

**Statement of Qualifications**



# Statement of Qualifications

## Introduction

O'Brien Engineering, Inc. (OEI) is a consulting civil engineering firm providing site design and permitting with specialties in hydraulics, hydrology, floodplain administration, and dam safety evaluations. Our project capabilities include design for commercial, retail, residential, and institutional projects for both private and government entities. The firm, which was established in 1987, is registered with the Texas Board of Professional Engineers (Firm ID #3758), Oklahoma State Board Registration for Professional Engineers, and Utah Professional Engineers Licensing Board. Officed in Dallas, Texas, OEI is a Veteran-Owned Small Business (VOSB) and is certified through South Central Texas Regional Certification Agency (SCTRCA) as a Veteran Business Enterprise (VBE) as well as a Small Business Enterprise (SBE).

Individually or corporately, OEI has affiliations with Society of American Military Engineers (SAME), Texas Floodplain Management Association (TFMA), National (and Texas) Society of Professional Engineers (NSPE/TSPE), American (and Texas) Council of Engineering Companies (ACEC/TCEC), and Association of State Dam Safety Officials (ASDSO). Our clients include municipalities in the Dallas/Fort Worth area, government entities, architectural and engineering firms, developers, and industry in Texas, Oklahoma, and Utah. Since our founding nearly a quarter century ago, our goal has been to provide the highest level of service and knowledge possible in a cost effective and timely manner.

## Areas of Expertise

We have varied expertise in site development design and permitting, floodplain management, and floodplain administration including assistance with writing floodplain and drainage ordinances. OEI projects have included preparation of watershed studies, general civil plans such as grading, storm drainage, paving, utilities, dimensional control, and coordination with regulatory agencies. Such agencies include Federal Emergency Management Agency (FEMA), US Army Corps of Engineers (USACE), Environmental Protection Agency (EPA), Texas Department of Transportation (TxDOT), Texas Commission on Environmental Quality (TCEQ), and municipalities. Our background in complex drainage analysis has proven successful in the solution of hundreds of flooding and drainage problems. We have extensive experience with the principle analytical computer programs in use today as well as with numerous specialized programs such as the HEC-RAS unsteady flow analysis feature. We also have written complex spreadsheet analyses to evaluate unusual drainage conditions.

OEI has provided detention analyses on many applications of various size and complexity, from local, single lot detention to satisfy local codes, to regional detention for the purposes of flood control and water resource management. We have prepared construction drawings for creek channelizations, drainage remediation projects in established neighborhoods, large multiple box culverts and site grading. We have assisted municipal clients with creek bank slope stability and channel erosion problems.

We have extensive experience in obtaining regulatory approvals from FEMA, USACE, EPA, TCEQ, and others for projects such as landfills, commercial and residential developments, industrial expansions, and culverts and bridges. Our experience includes the preparation of many requests for letter of map revision or amendment (LOMRs and LOMAs) and conditional LOMRs and LOMAs (CLOMRs and CLOMAs). It also includes working with wetlands biologists in obtaining nationwide and specific permits for projects affecting U.S. Waters under the USACE administrated Section 404 program. We have prepared storm water pollution and prevention plan (SWPPP) documents and advised clients in the maintenance of those documents. We have assisted in the preparation of numerous municipal solid waste permit applications to the Texas Health Department (now under TCEQ). OEI's areas of expertise and project capabilities include:

- Hydraulics and Hydrology
- Complex Drainage Analysis
- Dam Safety Evaluations
- Dam Breach Analyses

- Dam Rehabilitations
- Master Drainage Studies
- Geographic Information System (GIS) Services
- Expert Testimony
- Flood Control
- Landfill Permit Application: Preparation and Management
- Watershed Studies
- Water Resource Management
- Drainage Remediation and Design
- Writing Floodplain and Drainage Ordinances
- Professional Floodplain Services: Management, Reclamation, Administration, Erosion Control, Permitting
- Regulatory Coordination/Approvals: Municipal – Floodplain Fill Permits; FEMA – Map Revisions/Amendments; USACE – Applications, Assistance, 404 Permitting; EPA – SWPPP Documents; TCEQ – Solid Waste Management Permits; Permitting of Dams
- Land Development: Commercial, Retail, and Residential (Design and Permit)
- Design and Control Drawing Preparation: Drainage Facilities, Flood Control Facilities, General Civil Facilities

## Key Personnel

Jim O'Brien, president and founder of OEI, is a registered Professional Engineer in the States of Texas, Oklahoma, and Utah and is a Nationally Certified Floodplain Manager. Mr. O'Brien received a Bachelor of Science in Civil Engineering with an option in Water Resources from Texas Tech University and continued on for an additional year of post-graduate studies in Water Resources Engineering. During his 32 years of experience in the industry including over 20 years in dam safety, he has conducted hydrologic and hydraulic analyses on numerous tributaries, creeks and rivers, including the Elm Fork and Grapevine Creek for portions of Valley Ranch, flood control simulation on the upper 1800 square miles of the West Fork of the Trinity River, and flood evaluation on a 200,000-acre sub-basin of the Nile, north of Khartoum, Sudan. Mr. O'Brien has prepared many flood studies, floodplain management reports, and flood and drainage evaluations. He has prepared models using ICPR (Streamline Technologies), SWMM (EPA), and EXCEL spreadsheets of numerous existing complex storm drainage systems for the purpose of optimizing the use of existing facilities to aid in solving flooding problems. His design experience includes storm drainage and flood control facilities, drainage remediation facilities, erosion control features, creek channelizations, sanitary sewer trunk lines, sewer rehabilitations, general civil facilities, water distribution pumping, industrial wastewater treatment facilities, mass grading and commercial, residential and industrial land development. Mr. O'Brien has served as an expert witness on nearly forty drainage and flooding cases. He is the President-Elect to SAME – Dallas Post.

