Hardesty & Hanover

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Advertisement for Engineering and Related Services

IDIQ for Bridge Inspection Services Statewide

Contract Nos. 4400023510, 4400023511, and 4400023512

February 2022

Hardesty & Hanover
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Louisiana Department of Transportation and Development
Consultant Contracts Services
1201 Capitol Access Road, Room 405-E
Baton Rouge, LA 70802
Submitted by email to DOTDConsultantAds80@la.gov

February 24, 2022

Re: Contract Nos. 4400023510, 4400023511, and 4400023512
IDIQ For Bridge Inspection Services
Statewide

Dear Selection Committee Members:

Hardesty & Hanover (H&H) is pleased to submit our qualifications to LADOTD for the IDIQ Bridge Inspection Services Statewide Contract. We are proud of our long history working in Louisiana, dating back to 1896 with the historic Waddell A-Truss Bridge over Cross Bayou in Shreveport, and of our continued partnership on a variety of challenging projects. As leader in bridge engineering, our firm brings a legacy of providing engineering excellence for over 137 years. Ranked as one of ENR's top 10 bridge firms in the country, H&H has the full capability, available capacity, and extensive bridge engineering experience to perform all contract services required.

We have selected a large pool of qualified bridge engineers and inspectors, especially those that specialize in complex structures over major river crossings, that will help meet your schedules and achieve your goals. Our extensive experience performing load ratings on multiple complex structures, including cable-stayed, suspension, truss, and movable bridges, will aid in maintaining safe, reliable, and sustainable infrastructure for our fellow Louisiana residents and stakeholders. Our selected staff for this contract also includes nationally and internationally well-known engineers to provide emergency and specialized repair and rehabilitation design for complex bridge structures. Furthermore, H&H utilizes a robust quality management system to protect the State against errors and omissions.

H&H's proposed Project Manager, Babak Naghavi, PE, Ph.D., brings extensive experience successfully managing cross-discipline, multi-year inspection contracts. Mr. Naghavi's deep knowledge of bridge design and evaluation, combined with his dedication, project management capabilities, and reputation with the LADOTD, make him an ideal candidate for this position. He is available to devote the time needed to effectively deliver all of H&H's needed resources on any assignment or emergency that may arise from this task order contract. The work will be managed and performed from our Louisiana offices.

H&H partnered with additional qualified and LADOTD-experienced subconsultants to give specialized support on tasks requiring structural assessments, non-destructive evaluations, protective coating assessments, underwater inspection and imaging, surveying, and traffic control services as required.

Consultant Firm	Contract Role	LADOTD Experience	Team Experience
Hardesty & Hanover	Bridge Inspection, Load Rating, and Repair/Rehab	✓	✓
Moffatt & Nichol, Inc.	Underwater Bridge Inspection, Bridge Inspection and Underwater Imaging	✓	✓
Bridge Diagnostics, Inc	Non-Destructive Testing and Load Testing	✓	✓
KTA-Tator, Inc. (KTA)	Protective Bridge Coatings Inspections	✓	✓
Chustz Surveying, LLC	Land Survey, Hydrographic Survey, and Underwater Imaging	✓	✓
Urban Systems, Inc	Traffic Control Planning and Monitoring (if needed)	✓	✓

Together, we bring:

Proven Bridge Inspection Services: H&H, M&N, BDI, and KTA will provide LADOTD with comprehensive engineer services comprising 100% hands-on inspection and detailed reporting methods that will assist in the overall management of your bridge inventory. *H&H alone has inspected over 2,500 structures for 30+ clients;* ***we are bridge inspection and engineering experts****. As detailed in this submittal, our team members offer significant and proven bridge engineers and inspectors.*

Successful Delivery of IDIQ Contracts On Time and On Budget: The maintenance of your bridge inventory program is essential to us in support of enhancing and developing Louisiana's growing infrastructure. As such, we have assembled multiple inspection teams to keep your inspection operations running as planned and allow for concurrent inspection activities. The depth of our Bridge Inspection Group will allow for the flexibility of our proposed staff, who are fully committed to the contract duration. *Our team members were chosen for their extensive experience on multiple and ongoing cycles of retainer contracts for LADOTD and many other State DOTs; therefore, we are prepared and ready to serve at notice to proceed.*

Resources that Exceed your MPR Requirements: The H&H team meets and exceeds the minimum personnel requirements prescribed for this contract. With more than half of our team certified in the necessary NBIS NHI Bridge Inspection Courses, we are dedicated to delivering you a safe and quality inspection program. Our assigned task team leaders are all NBIS-certified and Louisiana-Registered Professional Engineers with direct experience for anticipated bridge types. In addition, M&N provides the team with an entire staff of highly trained ADCI and NBIS Diving Inspectors for underwater inspections.

Special Innovations/Concepts: Bridges with difficult areas to access with standard techniques can be inspected using drones operated by H&H's certified pilots, rovers, or our local SPRAT-certified inspection teams from H&H, M&N, and BDI. M&N and Chustz Surveying offer highly trained staff for complete side-scanning sonar and hydrographic surveys for bridges over water with scour-related problems or in response to conditions observed at the site. We aim to utilize state-of-the-art technology and innovative methodology, when possible, to improve the quality and efficiency of our work.

We appreciate your consideration and look forward to providing LADOTD with a quality inspection of your complex bridge structures. Do not hesitate to contact us if you need clarification on our qualifications.

Sincerely,
Hardesty & Hanover

Paul Skelton, PE
Principal

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

DOTD FORM: 24-102

(Revised June 1, 2021)

PROPOSAL TO PROVIDE CONSULTANT SERVICES

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

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

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

1. Contract title as shown in the advertisement	**Engineering and Related Services** IDIQ Contract for In-Depth Bridge Inspection Statewide
2. Contract number(s) as shown in the advertisement	**Contract Nos.** 4400023510, 4400023511 and 4400023512
3. State Project Number(s), if shown in the advertisement	n/a
4. Prime consultant name (as registered with the Louisiana Secretary of State where such registration is required by law)	Hardesty & Hanover, LLC
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	**LAPELS:** EF. 0005124 **CAGE:** 1MD51 **DUNS:** 05-455-2252
6. Prime consultant mailing address	Hardesty & Hanover, LLC 3850 N. Causeway Boulevard, Suite 1850, Metairie, LA 70002
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	Hardesty & Hanover, LLC 3850 N. Causeway Boulevard, Suite 1850, Metairie, LA 70002
8. Name, title, phone number, and email address of prime consultant's contract point of contact	**Babak Naghavi, PhD, PE, PH |** Regional Manager, 504.605.7940 bnaghavi@hardestyhanover.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	**Paul Skelton, PE |** Principal, 504-962-9212 pskelton@hardestyhanover.com
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): 2/24/2022 Date:
11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): Firm(s)' %: n/a

12. Past Performance Evaluation Discipline Table:

Evaluation Discipline(s)	% of Overall Contract	Hardesty & Hanover (prime)	Moffatt & Nichol (sub)	BDI Testing, Inc (sub)	KTA-Tator (sub)	Chustz Surveying (sub)	Urban Systems (sub)	Discipline total
Bridge	97%	67%	21.7%	7.7%	3.6%			100%
Survey	3%					100%		100%
Traffic	0%						100%	100%
Percent of Contract	**100%**	**65%**	**21%**	**7.5%**	**3.5%**	**3%**	**0%** **(If needed)**	

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
HARDESTY & HANOVER			
	Principal	2	18
	Supervisor – Engineer	8	28
	Engineer	12	42
	Engineer - Other	4	246
	Inspector – Bridge	20	35
	Engineer Intern	2	
	Administrative	1	40
MOFFATT & NICHOL			
	Accountant	1	10
	CADD Technician	1	25
	Engineer	6	25
	Inspector – Bridge	12	50
	Supervisor – Engineer	2	8
	Technician	5	12
BRIDGE DIAGNOSTICS, INC			
	Principal	3	5
	Supervisor – Engineer	3	6
	Supervisor – Other	3	6
	Engineer – Other	3	6
	Engineer Intern	3	7
	Senior Technician	8	12
	Technician	3	6
	Computer Analyst	2	5
	Accountant	1	3
	Clerical	1	3

KTA- TATOR, INC			
	**Supervisor-Other**	**2**	**12**
CHUSTZ SURVEYING, LLC			
	**CADD Technician**	**2**	**6**
	CADD Drafter	**1**	**3**
	Instrument Man	**2**	**5**
	Party Chief	**2**	**5**
	Principal	**1**	**1**
	Rodman	**2**	**5**
	Surveyor	**2**	**3**
URBAN SYSTEMS, LLC			
	**Supervisor – Engineer**	**1**	**2**
	Engineer	**1**	**4**
	Engineer Intern	**2**	**2**
	CADD Technician	**1**	**1**
	Technician	**1**	**2**

14. Organization Chart

LADOTD IDIQ For Bridge Inspection Services
Statewide

PROJECT MANAGER

PRINCIPAL IN CHARGE
Paul Skelton, PE (H&H)

PROJECT MANAGER
Babak Naghavi, PE, PhD (H&H)[1 5]

QA/QC
Bridge Inspection: Robert Drew, PE (H&H)[1 2]
Bridge Design: Timothy Noles, PE (H&H)

BRIDGE INSPECTION
***Bridge Inspection Manager*:** Fred Wetekamm, PE (H&H)[1 2]

CABLE BRIDGES
(Cable-Stayed & Suspension)
Team Leader:
Douglas Mastropietro, PE (H&H)[1 2 3]
Paul Marzuillo, PE (H&H)[1 2 3]
Inspectors:
Tim Harrington, PE (H&H)[1 2 3]
Elizabeth Barabas, PE (H&H)[1 2 3]
Steven Armstrong, PE (M&N)[1 2 4 5]
Jeffrey Gazarek (M&N)[1 3 4]
Margaret Ray, PE (M&N)[1 2 4 5]
Mike Russell, EIT (M&N) [1 3]

MOVABLE BRIDGES
Structural Team Leader:
Tim Harrington, PE (H&H)[1 2 3]
Rima Zahalan, PE (H&H)[1 2]
Inspectors:
Amy Robards, PE (H&H)[1 2 3]
Brianna Kovacs, PE (H&H)[1]
Elizabeth Barabas, PE (H&H)[1 2 3]
Mechanical Team Leader:
Donald Marinelli, PE (H&H)[1 2]
Travis Kimmins, PE (H&H)
Inspectors:
Jason Biddle, PE (H&H)[1 2]
Isaac Frederick, PE (H&H)
Kevin Ciampi, PE (H&H)
Electrical Team Leader:
Marco Lara, PE (H&H)
Andrew Barthle, PE (H&H)
Inspectors:
Michael Tiné, PE (H&H)
Chris Svara, PE (H&H)
Ken Pecquet, EI (H&H)

TRUSS BRIDGES
Team Leader:
Ryan Nolan, PE (H&H)[1 2 3]
David Lynch, PE (H&H)[1 2]
Inspectors:
Amy Robards, PE (H&H)[1 2 3]
Opio Hunter, PE (H&H)[1]
Rima Zahalan, PE (H&H)[1 2]
Kaushil Patel, PE (H&H)[1 2 3]
Matthew Balzarini, PE (M&N) [2 3 4]
Kimberly Gravatt (M&N)[1 2 3 4]

BRIDGE REPAIR / REHABILITATION
***Bridge Design Manager*:** Jim Phillips, PE (H&H)

LOAD RATING
Load Rating Reviewer:
David Marcic, PE, SE (H&H)[1]
Load Rating Engineers:
Robert Viceido, PE (H&H)
Erik Diaz, PE (H&H)
Jordan Warncke, PE, SE (H&H)[1 3]
Linh Kim, EI (H&H)

GEOTECHNICAL/FOUNDATIONS
Raymond Mankbadi, PE (H&H)
Arsanious Guirguis, PE (H&H)

BRIDGE SCOUR
Lee Adams, PE (H&H)

TRAFFIC CONTROL PLAN
Alison Catarella-Michel, PE, PTOE, PTP, RSP (USI)
Nicole Stewart, PE, PTOE (USI)

MOVABLE BRIDGES
ASSESSMENT & REHAB DESIGN
Structural Engineers:
James Newberry, PE, SE (H&H)
Steven Harlacker, PE, SE (H&H)
Rodney Jarrett, PE (H&H)[1 2]
Mechanical Engineers:
Steve Mikucki, PE (H&H)
Matthew Gagliano, PE (H&H)
Jason Biddle, PE (H&H)[1 2]
Electrical Engineers:
Andrew Barthle, PE (H&H)
Raymond Lopez, PE (H&H)
Marco Lara, PE (H&H)

CABLE & TRUSS BRIDGES
ASSESSMENT & REHAB DESIGN
Structural Engineers:
John Corven, PE (H&H)
Glenn Tindale, PE (H&H)
George Patton, PE (H&H)
Marco Buyson, PE (H&H)

TEAM
H&H: Hardesty & Hanover
M&N: Moffatt & Nichol
BDI: Bridge Design Diagnostics, Inc
KTA: KTA-Tator
CHU: Chustz Surveying
USI: Urban Systems, Inc

BRIDGE INSPECTION CERTIFICATIONS
1: NHI 130055, 130053 Safety Bridge Inspection; Refresher
2: NHI 130078 Fracture Critical Inspection
3: SPRAT Rope Access
4: ADCI-Certified Diver
5: NHI 130091 Underwater Bridge Inspection

SUPPORT SERVICES

UNDERWATER INSPECTION
Team Leaders:
Chace Hulon, PE (M&N)[1 3 4]
Divers:
Charles Balzarini, PE (M&N)[1 2 3 4]
Martin Anderson, PE (M&N) [1 3 4]
Christopher (Chip) Eschenbach (M&N) [3 4]
Joshua Martinez, PE (M&N)[1 3 4]
Clint Harr, EIT (M&N)[1 3 4]

UNDERWATER IMAGING
Mark Huber, CH (CHU)
Chace Hulon, PE (M&N)[1 3 4]

LAND & HYDROGRAPHIC SURVEYING
J. Alex Chustz, PLS (CHU)
James H. Chustz, Jr., PLS (CHU)

NON-DESTRUCTIVE EVALUATION
Charles Young, PE (BDI) [3]
Shane Boone, PhD, ASNT-2 (BDI)
Ricky Morgan, ASNT-3 (BDI)
James Kretzler, ASNT-3, SSPC, CIP-1 (KTA)

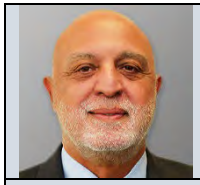
LOAD TESTING
Brett Commander, PE (BDI)
Brice Carpenter, PE (BDI)

PROTECTIVE BRIDGE COATINGS
Robert Lanterman, SSPC, CIP-3 (KTA)
Greg Richards, SSPC, CIP-3 (KTA)
Pedro Sanchez, SSPC, CIP-2 (KTA)
James Kretzler, ASNT-3, SSPC, CIP-1 (KTA)

15. Minimum Personnel Requirements:

MPR No. Do not insert wording from ad	Personnel being used to meet the MPR (Individual(s) may not satisfy more than one MPR unless specifically allowed by Attachment B of the advertisement)	Firm employed by	Type of license / certification & number	State of license	License / certification expiration date
1	Paul Skelton, PE	Hardesty & Hanover	PE (27039)	LA	3/31/2023
2	Babak Naghavi PE, PhD	Hardesty & Hanover	PE (20745)	LA	9/30/2022
	Timothy Noles, PE	Hardesty & Hanover	PE (31675)	LA	9/30/2023
3	Babak Naghavi PE, PhD	Hardesty & Hanover	PE (20745)	LA	9/30/2022
	Robert Drew, PE	Hardesty & Hanover	PE (41744)	LA	9/30/2023
	Fred Wetekamm, PE	Hardesty & Hanover	PE (25369)	LA	3/31/2022
	Rodney Jarrett, PE	Hardesty & Hanover	PE (43868)	LA	3/31/2022
	Ryan Nolan, PE	Hardesty & Hanover	PE (40078)	LA	3/31/2022
4	Mark Huber, CH	Chustz Surveying	Certified Hydrographer (181)	National	12/31/2022
	Chace Hulon, PE	Moffatt & Nichol	PE (39701) Marine Engineering Sonar Cert.	LA	9/30/2023
	J. Alex Chustz, PLS	Chustz Surveying	PLS (5251)	LA	9/30/2023
5	James H. Chustz, Jr., PLS	Chustz Surveying	PLS (4657)	LA	3/31/2022
	J. Alex Chustz, PLS	Chustz Surveying	PLS (5251)	LA	9/30/2023

16. Staff Experience

	Firm Employed by	Hardesty & Hanover		
	Name	**Babak Naghavi, PhD, PE, PH**	Years of relevant experience with this employer	5
	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
Year registered	1983	Discipline	Civil and Environmental Engineering
Contract role(s) / brief description of responsibilities			**Project Manager – Meets MPR 2 and 3**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/18 – Present	**IDIQ Movable Bridge Contract, Statewide, MS – Mississippi DOT** **Project Manager** 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.
03/13 – 02/16	**Retainer Contract (No. 4400003534) for Underwater Bridge Inspection for Bridges in Districts 02 & 62, Louisiana – Louisiana DOTD** **Project Manager** for performing about 400 underwater bridge inspections for this five-year retainer contract. Level I visual inspections are element level based for submerged elements according to the LADOD PONTIS Inspection Manual and documented on LADOTD Underwater Inspection Form to assign NBI Substructure rating. Level II and Level III inspections will be conducted if determined to be necessary from the Level I inspection. A report will be generated for each inspection that would include the results of the inspection & other pertinent data.
10/19 – 03/20	**Annual Inspection of Almonaster and Seabrook Bascule Bridges over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Project Manager** for an annual inspection of two bascule bridges, 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.

01/14 – 03/15	**Contract No. 4400004383, Statewide Tunnel Inspection Services – Louisiana DOTD** **Project Manager** for the structural inspection of various elements of the tunnel and the approach roadway, evaluation and preparation of the report. In-service inspections included the Harvey Tunnel, Belle Chasse Tunnel, and Houma Tunnel.
06/18 – Present	**H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA – Louisiana DOTD** **Project Manager** 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.
04/18 – 06/18	**Lake Pontchartrain Causeway Bascule Bridge Evaluation, Jefferson and St. Tammany Parishes, LA – Jefferson Parish DPW** **Project Principal** 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.
01/19 – Present	**Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW** **Project Manager** 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.
06/08 – 06/10	**S.P. No. 700-99-0405, Crescent City Connection Division-Annual Bridge Inspection, Orleans, Jefferson, & St. Bernard Parishes – Louisiana DOTD** **Project Manager** for this bridge & facility inspection services contract which included: superstructure, including physical and maintenance inspection of main bridge; structural steel paint inspection; approaches; ferry & toll facilities; pontoons; moorings; pedestrian bridges; buildings at CCCD-owned facilities.
06/07 – 6/08	**Interim Inspection of 52 Off-System Bridges, Orleans Parish, LA – City of New Orleans & LADOTD** **Project Manager** for interim inspection of 52 Off-System Bridges in Orleans Parish. Services included: review of previous inspection reports and construction drawings; interim inspections in accordance with AASHTO "Manual for Condition Evaluation of Bridges"; and documentation of all conditions found in accordance with LADOTD "Recording and Coding Guide for Structure Inventory and Appraisal of the State's Bridges."
08/20 - Present	**L H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – Louisiana DOTD** **Project Manager** 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.

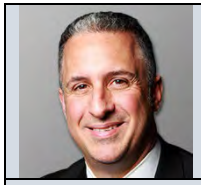
16. Staff Experience

	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.e., "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/18 – Present	**IDIQ Movable Bridge Contract, Statewide, MS – Mississippi DOT** **Principal-in-Charge** 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.
05/14 – 05/17	**NBIS Inspection of the Robert F. Kennedy Suspension Bridge, New York, NY – MTA Bridges and Tunnels** **Principal in Charge** responsible for performing hands-on inspection of various concrete, steel, and aluminium elements throughout the RFK Bridge – Group A bridges, consisting of 142 main-line spans, as well as an exit ramp, two pedestrian ramps, and two out-of-service vehicular ramps. The main-line bridge included 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. For Group B: Performed 100% hands-on inspection of fracture critical girders, pier caps, primary members, structural deck, and secondary members.
05/17 – Present	**NBIS Inspection of the Throgs Neck Bridge, Bronx, NY – MTA Bridges and Tunnels** **Principal-in-Charge** for the biennial inspection of bridge, approaches, 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.
06/17 – Present	**H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA – Louisiana DOTD** **Principal** 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.
01/20 – Present	**Almonaster Ave Bascule Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans** **Principal** 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&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&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.
01/19 – Present	**Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW** **Principal** 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 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 and development of a Traffic Control Plan.
10/15 – 06/19	**Marine Parkway/Gil Hodges Memorial Vertical Lift Bridge Rehabilitation, Brooklyn/Queens, NY – MTA Bridges and Tunnels** **Principal-in-Charge** for bridge rehabilitation services, including 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. The cellular abutments were repaired and re-decked. Ancillary work included electrical facility design and lighting and draining upgrades.
08/08 – 08/13	**Judge Seeber Vertical Lift Bridge over Industrial Canal Rehabilitation, New Orleans, LA – Lousiana DOTD** **Principal-in-Charge** for bridge rehabilitation services for this Preservation Priority Bridge. Services included vertical list 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.

16. Staff Experience



Firm Employed by	Hardesty & Hanover		
Name	**Robert Drew PE**	Years of relevant experience with this employer	25
Title	Structural Engineer / Qualifies as NBIS Program Manager	Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization		BS / 1994 / State University of New York at Buffalo	
Active registration number / state / expiration date		Professional Engineer: 41744 / LA / 9/30/2023 FHWA-NHI-130055 Safety Inspection of In-Service Bridges / 2009 (Refresher in 2019) FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges / 2010	
Year registered: 2009	Discipline	Civil Engineering	
Contract role(s) / brief description of responsibilities		**Quality Control Engineer for Bridge Inspection Tasks – Meets MPR 3**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/17 – Present	**NBIS Inspections of the Goethals Cable-Stayed Bridge, Elizabeth, NJ – NYNJ Link** **Project Manager** for the NBIS Bridge inspection of the cable-stayed Goethals Bridge (both eastbound and westbound structures) including the structure approach ramps. Work includes a hands-on field inspection of the cable-stayed main spans primary elements, including the towers, main cable sockets and span floor system to develop NYSDOT Reports and a Facility Condition Survey. The inspection team worked closely with NYNJ Link to perform inspections within strict traffic maintenance windows.
01/20 – Present	**NBIS Bridge and Interim Inspection of the Brooklyn Bridge, New York, NY - New York State DOT** **Project Manager** responsible for the overall management of 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. 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 Special In-Lieu of Interim inspection of critically-rated elements from the 2020 inspection.
01/21 – Present	**NBIS Bridge Inspections, Bronx, NY – New York State DOT** **Quality Control Engineer** for biennial and interim inspections of state-owned bridges throughout Bronx County in New York City. Mr. Drew's responsibilities include the performance and quality review of four full time inspection teams inspecting a large number of bridges including major interstate highway viaducts and long span structures like the Washington 181st St Deck Arch Bridge and the Alexander Hamilton Bridge. Reviews all report submittals for quality and accuracy.
05/17 – 12/20	**NBIS Bridge Inspections, Long Island, NY – New York State DOT** **Quality Control Engineer** for biennial inspections of over 900 Long Island Bridges in both Nassau and Suffolk Counties. The structures vary in size and type and include the Robert Moses Causeway NB and SB bridges over Great South Bay, as well as the Fire Island Inlet Bridge, Loop Parkway over Swift Creek, Bayville Bridge, Meadowbrook and Wantagh Parkway bridges over Goose Creek and Sloop Channel near Jones Beach. The inspections included decks, structural framing (fracture critical at approximately 100 structures) and piers,

	as well as all abutments and retaining walls, structures appurtenances, signs and their supporting structures, light standards, and electrical equipment on the bridges. Project also included load rating calculations and updates.
06/18 – 03/20	**NBIS Inspection Of The Verrazzano-Narrows Bridge, New York, NY – MTA Bridges and Tunnels** **Project Manager** responsible for the inspection of the Verrazzano-Narrows Suspension Bridge, including the 4,260-ft main span. Inspection included the four main cables, suspender ropes, steel orthotropic deck, floor trusses, stringers and crossbeams, and stiffening truss components. Inspection was performed in compliance with AASHTO and NBIS standards and element level reporting. Special emphasis details and fracture critical elements and gusset plates were inspected hands-on.
05/17 – 03/19	**NBIS Inspection of the Throgs Neck Bridge, Bronx, NY – MTA Bridges and Tunnels** **Project Manager** 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.
04/15 – 04/17	**NBIS Inspection Of The Gowanus Viaduct, Brooklyn, NY – New York State DOT** **Quality Control Engineer** for NBIS/AASHTO Level Element inspection of over 400 spans of the Gowanus Viaduct and its associated ramps (approximately 25 in all) in Brooklyn. The inspections included reinforced concrete decks, structural framing, fracture critical members, piers, as well as all abutments and retaining walls. In addition to these primary structural elements, Hardesty & Hanover inspected the structures appurtenances, signs and their supporting structures, light standards, and electrical equipment on the bridges. Project also included load rating calculations and updates as well as structural analysis of deteriorated conditions in light poles and railings.
05/12 – 05/14	**NBIS Inspection of Robert F. Kennedy Bridge – Harlem River Lift Span, New York, NY – MTA Bridges and Tunnels** **Project Manager** responsible for the overall management of the inspection and reports, scheduling, and inspection procedures. Scope of work included 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.
06/11-05/13	**NBIS Inspections the Marine Parkway and Cross Bay Bridges, New York, NY – MTA Bridges and Tunnels** **Quality Control Engineer/Project Manager** for the overall management of four teams inspecting nine structures including the Marine Parkway Lift Bridge and Cross Bay Boulevard prestressed concrete bridge. Oversaw all inspection activities and the preparation of NYSDOT Biennial Inspection Reports including photographs and sketches. A Narrative Summary Report was also prepared for the TBTA which includes maintenance, short- and long-term repairs with costs. As part of the 2011 Biennial Inspection, H&H teams performed special inspections of all structures at both Facilities for damage following Hurricane Irene. Multiple inspection teams were mobilized within 24 hours of the storm's passing to perform erosion assessments and propose hardening options to improve structure resiliency.

16. Staff Experience:

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="2">Hardesty & Hanover</td><td></td></tr>
<tr><td>Name</td><td>Timothy Noles, PE</td><td>Years of relevant experience with this employer</td><td>36</td></tr>
<tr><td>Title</td><td>Senior Structural Engineer</td><td>Years of relevant experience with other employer(s)</td><td>0</td></tr>
<tr><td colspan="3">Degree(s) / Years / Specialization</td><td colspan="2">BS / 1984 / Civil Engineering / University of Tennessee</td></tr>
<tr><td colspan="3">Active registration number / state / expiration date</td><td colspan="2">Professional Engineer: 31675 / LA / 9/30/2023</td></tr>
<tr><td>Year registered</td><td>1989</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Quality Control Engineer for Bridge Design Tasks – Meets MPR 2</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>03/18 – 02/20</td><td colspan="4">SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT
Technical Advisor / Quality Control Engineer 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.</td></tr>
<tr><td>01/19 – Present</td><td colspan="4">SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS - Mississippi DOT
Technical Advisor / Quality Control Engineer 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.</td></tr>
<tr><td>01/20 – Present</td><td colspan="4">Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans
Technical Advisor / Quality Control Engineer 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&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&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.</td></tr>
<tr><td>06/13 – 12/13</td><td colspan="4">Mathews Bridge (SR 115) Emergency Bridge Repair, Jacksonville, FL – Florida DOT
Lead Bridge Design Engineer for emergency repair to the bottom chord and floor system for the 810-foot suspended span on the main channel span cantilevered truss due to a ship collision. Temporary bottom chord and jacking system was designed to temporarily support the severed truss chord, and jack load into the chord to correct truss geometry. Repairs also included heat straightening of truss gusset plates, gusset plate replacement, and lateral bracing replacement. Design was completed in 3 days.</td></tr>
</table>

08/08 – 08/13	**Judge Seeber Vertical Lift Bridge, New Orleans, LA - Louisiana DOTD** **Technical Advisor /Quality Control Engineer** 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.
06/08 – 08/18	**H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA - Louisiana DOTD** **Technical Advisor** 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&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.
05/17– Present	**US 17 Swing Bridge over the Perquimans River, Perquimans County, NC - North Carolina DOT** **Project Manager / Quality Control Engineer** 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&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.
07/12 – 10/18	**Hillsborough Avenue Vertical Lift Bridge over Hillsborough River, Tampa, FL – Florida DOT** **Technical Advisor** 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.
05/12 – 02/18	**Main Street Bridge (US 1) over the St. Johns River, Jacksonville, FL – Florida DOT** **Technical Advisor / Quality Control Engineer** 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.

16. Staff Experience:

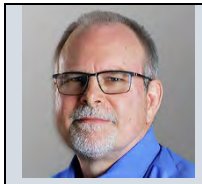
	Firm Employed by	Hardesty & Hanover		
	Name	**Frederick Wetekamm, PE**	Years of relevant experience with this employer	3
	Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	30

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 / 3/31/2022 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
Year registered	1993	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Bridge Inspection Manager**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
8/20 – Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA, LADOTD** **Project Engineer** delivering construction engineering and inspection services for a new vertical lift bridge and operator's house. Services include daily monitoring of all construction activities; maintaining all construction field records; coordinating with LADOTD, 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 closeout, etc.
08/20 – Present	**H.013897: I-10 & I-12 College Drive Flyover Ramp Design-Build, East Baton Rouge Parish, LA, LADOTD** **Construction Quality Control Manager** for construction of this flyover ramp design-build project which is located at the I-10 West exit to College Drive, in advance of the I-10 & I-12 West merge. H&H serves as Design-Builder's Construction Quality Control Firm (CQCF) and oversees all Design Quality Control and Construction Quality Control activities for the project. Responsibilities include the development and implementation of Comprehensive Quality Plan to ensure the design and construction contract specifications.
09/18 – 8/20	**CE&I: Lake Pontchartrain Causeway Safety Bay Improvements, New Orleans, LA, Greater New Orleans Expressway Commission** **Project Engineer** for construction engineering and inspection services for this fast-paced $60 million bridge improvement project that was designed and constructed to meet DOTD Standards and Specifications. The project utilizes the Construction Manager at Risk (CMAR) delivery method. Improvements added emergency stopping areas on both causeway bridges and provided six new shoulders in each direction. All work was performed in accordance with DOTD standard and specifications

03/18 – Present	**SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS, Mississippi DOT** **Senior Bridge Structural Engineer / Structural Inspector** 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. The project is currently under construction and H&H is providing construction phase services for the project
01/96 – 07/07	**LADOTD Bridge Inspection, Operations, and Maintenance, District 02, LA, LADOTD** **Program Manager** for the Bridge Operations and Maintenance Program involving 33 movable and all fixed bridges in the New Orleans/Houma area. Provided construction inspection. Created repair work orders and coordinated 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 tunnels. Served as the lead coordinator for the projects with LADOTD District and statewide forces, contractors, consultants, public officials, media, property owners, and the Bridge Maintenance Supervisor. Championed the first Bridge Operator Manual and Bridge Maintenance Manual for the movable bridges. Provided technical training on implementing LADOTD mandated processes.
04/08 – 08/09	**US 11 over Lake Pontchartrain Bascule Draw Bridge, LADOTD.** **Project Area Engineer** responsible for contract administration, supervision of the Project Engineer and LADOTD Certified Inspectors for construction inspection. This project involved removing / re-machining of the trunnions, replacing locking bars, and rehabilitating electrical operating components in the control cabinets and replacing the generator.
08/07 – 05/18	**LADOTD Construction Engineering and Inspection Services – Louisiana DOTD.** LADOTD Area Engineer provided project administration for the LDOTD for the New Orleans Area. Projects included: • **S.P. No. 713-36-0103, Michoud Blvd over Drain Canal Bridge Replacements**. Project Area Engineer responsible for contract administration, supervision of the Project Engineer and LADOTD Certified Inspectors for construction inspection. Part of the LADOTD Bridge Replacement Program for the City of New Orleans, the existing structurally deficient bridges were replaced with new bridge structures containing prestressed concrete pilings with precast concrete deck panels. 8/07- 8/09 • **S.P. No. 713-36-0100, Park Island over Bayou St John Bridge Replacements.** Project Area Engineer responsible for contract administration, supervision of the Project Engineer and LADOTD Certified Inspectors for construction inspection. Part of the LADOTD Bridge Replacement Program for the City of New Orleans, the existing structurally deficient bridges were replaced with new bridge structures containing prestressed concrete pilings with precast concrete deck panels. 12/09-1/13 • **S.P. No. 713-36-0101, Harrison Ave over Bayou St John Bridge Replacements**. Project Area Engineer responsible for contract administration, supervision of the Project Engineer and LADOTD Certified Inspectors for construction inspection. Part of the LADOTD Bridge Replacement Program for the City of New Orleans, the existing structurally deficient bridges were replaced with new bridge structures containing prestressed concrete pilings with precast concrete deck panels. 4/10-10/11 • **S.P. No. 713-36-0106, Martin Road Bridge over Morrison Canal Bridge Replacement.** Project Area Engineer responsible for contract administration, supervision of the Project Engineer and LADOTD Certified Inspectors for construction inspection. Part of the LADOTD Bridge Replacement Program for the City of New Orleans, the existing structurally deficient bridge was replaced with new bridge structure containing prestressed concrete pilings with precast concrete deck panels. 11/11-9/12

16. Staff Experience:



Firm Employed by	Hardesty & Hanover		
Name	**James Phillips, PE**	Years of relevant experience with this employer	7
Title	Movable Bridge Structural Engineer	Years of relevant experience with other employer(s)	33

Degree(s) / Years / Specialization		B.S. / 1982 / Civil Engineering / University of Florida	
Active registration number / state / expiration date		Professional Engineer: 0025091 / LA / 03/31/2023	
Year registered	1982	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		**Bridge Design Manager**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
02/03 – 03/05	**Spokane Street Swing Bridge, Seattle, WA – Seattle DOT** **Technical Project Manager** 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.
08/11 – 07/13	**Sargent Swinging Barge Bridge, Matagorda County, TX – Texas DOT** **Engineer of Record** for structural and mechanical rehabilitation of a 125-foot cable operated swinging barge bridge carrying traffic across the Intracoastal Waterway (ICWW). Unique bridge features a main span that is a barge, pivoted by a winch and cable system. Apron spans on the ends of the barge are lifted by winch and cable systems to clear the barge for opening. One apron span lifts sufficiently to clear a small channel for use by pleasure craft. 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. Project scope included replacement of the timber leveling spans with steel framed open grid decks, replacement of the operating machinery, winch machinery and controls, and structural repairs. Reviewed inspection rehabilitation evaluation reports.
02/08 – 04/12	**Platt Street Bascule Bridge Rehabilitation, Tampa, FL – Hillsborough County** **Engineer of Record** who managed the rehabilitation and restoration of a 1926 vintage double–leaf Strauss Bascule Bridge across the Hillsborough River eligible for listing on the National Register of Historic Places. The 531-foot-long bridge carries four lanes one-way and two 8-foot-wide sidewalks on a structure featuring 11 concrete T-beam approach spans and a bascule main span. Rehabilitation was designed in accordance with national restoration standards and reviewed by the Tampa Architectural Commission. Movable span work included replacement of the drive machinery and control systems, replacement of the counterweight trunnions, reconditioning of the main trunnions, and replacement of the main trunnion bushings. Structural work on the bascule spans included replacement of the steel grid deck and supporting deteriorated sub-stringers and repair/ encasement of the trunnion tower latticed columns.

09/98 – 04/06	**US 92 Hillsborough Avenue Vertical Lift Bridge Rehabilitation, Tampa, FL – Florida DOT** **Chief Movable Bridge Engineer** 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 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.
06/12 – 06/14	**Andrews Avenue Bascule Bridge Rehabilitation, Fort Lauderdale, FL – Broward County** **Chief Movable Bridge Engineer** 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.
01/11 – 05/13	**Cow Bayou Swing Bridge Rehabilitation, Bridge City, TX – Texas DOT** **Engineer of Record** for rehabilitation of an historic swing bridge on State Highway 87 in Orange County. The main span is a steel girder swing bridge, measuring 154 feet in length. Rehabilitation included structural, mechanical, and electrical work as well as replacement of the swing span deck and fender system. Swing span featured fish-belly plate girders and a center pivot bearing.
06/02 – 07/03	**Fort Denaud Swing Bridge, Fort Denaud, FL – Hendry County Public Works** **Chief Engineer** 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.
01/07 – 05/08	**Memorial Vertical Lift Bridge, Portsmouth, NH – New Hampshire DOT** **Chief Engineer** responsible for independent peer review of a major vertical lift bridge rehabilitation. Project involved rehabilitation of the towers and replacement of the lift span and associated mechanical and electrical systems
01/03 – 09/04	**St. Mary's River Swing Bridge, Nassau County, FL – Florida DOT** **Chief Engineer** responsible for technical oversight of rehabilitation of a historic, eligible for listing on the National Register of Historic Places bridge featuring a 202-foot-long through truss swing span over the main channel and a pair of pony truss spans flanking the swing span. Responsible for the review of substructure and truss repairs, machinery reconditioning and floor system replacement.
08/14 – 10/17	**SR 968/SW 1st Street Bascule Bridge at Miami River, Miami-Dade County, FL – Florida DOT** **Chief Engineer** responsible for design oversight; peer review of the structural concept; and quality control of the drive machinery, trunnion assemblies, and span locks for the replacement of this nationally registered historic bridge. The 507-foot-long bridge includes a double-leaf bascule span, 240 feet long between trunnions, over a 125-foot-wide navigation channel. 4,000-kip bascule span features an Exodermic concrete deck, simple trunnions with plain journal bearings, and a 150-HP electro–mechanical drive system.
08/12 – 02/14	**Laurel Street Bascule Bridge Rehabilitation, Tampa, FL – City of Tampa** **Chief Movable Bridge Engineer** 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.

