STATEMENT OF QUALIFICATIONS

CONTRACT NO. 4400032800

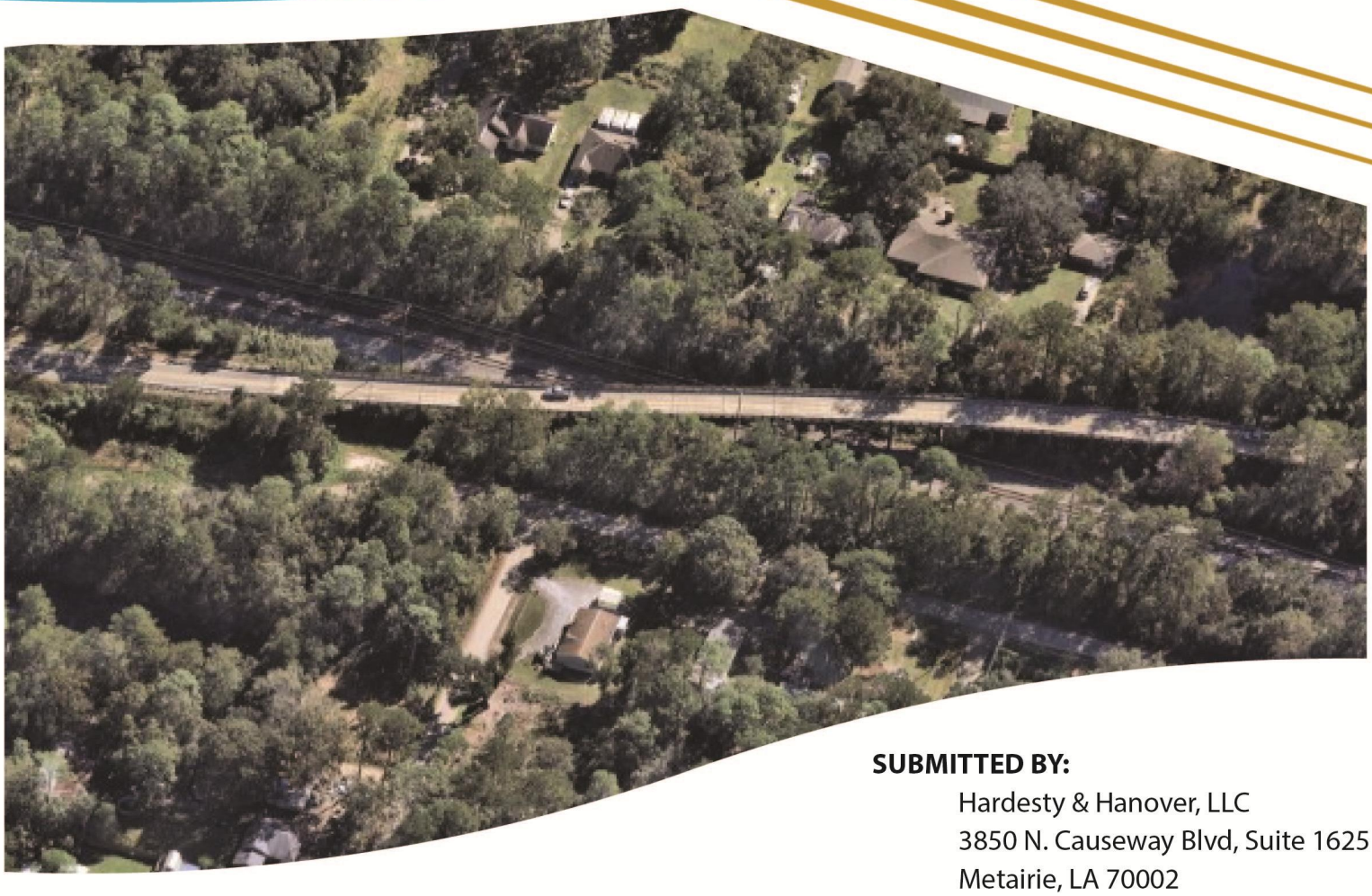
STATE PROJECT NO. H.000688.5

FEDERAL AID PROJECT NO. H000688

US 11 NORFOLK SOUTHERN RR OVERPASS (HBI)

ROUTE: US 11

ST. TAMMANY PARISH



SUBMITTED BY:

Hardesty & Hanover, LLC
3850 N. Causeway Blvd, Suite 1625
Metairie, LA 70002
T: 504.962.9212

SUBCONSULTANTS:

Eustis Engineering L.L.C.
Urban Systems Associates, Inc.

H&H

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

September 2025

3850 N. Causeway Boulevard
Suite 1625
Metairie, LA 70002
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Louisiana Department of Transportation and Development
Consultant Contracts Services

September 9, 2025

Re: Contract No. 4400032800 US 11 Norfolk Southern RR Overpass (HBI)

Dear Selection Committee Members:

Hardesty & Hanover (H&H) is submitting our qualifications to DOTD to provide engineering design services on the US 11 Norfolk Southern RR Overpass (HBI) project. We are proud of our long history working in Louisiana, dating back to 1896 with the historic Waddell A-Truss Bridge over Cross Bayou in Shreveport. As a leader in engineering, our firm brings a legacy of providing engineering excellence for 138 years. H&H has the full capability, availability, and similar experience to perform all contract services required. We have identified a large pool of qualified bridge, roadway, geotechnical, and railroad engineers that will meet the project schedule and achieve the project goals. Our extensive experience will aid in maintaining safe, reliable, and sustainable infrastructure for our fellow Louisiana residents and stakeholders.

Proven Leadership with Extensive Experience: Our leadership team is well known to DOTD, with a long history of delivering successful projects; specifically for DOTD. Our **Project Manager, Bobby Naghavi, PE**, brings over 40 years of experience working on complex bridge projects, 25 years of which were spent at DOTD. Our **Project Engineer Corey Bourgeois, PE** has over 10 years of experience in designing and analyzing complex bridges, with most of his career spent at DOTD, where he was responsible for load rating, bridge analysis and project management. Together, the extensive experience of our leadership team ensures that our project team will deliver a successful outcome on schedule, in full compliance with DOTD guidelines, drawing on their understanding gained through years of delivering and managing DOTD projects.

Rail Agency Coordination Experience: Our leadership team is aware that one of the most critical aspects of this project will be coordination with Norfolk Southern RR, given that the bridge traverses the active tracks with the potential for future expansion. **H&H has designed over 40 new bridges over active railroads in the past 10 years**. This experience is critical for the US 11 project given its proximity and crossing over Norfolk Southern RR. All concepts studied will consider the presence and operations of the railroad. Given this significant importance, we have designated Howard Swanson, PE to serve as our team's railroad coordinator. **As former Assistant Chief Engineer for Norfolk Southern RR, Howard spent over 30 years managing and leading designs and ensuring that Norfolk Southern Standard Procedures for Bridge Management complied with Federal Railway Administration requirements**. Howard's experience with Norfolk Southern will be instrumental in maintaining the project schedule for DOTD.

Subconsultants: The H&H Team includes subconsultants with extensive experience in their specialty areas. Eustis Engineering L.L.C. will provide geotechnical services and Urban Systems Associates, Inc. (USI) will perform traffic engineering services as needed. We have successfully delivered DOTD projects with both of these firms.

DOTD Experience: Our team brings comprehensive experience using DOTD standards and specifications with several team members working at DOTD and/or working on prior DOTD projects. **I, Bobby Naghavi, PE, PH, PhD, will serve as PM, bringing over 25 years working for Louisiana DOTD**. Our thorough familiarity with DOTD procedures and design standards enables us to work accurately and efficiently. Together, we bring proven bridge and roadway engineering services; successful delivery of similar projects on time and on budget; resources that exceed the MPR requirements; and a roster of qualified professionals in all disciplines with availability to begin work immediately. H&H appreciates the opportunity to work with DOTD on this bridge and extension project. Please do not hesitate to contact us if additional information on our extensive qualifications is needed.

Sincerely,

Babak "Bobby" Naghavi, PE, PH, PhD, Project Manager and Point of Contact
504.605.7940
bnaghavi@hardestyhanover.com

Babak Naghavi

DOTD FORM: 24-102

(Revised August 11, 2025)

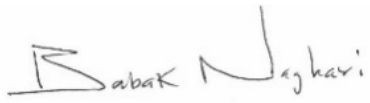
PROPOSAL TO PROVIDE CONSULTANT SERVICES

Prime consultant shall complete the DOTD Form 24-102 without altering the Form's text; however, the instruction and/or guidance for Sections 12 through 23 can be removed but do not remove Section title and number.

ANY CONSULTANT FAILING TO SUBMIT ANY OF THE INFORMATION REQUIRED ON THE DOTD FORM 24-102, OR PROVIDING INACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

1. Contract Name as shown in the advertisement	US 11 Norfolk Southern RR Overpass (HBI) Route: US 11 St. Tammany Parish
2. Contract Number(s) as shown in the advertisement	4400032800
3. State Project Number(s), if shown in the advertisement	H.000688.5
4. Prime consultant name **(name must match exactly as registered with the Louisiana Secretary of State (SOS) where such registration is required by law; including punctuation; include screenshot from SOS at the end of Section 20)**	Hardesty & Hanover, LLC
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	E.F. 0005124
6. Prime consultant mailing address	3850 N. Causeway Blvd. Ste. 1625 Metairie, LA 70002
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	3850 N. Causeway Blvd. Ste. 1625 Metairie, LA 70002
8. Name, title, phone number, and email address of prime consultant's contract point of contact	Babak "Bobby" Naghavi, PE, PH, PhD, Regional Manager 504.605.7940 bnaghavi@hardestyhanover.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	Babak "Bobby" Naghavi, PE, PH, PhD, Regional Manager 504.605.7940 bnaghavi@hardestyhanover.com

Prime consultant should enter the firm name in the footer at the bottom of this page. (It will carry over to subsequent pages.)

10. This is to certify that all information contained herein is accurate and true, and that the team presently has sufficient staff to perform these services within the designated time frame. By submitting this proposal, proposer certifies that it is not engaged in a boycott of Israel and it will, for the duration of its contract obligations, refrain from a boycott of Israel. Proposer also certifies and agrees that the following information is correct: In preparing its response, the proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The proposer also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. DOTD reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response. **Pursuant to Act No. 581 of the 2024 Louisiana Legislature Regular Session, proposer further certifies that it does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association based solely on the entity's or association's status as a firearm entity or firearm trade association. In addition, proposer certifies it will not discriminate against a firearm entity or firearm trade association during the term of the contract based solely on the entity's or association's status as a firearm entity or firearm trade association.**	 Signature above shall be the same person listed in Section 9: September 9, 2025 Date:

11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): No DBE goal has been set for this contract	Firm(s)' %:

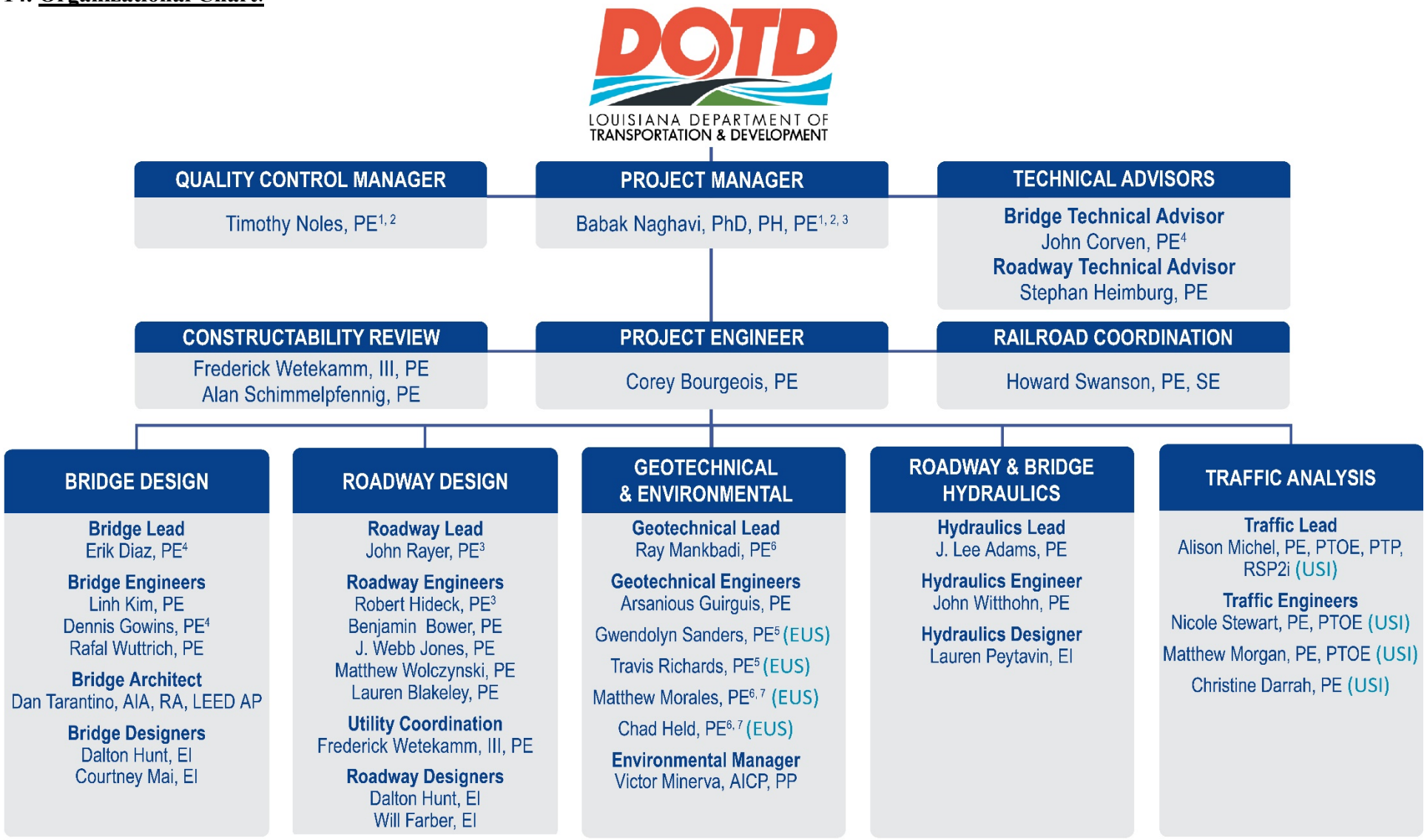
12. Discipline Table:

Discipline(s)	% of Overall Contract	Hardesty & Hanover	Eustis Engineering	Urban Systems	Each Discipline must total to 100%
Bridge	45%	100%			**100%**
Road	45%	100%			**100%**
Geotech	8%		100%		**100%**
Traffic	2%			100%	**100%**
Identify the percentage of work for the **overall contract** to be performed by the prime consultant and each sub-consultant.					
Percent of Contract	**100%**	90%	8%	2%	

13. <u>Team Size:</u>

Firm name	DOTD Job Classification	**Number of personnel <u>committed</u> to this contract**	Total number of personnel available in this DOTD Job Classification (if needed)
Hardesty & Hanover, LLC	Principal	3	4
	Supervisor - Eng	6	8
	Engineer	7	10
	Engineer - Other	5	8
	Engineer Intern	4	8
	Supervisor - Architect	1	2
	Environmental Manager	1	2
	Administrative	1	2
Eustis Engineering L.L.C.	Principal	2	3
	Supervisor - Eng	2	4
Urban Systems Associates, Inc.	Supervisor - Eng	1	2
	Engineer	3	4
	Engineer Intern	1	2

14. Organizational Chart:



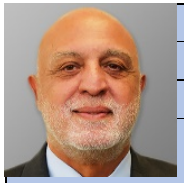
LEGEND			
MPRs	1, 2, 3, 4, 5, 6, 7		
Subconsultants			
EUS	Eustis Engineering L.L.C.	USI	Urban Systems Associates, Inc.

Unless otherwise noted, all staff shown are employees of H&H.

15. Minimum Personnel Requirements:

MPR No. Do not insert wording from ad	Personnel being used to meet the MPR (Individual(s) may not satisfy more than one MPR unless specifically allowed by Attachment B of the advertisement)	Firm employed by	Type of license and discipline meeting MPR/ certification & number (Ex: PE # - Civil)	State of license	License / certification expiration date
1	Babak Naghavi, PE, PH, PhD	Hardesty & Hanover, LLC	PE #20745 – Civil Engineer, Environmental Engineer	LA	09/30/2026
1	Timothy Noles, PE	Hardesty & Hanover, LLC	PE #31675 – Civil Engineer	LA	09/30/2025
2	Babak Naghavi, PE, PH, PhD	Hardesty & Hanover, LLC	PE #20745 – Civil Engineer, Environmental Engineer	LA	09/30/2026
2	Timothy Noles, PE	Hardesty & Hanover, LLC	PE #31675 – Civil Engineer	LA	09/30/2025
3	Babak Naghavi, PE, PH, PhD	Hardesty & Hanover, LLC	PE #20745 – Civil Engineer, Environmental Engineer	LA	09/30/2026
3	John Rayer, PE	Hardesty & Hanover, LLC	PE #47089 – Civil Engineer	LA	03/31/2027
3	Robert Hideck, PE	Hardesty & Hanover, LLC	PE #41953 – Civil Engineer	LA	03/31/2026
4	John Corven, PE	Hardesty & Hanover, LLC	PE #38309 – Civil Engineer	LA	03/31/2026
4	Dennis Gowins, PE	Hardesty & Hanover, LLC	PE #24468 – Civil Engineer	LA	09/30/2027
4	Erik Diaz, PE	Hardesty & Hanover, LLC	PE #37712 – Civil Engineer	LA	09/30/2027
5	Gwendolyn Sanders, PE	Eustis Engineering L.L.C.	PE #27104 – Civil Engineer	LA	09/30/2027
5	Travis Richards, PE	Eustis Engineering L.L.C.	PE #30992 – Civil Engineer	LA	03/31/2027
6	Raafat Raymond Mankbadi, PE	Hardesty & Hanover, LLC	PE #41609 – Civil Engineer	LA	09/30/2027
6	Chad Held, PE	Eustis Engineering L.L.C.	PE #30257 – Civil Engineer	LA	09/30/2026
6	Matthew Morales, PE	Eustis Engineering L.L.C.	PE #38211 – Civil Engineer	LA	09/30/2027
7	Chad Held, PE	Eustis Engineering L.L.C.	PE #30257 – Civil Engineer	LA	09/30/2026
7	Matthew Morales, PE	Eustis Engineering L.L.C.	PE #38211 – Civil Engineer	LA	09/30/2027

16. Staff Experience:



Firm employed by	Hardesty & Hanover		
Name	Babak Naghavi, PE, PH, PhD	Years of relevant experience with this employer	8
Title	Regional Manager	Years of relevant experience with other employer(s)	35
Degree(s) / Years / Specialization	Ph.D. / 1993 / Civil Engineering M.S. / 1982 / Civil Engineering B.S. / 1979 / Civil Engineering		
Active registration number / state / expiration date	**Professional Engineer:** 20745 / LA / 9/30/2026 **Professional Hydrologist**: 95-H-1121 **Certifications**: Maintenance and Rehabilitation of Historic Bridges (LADOTD); NEPA Transportation Decision Making Workshop; Work Zone Traffic Control Supervisor/Flagger		
Year registered	1983	Discipline	Civil & Environmental Engineering
Contract role(s) / brief description of responsibilities	Project Manager **– Meets MPR 1, 2, & 3**		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Project Manager** for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Ave Bridge, a movable Strauss-heel trunnion bridge that crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920 bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. The road design services included a new alignment for the connecting road including all drainage structures. Additional remedial efforts along Almonaster Ave Bridge also included the improvement or replacement of the original fixed roadway approach spans. The sharp curve that existed on westbound Almonaster Ave was demolished and a new road was constructed on an improved alignment. H&H developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
01/19 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Project Manager** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure adjacent and north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. In addition to design of the new bridge, all roadway approaches and intersections in the vicinity of the bridge (eastbound and westbound) will be redesigned to accommodate the new structure. Scope includes development of a Traffic Control Plan.
11/24 – Present	**SR 33 Bridge Replacements, Franklin County, MS – Mississippi DOT** **Project Manager** for the Phase A Final Right-of-Way Plans for roadway design and roadway hydraulic design for four bridge replacements along SR 33 (Bridge Nos. 31.9, 34.6, 34.9, and 35.3). The project scope includes roadway realignment, roadway hydraulic design, preliminary right-of-way design, and final right-of-way design. H&H is providing the realignment of the roadway to run parallel to the existing and redesigning of one intersection at the end of the project. A hydraulic study and report are to be completed to resize the existing pipes, if necessary, and to verify sizing for a reinforced box culvert. A set of preliminary right-of-way plans are to be created following Mississippi Department of Transportation's (MDOT) guidelines and using the approved alignment from MDOT. Final right-of-way plans will be delivered after hydraulic design and roadway design have been finalized and a plan set has been created.

11/21 – 10/23	**H.014363.5 Sidewalk Improvements to Conform to ADA Guidelines, Slidell, LA – LADOTD** **Project Manager** for design services including preliminary and final plans, and project proposal for LADOTD Sidewalk Improvements to Conform to ADA Guidelines. The project begins at the intersection of LA 1091 (Robert Blvd) with US 190 (Gause Blvd) in the city limits of Slidell, LA, then continues North along LA 1091 for 2.0+/- miles to a location 175 ft. north of the intersection of LA 1091 with Country Club Blvd. The survey will extend along all major side roads 50 ft. from the PT of the curbing in each direction. The project includes providing various design services including preliminary plans, final plans, construction engineering, project proposal plans, and inspection for LADOTD Sidewalk Improvements to Conform to ADA Guidelines.
06/17 – Present	**H.002798.6 Bayou Teche Movable Bridge at Oaklawn, St. Mary Parish, LA - LADOTD** **Project Manager** responsible for design, calculations, and plan preparation of the bridge power distribution and relay-based control system for this movable bridge located in St. Mary Parish, LA. The new through girder swing-span rotates with hydraulically actuated slewing (push-pull) cylinders. H&H is currently providing construction phase services for the project.
09/22 – Present	**I-10 & I-12 College Dr Flyover Ramp Design- Build, Baton Rouge, LA - LADOTD** **Project Quality Manager** overseeing design and construction quality control/quality assurance for this flyover ramp design-build project which is located at the I-10 West exit to College Dr, in advance of the I-10 & I-12 West merge. H&H serves as Design-Builder's Construction Quality Control Firm (CQCF) and oversees all Design Quality Control and Construction Quality Control activities for the project. Responsibilities include the development and implementation of Comprehensive Quality Plan to ensure the design and construction conforms to all specified requirements. H&H will also develop, maintain, and update Contractor Quality Management Plan and provide all necessary qualified Inspectors, material sampling, testing, independent testing labs to ensure contractors and off-site fabrication facilities meet project specifications.
03/18 – 04/21	**SR 609 Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Project Manager** responsible for full rehabilitation of SR 609 bascule bridge as a task-order to the IDIQ Master Bridge Contract which includes developing standard and special bridge services statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications. Additionally, H&H provided construction phase services for the project.
05/13 – 02/17	**Glen Oaks Dr (Plank Rd to McClelland Dr) – Baton Rouge DPW** **Project Manager** for the $10M engineering design for the construction of a three-lane concrete curb and gutter roadway with sidewalks and subsurface drainage on Glen Oaks Dr from Plank Rd to McClelland Dr. Glen Oaks Dr was a one-mi. existing Urban Collector roadway. The project also included improvements to several intersections, full topographic survey, subsurface drainage system and outfalls, and hydrologic and hydraulics analysis for the outfalls.
01/09 – 08/10	**USACE Contract. W912P8-07-D-0055: Causeway Blvd Overpass Complex - USACE** **Project Manager** for this project that involved the design of north and south roadway approaches for the overpass structures at Causeway Blvd located at Jefferson Parish, LA. The scope of work included precast concrete piles; cast-in-place pile bent caps and concrete decks; approach slabs; and a storm-water drainage pumping station. This project was designed to LADOTD specifications.
06/12 – 12/15	**SP No. 737-99-1024 Safe Routes to Schools, Statewide, LA – LADOTD** **Project Manager** providing design and construction engineering and inspection services for selected projects involving sidewalks and related drainage modifications, curb extensions, signing, and striping. Work included sidewalk, signage, and marking improvements in the vicinity of several school areas including Daspit Elementary School in New Iberia, LA; two schools in DeRidder, LA; three schools in Orleans Parish, LA; Mandeville Elementary School in Mandeville, LA; and Hammond Junior High in Hammond, LA.
02/81 – 07/87	**Road Design Section, Hydraulics Unit – LADOTD** **Senior Hydraulics Engineer** responsible for the review and design of the numerous roadway and drainage projects including the drainage design of roadway and bridge structures, scour analysis of bridges, and stabilization of stream banks and shorelines. Also developed the Hydraulic Design Manual and all the hydraulics and hydrologic computer programs that were used by the LADOTD, other government agencies, and the consultant community to design the hydrologic and hydraulic structures.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Corey Bourgeois, PE	Years of relevant experience with this employer	2
Title	Bridge Engineer	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		B.S. / 2013 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 42362 / LA / 09/30/2026 **Certifications:** NHI 130078 Fracture Critical Inspection Techniques for Steel Bridges; NHI 130092 Fundamentals of LRFR and Applications of LRFR For Bridge Superstructures; NHI 130081 Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures; NHI 130056 Safety Inspection of In-Service Bridges	
Year registered	2018	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Project Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
11/23 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Bridge Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge will be constructed as an independent structure adjacent to the north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane, improvements to bridge and roadway approaches, and development of a Traffic Control Plan. All design work is accordance to LADOTD Standards and Specifications and reviewed by LADOTD. Load rating was performed using AASHTOWare BrDR load rating software.
08/17 – 01/22	**H.012071 US 51 Yellow Water River Bridge, Hammond, LA - LADOTD** **Project Manager** for this slab span bridge is located on a highly traveled section of US 51 in Hammond near Southeastern University. Due to rapidly deteriorating site conditions and other political pressure, this project was expedited to a much more compressed schedule than we typically see for bridge projects. He developed alternatives to maintain traffic during construction in this critical section of highway. A unique design was chosen where the bridge will be built in phased construction to allow for a complete replacement with a median turn lane.
04/16 – 05/19	**H.012411 LA 1054 at Big Creek Bridge Replacement, Tangipahoa Parish, LA - LADOTD** **Project Manager** for this emergency project where one of the roadway approaches completely washed out during the March 2016 flooding in Tangipahoa Parish, Louisiana. Since the bridge was a candidate for replacement, it was decided that the entire bridge should be replaced while the roadway was out of service. Corey assisted in coordinating with FEMA for emergency funding while also performing all bridge design and construction support.
05/21 – 12/22	**H.014672 I-12: LA 1032 Overpass Repair, Tangipahoa, LA - LADOTD** Project Manager for this emergency repair project where an over-height vehicle completely destroyed an exterior prestressed concrete girder. This required the exterior shoulder to be closed in a very busy section of I-12. Corey served as Project Manager and procured the consultant and immediately began the task order creation with one of our in-house retainer contracts. He facilitated constant communication with the consultant making sure that this priority project was kept on schedule.
11/23 – Present	**H.009730.5 In-Depth Bridge Inspection of Complex Structures, Statewide, LA - LADOTD** **Structural Engineer** for the inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.

03/25 – Present	**H.013818 Golden Meadow Vertical Lift Bridge Rehabilitation, Golden Meadow, LA - LADOTD** **Structural Engineer / Load Rating** for this inspection and rehabilitation project for a 200-foot-long steel vertical lift bridge. After performing an In-Depth inspection of the bridge is complete, a LRFR load rating will be performed based on the inspection findings. A recommended rehabilitation scope of work will be created and once approved by the client, the plans will begin development. This bridge is considered a Historic Preservation Priority bridge therefore the rehabilitation will need to take extra care in maintaining as much as possible of the appearance and function of the bridge to when it was first built.
05/17 – 03/22	**H.000337 US 61 Bayou Manchac and Francois Bridges, East Baton Rouge & Ascension Parishes, LA - LADOTD** **Task Manager** for this replacement project consisting of twin 300-ft.-long concrete girder bridges including load rating. The superstructure was AASHTO Type IV girders and substructure was pile bents. Some unique challenges with this project included a severe skew, continuous deck units, and the crossing being part of the Scenic Rivers Program. Corey designed all bridge features including as-designed and load rating for this $10M project.
11/23 – Present	**Waco On-System Bridge Replacements Contract No. 36-0IDP5067, Waco District, TX – Texas DOT** **Structural Engineer** for this indefinite deliverable contract. This work authorization consists of replacing seven bridges on three roadways in three different counties in the Waco area. The new structures are precast beam slab bridges. H&H evaluated options and prepared bridge alternatives memos for each bridge accompanied by cost comparisons and bridge layout exhibits. Corey provided review of the final plans and created the final construction cost estimates. H&H is also providing services throughout the construction phase.
08/18 – 06/20	**H.000133 US 80 at KCS Railroad, Simsboro, LA - LADOTD** **Task Manager** for this replacement project for a 290-ft.-long railroad overpass in a S-curve. The bridge superstructure consisted of slab spans, and an LG-36 span over the railroad. The substructure was column bents with drilled shaft foundations. This bridge had various geometric difficulties including superelevation, horizontal and vertical curvature, and railroad clearances. Corey designed all bridge features including as-designed load rating for this $6.5M project.
3/24 – Present	**H.009730.5 LADOTD Movable Bridge Manual, New Orleans, LA - LADOTD** **Structural Engineer** responsible for the development of the LADOTD Movable Bridge Inspection Manual (including details, photos, illustrations, and specific examples); building a lesson plan and materials for the classroom training from the inspection manual; and providing classroom and field training. The manual will include bridge inspection principles and overview; movable bridge overview; mechanical, electrical, and structural inspection of movable bridges; operator house; and classroom and field training for electrical, mechanical, and structural).
11/17 – 11/21	**H.012622 I-12 Hog Branch Bridge Widening, Livingston Parish, LA - LADOTD** **Task Manager** for the third phase of widening projects along the I-12 corridor in Livingston Parish. The bridge consists of AASHTO type III girder superstructure and pile bent substructure. Corey performed load rating on the existing structure to determine if any strengthening was required. He was responsible for designing all bridge members for this $16M project.
01/21 – 11/23	**LADOTD Bridge Maintenance Section – LADOTD** **Load Rating Engineer** tasked with overseeing the Off-System and Timber Bridge Load Rating Programs. He performed ratings on a variety of bridge types including timber, concrete, and steel structural members. He also performed load ratings for many routine and super load permits.
01/24 – Present	**2021-2025 Biennial and Interim Bridge Inspection, Bronx County, Region 11, Bronx, NY – New York State DOT** **Load Rating Engineer** for general, interim, and special inspections for 355 bridges in Bronx County. H&H is providing inspection of 41 bridges over Metro-North, Amtrak, and CSX rail lines. Railroad force account personnel (flagging) were procured directly through this contract. The inspection also includes all appurtenances such as signs and supporting structures, high mast and standard light poles, utilities and communication equipment attached to the structures. The field inspection follows the NYSDOT Bridge Inspection Manual and includes a significant amount of non-destructive testing. Corey is responsible for performing load rating calculations and conducting field inspections to verify the structure's key elements.

16. Staff Experience:

Firm Employed by Hardesty & Hanover			
Name	Timothy Noles, PE	Years of relevant experience with this employer	41
Title	Principal	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 1984 / Civil Engineering
Active registration number / state / expiration date			**Professional Engineer:** 31675 / LA / 9/30/2025
Year registered	2005	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Quality Control Manager **– Meets MPR 1 & 2**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Technical Advisor / Quality Control Manager** for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Ave Bridge, a movable Strauss-heel trunnion bridge that crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historical Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. Developed necessary design plans to replace the span drive and span lock machinery, operating strut, guide assembly, live load bearings, counterweight trunnion pin, and bushing.
07/16 – 9/21	**SR A1A North Bridge Replacement, Fort Pierce, FL – Florida DOT** **Technical Advisor** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
01/19 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Technical Advisor** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure adjacent and north of the existing bridge with a new operator house. The project includes rehabilitation of the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. Scope includes improvements to bridge and roadway approaches for eastbound and westbound traffic as well as development of a Traffic Control Plan.
04/17 – Present	**I-395 Segmental Bridges**, **Miami, FL – Florida DOT** **Technical Advisor** for the design of the superstructure and performing the load ratings. H&H is designing seven new precast segmental bridges that are a part of the SR 836 / I-95 / I-395 corridor upgrade. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Construction is scheduled to be completed in late 2027.

08/16 - 06/18	**I-75 SB Exit Design from S of Bypass Canal to EB/WB, Tampa, FL – Florida DOT** **Technical Advisor** responsible for project oversight of plans preparation and engineering documentation. This two-mi. roadway improvement project included the addition of a new auxiliary lane for southbound I-75 from south of the Bypass Canal to the southbound off-ramp and widening the I-75 southbound off-ramp from one to two lanes. A unique aspect of the design approach was the incorporation of this design into a long-term buildout of the interchange. This project was expedited for construction based on no right of way acquisition or impacts to Florida Gas Transmission lines.
08/20 – Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – LADOTD** **Technical Advisor / Quality Control Manager** ensuring consistent performance by the construction engineering and inspection staff throughout the term of the project, including services for a new vertical lift bridge and operator's house. Monitoring construction activities; reviewing construction engineering inspection field records and reports; determining compliance with field testing methods and results; maintaining records of contractual operations, pay estimates and progress reports; preparing final estimate packages; conducting construction progress meetings; and construction close-out.
02/08 – 12/10	**SR-5/US-1 Parker Bridge over ICWW, Palm Beach, FL – Florida DOT** **Principal-in-Charge/Lead Design Engineer** for construction management at-risk project which included in-depth inspection, condition report with load ratings, and rehabilitation recommendations. The project also included preparation of structural, architectural, mechanical, and electrical plans to rehabilitate this Hopkins Trunnion twin double-leaf bascule span bridge. The $8 million rehabilitation included hydraulic machinery retrofit, electrical system improvements, control house 2nd story addition, bridge widening, as well as roadway and embankment improvements.
01/15 – 03/17	**Broad Causeway Bridge over ICWW, Bay Harbor Islands, FL – City of Bay Harbor Islands** **Principal-in-Charge** for the project involving construction inspection for three bridges including a 1630-foot bascule span bridge. Scope included maintenance of traffic, roadway work, and bascule span rehabilitation including cathodic protection for the approach bridges substructure for $14 million.
09/07 – 01/09	**SR-814/Atlantic Boulevard Bridge, Pompano Beach, FL – Florida DOT** **Principal-in-Charge/Lead Design Engineer** for this $5 million Construction Management Risk to rehabilitate a Hopkins Trunnion double-leaf bascule span bridge. The project included hydraulic machinery retrofit; electrical system improvements, control house modifications, and bascule span structural steel rehabilitation and bridge railing replacement.
04/12 – 04/16	**Boca Grande Causeway Swing Bridge Replacement, Placida, Fl – Gasparilla Island Bridge Authority** **Technical Advisor/Quality Control Manager** for the design of the replacement of a structurally deficient swing span bridge located on the Boca Grande Causeway. The fixed portion of the bridge utilized Florida I-beam girders founded on hammerhead pier caps and cast in place footings with 24-inch precast concrete piles. The project also included the installation of a permanent steel sheet pile bulkhead wall with cast in place concrete caps. Construction of critical temporary sheet pile walls required for phased construction, and a total of 0.24 miles of roadway construction.
01/19 – 12/24	**SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Technical Advisor / Quality Control Manager** for the assessment, design, plan review, and quality control of SR 605 double-leaf bascule bridge, as a task-order to the IDIQ Master Bridge Contract which included developing standard and special bridge services, statewide for MDOT. Work included inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches and development of maintenance and repair plans. All designs were in accordance with AASHTO, FHWA and MDOT guidelines and specs.
08/10 – 08/19	**Bayou Teche Bridge at Oaklawn, St. Mary Parish, LA – LADOTD** **Principal-in-Charge** providing inspection, engineering design, and post-design services for new Bayou Teche Bridge at Oaklawn project. Built in 1941 to carry LA Route 323 over Bayou Teche, the original bridge is being replaced with a new hydraulically operated swing bridge. H&H provided the electrical design for the bascule bridge in line with LADOTD's design requirements and standard design details. This bridge replacement project included new traffic signals, gates, and a barrier system design which were provided by LADOTD's roadway, structural, and mechanical designers.
08/08 – 08/13	**Judge Seeber Vertical Lift Bridge, New Orleans, LA - LADOTD** **Technical Advisor /Quality Control Manager** overseeing the task order involving the replacement of the vertical life bridge's entire electrical system, counterweight ropes, counterweight guides, and span locks in addition to miscellaneous structural repairs. Design work for this eligible for the National Register of Historic Places bridge was completed within three months to meet the FEMA funding deadline. The electrical system was replaced in-kind using secondary resistance control operated with a drum switch in accordance with LADOTD preference.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Frederick Wetekamm, III, PE	Years of relevant experience with this employer	7
Title	Senior Project Engineer	Years of relevant experience with other employer(s)	32
Degree(s) / Years / Specialization		M.E. / 2018 / Construction Management B.S. / 1984 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 25369 / LA / 3/31/2026 **Certifications:** Maintenance and Rehabilitation of Historic Bridges (LADOTD); ATSSA Traffic Control Supervisor and Flagger; FHWA NHI #139005, Driven Pile Foundations – Construction Monitoring	
Year registered	1993	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Constructability Review, Utility Coordination

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Constructability Review Engineer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span.H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design. Coordinated with Entergy New Orleans for ROW use for the new connector roads, US Army Corps of Engineers for reconstruction of the existing roadway over the floodwall, and CSX railroad for implementing a schedule for track time during the construction phase.
01/19 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Constructability Review Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure adjacent and north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. Scope includes improvements to bridge and roadway approaches for eastbound and westbound traffic as well as development of a Traffic Control Plan.
08/18 – 08/21	**Lake Pontchartrain Causeway Safety Bay Improvements (CE&I), Jefferson and St. Tammany, LA – GNOEC** **Project Engineer** responsible for providing construction engineering and inspection services required during the safety bay improvement project for fabrication of pre-stressed piles and girders, caps and decks as well as all other construction activities including field monitoring, documentation, preparation of daily reports, participation in construction progress meetings, construction close-out and testing and acceptance of construction materials.
09/22 – Present	**I-10 & I-12 College Dr Flyover Ramp Design- Build, Baton Rouge, LA – LADOTD** **Construction Quality Control Manager** for design and construction quality control/quality assurance for this road and bridge design-build project which is located at the I-10 West exit to College Drive, in advance of the I-10 & I-12 West merge. H&H serves as Design-Builder's Construction Quality Control Firm (CQCF) and oversees all Design Quality Control and Construction Quality Control activities for the project. Responsibilities include the development and implementation of Comprehensive Quality Plan to ensure the design and construction conforms to all specified requirements. H&H will develop,

	maintain, and update Contractor Quality Management Plan and provide qualified Inspectors, material sampling, testing, independent testing labs to ensure contractors and off-site fabrication facilities meet project specifications and testing and acceptance of construction materials.
02/23 – Present	**H.015028.6 Bayou Barataria Movable Bridge Replacement (CE&I), Phase 1, LA 302, Jefferson Parish, LA - LADOTD** **Project Engineer** responsible for managing construction contract administration and construction engineering and inspection services for the Bayou Barataria Movable Bridge Replacement. This project consists of construction of the movable swing span bridge, operator's house, associated substructure elements, and pier protection system along relocated LA 302 in Jefferson Parish. Phase 2 consists of construction of new roadway alignment for LA45 to tie into LA 302 in Jefferson Parish. Assisted in coordination of utility location and relocations for Entergy, Cox, Jefferson Parish Water Dept. and Alpine Exploration (LNG lines).
07/07 – 08/18	**S.P. No. 742-36-0117 Fleur De Lis Drive Reconstruction Phase II – Veterans Blvd to 30th Street, Orleans Parish, LA – LADOTD** **Project Engineer** in responsible charge providing construction engineering inspection services for the Fleur De Lis Roadway Rehabilitation Projects Phases 1, 2, and 3 Program which were complete reconstruction of the roadway and drainage. Coordinated utility conflict resolutions with Entergy, Entergy Gas, and Sewerage and Water Board.
07/07 – 11/10	**South Louisiana Submerged Roads Program, Orleans Parish, LA – LADOTD** **Project Engineer** in responsible charge providing construction engineering and inspection services for the South Louisiana Submerged Roads Program which provided repairs and resurfacing of 56 roads in Orleans, Jefferson, and St Bernard Parishes that were damaged from Hurricane Katrina. The project was funded by FHWA's Emergency Relief Program. Responsibilities included testing and acceptance of construction materials. Provided diligent oversight on the program and closely monitoring activities; coordinated revised construction method with the Construction Program Manager to save over $10 million for additional roadways to be added to the programs.
11/09 – 12/12	**S.P. No. 742-36-0008 Earhart Blvd. Roadway Reconstruction – Hamilton Street to Pine Street Project, Orleans Parish, LA – LADOTD** **Project Engineer** in responsible charge providing construction engineering inspection services for Earhart Blvd. Rehabilitation Project. Directed all aspects of the program which was a complete reconstruction of the roadway and drainage from Hamilton to Fern. Responsibilities included testing and acceptance of construction materials.
11/15 – 03/18	**S.P. No. 006196 Wisner Bridge Replacement, Orleans Parish, LA – LADOTD** **Project Engineer** in responsible charge for contract administration, supervision of the Project Engineer, and LADOTD Certified Inspectors for construction inspection. This project scope was to replace the 1955 bridge over I-610 and Norfolk Southern Railroad with a new structure. The 1,500-foot-long new bridge consists of prestressed concrete pilings, with a combination of precast prestressed concrete girder spans and steel girder spans over I-610. Coordinated with Norfolk Southern for track time during construction for setting girders and bridge concrete work over the track. Worked with the Designer/ Engineer of Record, the City of New Orleans, and the LADOTD Program Manager from the inception of the project to provide the most effective design to meet the current needs of the public utilizing the current LADOTD BDEM and LSSRB. The bridge provides a dedicated protected bike lane.
01/07 – 12/17	**Area Engineer, LADOTD, District 02, LA – LADOTD** **Project Coordinator** in responsible charge providing for direct oversight on all construction projects including five bridge replacement projects, six roadway restoration projects, the federally funded Submerged Roads Program (55 streets, $118 million), the federally funded Paths to Progress Program (69 streets, $90 million), the Regional Transportation Management Center ($13.9 million), and several Corps of Engineers flood protection projects on the state ROW. As the Department Coordinator, provided technical oversight, interpretation, and review on department standards, policies, testing and inspection procedures, funding expenditures, and documentation; and constantly monitored the quality control methods of contractors, quality assurance expectations of consultants, traffic control plans, project schedules (bar chart and CPM), change orders, and pay requests to confirm compliance with the contract requirements. Provided diligent oversight on the program and closely monitoring activities; coordinated revised construction method with the Construction Program Manager to save over $10 million for additional roadways to be added to the programs. Provided necessary coordination with utilities and railroads for projects.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Alan Schimmelpfennig, PE	Years of relevant experience with this employer	23
Title	Structural Engineer	Years of relevant experience with other employer(s)	17
Degree(s) / Years / Specialization		BS / 1985 / Civil Engineering	
Active registration number / state / expiration date		P12662 / IA / 12/31/2026	
Year registered	1993	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Constructability Reviewer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/18 – 06/20	**Westchester Avenue and NYC Transit over Hutchinson River Parkway (84106BXBR116), New York, NY – New York City DOT** **Constructability Reviewer** for this two-level NYC bridge **with an elevated subway** on the upper deck, addressed maintenance of traffic issues while performing structural repairs. Alan provided review of contractor working drawings and schedule. He worked closely with the Resident and NYCDOT EIC to review proposed construction alternatives and compare with contract schedule.
06/15 – 12/17	**Rehabilitation of the Lincoln Tunnel Helix (LT-234.026), Weehawken, NJ – Port Authority of NY & NJ** **Constructability and Cost Reviewer** for the $50 million structural and electrical rehabilitation of the Lincoln Tunnel Helix. This important project includes structural steel repairs, concrete/deck repairs, joint replacement, supplemental deck support details, paving, median barrier replacement, and utility coordination, **all of which are situated next to NJ Transit Light Rail**. Alan's responsibilities included constructability reviews throughout the design development phase, review of construction cost estimates, and technical advisor role during construction support.
11/12 – 05/17	**Third Avenue Swing Bridge over the Harlem River and Amtrak Railroad, New York, NY – New York City DOT** **Constructability and Cost Reviewer** for this bridge replacement of the 1,350 ft. bridge **crossing Amtrak Railroad**. This complex project included in-preliminary reports, structural, mechanical, and electrical design for the new bridge. Alan's responsibilities include constructability review of design alternatives and constructability review throughout final design development. He provided review of engineering cost estimates and **construction bid review, ensuring the Contractor's schedule aligns with the proposed staging**.
03/02 – 06/19	**Kew Gardens Final Design Bridge Rehabilitation Services, Queens County, NY – New York State DOT** **Constructability and Cost Reviewer** for this final design and coordination (over $1.5 Billion) project which involves the replacement of 12 bridges and complex interchange along and crossing the Van Wyck Expressway, as well as widening the Expressway which **crosses over NYC Transit as well as running parallel to NYC Transit subway yard**. Alan preformed constructability and cost reviews throughout concept development and final design, along with **constructability staging concepts to allow vehicular, pedestrian and rail traffic to be maintained throughout construction**.
08/17 – 06/24	**Route 52 Causeway, Somers Point Bridge, Somers Point & Ocean City, NJ – New Jersey DOT** **Constructability and Cost Analysis** responsible for this $300 million project. Alan's responsibilities included **constructability and cost comparison of alternative foundation and superstructure including precast concrete, steel, and concrete segmental alternatives**. This bridge replacement project includes preliminary and final structural and geotechnical design for a 2.2-mi.-long segmental concrete causeway, maintaining pedestrian and vehicular traffic throughout construction. **Staging alternatives included crane placements as well as launching alternatives**.

07/04 – 02/15	**Replacement of the Roslyn Viaduct, Long Island, NY – New York State DOT** **Constructability and Cost Reviewer** for the final design phase for the bridge replacement of a 1-mile-long bridge/roadway and interchanges. The project included the design of a twin, precast segmental concrete box-girder replacement built partially off-line. **Alan performed comprehensive constructability review of the design, with particular emphasis on segmental bridge suggested construction means and methods**. He also reviewed the engineer's cost estimate. He assisted with review of contractor work plans and means and methods for segmental bridge erection.
02/09 – 09/12	**2009 Garden State Parkway over Bass River (P3241), Tuckerton, NJ – New Jersey Turnpike Authority** **Constructability and Cost Reviewer** responsible for the replacement of the existing North/South Garden State Parkway Bridge over the Bass River adjacent to the Route 9 Bass River Project (also designed by H&H). A new parallel bridge will be designed and built to alleviate the congested traffic conditions. Each traffic direction will be carried by a separate bridge, utilizing each for bi-directional traffic during staged construction to facilitate vehicular and marine traffic throughout construction. **Al reviewed various staging alternatives to minimize crane disturbances to the adjacent businesses, as well as mitigate impacts to the navigation use below the bridges**. **Alternatives included the use of steel and precast concrete, comparing splice locations and crane pick loads to determine crane sizes and placements, as well as launching alternatives from above.**
09/09 – 08/19	**Foster Avenue Bridge over BMT Subway and Newkirk Avenue Bridge over BMT Subway, Brooklyn, NY – NYCDOT** **Constructability and Cost Reviewer** for the concept, preliminary and final design of two replacement bridges **crossing the NYC Subway system**. The project includes complex staging to **replace 2 bridges situated in downtown Brooklyn, adjacent to various businesses and homes, maintaining vehicular, pedestrian and rail service throughout all stages of construction**. Al is responsible for various methods of staging alternatives which impact the type of bridge for final design, using staging methods such as strong-back systems to cut the existing bridge in half to allow for 2 staged construction of the new bridge while maintain service above and below the bridge throughout construction.
03/24 – Present	**MTA Replacement of Six Bridges over Metro-North Railroad, Mt. Vernon, NY – Metro North RR** **Constructability and Cost Reviewer** for the replacement of 6 new bridges crossing Metro North RR. The project was performed in stages to maintain vehicular, pedestrian, and railroad use throughout construction. Based on the various structure types including multi-girder, deck truss and through truss structures, **Al led the staging methods using above-deck crane launching to remove and replace each bridge while avoiding crane placement along-side the active railroad tracks**. These methods also allowed for continued service of the high-voltage utility lines that were carried by two of the bridges being replaced.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	John Corven, PE	Years of relevant experience with this employer	25
Title	Lead Structural Engineer	Years of relevant experience with other employer(s)	22
Degree(s) / Years / Specialization		M.S. / 1979 / Engineering B.S. / 1978 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 38309 / LA / 03/31/2026	
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Bridge Technical Advisor **– Meets MPR 4**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Bridge Technical Advisor** for this project which improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
02/12 – 06/22	**I-59 / I-20 Elevated Interstate, Birmingham, AL – Alabama DOT** **Chief Engineer** responsible for the design of eight, steel curved-plate girder bridges with spans of over 300 ft. on radii as small as 600 ft. in addition to all fracture critical steel members on the project. These bridges were part of the $700 million project to replace Interstate 59/20 through the Central Business District of downtown Birmingham, AL. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays a significant role in the wider revitalization of the central business district.
04/17 – Present	**I-395 Segmental Bridges**, **Miami, FL – Florida DOT** **Chief Engineer** for the design of the superstructure and performing the load ratings. H&H is designing seven new precast segmental bridges that are a part of the SR 836 / I-95 / I-395 corridor upgrade. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Construction is scheduled to be completed in late 2027.
6/20 – 12/20	**Roosevelt Bridge Emergency Post-Tensioning Repairs, Stuart, FL – Florida DOT** **Chief Engineer** for the emergency repairs to the twin, 4,500-ft.-long post-tensioned segmental bridges that carry US Hwy 1 over the St. Lucie River. During a routine biannual inspection by Florida DOT in 6/2020, inspectors found significant cracking, leading to the closure of the north- and south-bound bridges. The cracking was the result of post-tensioning tendon failures due to excessive corrosion. The engineering team was mobilized the next day under emergency conditions. Within 5 days, the bridges were inspected and analyzed, such that the north-bound bridge could reopen to reduced two-way traffic. Two months later, the final analysis, design, and repair plans were completed. Using an innovative CMGC contract, repairs were made, and the bridges opened to traffic in 11/2020. The work included partial deconstruction and then reconstruction of the segmental bridge and the addition of new post-tensioning tendons.
9/24 – Present	**Whiskey Creek Bridge Rapid Superstructure Replacement, Shasta County, CA – Caltrans** **Chief Engineer** for the superstructure replacement of a three span steel plate girder bridge over the Whiskeytown Lake in Shasta County, California. This project includes a rapid, 2-stage construction, superstructure replacement to remove the existing T-1 Steel superstructure and replace it with new steel plate girders. Due to limited sight access and sensitive aquatic resources near the site, the superstructure replacement will utilize launched plate girders with over 300' spans. Due to the emergency scenario, the design phase of this project is being delivered in less than 12 weeks.

01/17 – 12/20	**Sunshine Skyway Bridge, Tampa, FL – Florida DOT** **Designer/Investigator/Specialty Engineer PM** for this bridge that carries I-275 over Tampa Bay. This bridge includes 8,860 ft. of precast segmental spans and features 1,200-ft. cable-stayed main span. An original design team member, John worked with the stay cable fatigue testing, transverse analysis of the main span box girder (95'-7"), independently reviewed main pier foundations for ship impact (12,000 kips). In the early 2000's, John served as lead investigator for the post-tensioning tendons of the post-tensioned superstructure. Most recently, John oversaw the technical review of biennial inspections of all bridge elements in the ongoing asset management contract.
2/21 – 12/21	**Sam Houston Tollway Ship Channel Bridges, Houston, TX – Harris County Tollway Authority** **Chief Engineer** who provided engineering design quality control for engineering and plan modifications for the replacement of the Sam Houston Ship Channel Bridges. The main span unit of the new Sam Houston Ship Channel Bridge (HSC Bridge) replace the existing three-span concrete box girder bridge on the Sam Houston Parkway near Beltway 8 in Houston, TX. The new bridges are the centerpiece of a program to widen the Sam Houston Tollway. The new design provided eight lanes for vehicular traffic and more than 187 feet of vertical clearance for navigation, allowing for future widening and deepening of the channel by the Port of Houston. The southbound bridge was constructed next to the existing bridge. The existing northbound bridge was reconstructed after the southbound side was complete.
11/02 – 02/09	**Florida Keys Segmental Bridges Post-Tensioning Rehabilitation, Monroe County, FL – Florida DOT** **Project Manager** for an innovative inspect-maintain contract for the post-tensioning rehabilitation of 11 miles of precast segmental span-by-span bridges constructed in the Florida Keys. Four bridges were involved - 7 Mile Bridge, Long Key Bridge, Channel No. 5 Bridge, and Niles Channel Bridge. All the bridges were built span-by-span using external longitudinal post-tensioning tendons. The work included inspections of the post-tensioning systems including visual inspections of external tendons, vibration testing, pour-back removals, and non-destructive visual inspections using endoscopes. The team then performed the repairs to rehabilitate the post-tensioning systems. The 445-foot spans of these four bridges contained over 66 miles of longitudinal post-tensioning tendons.
01/80 – 11/81	**Red River Bridge, Boise, LA – LADOTD** **Bridge Designer** performing the transverse analysis and design of the superstructure and the design of the main piers and foundations. The Red River Bridge is a cast-in-place, balanced cantilever segmental bridge near Boise, LA. The main span lengths of the bridge were 360-, 370-, and 350-ft.
01/11 – 12/18	**Post-tensioned Box Girder Design Manual, Washington, DC - Federal Highway Administration** **Co-principal Investigator/Principal Author** of the team from Lehigh University working on a seven-year-long Federal Highway Administration study titled "Advancing Steel and Concrete Bridge Technology to Improve Infrastructure Performance." As part of the study, Mr. Corven authored the "Post-Tensioned Box Girder Design Manual" and produced an instructional video series that presented details for improved inspection of post-tensioning tendons.
03/91 – 08/93	**Bridge at Pimmit Run, Washington, DC - Federal Highway Administration** **Chief Engineer** responsible for developing design concepts and directed the final design. The project included the re-decking of a 340-foot by 73-foot riveted steel girder bridge on the George Washington Parkway in Washington, D.C. The new deck system was a precast post-tensioned segmental flat slab. All construction activity for the complete deck replacement took place in five weekends.
02/09 – 08/10	**Cross Street Bridge, Middlebury, VT - Town of Middlebury** **Engineer of Record** for the Cross Street Bridge, the first major design-build project in Vermont. The 460-foot-long bridge crosses over Otter Creek at Middlebury, VT. The bridge features a 240-foot simple span main span comprised of spliced, post-tensioned I-girders, the largest application of its type in the United States. The spliced girder main span is comprised of a modified New England Bulb-Tee Girder with a concrete strength of 10,000 psi and constant beam depth of 10 feet. The girders were cast in three segments for transport and erection and used five post-tensioning tendons to splice the segments into a single unit.