Jake Lesué, a registered Professional Engineer, is a Nationally Certified Floodplain Manager and a Project Manager for OEI. Mr. Lesué, who has 12 years of experience, earned a Master of Science in Civil Engineering and a Bachelor of Science in Civil Engineering, both from Brigham Young University. As a Project Manager, he performs duties such managing and directing team engineer(s) efforts; complex hydraulic and hydrologic modeling, analysis, and design utilizing many of the industry's most specialized software programs; drainage design; coordinating efforts with clients, stakeholders, and subconsultants; and, mapping by utilizing Geographic Information Systems (GIS) programs. In addition to his hydraulic and hydrologic related experience, Mr. Lesué has five years of programming experience with LINUX, WINDOWS, and UNIX.

Josh McClure, a registered Professional Engineer, is a Nationally Certified Floodplain Manager and a Senior Hydrologist for OEI. Dr. McClure earned a Doctor of Philosophy in Biological and Agricultural Engineering from the University of Illinois-Urbana as well as a Master of Science in Biological and Agricultural Engineering and a Bachelor of Science in Agricultural Engineering, both from Texas A&M University. His experience includes conducting flood studies, obtaining Letters of Map Revisions, designing and analyzing storm sewers and open channels, designing detention structures for complex projects, and

managing the design of storm water treatment systems. He has considerable experience preparing Phase I Environmental Site Assessments (ESAs), assisting with Phase II ESAs and contamination cleanup, and assisting with the preparation and inspections of industrial storm water permits. Dr. McClure has hydraulic and hydrology computer programming experience and training in PASCAL, FORTRAN, and VBA.

Shwetha Pandurangi, a registered Professional Engineer and a Nationally Certified Floodplain Manager, is a Staff Hydrologist for OEI. She holds a Master of Science in Civil Engineering with an emphasis in Water Resources from the University of Texas at Arlington and a Bachelor of Engineering. Ms. Pandurangi's experience includes permitting coordination especially with FEMA, hydraulic and hydrologic modeling, and detention analysis, and GIS modeling.

## Typical Projects

### **Hydraulic and Hydrologic Projects Including Unsteady Flow/Hydrodynamic Analyses**

USACE Civil Works Project – Farmers Branch Flood Damage Reduction (White Settlement, Texas). Preparation of plans and specifications for this flood damage reduction project on Farmers Branch and tributary (8,500 linear feet improvements total). OEI's duties include preparing hydraulic models of the creek and tributary for existing and proposed conditions, updating topography, updating street crossings, and adding cross sections; conducting trials of alternatives and optimizations; and, preparing GIS floodplain and cross section map.

USACE Civil Works Project – Cedar Creek Watershed Hydrologic and Hydraulic Modeling, (Bastrop County, Texas). USACE, in partnership with LCRA, conducted an interim feasibility study to address water resource problems along the main stem and major tributaries of the Lower Colorado River. Cedar Creek watershed is approximately 150 square miles. OEI provided preliminary hydraulic modeling of Greens Creek, Long Branch South, and Lytton Springs Creek.

Austin Marketplace Floodplain Evaluation and Flood Study on Shoal Creek at Sixth Street (Austin, Texas). For a proposed development of a 2.6-acre tract located in the south east corner of Sixth Street and Bowie Street, OEI reviewed the proposed site development plan, the existing and proposed hydraulic modeling of Shoal Creek, and considered the possible merits of preparing a separate hydraulic analysis. Prepared a CLOMR, developed stream bank alternatives to the concrete wall that was modeled, and prepared a flood study. Developed a stone block wall configuration and a concrete benched wall. Project included representing the client at City staff, City Council, and Planning and Zoning meetings.

Grand Peninsulas Drainage and Detention Evaluation (Grand Prairie, Texas). OEI provided hydraulic and hydrologic analysis on Estes Peninsula of Joe Pool Lake for a 400-acre master-planned community. *Grand Peninsulas* is comprised of seven villages, about 1,300 home lots, retail centers, walking/biking trails, and several themed parks. OEI's scope of work included developing alternative drainage schemes and utilizing unsteady flow modeling to prepare the analysis. Ultimately, the drainage scenario implemented resulted in an overall drainage construction cost savings to the client of \$1.5 million.

May Lane Storm Drainage Improvements and Drainage Retrofit (Grand Prairie, Texas). OEI was retained to reduce existing flooding conditions. Reevaluated the existing system to determine if the construction of a relief system or relief components would provide a cost savings along with less disruption of the neighborhood. Prepared the design survey, hydraulic and hydrologic modeling including hydrodynamic modeling, storm drainage design, and analysis and construction-related reports.

Proposed 352-Acre Domino Landfill (Cass and Denton Counties, Texas). OEI provided hydraulic and hydrologic analysis of a ten square mile basin and proposed landfill drainage for permitting purposes. Design of erosion control features for the landfill. OEI used unsteady

flow modeling (hydrodynamic analysis) on a series of ponds, which are parallel to the stream.

Camelot Sanitary Landfill (Farmers Branch, Texas). OEI provided landfill design and permitting documents including hydraulic design for soil levees and floodplain reclamation along the Elm Fork of the Trinity River.

