



Statement of Qualifications  
for

**Design Engineering Services  
for Small Drainage and  
Small Roadway Projects  
for  
Williamson County  
Road and Bridge Division**

**RFQ No.: 21RFSQ14**

Submittal Due:  
October 14, 2021



**Austin Office**

4707 Commercial Park Drive | Austin, TX 78724  
512.433.6096

**Houston Office**

900 Threadneedle, Ste. 120 | Houston, TX 77079  
832.288.2755

**Houston Lab**

1304 Langham Creek Dr., Ste. 130 | Houston, TX 77084  
281.717.4016

**Corporate Office & Lab**

900 S. Stewart Rd., Ste. 2 & 4 | Mission, TX 78572  
956.585.3773



**B<sup>2</sup>Z ENGINEERING**



October 13, 2021

Williamson County Purchasing Department  
100 Wilco Way, Suite P101  
Georgetown, Texas 78626

**RE: 21RFSQ14 – RFQ Design Engineering Services for Small Drainage and Small Roadway Projects for Williamson County Road and Bridge Division**

Dear Selection Committee,

**B2Z Engineering, LLC (B2Z)** is pleased to present our statement of qualifications in response to Williamson County's solicitation for Design Engineering Services for Small Drainage and Small Roadway Projects for Williamson County Road and Bridge Division. B2Z is confident that it can provide quality services as outlined in the above referenced RFQ.

B2Z was established in 2009 and is registered through the Texas Board of Professional Engineers (**TBPE #F-11187**). B2Z has engineering offices with state-of-the-art geotechnical and construction material testing laboratories located in Austin, Houston, and Mission. Our team has extensive experience in a multitude of disciplines including, but not limited to, general civil engineering, transportation planning, drainage, roadway, and bridge design, geotechnical engineering, construction inspection and materials testing, and construction management & administration. B2Z has established a team of highly qualified professionals with the experience and knowledge of the local area to provide the quality services Williamson County expects for their projects. Our team includes Edge Engineering, PLLC and SWCA Environmental Consultants (SWCA).

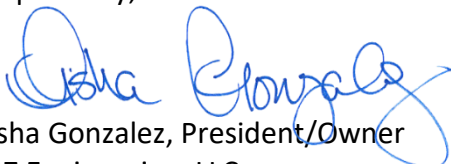
Environmental clearance will be led by SWCA who brings over 25 years of firsthand experience working with Williamson County staff on local projects. Edge Engineering will be providing drainage planning and drainage conveyance design services bringing over 10 years of experience.

Our team employs numerous TxDOT retirees, who combined bring over 200 years of TxDOT experience to your project, as an extension of your team. Our professional engineers, technicians, and support staff, coupled with our state-of-the-art, A2LA and AASHTO accredited, TxDOT and USACE certified laboratory, are ready to meet all schedule demands and ensure the County's quality standards are followed throughout the duration of the project.

**Mr. Raphael Campos, P.E.**, will serve as the primary contact person responsible for matters regarding our SOQ. He can be contacted by telephone at (512) 433-6096 (Office) / (512) 350-9917 (Cell) or by email at [Raphael@B2ZEng.com](mailto:Raphael@B2ZEng.com).

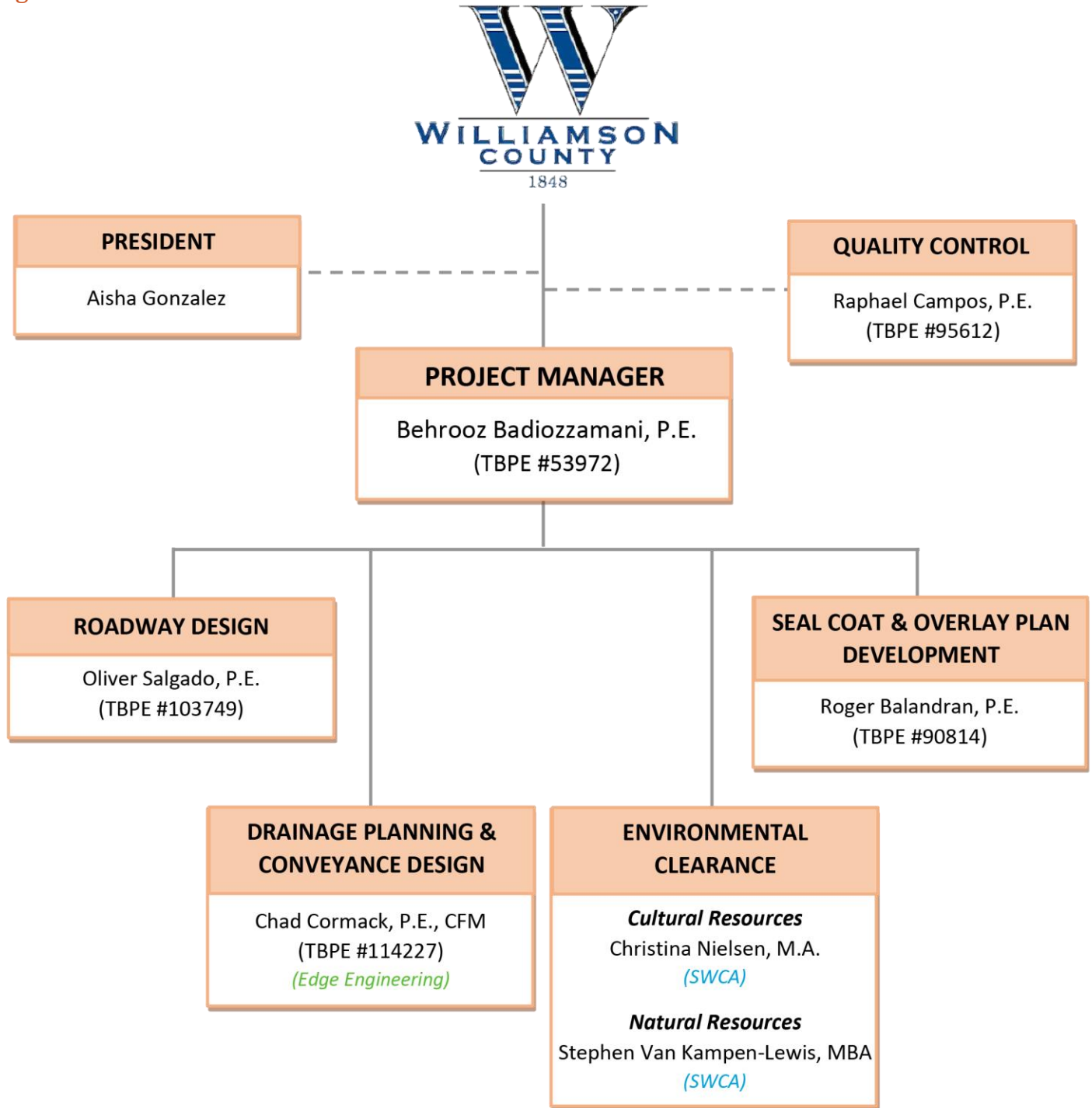
Please allow me to be the first to say that we sincerely appreciate the opportunity to present our statement of qualifications in response to the Williamson County's request. We look forward to the opportunity of working with the city on these projects, should we be selected. We thank you for your time and attention.

Respectfully,



Aisha Gonzalez, President/Owner  
B2Z Engineering, LLC

## Organizational Chart



Note: All personnel on organizational chart employed by B2Z Engineering unless otherwise noted.

Personnel identified on organizational chart report to the following office locations 100% of the time:

**B2Z Engineering, LLC**  
 4707 Commercial Park Drive  
 Austin, TX 78724

**Edge Engineering, PLLC**  
 3410 Far West Blvd  
 Suite 315  
 Austin, TX 78731

**SWCA Environmental Consultants**  
 4407 Monterey Oaks Blvd.  
 Building 1  
 Austin, TX 78749

## PROJECT MANAGER'S EXPERIENCE/QUALIFICATIONS

B2Z's proposed **Project Manager, Mr. Behrooz Badiozzamani, P.E.** brings **over 39 years of experience in transportation engineering**. His experience includes feasibility studies, major investment studies (MIS's), planning & environmental linkages (PEL's), transportation systems management, and schematics for total reconstruction projects, new location roadways, and widenings. His knowledge stems from his experience in the design of urban and rural highways. Mr. Badiozzamani is recognized as a technically-focused, results-driven, and collaborative Project Manager who works closely with his team and the Client's Project Manager.

In 2004, Mr. Badiozzamani was the **recipient of the prestigious Luther DeBerry Award**, in recognition of outstanding contributions to the State of Texas in the field of Transportation Engineering. Mr. Badiozzamani spent 29 years of his career with TxDOT where he oversaw over a billion dollars of urban and rural projects. As Deputy District Engineer and Director of Transportation Planning & Development, he directly supervised the ROW Administrator with a very heavy workload and ensured that all ROW Acquisitions were conducted in a timely manner and followed Title II and III of the Uniform Act and Uniform Relocation and Real Property Acquisition Policies. Mr. Badiozzamani developed an intimate knowledge of project funding and programming and was TxDOT's representative on the Hidalgo County Metropolitan Planning Organization for almost a decade. His project experience includes US 83 Expressway from Showers Road West of Mission to Brownsville, SH 365, and US 281 Expressway thru Falfurrias. Additional project information is included on full resume provided within Appendix A.

Having effectively served as project manager on over **\$1.5B worth of transportation infrastructure projects**, Mr. Badiozzamani will provide oversight of the project, including staffing resources, financial performance, and monitoring quality and schedule of deliverables. He will be directly involved to ensure all deliverables follow our design process and QA/QC before delivery (as referenced on page 8, *Understanding of the Project*).

