2002	05/2004	152 062 (USD 187 966)	310 000 000	detailed design, site supervision
113	Metro Santiago de Chile Line 4 - Section G-H Los Orientales Station Plaza Egaña Station Chile	2 underground station with central pillar method, cross section 150 - 125 m ² . NATM. running tunnels: length 1,85 km, cross section: 60 - 70 m ² , ventilation shafts	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2002	2004	510 000 (CLP 287 016 270)	520 000 000 (CLP 292 644 040 000)	tender documents, detailed design, site supervision
114	Metro Santiago de Chile Line 4 - Puente Alto Station Chile	Puente Alto Station 2 access tunnels: length: 50 m, cross section 150 m ² double track tunnels: total length: 1,8 km cross section: 60 - 90 m ² , 1 platform tunnel: NATM	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2002	2004	322 000 (CLP 181 214 194)	20 700 000 (CLP 11 649 483 900)	detailed design site supervision
115	Metro Santiago de Chile, Line 4, Chile	16 access tunnels, cross section 80 - 150 m ² , 19 access shafts, diameter 15-15 m, NATM construction	Cade-Idepe, José Domingo Canas 2640, Nuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	2002	2003	202 737 (163 748 955 CLP)	85 300 000	detailed design, site supervision
116	Metro Santiago de Chile, Line 4, Chile	1. 7,7 km running tunnels and 7 underground stations, ventilation tunnels, shafts and access tunnels 2. 1,5 km double track connection tunnels between Line 4 and 5. 3. 2,5 km running double track tunnels. 2 underground stations, shafts and ventilation tunnels. NATM	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	04/2002	09/2002	260 000 (CLP 14 730 456)	95 7000 000 (CLP 542 194 092 000)	basic design for the running tunnels detailed design for shafts and access tunnels

No.	Title of Contract, Location	Brief Description of the project	Client, person to be contacted, adress, telephone number	Commencement of services	Completion of services	Total fee Geoconsult (in €)	Total construction costs (in €)	Services
117	Metro Santiago de Chile, Line Tobalaba - Vespucio-Puente Alto, Chile	<u>Tobalaba-Rotonda Grecia</u> : 7 double-track mined stations - from North to South: 1 shaft and 1 acces tunnel: total 7 shafts and acces tunnel <u>Interface Vespucio-Vicuna Mackenna</u> : Mined Station Freiere - Station connecting between Line 5 and the new line 4 with tracks, 1 shaft and 1 access tunnel <u>Southern Limit - New Line to Puente Alto</u> : double-track mined station via Plaza Puente Alto, 1 shaft and 1 access tunnel	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	11/2001	01/2002	340 000 (CLP 196 749 160)	17 000 000 (CLP 9 837 458 000)	preliminary design
118	Metro Porto, Extension Line C from Campanha to Gondomar, Portugal	urban double track metro tunnel, total length: 1.022 m mined section: 780 m, cross section 61 m ² cutcover section: 242 m, NATM	Metro do Porto, S.A. Av. Fernão de Magalhães, 1862 - 7º P-4350-158 Porto Portugal Mr.João Rebelo T: +351/(22)508-1000	10/2001	09/2003	186 000	17 100 000	geological and geotechnical services conceptual desgin preliminary design tender design and preparation of tender documents
119	Metro Santiago de Chile Extension Line 2 North Section A1 Chile	Running tunnel below the Mapocho River Length: 1.451 m, cross section: 60 -100 m ²	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	07/2001	03/2002	360 000	20 700 000	detailed design, site supervision
120	Metro Athens Line 2, Section Sepolia – Thivo, Greece	Double Track Metro Tunnel, Metro Line 2, Section Sepolia - Thivon, Tunnel length: 2140 m, Cross section: 70 m ² (excavation) Overburden: 8 – 19 m. Geological, hydro-geological, geotechnical conditions: Conglomerate with overlying alluvial sediments; Athens Schist and Weathered Schists with isolated limestone inclusions; Marl formations with overlying weathered mantle. Groundwater table 0 – 12 m above tunnel crown.	Joint Venture Metro Peristeri Mantzarou 1 – 3, 154 51 N.Psychiko, Greece T: +30 1 67 47723-5 F: +30-1 67 47772-6	06/2001	02/2002	70 000	n.a.	Assessment of tunnelling conditions for Open Face Shield (OFS) drive, analysis of face stability. Definition of support at tunnel face and ahead of excavation. Planning of excavation and support cycle. Analysis and assessment of anticipated settlements. Definition and analysis of settlement mitigation measures. Assistance for the design and structural analysis of cross passages between running tunnel and escape shafts