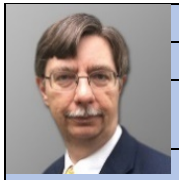
16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Stephan Heimburg, PE	Years of relevant experience with this employer	18
Title	Chief Engineer	Years of relevant experience with other employer(s)	23
Degree(s) / Years / Specialization		B.S. / 1984 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 41934 / FL / 2/28/2027	
Year registered	1989	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Roadway Technical Advisor	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
07/16 – 9/21	**SR A1A North Bridge Replacement, Fort Pierce, FL – Florida DOT** **Roadway Technical Advisor** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
10/24 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Roadway Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure adjacent and north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. In addition to design of the new bridge, all roadway approaches and intersections in the vicinity of the bridge (eastbound and westbound) will be redesigned to accommodate the new structure. Scope includes development of a Traffic Control Plan.
04/17 – Present	**I-395 Segmental Bridges**, **Miami, FL – Florida DOT** **Roadway Technical Advisor** for the design of the superstructure and performing the load ratings. H&H is designing seven new precast segmental bridges that are a part of the SR 836 / I-95 / I-395 corridor upgrade. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Construction is scheduled to be completed in late 2027.
08/16 – 06/18	**I-75 SB Exit Design from S of Bypass Canal to EB/WB, Tampa, FL – Florida DOT** **Principal-in-Charge/Quality Control Officer** responsible for project oversight of plans preparation and engineering documentation. This two-mi. roadway improvement project included the addition of a new auxiliary lane for southbound I-75 from south of the Bypass Canal to the southbound off-ramp and widening the I-75 southbound off-ramp from one to two lanes. A unique aspect of the design approach was the incorporation of this design into a long-term buildout of the interchange. This project was expedited for construction based on no right of way acquisition or impacts to Florida Gas Transmission lines.
07/17 – 06/20	**Orlando South Ultimate Interchange Improvements, Orlando, FL – Florida's Turnpike Enterprise** **Project Manager** responsible for concept development, coordination, and project oversight of a complex interchange, including system and service movements. This project includes an evaluation of a complex interchange that provides both direct and indirect ramping between Orange Blossom Trail and the adjacent two limited access highways. Project goal included: construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations with two new reliever interchanges. The recommended configuration included improvements to the systems interchange, modification to two adjoining interchanges, and new proposed service interchanges.

02/15 – 06/18	**44th Ave, E from 45th St E to 44th Ave Plaze E, Braden River Segment – Manatee County** **Chief Engineer** responsible for oversight of roadway and Traffic Control Plans design. This project includes the design for the reconstruction and extension of 44th Ave East from 45th St East to 44th Ave Plaza East. The design plans include widening from a two-lane roadway to a four-lane divided urban roadway. As part of this project, a new bridge will be designed to cross over the Braden River and the realignment of Morgan Johnson Rd and Caruso Rd will provide route continuity. Alternative intersection designs, including a roundabout and stage construction were considered.
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Project Manager** responsible for project oversight. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
11/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Roadway QC Manager** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
06/21 – Present	**Design of SR91 and SR528 Interchange MP 253 to S. of Sand Lake Rd (MP 257.25), Orange County, FL – Florida's Turnpike Enterprise** **Project Manager** assisting with roadway analysis and plans development. H&H is prime consultant for this complex four-level interchange in a constrained environment. The project includes new direct systems ramps, braided ramps, a relocation of SR 528, and modifications to adjoining interchanges, including a Diverging Diamond interchange on the first level. As part of the design development, the design team worked closely with Turnpike traffic engineers to refine the design to include an additional southbound Collector Distributor Road to relocate weaving from the mainline, reconfiguration of a low-volume ramp to economize the design, and development of a three-project phasing plan to deliver incremental improvements as needed with packaging less than $200 million. In addition to managing the design of the project, H&H is responsible for roadway, bridge, drainage signing and pavement markings, and toll design, which includes six new All Electronic Tolling Sites.
01/07 – 03/14	**Veterans Expressway (SR 589) Widening from Memorial Highway to Gunn Highway – Florida's Turnpike Enterprise** **Project Manager, Chief Engineer, and Sub-consultant** responsible for design coordination and maintenance of traffic support. This project included the widening of more than 6.5 mi. of a tolled principal urban arterial in northwest Hillsborough County from four to eight lanes, including the addition of express lanes. As part of the expansion, the existing conventional cash toll collection method was converted to an AET collection method. The project included two full interchanges and four partial interchanges. Due to the proximity to the Tampa International Airport, aviation permits were required throughout the project corridor and extensive coordination was required with the FAA and Hillsborough County Aviation Authority (HCAA). This included meeting with aviation agency staff and the design team to adjust design element locations and/or elevations for the acquisition of FAA determinations required for HCAA permits. The project also included the milling and resurfacing of the existing roadway, as well as widening and reconstruction.
03/12 – 05/16	**Tampa Interstate Express Lane Master Plan, Tampa, FL – Florida DOT** **Chief Engineer** responsible for conceptual design efforts and criteria development for implementing tolled express lanes for high volume segments of I-275 and I-4, from the Howard Frankland Bridge to 50th St and SR 60 between I-275 and SR 589. Steph coordinated interfaces with adjoining segments on I-275 to the west and north and I-4. FDOT District 7 initiated development of an express lane master plan that expanded on the geographic limits of express lanes, defined in the TIS FEIS, and changed their operation with the addition of tolls. Conceptual design efforts included a stage construction plan from "starter" projects of individual segments through buildout of three systems interchanges and assessments of new and changed access.

16. Staff Experience:



Firm employed by	Hardesty & Hanover		
Name	Howard Swanson, PE, SE	Years of relevant experience with this employer	5
Title	Rail Practice Senior Project Manager	Years of relevant experience with other employer(s)	33
Degree(s) / Years / Specialization		MBA / 1997/ Business Administration BS / 1986 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 43629 / LA / 09/30/2027	
Year registered	2019	Discipline	Civil Engineering, Structural Engineering
Contract role(s) / brief description of responsibilities		Railroad Coordination	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
08/21 – 12/23	**GCRTA Waterfront Line Bridge Rehabilitation Project, Cleveland, OH – Greater Cleveland Regional Transit Authority** **Project Manager** responsible for coordinating the efforts of three design teams producing contract documents to strengthen a 5-span segmental concrete box bridge, repair the MSE walls approaching the bridge, and replace the track including expansion joints over the bridge. The project includes inspecting and load rating the segmental concrete box bridge. The inspection revealed the need for temporary shoring to support the concrete spans until they are repaired. The bridge carries the GCRTA over Norfolk Southern Railway. The temporary shoring and rehabilitation plans were designed around Norfolk Southern clearance requirements.
09/21 – 12/23	**Tennessee River Bridge Repairs, Decatur, AL – Norfolk Southern Corporation** **Project Manager** for the inspection, rating, and design repairs for the fixed trusses of this bridge. H&H assessed the condition of the trusses and produced a report recommending standard repairs. Load ratings were provided based on the constructed, current, and repaired states. These ratings were provided for both design and rating stress states. H&H designed repairs to the truss floor system (bottom flange replacement for floor beams, stinger replacement, and bottom lateral system replacement).
05/21 – Present	**Portal North Bridge, Secaucus, NJ – Amtrak** **Owner's Engineer** responsible for protecting Amtrak's interests throughout the replacement of the Portal North Bridge. Submittals, Requests for Information (RFIs), and Letters are reviewed and answered with the goal of keeping Amtrak's existing roadbed and structures safe while the new Portal North Bridge is constructed. The long life of the new structure is ensured through the review and response to the contractor's submittals.
08/23 – Present	**Ewing Avenue Bridge Rehabilitation, Chicago, IL – Norfolk Southern Railway** **Project Manager** responsible for inspecting and producing repair documents for Norfolk Southern bridges over Ewing Avenue and 100th Street in Chicago. The work includes steel repairs and replacement of concrete platforms between the tracks with walkways for railroad personnel.
08/05 – 02/06	**Emergency Response PONO Hurricane Katrina, New Orleans, LA – Norfolk Southern** **Project Manager** as part of Norfolk Southern Hurricane Katrina emergency response inspection team. Inspected Norfolk Southern Lake Pontchartrain Bridge for storm damages. Made cursory inspections of PONO's Seabrook and Florida Avenue drawbridges after Hurricane Katrina.

05/17 – 07/18	**Bridge Replacement at Milepost B-154.16, Painesville, OH – Norfolk Southern** **Assistant Chief Engineer** responsible for planning the replacement of a 1,300-foot-long and 105-foot-high single-track steel viaduct structure. The new structure consists of 11 welded deck plate girders with a precast concrete ballast deck. Concrete columns founded on drilled shafts support the spans. The project required coordination with the Corp of Engineers and the Ohio Department of Natural Resources.
03/16 – 06/18	**Bridge Replacement at Milepost SR-361.66, Portageville, NY – Norfolk Southern** **Assistant Chief Engineer** who worked with a multidisciplinary team to obtain the environmental impact statement and record of determination to replace Norfolk Southern bridge over the Genesee River in Letchworth State Park Bridge near Portageville, NY. The new bridge was constructed offline and right of way had to be obtained from New York State Parks. The EIS and ROD required building consensus with several different stakeholders including Native Americans, local community, and various government agencies. The construction required coordination of a complex mix of engineering and construction resources. The new bridge consists of a 483-foot steel arch flanked on each side by three 80-foot welded girders. The bridge was placed in service in December of 2017.
06/06 – 08/07	**Ballast Deck Replacement at Milepost PC-29.25, New Brighton, PA – Norfolk Southern** **Assistant Engineer Structures** who managed the replacement of 1,200 feet concrete ballast deck on Norfolk Southern' s nine-span double track bridge over the Beaver River. The concrete deck was replaced with a steel deck to increase the bridge's capacity. The bridge is on the mainline between Chicago and New York City. An accelerated construction schedule was used to replace the deck under 1 track in 6 weeks. The adjacent track was kept in operation during construction.
05/13 – 07/15	**Bridge Replacement over 51st Street, Chicago, IL – Norfolk Southern** **Regional Engineer Structures** responsible for managing the phased replacement of Norfolk Southern bridge over 51st Street in Chicago. The bridge is a quarter mile wide and carries 33 tracks of the 47th Street Intermodal yard. Most of the traffic handled by the intermodal yard is time sensitive. The project phasing allowed the yard to be replaced without delays to rail traffic.
04/11 – 08/13	**Bridge Replacement at Milepost N-340.68, Glen Lynn, VA – Norfolk Southern** **Assistant Division Engineer** responsible for managing the replacement of a 130-foot-long, two-span, open deck double-track bridge on a seven-degree curve with a 180-foot-long three-span ballast deck bridge. The new bridge was built on the same alignment as the existing bridge. The abutments were founded on drilled shafts. Temporary spans allowed the drilled shafts to be constructed during available track windows. Crawler cranes for setting the spans had to be delivered by rail due to difficult site access. The spans were set during 80-hour track outages. The adjacent track was kept in service while spans were set.
07/08 – 12/09	**Concrete Deck and Span Replacement at Milepost D-252.92, Lafayette, Indiana – Norfolk Southern** **Assistant Division Engineer** who managed the replacement of 594 feet concrete ballast deck and three spans on Norfolk Southern's eight span single track bridge over Wildcat Creek. The concrete deck was replaced with precast concrete deck panels. Six-hour track outages four days a week were used to replace the concrete deck in ten weeks. Three 14-hour outages were used to replace the three spans. Worked with the contractor to develop the construction schedule. The project was completed on time.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Erik Diaz, PE	Years of relevant experience with this employer	6
Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization		B.S. / 2008 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 37712 / LA / 09/30/2027 **Certifications:** NHI 130056 Safety Inspection of In-Service Bridges; Maintenance & Rehabilitation of Historic Bridges (LADOTD); NHI 130081 Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures; NHI 130078 Fracture Critical Inspection Techniques for Steel Bridges	
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Bridge Lead **– Meets MPR 4**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Bridge Engineer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. Erik provided the design of steel plate girders for the bridge. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
08/19 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Senior Bridge Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction in an urban area. The new bridge will be constructed as an independent structure adjacent and to the north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane, improvements to bridge and roadway approaches, and development of a Traffic Control Plan. Erik provided the design of steel plate girders for the bridge. All design work is in accordance with LADOTD Standards and Specifications and reviewed by LADOTD. Load rating was performed using AASHTOWare BrDR load rating software.
02/22 – 02/25	**SR826 Palmetto DB Design and Post, Miami-Dade County, FL – Florida DOT** **Bridge Engineer** for this bridge located in downtown Miami urban area. The bridge design requirement was to keep the existing bridge and roadways open to traffic while widening construction was being performed. H&H performed design calculations for concrete superstructure and steel substructure elements for bridge widening and created details and plan sheets for superstructure and substructure elements for bridge widening.
07/16 – 07/17	**Two US-11 Bascule Bridges over Lake Pontchartrain Rehabilitation, Jefferson and St. Tammany Parishes, LA – LADOTD** **Senior Movable Bridge Structural Engineer** for the comprehensive rehabilitation of one bascule bridge and replacement of another bascule bridge over Lake Pontchartrain. The work on this project included the inspection of old spans, the rehabilitation design development for the north bascule span and fender, as well as the design of construction plans for a new south bascule span.

12/17 – 11/18	**Widening of I-12 Bridges in Livingston Parish, Livingston Parish, LA - LADOTD** **Bridge Engineer** for this project located on the heavily traveled I-12 in Livingston Parish, LA. Existing bridge traffic was required to be maintained during construction. H&H designed reinforced concrete slab spans, PPC girder spans, and reinforced concrete pile bents. Detailed and created plans for slab spans, PPC girder spans, and reinforced concrete pile bents. H&H also provided construction support by reviewing submittals and responding to RFIs.
12/12 – 10/15	**Houma Navigation Canal Bridge Rehabilitation, Houma, LA – LADOTD** **Structural Engineer** responsible for performing bridge inspections to identify repairs for rehabilitation as well as providing bridge rating to identify areas for strengthening. Also, designed and detailed various elements for bridge rehabilitation.
08/20 – 12/22	**SR 605 Bascule Bridge Over Industrial Waterway, Harrison County, MS – Mississippi DOT** **Senior Bridge Engineer** performing the bridge load rating for movable and fixed bridge approaches. Erik contributed to the structural design for the comprehensive rehabilitation of this bascule bridge over the Industrial Waterway. The work on this project includes design and detailing of a new PPC pile-supported reinforced concrete generator platform as well as the design and detailing of steel access improvements. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications. Load rating was performed using AASHTOWare BrDR load rating software.
08/15 – 07/19	**Vermillion River Vertical Lift Bridges Rehabilitation, Vermillion Parish, LA – LADOTD** **Senior Bridge Engineer** for the inspection, rating, and final rehabilitation recommendations report for two steel vertical lift bridges over the Vermillion River. The work on this project included inspection and load rating to identify components of the bridge to be rehabilitated and evaluation of various alternatives for strengthening the bridge and increasing vehicular vertical clearance. H&H produced engineers cost estimate for repairs, and prepared final report of recommendations.
06/22 – 08/23	**SR-609 Movable Bascule Bridge Rehabilitation, IDIQ Master Bridge Design Contract, Ocean Springs, MS – Mississippi DOT** **Structural Engineer/Structural Inspector** responsible for the design, plan review, and quality control for full rehabilitation of SR-609 bascule bridge as a task-order to the IDIQ Master Bridge Contract, which includes engineering assessment, structural and geotechnical design for bridges and retaining walls; hydraulic design for bridges; design for roadway, traffic signals plans, ITS, and roadway lighting; as well as design and constructability review services. All designs will be completed in accordance with AASHTO, FHWA, and MDOT guidelines and specifications.
11/21 – 01/23	**H.014363.5 Sidewalk Improvements to Conform to ADA Guidelines, Slidell, LA – LADOTD** **Project Engineer** for various design services including preliminary plans, final plans, construction engineering, project proposal plans, and inspection for LADOTD Sidewalk Improvements to Conform to ADA Guidelines. The project begins at the intersection of LA 1091 (Robert Blvd) with US 190 (Gause Blvd) in the city limits of Slidell, Louisiana, then continues North along LA 1091 for 2.0+/- miles to a location 175 ft. north of the intersection of LA 1091 with Country Club Blvd. The survey will extend along all major side roads 50 ft. from the PT of the curbing in each direction. The project includes providing various design services including preliminary plans, final plans, construction engineering, project proposal plans, and inspection for LADOTD Sidewalk Improvements to Conform to ADA Guidelines.
05/19 – 08/19	**Seabrook Bascule Bridge, New Orleans, LA – Port of New Orleans** Structural Engineer for the construction of repairs to the concrete bent cap at the toe of the span. Work on this project included design of bent cap strengthening due to cracking at bridge bearing, tracking contractor progress and construction compliance with design plans. Preparation of final acceptance report upon completion of construction.
12/15 – 10/19	**UPRR Angleton Bridge over the San Bernard River Replacement of Swing Bridge with New Vertical Lift, Sweeny, TX | UPRR** **Lead Senior Structural Engineer** for the design and construction of a new through plate girder vertical lift bridge over the San Bernard River near Sweeny Texas. The project included design of new steel through plate girder vertical lift, bridge protection cell (dolphin), approach spans and construction management. Erik provided the design of steel plate girders for the bridge. Erik provided the design of steel plate girders for the bridge. This project also included emergency bridge repairs due to failure of bridge pier from scour produced by Hurricane Harvey flooding.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Linh Kim, PE	Years of relevant experience with this employer	5
Title	Civil Engineer	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		B.S. / 2017 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer**: 47527 / LA / 9/30/2027 **Certifications**: NHI 130081 Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures; ATSSA Traffic Control Supervisor and Flagger	
Year registered	2023	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Bridge Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
02/21 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Structural Engineer** for the pre-design inspection, rehabilitation, and widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction, as well as the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. The scope of services also includes the design of a new bridge to be constructed as an independent structure adjacent and north of the existing bridge with a new operator house. All design work is in accordance with LADOTD Standards and Specifications and being reviewed by LADOTD. Load rating was performed using AASHTOWare BrDR load rating software.
04/22 – 02/25	**SR826 Palmetto Design-Build Design and Post, Miami-Dade County, FL – Florida DOT** **Structural Engineer** for this bridge located in downtown Miami urban area. The bridge design requirement was to keep existing bridge and roadways open to traffic while widening construction was being performed. H&H performed design calculations for concrete superstructure and steel substructure elements for bridge widening and created details and plan sheets for superstructure and substructure elements for bridge widening.
09/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Bridge Engineer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
09/21 – 07/22	**Tennessee Bridge Inspection and Load Rating – Norfolk Southern Corp., Decatur, AL - Norfolk Southern Corp.** **Structural Engineer Intern** providing inspection, load rating, and engineering design services under the Systemwide Engineering and Design Services contract. The steel repairs at Gulf Division MP 362.60-A Decatur, AL task was awarded to H&H through this contract. The task involves the performance of an on-site inspection, the preparation of load rating calculations and the development of repair plans for the structure in accordance with the scope of work. The structure consists of three superstructure types: vertical lift span, deck plate girder span and seven through truss spans.
09/19 – 11/19	**H.002176.5: LA 10 Bridges (Burton's Lake, Bayou HaHa, Bayou TawPaw) – LADOTD** **Civil Engineer Intern** created General Plans set for three different bridges after receiving information from Road Design and Hydraulics. Linh contributed to the preparation of 60% Preliminary Plans Set to be sent out Hydraulics, Property Survey, and Subgrade Soil Survey sections.

09/22 – Present	**I-10 & I-12 College Dr Flyover Ramp Design- Build, Baton Rouge, LA – LADOTD** **Structural Engineer** for design and construction quality control/quality assurance for this road and bridge design-build project which is located at the I-10 West exit to College Drive, in advance of the I-10 & I-12 West merge. H&H serves as Design-Builder's Construction Quality Control Firm (CQCF) and oversees all Design Quality Control and Construction Quality Control activities for the project. Responsibilities include the development and implementation of Comprehensive Quality Plan to ensure the design and construction conforms to all specified requirements. H&H will develop, maintain, and update Contractor Quality Management Plan and provide qualified Inspectors, material sampling, testing, independent testing labs to ensure contractors and off-site fabrication facilities meet project specifications.
07/20 – 12/22	**SR-605 Movable Bascule Bridge over Industrial Waterway. Harrison County, MS – Mississippi DOTD** **Structural Designer** assisting with the load rating calculations and analysis for full rehabilitation design of the SR-605 bascule bridge as a task-order to the IDIQ Master Bridge Contract. The scope includes engineering assessment; mechanical, electrical, and structural designs; and preparation of Traffic Control Plans. All designs will be completed in accordance with AASHTO, FHWA and MDOT guidelines and specifications.
08/20 – Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – LADOTD** **Structural Engineer** delivering construction engineering and inspection services for a new vertical lift bridge and operator's house. Services include daily monitoring of all construction activities; maintaining all construction field records; coordinating with DOTD, contractor, parish government, and utilities; performing field testing; maintaining records of contractual operations, pay estimates and progress reports; preparing final estimate packages; conducting construction progress meetings; and construction close-out, etc.
07/23 – Present	**H.009730.5 In-Depth Bridge Inspection of Complex Structures, Statewide, LA - LADOTD** **Structural Inspector** performing inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff), a vertical lift bridge (West Fork), and a US 90 bridges at Krotz Springs have been completed to date.
03/24 – Present	**H.009730.5 LADOTD Movable Bridge Manual, New Orleans, LA – LADOTD** **Structural Engineer** responsible for the development of the LADOTD Movable Bridge Inspection Manual (including details, photos, illustrations, and specific examples); building a lesson plan and materials for the classroom training from the inspection manual; and providing classroom and field training. The manual will include: bridge inspection principles and overview; movable bridge overview; mechanical, electrical, and structural inspection of movable bridges; operator house; and classroom and field training for electrical, mechanical, and structural).
01/19 – 04/19	**H.009498.5: LA 121: Calcasieu River Bridge, Lake Charles, LA – LADOTD** **Civil Engineer Intern** designed and detailed an LG-36 (I-Beam) Concrete Prestressed Girder Bridge using continuous deck spans on a horizontal curve with a 5% slope. The continuous deck spans were 240-ft.-long using four 60-ft.-long deck spans with a bridge width of 42.5 ft. The superstructure and girders were designed using Bentley's Conspan software and DOTD's Bridge Design Evaluation Manual. The substructure consists of pile bents that were designed using STAAD Modeling software and Excel.
09/19 – 11/19	**H.009482.5: LA 113: Jim Burney Branch Bridge – LADOTD** **Civil Engineer Intern** contributing to the preparation of 60% final plans review and submittal. Linh completed revisions for initial design due to comments from the district and Project Engineer reviewer. He completed a bridge rating using AASHTOWare Bridge Rating software and STAAD Analysis.
12/19 – 04/20	**I-10: Texas State Line - East of Coone Gully - LADOTD** **Civil Engineer Intern** checking bent detail and quantities for three of five bridge sites (six bridges total). Linh completed a bridge rating using AASHTOWare Bridge Rating software and STAAD Analysis for all bridge sites (10 bridges total). He checked Pile data quantities to ensure Geotechnical and Bridge Plans have the same values and designed a custom elastomeric bearing pad for prestressed girder bridges.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Dennis Gowins, PE	Years of relevant experience with this employer	17
Title	Senior Principal Bridge Engineer	Years of relevant experience with other employer(s)	30
Degree(s) / Years / Specialization		MS / 1990 / Civil Engineering BS / 1978 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 24468 / LA / 09/30/2027	
Year registered	1991	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Senior Bridge Design Engineer **– Meets MPR 4**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
04/17 – Present	**I-395 Segmental Bridges**, **Miami, FL – Florida DOT** **Senior Structural Engineer** for the design of the superstructure and performing the load ratings. H&H is designing seven new precast segmental bridges that are a part of the SR 836 / I-95 / I-395 corridor upgrade. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Construction is scheduled to be completed in late 2027.
07/17 – 06/20	**Orlando South Ultimate Interchange Improvements, Orlando, FL – Florida's Turnpike Enterprise** **Senior Structural Engineer** assisting with concept development, coordination, and project oversight of a complex interchange, including system and service movements. The project includes an evaluation of a complex interchange that provides both direct and indirect ramping between Orange Blossom Trail and the adjacent two limited access highways. The project goals included: construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations with two new reliever interchanges. The recommended configuration included improvements to systems interchange, modification to two adjoining interchanges, and new proposed service interchange.
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Senior Structural Engineer** responsible for roadway, traffic control, tolling, and S&PM design services. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB revises express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
02/12 – 06/22	**I-59 / I-20 Elevated Interstate, Birmingham, AL – Alabama DOT** **Senior Bridge Engineer** responsible for the design of eight, steel curved-plate girder bridges with spans of over 300 ft. on radii as small as 600 ft. in addition to all fracture critical steel members on the project. These bridges were part of the $700 million project to replace Interstate 59/20 through the Central Business District of downtown Birmingham, AL. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays a significant role in the wider revitalization of the central business district.

09/05 – 06/06	**Emergency Repairs for the I-10 Twin Span Bridges over Lake Pontchartrain, New Orleans, LA – LADOTD/FHWA** **Structural Engineer** responsible for emergency repairs made to the 5.4-mi.-long twin structures after damage Hurricane Katrina. As a subconsultant he provided all engineering and 24-hour continuous construction services to support the emergency repairs. Phase one of the emergency repairs was carried out in less than one month, 17 days earlier than initial estimates. The second phase of the project included reconstruction of the westbound structure. The bridge twin structures consist of 436, 65-ft. spans founded upon 54-in. cylinder pile bents. Repair procedures included new bents, helper bents, girder support saddles, pile jackets, deck repairs, jack supports, new neoprene bearings, new Teflon bearings, curb repairs, substructure modifications to accept ACROW bridges, erection equipment, span removal procedures and maintenance of traffic plans. Construction was simplified with the use of SPMT's. The project received numerous national awards.
08/14 – 10/15	**I-269 over Coldwater River, Marshall County, MS – Mississippi DOT** **Senior Bridge Engineer** responsible for the seismic analysis of this 4,054-ft.-long, 62 span bridge (17 units) carrying I-269 over Coldwater River. The 98-ft.-wide bridge carries six lanes of traffic with barriers. The 65-ft. spans are comprised of 9 Type III AASHTO beams on 11.5-ft. spacings with an 8-in. concrete deck. The bridge is supported on precast concrete pile bents with 24-in. prestressed concrete piles. A site-specific response spectrum analysis was performed with an extensive 3D finite element model. Nonlinear springs were applied along each pile element to emulate the response of the extremely variable sand / clay layers.
03/08 – 08/08	**Widening of Florida's Turnpike from Atlantic Boulevard to Sawgrass Expressway, Broward County, FL – Florida DOT** **Structural Department Manager** for the widening, which included a 6.8-mi.-long toll-road improvement project from Atlantic Blvd to Broward County Line. The project included the outside widening from six to eight lanes, one new bridge, the replacement of three existing bridges and the widening of five existing bridges. The bridge widening included those over Pompano Canal for SFWMD. In addition, the project includes a 4,800-ft.-long box culvert, over three miles of noise walls as well as MSE, tie-back and sheet-pile retaining walls.
06/06 – 03/07	**Replacement and Rehabilitation of the Route LA-70 over Belle River Bridge, Assumption Parish, LA – LADOTD** **Project Manager/Structural Engineer** leading the effort to replace and rehabilitate this structure. The approach aprons, pontoon structure, fender system, and associated rope/pulley opening mechanism of the existing 30-ft. by 120-ft. pontoon swing-span bridge were replaced/upgraded to accommodate two lanes of HS-20 loadings on the new pontoon structure. The design also included replacement/upgrades of the associated mechanical and electrical systems in addition to the structural evaluation on the new pontoon structure.
01/06 – 06/07	**Widening of the Huey P. Long Bridge over the Mississippi River, Jefferson Parish, LA -- New Orleans Public Belt Railroad** **Project Manager/Structural Engineer** for the independent design review of the proposed widening of the 1,850' main span cantilever truss spanning the Mississippi River. The main bridge consisted of a 790-ft. main span in conjunction with two 532-ft. cantilever side spans. In addition to this main bridge, an approach through truss of 532-ft. was analyzed for the proposed widening. The proposed widening to the existing bridge was to accommodate six 11-ft. lanes in addition to two rail lines. The current bridge can only accommodate four 9-ft. lanes in addition to the two existing rail lines. The analysis also included the investigation of the substructure elements.
06/08 – 12/08	**Restoration of the France Road Terminal Berth 4, New Orleans, LA – Port of New Orleans** **Design Engineer** responsible for the rehabilitation, design, and pile retrofits for this 300-ft. x 12-ft. wharf section and adjacent 80-ft. x 30-ft. entrance ramp. The design-build wharf project involved the retrofit of 260 steel pipe piles and other areas necessary to support the required permit, cranes, excavator, and extreme conveyer loadings. The pilings had significant corrosion and were retrofitted with a unique concrete infill/PT bar system.
01/01 – 02/02	**Cooper River Bridge (Arthur Raven Jr. Bridge) – South Carolina DOT** **Design Engineer** responsible for all the site-specific seismic design and all approach structures (steel plate girders and prestressed concrete girders). The 13,200-ft. structure carries eight (four in each direction), 12-ft. lanes of traffic 180 ft. above the river. Foundation elements were founded on cooper marl, and the design accounted for the possibility of liquefaction during a seismic event and ship impact. The total length of the structure was 13,200 ft., with a main span of 1,300 ft. between the towers and was 180 feet above the river. The steel plate girders were launched into final position.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Rafal Wuttrich, PE	Years of relevant experience with this employer	11
Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	14
Degree(s) / Years / Specialization		MS / 2001 / Civil Engineering BS / 1994 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 63030 / FL / 02/28/2027	
Year registered	2005	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Senior Bridge Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
02/21 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Senior Structural Engineer** for the pre-design inspection, rehabilitation, and widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction, as well as the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. The scope of services also includes the design of a new bridge to be constructed as an independent structure adjacent and north of the existing bridge with a new operator house. All design work is in accordance with LADOTD Standards and Specifications and being reviewed by LADOTD. Load rating was performed using AASHTOWare BrDR load rating software.
07/17 – 06/20	**Orlando South Ultimate Interchange Improvements – Florida's Turnpike Enterprise** **Senior Structural Engineer** assisting with concept development, coordination, and project oversight of a complex interchange, including system and service movements. The project includes an evaluation of a complex interchange that provides both direct and indirect ramping between Orange Blossom Trail and the adjacent two limited access highways. The project goals included: construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations with two new reliever interchanges. The recommended configuration included improvements to systems interchange, modification to two adjoining interchanges, and new proposed service interchange.
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Senior Structural Engineer** responsible for design of modifications to the Ramp D Flyover Bridge. This project improves operations with an additional SB general purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd Street interchange. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling and bridge design. Responsible for bridge modeling, staged construction analysis, temporary pier support analysis and design, bridge load rating, and plans production. To allow for widening of the mainline, the bridge section of the Ramp D Flyover Bridge required reduction by removing the existing exterior continuous steel plate girder line from End Bent 1 to Pier 6. Removal of one girder line resulted in force imbalances on numerous substructure locations, requiring modification of the existing substructure. Existing Piers 2 and 3 are hammerhead-type piers with single column on pile footings that required partial removal of the existing cap, use of post-tensioning connecting the existing pier cap to new column struts, and connection of PT to pier footing extension counterweights attached to the existing footing. Existing Pier 4 is a straddle-type pier that required strengthening to satisfy current AASHTO LRFD design specifications. Existing Pier 5 is a C-type pier that required replacement of the column and cap. Pier 5 work was staged using temporary steel piers connected to the existing footing with undercut anchors, and new cap and column using reinforcement anchored to the existing footing with undercut anchors. Existing Pier 6 required attachment of a new concrete counterweight with steel ballast to the existing pier cap. For the superstructure, the deck overhang required reconstruction for the reduced width, and bridge drainage system required replacement.

08/16 – 06/18	**I-75 SB Exit Design from S of Bypass Canal to EB/WB, Tampa, FL – Florida DOT** **Senior Structural Engineer** assisting with preparation of plans and engineering documentation. This two-mi. roadway improvement project included the addition of a new auxiliary lane for southbound I-75 from south of the Bypass Canal to the southbound off-ramp and widening the I-75 southbound off-ramp from one to two lanes. A unique aspect of the design approach was the incorporation of this design into a long-term buildout of the interchange. This project was expedited for construction based on no right of way acquisition or impacts to Florida Gas Transmission lines.
05/18 – 11/19	**SR 5 (Overseas Highway) over Moser Channel (7 Mile Bridge), Monroe County, FL – Florida DOT** **Senior Structural Engineer** responsible for performing structural design calculations and various other tasks, including Finite Element Analysis (FEA) for the custom temporary support system, a segmental post-tensioned concrete superstructure, to facilitate rehabilitation of columns at 16 intermediate piers and one expansion Pier 22 (replacement of bearings and concrete repairs). Weight transfer at intermediate piers was enabled by a pair of two-part friction collar steel weldments, each having a support arm with hydraulic jacks placed on top to provide lifting force separating superstructure from permanent column bearings. Friction between the steel weldments and the concrete columns was induced by clamping force from 24 steel rods stressed at 118 kips each. Maximum anticipated vertical reaction (service) at any of the two support points was 537 kips at each support arm, including restored traffic during pier repairs. The collars were fully load tested before traffic was allowed back on the bridge. Weight transfer at expansion Pier 22 is provided by a four-part friction collar, each with a supporting arm, thus a pair of arms supports each side of the expansion joint. An additional steel assembly wedge is on each side of the segment webs for additional support points.
04/17 – 04/24	**Gateway Expressway Improvement Design-Build, Pinellas County, FL – Florida DOT** **Senior Structural Engineer** responsible for quality control of design calculations and plans of four bridges in Segment 4. Structure designs included bridge widening of the existing I-275 SB over Gandy Blvd. (Bridge 22) and I-275 SB over Roosevelt Boulevard (Bridge 23) four-span prestressed concrete beam structures. I-275 NB over Roosevelt Boulevard (Bridge 24) replaced an existing four-span prestressed concrete beam structure with a new two-span prestressed concrete beam structure on a parallel alignment. I-275 over Big Island Gap (Bridge 29) modified an existing three-span prestressed concrete beam structure, which relocated the existing concrete median traffic railing and installed new bridge drainage components (scuppers and longitudinal conveyance system) for I-275 NB.
02/15 – 12/16	**I-75 at SR 50 Interchange Bridge Replacement & Widening, Hernando County, FL – Florida DOT** **Senior Structural Engineer** responsible for contributing to the design and plan preparations for the replacement of twin bridges on I-75 over SR 50. Additional engineering responsibilities included the design of the early works construction package, temporary and permanent wall design, and contributions to the new bridge superstructure design. The two 29- ft., 6-in. individual bridges carry the north and southbound traffic of I-75 to a single-point urban interchange at SR 50. The approximately 12-ft.-deep superstructure consists of weathering steel plate girder structures supported on end bents. Mechanically stabilized earth walls wrap around each bridge and continue for hundreds of feet before meeting grade. This design-build project also used a temporary widening of the existing southbound I-75 bridge as part of the maintenance of traffic plan during construction of the new bridge.
03/17 – 02/23	**SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT** **Senior Structural Engineer** responsible for the design of a new 840-ft.- long steel bridge on SR 75, crossing US 231 and the CSX railroad, as part of a new single-point urban interchange (SPUI). The design consists of a single three-span continuous unit (215, 355, and 215 ft.) with steel plate girders and a concrete deck. The intermediate pier columns support integral post-tensioned concrete caps. Responsible for Bridge Development Report (BDR), and leading role for all aspects of the structural design.
06/15 – 05/19	**I-75 CD Ramp over Sligh Avenue, Hillsborough County, FL – Florida DOT** **Senior Structural Engineer** responsible for the preliminary design, Bridge Development Report, and load rating of the widening of a 233-ft.-long three-span interstate ramp bridge over Sligh Avenue. The proposed widening of the superstructure and substructure included prestressed beams on a hammerhead pier substructure.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Dan Tarantino, AIA, RA, LEED AP	Years of relevant experience with this employer	8
Title	Senior Architect	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		BA / 2008 / Architecture	
Active registration number / state / expiration date		**Licensed Architect:** 9255 / LA / 12/31/2025	
Year registered	2019	Discipline	Architecture
Contract role(s) / brief description of responsibilities		Bridge Architect	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
10/22 – 11/22	**Reconstruction of the Shore Road Bridge, Bronx, NY – New York City DOT** **Senior Architect** for replacement of a rolling lift bridge over the Hutchinson River. Responsibilities include leading the overall aesthetic design of the bridge, coordinating the architectural and the engineering design, and leading the 3D visualizations and VR production for the project. Located entirely within Pelham Bay Park, the Shore Road Bridge spans the Hutchinson River and is a link on the NYC Mosholu-Pelham Bay Greenway bike and pedestrian route. The bridge is a 90-ft.-long Scherzer double-leaf rolling lift bascule span with three earth-filled concrete spandrel arch approach spans on each end. The total structure length is 865 ft. The bridge is 52-ft.-wide with two non-standard ten-foot lanes in each direction and a 7.5foot sidewalk on the south side. The clear channel width is 59 feet and the vertical clearance at mean high water is about 12.5 feet. The 108-year-old bridge was eligible for inclusion on both the New York State and National Registers of Historic Places. The unique architectural towers, or pylons, on the bridge were described in contemporary documents from 1910 as a means of emphasizing the gateway to vessels. The bridge has been rehabilitated and repaired several times in recent decades to extend its service life, including most recently in 2002, but the main steel members and the concrete approach spans have continued to deteriorate. The project includes studies, alternate assessment, NYSDOT design approval, and preliminary and final design for this locally administered federal aid project.
10/17 – 09/20	**Replacement of the US-1 Jupiter Bridge over ICWW Bridge, Jupiter, FL – Florida DOT** **Senior Architectural Designer** for this bascule bridge replacement project. The SWAT process of overlapping the design phase with the PD&E phase required the preliminary design phase coordination and support of the NEPA process in developing the Type 2 Categorical Exclusion documentation. Serving as Engineer of Record of the project, H&H is addressing the structural and functional deficiencies of the existing US-1 / SR- 5 Jupiter Federal Bridge from CR-A1A (Ocean Blvd) to Beach Road and developed vertical and horizontal alignments for bridge replacement alternatives in context with environmental. The project included coordination with the historic Jupiter Inlet US Navy Married Men's Quarters (1942) and the Jupiter Inlet Lighthouse (1860). Consensus building with local stakeholders was necessary for the planned detour during construction. This resulted in incorporating intersection improvements and TSM&O features along the detour route that will improve traffic functions at both ends of the approximately 2,960-foot-long (0.56 mile) project corridor.
10/17 – 12/21	**Gateway Express Improvements Design-Build, Pinellas County, FL – Florida DOT** **Project Architect** responsible for developing architectural plans for the Gateway Express improvement project which will deliver toll facilities and needed limited and controlled access connections. H&H's scope for this design-build project includes contributing to FDOT's Alternative Technical Concepts (ATC) process; developing temporary traffic control plans (TTC) design for Segments 2 and 4; TTC coordination among Segments 1 through 4; tolls design for Segments 1, 2, and 4; and structures design for four bridges in Segment 4.

09/17 – 02/19	**Replacement of the Raritan River Drawbridge, Perth Amboy and South Amboy, NJ – NJ Transit** **Senior Architect** for the replacement of the Raritan River Drawbridge on North Jersey Coast Line. Mr. Tarantino's responsibilities include design coordination and development for all architectural components of the project. These components included the control house, machinery house, and access to the structure. Mr. Tarantino also provided the material and aesthetic considerations for the main span, house, and approach structures. The project includes a 0.5-mi.-long structure with a movable swing span at the navigational channel and more than 3,000 linear ft. of approaches between the Perth Amboy and South Amboy stations in NJ. This bridge replacement will be done off-line while maintaining full rail operations during construction. The project is funded by an FTA grant under its post-Sandy Emergency Relief Program, intended to protect major infrastructure components that are in danger of being damaged during extreme climate events. As such, the replacement bridge is required to have sufficient flood resilience to remain in operation after a major hurricane and the project must be implemented within a very tight timeframe. Historically, the bridge suffered frequent vessel collisions due to poor channel geometry; NJ TRANSIT intends to implement feasible navigational improvements to the extent possible without delaying the project delivery. The scope of work includes a feasibility study of various alignments and bridge replacement alternatives. The new bridge is likely to be a vertical lift with a minimum vertical clearance of 110 ft. and a navigational channel of 300 ft. The key issues include obtaining necessary permits and approvals to meet the timeframe specifies in the FTA grant requirements while minimizing the impact on NJ TRANSIT operations, as well as the adjacent properties and environment.
07/17 – 03/19	**Replacement of the US 17 Swing Bridge over the Perquimans River, Perquimans County, NC – North Carolina DOT** **Senior Architectural Designer** for this bridge replacement project. Responsibilities included design coordination and development for all architectural components of the project. The existing swing bridge over the Perquimans River will be replaced with a new, off-line bridge. H&H's responsibilities include the complete design of the new swing span, including structural, mechanical, electrical, and geotechnical engineering. The swing span structure consists of a center-pivot Warren through truss supporting the concrete deck. Although similar in appearance to the existing swing span, the new span improves geometrics, increases load carrying capacity and vertical clearance, and includes all the conveniences of a modern operational system.
06/19 – 07/20	**East Side Coastal Resiliency Bridge Project – Delancey Street Pedestrian Bridge, New York, NY – New York City DOT** **Lead Architect** for the preliminary and final design for the full replacement of several bridges, including Delancey Street, a pedestrian bridge in Manhattan. The project aims to protect neighborhoods and infrastructure from future storm surges and rising sea levels, as well as improve recreational opportunities and accessibility to the park and waterfront.
01/19 – 10/22	**Final Design of the Amtrak Connecticut River Bridge, Old Saybrook, CT - Amtrak** **Project Architect** for the in-depth condition inspection of the structural, mechanical, and electrical systems on the existing Connecticut River Bridge. H&H performed a feasibility and conceptual design study for rehabilitation or replacement of the bridge. Various alignment and profile layouts for various rail gradient options were developed and studied.
06/18 – 08/18	**Rehabilitation of the Nostrand Avenue Station, Brooklyn, NY - Long Island Rail Road** **Senior Architectural Designer** for this rail station rehabilitation project, which involved restoring the platforms to a state-of-good-repair to ensure ADA compliance and an overall improved facility. Design items included replacement of the station platforms, railings, and canopy roofing system, replacement of the four stairs and overpasses with ADA-compliant prefabricated stairs and overpasses, installation of two new elevators, and upgrades to station signage, lighting, electrical, and communications systems. Designs were developed in compliance with LIRR Station Design Guidelines, NYS Building Code, applicable requirements of ADA, and passenger safety features. Nostrand Avenue Station is found along the Atlantic Branch of the LIRR. Originally built during 1903-1905, the station was later rebuilt in the 1980s reflected and required updating.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Dalton Hunt, EI	Years of relevant experience with this employer	4
Title	Civil Designer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S. / 2021 / Civil Engineering	
Active registration number / state / expiration date		**Engineer in Training:** 35118 / LA / 9/30/2026 **Certifications:** ATSSA Traffic Control Supervisor and Flagger	
Year registered	2022	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Bridge & Roadway Designer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
02/22 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana – Jefferson Parish DPW/LADOTD** **Structural Designer** for the pre-design inspection, rehabilitation, and widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction, as well as the design of a new three-lane double bascule movable bridge crossing of Harvey Canal in an urban area. The scope includes the design of a new bridge to be constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. All design work is in accordance with LADOTD Standards and Specifications. Load rating was performed using AASHTOWare BrDR load rating software.
01/22 – Present	**H.014530: Almonaster Ave Railroad Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans/LADOTD** **Structural Designer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. The road design services include a new alignment for the connecting road, including all drainage structures. H&H developed a hydraulic study and site plan that includes several retention ponds for drainage improvements. All design work is according to LADOTD Standards and Specifications and reviewed by LADOTD. Project includes a variety of repairs on this steel Strauss Trunnion Bascule Bridge. Major work included replacement of components of the railroad floor system stringers and floor beams that rated lower than E-60 and replacement of deteriorated lateral connection plates. The cracked concrete on the rest pier in the area of the bearings was removed and replaced with higher strength concrete. The replacement and tightening of loose or missing fasteners throughout the entire structure was also included in the repair scope. Scope included bridge design and repair plans, contract specifications, construction inspection, and construction support services.
03/22 – 10/23	**H.014363.5 IDIQ Contract for ADA Design Projects Statewide, Slidell, LA – LADOTD** **Structural Designer** responsible for the evaluation and consideration of current sidewalk features of Robert Blvd. in Slidell, LA. Plans were designed and revised in-house in preparation of the overhaul of sidewalks and adding of ADA compliant handicap ramps and landing areas along the roadway to bring the sidewalks up to current LADOTD standards.
04/22 – 12/22	**SR 605 Bascule Bridge over Industrial Waterway, Harrison County, MS – Mississippi DOT** **Structural Designer** for the comprehensive rehabilitation of this bascule bridge over the Industrial Waterway. The work also included design and detailing of a new PPC pile-supported reinforced concrete generator platform. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. Load rating was performed using AASHTOWare BrDR load rating software.
06/22 – Present	**H.002798.6 Bayou Teche Movable Bridge at Oaklawn, St. Mary Parish, LA – LADOTD** **Structural Designer** assisting in the design, calculations, and plan preparation of the bridge power distribution and relay-based control system for this movable bridge located in St. Mary Parish, LA. The new through girder swing-span rotates with hydraulically actuated slewing (push-pull) cylinders.

01/23 – 06/24	**I-59 / I-20 Box Girder Bridges Inspection and Load Rating, Meridian, MS – Mississippi DOT** **Structural Designer** for the inspection of the two box girder bridges. Bridge No. 147.9A at I-59 and Bridge No. 131.5B at I-20 are located in Lauderdale County. The inspection required night work to avoid lane closures on I-20 and I-59, as well as traffic control for lane closures and use of a confined space rescue team for inspection of inside the boxes. The repair recommendations were made based on the inspection results and the load rating.
09/22 – Present	**I-10 & I-12 College Dr Flyover Ramp Design- Build, Baton Rouge, LA – LADOTD** **Field Engineer Intern** for design and construction quality control/quality assurance for this road and bridge design-build project which is located at the I-10 West exit to College Dr, in advance of the I-10 & I-12 West merge. H&H serves as Design-Builder's Construction Quality Control Firm (CQCF) and oversees all Design Quality Control and Construction Quality Control activities for the project. Scope includes the development and implementation of Comprehensive Quality Plan to ensure the design and construction conforms to all specified requirements. H&H will develop, maintain, and update Contractor Quality Management Plan and provide qualified Inspectors, material sampling, testing, and independent testing labs to ensure contractors and off-site fabrication facilities meet project specifications.
07/23 – Present	**H.009730.5 In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Structural Inspector** performing inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
06/22 – 08/23	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – Mississippi DOT** **Structural Inspector** for inspection of SR 609 Bridge. The scope of work included the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. Load rating was performed using AASHTOWare BrDR load rating software.
03/24 – Present	**H.009730.5 LADOTD Movable Bridge Manual, New Orleans, LA – LADOTD** **Engineer Intern** responsible for the development of the LADOTD Movable Bridge Inspection Manual (including details, photos, illustrations, and specific examples); building a lesson plan and materials for the classroom training from the inspection manual; and providing classroom and field training. The manual will include bridge inspection principles and overview; movable bridge overview; mechanical, electrical, and structural inspection of movable bridges; operator house; and classroom and field training for electrical, mechanical, and structural.
04/22 – Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – LADOTD** **Field Engineer Intern** delivering construction engineering and inspection services for a new vertical lift bridge and operator's house. Services include daily monitoring of all construction activities; maintaining all construction field records; coordinating with DOTD, contractor, parish government, and utilities; performing field testing; maintaining records of contractual operations, pay estimates and progress reports; preparing final estimate packages; conducting construction progress meetings; construction close-out, etc.
12/23 – Present	**H.015028.6 Bayou Barataria Movable Bridge Replacement (CE&I), Phase 1, LA 302, Jefferson Parish, LA – LADOTD** **Structural Designer** responsible for providing construction contract administration and construction engineering and inspection services for: Bayou Barataria Movable Bridge Replacement. This project consists of construction of the movable swing span bridge, operator's house, associated substructure elements, and pier protection system along the relocated LA 302 in Jefferson Parish.
07/24 – 12/24	**I-110 Bridge over the back Bay of Biloxi, Harrison, MS – Mississippi DOT** **Structural Inspector** for the in-depth routine/fracture critical inspection and load rating of I-110 Bridge over Biloxi Back Bay for Mississippi Department of Transportation. The inspection included electrical, mechanical, and structural inspection of the bascule and anchor spans and NBIS and element inspection for the entire bridge in accordance with state, AASHTO, and FHWA requirements.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Courtney Mai, EI	Years of relevant experience with this employer	1
Title	Civil Designer	Years of relevant experience with other employer(s)	3
Degree(s) / Years / Specialization		B.S. / 2018 / Civil Engineering	
Active registration number / state / expiration date		**Engineer in Training:** 35745 / LA / 09/30/2026	
Year registered	2024	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Bridge Designer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
04/24 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Engineer Intern** for the complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
04/24 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Engineer Intern** for the design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction in an urban area. The new bridge will be constructed as an independent structure adjacent to the north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane, improvements to bridge and roadway approaches, and development of a Traffic Control Plan. All design work is in accordance with LADOTD Standards and Specifications and reviewed by LADOTD.
04/24 – Present	**H.009730.5 SNBI Data Collection, Statewide, LA – LADOTD** **Engineer Intern** for retrieving, verifying, and entering the Specifications for the Nation Bridge Inventory (SNBI) data into InspectX for the bridges statewide for Louisiana Department of Transportation and Development (LADOTD). Tasks include review of pertinent documents such as rehabilitation plans, as-built plans, shop drawings, and inspection reports. These documents will be obtained from various LADOTD offices including General Files, Bridge Design Section, Bridge Maintenance Section, and District offices. Necessary information will be collected from the site when such information is unavailable from the plans.
04/24 – Present	**I-10 & I-12 College Dr Flyover Ramp Design- Build, Baton Rouge, LA - LADOTD** **Engineer Intern** for construction quality control/quality assurance for this flyover ramp design-build project which is located at the I-10 West exit to College Dr, in advance of the I-10 & I-12 West merge. H&H serves as Design-Builder's Construction Quality Control Firm (CQCF) and oversees all Design Quality Control and Construction Quality Control activities for the project. Scope includes the development and implementation of Comprehensive Quality Plan to ensure the design and construction conforms to all specified requirements. H&H will develop, maintain, and update Contractor Quality Management Plan and provide qualified Inspectors, material sampling, testing, and independent testing labs to ensure contractors and off-site fabrication facilities meet project specifications.

06/24 – Present	**H.009730.5 LADOTD Movable Bridge Manual, New Orleans, LA - LADOTD** **Engineer Intern** responsible for the development of the LADOTD Movable Bridge Inspection Manual (including details, photos, illustrations, and specific examples); building a lesson plan and materials for the classroom training from the inspection manual; and providing classroom and field training. The manual will include bridge inspection principles and overview; movable bridge overview; mechanical, electrical, and structural inspection of movable bridges; operator house; and classroom and field training for electrical, mechanical, and structural.
04/24 – Present	**H.009730.5 In-Depth Bridge Inspection of Complex Structures, Statewide, LA - LADOTD** **Structural Inspector** performing inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and US 90 bridges at Krotz Springs have been completed to date.
05/19 – 05/22	**Engineer Intern** for various following projects: • Designed various pipe racks, access tunnels, and rock anchors for underground mining for Freeport. • Designed various foundations and equipment platforms such as monorails, tank supports, pipe supports for industrial facilities. • Inspection of various wharves throughout the New Orleans area. Performed inspection and developed inspection reports. Assisted in design and load capacity. • Design of equipment supports and pipe racks for offshore platforms. • Design of pipe supports, foundations, access platforms, auxiliary building for industrial complexes.
07/24 – 12/24	**I-110 Bascule Bridge over Biloxi Back Bay Inspection, Biloxi, MS - Mississippi DOT** **Structural Inspector** providing routine and fracture critical structural inspection of all components of the bascule and anchor spans per the Movable Bridge Inspection Manual. Providing NBIS and element inspection for the entire bridge.
01/25 – Present	**H.015963.5 IDIQ Contract for Movable Bridge Preservation Task US 165 Red River MB Ped Gates (Jackson St.), Rapids Parish, LA - LADOTD** **Structural Designer** assisting in developing plans and specifications to accommodate new pedestrian gates to this vertical lift bridge in accordance with LADOTD policies and standards. Providing new ADA accessible pedestrian gates and signage to pedestrian gate panel warning do not proceed. Also detailing Traffic Control plan sheets.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	John Rayer, PE	Years of relevant experience with this employer	1
Title	Roadway Engineer	Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization		BS / Civil Engineering / 2018	
Active registration number / state / expiration date		**Professional Engineer:** 47089 / LA / 03/31/2027	
Year registered	2022	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Roadway Design Engineer **– Meets MPR 3**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
10/24 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Roadway Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure adjacent and north of the existing bridge with a new operator house. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. In addition to design of the new bridge, all roadway approaches and intersections in the vicinity of the bridge (eastbound and westbound) will be redesigned to accommodate the new structure. Scope includes development of a Traffic Control Plan.
10/24 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Roadway Engineer** for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Ave Bridge, a movable Strauss-heel trunnion bridge. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920 bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure.
11/24 – Present	**SR 33 Bridge Replacements, Franklin County, MS – Mississippi DOT** **Roadway Engineer** for the Phase A Final Right-of-Way Plans for roadway design and roadway hydraulic design for four bridge replacements along SR 33 (Bridge Nos. 31.9, 34.6, 34.9, and 35.3). The project scope includes roadway realignment, roadway hydraulic design, preliminary right-of-way design, and final right-of-way design. H&H is providing the realignment of the roadway to run parallel to the existing and redesigning of one intersection at the end of the project. A hydraulic study and report are to be completed to resize the existing pipes, if necessary, and to verify sizing for a reinforced box culvert. A set of preliminary right-of-way plans are to be created following Mississippi Department of Transportation's (MDOT) guidelines and using the approved alignment from MDOT. Final right-of-way plans will be delivered after hydraulic design and roadway design have been finalized and a plan set has been created.
04/24 – Present	**H.009730.5 SNBI Data Collection, Statewide, LA - LADOTD** **Engineer responsible** for retrieving, verifying, and entering the Specifications for the Nation Bridge Inventory (SNBI) data into InspectX for the bridges statewide for Louisiana Department of Transportation and Development (LADOTD). Tasks include review of pertinent documents such as rehabilitation plans, as-built plans, shop drawings, and inspection reports. These documents will be obtained from various LADOTD offices including General Files, Bridge Design Section, Bridge Maintenance Section, and District offices. Necessary information will be collected from the site when such information is unavailable from the plans.