## EXPERIENCE/QUALIFICATIONS WITH SEAL COAT AND OVERLAY PLAN DEVELOPMENT

**Mr. Roger Balandran, P.E.** will serve as **Seal Coat and Overlay Plan Development Lead** and brings **over 30 years of experience in civil engineering** working in multi-discipline projects for Federal, State, and local governments and projects in transportation infrastructure. Agencies include TxDOT, METRO, City of Houston, County Roads, the Port of Houston, and the Department of Defense. Mr. Balandran has experience in preparation of both Schematics and Plans, Specifications & Estimates (PS&E) for roadways, traffic signalization, design for water, sanitary and storm sewer systems; preparation of roadway plans; industrial terminal grading and drainage improvements. Mr. Balandran's project experience with seal coat and overlay plan development includes FM 116 at SH 9, SH 6 over Lake Waco, SH 174 over Lake Whitney, SH 31 at FM 2311, and SH 31 at FM 939. Additional project information is included on full resume provided within Appendix A.

## EXPERIENCE/QUALIFICATIONS WITH ROADWAY DESIGN

**Mr. Oliver Salgado, P.E.** will serve as **Roadway Design Lead** and brings **over 19 years of progressive experience** in managing a wide range of diverse civil engineering projects. He has managed the delivery of plans, specifications, and estimates (PS&E) for various roadway and complex bridge structure projects as both a consultant and working for TxDOT's Bridge Division and Waco District offices. Furthermore, he has been Engineer of Record on several complex roadway projects that include multi-level interchanges. Mr. Salgado's project experience includes FM 116 at SH 9, SH 6 over Lake Waco, SH 174 over Lake Whitney, SH 31 at FM 2311, and SH 31 at FM 939, Military Highway, and Las Milpas Road. Additional project information is included on full resume provided within Appendix A.



## **EXPERIENCE/QUALIFICATIONS WITH ENVIRONMENTAL CLEARANCE**

**Ms. Christina Nielsen, M.A.** will serve as **Cultural Resources Lead** and brings **17 years of experience in environmental clearance**. She is responsible for the supervision of cultural resources staff, management of projects, preparation of proposals, research designs, and technical reports, and previously served as manager for archaeological collections. Ms. Nielsen has participated in field investigations at the survey, testing, and mitigation level in Texas, Oklahoma, Wyoming, Minnesota, and Louisiana as well as architectural survey and archaeological monitoring. Ms. Nielsen serves as field director for large survey projects and manages survey teams, assists with recommendations for historic and prehistoric site eligibility and management, coordinates access with land agents, relays information to clients, and coordinates with appropriate agencies. Ms. Nielsen has also served as Principal Investigator and Project Archaeologist for numerous Phase II Testing and Phase III Data Recovery mitigations for transportation projects and supervised the laboratory analyses and reporting efforts. Ms. Nielsen's project experience includes Southwest Bypass, Bagdad Road Improvements, TxDOT 26x3 Evergreen 948 ELP, and three projects under the Williamson County 2013 Road Bond Program (Arterial H, Lakeline Blvd & CR 176). Additional project information is included on full resume provided within Appendix A.

**Mr. Stephen Van Kampen-Lewis, MBA** will serve as **Natural Resources Lead** and brings **12 years of experience in environmental clearance**. His fieldwork experience includes geologic and karst assessments, cave biota collection surveys, *Eurycea* salamander presence/absence surveys, and habitat assessments for karst invertebrates and *Eurycea* salamanders. Mr. Van Kampen-Lewis is also entrenched in regulatory issues relevant to Williamson County pertaining to karst invertebrates and *Eurycea* salamanders, has authored multiple white papers on the Bone Cave harvestman (*Texella reyesi*) that were submitted to the U.S. Fish and Wildlife Service (USFWS), and was the lead author on a recent (2019) peer review publication suggesting revision of recovery units for the endangered Inner Space Caverns mold beetle (*Batrisesodes texanus*). Mr. Van Kampen-Lewis first performed biota surveys for the Williamson County Conservation Foundation (WCCF) in 2013, started writing annual reports (submitted to USFWS) in 2014, and became the WCCF project manager for the WCCF in 2017. He attends nearly all the WCCF Board meetings where he is often called upon as a karst habitat expert, he coordinates and performs annual monitoring surveys in nearly three dozen of the WCCF's caves, he writes the WCCF's annual reports each year, and performs numerous other on-call tasks associated with rare species in Williamson County. Additional project information is included on full resume provided within Appendix A.

## **EXPERIENCE/QUALIFICATIONS WITH DRAINAGE PLANNING & CONVEYANCE DESIGN**

**Mr. Chad Cormack, P.E., CFM** will serve as **Drainage Planning and Drainage Conveyance Design Lead** and brings **over 14 years of experience with water resources engineering analysis and design** throughout Texas. He is a leader in the application of 2D hydraulic modeling and has given multiple trainings, brownbags, and presentations on the topic. He has managed various hydraulic rotation list contracts and served as Drainage Task Lead for multiple PS&E IDIQ and specific deliverable projects. In addition, he has utilized various software platforms to complete a multitude of Texas Projects including drainage master planning, flood mitigation analysis/design, TxDOT & municipal roadway/bridge design, FEMA floodplain modeling & mapping, City drainage reviews, and site design. Mr. Cormack's balanced background of stormwater analysis and design allows him to provide effective solutions to complex problems. He has served as drainage task lead on many Williamson County roadway projects as well as adjacent community roadway projects and TxDOT projects across the state. He is passionate about bringing creative ideas to any project to facilitate an optimized product that not only protects citizens from flooding, but also provides the best value to the community and County. Mr. Cormack's project experience includes Bagdad Road and River Ranch Park Road, Sam Bass Road (Corridor H), RM 620 Safety Improvements PS&E, and CTRMA US183A Phase III. Additional project information is included on full resume provided within Appendix A.

## UNDERSTANDING OF THE PROJECT

B2Z, acting in the capacity of the Prime Consultant, has partnered with Edge Engineering, PLLC and SWCA Environmental Consultants (SWCA) to guarantee all areas of expertise for this pursuit are covered.

As stated in the Request for Qualifications (RFQ #21RFQ14), Williamson County is seeking to contract a pool of engineering firms to assist in the development of small drainage and small roadway projects for the Williamson County Road and Bridge Division. B2Z is prepared to assist Williamson County with its professional engineering needs. We are prepared to work directly with the county from the initial plan development stages of the project through construction completion and all aspects between. For the purpose of this SOQ, we provided a brief summary of our typical procedures for providing professional engineering services.

### Part 1 – Pre-Design: Development of Design Criteria and Laying the Groundwork

The first steps in designing civil/transportation projects are: creating (or adopting) specifications and design criteria (typically based on the project funding source), identifying constraints and/or areas of concern, establishing design parameters, and developing a project schedule through a Design Concept Conference (DCC). The DCC meeting is intended to discuss items such as: **pavement design, hydraulic design, typical sections, horizontal & vertical alignments, design speed, ROW widths, impacts to local and state roads, overpass and ramp locations, utility coordination, bridge structures**, etc. The next step in project development is laying the groundwork for the project including **environmental, ROW surveys & mapping, route and design studies & schematic design, and utility location & coordination**.

### Part 2 – Design the Project (PS&E)

The design phase of the project is where everything starts coming together. Thoroughly developing, reviewing, and modifying all plans, specifications and estimates is crucial for every successful project. It is of the upmost importance that the management of the preliminary engineering phase (Part 1) is carefully and delicately executed. The final product is only as good as the preliminary information gathered. **Roadway design, traffic control plan & design, structural design (bridges & misc. structures), drainage design, and geotechnical engineering** are main components of the design process.

### Part 3 – Finalize PS&E Package and Prepare Submittal Documents (Bid Package)

After completion of all Design Tasks, B2Z will compile all documentation into a Plan, Specifications and Estimates (PS&E) package including but not limited to: Final Set of Design Plan Sheets – Construction Drawings (mylar or paper copies), Final Project and Construction Specifications, Final Quantities, Engineer's Construction Estimate (and Estimate of Construction Time), Design Documentation Forms and Design Bid Forms (Specific to Local Entity).

### Quality Assurance / Quality Control (QA/QC)

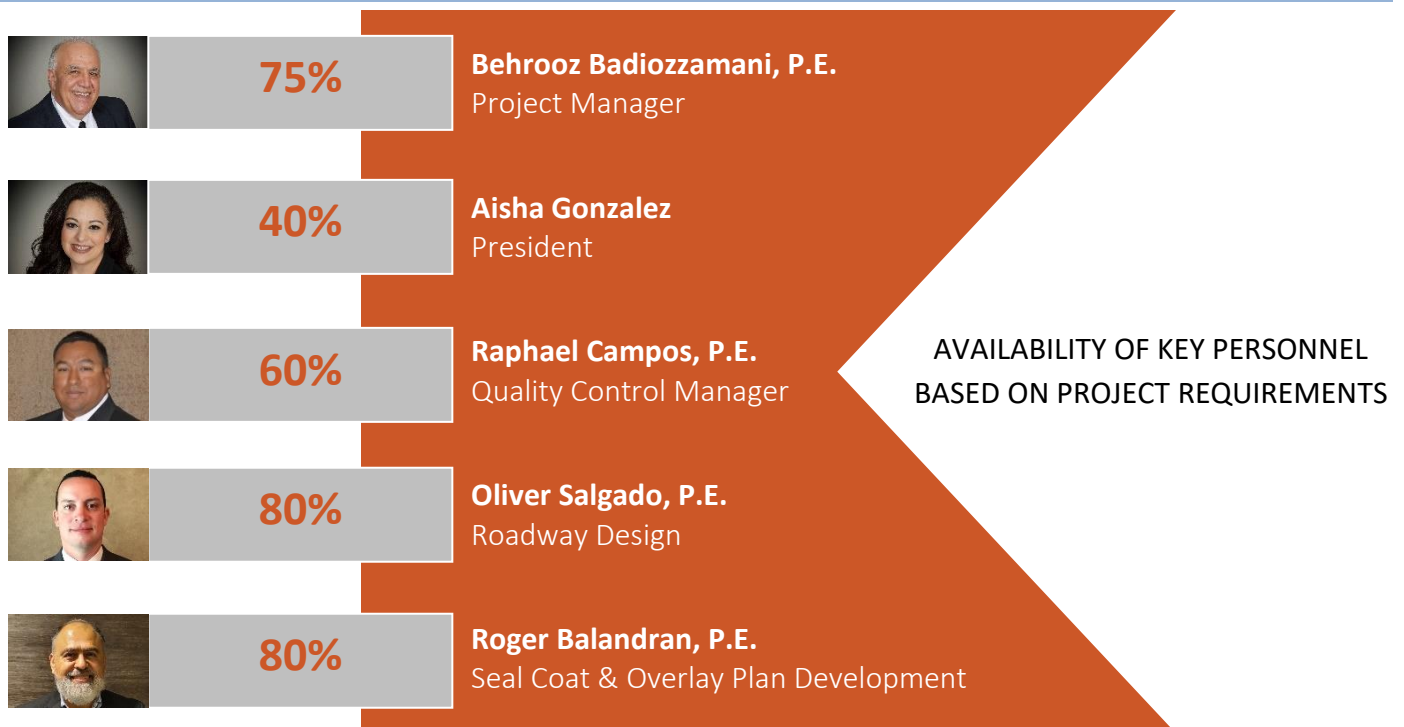
B2Z understands the importance of QA/QC and is familiar with the frustrations of poor QA/QC practices. We are committed to minimizing the review and oversight required by the Client through the implementation of an internally developed QA/QC process. B2Z utilizes a five-step process to identify and implement data collection and analytical methodologies which limit the introduction of error. These steps include **project management and organization, data generations and collection, assessment and oversight, project validation and product delivery, and approval of the QA/QC**.



