

**Education**

M.S., Civil Engineering, Lehigh University, Specialty in Coastal and Hydraulics, 1986  
B.S., Civil Engineering, Lafayette College, 1984

**Registration**

Professional Engineer, 1990 (PA No. PE-040565-E), 1993 (TX No. 73842)

**Experience**

Formerly with the U.S. Army Corps of Engineers.

Experienced in site development and subdivisions. He has designed roads, utilities, lot layouts, grading plans, detention ponds and drainage systems for residential and commercial subdivisions. He has coordinated with utility companies and obtained government approvals.

Technical expert in hydrology and hydraulics. He has performed numerous flood studies, bridge hydraulic studies, drainage designs and stormwater pollution prevention plan designs. He is proficient in HEC-1, HEC-2, HEC-RAS, TR-20, TR-55 and various detention routing software. His specialized training includes the NHI course "Stream Stability and Bridge Scour."

Has been working with dams since 1985. He has designed new dams, performed inspections, analyzed seepage conditions, developed rehabilitation programs, developed Emergency Action Plans, developed foundation-grouting programs and constructed and operated physical models.

Extensive background in water resources. He has designed and observed construction of water systems in Africa and in the US. He has developed demand projections, determined source availability, analyzed water rights issues and determined treatment requirements. He also has performed cost analyses for construction, maintenance and operation. He has used WEAP for system planning and design and HEC-5 for reservoir analyses.

Has served as City Engineer for the City of Hill Country Village, the Town of Hollywood Park, the City of Olmos Park, and the City of Castle Hills. He reviews subdivision plats, proposed utility modifications and proposed ordinances. He oversees the development of street repair construction documents and he makes presentations to the City Council and at public hearings.

Experienced in slab movement due to moisture. He performs slab surveys, analyzes slab movement, and identifies causes of movement. Assisted in the development of foundation analysis procedures for a previous employer. Designs methods for controlling moisture to stabilize slabs.

**Slab Movement and Moisture**

**Ecumenical Center for Religion & Health, San Antonio, Texas.** Studied movement of sidewalks and slabs and damage to stucco panels. Designed means to stabilize slab and to prevent further damage.

**Episcopal Diocese of West Texas, Alamo Heights, Texas.** Studied ground movement and subsidence adjacent to building. Designed means to stabilize ground and to prevent further subsidence.

**Scanlan Residence, Alamo Heights, Texas.** Measured amount of moisture transfer through house slab. Determined source of moisture and reason for wood floor damage. Designed means for reducing moisture and to prevent future floor damage.

**Mays Residence, Terrell Hills, Texas.** Analyzed reasons for slab movement and seepage through slab. Designed moisture control system to stabilize slab, to reduce movement, and to keep house interior dry.

### **Hydrology & Hydraulics**

**Foresight Golf, Republic Golf Course, San Antonio, Texas.** Studied floodplain of Salado Creek with HEC-RAS. Designed golf course layout that would permit clearing of floodplain for development without increasing flood levels or reducing flood storage to meet City of San Antonio requirements. First project of its kind to meet the revised ordinance standards. Also evaluated hydraulics of 2 proposed bridges for floodplain impact.

**U.S. Army Corps of Engineers, Missouri River Fish and Wildlife Mitigation Project, Atchison County, Missouri.** Performed QA/QC reviews for hydraulic technical study that investigated the proposed re-opening of a remnant chute (point bar channel) in the left overbank of the Missouri River between river miles 547 and 554. The project goal was to restore river habitat. The study determined the feasibility of restoring the chute by considering the impact on river traffic in the main channel, the impact on existing levees, maintenance requirements, erosion and sedimentation. It also determined requirements for erosion-resistant inlet and outlet structures. The Colby method was used to determine reductions in the river's capacity to transport sediment.

**City of San Antonio, IH-35 to Gembler Road, San Antonio, Texas.** Investigated alternatives to prevent neighborhood flooding by Salado Creek. HEC-RAS was used to show how the removal of illegal fill and the construction of proposed levees would protect 41 homes from flooding. Cost estimates and benefit analyses were developed.

**City of San Antonio, Holbrook Road, San Antonio, Texas.** Investigated alternatives to prevent flooding of Holbrook road by Salado Creek. HEC-RAS was used to show that the road could be raised 12 feet on an embankment if brush could be cleared in the floodplain (and maintained) to mitigate increases in the flood levels.

**Texas Department of Transportation, Laredo District. Business Route US 277, Eagle Pass, Texas.** Analyzed existing hydrology and hydraulics and evaluated existing drainage structures. Designed new drainage structures for road widening project, including underground detention system, inlets, and storm drains.