16. Staff Experience:

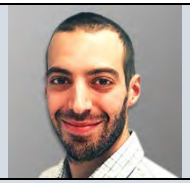
	Firm Employed by	Hardesty & Hanover		
	Name	**Douglas Mastropietro, PE**	Years of relevant experience with this employer	18
	Title	Structural Engineer / Team Leader	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			MS / 2004 / Structural Engineering / Manhattan College BS / 2002 / Civil Engineering / Manhattan College
Active registration number / state / expiration date			Professional Engineer: 085898-1 / NY / 2/2023 NBIS FHWA NHI- 130055; 130053
Year registered	2008	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**Bridge Inspection Team Leader for Cable Bridges**

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).
03/17 – Present	**NBIS Inspection of Goethals Bridge Cable-Stayed Bridges, Elizabeth, NJ – NYNJ Link** **Quality Control Engineer** for the initial Biennial Bridge inspection of the cable-stayed Goethals Bridge (both eastbound and westbound structures), including approach ramps. Work included a hands-on field inspection of the cable-stayed main spans and primary elements, including the towers, main cable sockets, and span floor system. Findings were used to develop NYSDOT Reports and a Facility Condition Survey. The H&H inspection team worked closely with NYNJ Link to perform inspections within strict traffic maintenance windows.
04/20 – 12/22	**NBIS Bridge Inspection of the Mario M. Cuomo Suspension Bridge, South Nyack, NY - New York State Thruway Authority** **Quality Control Engineer** for the biennial inspections of the Northbound (2020) and Southbound (2021) Mario Cuomo Bridges. Work includes the overall quality management of the inspection of the main span's tower, stay cable and floorsystem components. Responsible for the overall management, quality control and inspection of the dual cable stay bridges and approach spans.
06/18 – 03/20	**NBIS Inspection of the Verrazzano-Narrows Bridge, New York, NY – MTA Bridges and Tunnels** **Quality Control Engineer** responsible for the inspection procedures and quality of the Verrazano-Narrows Bridge main cables and suspender ropes. Also reviewed conditions of critical elements such as truss chords and gusset plates. Mr. Mastropietro performed analysis and load ratings. He also provided recommendations, repair estimates, and rehabilitation design for deteriorated conditions.
01/20 – Present	**NBIS Bridge and Interim Inspection of the Brooklyn Bridge, New York, NY - New York State DOT** **Quality Control Engineer** performing the biennial and special inspection of the Brooklyn Bridge which spans 1,596' on main cables with suspender ropes, stay cables and stiffening trusses. Responsible for the overall management, quality control and element level inspections, load ratings, inspection reports, as well as flags & design of structural repairs.
05/17 – 04/19	**NBIS Inspection of the Throgs Neck Bridge, Bronx, NY – MTA Bridges and Tunnels** **Quality Control Engineer** 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.
03/13 – Present	**William Preston Lane Jr., Memorial (Chesapeake Bay) Suspension Bridge Inspection, Baltimore, Maryland – Maryland Transportation Authority** **Cable Team Leader** responsible for inspecting bridge suspension cables, suspender ropes, and through truss. Work included hands-on inspection of fracture critical elements, documentation of findings, and report writing.
05/14 – 05/16	**NBIS Inspection of Robert F. Kennedy Bridge Suspension Bridge, New York, New York – MTA Bridges and Tunnels** **Quality Control Engineer** responsible for the overall management of the structural, mechanical, and electrical inspection of the Harlem River Lift Bridge and associated ramp structures of the Robert F. Kennedy Bridge. The project included the 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 included 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.
03/11 – 05/11	**Francis Scott Key Bridge Inspections, Statewide, MD – Maryland Transportation Authority** **Team Leader** for NBIS Inspection of Continuous Truss Bridge with a 1,200-foot-long Main Span supported by suspender ropes. Responsible for the inspection of all suspender rope cables, including upper and lower socket pin connections, as well as arch truss chord members and all associated gusset plates. Inspection of suspender rope sockets included an in-depth inspection of the pins utilized for the socket connection through Ultrasonic Testing of all pins associated with the suspender rope cables. As part of the scope work, H&H also conducted a baseline inspection of the gusset plate connections and catalogued all information and findings for the Authority including as-built plate dimensions.
12/10 – 08/11	**Inspection of the Orthotropic Deck at The Bronx-Whitestone Bridge, Bronx-Queens NY - MTA Bridges and Tunnels** **Team Leader** responsible for the in-depth inspection of the Bronx-Whitestone steel orthotropic deck. Mr. Mastropietro utilized nondestructive tests to complete the inspection of orthotropic rib welds. He developed reports, location plans, and recommendations as well as the schedule for daily field operations. Special Access Equipment operated included: 135' Manlift and Underdeck Bridge Travelers. During H&H's Biennial Inspection of the bridge in 2007, several of the newly installed panels exhibited cracking along the welded connection of the deck plate and the deck ribs. H&H was asked to monitor the deck cracks biannually and provide recommendations for repairs.
12/07 – 02/10	**NBIS Biennial Inspection Of The Bronx-Whitestone Bridge, Bronx-Queens, NY MTA Bridges And Tunnels** Assistant Team Leader responsible for developing cost estimates for project tasks and equipment. Work included inspection of bridge suspension cables and anchorages, load ratings, and structural and safety flags. Mr. Mastropietro coordinated progress with client project manager and addressed questions from the client in the field. He was responsible for the NYSDOT Biennial Report, TBTA Narrative reports, TBTA database update, and the Bridge Inventory, and Steel and Concrete Vulnerability reports. The Bronx-Whitestone Bridge is a long-span suspension bridge over the East River connecting Queens to the Bronx. The structure has a span length of 2,300 feet and an overall length of 7,140 feet. Mr. Mastropietro inspected the entire structure in accordance with federal, state, and TBTA standards. He also inspected the dehumidification equipment and cables in the anchorages and provided design for miscellaneous structural repairs.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Paul Marzuillo, PE**	Years of relevant experience with this employer	8
	Title	Structural Engineer / 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 / 11/2024 NHI Safety Inspection of In-Service Bridges, Course #130055, 2/2017
Year registered	2016	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
04/20 – 12/22	**NBIS Bridge Inspection of the Mario M. Cuomo Bridge, Tarrytown, NY - New York State Thruway Authority** **Team Leader** for the biennial inspections of the Northbound (2020) and Southbound (2021) Mario Cuomo Bridges. The scope of work consisted of the inspection of the Main Cable Stay spans (6 spans) and all Approach spans (82 spans) for both the Northbound and Southbound twin bridges. H&H performed project management, quality control and provided 3 inspection teams while overseeing 2 subconsultant inspection teams. Access means included the use of underdeck travelers, UBIUs, rope access, and a bucket boat with 60' reach.
05/17 – Present	**NBIS Inspections of the Goethals Bridge, Elizabeth, NJ – New York/New Jersey Link** **Team Leader** 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&H inspection team worked closely with NYNJ Link to perform inspections within strict traffic maintenance windows.
05/20 – 12/21	**NBIS Inspection of the Brooklyn Bridge, New York, NY – New York State DOT** **Team Leader** 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. 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.
06/18 – 03/20	**NBIS Inspection of the Verrazzano-Narrows Bridge, New York, NY – MTA Bridges and Tunnels** **Team Leader** responsible for the inspection of the Verrazzano-Narrows Suspension Bridge, including the 4,260-ft main span. Inspection included the four main cables, suspender ropes, steel orthotropic deck, floor trusses, stringers and crossbeams, and stiffening truss components. Inspection was performed in compliance with AASHTO and NBIS standards and element level reporting. Special emphasis details and fracture critical elements and gusset plates were inspected hands-on. Coordinated maintenance and protection of traffic with the facility and local authorities to facilitate inspection access.

05/17 – 04/19	**NBIS Inspection of the Throgs Neck Bridge, New York, NY – MTA Bridges and Tunnels** **Team Leader** 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 1800-foot main suspension span over the East River, with 555-foot side spans, and orthotropic deck approach spans supported by a girder-floorbeam-stringer-subfloorbeam floor system. Responsible for implementing Element Level Bridge Inspection (ELBI) quantities, condition state ratings, and developing Biennial Reports.
06/16 – 04/17	**NBIS Inspection of Robert F. Kennedy Vertical Lift Bridge, Group B, New York, NY – MTA Bridges and Tunnels** **Team Leader** 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.
05/17 – 07/17	**NBIS Inspection of the Whirlpool Rapids Bridge and Interim Inspection of the Rainbow and Lewiston-Queenston Bridge, Niagara Falls, NY – Niagara Falls Bridge Commission** **Assistant Team Leader** 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.
04/14 – 03/15	**NBIS Inspection of the Robert F. Kennedy Suspension Bridge, New York, NY – MTA Bridges and Tunnel** **Assistant Team Leader** 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.

16. Staff Experience:

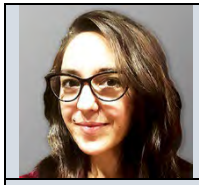
Firm Employed by	Hardesty & Hanover		
Name	**Timothy Harrington, PE**	Years of relevant experience with this employer	10
Title	Structural Engineer / Team Leader	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			MS / 2011 / Civil Engineering BS / 2009 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 95068 / NY / 01/2024 FHWA-NHI-130055 Safety Inspection of In-Service Bridges / 2017 (Refresher in 2022) FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges / 2016 OSHA Construction Safety and Health (10 hour & 30 hour) SPRAT Level I Rope Access Technician
Year registered	2015	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
06/19 – Present	**Inspection of the Almonaster and Seabrook Bascule Bridges over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Team Leader** for the bridge assessment and construction inspection services 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, 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&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/repositioned. The Seabrook Trunnion Bascule Bridge 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.
05/20 – 12/21	**NBIS Inspection of the Brooklyn Bridge, New York, NY – New York State DOT** **Lead Team Leader** 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.
02/17 – Present	**NBIS Inspection of the Goethals Bridge, Elizabeth, NJ – New York New Jersey Link, LLC** **Team Leader** 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.
04/20 - 12/22	**NBIS Bridge Inspection of the Mario M. Cuomo Bridge, Tarrytown, NY - New York State Thruway Authority** **Team Leader** for the biennial inspections of the Northbound (2020) and Southbound (2021) Mario Cuomo Bridges. The scope of work consisted of the inspection of the Main Cable Stay spans (6 spans) and all Approach spans (82 spans) for both the Northbound and Southbound twin bridges. H&H performed project management, quality control and provided 3 inspection teams while overseeing 2 subconsultant inspection teams. Access means included the use of underdeck travelers, UBIUs, rope access, and a bucket boat with 60' reach.
05/17 – 04/19	**NBIS Inspection of the Throgs Neck Bridge, New York, NY – MTA Bridges and Tunnels** **Lead Team Leader** 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 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 developing Biennial Reports.
09/18 – 12/18	**IDIQ Master Bridge Contract: NBIS Inspection of I-110 Biloxi Bridge, Harrison, MS - Mississippi DOTD** **Team Leader** 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.
05/16 – 04/18	**Biennial Inspection of the Robert F. Kennedy Harlem Lift Bridge, New York, NY – MTA Bridges and Tunnels** **Lead Team Leader** 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.
01/17 – 12/17	**NBIS Inspection of the Rainbow Bridge and Lewiston-Queenston Bridge; Interim Inspection of Whirlpool Rapids Bridge, Niagara Falls, NY – Niagara Falls Bridge Commission** **Lead Team Leader** 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.
05/15 – 04/17	**NBIS Inspection and Asset Management of the Henry Hudson Bridge, New York, NY – MTA Bridges and Tunnels** **Team Leader and Project Engineer** 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.

16. Staff Experience:



Firm Employed by	Hardesty & Hanover		
Name	**Elizabeth Barabas, PE**	Years of relevant experience with this employer	13
Title	Structural Engineer / 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: 92352 / NY / 12/2024 NHI Safety Inspection of In-Service Bridges, Course #130055, 2014 NHI Fracture Critical Inspection Techniques for Steel Bridges, Course #130078, 2016 NHI LRFR for Highway Bridges, Course #130092, 2016
Year registered	2013	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
04/20 - 12/22	**NBIS Bridge Inspection of the Mario M. Cuomo Bridge, Tarrytown, NY - New York State Thruway Authority** **Team Leader** for the biennial inspections of the Northbound (2020) and Southbound (2021) Mario Cuomo Bridges. The scope of work consisted of the inspection of the Main Cable Stay spans (6 spans) and all Approach spans (82 spans) for both the Northbound and Southbound twin bridges. H&H performed project management, quality control and provided 3 inspection teams while overseeing 2 subconsultant inspection teams. Access means included the use of underdeck travelers, UBIUs, rope access, and a bucket boat with 60' reach.
06/18 – 03/20	**NBIS Bridge Inspection of the Verrazzano-Narrows Bridge, New York, New York – MTA Bridges and Tunnels** **Team Leader** responsible for the inspection of the Verrazzano-Narrows Suspension Bridge, including the 4,260-ft main span. Inspection included the four main cables, suspender ropes, steel orthotropic deck, floor trusses, stringers and crossbeams, and stiffening truss components. Inspection was performed in compliance with AASHTO and NBIS standards and element level reporting. Special emphasis details and fracture critical elements and gusset plates were inspected hands-on. Coordinated maintenance and protection of traffic with the facility and local authorities to facilitate inspection access.
05/20 – 02/21	**NBIS Bridge Inspection of the Brooklyn Bridge, New York, NY - New York State DOT** **Team Leader** responsible for leading the biennial inspection 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. 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.

05/20 – 03/21 05/16 – 11/16 06/14 – 02/15 06/12 – 11/12	**Annual NBIS Bridge Inspection of Robert F. Kennedy Bridge, New York, New York – MTA Bridges and Tunnels** **Team Leader** providing annual hands-on inspection engineeering services at the RFK facilty involving all approaches, and associated ramp structures. Work included the inspection and examination of the condition of all structural components in accordance with NBIS/AASHTO Level Element inspection 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, inspection reports, high rocker bearing report, wearing surface report, preparation of bridge flag reports.
09/18 – 11/18	**IDIQ Master Bridge Design Contract: NBIS Inspection of I-110 Bridge over Biloxi Back Bay, Harrison, Mississippi - Mississippi DOT** **Team Leader** 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.
05/11 – 09/11 05/12 – 09/12 01/13 – 05/13 06/15 – 07/15	**Annual NBIS Bridge / Special Inspections of Rainbow Bridge, Lewiston-Queenston Bridge, and Whirlpool Rapids Bridge, Niagara Falls, NY – Niagara Falls Bridge Commission** **Team Leader / Assistant Team Leader** 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.
05/19 – 03/20; 04/15 – 02/16	**NBIS Bridge Inspection of the Henry Hudson Bridge, New York, New York – MTA Bridges and Tunnels** **Team Leader** for the biennial inspection of the two level deck arch bridge, associated ramp structures, and the overpass bridges at the Queens Midtown Tunnel and Hugh L. Carey Tunnel. Work included the inspection and examination of the condition of all structural components in accordance with NBIS bridge inspection requirements for the biennial inspection and verification of load ratings. Responsible for load ratings, inspection reports, preparation of bridge flag reports, documentation of inspection findings.
04/15 – 02/16	**Annual NBIS Bridge Inspection of the Atlantic Beach Bridge, Nassau County, NY – Nassau County Bridge Authority** **Team Leader** responsible for the 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 NBIS requirements. Responsibilities included inspection scheduling, traffic control coordination, field documentation and sketches, updating and verifying Bridge Inventory data, and inspection report.
01/18 – 01/19	**Facility-Wide Asset Management Program Development | New York, NY – MTA Bridges and Tunnels** **Team Leader** responsible for delivering mission-based Facility Asset Class Data Models that host critical inspection, inventory and facility management data relevant to each specify Asset located within TBTA's property limits. Collaborated with MTA Management Groups and Facilities for the identification of key information requirements for each Asset Class and developed a universal program satisfying FHWA & NYSDOT reporting obligations and providing risk-based assessment of asset conditions and assigning priority of repair classifications.

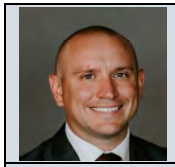
16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	**Steven Armstrong, PE, ADCI**	Years of relevant experience with this employer	7
	Title	NBIS Team Leader	Years of relevant experience with other employer(s)	2

Degree(s) / Years / Specialization			BS / 2005 / Civil and Environmental Engineering / University of New Orleans MS / 2019 / Civil Engineering / University of New Orleans
Active registration number / state / expiration date			Professional Engineer: 44405 / LA / Exp. 09/30/22 NHI Safety Inspection of In-Service Bridges, Course #130055 NHI Fracture Critical Inspection Techniques for Steel Bridges, Course #130078 NHI Underwater Bridge Inspection Course #130091; ADCI-Certified Diver / 62023 FAA Remote Drone Pilot / 4162104
Year registered	2020	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**NBIS Bridge Inspection/ Underwater Bridge Inspection Team Leader**

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).
11/19 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** **Louisiana Team Member** for one of the current five-year retainer contracts 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	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** Louisiana. Team Member for one of the current five-year retainer contracts 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 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.
09/15 – Present	**IDIQ for Statewide Underwater Bridge Inspection Retainer Contract, Statewide, LA - LADOTD.** 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, truss, timber stringer, cable-stayed, and single and multi-span girder bridges up to 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)	14

Degree(s) / Years / Specialization			Commercial Diving with Concentration in Subsea Inspection / 2005 / Divers Institute of Technology NHI Safety Inspection of In-Service Bridges, Course #130055/53 NHI Fracture Critical Inspection Techniques for Steel Bridges, Course #130078 ADCI-Certified Diver SPRAT Level I Rope Access Technician
Active registration number / state / expiration date			N/A
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities			**NBIS Bridge Inspection Team Leader / Safety Officer**

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).
09/15 – Present	**IDIQ for Statewide Underwater Bridge Inspection Retainer Contract, Statewide, LA - LADOTD** **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, truss, timber stringer, cable-stayed, and single and multi-span girder bridges up to 14 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	**IDIQ for Statewide Ancillary Sign Inventory and Inspection, Statewide, LA - LADOTD** **Team Leader/Rope Access Supervisor** for both five-year retainer contracts to perform approximately 40% 1,700 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.
11/19 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** **Team Member** for one of the current five-year retainer contracts 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.

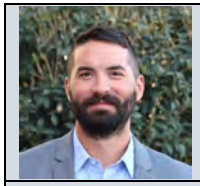
16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	**Margaret Ray, PE**	Years of relevant experience with this employer	5
	Title	NBIS Team Leader	Years of relevant experience with other employer(s)	5

Degree(s) / Years / Specialization			BS / 2016 / Civil Engineering / North Carolina State
Active registration number / state / expiration date			Professional Engineer: 051540/ North Carolina/ 12-31-22 NHI Safety Inspection of In-Service Bridges, Course #130055/53 NHI Fracture Critical Inspection Techniques for Steel Bridges, Course #130078 ADCI-Certified Diver NHI Underwater Bridge Inspection Course #130091; ADCI-Certified Diver
Year registered	2020	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**NBIS Bridge Inspection / Underwater Bridge Inspection Team Leader**

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).
11/21 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** **Team Member** for one of the current five-year retainer contracts to perform in-depth bridge inspections on complex, movable, long-span, and precast segmental box girder bridges throughout Louisiana. Performed the structural inspection of one movable swing span bridge using nondestructive testing methods. Responsible for drafting the in-depth inspection report, including mechanical and electrical inspections.
08/17 – Present	**Bridge Inspection Limited Services Contract No. 7000016518, Statewide, NC - NCDOT** **Team Member** responsible for the inspection and load rating of state and municipal bridges in various locations. Ms. Ray also provides project management support and coordinates traffic control and equipment needs for multiple inspection teams. Served as an inspection team member who conducted safety inspections of assigned bridges and prepared written reports of the conditions of the structures. Recorded structure ratings and degrees of deterioration in the bridge inspection database. Created and updated bridge and culvert location maps. Performed in-depth inspections using non-destructive testing methods, under bridge inspection equipment, and climbing gear.
03/21 – 07/21	**Route 301 Infrastructure Assessment and Cost Estimate, Caroline and King George Counties, VA.** **Structural Engineer** responsible for compilation and summarization of structural and environmental assessment findings, recommendations, and element condition for 13 bridges and 9 culverts. Analyzed findings of bridge decks to determine repairs for the bridges using VDOT Chapter 32 guidance. Created cost estimates for all culvert repair and replacement recommendations.
10/18 – 08/19	**Freight & Logistics On-Call Railroad Contract, Statewide, TN.** **Bridge Inspector** involved with assessment of the short line railroads across the state by hi-railing along the track to assess 518 bridges and provide a high-level cost estimate to bring the structures to an appropriate state of good repair. Responsible for the final construction inspection and report on the Caney Fork and Western bridge replacement near Morrison, Tennessee.

16. Staff Experience:

<table>
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Moffatt & Nichol</td></tr>
<tr><td>Name</td><td>Mike Russell, EIT</td><td>Years of relevant experience with this employer</td><td>1</td></tr>
<tr><td>Title</td><td>NBIS Team Leader and Rope Access Supervisor</td><td>Years of relevant experience with other employer(s)</td><td>11</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">BS / 2015 / Civil Engineering, Central Connecticut University</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Engineer-in-Training: #35255 / TN
NHI Safety Inspection of In-Service Bridges, Course #130055
FAA Remote Drone Pilot / 4162104
SPRAT Level III Rope Access Technician</td></tr>
<tr><td>Year registered</td><td>N/A</td><td>Discipline</td><td colspan="2">Civil and Structural</td></tr>
<tr><td colspan="2">Contract role(s) / brief description of responsibilities</td><td colspan="3">NBIS Inspection Team Leader / SPRAT Rope Access Supervisor-Level III / FAA Remote Drone Pilot</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>08/21 – Present</td><td colspan="4">IDIQ for Statewide In-Depth Bridge Inspections, Statewide, LA - Louisiana DOTD
Team Member / Drone Operator / Rope Access Supervisor for one of the current five-year retainer contracts (2019-2024) as a major subconsultant, 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.</td></tr>
<tr><td>04/19 – Present</td><td colspan="4">IDIQ for Statewide Ancillary Sign Inventory and Inspection, Statewide, LA – Louisiana DOTD
Team Leader / Rope Access Supervisor for both five-year retainer contract to perform over 1,700 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 temporary traffic control plans and setups for lane closures throughout the state. Analyzed altered load paths.</td></tr>
</table>

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Rima Zahalan, PE**	Years of relevant experience with this employer	5
Title	Structural Engineer /Team Leader	Years of relevant experience with other employer(s)	5

Degree(s) / Years / Specialization			MS / 2010 / Structural Engineering / Rutgers University BS / 2008 / Civil Engineering / Rutgers University BA / 2008 / Mathematics / Rutgers University
Active registration number / state / expiration date			Professional Engineer: 095009 / NY / 6/30/2023 FHWA-NHI-130055: Safety Inspection of In-Service Bridges / 2013 FHWA-NHI-130078: Fracture Critical Inspection Techniques for Steel Bridges / 2015
Year registered	2015	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
01/17 - Present	**NBIS Inspection of the Goethals Bridge, Elizabeth, NJ – New York New Jersey Link, LLC** **Team Leader** 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.
05/21 – Present	**NBIS Biennial Inspections of the Marine Parkway and Cross Bay Bridge, New York, NY – MTA Bridges and Tunnels** **Quality Control Engineer** responsible for the quality management of the biennial inspection of a long span vertical lift truss bridge and a 15-span prestressed concrete T-beam bridge along with six associated ramps at the two primary bridges. The Marine Parkway Bridge consists of enclosed structural concrete slabs at the abutment spans, approach steel deck truss spans, and the main vertical lift and through truss spans. The Cross Bay Bridge carries six lanes of traffic for its 3,00-foot length including a 275-foot prestressed concrete main span. Ms. Zahalan was responsible for regular field visits to all inspection team personnel to review safe inspection practices and to discuss inspection methods and findings at various locations. Responsible for reviewing inspection reports for quality and accuracy.
05/20 – 12/21; 05/16 – 05/18	**NBIS Biennial Inspection of the Robert F. Kennedy Harlem Lift Bridge, New York, NY – MTA Bridges and Tunnels** **Lead Team Leader/Team Leader** 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.

05/19 – 12/20	**NBIS Inspection of the Henry Hudson Bridge, New York, New York – MTA Bridges and Tunnels** **Lead Team Leader** responsible for the biennial and interim inspection of the Henry Hudson Bridge, associated ramp structures, and the overpass bridges at the Queens Midtown Tunnel and Hugh L. Carey Tunnel. Work included the inspection and examination of the condition of all structural components in accordance with NYSDOT requirements for the biennial inspection and miscellaneous repair design. Project includes inspection of the 850' main steel arch span of the Henry Hudson Bridge and the 120' concrete arch span of the Dyckman Street Bridge. Inspections also include the approaches, retaining walls, sign gantries and light poles.
05/18 – 06/19	**NBIS Bridge Inspection of the Verrazzano-Narrows Bridge, New York, New York – MTA Bridges and Tunnels** **Lead Team Leader** responsible for the inspection of the Verrazzano-Narrows Suspension Bridge, including the 4,260-ft main span. Inspection included the four main cables, suspender ropes, steel orthotropic deck, floor trusses, stringers and crossbeams, and stiffening truss components. Inspection was performed in compliance with AASHTO and NBIS standards and element level reporting. Special emphasis details and fracture critical elements and gusset plates were inspected hands-on. Responsible for managing four different inspection teams including subconsultants, access vendors, and facility operations for inspection access and lane closures.
06/14 – 10/14	**Route 1&9 Pulaski Skyway Rehabilitation – New Jersey DOT** **Team Leader** 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.
01/13 – 12/15	**Inspection of 80 Morris County Bridges (14E5 & 43) and On- & 32 Off-System Morris County Bridges, (14A1) – New Jersey DOT** **Team Leader** 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&A/CombIS item and element coding. Equipment used included bucket trucks, snoopers, ladders, MPT coordination, and nondestructive testing.
01/10 – 08/14	**Bridge Inspection Projects – Assistant Team Leader** Tasks include QA/QC, hands-on bridge inspections, structural evaluation and analysis adhering to federal and state standards, scheduling, agency-consultant meetings and negotiations, arranging for traffic control/access permits/equipment, coordinating with various railroad agencies and subconsultants, preparing and reviewing bridge inspection reports, identifying and assessing priority repair issues, repair designs and drawings, coding Pontis/CombIS items and NBE/BME/ADE elements, and load rating analysis for: • Inspection of 7 On and 47 Off System Bridge, Group 03E2-7, Burlington County (2012, 2014) • Inspection of 59 On System State Owned Bridges, Group ST1A (2011, 2013) • Inspection of 2 Off and 74 On System Hunterdon County Bridges, Group 10F1 (2011, 2013) • Inspection of 99 State Owned Minor Bridges, Group XL3A (2013)

16. Staff Experience:

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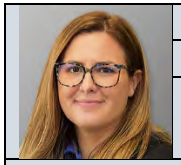
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Amy Robards, PE</td><td>Years of relevant experience with this employer</td><td>3</td></tr>
<tr><td>Title</td><td>Structural Engineer / Team Leader</td><td>Years of relevant experience with other employer(s)</td><td>7</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">B.S. / 2012 / Civil Engineering / University of New Orleans</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 41718 / Louisiana / 9/30/2023
FHWA-NHI 130055/53 Safety Inspection of In-Service Bridges / Refresher 2018
SPRAT Level Rope Access Training
ATSSA Traffic Control Supervisor Refresher – ATSSA Flagger
DOTD Certified Structural Concrete Inspector / LADOTD / 12/13/2023</td></tr>
<tr><td>Year registered</td><td>2017</td><td>Discipline</td><td colspan="2">Civil and Environmental Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">NBIS Bridge Inspection Team Leader</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>10/19 – 01/20</td><td colspan="4">Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans
Structural Engineer/Inspector 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.</td></tr>
<tr><td>08/20 – Present</td><td colspan="4">L H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourge, LA – Louisiana DOTD
Project Engineer delivering construction engineering and inspection services for a new vertical lift bridge and operator’s house. Services include daily monitoring of all construction activities; maintaining all construction field records; coordinating with DOTD, contractor, parish government, and utilities; performing field testing; maintaining records of contractual operations, pay estimates and progress reports; preparing final estimate packages; conducting construction progress meetings; construction close-out, etc.</td></tr>
<tr><td>03/16 – 10/17</td><td colspan="4">US 190 Mississippi River Bridge CE&I, Baton Rouge, LA – Louisiana DOTD
Structural Inspector 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.</td></tr>
<tr><td>11/18 – Present</td><td colspan="4">Lake Pontchartrain Causeway Safety Bay Improvements CE&I, Metairie, LA - Greater New Orleans Expressway Commission
Structural Inspector responsible for providing construction engineering and inspection services required during the safety bay improvement project for the fabrication of pre-stressed piles and girders, caps, and decks as well as all other construction activities including field monitoring, documentation, preparation of daily reports, participation in construction progress meetings, and construction closeout, etc.</td></tr>
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03/19 – 10/19	**Seabrook Railroad Bridge Annual / In-Depth Bridge Inspection, Port of New Orleans, LA – Port of New Orleans** **Structural Inspector** 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	**Francis Scott Key Bay Bridge Inspection, Baltimore, MD – Maryland Transportation Authority** **Structural Inspector** aided in the biannual inspection of the Francis Scott Key Bridge which included performing a hands-on inspection of fracture critical members and all parts of the deck, superstructure, and substructure. This 37-span structure carries four lanes of the Baltimore Beltway (I-695) over the Potapsco River. 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	**William P. Lane Bridge Inspection, Chesapeake Bay, MD – Maryland Transportation Authority** **Structural Inspector** aided in 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	**Thomas J. Hatem Memorial Bridge, Harford County, MD – Maryland Transportation Authority** **Structural Inspector** aided in 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.
02/18 – 03/18	**Lapalco Boulevard Bridge Repairs Construction Supplement, Lapalco, LA - Jefferson Parish** **Structural Engineer/Inspector** responsible for providing annual inspection services and contributed to subsequent inspection report. A yearly valuation was requested by Jefferson Parish to determine the value of the bridge.
12/15 – 05/18	**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** 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.
11/19 – 12/19	**St. Johns River Bridge Mechanical & Electrical Systems Inspection, Jacksonville, FL – Florida East Coast Railway (FECR)** **Structural Engineer/Inspector** of the inspection and evaluation of counterweight trusses. Others evaluated machinery and associated electrical equipment.

16. Staff Experience:

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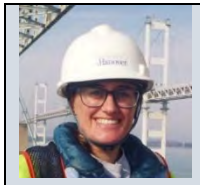
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Brianna Kovacs, PE</td><td>Years of relevant experience with this employer</td><td>4</td></tr>
<tr><td>Title</td><td>Structural Engineer / Team Leader</td><td>Years of relevant experience with other employer(s)</td><td>0</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">BS / 2017 / Civil Engineering / University of Maryland</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 51187 / MD / 12/6/2023
FHWA NHI-13055 Safety Inspection of In-Service Bridges / 2018</td></tr>
<tr><td>Year registered</td><td>2020</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">NBIS Bridge Inspection Team Leader</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>09/20 – Present</td><td colspan="4">Annual NBIS Bridge Inspection, Evaluation, & Rating Services, Statewide, MD - Maryland DOT/SHA
Bridge Inspection Team Leader 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. She performed hands-on inspections, recorded SI&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. Brianna 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.</td></tr>
<tr><td>07/17 – 12/19</td><td colspan="4">NBIS Bridge Inspection, Evaluation, & Rating Services, Statewide, MD – Maryland DOT/SHA
Bridge Inspection Team Leader responsible for the condition inspection and evaluations of eight multi-girder interstate bridges on I-95 and I-495. Brianna performed this work in nighttime lane closures with multiple MOT set-ups and bucket truck access. She coordinated with the client’s regional TCM before, during, and after each closing. Brianna recorded findings of deterioration, corrosion, and safety concerns as well as condition states for each of the bridge elements following AASHTO and updated SI&A following FHWA and client standards. Brianna used an ultrasonic thickness meter to determine the extent of section loss on structural elements. Brianna developed all reports with color photographs, vertical clearance sheets, and sounding profiles in the client’s web-based asset management and reporting system. Brianna was responsible for the delivery of condition inspection and evaluation reports for bridges and culverts in in several Maryland counties. Brianna developed task proposals, planned and coordinated the inspections, performed hands-on inspections, and developed reports with updated SI&A and ELI condition states in the client’s asset management database.</td></tr>
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7/17 – 10/17	**Comprehensive Engineering Services Contract, Curtis Creek, Baltimore, MD - Maryland Transportation Authority** **Assistant Team Leader** 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&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.
11/18 – Present	**Annual NBIS Facilities Inspection Services, Statewide, MD – Maryland Transportation Authority** **Bridge Inspection Assistant Team Leader** 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. Brianna planned, scheduled, and coordinated inspection access for various interstate bridges over highways and waterways, typically made up of multi-girder superstructures. She 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&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.
09/17 – Present	**Rehoboth Avenue & Savannah Road Rehabilitation, Sussex County, De - Delaware DOT** Structural Designer responsible for final designs, calculations, and drawings for the project involving structural, mechanical and electrical rehabilitation and repairs of the Rehoboth Avenue Bridge (single leaf, fixed trunnion bascule) and Lewes Canal Bridge (double-leaf Scherzer rolling lift bascule).
09/17 – 12/18	**Annual NBIS Facilities Inspection, Statewide, MD - Maryland Transportation Authority** **Bridge Inspection Assistant Team Leader** 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&A, and element level data collection and generated inspection reports in the client's web-based electronic asset management system.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Donald Marinelli, PE**	Years of relevant experience with this employer	15
Title	Mechanical Engineer / Team Leader	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 FHWA-NHI-130055 Safety Inspection of In-Service Bridges / Rec. 2020 FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges / Rec. 2018
Year registered	2019	Discipline	Mechanical Engineering
Contract role(s) / brief description of responsibilities			**Lead NBIS Bridge Inspection Team Leader for Movable Bridge Mechanical Systems**

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).
01/20 – Present	**Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans** **Mechanical Engineer** 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.
10/19 – 01/20	**Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Mechanical Engineer** 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.
03/21 – 06/21	**Hood Canal Bridge In-Depth Inspection, Statewide, WA - Washington State DOT** **Lead Mechanical Engineer** for the mechanical inspection including the lift span hydraulic power units, lift span cylinders, guides and live load bearings, span drive machinery, end lock hydrauilc power units, end lock machinery, center lock hydraulic power units, center lock machinery, span support system including the guide roller assemblies, centering pyramids and bumpers, and traffic, barrier and storm gates.
05/18 – 06/18	**SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Mechanical Engineer** 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.
08/08 – 08/10	**Woodrow Wilson Memorial Bridge, Washington, DC - Maryland DOT/SHA** **Mechanical Engineer** 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

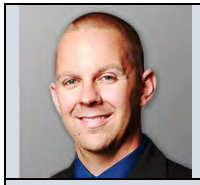
	included providing engineering support during bridge operations following the construction. Responsibilities included the operation of eight bascule leaves and all ancillary devices from the control house, visual inspection of the machinery rooms, electrical rooms, lock platforms, and pedestrian walkways 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.
3/18 – 10/18	**Movable Bridge On-Call Inspection & Repair Services, Middletown & Seaford, DE - Carload Express & Delmarva Central Railroad** **Lead Mechanical Engineer** for the coordination, project set up, and project management with Carload Express regarding two movable bridges. Led the mechanical inspection of the Tower Drive on the C&D vertical lift bridge. Coordinated project with the Owner, performed the mechanical inspection of the lift bridge components and developed the report for the inspection. Led the investigation of the Seaford Swing Bridge mechanical wedge and miter rail machinery. Inspected the bevel gear set and documented the deteriorated gear teeth, bearing support, and shaft collar. A summary memo with repair recommendations was written and submitted to Carload Express for immediate repairs to the bevel gear set. Led the emergency response of the C&D Canal Lift bridge involving the bridge DC Gen-set malfunction. Coordinated with a local electrical contractor and performed on-site troubleshooting to assess the malfunctioning system. It was determined the exciter motor was not functioning properly, and a spare exciter motor was found and installed on-site to restore operations to the bridge.
03/18 – 10/19	**Cow Bayou Swing Bridge Inspection, Bridge City, TX - Texas DOT** **Lead Mechanical Engineer** for the investigation of the malfunctioning swing bridge. Mr. Marinelli investigated the turning machinery components to determine the cause of the bridge's operational issues. A summary report with repair recommendations for TXDOT to program replacement of the motor brake.
05/09 – 08/17	**2008 MDOT/SHA Movable Bridge Engineering Services, Statewide – Maryland DOT/SHA** **Mechanical Engineer** 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 SHA'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.
04/06 – 04/15	**Movable Bridge Safety Inspection Services, Statewide – Delaware DOT** **Mechanical Engineer** providing mechanical inspections evaluations and strain gage balance testing of the bascule bridges, creating a mechanical system O&M Manual, developing a mechanical system maintenance program for each bridge, and emergency response for operational failures. Serviced eight movable bridges owned by DelDOT. H&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.
04/15 – 10/16	**Washington State On-Call Movable Inspection, Statewide – Washington DOT** **Mechanical Engineer** 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.