121	Metro Santiago de Chile, Chile	detailed geological/geotechnical engineering review, evaluation, analysis etc. feasibility study - usage of TBM	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2001	2001	45 000	n.a.	feasibility study, preliminary design
122	Deep Tunnel Sewer System (DTSS), Contract T-06 Singapore	sewer, length: 9,6 km, ex. dia: 4,2 m (segments o.D.), bored tunnel (EPB) shafts drop structures. 2 EPB rock TBMs, 3 permanent access shafts, 1 drop shaft & odour control facilities, Dimensions - 3.3 m Ø	Ed. Züblin AG, No 1 Fifth Avenue, #04-03 Guthrie House, Singapore 268802 Mr. Rubin, Mr. Ogus T: +65 6339 0436	2000	2004	2 229 200	~ 46 000 000 (USD 54 Mil.)	detailed design, construction assistance, geotechnical assessments, detailed design for NATM tunnels, bored tunnel, shafts, manholes, access tunnels, drop structure and de-aeration chamber, odour control facilities, bored piles, deep sheet piles, ground treatment
123	Deep Tunnel Sewer System (DTSS), Contract T-03 Singapore	Detailed design for bored sewer tunnel (length: 5100m, int. dia: 6.0m – TBM dia. 7.2m), 4 perma-nent access shafts, access tunnels, lateral connector tunnel (300 m NATM) drop structures and odour control facilities. Work shaft (dia. 11m), temporary launch chamber 30m ² (NATM) Bored tunnel excavated by EPB TBM, using segmental lining and final corrosion protection lining system. Soft ground including Marine clay and Old Alluvium.	Kumagai - Sembcorp Joint Venture (DTSS), c/o Kumagai Gumi Co., Ltd. 210 Middle Rd. #07-01/03 IOI Plaza Singapore 188994 Mr. CK Gan T: +65/(6338)/5352	2000	2004	1 040 000	~ 45 949 912 (USD 53 Mil.)	geotechnical interpretation report und soil investigation, detailed design of bored tunnel segmental tunnel lining, detailed design of temporary and permanent works for all shafts and access tunnels, detailed design of ground treatment and temporary steel bracing, general advice during construction and supervision of tunneling works, provide contractual position as Lead Tunnel Designer

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124	Metro Santiago de Chile, Line 2 South, section to the El Parron Station, Chile	NATM running tunnels, cut and cover box for the mined access tunnel (150 m ² cross section) and a platform tunnel (125 m ² cross section, cut and cover box for the interchange station La Cisterna approx: area 8000 m ² , depth: 21 m)	Cade-Idepe, José Domingo Canas 2640, Nuñoa, Santiago, Chile Sr. Juan Maiz G T: +56/2-640 6643	2000	2002	151 150 (USD 210 000)	18 893 726 (USD 26 250 000)	detailed design and construction supervision
125	Metro Santiago de Chile, Line 5, Extension Matucana, Chile	metro section and 3 stations in NATM, access and ventilation shafts, adits, access tunnels tunnel length: 2.000 m, access tunnels: 60 m excavation cross section: tunnel: 60 - 90 m ² stations: 2 x 100 m ² , 1 x 150 m ²	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2000	2002	602 000	33 900 000	preliminary design, tender design and documents
126	Metro Santiago de Chile, Extension Line 2 North / South, Extension Line 5 West, Chile	<u>Line 2 North</u> : 2 underground stations, cross section 150 - 165 m ² , 3 access tunnels (150 and 60 m ²), 3 access shafts, 1 double track running tunnel with 1,15 km of length below the Mapocho river <u>Line 2 South</u> : 2 underground station, cross section 150 - 165 m ² , 3 access shafts, 1 access tunnel with 60m ² and 4 access tunnels with 150 m ² , 1 double track running tunnel with an length of 1,88 km <u>Line 5 West</u> : 3 underground stations, 3 access shafts, 2 access tunnels (NATM)	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	2000 06/2001	2001 01/2002	130 000 180 000	120 000 000	basic and detailed design of access shafts and tunnels site supervision