**San Antonio Water System, Dos Rios Wastewater Treatment Plant Flood Study, San Antonio, Texas.** Project included HEC-1 modeling of a 1,700 square mile watershed (including 13 dams); HEC-2 modeling of more than 4.5 miles of the San Antonio River, Medina River and tributaries; flood plain delineation; and obtaining local approvals and FEMA Letter of Map Revision.

**San Antonio Water System, Salado Creek Wastewater Treatment Plant Flood Study, San Antonio, Texas.** Project included HEC-1 modeling of a 124 square mile watershed with nine dams; HEC-2 modeling of nearly six miles of the San Antonio River, Salado Creek and tributaries; flood plain delineation and obtaining of FEMA letter of map revision.

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**Katz/Bol Bridge, Bexar County, Texas.** Design, permitting, and construction observation for private, 100-foot-long bridge included HEC-1 and HEC-2 analyses and local approvals.

**O.R. Mitchell Dam Spillway Design, San Antonio, Texas.** Project included HEC-1 modeling of a 20 square mile watershed and reservoir, HEC-2 modeling of existing and proposed spillways, physical modeling of proposed spillway, fuse plug design for blocking existing spillway and obtaining 404 permit and TNRCC approvals.

**Olmos Creek Flood Study, San Antonio, Texas.** Project included HEC- modeling of more than three miles of Olmos Creek, Rock Creek and tributaries; determining the flood plain impact of channel improvements and new development; flood plain delineation; and approvals.

**Closure of South 13<sup>th</sup> Street, Abilene, Texas.** Project included determining an alternate route for passing storm floods and the design of a 650-foot-long, 66-inch-diameter inverted siphon.

**H-E-B Store No. 24, San Antonio, Texas.** Site plan included design of site improvements, development of plans and development of stormwater pollution prevention plan.

**School Street Bridge, Boerne, Texas.** Hydraulic analysis included a preliminary investigation for estimating the height and length required for a new bridge over Cibolo Creek.

**Medio Creek Ranch Permit Amendment, Bexar County, Texas.** Project included performing hydrologic and reservoir storage calculations to substantiate the availability of water in the Medio Creek and Medina River watersheds for a water rights application to the TNRCC.

### **Water Planning**

**North Bexar County Water Resources Study.** Project included determining the location, capacity and firm yield of all potential reservoir sites in and around North Bexar County, Texas; assessing surface water quality; developing a water balance for the Trinity aquifer and recommending sources of surface water to the Edwards Underground Water District.

**Guadalupe-Blanco River Authority, Boerne Pipeline Study, Boerne, Texas.** Designed preliminary configuration of a 10-mile pipeline, reservoir and water treatment plant to provide water from the Guadalupe River to the City of Boerne. The feasibility of the system was evaluated based on engineering concerns, environmental impact and costs. Aquifer Storage and Recovery was also evaluated as an alternative storage method.

**City of Boerne, Boerne Water Resources Study, Southern Kendall County, Texas.** Determined preliminary location, capacity and firm yield of all potential water sources in southern Kendall County, including rivers, reservoirs, aquifers, and reuse water. Evaluation included water availability, water rights, environmental impact and engineering concerns and cost.

### **Water Utility**

**Town of Hollywood Park, Texas.** Analyzed system because of inadequate pressure, storage, and fire protection. Reviewed design plans and construction on \$3.2 million water system improvements with 8 miles of 8-inch waterline, 900 l.f. of 12-inch waterline, and transfer pump station, Checked during construction for backfill compaction, patching, pipe depths, sleeves, and site restoration.

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**City of Hill Country Village, Texas.** Analyzed system because of inadequate pressure, storage, and fire protection. Reviewed design plans and construction on \$2.8 million water system improvements with 5.3 miles of 8-inch waterline, 8-inch pressure reducing valve, 300,000 gallon ground storage, 500,000 elevated storage, and pumps. Used hydraulic model and field tests to verify completed system's performance.

**Fleetwood Street Improvements, Hollywood Park, Texas.** Designed a project to lower the street for drainage purposes. Included relocating 2,000 l.f. of 8-inch water main and protecting 2,000 l.f. of existing 48-inch water main with a concrete cap. Coordinated with Bexar Met and other utilities.

**Vara Chevrolet Main Extension, San Antonio, Texas.** Designed and observed construction for 1,130 l.f. of 8-inch water main in IH 35 right-of-way. Coordinated with Bexar Met, City of San Antonio, and TxDOT approvals. Included meters and services.

