



CONTRACT NO. 4400023909

# IDIQ CONTRACTS FOR MOVABLE BRIDGE PRESERVATION *Statewide*

**SUBMITTED TO:**  
*Louisiana Department of Transportation & Development*

**SUBMITTED BY:**  
*Hardesty & Hanover*

*May 2022*

May 10, 2022

Electronic Submission to  
[DOTDCConsultantAds80@la.gov](mailto:DOTDCConsultantAds80@la.gov)

Mr. Michael Gorbaty  
Consultant Contract Services Administrator  
Louisiana Department of Transportation and Development  
1201 Capitol Access Road, Room 405-E  
Baton Rouge, LA 70802

**Re: IDIQ CONTRACT FOR MOVABLE BRIDGE PRESERVATION – STATEWIDE  
Contract No. 4400023909**

Dear Mr. Gorbaty:

**Hardesty & Hanover** (H&H) is excited to present our team’s qualifications for your *Movable Bridge Preservation Statewide contract*. Our well-qualified team of multi-disciplined bridge and roadway engineers and inspectors have established outstanding reputations for managing and coordinating state and district-wide IDIQ bridge assessment and remedial design contracts.

**Proven Bridge Assessment and Remedial Design Services:** H&H’s proven team of qualified bridge inspectors and engineers are capable, local, experienced, professional, and available. Our team of highly experienced specialists have provided Departments of Transportation with decades of comprehensive bridge engineering services for all types of fixed and movable bridges. From initial troubleshooting, annual inspections, special assessments and design services, to peer review, emergency response and O&M manuals development, we’ve dedicated our careers to maintaining and building bridge facilities that are reliable, efficient and meet our client’s best interests and all applicable codes.

**DOTD Experience:** Staff assigned to this project have extensive experience using LADOTD standards and specifications with some working at LADOTD for over 25 years and/or working on prior LADOTD projects. We are intimately familiar with your procedures and design standards and will operate under this bridge preservation contract with virtually no learning curve. Staff from H&H meet all the MPRs required under this contract.

**Subconsultant/DBE Participation:** The H&H Team includes multiple firms with diverse specialties. We have worked with all of these subconsultants in the past. To meet the 3% DBE participation goal of this contract, we have included three highly qualified firms: APS Engineering & Testing, LLC, Gaea Consultants, LLC, and Urban Systems Inc. All subconsultants and the work they will perform is shown below:

Firm	Specialty	Firm	Specialty
APS Engineering & Testing	Geotechnical Services	KTA-Tator	Protective Coatings
Bridge Diagnostics, Inc.	NDT & Bridge Instrumentation	Moffatt & Nichol	Inspections/UW Inspections
Gaea Consultants	Environmental & Permitting	Urban Systems	Traffic Services

H&H would sincerely appreciate an opportunity to work with LADOTD on this important IDIQ bridge preservation contract. We’d appreciate your consideration and look forward to providing top-quality bridge assessment, remedial design and construction support services. Please do not hesitate to contact us if additional information on our extensive qualifications is needed. I can be reached by phone at 504.605.7940, or by email: [bnaghavi@hardestyhanover.com](mailto:bnaghavi@hardestyhanover.com).

Sincerely yours,

**Hardesty & Hanover**



Babak Naghavi, PE, PhD, PH  
Project Manager and Point of Contact

# DOTD FORM: 24-102

(Revised March 1, 2022)

## PROPOSAL TO PROVIDE CONSULTANT SERVICES

1. Contract title as shown in the advertisement	<b>IDIQ CONTRACT FOR MOVABLE BRIDGE PRESERVATION STATEWIDE</b>
2. Contract number(s) as shown in the advertisement	<b>4400023909</b>
3. State Project Number(s), if shown in the advertisement	<b>N/A</b>
4. Prime consultant name (as registered with the Louisiana Secretary of State where such registration is required by law)	<b>Hardesty &amp; Hanover, LLC</b>
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	<b>EF.0005124</b>
6. Prime consultant mailing address	<b>3850 N. Causeway Boulevard, Ste. 1850 Metairie, LA 70002</b>
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	<b>3850 N. Causeway Boulevard, Ste. 1850 Metairie, LA 70002</b>
8. Name, title, phone number, and email address of prime consultant's contract point of contact	<b>Babak (Bobby) Naghavi, PhD, PE, PH, Regional Manager 504.605.7940   bnaghavi@hardestyhanover.com</b>
9. Name, title, phone number, and email address of the official with signing authority for this proposal	<b>Paul Skelton, PE, Principal 504.962.9212   pskelton@hardestyhanover.com</b>
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.

Signature (shall be the same person as #9):



Date: May 9, 2022

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.

<b><u>Firm(s):</u></b>	<b><u>Firm(s)' %:</u></b>
<b>Percentage per firm will be based on individual TO assignments</b>	
<b>APS Engineering and Testing, LLC – 2%</b>	
<b>Gaea Consultants, LLC - 2%</b>	
<b>Urban Systems, Inc. - 2%</b>	
	<b>DBE Goal = 3%</b>

## 12. Past Performance Evaluation Discipline Table:

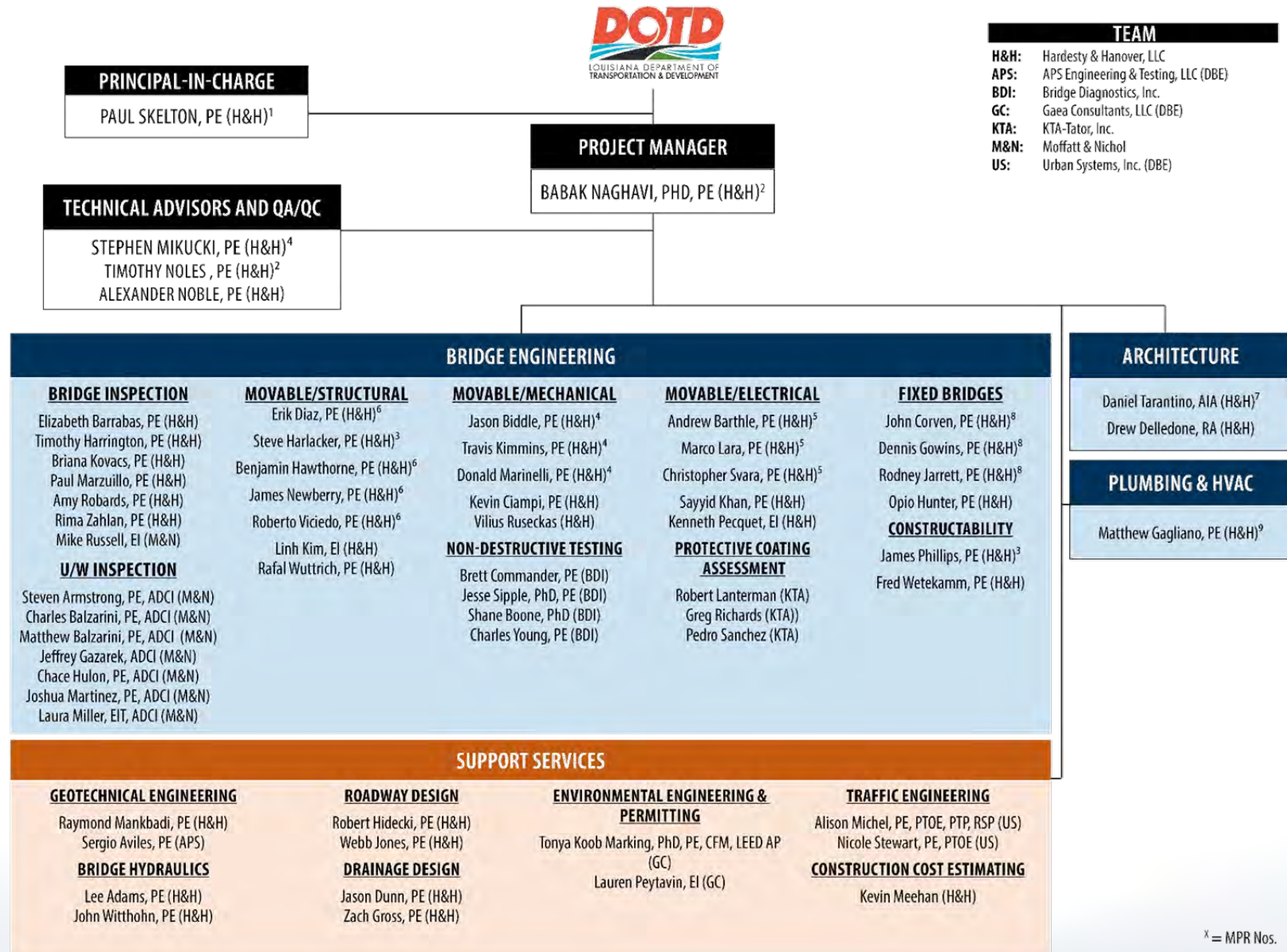
Evaluation Discipline(s)	% of Overall Contract	Prime: Hardesty & Hanover	APS Engineering & Testing	Bridge Diagnostics	Gaea Consultants	KTA Tator	Moffatt & Nichol	Urban Systems	Each Discipline must tot 100%
Road	1%	100%							100%
Bridge	93%	90%		4.5%		1%	4.5%		100%
Traffic	2%							100%	100%
Geotech	2%		100%						100%
Environmental	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%	85%	2%	4%	2%	1%	4%	2%	

**13. Firm Size:**

Firm Name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
Hardesty & Hanover, LLC	Principal	2	12
	Supervisor – Eng	8	18
	Engineer	15	38
	Engineer – Other	8	208
	Inspector – Bridge	6	32
	Supervisor - Arch	2	2
	Supervisor - Other	2	8
	Engineer Intern	4	46
	Administrative	2	28
APS Engineering & Testing, LLC	Engineer	2	2
	Driller	8	8
	Technician	12	12
Bridge Diagnostics, Inc.	Principal	3	3
	Supervisor – Eng	6	6
	Supervisor – Other	14	14
	Engineer – Other	4	4
	Engineer Intern	7	7
	Senior Technician	13	13
	Technician	4	4
	Computer Analyst	1	1
	Accountant	2	2

Firm Name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
	Clerical	3	3
	Professional	6	6
Gaea Consultants, LLC	Environmental Professional	3	3
KTA-Tator, Inc.	Supervisor – Other	2	12
	Senior Technician	1	1
Moffatt & Nichol	Accountant	1	10
	CADD Technician	1	75
	Engineer	4	25
	Inspector – Bridge	12	50
	Supervisor – Eng	2	8
	Technician	5	12
Urban Systems, Inc.	Supervisor- Eng	1	2
	Engineer	1	2
	Engineer- Other	1	1
	Engineer Intern	1	2
	CAD Technician	1	1
	Technician	2	4
	Clerical	1	2

# 14. Organizational Chart:



<sup>x</sup> = MPR Nos.




### 15. Minimum Personnel Requirements:

MPR No.	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 / Certification & Number	State of License	License / Certification Expiration Date
1	Paul Skelton, PE	Hardesty & Hanover	PE (27039)	LA	3/31/2023
2	Babak (Bobby) Naghavi, PE	Hardesty & Hanover	PE (20745)	LA	9/30/2022
2	Tim Noles, PE	Hardesty & Hanover	PE (31675)	LA	9/30/2022
3	Steve Harlacker, PE	Hardesty & Hanover	PE (37057)	LA	9/30/2022
3	Jim Phillips, PE	Hardesty & Hanover	PE (25091)	LA	3/31/2023
4	Jason Biddle, PE	Hardesty & Hanover	PE (43431)	LA	9/30/2023
4	Travis Kimmins, PE	Hardesty & Hanover	PE (43676)	LA	3/31/2024
4	Don Marinelli, PE	Hardesty & Hanover	PE (43538)	LA	9/30/2023
4	Steve Mikucki, PE	Hardesty & Hanover	PE (44849)	LA	3/31/2023
5	Andrew Barthle, PE	Hardesty & Hanover	PE (34062)	LA	3/31/2023
5	Marco Lara, PE	Hardesty & Hanover	PE (44115)	LA	3/31/2024
5	Chris Svara, PE	Hardesty & Hanover	PE (44080)	LA	3/31/2024
6	Erik Diaz, PE	Hardesty & Hanover	PE (37712)	LA	9/30/2023
6	Ben Hawthorne, PE	Hardesty & Hanover	PE (44620)	LA	9/30/2022
6	James Newberry, PE	Hardesty & Hanover	PE (45742)	LA	9/30/2023
6	Roberto Vicedo, PE	Hardesty & Hanover	PE (36533)	LA	3/31/2024
7	Dan Tarantino, AIA	Hardesty & Hanover	Architect (9255)	LA	12/31/2022
8	John Corven, PE	Hardesty & Hanover	PE (38309)	LA	3/31/2024


MPR No.	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 / Certification & Number	State of License	License / Certification Expiration Date
8	Dennis Gowins, PE	Hardesty & Hanover	PE (24468)	LA	9/30/2023
8	Rodney Jarrett, PE	Hardesty & Hanover	PE (43868)	LA	3/31/2024
9	Matt Gagliano, PE	Hardesty & Hanover	PE (37500)	LA	3/31/2023

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Paul Skelton, PE	Years of relevant experience with this employer	35
	Title	Principal-in-Charge	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.E. / 1985 / Mech. Engineering / State University of NY at Stony Brook		
Active registration number / state / expiration date		Professional Engineer: 27039 / LA / 3/31/2023		
Year registered	1995	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities		Principal-in-Charge – Meets MPR 1		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/17 – Present	<p><b>H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA – Louisiana DOTD</b>  <b>Principal</b> for the bridge rehabilitation involving the electrical 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. Built in 1941, the original historically significant bridge was replaced with a new hydraulically-operated swing bridge. The new through girder swing-span rotates with hydraulically actuated slewing (push-pull) cylinders. The project is currently in the post-design phase.</p>			
08/08 – 08/13	<p><b>Judge Seeber (Clairborne Ave) Vertical Lift Bridge over Industrial Canal Rehabilitation, New Orleans, LA – Louisiana DOTD</b>  <b>Principal-in-Charge</b> for bridge rehabilitation services for this Preservation Priority Bridge. Services included vertical lift bridge assessment and rehabilitation design for miscellaneous structural repairs, replacement of the entire electrical system and replacement of the counterweight ropes. The electrical system was replaced in-kind using secondary resistance control operated with a drum switch as preferred by the owner. The vertical lift ropes were replaced using an innovative design connecting the rope socket to the lifting girder. The new socket allows the ropes to be shimmed using a vertically-elongated pin hole that allows for rope length adjustment to help ensure equal load distribution to each lifting rope.</p>			
03/18 – Present	<p><b>SR 609 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Principal</b> 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 components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>			
01/19 – Present	<p><b>SR 605 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Principal</b> for full rehabilitation of SR 605 double-leaf 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 components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>			


01/20 – Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Principal</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;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 counterweight were required to return this bridge to its full operating capability. H&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>
01/19 - Present	<p><b>Lapalco Boulevard Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW</b>  <b>Principal</b> for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule bridge crossing of Harvey Canal. project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services also 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. Improvements to bridge and roadway approaches for eastbound and westbound traffic as well as the development of a Traffic Control Plan is also included in scope.</p>
4/98-12/98	<p><b>East Haddam Bridge over the Connecticut River, East Haddam, CT – Connecticut DOT</b>  <b>Mechanical Engineer</b> for this \$1 million project to review and assess cause of damage to main drive pinions on a historic 458-foot swing. Provided corrective repairs to machinery and structure. Span was overweight due to excessive re-decking and improper configuration of electrical system.</p>
10/15 – 06/19	<p><b>Marine Parkway/Gil Hodges Memorial Vertical Lift Bridge Rehabilitation, Brooklyn/Queens, NY – MTA Bridges &amp; Tunnels</b>  <b>Principal-in-Charge</b> for bridge rehabilitation services which included a deck replacement study and design. Deck widening was accomplished by relocating the sidewalk with new brackets. Our emphasis on constructability during design and extensive prefabrication strategies facilitated fast-track construction. Work also entailed major electrical upgrades, repainting of the structure, and complete lead abatement. The completed bridge includes a widened modular precast lightweight concrete deck on the deck truss spans, a widened open grating deck on the through trusses and lift span, and a lightweight sidewalk located on the new cantilever brackets extending out from the existing floor beams. Ancillary work included extensive electrical facility design as well as lighting and draining upgrades.</p>
07/16 – 10/16	<p><b>Warsaw Road Swing Bridge, St. Petersburg, Ontario, Canada – Public Works and Government Services Canada</b>  <b>Principal-in-Charge</b> responsible for rehabilitation of a swing bridge located on Parkhill Road, in the City of Peterborough. It was constructed in 1956. The Warsaw Road Bridge is approximately 31.1m long, unequal arm, through-plate girder swing bridge. The short arm of the bridge is approximately 10.0m, and the long arm is approximately 21.1m. The width of the bridge is approximately 10.3m with a roadway of approximately 7.3m. The work involves structural, electrical, and mechanical rehabilitation of the bridge.</p>
04/99 – 08/03	<p><b>Route 7 over Passaic River Vertical Lift Bridge, Kearny, New Jersey – New Jersey DOT</b>  <b>Project Engineer</b> responsible for the mechanical design team for this \$30 million bridge replacement. A new, 125-foot-long, 73-foot-wide tower driven vertical lift replaced a single-leaf, Strauss heel trunnion bascule. Provided preliminary and final design; approach roadways; feasibility studies; structural, mechanical, and electrical design; highway design; and seismic, scour, and historic alternative analyses. Used LRFD, metalizing, and silica fume concrete in the deck gratings to maximize design life and minimize lifecycle costs.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Babak Naghavi, PhD, PE, PH	Years of relevant experience with this employer	4
	Title	Regional Manager	Years of relevant experience with other employer(s)	35
Degree(s) / Years / Specialization		PhD / 1993 / Civil Engineering / Louisiana State University MS / 1982 / Civil Engineering / Louisiana State University BS / 1979 / Civil Engineering / Louisiana State University		
Active registration number / state / expiration date		Professional Engineer: 20745 / LA / 9/30/2022 NEPA Transportation Decision Making Workshop ATSSA Traffic Control Supervisor Refresher – ATSSA Flagger Safety Inspection of In-Service Bridges, NHI # 130055/53 Maintenance & Rehabilitation of Historic Bridges (LADOTD) Underwater Bridge Inspection, NHI 130091 Bridge Inspection Non-Destructive Testing, NHI # 130099 Maintenance and Rehabilitation of Historic Bridges		
Year registered	1983	Discipline	Civil and Environmental Engineering	
Contract role(s) / brief description of responsibilities		<b>Project Manager – Meets MPR 2</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/18 – Present	<b>H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA – Louisiana DOTD</b> <b>Project Manager</b> responsible for design, calculations, and plan preparation of the bridge power distribution and relay-based control system for this movable bridge. The new through girder swing-span rotates with hydraulically-actuated slewing cylinders. The project was on hold and is now currently in the design phase.			
08/20 - present	<b>L H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – Louisiana DOTD</b> <b>Project Manager</b> 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.			
01/20 - Present	<b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b> Project Manager for the bridge assessment, rehabilitative engineering design, and construction phase services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge, using the Louisiana Standard Specifications for Roads and Bridges and the Louisiana DOTD Bridge Design Manuals. 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	<b>Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW</b> <b>Project Manager</b> for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services also 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. Improvements to bridge and roadway approaches for eastbound and westbound traffic as well as the development of a Traffic Control Plan is also included in scope.
04/18 – 06/18	<b>Lake Pontchartrain Causeway Bascule Bridge Evaluation, Jefferson and St. Tammany Parishes, LA – Jefferson Parish DPW</b> <b>Project Principal</b> for the inspection and evaluation of structural, electrical, and mechanical components of the Causeway Bascule Bridge. Scope included preparation of a final inspection report and developing recommendations to address the identified deficiencies.
10/19 – 03/20	<b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b> <b>Project Manager</b> for an annual inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.
03/18 – Present	<b>SR 609 Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, Mississippi   Mississippi DOT</b> <b>Project Manager</b> 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 to AASHTO, FHWA and MDOT guidelines and specifications. H&H is currently providing construction phase services for the project.
01/19 – Present	<b>SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b> <b>Project Manager</b> responsible 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 includes developing standard and special bridge services, statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance to AASHTO, FHWA and MDOT guidelines and specifications. The project is currently in the construction phase.
03/18–Present	<b>IDIQ Movable Bridge Contract, Statewide, MS – Mississippi DOT</b> <b>Project Manager</b> responsible for the routine/fracture critical inspection of I-110 Bridge over Biloxi Back Bay, and the full rehabilitation of SR 609 and SR 605 bascule bridges 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 components of the bridge as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Timothy Noles, PE	Years of relevant experience with this employer	36
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		BS / 1984 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 31675 / LA / 9/30/2023		
Year registered	1989	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Technical Advisor/Quality Control – Meets MPR 2		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/08 – 08/13	<p><b>Judge Seeber Vertical Lift Bridge, New Orleans, LA - Louisiana DOTD</b>  <b>Technical Advisor/Quality Control Engineer</b> 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 aCLADOTD preference.</p>			
06/08 – 08/18	<p><b>H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA - Louisiana DOTD</b>  <b>Technical Advisor</b> responsible for engineering design and post-design services for the new Bayou Teche Bridge at Oaklawn project. Built in 1941 to carry LA Route 323 over Bayou Teche, the original historically significant bridge was replaced with a new hydraulically-operated swing bridge. H&amp;H provided the electrical design for the bascule bridge in line with LADOTD’s design requirements and standard design details and coordinated closely with the other design disciplines to assure success. All design deliverables were made in accordance with project schedule. Due to permitting issues, the design was placed on hold for several years extending the schedule.</p>			
01/20 – 02/20	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Technical Advisor/Quality Control Engineer</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;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. H&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>			

04/18 – 03/19	<p><b>SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Technical Advisor/Quality Control Engineer</b> for the 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 components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>
03/19 – 8/20	<p><b>SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS - Mississippi DOT</b>  <b>Technical Advisor/Quality Control Engineer</b> 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 includes developing standard and special bridge services, statewide for MDOT. 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 specs.</p>
1/08-8/16	<p><b>Gasparilla Island Swing Bridge over ICWW, Placida, FL – Gasparilla Island Bridge Authority</b>  <b>Lead Design Engineer</b> of environmental study and final design for the replacement of a 220-foot swing span bridge. Project included inspection of the structural, mechanical, and electrical systems and rehabilitation and replacement options (swing, and bascule span) with conceptual drawings, alignments, and cost estimates. Selected final design was an adjacent swing span bridge requiring operation of the existing bridge during construction.</p>
05/17– Present	<p><b>US 17 Swing Bridge over the Perquimans River, Perquimans County, NC - North Carolina DOT</b>  <b>Project Manager/Quality Control Engineer</b> responsible for preliminary and final engineering analysis and design services to replace the existing swing bridge over the Perquimans River with a new, off-line bridge. H&amp;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 will improve geometrics, increase load carrying capacity and vertical clearance, and include all the conveniences of a modern operational system.</p>
07/12 – 10/18	<p><b>Hillsborough Avenue Vertical Lift Bridge over Hillsborough River, Tampa, FL – Florida DOT</b>  <b>Technical Advisor</b> of the rehabilitation design services which included preparation of mechanical and electrical plans to repair and rehabilitate this historic span-driven vertical lift bridge. The rehabilitation included sheave replacement, wire rope replacement, span lock repairs, and electrical system upgrades.</p>
05/12 – 02/18	<p><b>Main Street Bridge (US 1) over the St. Johns River, Jacksonville, FL – Florida DOT</b>  <b>Technical Advisor/Quality Control Engineer</b> of \$10 million bridge rehabilitation project involving the structural, electrical, and mechanical rehabilitation of a 368-foot vertical lift span. Electrical work included replacement of the electrical system including new DC span motors/flux vector drives, new relay logic, and PLC. Mechanical rehabilitation included new operating drum assemblies/open gearing, ropes, and tensioning device.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	James Phillips, PE	Years of relevant experience with this employer	6
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	33
Degree(s) / Years / Specialization		B.S. / 1982 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 0025091 / LA / 03/31/2023		
Year registered	1986	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Movable Bridge Constructability – Meets MPR 3		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/18 - present	<p><b>Lapalco Boulevard Movable Bridges over Harvey Canal, Jefferson Parish, LA - Jefferson Parish DPW</b>  <b>Technical Lead</b> 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 Boulevard to provide a facility carrying three lanes of traffic in each direction. In addition to constructing the new bridge immediately adjacent and north of the existing bridge, the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane will be rehabilitated. The scope of services also includes improvements to bridge and roadway approaches for eastbound and westbound traffic as well as the development of a Traffic Control Plan. This project is being designed according to LADOTD standards and specifications.</p>			
01/2013 – 08/2016	<p><b>Gasparilla Island Swing Bridge Replacement, Placida, FL – Gasparilla Island Bridge Authority (GIBA)</b>  <b>Senior Engineer</b> responsible for peer review of plans, calculations, and specifications for replacement of an existing historic swing span bridge. Performed review of swing span structural design and machinery design. During construction participated in post design services, reviewing RFIs and submittals, including steel and machinery erection and alignment procedures. Performed field investigations and detailed measurement of the center roller alignment and provided guidance on measures to correct the installation.</p>			
06/20 – 12/20	<p><b>SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Movable Bridge Senior Structural Engineer</b> for full rehabilitation of SR 609 bascule bridge, as a task-order to the IDIQ Master Bridge Contract which included developing standard and special bridge services, statewide for MDOT. Scope of work included inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>			
08/12 – 02/14	<p><b>Laurel Street Bascule Bridge Rehabilitation, Tampa, FL – City of Tampa</b>  <b>Chief Movable Bridge Engineer</b> for a project that involved emergency repairs and rehabilitation of a historic through truss single-leaf bascule bridge. Scope involved emergency repair of the rack pinion support structures and rack frames to correct severe corrosion and fatigue cracks. Rehabilitation included reconditioning of the drive machinery and replacement of the drive motors and control system.</p>			


01/15 - 12/17	<p><b>Beckett Bridge Replacement, Tarpon Springs, FL - Pinellas County Government</b>  <b>Project Manager</b> responsible for replacement of an existing historic bridge with a new 360-foot single-leaf, rolling-lift, bascule bridge that carries Riverside Drive over Whitcomb Bayou and features two traffic lanes, shoulders and a sidewalk. The movable span features steel plate girder main girders and floorbeam and an Exodermic deck that spans longitudinally between floorbeams. The bascule pier footing and approach pier caps feature precast concrete elements to facilitate accelerated bridge construction. Foundations are drilled shafts and pipe piles, designed to accommodate challenging site conditions including a relict sink hole under the bridge. A unique crank arm system drives the movable span, powered by redundant 20 HP electric motors and vector drives. Auxiliary machinery includes tail props and span locks. Project elements included relay-based control system, approximately a quarter mile of roadway, drainage, bridge architecture, and public involvement.</p>
02/03 – 03/05	<p><b>Spokane Street Swing Bridge, Seattle, WA – Seattle DOT</b>  <b>Technical Project Manager</b> for investigation and design of replacement lift/turn cylinders for the world’s largest concrete double-swing bridge. Project involved design of nine-foot diameter bore hydraulic cylinders for lifting and pivoting two 1.5-million-pound concrete spans. Replacement involved investigation of the failure mode of the original cylinders, including detailed FEA analysis, and development of a cylinder design that eliminated the stress concentrations found to have contributed to the failure. The span length between pivots is 480 feet and each swing span has a length of 418 feet.</p>
06/12 – 06/14	<p><b>Andrews Avenue Bascule Bridge Rehabilitation, Fort Lauderdale, FL – Broward County</b>  <b>Chief Movable Bridge Engineer</b> responsible for hydraulic system design and review of structural and mechanical design, calculations, plans, and technical special provisions for this single-leaf bascule bridge. Scope included electrical and machinery rehabilitation of a single-leaf bascule span. Mechanical work included complete replacement of the hydraulic cylinder drive system and span locks.</p>
09/98 – 04/06	<p><b>US 92 Hillsborough Avenue Vertical Lift Bridge Rehabilitation, Tampa, FL – Florida DOT</b>  <b>Chief Movable Bridge Engineer</b> responsible for inspection and design for repair of an historic 1939 vintage vertical lift movable bridge over the Hillsborough River. The bridge features a 94-foot lift span. Inspected specific bridge systems and devised repairs to correct binding of the lift span guide assemblies. Performed QC reviews of the plans and technical special provisions for replacement of the counterweight wire ropes, sheaves and sheave bearings as well as miscellaneous structural repairs to the lift span towers.</p>
01/07 - 11/10	<p><b>CR 78/Matlacha Bridge Replacement, Matlacha, FL - Lee County Government</b>  <b>Project Manager/Chief Bridge Engineer</b> for a replacement bridge design featuring a single-leaf bascule span on Pine Island Road in the historic town of Matlacha. The bridge provides the only connection between the Greater Pine Islands and mainland Lee County. The channel span featured a trunnion type bascule with hydraulic cylinder drive machinery. Approach spans consisted of precast, prestressed concrete slabs, transversely post-tensioned and finished with a composite cast-in-place concrete topping.</p>
06/02 – 07/03	<p><b>Fort Denaud Swing Bridge, Fort Denaud, FL – Hendry County Public Works</b>  <b>Chief Engineer</b> responsible for repairs of an historic (circa 1963) 191-foot long through truss swing span bridge over the Caloosahatchee River. Project included inspection and evaluation of drive, support, and auxiliary systems, preparation of design plans for fast-track repairs and construction engineering inspection for the emergency repairs. Repairs included the replacement of the pivot bearing assembly, replacement of the balance wheel assembly, replacement of the rack and rack pinion, rehabilitation of the drive train and adjustments of the hydraulic motor and HPU. The bridge is eligible for listing on the National Register of Historic Places.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Steven Harlacker, PE, SE	Years of relevant experience with this employer	25
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S. / 1996 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 0037057 / LA / 09/30/22		
Year registered	2012	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Movable Bridge Structural Engineer - Meets MPR 3		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
10/17-10/21	<p><b>East Haddam Swing Bridge over Connecticut River, East Haddam, CT – Connecticut DOT</b>  <b>Project Manager</b> responsible for the multi-discipline design of this bridge rehabilitation and load rating of the existing structure. The Design team included the contributions of in-house Civil, Roadway, Drainage, Traffic, Mechanical, Electrical, Constructability, Structural, and Architectural designers from multiple offices to meet an aggressive schedule.</p>			
8/12-6/13	<p><b>Gasparilla Island Swing Bridge over ICWW, Placida, FL – Gasparilla Island Bridge Authority</b>  <b>Lead Design Engineer</b> of environmental study and final design for the replacement of a 220-foot swing span bridge. Project included inspection of the structural, mechanical, and electrical systems and rehabilitation and replacement options (swing, and bascule span) with conceptual drawings, alignments, and cost estimates. Selected final design was an adjacent swing span bridge requiring operation of the existing bridge during construction.</p>			
12/12-6/18	<p><b>Sarah Mildred Long Bridge Replacement, Portsmouth, NH &amp; Kittery, ME – Maine DOT</b>  <b>Structural Project Engineer</b> responsible for preliminary concept development, preliminary design, and final design services for this complete vertical lift bridge replacement. As part of a joint venture team, this project utilizes the CMGC delivery method. A project delivery method to provide a cost effective team based replacement for the existing Lift Span crossing. Preliminary concept development included the evaluation of variable alignments, structure types, and structural materials. Through multi-party collaboration and thoughtful selection and evaluation, this process allowed the selection of a best-fit structure considering the aspects of bridge engineering, span operation, aesthetics and construction. Responsibilities included the development of preliminary design concepts, cost evaluation and engineering evaluation. Subsequent to preliminary concept development, design team management responsibilities included development of preliminary and final design documents for the chosen lift bridge alternative.</p>			
02/15 – 06/18	<p><b>Norwalk River (Route 136) and Yellow Mill (Route 130) Bascule Bridges Storm Hardening Design Services – Connecticut DOT</b>  <b>Project Manager</b> for the rehabilitation and storm hardening of these bridges, damaged by flooding due to Superstorm Sandy. Directly responsible for structural, mechanical, &amp; electrical design team management. This project includes provisions to improve the facility's performance during similar storms and provisions to rapidly restore the facility to functionality quickly in the event of a storm that exceeds the 100-year design storm.</p>			


03/11 – 04/13	<p><b>Murray Morgan Vertical Lift Bridge Rehabilitation Design-Build, Tacoma, WA – City of Tacoma</b>  <b>Movable Bridge Structural Engineer in Charge/QC Engineer</b> responsible for supervising the structural design aspects of the complete structural, mechanical, and electrical rehabilitation of this 100-year old, National Register of Historic Places eligible lift bridge. The scope included total design services from preliminary engineering through construction support services as part of a Design-Build team with PCL Constructors. As the Structural Engineer in Charge, this project required oversight of a multi-discipline design effort that included bridge member strengthening and seismic upgrades. As the QC Engineer, reviewed and verified preliminary and final design documents prepared by multiple collaborators for contract compliance.</p>
02/10 – 12/10	<p><b>Fairhaven-New Bedford Swing Bridge Rehabilitation, New Bedford, MA – Massachusetts DOT</b>  <b>Movable Bridge Project Engineer</b> during the preliminary investigation of the source and possible remedy of cracks in the bottom chord of the swing span of the Fairhaven/New Bedford Swing Bridge that carries Route 6 over the Acushnet River. Preliminary investigation included the development of a comprehensive computer model and subsequent fatigue analysis to determine the approximate constant amplitude fatigue stress range of this 120-year-old bridge and to determine the approximate fatigue life remaining in the structure. The Preliminary Structures Report presented the results of the fatigue analysis and focused on rehabilitation techniques available to the department to minimize the likelihood of future crack development and extend the lifespan of the structure.</p>
03/09 – 04/10	<p><b>Craigie Dam Drawbridge Rehabilitation, Cambridge MA – Massachusetts Dept. of Conservation &amp; Recreation</b>  <b>Movable Bridge Project Engineer</b> responsible for the field investigation, preliminary engineering analysis, structure type study reports, sketch plans, construction plans, special provisions and estimate for the \$41 million structural, mechanical, and electrical rehabilitation/replacement of this heavily travelled structure. The historic structure had several locks that are no longer utilized. Deteriorated structural framing and concrete decking along each side of the bridge was replaced. The scope also called for the complete replacement of the existing bascule span and operating machinery within a six-month construction timeframe.</p>
11/09 – 12/09	<p><b>First Lieutenant Derek S. Hines Memorial Swing Bridge Design-Build, Amesbury MA – Massachusetts DOT</b>  <b>Lead Movable Bridge Structural Engineer</b> responsible for determining bid phase structural improvements to a preliminary design furnished as part of a Design-Build bid package. Bid phase design consisted of redesign of the swing girders, redesign of the pivot girder system, in-depth evaluation and design of the bridge deck, and determination of superstructure loads using the AASHTO LRFD Movable Bridge Code to allow the design of a new pivot pier. Coordination between structural and geotechnical engineers was essential for the design team to complete the pivot pier computations and allow the contractor to make an accurate bid.</p>
07/15 – 03/17	<p><b>Sarah M. Long Vertical Lift Bridge, Portsmouth, NH &amp; Kittery, ME – Maine DOT</b>  <b>Movable Bridge Structural Project Engineer/Quality Assurance Manager</b> responsible for preliminary concept development, preliminary design, and final design services for this complete vertical lift bridge replacement. Responsibilities included the development of preliminary design concepts, cost evaluation and engineering evaluation, development of preliminary and final design documents for the chosen 300-foot long steel box girder lift bridge alternative. QC activities ensure that the lift span design meets the Quality Plan requirements. Preliminary concept development included the evaluation of variable alignments, structure types, and structural materials.</p>
05/15 – 03/16	<p><b>East Washington Avenue Strauss Bascule Bridge, Bridgeport, CT – City of Bridgeport</b>  <b>Project Manager</b> for the recommendation report to restore this flood-damaged bridge to service. Responsible for management of the H&amp;H's mechanical and electrical design team needed to identify failed systems and components to restore the bridge to operation.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Donald Marinelli, PE	Years of relevant experience with this employer	15
	Title	Sr. Mechanical Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		M.E., Mechanical Engineering, 2010, Johns Hopkins University B.S., Mechanical Engineering, 2005, York College of Pennsylvania		
Active registration number / state / expiration date		Professional Engineer: 43538 / LA / 9/30/2023		
Year registered	2019	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Mechanical Engineer - Meets MPR 4</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/20 – Present	<b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b> <b>Movable Bridge Mechanical Engineer</b> for the bridge assessment and complete rehabilitative engineering design required for the partial replacement of this Strauss-heel trunnion bridge. H&H’s 2019 assessment of the circa-1920, National Register of Historic Places eligible bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. H&H developed design plans to replace the span drive and span lock machinery, operating strut, guide assembly, live load bearings, counterweight trunnion pin, and bushing. Main trunnion bearings were rehabilitated.			
05/18 – 06/18	<b>SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b> <b>Movable Bridge Mechanical Engineer</b> responsible for conducting strain gage balance testing as part of the full rehabilitation design of the SR 609 bascule bridge. Issued as a task-order to the IDIQ Master Bridge Contract, the scope of this task order included developing standard and special bridge services, statewide for MDOT. Work included inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans.			
10/19 – 01/20	<b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b> <b>Movable Bridge Mechanical Engineer</b> for an annual a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.			
08/08 – 08/10	<b>Woodrow Wilson Memorial Bridge, Washington, DC - Maryland DOT/State Highway Administration</b> <b>Movable Bridge Mechanical Engineer</b> responsible for preparing trunnion, span lock and tail lock maintenance manuals for the new bascule leaves, developing load rating for bascule spans, and operating bridge for one year prior to initiation of the asset management contract. Scope included providing engineering support during bridge operations following the construction. Responsibilities included the operation of eight bascule leaves and all ancillary devices from the control house, visual inspection of the machinery rooms, electrical rooms, lock platforms, and pedestrian walkways during openings, troubleshooting during malfunctions and failures, recording electrical measurements during operations and reporting all deficiencies. The new bridge carries twelve lanes of Interstate I-95/495 traffic.			

09/05 – 06/13	<p><b>2012 Pennington Avenue Drawbridge Rehabilitation, Baltimore, MD – City of Baltimore</b>  <b>Movable Bridge Mechanical Engineer</b> responsible for the rehabilitation design, construction support, and construction inspection of the mechanical systems as part of substructure and superstructure rehabilitation for the twin, double-leaf Hopkins trunnion-type bascule bridge. Mechanical system design included rehabilitation of the span drive machinery, trunnion bearings and live load bearings and the complete replacement of the center lock and tail lock machinery.</p>
07/14 – 07/19	<p><b>I-695 Drawbridges: Comprehensive Engineering Design Services, Statewide, MD – Maryland Transportation Authority</b>  <b>Project Manager and Lead Movable Bridge Mechanical Engineer</b> involving the structural, mechanical, and electrical rehabilitation of the I-695 Drawbridges over Curtis Creek as part of the Construction Management at Risk (CMAR) project. Responsibilities included overall project management during the design and construction phases of the multi-discipline design team, development of the RFP for MDTA's first CMAR contract, coordinating design work with subconsultants, coordination with Construction Manager throughout design, and mechanical system replacement and rehabilitation. The mechanical system design included the new span drive machinery configuration, center lock and tail lock machinery rehabilitations, and live load bearing adjustments. Responsibilities also included construction support services included shop drawing review, on-site support, and witnessing field testing.</p>
05/09 – 08/17	<p><b>2008 MDOT/SHA Movable Bridge Engineering Services, Statewide – Maryland DOT/State Highway Administration</b>  <b>Lead Movable Bridge Mechanical Engineer</b> for the on-call contract to perform structural, mechanical, and electrical condition inspection, evaluation, and design for emergency bridge repair and/or rehabilitation services of movable bridges, statewide, for the State Highway Administration's Bridge Inspection and Remedial Engineering Division. Responsibilities included planning AASHTO routine inspection of movable bridges statewide, performing the inspection of the mechanical systems at each bridge, inspection report preparation, rehabilitation design, and on-call field assignments because of operational issues.</p>
02/05 – 08/06	<p><b>South Branch Lift Bridge, Design for Ropes Rehabilitation, Chicago, IL – AMTRAK</b>  <b>Movable Bridge Mechanical Engineer</b> responsible for providing mechanical engineering design services for developing plans for new operating rope linkages and new sheave assembly, as well as developing rope tensioning procedure as part of the replacement design of the end connection and tensioning devices for the operating ropes.</p>
04/06 – 04/15	<p><b>2008 and 2005 Bridge Safety Inspection Services Contracts, Statewide – Delaware DOT</b>  <b>Movable Bridge Mechanical Engineer</b> providing mechanical inspections evaluations and strain gage balance testing of the bascule bridges, creating a mechanical system O&amp;M Manual, developing a mechanical system maintenance program for each bridge, and emergency response for operational failures. Serviced eight movable bridges owned by DeIDOT. H&amp;H was responsible for AASHTO routine and in-depth inspections for eight of Delaware's movable bridges, creation of operations and maintenance manuals for all eight movable bridges, documentation of the mechanical and electrical as-built conditions, and emergency response of operational failures.</p>
04/15 – 10/16	<p><b>Washington State On-Call Movable Inspection, Statewide – Washington DOT</b>  <b>Movable Bridge Mechanical Engineer</b> for on-call services to support the State Bridge and Structures Office with special engineering expertise and design support services for new movable bridge design and existing movable bridge rehabilitation on a task order, on-call basis. Provided in-depth mechanical inspections and reports on the Chehalis River Bridge, Hood Canal Bridge and Heron Street Bridge.</p>


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Stephen Mikucki, PE	Years of relevant experience with this employer	27
	Title	Sr. Mechanical Engineer	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		BE / 1990 / Mechanical Engineering		
Active registration number / state / expiration date		Professional Engineer: 44849 / LA / 3/31/2023		
Year registered	1983	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities		Technical Advisor/Quality Control – Meets MPR 4		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/13 – 08/13	<p><b>Lea Joyner / Ouachita River Bascule Bridge Rehabilitation, Monroe, LA – Louisiana DOTD</b>  <b>Movable Bridge Mechanical Systems Expert</b> for this emergency repair to a LADOTD Preservation Priority Bridge. Provided structural repair designs that included hanger plates and counterweight trunnion bearings for this underdeck Straus double-leaf bascule bridge. As part of a commissioning task, which included strain gaging of equipment for a contractor, H&amp;H discovered a significant operational resistance in the counterweight bearings. This led to the replacement of the bearings, structural hanger plate located between the tail end of the bascule leaf, and articulated counterweight frame. Responsibilities included design, calculations, development of contract plans, cost estimate, construction support services, review of shop drawings, project submittals and installation procedures, and responding to RFIs submitted by the contractor for a counterweight trunnion replacement and bridge rehabilitation. Hardesty &amp; Hanover provided structural and mechanical support in the replacement of the counterweight trunnion and hanger plates, developed a jacking procedure and specifications for the project. Responsible for coordinating with contractor to determine field conditions and construction limitations. Reviewed all structural steel shop drawings. The Ouachita River Bridge, a double-leaf Strauss Bascule bridge, was constructed in the early 1930s and is eligible for the National Register of Historical Places under Criterion C: Design/Engineering.</p>			
01/20 – Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Mechanical Systems Expert</b> contributing to the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;H's 2019 assessment of the circa-1920, National Register of Historic Places eligible 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&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>			

03/19 – Present	<p><b>SR 605 Bascule Bridge over Industrial Waterway Rehabilitation, Harrison County, MS – Mississippi DOT</b>  <b>Senior Movable Bridge Mechanical Engineer</b> leading the design of the mechanical rehabilitation and providing construction services during construction of these twin double-leaf rolling bascules. The full rehabilitation of SR-605 bascule bridge, issued as a task-order to the IDIQ Master Bridge Contract, included engineering assessment, mechanical, electrical, and structural design in addition to the preparation of Traffic Control Plans. All designs will be completed in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. H&amp;H is currently performing construction phase services for the project.</p>
11/20 – Present	<p><b>SR 609 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Senior Movable Bridge Mechanical Engineer</b> responsible for conducting plans review of mechanical rehabilitation plans involving a full mechanical rehabilitation of the operating machinery as well as the HVAC and plumbing systems for the control house. Also provided construction support services as part of the full rehabilitation of the SR 609 bascule bridge. Issued as a task-order to the IDIQ Master Bridge Contract, the scope of this task order included developing standard and special bridge services, statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. H&amp;H is currently performing construction phase services for the project.</p>
8/12-9/12	<p><b>Gasparilla Island Swing Bridge over ICWW, Placida, FL – Gasparilla Island Bridge Authority</b>  <b>Movable Bridge Mechanical Engineer</b> of environmental study and final design for the replacement of a 220-foot swing span bridge. Project included inspection of the structural, mechanical, and electrical systems and rehabilitation and replacement options (swing, and bascule span) with conceptual drawings, alignments, and cost estimates. Selected final design was an adjacent swing span bridge requiring operation of the existing bridge during construction.</p>
12/12-5/18	<p><b>Sarah Mildred Long Bridge Replacement, Portsmouth, NH &amp; Kittery, ME – Maine DOT</b>  <b>Movable Bridge Mechanical Lead</b> for the design and construction of this new vertical lift bridge, equipped with dual decks (upper level roadway, and lower level rail). The bridge selected is designed with four independent tower columns to house the counterweight sheaves, and independent rope drives at each tower to operate the span. Unique features include movable bridge seats to utilize the movable span for the upper roadway and lower railway usage. The project is being constructed using CMGC delivery. The new bridge will carry crucial commercial traffic and heavy freight rail between Portsmouth, NH and Kittery, ME</p>
7/91-9/92	<p><b>East Haddam Swing Bridge over Connecticut River, East Haddam, CT – Connecticut DOT</b>  <b>Movable Bridge Mechanical Engineer</b> responsible for developing contract plans for the mechanical pulley system for the electrical power cables. \$1 million corrective repairs to machinery and structure. Span was overweight due to excessive re-decking and improper configuration of electrical system.</p>
11/15 – 09/17	<p><b>Broadway Bridge Rall Wheel and Track Rehabilitation, Multnomah County, OR – Multnomah County</b>  <b>Movable Bridge Mechanical Designer</b> for the design quality review and construction and fabrication support services performed by H&amp;H. The 100+ year-old Broadway Bridge, which spans the Willamette River in downtown Portland, is a rare double-leaf Rall type bascule bridge. Utilizing the CMGC project delivery method, Hardesty &amp; Hanover led the design engineering team for this movable bridge rehabilitation project. The main project objective was to replace the severely worn wheels and tracks that support the entire weight of this double-leaf bascule structure when the bascule spans are opened.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Jason Biddle, PE	Years of relevant experience with this employer	11
	Title	Movable Bridge Mechanical Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.E., Mechanical Engineering, 2010		
Active registration number / state / expiration date		Professional Engineer: 0043431 / LA / 9/30/2023		
Year registered	2019	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Mechanical Engineer - Meets MPR 4</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
05/17 – Present	<p><b>US-17 Swing Bridge over the Perquimans River Design-Build, Perquimans County, NC – North Carolina DOT</b>  <b>Movable Bridge Mechanical Engineer</b> providing preliminary and final mechanical engineering designs for this swing bridge replacement project that will replace the existing swing bridge with a new, off-line bridge. 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 will improve geometrics, increase load carrying capacity and vertical clearance, and include all the conveniences of a modern operational system. Responsibilities for project include reviewing final detail updates for various portions of the mechanical system prior to release for construction. H&amp;H’s responsibilities include the complete design of the new swing span, including structural, mechanical, electrical, and geotechnical engineering.</p>			
06/18 – 09/20	<p><b>City of Baltimore Bridge Design Services On-Call Contract, Baltimore, MD – City of Baltimore</b>  <b>Movable Bridge Mechanical Engineer</b> developed mechanical remedial plans for the Hanover Street Bridge, a double-leaf Rall rolling lift to restore operational capability. Also developed maintenance contract bid documents to cover routine maintenance for the electrical and mechanical systems at the City’s two movable bridges. Responsibilities included developing and reviewing special provisions, maintenance checklist, and cost estimates. Design responsibilities included assessing components to determine the required repairs, developing contract documents (repair details, special provisions, and cost estimates) for the tail lock machinery repairs as well as shop drawing review services for the replacement span lock machinery.</p>			
04/15 – Present	<p><b>Rehoboth Avenue Bascule &amp; Savannah Road Rolling Lift Bridge Rehabilitation, Lewes, DE – Delaware DOT</b>  <b>Movable Bridge Mechanical Engineer</b> for the rehabilitation of the Rehoboth Avenue Bridge (single-leaf bascule) and Savannah Road Bridge (double-leaf Scherzer rolling lift bascule). Responsibilities included performing the special rehabilitation inspection of the mechanical systems, report preparation, and preparation of rehabilitation documents for mechanical systems. Also providing construction support services during construction including shop drawing review.</p>			


06/12 – 02/20	<p><b>I-695 Drawbridge over Curtis Creek Rehabilitation, Baltimore, MD – Maryland Transportation Authority</b>  <b>Movable Bridge Mechanical Engineer</b> involved with the mechanical rehabilitation of this parallel double-leaf bascule. Responsible for assessing traffic control options with temporary bridge operations options during construction, assessing final machinery configuration options for the replacement of span lock mechanical components and report preparation. Construction support services provided during the rehabilitation included specialized on-site inspection of the machinery during construction, inspection of the machinery during routine and test operations throughout construction, and assessment of the new span drive machinery reducers after shop testing.</p>
03/17 – Present	<p><b>DelDOT Movable Bridge Maintenance and Repairs Contract, Statewide – Delaware DOT</b>  <b>Movable Bridge Mechanical Engineer</b> for the project involving the development of bid documents to perform the cyclical maintenance for DelDOT's eight movable bridges. Repair details were also developed for defects identified in recent inspection reports. Responsibilities for the project include developing bid documents, updating operations and maintenance manuals, developing repair details, and developing maintenance and repair cost estimates. Provided construction support services including shop drawing review.</p>
04/11 – 03/17	<p><b>2008 Movable Bridge Engineering Services On-Call Contract, Statewide – Maryland State Highway Administration</b>  <b>Movable Bridge Mechanical Engineer</b> for on-call contract to design for emergency bridge repair and rehabilitation services of movable bridges:</p> <ul style="list-style-type: none"> <li>• <i>Maryland Ave Bridge (double-leaf Scherzer rolling lift bascule)</i> – Provided on-site engineering support during replacement of the fractured main pinion.</li> <li>• <i>Chester River Bridge (double-leaf Scherzer rolling lift bascule)</i> – Provided construction services including shop drawing review for the new motor and motor brake, and on-site engineering support during motor alignment and testing of the new motors.</li> <li>• <i>Tilghman Island Bridge (single-leaf Scherzer rolling lift bascule)</i> – Investigated reported coupling and span operation issues.</li> <li>• <i>Pocomoke River Bridge (double-leaf trunnion bascule)</i> – Developed repair details for replacement span drive machinery motors to be performed with the installation of new acceleration contactor system.</li> <li>• <i>Weems Creek Bridge (swing)</i> – Provided emergency response at the request of MDOT SHA to assess the condition of a cracked slewing cylinder connection bracket.</li> </ul>
12/12 – 01/14	<p><b>Front Street &amp; Cedar Creek Bridge Emergency Repairs – Delaware DOT</b>  <b>Movable Bridge Mechanical Engineer</b> for the rehabilitation design for emergency repairs. Repairs at the Front Street Bridge (single-leaf bascule) included replacing the motor, brake thrusters, electrical wiring, navigation lights, bascule pier lights, disconnect switches and purging mechanical components of contaminated lubricant. Repairs at the Cedar Creek Bridge (bobtail swing) included replacing electrical wiring, navigation lights, limit switches, flexible lubrication lines, and purging mechanical components of contaminated lubricant. Responsibilities including the development of rehabilitation plans, shop drawing review, and on-site engineering support.</p>
01/21 – Present	<p><b>BR 3-164 on SR 36 Cedar Beach Road, Slaughter Beach, DE – Delaware DOT</b>  <b>Project Engineer</b> for the project involving the replacement of the existing swing span with a new Dutch-style bascule span</p>
11/15 – 02/16	<p><b>Emergency Operating Rope Replacement for Duluth Aerial Lift Bridge, Duluth, MN – City of Duluth</b>  <b>Movable Bridge Mechanical Engineer</b> involving the replacement of the vertical lift bridge operating ropes. Responsibilities included on-site engineering support during the tensioning of new operating ropes &amp; initial test operations of the bridge after installation.</p>

## 16. Staff Experience:

	Firm Employed by		Hardesty & Hanover	
	Name		Travis Kimmins, PE	Years of relevant experience with this employer
	Title		Senior Mechanical Engineer	Years of relevant experience with other employer(s)
Degree(s) / Years / Specialization			M.S., Mechanical Engineering, 2003, University of Tennessee, Knoxville B.E., Mechanical Engineering, 2001, University of Tennessee, Knoxville	
Active registration number / state / expiration date			Professional Engineer: 43676 / LA / 3/31/2024	
Year registered	2019	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities			<b>Movable Bridge Mechanical Engineer – Meets MPR 4</b>	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/20 – Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Senior Movable Bridge Mechanical Engineer</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;H's 2019 assessment of the circa-1920 National Register of Historic Places eligible 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&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>			
03/19 – Present	<p><b>SR 605 Bascule Bridge over Industrial Waterway Rehabilitation, Harrison County, MS – Mississippi DOT</b>  <b>Senior Movable Bridge Mechanical Engineer</b> leading the design of the mechanical rehabilitation and providing construction services during construction of these twin double-leaf rolling bascules. The full rehabilitation of SR-605 bascule bridge, issued as a task-order to the IDIQ Master Bridge Contract, included engineering assessment, mechanical, electrical, and structural design in addition to the preparation of Traffic Control Plans. All designs will be completed in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. H&amp;H is currently performing construction phase services for the project.</p>			
11/20 – Present	<p><b>SR 609 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Senior Movable Bridge Mechanical Engineer</b> responsible for conducting plans review of mechanical rehabilitation plans involving a full mechanical rehabilitation of the operating machinery as well as the HVAC and plumbing systems for the control house. Also provided construction support services as part of the full rehabilitation of the SR 609 bascule bridge. Issued as a task-order to the IDIQ Master Bridge Contract, the scope of this task order included developing standard and special bridge services, statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. H&amp;H is currently performing construction phase services for the project.</p>			


10/19 – 01/20	<p><b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b>  <b>Senior Movable Bridge Mechanical Engineer</b> for an annual inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.</p>
09/19 – 11/20	<p><b>Jupiter Federal Bridge Replacement, Jupiter, FL – Florida DOT District 4</b>  <b>Senior Movable Bridge Mechanical Engineer</b> responsible for mechanical systems design for this bascule bridge replacement project. H&amp;H will serve as Engineer of Record for the project, which addresses the structural and functional deficiencies of the existing US-1/ SR-5 Jupiter Federal Bridge from CR-A1A (Ocean Boulevard) to Beach Road. Scope includes the development of vertical and horizontal alignment for bridge replacement alternatives and study of the resulting impacts. The design incorporates intersection improvements and improves traffic functions at both ends of the approximately 2,960-foot long (0.56 mile) project corridor into the bridge replacement design. The project will include ADA access ramps to the eight-foot sidewalks and a new seven-foot buffered bike lane for additional safety. Performed the quality control reviews on the machinery, HVAC and plumbing systems.</p>
03/20 – 04/20	<p><b>Replacement of MB 106.89 over Connecticut River, Old Saybrook, CT - Amtrak</b>  <b>Senior Movable Bridge Mechanical Engineer</b> responsible for QC review of HVAC and plumbing plans and specifications. for preliminary and final design of the off-line replacement of a two-track electrified bascule railroad bridge crossing a major tidal river with approximately 1500 feet of approach structure and nearly one mile of at-grade approach work. Work included environmental permitting, project management of all design disciplines and multiple specialty subconsultants; establishing design criteria for 100-year service life; topographic and bathymetric surveys; track design per AREMA guidelines and Amtrak standards; geotechnical investigations and foundation design; civil design of approaches and approach retaining walls; right-of-way and easement determinations; utility investigations and engineering; complete structural design of fixed and movable railroad bridges per AREMA guidelines; movable bridge mechanical and electrical design; architectural design of control house; railroad electrification design; railroad communications and signals design; hydraulics and waterway design; cost and schedule estimating.</p>
08/12 – 04/18	<p><b>Jamestown Scotland Ferry Hydraulic System Rehabilitation, Jamestown, VA – Virginia DOT</b>  <b>Senior Movable Bridge Mechanical Engineer</b> responsible for the design of the hydraulic system to replace the existing hydraulic system. Provided construction services responsible including shop drawing reviews, responses to RFI's, witnessing shop testing, and field support during key construction events.</p>
03/11 – 06/18	<p><b>Terengganu Bridge, Kuala Terengganu, Malaysia – PJSI Consultants</b>  <b>Senior Movable Bridge Mechanical Engineer</b> responsible for leading the hydraulic system design for Malaysia's first movable bridge, a double-leaf bascule to connect the peninsulas of Maura North and Maura South. The bridge has become Terengganu's signature landmark as it lures tourists to this oil-rich state. The bridge controls included programmable logic controller and relay circuits to control a hydraulic span drive system. Provided construction services support</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Andrew Barthle, PE	Years of relevant experience with this employer	17
	Title	Senior Electrical Engineer	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		BS / 2003 / Electrical Engineering		
Active registration number / state / expiration date		Professional Engineer: 0034062 / LA / 3/31/2023		
Year registered	2008	Discipline	Electrical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Electrical Engineer – Meets MPR 5</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/08 – Present	<p><b>H.002798.6; Bayou Teche Swing Bridge at Oaklawn, St. Mary Parish, LA – Louisiana DOTD</b>  <b>Electrical Engineer</b> responsible for providing electrical design calculations, plan preparations and post-design services for the bridge power distribution and relay-based control system for this movable bridge. Built in 1941, the original National Register of Historic Places eligible bridge was replaced with a new hydraulically-operated swing bridge. H&amp;H provided the electrical design for the bascule bridge in line with LADOTD's design requirements and standard design details and coordinated closely with the other design disciplines to assure success. All design deliverables were made in accordance with the project schedule. Due to permitting issues, design activities were placed on hold for several years extending the schedule. H&amp;H is currently providing construction phase services for the project.</p>			
08/08 – 08/13	<p><b>SP 700-99-0430; Judge Seeber Vertical Lift Bridge over Inner Harbor Navigational Canal, New Orleans, LA – Louisiana DOTD</b>  <b>Electrical Engineer</b> responsible for overseeing the replacement of the vertical lift bridge's entire electrical system for this Preservation Priority Bridge. Scope included replacing the replay-based control system, and essentially the in-kind replacement of the switched secondary resistance motor drive with synchro-tie skew control. Prepared the initial scoping inspection report and coordinated post design services for the electrical and machinery rehabilitation of a 250-foot tower-drive vertical lift span.</p>			
01/20 – Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b>  <b>Electrical Engineer</b> for the bridge assessment, complete rehabilitative engineering design, and construction phase services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;H's 2019 assessment of the National Register of Historic Places eligible, 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. H&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>			

04/18 – Present	<p><b>SR 609 over Old Fort Bayou Bascule Bridge Rehabilitation, Gulfport, MS – Mississippi DOT</b>  <b>Electrical Engineer of Record</b> responsible for electrical inspection and design services as part of the 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. H&amp;H's scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines/specifications. H&amp;H is currently providing construction phase services.</p>
01/19 – 08/20	<p><b>SR 605 Over Industrial Waterway Canal Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Electrical Quality Control Engineer</b> responsible for the assessment, design, plan review, and quality control of electrical systems for the SR 605 double-leaf bascule bridge, as a task-order to the IDIQ Master Bridge Contract which included providing standard and special bridge services, statewide for MDOT. Scope included the inspection of structural, mechanical, and electrical components of the bridge and roadway approaches and the development of maintenance and rehabilitation/repair plans for elements identified during inspection. All designs were prepared in accordance with AASHTO, FHWA and MDOT guidelines &amp; specs.</p>
05/17 – Present	<p><b>US 17 Swing Bridge over the Perquimans River, Perquimans County, NC - North Carolina DOT</b>  <b>Lead Electrical Engineer</b> for the electrical system design including power distribution, controls, and navigational lighting systems. The new bridge includes a state-of-the-art, remotely controlled electrical system, including security and redundancy features such as CCTV, computerized monitoring, remote public address, intercoms, and additional electronic innovations. H&amp;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 will improve geometrics, increase load carrying capacity and vertical clearance, and include all the conveniences of a modern operational system.</p>
5/12-8/16	<p><b>Gasparilla Island Swing Bridge over ICWW, Placida, FL – Gasparilla Island Bridge Authority</b>  <b>Electrical Engineer</b> responsible for bridge inspection and preparation of a report on bridge condition and rehabilitation/ replacement alternatives, preliminary and final design, calculations, plan preparation, and post design of bridge electrical systems including interior lighting, CCTV, relay-based controls with PLC monitoring, and flux vector drive implementation for the replacement of a 248-foot swing-span bridge with a new 678-foot swing-span bridge including a 250-foot deck girder swing span and approach spans utilizing Florida I-Beams. Embankments are supported by MSE walls and protected by new bulkheads and revetment. In addition to the bridge structures, a new pile-supported tender house was included</p>
11/04 – 05/07	<p><b>SR-786 / PGA Boulevard Bascule Bridge over ICWW, Palm Beach Gardens, FL – Florida DOT District 4</b>  <b>Electrical Engineer</b> assisting with electrical post design and construction support services. The \$15 million multiphase construction project included in-depth inspection, condition report with load ratings and recommendations, preparation of structural, mechanical and electrical rehabilitation, and bascule span replacement plans for this twin double-leaf span bridge. Project design utilized existing bascule pier foundations and approach span structure to minimize costs.</p>
05/12 – 10/15	<p><b>Miami Avenue Twin Bascule Bridges, Miami, FL – Miami-Dade County Public Works</b>  <b>Electrical Engineer</b> responsible for the design, calculations, specifications, and plan preparation for electrical system modifications to accommodate new span locks required for \$6-million rehabilitation of twin double-leaf bascule span constructed in 1985. The project required replacement of bascule span deck grating and span locks and cleaning and painting of steel superstructure.</p>