127	Metro Santiago de Chile, Extension Line 2 North, Chile	2 access tunnels for underground stations: cross section: 150 m ² / length: 40m 1 access tunnel: cross section: 70 m ² / length: 40 m 2 km double track running tunnel, NATM	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	10/2000	04/2001	335 000	42 500 000	basic and detailed design site supervision
128	Central Link Light Rail, Seattle, USA	metro tunnels in young glacial tills and lacustrine deposits. single track shield tunnels, cross section: 33 m ² , length: 2x8 km, overburden up to 60m, including underpass of Portage Bay.	Parsons Transportation Group Inc. Barton-Aschman De Leuw, Cather Steinman 1133 15th Street, NW, Suite 735 Washington, DC 2005 Mr. Mohammad Irshad T: +1/(202)/775-3377 F: +1/(202)/775-3389 Mohammad_Irshad@parsons.com	2000	2001	118 000	n.a.	tender design for the contractor for D&B contract, minded station and running tunnels
129	MRT Singapore Marina Line, Contract 824 Singapore	subway section, 2 MRT stations, c&c tunnel: 1.757 m, bored tunnel (EPB): 765 m Diaphragm and secant pile walls 45 m deep, ground treatment Dimensions - 5.8 m Ø iD	Wayss & Freytag Ingenieurbau AG, Hauptniederlassung Internationaler Tunnel- und Ingenieurbau, Eschborner Landstraße 130-132, 60489 Frankfurt am Main, Deutschland Dipl.-Ing. Peter Chiappa T: +49/(0)69 7929	2000	2001	165 386	301 771 000 (USD 200 Mil.)	preliminary design
130	MRT Singapore Marina Line, Contract 800C Singapore	tender for TBM advance, construction schedule and operation plan of TBM, geotechnical consultancy regarding ground conditions and TBM operation Geotechnical foundation design and study on feasibility of new MRT line including mined station (cavern) in soft ground Length : 2 x 2200m bored tunnel, 180m long MRT NATM Station, 5 C&C stations, Dimensions - 5.8 m Ø iD, 3 x 9m Ø	Hyder Consulting 60 Albert Street, Albert Complex #11-00 Singapore 189969 Dr. Victor Cheung T: +65/(0)334 3880	2000	2001	128 000	335 540 000 (USD 410 Mil.)	preliminary design, tender design and documents, detailed design

No.	Title of Contract, Location	Brief Description of the project	Client, person to be contacted, adress, telephone number	Commencement of services	Completion of services	Total fee Geoconsult (in €)	Total construction costs (in €)	Services
131	Metro Santiago de Chile, Line 5, Extension Matucana, Chile	metro section and 3 stations in NATM, access and ventilation shafts, adits, access tunnels tunnel length: 2.000 m, access tunnels: 60 m excavation cross section: tunnel: 60 - 90 m ² stations: 2 x 100 m ² , 1 x 150 m ²	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	04/2000	10/2000	430 000	33 900 000	construction supervision
132	MRT Singapur North East Line, Los C705 Singapur	total length of bored tunnels: 2 x ~1,9 km excavation by EPB shield, outside diameter: 6,3 m 5 cross passages by NATM, 2 stations (cut&cover) 350 m long cut&cover tunnel	Kumagai - Sembcorp Joint Venture (DTSS) c/o Kumagai Gumi Co., Ltd. 210 Middle Rd. #07-01/03 IOI Plaza Singapore 188994 Mr. Kunio Ichise T: +65/(0)254 3362	1999	2001	220 000	~ 115 000 000	detailed design, geotechnical advise
133	MRT Singapore, North East Line, Contract 710, Singapore	Twin Bored Tunnel (2 EPB shield TBMs), length: 1.360 m, cross section: 38 - 87m ² ; Detailed design of additional measures: ground freezing and cross passages and review of strutting designs	Shimizu Corporation; Seavans South No. 2-3, Shibaura 1-chome, Minato-ku, Tokyo 105-8007, Japan Mr. Naoki Kita	1999	2001	n.a.	109 837 000	detailed design, consulting, construction supervision/assistance
