

GROUP DELTA



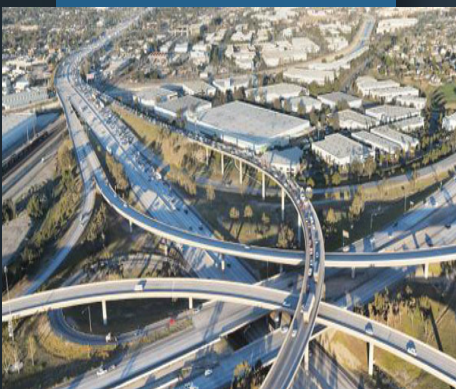
**Ontario International
Airport**



Mission Valley East LRT



I-210 Iconic Bridge



SR-91

Statement of Qualifications Transportation

Serving California Since 1986

Irvine
32 Mauchly
Suite B
Irvine, CA 92618
(949) 450-2100

Ontario
1035 So. Milliken Avenue
Suite G
Ontario, CA 91761
(909) 295-5550

Anaheim
1320 South Simpson Circle
Anaheim, CA 92806
(714) 660-7500

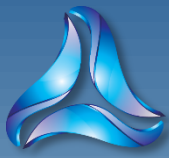
Torrance
370 Amapola Avenue
Suite 212
Torrance, CA 90501
(310) 320-5100

Victorville
12180 Ridgecrest Road
Victorville, CA 92395
(760) 881-3224

San Diego
9245 Activity Road
Suite 103
San Diego, CA 92126
(858) 536-1000

Oakland
1970 Broadway
Suite 1100
Oakland, CA 94612
(510) 671-0010

“Delta is the Difference”



GROUP DELTA

WHO WE ARE



Group Delta is a consulting geotechnical and environmental engineering firm with seven offices located in the counties of Orange, Los Angeles, San Bernardino, San Diego and Alameda. Our team consists of civil and geotechnical engineers, environmental engineers, engineering geologists, laboratory and field technicians, deputy inspectors, drafting/CADD technicians, and drilling and support personnel specialized in their respective fields. We offer a broad range of services to serve the needs of our clients.

GEOTECHNICAL ENGINEERING AND GEOLOGIC SERVICES

- Feasibility studies
- Third Party Reviews
- Foundation design
- Earth Retaining Structures Design
- Pavement Design
- Earthwork and Grading
- Earthquake and Fault Studies
- Geologic Hazard Evaluations
- Numerical Modeling Analyses
- Seismic Design & Hazard Assessments
- Hydrogeologic Evaluations
- Dewatering
- Ground Improvement Analysis & Design
- Laboratory Testing
- Slope Stability & Landslide Investigation & Mitigation
- Instrumentation and Ground Monitoring



Hollywood Fault Study

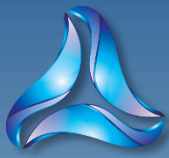
- Pile Drivability & Load Tests
- Seismic Retrofitting Design
- Geologic Reconnaissance & Mapping
- Geophysical Investigations
- Trenching Investigations

ENVIRONMENTAL SERVICES



Tank/Hazardous Materials Sampling

- Phase I Initial Site Assessments (ISAs) / Environmental Site Assessments (ESAs)
- Hazardous Materials Management & Industrial Hygiene
 - Surveys and Investigations
 - Technical Abatement Specifications and Work Plans
 - Abatement and Remediation Monitoring Services
- Phase II Site Investigations (SIs)
- Construction Environmental Compliance
- Phase III Site Remediation
- Stormwater



GROUP DELTA

FORENSIC SERVICES

- Earthquake Damage Assessments: Causation studies and preparation of repair recommendations.
- Landslide Investigations: Causation studies and/or development of stabilization schemes.
- Construction Vibrations: Vibration monitoring and geotechnical testing.
- Dam Investigations
- Settlement Analyses: Floor level surveys, causation studies and/or preparation of repair recommendations.
- Expansive Soils: Subsurface investigations, preparation of repair recommendations.
- Groundwater: Subsurface investigations, preparation of subsurface drainage recommendation.