## **Dam Projects**

Camp Maxey Rehabilitation of Lamar Lake, Lee Moore Lake, and Neff Lake Dams (Paris, Texas). Rehabilitation of three dams at Camp Maxey for the Adjutant General's Department, which is responsible for the maintenance of site facilities on the Texas Army National Guard's Camp Maxey. Duties include hydrologic and hydraulic analyses, breach analysis and inundation mapping, and rehabilitation of all the dams. Prepared an Emergency Action Plan (EAP) on Lamar Lake Dam.

Exall Lake Dam and Wycliff Avenue Dam: Dam Safety Analysis and Emergency Action Plan (Highland Park, Texas). For two dams, OEI prepared a plan of action to address several needed repairs as well as the hydrologic and hydraulic analysis, operation and maintenance plans (O&M), and emergency action plans (EAP). Inundation mapping was conducted using the results of both hydrologic and hydraulic modeling and was based on existing available GIS data. OEI provided a flood study report, an advanced visual assessment, an advanced assessment report, and coordination with TCEQ.

Southwest Nature Preserve Dam: Dam Safety Evaluation, Emergency Repair, and Rehabilitation (Arlington, Texas). A 30-foot high, 500 foot-long dam narrowly missed catastrophic failure by overtopping erosion. At one point on the dam, a large mass of material (approximately 50% of the cross section) was scoured out of the downstream side of the dam during a rainstorm leaving only inches of soil both vertically and horizontally to hold back the 40 acre-foot impoundment. OEI was retained to examine the damage and determine a solution. OEI determined the dam was at risk of failure and coordinated an emergency repair by a local contractor. Within 36 hours of initial examination, the lake was lowered by nearly two feet and the scour was temporarily repaired. Subsequently, OEI was engaged to design embankment and spillway improvements.

Richland College Dam Rehabilitation (Dallas, Texas). OEI provided engineering services to assess the cause of a recurring sinkhole, which had been observed to be forming repeatedly for a number of years on the south end of the Dallas County Community College District's (DCCCD) Richland College campus. The dam is situated on Jackson Branch, a tributary of White Rock Creek. OEI determined the cause of the sinkhole, conceptualized and evaluated remedial options, and prepared plans for the selected remedy. During Phase II, OEI provided engineering services to prepare construction drawings for the rehabilitation of the dam and to apply for a dam safety permit (DSP) from TCEQ. The DSP requires an emergency action plan (EAP) delineation of the downstream inundation area; to determine delineation, a hydraulic model dam-breach simulation must be conducted to include analysis of successive breach of dams in series on the creek.

New Mart Lake Dam Safety Evaluation (Mart, Texas). Dam site inspection; evaluation of hazard classification; hydrologic modeling using HEC-HMS, HMR51, and HMR52 to calculate the 100-year and ultimate watershed development PMF hydrograph at the location of the dam; dam breach analysis using Simplified Breach Method procedure; and spillway adequacy report. Breach inundation mapping was completed using topography and hydrologic storage routing.

Lake Clark Dam Spillway Adequacy Assessment (Ennis, Texas). OEI provided spillway adequacy assessment and inundation mapping to the City of Ennis. OEI performed hydrologic analysis, provided a dam breach analysis, evaluated the hazard classification, and

determined the inundation limits through hydraulic modeling of the downstream channel.

Dam Safety Permit on Johnson Creek (Grand Prairie, Texas). OEI prepared the applications for a Dam Safety Permit, Hazard Potential Classification Determination, and Dam and Spillway Adequacy Evaluation to TCEQ for a structure hydraulically equivalent to the previous structure. Determined the hydrodynamic forces for structure design; assisted the client in the administration of additional regulatory submittals.

City Lake Spillway Repairs (Mesquite, Texas). OEI provided engineering services related to the repair of the spillway. Conducted analysis of the existing spillway to determine hydraulic capacity, which established a benchmark for the design modification, and determined the preliminary cost of potential project elements.

Padera Lake Dam Safety Evaluation and Floodplain Reclamation (Midlothian, Texas). OEI provided a dam safety evaluation, floodplain reclamation, hydrologic modeling, and prepared the appropriate permit requests. Requested a TCEQ dam safety evaluation, prepared a Hazard Classification and Spillway Adequacy Report, and petitioned NRCS to reclassify the dam as high hazard.

Katy Lake on the Greens Dam Safety Reconstruction (Waxahachie, Texas). For a residential development, OEI provided a flood study and Dam Safety and Spillway Adequacy Evaluation through TCEQ for a significantly undersized dam that needed to be brought up to regulatory standards.

The Domain Subdivision, Hazard Potential Classification, and Dam Spillway Adequacy Evaluation (Fairview, Texas). OEI provided a dam-break analysis for a proposed 58-acre residential development. OEI evaluated the proposed pond modifications with respect to the floodplain, delineated the fully developed 100-year floodplain for Sloan Creek, and determined the hazard potential classification of the dams. Also, OEI evaluated the adequacy of the dams and spillways. Prepared a flood study and a request for LOMR and coordinated project efforts with TCEQ.

### **Floodplain Projects**

Arlington Landfill Floodplain Evaluation: West Fork of the Trinity River (Arlington, Texas). Provided hydraulic and hydrologic modeling and engineering analyses including floodplain evaluation services related to the pursuit of a Municipal Solid Waste Permit Modification for the West Disposal Area and the proposed West Expansion Area. Prepared the final floodplain reclamation plan. Prepared an application for Corridor Development Certificate (CDC) permit for submittal to the City and USACE for review. For submittal to FEMA, prepared a request for Conditional Letter of Map Revision based on Fill (CLOMR-f), which included preparing a description of the portion of the property to be removed from the flood hazard area and revised FIRM of the property above the BFE. Assisted the client with submittal tracking and agency correspondence.