01/21 – 12/23	**H.012001 – LA 339: Canal & Creek Bridges, Various Locations, LA – LADOTD** **Roadway Engineer** for this bridge replacement project. The goal of the project was to replace three existing bridges with new, reinforced concrete box culverts on LA 339. John developed the 60% final roadway plans and calculations as well as the cost estimates for each phase of the project. The estimated cost for this project at 60% Final Plans was approximately $2,500,000. This project is scheduled to bid in 2025.
06/21 – 10/22	**H.008358 – Black Bayou Bridge, Madisonville, LA – LADOTD** **Roadway Engineer** for this bridge replacement project in Madisonville, Louisiana along the Tchefuncte River on LA 1077. John's role for the project was to develop the alignment of the roadway and the diversion roadway for construction. John also developed the cost of construction for the roadway aspects of the project. The construction cost of the project at bid was $4,291,639.25.
01/21 – 11/22	**H.010885 – LA 91: Bayou Plaquemine Brule BR Replacement, Acadia Parish, LA – LADOTD** **Roadway Engineer** for this bridge replacement project in Acadia Parish, LA. The existing pontoon bridge was to be replaced with a new bridge that met vertical requirements for boat traffic. John's responsibilities as Roadway Designer including creating an alignment for the new bridge to reconnect to the existing roadways. The bridge and roadway needed to be lengthened and raised substantially more than was originally proposed to allow for adequate vertical clearance in the waterway, which resulted in the project being put on hold due to the added construction costs.
06/18 – 8/20	**I-10 Widening through Baton Rouge, Baton Rouge, LA – LADOTD** **Roadway Designer** for this project which consisted of developing alternatives and cost estimates for the expansion of I-10 through Baton Rouge, Louisiana from the I-10/I-12 split to LA 415. John's role for this project was to calculate the quantities and costs. After presenting alternatives and developing estimates, the final estimated cost, with contingencies, was approximately $1 billion.
06/18 – 12/20	**LA 336, Breaux Bridge, LA – LADOTD** **Roadway Designer** for this restoration project located in downtown Breaux Bridge, Louisiana. The project consisted of the restoration of a historical lift span bridge. John's responsibilities on this project included developing calculations and drawings for the lift and bridge sections.
01/23 – 10/24	**Emerald Forest Blvd. to LA 59 Expansion Study, Covington, LA – St. Tammany Parish** **Roadway Engineer** for this project consisting of an alignment study for a new roadway to be proposed between US 190 and LA 59 in Covington, Louisiana. John's responsibilities on this project included developing three alternatives to present to St. Tammany Parish. Each alignment consisted of multiple roundabouts at intersections along the proposed roadways.
03/23 – 10/24	**Pontchartrain Yacht Club Bulkhead Improvements, Mandeville, LA – Pontchartrain Yacht Club** **Lead Roadway Engineer** for the replacement of the bulkhead around the Pontchartrain Yacht Club in Mandeville, Louisiana. As Lead Engineer, John was responsible for the preparation of plans and calculations of the bulkhead section.
09/24 – Present	**US 90 Bridge Replacement, Terrell County, TX – TxDOT** **Roadway QC Reviewer** for the replacement of two US 90 bridges at Sanderson Canyon. One of the existing bridges is 322 ft. long, with eight spans of approximately 40 ft. each, and the new bridge will be 339 ft. long with three spans of 113 ft. each. The other existing bridge is 520 ft. long with 13 spans of approximately 40 ft. each and is over existing UPRR tracks; the new bridge will be 623 ft. long with four spans varying from 138 ft. to 150 ft. each. John's responsibilities include independent review of bridge plans prepared by the prime.

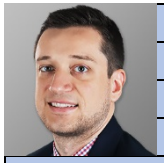
16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Robert Hideck, PE	Years of relevant experience with this employer	12
Title	Senior Roadway Engineer	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization		B.S. / 2002 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 41953 / Louisiana / 3/31/2026	
Year registered	2017	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Senior Roadway Design Engineer **– Meets MPR 3**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Engineer of Record** responsible for roadway, traffic control, tolling, and S&PM design services. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB revises express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
07/16 – 9/21	**SR A1A North Bridge Replacement**, **Fort Pierce, FL** – Florida DOT **Roadway Design Engineer** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
11/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Roadway Design Engineer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
09/15 – 12/18	**44th Ave E from 45th St E to 44th Ave Plaza E, Braden River Segment, Manatee County, FL – Manatee County** **Roadway Engineer of Record/Senior Roadway Engineer** responsible for roadway and traffic control design and plans preparation. The project included the design for the reconstruction and extension of 44th Ave East from 45th St East to 44th Ave Plaza East. The design plans include reconstruction from a two-lane roadway to a four-lane divided urban roadway. A new bridge was designed to cross over the Braden River, as well as a realignment of Morgan Johnson Rd and Caruso Rd to provide route continuity.

01/16 – 05/18	**I-75 SB Off-Ramp from S of Bypass Canal to EB/WB I-4, Hillsborough County, FL – Florida DOT** **Roadway Engineer** responsible for the roadway and temporary traffic control design and plans preparation for this two-mi. roadway improvement project that included ramp widening, an extension of the ramp to provide off-line queueing, and an extended auxiliary lane on I-75. A unique aspect of the design team's approach was incorporation of operational improvements into a long-term buildout. This project was expedited for construction based on no right of way acquisition or impact to Florida Gas Transmission lines.
11/24 – Present	**SR 33 Bridge Replacements, Franklin County, MS – Mississippi DOT** **Senior Roadway Engineer** for the Phase A Final Right-of-Way Plans for roadway design and roadway hydraulic design for four bridge replacements along SR 33 (Bridge Nos. 31.9, 34.6, 34.9, and 35.3). The project scope includes roadway realignment, roadway hydraulic design, preliminary right-of-way design, and final right-of-way design. H&H is providing the realignment of the roadway to run parallel to the existing and redesigning of one intersection at the end of the project. A hydraulic study and report is to be completed to resize the existing pipes, if necessary, and to verify sizing for a reinforced box culvert. A set of preliminary right-of-way plans are to be created following MDOT guidelines and using the approved alignment from MDOT. Final right-of-way plans will be delivered after hydraulic design and roadway design have been finalized and a plan set has been created.
01/16 – 06/23	**Sand Lake Rd (SR 482) Interchange, Orange County, FL - Florida's Turnpike Enterprise** **Senior Roadway Engineer** responsible for the traffic control design and plans preparation. As a sub-consultant, H&H prepared the temporary Traffic Control Plans design for the construction of a new interchange located on the Florida Turnpike and Sand Lake Rd (SR 482) in Orange County, Florida. As part of H&H's innovative design, ramp construction took place early to allow mainline traffic to be diverted during off peak hours while bridge reconstruction over the Turnpike is ongoing. This project also included coordination with FDOT District 5 for the reconstruction of Sand Lake Road.
04/17 – 05/23	**SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT** **Engineer of Record** responsible for design and preparation of roadway, signing and pavement marking, and temporary Traffic Control Plans. H&H is providing design services for the single point urban interchange (SPUI) at SR 77 over US 231 and CSX RR improvement project. Work includes design for roadway and drainage design of the intersection, lighting design for the entire project, and bridge design for a new 840-ft. steel bridge.
07/17 – 06/20	**Orlando South Ultimate Interchange Improvements – Florida's Turnpike Enterprise** **Senior Roadway Engineer** responsible for concept development, coordination, and project oversight of a complex interchange, including system and service movements. The project includes an evaluation of a complex interchange that provides both direct and indirect ramping between Orange Blossom Trail and the adjacent two limited access highways. The project goals included: construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations with two new reliever interchanges.
03/07 – 10/13	**Veterans Expressway (SR 589) Widening from Memorial Highway to Gunn Highway – Florida's Turnpike Enterprise** **Project Engineer** responsible for roadway design, preparation of plans, coordination of sub-consultants and multiple disciplines, post-design services, and civil/site design for six toll sites. As part of the expansion, the existing conventional cash toll collection method was converted to an AET collection method. The project included two full interchanges and four partial interchanges. Due to the proximity to the Tampa International Airport, aviation permits were required throughout the project corridor and extensive coordination was required with the FAA. This activity included meeting with aviation agency staff and the design team to adjust design element locations and/or elevations for the acquisition of FAA determinations required for HCAA permits. The project also included the milling and resurfacing of the existing roadway, as well as widening and reconstruction.
03/15 – 03/17	**Fort Hamer Bridge Approaches, Upper Manatee River Rd to Fort Hammer Road, Manatee County, FL – Manatee County** **Project Roadway Engineer** responsible for roadway and temporary Traffic Control Plans. This project included the design of over a mile of approach roadway for a new bridge over the Manatee River, connecting Upper Manatee River Rd with Fort Hamer Road. The project was designed for stage construction with the two lanes being delivered with initial construction.

16. Staff Experience:

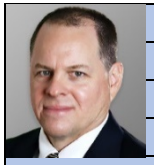


Firm employed by	Hardesty & Hanover		
Name	Benjamin Bower, PE	Years of relevant experience with this employer	8
Title	Roadway Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S. / 2017 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 92137 / Florida / 02/28/2027	
Year registered	2021	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Roadway Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
07/19 – 9/21	**SR A1A North Bridge Replacement, Fort Pierce, FL – Florida DOT** **Roadway Engineer** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Roadway Engineer** assisting with roadway and temporary traffic control services. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB revises express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
07/17 – 06/20	**Orlando South Ultimate Interchange at SR 91 (Florida's Turnpike) and SR 528 (Beachline Express) PD&E Study – Florida's Turnpike Enterprise** **Roadway Designer** responsible for assisting with concept development. H&H was prime consultant for the PD&E study for this complex systems interchange with imbedded service movements. Project goals included: construction of direct connection ramps between freeways, a planned ultimate 10-lane express typical section of the Turnpike, implementation of All Electronic Tolling, consideration of express direct connections, and modification of service movements to reduce interchange weaving. Constraints included a developed environment, adjacent major utilities, nearby interchanges, and the need to maintain traffic and tolling operations during construction. On a schematic basis, approximately 249 configurations were analyzed. The recommended configuration includes new direct systems ramps, braided ramps, and a Collector Distributor Roadway, as well as two new reliever interchanges on the Turnpike and Beachline Expressway. Modification to two adjoining interchanges, including reconfiguration of Consulate Drive as a Diverging Diamond Interchange.
06/17 – 12/17	**I-75/SR 93A SB Off-Ramp S of Bypass Canal to EB/WB I-4, Tampa, FL – Florida DOT** **Roadway Designer** responsible for assisting with design and plans preparation. This two-mi. roadway improvement project included the addition of a new auxiliary lane for southbound I-75 from south of the Bypass Canal to the southbound off-ramp and widening the I-75 southbound off-ramp from one to two lanes. A unique aspect of the design approach was the incorporation of this design into a long-term buildout of the interchange. This project was expedited for construction based on no right of way acquisition or impacts to Florida Gas Transmission lines.

06/17 – 12/23	**Sand Lake Rd Interchange, Orange County, FL - Florida's Turnpike Enterprise** **Roadway Engineer** assisting with the temporary Traffic Control Plans design for the construction of a new interchange located on the Florida's Turnpike and Sand Lake Rd (SR 482) in Orange County, Florida. As part of an innovative design, ramp construction will take place early to allow mainline traffic to be diverted during off peak hours while bridge reconstruction over the Turnpike is ongoing. This project also includes coordination with FDOT District 5 and the reconstruction of Sand Lake Road.
06/17 – 06/23	**SR 75 (US 231) from SR 30A (US 98) to Pipeline Rd, Panama City, FL – Florida DOT** **Roadway Engineer** assisting with plans production for roadway, temporary traffic control and S&PM on SR 77. He provided design services for the single point urban interchange (SPUI) at SR 77 over US 231 and CSX RR improvement project. Work included roadway, drainage, temporary traffic control, and S&PM design on SR 77. In addition, H&H designed the lighting for the entire project and designed a new 840-ft. steel bridge on SR 77.
06/21 – Present	**Design of SR91 and SR528 Interchange MP 253 to S. of Sand Lake Rd (MP 257.25) – Florida's Turnpike Enterprise** **Roadway Engineer** assisting with roadway analysis and plans development. The project includes new direct systems ramps, braided ramps, a relocation of SR 528, and modifications to adjoining interchanges, including a Diverging Diamond interchange on the first level. The design team worked closely with Turnpike traffic engineers to refine the design to include: an additional southbound Collector Distributor Road to relocate weaving from the mainline; reconfiguration of a low-volume ramp to economize the design; and development of a three-project phasing plan to deliver incremental improvements as needed with packaging less than $200 million. In addition to managing the design of the project, H&H is responsible for roadway, bridge, drainage signing and pavement markings, and toll design, which includes six new All Electronic Tolling Sites.
05/21 – Present	**46th Ave N Sidewalk Design, Pinellas County, FL – Pinellas County** **Roadway Engineer** responsible for assisting with roadway design and plans preparation. This project consists of reconstruction of the existing roadway, extension of the existing box culvert in both directions, construction of ADA compliant sidewalks, curb ramps, and driveways on both sides of road and incidental work along 46th Ave North, from West of Drainage Outfall along 55th St North right of way corridor to 49th St North (a length of approximately 0.5 mi.). H&H is responsible for roadway/sidewalk design, structural design, traffic control, signing, and pavement marking.
06/17 – 02/17	**SR 968/SW 1st St Bridge at Miami River, Miami, FL – Florida DOT** **Roadway Designer** responsible for assisting with roadway approaches and temporary traffic control design. SR 968 is an Urban Minor Arterial. This bridge replacement project is along the SW 1st St corridor from SW 6th Ave to SW 2nd Ave. The existing four-lane, one-way bridge was replaced with a new three-lane, one-way bridge, and included roadway improvements east and west of the bridge, bike lanes, sidewalks, and signing and pavement markings. The roadway east and west of the bridge was reconstructed to provide an urban roadway section with a revised profile using new curb, three through lanes, an eight-ft. parking lane along both sides, and variable width sidewalks against the back of curb on both sides of the road. This project was located in constrained right of way conditions where there could not be impacts to adjacent properties.
06/17 – 02/19	**Gateway Expressway Improvements Design-Build, Pinellas County, FL – FDOT** **Roadway Designer** responsible for assisting in the development of the preliminary design to this improvement project. For this design-build project, H&H is developing TCPs for Segments 2 and 4; TCP coordination among Segments 1 through 4; tolls design for Segments 1, 2, and 4; and structure design for four bridges in Segment 4.
06/17 – 06/21	**Homestead Extension of Florida's Turnpike (SR 821) from S of Killian Pkwy to N of Sunset Dr Design-Build, Miami, FL - FL Turnpike Enterprise** **Roadway Designer** assisting with plans production for roadway and S&PM of the surface streets and overall project temporary traffic control. This design-build procurement comprises widening of the mainline HEFT (SR 821) from south of Killian Pkwy to just north of Sunset Dr. Primary services included development of express lanes, relocation of ramp tolling, and operational improvements to the Kendall Dr interchange as well as resurfacing and other minor improvements.

16. Staff Experience:

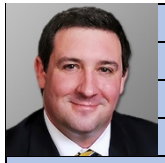


Firm employed by	Hardesty & Hanover		
Name	J. Webb Jones, PE	Years of relevant experience with this employer	14
Title	Senior Highway Engineer	Years of relevant experience with other employer(s)	16
Degree(s) / Years / Specialization		B.S. / 2001 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 56950 / Florida / 2/28/2027	
Year registered	2001	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Senior Roadway Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
07/16 – 9/21	**SR A1A North Bridge Replacement, Fort Pierce, FL – Florida DOT** **Senior Roadway Engineer** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
07/17 – 06/20	**Orlando South Ultimate Interchange, Orange County, FL - Florida's Turnpike Enterprise** **Deputy Project Manager** responsible for concept development of alternatives. This project includes an evaluation of a complex interchange that provides both direct and indirect ramping between Orange Blossom Trail and the adjacent two limited access highways. The project goals included: construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations with two new reliever interchanges. The recommended configuration included improvements to the systems interchange, modification to two adjoining interchanges, and new proposed service interchanges.
01/16 – 12/17	**I-75 (SR 93A) SB Off-Ramp form S of Bypass Canal to EB/WB I-4, Hillsborough County, FL – Florida DOT** **Project Manager/Engineer of Record** responsible for project coordination and oversight. This two-mi. roadway improvement project included the addition of a new auxiliary lane for southbound I-75 from south of the Bypass Canal to the southbound off-ramp and widening the I-75 southbound off-ramp from one to two lanes. A unique aspect of the design approach was the incorporation of this design into a long-term buildout of the interchange. This project was expedited for construction based on no right of way acquisition or impacts to Florida Gas Transmission lines.
01/16 – 10/17	**SR 826/Sunny Isle Twin Bridge Improvements, Sunny Isle, FL – Florida DOT** **Roadway Design Lead/Signing and Pavement Marking Engineer of Record** responsible for signing and pavement marking and roadway design, as well as temporary traffic control (TTC) plans. The project included a vibration study of the bridge control house; design recommendations for improvements, public involvement, permitting, TTC plans, roadway, drainage, signing and pavement markings analysis and plans, and construction cost estimates. Both four-lane bridges have 16 spans with pre-stressed AASHTO concrete and steel beams and a double-leaf trunnion bascule span.
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Senior Roadway Engineer** responsible for QC on this project. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.

01/16 – 12/23	**Sand Lake Rd Interchange, Orange County, FL - Florida's Turnpike Enterprise** **Senior Roadway Engineer** responsible for the temporary Traffic Control Plans design for the construction of a new interchange located on the Florida's Turnpike and Sand Lake Rd (SR 482) in Orange County, Florida. As part of an innovative design, ramp construction will take place early to allow mainline traffic to be diverted during off peak hours while bridge reconstruction over the Turnpike is ongoing. This project also includes coordination with FDOT District 5 and the reconstruction of Sand Lake Rd.
11/16 – 02/19	**Gateway Express Improvements, Pinellas County, FL – Florida DOT** **Project Engineer** responsible for technical oversight of temporary Traffic Control Plans. This project will deliver limited and controlled access connections from the Bayside Bridge on the north, US 19 on the west, and the St. Pete Clearwater International Airport to I-275 general purpose and new express lanes. H&H's scope on this design-build project includes contributing to FDOT's Alternative Technical Concepts (ATC) process; developing temporary traffic control plans design for Segments 2 and 4; project tolls design (four sites) for Segments 1, 2 and 4; and structures design for four bridges in Segment 4.
03/13 – 10/14	**Central Polk Pkwy (Segment 1) from Polk Pkwy SR540 to SR 35 (US 17), Polk County, FL – Florida DOT** **Engineer of Record/Senior Engineer** responsible for roadway design and plans production. This project required the use of Corridor Modeler software to aid in the design of a new six-lane expressway facility. The project included the design of a one-mi. new alignment, over two mi. of widening, and a new interchange at SR 540 including over two mi. of new ramp alignments. This segment was among several that were under design to complete the northeasterly connection of Central Polk Pkwy to I-4.
01/14 – 12/15	**Gandy Blvd Bridge Approaches, Pinellas Count, FL – Florida DOT** **Senior Engineer** responsible for QA/QC for the Traffic Control Plans for the construction of a 2.5-mi.-long segment of improved grade-separated lanes to increase capacity on the Gandy Bridge approach using design-build delivery. The project is 2.5 mi. long, includes three grade separations, and is being delivered substantially under budget with design-build delivery.
07/13 – 02/14	**Turnpike Mainline (SR 91) Interchange at I-4 Design-Build, Orange County, FL – Florida's Turnpike Enterprise** **Project Engineer** responsible for design and preparation of traffic control and roadway plans. The project included operational improvements, including mainline auxiliary lanes and ramp lane additions. A unique feature of the proposed design was a new ramp structure in lieu of widening to avoid FGT impacts.
04/17 – 03/20	**SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT** **Senior Roadway Engineer** responsible for preparation of roadway and temporary Traffic Control Plans. The project consists of providing design services for the single point urban interchange (SPUI) at SR 77 over US 231 and CSX RR improvement project. The work includes roadway and drainage design of the intersection, lighting design for the entire project, and design for new 840-ft. steel bridge.
01/16 – 05/20	**Districtwide Interstate Program Manager (IPM) – Florida DOT** **Senior Engineer** responsible for concept development and review of plans. This multi-discipline, indefinite quantity contract provided as-needed services to support the Florida DOT work program for all interstate highway improvements in the five-county FDOT District region. The geographic limits include over 150 mi. of I-275, I-4, and I-75 and key contributing arterials.
07/12 – 02/15	**SR 212 (Beach Boulevard) Landscaping from St. Johns Bluff Road to San Pablo Road, Duval County, FL – Florida DOT** **Engineer of Record/Senior Engineer** responsible for design and production of traffic control plans. The project involved roadway design for over 5.6 miles, including landscaping and irrigation improvements for proposed bold landscaping within existing medians on Beach Boulevard, from St. Johns Bluff Road to San Pablo Road in Jacksonville.
07/23 – Present	**SR 535 Interchange Improvements at I-4 & WB Express Lane Extension from west of SR 536 to west of Daryl Carter Parkway Design-Build, Orange County, FL – Florida DOT** **Chief Engineer** responsible for temporary traffic control design and plans preparation. The interchange improvements will partially reconstruct I-4 and SR 535 (Apopka-Vineland Road) to enhance safety and improve access to and from westbound I-4. The extension project will add a single, buffer-separated, westbound managed lane to I-4 from west of SR 536 to west of Daryl Carter Parkway.

16. Staff Experience:



Firm employed by	Hardesty & Hanover		
Name	Matthew Wolczynski, PE	Years of relevant experience with this employer	7
Title	Senior Roadway Engineer	Years of relevant experience with other employer(s)	15
Degree(s) / Years / Specialization		BS / 2003 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 67768 / FL / 02/28/2027	
Year registered	2003	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Senior Roadway Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Senior Roadway Engineer** assisting with roadway, traffic control, tolling, and S&PM design services. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB revises express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
07/16 – 9/21	**SR A1A North Bridge Replacement, Fort Pierce, FL – Florida DOT** **Senior Roadway Engineer** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
04/18 – 06/20	**Orlando South Ultimate Interchange Improvements – Florida's Turnpike Enterprise** **Senior Roadway Engineer** responsible for concept development, coordination, and project oversight of a complex interchange, including system and service movements. The project includes an evaluation of a complex interchange that provides both direct and indirect ramping between Orange Blossom Trail and the adjacent two limited access highways. The project goals included: construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations with two new reliever interchanges. The recommended configuration included improvements to systems interchange, modification to two adjoining interchanges, and new proposed service interchange.
04/18 – 11/20	**I-75 (SR 93A) SB Off-Ramp S of Bypass Canal to EB/WB I-4, Hillsborough County, FL – Florida DOT** **Senior Roadway Engineer** responsible for quality control of the roadway and TCP design. This two-mile roadway improvement project included the addition of a new auxiliary lane for southbound I-75 from south of the Bypass Canal to the southbound off-ramp and widening the I-75 southbound off-ramp from one to two lanes. A unique aspect of the design approach was the incorporation of this design into a long-term buildout of the interchange. This project was expedited for construction based on no right-of-way acquisition or impacts to Florida Gas Transmission lines.
04/18 – 02/19	**Gateway Expressway Design-Build, Pinellas County, FL – Florida DOT** **Senior Engineer** responsible for quality control of the traffic control design. This project delivered limited and controlled access connections from the Bayside Bridge on the north, US 19 on the west, and the St. Pete Clearwater International Airport to I-275 general purpose and new express lanes. H&H's scope on this design build project included developing temporary traffic control (TTC) plans design for Segments 2 and 4; project tolls design (four sites) for Segments 1, 2 and 4; and structures design for four bridges in Segment 4.

04/18 – 03/20	**SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT** **Senior Roadway Engineer** responsible for the quality control of the roadway and TCP design on SR 77. The project consisted of providing design services for the single point urban interchange (SPUI) at SR 77 over US 231 and CSX RR improvement project. Work included roadway, drainage, temporary traffic control, and S&PM design on SR 77. In addition, H&H designed the lighting for the entire project and designed a new 840-ft.- long steel bridge on SR 77.
06/20 – Present	**Design of the SR 91 and SR 528 Interchange (from MP 253 TO S. of Sand Lake Road (MP 257.25), Orange County, FL – Florida's Turnpike** **Senior Roadway Engineer** responsible for the roadway and TCP design of this complex interchange. H&H is the prime consultant for this complex 4-level interchange in an urban constrained environment. The project includes new direct systems ramps, braided ramps, a relocation of SR 528, and modifications to adjoining interchanges, including a Diverging Diamond interchange on Consulate Drive. As part of the design development, the design team worked closely with Turnpike traffic engineers to refine the design to include: an additional southbound Collector Distributor Road to relocate weaving from the mainline; reconfiguration of a low-volume ramp to economize the design; and development of a 3-project phasing plan to deliver incremental improvements as needed in packages less than $200 million. In addition to managing the design of the project, H&H is responsible for roadway, bridge, drainage signing and pavement markings, and toll design, which included six new All Electronic Tolling Sites.
02/21 – 01/23	**Riverside Drive Drainage Improvements and North Springs Drive Study, Pinellas County, FL – Pinellas County** **Senior Roadway Engineer** responsible for quality control of the roadway, drainage, and TCP designs. This project provided construction plans for drainage improvements to Riverside Drive west of the Beckett Bridge due to frequent flooding, and for conducting a drainage study east of the bridge from Venetian Court to W. Tarpon Avenue experiencing flooding which affect road durability.
12/18 – 05/23	**Beckett Bridge Replacement, Tarpon Springs, FL – Pinellas County** **Senior Roadway Engineer** responsible for quality control of the roadway, drainage, and TCP designs. The project involves the historic bridge replacement with a new 360-ft.-long single-leaf, rolling-lift, bascule bridge that carries Riverside Drive over Whitcomb Bayou and features two traffic lanes, shoulders, and a sidewalk. Project elements include relay-based control system, approximately a quarter mile of roadway, drainage, bridge architecture, and public involvement.
12/19 – Present	**New Interchange on Turnpike Mainline (SR 91) at Taft Vineland Road (~MP 253), Orange County, FL – Florida's Turnpike Enterprise** **Senior Engineer** responsible for design of the temporary traffic control. H&H is providing project management and TTC design for this new partial clover interchange at SR 91 and Taft Vineland Road. The project also includes roadway reconstruction of Taft Vineland Road while maintaining the recently reconstructed bridge structures.
07/18 – 07/23	**Districtwide Interstate Program Manager (IPM) Districtwide, FL – Florida DOT** **Senior Engineer** supporting this multidiscipline indefinite quantity contract that provides as-needed services to support the FDOT work program as it relates to all interstate highway improvements in the five-county FDOT District in the Tampa Bay area. The geographic limit of this contract includes all the interstate highways within the region. Key tasks have included: (1) TCP plans for a "Concept Development Plan" submittal for the I-275/I-4 corridor from west of N. 14th Street on I-4 to north of Dr. Martin Luther King Jr. Blvd. on I-275. The plans were used in the RFP package for a Design Build Project. (2) TCP plans for a "Concept Development Plan" submittal for the I-275/I-4 corridor from I-4 WB to north of Morgan Street on I-275. The plans were used in the RFP package for a Design Build Project. (3) A TCP design concept for the widening of I-275/SR 93 SB/I-4/SR 400 WB from N of Morgan Street to W of N 12th Street.
05/09 – 07/10	**US 19 from 22nd Avenue N to 44th Avenue N, Milling & Resurfacing, Pinellas County, FL - Florida DOT** **Senior Engineer** responsible for producing various design documents, including design variations and exceptions, typical section package and RRR report, and supervised production of the roadway plans. Project consisted of resurfacing, restoring, and rehabilitation of 1.4 miles of US 19. Other major components involved improving ADA compliance and sidewalk connectivity, upgrading the bridge railings, designing crash walls beneath the bridge to protect the bridge piers adjacent to the CSX railroad, and upgrading the existing signals with mast arms.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Lauren Blakeley, PE	Years of relevant experience with this employer	5
Title	Roadway Engineer	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		BS / 2020 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 100852 / FL / 02/28/2027	
Year registered	2025	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Roadway Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/21 – 02/25	**SR 826/Palmetto Expressway Capacity Improvement Design-Build, Miami-Dade County, FL – Florida DOT** **Roadway Designer** assisting with roadway, traffic control, tolling, and S&PM design services. This project improves operations with an additional SB General purpose lane, auxiliary lanes, and improved shoulder widths, requiring major modifications to the NW 103rd St interchange. The project also includes revised access to the NB and SB revises express lanes, requiring a new toll site and improvements to the adjoining frontage road system. H&H is the lead designer, responsible for roadway, drainage, permitting, traffic control, tolling, and bridge design.
01/21 – 9/21	**SR A1A North Bridge Replacement, Fort Pierce, FL – Florida DOT** **Roadway Designer** for the planning and design of a new high-level fixed bridge carrying SR A1A and the East Coast Greenway over the Intracoastal Waterway, FEC Railroad, and Old Dixie Highway. Scope included staged construction to maintain traffic, elimination of at-grade rail crossing, design of new roadway alignments and access roads, and integration of an observation deck. H&H coordinated extensively with utilities, FEC Railroad, adjacent businesses, and permitting agencies. The project also included geotechnical, drainage, hydrogeology, lighting, signals, signage, and maintenance of traffic for both vehicular and marine users.
01/21 – 04/24	**Gateway Expressway Improvements Design-Build, Pinellas County, FL – Florida DOT** **Roadway Designer** assisting with post design services for temporary traffic control. This project delivered limited and controlled access connections from the Bayside Bridge on the north, US 19 on the west, and the St. Pete Clearwater International Airport to the I-275 general purpose and new express lanes. H&H's scope on this design build project included developing temporary traffic control (TTC) plans design for Segments 2 and 4; project tolls design (four sites) for Segments 1, 2 and 4; and structures design of four bridges in Segment 4.
07/23 – Present	**US 41 over Caloosahatchee River Design-Build, Lee County, FL— Florida DOT** **Roadway Engineer** supporting plans production for S&PM. This project is intended to improve pedestrian safety by modifying the existing bridge to accommodate an eight-foot sidewalk on the west side of the bridge from First Street to North Key Drive. This will be accomplished by pedestrian railing, guardrail retrofit, relocation of the median, and restriping the lanes. The sidewalk will connect to existing sidewalks north and south of the bridge structure to create safe access for pedestrians to cross.
02/21 – 11/22	**SR 75 (US 231) From SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT** **Roadway Designer** responsible for assisting with production of drainage and roadway plans. H&H is providing design services for the single point urban interchange (SPUI) at SR 77 over US 231 and CSX RR improvement project. Work includes roadway and drainage design of the intersection, lighting design for the entire project, and design of a new 840-ft.- long steel bridge.

10/21 – 02/23	**35th St & 46th Avenue Railroad Crossing Improvements, Pinellas County, FL – Pinellas County** **Roadway Designer** responsible for designing the signing and pavement markings, sidewalk, and curb and gutter designs for the roadway. This project involved developing plans and specifications and performing all other professional engineering design work for reconstruction of the 35th Street & 46th Avenue Railroad Crossings in Pinellas County.
02/21 – Present	**Design of the SR 91 and SR 528 Interchange (from MP 253 TO S. of Sand Lake Road (MP 257.25), Orlando, FL— Florida's Turnpike Enterprise** **Roadway Engineer** responsible for various tasks, including the Tandem Truck Lot designs, changing curb and gutter designs, running AutoTURN, and assisting with plans production for roadway, temporary traffic control and S&PM. H&H is the prime consultant for this complex 4-level interchange in a constrained environment. The project includes new direct systems ramps, braided ramps, a relocation of SR 528, and modifications to adjoining interchanges, including a Diverging Diamond interchange on Consulate Drive. As part of the design development, the design team worked closely with Turnpike traffic engineers to refine the design to include: an additional southbound Collector Distributor Road to relocate weaving from the mainline; reconfiguration of a low-volume ramp to economize the design; and development of a 3-project phasing plan to deliver incremental improvements as needed with packaging less $200 million. In addition to managing the design of the project, H&H is responsible for roadway, bridge, drainage signing and pavement markings, and toll design, which included six new All Electronic Tolling Sites.
04/22 – Present	**Professional Transportation & Stormwater Engineering Services, Manatee County, FL – Manatee County** **Roadway Engineer** assisting with the plans production for task work orders as part of multidisciplinary GEC contract. Assignments under this contract include roadway and drainage improvements. Arterial projects include 27th Street East Improvements.
01/21 – Present	**Transportation Professional Engineering Services IDIQ, Pinellas County, FL – Pinellas County** **Roadway Engineer** assisting with the plans production for task work orders as part of multidisciplinary GEC contract. Assignments under this contract include culvert replacement, drainage studies, sidewalk design, roadway resurfacing and post design services. Arterial projects include: • 46th Avenue N Sidewalk Design from W of Drainage Outfall along 55th Street N to 49th Street N: Ms. Blakely is assisting with roadway and temporary traffic control plans production. This project consists of reconstruction of the existing roadway, extension of the existing box culvert in both directions, construction of Americans with Disabilities Act (ADA) compliant sidewalks, curb ramps, and driveways on both sides of the road. The project also involves incidental work along 46th Avenue North, from west of the drainage outfall along the 55th Street North right-of-way to 49th Street North (a length of approximately 0.5 miles). H&H is responsible for roadway and sidewalk design, structural design, traffic control, and signing and pavement marking. • 46th Avenue N Sidewalk Design from 49th Street to Lown Street North: Ms. Blakely is assisting with plans production to evaluate the shoulders, ADA compliant sidewalks, multi-use path, curb and gutter, street lighting, on-street parking as well as intersection and drainage improvements. The project will also extend the sidewalk along 40th Street North from 46th Avenue North to north of Lown Street and connect to the park entrance. Floodplain, environmental and utility impacts from these improvements were also evaluated.
01/21 – 01/23	**SR 710/Beeline Highway from Northlake Boulevard to SR 708/Blue Heron Boulevard, Palm Beach County, FL – Florida DOT** **Engineer Intern** assisting with plans production for the expansion and reconstruction of a three-mile divided suburban highway segment, increasing from four to six lanes in each direction, incorporating highway widening improvements along Florida's Turnpike and total replacement of the Turnpike Bridge over SR 710.
09/22 - Present	**First Coast Expressway (SR23) from East of CR 16A Spur to East of CR 209 Design-Build, St. Johns and Clay Counties, FL - Florida DOT** **Roadway Engineer** responsible for assisting with plans production for tolls. The main element of the work is replacement of the Shands Bridge over the St. Johns River. The new bridge is a 9,300 foot-long, four-lane facility with a shared use path. The anticipated project limits along SR 23 extend from approximately 3,900 feet east of CR 16A Spur to approximately 1,900 feet east of CR 209. H&H is scoped to design the substructure and fender system for the new Shands Bridge, the design of one pair of overpass bridges and three toll plazas.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Will Farber, EI	Years of relevant experience with this employer	1
Title	Civil Designer	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		BS / 2018 / Civil Engineering	
Active registration number / state / expiration date		**Engineer in Training:** 33903 / LA / 03/31/2027	
Year registered	2018	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Roadway Designer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
09/24 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Roadway Designer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
10/24 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Roadway Designer** for the design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure adjacent and north of the existing bridge with a new operator house. The project includes rehabilitation of the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. In addition to design of the new bridge, all roadway approaches and intersections in the vicinity of the bridge (eastbound and westbound) will be redesigned to accommodate the new structure. Scope includes development of a Traffic Control Plan.
11/24 – Present	**SR 33 Bridge Replacements, Franklin County, MS – Mississippi DOT** **Roadway Designer** for the Phase A Final Right-of-Way Plans for roadway design and roadway hydraulic design for four bridge replacements along SR 33 (Bridge Nos. 31.9, 34.6, 34.9, and 35.3). The project scope includes roadway realignment, roadway hydraulic design, preliminary right-of-way design, and final right-of-way design. H&H is providing the realignment of the roadway to run parallel to the existing and redesigning of one intersection at the end of the project. A hydraulic study and report is to be completed to resize the existing pipes, if necessary, and to verify sizing for a reinforced box culvert. A set of preliminary right-of-way plans are to be created following MDOT's guidelines and using the approved alignment from MDOT. Final right-of-way plans will be delivered after hydraulic design and roadway design have been finalized and a plan set has been created.
09/24 – Present	**H.009730.5 SNBI Data Collection, Statewide, LA – LADOTD** **Roadway Designer** for retrieving, verifying, and entering the Specifications for the Nation Bridge Inventory (SNBI) data into InspectX for the bridges statewide for Louisiana Department of Transportation and Development (LADOTD). Tasks include review of pertinent documents such as rehabilitation plans, as-built plans, shop drawings, and inspection reports. These documents will be obtained from various LADOTD offices including General Files, Bridge Design Section, Bridge Maintenance Section, and District offices. Necessary information will be collected from the site when such information is unavailable from the plans.

11/18 – 10/20	**Dynamic Roadway Evaluation of Various Bridges & Freeways, Statewide Delaware & San Francisco, CA –DelDOT & Caltrans** **Civil Designer** for this roadway evaluation project. The project consisted of using Soundar to evaluate roadways while in motion. The Soundar is a mobile ultra-seismic sounding device that consists of 12 hammers and a microphone used to collect sounding data as it is pulled behind a truck traveling at about 10 mph. Will operated the Soundar machine, made repairs as necessary, and analyzed the results. Will worked on several parts of Delaware's interstate system as well as a few bridges in the San Francisco Bay area.
06/20 – 07/20	**Nondestructive Evaluation of Brazos Dam, Possum Kingdom, TX – Brazos River Authority** **Civil Designer** for the nondestructive evaluation of the Brazos dam. Will was responsible for taking concrete and rebar core samples of the base of the dam.

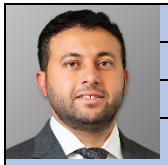
16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Raymond Mankbadi, PE	Years of relevant experience with this employer	19
Title	Director Geotechnical Engineering	Years of relevant experience with other employer(s)	28
Degree(s) / Years / Specialization		M.S. / 1985 / Civil Engineering B.S. / 1978 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 41609 / LA / 9/30/2027	
Year registered	2017	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Geotechnical Design Engineer **– Meets MPR 6**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Lead Geotechnical Engineer** for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Ave Bridge, a movable Strauss-heel trunnion bridge. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920 bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure.
01/19 – Present	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Lead Geotechnical Engineer** for a six-lane bascule bridge parallel and adjacent to the existing bridge. The new bridge will carry three westbound lanes and the existing bridge will be modified to carry three eastbound lanes plus a pedestrian and bicycle path. The project scope includes the design of a new three-lane double-leaf bascule bridge and approach spans that will be north of and parallel to the existing bridge, as well as design modifications to the existing bridge to reconfigure it to include three eastbound lanes plus a pedestrian and bicycle path.
04/17 – Present	**I-395 Segmental Bridges**, **Miami, FL – Florida DOT** **Geotechnical Technical Advisor** for the design of the superstructure and performing the load ratings. H&H is designing seven new precast segmental bridges that are a part of the SR 836 / I-95 / I-395 corridor upgrade. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Construction is scheduled to be completed in late 2027.
06/19 – 09/20	**SR-605 Bascule Bridge over Industrial Waterway, Gulf Port, MS – Mississippi DOT** **Lead Geotechnical Engineer** responsible for design, plan review, and quality control for full rehabilitation design of the SR-605 bascule bridge as a task-order to the IDIQ Master Bridge Contract. The scope includes engineering assessment; mechanical, electrical, and structural designs; and preparation of Traffic Control Plans. All designs will be completed in accordance with AASHTO, FHWA, and MDOT guidelines and specifications.
03/18 – 06/19	**SR-609 Bascule Bridge Rehabilitation, IDIQ Master Bridge Design Contract, Ocean Springs, MS – Mississippi DOT** **Lead Geotechnical Engineer** responsible for generator foundation design of SR-609 bascule bridge as a task-order to the IDIQ Master Bridge Contract for standard and special bridge services statewide. The scope of work included inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches, and development of maintenance and repair plans.

11/20 – 01/21	**Four Tunnel Inspections as per TOMIE Manual, New York, NY – New York City DOT** **Lead Geotechnical Engineer** for the in-depth inspection and condition assessment of the 1st Ave and Park Ave tunnels as part of a broader NYCDOT ESA assignment. These findings were documented in a Routine Inspection Report format developed by H&H in conjunction with NYCDOT, including prioritized recommendations for further maintenance and rehabilitation. In addition to the inspection. Inspection reports were prepared to SNTI and TOMIE specifications.
02/12 – 03/13	**Study & Preliminary Design for RFK Bridge to Northbound Harlem River Dr (RK-23), New York, NY - Triborough Bridge and Tunnel Authority** **Lead Geotechnical Engineer** responsible for the feasibility study for a new ramp to provide a direct connection from the RFK Bridge to the northbound Harlem River Dr located in the Borough of Manhattan, New York City. The need for the proposed connector ramp results from vehicular movement experiencing delays, local congestion, and local community pollution. The study evaluated various alignment alternates for a one way, one lane passenger vehicle ramp operation with provision for passing a stalled vehicle by another of the same type for a design speed of 35 mph. The structure is anticipated to carry an ADT over 19,000 vehicles per day. The study identified the most prudent and feasible alternatives to provide a direct connection from the RFK Bridge to northbound Harlem River Dr. Design of the new structure must meet current standards to the extent possible, while also avoiding, lessening, or mitigating impacts and effects to surrounding properties and jurisdictions.
02/14 – 12/16	**Rehabilitation of Swing Bridge (BNSF #32.06) over Bayou Des Allemands | Des Allemands, Lafourche & St. Charles, LA - BNSF Railway Co.** **Lead Geotechnical Engineer** for a 90-ft. single track swing span, two jump spans, and ten approach spans of prestressed concrete box beam, crosses the Des Allemands Bayou in Des Allemands, LA. The 90-ft. swing span was replaced on the existing substructures which were reinforced by adding micropiles. Two jump spans were rehabilitated as well. H&H provided professional engineering services for the development of final bridge and track designs, permitting, construction contract documents, construction management and construction support for the rehabilitation of the bridge. The estimated construction cost is about $15 million. The project included the replacement of spans all associated mechanical and electrical components as well as evaluation, rating and improvement of swing span substructure and foundations.
05/12 – 06/13	**Design-Build for RFK Bridge Manhattan-Queens Ramp Replacement (RK-73), New York, NY - Triborough Bridge and Tunnel Authority** **Lead Geotechnical Engineer** in charge of preparing subsurface investigation, foundations design, seismic retrofit design of permanent and temporary foundation, and developing geotechnical report. The RK-73 project included the design and construction of Ramp MQ of the Robert F. Kennedy Bridge through a design-build contract on Randall's Island. The ramp replacement included roadway widening and seismic design retrofit.
01/12 – 10/16	**Garden State Pkwy SB & NB Bridges over Great Egg Harbor & Drag Channel, Atlantic & Cape May Counties, NJ - NJ Turnpike Authority** **Lead Geotechnical Engineer** responsible for all geotechnical aspects of the design and construction including pile foundation design, soil improvement, sign structures, retaining walls, reinforcement embankment on soft soils and instrumentation for two new bridges crossing Great Egg Harbor and Drag Channel. ($140M). The project also included cofferdam for deep water and water nose mitigation for protection of the fish. Prestressed Concrete piles were utilized in the foundations and CMC for soil improvement. All work was performed in accordance with AASHTO LRFD Bridge Specifications and FHWA Geotechnical Engineering Manuals and Circulars.
12/11 – 05/17	**Flagler Memorial Bascule Bridge Replacement Design/Build, West Palm Beach, FL – Florida DOT** **Geotechnical Engineer of Record** responsible for all geotechnical aspects of the design and construction including subsurface investigation program development, foundation design, cofferdam, geotechnical analysis, and report preparation. This project consisted of complete replacement of the existing bridge with a new four-lane divided bridge. 60-in. diameter drilled shaft embedded in overburden soils with post grouted tip are utilized to support new bridge structure and the approach roadway embankment are supported on 36-in. diameter drilled caissons.
11/19 – Present	**Geotechnical Engineering and Engineering Geology Staff Augmentation, Statewide, NJ – New Jersey DOT** **Project Manager** responsible for maintaining the team's budget, schedule, and scope of work and for the quality management of all work efforts – analyses, reports, and design plans and specifications. The work performed under this agreement includes the development of an Asset Management Database for retaining walls constructed within NJDOT ROW, as well as rock slope stability analysis and condition surveys of all previously installed mechanical rockfall mitigation and developing remaining service life estimates. Efforts under this task order agreement include Geotechnical Data Management System (GDMS) Review, and Quality Control and Quality Assurance Services on as-needed basis for the Engineering Geology Unit.

16. Staff Experience:



Firm employed by	Hardesty & Hanover		
Name	Arsanious Guirguis, PE	Years of relevant experience with this employer	14
Title	Geotechnical Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		MS / 2014 / Geotechnical Engineering BS / 2011 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 41969 / LA / 03/31/2026	
Year registered	2017	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Geotechnical Design Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/19 – 06/19	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Geotechnical Engineer** for a six-lane bascule bridge parallel and adjacent to the existing bridge. The new bridge will carry three westbound lanes and the existing bridge will be modified to carry three eastbound lanes plus a pedestrian and bicycle path. The project scope includes the design of a new three-lane double-leaf bascule bridge and approach spans that will be north of and parallel to the existing bridge, as well as design modifications to the existing bridge to reconfigure it to include three eastbound lanes plus a pedestrian and bicycle path. H&H's preliminary design work included a visual structural inspection of the fracture critical elements, primary and secondary structural members, as well as electrical and mechanical systems inspections.
01/23 – Present	**Replacement of the Park Avenue Viaduct Design-Build, New York, NY – Metropolitan Transit Authority** **Lead Geotechnical Engineer** providing design-build services for the full replacement of the Park Avenue Viaduct between the north side of East 115th Street and the south side of East 123rd Street along Park Avenue. The section of the Viaduct to be replaced within the scope of this project is an elevated steel structure, between Bent 21 and Bent 53, carrying four, third rail powered tracks. Approximately 750 trains per day travel the Harlem, Hudson, and New Haven lines on the Viaduct to enter Grand Central Terminal servicing hundreds of thousands of customers per day. Mr. Guirguis is responsible for the foundation design that comprised of 16-inch diameter micropiles socketed into bedrock constructed below the existing Park Avenue Viaduct structure while in service in low overhead room conditions. Also responsible for the subsurface exploration program, load testing program, preparation of foundation design reports, and CSS submittals and field work falling under the geotechnical discipline.
05/22 – 12/22	**New Bridge Superstructure Replacement, Woolwich-Wiscasset, Maine – Maine DOT** **Geotechnical Engineer** providing all geotechnical engineering design and construction services required for the rehabilitation of this 33-foot single-span bridge. The existing bridge carries two lanes, with a timber deck and timber railing on steel stringers. The existing integral abutments are comprised of concrete caps on steel piles and are to remain. The proposed is a single span multi-steel girder bridge with cast-in-place deck. Mr. Guirguis is responsible for analyzing the existing substructure, integral abutments, and pile foundation design.
08/12 – 10/18	**Harlem River Drive Viaduct over East 127th Street, New York, NY – New York City DOT** **Geotechnical Bridge Engineer** responsible for providing field inspection of borings as well as rock corings and overseeing crosshole seismic testing. Assisted in preparing subsurface (boring) investigation, created final bore logs and subsurface profile, and developed geotechnical report. Geotechnical Engineer in charge of preliminary design and final design of pier foundations (drilled shafts). Also, responsible on all responses related to geotechnical Request for Information and submittals. Engineer in charge of reviewing and inspecting all drilled shaft load tests (O-Cell's), video inspection of rock socket and drilled shaft remediation. Provided field engineering support as required to resolve technical and construction issues. The Harlem River Drive project included the full replacement of the ten-span Harlem River Drive Viaduct over the entrance ramp at East 127th Street in the Borough of Manhattan.

03/18 – 03/20	**Promenade over FDR Drive from East 81st Street to East 90th Street, New York, NY – New York City DOT** **Lead Bridge Geotechnical Engineer** for a project involving the rehabilitation or replacement of superstructure and substructure elements. The scope also includes protection or replacement/relocation of all utilities on the structure as well as protection or replacement/relocation of all electrical and mechanical systems within the project limits; landscape design; ADA compliance; and new pedestrian. Reconstruction and repair of structural elements required work from the top of the promenade deck within the park and from the southbound FDR Drive roadway level located beneath the promenade. Maintenance of vehicular, pedestrian, and bicycle traffic throughout construction was a critical concern. Constructability and staging guided the overall approach to the project.
04/22 – Present	**Tuttle Road Bridge, Cumberland, Maine – Maine DOT** **Geotechnical Engineer** providing all geotechnical engineering services required for the design of the replacement of this two-lane, nine span structure carrying Tuttle Road over I-295, Route 1, and a railroad track. Project scope includes a Preliminary Design Report, preliminary design, final design, and construction support services. Mr. Guirguis is responsible for embankment design with lightweight fill, pile foundation design, and inspection of borings.
08/21 – Present	**Northfield Bridge Replacement, Northfield, VT – Vermont Agency of Transportation** **Lead Geotechnical Engineer** for this three-span bridge replacement project. The proposed structure is a single span multi-girder integral abutment bridge located in downtown Northfield. The bridge replacement will take place during a 12-week traffic closure and utilizes ABC methods to accelerate construction. Mr. Guirguis was responsible for administering the subsurface exploration program, preparing the lab assignment, developing the geotechnical design report that included characterizing the subsurface conditions, evaluating proposed foundation alternatives, presenting a foundation recommendation and discussing construction considerations. The foundation evaluation for the proposed integral abutments comprised of a single pile analysis using L-Pile following VTrans design guidelines and axial geotechnical pile capacity analysis.
10/19 – 10/21	**Design-Build for Access Improvements to the Hunts Point Interstate, Contract 1, Bronx, NY – New York State DOT** **Geotechnical Engineer** involved in reviewing Geotechnical related design and CSS submittals. This is a $1.7 billion, 3-phase design-build project to improve access between the Hunts Point Peninsula and the Sheridan and Bruckner Expressways for vehicular traffic and to address structural and operations deficiencies related to the existing infrastructure. The project includes 12 bridges and viaduct structures, and the site covers more than 1.5 miles of existing infrastructure including highways, expressways, services roads and city streets, parkland, and pedestrian accessways.
04/15 – 10/18	**Structural Rehabilitation of Four Overhead Bridges, Mount Vernon, NY – Metro-North Railroad** **Geotechnical Engineer** for a project involving the superstructure replacement and substructure rehabilitation of the following four overhead vehicular bridges spanning the Metro-North tracks in the City of Mount Vernon, New York: 6th Avenue Bridge (NH 13.51): a 61-feet span steel through girder bridge; 10th Avenue Bridge (NH 13.31): a 106-foot span steel deck truss bridge; 14th Avenue Bridge (NH 13.10): a 92-foot span steel pony truss bridge; Fulton Avenue Bridge (NH 14.07): a 159-feet span through truss bridge. Mr. Guirguis is responsible for the subsurface (boring) investigation and developing a geotechnical report for each bridge. He is in charge for designing rock anchors to resist current seismic loads and provided an assessment of the existing foundation's ability to support new bridge loads.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Victor Minerva, AICP, PP	Years of relevant experience with this employer	6
Title	Environmental Manager	Years of relevant experience with other employer(s)	28
Degree(s) / Years / Specialization		MS / 2000 / Urban Planning BS / 1988 / Geography	
Active registration number / state / expiration date		33LI00580100 / NJ / 5/31/2026	
Year registered	2004	Discipline	Environmental
Contract role(s) / brief description of responsibilities		Environmental Manager	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
04/21 – 01/23	**Bronx River Parkway Bridge Replacement, Site B, Bronx, NY – New York State DOT** **Principal Planner** responsible revising the 2008 FDR report, ensuring conformance with new NYSDOT design report standards as well as NEPA/SEQRA requirements for a project to replace three bridges on the Bronx River Parkway, and create a new shared use path. Updated the environmental sections, which included traffic, air quality, noise, Section 106, endangered and threatened species, and Section 4(f). Developed a public engagement plan for environmental justice communities.
12/21 – Present	**Cross Bronx Expressway Corridor Improvements, Bronx, NY – New York State DOT** **Principal Planner** responsible for preparing the DDR/FDR report documenting the environmental impacts (including an environmental assessment in accordance with NEPA/SEQRA standard) for the replacement/rehabilitation of five bridges, construction of a new ramp and the development of a new multi modal connector roadway. Specific responsibilities include preparation of the preliminary and final design reports, updating the environmental assessment which involves sections on endangered and threatened species, Section 106, Section 4(f), and Section 6(f), as well as consultant coordination, and leading the public involvement process which involves an EJ assessment and targeted outreach to the EJ community.
10/20 – 10/23	**Highway Safety Investigations, Various Locations, Nassau, and Suffolk Counties – New York State DOT** **Principal Planner** responsible for preparing the DDR/FDR report documenting the environmental impacts (including an environmental assessment in accordance with NEPA/SEQRA standards) at two locations within Nassau and Suffolk Counties. The project involves improving traffic safety by introducing intersection improvements at the two locations. Specific responsibilities included preparation of the preliminary and final design reports as well as overseeing the development of a Public Involvement Plan and presentation materials that was used for an EDPL meeting (which was conducted in-person as well as virtually).
03/20 – 06/23	**Hempstead Hub Review, Hempstead, NY - Town of Hempstead, NY** **Project Manager** responsible for overseeing the review of an expanded environmental assessment related to the development of a conceptual master plan for the Nassau Hub Innovation District. Work includes reviewing all the chapters of the master plan with a focus on traffic, parking, and zoning requirements, and the preparation of a negative declaration.
06/20 – 04/22	**Storm Drainage Improvement Project, Various Locations, Suffolk County – New York State DOT** **Principal Planner** responsible for preparing the DDR/FDR report documenting the environmental impacts (including an environmental assessment in accord with NEPA/SEQRA standards) at six locations within Suffolk County. The project involved improving debilitated drainage systems at the six locations to eliminate periodic localized flooding. Specific responsibilities included preparation of the scoping, preliminary, and final reports, as well as consultant coordination, and leading the public involvement process.