TESTING AND INSPECTION SERVICES

Group Delta has two materials testing laboratories located in Anaheim and San Diego, California. Our laboratories are licensed as an approved testing facility by various agencies including the Division of the State Architect (DSA), City of Los Angeles, Caltrans, CCRL and AASHTO. In addition, Group Delta's San Diego laboratory has been awarded accreditation to the technical competence and quality assurance requirements of ISO/IEC 17025:2005 as determined by AASHTO Highway Subcommittee on Materials.

Soils Testing

- Classification & Index
- Strength Tests
- Volumetric Change
- Permeability
- Compaction
- Aggregate/Subgrade

Materials Testing

- Asphalt Testing
- Concrete Aggregate
- Concrete Cylinders
- Concrete Beams
- Masonry
- Masonry Unit Cubes
- Masonry Prisms
- Grout/Mortar
- Dry Pack Blocks
- Shotcrete
- Batch Plant Inspections
- Reinforcing Steel
- Structural Steel
- Chemical Physical Properties
- AWS/CWI Welding
- Post-Tensioning
- Epoxy Dowels/Drilled in Anchors
- Pull Testing
- Non Destructive Testing – UT/MT
- High Strength Bolting
- Fireproofing Inspections and Sampling
- Concrete & Masonry Coring and Extraction
- Mix Design Reviews & Trial Batched
- Fiber Wrap Inspection
- Vapor Emissions Testing





GROUP DELTA

Group Delta meets all the requirements as an approved testing agency with the following local and national accrediting/certification authorities:

- ISO 17025
- AASHTO (American Association of State Highway and Transportation Officials)
- ACI (American Concrete Institute)
- AMRL (AASHTO Materials Reference Laboratory)
- ANSI (American National Standards Institute)
- APWA (American Public Works Association)
- ASNT (American Society of Nondestructive Testing)
- ASTM (American Society for Testing and Materials)
- AWS/CWI (American Welding Society/Certified Welding Inspector)
- California Department of Transportation (Caltrans)
- CCRL (Cement and Concrete Reference Laboratory)



- City of Los Angeles
- DSA (Division of the State Architect)
- ICBO (International Conference of Building Officials)
- NICET (National Institute for Certification in Engineering Technologies)
- UBC (Uniform Building Code)

Inspection

Earthwork Inspection and Testing – Group Delta provides geotechnical observation and testing services for all stages of site grading. Our field compaction testing services are provided by experience soils technicians working under the supervision of licenses professional engineers.

Asphalt Inspection and Testing – Group Delta provides comprehensive asphalt testing and AC Mix Design Services. We are regularly certified by AMRL in our laboratories.

Concrete Inspection and Testing – Group Delta’s concrete inspection and testing staff is re-certified bi-annually by the Cement and Concrete Reference Laboratory (CCRL) and annually by Caltrans. Our ACI certified concrete technicians perform field and batch plan sampling of concrete materials to assure compliance with project specifications.

Specialty Construction Inspection – Group Delta provides experienced special inspectors licensed by the International Code Counsel (ICC) for Sprayed Applied Fireproofing, Structural Masonry, Structural Steel Bolting and Welding, Pre-Stressed Concrete, and Reinforced Concrete. Group Delta can also provide Certified Welding Inspectors (CWI) licensed by the American Welding Society (AWS) and non-destructive testing such as mag-particle and ultra-sonic testing.