## AVAILABILITY OF STAFF

B2Z's project manager and task leaders have **availability to fully meet the needs of Williamson County's Road and Bridge Division**. They will be backed by additional skilled professionals from our team. Our staff is available to **begin work immediately for any size project** (part-time or full-time) after successfully negotiating a contract for services. We are cognizant that maintaining a predictable project schedule is paramount to successful project delivery. Our team prides itself in meeting, and often exceeding the schedules developed by our Clients and Project Owners. We have developed a system for project schedule monitoring that has proven itself effective on over \$1.5B worth of design contracts. As a function of our proven system, we develop a schedule early in the process to ensure that we have the appropriate staffing levels assigned to the critical path components. This schedule would be developed in conjunction with Williamson County's Road and Bridge Division, and any other project stakeholders, with consideration to the major project milestones and anticipated project hurdles.

*B2Z has committed the services of experienced personnel who know and understand the tasks required to perform municipal projects. This will undoubtedly allow us to stay ahead of schedule and add additional resources as appropriate.*



## SUBCONSULTANT TEAM MEMBERS



## Appendix A: Resumes of Project Manager & Key Staff





## Behrooz Badiozzamani, P.E.

### Summary

Mr. Badiozzamani has over 39 years of transportation engineering experience on transportation related projects. His experience includes feasibility studies, major investment studies (MIS's), planning & environmental linkages (PEL's), TSM improvements, & schematics for total reconstruction projects, new location roadways, & widenings. His knowledge stems from his experience in the design of urban & rural highways. Mr. Badiozzamani is recognized as a technically-focused, results-driven, and collaborative Project Manager who works closely with his team & the Client's Project Manager.

In 2004, Mr. Badiozzamani was the recipient of the prestigious Luther DeBerry Award, in recognition of outstanding contributions to the State of Texas in the field of Transportation Engineering. Mr. Badiozzamani spent 29 years of his career with TxDOT where he oversaw over a billion dollars of urban and rural projects. As Deputy District Engineer & Director of TP&D, he directly supervised the ROW Administrator with a very heavy workload and ensured that all ROW Acquisitions were conducted in a timely manner and followed Title II and III of the Uniform Act and Uniform Relocation and Real Property Acquisition Policies. Mr. Badiozzamani developed an intimate knowledge of project funding and programming and was TxDOT's representative on the Hidalgo County MPO for almost a decade.

### Relevant Experience

#### US83 Expwy - Showers Rd West of Mission - Brownsville (TxDOT Pharr)

##### Role: Project Manager

Project Length: 65 miles, Est. cost: \$900 million. The scope was to widen and reconstruct the existing 4 lane expressway w/2 lane rural frontage roads to 6 lanes w/3 lane curb and gutter frontage roads. The project replaced the overpasses and reversed all exit/entrance ramps at diamond interchanges to "X" configurations. The project was let to construction in several segments ranging from \$15 million to \$97 million. He was directly involved with all aspects of project development including the schematics, TCP, environmental documents, ROW Map, PS&E, and ROW acquisition for these projects. He conducted public meetings and pre-design meetings, developed specific guidelines for expressway design, and ramp reversals that was adopted by TxDOT and consultants working on the project. He was the direct point of contact for all complex design and construction issues relating to access management, pavements, structures, retaining walls, and drainage. His expertise in geotechnical engineering benefited the proposed overpasses by utilizing tall MSE walls on relatively weak soils to minimize span length. His knowledge of material properties and design of pavements under heavy NAFTA loads resulted in the most economical and efficient pavement sections. His in-depth, detailed knowledge of Texas administrative code facilitated execution of various types of agreements with local entities on continuous illumination, ROW acquisition, drainage outfalls, and landscaping. All segments have been successfully constructed.

#### SH 365 (Hidalgo County Regional Mobility Authority)

##### Role: Project Manager

The scope consisted of corridor schematics and environmental document

### Proposed Role

Project Manager

### Years of Experience

39

### Years with Firm

11

### Education

Bachelor of Science in Civil Engineering (BSCE), The University of Texas – Austin

Master of Science in Civil Engineering, Texas A&I

### Training/Certifications

Professional Engineer: Texas/53972

Local Government Project Procedures Certified (LGPP)

### Awards

TxDOT Luther DeBerry Award ~ 2004

### Areas of Expertise

- Program Management
- Quality Assurance/Quality Control
- ROW Mapping & Acquisition
- Report Development
- Project Planning
- Roadway & Structural Design
- Transportation Planning & Development
- Geotechnical Engineering

preparation. Much of the existing facility was a two-lane undivided highway with substandard shoulders. The facility was to be widened in some areas and reconstructed in others while at the same time converting it into a Controlled Access Facility to improve mobility between 2 international bridges and the McAllen Free Trade Zone. Mr. Badiozzamani worked directly with the design team in developing the typical sections in accordance with the Roadway Design Manual (RDM) criteria for rural highways and considering 12 ft. inside and outside shoulders for hurricane evacuation. A DSR was completed for SH365 to establish the design criteria (eg., design speed and shoulder width). Under his oversight, the data collection included existing plans, ROW Maps, environmental constraints, existing traffic volumes, existing drainage conditions, utilities, and BRINSAP reports. He worked closely with the Environmental Team to develop the alternatives.

#### **US 281 Expwy thru Falfurrias (Brooks County)**

##### **Role: Project Manager**

The scope included converting an existing non-tolled curb and gutter section through town to a tolled controlled access facility with interchanges and frontage roads. Mr. Badiozzamani was directly involved in developing schematics and determining the access points for exit/entrance ramps. He conducted 2 public meetings with the citizens of Falfurrias and was able to promote the tolled project and receive concurrences from the city, county, and the public. He continued his direct involvement on conducting pre-design meetings and innovative procedures to address \$7 million of compensable gas lines. His vast experience on the design of expressways proved successful and the project received bids in May 2009. He was also involved in all aspects of ROW acquisition and compensable utilities.



**Proposed Role**

Seal Coat & Overlay Plan  
Development Lead

**Years of Experience**

30

**Years with Firm**

2

**Education**

Bachelor of Science in Civil  
Engineering (BSCE),  
University of Houston –  
Houston, Texas

Bachelor of Science in Civil  
Engineering (BSCE), State  
University of Nuevo Leon –  
Monterrey, Mexico

**Training/Certifications**

Professional Engineer:  
Texas/90814

Professional Engineer:  
Mexico

NFPA – Fire Suppression  
System Specialist – ANSUL  
R102 (UL300)

**Areas of Expertise**

- Project Management
- Roadway Design
- Traffic Signalization
- Sanitary and Storm Sewer  
Water Design
- Transit Rail Systems
- HOV Lane Networks
- Drainage Design

**Roger Balandran, P.E.****Summary**

Mr. Balandran brings over 30 years of experience in Civil Engineering working in multi-discipline projects for Federal, State and local governments and projects in transportation infrastructure. Agencies include TxDOT, METRO, City of Houston, County Roads, the Port of Houston and the Department of Defense. Mr. Balandran has experience in preparation of both Schematics and Plans, Specifications & Estimates (PS&E) for roadways, traffic signalization, design for water, sanitary and storm sewer systems; preparation of roadway plans and drainage improvements.

**Relevant Project Experience****US 285 (RM 652 to CR 232), Reeves County**

Mr. Balandran served as Design Engineer for the seal coat and overlay plan development for US 285. Mr. Balandran developed P&P sheets for a Super 2 highway that required widening and rehabilitation. The rehabilitation component was to widen 9.3 miles and to seal coat and overlay 10.5 miles. The pavement design determined to utilize 2 inches of stone-matrix asphalt rubber (SMAR-F) and 4 inches of intermediate superpave (SP-B) for overlay. For sealing and coating the pavement design required the Polymer-Modified Asphalt Cement (AC-20-5TR), and precoated crushed gravel (TY-PB) as aggregate. All existing culverts were extended and the proposed embankments approaching Four Mile Draw Creek bridge were designed to optimize drainage by regrading the culverts adjacent to the bridge in a reduced ROW.

**FM 116 at SH 9 / SH 6 over Lake Waco / SH 174 over Lake Whitney  
(TxDOT Waco District)**

Mr. Balandran is serving as Design Engineer on this contract under TxDOT to provide engineering services, including plans, specifications, and estimates (PS&E), for a new overpass along FM 116 at SH 9 in Coryell County; as well as a feasibility study & bridge layouts that proposes to replace bridges and approaches at SH 6 over Lake Waco in McLennan County, and along SH 174 over lake Whitney in Hill County. The services being provided include, but are not limited to, preparing roadway and bridge design, hydrologic and hydraulic design, traffic signal design, survey, geotechnical data collection, environmental documentation necessary to support the design process, and construction phase services.