**Blue Haven Pools Border Main.** Designed and observed construction of 85 l.f. of 12-inch border main for water in and adjacent to Loop 1604 right-of-way. Coordinated with SAWS, City of San Antonio, and TxDOT and dedicated 16-foot easement for conveying new main through private property.

### **Municipal**

**City of Hill Country Village, Texas.** Reviewed proposed citywide water production, storage and distribution system improvements. Confirmed adequacy of proposed system and recommended appropriate project budget. Established monitoring program to ensure future system performance. Designs and manages street and drainage improvement projects. Developed street cut standards. Coordinates plan for adapting to new Phase 2 Stormwater regulations. Reviews plats. Coordinates with utilities. Serves as FEMA Floodplain Administrator. Updated subdivision and floodplain ordinances.

**Town of Hollywood Park, Texas.** Developed masterplan and opinion of project cost and applied for state revolving fund money to construct city-wide sanitary sewer system. Designs and manages street and drainage improvement projects. Coordinates plan for adapting to new Phase 2 Stormwater regulations. Coordinates with utilities. Serves as FEMA Floodplain Administrator. Updated floodplain ordinances.

**City of Castle Hills, Texas.** Developed opinion of project cost for city-wide sanitary sewer system repairs. Designs and manages street and drainage improvement projects. Coordinates with utilities.

**City of Terrell Hills, Texas.** Developing drainage masterplan, including mapping of all city drainage structures. Assisted other engineering firms with street improvement projects. Designed drainage improvements, including replacement of Tuttle ditch. Revised FEMA floodplain. Coordinates plan for adapting to new Phase 2 Stormwater regulations.

**City of Universal City, Texas.** Managed construction of public works building. Designed detention pond for Parkview drainage project. Managing and coordinating all phases of CDBG Parkview subdivision drainage project.

**City of Balcones Heights, Texas.** Updated flood regulation ordinance by bringing it into compliance with revised FEMA regulations and obtaining FEMA approval.

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### **Site Work**

**H-E-B Grocery Store No. 2, Alamo Heights, Texas.** Designed driveway extension over creek using double 12-foot x 8-foot box culverts. Modeled hydraulics of proposed construction in flood plain and coordinated city and FEMA approvals.

**H-E-B Grocery Store No. 24, Castle Hills and San Antonio, Texas.** Managed and developed plans for site work design including utility connections, parking lot grading, drainage, resolving flood plain issues, coordination with review agencies and obtaining driveway permits, and FEMA letter of map revision for flood plain revisions.

**Sears Warehouse, Wilkes-Barre, Pennsylvania.** Managed and designed site work plans for 1.2-million square-foot building, including retention ponds, erosion and sediment control, utilities, parking, loading docks, and driveway entrances. Coordinated approvals from cities, Conservation District and Pennsylvania Department of Transportation.

**Hanover Estates Industrial Park Subdivision, Wilkes-Barre, Pennsylvania.** Designed roads, utilities, and drainage for 500-acre development. Observed construction.

**Elk Forest Subdivision, Carbondale, Pennsylvania.** Designed roads, utilities, and drainage for large subdivision.

**Maplewood Subdivision, Wilkes-Barre, Pennsylvania.** Designed roads, utilities, and drainage for 10-acre town home development.

**Tamiment Subdivision, Tamiment, Pennsylvania.** Designed drainage and utilities for one of the phases. Observed utility construction.

### **Coastal**

**Arthur Kill Ship Channel.** Existing channel between Staten Island and New Jersey required deepening for the passage of loaded oil tankers. Designed channel modifications for U.S. Army Corps of Engineers to accommodate existing shoreline structures, pipe outfalls, utility crossings, and bird sanctuary. Estimated rock and sediment excavation quantities.

**Belford Ship Channel Study, Belford, New Jersey.** Investigated sedimentation of failed ship channel. Analyzed wave climate and long-shore transport and estimated life of channel.

**U.S. Army Corps of Engineers, Gilgo Beach Erosion Study, Long Island, New York.** Analyzed coastal erosion that consumed two beaches and threatened to undermine Ocean Parkway and assisted with coordination of local cooperation agreement with state agencies. Analyzed coastal processes for short term and long term erosion potential, including wave climate, off-shore transport, and long-shore transport. Designed potential solutions including rock revetment, timber bulkhead, and beach replenishment. Developed benefit/cost ratios. Identified beach replenishment as most cost-effective alternative.