Group Delta Technicians & Inspectors hold the following certifications:

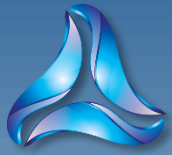
ICC Inspection

- Masonry
- Structural Steel/Welding
- Concrete
- Fireproofing
- Pre-Stressed Concrete

Caltrans Certified

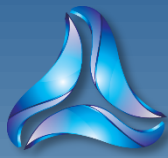
- Materials Testing
- Soils Testing
- Nuclear Gauge Safety
- ACI Certified Concrete
- Soils

City of LA Deputy Inspector



GROUP DELTA

PROJECT EXPERIENCE



GERALD DESMOND BRIDGE REPLACEMENT Port of Long Beach, CA

Project Highlights

- Highest vertical clearance of all cable-stayed bridges in the United States
- Gerald Desmond Bridge accounts for 15% of waterborne cargo movement in the US
- Higher clearance to accommodate the newest generation of efficient cargo ships
- 2nd tallest cable-stayed bridge design in the US

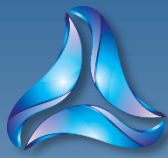
Group Delta Highlights

- Performed field and lab testing on over 130 borings up to 250 feet plus over 90 CPT's up to 150 feet deep
- Interpreting full scale pile load tests on 6-and 8-foot diameter CIDH piles, up to 180-foot long
- Geotechnical Engineer of Record and reviewing all seismic and foundation reports
- Serving as Environmental Compliance Manager



Project Information

Client:	Shimmick, FCC, Impregilo JV
Owner:	Port of Long Beach/ Caltrans
Total Cost:	\$1 Billion
Completed:	On-Going



MTA GOLD LINE ICONIC BRIDGE Arcadia, CA

Project Highlights

- Received Engineering News Record (ENR) **Project of the Year Award** for this 11.5 mile extension of the Metro Gold Line
- **First** mass transit crossing in California to be designed by an artist
- **First** design-build project for Gold Line Authority

Group Delta Highlights

- Provided geotechnical seismic design for the Iconic Bridge
- Provided geotechnical engineering design recommendations and support during construction
- Provided foundation recommendations for large 10 ft. Cast In Drilled Hole (CIDH) piles



Project Information

Client:	Skanska USA & AECOM Technical Services
Owner:	Los Angeles MTA
Total Cost:	\$20 Million
Completed:	2012



ANAHEIM REGIONAL TRANSPORTATION INTERMODAL CENTER Anaheim, CA

Project Highlights

- New Architectural iconic terminal building, 117 ft. high with an approximate footprint of 48,000 sf
- 68,000 sf steel-framed tubular structure with Ethylene Tetrafluoroethylene (ETFE) and glass cladding as part of the terminal
- One of the largest welding projects in California

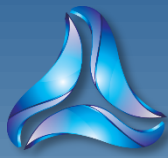
Group Delta Highlights

- Managed and responsible for all inspection and testing including coordination of welding non-destructive testing (NDT)
- Responsible for deep dynamic soil compaction, ETFE roof installation, and monolithic mat foundation inspections



Project Information

Client:	City of Anaheim
Owner:	Orange County Transportation Authority (OCTA)
Total Cost:	\$220 Million
Completed:	2014



EXPOSITION LIGHT RAIL PHASE 2 Los Angeles, CA

Project Highlights

- 15.2-mile light rail line utilizing the exposition corridor with 19 stations
- Phase 2 includes 7 new stations along the Westside
- The Exposition Light Rail Transit (LRT) to Santa Monica is a significant and long-term public investment in transit, city-wide and regional mobility, and sustainability

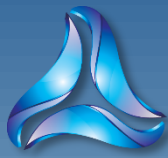
Group Delta Highlights

- Materials evaluation of 1920's brick arch tunnel under light rail road
- Provided geotechnical recommendations for Expo LRT stations over Sepulveda Blvd. and Centinela
- Multiple Mechanical Stabilized Earth (MSE) light rail walls



Project Information

Client:	Parsons Brinckerhoff/ Skanska – Rados JV
Owner:	Los Angeles MTA
Total Cost:	\$1.5 Billion
Completed:	On-going