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Marco Lara, PE	Years of relevant experience with this employer	4
	Title	Senior Electrical Engineer	Years of relevant experience with other employer(s)	17
Degree(s) / Years / Specialization		BS / 2004 / Electrical Engineering		
Active registration number / state / expiration date		Professional Engineer: 0044115 / LA / 3/31/2024		
Year registered	2019	Discipline	Electrical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Electrical Engineer - Meets MPR 5</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
11/20-Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Electrical Engineer</b> for the bridge assessment and complete rehabilitative engineering design and construction inspection services required for the rehabilitation and roadway replacement of the Strauss-heel trunnion bridge. H&amp;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.</p>			
08/21 – 01/22	<p><b>Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA - Jefferson Parish DPW</b>  <b>Movable Bridge Electrical Engineer</b> contributing to the pre-design electrical inspection and resulting Bridge Design Report (BDR) for the rehabilitation and widening of the existing four-lane Lapalco Boulevard project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lanes as well as the design of a new three-lane double bascule movable bridge crossing of Harvey Canal to be constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. Improvements to bridge and roadway approaches and development of a Traffic Control Plan was also included.</p>			
03/18 – 07/19	<p><b>Cass Street Bascule Bridge over Hillsborough River, Tampa, FL - Hillsborough County Government</b>  <b>Movable Bridge Electrical Engineer</b> responsibilities included producing and developing calculations and design plans for the rehabilitation of this historic double-leaf bascule bridge. The major rehabilitation involved replacing obsolete and aging electrical equipment such as the programmable Logic Controller (PLC), motor control panels and cabinets; conduit and wiring associated with a generator, automatic transfer switch, safety interlock, etc.; auxiliary drive bevel gear bushing, span drive motor, span lock &amp; pinion, span lock brake &amp; bushings; and emergency Drive bevel gear, shaft bushing, bearing &amp; couplings, live load shoe, and lighting. H&amp;H is providing design plans for structural rehabilitation and controller system replacement. Services included inspections of the structural, electrical, and mechanical components; a bridge development report; structural, electrical, and mechanical construction plans; temporary traffic control plans (TTC); specifications; engineer's estimate of probable construction cost; and post-design services.</p>			

03/18 – 07/19	<p><b>Brorein Street Bascule Bridge over Hillsborough River, Tampa, FL - Hillsborough County Government</b>  <b>Movable Bridge Electrical Engineer</b> responsibilities included producing and developing calculations and design plans for this double-leaf bascule bridge rehabilitation. This rehabilitation involved replacing aging electrical equipment, such as the main drive motors, brakes, motor control panels, span drive system and lock motor, limit switches, lighting, and upgrading the electrical service. H&amp;H provided designs for the National Register of Historic Places eligible bridge including a structural rehabilitation and controller system replacement. Services included inspections of the structural, electrical, and mechanical components; a bridge development report; structural, electrical, and mechanical construction plans; TCP; specifications; engineer's estimate of probable construction cost;</p>
04/09 – 06/13	<p><b>Crescent Beach Bridge Rehabilitation (SR 206), St. Johns County, FL – Florida DOT</b>  <b>Movable Bridge Electrical Engineer</b> responsible for rehabilitation of existing double-leaf, trunnion bascule bridge. Rehabilitation consisted of replacement of electrical power and controls with new Motor Control Center (MCC) and programmable logic controller (PLC) and replacement of drum switches and wound rotor motors with flux vector motors, drives, and brakes. Also included replacement of traffic gates, new open grid decking, and tender house improvements. Permit application was created for submarine cable replacement. Duties included shop inspections, witness testing, field inspection, and estimate of completion.</p>
05/17 – 07/17	<p><b>Arthur Kill Vertical Rail Lift Bridge, Elizabethport, NJ / Staten Island, NY – New York City Economic Development Corporation</b>  <b>Movable Bridge Electrical Engineer</b> responsible for performing in-depth inspections of the existing span drive, limit switches, motor control center, termination cabinets, control console, and bridge electrical system on the Arthur Kill Vertical Lift Bridge. With a single-track tower drive and a 558-foot-long span, <i>this bridge has the longest lift span of any bridge of its type in the world</i>. Observed bridge operations and visually evaluated aerial cables. Performed electrical testing of electrical service, motors, motor brakes, and span locks. Reviewed previous bridge inspection reports and prepared checklist for field evaluation of corrected and uncorrected deficiencies.</p>
1/10-10/15	<p><b>Ocean Avenue Bridge, Lantana, FL - Palm Beach County</b>  <b>Movable Bridge Electrical Designer</b> responsible for electrical design of power distribution layout and plan sheets of relay-based control system with PLC monitoring and diagnostic alarm system for the replacement of double-leaf bascule bridge. Span motor controls are flux vector drive with encoder feedback. Performed lighting analysis and design of electrical equipment room, control house, and bascule piers. Provided standby generator sizing, power flow and voltage drop studies, short circuit analysis, and lighting panel calculations. Duties include shop drawing review, shop inspections, witness testing, field inspection, and estimate of completion.</p>
07/10 – 01/13	<p><b>Sargent Barge Swinging Barge (Platoon) Bridge Rehabilitation, Matagorda County, TX – Texas DOT</b>  <b>Movable Bridge Electrical Designer</b>. Drafted electrical repair plans for power distribution system, panel schedules, control schematics, equipment layouts and conduit &amp; cable schedules. Design includes a programmable logic controller (PLC) control-based system utilizing wireless modems to eliminate the submarine cable. Operating system includes two winches on vector controlled variable speed drives, integrated to control back tension on the payout winch in each direction, to maintain absolute control of the barge in tidal currents. The center span is a 125-foot cable operated swinging barge with motor operated leveling spans and aprons on each end. Project scope included replacement of the timber leveling spans with steel framed open grid decks and the operating machinery, replacement of the bridge winch machinery and controls, structural repairs, and replacement of the traffic gates and miscellaneous roadway modifications.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Christopher Svava, PE	Years of relevant experience with this employer	24
	Title	Senior Electrical Engineer	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		BS / 1993 / Applied Physics BS / 1993 / Electrical Engineering		
Active registration number / state / expiration date		Professional Engineer: 0044080 / LA / 3/31/2024		
Year registered	2019	Discipline	Electrical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Electrical Engineer – Meets MPR 5</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/08 – 08/13	<p><b>Judge Seeber Vertical Lift Bridge over Inner Harbor Navigational Canal (SP 700-99-0430), New Orleans, LA – LADOTD</b>  <b>Lead Movable Bridge Electrical Engineer</b> provided inspection and rehabilitative design services for the electrical rehabilitation of a 250-foot tower-drive vertical lift span. The rehabilitation design of this Preservation Priority Bridge encompassed various electrical elements including a new control system, new distributed power distribution system, motor controllers, control desk, and limit switches. Provided the electrical design, including calculations, design drawings, and specifications. During the construction phase, provided construction support services for the construction, including shop drawing review, and responded to various Requests for Information.</p>			
01/19 – Present	<p><b>SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Movable Bridge Electrical Engineer</b> 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 includes developing standard and special bridge services, statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>			
5/20 – 1/21	<p><b>East Haddam Swing Bridge over Connecticut River, East Haddam, CT – Connecticut DOT</b>  <b>Movable Bridge Electrical Engineer</b> responsible for the multi-discipline design of this bridge rehabilitation and load rating of the existing structure. The Design team included the contributions of in-house Civil, Roadway, Drainage, Traffic, Mechanical, Electrical, Constructability, Structural, and Architectural designers from multiple offices to meet an aggressive schedule.</p>			
08/10 – 07/13	<p><b>Murray Morgan Vertical Lift Bridge Rehabilitation, Tacoma, WA – City of Tacoma</b>  <b>Lead Movable Bridge Electrical Engineer</b> responsible for developing the electrical design required to replace the complete electrical system on a span drive lift bridge. Scope for this National Register of Historic Plans listed bridge included providing the electrical design, including calculations, design drawings, and specifications as well as providing construction support services for the construction, including shop drawing review, Requests for Information, meetings, on-site testing, and start up. This rehabilitation design included a</p>			


	new programmable logic control system, a radio communication system to reduce cables from the movable span to the fixed piers, control desk, new distributed power distribution system consisting of a movable span, near side, and far side electrical equipment locations, motor drives, utility service, and power distribution.
08/17 – 07/19	<b>I-90 Lacey V Murrow Pontoon Bridge Rehabilitation, Seattle, WA – Washington State DOT Bridge Preservation Office</b> <b>Movable Bridge Electrical Engineer</b> for an I-90 Lacey V Murrow Bridge electrical inspection and rehabilitative design project. H&H's electrical inspection of eastbound I-90 revealed that the electrical switchgears and five pairs of transformers needed to be replaced and the neutral and ground conductors needed to be separated. H&H's rehabilitative recommendations also required that submersible fuses in three pontoons be reconfigured and reinstalled, and that a fault current and arc flash hazard analyses be performed on all medium voltage equipment. H&H was responsible for the in-depth inspection, associated inspection report, subsequent electrical system design, and construction support services.
07/10 – 04/16	<b>SR 520 Evergreen Point Floating Bridge and Landings Project, Seattle, WA – Washington State DOT Bridge Preservation Office</b> <b>Movable Bridge Electrical Engineer</b> on this design-build project to replace the SR 520 Floating Bridge with a new parallel bridge and maintenance facility. Prepared a design-build Request for Qualifications and Request for Proposal for the replacement SR 520 Evergreen Point Floating Bridge and Bridge Maintenance Facility. The floating bridge work included preliminary design and complete technical requirements for a specialized structure. The Maintenance Facility included preliminary design and complete technical requirements for LEED compliant facility. Work also included support during the bidding and selection process as well as reviewing the design-build team's design submittals, attending task force meetings with the design-build team to keep the project requirements clear, and reviewing construction submittals.
06/17 – 04/18	<b>Centerville Swing Bridge over the Chesapeake &amp; Albemarle Canal Rehabilitation, Chesapeake, MA – City of Chesapeake</b> <b>Lead Movable Bridge Electrical Engineer</b> for the rehabilitation of the Centerville Swing Bridge's bascule span. The project consisted of a site inspection to verify the condition of the electrical systems. After the site visit, a detailed scope of work was developed to identify the rehabilitation work that was required. Once the scope was defined and approved by the City, then construction plans, specifications, calculations, and cost estimates were prepared for a complete electrical rehabilitation of the bridge electrical system.
12/98 – 12/01	<b>Chehalis River Bascule Bridge Rehabilitation, Aberdeen, WA – Washington State DOT Bridge Preservation Office</b> <b>Movable Bridge Engineer</b> responsible for field inspection and subsequent design of the new electrical system for this Warren deck truss bascule bridge. Electrical designs were prepared for hydraulic center lock rehabilitation, traffic and pedestrian gate replacement, and new bridge electrical control and indication modifications. Project scope also included site inspection to evaluate existing equipment to determine what systems needed replacement versus maintenance. Design work included new control system, power distribution, hydraulic center locks, and gates as well as construction support services. Construction should be completed by Summer 2021.
10/99 – 03/01	<b>Woodrow Wilson Bascule Bridge Replacement Contract, Washington, DC – Maryland State Highway Admin. / Virginia DOT</b> <b>Movable Bridge Electrical Engineer</b> designing the new electrical systems for a new 12-lane bascule bridge to replace the existing I-95 Potomac River crossing. The new bridge is comprised of four side-by-side double-leaf bascule spans, each with a 270-foot center-to-center trunnion spacing and an overall bridge width of 249 feet. Responsibilities include the complete design of the completely new electrical systems. Features of the span include a composite concrete deck, moment-resisting span locks, tail locks, and the option of independent or group leaf operation. The bridge has been designed to accommodate future transit system plans.

## 16. Staff Experience:

	Firm Employed by		Hardesty & Hanover		
	Name		James Newberry, PE, SE	Years of relevant experience with this employer	5
	Title		Movable Bridge Structural Engineer	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization			M.S. / 2006 / Civil Engineering B.S. / 2006 / Civil Engineering		
Active registration number / state / expiration date			Professional Engineer: 45742 / LA / 09/30/2023		
Year registered	2011	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			<b>Movable Bridge Structural Engineer – Meets MPR 6</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).				
11/20-12/21	<b>East Haddam Swing Bridge over Connecticut River, East Haddam, CT – Connecticut DOT</b> <b>Movable Bridge Structural Designer</b> responsible for the multi-discipline design of this bridge rehabilitation and load rating of the existing structure. The design team included the contributions of in-house Civil, Roadway, Drainage, Traffic, Mechanical, Electrical, Constructability, Structural, and Architectural designers from multiple offices to meet an aggressive schedule.				
08/16 – 02/17	<b>Hillsborough River Vertical Lift Bridge Repair, Tampa, FL – Florida DOT</b> <b>Movable Bridge Structural Engineer</b> responsible for the post-design services for vertical lift bridge, including coordination of shop drawing reviews, plans revisions, and responding to RFIs from the contractor. The project included preparation of mechanical and electrical plans to repair/rehabilitate this historical span-driven vertical lift bridge. The rehabilitation included sheave replacement, wire rope replacement, span lock repairs, and electrical system upgrades.				
08/11 – 07/13	<b>Sargent Barge Swinging Barge (Platoon) Bridge Rehabilitation, Matagorda County, TX – Texas DOT</b> <b>Movable Bridge Structural Engineer</b> responsible for design and preparation of repair plans for miscellaneous structural elements including cable anchorages for the barge span, abutments (foundations, backwall, and cap), bulkheads, and temporary work platforms. Also responsible for design of repairs to the timber approach span stringers. Project scope included replacement of the timber leveling spans with steel framed open grid decks and the operating machinery, replacement of the bridge winch machinery and controls, structural repairs, and replacement of the traffic gates and miscellaneous roadway modifications.				
09/08 – 04/09	<b>Tamiami Swing Bridge Emergency Repairs, Miami, FL – Florida DOT</b> <b>Movable Bridge Structural Designer</b> responsible for the new grid deck, stringers, and sub-stringers to replace the existing members on the swing span. Drafted all sheets in the structure plan sets The movable bridge specialty engineering services were performed using a design-build approach as a subconsultant to a contractor. Performed in-depth field review, inspection, and measurements of the bridge to assess the conditions requiring emergency repair, clarify scope of work, and verifying the configuration, member sizes, and dimensions with limited or non-existent existing plans of the bridge. Repairs to the steel framing included replacement of deteriorated				


	<p>floor system and bracing members over the operating machinery including a portion of the steel roadway flooring. Repairs to the machinery included replacement of the pivot bearing bronze disk, balance wheel lower track, rack, main drive pinion, shaft and bearings, selected gear sets, speed reducer, machinery brake, machinery support frame, end wedges and end wedge electric linear actuators. Prepared shop drawings used to fabricate the steel and machinery to reduce project costs and time. The design, procurement, fabrication, installation, alignment, and testing were performed in a compressed schedule of 120 days. This bridge is eligible for the National Register of Historic Places.</p>
06/05 – 06/09	<p><b>Anna Maria Island (SR 64) over Gulf IWW Bascule Bridge Rehabilitation, Bradenton, FL – Florida DOT</b>  <b>Movable Bridge Structural Designer</b> participated in plan preparations and quantity calculations. The project involved the in-depth inspection, evaluation, and rehabilitation design of a 50-year-old, 3,120-foot-long bridge with a double-leaf trunnion bascule main span. The project included bascule leaf structural steel repairs and modifications; concrete repairs, including hydro-demolition and concrete overlay of the bridge deck; cathodic protection systems; new auxiliary electrical room; replacement of the machinery frame; reconditioning of the operating machinery; replacement of the electrical power and controls; and bridge operator's facilities renovation.</p>
07/07 – 02/08	<p><b>Wilson Pigott (SR 31) over Okeechobee Waterway Bascule Bridge Rehabilitation, Fort Myers, FL – Florida DOT</b>  <b>Movable Bridge Structural Designer</b> performed the span balance calculations, assisted with design calculations of other structural components, reviewed, and analyzed load test data to assist in the assessment of priority repairs. Services called for the in-depth inspection, evaluation, load rating per LRFR methodology, and rehabilitation design of this 50-year-old, 3,120-foot-long bridge with a double-leaf trunnion bascule main span. Responsibilities included performing independent peer review of the machinery repairs and steel grid deck replacement – plus performing peer review of the capacity evaluation of the unique precast, post tensioned concrete beams of the approach spans, which were among the first widespread use of prestressed concrete in the United States.</p>
03/09 – 12/10	<p><b>LaBelle Drawbridge (SR 29) Repairs &amp; Rehabilitation, Labelle, FL – Florida DOT</b>  <b>Movable Bridge Structural Designer</b> produced various designs of structural components for repairs to the approach and bascule spans, including the bascule leaf cantilever bracket, stringers, approach span bearing pads, and mast arms on the approaches. Checked the adequacy of the existing approach span diaphragms for jacking the spans. Provided quality control check of the bascule span balance calculations. Load rated the 40-foot approach span prestressed concrete beams, bascule span stringers and stringers over machinery, main girder, grid deck, and floorbeams. Load rated the flanking span stringers and floorbeams.</p>
01/19 – Present	<p><b>Beckett Bridge Replacement, Tarpon Springs, FL – Pinellas County</b>  <b>Movable Bridge Structural Designer</b> on the bridge replacement project which entails replacing an existing historic bridge with a new 360-foot single-leaf, rolling-lift, bascule bridge. The structure carries Riverside Drive over Whitcomb Bayou and features two traffic lanes, and a sidewalk. The movable span features steel plate girder main girders and floorbeam and an Exodermic deck that spans longitudinally between floorbeams. The bascule pier footing and approach pier caps feature precast concrete elements to facilitate accelerated bridge construction. Foundations are drilled shafts and pipe piles, designed to accommodate challenging site conditions including a relict sinkhole under the bridge. Design responsibilities included quality control for approach span substructure and foundations, and retaining walls, and the final design of bascule span structural steel elements including main girders, floorbeams, counterweight, and span balance.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Benjamin Hawthorne, PE, SE	Years of relevant experience with this employer	15
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S. / 2005 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 44620 / LA / 09/30/2022		
Year registered	2011	Discipline	Structural Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Structural Engineer - Meets MPR 6</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
07/13 – 05/19	<p><b>Sarah M. Long Vertical Lift Bridge, Kittery, ME – Maine DOT</b>  <b>Movable Bridge Structural Engineer</b> on joint-venture team for a complete vertical lift bridge replacement. Responsible for design of the steel box girder lift span and associated structural elements. Ben was involved in all phases of the project, providing design services for the preliminary design, final design, and design support during construction, including providing a preliminary design report, plans, design and design check computations, ratings, specifications, and estimates, for the replacement of the Sarah Mildred Long Bridge located on U.S Route 1 Bypass between Kittery and Portsmouth. The bridge carries Pan Am Railway and highway traffic and was designed in accordance with AREMA and AASHTO specifications.</p>			
01/17 – Present	<p><b>East Haddam Swing Bridge over the Connecticut River Rehabilitation, Haddam, CT – Connecticut DOT</b>  <b>Movable Bridge Project Engineer</b> responsible for the preparation of load ratings and feasibility study reports in support of a 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. Load rating and feasibility analysis included the use of AASHTOWare Bridge Rating software and the creation of a 3D computer model using Midas Civil finite element analysis software. Ben has remained involved in the rehabilitation project through preliminary and final design as a <b>Senior Structural Engineer</b> providing technical expertise and review of truss strengthening, floor system replacement, and cantilever sidewalk development.</p>			
03/20 – Present	<p><b>Middletown Swing Railroad Bridge Rehabilitation, Middletown, CT – Connecticut DOT</b>  <b>Project Manager</b> for the rehabilitation of a 300-foot, single-track swing span, four 200-foot through truss approach spans, and a 60-foot through girder span. The structure is serves Providence &amp; Worcester Railroad customers in Portland, CT. Rehabilitation and repair details are based on results of an in-depth structural, mechanical, and electrical inspection and load rating of the structure. Structural</p>			

	repairs target primary members in poor condition and any elements that do not rate for a 286K carload. Additional work includes safety upgrades to the access system and fender system repairs. Swing span operating system rehabilitation includes replacement of low-torque high-speed mechanical equipment and upgrades to the electrical system.
05/18 – 08/18	<b>Cribari Swing Bridge over the Saugatuck River Rehabilitation, Fort Lauderdale, FL – Florida DOT</b> <b>Movable Bridge Project Engineer</b> for a rehabilitation Studies Report of this historic swing bridge (the oldest movable span in Connecticut). Responsible for developing the preliminary structure type study and alignment alternatives in support of the Environmental Assessment. Structure type study included investigation of feasible alternatives and preliminary structural analysis of concepts. Assessed general structure dimensions to demonstrate visual impact of the alternatives to the public and other stakeholders.
12/11 – 01/13	<b>Saugus Drawbridge Rehabilitation, Saugus, MA – Massachusetts Bay Transportation Authority</b> <b>Movable Bridge Structural Engineer</b> responsible for analysis and design for this project involving comprehensive modeling, ratings analysis of as inspected conditions, real time structural monitoring, and strengthening of an existing pier compromised by extensive structural deterioration. Responsibilities included development of load rating methods to determine existing substructure capacity and design of an interim strengthening concept including a temporary pier to allow the bridge to remain in service at full capacity until a comprehensive replacement project can be undertaken. Temporary pier design included an integrated fender design that incorporated energy absorbing elements to provide adequate protection of the existing pier in a narrow footprint and in an area of poor soil conditions. As a sub-consultant on this project, it required cooperation of multiple parties to balance existing structural capacities, emphasis on rapid construction, and the need to maintain traffic prior to and during construction of the interim strengthening.
02/10 – 12/10	<b>Fairhaven/New Bedford Swing Bridge Rehabilitation, New Bedford, MA – Massachusetts DOT</b> <b>Assistant Team Leader/ Movable Bridge Structural Engineer</b> responsible for field inspection, report preparation, and structural and economic feasibility analysis of preliminary rehabilitation and replacement options for this thru-truss swing bridge. Developed truss chord member strengthening concepts including post-tensioning using high strength rods. This on-call task provided a Preliminary Structures Report for the movable segment of the Fairhaven/New Bedford Swing Bridge that carries Route 6 over the Acushnet River.
10/11 – 03/12	<b>General Edwards Rolling Lift Drawbridge Emergency Inspection and Rehabilitation, Lynn, MA – Massachusetts DOT</b> <b>Assistant Team Leader/Movable Bridge Structural Engineer</b> responsible for in-depth field inspection and report preparation of the two-span, four-leaf, rolling lift bridge and adjacent fixed span approach structures. A subsequent emergency inspection, required after deformation was noted in the rolling lift rack support, resulted in the design of a temporary strengthening system for the rack support columns.
12/09 – 01/10	<b>Grand Avenue Swing Bridge Rehabilitation, New Haven, CT – City of New Haven</b> <b>Inspector/ Movable Bridge Structural Engineer</b> responsible for field inspection, report preparation, and feasibility and economic analysis of preliminary rehabilitation and replacement options for this 220 foot-long, thru-truss swing bridge.


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Roberto Vicedo, PE	Years of relevant experience with this employer	23
	Title	Structural Engineer	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		B.S. / 1995 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 0036533 / LA / 03/31/2024		
Year registered	2011	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Movable Structural Bridge Structural Engineer - Meets MPR 6		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
03/18 – 06/19	<p><b>SR 609 Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Structural Engineer</b> for developed structural rehabilitation design and provided construction phase services for 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. The scope of work included inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches, and development of maintenance and repair plans.</p>			
07/18 – 01/21	<p><b>SR 3/Christa McAuliffe Bridge Over Canaveral Barge Canal, Merritt Island, FL - Florida DOT District 5</b>  <b>Project Manager</b> in charge of general project coordination and a task for the design, detail of repairs, load rating analysis using AASHTOWare, and preparation of cost estimates during the design phase. Also provided construction support services for this \$3.9 million span lock replacement project for twin double-leaf bascule bridges. The existing underdeck span locks were removed and replaced with new barrier mounted span locks.</p>			
02/14 – 12/21	<p><b>SR 968/SW 1st Street Bridge Over Miami River, Miami, FL - Florida DOT District 6</b>  <b>Project Engineer / Structures Task Leader</b> responsible for general project coordination, design, load rating, and managing construction support services phase for the replacement of the nationally registered historic bridge crossing the Miami River. The new 507-foot bridge included a 315-foot double-leaf bascule span over a widened 125-foot navigation channel. Two new approach spans consisting of prestressed concrete beams provided at least 16.5 feet of clearance over North and South River Drives.</p>			
07/04 – 07/10	<p><b>SR 7/NW 5th Street Bascule Bridge Over Miami River   Miami, FL - FLORIDA DOT DISTRICT 6</b>  <b>Project Engineer</b> responsible for design, load rating analysis and construction support services for this \$50-million bridge replacement project which included double-leaf bascule spans, bridge, control tower, approach roadways, and riverwalk. The 180-foot bridge used the appearance of a deck truss Chicago-style trunnion bascule span to fit in with the historic and aesthetic character of Miami's Little Havana community.</p>			

04/98 – 08/07	<p><b>SR 786/PGA Boulevard Bridge Over ICWW, Palm Beach Gardens, FL - Florida DOT District 4</b>  <b>Structural Engineer</b> responsible for the design, detail of repairs, load rating analysis, and preparation of cost estimates. This \$15-million multi-phase rehabilitation project included in-depth inspection, condition report with load ratings and recommendations, preparation of structural, mechanical, and electrical rehabilitation plans, and bascule span replacement plans for this twin double-leaf bascule span bridge. Project design utilized existing bascule pier foundations and approach span structure to minimize costs. The design required multi-phase construction to maintain traffic.</p>
02/08 – 12/10	<p><b>SR-5/US-1 Parker Bascule Bridge Rehabilitation, Palm Beach, FL – Florida DOT</b>  <b>Bridge Project Engineer</b> responsible for general project coordination for the \$8 million, twin double-leaf Hopkins trunnion bascule span bridge rehabilitation project. Scope included in-depth inspection, condition report with load ratings, and rehabilitation recommendations as well as the preparation of structural, architectural, mechanical, and electrical plans for the hydraulic machinery retrofit, electrical system improvements, control house modifications, bridge widening, roadway, and embankment improvements</p>
09/07 – 10/09	<p><b>SR 814 / Atlantic Boulevard Bridge Over ICWW, Pompano Beach, FL - Florida DOT District 4</b>  <b>Project Engineer</b> responsible for general project coordination for this \$5 million construction management at risk project to rehabilitate a Hopkins trunnion double-leaf bascule span bridge. The project included in-depth inspection, condition report with load ratings as well as hydraulic machinery retrofit; electrical system improvements, control house modifications, bascule span structural steel rehabilitation, and new bridge railing.</p>
12/15 – 01/19	<p><b>Camino Real Bridge over ICWW, Boca Raton, FL – Palm Beach County</b>  <b>Bridge Structural Engineer</b> responsible for the load rating analysis of the main girders and developing bascule span rehabilitation plans. The rehabilitation of this historic double-leaf rolling lift span, constructed in 1939, included designs for rehabilitated machinery, new tender house HVAC units, plumbing systems, and span locks, plus the development of technical special provisions. Structural rehabilitation designs involved new roadway grating, floorbeam brackets for wider sidewalks, stringers, and bridge railing. Aluminum structural components were utilized to minimize weight to counter balance.</p>
10/00 – 10/07	<p><b>SR 820/Hollywood Boulevard Bridge Over ICWW, Hollywood, FL - Kiewit Southern Construction</b>  <b>Project Engineer</b> in charge of general project coordination and a task leader for the design, detail of repairs, load rating analysis, and preparation of specifications and cost estimates. Also acted as project manager of construction support services for this \$10-million rehabilitation project which included architectural and aesthetic improvements to the bascule span bridge.</p>
07/12 – 02/18	<p><b>Hillsborough Avenue Vertical Lift Bridge over Hillsborough River Rehabilitation, Tampa, FL – Florida DOT</b>  <b>Bridge Structural Engineer</b> responsible for design, load rating and detailing of the new lock bar supporting brackets on the bascule leaves. The project included the preparation of structural, mechanical, and electrical plans to repair/rehabilitate this historical simple trunnion twin double-leaf bascule span bridge. The rehabilitation included hydraulic machinery repairs, electrical system upgrades, the addition of barrier-housed span locks, and increases in the stiffness of the structural system to reduce vibrations.</p>
09/98 – 04/06	<p><b>US 92 Hillsborough Avenue Lift Bridge Rehabilitation, Tampa, FL – Florida DOT</b>  <b>Bridge Chief Engineer</b> responsible for inspection, load rating and design for repair of an historic 1939 vintage vertical lift movable bridge over the Hillsborough River. The bridge features a 94-foot lift span. Inspected specific bridge systems and devised repairs to correct binding of the lift span guide assemblies. Performed quality control reviews of the plans and technical special provisions for replacement of the counterweight wire ropes, sheaves and sheave bearings as well as miscellaneous structural repairs to the lift span towers.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Daniel Tarantino, RA, AIA	Years of relevant experience with this employer	4
	Title	Senior Architect	Years of relevant experience with other employer(s)	9
Degree(s) / Years / Specialization		B.A. / 2008 / Architecture		
Active registration number / state / expiration date		Registered Architect: 9255 / LA / 12/31/2022		
Year registered	2019	Discipline	Architecture	
Contract role(s) / brief description of responsibilities		Architect - Meets MPR 7		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
5/20-2/22	<p><b>East Haddam Swing Bridge over the Connecticut River Rehabilitation, Haddam, CT – Connecticut DOT</b>  <b>Senior Architect</b> 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.</p>			
06/18 – 02/19	<p><b>US 17 Swing Bridge over the Perquimans River - Design/Build, Perquimans County, NC – North Carolina DOT</b>  <b>Senior Architectural Designer</b> for this bridge replacement project. The existing swing bridge over the Perquimans River will be replaced with a new, off-line bridge. H&amp;H's responsibilities include the complete design of the new swing span, including structural, architectural, mechanical, electrical, and geotechnical engineering. In addition, as Lead Architect, was responsible for the design of the Bridge Control House. This 2,500 square-foot two-story house included an electrical and generator room and main control room for the bridge operators. Design included the exterior treatment and fenestration along with the roof, stair, and railing work.</p>			
3/19 – Present	<p><b>Replacement of Rumson – Seabright Bridge (S-32) over Shrewsbury River, Monmouth County, NJ – County of Monmouth</b>  <b>Senior Architect</b> for completing the local concept development (LCD), developed the preliminary engineering and final design, prepared the construction contract documents, and will be providing engineering support services when construction begins in summer 2021 to replace the deteriorating double leaf bascule span bridge with a new double leaf bascule bridge. Daniel's responsibilities included leading the overall architectural design and aesthetic considerations for the crossing. This included the main span's pier treatments as they related to the overall bridge design and the operators house design. Daniel was also involved with presenting aesthetic concepts to the local municipalities and receiving buy in from the local stakeholders</p>			
10/17 – 09/20	<p><b>US-1 Jupiter Bascule Bridge over ICWW Bridge, Jupiter, FL – Florida DOT</b>  <b>Senior Architectural Designer</b> for this bascule bridge replacement project. Responsibilities included providing design and guidance on the bridge and building aesthetics as well as overall coordination for the disciplines running services on the bridge. Serving as</p>			

	<p>Designer of Record, H&amp;H is addressing the structural and functional deficiencies of the existing bridge 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).</p>
07/17 – Present	<p><b>Shore Road Bridge over the Hutchinson River, Bronx, NY – New York City DOT</b>  <b>Senior Architect</b> leading the overall aesthetic design of the rolling lift bridge, coordinating the architectural and the engineering design, and leading the 3D visualizations and VR production for the project. 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.</p>
07/18 – Present	<p><b>Raritan River Bascule Drawbridge, Perth Amboy and South Amboy, NJ – NJTRANSIT</b>  <b>Senior Architect</b> for a \$500 million replacement of the Raritan River Drawbridge. 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. Provided material and aesthetic considerations for the main span, house, and approach structures. The project includes a half-mile-long structure with a movable swing span at the navigational channel and more than 3,000 linear feet of approaches.</p>
09/19 – Present	<p><b>Amtrak Connecticut River Bascule Bridge, Old Saybrook, CT – AMTRAK</b>  <b>Project Architect</b> for the in-depth condition inspection of the structural, mechanical, and electrical systems and 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. Rehabilitation or replacement alternatives were analyzed for estimated costs and for comparative benefits. Cost analysis and impacts to right-of-way, utilities, tidal marshlands, and navigation were investigated. A set of highly ranked alternatives was selected, termed "Best Solution Study Alternatives," each providing Amtrak combined advantages of cost and technical benefits. Estimated construction costs for the best solution study alternatives exceeded \$100 million. Daniel's responsibilities on the project include the design of a new control 360 degree viewing tower with access to and from the east landing. These access paths will also be equipped with windscreen protection allowing ease of access along the pathway.</p>
11/12 – 08/16	<p><b>Government Center Station, Boston, MA – Massachusetts Bay Transportation Authority</b>  <b>Architect</b> responsible for preparing preliminary through final design and construction documents for this two-line, two-levels-below-ground station (Copley Square Station) that lies under the heart of Boston's Government Center Plaza, City Hall. The Government Center Plaza Station was to receive a new head house at grade with redundant ADA elevators, new stairs, and escalators. Responsibilities included all subway station architecture, structural engineering, and coordination of all disciplines.</p>
06/13 – 11/18	<p><b>Nostrand Avenue Station, Brooklyn, NY – Long Island Rail Road</b>  <b>Senior Architectural Designer</b> 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.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Rodney Jarrett, PE, DBIA	Years of relevant experience with this employer	10
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	16
Degree(s) / Years / Specialization		B.S. / 1995 / Civil Engineering M.B.A. / 2000 / Finance		
Active registration number / state / expiration date		Professional Engineer: 43868 / LA / 3/31/2024 FHWA-NHI-130055 Safety Inspection of In-Service Bridges FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges		
Year registered	2019	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Design Development of Fixed Bridge Structures - Meets MPR 6 & 8		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
05/06 – 06/09	<p><b>John James Audubon Bridge over the Mississippi River, St. Francisville, LA – Louisiana DOTD</b>  <b>Bridge Design Engineer</b> involved in the \$360M design-build contract to build the largest cable-stayed bridge in North America. In addition to the main river crossing, the project included approximately 15 miles of roadway and seven conventional approach bridges. Responsibilities included managing and coordinating the approach bridge designs which used precast, prestressed concrete slabs, and AASHTO Type III girders. Work was performed on-site for this design-build project. Served as the liaison between the various design consultants, owner, and contractor. Also wrote special provisions and prepared design drawings, checked shop drawings, addressed field changes, prepared as-built drawings, and had project management responsibilities.</p>			
06/01 – 04/06	<p><b>Woodrow Wilson Bridge Over Potomac River, Washington, DC - Maryland DOT</b>  Project Engineer responsible for performing many tasks related to the engineering design, advertisement, and construction services for the \$660 million bascule bridge carrying I-495 over the Potomac River in Washington, DC. Design tasks included reinforced concrete, steel, and post-tensioned concrete design as well as writing special provisions and preparing quantities and construction cost estimates for the owner. Construction services included checking shop drawings, addressing field changes, and project management.</p>			
11/10 – 06/13	<p><b>Curtis Creek Bascule Bridges, Baltimore, MD – Maryland Transportation Authority</b>  <b>Bridge Design Lead</b> responsible for overseeing the 2012 mechanical and electrical rehabilitation of twin double-leaf bascule bridges. Project responsibilities included coordination of the design services including bridge replacement and advertisement for the replacement of the span lock machinery and electrical control system as well as installation of counterweights on the trunnion girders. Responsibilities for this on-call project also included on-call facilities and bridge condition inspections; oversight of structural, mechanical, and electrical rehabilitation design plan; development of structural plans for machinery protection; construction support services; and QA/QC reviews.</p>			


07/09 – 10/10	<p><b>InterCounty Connector Contract B, Rockville, MD - Maryland DOT</b>  <b>Design Engineer</b> on the design-build team for the new \$560 million seven-mile toll facility being constructed near Washington, DC. Performed girder design calculation for a dual 590-foot-long bridge over Good Hope Creek. Prestressed concrete AASHTO BT girders were used and designed to be continuous for live load. Various other bridge design and detailing tasks included bearing design, checking pier, and foundation designs. Also performed construction services, which included shop drawing review, requests for information, field changes, and had project management responsibilities.</p>
02/11 – 08/12	<p><b>Pennington Avenue Bridge over Curtis Creek, Baltimore, MD – City of Baltimore DOT</b>  <b>Bridge Design Manager / QA/QC Engineer</b> responsible for QA reviews of project management documents during the construction phase of this rehabilitation project. Project involves inspection, rehabilitation design, and construction support for all substructure and superstructure elements of the twin, double-leaf Hopkins trunnion-type bascule bridge. Involves span lock and tail lock systems, operating machinery on machinery platforms, and electrical systems on all bascule leaves. Responsible for the rehabilitation design of the span drive machinery, trunnion bearings, live load bearings; the complete replacement of the center lock and tail lock machinery; and construction support services.</p>
11/10 – 06/17	<p><b>Movable Bridge Condition Inspection, Evaluation and Design Contract Services, Statewide, MD – Maryland State Highway Administration</b>  <b>Bridge Design Manager</b> responsible for various design and construction tasks related to the complex and movable bridges throughout Maryland. Responsible for planning and executing the structural, mechanical, and electrical inspections of movable bridges as well as bridge rehabilitation and troubleshooting services. Recent services for this task order contract have included the submarine cable replacement and scoping for the rehabilitation of the Kent Narrows bascule bridge, the replacement of the end lift cylinders at the Weems Creek swing bridge, the structural load rating of the Woodrow Wilson Bridge bascule spans and hands-on inspections of numerous movable bridges. Responsibilities also included project management and scheduling; obtaining permits; coordination with USCG; performance oversight of the multidisciplinary team; updating SI&amp;A and Pontis; and QA/QC of all reports.</p>
11/10 – 06/13	<p><b>Curtis Creek Bridge, Baltimore, MD - Maryland Transportation Authority</b>  <b>Project Engineer</b> responsible for overseeing the 2012 mechanical and electrical rehabilitation of twin double-leaf bascule bridges. Project responsibilities included coordination of the design and advertisement for the replacement of the span lock machinery and electrical control system as well as installation of counterweights on the trunnion girders. Mr. Jarrett's responsibilities for this on-call project also included: on-call facilities and bridge condition inspections; oversight of structural, mechanical, and electrical rehabilitation design plan; development of structural plans for machinery protection; construction support services; and QA/QC reviews.</p>
11/10 – 06/17	<p><b>On-Call Movable Bridge Condition Inspection/Design Services Contract, Statewide, MD – Maryland State Highway Admin.</b>  <b>Bridge Design Manager</b> responsible for design and construction tasks related to complex and movable bridges. Duties included planning and executing the structural, mechanical, and electrical movable bridge inspections, bridge rehabilitation, and troubleshooting services. Tasks have included submarine cable replacement and scoping for the rehabilitation of the Kent Narrows bascule bridge, the replacement of the end lift cylinders at the Weems Creek swing bridge, the structural load rating of the Woodrow Wilson Bridge bascule spans and hands-on inspections of numerous movable bridges. Responsibilities included scheduling; obtaining permits; coordination with USCG; performance oversight of the multidisciplinary team; updating SI&amp;A and Pontis; and QA/QC of all reports.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Erik Diaz, PE	Years of relevant experience with this employer	2
	Title	Sr. Structural Engineer	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization		B.S., 2008, Civil Engineering, Louisiana State University		
Active registration number / state / expiration date		Professional Engineer: 37712 / LA / 09/30/2023 Maintenance & Rehabilitation of Historic Bridges (LADOTD)		
Year registered	2013	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		<b>Design Development of Movable Bridge Structures – Meets MPR 8</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
07/16–07/17	<b>Two US-11 Bascule Bridges over Lake Ponchartrain Rehabilitation, Jefferson and St. Tammany Parishes, LA – Louisiana DOTD</b> <b>Senior Movable Bridge Structural Engineer</b> for the comprehensive rehabilitation of one bascule and replacement of another bascule bridge over Lake Ponchartrain. 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.			
10/14 – 12/15	<b>Bridge Ratings for 110 Bridges, Statewide – Louisiana DOTD</b> <b>Movable Bridge Structural Engineer</b> responsible for developing spreadsheets and processes for rating bridge substructures. Also, performed ratings for bridge superstructures and substructures using AASHTOWare and Excel. Wrote bridge rating reports.			
12/12 – 10/15	<b>Houma Navigation Canal Bridge Rehabilitation, Houma, LA – Louisiana DOTD</b> <b>Movable Bridge Structural Engineer</b> 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.			
10/08 – 04/13	<b>Huey P. Long Bridge Over The Mississippi River, Bridge City, LA - New Orleans Public Belt Railroad And Louisiana DOTD</b> <b>Movable Bridge Structural Engineer</b> responsible for checking and approving shop drawings as well as performing various construction support calculations. The project was a major widening of the bridge including HPL trusses and approaches.			
08/15 – 02/19	<b>Vermillion River Vertical Lift Bridges Rehabilitation, Vermillion Parish, LA – Louisiana DOTD</b> <b>Senior Structural Engineer</b> for the inspection, rating, and final rehabilitation recommendations report for two steel vertical lift bridges over the Vermillion River. Work on this project included inspection and load rating to identify components of the bridge to be rehabilitated. Evaluation of various alternatives for strengthening the bridge and increasing vehicular vertical clearance. Produced engineers cost estimate for repairs, and prepared final report of recommendations.			

01/20 – Present	<p><b>Almonaster Avenue Railroad Bridge of the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Structural Engineer</b> for the bridge assessment, rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;H's 2019 assessment of the circa-1920, National Register of Historic Places eligible 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 to other bridge elements were deemed necessary to accommodate the rehabilitated superstructure. H&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>
08/19 – 02/20	<p><b>SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Movable Bridge Senior Structural Engineer</b> for full rehabilitation of SR 609 bascule bridge, as a task-order to the IDIQ Master Bridge Contract which included developing standard and special bridge services, statewide for MDOT. Scope of work included inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>
08/19 – Present	<p><b>Lapalco Boulevard Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana – Jefferson Parish DPW</b>  <b>Movable Bridge Structural Engineer</b> 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 Boulevard to provide a facility carrying three lanes of traffic in each direction. The new bridge is constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. 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.</p>
08/19 – 10/19	<p><b>Seabrook Bascule Bridge Bearing Repairs, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Field Engineer</b> 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.</p>
12/15 – 08/19	<p><b>Replacement of Swing Bridge with New Vertical Lift, Sweeny, TX – UPRR</b>  <b>Senior Movable Bridge Structural Engineer</b> 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. This project also included emergency bridge repairs due to failure of bridge pier from scour produced by Hurricane Harvey flooding.</p>
11/18 – 08/19	<p><b>Comite River Diversion East, Baton Rouge Parish, LA – UPRR &amp; USACE</b>  <b>Senior Structural Engineer Representative</b> for KCS Railroad bridge portion of the project that provided flood relief for the Comite River through the construction of a diversion canal connected to the Mississippi River. The project included peer review of plans, calculations and constructability, using AREMA requirements, for a new railroad bridge that intersects with the diversion canal.</p>


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	John Corven, PE	Years of relevant experience with this employer	1
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	41
Degree(s) / Years / Specialization		MS, Engineering / 1979 / University of Florida BSCE / 1978 / University of Florida		
Active registration number / state / expiration date		Professional Engineer: 38309 / LA / 3/31/2024 - 11 other states, first registered 1983 (FL)		
Year registered	2013 (LA)	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Design Development of Fixed Structures – Meets MPR 8		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/1981-04/1987 06/2004--01/2007 11/2017-Ongoing	<p><b>Sunshine Skyway Bridge, Tampa, FL</b>  <b>Designer, Lead Investigator, and Asset Management Specialist.</b> Multiple assignments have been performed for this concrete segmental approaches and main unit that features a 1,200-foot concrete segmental cable-stayed main span. As a member of the design team, John worked with the stay cable designs and fatigue testing, performed the transverse analysis of the main cable stayed girder cross section (width = 95'-7"), and worked to develop the design of the main foundations for ship impact (force = 12,000 kips). In the early 2000's, John served as lead investigator for the post-tensioning tendons of the post-tensioned superstructure. The result were remediation details to help assure long-term durability. Currently, John oversees the technical review of biennial inspections of all bridge elements in the ongoing asset management contract.</p>			
04/2017-Ongoing	<p><b>I-395 Segmental Bridges, Miami, FL - Florida DOT</b>  <b>Chief Engineer</b> for the design of 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). John directed the development of the bridge layouts, cross sections and construction methodology. The work also included oversight of the final design, shop drawings, and construction engineering.</p>			
01/1991-03/1994 02/2020-05/2020	<p><b>Natchez Trace Parkway Arches, Franklinville, TN - National Park Service and FHWA</b>  <b>Project Manager, Principal Designer, Load Rating.</b> The Natchez Trace Parkway Arches is an award winning concrete arch bridge located to the west of Franklin, Tennessee. The bridge, which includes two arch spans, are the first in the United States to be built using precast segmental construction. The arches, with a maximum span length of 582', were built using temporary supporting cable stays and the bridge deck was built in balanced cantilever. John managed the design of the bridge and served as the principal designer. Recently, John oversaw the load rating of the precast superstructure and precast arches.</p>			

03/2013-10/2020	<p><b>I-59/I-20 Central Business District Elevated Interstate, Birmingham, AL</b>  <b>Chief Engineer.</b> Interstates 59 and 20, which combine in downtown Birmingham, form the most heavily traveled roadway in Alabama. John oversaw the design of 1M square feet of new elevated urban viaducts to replace the existing structures built in the 1970's. The project has separate eastbound and westbound mainline structures, each with a length of 6,500'. Each of these bridges is comprised of two precast box girders joined by a longitudinal closure joint. The combined widths vary from 80' to 90'. Span lengths vary from 110' to 165' and will be constructed by the span-by-span method.</p>
02/2010-10/2012	<p><b>Foothills Parkway Bridge No. 2, Foothills Parkway, TN</b>  <b>Project Manager and Engineer of Record.</b> This \$25 million precast segmental bridge is located on the Foothills Parkway near the Great Smoky Mountain National Park. Complex geometry around the mountainsides and environmental sensitivity constraints required balanced cantilever construction "from the top down" using a unique system of temporary bridge and segment hauler to place segments. Delivered as a design-build project, Corven Engineering was the Engineer of Record and Construction Engineer for this 790' long precast segmental bridge for the Eastern Federal Lands Highway Division of the FHWA. In addition to serving as EOR, John oversaw construction engineering service performed during construction.</p>
03/1989-12/1991	<p><b>Design And Design Review Of The Clark Bridge, Alton, IL - Illinois DOT</b>  <b>Project Task Lead and Designer.</b> The Clark Bridge is a cable-stayed bridge crossing the Mississippi River at Alton, Illinois. The bridge has a main span length of 756' and width of 101'. The steel alternate consisted of steel edge beams and single pylons with two planes of stays. John oversaw the development of both the steel and concrete alternative cable-stay concepts. John also prepared the final design of the concrete alternative and provided technical support to Hanson Engineers' steel design.</p>
08/2007-09/2013	<p><b>Dulles Corridor Metrorail Project, Fairfax County, VA</b>  <b>Project Manager and Principal Designer.</b> This project provided design and construction engineering services to Dulles Transit Partners for the \$1.6 billion Phase 1 extension of the WMATA transit system to Dulles Airport. The project contains 5.2 miles of single track precast segmental box girder bridge. Construction was principally performed by the span-by-span and balanced cantilever methods.</p>
06/1989-03/1992	<p><b>Conceptual Design Of The Sixth Street Bridge,  Huntington, WV - WVDOT</b>  <b>Chief Engineer and Principal Designer.</b> John developed the conceptual design and oversaw the final design of the concrete alternative crossing of the Ohio River. The concrete design was a precast segmental bridge that featured a main span length of 740'.</p>
06/1989-12/1991	<p><b>Chesapeake And Delaware Canal Bridge, Saint Georges, DE – US Army Corps of Engineers</b>  <b>Chief Engineer.</b> John provided technical oversight for the design concepts and the final design of the cable-stayed bridge. The bridge is a precast segmental structure with span-by-span approach spans and features a 750' concrete cable-stayed main span across the C&amp;D Canal.</p>
10/2002-06/2004 04/2012-12/2013	<p><b>FHWA Post-Tensioning Tendon Installation and Grouting Manual – Federal Highway Administration</b>  <b>Principal Author.</b> John worked for the FHWA to develop a national manual for installation and grouting of post-tensioning tendons. The manual, now an industry benchmark, provides important insights to those involved in the design, inspection, construction, or maintenance of bridges that contain post-tensioning tendons. John was the principal author for this manual that was first published in 2004. John then produce the second edition of the manual in 2013.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Dennis Gowins, PE	Years of relevant experience with this employer	1
	Title	Structural Engineer	Years of relevant experience with other employer(s)	42
Active registration number / state / expiration date		Professional Engineer: 0024468 / LA / 09/30/2023		
Year registered	1991	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Design Development of Fixed Structures – Meets MPR 8		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/98 – 08/07	<p><b>SR 786/PGA Boulevard Bascule Bridge Rehabilitation, Palm Beach Gardens, FL - Florida DOT</b>  <b>Bridge Structural Engineer</b> responsible for the design, detail of repairs, load rating analysis, and preparation of cost estimates. This \$15-million multi-phase construction project included in-depth inspection, condition report with load ratings and recommendations, preparation of structural, mechanical, and electrical rehabilitation plans, and bascule span replacement plans for this twin double-leaf bascule span bridge. Project design utilized existing bascule pier foundations and approach span structure to minimize costs. The design required multi-phase construction to maintain traffic.</p>			
02/08 – 12/10	<p><b>SR-5 / US-1 Parker Bascule Bridge Rehabilitation, Palm Beach, FL – Florida DOT</b>  <b>Bridge Project Engineer</b> responsible for general project coordination for the \$8 million, twin double-leaf Hopkins trunnion bascule span bridge rehabilitation project. Scope included in-depth inspection, condition report with load ratings, and rehabilitation recommendations as well as the preparation of structural, architectural, mechanical, and electrical plans for the hydraulic machinery retrofit, electrical system improvements, control house modifications, bridge widening, roadway, and embankment improvements</p>			
08/14 – 10/15	<p><b>I-269 Over Coldwater River, Marshall County, MS - Mississippi DOT</b>  <b>Design Engineer</b> responsible for the seismic analysis and load rating of this 4,054-foot-long, 62 span bridge (17 units) carrying I-269 over Coldwater River. The 98-foot-wide bridge carries 6 lanes of traffic with barriers. The 65-foot spans are comprised of 9 Type III AASHTO beams on 11-foot, 6-inch spacings with an 8-inch concrete deck. The bridge is supported on precast concrete pile bents with 24-inch 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.</p>			
06/03 – 12/04	<p><b>Replacement of the US-17A Over I-26, Berkeley County, SC - South Carolina DOT</b>  <b>Bridge Engineer</b> for the development of the final design including load rating of the 360-foot, four-span bridge replacement. This structure, which was analyzed for site specific seismic loads and is located on a main arterial between the northern suburbs and</p>			

	the City of Charleston. The 145-foot-wide superstructure is supported by bulb-tee and AASHTO girders, which in turn are supported by traditional bents and drilled shafts founded in cooper marl.
06/97 – 12/01	<b>SR 84 Bridge over South Fork New River, Davie, FL – Florida DOT</b> <b>Bridge Structural Engineer</b> responsible for the design, detail of repairs, and preparation of cost estimates for a \$4-million Hopkins trunnion single-leaf bascule span bridge rehabilitation. The project included in-depth structural, mechanical, and electrical inspection; reports; load ratings on bascule and approach spans; and rehabilitation plans for the structural, mechanical, and electrical systems.
06/99 – 01/01	<b>Woodrow Wilson Bridge, Potomac River, MDVA - Virginia DOT, Maryland State Highway Administration</b> <b>Design Engineer</b> responsible for the design of the independent structural units (V-piers). The \$600 million project includes the construction of twin 6,736-foot structures carrying 12 lanes of I-95/I-495 across the Potomac River. The piers consist of precast segmental units erected in an arch form that produces zero horizontal thrust forces under dead and live loads, resulting in significant savings and longer spans than the traditional arch system, providing greater openness underneath the bridge (especially for the bascule piers). The V-pier legs consisted of precast, match-cast hollow concrete box sections that will be post-tensioned in place and founded on a footing supported by pipe piles.
8/08-10/10	<b>Replacement of the Little Blue Horn Bridge and Little Lake Worth Bridge, Palm Beach County, FL – Florida DOT</b> <b>Project Manager /Design Engineer</b> for the replacement of two deficient bridges. This project involved the replacement of these two deficient bridges with three- and eight-span, continuous, flat-slab bridges supported on pile bents with precast pile caps and 24-inch square prestressed piles and abutment treatments that include a king pile bulkhead system. An innovative top down construction method was used to construct these bridges, with overall lengths of 296 feet and 90 feet.
08/16 – 06/21	<b>SR 836 / I-95 / I-395 Interchange, Miami, FL – Florida DOT</b> <b>Design engineer</b> responsible for all substructure and miscellaneous structural designs and load rating for the segmental bridges during the successful design-build pursuit. For final design, responsible for review of all substructure bridge designs (bridges 4,5,6w,6e,7w,7e and 11 – 12,600 lf) and final design of all abutments and miscellaneous structures. The segmental bridges are built in balanced cantilever and are founded on footings supported by auger cast concrete pilings. This \$800m project is all about transforming miami by reconnecting communities that were once divided, creating a safer environment for pedestrian and vehicular traffic, and solving mobility challenges that have inhibited traffic for many years.
09/13 – 06/14	<b>Tampa International Airport Taxiway B Bridge, Tampa, FL - Hillsborough County Aviation Authority</b> <b>Design Engineer</b> responsible for independent checks of the longitudinal analyses, principal stresses, load rating, and 3-D finite element analyses of the adequacy of the existing bridge. The project included the inspection / peer review of the 227-foot, 6-inch-long by 217-foot, 6-inch-wide bridge and calculations following inspection. The inspection revealed cracking in the deck and blocked tendons. The major spans of the bridge are 97 and 94 feet with a small outer span of 36 feet. The bridge is a multicell cast-in-place post-tensioned (31K6 tendons) concrete bridge. The bridge is designed to carry the Boeing 777 and Boeing 747 loads in addition to the new Airbus A380 load of 1,361,500 pounds. The bridge is founded on columns supported on four-foot drilled shafts.

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Matthew Gagliano, PE	Years of relevant experience with this employer	25
	Title	Movable Bridge Mechanical Engineer	Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		M.S., Mechanical Engineering, 2018, Fairfield University B.S., Mechanical Engineering, 1994, Manhattan College		
Active registration number / state / expiration date		Professional Engineer: 0037500 / LA / 3/31/2023		
Year registered	2012	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities		<b>Plumbing &amp; HVAC- Meets MPR 9</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
12/20 – Present	<b>NICTD (Northern Indiana Commuter Transportation District)</b> commuter rail expansion project will add four new stations to serve commuters in Lake County, Indiana. Design/build project teamed with construction joint venture. <b>Lead Mechanical Engineer for HVAC and plumbing</b> design for two station buildings, and construction support reviews of submittals. Each station house is fully conditioned and includes plumbing for two public restrooms and janitor mop basin,			
03/17 – Present	<b>Saugus Rolling Lift Bascule Drawbridge over Saugus River, Saugus, MA – Massachusetts Bay Transportation</b> <b>Lead Mechanical Engineer</b> for design of new operating machinery for the movable span of the rolling lift railroad bridge replacement. Responsible for developing engineering design for the operating machinery and <b>HVAC and plumbing</b> for the new multi-level control house consisting of conditioning for operator’s level, electrical room, and plumbing for kitchenette and restroom.			
03/17 – Present	<b>Bridge MB106.89 over Connecticut River, Old Saybrook, CT – AMTRAK</b> <b>Lead Mechanical Engineer</b> for the design of new operating machinery featuring a 52-inch diameter fixed trunnion for Northeast corridor railroad bridge’s movable span. Also responsible for design of <b>HVAC and plumbing</b> for the new multi-level control house consisting of conditioning for operator’s level, two electrical rooms, and plumbing for two restrooms.			
07/18 – Present	<b>Gateway Expressway, Pinellas County, FL and Central Polk Parkway, Polk County, FL – Florida DOT</b> <b>Lead Movable Bridge Mechanical Engineer</b> on this Gateway Express improvement project. Responsibilities include engineering design and construction support of <b>HVAC system</b> for expressway toll equipment room. Design features dual split type air conditioning units with system monitoring for backup conditioning. Also includes fuel tank and piping design for backup generator.			
02/13 – 12/18	<b>Tom Adams Bascule Bridge Rehabilitation, Charlotte County, FL – Charlotte County</b> <b>Lead Movable Bridge Mechanical Engineer</b> on a rehabilitation project for a double-leaf bascule span carrying four lanes of traffic. Designed and provided construction support for <b>HVAC and plumbing</b> for new multi-level control house with unobstructed 360-degree views. Responsible for design of new operating machinery for trunnion bascule span meeting AASHTO standards. New operating machinery replaced existing Hopkins machinery within its original envelope and is a compact installation operated by 20 hp motors and gear reduction transmission.			