**FM 3099: Hubbard Creek Dam Rd to Hwy 180 (TxDOT Brownwood District)**

Prepared the 100% set that included the plan and profile sheets, and summary of quantities. Managed the subconsultants for the TCP, Drainage, Signing & Pavement Marking and SW3P sheets.

**SH6: Eastland/ Comanche County Line to De Leon City Limits and De Leon City Limits to Comanche/ Erath County Line (TXDOT Brownwood District)**

Prepared the 100% set that included project and intersection layouts, roadway plan sheets, summary of quantities, and MBGF layouts. Managed the subconsultants for the TCP, Drainage, Signing & Pavement Marking and SW3P sheets.

**SH 31 at FM 2311 and SH 31 at FM 939 (TXDOT Waco District)**

Responsible for the preparation of Quantities, Typical Sections, Vertical and Horizontal Alignment, P&P sheets, project and intersection layouts, TCP, Signing and Pavement Marking, and SW3P.

**US 285 from RM 652 to CR 232 (Odessa District)**

Managed Bridge, Utility, TCP, SW3P subconsultants. Responsible for the preparation of Roadway Quantities, Typical Sections, Vertical and Horizontal Alignment, P&P sheets,



project and intersection layouts.

**METRO T-Ramp at Cypress Park and Ride. Houston, TX**

Engineering Design. Responsible for the preparation of 2 options for the T-Ramp connecting to the Cypress Park and Ride. Option 1 consisted of having two aerial HOV lanes and option two having one at grade HOV Lane and one aerial HOV Lane. Due to horizontal and vertical clearances restraints, option 2 was recommended.

**US 285 (FM 652 to CR 232)**

Widening and rehabilitate 10.511 miles and to wide 29 ft of an existing 41 ft wide bridge. Serving as Lead Project Manager, Mr. Balandran managed the production of the Roadway Design that included Table of Quantities, Typical Sections, Project Layout, Removal Layout, Plan and Profile Sheets, Traffic Control Plans (TCP), and SWPPP sheets.

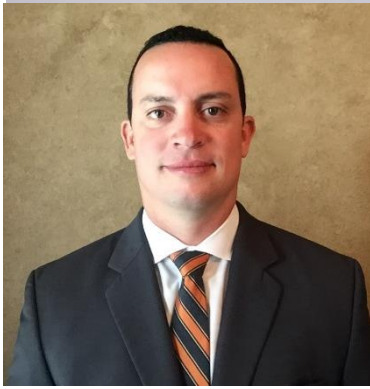
**SL 1604 (Alamo Ranch Parkway to Huebner Road)**

New loops and direct connectors at the interchange of IH-10 and SL 1604 to build a full cloverleaf interchange. Serving as Design Engineer, Mr. Balandran refined the TCP at the multi-level I-10 and SL 1604 interchange that included loops, direct connectors, and frontage roads.

**US 77 (FM 1356 to CR 2130)**

Serving as Project Manager, Mr. Balandran managed the production of the Roadway Design that included Table of Quantities, Typical Sections, Project Layout, Removal Layout, Plan and Profile Sheets, Traffic Control Plans (TCP), and SWPPP sheets. Mr. Balandran's specific role was the design of ramp widening for four (4) access ramps and four (4) exit ramps.





**Proposed Role**  
Roadway Design Lead

**Years of Experience**  
19

**Years with Firm**  
5

**Education**  
BS, Civil Engineering  
University of Texas Austin, 2002

**Training/Certifications**  
Professional Engineer:  
Texas/103749

Local Government Project  
Procedures Certified (LGPP)

**Areas of Expertise**

- Roadway Design
- Foundation Design
- Pavement Design
- Bridge Design
- Toll Plaza Design
- Program Management
- Geotechnical Testing
- Geotechnical Engineering

## **Oliver F. Salgado, P.E.**

### **Summary**

Mr. Salgado has more than 19 years of progressive experience in managing a wide range of diverse civil engineering projects. He has managed the delivery of plans, specifications, and estimates (PS&E) for various roadway and complex bridge structure projects as both a consultant and working for TxDOT's Bridge Division and Waco District offices. Mr. Salgado has successfully delivered several multi-disciplinary and multi-office projects demonstrating his ability to increase and sustain efficiency in large scale projects, particularly within accelerated schedule environments. Furthermore, he has been Engineer of Record on several complex structures including multi-level interchanges.

### **Relevant Project Experience**

#### **FM 116 at SH 9 / SH 6 over Lake Waco / SH 174 over Lake Whitney (TxDOT Waco District)**

##### **Role: Project Manager**

Mr. Salgado was responsible for the management of all roadway and bridge design services. B2Z was contracted by the Texas Department of Transportation (TxDOT) to provide engineering services generally described as preparation of plans, specifications, and estimates (PS&E) and related documents, for a new overpass along FM 116 at SH 9 in Coryell County. The services being provided include, but are not limited to, preparing roadway and bridge design, hydrologic and hydraulic design, traffic signal design, survey, geotechnical data collection, environmental documentation necessary to support the design process, and construction phase services.

#### **SH 31 at FM 939 and FM 2311 (TxDOT Waco District)**

##### **Role: Project Manager**

Mr. Salgado was responsible for the management of all roadway and bridge design services. B2Z was contracted by the Texas Department of Transportation (TxDOT) to provide engineering services generally described as preparation of plans, specifications, and estimates (PS&E) and related documents, for two on-system bridges on SH 31 at the intersection of FM 939 and FM 2311. The services being provided include, but are not limited to, preparing roadway and bridge design, hydrologic and hydraulic design, survey, and geotechnical data collection necessary to support the design process.

#### **Military Highway (Hidalgo County Precinct No. 2)**

##### **Role: Project Manager**

Mr. Salgado was responsible for the coordination and oversight of all design services. B2Z was contracted by Pct 2 to provide schematic, environmental, full PS&E, design surveying, traffic signal design, pavement design, right-of-way mapping, and compensable and permitted utility coordination for Military Highway from SH 336 to FM 2061 (1.629 miles). Design was completed January 2021. ROW Acquisition is currently underway.

#### **Las Milpas Road (Hidalgo County Precinct No. 2)**

##### **Role: Project Manager**

Mr. Salgado is responsible for overseeing the preparation of Schematic, Environmental, Plans, Specifications, and Estimates (PS&E), Design Surveying, Traffic Signal Design, Pavement Design, Right-of-Way Mapping, and Compensable & Permitted Utility Coordination. B2Z Engineering was contracted

by Hidalgo County Precinct 2 to design a non-freeway facility at a new location extending Las Milpas Rd, terminating at the McColl Rd. intersection. The County wanted to provide an east-west connector that would connect two major north-south corridors (SH 336 and McColl Rd) and provide traffic relief. The project consists of a rural 28-foot roadway (edge to edge), including a proposed bridge crossing an elevated irrigation system. The overall width of the proposed bridge is 50-foot allowing for future widening.

#### **Houston Ship Channel Bridge, North Approach Structure (Harris County Toll Road Authority – HCTRA)**

##### **Role: Project Manager, Engineer of Record**

Sam Houston Toll East Ship Channel Bridge, Houston, Texas - Participated in constructability and feasibility reviews of the schematic for SH 225/SHTe major interchange and along the SHTE from Greenshadows overpass to the south approach of the Ship Channel Bridge. Mr. Salgado developed several design alternatives for the complex SH 225/SHTe interchange, including structural type alternatives for the approaches of the Ship Channel Bridge. Mr. Salgado participated in developing a concept report making many recommendations incorporated into the geometric schematic. The Houston Ship Channel Bridge project is the most significant transportation project undertaken by the HCTRA. The Houston Ship Channel Bridge is a 10,000 feet long bridge project that includes a cable stayed bridge spanning the Houston Ship Channel. The main span bridge has 2720 feet long cable stayed segmental concrete structure. The north and south approaches are equivalent to 7000+ feet long and are prestress concrete bridge structure. This bridge includes pier heights of 140 feet tall. Mr. Salgado served as the bridge task lead for the north approach bridge and led the efforts for designing and detailing the bridge geometrics, superstructure, and substructure component for the PS&E of the North Approach Span (2,974 ft). This bridge included pier heights of 140 feet tall.

#### **I-35 Upper Deck Structural Study – Technical Memo, TxDOT Austin District**

##### **Role: Bridge Task Lead**

Mr. Salgado led the conditions assessment study of the structure of the I-35 Mainlane upper deck bridge in downtown Austin and the structural and non-structural consequences of the proposed re-stripping of the deck to accommodate 3-lanes. This study included field conditions assessments as well as literature review along with analytical and parametrical studies. The results of this analysis were exposed as well as recommendations and rough order of magnitude cost estimates for the retrofit of Inverted-T caps and foundation elements.

#### **PS&E for SB 249 to WB Beltway 8 Direct Connector and 2 bridge widenings: Fairbanks Overpass Widening & Harris County Flood Control District (HCFCD) Widening, Harris County Toll Road Authority**

##### **Role: Bridge Task Lead**

Mr. Salgado was the task lead for the 1-mile direct connector that links SH 249 SB to IH BW 8 WB. The structure includes prestress concrete and steel plate girders along with hammerhead and straddle bents both conventional reinforced and post-tensioned. Mr. Salgado led the efforts for designing and detailing the bridge geometrics, superstructure and substructure components. He also led the efforts for designing the superstructure and substructure components of both Fairbanks and HCFCD bridge widenings.

#### **PS&E for Bus83/Inspiration Road Overpass, TxDOT Pharr District**

##### **Role: Project Engineer**

Mr. Salgado was responsible for the preparation of details for 8-span, 1,083-foot-long twin structures over Inspiration Road and UPRR. He also developed the phased construction sequence to allow the thoroughfare to stay open to traffic during reconstruction of the overpass. Mr. Salgado used BGS to lay out the complex geometry and assist in calculating bearing seat elevations. Tx70 girders were designed with PGsuper to support the roadway. The substructure consisted of 45-degree skewers at the both approaches and transitioned to 30-degree skewers over the international bridge. The substructure consisted of aesthetic multi-square column bents. He used CAP 18 to model and assist in designing the substructure. Mr. Salgado assembled bid quantities, plan general notes, and directed drafting technicians in the preparation of a complete set of structural plans for this project.