GROUP DELTA

**DESIGN-BUILD
\$1 BILLION**

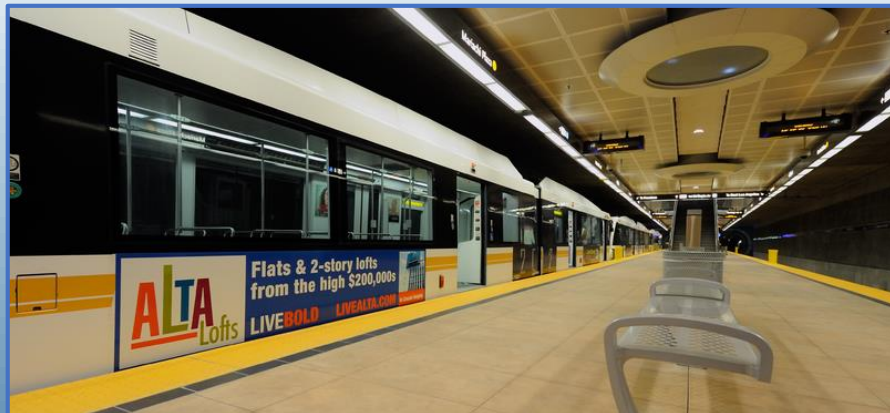
GOLD LINE EASTSIDE LIGHT RAIL EXTENSION Los Angeles, CA

Project Highlights

- Light rail system is powered electrically with overhead catenary wires
- Line includes twin tunnels measuring 1.8-miles under Boyle Heights
- Line includes eight new stations of which two stations are underground
- Directly connects to existing Metro Gold Line in Los Angeles to the Pasadena Line

Group Delta Highlights

- Provided PFRs for bridges, plus an SFR and ISA for the 101 bridge, a 9-span bridge over US 101
- Provided a preliminary foundation report which included seismic investigations for existing structures
- Geotechnical design in accordance with Caltrans standards



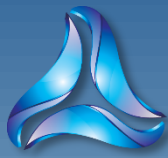
Project Information

Client: Parsons
Brinckerhoff

Owner: Los Angeles MTA

Total Cost: \$1 Billion

Completed: 2009



GROUP DELTA

**DESIGN-BUILD
\$1.4 BILLION**

STATE ROUTE 91 IMPROVEMENT PROJECT Riverside County, CA

Project Highlights

- Corridor improvements focused on existing 14-miles of congestion
- Improvements to 6-mile boundary that runs from SR-241 toll road to the SR-91
- Project includes major improvements to I-15 Freeway Corridor
- Project to relieve major daily congestion

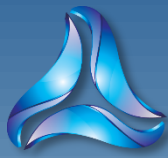
Group Delta Highlights

- Developed post advanced planning study geotechnical data reports for bridges
- Provided daily review of design-build contractors submittals
- Providing quality assurance materials testing and special inspection for multiple parcels within expanding Caltrans right of way



Project Information

Client:	Parsons
Owner:	Riverside County Transportation Commission
Total Cost:	\$1.4 Billion
Completed:	Ongoing



REGIONAL CONNECTOR TRANSIT CORRIDOR Los Angeles, CA

Project Highlights

- A 1.9-mile fully underground line will connect the Metro Gold Line, Blue Line and Expo Line and provide **three new downtown LA underground subway stations**
- A massive cut and cover operation is proposed for the construction of the tunnel due to the extensive underground utility lines

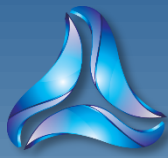
Group Delta Highlights

- Static and dynamic geotechnical recommendations for stations and structures
- Geomechanical numerical analyses to study seismic racking behavior of the underground structures
- Adjacent buildings settlement analyses conducted to support the development of the building projection plan



Project Information

Client:	Skanska
Owner:	Los Angeles MTA
Total Cost:	\$1.47 Billion
Completed:	Ongoing