16. Staff Experience:

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Travis Kimmins, PE</td><td>Years of relevant experience with this employer</td><td>2</td></tr>
<tr><td>Title</td><td>Mechanical Engineer</td><td>Years of relevant experience with other employer(s)</td><td>17</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">M.S., Mechanical Engineering, 2003, University of Tennessee, Knoxville
B.E., Mechanical Engineering, 2001, University of Tennessee, Knoxville</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 43676 / LA / 3/31/2022</td></tr>
<tr><td>Year registered</td><td>2019</td><td>Discipline</td><td colspan="2">Mechanical Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Bridge Inspector for Movable Bridge Mechanical Systems</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>01/20 – Present</td><td colspan="4">Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans
Mechanical Engineer 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&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&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.</td></tr>
<tr><td>10/19 – 01/20</td><td colspan="4">Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans
Mechanical Engineer 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.</td></tr>
<tr><td>03/19 – Present</td><td colspan="4">SR 605 Bascule Bridge over Industrial Waterway Rehabilitation, Harrison County, MS – Mississippi DOT
Mechanical Engineer 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&H is currently performing construction phase services for the project.</td></tr>
</table>

11/20 – Present	**SR 609 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Lead Mechanical Engineer** 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&H is currently performing construction phase services for the project.
08/19 – -Present	**Districtwide Local Government Bridge Inspections, Districtwide, FL – Florida DOT District 3** **Mechanical Engineer** responsible for inspection and report preparation for state-owned movable bridges in District 6. Services include the routine and interim inspections of mechanical and electrical systems on 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.
09/18 – Present	**NBIS Bridge Safety Inspection Services of Eight Movable Bridges | Statewide, DE - Delaware DOT** **Mechanical Engineer** performing AASHTO routine inspection of movable bridge electrical systems, report preparation with recommendations for Savannah Road (double-leaf rolling lift), Rehoboth Avenue (single-leaf trunnion bascule), Walnut Street (double-leaf trunnion bascule), Third Street (double-leaf trunnion bascule), South Market Street (double-leaf trunnion bascule), Front Street (single-leaf trunnion bascule), Cedar Creek (bobtail swing), Rehoboth Road (single-leaf rolling lift). The project involved an on-call contract to provide structural, electrical, mechanical inspection of movable bridges, making maintenance recommendations, non-destructive testing for fracture critical members, and other incidental work, as required.
10/21 - Present	**OSARC NBIS Inspection of Three Movable Bridges, Statewide, MS – Mississippi DOT** **Mechanical Engineer.** H&H is conducting in-depth inspections of the mechanical and electrical components of three movable bridges for Mississippi Office of State Aid Road Construction. These include the FAS 104/Wittman Road Bridge over Bayou Portage, the Popp's Ferry Road Bridge over Back Bay Biloxi, and the Cedar Lake Road Bridge over the Tchoutacabouffa River. To date, H&H has completed mechanical and electrical inspections of the Bayou Portage Bridge and the Popp's Ferry Bridge. The Cedar Lake Road Bridge is scheduled of March of 2022. Upon conclusion of each inspection, H&H will deliver inspection detailed inspection reports outlining the condition of the bridge and making recommendations for rehabilitation or replacement of deficient bridge machinery components.
05/18 – Present	**Movable Bridge Inspection and Design On-Call, Chesapeake, VA – City of Chesapeake** **Mechanical Engineer** for this on-call contract. Provided emergency response after a barge collided with Centerville Turnpike bridge. For this emergency response, Mr. Kimmins inspected damage to the structure and machinery and provided recommendations for safely opening the bridge to marine traffic after extensive damage. For Great Bridge Bascule Bridge, performed troubleshooting of the hydraulic system to identify the source of intermittent pressure spikes. Worked with H&H electrical engineers to update the PLC code to correct a control error. Performed construction support services during the hydraulic hose replacement at the Great Bridge Bascule Bridge. The contractor had limited experience with this type of work, but Travis ensured that the work was performed safely. Also performed counterweight rope tension testing at Gilmerton Bridge and assisted with the analysis and report preparation for a summary of the report findings and recommendations.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Jason Biddle, PE**	Years of relevant experience with this employer	11
	Title	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 FHWA-NHI-130055 Safety Inspection of In-Service Bridges / Rec. 2017 FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges / Rec. 2018
Year registered	2019	Discipline	Mechanical Engineering
Contract role(s) / brief description of responsibilities			**NBIS Bridge Inspector for Movable Bridge Mechanical Systems**

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).
05/17 – Present	**US-17 Swing Bridge over the Perquimans River Design-Build, Perquimans County, NC – North Carolina DOT** **Mechanical Engineer** 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&H's responsibilities include the complete design of the new swing span, including structural, mechanical, electrical, and geotechnical engineering.
06/18 – 09/20	**City of Baltimore Bridge Design Services On-Call Contract, Baltimore, MD – City of Baltimore** **Mechanical Engineer** 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.
04/15 – Present	**Rehoboth Avenue Bascule & Savannah Road Rolling Lift Bridge Rehabilitation, Lewes, DE – Delaware DOT** **Mechanical Engineer** 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.

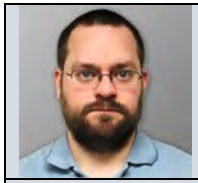
06/12 – 02/20	**I-695 Drawbridge over Curtis Creek Rehabilitation, Baltimore, MD – Maryland Transportation Authority** **Mechanical Engineer** involved with the mechanical rehabilitation of this parallel double-leaf bascule. Responsible for assessing traffic control options with temporary bridge operations 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.
03/17 – Present	**DelDOT Movable Bridge Maintenance and Repairs Contract, Statewide – Delaware DOT** **Mechanical Engineer** 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.
04/11 – 03/17	**2008 Movable Bridge Engineering Services On-Call Contract, Statewide – Maryland SHA** **Mechanical Engineer** for on-call contract to design for emergency bridge repair and rehabilitation services of movable bridges: • *Maryland Ave Bridge (double-leaf Scherzer rolling lift bascule)* – Provided on-site engineering support during replacement of the fractured main pinion. • *Chester River Bridge (double-leaf Scherzer rolling lift bascule)* – 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. • *Tilghman Island Bridge (single-leaf Scherzer rolling lift bascule)* – Investigated reported coupling and span operation issues. • *Pocomoke River Bridge (double-leaf trunnion bascule)* – Developed repair details for replacement span drive machinery motors to be performed with the installation of new acceleration contactor system. • *Weems Creek Bridge (swing)* – Provided emergency response at the request of MDOT SHA to assess the condition of a cracked slewing cylinder connection bracket.
11/15 – 02/16	**Emergency Operating Rope Replacement for Duluth Aerial Lift Bridge, Duluth, MN – City of Duluth** **Mechanical Engineer** involving the replacement of the vertical lift bridge operating ropes. Responsibilities included on-site engineering support during the tensioning of new operating ropes & initial test operations of the bridge after installation.
12/12 – 01/14	**Front Street & Cedar Creek Bridge Emergency Repairs – Delaware DOT** **Mechanical Engineer** 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.

16. Staff Experience:

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Isaac Frederick, PE</td><td>Years of relevant experience with this employer</td><td>4</td></tr>
<tr><td>Title</td><td>Mechanical Engineer</td><td>Years of relevant experience with other employer(s)</td><td>2</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">B.S. / 2015 / Mechanical Engineering / University of Louisiana</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 44322 / LA / 9/30/2022</td></tr>
<tr><td>Year registered</td><td>2020</td><td>Discipline</td><td colspan="2">Mechanical Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Bridge Inspector for Movable Bridge Mechanical Systems</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>04/18 – Present</td><td colspan="4">SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT
Mechanical Engineer responsible for mechanical design for the 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. Work included inspection and rehabilitation of structural, mechanical, and electrical bridge components, roadway approaches and development of maintenance and repair plans for control house HVAC and plumbing, operating machinery, and span locks. Also performed strain gauge testing for acquiring shaft torque data to convert into bridge imbalance data. All designs were completed in accordance with AASHTO, FHWA, MDOT guidelines and specifications. Currently performing construction phase services.</td></tr>
<tr><td>03/19 – Present</td><td colspan="4">SR 605 Movable Bascule Bridge Rehabilitation, Harrison, County, MS – Mississippi DOT
Mechanical Engineer responsible for mechanical design and construction services for the full rehabilitation of SR-605 bascule bridge as a task-order to the IDIQ Master Bridge Contract which included engineering assessment, mechanical, electrical, and structural design, and traffic control plans. Designs were completed in accordance with AASHTO, FHWA and MDOT guidelines and specifications. Currently performing construction phase services.</td></tr>
<tr><td>01/20 – Present</td><td colspan="4">Almonaster Avenue Railroad Bascule Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans
Mechanical Engineer 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&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&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.</td></tr>
<tr><td>10/21 - Present</td><td colspan="4">OSARC NBIS Inspection of Three Movable Bridges, Statewide, MS – Mississippi DOT
Mechanical Engineer. H&H is conducting in-depth inspections of the mechanical and electrical components of three movable bridges for Mississippi Office of State Aid Road Construction. These include the FAS 104/Wittman Road Bridge over Bayou Portage, the Popp’s Ferry Road Bridge over Back Bay Biloxi, and the Cedar Lake Road Bridge over the Tchoutacabouffa River. To date, H&H has completed mechanical and electrical inspections of the Bayou Portage Bridge and the Popp’s Ferry Bridge. The Cedar Lake Road</td></tr>
</table>

	Bridge is scheduled of March of 2022. Upon conclusion of each inspection, H&H will deliver inspection detailed inspection reports outlining the condition of the bridge and making recommendations for rehabilitation or replacement of deficient bridge machinery components.
08/18 – 09/18	**Main Street Vertical Lift Bridge (US-1) over the St. Johns River Inspection, Jacksonville, FL – Florida DOT** **Mechanical Engineer Intern** contributing to the mechanical inspection and inspection report on the vertical lift bridge mechanical systems. Recorded measurements of pinion backlash, bearing clearance, and gear tooth.
10/19 – 01/20	**Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Mechanical Engineer** for an annual inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel and primary and secondary steel members; an electrical inspection of the electrical systems and controls; and a mechanical inspection of the machinery.
06/19 – 09/19	**Annual Inspection of Seabrook Railroad Bridge, New Orleans, LA – Port of New Orleans** **Mechanical Engineer** 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.
03/18 – 06/18	**Lake Pontchartrain Causeway Bascule Bridge Evaluation, Jefferson and St. Tammany Parishes, LA – Greater New Orleans Commission (GNOEC)** **Mechanical Engineer Intern** for the inspection and evaluation of structural, electrical, and mechanical components of the Causeway Bascule Bridge, a fixed 23.79 mile link and longest continuous bridge over water in the world, which composed of two parallel bridges crossing Lake Pontchartrain. This project also included preparation of a final inspection report and developing recommendations to address the identified deficiencies.
12/17 – 01/18	**Port Vincent Swivel Bridge over the Amite River Rehabilitation, Livingston Parish, LA – LADOTD** **Mechanical Engineer Intern** responsible for redesigning piping which transports hydraulic fluid from the hydraulic power unit to the Eaton cylinders; redesigning secondary hydraulic power unit for end wedge and center wedge cylinders; modeling and illustrating parts for the wedge assemblies, which attach to the hydraulic cylinders. The design included making small changes to parts due to them being switched from casted parts to machine parts. Worked with the contractor to develop timelines to meet the LADOTD schedule.
08/17 – 11/17	**4th Street Drawbridge over Harvey Canal Rehabilitation, Harvey, LA – LADOTD** **Mechanical Engineer Intern** worked with multiple colleagues to complete commissioning. Oversaw testing of hydraulic systems with third-party testing services; ordered parts and shipped all assemblies needed for the upgraded hydraulic systems; and collaborated with another firm to return the bridge to the state.
06/18 – 07/18	**US-17 Swing Bridge over the Perquimans River Design-Build, Perquimans County, NC – North Carolina DOT** **Mechanical Engineer Intern** contributing to the mechanical systems design and plan preparation services 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 included the complete design of the new swing span, including structural, mechanical, electrical, and geotechnical engineering.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Kevin Ciampi, PE**	Years of relevant experience with this employer	5
	Title	Mechanical Engineer	Years of relevant experience with other employer(s)	12

Degree(s) / Years / Specialization			BE / 2009 / Mechanical Engineer / Stevens Institute of Technology
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			**Bridge Inspector for Movable Bridge Mechanical Systems**

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).
03/19 – 09/19	**SR 605 Bascule Bridge over the Industrial Waterway, Gulfport, MS – Mississippi DOT** **Mechanical Engineer** 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.
09/15 – 03/16	**Gwynn's Island Swing Bridge, Gwynn's Island, VA – Virginia DOT** **Mechanical Engineer** 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.
06/19 – 09/19	**Liberty Bridge Emergency Repairs, Bay City, MI – Bay City DPW** **Mechanical Engineer** provided mechanical engineering assessment and design services on this double-leaf trunnion bascule bridge. Bay City dispatched H&H to the bridge site because the bridge machinery was making an unusual grinding noise. H&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&H provided engineering/on-site support to allow the owner to restrain the bridge in the open 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.

03/18 – 04/18	**Norwalk River (Route 136) and Yellow Mill (Route 130) Bascule Bridges, HUD Movable, Storm Hardening Design Services, Norwalk & Bridgeport, CT – Canadian National Railway (CNR)** **Mechanical Engineer** 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.
10/19 – Present	**Kilmarnock and Upper Nicholsons Inspections, Kilmarnock/Merrickville, ON - PCA** **Mechanical Engineer** for the inspection of the Kilmarnock and Upper Nicholsons swing bridges over the Rideau Canal. The bridges are a 72' long 13' wide hand-operated, center bearing, unequal arm wooden swing spans. The inspection is part of the City's biennial bridge inspection program. Responsible for visual inspection of all bridge machinery, data analysis, and report with recommendations.
05/17 – 07/17	**Michigan Street Vertical Lift Bridge Rehabilitation, Milwaukee, WI – City of Milwaukee** **Mechanical Engineer** 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.
10/17 – Present	**Repair of Five Movable Bascule/Swing Span Bridges, San Joaquin County, CA – San Joaquin County DPW** **Lead Mechanical Engineer** 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.
08/17 –10/17	**Sault Ste. Marie Double Leaf Bascule Inspection | Sault Ste. Marie, Mi - Canadian National Railway (CNR)** **Mechanical Engineer** for the inspection of the Sault Ste. Marie Bascule. The bridge is a 330' double leaf Strauss heel trunnion bascule operated by gear-driven machinery located on the movable span. The inspection is part of a larger project to rehabilitate the mechanical systems and monitor the condition to ensure long term reliability. Responsible for strain gauge balancing the bridge, troubleshooting the hydraulic system used to shift the south leaf to account for expansion, data analysis, and report with recommendations.
06/17 – 08/17	**NBIS Biennial Inspections, Robert F. Kennedy Bridge New York, Ny - MTA Bridges and Tunnels** **Mechanical Engineer** responsible for completing strain gage measurements on lift bridge, and preparing span balance reports, and calculating weight changes for balance adjustments as part of the biennial inspection of a 310-foot-long, Warren truss type, vertical lift. The inspection consisted of a condition inspection of bridge machinery for the Robert F. Kennedy Bridge Lift Bridge and its associated ramps. As well as strain testing the recently installed auxiliary motors for troubleshooting their performance.

16. Staff Experience:

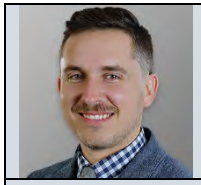
	Firm Employed by	Hardesty & Hanover		
	Name	**Marco Lara, PE**	Years of relevant experience with this employer	3
	Title	Electrical Engineer	Years of relevant experience with other employer(s)	16

Degree(s) / Years / Specialization			BS / 2004 / Electrical Engineering / University of South Florida
Active registration number / state / expiration date			Professional Engineer: 0044115 / LA / 3/31/2022
Year registered	2019	Discipline	Electrical Engineering
Contract role(s) / brief description of responsibilities			**Bridge Inspector for Movable Bridge Electrical Systems**

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).
01/19 – Present	**Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA - Jefferson Parish DPW** **Electrical Engineer** 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.
10/21 - Present	**OSARC NBIS Inspection of Three Movable Bridges, Statewide, MS – Mississippi DOT** **Electrical Engineer.** H&H is conducting in-depth inspections of the mechanical and electrical components of three movable bridges for Mississippi Office of State Aid Road Construction. These include the FAS 104/Wittman Road Bridge over Bayou Portage, the Popp's Ferry Road Bridge over Back Bay Biloxi, and the Cedar Lake Road Bridge over the Tchoutacabouffa River. To date, H&H has completed mechanical and electrical inspections of the Bayou Portage Bridge and the Popp's Ferry Bridge. The Cedar Lake Road Bridge is scheduled of March of 2022. Upon conclusion of each inspection, H&H will deliver inspection detailed inspection reports outlining the condition of the bridge and making recommendations for rehabilitation or replacement of deficient bridge machinery components.
05/17 – 07/17	**Arthur Kill Vertical Rail Lift Bridge, Elizabethport, NJ / Staten Island, NY – New York City Economic Development Corporation** **Electrical Engineer** 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, this bridge has the longest lift span of any bridge of its type in the world. 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.
02/13 – 2014	**Marine Parkway Vertical Lift Bridge Inspection, New York, NY - MTA Bridges and Tunnels** **Electrical Engineer** responsible for in-depth electrical inspection of the existing span drive and synchro-tie motors, auxiliary drive motors, warning gates, limit switches, motor control center, termination cabinets, and control console. Also witnessed and oversaw voltage, current, and RPM chart recording of all the main motors in the North and South Towers to provide analysis and recommendations to the TBTA. Other responsibilities included insulation resistance (megger) testing and inspection of the main span drive motors. Inspection was

	performed in accordance with the requirements of FHWA IP 77-10 (Bridge Inspection Manual for Movable Bridges), NYSDOT TA 87-007, and the AASHTO Movable Bridge, Inspection, Evaluation, and Maintenance Manual.
1/11 – 12/12	**Center Street Swing Bridge, Cleveland, OH – Ohio DOT** **Electrical Inspector** responsible for engineering support and construction inspection of the electrical rehabilitation of a bob-tail swing bridge. A partial electrical system replacement was performed, which included new solid-state drives and motors while retaining and upgrading existing motor controls and wiring for traffic gates, locks, and wedges.
03/18 – 07/19	**Cass Street Bascule Bridge over Hillsborough River, Tampa, FL - Hillsborough County Government** **Electrical Engineer** 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 & pinion, span lock brake & bushings; and emergency Drive bevel gear, shaft bushing, bearing &couplings, live load shoe, and lighting. H&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.
03/18 – 07/19	**Brorein Street Bascule Bridge over Hillsborough River, Tampa, FL - Hillsborough County Government** **Electrical Engineer** 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&H provided designs for the National Register of Historic Places eligible bridge. Services included inspections of the structural, electrical, and mechanical components; a BDR; structural, electrical, and mechanical construction plans; TCP; specifications; and engineer's estimate of probable construction cost.
04/09 – 06/13	**Crescent Beach Bridge Rehabilitation (SR 206), St. Johns County, FL – Florida DOT** **Electrical Engineer** 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.
07/10 – 01/13	**Sargent Barge Swinging Barge (Platoon) Bridge Rehabilitation, Matagorda County, TX – Texas DOT** **Electrical Designer.** Drafted electrical repair plans for power distribution system, panel schedules, control schematics, equipment layouts and conduit and cable schedules. Design includes a programmable logic controller (PLC) control-based system using wireless modems to eliminate the submarine cable. Operating system included 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 included replacing 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.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Andrew Barthle, PE**	Years of relevant experience with this employer	17
	Title	Electrical Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			BS / 2003 / Electrical Engineering / Rensselaer Polytechnic Institute
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			**Bridge Inspector and Design Engineer for Movable Bridge Electrical Systems**

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).
01/20 – Present	**Almonaster Avenue Railroad Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Electrical Engineer** 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&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&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.
08/08 – Present	**H.002798.6; Bayou Teche Swing Bridge at Oaklawn, St. Mary Parish, LA – Louisiana DOTD** **Electrical Engineer** 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&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&H is currently providing construction phase services for the project.
08/08 – 08/13	**SP 700-99-0430; Judge Seeber Vertical Lift Bridge over Inner Harbor Navigational Canal, New Orleans, LA – Louisiana DOTD** **Electrical Engineer** 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.

09/06 – 11/07	**KCS Railroad Swing Bridge over Ouachita River, City of Monroe, LA - Kansas City Southern Railway Company** **Electrical Engineer** responsible for the design, calculations, plan preparation, and specifications for repairs to the bridge electrical system for this hydraulically-operated bridge. The project required replacement of track girders, drum girder repairs, and lateral bracing; the retrofit of turning mechanism (bearing wheels and spider rods), rail lifters; and the upgrade of the electrical control system on a new pre-cast pivot pier cap while maintaining railroad traffic and limited navigation closure.
04/18 – Present	**SR 609 over Old Fort Bayou Bascule Bridge Rehabilitation, Gulfport, MS – Mississippi DOT** **Electrical Engineer of Record** 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&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&H is currently providing construction phase services.
01/19 – 08/20	**SR 605 Over Industrial Waterway Canal Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Electrical Quality Control Engineer** 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 & specs.
11/04 – 05/07	**SR-786 / PGA Boulevard Bascule Bridge over ICWW, Palm Beach Gardens, FL – Florida DOT District 4** **Electrical Engineer** 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.
08/08 – 10/10	**SW 11th Avenue Swing Bridge over North Fork of New River, Fort Lauderdale, FL – City of Fort Lauderdale** **Electrical Engineer** responsible for the design, calculations, plan preparation, and post design of the swing bridge power distribution and control systems. The pony truss swing bridge is operated by a motor coupled to a flux vector drive, with safety interlocks provided by a relay-based control system. The project involved the bridge rehabilitation study and reconstruction design for a historic 100-foot Pony Truss swing constructed in 1928. Included were in-depth inspection and rehabilitation design.
05/12 – 10/15	**Miami Avenue Twin Bascule Bridges, Miami, FL – Miami-Dade County Public Works** **Electrical Engineer** 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. The hydraulic system was also refurbished.

16. Staff Experience:

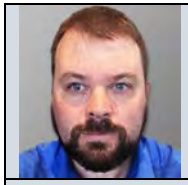
Firm Employed by	Hardesty & Hanover		
Name	**Michael Tiné, PE**	Years of relevant experience with this employer	19
Title	Electrical Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			B.S. / 2000 / Electrical Engineering / New York Institute of Technology
Active registration number / state / expiration date			Professional Engineer: 110518 / TX / 09/30/2022 Confined Space Training; CPR Training; Allen Bradley PLC Control Logix System Fundamentals; Mike Holt Bonding and Grounding Seminar
Year registered	2011	Discipline	Electrical Engineering
Contract role(s) / brief description of responsibilities			**Bridge Inspector and Design Engineer for Movable Bridge Electrical Systems**

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).
04/18 – 01/19	**C&D Canal Tower Drive Vertical Lift Bridge Inspection, Middletown, DE – Delmarva Central Railroad** **Lead Electrical Engineer** responsible for performing quality control assessment of the inspection and report documents, performing insulation resistance testing of the flexible droop cables, and performing troubleshooting of the emergency back-up system. Overall scope of work included the inspection of the mechanical and electrical systems of this tower drive vertical lift bridge.
11/14 – Present	**Chesapeake Bridge Inspection and Design On-Call Contract, Chesapeake, VA – City of Chesapeake** **Lead Electrical Engineer** for this on-call contract providing bridge inspections, load ratings, rehabilitation design, construction support, troubleshooting, and emergency response services for the City's 90 bridges and culverts, as well as four movable spans (Gilmerton, Great Bridge, Centerville Turnpike, and Steel Bridge). Responsible for initial design inspection, troubleshooting during drive malfunction, and QC of electrical design plans and specifications for the rehabilitation design for Centerville Turnpike swing bridge. Responsible for troubleshooting during surge and lighting damage to the PLC system and wiring for the Great Bridge bascule bridge.
03/16 – 05/19	**Spuyten Duyvil Swing Bridge Rehabilitation, New York, NY – AMTRAK** **Lead Electrical Engineer** responsible for electrical design of new wedges, insulation resistance testing of the existing submarine cables, and replacement of limit switches located below track for the rehabilitation of the railroad bridge's movable span which was damaged in 2012 by Super Storm Sandy. Scope included rehabilitation of the center bearing, end machinery systems, electrical systems, and masonry at the piers.
03/15 – Present	**On-Call Rehabilitation of Two Movable Bridges, Sussex County, DE – Delaware DOT** **Lead Electrical Engineer** for rehabilitation projects of the Rehoboth Avenue Bridge (single-leaf, fixed trunnion bascule) and the Lewes Canal Bridge (double-leaf rolling lift). H&H is providing specialized inspection teams to perform the initial field assessment to confirm and document the condition state of previously known defects as well as identify potential repairs and upgrades to the existing structural, mechanical, and electrical systems. H&H also performed the design of the bridge rehabilitation and the upgrades to the mechanical and electrical systems and creating construction documents for bid, with construction to start in 2018. Project is part of DelDOT's three-year on-call contacts, with the current contract running from 2017 to 2020. Responsible for the electrical design for the new electrical system, including PLC control system with remote monitoring, flux vector drives, conduit and wire, limit switches, control enclosures, new incoming services.

01/15 – 08/19	**I-695 Curtis Creek Bascule Bridge over Curtis Creek, Baltimore, MD – Maryland Transportation Authority** **Lead Electrical Engineer** for project involving the mechanical and electrical rehabilitation of the I-695 drawbridge (parallel double-leaf bascule). Responsible for the electrical design and construction supports services for the rehabilitated electrical system. The electrical design included new flux vector drive systems, PLC control system with a data acquisition system, new control panels, control console, motors, brakes, limit switches, new stand-by generators, rehabilitated warning gates, and raceway systems.
09/11 – 07/15	**On-Call Movable Bridge Inspection, Evaluation, and Rating Services, Statewide, MD – Maryland DOT/State Highway Admin** **Lead Electrical Engineer** for the task order contract for AASHTO in-depth inspections and evaluation of Pennington Avenue Bridge (twin double-leaf trunnion bascule), Wise Avenue Bridge (double-leaf rolling lift) and Hanover Street Bridge (double-leaf rall rolling lift). Inspection services included generator testing, insulation resistance testing of cables and motors, including submarine cables, visual inspection, and operational testing. The results of the inspection were used to provide maintenance recommendations.
05/18-Present	**CONN River Bridge Design Engineering, Old Saybrook, CT - AMTRAK** **Electrical Engineer** responsible for the electrical design for this bridge carrying two-tracks of electrified rail. The existing through-truss approach spans and rolling lift bascule truss span will be replaced with a new offline structure comprised of girder approach spans and a 205-foot-long fixed trunnion through truss bascule span. The new structure is designed in accordance with AREMA and Amtrak policies. The electrical system design included flux vector drives, relay logic control system, stand-by generator, submarine cables, and conduit system.
04/14 – 10/17	**On-Call Movable Bridge Design Consultant Services, Baltimore, MD – City of Baltimore** **Lead Electrical Engineer** providing on-call bridge design electrical engineering services for the replacement or rehabilitation design of bridge structures. Tasks included work on the Hanover Street and Pennington Bridges. For Hanover Street, performed investigation of double-leaf Rall type rolling Lift Bridge to restore operation of the bridge from the control desk, field investigation, reviewed PLC ladder logic, engineering support during repairs by contractor, design of new limit switches for full open and full closed. For the Pennington Bridge, provided engineering support for four-leaf trunnion Bascule Bridge, field investigation of motor brake overload faults and recommended procedures for adjustment of motor overloads and development of maintenance checklist.
03/09 – 12/10	**Lafayette and Veterans Memorial Bascule Bridges, Bay City, MI – Michigan DOT** **Electrical Engineer** responsible for conducting detailed bridge assessment and for developing a detailed condition reports for the Lafayette, a rolling lift, double-leaf bascule bridge and the Veterans, a Scherzer-type, rolling-lift bascule bridge.
02/06 – 02/07	**NBIS Inspection of Five Movable Bridges, Statewide, MD – Maryland DOT – Maryland DOT/State Highway Admin** **Electrical Engineer** responsible for performing AASHTO electrical inspection with recommendations for rehabilitation and Pontis report preparation. Bridges included: Route 50 Salisbury (parallel single-leaf Scherzer rolling lift spans); Kent Narrows (double-leaf Trunnion bascule); Tilghman Island (single-leaf Scherzer rolling lift); and Miles River (single-leaf trunnion bascule).
02/05 – 10/05	**NBIS Inspection of Five Movable Bridges, Statewide, MD – Maryland DOT/SHA** **Electrical Engineer** responsible for performing AASHTO electrical inspection with recommendations for rehabilitation and Pontis report preparation. Bridges included: Main Street (double-leaf trunnion bascule); Dover (swing span); Ocean City (double-leaf Scherzer rolling lift); Pocomoke (double-leaf trunnion bascule); and Snow Hill (single-leaf trunnion bascule).

16. Staff Experience:



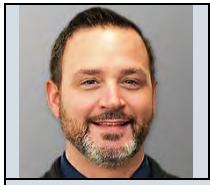
Firm Employed by	Hardesty & Hanover		
Name	**Christopher Svara, PE**	Years of relevant experience with this employer	27
Title	Electrical Engineer	Years of relevant experience with other employer(s)	2

Degree(s) / Years / Specialization			BS / 1993 / Applied Physics BS / 1993 / Electrical Engineering
Active registration number / state / expiration date			Professional Engineer: 0044080 / LA / 3/31/2022
Year registered	2019	Discipline	Electrical Engineering
Contract role(s) / brief description of responsibilities			**Bridge Inspector for Movable Bridge Electrical Systems**

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).
08/08 – 08/13	**Judge Seeber Vertical Lift Bridge over Inner Harbor Navigational Canal (SP 700-99-0430), New Orleans, LA – LADOTD** **Lead Movable Bridge Electrical Engineer** 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.
01/19 – Present	**SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Movable Bridge Electrical Engineer** 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 bridge structural, mechanical, and electrical components, 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.
08/10 – 07/13	**Murray Morgan Vertical Lift Bridge Rehabilitation**, **Tacoma, WA – City of Tacoma** **Lead Movable Bridge Electrical Engineer** 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 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	**I-90 Lacey V Murrow Pontoon Bridge Rehabilitation, Seattle, WA – Washington State DOT Bridge Preservation Office** **Movable Bridge Electrical Engineer** 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	**SR 520 Evergreen Point Floating Bridge and Landings Project, Seattle, WA – Washington State DOT Bridge Preservation Office** **Bridge Electrical Engineer** 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	**Centerville Swing Bridge over the Chesapeake & Albemarie Canal Rehabilitation, Chesapeake, MA – City of Chesapeake** **Lead Movable Bridge Electrical Engineer** 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. The planned scope of work also included construction support services.
12/98 – Present	**Chehalis River Bascule Bridge Rehabilitation, Aberdeen, WA – Washington State DOT Bridge Preservation Office** **Movable Bridge Engineer** 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	**Woodrow Wilson Bascule Bridge Replacement Contract, Washington, DC – Maryland State Highway Admin. / Virginia DOT** **Movable Bridge Electrical Engineer** 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	**Kenneth Pecquet, EI**	Years of relevant experience with this employer	3
	Title	Electrical Engineer Intern	Years of relevant experience with other employer(s)	8

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 / Inspector**

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).
12/19 – 01/21	**Bayou Teche Swing Bridge at Oaklawn (H.002798.6), St. Mary Parish, Louisiana - LADOTD** **Movable Bridge Electrical Engineer Intern** 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&H provided the electrical design for the bridge in line with LADOTD's design requirements and standard design details and coordinated closely with other design disciplines to ensure success. All design deliverables adhered to the schedule. Due to permitting issues, design was placed on hold for several years extending the schedule.
10/19 – 12/20	**SR 609 Movable Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, MS - Mississippi DOT** **Movable Bridge Electrical Engineer Intern** 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.
01/20 – Present	**Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans** **Movable Bridge Electrical Engineer Intern** 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&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge revealed improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. H&H 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.