## CHRISTINA NIELSEN, M.A., CULTURAL RESOURCES TASK LEAD

Ms. Christina Nielsen is the cultural resources team lead in SWCA's Austin office. She is responsible for the supervision of cultural resources staff, management of projects, preparation of proposals, research designs, and technical reports, and previously served as manager for archaeological collections. Ms. Nielsen has participated in field investigations at the survey, testing, and mitigation level in Texas, Oklahoma, Wyoming, Minnesota, and Louisiana as well as

architectural survey and archaeological monitoring. Ms. Nielsen serves as field director for large survey projects and manages survey teams, assists with recommendations for historic and prehistoric site eligibility and management, coordinates access with land agents, relays information to clients, and coordinates with appropriate agencies. Ms. Nielsen has also served as Principal Investigator and Project Archaeologist for numerous Phase II Testing and Phase III Data Recovery mitigations for transportation projects and supervised the laboratory analyses and reporting efforts.

### YEARS OF EXPERIENCE

17

### EXPERTISE

Texas Archaeology

Prehistoric Archaeology

Historic Archaeology

Collections Management and Curation

Antiquities Code of Texas Compliance

Archaeological Monitoring and Survey

Archaeological Excavation, Testing, and Data Recovery

Lithic Analysis

Historic Artifact Analysis

### EDUCATION

M.A., Anthropology; Texas State University, San Marcos; 2017

B.A., Anthropology; University of Texas at Austin; 2004

### REGISTRATIONS / CERTIFICATIONS

Permitted as a Principal Investigator by BLM in Great Plains Region (WY, TX, OK only), 2019 (#19-GP-09-S)

TxDOT Pre-certification: 2.10.1 Archeological Survey (#000029419)

### ASSOCIATIONS

Council of Texas Archeologists, Newsletter editor

Texas Archeological Society, member

### TRAINING

OSHA Excavation Competency Training, Certified 2000 and 2008

Petrography for Archaeologists, 2016

PSMJ Project Management Bootcamp, 2018

### SELECTED PROJECT EXPERIENCE

**TxDOT US 175 Anderson County Scraping and Data Recoveries; Anderson County, Texas.** Serving as Project Manager and Principal Investigator for scraping at potential burial locations and excavations of multi-component, late-nineteenth to twentieth-century farmstead and Caddo campsite along US 175 in Anderson County, Texas. Responsibilities include overall project and staff management and overseeing the excavations, reporting, and later analyses and curation. Role: Project Manager and Principal Investigator. Client: TxDOT.

**TxDOT 41DN612 Staged Mitigation; Denton County, Texas.** Served as Project Archaeologist for excavations of a Transitional Archaic burned rock midden site. Responsibilities included overall project management, leading the excavations, reporting, analyses, and curation. Role: Project Archaeologist. Client: TxDOT.

**FM 110 Re-Evaluation Cultural Resources Services; Hays County, Texas.** Managing ongoing fieldwork, reporting, and client coordination for an intensive pedestrian survey of portions of TxDOT roadway in San Marcos in Hays and Caldwell Counties, Texas. This work involves coordination with TxDOT and the Texas Historical Commission (THC). Texas Antiquities Permit #8509. Role: Project Manager/ Principal Investigator. Client: HNTB Corporation.

**South Williamson / North Travis Mobility Project (SWNTMP) Cultural Resources.** Managed background studies for portions of TxDOT roadway along IH-35 in Williamson and Travis Counties, Texas. This work involved coordination with TxDOT and THC. Role: Project Manager/ Principal Investigator. Client: CP&Y, Inc.

**Southwest Bypass Environmental Services; Williamson County, Texas.** Conducted pedestrian and shovel test surveys and site delineation for the proposed Southwest Bypass Roadway in the City of Georgetown, Williamson County, Texas. Assisted with report and site eligibility recommendations. Role: Cultural Resources Specialist. Client: HDR, Inc.

**Bagdad Road Improvements Environmental Services; Williamson County, Texas.** Led crew in pedestrian and shovel test survey for the proposed Bagdad Road (CR 279) Project in Williamson County, Texas. Served as Task Lead, overseeing logistics and organization, and managing reporting and agency consultation for the project. Curated all photographs and records associated with the project. Role: Cultural Resources Specialist/ Laboratory Manager. Client: Lockwood, Andrews & Newman, Inc.



**TxDOT 26x3 Evergreen 948 ELP Environmental Services CP&Y; Williamson and Travis Counties, Texas.** Managed background studies, fieldwork, reporting, and client coordination for an intensive pedestrian survey for portions of TxDOT roadway along IH-35 at Parmer Lane and SH 45. This work involved coordination with TxDOT and THC. Texas Antiquities Permit #7988. Role: Project Manager. Client: CP&Y, Inc.

**Williamson County 2013 Road Bond Program; numerous projects in Williamson County, Texas.** Assisted with background studies, pedestrian and shovel test surveys, and site delineation for three projects under the bond program (i.e., Arterial H, Lakeline Blvd, and CR 176). Assisted with report and site eligibility recommendations. Completed curation of field paperwork and photographs for projects subject to the Antiquities Code of Texas. Role: Cultural Resources Specialist. Client: Prime Strategies, Inc.

**TxDOT 2016 Statewide Archeological Survey; Numerous Counties, Texas.** Led crews in shovel test and backhoe trench surveys and site delineation for numerous road and bridge projects across the state of Texas. Co-authored numerous survey reports and assisted with report formatting and editing. Performed management duties including project set-up, invoicing, QAQC, and report reviews. Role: Assistant Project Manager/ Cultural Resources Specialist. Client: TxDOT.

**Williamson County 2013 Road Bond Program; numerous projects in Williamson County, Texas.** Assisted with background studies, pedestrian and shovel test surveys, and site delineation for three projects under the bond program for Williamson County (i.e., Arterial H, Lakeline Blvd, and CR 176). Assisted with report and site eligibility recommendations. Completed curation of field paperwork and photographs for projects subject to the Antiquities Code of Texas. Role: Cultural Resources Specialist. Client: Prime Strategies, Inc.

**Georgetown Mays Street Extension Project, Williamson County, Texas.** Lead crew in linear archaeological pedestrian survey. Produced cultural resources report. Also assisted with the karst survey and identified potential karst geological features within the study area. Role: Cultural Resources Specialist. Client: CP&Y, Inc.

**State Highway 32 (Piper Plantation) Mitigation; Cameron County, Texas.** Conducted background research of the historic-age plantation and assisted with artifact analysis and reporting. Curated all photographs, records and artifacts collected during the testing project. Role: Cultural Resources Specialist. Client: TxDOT.

**Multiple TxDOT South Texas IEs and Surveys; Numerous Counties, Texas.** Conducted numerous impact evaluations of bridge replacement locations. Reported recommendations to TxDOT for archaeological survey through Impact Evaluation reports. Role: Cultural Resources Specialist. Client: Texas Department of Transportation.

**Siren Site (41WM1126) East Side IH35; Williamson County, Texas.** Excavated a multiple occupation site with numerous cultural features within Interstate 35 right-of-way along the South Fork of the San Gabriel River. Processed field artifacts and samples, organized artifacts for later analysis, created artifact and sample inventories. Prepared special samples for analysis. Managed laboratory analyses and curation of artifacts, paperwork, and photographs. Role: Cultural Resources Specialist/ Laboratory Manager. Client: Texas Department of Transportation.

**Williamson County Road Bond Program PSA; numerous projects in Williamson County, Texas.** Assisted with numerous background studies and pedestrian surveys with shovel testing for projects under the bond program for Williamson County (e.g., RM 620, O'Connor Road, CR 111). Role: Cultural Resources Specialist. Client: Prime Strategies, Inc.

**Siren Site (41WM1126) West Side IH35 Investigations; Georgetown, Williamson County, Texas.** Excavated a multiple occupation site with multiple features within Interstate 35 right-of-way along the South Fork of the San Gabriel River. Processed field artifacts and samples, organized artifacts for later analysis, created artifact and sample inventories. Prepared special samples for analysis. Assisted with report writing and completed curation of artifacts, samples, paperwork, and photographs. Role: Cultural Resources Technician. Client: Texas Department of Transportation.

## STEPHEN VAN KAMPEN-LEWIS, MBA, NATURAL RESOURCES TASK LEAD

Mr. Stephen Van Kampen-Lewis is a project manager with experience in karst biology, geology, hydrogeology, and endangered species issues. His fieldwork experience includes geologic and karst assessments, cave biota collection surveys, *Eurycea* salamander presence/absence surveys, and habitat assessments for karst invertebrates and *Eurycea* salamanders. Mr. Van Kampen-Lewis is also entrenched in regulatory issues relevant

### YEARS OF EXPERIENCE

12

### EXPERTISE

*Eurycea* salamanders

Endangered Species Act documentation and compliance

Karst feature excavation and habitat evaluation

Geologic assessment

Aquatic *Eurycea* salamander habitat assessment and presence surveys

Hydrology and aquatic ecology

### EDUCATION

M.B.A., Masters of Business Administration; University of Hawaii at Manoa; 2008

B.A., Marine Sciences; University of Hawaii at Hilo; 2004

### REGISTRATIONS / CERTIFICATIONS

Certified Advanced Open Water Diver; PADI Professional Association of Diving

### TRAINING

U.S. Fish and Wildlife Service  
Threatened & Endangered Species Permit (TE800611-1), Permittee; AZ, LA, NM, OK, TX

Texas Parks and Wildlife Department  
Scientific Collecting Permit (SPR-0418-154), Subpermittee; TX

to Williamson County pertaining to karst invertebrates and *Eurycea* salamanders, has authored multiple white papers on the Bone Cave harvestman (*Texella reyesi*) that were submitted to the U.S. Fish and Wildlife Service (USFWS), and was the lead author on a recent (2019) peer review publication suggesting revision of recovery units for the endangered Inner Space Caverns mold beetle (*Batrissodes texanus*). Mr. Van Kampen-Lewis first performed biota surveys for the Williamson County Conservation Foundation (WCCF) in 2013, started writing annual reports (submitted to USFWS) in 2014, and became the WCCF project manager for the WCCF in 2017. He attends nearly all the WCCF Board meetings where he is often called upon as a karst habitat expert, he coordinates and performs annual monitoring surveys in nearly three dozen of the WCCF's caves, he writes the WCCF's annual reports each year, and performs numerous other on-call tasks associated with rare species in Williamson County.