Flood Evaluation at Vista Ridge Golf Center (Lewisville, Texas). OEI prepared requests for a Conditional Letter of Map Revision and a LOMR for submittal to FEMA; prepared an application for a Corridor Development Certificate (CDC) permit for a proposed golf course on the Elm Fork of the Trinity River. Coordinated project hydraulics with efforts by a wetlands biologist to obtain a Section 404 permit.

Elm Fork Floodplain Reclamation on Hutton Branch (Carrollton, Texas). For a 50+ acre tract, OEI provided the floodplain reclamation and flood evaluation on the Elm Fork of the Trinity River, on Hutton Branch. Portions of the property are jurisdictional waters of the US, further constraining feasible development. Provided cut/fill analyses, surface comparison, and plan preparation. Prepared a request for a Conditional Letter of Map Revision CLOMR and LOMR

for submittal to FEMA and a Corridor Development Certificate (CDC) for submittal to USACE.

Joe Pool Lake Flood Evaluation (Grand Prairie and Mansfield, Texas). OEI provided hydrologic and hydraulic analysis of a three square mile watershed and on five miles of streams for two separate residential subdivisions. *Greenway Trails* Addition is approximately 380-acres and *South Pointe* Addition is approximately 200-acres. OEI designed and modeled five detention ponds for the purpose of reducing peak flows to pre-project conditions and to reduce unit discharges onto USACE land.

Floodplain Engineering Services on Bear Creek for a Proposed Pavestone Commercial Development (Grapevine, Texas). OEI prepared the floodplain reclamation, designed and modeled the on-site channel to convey flows, and prepared a flood study report on 11-acres of land by performing FIS flows and fully developed hydraulic analysis of stream.

Sloan Creek Watershed Study (Fairview, Texas). OEI developed hydrology for seven square miles of watershed; hydraulic modeling and floodplain delineation for three tributaries and a portion of the main stem; and, secured assistance from USACE to study four additional tributaries and the balance of the main stem under the Limited Map Maintenance Program.

Floodplain and Drainage Evaluation (Khartoum, Sudan). OEI investigated and assessed flooding in the Northern Program Area in Sudan, which has a 200,000-acre watershed; recommended avenues to solve village-level flooding and drainage problems. Three week in-country data gathering, hydraulic and hydrologic analysis, and report.

Floodplain Evaluation/Reclamation and Permit Tracking for a Wal-Mart Development (Sealy, Texas). OEI provided floodplain reclamation on 31-acres for a desired use of commercial-retail for a proposed commercial and retail development; designed a hydraulic situation that achieved the goals for extremely minimal hydraulic change and virtually no increases upstream.

Brushy Creek Flood Evaluation (Kaufman and Rockwall Counties, Texas). OEI prepared a preliminary flood evaluation of an approximately 1100-acre tract located in both Kaufman and Rockwall County. OEI developed a hydrologic model of the 37 square mile watershed that included 16 NRCS lakes, delineated approximately 4.5 miles of floodplain, and created a concept plan to assist in reclamation planning.

Mustang Creek Flood Study, Engineering Design, and Channel Modifications (Waxahachie, Texas). For a 68-acre proposed commercial/residential subdivision, OEI developed hydrologic and hydraulic analysis of pre-project, post-project and fully developed conditions. Designed a channel and regional detention facilities to attenuate the pre- to post-project 10-year peak flows and to maintain the 100-year fully developed water surface elevation.

FEMA Map Modernization (McLennan, Bell, and Bosque Counties, Texas). OEI provided flood insurance study update tasks to FEMA for McLennan, Bell, and Bosque Counties, all of which are each over 1,000 square miles. According to FEMA, updating flood maps helps to prepare communities for flooding disasters, identify flood hazards, supports more effective and efficient floodplain management, and shows recent man-made or natural changes on the maps.

QuikTrip Gas Station and Convenience Store Flood Analysis, Floodplain Reclamation, and Permitting (Keller, Texas). OEI provided flood analysis and floodplain reclamation as well as permitting documents for submittal to the City of Keller and FEMA. Prepared hydrologic modeling for use in the flood analysis, floodplain reclamation plans, and preparation of a Conditional Letter of Map Revision (CLOMR) and LOMR.

Site Development and Flood Study for AM Broadcast Towers (Radio Unica) (Grand Prairie, Texas). OEI prepared the site development plans, platting, and a flood study for the

construction of broadcast towers within the 100-year floodplain of the West Fork of the Trinity River. Prepared a Storm Water Pollution Prevention Plan (SWPPP), drainage and utility easements, and determined compliance with CDC (Corridor Development Certificate).

### **Drainage Projects**

Downtown Drainage Remediation (Garland, Texas). OEI evaluated existing conditions and developed solutions at four different sites/projects in Downtown Garland. The existing surface and subsurface drainage systems were analyzed, including all drainage elements from the gutters and inlets to the creeks. The subsurface system consists of a complex array of storm sewers and inlets, some parallel and some cross connected. 'As-built' drawings, available for most of the systems, were combined with surveys (included photogrammetric, aerial, topographic field surveys, vertical and horizontal controls, digitally formatted data processing, cross-sections, boundary surveys, construction layout, and GPS) and field observations to develop a GIS database.