03/19 – 01/20	**SR 605 Movable Bascule Bridge Rehabilitation, Harrison County, MS - Mississippi DOT** **Movable Bridge Electrical Engineer Intern** 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.
10/19 – 01/20	**Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Movable Bridge Electrical Engineer Intern** 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.
06/19 – 09/19	**Annual Inspection of Seabrook Railroad Bascule Bridge, New Orleans, LA - Port of New Orleans** **Movable Bridge Electrical Engineer Intern** 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.
07/18 – Present	**Districtwide State In-depth Bridge Inspections Contract, District 2 (Jacksonville Area, FL) – Florida DOT** **Movable Bridge Electrical Engineer Intern** 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.
04/17 – 05/17	**US-1 over Snake Creek Canal Bascule Bridge Post-Irma Inspection – Monroe County, FL** **Movable Bridge Electrical Engineer Intern** 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**.**
04/19 – Present	**Jupiter Federal Bascule Bridge Replacement, Jupiter, FL – Florida DOT** **Movable Bridge Electrical Engineer Intern** contributing to the design of this bascule bridge replacement project. The SWAT process of overlapping the design phase with the PD&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&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**.**

16. Staff Experience:

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Ryan Nolan, PE</td><td>Years of relevant experience with this employer</td><td>8</td></tr>
<tr><td>Title</td><td>Structural Engineer / Qualifies as CFR 23 Program Manager</td><td>Years of relevant experience with other employer(s)</td><td>18</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">BS / 1984 / Civil Engineering</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 40078 / LA / 3/31/2022
FHWA-NHI 130055/53 Bridge Inspection Refresher Training
FHWA-NHI 130078 Fracture Critical Inspection Techniques
NBIS CFR 23, Part 650 Team Leader and Program Manager
SPRAT Level I Rope Access Technician</td></tr>
<tr><td>Year registered</td><td>1999</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Lead NBIS Bridge Inspection Team Leader for Specialized Inspection Team</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>08/18 – 06/19</td><td colspan="4">NBIS Inspection of The William Preston Lane Bridge (Chesapeake Bay Bridge) - Maryland Transportation Authority
Inspection Team Leader for the implementation and oversight of the NBIS hands-on inspection of the entire portion of the Eastbound Bay Bridge as part of the MDTA annual inspection program. As Team Leader, Ryan was responsible for providing FHWA NBIS inspection services for three suspension spans, nine deck truss spans, three through truss spans, 18 steel multi-girder spans, and 37 simply supported steel beam spans and successfully optimized use of costly barge equipment by coordinating usage and billing amongst the multiple inspection teams across multiple contracts. Specific tasks included:
• Coordinating and planning inspections performed by H&H, JV partner, JV team members, and other consultant firms
• Coordinating access vendors including rigging with moving stages, SPRAT access, under-bridge inspection vehicles, barges, lifts, work/safety boats, and boat-mounted buckets
• Obtaining permits for lane closures and processing of Notice to Mariner notifications through the United States Coast Guard
• Processing and review of all invoices and maintaining financial tracking tools for careful tracking of task and contract budgets
• Coordinating subconsultants providing hydrographic surveys and underwater inspections
• Supervising emergency repair work and worked with owners to resolve issues under time constraints related to lane closures
• Developed inspection reports per NHI / AASHTO standards, and owner’s Facilities Inspection Manual. Reports contained typical plans, identified fracture critical members, executive summaries, studies and recommendations summaries, detailed access methods and instructions for future inspections, daily activity logs, findings, photographs, hydrographic surveys, and underwater inspections</td></tr>
<tr><td>12/17 – Present</td><td colspan="4">IDIQ Movable Bridge Contract, Statewide, MS – Mississippi DOT
Inspection Team Leader serving as the lead structural inspector for the condition assessment of the I-110 Biloxi Back Bay double-leaf rolling bascule bridge, built in 1973, and carries 4 lanes of interstate traffic and a pedestrian walkway. The bridge consists of one main bascule span and 56 approach spans, for a total length of 5,728 feet. The bascule span length measures 210’ from center to center of the roll. From heel to</td></tr>
</table>

	heel of main girders the bascule span length measures 262'. The heels of each bascule girder receive uplift support under highway loading by the flanking steel anchor spans. Including the flanking anchor spans the total length of the steel portion of this bridge is 500'. Inspections were performed at night to reduce impact to traffic and culminated in a comprehensive report with condition ratings and repair recommendations.
10/10 – Present	**Annual NBIS Facilities Inspection Services, Statewide, MD - Maryland Transportation Authority** **Inspection Team Leader** for the routine, in-depth, and emergency inspection of MDTA-owned bridges and tunnels. Responsible for the oversight of the annual condition inspection and evaluation tasks for the owner. As Acting Bridge Inspection Program Manager, Ryan was responsible for working on-site representing MDTA for over two and half years for the $45M inspection program, including budgets, task assignments, proposals, invoicing, and change orders. Ryan managed 27 inspection consultants and oversaw MDTA staff in the operation of the inspection program of 1500+ assets, containing 327 bridges; including some of MDTA's signature long span complex bridge structures. The structures are comprised of a wide variety of construction and material types including, suspension spans, steel deck truss spans, steel cantilevered deck truss spans, prestressed concrete arch, prestressed concrete beams, cast-in-place concrete, weathering steel, box girders, box culverts, arch culverts and pipe culverts. He led multi-disciplined inspection teams on the Harry W. Nice Bridge approach spans, the Millard E. Tydings Bridge deck truss spans, and the FSK Bridge through truss and suspended deck span. He coordinated the implementation of the MDTA's asset database (ASIR) and development of their Facilities Inspection Manual, as well as the response to emergencies involving impacts, fires, wind events, seismic events, and hurricanes.
06/19 – 11/21	**Annual NBIS Inspection of Almonaster and Seabrook Bascule Bridges over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Inspection Team Leader** serving as the lead structural inspector for the condition assessment of two single-leaf Strauss Truss bascule bridges. Each bridge carries two railroad crossings over the Inner Harbor Navigational Canal using a main truss bascule span and multiple approach spans. Ryan performed multiple cycles of hands-on inspections for these bridges using climbing/rope access techniques. The Seabrook bridge has a total length of 261-feet with a Bascule Span, a Tower Span, and Approach Spans. The Almonaster Bridge has a total length of 240-feet, 8-inches with a Bascule Span, a Tower Span, and Approach Spans. The inspections culminated in a comprehensive report with condition ratings and repair recommendations.
12/13 – Present	**NBIS Bridge Inspection, Evaluation & Rating Services, Statewide, MD -Maryland DOT/SHA** **Project Engineer and Inspection Team Leader** responsible for NBIS routine and fracture critical inspections of trusses, steel, concrete, culverts, trusses, timber, and railroad spans for more than 300 inspections throughout Maryland. Included SI&A/PONTIS and underwater inspections, included emergency analysis tasks. This contract included tasks for bridge ratings, culvert inspection, and plan development for invert paving and staffing of SHA inspection crews.
01/16 – 12/16	**Citywide Bridge Inspection Program, District of Columbia - District of Columbia DOT** **Project Engineer and Inspection Team Leader** responsible for a comprehensive inspection of approximately 250 structures over highways, streams, railroads (CSX&T, Amtrak, and WMATA); Inspections included tunnels, confined space, soundings, underwater and daily security coordination. Included were reports, SI&A/PONTIS, and recommendations. Ryan was also the project engineer responsible for managing the Level II Underwater Inspections of 21 bridges for DDOT.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**David Lynch, PE**	Years of relevant experience with this employer	3
	Title	Structural Engineer / Qualifies as NBIS Program Manager	Years of relevant experience with other employer(s)	23

Degree(s) / Years / Specialization			BS / 1997 / Civil Engineering / San Francisco State University
Active registration number / state / expiration date			Professional Engineer: 44457 / MD / 10/10/2023 FHWA-NHI-130055/3 Safety Inspection of In-Service Bridges FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges NBIS Program Manager ANSI Aerial Platform Cert. CPR/First Aid/AED
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Lead NBIS Bridge Inspection Team Leader for Specialized Inspection Team**

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).
06/16 – 03/21	**NBIS Bridge Inspection, Evaluation, and Rating Services, Statewide, MD – Maryland State DOT-Highway Administration** Senior Bridge Engineer and quality control engineer for the inspection of various bridges and ancillary highway structures owned by the state, County, and local jurisdictions throughout Maryland. Developed scope and fee proposals; performed quality control audits (field and office); reviewed condition inspection reports; scheduled and tracked progress, costs, and expenses; oversaw billing and provided progress reports; and was the signatory Professional Engineer and Quality Assurance Engineer of Record for bridge reports submitted in the SHA Office of Structures' Structure Asset Management System (SAM). Structures included in the tasks were pipe and box culverts; bridges over railroads and electrified railroads; simple spans; continuous spans; concrete, steel, and masonry bridges; and steel trusses.
09/14 – 12/18	**Annual Facilities Inspection Contract, Statewide, MD – Maryland Transportation Authority** **Team Leader** for $2.95M of the H&H led a $15M four-year on-call contract to provide for the inspection of a wide variety of MDTA structures and engineering support services as necessary. Responsible for all contract aspects from start to finish. Coordinated with public agencies (Federal, State, and local), subconsultants, access equipment vendors, MOT, and maritime operations. Prepared scope and fee proposals, booked, inspected, reported on, financially tracked, performed lead QC/QA roles, and billed for 22 tasks. Led MAP-21 compliance efforts for both complex tunnels in the client's inventory through the performance of the inaugural NTIS tunnel inspections of the Fort McHenry and Baltimore Harbor Tunnels, including identification of National Tunnel Elements and Agency Defined Elements, total quantities, and condition state quantities; identification of trends in the inspection findings; and development of repair details. Instrumental in the effort to convert inspection findings into asset management format to improve the efficient use of funding for rehabilitation and capital improvements. Inspection work included NBIS biennial, fracture critical; routine; hands-on; risk-based interim; emergency; underwater, and visual inspections. Structures included short and long-span bridges comprising multi-span steel and concrete box girders and multi-span steel multi-girder

	bridges, as well as complex bridges (truss spans, movable bridge, and bridges over railroads). Approved as final all inspection reports, Letters of Concern, non-destructive testing results, load ratings, inspection manuals, and all deliverables prior to submittal.
01/11 – 01/13	**Golden Gate Bridge NBIS Inspection Program, San Francisco, CA - Golden Gate Bridge Highway and Transportation District** **NBIS Program Manager and Senior Bridge Engineer** of the GGBHTD Bridge Inspection Program. Created and implemented complex bridge and routine inspection plans for the Golden Gate Bridge and directed and supervised multiple inspection teams comprised of professional and technical engineers and represented ironworkers, painters, and operating engineers. Reviewed, compiled, documented, and reported the inspection findings to the agency's internal engineering and maintenance divisions, California Department of Transportation, and Federal Highway Administration. Worked closely with California DOT (Caltrans) District 4 and statewide program management to bring the program into compliance with state and federal standards, including the then newly released NBIS metrics. Performed the FHWA and NBIS compliant load ratings for the Golden Gate Bridge's main span. Designed and coordinated implantation of the top priority repairs for defects on the Golden Gate Bridge with internal maintenance personnel, including performing non-destructive testing as required to determine the relative severity of observed defects.
02/19 – Present	**Annual Facilities Inspection Contract, Statewide, MD – Maryland Transportation Authority** **Team Leader** for $1.84M (current total value) of the H&H led $15M four-year on-call multi-facility inspection contract. Acted as primary liaison with the client. Developed management plans and executed all phases of NBIS-compliant detailed condition inspections and structural analysis and complex load ratings. Duties include developing scope and fee proposals, managing schedules and financial metrics for tasks and overall contract budgets, and implementing the Quality Management Plan. Coordinated complex maintenance of traffic (MOT) on state, county, and local roadways with multiple inspection teams; obtained railroad permits and flaggers; notified USCG for waterway operations; cooperated with ongoing construction projects; and arranged for and utilized various types of specialized access equipment (under bridge inspection units, bucket trucks, boats, manlifts). Inspection types included: fracture critical; routine detailed condition; hands-on; risk-based interim; visual; and emergency. Reviewed comprehensive bridge condition inspection reports before submission through MDTA's online asset management system. Reviewed, interpreted, and reported on underwater inspection findings and reports from third-party vendors.
09/11 – 09/18	**NBIS Bridge Inspection Services (BCS 2011-09E), Statewide, MD – Maryland State DOT- Highway Administration** **Team Leader** for the $574K task for the detailed condition inspection, evaluation, and load rating of a wide variety of long- and short-span bridges throughout Montgomery County. Prepared scope and fee proposal, performed field inspections and quality control and quality assurance roles, tracked and billed costs and revenue. Coordinated with municipal, county, and state agencies and railroads for right-of-way access and flaggers. Included deployment of multiple teams of inspectors with a variety of specialized access equipment, including under bridge inspection units and bucket tracks within the maintenance of traffic operations and post-flood inspections. Work over railroads and water in urban and rural environments in a variety of state, county, and local jurisdictions. Signatory as NBIS Team Leader and Quality Assurance Reviewer for inspections and load ratings. Performed final reviews of all inspection reports before submittal to the County.

16. Staff Experience:

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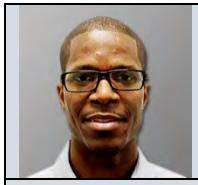
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Opio Hunter, PE</td><td>Years of relevant experience with this employer</td><td>16</td></tr>
<tr><td>Title</td><td>Structural Engineer / Team Leader</td><td>Years of relevant experience with other employer(s)</td><td>3</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">MS / 2004 / Civil and Structural Engineering / University of Maryland
BS / 2002 / Civil and Structural Engineering / Howard University</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 038189 / GA / 12/31/2022
FHWA-NHI-130055 Safety Inspection of In-Service Bridges</td></tr>
<tr><td>Year registered</td><td>2013</td><td>Discipline</td><td colspan="2">Structural Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">NBIS Bridge Inspection Team Leader</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>01/20 – Present</td><td colspan="4">Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans
Structural Engineer 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&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&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.</td></tr>
<tr><td>09/21 – Present</td><td colspan="4">Tennessee River Bridge Inspection and Load Rating – Norfolk Southern Corp.
Strucutral Engineer 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 & 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.</td></tr>
<tr><td>01/18 – Present</td><td colspan="4">LaGuardia Airport Landside Roadway Network, Flushing, NY – Port Authority of NY&NJ
Structural Engineer, part of the LaGuardia Gateway Partners team, a PPP (the country’s largest) that will design and construct a new world-class facility at LaGuardia Airport. The project includes demolishing the Central Terminal Building and creating a new world-class facility with a new central entry portal to the airport and improve access to terminals at the airport. H&H is responsible for the design of 3+ miles of elevated and at-grade roadway to improve access to the newly reconstructed Central Terminal Building and adjacent terminals. Infrastructure challenges include on-site stormwater drainage management, extensive utility coordination, embankment settlement, and tight vertical and horizontal clearances. Also includes design of associated retaining walls for the approaches connecting these retaining walls. Mr. Hunter is responsible for checking design calculations for various superstructure elements, including an integral steel box-beam pier cap that facilitates the widening of a section of the elevated roadway.</td></tr>
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02/16 – 02/17	**Grand Concourse Bridge Over Metro-North Railroad | New York, NY – New York City DOT** Structural Engineer 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.
05/13 – 07/14	**The Ohio River Bridges Downtown Crossing, Jefferson, IN & Louisville, KY - Kentucky Transportation Cabinet** **Structural Engin**eer 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 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. In addition, performed load ratings on the existing 2500-foot John F. Kennedy Truss Bridge. 2013–2014
07/12 – 07/13	**Vermont Railroad Bridge Inspections, Wacr Line M&B Subdivision, Montpelier, VT - Vermont Agency of Transportation** **Structural Engineer** 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.

16. Staff Experience:

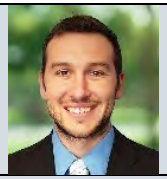
	Firm Employed by	Hardesty & Hanover		
	Name	**Kaushil Patel, PE**	Years of relevant experience with this employer	5
	Title	Structural Engineer / Team Leader	Years of relevant experience with other employer(s)	6

Degree(s) / Years / Specialization			BS / 2011 / Civil Engineering / Rutgers University
Active registration number / state / expiration date			Professional Engineer: 31404 / CT / 1/31/2023 FHWA-NHI-130055/53 Safety Inspection of In-Service Bridges FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges SPRAT Level I Rope Access Technician
Year registered	2016	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/17 – Present	**NBIS Biennial Inspection of the Throgs Neck Bridge – MTA Bridges and Tunnels** **Assistant Team Leader** responsible for performing a complete biennial inspection for the bridge. The bridge structure is supported by two main cables with a span of 1,800 feet between towers. In addition, the structure has two side spans measuring 555 feet in length. The bridge also contains two long approach viaduct structures, which connect it to major arterial and local streets in both The Bronx and Queens. 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.
06/16 – Present	**NBIS Biennial Inspection of the Robert F. Kennedy Harlem Lift Bridge, New York, NY – MTA Bridges and Tunnels** **Assistant Team Leader** 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.
05/19 – 12/20	**NBIS Inspections of the Henry Hudson Bridge, New York, New York – MTA Bridges and Tunnels** **Team Leader** responsible for the biennial and interim inspections of the Henry Hudson Bridge, associated ramp structures, and the overpass bridges at the Queens Midtown Tunnel and Hugh L. Carey Tunnel. Work included the inspection and examination of the condition of all structural components in accordance with NYSDOT requirements for the biennial inspection and miscellaneous repair design. Project includes inspection of the 850' main steel arch span of the Henry Hudson Bridge and the 120' concrete arch span of the Dyckman Street Bridge. Inspections also include the approaches, retaining walls, sign gantries and light poles.

05/18 – 06/19	**NBIS Bridge Inspection of the Verrazzano-Narrows Bridge, New York, New York – MTA Bridges and Tunnels** **Team Leader** responsible for the inspection of the Verrazzano-Narrows Suspension Bridge, including the 4,260-ft main span. Inspection included the four main cables, suspender ropes, steel orthotropic deck, floor trusses, stringers and crossbeams, and stiffening truss components. Inspection was performed in compliance with AASHTO and NBIS standards and element level reporting. Special emphasis details and fracture critical elements and gusset plates were inspected hands-on. Responsible for managing four different inspection teams including subconsultants, access vendors, and facility operations for inspection access and lane closures.
1/15-12/16	**Biennial Inspections, NJ and PA- Delaware River Joint Toll Bridge Commission (DRJTBC)** **Assistant Team Leader** for the biennial inspections of all DRJTBC owned bridges and associated facilities. Performed condition survey of steel truss, steel stringer, and steel floorbeam/stringer system bridges over the Delaware River. Accessibility to structural elements of these bridges included utilization of rigging, snoopers, and bucket trucks. Additionally, performed condition survey inspection of toll plazas, sign structures, administration and service shelters, and storage buildings. Provided photographic documentation and prepared comprehensive reports with observed deficiencies and summaries for recommendation for repair.
06/16 – Present	**Rehabilitation of Four Bridges on the Bronx River Parkway, Bronx, NY – New York State DOT** **Assistant Team Leader** for this In-Depth Bridge inspection of four fixed bridges based on the latest NYSDOT Biennial Inspection Report. Work included evaluating the extent of the deterioration to the substructure and superstructure deteriorated structural elements posing structural or safety concerns so that limits of repair, repair locations, and repair types can be defined.
01/12 – 08/16	**NBIS Bridge Inspection Contracts, Various Locations, NJ – New Jersey DOT** **Assistant Team Leader** on multiple bridge inspection contracts that involved work over waterways, requiring underwater inspection, and over railroads, requiring extensive coordination with agencies to obtain necessary permits and access authorization. Responsibilities included preparation of field notes, access equipment, development of drawings, and the completion of the relevant forms as per NBIS standards. Also performed load ratings on several bridges as required. Bridge inspection reports were prepared using SI&A and COMBIS forms. In 2014, NJDOT transitioned into a new coding system, which incorporated the coding manual, "AASHTO 2013 National Bridge Elements, Bridge Management Elements, and Agency Defined Elements." Inspections included: • 48 On and 25 Off System Camden County Bridges, Group 04C1, 2012 • 2 On and 74 Off Hunterdon County Bridges, Group 10F1, 2013 • Rating of 59 On System State Bridges, Group ST1A, 2013 • 43 On and 32 Off System Morris County Bridges, Group 14A1, 2014 • 80 Morris County Bridges, Group 14E5, 2015-2016
01/11 – 09/15	**Inspection and Condition Surveys, NJ and NY – Port Authority of NY & NJ** **Inspector/Team Member** of PANY&NJ inspections, which included structural condition assessments, report preparation, and compliance with Authority standards. Developed base plans in AutoCAD per Authority standards and specifications on numerous buildings. Conducted visual and hands-on inspections on structures at airports, marine terminals, and bridges. Access areas required SWAC and TWIC identification cards. Inspections included: Port Newark High Mast Light Inspections, 2011; George Washington Bridge Pigeon Guano, 2012 and other facilities.

16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	**Matthew Balzarini, PE, ADCI**	Years of relevant experience with this employer	4
	Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	5

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 FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges ADCI / #58157 / 8/8/2022 SPRAT Level I Rope Access Technician
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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/19 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, LA - LADOTD** **NBIS Team Leader Member** for one of the current five-year retainer contracts 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 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.
06/18 – Present	**IDIQ for NBIS Underwater Bridge Inspection Retainer Contract, Statewide, LA – LADOTD** **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.
07/18 – Present	**LADOTD IDIQ for Statewide Ancillary Sign Inventory and Inspection, Statewide, LA – LADOTD** **Team Leader** for both five-year retainer contracts to perform approximately 10% 1,700 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.

16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	**Kimberly Gravatt, ADCI**	Years of relevant experience with this employer	2
	Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	10

Degree(s) / Years / Specialization			BS / 2008 / Civil Engineering / University of Delaware
Active registration number / state / expiration date			Professional Engineer: 44084 / Maryland / 06/1323 FHWA-NHI-130055/53 Safety Inspection of In-Service Bridges; FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges; FHWA-NHI #130091 Underwater Bridge Inspection; ADCI-Certified Diver #59433; 4/5/2024; SPRAT Rope Access Technician
Year registered		Discipline	Civil
Contract role(s) / brief description of responsibilities			**NBIS Bridge Inspection Team Leader / ADCI-Certified Diver**

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).
08/20 – Present	**Statewide Inventory and Inspection of Sign Trusses, Statewide, LA - LADOTD** **Team Member** for the current five-year retainer contract to perform approximately 1,550 overhead sign truss inspections Statewide. Ancillary inspections include steel and aluminum welds, high stress moment connections, and fracture critical elements in accordance with FHWA guidelines. Performed Level III inspections with ultrasonic flaw testing on anchor bolt connections, mag particle testing on steel welded connections, and dye penetrant testing on aluminum-welded connections. Performs QA/QC reviews on inspections reports.
09/19 – 12/20	**NCDOT Bridge Inspection Limited Services Contract, Statewide, North Carolina - NCDOT** **Inspection Team Leader** for NBIS safety inspections for bridges and culverts by means of a variety of access methods, including aerial platforms, bucket trucks, and pontoon boats with scaffolding for the North Carolina Department of Transportation (NCDOT). Reports for bridges and culverts included condition assessment, repair recommendations, site photos, and NBIS rating of the structure in its current condition. Leading the hands-on inspection team on-site, as well as submitting repair recommendations.
08/20 - 09/20	**Term Contract for Underwater Safety Bridge Inspection Services, Statewide, VA - VDOT** **Diver and/or Dive Tender** for underwater bridge inspection dive team NBIS inspection of VDOT bridges located in Madison and Mecklenburg Counties. Also responsible for underwater inspection report preparation for these structures.
03/17 – 12/18	**MDOT SHA Bridge Inspection Services, Statewide, Maryland.** **Team Leader** who performed hands-on inspections of various highway bridges, including fracture critical steel truss bridges. The reports included inspection findings, condition ratings, photographs, and prioritized maintenance and repair recommendations.
09/21 – Present	**IDIQ for Worldwide Bridge and Waterfront Facility Inspections, Vicksburg District, PA - USACE** **NBIS Team Leader** for the five-year retainer contract to perform all types of NBIS bridge inspections at installations throughout the world. Responsible for the inspection of 25 bridges located on the Letterkenny Army Depot Installation in PA. Responsible for the team reviews and engineering reviews of 38 bridge reports.

16. Staff Experience:

	**Firm Employed by**	**Moffatt & Nichol**		
	Name	Chace Hulon, PE, ADCI	**Years of relevant experience with this employer**	7
	Title	Program Manager and NBIS Team Leader	**Years of relevant experience with other employer(s)**	10

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	**2015**	**Discipline**	Civil Engineering
Contract role(s) / brief description of responsibilities			NBIS Team Leader/ ADCI-certified Dive Supervisor / SPRAT Rope Access Technician – Meets MPR 4

Experience dates (mm/yy–mm/yy)	**Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).**
02/21 - Present	**LADOTD Underwater Bridge Inspections (2020-2025) - Task 1, Statewide, Lousiana.** **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.
06/17 - 12/17	**LADOTD Underwater Bridge Inspections (2017 – 2021) - Task 1, Statewide, Lousiana.** **Project manager and NBIS Team Leader** for routine underwater inspections of 26 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.
09/17 - 04/18	**LADOTD Underwater Bridge Inspections (2017 – 2021) - Task 2, Statewide, Lousiana.** **Project manager and NBIS Team Leader** for routine underwater inspections of 15 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.
04/18 - 07/18	**LADOTD Underwater Bridge Inspections (2017 – 2021) - Task 4 Hydraulic Assessments at 8 Culvert Structures, Statewide, LA** **Project manager** to assess the hydraulic adequacy and structural integrity of 8 culvert structures with a total of 35 corrugated metal pipes for a total of 13,944 linear feet. A remotely operated vehicle (ROV) was utilized to gather information via **sonar technology** below water and LiDAR technology above water
01/17 - 06/18	**LADOTD Underwater Bridge Inspections (2014 – 2018) - Task 9, Statewide, Lousiana.**

	Project manager, NBIS Team Leader and lead sonar technician for the underwater inspection with **acoustic imaging of bridges over large waterways** with high-risk environmental conditions. Provided QA field evaluations on other companies as directed by the LADOTD. In-depth design level inspections were performed in District 02 for load rating analysis on timber elements.
11/14 - 09/16	**Mississippi Department of Transportation (MDOT) Underwater Bridge Inspections, Statewide.** **Assistant Project Manager and Team Leader** for a three-year retainer contract for Level I, II, and III underwater inspections of 72 bridges in MDOT Districts 1 and 2 in accordance with FHWA BIRM, AASHTO MBE, current NBIS requirements and the MDOT PONTIS Inspection Manual for Bridges. Reviewed and evaluated critical structural conditions and communicated necessary actions of remedy. Responded within 24 hours to an emergency underwater bridge inspection request. **Acoustic imaging techniques** were utilized to identify structural deficiencies and determine the limits of scour.
11/19 – Present	**LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.** **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 inspection of the I-10 Bridge over the Calcasieu River in Lake Charles.
1/20 – Present	**LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.** **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.
09/14 – Present	**LADOTD IDIQ for Statewide NBIS Underwater Bridge Inspection, Louisiana.** **Project Director and Team Leader** for the third cycle of contracts in which we have performed 1,375 underwater 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.

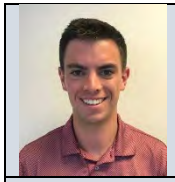
16. Staff Experience:

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 FHWA-NHI-130055 Safety Inspection of In-Service Bridges; FHWA-NHI-130078 Fracture Critical Inspection for Steel Bridges; ADCI-Certified Diver; SPRAT Rope Access Technician
Year registered	2013	Discipline	Civil
Contract role(s) / brief description of responsibilities			**NBIS Bridge Inspection Team Leader / ADCI-certified Diver**

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).
06/17 – Present	**IDIQ for NBIS Underwater Bridge Inspection Retainer Contract, Statewide, LA - LADOTD** **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.
11/19 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** **NBIS Team Leader** for one of the current five-year retainer contracts 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.
04/16 – Present	**IDIQ for Statewide Ancillary Sign Inventory and Inspection, Statewide, LA - LADOTD** **Team Leader** for both five-year retainer contracts to perform approximately 40% 1,700 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 Statewide.

16. Staff Experience:



Firm Employed by	Moffatt & Nichol		
Name	**Martin Anderson, PE**	Years of relevant experience with this employer	2
Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	4

Degree(s) / Years / Specialization			BS / 2016 / Civil Engineering / North Carolina State
Active registration number / state / expiration date			Professional Engineer: C92553/ California / 09/30/2023
Year registered	2020	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/20 – 07/20	**IDIQ for Statewide Underwater Bridge Inspection Contract, Statewide, LA - LADOTD** **NBIS Team Leader and diver** on the current five-year retainer contract to perform underwater bridge inspections throughout Louisiana, including 100 percent visual inspections of submerged elements in accordance with National Bridge Inspection Standards (NBIS) requirements. Involved with the production and review of reports.
02/21 – 05/21	**IDIQ for Statewide Inventory and Inspection of Sign Trusses, Statewide, LA - LADOTD** **NBIS Team Leader** for the current five-year retainer contract to perform approximately 5% of the 1700 overhead sign truss inspections throughout Louisiana. Ancillary inspections include steel and aluminum welds, high stress moment connections, and fatigue prone details in accordance with FHWA guidelines. Performed Level III inspections with ultrasonic flaw testing on anchor bolt connections, mag particle testing on steel welded connections, and dye penetrant testing on aluminum-welded connections. Performs quality assurance/quality control reviews on inspections reports.
09/21 – Present	**IDIQ for Worldwide Bridge and Waterfront Facility Inspections, Vicksburg District - USACE** **Assistant Manager and NBIS Team Leader** for the five-year retainer contract to perform all types of NBIS bridge inspections at installations throughout the world. Responsible for the filing and organization of bridge inspection data and the draft input of 25 bridges inspected at the Letterkenny Army Depot in PA. Managed the QC review schedule and addressed comments for final submittal.
09/17 – 05/18	**Statewide Bridge Condition Inspections, Various Locations, VA - Virginia DOT** **Team member** responsible for performing NBIS routine and underwater inspections for various bridges throughout Virginia. Structure types included steel multi-girder bridges carrying interstates and high-volume roadways over railways and waterways. Underwater inspections included pile foundations and culverts. Teams conduct routine and in-depth NBIS inspections, evaluating the deck, approaches, substructure, and waterways.
01/17 – 05/18	**Statewide Bridge Condition Inspections, Various Locations, MD - Maryland SHA** **Team member** responsible for performing NBIS inspection for various state and county owned bridges throughout Maryland.

16. Staff Experience:

	Firm Employed by	Moffatt & Nichol		
	Name	**Christopher (Chip) Eschenbach**	Years of relevant experience with this employer	4
	Title	NBIS Team Member	Years of relevant experience with other employer(s)	6

Degree(s) / Years / Specialization			Associates / 2015 / Welding Technology
Active registration number / state / expiration date			
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities			**NBIS Underwater Inspector / SPRAT Rope Access Technician / ADCI-certified Diver**

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).
11/19 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** **NBIS Team Member** for one of the current five-year retainer contracts 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.
1/20 – Present	**IDIQ for Statewide In-Depth Bridge Inspection, Statewide, LA - LADOTD** **NBIS Team Member** for one of the current five-year retainer contracts 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 movable bridges using detailed, nondestructive and laboratory testing methods with hand sketches. Hands-on management and implementation of the QC/QA plan is vital to the continued success of this project.
08/18 – Present	**IDIQ for Statewide Underwater Bridge Inspections, Statewide, LA - LADOTD** **Bridge Inspector** for bridges in district 62. Responsibilities included the underwater portion of the bridge inspection. Tasks for inspection of said bridges included inspection of all underwater members, gathering sediment depths around bridges, listing any additional defects not listed in previous reports, taking photos and updating current information on each bridge. Responsibilities for the job compiled of equipment preparations, driving the truck and company boat, diving on bridges and assisting with the inspection and data collection for the bridges above the water. The diving operations were conducted from the Baton Rouge pontoon boat using surface-supplied diving or scuba diving techniques to ensure safe practices as well as clear and precise notations.

16. Staff Experience:

<table>
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Moffatt & Nichol</td></tr>
<tr><td>Name</td><td>Joshua Martinez, PE</td><td>Years of relevant experience with this employer</td><td>7</td></tr>
<tr><td>Title</td><td>NBIS Team Leader and Diver</td><td>Years of relevant experience with other employer(s)</td><td>5</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">BCE / 2009 / Structural Engineering, United States Air Force Academy
MCE / 2013 / Structural Engineering, North Carolina State University</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 42085 / LA / 3/31/22</td></tr>
<tr><td>Year registered</td><td>2013</td><td>Discipline</td><td colspan="2">Civil</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">NBIS Team Leader / SPRAT Rope Access Technician / ADCI-certified Diver</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>06/17 – Present</td><td colspan="4">IDIQ for NBIS Underwater Bridge Inspection Retainer Contract, Statewide, LA - LADOTD
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.</td></tr>
<tr><td>09/13 – 06/17</td><td colspan="4">2013 NBIS Underwater Bridge Inspection Retainer Contract, Statewide, LA - LADOTD
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.</td></tr>
<tr><td>03/17 – 08/19</td><td colspan="4">Statewide Topside Inspection of Bridges, Statewide, NC - North Carolina DOT
NBIS Team Leader responsible for topside inspection of bridges. 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.</td></tr>
</table>

16. Staff Experience:

Firm Employed by	Moffatt & Nichol		
Name	**Clint Harr, EIT**	Years of relevant experience with this employer	2
Title	NBIS Team Leader and Diver	Years of relevant experience with other employer(s)	2

Degree(s) / Years / Specialization			BS / 2018 / Civil Engineering / University of Delaware
Active registration number / state / expiration date			Engineer-in-Training: #5659/ Delaware
Year registered		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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
09/21 – Present	**IDIQ for Worldwide Bridge and Waterfront Facility Inspections, Vicksburg District - USACE** **NBIS Team Member** for the five-year retainer contract to perform all types of NBIS bridge inspections at installations throughout the world. Responsible for the inspection of 25 bridges located on the Letterkenny Army Depot Installation in PA. Responsible for the draft inputs and edits from quality control reviews.
05/21 – 06/21	**NBIS - Rte 60 over Rte 161 Bridge, Richmond, VA - City of Richmond** **Bridge Inspection Team Member** for the NBIS bridge inspection of Route 60 (Midlothian Turnpike) over Route 161 (Belt Boulevard) in the City of Richmond. The bridge is a four span simply supported reinforced concrete tee beam bridge with a total length of 142 feet.
08/20 – 08/ 20	**Statewide NBIS Inspections, Statewide, VA – Virginia DOT** **Bridge Inspection Team Member** for the inspection of six VDOT bridges in the Richmond District. Services included three underwater inspections: a four barrel reinforced concrete box culvert in Chesterfield County carrying Route 722 (Halloway Road) over Old Town Creek; a steel beam timber deck bridge with low freeboard in Hanover County carrying Route 712 (Robert Terrell Road) over Newfound River; and a four-barrel reinforced concrete 84" pipe culvert in Powhatan County carrying Route 60 (Anderson Highway) over Branch. The three bridge inspections over Interstate I-95 included: a four span simple steel rolled beam bridge in Henrico County carrying Route 7552 (Dumbarton Road) over I-95; two four span simple steel girder bridges in the City of Richmond carrying Interstate highways or interstate highway ramps; and Interstate 64 over Interstate 95 and a Ramp to I-64 over I-95
08/20 – 09/20	**Term Contract for Underwater Safety Bridge Inspection Services, Statewide, VA – Virginia DOT** **Diver and/or dive tender** for underwater bridge inspection dive team NBIS inspection of VDOT bridges located in Madison and Mecklenburg Counties. Also responsible for underwater inspection report preparation for these structures.

16. Staff Experience:

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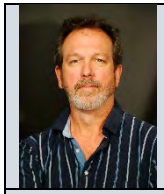
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Chustz Surveying, LLC</td></tr>
<tr><td>Name</td><td>Mark Huber, CH</td><td>Years of relevant experience with this employer</td><td>2</td></tr>
<tr><td>Title</td><td>QA/QC Manager</td><td>Years of relevant experience with other employer(s)</td><td>40</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3"></td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Certified Hydrographer #181 / National / 12/31/2022</td></tr>
<tr><td>Year registered</td><td>1995</td><td>Discipline</td><td colspan="3">Certified Hydrographer</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="3">Certified Hydrographer</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="5">Experience and qualifications relevant to the proposed contract; i.e., “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).</td></tr>
<tr><td>11/21 – 02/22</td><td colspan="5">H.012563.5, LA 73 Bayou Manchac Bridge, Ascension Parish, LA - LADOTD
QA/QC Manager. Mr. Huber was responsible for the QA/QC of final deliverables. The types of surveys that Chustz provided were Topographic, Aerial LiDAR, Static GPS, and RTK. Deliverables included Microstation InRoads DGN, DTM, and ALG files, Utility Forms, GPS Photos, and ASCII Files.</td></tr>
<tr><td>08/21– 02/21</td><td colspan="5">Post Ida Emergency Services for Multibeam and LiDAR, New Orleans District – USACE
QA/QC Manager. Mr. Huber was responsible for the QA/QC of final deliverables. Chustz provided Multibeam Hydrographic Underwater Imaging, Aerial LiDAR, and Aerial Imagery surveys of the Mississippi River, locating obstructions after hurricane Ida. Deliverables included Static Obstruction Forms, an Orthomosaic, XYZ ASCII Files, and a Final Survey Report.</td></tr>
<tr><td>07/21 – 10/21</td><td colspan="5">H.014633.5, LA 29 Bayou Cocodrie Bridge Scour Repair, Sr. Landry Parrish, LA - LADOTD
QA/QC Manager. Mr. Huber was responsible for the QA/QC of final deliverables. The types of surveys that Chustz provided were Topographic, Aerial LiDAR and Photogrammetry, Static GPS, and RTK. Deliverables included Microstation InRoads DGN, DTM, and ALG files, Utility Forms, GPS Photos, and ASCII Files.</td></tr>
<tr><td>10/20 – 05/21</td><td colspan="5">Automated Revetment Surveys on the Mississippi, Atchafalaya, and Red Rivers, New Orleans District - USACE
QA/QC Manager. Mr. Huber was responsible for the QA/QC of final deliverables. Chustz provided Automated Multibeam Underwater Imaging surveys for 456 miles on the Mississippi, Atchafalaya and Red Rivers. DGPS and Automated River Gauges were used for control. Deliverables included ASCII XYZ Files and QA/QC Reports.</td></tr>
<tr><td>03/20– 04/20</td><td colspan="5">NOV NFL Mitigation Project Fritchie Marsh (ED-20-030), New Orleans District – USACE
QA/QC Manager. Mr. Huber was responsible for the QA/QC of final deliverables. Chustz provided Hydrographic Single Beam Surveys utilizing DGPS and a Temporary Staff Gauge, and Topographic Surveys utilizing RTK GPS. Deliverables included a Detailed Survey Report, Description Forms, KMZ Files, a Fully Constrained GPS Network Report, and GIS Shape Files.</td></tr>
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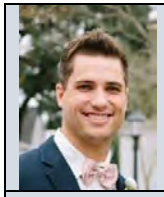
16. Staff Experience:

	Firm Employed by	Chustz Surveying, LLC		
	Name	**J. Alex Chustz, PLS**	Years of relevant experience with this employer	14
	Title	Surveyor	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			BS / 2012 / Geomatics / NSU
Active registration number / state / expiration date			Professional Land Surveyor: 5251 / LA / 9/30/2023
Year registered	2021	Discipline	Professional Land Surveyor
Contract role(s) / brief description of responsibilities			**Professional Land Surveyor – Meets MPR 4 and 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/21 – 02/22	**H.012563.5, LA 73 Bayou Manchac Bridge, Ascension Parish, LA LADOTD** **Field / Data Supervisor** Mr. Chustz was responsible for data collection and deliverables.The types of surveys that Chustz provided were Topographic, Aerial LiDAR, Static GPS, and RTK. Deliverables included Microstation InRoads DGN, DTM, and ALG files, Utility Forms, GPS Photos, and ASCII Files.
08/21– 02/21	**Post Ida Emergency Services for Multibeam and LiDAR, New Orleans District – USACE** **Field / Data Supervisor** responsible for for field data collection and deliverables. Chustz provided Multibeam Hydrographic Underwater Imaging, Aerial LiDAR, and Aerial Imagery surveys of the Mississippi River, locating obstructions after hurricane Ida. Deliverables included Static Obstruction Forms, an Orthomosaic, XYZ ASCII Files, and a Final Survey Report.
10/20 – 05/21	**Automated Revetment Surveys on the Mississippi, Atchafalaya, and Red Rivers, New Orleans District - USACE** **Field / Data Supervisor** responsible for for data collection and deliverables. Chustz provided Automated Multibeam Underwater Imaging surveys for 456 miles on the Mississippi, Atchafalaya and Red Rivers. DGPS and Automated River Gauges were used for control. Deliverables included ASCII XYZ Files and QA/QC Reports.
10/20 – 11/20	**Emergency Grand Isle Post Hurricane Zeta LiDAR/Photogrammetry Surveys, New Orleans District – USACE** **Field / Data Supervisor** was responsible for data coordination and deliverables. The types of surveys that Chustz provided were Topographic, Aerial LiDAR and Photogrammetry, Static GPS, and RTK. Deliverables included a DTM File and an ASCII Coordinate File.
09/16 – 01/17	**H.010962, I-10 Cable Barrier, Lafayette to Jennings - LADOTD** **Field / Data Supervisor** Mr. Chustz was responsible for data coordination and deliverables. The types of surveys that Chustz provided were Aerial LiDAR, RTK Control and Ground Truthing, and Static GPS. Deliverables included ASCII and LAS Files.
09/16 – 01/17	**Impala Burnside Terminal Survey, Ascension Parish, Project No. 16-514.** **Field / Data Supervisor** Mr. Chustz was responsible for multibeam and aerial LiDAR data coordination and deliverables. The type of surveys that Chustz provided were RTK and Digital Level control surveys, Aerial 3D Laser Scan, Multibeam **Hydrographic Underwater Imaging** and Topographic surveys. Deliverables included LAS Files and gridded Multibeam Data.