10/23 – Present	**NYSDOT Misc, Term Agreement for Railroad Design Services, Statewide, New York – NYSDOT Capital Rail Projects Group** **Project Manager**. As a first assignment, reviewed existing Categorical Exclusion (CE) and Section 106 documentation that was developed by NYSDOT/Amtrak for the Rhinecliff Station Platform and Interlocking Project, and comments from the Federal Railroad Administration (FRA) on both documents. Reviewed 60% plan set and all related technical studies (drainage, noise and vibration analysis, hazardous materials, wetlands, Section 7 ESA, and floodplain mapping.) and then updated the CE and Section 106 documentation for resubmittal to FRA. Attended weekly/biweekly coordination meetings with NYSDOT, Amtrak, and FRA. Assisted NYSDOT with developing an updated schedule to advance the project to final design.
11/18 – 12/19	**East Norwalk TOD Study, Norwalk, CT – Harriman Associates** **Senior Transportation Planner** responsible for analyzing existing transportation conditions (including traffic, transit, and bicycle/pedestrian activity) around the East Norwalk Train Station and then developing recommendations to improve mobility in support of a range of TOD alternatives. Subconsultant to Harriman Associates.
02/19 – 12/19	**Mamaroneck Comprehensive Plan Update, Mamaroneck, NY – Village of Mamaroneck, NY** **Project Director** responsible for overseeing an update of the Village's 2012 Comprehensive Plan. The focus of the update was on sustainability, residential zoning, and any resulting changes to SEQRA. The plan included recent planning initiatives, an update of demographic data, and an increased focus on sustainability and resiliency.
05/14 – 02/16	**W.A.T.E.R. NEPA, Waterbury, CT – City of Waterbury, CT** **Deputy Project Manager** responsible for overseeing the preparation of a Categorical Exclusion with Documentation for the Waterbury Active Transportation Resurgence Project, as part of the NEPA process which was required so that the project could move into final design. The project which was funded through a Federal Tiger Grant involved constructing an integrated system of "active transportation" improvements including a reconstructed and expanded network of local streets, and a comprehensive array of pedestrian/bicycle safety improvements and linkages, all of which was designed to better connect downtown to the historic McKim, Mead & White designed train station and riverfront. NV5's environmental analyses included identifying existing conditions, potential impacts, and mitigation strategies related to archeological resources, air quality, noise, hazardous materials, traffic, etc.
11/07 – 01/09	**Expansion of the Southeast Parking Lot, Southeast, NY – Metro-North Railroad** **Project Manager** responsible for developing a conceptual parking plan for Southeast Station in Westchester County, NY. The plan involved a site assessment, the development of conceptual alternatives including a parking garage, and capital cost estimates.
03/17 – 05/19	**Downtown Hicksville Complete Streets, Hicksville, NY – New York State DOT** **Principal Planner** responsible for assisting in improving the accessibility and safety for all modes of transportation, including motorists, pedestrians, transit riders, and cyclists in downtown Hicksville including the area around the Hicksville LIRR train station. With respect to public outreach responsibilities included lead the development of a project website to keep local residents, commuters, businesses, and other stakeholders informed about the project and facilitating public workshops that included an open house format as well as a more formal public presentation. The website featured "Wikimapping," through which the public identified precarious intersections and site-specific opportunities to improve safety.
01/21 – 8/22	**On-Call Planning Advisory Services, Lynbrook, NY – Village of Lynbrook, NY** **Project Manager** responsible for providing on-call planning advisory services to the Village of Lynbrook, NY. Specific services include reviewing development applications with respect to zoning, landscape, traffic circulation, and lighting, as well as more formal traffic impact analyses.

16. Staff Experience:

<table>
<tr><td rowspan="6">  </td><td colspan="2">Firm employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>J. Lee Adams, PE</td><td>Years of relevant experience with this employer</td><td>17</td></tr>
<tr><td>Title</td><td>Water Resources Engineer</td><td>Years of relevant experience with other employer(s)</td><td>13</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="2">BS / 1995 / Civil Engineering</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="2">Professional Engineer: 41739 / LA / 09/30/2027</td></tr>
<tr><td>Year registered</td><td>2017</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Senior Hydraulics Engineer</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="5">Experience and qualifications relevant to the proposed contract; i.e., “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the years of experience specified in the applicable MPR(s).</td></tr>
<tr><td>11/20 – Present</td><td colspan="5">H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD
Hydraulics Engineer for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H’s 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.</td></tr>
<tr><td>01/22 – 12/22</td><td colspan="5">H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD
Hydraulics Engineer for the design of a six-lane bascule bridge parallel and adjacent to the existing bridge. The new bridge will carry three westbound lanes, and the existing bridge will be modified to carry three eastbound lanes plus a pedestrian and bicycle path. Project scope includes the design of a new three-lane double-leaf bascule bridge and approach spans that will be north of and parallel to the existing bridge, as well as design modifications to the existing bridge to reconfigure it to include three eastbound lanes plus a pedestrian and bicycle path. H&H’s preliminary design work included a visual structural inspection of the fracture critical elements, primary and secondary structural members, as well as electrical and mechanical systems inspections. Responsible for evaluating the scour susceptibility of the sites planned improvements.</td></tr>
<tr><td>09/15 – Present</td><td colspan="5">Route 42 Bridges over Blackwood Railroad Trail, Gloucester, Camden County, NJ - New Jersey DOT
Deputy Project Manager/Stormwater Management Task Leader responsible for coordinating all disciplines in the preparation of Preliminary Engineering services. The project involved replacing a pair of three-span, fixed bridges conveying the northbound and southbound freeways over the former railroad ROW, with a single tunnel structure, in accordance with NJDOT and NJDEP requirements. Multistage construction and extensive utility relocation was involved. The project included acceleration and deceleration lane improvements and triggers State Storm Water Management Rules due to proposed impervious coverage. Design work was performed in accordance with the NJDEP regulations at NJAC 7:8. NJAC 7:13 compliance is also a factor as several storm outfalls discharge to the regulated floodplain. Prepared highway spread calculations and developed storm water management plan involving stormwater pipe hydraulic grade line. Calculations were performed using rational method in accordance NJDOT RDM Chapter 10. Prepared the design of storm water management detention and retention basin for water quality, quantity, and recharge. Utilized NRCS TR-55/TR-20 flood routing calculations and methodologies to size basin and outlet features. Recharge requirement was evaluated using the State’s NJGRS Spreadsheet. Water quality was achieved by retaining the water quality storm event beneath the low-level outlet. Quantity reduction was achieved by detaining storms in excess of the WQ event. Developed Storm Water Management Plan per the Storm Water Management Regulations. Work required experience in NJDEP Flood Hazard Control Act and Storm Water Management Regulations.</td></tr>
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01/23 – Present	**Rehabilitation of Dock Bridge, Newark, Essex County, NJ - Amtrak** **Lead Hydraulics & Hydrology Engineer** for the rehabilitation design of Dock Bridge, a complex, three-span-driven vertical lift rail bridge that crosses the Passaic River between Newark and Harrison. The purpose of the project is to bring the bridge to a state of good repair. Responsible for securing NJDEP Waterfront Development Permitting and USACE Nationwide Permits.
10/17 – 10/18	**Rehabilitation of Route 202 Bridge over Housatonic River, Litchfield County, CT – Connecticut DOT** **Lead Hydraulics Engineer** for the rehabilitation of the Connecticut DOT Route 202 over Housatonic River. The bridge is a single span simply supported Pratt through truss variant carrying two lanes of traffic. Constructed in 1953, this steel truss bridge is comprised of a combination rolled and built-up truss members framed into riveted gusset plates. The site is subject to flood flows that carry woody debris and inundate the span. Mr. Adams assessed the debris loading risk, modeled design flows, and estimated lateral hydraulic forces on the superstructure to assist the structural design team with bridge seat rehab design.
05/16 – 06/20	**Bridge Street Bridge over Passaic River, Newark & Harrison, NJ – North Jersey Transportation Planning & Authority** **Hydraulics Team Leader** responsible for evaluating stream stability and coastal site conditions for the existing bridge and replacement alternatives for the federally funded Local Concept Development (LCD) phase for major rehabilitation or replacement of this deteriorating swing span bridge. Mr. Adams also evaluated stormwater management system operation, capacity impacts, and environmental permitting implications for same.
08/23 – Present	**Phase II – Hydraulic Analysis and Scour Evaluation of Various Turnpike & Parkway Bridges, Statewide, NJ – New Jersey Turnpike Authority** **Project Engineer and Lead Hydraulics Engineer** for the Phase II scour evaluation of two major bridges and 33 routine bridges over waterways on the NJ Turnpike and the Garden State Parkway facilities. Phase II Scour Evaluations are being performed in accordance with FHWA Hydraulic Engineering Circular No. 18 (HEC-18), "Evaluating Scour at Bridges" that includes preparation of individual report for each bridge. Work efforts involve preparation of field inspection, geotechnical sample collection, Hydrologic and Hydraulic Analysis, Scour Analyses, Foundation Stability Assessment, and a prioritized list of bridges recommended for development of a Plan of Action and/or Scour Countermeasure design and construction.
11/21 – Present	**Replacement of Structure No. W112.72B/Interchange 16W–Ramp over Berry Creek Canal, Bergen County, NJ – New Jersey Turnpike Authority** **Lead Hydraulics Engineer** for the preliminary and final engineering design to replace the existing structure with a three-span continuous steel girder bridge supported on deep foundations and the rehabilitation of a culvert (Str. #W112.26). As lead hydraulic engineer, developed SMS SRH-2D global model to estimate and route the tidal prism and define the boundary conditions in accordance with HEC-25 methodologies. Developed finer detailed 2D model to determine proposed bridge scour parameters and estimate scour per HEC-18 for tidal bridges in cohesive materials.
12/12 – 12/13	**Rumson – Seabright Bridge Over Shrewsbury River, Monmouth County, NJ – County of Monmouth** **Hydraulics Engineer** responsible for evaluating scour vulnerability for the existing Rumson Road Bridge S-32 and several replacement alternatives during the Local Concept Development Phase. Prepared cost estimates for scour countermeasure alternatives and performed field condition inspection of bridges and culverts. Performed hydraulic vulnerability analysis per NJDOT guidance and developed hydraulic modeling per FHWA's HEC-25 guidance. During Preliminary Design, responsible for assessing stormwater management NJDEP regulatory requirements, evaluating existing system capacity, and designing stormwater system improvements for the Preliminary Engineering Phase of work. Prepared final design stormwater system improvements and prepared the final bridge hydraulics analysis, including modeling tidal hydraulic conditions during the stages of construction, and supported the engineering effort necessary for NJDEP Waterfront Development, USCG, and USACE permitting.
01/22 – 12/22	**Strong River Scour Analysis, Scott, MS – Mississippi DOT** **Sr. Hydraulics Engineer** for hydrology and hydraulics to perform a qualitative and quantitative analysis of the channel and develop a Scour Analysis Report according to MDOT's Bridge Scour Evaluation Study Phase I & II guidelines. The two-phase approach began with preliminary findings and conclusions based on a survey of conditions and application of simple geomorphic concepts. This initial data collection phase supported the second phase, which was dedicated to engineering analysis and quantitative measurements of the structure and surrounding environment.
05/17 – 12/20	**Route 25A Bridge Over Brackett Brook, Grafton County, NH – New Hampshire DOT** **Supervising Hydraulics Engineer** for the rehabilitation or replacement of this NHDOT Red Listed bridge. Responsible for supervising the hydrologic and hydraulic analysis necessary to define the floodplain, floodway, and existing conditions; determine design loads, scour depths; and provide quality control. The two-span concrete deck bridge was in poor condition and considered scour critical during floods. Scope of work included an engineering feasibility study and report detailing type, span, and location (TS&L); preliminary and final design; permitting; and construction support services.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	John Witthohn, PE	Years of relevant experience with this employer	9
Title	Hydraulics Engineer	Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		BS / 2003 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 41575 / LA / 09/30/2025	
Year registered	2017	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Hydraulics Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
11/20 – Present	**H.014530: Almonaster Ave Bridge Rehabilitation and New Connector Road, New Orleans, LA - Port of New Orleans/LADOTD** **Hydraulics Engineer** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Ave Bridge and a new connector road. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed that improvements to the electrical and mechanical systems, superstructure, and the connecting roads were required to return this bridge to its full operating capability. The road design services included a new alignment for the connecting road including all drainage structures. H&H also developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.
01/22 – 12/22	**H.004396 Lapalco Blvd Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana - Jefferson Parish DPW/LADOTD** **Hydraulics Engineer** for the design of a six-lane bascule bridge parallel and adjacent to the existing bridge. The new bridge will carry three westbound lanes, and the existing bridge will be modified to carry three eastbound lanes plus a pedestrian and bicycle path. Project scope includes the design of a new three-lane double-leaf bascule bridge and approach spans that will be north of and parallel to the existing bridge, as well as design modifications to the existing bridge to reconfigure it to include three eastbound lanes plus a pedestrian and bicycle path. H&H's preliminary design work included a visual structural inspection of the fracture critical elements, primary and secondary structural members, as well as electrical and mechanical systems inspections. Responsible for evaluating the scour susceptibility of the sites planned improvements.
03/23 – Present	**NJ Route 179 Bridge Replacement over Back Brook, Hunterdon County, NJ – New Jersey DOT** **Hydraulics Engineer** for the Conceptual Design of the replacement of Route 179 Bridge over Back Brook. Responsible for hydrologic and hydraulic analysis of existing and proposed bridge hydraulics, and the design of a wider bridge opening to provide natural stream banks and terrestrial species passage in compliance with NJDEP Flood Hazard Area rules on threatened and endangered species in fragmented habitat, in accordance with NJAC 7:13.
01/22 – 12/22	**Strong River Scour Analysis, Scott, MS – Mississippi DOT** **Hydraulics Engineer** responsible for hydrology and hydraulics to perform a qualitative and quantitative analysis of the channel and develop a Scour Analysis Report according to MDOT's Bridge Scour Evaluation Study Phase I & II guidelines. The two-phase approach began with preliminary findings and conclusions based on a survey of the conditions and the application of simple geomorphic concepts. This initial data collection phase supported the second phase, which was dedicated to engineering analysis and quantitative measurements of the structure and its surrounding environment. H&H performed a hydraulic analysis, evaluated the stability of the channel, and assessed scour depths for the dual-bridge crossing and recommended NBIS Item 113 coding.

12/19 – 01/22	**East Haddam Swing Bridge over the Connecticut River Rehabilitation, Haddam, CT – Connecticut DOT** **Hydraulics Engineer** responsible for the rehabilitation of this 4-span truss swing bridge. The bridge, which opened in 1913 and has been posted on the National Register of Historic Places, carries two lanes of Route 82 traffic over the Connecticut River and includes a deck truss span, through truss span, and a 465-foot-long through truss swing span. Rated elements included gusset plates, pins, tension and compression members, truss chord box members subject to bending, floorbeams, and stringers. The structural feasibility study evaluated the addition of an external sidewalk to allow pedestrian access across the bridge, which has a narrow 24.5-foot roadway. Responsibilities include design coordination and development for all architectural components of the project.
10/18 – 06/19	**Grand Avenue Bridge over Quinnipiac River, City of New Haven, CT – Connecticut DOT** **Hydraulics Engineer** responsible for performing independent technical reviews and QA/QC reviews of the hydrologic and hydraulic analyses, and the bridge scour analysis for the rehabilitation or replacement design of this bridge. The multi-span moveable bridge is in poor condition and certain piers considered scour susceptible during coastal floods. The bridge superstructure is vulnerable to wind and wave forces during coastal flood conditions, which affects the structural rehabilitation and retrofit of the bridge bearings. John's participation in the review of the hydraulic forces calculations as a result of tidal floods, wind, waves, and debris blockage forces, aided in developing predictions of mean sea-level rise for future resiliency during the project's design life.
05/17 – 12/20	**Route 25A Bridge Over Brackett Brook, Grafton County, NH – New Hampshire DOT** **Hydraulics Engineer** for the preliminary design of the replacement of Rt 25A Bridge over Brackett Brook. Responsible for hydrologic and hydraulic analysis of existing 45°skewed bridge and two proposed bridge spans alternatives in accordance with NHDOT Bridge Design Manual; the design of a wider bridge opening in compliance with NHDES Stream Crossing Guidelines for wildlife continuity and terrestrial species passage; and scour analysis and countermeasure design on the selected alternative. Also prepared the hydraulic sections of the Rehabilitation Study Report (RSR) and the Type Size & Location (TSL) Study Report, currently under review by NHDOT.
01/16 – 07/18	**NJ Route 17, Sprout Brook Culvert Replacement, Paramus, NJ – New Jersey DOT** **Hydraulics Engineer** responsible for Preliminary Engineering Phase and Final Design Phase of hydrologic and hydraulic analysis of existing and proposed drainage conditions of this bridge replacement and highway widening project, and the design of the proposed stormwater management system. The project involves replacing a pair of three-span, fixed bridges conveying the NB and SB freeways over the former railroad ROW, with a single tunnel structure, in accordance with NJDOT and NJDEP requirements.
12/16 – 06/20	**Saugus Draw Bridge Rehabilitation, Saugus, MA - Massachusetts Bay Transportation (MBTA)** **Hydraulics Engineer** responsible for providing conceptual hydrologic and hydraulic analysis and scour evaluation in support of the rehabilitation and/or replacement evaluation of Bridge No. S-05-040 (A53) over the Saugus River, in Essex County. The Saugus Draw Bridge is a multi-span, single-leaf bascule bridge that carries MBTA's Newbury Port/Rockport Commuter Rail Service and freight trains over the river estuary, which is the only bridge linking this "eastern route" with the City of Boston. Responsibilities included the review and evaluation of all existing hydrologic and hydraulic data, tidal records, topographic and bathymetric mapping, and bridge as-built data, in order to provide a bridge scour evaluation suitable for the Conceptual Design Alternatives Analysis phase of this project.
05/17 – 12/20	**Route 25A Bridge Over Brackett Brook, Grafton County, NH – New Hampshire DOT** **Hydraulics Engineer** for the rehabilitation or replacement of this NHDOT Red Listed bridge. Responsible for supervising the hydrologic and hydraulic analysis necessary to define the floodplain, floodway, and existing conditions; determine design loads, scour depths; and provide quality control. The two-span concrete deck bridge was in poor condition and was considered scour critical during floods. Scope of work included an engineering feasibility study and report detailing type, span, and location (TS&L); preliminary and final design; permitting; and construction support services.

16. Staff Experience:

Firm employed by	Hardesty & Hanover		
Name	Lauren Peytavin, EI	Years of relevant experience with this employer	<1
Title	Water Resources Designer	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		MS Certificate / 2021 / Coastal Engineering BS / 2018 / Civil Engineering	
Active registration number / state / expiration date		**Engineer in Training** 33772 / LA / 09/30/2026	
Year registered	2018	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Hydraulics Designer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
05/22 - 01/24	**Almonaster Bridge Environmental Assessment, New Orleans, LA - Port of New Orleans** **Project Designer** responsible for the assessment of the Almonaster Ave. Bridge Rehabilitation and New Connector Road project. The Almonaster Ave Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. Lauren prepared Environmental Assessment/Environmental Impact documentation for the project that meets the criteria for LADOTD, LA DEQ, FHWA, NEPA and all federal and state compliance standards. Lauren was responsible for the analysis and estimation of project impact across a comprehensive panel of criteria, including recommendations of design alternatives as needed. She drew on her experience with roadway construction, wetland, and waterway permits to assist in permit acquisition for the Port of New Orleans for this project.
06/25 – Present	**H.004396 Lapalco Blvd. Movable Bridge over Harvey Canal, Jefferson Parish, LA - Jefferson Parish DPW/LADOTD** **Water Resources Designer** for the design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Blvd. to provide a facility carrying three lanes of traffic in each direction. The new bridge will be constructed as an independent structure adjacent to and north of the existing bridge with a new operator house. The project includes rehabilitation of the existing four-lane bridge with three lanes of traffic and a new pedestrian and bicycle lane, improvements to bridge and roadway approaches, and development of a Traffic Control Plan. John is performing quality control on the roadway elements of this project. All design work is in accordance with LADOTD Standards and Specifications and reviewed by LADOTD.
07/25 – Present	**SR 33 Bridge Replacements, Franklin County, MS – Mississippi DOT** **Hydraulics Designer** for the Phase A Final Right-of-Way Plans for roadway design and roadway hydraulic design for four bridge replacements along SR 33 (Bridge Nos. 31.9, 34.6, 34.9, and 35.3). The project scope includes roadway realignment, roadway hydraulic design, preliminary right-of-way design, and final right-of-way design. H&H is providing the realignment of the roadway to run parallel to the existing and redesigning of one intersection at the end of the project. A hydraulic study and report are to be completed to resize the existing pipes, if necessary, and to verify sizing for a reinforced box culvert. A set of preliminary right-of-way plans are to be created following Mississippi Department of Transportation's (MDOT) guidelines and using the approved alignment from MDOT. Final right-of-way plans will be delivered after hydraulic design and roadway design have been finalized and a plan set has been created.
06/20 - 01/24	**RR082 Lakeshore Group E - Roadway Rehabilitation and Repair, New Orleans, LA - New Orleans Department of Public Works** **Assistant Project Engineer** assisted in the design of the full reconstruction of two blocks of Ring St. in the Lakeshore Neighborhood. Design objectives included removal and replacement of the existing roadway surface, redesign of the roadway profile, and non-paving incidental repairs. Lauren was responsible for cost and materials estimates and preparation of final design plans utilizing AutoCAD Civil3D.

06/25 – Present	**Clay Street Bridge over Passaic River, Newark, NJ - Hudson County New Jersey** **Water Resources Designer** for the Preliminary Drainage Design and Report for the replacement of the Clay Street swing bridge in New Jersey. The project scope includes Hydraulics and Hydrology Report production, including assessment of existing and proposed conditions in compliance with New Jersey Administration Code and New Jersey Department of Transportation engineering standards. Ms. Peytavin created models for Hydrologic assessment and Hydraulic assessment of existing and proposed project affects under prerequisite storm events, quantifying the project in accordance with New Jersey and the Department of Environmental Quality. These regulatory model results were then recorded in a formal report to be submitted in project preliminary planning.
05/23 – 01/24	**Clayton's Pond Drainage Analysis and Design, Norco, LA - St. Charles Parish Dept of Public Works** **Hydraulics Modeler** responsible for review and hydraulic analyses of the hydraulic design models provided by St. Charles Parish in anticipation of survey completion. Lauren evaluated the input elements of the models per expectations of the project area, such as soil quality, storm runoff, design storms, and model scenario output of the existing drainage system in anticipation of updating these models to illustrate Gaea's design recommendations. Lauren coordinated project needs with the St. Charles Parish Department of Public Works, attended conceptual meetings, and facilitated clarification of survey scope on behalf of the subcontractor.
01/22 - 01/24	**Orpheum Levee Slope Pave, New Orleans, LA - Southeast Louisiana Flood Protection Authority** **Project Designer** provided engineering design, drainage analysis, quantifying materials, and cost estimate for approximately 3,000 linear ft. of levee slope pave on the west side of the 17th Street Canal. She designed the pave of the levee slope for the purpose of mitigating rutted slope due to large vehicular traffic along Orpheum Ave. and preserving structural integrity of the levee. Assessed the potential impacts of paving the protected side of the levee on adjacent drainage infrastructure by quantifying storm runoff and time of concentration. She provided full-scope design direction and input, including alternative methods to direct rainfall and runoff, and review of plans for submittal. She also navigated permit requirements for this project.
06/18 - 01/24	**RR031 Dillard A Roadway Rehabilitation and Repair, New Orleans, LA | New Orleans Department of Public Works** **Project Designer** for the engineering and design of 186 blocks of roadway reconstruction, including full road rehabilitation and replacement, utility design, and incidental road repair. Lauren utilized existing survey data to establish new road profiles, performed drainage calculations with HYDRWIN hydraulic computer software developed by the LADOTD, designed upgrades and improvement to the stormwater drainage and incidental road repair, and designed new utilities, including water, sewage, and drainage. Project deliverables included typical sections, summary of quantities, plan and profile sheets, construction cost estimates, and cross-section profiles.
11/17 - 01/24	**RR011 Broadmoor Group C, New Orleans, LA - City of New Orleans** **Project Designer** for this FEMA-funded roadway enhancement and reconstruction project located in the Broadmoor Neighborhood of New Orleans. Lauren assisted in the design of two full block removals and replacements, including surface asphalt, upgrade of utilities including water and storm drainage, implementation of ADA-compliant ramps, and point repairs of the sidewalk and driveways. She utilized drainage calculations, performed with the use of the HYDRWIN for the drainage system design and upgrade. Tasks for this project include site visits, design meetings, design deliverables, and resolution of review comments.
05/18 - 11/21	**Hagan-Lafitte Drainage Design and Green Infrastructure, New Orleans, LA - City of New Orleans** **Hydraulics Modeler** for engineering design and PCSWMM modeling for this large FEMA-funded project to improve drainage and reduce flooding in the Hagan-Lafitte Neighborhood. With the use of the PCSWMM model, Lauren identified areas most vulnerable to flooding within the neighborhood to strategically design and place green and grey infrastructure facilities for the greatest possible flood reduction. She assisted with production of project drawings and flood maps, as well as project inspection while work was under construction.
11/17 - 07/18	**Tennessee River Conditions at RM 260.25 (Wilson Lake) with Respect to Boat Collision with Barge, Lauderdale County, AL - U.S. Army Corps of Engineers** **Hydraulic Data Analyst** performed a forensic analysis of Tennessee River conditions at River Mile 260.25 to determine the cross-sectional velocity distribution at RM 260.25. Lauren evaluated stage and discharge data provided by the Tennessee Valley Authority in conjunction with pool stage data provided by the Navigation Branch of Nashville U.S. Army Corps of Engineers (USACE) to determine velocity at the time and point of interest. She mapped bathymetric survey data provided by the Navigation Branch of the Nashville District USACE in both ArcGIS and AutoCAD software programs.

16. Staff Experience:

Firm employed by	Eustis Engineering L.L.C.		
Name	Gwendolyn P. Sanders, PE	Years of relevant experience with this employer	32
Title	President	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		MS / 1992 / Engineering BS / 1990 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 0027104 / LA / 09/30/2027	
Year registered	1997	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Geotechnical Engineer **– Meets MPR 5**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/11 – 08/16	**Wisner Boulevard Overpass, Orleans Parish, Louisiana (22972, 22637, 21349, 21966) - LADOTD** **Project Manager** helped develop subsoil design parameters at each boring location. These design parameters were used to estimate pile load capacity with ultimate compressive pile load capacity being computed for alternative pile sizes. Precast concrete piles were being considered for support. Other factors considered in our engineering analyses included drag loads due to fill placement, estimated total settlement due to structural loads, pile installation recommendations, and recommended inspection and monitoring of existing structures. Mrs. Sanders was also involved during the construction phase, evaluating the results of dynamic and static load tests for development of installation requirements and verification of permanent pile lengths.
03/20 – 06/25	**I-10 and I-12 College Flyover Ramp Design-Build Project, East Baton Rouge Parish, Louisiana (B0646) - LADOTD** **Principal** overseeing services for this project such as undisturbed borings, auger borings, and cone penetration tests. Eustis Engineering also provided laboratory testing including Atterberg limits tests, hydrometer analyses, and one-dimensional consolidation tests. As Principal, Mrs. Sanders put in over 300 hours on this project to perform senior level review associated with the design and construction services. She participated in weekly progress meetings both with the design team and with the owner representatives.
02/18 – 09/19	**Lake Pontchartrain Causeway, Safety Bay Improvements, Jefferson and St. Tammany Parishes, Louisiana (23800) – Greater New Orleans Expressway Commission (GNOEC)** **Engineering Manager and Project Principal** was involved in the development of the geotechnical scope of work as well as field and laboratory programs. She provided general oversight and review of the engineering analyses during the geotechnical exploration and design including development of the pile data table and testing program. She also provided oversight and evaluation during the construction phase including review of the verification testing of indicator piles and monitor piles as well as adjustment of driving criteria and acceptance criteria.
08/06 – 12/14	**Huey P. Long Bridge Widening, Route U.S. Highway 90, West Bank and East Bank Approaches and Main Bridge Deck Widening, Jefferson Parish, Louisiana (18530, 19483, 20262) - LADOTD** **Project Manager and Lead Geotechnical Engineer** during design and construction. Mrs. Sanders provided design pile and shaft capacity estimates in the engineering/design phase of the project. Prior to construction, she reviewed the geotechnical aspects of the project specifications and provided comments. During construction, she observed/witnessed drilled shaft installations and shaft inspection device (SID) testing prior to concrete placement. She also observed and reviewed the results of pile and shaft load testing and provided final inputs to the pile data tables.

01/12 – 05/19	**Route I-10, Williams Boulevard, Veterans Boulevard, and Loyola Drive to Williams Boulevard, Jefferson Parish, Louisiana, S.P. Nos. H009087.5 and H.003074.5 (21687) – LADOTD** **Project Manager** during the exploration phase of these projects and preliminary design. She assisted with rating determinations of the existing Veterans Boulevard and Duncan Avenue canal bridges and the Loyola Drive and Williams Boulevard overpasses. This rating included recommended resistance factors associated with the available tests to be used to assess the existing structure's ability to meet current Load Resistance Factor Design (LRFD) requirements. Engineering analyses included settlement evaluations for various embankment fill heights and widths, settlement and differential settlement of pile foundations, slope stability of each canal crossing, and ultimate vertical pile capacity estimates. Mrs. Sanders provided senior level review during later project phases when a bridge replacement, rather than widening, was selected. The replacement bridge required the evaluation of a preload/surcharge program that would be implemented in phases to maintain traffic through the corridor during construction.
01/13 – 11/18	**Almonaster Bridge over the Inner Harbor Navigation Canal, New Orleans, Louisiana (22066, .01) – Port of New Orleans** **Project Manager** providing geotechnical analyses which included estimates of allowable vertical pile load capacities at the land borings for support of the proposed bridge replacement and pavement recommendations based on the auger borings. Slope stability analyses were performed for the proposed channel widening and the cofferdam requirements. Lateral load analyses were performed to evaluate the new fender system and bridge support piles. As part of a response to a Value Engineering study, we evaluated the use of drilled shafts. Mrs. Sanders served as the Project Manger during the development of the site exploration and initial meetings among the project stakeholders which included Port NOLA, the Southern Belt Railroad, CSX Railroad, LADOTD, the City of New Orleans, the U.S. Coast Guard, and the U.S. Army Corps of Engineers.

16. Staff Experience:

Firm employed by	Eustis Engineering, L.L.C.		
Name	Travis Richards, PE	Years of relevant experience with this employer	19
Title	Vice President and Senior Project Manager	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		Graduate Certificate / 2018 / Coastal Engineering MS / 2017 / Engineering MS / 2015 / Engineering Management BS / 1998 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 30992 / LA 03/31/2027	
Year registered	2004	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Geotechnical Engineer **– Meets MPR 5**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/20 – 06/25	**I-10 and I-12 College Flyover Ramp Design-Build Project, East Baton Rouge Parish, Louisiana (B0646) – LADOTD** **Quality Reviewer.** Services for this project included undisturbed borings, auger borings, and cone penetration tests (CPTs). Eustis Engineering L.L.C. also provided laboratory testing including Atterberg limits tests, hydrometer analyses, and one-dimensional consolidation tests. Mr. Richards provided quality review of the laboratory testing services and CPT results.
01/21 – Present	**Bayou Barataria Bridge, Jefferson Parish, Louisiana (24515) – LADOTD** **Geotechnical Engineer**. The goal of this project is a full replacement of the Bayou Barataria Bridge. Eustis Engineering obtained relevant permits and land access and drilled 24 borings over water, marsh, and pavement. Geotechnical analyses include vertical and lateral pile analyses, pile scour capacity, lateral load analyses, pile group settlement, ground settlement, settlement surcharge/remediation, retaining wall recommendations, slope stability, and pavement design. Mr. Richards oversaw the laboratory testing services and reporting. He adjusted the gINT® database/library to allow for client requested formatting and report generation to complete the data report.
06/21 – 01/22	**I-10 Calcasieu River Bridge Project, Lake Charles, Louisiana (24584) - LADOTD** **Quality Reviewer.** This project comprised 24, 100-ft borings (75% over land and 25% in marsh). Laboratory testing of samples includes triaxial unconsolidated undrained tests, Atterberg limits, particle size analysis, moisture content, the test to establish the percent passing a U.S. Standard No. 200 mesh sieve, and consolidation with rebound. A geotechnical data report, boring log files, and test results were provided to the client. Mr. Richards' responsibilities included adjustments to the gINT library to produce the requested information. He also provided a quality level review of the data and laboratory summaries.
04/08 – 04/14	**Inner Harbor Navigation Canal Surge Protection Project, New Orleans, Louisiana (20243.00 - .15) – U.S. Army Corps of Engineers** **Geotechnical Design Lead** included project management and review of deliverables of other geotechnical engineering consultants during the project, geotechnical design of project features, oversight and acceptance of piles driven to support the project and served as the liaison for geotechnical matters for the design-build contractor, Shaw E&I, during the project.

03/18 – 01/19	**West Roadway Street Drainage Repairs, South Roadway Street to Floodgate L-01, New Orleans, Louisiana (23789) – Orleans Levee District** **Project Engineer.** Mr. Richards provided direct oversight of the field inspectors, laboratory testing of soils and concrete, and quality assurance. Mr. Richards also provided review of material submittals, dispute resolution, and acted as a liaison among construction materials testing and project civil and geotechnical engineers.
02/09 – 03/15	**Preparation of Design Documentation Report and Plans and Specifications, WBV-74 and WBV-09b, Western Tie-In Closure Structure, St. Charles and Plaquemines Parish, Louisiana (20536) – U.S. Army Corps of Engineers** **Instrumentation Engineer**. He was involved in the development and implementation of the instrumentation plan and oversaw the field installation of the geotechnical monitoring equipment including data loggers. Mr. Richards processed instrumentation readings and created modeling of the preload/surcharge stacks to evaluate progress of the project preload/surcharge program. He also summarized the instrumentation readings and observations in the form of geotechnical data reports.
01/12 – 10/17	**Route I-10, Williams Boulevard to Veterans Boulevard and Loyola Drive to Williams Boulevard, Jefferson Parish, Louisiana (21687) – LADOTD** **Geotechnical Engineer.** Mr. Richards performed settlement analyses for various embankment fill heights and widths as well as slope stability analyses to evaluate each of the canal crossings.
04/17 – 07/18	**Bourbon Street Reconstruction Project, Canal Street to Dumaine Street, New Orleans, Louisiana (23548, .01) – City of New Orleans** **Project Manager**, Mr. Richards provided direct oversight and review of soils and aggregates materials' sampling and laboratory testing, in place nuclear density testing, and vibration monitoring results. Reporting and managing data were handled through an online database, MetaField.
06/18 – 11/18	**Almonaster Bridge over the Inner Harbor Navigation Canal, New Orleans, Louisiana (22066, .01) – Port of New Orleans** **Project Engineer.** Mr. Richards provided the testing plan for the existing bridge concrete and non-destructive testing. He reviewed the results of the Windsor Probe and Schmidt manual impact hammer tests to provide the structural designers strength data for their assessment of the exiting pier to be incorporated into the new structure foundations.

16. Staff Experience:

Firm employed by	Eustis Engineering L.L.C		
Name	Matthew K. Morales, PE	Years of relevant experience with this employer	16
Title	Project Manager	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		BS / 2008 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 38211 / LA 09/30/2027	
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Geotechnical Engineer **– Meets MPR 6 & 7**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/21 – Ongoing	**Bayou Barataria Bridge Replacement, Jefferson Parish, Louisiana (24515.00-.03) – LADOTD** **Geotechnical Engineer and EDC Lead** for the full replacement of the Bayou Barataria Bridge. Eustis Engineering L.L.C. obtained relevant permits and land access and drilled 24 borings over water, marsh, and pavement. Geotechnical design analyses include vertical and lateral pile capacity with and without scour, pile group settlement, ground settlement, settlement surcharge/remediation, retaining wall recommendations, slope stability, and pavement design. Engineering during construction (EDC) includes Wave Equation Analysis of Piles (WEAP) drivability, dynamic pile testing with signal matching, development of a vibration monitoring plan, and review of settlement monitoring of surcharged areas. Mr. Morales has been responsible for performing internal reviews of the engineering analyses, the geotechnical data report, and the geotechnical design report completed for this project. He is also leading the EDC efforts.
03/20 – 06/25	**I-10 and I-12 College Flyover Ramp Design-Build Project, East Baton Rouge Parish, Louisiana (B0646) – State of Louisiana, LADOTD** **Project Engineer** for this project which services include a subsurface exploration including undisturbed borings, auger borings, and cone penetration tests. Eustis Engineering also provided laboratory testing including Atterberg limits tests, hydrometer analyses, and one-dimensional consolidation tests. Design services were provided for seven different major project features. Mr. Morales was the geotechnical design engineer for all project features, which included driven pile and drill shaft foundation design, slope stability analyses, retaining wall design, embankment evaluations, roadway pavement design, and developing load test programs. Eustis Engineering evaluated the results of the bi-directional load test performed on a drilled shaft, performed dynamic pile testing with signal matching to verify pile load capacity estimates, and reviewed installation logs of the production shafts and piles. Mr. Morales' responsibilities on this project included CAPWAP analysis and engineering design work for the project features in a timely manner allowing construction operations to progress with minimal delays.
08/06 – 12/14	**Huey P. Long Bridge Widening, Route U.S. Highway 90, West Bank and East Bank Approaches and Main Bridge Deck Widening (18530, 20262) – State of Louisiana** **Project Engineer** involved in the later phases of this project. He reviewed and evaluated the results of cone penetration tests used to supplement the soil borings and performed dynamic testing on the piles supporting the approach ramps.
06/11 – 02/13	**Essen Lane Interchange Westbound, Route Interstate 12, East Baton Rouge Parish, Louisiana – State of Louisiana** **Project Engineer** for this project performing engineering analyses to evaluate some of the retaining wall alternatives. He also performed global slope stability analyses using Spencer's Method of Slices as coded within GEOSLOPE International Ltd.'s computer program, SLOPE/W.

02/09 – 04/10	**Inner Harbor Navigation Canal Surge Protection Project, New Orleans, Louisiana (20243.00-.15) – U.S. Army Corps of Engineers** **Project Engineer** performed Wave Equation Analysis of Piles (WEAP) analyses for this project. He also participated in the field exploration phase and dynamic pile testing during the test pile program, CAPWAP analysis, and job pile installation. In addition, he reviewed some of the construction submittals.
02/09 – 03/15	**Preparation of Design Documentation Report and Plans and Specifications, WBV-74 and WBV-09b, Western Tie-In Closure Structure, St. Charles and Plaquemines Parish, Louisiana (20536) – U.S. Army Corps of Engineers** **Project Engineer** for this project which included design and engineering during construction (EDC) services. The design phase scope, assisted by Mr. Morales, included drilling 5-in. undisturbed soil borings in the marsh; laboratory testing; engineering analyses of levees and structures; and installation, monitoring, and evaluation of geotechnical instrumentation.
10/13 – 02/15	**Route Interstate 10, Highland Road to LA Highway 73, East Baton Rouge and Ascension Parishes, Louisiana (21777) – State of Louisiana** **Project Engineer,** Mr. Morales oversaw the field investigation phase of this project. He has performed analyses for deep foundations and analyzed settlement for the widening of the overpasses and approach embankments.
01/13 – 11/18	**Almonaster Bridge over the Inner Harbor Navigation Canal, New Orleans, Louisiana (22066, .01) – Port of New Orleans** **Project Engineer** provided geotechnical analyses which included estimates of allowable vertical pile load capacities at the land borings for support of the proposed bridge replacement and pavement recommendations based on the auger borings. Slope stability analyses were performed for the channel widening and the cofferdam requirements. Lateral load analyses evaluated the new fender system and bridge support piles. As part of a response to a Value Engineering study, we evaluated the use of drilled shafts. Mr. Morales performed engineering analyses on this project.

16. Staff Experience:

Firm employed by	Eustis Engineering L.L.C.		
Name	Chad Held, PE	Years of relevant experience with this employer	34
Title	Executive Vice President & Senior Project Manager	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		MS / 2002 / Civil Engineering BS / 1998 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 30257 / LA / 09/30/2026	
Year registered: 2002	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Geotechnical Engineer **– Meets MPR 6 & 7**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
08/06 – 12/14	**Huey P. Long Bridge Widening, Route U.S. Highway 90, West Bank and East Bank Approaches and Main Bridge Deck Widening, Jefferson Parish, Louisiana (18530, 20262) – State of Louisiana** **Project Engineer** developed allowable vertical pile load capacity estimates (precast concrete, steel H, and treated ASTM D 25 timber); allowable shaft load capacity estimates (7 and 9 feet in diameter) to support Pier IVA located along the East Bank Approach with and without the benefit of post-grouting the shaft tips; estimates of settlement for the proposed pile/shaft groups; evaluation of pile/shaft group capacity and spacing; lateral load analyses of pile foundations for various pile group configurations and loading conditions, in addition to analyses of a single pile, to evaluate the sensitivity of the point of fixity; dewatering and pressure relief recommendations for construction of Pier IVA; and recommendations for test pile and test shaft programs. Once construction began, Mr. Held performed dynamic pile testing and signal matching verification (CAPWAP® analyses) capacity for the project. He also interpreted crosshole sonic logging results.
06/21 – 01/22	**I-10 Calcasieu River Bridge Project, Lake Charles, Louisiana (24584) – State of Louisiana, LADOTD** This project comprised 24, 100-ft borings (75% over land and 25% in marsh). Laboratory testing of samples includes triaxial unconsolidated undrained tests, Atterberg limits, particle size analysis, moisture content, percent passing a U.S. Standard No. 200 mesh sieve, and consolidation with rebound. A geotechnical data report, boring log files, and test results were provided to the client. Mr. Held was responsible for quality control regarding the review of the data being transmitted with the gINT® database and other project summaries.
03/11 – 08/16	**Wisner Boulevard Overpass, Orleans Parish, Louisiana (22972, 22637, 21349, 21966) – State of Louisiana** **Quality Control Manager** provided quality control and review during the construction phase of the project. Eustis Engineering performed dynamic pile testing with signal matching on selected monitor piles, indicator piles, and job piles. Mr. Held reviewed and adjusted the results of the signal matching verification using his experience in subsoil conditions encountered at the site and considering the piles and driving system.
06/08 – 02/12	**Interstate 12 Widening from O'Neal Lane to Range Avenue, East Baton Rouge Parish, Louisiana (20298) – State of Louisiana** **Senior Project Manager** provided an independent quality assurance technical review for various aspects of the project's construction. Mr. Held performed dynamic pile testing services and CAPWAP analyses on precast concrete piles being driven as job piles. Mr. Held provided interpretation of non-destructive testing. In addition, Mr. Held performed Wave Equation Analysis of Piles (WEAP) to approve hammers utilized on the project. Upon completion of dynamic pile testing and initial installation of test piles and indicator piles, Mr. Held also developed inspectors' charts and pile driving criteria for respective pile bents.

04/08 – 04/14	**Inner Harbor Navigation Canal Surge Protection Project, New Orleans, Louisiana (20243.00-.14) – U. S. Army Corps of Engineers** As Project Engineer, Mr. Held performed dynamic pile testing as well as reviewed dynamic pile tests (DPTs) performed by others to ensure DPT data quality. PDA testing, CAPWAP analyses, and interpretation of non-destructive testing were performed on the end-of-driving and restrike DPTs to evaluate shaft resistance along the pile, soil setup over time, and ultimate pile capacity. Mr. Held was also on rotational call to provide project management services and assist with quality control and pile installation design questions.
06/22 – 01/24	**I-10/City Park Bridge Replacement Project, Baton Rouge, Louisiana (24821.00, .01) – State of Louisiana, LADOTD** Eustis Engineering performed a geotechnical peer review for the proposed City Park crane trestle piles for the I-10/City Park Bridge Replacement project in Baton Rouge, Louisiana. In order to perform the peer review, Eustis Engineering was furnished Kiewit/Boh, AJV's (Kiewit's) design memorandum which outlined the design assumptions associated with the trestle bridge design performed by Kiewit. After authorization, Eustis Engineering was requested to perform independent geotechnical engineering analyses as part of this review. The limited geotechnical analyses included development of axial pile load capacity curves and lateral load analyses of the proposed pile groups to compare with the analyses performed by Kiewit. Eustis Engineering also performed dynamic pile tests (DPTs) on five job piles for the project. Mr. Held performed the consultation on the engineering analyses associated with the peer review and reviewed the results of the DPTs, CAPWAP analyses and interpretation of non-destructive testing.

16. Staff Experience:

Firm employed by	Urban Systems Associates, Inc.		
Name	Alison Michel, PE, PTOE, PTP, RSP_{2i}	Years of relevant experience with this employer	24
Title	President Transportation Engineer	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		BS / 1997 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 30261 / LA / 03/31/2027 **Professional Planner:** 626 / 11/20/2026 **Road Safety Professional 2i:** 148 / 03/20/2026	
Year registered	2002	Discipline	Traffic Engineering
Contract role(s) / brief description of responsibilities		Traffic Engineering	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/14 – 08/19	**US 90 (I-49 South) Albertson's Parkway to Ambassador Caffery Design-Build Project**, **Lafayette Parish, LA - LADOTD** **Senior Traffic Engineer.** Ms. Michel was a member of the key personnel for this design-build project as the Traffic Engineer. The project included converting US 90 to a controlled access facility by converting at-grade intersections to an interchange. The bridge structure had to span the intersection and railroad. She supervised the design and analysis and performed QA-QC for temporary and permanent signal plans, permanent signage plans, temporary traffic control plans and the Transportation Management Plan. Signal plans were prepared using the DOTDs latest TSI format. Analysis included developing design hour volumes for the design year and modeling signals in Synchro. Phasing and timing were developed for both permanent and temporary signal operation.
02/20 – Present	**LA 23: Belle Chasse Bridge & Tunnel, Belle Chasse, LA - LADOTD** **Senior Traffic Engineer.** Ms. Michel is managing USI's tasks for Owner Verification services focused on reviewing design plans for traffic related submittals from the design-builder. These submittals included capacity analysis, plans for traffic signals, signage and striping. Ms. Michel conducted Quality Assurance/Quality Control reviews to confirm adherence with LADOTD standards and the Manual of Uniform Traffic Control. During the construction, Ms. Michel may provide support by reviewing Traffic Control Devices Plans for proposed lane closures, detours and advanced warning signage.
05/09 – 05/10	**LA 1088/I-12 Interchange, St. Tammany Parish, LA - LADOTD** **Senior Traffic Engineer.** Ms. Michel updated the permanent signage plans for the interchange on I-12 at LA 1088 in St. Tammany Parish, LA to reflect the new alignment. Traffic control device plans were designed based on the sequence of construction drawings and two phases of construction. Specifications for required S-items and a construction cost estimate were provided.
12/18 – 05/19	**Manhattan Signal Controller Upgrades, Jefferson Parish, LA - LADOTD** **Senior Traffic Engineer.** Traffic signal modification plans for eleven (11) intersections along the Manhattan Boulevard corridor in Jefferson Parish, Louisiana were prepared in accordance with Jefferson Parish and Manual on Uniform Traffic Control Devices (MUTCD) standards. The modifications included controller component upgrades, video detection and pedestrian accommodations at select intersections. During the project Ms. Michel offered her technical expertise from over seventeen (17) years of designing traffic signals and preparing technical specifications for Jefferson Parish.

10/11 – 05/16	**Increase Capacity of I-10 from Bridge to I-10/I-12 Split Stage 0 Feasibility Study and Stage 1 Environmental Assessment, Baton Rouge, LA - LADOTD** **Principal in Charge of the Traffic Studies** for this multi-faceted project to improve Interstate 10 through Baton Rouge. The project included developing and testing alternatives for operational and safety conditions. Analysis utilized VISSIM models that were prepared to meet LADOTD requirements. Mainline alternatives included an additional lane, interchange relocations, a highpass and slip ramps. The Capitol Regional Planning Commissions Travel Demand model in TransCAD was utilized to forecast volumes for various scenarios. Due to the length of the corridor, public meetings were held in three separate locations where Ms. Michel presented the results of the traffic analysis to the public. At the public meetings video animations of the models and analysis results from the VISSIM were presented. The final Stage 0 document was published for public comment to be included in the NEPA process in compliance with the FASTACT. USI also completed the traffic analysis and preparation of three Interchange Modification reports based on the Tiered process to meet Federal Highway Administration (FHNA) requirements. Ms. Michel managed and conducted the QA/QC of the traffic study preparation for the Environmental Assessment that was approved by FHNA.
08/08 – 08/09	**John James Audubon Bridge Traffic Study, West Feliciana Parish, LA - LADOTD** **Project Manager** for traffic study in West Feliciana Parish analyzing the impacts of relocating the new John James Audubon Bridge. The study entailed an assessment of alternative routes to connect the new bridge location with LA 10. The study included data acquisition, trip generation, traffic assignments and projections using TransCAD travel demand computer modeling, and traffic analysis using Highway Capacity Software (HCS) and TEAPAC Signals. Travel time estimates were also conducted as part of the traffic analysis for a comparison of existing and proposed alternative routes to LA 10.
04/08 – 11/13	**Statewide Safety Studies, Statewide, LA - LADOTD** **Project Manager** for the Statewide Safety Studies Retainer Contract. Task-orders were issued to evaluate the safety of intersections and corridors in Ascension, Lafourche, Natchitoches, Rapides, Terrebonne, Vernon Parishes and others. Ms. Michel conducted field investigations/ Road Safety Assessments in Districts 61 and 08. The studies involved collection of traffic data and a thorough review and analysis of crash reports. The resulting analysis led to either identifying the need for a feasibility study and/or the development of long- and short-term recommendations to reduce correctible crashes.
03/11 – 05/13	**Huey P. Long Bridge Widening - (Westbank and Eastbank Approaches and Main Bridge Deck Widening) - LADOTD** **Senior Traffic Engineer.** The contractor for the Huey P. Long Widening in Jefferson Parish, LA brought on USI about half-way into construction to improve the flow of traffic during required closures. Ms. Michel prepared traffic control devices plans (TCDP) for multiple phases of construction. The TCDPs also included the design of a traffic signal plan for the installation of temporary signal heads to control lane shifts.
02/10 – 07/10	**LPV 16.2 Bonnabel Boulevard Floodgate, Jefferson Parish, LA – U.S. Army Corps of Engineers** **Senior Traffic Engineer.** Ms. Michel designed the traffic control devices plans for construction of the LPV 16.2 Bonnabel Blvd. Floodgate in Jefferson Parish, LA. Plans included: haul routes, bypass for the ramp tie in to Bonnabel; diverting Bonnabel southbound traffic to the temporary bypass ramp; and diverting northbound traffic to Bonnabel southbound travel lanes. Plan changes due to unforeseen conditions included details for floodwall construction diverting Bonnabel northbound and southbound traffic to the temporary roadway and closing Bonnabel Boulevard. The plans met US Army Corps of Engineers, Jefferson Parish and MUTCD standards. Inspections were conducted after any changes to the traffic control plan and/or at thirty (30) day intervals.

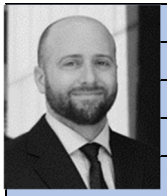
16. Staff Experience:

Firm employed by	Urban Systems Associates, Inc.		
Name	Nicole Stewart, PE, PTOE	Years of relevant experience with this employer	19
Title	VP / Transportation Engineer	Years of relevant experience with other employer(s)	1.5
Degree(s) / Years / Specialization		BS / 2004 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 34750 / LA / 09/30/2027	
Year registered	2009	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Traffic Engineering/Striping signage TCDP & TMP	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
02/15 – 06/16	**Bridge Preventative Maintenance District 61 - LADOTD** **Senior Traffic Engineer.** Ms. Stewart was the principal in charge for Traffic Management Plans (TMP) for bridge replacement and repairs for various locations in Louisiana. This included developing various levels of TMP's based on LADOTD EDSM guidelines. Tasks included conducting capacity analysis, safety analysis, detour analysis and developing proposed mitigations where applicable. For the reconstruction of the LA 1 bridge over the Intracoastal Waterway, a detailed Level 3 TMP was prepared. For this TMP, detailed work zone impact management strategies were developed to help minimize the project's impact on mobility.
05/18 – 04/19	**TMP for I-10: West of 108 to I-210 Interchange: Rubblize and Overlay, St. Charles, LA - LADOTD** **Senior Traffic Engineer.** As the lead engineer for this Traffic Management Plan, Ms. Stewart was responsible for the preparation of the safety analysis. She conducted the analysis per the guidelines set forth by LADOTD in *Guidelines for Crash Data Analysis* for this TMP in Lake Charles, LA. She conducted queue analysis to identify when lane closures would be permitted, identified the construction impact area and reviewed crash data for more than 350 collisions. Ms. Stewart identified trends and calculated crash rates and determined that the section of I-10 that was going to be rubblized had a crash rate that was higher than the statewide average and required mitigation.
03/10 - 01/14	**Houma-Thibodaux to I-10 Connection North-South Corridor Environmental Impact Statement, Houma LA - LADOTD** **Traffic Engineer.** Evaluated new alignments to connect US 90 to LA 3127 to establish a new north-south corridor to link the existing interstate system to the future I-49 South and provide an alternate route during hurricane evacuations. Ms. Stewart conducted an analysis to evaluate traffic operations for the various alternatives and to recommend lane configurations for the terminal intersections. At the completion of the study Ms. Stewart performed the QA/QC for the Level 2 Transportation Management Plan that was prepared for the final corridor alignment.
04/10 – 09/11	**I-10 Crossing - Irish Bayou Bridge, New Orleans, LA - LADOTD** **Senior Traffic Engineer.** Ms. Stewart was the project manager for this project which involved designing traffic control devices plans for the I-10 Highway Crossing Levee Enlargement project at Irish Bayou Road in New Orleans East. The plans included multiple and phased road closures of a six (6) lane section of Interstate 10 including nighttime closures. In addition to managing the project, she was responsible for QA-QC.
02/18 – 03/20	**Severn Ave: Veterans to W. Esplanade, Jefferson Parish, LA – Jefferson Parish** **Traffic Engineering Project Manager** of this Jefferson Parish roadway reconstruction project. Severn Ave is a heavily travelled multi-lane boulevard requiring complex construction sequencing. Design plans were developed for temporary signals during construction and the permanent signal configurations with pedestrian accommodation. Signal plans were developed using the latest LADOTD TSI format. Ms. Stewart also managed the temporary traffic control plan development for multiple phases of construction, and she performed QA-QC. Another element of this project was coordination with Jefferson Parish and LADOTD to obtain approval of the Parish's equipment and specifications for use in the LADOTD bidding process.