134	Metro Rome, Line C, Rome, Italy	2 single track TBM- running tunnel: Ø 6,3 m, Length excl. Stations: approx. 2 x 8,5 km. 9 Stations: Central station area in cut & cover (Length x width = 80 x 10 bzw. 20 m) with parallel platforms in NATM. (cross section: 95 m, length: approx. 120 m; altitude: 12 – 22 m. 3 Stations: in cut & cover	S.T.A Società Trasporti Automobilistiche Società per Azioni - Agenzia per la Mobilità del Comune di Roma Sede Via Ostiense, 131/1 00154 Roma Ing. Giovanni Simonacci (Direttore Ingegneria) T: +39 6 57 11 81 F: +39 6 57 11 8259, +39 6 57 118537	1998	2000	774 686 (ITL 1 500 000 000)	~ 517 000 000 (ITL 1 001 051 394 405)	drawing up a programme of geological and hydrogeological studies, consulting and servicing during the programme of hydrogeological studies, geological and geotechnical interpretation of the data from geological studies, developing a geological and geotechnical model, drawing up a project for submission including structural calculation, construction time planning and a cost estimate, drawing up settling forecasts and an underpinning strategy for the existing developments, some of which are historical developments and estimating the risk of encountering antique cavities and design treatment of these cavities
135	MRT Singapore North East Line, Contract 704 Singapore	Total tunnel length: 8.480 m; mined tunnel section: 8.250 m including 500 m section under compressed air, Tunnel length in cut & cover: 100 m. Tunnel length in top-down method: 130 m	Wayss & Freytag Ingenieurbau AG Hauptniederlassung Internationaler Tunnel- und Ingenieurbau Eschborner Landstraße 130-132 60489 Frankfurt am Main, Deutschland Dipl.-Ing. Peter Chiappa T: +49/(0)69 7929-0	06/1997	2001	1 639 130	216 000 000 (USD 190 Mil.)	Site Supervision/assistance
136	City Railway Bochum Construction lot E1 - station Rathaus Süd Germany	total length of lot: 860 m, single track mined running tunnels length: 1.360 m, mined method, cross section: 38 - 87 m ² additional measures: ground freezing, station - roof slab construction: ~110 m, NATM	Dyckerhoff & Widmann AG Schederhofstr. 2 45145 Essen Germany Dipl.-Ing. Altenscheid T:+49/(201)/1001	1997	2001	392 000	~ 28 000 000	tender design and documents
137	MTR Hong Kong Tseung Kwan O Line, Black Hill Tunnels, Contract 603 Hong Kong	subway line - 4 single track running tunnels (twin tube) total length: 7,1 km, ventilation shaft & adits (45m deep / 100m ²), crossover & trunouts, span: 5,4-14m, cross section: 31 - 95 m ² , overburden: 12 - 230 m, partly 20 m below tight level. Tunnel and shaft construction is performed with NATM. Excavation will be done by drill & blast technique and mechanical where appropriate	Hyder Consulting Ltd., 3/F Somerset House, Taikoo Place 979 King's Road, Quarry Bay Hong Kong Mr. Richard Taylor T: +852/(0)2911 2233	1997	2000	690 000 (pro-rata)	75 000 000	preliminary design, tender design & documents independent checking engineer for detail design consultancy during construction

No.	Title of Contract, Location	Brief Description of the project	Client, person to be contacted, adress, telephone number	Commencement of services	Completion of services	Total fee Geoconsult (in €)	Total construction costs (in €)	Services
138	MTR Hong Kong Tseung Kwan O Line, Pak Shingkok Tunnels, Contract 611 Hongkong	subway line with 2 singel track running tunnels, total length: 6,1 km, ventilation adit: 10 m wide, 380 m long, ventilations niches, turnouts, crossover. span: 5,4 - 21,5 m, cross section: 31 - 130 m ² , mostly below tight level. Tunnel and shaft construction is performed with NATM. Excavation will be done by drill & blast technique and mechanical where appropriate	Hyder Consulting Ltd., 3/F Somerset House, Taikoo Place 979 King's Road, Quarry Bay Hong Kong Mr. Richard Taylor T: +852/(0)2911 2233	1997	2000	690 000 (pro-rata)	59 000 000	preliminary design tender design & documents independent checking engineer for detail design consultancy during construction
139	MTR Hong Kong Tseung Kwan O Line Yan Tong to Lam Tin Tunnels, Contract 612 Hongkong	subway with 2 single track tunnels, total length: 1,26 km, cross section: 34 m ² , shallow overburden: 4,5 - 25m (for section 4,5 to 1,6km). Tunnel and shaft construction is performed with NATM. Excavation will be done by drill & blast technique and mechanical where appropriate.	Hyder Consulting Ltd., 3/F Somerset House, Taikoo Place 979 King's Road, Quarry Bay Hong Kong Mr. Richard Taylor T: +852/(0)2911 2233	1997	2000	690 000 (pro-rata)	25 000 000	preliminary design, tender design & documents, detailed design, consultancy during construction