City of Corinth Storm Water Master Plan Reevaluation and Update (Corinth, Texas). Provided reevaluation and updates of the Storm Water Master Plan (SWMP). The SWMP focused on the drainage projects within Lynchburg Creek and Pecan Creek Tributary (PEC-1) watersheds, attempting to resolve as many site-specific drainage problems with regional detention as practical. Seven 2007 Capital Improvement Projects were within the two watersheds: IH35E Upstream Drainage Improvements, South Corinth Street Paving and Drainage, Hillside Drainage Improvements, Dobbs Road Regional Detention Pond, Corinth Parkway Paving and Drainage, IH35E Regional Detention Pond, and Red Oak Drainage Improvements. The 2004 SWMP included 22 other projects within the two watersheds, which were included in OEI's SWMP reevaluation. OEI provided hydraulic and hydrologic modeling, floodplain mapping, conceptual opinion of probable cost, detention evaluation, GIS mapping services, and coordination and management of subconsultants (land surveying, environmental, and wetlands ecologists).

Oak Grove Drainage Improvement Projects (Plano, Texas). OEI completed four separate drainage improvement projects. Two of the projects involved providing a capacity analysis of two existing storm drainage systems; the other two projects involved providing design and plan preparation services for the installation of drainage improvements to the outlet flow conditions of the storm drain pipe at its outfall.

Tanglewood Flooding Analysis and Drainage Remediation (Farmers Branch, Texas). OEI prepared hydrologic and hydraulic models of a tributary of Farmers Branch Creek and its watershed to assess causes of flooding to property in the Tanglewood development area and to determine alternative solutions. Included the design of a diverting storm sewer system and mitigating detention on the adjacent Brookhaven Golf Course.

Arbor Creek Drainage and Utility Repairs (Grand Prairie, Texas). Due to severe erosion at two drop structures along Arbor Creek, which was threatening several utilities including a 27" TRA trunk sewer at two locations as well as an 8" water line, OEI was contracted to design a solution to the erosion problems at both drop structures. OEI developed a hydraulic model to determine the existing flood conditions along the creek as well as model the various design options. OEI defined the scope of the replacement of the involved structures and prepared the construction drawings.

### **General Civil Projects**

US Army Corps of Engineers Southwestern Division Soldier and Family Assistance Center (SFAC) and Warrior in Transitions (WT) Complex Infrastructure (Fort Polk, Louisiana). OEI reviewed site topographic mapping developed by the surveyor and compared with record

building, storm drain, site utilities, and site grading. Suggested routing of main utility lines was analyzed for the SFAC and WT complex. OEI prepared suggested civil engineering 30% design plans for water distribution, sanitary sewer collection, gas service, electric service, and communication lines for both projects.

US Army Corps of Engineers Southwestern Division Barracks Renovation (Fort Polk, Louisiana). OEI prepared full design documentation including drawings, specifications, phasing requirements, construction schedules, annotated review comments, and design analysis for the repair of Enlisted Unaccompanied Barracks Building to standard. Design included additional storm water collection to collect storm runoff, which was trapped in crawl spaces beneath the buildings.

Erosion Control and Wastewater Improvement Projects (Dallas, Texas). Provided civil engineering services related to erosion control and wastewater improvements at five locations throughout the City of Dallas. OEI prepared the erosion control and wastewater conceptual plan, pre-final design, final design, and facilitated the project bid phase (including the preparation of opinions of probable cost (OPCs)). Coordinated subconsultants including the land surveyor and civil engineer.

US Army Corps of Engineers Southwestern Division Future Dormitories on Goodfellow Air Force Base (San Angelo, Texas). OEI prepared a request for proposal (RFP) for civil facilities related to future dormitories on Goodfellow Air Force Base.

National Tire and Battery Store Site Development (Greenville, Texas). OEI prepared civil site development plans for a proposed National Tire and Battery store. Plans included a site plan, utility plans, grading plans, drainage plans, and detention plans. Preparation of an application for ADA review.

Country South Addition Phase III (Midlothian, Texas). OEI provided engineering services to permit a proposed residential development and roadway design for local collector streets. Drawings included: paving and dimensional control, grading, drainage, water, and lighting plans. OEI prepared a request for Letter of Map Revision (LOMR) for redelineation of the floodplain through FEMA and coordinated improvements within the Waters of the US per Section 404 permitting requirements.

Peninsulas at Lake Bob Sandlin Subdivision Design (Titus County, Texas). For a residential development subdivision design on a 160-acre site, OEI provided drainage evaluation and design. Flood take line by local water authority required coordination to balance flood protection, lot design, and developer's amenity construction.

Runway Court and Utilities Design for International Airport Centers (Grapevine, Texas). OEI designed roadway and utilities on an approximate 2-acre tract for the proposed construction of an office/warehouse building. Public roadway was proposed to service the industrial complex; coordinated the design with the existing extension with the City of Grapevine and the Texas Department of Transportation (TxDOT). Project included coordination with a wetlands biologist to meet USACE requirements for mitigation of impacts in the original 94-acre tract and mitigation of the proposed channel realignment.

Valley Branch Street Abandonment by Replat and Utility Relocation Study (Farmers Branch, Texas). Scope included the abandonment of approximately 385' street right-of-way to combine two existing parking lots into one lot. Project included coordinating with franchise utilities, directing land surveying, project concept layout, and conducting stakeholders' meetings. Project required ADA compliance.