ORANGE LINE BUS RAPID TRANSIT PHASE 1 Los Angeles, CA

Project Highlights

- Project alignment is 14-miles long with a 26 ft. wide bus lane along the entire alignment
- Links to the Metro Red Line with a total of 12 Bus Rapid Transit (BRT) stations
- Construction of a retaining wall where the alignment crosses below the I-405 freeway
- Approximately 30,500 linear feet of 12 ft. high sound walls

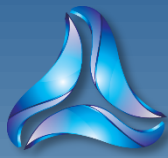
Group Delta Highlights

- Provided geotechnical investigation and cost efficient pavement section design **recommendations** for the first dedicated BRT in California that **saved MTA \$10 million** in project cost
- Project included a petro-mat and tack coat system



Project Information

Client:	Shimmick/Obayashi
Owner:	Los Angeles MTA
Total Cost:	\$324 Million
Completed:	2005



I-15 CAJON PASS REHABILITATION PROJECT San Bernardino County, CA

Project Highlights

- Rehabilitation of multiple lanes on the I-15 freeway
- The project limits are on the I-15 between 0.76 miles south of Kenwood Avenue exit to the south and 1.2 miles south of West Hesperia Overhead to the north
- Extend pavement service life with minimal maintenance expenditures on I-15

Group Delta Highlights

- Preparation of an Initial Site Assessment (ISA) checklist
- Performance of an aerially deposited lead (ADL) investigation
- Completion of a yellow thermoplastic striping investigation



Project Information

Client:	Parsons
Owner:	Caltrans
Total Cost:	\$120 Million
Completed:	Ongoing



MTA PUPLE LINE EXTENSION Los Angeles, CA

Project Highlights

- Project extends westward for about 9 miles with 7 new stations
- Provides a high-capacity, high-speed, dependable alternative
- Includes destinations such as Miracle Mile, Beverly Hills, Century City and Westwood

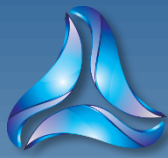
Group Delta Highlights

- Installation of Shape-AccelArray inclinometers, tilt meters, load cells, strain gauges, surface, building, and utility monitoring points, piezometers and extensometers.
- All data is uploaded to a cloud based server and accessible 24-hours/day. Group Delta will also program in alarms if action level is exceeded.



Project Information

Client:	Skanska/Traylor/Shea
Owner:	MTA
Total Cost:	\$6.3 Billion
Completed:	2014-Present



STATE ROUTE 22 IMPROVEMENTS Orange County, CA

Project Highlights

- Project was awarded the ACEC 2006 Project of the Year
- Improvements were made for approximately 12 miles and extended through four cities
- Included 32 bridge structures, 83 retaining walls and sound walls, 51 ramps and 317 utility crossings

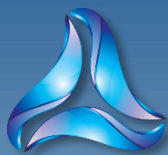
Group Delta Highlights

- Developed 33 post advanced planning study geotechnical data reports for 33 bridges
- Work performed under a formal QA/QC program in accordance with the ISO 9000
- Provided construction support services including material testing and inspection
- Moderate seismic accelerations and shallow groundwater



Project Information

Client:	Parsons
Owner:	Orange County Transportation Authority/ Caltrans
Total Cost:	\$490 Million
Completed:	2008



MARCH AIR FORCE BASE Riverside, CA

Project Highlights

- Demolition of the Air Operations Building and the Air Traffic Control Facility
- The old tower measured approximately 136 feet tall and had a total footprint of approximately 15,820 square feet

Group Delta Highlights

- Group Delta's certified technicians analyzed air samples onsite for asbestos which allowed our client to fast-track the project schedule (per their request)
- Project was completed ahead of schedule and under budget
- Air monitoring and contractor observation services for asbestos and lead removal



Project Information

Client:	Pacific Demolition
Owner:	March Air Force Base
Total Cost:	\$17 Million
Completed:	2014