### SELECTED PROJECT EXPERIENCE

**Intersection Improvements at DB Wood Road and State Highway 29; HNTB / Williamson County; Williamson County, Texas.** This project consisted of a complicated ESA permitting process requiring the preparation of a Biological Assessment and formal Section 7 consultation with USFWS for potential impacts to protected species, including the Bone Cave harvestman and Coffin Cave mold beetle (*Batrissodes texanus*), Georgetown salamander (*Eurycea naufragia*), and Jollyville Plateau salamander (*E. tonkawae*). Formal consultation was completed with the USFWS issuing an incidental take permit for relevant species. As part of the project, SWCA also completed coordination with the THC, TCEQ, and an application for participation in the Williamson County RHCP for Endangered Species Act compliance. *Role: Environmental Specialist. Performed geological assessment fieldwork/report preparation and karst survey fieldwork/report preparation for expanded right-of-way, wrote Biological Assessment for TxDOT environmental review, regional habitat conservation plan preparation.*

**2013 Williamson County Road Bond Project Work Authorization 13 - County Road (CR) 176; Prime Strategies, Inc.; Williamson County, Texas.** *Role: Project Manager, Field Surveyor, Report Writer. Performed GA fieldwork/report preparation and karst survey fieldwork/report preparation for expanded right-of-way, wrote Biological Assessment for TxDOT environmental review, prepared RHCP.*

**Southwest Bypass - Segment I and II, Void Excavation and Endangered Karst Invertebrate Presence/Absence Survey; HDR & Prime Strategies, Inc.; Williamson County, Texas.** SWCA provided environmental services for a new location, multi-lane roadway connecting IH 35 to Leander Road. SWCA managed both natural and cultural resources personnel and fieldwork. Several large voids were detected during the geological assessment that led to the discovery of multiple caves, including a cave now known to contain the federally endangered Bone Cave harvestman (*Texella reyesi*). Stephen and SWCA team members guided the county and client through the permitting process with the Texas Commission on Environmental Quality (TCEQ) and the Texas Historical Commission (THC), while maintaining compliance with the Endangered Species Act (ESA) through the Williamson County Regional Habitat Plan (RHCP).

**TRAINING (CONTINUED)**

Section 10(A)(1)(A) Permit to conduct scientific research on:

Karst aquifer salamanders  
(*Eurycea sosorum*, *E. nana*, *E. tonkawae*, *E. naufragia*, *E. chisholmensis*, *E. waterlooensis*; *E. [syn. Typhlomolge] rathbuni*)

Central Texas karst invertebrates  
(*Batrises texanus*, *B. cryptotexanus*, *B. ventyivi*; *Texamaurops reddelli*; *Texella reddelli*, *T. reyesi*, *T. cokendolpheri*; *Rhadine persephone*, *R. exilis*, *R. infernalis*; *Tartarocreagris texana*; *Tayshaneta myopica*, *T. microps*; *Cicurina baronia*, *C. madla*, *C. vespera*)

*Role: Project Manager, Field Surveyor, Report Writer. Excavated potential cave habitat for presence/absence survey for federally listed troglobitic invertebrates covered by Williamson County's RHCP. Performed GA and karst survey fieldwork/report preparation, T&E species fieldwork/report preparation, RHCP preparation.*

**2013 Williamson County Road Bond Project Work Authorization 3 - Southwest Bypass Strategy; Prime Strategies, Inc.; Williamson County, Texas.** *Role: Project Manager, Lead Author. Prepared a white paper addressing taxonomy of Inner Space Caverns mold beetle (*Batrises texanus*) distribution within USFWS recovery units.*

**Southwest Bypass Extension, Wolf Ranch Parkway to State Highway 29; City of Georgetown; Williamson County, Texas.** SWCA provided environmental services for the extension of the Southwest Bypass from Wolf Ranch Parkway to State Highway 29. SWCA has worked through several iterations of this project over the years and has provided natural resources surveys atop the Edwards Aquifer Recharge Zone, including a geologic assessment (GA), karst survey, karst feature excavation, threatened and endangered (T&E) species habitat assessment, archeological survey, and an application to the Williamson County Regional Habitat Conservation Plan (RHCP) to address potential impacts to the golden-cheeked warbler. Project activities also require the preparation of a TxDOT Categorical Exclusion for coordination with TxDOT-Austin District environmental staff. *Role: Project Manager, Field Surveyor, Report Writer.*

**Southwest Bypass Extension; Aguirre & Fields, LP; Williamson County, Texas.** SWCA provided a GA, karst survey and report preparation, karst feature excavation, T&E species habitat assessment and report, Williamson County RHCP application to address potential impacts to the golden-cheeked warbler (*Dendroica chrysoparia*), cultural resources investigations per the Texas Antiquities Code, a Tier I Site Assessment and Biological Evaluation Form, Hazardous Material Initial Site Assessment (ISA) in support of a TxDOT Austin District CE at the intersection of SW Bypass with SH 29. *Role: Environmental Specialist. Mr. Van Kampen-Lewis serves as task lead for the performance of a GA, karst survey and report preparation, potential karst feature excavation, and T&E species habitat assessment.*

**WCCF Biological Services; Williamson County Conservation Foundation; Williamson County, Texas.** *Role: Project Manager, Field Surveyor. Perform annual biota surveys in accordance with the RHCP within approximately three dozen caves in 13 karst preserves to ascertain cave fauna health. Karst preserves are known to contain *Texella reyesi*, *Batrises texanus*, *Batrises cryptotexanus*, *Rhadine persephone*, and *Eurycea naufragia*.*

**On-Call Work Authorization Planning; Williamson County Conservation Foundation; Williamson County, Texas.** SWCA conducted additional adaptive management and on-call tasks as needed by the WCCF. Previous on-call services have included meeting with USFWS, creating new recovery unit maps for federally protected species, background research on local caves, biota surveys on potential Williamson County parks acquisitions, endangered bird habitat assessment and presence/absence surveys, concerned citizen inquiries, etc. *Role: Project Manager. Wrote and updated three annual reports (Preserve Description, Annual Activities, Management Plan) pertaining to WCCF activities for submission to USFWS in support of the Williamson County RHCP. Attended WCCF Board meetings and adaptive management meetings to answer questions and give recommendations to elected officials.*

**Bone Cave Harvestman Species Status Assessment Comments; Confidential Client; Multiple Counties, Texas.** *Role: Environmental Specialist. Authored white paper regarding perceived vs. actual threats by red imported fire ants on the endangered Bone Cave harvestman; as discussed by USFWS. Jenny Wilson (USFWS karst lead) considered this white paper very useful for the 2018 Bone Cave harvestman species status assessment.*

## CHAD CORMACK, PE, CFM

Mr. Cormack has over 14 years of experience with water resources engineering analysis and design throughout Texas. He is a leader in the application of 2D hydraulic modeling and has given multiple trainings, brownbags, and presentations on the topic. He has managed various hydraulic rotation list contracts and served as Drainage Task Lead for multiple PS&E IDIQ and specific deliverable projects. In addition, he has utilized various software platforms to complete a multitude of Texas Projects including drainage master planning, flood mitigation analysis/design, TxDOT & municipal roadway/bridge design, FEMA floodplain modeling & mapping, City drainage reviews, and site design. Mr. Cormack's balanced background of stormwater analysis and design allows him to provide effective solutions to complex problems.

### PROJECT EXPERIENCE

#### **BAGDAD ROAD & RIVER RANCH PARK ROAD | Williamson County, TX**

Mr. Cormack served as Drainage Task Lead for the design of a County park road, and the widening of Bagdad road at the park entrance. Mr. Cormack developed GEOPAK drainage models to determine peak flows, and size parallel ditches for the project. Mr. Cormack then built HY-8 models to appropriately size culverts within the project limits. Being a greenfield project, detailed analysis was conducted to ensure peak runoff due to the project impervious cover and roadway embankment would not worsen flooding to any roadway or nearby structure. Finally, Mr. Cormack conducted water quality load calculations and proposed vegetative filter strip where possible to meet the TCEQ Edwards Aquifer treatment requirements. Throughout the design, the project team worked closely with the Parks Department to ensure proposed development would fit with the overall plan for the County Park.

#### **SAM BASS ROAD (CORRIDOR H) SAFETY IMPROVEMENTS | Williamson County, TX**

Mr. Cormack served as Drainage Task Lead for the Williamson County Schematic design of Sam Bass Road. Traffic studies supported widening the roadway with the addition of a turn lane, shoulders, and a shared use path. Mr. Cormack led the hydrologic and hydraulic analysis utilized for the sizing of cross culverts along the corridor. He also worked closely with the roadway task lead to optimize placement of vegetative filter strip (VFS) to satisfy the TCEQ Edwards Aquifer water quality requirements. A combination of roadside ditches and storm drain design was optimized to provide both flood reduction benefit and minimal ROW acquisition to the project area that experiences frequent flooding.