140	MRTA Bangkok, Initial System Project North, Thailand	Metro line incl. bored twin-tubed tunnel and 10 stations in cut&cover	Ove Arup & Partners Thailand Ltd., MRTS Branch Office, Italthai Tower, 31st floor, 2034/134 New Petchburi Road, Bangkok, 10320, Thailand, Mr. Graham Williams T: +66/2-248 0984	1997	2000	320 000	2 764 000	construction supervision/assistance
141	Metro Santiago de Chile, Extension Line 5, section between the stations Baquedano - Santa Ana Chile	double track running tunnel, length: 2.200 m according to NATM cross section: 60-70 m ² , 5 access tunnels and 5 ventilation tunnels, construction method: NATM	Amec-Cade Ingenieria former CADE-Idepe Jose Domingo Cañas 2640, Casilla 14174, Correo 21, Santiago Juan Pablo Palomino T: +56/2-640 6643	1997	1998	388 000	27 400 000	basic and detailed design site supervision
142	MRT Singapore North East Line, Contract 706 Singapore	2 tubes of single track MRT tunnels, excavation by EPB shield TBM. total length: 3,33 km (2 x 750 m, 2 x 915 m), inner diameter 5,8 m / outside diameter 6,3 m overburden: 10-45 m, distance tunnel center lines: 10-18 m 3 cross passages, excavation cross section (NATM)	Ed. Züblin AG 47 Scotts Road #17-02 Goldbell Towers Singapore 228233 Mr. Erhan Hakki Oguz T: +65/(0)6339 0436 F: +65/(0)6339 0460	1996	2002	820 000	~ 145 000 000 (USD 195 Mil.)	tender design and documents, detailed design, geotechnical interpretative report and soil investigation, supervision during tunnelling
143	MRTA Bangkok Initial System Project Northern Contract Thailand	subway line with a total length of 10 km 2 twin bored tunnel (EPB shield), 9 cut&cover stations, 5 shafts for ventilation and emergency escape purpose	Ove Arup & Partners Thailand Ltd., MRTS Branch Office, Italthai Tower, 31st floor, 2034/134 New Petchburi Road, Bangkok, 10320 Thailand Mr. Graham Williams T: +66/2/248-0984	10/1996	01/2001	2 471 000	~293 000 000	preliminary design tender design detailed design
144	Subway London, Jubilee Line Extension Contract 102, Waterloo Station, Great Britain	2,5 km of twin-tube tunnels under the river Thames construction of the Westminster and Waterloo Stations, NATM	Balfour Beatty-AMEC (Jubilee) JV Belvedere Road, Jubilee Gardens London SE1 8XZ T.: 0171-717 7171	11/1993	03/1998	1 140 000	157 000 000	NATM altvernative solution for Tender design, Detailed Design for all NATM sections, Structural section analysis - FE calculations, NATM consulting and practical advising

No.	Title of Contract, Location	Brief Description of the project	Client, person to be contacted, address, telephone number	Commencement of services	Completion of services	Total fee Geoconsult (in €)	Total construction costs (in €)	Services
145	MRTS Taipei C276, Station O17, Taipei, Taiwan	Station: L*W*D: 200 m*14 m*26 m 2-storey underground station with entrances and ventilation shafts; the entrances are located in a new 21-storey building with a ground plan of 92 m*28 m, the underground levels of which are built at the same time as the station. Excavation: diaphragm wall shoring (d = 1200 mm, L = 55 m) with temporary excavation with prestressed steel girders and temporary covering with steel plates. Construction of the internal structures from bottom to top as separate fully insulated structures. Subsoil: Alternating layers of soft clayey silts and loosely to medium-dense silty fine sands up to 50 m depth, below gravels and boulders. Groundwater level approximately at ground surface	Department of Rapid Transit System No 7, Lane 48, Sec.2, Chung Shan N. Road Taipei, R.O.C.Taiwan	01/1990 (Design) 06/1992 (construction supervision)	01/1991 (Design) 12/1998 (construction supervision)	n.a.	31 758 014	Specification, tendering and supervision of the subsoil investigations. Preparation of the geotechnical basics (report and plans) for the planning and construction work Detailed design of the excavation enclosure and all structures including geotechnical design, statics, architecture and electro-mechanical processing; preparation of tender documents. Accompanying control and inspection during the construction work