07/05 – 01/10	<p><b>SR 7 / NW 5th Street Bridge Replacement over the Miami River, Miami, FL – Florida DOT</b>  <b>Lead Mechanical Engineer</b> on a bascule bridge replacement project. Responsibilities include mechanical designs and construction support for new operating machinery and locking systems. Also designed the new <b>HVAC and plumbing</b> systems for the multi-level control house.</p>
06/19 – Present	<p><b>East Haddam Swing Bridge over the Connecticut River, East Haddam, CT – Connecticut DOT</b>  <b>Movable Bridge Mechanical Engineer</b> for the rehabilitation of the East Haddam Swing Bridge (CTDOT Bridge 1138). Responsibilities included the assessment and design of the replacement operating machinery to rotate the swing span. Designed a bevel gear set using AGMA 2003 B97 rating method for bevel gears. Designed hydraulic system to operate the barrier gates. Design efforts were focused on rehabilitating structural, mechanical, and electrical systems and upgrading components to improve reliability and decrease maintenance. The bridge rehabilitation included structural strengthening of the trusses and floor system to support all Connecticut Legal Loads after construction of the sidewalk. The bridge rehabilitation also included the replacement of the approach span bridge decks with an emphasis on constructability and reduced weight and preliminary and final design development of the sidewalk.</p>
3/13-9/13	<p><b>Sarah Mildred Long Bridge Replacement, Portsmouth, NH &amp; Kittery, ME – Maine DOT</b>  <b>Movable Bridge Mechanical Lead</b> for the design and construction of this new vertical lift bridge, equipped with dual decks (upper level roadway, and lower level rail). The bridge selected is designed with four independent tower columns to house the counterweight sheaves, and independent rope drives at each tower to operate the span. Unique features include movable bridge seats to utilize the movable span for the upper roadway and lower railway usage. The project is being constructed using CMGC delivery.</p>
11/2018 – Present	<p><b>Rehabilitation of Route 1 Bridge Over Housatonic River, Milford, CT - Connecticut DOT</b>  <b>Project Engineer</b> for the operating machinery and electrical repairs of the double leaf movable span. Repairs include refurbishing gear reducers, adding collars to the machinery shafts and new dewatering pumps for the counterweight pit. Reviewed contractor submittals, attended progress meetings, performed key milestone site inspections.</p>
12/2017 – 3/2022	<p><b>Grand Avenue Bridge Rehabilitation, New Haven, CT - City of New Haven</b>  <b>Lead Mechanical Engineer</b> responsible for rehabilitation design and construction support of the Grand Avenue Swing Bridge, a six-span structure, constructed in 1900. Machinery rehabilitation includes an all new 64 roller rim bearings, new operating machinery, and new end wedge machinery. Reviewed contractor submittals, attended progress meetings, performed key milestone site inspections.</p>
11/2017 – 2/2020	<p><b>Route 136 - Stroffolino Bridge Mechanical and Electrical Repairs, Norwalk, CT - Connecticut DOT</b>  <b>Project Engineer</b> for the preliminary and final design for mechanical and electrical repairs to the bascule double-leaf Stroffolino Bridge over the Norwalk River. Responsible for refinement of repair scope, preparation of mechanical contract documents, and coordination of work with the client.</p>
12/2016 – 11/2018	<p><b>Spuyten Duyvil Swing Bridge Rehabilitation, New York, NY – Amtrak</b>  <b>Mechanical Engineer</b> for final design on rehabilitation of this railroad bridge's movable span between Manhattan and the Bronx. He was responsible for design computations, modeling, and production of contract drawings for innovative replacement of swing bridge rim bearing with four bogie assemblies. Reviewed shop drawings, perform construction inspection, and attended construction progress meetings. The bridge's mechanical and electrical systems were damaged in 2012 by Super Storm Sandy. The project includes rehabilitation of the center bearing, end machinery systems, electrical systems, and masonry at the piers. Responsible for the mechanical design.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Amy Robards, PE	Years of relevant experience with this employer	3
	Title	Bridge Inspection Team Leader	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		B.S. / 2012 / Civil Engineering / University of New Orleans		
Active registration number / state / expiration date		Professional Engineer: 41718 / Louisiana / 9/30/2023 FHWA-NHI 130055/53 Safety Inspection of In-Service Bridges / Refresher 2018 ATSSA Traffic Control Supervisor Refresher – ATSSA Flagger DOTD Certified Structural Concrete Inspector / LADOTD / 12/13/2023		
Year registered	2017	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		NBIS Bridge Inspection Team Leader		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/20 – Present	<p><b>L H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – Louisiana DOTD</b>  <b>Project Engineer</b> 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.</p>			
03/16 – 10/17	<p><b>US 190 Mississippi River Bridge CE&amp;I, Baton Rouge, LA – Louisiana DOTD</b>  <b>Structural Inspector</b> responsible for providing construction engineering and inspection services required during the repairs to the US 190 Mississippi River Bridge approaches in Baton Rouge, Louisiana. Included in the project were assorted repairs as well as the replacement of anchor bolts at concrete footings and other steel approach spans elements.</p>			
04/18 – 05/18	<p><b>19 Complex Bridge Inspections and Load Rating, Statewide, LA – Louisiana DOTD</b>  <b>Structural Inspector</b> provided inspection and evaluation services for 19 complex bridges at various locations throughout Louisiana.</p>			
10/18 - 11/18	<p><b>SR 609 Movable Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, MS - Mississippi DOT</b>  <b>Structural Inspector</b> for the inspection of structural elements 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. The scope of work included inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches, and development of maintenance and repair plans.</p>			

10/19 – 01/20	<b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans Structural Engineer/Inspector</b> for an annual inspection of the Almonaster Avenue Railroad Bascule, an eligible for the National Register of Historic Places bridge, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.
12/15 – 05/18	<b>Huey P. Long Bridge over the Mississippi River Annual Inspections, Bridge City, LA – New Orleans Public Belt Railroad (NOPBRR) and Louisiana DOT Structural Engineer/Inspector</b> providing annual inspection services for the main bridge and railroad approaches of the Huey P. Long Bridge, a 2,400-foot-long cantilevered steel through truss bridge that carries a two-track railroad line and three lanes of US 90, as well as the turntable span and maintenance facilities. Inspected the primary members on the deck truss, main spans, piers, towers, and girders using standard climbing techniques and used technical access (rappelling) to inspect the piers. Contributed to the pre-inspection planning, coordination, and writing the final inspection reports.
03/19 – 10/19	<b>Seabrook Railroad Bridge Annual / In-Depth Bridge Inspection, Port of New Orleans, LA – Port of New Orleans Structural Inspector</b> responsible for conducting annual inspection of the Seabrook Trunnion Bascule Bridge crossing the IHNC in New Orleans, LA. This inspection included a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.
12/19 – 05/19	<b>Francis Scott Key Bay Bridge Inspection, Baltimore, MD – Maryland Transportation Authority Structural Inspector</b> responsible for the biannual inspection of the Francis Scott Key Bridge. Performed a hands-on inspection of fracture critical members and all parts of the deck, superstructure, and substructure. The main span is crossed by way of a three-span truss with a cable suspended deck. The structure was accessed using bucket trucks, under-bridge inspection vehicles, manlifts, and rigging. Findings and recommendations were input into the owner's asset management system.
08/18 – 05/19	<b>William P. Lane Bridge Inspection, Chesapeake Bay, MD – Maryland Transportation Authority Structural Inspector</b> responsible for the biannual inspection of William P. Lane Bridge. This 4.2-mile twin bridge facility carries US 50 / 301 across the Chesapeake Bay. Scope included the hands-on inspection of the three-span suspension span and nine spans of suspended deck truss on the eastbound bridge. Additionally, performed audit inspection of the three-span through truss. Inspected all parts of the deck, substructure, and superstructure including suspension cables, suspender ropes, rocker links and anchorages. Findings and recommendations were input into the owner's asset management system.
12/18 – 05/19	<b>Thomas J. Hatem Memorial Bridge, Harford County, MD – Maryland Transportation Authority Structural Inspector</b> responsible for the biannual inspection of the Thomas J. Hatem Memorial Bridge. Performed a quality control inspection consisting of the hands-on inspection of 10% of this 10,362-foot-long bridge. Structure is comprised of multiple deck and through-truss configurations, as well as beam/girder spans and floor beam/stringer systems. Coordinated with multiple inspection teams and access vendors simultaneously operating on the bridge. The structure was accessed using bucket trucks, under-bridge inspection vehicles, manlifts and rigging.


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Timothy Harrington, PE	Years of relevant experience with this employer	10
	Title	Team Leader	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		MS / 2011 / Civil Engineering BS / 2009 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 95068 / NY / 05/31/2021 FHWA-NHI-130055 Safety Inspection of In-Service Bridges / 2017 FHWA-NHI-130053 Bridge Inspection Refresher Training / 2022 FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges / 2016 OSHA Construction Safety and Health (10-hour) 2014 SPRAT Level I Rope Access Technician		
Year registered	2015	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		<b>NBIS Bridge Inspection Team Leader</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/19 – 09/19	<b>Annual Inspection of Seabrook Railroad Bridge, New Orleans, LA - Port of New Orleans</b> <b>Team Leader</b> for the annual inspection of the Seabrook Trunion Bascule Bridge. This inspection included a structural inspection of the fracture critical steel and primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.			
09/18 – 12/18	<b>I-110 Bridge, 2018 Biennial Inspection, IDIQ Master Bridge Design, Harrison, MS - Mississippi DOTD</b> <b>Team Leader</b> responsible for preparing the routine/fracture critical inspection including electrical, mechanical, and structural inspection of all bascule and anchor spans and NBIS and element inspection for the entire bridge as well as the inspection report.			
5/20 – Present	<b>Biennial Inspection of the Throgs Neck Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b> <b>Lead Team Leader</b> responsible for the biennial inspection of a long span suspension bridge and its approach spans, carrying I-295 traffic from the Bronx to Queens. The bridge features an 1800-foot main suspension span over the East River, with 555-foot side spans. Responsible for daily field coordination of all inspection team personnel, and the coordination of flag and CMR reporting with the quality control engineer and TBTA flag and CMR managers. Responsible for implementing Element Level Bridge Inspection (ELBI) quantities, condition state ratings, and developing Biennial Reports.			
02/17 – 02/18	<b>Biennial Inspection of the Goethals Bridge, Elizabeth, NJ – New York New Jersey Link, LLC</b> <b>Team Leader</b> responsible for the biennial inspection of the new Goethals Bridge replacement connecting I-278 between Staten Island, New York to Elizabeth, New Jersey. This cable stay main bridge spans a total length of 1635-foot, including a 900-foot main span over the Arthur Kill waterway. Primary structural elements were inspected such as the stay cables, cable anchorage and housing, main			

	towers, steel girder and floor trusses, as well as prestressed concrete beams throughout the approach spans. Prepared Biennial inspection reports and Condition Survey Report.
01/17 – 12/17	<b>Biennial Inspection of the Rainbow Bridge and Lewiston-Queenston Bridge; Interim Inspection of Whirlpool Rapids Bridge, Niagara Falls, NY – Niagara Falls Bridge Commission</b> <b>Lead Team Leader</b> responsible for the 100% hands-on biennial inspection of a 950-foot steel hingeless spandrel arch span bridge and its reinforced concrete barrel arch span approaches, as well as a 1000-foot steel hingeless spandrel arch span bridge and its steel box girder approaches. Inspection included primary fracture critical structural elements such as arch ribs, spandrel columns/girders, floorbeams, and approach span girders/floorbeams, as well as secondary members. Also performed the interim structural inspection of a two-hinged bi-level steel truss arch bridge with eyebar trusses and its plate girder railway approach spans.
05/16 – Present	<b>Biennial Inspection of the Robert F. Kennedy Harlem Lift Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b> <b>Lead Team Leader</b> responsible for the biennial inspection of a vertical lift bridge and its approach spans. Responsible for daily field coordination of field personnel, and coordination of 56 flags and 70 CMRs with the quality control engineer and TBTA flag and CMR managers. Coordinated progress with client project manager and addressed questions from the client in the field. Responsible for implementing Element Level Bridge Inspection (ELBI) quantities, condition state ratings, and developing Biennial Reports for twelve bridges with different due dates. Work included load ratings for certain flagged elements as well as newly constructed members, TBTA Element Database update, and Bridge Inventory updates in BDIS. The Authority's computerized inspection and asset management system was implemented at two bridges, and an updated version of the system for ELBI was used at a third bridge.
05/15 – 04/17	<b>Biennial Inspection and Asset Management System Development of the Henry Hudson Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b> <b>Team Leader and Project Engineer</b> for the Inspection and Asset Management software system development and full-scale biennial inspection implementation at the Henry Hudson Bridge and Queens Midtown Tunnel facilities. The Biennial Inspection included the inspection of the two-level steel arch Henry Hudson Bridge, with the main arch spanning 840 feet over the Spuyten Duyvil Creek and Metro-North Railway line. In addition to the Upper and Lower Levels of the Henry Hudson Bridge, seven bridges ranging from one to four spans were also inspected across the two facilities.
05/20 – 12/21	<b>NBIS Inspection of the Brooklyn Bridge, New York, NY – New York State DOT</b> <b>Lead Team Leader</b> responsible for leading the biennial and SILO inspections of the long span fracture critical suspension bridge. The 2020 Biennial Inspection included the main suspension spans and both Manhattan and Brooklyn approaches, totaling 75 spans. Coordinated access and work zone traffic control on a daily basis with NYCDOT and NYSDOT engineers, situation room, maintenance crews, as well as with the NYPD, USCG, and on-site contractors. A total of 108 flags were issued during the course of the biennial inspection for critical findings. Developed a five-volume comprehensive biennial inspection report. Performed the 2021 SILO inspection of critically-rated elements.




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Elizabeth Barabas, PE	Years of relevant experience with this employer	13
	Title	Bridge Inspection Team Leader	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		BS / 2007 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 44535 / NY / 12/31/2024 NHI Safety Inspection of In-Service Bridges, Course #130055, 2014 NHI Bridge Inspection Refresher Training, Course #130053, 2018 NHI Fracture Critical Inspection Techniques for Steel Bridges, Course #130078, 2016 NHI LRFR for Highway Bridges, Course #130092, 2016		
Year registered	2019	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		NBIS Inspector Team Leader		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/18 – 11/18	<b>I-110 Bridge over Biloxi Back Bay, IDIQ Master Bridge Design Contract, Harrison, Mississippi - Mississippi DOT</b> <b>Team Leader</b> for routine/fracture critical inspection of I-110 Bridge over Biloxi Back Bay for Mississippi Department of Transportation. 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.			
04/15 – 02/16	<b>Biennial Inspection of the Atlantic Beach Bridge, Nassau County, NY – Nassau County Bridge Authority</b> <b>Team Leader</b> responsible for the biennial inspection of a double leaf bascule bridge and approaches. Work included the inspection and examination of the condition of all structural components in accordance with NYSDOT requirements. Responsibilities included inspection scheduling, MPT coordination, field documentation and sketches, updating and verifying Bridge Inventory data, and NYSDOT inspection report.			
05/11 - 09/11, 05/12 - 09/12, 01/13 - 05/13, 06/15 - 07/15	<b>Biennial &amp; Interim Bridge Inspections of Rainbow Bridge, Lewiston-Queenston Bridge, and Whirlpool Rapids Bridge, Niagara Falls, NY – Niagara Falls Bridge Commission</b> <b>Team Leader (2015)/Assistant Team Leader (2011-2013)</b> responsible for the inspection of a 950-foot steel hingeless spandrel arch span bridge and its reinforced concrete barrel arch span approaches, as well as a 1,000-foot steel hingeless spandrel arch span bridge and its steel box girder approaches, and inspection of a two-hinged bi-level steel truss arch bridge and its plate girder railway approach spans. Inspections included primary fracture critical structural elements such as eyebar trusses, arch ribs, spandrel columns/girders, floorbeams, and approach span girders/floorbeams, as well as secondary members. Inspection also included a steel roof truss canopy as well as other buildings, plazas, and facilities associated with the bridges. Responsibilities included documentation of inspection findings, preparation of field sketches, updating and verifying Bridge Inventory data, NYSDOT inspection reports, and client reports.			


05/17 – 12/19	<b>Biennial and Special Inspection of the Throgs Neck Bridge, Bronx, NY - Triborough Bridge and Tunnel Authority</b> <b>Team Leader</b> responsible for the overall management of the structural inspection of the Throgs Neck Bridge and associated ramp structures. Project includes National Bridge Element (NBE) Inspection of all structural elements (including fracture critical elements such as truss chords and gusset plates), load rating calculations and updates, inventory updates and report submittals. Supplementary tasks include design document preparation for structural repairs of elements requiring immediate repair, special interim inspections, and scoping studies for future projects related to the facility.
05/16 – 11/16	<b>Biennial Inspection of Robert F. Kennedy Bridge, New York, New York – MTA Bridges and Tunnels</b> <b>Team Leader</b> for the biennial inspection of the Harlem River Lift Bridge, approaches, and associated ramp structures. Work included the inspection and examination of the condition of all structural components in accordance with NYSDOT requirements. The inspections included all elements on the three through truss spans, lift span towers, decks, structural framing, and piers, as well as all abutments and retaining walls. Responsible for hands-on inspection and concrete sounding on the structure, documentation of inspection findings, creation of field sketches, preparation of Bridge Data sheets, updating and verifying inventory data/database, NYSDOT inspection reports, high rocker bearing report, wearing surface report, preparation of bridge flag reports.
06/14 – 02/15	<b>Biennial and Interim Inspections of Robert F. Kennedy Bridge, New York, New York – MTA Bridges and Tunnels</b> <b>Team Leader</b> for the biennial & interim inspections of the suspension spans, approaches, and associated ramp structures of the Robert F. Kennedy Bridge. Work included the inspection and examination of the condition of all structural components in accordance with NYSDOT requirements. Responsible for NYSDOT inspection reports, hollow concrete report, preparation of bridge flag reports, documentation of inspection findings, creation of field sketches, preparation of Data sheets, updating and verifying data and database.
04/15 – 02/16	<b>Biennial Inspection of the Henry Hudson Bridge, New York, New York – MTA Bridges and Tunnels</b> <b>Team Leader</b> for the biennial inspection of the arch span, upper & lower level, approaches, and associated ramps. Work included the inspection and examination of the condition of all structural components in accordance with NYSDOT requirements for the biennial inspection and verification of load ratings. Responsible for load ratings, NYSDOT inspection reports, preparation of bridge flag reports, documentation of inspection findings, creation of field sketches, preparation data sheets, and updating data and database. Also assisted in development of a computerized asset management system for client element database.
05/18 – 06/19	<b>Biennial Inspection of the Verrazzano-Narrows Bridge, New York, New York – Triborough Bridge and Tunnel Authority</b> <b>Team Leader</b> responsible for the inspection of the Verrazzano-Narrows Bridge main cables and suspender ropes. Performing analysis, special fracture critical inspections, load ratings and providing recommendations, repair estimates, and rehabilitation design. Fracture critical elements such as truss chords and gusset plates. Load rating calculations and updates.
06/12 – 11/12	<b>Biennial and Interim Inspections of Robert F. Kennedy Bridge, New York, New York – MTA Bridges and Tunnels</b> <b>Assistant Team Leader</b> responsible for the biennial & interim inspections of the Harlem River Lift Bridge, approaches, and associated ramp structures. The inspections included all elements on the three through truss spans, lift span towers, decks, structural framing, and piers, as well as all abutments and retaining walls.
05/13 – 02/15	<b>NYSDOT Biennial &amp; Interim Bridge Inspections, Nassau/Suffolk, NY – New York State DOT</b> <b>Assistant Team Leader</b> responsible for the inspection of multiple bridges; documentation of inspection findings, preparation of field sketches and flag reports, MPT coordination, updating and verifying Bridge Inventory data, and NYSDOT inspection reports.

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Paul Marzuillo, PE	Years of relevant experience with this employer	9
	Title	Team Leader	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		MS / 2014 / Civil Engineering BS / 2012 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 096567-1 / NY / 11/30/2024 NHI Safety Inspection of In-Service Bridges, Course #130055, 2/2017 NHI Bridge Inspection Refresher Training, Course #130053, 2022		
Year registered	2016	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		NBIS Inspector Team Leader		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/16 – 04/17	<b>Biennial Inspection of RFK Vertical Lift Bridge, Group B, New York, NY – Triborough Bridge and Tunnel Authority</b> <b>Team Leader</b> responsible for the biennial inspection of a vertical lift bridge and its approach spans. Led the inspection of fracture critical girders, pier caps, primary members, structural deck, and secondary members. Was responsible for documenting inspection findings, creating field sketches, preparing of NYSDOT Bridge Data sheets, and updating and verifying Bridge Inventory data. Also prepared bridge flag reports and New York State DOT Biennial inspection reports.			
07/18 – 03/19	<b>Biennial Inspection of the Verrazano-Narrows Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b> <b>Team Leader</b> responsible for the inspection of the Verrazano-Narrows Bridge main cables and suspender ropes. Performed analysis, special fracture critical inspections, and load ratings. He also provided recommendations, repair estimates, and rehabilitation design. Responsible for inspecting fracture critical elements, such as truss chords and gusset plates.			
07/17 – 09/18	<b>Region 10 Biennial and Interim Bridge Inspection, New York, NY – New York State DOT</b> <b>Team Leader</b> responsible for the biennial and special inspections of a long span suspension bridge and its approach spans, carrying I-295 traffic from the Bronx to Queens. The bridge features an 1,800-foot main suspension span over the East River with 555-foot side spans. Responsible for the inspection of main cables and suspender ropes, special emphasis/fracture critical elements, load rating analysis, and providing repair recommendations/estimates. Fracture critical elements included truss chords and gusset plates.			
06/17 – 01/18	<b>Biennial Inspection of the Throgs Neck Bridge, Bronx, NY – Triborough Bridge and Tunnel Authority</b> <b>Team Leader</b> responsible for the overall management of the structural inspection of the Throgs Neck Bridge and associated ramp structures. Project includes National Bridge Element (NBE) Inspection of all structural elements (including fracture critical elements such as truss chords and gusset plates), load rating calculations and updates, inventory updates and report submittals. Supplementary tasks			

	include design document preparation for structural repairs of elements requiring immediate repair, special interim inspections, and scoping studies for future projects related to the facility.
05/17 – 07/17	<p><b>Biennial Inspection of the Whirlpool Rapids Bridge and Interim Inspection of the Rainbow and Lewiston-Queenston Bridge, Niagara Falls, NY – Niagara Falls Bridge Commission</b></p> <p><b>Assistant Team Leader</b> responsible for performing hands-on structural inspection, report preparation and repair recommendations for a two-hinged bi-level steel truss arch bridge and its plate girder railway approach spans. He also performed interim inspection of a 950-foot steel hingeless spandrel arch span bridge and its reinforced concrete barrel arch span approaches as well as a 1,000-foot steel hingeless spandrel arch span bridge and its steel box beam approach spans. Inspection included fracture critical elements such as arch ribs, spandrel columns and girders, and approach box beams, and floorbeams. Inspection scope included the approach span bridges, adjoining plazas, the NFBC Administration Building, and associated roadways of the Niagara Falls Bridge Commission. Work included preparation of NYSDOT Biennial and Facility Narrative reports for all three bridges.</p>
05/17 – 12/20	<p><b>Biennial Inspections of the Goethals Bridge, Elizabeth, NJ – New York/New Jersey Link</b></p> <p><b>Team Leader</b> for the initial Biennial Bridge inspection of the cable-stayed Goethals Bridge (both eastbound and westbound structures) including the structure approach ramps. Work included a hands-on field inspection of the cable-stayed main spans primary elements, including the towers, main cable sockets, and span floorsystem in order to develop NYSDOT Reports and a Facility Condition Survey. The H&amp;H inspection team worked closely with NYNJ Link to perform inspections within strict traffic maintenance windows.</p>
04/14 – 03/15	<p><b>2014 and 2015 Biennial Inspection of the RFK Suspension Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b></p> <p><b>Assistant Team Leader</b> responsible for performing hands-on inspection of various concrete, steel, and aluminum elements throughout the RFK Bridge – Group A bridges. The RFK Group A bridges consist of 142 main-line spans, as well as an exit ramp, two (2) pedestrian ramps, and two (2) out-of-service vehicular ramps. The main-line bridge includes a 2,724-foot suspension bridge and seven spans of thru-trusses, both with orthotropic decks, as well as steel framed approach spans with a cast-in-place concrete deck. The inspection included 100% hands-on inspection of all fracture critical and special emphasis members per the NYSDOT Bridge Inspection Manual 2014 Edition. In addition to these elements, Was responsible for inspection of truss elements, main suspension cables and cable strands. The cable strand inspection involved wedging several strands to reveal the condition of the interior wires. This procedure was completed per NCHRP Report 534: Guidelines for Inspection and Evaluation of Suspension Bridge Parallel Wire Cables, 2004 Edition. Developed NYSDOT Inspection Reports and for noting all deficiencies observed during inspection, creating field sketches, and updating and verifying the Bridge Inventory data. He was responsible for developing NBE elements and quantities.</p>
03/16 – 11/16	<p><b>2016 Condition Survey of Terminal Bridges at the JFK Airport, Jamaica, NY – Port Authority of New York &amp; New Jersey</b></p> <p><b>Assistant Team Leader/Security Information Manager</b> for the Biennial Inspection of 11 Vehicular Bridges and 7 Pedestrian Bridges at John F. Kennedy International Airport. The structures were comprised of several types including steel multi-stringer, and prestressed concrete girder and box beam superstructures. The inspection included landside and airside structures and required significant coordination with the Facility and Port Authority Police for security reasons. The inspection was performed in compliance with the latest NYSDOT/ FHWA/ NBIS requirements including those for element level inspections. The inspection determined the condition of the specific structures and identified structural and non-structural deficiencies which may present a potential safety hazard. Was tasked with developing quantities and elements within BDIS and for developing the NYSDOT reports through BDIS, as well as developing recommendations to rectify all observed deficiencies.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Rima Zahalan, PE	Years of relevant experience with this employer	6
	Title	Structural Engineer /Team Leader	Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization		M.S., Structural Engineering, 2010 B.S., Civil Engineering, 2008 B.A., Mathematics, 2008		
Active registration number / state / expiration date		Professional Engineer: NY / 095009 / 6/30/2023 FHWA-NHI-130055: Safety Inspection of In-Service Bridges / 2013 FHWA-NHI-130053: Bridge Inspection Refresher / 2018 FHWA-NHI-130078: Fracture Critical Inspection Techniques for Steel Bridges / 2015 FHWA-NHI-135047: Stream Stability & Scour at Highway Bridges FHWA-NHI-130087: Inspection and Maintenance of Ancillary Highway Structures / 2015 OSHA-ANSI: Fall Protection / 2014 OSHA: Construction Safety and Health (10-hour)		
Year registered	2015	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		NBIS Inspector Team Leader		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
7/20 – 10/20	<b>Inspection of 3 On-System Bergen County Movable Bridges, Group 02H0, Cycle 1 – New Jersey DOT</b> <b>Team Leader</b> for the NBIS structural evaluation, analysis, and inspection of two movable bridges: Court Street (CR 56) over Hackensack River and Kingsland Avenue Bridge over Passaic River, and one fixed bridge: Union Avenue Bridge over Passaic River. Performed hands-on inspections, update and review of all structure inventory and appraisal items and bridge inspection reports, coding bridge elements, scheduling, MPT/equipment arrangements, field priority repair identification and assessment, repair design and drawings as needed, SI&A/CombIS item and element coding, MPT coordination, and coordinating with County Engineers and supervising teams for on-site Mechanical & Electrical inspections and testing. Bucket trucks, snoopers, and ladders were used, and nondestructive testing was performed.			
05/16 – 05/18	<b>2016 Biennial Inspection of the Robert F. Kennedy Harlem Lift Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b> <b>Project Engineer/Team Leader</b> responsible for performing in-depth structural inspections, condition evaluations, reporting, and load ratings of the project bridges. Project includes inspection of mechanical and electrical systems of the Harlem River Lift Bridge and associated ramp structures of the Robert F. Kennedy Bridge. Includes elevator inspection, fathometric surveys, diving inspections, design document preparation for structural repairs of elements requiring immediate repair, auxiliary testing to determine extent of deterioration, special interim inspections, and scoping studies for future projects related to the facility.			

05/17 – 12/21	<p><b>Biennial Inspection of the Throgs Neck Bridge, Queens/Bronx, New York – Triborough Bridge and Tunnel Authority</b>  <b>Structural Qualified Team Leader (QTL)</b> responsible for field inspection, inventory and database coding, flag report writing, biennial and supplemental report writing, fracture critical element inspection, load ratings, and repair designs (3 BINS) for this complex, long span suspension bridge and its approach spans. The Throgs Neck Bridge carries I-295 traffic between the Bronx and Queens and features an 1800-foot main suspension span over the East River, with 555-foot side spans.</p>
04/17 – 01/18	<p><b>2017 Biennial Inspections of the Goethals Bridge, Elizabeth, NJ – NYNJ Link</b>  <b>Structural Qualified Team Leader (QTL)</b> responsible for the biennial inspection of the new Goethals Bridge replacement. The 1,635-foot eastbound bridge was the first of the twin cable-stayed structures to be constructed. Performed inspection of towers, cables, cable sockets, steel girders, floor trusses, and prestressed concrete beams, and prepared inspection reports for NYSDOT, NJDOT, and PANYNJ. The new design allows for a future light rail or bus corridor between the roadways.</p>
01/17 – 03/17	<p><b>2016 Interim Inspection of the Henry Hudson Bridge, New York, New York – Triborough Bridge and Tunnel Authority</b>  <b>Qualified Team Leader (QTL)</b> for interim inspection of the Henry Hudson Bridge and associated ramp structures of the Queens Midtown Tunnel. Work included the sounding and condition assessment of concrete components using inspection software on tablets.</p>
6/2018 – 2/2020	<p><b>2018 Biennial Bridge Inspection &amp; Design of Miscellaneous Structural Repairs at the Verrazzano-Narrows Bridge, New York, NY – Triborough Bridge and Tunnel Authority</b>  <b>Structural Team Leader</b> responsible for the hands-on NBIS inspection of the Verrazzano-Narrows Bridge including main cables and suspender ropes. Responsible for daily field coordination of all inspection team personnel, and the coordination of flag and CMR reporting with the quality control engineer and TBTA flag and CMR managers. Performed analyses, special fracture critical inspections (truss chords and gusset plates), load rating calculations and updates, and provided recommendations, repair estimates, and rehabilitation design.</p>
06/14 – 10/14	<p><b>Route 1&amp;9 Pulaski Skyway Rehabilitation – New Jersey DOT</b>  <b>Team Leader</b> who performed an in-depth inspection of the superstructure and substructure elements from Pier 78 to 98, including the main truss over the Passaic River, to document and assess existing conditions of all steelwork including trusses, gusset plates, truss bracing members, floor beams, and secondary members along with substructure elements necessary for the design of the structure rehabilitation. Performed load rating analysis for the inspected portion of the truss bridge, using CSi Bridge software to model and analyze the structure under the guidelines of the Load and Resistance Factor (LRFR) rating.</p>
01/13 – 12/15	<p><b>Inspection of 80 Morris County Bridges (14E5 &amp; 43) and On- &amp; 32 Off-System Morris County Bridges, (14A1) – New Jersey DOT</b>  <b>Team Leader</b> for the structural evaluation, analysis, and inspection of over 150 Morris County Bridges for NJDOT. Structure types included arches, culverts, steel/concrete stringer and floorbeam systems, box beams, prestressed girders, trusses, concrete slabs, and thru girders. Responsibilities include performing and managing field teams for hands-on inspections, QA/QC of all structure inventory and appraisal items and bridge inspection reports, coding bridge elements, scheduling, agency/consultant negotiations and coordination, MPT/equipment arrangements, field priority repair identification and assessment, repair design and drawings, and SI&amp;A/CombIS item and element coding. Equipment used included bucket trucks, snoopers, ladders, MPT coordination, and nondestructive testing.</p>


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Brianna Kovacs, PE	Years of relevant experience with this employer	4
	Title	Team Leader	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S. / 2017 / Civil Engineering / University of Maryland		
Active registration number / state / expiration date		Professional Engineer: 51187 / MD / 12/6/2023 NHI Safety Inspection of In-Service Bridges, Course #130055, 10/2018		
Year registered	2016	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		NBIS Inspector Team Leader		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/20-Present	<p><b>Annual NBIS Bridge Inspection, Evaluation, &amp; Rating Services, Statewide, MD - Maryland DOT/SHA</b>  <b>Team Leader</b> responsible for the condition inspection and evaluation of culverts, bridges, and movable bridges in Baltimore City and several Maryland counties. Brianna obtained right of entry permits for MTA, CSX, and AMTRAK railroads access, MOT permits for street closures, special access requests from private companies, and equipment and MOT vendors. Performed hands-on inspections, recorded SI&amp;A and Element Level Condition States following FHWA, AASHTO, and the client and developed inspection reports within the client’s Asset Management system, which included clearance and sounding sketches. Inspected structures made of timber, concrete culverts, multi-beam steel, and concrete spans, through girders and steel through trusses. The three movable structures comprised of a swing span, a rolling lift span, and a double-leaf bascule each received a full hands-on inspection of the structural, mechanical, and electrical systems.</p>			
7/17-10/17	<p><b>Comprehensive Engineering Services Contract, Curtis Creek, Baltimore, MD - Maryland Transportation Authority</b>  <b>Assistant Team Leader</b> for the project involving the structural inspection of the I-695 drawbridge (parallel double-leaf bascule). Responsible for preliminary and final designs, calculations, and drawings of temporary and permanent structural repairs to the I-695 Bridges over Curtis Creek. Under this contract, H&amp;H performed the inspection of the I-695 bridges over Curtis Creek, which crosses over CSX rail tracks. To complete the inspection, we obtained right-of-entry permits and insurance for any work over active tracks. The bridge was accessed using an 85’ manlift from within a lane closure at a track crossing beneath. This overall inspection was complicated by the immediate proximity of the Pennington Avenue bridges. All inspectors had current rail safety certifications and training for the equipment used.</p>			

07/17-12/19	<p><b>NBIS Bridge Inspection, Evaluation, &amp; Rating Services, Statewide, MD – Maryland DOT/SHA</b>  <b>Team Leader</b> responsible for the condition inspection and evaluations of eight multi-girder interstate bridges on I-95 and I-495. Performed this work in nighttime lane closures with multiple MOT set-ups and bucket truck access. Coordinated with the client's regional TCM before, during, and after each closing. Recorded findings of deterioration, corrosion, and safety concerns as well as condition states for each of the bridge elements following AASHTO and updated SI&amp;A following FHWA and client standards. Used an ultrasonic thickness meter to determine the extent of section loss on structural elements. Developed all reports with color photographs, vertical clearance sheets, and sounding profiles in the client's web-based asset management and reporting system. Also, responsible for the delivery of condition inspection and evaluation reports for bridges and culverts in in several Maryland counties. Performed hands-on inspections, and developed reports with updated SI&amp;A and ELI condition states in the client's asset management database.</p>
11/18-Present	<p><b>Annual NBIS Facilities Inspection Services, Statewide, MD – Maryland Transportation Authority</b>  <b>Assistant Team Leader</b> responsible for coordinating access and teams for the annual condition inspection and evaluation, including documenting all inventory data for MDTA bridges on I-95, I-695, I-895, and US 50 over the Chesapeake Bay. Obtained MOT lane closure and detour permits from City and State agencies, and coordinated weekly work schedules with MDTA, subconsultants, equipment and MOT vendors. Additional responsibilities include overall facility tracking of inspections and reports for structures assigned to the JV team, hands-on and visual inspections of the facility bridges, recording SI&amp;A and element level condition states, documenting inspection findings in client's web-based application for asset management, reviewing inspection reports generated by other firms to maintain consistency in reporting, processing invoices received from equipment and MOT vendors, preparing progress reports, and coordinating the NDT of pins and parapet tie-downs.</p>
09/17-12/18	<p><b>Annual NBIS Facilities Inspection, Statewide, MD - Maryland Transportation Authority</b>  <b>Assistant Team Leader</b> responsible for the planning, coordination, and execution of annual condition inspections and evaluations of 64 MDTA-owned bridges on a 60-mile length of I-95 for the JV project team. Brianna coordinated with firms and vendors to perform multiple simultaneous inspections and meet the client's FHWA asset anniversary dates. Brianna personally coordinated obtaining MOT lane closure permits, scheduling equipment, and MOT vendors for 19 bridges. She performed hands-on inspections, including night work, updated SI&amp;A, and element level data collection and generated inspection reports in the client's web-based electronic asset management system.</p>
3/2020-Present	<p><b>Bridge BWC5595001 Emergency Inspection and Rehabilitation, Statewide, MD – Maryland Transportation Authority</b>  <b>Structural Bridge Inspector and Load Rating Engineer</b> responsible for initial emergency inspection, drawing repair plans and using load rating analysis software to perform the load rating based on the repair design.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Rafal Wuttrich, PE	Years of relevant experience with this employer	5
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	19
Degree(s) / Years / Specialization		M.S. / 2001 / Civil Engineering B.S. / 1994 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 63030 / FL / 02/28/2023		
Year registered	2005	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Design Development of Movable Bridge Structures		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/94 – 11/03	<p><b>17th Street Causeway Bridge (A1A) Replacement, Fort Lauderdale, FL – Florida DOT</b>  <b>Movable Bridge Structural Engineer</b> responsible for performing load rating analysis of new superstructure, including twin double-leaf bascule and segmental approach spans. Project involved the design of a “signature” trunnion bascule bridge. The new bridge features twin double-leaf bascule spans (three spans continuous hinged structure) with a span length of 210 feet, center-to-center of trunnions. The new bridge also features unique transversely and longitudinally post-tensioned concrete V-shaped bascule pier integrally connected to the precast segmental concrete box girder approach spans.</p>			
03/03 – 12/05	<p><b>Treasure Island Causeway Bridge Replacement, Treasure Island, FL – City of Treasure Island</b>  <b>Movable Bridge Structural Engineer</b> responsible for assisting in the design of east bridge, west bridge, main bridge approach spans and bascule bridge, which encompassed precast flat slab and Florida Bulb-Ts that replaced the existing cast-in-place concrete T-beam bridges. Participated in design of structural and machinery components for twin double-leaf bascule bridge. Performed load rating analysis of new fixed approach structure and movable span. The bascule spans structural system included two main longitudinal plate girders, a composite Exodermic deck system featuring a lightweight concrete riding surface.</p>			
08/11 – 04/13	<p><b>SR-80 Southern Boulevard Bascule Bridge Replacement, West Palm Beach, FL – Florida DOT</b>  <b>Senior Bridge Engineer</b> responsible for design of a new bridge over the Atlantic Intracoastal Waterway (ICWW) to replace an existing bridge. The bridge consisted of a 948-foot-long, two-lane bridge with a 228-foot-long bascule main span, and 360-foot-long concrete approach spans each side of the bascule span. The approach spans consisted of a post-tensioned concrete slab superstructure, designed to be constructed by incremental launching.</p>			
09/01 – 03/02	<p><b>Royal Park Bridge Replacement, West Palm Beach, FL – Florida DOT</b>  <b>Movable Bridge Structural Engineer</b> responsible for performing independent analysis of continuous variable-depth segmental concrete approach superstructure as a part of the post-design review of the contractor’s redesign. Reviewed Contractor’s shop drawing of the segmental superstructure and construction methods. Also performed load rating of bascule span and segmental concrete approach spans.</p>			


06/16 – 10/17	<b>I-75 CD Ramp over Sligh Avenue, Hillsborough County, FL – Florida DOT</b> <b>Movable Bridge Structural Engineer</b> responsible for the preliminary design, Bridge Development Report, and conducting bridge load rating analysis for the widening of 233-foot three-span interstate ramp bridge over Sligh Avenue. The proposed widening superstructure and substructure included prestressed beams on a hammerhead pier substructure.
08/15 – 02/16	<b>US 441 Wekiva Parkway Flyover Ramp to SR 46 EB, Mount Dora – Florida DOT</b> <b>Bridge Structural Engineer</b> responsible for service stress state analysis (including load rating) of concrete alternative for US 441 Wekiva Parkway flyover ramp to SR 46 EB. The 471-foot-long superstructure was a pair of three-span continuous curved post-tensioned U-beam precast segments with cast-in-place concrete deck.
09/08 – 12/08	<b>I-75 Southbound Bridge over Salt Creek, Sarasota County, FL – Florida DOT</b> <b>Bridge Structural Engineer</b> responsible for assisting in design calculations and load rating of a 331-foot bridge that replaced an existing southbound structure. The proposed superstructure included a four-span continuous deck prestressed concrete AASHTO Type III and Type IV girders supported by five bent substructure units.
09/08 – 12/08	<b>I-75 Northbound Bridge over Salt Creek, Sarasota County, FL – Florida DOT</b> <b>Bridge Structural Engineer</b> responsible for assisting in design calculations and load rating calculations. The median portion of the existing two-span bridge was removed and 19-foot by 5-inch-wide and the existing five-span continuous 330-foot bridge was removed, a 19-foot by 5-inch-wide concrete deck was added, which was supported by two prestressed concrete AASHTO Type III girders, and the existing six bent units were lengthened. Performed load rating analysis checks for existing and final configuration of AASHTO precast prestressed concrete girders.
02/08 – 07/08	<b>I-75 SB and NB Bridges over Fox Creek, Sarasota County, FL – Florida DOT</b> <b>Bridge Structural Engineer</b> responsible for assisting in design and load rating analysis for a proposed roadway widening. The median portion of the existing two-span continuous 102-foot bridges were removed, a 19-foot by 5-inch-wide concrete deck was added, which was supported by three prestressed concrete AASHTO Type II girders, and the existing bents were lengthened. Performed load rating analysis checks for existing and final configuration of AASHTO precast prestressed concrete girders.
07/15 – 05/16	<b>SR 83/US 331 Bridge over Ramsey Branch, Walton County, FL – Florida DOT</b> <b>Engineer-of-Record</b> responsible for design and load rating of a new seven-span continuous concrete flat slab bridge placed adjacent to existing bridge. Project included design of two-cell concrete culvert extension
03/01 – 12/07	<b>Treasure Island Causeway, Treasure Island, FL – City of Treasure Island</b> <b>Staff Engineer</b> responsible for design and load rating of three replacement bridges including two low-level fixed bridges and a twin double-leaf bascule bridge with 21 feet of vertical clearance over the Gulf Intracoastal Waterway (ICWW). The bascule bridge featured a main span of 176 feet between trunnions. The bascule span structural system included two main longitudinal plate girders, a composite Exodermic deck system featuring a lightweight concrete riding surface, and a steel box counterweight. Performed finite element analyses of several components such as main girder webs at openings, torque tube for the hydraulic drives.

## 16. Staff Experience:

	Firm Employed by		Hardesty & Hanover	
	Name	Opio Hunter, PE	Years of relevant experience with this employer	3
	Title	Structural Engineer/Team Leader	Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		MS, Civil/Structural Engineering, 2004, University of Maryland BS, Civil/Structural Engineering, 2002, Howard University		
Active registration number / state / expiration date		Professional Engineer: 038189 / GA / 12/31/2022 FHWA-NHI-130055 Safety Inspection of In-Service Bridges		
Year registered	2013	Discipline	Structural Engineering	
Contract role(s) / brief description of responsibilities		Design Development of Fixed Bridge Structures		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/21– 01/22	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Structural Engineer</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;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 counterweight were required to return this bridge to its full operating capability. H&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>			
09/21-Present	<p><b>Tennessee River Bridge Inspection and Load Rating – Norfolk Southern Corp.</b>  <b>Structural Engineer</b> providing engineering 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 Hardesty &amp; Hanover 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.</p>			
05/13-07/14	<p><b>The Ohio River Bridges Downtown Crossing, Jefferson, IN &amp; Louisville, KY - Kentucky Transportation Cabinet</b>  <b>Structural Engineer</b> for this project that consisted of the reconstruction of the Kentucky approaches and the interchange junctions of I-65, I-64 and I-71, the construction of a new I-65 northbound bridge, and the reconfiguration and rehabilitation of the existing I-65 JFK Bridge and the Indiana approaches. The reconstructed interchanges have a total of 47 girder and slab bridges. Responsible for structural designs of a three-span prestressed I beam bridge supported by integral abutments and multi-column piers. Performed the structural capacity checks of the girders, piers and piles. Also, responsible for structural designs of a three-span steel plate girder</p>			


	<p>approach bridge with a cantilever abutment and multi-column piers. Performed the structural capacity checks of the steel plate girders and all related superstructure elements.</p>
06/13-09/14	<p><b>Winston Salem Northern Beltway, Eastern Section, from US-158 to US-42, Winston-Salem, NC – North Carolina DOT</b>  <b>Project Engineer</b> responsible for the overall coordination, structural design and the preparation of contract drawings at preliminary and final review stages. This task involved the design of three parallel bridges containing straight girders on curved alignments. All three bridges are comprised of three-span prestressed bulb-T girders. The substructure units consist of integral abutments on a single row of H-piles, multi-column bents with footings on H-piles and concrete columns supported on drilled shafts. Performed the structural design of the girders, multi-column bents and drilled shafts.</p>
04/16-10/16	<p><b>Pulaski Skyway Rehabilitation Program Contract 5, Essex and Hudson Counties, NJ – New Jersey DOT</b>  <b>Structural Engineer</b> for the deck replacement, steel structures and substructure rehabilitation, as well as seismic evaluation and bearing replacements. Responsible for structural design, detailing and preparation of construction plans at the final review stage for the Kearny Ramp structure. Performed the structural calculations for various superstructure elements including the shear lock design, the shear connector design for stringers and floor beams, and the wind tongue design. Also directed the detailing effort for the framing plan, stringers, and floor beam sheets.</p>
05/15 -08/16	<p><b>Scudders Falls Bridge Replacement Project, Mercer County, NJ and Bucks County PA - Delaware River Joint Toll Bridge Commission</b>  <b>Structural Engineer</b> responsible for the structural design of the piers on the main river bridge which carries traffic on I-95 over the Delaware River. The existing four-lane bridge over the Delaware River was functionally obsolete and was replaced with a twin-span structure carrying six lanes of through traffic (three in each direction), two auxiliary northbound lanes for entry/exit travel, and one auxiliary southbound lane for entry/exit travel. The bridge is a seven-span bridge having a total length of 1814-feet. The substructure units consisted of MSE abutments with two rows of H-piles and multi-column piers with footings supported on drilled shafts. Performed the structural modeling and design of the fixed and expansion piers, including the pier caps columns, footings and drilled shafts. Also analyzed the sign structure that is founded on one of the expansion piers.</p>
02/16 – 2/17	<p><b>Grand Concourse Bridge Over Metro-North Railroad, New York, NY – New York City DOT</b>  <b>Structural Engineer</b> for this project involved the superstructure replacement of the existing roadway bridge that is being supported by four New York City Transit trusses over the Metro-North Railroad Hudson Line. Per the project's criteria, the new superstructure will be independent of the subway trusses below. The project also required rehabilitation repairs to the abutments, subway trusses and their bearings, and the replacement of the subway portal beams and columns at both ends of the trusses. Responsible for the preparation of contract drawings and various structural design calculations at multiple design stages.</p>
07/12-07/13	<p><b>Vermont Railroad Bridge Inspections, Wacr Line M&amp;B Subdivision, Montpelier, VT – Vermont Agency of Transportation</b>  <b>Structural Engineer</b> involved in the annual inspections and in-depth Inspections, load rating analysis and repair recommendations and reporting of nine railroad bridges. Performed the in-depth inspections of three thru-truss bridges with structure lengths of 252-feet, 151-feet and 147-feet, respectively. Also performed the annual inspection of a three span thru-girder bridge. An "under-bridge" inspection vehicle (snooper) was used to gain access to hard-to-reach areas of the bridge. Responsible for the preparation and documentation of field notes, photos and sketches.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Linh-Thien Kim, EI	Years of relevant experience with this employer	1
	Title	Civil Engineer	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		BS / 2017 / Civil Engineering		
Active registration number / state / expiration date		Engineer Intern: 0033538 / LA / 3/31/2024		
Year registered	2017	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Design Development of Fixed Bridge Structures		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/19 - 04/19	<b>H.009498.5: LA 121: Calcasieu River Bridge – Louisiana DOTD</b> <b>Civil Engineer Intern.</b> 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-foot- long using four 60-foot-long deck spans with a bridge width of 42.5' wide. 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 postprocessing.			
04/19 – 04/19	<b>H.011159.6: Caroll Street bridge/ Bayou Black Bridge – Louisiana DOTD</b> <b>Civil Engineer Intern.</b> Completed shop drawing checks for steel bridge railing designed for this project.			
05/19 – 07/19	<b>H.003184.5: I-10: Texas State Line - East of Coone Gully – Louisiana DOTD</b> <b>Civil Engineer Intern.</b> Designed and detailed an LG-36 (I-beam) Concrete Prestressed Girder Bridge using continuous deck spans with a 2.5% slope. The continuous deck spans were 240 and 300 feet long using four 60-long and five 60-long deck spans respectively. The bridge width was 72.5-foot-wide. Superstructure and girders were designed using Bentley's Conspan software and DOTD's Bridge Design Evaluation Manual. Substructure pile bents were designed using STAAD Modeling software/Excel postprocessing.			
06/19 – 06/19	<b>H.012739.6: I-20 MRB At Vicksburg Overlay and Rehabilitation – Louisiana DOTD</b> <b>Civil Engineer Intern.</b> Worked closely with the Project Engineer to assist in developing quantities and cost estimates for paint striping and barrier movements through phases of the rehabilitation project.			
07/19 – 08/19	<b>H.000303.6: Danziger Bridge Rehabilitation – Louisiana DOTD</b> <b>Civil Engineer Intern.</b> Assisted Project Engineer in calculating joint thermal movement for the new sliding plate and determine if a new sliding plate is suitable. Completes detailing of new change order sheets for the new joint sliding plates for the project.			
03/19 – 04/19	<b>H.010916.6: Prien Lake Re-Deck &amp; Safety Improvements – Louisiana DOTD</b> <b>Civil Engineer Intern.</b> Completed shop drawings for end dams. Added #7 bars staggering at continuous deck joints to support spans at continuous deck joints. Created a change order for sheets showing bridge plan views.			

07/20 – Present	<p><b>Almonaster Avenue Railroad Bascule Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans Engineer Intern</b> contributing to the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;H's 2019 assessment of the circa-1920, National Register of Historic Places eligible 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&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>
07/20 – 12/20	<p><b>SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT Engineer Intern</b> performed the bridge load rating for movable bridge and fixed bridge approaches. Contributing to the civil design for full rehabilitation of SR 605 double-leaf 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 components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>
11/20 – 02/21	<p><b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans Engineer Intern</b> for the annual inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.</p>
06/19 – 09/19	<p><b>Annual Inspection of Seabrook Railroad Bascule Bridge, New Orleans, LA – Port of New Orleans Engineer Intern</b> for the annual inspection of the Seabrook Trunnion Bascule Bridge. This inspection included a structural inspection of the fracture critical steel and primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.</p>
07/20 – 12/20	<p><b>Lake Pontchartrain Causeway Safety Bay Improvements CE&amp;I , Jefferson and St. Tammany Parishes, LA – Greater New Orleans Expressway Commission Engineer Intern</b> providing construction engineering and inspection services required for the fast-paced \$60M Safety Bay Improvement Project being designed to LADOTD standards and specifications. The project used the CMAR method. Improvements added emergency stopping areas on both causeway bridges and provided six new shoulders in each direction. Responsibilities included attendance at progress meetings, final inspections, and construction close-out, etc.</p>
09/20 – 10/20	<p><b>Various Repairs of the Almonaster Avenue Railroad Bascule Bridge, New Orleans, LA – Port of New Orleans Engineer Intern</b> performing a variety of structural repairs on this steel Strauss Trunnion Bascule Bridge. Major work included replacement of components of the railroad floorsystem stringers and floorbeams that rated lower than E-60 and replacement of deteriorated lateral connection plates. The cracked concrete on the rest pier in the area near 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 of work included necessary bridge design and repair plans, contract specifications, construction inspection, construction support services.</p>


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Vilius Ruseckas, EI	Years of relevant experience with this employer	3
	Title	Mechanical Engineer Intern	Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization		B.S., Mechanical Engineering, 2018		
Active registration number / state / expiration date		Engineer Intern: 1100022867 / FL / n/a		
Year registered	2019	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Mechanical Designer and Inspector</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/20 – Present	<b>Almonaster Avenue Railroad Bascule Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans Movable Bridge Mechanical Engineer Intern</b> participating with the mechanical rehabilitative engineering design required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. 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 counterweight were required. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. H&H is developing necessary design plans to replace the span drive and span lock machinery, operating strut, guide assembly, live load bearings, counterweight trunnion pin, and bushing.			
03/20 – Present	<b>Lapalco Boulevard Movable Bridge over Harvey Canal, Jefferson Parish, LA – Jefferson Parish DPW Movable Bridge Mechanical Engineer Intern</b> assisting with the generation of preliminary machinery equipment floor plans. Additional tasks include preliminary sizing and calculation of operating machinery to meet appropriate span torque, breaking torque, and operational time values. The project scope involves design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction.			
01/19 – 06/19	<b>US-17 Swing Bridge over the Perquimans River Design-Build, Perquimans County, NC – North Carolina DOT Movable Bridge Mechanical Engineer Intern</b> assisting mechanical plans generation, shop drawing review, RFI response for the replacement of the existing swing bridge with a new off-line bridge and control house. Provided HVAC sizing calculations utilizing Hour Analysis Program. HVAC design included mini-split system in series with four air handlers and two condensing units. Equipment layout and selection serves several varied sensible heat load zones maintaining desired conditions throughout the two-story control house.			
11/19 – Present	<b>Three Mile Slough Vertical Lift Bridge Emergency Repair, Sacramento County, CA – Golden Gate Bridge / Caltrans Movable Bridge Mechanical Engineer Intern</b> assisting with the generation of vertical lift span and counterweight sheave jacking estimates, as-built plans, and subsequent repair plans for the vertical lift bridge over Three Mile Slough (24-0121). Assisted with calculations, including designs for new Cylindrical Live Load Bearing assembly with new bolted and welded stiffeners, end floor beam			

	jacking bolted stiffeners, counterweight sheave jacking and securing assembly, counterweight hanger pin and eye-bar evaluation, wire rope weight and stretch estimates. Performed Inventor FEA analysis on the counterweight hanger capacity and shape/size optimization.
10/19 – 05/20	<b>US 1 Main Street Vertical Lift Bridge over the St. Johns River, Jacksonville, FL – Florida DOT</b> <b>Movable Bridge Mechanical Inspector</b> assisting yearly inspection of the two tower 368-foot vertical lift bridges with span-mounted machinery room and tender operation room. HVAC air handlers were also inspected for temperature, humidity, and air flow control. Condensing unit and refrigerant lines were checked. Mechanical inspection included evaluation of operating and counterweight wire ropes, deflector sheaves, operating drum assemblies with open gearing, live load bearings, centering devices, and counterweight auxiliary chain, reducer and main drives, shafts, journals and couplings, hydraulically-driven machinery brakes and assemblies.
08/18 – 09/18	<b>Cass Street Bascule Bridge over Hillsborough River, Hillsborough County, FL – City of Tampa</b> <b>Movable Bridge Mechanical Engineer Intern</b> assisting with the generation mechanical rehabilitation designs and plans for this Strauss trunnion double-leaf bascule bridge. Performed sizing and calculations of new components within open gearing operating machinery to correlate to existing capabilities of machinery span torque, breaking torque, and operational time values of the total mechanical span lift system. The mechanical scope replaced a section of open gearing assembly with new shafts, new parallel shaft main reducer coupled to new main and auxiliary drives, and new motor brakes. Included was the replacement and reconditioning of all worn machinery components including main drive motors, reducers, open gear and pinion sets, shafts, couplings, collars, and the auxiliary gear drive.
09/19 – 01/20	<b>SR 699 (Gulf Blvd.) John's Pass Bascule Bridges, Treasure Island, FL – Florida DOT</b> <b>Movable Bridge Mechanical Inspector</b> responsible for mechanical scope discovery for these box girder double-leaf bascule trunnion bridges (150253 and 150254). Inspected rack and pinions, live load bearings, spring equipped hydraulically driven span locking mechanisms, trunnions, reducers and self-adjusting drum brake systems. Accessed plumbing access and feasibility for bringing water supply to the far pier. Work included review of existing documents and preparation of inspection reports and recommendations.
12/18 – Present	<b>Albee Road Bascule Bridge Repairs, Sarasota County, FL – Sarasota County, FL</b> <b>Movable Bridge Mechanical Designer</b> assisting repair plans development for this trunnion bascule bridge over Intracoastal waterway spanning a total 309 feet and built in 1963 (170057). Assisted generation of mechanical plans including replacement of main rack bolts, live load bearing assemblies, span-lock guide, and receiver assemblies. Performed prime mover sizing/span torque and span balance calculations. Assisted in writing technical specifications and estimates for repair construction. Field inspection performed in August 2010 resulted in recommended structural, electrical, and mechanical bridge repairs that will help the bridge extend the service life.
04/20 – Present	<b>SR 699 (Gulf Blvd.) John's Pass Bascule Bridges, Treasure Island, FL – Florida DOT</b> <b>Mechanical Designer</b> responsible for developing mechanical repair plans and Technical Service Provision documents for these two box girder double-leaf bascule trunnion bridges). Prepared an engineer's estimate and quantities. Assisted with developing plumbing designs to bring service water to the far multi-level skewed pier. Sized inside pier piping system and generated plumbing schematics, riser diagrams, hangers, and fixture layouts per Florida Plumbing Code for domestic cold-water access.
12/18 – Present	<b>Brorien Street Bascule Bridge over Hillsborough River, Hillsborough County, FL – City of Tampa</b> <b>Movable Bridge Mechanical Engineer Intern</b> assisting development of the rehabilitation plans of the mechanical components for this Hopkins trunnion type, double-leaf bascule bridge (105501). Performed calculations for sizing main and auxiliary drives. Performed leaf balance calculations including existing condition and added/removed repair elements condition.




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Kevin Ciampi, PE	Years of relevant experience with this employer	6
	Title	Senior Mechanical Engineer	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		BE / 2009 / Mechanical Engineer		
Active registration number / state / expiration date		Professional Engineer: 80702 / FL / 2/28/2023		
Year registered	2016	Discipline	Mechanical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Mechanical Engineer</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
03/19 – 09/19	<p><b>SR 605 Bascule Bridge over the Industrial Waterway, Gulfport, MS – Mississippi DOT</b>  <b>Movable Bridge Mechanical Engineer</b> for the full mechanical and electrical rehabilitation of an existing four-lane split-twin double-leaf rolling lift bascule bridge. Responsible for performing the inspection, recording the hydraulic system pressures, analysis of the data, and report with recommendations four bascule leaves. Also responsible for completing strain gage measurements on movable bridge, and preparing span balance reports, and calculating weight changes for balance adjustments.</p>			
10/17 – Present	<p><b>Repair of Five Movable Bascule/Swing Span Bridges, San Joaquin County, CA – San Joaquin County DPW</b>  <b>Movable Bridge Lead Mechanical Engineer</b> for the repair and upgrades of four swing spans and one double-leaf bascule bridge located in San Joaquin County. The work at part is part of a larger project to ensure long term reliability and to maintain existing bridges within California. The project includes work ranging from replacing hydraulic systems used to actuate the live load shoes, replacing gear-driven systems on more traditional bridges, field repairs to bearings, and repairing span lock systems.</p>			
05/17 – 07/17	<p><b>Michigan Street Vertical Lift Bridge Rehabilitation, Milwaukee, WI – City of Milwaukee</b>  <b>Movable Bridge Mechanical Engineer</b> for the rehabilitation of the Michigan St. Bridge over the Milwaukee River. The Bridge is a 58-foot-long four-lane towerless vertical lift bridge driven by four cylinders and one 40HP open-loop hydraulic power unit per leaf. The project includes the replacement of the deck, part of the superstructure and all of the machinery. Responsibilities included performing the inspection and design of the replacement hydraulic system.</p>			
06/19 – 09/19	<p><b>Liberty Bridge Emergency Repairs, Bay City, MI – Bay City DPW</b>  <b>Movable Bridge Mechanical Engineer</b> provided mechanical engineering assessment and design services on this double-leaf trunnion bascule bridge. Bay City dispatched H&amp;H to the bridge site because the bridge machinery was making an unusual grinding noise. H&amp;H was on site by 10 am the next morning to determine the cause. Upon investigation, the gearbox and all machinery around it was found to be vibrating severely and there was concern this could lead to further damage due to the high forces involved. It was also found that one of the reducer shafts had excess movement which could cause poor engagement of the bevel gearset contributing to the vibration. The bridge was taken out of service while H&amp;H provided engineering/on-site support to allow the owner to restrain the bridge in the open</p>			


	position and disconnect the machinery for repairs by a gearbox specialist. H&H provided designs for counterweight restraint brackets, temporary members for rigging machinery, and worked with the aging PLC system to allow the machinery to be tested with the bridge restrained open. Investigated the level of effort needed to repair one of the resolvers.
09/15 – 03/16	<b>Gwynn's Island Swing Bridge, Gwynn's Island, VA – Virginia DOT</b> <b>Movable Bridge Mechanical Engineer</b> for a 200-foot-long through truss center bearing swing span bridge over the Hills Bay. The project included a hands-on inspection of the span drive machinery, wedge machinery, balance wheels, center latch machinery, center bearing to resolve issues with wedge clearances, machinery wear, and loud intermittent noises during operation. Responsible for the bridge inspection, and review of a report summarizing the rehabilitation options.
03/18 – 04/18	<b>Norwalk River (Route 136) and Yellow Mill (Route 130) Bascule Bridges, HUD Movable, Storm Hardening Design Services, Norwalk &amp; Bridgeport, CT – Canadian National Railway (CNR)</b> <b>Movable Bridge Mechanical Engineer</b> responsible for completing strain gage measurements on movable bridge, and preparing span balance reports, and calculating weight changes for balance adjustments for the rehabilitation and storm hardening of two movable bridges, damaged by flooding due to Superstorm Sandy. The rehabilitation includes structural, mechanical, and electrical upgrades as well as revisions to the Department's Operation and Maintenance procedures before and after major coastal storms.
02/16 – 07/18	<b>Broadway Bridge Rall Wheel Replacement, Portland, Oregon</b> <b>Movable Bridge Mechanical Engineer</b> responsible for design, drawing preparation, RFI response, and shop drawing review for the replacement Rall wheels, operating struts, and span drive machinery and line boring of structure; for a rare double-leaf Rall-type bascule structure that is more than 100 years old. The two Rall wheels support the entire weight of each of the bridge's bascule leaves.
02/14 – 12/16	<b>Hopewell Swing Bridge over Appomattox River, Hopewell, VA – CSX Transportation</b> <b>Lead Movable Bridge Mechanical Engineer</b> for a 210-foot-long single-track deck-girder bridge over the Appomattox River owned and operated by the CSX Corp. Railroad. The project included the replacement of the majority of the operating and wedge machinery. Responsible for the condition assessment of the existing equipment, recommendations for repairs and replacements, contract documents for the rehabilitation of the mechanical systems, shop drawing review, and construction support services.
12/15 – 03/16	<b>Cumberland River Drawbridge, Nashville, TN - CSX Transportation</b> <b>Lead Movable Bridge Mechanical Engineer</b> for a 270-foot-long riveted through truss center bearing swing span bridge over the Cumberland River. The project included replacement of span drive machinery including, three shafts, three gears, four bearings, and the main pinion bearing support. Responsible for the inspection, construction support services, design services including the design of a temporary operating system, and recommendations to prevent future damage to the span drive machinery.
03/16 – Present	<b>Raritan River Vertical Lift Bridge, Perth Amboy/South Amboy, NJ – New Jersey Transit</b> <b>Movable Bridge Mechanical Engineer</b> for the \$425 million replacement of the Raritan River Drawbridge on North Jersey Coast Line. The project includes replacing the half-mile long structure, with a 327-foot-long riveted through truss swing span at the navigational channel and more than 3,000-foot-long of approaches between the Perth Amboy and South Amboy stations. The replacement will be done off-line while maintaining full rail operations during construction. The new bridge will be a through truss span drive vertical lift bridge with a minimum 110-foot-long vertical clearance and 300-foot navigational channel. Responsible for the design and drawing of the span drive, operating rope, counterweight rope, span lock, and span guide systems.