08/16 – 09/16	**Jimmie Davis Bridge Hydro Survey, DOTD Contract 4400006382, Task Order 06, Shreveport, LA - LADOTD.** **Field / Data Supervisor** Mr. Chustz was responsible for Multibeam Processing and QA/QC of the hydrographic data. Chustz provided High Resolution Multibeam **Underwater Imaging surveys** of the Jimmie Davis Bridge in Shreveport, LA. Deliverables included a gridded XYZ file of the Multibeam survey data and a Detailed Survey Report.

16. Staff Experience:

Firm Employed by	Chustz Surveying, LLC		
Name	**James H. Chustz, Jr., PLS**	Years of relevant experience with this employer	27
Title	Project Manager	Years of relevant experience with other employer(s)	20

Degree(s) / Years / Specialization			1983 / Boundary Surveying Classes - LSU
Active registration number / state / expiration date			Professional Land Surveyor: 4657 / LA / 3/31/2022
Year registered	1992	Discipline	Professional Land Surveyor
Contract role(s) / brief description of responsibilities			**Professional Land Surveyor – Meets MPR 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/21 – 02/22	**LA 73 Bayou Manchac Bridge, LADOTD, H.012563.5. Project Manager** – Mr. Chustz was responsible for the overall management of this job. The types of surveys that Chustz provided were Topographic, Aerial LiDAR, Static GPS, and RTK. Deliverables included Microstation InRoads DGN, DTM, and ALG files, Utility Forms, GPS Photos, and ASCII Files.
08/21 – 02/21	**Post Ida Emergency Services for Multibeam and LiDAR, USACE, New Orleans District, MVN Contract W912P8-20-D-0001. Project Manager** – Mr. Chustz was responsible for the overall management of this job. Chustz provided Multibeam Hydrographic Underwater Imaging, Aerial LiDAR, and Aerial Imagery surveys of the Mississippi River, locating obstructions after hurricane Ida. Deliverables included Static Obstruction Forms, an Orthomosaic, XYZ ASCII Files, and a Final Survey Report.
11/21 – 12/21	**Post Ida Grand Isle Surveys, USACE, New Orleans District, MVN Contract W912P8-20-D-0001. Project Manager** – Mr. Chustz was responsible for the overall management of this job. Chustz provided Static GPS, Single Beam and Multibeam Hydrographic Underwater Imaging, Aerial LiDAR, and Aerial Imagery surveys of the Grand Isle jetty system. Deliverables included Static GPS Network Reports, an Orthomosaic, XYZ ASCII Files, and a Final Survey Report.
07/21 – 10/21	**LA 29 Bayou Cocodrie Bridge Scour Repair, LADOTD, H.014633.5. Project Manager** – Mr. Chustz was responsible for the overall management of this job. The types of surveys that Chustz provided were Topographic, Aerial LiDAR and Photogrammetry, Static GPS, and RTK. Deliverables included Microstation InRoads DGN, DTM, and ALG files, Utility Forms, GPS Photos, and ASCII Files.repositioned.
05/17 – 09/17	**I-10 Cable Barrier, Lafayette to Jennings, LADOTD, H.010962. Project Manager** – Mr. Chustz was responsible for the overall project management of this contract. The types of surveys that Chustz provided were Aerial LiDAR, RTK Control and Ground Truthing, and Static GPS.

16. Staff Experience:

	Firm Employed by	KTA-Tator, Inc.		
	Name	**Robert 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			BE / 1999 / Chemical Engineering / Youngstown (OH) State University
Active registration number / state / expiration date			SSPC Certified Protective Coatings Specialist (#2015-820-136, expiration 12/31/2023) NACE Certified Coatings Inspector Level 3 (#13505, expiration 05/23/2022)
Year registered		Discipline	
Contract role(s) / brief description of responsibilities			**Coatings Consultant**

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).
09/21 – Present	**IWGO Bridge, Baton Rouge, LA – Louisiana DOTD** **Coatings Consultant** performing a coating condition assessment (visual examination, coating thciness and adhesion measurements, substrate examination and coating sample procurement), and assisting with the development surface preparation, coating application, and enviornmental/worker protection and contaiment specifications/drawing notes for the rehabilitation of this bridge. KTA is a subconsultant to another engineering firm.
07/20 – 08/20	**Denison Harvard Bridge, Cleveland, OH - Cuyahoga County (OH) Department of Public Works** **Coatings Consultant** 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	**Jackson Street (Red River) Lift Bridge, Alexandria, LA – Louisiana DOTD** **Coatings Consultant** 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	**Walt Whitman Bridge NJ Approach Spans, Gloucester, NJ – Delaware River Port Authority** **Coatings Consultant/Project Engineer** 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 activites (removal of lead-based paint). KTA was a subconsultant to another engineering firm.
10/18 – 03/19	**Kootenay River Bridge, Creston, BC, Canada – British Columbia Ministry of Transportation** **Coatings Consultant** 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	**Argentia Newfoundland Ferry Dock Transfer Bridge, Newfoundland, Canada – Port of Argentia DOT** **Coatings Consultant** for the coating condition assessment, supervision of coatings laboratory testing, and developmment 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	**Benjamin Franklin Bridge, Philadelphia, PA – Delaware River Port Authority** **Coatings Consultant/Project Engineer** 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 fo the maintenance painting and steel repair work on this bridge. KTA was a subconsultant to another engineering firm.
06/17 – 06/19	**Walt Whitman Bridge Corridor PA Approach Spans, Philadelphia, PA – Delaware River Port Authority** **Coatings Consultant/Projet Engineer** for the coating condition assessment to develop future maintenance painting strategies for these 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.
03/17 – 05/17	**US 90 Morgan City Bridge and Nearby Structures, Morgan City, LA – Louisiana DOTD** **Coating Consultant** 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	**I-310 Luling Bridge, Luling, LA – Louisiana DOTD** **Coatings Consultant** 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.
09/16 – 12/16	**South Street Viaduct, New York City (Manhattan), NY – New York City DOT** **Coatings Consultant** for the coating condtion 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.
03/13 – 11/07	**Commodore Barry Bridge, Chester, PA – Delaware River Port Authority** **Coatings Consultant/Project Engineer** for the condition assessment of the existing coatings and the development of recoating recommendations this bridge and associated structures (two ramps and an overpass). KTA also provided specification review and environmental health & safety services for all of the structures. KTA was a subconsultant to another engineering firm.

16. Staff Experience:

Firm Employed by	KTA-Tator, Inc.		
Name	**Greg 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**

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).
07/21 – 10/21	**US 98 over St. Andrews Bay, Bay County, FL – Florida DOT** **Coatings Consultant** 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.
01/20 – 05/20	**Johns Pass Bridges NB and SB on SR 699, Pinellas County, FL – Florida DOT** **Coatings Consultant** 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	**Ramp from I-4 EB to I-75 NB over I-4, Hillsborough County, FL – Florida DOT** **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 structure. KTA was a subconsultant to another engineering firm.
03/18 – 06/18	**Plant Avenue Bridge, Tampa, FL – City of Tampa, FL** **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	**Brorein Street Bascule Bridge, Tampa, FL – City of Tampa, FL** **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	**Longboat Key Pass Bridge, Manatee County, FL – Florida DOT** **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	**Dale Earnhardt Memorial Pedestrian Bridge, Daytona Beach, FL – Daytona International Speedway** **Coating 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	**Six Bridges in Pensacola FL – Florida DOT** **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.
05/16 – 06/16	**Bridge in Port Canaveral, FL – Florida DOT** **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 bridge. KTA was a subconsultant to another engineering firm.
02/16 – 06/16	**Circus Bascule Bridges, Sarasota County, FL – Florida DOT** 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.
03/15 – 08/15	**Jones Loop Road over I-75, Charlotte County, FL – Florida DOT** **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 bridge. KTA was a subconsultant to another engineering firm.
10/14 – 02/15	**5 Bridges in Hillsborough County, FL – Florida DOT** **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.
07/13 – 12/13	**Card Sound Bridge, Homestead, FL – Florida DOT** **Coatings Consultant** for project management, coating condition assessment, supervision of coatings laboratory testing, assistance with report preparation, and development of Technical Special Provisions for the rehabilitation of the coating system on this bridge. KTA was a subconsultant to another engineering firm.

16. Staff Experience:

	Firm Employed by	KTA-Tator, Inc.		
	Name	**Pedro 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			BS / 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**

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).
09/18 – Present	**Coatings Consultant/Project Engineer – Various Clients** 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.
03/21 – 05/21	**Channel Islands ANG Base, Oxnard, CA and Randolph Air Force Base, TX** **Coatings Consultant** for coating condition assessments on various structures at these military bases. KTA was a subconsultant on this project.
02/21 – 03/21	**Canal Lock Gates, Panama Canal** **Coating Consultant** 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 on this project.
10/20 – 02/21	**Joint Base Pearl Harbor-Hickman, Oahu, HI** **Coating Consultant** 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 on this project.
10/20 – 12/20	**Old Port Cove Lake Point Tower, West Palm Beach, FL** **Coating Consultant for an assessment and development of painting strategies to correct the failure of the elastomeric** coating on the exterior stucco façade on this condominium tower. KTA was a subconsultant on this project.
10/19 – 03/20	**Andrews Avenue Bascule Bridge, Ft. Lauderdale, FL – Broward County, FL** **Coating Inspector** 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 on this project.

03/19 – 08/19	**Hard Rock Stadium, Miami Gardens, FL** **Coating Inspector** 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 on this project.
07/07 – 12/16	**Employee of Belzona, Inc., Miami, FL** **Regional Manager for Latin America – Technical Service and Business Development** • 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 • Investigated coating failures: deionized tank coatings in a brewery (Venezuela) and discoloration of an airplane hangar concrete floor coating (Columbia) • Wrote various specifications, including Latin American water/waste water plants and various oil/gas clients in Brazil, Mexico, and Venezuela • Developed and instructed various training courses (in Spanish and English) for coating inspection and coating product selection, both in-person and via webinars • 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.

16. Staff Experience:

	Firm Employed by	KTA-Tator, Inc.		
	Name	**James Kretzler**	Years of relevant experience with this employer	9
	Title	ASNT Level III	Years of relevant experience with other employer(s)	14

Degree(s) / Years / Specialization			
Active registration number / state / expiration date			ASNT Level III MT, PT, RT, UT (#186946, expiration 10/2025) AWS Certified Welding Inspector (#07020431, expiration 2/1/2025) NACE Coatings Inspector CIP Level 1 (#54804, expiration 09/30/2023)
Year registered		Discipline	
Contract role(s) / brief description of responsibilities			**ASNT Level III**

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).
07/15 - Present	**Various Fabrication Projects for Clients in the Transportation Industry** **NDE Department Manager** managing the NDE Department of the KTA Steel, Concrete, and NDE Group. He has financial and operational responsibilities along with business development, hiring, and training for non-destructive examination services. He is providing Level III services internally for KTA and externally for clients that includes writing and reviewing NDE procedures and certifying NDE technicians. He is also providing NDE training services for Level II Magnetic particle, Level II Dye Penetrant inspection as well as Ultrasonic Level I and Level II classes covering UT thickness, straight beam, and angle beam inspections.
10/21 – 12/21	**Various Bridges throughout North Dakota – North Dakota DOT** **Project Manager** for Phased Array Ultrasonic Testing (PAUT) on vairous bridges throughout the state. KTA was a subconsultant to another engineering firm.
3/16 – 5/16	**I-10 Calcasieu Bridge, Baton Rouge, LA – Lousiana DOTD** **NDE Supervisor** for the UT inspection of the bridge pins on this structure. Mr. Kretzler reivewed thei nspection data and issued an opinion regarding the condition of the pins. KTA was a subconsultant to another engineering firm.
06/15 – 12/19	**Steel Fabrication Inspection Contract Statewide – New York State DOT** **Project Manager** for the CWI/NDT inspection and coating inspection services during the fabrication of bridge girders at various shop locations. KTA also provided material sampling services for flat bar and rebar, and verified welding tests in accordance with NYSDOT standards. KTA was the prime consultant for this contract.
12/12 – Present	**Steel and Concrete Fabrication Inspection Contracts Statewide – Connecticut DOT** **Project Manager** on three consecutive multi-year contracts for steel and concrete fabrication inspection and coatings inspection services during fabrication operations at various shops. KTA was and is the prime consultant for all of these contracts.

12/12 – 07/15	**Steel Fabrication Inspection Contracts Statewide – Pennsylvania DOT** **NDE Supervisor** overseeing the responsibilities of QA inspectors on bridge fabrication projects in various shops throughout Pennsylvania and Ohio. He reviewed NDE procedures, completed site audits on NDE technicians, and oversaw all NDE activities on various projects.
06/08 – 12/12	**Employee of A&A Consultants, McKees Rocks, PA** **NDE/CWI Inspector** providing these services to three inspection consultant companies as a subconsultant. Mr. Kretzler coducted these inspections for Pennsylvania DOT bridge projects involving girders, cross frames, and tooth dams. He managed and trained a staff of 9 inspectors.
05/08, 12/09, 1/10	**Employee of A&A Consultants, McKees Rocks, PA** **Inspector** performing various inspections for the North Shore Connector Project in Pittsburgh, PA. He performed visual and dye penetrant weld examinations for a temporary bridge and shoring on Tony Dorset Drive spanning the "cut and cover" portion of the light rail system (served as A&A Consultants' Structural Steel Inspection Supervisor). Mr. Kretzler also provided inspections of 30 light poles for this project at Jett Industries, Ellwood City, PA in December 2009, and completed MT/VT inspection of splice plate welds on retaining wall pilings and smoke wall rebar in January 2010.

16. Staff Experience:

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="3">Bridge Diagnostics, Inc. (BDI)</td></tr>
<tr><td>Name</td><td>Charles Young, PE</td><td>Years of relevant experience with this employer</td><td>4</td></tr>
<tr><td>Title</td><td>NDE Project Manager</td><td>Years of relevant experience with other employer(s)</td><td>7</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">MS / 2017 / Structural Engineering / Drexel University
BS / 2012 / Architectural Engineering / Drexel University
SPRAT Level I Rope Access Technician / 190511 / 3/15/2022</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 42773 / LA / 3/31/2023</td></tr>
<tr><td>Year registered</td><td>2018</td><td>Discipline</td><td colspan="2">Civil Engineer</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">NDE Project Manager and Engineer</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>05/18 – 12/21</td><td colspan="4">Nondestructive Evaluation of Unknown Bridge Foundations, LA
NDE Engineer. 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.</td></tr>
<tr><td>10/18 – 08/19</td><td colspan="4">Sunshine Truss Emergency Monitoring, LA
Installation Technician / Site Supervisor. 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.</td></tr>
<tr><td>01/19 – Present</td><td colspan="4">Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA
Project Engineer / Lead Bridge Inspector. 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.</td></tr>
</table>

10/19 – 11/19	**Memorial Bridge Ropes Access FCM Inspection, ME** **Project Engineer / Bridge Inspector.** This project involved performing a hands-on fracture critical member inspection of the Memorial Bridge in Augusta, ME. The structure is a 2,100-foot-long cantilever deck truss spanning the Kennebec River. Access was provided via ascending/descending rope access techniques, along with aid climbing.
03/20 – 05/20	**City Park Lake Bridge Inspection and Nondestructive Evaluation, LA** **Project Engineer / Bridge Inspector.** This project involved an 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.
06/20 – 09/20	**West Seattle High Bridge, WA** **Project Engineer / Lead Field Inspector.** BDI was contracted by Seattle DOT to provide a non-destructive 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.
01/20 – Present	**Eltham Bridge NDE, VA** **Project Engineer / Bridge Inspector.** This advanced NDE measurement and evaluation project will quantify grout voids within post-tensioned tendon ducts. Measurement techniques will include an advanced 3D ultrasound system, ground penetrating radar, and other diverse instrumentation. Mr. Young acted as a subject matter expert and new-employee trainer for concrete testing for this project.
04/17 – 08/17	**Load Rating and Testing of a Steel Multi-Girder Bridge, MD** **Project Engineer / Bridge Inspector.** This project invovled performing a refined load rating of a kinked, two-span continuous steel multigirder bridge with cast-in-place concrete approach spans. This structure has posed challenges in past load ratings due to its unique geometry and construction type. Load rating was performed according to AASHTO's Manual for Bridge Evaluation with capacities calculated via traditional methods and demands extracted from a calibrated finite element model from load testing.
09/17 – 02/18	**Load Rating of the Tacony Palmyra Bridge for Wind Loading During Bridge Painting, N**J **Project Engineer / Bridge Inspector.** Mr. Young performed a refined load rating for the Tacony Palmyra Bridge arch span and movable bascule span by developing 3D Finite Element models and performing load rating calculations in accordance with AASHTO's Manual for Bridge Evaluation. These load ratings were in support of a future painting project, and therefore the spans were analyzed for live load, dead load, and wind load from containment tarps that will be attached to the structure during painting.

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			Ph.D. / 2008 / Civil Engineering / Utah State University M.S. / 2005 / Structural Engineering / University of Tennessee B.S. / 2002 / Civil Engineering / University of Tennessee ASNT NDT-Level II Inspector
Active registration number / state / expiration date			N/A
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities			**Nondestructive Evaluation**

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).
01/17 - Present	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** **NDE Expert.** 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.
01/19 - Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262)** **NDE Expert.** 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.
11/19 - Present	**NDE and Remote Inspection of I-10 over the Bonnet Carre Spillway, LA** **NDE Expert.** 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 – 12/21	**US Army Corps Evaluation of Advanced Weld Inspection Methods** **NDE Expert.** 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.
08/19 – 07/20	**NDE of City Park Lake Bridge LA** **Principal Investigator.** 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	**NDE of Vicksburg Bridge, LA** **Principal Investigator.** 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	**Ultrasonic Testing of the US1 Simmesport Bridge, LA** **NDE Expert.** 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.
08/20 – 10/20	**Ultrasonic Steel Testing of the Devon Rail Bridge, CT** **NDE Expert.** BDI performed inspection of all 252 pins of the Devon bridge that carries Metro-North's New Haven Line trackage across the Housatonic River near Milford, CT. BDI utilized ASNT certified inspectors to perform phased array UT and MT to determine their integrity.
10/20 – 10/20	**Ultrasonic Steel Pin Testing of the Norris Bridge, VA** **NDE Expert.** BDI performed inspection of all 392 pins of the Robert O. Norris bridge that carries US 3 over the Rappahannock River in Virginia. BDI utilized ASNT certified inspectors to perform UT and magnetic particle testing (MT) to determine their integrity.
11/20 - Present	**PT Duct Inspection for US-33, VA** **NDE Expert.** BDI is contracted by Virginia DOT to inspect over 5 miles of PT duct utilizing a multi-technology NDE approach. BDI is performing all aspects of the inspection including working with subcontractors for installation of semi-permanent traffic closures, operation of under bridge inspection trucks (UBITs), and the full NDE inspection including ground penetrating radar (GPR), ultrasonic tomography (MIRA), impact echo (IE), coring, and material sampling and testing.

16. Staff Experience:

Firm Employed by	Bridge Diagnostics, Inc. (BDI)		
Name	**Ricky Morgan**	Years of relevant experience with this employer	3
Title	Steel NDT Division Manager	Years of relevant experience with other employer(s)	32

Degree(s) / Years / Specialization			B.S. / 1983 / Political Science/Sociology / Purdue University
Active registration number / state / expiration date			N/A
Year registered	N/A	Discipline	NDT Evaluation
Contract role(s) / brief description of responsibilities			**Non-Destructive Evaluation; ASNT Level III**

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).
08/19 – 12/21	**US Army Corps Evaluation of Advanced Weld Inspection Methods** **Field Investigation.** 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. Morgan performed calibration and modeling for the field-testing methodologies.
12/16 – 03/19	**Testing of In-Service Bridges Using Automated Ultrasonic Testing Methods** **Project Manager.** Mr. Morgan served as project manager on this NCHRP project that included the design and fabrication of automated ultrasonic testing (UT) apparatus for the testing of in-service steel bridges. Advanced UT methods are utilized including Phased Array Ultrasonic Testing (PAUT) and Time of Flight Diffraction (TOFD) to determine best practices for weld flaw identification and measurement. These best practices are paired with automated testing methods to improve the efficiency of UT on in-service steel bridges.
04/20 – 06/20	**NDE Investigation of Wheel Track Anchor Bolts** **Project Manager.** Mr. Morgan served as the project manager for this project in which BDI performed a nondestructive evaluation (NDE) of the wheel track anchor bolts which support the double-swing assembly on the George P. Coleman Bridge in Yorktown, VA. The testing methodology consisted of performing ultrasonic testing of each anchor bolt by an ASNT III UT inspector to identify, locate, and measure any cracks in the bolts. Split between an inner and outer ring configuration, a total of 88 anchor bolts were tested on both Pier 1S and Pier 1N of the bridge for an overall total of 176 anchor bolts having been tested.

16. Staff Experience:

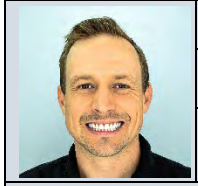
Firm Employed by	Bridge Diagnostics, Inc. (BDI)		
Name	**Brett Commander, PE**	Years of relevant experience with this employer	32
Title	Vice President / Principal Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			M.S. / 1989 / Structural Engineering / University of Colorado B.S. / 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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/04 – 12/04 11/11 – Present	**Bonnet Carre Spillway Load Testing, Rating, and Monitoring, LA** **Principal-In-Charge.** 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, structural load rating for atypical load configurations, on-site data interpretation, reports and submittal, and providing recommendations for future crossings.
03/07 – 05/07	**Load Testing and Rating of White Bayou I-10 Bridge, LA**. **Principal-In-Charge.** As part of a research project performed by Tulane University, in which various FRP strengthening methods were investigated, BDI performed load testing and rating on this multi-span RC T-beam bridge. Mr. Commander acted as the Principal-in-Charge and oversaw the testing plan development, analysis, load rating, and reporting using DOTD Bridge Design and Evaluation Manual and AASHTO MBE.
05/10 – 08/11	**Judge Seeber Lift Bridge Wire Rope Balancing, LA**. **Principal-In-Charge.** As part of the wire rope replacement on this structure, Mr. Commander implemented a wire rope tension measurement system, using the Taut Cable Vibration Method, that calculated the load distribution of all the cables on each bridge corner real-time. Based on these calculations, Mr. Commander directed the contractor's tightening sequence to balance the loads within each cable bundle to minimize site time.
11/12 – Present	**US-90 Bayou Ramos Bridge Load Testing and Monitoring, LA**. **Principal-In-Charge.** 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. Mr. Commander oversaw live-load and thermal load monitoring that was performed during and after repairs to evaluate the performance of retrofit.

06/14 – Present	**Phinney Avenue Bridge Load Testing, Rating and NDE, WA**. **Principal Engineer.** 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 oversaw testing plan development, field-verified model calibration, load ratings, and reporting.
05/15 – 10/15 02/18 – 08/18	**Truss Monitoring on US 84 Over the Mississippi Bridge, MS** **Instrumentation Subject Matter Expert.** 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. The goal of this monitoring was to validate new pin performance, as well as detect any changes in significant loading conditions during construction due to the expansion joints being seized while the pins were extracted and replaced.
08/18 – 12/20	**Live Load Testing and Field-Verified Load Rating of 16 Bridges, VA** **Principal Engineer.** 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 responsibilities included overseeing testing program development.
07/19 – 12/19	**St. Claude Lift Bridge Balance and Operation Testing, LA** **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.
02/20 – Present	**West Seattle High Bridge NDE and Structural Health Monitoring, WA** **Principal Engineer.** BDI was contracted by Seattle DOT to perform emergency structural monitoring after the bridge was closed to traffic. This bridge was the primary corridor connecting West Seattle to downtown Seattle and I-5. BDI mobilized, installed numerous displacement and crack sensors, and provided an online monitoring and alarm system. This system was used to ensure safe access during subsequent investigations and emergency strengthening construction. Following the bridge closure, BDI also performed NDE to evaluate crack depths, concrete condition, and condition of post-tension ducts and tendons. Results from the NDE investigation were essential to the decision of structure repair or replacement. Once SDOT decided to repair the structure, BDI expanded the structural monitoring with 112 new vibrating wire strain sensors and fiber optic distributed strain measurements over the length of the superstructure. Mr. Commander acted as the principal engineer with respect to NDE and monitoring activities. This included developing and participating in emergency response protocols.
01/21 – Present	**FHWA Structural Health Monitoring (SHM) Current Practice and Web Manual, VA** **Subject Matter Expert.** As part of this research team, Mr. Commander is providing expertise for the development of this manual. It will be a comprehensive and interactive toolbox to guide bridge owners through the myriad of information available and help them understand the benefits, limitations, and best applications of SHM. Starting with a review of the research and practical applications that have developed over the last thirty years, this manual will provide a menu of structural monitoring goals, define the methods that best meet those goals, and provide guidance for system specification as well as required vendor qualifications.

16. Staff Experience:

<table>
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Bridge Diagnostics, Inc. (BDI)</td></tr>
<tr><td>Name</td><td>Brice Carpenter, PE</td><td>Years of relevant experience with this employer</td><td>13</td></tr>
<tr><td>Title</td><td>Senior Engineer / Engineering Department Lead</td><td>Years of relevant experience with other employer(s)</td><td>2</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">M.S. / 2009 / Civil Engineering / New Mexico State University
B.S. / 2007 / Structural Engineering / New Mexico State University</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 39341 / LA / 3/31/2023</td></tr>
<tr><td>Year registered</td><td>2014</td><td>Discipline</td><td colspan="2">Civil Engineer</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Senior Engineer / Engineering Department Lead</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>11/12 – Present</td><td colspan="4">US-90 Bayou Ramos Bridge Load Testing & Monitoring, LA
Field Inspector. 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.</td></tr>
<tr><td>11/11 – Present</td><td colspan="4">Bonnet Carre Spillway Load Testing and Monitoring, LA
Load Rating Engineer. 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.</td></tr>
<tr><td>11/20 – 06/21</td><td colspan="4">Terminal 5 Bridge Load Testing and Rating, WA
Lead Analysis/Rating Engineer. 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.</td></tr>
<tr><td>05/15 – 10/15
02/18 – 08/18</td><td colspan="4">Truss Monitoring on US 84 Over the Mississippi River, MS
Field Engineer. 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.</td></tr>
</table>

08/16–05/17	**Live Load Testing of Eight Culverts and Testing, LA** **Project Engineer.** 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.
08/18 – 12/20	**Live Load Testing and Field-Verified Load Rating of 16 Bridges, VA** **Load Rating Engineer.** As part of BDI's VDOT On-call, load testing and field-verified load rating of 16 structures was performed in the Fredericksburg & Richmond districts. BDI was responsible for the design of load testing requirements, development of instrumentation plans, field work and load testing, NDE based capacity refinement, data analysis, finite element model creation and calibration, and eventual load rating per VDOT and AASHTO requirements. Mr. Carpenter acted as the lead analysis and load rating engineer responsible for data processing, model calibration, and load ratings and reporting according to VDOT specifications.
10/18 – 08/19	**Sunshine Truss Emergency Monitoring, LA** **Project Engineer.** In 2018, the Sunshine Truss Bridge was struck by a crane barge, significantly damaging a bottom chord member. 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. Mr. Carpenter acted as local project engineer responsible for team coordination, field instrumentation work and management, and force calculations and submittal.
07/19 – 12/19	**St. Claude Lift Bridge Balance and Operation Testing, LA** **Project Engineer.** Mr. Carpenter was the project engineer and field/analysis engineer responsible for counterweight/span balance and friction calculations, and also 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.
07/20 – 12/20	**LA507 over I-20 ABC Span Move Monitoring, LA** **Field Engineer.** During the replacement of this bridge, accelerated bridge construction was utilized where spans were cast nearby and moved into place during short outages. Mr. Carpenter was the field/analysis engineer responsible for monitoring plan implementation, instrumentation, monitoring during span moves, on-site data interpretation, and data processing and reporting.
05/21 – 05/21	**Bayou Teche Pier Testing, LA** **Field Engineer.** As part of a DOTD complex inspection task order, BDI helped the inspection team quantify movement observed in the center pier of this swing bridge. During this testing, rotation and displacement of the pier was measured during bridge openings. Mr. Carpenter was the project engineer responsible for testing plan development, instrumentation, testing, data analysis, and reporting.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**David Marcic, PE, SE**	Years of relevant experience with this employer	25
	Title	Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			M.S., Civil Engineering, 1999 B.S., Civil Engineering, 1995
Active registration number / state / expiration date			Professional Engineer: NY / 077478-1 / 6/30/2023; LA pending 2016–NHI Bridge Inspection Refresher Training 2014–NHI Fracture Critical Inspection Techniques for Steel Bridges 2013-NHI Cable Stayed Bridge Seminar 2012–Confined Space, Bridge Inspection Refresher Course 2011–NHI Inspection Non-Destructive Evaluation Showcase BINS Seminar 2011-NHI Inspection & Maintenance of Ancillary Highway Structures
Year registered	2000	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**Complex Bridge Design and Analysis / Load Rating Review**

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).
01/18 – 04/18	**Bascule Bridges 3A and 19A Load Rating and Evaluation, Ontario, CA – St. Lawrence Seaway Management Corporation** **Project Manager** for the load rating and inspection of two rolling-lift bascule bridges, the Welland Canal and Carlton Street Bridges. Led the team responsible for creating comprehensive models that captured various open/closed bridge positions as well as live, wind, and seismic load cases. The team produced ratings for all critical members for live load, special permit loads, and fatigue; and crafted a permit load rating tutorial for the client to conduct load ratings independently for any future permit vehicles.
04/17 – 01/18	**Throgs Neck Suspension Bridge, Bronx, NY – Triborough Bridge and Tunnel Authority** **Bridge Structural Engineer** for the load rating and evaluation of the Throgs Neck Bridge for all AASHTO Special Haul Vehicles. Used analysis models to conduct comprehensive ratings for the floorbeam trusses, the stringers at span, anchorage and tower locations, the deck slab, the stiffening trusses, and the suspension cables.
02/15 – 05/17	**Bay Bridge Deck Replacement Study, Arnold, MA – Maryland Transportation Authority** **Bridge Structural Engineer** responsible for the deck replacement study for the eastbound Bay Bridge truss spans. The study involved the evaluation of multiple deck types, including accelerated construction methods using prefabricated concrete, Exodermic or steel orthotropic systems with improvements to the bridge geometry. The load rating of the trusses was evaluated for the effect of the new deck system weight and associated strengthening methods and cost.

08/97 – 11/06	**Third Avenue Swing Bridge over the Harlem Drive, New York, NY – New York City DOT** **Movable Bridge Structural Engineer** responsible for the evaluation of the modified fender system for the $119 million bridge replacement of the 300-foot-long swing span. The evaluation included the creation of a 3D computer model using LARSA software to determine the load rating capacity of the retrofit structure.
01/14 – 03/14	**Staging Dock Inspection and Analysis, Arnold, MA – Maryland Transportation Authority** **Structural Engineer** responsible for the condition evaluation and load rating of the existing timber staging dock at the Bay Bridge Facility. Developed an inspection report and load rating findings for the deteriorating structure. This task also included the development of a concept study for the rehabilitation or replacement of the structure, including preliminary construction cost estimates and schedule.
12/15 – 06/16	**Bridge 19 Over Welland Canal Emergency Reparis, Ontario, Canada – New Jersey DOT** **Project Manager** responsible for the inspection and preparation of rehabilitation plans for the emergency repairs to the bottom flange of the south girder for the movable rolling lift due to a vessel impact. The scope included site investigation to determine the current condition of the bridge after impact and the current safe load capacity of the structure. In addition, H&H made recommendations regarding the operating conditions that should be followed for the safe operation of the bridge. Scope also included the development of analytical models to assess the structure and development of repair and strengthening plans for members affected by the impact.
03/15 – 08/15	**Live Load Rating and Seismic Evaluation, Ontario, Canada – St. Lawrence Seaway Management Corporation** **Project Manager** for vertical lift highway bridge on the Welland Canal. Responsible for live load rating and seismic evaluation of this vertical lift bridge as per Canadian bridge code. The project included site visits, developing two 3D models of the bridge in CSI Bridge, analysis of the towers, lift truss and floor system (crossbeams, stringers and floorbeams) for dead, live, wind, and seismic loads. Load rating of the lift truss and floor system for live loads, legal loads and permit trucks as per the Canadian bridge code were performed.
01/05 – 12/16	**Bridge Engineering Services, Statewide, MD – Maryland SHA** **Lead Structural Engineer** responsible for structural engineering services for multiple cycles of this Contract. Mr. Marcic was the Inspection Team Leader for complex bridges (Thomas Johnson Bridge) and movable bridge inventory. Load Ratings were performed for the steel superstructure elements in the bascule span of the Snow Hill and the Woodrow Wilson bascule bridges. SHA design trucks and special permit trucks were used in the analysis to develop the Inventory and operating ratings for the girders, floorbeams and stringers. Strain gage balance testing has also been performed. Strain data was recorded and analyzed from the Chester River Bridge to establish a base-line balance condition of the bridge prior to a painting and rehabilitation contract.
01/17 – 01/19	**Major Rehabilitation Design for Bridge 6, St. Catherine's, Ontario – St. Lawrence Seaway Management Corporation** **Lead Structural Engineer** responsible for structural engineering services for multiple cycles of this contract. Served as Inspection Team Leader for complex bridges (Thomas Johnson Bridge) and movable bridge inventory. Load Ratings were performed for the steel superstructure elements in the bascule span of the Snow Hill and the Woodrow Wilson bascule bridges. SHA design trucks and special permit trucks were used in the analysis to develop the Inventory and operating ratings for the girders, floorbeams and stringers. Strain gage balance testing has also been performed for SHA under this ongoing Contract. Strain data was recorded and analyzed from the Chester River Bridge in order to establish a base-line balance condition of the bridge prior to a painting and rehabilitation contract.

16. Staff Experience:

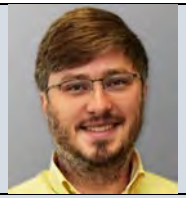
	Firm Employed by	Hardesty & Hanover		
	Name	**Roberto Viciedo, PE**	Years of relevant experience with this employer	23
	Title	Structural Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			B.S. / 1995 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0036533 / LA / 03/31/2022
Year registered	2011	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Bridge Load Rating Engineer**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/18 – 06/19	**SR 609 Bascule Bridge over Old Fort Bayou Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Structural Engineer** 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.
12/15 – 01/19	**Camino Real Bridge over ICWW, Boca Raton, FL – Palm Beach County** **Structural Engineer** 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.
07/12 – 02/18	**Hillsborough Avenue Vertical Lift Bridge over Hillsborough River Rehabilitation, Tampa, FL – Florida DOT** **Structural Engineer** responsible for design 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.
07/07 – 12/08	**Harlem River Vertical Lift Span Bridge Rehabilitation, New York, NY – MTA Bridges and Tunnels** **Structural Engineer** responsible for the review of shop drawings and design calculations of the paint containment system including work platforms and tarps for the cleaning and painting of the Harlem River lift span and approach spans.
09/98 – 04/06	**US 92 Hillsborough Avenue Lift Bridge Rehabilitation, Tampa, FL – Florida DOT** **Movable Bridge Chief Engineer** 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 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.
05/10 – 12/16	**SFRTA Railroad Bridge over New River Rehabilitation, Fort Lauderdale, FL – Florida DOT** **Task Leader** responsible for the design of rolling-lift bascule span superstructure and also served as project manager of construction support services. Overall scope included preliminary PD&E study and final design for the off-line replacement of a single-leaf heavy rail bridge owned and operated by SFRTA and used by CSX Freight and Tri-Rail as an alternate route. The project included inspection of the structural, mechanical, and electrical systems and the development of rehabilitation and replacement options (swing and bascule span) with conceptual drawings, alignments, and cost estimates. The preferred alternative consisted of three 41-foot prestressed concrete approach spans and a 103-foot rolling-lift-span designed using the AREMA code.
02/13 – 10/17	**Bay Harbor Causeway Bascule Span Rehabilitation, Bay Harbor Island, FL – Florida DOT** **Structural Engineer** responsible for the design of the movable span sidewalk replacement for the Bay Harbor Bridge rehabilitation which included structural steel superstructure painting, concrete spall and crack repairs to the substructure, cathodic protection, bridge railing repair, structural steel repair, as well as machinery and electrical repairs to span operating systems.
06/97 – 12/01	**SR 84 Bridge over South Fork New River, Davie, FL – Florida DOT** **Structural Engineer** 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.
02/08 – 12/10	**SR-5 / US-1 Parker Bascule Bridge Rehabilitation, Palm Beach, FL – Florida DOT** **Project Engineer** 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
09/07 – 10/09	**SR-814 / Atlantic Boulevard Bascule Bridge Rehabilitation, Pompano Beach, FL – Florida DOT** **Project Engineer** 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 hydraulic machinery retrofit; electrical system improvements, control house modifications, and bascule span structural steel rehabilitation and bridge railing replacement.
01/98 – 08/07	**SR 786/PGA Boulevard Bascule Bridge Rehabilitation, Palm Beach Gardens, FL - Florida DOT** **Structural Engineer** 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.