01/14 – 08/19	**US 90 (I-49 South) Albertson's Parkway to Ambassador Caffery Design-Build Project, Lafayette, LA - LADOTD** **Senior Traffic Engineer** who prepared the Traffic Control Device Plans for all phases of construction. Ms. Stewart was responsible for the design of the permanent signage for the new portion of I-49 within the project limits. Traffic Control Devices and Signage plans were prepared to be in accordance with the Manual of Uniform Traffic Control Devices and the most current LADOTD standards. Throughout construction, Ms. Stewart was available to meet with the contractor and visit the construction site on an as needed basis. Ms. Stewart provided timely responses to RFI's and prepared plan changes to address concerns raised in the field. She also prepared As-Built plans once the project was completed in August 2019.
05/18 – 06/19	**Louis Armstrong International Airport – Offsite Roadway Signage, Jefferson Parish, LA – NOAB** **Principal in charge** of the design of offsite roadway signage for the new north terminal of the Louis Armstrong International Airport throughout portions of Jefferson Parish. Ms. Stewart identified potential locations for additional wayfinding signage on parish roadways and on both I-10 and I-310. Ms. Stewart performed the QA/QC of the signage designs for both the existing parking facilities adjacent to the south terminal and at the new north terminal accessed via Loyola Dr. This included interactive signage on I-10 to direct motorists to parking facilities based on available spaces. This required electronic communication between the sign and the parking management systems. The signage was designed in accordance with the Manual of Uniform Traffic Control Devices and Louisiana DOTD standards where applicable.
12/16 – 04/21	**France Road - North Widening, New Orleans, LA - LADOTD** **Senior Traffic Engineer.** Over time, France Rd between Gentilly Blvd and Hayne Blvd had deteriorated pavement and was in need of widening and drainage repairs. Adjacent to the west side of the roadway was a concrete floodwall that limited Right Of Way and the ability to maintain two-way traffic throughout construction. Ms. Stewart developed site specific traffic control plans implementing a one-way system and detouring traffic that would normally traverse in the opposite direction of the allowed movement. The plans were designed in accordance with the latest version of the MUTCD and the City of New Orleans traffic control standards.
03/12 – 11/13	**MacArthur Interchange Signal Modification/ Signage & Striping / Traffic Control Devices Plans, Jefferson Parish, LA - LADOTD** **Senior Traffic Engineer.** The traffic study to evaluate the existing and projected operating conditions of the lower Westbank Expressway was prepared by Ms. Stewart. In the second phase, Ms. Stewart designed the new traffic signals for the interchange and adjacent signalized intersections. She prepared the striping and signage plans to accommodate the ramp changes and prepared Traffic Control Devices Plans for the various stages of construction.
03/10 – 07/10	**USACE Traffic Control Devices Plans, Statewide, LA – U.S. Army Corps of Engineers** **Senior Traffic Engineer.** Ms. Stewart has designed numerous Traffic Control Devices Plans to meet US Army Corps of Engineers, LADOTD and MUTCD standards. The plans and specifications included, but were not limited to, the proper placement of temporary Traffic Control Devices (signs, barricades, drums, roadway markings, etc.) to facilitate traffic safely and efficiently through the traffic control zone. Haul routes were designated when necessary. Many of the plans were for Corps of Engineers' projects.
09/11 – 02/12	**Williams Boulevard Floodgate, Jefferson Parish, LA – Jefferson Parish** **Senior Traffic Engineer.** The design of Traffic Control devices Plans including haul routes were prepared for the two phased closure of Williams Boulevard at the Lake Pontchartrain Levee Floodgate by Ms. Stewart. The plans were prepared in accordance with Jefferson Parish and MUTCD Standards. Once the plan was implemented MS. Stewart conducted inspections.
05/06 – 07/11	**Clearview Parkway at West Esplanade, Jefferson Parish, LA - Jefferson Parish** **Senior Traffic Engineer.** For the Clearview Parkway and West Esplanade Avenue Intersection Improvement project, Ms. Stewart prepared permanent traffic signal plans which included replacing the controller cabinet, mast arms, signal heads, power source, signs and vehicle detection and interconnect. She also prepared the Traffic Control Devices and Detour Plans to facilitate traffic through the phases of construction.

16. Staff Experience:



employed by	Urban Systems Inc.		
Name	Matthew Morgan, PE, PTOE	Years of relevant experience with this employer	11
Title	Transportation Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		BS / 2009 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 47060 / LA / 03/31/2027 **Professional Traffic Operations Engineer:** 5893 / LA / 03/19/2028	
Year registered	2022	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		Transportation Engineer	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/16 – 08/18	**Future I-49 South Study (Raceland to Westbank Expressway), Stage 1, Jefferson, Lafourche, & St. Charles Parish, LA – LADOTD** **Transportation Engineer**. The study area spanned US 90 from Raceland to Westbank Expressway in Jefferson, Lafourche, and St. Charles Parishes . Mr. Morgan led the data collection effort which included traffic volume collection, speed studies, and vehicle classification. He performed site investigations and assisted project engineers with the development of figures and tables to present the data. He utilized LADOTD's resources and tools during the study phase for analysis of existing conditions.
03/22 – 09/22	**Hundred Oaks Broussard Bridges TCDP, East Baton Rouge Parish, LA** **Transportation Engineer.** The objective of the Traffic Control Devices Plan (TCDP) in East Baton Rouge Parish, LA was to provide adequate advanced notice and signage to drivers for the closure of two local roadway bridges. Mr. Morgan led the design of the TCDP for each bridge closure which incorporated local municipalities' standards, as well as the Manual on Uniform Traffic Control Devices (MUTCD) standards. Mr. Morgan used aerial photography and the Google Earth mapping program to designate placement of detour and advanced warning signage. He oversaw the creation of the plans in AutoCAD, a CAD-type software oriented to drawing and modeling. He used QA/QC to verify the plans before delivering electronic versions of preliminary plans to the client using Adobe PDF format.
12/18 – 10/22	**LA 46- St. Claude Bridge Bicycle Accommodation, Chalmette, LA – Port of New Orleans** **Transportation Engineer.** Mr. Morgan developed short-term and long-term alternatives for safely accommodating bicyclists across the raised portion of LA 46 at the St. Claude Bridge and over the Inner Harbor Navigational Canal lift span. To accomplish this task, he conducted field observations which included sight distance evaluations, identifying existing equipment to be modified/removed, collecting classification data for pedestrians, vehicles, and bicycles, and collecting vehicular speed data. Mr. Morgan assisted with the cost estimate and the preparation of a technical memorandum to present these alternatives to the Port of New Orleans.
10/22 – 11/24	**Inner Harbor Navigation Canal (IHNC) Lock Replacement Traffic Study, Orleans Parish, LA – U S Army of Corps Engineers** **Transportation Engineer**. Mr. Morgan developed and coordinated a traffic study to analyze existing and projected vehicular operational and safety conditions for the Inner Harbor Navigational Canal (IHNC) lock replacement near the St. Claude, Claiborne, and Florida Bridges. To accomplish this, he conducted field observations and assisted in the collection of vehicular volume, class and speed data. Mr. Morgan reviewed the vehicular data along with historical bridge logs, which included when bridges opened to allow marine vessels to pass and halted vehicular traffic, to identify peak periods for analysis. He reviewed the Regional Planning Commission's Macroscopic Transportation model data and summarized the anticipated growth in the study area. Mr. Morgan reviewed crash/safety history to summarize crash characteristics of the study area, the Level of Service of Safety (LOSS) for major study area intersections, existing safety concerns, and crash locations. He analyzed existing and future with project traffic conditions using the VISSIM microscopic traffic simulation software and summarized methods of effectiveness. Mr. Morgan led the effort in summarizing all the data collection, safety findings, and analysis results in a technical report. He participated in weekly online/in-person meetings with stakeholders to communicate and coordinate project milestones.

16. Staff Experience:

Firm employed by	Urban Systems Inc.		
Name	Christine Darrah, PE	Years of relevant experience with this employer	10
Title	Transportation Engineer	Years of relevant experience with other employer(s)	20
Degree(s) / Years / Specialization		BS / 1994 / Civil Engineering	
Active registration number / state / expiration date		**Professional Engineer:** 28528 / LA / 09/30/2025	
Year registered		Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Traffic Engineer

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
11/20 – 02/23	**US 190 at Northshore and Camp Villere Roundabouts, Slidell, LA - LADOTD** **Project Engineer** oversaw the design of permanent striping & signage plans per LADOTD standards and specifications. She also designed temporary traffic signals that would be required during the multiple phases of roundabout construction. A Level 2 Traffic Management Plan (TMP) was also prepared. Ms. Darrah coordinated with the prime-consultant, St Tammany Parish, and LADOTD as needed.
03/21 – 04/21	**I-610 Transmission Line Crossing at Frenchman, New Orleans, LA – LADOTD/City of New Orleans** **Project Engineer** for the interstate closure project to assure public safety during overhead transmission lines repairs, this included a full closure of both directions of I-610 and westbound on ramp Elysian Fields Ave, in New Orleans. Ms. Darrah coordinated the six-hour interstate closure and associated detours with LADOTD and City of New Orleans, LA . She designed Traffic Control Devices Plans applying MUTCD, LADOTD and City of New Orleans standards for proper placement of traffic control devices including portable changeable message boards. Ms. Darrah utilized AutoCAD to assist in final preparation of plans.
03/17 – 03/18	**Milan St Terminal, New Orleans, LA – Port of New Orleans** **Lead Engineer** designed Construction Sequencing and Permanent Striping Layouts and Signage plans. Construction sequencing included keeping port tenants fully operational through each phase of construction. All plans were prepared in accordance with LADOTD and MUTCD guidelines.
06/22 – 10/22	**KCS Acadian Thruway, East Baton Rouge Parish, LA - LADOTD** **Traffic Engineer**. This project included lane closures and full closure of Acadian Thruway at the KCS bridge near the I-10 interchange in East Baton Rouge Parish. Ms. Darrah prepared the Traffic Control Devices Plans applying MUTCD and LADOTD standards for proper placement of traffic control devices. Additional project efforts included designing lane closures on an I-10 on-ramp for laydown access and police-controlled haul routes.
09/14 – 2/14	**SELA 26 Widening of Florida Ave. Canal Phase II and III, New Orleans, LA – U S Army Corps of Engineers** **Traffic Engineer** designed Traffic Control Devices Plans to meet US Army Corps of Engineers, LADOTD and MUTCD standards. The plans and specifications included, but were not limited to, the proper placement of temporary Traffic Control Devices (signs, barricades, drums, roadway markings, etc.) to facilitate traffic safely and efficiently through the traffic control zone. Haul routes were designated when necessary.
03/13 – Present	**FEMA Recovery Roads Program, New Orleans, LA – City of New Orleans/DPW** **Traffic Engineer** assisted with the design plans for the initial phase of roadway restoration for the Seventh Ward, Bayou St John and Fairgrounds neighborhoods that were damaged by events related to Hurricane Katrina. Plans were prepared for partial and full concrete and asphalt pavement replacement and asphalt mill and overlay. Incidental paving included sidewalk and driveway replacement and ADA ramp installation at all intersections. She assisted with estimating for quantities and construction costs. For the second phase of design services, the plans were for the full re-construction of several streets including waterline replacement Construction Administration services included overseeing inspectors and constriction operations, invoice reviews, preparation of field changes, plan changes for scope modifications, and close out documents. The current task is construction administration and Ms. Darrah is managing the inspector and coordinating with the contractor to confirm the construction and reporting meets the City of New Orleans DPW standards.

17. Firm Experience:

Firm name	Hardesty & Hanover		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	Almonaster Ave Bridge over the Industrial Canal		Firm responsibility (prime or sub?)	Prime	
Project number	H.014530	Owner's name	Port of New Orleans / LADOTD		
Project location	New Orleans, LA		Owner's Project Manager	Michael Sulser, PE	
Owner's address, phone, email	1350 Port of New Orleans Pl, New Orleans, LA 70130 | 504.528.3297 | michael.sulser@portnola.com				
Services commenced by this firm (mm/yy)	01/20		Total consultant contract cost ($1,000's)	$2,500	
Services completed by this firm (mm/yy)	Ongoing		Cost of consultant services provided by this firm ($1,000's)	$2,250	

H&H provided the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the rehabilitation and partial replacement of the Almonaster Ave Bridge for the Port of New Orleans.

Almonaster Ave Bridge over the Industrial Canal

The Almonaster Bridge crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. Hurricane Katrina destroyed roadways leading up to the bridge in 2005 and for the following 13 years, the bridge had exclusively served rail traffic. H&H's 2019 assessment of the circa-1920 bascule bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure.

H&H is developing the necessary bridge remedial design plans and specifications and is providing inspection services during construction. The bridge's span drive and span lock machinery, operating strut, guide assembly, live load bearings, and counterweight trunnion pin and bushing will be replaced. The main trunnion bearings will be rehabilitated and repositioned.

The road design services included a new alignment for the connecting road including all drainage structures. Additional remedial efforts along Almonaster Ave Bridge also included the improvement or replacement of the original fixed roadway approach spans. The sharp curve that existed on westbound Almonaster Ave was demolished and a new road was constructed on an improved alignment. H&H developed a hydraulic study and a site plan that included several retention ponds for drainage improvements. Other services included environmental, geotechnical, and pavement design.

Scope of Work Relevant to the Contract:

- Bridge Design
- Roadway Design
- Railroad Coordination
- Drainage Design
- Utility Relocation
- Management of Multiple Subconsultants

Key Members: Babak Naghavi, PE, PH, PhD; Timothy Noles, PE; Stephan Heimburg, PE; Fred Wetekamm, PE; Erik Diaz, PE; Linh Kim, PE; Dalton Hunt, EI; Robert Hideck, PE; John Rayer, PE; J. Lee Adams, PE; Lauren Peytavin, EI, and Courtney Mai, EI

17. Firm Experience:

Firm name	Hardesty & Hanover		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	North Bridge over Intercoastal Waterway & FEC Railroad		Firm responsibility (prime or sub?)	Prime	
Project number	N/A	Owner's name	Florida Department of Transportation		
Project location	St. Lucie County, FL		Owner's Project Manager	Jim Hughes, PE	
Owner's address, phone, email	3400 West Commercial Blvd, Fort Lauderdale, FL 33309 | 954.777.4419 | james.hughes@fdot.state.fl.us				
Services commenced by this firm (mm/yy)	07/2016		Total consultant contract cost ($1,000's)	$7,200	
Services completed by this firm (mm/yy)	09/2021		Cost of consultant services provided by this firm ($1,000's)	$2,600	

3D Rendering of North Bridge over ICWW & FEC Railroad

Construction Progress at SR A1A & FEC Railroad/Old Dixie Hwy (June 2025)

H&H provided comprehensive engineering planning and design services for the replacement of SR A1A North Bridge, which carries SR A1A and the East Coast Greenway over the Intercoastal Waterway, FEC railroad, and Old Dixie Highway.

This project required the design of a new high-level fixed bridge and associated approaches **using staged construction to maintain traffic throughout construction**. The new bridge also **eliminates the grade crossing for FEC Railroad, with the new bridge spanning over existing tracks**. The new bridge will include an observation deck bridge emerging beneath SR A1A from the west shoreline, as well as the design of new roadway alignments and additional civil design services to address adjacent state, frontage, and access roads and railway crossings located within the project's tight footprint.

Challenges met by the H&H team include extensive utility, railroad, marine coordination, significant right-of-way coordination required by FEC Railroad, and adjacent business owners, and permitting coordination. Other scopes of services include geotechnical engineering, hydrogeology, drainage, lighting, signalization, signage, pavement marking, public involvement, as well as maintenance, control, and protection of vehicular and marine traffic.

Constructed in 1963, this bridge spans over the Intracoastal Waterway and connects the barrier island to the mainland in the City of Fort Pierce. In March 2014, the bridge was found to be structurally deficient and functionally obsolete. The new fixed bridge is 65 ft. wide and consists of FIB-84 beams spanning 158 ft. in simple spans and 184 ft. in continuous spans. The new observation deck structure is CFRP prestressed slabs, bent caps, and piles.

Scope of Work Relevant to the Contract:

- New Bridge Design using Staged Construction
- Crosses Railroad requiring Railroad Coordination
- Maintains Vehicular and Rail Traffic throughout Construction
- Roadway and Drainage Design Eliminates Non-Standard Features

Key Members: Stephan Heimburg, PE; Timothy Noles, PE; Robert Hideck, PE; J. Webb Jones, PE; Matthew Wolczynski, PE; Benjamin Bower, PE; and Lauren Blakeley, PE

17. Firm Experience:

Firm name	Hardesty & Hanover		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	Lapalco Bridge over Harvey Canal		Firm responsibility (prime or sub?)	Prime	
Project number	H.004396	Owner's name	Jefferson Parish/LADOTD		
Project location	Jefferson Parish, LA		Owner's Project Manager	Mark Drewes, PE	
Owner's address, phone, email	1221 Elmwood Park Blvd. Ste 802, Jefferson, LA 70123 | 504.736.6500 | mdrewes@jeffparish.net				
Services commenced by this firm (mm/yy)	01/18		Total consultant contract cost ($1,000's)	$7,000	
Services completed by this firm (mm/yy)	Ongoing		Cost of consultant services provided by this firm ($1,000's)	$4,250	

H&H is designing this new bridge parallel to the existing bridge, which **upgrades its capacity to six lanes of vehicular traffic**. The existing bridge will also be fully rehabilitated to function with the new bridge. The proposed improvement is to reconfigure the existing four-lane (two in each direction) Lapalco Blvd crossing at Harvey Canal to provide three travel lanes in each direction and one bidirectional bike/pedestrian lane. This increase from the existing four lanes eases traffic congestion and enhances the area's hurricane evacuation route network. The new bridge will provide a 150-ft.-wide navigation channel, a 45-ft. vertical navigation clearance, and is designed to match the existing bridge.

Lapalco Blvd in the vicinity of the bridge is classified as an urban arterial roadway and serves as a significant transportation and evacuation route. In addition to design of the new bridge, all roadway approaches and intersections in the vicinity of the bridge will be redesigned to accommodate the new structure. The existing bridge will be modified to carry a pedestrian and bicycle path.

3D Rending of Lapalco Bridge over Harvey Canal

The project is being designed to LADOTD Standards and Specifications for Roads and Bridges, the Louisiana DOTD Bridge Design Manuals and AASHTO, The Manual for Bridge Evaluations, and reviewed by LADOTD.

Scope of work includes thorough inspection of the existing bridge, survey, and geotechnical engineering as well us updating the existing Environmental Assessment. Design services include development of Bridge Design Report; roadway design and lighting; utility coordination; load rating for the existing and new fixed and movable structures; structural design of foundation and approach spans; the structural, mechanical and electrical design of the bascule portion; as well as permitting.

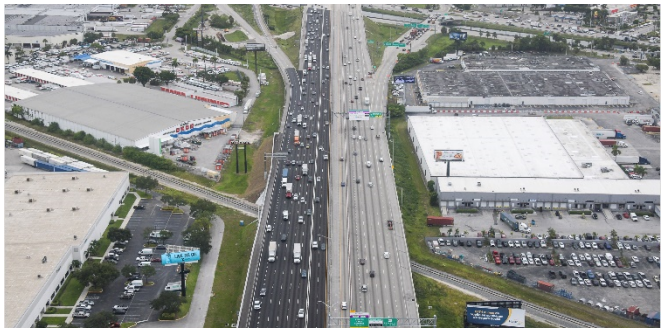
Scope of Work Relevant to the Contract:

- Road & Bridge Design using Staged Construction
- Maintains Pedestrian and Vehicular Use throughout Construction
- Geotechnical Design
- Rehabilitation/Repair Design
- Drainage Improvements & Scour Analysis
- LADOTD Standards & Specifications
- Management of Multiple Subconsultants

Key Members: Babak Naghavi, PE, PH, PhD; Timothy Noles, PE; Frederick Wetekamm, PE; Stephan Heimburg, PE; Erik Diaz, PE; Linh Kim, PE; Corey Bourgeois, PE; Dalton Hunt, EI; Raymond Mankbadi, PE; Arsanious Guirguis, PE; Courtney Mai, PE; John Rayer, PE; J. Lee Adams, PE; Lauren Peytavin, EI; Rafal Wuttrich, PE; and Will Farber, EI

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Road
Project name	SR 826 Palmetto Expressway Design - Build	Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Florida Department of Transportation
Project location	Miami-Dade County, FL	Owner's Project Manager	Raul Quintela, PE
Owner's address, phone, email	1000 N.W. 111 Avenue, Miami, Florida 33172 | 305.470.5457 | raul.quintela@dot.state.fl.us		
Services commenced by this firm (mm/yy)	04/21	Total consultant contract cost ($1,000's)	$66,054
Services completed by this firm (mm/yy)	02/25	Cost of consultant services provided by this firm ($1,000's)	$6,948



SR 826 over FEC Railroad

Metrorail under SR 826

SR 826 over Metrorail

The SR 826 Palmetto Expressway is a multi-lane, limited access **expressway crossing FEC Railroad**, connecting SR 826, I-75, Florida's Turnpike and I-95. The recent completion of express lanes revealed the need for additional operational improvements with expedited delivery through design-build. The project provides:

- An additional southbound lane, auxiliary lanes, improved shoulder widths,
- Major modifications to the NW 103rd St. interchange, revised lane access to the southbound express lanes, a new toll site, and
- Safety improvements on the adjoining frontage road system.

H&H is the lead designer, responsible for bridge, roadway, drainage, permitting, temporary traffic control, tolling, and retaining wall design and coordination of five subconsultants. Key scope items included: **Structures:** Diverse structure improvements including 3R improvements to two frontage road bridges over the Little River Canal, widening of the **southbound structures over Metrorail and FEC railroads**, widening of northbound and southbound bridges over NW 103rd Ave, and major modifications to the 103rd Ave flyover, including a pier relocation and a lane reduction. **Roadway/Drainage:** Four miles of expressway widening and resurfacing and five miles of frontage road improvements including new paved shoulders and sidewalks, while avoiding utility impacts on this schedule critical project. The drainage network includes an extensive French drain system and conversion of a conceptual permit to two construction permits.

Key innovations used to enhance constructability include:

- A revised southbound lane reduction transition to eliminate a 4-ft. bridge widening.
- Reuse of sign structures and foundations to reduce supply chain delivery issues and eliminate two water-borne foundations.
- Reconfiguration of flyover foundations to balance loading during construction and final conditions, and the use of steel towers to support the flyover during pier reconstruction.

Scope of Work Relevant to the Contract:

- Bridge Design over Railroad
- Staged Construction Maintaining Traffic
- Roadway Design
- Drainage Design

Key Members: Stephan Heimburg, PE; Robert Hideck, PE; John Corven, PE; Rafal Wuttrich, PE; J. Webb Jones, PE; Matthew Wolczynski, PE; Lauren Blakeley, PE; Erik Diaz, PE; Dennis Gowins PE; Linh Kim, PE; and Benjamin Bower, PE

17. Firm Experience:

Firm name	Hardesty & Hanover		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	I-395 Segmental Bridges		Firm responsibility (prime or sub?)	Prime	
Project number	N/A	Owner's name	Florida Department of Transportation		
Project location	Miami, FL		Owner's Project Manager	Auraliz Benitez, PE	
Owner's address, phone, email	1000 NW 111th Ave. Miami, FL 33172 | 305.470.5471 | Auraliz.Benitez@dot.state.fl.us				
Services commenced by this firm (mm/yy)	04/17		Total consultant contract cost ($1,000's)	$15,955	
Services completed by this firm (mm/yy)	Ongoing		Cost of consultant services provided by this firm ($1,000's)	$12,974	

H&H designed five new precast segmental bridges that are a part of the SR 836/I-95/I-395 corridor upgrade in Downtown Miami urban area. The Archer Western-De Moya Joint Venture is constructing this design-build project. The segmental bridges are constructed with over 2,000 precast and cast-in-place segments erected using the balanced cantilever method. Typical span lengths range from 225 to 255 ft. supported on cast-in-place piers with auger-cast pile foundations and include C-Piers as well as integral Straddle and T-Piers. The bridge requires coordination with various third parties, **spanning over several existing railroad tracks as well as public space/parklands. This requires close coordination with ROW, expanding the footprint of the existing bridge.**

H&H created the design-build proposal and pre-bid engineering ahead of the selection process and is providing analyses, final design, shop drawings, construction engineering and the design and as-built load ratings for the segmental bridges. The project's overall construction value is $840 million. The segmental bridges have a deck area of 700,000 square ft. (approximately $200 million). Longitudinal and transverse load ratings of the 20 continuous structural units of segmental bridges and the integral piers was performed for both temporary and final traffic conditions for both the partially completed and completed bridges, incorporating staged construction and time-dependent analysis. Several of the bridges are connected transversely using longitudinal closure pours, requiring refined analysis in determining load distribution and structural behavior.

The load ratings are performed in accordance with the AASHTO Manual for Bridge Evaluation and the FDOT Bridge Load Rating Manual per the LRFR methodology, operating and special legal and permit vehicle rating evaluations at the service and strength limit states. Load ratings are performed both as design ratings prior to construction and as-built load ratings following construction prior to traffic. The as-built ratings consider the actual segment cast and erect dates as well as any construction modifications that may have occurred to provide an accurate assessment of the bridge capacity prior to traffic and future permit load applications.

3D Rendering of I-395 Segmental Bridges

Brightline Rail Crossing under I-395

Scope of Work Relevant to the Contract:

- Bridge Design over Railroad
- Staged Construction Maintaining Traffic throughout Construction
- Load Rating Calculations & Analysis
- AASHTO Manual for Bridge Evaluation

Key Members: John Corven, PE; Dennis Gowins PE; Ray Mankbadi, PE; Stephan Heimburg, PE; and Timothy Noles, PE

17. Firm Experience:

Firm name	Eustis Engineering L.L.C.		Past Performance Evaluation Discipline(s)*	Geotech	
Project name	Bayou Barataria Bridge		Firm responsibility (prime or sub?)	Prime	
Project number	H.004420.5/H.015028.6	Owner's name	LADOTD		
Project location	Jefferson Parish, LA		Owner's Project Manager	Kristy Smith	
Owner's address, phone, email	5080 Florida Boulevard, Baton Rouge, Louisiana, 70806, 225-929-9133, kristy.smith2@la.gov				
Services commenced by this firm (mm/yy)	01/21		Total consultant contract cost ($1,000's)	Unknown	
Services completed by this firm (mm/yy)	Ongoing		Cost of consultant services provided by this firm ($1,000's)	$905 (to date)	

The existing Bayou Barataria Bridge is being replaced with a new structure that will be 963 ft. long and supported by 13 pile bents comprising square, precast concrete piles. An unequal arm swing span, 183 ft. long, is proposed between Bents 6 and 8 to provide a horizontal channel clearance of 85 ft. within Bayou Barataria. Mill and overlay of existing pavements along portions of LA Highways 45 and 3257 are planned. Portions of these highways will also be raised and widened, and approximately one mile of LA Highway 45 will be shifted 30 ft. to the east into the marsh.

For the design of this project (H.004420.5), Eustis Engineering obtained the relevant Coastal Use Permits for the marsh as well as the roadway and marine locations. Eustis Engineering also obtained necessary land access permissions. Drilling comprised 24 soil borings. Of these borings, 20 were drilled over marsh or water to depths ranging from 100 to 200 ft. below the mudline. The remaining four borings were drilled to depths of 20 ft. through existing pavements to evaluate proposed drainage structures and provide recommendations for mill and overlay of existing pavement sections to be incorporated into the final design. Geotechnical design analyses included estimates of vertical pile load capacity, effects of scour on pile capacity, soil-pile interaction to evaluate lateral loads, and pile group settlement. Additional analyses were performed to evaluate ground settlement, settlement surcharge/remediation programs, retaining walls, slope stability, and pavement design. Deliverables included a geotechnical data report, a geotechnical design report, and an electronic boring log data file.

For the construction phase of this project (H.015028.6), Eustis Engineering is completing engineering during construction services as a prime to the LADOTD and is also providing selected construction materials testing services as a subcontractor. Eustis Engineering has completed a Wave Equation Analysis of Piles (WEAP) drivability study and are performing dynamic pile testing on the monitor piles and selected job piles. Eustis Engineering has also developed and implemented a vibration monitoring plan and have reviewed surcharge operations to date. Testing services have included logging the installation of driven square, precast concrete piles.

Scope of Work Relevant to the Contract:

- LADOTD Bridge Design
- AASHTO Manual for Bridge Evaluation
- Geotechnical Design/Analysis for various alternatives
- Maintaining ROW for alternatives

Key Members: Gwendolyn Sanders, PE; Travis R. Richards, PE; and Matthew K. Morales, PE

17. Firm Experience:

Firm name	Eustis Engineering, L.L.C.	Past Performance Evaluation Discipline(s)*	Geotech
Project name	I-10 and I-12 College Drive Flyover Ramp Design Build Project	Firm responsibility (prime or sub?)	Sub
Project number	H.013897	Owner's name	LADOTD through Boh GEC Inc Design Build Team
Project location	East Baton Rouge, LA	Owner's Project Manager	Sherri LeBas, PE
Owner's address, phone, email	8282 Goodwood Boulevard, Baton Rouge, Louisiana, 225-612-4107, slebas@gecinc.com		
Services commenced by this firm (mm/yy)	03/25	Total consultant contract cost ($1,000's)	Unknown
Services completed by this firm (mm/yy)	06/25	Cost of consultant services provided by this firm ($1,000's)	$635.7

This project included a variety of interchange improvements to I-10 West and College Drive including a flyover ramp exit to College Drive in advance of the I-10 and I-12 West merge; a modified exit from I-12 West to College Drive; and a parallel, separated at-grade ramp along I-10 West to the existing College Drive Interchange. Eustis Engineering L.L.C. was part of the design-build team participating in all aspects of this project.

Eustis Engineering completed an exploration of the site to supplement available data comprising 10 undisturbed borings, eight cone penetration tests, and 14 auger or direct push borings. Coordination of traffic control, permitting and safe execution of this exploration in this active and congested interstate corridor were completed by the Eustis Engineering team. Soil mechanics laboratory tests performed in Eustis Engineering accredited laboratory on collected samples consisted of natural water content, unit weight, one-point unconsolidated undrained triaxial compression shear, Atterberg liquid limits and plastic limits, grain size sieve analyses, hydrometer analyses, and one-dimensional consolidation tests. These data were published in a GEOT-01 Geotechnical Exploration Data Report that was reviewed by the State of Louisiana, Department of Transportation and Development (LADOTD) to confirm compliance with their design requirements.

The design services included developing separate geotechnical design reports for each of seven major project features, specifically a sound barrier/noise-wall; the roadway (mainline and exit ramps); the Ward Creek Bridge widening; the I-10 Westbound Bridge over I-12, including driven piles and drilled shafts; retaining and/or Mechanically Stabilized Earth (MSE) walls at modified bridge abutments; box culverts or flumes for site drainage; high mast lighting, Intelligent Transportation Systems (ITS); and other miscellaneous features. GEOT-09 is the design report for the roadway. This report included evaluation of temporary and permanent asphaltic concrete pavements as well as temporary and permanent Portland Cement Concrete pavements. The LADOTD provided reviews of draft and final reports and verified design standards were met. Eustis Engineering also participated in weekly progress meetings with the project design team and with the project stakeholders. Design review meetings were conducted as part of the quality review process. Eustis Engineering's services during construction included observation or performance of testing, including dynamic pile testing.

Scope of Work Relevant to the Contract:

- LADOTD Bridge and MSE Wall Design
- AASHTO Manual for Bridge Evaluation
- Geotechnical Design/Analysis for various alternatives
- Maintaining ROW for alternatives

Key Members: Gwendolyn Sanders, PE; Matthew Morales, PE; and Travis Richards, PE

17. Firm Experience:

Firm name	Eustis Engineering L.L.C.	Past Performance Evaluation Discipline(s)*	Geotech
Project name	Huey P. Long Bridge Widening, Route U.S. Highway 90	Firm responsibility (prime or sub?)	Sub
Project number	EE 18530, 19483, 20262	Owner's name	LADOTD
Project location	Jefferson Parish, LA	Owner's Project Manager	Bruce Peterson
Owner's address, phone, email	1055 St. Charles Avenue, New Orleans, LA / 504-524-4344 / bpeterson@modjeski.com		
Services commenced by this firm (mm/yy)	08/06	Total consultant contract cost ($1,000's)	Unknown
Services completed by this firm (mm/yy)	12/14	Cost of consultant services provided by this firm ($1,000's)	$697.5

In 2004, Eustis Engineering was retained by the LADOTD to perform 16 soil borings, to depths of 150 to 175 ft., to supplement available subsoil information. In 2005, Eustis Engineering performed the engineering analyses associated with the design of the bridge approaches. Eustis Engineering's services included development of allowable vertical pile load capacities (precast concrete, steel H, and treated ASTM D 25 timber); allowable shaft load capacities (7 and 9 ft. in diameter) with and without the benefit of post grouting the shaft tips; estimates of settlement for the proposed pile/shaft groups; evaluation of pile/shaft group capacity and spacing; lateral load analyses of pile foundations for various pile group configurations and loading conditions, in addition to analyses of a single pile, to evaluate the sensitivity of the point of fixity; dewatering and pressure relief recommendations for construction of Pier IVA; and recommendations for test pile and test shaft programs.

In 2006 and 2007, Eustis Engineering provided support to Louisiana TIMED Managers during railroad modifications completed as Phase II of the project. The engineering services performed during this phase of construction included review of contractor submittals and RFIs; performance of WEAP analyses for hammer approval; dynamic pile testing during the initial installation of the test piles; DPTs during restrikes of the piles one to three days after their initial installation; witnessing static pile load tests performed by others; and selecting pile order lengths for piles on the east and west banks to be installed for Phase II. Beginning in June 2008, Eustis Engineering began providing support services during Phase IV of the widening project. The services provided during construction services included those provided during Phase II (i.e., WEAP, DPT, RFIs, etc.) as well as assigning laboratory tests on soil borings performed by the contractor; review of final boring logs and test results; performance and evaluation of cone penetration tests to supplement the soil borings; review of contractor submittals for cofferdams; CAPWAP® analyses; review of load cell calibrations and observation of compression load tests; recommended pile order lengths and installation criteria; observation of test shaft installation; review and evaluation of crosshole sonic logging on test shafts and production shafts; observation of bi-directional (Osterberg) load testing of shafts; review of load test results; evaluation of shaft tip grouting; witnessing mini-SID inspection of the test shafts and production shafts; review of pile driving logs; and project management. Eustis Engineering participated in progress meetings and partnering meetings, performed periodic site visits, and provided other requested services.

Scope of Work Relevant to the Contract:

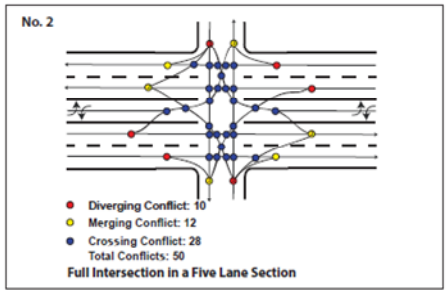
- LADOTD Bridge/Substructure/Foundation and Wall Design
- AASHTO Manual for Bridge Evaluation
- Geotechnical Design/Analysis for various alternatives

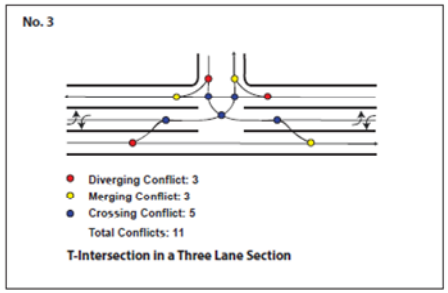
Key Members: Gwendolyn Sanders, PE; Chad Held, PE; and Matthew Morales, PE

17. Firm Experience:

Firm name	Urban Systems Associates, Inc.		Past Performance Evaluation Discipline(s)*	Traffic	
Project name	US 11 Access Management and Complete Street Improvements State 0 Feasibility Study		Firm responsibility (prime or sub?)	Prime	
Project number	H.972035.1/RPC Task SL-7.14	Owner's name	LADOTD		
Project location	St. Tammany Parish, LA		Owner's Project Manager	Nik Richard	
Owner's address, phone, email	10 Veterans Blvd, New Orleans, LA 70124, 504-483-8500, nrichard@norpc.org				
Services commenced by this firm (mm/yy)	09/13		Total consultant contract cost ($1,000's)	$145	
Services completed by this firm (mm/yy)	06/14		Cost of consultant services provided by this firm ($1,000's)	$145	

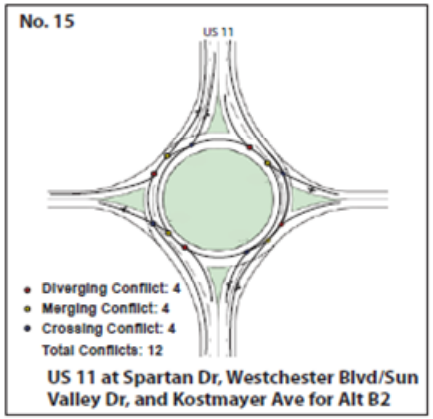
The objective of this study was to identify improvements on US 11 in Slidell, LA to implement access management and enhance safety for all users of the roadway in compliance with LADOTD's Complete Streets Policy. This area was heavily damaged by Hurricane Katrina in 2005 and was still in the process of recovering at the time of the study. Implementing access management strategies and a **complete street design was to improve the safety, mobility and accessibility for vehicle, pedestrian and bicycle traffic.**





Alternatives were developed that included the following types of intersections.

- Stop control
- Traditional Signals
- J-Turn/RCUT intersections
- Roundabouts



Study tasks included:

- Traffic signal warrant analysis at existing and proposed signal locations
- Reviewing various LADOTD policies and FHWA Tech briefs to assist in the development of alternatives
- Projecting changes in traffic flow for alternatives that included a raised median
- Conducting a turn lane warrant analysis
- Conducting Synchro and/or SIDRA analysis
- Conducting a safety analysis including the calculation of crash modification factors
- Preparing Stage "0" environmental checklist
- Developing VISSIM models for presentation purposes

A unique aspect of this project at the time was that the safety analysis included calculating the number of conflicts point for each type of intersection included in the No Build and Build alternatives including all driveways and cross streets. The conflict points were presented in graphical form and the number of conflict points for the entire corridor compared to estimate the potential safety benefits of each alternative compared to the No Build.

Scope of Work Relevant to the Contract:

- DOTD US11 Roadway Design Investigations
- AASHTO Manual for Bridge Evaluation
- Roadway Geometry Alternatives
- Traffic Analysis

Key Members: Alison Michel, Nicole Stewart, Matthew Morgan

17. Firm Experience:

Firm name	Urban Systems Associates, Inc.		Past Performance Evaluation Discipline(s)*	Traffic	
Project name	LA 1: Port Allen Canal Bridge Replacement		Firm responsibility (prime or sub?)	Sub	
Project number	No. H.001234.6, H.014258.5, and H.014248.5, H.014258.6	Owner's name	LADOTD		
Project location	West Baton Rouge Parish, LA		Owner's Project Manager	Robert Isemann	
Owner's address, phone, email	1201 Capitol Access Rd Baton Rouge, LA 70802, robert.isemann@la.gov, 225.379.1398				
Services commenced by this firm (mm/yy)	6/24		Total consultant contract cost ($1,000's)	Unknown	
Services completed by this firm (mm/yy)	Ongoing		Cost of consultant services provided by this firm ($1,000's)	$10K	

Urban Systems prepared a technical memorandum summarizing a safety review for a design exception related to the construction of a new LA 1 northbound bridge over the Intracoastal Waterway. The review focused on the potential safety impacts of increasing the downgrade slope to 6.54%, a change from the existing 5.11% grade, with particular attention to its effect on heavy vehicles.

Existing Safety Conditions

Using crash data from the Louisiana State University CARTS tool for the 2021–2023 period, the safety review evaluated crashes along the study roadway. Key findings included:

- 15 crashes, with no serious injuries or fatalities.
- Predominantly rear-end collisions, with no crashes attributed to skidding, sliding, or friction issues.
- Minimal involvement of heavy vehicles and no roadway departure incidents reported.

Proposed Safety Conditions

The proposed design includes the steeper grade, an increased paved right shoulder, rumble strips, and wider edge pavement striping. Urban Systems conducted a safety analysis to assess the expected impact of these changes using crash modification factors (CMFs) from the Federal Highway Administration's CMF Clearinghouse. The analysis found:

- A calculated CMF of 1.06 for the increased downgrade, indicating a potential increase of less than one crash every three years.
- Countermeasures such as rumble strips and wider shoulders are expected to maintain or improve safety by mitigating roadway departures, even though no such incidents were recorded in the existing conditions.
- Recommendations to consider High Friction Surface Treatments (HFSTs) as an additional safety enhancement.

Conclusion

The safety review concluded that the proposed design modifications are not expected to introduce significant safety concerns, with a minimal increase in expected crashes. The inclusion of safety countermeasures further supports the overall safety of the proposed design, aligning with best practices for mitigating risks associated with steep downgrades

Scope of Work Relevant to the Contract:

- DOTD Roadway Design Investigations
- AASHTO Manual for Bridge Evaluation
- Roadway Geometry Alternatives and Safety Improvements

Key Members: Nicole Stewart, Matthew Morgan

17. Firm Experience:

Firm name	Urban Systems Associates, Inc.		Past Performance Evaluation Discipline(s)*	Traffic	
Project name	LA 67 (Plank Road) Bridge over US 61 (Airline Highway) Level 3 TMP		Firm responsibility (prime or sub?)	Sub	
Project number	H.015424.5	Owner's name	LADOTD		
Project location	East Baton Rouge Parish, LA		Owner's Project Manager	Mark Elkassouf	
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA, 70802, mark.elkassouf@la.gov , 225.379.1200				
Services commenced by this firm (mm/yy)	08/23		Total consultant contract cost ($1,000's)	N/A	
Services completed by this firm (mm/yy)	05/24		Cost of consultant services provided by this firm ($1,000's)	$29.6K	

Urban Systems prepared a Level 3 Traffic Management Plan (TMP) to facilitate repairs on LA 67 (Plank Rd) over US 61 (Airline Hwy) in East Baton Rouge Parish. The TMP, designed in alignment with LADOTD EDSM No. V1.1.1.8, addresses potential challenges and strategies to mitigate traffic delays due to lane and roadway closures within the construction zone, as well as on primary detour routes. The scope of the TMP includes several key tasks:

Traffic Data Collection: Using LADOTD-provided 2018 AM and PM volumes, Urban Systems collected additional 7-day, 24-hour traffic counts, including vehicle classifications at critical points: Plank Rd NB at Airline Hwy NB onramp, Airline Hwy WB near Beechwood Dr, and Airline Hwy WB off-ramp west of Plank Rd NB exit. Peak turning movement counts (TMCs) were collected during AM, MIDDAY, and PM peak hours at the Plank Rd and Harding Blvd intersection. Deliverables included traffic volume printouts in 15-minute intervals, peak hour summary tables, and schematic diagrams showing count locations and data.

Existing Levels of Service Determination: Using Highway Capacity Manual (HCM) procedures, Urban Systems assessed existing Levels of Service (LOS) during peak hours at the Plank Rd and Harding Blvd intersection using HCS software. Deliverables included metrics such as Delay, 95% Queuing, and Volume/Capacity (V/C) ratios for each approach.

Safety Analysis: A safety assessment was conducted using three years of crash data to establish a Baseline Safety Performance review for Plank Rd within the project limits. Collision data were analyzed and compared to statewide averages, identifying potential mitigations to enhance construction zone safety.

Alternate Route Analysis: Urban Systems evaluated detour routes based on collected traffic data, using HCS software to assess LOS at signalized intersections along the detour. Mitigations were proposed to address potential capacity and safety issues on detour routes.

Traffic Management Plan Document Preparation: A Draft Level 3 TMP document, including a Public Information Plan, was prepared and submitted to LADOTD in PDF format. The Public Information Plan outlined necessary steps for communicating road closure schedules and durations to the public.

Stakeholder Involvement: Key stakeholders were identified, and Urban Systems collaborated with them to minimize project impact on local businesses and the public. A stakeholder meeting was held at DOTD, during which the TMP and traffic control plans were presented. Minutes from the meeting were recorded and submitted for review.

Urban Systems' TMP for LA 67 over US 61 ensures a well-coordinated approach to managing traffic disruptions and enhancing safety for all road users within the project area.

Scope of Work Relevant to the Contract:

- DOTD Roadway Design Investigations
- AASHTO Manual for Bridge Evaluation
- Roadway Geometry Alternatives
- Traffic Analysis; Management Plan

Key Members: Alison Michel, Christine Darrah, Nicole Stewart, Matt Morgan, Ryan Wade

18. Approach and Methodology:

PROJECT UNDERSTANDING

The US 11 Norfolk Southern RR Overpass Project will widen US 11 from I-12 to US-190 and reconstruct the US 11 bridge over Norfolk Southern (NS). This project will include the completion of a line and grade analysis, development of the sequence of construction, and the completion of a preliminary cost estimate. This work is to be developed in consideration of right-of-way concerns, the previously completed Environmental Assessment (EA), and information furnished by DOTD including geotechnical data, survey, and pavement design.

Over the course of the project, the work will also include frequent communication with DOTD and coordination with NS's guidance to ensure that the proposed work is in alignment with their requirements, EA commitments, and project objectives.

PROJECT TEAM

Hardesty & Hanover (H&H) understands the DOTD project delivery requirements for time sensitive transportation infrastructure projects. H&H will provide bridge and roadway design services led by **Project Manager, Dr. Bobby Naghavi.** Dr. Naghavi's 43 years of engineering and project management experience provides him with a thorough understanding of the DOTD project delivery requirements for similar railroad overpass projects. During his 25 years of working at the DOTD, Dr. Naghavi participated in multiple complex projects successfully executing contract management, financial management, and development of scope and compensation for various phases. **Project Engineer, Corey Bourgeois,** brings over a decade of DOTD to the team. Our project team is committed to partnering with DOTD and project stakeholders to create a robust approach and cost-efficient response and delivery.

The project team will deliver this project's scope of services and will be responsive to your needs while providing innovations and cost savings to DOTD. Eustis Engineering L.L.C. will provide geotechnical services and Urban Systems Associates, Inc. will perform traffic engineering services as needed. We have successfully delivered DOTD projects with both of these firms.

LINE AND GRADE ANALYSIS

The Line and Grade Analysis will encompass several evaluation variables, including design criteria, horizontal and vertical alignment, typical sections, drainage, and utilities. Our highway engineering team will ensure that the design criteria are established according to the EA and DOTD's latest standards. We understand that there are currently roadway features listed in the EA that require a Design Waiver or Exception. Our team will review these criteria to determine whether additional non-compliant features could potentially be eliminated.

The Line and Grade Analysis will study two different typical sections along US 11: (1) widening to a four-lane, access managed corridor and (2) two-lanes to remain with potential for future widening. The four-lane scope study will also include the necessary traffic studies and analysis at the major intersections north of the bridge.

Multiple alignments will be developed as part of the Line and Grade Analysis for the scope items outlined above. The development of the horizontal and vertical alignment will be closely tied with the evaluation of the project's construction sequence. The alignment alternatives will be identified as being compatible with one or multiple of the construction sequences discussed below. In addition, the alignments will be developed in consideration of the design criteria, railroad ROW, utility conflicts, and drainage.

The drainage and utility design will be carefully evaluated alongside the proposed structural and construction sequence alternatives. The existing bridge structure has a steep vertical grade, which can pose issues for drainage design. Our proposed alternatives may allow for an improvement in the vertical grade, allowing for a revised drainage design that reduces problem areas and impacts to the stormwater management pond. In addition, the locations of existing utilities, both overhead and underground, will be evaluated as part of the design. Utility impacts will be reduced to the extent practical, and services will be maintained and protected with advanced planning and relocation schemes when needed.

At the conclusion of this task, a Line and Grade Report that provides a complete evaluation of the elements mentioned above for both scope alternatives will be prepared and submitted.

SEQUENCE OF CONSTRUCTION

The H&H team has a wealth of experience developing construction sequences for challenging sites and in consideration of a given project's unique constraints. In addition, our familiarity with NS operations and requirements will ensure that the presented construction alternatives are realistic. All construction sequences and potential alternatives will be fully within the bounds of the completed EA document.

Our approach to this project's construction sequence will evaluate the various constraints presented. This includes the guidelines and requirements presented by NS, including the Public Improvement Projects Manual, the anticipated alignment of the roadway and resulting layout of the structure, and the geotechnical conditions at the site. Any proposed construction sequence will maintain a minimum of one lane of traffic in each direction at all times.

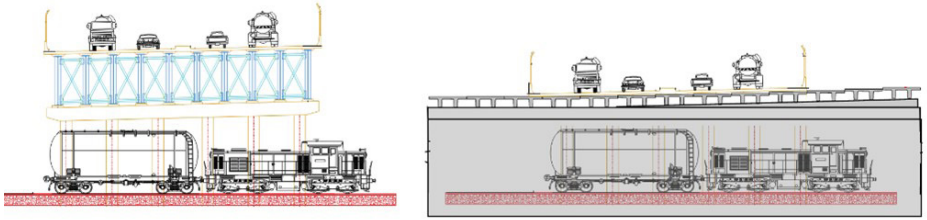
Our approach to this project will be to develop a construction sequence for the alternative presented in the EA documents and to provide DOTD with additional innovative alternatives. The purpose of the additional proposed alternatives is to reduce the size of required construction equipment and to improve operations adjacent to and over the railroad. This is likely to provide cost savings, reduce risk throughout construction, and streamline coordination with NS.

Leading this effort will be Fred Wetekamm who brings a long career of experience working in the field for DOTD, as well as Al Schimmelpfennig, a former Contractor with prior experience in the vicinity of this project. Additionally, **Howard Swanson, who was a Bridge Engineer and former Assistant Chief Engineer for NS for 32 years,** will lead our railroad coordination. We understand the potential constraints of railroad operations, which will likely include abbreviated work windows. While there is not an official amount of track time available for this area, our team assumes that a single two-hour work window within the fouling limits will be available per day, based on the daily scheduling of the approximate 20 freight trains and two passenger trains run on this segment. Based on our project understanding, **we have developed three potential alternatives for the bridge and associated construction sequence:**

- **Option 1:** Steel Multi-Girder (EA Alternative)
- **Option 2:** Straddle Frame Bridge
- **Option 3:** Segmental Bridge

Option 1: Steel Multi-Girder (EA Alternative)

The first construction sequence and bridge design alternative would advance the scheme presented in the EA documents. In a preliminary review of this design, we understand that the construction sequence for the design will require a phased construction to maintain traffic. Half of the bridge will be constructed to the south of the existing footprint prior to shifting traffic, and then the remaining half will be constructed within the existing footprint. We would recommend using temporary lane and shoulder widths to accommodate this phased construction.



Profile Elevation Differential – Steel Multi-Girder vs. Straddle Frame

This design includes a center "drop-in" portion of the steel girder, which may present construction challenges. The weight of the single girder is too large for a single crane pick and the distance from the tracks prevents the use of a double crane. We would explore the potential for alternative methods, which may include placing the steel on rail shuttles to roll the beam into place and vertically jack it. This would have to be carefully coordinated with NS and it is understood that this operation may exceed the length of time allotted in their work windows.

It should be noted that the deep steel framing in this alternative will require the bridge approaches to be lengthy and the grade steep in order to bring the roadway up to its required elevation. Our team can also explore refinements to the framing plan, such as the use of integral straddle bents, that may reduce the overall depth of structure.

Option 2: Straddle Frame Bridge

Our second alternative would utilize structural bents parallel to the tracks and structural beams perpendicular to the railroad, as shown in Figure 1. This would greatly simplify the construction of the bridge structure, as the bents can be constructed outside of the railroad and the structural beams will be a more practical size for picking and placing over the railroad within the prescribed work windows. **This could save up to three to four months as compared to Option 1.** The structure would be constructed outside of the footprint of the existing structure, allowing for the maintenance of traffic on the existing roadway for the duration of construction, until the new bridge is fully completed.

Figure 1. *Straddle Frame Bridge Concept*

This option also allows for potential advantages in the design of the highway geometry. Due to the shallower framing, with girders a maximum of 36 in., this design will allow for the reduction of the vertical elevation of the top of roadway, as shown in the Profile Elevation Differential. This will make the grade on the bridge approaches much less steep, allowing for safer conditions and reducing the overall length of the structure. This construction alternative would also tie back to the alternatives developed as part of the Line and Grade Analysis, as the reduced grade on the bridge approaches will allow for a different vertical alignment option to be developed and the offline construction approach will allow the development of a new horizontal alignment.

The structural design will also be reviewed for the use of steel versus concrete, with the understanding that using precast units, such as the LG-36, may eliminate the need for railroad shielding and can be set in sections compatible with a 2-hour work window. The use of precast deck panels can also be used to reduce forming needs. H&H has successfully employed a similar design in the construction of the Kew Gardens Interchange in New York where our design utilized NEXT beams over the highway to allow for the construction of the skewed roadway overhead (See Figure 2). Our team has the past experience and technical knowledge to provide the complete design for this alternative.

Figure 2. *Straddle Frame Bridge*

Option 3: Segmental Bridge

Another option for the construction of the bridge would be to utilize a segmental concrete design and construct it in a balanced cantilever fashion, as shown in Figure 3, for H&H's I-395 Project for Florida DOT. While this option may impact construction duration and potentially require taller bridge approaches, it can be constructed with access only from above and avoid placement of cranes adjacent to rail tracks. This would present a potential benefit for the coordination with NS, minimizing Railroad Force Account costs and maintaining railroad use throughout construction while expediting the schedule. As part of this project, H&H will more thoroughly investigate these alternatives and continue to explore innovative construction solutions in accordance with DOTD's design requirements and preferred project approach.

Figure 3. *Segmental Cantilever over Railroad*

BRIDGE DESIGN APPROACH

Throughout the development of the construction sequence, design of the bridge will be considered simultaneously. As discussed with the Sequence of Construction, there

are alternatives which may favor the use of either steel or concrete. H&H's structural design experts are adept at the design of steel, cast-in-place concrete, and precast and segmental concrete. This will allow our team to evaluate the potential use of each material based on a given alternative and provide a design that is compliant with DOTD's Bridge Design and Evaluation Manual and Technical Memorandum and will deliver the project in a cost-effective manner.

GEOTECHNICAL DESIGN APPROACH

After reviewing the geotechnical data provided by DOTD from nearby project sites, our project team will work to determine potential geotechnical design solutions for the construction of the bridge. It is understood that the geotechnical design will heavily influence the project's proposed construction sequence as well as the ability to fall within the guidelines of NS and meet their design requirements. This includes design of crash walls, which requires consideration of the foundation's lateral capacity.

Our understanding of the geotechnical conditions of this region is that competent material is often deep underground, and that bedrock may be too deep for piling to reach. Our project team would investigate foundations that can obtain skin friction at a shallower depth, which will be a more cost-effective design solution that also reduces pile driving time. We will also investigate low-vibration construction methods for foundation installation and require vibration monitoring adjacent to the tracks.

Short Length Pile Splicing near Railroad

For foundations adjacent to the railroad, we would consider the use of steel pipe piling spliced in short lengths. This would allow for the use of a short-height piling rig, which would help to avoid the relocation of overhead utility lines and eliminate work window restrictions imposed by NS, allowing for full 8- to 10-hour work shifts. Precast piles that are often utilized in the area will require very high boom and lead heights which will exceed the railroad fouling distance, thus forcing that operation into short work windows. The steel piles with additional splices may cost more upfront but will not exceed the work window inefficiencies of the precast piles. Steel pipe piles can also be filled with reinforced concrete to allow for a longer service life. As part of H&H's technical approach to the project, we will evaluate the various foundation elements that can be utilized and weigh their cost-effectiveness and construction advantages.

The geotechnical design of the bridge approaches will similarly impact the design alternatives and construction sequence. H&H would suggest exploring the use of low density cellular concrete (LDCC) as a retaining wall fill, which will mitigate settlement concerns with using higher walls. This will allow the use of taller MSE retaining walls despite the geotechnical conditions in the area, reducing the overall size of the bridge structure on either side of the railroad. A preliminary investigation using LDCC for this bridge indicates the potential to reduce the side of the bridge structure by 40% and reduce the roadway grade from 5% to slightly above 3%.

We will also investigate the use of fill type T-Walls, using an excavator within the limits of the proposed retaining walls, assuming settlement concerns can be adequately addressed. This will eliminate the need for a crane, which will also allow work operations outside of the restricted windows. Alternatively, bridge approaches can be used in these areas in lieu of retaining walls, if required to mitigate settlement and long-term performance concerns.