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Sayyid Khan, PE	Years of relevant experience with this employer	9
	Title	Electrical Engineer	Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization		MS / 2010 / Electrical Engineering BS / 2011 / Electrical Engineering		
Active registration number / state / expiration date		Professional Engineer: 83249 / FL / 2/28/2023		
Year registered	2017	Discipline	Electrical Engineering	
Contract role(s) / brief description of responsibilities		<b>Movable Bridge Electrical Engineer</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/08 – 08/13	<p><b>Bayou Teche Swing Bridge at Oaklawn (H.002798.6), St. Mary Parish, LA – Louisiana DOTD</b>  <b>Electrical Engineer Intern</b> responsible for providing plan preparations and post-design services for the bridge power distribution and relay-based control system for this movable bridge. Built in 1941, the original, a LADOTD Preservation Significant bridge, was replaced with a new hydraulically-operated swing bridge. H&amp;H provided the electrical design for the bascule bridge in line with LADOTD's design requirements and standard design details and coordinated closely with the other design disciplines to assure success. All design deliverables were made in accordance with the project schedule. Due to permitting issues, design activities were placed on hold for several years extending the schedule.</p>			
08/08 – 08/13	<p><b>Judge Seeber Vertical Lift Bridge (SP 700-99-0430), New Orleans, Louisiana – Louisiana DOTD</b>  <b>Movable Bridge Electrical Designer</b> provided electrical design services for this \$7 million LADOTD Preservation Priority Bridge rehabilitation project. Constructed originally in 1960, this vertical lift-span bridge project required replacement of the entire electrical system for the operation of the lift-span, replacement of the counterweight rope and lift-span deck grating, and miscellaneous structural repairs to the lift-span truss and access stairs.</p>			
12/21 – Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Electrical Engineer</b> for the bridge assessment, rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge's electrical systems. H&amp;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 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&amp;H developed necessary design plans to replace the span drive/span lock machinery, operating strut, guide assembly, live load bearings, counterweight trunnion pin, and bushing. The main trunnion bearings were rehabilitated and repositioned.</p>			


04/18 – 03/19	<p><b>SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Movable Bridge Electrical Engineer</b> responsible for providing plans review and quality control service for the design of electrical systems for the SR 605 double-leaf bascule bridge, as a task-order to the IDIQ Master Bridge Contract which includes developing standard and special bridge services, statewide for MDOT. H&amp;H's scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines and specifications.</p>
05/12 – 08/16	<p><b>Gasparilla Island Swing Bridge over ICWW, Placida, FL – Gasparilla Island Bridge Authority</b>  <b>Movable Bridge Electrical Engineer Intern</b> assisting with bridge inspection and contributing to the bridge condition report containing rehabilitation/replacement alternatives, preliminary and final design, calculations, plan preparation of bridge electrical systems including interior lighting, CCTV, relay-based controls with PLC monitoring, and flux vector drive implementation for the replacement of a 248-foot swing-span bridge with a new 678-foot swing-span bridge including a 250-foot deck girder swing span, a new pile-supported tender house, and approach spans with Florida I-Beams. Embankments are supported by MSE walls; protected by new bulkheads/revetment.</p>
03/18 – 06/18	<p><b>Causeway Bascule Bridge over Lake Pontchartrain Evaluation, Metairie, LA – Greater New Orleans Expressway Commission</b>  <b>Movable Bridge Electrical Engineer</b> responsible for the inspection and evaluation of electrical, mechanical, and structural components of the Causeway Bascule Bridge over Lake Pontchartrain and preparation of a final inspection plan and recommendations.</p>
02/18 – 10/20	<p><b>US 17 Swing Bridge over the Perquimans River, Perquimans County, NC – North Carolina DOT</b>  <b>Movable Bridge Electrical Engineer</b> for the power distribution, control, and lighting design. The new bridge includes a state-of-the-art, remotely controlled electrical system, including security and redundancy features such as CCTV, computerized monitoring, remote public address, intercoms, and additional electronic innovations. H&amp;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 will improve geometrics, increase load carrying capacity and vertical clearance, and include conveniences of a modern operational system.</p>
04/13 – 02/18	<p><b>Main Street Vertical Lift Bridge (US 1) over the St. Johns River, Jacksonville, FL – Florida DOT</b>  <b>Movable Bridge Electrical Engineer</b> responsible for the design, calculations, plan preparation, shop drawing reviews, and post design of the bridge electrical systems. The scope of work included electrical and machinery rehabilitation of a 368-foot vertical lift span. Electrical work included complete replacement of the electrical system including new DC span motors and drives and a new PLC-based control system with relay back-up. The Main Street Bridge is an important north-south corridor through downtown Jacksonville; thus an innovative construction sequence was developed to limit impacts to the traveling public.</p>
07/14 – 06/19	<p><b>Camino Real Bascule Bridge over the ICWW, Boca Raton, FL – Palm Beach County</b>  <b>Movable Bridge Electrical Engineer</b> contributed to the design, calculations, and plan preparation for the electrical system rehabilitation to accommodate the relocation of the control house. Also participated in in strain gage operations during construction to weld strain gages to the pinion shafts, recorded measurements with a digital data-acquisition system, performed data analysis and balance calculations, and delivered recommendations for counterweight adjustment to verify the balance condition of the bridge. Electrical work included a relay-based control system, flux vector drives, interior lighting, and interfacing with the existing service and emergency generator system. This double-leaf rolling lift span, constructed in 1939, and is eligible for the National Register of Historic Places.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Kenneth Pecquet, EI	Years of relevant experience with this employer	3
	Title	Electrical Designer	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		BS / 2012 / Electrical Engineering / University of New Orleans		
Active registration number / state / expiration date		Engineer Intern: 31342 / LA / 9/30/2023		
Year registered	2013	Discipline	Electrical Engineering	
Contract role(s) / brief description of responsibilities		Electrical Designer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
12/19 – 01/21	<p><b>Bayou Teche Swing Bridge at Oaklawn (H.002798.6), St. Mary Parish, Louisiana – Louisiana DOTD</b>  <b>Movable Bridge Electrical Engineer Intern</b> responsible for providing post-design electrical design calculations and plan revisions for the bridge power distribution and relay-based control system for this movable bridge. Built in 1941, the original historically significant bridge was replaced with a new hydraulically-operated swing bridge. H&amp;H provided the electrical design for the bridge in line with LADOTD’s design requirements and standard design details and coordinated closely with the other design disciplines to assure success. All design deliverables adhered to the schedule. Due to permitting issues, design was were placed on hold for several years extending the schedule.</p>			
01/20 – Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Electrical Engineer Intern</b> for the bridge assessment, rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge’s electrical systems. H&amp;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 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&amp;H developed necessary design plans to replace the span drive/span lock machinery, operating strut, guide assembly, live load bearings, counterweight trunnion pin, and bushing. The main trunnion bearings were rehabilitated and repositioned.</p>			
10/19 – 12/20	<p><b>SR 609 Movable Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, MS - Mississippi DOT</b>  <b>Movable Bridge Electrical Engineer Intern</b> contributing to the electrical design services for the 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 components of the bridge, as well as the roadway approaches and development of maintenance and repair plans.</p>			

03/19 – 01/20	<p><b>SR 605 Movable Bascule Bridge Rehabilitation, Harrison County, MS - Mississippi DOT</b>  <b>Movable Bridge Electrical Engineer Intern</b> contributing to the electrical design for the full rehabilitation of SR-605 bascule bridge as a task-order to the IDIQ Master Bridge Contract which includes engineering assessment, mechanical, electrical, and structural design in addition to the Traffic Control Plans. All designs were completed in accordance with AASHTO, FHWA, and MDOT guidelines and specifications.</p>
10/19 – 01/20	<p><b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b>  <b>Movable Bridge Electrical Engineer Intern</b> for an annual inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.</p>
06/19 – 09/19	<p><b>Annual Inspection of Seabrook Railroad Bascule Bridge, New Orleans, LA - Port of New Orleans</b>  <b>Movable Bridge Electrical Engineer Intern</b> for the annual inspection of the Seabrook Trunnion Bascule Bridge. This inspection included a structural inspection of the fracture critical steel and primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.</p>
07/18 – Present	<p><b>Districtwide State In-depth Bridge Inspections Contract, District 2 (Jacksonville Area, FL) – Florida DOT</b>  <b>Movable Bridge Electrical Engineer Intern</b> for the on-call inspection of movable bridge structures located throughout District 2 under the Master Work Order Agreement. Services included the mechanical and electrical system routine and interim inspections of nine assigned movable bridges in accordance with federal and state regulations. Inspection reports outlining detailed inspection findings and prioritized repair recommendations were provided to the prime consultant.</p>
04/17 – 05/17	<p><b>US-1 over Snake Creek Canal Bascule Bridge Post-Irma Inspection – Monroe County, FL</b>  <b>Movable Bridge Electrical Engineer Intern</b> responsible for conducting inspection and preparing rehabilitative designs for Bridge Number 900077 after damage was inflicted by Hurricane Irma. Scope called for detailed mechanical, electrical, and structural field reviews to collect and compare current data with previous project data to verify any existing deficiencies which occurred prior to the storm. Inspection focused on control house, signage and associated assemblies, gate lights, generator, lighting, clearance gauges. An Inspection Report was submitted summarizing the findings. Repair plans, design details and associated cost estimates were performed.</p>
04/19 – Present	<p><b>Jupiter Federal Bascule Bridge Replacement, Jupiter, FL – Florida DOT</b>  <b>Movable Bridge Electrical Engineer Intern</b> contributing to the design of this bascule bridge replacement project. The SWAT process of overlapping the design phase with the PD&amp;E phase requires that the preliminary design phase includes coordination and support of the NEPA process in developing the Type 2 Categorical Exclusion documentation. H&amp;H will serve as Engineer of Record for the project which addresses the structural and functional deficiencies of the existing US-1 / SR-5 Jupiter Federal Bridge from CR-A1A (Ocean Boulevard) to Beach Road. Work includes the development of vertical and horizontal alignment for bridge replacement alternatives and the study of the resulting impacts. The design incorporates intersection improvements and improves traffic functions at both ends of the approximately 2,960-foot long (0.56 mile) project corridor into the bridge replacement design. The project will include ADA access ramps to the 8-foot sidewalks and a new 7-foot buffered bike lane for additional safety.</p>


## 16. Staff Experience:

	Firm Employed by		Hardesty & Hanover		
	Name		Alexander Noble, PE	Years of relevant experience with this employer	26
	Title		Chief Engineer	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization			B.E. / 1989 / Electrical Engineering		
Active registration number / state / expiration date			Professional Engineer: 081079-1 / NY / 8/31/2023		
Year registered	2003	Discipline	Electrical Engineering		
Contract role(s) / brief description of responsibilities			Technical Advisor – Movable Electrical Engineering		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).				
1/20 – 02/22	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans Movable Bridge Electrical Engineer</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;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. H&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>				
06/18 – 03/19	<p><b>SR 609 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT QA/QC Advisor</b> responsible for reviewing plans for the 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 components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs were in accordance to AASHTO, FHWA and MDOT guidelines and specifications.</p>				
2/14-7/18	<p><b>Sarah Mildred Long Bridge Replacement, Portsmouth, NH &amp; Kittery, ME – Maine DOT Movable Bridge Electrical Engineer</b> for the construction phase of this new vertical lift bridge, equipped with dual decks (upper level roadway, and lower level rail), providing construction support services. The bridge selected was designed with four independent tower columns to house the counterweight sheaves, and independent rope drives at each tower to operate the span. Unique features include movable bridge seats to utilize the movable span for the upper roadway and lower railway usage. The project was being constructed using CMGC delivery, and carries crucial commercial traffic and heavy freight rail between Portsmouth, NH and Kittery, ME</p>				
8/19 – 1/22	<p><b>East Haddam Swing Bridge over the Connecticut River, East Haddam, CT – Connecticut DOT Movable Bridge Electrical Engineer</b> for the rehabilitation of the East Haddam Swing Bridge (CTDOT Bridge 1138). Design efforts were focused on rehabilitating structural, mechanical, and electrical systems and upgrading components to improve reliability and</p>				

	decrease maintenance. The bridge rehabilitation included structural strengthening of the trusses and floor system to support all Connecticut Legal Loads after construction of the sidewalk. The bridge rehabilitation also included the replacement of the approach span bridge decks with an emphasis on constructability and reduced weight and preliminary and final design development of the sidewalk.
09/15 – 11/15	<b>BNSF Des Allemands Swing Bridge (BNSF Bridge 32.06) Rehabilitation, Des Allemands, LA - BNSF Railway Company</b> <b>QA/QC Advisor</b> for the rehabilitation of the BNSF's Des Allemands Swing Railroad Bridge which included structural condition assessment, engineering report, the development of final bridge and track designs and construction contract documents, load rating analysis, permitting, construction management and on-site construction support. Responsible for all aspect of construction of the new thru plate swing span. Tasks included monitoring of construction, performing safety inspections and contractor evaluations, project change orders, RFIs, scheduling, project change out, as well as coordination with environmental agencies and local jurisdictional authorities. Scope included rehabilitation of the foundations, design of the new rest pier caps, rehabilitation of the swing span pivot pier. Swing span pivot pier designed with internal steel framing to transfer live loads to the existing foundation while placing the dead load of the new heavier swing span on micropile foundations, part of the pivot pier rehabilitation. Design also included mechanical equipment, new electrical system capable of operated remotely, electrical design included use of a PLC controls with manual operation available on the swing span. The design enhanced wedge operation to manage the stiff thru plate girder to prevent unloading the wedges with the locomotive on the swing span.
03/16 – Present	<b>Sault Ste. Marie Mechanical and Electrical Upgrades to Three Movable Bridges, Sault Ste. Marie, MI/Sault Ste. Marie, Ontario – Canadian Pacific Railway</b> <b>QC Oversight</b> for detailed mechanical and electrical inspections and rehabilitation of three side-by-side movable spans, two in Michigan, one in Canada. The bridges include a double-leaf Strauss bascule span, a swing span, and a vertical lift span. The swing span and vertical lift span consisted of full electrical rehabilitations that includes new PLC-based control systems, flux vector drives, conduit systems, and off-site remote control operations. Prepared design drawings, calculations for equipment sizing, bill of materials and cost estimates for the project.
06/10 – 12/15	<b>On-Call Movable Bridge Engineering Contract, Statewide, MI – Michigan DOT</b> <b>Lead Movable Bridge Electrical Engineer</b> for multiple cycles of this on-call electrical engineering services. Performed in-depth electrical systems inspection, evaluations, emergency response and repair design for power and control systems on over ten movable bridges. In depth inspections include strain gage balance measurements for bascule and vertical lift bridges, data acquisition and analysis of span and auxiliary motor power, testing of relay logic interlocks, verification and setting of span and gate limit switches, and insulation resistance testing of motors and submarine cables. Provided emergency design and construction support services for the replacement of PLC and inverter drives. Provided emergency response services for span failures.
04/19 – Present	<b>Welland Canal Bascule Bridge #6 Major Rehabilitation Design, St. Catherines, Ontario – St. Lawrence Seaway Corporation</b> <b>Electrical Engineer</b> for major rehabilitation of Bridge #6. Work includes complete drive machinery rehabilitation, span brake replacement, span lock replacement (per the SLSMCs Bridge Lock Strategy Report), toe bearing de-icing system, replacement of power distribution and electrical equipment, replacement of interior and exterior lighting, replacement of movable span festoon cable systems that provide power to the moving span, replacement of bridge span lock starters and brake timing delay to wind up machinery, rebalance of the spans using dynamic strain gaging, and all span brake testing work.




## 16. Staff Experience:

	Firm Employed by		Hardesty & Hanover	
	Name	Frederick Wetekamm, PE	Years of relevant experience with this employer	3
	Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	30
Degree(s) / Years / Specialization		ME / 2018 / Construction Engineering Management / University of Alabama - Birmingham BS / 1984 / Civil Engineering / Louisiana State University		
Active registration number / state / expiration date		Professional Engineer: 25369 / LA / 3/31/2024 Maintenance & Rehabilitation of Historic Bridges (LADOTD) FHWA NHI Course #130055 Safety Inspection of In-Service Bridges FHWA NHI Course #130078 Fracture Critical Inspection Techniques for Steel Bridges FHWA Stream /Stability and Scour at Highway Bridges for Bridge Inspectors FHWA NHI Course #139005, Driven Pile Foundations – Construction Monitoring ATSSA Traffic Control Supervisor and Flagger Maintenance and Rehabilitation of Historic Bridges		
Year registered	1993	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Movable Bridge Constructability		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
8/20 - Present	<p><b>L H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – Louisiana DOTD</b>  <b>Project Engineer</b> 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.</p>			
1996 - 2007	<p><b>LADOTD Bridge Maintenance Engineer, LADOTD District 2, LA – Louisiana DOTD</b>  <b>Bridge Maintenance Engineer</b> responsible for managing the program for Bridge Inspection, Operations and Maintenance Program, bridge operators, bridge repair crews, and bridge inspectors. The New Orleans Area has over 950 bridges (32 movable bridges), three tunnels, two navigation locks, and three drainage pumping stations. Responsible for creating and distributing repair work orders and coordinating the repairs, materials, equipment, labor, media information, and/or traffic control. Wrote major repair requests and generated project plans and specifications for repair projects and accident damages to the bridges for marine, vehicular, and environmental damages. <b>Lead Coordinator</b> for the projects with LADOTD District/statewide forces, contractors, consultants, public officials, media, property owners, and bridge maintenance supervisors. Provided construction inspection and damage assessments (DIR) for federally-reimbursed repairs from hurricanes and tropical storms. Experienced with specialized traffic requirements for the bridge/tunnel couplers, District traffic and marine requirements for temporary bridge closures, and permit load crossings.</p>			


01/20 - present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Senior Bridge Engineer</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;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 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&amp;H 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. The main trunnion bearings were rehabilitated and repositioned.</p>
03/18 - Present	<p><b>SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Senior Bridge Structural Engineer / Structural Inspector</b> responsible for full rehabilitation of SR 609 bascule bridge, a task-order to the IDIQ Master Bridge Contract which includes developing standard and special bridge services, statewide for MDOT. Scope includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specs. .</p>
01/19 - Present	<p><b>SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT</b>  <b>Structural Engineer</b> responsible 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 includes developing standard and special bridge services, statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.</p>
01/19 - Present	<p><b>Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW</b>  <b>Senior Bridge Engineer</b> for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services also 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. Improvements to bridge and roadway approaches for eastbound and westbound traffic as well as the development of a Traffic Control Plan is also included in scope.</p>
10/19 - 01/20	<p><b>Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b>  <b>Structural Inspection Team Leader</b> for an annual inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.</p>
06/19 - 09/19	<p><b>Annual Inspection of Seabrook Railroad Bridge, New Orleans, LA – Port of New Orleans</b>  <b>Structural Inspection Team Leader</b> for the annual inspection of the Seabrook Trunnion Bascule Bridge. This inspection included a structural inspection of the fracture critical steel and primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Drew Delle Donne, RA	Years of relevant experience with this employer	13
	Title	Movable Bridge Sr. Architect	Years of relevant experience with other employer(s)	40
Degree(s) / Years / Specialization		B.A. / 1981 / Architecture		
Active registration number / state / expiration date		Registered Architect: 02098 / NY / 11/30/2023		
Year registered	1989	Discipline	Architecture	
Contract role(s) / brief description of responsibilities		Movable Bridge Architect		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/18 – 02/19	<p><b>Almonaster Avenue Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans</b>  <b>Project Architect</b> for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&amp;H's 2019 assessment of the circa-1920, National Register of Historic Places eligible 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&amp;H 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. The scope of work included various architectural rehabilitation of the operator house.</p>			
3/15-12/18	<p><b>Sarah Mildred Long Bridge Replacement, Portsmouth, NH &amp; Kittery, ME – Maine DOT</b>  <b>Project Architect</b> for the construction phase of this new vertical lift bridge, equipped with dual decks (upper level roadway, and lower level rail), providing construction support services. The bridge selected was designed with four independent tower columns to house the counterweight sheaves, and independent rope drives at each tower to operate the span. Unique features include movable bridge seats to utilize the movable span for the upper roadway and lower railway usage. The project was being constructed using CMGC delivery, and carries crucial commercial traffic and heavy freight rail between Portsmouth, NH and Kittery, ME</p>			
4/20-1/22	<p><b>East Haddam Swing Bridge over the Connecticut River Rehabilitation, Haddam, CT – Connecticut DOT</b>  <b>Project Architect</b> 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.</p>			


06/12 – Present	<p><b>Andrews Avenue Bascule Bridge over the New River, Fort Lauderdale, FL – Broward County</b>  <b>Project Architect</b> responsible for the design, plan preparation for various architectural options, final design of the control house rehabilitation, and post design as part of the rehabilitation of this hydraulically-operated Hopkins trunnion single-leaf bascule span bridge. The architectural improvements included replacement of the control tower roof; windows; doors; wrap-around external stairs and internal spiral staircase; pedestrian railing on external stairs; pedestrian ramp; bascule span and a new Terracotta rainscreen on the control tower. The ADA modifications to the pedestrian ramp consisted of ramp slope modifications, ramp landing extensions, and ADA handrails. ADA modifications to north approach and bascule span included ADA and new pedestrian and bicycle bullet railing.</p>
07/14 – 07/19	<p><b>Camino Real Bridge over the ICWW, Boca Raton, FL – Palm Beach County</b>  <b>Project Architect</b> responsible for the design and plan preparation, post design, and shop drawing review of the architectural elements as part of the rehabilitation to accommodate the relocation of the control house for this historic, National Register of Historic Places eligible, double-leaf rolling lift span which was constructed in 1939. The architectural design of the new control house was coordinated with local agencies and SHPO.</p>
5/17 - Present	<p><b>US 17 Swing Bridge over the Perquimans River - Design/Build, Perquimans County, NC – North Carolina DOT</b>  <b>Architectural Designer</b> for this bridge replacement project. The existing swing bridge over the Perquimans River will be replaced with a new, off-line bridge. H&amp;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 will improve geometrics, increase load carrying capacity and vertical clearance, and include all the conveniences of a modern operational system.</p>
10/17 – 09/20	<p><b>US-1 Jupiter Bascule Bridge over ICWW Bridge, Jupiter, FL – Florida DOT</b>  <b>Project Architect</b> responsible for the development of architectural design elements during the preliminary and final design phases of this bascule bridge replacement project. H&amp;H is serving as Engineer of Record and our design addresses the structural and functional deficiencies of the existing US-1 / SR-5 Jupiter Federal Bridge from CR-A1A (Ocean Boulevard) to Beach Road. The project includes a high level of aesthetics, including the bridge control house, gatehouse, and bridge, ADA compliant access ramps to eight-foot sidewalks, and a new seven-foot buffered bike lane for additional safety.</p>
09/19 – Present	<p><b>SW 1st Street / SR 968 Bascule Bridge Replacement, Miami, FL – Florida DOT</b>  <b>Project Architect</b> responsible for developing architectural design plans for the new control house structure during the replacement of the nationally-registered historic SW 1st St Bridge. The original 650.5-foot, 13-span bridge, constructed in 1929, is the gateway crossing into downtown Miami. The new 507-foot bridge includes a 315-foot double-leaf bascule span over a widened 125-foot navigation channel. The architectural design of the control house and bridge was coordinated with local agencies and stakeholders.</p>
12/11 – 09/14	<p><b>Willis Avenue Swing Bridge over the Harlem River, New York, NY – New York City DOT</b>  <b>Senior Architect</b> responsible for the planning, presentation, and integration of architectural treatments for the \$612 million inter-borough replacement swing span bridge and its approaches. Designed an operator control house, ABO house, and 1.5 miles of decorative pedestrian screening and bikeway fencing, as well as dimensional stone masonry, all of which helped ameliorate City Art Commission approval. Provided cost estimating and specification for special items. 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.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Joseph Lee Adams, PE	Years of relevant experience with this employer	13
	Title	Senior Highway Engineer	Years of relevant experience with other employer(s)	12
Degree(s) / Years / Specialization		BS / 1995/ Highway Engineer		
Active registration number / state / expiration date		Professional Engineer: 41739 / LA / 9/30/2023		
Year registered	2017	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		<b>Bridge Hydraulic Engineer</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
02/13 - 12/15	<p><b>Bruckner Expressway over Westchester Creek (Unionport Bridge) Replacement, Bronx NY – New York City DOT Hydraulic Engineer</b> for the design of new \$250 million twin single-leaf bascule spans and approaches. Responsible for preparing bridge scour vulnerability analysis and report as part of the replacement for this major New York bridge. Developed models to analyze the Westchester Creek drainage basin for fluvial peak flows using TR-55 Urban Hydrology methodology and software, in addition to modeling and analyzing the tidal response of Newtown Creek per HEC-18 guidance and HEC-25 tidal prism methodology. Also, modeled peak discharge design flows through the creek at the bridge using HEC-RAS river modeling software to determine design stream velocities. Designed shoreline protection measures for wave attack per USACE and FHWA design guidance.</p>			
12/12 – 0/13	<p><b>Rumson – Seabright Bridge Over Shrewsbury River, Monmouth County, NJ – County of Monmouth Hydraulics &amp; Hydrology Engineer</b> 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 storm water 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.</p>			
05/16 – 06/20	<p><b>Bridge Street Bridge over Passaic River, Newark &amp; Harrison, NJ – North Jersey Transportation Planning &amp; Authority Hydraulics &amp; Hydrology Team Leader</b> 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.</p>			

8/08-6/09	<p><b>South First Street Bridge, Union County, NJ - County of Union</b>  <b>Project Engineer</b> responsible for securing environmental permits, US Army Corp of Engineers and US Coast Guard permits and completing final construction documents and engineer's estimate for the design and construction management of a new high-level fixed bridge to replacing a movable bridge. Conducted bid analysis, addressed bidders' comments, conducted and coordinated submittal reviews, coordinated partial payment invoices for County payments, coordinated change-order requests and prepared project final close-out documents for NJDOT State Aid final payment and reimbursement.</p>
11/16 – 7/20	<p><b>Saugus Drawbridge Replacement, Saugus, Essex County, MA – Massachusetts Bay Transportation Authority</b>  <b>Supervising Hydraulic Engineer</b> responsible for analyzing tidal and hydrologic fluvial conditions for existing and proposed bridge, estimated time dependent scour in cohesive materials. H&amp;H is leading the rehabilitation of this railroad draw bridge after a rehabilitation or replacement study. Project involves extensive coordination between Massachusetts DOT and MBTA.</p>
05/18-07/19	<p><b>Grand Avenue over Quinnipiac, City of New Haven, CT, Connecticut DOT</b>  <b>Lead Hydraulic Engineer</b> for the rehabilitation or replacement of the City of New Haven bridge. The multi-span moveable bridge is in poor condition and certain piers considered scour susceptible during coastal floods. Mr. Adams was responsible for performing the final design hydrologic and hydraulic analysis necessary to define the floodplain and floodway, define existing conditions, and compare it to the proposed conditions of bridge replacement alternatives. Mr. Adams also estimated wave heights and hydrodynamic forces for the approach spans for the lifetime of the bridge, including designing for resiliency and the effects of projected sea level rise.</p>
05/17 – 12/20	<p><b>Route 25A Bridge Over Brackett Brook, Grafton County, NH – New Hampshire DOT</b>  <b>Supervising Hydraulic Engineer</b> 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&amp;L); preliminary and final design; permitting; and construction support services.</p>
10/17-10/18	<p><b>Rehabilitation of Route 202 Bridge over Housatonic River, Litchfield County, CT – Connecticut DOT</b>  <b>Lead Hydraulic Engineer</b> for the rehabilitation of the Connecticut DOT Route 202 over Housatonic River. The bridge (#00901) is a single span simply supported Pratt through truss variant carrying two lanes of traffic over the Housatonic River. This steel truss bridge was constructed in 1953 and 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 structural rehabilitation design.</p>
02/14 – 08/16	<p><b>Jersey Avenue over Mill Creek, Jersey City, NJ – NJ Turnpike Authority</b>  <b>Hydraulic Engineer</b> responsible for evaluating scour conditions, determining wave height and wave force on superstructure, designing stormwater management improvements for environmental compliance, and design standards. Project involves design of a new single span structure over a tidally influenced tributary of the Upper Hudson Bay, subject to extreme coastal storm conditions. Coastal conditions were evaluated according to FHWA's HEC-25 and HEC-18. Stream stability evaluation performed per HEC-20 guidance. Scour countermeasures designed for wave attack using HEC-23. Hydrologic modeling using TR-55 procedures in HEC-HMS, water surface profiles modeled in HEC-RAS for both design purposes and NJDEP Flood Hazard Area permitting.</p>


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	<b>Jason W. Dunn, PE CFM, ENV SP, LEED AP</b>	Years of relevant experience with this employer	4
	Title	Senior Drainage Engineer	Years of relevant experience with other employer(s)	16
Degree(s) / Years / Specialization		B.S. / 2006 / Civil Engineering / University of Florida		
Active registration number / state / expiration date		Professional Engineer: 65309 / Florida / 2/28/2023		
Year registered	2006	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		<b>Drainage Engineer</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
12/18 – Present	<b>Beckett Bridge Replacement, Tarpon Springs, FL – Pinellas County Government</b> <b>Drainage Engineer</b> responsible for drainage design, utility coordination, and permitting for this project. The project involved the historic bridge replacement with a new 360-foot single-leaf, rolling-lift, bascule bridge that carries Riverside Drive over Whitcomb Bayou and features two traffic lanes, shoulders, and a sidewalk. Project elements included relay-based control system, approximately a quarter mile of roadway, drainage, bridge architecture, and public involvement.			
07/14 – 06/19	<b>SR 9 (I-95) Overland Bridge Design-Build Replacement, Jacksonville, FL – Florida DOT District 2</b> <b>Drainage Engineer</b> responsible for design, environmental permitting, coordination and quality control. The primary focus was the design of five stormwater management facilities and urban stormwater collection systems. This project included the reconstruction of 2.5 miles of roadway, bridges, and interchanges in Jacksonville, Florida.			
06/18 – 07/20	<b>Gateway Improvements Design-Build, Pinellas County, FL – Florida DOT District 7</b> <b>Drainage Engineer</b> responsible for temporary drainage design. 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 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			
12/18 – Present	<b>46<sup>th</sup> Avenue N Sidewalk Design, Pinellas County, FL – Pinellas County</b> <b>Project Manager/Senior Engineer</b> responsible for project management, roadway design, sidewalk alignment, and utility coordination. 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 drainage outfall along 55th Street North right-of-way corridor 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.			

8/20 – Present	<p><b>Orlando South Ultimate Interchange at SR 91 (Florida’s Turnpike) and SR 528 (Beachline Expressway), Orange County, FL – Florida’s Turnpike Enterprise</b>  <b>Drainage Engineer of Record</b> responsible for the drainage design and environmental permitting. This interchange reconfiguration project includes the construction of direct connection ramps between freeways, an ultimate 10-lane typical section of the mainline turnpike, implementation of AET, consideration of express direct connections, and improvement of surface street operations. The drainage design includes 16 stormwater management facilities, floodplain analysis, cross drain extensions and storm sewer design.</p>
05/15 - 06/17	<p><b>Districtwide Miscellaneous Design Contract, Brevard and Lake Counties, FL – Florida DOT District 5</b>  <b>Drainage Engineer</b> responsible for miscellaneous drainage engineering services driven by task orders generated from this contract. These services included hydraulic design of highway drainage and water management systems, obtaining environmental and water management district permits, performing hydraulic studies and various survey, geotechnical and video inspection services, preparing plans and compiling contract documents for the rehabilitation, and repairing the existing storm drainage structures and facilities, as well as verifying field conditions. Projects performed under this contract include Town of Melbourne Beach Flooding Evaluations, US 1 and Riverside Drive Stormwater Pond Evaluation, SR 44 and US 27 Drainage Restoration, and the Lake Harris Regional Pond Feasibility Study.</p>
03/17-11/19	<p><b>I-95 at Viera Boulevard, Diverging Diamond Interchange, Brevard County, FL – Florida DOT District 5</b>  <b>Drainage Engineer</b> responsible for temporary drainage design. 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&amp;H’s scope on this design-build project includes 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.</p>
01/10-07/10	<p><b>Watershed Management Program Peer Review, Districtwide, FL – Southwest Florida Water Management District</b>  <b>Drainage Engineer of Record</b> responsible for reviewing the complex interconnected pond routing models, using a hydrology and hydraulics modeling program. The software involved was ArcGIS and ArcHydro used to review Green-Ampt hydrology and percolation features. Additional tasks focused on developing preliminary floodplains, review of documentation, and public involvement concerns. Peer reviews included Deep Creek, Thornton Branch, Alligator Creek, Gant Lake, and Big Prairie Watersheds</p>
05/16-08/17	<p><b>SR 30 (US 98) Widening from CR 457 (Mack Bayou Road) to CR 30A West, Walton County, FL – Florida DOT District 3</b>  <b>Drainage Engineer</b>, working as a subconsultant, responsible for the drainage design and permitting requirements. This capacity improvement project involved widening SR 30 from a four-lane roadway to a six-lane roadway. The project also included resurfacing, signalized intersection redesign, stormwater management capacity evaluation, landscaping, and Americans with Disabilities Act (ADA) upgrades to pedestrian features. The addition of sidewalk and/or multi-use path was analyzed throughout the project limits on both sides of SR 30</p>
9/15-10/16	<p><b>SR 500/US 441 from SR 437 (Orange County) to North of Junction/Wesley Road, Orange County, FL – Florida DOT District 5</b>  <b>Drainage Engineer</b> for this project providing rigid pavement rehabilitation along the southbound lanes of SR 500 (US 441) north of Apopka for approximately 2.8 miles. Bicycle keyhole lanes were added at the right-turn lanes to Wesley Road, Orange Circle, Fudge Road, Hermit Smith Road, and Kitt Avenue. In addition, existing southbound left-turn lanes, right-turn lanes, and median crossovers were milled and resurfaced.</p>




## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	John Witthohn, PE, CME, CFM	Years of relevant experience with this employer	5
	Title	Highway Engineer	Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		BS / 2003 / Civil Engineer		
Active registration number / state / expiration date		Professional Engineer: 41739 / LA / 9/30/2023		
Year registered	2017	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Bridge Hydraulics Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
12/19-01/22	<p><b>East Haddam Swing Bridge over the Connecticut River Rehabilitation, Haddam, CT – Connecticut DOT</b>  <b>Hydraulic Engineer</b> 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.</p>			
07/17 – Present	<p><b>Shore Road Bascule Bridge over the Hutchinson River, Bronx, NY – New York City DOT</b>  <b>Hydraulic Engineer</b> for preliminary engineering for performing preliminary design, studying alternatives, and developing environmental documentation for the reconstruction or replacement of 108-year-old rolling lift bridge. The bridge, eligible for inclusion on both the New York State and National Registers of Historic Places, is reaching the end of its service life. Major structural and roadway issues addressed in H&amp;H’s scope of work includes needs assessment; bridge type selection; developing an alignment that minimizes park and environmental impacts; profile improvements to increase channel clearances; developing stage construction plans that will minimize impacts on vehicular, bicycle, pedestrian, and vessel traffic.</p>			
10/18-06/19	<p><b>Grand Avenue Bridge over Quinnipiac River, City of New Haven, CT – Connecticut DOT</b>  <b>Hydraulic Engineer</b> 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 affect 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.</p>			


12/16-6/20	<p><b>Saugus Draw Bridge Rehabilitation, Saugus, MA - Massachusetts Bay Transportation (MBTA)</b>  <b>Hydraulics Engineer</b> 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.</p>
1/16-Present	<p><b>Rumson-Seabright Bridge (Str. No. S-32) over Shrewsbury River, Monmouth County, NJ - North Jersey Transportation Planning</b>  <b>Hydraulics Engineer</b> responsible for performing QA/QC reviews of the hydrologic and hydraulic analysis, and bridge scour analysis during the Final Design of this bridge replacement project over a tidal river/estuary. Responsible for QA/QC review of the 2-D hydraulic modeling including geometric, bathymetric, tidal, and hydrologic data inputs. John also served as task leader for both drainage and erosion control for the development of the preliminary and final design. He led the water resources team in the evaluation and design of complex pipe networks in the urban watersheds of Rumson Borough and the barrier island Borough of Sea Bright, ensuring that the design of all systems complied with the regulatory standards of State, County and Local jurisdictions. Prepared the design, plans and specifications for a Soil Erosion and Sediment Control permit approval from the Freehold Soil Conservation District.</p>
05/17 – 12/20	<p><b>Route 25A Bridge Over Brackett Brook, Grafton County, NH – New Hampshire DOT</b>  <b>Hydraulic Engineer</b> 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 &amp; Location (TSL) Study Report, currently under review by NHDOT.</p>
12/18 – Present	<p><b>Route 179 Bridge Replacement over Back Brook, Hunterdon County, NJ – New Jersey DOT</b>  <b>Hydraulic Engineer</b> 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.</p>
07/15 – 07/18	<p><b>NJ Route 17, Sprout Brook Culvert Replacement, Paramus, NJ – New Jersey DOT</b>  <b>Hydraulic Engineer</b> 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.</p>
01/11-12/11	<p><b>Route 540 Houses Mill Pond Bridge, Alloway Township, NJ – New Jersey DOT</b>  <b>Hydraulic Engineer</b> responsible for H&amp;H analysis and design of proposed bridge replacement using multi-profile HEC-RAS model, HEC-18, HEC-20 &amp; HEC-23 scour analysis and design of scour counter measures, NJDEP permitting.</p>

## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Zachary Gross, PE, CFM	Years of relevant experience with this employer	2
	Title	Drainage Engineer	Years of relevant experience with other employer(s)	12
Degree(s) / Years / Specialization		B.S. / 2009 / Civil Engineering / University of South Florida		
Active registration number / state / expiration date		Professional Engineer: 77005 / Florida / 2/28/2023		
Year registered	2014	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Drainage Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/18 – 03/20	<p>Turnpike Spur (SR 91) I-95 to Golden Glades Toll Plaza, Miami-Dade County, FL - Florida’s Turnpike Enterprise and Florida DOT District 6</p> <p><b>Drainage Engineer of Record</b> responsible for drainage design and permitting, including updating the FTE portion of the global ICPR4 model for the GGI-North ERP. This project involved modifications to the Golden Glades Interchange (GGI) in Miami-Dade County. The over-all interchange has been divided into multiple roadway improvement projects. This project is identified as Segment 5. The scope includes the addition of northbound and southbound express lanes from the Turnpike mainline to the project limits of the I-95 ramps at the SR 826 overpass. The addition of the express lanes requires reconstruction of the ramp bridge carrying traffic to the Turnpike from I-95. Additionally, the northbound ramps from NW 167th St and SR 826 and the southbound ramp to NW 167th Street will require reconstruction.</p>			
08/16 – 12/19	<p>SR 821 (Heft) Widening from West of 57<sup>th</sup> Avenue to East of 27<sup>th</sup> Avenue (Miramar) , Various Counties, FL – Florida’s Turnpike Enterprise</p> <p><b>Lead Drainage</b> responsible for drainage design documentation and drainage plans. Prepared documents and attended meetings and field reviews and Engineer of Record for 47th Avenue Bridge Hydraulics Report. The project involved design services for the widening of a four-mile segment of HEFT. This unique project uses the forward-thinking concept of adding managed lanes within an existing tolled facility. The project will provide eight lanes, three general use lanes, one express lane in each direction west of NW 27th Avenue, and six lanes east to the end of the project at the SR 821/SR 91 interchange. The design also calls for the provision of a planned direct-connect express-bus stop along the northbound SW 27th Avenue exit ramp for the future Miami-Dade Transit Park and Ride lot being developed in the southwest quadrant of the interchange.</p>			
07/13 – 03/15	<p>I-75 Widening from South of North Jones Loop to North of US 17, Punta Gorda, FL – Florida DOT District 1</p> <p><b>Drainage Engineer</b> responsible for drainage design and permitting, pond siting report, modeling, nutrient removal calculations, floodplain analysis, cross drain analysis, spread, storm sewer design, and drainage plans production. This project involves the widening of approximately four miles of I-75 from south of North Jones Loop Road to the Peace River Bridge. The project involved milling and resurfacing the existing four-lane interstate and adding two new lanes to the median. The existing bridges over North Jones Loop Road</p>			


	and the Seminole Gulf Railway were widened. Services included traffic analysis, roadway design, drainage design, traffic control plans, signing and pavement marking analysis, lighting design, bridge design, environmental permitting, ITS, and noise analysis.
06/18 – 03/20	<b>70th Street South over Delaney Creek, Hillsborough County, FL – Hillsborough County Government</b> <b>Drainage Engineer of Record.</b> Hillsborough County is proposing to replace the existing 70th Street South Bridge over Delaney Creek with a bridge culvert (concrete box culvert) on the current horizontal alignment. The project included approximately 500-feet of incidental roadway and drainage reconstruction along 70th Street, south of Causeway Boulevard. The project required a Federal Emergency Management Administration (FEMA) No-Rise Certification and updates to the Hillsborough County SWMM Model of Delaney Creek.
03/15 – 07/19	<b>I-75/SR 951 interchange Reconstruction, Naples, FL – Florida DOT District 1</b> <b>Drainage Engineer of Record</b> of Pond Siting Report. Responsible for permitting, design documentation and drainage plans as well as preparing documents and attending meetings and field reviews. This project involved providing design services for reconstruction of the existing diamond interchange to a partial cloverleaf interchange with two flyover connection ramps, from and to CR 951 (Collier Boulevard), to provide for the ultimate configuration. New bridges to accommodate ramp traffic will be constructed adjacent to the existing mainline bridges, as well as new bridges on SR 951 to go over Davis Boulevard will be constructed for direct interstate access. Services included roadway, drainage, bridge, signing and pavement marking, signalization, lighting, and ITS design; environmental permitting; and noise analysis.
05/15 – 09/19	<b>59th Avenue North Drainage Improvements, Pinellas County, FL – Pinellas County Government</b> <b>Project Manager/Drainage Engineer of Record</b> responsible for project management tasks, drainage design documentation and permitting. Under this General Engineering Consultant for Pinellas County, work consisted of roadway, structural, traffic, and drainage safety improvement projects, as well as drainage flooding studies and permitting. The 59th Avenue North drainage improvements alleviated residential flooding in Pinellas Park, Florida by proposing a shallow swale with DBI collection system along 58th Avenue North as well as ditch grading along 59th Avenue North. The project required a major permit modification of the jointly owned Molex pond, where runoff from the study area drains into.
01/12 – 07/18	<b>US 17 Extension, Various, FL – Florida DOT District 1</b> <b>Drainage Engineer</b> responsible for drainage design and permitting, including pond design and modeling, floodplain compensation, ditch design, storm sewer design, cross drains, and plans production. This project involved design services for the new construction of approximately five miles of US 17 from the DeSoto/Hardee County Line to CR 634 (Sweetwater Road). The project involved expanding the existing two-lane facility to a four-lane divided facility with a 64-foot median. The existing bridge over Charlie Creek will be widened and used for the northbound lanes; a new southbound bridge over Charlie Creek will be constructed. The existing bridge over Charlie Creek Overflow was reconstructed and used for the northbound lanes; a new southbound bridge over Charlie Creek Overflow will be constructed. Services included roadway, drainage, bridge, and signing and pavement marking design; environmental permitting; and noise analysis.

## 16. Staff Experience:

	Firm Employed by		Hardesty & Hanover	
	Name		Raymond Mankbadi, PE	Years of relevant experience with this employer
	Title		Director of Geotechnical Engineering	Years of relevant experience with other employer(s)
Degree(s) / Years / Specialization		M.S. / 1985 / Civil Engineering B.S. / 1978 / Civil Engineering		
Active registration number / state / expiration date		Professional Engineer: 41609 / LA / 9/30/2023		
Year registered	1989	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Geotechnical Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/19 – Present	<p><b>Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA - Jefferson Parish DPW</b>  <b>Lead Movable Bridge Geotechnical Engineer</b> for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services also 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. Improvements to bridge and roadway approaches for eastbound and westbound traffic as well as the development of a Traffic Control Plan is also included in scope.</p>			
03/18 – 06/19	<p><b>SR-605 Bascule Bridge Rehabilitation, IDIQ Master Bridge Design Contract, Ocean Springs, MS – Mississippi DOT</b>  <b>Lead Movable Bridge Geotechnical Engineer</b> responsible for generator foundation design of SR-609 bascule bridge as a task-order to the IDIQ Master Bridge Contract for bridge services statewide. The scope of work includes inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches, and development of maintenance and repair plans</p>			
08/12 – 08/13	<p><b>Gasparilla Island Swing Bridge Replacement, Placida, FL - GIBA</b>  <b>Lead Geotechnical Engineer</b> responsible for reviewing geotechnical work performed by sub-consultant, performing foundation analyses and design, provide geotechnical recommendation and Quality Control and Quality Assurance Services for the design of a new highway swing bridge. By providing comprehensive design services for the replacement of this 220-foot swing span bridge, H&amp;H implemented FDOT navigation vessel collision loads to develop the substructure. Project consists of 678-ft of new bridge including a 250-foot deck girder swing span and approach spans utilizing Florida I-Beams. Embankments are supported by MSE walls and protected by new bulkheads. In addition to the bridge structures and new pile supports, a tender house is part of the scope.</p>			
03/13 – 12/15	<p><b>Sarah Mildred Long Bridge Replacement, Portsmouth, NH to Kittery, ME – Maine DOT</b>  <b>Lead Movable Geotechnical Engineer</b> for the \$159 million replacement design of the movable span of the Sarah Mildred Long Bridge, which carries vehicular traffic between New Hampshire and Maine and serves as a railway link to the Portsmouth Naval Shipyard. The</p>			

	movable bridge foundation design required deep drilled shaft foundations for the movable span. The new bridge will be a single level 300-foot-long lift span, framed with box girders, has separate seating locations for the double-level highway/rail approaches.
02/14 – 12/16	<b>Des Allemands Swing Bridge Rehabilitation (BNSF Bridge 32.06), Des Allemands, LA – BNSF Railway Company</b> <b>Lead Movable Bridge Geotechnical Engineer</b> involved in the design, construction support, testing of micropiles for the rehabilitation of a 90-foot single-track swing span bridge which included two jump spans and ten approach spans of prestressed concrete box beam. Crossing the Des Allemands Bayou in Des Allemands, Louisiana, the 90-foot swing span was replaced on the existing substructures which were reinforced by adding micropiles. Two jump spans were rehabilitated as well. Hardesty & Hanover 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.
05/17 – 06/19	<b>US-17 Swing Bridge over the Perquimans River Design-Build, Perquimans County, NC – North Carolina DOT</b> <b>Lead Movable Bridge Geotechnical Engineer</b> providing geotechnical and foundation design to replace the existing swing bridge with a new off-line bridge as well as technical special provisions for the control house. 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. The swing bridge foundations consist of 24-inch prestressed concrete piles. All work is being performed in accordance with AASHTO LRFD Bridge Specifications & FHWA Geotechnical Manuals.
12/11 – 05/17	<b>Flagler Memorial Bascule Bridge Replacement Design/Build, West Palm Beach, FL – Florida DOT</b> <b>Geotechnical Engineer of Record</b> 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 consists of complete replacement of the existing, National Register of Historic Places eligible bridge with a new four-lane divided bridge. 60-inch 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-inch diameter drilled caissons.
06/16 – Present	<b>Shore Road Bridge Reconstruction, Bronx, NY – New York City DOT</b> <b>Lead Movable Geotechnical Engineer</b> for replacement of a rolling lift bridge over the Hutchinson River. Responsible for all geotechnical aspects of the design including subsurface exploration, drilled shaft foundation design, soil improvement, retaining walls, reinforcement embankment on soft soils and instrumentation. The project includes studies, alternate assessment, FHWA/NYS DOT design approval, preliminary & final design services. The bridge will be replaced with a new \$260 million mid-level double-leaf bascule on a southerly alignment. The 108-year-old historical bridge had been rehabilitated and repaired several times in recent decades, the main steel members and the concrete approach spans continued to deteriorate.
03/13 – Present	<b>Bruckner Expressway over Westchester Creek (Unionport Bridge) Replacement, New York, NY – New York City DOT</b> <b>Lead Movable Bridge Geotechnical Engineer</b> for the replacement of Unionport Bridge which provides a critical traffic connection between the Bruckner and Cross Bronx Expressway and the Hutchinson River Parkway. Responsible for all geotechnical aspects including subsurface exploration, drilled shaft foundation design, soil improvement, sign structures, cofferdam, retaining walls, reinforcement embankment on soft soils and instrumentation. Bridge support includes 5-foot-wide drilled shafts socketed on bedrock. Micro piles and controlled modulus columns will be used to support the embankment to minimize impact on adjacent state bridges.


## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	Robert Hideck, PE	Years of relevant experience with this employer	7
	Title	Senior Roadway Engineer	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization		B.S. / 2002 / Civil Engineering / University of Pittsburgh		
Active registration number / state / expiration date		Professional Engineer: 41953 / Louisiana / 3/31/2024		
Year registered	2017	Discipline	Roadway 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>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
11/20-Present	<p><b>Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans</b>  <b>Roadway Engineer</b> for the bridge assessment and complete rehabilitative engineering design and construction inspection services required for the rehabilitation and roadway replacement of the Strauss-heel trunnion bridge. H&amp;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.</p>			
07/14 – 06/19	<p><b>I-75/SR 50 Interchange Bridge Replacement &amp; Widening, Hernando County, FL – Florida DOT</b>  <b>Senior Engineer</b> responsible for the traffic control design and plans for the replacement of twin bridges on I-75 over SR 50. The project included the replacement of I-75 multi-span bridges over SR 50, which allows for reconstruction to a single point urban interchange. The approximately 12-foot superstructure consists of weathering steel plate girder structures supported on end bents. Mechanically stabilized earth (MSE) walls wrap around each bridge and continue for hundreds of feet before meeting grade. This design-build project included of a temporary widening of the existing southbound I-75 bridge as part of the maintenance of traffic plan.</p>			
03/15 - 03/17	<p><b>Fort Hamer Bridge Approaches, Upper Manatee River Road to Fort Hammer Road, Manatee County, FL – Manatee County</b>  <b>Project Roadway Engineer</b> 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 Road with Fort Hamer Road. The project was designed for stage construction with the two lanes being delivered with initial construction.</p>			
11/16 – 12/21	<p><b>Gateway Express Improvements, Pinellas County, FL – Florida DOT</b>  <b>Project Manager/TTCP Engineer of Record</b> responsible for managing the tolling, structural engineering, and traffic control services for the Gateway Express improvement project. This project will deliver toll facilities and needed 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 via general purpose and new express lanes. H&amp;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; TCP coordination among Segments 1 through 4; tolls design for Segments 1, 2, and 4; and structures design for four bridges in Segment 4.</p>			

04/17 – 03/20	<b>SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT</b> Roadway, Signing and Pavement Markings, and TTCP Engineer of Record responsible for design and preparation of roadway, signing and pavement marking, and traffic control plans for the single point urban interchange at SR 77 over US 231 and CSX RR improvement project. Work includes bridge, roadway, drainage, and lighting design.
09/15 – 12/18	<b>44th Avenue E from 45th Street E to 44th Avenue Plaza E, Braden River Segment, Manatee County, FL – Manatee County</b> Roadway Engineer of Record/Senior Roadway Engineer responsible for roadway and traffic control design and plans preparation. Project included the design for the reconstruction and extension of 44th Avenue East from 45th Street East to 44th Avenue 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 Road and Caruso Road to provide route continuity.
12/13 – 05/19	<b>Homestead Extension of Florida's Turnpike (SR 821) - S of Killian Parkway to N of Sunset Drive, Miami, FL – Florida's Turnpike</b> Roadway Engineer responsible for roadway and TTC design for Kendall Drive and Sunset Drive and the mainline HEFT. This design-build project comprised the widening of the mainline HEFT (SR 821) from south of Killian Parkway to just north of Sunset Drive. The project also included development of express lanes, relocation of ramp tolling, and operational improvements to the Kendall Drive interchange as well as resurfacing and other minor improvements.
1/16 – 5/18	<b>I-75 SB Off-Ramp from S of Bypass Canal to EB/WB I-4, Hillsborough County, FL – FDOT</b> Project Engineer responsible for the roadway and temporary traffic control (TTC) design and plans preparation for this two-mile 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.
03/13 – 03/16	<b>Central Polk Parkway from Polk Parkway SR 540 to SR 35 (US 17), Polk County, FL – Florida DOT</b> Project Roadway Engineer responsible for the roadway design, preparation of plans, and project coordination. This project required the use of the Corridor Modeler software to aid in the design of a new six-lane expressway facility. The project included the design of one-mile of new alignment, over two-miles of widening, a new interchange at SR 540, and over two miles of new ramp alignments. This segment was among several that were under design to complete the northeasterly connection of Central Polk Parkway to I-4.
03/12 – 03/15	<b>SR 10 (Atlantic Boulevard) Landscaping From Withrow Drive to Hickory Creek Boulevard, Duval County, FL – Florida DOT</b> Roadway Engineer responsible for design and preparation of traffic control plans. The project involved approximately one mile of roadway, including landscaping and irrigation improvements for proposed Bold Landscaping within wide existing medians on Atlantic Boulevard at the Kernan Boulevard interchange, and within the project limits from Withrow Drive to Hickory Creek Boulevard in Jacksonville.
05/06 – 11/07	<b>Starkey Road, Final Design, Pinellas County, FL – Pinellas County Government</b> Roadway Design Engineer responsible for design and development of plans and development of cross sections. This project included the widening of three segments of Starkey Road from a four-lane rural section roadway to a six-lane urban section roadway for a total length of 10.7 miles.



## 16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	J. Webb Jones, III, PE	Years of relevant experience with this employer	8
	Title	Senior Highway Engineer	Years of relevant experience with other employer(s)	24
Degree(s) / Years / Specialization		B.S. / 2001 / Civil Engineering / University of South Florida		
Active registration number / state / expiration date		Professional Engineer: 56950 / Florida / 2/28/2023		
Year registered	2001	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		Roadway Design		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
04/17 – 03/20	<p><b>SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – Florida DOT District 3</b>  <b>Senior Engineer</b> 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. Work includes roadway and drainage design of the intersection, lighting design for the entire project, and design for new 840-foot steel bridge.</p>			
01/15-10/17	<p><b>SR 826/Sunny Isle Twin Bridge Improvements, Sunny Isle, FL – Florida DOT District 6</b>  <b>Roadway Design Lead/Signing and Pavement Marking Engineer of Record</b> 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 American Association of State Highway and Transportation Officials (AASHTO) concrete and steel beams and a double-leaf trunnion bascule span.</p>			
11/16 – 2/19	<p><b>Gateway Express Improvements, Pinellas County, FL – Florida DOT District 7</b>  <b>Project Engineer</b> 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&amp;H’s scope on this design build project includes contributing to FDOT’s Alternative Technical Concepts (ATC) process; 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.</p>			
05/02-10/04	<p><b>I-75/SR 50 Interchange Widening &amp; Bridge Replacement, Hernando County, FL - Florida DOT District 7</b>  <b>Senior Engineer</b> responsible for QA/QC for the traffic control plans for the replacement of twin bridges on I-75 over SR 50. This project widened I-75 from a four- to six-lane facility, including complete interchange reconstruction at SR 50 to a single point urban interchange. The project also included the widening and reconstruction of SR 50 to a six-lane urban typical section constructed using concrete pavement.</p>			

01/14-10/17	<b>Gandy Boulevard Bridge Approaches, Pinellas Count, FL - Florida DOT District 7</b> <b>Senior Engineer</b> responsible for QA/QC for the traffic control plans for the construction of a 2.5-mile-long segment of improved grade-separated lanes to increase capacity on the Gandy Bridge approach using design-build delivery. The project is 2.5 miles long, includes three grade separations and is being delivered substantially under budget with design-build delivery.
09/02-11/04	<b>Thomas B. Manuel Bridge Replacement, Martin County, FL – Florida’s Turnpike Enterprise</b> <b>Project Engineer</b> responsible for design and preparation of traffic control and roadway plans for new bridge construction over the Okeechobee Waterway. This Florida Turnpike project was delivered as a design-build project.
03/02-09/03	<b>CR 545 Bridge Replacement at I-4, Osceola County, FI – Florida DOT District 5</b> <b>Project Engineer</b> responsible for the design and preparation of temporary traffic control plans. This project included design services for a bridge replacement over I-4. Design included the removal of the existing two-lane bridge and the installation of a new bridge.
07/14 – 06/19	<b>Orlando South Ultimate Interchange, Orange County, FL - Florida’s Turnpike Enterprise</b> <b>Deputy Project Manager</b> 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. 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.
01/16-12/17	<b>I-75 (SR 93A) SB Off-Ramp form S of Bypass Canal to EB/WB I-4, Hillsborough County, FL – Florida DOT District 7</b> <b>Project Manager/Engineer of Record</b> responsible for project coordination and oversight. 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.
05/14-05/20	<b>Districtwide Interstate Program Manager, Districtwide, FL - Florida DOT District 7</b> <b>Senior Engineer</b> 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 miles of I-275, I-4, and I-75 and key contributing arterials.
08/15-08/20	<b>Districtwide All Electronic Tolling (AET) Design Services, Districtwide, FL - Florida’s Turnpike Enterprise</b> <b>Senior Engineer</b> assisting with concept development and providing a range of services, including toll siting alternative analysis and preparation of final design plans for AET conversion of Florida’s Turnpike facilities throughout Florida. This project provided for a range of services including concept development, alternatives analysis, and final design for AET conversion of FTE facilities statewide. Tasks included studies for the conversion of 148 miles of the ticket system and the portion of the northern coin system through the Orlando area, both included segments of tolled express lanes. Other tasks included studies of SR 429, SR 417, and SR 528, as well as the final design for the conversion of the Northern Coin System.

## 16. Staff Experience:

Firm employed by: A P S Engineering and Testing, LLC			
Name	Sergio Aviles, P.E.	Years of experience with this firm/employer	9
Title	PRESIDENT	Years of experience with other firm(s)/employer(s)	10
Degree(s) / Years / Specialization		BS Civil Engineering/2001/Geotechnical	
Active registration number / state / expiration date		0033571/ LA / 03-31-2022	
Year registered	2007	Discipline	Civil
Contract role(s) / brief description of responsibilities		Project Manager/Design guidance/Field Crew and lab management – Meets MPR 9	
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 time specified in the applicable MPR(s).		
09/19-06/20	<p><b>Project No. H.004100: I-10 Widening LA 415 to Essen LN-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of 52 deep borings starting at the Washington Exit and ending at the LSU lakes. Along with this drilling and sampling APS will also test for strength and engineering characteristics of the soils with. A total of eight (8) over the water borings and 44 land borings with approximate 1000 Triaxial Compression, Unconsolidated Drained Or Undrained (UU) and Atterberg Limits. Mr. Aviles was the project manager to the Geotechnical Investigations. CMAR project</p>		
08/16-10/19	<p><b>Project No. H.012422: I-10/I-110 Interchange Modification at Terrace Ave-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of six (6) deep borings for the design of the Terrace Ave exit. APS tested for strength and engineering characteristics of the soils with approximate 100 Triaxial Compression, Unconsolidated Drained Or Undrained (UU) and Atterberg Limits by A P S Laboratory. Mr. Aviles was the project manager to the Geotechnical Investigations.</p>		
11/17-2/18	<p><b>Project No. H.013193 US 61 Thompson Creek Bridge Replacement-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of eight (8) deep borings for the replacement bridge at US 61 over Thompson Creek. APS tested for strength and engineering characteristics of the soils. Mr. Aviles was the project manager to the Geotechnical Investigations.</p>		
11/19-Present	<p><b>Project No. H.001352 and H.002273 Comite River Diversion Bridge at LA 67, LA 19 and LA 19 Railroad Bridge LA 67 and LA 19-</b> A P S was selected with the winning team for the design of the diversion CMAR project. A P S will be the Geotechnical designers for the project. Mr. Aviles is the project manager for the project design team. CMAR project</p>		
03/19-05/19	<p><b>Project No. H.001344 US 190 over Bogue Falaya River-</b> A P S was selected with the winning team for the Geotechnical Investigation and Design of the proposed new bridge. A total of 19 deep borings were drilled and tested for the foundation recommendation. Mr. Aviles is the project manager for the project design team.</p>		
12/19-3/20	<p><b>Project No. H.010155 US 90 Railroad Overpass SE of LA 85-</b> A P S was selected with the winning team for the Geotechnical Investigation and Design for the proposed new overpass. A total of six (6) deep borings were drilled and tested for Geotechnical recommendation. Mr. Aviles is the project manager for the project design team.</p>		

02/17-10/17	<p><b>Project No. H.002861 Earhart Expressway/Causeway Boulevard:</b> APS was tasked with developing the LRFD factors for both existing structures and the new elevated sections to connect to Causeway Blvd. Per the task order APS drill and tested 85 borings to 120 feet near the proposed and existing structures. APS engineering staff provides designer with pile tip elevations for five elevated ramps to connect Earhart to Causeway Blvd. Provided boring logs, information on site conditions, site preparation recommendations, and load-length curves. Mr. Aviles is the project manager to the Geotechnical investigations and analysis assigned to help calculating the resistance factors.</p>
07/14-08/14	<p><b>Project No. 700-51-0110: US 90 elevated portion for the future I-49 corridor.</b> APS performed all the preliminary drilling, testing, and CPT for US 90 and Highway 318 Intersection. A total of 46 boring and 11 CPT along with all the testing required by LADOTD. Mr. Aviles was the project manager to the Geotechnical investigations and analysis as assigned for roads and bridges design.</p>
2001-2005	<p>The following lists consist of projects that Mr. Aviles did the design or assisted on the design while at LADOTD. These projects include pile design, slope stability, settlement analysis, and construction services (PDA, CAPWAP, and WEAP).</p> <p><b>ONSYSTEM PROJECTS LIST:</b>  Mr. Aviles served as the staff geotechnical engineer while at the Pavement and Geotechnical Section for the following projects below: Below projects varies from Embank Design, Pile Design, Drilled Shaft design, MSE wall design, and construction supervision. Major projects cost estimated over one million dollars:</p> <p>015-04-0037 LA524-LA123 Route US165, 015-05-0035 LaSalle, 015-07-0044 (Route 165 Cadwell, 276-03-0016 Tangipahoa River Bridge, 3132 Innerloop 427-01-0029, 362-01-0009 Rat Bois, 452-01-0039 I-55 CrossOvers, 742-07- 0098 Susek Drive, Bayou Perrie and Sand Beach Bayou 103-01-0025, Broadway Ave.700-40-0127, Cameron Route La. 27 193-02-0042, Causeway Boulevard interchange Route I-10 450-15-0098, Clayton-Greenville 026-03-0025, Crescent City Connection 283-08-0143(46), Cross Bayou Bridge 090-01-0020, Flannery at Florida 742-17-0008.</p>

## 16. Staff Experience:

Firm employed by A P S Engineering and Testing, LLC				
Name	Sairam Eddanapudi, M.E., P.E.		Years of relevant experience with this employer	9
Title	CHIEF ENGINEER		Years of relevant experience with other employer(s)	8
Degree(s) / Years / Specialization		ME, Civil Engineering, Lamar University, Dec. 2002 BE, Civil Engineering, Sri Venkateswara University, India Aug. 1999		
Active registration number / state / expiration date		0035129/ LA / 03-31-2022		
Year registered	2008	Discipline	Civil	
Contract role(s) / brief description of responsibilities		Laboratory QA Manager- Will be in charge all daily operation of the project/QA/Design Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/19-Present	<b>Project No. H.004100: I-10 Widening LA 415 to Essen LN-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of 52 deep borings starting at the Washington Exit and ending at the LSU lakes. Along with this drilling and sampling APS will also test for strength and engineering characteristics of the soils with. A total of eight (8) over the waterborings and 44 land borings with approximate 1000 Triaxial Compression, Unconsolidated Drained Or Undrained (UU) and Atterberg Limits. Mr. Sai was the project QA to the Geotechnical Investigations. CMAR project			
08/16-10/19	<b>Project No. H.012422: I-110 Interchange Modification at Terrace Ave-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of six (6) deep borings for the design of the Terrace Ave exit. APS tested for strength and engineering characteristics of the soils with approximate 100 Triaxial Compression, Unconsolidated Drained Or Undrained (UU) and Atterberg Limits by A P S Laboratory. Mr. Sai was QA to the Geotechnical Investigations.			
11/17-2/18	<b>Project No. H.013193: US 61 Thompson Creek Bridge Replacement-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of eight (8) deep borings for the replacement bridge at US 61 over Thompson Creek. APS tested for strength and engineering characteristics of the soils. Mr. Sai was QA to the Geotechnical Investigations.			
11/19-Present	<b>Project No. H.001352 and H.002273: Comite River Diversion Bridge at LA 67, LA 19 and LA 19 Railroad Bridge LA 67 and LA 19-</b> A P S was selected with the winning team for the design of the diversion CMAR project. A P S will be the Geotechnical designers for the project. Mr. Sai is the Senior Design Engineer for the project design team.			
03/19-05/19	<b>Project No. H.001344: US 190 over Bogue Falaya River-</b> A P S was selected with the winning team for the Geotechnical Investigation and Design of the proposed new bridge. A total of 19 deep borings were drilled and tested for the foundation recommendation. Mr. Sai is the Senior Design Engineer for the project design.			