16. Staff Experience:

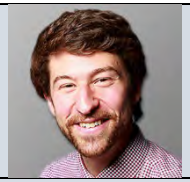
	Firm Employed by	Hardesty & Hanover		
	Name	**Erik Diaz, PE**	Years of relevant experience with this employer	2
	Title	Structural Engineer	Years of relevant experience with other employer(s)	11

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 FHWA-NHI-130055 Safety Inspection of In-Service Bridges Maintenance & Rehabilitation of Historic Bridges (LADOTD)
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Bridge Load Rating Engineer

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
07/16–07/17	**Two US-11 Bascule Bridges over Lake Ponchartrain Rehabilitation, Jefferson and St. Tammany Parishes, LA – LADOTD** **Senior Movable Bridge Structural Engineer** 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.
01/20 – Present	**Almonaster Avenue Railroad Bridge of the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans** **Movable Bridge Structural Engineer** 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&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&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.
08/19 – 08/20	**SR-605 Bascule Bridge Over Industrial Waterway, Harrison County, MS – Mississippi DOT** **Movable Bridge Senior Structural Engineer** performed the bridge load rating for movable bridge and fixed bridge approaches. Contributed to structural design for the comprehensive rehabilitation of this bascule bridge over the Industrial Waterway. Work on this project included design and detailing of a new PPC pile-supported reinforced concrete generator platform as well as the design and detailing of steel access improvements. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications.
10/14 – 12/15	**Bridge Ratings for 110 Bridges, Statewide – LADOTD** **Movable Bridge Structural Engineer** 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	**Houma Navigation Canal Bridge Rehabilitation, Houma, LA – LADOTD** **Movable Bridge Structural Engineer** responsible for performing bridge inspections to identify repairs for rehabilitation as well as providing bridge rating to identify areas for strengthening. Also, designed and detailed various elements for bridge rehabilitation.
08/19 – Present	**Lapalco Boulevard Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana – Jefferson Parish DPW** **Movable Bridge Structural Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco 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.
08/19 – 02/20	**SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Movable Bridge Senior Structural Engineer** 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.
08/19 – 10/19	**Seabrook Bascule Bridge Bearing Repairs, New Orleans, LA – Port of New Orleans** **Movable Bridge Field Engineer** for the construction of repairs to the concrete bent cap at the toe of the span. Work on this project included design of bent cap strengthening due to cracking at bridge bearing, tracking contractor progress and construction compliance with design plans. Preparation of final acceptance report upon completion of construction.
12/15 – 08/19	**Replacement of Swing Bridge with New Vertical Lift, Sweeny, TX – UPRR** **Senior Movable Bridge Structural Engineer** for the design and construction of a new through plate girder vertical lift bridge over the San Bernard River near Sweeny Texas. The project included design of new steel through plate girder vertical lift, bridge protection cell (dolphin), approach spans and construction management. This project also included emergency bridge repairs due to failure of bridge pier from scour produced by Hurricane Harvey flooding.
11/18 – 08/19	**Comite River Diversion East, Baton Rouge Parish, LA – UPRR & USACE** **Senior Structural Engineer Representative** 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.
08/15 – 02/19	**Vermillion River Vertical Lift Bridges Rehabilitation, Vermillion Parish, LA – LADOTD** **Senior Structural Engineer** 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.
10/08 – 04/13	**Huey P. Long Bridge Over The Mississippi River, Bridge City, LA - New Orleans Public Belt Railroad And Louisiana DOTD** **Movable Bridge Structural Engineer** 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.

16. Staff Experience:



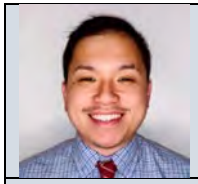
Firm Employed by	Hardesty & Hanover		
Name	**Jordan Warncke, PE, SE**	Years of relevant experience with this employer	10
Title	Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			MS / 2013 / New Jersey Institute of Technology BS / 2011 / Lehigh University BA / 2011 / Lehigh University
Active registration number / state / expiration date			Professional Engineer: 095213 / NY / 11/2023 Structural Engineer: 081008323 / IL / 11/30/2022
Year registered	2015	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			Load Rating Engineer for Complex Structures

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).
02/16 – 02/17	**2016 Biennial Inspection of The Robert F. Kennedy Harlem Lift Bridge | New York, NY – MTA Bridges and Tunnels** **Structural Engineer** responsible for load ratings of the Harlem River Lift Bridge and associated ramp structures of the Robert F. Kennedy Bridge.
03/14 – 03/15	**2014/2015 Biennial Inspection of The Robert F. Kennedy Suspension Bridge, New York, NY – MTA Bridges and Tunnels** **Team Leader** and **Assistant Team Leader** 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 includes 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, 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. Responsible for developing NYSDOT Inspection Reports. Responsible for noting all deficiencies observed during inspection, creating field sketches, and updating and verifying the Bridge Inventory data.
01/13 – 08/13	**Ouachita River Bridge, Monroe, LA - Louisiana State DOT** **Structural Engineer** responsible for design, inspection, and direct coordination with contractor throughout the project. The Ouachita River Bridge is a double-leaf Strauss Bascule bridge constructed in the early 1930s. Hardesty & Hanover provided structural and mechanical support for the replacement of the counterweight trunnion and hanger plates. Responsible for performing a preliminary inspection of the counterweight hanger plates, bascule girder, and counterweight trunnion housing of the existing bridge. Responsible for developing and designing a jacking scheme to relieve the load in the hangers to allow the counterweight trunnion to be replaced. Designed grillage to support the counterweight during completion of work. Developed a jacking procedure and specifications for the project. Responsible for designing the splice connection of the new hanger plates to the existing counterweight. Designed retrofits to the bridge sidewalk, counterweight concrete, and bascule pit access

	platform that was removed to access the counterweight trunnion. Responsible for coordinating with contractor to determine field conditions and construction limitations. Reviewed all structural steel shop drawings. Resident engineer during assembly of the grillage and jacking assembly, and jacking of the counterweight.
02/15 – 02/16	**2015 Biennial Inspection of The Henry Hudson Bridge, New York, NY – MTA Bridges and Tunnels** **Assistant Team Leader** for the biennial inspection of the Henry Hudson Bridge. The Henry Hudson Bridge is a bi-level steel arch bridge with an 840-foot arch span over Spuyten-Duyvil Creek and Metro North Railroad. The inspection adhered to NYSDOT and TBTA-specific requirements, and included bridge elements such as arch ribs, spandrel columns, skewback foundations, structural steel and concrete columns and framing members, and abutments.
01/15—01/16	**2015 Biennial Inspection of Rainbow Bridge And Lewiston-Queenston Bridge; Interim Inspection of Whirlpool Rapids Bridge | Niagara Falls, NY - Niagara Falls Bridge Commission** Assistant Team Leader responsible for performing hands-on structural inspection, report preparation and repair recommendations for 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 beam approach spans. Inspection included fracture critical elements such as arch ribs, spandrel columns and girders, and approach box beams and floorbeams. Inspection scope also 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. Also performed interim inspection of a two-hinged bi-level steel truss arch bridge and its plate girder railway approach spans.
04/13 – 12/17	**The Gut Bridge (Bascule Bridge), South Bristol, ME - Maine DOT** **Structural Engineer/Load Rating Engineer** responsible for the detailing and designing of the superstructure and 3D finite element analysis. The Gut Bridge is a single-leaf cable stayed bascule bridge replacing an existing bobtail swing bridge. Responsible for preliminary design and layout of the superstructure and examining the possibility of different deck types. Responsible for developing conceptual drawings of the bascule girder and tower to be presented to the public and DOT. Performing preliminary and final balance calculations for bridge and designed the counterweights. Detailing superstructure connections, girder splice, and counterweight access hatches. Performing 3D finite element analysis of various orthotropic deck options subjected to live load.
08/11 – 05/12	**Murray Morgan Bridge Rehabilitation | Tacoma, WA - City Of Tacoma** **Structural Engineer** for the rehabilitation of the Murray Morgan Bridge. H&H provided project management for full structural, mechanical and electrical rehabilitation on this 100-year-old lift bridge. Responsible for calculating the haunch depths on several proposed approach spans and developing a GeoMath model as a check. Responsible for drafting and designing repairs based on H&H's 2011 Inspection Report and seismic analysis. Repairs included retrofitting buckled and bent members, designing additional braces and diaphragms to stiffen existing structure, and replacement in kind. Responsible for drafting and designing features of a new 125-foot elevator to provide ADA access to the structure. Worked with Project Engineer to respond to RFIs. Provided estimates of quantities and cost of repairs.

16. Staff Experience:

<table>
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Lihn-Thien Kim, EI</td><td>Years of relevant experience with this employer</td><td>1</td></tr>
<tr><td>Title</td><td>Structural Designer</td><td>Years of relevant experience with other employer(s)</td><td>2</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">BS / 2017 / Civil Engineering</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Engineer Intern: 0033538 / LA / 3/31/2022</td></tr>
<tr><td>Year registered</td><td>2017</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="2">Contract role(s) / brief description of responsibilities</td><td colspan="3">Structural Engineer / Bridge Load Rating</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>07/20 – Present</td><td colspan="4">Almonaster Avenue Railroad Bascule Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans
Movable Bridge Engineer Intern 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&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&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.</td></tr>
<tr><td>07/20 – 12/20</td><td colspan="4">SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT
Movable Bridge Engineer Intern 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.</td></tr>
<tr><td>11/20 – 02/21</td><td colspan="4">Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans
Movable Bridge Engineer Intern 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.</td></tr>
<tr><td>06/19 – 09/19</td><td colspan="4">Annual Inspection of Seabrook Railroad Bascule Bridge, New Orleans, LA – Port of New Orleans
Movable Bridge Engineer Intern 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.</td></tr>
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07/20 – 12/20	**Lake Pontchartrain Causeway Safety Bay Improvements CE&I , Jefferson and St. Tammany Parishes, LA – Greater New Orleans Expressway Commission** **Engineer Intern** 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.
09/20 – 10/20	**Various Repairs of the Almonaster Avenue Railroad Bascule Bridge, New Orleans, LA – Port of New Orleans** **Movable Bridge Engineer Intern** 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.
01/19 - 04/19	**H.009498.5: LA 121: Calcasieu River Bridge – LADOTD** **Civil Engineer Intern**. Designed and detailed an LG-36 (I-Beam) Concrete Prestressed Girder Bridge using continuous deck spans on a horizontal curve with a 5% slope. The continuous deck spans were 240-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.
03/19 – 04/19	**H.010916.6: Prien Lake Re-Deck & Safety Improvements – LADOTD** **Civil Engineer Intern**. 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.
04/19 – 04019	**H.011159.6: Caroll Street bridge/ Bayou Black Bridge – LADOTD** Civil Engineer Intern. Completed shop drawing checks for steel bridge railing designed for this project.
05/19 – 07/19	**H.003184.5: I-10: Texas State Line - East of Coone Gully – LADOTD** **Civil Engineer Intern**. 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	**H.012739.6: I-20 MRB At Vicksburg Overlay and Rehabilitation – LADOTD** **Civil Engineer Intern**. 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	**H.000303.6: Danziger Bridge Rehabilitation – LADOTD** **Civil Engineer Intern.** 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.

16. Staff Experience:

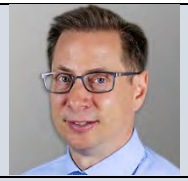
	Firm Employed by	Hardesty & Hanover		
	Name	**James Newberry, PE, SE**	Years of relevant experience with this employer	3
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	9

Degree(s) / Years / Specialization			MS. / 2006 / Civil Engineering BS. / 2006 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 73365 / FL / 02/28/2023
Year registered	2011	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Design Engineer for Bridge Assessment and Repair**

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).
08/16 – 02/17	**Hillsborough River Vertical Lift Bridge Repair, Tampa, FL – Florida DOT** **Movable Bridge Structural Engineer r**esponsible 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	**Sargent Barge Swinging Barge (Platoon) Bridge Rehabilitation, Matagorda County, TX – Texas DOT** **Movable Bridge Structural Engineer** 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	**Tamiami Swing Bridge Emergency Repairs, Miami, FL – Florida DOT** **Movable Bridge Structural Designer** 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 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.

06/05 – 06/09	**Anna Maria Island (SR 64) over Gulf IWW Bascule Bridge Rehabilitation, Bradenton, FL – Florida DOT** **Movable Bridge Structural Designer** 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.
07/07 – 02/08	**Wilson Pigott (SR 31) over Okeechobee Waterway Bascule Bridge Rehabilitation, Fort Myers, FL – Florida DOT** **Movable Bridge Structural Designer** 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.
03/09 – 12/10	**LaBelle Drawbridge (SR 29) Repairs & Rehabilitation, Labelle, FL – Florida DOT** **Movable Bridge Structural Designer** 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.
01/19 – Present	**Beckett Bridge Replacement, Tarpon Springs, FL – Pinellas County** **Movable Bridge Structural Designer** 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.
12/16 – 02/17	**Longboat Pass Bridge Bascule Span Condition Assessment Report and Load Rating, Manatee County, FL – Florida DOT** **Movable Bridge Structural Engineer** responsible for drafting report and cost estimate, conducted structural inspection of bascule span and load rated the existing bascule span structural steel elements. The objective of the report, cost estimate, and load rating was to identify deficiencies of the bascule span that required repairs in the next ten years, including structural, mechanical, and electrical items.

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	Structural and Civil Engineering
Contract role(s) / brief description of responsibilities			Bridge Design Engineer for Structural Repair/Rehabilitation

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).
02/15 – 06/18	**Norwalk River (Route 136) and Yellow Mill (Route 130) Bascule Bridges Storm Hardening Design Services – Connecticut DOT** **Project Manager** for the rehabilitation and storm hardening of these bridges, damaged by flooding due to Superstorm Sandy. Directly responsible for structural, mechanical, & 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.
09/16 – 01/21	**ConnDOT Task Order Bridge Rehabilitation and Replacement Program, Statewide – Connecticut DOT** **Project Manager** responsible for managing the preliminary and final design and load ratings for DOT-issued task orders for previously assessed and listed CTDOT-owned bridges. This multi-year program includes bridge preservation, bridge component rehabilitation, and bridge replacement projects along with adjoining highway, roadway, and safety upgrades as necessary.
03/11 – 04/13	**Murray Morgan Vertical Lift Bridge Rehabilitation Design-Build, Tacoma, WA – City of Tacoma** **Movable Bridge Structural Engineer in Charge/QC Engineer** 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.
02/16 – 11/17	**Chapel Street Swing Bridge Rehabilitation & Painting, New Haven, CT – City of New Haven** **Project Manager** for the design of the Phase 1 Rehabilitation and the Phase 2 Painting contracts. Project included mechanical and electrical component replacement, selective superstructure rehabilitation, substructure, and fender work.
05/15 – 03/16	**East Washington Avenue Strauss Bascule Bridge, Bridgeport, CT – City of Bridgeport** **Project Manager** for the recommendation report to restore this flood-damaged bridge to service. Responsible for management of the H&H's mechanical and electrical design team needed to identify failed systems and components to restore the bridge to operation.

02/10 – 12/10	**Fairhaven-New Bedford Swing Bridge Rehabilitation, New Bedford, MA – Massachusetts DOT** **Movable Bridge Project Engineer** 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.
11/09 –12/09	**First Lieutenant Derek S. Hines Memorial Swing Bridge Design-Build, Amesbury MA – Massachusetts DOT** **Lead Movable Bridge Structural Engineer** 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.
03/09 – 04/10	**Craigie Dam Drawbridge Rehabilitation, Cambridge MA – Massachusetts Dept. of Conservation & Recreation** **Movable Bridge Project Engineer** 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.
07/15 – 03/17	**Sarah M. Long Vertical Lift Bridge, Portsmouth, NH & Kittery, ME – Maine DOT** **Movable Bridge Structural Project Engineer/Quality Assurance Manager** 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. The selection of a best-fit structure considered bridge engineering, vessel collision resistance, span operation, aesthetics, and construction.
12/11 – 05/12	**Saugus Drawbridge Rehabilitation, Saugus, MA – Massachusetts Bay Transportation Authority** **Movable Bridge Structural Project Engineer/QC Engineer** responsible for the analysis and design supervision for this project involving comprehensive modeling, ratings analysis of as-inspected conditions, real-time structural monitoring, and resultant strengthening of an existing pier compromised by extensive structural deterioration.

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 / 3/31/2022 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			**Complex Bridge Design and Analysis**

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).
11/10 – Present	**On-Call Bridge Design Services, Statewide, DE – Delaware DOT** **Bridge Design Manager** responsible for the on-call bridge design services agreements; assisting with coordination of design, project scheduling, performance oversight of the multidisciplinary team, QA/QC of plans, special provisions and estimates, and construction support services. Tasks have included the emergency design/construction phase services to rehabilitate the mechanical and electrical systems on the Seaford Drawbridge and the Cedar Creek Swing Bridge. Led H&H's effort to prepare the new and updated 2015 DelDOT Bridge Design Manual for DelDOT.
11/10 – 06/13	**Curtis Creek Bascule Bridges, Baltimore, MD – Maryland Transportation Authority** **Bridge Design Lead** 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. 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.
05/06 – 06/09	**John James Audubon Bridge over the Mississippi River, St, Francisville, LA – Louisiana DOTD** **Bridge Design Engineer** 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.

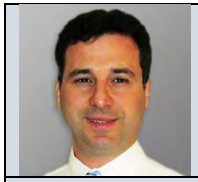
11/10 – 06/17	**On-Call Movable Bridge Condition Inspection/Design Services Contract, Statewide, MD – Maryland State Highway Admin.** **Bridge Design Manager** responsible for design and construction tasks related to complex and movable bridges. Duties included planning and executing the structural, 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&A and Pontis; and QA/QC of all reports.
02/13 – 02/16	**On-Call Bridge Design Consultant Services, Baltimore, MD – City of Baltimore DOT** **Bridge Design Engineer** providing on-call bridge design services including bridge replacement or rehabilitation designs, geotechnical design services/soil borings, right of way appraisals/documentation, permitting, roadway design, pavement design, and ADA pedestrian facilities. Work also included storm drainage, street lighting, electric duct banks, traffic control, erosion and sediment control, surveys, landscaping, planning, environmental site assessments, NEPA clearance, writing specifications, developing cost estimates, preparing advertisement contract documents, shop drawing reviews, construction phase services and reviews, coordination with utility/owners/outside agencies. Included was Hanover Street Bridge rehabilitation and Phoenix Road Bridge replacement plans.
02/11 – 08/12	**Pennington Avenue Bridge over Curtis Creek, Baltimore, MD – City of Baltimore DOT** **Bridge Design Manager / QA/QC Engineer** 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.
11/10 – 06/17	**Movable Bridge Condition Inspection, Evaluation and Design Contract Services, Statewide, MD – Maryland SHA** **Bridge Design Manager** 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&A and Pontis; and QA/QC of all reports.
01/11 – 01/12	**Francis Scott Key Bridge Facility, Baltimore, MD – City of Baltimore DOT** **Bridge Design Engineer** responsible for the completion of the 2011 I-695 drawbridge inspection. Responsibilities include planning the inspection, inspection of the bascule span mechanical components, and report preparation. The I-695 drawbridge comprises twin, double-leaf bascule spans carrying four lanes of highway over Curtis Creek.

16. Staff Experience:

<table>
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>Stephen Mikucki, PE</td><td>Years of relevant experience with this employer</td><td>27</td></tr>
<tr><td>Title</td><td>Senior Mechanical Engineer</td><td>Years of relevant experience with other employer(s)</td><td>1</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">BE / 1990 / Mechanical Engineering</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 44849 / LA / 3/31/2023</td></tr>
<tr><td>Year registered</td><td>1983</td><td>Discipline</td><td colspan="2">Mechanical Engineering</td></tr>
<tr><td colspan="2">Contract role(s) / brief description of responsibilities</td><td colspan="3">Complex Bridge Design & Analysis for Mechanical Systems</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">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).</td></tr>
<tr><td>01/20 – Present</td><td colspan="4">Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans
Movable Bridge Mechanical Systems Expert 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&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&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.</td></tr>
<tr><td>01/13 – 08/13</td><td colspan="4">Lea Joyner / Ouachita River Bascule Bridge Rehabilitation, Monroe, LA – Louisiana DOTD
Movable Bridge Mechanical Systems Expert 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&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 & 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.</td></tr>
</table>

11/15 – 09/17	**Broadway Bridge Rall Wheel and Track Rehabilitation, Multnomah County, OR – Multnomah County** **Movable Bridge Movable Bridge Lead and Mechanical Designer f**or the design quality review and construction and fabrication support services performed by H&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 & 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.
04/15 – 07/17	**Morrison Street Bascule Bridge Rehabilitation, Portland, OR – Multnomah County** **Project Manager** for the inspection, analysis, and machinery systems modifications for this existing bascule bridge constructed circa 1958. To improve ride-ability of the roadway deck, the County selected David Evans and Associates to replace the existing FRP deck with a lightweight concrete system. H&H was selected as a sub-consultant to analyze the mechanical systems, strengthen the trunnion assembly, modify the span drive machinery and brake systems, and rehabilitate the span toe locks. To accommodate for the significant addition of weight to the structure, an innovative trunnion collar strengthening connection was developed, and efficiently balancing the bridge by conceptualizing the addition of steel plate to the back wall of the counterweight frame.
01/13 – 03/15	**Spuyten Duyvil Swing Bridge Rehabilitation, New York, NY – AMTRAK** **Movable Bridge Movable Bridge Lead** for the mechanical and electrical coordination items for this major structural, mechanical, and electrical rehabilitation for the $12 million Amtrak project consisting of a 286-foot, two-track railroad truss swing bridge and three, through truss approach spans. The extensive reconstruction of this swing bridge included new electrical controls, new mechanical drive systems, a new control-machinery house, and structural rehabilitation of steel components and pier tops—all accomplished while maintaining the overall appearance of this 1899 vintage bridge.
11/15 – 03/16	**Duluth Aerial Lift Bridge Rehabilitation, Duluth, MN – City of Duluth** **Project Manager** for emergency evaluation of broken strands found by maintenance forces at the vertical lift span operating ropes. Simultaneous to the evaluation and temporary repairs to maintain operation, H&H was selected by the City and prime consultant to provide staging plans and wire rope replacement selection based on available materials to replace the damaged wire rope.
10/08 – 09/15	**Alford Street Bascule Bridge Rehabilitation, Boston, MA – City of Boston** **Movable Bridge Movable Bridge Lead** for this $57 million bridge rehabilitation project, which includes the full replacement of twin-leaf, dual bascule bridge span and seven slab-on-stringer fixed approach spans. Substructure rehabilitation of the Alford St. Bridge includes new reinforced concrete pier caps, new reinforced bascule pier walls and a soil anchor seismic retrofit for existing abutments. Responsible for final PSE plan development, final project submission, and field commissioning efforts during bridge acceptance testing.
10/13 – 05/14	**Marine Parkway Vertical Lift Bridge Rehabilitation, New York, NY – MTA Bridges and Tunnels** **Movable Bridge Mechanical Engineer** responsible for the peer review of documents prepared by a rehabilitation consultant. As part of the peer review, discovered the operational issues at the central differential gear clutch that provided clarity in defining the scope of work items. Testing of tension in counterweight ropes and overseeing the adjustment of tension by the contractor based on the H&H procedures. Provided a constructability review of the 70% plans rehabilitation plans; key elements included strain gage measurements and alignment issues that identified the cause of the reported and ongoing span skew and balance issues. Prepared the maintenance manual for the major electrical and mechanical components for the Marine Parkway Bridge as well as the Harlem River Lift Bridge**.**

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Matthew Gagliano, PE**	Years of relevant experience with this employer	22
	Title	Senior Mechanical Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			M.S., Mechanical Engineering, 2018, Fairfield University B.E., 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			**Complex Bridge Design and Analysis of Mechanical Systems**

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).
03/17 – Present	**Saugus Rolling Lift Bascule Drawbridge over Saugus River, Saugus, MA – Massachusetts Bay Transportation** **Lead Movable Bridge Mechanical Engineer** 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, span locks and **HVAC and plumbing** for the new control house.
03/17 – Present	**Bridge MB106.89 over Connecticut River, Old Saybrook, CT – AMTRAK** **Lead Movable Bridge Mechanical Engineer** 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 the span locks, tail locks, **HVAC and plumbing** for the new control house.
07/05 – 01/10	**SR 7 / NW 5th Street Bridge Replacement over the Miami River, Miami, FL – Florida DOT** **Lead Movable Bridge Mechanical Engineer** on a bascule bridge replacement project. Responsibilities included conducting a needs analysis and developing mechanical designs which involved calculations to properly size the operating machinery and locking systems. Also designed the **HVAC and plumbing** systems for the control house and provided construction support. The replacement design of 180-foot-long double-leaf simple trunnion bascule span bridge utilized the appearance of a deck truss Chicago style Trunnion bascule span to fit in with the historic and aesthetic character of the Miami's Little Havana community. The bascule bridge project also included control tower, approach roadways and greenway riverwalk design.
02/13 – 12/18	**Tom Adams Bascule Bridge Rehabilitation, Charlotte County, FL – Charlotte County** **Lead Movable Bridge Mechanical Engineer** on a rehabilitation project for a double-leaf bascule span carrying four lanes of traffic. Designed the **HVAC and plumbing** 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.
07/18 – Present	**Gateway Express, Pinellas County, FL – Florida DOT** **Lead Movable Bridge Mechanical Engineer** on this Gateway Express improvement project. Responsibilities included the planning and engineering design of **HVAC system** for expressway toll equipment room. The project will deliver toll facilities and needed limited and controlled access connections from the Bayside Bridge, US-19 and the St. Pete Clearwater International Airport to I-275. H&H is developing

	Alternative Technical Concepts (ATC), the overall toll facility design, and plans production for three non-accessible cantilever gantry locations and one non-accessible span gantry location. H&H's scope on this design/build project includes contributing to FDOT's ATC (Alternative Technical Concepts) process; developing Traffic Control Plans (TCP) design and structures design for four bridges.
03/18 – Present	**SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Movable Bridge Mechanical Engineer** 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 included the 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. His responsibilities included design of **HVAC system and new water distribution and sewer** including the vent system. All designs were created in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. The project is currently in the construction phase.
01/21 – Present	**Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans** **Sr. Mechanical Engineer** 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&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. His responsibilities included design of **HVAC system, plumbing,** and the **sewer system.**
01/16 – 11/18	**Spuyten Duyvil Swing Bridge over the Harlem River Rehabilitation, New York, NY– AMTRAK** **Movable Bridge Mechanical Engineer** for final design on rehabilitation of this railroad bridge's movable span. Responsible for developing the mechanical engineering designs, design computations, modeling, and production of contract drawings for innovative replacement of swing bridge rim bearing with four bogie assemblies. Performed finite element analysis to optimize the bogie frame. Reviewed shop drawings, performed construction inspections, and attended construction process meetings. The bridge's mechanical and electrical systems were damaged in 2012 by Super Storm Sandy. The project included rehabilitation of the center bearing, end machinery systems, electrical systems, and masonry at the piers.
06/19 – Present	**East Haddam Swing Bridge over the Connecticut River, East Haddam, CT – Connecticut DOT** **Movable Bridge Mechanical Engineer** 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.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Raymond Lopez, PE**	Years of relevant experience with this employer	10
Title	Senior Electrical Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			ME / 2010 / Systems al Engineering BE / 2010 / Electrical Engineering NCEES
Active registration number / state / expiration date			Professional Engineer: 101626 / NY / 6/30/2022
Year registered	2017	Discipline	Electrical and Computer Engineering
Contract role(s) / brief description of responsibilities			**Complex Bridge Design and Analysis of Mechanical Systems**

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).
12/14 – 12/15	**BNSF Swing Railroad Bridge 32.06 over Bayou Des Allemands Rehabilitation, Des Allemands, LA – BNSF Railway Company** **Electrical Engineer** responsible for the development of final machinery design and construction contract documents for the Des Allemands Swing Span bridge rehabilitation, deck plate girder bridge, which included the evaluation and rating of swing span substructure and the replacement of the swing span and associated mechanical and electrical components. Also performed electrical inspection during rehabilitation, ensuring compliance with construction documents and National Electrical Code requirements. Reviewed switchgear and motor control shop drawings coordinated electrical construction with project construction, modified contract designs to suit field conditions, interfaced between the designer and the contractor, and performed additional inspection duties as required.
04/19 – Present	**SR 605 Bascule Bridge Rehabilitation, Ocean Springs, MS – Mississippi DOT** **Electrical Engineer** contributing to 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 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.
04/12 – 06/18	**Port Clinton Bascule Bridge Rehabilitation, Port Clinton, OH – Ohio DOT** **Electrical Engineer** for Option Study to determine bascule span replacement/rehabilitation options for the Port Clinton Bascule Bridge and subsequent final design and engineering support during construction of the selected alternative. Responsibilities included prepared design drawings, calculations for equipment sizing, bill of materials, cost estimates, and construction support services. The three-span bridge includes a 99-foot double-leaf bascule main span flanked by steel girder approach spans. The bridge was built in 1933. The study examined movable span superstructure rehabilitation and replacement options. The new design consisted of electrical system replacement, which included a new PLC-based control system, flux vector drives, conduit system, traffic control devices, and off-site remote control operations.

12/14 – 11/15	**Bayou Sara Railroad Swing Bridge Rehabilitation, Mobile, AL – CSX Transportation** **Electrical Engineer** responsible for the design of electrical power and control systems for the replacement of a railroad swing span. The design included a PLC-based control system, hydraulically-driven machinery, conduit system, CCTV system, and off-site remote control operations.
10/16 -- 09/17	**Sault Ste. Marie M/E Upgrades to Three Movable Bridges, Sault Ste. Marie, MI & Ontario– CN Railway** **Lead Electrical Engineer** for detailed electrical inspections and rehabilitation of three side-by-side movable spans, two in Michigan, one in Canada. The bridges included a double-leaf Strauss bascule span, a swing span, and a vertical lift span. The scope of work for the swing and vertical lift span consisted of full electrical rehabilitation that included 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.
10/14 – 11/16	**RFK Bridge Harlem River Vertical Lift Bridge, New York, NY – MTA Bridges and Tunnels** **Electrical Engineer** responsible for the electrical rehabilitation for a 310-foot-long Warren truss type, vertical lift. Work included replacement of the auxiliary motors/PLC system, developing a simulator training kit, installation of flux vector drives, replacement of various miscellaneous limit switches, and reconfigured control system so main/auxiliary systems are independent.
01/16 – 03/17	**Hastings Swing Bridge over the Trent-Severn Canal, Hastings, Ontario – Public Works & Government Services Canada** **Electrical Engineer** for the replacement of this 1952 two-span through girder swing bridge, constructed using built-up, riveted girders, and located at Lock 18 of the Trent-Severn Canal. The entire superstructure was replaced, with repairs made to the pivot pier and abutment walls. The rehabilitation involved new bridge machinery, which included a new two-piece center pivot bearing system, span drive hydraulics, balance wheels, hydraulic eccentric end lift supports, live load bearings, and span centering device. The hydraulic system was upgraded to support the complete hydraulic operation of the span and provide reliable operation throughout the year for Parks Canada. The electrical control system was also replaced to compliment new hydraulics and promote easier span operation
04/15 – 05/15	**Benjamin Harrison Vertical Lift Bridge over the James River, Hopewell, VA – Virginia DOT** **Electrical Engineer** responsible for an electrical condition inspection of a vertical-lift bridge with a 363-foot lift span and two 241-foot truss flanking spans. The inspection consisted of assessing the condition of the complete electrical installation including the electric utility service to the bridge, the main distribution switchgear, and motor control equipment, submarine cables, span lock electrical drives, traffic control systems, marine navigation lighting, and the bridge control system.
06/11 – 06/14	**Walnut Street and Tayco Street Bascule Bridges, Brown and Winnebago Counties,WI – Wisconsin DOT** **Movable Bridge Electrical Engineer** responsible for responsible for the design, drafting and calculations of a new bridge specific electrical system upgrades for a double-leaf bascule bridge (Walnut) and a single-leaf bascule bridge (Tayco). Walnut St electrical system upgrades involved the replacement of four DC motor drives and a programmable logic controller (PLC) migration design. Tayco St. electrical system upgrades involved the design of a new PLC system for hydraulic controls of the bascule span.
05/11 – 08/13	**Bridge Inspection Task Order Contract, Statewide, CT – Connectict DOT** **Movable Bridge Electrical Engineer** responsible for annual inspection and reporting for the movable bridge electrical systems for ConnDOT owned movable bridges on the Metro North Railroad line, including the Cos Cob, Saugatuck, Peck and Devon Bridges. Inspections included data acquisition and analysis of motor currents, verification of relay and PLC based logic systems, insulation resistance testing of motors and submarine cables and testing of limit switches and encoders/resolvers.

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 / 3/31/2022 - (11 other states, first registered 1983 (FL)
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Bridge Design and Analysis**

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).
06/81 – 04/87 06/04 – 01/07 11/17 – Present	**Sunshine Skyway Bridge, Tampa, FL** **Designer, Lead Investigator, and Asset Management Specialist.** 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.
01/91 – 03/94 02/20 – 05/20	**Natchez Trace Parkway Arches, Franklinille, TN - National Park Service and FHWA EFLHD** **Project Manager, Principal Designer, Load Rating.** 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.
04/17 –Present	**I-395 Segmental Bridges, Miami, FL - Florida DOT** **Chief Engineer** 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 methodologiy. The work also inclued oversite of the final design, shop drawings, and construction engineering.

10/02 – 06/04 04/12 – 12/13	**FHWA Post-Tensioning Tendon Installation and Grouting Manual – Federal Highway Administration** **Principal Author.** 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.
03/13 – 10/20	**I-59/I-20 Central Business District Elevated Interstate, Birmingham, AL.** **Chief Engineer.** 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.
02/10 – 10/12	**Foothills Parkway Bridge No. 2, Foothills Parkway, TN** **Project Manager and Engineer of Record.** 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.
08/07 – 09/13	**Dulles Corridor Metrorail Project, Fairfax County, VA** **Project Manager and Principal Designer.** 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.
03/89 – 12/91	**Design And Design Review Of The Clark Bridge, Alton, IL - Illinois DOT** **Project Task Lead and Designer.** 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 alternateive and provided technical support to Hanson Engineers' steel design.
06/89 – 03/92	**Conceptual Design Of The Sixth Street Bridge, Huntington, WV - WVDOT** **Chief Engineer and Principal Designer.** John developed the conceptual design and oversaw the final design of the concrete alternateive crossing of the Ohio River. The concrete design was a precast segmental bridge that featured a main span length of 740'.
06/89 – 12/91	**Chesapeake And Delaware Canal Bridge, Saint Georges, DE – US Army Corps of Engineers** **Chief Engineer.** 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&D Canal.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Glenn Tindale, PE**	Years of relevant experience with this employer	1
Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	20

Degree(s) / Years / Specialization			BSCE / 1999 / University of Kentucky BA / 1998 / Ashbury College
Active registration number / state / expiration date			Professional Engineer: 60797 / FL / 2/28/2023
Year registered	2004	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**Complex Bridge Design and Analysis**

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).
03/13 – 10/20	**I-59/I-20 Central Business District Bridge Design, Birmingham, AL - Alabama DOT** **Structural Engineer** who investigated the plausibility of erecting four bridges side-by-side in the congested downtown area using underslung trusses. Interstates 59 and 20 combines in downtown Birmingham to form the most heavily traveled roadway in Alabama. As a subconsultant to Volkert, Corven Engineering designed segmental concrete urban viaducts to replace substandard steel bridges built in the early 1970s. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays a large role in the wider revitalization of the central business district.
10/05 – 12/06	**US 90 Over Biloxi Bay Design and Assessment, Biloxi, MS – Mississippi DOT** **Structural Engineer** who assisted in the evaluation of construction changes in the Biloxi bay sub-structure. The $340 million project replaced a low-level trestle bridge destroyed by Hurricane Katrina with an 8,765-foot high-level bridge. The project consisted of parallel structures that are 57 and 69 feet wide with a 250-foot channel span. The superstructure consists of precast Bulb-Tee girders and the main span unit is a 3 span continuous unit with post-tensioned, spliced girders. H&H (Corven Engineering) prepared independent design calculations as part of the design quality control.
01/21 – Present	**Beaver River Bridge Design, Beaver County, PA - Pennsylvania DOT** **Structural Engineer** who developed longitudinal and substructure designs. Two parallel cast-in-place segmental structures were constructed as a design-bid-build project, replacing a steel truss bridge from 1953. The $75 million bridge is 1,645' with pier heights of nearly 200'. Corven Engineering performed preliminary engineering analyses, designs, and cost estimates for several segmental bridge alternates. Also performing the final analyses and designs of the alternate selected by the PA Turnpike.
11/17 – Present	**Sunshine Skyway Bridge Design and Assessment, Tampa, FL - Florida DOT** **Structural Engineer** who took samples of the post-tensioning duct and borescoped tendons for the evaluation. Led the load rating of the bridge. Carrying I-75 over Tampa Bay, the Sunshine Skyway is a 21,878' long bridge with 8,860' of precast segmental structures. The 4,000' long precast segmental main span unit which includes a 1,200' long center cable-stayed span and was built in balanced cantilever. The high-level approach spans are 135 feet in length and were built in span-by-span with external tendons. Corven Engineering assisted with the inspection of the longitudinal post-tensioning tendons and performed a LRFR load rating of the cable-stayed main-span unit and high level approaches.