H&H is committed to investigating innovative solutions in the project's geotechnical design to ensure that the bridge is constructed efficiently. The geotechnical design approach discussed in this section would apply to any of the structure layouts discussed in the previous sections of this Technical Approach

Benefits of our Proposed Approach

- Efficient and cost-effective design
- Compliant with Norfolk Southern requirements
- Innovative structural alternatives allowing for faster construction
- Potential reduction of superstructure depth and roadway grade
- Construction efficiencies in geotechnical and structural elements

PRELIMINARY COST ESTIMATE

As part of the scope of Initial Services, H&H will produce a Preliminary Cost Estimate for the proposed alternatives during this phase of work. Both the Line and Grade Analysis as well as the development of the Sequence of Construction will be coordinated with the Preliminary Cost Estimate. The line and grade alternatives for both scopes, as well as their accompanying various construction sequence, structural, and geotechnical options will be presented alongside their associated costs so that they can be evaluated for both their technical merits as well as their cost-effectiveness.

H&H's innovative technical design approach will allow for a cost-effective project that not only considers the price of materials and labor, but the cost associated with construction over a critical railroad corridor. Construction efficiencies, compliance with NS guidelines, and innovative structural and geotechnical design will allow for a complete and accurate cost estimate that reflects an effective cost for the proposed work. H&H's engineers will consider the cost of construction when evaluating potential design alternatives and will accurately consider the various construction approaches in the overall estimate of the project cost.

ENVIRONMENTAL ASSESSMENT

Through the development of the project's line and grade and construction sequence alternatives, the designs will be carefully reviewed to ensure they are in line with the previously completed EA. This will also include DOTD's requirement to maintain one lane of traffic at all times, which we understand may not have been considered in the current EA. H&H has a depth of experience completing the NEPA process for a wide range of projects, including highway reconstruction and bridge replacement

projects that include railroads. **H&H's lead environmental expert Victor Minerva will ensure that the alternatives fall within the bounds of the completed EA document.**

PROJECT MANAGEMENT

H&H has a strong understanding of DOTD's Plan Delivery Process. Our project management methodology includes:

Project Initiation: Project Manager, Dr. Naghavi, will meet with the DOTD PM to review the scope and develop our project-specific Project Management Plan (PMP). Our PMP includes: a detailed scope of the project; a detailed schedule, plan review and project coordination meetings; the project design criteria; the anticipated project delivery milestones; our QC plan; a project risk register; identification of any special coordination or utility needs; our communications plan; and the road design report. This plan allows us to gather all the project information efficiently to review and coordinate with the DOTD PM in advance of the design kickoff meeting, ensuring a smooth design process. This PMP is maintained throughout the life of the project, documenting scope modifications and risk concerns throughout the project.

Kickoff Meeting: Dr. Naghavi will coordinate a kickoff meeting with the DOTD PM and pertinent staff to discuss the primary goals of the project and review the draft PMP. This kickoff meeting will also be used as an opportunity to collect any additional existing information pertinent to the project, including: As-built Plans; Feasibility Studies/Traffic Studies; Environmental Documents; and Existing Utility Information. We have already reviewed existing Documents provided by DOTD. After the minutes from the kickoff meeting have been distributed, we will coordinate with the DOTD PM to schedule a site visit and coordinate with the district personnel to discuss their priorities.

Field Visit: While meeting on-site with DOTD, we will assess project risks for compilation of a risk matrix which will be updated throughout the design process and ultimately throughout construction. Some potential concerns include non-accessible utility access points, project clearance issues, proximity to existing right-of-way or structures, and existing drainage problems. This site visit will also provide opportunities to coordinate directly with the district and obtain their understanding of the goals of the project. This upfront field investigation allows us to anticipate potential design issues that typically come up at the 95% preliminary Plan-In-Hand (PIH) meeting and prevent rework later which can impact the schedule. All information from the field will be compiled and anything that needs to be added to the PMP will be tracked to maintain an action list of all factors.

Project Meetings: Other than the above-mentioned meetings, additional meetings such as routine design meetings, Preliminary Plan Review Meeting, Public Meeting(s) and Public Hearing, etc. will also be conducted, as necessary.

Project Tracking and Management: H&H will be responsible for project tracking and will deliver all tasks on schedule. All correspondence will include applicable state project numbers, project names, route number, parish, and federal aid project numbers. We will provide the DOTD PM with a monthly project schedule (in Microsoft Project) and progress report including the estimated and actual date of completion of each task to be performed and the monthly invoices using the DOTD's standard form for invoicing. A Contract Tracking spreadsheet will be included with each invoice.

DELIVERABLES

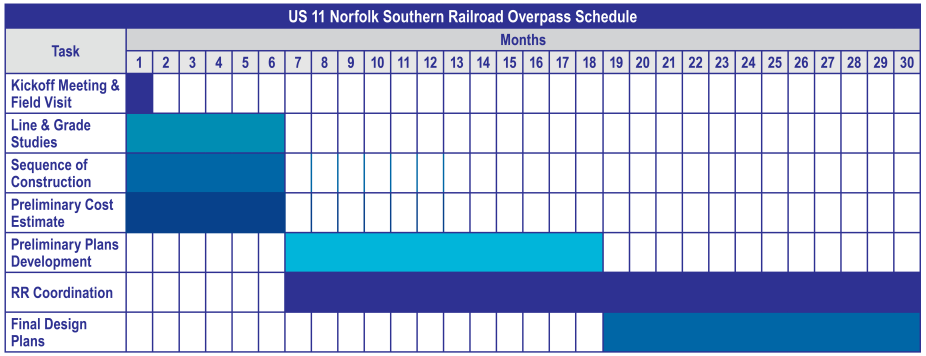
The H&H Team is proficient in using DOTD's current preferred software including InRoads SelectSeries II, CADConform, and HYDRWin. With the knowledge that Bentley is sunsetting InRoads SelectSeries II, we have already started with its transition to Bentley's OpenRoads platform. The specific project deliverables include:

- Line and Grade Analysis for two scope options including the following: Design Criteria, Typical Roadway Sections, Horizontal and Vertical Roadway Geometry, List of Impacted Improvements, Line and Grade Report
- Sequence of Construction
- Preliminary Cost Estimate

Additional deliverables, if authorized, will include Preliminary and Final Design Documents.

SCHEDULE

A proposed project schedule is provided below, based upon the anticipated timeline of 900 days to perform the Scope of Services, with the first 180 days for the completion of Initial Services. Upon initiation of the project, a more detailed schedule will be provided and will identify major milestones in accordance with DOTD standards, including the 30%, 60%, 90%, and 100% submittal milestones for Preliminary Design and for Final Design.



QUALITY ASSURANCE/QUALITY CONTROL

A QA/QC Plan has been prepared and is included with this submittal. H&H has committed to fostering the improvement of quality by generating a project-specific Quality Management Plan (QMP) for providing guidance to the project team. The objective of the QMP is to provide tools to the project team so that our professional services are performed and delivered in accordance with applicable industry standards of care and to the satisfaction of project scope requirements while remaining within the allocated schedule and budget. The QMP includes the H&H standard Quality Assurance and Quality Control Plans. Together these plans form our Quality Management System (QMS). Our QMS is a living document that will be continually assessed and revised to reflect best practices and lessons learned.

19. Workload:

Firm(s) **ALL FIRMS** MUST BE REPRESENTED IN THIS TABLE	Discipline(s) *	Contract Number and State Project Number	Project Name	Remaining Unpaid Balance**
Hardesty & Hanover, LLC	Other (Tunnel Inspection)	4400028222; H.011006.5 Task 1	IDIQ Contract for Tunnel Inspection Services	$480,148
	Bridge	4400023511; H.009730.5 Task 1	Bridge Inspection of Complex Structures	$333,903
	Bridge	4400023511; H.009730.5 Task 2	Bridge Inspection of Complex Structures LADOTD Movable Bridge Inspection Manual	$537,836
	Bridge	4400023511; H.009730.5 Task 3	Bridge Inspection of Complex Structures US 190 bridge Inspection; Krotz Springs - **Completed**	$149,467
	Bridge	4400023511; H.009730.5 Task 4	Bridge Inspection of Complex Structures SNBI Data Collection	$688,813
	CE&I/OV	4400017430; H.001498.6	LA 24 and LA 316: Company Canal Bridge, Terrebonne Parish	$344,208
	Bridge	4400023909; H.002244.5 Task 2	IDIQ Contract for Movable Bridge Preservation Boudreaux Canal (Mechanical)	$186,821
	Bridge	4400023909; H.015963.5 Task 4	IDIQ Contract for Movable Bridge Preservation Boudreaux Canal (Structural)	$175,217

	CE&I/OV	4400024021; H.015028.6	LA 302: Bayou Barataria MB Replacement Route: LA 302	$4,361,815
	CE&I/OV	4400024022; H.002264.6	LA 302: Bayou Barataria MB Replacement Route: LA 302, LA 47, and LA 3257	$1,210,389
	Bridge	4400021516; H.011962; H.012063; H.013818; H.011986; H.012734	Contract 4 for Movable Bridges (5)	$2,601,085
	Bridge	4400026585; H.006226.5	Point-a-la-Hatche Ferry Landing Replacement	$113,240
Eustis Engineering L.L.C.	CE&I/OV	H.015028.6	LA 302: Bayou Barataria Bridge Replacement, Phase 1, Jefferson Parish, LA	$15,000
	Geotech	H.015028.6. 4400019017, Task Order 03	LA 302: Bayou Barataria Bridge Replacement, Phase 1, Jefferson Parish, LA	$51,000
	CE&I/OV	4400021740. S.P. No. H.004100.6. F.A.P. No. H004100. 11265001.000 I-10 CMAR	I-10: LA Highway 415 to Essen Lane on I-10 and I-12, Phase I: West of Washington Street to Essen Lane, Phase I, Segment 01: West of Washington Street to Acadian Thruway, Route I-10, West and East Baton Rouge Parish, Louisiana	$14,000
Urban Systems Associates, Inc.	Traffic	No. H011221.5, H.011222.5; No.4400022581	I-10: N.O. CBD3 (Poydras- Louisa) & I-10:N.O CBD4 (Louisa – I-510)	$100.3
	Traffic	No.4400024185, No.H.016046.5	US 190: Atchafalaya R @ K'Sprngs Repairs	$7,615.50
	Traffic	No.4400026585, No. H.006226.5	Pointe-a-La-Hache Ferry Landing Replacement	$5,000.00

20. Certifications/Licenses:

Secretary of State Documents

State of Louisiana Secretary of State

COMMERCIAL DIVISION
225.925.4704

Fax Numbers
225.932.5317 (Admin. Services)
225.932.5314 (Corporations)
225.932.5318 (UCC)

Name	Type	City	Status
HARDESTY & HANOVER, LLC	Limited Liability Company (Non-Louisiana)	WILMINGTON	Active

Previous Names

Business: HARDESTY & HANOVER, LLC
Charter Number: 40880812Q
Registration Date: 7/6/2012
Domicile Address
2711 CENTERVILLE ROAD, SUITE 400
WILMINGTON, DE 19808
Mailing Address
1501 BROADWAY, 6TH FLOOR
NEW YORK, NY 10036
Principal Business Office
1501 BROADWAY, 6TH FLOOR
NEW YORK, NY 10036
Registered Office in Louisiana
3850 N. CAUSEWAY BOULEVARD, SUITE 1625
METAIRIE, LA 70002
Principal Business Establishment in Louisiana
3850 N. CAUSEWAY BOULEVARD, SUITE 1625
METAIRIE, LA 70002

Status

Status: Active
Annual Report Status: In Good Standing
Qualified: 7/6/2012
Last Report Filed: 7/3/2024
Type: Limited Liability Company (Non-Louisiana)

Registered Agent(s)

Agent: BABAK NAGHAVI
Address 1: 3850 N. CAUSEWAY BOULEVARD, SUITE 1625
City, State, Zip: METAIRIE, LA 70002
Appointment Date: 6/1/2017

Officer(s)

Additional Officers: No

https://coraweb.sos.la.gov/CommercialSearch/CommercialSearchDetails_Print.aspx?CharterID=991993_C5533DFB96

Officer: SEAN BLUNI
Title: Member
Address 1: 1501 BROADWAY, 6TH FLOOR
Address 2: HARDESTY & HANOVER, LLC
City, State, Zip: NEW YORK, NY 10036

Officer: PAUL SKELTON
Title: Member
Address 1: 1501 BROADWAY, 6TH FLOOR
Address 2: HARDESTY & HANOVER, LLC
City, State, Zip: NEW YORK, NY 10036

Officer: KEITH GRIESING
Title: Member
Address 1: 1501 BROADWAY, 6TH FLOOR
Address 2: HARDESTY & HANOVER, LLC
City, State, Zip: NEW YORK, NY 10036

Officer: GLEN SCHETELICH
Title: Member
Address 1: 5 MARINE VIEW PLAZA, SUITE 503
Address 2: HARDESTY & HANOVER, LLC
City, State, Zip: HOBOKEN, NJ 07030

Officer: DAVID TUCKMAN
Title: Member
Address 1: 1501 BROADWAY, 6TH FLOOR
Address 2: HARDESTY & HANOVER
City, State, Zip: NEW YORK, NY 10036

Officer: ROBERT DREW
Title: Member
Address 1: 1501 BROADWAY, 6TH FLOOR
Address 2: HARDESTY & HANOVER, LLC
City, State, Zip: NEW YORK, NY 10036

Officer: SCOTT REYNOLDS
Title: Member
Address 1: 180 ADMIRAL COCHRANE DRIVE, SUITE 555
Address 2: HARDESTY & HANOVER, LLC
City, State, Zip: ANNAPOLIS, MD 21401

Amendments on File (1)

Description	Date
Foreign LLC Statement of Change	6/1/2017

Print

State of Louisiana Secretary of State

COMMERCIAL DIVISION
225.925.4704

Fax Numbers
225.932.5317 (Admin. Services)
225.932.5314 (Corporations)
225.932.5318 (UCC)

Name	Type	City	Status
EUSTIS ENGINEERING L.L.C.	Limited Liability Company	METAIRIE	Active

Previous Names

EUSTIS ENGINEERING SERVICES, L.L.C. (Changed: 3/31/2016)

Business: EUSTIS ENGINEERING L.L.C.
Charter Number: 36251453K
Registration Date: 8/17/2006
Domicile Address
3011 28TH STREET
METAIRIE, LA 700026019
Mailing Address
C/O GWENDOLYN P. SANDERS
3011 28TH ST.
METAIRIE, LA 700026019

Status

Status: **Active**
Annual Report Status: **In Good Standing**
File Date: 8/17/2006
Last Report Filed: 7/23/2025
Type: Limited Liability Company

Registered Agent(s)

Agent: GWENDOLYN SANDERS
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 700026019
Appointment Date: 3/16/2020

Officer(s)

Additional Officers: No

Officer: GWENDOLYN P. SANDERS
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 70002

Officer: JAMES HANCE
Title: Manager
Address 1: 3011 28TH STREET

City, State, Zip: METAIRIE, LA 70002

Officer: CHAD HELD
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 70002

Officer: TRAVIS RICHARDS
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 70002

Officer: LAWRENCE W. ROME
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 70002-6019

Officer: SEAN WALSH
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 700026019

Officer: BENJAMIN CODY
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 700026019

Officer: MATTHEW MORALES
Title: Manager
Address 1: 3011 28TH STREET
City, State, Zip: METAIRIE, LA 700026019

Amendments on File (7)

Description	Date
Disclosure of Ownership	9/15/2006
Domestic LLC Agent/Domicile Change	5/28/2014
Domestic LLC Agent/Domicile Change	3/31/2016
Appointing, Change, or Resign of Officer	3/31/2016
Name Change	3/31/2016
Domestic LLC Agent/Domicile Change	3/16/2020
Appointing, Change, or Resign of Officer	3/8/2021

Print

State of Louisiana
Secretary of State

COMMERCIAL DIVISION
225.925.4704

Fax Numbers
225.932.5317 (Admin. Services)
225.932.5314 (Corporations)
225.932.5318 (UCC)

Name	Type	City	Status
URBAN SYSTEMS ASSOCIATES, INC.	Business Corporation	NEW ORLEANS	Active

Previous Names

Business: URBAN SYSTEMS ASSOCIATES, INC.
Charter Number: 30812980D
Registration Date: 11/12/1974
Domicile Address
2000 TULANE AVENUE
SUITE 200
NEW ORLEANS, LA 70112
Mailing Address
2000 TULANE AVENUE
SUITE 200
NEW ORLEANS, LA 70112
Principal Office Address
2000 TULANE AVENUE
SUITE 200
NEW ORLEANS, LA 70112

Status

Status: **Active**
Annual Report Status: **In Good Standing**
File Date: 11/12/1974
Last Report Filed: 10/21/2024
Type: Business Corporation

Registered Agent(s)

Agent: ALISON MICHEL
Address 1: 2000 TULANE AVE
Address 2: SUITE 200
City, State, Zip: NEW ORLEANS, LA 70112
Appointment Date: 12/31/2019

Officer(s)

Additional Officers: No

Officer: ALISON C. MICHEL
Title: President

Address 1: 877 CHAPELLE STREET
City, State, Zip: NEW ORLEANS, LA 70124

Officer: NICOLE STEWART
Title: Secretary, Vice-President
Address 1: 8454 BEECHWOOD COURT
City, State, Zip: NEW ORLEANS, LA 70127

Amendments on File (12)

Description	Date
Revoked	5/13/1982
Reinstatement	10/29/1986
Disclosure of Ownership	2/24/1993
Disclosure of Ownership	7/15/1994
Disclosure of Ownership	5/2/1995
Disclosure of Ownership	7/10/2002
Appointing, Change, or Resign of Officer	4/18/2012
Restated Articles	9/7/2012
Domicile, Agent Change or Resign of Agent	5/15/2013
Disclosure of Ownership	9/10/2014
Restated Articles	1/16/2015
Domicile, Agent Change or Resign of Agent	12/31/2019

Print

Certifications

U.S. Department Of Transportation
Federal Highway Administration

NATIONAL HIGHWAY INSTITUTE

National Highway Institute
Certificate of Training

Babak Naghavi

has participated in

NEPA and Transportation Decision Making

hosted by

LADOTD / LTRC

Location: Baton Rouge, LA

Hours of instruction: 18

Date: May 17 - 19, 2005

Instructor

Director, National Highway Institute
Federal Highway Administration

Coordinator

Director, Office of Professional and Corporate Development
Federal Highway Administration

U.S. Department Of Transportation
Federal Highway Administration

NATIONAL HIGHWAY INSTITUTE

National Highway Institute

Certificate of Training

Alison Michel

has participated in

NHI Course No. 142005 -
NEPA and Transportation Decision Making

hosted by

LA DOTD/LTRC

Date: May 28-30, 2014

Location: Baton Rouge, LA

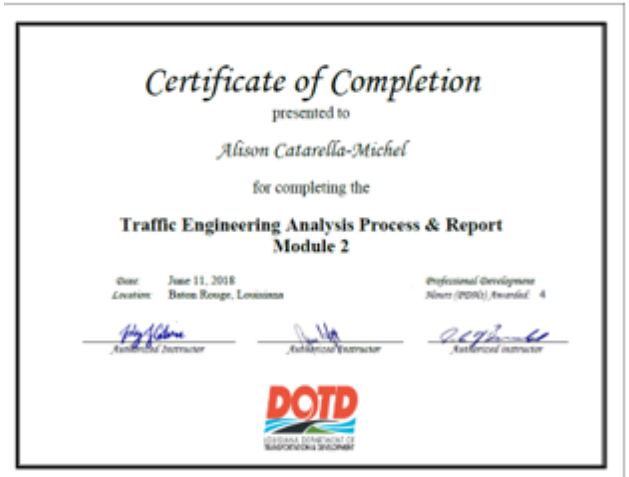
Hours of Instruction: 18

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute



Certificate of Completion

presented to

Alison Catarella-Michel

for completing the

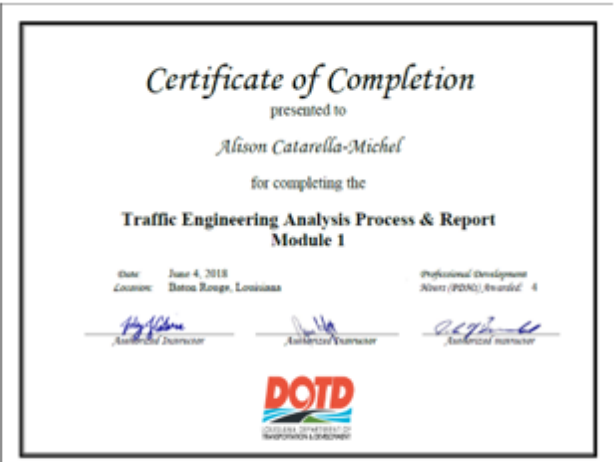
Traffic Engineering Analysis Process & Report
Module 2

Date: June 11, 2018
Location: Baton Rouge, Louisiana

Professional Development Hours (PDH) Awarded: 4

Authorized Instructor | Authorized Instructor | Authorized Instructor

DOTD



Certificate of Completion

presented to

Alison Catarella-Michel

for completing the

Traffic Engineering Analysis Process & Report
Module 1

Date: June 4, 2018
Location: Baton Rouge, Louisiana

Professional Development Hours (PDH) Awarded: 4

Authorized Instructor | Authorized Instructor | Authorized Instructor

DOTD

Certificate of Completion

presented to

Alison Catarella-Michel

for completing the

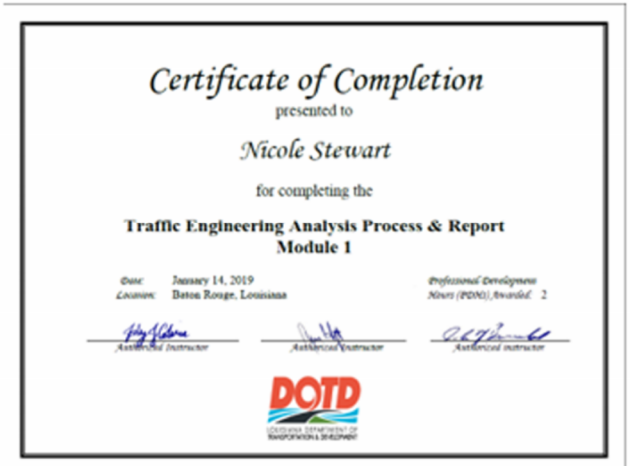
Traffic Engineering Analysis Process & Report
Module 3

Date: September 10, 2018
Location: Baton Rouge, Louisiana

Professional Development Hours (PDH) Awarded: 3

Authorized Instructor | Authorized Instructor | Authorized Instructor

DOTD



Certificate of Completion

presented to

Nicole Stewart

for completing the

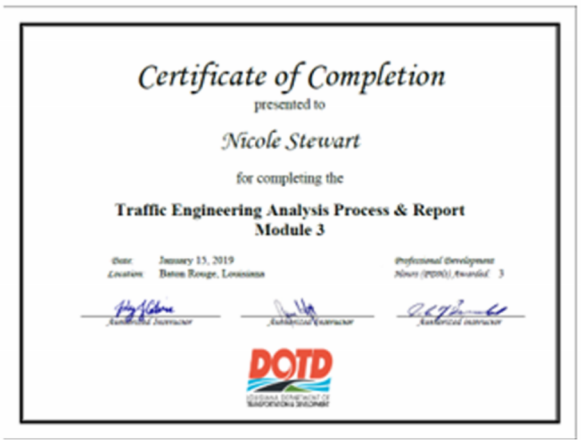
Traffic Engineering Analysis Process & Report
Module 1

Date: January 14, 2019
Location: Baton Rouge, Louisiana

Professional Development Hours (PDH) Awarded: 2

Authorized Instructor | Authorized Instructor | Authorized Instructor

DOTD



Certificate of Completion

presented to

Nicole Stewart

for completing the

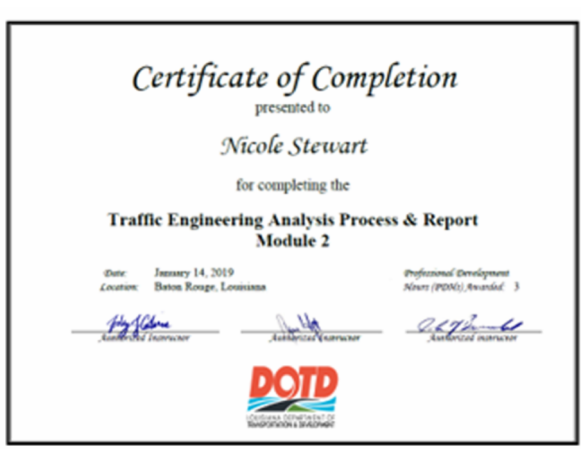
Traffic Engineering Analysis Process & Report
Module 3

Date: January 15, 2019
Location: Baton Rouge, Louisiana

Professional Development Hours (PDH) Awarded: 3

Authorized Instructor | Authorized Instructor | Authorized Instructor

DOTD



Certificate of Completion

presented to

Nicole Stewart

for completing the

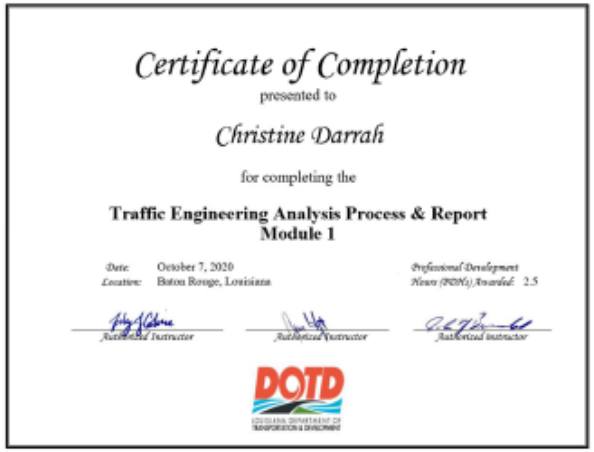
Traffic Engineering Analysis Process & Report
Module 2

Date: January 14, 2019
Location: Baton Rouge, Louisiana

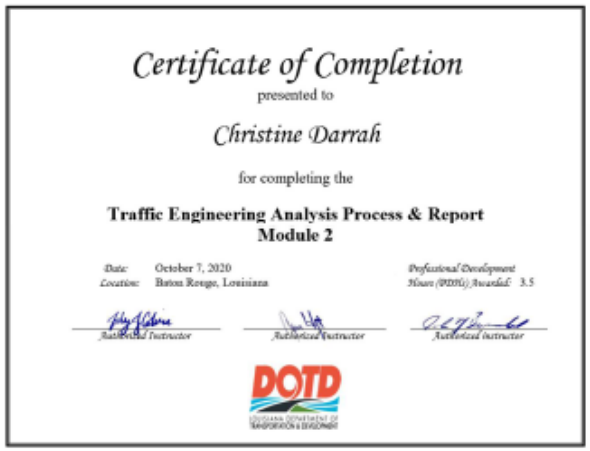
Professional Development Hours (PDH) Awarded: 3

Authorized Instructor | Authorized Instructor | Authorized Instructor

DOTD



Certificate of Completion
presented to
Christine Darrah
for completing the
Traffic Engineering Analysis Process & Report
Module 1
Date: October 7, 2020
Location: Baton Rouge, Louisiana
Professional Development Hours (PDH) Awarded: 2.5
Authorized Instructor
Authorized Instructor
Authorized Instructor
DOTD



Certificate of Completion
presented to
Christine Darrah
for completing the
Traffic Engineering Analysis Process & Report
Module 2
Date: October 7, 2020
Location: Baton Rouge, Louisiana
Professional Development Hours (PDH) Awarded: 3.5
Authorized Instructor
Authorized Instructor
Authorized Instructor
DOTD

Certificate of Completion
presented to
Christine Darrah
for completing the
Traffic Engineering Analysis Process & Report
Module 3
Date: October 8, 2020
Location: Baton Rouge, Louisiana
Professional Development Hours (PDH) Awarded: 3.5
Authorized Instructor
Authorized Instructor
Authorized Instructor
DOTD

Certificate of Completion
presented to
Matthew Morgan
for completing the
Traffic Engineering Analysis Process & Report
Module 1
Date: February 25, 2019
Location: Bridge City, Louisiana
Professional Development Hours (PDH) Awarded: 2
Authorized Instructor
Authorized Instructor
Authorized Instructor
DOTD

Certificate of Completion
presented to
Matthew Morgan
for completing the
Traffic Engineering Analysis Process & Report
Module 2
Date: February 25, 2019
Location: Bridge City, Louisiana
Professional Development Hours (PDH) Awarded: 3
Authorized Instructor
Authorized Instructor
Authorized Instructor
DOTD

Certificate of Completion
presented to
Matthew Morgan
for completing the
Traffic Engineering Analysis Process & Report
Module 3
Date: February 26, 2019
Location: Bridge City, Louisiana
Professional Development Hours (PDH) Awarded: 3
Authorized Instructor
Authorized Instructor
Authorized Instructor
DOTD

21. QA/QC Plan:

QA/QC Plan is included in the following pages.




Hardesty & Hanover, LLC
Quality Management Plan

1.0 Table of Contents

2.0 Quality Management Plan Authorization

The Hardesty & Hanover (H&H) Quality Management Plan consists of procedures that have been developed to assure that the various quality elements of the project are carried out in a planned and controlled manner and in accordance with the industry standards and the LADOTD contract requirements.

The herein described "Quality Management Plan" is an accurate and consistent reflection of Hardesty & Hanover policies and procedures. Hardesty & Hanover acknowledges that H&H and our subconsultants are fully responsible for QC/QA of our own work and the LADOTD bears no responsibility for performing QC/QA of the work of Hardesty & Hanover or our subconsultants.

Rodney A. Jarrett

04 Sept 2025

Signature

Date

Rodney A. Jarrett

H&H Quality Manager

Babak Naghavi

04 Sept 2025

Signature

Date

Bobby Naghavi, PE

H&H Project Manager

2.1 Introduction

Hardesty & Hanover (H&H) has committed to fostering the improvement of quality by generating, for every project, a project specific Quality Management Plan (QMP) for providing guidance to the project team. The objective of the QMP is to provide tools to the project team so that our professional services are performed and delivered in accordance with applicable industry standards of care and to the satisfaction of project scope and contractual requirements while remaining within the allocated schedule and budget.

The Quality Management Plan includes the H&H firm standard Quality Assurance and Quality Control Plans. Together these plans form our Quality Management System (QMS). The intent of the QMS is to define procedures for Quality Control and Quality Assurance which minimize errors, discrepancies, and omissions in H&H's work products.

Hardesty & Hanover acknowledges that H&H and their subconsultants are fully responsible for QC/QA of their own work and the LADOTD bears no responsibility for performing QC/QA of the work of Hardesty & Hanover or their subconsultants. Subconsultants will follow their firm's quality plan(s) which will meet or exceed the contractual requirements. H&H will review subconsultants' plans to ensure compliance with project requirements and that submissions are certified for compliance with their approved quality plan.

3.0 Quality Control & Quality Assurance Concepts

3.1 Definitions

a) **Contract Requirements:** Established by LADOTD for each project, these requirements take precedence over any other practices established by H&H. Notwithstanding specific contract requirements, minimum H&H quality practices and industry standard of care are applicable to all projects. Contract requirements are identified in the sections below.

b) **Prime Consultant or Design Builder (DB) Quality Requirements:** There are no supplemental project specific Prime Consultant or Design Builder Quality requirements.

c) **Project Specific Engineering Oversight Practices:** These practices are established by H&H during project initiation and will vary depending on the classification of the project as determined by the firm. Engineering Oversight activities are a supplement to, and not a replacement of, project quality activities. Project Specific Engineering Oversight Practices are identified in the sections below.

d) **Quality Control (QC**): Procedures of checking the accuracy and consistency of the calculations and the drawings, detecting and correcting design omissions and errors before the design plans are finalized, and verifying the specifications for the load-carrying members are adequate for the service and operation loads.

e) **Quality Assurance (QA):** Procedures for reviewing the work to ensure the quality control procedures are in place and effective in preventing mistakes, and consistency in the development of bridge design plans and specifications.

f) **Quality Assurance Plan:** This document defines the intent and practices for overall Quality Assurance and Engineering Oversight with an emphasis on the activities of project management, specifically the process for identifying project practices for Audits, Witness Points, Hold Points, and Internal Technical Reviews. Modifications to the Quality Assurance Plan are identified in the sections below.

g) **Quality Control Plan:** This document defines the intent and practices for overall Quality Control with an emphasis on the activities of the project technical staff. The design and document review process and practices are defined in this document. Modifications to the Quality Control Plan are identified in Section 3.4 below.

h) **Design Policies:** These are supplemental documents that are exclusively for internal use. These are not submitted to LADOTD. Portions of Design Policies may be used in the development of a Project Quality Control Process, for example if a specific Design Practice is recommended for use to address a particular project design element.

4.0 Quality Management System

Customer Satisfaction and Quality Management System Improvement

H&H is continually striving to improve customer satisfaction. Our QMS is a living document that will be continually assessed and revised to reflect best practices and lessons learned. This process includes clarification of design information to support construction or production, correction and prevention of errors and omissions, and response to client comments, complaints, and feedback.

Quality Control Program Objectives

Quality Control is a series of activities, actions and procedures routinely undertaken to ensure that our services and their representative work products are produced to the requisite standard of care and in accordance with the defined technical philosophy of the firm.

Our Quality Control process ensures that each work product is thoroughly reviewed in detail by someone in addition to the review by the Designer/Originator/Producer who prepared that work product for conformity with generally accepted standards of design and engineering practice.

Unless otherwise approved by the engineer in responsible charge, at least one of the primary individuals involved in preparing (Designer) or checking (Checker) a document shall be a Professional Engineer, experienced and qualified in the appropriate engineering discipline and project jurisdiction. Comments generated by the quality control process are to be resolved to the satisfaction of both the Designer and the Checker. The process of Quality Control (QC) is documented and recorded in a manner which allows for management of the process and review of the process through Quality Assurance (QA). The full detailed QC process can be found in our QC Plan attached in Appendix B.

Quality Assurance Program Objectives

The Quality Assurance Program encompasses the systematic review of our design and development processes and our Quality Control activities to confirm that the desired level of quality has been attained and will continue to be obtained. Quality Assurance identifies procedural shortfalls and recommends changes to improve our processes. Quality Assurance is a company-wide process that confirms that the proper processes are in place to assure that our services and products meet the requisite standard of care. A brief summary of our Quality Assurance process follows. The full detailed QA process can be found in our QA Plan attached in Appendix A.

Quality Assurance

Quality Assurance reviews will be performed to confirm conformance with the project Quality Management Plan. The review shall verify that the project team has sufficiently accomplished all quality goals set forth in the Quality Management Plan. After completion of the QC process, the QC/QA Certification Form (see Appendix C-11) shall be completed and submitted along with the milestone submission package to indicate compliance with the QC plan.

Quality Assurance documentation provides a record that the design development and review process was performed as required. This documentation is to include records of the important steps which led to the development of final planning documents as well as the final design, such as preliminary concepts, model validation, design calculations, computer code input and any communications, instructions, and directives which have a direct bearing on the project.

Types of documentation to be reviewed for compliance with the procedures set out in the Quality Control Plan:

a) Design Criteria
a) Reports – All reports prepared for the project irrespective of type.
b) Interdisciplinary Coordination – Minutes of meetings and signed attendance lists.
c) Calculations/Computer Solutions
d) Drawings
e) Specifications
f) External Comment Responses
g) Prior Audit Documents – All documentation provided by the Quality Auditor including recommendations for improvement, nonconformance reports, and any other check lists.

Additionally, the Quality Assurance Review is used to identify areas of weakness in the Quality Control process and develop preventive actions that focus on areas of potential nonconformance to reduce the risk associated with these areas.

If the QA Review identifies potential nonconformities, the review may also include determination of their probable cause, determination of preventive action needed, implementation of preventive action and determining if preventive action was implemented and effective in preventing nonconformity. The Project Manager is responsible for developing and implementing preventive actions that address the potential areas of nonconformance identified in the QA Review and working to reduce or eliminate the risk in these areas. Additional staff and analytical tools may be utilized depending on the nature and extent of the nonconformity.

QA Information Package & Design Completion

Upon completion of the final QC process, which shall be no later than the 95% Final Plans stage, the designer is responsible for preparing a QA information package and providing it to the PQAL Reviewer for QA review.
The QA package shall include:

- Calculation book prepared in accordance with the requirements of the LADOTD Final Calculation Book Checklist contained in Appendix C-9
- LADOTD QA information package check list (see Appendix C-10)
- Plans
- Special provisions including Non-Standard items
- Cost estimate
- Any relevant documents, such as checklists, review comments, etc., utilized by the designer, design checker, detailer, and detail checker.

If design revisions are required after the QA information package has been submitted, the PQAL Reviewer must be notified of such revisions and supplied with the revised information.

After completion of the QA process which shall be no later than the 98% Final Plans stage, the LADOTD QC/QA Certification Form (see Appendix C-11) shall be completed and signed by the designer, design checker, detailer, detail checker, reviewer and EOR. When the project includes peer review, geotechnical or hydraulic scope, these portions of the certification will be completed as well.

Control of Nonconforming Product

Corrective action will be appropriate to the severity of the nonconformance identified. The Project Manager shall develop and implement any corrective action procedure taken. The corrective action procedure shall be approved by the Chief Technical Officer. The procedure shall identify the nonconformance root cause and the necessary actions

required to resolve the nonconformance to the satisfaction of the client. The procedure shall address nonconformity identification (including client complaints), cause determination, action to prevent recurrence, identifying and implementing the corrective action, recording results, and determining if the corrective action was implemented and effective in resolving the nonconformance.

4.1 Effective Date and Revisions

As the QMP is a living document that reflects the currently accepted standards of care and lessons learned on H&H projects, the contents of the H&H QMP will be updated as needed. Updates will be issued as controlled documents (i.e., with versions and revision dates).

The project management team is responsible for providing the project staff with relevant portions of the QMP.

Quality Management Plans, once approved by the firm and the client, are unique to the project. Such a plan may not be modified or re-used for another project without the approval of the Quality Manager.

4.2 Quality Management Plan Development

H&H will continually develop and implement measures that assure the various elements of this project are performed in a planned and controlled manner according to, at a minimum, the prevailing standard of care for professional practice applicable to the service being provided.

H&H quality control and assurance activities are dictated by this Quality Management Plan. The plan establishes policy, sets procedures, and controls those which may be specifically assigned to a project.

The plan describes the program, responsibilities and actions required by all project participants to ensure that quality control procedures are performed and documented. As a result, all interested parties can be assured that an appropriate level of engineering quality will be provided, and that the technical staff members will recognize their role in the quality process.

The H&H Quality Manager is responsible for the annual review of this QMP. The review shall include all aspects of the plan including but not limited to review of comments by clients, audits by clients and corrective action costs, if any. The QM will recommend improvements to the plan upon completion of the review.

5.0 QA/QC Responsibilities

5.1 Project Staff

There are several responsible parties involved in the Quality Assurance and Quality Control of a project from inception to completion. Their project and quality specific roles and responsibilities are described in the Quality Assurance Plan Section 2.0 contained in Appendix A of this document. The H&H Project Manager (PM) and Project Quality Assurance Lead (PQAL) will be responsible for the plan execution. For this project, the following persons will be responsible for the various roles:

H&H Project Principal In Charge: Bobby Naghavi, PE

The Principal in Charge (PIC) is responsible for the overall project, delivery of our services to the client and is responsible for overall client satisfaction. The PIC is to be aware of the project performance, both technical and financial, and ensure the Project Manager is performing his/her duties in accordance with the firm requirements.

H&H Chief Technical Officer: Keith Griesing, PE

The Chief Technical Officer (CTO) is responsible for the technical quality of the services of the firm. The CTO is responsible for review of the Project Management Plan including the technical approach and risk assessment.

H&H Quality Manager: Rodney A. Jarrett

The Quality Manager (QM) is responsible for review and approval of all project specific Quality Management Plans, including but not limited to review of comments by clients, audits by clients and corrective action, if any. The QM has firm wide responsibility for confirming that Project Managers develop and adhere to Quality Management Plans for individual projects.

H&H Project Manager/Supervisor: Bobby Naghavi, PE

- Responsible for all activities necessary to deliver H&H services in accordance with the contract requirements, including financial performance as well as oversight of the technical sufficiency of the services.
- Licensed by the State of Louisiana as a professional engineer
- Experienced in the design of similar structures.
- Acts as primary point of contact and project communications for H&H
- Develops a comprehensive Project Management Plan as a requirement for Project Initiation which includes the Project Technical Approach Plan.
- Establishes and monitors the project budget, schedule, and staffing requirements.
- Establishes design criteria and design parameters, working with the technical discipline leads. Design criteria shall meet all the requirements of the LADOTD Design Criteria Checklist contained in Appendix C-8.
- Coordinates with subconsultants
- Chairs project meetings, produces and distributes minutes as needed
- Reviews the H&H Quality Assurance Review (QAR) Form prepared by the Project Quality Assurance Lead and certifies the deliverable is ready for submission.
- Completes and signs the LADOTD Consultant Submittal QC/QA Certification Form contained in Appendix C-13 that accompanies each submission.

H&H Project Engineer: Corey Bourgeois, PE

- Responsible for project development and delivery according to the requirements communicated by the Project Manager (PM)
- Leads the project delivery efforts and works closely with the project Technical Leads in defining the technical direction of the project
- Provides communication and direction to technical staff

H&H Project Quality Assurance Lead: Timothy Noles, PE

- Responsible for ensuring that the QC process has met the requirements of this QMP; is complete and the design calculations, drawings, special provisions, and cost estimate are in accordance with LADOTD Bridge Design practices, policies, and procedures.
- Licensed by the State of Louisiana as a professional engineer
- Experienced in the design of similar structures.
- Communicates with Project Manager on a regular basis to maintain the QC review schedule for projects.
- Responsible for oversight of project specific quality activities including the collection and appropriate filing of all Quality Control and Quality Assurance documentation. Maintains an auditable record of all QC reporting forms generated during design reviews.

- Verifies that the QC activities have been performed and that qualified and competent personnel have undertaken the QC activities.
- Performs Quality Assurance Reviews documented with the H&H Quality Assurance Review and Certification Form (QAR) contained in Appendix C-1. The PQAL shall review the project quality control documentation in advance of submission to confirm that design QC activities are complete, comply with the Quality Management Plan and meet the requirements of the submittal review checklist.
- Reviews Subconsultant's Quality Certification form indicating compliance with the project approved QMP. Review or delegate review of submission content against the QA Checklist. May perform audits to review QC documentation for milestone submissions. See forms contained in Appendix C-5 and C-6.

Discipline Leads/EORs:

- Engineers in responsible charge of a specific design segment in their area of expertise
- Required to sign/seal as Engineer of Record (EOR) unless client or other requirements exist.
- Licensed by the State of Louisiana as a professional engineer
- Experienced in the design of similar structures.
- Ensure the QC/QA certification is signed by all responsible parties.
- Assemble design calculations from all designers, finalize the calculation book, and seal the cover sheet of the calculation book for their discipline.
- Ensure the names of the designer, design checker, and reviewer are correctly shown on the title block of each plan sheet. Stamp all plan sheets or designate a designer, design checker, or reviewer who shall be licensed by the State of Louisiana as a professional engineer to stamp the sheets developed under their supervision.
- The EOR must stamp the general notes sheets for their discipline.

The following will act as Discipline Leads/EORs for this project:
Bridge Design Lead: Erik Diaz, PE
Roadway Design Lead: John Rayer, PE
Geotechnical Lead: Raymond Mankbadi, PE
Hydraulics Lead: J. Lee Adams, PE

5.2 QUALITY ROLES

Designers:

- Engineers directly responsible for the development of design calculations, drawings, special provisions including Non-Standard items, and cost estimate.
- Licensed by the State of Louisiana as a professional engineer or certified as an engineer intern.
- Ensure that design software is on the pre-approved list provided in Appendix C-13.
- Prepare the design documents for QC review
- Participate in Peer Review meetings when requested on complex projects. Use form in Appendix C-12.
- Prepare the Final Calculation Book according to checklist in Appendix C-9 and QA Information Package content upon completion of the final QC process.

The following will act as Designers for this project:
Linh Kim, PE; Dennis Gowins, PE; Dalton Hunt, EI; Courtney Mai, EI

Design Checkers:

- Engineer responsible for performing a full technical review of the design calculations, drawings, special provisions including Non-Standard items, and cost estimate.
- Licensed by the State of Louisiana a professional engineer or certified as an engineer intern; however, if the designer is an engineer intern, the design checker must be a professional engineer.

The following will act as Design Checkers for this project:
Fred Wetekamm, PE; John Rayer, PE; Robert Hideck, PE;

Detailers:

- Detailers are directly responsible for the creation of the CAD drawings.
- Responsible for ensuring that the drawings adequately represent the design information
- Must self-check their own work to minimize errors.

The following will act as Detailers for this project:
Will Farber, EI; Lauren Blakeley, PE

Detailer Checkers:

- The detail checker must ensure the drawings are in accordance with the design information and CAD standards. All dimensions and quantity calculations must be verified.

The following will act as Detailer Checkers for this project:
Linh Kim, PE

Reviewers:

- The reviewer is the engineer responsible for ensuring that the QC process as described above is complete and the design calculations, drawings, special provisions, and cost estimate are in accordance with LADOTD Bridge Design practices, policies, and procedures.
- The reviewer must be licensed by the State of Louisiana as a professional engineer and must have substantial experience in the design of similar structures.
- The H&H reviewer is also known as the Project Quality Assurance Lead or PQAL.

The following will act as Reviewers for this project:
Timothy Noles, PE

5.3 Training

H&H will only employ qualified personnel to execute the scope of work.

The Project Manager is responsible to review the record of each employee and determine if the background and experience of the employee is acceptable for the assigned scope of work.

The Project Manager is responsible to ensure staff assigned to the Project is properly trained in the QMP, Procedures/Instructions, any project-unique technical requirements, availability of technical resources, etc. within the consultant organization as they relate to the Scope of Work, and has valid evidence of fitness (certification, license, etc.) for executing the work for this Project.

Training will consist of in-house education and field experience. H&H staff found deficient will not be assigned work in their area of deficiency until requirements for the position are met.

6.0 Project Description

Provide engineering and related services to reconstruct and widen US 11 from I-12 to US 190, including replacement of the US 11 bridge over the Norfolk-Southern Railroad.

6.1 Scope of Work

The scope of the project is to perform all necessary professional services in connection with the US 11 Norfolk Southern RR Overpass (HBI) Project (H&H Project Number 7163.00). The general scope of work associated with this contract includes:

1. PROJECT MANAGEMENT

H&H shall coordinate with DOTD on the project status and schedule. H&H shall submit a proposed project schedule to DOTD for review and approval. H&H shall coordinate with and provide the DOTD Project Manager with monthly updates on the project status and schedule. H&H will have periodic coordination meetings with the DOTD Project Manager during the course of the project to review the project status and address any concerns of DOTD.

2. DETAILED LINE AND GRADE STUDIES

H&H shall develop two (2) detailed line and grade studies of the project corridor using two (2) different project limits and scopes as described below:

1. Widening of US 11 to a four (4) lane, access-managed corridor including replacement of the existing bridge as described in the EA document.
2. A reduced project scope limited to replacing the existing bridge with a two-lane bridge and necessary shoulders with project limits set accordingly. The improvements in this scope must not preclude future roadway reconstruction and widening to construct the full project limits and scope as defined in EA document.

The purpose of the line and grade studies shall be to determine the exact limits of the project and anticipated right-of-way takings as well as to ensure that the selected alternative from the EA document can be designed in a manner that will comply with all current DOTD Design Guidelines and is reasonably constructible.

As part of the line and grade studies, H&H shall develop bridge design criteria as outlined in the Bridge Design and Evaluation Manual and shall propose the most cost-efficient and constructible bridge type, size, and location. The bridge type, size, and location shall consider and exhibit reasonably sized foundation elements and other elements necessary to satisfy the railroad requirements such as railway crash walls.

H&H shall use the topographic survey, subsurface utility engineering survey, and property survey provided by DOTD to develop the line and grade studies.

2.1 Line and Grade Analysis

H&H shall prepare line and grade studies, which will include but are not limited to the following:

- Establishment of design criteria.
- Develop typical roadway sections.
- Develop horizontal geometry.
- Develop vertical geometry and set minimum roadway grade.
- Identify major drainage structure locations.
- Establish approximate required right-of-way (ROW) limits.
- Develop a list of impacted improvements, including potential utility conflicts.
- Line and Grade Report.

This analysis shall encompass more detailed variables which should include but not be limited to the following categories:

2.2 Design Criteria

H&H shall review design criteria from the previously prepared Environmental Document to determine if any modifications are necessary based upon currently established DOTD design criteria and will update the design criteria appropriately.

H&H shall establish the design criteria which will include design class and design speed, lane widths, minimum horizontal curvature, maximum side slopes, horizontal and vertical clearances, and maximum roadway guide. We shall prepare a Table of Design Criteria to be included in the document. The design criteria will be used in developing the horizontal and vertical alignments. The design criteria will be based on latest official DOTD Design Road Design Manual and American Association of State Highway and Transportation Officials (AASHTO) for design speed and functional classification, and on recommendations from DOTD.

Design criteria shall be submitted for DOTD review and approval.

2.3 Horizontal Alignment

A horizontal alignment study will be prepared. The alignment should consider major utility conflicts, major drainage structures, existing roadway/bridge geometry, superelevation, sight distance, and suggested sequence of construction. The alignment shall be developed consistently with all applicable Access Management, Complete Streets, Environmental Document, and other DOTD policies and manuals. The alignment should consider existing roadway conditions, maintenance of traffic, existing bridge, and location of utilities, environmentally sensitive areas, topographic features, developed properties, urban constraints, and railroad crossings.

A plan view of the proposed horizontal alignment will be prepared. The following geometric data will be displayed on the plan view: baselines and stationing, edge of pavement, shoulder, curb and sidewalk lines, lane and shoulder dimensions, curve lengths (L), tangent lengths (T), curve radii (R), superelevation rates and transition lengths, control of access limits, existing and estimated r/w limits, bridge limits, existing and relocated utilities, as known, major drainage features, railroads, signalized intersections.

2.4 Vertical Alignment

A vertical alignment study will be prepared. The vertical alignment shall consider above ground and underground utility clearance, major drainage or structure locations, overpass clearances, etc. A profile view of the proposed vertical alignment will be prepared. The following geometric data will be displayed on the profile: P. V. I. Location, Vertical Grades, Length of Vertical Curve (V. C.), Headlight or Stopping Sight Distance (H. L. S. D. or S. S. D.), and required Vertical Clearances.

2.5 Typical Sections

H&H shall review original typical sections in the Environmental Document and either adopt or revise as necessary to meet approved design criteria. H&H shall submit the typical cross sections to DOTD for approval.

2.6 Utilities

H&H shall avoid utility relocations whenever possible. Any required utility relocations will be estimated based upon the concept level plans and using DOTD provided SUE survey. Any existing utilities that are in conflict shall be noted in the Line and Grade Report.

2.7 Line & Grade Study Report

H&H shall prepare a line and grade report. This report will include, but not be limited to, the following sections:

- Design reports, any required design waivers and/or exceptions
- Utility Conflicts
- Drainage
- Conceptual Layouts or most cost effective, constructible solution (plan and profile sheets, typical sections)

3. SEQUENCE OF CONSTRUCTION

H&H shall develop a suggested sequence of construction for both line and grade studies. The suggested sequence of construction shall maintain one (1) northbound lane and one (1) southbound lane throughout the duration of the project. H&H shall propose a sequence of construction that reduces negative impacts to the surrounding businesses and through traffic along the corridor.

4. PRELIMINARY COST ESTIMATE

H&H shall perform preliminary construction cost estimates for both line and grade scopes. These cost estimates shall include all temporary and permanent works required for the project.

6.2 Deliverables

Document	Hold Point	Witness Point
Quality Assurance / Quality Control Plan (QMP)		X
Schedule		X
Design Criteria Summary		X
TS&L		X
Preliminary Plans (30%)	X	
Preliminary Plans (60%)	X	
Traffic and Toll Studies	X	
Preliminary Plans (90%)	X	
Preliminary Plans (100%)	X	
Supplemental EA	X	
Final Plans (30%)	X	
Final Plans (60%)	X	
Final Plans (90%)	X	
Final Plans (100%)	X	
Load Rating Report	X	
Final Calculation Book, Plans, Specs & Estimate.	X	

6.3 Audit Schedule

In accordance with Section 6.3 of the Quality Assurance Plan, Quality Audits shall be determined and scheduled by the Chief Technical Officer or Quality Manager.

6.4 Project Specific Procedures

The H&H Quality Control Plan and Quality Assurance Plan shall be followed in their entirety as enclosed and as amended below.

6.5 Quality Control Plan Modifications

The H&H firm standard QC Plan attached in Appendix B shall be supplemented by the requirements of the LADOTD Bridge Design Section Policy for QC/QA as stated in Part I, Chapter 3 of the *LADOTD Bridge Design and Evaluation Manual (BDEM),* and as set forth in this project specific Quality Management Plan. The requirements of the LADOTD Bridge Design Section Policy for QC/QA as stated in Part I, Chapter 3 of the *LADOTD Bridge Design and Evaluation Manual (BDEM)* shall take precedence over the H&H firm standard QC Plan.

6.6 Quality Assurance Plan Modifications

The H&H firm standard QA Plan attached in Appendix A shall be supplemented by the requirements of the LADOTD Bridge Design Section Policy for QC/QA as stated in Part I, Chapter 3 of the *LADOTD Bridge Design and Evaluation Manual (BDEM),* and as set forth in this project specific Quality Management Plan. The requirements of the LADOTD Bridge Design Section Policy for QC/QA as stated in Part I, Chapter 3 of the *LADOTD Bridge Design and Evaluation Manual (BDEM)* shall take precedence over the H&H firm standard QA Plan.

Hardesty & Hanover
engineering that moves you

Hardesty & Hanover, LLC
Quality Assurance Plan

Table of Contents

1.0 Introduction

Quality Assurance is the systematic review of our design and development processes and our Quality Control activities to confirm that the desired level of quality has been attained and will continue to be obtained. Quality Assurance identifies procedural shortfalls and recommends changes to improve our processes.

Quality Assurance is a company-wide process that confirms that the proper processes are in place to assure that our services and products meet the requisite standard of care.