## 16. Staff Experience:

Firm employed by A P S Engineering and Testing, LLC				
Name	Mr. Surendra Raj Pathak, M.S., P.E.		Years of relevant experience with this employer	5
Title	STAFF ENGINEER		Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		MSCE (Master of Science in Civil Engineering), Mississippi State University, Starkville, Mississippi, 2013 M. Sc. Master of Science in Civil Engineering, Norwegian University of Science and Technology, Trondheim, Norway, 2007 B.E. (Civil Engineering), Madan Mohan Malaviya University of Technology, India, 1998		
Active registration number / state / expiration date		0043487/ LA / 09-31-2021		
Year registered	2019	Discipline	Civil	
Contract role(s) / brief description of responsibilities		Staff Engineer-Review field logs, lab data, and Design Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/19-Present	<p><b>Project No. H.004100: I-10 Widening LA 415 to Essen LN-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of 52 deep borings starting at the Washington Exit and ending at the LSU lakes. Along with this drilling and sampling APS will also test for strength and engineering characteristics of the soils with. A total of eight (8) over the water borings and 44 land borings with approximate 1000 Triaxial Compression, Unconsolidated Drained Or Undrained (UU) and Atterberg Limits. Mr. Surendra was the project QC to the Geotechnical Investigations.</p>			
08/16-10/19	<p><b>Project No. H.012422: I-110 Interchange Modification at Terrace Ave-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of six (6) deep borings for the design of the Terrace Ave exit. APS tested for strength and engineering characteristics of the soils with approximate 100 Triaxial Compression, Unconsolidated Drained Or Undrained (UU) and Atterberg Limits by A P S Laboratory. Mr. Surendra was QC to the Geotechnical Investigations.</p>			
11/17-2/18	<p><b>Project No. H.013193: US 61 Thompson Creek Bridge Replacement-</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of eight (8) deep borings for the replacement bridge at US 61 over Thompson Creek. APS tested for strength and engineering characteristics of the soils. Mr. Surendra was QC to the Geotechnical Investigations.</p>			
11/17-2/18	<p><b>Project No. H.002273, H.000710, and H.001352 Comite River Diversion Bridge at LA 67, LA 19 and LA 19 Railroad Bridge LA 67 and LA 19:</b> A P S was tasked thru our DOTD geotechnical retainer to drill and sample a total of 12 deep borings for the new and replacement bridges at Highway 19, 67, and 964. APS tested for strength and engineering characteristics of the soils. Mr. Surendra was QC to the Geotechnical Investigations.</p>			

11/19-Present	<p><b>Project No. H.001352 and H.002273: Comite River Diversion Bridge at LA 67, LA 19 and LA 19 Railroad Bridge LA 67 and LA 19-</b> A P S was selected with the winning team for the design of the diversion CMAR project. A P S will be the Geotechnical designers for the project. Mr. Surendra is a design Engineer for the project design team.</p>
03/19-05/19	<p><b>Project No. H.001344: US 190 over Bogue Falaya River-</b> A P S was selected with the winning team for the Geotechnical Investigation and Design of the proposed new bridge. A total of 19 deep borings were drilled and tested for the foundation recommendation. Mr. Surendra is a design Engineer for the project design team.</p>
12/19-3/20	<p><b>Project No. H.010155: US 90 Railroad Overpass SE of LA 85-</b> A P S was selected with the winning team for the Geotechnical Investigation and Design for the proposed new overpass. A total of six (6) deep borings were drilled and tested for Geotechnical recommendation. Mr. Surendra is a design Engineer for the project design team.</p>

## 16. Staff Experience:

Firm employed by Bridge Diagnostics, Inc. (BDI)				
Name	Shane Boone, PHD		Years of relevant experience with this employer	7
Title	Vice President – Nondestructive Evaluation		Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization		PHD / 2008 / Civil Engineering / Utah State University MS / 2005 / Structural Engineering / University of Tennessee BS / 2002 / Civil Engineering / University of Tennessee		
Active registration number / state / expiration date		N/A		
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities		Nondestructive Evaluation, QA/QC and Subject Matter Expert		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
07/16-Present	<p>Dr. Boone has spent more than 20 years in the government, academic, and private sectors of specialized infrastructure inspection and monitoring. He specializes in the research, development and application of nondestructive testing &amp; evaluation technologies and monitoring for civil infrastructure. Previously, Dr. Boone managed NDE programs at the Federal Highway Administration (FHWA) and Oak Ridge National Laboratory. He serves as the chair of the American Society for Nondestructive Testing's Structural Materials Technology Conference, chair of the ASNT Infrastructure Committee, and sits on TRB's Field Testing and NDE of Transportation Structures committee. He is a certified ASNT Level II inspector.</p>			
01/17 - Present	<p><b>Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 440009224)</b> – Dr. Boone is the Subject Matter Expert (SME) for the NDE to determine the unknown foundations of up to 1,900 bridges in Louisiana. The project utilizes multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. To date, thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI has assisted DOTD in FHWA reporting of these items by uploading all reports into AssetWise.</p>			
01/19 - Present	<p><b>IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262)</b> – Dr. Boone is the SME for statewide NDE of structures for DOTD under this contract. Scope items include testing of bridge decks, concrete substructures, steel elements such as welds and pin and hanger assemblies, unknown foundations, tunnels, culverts, and other highway transportation infrastructure. Dr. Boone assists DOTD with identifying proper technologies for application and best methods for analysis and reporting of findings into DOTD's AssetWise.</p>			



11/19 – Present	<b>NDE and Remote Inspection of I-10 over the Bonnet Carre Spillway, LA</b> – BDI is performing NDE of the bridge deck utilizing ground penetrating radar (GPR), deck acoustic response (SounDAR), infrared thermography (IR), and high-resolution imaging (HRI) to determine the deck integrity and NBIS/NBE reporting quantities. In addition, BDI is performing the NBIS inspection of the substructure utilizing remote inspection techniques with drones and other technology to report to FHWA. Dr. Boone is the SME for this inspection.
08/19 – 07/20	<b>NDE of City Park Lake Bridge LA</b> – Dr. Boone was the principal investigator for NDE of the City Park Lake Bridge in Baton Rouge, LA. NDE technologies included ground penetrating radar (GPR), deck acoustic response (DAR), infrared thermography (IR), high-resolution video (HRV). Remote inspection was performed on the substructure utilizing visual inspection and IR.
08/19 – 12/19	<b>NDE of Vicksburg Bridge, LA</b> – Dr. Boone was the principal investigator for NDE of the Vicksburg Bridge carrying I-20 over the Mississippi River near Vicksburg, MS. NDE technologies included ground penetrating radar (GPR), deck acoustic response (DAR), infrared thermography (IR), high-resolution video (HRV).
11/19 – 02/20	<b>Ultrasonic Testing of the US1 Simmesport Bridge, LA</b> – BDI performed inspection of 4 pins of the US1 bridge that carries US1 over the Atchafalaya River near Simmesport, LA. BDI utilized ASNT certified inspectors to perform ultrasonic testing (UT) and magnetic particle testing (MT) to determine their integrity. Dr. Boone was the SME for this inspection.
08/19 – 12/21	<b>US Army Corps Evaluation of Advanced Weld Inspection Methods</b> – As USACE's ongoing want to improve inspection techniques, BDI was awarded a Task Order under its IDIQ to identify and determine best practices for steel weld inspection utilizing advanced ultrasonic testing (UT) methods such as phased array ultrasonic testing (PAUT) and total focus method / full matrix capture (TFM/FMC). These advanced methods improve the reliability and repeatability of weld inspection and flaw sizing for fitness for service level analysis. Dr. Boone was the subject matter expert for this project and helped develop the testing means and methods that were performed on eight lab samples and four comprehensive in-field bridge weld inspections. Based on these findings, USACE expanded the scope to scan further areas of concern on one of the bridges.

## 16. Staff Experience:

Firm employed by Bridge Diagnostics, Inc. (BDI)				
Name	Brett Commander, PE		Years of relevant experience with this employer	32
Title	Vice President / Principal Engineer		Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization		MS / 1989 / Structural Engineering / University of Colorado BS / 1986 / Civil Engineering / University of Colorado		
Active registration number / state / expiration date		Professional Engineer: 35864 / LA / 3/31/2023		
Year registered	2010	Discipline	Civil Engineer	
Contract role(s) / brief description of responsibilities		QA/QC, Principal Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
10/89-Present	Mr. Commander has more than 30 years of experience with testing, monitoring, and evaluating measured structural responses on over 1,000 structures. He has performed/oversaw complete structural analyses and load ratings on over 500 highway and railway bridges using a variety of design codes such as AASHTO and AREMA, and many state-specific codes including Louisiana specifications. Mr. Commander also has designed/oversaw capacity testing projects of concrete and steel structures using various NDE techniques as well as implemented hundreds of structural monitoring systems.			
11/12 – Present	<b>US-90 Bayou Ramos Bridge Load Testing and Monitoring, LA</b> – Due to unexpected cracking in PS concrete AASHTO beams, BDI performed load tests and load ratings to determine cause and effect of cracks in continuous multi-span PS/C girders. Load ratings were completed according to DOTD specifications. After the completion of the initial evaluation, monitoring systems were installed on the structure to monitor the state of two sections of structure. Structural Health Monitoring is still ongoing. As technical advisor/principal engineer, Mr. Commander oversaw live-load and thermal load monitoring that was performed during and after repairs to evaluate the performance of retrofit.			
11/04 – 12/04 11/11 – Present	<b>Bonnet Carre Spillway Load Testing, Rating, and Monitoring, LA</b> –BDI used its Integrated Approach to determine if a 500-ton load could cross the bridge safely. BDI then installed an event-based monitoring system that helps DOTD capture weigh-in-motion data, strains induced by heavy loads, and photos of heavy load. Health Monitoring is still ongoing. Over multiple contracts, Mr. Commander was the principal-in-charge on this project in its many phases which included responsibilities such as testing program oversight, structural analysis, load rating of structure for atypical load configurations, on-site data interpretation, report creation and submittal, and providing recommendations for future crossings.			

07/21 – Present	<p><b>NDE of the Whiskey Bay and Piot Channel Bridge Decks, LA</b> – NDE of 3.5M sf of bridge deck on the structure carrying I-10 over the Atchafalaya Basin between Baton Rouge and Lafayette, LA. Testing included IR/HRI, CWSF GPR and SounDAR from BDI's mobile NDE testing van. IR/HRI bridge deck data was also collected via drone. BDI also performed substructure inspection to satisfy LADOTD's NBI requirements of the structure with IR/HRI via drone. The data will be used to quantify and locate areas for repair and preservation, and to report NBE and NBI data to FHWA. Mr. Commander is providing QA/QC and PE Review.</p>
07/19 – 01/20	<p><b>St. Claude Lift Bridge Balance and Operation Testing, LA</b> – Mr. Commander was project principal engineer responsible for counterweight/span balance and friction calculations as well as structural performance evaluation on a double heal trunnion Strauss Bascule Bridge. Strain gauge testing and various instrumentation tasks were performed during investigation of a bearing failure on the span to counterweight link including strain gage testing on the link frame as well as on counterweight balance procedures.</p>
06/14 – Present	<p><b>Phinney Avenue Bridge Load Testing, Rating and NDE, WA</b> – As part of BDI's SDOT On-Call, BDI was contracted by Seattle DOT to perform diagnostic load tests and structural reinforcement investigation on the Phinney Ave bridge in Seattle, WA. Instrumentation, load tests, and reinforcement investigation were performed with the overall goal of these tests was to better understand the structures' load distribution, reinforcement details, and in turn provide refined load ratings. Mr. Commander acted as the principal engineer and oversaw testing plan development, field-verified model calibration, load ratings performed according to SDOT/WSDOT specifications, and reporting.</p>
08/18 – 12/20	<p><b>Live Load Testing and Field-Verified Load Rating of 16 Bridges, VA</b> – As part of BDI's VDOT On-Call, BDI provided load testing and field-verified load rating of 16 structures in the Fredericksburg and Richmond districts of VDOT. BDI was responsible for the design of load testing requirements, development of instrumentation plans, execution of field work and load testing, data analysis, finite element (FE) model creation and calibration, and eventual load rating per VDOT and AASHTO requirements. Mr. Commander acted as principal engineer and subject matter expert for this project and responsibilities included overseeing testing program development.</p>

## 16. Staff Experience:

Firm employed by Bridge Diagnostics, Inc. (BDI)				
Name	Jesse Sipple, PHD, PE		Years of relevant experience with this employer	8
Title	Testing, Monitoring, and Engineering Program Manager		Years of relevant experience with other employer(s)	9
Degree(s) / Years / Specialization		PHD, Civil Engineering, Tufts University, 2013 MS, Civil Engineering, University of New Hampshire, 2008 BS, Civil Engineering, University of New Hampshire, 2007		
Active registration number / state / expiration date		#41028 / Louisiana / 03/31/2023		
Year registered	2016	Discipline	Civil Engineer	
Contract role(s) / brief description of responsibilities		Testing, Monitoring, and Engineering Manager		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
01/14-Present	Dr. Sipple oversees the testing, monitoring, engineering, and on-going monitoring groups of BDI's Services. The projects performed by these groups range from large SHM systems on signature structures, complex testing and analysis of constructed systems, and maintenance and support of in-service systems. In addition to managerial oversight, Dr. Sipple also oversees the quality control aspects of these projects.			
11/21-Present	<b>Off-System Bridge Ratings and Evaluation, LA (Contract 4400010099)</b> – BDI is performing live-load testing of ten bridges throughout the state of Louisiana, including seven culvert and three reinforced concrete bridges of varying types to provide realistic load rating results for those structures. The process includes developing instrumentation plans, instrumenting, load testing, and load rating each bridge. Load rating reports will be provided for each of the load tested structures. Dr. Sipple is an analysis engineer and reviewer for this project.			
07/18–09/18	<b>Collier County Bridge Load Testing, FL</b> – BDI performed diagnostic load tests on the FDOT Bridge 034190 which spans over a small drainage ditch in a residential area in Immokalee, Florida. The overall goal of these tests was to better understand the structure's transverse distribution, provide refined load ratings, and reevaluate the current posting levels. Load tests were performed, and the collected structural responses were used to generate a field-verified finite-element model (FEM). This field-verified FEM was then used to compute refined load ratings. Dr. Sipple acted as project manager for this project.			
06/18–03/19	<b>Phinney Avenue Bridge Load Rating and NDE, WA</b> – BDI was contracted by SDOT to perform diagnostic load tests and structural reinforcement investigation on the Phinney Ave bridge that spans over North 57th St in Seattle, WA. Instrumentation, load tests, and reinforcement investigation were performed with the overall goal of these tests was to better understand the structures' load distribution, reinforcement details, and in turn provide refined load ratings. Dr. Sipple acted as the project manager for this project.			
07/19–12/19	<b>St. Claude Lift Bridge Balance and Operation Testing, LA</b> – Dr. Sipple was the quality control manager for counterweight/span balance and friction calculations as well as structural performance evaluation on a double heal trunnion Strauss Bascule Bridge. Strain gauge testing and various instrumentation tasks were performed during investigation of a bearing failure on the span to counterweight link.			

08/18-12/20	<b>Live Load Testing and Field-Verified Load Rating of 16 Bridges, VA</b> – BDI provided load testing and field-verified load rating of 16 structures in the Fredericksburg and Richmond districts of VDOT. BDI was responsible for the design of load testing requirements, development of instrumentation plans, execution of field work and load testing, data analysis, finite element (FE) model creation and calibration, and eventual load rating per VDOT and AASHTO requirements. Dr. Sipple acted as quality control manager for this project.
04/18-10/19	<b>Sunshine Truss Emergency Monitoring, LA</b> - In 2018, the Sunshine Truss Bridge was struck by a crane barge, significantly damaging a bottom chord member. As part of the Modjeski and Masters response team, BDI installed a laser displacement sensor within 48 hours of the event to monitor the behavior of the damage member. Once a monitoring plan was developed and approved by the team, BDI installed strain gages along nearby chord members that were used to evaluate the state of the structure before, during and after the replacement of the damaged bottom chord member. Dr. Sipple acted as project manager responsible for monitoring plan development and project oversight.
02/20-12/20	<b>LA507 Over I-20 ABC Span Move Monitoring, LA</b> - During the replacement of this bridge, accelerated bridge construction was utilized where spans were cast nearby and moved into place during short outages. Dr. Sipple was a field/analysis engineer responsible for monitoring plan implementation, instrumentation, monitoring during span moves, on-site data interpretation, and data processing and reporting.
01/22-Present	<b>Varina-Enon Bridge Structural Health Monitoring, VA</b> – Virginia Department of Transportation contracted BDI to provide a comprehensive structural health monitoring (SHM) system on the Varina-Enon bridge. The project includes the design, installation, and operation of the SHM system. Dr. Sipple is a senior engineer contributing to system design, architecture, and installation support in his current capacity on this project.

## 16. Staff Experience:

Firm employed by Bridge Diagnostics, Inc. (BDI)				
Name	Charles Young, PE		Years of relevant experience with this employer	4
Title	Nondestructive Evaluation Program Manager		Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		MS / 2017 / Structural Engineering / Drexel University BS / 2012 / Architectural Engineering / Drexel University		
Active registration number / state / expiration date		Professional Engineer: 42773 / LA / 3/31/2023		
Year registered	2018	Discipline	Civil Engineer	
Contract role(s) / brief description of responsibilities		Nondestructive Evaluation Project Manager and Engineer		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
05/18-Present	Mr. Young has 11 years of experience in nondestructive evaluation and testing (NDE/NDT), and structural monitoring and testing. BDI, Mr. Young is responsible for project management, analysis, and field services related to NDT of civil infrastructure. He works closely with a multifaceted group of engineers and technicians to perform NDE on bridges, dams, culverts, pavements, and other civil infrastructures. Mr. Young is heavily involved in testing and instrumentation of existing structures using NDE methods (acoustic, ultrasonic, electromagnetic, and electrochemical), performing dynamic and digital signal processing and analysis, and numerical and finite element modelling of complex structures.			
05/18 – 12/21	<b>Nondestructive Evaluation of Unknown Bridge Foundations, LA</b> – This project aims at performing NDE of more than 500 bridges in the state of Louisiana to determine the unknown or undocumented depths of bridge foundation piles. A proofing step was performed on six bridges to estimate the depth of timber, concrete, and steel piles. Multiple BDI testing and analysis methods including Sonic Echo/Impulse Response (SE/IR), Ultraseismic (US), and Parallel Seismic Survey (PSS) were utilized. Mr. Young was the project manager.			
10/18 – 08/19	<b>Sunshine Truss Emergency Monitoring, LA</b> – In 2018, the Sunshine Truss Bridge was struck by a crane barge, significantly damaging a bottom chord member. As part of the M&M response team, BDI quickly deployed a laser displacement sensor to monitor the behavior of the damage member. Once a monitoring plan was developed and approved by the team, BDI installed strain gages on nearby chord members that were used to evaluate the state of the structure before, during and after the replacement of the damaged bottom chord member. Mr. Young acted as an installation technician, and site supervisor for this project.			
01/19 - Present	<b>Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA</b> – This project involves an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted nondestructive evaluation techniques at various critical portions of the structure. This work			

	was performed under an IDIQ Contract for Non-destructive Evaluation of Structures for DOTD. Also included were supplemental inspection access techniques including unmanned aerial systems (UAS). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Mr. Young is the project engineer and lead bridge inspector for this project.
08/19 – 07/20	<b>City Park Lake Bridge Inspection and Nondestructive Evaluation, LA</b> –NHI routine inspection of the City Park Lake Bridge and targeted nondestructive evaluation. This work was performed under an IDIQ Contract for Non-destructive Evaluation of Structures for DOTD. Nondestructive evaluation included a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Also included in the nondestructive evaluation is Infrared Thermography of the superstructure and substructure of the bridge. Mr. Young was the project manager.
08/19-12-21	<b>US Army Corps Evaluation of Advanced Weld Inspection Methods</b> – As USACE’s ongoing want to improve inspection techniques, BDI was awarded a Task Order under its IDIQ to identify and determine best practices for steel weld inspection utilizing advanced ultrasonic testing (UT) methods such as phased array ultrasonic testing (PAUT) and total focus method / full matrix capture (TFM/FMC). These advanced methods improve the reliability and repeatability of weld inspection and flaw sizing for fitness for service level analysis. Mr. Young helped develop the testing means and methods that were performed on eight lab samples and four comprehensive in-field bridge weld inspections. Based on these findings, USACE expanded the scope to scan further areas of concern on one of the bridges.
06/20-09/20	<b>West Seattle High Bridge, WA</b> – BDI was contracted by Seattle DOT to provide a nondestructive testing and structural health monitoring program to help evaluate performance of the structure during first phase of retrofitted internal post-tensioning. The monitoring program helped the Seattle DOT make decisions and resulted in the next phase of strengthening to open the bridge by 2022. Mr. Young acted as the Task Order Manager and Lead Field Engineer for this project.

## 16. Staff Experience:

Firm employed by Bridge Diagnostics, Inc. (BDI)				
Name	Brice Carpenter, PE		Years of relevant experience with this employer	13
Title	Senior Engineer / Engineering Department Lead		Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		MS / 2009 / Civil Engineering / New Mexico State University BS / 2007 / Structural Engineering / New Mexico State University		
Active registration number / state / expiration date		Professional Engineer: 39341 / LA / 3/31/2023		
Year registered	2014	Discipline	Civil Engineer	
Contract role(s) / brief description of responsibilities		Senior Engineer / Engineering Department Lead		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
07/09-Present	During his tenure and more than 250 bridges tested and load rated using advanced techniques, Mr. Carpenter has become BDI's Engineering Lead responsible for testing plan oversight, data processing and investigation, structural analysis, load rating, and reporting. Mr. Carpenter has been involved with the testing, monitoring, and evaluation of hundreds of structures of various types (steel, reinforced concrete, prestressed concrete, in simple to complex geometry and configurations) using a variety of design codes such as AASHTO, AREMA, and many state-specific codes including Louisiana specifications. Mr. Carpenter also has years of experience in capacity testing of concrete and steel structures using various NDE techniques.			
11/12-Present	<b>US-90 Bayou Ramos Bridge Load Testing &amp; Monitoring, LA</b> – Due to unexpected cracking in PS concrete beams, BDI performed load tests and load ratings to determine cause and effect of cracks in continuous PS/C girders. After the initial evaluation, monitoring systems were installed on the structure to monitor two sections of structure. Health Monitoring is still ongoing. As lead analysis engineer, Mr. Carpenter performed field-verified load ratings and acts as the project engineer for monitoring system maintenance and troubleshooting.			
11/11-Present	<b>Bonnet Carre Spillway Load Testing and Monitoring, LA</b> – In 2004, BDI used its Integrated Approach to determine if a 500-ton load could cross the bridge safely. Based on provided configurations, BDI determined the “superload” could cross with stresses below its serviceability limit. In 2011, BDI installed an event-based monitoring system that helps DOTD capture weigh-in-motion data, strains induced by heavy loads, and photos of heavy load. Mr. Carpenter performed superload load ratings and reporting for DOTD and currently acts as the project engineer for monitoring support to DOTD.			
07/19–12/19	<b>St. Claude Lift Bridge Balance and Operation Testing, LA</b> – Project engineer and field/analysis engineer responsible for counterweight/span balance and friction calculations, and structural performance evaluation on a double heal trunnion Strauss Bascule			



	Bridge. Strain gauge testing and various instrumentation tasks were performed during investigation of a bearing failure on the span to counterweight link.
08/16-05/17	<b>Live Load Testing of Eight Culverts and Testing, LA</b> – BDI worked in coordination with LSU, LTRC, and DOTD to perform comprehensive diagnostic live-load tests that allowed these structures to be better evaluated based on induced live-load effects, observed distribution, and general fixity at the culvert walls. BDI manufactured the structural testing system used for this testing based on LSU's specifications and needs. Mr. Carpenter acted as a project and testing engineer on this project.
07/09-11/12	<b>Load Testing and Rating of 35 Rhode Island Bridges, RI</b> – BDI performed field testing on 35 bridges located throughout the state of Rhode Island. For all of the structures, BDI collected and reviewed the strain, displacement, and NDE (GPR) data and provided it directly to AECOM for evaluation. For select bridges, BDI also used the field data to calibrate finite element models and develop accurate load ratings using the AASHTO Manual of Bridge Evaluation. Mr. Carpenter acted as analysis and rating engineer responsible for data processing and review, structural analysis, load rating, and reporting.
11/20-06/21	<b>Terminal 5 Bridge Load Testing and Rating, WA</b> –Terminal 5 bridge is used by heavy truck traffic to and from the Port of Seattle, WA. As part of BDI's SDOT On-call, instrumentation and load tests were performed on PSC beam and steel girder spans (curved and straight) with the overall goal of to better understand the structures' load distribution and behavior and in turn provide refined load ratings. Mr. Carpenter acted as the lead analysis/rating engineer responsible for data processing, model calibration, and load ratings and reporting according to SDOT/WSDOT specifications.
05/15 – 10/15 02/18 – 08/18	<b>Truss Monitoring on US 84 Over the Mississippi River, MS</b> – During the pin replacements on the Natchez cantilever truss over the Mississippi River, BDI performed Structural Health Monitoring (SHM) on the critical truss members and temporary load path systems during pre, during, and post construction. Mr. Carpenter acted as project field and analysis engineer in charge field prep, field installation, data analysis and reporting.

## 16. Staff Experience:

Firm employed by Gaea Consultants, LLC			
Name	Tonja Koob Marking, PhD, PE, D.WRE, DFE, MBA, PMP, CFM, LEED AP, F.ASCE		Years of relevant experience with this employer 23
Title	President		Years of relevant experience with other employer(s) 7
Degree(s) / Years / Specialization		PhD/est'd 2028/History MA/2020/History MBA/2010/Finance PhD/2002/Civil and Hydraulic Engineering ME/1996/Environmental Engineering MSPH/1993/Environmental Toxicology and Risk Assessment BA/1990/Biology	
Active registration number / state / expiration date		PE #30749/LA/2023 add'l licensure in IN, TX, AL, MS	
Year registered	2003	Discipline	Environmental
Contract role(s) / brief description of responsibilities		Environmental Professional/Engineer; environmental services, permitting	
Additional Certifications		Certified Floodplain Manager since 2010 LEED Accredited Professional since 2009 Diplomate, Water Resources Engineer #000766 since 2020 Diplomate, Forensic Engineer #1152S since 2020 Project Management Professional since 2020	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).		
12/20-present	<b>Almonaster Bridge Rehabilitation</b> —directed and wrote Categorical Exclusion NEPA document, coordinated with state and federal agencies for USACE Section 10/404, LDNR for CUP, USGS for bridge, Levee Board permits		
09/21-present	<b>Orpheum Levee Pave</b> —directed drainage study; coordinated with federal and state agencies for DNR CUP, USACE 10/404, and Levee Board permits		
06/12-01/15	<b>Belle Chasse Tunnel-Bridge</b> —directed and wrote Phase I Environmental Site Assessment; directed Traffic Count field work for Environmental Assessment		

07/14-12/16	<b>MSY Airport Environmental Assessment</b> —directed and wrote multiple sections of Environmental Assessment including Threatened and Endangered Species Survey, wetlands determination, floodplain encroachment
02/14-09-19	<b>Livingston and Schwartz Schools</b> —designed demolition plans for RSD schools; secured permits for demolition and debris removal; managed demolition contractor
02/17-08/17	<b>NDRC Grant</b> —performed preliminary environmental review for 20 project for grant application including historic preservation, floodplain management, coastal zone management, wild and scenic rivers
01/17-09/17	<b>Children's Museum 404 Permit</b> —successfully obtained USACE 404/10 permit for new Children's Museum in City Park
06/17-06/19	<b>Non-Rock Alternative Shoreline Protection</b> —prepared Environmental Consideration Report; secured Coastal Use Permit
04/20-09/20	<b>USACE Barge Debris Removal</b> —investigated channel debris for hazardous substances; coordinated with USACE and solid waste contractor for proper disposal; coordinated with DOTD for debris manifests

## 16. Staff Experience:

Firm employed by Gaea Consultants, LLC				
Name	Lauren Peytavin, EI		Years of relevant experience with this employer	5
Title	Environmental Professional		Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		Master's Certificate/2021/Coastal Engineering BS/2018/Civil Engineering BA/1990/Biomedical Science		
Active registration number / state / expiration date		EI#003372/Louisiana/2022		
Year registered	2018	Discipline	Civil	
Contract role(s) / brief description of responsibilities		Environmental Professional; environmental services, permitting		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/21-present	<b>Orpheum Levee Pave</b> —conducted drainage study; designed levee pavement; coordinated with federal and state agencies for DNR CUP, USACE 10/404, and Levee Board permits			
12/20-present	<b>Almonaster Bridge Rehabilitation</b> —conducted field investigations for the Categorical Exclusion NEPA document and Phase I Environmental Site Assessment; coordinated with state and federal agencies for USACE Section 10/404, LDNR for CUP, USGS for bridge, Levee Board permits			
01/18-12/18	<b>Environmental Record Review and Phase I Environmental Site Assessment</b> —conducted the peer review of the Environmental Record Review and Phase I documents for multiple projects for the New Orleans Redevelopment Authority, including reporting standards, practices, as well as technical content			
01/19-01/20	<b>Permit Analyses for Privately-Owned Properties</b> —researched current and historic permits from state and federal agencies in support of litigation; reviewed LPDES, well, storage tank, CUP, and USACE 404/10 permits for consistency with current activities; advised clients of non-compliant activities			
03/21-present	<b>RR020 Bywater-Marigny Recovery Roads</b> —coordinated with New Orleans Public Belt Railroad and Southeast Louisiana Flood Protection Authority East to obtain permits for the City of New Orleans and its contractor to perform street repairs; ensured contractor maintained compliance with permitted activities, particularly during high water events on the Mississippi River			

## 16. Staff Experience:

Firm employed by KTA-Tator, Inc.			
Name	Robert S. Lanterman	Years of relevant experience with this employer	15
Title	Coatings Consultant	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		B.E./1999/Chemical Engineering/Youngstown (OH) State University	
Active registration number / state / expiration date		SSPC Certified Protective Coatings Specialist (#2015-820-1360, expiration 12/31/2023 NACE Certified Coatings Inspector Level 3 (#135050, expiration 05/23/2025)	
Year registered		Discipline	
Contract role(s) / brief description of responsibilities		Coatings Consultant – coating condition assessment and sampling services	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).		
09/21 – Present	<b>IWGO Bridge, Baton Rouge, LA – Louisiana DOTD</b> <b>Coatings Consultant</b> performing a coating condition assessment (visual examination, coating thickness and adhesion measurements, substrate examination and coating sample procurement), and assisting with the development surface preparation, coating application, and environmental/worker protection and containment specifications/drawing notes for the rehabilitation of this bridge. KTA is a subconsultant to another engineering firm.		
07/20 – 08/20	<b>Denison Harvard Bridge, Cleveland, OH - Cuyahoga County (OH) Department of Public Works</b> <b>Coatings Consultant</b> for the coating condition assessment supervision of coatings laboratory testing, development of a maintenance painting strategy and recommendations, and development of an opinion of probable costs for the maintenance painting of this bridge. KTA was a subconsultant to another engineering firm.		
02/20 – 05/20	<b>Jackson Street (Red River) Lift Bridge, Alexandria, LA – Louisiana DOTD</b> <b>Coatings Consultant</b> for the coating condition assessment, supervision of coatings laboratory testing, and report preparation for the rehabilitation of the coating system on this bridge. KTA was a subconsultant to another engineering firm.		
02/18 – 06/19	<b>Walt Whitman Bridge NJ Approach Spans, Gloucester, NJ – Delaware River Port Authority</b> <b>Coatings Consultant/Project Engineer</b> for this project involving a coating condition assessment of the approach spans to develop future maintenance painting strategies for the structures. KTA also conducted a Relative Risk Characterization that focused on the impacts to the environment, the public, and adjacent workers resulting from the proposed surface preparation activities (removal of lead-based paint). KTA was a subconsultant to another engineering firm.		
10/18 – 03/19	<b>Kootenay River Bridge, Creston, BC, Canada – British Columbia Ministry of Transportation</b>		

	<b>Coatings Consultant</b> for the coating condition assessment, supervision of coatings laboratory testing, and preparation of a report with recommendations for the rehabilitation of the coating system on this bridge. KTA was a subconsultant to another engineering firm.
09/18 – 12/18	<b>Argentia Newfoundland Ferry Dock Transfer Bridge, Newfoundland, Canada – Port of Argentia DOT</b> <b>Coatings Consultant</b> for the coating condition assessment, supervision of coatings laboratory testing, and development of recommendations for future maintenance painting of the structural steel end span of this bridge. KTA was a subconsultant to another engineering firm.
07/17 – Present	<b>Benjamin Franklin Bridge, Philadelphia, PA – Delaware River Port Authority</b> <b>Coatings Consultant/Project Engineer</b> for the coating condition assessment of the bridge to develop a future maintenance painting strategy. Additional services include providing contractor containment and paint submittal review services for the maintenance painting and steel repair work on this bridge. KTA is/was a subconsultant to another engineering firm.
03/17 – 05/17	<b>US 90 Morgan City Bridge and Nearby Structures, Morgan City, LA – Louisiana DOTD</b> <b>Coatings Consultant</b> for the coating condition assessment, supervision of coatings laboratory testing, and report preparation with recommendations for the rehabilitation of the coating system on this bridge. KTA was a subconsultant to another engineering firm.
02/17 – 03/17	<b>I-310 Luling Bridge, Luling, LA – Louisiana DOTD</b> <b>Coatings Consultant</b> for the coating condition assessment of the weathering steel towers and girders, and preparation of a report detailing the conditions found and providing recommendations for the remediation of the corrosion problems on this bridge. KTA was a subconsultant to another engineering firm.

## 16. Staff Experience:

Firm employed by KTA-Tator, Inc.			
Name	Greg R. Richards	Years of relevant experience with this employer	24
Title	Coatings Consultant	Years of relevant experience with other employer(s)	20
Degree(s) / Years / Specialization			
Active registration number / state / expiration date		SSPC Certified Protective Coatings Specialist (#2019-809-300), expiration 12/31/2023 NACE Certified Coatings Inspector Level 3 (#6092), expiration 6/30/2023	
Year registered		Discipline	
Contract role(s) / brief description of responsibilities		Coatings Consultant – coating condition assessment and sampling services	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).		
01/22 – 03/22	<b>SR105 at Haulover Creek (Bridge No. 720063) – Florida Department of Transportation</b> <b>Coatings Consultant</b> for project management, coating condition assessment (visual examination, coating thickness and adhesion measurements, substrate examination, and coating sample procurement), supervision of coatings laboratory testing, and preparation of the report detailing the results of the field and laboratory investigations and providing recommendations for the rehabilitation of the coating system on various areas of this bridge. KTA was a subconsultant to another engineering firm.		
07/21 – 10/21	<b>US 98 over St. Andrews Bay, Bay County, FL – Florida DOT</b> <b>Coatings Consultant</b> for project management, coating condition assessment, supervision of coatings laboratory testing, and preparation of the report detailing the results of the field and laboratory investigations and providing recommendations for the rehabilitation of the coating system on various areas of this bridge. KTA was a subconsultant to another engineering firm.		
01/20 – 05/20	<b>Johns Pass Bridges NB and SB on SR 699, Pinellas County, FL – Florida DOT</b> <b>Coatings Consultant</b> for project management, coating condition assessment, supervision of coatings laboratory testing, and preparation of the report detailing the results of the field and laboratory investigations and providing recommendations for the rehabilitation of the coating system on these dual leaf bascule bridges over Boca Ciega Bay. KTA was a subconsultant to another engineering firm.		
02/19 – 05/19	<b>Ramp from I-4 EB to I-75 NB over I-4, Hillsborough County, FL – Florida DOT</b> <b>Coatings Consultant</b> for project management, coating condition assessment, supervision of coatings laboratory testing, and assistance with report preparation for the rehabilitation of the coating system on this structure. KTA was a subconsultant to another engineering firm.		

03/18 – 06/18	<b>Plant Avenue Bridge, Tampa, FL – City of Tampa, FL</b> Coatings Consultant for project management, coating condition assessment, supervision of coatings laboratory testing, and assistance with report preparation for the rehabilitation of the coating system on this bridge. KTA was a subconsultant to another engineering firm.
03/18 – 06/18	<b>Brerein Street Bascule Bridge, Tampa, FL – City of Tampa, FL</b> Coatings Consultant for project management, coating condition assessment, supervision of coatings laboratory testing, assistance with report preparation, and development of the technical (paint) specifications for the rehabilitation of the coating system on this bridge. KTA was a subconsultant to another engineering firm.
06/17 – 07/17	<b>Longboat Key Pass Bridge, Manatee County, FL – Florida DOT</b> Coatings Consultant for project management, coating condition assessment, supervision of coatings laboratory testing, assistance with report preparation, and development of the Plan Notes for the rehabilitation of the coating system on this bascule bridge. KTA was a subconsultant to another engineering firm.
03/17 – 03/17	<b>Dale Earnhardt Memorial Pedestrian Bridge, Daytona Beach, FL – Daytona International Speedway</b> Coatings Consultant for project management, supervision of coatings laboratory testing, and preparation of Plan Notes for the spot painting of this bridge. KTA was a subconsultant to another engineering firm.
02/17 – 05/17	<b>Six Bridges in Pensacola FL – Florida DOT</b> Coatings Consultant for project management, attendance at the pre-construction meeting, and review/ comments on the painting contractor's QC plan and other coatings-related submittals as required by the FDOT specification for the rehabilitation of the coating system on these bridges. KTA was a subconsultant to another engineering firm.
02/16 – 06/16	<b>Circus Bascule Bridges, Sarasota County, FL – Florida DOT</b> Coatings Consultant for project management, coating condition assessment, supervision of coatings laboratory testing, assistance with report preparation, and development of the Plan Notes for the rehabilitation of the coating system on these bridges. KTA was a subconsultant to another engineering firm.




## 16. Staff Experience:


Firm employed by KTA-Tator, Inc.			
Name	Pedro M. Sanchez	Years of relevant experience with this employer	3
Title	Coatings Consultant	Years of relevant experience with other employer(s)	9
Degree(s) / Years / Specialization		B.S./1991/Civil Engineering/University of Zulia, Maracaibo, Venezuela	
Active registration number / state / expiration date		SSPC Certified Protective Coatings Specialist (#2020-320-303), expiration 12/31/2024 NACE Coatings Inspector CIP Level 2 (#19657), expiration 5/31/2022	
Year registered		Discipline	
Contract role(s) / brief description of responsibilities		Coatings Consultant – coating condition assessment and sampling services	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).		
09/18 – Present	<b>Coatings Consultant/Project Engineer – Various Clients</b> Mr. Sanchez conducts coating condition assessments on various structures (bridges, storage tanks, pipelines, tank farms, etc.); analyzes data and develops maintenance strategies based on information from the KTA Coating Assessment and Painting Priority (CAPP®) computer software program; develops opinions of probable costs based on one or more coating system maintenance strategies, performs independent investigations of coating failures; enhances KTA’s industry presence through committee participation, preparation of technical papers, and delivery of presentations at conferences and symposia.		
01/22 – 03/22	<b>SR105 at Haulover Creek (Bridge No. 720063) – Florida Department of Transportation</b> <b>Coatings Consultant</b> for a coating condition assessment on this bridge located in Duval County, FL. Mr. Sanchez assisted with the assessment and with the preparation of the client report which provided a discussion of the field and laboratory investigations along with recommendations of the rehabilitation of the coating systems present on these structures. KTA was a subconsultant to another engineering firm.		
03/21 – 05/21	<b>Channel Islands ANG Base, Oxnard, CA and Randolph Air Force Base, TX</b> <b>Coatings Consultant</b> for coating condition assessments on various structures at these military bases. KTA was a subconsultant to another engineering firm.		
02/21 – 03/21	<b>Canal Lock Gates, Panama Canal</b> <b>Coatings Consultant</b> providing assistance with a full coating survey/condition assessment related to the 2016 expansion project of the Panama Canal. The survey/assessment involved evaluating the amount of corrosion and condition of the coating systems on 16 canal lock gates across the length of the Canal. KTA was a subconsultant to another engineering firm.		

10/20 – 02/21	<p><b>Joint Base Pearl Harbor-Hickman, Oahu, HI</b>  <b>Coatings Consultant</b> for coating condition/corrosion assessment on the exterior surfaces of pipelines and other items in various locations at this military base and provided recommendations for appropriate maintenance painting strategies. KTA was a subconsultant to another engineering firm.</p>
10/19 – 03/20	<p><b>Andrews Avenue Bascule Bridge, Ft. Lauderdale, FL – Broward County, FL</b>  <b>Coatings Inspector</b> for full-time QA inspection services during the surface preparation and coating application operations for the repainting project on this bridge. KTA was a subconsultant to another engineering firm.</p>
03/19 – 08/19	<p><b>Hard Rock Stadium, Miami Gardens, FL</b>  <b>Coatings Inspector</b> for full-time QA inspection services during the surface preparation and coating application operations for the repainting project on this stadium. KTA was a subconsultant to another engineering firm..</p>
07/07 – 12/16	<p><b>Employee of Belzona, Inc., Miami, FL</b>  <b>Regional Manager for Latin America – Technical Service and Business Development</b></p> <ul style="list-style-type: none"> <li>• Developed strategic framework for the operating businesses and oversaw implementation of business objectives. Conducted extensive market research: industry per country, competitive analysis, and income potential</li> <li>• Investigated coating failures: deionized tank coatings in a brewery (Venezuela) and discoloration of an airplane hangar concrete floor coating (Columbia)</li> <li>• Wrote various specifications, including Latin American water/waste water plants and various oil/gas clients in Brazil, Mexico, and Venezuela</li> <li>• Developed and instructed various training courses (in Spanish and English) for coating inspection and coating product selection, both in-person and via webinars</li> <li>• Promoted and created new markets with product offerings across the North and South American distribution network. Industrial markets include transportation, oil/gas, power generation, potable water, and wastewater facilities.</li> </ul>


## 16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	Chace Hulon, PE, ADCI	Years of relevant experience with this employer	8
	Title	Program Manager and NBIS Team Leader	Years of relevant experience with other employer(s)	9
Degree(s) / Years / Specialization		BS / 2005 / Civil Engineering / Norwich University, Vermont		
Active registration number / state / expiration date		Professional Engineer: 39701 / LA / Exp. 09/30/23		
Year registered	2009	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		NBIS Team Leader/ ADCI-certified Dive Supervisor / SPRAT Rope Access Technician		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
11/19 – Present	<p><b>LADOTD IDIQ for In-Depth Inspection of Complex Bridges, Statewide, Louisiana.</b> MN Project Manager and Team Leader for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspections of both cable-stayed bridges in Louisiana (Audubon and Luling) with rope access techniques to inspect a total of 208 cables between the two bridges, their Gensui Dampers, and anchorages. Performed the inspection of the I-10 Horace Wilkinson Bridge completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed a supplemental inspection of the GNO Cantilever Truss Bridges in New Orleans utilizing rope access techniques. Performed a fracture critical inspection of the Green Bridge, a steel tied arch in New Orleans utilizing rope access and UAS access techniques. Performed the inspection of the I-10 Bridge over the Calcasieu River in Lake Charles utilizing rope access on FCM's and UAS access techniques on columns. Hands-on management and implementation of the QC review plan is vital to the continued success of this project.</p>			
1/20 – Present	<p><b>LADOTD IDIQ for Statewide In-Depth Bridge Inspection of Complex Structures, Louisiana.</b> MN Project Manager and Team Leader for one of the current five-year retainer contracts as a major subconsultant to Gresham Smith, contracted to perform in-depth bridge inspections on complex, movable, long-span, and precast segmental box girder bridges throughout Louisiana. Performed and lead the structural, mechanical, and electrical inspections of six (6) movable bridges utilizing detailed, nondestructive and laboratory testing methods with hand sketches. Hands-on management and implementation of the QC review plan is vital to the continued success of this project.</p>			
09/14 – Present	<p><b>LADOTD IDIQ for Underwater Bridge Inspection, Statewide, Louisiana.</b> Project Director and Team Leader for the third cycle of contracts in which we have performed 1,375 underwater NBIS bridge inspections statewide. Bridge types included movable bridges, long-span bridges with caissons and deep foundations, timber bridges with multiple bents in the water, culverts and multi-span bridges up to 14 miles in length. Assisted DOTD with several emergency response requests within hours utilizing local team members.</p>			
02/21-Present	<p><b>LADOTD Underwater Bridge Inspections (2020-2025) - Task 1, Statewide, Louisiana.</b> Project Principal for routine underwater inspections of 75 bridges including major bridges over large waterways with deep foundations and dynamic channel conditions. All diving inspections were augmented with acoustic imaging technology for bridges over large waterways with high-risk environmental conditions. Hydrographic surveys were performed using the HydroLite-TM and MatLab for accurate and repeatable channel soundings at these bridge sites.</p>			


## 16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	Mike Russell, EIT	Years of relevant experience with this employer	1<
	Title	NBIS Team Leader and Rope Access Supervisor	Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization		BS / 2015 / Civil Engineering, Central Connecticut University		
Active registration number / state / expiration date		Engineer-in-Training: #35255 / TN		
Year registered	N/A	Discipline	Civil and Structural	
Contract role(s) / brief description of responsibilities		NBIS Team Leader / SPRAT Rope Access Supervisor-Level III / FAA Remote Drone Pilot		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
08/21 – Present	<p><b>LADOTD IDIQ for In-Depth Inspection of Complex Bridges, Statewide, Louisiana.</b> Team Member, Drone Operator, and Rope Access Supervisor for one of the current five-year retainer contracts (2019-2024) as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspection of the I-10 Bridge over the Calcasieu River in Lake Charles utilizing rope access on fracture critical members and UAS drone access techniques on columns, secondary members and connections. Responsible for inspecting the steel substructure units utilizing fall protection techniques and a work boat platform with a rope access safety management plan. Responsible for inspecting the lower chord of the main span steel arched through truss utilizing fall protection and rope access techniques. Responsible for working together with other supervisors and team leaders on site to communicate the hazards and mitigation techniques for safe operations and rescue pre-plans. Documented field notes and sketches utilizing traditional methods amenable to the project team leader for standardized report processing. Organized electronic files per the quality management plan and reviewed the draft report for consistency and accuracy.</p>			
04/19 – Present	<p><b>LADOTD IDIQ for Statewide Ancillary Sign Inventory and Inspection, Louisiana.</b> Team Leader and Rope Access Supervisor for both five-year retainer contract to perform over 1700 sign truss inspections throughout Louisiana, including the Orleans District along this corridor. Lead the development of the new Sign Truss Inspection Program by implementing policies and standard operating procedures. Managed and utilized the fall protection safety program with rope access techniques and rescue plans. Lead the development of an application for an internal tablet-based inventory management system. Non-destructive testing was performed on all anchor rods at all cantilever structures, base plates with excessive standoff distances, and where deficiencies were observed at steel and aluminum welds. Managed the QC report review process and the QA field and office review process. Managed and planned the Temporary Traffic Control plans and setups for lane closures throughout the state along with all of the District traffic engineers. Analyzed altered load paths.</p>			
1/22 – Present	<p><b>LADOT In-Depth Inspections of Complex Bridges - Audubon Bridge, LA.</b> Rope Access supervisor and NBIS Inspector Planning for the in-depth NBIS routine and fracture critical inspection of the Audubon Bridge.</p>			


## 16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	Steven Armstrong, PE, ADCI	Years of relevant experience with this employer	8
	Title	NBIS Team Leader	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		MS / 2021 / Civil Engineering / University of New Orleans BS / 2015 / Civil and Environmental Engineering / University of New Orleans		
Active registration number / state / expiration date		Professional Engineer: 44405 / LA / Exp. 09/30/22		
Year registered	2020	Discipline	Civil	
Contract role(s) / brief description of responsibilities		NBIS Team Leader / FAA Remote Drone Pilot / SPRAT Rope Access Technician / ADCI-certified Diver		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
11/19 – Present	<b>LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.</b> Team Member for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspections of the Audubon cable-stayed bridge with rope access techniques to inspect a total of 136 cables, the HDPE protection, and anchorages. Performed the inspection of the I-10 Horace Wilkinson Bridge (New Bridge) completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed draft inputs and consolidated notes from multiple teams to present proper data consistently throughout the report.			
1/20 – Present	<b>LADOTD IDIQ for Statewide In-Depth Bridge Inspection of Complex Structures, Louisiana.</b> Team Member for one of the current five-year retainer contracts as a major subconsultant to Gresham Smith, contracted to perform in-depth bridge inspections on complex, movable, long-span, and precast segmental box girder bridges throughout Louisiana. Performed the structural inspections of six (6) movable bridges along with the M&E team. Utilized nondestructive UT methods to accurately document section loss in fracture critical members. Performed draft inputs and consolidated notes from multiple teams to present proper data consistently throughout the report.			
09/14 – Present	<b>LADOTD IDIQ for Underwater Bridge Inspection, Statewide, Louisiana.</b> NBIS Team Leader for the current five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Responsible for leading underwater inspection teams to complete field work, inspection reports, and quality control reviews. Bridge types inspected consisted of movable bridges, truss bridges, timber stringer bridges, cable-stayed bridges, and single and multi-span girder bridges up to fourteen miles in length. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions.			


## 16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	Jeffrey Gazarek, ADCI	Years of relevant experience with this employer	6
	Title	NBIS Team Leader and Safety Officer	Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization		Commercial Diving with Concentration in Subsea Inspection / 2005 / Divers Institute of Technology		
Active registration number / state / expiration date		N/A		
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities		NBIS Team Leader / Safety Officer / Equipment Manager / SPRAT Rope Access Technician / ADCI-certified Diver		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/14 – Present	<b>LADOTD IDIQ for Underwater Bridge Inspection, Statewide, Louisiana.</b> NBIS Team Leader for the third cycle of contracts in which we have performed 1,375 underwater bridge inspections statewide. Responsible for leading dive operations for underwater inspection teams to complete field work, writing inspection reports, and performing quality control reviews. Bridge types inspected consisted of movable bridges, truss bridges, timber stringer bridges, cable-stayed bridges, and single and multi-span girder bridges up to fourteen miles in length. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions.			
04/16 – Present	<b>LADOTD IDIQ for Statewide Ancillary Sign Inventory and Inspection, Louisiana.</b> Team Leader and Rope Access Supervisor for both five-year retainer contracts. Performed ~40% of 1700 sign truss inspections throughout Louisiana. Utilized fall protection and rope access techniques with rescue plan development. Performed non-destructive testing on all anchor rods at all cantilever structures, base plates with excessive standoff distances, and where deficiencies or impacts were observed at steel and aluminum welds. Drafted and reviewed inspection reports per the quality management plan. Monitored the TTC lane closures and reviewed the TTC plans for over 10 lane closures throughout the state.			
11/14 – Present	<b>MDOT 2014 &amp; 2021 Underwater Bridge Inspection Contract, Districts 1 &amp; 2, Mississippi.</b> NBIS Bridge Inspector performed underwater inspections of 12 bridges in accordance with NBIS and MDOT PONTIS Inspection Manual. Bridges inspected were constructed of concrete, steel, and timber, and high-resolution scanning sonar was used on selected bridge elements. Responsible for pre-inspection planning, scheduling, field work, performing NDT and soundings, diving operations, drafting reports, sketches, and repair recommendations.			
11/19 – Present	<b>LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.</b> Team Member for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspection of the I-10 Horace Wilkinson Bridge (New Bridge) completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts.			

## 16. Staff Experience:


	Firm Employed by	Moffatt & Nichol		
	Name	Joshua Martinez, PE, ADCI	Years of relevant experience with this employer	7
	Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	5
Degree(s) / Years / Specialization		MCE / 2013 / Structural Engineering, North Carolina State University BCE / 2009 / Structural Engineering, United States Air Force Academy		
Active registration number / state / expiration date		Professional Engineer: 42085 / LA / 3/31/22		
Year registered	2013	Discipline	Civil	
Contract role(s) / brief description of responsibilities		NBIS Team Leader / SPRAT Rope Access Technician / ADCI-certified Diver		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/17 – Present	<b>LADOTD IDIQ for NBIS Underwater Bridge Inspection Retainer Contract, Statewide.</b> NBIS Team Leader for the current five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions. Responsible for leading underwater inspection teams to complete field work, inspection reports, and quality control reviews.			
09/13 – 06/17	<b>LADOTD 2013 NBIS Underwater Bridge Inspection Retainer Contract, Statewide.</b> NBIS Inspector for the previous five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Responsible for underwater inspection field work, inspection reports, and quality control reviews. UAI techniques were utilized to locate structural deficiencies, identify potential undermining, observe the limits of scour, and document the limits of riprap installations.			
03/17 – Current	<b>Statewide Topside Inspection of Bridges for the North Carolina Department of Transportation, North Carolina.</b> NBIS Team Leader responsible for topside inspection of bridges under two, consecutive, multi-year, on-call contracts. Inspected single and multi-span bridges as well as concrete, steel, and timber. Mr. Martinez was responsible for rating the overall bridge condition and determining critical maintenance items per state requirements. He also developed and generated reports rating to the element base level. Mr. Martinez familiarized himself with several inspection vehicles including a bucket truck, snooper, and under-bridge platform. He served as engineer reviewer for reports to ensure accuracy and proper rating per National Highway Institute (NHI) guidance.			

## 16. Staff Experience:


	Firm Employed by	Moffatt & Nichol		
	Name	Charles Balzarini, PE	Years of relevant experience with this employer	9
	Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	7
Degree(s) / Years / Specialization		BS / 2008 / Civil Engineering, University of Alaska, Anchorage		
Active registration number / state / expiration date		Professional Engineer: 13854 / AK / Exp. 12/31/2023		
Year registered	2013	Discipline	Civil	
Contract role(s) / brief description of responsibilities		NBIS Team Leader / SPRAT Rope Access Technician / ADCI-certified Diver		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
06/17 – Present	<p><b>LADOTD IDIQ for NBIS Underwater Bridge Inspection Retainer Contract, Statewide.</b> NBIS Team Leader for the current five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions. Responsible for leading underwater inspection teams to complete field work, inspection reports, and quality control reviews.</p>			
11/19 – Present	<p><b>LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.</b> NBIS Team Leader for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspections of the Luling cable-stayed bridge in New Orleans with rope access techniques to inspect a total of 72 cables between the two bridges, their Gensui Dampers, and anchorages. Performed the inspection of the I-10 Horace Wilkinson Bridge completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed a supplemental inspection of the GNO Cantilever Truss Bridges in New Orleans utilizing rope access techniques. Performed a fracture critical inspection of the Green Bridge, a steel tied arch in New Orleans utilizing rope access and UAS access techniques.</p>			
04/16 – Present	<p><b>LADOTD IDIQ for Statewide Ancillary Sign Inventory and Inspection, Louisiana.</b> Team Leader for both five-year retainer contracts to perform approximately 40% 1700 sign truss inspections throughout Louisiana. Utilized the fall protection and rope access techniques with rescue plan development. Performed non-destructive testing on all anchor rods at all cantilever structures, base plates with excessive standoff distances, and where deficiencies or impacts were observed at steel and aluminum welds. Hands-on inspection work was performed overhead by bucket truck and climbing on active highways. Aluminum and steel sign truss members were inspected for inventory and for structural defects in accordance with FHWA guidelines. Drafted and reviewed inspection reports per the quality management plan. Monitored the TTC lane closures and reviewed the TTC plans for over 10 lane closures throughout the state.</p>			



## 16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	Matthew Balzarini, PE	Years of relevant experience with this employer	5
	Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization		BS / 2011 / Civil Engineering, University of New Orleans		
Active registration number / state / expiration date		Professional Engineer: 118893 / AK / Exp. 12/31/23		
Year registered	2017	Discipline	Civil	
Contract role(s) / brief description of responsibilities		NBIS Team Leader / SPRAT Rope Access Technician / ADCI-certified Diver		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
11/19 – Present	<p><b>LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.</b> NBIS Team Leader Member for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspections of both cable-stayed bridges in Louisiana (Audubon and Luling) with rope access techniques to inspect a total of 208 cables between the two bridges, their Gensui Dampers, and anchorages. Performed the inspection of the I-10 Horace Wilkinson Bridge completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed a supplemental inspection of the GNO Cantilever Truss Bridges in New Orleans utilizing rope access techniques. Performed a fracture critical inspection of the Green Bridge, a steel tied arch in New Orleans utilizing rope access and UAS access techniques. Performed the inspection of the I-10 Bridge over the Calcasieu River in Lake Charles utilizing rope access on FCM's and UAS access techniques on columns.</p>			
06/18 – Present	<p><b>LADOTD IDIQ for NBIS Underwater Bridge Inspection Retainer Contract, Statewide.</b> NBIS Team Leader and Team Member for the current five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions. Responsible for leading underwater inspection teams to complete field work, inspection reports, and quality control reviews.</p>			
07/18 – Present	<p><b>LADOTD IDIQ for Statewide Ancillary Sign Inventory and Inspection, Louisiana.</b> Team Leader for both five-year retainer contracts to perform approximately 10% 1700 sign truss inspections throughout Louisiana. Utilized the fall protection and rope access techniques with rescue plan development. Performed non-destructive testing on all anchor rods at all cantilever structures, base plates with excessive standoff distances, and where deficiencies or impacts were observed at steel and aluminum welds. Drafted and reviewed inspection reports per the quality management plan. Monitored the TTC lane closures and reviewed the TTC plans for over 10 lane closures throughout the state.</p>			

## 16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	Laura Miller, EIT	Years of relevant experience with this employer	4
	Title	Assistant Inspector and Diver	Years of relevant experience with other employer(s)	16
Degree(s) / Years / Specialization		MBA / 2017 / Business Administration, Tulane University MS / 2017 / Global Management, Tulane University MS / 2012 / Civil & Environmental Engineering, San Jose State University BS / 2002 / Human/Regional Geography and Spanish, United States Military Academy		
Active registration number / state / expiration date		<b>Engineer-in-Training:</b> EI.0034949 / Louisiana		
Year registered	2021	Discipline	Civil	
Contract role(s) / brief description of responsibilities		<b>Assistant Inspector / SPRAT Rope Access Technician / ADCI-certified Diver</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
09/19 – 03/20	<b>LADOTD 2017 NBIS Underwater Bridge Inspection Retainer Contract, Statewide.</b> NBIS Inspector for the current five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Completed underwater inspection field work, inspection reports, and quality control reviews. Underwater acoustic imaging techniques were utilized to locate structural deficiencies, identify potential undermining, observe the limits of scour, and document the limits of riprap installations.			
09/19 – 03/20	<b>LADOTD Statewide Ancillary Sign Inventory and Inspection, Louisiana.</b> Assistant Inspector for the current five-year retainer contract to perform approximately 30% of the 1700 sign truss inspections (routine and interim) throughout Louisiana. Utilized a tablet-based inventory management system with a custom designed application. Utilized fall protection techniques for inspections of fatigue prone details on steel and aluminum box trusses members. Non-destructive testing was performed on steel and aluminum welds, high stress moment connections and anchor rods. Performed QC report reviews in accordance with FHWA guidelines.			
06/18 – 08/18	<b>Battery Park City Authority, Phase 6 Pile Remediation, New York, New York.</b> Inspector-Diver for underwater inspection of Battery Park. The project included underwater inspection of piles, caps, and beams along with the seawall inspection. The first phase of work was to ensure that completed repairs were intact and upheld their integrity. The second phase of the assignment was to look all uninspected piles, caps and beams and report back any details that will need to be addressed and repaired.			