#### **RM 620 SAFETY IMPROVEMENTS PS&E | Williamson County, TX**

Mr. Cormack served as Project Engineer for the reconstruction of an existing 4-lane rural highway to a 6-lane urban facility. He prepared off-site drainage modeling (HMS), as well as culvert (RAS), local storm drain (GEOPAK), and ditch design to comply with the TxDOT Hydraulic Design Manual and Williamson County standards. Mr. Cormack simulated off-site detention facilities and conducted detailed calibration

#### OFFICE LOCATION

3410 Far West Blvd., Suite 315  
Austin, TX 78731

#### EXPERIENCE

14 Years

#### EDUCATION

BS, Civil Engineering  
Texas A&M University | 2006

MS, Civil Engineering  
Univ. of Alaska-Fairbanks | 2011

#### REGISTRATIONS

Professional Engineer  
State of Texas No. 114227

Certified Floodplain Manager  
State of Texas No.2649-14N

#### TxDOT CERTIFICATIONS

- |        |                                 |
|--------|---------------------------------|
| 2.4.1  | Nationwide Permit               |
| 2.4.2  | Clean Water Act Sec. 404        |
| 4.2.1  | Roadway Design                  |
| 10.1.1 | Hydrologic Studies              |
| 10.2.1 | Basic Hydraulic Design          |
| 10.3.1 | Complex Hydraulic Design        |
| 10.5.1 | Bridge Scour Eval. And Analysis |
| 10.8.1 | FEMA Regulations and Permits    |
| 17.5.1 | Civil Engineering               |



## **CHAD CORMACK, PE, CFM**

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to historical events to ensure the proposed culvert designs were appropriately sized to the design storm event.

### **CTRMA US183A PHASE III | Williamson County, TX**

Mr. Cormack served as Drainage Task Lead for the schematic design of the CTRMA US183A Phase III project. He developed an overall project HEC-HMS model to determine pre- and post-project peak flowrates at each of the identified points of interest and identify required locations and sizes for detention ponds along the project. Each cross culvert is being analyzed with HY-8 and/or HEC-RAS models to determine the number and size of culverts needed.

### **TXDOT BUDA TRUCK BYPASS ROADWAY DRAINAGE DESIGN | Hays County, TX**

Mr. Cormack served as Drainage Task Lead for the schematic and detailed design of a new roadway to extend the Robert S. Light roadway west to FM 1626. Mr. Cormack was responsible for the design of all roadside ditches, cross culverts, storm drain systems, multiple detention ponds, two large bridge crossings, and all temporary and permanent water quality BMP design (Sand Filtration Ponds and Vegetative Filter Strip). The project is located within the Edwards Aquifer Recharge zone, and required a detailed WPAP to be submitted to TCEQ and TxDOT.

### **COERS DRIVE DRAINAGE IMPROVEMENTS | San Marcos, TX**

Mr. Cormack served as Drainage Task Lead for the Coers Drive Drainage Improvements Project. The region experienced frequent flooding due to the lack of roadway drainage infrastructure. At the onset of the project, Mr. Cormack built a 2-dimeinsional hydraulic model to visually communicate the nature of the flooding issues to the City staff. He then built a traditional HEC-HMS hydrologic model to determine peak flows at various points of interest. This flows were input into HY-8 models at three culvert crossing which Mr. Cormack sized to meet project design criteria. He also sized roadside ditches to meet design criteria; and identified where additional ROW was required to adequately convey the stormwater.

### **DRAINAGE MASTER PLAN | Liberty Hill, TX**

Mr. Cormack served as the Project Manager for the recently completed master plan. He led the efforts to identify 17 problem areas and develop 18 capital improvement projects. Problem areas were identified through field visits, public involvement, meetings with City staff, and InfoWorks ICM modeling. Prioritization, conceptual solutions, cost estimates, and construction duration estimates were developed for all 18 projects. Mr. Cormack also provided the City with guidance and recommendations for a drainage utility fee and changes to their drainage criteria.

### **EAST RIVERSIDE DRIVE CORRIDOR STUDY | Austin, TX**

The East Riverside Drive Corridor Study is developing schematic improvements for East Riverside Drive from IH-35 to SH 71. The project consists of full reconstruction of the corridor to a 6-lane divided facility with bike lanes, shared use path and sidewalks. Immediately following the schematic, the project will move to final design. During schematic phase, the project has direct coordination with the permitting review team to ensure sound design and a smooth permitting process. Mr. Cormack was Drainage Task Lead responsible for the schematic drainage design and analysis including, hydrologic and hydraulic

## **CHAD CORMACK, PE, CFM**

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impacts, cross drainage design, storm drain design and water quality design. He has coordinated directly with City of Austin Watershed Protection and is thoroughly familiar with City of Austin drainage and environmental criteria manuals.

### **HUNTER ROAD (FM 2439) | San Marcos, TX**

Mr. Cormack served as Project Engineer for this safety improvement and widening project for a roadway subjected to frequent flooding from Purgatory Creek. He built a XPSWMM 2D hydraulic model to simulate flooding around the proposed bridge structure. The complex model was utilized to design an ultimate bridge that would impede overflows with a berm, in order to reclaim a significant amount of land out of the floodplain to spur future private development in the area.

### **OAK BLUFF DRAINAGE ANALYSIS & DESIGN | Round Rock, TX**

Mr. Cormack served as Project Manager for the analysis of a neighborhood's existing flooding conditions to assess the feasibility of alternative designs. He managed the development of a detailed InfoWorks ICM 2D model to accurately assess the performance of the existing drainage infrastructure and propose efficient and effective mitigation measures to reduce flooding to the region. Detailed cost estimates were prepared for various levels of solutions based on flood reduction benefit.

### **TXDOT US87/US181 Culvert Analysis/Design | San Antonio, TX**

Mr. Cormack served as Drainage Task Lead for the US87 and US181 roadway rehabilitation projects. The combined projects included hydrologic and hydraulic analysis of 74 cross culverts to determine and size crossings to meet design criteria, while also ensuring the additional pavement did not create adverse impacts due to the increase in impervious cover. Mr. Cormack built HEC-HMS models to calculate pre- and post-project peak flowrates for each of the culvert crossings, and documented the results indicating no adverse impacts in a detailed drainage report.

### **TXDOT I-45 BUSINESS BRIDGE REPLACEMENTS | Dallas, TX**

Mr. Cormack served as Drainage Task Lead for the replacement of four bridges on I-45 Business over Briar Creek in the Dallas District. He created a HEC-HMS model to simulate peak flows at each of the structures. Simulated flows were validated against recent large flood events at the structures. Mr. Cormack worked closely with the District Hydraulic Engineer to ensure the predicted peak flows and hydrologic parameters were appropriate. He then created HEC-RAS models for each of the crossings. The proposed bridges were raised and widened to meet the project 25-year design criteria. Raising the structures created a potential rise to the 100-year WSEL. Mr. Cormack worked closely with TxDOT to ensure that the proposed project would not create adverse impacts to an upstream railroad crossing. All modeling assumptions and results were documented in a final drainage report.

### **TXDOT FM 4116 BRIDGE REPLACEMENT | Abilene, TX**

Mr. Cormack served as Drainage Task Lead for the replacement of an old bridge on FM 4116 in the Abilene District. He built an HEC-HMS model to simulate peak flows at the bridge for multiple flood events. These peak flows were also checked and revised due to additional analysis Mr. Cormack did with the regional regression equations and detailed historical gage analysis. Mr. Cormack then built a HEC-RAS model to simulate the WSEL for multiple frequency events, and design the structure to meet project

## **CHAD CORMACK, PE, CFM**

*(continued)*

criteria. HEC-RAS results indicated a potential rise in WSEL for the 100-year event upstream of the project. Mr. Cormack mapped the pre- and post-project floodplain limits and wrote a memo to the local floodplain administrator to document the rise. Ultimately the rise in WSEL due to the project did not have the potential to adversely impact habitable structures, which Mr. Cormack thoroughly documented in a drainage report that was developed with the TxDOT project manager. Finally, Mr. Cormack conducted a detailed scour analysis and proposed countermeasures to protect the bridge from long-term scour.

### **TXDOT US87/US181 CULVERT ANALYSIS/DESIGN | San Antonio, TX**

Mr. Cormack served as Drainage Task Lead for the US87 and US181 roadway rehabilitation projects. The combined projects included hydrologic and hydraulic analysis of 74 cross culverts to determine and size crossings to meet design criteria, while also ensuring the additional pavement did not create adverse impacts due to the increase in impervious cover. Mr. Cormack built HEC-HMS models to calculate pre- and post-project peak flowrates for each of the culvert crossings, and documented the results indicating no adverse impacts in a detailed drainage report.

### **TXDOT 2D MODELING GUIDELINES | TxDOT Design Division**

Mr. Cormack is serving as Task Lead to develop guidance language and accompanying reference graphics to be included within the HDM related to 1-dimensional (1D) unsteady and 2-dimensional (2D) hydraulic modeling for TxDOT Design Division. Mr. Cormack aided with the development of a survey which was sent to over 40 agencies to understand currently available best practices and guidance documents. The guidelines are intended to be usable for a broad audience ranging from rural district engineers to H&H modeling experts; providing general boundaries to allow for the appropriate application of a relatively new and powerful tool in the transportation drainage discipline. Mr. Cormack is also leading the modeling and reporting effort to assess benefits and limitations of 7 hydraulic software platforms by conducting rapid analysis on a test case project. The case study will be included in FHWA Every Day Counts (EDC) Initiative.

### **HUGHES GARDEN STORM DRAIN IMPROVEMENTS | Copperas Cove, TX**

Mr. Cormack served as Project Manager for the Hughes Garden Storm Drain Improvements project. The Hughes Garden neighborhood experiences frequent localized and nuisance flooding due to the lack of drainage infrastructure. Mr. Cormack built an Infoworks ICM 2D model to simulate the existing conditions flooding for the region. The model was then utilized to propose optimized improvements within the street ROW to reduce the flooding. Mr. Cormack worked with City staff to identify the preferred solution. He then produced a full PS&E set that was submitted and approved by the City.

### **KENSINGTON POND | Round Rock, TX**

Mr. Cormack served as the Project Manager for the design of a regional detention facility near the Dell Campus at Dry Branch Tributary 1. Mr. Cormack lead the design team for a 49 ac-ft regional detention facility to mitigate flooding of downstream road crossings and commercial properties, as well as downstream erosion. The project was optimized to reduce impacts on the potential wetland areas within the existing stock pond while maximizing flood storage.