**Primary  
Software**

Hydraulics: HEC-2 ▪ HEC-RAS ▪ BOSS RMS ▪ WSP2 ▪ WSP4 ▪ HY8 ▪ XPStorm  
Hydrology: XPStorm ▪ HEC-1 ▪ HEC-HMS ▪ TR-20 ▪ NUDALLAS ▪ TR-55 ▪ HMR52  
Dam Breach: FLOODWAV ▪ DAMS2  
Flood Control: HEC-5  
Hydrodynamics: ICPR 2.2 ▪ SWMM ▪ XPStorm  
Drainage: EXCEL ▪ THYSYS ▪ WINSTORM ▪ XPStorm  
GIS: ArcVIEW ▪ ARC/INFO ▪ ArcGIS ▪ Spatial Analyst ▪ 3-D Analyst  
Site Development: MicroStation ▪ AutoCAD Land Desktop ▪ TerraModel



## Norman J. (Jim) O'Brien, PE, CFM

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### Certification

Registered Professional Engineer in the State of Texas, No. 55861  
Registered Professional Engineer in the State of Oklahoma, No. 22228  
Registered Professional Engineer in the State of Utah, No. 6230982-2202  
Nationally Certified Floodplain Manager, No. 0484-03N

### Education

One Year of Graduate Study, Civil Engineering, Water Resources Emphasis  
Texas Tech University, Lubbock, Texas (1979)  
Bachelor of Science in Civil Engineering, Hydraulics/Hydrology Specialization  
Texas Tech University, Lubbock, Texas (1978)

### Experience

**1987 to present**  
**O'Brien Engineering, Inc.**, Dallas, Texas  
President/Project Director/Project Manager

Mr. O'Brien has over three decades of focused experience in water resources and 21 years of experience on dam breach analysis projects. As the founder and president of O'Brien Engineering, Inc., he has experience as a Project Manager on hundreds of water resources and civil engineering projects and as a Project Director on 200+ water resources and civil engineering projects. He has provided QA/QC on hundreds of internal dam safety, water sources, and civil engineering projects; he has provided QA/QC consultant services on numerous outside projects. Mr. O'Brien's project experience includes dam safety evaluations and permitting; dam breach analyses; hydrologic and hydraulic analyses on hundreds of tributaries, creeks, and rivers, some very technically complex; drainage analysis, design, and remediation; and unsteady flow analyses. Mr. O'Brien has served as an expert witness on over forty drainage and flooding cases.

Arlington Landfill Floodplain Evaluation: West Fork of the Trinity River (Arlington, Texas): Project Director and QA/QC. Evaluating the potential for reclaiming as much of the floodplain in the West Expansion Area as reasonably practicable. Specific duties include: scoping, researching regulatory requirements, and project strategy. (ongoing)

Richland College Dam Rehabilitation (Dallas, Texas): Project Director/Chief Hydrologist. Provided engineering services to assess the cause of a recurring sinkhole, which is immediately adjacent to the west service spillway of a dam. OEI determined the cause of the sinkhole, conceptualized and evaluated remedial options, and prepared plans for the selected remedy. Then, OEI provided engineering services to prepare construction drawings for the rehabilitation of the dam and to apply for a dam safety permit from TCEQ. (ongoing)

Exall Lake Dam and Wycliff Avenue Dam: Emergency Action Plans and Dam Safety Analysis (Highland Park, Texas): Project Director. Oversaw the on-site dam inspection, Probable Maximum Precipitation (PMP) determination, hydraulic and hydrologic analysis, dam breach analysis, report preparation, EAP preparation, and Operation & Maintenance Plan. (2010)

New Mart Lake Dam Safety Evaluation (Mart, Texas): Project Manager. Conducted the dam site inspection; oversaw the hydraulic and hydrologic analysis, spillway adequacy, and evaluation report. (2009)

Southwest Nature Preserve Dam, Dam Safety Evaluation, Emergency Repair, and Rehabilitation (Arlington, Texas): Project Manager/Senior Hydrologist (Phase I) / Project Director (Phase II). OEI determined a solution and coordinated an emergency repair for a high-hazard dam that narrowly missed catastrophic failure by overtopping erosion. Within 36 hours of initial examination, the lake was lowered by nearly two feet and the scour was

temporarily repaired. Subsequently, OEI was engaged to design embankment and spillway improvements. (2005/2009)

Corinth Storm Water Master Plan Update (Corinth, Texas): Project Director. Under the City of Corinth's 2007 Capital Improvement Projects Program, provided reevaluation and updates of the Storm Water Master Plan (SWMP). The SWMP focused on the drainage projects within Lynchburg Creek and Pecan Creek Tributary (PEC-1) watersheds, attempting to resolve as many site-specific drainage problems with regional detention as practical. OEI provided hydraulic and hydrologic modeling, floodplain mapping, conceptual opinion of probable cost, detention evaluation, and GIS mapping services. (2009)

Downtown Garland Drainage Remediation (Garland, Texas): Project Director. Evaluated existing conditions and developed solutions at four different sites/projects. The existing surface and subsurface drainage systems were analyzed, including all drainage elements from the gutters and inlets to the creeks. The subsurface system consists of a complex array of storm sewers and inlets, some parallel and some cross connected. (2009)

USACE Fort Worth District – Civil Works Project: Farmers Branch Flood Damage Reduction Project (White Settlement, Texas): Project Director. Prepared a hydraulic model of Farmers Branch for existing and proposed conditions; prepared and maintained GIS database for modeling and mapping; conducted numerous design alternate hydraulic trails; preparation of request for CLOMR and LOMR. (2009)

Padera Lake Dam Safety Evaluation and Floodplain Reclamation (Midlothian, Texas): Project Director/Senior Hydrologist. Dam safety evaluation, floodplain reclamation, appropriate permits, and hydrologic modeling. Requested a TCEQ dam safety evaluation, prepared a Hazard Classification and Spillway Adequacy Report, and petitioned NRCS to reclassify the dam as high hazard. (2008)