## 16. Staff Experience:

Firm employed by Urban Systems			
Name	Alison C. Michel, PE, PTOE, PTP, RSP <sub>1</sub>		Years of relevant experience with this employer
Title	President / Transportation Engineer		20
			Years of relevant experience with other employer(s)
Degree(s) / Years / Specialization			BS / 1997 / Civil Engineering
Active registration number / state / expiration date			30261 / Louisiana / 03/31/2023
Year registered	2002	Discipline	Professional Engineer: Civil Engineering
Active registration number / state / expiration date			1023 / Louisiana / 11/06/2023
Year registered	2002	Discipline	Professional Traffic Operations Engineer
Active registration number / state / expiration date			626 / Louisiana / 11/20/2023
Year registered	2017	Discipline	Professional Transportation Planner
Active registration number / state / expiration date			115/ Louisiana/ 12/21/2024
Year registered	2018	Discipline	Road Safety Professional
Contract role(s) / brief description of responsibilities			<b>Traffic Engineering / TMP</b>
Experience dates (mm/yy–mm/yy)	Ms. Michel has over 23 years of experience in Traffic Engineering and Transportation Planning. Ms. Michel has extensive design experience that includes permanent and temporary traffic signals, traffic control devices for work zones, intelligent transportation systems, signage and striping. She has a wide array of experience with transportation studies including traffic impact, safety, corridor, feasibility/Stage 0, environmental/Stage 1, multi-modal and transit facilities. She has experience in the timing of coordinated systems and analyses. She is proficient in microscopic simulation modeling using VISSIM and CORSIM and also in analysis programs such as Highway Capacity Software (HCS), Tru-Traffic and SIDRA. She is familiar with preparing Transportation Management Plans for all levels. Ms. Michel has designed Traffic Control Devices Plans for many different types of projects including interstates, urban downtown grid systems, small town rural roads and everything in between.		
02/10-07/10	<b><u>LPV 16.2 Bonnabel Boulevard Floodgate</u></b> , 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.		
01/14 – 08/19	<b><u>US 90 (I-49 South) Albertson's Parkway to Ambassador Caffery Design-Build Project (Lafayette Parish, LA)</u></b> . As the traffic engineer, Ms. Michel updated the US 90 to a controlled access facility by converting at-grade intersections to an interchange. The bridge structure had to span the intersection and a 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. Traffic 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.
03/11 – 05/13	<b><u>Huey P. Long Bridge Widening - (Westbank and Eastbank Approaches and Main Bridge Deck Widening), Jefferson Parish, LA.</u></b> 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.
04/09 – 08/12	<b><u>City of D'Iberville Sangani Boulevard Widening.</u></b> Ms. Michel prepared traffic signal design/modification plans, striping and signage plans, traffic control devices plan for the sequence of construction and prepared a construction cost estimate for the Sangani Boulevard Widening project in D'Iberville, MS. Ms. Michel assisted with coordination between multiple stakeholders which included the city, MDOT and the business owners. Special attention was given to maintain access to businesses during the various phases of construction.
01/17 - 06/19	<b><u>France Road - North Widening.</u></b> 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. Michel was the Principal In Charge for the project to develop 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.
04/10 - 07/11	<b><u>Lakefront Airport T-Walls Reach LPV 105.01.</u></b> Following Hurricane Katrina, USACE let a series of projects to reconstruct the T-walls and to strengthen and raise the levee system adjacent to the Lakefront Airport in Eastern New Orleans. Ms. Michel was the Principal In Charge for the traffic control devices plans to ensure that the contractor could safely work adjacent to motorists while maintaining twenty-four-hour daily access to the Lakefront Airport. The traffic control devices were inspected monthly and the contractor notified of any deficiencies requiring a corrective action.

## 16. Staff Experience:

Firm employed by Urban Systems			
Name	Nicole H. Stewart, PE, PTOE		Years of relevant experience with this employer
Title	Vice President / Transportation Engineer		Years of relevant experience with other employer(s)
Degree(s) / Years / Specialization		BS / 2004 / Civil Engineering BS / 2004 / Physics	
Active registration number / state / expiration date		34750 / Louisiana / 09/30/2023	
Year registered	2009	Discipline	Professional Engineer: Civil Engineering
Active registration number / state / expiration date		2923 / Louisiana / 08/2023	
Year registered	2009	Discipline	Professional Traffic Operations Engineer
Contract role(s) / brief description of responsibilities		<b>Traffic Engineering / TMP</b>	
Experience dates (mm/yy–mm/yy)	In addition to the P.E. and PTOE, Ms. Stewart is a certified Traffic Control Specialist and Traffic Control Technician by ATSSA. Ms. Stewart has experience in Transportation/Traffic Engineering including transportation studies, safety studies and the preparation of traffic control devices plans. She also has experience in signal design and timing of coordinated systems, traffic impact analysis, microscopic modeling using CORSIM software, geometric design, pavement design, and drainage. She has experience using Highway Capacity Software (HCS), Synchro, and TS/PP Draft in the timing and coordinating of traffic signals.		
02/15 – 06/16	<b>Bridge Preventative Maintenance District 61 and Port Allen.</b> Ms. Stewart was the principal in charge for Traffic Management Plans (TMP) for bridge replacement and repairs for various locations in Louisiana. The level of each TMP was based on LADOTD EDSM guidelines. A Level 3 TMP was prepared for the reconstruction of the LA 1 bridge over the Intracoastal Waterway. For this TMP, detailed work zone impact management strategies were developed to help minimize the project's impact on mobility.		
10/17 – Current	<b>US 90 Bridge Maintenance over I-10 Ramps at LockMoor.</b> Ms. Stewart used the LADOTD EDSM guidelines to prepare key components of the traffic management plan (TMP) for proposed bridge repairs on US 90 from PPG Rd to the I-10 entrance ramp in Lake Charles, LA. Tasks include the preparation of collision diagrams, conducting safety analysis, detour analysis and developing proposed mitigations where applicable.		
09/11 – 02/12	<b>Williams Boulevard Floodgate, Jefferson Parish, LA.</b> The design of Traffic Control Devices Plans and associated haul routes were prepared for the two (2) 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.		
10/17 – 05/19	<b>TMP for I-10: West of 108 to I-210 Interchange: Rubblize and Overlay.</b> As the lead engineer for this Traffic Management Plan, Ms. Stewart was responsible for the preparation of the safety analysis. 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. She conducted the safety analysis per the guidelines set forth by LADOTD in <i>Guidelines for Crash Data Analysis</i> . 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.		

02/18 – 03/20	<b>Severn Ave: Veterans to W. Esplanade.</b> Ms. Stewart was the 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 accommodations. 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.
10/15 – Current	<b>MacArthur Interchange Completion Phase II TMP.</b> The design team was led by Ms. Stewart for the preliminary traffic signal design and the Traffic Management Plan (TMP) for proposed interchange modifications on US 90 (Westbank Expressway). Tasks for this work include conducting capacity analysis, safety analysis, detour analysis and developing proposed mitigations where applicable. Ms. Stewart was responsible for the QA/QC for this stage of the project. Final design for this project began in September 2019.
06/11– 03/12	<b>Southeast Louisiana Urban Flood Control Project Improvements to Two-Mile Canal (Patriot Street Canal), Phase I, Barataria Blvd to First Avenue Canal, Jefferson Parish, LA.</b> Ms. Stewart designed the Traffic Control Devices Plans for the improvements to the Two Mile Canal. These plans included traffic closure details, signage, flagmen, and haul routes. MS. Stewart conducted inspections throughout construction to confirm compliance with the plans that been approved by Jefferson Parish.
05/06 – 11/10	<b>Clearview Parkway at West Esplanade.</b> For the Clearview Parkway and West Esplanade Avenue Intersection Improvement project, Ms. Stewart prepared permanent traffic signal plans including locations for controller, 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:

	Firm Employed by	Hardesty & Hanover		
	Name	Kevin Meehan	Years of relevant experience with this employer	1
	Title	<b>Principal Estimator</b>	Years of relevant experience with other employer(s)	29
Degree(s) / Years / Specialization		B.S. / Civil Engineering / 1999 / Rutgers University		
Active registration number / state / expiration date		N/A		
Year registered	N/A	Discipline	N/A	
Contract role(s) / brief description of responsibilities		<b>Cost Estimator</b>		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; <i>i.e.</i> , “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).			
022/21-12/21	<p><b>East Haddam Swing Bridge over the Connecticut River, East Haddam, CT – Connecticut DOT</b>  <b>Principal Estimator</b> for the rehabilitation of the East Haddam Swing Bridge (CTDOT Bridge 1138). Design efforts were focused on rehabilitating structural, mechanical, and electrical systems and upgrading components to improve reliability and decrease maintenance. The bridge rehabilitation included structural strengthening of the trusses and floor system to support all Connecticut Legal Loads after construction of the sidewalk. The bridge rehabilitation also included the replacement of the approach span bridge decks with an emphasis on constructability and reduced weight and preliminary and final design development of the sidewalk.</p>			
02/17 – Present	<p><b>Raritan River Lift Bridge, Perth Amboy, NJ – NJ TRANSIT</b>  <b>Principal Estimator</b> for a \$500 million replacement of the Raritan River Drawbridge on North Jersey Coast Line. The project includes a half-mile long structure with a movable swing span at the navigational channel and more than 3,000 square feet of approaches between the Perth Amboy and South Amboy stations in New Jersey. Responsibilities included preparation of the construction costs for the project, including repackaging of the estimate when this major project was split up into three smaller construction contracts..</p>			
10/20 – Present	<p><b>Replacement of Four Bridges on the Bronx River Parkway Over NYCT, Metro-North, Amtrak, and CSX, Bronx, NY - New York State DOT</b>  <b>Principal Estimator</b> for this replacement project of four bridges. H&amp;H is working on preliminary design (Phases I-IV) which include topographical survey; ROW mapping; hazardous waste/contaminated materials screening; in-depth inspection, evaluation of fatigue prone details; level I load ratings; repair details for flag conditions; interim repairs to expansion joints; existing median barrier modifications, seismic evaluation; development of rehabilitation/replacement alternatives utilizing steel trapezoidal box girders, prestressed concrete beams and concrete segmental box girders; evaluation of environmental, wetland, and land use impacts, including tree survey and development of Section 4(f) documents.</p>			

10/20 – Present	<p><b>Replacement of Three Culverts and the Bronx River Parkway Bridge, Westchester County, NY - Westchester County DPW</b>  <b>Principal Estimator</b> for this project providing design and construction support of the complete replacement of three culverts and a bridge on the historic Bronx River Parkway, including scour protection and roadway resurfacing of the existing roadway. The project will consist of land survey, utility identification, traffic analysis, hazardous material testing, soil testing, archeological study, cost estimating, load rating and structural, civil, geotechnical and architectural design.</p>
12/20 -4/2022	<p><b>Long Slip Fill and Rail Enhancement Phase II, Hudson County, NJ – NJ TRANSIT</b>  <b>Lead Cost Estimator</b> during design of Phase II of this project which will allow for longer train service operations and enable NJ TRANSIT to recover more quickly from storm events. Developed capital construction cost estimates for early and final design submissions, supported alternatives analysis, bid item sorting and tracked changes in scope and cost. The project will construct six new tracks, undergrade bridge, viaduct, special trackwork, OCS, three new platforms and a crew quarters facility.</p>
10/11 – 09/20	<p><b>Transportation Infrastructure in the Public Sector, Mercerville, NJ - JCMS, Inc.</b>  <b>Lead Estimator</b> for a team of cost estimators coordinating multiple concurrent projects with an emphasis on infrastructure, transportation and the public sector. Developed and coordinated engineer's cost estimates for public projects, from conceptual design through bid phase. Projects range from \$3 million to \$300 million. Over \$1 billion brought to contract. Developed cost modeling, alternative analysis, Lifecycle Cost Analysis, and Value Engineering. Developed and coordinated independent cost analyses for change orders. Developed fee proposals, attended sales presentations and coordinated with marketing department in pursuit of new or additional work. Enlarged department from 1.5 full time equivalents to a staff of eight by developing relationships, confidence and trust with partners and clients.</p>
12/20-2/22	<p><b>Northeast Corridor Mid Line Loop, Middlesex County, NJ – NJ TRANSIT</b>  <b>Project Estimator</b> during the Concept Development phase to improve commuter rails service on the NEC by eliminating a grade crossing conflict that exists at approximately MP32 @ Jersey Avenue Station/County Yard Facility. The project involves the addition of a new electrified loop track several miles long adjacent to and over the NEC. Developed direct and indirect costs for construction and developed contingencies and soft costs according to FTA guidelines</p>
01/17-05/18	<p><b>Repairs, Remediation, Flood Mitigation and Resiliency at Hoboken Terminal and Yard, Hudson County, NJ – NJ TRANSIT</b>  <b>Cost Estimator</b> during the early and final design phases of multiple packages for repairs and improvements to the terminal and yard that suffered significant flooding damage as a result of Superstorm Sandy in 2012. The project is to restore the terminal and yard operations, while at the same time increasing the system's resiliency - its ability to withstand and recover quickly from future storms. Estimates were created for each submission from concept to final design and bid packaging.</p>
02/09 – 10/11	<p><b>National September 11th Memorial And Museum, New York, NY - URS</b>  <b>Senior Estimator</b> for the National September 11th Memorial and Museum. Project estimator developing bid package estimates, change order estimates, allocating costs. Provided detailed takeoff and pricing for sitework, sitework utilities, foundations, superstructure and architectural building elements. Analyzed and tracked cost impact of revisions, changes, addenda, etc. Negotiated contract pricing and change orders with subcontractors and general contractors.</p>



## 17. Firm Experience:

Firm name	Hardesty & Hanover, LLC		Past Performance Evaluation Discipline(s)*	Bridge
Project name	Almonaster Avenue Bridge over the Industrial Canal Rehabilitation		Firm responsibility (prime or sub?)	Prime
Project number	03828.00-0	Owner's name	Port of New Orleans	
Project location	New Orleans, LA		Owner's Project Manager	Anthony Evett, P.E.
Owner's address, phone, email	Port of New Orleans   504.528.3309   anthony.evett@portnola.com			
Services commenced by this firm (mm/yy)	06/18	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)	\$2,162	

Hardesty & Hanover (H&H) is performing bridge assessment and engineering design services for complete rehabilitation of the bridge and roadway for Almonaster Avenue Bridge, a Strauss Trunnion Bascule Bridge crossing the Inner Harbor Navigation Canal, for the Port of New Orleans. Eligible for the National Register of Historic Places, the Almonaster Bridge provides two vehicular lanes, one lane on the exterior of each of the trusses. The bridge also provides two E-60 railroad track crossings between the trusses. In 2005 Hurricane Katrina's notorious devastation damaged the roadways leaving them closed to vehicular traffic to this day.

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 and repairs were deemed necessary to accommodate the rehabilitated superstructure.



### Scope of Work Relevant to the Contract:

- REHABILITATION OF A HISTORICAL BRIDGE
- STRUCTURAL STEEL AND CONCRETE REPAIRS AND/OR REPLACEMENT
- FULL CONTAINMENT CLEANING AND PAINTING ALL METALWORK
- BEARINGS - RESETTING, REPAIRS AND/OR REPLACEMENT
- REPLACEMENT OF ROADWAY SUPERSTRUCTURE
- INSTALLATION OF NEW NAVIGATION VERTICAL CLEARANCE GAUGES, NAVIGATION LIGHTS AND INSPECTION CABLES
- GEOTECHNICAL, ENVIRONMENTAL, AND SURVEY SERVICES
- LOAD RATING
- AGENCY COORDINATION WITH LADOTD, USCG, CITY OF NOLA, AND CSX
- CONSTRUCTION SUPPORT SERVICES

H&H is developing the necessary bridge design plans and contract specifications, and construction support services during construction. Major structural work includes replacement of the main trunnions and vehicular roadway, complete cleaning and painting of the existing bridge with an innovative movable paint containment system due to the proximity to the waterway, and complete replacement of the bearings. The project also includes addition of a new connector road.

### Key Members:

Andrew Barthle, PE; Drew Delle Donne, RA; Erik Diaz, PE; Robert Hidecki, PE; Opio Hunter, PE; Sayyid Khan, PE; Linh Thien Kim, EI; Travis Kimmins, PE; Marco Lara, PE; Don Marinelli, PE; Steve Mikucki, PE; Babak Naghavi, PE; Alec Noble, PE; Tim Noles, PE; Ken Pecquet; Amy Robards, PE; Vilius Ruseckas, EI; Amy Robards, PE; Fred Wetekamm, PE; and Jim Phillips, PE

## 17. Firm Experience:

Firm name	Hardesty & Hanover, LLC		Past Performance Evaluation Discipline(s)*	Bridge
Project name	SR-605 and SR 609 Bascule Bridges - Rehabilitation Designs		Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	Mississippi DOT	
Project location	Ocean Springs, MS		Owner's Project Manager	Richard Withers, PE
Owner's address, phone, email	401 North West Street, Jackson, MS 39215   601.359.7200   rwithers@mdot.ms.gov			
Services commenced by this firm (mm/yy)	03/18	Total consultant contract cost (\$1,000's)		\$3,100
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm (\$1,000's)		\$3,000

Hardesty & Hanover (H&H) conducted bridge inspections and developed the bridge rehabilitation design plans and specifications for the rehabilitation of the SR 609 and SR 605 bridges under our Mississippi DOT Master Bridge Contract. Rehabilitation plans included structural, mechanical, and electrical bridge components, roadway approaches, improvements to the operator house including HVAC; development of maintenance and repair plans; and preparation of traffic control plans. Other scope items included construction support services during construction, project submittals review, and managing RFIs.



SR-605



SR-609

### Scope of Work Relevant to the Contract:

- STRUCTURAL STEEL AND CONCRETE REPAIRS AND/OR REPLACEMENT
- REHAB OF MECHANICAL AND ELECTRICAL SYSTEMS
- FULL CONTAINMENT CLEANING AND PAINTING ALL METALWORK
- DECK JOINTS AND SEALS - REPAIRS AND/OR REPLACEMENT
- BEARINGS - RESETTING, REPAIRS AND/OR REPLACEMENT
- APPROACH SLABS - REPAIRS AND/OR REPLACEMENT
- INSTALLATION OF NEW NAVIGATION LIGHTS, VERTICAL CLEARANCE GAUGES, AND CONDUITS
- REPLACEMENT OF MISSING REFLECTIVE PAVEMENT MARKERS
- GUARDRAIL REPAIRS AND/OR REPLACEMENT
- MAINTENANCE OF TRAFFIC
- OPERATOR HOUSE AND HVAC IMPROVEMENTS
- LOAD RATING

Major structural work included removal of the existing paint system (lead abatement) and repainting all structural steel, replacing the existing grid deck, structural strengthening of the bascule leaves, replacing all high strength connection bolts exhibiting corrosion with mechanically-galvanized high strength bolts (A325), repairing cracks in structural steel, and repairing deck joints.

Major mechanical work included removing and replacing machinery with AASHTO compliant machinery, polishing and re-machining trunnion journals, realigning trunnion bearing, and replacing span locks.

Major electrical work included replacing the emergency generator, motor control center, motor drives, span motors, and brakes. Also, replacing all conduits and wiring, submarine cable and cabinets, and bascule pier navigation lighting.

**Key Members:** Andrew Barthle, PE; Kevin Ciampi, PE; Erik Diaz, PE; Sayyid Khan, PE; Linh Kim; Travis Kimmins, PE; Raymond Mankbadi, PE; Donald Marinelli, PE; Steve Mikucki, PE; Babak Naghavi, PE; Alec Noble, PE; Tim Noles, PE; Kenneth Pecquet; James Phillips, PE; Amy Robards, PE; Christopher Svava, PE; Rob Vicedo, PE; and Fred Wetekamm, PE

## 17. Firm Experience:

Firm name	Hardesty & Hanover, LLC		Past Performance Evaluation Discipline(s)*	Bridge
Project name	East Haddam Swing Bridge over the Connecticut River		Firm responsibility (prime or sub?)	Prime
Project number	40-141	Owner's name	Connecticut DOT	
Project location	Haddam/East Haddam, CT		Owner's Project Manager	Andrew Cardinali, PE
Owner's address, phone, email	2800 Berlin Turnpike, Newington, CT 06131   860.594.3315   Andrew.cardinali@ct.gov			
Services commenced by this firm (mm/yy)	6/2016	Total consultant contract cost (\$1,000's)		\$2,800
Services completed by this firm (mm/yy)	3/2021	Cost of consultant services provided by this firm (\$1,000's)		\$1,000

Hardesty & Hanover (H&H) provided initial assessment, preliminary and final design phase engineering services for the rehabilitation of the historic East Haddam Swing Bridge - a bridge listed on the National Register of Historic Places - for the Connecticut Department of Transportation.

During the preliminary engineering phase, H&H performed bridge structure load rating and prepared a feasibility study for the addition of a sidewalk to the existing bridge. LRFR load ratings of the as-built, as-inspected, and as-rehabilitated condition of the bridge, both with and without a sidewalk, were prepared using Midas Civil and AASHTOWare Bridge Rating software in compliance with the requirements of the CTDOT Load Rating Manual and the AASHTO Manual for Bridge Evaluation.



### Scope of Work Relevant to the Contract:

- REHAB DESIGN SERVICES FOR A SWING BRIDGE LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES
- STRUCTURAL IMPROVEMENTS INCLUDED STRENGTHENING OF THE TRUSSES AND FLOOR SYSTEM AND REPLACEMENT OF THE APPROACH SPAN BRIDGE DECKS
- REHAB DESIGN OF ELECTRICAL AND MECHANICAL SYSTEMS
- LOAD RATING
- POST DESIGN ENGINEERING SUPPORT

Design efforts were focused on rehabilitating structural, mechanical, and electrical systems and upgrading components to improve reliability and decrease maintenance. The bridge rehabilitation included structural strengthening of the trusses and floor system to support all Connecticut Legal Loads after construction of the sidewalk. The bridge rehabilitation also included the replacement of the approach span bridge decks with an emphasis on constructability and reduced weight. The preliminary and final design development of the sidewalk was also included in the project.

**Key Members:** Drew Delle Donne, RA; Steve Harlacker, PE; Matthew Gagliano, PE; Ben Hawthorne, PE; Steve Mikucki, PE; Kevin Meehan; James Newberry, PE; Alec Noble, PE; Chris Svara, PE; Paul Skelton, PE; Dan Tarantino, AIA; John Witthohn, PE; and Rafal Wuttrich, PE.

## 17. Firm Experience:

Firm name	Hardesty & Hanover, LLC		Past Performance Evaluation Discipline(s)*	Bridge
Project name	Gasparilla Island Swing Bridge Replacement		Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	Gasparilla Island Bridge Authority	
Project location	Placida, FL	Owner's Project Manager	Kathy Verrico	
Owner's address, phone, email	6201 Boca Grande Causeway, Placida, FL 33946   941-697-2271   kathygiba@earthlink.net			
Services commenced by this firm (mm/yy)	05/12	Total consultant contract cost (\$1,000's)	\$2,218	
Services completed by this firm (mm/yy)	08/16	Cost of consultant services provided by this firm (\$1,000's)	\$1,733	

Hardesty & Hanover (H&H) provided comprehensive design services for the replacement of the Gasparilla Island Swing Bridge which included field inspection, a feasibility study, complete design, and post-design engineering support.

H&H's feasibility study provided details on a high-level fixed, swing, and bascule alternatives on north and south alignments. A swing bridge on a southerly alignment was chosen to minimize environmental impacts such as devastation to seagrass and mangrove vegetation.

H&H's design goal was to replicate the existing appearance of the site and position the new 225-foot main swing span off-center from the existing navigation channel and higher than the existing span to allow the existing and new span to operate during the construction of the new bridge.

The new bridge profile was made higher than the existing to satisfy the Coast Guard requirements, reduce the number of bridge openings, and not be impacted by the storm surge wave crest.



### Scope of Work Relevant to the Contract:

- BRIDGE ASSESSMENT
- MOVABLE BRIDGE REPLACEMENT
- DESIGN MET STORM SURGE REQUIREMENTS
- LOAD RATING
- CONSTRUCTION SUPPORT SERVICES

### Key Members:

Andrew Barthle, PE; Steve Harlacker, PE; Sayyid Khan, PE; Raymond Mankbadi, PE; Stephen Mikucki, PE; Tim Noles, PE; James Phillips, PE; Roberto Vicedo, PE; and Rafal Wuttrich, PE.

## 17. Firm Experience:

Firm name	Hardesty & Hanover, LLC		Past Performance Evaluation Discipline(s)*	Bridge
Project name	Sarah Mildred Long Bridge Replacement		Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	Maine DOT	
Project location	Portsmouth, NH – Kittery, ME		Owner's Project Manager	Joyce Taylor
Owner's address, phone, email	16 State Hours Station, Augusta, ME 04333		207.624.3400	joyce.taylor@maine.gov
Services commenced by this firm (mm/yy)	12/12	Total consultant contract cost (\$1,000's)	\$ 13,000	
Services completed by this firm (mm/yy)	09/14	Cost of consultant services provided by this firm (\$1,000's)	\$ 6,500	

Hardesty & Hanover (H&H), as a joint venture partner, was responsible for the design of the Sarah Mildred Long Bridge which carries vehicular and railroad traffic, serving as a railway link to the Portsmouth Naval Shipyard. The movable bridge design, developed by H&H, featured many creative and innovative solutions, including the first application of precast post-tensioned concrete for the lift span towers. A single-level 300-foot-long lift span, framed with box girders, has separate seating locations for the double-level highway/rail approaches. The operating machinery, designed to reduce long-term maintenance needs, is located in the tower bases. H&H also designed a state-of-the-art vessel collision system.

AREMA specifications controlled the general features of the design, loadings, and allowable stresses. Some lift span member and component upgrades were considered and incorporated to support the heavier axles for these special railroad car configurations. The new bridge was designed with long open spans using eleven fewer piers than the existing and with increased vertical clearance. This translates into faster and fewer openings for marine traffic, minimizing the disruptions to the traveling public.



### Scope of Work Relevant to the Contract:

- VERTICAL LIFT BRIDGE DESIGN EXPERIENCE
- MOVABLE BRIDGE STRUCTURAL, MECHANICAL, AND ELECTRICAL EXPERIENCE
- INNOVATIVE AND CREATIVE DESIGN SOLUTIONS
- LOAD RATING
- CONSTRUCTION SUPPORT SERVICES

### Key Members:

Drew Donne Delle, RA; Matthew Gagliano, PE; Steve Harlacker, PE; Ben Hawthorne, PE; Raymond Mankbadi, PE; Stephen Mikucki, PE; and Alec Noble, PE; Paul Skelton, PE

## 17. Firm Experience:

Firm name	A P S Engineering and Testing, LLC		Past Performance Evaluation Discipline(s)*	GEOTECH
Project name	I-10 Widening LA 415 to Essen LN		Firm responsibility (prime or sub?)	Sub
Project number	H.004100	Owner's name	LADOTD	
Project location	Baton Rouge	Owner's Project Manager	Kristy Smith, P.E.	
Owner's address, phone, email	1201Capitol Access Rd., Baton Rouge, LA 70802  443.825.379 X1016   Kristy.Smith2@la.gov			
Services commenced by this firm (mm/yy)	09/19	Total consultant contract cost (\$1,000's)		N/A
Services completed by this firm (mm/yy)	On-going	Cost of consultant services provided by this firm (\$1,000's)		\$400

Geotechnical investigation to provide client with the necessary information for planning and design I-10 widening. APS was tasked through our DOTD geotechnical retainer to drill and sample a total of 52 deep borings starting at the Washington exit and ending at the LSU lakes. Along with this drilling and sampling, APS will also test for strength and engineering characteristics of the soils. A total of eight over the water borings and 44 land borings with approximate 1000 triaxial compression, unconsolidated drained or undrained (UU) and Atterberg limits.

### Key Members:

Sergio Aviles, PE; Sai Eddanapudi, PE; Surendra Raj Pathak, PE; Melvin Vasquez, Van George; Eric Bateaste

#### Scopes of Work Relevant to the contract:

- GEOTECHNICAL EXPLORATIONS
- GEOTECHNICAL DESIGN
- GEOTECHNICAL CONSTRUCTION
- TOPOGRAPHIC SURVEY
- CMAR
- CONTRACT MANAGEMENT



## 17. Firm Experience:

Firm name	A P S Engineering and Testing, LLC		Past Performance Evaluation Discipline(s)*	GEOTECH
Project name	Comite River Diversion Bridge at LA 67, LA 19 and LA 19 Railroad Bridge		Firm responsibility (prime or sub?)	Sub
Project number	H.001352 and H.002273	Owner's name	Huval & Associates, Inc.	
Project location	East Baton Rouge Parish	Owner's Project Manager	Thomas M. Gattle, III, P.E.	
Owner's address, phone, email	922 West Pont Des Mouton Road Lafayette, LA 70507   337.234.3798   tgattle@huvalassoc.com			
Services commenced by this firm (mm/yy)	05/20	Total consultant contract cost (\$1,000's)	N/A	
Services completed by this firm (mm/yy)	On-going	Cost of consultant services provided by this firm (\$1,000's)	\$115k	

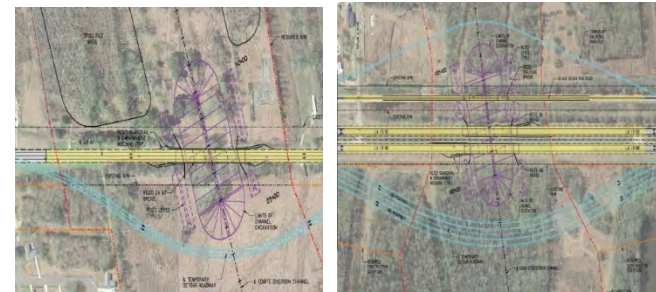
Geotechnical Engineering to provide the necessary information for planning and building of LA 19 RR Bridge slope stability (embankment), LA 19 RR RR Bridge Embankments/MSE Wall settlement/retaining wall, LA 19 twin bridges – PPC Piles, LA 67 Bridge – Drilled Shafts. APS also drilled and sampled all the borings for DOTD through the geotechnical retainer and tested in-house by APA laboratory.

### Key Members:

Sergio Aviles, PE; Sai Eddanapudi, PE; Surendra Raj Pathak, PE; Donna Easterly; Cindy Falks; Melvin Vasquez; Eric Bateaste; Oscar Johnson; and Trenton Anderson

### Scopes of Work Relevant to the contract:

- GEOTECHNICAL EXPLORATIONS
- GEOTECHNICAL DESIGN
- GEOTECHNICAL CONSTRUCTION
- TOPOGRAPHIC SURVEY
- CMAR
- CONTRACT MANAGEMENT



## 17. Firm Experience:

Firm name	Bridge Diagnostics, Inc. (BDI)	Past Performance Evaluation Discipline(s)*	Bridge
Project name	Advanced Inspection of City Park Lake Bridges		Firm responsibility (prime or sub?) Prime
Project number	H.009730.5	Owner's name	Louisiana Department of Transportation and Development
Project location	Baton Rouge, Louisiana	Owner's Project Manager	Wei Peng
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70802   225.379.1486   wei.peng@la.gov		
Services commenced by this firm (mm/yy)	08/19	Total consultant contract cost (\$1,000's)	\$86
Services completed by this firm (mm/yy)	07/20	Cost of consultant services provided by this firm (\$1,000's)	\$61

BDI performed a NHI visual inspection of bridges 052690 and 052680 carrying I-10 over City Park Lake, which was supplemented by a comprehensive multi-technology nondestructive evaluation (NDE). 052690 and 052680 are a set of sister bridges that each carry 7 spans of I-10. The superstructure is a continuous steel multi-girder design with pin and hanger details and built-up members. Both the EB and WB structures consists of three built-up continuous girders spaced at 20' with WF diaphragms and ST Lateral Wind Bracing. The substructure of the bridge consists of cast in place reinforced concrete bents on round cast-in-place concrete piles and precast concrete piles. NHI visual inspection encompassed the entirety of the structure, while NDE was focused on the reinforced concrete bridge deck and substructure units. The NDE of the substructure included infrared thermography to locate and quantify square footages of delaminations of the piers and pier caps. The NDE of the bridge deck included Infrared Thermography (IR), High-Resolution Imagery (HRI), Deck Acoustic Response (DAR), and GRP, all at highway speeds, to locate and quantify square footages of shallow delaminations and rebar cover of the bridge deck. The visual inspection was conducted using a 360 camera and remote imaging techniques. Footage was collected of the entirety of the substructure and superstructure and reviewed per NHI procedures for any notable deficiencies or maintenance items. The final deliverables of the NDE and visual inspection included the following:



### Scopes of Work Relevant to the contract:

- LADOTD PROJECT
- INSTRUMENTATION
- NONDESTRUCTIVE TESTING

- Stitched High-Resolution images of the entirety of the bridge decks, with overlaid IR, GPR, DAR, and GPR results
- Total quantities of patching, spalling, and delaminations of the bridge decks
- Findings of the visual inspection with all photos, descriptions, and locations of any notable deficiencies and/or maintenance items.
- Synthesis of the visual inspection and NDE to obtain AASHTO Element Level Condition states quantities for the deck and superstructure, which were then uploaded into the owner's asset management program.

Key Members: Shane Boone; Charlie Young



## 17. Firm Experience:

Firm name	Bridge Diagnostics, Inc. (BDI)	Past Performance Evaluation Discipline(s)*	Bridge
Project name	Norris Bridge Pin and Hanger NDT, Emergency & Ongoing Monitoring	Firm responsibility (prime or sub?)	Prime
Project number		Owner's name	Virginia Department of Transportation (VDOT)
Project location	Whitestone, Virginia	Owner's Project Manager	Annette Adams
Owner's address, phone, email	1401 East Broad Street, Richmond, VA 23219   540.273.1008   annette.adams@vdot.virginia.gov		
Services commenced by this firm (mm/yy)	10/17	Total consultant contract cost (\$1,000's)	Unknown
Services completed by this firm (mm/yy)	Present	Cost of consultant services provided by this firm (\$1,000's)	\$445.8

In 2017 BDI performed an inspection of one hundred forty-six (146) pin and hanger assemblies. The inspection utilized visual and ultrasonic testing methods including straight beam ultrasonic testing (UT) and phased array ultrasonic testing (PAUT) in accordance with the American Society of Nondestructive Testing (ASNT) and Federal Highway Administration (FHWA) Guidelines for Ultrasonic Inspection of Hanger Pins. During this NDT inspection, BDI obtained irregular results on two of the pins. It was not immediately known what the defect was within the pin so the structure was load posted for 15 tons until a load test and monitoring could be added to the catch system. Within 48 hours of discovering the abnormality, BDI designed, built, and installed a wireless strain gage monitoring system on the catch system at these areas. All of the data was transmitted to BDI's monitoring website and displayed on a web-based platform. The system is also providing alerts via SMS, email, and telephone call if/when thresholds are exceeded. Once the construction was complete, BDI removed all instrumentation.



### Scopes of Work Relevant to the contract:

- ASSESSMENT OF INSTRUMENTATION NEEDS AND INSTRUMENTATION PLAN
- FIELD INSTRUMENTATION INSTALLATION
- INSTRUMENTATION AND NONDESTRUCTIVE TESTING
- DATA ACQUISITION AND COMMUNICATION
- INSTRUMENTATION MAINTENANCE AND PROBLEM RESOLUTION
- LOAD TESTING, DATA ANALYSIS

As a risk mitigation step, VDOT decided to expand the monitoring system to all catch systems on the structure as well as perform load testing for several deficient truss bays. This ongoing monitoring program is set to alert the DOT of any change in stress state the catch system experiences, indicating an in-depth inspection of these areas is required. In 2020, BDI was again tasked to perform NDT on all of the pins, similar to the 2017 inspection. No change in condition were found this time, but the catch system monitoring will be left in place indefinitely.

**Key Members:** Brett Commander; Shane Boone

## 17. Firm Experience:

Firm name	Bridge Diagnostics, Inc. (BDI)	Past Performance Evaluation Discipline(s)*	Bridge
Project name	IDIQ Contract for Complex Bridge Load Rating Services Task 5 – Off-System Bridge Ratings and Evaluation Statewide	Firm responsibility (prime or sub?)	Sub
Project number	4400010099	Owner's name	Louisiana Department of Transportation and Development
Project location	Various, Louisiana	Owner's Project Manager	Wei Peng
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70802, (225) 379-1486, wei.peng@la.gov		
Services commenced by this firm (mm/yy)	10/21	Total consultant contract cost (\$1,000's)	Unknown
Services completed by this firm (mm/yy)	Present	Cost of consultant services provided by this firm (\$1,000's)	\$456

As part of the scope of Task Order 5 of this contract, BDI performed live-load testing and field-verified load ratings on ten (10) off-system structures. These structures were selected from a list of structures that were determined to require load posting based on load ratings previously performed in this contract and included three (3) reinforced concrete slab bridges and seven (7) metal culverts of various types/configurations. These selected structures are intended to be representative of a larger sample set of similar structures that the results are intended to make broader assumptions about the group of bridges as a whole.

### Scopes of Work Relevant to the contract:

- LADOTD PROJECT
- ASSESSMENT OF INSTRUMENTATION NEEDS
- INSTRUMENTATION PLAN PREPARATION
- FIELD INSTRUMENTATION INSTALLATION
- DATA ACQUISITION AND COMMUNICATION
- INSTRUMENTATION MAINTENANCE AND PROBLEM RESOLUTION
- LOAD TESTING, DATA ANALYSIS, AND LOAD RATING

Live load tests were performed to aid in evaluating the structures in their current condition. The overall goal of these tests was to better understand the structure's behavior and in turn provide field-verified load ratings for each structure. To achieve this goal, the collected structural responses were used to generate a field-verified finite-element model (FEM) of the structure.

This field-verified FEM was then used to compute field-verified load ratings according to the AASHTO Manual for Bridge Evaluation (MBE) and the LADOTD Bridge Design and Evaluation Manual (BDEM).



**Key Members:** Brett Commander, Principal Engineer; Brice Carpenter, Lead Analysis/Rating Engineer; Jesse Sipple, QC Engineer/Project Manager

## 17. Firm Experience:

Firm name	Gaea Consultants, LLC		Past Performance Evaluation Discipline(s)*	Environmental
Project name	Almonaster Avenue Bridge Rehabilitation & New Connector Road		Firm responsibility (prime or sub?)	Sub
Project number	20-003	Owner's name	Port of New Orleans	
Project location	New Orleans, LA		Owner's Project Manager	Adam Gulino
Owner's address, phone, email	1350 Port of New Orleans Place; New Orleans, LA 70130; 504.528.2551   adam.gulino@portnola.com			
Services commenced by this firm (mm/yy)	12/20	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)		72.3

The Almonaster Avenue Bridge is a historic rail and vehicular bridge over the Inner Harbor Navigation Canal. Rehabilitation of the bridge requires a Categorical Exclusion and permitting services. Gaea is performing all environmental services required under NEPA for a Categorical Exclusion and obtaining permits from the Louisiana Department of Natural Resources and Department of Environmental Quality, US Army Corps of Engineers, US Coast Guard, and Southeast Louisiana Flood Protection Authority-East.

Key Members: Tonja Marking, Peyton McGaga, Lauren Peytavin

### Scopes of Work Relevant to the contract:

- COASTAL USE PERMIT
- SECTION 10/404 PERMIT
- LEVEE PERMIT
- BRIDGE PERMIT
- NEPA/CATEGORICAL EXCLUSION



## 17. Firm Experience:

Firm name	Gaea Consultants, LLC		Past Performance Evaluation Discipline(s)*	Environmental
Project name	Orpheum Levee Slope Pave		Firm responsibility (prime or sub?)	Sub
Project number	21-003	Owner's name	Southeast Louisiana Flood Protection Authority - East	
Project location	New Orleans, LA		Owner's Project Manager	Donald Jerolleman, Jr
Owner's address, phone, email	6920 Franklin Avenue, New Orleans, LA 70122   504.286.3118   djerolleman@floodauthority.org			
Services commenced by this firm (mm/yy)	09/21	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)		52.6

The Southeast Louisiana Flood Protection Authority East recognized the need for additional levee protection along Orpheum Avenue to eliminate ongoing damage from large vehicles exceeding paved turning radii. Gaea Consultants is providing conceptual and final design drawings, permitting assistance, and drainage impacts analyses. Gaea performed drainage analysis along the length of the project area to understand how the new impervious surfaces would alter drainage conditions and adjusted the pavement design to address additionally

created stormwater runoff. Gaea has initiated the USACE 408 permit application process, coordinating with USACE and the Levee Authority. We will apply through the Joint Permit Application for CUP and Section 10 permits, and process the application for a levee permit once final design has been accepted by the Levee Authority.



### Scopes of Work Relevant to the contract:

- COASTAL USE PERMIT
- SECTION 10/404 PERMIT
- LEVEE PERMIT
- SECTION 408 PERMIT

Key Members: Tonja Marking, Peyton McGaga, Lauren Peytavin

## 17. Firm Experience:

Firm name	KTA-Tator, Inc.		Past Performance Evaluation Discipline(s)*	Bridge
Project name	SR105 at Haulover Creek (Bridge No. 720063)		Firm responsibility (prime or sub?)	Sub
Project number	N/A	Owner's name	Florida DOT – WSP (Prime Consultant)	
Project location	Duval County, FL		Owner's Project Manager	Ziwei Yang, PE (WSP)
Owner's address, phone, email	5411 Sky Center Drive, Suite 650, Tampa, FL 33607 813-520-4408 ziwei.yang@wsp.com			
Services commenced by this firm (mm/yy)	01/22	Total consultant contract cost (\$1,000's)		\$500
Services completed by this firm (mm/yy)	03/22	Cost of consultant services provided by this firm (\$1,000's)		\$5

Bridge No. 720063 carries SR105 over Haulover Creek in Duval County Florida. The bridge was built in 1948 and is 222 feet long with one steel main span at 44 feet. It has 5 rolled girders and concrete diaphragms beneath the roadway.

In 2022, KTA completed a coating condition assessment of this bridge. The purpose of this assessment was to determine the condition of the existing coatings on the structure in order to develop a maintenance painting strategy for the bridge.

A visual assessment of the coated surfaces was conducted to determine the type, extent, and location of coating breakdown and corrosion on the structure. Coating thickness, number of coats, and adhesion were determined using appropriate instrumentation. Samples were removed for further laboratory examination to determine if toxic metal concentrations were present in the existing coatings and to generically identify the coating type. The results of the field and laboratory testing, a discussion of those results, and photographs were included in a report prepared and submitted to WSP. A discussion of various maintenance painting options was presented along with recommendations and Plan Notes for the maintenance painting on this structure.



### Scopes of Work Relevant to the contract:

- COATING CONDITION ASSESSMENT
- COATING SAMPLE REMOVAL/ANALYSIS
- DEVELOPMENT OF A MAINTENANCE PAINTING STRATEGY AND RECOATING RECOMMENDATIONS

Key Members: Greg Richards, Pedro Sanchez

## 17. Firm Experience:

Firm name	KTA-Tator, Inc.		Past Performance Evaluation Discipline(s)*	Bridge
Project name	Jackson Avenue (Red River) Lift Bridge		Firm responsibility (prime or sub?)	Sub
Project number	4400013322, TO 1	Owner's name	LADOTD (Gresham, Smith Partners – GSP – Prime Consultant	
Project location	Alexandria, LA	Owner's Project Manager	John Weres, GSP	
Owner's address, phone, email	10000 Perkins Rowe, Suite 280, Baton Rouge, LA 70810   225-960-5480   john.weres@greshamsmith.com			
Services commenced by this firm (mm/yy)	02/20	Total consultant contract cost (\$1,000's)	\$5,000	
Services completed by this firm (mm/yy)	05/20	Cost of consultant services provided by this firm (\$1,000's)	\$11	

The Jackson Avenue (Red River) Lift Bridge in Alexandria, Louisiana carries two lanes of traffic over the Red River. The main span is a through truss design with a 300' vertical lift span.

Under Gresham Smith's task order agreement with LADOTD, KTA completed a coating condition assessment of this bridge. The purpose of this assessment was to determine the condition of the existing coatings on the structure in order to develop a maintenance painting strategy for the bridge.

A visual assessment of the coated surfaces was conducted to determine the type, extent, and location of coating breakdown and corrosion on the structure. Coating thickness, number of coats, and adhesion were determined using appropriate instrumentation. Samples were removed for further laboratory examination to determine if toxic metal concentrations were present in the existing coatings and to generically identify the coating type. The results of the field and laboratory testing, a discussion of those results, and photographs were included in a report prepared and submitted to Gresham Smith. A discussion of various maintenance painting options was presented along with recommendations for the maintenance painting on this structure.



**Key Member:** Robert S. Lanterman

### Scopes of Work Relevant to the contract:

- COATING CONDITION ASSESSMENT
- COATING SAMPLE REMOVAL/ANALYSIS
- DEVELOPMENT OF A MAINTENANCE PAINTING STRATEGY AND RECOATING RECOMMENDATIONS

## 17. Firm Experience:

Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	IDIQ for In-Depth Inspection of Complex Bridges, Statewide, Louisiana.	Firm responsibility (prime or sub?)	Sub
Project number	4400009104	Owner's name	Louisiana Department of Transportation and Development
Project location	Louisiana	Owner's Project Manager	Stephanie Doolittle, PE
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802   225.379.1329   stephanie.doolittle@la.gov		
Services commenced by this firm (mm/yy)	03/20	Total consultant contract cost (\$1,000's)	\$5,000
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm (\$1,000's)	\$600

As part of the current five-year retainer contract, M&N has and is performing the in- depth bridge inspections on complex and movable bridges throughout Louisiana. As a major subconsultant, M&N is performing complete in-depth inspections (fulfilling both routine & fracture critical inspection types). Level III inspections of submerged elements in accordance with the FHWA, BIRM, AASHTO MBE, AASHTO BEIM, and the LADOTD Bridge Inspection Manual (BIM) are being provided as needed. Bridge types include cantilever trusses, cable-stayed bridges, movable swing span bridges, and bascule bridges. Management, communication, and implementation of the QC plan is an instrumental component to this project.

- M&N performed the routine in-depth inspection of the Audubon Bridge, specifically to inspect 136 main cables and four 450-ft-high concrete towers. Professional rope access techniques were used to safely access each cable within arm's reach. Element quantities were recalculated, and additional defects were added with repair recommendations, but no serious deficiencies or critical findings were present.
- M&N performed the in-depth, routine, and fracture critical NBIS inspection of the Horace Wilkinson Bridge, specifically to inspect the main truss spans above the guardrail. Professional rope access techniques were used to safely access each non-redundant steel tension member. Element quantities were recalculated, and additional defects were added, but no serious deficiencies or critical findings were present. This is the first inspection to be completed without requiring lane closure; its success will afford consultant use for all biennial inspections.
- M&N performed the in-depth, routine, and fracture critical inspections of the Greater New Orleans Bridges and the Green Bridge, specifically to inspect the main truss spans. Professional rope access techniques were used to safely access each non-redundant steel tension member. Element quantities were updated, and additional defects were added with repair recommendations.
- M&N performed the in-depth and routine inspection of the Luling Bridge, specifically to inspect all bladders at the upper Gensui Dampers and at the lower friction dampers at 72 cables. Professional rope access techniques were used to safely access each cable within arm's reach.



**Firm members involved:** Chace Hulon, PE; Steven Armstrong, PE; Jeffrey Gazarek; Joshua Martinez, PE

## 17. Firm Experience:

Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	2017 Retainer Contract for Underwater Bridge Inspections, Statewide	Firm responsibility (prime or sub?)	Prime
Project number	4400009104	Owner's name	Louisiana Department of Transportation and Development
Project location	Louisiana	Owner's Project Manager	Haylye Brown, PE
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802   225.379.1500   haylye.brown@la.gov		
Services commenced by this firm (mm/yy)	06/17	Total consultant contract cost (\$1,000's)	\$1,346
Services completed by this firm (mm/yy)	12/21	Cost of consultant services provided by this firm (\$1,000's)	\$980

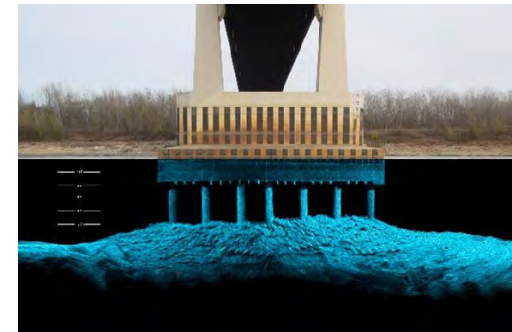
In June 2017, Moffatt & Nichol (M&N) began a four-year statewide retainer contract with LADOTD to provide Levels I, II, and III NBIS underwater bridge inspections throughout Louisiana. All inspections were completed in accordance with current FHWA, CFR, AASHTO, and LADOTD standards and guidelines. M&N has performed over 215 underwater bridge inspections under this contract and over 900 inspections total. For each inspection, M&N provided a detailed inspection report within 30 days and entered inspection data into LADOTD's asset management tool (AssetWise). As part of M&N's quality control process, each inspection report was reviewed a minimum of three times, with subsequent reviews performed by team members with increasing levels of experience/ qualifications.

Of particular note, Moffatt & Nichol was tasked with the development of the first comprehensive Bridge Inspection Manual (BIM) for LADOTD Bridge Program. Chace Hulon, PE, was Chief Editor. The BIM is designed as a single, centralized reference manual and aligns the goals of the Bridge Inspection Office Headquarters with all nine DOTD districts. It also allows for better communication and quality management between the DOTD project managers, their local bridge owners, and their consultants.

The BIM was designed to be used electronically on tablets as a reference file accessible to all DOTD bridge inspection team leaders. It includes nine chapters intuitively ordered in a systemic fashion with hyperlinks throughout for quick referencing to vital documents. It also allows for documented annual revisions or critical updates following federal policy changes.

Moffatt & Nichol compiled all DOTD reference material, outlined the BIM, held routine (weekly) progress meetings with DOTD PM, FHWA representative, & subject matter experts on the committee, provided statewide programmatic guidance with a national perspective, verified compliance with FHWA's 23 National Bridge Inspection Program Metrics, & presented BIM at a DOTD statewide conference.

**Firm members involved:** Chace Hulon, PE; Steven Armstrong, PE; Joshua Martinez, PE; Jeffrey Gazarek





## 17. Firm Experience:

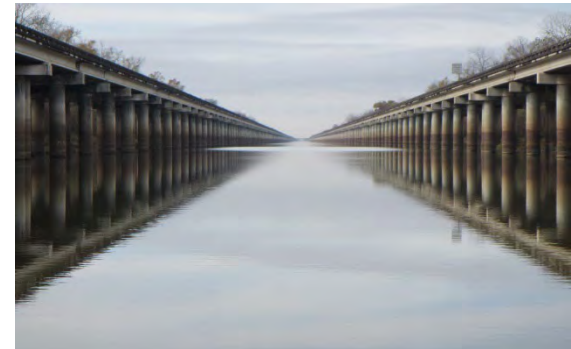
Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	Retainer Contract for Underwater Bridge Inspections, Statewide	Firm responsibility (prime or sub?)	Prime
Project number	4400003533	Owner's name	Louisiana Department of Transportation and Development
Project location	Louisiana	Owner's Project Manager	Haylye Brown, PE
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802   225.379.1500   haylye.brown@la.gov		
Services commenced by this firm (mm/yy)	03/14	Total consultant contract cost (\$1,000's)	\$3,243
Services completed by this firm (mm/yy)	12/17	Cost of consultant services provided by this firm (\$1,000's)	\$2,822

As part of the previous five-year retainer contract, Moffatt & Nichol has performed 10 task orders related to underwater bridge inspections throughout Louisiana. Teams of ADCI-certified engineer-divers provided Level I, II, & III underwater inspections in accordance with the National Bridge Inspection Standards and LADOTD PONTIS Inspection Manual. 687 bridges were inspected statewide. Bridge types inspected consisted of movable swing span bridges, bascule bridges, truss bridges, timber stringer bridges, cable-stayed bridges, single and multi-span girder bridges up to 8 miles in length, constructed of concrete, steel and timber materials. Site conditions included salt, brackish, and freshwater and riverine conditions with varying levels of current having low to no visibility.

Underwater Acoustic Imaging (UAI) was performed in response to emergency investigations following major flood events to inspect scour around the substructure units.

Report submittals included a description of each structure and elements inspected and existing conditions, shoreline conditions, presence of debris in the waterway, with NBIS ratings for Item 60 - Substructure and Item 61 - Channel condition, element level condition states for all elements inspected, and recommendations for repair and maintenance. Three Quality Control reviews were performed for each bridge report by the inspection team and Quality Assurance reviews were performed on 5% of the reports by an independent NBIS team leader.

**Firm members involved:** Chace Hulon, PE; Steven Armstrong, EI; Josh Martinez, PE; Jeffrey Gazarek



## 17. Firm Experience:

Firm name	Urban Systems	Past Performance Evaluation Discipline(s)*	Traffic
Project name	Bridge Preventative Maintenance Port Allen Bridge	Firm responsibility (prime or sub?)	Sub
Project number	H.001234.4	Owner's name	LADOTD
Project location	Port Allen, LA	Owner's Project Manager	Brian Delatte
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70804, (225) 379.1823, Brian.Delatte@LA.GOV		
Services commenced by this firm (mm/yy)	11/12	Total consultant contract cost (\$1,000's)	Unknown
Services completed by this firm (mm/yy)	06/16	Cost of consultant services provided by this firm (\$1,000's)	\$62.6

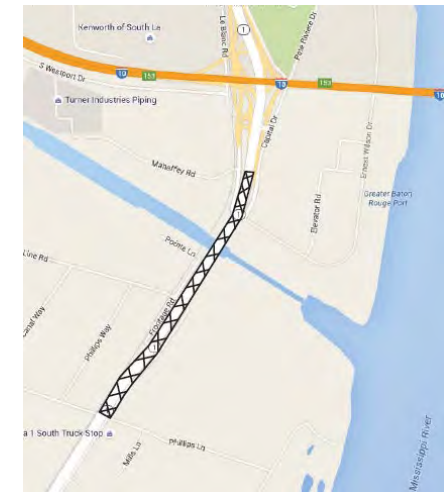
The objective was to conduct a Level 3 Transportation Management Plan (TMP) based on LADOTD EDSM VI.1.1.8 for reconstruction of two (2) bridge structures over the Intracoastal Waterway (ICWW) in Port Allen, Louisiana. A TMP was critical for this location as the LA 1 bridges serves as the major crossing of the ICWW and serves up to 45,000 vehicles per day. An important aspect of this project was how to minimize construction impacts on an already congested roadway section. Peak intersection turning movements and seven-day hourly volume counts with classification were collected within the study area. Peak intersection capacity analysis was conducted using Synchro software to determine the impact the different phases on construction would have on the subject intersections. A unique part of the capacity analysis was to analyze a non-typical stop-controlled intersection with different gap acceptance values to match field conditions.

A safety analysis was conducted based on the LADOTD's *Guidelines for Crash Data Analysis, June 2014*. Crash rates were calculated for each location and compared to LADOTD's statewide averages and to LADOTD's High Potential for Safety Improvements (formerly the Abnormally High Crash) List. Charts were developed at each location based on collisions by type, injury severity, time and pavement conditions.

An important strategy to minimize work zone impacts was an evacuation plan as LA 1 is a critical artery during a hurricane evacuation.

A list of potential stakeholders was developed for a future stakeholder's meeting. The list was crucial for this project as many port related and industrial business are located in the project area and should be informed about the project.

**Members Utilized in this Project Submittal:** A. Michel, A. Cooper, N. Stewart



## 17. Firm Experience:

Firm name	Urban Systems	Past Performance Evaluation Discipline(s)*	Traffic	
Project name	Huey P. Long Bridge Widening (Westbank and Eastbank Approaches and Main Bridge Deck Widening)	Firm responsibility (prime or sub?)	Sub	
Project number	SP 005-10-0037/006-01- 0021/006/02/0064/006-25 0001/006-30-0041	Owner's name	LADOTD	
Project location	Route US 90 Jefferson Parish, LA	Owner's Project Manager	Lee Horstmann	
Owner's address, phone, email	1201 Capitol Access Road Baton Rouge, LA 70802, (504)302.2200, lee.horstmann@kiewit.com			
Services commenced by this firm (mm/yy)	02/11	Total consultant contract cost (\$1,000's)	Unknown	
Services completed by this firm (mm/yy)	04/13	Cost of consultant services provided by this firm (\$1,000's)	\$49.3	

Urban Systems, Inc. provided Traffic Engineering Services for the Huey P Long Project for the contractor starting about half-way into the construction project. This was a multi-phase project as construction conditions and required closures changed.

A few of the phases that were addressed were:

- Jefferson Highway Detours
- Huey P. Long Bridge Southbound Approach Closure
- Huey P. Long Bridge – Rerouting Huey P. Long Northbound Approach

Plans for these phases included the following:

- **Traffic Control Devices Plans** for the redirection and protection of traffic in the active area of construction.
- **Traffic Signal Plans** for the installation of temporary traffic signal heads. The temporary signals were utilized in conjunction with the permanent signal plan. The plans included the temporary striping and signage that were required in addition to the permanent installation.
- **Permanent Pavement Markings and Signs Plans** which were used to identify which signs should be covered and which striping should not be installed during each phase of construction.



*Members Utilized in this Project Submittal: A. Michel, N. Stewart*

## 17. Firm Experience:

Firm name	Urban Systems	Past Performance Evaluation Discipline(s)*	Traffic
Project name	TMP for I-10 West of LA 108 and I-210 Interchange		Firm responsibility (prime or sub?) Sub
Project number	H.009620.5-1	Owner's name	LADOTD
Project location	Calcasieu Parish, LA	Owner's Project Manager	Hadi Shirazi
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70804, (225)379.1929, Hadi.Shirazi@la.gov		
Services commenced by this firm (mm/yy)	05/18	Total consultant contract cost (\$1,000's)	Unknown
Services completed by this firm (mm/yy)	04/19	Cost of consultant services provided by this firm (\$1,000's)	\$70

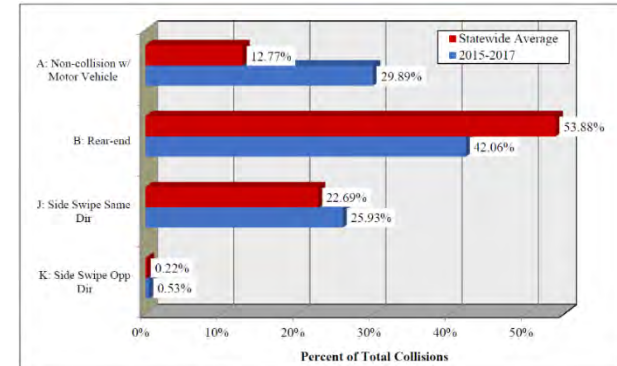
The objective of this project was to assist with conducting a Level 4 Transportation Management Plan (TMP) based on LADOTD EDSM VI.1.1.8 for rubblize and overlay work on US 90 over I-10 in Calcasieu Parish, Louisiana. The objective of the TMP was to identify the challenges and to address strategies to minimize the traffic delays associated with the lane closures, demand volumes and incidents within the construction limits and primary detour roadways on I-10 and I-210 within the Lake Charles Metropolitan Area. This project also updated a TMP performed for the I-210 Prien Lake Bridge Re-Decking and Safety Improvement Project (H.010916.5) dated January 2016.

Traffic data was reviewed within the study area and a field visit was conducted to verify information on roadway geometrics and traffic conditions. A traffic data report was developed and submitted for inclusion in the TMP document.

A safety analysis was conducted based on LADOTD guidelines. Crash rates were calculated for each location and compared to LADOTD's statewide averages and to LADOTD's High Potential for Safety Improvements (formerly the Abnormally High Crash) List. Charts were developed at each location and compared to statewide averages based on various categories. Crash diagrams were also developed to document the number, location and type of crashes. Each crash report was reviewed for accuracy.

An alternative route analysis was conducted for an assessment of the proposed detour routes. The analysis also included a safety and mobility plan to gather and address concerns for the detour routes.