12/174 – 05/18	**Florida Keys Bridges Vulnerability Study, Monroe County, FL - Florida DOT** **Structural Engineer** who performed the blast analysis and remedial recommendations on the Port of Miami Bridges and the Palmetto Expressway Interchange Bridges. Corven Engineering investigated of the vulnerability to natural and man-made hazards of 44 bridges on the corridor carrying US-1 from Miami to Key West. This work included investigations of the segmental bridges at the Port of Miami and in the Florida Keys (Channel 5, Long Key, 7 Mile and Niles Channel). Special structural studies were made to evaluate hardening techniques against malicious threats as well as hurricane winds and tidal surge.
10/18 – 12/21	**Hawk Falls Bridge Replacement, Carbon County, PA - Pennsylvania Turnpike Commission** **Structural Engineer** who developed and analyzed the preliminary design. The Hawk Falls Bridge consists of two cast-in-place balanced cantilever segmental bridges and replaces a three-span deck truss bridge originally built in 1957.
02/16 – 06/17	**Monogahela River Bridge Preliminary Design, Allegheny County, PA - Monogahela Bridge Company** **Structural Engineer** who performed calculation on the preliminary cable-stayed bridge design. Part of the 24-mile-long Mon-Fayette Expressway, the Monongahela River Bridge is a long span bridge over the Monongahela River. The 2,490-foot bridge consists of two separate structures with a 1,120-foot cable-stayed main-span. Each structure is 78 feet wide and comprised of edge girders with floor beams to support the deck. Corven Engineering prepared preliminary designs for the dual composite cable-stayed alternate.
05/18 – 05/19	**Florida Keys Segmental Bridges Evaluation, Monroe County, FL - Florida DOT** **Structural Engineer** who performed the onsite evaluation, including leading teams in invasive and non-invasive inspection and repair and remediation of the 11.5 miles of segmental bridges. This work included the review of over 11 miles of precast segmental span-by-span bridges constructed in the Florida Keys in the late 1970's (7 Bridge, Long Key Bridge, Channel No. 5 Bridge and Niles Channel Bridge) and the Port of Miami Bridge. All the brides were built span-by-span using external longitudinal post-tensioning tendons. The bridges were built in the 1970's and exhibited corrosion in the post-tensioning tendons. Corven Engineering inspected and evaluated the post-tensioning systems including visual inspections of external tendons, vibration testing, pour-back removals, and non-destructive visual inspections. Following the evaluation and recommendations, the Corven Engineering led team performed the repairs to rehabilitate the post-tensioning systems. The 445 spans of these four bridges contained over 66 miles of longitudinal post-tensioning tendons.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**George Patton, PE**	Years of relevant experience with this employer	6
	Title	Movable Bridge Practice Leader	Years of relevant experience with other employer(s)	26

Degree(s) / Years / Specialization			M.S. / 1988 / Civil Engineering B.S. / 1988 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 45966 / FL / 02/28/2023
Year registered	1992	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
08/08 – 02/13	**Sargent Barge Swing Bridge Rehabilitation, Matagorda County, TX – Texas DOT** **Chief Movable Bridge Engineer** for the rehabilitation of a swinging barge bridge carrying traffic across the Intracoastal Waterway (ICWW). Unique bridge featured a main span that is a barge, pivoted by a winch and cable system. Apron spans on the ends of the barge were lifted by winch and cable systems to clear the barge for opening. On apron span lifts sufficiently to clear a small channel for use by pleasure craft. Project included replacement of operating machinery and control systems as well as structural repairs. As Project Engineer, responsible for design and quality control reviews.
02/08 – 04/12	**Cow Bayou Swing Bridge Rehabilitation, Bridge City, TX – Texas DOT** **Movable Bridge Engineer** for rehabilitation of an historic swing bridge on State Highway 87 in Orange County. The main span is a steel girder swing-span, measuring 154 feet in length. Rehabilitation included structural, mechanical, and electrical work as well as replacement of the swing-span deck and fender system. Swing-span features fish-belly plate girders and a center pivot bearing.
09/08 – 04/09	**Tamiami Swing Bridge Emergency Repairs, Miami, FL – Florida DOT** **Project Manager/Engineer-of-Record** for engineering design and post-design services for emergency repairs to the structural steel framing and operating machinery for an historic Warren pony truss bob-tail swing-span over the Tamiami (C-4) Canal in Miami. 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 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.

06/05 – 06/09	**Anna Maria Island (SR 64) over Gulf IWW Bascule Bridge Rehabilitation, Bradenton, FL – Florida DOT** **Project Manager** for the in-depth inspection, evaluation, load rating per load and resistance factor rating (LRFR) methodology, and rehabilitation design of a 50-year-old, 3,120-foot-long bridge with a double-leaf trunnion bascule main span. Performed in-depth evaluation of the shear capacity of the unique precast, post tensioned concrete beams of the approach spans, which were among the first use of prestressed concrete in the United States. Performed load ratings in accordance with the FDOT Bridge Load Rating Manual (BLRM) and the AASHTO Manual of Bridge Evaluation (MBE), and prepared a Load Rating Report with Narrative/Executive Summary and Load Rating Summary Form. The project also included bascule leaf structural steel repairs and modifications, concrete repairs, 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 renovation of the bridge operator's facilities.
07/07 – 02/08	**Wilson Pigott (SR 31) over Okeechobee Waterway Bascule Bridge Rehabilitation, Fort Myers, FL – Florida DOT** **Chief Movable Bridge Engineer** for the in-depth inspection, evaluation, load rating per LRFR methodology, and rehabilitation design of a 50-year-old, 3,120-foot-long bridge with a double-leaf trunnion bascule main span. Performed independent peer review of the machinery repairs and steel grid deck replacement. Performed 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 U.S.
03/09 – 12/09	**Astor (SR 40) over St. Johns River Bascule Bridge Rehabilitation, Ocala National Forest, FL – Florida DOT** **Project Manager** responsible for managing the evaluation and rehabilitation design for a single-leaf bascule bridge. Developed an innovative detail to restrain an existing trunnion hub in the web of the main girder to prevent movement resulting from the lack of the proper interference fit. This repair resulted in significant cost savings and reduction in the down time for bridge operation. responsible for managing the evaluation and rehabilitation design for a single-leaf bascule bridge. Developed an innovative detail to restrain an existing trunnion hub in the web of the main girder to prevent movement resulting from the lack of the proper interference fit. This repair resulted in significant cost savings and reduction in the downtime for bridge operation.
12/94 – 02/97	**Ortega River Rolling Lift Bridge Rehabilitation, Jacksonville, FL – Florida DOT** **Movable Bridge Engineer** responsible for the rehabilitation of a 68-year-old rolling-lift bascule span bridge eligible for listing on the National Register of Historic Places. The project included replacement of the heavily deteriorated movable span superstructure, drive machinery, electrical control system, and restoration of the tender's facilities. The SHPO- approved replacement span was designed to upgrade the safety and load carrying capacity while maintaining the historical characteristics of the original span.
12/16 – 05/17	**East Venetian Causeway Bridge Emergency Repairs, Miami Beach, FL – Miami-Dade County Government** **Project Manager/Engineer-of-Record** for movable bridge specialty engineering design for emergency repairs to the operating machinery for an historic double-leaf rolling lift bascule span on the Venetian Causeway. Performed field inspection and identification of the root causes responsible for the bridge's inoperable condition. This included a severely worn rolling-lift flat track and curved tread assembly from corrosion that lead to rack and pinion misalignment and gear tooth interference. Developed the repair strategy and performed the design to restore the bridge to an operable condition including reconditioned flat tracks, new curved treads, and new rack frame that allowed for realignment of the rack and pinions.

16. Staff Experience:

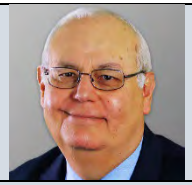
	Firm Employed by	Hardesty & Hanover		
	Name	**Marco Buyson, PE**	Years of relevant experience with this employer	2
	Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	20

Degree(s) / Years / Specialization			MSCE / Manhattan College / 2004 BSCE / Manhattan College / 2001
Active registration number / state / expiration date			Professional Engineer: 82902 / NY / 6/2022
Year registered	2005	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			Complex Bridge Design and Analysis

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).
01/13 – 02/20	**Mario M. Cuomo Bridge Cable-Stayed Design, Westchester-Rockland County, NY - New York State Thruway Authority** **Lead Bridge Project Engineer** responsible for the design of the main span, service life (durability design and structural health monitoring), bridge security, and multi-disciplinary coordination. The Mario M. Cuomo Bridge replaced the existing Tappan Zee Bridge crossing which handles more than 138,000 vehicles every day—far more than its design capacity. Key features of the new crossing include twin tower cable-stayed main spans with 1,200-foot center spans. Each bridge carries four general traffic lanes plus shoulders and extra-wide emergency lanes. The bridge also features a 12-foot wide shared-use path with six belvederes along the north fascia of the westbound bridge. The bridge is designed for a 100-year service life and will be mass-transit-ready for bus rapid transit without strengthening, or for commuter or light rail on a separate structure constructed between the two highway bridges. Detailed design includes deep foundations, cable-stayed main span and girder/sub-stringer approach span structures, pre-cast substructure and superstructure components and highway design including alignments. He was also responsible for construction coordination, monitoring execution of the design scope, budget and schedule management, management of subconsultants, and compliance to the project's Design Quality Control Plan. Mr. Buyson was also Lead Bridge Project Engineer and Designer during construction phase services.
01/06 – 09/07	**East 153rd Street Cable-Stayed Bridge Over Metro North Railroad Reconstruction, Bronx, NY - New York City DOT** **Project Engineer** for newly constructed cable-stayed bridge over four mainline tracks of MNRR Harlem and New Haven Divisions with major roadway reconstruction at both approaches. Marco's responsibilities include design of various structural components; preparation of design plans, specifications, and engineer's estimate; interdisciplinary coordination including civil utilities and roadway lighting; client, agency, joint-venture, and subconsultant coordination; design of dry fire standpipe, including supports; and preparation of supplemental documents for real estate related issues (ULURP, temporary/construction and permanent easements, and right-of-way takings).
11/08 – 12/11	**Northbound And Southbound Bruckner Expressway Truss Bridge Rehabilitation, Bronx, NY - New York State DOT** **Project Engineer** for this project involving the superstructure replacement of the NB Bruckner Expressway bridge and the deck replacement of the SB Bruckner Expressway bridge over the two tracks of Amtrak passenger rail and two tracks of CSX freight rail with approach roadway reconstruction at both approaches. Marco led the structural design of the superstructure replacement of the NB bridge structure, which

	utilized precast bridge seats/pedestals/backwall and precast concrete deck panels to facilitate accelerated construction over the railroad. He also led the structural design of the deck replacement of the SB bridge structure which utilized precast concrete deck panels that were installed utilizing an overhead gantry crane within the existing truss structure. He managed extensive coordination with numerous stakeholders and developed the project budget; meeting the six-month accelerated design schedule. Also served as the on-site engineer during construction, including working nights for the duration of major construction activities including demolition, superstructure erection, and super weekend roadway reconstruction at tie-ins. During this time, he assisted the client to develop design solutions to complex problems, like field conditions, in consideration to constructability and conformance to current codes and standards.
01/12 – 12/12	**Bayonne Arch Truss Bridge Reconstruction, Bayonne, NJ - Port Authority Of New York And New Jersey** **Structural Engineer** and task leader for the development of the state of good repair contract documents. The project involved the reconstruction of the arch span roadway and approaches to raise the navigational clearance from 151 feet to 215 feet above mean high water. The complexity of the project arose from the engineering required to support the new arch span roadway on an existing arch truss, built in 1932, at a higher elevation. Marco was responsible for the gusset plate analysis and corresponding strengthening design/detailing for the permanent construction, coordination with the PANYNJ of a hands-on inspection, coordination of concrete and steel sampling and testing, and the development of the state of good repair design plans in the rehabilitated portions of the arch.
01/04 – 12/07	**Grand Central Parkway/Brooklyn- Queens Expressway Reconstruction And Safety Improvements, Queens, NY** **Lead Structural Engineer** for the reconstruction of four bridges at the western leg of the GCP/BQE junction to improve overall traffic conditions, improve roadway safety conditions, and provide high-speed ramp connections. Responsibilities included the preliminary design of various structural alternatives and constructability and construction staging analysis for two multi-span continuous curved girder bridges and two two-span continuous straight girder bridges. Other responsibilities include development of the Structural Justification Report and structural sections of the Design Approval Document, coordination of civil and structural work, preliminary construction cost estimate, and client and subconsultant coordination.
01/02 – 02/07	**I-95 and I-295 Bridges Reconstruction/Rehabilitation, Bronx, NY - New York State DOT** **Project Engineer/Structural Engineer** for the I-95 Over Throgs Neck Expressway cable-stayed through truss bridge and the I-295 Cross Bronx extension over Randall Avenue bridge. During the Final Design Phase, responsibilities included the design and load rating analysis of the reconstructed two-span continuous curved steel I-girder bridge and the rehabilitated three-span I-girder bridge. Other responsibilities included interstate highway horizontal and vertical geometric realignment following NYSDOT and AASHTO requirements, development of Work Zone Traffic Control and construction staging sequences, temporary excavation design, contract drawing production, construction estimate generation, and client, interagency, and subconsultant coordination. During Construction support services phase, responsibilities included review of contractor/field office submittals including but not limited to shop drawings, requests for information, field issues, and design changes. Other responsibilities include project progress oversight and client, Contractor, interagency, and subconsultant coordination.

16. Staff Experience:



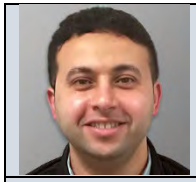
Firm Employed by	Hardesty & Hanover		
Name	**Raymond Mankbadi, PE**	Years of relevant experience with this employer	15
Title	Director of Geotechnical Engineering	Years of relevant experience with other employer(s)	27

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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
02/14 – 12/16	**Des Allemands Swing Bridge Rehabilitation (BNSF Bridge 32.06), Des Allemands, LA – BNSF Railway Company** **Lead Movable Bridge Geotechnical Engineer** 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.
01/19 – Present	**Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA - Jefferson Parish DPW** **Lead Movable Bridge Geotechnical Engineer** 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.
05/17 – 06/19	**US-17 Swing Bridge over the Perquimans River Design-Build, Perquimans County, NC – North Carolina DOT** **Lead Movable Bridge Geotechnical Engineer** 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.
03/18 – 06/19	**SR-605 Bascule Bridge Rehabilitation, IDIQ Master Bridge Design Contract, Ocean Springs, MS – Mississippi DOT** **Lead Movable Bridge Geotechnical Engineer** 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

03/13 – 12/15	**Sarah Mildred Long Bridge Replacement, Portsmouth, NH to Kittery, ME – Maine DOT** **Lead Movable Bridge Geotechnical Engineer** 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 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.
12/11 – 05/17	**Flagler Memorial Bascule Bridge Replacement Design/Build, West Palm Beach, FL – Florida DOT** **Geotechnical Engineer of Record** responsible for all geotechnical aspects of the design and construction including subsurface investigation program development, foundation design, cofferdam, geotechnical analysis, and report preparation. This project 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.
03/13 – Present	**Bruckner Expressway over Westchester Creek (Unionport Bridge) Replacement, New York, NY – New York City DOT** **Lead Bridge Geotechnical Engineer** 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-feet-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.
05/16 – Present	**Raritan River Bridge Replacement, Perth Amboy/South Amboy, NJ – NJ TRANSIT** **Lead Movable Bridge Geotechnical Engineer** for a $500 million post-Sandy resiliency project, which involves a replacement of the Raritan River Bridge on the North Jersey Coast Line and reconstruction of approximately one mile of railroad tracks between Perth Amboy and South Amboy Stations. The post-Sandy Emergency Relief project focuses on the flood resiliency and hardening.
06/16 – Present	**Shore Road Bridge Reconstruction, Bronx, NY – New York City DOT** **Lead Geotechnical Engineer** 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/NYSDOT design approval, preliminary & final design services. The bridge will be replaced with a new $260 million mid-level double-leaf bascule on a southernly 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.

16. Staff Experience:



Firm Employed by	Hardesty & Hanover		
Name	**Arsanious Guirguis, PE**	Years of relevant experience with this employer	10
Title	Geotechnical Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			M.S. / 2014 / Geotechnical Engineering B.S. / 2011 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 41969 / LA / 3/31/2022
Year registered	2017	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.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
12/11 – 05/17	**Flagler Memorial Bascule Bridge Replacement Design/Build, West Palm Beach, FL – Florida DOT** **Movable Bridge Geotechnical Engineer** responsible for evaluating subsurface data for development of subsurface parameters to be used in design, performing geotechnical engineering analyses and developing foundation design. Scope included the complete replacement of the existing bridge, which was eligible for the National Register of Historic Places, 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.
08/12 – 10/18	**Harlem River Drive Viaduct over East 127th Street, New York, NY – New York City DOT** **Geotechnical Bridge Engineer** responsible for providing field inspection of borings as well as rock corings and overseeing crosshole seismic testing. Assisted in preparing subsurface (boring) investigation, created final bore logs and subsurface profile, and developed geotechnical report. Geotechnical Engineer in charge of preliminary design and final design of pier foundations (drilled shafts). Also, responsible on all responses related to geotechnical Request for Information and submittals. Engineer in charge of reviewing and inspecting all drilled shaft load tests (O-Cell's), video inspection of rock socket and drilled shaft remediation. Provided field engineering support as required to resolve technical and construction issues. The Harlem River Drive project included the full replacement of the ten-span Harlem River Drive Viaduct over the entrance ramp at East 127th Street in the Borough of Manhattan.
03/18 – 03/20	**Promenade over FDR Drive from East 81st Street to East 90th Street, New York, NY – New York City DOT** **Lead Bridge Geotechnical Engineer** for a project involving the rehabilitation or replacement of superstructure and substructure elements. The scope also includes protection or replacement/relocation of all utilities on the structure as well as protection or replacement/relocation of all electrical and mechanical systems within the project limits; landscape design; ADA compliance; and new pedestrian. Reconstruction and repair of structural elements required work from the top of the promenade deck within the park and from the southbound FDR Drive roadway level located beneath the promenade. Maintenance of vehicular, pedestrian, and bicycle traffic throughout construction was a critical concern. Constructability and staging guided the overall approach to the project.
6/16 – Present	**Shore Road Bridge, Bronx, NY – New York City DOT** **Movable Bridge Geotechnical Engineer** involved in the preliminary design and alternative study for the replacement of a rolling lift bridge over the Hutchinson River. Led the foundation design, embankment evaluation and subsurface exploration program. 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/NYSDOT design approval, preliminary & final design services. The bridge will be replaced with a new $260 million mid-level double-leaf bascule on a southernly 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. The 900-foot-long bridge accommodates two lanes of traffic in each direction, a sidewalk, and carries 125,000 vehicles each day. The 108-year-old bridge is 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.
03/17 – 12/17	**CRO-530B Design Services for the Reconstruction of Two Bridges, Lewisville and Yorktown, NY – New York City DEP** **Bridge Geotechnical Engineer** involved in the reconstruction and/or replacement of two bridges. The first bridge, the Cross River Inlet Bridge located in the Town of Lewisboro, required repairs to its deteriorated concrete components. These components included parapet walls, roadway slab, and wing wall caps. In addition, H&H replaced the approach pavement and installed waterproof membrane, guide rails, and curbs. The second bridge, the Baptist Church Road Bridge located in the Town of Yorktown, required a complete replacement. The replacement featured new roadway alignments to eliminate substandard geometrical features and included stone capstones.
07/15 – 03/17	**Columbia and Dutchess County Bundled Bridges, Upstate NY – New York State DOT, Region 8** **Bridge Geotechnical Engineer** for the replacement of eight existing bridges with new, widened structures, reconstruction of the bridge approach roadways, and installation of new safety appurtenances. Responsible for geotechnical reports for all six bridges. Bridge abutments were supported on either H-piles or spread footings. Answered all requests for geotechnical information. Reviewed and inspected all pile load tests and provided field engineering support as required to resolve technical and construction problems.
08/06 – 02/09	**Route 36 Bridge over Shrewsbury River - Fixed Bridge Replacing Bascule, Sea Bright & Highlands, NJ – New Jersey DOT** **Geotechnical Engineer** for a $91 million new high-level fixed bridge to be constructed off-line replacing a bascule bridge. Responsible for all the foundation design aspects including 54-inch cylindrical concrete piles, prestressed concrete pile, cofferdam in deep water, settlement analysis, retaining walls and vibration monitoring. Project includes highway approach reconstruction. New roadway consists of four 12-foot-wide lanes; two 8-foot-wide shoulder/bike lanes; two 8-foot-wide sidewalks; and an 8.75-foot-wide median. H&H is also performing design of two pedestrian bridges, foundation and segmental concrete pier design, scour and seismic analyses, and utilities.
05/16 – Present	**Raritan River Bridge Replacement, Perth Amboy/South Amboy, NJ – NJ TRANSIT** **Lead Geotechnical Engineer** for a $500 million post-Sandy resiliency project, which involves a replacement of the Raritan River Bridge on the North Jersey Coast Line and reconstruction of approximately one mile of railroad tracks between Perth Amboy and South Amboy Stations. The post-Sandy Emergency Relief project is focused on the flood resiliency and hardening for future weather events.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Joseph Lee Adams, PE**	Years of relevant experience with this employer	12
	Title	Bridge Hydraulic 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			**Bridge Hydraulic Engineer**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/17 – 12/20	**Route 25A Bridge Over Brackett Brook, Grafton County, NH – New Hampshire DOT** **Supervising Hydraulic Engineer** for the rehabilitation or replacement of this NHDOT Red Listed bridge. Responsible for supervising the hydrologic and hydraulic analysis necessary to define the floodplain, floodway, and existing conditions; determine design loads, scour depths; and provide quality control. The two-span concrete deck bridge was in poor condition and was considered scour critical during floods. Scope of work included an engineering feasibility study and report detailing type, span, and location (TS&L); preliminary and final design; permitting; and construction support services.
12/12 – 0/13	**Rumson – Seabright Bridge Over Shrewsbury River, Monmouth County, NJ – North Jersey Transportation Planning Authority** **Hydraulic Engineer** responsible for evaluating scour vulnerability for the existing Rumson Road Bridge S-32 and several replacement alternatives. Prepared cost estimates for scour countermeasure alternatives and performed field condition inspection of the bridge and culverts. Performed hydraulic vulnerability analysis per NJDOT guidance and developed hydraulic modeling per FHWA's HEC-25 guidance. Assisted the Project Manager with development of the Conceptual Development Reports. During PE, was lead stormwater management engineer. Performed preliminary engineering for stormwater collection systems in Rumson and in Sea Bright. During final design, performed final bridge hydraulics analysis and scour analysis in accordance with HEC-18 and HEC-25. Built in 1950, the County Route 520 (Rumson Road) Bridge (is a nine-riveted steel deck girder-floor beam approach span structure with one double-leaf steel girder trunnion bascule main span. The bridge is 661 feet long, 52.4 feet wide (out to out), with a curb-to-curb width of 40 feet. It carries a 20-foot-wide roadway of Rumson Road in each direction over the Shrewsbury River and a 5-foot-wide sidewalk on each side. The bridge serves as one of two emergency evacuation routes in times of flooding and coastal storms. The bridge was in serious overall condition and was structurally deficient due to the poor condition of the superstructure. Furthermore, the bridge was scour critical, did not meet current seismic design standards, and was deemed fracture critical due to its two-girder, non-redundant construction.
05/16 – 06/20	**Bridge Street Bridge over Passaic River, Newark & Harrison, NJ – NJ Turnpike Authority** **Hydraulics & Hydrology Team Leader** responsible for evaluating scour vulnerability 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.

10/08 – 11/08	**Biennial Inspection of the Bronx-Whitestone Bridge, New York, NY – MTA Bridges & Tunnels** **Hydraulic Engineer** responsible for preparing bridge scour susceptibility analysis and report in support of the biennial inspection of the Bronx-Whitestone Bridge, a long span suspension bridge over the East River. Generated models to analyze the tidal response of the East River per HEC-18 and HEC-25 guidance. Route and model peak discharge design flows through the crossing at the bridge using HEC-RAS river modeling software to determine design stream velocities and compute scour estimates.
02/14 – 08/16	**Jersey Avenue over Mill Creek, Jersey City, NJ – NJ Turnpike Authority** **Hydraulic Engineer** responsible for evaluating scour conditions, determining wave height and wave force on superstructure, designing stormwater management improvements for environmental compliance, and design standards. Project involved design of a new single span structure over a tidally influenced tributary of the Upper Hudson Bay, subject to extreme storm conditions. Coastal conditions evaluated according to FHWA's HEC-25 and HEC-18. Stormwater management system and water quality structure improvements designed according to state, local and Turnpike design standards. Two hydrodynamic separator style MTDs were proposed to achieve water quality compliance. 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. Riverine design flows estimated using TR-55 procedures in HEC-HMS, water surface profiles modeled in HEC-RAS for both design purposes and NJDEP Flood Hazard control compliance. Design process included highway storm water drainage spread calculations to determine proper inlet spacing. A low impact development checklist documented alternate Best Management Practices (BMPs).
05/16 – Present	**Kingsland Avenue Bridge over Passaic River, Nutley & Lyndhurst Townships, NJ – NJ Turnpike Authority** **Hydraulics & Hydrology Team Leader** responsible for evaluating scour vulnerability 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.
10/18 – 03/20	**Connecticut River Bridge Replacement, Old Saybrook – Middlesex County, CT** **Hydraulic Quality Control Engineer** responsible for quality control reviews of subconsultant modeling and scour estimation of long two-track railroad movable bridge over the Connecticut River. H&H provided services for the replacement of the existing truss approach spans and rolling lift movable span with new bascule structure on a new alignment.
09/14 – 09/17	**South Front Street Bridge over Elizabeth River, Elizabeth, NJ – NJ Turnpike Authority** **Hydraulics & Hydrology Team Leader** during the LCD study phase for the replacement or rehabilitation of this the structurally deficient movable South Front Street Bridge. Responsible for evaluating scour vulnerability for the existing South Front Street Bridge and several replacement alternatives. Prepared cost estimates for scour countermeasure alternatives and performed field condition inspection of the bridge and culverts. Work included surveying/mapping, public outreach, site investigations/assessments, traffic analyses, environmental screening, concept development, alternatives analyses, and the preparation of Concept Development Reports.
04/16 – Present	**Saugus Drawbridge Rehabilitation, Saugus, Essex County, MA – Massachusetts Bay Transportation Authority** **Supervising Hydraulic Engineer** responsible for analyzing tidal and hydrologic fluvial conditions for existing and proposed bridge, estimated time dependent scour in cohesive materials. H&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.

16. Staff Experience:

Firm Employed by	Urban Systems, Inc.			
Name	**Alison Michel, PE, PTOE, PTP, RSP1**		Years of relevant experience with this employer	20
Title	President / Transportation Engineer		Years of relevant experience with other employer(s)	3
Degree(s) / Years / Specialization	BS / 1997 / Civil Engineering			
Active registration number / state / expiration date	Professional Engineer: 30261 / LA / 03/31/2023; 16171 / MS / 2004; 27740 / AL / 2006 Professional Transportation Operations Engineer: 1023 / 2002 Professional Transportation Planner: 626 / 2017 Road Safety Professional: 115 / LA / 2018			
Year registered	1997	Discipline	Civil and Environmental Engineering	
Contract role(s) / brief description of responsibilities	**Traffic Engineering / TMP**			

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/11 – 05/13	**Huey P. Long Bridge Widening - (Westbank and Eastbank Approaches and Main Bridge Deck Widening), Jefferson Parish, LA – Jefferson Parrish** **Traffic Engineer** responsible for preparing traffic control devices plans (TCDP) for multiple phases of construction. The contractor for the Huey P. Long Widening in Jefferson Parish, LA contracted USI during construction to improve the flow of traffic during required closures. The TCDPs included the design of a traffic signal plan for the installation of temporary signal heads to control lane shifts.
03/13–02/16	**LA39/Judge Perez Drive Corridor, St. Bernard Parish, LA - St. Bernard Parish Metropolitan Transportation Plan Refinement** **Project Manager** for this task order, a Stage "0" Feasibility Study. The feasibility of implementing proposed improvements including a westbound right-turn lane and an additional southbound left-turn lane at the intersection of LA 39 (Judge Perez Drive) and LA 47 (Paris Road) was evaluated. Ms. Catarella-Michel presented the conclusions and recommendations to the St. Bernard Parish Council and the Regional Planning Commission.
01/14 – 08/19	**SP H.010620, US 90 (I-49 South) Albertson's Parkway to Ambassador Caffery Design-Build, Lafayette Parish, LA - LADOTD** **Traffic Engineer** for updating 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. Ms. Catarella-Michel supervised the design and analysis and performed QA/QC for temporary and permanent signal plans, permanent signage plans, temporary traffic control plans and the transportation management plan. Signal plans were prepared using the DOTDs latest TSI format. Analysis included developing design hour volumes for the design year and modeling signals in Synchro. Phasing and timing were developed for both permanent and temporary signal operation.
06/11 - 06/12	**Traffic Engineering Services, Kenner, LA - City of Kenner** **Project Manager/Lead Engineer** for task ordered engineering services for various traffic/transportation projects: intersection improvement studies and signal and signage modifications. West Esplanade Avenue at East Loyola Drive Intersection Improvements and Loyola Drive at East/West Loyola Drive traffic signal and signage modifications.
04/11 - 08/13	**SP 005-10-0037/006-01-0021/006/02/0064/006-25-0001/006-30-0041 Huey P. Long Bridge Widening - (Westbank and East bank Approaches and Main Bridge Deck Widening), Jefferson Parish, LA - Jefferson Parish**

	Traffic Engineer responsible for preparing traffic control devices plans (TCDP) for the Huey P. Long Widening. This TCDP also included the design of a Traffic Signal Plan for the installation of temporary signal heads to control lane shifts. Ms. Catarella-Michel designed plans for permanent pavement markings and signage.
04/09 – 06/15	**H.004891 (SP 700-48-0101) RPC No. PSLC-STJ Port of South Louisiana Connector Environmental Impact Statement, Baptist, LA - LADOTD** **Principal-in-Charge** for the traffic study to assess the feasibility of a connection between US 61 (Airline Highway) and I-10 in St. John the Baptist Parish, LA by different alternatives. The purpose of the project is to assess and identify the connection alternatives that will address existing and future roadway traffic, safety conditions, and access management strategies as a connector for US 61 and I-10.
04/18 -07/18	**Marconi Drive Traffic Study, New Orleans, LA –** **Principal-in-Charge** for this traffic study focused on increasing safety for pedestrians, cyclists, and drivers on Marconi Drive. Multi-modal traffic data was collected for use in evaluating the existing conditions. Potential improvements were identified, including various bike lane treatments that would fit within the existing pavement and also compliment planned projects adjacent to the study area. Capacity analysis was conducted at the signalized intersection to estimate the impact of potential lane configuration changes. Construction cost estimates were also prepared for use in ranking alternatives.
01/19 – 03/19	**St. Claude Bridge Bicycle Accommodation, New Orleans, LA – Port of New Orleans** **Project Manager** for this study for the Port of New Orleans which the objective was to improve safety for cyclists utilizing the bridge crossing. Tasks included conducting field observations and sight distance evaluations, identifying existing equipment to be modified/removed, collecting counts of pedestrians, vehicles, and bicycles using the roadway/lift span, and collecting vehicular speed data. Short- and long-term alternatives were developed to safely accommodate bicyclists on the raised portion of the St. Claude Bridge including the Inner Harbor Navigational Canal lift span.
02/12 – 03/12	**Pontchartrain at Robert E. Lee Intersection Modification, New Orleans, LA –** **Traffic Engineer** responsible for assessing existing conditions, including traffic control and circulation in the area for a proposed new strip shopping mall. Potential changes to the intersection were identified based on the limitations/restrictions of the existing access and one-way street system. Two alternative conceptual layouts were developed for the developer's and architect's consideration during site development.
01/11 – 04/12	**Neighborhood Planning Stage 0 Feasibility Study Orleans Parish, New Orleans, LA – Orleans Parish** **Project Manager** for a traffic study and analysis for the Neighborhood Planning Stage 0 Feasibility Study for transportation improvements along St. Bernard Avenue between I-610 and Filmore Avenue in the Bayou District neighborhood in New Orleans, LA. The study included data collection, conceptual development plans, and a comparative analysis of standard intersection, roundabout design and VISSIM modeling. The study was conducted with community involvement through planning charette and PAC in an effort to support livable community goals.

16. Staff Experience:

Firm Employed by	Urban Systems, Inc.			
Name	**Nicole Stewart, PE, PTOE**		Years of relevant experience with this employer	15
Title	Vice President / Transportation Engineer		Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization	BS / 2004 / Civil Engineering BS / 2004 / Physics			
Active registration number / state / expiration date	Professional Engineer: 34750 / LA / Professional Transportation Operations Engineer: 2923 / 2012			
Year registered	2009	Discipline	Civil and Environmental Engineering	
Contract role(s) / brief description of responsibilities	Traffic Engineering / TMP			

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
02/14 - 08/19	**SP H.010620 US 90 (I-49 South) Albertson's Parkway to Ambassador Caffery Design-Build Project, Lafayette Parish, LA - LADOTD** **Traffic Engineer** responsible for assisting in the preparation of the Traffic Control Devices Plan for Phases 1 and 2 of construction. Ms. Stewart also the lead engineer responsible for the design of the permanent signage for the new portion of I-49 within the project limits. Traffic Control devices plans were prepared to be in accordance with the Manual of Uniform Traffic Control Devices and the most current LADOTD standards.
01/17 – 07/19	**France Road - North Widening, New Orleans, LA – City of New Orleans** **Traffic Engineer** responsible for developing site-specific traffic control plans implementing a one-way system and detouring traffic that normally traversed in the opposite direction of the allowed movement. Over time, France Road between Gentilly Boulevard and Hayne Boulevard 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. The plans were designed in accordance with the latest version of the MUTCD and the City of New Orleans traffic control standards.
03/18 – 10/19	Severn Avenue: Veterans to W. Esplanade, Jefferson Parish, LA - Jefferson Parish **Traffic Engineering Project Manager** of this Jefferson Parish roadway reconstruction project. Severn Ave is a heavily travelled multi-lane boulevard requiring complex construction sequencing. Design plans were developed for temporary signals during construction and the permanent signal configurations with pedestrian 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
07/16 – 08/18	**Carrollton Intersection - Carrollton and Palmetto/Washington Streetscape, New Orleans, LA** **Lead Traffic Engineer** responsible overseeing the design of the geometric layouts for the intersection improvements to Carrollton Avenue at Palmetto. She was responsible for the striping, signage and traffic signal modifications. The signage included both regulatory signage as well as guide signage for the I-10 on ramp adjacent to the Dixon Street intersection. The plans were designed per the MUTCD, LADOTD and the City of New Orleans standards. With Urban Systems as the prime for this job, Ms. Stewart was also charged with managing the two other consultant firms who prepared other portions of the plan set.

02/15 – 06/16	**Bridge Preventative Maintenance District and Port Allen, Multiple Parishes, LA - LADOTD** **Principal-in-Charge** for traffic management plans (TMP) for bridge replacement and repairs for various locations in Louisiana. This included developing various levels of TMPs based on LADOTD EDSM guidelines. Tasks included conducting capacity analysis, safety analysis, detour analysis and developing proposed mitigations where applicable. 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 – 12/17	**US 90 Bridge Maintenance over I-10 Ramps at LockMoor, Calcasieu Parish, LA - LADOTD** **Traffic Engineer** responsible for using the LADOTD EDSM guidelines to prepare key components of the TMP for proposed bridge repairs on US 90 from PPG Road to the I-10 entrance ramp in Lake Charles, LA. Tasks included the preparation of collision diagrams, conducting safety analysis, detour analysis and developing proposed mitigations where applicable.
04/10 – 06/11	**I-10 Crossing – Irish Bayou Bridge I-10 New Orleans East, Orleans Parish, LA -** **Traffic Engineer** for supervising engineer for the design of traffic control devices plans for the I-10 Highway Crossing Levee Enlargement project at Irish Bayou Road in New Orleans East. The plans involved multiple and phased road closures of a six-lane section of I-10, including nighttime closures.
10/12 – 05/14	**Bridge Preventative Maintenance District 61 S.P. H. 000351 and Port Allen S.P. H. 001234.4** **Principal-in-Charge** for traffic management plans (TMP) for bridge replacement and repairs for various locations in Louisiana. This included developing various levels of TMPs based on LADOTD EDSM guidelines. Tasks included conducting capacity analysis, safety analysis, detour analysis and developing proposed mitigations where applicable. Ms. Stewart is in charge of QA/QC.
06/10 – Present	**SP 700-99-0302 Houma-Thibodaux to I-10 Connection North-South Corridor** **Traffic Engineer** responsible for preparing a traffic study to evaluate the new alignments and to consider hurricane evacuation conditions in the expanded project area of Houma-Thibodaux to I-10 Connection North-South Corridor. Once completed a Transportation Management Plan will be developed for the final corridor alignment.
02/09 – 12/09	**Roundabout Study, St. Tammany Parish, LA** Traffic Engineer responsible for preparation of this study that evaluated converting the intersections of US 90 at Northshore Boulevard, LA 59 ay Lonesome Road and LA 59 at Sharp Road to roundabouts. This study included the evaluation of the existing and projected conditions of each intersection with SIDRA software and spot speed studies to determine if there were existing speeding concerns at each intersection. The study concluded with recommendations for roundabout at each location.