City Lake Spillway Repairs (Mesquite, Texas): Project Direct. Engineering services related to the repair of the spillway. Conducted analysis of the existing spillway to determine hydraulic capacity, which established a benchmark for the design modification, and determined the preliminary cost of potential project elements. (2008)

Flood Insurance Rate Map Modernization (McLennan, Bosque, and Bell Counties, Texas): Project Director and QA/QC. For FEMA's insurance update tasks on map modernization, directed project engineers in the preparation of the revised digital flood insurance rate maps on McLennan, Bosque, and Bell Counties, all of which are over 1,000 square miles each. (2008)

Kirby Creek Erosion Protection (Grand Prairie, Texas): Project Manager. Prepared hydraulic modeling of Kirby Creek to evaluate erosion protection measures along 750 feet of creek. Project included preparation of construction drawings. (2007)

Honey Creek Preliminary Flood Study and Floodplain Reclamation on a 1200-Acre Tract (McKinney, Texas): Project Manager. Directed engineering staff in hydraulic modeling of Honey Creek and evaluating numerous floodplain reclamation scenarios for 1200-acre tract in McKinney. (2007)

Mustang Creek Flood Study, Engineering Design, and Channel Modifications (Waxahachie, Texas): Project Director, Hydraulic/Hydrologic Engineer. Prepared the floodplain reclamation plan, hydraulic and hydrologic modeling and analysis, prepared the Letter of Map Revision for submittal to FEMA, and designed the channel modifications. (2006)

Katy Lake on the Greens Dam Rehabilitation (Waxahachie, Texas): Project Manager. Prepared construction drawings to rehabilitate small (30 ft height), high-hazard dam. Prepared hydrologic and hydraulic models, dam breach analysis, inundation mapping,

emergency action plan (EAP), flood study, hazard classification, spillway adequacy evaluation through TCEQ, and application for dam safety permit. (2006)

USACE Fort Worth District – IDIQ Military Works Dormitories Design on Goodfellow AFB (San Angelo, Texas): Project Director and QA/QC. OEI prepared a request for proposal (RFP) for civil facilities related to future dormitories on Goodfellow Air Force Base. (2005)

USACE Fort Worth District – IDIQ Military Works Barracks Renovation (Fort Polk, Louisiana): Project Director and QA/QC. OEI prepared full design documentation including drawings, specifications, phasing requirements, construction schedules, annotated review comments, and design analyses for the repair of enlisted unaccompanied barracks. (2005)

Dam Safety Permit on Johnson Creek (Grand Prairie, Texas): Project Manager/Senior Hydrologist. Prepared the application for dam safety permit to TCEQ on a small, significant hazard dam; submitted a hazard potential classification determination as well as a dam and spillway adequacy evaluation; oversaw the hydraulic and hydrologic analysis. (2004)

The Domain Subdivision, Hazard Potential Classification, and Dam Spillway Adequacy Evaluation (Fairview, Texas): Project Manager/Senior Hydrologist. Dam breach analysis for a proposed 58-acre residential development. Evaluated the proposed pond modifications with respect to the floodplain, delineated the fully developed 100-year floodplain for Sloan Creek, and determined the hazard potential classification of the dams. Evaluated the adequacy of the dams and spillways. Prepared a flood study and a request for LOMR and coordinated project efforts with TCEQ. (2004)

Drainage and Detention Evaluation on Grand Peninsula Addition (Grand Prairie, Texas): Project Director and Senior Hydrologist. Hydraulic and hydrologic analysis on Estes Peninsula of Joe Pool Lake for a 400-acre master planned community. Developed alternative drainage schemes and utilized unsteady flow modeling to prepare analysis. Ultimately, the drainage scenario implemented resulted in an overall drainage construction cost savings to the client of \$1.5 million. (2004)

Other significant projects:

Flood Study and Floodplain Reclamation Alternatives on Sixth Street for a Proposed Commercial Development (Austin, Texas)  
Floodplain Engineering Services for Proposed Wal-Mart (Sealy, Texas)  
May Lane Storm Drainage Improvements (Grand Prairie, Texas)  
Flood Evaluation at Vista Ridge Golf Center (Lewisville, Texas)  
Site Development and Flood Study for AM Broadcast Towers (Grand Prairie, Texas)  
National Tire and Battery Store Site Development (Greenville, Texas)  
Long Branch Creek Hydraulic Analysis for Post Office (Greenville, Texas)  
Spring Creek Channel Modifications and Floodway Revision (Garland, Texas)  
Floodplain and Drainage Evaluation (Khartoum, Sudan)  
Turner Branch Floodplain Study (Collin County, Texas)  
Hydrodynamic Analysis of 352-Acre Denton Landfill (Denton County, Texas)  
Channel Enclosure on a Tributary of Farmers Branch Creek (Farmers Branch, Texas)

**1979 to 1987 (Various Firms: Graham Associates and Half Associates)**

Project Manager/Office Manager/Hydrologic and Hydraulic Engineer/Staff Engineer

Example Projects:

1600-Acre PUD and Floodplain Reclamation (Valley Ranch/Irving, Texas)  
Potable Water Pump Station, Lone Star Park (Dallas, Texas)  
Industrial Sewage Treatment Facility (Dallas, Texas)  
Floodplain Reclamation, West Fork Trinity River (Grand Prairie, Texas)  
Sanitary Sewer Trunk for Trinity River Authority (Arlington and Grand Prairie, Texas)