**Members Utilized in this Project Submittal:** N. Stewart , A. Cooper, C. Darrah



## 18. Approach and Methodology:

**Project Management:** This contract involves providing bridge engineering services for various fixed concrete or steel girder bridges and movable bridges. Bridge project types may include, but are not limited to, new bridges, bridge replacements, bridge rehabilitation, bridge preventive maintenance and repair, and roadway lighting. Bridge engineering services include, but are not limited to, structural, mechanical, electrical, and architectural feasibility, design, and plan development including the following:

- Inspection and evaluation of existing fixed and movable bridges or other structures (sign trusses, fender systems, etc.) and preparation of the report.
- As-designed, as-built, and condition bridge ratings.
- Design peer review of developed plans or conceptual designs to verify concept, constructability, and accuracy of designs along with associated reports, conclusions, calculations, and recommendations as needed.
- Construction engineering support including construction drawing review, shop drawing review, request for information support, contractor proposals, etc.

H&H will implement a proven approach to address the multidisciplined aspect and challenges of fixed concrete or steel girder bridges and movable bridge projects. Our PM will be supported by highly qualified staff of engineers experienced in movable bridge

inspection and design. Each bridge project will be assigned a Project Engineer (designated for that bridge) and discipline leads experienced in movable bridge structural, mechanical, electrical, and architectural design. Each team will be supported by Technical Advisors and QA/QC Leads. This senior group will work with the PM to assign production and QC staff experienced with the specific movable bridge type and anticipated corrective action. Assigning dedicated project staff with the relevant expertise and experience to each bridge project is effective in ensuring each bridge receives the focus needed to achieve project success. Our movable bridge staff experience is derived from delivering more than 30 new movable bridge projects and more than 100 rehabilitative movable bridge projects in the past 10 years. H&H has the largest movable bridge staff in the US, including a full staff of structural, mechanical, and electrical engineers located in our New Orleans office.

As the first order of business, our PM will prepare a Project Management Plan (PMP), including project schedule and QA/QC Plan (refer to our QMP included in this submittal) addressing work through delivery for each task. The PMP will be updated following agreement on the scope of work and prior to initiating the design phase. An example of a typical bridge rehabilitation schedule is shown below:

Typical Movable Bridge Rehabilitation Schedule																					
Task	Duration (Wks)	Months																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Document Review	4	■	■																		
2. LRFR Load Rating	8		■	■	■	■	■														
3. NBIS Inspection/Report*	8			■	■	■	■	■													
4. Scope of Work Proposal	2					■															
5. Scope of Work Meeting	2						■														
6. Design, Documentation	44							■	■	■	■	■	■	■	■	■	■	■	■	■	■
7. Permitting*	30											■	■	■	■	■	■	■	■	■	■
8. SHPO Coordination*	10											■	■	■	■	■					
9. Pre-Bid	12																		■	■	■

**Document Review (Pre-Inspection Activities)** H&H will work with DOTD to collect available information on the bridges. The information will be reviewed and summarized for inclusion in the assessments. Desktop surveys and/or coordination with agencies such as the USCG, USACE, utility owners, emergency services, and other identified

stakeholders, will be performed to determine the site or operational constraints that may affect rehabilitation scope or cost. The Project Engineer and Discipline Leads will prepare an NBIS in-depth inspection plan with a focus on safety and identification of conditions that may impact the scope of work. We will meet with DOTD staff to determine

resiliency goals related to hurricane/flood and vessel impacts, such as criteria for design event, flood elevations, and design vessel(s). This approach will enable effective evaluation while in the field. We will coordinate with DOTD to obtain the operation and maintenance manuals from each bridge. This information will be used to assess the current movable bridge equipment and to determine areas to focus on and verify during the inspections.

**Load Rating** H&H will perform LRFR load ratings, as amended by DOTD BDEM. We will perform the initial load rating prior to inspection to assess strengthening needs and allow a field review of those needs during the inspection. Our team has current experience with AASHTOWare Bridge Rating (BrR), and Bridge Design (BrD) and we have applied our load rating expertise to more than 2000 bridges in 10 years. For more complex bridges, we will develop 3D models using CONSPAN, MIDAS, CSI Bridge, and other software as required to accurately determine load rating. To avoid load posting, refined analyses will be performed as needed and we will update load ratings following inspection if required due to newly identified conditions.

**NBIS In-Depth Bridge Inspection (where required)** H&H qualified inspectors with FHWA training will perform the required NBIS inspections. Our team's extensive experience and certifications in movable bridge inspections will be used to determine the root cause of deficiencies which will lead to the development of effective repair details. Existing conditions often vary from as-built plans - detailed field reviews are an H&H standard protocol. As needed, we will utilize 3D laser scanning to determine conditions and confirm fit-up of proposed modifications. The H&H team, including our architect and coatings specialist, will meet on-site with District Bridge Maintenance personnel at the beginning and at the end of the fieldwork. Our engineers will interview maintenance personnel to gather operational history of equipment and recent bridge maintenance issues. These meetings will supplement the "snapshot" of conditions evident in an inspection and provide an awareness of ongoing or intermittent bridge issues. Our engineers will inspect the bridge systems with extra attention on those issues noted from the interviews and on typical failures that fall outside applicable AASHTO, DOTD, and FHWA inspection and evaluation manuals. Follow-up meetings will take place and provide an opportunity to review critical issues and discuss root causes and potential solutions to notable conditions. Inspections and documentation will comply with DOTD requirements. Inspection methods will include traditional hands-on inspection of tender facilities and mechanical and electrical equipment, and drone inspection of structures followed by hands-on inspection where appropriate. Climbing will be performed by SPRAT-certified inspectors when applicable. Key systems and elements will be reviewed for vulnerabilities to hurricane/flood damage and vessel impact. Inspection will follow fall protection and confined space access safety precautions. Our subconsultant, M&N, will assist with inspecting bridges, sign trusses, fenders, and underwater inspections when needed.

**Operator's House Inspections:** Bridge operator's safety, comfort, and access in addition to visibility of the roadway, sidewalk, and channel are important for the overall operation, reliability, and public safety. We will assess the condition of the facilities including roof, windows, doors, hatches, HVAC, and lavatories. Recommendations to replace/modify bridge components (e.g., operator house roof) with Historical Bridge Categories of Preservation Priority or Preservation Candidate will require review of the Section 106 Programmatic Agreement Regarding Management of Historic Bridges and coordination with SHPO. Several of our staff have completed the required "Maintenance and Rehabilitation of Historic Bridges" training.

**Structural Inspections:** Particular attention will be paid to fatigue sensitive details and corrosion susceptible connections on the movable span such as internal open steel grid deck welds and welded connections to the steel framing, welded flange splices in tension zones, bolted or riveted girder splices, stringer copes, live load-bearing stiffeners, concrete/steel interfaces at counterweights, steel railing post connections, and lateral bracing horizontal connection plates. Structural interfaces with machinery, whether steel or concrete, will be examined to determine if there are any signs of relative movement, such as crevice corrosion or failing grout – often an early sign of a developing problem. Structural supports for movable span support systems such as span locks, end wedges, trunnion bearings, center wedges, live load shoes will be a point of emphasis as these are subject to cyclic impact loading. Movable span joints and associated structural supports will be inspected for indications of interference or excessive opening widths.

**Bascule Bridges:** Inspection will include a field assessment of the span balance and support system. This will include a drift test and span motor power readings to confirm the nature of the balance condition as well as an evaluation of seating conditions. Live load bearings and locking mechanisms will be inspected and measured for uniformity of contact under seating and traffic loading conditions. Support conditions will be observed during lock engagement to determine if the contact at live load bearings is affected by lock system alignment. Main girders on trunnion bascules will be examined at the trunnion hubs to determine if there are signs of misalignment or relative movement between the hub and web. Rolling lift bridges will be examined for abnormal wear of the track and tread assemblies that may indicate misalignment. In addition, the condition and integrity of the tracks, treads, and rolling flanges will be examined for potential crack development and fastener deterioration or failure. **Swing Bridges:** Inspection will include field assessment of the span balance and support system machinery. The operating sequence will be observed to confirm that each component of the system is properly aligned and results in secure positioning of the swing span under all operating conditions. Interfaces of the pivot girders and balance wheel support girders will be inspected for signs of deformation, corrosion, or misalignment that may hinder proper alignment and load distribution. **Lift Bridges:** Particular attention to fatigue sensitive details and corrosion susceptible connections on the lift span such as internal open steel grid deck

welds and welded connections to the steel framing, welded flange splices in tension zones, bolted or riveted girder splices, stringer copes, live load-bearing stiffeners, concrete/steel interfaces at counterweights, steel railing post connections, and lateral bracing horizontal connection plates. Structural interfaces with machinery, whether steel or concrete, will be examined to determine if there are signs of relative movements, such as crevice corrosion or failing grout – often an early sign of a developing problem. Lift span joints and associated structural supports will be inspected for indications of interference or excessive opening widths. Items of inspection emphasis include:

- Rocker bearing / load shoe assemblies – span seating and thermal movement
- Gusset plates – corrosion, fasteners
- Span guides & guide rails – clearances, wear, binding

**Machinery Systems Inspections** - In addition to standard machinery inspection processes outlined in the AASHTO Manual, our movable bridge engineers will inspect the systems bringing the knowledge of items that fall outside the standard manual. Our inspections will include assessing the vulnerability of movable bridges to flood damages with machinery located close to the flood elevation. Our inspectors are also designers allowing focus on improvements that can be made within existing spatial confines to improve durability, performance, and maintainability.

**Bascule Bridge:** Inspection will focus on trunnion assembly condition, machinery alignment, lubricant distribution and corrosion, and critical components that might be susceptible to flooding and water contamination. Deficiencies are often slow to develop, and early detection is key to avoiding a costly repair. Joint seals, water deflectors, or bearing shields will be considered to better protect trunnion bearings. For double-leaf bascule bridges, special attention will be given to center lock machinery during the inspection as center span locks are susceptible to wear due to large vehicular impact loads. **Swing Bridges:** The center and end support machinery (end lifts or wedge arrangement) are sometimes affected by long-term wear at the pivot bearing. Wear at the bearing will lower the swing span elevation and increase loading at the span ends to raise ends flush with the approaches. Swing bridge slewing cylinder systems will be inspected and tested to confirm the span decelerates smoothly in an E-stop or loss of power condition as many common valve configurations produce sudden stops resulting in high loads on the equipment and structure. Cylinder pins, bearings, and connections will be inspected for lubrication, seal condition, wear, and corrosion. **Lift Bridges:** Special attention to trunnion shaft fatigue cracks. We start with an analysis of the shaft, particularly at the fillet transition area where cracks are most likely to begin. This analysis determines whether the shaft is designed with an infinite life. If it is estimated to have a finite life, we can estimate the number of cycles to failure. Once the area is thoroughly cleaned, we prefer to use liquid mag-particle type of non-destructive testing (NDT) to identify crack indications. For bridges where it's challenging to obtain and coordinate a partial closure of work, we have also inspected using another type of applicable NDT

referred as center bore ultrasonic testing. This method checks for crack indications from the center and does not require cap removal or operation of the span. Wire rope inspection and mating sheave groove condition is another critical item for vertical lift bridges and typically wear and eventually form breaks at the tangent point of the main sheaves. This location is susceptible to crack formation due to wind pressure on the ropes with the bridge seated.

**Electrical Systems Inspections** - The electrical inspections will consist of a visual, aural, and operational testing of the bridge electrical equipment outlined in the DOTD Bridge Inspection and AASHTO Manuals. Particular attention will be given to the condition of existing selsyn transmitters and receiver systems utilized for span position on the control desk, electrical equipment survivability from hurricanes/flooding events, motor loading and insulation condition, and control system interlocks. **Bascule Bridges:** Additional focus will be given to the condition of existing submarine cables. Conductors shall be insulation resistance (megger) tested to ascertain the remaining service life of electrical components and wiring. All limit switches will be inspected. Limit switches at the toe of the bascule spans used to control span locks are susceptible to high vibration and may fail or provide a false indication of the span lock position. Limit switches in the bascule pit make maintenance of this equipment difficult to maintain and susceptible to flooding events. Verifying that these switches are in good condition is critical to preventing collision of the counterweight and bascule pit. **Swing Bridges:** Drag cables will be inspected for damage to the jacket insulation. If cable jackets are damaged or exposed to flooding, the cables could fail and require replacement. The location and condition of span position limit switches will also be inspected. Limit switches, critical for control and indicating span position, are typically located in the center pivot area and susceptible to flood damage. **Lift Bridges:** Additional emphasis will be given to the condition of aerial or droop cables. Special attention will be provided to these selsyn-based position indication systems because they are critical to the operation and indication of the vertical lift span and skew control of tower drive vertical lift bridges. These selsyn-based skew controllers are critical to maintaining a level span as the bridge operates. Aerial and droop cables are critical in providing power and control to electrical equipment located on the lift span or opposing tower. To determine the state of these cables, conductors will be insulation resistance (megger) tested to ascertain the remaining service life of electrical components and wiring.

**Sampling, Instrumentation, and Non-Destructive Testing (where required)** Our subconsultant, BDI, will provide sampling, instrumentation, and NDT services that may include, but are not limited to, collection of samples of materials from existing structures for evaluation, diagnostic and/or proof testing to determine specific structure response characteristics and/or to determine the causation of observed distresses, including magnetic particle and UT discussed above. Instrumentation will include design of plans, installation, data acquisition, analysis, and evaluation of structure

based on the instrumentation plan. Our subconsultant, KTA, will provide assessment and evaluation of protective coating material samples for determination of compatibility with proposed coatings, analysis for heavy metals, proper procedures for treatment, handling, disposal of waste, etc.

**Scope of Work Proposal and Meeting (Including Condition Assessment)** A baseline data set documenting current and potential future problems with the bridge systems will be developed along with repair options to mitigate the identified problems. Assessment will include options to improve flood and vessel impact vulnerability. The report will include a written description of each repair with photos of the current condition. Repairs will be designated as high, medium, or low priority. Proposed repairs will consider the cost of the repair/improvement and value-added to the bridge including better maintenance access, improved reliability, easier maintenance, better survivability of systems during storm events, the safety of vehicular traffic, marine traffic, pedestrians, and DOTD employees, permanence of repair, and marine/vehicular closure time during construction. We will estimate the remaining service life of each repair option. From this exercise, we will develop a preliminary corrective action matrix for short-term (10-15 years) and long-term (e.g., 40 years) repairs with cost estimates and probable impacts to navigation and/or vehicular traffic. Movable repair/rehab issues include:

- Understand the source of problems and fix the root cause vs. "patch" the defect
- Establish rational cost estimates and schedules
- Multi-disciplined approach for interface of structural/mech/electric/architectural work
- Owner preferences for systems and equipment
- Address preservation where required
- Develop and implement strategies to strengthen bridges that require load posting

**Innovations** **Innovation 1:** Bascule bridge span locks are often maintenance intensive. H&H's FDOT research project and Technical Advisor Jim Phillips' AASHTO T-8 research identified causes of span lock wear and developed better span lock configurations and details to improve service life and increase adjustment intervals. **Innovation 2:** Our new swing bridge end lift designs include an eccentric roller type detailed with enclosed bearings and sliding surfaces. We have used this detail on several swing bridges over the last 15 years. **Innovation 3:** Older vertical lift bridges often have a tight radius at the sheave trunnion shaft fillet transition that is prone to fatigue failure. Instead of replacing the sheave shaft and/or entire sheave, we have developed a field machining procedure to a larger radius and surface treating the area to reset the fatigue crack "clock" extending the service life. The cost of this innovation is approximately 10% of the replacing the assembly. **Innovation 4:** Attachments of the counterweight ropes to the lift span can be re-designed to include a new counterweight wire rope socket assembly with load sensing pins and shims for in-place rope tension measurement and adjustments. H&H implemented this innovation on the Judge Seeber Bridge.

**Construction Plans and Documents** H&H will follow the DOTD Bridge Design and Evaluation Manual and AASHTO criteria for developing construction plans and documents. Design and construction contract documents will address constructability and phasing of the work. Design peer review of developed plans or conceptual designs will be conducted to verify concept, constructability, and accuracy of designs along with associated reports, conclusions, calculations, and recommendations as needed.

#### **Environmental and Permitting Services**

Our subconsultant, Gaea, will provide environmental and permitting services. Required permits may include, but are not limited to, the following:

- Coastal use permits (CUP) from the LA Department of Natural Resources
- USACE wetland permits (404 and Nationwide) and Section 10 permits
- Water Quality Certification from the LA Department of Environmental Quality
- Scenic Stream permits from the LA Department of Wildlife and Fisheries
- Bridge permits from the US Coast Guard
- Levee permits from various levee boards

**Historic Bridge/Preservation** For bridges that are historic (Preservation Priority, Preservation Candidate or Preservation Non-Priority) work will be performed in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards), the Management Plan for Historic Bridges Statewide (Statewide Historic Bridge Plan), and the Programmatic Agreement among the Federal Highway Administration, the Louisiana Department of Transportation and Development, the Advisory Council on Historic Preservation, and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana.

**Geotechnical Engineering Services** Our subconsultant APS will provide all field exploration services necessary to perform geotechnical investigations, analysis, and design. H&H also has a Geotechnical Design Group that would be available if needed. Geotechnical services may include but are not limited to: Geotechnical field investigations including both shallow and deep soil borings; Geotechnical laboratory testing and analysis; Preparation of soil boring logs; Geotechnical analysis/design based on data obtained; and Construction related engineering services.

**Road Design and Traffic Services** Our team will provide all services necessary to perform hydraulic and road, design services with the assistance of our subconsultant Urban Systems for traffic investigation, analysis, and design. These services may include but are not limited to: Preliminary and final roadway design and plan development; Hydraulic analysis and design; Traffic engineering, traffic control design, and data collection; and Transportation Management Plan (TMP) development.

**Construction Engineering Support Services** Our team will provide construction engineering support during construction including construction drawing review, shop drawing review, request for information support, contractor proposals, etc.



## 19. Workload:

Firm(s)	Past Performance Evaluation Discipline(s) *	State Project Number	Project Name	Remaining Unpaid Balance**
Hardesty & Hanover	Bridge	H.002798.6	Bayou Teche Bridge at Oaklawn	\$70,305
	Road	H.014363.5	Sidewalk Improvements to Conform to ADA – Task Order 1 St. Tammany Parish	\$92,782
	CE&I/OV	H.001498.6	LA 24 and LA 316: Company Canal Bridge (CE&I), Terrebonne Parish	\$2,521,735
APS Engineering & Testing	Geotech	H.013127	Retainer Contract for Geotechnical Services	\$53,996
	Geotech	H.013144	Retainer Contract for Geotechnical Services	\$45,457
Bridge Diagnostics	Bridge	H.009730.5 44-17163	IDIQ Non Destructive Evaluation of Structures via SoundAR Whiskey Bay and Pilot Channel – Task Order 10	\$47,870
	Bridge	H.014703.5 44-17163	IDIQ for Non-Destructive Evaluation of Structures Calcasieu Parish – Task Order 9	\$25
	Bridge	H.009730.5 44-17163	IDIQ I-10 for Non Destructive Evaluation of Structures Atchafalaya Floodway and I-10 over Whiskey Bay Pilot Channel Bridge decks – Task Order 8	\$69,198
	Bridge	H.012280.1 44-09224	IDIQ for testing of Unknown Foundations, Statewide – Task Order 3 – 1802005	0.00
	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 1 General Services BDI1904004	\$3,679
	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 7 Bonnet Carre Spillway 2006002	\$94,864
	Bridge	H.009859.5 44-02791	Bonnet Carre & Bayou Ramos Monitoring System Maintenance	0.00
	Bridge	H.010603.6 44-02538	Mississippi Bridge at Vicksburg GPS Monitoring – 150901	\$2,934
	Bridge	H.012485.1 44-10099	IDIQ for Bridge Load Rating Services Statewide	0.00

Firm(s)	Past Performance Evaluation Discipline(s) *	State Project Number	Project Name	Remaining Unpaid Balance**
Gaea Consultants				0.00
KTA - Tator	Bridge	4400013321	IDIQ Contract for In-Depth Bridge Inspection Statewide (sub to HNTB) – KTA has not received any task order assignments on this contract to date.	0.00
	Bridge	4400013322	IDIQ Contract for In-Depth Bridge Inspection Statewide (sub to Gresham, Smith & Partners) Task Order #4 – In-Depth Inspection of Complex Structures	\$59,234
	Bridge	4400020156	State Project No. H.011965.5, LA 47, IWGO Bridge Rehabilitation (sub to TRC)	\$11,294
Moffatt & Nichol	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges, Task Order 4	\$252,121
	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges, Task Order 5	\$654,279
	Bridge	H.009730.5	IDIQ Contract for Underwater Bridge Inspection, Statewide	\$726,212
	Bridge	H.011331.5	LADOTD Inventory and Inspection of Sign Trusses	\$420,203
	Bridge	H.009730.5	LADOTD In-Depth Bridge Inspection, Task Order 3	\$473,944
	Data Collection	H.971294.1	LADOTD RIMS	\$79,996
Urban Systems	CE &I/OV	H.004791	Belle Chasse Bridge and Tunnel	\$116,574
	Traffic	H.011309.5	Mac Arthur Final Design	\$30,687
	Traffic	H.012812	US 190: Northshore and Camp Villere	\$11,014
	Traffic	H.004891	Reserve to I-20 Connector	\$51,641
	Traffic	H.010571	Williams Traffic Signal Design	\$22,750
	Traffic	H.011965.5	IWGO Bridge Rehabilitation	\$4,411

## **20. Certifications/Licenses:**

Provided on the following pages.



National Highway Institute

# Certificate of Training



ELIZABETH BARABAS, Hardesty & Hanover Inc

*has participated in*

**FHWA-NHI-130055/TxDOT DES804 Safety Inspection of In-Service Bridges**

*hosted by*

Texas Department of Transportation

Date: March 7, 2014  
Location: Austin, Texas

Hours of Instruction: 67

Instructor  
  
Instructor

Local Coordinator  
  
Richard Barnaby, Director  
National Highway Institute



National Highway Institute

# Certificate of Training

Elizabeth Barabas, P.E.

*has participated in*

**FHWA-NHI-130053 Bridge Inspection Refresher Training**

*hosted by*

Texas Department of Transportation

Date: December 11-13, 2018  
Location: Austin, TX

Hours of Instruction: 18

Instructor  
  
Instructor

Local Coordinator  
  
Valerie Briggs, Director  
National Highway Institute



National Highway Institute

# Certificate of Training



Elizabeth Barabas

*has participated in*

**FHWA-NHI-130078 Fracture Critical Inspection**

*hosted by*

Texas Department of Transportation

Date: April 19-22, 2016  
Location: Austin, TX

Hours of Instruction: 24

Instructor  
  
Instructor

Local Coordinator  
  
Valerie Briggs, Director  
National Highway Institute

## SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS



*Acknowledges that*

**ELIZABETH BARABAS**

*has demonstrated through practical and written examinations, attainment of SPRAT's Certification Requirements for Rope Access Work, and is therefore*

**CERTIFIED**

**Level I Rope Access Technician**

SPRAT #140659  
AWARDED: September 27, 2017  
Expires: September 27, 2020

CHARLEY RANKIN, EVALUATIONS COMMITTEE CHAIR  
  
WILLIAM MCCOOK, CEO/1, SPRAT PRESIDENT



National Highway Institute  
**Certificate of Training**



Jason Biddle

*has participated in*

**FHWA-NHI-130055 Safety Inspection of In-Service Bridges**

*hosted by*

**Marine Solutions, Inc.**

**Date:** April 3-14, 2017  
**Location:** Rosedale, MD

**Hours of Instruction:** 67

*Guy R. Lang PE*  
 Instructor

*Debralette Johnson*  
 Local Coordinator

*James A. Smith PE*  
 Instructor

*Valerie Briggs*  
 Valerie Briggs, Director  
 National Highway Institute



National Highway Institute  
**Certificate of Training**



Jason Biddle

*has participated in*

**NHI Course No. 130078**

**Fracture Critical Inspection Techniques for Steel Bridges**

*hosted by*



**Date:** June 25-28, 2018  
**Location:** Baltimore, Maryland

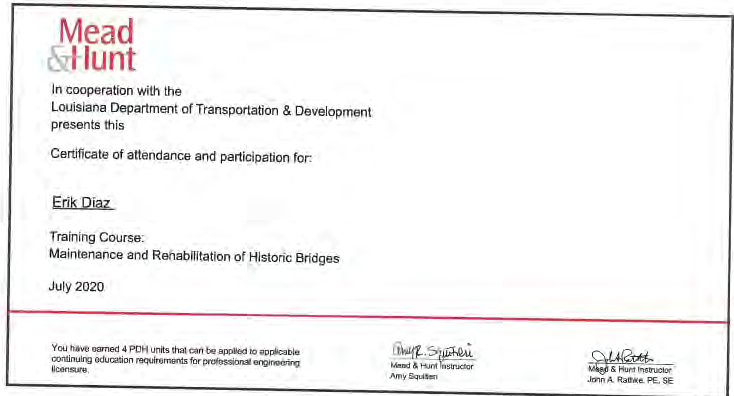
**Hours of Instruction:** 25

*Janet White*  
 Instructor

*Kaitlin Murphy*  
 Local Coordinator

*Valerie Briggs*  
 Instructor

*Valerie Briggs*  
 Valerie Briggs, Director  
 National Highway Institute





National Highway Institute  
**Certificate of Training**

**Timothy Harrington**

*has participated in*

**FHWA-NHI-130055 Safety Inspection of In-Service Bridges**

*hosted by*

**Texas Department of Transportation**

**Date:** February 06 - 17, 2017  
**Location:** Austin, Texas

**Hours of Instruction:**  
67

**Instructor:** Guy R Lang PE

**Local Coordinator:** Valerie Briggs

**Instructor:** Randall Leonard PE

**Valerie Briggs, Director  
National Highway Institute**



National Highway Institute  
**Certificate of Training**

**Timothy Harrington**

*has successfully completed*

**FHWA-NHI-130053V Bridge Inspection Refresher Training**

*hosted by*

**Texas Department of Transportation**

**Date:** February 01-04, 2022  
**Location:** Virtual Delivery, TX

**Hours of Instruction:** 18

**Instructor:** Thomas Harman

**Local Coordinator:** Tess Macias

**Instructor:** Thomas Harman

**Thomas Harman, Director  
National Highway Institute**



National Highway Institute  
**Certificate of Training**

**Timothy Harrington**

*has participated in*

**FHWA-NHI-130078 Fracture Critical Inspection**

*hosted by*

**Texas Department of Transportation**

**Date:** April 19-22, 2016  
**Location:** Austin, TX

**Hours of Instruction:**  
24

**Instructor:** Terrance M. Brown

**Local Coordinator:** Valerie Briggs

**Instructor:** Steve Joubert

**Valerie Briggs, Director  
National Highway Institute**



**SOCIETY OF PROFESSIONAL  
ROPE ACCESS TECHNICIANS**



*Acknowledges that*

**TIMOTHY JOSEPH HARRINGTON**

*has demonstrated through practical and written examinations,  
attainment of SPRAT's  
Certification Requirements for Rope Access Work,  
and is therefore*

**CERTIFIED**

**Level I Rope Access Technician**

SPRAT #140662  
AWARDED: April 05, 2019  
Expires: April 5, 2022

**ROBERT DUNSELA, EVALUATIONS COMMITTEE CHAIR**  
**WILLIAM MACKOOL (TIZOLLI), SPRAT PRESIDENT**

**SPRAT**  
Level: I  
ROPE ACCESS TECHNICIAN  
Timothy Joseph Harrington  
Ira, NY  
AT Cert # 140662  
Issuance Date: 5 APR 2019  
Expiry Date: 5 APR 2022



**TIMOTHY JOSEPH HARRINGTON**

Airman opted-out of releasing address

**Medical Information:**

No Medical Information Available

**Certificates**

REMOTE PILOT

**Certificates Description**

**Certificate:** REMOTE PILOT  
**Date of Issue:** 7/14/2021

**Ratings:**

SMALL UNMANNED AIRCRAFT SYSTEM



U.S. Department  
of Transportation  
**Federal Highway  
Administration**



# National Highway Institute

## *Certificate of Training*

### Opio K. Hunter, P.E.

*has participated in*

FHWA-NHI-130053 Bridge Inspection Refresher Training


*hosted by*

Whitman, Requardt & Associates, LLP

*Date:* September 14 - 16, 2021

*Hours of Instruction:* 18

*Location:* Virtual Delivery, MD

 Digitally signed by Caillein A.  
MacDougall, P.E.  
Date: 2021.09.25 13:18:36 -04'00'

Debra Rizzieri

Instructor

Local Coordinator

 Digitally signed by Earl E. Dubin  
Date: 2021.09.24 12:22:46  
-04'00'

Thomas Harman

Instructor

Thomas Harman, Director  
National Highway Institute



Jarrett, R. (Hardesty & Hanover)



U.S. Department  
Of Transportation  
Federal Highway  
Administration



National Highway Institute

**Certificate of Training**  
*Rodney Jarrett*

*has participated in*

**FHWA-NHI-130055 Safety Inspection  
of In-Service Bridges**

*hosted by*  
**American Council of Engineering Companies of  
Metropolitan Washington  
ACEC/MW**

**Date:** February 7-18, 2011  
**Location:** Fairfax, Virginia

**Hours of Instruction:** 60

Instructor

Local Coordinator

Instructor

Richard Barnaby, Director  
National Highway Institute



U.S. Department  
of Transportation  
Federal Highway  
Administration



National Highway Institute

**Certificate of Training**

Rodney Jarrett

*has participated in*

**FHWA-NHI-130078 Fracture Critical Inspection Techniques  
for Steel Bridges**

*hosted by*  
**Whitman, Requardt and Associates, LLP**

**Date:** August 16 - 19, 2016  
**Location:** Baltimore, Maryland

**Hours of Instruction:** 25

Instructor

Local Coordinator

Instructor

Valerie Briggs, Director  
National Highway Institute



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

National Highway Institute  
*Certificate of Training*



Brianna Kovacs

*has participated in*

***FHWA-NHI-130055 Safety Inspection of In-Service Bridges***

*hosted by*

*Whitman, Requardt & Associates, LLP*

**Date:** October 01-12, 2018

**Hours of Instruction:** 67

**Location:** Baltimore, MD 21231

*William R Gardner PE*

**Instructor**

*Jeffrey T. Long*

**Local Coordinator**

*[Signature] - P.E.*

**Instructor**

*Valerie Briggs*

**Valerie Briggs, Director  
National Highway Institute**



National Highway Institute  
**Certificate of Training**  
 Donald Marinelli



National Highway Institute  
**Certificate of Training**  
 Donald Marinelli



*has participated in*  
 FHWA-NHI-130055 Safety Inspection of In-Service Bridges

*has participated in*  
 FHWA-NHI-130053 Bridge Inspection Refresher Training

*hosted by*  
 AECOM Technical Services, Inc.

*hosted by*  
 Whitman, Requardt & Associates, I.L.P.

**Date:** August 20, 2010  
**Location:** Baltimore, MD

**Hours of Instruction:** 80  
**CEU's:** 60

**Date:** October 6-8, 2020  
**Location:** Virtual Delivery, MD

**Hours of Instruction:** 18

*[Signature]*  
 Instructor

*[Signature]*  
 Instructor

*[Signature]*  
 Local Coordinator

*[Signature]*  
 Richard Barabny, Director  
 National Highway Institute

*[Signature]*  
 Instructor

**Finn K. Hubbard**  
 Instructor

Debra E. Rizzieri  
 Local Coordinator

THOMAS HARMAN  
 Thomas Harman, Director  
 National Highway Institute



National Highway Institute  
**Certificate of Training**  
 Donald Marinelli



*has participated in*  
 FHWA-NHI-130078 Fracture Critical Inspection Techniques  
 for Steel Bridges

*hosted by*  
 Whitman, Requardt & Associates, LLP

**Date:** August 14-17, 2018  
**Location:** Baltimore, MD

**Hours of Instruction:** 25

*[Signature]*  
 Instructor

*[Signature]*  
 Instructor

*[Signature]*  
 Local Coordinator

*[Signature]*  
 Valerie Briggs, Director  
 National Highway Institute



National Highway Institute  
**Certificate of Training**



**Paul Marzuillo**  
has participated in

**FHWA-NHI-130055 Safety Inspection of In-Service Bridges**

hosted by  
**Texas Department of Transportation**

Date: February 06 - 17, 2017  
Location: Austin, Texas

Hours of Instruction:  
67

Guy B. Long PE  
Instructor

Cody J. J.  
Local Coordinator

Randall J. Leonard PE  
Instructor

Valerie Briggs  
Valerie Briggs, Director  
National Highway Institute



National Highway Institute  
**Certificate of Training**

**Paul Marzuillo**  
has successfully completed

**FHWA-NHI-130053V Bridge Inspection Refresher Training**

hosted by  
**Texas Department of Transportation**

Date: February 01-04, 2022  
Location: Virtual Delivery, TX

Hours of Instruction: 18

Instructor

Tess Macias  
Local Coordinator

Instructor

Thomas Harman  
Thomas Harman, Director  
National Highway Institute



National Highway Institute  
**Certificate of Training**



**Paul Marzuillo**  
has participated in

**FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges**

hosted by  
**MP Engineers, P.C.**

Date: May 7-10, 2018  
Location: Kingston, NJ

Hours of Instruction: 25

Jim Rowe  
Instructor

Mahendra Patel  
Local Coordinator

Paul Marzuillo  
Instructor

Valerie Briggs  
Valerie Briggs, Director  
National Highway Institute

**SPRAT** Technician Evaluation Form Serial Number: 32403

<b>Candidate Information:</b>																																													
SPRAT Number: 15133																																													
Last Name(s): MORALES																																													
First Name(s): MORALES																																													
Middle Name(s):																																													
Date of Birth: Year: 1984 Month: 05 Day: 17																																													
E-mail: moralesm@mpengineers.com																																													
Phone: 848-463-3341																																													
Street Address: 6414 1st St																																													
City: Manalapan																																													
State / Province: New Jersey																																													
Zip / Postal: 08050																																													
Country: U.S.A.																																													
<b>Evaluation Session Information:</b>																																													
Date: April 9, 2018																																													
Location: Hibernia NJ																																													
Host: MP USA																																													
Evaluator: Tom																																													
Evaluator Number: 10152																																													
<input type="checkbox"/> ID Verified <input type="checkbox"/> Candidate Affidavit <input type="checkbox"/> Logbook Hours																																													
<b>Rope Access Program</b>	<table border="1"><tr><th></th><th>I</th><th>II</th><th>III</th></tr><tr><td>Roles and Responsibilities</td><td>X</td><td></td><td></td></tr><tr><td>Equipment Use and Inspection</td><td>X</td><td></td><td></td></tr><tr><td>Job Safety</td><td>X</td><td></td><td></td></tr><tr><td>Management and Communication</td><td>X</td><td></td><td></td></tr><tr><td>Team Scenario</td><td></td><td></td><td>X</td></tr></table>		I	II	III	Roles and Responsibilities	X			Equipment Use and Inspection	X			Job Safety	X			Management and Communication	X			Team Scenario			X																				
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<b>Individual Maneuvers</b>	<table border="1"><tr><td>Use of Backup Devices</td><td>X</td><td></td><td></td></tr><tr><td>Use of Ascenders</td><td>X</td><td></td><td></td></tr><tr><td>Change-overs</td><td>X</td><td></td><td></td></tr><tr><td>Fasting Knots</td><td>X</td><td></td><td></td></tr><tr><td>Rope-to-Rope Transfer</td><td></td><td></td><td>X</td></tr><tr><td>Deviation</td><td></td><td></td><td>X</td></tr><tr><td>Re-anchor (2-2 m)</td><td>X</td><td></td><td></td></tr><tr><td>Regrate Edge</td><td>X</td><td></td><td></td></tr><tr><td>Rope and Slag Protection</td><td>X</td><td></td><td></td></tr><tr><td>Horizontal Aid Climbing</td><td>X</td><td></td><td></td></tr><tr><td>Vertical Aid Climbing</td><td></td><td></td><td>X</td></tr></table>	Use of Backup Devices	X			Use of Ascenders	X			Change-overs	X			Fasting Knots	X			Rope-to-Rope Transfer			X	Deviation			X	Re-anchor (2-2 m)	X			Regrate Edge	X			Rope and Slag Protection	X			Horizontal Aid Climbing	X			Vertical Aid Climbing			X
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Vertical Aid Climbing			X																																										
<b>Rescue</b>	<table border="1"><tr><td>Level 1 Rescue Scenario</td><td>X</td><td></td><td></td></tr><tr><td>Through Knots</td><td></td><td></td><td>X</td></tr><tr><td>Through Deviation or Re-anchor</td><td></td><td></td><td>X</td></tr><tr><td>From middle of Re-anchor or Rope-to-Rope</td><td></td><td></td><td>X</td></tr><tr><td>From Horizontal Aid Climbing</td><td></td><td></td><td>X</td></tr></table>	Level 1 Rescue Scenario	X			Through Knots			X	Through Deviation or Re-anchor			X	From middle of Re-anchor or Rope-to-Rope			X	From Horizontal Aid Climbing			X																								
Level 1 Rescue Scenario	X																																												
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<b>Rigging</b>	<table border="1"><tr><td>Knots: □ end □ join □ mid □ stop</td><td>X</td><td></td><td></td></tr><tr><td>Hitches: □ prusik □ tied-off munter hitch</td><td>X</td><td></td><td></td></tr><tr><td>Rigging and System Dynamics</td><td></td><td></td><td>X</td></tr><tr><td>Archorage Systems</td><td>X</td><td></td><td></td></tr><tr><td>Hauling and Lowering System</td><td>X</td><td></td><td></td></tr><tr><td>Rope Access System Pre-rigged to Lower</td><td></td><td></td><td>X</td></tr><tr><td>Retrievable Rope Systems</td><td></td><td></td><td>X</td></tr><tr><td>Pitch Head Break-In and Lower</td><td></td><td></td><td>X</td></tr><tr><td>Cross-haul</td><td></td><td></td><td>X</td></tr><tr><td>Hauling and Lowering through Knots</td><td></td><td></td><td>X</td></tr><tr><td>Tensioned Rope Systems</td><td></td><td></td><td>X</td></tr></table>	Knots: □ end □ join □ mid □ stop	X			Hitches: □ prusik □ tied-off munter hitch	X			Rigging and System Dynamics			X	Archorage Systems	X			Hauling and Lowering System	X			Rope Access System Pre-rigged to Lower			X	Retrievable Rope Systems			X	Pitch Head Break-In and Lower			X	Cross-haul			X	Hauling and Lowering through Knots			X	Tensioned Rope Systems			X
Knots: □ end □ join □ mid □ stop	X																																												
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Hauling and Lowering through Knots			X																																										
Tensioned Rope Systems			X																																										
Written Test Score: _____ %																																													
<b>Evaluation Result:</b> Pass Fail Level Attained: N/A 3 2 3																																													
Comments: GREAT																																													
Evaluator Signature: <u>Tom</u>	Candidate Signature: <u>Paul Marzuillo</u>																																												
I hereby affirm that this candidate has performed as described on this form.																																													
I hereby affirm that I have been evaluated as described on this form and understand that I have the right to appeal the results of this evaluation session.																																													
Original - SPRAT Yellow - Evaluator Pink - Host Gold - Candidate																																													

# Naghavi, B. (Hardesty & Hanover)

U.S. Department of Transportation  
Federal Highway Administration

National Highway Institute

**Certificate of Training**

**Babak Naghavi**  
*has participated in*

**NHI Course No. 130053 -  
Bridge Inspection Refresher Training**  
*hosted by*

LA DOTD/LTRC

**Date:** July 15-17, 2014  
**Location:** Baton Rouge, LA

**Hours of Instruction:** 18

*[Signature]*  
Instructor

*[Signature]*  
Local Coordinator

*[Signature]*  
Richard Barnaby, Director  
National Highway Institute

The American Traffic Safety Services Association

Hereby recognizes that

**Babak Naghavi**  
has attended  
Traffic Control Supervisor Refresher-LA State Specific  
Training Course

1/10/2019 to 1/10/2019  
Date

New Orleans, LA  
Location

**ATSSA**  
SAFER ROADS SAVE LIVES

Training & Products Dept. Director  
*[Signature]*  
Ralph M. Wooty  
President, CEO

U.S. Department of Transportation  
Federal Highway Administration

National Highway Institute

**Certificate of Training**

**Babak Naghavi**  
*has participated in*

**FHWA - NHI Course No. 130099A  
Bridge Inspection Nondestructive Evaluation Seminar - BINS (2 Days)**  
*hosted by*

LA DOTD/LTRC

**Date:** October 6-7, 2015  
**Location:** Baton Rouge, LA

**Hours of Instruction:** 13

*[Signature]*  
Instructor

*[Signature]*  
Local Coordinator

*[Signature]*  
Valerie Briggs, Director  
National Highway Institute

U.S. Department of Transportation  
Federal Highway Administration

National Highway Institute

**Certificate of Training**

**Babak Naghavi**  
*has participated in*

**FHWA-NHI-130087 Inspection & Maintenance of Ancillary Highway Structures**  
*hosted by*

Whitman, Requardt & Associates, LLP

**Date:** February 4-5, 2015  
**Location:** Richmond, VA

**Hours of Instruction:** 12 Hours

*[Signature]*  
Instructor

*[Signature]*  
Local Coordinator

*[Signature]*  
Valerie Briggs, Director  
National Highway Institute

U.S. Department of Transportation  
Federal Highway Administration

National Highway Institute

**Certificate of Training**

**Babak Naghavi**  
*has participated in*

**NHI Course No. 130091  
Underwater Bridge Inspection (4 Days)**  
*hosted by*

LA DOTD/LTRC

**Date:** October 7-10, 2014  
**Location:** Baton Rouge, LA

**Hours of Instruction:** 21

*[Signature]*  
Instructor

*[Signature]*  
Local Coordinator

*[Signature]*  
Valerie Briggs, Director  
National Highway Institute

**ATSSA**  
SAFER ROADS SAVE LIVES

**AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION**

This is to affirm that  
**Babak Naghavi**  
has satisfied the requirements  
to be designated as a  
**REGISTERED FLAGGER**

Expiration Date: **Mar 2019** State Issued in: **LA**

*[Signature]*  
Instructor Signature

Verifiable available by calling 1-877-668-4837 or at <http://www.Flagger.com>

**Mead & Hunt**

Please select the date you attended the course:

- Tuesday, April 12, 2016
- Wednesday, April 13, 2016
- Tuesday, May 10, 2016
- Wednesday, May 11, 2016
- Tuesday, July 12, 2016
- Wednesday, July 13, 2016

In cooperation with the Louisiana Department of Transportation & Development presents this

Certificate of attendance and participation for:

**BABAK NAGHAVI**

Training Course:  
Maintenance and Rehabilitation of Historic Bridges

Transportation Training and Education Center  
4269 Courcier Avenue, Room 179  
Baton Rouge, Louisiana 70808

You have earned 8 PDH units that can be applied to applicable continuing education requirements for professional engineering licensure.

*[Signature]*  
Amy Scullion

*[Signature]*  
David Berg, P.E.

# Robards, A. (Hardesty & Hanover)



**LOUISIANA PROFESSIONAL  
ENGINEERING & LAND SURVEYING BOARD  
(LAPELS)**  
9643 Brookline Avenue, Suite 121  
Baton Rouge, LA 70809  
Phone (225) 925-6291  
www.lapels.com

**Ms. Amy Grace Robards**

License/Certificate Type - Number      Expiration Date  
**PE.0041718**                                      **09/30/2021**

Status: **Active**



**Certificate of Completion**  
360training.com™  
This Certifies That  
Amy Robards  
is awarded this certificate for  
Confined Space Entry Training  
Complying with OSHA Standard 29 CFR 1910.146, Entrant, Attendant, Supervisor

Credit Hours: 8  
Completion Date: 11/20/2015

*Marie Athey*  
Marie Athey, OSHA Trainer

360training.com • 13801 Burnet Rd., Suite 100 • Austin, TX 78727 • 888-360-TRNG • www.360training.com




**National Highway Institute**  
**Certificate of Training**  
**Amy Robards**  
has participated in  
**FHWA-NHI-130055**  
**Safety Inspection of In Service Bridges**  
hosted by  
**Nebraska LTAP**

Date: April 16-27 2018      Hours of Instruction: 67  
Location: Lincoln, Nebraska

*William R. Davis PE*  
Instructor

*Phillip Schwab*  
Local Coordinator

*Dennis R. Brugh*  
Instructor

*Valerie Briggs*  
Valerie Briggs, Director  
National Highway Institute



**The American Traffic Safety  
Services Association**  
Hereby recognizes that  
**Amy Robards**  
has attended  
**Traffic Control Supervisor-LA State Specific  
Training Course**

02/08/2017  
Date  
Baton Rouge, LA  
Location

*Donna M. Clark*  
Training & Products Dept. Director

*Ryan A. Wentz*  
President, CEO

**ATSSA**  
SAFER. STRONGER. SMARTER. LIVES.

**SOCIETY OF PROFESSIONAL  
ROPE ACCESS TECHNICIANS**

**SPRAT**  
Acknowledges that  
**AMY ROBARDS**  
has demonstrated through practical and written examinations,  
attainment of SPRAT's  
Certification Requirements for Rope Access Work,  
and is therefore  
**CERTIFIED**  
**Level I Rope Access Technician**

SPRAT #190377  
AWARDED: February 22, 2019  
Expires: February 22, 2022

*Robert Dunshea*  
ROBERT DUNSHEA, EVALUATIONS COMMITTEE CHAIR

*William McCook*  
WILLIAM MCCOOK (TROLL), SPRAT PRESIDENT

**State of Louisiana  
Department of Transportation and Development**

**Amy Robards**  
is met the requirements for certification as an:  
**Structural Concrete  
Inspector**

02ND Expiration Date: 12/13/2023

To verify the validity of this card, contact  
**Technology Transfer and Training  
Section - LTRC**  
4101 Gourrier Avenue  
Baton Rouge, LA 70808  
(225)767-9125  
www.ltrc.lsu.edu/certification.html

Updates may be necessary to maintain certification

# Wetekamm, F. (Hardesty & Hanover)



In cooperation with the  
Louisiana Department of Transportation & Development  
presents this

Certificate of attendance and participation for:

Fred Wetekamm

Training Course:  
Maintenance and Rehabilitation of Historic Bridges

July 2020

You have earned 4 PDH units that can be applied to applicable  
continuing education requirements for professional engineering  
licensure.

  
Mead & Hunt Instructor  
Amy Squitieri

  
Mead & Hunt Instructor  
John A. Rathke, PE, SE



National Highway Institute

# Certificate of Training

Rima Zahalan

has participated in

**FHWA-NHI-130055 Safety Inspection of In-Service Bridges**

hosted by

**Weidlinger Associates, Inc.**

Date: February 25-March 08, 2013 Hours of Instruction: 67  
Location: New York, NY

*William P. Ryan, PE*  
Instructor  
*Thomas H. Ryan*  
Instructor

*[Signature]*  
Local Coordinator  
*Richard Barnaby*  
Richard Barnaby, Director  
National Highway Institute



National Highway Institute

# Certificate of Training

Rima Zahalan

has participated in

**FHWA-NHI-NHI-130053 Bridge Inspection Refresher**

hosted by

**Texas Department of Transportation**

Date: April 3-5, 2018 Hours of Instruction: 18  
Location: Austin, TX

*[Signature]*  
Instructor  
*[Signature]*  
Instructor

*[Signature]*  
Local Coordinator  
*Valerie Briggs*  
Valerie Briggs, Director  
National Highway Institute



National Highway Institute

# Certificate of Training

Rima Zahalan, P.E.

has participated in

**FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges**

hosted by

**MP Engineers, P.C.**

Date: March 17-20, 2015 Hours of Instruction: 25  
Location: North Brunswick, NJ

*James M. Brown*  
Instructor  
*Colin Payne*  
Instructor

*Mahendra Patel*  
Local Coordinator  
*Valerie Briggs*  
Valerie Briggs, Director  
National Highway Institute



National Highway Institute

# Certificate of Training

Rima Zahalan

has participated in

NHI Course No. FHWA-NHI-135087

**Scour at Highway Bridges: Concepts and Definitions (Prerequisite) WEB-BASED**

hosted by

**National Highway Institute**

Location: Web-Based Course Hours of Instruction: 1 hours  
Date: 2/4/2015

Date: 2/4/2015

*Valerie Briggs*  
Valerie Briggs, Director  
National Highway Institute



National Highway Institute

# Certificate of Training

Rima Zahalan

has participated in

**FHWA-NHI-130092 Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures**

hosted by

**Tennessee Department of Transportation**

Date: March 09-12, 2020 Hours of Instruction: 24  
Location: Nashville, TN

*Thomas Sand*  
Instructor  
*William Elving*  
Instructor

*[Signature]*  
Local Coordinator  
*Michael Davis, J.E.*  
Michael Davis, J.E.  
Director, National Highway Institute







In accordance with  
BDI Written Practice  
following the  
American Society for  
Nondestructive Testing  
SNT-TC-1A  
Recommended  
Practice

This is to Certify that

**Shane Boone**

has been certified as a


**NDT LEVEL II IR TECHNICIAN**

based upon successful completion of the written and  
performance examination requirements of the BDI  
Written Practice in compliance with ASNT SNT-  
TC-1A as administered by BDI

Issued by BDI

On this day: October 8, 2018

Expires: October 8, 2023

  
Ricky L. Morgan  
Level III Examiner 56955



In accordance with  
BDI Written Practice  
following the  
American Society for  
Nondestructive Testing  
SNT-TC-1A  
Recommended  
Practice

This is to Certify that

**Shane Boone**

has been certified as a


**NDT LEVEL II GPR TECHNICIAN**

based upon successful completion of the written and  
performance examination requirements of the BDI  
Written Practice in compliance with ASNT SNT-  
TC-1A as administered by BDI

Issued by BDI

On this day: October 8, 2018

Expires: October 8, 2023


  
Ricky L. Morgan  
Level III Examiner 56955



LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 12/06/2018, the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:

Mr. Brett Cameron Comm  
740 South Pierce Avenue,  
Louisville, CO 80027

	LOUISIANA PROFESSIONAL ENGINEERING & LAND SURVEYING BOARD (LAPELS)	
	9643 Brookline Avenue, Suite 121 Baton Rouge, LA 70809 Phone (225) 925-6291 www.lapels.com	
<b>Mr. Brett Cameron Commander</b>		
License/Certificate Type - Number	Expiration Date	
PE.0035864	03/31/2023	
Status: <b>Active</b>		
Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licenses whose licensees are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in terms (a) and (b).		
LAR S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.		

Print and keep the following information for your record or verification. The pocket card may also be printed on card stock or laminated to keep with you as license/certificate verification.

**Disclaimer**

All information provided by LAPELS on this web page, and on its other web pages and internet sites, is made available to provide immediate access for the convenience of interested persons. While LAPELS believes the information to be reliable, human or mechanical error remains a possibility, as does delay in the posting or updating of information. Therefore, LAPELS makes no guarantee as to the accuracy, completeness, timeliness, currency, or correct sequencing of the information. Neither LAPELS, nor any of the sources of the information, shall be responsible for any errors or omissions, or for the use or results obtained from the use of this information. Other specific cautionary notices may be included on other web pages maintained by LAPELS.


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LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 12/06/2018, the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:

Mr. Jesse David Sipple  
740 South Pierce Avenue,  
Louisville, CO 80027-3058

	<b>LOUISIANA PROFESSIONAL ENGINEERING &amp; LAND SURVEYING BOARD (LAPELS)</b> 9643 Brookline Avenue, Suite 121 Baton Rouge, LA 70809 Phone (225) 925-6291 www.lapels.com	
	<b>Mr. Jesse David Sipple</b>	
License/Certificate Type - Number	Expiration Date	
<b>PE.0041028</b>	<b>03/31/2023</b>	
<b>Status: Active</b>		

← Cut Here

Fold Here →

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).


L.A.R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

Print and keep the following information for your record or verification. The pocket card may also be printed on card stock or laminated to keep with you as license/certificate verification.

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**LOUISIANA PROFESSIONAL  
ENGINEERING & LAND SURVEYING BOARD**  
(LAPELS)  
9643 Brookline Avenue, Suite 121  
Baton Rouge, LA 70809  
Phone (225) 925-6291  
www.lapels.com

**Mr. Charles Thomas Young**

License/Certificate Type - Number	Expiration Date
<b>PE.0042773</b>	<b>03/31/2023</b>

**Status: Active**

Please be advised that your license must be in "Active" status in order for you to (a) provide or offer to provide engineering or land surveying services in Louisiana or (b) use the words "engineer", "engineering", "land surveyor", "land surveying" or any modification or derivative thereof in your name or in connection with your business or activities in Louisiana. Licensees whose licenses are in "Retired", "Inactive", or "Expired" status are prohibited from engaging in the activities described above in items (a) and (b).

L.A.R. S. 37:689 requires firms practicing or offering to practice engineering or land surveying in the state of Louisiana to be licensed by the Board prior to offering such services.

*The American Traffic Safety  
Services Association*

*Hereby recognizes that*

**Charles Young**  
has attended  
**Traffic Control Supervisor-LA State Specific**  
Training Course

06/06/2018  
Date  
New Orleans, LA  
Location



**ATSSA**  
SAFER ROADS SAVE LIVES

*Donna H. Clark*  
Training & Products Dept. Director

*Ryan A. Wintz*  
President, CEO

*The American Traffic Safety  
Services Association*

*Hereby recognizes that*

**Charles Young**  
has attended  
**Traffic Control Technician - LA State Specific**  
Training Course

06/05/2018  
Date  
New Orleans, LA  
Location



**ATSSA**  
SAFER ROADS SAVE LIVES

*Donna H. Clark*  
Training & Products Dept. Director

*Ryan A. Wintz*  
President, CEO



800 Tromball Drive Pittsburgh, PA 15205 P: 412.261.2331 T: 877.281.7772 F: 412.444.3591

January 9, 2020

Mr. Robert Lanterman, PCS  
KTA-Tator, Inc.  
115 Technology Drive  
Pittsburgh PA 15275

**Subject: SSPC Protective Coating Specialist (PCS) Recertification**

Encl: Wallet ID Card, Certificate **Certification #: 2015-820-136**

Dear Mr. Lanterman,

This letter is to inform you that you have successfully completed your SSPC Protective Coatings Specialist (PCS) recertification.

**This certification is awarded for a new term of four years and will expire on 12/31/2023.**

At your four (4) year renewal date, you must submit documentation of 32 points of continuing education (CEU) to renew your certification.

Information on your next recertification will be mailed to you 6 months prior to expiration. In order to receive the information, you must notify SSPC of any change of address or employment. It is the responsibility of each certified individual to keep SSPC current on his or her contact information. SSPC will not be responsible for certifications that lapse because a reminder letter was sent to an incorrect address.

If you have any questions about your certification, please contact Silvia Palmieri at 412- 281-2331 Ext. 2201 or by e-mail at palmieri@sspc.org at your convenience.

You may also contact me directly at Ext. 2221 if you have any comments or concerns that you would like me to address. We appreciate your participation and are here to serve you.

Sincerely,

Jennifer Merck  
Director of Training & Certification



April 22, 2019

Robert Lanterman  
KTA-Tator Inc.  
115 Technology Dr.  
Pittsburgh, PA 15275-1005

### Your New Certification Card

*Thank you for renewing your NACE International Institute certification.* You are part of an elite group of certified professionals dedicated to protecting people, assets, and the environment from the effects of corrosion.

It is with great pleasure that we enclose your new NACE International Institute certification card. This important card includes your certification number and expiration date. If you ordered an embosser, plaque, or an update tag, it will be shipped separately. Please note that certification cards have recently been updated to better align with NACE branding. If you have any questions or need additional information regarding your certification, please call the First Service Department at 1-800-797-6223 (U.S. & Canada) or +1-281-228-6223 (Worldwide). Alternatively, you can e-mail us at [FirstService@nace.org](mailto:FirstService@nace.org).

Thank you for choosing The NACE International Institute as your trusted source for corrosion information and expertise.





This Card Certifies  
**Gregory Richards**



has fulfilled the examination and experience requirements of the SSPC Protective Coatings Specialist Program (PCS).

*SSPC President*

Certified: 2019

Expires: 12/31/2023

**ID#:2019-809-300** ★

**SSPC PCS Protective Coatings Specialist**



### Certificate of Achievement

The NACE International Institute Recognizes

**Gregory R Richards**

As a Certified

NACE Certified Coating Inspector - Level 3

*Helena Dubinger*  
Executive Director  
NACE International Institute



Expires  
June 30, 2023

Cert No.6092

131775



www.sspc.org 800 Trumbull Drive Pittsburgh, PA 15205 P: 412.281.2331 T: 877.281.7772 F: 412.444.3591

March 31, 2020

Mr. Pedro Sanchez, PCS  
KTA-Tator Inc  
115 Technology Drive  
Pittsburgh PA 15275

Dear Pedro,

**Congratulations on your successful completion of SSPC's PCS Certification.**

PCS certification is awarded for a period of four years, through 12/31/2024. Information on recertification will be forwarded to you six months prior to the expiration of your certification. Certification#: 2020-320-303.

A renewal notice will be mailed to you, 6 months prior to your 4th year expiration date reminding you to renew your Protective Coatings Specialist Certification.

At that time, you will be required to submit full documentation that you've accumulated 32 hours of continuing education credits (CEU) during your 4-year term. During your certification term, track and log your accumulated units, and save the information until you need to renew your certification.

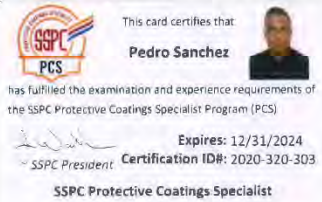
We now offer a Track 2 for certification renewal. If a PCS is not able to obtain the required education/experience units to qualify for recertification according to Track 1, that individual may retake the closed book PCS exam and pass to earn 24 education units. The remaining 8 education units for re-certification must be completed by one of the methods referenced in the Recertification Units worksheet.

It is important that you notify SSPC of any address, phone or email changes in order that we can maintain contact with you. Remember to renew your membership with SSPC annually so that you will save and be charged the member rate for your PCS renewal.

Again, congratulations on your certification. If you have any questions, please contact Silvia Palmieri at 412/281-2331, extension 2201 or email palmieri@sspc.org

Sincerely,

Jennifer Merck  
Director of Training & Certification



May 7, 2019

Pedro Miguel Sanchez  
10835 Northwest 89 Terrace APT 224  
Doral, FL 33178

### Your New Certification Card

Thank you for renewing your NACE International Institute certification. You are part of an elite group of certified professionals dedicated to protecting people, assets, and the environment from the effects of corrosion.

It is with great pleasure that we enclose your new NACE International Institute certification card. This important card includes your certification number and expiration date. Please note that certification cards have recently been updated to better align with NACE branding. If you have any questions or need additional information regarding your certification, please call the First Service Department at 1-800-797-6223 (U.S. & Canada) or +1-281-228-6223 (Worldwide). Alternatively, you can e-mail us at [FirstService@nace.org](mailto:FirstService@nace.org).

Thank you for choosing The NACE International Institute as your trusted source for corrosion information and expertise.