146	MRTS Taipei C275, Station O16, Taipei, Taiwan	Station: L*W*D: 300 m*22 m*19 m 2-storey underground station with entrances and ventilation shafts; two entrances are located in new 19-storey buildings with 65 m*22 m and 29 m* 18 m ground plan. Excavation: diaphragm wall shoring (d = 1000 mm, L = 40 m) with temporary excavation with prestressed steel girders and temporary covering with steel plates. Construction of the internal structures from bottom to top as separate fully insulated structures. Subsoil: Alternating layers of soft clayey silts and loosely to medium-dense silty fine sands up to 50 m depth, below gravels and boulders. Groundwater level approximately at ground surface	Department of Rapid Transit System No 7, Lane 48, Sec.2, Chung Shan N. Road Taipei, R.O.C.Taiwan	01/1990 (Design) 06/1992 (construction supervision)	01/1991 (Design) 12/1998 (construction supervision)	n.a.	10 101 519	Specification, tendering and supervision of the subsoil investigations. Preparation of the geotechnical basics (report and plans) for the planning and construction work Detailed design of the excavation enclosure and all structures including geotechnical design, statics, architecture and electro-mechanical processing; preparation of tender documents. Accompanying control and inspection during the construction work
147	MRTS Taipei C222, Station G07 Taipei, Taiwan	Station: L*W*D: 250 m*22 m*17 m + 70 m*25 m *17 m 2-storey underground station with entrances and ventilation shafts; one entrance is located in a new 11-storey building, the underground floors of which will be constructed at the same time as the station. Excavation: diaphragm wall shoring (d = 1000 mm, L = 35 m) with temporary reinforcement with prestressed steel girders and temporary covering with steel plates. Construction of the internal structures from bottom to top as separate fully insulated structures. Subsoil: Alternating layers of soft clayey silts and loosely to medium-dense silty fine sands up to 50 m depth, below gravels and boulders. Groundwater level approximately at ground surface	Department of Rapid Transit System No 7, Lane 48, Sec.2, Chung Shan N. Road Taipei, R.O.C.Taiwan	08/1988 (Design) 07/1991 (construction supervision)	08/1989 (Design) 08/1998 (construction supervision)	n.a.	46 946 629	Specification, tendering and supervision of the subsoil investigations. Preparation of the geotechnical basics (report and plans) for the planning and construction work Detailed design of the excavation enclosure and all structures including geotechnical design, statics, architecture and electro-mechanical processing; preparation of tender documents. Accompanying control and inspection during the construction work
148	MRTS Taipei C221, Station G09 Taipei, Taiwan	Excavation pits: a) Station: L*W*D: 250 m*22 m*16 m 2-storey underground station with entrances, ventilation shafts, one entrance is in a new 9-storey high-rise building (20 m*15 m), the basement of which is being built at the same time as the station. Excavation pit: diaphragm wall shoring (d = 1000 mm, l = 35 m) b) Open cut tunnel 380 m* 20 m *15 m Excavation pit: diaphragm wall shoring (d = 800 mm, l = 35 m) c) Large shaft D = 25 m, t = 35m Excavation pit: diaphragm wall shoring (d = 1000 mm, l = 55 m) Excavation pits with temporary bracing with pre-stressed steel girders and temporary covering with steel plates. Station, tunnel and shaft structures from bottom to top as separate fully insulated structures. Subsoil: Alternating layers of soft clayey silts and loosely to medium-dense silty fine sands up to 40 m depth, gravels and boulders below. Groundwater level approximately at ground surface	Department of Rapid Transit System No 7, Lane 48, Sec.2, Chung Shan N. Road Taipei, R.O.C.Taiwan	08/1988 (Design) 05/1991 (construction supervision)	08/1989 (Design) 04/1997 (construction supervision)	n.a.	53 705 199	Specification, tendering and supervision of the subsoil investigations. Preparation of the geotechnical basics (report and plans) for the planning and construction work Detailed design of the excavation enclosure and all structures including geotechnical design, statics, architecture and electro-mechanical processing; preparation of tender documents. Accompanying control and inspection during the construction work