**U.S. Army Corps of Engineers, Sea Bright to Ocean Township Coastal Protection, New Jersey.** Reviewed coast protection options for providing higher levels of protection against flooding and waves due to the Standard Project Hurricane. Reviewed project concepts, quantities, and costs. Alternatives included seawalls, groins, beach replenishment and sand dunes. Coordinated with consultants and local governmental agencies.

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**Barrier Island Erosion Study.** Collected topographic and bathymetric field data on Gulf coast barrier islands for National Park Service study of island migration and the impact of ship channels on long-shore transport.

**Absecon Inlet, Physical Model, New Jersey.** Constructed and operated physical model of Harrah's Marina in Absecon Inlet. Investigated navigational hazards due to high tidal velocities. Designed and tested various options for improving navigational safety.

**City of Great Sound, Computer Model Study, Great Sound, New Jersey.** Collected hydraulic field data for calibration of computer model. Installed tide gages to obtain water surface elevations. Operated current meters to determine inlet and bay velocity profiles.

**U.S. Army Corps of Engineers, Beach Erosion, Coney Island, New York.** Performed beach profile survey.

**Coastal Residence Basement Failure.** Investigated role of tide levels in residential basement slab failure for insurance company.

**U.S. Army Corps of Engineers, Duck Island Beach Erosion.** Obtained field data and operated computer erosion models.

**Sand Grain Size Analyses.** Operated computerized settling column to determine sand grain size distributions for various coastal design projects.

**City of Great Sound, Sediment Geotechnical Analysis, Great Sound, New Jersey.** Performed geotechnical laboratory analyses of marine sediments.

**Lake McQueeney Marina.** Investigated impact of seasonal winds on hydrilla propagation in boat marina.

### Dams

**Olmos Dam Breach Analysis, City of San Antonio, Texas.** Concrete flood control structure built in 1927, 68 feet high and 1,800 feet long. Performed breach analysis with a HEC-RAS unsteady flow model. Determined extent and characteristics of the inundation area that could result from a failure in order to help the City develop an Emergency Action Plan. Study reach was 6.8 miles long. The study was performed in 70 days simultaneously with another breach analysis and was based only on readily available information.

**19<sup>th</sup> Street Dam Breach Analysis, City of San Antonio, Texas.** The dam spillway is an 1800-foot long, 10-foot-high, concrete labyrinth weir set in a 300-foot-wide channel. Performed breach analysis with a HEC-RAS unsteady flow model. Determined extent and characteristics of the inundation area that could result from a failure in order to help the City develop an Emergency Action Plan. Study was 2.6 miles long. The study was performed in 70 days simultaneously with another breach analysis and was based only on readily available information.

**Martinez Creek Dam No. 5 Cofferdam Design, Natural Resources Conservation Service, Live Oak, Texas.** The SCS flood detention structure was built in 1964 and is an earth embankment that is 2,800 feet long and 40 feet high. Development over the years has caused an increase in runoff to the dam, requiring more spillway capacity. The project included cutting a 36-foot-deep trench through the

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existing earth embankment, installing a 36-inch-diam. outlet conduit, backfilling the trench, and raising the dam crest. Assisted the contractor, Dorazio Enterprises, in protecting the trench from erosion by designing temporary dam and developing trench construction sequence. Cofferdam was constructed from earth and gabions, measuring 225 feet long and 27 feet high. Obtained approvals from the NRCS.

**Medina Dam, Medina County, Texas.** 164-foot-high, 1,080-foot-long concrete gravity dam constructed 1912. Designed program and assisted with construction observation for clearing foundation relief wells. Designed program for replacing portions of two 60-inch steel outlet conduits.

**Morris Sheppard Dam, Brazos River Authority, Palo Pinto County, Texas.** 180-foot high Ambursen dam with “bear trap weirs” and hydroelectric plant. Designed three FRP stop log systems (3 feet wide x 30 feet high) with electric hoists to replace wooden systems. Stop logs used in operation of weir controls.

**City of Gainesville, Fish Creek Dam, Gainesville, Texas.** 78-foot-high, 1,600-foot-long earthen dam. Performed QA/QC reviews for the technical design of dam repairs intended to allow safe passage of the PMF. Included repair of erosion damage in emergency spillway by regrading and installing soil cement drop structure and raising dam height with concrete parapet wall.

**San Patricio Reservoir, San Patricio Municipal Water District, Ingleside, Texas.** Designed 20-foot-high, mile long ring dike with 200 million gallon storage capacity. Clay embankment included interior soil cement slope protection, sand chimney drain, finger drains, inlet structure and outlet pump station. Obtained state approvals. Performed Construction Administration and managed Construction Observation.