U.S. Department of Transportation  
Federal Highway Administration

National Highway Institute  
**Certificate of Training**  
Charles Balzarini  
*has participated in*  
**FHWA-NHI-130055- Safety Inspection of In-Service Bridges**  
*hosted by*  
Ohio Department of Transportation

**Date:** 9/26/16 - 10/7/16      **Hours of Instruction:** 67  
**Location:** Columbus, OH

*Guy R. Lang PE*  
Instructor

*Raymond Z. Brubaker*  
Local Coordinator

*Dennis L. Briggs, PE*  
Instructor

*Valerie Briggs*  
Valerie Briggs, Director  
National Highway Institute



U.S. Department of Transportation  
Federal Highway Administration

National Highway Institute  
**Certificate of Training**  
**CHARLES BALZARINI**  
*has participated in*  
**FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges**  
*hosted by*  
LA DOTD/LTRC

**Date:** February 26 - March 1, 2019      **Hours of Instruction:** 25  
**Location:** Baton Rouge, LA

*[Signature]*  
Instructor

*William H. Landry*  
Local Coordinator

*Michael D. Davis*  
Michael Davis, Director  
National Highway Institute

**SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS**



*Acknowledges that*  
**CHARLES BALZARINI**  
*has demonstrated through practical and written examinations, attainment of SPRAT's Certification Requirements for Rope Access Work, and is therefore*  
**CERTIFIED**  
**Level I Rope Access Technician**

SPRAT #190894  
AWARDED: May 03, 2019  
Expires: May 3, 2022

*[Signature]*  
ROBERT DENNISEA, EVALUATIONS COMMITTEE CHAIR

*[Signature]*  
WILLIAM MCCOOK (ROLL), SPRAT PRESIDENT

©2012 - Present, Society of Professional Rope Access Technicians

**Association of Diving Contractors International**



**Cert. # 54103**  
**Expires 06/19/2022**



**ENTRY LEVEL TENDER/DIVER**

**CHARLES G. BALZARINI I.D. 9858**  
**Commercial Diver Certification Card**





National Highway Institute  
**Certificate of Training**  
**MATTHEW BALZARINI**



*has participated in*  
**FHWA-NHI-130078 Fracture Critical Inspection  
 Techniques for Steel Bridges**  
*hosted by*  
**LA DOTD/LTRC**

Date: February 26 – March 1, 2019 Hours of Instruction: 25  
 Location: Baton Rouge, LA

*[Signature]*  
 Instructor

*[Signature]*  
 Instructor

*[Signature]*  
 Local Coordinator

*[Signature]*  
 Michael Davis, Director  
 National Highway Institute

**SOCIETY OF PROFESSIONAL  
 ROPE ACCESS TECHNICIANS**



*Acknowledges that*  
**MATTHEW BALZARINI**  
*has demonstrated through practical and written examinations,  
 attainment of SPRAT's  
 Certification Requirements for Rope Access Work,  
 and is therefore*  
**CERTIFIED**  
**Level I Rope Access Technician**

SPRAT #190895  
 AWARDED: May 03, 2019  
 Expires: May 3, 2022

*[Signature]*  
 ROBERT DANKSHEA, EVALUATIONS COMMITTEE CHAIR

*[Signature]*  
 WILLIAM MCCOOK (TROLL), SPRAT PRESIDENT

©2017 - Present, Society of Professional Rope Access Technicians

**Association of Diving Contractors  
 International**



Cert. # 58157

Expires 08/08/2022



**ENTRY LEVEL TENDER/DIVER**

**ATT BALZARINI I.D. 4799**

**Commercial Diver Certification Card**

*Presented to*  
**Matthew Balzarini**  
*For completion of 72 classroom hours of training in*  
**Bridge Condition Inspection Training -  
 BCIT**

*Sponsored by*  
**WSDOT Local Programs**  
**Washington State Local Technical Assistance Program and**

March 30, 2018  
 Lacey, Washington





National Highway Institute  
**Certificate of Training**



**Charles Balzarini**

*has participated in*  
**FHWA-NHI-130055- Safety Inspection of In-Service Bridges**  
*hosted by*  
**Ohio Department of Transportation**

Date: 9/26/16 – 10/7/16 Hours of Instruction: 67  
 Location: Columbus, OH

*[Signature]*  
 Instructor

*[Signature]*  
 Local Coordinator

*[Signature]*  
 Instructor

*[Signature]*  
 Valerie Briggs, Director  
 National Highway Institute



National Highway Institute  
**Certificate of Training**  
**Steven Armstrong**



has participated in  
**Safety Inspection of In-Service Bridges**  
**FHWA-NHI-130055**

hosted by  
**Virginia Department of Transportation**

Date: March 16-30, 2018 Hours of Instruction: 67 Hrs  
 Location: Fredericksburg, Virginia

*William R. Hanson, PE*  
 Instructor

*Carol DeDulio*  
 Local Coordinator

*Jason J. Kelly, PE*  
 Instructor

*Valerie Briggs*  
 Valerie Briggs, Director  
 National Highway Institute



National Highway Institute  
**Certificate of Training**  
**Steven Armstrong**



has participated in  
**FHWA-NHI-130078 Fracture Critical Inspection Techniques**  
**for Steel Bridges**

hosted by  
**Kentucky Transportation Cabinet**

Date: March 10-13, 2020 Hours of Instruction: 25  
 Location: Frankfort, KY

*Tom D. Dethman*  
 Instructor

*Walter Zee*  
 Local Coordinator

*Michael Davis, P.E.*  
 Instructor

*Michael Davis, P.E.*  
 Michael Davis, P.E.  
 Director, National Highway Institute



National Highway Institute  
**Certificate of Training**  
**Steven Armstrong**



has participated in  
**FHWA-NHI-130091 Underwater Bridge Inspection**

hosted by  
**Terracon Consultants, Inc.**

Date: December 6-9, 2016 Hours of Instruction: 24  
 Location: Cincinnati, OH

*Michelle Bostick*  
 Instructor

*Valerie Briggs*  
 Local Coordinator

*Valerie Briggs*  
 Instructor

*Valerie Briggs*  
 Valerie Briggs, Director  
 National Highway Institute

**Association of Diving Contractors International**



Cert. # 62023

Expires 11/18/2025



**SURFACE-SUPPLIED AIR DIVER**  
**STEVEN ARMSTRONG I.D. 4740**  
**Commercial Diver Certification Card**

**UNITED STATES OF AMERICA** XI  
 DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION  
 IV NAME  
**STEVEN BLAKE ARMSTRONG**  
 V ADDRESS 3004 CANAAN PL  
 MANDEVILLE LA 70448-6300  
 VI NATIONALITY USA SEX HEIGHT WEIGHT HAIR EYES  
 IVa D.O.B. 13 NOV 1990 M 60 215 BROWN BROWN  
 IX HAS BEEN FOUND TO BE PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF  
 I REMOTE PILOT  
 II CERTIFICATE NUMBER 4162104  
 X DATE OF ISSUE 6 AUG 2019  
 XIV *OKEdm*  
 VII ACTING ADMINISTRATOR

**Certificate of Achievement**

This is to certify that  
**Steven Blake Armstrong**  
 has successfully completed the  
 FAA Safety Team Aviation Learning Center Online  
 Course

**Part 107 Small Uas Recurrent**

Course Number ALC-677  
 Presented by Online Courses  
**September 9, 2021**

Certificate Number 1231957-20210909-00677

*Patricia M. Miller*  
 Patricia Miller, Manager, National FAA Safety Team



National Highway Institute  
**Certificate of Training**  
**STEVEN ARMSTRONG**



has participated in  
**FHWA-NHI-135047 Stream Stability and Scour at Highway**  
**Bridges for Bridge Inspectors**

hosted by  
**LA DOTD/LTRC**

Date: October 22, 2018 Hours of Instruction: 6  
 Location: Baton Rouge, LA

*J. Paul*  
 Instructor

*William H. Lindsey*  
 Local Coordinator

*Valerie Briggs*  
 Instructor

*Valerie Briggs*  
 Valerie Briggs, Director  
 National Highway Institute

**SPRAT** ROPE ACCESS TECHNICIAN  
 LEVEL: I  
**Steven Armstrong**  
 Mandeville, LA  
 USA  
 SPRAT Cert. # 190893  
 Certification Date: 7 JAN 2022  
 Renewal Date: 3 MAY 2025

Scanned with CamScanner



National Highway Institute  
**Certificate of Training**  
**Jeffrey Gazarek**



has participated in  
**FHWA-NHI 130055 Safety Inspection of  
 In-Service Bridges**

hosted by  
**LA DOTD/LTRC**

Date: January 4-15, 2016  
 Location: Baton Rouge, LA

Hours of Instruction: 67

Guy R. Long PE  
 Instructor

Allison H. Landrey  
 Local Coordinator

Dennis R. Bruggen PE  
 Instructor

Valerie Briggs  
 Valerie Briggs, Director  
 National Highway Institute



National Highway Institute  
**Certificate of Training**  
**JEFFREY GAZAREK**



has participated in  
**FHWA-NHI-130053 Bridge Inspection Refresher Training**

hosted by  
**LA DOTD/LTRC**

Date: May 12-14, 2020  
 Location: Web-Conference Course

Hours of Instruction: 18

Lick A. McLaughlin  
 Instructor

Allison H. Landrey  
 Local Coordinator

[Signature]  
 Instructor

Thomas Harmon  
 Thomas Harmon, Director  
 National Highway Institute

**SOCIETY OF PROFESSIONAL  
 ROPE ACCESS TECHNICIANS**



Acknowledges that  
**JEFFREY GAZAREK**

has demonstrated through practical and written examinations,  
 attainment of SPRAT's  
 Certification Requirements for Rope Access Work,  
 and is therefore

**CERTIFIED**

**Level I Rope Access Technician**

SPRAT #171868

AWARDED: October 27, 2017  
 Expires: October 27, 2020

[Signature]

CHARLEY KANKIN, EVALUATIONS COMMITTEE CHAIR


[Signature]

WILLIAM MCCOY (TROLL), SPRAT PRESIDENT


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**Association of Diving Contractors  
 International**

Cert. # 47951  
 Expires 08/21/2023



**MIXED GAS DIVING SUPERVISOR**  
**JEFFREY M. GAZAREK I.D. 3224**  
 Commercial Diver Certification Card




National Highway Institute  
**Certificate of Training**  
**Jeffrey Gazarek**



has participated in

NHI Course No. FHWA-NHI-130101

**Introduction to Safety Inspection of In-Service Bridges - WEB-BASED**

hosted by

**National Highway Institute**

Location: Web-Based Course

Hours of Instruction: 14 hours

Date: 11/22/2015

Valerie Briggs

Valerie Briggs, Director  
 National Highway Institute









National Highway Institute  
**Certificate of Training**



**Mike Russell**

*has Successfully Completed*

**FHWA-NHI-130055 Safety Inspection of In-Service Bridges**

*hosted by*

**Hawaii Department of Transportation**

Date: December 6-17, 2021

Hours of Instruction: 67

Location: Honolulu, HI

*Tom Walden*  
Instructor

*Sean Murphy*  
Local Coordinator

*Jim Boyak*  
Instructor

**Thomas Harman**  
Thomas Harman, Director  
National Highway Institute



ROPE ACCESS TECHNICIAN

Level: III

**Mike Russell**

Clinton, CT  
USA

SPRAT Cert. # 150926

Certification Date: 16 NOV 2018

Renewal Date: 16 NOV 2021



National Highway Institute  
**Certificate of Training**



**Mike Russell**

*has participated in*

**FHWA-NHI-130087 Inspection and Maintenance of Ancillary Highway Structures**

*hosted by*

**COLLIERS ENGINEERING & DESIGN**

Date: October 28-29, 2021

Hours of Instruction: 12

Location: Miami, FL

*Thomas H. Boone*  
Instructor

*Cory Joseph Hogan*  
Local Coordinator

*Steve Smith*  
Instructor

**Thomas Harman**  
Thomas Harman, Director  
National Highway Institute



Cut out the small certificate above and keep with your airman certificate. You should keep the remainder of this sheet in a safe place in case you lose your certificate above.

Your Name  
Your faasafety.gov Registered Username  
Course Completed  
Course Completion Date  
Course Completion Certificate Number

Michael Russell  
mpr292@gmail.com  
Part 107 Small Uas Recurrent  
September 28, 2021  
1243396-20210928-00677

# 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 (PDHs) Awarded: 4

  
Authorized Instructor

  
Authorized Instructor

  
Authorized instructor



# 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 (PDHs) Awarded: 4

  
Authorized Instructor

  
Authorized Instructor

  
Authorized instructor



# 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 (PDHs) Awarded: 3

  
Authorized Instructor

  
Authorized Instructor

  
Authorized instructor





# 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 (PDHs) Awarded: 2

*Jody Colson*  
Authorized Instructor

*John Hill*  
Authorized Instructor

*Carl P. ...*  
Authorized instructor



# 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 (PDHs) Awarded: 3

*Jody Colson*  
Authorized Instructor

*John Hill*  
Authorized Instructor

*Carl P. ...*  
Authorized instructor



# 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 (PDHs) Awarded: 3

*Jody Colson*  
Authorized Instructor

*John Hill*  
Authorized Instructor

*Carl P. ...*  
Authorized instructor





# LOUISIANA UNIFIED CERTIFICATION PROGRAM

## Disadvantaged Business Enterprise Program (DBE)

### Small Business Element (SBE)

This is to certify that under Title 49, Part 26 of the Code of Federal Regulations  
& under the State of Louisiana United Certification Program (LAUCP)

## APS Engineering & Testing, LLC.

Is a Certified Disadvantaged Business Enterprise (DBE) & Small Business Element (SBE) in the following specialties:

**NC221310, NC221320, NC541330, NC541370, NC541380, NC541620, NC541690**

*NOTE: There may be other approved NAICS Codes. The online DBE Directory includes a complete list of approved codes.*

### **Certificate Eligibility: October 2021 to October 2022**

*This certificate is valid through the above date provided. This firm meets the on-going programmatic standard and fulfills the annual update requirement to remain in good standing as a DBE. This certification is subject to annual verification and suspension or revocation based upon reasonable cause to believe that the firm is ineligible.*

*Rhonda Wallace*

**Rhonda Wallace, DBE/SBE Programs Manager**  
*Louisiana Department of Transportation & Development*

**Business & Contact Information**

**BUSINESS NAME** GAEA Consultants, LLC  
**OWNER** Dr. Tanja L. Koob  
**ADDRESS** 536 Washington Avenue  
 New Orleans, LA 70130 [map]  
**PHONE** 504-962-5360  
**FAX** 504-962-5362  
**EMAIL** gaea@gaeaconsultants.com  
**WEBSITE** http://www.gaeaconsultants.com

**Certification Information**

**CERTIFYING AGENCY** City of New Orleans  
**CERTIFICATION TYPE** SLOBE - State-Local Disadvantaged Business Enterprise  
**CERTIFICATION DATE** 12/22/2020  
**CERTIFIED BUSINESS DESCRIPTION** Environmental Engineering; Civil Engineering; Hydraulics and Water Resources Management; Environmental Assessment Counseling; Construction Management; Construction Material Testing Services

**Commodity Codes**

Code	Description
NAICS 541330	Civil engineering services
NAICS 541330	Engineering consulting services
NAICS 541330	Environmental engineering services
NAICS 54162	Environmental Consulting Services



**UCP SEARCH RESULTS**

[New Search](#) [Export to Excel](#)

Contractor	Business Type	License
Owner	Minority Type	FAX
Certifying Agency	Phone	
Work Type	E-Mail Address	
	Service Type	
<b>GAEA Consultants, LLC</b> 536 WASHINGTON AVENUE NEW ORLEANS, LA 70130 Tanja Koob Department of Transportation and Development 712120-Historical Sites 712110-Museums 541720-Research and Development in the Social Sciences and Humanities 541690-Other Scientific and Technical Consulting Services C22-Environmental Engineering C20-Environmental Impact Assessments 541620-Environmental Consulting Services 541611-Administrative Management and General Management Consulting Servi 541370-Surveying and Mapping (except Geophysical) Services 541370-Surveying and Mapping (except Geophysical) Services 541360-Geophysical Surveying and Mapping Services 541340-Drafting Services 541330-Engineering Services 518210-Data Processing, Hosting, and Related Services	White Women Owned Business  504-962-5360 gaea@gaeaconsultants.com ENGINEERING SERVICES	504-962-5362



Office of the Secretary  
PO Box 94245 | Baton Rouge, LA 70804-9245  
PH: 225-379-1200 | FX: 225-379-1851

John Bel Edwards, Governor  
Shawn D. Wilson, Ph.D., Secretary

March 16, 2021

Urban Systems Associates, Inc.  
Alison Catarella-Michel, President  
2000 Tulane Avenue, Suite 200  
New Orleans, LA 70112

Dear Alison Catarella-Michel:

We have received your firm's Disadvantaged Business Enterprise (DBE) and Small Business Element (SBE) annual affidavit. Based on the information which you provided we have concluded that your firm continues to meet the eligibility requirements of our program and remains certified for only the following specific work categories that fall under the listed NAICS codes:

- NC541330 – Engineering Services
- NC541340 – Drafting Services
- NC541990 – All Other Professional, Scientific and Technical Services
  - C03 – Drafting
  - C09 – Civil Engineering
  - C11 – Planning
  - C14 – Transportation Planning
  - C21 – Construction Inspections
  - C33 – Traffic Counting and Data Collection
  - C43 – Computer Assisted Drafting
  - C74 – Construction Management
  - C96 – Traffic and Transportation Engineering

*Please note that per the federal regulations, suppliers only receive 60% goal credit towards the materials they provide. Also note that A Louisiana Contractor's License is required by any contractor performing work in excess of \$50,000 with the exception of electrical, mechanical and plumbing which are required to have a license if work is in excess of \$10,000. You may contact the State Licensing Board for Contractors at (225) 765-2301 for more information. Your firm's certification will be recognized by all participants of the Louisiana Unified Certification Program. This includes all entities receiving federal transportation funding within the boundaries of our state.*

You will be required to submit an annual affidavit with all supporting documents (**Business taxes with all attachments, such as 1098, 1099, K-1's and/or W-2's**) stating your firm continues to meet the eligibility requirements of the program. An email informing you to submit the necessary documentation will be forwarded to you approximately six (6) weeks prior to your anniversary date of **February 28, 2022**. However, should you not receive notification from this office for your annual affidavit, it is your responsibility to contact us. Additionally, you must notify our office immediately regarding any changes which affect the social and economic disadvantage, size, ownership or control of your firm.

**Urban Systems Associates, Inc.**

**March 16, 2021**

**Page 2**

The Department has contracted with Urban League of Louisiana Center for Entrepreneurship & Innovation to provide DBE Supportive Services to all certified DBEs. This consultant can offer your firm assistance and guidance on areas such as marketing, estimating, bidding, financial preparations, etc. Please feel free to contact Klassi Duncan with Urban League of Louisiana Center for Entrepreneurship and Innovation at (504) 620-9647 for any assistance needed to grow your organization.

We reserve the right to withdraw this certification, if at any time, it is determined that **DBE and SBE** certifications was knowingly obtained by the submission of false, misleading or incorrect data. We further reserve the right to request additional information and/or conduct an on-site visit at any time during your certification period.

If further assistance is needed, please don't hesitate to contact the Shirley Ard at (504) 376-0233

Respectfully,

*Rhonda Wallace*

Rhonda Wallace  
DBE/SBE Programs Manager

**21. QA/QC Plan and/or Work Plan:**

Provided on the following pages.

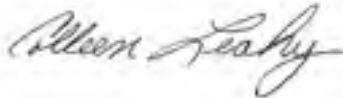
## Table of Contents

Quality Management Plan Authorization.....	1
1.0 Introduction.....	2
1.1. Quality Control & Quality Assurance Concepts.....	2
1.1.1 Definitions.....	2
1.1.2 Quality Management System.....	3
2.0 Effective Date and Revisions.....	4
3.0 Quality Management Plan Development.....	5
3.1 QA/QC Responsibilities.....	5
3.1.1 Project Staff.....	5
3.1.2 Project Description.....	7
3.2 Scope of Work.....	7
3.2.1 Bridge Design Services.....	7
3.2.2 Geotechnical Services.....	8
3.2.3 Road Design and Traffic Services.....	9
3.2.4 Bridge Inspection Services.....	9
3.2.5 Environmental and Permitting Services.....	9
3.2.6 Services to be Performed / Items to be Provided by LADOTD.....	9
3.3 Deliverables.....	10
3.3.1 Electronic Deliverables.....	10
3.3.2 Specific Software And / Or Equipment Desired.....	11
3.3.3 Audit Schedule.....	11
3.4 Project Specific Procedures.....	11
3.4.1 Quality Control Plan Modifications.....	11
3.4.2 Quality Assurance Plan Modifications.....	11
4.0 Sub-Consultants.....	11
H& H Project Organization Chart.....	Appendix A
H& H Quality Assurance Plan.....	Appendix B
H& H Quality Control Plan.....	Appendix C
H& H QA/QC Forms.....	Appendix D
LADOTD QA/QC Forms & Checklists.....	Appendix E

## Quality Management Plan Authorization

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

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 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.



05/02/2022

---

Signature

---

Date

Colleen Leahy, PE

H&H Quality Manager

---

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 1
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## 1.0 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 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.

### 1.1. Quality Control & Quality Assurance Concepts

#### 1.1.1 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) **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.
- c) **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.
- d) **Quality Assurance (QA):** Procedures of 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.
- e) **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.
- f) **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 the sections below.
- g) **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.

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 2
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## 1.1.2 Quality Management System

### Customer Satisfaction and Quality Management System Improvement

H&H is continually striving to improve customer satisfaction. Our Quality Management System 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 C.

### 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 B.

### Quality Assurance

Quality Assurance reviews will be performed to confirm conformance with the Quality Management Plan of a given project. The review shall verify that each project has sufficiently accomplished all quality goals set forth in the Quality Management Plan.

Documentation is 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

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 3
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- h) 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 shall 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.

**QA Information Package**

Upon completion of the 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 Reviewer for QA review.

The QA package shall include:

- LADOTD QA information package check list (see Appendix E)
- Calculation book prepared in accordance with the requirements of the LADOTD Final Calculation Book Checklist contained in Appendix E
- 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 Reviewer must be notified of such revisions and supplied with the revised information.

After completion of the QA process for Final Design, and no later than 98% final plans stage, the LADOTD QC/QA Certification Form (see Appendix E) shall be completed and signed by the designer, design checker, detailer, detail checker, and reviewer.

**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.

## 2.0 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.

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 4
------------------------------	-------------------------	------------------------------------	-----------------------------------	-----------

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 approval of the Quality Manager.

### 3.0 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 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.

#### 3.1 QA/QC Responsibilities

##### 3.1.1 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 B of this document. The H&H Project Quality Assurance Lead (PQAL)/Reviewer 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: Paul Skelton, 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: Colleen Leahy, PE

- 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 Quality Manager (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.

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 5
------------------------------	-------------------------	------------------------------------	-----------------------------------	-----------

- 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 E.
- Coordinates with subconsultants
- Chairs project meetings, produces and distributes minutes as needed
- Reviews the H&H Quality Assurance Review Form prepared by the Project Quality Lead/Reviewer and certifies the deliverable is ready for submission.
- Completes and signs the LADOTD Consultant Submittal QC/QA Certification Form contained in Appendix E

H&H Project Engineer: Erik Diaz, 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 Reviewer/Project Quality Lead: Erik Diaz, 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.
- 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.
- Communicates with Project Manager on a regular basis to maintain the QC review schedule for projects.
- 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. The Reviewer/PQL 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 LADOTD Consultant Submittal Review Checklist contained in Appendix E

The following roles will be designated upon Task Assignment from the personnel listed on the Organization Chart included in Appendix A.

H&H 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.

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 6
------------------------------	-------------------------	------------------------------------	-----------------------------------	-----------

- 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.

H&H 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.
- Prepare the QA information package upon completion of the QC process.

H&H 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.

3.1.1.1 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 OMP, 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.

3.1.2 Project Description

To provide engineering and related services under an Indefinite Delivery / Indefinite Quantity (IDIQ) contract for Movable Bridge Preservation statewide.

3.2 Scope of Work

Hardesty & Hanover will perform all engineering and related services required in accordance with the requirements of the LADOTD Bridge Design and Evaluation Manual (BDEM) and Bridge Design Technical Memoranda (BDTMs). As specified in the IDIQ Contract, Hardesty & Hanover will provide the following general scope of engineering services. The specific services will be detailed in individual Task Orders (TOs) which will specify TO-specific scope of Services, contract time, and compensation.

3.2.1 Bridge Design Services

3.2.1.1 General Bridge Engineering Services

Hardesty & Hanover will provide bridge engineering services for both fixed and movable bridges as required by the specific Task Order. Types of services provided include, but are not limited to, new bridges, bridge replacements, bridge rehabilitation, bridge preventive maintenance and repair, and roadway lighting. Bridge engineering services

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 7
------------------------------	-------------------------	------------------------------------	-----------------------------------	-----------

will also include, but are not limited to, structural, mechanical, electrical, and architectural feasibility, design, and plan development as well as the following:

- Bridge/structural inspection and evaluation of existing bridges or other structures (sign trusses, fender systems, etc.) along with associated report as required
- As-designed, as-built, and condition bridge ratings
- Design peer review of developed plans or conceptual designs to verify concept, constructability, and accuracy of designs along with associated reports, conclusions, calculations, and recommendations as needed
- Construction engineering support including construction drawing review, shop drawing review, request for information support, contractor proposals, etc.

### 3.2.1.2 Sampling, Instrumentation, and Non-destructive Testing

Hardesty & Hanover will provide sampling, instrumentation, and non-destructive testing services as required by the specific Task Order. These services include, but are not limited to, collection of samples of materials from existing structures for evaluation, diagnostic and/or proof testing to determine specific structure response characteristics and/or to determine the causation of observed distresses, and instrumentation, as well as the following:

#### Sampling

- Collection of samples
- Evaluation of protective coating material samples for determination of compatibility with proposed coatings, analysis for heavy metals, proper procedures for treatment, handling, disposal of waste, etc.

#### Instrumentation

- Design of instrumentation plans. Installation of instrumentation, data acquisition, analysis, and evaluation of structure based on instrumentation plan
- Provision and installation of instrumentation, including all materials required to mount the instrumentation
- Provision of data acquisition systems, software updates, power supplies, communication to data servers, data hosting services, maintenance, and data access to DOTD
- Calibration services for instrumentation systems and sensors
- Maintenance services to repair and/or replace sensors, data acquisition systems, and power supplies
- Analysis and evaluation of accumulated data and final assessments and development of corresponding reports based on data and associated calculations

#### Non-destructive Testing

- Proof loading
- Estimation of concrete strength
- Assessment of reinforcement condition, cover, location, and diameter
- Detection of cracks, voids, and delamination in concrete
- Assessment of steel member condition

### 3.2.2 Geotechnical Services

Hardesty & Hanover will provide all geotechnical services necessary to perform geotechnical investigations, analysis, and design. These services include, but are not limited to, the following:

- Geotechnical field investigations including both shallow and deep soil borings
- Geotechnical laboratory testing and analysis
- Preparation of soil boring logs
- Geotechnical analysis and design based on obtained data or data furnished by the DOTD

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 8
------------------------------	-------------------------	------------------------------------	-----------------------------------	-----------

- Construction related engineering service

### 3.2.3 Road Design and Traffic Services

Hardesty & Hanover will provide all services necessary to perform hydraulic, road, and traffic investigation, analysis, and design. These services include, but are not limited to, the following:

- Preliminary and final roadway design and plan development
- Hydraulic analysis and design
- Traffic engineering, traffic control design, and data collection
- Transportation Management Plan (TMP) development

### 3.2.4 Bridge Inspection Services

Hardesty & Hanover will provide all services required to perform Statewide NBIS In-Depth Inspections of complex structures. These services include, but are not limited to, the following:

- Detailed in-depth field inspection on all bridge components, including an element level inspection. As well as an NBIS underwater bridge inspection where required for submerged elements.
- Assessment of the coating system, conducted by a certified SSPC Protective Coating Specialist or a certified NACE Bridge Coating Inspector
- In-depth inspection report outlining recommended repairs, rehabilitation, and corrections.

### 3.2.5 Environmental and Permitting Services

Hardesty & Hanover will provide all environmental and permitting services necessary to obtain project permits. Including, but not limited to, the following permit types:

- Coastal Use permits (CUP) from the LA Department of Natural Resources
- Wetland permits (404 and Nationwide) and Section 10 permits from the US Army Corps of Engineers
- Water Quality Certification from the LA Department of Environmental Quality
- Scenic Stream permits from the LA Department of Wildlife and Fisheries
- Bridge permits from the US Coast Guard
- Levee permits from various levee boards

### 3.2.6 Services to be Performed / Items to be Provided by LADOTD

If available, the DOTD will provide the following information as applicable:

- Existing survey, plans, details, and design information
- Pavement design
- Hydraulic data
- Traffic data
- Standard Plans and Special Details
- As-built plans
- Access to General Files for viewing available plans, details, and records
- Access to Virtis input tables for On-System Bridges
- DOTD design and rating manuals, policies, and guidelines

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 9
------------------------------	-------------------------	------------------------------------	-----------------------------------	-----------



### 3.3 Deliverables

All work will be performed in accordance with all applicable DOTD policies, procedures, and manuals. All deliverables will meet the requirements of Attachment A of the *LADOTD Advertisement for Engineering and Related Services, Contract No. 4400023909, IDIQ Contract For Movable Bridge Preservation Statewide*.

Design criteria for each Task Order will be developed and submitted to the Bridge Task Manger for review and approval prior to proceeding with design.

Required submittals, associated schedule, and format will be as established in each Task Order and agreed upon by Hardesty & Hanover and the Bridge Design Task Manager. All bridge plan submittals will be submitted in pdf format and the 100% signed final plans will be submitted both in full size paper and in pdf format. Plans will be delivered electronically using ProjectWise for all pdf submittals. Design and rating calculations will be submitted in pdf format no later than 30 days after the 100% final plan submittal.

#### 3.3.1 Electronic Deliverables

Hardesty & Hanover will adhere to the DOTD Software and Deliverable Standards for Electronic Plans document and DOTD CAD Standards available via links on the DOTD web site. Hardesty & Hanover hereby agrees to produce electronic deliverables in conformance with the DOTD Software and Deliverable Standards for Electronic Plans document in effect as of the effective date of the most recent contract action or modification, unless exempted in writing by the Project Manager. Hardesty & Hanover is also responsible for ensuring that sub-consultants submit their electronic deliverables in conformance with the same standards.

Hardesty & Hanover will apply patches to CAD Standard Resources and install incremental updates of software as needed or required. Hardesty & Hanover hereby agrees to install major updates to software versions and CAD Standard Resources in a timely manner. Major updates of CAD standards and software versions will be applied per directive or approval of the DOTD Design Automation Manager. Such updates will not have a significant impact on the plan development time or project delivery date, nor will they require Hardesty & Hanover to purchase additional software. Prior to proceeding with plan development, Hardesty & Hanover will contact the Project Manager for any special instructions regarding project-specific requirements.

In the event that any Digital Plan Delivery Standard conflicts with written documentation, including DOTD plan-development Manuals, the Digital Plan Delivery Standard governs. Hardesty & Hanover is responsible for contacting the Project Manager should questions arise.

Hardesty & Hanover will upload (or check in) electronic deliverables directly into the DOTD ProjectWise repository at each plan delivery milestone. Hardesty & Hanover is responsible for performing certain operations at each milestone including, but not limited to, the following:

- Upload (or check in) CAD plan deliverables to the discipline "Plans" folder
- Apply and maintain indexing attributes to CAD plans (and other deliverables as needed)
- Publish PDF format plan submittals in ProjectWise using automated publishing tools
- Digitally sign PDF format plan submittals in ProjectWise according to DOTD standards and procedures (Final Plans, Revisions and Change Orders). Signatures will be applied in signature blocks provided with electronic seals and Title Sheets.

Additionally, after reviewing deliverables for each submittal milestone, the Project Manager will notify Hardesty & Hanover regarding the availability of two automatically-generated informational reports in ProjectWise. These reports document the completion status and other information regarding indexing attributes and CAD standards. Hardesty & Hanover will take these reports into account and make any necessary adjustments to plans before the next submittal milestone; or sooner, if directed by the Project Manager.

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 10
------------------------------	-------------------------	------------------------------------	-----------------------------------	------------

### 3.3.2 Specific Software And / Or Equipment Desired

Hardesty & Hanover will use software that is on the list of pre-approved commercially available software posted on the bridge design website.

If any other software is required for unique applications for which pre-approved software cannot be used, Hardesty & Hanover will submit a synopsis of the software to the Bridge Design Engineer Administrator for approval prior to use. The synopsis will 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.

### 3.3.3 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.

## 3.4 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.

### 3.4.1 Quality Control Plan Modifications

The H&H firm standard QC Plan attached in Appendix C 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.

### 3.4.2 Quality Assurance Plan Modifications

The H&H firm standard QA 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 QA Plan.

## 4.0 Sub-Consultants

Subconsultants are responsible for performing their own Quality Control in accordance with the requirements of this Quality Management Plan. In accordance with Section 7.0 of the H&H Quality Assurance Plan, subconsultants that choose not to provide their own QA/QC plans must adopt the H&H QA/QC plans. All subconsultant submittals shall be accompanied by the signed H&H Subconsultant Certification Form and QA checklist, contained in Appendix D.

Prepared By Bobby Naghavi	Approved By C. Leahy	Consultant Quality Management Plan	REV.0 - Original Issue: 5/02/2022	Page 11
------------------------------	-------------------------	------------------------------------	-----------------------------------	------------

# Appendix A

## H&H Project Organization Chart



TEAM	
<b>H&amp;H:</b>	Hardesty & Hanover, LLC
<b>APS:</b>	APS Engineering & Testing, LLC (DBE)
<b>BDI:</b>	Bridge Diagnostics, Inc.
<b>GC:</b>	Gaea Consultants, LLC (DBE)
<b>KTA:</b>	KTA-Tator, Inc.
<b>M&amp;N:</b>	Moffatt & Nichol
<b>US:</b>	Urban Systems, Inc. (DBE)

**PRINCIPAL-IN-CHARGE**  
PAUL SKELTON, PE (H&H)<sup>1</sup>

**PROJECT MANAGER**  
BABAK NAGHAVI, PHD, PE (H&H)<sup>2</sup>

**TECHNICAL ADVISORS AND QA/QC**  
STEPHEN MIKUCKI, PE (H&H)<sup>4</sup>  
TIMOTHY NOLES, PE (H&H)<sup>2</sup>  
ALEXANDER NOBLE, PE (H&H)

BRIDGE ENGINEERING				
<b>BRIDGE INSPECTION</b> Elizabeth Barrabas, PE (H&H) Timothy Harrington, PE (H&H) Briana Kovacs, PE (H&H) Paul Marzuillo, PE (H&H) Amy Robards, PE (H&H) Rima Zahlan, PE (H&H) Mike Russell, EI (M&N)	<b>MOVABLE/STRUCTURAL</b> Erik Diaz, PE (H&H) <sup>6</sup> Steve Harlacker, PE (H&H) <sup>3</sup> Benjamin Hawthorne, PE (H&H) <sup>6</sup> James Newberry, PE (H&H) <sup>6</sup> Roberto Vicedo, PE (H&H) <sup>6</sup> Linh Kim, EI (H&H) Rafal Wuttrich, PE (H&H)	<b>MOVABLE/MECHANICAL</b> Jason Biddle, PE (H&H) <sup>4</sup> Travis Kimmins, PE (H&H) <sup>4</sup> Donald Marinelli, PE (H&H) <sup>4</sup> Kevin Ciampi, PE (H&H) Vilius Ruseckas (H&H)	<b>MOVABLE/ELECTRICAL</b> Andrew Barthle, PE (H&H) <sup>5</sup> Marco Lara, PE (H&H) <sup>5</sup> Christopher Svava, PE (H&H) <sup>5</sup> Sayyid Khan, PE (H&H) Kenneth Pecquet, EI (H&H)	<b>FIXED BRIDGES</b> John Corven, PE (H&H) <sup>8</sup> Dennis Gowins, PE (H&H) <sup>8</sup> Rodney Jarrett, PE (H&H) <sup>8</sup> Opio Hunter, PE (H&H)
<b>U/W INSPECTION</b> Steven Armstrong, PE, ADCI (M&N) Charles Balzarini, PE, ADCI (M&N) Matthew Balzarini, PE, ADCI (M&N) Jeffrey Gazarek, ADCI (M&N) Chace Hulon, PE, ADCI (M&N) Joshua Martinez, PE, ADCI (M&N) Laura Miller, EIT, ADCI (M&N)		<b>NON-DESTRUCTIVE TESTING</b> Brett Commander, PE (BDI) Jesse Sipple, PhD, PE (BDI) Shane Boone, PhD (BDI) Charles Young, PE (BDI)	<b>PROTECTIVE COATING ASSESSMENT</b> Robert Lanterman (KTA) Greg Richards (KTA) Pedro Sanchez (KTA)	<b>CONSTRUCTABILITY</b> James Phillips, PE (H&H) <sup>3</sup> Fred Wetekamm, PE (H&H)

**ARCHITECTURE**  
Daniel Tarantino, AIA (H&H)<sup>7</sup>  
Drew Delledone, RA (H&H)

**PLUMBING & HVAC**  
Matthew Gagliano, PE (H&H)<sup>9</sup>

SUPPORT SERVICES			
<b>GEOTECHNICAL ENGINEERING</b> Raymond Mankbadi, PE (H&H) Sergio Aviles, PE (APS)	<b>ROADWAY DESIGN</b> Robert Hidecki, PE (H&H) Webb Jones, PE (H&H)	<b>ENVIRONMENTAL ENGINEERING &amp; PERMITTING</b> Tonya Koob Marking, PhD, PE, CFM, LEED AP (GC) Lauren Peytavin, EI (GC)	<b>TRAFFIC ENGINEERING</b> Alison Michel, PE, PTOE, PTP, RSP (US) Nicole Stewart, PE, PTOE (US)
<b>BRIDGE HYDRAULICS</b> Lee Adams, PE (H&H) John Withorn, PE (H&H)	<b>DRAINAGE DESIGN</b> Jason Dunn, PE (H&H) Zach Gross, PE (H&H)		<b>CONSTRUCTION COST ESTIMATING</b> Kevin Meehan (H&H)

PRIME CONSULTANT: HARDESTY & HANOVER

<sup>x</sup> = MPR Nos.

# Appendix B

## H&H Quality Assurance Plan



Hardesty  
& Hanover  
*engineering that moves you*



# Hardesty & Hanover, LLC Quality Assurance Plan

## Table of Contents

Table of Contents .....	1
1.0 Introduction .....	2
2.0 Key Definitions and Roles.....	2
2.1 Key Definitions .....	2
2.2 Key Roles.....	4
2.2.1 Discipline or Task Lead.....	4
2.2.2 Project Engineer .....	4
2.2.3 Project Quality Assurance Lead.....	5
2.2.4 Project Manager.....	6
2.2.5 Discipline Chief Engineer.....	7
2.2.6 Quality Manager.....	7
2.2.7 Chief Technical Officer.....	8
3.0 General Intent .....	8
3.1 Schedule & Frequency of QA Activities .....	8
4.0 Documentation Requirements .....	9
4.1 Control of Documents .....	9
4.2 Change Control of Design Documents .....	9
4.2.1 Change Control of Design Documents during Design .....	9
4.2.2 Change Control of Documents during Construction .....	9
4.3 Control of Records.....	10
5.0 Communication Protocols.....	10
5.1 Pre-Project.....	10
5.2 Project Start-up.....	11
5.2.1 Project Initiation Technical Meeting .....	11
5.2.2 Project Staff Kick-off Meeting.....	11
5.3 Project Development.....	12
5.3.1 Project Submission Report .....	12
6.0 Quality Assurance Verification.....	13
6.1 Quality Assurance Reviews .....	13
6.1.1 Phase Submittals .....	14
6.1.2 Design Build Submittals .....	14
6.2 Quality Assurance Audits.....	14
6.2.1 Quality Assurance Audit Process.....	14
6.3 Control of Nonconforming Product.....	15
6.3.1 Corrective Action.....	15
7.0 Sub-Consultants .....	15

Prepared By J. Bade C. Leahy Page 214 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 1
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## 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.

Prepared By J. Bade C. Leahy Page 2 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 2
---	----------------------------	--	---	--------



- 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 Assurance (QA): 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 processes where appropriate.
- t) Quality Auditor: A person who is an Engineer or Manager that is assigned by HQ to perform a Quality Assurance Audit for a project.
- u) Quality Control (QC): Systematic activities undertaken to minimize errors, discrepancies, and omissions in a work product, to ensure adherence to industry standards and to deliver an exceptional product to our clients.
- 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.

Prepared By J. Bade C. Leahy Page 216 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 3
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## 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.

Prepared By J. Bade C. Leahy Page 217 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 4
---	----------------------------	--	---	--------

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

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

The POAL 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 POAL 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 POAL 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.

Prepared By J. Bade C. Leahy Page 218 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 5
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### 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.

Prepared By J. Bade C. Leahy Page 219 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 6
---	----------------------------	--	---	--------

- 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

Prepared By J. Bade C. Leahy Page 220 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 7
---	----------------------------	--	---	--------

- 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

Prepared By J. Bade C. Leahy Page 22 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 8
--	----------------------------	--	---	--------

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.

Prepared By J. Bade C. Leahy Page 222 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 9
---	----------------------------	--	---	--------

### 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.

Prepared By J. Bade C. Leahy Page 225 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 10
---	----------------------------	--	---	---------



## 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

Prepared By J. Bade C. Leahy Page 22 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 11
--	----------------------------	--	---	---------

- 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

Prepared By J. Bade C. Leahy Page 225 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 12
---	----------------------------	--	---	---------

- f) Responses to Comments on Prior Submission (if appropriate)
- g) Summary of Design Variations.

## 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.

Prepared By J. Bade C. Leahy Page 226 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 13
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**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.

Prepared By J. Bade C. Leahy Page 227 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 14
---	----------------------------	--	---	---------

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.

Prepared By J. Bade C. Leahy Page 228 of 269	Approved By K. Griesing	Quality Assurance Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV 1: Updated 07/31/2020 REV 2: Updated 04/29/2021 REV 3: Updated 05/27/2021 REV.4: Updated 02/28/2022	Page 15
---	----------------------------	--	---	---------

# Appendix C

## H&H Quality Control Plan



# Hardesty & Hanover, LLC Quality Control Plan

## Table of Contents

1.0	Introduction .....	3
2.0	Key Definitions and Roles.....	3
3.0	General Intent .....	5
4.0	Process by Document Type / Class.....	5
4.1	Design Plans .....	5
4.1.1	Preparing a Check Print of a Drawing.....	7
4.1.2	Checking Drawings .....	7
4.1.3	Back Checking Drawings .....	8
4.1.4	Correcting Drawings .....	8
4.1.5	Verification of Original Check Print .....	9
4.1.6	Verification of New Check Print .....	9
4.1.7	Checking Process for Additional Changes to Drawings.....	9
4.1.8	Checking Process for Multiple Phase Reviews.....	10
4.2	Calculations.....	10
4.2.1	Preparing Check Copies of Calculations .....	11
4.2.2	Checking Calculations .....	12
4.2.3	Back Checking Calculations .....	12
4.2.4	Correcting Calculations.....	13
4.2.5	Verification of Original Check Copy of a Calculation .....	13
4.2.6	Checking Process for Additional Changes to Calculations .....	13
4.2.7	Independent Check in Lieu of Detailed Checking.....	14
4.3	Reports & Specifications .....	14
4.3.1	Preparing Check Copies of Reports & Specifications.....	14
4.3.2	Checking Reports & Specifications.....	15
4.3.3	Back Checking Reports & Specifications.....	16
4.3.4	Verification of Corrections to Reports & Specifications.....	16
4.3.5	Checking Process for Additional Changes to Reports or Specifications.....	16
4.3.6	Checking Reports or Specifications Electronically.....	16
4.4	Internal Technical Reviews .....	17
4.4.1	Preparing Work Product for ITR.....	17
4.4.2	Performing Independent Technical Reviews .....	17
4.4.3	Reconciliation of Internal Technical Review Comments .....	18



---

5.0	Checklists .....	18
6.0	Submittals .....	18
6.1	Phase Submittals .....	18
6.2	Final Submittals.....	19
6.3	Design Build Submittals .....	19
7.0	Post Design Submittal Reviews.....	19
7.1	Shop drawings.....	19
7.2	Review of Construction Methods and/or Procedures.....	20
8.0	Owner's Engineer or Peer Review Role .....	21

---

Prepared By J. Bade Page 2 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 2
---	----------------------------	--	--	--------

## 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. The project Hold Points shall be established by the PM in compliance with Client and HQ requirements at the beginning of the project. 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.
- 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 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.)

Prepared By J. Bade Page 23 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 3
--	----------------------------	--	--	--------

- j) 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.
- 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 variances or enhancements 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) Technician: The individual(s) assigned to create and/or edit documents on behalf of the Originator/Producer (e.g. a drafter, CADD Technician, clerk or the Originator/Producer themselves).
- u) 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.
- v) 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.
- w) 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.)

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 4
--	----------------------------	--	--	--------

### 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.

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<sup>1</sup>, experienced and qualified in the appropriate engineering discipline. 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.

<sup>1</sup> or similar credentials in the event the work product is other than an engineering work product

Prepared By J. Bade Page 215 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 5
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# Design Plan Development

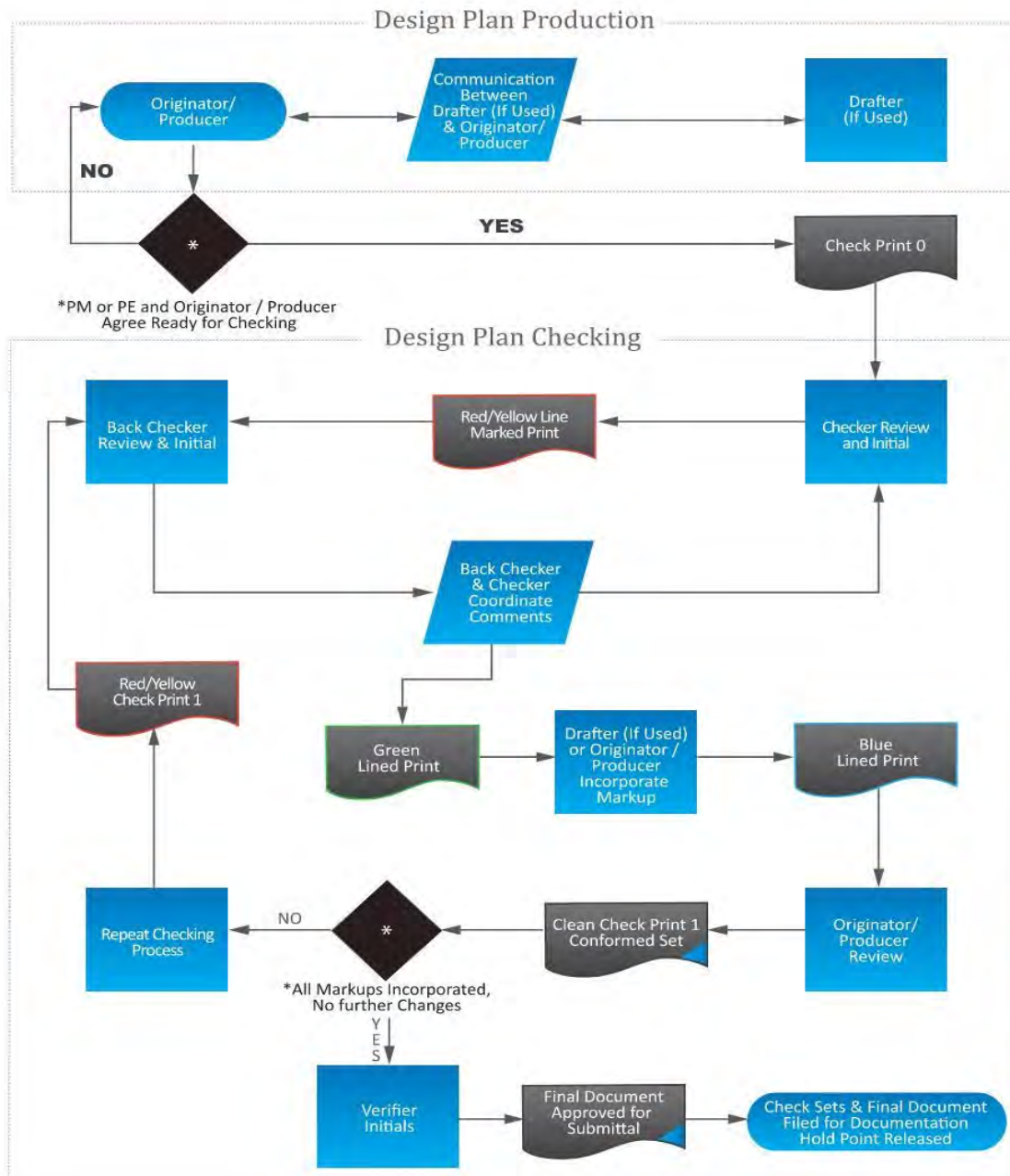


Figure 1

Prepared By J. Bade Page 26 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 - Updated: 07/31/2020 REV. 2 - Updated 12/10/2020 REV. 3 - Updated 05/27/2021 REV. 4 - Updated 02/28/2022	Page 6
--	----------------------------	--	--	--------

### 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.

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

Figure 2

### 4.1.2 Checking Drawings

The Checker's colors are YELLOW and RED

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.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 7
--	----------------------------	--	--	--------

- 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) 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".
- c) Confirms that every red marked change made by the Checker now has a GREEN check next to it and that every modification or additional change made by the Back Checker in GREEN has been highlighted in YELLOW by the Checker to signify agreement.
- d) 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.
- e) 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

- 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 Originator/Producer or Technician 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 Checker for verification.

Prepared By J. Bade Page 28 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 8
--	----------------------------	--	--	--------

- 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 HIGHLIGHTER

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 an ORANGE HIGHLIGHTER 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 with an ORANGE HIGHLIGHTER.
- 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 with an ORANGE HIGHLIGHTER, 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.

Prepared By J. Bade Page 28 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 9
--	----------------------------	--	--	--------



#### 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 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.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 10
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## Design Calculation Development

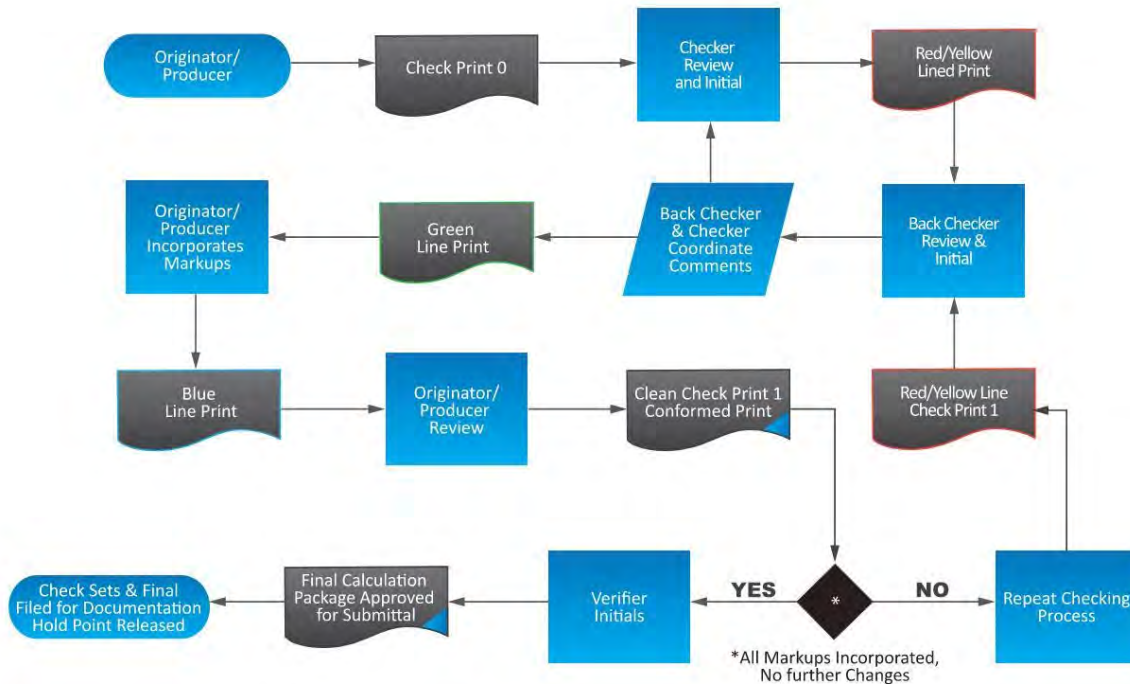


Figure 3

### 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.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 11
--	----------------------------	--	--	------------

#### 4.2.2 Checking Calculations<sup>2</sup>

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.

#### 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

<sup>2</sup> 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.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 12
--	----------------------------	--	--	------------

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**

- a) The Originator/Producer corrects the original document, or supervises correction of the calculation, to implement the reconciled changes.
- 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 HIGHLIGHTER

- 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 with an ORANGE HIGHLIGHTER 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.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 13
--	----------------------------	--	--	------------

#### 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

Prepared By J. Bade Page 24 of 29	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 14
---	----------------------------	--	--	------------

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
  - Coordination with other design documents
- b) 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.)
- c) Highlight in YELLOW each paragraph or section checked that is found to be correct and/or with which the Checker agrees, on the Check Copy. All numerical values including referenced specification numbers, e.g. ASTM, shall be verified and fully marked in YELLOW if correct.
- d) Mark in RED on the Check Copy, any corrections, additions, and/or deletions, mark any questions directed to the Originator/Producer in RED.
- 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 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.
- g) 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.

Prepared By J. Bade Page 215 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 15
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### 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 Verification of Corrections to Reports & Specifications

The Verifier's color is ORANGE HIGHLIGHTER

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 with an ORANGE HIGHLIGHTER on the Check Copy. The Verifier will also make certain that no inadvertent changes, not noted on the Check Copy, have been made.

### 4.3.5 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.

### 4.3.6 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

Prepared By J. Bade Page 21 of 29	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 16
---	----------------------------	--	--	------------

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. The exception, in which an ITR may be used in lieu of the quality control process, is the review of phase submittals for which the contract does not specifically require a full quality control review. In such cases a "phase review" ITR, specifically intended to confirm the completeness and accuracy of the pertinent preliminary information included in a phase submittal, may be used.

##### 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.

Prepared By J. Bade Page 21 of 29	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 17
---	----------------------------	--	---	------------



- 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. 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.

Prepared By J. Bade Page 218 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 18
---	----------------------------	--	--	------------

## 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.

## 7.0 Post Design Submittal Reviews<sup>3</sup>

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.

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 and "Received On" stamp prior to being reviewed. 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 and stamped 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." 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

<sup>3</sup> 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.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 19
--	----------------------------	--	--	------------

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 all copies of the submittal by either by the Reviewer or their designee. The Reviewer will verify the transcribing, mark the disposition, initial, and date all copies 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. If submitted in multiple copies as a shop drawing, the submittal will be logged as such, one copy shall be designated and stamped as the "Office Copy" and forwarded to a designated Reviewer. If submitted in singular as a procedure, a copy will be made and stamped as the "Office Copy" and forwarded to a designated Reviewer.

The Reviewer will review the construction methods and/or procedures submittal and note in RED on the Office Copy 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 transcribe his or her approved comments onto all copies of the submittal and 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.

Prepared By J. Bade Page 25 of 269	Approved By K. Griesing	Quality Control Plan <b>PRIME CONSULTANT: HARDESTY &amp; HANOVER</b>	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 20
--	----------------------------	---	--	------------

## 8.0 Owner’s Engineer or Peer Review Role

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 closely follow the Quality Control procedures outlined in this document for checking and verification. Check Prints shall be initialed and dated by the reviewer. 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. This series of files becomes the check set. All comments shall be recorded on a Comment Response Form which shall be submitted to the PM for quality assurance review prior to submittal. The reviewer shall verify incorporation of all comments from prior Comment Response Forms for each submittal.

Prepared By J. Bade Page 21 of 269	Approved By K. Griesing	Quality Control Plan PRIME CONSULTANT: HARDESTY & HANOVER	REV.0 - Original Issue: 2/17/2017 REV. 1 – Updated: 07/31/2020 REV. 2 – Updated 12/10/2020 REV. 3 – Updated 05/27/2021 REV. 4 – Updated 02/28/2022	Page 21
--	----------------------------	--	--	------------

# Appendix D

## H&H QA/QC Forms



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)
	<p>Level of Development (Check all that apply)</p> <p><input type="checkbox"/> Concept                      <input type="checkbox"/> Preliminary                      Phase: _____                      Final</p> <p><input type="checkbox"/> Release For Construction                      <input type="checkbox"/> Other: _____</p>
	<p>Documentation reviewed (attach complete list of all items / files reviewed):</p> <p><input type="checkbox"/> Design Criteria    <input type="checkbox"/> Design Plans    <input type="checkbox"/> Calculations / Computer Solutions    <input type="checkbox"/> Reports    <input type="checkbox"/> Specifications</p> <p><input type="checkbox"/> Interdisciplinary Coordination Documentation    <input type="checkbox"/> Prior Audit Documentation    <input type="checkbox"/> External Comment Responses</p> <p><input type="checkbox"/> Other, Specify: _____</p>

2 - SUMMARY OF FINDINGS	<p>I have reviewed the above documentation for conformance with Hardesty &amp; Hanover Quality Control Standards. My Conclusions are as follows (if more space required attach additional sheet, indicate format and location of any additional comments):</p>          
-------------------------	--

3-RECOMMENDED ACTIONS	<p>In consideration of the findings above I recommend the following actions be taken for the continued conformance of future work with the Hardesty &amp; Hanover Standards ( if more space required attach additional sheet, indicate format and location of any additional comments):</p>          
-----------------------	---

Developed by: \_\_\_\_\_  
Project Quality Assurance Lead Date

4 APPROVED FOR SUBMISSION	<p><i>The recommended actions as noted above are in conformance with Hardesty &amp; 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 &amp; Hanover and is ready for submittal</i></p>   <p>_____ <span style="margin-left: 300px;">Date</span></p> <p style="text-align: center;">Project Manager</p>
---------------------------	---

<b>Project Name</b>		<b>Project Manager</b>	
<b>H&amp;H Project Number</b>		<b>Client Name</b>	
<b>1 - DOCUMENT INFORMATION</b>	(TO BE FILLED OUT BY THE PROJECT MANAGER)		
	<b>Level of Development (Check all that apply)</b> <input type="checkbox"/> Concept <input type="checkbox"/> Preliminary <input type="checkbox"/> Phase: _____ <input type="checkbox"/> Other: _____ <input type="checkbox"/> Final <input type="checkbox"/> Release For Construction	<b>Discipline Reviewed (Check all that apply)</b> <input type="checkbox"/> Overall / Policy <input type="checkbox"/> Structural <input type="checkbox"/> Geotechnical <input type="checkbox"/> Mechanical <input type="checkbox"/> Electrical <input type="checkbox"/> Highway/Civil <input type="checkbox"/> Constructability <input type="checkbox"/> Other, Specify: _____	
	<b>Document type reviewed:</b> <input type="checkbox"/> Design Plans <input type="checkbox"/> Calculations <input type="checkbox"/> Report <input type="checkbox"/> Specification <input type="checkbox"/> Other, Specify: _____		
Prepared by: _____ Document Date / Version: _____			
<b>QC STAMP</b>	<input type="checkbox"/> Document contains Incomplete QC stamp, specify completed steps: _____ <input type="checkbox"/> Document contains Completed QC stamp		
<b>2 - DETAILED ITR SCOPE</b>			
	Submitted by: _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Project Manager</span> <span>Date</span> </div>		
<b>3 - REVIEWER COMMENTS</b>	(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: _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Internal Reviewer</span> <span>Date</span> </div>			
<b>4 - VERIFIED</b>	All Reviewer comments have been addressed, either satisfactorily resolved or incorporated into the document. This document is complete.  Submitted by: _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Project Manager</span> <span>Date</span> </div>		
<b>5 - APPROVAL</b>	This review is complete.  Submitted by: _____ <div style="display: flex; justify-content: space-between; width: 100%;"> <span>Internal Reviewer</span> <span>Date</span> </div>		



**Hardesty & Hanover**  
 [Project]  
 [Type of Review]  
**Comment / Response Form (CRF)**

<b>DOCUMENT NAME:</b>										
<b>REVIEWER:</b>					<b>RECEIVED DATE:</b>					
<b>REVIEW DATE:</b>					<b>REVIEW STATUS:</b>					
<b>RESPONSE CODES:</b> 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										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										

Distribution:



**PROJECT INFORMATION**

Project Name:

H&H Project No.:

Client:

**PROJECT SUBMITTAL LEVEL OF DEVELOPMENT**

Concept

Preliminary

Development

Final

**PROJECT LEADERSHIP CERTIFICATION**

**Project Manager**

*The undersigned, as Project Manager, certifies that the noted submittal for the referenced project has been completed and met the requirements of the project-specific quality management plan, is complete for the level of development and meets the requirements of LADOTD, and Hardesty & Hanover.*

Name

Date

**Project Engineer**

*The undersigned, as Project Engineer under the direction of the Project Manager, certifies that the noted submittal for the referenced project has been completed and met the requirements of the project-specific quality management plan, is complete for the level of development and meets the requirements of LADOTD and Hardesty & Hanover.*

Name

Date

# Subconsultant Quality Assurance Checklist Design Projects

Project Name:

Sub-consultant Name:

Project Status/Phase:

Date:

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

*Project Manager* \_\_\_\_\_ *Signature* \_\_\_\_\_ *Date* \_\_\_\_\_

*Project Quality Lead/QA Reviewer* \_\_\_\_\_ *Signature* \_\_\_\_\_ *Date* \_\_\_\_\_

## Appendix E

### 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  $\mu_D$ , redundancy factor  $\mu_R$ , and operational importance factor  $\mu_I$  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	307r PP	607r PP	907c PP	1007c PP	307r FP	607c FP	907c FP	1007c 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								D	C	S			
Barrier/Mailing Details													
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			
Misc. 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 (as registered with Louisiana's Secretary of State)	Address	Point of Contact and Email Address	Phone Number
A P S Engineering and Testing, LLC	1645 Nicholson Drive Baton Rouge, LA 70802	Sergio Aviles <a href="mailto:sergio@aps-testing.com">sergio@aps-testing.com</a>	225.456.5714
Bridge Diagnostics, Inc.	740 S. Pierce Ave, Unit 15 Louisville, CO 80027	Scott Aschermann <a href="mailto:scotta@bditest.com">scotta@bditest.com</a>	303.494.3230
Gaea Consultants, LLC	536 Washington Avenue; New Orleans, LA 70130	Tonja Marking <a href="mailto:tonja.k.marking@gaeaconsultants.com">tonja.k.marking@gaeaconsultants.com</a>	504.962.5360
KTA-Tator, Inc.	4001 7 <sup>th</sup> Street North St. Petersburg, FL 33703	Greg R. Richards <a href="mailto:grichards@kta.com">grichards@kta.com</a>	727.453.9007 (cell)
Moffatt & Nichol, Inc.	301 Main Street, Suite 800 Baton Rouge, LA 70801	Chase Hulon <a href="mailto:chulon@moffattnichol.com">chulon@moffattnichol.com</a>	225.610.1932
Urban Systems Inc.	2000 Tulane Avenue, Suite 200 New Orleans, LA 70112	Alison Michel <a href="mailto:AcMichel@urbansystems.com">AcMichel@urbansystems.com</a>	504.569.3958

**23. Location:**

Not Applicable.