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149	Metro Seoul C415, Seoul, Korea	This construction lot consists of two single-track tunnel tubes, a station built using mining techniques and three shafts. The special features of this construction lot were the undercrossing of several bridge foundations as well as the undercrossing of two underground shopping centres with clear distances of only 1.2 to 6m. Total length of tunnel: 1640 m running tunnel, 205 m station in mined method, cross section: 42 m ² . Rock conditions: rock, construction method: NATM	Seoul Metropolitan Subway Corporation	05/1982	10/1985	n.a.	n.a.	Detailed design, Consulting and construction supervision
150	Metro Seoul C413, Seoul, Korea	This construction lot consists of two single-track tunnel tubes, one double-track line tube, two single-track station tubes and one station (open construction method). Total length of tunnel: 1400 m running tunnel in cut & cover, cross section: 42 m ² . Rock conditions: weathered rock, construction method: NATM	Seoul Metropolitan Subway Corporation	05/1982	10/1985	n.a.	n.a.	Detailed design, Consulting and construction supervision
151	Metro Seoul C330/3, Seoul, Korea	This construction lot consists of a twin tube with a variable cross-section. The special difficulties consisted in crossing under an 8-lane road, a river and a sewage collector. Furthermore, piles of a bridge foundation ended in the tunnel profile and had to be shortened in the course of driving. Total length of tunnel: 105 m twin tube, cross section: 60-70 m ² . Rock conditions: soil ground, construction method: NATM	Seoul Metropolitan Subway Corporation	05/1982	10/1985	n.a.	n.a.	Detailed design, Consulting and construction supervision
152	Metro Seoul C324, Seoul, Korea	This construction lot consists of a three-track and a two-track tunnel with a variable cross-section. Both the double-track and the triple-track tunnels were located under the pier of two motorway tunnels, with a minimum distance between the tunnels of only 4m. Total length of tunnel: 400 m running tunnel, cross section: 67-175 m ² . Rock conditions: rock, construction method: NATM	Seoul Metropolitan Subway Corporation	05/1982	10/1985	n.a.	n.a.	Detailed design, Consulting and construction supervision
153	Metro Seoul C321, Seoul, Korea	This construction lot consists of two single-track tunnel tubes, a station and a 40 m deep shaft for intermediate grips. Total length of tunnel: 1700 m running tunnel, 270 m station in cut & cover, cross section: 42 m ² . Rock conditions: weathered rock, construction method: NATM	Seoul Metropolitan Subway Corporation	05/1982	10/1985	n.a.	n.a.	Detailed design, Consulting and construction supervision
154	MT. Lebanon Tunnel, Pittsburgh, USA	The tunnels are part of Pittsburgh's light rail system. The construction lot consists of two single-track tubes. The project was the first construction project in the USA to be executed according to NATM. Total length of tunnel: 1440 m, cross section: 42 m ² . Rock conditions: Rock, construction method: NATM	Port Authority of Allegheny County	11/1981	04/1983	n.a.	17 000 000	Tender design, detailed design consulting and site supervision
155	Metro Sao Paulo, Nordline, Sao Paulo, Brasil	The tunnels were necessary in the course of the extension of the northern line and were built partly by mining according to NATM, partly by cut-and-cover construction. Total length of tunnel: 800 m, cross section: 37 m ² . Rock conditions: Sao Paulo Clay, construction method: NATM	Companhia do Metropolitano de Sao Paulo-Metro, Brasil	1981	1982	n.a.	n.a.	Consulting für detailed design and consultancy