2.0 Key Definitions and Roles

2.1 Key Definitions

a) **Back Checker:** The individual who reviews the Checker's comments. The Originator / Producer functions as the Back Checker unless another qualified individual is assigned by the PM.

b) **Checker**: The individual who through education and/or experience is knowledgeable within an area of technical subject matter, who has been assigned by project leadership to perform an accuracy and correctness check of technical content.

c) **Check Print**: The copy of the work product to be used in the quality control process. The Check Print may be a hard (paper) copy or a digital file such as a Portable Document File (PDF) that is capable of recording review markups. A Check Print is required at each Hold Point and may be requested by the Client, PM, or HQ at a Witness Point. Refer to the appropriate process by document type / class in section 4 for Check Print contents.

d) **Director of Engineering:** The Director of Engineering is responsible for overall allocation of staff to projects directly or through coordination with the Office Managers and/or other Staffing Managers, depending on the business unit. For the purposes of this document, the title "Staffing Manager" is used to represent the role of the Office Manager, New York Staffing Manager, or Director of Engineering with respect to assignment of resources.

e) **Engineer of Record:** A licensed Professional Engineer responsible for signing and sealing design reports, plans, and specifications which they prepared, or which were prepared under their direct supervision.

f) **Fundamental Project:** Projects that represent core services for existing clients that do not represent significant or unusual risk to the firm or substantial revenue relative to a specific business unit. Refer to Operating Policy OP-06 for further information.

g) **Hold Point**: A level of design where specific aspects of the project such as design objectives, design criteria, and principal geometry are typically locked in. At a minimum, Concept level plans (10-15% design), Final plans (100% design), and Issued For Construction (IFC) or Released For Construction (RFC) plans are mandatory Hold Points.

h) **HQ**: Also referred to as Headquarters Engineering. This specifically refers to the authority of the technical directors such as but not limited to the Chief Technical Officer, Director of Engineering, Risk Management Officer, Quality Manager, or respective Practice Leaders and Chief Engineers.

i) **Independent Check**: Verification of a calculation by performing a separate standalone calculation to confirm results in lieu of performing a detailed check.

j) **Internal Technical Reviewer**: Reviewer for a project or portion thereof that has not been a principal participant in the development of a work product.

k) **Key Project:** Any project that does not meet the definition of a Fundamental Project. Refer to Operating Policy OP-06 for further information.

l) **Originator / Producer**: The individual, qualified by experience in the applicable discipline, who is assigned to prepare documents and/or generate work product.

m) **Phase Submittal**: A milestone submittal of a preliminary work product to a client (i.e., concept plans, 60% plans, or similar prior to final.)

n) **Plans**: Drawings and/or CADD files created by H&H for use by the Client as part of the contract or bid documents or, in the case of alternative delivery such as design/build, to construct the project.

o) **Preliminary:** A document, including reports, plans, specifications, or similar documents, prepared by H&H and submitted to the client prior to the anticipated final submittal of such document. Preliminary documents are 100% complete and validated by QC but represent a lesser level of development than the final work product.

p) **Principal In Charge:** The Principal in Charge (PIC) is responsible for the overall project and delivery of our services to the client. The PIC leads negotiations for contractual agreements with the client and is responsible for overall client satisfaction. The PIC is to be aware of the project performance, both technical and financial, and ensure the Project Manager is performing his/her duties in accordance with the firm requirements.

q) **Project Management Plan (PMP):** The plan developed by the Project Manager prior to project initiation to describe "how" and "by whom" a specific project will be performed, including detailed budget, schedule, resources, responsibilities, communications, and quality. The Project Management Plan includes the Operations Plan, Technical Plan and Quality Management Plan.

r) **Quality Management Plan (QMP):** The plan developed by the Project Manager to describe specific quality requirements for a given project. The QMP typically includes variances or enhancements to the firm standard QMP.

s) **Quality Control (QC**): Procedures of checking the accuracy and consistency of the work product to minimize errors, discrepancies, and omissions, to ensure adherence to industry standards and to deliver an exceptional product to our clients.

t) **Quality Assurance (QA):** Procedures of reviewing the design and development processes to ensure the Quality Control procedures are in place, implemented per firm policy and the desired level of quality has been attained and will continue to be obtained. Quality Assurance identifies procedural shortfalls and recommends changes to improve processes where appropriate.

u) **Quality Auditor:** A person who is an Engineer or Manager that is assigned by HQ to perform a Quality Assurance Audit for a project.

v) **QC Stamp:** A physical or digital stamp applied to work product to signify that it is the check copy (aka Check Print) and for recording the initials and dates of the individuals who performed the quality control process.

w) **Verifier**: The individual assigned to verify that the Checker's and Originator / Producer's comments have been implemented. The Verifier may be any individual assigned by the PM but will preferably be the Checker.

2.2 Key Roles

There are several responsible parties involved in the Quality Assurance of a project from inception to completion. Their project and quality specific roles and responsibilities are described below.

Based on the project staffing needs identified, in terms of skill set and level of experience, and the basic project organization structure, the staff related to the key roles of Project Manager, Project Engineer, Project Quality Assurance Lead, and Discipline or Task Lead should be identified. An org chart or responsibility matrix showing these positions should be included in the project files and updated to reflect any staff changes as the project progresses.

2.2.1 Discipline or Task Lead

a) Project Responsibilities

1) Typically, the engineer in responsible charge of a specific design segment and required to sign/seal as Engineer of Record (EOR) unless client or other requirements exist.

b) Quality Responsibilities

1) Responsible for ensuring that QC has been completed and that the documents have been provided to the Project Quality Assurance Lead, or the Project Manager if no Project Quality Assurance Lead has been assigned for their specific design segment or portion of a project.

2) Responsible for coordination with the Project Engineer if a Project Submission Report is to be prepared, as described in Section 5

2.2.2 Project Engineer

A project may have more than one Project Engineer (PE) on large multi-disciplinary projects where work is divided into segments or disciplines. The Project Engineer shall be a licensed Professional Engineer in the jurisdiction of the project.

a) Project Responsibilities

1) The Project Engineer is responsible for project development and delivery according to the requirements communicated by the Project Manager (PM).

2) Based on the organization of the project as determined by the Chief Technical Officer and the PM, the Project Engineer may be the technical lead for key decisions during the project development process. Alternatively, the Project Engineer may lead the project delivery efforts and work closely with the project Technical Lead in defining the technical direction of the project.

3) Provides communication and direction to technical staff.

4) In coordination with each design lead, the Project Engineer is encouraged to prepare a Project Submission Report as described in Section 5

b) Quality Responsibilities

1) Serves as an intermediary between the Project Quality Assurance Lead and project development activities.

2) In instances where the Project Engineer is the technical lead for the project, the Project Engineer is responsible to document the key decisions including code interpretations, contract nonconformances, and deviations made and document acceptance of these decisions by the PM. Documentation of such instances must be made available to the Project Quality Assurance Lead and Quality Manager.

3) In instances where the Project Engineer is the Project Quality Assurance Lead, the Project Engineer is responsible for all responsibilities listed in Section 2.2.3 below including but not limited to:
    a) Scheduling Quality Assurance Reviews as required in Section 3.1 below.
    b) Providing necessary information to the Quality Auditor. Necessary information includes write-ups for complex or complicated design documents or computations to facilitate review.

2.2.3 Project Quality Assurance Lead

The Project Quality Assurance Lead (PQAL) is assigned by the Project Manager and may be a third party not involved in project development but is typically the Project Engineer. The PQAL is responsible for the collection and appropriate filing of all Quality Control and Quality Assurance documentation. If separate from the Project Engineer, the PQAL should be a licensed professional engineer, and responsible for oversight of project specific quality activities.

The PQAL shall report to the Project Manager and the Quality Manager as outlined below.

The PQAL must be familiar with Client Requirements.

a) Project Responsibilities
    1) Communicates with Project Manager and Project Engineer on a regular basis to maintain the QC review schedule for projects.
    2) Maintains an auditable record of all QC reporting forms generated during design reviews.

b) Quality Responsibilities
    1) Has ‘halt work’ authority for nonconformance.
    2) Responsible for management of the Quality Control and Quality Assurance process either directly or through delegation.
    3) Shall direct QC efforts and verify that the QC activities have been performed and that qualified and competent personnel have undertaken the QC activities in coordination with the Project Engineer. Quality Control shall be done by project level staff directly involved with design activities.
    4) Responsible for performing Quality Assurance Reviews. The PQAL shall review the project Quality Control documentation in advance of submission to confirm that design QC activities are complete and comply with the Quality Management Plan.
        a. Quality Control Documents that are not accompanied by appropriate information or explanation may be rejected by the PQAL and returned to the Project Engineer for completion.
        b. Documents the results of the QA review activities, verifies incorporation of comments made during QA reviews, and resolves outstanding comments through communication with the Project Manager and Project Engineer.
            i. Identifies and records nonconformance on the Quality Assurance Report Form.
            ii. Tracks, monitors, and reports to the Project Manager and Quality Manager on the status of outstanding design-related nonconformance reports as requested.
    5) Generates Quality Assurance reports using the Quality Assurance Report Form when requested by the Quality Manager. The report is submitted to HQ and a copy is placed in the project files.

2.2.4 Project Manager

The Project Manager (PM) is responsible for all activities necessary to deliver H&H services in accordance with the contract requirements.

a) Project Responsibilities:

1) The Project Manager is responsible for the project financial performance as well as oversight of the technical sufficiency of the services.

2) The PM is responsible for developing the Project Technical Approach Plan in accordance with Operating Policy OP-06 and for meeting all project specific goals set forth in the Plan.

3) The PM directs the development and delivery process. The PM also directs all communication with the Client.

4) The PM coordinates with the Staffing Manager on project staff needs.

5) The PM's activities shall include, as a minimum, assessment and evaluation of the following as they are applicable to a given project:

a. Design reports

b. Analytical approach

c. Drawing details for conformity to Contract requirements

d. Project Specifications for conformity to Contract requirements

e. Design and Work Plans

f. Major temporary components' effect on permanent components

g. Field design changes

h. Design approvals for Materials and procedures

i. As-Built Plans for conformity with final design and Contract requirements.

6) The PM, and/or staff working under the direct supervision of the PM, shall conduct an assessment and evaluation of design such that the PM can certify to the Chief Technical Officer, the Quality Manager, and to the Client, if required, that the design satisfies the Contract requirements, including the following requirements:

a. Accuracy

b. Adequacy

c. Conformance to standards of practice

d. Compliance with codes and standards

e. Quality

f. Fitness for purpose and/or function as specified and/or implied in the Contract

g. Conformance with the standard practices and specifications of the Client.

7) Sign the Quality Assurance Report Form.

a. The Project Manager, certifies that the noted submittal for the referenced project has completed and met the requirements of the Project Quality Management Plan, is complete for the level of development and meets the requirements of Hardesty & Hanover.

b) Quality Responsibilities

1) The Project Manager develops a Quality Management Plan to meet the specific project goals and requirements. The QMP is submitted to the Quality Manager for review.

2.2.5 Discipline Chief Engineer

a) Project Responsibilities

1) Does not typically have direct project development responsibilities unless assigned to the project.

b) Quality Responsibilities

1) Upon request of the Project Manager, resolves and documents the resolution of any differences of opinion between the Checker and Back Checker during Quality Control and provides this information to the Project Quality Assurance Lead (PQAL) or the Project Manager if no PQAL has been assigned.

2) Attends both the Project Initiation Technical Meeting and the Project Staff Kick-off Meeting. Based on the scope and discussions at the Project Initiation Technical Meeting, the CTO and Chief Engineers decide the level of HQ Oversight and Chief Engineer (or delegate) involvement appropriate for the project.

2.2.6 Quality Manager

The Quality Manager (QM) has firm wide responsibility for confirming that Project Managers have developed and adhered to Quality Management Plans for individual projects. The QM is responsible for meeting the quality goals and objectives set by the Chief Technical Officer.

The QM provides oversight of the review and audit process through coordination with the Project Managers and Project Quality Assurance Leads.

a) Project Responsibilities:

1) Reviews and approves Quality Management Plans in support of firm goals.

b) Quality Responsibilities:

1) Develops a framework for the H&H Quality Control and Assurance Plans. Manages and implements these policy documents.

2) Evaluates existing plans to determine if plans are effective.

3) Recommends improvements to existing plans.

4) Directs the performance of internal audits of the quality process on a project-by-project basis. Prepares nonconformance reports if required.

5) Has ‘halt work’ authority for nonconformance.

6) Prepares periodic reports to the Chief Technical Officer identifying:

a. QC activities performed by project as directed by the QM

b. Submissions-prior completed and future planned

c. Projects that may require additional technical oversight

d. Contract nonconformance reports

e. QC Plan nonconformance reports.

2.2.7 Chief Technical Officer

The Chief Technical Officer (CTO) is responsible for the technical quality of the services of the firm. In this capacity, the CTO defines policies and directives that establish the minimum performance criteria for the technical services of the firm.

a) Quality Responsibilities:
    1) Establishes quality goals and objectives
    2) Monitors the performance of the Quality Manager and supporting quality staff
    3) Performs independent review of Key Projects
    4) Has 'Halt work' authority for project technical services.

3.0 General Intent

All projects require a Quality Management Plan (QMP) as part of the Project Management Plan. Planning for Quality Assurance is an integral part of the QMP to be developed by the Project Manager prior to project inception. The Quality Management Plan shall follow the H&H Quality Management Plan Template, modified as necessary for project and client requirements, to ensure the quality of our services meets the requirements of the client within the requisite standard of care. All Quality Management Plans are subject to the approval of the Quality Manager.

The intent of this Quality Assurance Plan is to provide procedural controls for maintaining the quality of work delivered to the Client through communication and verification. Quality Assurance is not a substitute for appropriate project quality control activities.

Quality Assurance is validation that our services and products meet the requisite standard of care and communication of those standards. It is a company-wide process that confirms that the proper processes are in place and being followed.

Examples of Quality Assurance activities include:

a) Quality Assurance Review – Review, by the Project Quality Assurance Lead, of documented internal and external comments generated during the internal QC process or external milestone review and confirmation that all comments were addressed, or the reviewer agrees to non-incorporation on the basis of sufficient explanation.

b) Quality Assurance Audit – Audits consist of a review, by HQ or their designee in conjunction with the Project Manager and the Project Quality Assurance Lead, of Quality Control functions and documentation for conformance with applicable procedures. Quality Assurance Audits are covered in Section 6 of this document.

c) Project Initiation Meetings – Project Initiation Meetings consist of two meetings held prior to the initiation of services and are discussed further in Section 5.

d) Project Submission Reports – Optional report, prepared prior to phase or final submission of design plans and calculations and provided with the submission. Further discussion provided in Section 5.

3.1 Schedule & Frequency of QA Activities

QC processes are performed as work products are developed and/or at various stages of project development and need to be accounted for in the project development schedule. Quality Assurance must consider that the work may proceed through several major stages and that at completion of each milestone in the development of a project, major interdisciplinary coordination, or Internal Technical Review, the Quality Control documentation will be developed.

The key to assurance of quality is verification that the quality control procedures and supplementary activities have been implemented and, if not, the Project Manager is informed of the discrepancies. The PM is responsible to plan and execute corrective actions. These actions require documentation by the Quality Manager and review of this documentation by the firm's Chief Technical Officer.

4.0 Documentation Requirements

4.1 Control of Documents

The Project Manager is directly or through delegation responsible for the handling and storage of all project documents. The Project Manager should identify and communicate to all project staff the location of all project documentation. Access to project documentation - including but not limited to filing, letters, memos, records, reports, calculations, computer output, drawings, specifications, and QA/QC documentation - shall be in accordance with the Hardesty & Hanover "Document Control and Retention Guidelines" and the requirements of the Project Information Control System (PICS). Files may be accessed by authorized personnel only.

The Project Quality Assurance Lead is responsible for the proper use, distribution, and approval of quality related documents. The Project Quality Assurance Lead, in implementing these duties, will prepare and distribute a written procedure for use on the project, as well as any checklists of quality related documents considered to be necessary.

Documentation must be kept in order to provide a record that the development and review process was performed as required. This documentation must include records of the important steps which led to the development of final planning documents as well as the final design, such as preliminary concepts, model validation, design calculations, computer code input and any communications, instructions and directives which have a direct bearing on the project.

4.2 Change Control of Design Documents

4.2.1 Change Control of Design Documents during Design

Once a Quality Assurance review has been initiated on a milestone submittal, work shall not continue to be progressed until after the submission has been made. Revisions to Project Design Documents shall not be permitted prior to a milestone submittal after the Verifier has signed off on the Check Print.

4.2.2 Change Control of Documents during Construction

The Project Manager is responsible to provide the interface with the client during the pre-bid, bid, and award stages of the Construction Contract. Supplements or addenda developed during this period shall receive the same level of review as the original document and be reviewed by the Discipline or Task Lead Engineer prior to issue.

As-Built Drawings and Specifications shall be developed per Contract/Agreement requirements. As-Builts shall be independently reviewed to assure field marked prints and other sources of as-built information have been correctly translated onto the original document.

Revisions to Project Design Documents shall be controlled. Methods are established with the project Construction Management Team on a project-specific basis to assure revisions are reviewed to the same level as the original documents for the area of change and previous versions of the documents undergoing change have been appropriately controlled to prevent inadvertent use. Prior to submission, the Project Manager and Discipline or Task Lead Engineer shall review the Project Design Documents. Records of these activities shall be maintained by the Discipline or Task Lead Engineer.

4.3 Control of Records

Sufficient documentation and records will be accumulated to provide objective evidence that the design development and review process has been performed in accordance with accepted engineering practice, as well as in

conformance to contractual requirements and client directions, including pertinent quality records of subconsultants, if any.

The documentation will include not only final design documents, such as drawings and specifications, but records of important steps which led to the final design, such as design calculations, communications, instructions and directives which have a direct bearing on the project.

Control of records shall be in accordance with the Hardesty & Hanover "Document Control and Retention Guidelines" and the requirements of the Project Information Control System (PICS). Records will be filed by subject, date, file category, etc. Quality Assurance reviews and audits and corrective action will be stored electronically and filed in the 200-PM\QA folder in the electronic project files along with the approved Project Quality Management Plan.

An Index of Project Records will be part of the File. Responsibility for the accuracy and completeness of the records is assigned to the Project Manager or their designee.

Access to records will be under control of the Project Manager or their designee.

Removal of records to a location other than the immediate area where the file is located will be restricted to authorized persons (Principal and Project Manager). Measures to identify removed files and their current location shall be maintained. Security measures as determined by the Project Manager will be applied to those records dealing with Construction Cost Estimates.

The Project Manager, in accordance with the provisions of the contract, will identify those records to be transmitted to the Client upon completion of the Project and transmit the appropriate records.

5.0 Communication Protocols

Quality should be advocated from the top down and the bottom up through communication between all levels of the project. Quality is achieved through adequate planning, scoping, communications and coordination, supervision, and technical direction; by providing adequate time in the schedule for thorough reviews; by proper definition of job requirements and procedures; by the use of appropriately skilled personnel; and by individuals performing their work functions carefully.

The Project Manager is responsible to ensure the project team understands the necessary steps and has the proper time to execute the necessary activities.

This section sets the minimum requirements for communication during project development.

5.1 Pre-Project

During the period before the initiation of the project, the Project Manager is responsible to develop the QMP as required by Operating Policy OP-06. During this phase, the Project Manager must communicate with the Client, HQ, the Quality Manager, and the Staffing Managers for the various disciplines required by the scope of services to identify resources for delivery and quality activities. Information from the QMP shall be entered into the Vision database, including but not limited to, designation of project category as Key or Fundamental per Operating Policy OP-06, project stage and proposed submission schedule.

In some circumstances the Quality Management Plan may be part of the project pursuit process and proposal. This is particularly true with Design-Build pursuits. For all projects, the QMP is subject to approval of the Quality Manager and/or Chief Technical Officer for use during project execution.

5.2 Project Start-up

Assuring the quality of our services requires each project to begin with the ultimate goals in mind. To this end, the quality process will have several specific and required steps as part of the project start-up procedure. The following identifies the minimum recommended steps to be taken and documented prior to the initiation of any project.

5.2.1 Project Initiation Technical Meeting

Subsequent to review of the Project Technical Plan, the CTO will determine if the project requires a Project Initiation Technical Meeting. If required, a Project Initiation Technical Meeting will be scheduled with the firm technical managers. The purpose of this meeting is to discuss the following:

a) Scope of services
b) Client expectations
c) Project schedule
d) Anticipated work plan and staffing needs
e) Specific technical requirements or complexities
f) Risks associated with the project and the intended mitigation measures
g) Quality Management Plan

The following individuals, or their appointed representative, should participate in the Project Initiation Technical Meeting:

a) Chief Technical Officer
b) Chief Operating Officer/Director of Project Management
c) Quality Manager
d) Principal-in-Charge (At their discretion)
e) Project Manager
f) Project Engineer

The Project Manager shall be responsible for taking minutes of the meeting and distributing the minutes to all attendees. Approved minutes shall be filed in the Project folder.

Subsequent to the Project Initiation Technical Meeting, the Staffing Manager will assign specific resources for the project based on the needs identified at the meeting. These specific resources should be utilized by the project management team to fulfill the key roles in the project work plan.

The Project Initiation Technical Meeting may serve as the formal initiation of the project.

5.2.2 Project Staff Kick-off Meeting

Once the specific resources are assigned and their roles identified, the Project Management team should schedule a Project Staff Kick-off meeting. The Project Staff Kick-off meeting serves to inform the assigned staff of the following:

a) Scope of services
b) Project schedule including document submittals, number, and degree of completion
c) Key staff roles and associated responsibilities
d) Quality Management Plan including key staff assigned for Quality Control and Assurance activities
e) Quality activities shall occur and be documented throughout the project development process.

The following individuals, or their appointed representative, should participate in the Staff Kick-off Meeting:

a) Project Manager
b) Project Engineer

c) Project Quality Assurance Lead

d) Project Discipline or Task Leads

The Project Manager shall prepare and submit the minutes of the meeting to the attendees of the Project Staff Kick-off meeting and the Project Initiation Technical Meeting.

5.3 Project Development

Phase submissions to the client, and other preliminary document reviews, such as technical policy or constructability, should be identified in the Quality Management Plan. At project inception, the Project Manager will assign dates to each phase submission and provide the schedule in Vision for incorporation into a companywide schedule for quality management activities. The Project Manager shall inform the Quality Manager or a member of the quality management support staff, as appropriate, of changes to the project schedule that impact the milestone dates.

Communication processes during project development at a minimum should include the following:

a) Providing all information covered during the Project Staff Kick-off Meeting and the minutes from that meeting to any new staff joining the project.

b) Coordination with the Project Quality Assurance Lead, Discipline or Task Leads, and the Project Engineer to ensure that all documentation is being filed according to the QMP.

c) Coordination with the Project Quality Assurance Lead, Discipline or Task Leads, and the Project Engineer in advance of phase and/or final submittals for Quality Assurance Verification Processes.

Progress beyond set milestones shall not be permitted without the authority of the Project Manager and communication to the Project Quality Assurance Lead. The PM is responsible for confirming that Quality Control processes have been completed and documented, that the Reviewer has verified that all comments have been correctly incorporated, and that the document review is complete, with any outstanding issues resolved in accordance with the procedures in the Quality Control Plan. The PM shall sign and seal the Quality Assurance Review & Certification Form (Form QAR) for all external submittals or as directed by the QM.

5.3.1 Project Submission Report

To facilitate the Quality Assurance process, Project Managers are strongly encouraged to include a Project Submission Report (PSR) with phase and final submissions where the submission deliverable is not a report. A PSR covers one distinct discipline or task associated with the project, but several disciplines or tasks may be combined in to one report at the discretion of the Project Manager. The PSR is developed in coordination with the Discipline or Task Leads and the Project Engineer.

A PSR typically consists of the following sections:

a) Introduction – This section contains a brief summary of the project, a description of the design elements covered in the PSR, a statement of purpose for the submission, and a list of any reference documents.
b) Design and Performance Criteria
c) Design Approach
d) Design Changes from Prior Submission (if appropriate)
e) Detailed Discussion of the PSR Design Elements
f) Responses to Comments on Prior Submission (if appropriate)
g) Summary of Design Variations.

5.4 Post Design

5.4.1 Post Design Kickoff Meeting

At the start of the Post Design Phase, the Project Management team should schedule a Project Post Design Kick-off meeting. The Post Design Kick-off meeting serves to inform the assigned staff of the following:

- Approved stamps to be used
- Appropriate use of stamps for Shop Drawings vs Construction procedures, calculations, catalog cuts, etc.
- Correct review and mark -up procedure as per the firm QC Plan
- Logging requirements and maintenance of logs

6.0 Quality Assurance Verification

Documentation is to be kept which provides a record that the design development and review process was performed as required. This documentation is to include records of the important steps which led to the development of final planning documents as well as the final design, such as preliminary concepts, model validation, design calculations, computer code input and any communications, instructions, and directives which have a direct bearing on the project.

Types of documentation to be reviewed for compliance with the procedures set out in the Quality Control Plan:

a) Design Criteria

b) Reports – All reports prepared for the project irrespective of type.

c) Interdisciplinary Coordination – Minutes of meetings and signed attendance lists.

d) Calculations/Computer Solutions

e) Drawings

f) Specifications

g) External Comment Responses

h) Prior Audit Documents – All documentation provided by the Quality Auditor including recommendations for improvement, nonconformance reports, and any other check lists.

6.1 Quality Assurance Reviews

Quality Assurance reviews should be implemented in advance of all external submittals for a project. A Quality Assurance Review documents compliance with the QC Plan and identifies areas of nonconformance.

A Quality Assurance Review consists of review, by the Project Quality Assurance Lead, of documented internal and external comments generated during the internal QC process or external milestone review and confirmation that all comments were addressed, or the reviewer agrees to non-incorporation on the basis of sufficient explanation.

The goal of the Quality Assurance Review is to identify areas of weakness in the Quality Control process and develop preventive actions that focus on areas of potential nonconformance to reduce the risk associated with these areas.

The QA Review should identify potential nonconformities, their probable cause, determination of preventive action needed, implementation of preventive action and determining if preventive action was implemented and effective in preventing nonconformity.

The Project Manager is responsible for developing and implementing preventive actions that address the potential areas of nonconformance identified in the Quality Assurance Review and works to reduce or eliminate the risk in

these areas. The Project Quality Assurance Lead shall document the preventive action procedures and lead the discussion with the Project Manager, Project Engineer, and HQ.

Any preventive action procedure shall identify the necessary steps required to reduce the risk of nonconformance. The steps should include, but not be limited to, quality review of the proposed work prior to submission and "lessons learned" from previous or similar types of projects.

6.1.1 Phase Submittals

Phase submittals are required to be checked, back checked, corrected, and verified prior to submittal in accordance with the Quality Control Plan. The level of detail of the review may be varied at the discretion of the PM provided that all critical information, either specifically required by the contract or considered fundamental to the development of the design, is verified to have received a full check and back check as detailed in the Quality Control Plan for the classification of document and as appropriate for the level of development.

At a minimum, the following items shall be verified:

a) Presence of a completed Quality Control Stamp on a check print of all submittal documents.

b) Completion of any Internal Technical Reviews

c) Incorporation and/or response to all comments from both internal reviewers and external milestone reviewers (if applicable). All comments should be responded to on a Comment Response Form (CRF). CRF format to be determined by the PM in consideration of any Client requirements

6.1.2 Design Build Submittals

In general, specific requirements for design build submittals will be addressed in the contract and/or the Project Management Plan. Design Build submittals shall be subject to the same Quality Assurance process as defined herein for design projects. All final design build submittals (i.e., 90% submittals or those marked for construction such as "Issued For Construction" (IFC) or "Released For Construction" (RFC)), whether submitted as a phase submittal or as part of a complete set of final documents, will be subject to a Quality Assurance Review.

6.2 Quality Assurance Audits

Quality Assurance Audits will be performed to confirm conformance with the Quality Management Plan of a given project. The focus of the audit is to verify that each project has sufficiently accomplished all quality goals set forth in the Quality Management Plan, to identify any areas of nonconformance, and determine any corrective actions. Quality Assurance Audits will be scheduled by the Quality Manager and Chief Technical Officer.

The minimum number of Quality Audits shall be once during the life of the Contract/Agreement or a minimum of once a year on multi-year Contracts/Agreements and once per year during post design (CSS) activities. Additional Quality Assurance Audits may be scheduled by HQ during extended periods of project development, after a period of interruption in work, during post design services (construction support services), or during or immediately after inspection operations.

6.2.1 Quality Assurance Audit Process

Audits will be administered and documented by a Quality Auditor assigned by HQ. The Principal-in-Charge, Project Manager, and Project Quality Assurance Lead shall participate in the QA Audit if requested by the Quality Auditor. The Project Quality Assurance Lead is responsible to provide all necessary information for the audit.

Personnel conducting audits are required to be objective and impartial in conducting the audit. Self-audits shall not be allowed.

The evaluation will consist of review of documents, site visits (if applicable), discussions with staff, and nonconformance evaluations. The purpose of the evaluation is to confirm adherence to the QMP.

Results of Quality Audits shall be documented in the Quality Audit Log. If issues of nonconformance are identified, recommended corrective and preventative actions shall be generated as a portion of the Nonconformance Report. Where applicable, systemic corrective and preventative actions are communicated companywide to affect a companywide change.

Follow-up Quality Audits are performed as necessary, to ensure implementation of corrective action with the results reported to the Project Engineer, Project Manager, Quality Manager, and Chief Technical Officer.

6.3 Control of Nonconforming Product

A nonconformance in work output occurs when non-trivial errors are discovered in output documents issued as final documents. Final documents are signed and dated documents ready to be issued for construction, bid, or procurement.

Reports of nonconformances discovered by outside sources shall be processed by the Project Manager and Quality Manager.

6.3.1 Corrective Action

If required, any Corrective Action is monitored to ensure closure.

Corrective action will be appropriate to the severity of the nonconformance identified. The Project Manager shall develop and implement any corrective action procedure taken. The corrective action procedure shall be approved by the Chief Technical Officer. The procedure shall identify the nonconformance root cause and the necessary actions required to resolve the nonconformance to the satisfaction of the client. The procedure addresses nonconformity identification (including client complaints), cause determination, action to prevent recurrence, identifying and implementing the corrective action, recording results, and determining if the corrective action was implemented and effective in resolving the nonconformance.

7.0 Sub-Consultants

Subconsultants are responsible for performing their own Quality Control. H&H Project Managers shall require QA/QC Plans from all sub-consultants. Subconsultants that choose not to provide their own QA/QC plans must adopt the H&H QA/QC plans. H&H Project Managers are responsible for the following:

a) Review of sub-consultant's internal QA/QC Plan for adequacy in meeting client and project requirements. If inadequate, H&H will require further provisions be incorporated into the sub-consultant's QA /QC Plan as necessary to meet project requirements.

b) If the subconsultant has adopted the H&H QA/QC plan, H&H Project Managers shall provide copies of the plans and review the requirements with the subconsultant's Project Manager at project initiation.

c) Meet with sub-consultant's Project Manager periodically to ensure that the sub-consultant is adhering to their QA/QC Plan. The H&H Project Manager is responsible for auditing subconsultants in accordance with the subconsultant audit schedule provided in the Project Management Plan.

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Hardesty & Hanover, LLC
Quality Control Plan

Table of Contents

1.0 Introduction

Quality Control is a series of activities, actions and procedures routinely undertaken to ensure that our services and their representative work products are produced to the requisite standard of care and in accordance with the defined technical philosophy of the firm. This manual defines specific procedures for executing quality control functions in the preparation of engineering studies and designs, including reports, plans, specifications, and other similar documents. This Quality Control Plan (QCP) shall be implemented as an element of the overall project Quality Management Plan (QMP) where either specifically called for in the Contract, Project Management Plan (PMP), or where implied by project or industry standards.

2.0 Key Definitions and Roles

The following definitions are used throughout this manual:

a) **Back Checker:** The individual who reviews the Checker's comments. The Originator/Producer functions as the Back Checker unless another qualified individual is assigned by the Project Manager (PM).

b) **Checker**: The individual who through education and/or experience is knowledgeable within an area of technical subject matter, who has been assigned by project leadership to perform an accuracy and correctness check of technical content.

c) **Check Print**: The copy of the work product to be used in the quality control (QC) process. The Check Print may be a hard (paper) copy or a digital file such as a Portable Document File (PDF) that is capable of recording review markups. A Check Print is required at each Hold Point and may be requested by the Client, PM, or Headquarters Engineering (HQ) at a Witness Point. Refer to the appropriate process by document type/class in Section 4 for Check Print contents.

d) **Hold Point**: A level of design where specific aspects of the project such as design objectives, design criteria, and principal geometry are typically locked in. Hold Points require completion of all Quality Control procedures and Quality Assurance Review and Certification before a submittal can be made. Once the QC process is initiated, the work product cannot continue to be progressed. The project Hold Points shall be established by the PM in compliance with Client and HQ requirements at the beginning of the project. All external milestone submittals are Hold points.

e) **HQ**: Also referred to as Headquarters Engineering. This specifically refers to the authority of the technical directors such as but not limited to the Chief Technical Officer, Director of Engineering, Risk Management Officer, Quality Manager, or respective Practice Leaders and Chief Engineers.

f) **Independent Check**: Verification of a calculation by performing a separate standalone calculation to confirm results in lieu of performing a detailed check.

g) **Internal Technical Reviewer**: Reviewer, assigned by HQ, for a project or portion thereof that has not been a principal participant in the development of a work product.

h) **Originator/Producer**: The individual, qualified by experience in the applicable discipline, who is assigned to prepare documents and/or generate work product.

i) **Phase Submittal**: A milestone submittal of a preliminary work product to a client (i.e., Concept plans, 60% plans, or similar prior to final.)

j) **Plans**: Drawings and/or CADD files created by Hardesty & Hanover (H&H) for use by the Client as part of the contract or bid documents or, in the case of alternative delivery such as Design/Build, to construct the project.

k) **PE**: Project Engineer.

l) **PM**: Project Manager.

m) **Preliminary**: A document, including reports, plans, specifications, or similar documents, prepared by H&H and submitted to the client prior to the anticipated final submittal of such document. Preliminary documents are 100% complete and validated by QC but represent a lesser level of development than the final work product.

n) **Quality Management Plan (QMP):** The plan developed by the Project Manager to describe specific quality requirements for a given project. The QMP typically includes project-specific amendments to the current edition of the H&H Quality Management Plan.

o) **QC Stamp**: A physical or digital stamp applied to work product to signify that it is the Check Copy (aka Check Print) and for recording the initials and dates of the individuals who performed the quality control process.

p) **Quality Assurance**: The systematic review of design and development processes, specifically Quality Control activities, to confirm that processes are implemented per policy and the desired level of quality has been attained and will continue to be obtained. Quality Assurance identifies procedural shortfalls and recommends changes to improve our processes.

q) **Report**: Any document (letter, report, inspection report, etc.) prepared under the terms of a Contract and intended for distribution outside of H&H, which includes statements of professional opinion, condition assessment, calculation, evaluation, design, engineering judgment, cost estimates, etc.

r) **Specifications**: Custom technical specifications or special provisions prepared by H&H to amend, supplement, or modify the project's standard construction or material specifications.

s) **Stet**: Let it stand (used as an instruction on a printed proof to indicate that a correction or alteration should be ignored).

t) **Verifier**: The individual assigned to verify that the Checker's and Originator/Producer's comments have been implemented. The Verifier may be any individual assigned by the PM but will preferably be the Checker.

u) **Witness Point**: A level of design that has not been identified as a Hold Point by the Client, the PM, or HQ but for which QA activities may be required. Witness Points may include items such as the Quality Management Plan, project schedule, interim phase submittals (30%,60%,90%), field inspection MOT plans, field inspection verification plans, and internal progress sets. All external milestone submittals, whether Witness or Hold Points require Quality Assurance Review and Certification prior to submittal.

v) **Work Product**: A document or other product produced by H&H for a client under the terms of a contract. Work products may be hard copies, electronic deliverables, or electronic files (e.g., CADD files, spreadsheets or similar.)

3.0 General Intent

It is the general intent of this plan to define procedures for quality control which minimize errors, discrepancies, and omissions in H&H's work products. Furthermore, such procedures are intended to produce concise, delineated records of the in-house quality control process.

Although the physical process may vary for detailed checking of the various types of work products prepared under the requirements of this plan, the intent is for each work product to be thoroughly reviewed in detail by someone in addition to the review by the Originator/Producer who prepared that work product for conformity with generally accepted standards of design and engineering practice. Items transmitted purely for informational purposes and coordination of the design development may not need to follow the full QC process but must be reviewed by someone other than the Originator and documented with a QAR form. Frequency and content of required documentation shall be determined by the Quality Manager. Unless otherwise approved by the engineer in responsible charge, at least one of the primary individuals involved in preparing (Originator/Producer) or checking (Checker) a document shall be a Professional Engineer, experienced and qualified in the appropriate engineering discipline. Similar credentials are required in the event the work product is other than an engineering work product.

Comments generated by the quality control process are to be resolved to the satisfaction of both the Originator/Producer and the Checker. The process of Quality Control (QC) is to be documented and recorded in a manner which allows for management of the process and review of the process through Quality Assurance (QA).

Some work products and services may require the use of third-party information and/or materials provided by the client, or the use of data, documents or services provided by subcontractors, subconsultants, and suppliers. As required in their subcontract and approved Quality Management Plan, if one exists, subcontractors, subconsultants, and suppliers are ultimately responsible for the quality of the goods, work products and services they provide. Where H&H has a prime contractual relationship, H&H will review subcontractor, subconsultant, and supplier work products, supplied materials, and services only to verify compliance with contractual requirements and to coordinate the work. This does not preclude project specific reviews of subcontractor, subconsultant, and supplier work product if such reviews are required by contract.

4.0 Process by Document Type / Class

Each type of work product produced will be subjected to a detailed quality control process as defined herein. Prior to initiation of the quality control process the PM/PE shall review and coordinate with the Originator/Producer the appropriate level of detail and information for a given document type or class and level of development. Work products of a type not specifically noted shall be processed by the most appropriate process, as determined by the PM. Except as noted for preliminary documents in Article 6.1, all documents submitted to someone outside the design team (or design build team in the case of a Design/Build project) shall be checked in accordance with the requirements of this section. Specific colors are assigned to each role in the checking process; however, alternate color schemes may be used as long as the role and associated color are clearly identified. The Project Manager or Project Engineer shall modify permissions to the project submittal folders to prevent editing of documents that have completed the QC process.

4.1 Design Plans

All drawings shall be checked for technical content, clarity, style, and conformance with design criteria and Client/H&H standards by someone other than the Originator/Producer. This process shall be executed and documented as noted below and in the flow chart of Figure 1.

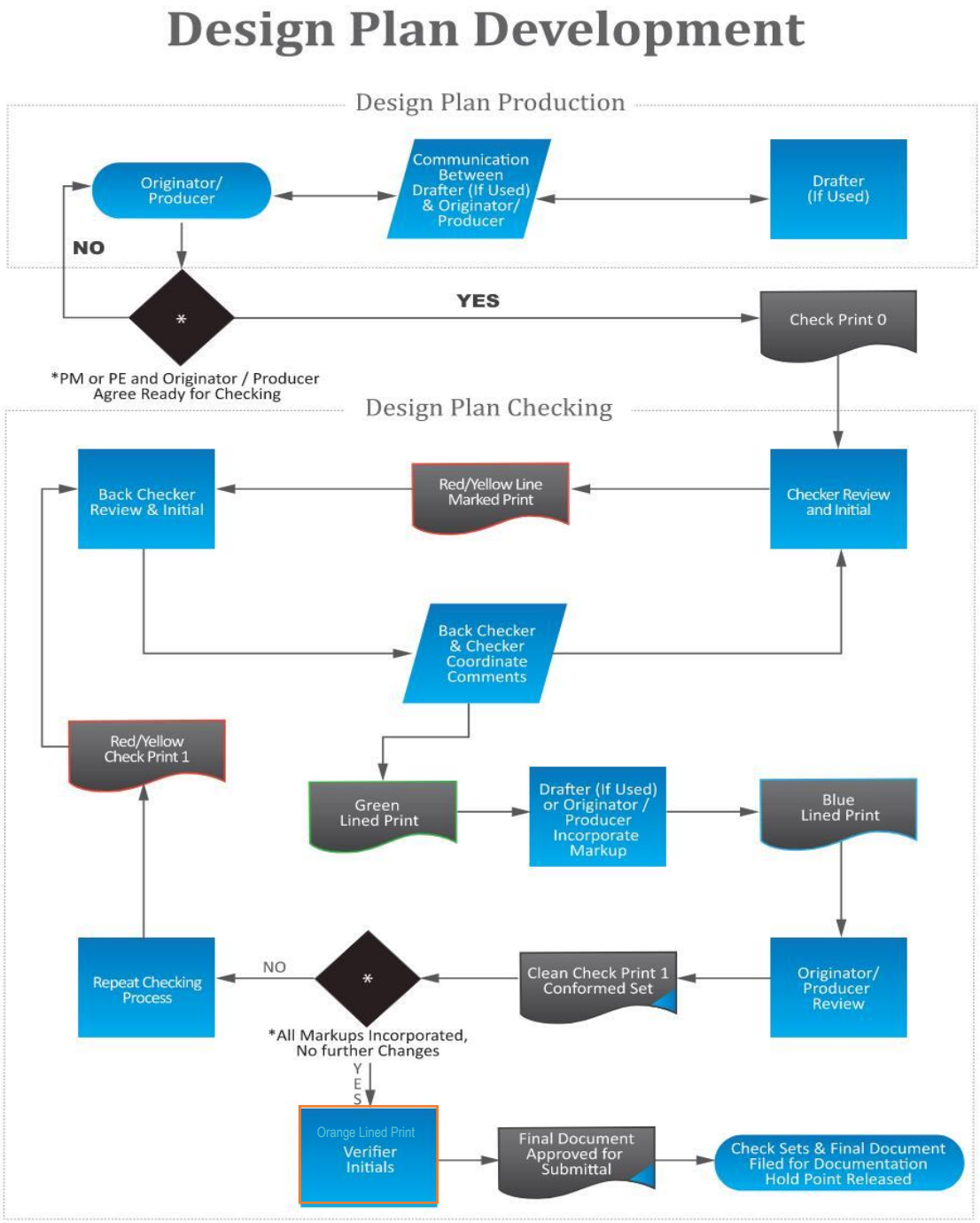
Design Plan Development
Design Plan Production
Originator/ Producer
Communication Between Drafter (If Used) & Originator/ Producer
Drafter (If Used)
NO
*
YES
Check Print 0
*PM or PE and Originator / Producer Agree Ready for Checking
Design Plan Checking
Back Checker Review & Initial
Red/Yellow Line Marked Print
Checker Review and Initial
Back Checker & Checker Coordinate Comments
Red/Yellow Check Print 1
Green Lined Print
Drafter (If Used) or Originator / Producer Incorporate Markup
Blue Lined Print
Repeat Checking Process
NO
*
Clean Check Print 1 Conformed Set
Originator/ Producer Review
*All Markups Incorporated, No further Changes
YES
Orange Lined Print
Verifier Initials
Final Document Approved for Submittal
Check Sets & Final Document Filed for Documentation Hold Point Released

Figure 1

4.1.1 Preparing a Check Print of a Drawing

Once the Originator/Producer and PM have agreed that a drawing contains the appropriate level of detail and information required at the phase submission, or is substantially complete and ready for checking, a Check Print will be prepared, and the PM will assign it to the Checker. Each Check Print shall bear a red Quality Control Stamp as shown in Figure 2 with the Originator/Producer's initials and date in the "Ready for Checking" boxes. The Check Print shall be designated as final or for a specific phase submittal. It is preferred that the QC stamp is applied to each sheet.

However, for electronic files only, if one stamp is applicable to all sheets within a discipline, One stamp may be applied to the first sheet and a note added indicating to which sheets the QC stamp applies.

H&H QC DOCUMENT	PHASE ____ or FINAL ____	
PROCESS	INITIALS	DATE
READY FOR CHECKING		
CHECKED CORRECT (YELLOW) CHANGE (RED)		
BACK CHECKED (GREEN)		
CORRECTED (BLUE HIGHLIGHTER)		
VERIFIED (ORANGE HIGHLIGHTER)		

Figure 2

4.1.2 Checking Drawings

<u>The Checker's colors are YELLOW and RED</u>

The Checker will ascertain that the drawing is consistent with the corresponding checked calculations, design reports, and other related project documents. The Checker is required to perform the following:

a) Ascertain that the document conforms with reliable engineering judgment and practice and is suitable and sufficient to accomplish the required function; the Checker shall review the Check Print in detail for:
   - Technical sufficiency appropriate for the level of design development
   - Conformance with design calculations
   - Conformance to applicable standards and design criteria
   - Coordination with specifications and other design documents
   - Conformance with established CADD formats and styles. The project CADD Standards and project drawing templates are established by the CADD Manager under direction of the PM. Any questions about conformance with the project CADD Standards should be referred to the CADD Manager.

b) Highlight in YELLOW each element or section checked that is found to be correct, and/or with which the Checker agrees on the Check Print. If no corrections are needed, a yellow slash through a sheet or detail or a large yellow check over a sheet or detail signifies that the Checker has reviewed that sheet or detail.

c) Mark in RED on the Check Print any corrections, additions, and/or deletions, mark any questions directed to the Originator/Producer in RED.

d) The Checker initials and dates the Check Print in the appropriate box ("Checked") of the Quality Control Stamp on the Check Print(s) and forwards the document for back checking, unless no changes are required in which case the QC process is complete.

e) If the check is limited to a particular discipline, or component, of the drawing this shall be noted on the Check Print or first sheet of a set of Check Prints.

4.1.3 Back Checking Drawings

The Back Checker's color is GREEN

After the Checker has completed review of the Check Print, the Back Checker (either the Originator/Producer or their appropriate designee), reviews the Checker's marks and agrees to or resolves the Checker's proposed corrections. The Back Checker is required to perform the following:

a) Verifies that the complete drawing has been checked in accordance with the above requirements (i.e., all applicable contents of the drawing are marked in either yellow or red), checkmarks in GREEN each of the Checker's red marked changes to signify agreement with the Checker that the marked changes are to be made or adds in GREEN any additional changes not identified by the Checker. Answers Checker's questions in GREEN and marks up any changes needed to implement the response, also in GREEN.

b) Returns to Checker if necessary. Every modification, including all comments marked STET, responses, or additional changes made by the Back Checker in GREEN must be highlighted in YELLOW by the Checker to signify agreement.

c) Resolves significant differences of opinion with the Checker. If an understanding or agreement cannot be reached, the Checker refers the issue to the Project Engineer, Discipline Chief Engineer, or Project Manager before continuing with the checking process. Upon agreement of the solution:

    1) The Checker marks their concurrence (YELLOW).

    2) Cross out in GREEN each of the Checker's red marked changes that the Originator/Producer and Checker agree should not be changed. The Back Checker rewrites next to the crossed out red marks the original information that is to remain unchanged or indicates "stet".

d) Confirms that every red marked change made by the Checker now has a GREEN check next to it and that every modification, including all comments marked STET, or additional change made by the Back Checker in GREEN has been highlighted in YELLOW by the Checker to signify agreement.

e) The Back Checker initials and dates the Check Print stamp ("Back Checked") and forwards the reconciled Check Print to the Originator/Producer (if different from the Back Checker) for correction.

f) Note: If the Back Checker is also the person correcting the drawing, the Back Checker should still apply the Green check or highlight to show agreement with the change. Documenting that a change was corrected does not eliminate the need for also documenting agreement with the change. This step should not be omitted.

4.1.4 Correcting Drawings

The Corrector's color is BLUE

a) The Originator/Producer corrects, or supervises the correction of, the original document to implement the changes agreed to by the Checker and Back Checker. As corrections are made the changed item is highlighted in BLUE on the Check Print to document the action.

b) Upon completion of the corrections, the Corrector makes a new print, initials, and dates the Check Print stamp ("Corrected") on the original Check Print and forwards the original Check Print and corrected new print to the Verifier for verification.

c) If the changes are so extensive as to make the first Check Print illegible for use by the Checker, the Originator/Producer makes a new Check Print upon completion of the corrections, labels it Check Print #2,

places a new QC Stamp on the print, and places it on top of Check Print #1, which is then stamped or marked "revised". The Originator/Producer initials and dates Check Print #2 in the appropriate box of the Quality Control Stamp ("Ready for Checking") and forwards the document to the Checker to repeat the process.

4.1.5 Verification of Original Check Print

The Verifier's color is ORANGE

The Verifier compares each of the Back Checker's marked changes on the previous version of the Check Print(s) (Original or Check Print #2), with the revised part of the updated document. If the Verifier concurs that the changes have been properly implemented, the Verifier marks over the changes with ORANGE on the Check Print. The Verifier will also make certain that no inadvertent changes, not noted on the Check Print, have been made.

4.1.6 Verification of New Check Print

When the Verifier is processing a new Check Print (#2, #3, etc.), the Verifier must compare each part of the new Check Print with the corresponding part of the previous Check Print. If the changes have been made accurately on the updated Check Print, the Verifier:

a) Checks that each correction, addition, and/or deletion as well as each new section that has been redrawn, rewritten, retyped, or recalculated has been correctly transferred to the original from the Check Print(s).

b) On the most recent Check Print of the corrected document, marks over all the corrections that were made in ORANGE.

c) Verifies that no inadvertent changes, not noted on the Check Print, have been made to any parts of the drawing and signifies so by striking a YELLOW mark across the drawing.

d) Marks in RED on the new Check Print any corrections, additions, and/or deletions that were overlooked on the backchecked Check Print.

e) Returns the Check Prints to the Back Checker, who checks in GREEN the red marks, if found to be correct, on the new print marked by the Verifier, and sends the Check Prints for correction. When all changes in the most recent Check Print have been marked over in ORANGE, the checking process is complete.

f) The Verifier initials and dates the Check Print stamp on the line designated for the Verifier and signs off in the drawing or calculation sheets as specified and forwards the Check Print to the Originator of the document.

4.1.7 Checking Process for Additional Changes to Drawings

If additional changes or revisions become necessary, following review by the client, for example, they are processed on a new Check Print in the same manner as described previously. Although only the new changes need to be checked, the Originator/Producer and Checker are still responsible for assuring that correct interfacing with the affected changes is checked completely. The Originator/Producer and Checker must verify that any changes or revisions are coordinated throughout the project documents, including calculations, plans, and specifications. They must also ensure changes or revisions are made on CADD files, computer printouts, and contract reports.

4.1.8 Checking Process for Multiple Phase Reviews

Phase Reviews, where required (refer to Section 6.1 Phase Submittals), are processed in the same manner as described previously except as noted herein. Although only the changes, updates and new content not verified on previous Check Prints need to be checked, the Originator/Producer and Checker are still responsible for assuring that the document is checked completely. A yellow slash through a sheet should be used if previously checked and no changes were made since the prior phase submission. If there have been no changes to the entire set or to a discipline specific set, a copy of the prior check set, with a note on the cover sheet indicating no changes from prior check set,

should be placed in the folder for this phase. The Originator/Producer and Checker must verify that any changes or revisions, including changes implemented in prior checking, are coordinated throughout the project documents, including calculations, plans, and specifications. Unless prior Check Prints are affixed to the current Check Print, the Checker shall note the source (e.g., prior phase Check Print) for items that are accepted based on a previously checked set.

4.2 Calculations

Calculations that support final work product shall be checked for technical content, clarity, style, and conformance with design criteria and standards by someone other than the Originator. This process shall be executed and documented as noted below and in the flow chart of Figure 3.

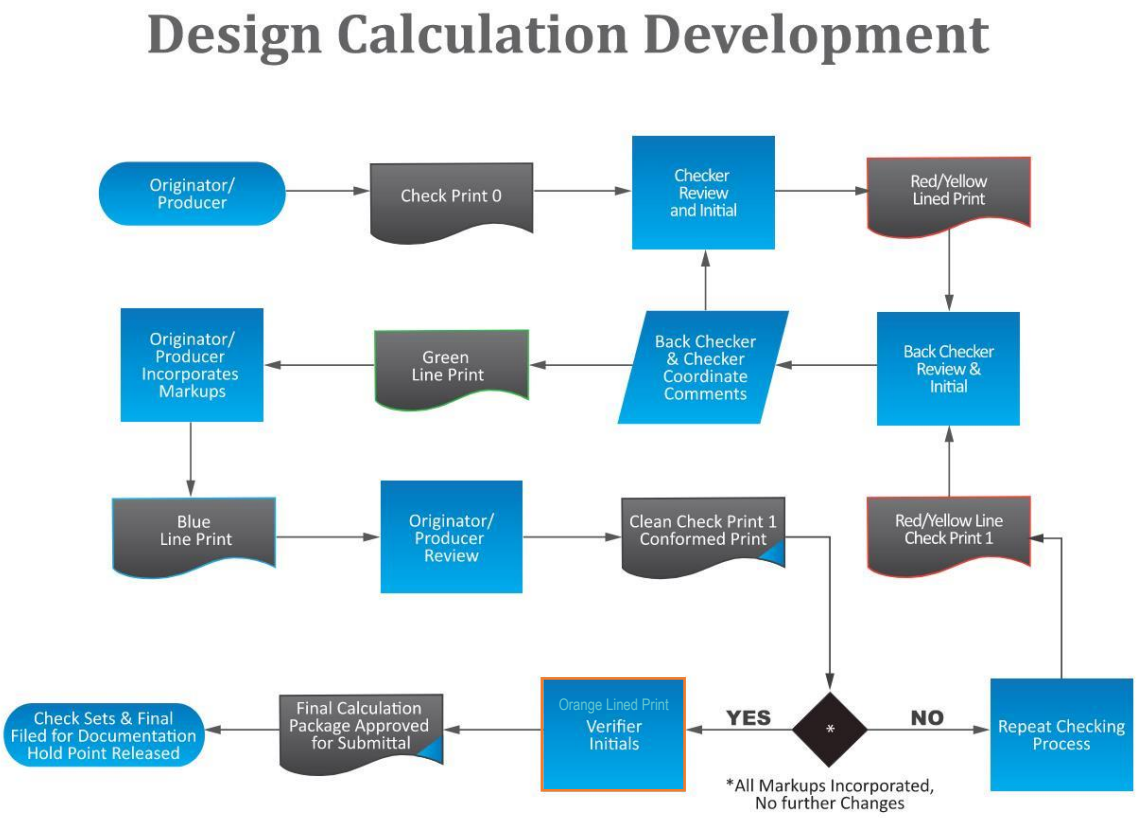

Figure 3

4.2.1 Preparing Check Copies of Calculations

Once the Originator/Producer and PM or PE have agreed that a calculation is substantially complete and ready for checking, a Check Copy will be prepared, and the PM or PE will assign it to the Checker. The Checker will be provided with the design criteria. It is strongly encouraged that a brief narrative for the design element be included as part of the design criteria write up. The first sheet of the calculation must be a Calculation Cover Sheet. Each Check Copy shall

bear a red Quality Control Stamp as shown in Figure 2 on the cover sheet with the Originator/Producer's initials and date in the "Ready for Checking" boxes. In lieu of placing the QC stamp on the cover sheet, a standalone sheet with the QC stamp may follow the cover sheet. The Check Copy shall be designated as final or for a specific phase submittal. Each sheet of the calculation or each cover page of computer analysis output will include the initials of the Originator/Producer and all pages will be numbered.

4.2.2 Checking Calculations[1]

The Checker's colors are YELLOW and RED

The Checker will ascertain that the calculation is consistent with the design reports, design criteria, and other related project documents. The Checker is required to perform the following:

a) Ascertain that the calculation conforms with reliable engineering judgment and practice and is suitable and sufficient to accomplish the required function; the Checker shall review the calculation in detail for:
   - Technical sufficiency appropriate for the level of design development
   - Conformance with related design calculations
   - Mathematical accuracy
   - Conformance to applicable standards and design criteria
   - Coordination with specifications and other design documents.

b) Highlight in YELLOW each element, or section checked, that is found to be correct and/or with which the Checker agrees, on the Check Copy. For software programs which use a color highlighting scheme to designate different types of input, a yellow checkmark or yellow slash down left side of the page may be used in lieu of highlighting each element.

c) Mark in RED on the Check Copy any corrections, additions, and/or deletions.

d) Prepare and attach any independent calculations made by the Checker.

e) Resolve significant differences of opinion with the Originator. If an understanding or agreement cannot be reached, the Checker refers the issue to the Project Engineer, Discipline Chief Engineer, or Project Manager before continuing with the checking process.

f) The Checker initials and dates the cover sheet in the appropriate box of the Quality Control Stamp on the Check Copy and forwards the document for back checking.