**Title**

President/Owner

**Years of Experience**

21

**Years with Firm**

6

**Education**

Bachelor of Business Administration in Computer Information Systems, The University of Texas – Pan American

Master of Education (Med) in Counseling & Guidance, The University of Texas – Pan American

**Certifications/Memberships**

Local Government Project Procedures Certified (LGPP)

2016-2020 President – Dr. Pablo Perez Elementary PTO

Member – McAllen ISD Superintendent's Parent Advisory (SPA) Board

Member – McAllen Education Foundation (MEF)

Member – Hispanic Women's Network of Texas – RGV Chapter

Member – FemCity RGV

Member – Hispanic Chamber of Commerce

Member – Organization of Women Executives

UTRGV Advisory Committee Member

**Aisha Gonzalez****Summary**

Mrs. Gonzalez served as the Director of Operations until April 1, 2017, when she purchased the company and now serves as B2Z Engineering's President/Owner. She manages the company's day-to-day operations and the senior executive team. She holds a Bachelor of Business Administration (BBA) with a concentration in Computer Information Systems (CIS), as well as a Master of Education (MEd), both from The University of Texas – Rio Grande Valley. Her primary focus at B2Z Engineering is in operations and finance. With a background in Geographic Information Systems (GIS), Mrs. Gonzalez continues to develop B2Z's GIS department and improve on the deliverables B2Z can provide to its clients. She works closely with Human Resources to ensure training needs are met for all employees as well as project specific training and certification requirements. She maintains and monitors company standards to ensure customers receive the best quality of work. She is also responsible for the development, design, operation, and improvement of the systems that create and deliver the best service to our clients. Mrs. Gonzalez ensures that the business operations are efficient and effective and that the proper management of resources, contract administration, distributions of services to customers and analysis of systems is conducted.

**Recent Project Experience****Hidalgo County Drainage District No. 1 Phase I Drainage Study - Hidalgo County Drainage District No. 1 (HCDD1)****Role: QA/QC**

Mrs. Gonzalez was responsible for QA/QC of all production of all GIS aspects of this project. B2Z was contracted to provide drainage plans and estimates for various Colonias throughout all four County Precincts. Preliminary site assessments were performed for all registered Colonias and included drone captured aerial photography. This data was used to provide the client updated site exhibits for public outreach and constituent interaction, as well as survey grade data for use in the generation of drainage plans. The Colonias were then evaluated and ranked using a matrix to subjectively prioritize them based on defined matrix parameters. Software utilized included ArcMap GIS, ESRI, GIS StreamPro, and HEC-RAS. Schematic level design of stormwater drainage including PS&E were then generated for those Colonias that required infrastructure improvements.

**Hidalgo County Precinct No. 2 Military Highway****Role: QA/QC**

Mrs. Gonzalez was responsible for overseeing the production of this project. B2Z was contracted by Pct 2 to provide schematic, environmental, full PS&E, design surveying, traffic signal design, pavement design, right-of-way mapping, and compensable and permitted utility coordination for Military Highway from SH 336 to FM 2061 (1.629 miles). Design was completed January 2021. ROW Acquisition is currently underway.

**City of Mission GIS Services****Role: QA/QC**

Mrs. Gonzalez was responsible for overseeing the City of Mission GIS Project. She served as the liaison between Assistant City Manager, IT and Planning Department to maintain proper communication. Mrs. Gonzalez ensured training was provided to the City's Planning Department and Public Works Department. This project included the development of water utility, storm water utility, and sewer utility map books.



**Proposed Role**  
Quality Control**Years of Experience**  
21 (7 years w/ TxDOT)**Years with Firm**  
1**Education**  
BS, Architectural Engineering  
University of Texas, 2000**Training/Certifications**  
Professional Engineer:  
Texas/95612Local Government Project  
Procedures Certified (LGPP)

Nuclear Gauge Safety Certified

Radiation Safety Officer  
Certified**Areas of Expertise**

- Construction Engineering
- Construction Inspection
- Constructability Review
- Quality Control
- Materials Testing
- Local, State & Federally Funded Construction
- Bridge Design

**Raphael Campos, P.E.****Summary**

Mr. Campos has over 21 years of roadway and drainage design experience in both the public and private sectors. His broad range of experience results in a greater understanding of QA/QC and interdisciplinary coordination. Prior to working for the private sector, Mr. Campos worked as a Bridge Designer for seven years in TxDOT's Bridge Division. He also worked as the Contractor's Quality Control (QC) Manager for six years on D-B urban freeway construction projects. His experience includes projects with complex bridge and direct connector structures (steel and concrete), construction phasing, and urban freeway traffic control. Mr. Campos has experience in CE&I, including constructability reviews and managing/ coordinating teams of QC inspectors and testing personnel. He has extensive experience managing local, State, and Federally funded construction projects for the CTRMA, the City of Taylor, Travis County, and TxDOT, as well as verifying compliance with the TxDOT QAP and the TxDOT Guide Schedule for Sampling and Testing. Mr. Campos verifies compliance with FHWA's Labor, EEO, DBE, and Certified Payroll requirements. He also oversees CUF reports and MOH reports.

**Relevant Project Experience****Travis County / Brookfield Residential, William Cannon Extension Phase 2 / US 183 | Austin, TX, \$5.8M Construction Costs****Role: Project Manager**

Mr. Campos managed a \$5.8M William Cannon Extension project that ties into US 183 (TxDOT facility). The project consisted of 1.6-mile two lane arterial roadway and associated infrastructure including grading, stormwater box culverts, relocating existing COA waterlines, connecting new water mains to the COA system storm sewers, water quality/detention rain gardens, relocating existing power lines, installing temporary / permanent traffic signals, landscaping, sidewalks, placing base materials and HMA paving and erosion controls. His responsibilities included constructability review, oversight of project funding, reviewing the contractors monthly pay estimate, assist with answering RFIs, reviewing submittals, reviewing monthly schedule progress updates, resolving any major construction related issues and coordinating with the senior inspector.

**City of Taylor, 2019 Infrastructure Bond Street & 3rd Street Reconstruction | Taylor, TX, \$6.2M Construction Costs****Role: Project Manager**

This street reconstruction project spans five rural streets and includes relocating and improving water, wastewater, gas, and communications lines. The improvements also include lime treated subgrade, flexbase, replacing driveways, paving with HMA, and storm drainage. Mr. Campos managed a senior inspector who coordinated with AT&T and TxDOT to lower existing utilities and installing traffic signals at Carlos G. Parker Blvd (TxDOT facility). Mr. Campos coordinated with the City of Taylor staff on all construction or utility related issues. His responsibilities included constructability review, oversight of project funding, reviewing the contractors monthly pay estimate, assist with answering RFIs, reviewing submittals, reviewing monthly schedule progress updates, resolving any major construction related issues and coordinating with the senior inspector.

**CTRMA, Manor Expressway (290E) Phase III, 290 E & SH 130 Direct Connectors (MEP III), Manor, TX****Role: Resident Engineer**

Project included CE&I services on this \$127M federally funded improvement project. This project includes two tolled and one non-tolled direct connector flyovers and associated

improvements at the 290E/SH 130 interchange in Travis County. The three flyovers will bridge the two toll facilities together. Mr. Campos' responsibilities included reviewing project submittals, shop drawings, answering RFI, reviewing the Contractors' monthly progress schedules and performing change order negotiation and preparation. He also coordinated with the EOR and processes documentation through e-Builder (CTRMA's document control system). Mr. Campos was involved with drafting/closing NCRs. He also discussed and resolved construction-related issues with inspection staff while verifying inspections and tests were conducted according to the plans and specifications. Mr. Campos reviewed and approved project records such as DWRs, monthly contractor's pay requests, quantity tracking logs, and lane closure notifications. He coordinated with the two adjacent projects for possible overlap in lane closures or work activities. Mr. Campos managed five to seven construction inspectors on this project. He led pre-activity meetings with the contractor prior to starting major work activities and was responsible for the project's overall engineering.

#### **IH-35 (William Cannon Dr. to Stassney Ln.), TxDOT Austin District, Austin, TX**

##### **Role: Resident Engineer**

Project included CE&I services for this multi-phase \$78.8M project. This 3.2-mile long project consisted of widening the main lanes; adding shoulders; ramp reversals; constructing U-turn bridges; replacing existing bridges at the Stassney Ln. and William Cannon Dr.; constructing rock nail walls, soil nail walls, and MSE walls; SUPs along frontage roads; improving existing storm drain, water lines, and sewer systems; and improving traffic and pedestrian signals. Mr. Campos' responsibilities included managing the review process of Contractor submittals, coordination with the EOR, shop drawing review, answering RFIs, draft/close NCRs, and verifying Contractor's monthly schedule updates. He also performed plan reviews and interpretations to resolve construction related issues with our inspection staff, while verifying inspections and tests were conducted according to the plans and specifications. Mr. Campos maintained project records such as DWRs in Site Manager, monthly Contractor's estimates, and deficiencies and quantity tracking logs. He managed five quality construction inspectors on this project.

#### **IH-35 Belton-Salado Reconstruction, TxDOT Austin District, Belton & Salado, TX**

##### **Role: Project Engineer**

This project included a complex reconstruction of this \$177M federally funded project, which increased capacity and upgraded transportation infrastructure to meet current FHWA and TxDOT design standards for interstates, bridges, and frontage roads. The project widened 11.4 miles of IH-35 from four lanes to six lanes, upgraded on/off ramps, converted frontage roads to one-way to improve safety, constructed a new overpass and direct connector ramp, U-turns, and installed new electronic message signs. Conducted inspection, testing, and documenting contract compliance of 11.4 miles of roadway and 17 bridges, including the direct connector from IH-35 to US 190. Additionally, responded to RFIs, MOT, lane closure notifications, SW3P, schedule reviews, stakeholder communication, coordination with design consultants, submittal reviews, change order negotiations, Contractor estimates, NCRs, labor reviews, materials testing, and other facets of contract administration. Mr. Campos was responsible for drafting and negotiating project change orders for the project, which reached substantial completion in December 2016. He reviewed shop drawings, commented on construction schedule updates, answered RFIs, and drafted/closed NCRs and Contractor submittals. Mr. Campos was also responsible for preparing the Contractor's pay estimate and entering both pay items and concrete test reports into Site Manager. He discussed and resolved construction-related issues on the project with our inspection staff.