<b>Military</b>	<p><b>November 1971 – August 1977</b> (Honorable Discharge)  US Navy and Naval Reserves  Electronics Technician, Secret Clearance</p>
<b>Associations</b>	<p>Board of Directors on Society of American Military Engineers (SAME) Dallas: President Elect (Current), Membership Director 2005 to 2009, Liaison to Small Business Director of SAME Dallas 2002–2005; Member of Texas Floodplain Management Association; Member of SAME Fort Worth Post; City of Coppell Transportation Task Force 2003; Board of Directors of Lexington Academy (private Christian school) 1997 – 2000.</p>
<b>Training / Seminars</b>	<p>Design and Construction of Seepage Cut-off Walls Under a Concrete Dam  Fast Tracking Stability Improvements at a Large Dam. Reconstruction River Reservoir No. 3 – From Emergency Action Plan to Breach to Safe Operation in 21 Months. Using Bentley’s CivilStorm and CivilCad. Hydraulic Modeling of Bridges and Culverts. Hydrodynamic Modeling with InfoWorks SD. GIS, An Introduction. Effective Modeling of Effective Flow. Rock Riprap Design. Doppler Radar for Hydrologists. Urban Stormwater Drainage Detention. Hydrodynamic Modeling Using XPStorm. Introduction to HEC-RAS at UT Arlington (Guest Lecturer). Modeling of Bridges and Culverts at UT Arlington (Guest Lecturer).</p>
<b>Patents / Awards</b>	<p>OEI is the 2009 Small Business of the Year of the Society of American Military Engineers Dallas Post; 2009 Small Business of the Year of the Society of American Military Engineers Fort Worth Post; 2007 Small Business of the Year of the Society of American Military Engineers Dallas Post; Holder/Inventor of US Patent No. 6,202,636, Pneumatic Pitching Machine; 1978 recipient of John B. Hawley Fellowship (for graduate studies in hydraulics and sanitary engineering)</p>
<b>TxDOT Certification</b>	<p>Land Planning/Engineering, Minor Roadway Design, Bicycle and Pedestrian Facility Development, Hydrologic Studies, Basic Hydraulic Design, Complex Hydraulic Design, Pump Stations–Hydraulics, Roadway Construction Management and Inspection</p>

## Jacob S. (Jake) Lesué, PE, CFM

O'Brien Engineering, Inc.  
14900 Landmark Blvd., Ste. 530 · Dallas, TX 75254  
(p) 972.233.2288 · (e) jlesue@obrieneng.com

### Certification

Registered Professional Engineer in the State of Texas, No. 100352  
Nationally Certified Floodplain Manager, No. 0999-06N

### Education

Master of Science in Civil Engineering  
Brigham Young University, Provo, Utah (2003)  
Bachelor of Science in Civil Engineering  
Brigham Young University, Provo, Utah (2003)

### Experience

**2005 to present**  
**O'Brien Engineering, Inc.**, Dallas, Texas  
Project Manager/Senior Hydrologist

Richland College Dam Rehabilitation (Dallas, Texas): Senior Hydrologist. Probable Maximum Precipitation (PMP) hydrologic modeling using HMR52; hydraulic modeling of the design floods; on-site dam inspection; dam breach analysis; design of revised spillway; coordinated outside services (wetlands ecology, surveyor, geotechnical engineer). (ongoing)

Arlington Landfill Floodplain Evaluation: West Fork of the Trinity River (Arlington, Texas): Project Manager. Evaluation of the potential for reclaiming as much of the floodplain in the West Expansion Area as reasonably practicable. Specific duties: project management; CLOMR-f (Conditional Letter of Map Revision Based on Fill) preparation; hydraulic modeling of many reclamation/mitigation scenarios; calculation of valley storage for each considered condition. Required a Corridor Development Certificate (CDC) permit. (ongoing)

Exall Lake Dam and Wycliff Avenue Dam: Emergency Action Plans and Dam Safety Analysis (Highland Park, Texas): Project Manager. Emergency Action Plan (EAP) preparation; on-site dam inspection; base map preparation using ArcGIS; QA/QC for hydraulic/hydrologic modeling; dam breach analysis and inundation mapping. (2010)

New Mart Lake Dam Safety Evaluation (Mart, Texas): Senior Hydrologist. Conducted dam site inspection and spillway adequacy study; evaluated contributing watershed to determine TCEQ design; provided report that detailed the findings of the study. (2009)

Corinth Storm Water Master Plan Update (Corinth, Texas): Project Manager. For the reevaluation and updating of the Storm Water Master Plan (SWMP), which focused on the drainage projects within Lynchburg Creek and Pecan Creek watersheds, attempting to resolve as many site specific drainage problems with regional detention as practical. Coordinating land surveying and environmental subconsultants. Use of HEC-1, HEC-HMS, and HEC-GeoHMS. (2009)

Southwest Nature Preserve Dam Safety Evaluation, Emergency Repair, and Rehabilitation (Arlington, Texas): Project Manager (Phase II)/Senior Hydrologist (Phase I). Phase I duties: using HEC-1, HEC-RAS, and HMR52 determined the design flows for the 100-year and PMF; Phase II duties included analysis and design of rehabilitated spillway and dam. (2009)

Flood Insurance Rate Map Modernization (McLennan, Bell, and Bosque Counties, Texas): Project Manager. For FEMA's insurance update tasks on map modernization, used ArcView 8.3 GIS, MicroStation V8, AutoCAD, HEC-RAS, and Microsoft Excel, to prepare revised digital flood insurance rate maps. Remapped FEMA Zone A floodzones using regional regression equations to calculate peak flows. Remapped FEMA Zone AE floodzones according to the effective FIS profiles. Each county is over 1,000 square miles. (2008)















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