[1] The process outlined in this section is intended for calculations that can be checked without generating significant paper waste such as hand calculations, simple Mathcad output, simple Spreadsheets, etc. For computer programs generating voluminous output files the output should not be printed hard copy. The process should be followed electronically on a PDF. Alternately, a summary sheet of the output from the computer program can be prepared and a list of files checked can be appended to the summary sheet with the following information included: file directory / name, timestamp, and list of inputs checked. If the appropriate checked information can be summarized on one screen or input box, screen shots may be appended as appropriate.

4.2.3 Back Checking Calculations

The Back Checker's color is GREEN

After the Checker has completed review of the Check Copy, the Originator/Producer, acting as Back Checker, reviews the Checker's marks and supervises or personally makes the changes required. The Back Checker is required to perform the following:

a) Verifies that the complete calculation has been checked in accordance with the above requirements (i.e., all appropriate contents of the calculation are marked in either yellow or red), checkmarks in GREEN each of the Checker's red marked changes to signify agreement with the Checker that the changes marked are to be made, or adds in GREEN any additional changes not identified by the Checker.

b) Resolves significant differences of opinion with the Checker, if an understanding or agreement cannot be reached, the Checker refers the issue to the Project Engineer, Discipline Chief Engineer, or Project Manager, for resolution.

c) Confirms that every red marked change made by the Checker now has a GREEN check next to it and that every additional change made in GREEN has been highlighted in YELLOW by the Checker to signify agreement. For software programs which use a color highlighting scheme to designate different types of input, a yellow checkmark may be used in lieu of highlighting.

d) Crosses out in GREEN each of the Checker's red marked changes that the Back Checker and the Checker agree should not be changed. The Back Checker rewrites next to the crossed out red marks the original information that is to remain unchanged or indicates "stet". The Checker must mark all such green marks in YELLOW.

e) The Back Checker initials and dates the Check Copy cover sheet in the appropriate box ("Back Checked") of the Quality Control Stamp and forwards the document for correction.

f) Note: If the Back Checker is also the person correcting the calculation, the Back Checker should still apply the Green check or highlight to show agreement with the change. Documenting that a change was corrected does not eliminate the need for also documenting agreement with the change. This step should not be omitted.

4.2.4 Correcting Calculations

The Corrector's color is BLUE

a) The Originator/Producer corrects the original document, or supervises correction of the calculation, to implement the reconciled changes. As corrections are made the changed item is highlighted in BLUE on the Check Print to document the action.

b) The Originator/Producer initials and dates the cover sheet in the appropriate box of the Quality Control Stamp ("Corrected") and forwards the Check Copy and corrected original (or copy) to the Checker for verification.

4.2.5 Verification of Original Check Copy of a Calculation

The Verifier's color is ORANGE

a) The Verifier compares each of the Back Checker's marked changes on the Check Copy, with the revised part of the corrected calculation. If the Verifier concurs that the changes have been properly implemented, the Verifier marks over the changes in ORANGE on the Check Copy. The Verifier will also make certain that no inadvertent changes, not noted on the Check Copy, have been made. For software programs which use a color highlighting scheme to designate different types of input, an orange checkmark may be used in lieu of highlighting.

4.2.6 Checking Process for Additional Changes to Calculations

If additional changes or revisions become necessary, following review by the Client or significant changes during detailing, for example, they are processed on a new Check Copy in the same manner as described previously. Although only the new changes or revisions need to be checked, the Originator/Producer and Checker are still responsible for assuring that correct interfacing with the affected changes is checked completely. The Originator/Producer and Checker must verify that any changes or revisions are coordinated throughout the project documents, including calculations, plans, and specifications.

4.2.7 Independent Check in Lieu of Detailed Checking

With approval of the PM, or if required by the Contract, the Checker may perform an Independent Check in lieu of following the detailed checking procedure outlined above. The Independent Check shall consist of a standalone set of calculations that produce results similar enough to the original calculation to confirm its accuracy and adequacy. An Independent Check is most commonly used to check the results of analysis produced using proprietary software or in-house computer applications. An Independent Check may be done by hand calculations or using a software application other than the original calculation.

To implement an Independent Check, apply the QC Stamp to the cover sheet of the calculations and write "Independent Check" across the Checked box in GREEN pen.

As part of an Independent Check, the Checker is required to perform the following:

a) Ascertain that the calculation conforms with reliable engineering judgment and practice and is suitable and sufficient to accomplish the required function.

b) Review the original calculation for:

- Technical sufficiency
- Conformance to applicable standards and design criteria
- Conformance with related design calculations
- Coordination with specifications and other design documents.

c) Prepare independent check calculations to confirm the results of the original calculation.

d) Mark any review comments regarding the original calculations and/or the independent verification on the cover sheet of the original calculations, initial and date the QC stamp.

e) Provide the original and independent calculations to the Originator/Producer for Back Checking.

As part of an Independent Check, the Back Checker is required to perform the following:

a) Respond to all comments made by the Checker, either agreeing to or resolving the comments.

b) If corrections are necessary, correct the original calculation and provide to the Checker for additional review.

c) Once all review comments are reconciled, or if no corrections are necessary initial and date the QC stamp.

d) Forward to the Checker for verification.

4.3 Reports & Specifications

Similar to drawings and calculations, all reports and specifications will pass through a quality control process prior to submittal. This process will verify that the document's technical contents are accurate, that the spelling and grammar

contained in the document are correct, that the format and style of the document are in conformance with project standards, and that the appropriate disclaimers and assumptions are conspicuously defined.

4.3.1 Preparing Check Copies of Reports & Specifications

Once the Originator/Producer and PM have agreed that a report or specification is substantially complete and ready for checking, a Check Copy will be prepared, and the PM will assign it to the Checker. The first sheet of the Check Copy shall bear a red Quality Control Stamp as shown in Figure 2 with the Originator/Producer's initials and date in the "Ready for Checking" boxes. The Check Copy shall be designated as final or for a specific phase submittal. If not included on the first sheet, the Originator/Producer will write "prepared by" and sign his/her initials on the sheet.

4.3.2 Checking Reports & Specifications

The Checker's colors are YELLOW and RED

The Checker will ascertain that the report or specification is consistent with the supporting calculations, plans, and related project documents. The Checker's colors are RED and YELLOW. The Checker is required to perform the following:

a) Ascertain that the report or specification contents are technically and grammatically correct; the Checker shall review the Check Copy in detail for:
   - Technical sufficiency
   - Conformance to applicable standards and design criteria
   - Correct grammar
   - Correct spelling
   - Appropriate disclaimers and assumptions
   - Conformance with supporting design calculations

b) Coordination with other design documents

c) For specifications, the Checker shall ascertain that the format of the specification is consistent with the format of the remaining project documents and project standards for specifications, including the following:
   - Proper titles, headers, footers, date formats, etc.
   - Correct article, section, and paragraph identification and sequence
   - Proper format and sequence of contents (i.e., materials, construction, submittals, payment, etc.)

d) Each word does not need to be highlighted in YELLOW. One YELLOW slash shall be applied across or down the page to indicate the page was checked. The exception is all numerical values including referenced specification numbers, e.g., ASTM, shall be verified and fully marked in YELLOW if correct.

e) Mark in RED on the Check Copy, any corrections, additions, and/or deletions, mark any questions directed to the Originator/Producer in RED.

f) Resolve significant differences of opinion with the Originator. If an understanding or agreement cannot be reached, the Checker refers the issue to the Project Engineer, Discipline Chief Engineer, or Project Manager before continuing with the checking process.

g) The Checker initials and dates the first sheet of the copy in the appropriate box of the Quality Control Stamp and forwards the document for back checking and correction unless no changes are required in which case the QC process is complete.

h) If a check is limited to a particular discipline, or component of the report or specification, this shall be noted on the first sheet of the Check Copy.

4.3.3 Back Checking Reports & Specifications

The Back Checker's color is GREEN

After the Checker has completed review of the Check Copy, the Originator/Producer, acting as Back Checker, reviews the Checker's marks and supervises or personally makes the changes required. In addition, the Back Checker:

a) Verifies that the complete report or specification has been checked in accordance with the above requirements (i.e., all contents of the report or specification are marked in either yellow or red), checkmarks in GREEN each of the Checker's red marked changes to signify agreement with the Checker that the changes marked are to be made, and adds in GREEN any additional changes not identified by the Checker.

b) Resolves significant differences of opinion with the Checker, if an understanding or agreement cannot be reached, the Checker refers the issue to the Project Engineer, Discipline Chief Engineer, or Project Manager, for resolution.

c) Crosses out in GREEN each of the Checker's red marked changes that the Back Checker and the Checker agree should not be changed. The Back Checker rewrites next to the crossed out red marks the original information that is to remain unchanged or indicates "stet". The Checker must mark all such green marks in YELLOW.

d) The Back Checker supervises or personally corrects the original document. If the Back Checker is also the person correcting the document, the Back Checker should still apply the Green check or highlight to show agreement with the change. Documenting that a change was corrected does not eliminate the need for also documenting agreement with the change. This step should not be omitted.

e) The Originator/Producer initials and dates the cover sheet in the appropriate box of the Quality Control Stamp and forwards the Check Copy (preferably a redlined print) and a new clean copy of the revised document to the Checker for verification.

4.3.4 Correcting Reports or Specifications

The Corrector's color is BLUE

f) The Originator/Producer corrects the original document, or supervises correction of the document, to implement the reconciled changes. As corrections are made the changed item is highlighted in BLUE on the Check Print to document the action.

g) The Originator/Producer initials and dates the cover sheet in the appropriate box of the Quality Control Stamp ("Corrected") and forwards the Check Copy and corrected original (or copy) to the Checker for verification.

4.3.5 Verification of Corrections to Reports & Specifications

The Verifier's color is ORANGE

The Verifier compares each of the Back Checker's marked changes on the Check Copy, with the revised part of the corrected report or specification. If the Verifier concurs that the changes have been properly implemented, the Verifier marks over the changes in ORANGE on the Check Copy. The Verifier will also make certain that no inadvertent changes, not noted on the Check Copy, have been made.

4.3.6 Checking Process for Additional Changes to Reports or Specifications

If additional changes or revisions become necessary, following review by the client or significant changes to content, for example, they are processed on a new Check Copy in the same manner as described previously. Although only the new changes need to be checked, the Originator/Producer and Checker are still responsible for assuring that correct interfacing with the affected changes is checked completely. The Originator/Producer and Checker must verify that any changes or revisions are coordinated throughout the project documents, including calculations, plans, and specifications.

4.3.7 Checking Reports or Specifications Electronically

Checking / Back Checking / Verifying reports or specifications electronically can be accomplished using the Track Changes feature within Microsoft Word (unique colors will be assigned by Word). Each reviewer should have their name set in the program options so that they are shown as the reviewer. The Originator shall also function as Back Checker and Corrector. Electronic checking using Track Changes shall follow this procedure:

a) Checker uses Track Changes to make corrections and saves file as both a Word Doc and as a PDF file which becomes the QC check set

b) The QC Stamp is applied to the PDF QC check set which contains the tracked changes as red markups. The QC stamp is initialed and dated by Originator as Ready for Checking and by the Checker as checked.

c) Originator/Back Checker first agrees with the changes in the QC PDF check set and applies a green check or highlight mark to the QC PDF check set to show agreement

d) Originator/Corrector accepts agreed upon changes with Track Changes in the original Word document and applies blue check or highlight mark to the QC PDF check set to confirm changes were made

e) Checker compares revised Word document, in which tracked changes were accepted, to the QC PDF check set and applies orange check or highlight to the QC PDF check set to verify that all corrections were made

f) QC PDF check set shall be locked to restrict editing and saved in the 400-Delivery\QC folder for that submittal

g) One copy of the Final Word doc shall be saved to the 400-Delivery\Deliverables folder for that submission

4.4 Internal Technical Reviews

Internal Technical Reviews (ITR) are specific purpose reviews of work product performed by an individual that was not involved in the production of the work product. Unlike quality control reviews, ITRs are not a detailed check, but rather a general review of work product for applicability of criteria, assumptions, methodology, concept, compliance with project requirements, constructability, biddability or other specific objectives. ITRs are performed by staff with technical experience related to the specific purpose.

ITRs may be performed at any stage or phase of a project, from design criteria to final biddability. However, ITRs are not a substitute for the quality control review process. Instead, ITRs are intended to supplement the quality control process through additional review of project elements deemed by HQ (or in some cases contractual requirements) worthy of supplementary scrutiny.

4.4.1 Preparing Work Product for ITR

Once the Originator/Producer and PM have agreed that a work product is ready for ITR, a review copy will be prepared. The PM will prepare an ITR Form and submit the request to HQ. The ITR Form will designate the work product to be reviewed and the detailed scope of the ITR. Upon receiving notification from HQ that a reviewer has been assigned, the PM will attach the ITR form to the review copy and pass it to the Internal Technical Reviewer assigned by HQ.

4.4.2 Performing Internal Technical Reviews

The Internal Technical Reviewer's color is RED

The Internal Technical Reviewer is required to perform the following:

a) Review the work product for the specific objective requested.

b) Indicate on the ITR Form if review comments are noted on the ITR Form, marked on the work product, or a combination.

c) Mark in RED any comments that are to be indicated on the work product; and/or type onto the ITR Form any comments.

d) Sign and date the ITR Form and provide it to the PM and PE for review and distribution to the Back Checker.

4.4.3 Reconciliation of Internal Technical Review Comments

The Back Checker is required to perform the following:

a) Respond to all comments made by the Internal Technical Reviewer on the ITR Form, either agreeing to or resolving the comments.

b) If corrections are necessary, correct the work product and provide to the Internal Technical Reviewer for additional review.

c) Once all review comments are reconciled, or if no corrections are necessary, the PM shall sign and date the ITR Form.

d) Return the ITR Form to the Internal Technical Reviewer to sign and date acknowledging that all responses are accepted.

5.0 Checklists

Use of checklists is encouraged in the quality control process. Checklists, containing typical items expected to be included in designs, reports, drawings, specifications, or other documents, may be standard in-house checklists, checklists prepared by the client, checklists included in standard plans preparation manuals, or checklists developed specifically for a project.

Checklists which are used in the quality control process shall be completed and initialed by the Checker and attached to the Check Print or copy. The Checker is responsible for verifying that the checklist used is appropriate for the application.

6.0 Submittals

Document submittals, number, degree of development, and schedule, will be defined for each project either by the client or within the client's standards. In addition to these defined submittals, any work product transmitted to a non H&H entity shall be considered a submittal for purposes of QC and QA and documented with a QAR form. The following procedures for checking of various submittals will be implemented for ALL submittals irrespective of their quantity, degree of completion, and schedule.

6.1 Phase Submittals

Phase submittals are required to be checked, back checked, corrected, and verified prior to submittal. The level of detail of the process may be varied at the discretion of the PM for Witness Points provided that all critical information, either specifically required by the contract or considered fundamental to the development of the design, receives the

full check and back check detailed above for the classification of document and as appropriate for the level of development. Information presented in preliminary documents which is clearly under development, not completed, or subject to change must be reviewed by the Checker but need not be checked as required for final documents or at Hold Points, provided that the document is clearly marked as preliminary and subject to change. For example, in checking of concrete detail drawings to be submitted at the 60% level and required to define the general dimensions of the concrete, the concrete outlines and dimensions must be completely checked, but any rebar details need only be reviewed at this Witness Point.

6.2 Final Submittals

Final submittals are required to be completely checked, back checked, corrected, and verified in accordance with the appropriate procedure defined herein for the type of document. Final submittals are mandatory Hold Points.

6.3 Design Build Submittals

In general, specific requirements for design build submittals will be addressed in the contract and/or the Project Management Plan. Design Build submittals shall be subject the same quality control process as defined herein for design projects. All Issued For Construction (IFC) or Released For Construction (RFC) submittals are mandatory Hold Points and subject to Quality Assurance Review and Certification prior to submittal.

6.4 Miscellaneous Submittals

Any work product transmitted to a non-H&H entity shall be considered a submittal for purposes of QC and QA and documented with a QAR form. This includes but is not limited to work products categorized as progress sets, draft, preliminary or Over- the-Shoulder. The full QC process may not be required but every work product must be reviewed by someone other than the Originator/Producer prior to leaving H&H.

7.0 Post Design Submittal Reviews[2]

Post design submittals include documents prepared by or for the contractor and submitted to the Engineer for review. Typical documents included in the classification are shop drawings, working drawings, falsework drawings, falsework calculations, erection, etc.

In many cases the processing of submittals is defined in the contract or prescribed in the owner's standard procedures. In such cases those procedures will be followed. If procedures are not so prescribed, the procedures below shall be followed or used as a guide in implementing the owner's procedures.

All submittals from the contractor must be numbered and logged prior to review. The numbering and logging process will be established and coordinated by the PM or their designee. All logs shall be maintained throughout the Post Design Phase. Separate logs should be kept for RFIs, Shop Drawings and Submittals.

[2] Electronic review of submissions is encouraged and may be required by the Client. Electronic review shall conform to the appropriate document controls specified in the proceeding sections. All comments shall be made in RED, all checked details shall either be highlighted or boxed over with YELLOW (use transparency so that the details are not obscured). All comments shall be tabulated as required by the appropriate document controls.

Prior to return of the Contractor Submittal, the PM or PE should review the comments and disposition of the submission with the reviewer(s). Upon concurrence between reviewers and the PM or PE, the PM or PE shall return the submittal in accordance with the owner's standard procedures.

7.1 Shop drawings

All shop drawing submittals from the contractor, including drawings and catalog cut sheets, must bear the contractor's stamp of approval. This is necessary to assure that the contractor has noted his or her responsibility to coordinate the submittal with the project requirements and other submittals. Any submittals containing details of construction methods and/or procedures will not be processed as a shop drawing. Such submittals will be reviewed as noted in Article 7.2 below. Once the shop drawings are logged, one copy shall be designated as the "Office Copy" and forwarded to a designated Reviewer.

The Reviewer shall apply a shop drawing review stamp to each drawing, catalog cut, or table of contents of packaged submittals. The stamp will indicate that the Reviewer has "reviewed the contents of the submittal in accordance with appropriate industry standards for general conformance with the design concept of the project and general compliance with the information given in the contract documents." On the Office Copy, the Reviewer will mark in YELLOW information which is acceptable and in RED information which is not acceptable. Once the review is complete the Reviewer will determine a disposition and mark the appropriate box on the shop drawing review stamp. Dispositions will be selected from the following unless Client specific dispositions are required:

Approved	This signifies that the Reviewer has determined that the submittal meets the stated requirements as is and that revision and resubmission is not required
Approved as Noted	This signifies that the Reviewer has determined that the submittal meets the stated requirements if minor corrections are made as noted on the submittal in red and that revision and resubmission is not required
Revise and Resubmit	This signifies that the Reviewer has determined that the submittal is lacking on one or more areas and must be revised and resubmitted for further review
Not Approved	This signifies that the Reviewer has determined that the submittal is not in general conformance with the design concept and that a different concept must be prepared and submitted for review

The Reviewer's comments will be checked for conformance to design criteria and standards by the PM or their designee. Approved comments shall be transcribed in RED onto the copy to be returned to the contractor by the Reviewer or their designee. The Reviewer will verify the transcribing, mark the disposition, initial, and date the copy prior to return of the submittal to the contractor.

7.2 Review of Construction Methods and/or Procedures

Submittals containing details of construction methods and/or procedures will be reviewed as noted herein. Any submittals requiring design calculations performed by the Contractor's engineer shall be rejected if they do not contain the signature and seal of such registered professional engineer in the appropriate jurisdiction.

The Reviewer will review the construction methods and/or procedures submittal and note in RED any exceptions taken to the information provided. The Reviewer's comments will be checked for conformance to design criteria and standards by the PM or their designee. The Reviewer will apply a "Reviewed" stamp containing the following notation to each:

> "This submittal contains information regarding construction methods and/or procedures which are solely the responsibility of the Contractor. Review is only for the general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor retains

sole responsibility for dimensions which shall be confirmed and corrected at the job site; fabrication means, methods, techniques, processes, procedures, and sequences of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

If the exceptions taken require extensive description, a letter containing the comments shall be prepared by the Reviewer, and the submittal shall be marked with a note to see the transmittal letter for additional comments.

8.0 Owner's Engineer or Peer Review Role

Hardesty & Hanover is not responsible for Quality Control of work produced by others. Review of design documents prepared by a firm other than Hardesty & Hanover, when acting in the role of Owner's Engineer or providing Peer Review, shall be in accordance with the contract requirements.

Check Prints shall be initialed and dated by the reviewer. The reviewer shall verify incorporation of all prior comments for each submittal. For digital files, each reviewer shall save an independent copy of the file in the project working directory with their initials and the date in the file name. All comments shall be recorded on a Comment Response Form which shall be submitted to the PM or PE for quality assurance review prior to submittal. The PM or PE must review all comments to confirm technical appropriateness and adherence to standards prior to submittal. Copies of comments and responses should be saved in the project files. Reviews done within a Bluebeam session shall have comments and responses exported to an Excel form. Calculations performed as part of the review shall be checked in accordance with the standard H&H QC plan and a QC check copy shall be saved in the project files.

All Peer Review submittals shall be documented with a Quality Assurance Review (QAR) Form.

Owner's Engineer submittals shall be documented with QAR forms at a schedule or frequency agreed upon by the Project Manager and Quality Manager for the specific project.

Hardesty & Hanover

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Hardesty & Hanover, LLC

QA/QC Forms & Checklists

Hardesty & Hanover
engineering that moves you

QUALITY ASSURANCE REVIEW & CERTIFICATION FORM

Form QAR

Project Name		**Project Manager**	
Project Location		**Client Name**	
H&H Project Number		**Client Project Number**	

1 - DOCUMENT INFORMATION

(TO BE FILLED OUT BY THE PROJECT MANAGER)

Level of Development (Check all that apply)

☐ Concept ☐ Preliminary ☐ Phase: _____ ☐ Final

☐ Release For Construction ☐ Other: _____

Documentation reviewed (attach complete list of all items / files reviewed):

☐ Design Criteria ☐ Design Plans ☐ Calculations / Computer Solutions ☐ Reports ☐ Specifications

☐ Interdisciplinary Coordination Documentation ☐ Prior Audit Documentation ☐ External Comment Responses

☐ Other, Specify: _____

2 – SUMMARY OF FINDINGS

I have reviewed the above documentation for conformance with Hardesty & Hanover Quality Control Standards. My Conclusions are as follows (if more space required attach additional sheet, indicate format and location of any additional comments):

3-RECOMMENDED ACTIONS

In consideration of the findings above I recommend the following actions be taken for the continued conformance of future work with the Hardesty & Hanover Standards (if more space required attach additional sheet, indicate format and location of any additional comments):

Developed by: _____ _____

Project Quality Assurance Lead **Date**

4 APPROVED FOR SUBMISSION

The recommended actions as noted above are in conformance with Hardesty & Hanover Standards and have been completed. The undersigned, as Project Manager, certifies that the noted submittal for the referenced project meets the requirements of the project Quality Management Plan, is complete for the level of development, meets the requirements of Hardesty & Hanover and is ready for submittal

_____ _____

Project Manager **Date**

QA AUDIT CHECKLIST (Design Phase)

Project Name & H&H Job #: Click or tap here to enter text.	Auditor: Click or tap here to enter text.
Phase/Submission Details: Click or tap here to enter text.	Date(s) of Audit: Click or tap here to enter text.
Project Manager (PM):Click or tap here to enter text.	Project Quality Assurance Lead (PQAL): Click or tap here to enter text.

Item Number	Item Audited	Notes	Conforms (check box)		
			Yes	No	N/A
1.0	**Project has an approved Quality Management Plan**				N/A
1.1	QMP is filed in Projects\200-PM\QA or Work Plan folder.	Click or tap here to enter text.	☐	☐	☐
1.2	QMP has additional project QA or QC requirements.	Click or tap here to enter text.	☐	☐	☐
1.3	Subconsultants Quality Management Plans were reviewed.	Click or tap here to enter text.	☐	☐	☐
1.4	The Quality Management tab in Vision is complete and accurate.	Click or tap here to enter text.	☐	☐	☐
2.0	**If submission included plans:**	**Choose one plan sheet for audit.**			
2.1	There is a QC check print with correct markups (yellow, red, green, blue, orange) for all plan sheets. Note missing steps.	Click or tap here to enter text.	☐	☐	☐
2.2	Plan sheets are stamped with the H&H QC Stamp or project specific stamp. Note if stamp applies to multiple sheets.	Click or tap here to enter text.	☐	☐	☐
2.3	QC stamp is initialed and dated for all required roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☐
3.0	**If submission included calculations:**	**Choose one calculation packed for audit.**			
3.1	There is a QC check copy with markups for all calculation sheets. Note missing steps.	Click or tap here to enter text.	☐	☐	☐
3.2	There is a calculation cover sheet with QC Stamp and note to what items are covered with the stamp.	Click or tap here to enter text.	☐	☐	☐
3.3	QC stamp is initialed and dated for all required roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☒

3.4	Each calculation sheet header has *Made By* and *Checked By* initialed & dated.	Click or tap here to enter text.	☐	☐	☐
3.5	Input and Output files for software have been checked and software program has been verified for use.	Click or tap here to enter text.	☐	☐	☐
4.0	**If submission included reports:**	**Choose one report for audit**			
4.1	There is a QC check copy with markups (yellow, red, green, blue, orange) for all reports. Note any missing steps.	Click or tap here to enter text.	☐	☐	☐
4.2	The report cover sheet has a QC Stamp.	Click or tap here to enter text.	☐	☐	☐
4.3	QC stamp is initialed and dated for all required roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☐
5.0	**If submission included specifications:**	**Choose one specification item for audit**			
5.1	There is a QC check copy with markups (yellow, red, green, blue, orange) for all specifications. Note any missing steps.	Click or tap here to enter text.	☐	☐	☐
5.2	The specification cover sheet has a QC Stamp.	Click or tap here to enter text.	☐	☐	☐
5.3	QC stamp is initialed and dated for all required roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☐
6.0	**If submission included a cost estimate:**				
6.1	There is a QC check copy with markups (yellow, red, green, blue, orange) for all cost estimate sheets. Note missing steps.	Click or tap here to enter text.	☐	☐	☐
6.2	The cost estimate cover sheet has a QC Stamp.	Click or tap here to enter text.	☐	☐	☐
6.3	QC stamp is initialed and dated for all required roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☐
7.0	**If submission included quantities:**	**Choose one random quantity calculation for audit**			
7.1	There is a QC check copy with markups (yellow, red, green, blue, orange) for all quantity calculation sheets. Note missing steps.	Click or tap here to enter text.	☐	☐	☐
7.2	The quantity cover sheet has a QC Stamp.	Click or tap here to enter text.	☐	☐	☐
7.3	QC stamp is initialed and dated for all required roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☐
8.0	**If an internal technical review (ITR) was performed:**				

8.1	Review comments were documented in Section 3 of the ITR form, in the Comment Response Form (CRF) or other.	Click or tap here to enter text.			
8.2	Responses to ITR comments are marked directly on the review document or on the CRF. Note any other procedure.	Click or tap here to enter text.			
8.3	All ITR comments were addressed and self-checked by the originator. PM has verified and signed Section 4 of ITR form.	Click or tap here to enter text.			
8.4	Any revised models, calculations, drawings, reports, etc. have been re-reviewed and accepted by ITR reviewer.	Click or tap here to enter text.			
8.5	ITR reviewer has approved changes and signed Section 5 of ITR form.	Click or tap here to enter text.			
9.0	**There is a completed QAR form for this submission:**				
9.1	The QAR form is filed in project 200-PM\QA folder.	Click or tap here to enter text.			
10.0	**Any additional information or comments.**				
Comments					
Click or tap here to enter text.					

QA AUDIT CHECKLIST (Construction Phase)

Project Name & H&H Job #: Click or tap here to enter text.	Auditor: Click or tap here to enter text.
Phase/Submission Details: Click or tap here to enter text.	Date(s) of Audit: Click or tap here to enter text.
Project Manager (PM): Click or tap here to enter text.	Project Quality Assurance Lead (PQAL): Click or tap here to enter text.

Item Number	Item Audited	Notes	Conforms (check box)		
			Yes	No	N/A
1.0	**Project has a Completed Quality Management Plan:**				N/A
1.1	QMP is filed in Projects\200-PM\QA or Work Plan folder.	Click or tap here to enter text.	☐	☐	☐
1.2	QMP has additional project QA or QC requirements.	Click or tap here to enter text.	☐	☐	☐
1.3	Subconsultants Quality Management Plans were reviewed.	Click or tap here to enter text.	☐	☐	☐
1.4	The Quality Management tab in Vision is complete and accurate.	Click or tap here to enter text.	☐	☐	☐
2.0	**General:**				
2.1	The post design documents are in Projects\600-Post Design Services. If not, specify where located.	Click or tap here to enter text.	☐	☐	☐
2.2	Tracking logs of RFI, Submittals and Shop Drawings have been created and are being maintained.	Click or tap here to enter text.	☐	☐	☐
2.3	The conformed Contract Documents (standards, specifications, plans, etc) are available for checking the submittals against.	Click or tap here to enter text.	☐	☐	☐
3.0	**If shop drawings are reviewed:**	**Choose one random submittal for audit**			
3.1	The “office copy” submittal is identified with unique project number/code and has "Received On" date.	Click or tap here to enter text.	☐	☐	☐
3.2	Shop Drawing utilize H&H or project shop drawing review stamp as indicated in Section 7.1 of the QC Plan.	Click or tap here to enter text.	☐	☐	☐
3.3	Reviewer marked in yellow information which are acceptable and in red information which are not acceptable. Review comments are discussed with qualified staff before returning.	Click or tap here to enter text.	☐	☐	☐

3.4	Stamp is completed and appropriately marked: Approved, Approved as Noted, Revise & Resubmit or Not Approved.	Click or tap here to enter text.	☐	☐	☐
4.0	**If construction methods and/or procedures are reviewed:**	**Choose one random procedure for audit**			
4.1	Submittal is signed & sealed by a Professional Engineer in the project jurisdiction.	Click or tap here to enter text.	☐	☐	☐
4.2	Submittal was review for general conformance with project requirements and reasonableness for use.	Click or tap here to enter text.	☐	☐	☐
4.3	Any review comments/exceptions have been marked in red on the submission.	Click or tap here to enter text.	☐	☐	☐
4.4	"Reviewed" stamp and general review note as specified in H&H QC Plan Section 7.2 has been applied.	Click or tap here to enter text.	☐	☐	☐
5.0	**If construction support services require revised design plans:**	**Choose one random Plan sheet for audit**			
5.1	There is a QC check print with markups for all plan sheets, specifications, etc. that were updated.	Click or tap here to enter text.	☐	☐	☐
5.2	Documents are prepared and issued in accordance with Client or project standards for changes during construction.	Click or tap here to enter text.	☐	☐	☐
5.3	QC stamp is initialed and dated for all roles: ready for checking, checked, back checked, corrected, verified.	Click or tap here to enter text.	☐	☐	☐
6.0	**If plan revisions required revised calculations or quantities:**	**Choose one random calculation packet for audit**			
6.1	There is a QC check print with markups for all calculations, quantities, cost estimate, etc. that were updated.	Click or tap here to enter text.	☐	☐	☐
6.2	Documents are prepared and issued in accordance with Client or project standards for changes during construction.	Click or tap here to enter text.	☐	☐	☐
6.3	QC stamp is initialed and dated for all roles: ready for checking, checked, back checked, corrected, verified	Click or tap here to enter text.	☐	☐	☐
6.4	Each calculation sheet is initialed & dated by Originator/Producer and initialed & dated by Checker.	Click or tap here to enter text.	☐	☐	☐
6.5	There is a QAR form for all Design Revision Submittals.	Click or tap here to enter text.	☐	☐	☐
7.0	**Any additional information or comments**				
	Click or tap here to enter text.				

Hardesty & Hanover
engineering that moves you

INTERNAL TECHNICAL REVIEW FORM

Form ITR

Project Name		**Project Manager**	
H&H Project Number		**Client Name**	

☐1 - DOCUMENT INFORMATION

(TO BE FILLED OUT BY THE PROJECT MANAGER)

Level of Development (Check all that apply)

☐ Concept ☐ Preliminary
☐ Phase: _____ ☐ Other:_____
☐ Final ☐ Release For Construction

Discipline Reviewed (Check all that apply)

☐ Overall / Policy ☐ Structural ☐ Geotechnical
☐ Mechanical ☐ Electrical ☐ Highway/Civil
☐ Constructability ☐ Other, Specify: _____

Document type reviewed: ☐ Design Plans ☐ Calculations ☐ Report ☐ Specification
☐ Other, Specify:

Prepared by: _____ Document Date / Version: _____

QC STAMP

☐ Document contains Incomplete QC stamp, specify completed steps: _____
☐ Document contains Completed QC stamp

2 – DETAILED ITR SCOPE

Submitted by: _____ _____
Project Manager **Date**

3 – REVIEWER COMMENTS

(TO BE FILLED OUT BY THE INDEPENDENT REVIEWER)

I have reviewed the above referenced document in accordance with Hardesty & Hanover and Industry Standards. My Conclusions are as follows (if more space required attach additional sheet, indicate format and location of any comments):

Reviewed by: _____ _____
Internal Reviewer **Date**

4 – VERIFIED

All Reviewer comments have been addressed, either satisfactorily resolved or incorporated into the document. This document is complete.

Submitted by: _____ _____
Project Manager **Date**

5 - APPROVAL

This review is complete.

Submitted by: _____ _____
Internal Reviewer **Date**

Hardesty & Hanover

[Project]

[Type of Review]

Comment / Response Form (CRF)

DOCUMENT NAME:				
REVIEWER:		**RECEIVED DATE:**		
REVIEW DATE:		**REVIEW STATUS:**		

RESPONSE CODES: **A -** Team Member agrees and will take action; **D** - Team Member does not agree and will pursue resolution, comment has not been resolved; **F** - Follow up required

No	Page	Section	Comment	Comment By	Response	Response By	Response Code	Comment	Comment By	Change Incorporated
1										
2										
3										
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Distribution:

SUBCONSULTANT QUALITY CERTIFICATION FORM

Project Name:	
Project / Contract Number:	
Subconsultant Firm:	
Description of Submission & Stage:	
Subconsultant's Submission Scope:	

H&H requests all Subconsultants to certify that they have performed and completed the quality assurance and quality control tasks necessary to certify that the submission is complete, to the indicated level of development, and meets the requirements of the project's Quality Management Plan and Contract documents.

Documentation of quality checking is provided to H&H: Yes ☐ No ☐ N/A☐

Signature: _____

_____

Subconsultant's Project Manager (typed) Date

I have reviewed the subconsultant's submission and certify that the submission is complete to the indicated level of development and meets the requirements of the project's Quality Management Plan and Contract documents.

Signature: _____

_____

H&H Project Manager (typed) Date

Subconsultant Quality Assurance Checklist Design Projects

Project Name:	
Sub-consultant Name:	
Project Status/Phase:	
Date:	

YES	NO*	N/A*	* = ATTACH EXPLANATION
☐	☐	☐	1. Design calculations have been checked and back checked
☐	☐	☐	2. Geometry calculations have been checked and back checked
☐	☐	☐	3. Computer program input has been checked and results have been determined to be reasonable
☐	☐	☐	4. Quantity estimates have been checked
☐	☐	☐	5. Engineer's estimate has been checked
☐	☐	☐	6. Pay items have been reviewed to ensure that all work is included
☐	☐	☐	7. Specifications have been reviewed
☐	☐	☐	8. Designers have checked plan sheets
☐	☐	☐	9. Plan details and specifications have been checked for conformance with client standard details and specifications
☐	☐	☐	10. Plan details and specifications have been coordinated with design calculations
☐	☐	☐	11. Drawing layout, preparation, and CADD standards meet current client specifications
☐	☐	☐	12. Designers have checked interdisciplinary interfaces
☐	☐	☐	13. Discipline Leaders, Project Engineer, and Project Manager have verified design coordination
☐	☐	☐	14. Utility coordination is complete and details comply with standards
☐	☐	☐	15. Constructability review has been made
☐	☐	☐	16. Design has been coordinated with adjacent construction or abutting facilities
☐	☐	☐	17. Technical Policy review has been made
☐	☐	☐	18. Permit and Agency Sign offs have been obtained (as applicable)
☐	☐	☐	19. Client's comments have been addressed
☐	☐	☐	20. Client and H&H QA/QC requirements have been satisfied

Project Manager	*Signature*	*Date*
Project Quality Lead/QA Reviewer	*Signature*	*Date*

Louisiana Department of Transportation and Development
Bridge Design Section Pre-Approved Software List
Updated: February 21, 2024

Developer	Website	Software Name	Production Version
AASHTO, Inc.	https://www.aashtoware.org/	AASHTOWare Bridge Design	7.4.1
AASHTO, Inc.	https://www.aashtoware.org/	AASHTOWare Bridge Rating	7.4.1
AASHTO, Inc.	https://www.aashtoware.org/	AASHTOWare PS Design Tool	7.4.1
AASHTO, Inc.	https://www.aashtoware.org/	AASHTOWare Steel Design Tool	7.4.1
Acuity Brands Lighting, Inc.	https://www.visual-3d.com/	Visual	2020 R2
AutoDesk	https://www.autodesk.com/	AutoCAD LT	AutoCAD LT 2024
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	LEAP Bridge Concrete	22.0.4.24
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	LEAP Bridge Steel	22.0.4.24
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	Microstation Connect Edition	10.16.00.080
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	Microstation v8i	08.11.09.883
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	Open Roads Designer	10.10.13
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	OpenBridge Designer	10.10.1.73
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	OpenBridge Modeler	10.12.183
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	RM Bridge	11.16.031
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	STAAD	22.12.00.142
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	STAAD Beava	22.12.00.142
Bentley Systems, Inc.	https://softwaredownloads.bentley.com/en/	STAAD Section Wizard	22.12.00.142
Bridge Software Institute	http://bsi-web.ce.ufl.edu	FB-Pier	v5.8.31
Computers and Structures, Inc.	https://www.csiamerica.com/	CSiBridge	CSiBridge 2016 v1820
Computers and Structures, Inc.	https://www.csiamerica.com/	CSiCOL	CSiCol 9 v901
Computers and Structures, Inc.	https://www.csiamerica.com/	SAP 2000	SAP 2000 v1820
CSI, Ltd.	https://www.csi-europe.com/	DDM	DDM 2023
Elite Software	https://www.elitesoft.com/	CHVAC 8	CHVAC 8
Ensoft, Inc.	https://www.ensoftinc.com/	L-Pile	2022-09
Finite Element Analysis, Ltd.	https://www.lusas.com/	LUSAS	LUSAS 19.1-3
Informer Technologies, Inc.	https://powergear.software.informer.com/	Power Gear	4.0.64
LARSA, Inc.	https://www.larsa4d.com/	LARSA 4D Bridge Plus	LARSA 4D_8.00.9016
Lighting Analysts, Inc.	https://www.lightinganalysts.com/catalog/login.php	AGi32	AGI32-20.11.0.12
MIDASoft	https://www.midasoft.com/	Midas Civil	Civil 2023(v1.1)
Operating Technology, Inc.	https://www.etap.com/	ETAP	ETAP 2023 (22.5.0)
PTC, Inc.	https://www.ptc.com/en/support	MathCAD Prime	Prime 9.0
Smart Bridge Technology	http://www.smartbridgetech.com/	Smart Bridge Suites	4.0
SolidWorks Corporation	https://www.solidworks.com/	SOLIDWORKS	2023 SP02.1
Structure Point, LLC	https://structurepoint.org/	spColumn	spColumn 10.00
University of Maryland	https://best.umd.edu/sabre/	Sabre	6.2

Note:

1. **If any other software is required for unique applications for which pre-approved software cannot be used, a synopsis of the software shall be submitted to the Bridge Design Engineer Administrator for approval prior to use. The synopsis shall include the name of the software and the developer, a general description of the functions, a certification from the software developer stating that it is maintained in accordance with the latest AASHTO LRFD Bridge Design Specifications, and an account of the requester's experience and the experience of other organizations or agencies that use the software. Data/results from in-house software will not be accepted as part of the deliverable.**

2. **The cost of software shall be included in the overhead cost of the firm and not a direct expense for the projects.**

Design Criteria Checklist

Design criteria for each project shall include, but not limited to, the following sections:

__ **Cover sheet**

The following information must be included on the cover sheet:

- LADOTD project number
- Project name
- Revision date
- The Supervisor or Team Leader's signature and date

__ **Governing Design and Construction Specifications and Other References**

A list of governing design and construction specifications and other references used for the project shall be included in this section. The edition number, interim revisions, and/or publication date must be specified for each reference.

__ **Design Assumptions and Design Exceptions**

All design assumptions and design exceptions received must be included in this section along with supporting documents.

__ **General Information**

The general information as listed below should be included in this section:

- Bridge information (no. of bridges, bridge clear width, length, no. of lanes, lane width, shoulder width, etc.)
- Road information (roadway classifications, design speed, traffic data, etc.)
- Vertical datum
- Vertical and horizontal clearances
- Other relevant information

__ **Hydraulic Design Criteria**

All hydraulic design criteria (design year, design water elevations, scour depth and scour elevation, etc.) shall be included in this section and the information shall be provided by the Hydraulic Engineer.

__ **Design Factors**

The ductility factor η_D, redundancy factor η_R, and operational importance factor η_I shall be listed in this section.

__ **Design Loads**
All design loads (dead load, live load, wind load, thermal loads, vessel collision loads, seismic load, wave loads, etc.) used for the project shall be included in this section.

__ **Limit States**
All applicable limit states for this project shall be listed in this section.

__ **Bridge Barrier**
The design criteria, types, and test levels for bridge barriers shall be listed in this section. Standard plans and special details should be listed if they are utilized.

__ **Guardrail**
The design criteria, types, and test levels for guardrails shall be listed in this section. Standard plans and special details should be listed if they are utilized.

__ **Approach Slab**
Design criteria for approach slab shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Deck and Deck Drainage**
All design criteria for deck and deck drainage design shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Bearing**
All bearing types and design criteria for each bearing type shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Joint**
All joint types and design criteria for each type shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Superstructure**
All superstructure types and design criteria for each type shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Substructure**
All substructure types and design criteria for each type shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Piles and Drilled Shafts**
All pile types, sizes, and structural design criteria shall be included in this section. Standard plans and special details should be listed if they are utilized.

__ **Geotechnical Design**
All geotechnical design criteria shall be included in this section and the information shall be provided by the Geotechnical Engineer. Standard plans and special details should be listed if they are utilized.

__ **Mechanical Design**
All mechanical design criteria shall be included in this section if applicable. Standard plans and special details should be listed if they are utilized.

__ **Electrical/Lighting Design**
All electrical design criteria shall be included in this section if applicable. Standard plans and special details should be listed if they are utilized.

__ **As-Designed Bridge Rating Criteria**
All as-designed bridge rating criteria shall be included in this section.

__ **Software**
All software used for design and check shall be included in this section.

Final Calculation Book Checklist

The final calculation book for each project shall include, but not limited to, the following sections:

__ **Cover Sheet**

The following information must be included on the cover sheet:

- LADOTD project number
- Project name
- The title of “Final Calculation Book”
- The EOR’s seal with signature and date

__ **Final Calculation Book Check List**

__ **QC/QA Certifications**

__ **Peer Review Resolution Agreement (if peer review is performed)**

__ **Design Criteria**

__ **Final Hydraulic Analysis Report from Hydraulic Engineer**

__ **Final Geotechnical Analysis Report from Geotechnical Engineer**

__ **Superstructure Design Calculations**

__ **Substructure Design Calculations**

__ **Quantity Calculations**

__ **Special Provisions/NS-Items**

__ **Construction Cost Estimate**

__ **As-Designed Rating Report**

__ **List of All Final Electronic Design Files and File Locations (ProjectWise directory name)**

Consultants shall submit the final calculation book to LADOTD bridge task managers; the submittal shall be on a CD or Flash Drive or placed to a designated ProjectWise folder including the following information:

__ **A PDF File of the Calculation Book**

__ **All Electronic Design Files**

__ **A PDF File of the As-Designed Rating Report Only**

The final calculation book for in-house projects shall include the same files listed above for consultant projects. The final calculation book and other final design documents for all projects including in-house and consultant projects shall be uploaded to the archiving location designated in the record retention policy within 30 calendar days after the stamped final plans are delivered.

QA Information Package Checklist

Project No.:

Project Description:

_____ Calculation Book

_____ Plans

_____ Special Provisions

_____ Cost Estimate

_____ Other Documents _____

Appendix C
QC/QA Certification

Project No.:

Project Name:

We, the undersigned designers, detailers, checkers and reviewers for this project, have reviewed and accepted the calculations, plans, quantities, special provisions, and cost estimate prepared for the project. We certify that the work for which we are responsible has been completed in accordance with the LADOTD Bridge Design Section policy on QC/QA.

Team Members	Name	PE Registration No.	Responsible Plan Sheets	Responsible Special Provisions	Construction Cost Estimate	Signature
Designers						
Design Checkers						
Detailers						
Detail Checkers						
Reviewers						
Peer Reviewer						
Geotechnical Engineer						
Hydraulic Engineer						
EOR						

Peer Review Resolution Agreement

Project No.:

Project Name:

We, the undersigned Peer Reviewer, Supervisor or Team Leader of the design team, and LADOTD Representative for this project, have reviewed and accepted the attached peer review resolutions. We certify that the peer review has been performed in accordance with the LADOTD Bridge Design Section policy on QC/QA.

Team Members	Name	Signature
Peer Reviewer		
Supervisor or Team Leader		
LADOTD Representative		

Consultant Submittal QC/QA Certification

Project No.:

Project Name:

I, the undersigned Supervisor or Team Leader for this project, certify that the information included in this submittal has been prepared in accordance with the QC/QA plan documents and LADOTD Bridge Design Section policy on QC/QA and the information presented is accurate and meets the requirements of this submittal. All CAD drawings meet LADOTD CAD standards.

_____
Submittal Description

_____	_____	_____
Supervisor or Team Leader Name	Signature	Date

Appendix D

LADOTD QA/QC
Forms & Checklists

LADOTD

BDEM Chapter 3, Part I, Appendix D

QC/QA Certification

Project No.:

Project Name:

We, the undersigned designers, detailers, checkers and reviewers for this project, have reviewed and accepted the calculations, plans, quantities, special provisions, and cost estimate prepared for the project. We certify that the work for which we are responsible has been completed in accordance with the LADOTD Bridge Design Section policy on QC/QA.

Team Members	Name	PE Registration No.	Responsible Plan Sheets	Responsible Special Provisions	Construction Cost Estimate	Signature
Designers						
Design Checkers						
Detailers						
Detail Checkers						
Reviewers						
Peer Reviewer						
Geotechnical Engineer						
Hydraulic Engineer						
EOR						

LADOTD

BDEM Chapter 3, Part I, Appendix I

Consultant Submittal QC/QA Certification

Project No.:

Project Name:

I, the undersigned Supervisor or Team Leader for this project, certify that the information included in this submittal has been prepared in accordance with the QC/QA plan documents and LADOTD Bridge Design Section policy on QC/QA and the information presented is accurate and meets the requirements of this submittal. All CAD drawings meet LADOTD CAD standards.

_____

Submittal Description

_____ _____ _____

Supervisor or Team Leader Name *Signature* *Date*

LADOTD

BDEM Chapter 3, Part I, Appendix A

Design Criteria Checklist

Design criteria for each project shall include, but not limited to, the following sections:

___ *Cover sheet*

The following information must be included on the cover sheet:

- LADOTD project number
- Project name
- Revision date
- The Supervisor or Team Leader's signature and date

___ *Governing Design and Construction Specifications and Other References*

A list of governing design and construction specifications and other references used for the project shall be included in this section. The edition number, interim revisions, and/or publication date must be specified for each reference.

___ *Design Assumptions and Design Exceptions*

All design assumptions and design exceptions received must be included in this section along with supporting documents.

___ *General Information*

The general information as listed below should be included in this section:

- Bridge information (no. of bridges, bridge clear width, length, no. of lanes, lane width, shoulder width, etc.)
- Road information (roadway classifications, design speed, traffic data, etc.)
- Vertical datum
- Vertical and horizontal clearances
- Other relevant information

___ *Hydraulic Design Criteria*

All hydraulic design criteria (design year, design water elevations, scour depth and scour elevation, etc.) shall be included in this section and the information shall be provided by the Hydraulic Engineer.

___ *Design Factors*

The ductility factor η_D, redundancy factor η_R, and operational importance factor η_I shall be listed in this section.

___ *Design Loads*

All design loads (dead load, live load, wind load, thermal loads, vessel collision loads, seismic load, wave loads, etc.) used for the project shall be included in this section.

___ *Limit States*

All applicable limit states for this project shall be listed in this section.

___ *Bridge Barrier*

The design criteria, types, and test levels for bridge barriers shall be listed in this section. Standard plans and special details should be listed if they are utilized.

___ *Guardrail*

The design criteria, types, and test levels for guardrails shall be listed in this section. Standard plans and special details should be listed if they are utilized.

___ *Approach Slab*

Design criteria for approach slab shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Deck and Deck Drainage*

All design criteria for deck and deck drainage design shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Bearing*

All bearing types and design criteria for each bearing type shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Joint*

All joint types and design criteria for each type shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Superstructure*

All superstructure types and design criteria for each type shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Substructure*

All substructure types and design criteria for each type shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Piles and Drilled Shafts*

All pile types, sizes, and structural design criteria shall be included in this section. Standard plans and special details should be listed if they are utilized.

___ *Geotechnical Design*

All geotechnical design criteria shall be included in this section and the information shall be provided by the Geotechnical Engineer. Standard plans and special details should be listed if they are utilized.

___ *Mechanical Design*

All mechanical design criteria shall be included in this section if applicable. Standard plans and special details should be listed if they are utilized.

Electrical/Lighting Design

All electrical design criteria shall be included in this section if applicable. Standard plans and special details should be listed if they are utilized.

As-Designed Bridge Rating Criteria

All as-designed bridge rating criteria shall be included in this section.

Software

All software used for design and check shall be included in this section.

LADOTD

BDEM Chapter 3, Part I, Appendix B

Final Calculation Book Checklist

The final calculation book for each project shall include, but not limited to, the following sections:

___ *Cover Sheet*

The following information must be included on the cover sheet:

- LADOTD project number
- Project name
- The title of "Final Calculation Book"
- The EOR's seal with signature and date

___ *Final Calculation Book Check List*
___ *QC/QA Certifications*
___ *Peer Review Resolution Agreement (if peer review is performed)*
___ *Design Criteria*
___ *Final Hydraulic Analysis Report from Hydraulic Engineer*
___ *Final Geotechnical Analysis Report from Geotechnical Engineer*
___ *Superstructure Design Calculations*
___ *Substructure Design Calculations*
___ *Quantity Calculations*
___ *Special Provisions/NS-Items*
___ *Construction Cost Estimate*
___ *As-Designed Rating Report*
___ *List of All Final Electronic Design Files and File Locations (ProjectWise directory name)*

Consultants shall submit the final calculation book to LADOTD bridge task managers; the submittal shall be on a CD or Flash Drive or placed to a designated ProjectWise folder including the following information:

___ *A PDF File of the Calculation Book*
___ *All Electronic Design Files*
___ *A PDF File of the As-Designed Rating Report Only*

The final calculation book for in-house projects shall include the same files listed above for consultant projects. The final calculation book and other final design documents for all projects including in-house and consultant projects shall be uploaded to the archiving location designated in the record retention policy within 30 calendar days after the stamped final plans are delivered.

LADOTD

BDEM Chapter 3, Part I, Appendix C

QA Information Package Checklist

Project No.:

Project Description:

_____ *Calculation Book*

_____ *Plans*

_____ *Special Provisions*

_____ *Cost Estimate*

_____ *Other Documents* _____

LADOTD

BDEM Chapter 3, Part I, Appendix K

CONSULTANT SUBMITTAL REVIEW CHECKLIST

Items	Submittals												
	Design Criteria	TS&L	30'7r PP	60'7r PP	90'7c PP	l00'7c PP	30'7r FP	60'7c FP	90'7c FP	100'7c FP	Final Calculation Book	Plan Revisions	Change Orders
Consultant Submittal QC/QA Certification			R	R	R	R	R	R	R	R	R	R	R
Design Criteria	C												
TS&L		C											
Bridge Index			D	D	D	D	D	D	C	S			
General Notes			D	D	D	D	D	D	C	S			
Summary of Estimated Quantities			D	D	C	C	D	D	C	S			
General Plans			D	D	*C*	C	C	*C*	*C*	S			
Typical Sections			D	D	C	C							
Superelevation Diagram				D	D	C	C	C	C	S			
Construction Phasing Details				D	D	C	C	C	C	S			
Traffic Controls Details				D	D	C	C	C	C	S			
Foundation/Pile Layout				D	D	C	C	C	C	S			
Pile Loads/Details					D	D	D	C	C	S			
Pile Data Tables							D	D	C	S			
Bent Details							D	D	C	S			
Fender Details							D	D	C	S			
Girder Details							D	D	C	S			
Span Details							D	D	C	S			
Joint Details								D	C	S			
Bearing Details								D	C	S			
Approach Slab								D	C	S			
Guardrail Details								D	C	S			

Bridge Barrier/Mailing Details								D	C	S			
Bridge Drainage Details								D	C	S			
Detour Bridge Details								D	C	S			
Revetment Details								D	C	S			
Signing/Lighting Details								D	C	S			
Year Plate								D	C	S			
Rebar Support								D	C	S			
Mise. Details								D	C	S			
Project Specific Standard Plans and Special Details								D	C	S			
Electrical/Lighting Details								D	C	S			
Mechanical Details								D	C	S			
As-Built Plans								D	C	C			
Special Provisions/NS-Items							D	D	C	C			
Cost Estimate					D	D	D	D	C	C			
Final Calculations											S		
Revised Plans/Calculations												S	S

Legends:

"R" = The item is required and shall be included in the submittal.

"C" = The item shall be complete and shall be included in the submittal.

"D" = The item shall be in development and shall be included in the submittal. "S" = The item is stamped by the EOR and shall be included in the submittal.

22. Sub-consultant information:

Firm Name (Name must match exactly as registered with Louisiana's Secretary of State (SOS): including punctuation, include screenshot(s) from SOS at the end of Section 20)	**Address**	**Point of Contact and email address**	**Phone Number**
Eustis Engineering L.L.C.	3011 28th Street Metairie, Louisiana 70002	Gwendolyn P. Sanders, PE gsanders@eustiseng.com	1-504-834-0157
Urban Systems Associates, Inc.	2000 Tulane Ave. Suite 200 New Orleans, LA 70112	Alison C. Michel, PE, PTOE, PTP, RSP_{2i} acmichel@urbansystems.com	(504) 569-3958

23. Location:

N/A

3850 N. Causeway Blvd, Suite 1625
Metairie, LA 70002
T: 504.962.9212
la@hardestyhanover.com