**Joint Entrance Road Dam, BAE Systems, Austin, Texas.** Managed geotechnical study and existing condition survey. Performed hydrologic (HEC-1), spillway capacity, and dam breach evaluations on 400-foot-long, 18-foot-high, earth embankment dam. Developed maintenance and repair plan. Obtained TNRCC approval for dam safety and water rights appropriation.

**O.R. Mitchell Dam, San Antonio, Texas.** Rehabilitation program for 30-foot-high earth dam including physical model, vegetation removal, Roller Compacted Concrete spillway design, fuse plug design, and TNRCC and 404 approvals. Performed HEC-1 and HEC-2 studies.

**Rio Bonito Dam, Moody Ranch, Kimble County.** Inspection of concrete Ambursen dam. Developed plan for repairing deteriorated concrete, repairing foundation erosion with dental concrete and for arresting flanking erosion.

**Recreation Dam, City of Junction.** Inspection of concrete dam. Developed plan for investigating and repairing a leak in the 15-foot-high structure.

**Fawn Lake Dam, Schuylkill County, Pennsylvania.** Performed annual inspections for 44-foot-high earth dam. Monitored piezometers and seepage. Implemented toe drain improvements and vegetation control program.

**Lake Wynonah Dam, Schuylkill County, Pennsylvania.** Performed annual inspections for 92-foot-high earthen dam. Monitored piezometers and seepage. Implemented vegetation control program and toe drain improvements. Recommended concrete spillway repairs. Designed inverted filter for

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seepage repairs. Developed emergency action plan.

**Upper Tumbling Run Dam, Borough of Pottsville, Pennsylvania.** Performed annual inspections for 62-foot-high earthen dam with concrete side-discharge spillway. Monitored piezometers. Performed a dam break analysis. Developed emergency action plan.

**Lower Tumbling Run Dam, Borough of Pottsville, Pennsylvania.** Performed annual inspections for 47-foot-high earthen dam with concrete side-discharge spillway. Monitored piezometers and seepage. Developed program to stabilize rock cliff at spillway. Designed weir for monitoring minimum reservoir release conditions. Performed a dam break analysis. Developed emergency action plan.

**Ross Pond Dam, Pennsylvania.** Performed annual inspections for 20-foot-high embankment with concrete spillway. Designed flashboard system to keep pond elevated during normal conditions and increase spillway capacity during floods. Implemented vegetation control program.

**Susquehanna Filter Plant Dam, Pennsylvania.** Inspected and developed a repair/replacement program for a 15-foot-high concrete structure.

**Lake Carey Dam, Tunkhannock, Pennsylvania.** Assisted in the design of a new concrete spillway and gabion repairs for the 12-foot-high earthen dam.

**Perrin's Marsh Dam, Pennsylvania.** Performed annual inspections for 10-foot-high earth embankment with concrete diaphragm.

**Professional Endeavors**

Givler Engineering/Givler Engineering, Inc.  
1999-Present

HDR/Simpson  
1998-1999

Simpson Group  
1993-1997

Quad Three Group  
1990-1992

Reilly Associates  
1989

U.S. Army Corps of Engineers  
1987-1988

African Mission Hospital  
1986

Imbt Hydraulics Laboratory  
Lehigh University  
1985-1986



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U.S. National Park Service  
1981

Pennsylvania Department of Transportation  
1979 & 1980

New Jersey-Pennsylvania-Delaware Joint Toll Bridge Commission  
1977 & 1978

**Professional Activities**

American Water Works Association  
American Society of Civil Engineers  
Association of State Dam Safety Officials  
Taught Site Design Seminar for Architectural Registration Examination, The American Institute  
of Architects, San Antonio Chapter, 1997  
Texas Society of Professional Engineers

**Specialized Training**

Stream Stability and Scour at Highway Bridges, National Highway Institute, December 1996

**Publications**

Stability of Submerged Rubble Mound Structures under Wave Attack, Lehigh University, 1986  
Earthen Dam Spillway Rehabilitation, Texas Section A.S.C.E., 1994  
Hydraulic Model of Roller Compacted Concrete Spillway, Texas Section A.S.C.E., 1994  
Extrapolation of a Stage-Discharge Rating Curve for the San Antonio River  
Using a HEC-2 Model, Texas Section A.S.C.E., 1995  
New Methods Provide Less Costly Ways to Conserve Water, *San Antonio Bus. Journal*, 1997  
Methods for Making Rainwater Harvesting More Attractive, A.S.C.E. Younger Members Texas  
Section, January 1998 and A.W.R.A. Tropical Hydrology Symposium, July 1998