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2019 IDIQ Movable Bridge Annual Inspection for the Almonaster and Seabrook Avenue Railroad Bridges**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	Port of New Orleans
Project location	New Orleans, LA	Owner's Project Manager	Anthony Everett, PE
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70804 | 504.528.3309 | anthony.evett@portnola.com		
Services commenced by this firm (mm/yy)	01/19	Total consultant contract cost ($1,000's)	$505
Services completed by this firm (mm/yy)	01/21	Cost of consultant services provided by this firm ($1,000's)	$500

Under the 2019 IDIQ Movable Bridge Inspection and Load Rating for the Port of New Orleans, H&H has been performing Annual NBIS bridge assessment services for two movable bridges: the Almonaster Avenue and Seabrook Avenue Bridges. The Annual Inspections included the comprehensive examination of the structural, mechanical, and electrical systems for each complex movable bridge.

The **Almonaster Avenue Bridge is a movable Strauss-heel trunnion bridge** that crosses over the Industrial Canal and provides two vehicular lanes and a single railroad track crossing down the center of the span. H&H's 2019 assessment of the circa-1920 bascule bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although, the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. H&H developed the necessary bridge remedial design reccomendations for full rehabilitation of this movable bridge.

H&H engineers and NBIS-certified inspection staff performed routine and fracture critical inspection of the bascule, counterweight, and tower span for the **Seabrook Trunnion Bascule Bridge** crossing the Inner Harbor Navigation Canal (IHNC). NBIS and element structural inspection consisted of a visual and hands-on examination of the bascule spans, tower span, counterweight truss, counterweight, and the fender system. The underside inspection consisted of hands-on examination of the bascule span stringers and floor beams, as well as a cursory inspection of the east and west approaches. This included both a walk-through visual examination and audible observations of the pins, trunnions, span locks and operating machinery. Also observed were the lighting and warning systems of the approach roadways, navigation channel and pier buildings. Nondestructive testing of eight pins were performed.

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- ASSESSMENT OF HISTORIC COMPLEX MOVABLE BRIDGES
- FRACTURE CRITICAL INSPECTION OF TRUSS & FLOOR SYSTEM
- NBIS/AASHTO ELEMENT LEVEL INSPECTIONS
- REPAIR RECOMMENDATIONS, ESTIMATES, & REHABILITATION DESIGN
- STRUCTURAL ANALYSIS & LOAD RATINGS
- MECHANICAL & ELECTRICAL SYSTEMS INSPECTIONS
- NON-DESTRUCTIVE TESTING

Members Utilized in this Project Submittal: *Structural: Babak Naghavi, PE; Tim Noles, PE; Fred Wetekamm, PE; Amy Robards, PE; Ryan Nolan, PE; Tim Harrington, PE; Erik Diaz, PE; Linh Kim, EI; Mech/Elec: Don Marinelli, PE; Travis Kimmins, PE; Andrew Barthle, PE; Steve Mikucki, PE; Isaac Frederick, PE ; Ken Pecquet, EI*

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2020-2021 NBIS Inspection of the Governor Mario Cuomo Cable-Stayed Bridges**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	New York State Thruway Authority
Project location	Tarrytown, NY	Owner's Project Manager	Kirk Huang
Owner's address, phone, email	200 Southern Boulevard, Albany, NY, 12201-0189 | 518.337.8316 | kirk.huang@thruway.state.ny.us		
Services commenced by this firm (mm/yy)	04/20	Total consultant contract cost ($1,000's)	$5,300
Services completed by this firm (mm/yy)	12/22	Cost of consultant services provided by this firm ($1,000's)	$1,700

H&H is currently providing NBIS Bridge inspection services of the dual cable-stayed Mario Cuomo Bridge (both eastbound and westbound structures) including the multi girder approach spans and substructure units. The Mario Cuomo Bridge carries I-287 approximately 3.1 miles over the Hudson River and provides critical access for commuters and freight carriers between upstate NY and NYC and NJ. H&H developed the complex work zone traffic control plans to aid in minimizing impact to vehicular and pedestrian traffic on this major commuter corridor.

The majority of the inspection is accomplished through waterbrone access means; with a Harcon Bucket Boat. Work includes a hands-on field inspection of the approach spans through waterborne access and the cable-stayed main spans primary elements, including the towers, tower anchors, edge girders, stay cables and stay cable sockets as well as the main span floorsystem to develop FHWA compliant NBIS Inspection reports. The H&H inspection team worked closely with NYSTA to perform inspections within the final stages of construction for both bridges. Our QC remained on-site to monitor and review the teams in accordance with the approved Health & Safety Plan.

Inspection also included the 82 multi-girder approach spans and all appurtenances such as sign structures, high mast lights and standard light poles. Rope aided climbing was utilized for the inspection of the approach span superstructure which eliminated the need for work zone traffic control and Underbridge Inspection Units.

The bridge inspection was performed, processed and submitted using NYSDOT's Bridge Data Inventory System (BDIS), which is used to store inventory and inspection data and digital images.

Members Utilized in this Project Submittal: *Structural: Rob Drew, PE; Doug Mastropietro, PE; Tim Harrington, PE; Elizabeth Barabas, PE; and Paul Marzuillo, PE (5 Total); Marco Buyson, PE* (Prior Exp. incl. Lead Designer for design-build project)*

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- DUAL CABLE STAYED GIRDER BRIDGES - LONG SPAN COMPLEX CABLE BRIDGE
- MAIN SPAN LENGTH = 1200' BACK SPANS LENGTH = 515'
- 88 TOTAL SPANS WITH A TOTAL LENGTH = 31,766' (84 SPANS OVER WATER)
- AASHTO ELEMENT LEVEL INSPECTIONS
- ACCESS: BUCKET BOATS, SNOOPERS, LADDERS, CATWALKS, TRAVELERS, SPRAT ROPE-AIDED CLIMBING & MPT
- UNDERWATER BRIDGE INSPECTION & FATHOMETRIC SURVEY
- COORDINATION WITH ONGOING CONSTRUCTION
- NON-DESTRUCTIVE EVALUATION OF STAY CABLES

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2018-2020 MissDOT IDIQ Comprehensive Bridge Engineering Services**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	Mississippi DOT
Project location	Harrison County, Mississippi	Owner's Project Manager	Richard Withers, PE
Owner's address, phone, email	401 North West Street, Jackson, Mississippi 39215 | 601.359.7200 | rwithers@MDOT.ms.gov		
Services commenced by this firm (mm/yy)	05/18	Total consultant contract cost ($1,000's)	$3500
Services completed by this firm (mm/yy)	On-going	Cost of consultant services provided by this firm ($1,000's)	$3400

H&H was selected to provide movable bridge engineering services under the MissDOT IDIQ Master Contract to provide standard and special bridge services, statewide. The projects included in this contract were:

I-110 Biloxi Back Bay Bascule Bridge: H&H performed a Routine and Fracture Critical, Routine, and NBIS Element Level Inspection for all structural, mechanical, and electrical components of the complex movable bridge comprising a twin double-leaf rolling bascule bridge, with a cast-in-place concrete deck that carries four lanes of interstate traffic and a pedestrian walkway. Routine **structural inspection** consisted of a visual and hands-on examination of the approach spans, bascule spans and anchor spans, and the fender system. Fracture critical inspection consisted of a hands-on examination of the bascule span girders and floor beams, and the girders of both anchor spans. Routine **mechanical and electrical inspection** included an trunnion examination, span locks and operating machinery. A Final Report was prepared with a findings summary and proposed recommendations for bridge maintenance and repair.

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- LONG SPAN - COMPLEX MOVABLE BRIDGE
- IDIQ DELIVERY FOR BRIDGE INSPECTION & DESIGN
- NBIS /AASHTO ELEMENT LEVEL INSPECTIONS
- ROUTINE & FRACTURE CRITICAL BRIDGE INSPECTION
- REPAIR RECOMMENDATIONS, ESTIMATES, & REHAB DESIGN
- MECHANICAL & ELECTRICAL INSPECTION
- WORK ZONE TRAFFIC CONTROL
- CONSTRUCTION SUPPORT SERVICES
- ACCESS: BOATS, BARGE W/ MANLIFT, SNOOPERS, LADDERS, CATWALKS, TRAVELERS

SR-609 Bascule Bridge: H&H performed a site assessment and developed rehabilitation design plans for the structural, mechanical, and electrical components of this complex movable bridge. **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. **Mechanical work** included removing and replacing machinery with AASHTO compliant machinery (trunnions, span locks). **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. H&H is cuerrently providing construction phase services for the project.

SR-605 Bascule Bridge over Industrial Seaway Canal: H&H performed a site assessment and developed rehabilitation design plans for the structural, mechanical, and electrical components of this complex movable bridge involving roadway approaches, operator house, development of maintenance and repair plans, preparation of work zone traffic control plans, and construction support services. **Structural work** included removal of the existing paint system (lead abatement) and repainting all structural steel, replacing the existing grid deck, structural strengthening, replacing all high strength connection bolts exhibiting corrosion with mechanically-galvanized high strength bolts (A325), repairing cracks in structural steel, and repairing deck joints. **Mechanical work** included removing and replacing machinery with AASHTO compliant machinery (trunnions, span locks). **Electrical work** included replacing the emergency generator, motor control center, motor drives, span motors, and brakes. Also replaced all conduits and wiring, submarine cable and cabinets, and bascule pier navigation lighting. H&H is cuerrently providing construction phase services project.

Members Utilized in this Project Submittal: *Structural: Babak Naghavi, PE; Fred Wetekamm, PE; Tim Noles, PE; Tim Harrington, PE; Isaac Frederick, PE; Ryan Nolan, PE; Brianna Kovacs, PE; Elizabeth Barabas, PE; Erik Diaz, PE; Rob Vicedo, PE; Linh Kim, EI; Amy Robards, PE; Mech/Elec: Paul Skelton, PE; Andrew Barthle, PE; Matthew Gagliano, PE; Don Marinelli, PE; Steve Mikucki, PE; Raymond Lopez, PE; Christopher Svara, PE; Travis Kimmnis, PE; Kevin Ciampi, PE; Geotech: Raymond Mankbadi, PE*

17. Firm Experience:

Firm name	Hardesty & Hanover			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**William P. Lane (Chesapeake Bay) Bridge Inspection Services**			Firm responsibility (prime or sub?)	PrimeJV
Project number	n/a	Owner's name	Maryland Transportation Authority		
Project location	Baltimore, Maryland			Owner's Project Manager	Tekeste Amare, PE
Owner's address, phone, email	300 Authority Drive, Baltimore, MD 21222-2220 | 410.537.7889 | tamare1@mdta.state.md.us				
Services commenced by this firm (mm/yy)	08/17	Total consultant contract cost ($1,000's)			$15,000
Services completed by this firm (mm/yy)	09/22	Cost of consultant services provided by this firm ($1,000's)			$4,400

H&H is providing overall Project Management and Quality Control for the entirety of the structures as well as providing teams responsible for the inspection of the main suspended and approach spans. H&H was responsible for developing the overall fracture critical inspection plan as well as a plan for conducting ultrasonic pin testing for the pins that support the drop in spans located along the underdeck and through trusses. Overall on the project, H&H managed 10 multi-faceted teams concurrently providing inspection services.

The William P. Lane Bridge (commonly known as the Chesapeake Bay Suspension Bridge) is a major dual-span bridge in the U.S. state of Maryland. Spanning the Chesapeake Bay, it connects the state's rural Eastern Shore region with the more urban Western Shore. The original span opened in 1952 and, at the time, with a length of 4.3 miles (6.9 km), it was the world's longest continuous over-water steel structure (A parallel span was added in 1973). Each 4 plus mile length of bridge is comprised of a main suspended span with approach spans constructed in the form of underdeck and through deck trusses, steel multi stringer spans and prestressed concrete beam spans.

Members Utilized in this Project Submittal: Structural: Rob *Drew, PE; Doug Mastropietro, PE; Ryan Nolan, PE; David Lynch, PE; David Marcic, PE, SE; Elizabaeth Barabas, PE; Amy Robards, PE; Rodney Jarrett, PE; Brianna Kovacs, PE; Kaushil Patel, PE;* Mech/Elec: *Michael Tiné, PE; Don Marinelli, PE; Jason Biddle PE.*

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- LONG SPAN - COMPLEX DUAL SUSPENSION BRIDGE
- STIFFENING TRUSS & GUSSET PLATES INSPECTION
- STRUCTURAL ANALYSIS & LOAD RATINGS
- FRACTURE CRITICAL BRIDGE INSPECTION
- NBIS / AASHTO ELEMENT LEVEL INSPECTIONS
- REPAIR RECOMMENDATIONS, ESTIMATES, & REHABILITATION DESIGN
- ACCESS: BOATS, BARGE W/ MANLIFT, SNOOPERS, LADDERS, CATWALKS, TRAVELERS, SPRAT ROPE CLIMBING & WORK ZONE TRAFFIC CONTROL
- ON-CALL MANAGEMENT OF MULTIPLE & CONCURRENT INSPECTION TASKS

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**MissDOT-OSARC NBIS Inspection of Three Movable Bridges**	Firm responsibility (prime or sub?)	Sub
Project number	n/a	Owner's name	Mississippi DOT Office of State Aid Road Construction (OSARC)
Project location	Statwide, Mississippi	Owner's Project Manager	Robert Scheeler, PE
Owner's address, phone, email	412 East Woodrow Wilson Avenue, Jackson, MS | (601) 606-3292 | robert.scheeler@volkert.com		
Services commenced by this firm (mm/yy)	10/21	Total consultant contract cost ($1,000's)	$187
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$187

H&H is conducting in-depth inspections of the mechanical and electrical components of three movable bridges for Mississippi Office of State Aid Road Construction. These include the FAS 104/Wittman Road Bridge over Bayou Portage, the Popp's Ferry Road Bridge over Back Bay Biloxi, and the Cedar Lake Road Bridge over the Tchoutacabouffa River. H&H is performing these inspections as a subconsultant to Volkert Inc. for this contract, owing to our firm's expertise in the field of complex movable bridge inspection and rehabilitation.

To date, H&H has completed mechanical and electrical inspections of the Bayou Portage Bridge and the Popp's Ferry Bridge. The Cedar Lake Road Bridge is scheduled of March of 2022. Upon conclusion of each inspection, H&H will deliver inspection detailed inspection reports outlining the condition of the bridge and making recommendations for rehabilitation or replacement of deficient bridge machinery components.

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- LONG SPAN - COMPLEX MOVABLE BRIDGE INSPECTION
- NBIS / AASHTO ELEMENT LEVEL INSPECTIONS
- FRACTURE CRITICAL BRIDGE INSPECTION
- STRUCTURAL ANALYSIS & LOAD RATINGS
- MECHANICAL & ELECTRICAL INSPECTION
- REPORTING, INCLUDING SI&A & ELEMENT DATA
- REPAIR RECOMMENDATIONS, ESTIMATES, & REHAB DESIGN
- ON-CALL MANAGEMENT OF MULTIPLE & CONCURRENT TASKS

The inspection at the Bayou Portage Bascule Bridge, **a single leaf bascule bridge**, included a conditional assessment of the bridge's mechanical and electrical systems. H&H inspectors performed electrical current measurements, insulation testing of the submarine cable conductors, and identification of deficiencies affecting the operation and reliability of the bridge. The mechanical and hydraulic inspection included a visual inspection, clearance measurements, measurements of relative span motion under live load, pressure and flow measurements, and evaluation of all mechanical and hydraulic components.

The inspection at the Popp's Ferry Bascule Bridge, **a double leaf bascule bridge**, included a condition assessment of all electrical and mechanical systems, measurement of the motor loads during bridge operation, a determination of the insulation resistance of the submarine cable conductors, mechanical/hydraulic measurements and inspection, and the identification of deficiencies in the bridge's operation systems.

The inspection at Cedar Lake Road Bridge, **a center bearing swing bridge**, will include evaluations of the mechanical and electrical systems, insultation resistance testing, gear tooth measurements, and identification of deficiencies that may impact operation and reliability of the bridge.

Members Utilized in this Project Submittal: *Project Manager: Babak Naghavi, Mech/Elec: PE; Marco Lara, PE; Isaac Frederick, PE; Ken Pecquet, EI; Paul Skelton, PE; Travis Kimmins, PE*

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2017-2022 NBIS Inspection of the Goethals Cable-Stay Bridges**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	NYNJ Link Developer, LLC
Project location	Staten Island, NY and Elizabeth, NJ	Owner's Project Manager	Luke Chenery
Owner's address, phone, email	666 S. Front Street, Elizabeth, NJ | 908.527.0580 | luke.chenery@nynjlink.com		
Services commenced by this firm (mm/yy)	05/17	Total consultant contract cost ($1,000's)	$1,650
Services completed by this firm (mm/yy)	12/22	Cost of consultant services provided by this firm ($1,000's)	$1,650

H&H is performing NBIS Bridge Inspection Services of the dual Cable-Stayed Goethals Bridge (eastbound and westbound structures) including the prestressed concrete AASHTO I-beam girder structure approach spans. The Goethals Bridge carries I-278 over the Arthur Kill, connecting Staten Island to New Jersey and provides critical access for commuters and freight carriers between New Jersey and New York.

Critical work items include a hands-on **NBIS inspection of the prestressed girder approach spans and the cable-stayed main spans primary elements**, including the towers, stay cables and anchorages, edge girders, and main span floorsystem, redundancy truss and all substructure units to develop NYSDOT and NJDOT Reports and a Facility Condition Survey Narrative Report.

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- DUAL CABLE STAYED GIRDER BRIDGES - LONG SPAN COMPLEX CABLE BRIDGE
- MAIN SPAN LENGTH = 900' / BACK SPANS LENGTH = 368'
- 80 TOTAL SPANS WITH A TOTAL LENGTH = 12,558'
- 70 PRESTRESSED GIRDER APPROACH SPANS
- PRESTRESSED PRECAST DECK PANELS ON ALL SPANS
- AASHTO ELEMENT LEVEL PROGRAM DEVELOPMENT & INSPECTIONS
- UTILIZED DRONES FOR SUPPLEMENTAL INSPECTION OF THE PRESTRESSED GIRDER APPROACH SPANS
- UNDERWATER INSPECTION OF MAIN SPAN TOWERS AND FATHOMETRIC SURVEY OF THE ARTHUR KILL
- ACCESS: AERIAL LIFTS, SNOOPERS, BUCKET TRUCKS, LADDERS, TRAVELERS, SPRAT ROPE AIDED CLIMBING & WZTC
- COORDINATION WITH ONGOING CONSTRUCTION

The main signature crossing is a five-span edge girder cable-stayed bridge which supports composite lightweight precast deck panels with a concrete overlay. The approach spans are precast prestressed concrete multi-girders which support a partial depth precast concrete deck with a cast-in-place topping. Scope includes developing full bridge models (CSiBridge & Midas) to analyze the behavior and construction erection sequence of the bridges to determine load rating capacity of all primary members for main and approach spans. Developed live and dead loads were used to calculated ratings for all design, legal, specialized hauling and emergency vehicle types for the edge girders, stay cables, anchorages, floorbeams and prestressed approach span girders.

During the 2019 and 2020 Inspections, H&H piloted several Small Unmanned Aircraft Systems (drones) to conduct the inspection of the multi-girder spans. The bridge is located approximately 2.5 nautical miles south-southwest of Newark Liberty International Airport (EWR) primary runways 4L/22R and 4R/22L. As a result of this proximity, our project team coordinated frequently with the FAA to execute the inspection work using drones. This included obtaining FAA Airspace Authorizations in accordance with Title 14 of the Code of Federal Regulations – Part 107.41, and placed phone calls to EWR Air Traffic Control before and after all drone work. The team used First-Person-View goggles to inspect these spans with real-time high definition video and completed NBIS inspection reports based on the results.

Members Utilized in this Project Submittal: *Structural: Jim Phillips, PE; Rob Drew, PE; Doug Mastropietro, PE; Rima Zahalan, PE; Paul Marzuillo, PE; Tim Harrington, PE; Elizabeth Barabas, PE; Kaushil Patel, PE; Jordan Warncke, PE, SE; David Marcic, PE, SE; Marco Buyson, PE*

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2005/2011/2021 Marine Parkway and Cross Bay Bridges NBIS Biennial Inspection**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	MTA Bridges and Tunnels
Project location	Brooklyn, New York	Owner's Project Manager	Angelo Genna
Owner's address, phone, email	2 Broadway, New York, NY, 10004 | 718.692.5644 | angelo.genna@mtacd.org		
Services commenced by this firm (mm/yy)	01/05	Total consultant contract cost ($1,000's)	$5,250
Services completed by this firm (mm/yy)	12/21	Cost of consultant services provided by this firm ($1,000's)	$3,750

H&H performed the 2005, 2011, and the 2021 recent NBIS Inspections at the Marine Parkway and Cross Bay Bridge Facilities. Our frequent and pro-active communication with TBTA staff helped the Authority to maintain traffic and toll operations by allowing Marine Parkway Facility Staff to resolve safety issues during lane closures. H&H also adjusted inspection staff assignments to accommodate ongoing maintenance projects. All reports were submitted on time.

The overall scope of work included bridge structure inspection at the Marine Parkway Bridge, the Rockaway Point Boulevard Bridge, the Riis Park Pedestrian Bridge, the Cross Bay Bridge and its five associated vehicular ramps. In addition to the inspection, work included preparation of Reports (Gusset Plate, Concrete Areas, Lights & Sign Gantries, Paint Condition, Narrative, and Vulnerability Assessment). An in-depth monitoring of prestressed concrete girder cracking at the Cross Bay Bridge was performed as an additional task in 2011. An elevator inspection at the lift span towers and the mechanical and electrical inspection of the lift span were also included in the inspections in 2011.

As part of the 2011 NBIS Inspection, H&H teams performed special inspections of all structures at both Facilities for damage following Hurricane Irene. Multiple inspection teams were mobilized within 24 hours of the storm's passing in order to perform erosion assessments and propose hardening options in order to improve structure resiliency. In 2012, H&H teams performed a visual and hands-on inspection of key components to the bridges and associated ramps following the passage of Hurricane Sandy. A variety of disaster-related conditions were observed, including damage to lighting, signs, protective screens and utility elements on the bridge. The lift span tower pier fenders and pier lighting exhibited significant damage as did the south abutment and pedestrian pathway beneath the south cellular structure, due to erosion.

Scopes of Work Relevant to the LADOTD IDIQ contract:

- INSPECTION OF MOVABLE BRIDGES
- INSPECTION OF FRACTURE CRITICAL TRUSS AND GIRDER ELEMENTS
- MECHANICAL & ELECTRICAL INSPECTION OF LIFT SPAN
- USE OF CLIMBING & SPECIALTY ACCESS TECHNIQUES
- MINIMIZED ANY DISRUPTION TO TRAFFIC AND BRIDGE OPERATIONS
- GUSSET PLATE INSPECTION AND LOAD RATING ANALYSIS
- OVERHEAD SIGN STRUCTURE EMERGENCY RESPONSE

Members Utilized in this Project Submittal: *Rob Drew, PE; Doug Mastropietro, PE; Elizabeth Barabas, PE*

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2020-2021 NBIS Biennial and Interim Inspection of the Brooklyn Bridge**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	New York State DOT
Project location	Brooklyn, New York	Owner's Project Manager	Bill LeBlanc, PE
Owner's address, phone, email	Hunter's Point Plaza, 47-40 21St Street, Long Island City, New York 11101 | 718.482.4594 | Bill.LeBlanc@dot.ny.gov		
Services commenced by this firm (mm/yy)	01/20	Total consultant contract cost ($1,000's)	$3,100
Services completed by this firm (mm/yy)	05/22	Cost of consultant services provided by this firm ($1,000's)	$1,850

H&H is providing a general NBIS bridge inspection of the Brooklyn Bridge, connecting Brooklyn with lower Manhattan. The Brooklyn Bridge is a hybrid cable supported structure which utilizes two major suspension systems for support of its suspended spans: flared cable stays and a conventional suspension bridge cable system with vertical suspender supports. This complex long-span fracture critical cable suspension bridge main span's length is 1,596 feet and features 75 total spans.

H&H, as the prime consultant, is leading the AASHTO Element Level inspections, supervising four inspection teams. Work consists of the NBIS Biennial Inspection of the main suspension bridge including both Manhattan and Brooklyn Approaches. Bridge superstructure, substructure, top of deck elements, and approaches are being inspected and documented in accordance with the requirements of the Uniform Code of Bridge Inspection (UCBI), BDIS, FHWA Bridge Inspection Reference Manual, AASHTO Manual of Bridge Evaluation, NYSDOT's Brooklyn Bridge Flagging Guidelines, AASHTO Manual for Bridge Element Inspection.

Other responsibilities of this contract include a five-volume comprehensive Biennial Inspection Report containing BDIS output for element level condition state data and photographs, flag reports and NSCO volumes, detailed element finding tables, as well as inventory updates. This project includes crossed vertical clearances and over 100 NYSDOT BDIS flag reports.

Scopes of Work Relevant to the LADOTD IDIQ contract:

- LONG SPAN – HISTORIC COMPLEX SUSPENSION BRIDGE
- FRACTURE CRITICAL INSPECTION OF CABLES STAYS, THROUGH TRUSS SPANS, APPROACH SPAN GIRDERS, & FLOORBEAMS
- NBIS / AASHTO ELEMENT LEVEL INSPECTIONS
- AERIAL LIFTS, BUCKET TRUCKS, LADDERS, TRAVELERS, AND SPRAT ROPE ACCESS
- COMPLEX WORK ZONE TRAFFIC CONTROL
- BDIS INVENTORY UPDATES

The bridge is being accessed with aerial lifts, bucket trucks, ladders, travelers, and SPRAT rope access and includes WZTC, NYCDOT Street and Highway OCMC Permits, and coordination with ongoing construction. Inspection of the Manhattan and Brooklyn Approaches includes evaluation of the stone masonry and reinforced concrete arches, vaults, and steel framing at abandoned subway tunnels; spandrel arches, steel multi-beam framing systems; steel girder to floorbeam framing at the Brooklyn Approach; steel arches supporting the Franklin Square trusses; top of deck elements; as well as the Manhattan and Brooklyn stone masonry towers and the suspension span anchorages. **A total of 108 flags were issued during the course of the 2020 Biennial Inspection, 31 of which were newly flagged condition findings.** The inspection of the suspended Spans includes evaluation of the four main cables, suspender ropes and diagonal cable stays, stiffening trusses, steel trussed floorbeams, steel framing system, and top of deck elements.

Members Utilized in this Project Submittal: *Structural: Rob Drew, PE; Doug Mastropietro, PE; Tim Harrington, PE; Elizabeth Barabas, PE; Kaushil Patel, PE; Paul Marzuillo, PE*

17. Firm Experience:

Firm name	Hardesty & Hanover		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	**MDTA On-Call Annual Facilities NBIS Inspection Services, Statewide**		Firm responsibility (prime or sub?)	PrimeJV	
Project number	n/a	Owner's name	Maryland Transportation Authority		
Project location	Statwide, Maryland		Owner's Project Manager	Tekeste Amare, PE	
Owner's address, phone, email	300 Authority Drive, Baltimore, MD 21222-2220 | 410.537.7889 | tamare1@mdta.state.md.us				
Services commenced by this firm (mm/yy)	08/13	Total consultant contract cost ($1,000's)		$15,000	
Services completed by this firm (mm/yy)	On-going	Cost of consultant services provided by this firm ($1,000's)		$15,000	

H&H led the JV team in the detailed condition inspection and evaluation of over 300 structures, including routine, complex structures, including MDTA's signature long span bridges: William Preston Lane Jr. Memorial Bridge; Harry W. Nice Bridge; Millard E Tydings Bridge; Thomas J. Hatem Bridge; Francis Scott Key Bridge (FSK); K-Truss Bridge. Work involved hands-on, interim and visual inspections of all assets within these facilities and utilizing the Authority's database (ASIR) to prepare annual inspection reports including photographs, access requirements, emergency reponse findings, repair reccommendations, audit inspections, and updating SI&A and element level inspection data.

Thomas J. Hatem Bridge

The **annual inspections of MDTA's 1500+ assets** including 308 work horse bridges and the seven signature bridges, small structures, retaining walls, noise walls, sign structures and high mast light poles, movable spans, fender and dolphin structures, toll facilities, drainage and roadway improvements associated therein. The structures are comprised of a wide variety of construction and material types including, suspension spans, steel deck truss spans, steel cantilevered deck truss spans, prestressed concrete arch, prestressed concrete beams, cast-in-place concrete, weathering steel, box girders, box culverts, arch culverts and pipe culverts. H&H performed the inspection of the Harry W. Nice Bridge approach spans, the Millard E. Tydings Bridge deck truss spans, and the FSK Bridge through truss and suspended deck span.

H&H utilized **rope access techniques** using vertical drops, power chairs and rigged lines to provide100% hands-on inspection of suspension cables, suspender ropes, top and bottom truss chords, and other superstructure elements. These techniques greatly reduced the number of lane closures and disruption to the public and expedited the inspections.

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- LONG SPAN - COMPLEX SUSPENSION BRIDGE INSPECTION
- NBIS/AASHTO ELEMENT LEVEL INSPECTIONS
- FRACTURE CRITICAL BRIDGE INSPECTION
- STRUCTURAL ANALYSIS & LOAD RATINGS
- REPORTING, INCLUDING SI&A & ELEMENT DATA
- NON-DESTRUCTIVE TESTING
- REPAIR RECOMMENDATIONS, ESTIMATES, & REHAB DESIGN
- BOATS, BARGE W/ MANLIFT, SNOOPERS, LADDERS, CATWALKS, TRAVELERS, SPRAT ROPE ACCESS
- COMPLEX WORK ZONE TRAFFIC CONTROL
- ON-CALL MANAGEMENT OF MULTIPLE & CONCURRENT TASKS

For more than 20 years, H&H's dedicated bridge engineers have supported MDTA efforts to ensure full operability of their significant bridge structures, coordinated multiple facets of ongoing, concurrent tasks, provided on-site engineering project management and supported the continuous improvement of MDTA's bridge inspection program. H&H also led the development of the movable bridge portion of the owner's Facilities Inspection Manual (FIM).

Members Utilized in this Project Submittal: *Structural: Dave Marcic, PE, SE; Ryan Nolan, PE; David Lynch, PE; Tim Harrington, PE; Amy Robards, PE; Elizabeth Barabas, PE; Kaushil Patel, PE; Brianna Kovacs, PE; Rodney Jarrett, PE; Mech/Elec: Don Marinelli, PE; Michael Tiné, PE; Jason Biddle, PE*

17. Firm Experience:

Firm name	Hardesty & Hanover	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2008/2012/2016/2020 NBIS Inspections of Robert F. Kennedy (RFK) Harlem River Lift Bridge**	Firm responsibility (prime or sub?)	Prime
Project number	n/a	Owner's name	MTA Bridges and Tunnels
Project location	New York, New York	Owner's Project Manager	Angelo Genna
Owner's address, phone, email	2 Broadway, New York, NY, 10004 | 718.692.5644 | angelo.genna@mtacd.org		
Services commenced by this firm (mm/yy)	05/08	Total consultant contract cost ($1,000's)	$9,200
Services completed by this firm (mm/yy)	12/21	Cost of consultant services provided by this firm ($1,000's)	$6,800

H&H has successfully delivered numerous biennial inspection contracts in 2008, 2012, 2016, and 2020 for the NBIS Bridge Inspection of the RFK bridge facility (Group B) which involves all structural components of the RFK Harlem River Lift Bridge. The lift bridge is comprised of 124 spans including the concrete approach spans from the FDR Drive, the Manhattan Approach steel framing superstructure, the Main Lift and truss spans, Randall's Island original viaduct and widening spans, and Randall's Island Approach Spans. In addition to this primary structure, H&H also inspected nine vehicular ramps and two pedestrian ramps throughout this facility.

Work included the inspection and evaluation of all structural components in accordance with NBIS requirements. Significant considerations were given to resolve Work Zone Traffic Control issues and restrictions by working at night and coordinating closely with City agencies to inspect bridges over urban streets. The inspections included all elements on the three through truss spans, decks, structural framing, and piers, as well as all abutments and retaining walls. Other inspection elements included: approach structures appurtenances, signs and their supporting structures, light standards and electrical equipment on bridges and toll plazas, including utilities, lighting, and communication equipment. In addition, our inspectors, specializing in asset management development worked closely with MTA to develop a new software prototype for computerized data collection in the field. In addition, H&H developed the AASHTO element level inspection program for this structure. H&H identified and prepared quantities for over 120,000 bridge elements.

Scope of Work Relevant to the Contract:

- COMPLEX MOVABLE BRIDGE NBIS/AASHTO ELEMENT INSPECTION
- LONG SPAN TRUSS BRIDGE
- FRACTURE CRITICAL INSPECTION OF THROUGH TRUSS SPANS, APPROACH SPAN GIRDERS, & FLOORBEAMS
- STRUCTURAL ANALYSIS & LOAD RATINGS
- COMPLEX WORK ZONE TRAFFIC CONTROL
- RED PIA FLAGS EMERGENCY RESPONSE
- ASSET MANAGEMENT DEVELOPMENT & BDIS INVENTORY UPDATES
- MANAGEMENT OF MULTIPLE & CONCURRENT INSPECTION TASKS
- SPRAT ROPE AIDED CLIMBING

Our inspection team responded to five emergency conditions that warranted the issuance of a PIA flag or posting the bridge for load. H&H qualified NBIS Team Leaders developed lane diversion schemes that alleviated live load from the affected areas thereby circumnavigating the need for a PIA flag or load posting. Load ratings were calculated for primary structural elements that were yellow or red flagged for poor structural conditions. Our inspectors worked directly with the client to determine strengthening and/or shoring needs and also assisted in lane diversion schemes to alleviate live loads from deficient elements. Each inspection also included the elevators at the lift span towers, scour evaluation, fathometric survey, and the mechanical and electrical systems. H&H's in-house mechanical and electrical inspection teams provided on-site troubleshooting and detailed repairs with the span and counterweight guides as well as rebalancing through strain gauge testing. H&H is currently performing similar and relevant services under the 2020-2021 NBIS Bridge Inspection contract for MTA Bridges & Tunnels.

Members Utilized in this Project Submittal: ***Structural:*** *Rob Drew, PE; Doug Mastropietro, PE; Tim Harrington, PE; Rima Zahalan, PE; Steve Harlacker, PE, SE; Elizabeth Barabas, PE;* ***Mech/Elec:*** *Steve Mikucki, PE; Matt Gaglianoe, PE; Ray Lopez, PE*

17. Firm Experience:

Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Retainer Contract for Underwater Bridge Inspections, Statewide TO 1-10**	Firm responsibility (prime or sub?)	Prime
Project number	4400003533	Owner's name	Louisiana DOTD
Project location	Baton Rouge, LA	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 have been inspected statewide, including many in District 02. 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 fresh waters 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.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, EI; Josh Martinez, PE; Jeffrey Gazarek*

Scope of Work Relevant to the Contract:

- NBIS UNDERWATER BRIDGE INSPECTION
- WORK ZONE SAFETY
- EMERGENCY DAMAGE INSPECTIONS
- BATHYMETRY AND IMAGERY SURVEYS
- NON-DESTRUCTIVE TESTING
- ELECTRONIC SUBMITTALS
- NBE AND BME RATINGS

17. Firm Experience:

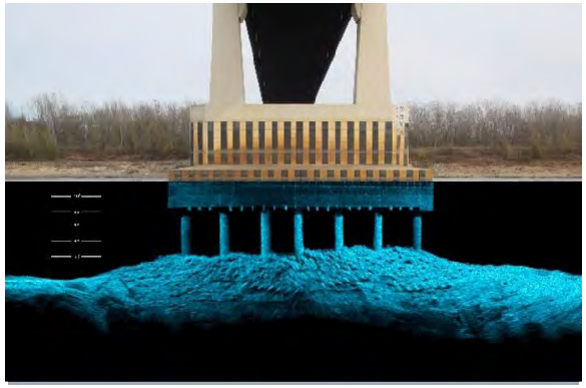
Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Retainer Contract for Underwater Bridge Inspections, Statewide TO 1-10**	Firm responsibility (prime or sub?)	Prime
Project number	4400009104	Owner's name	Louisiana DOTD
Project location	Baton Rouge, LA	Owner's 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

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 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.

Task Orders 1-2: M&N performed underwater inspection of 45 bridges over large waterways, including 8 bridges crossing the Mississippi River. These inspections were performed statewide and included bridges in both riverine and coastal environments. Underwater Acoustic Imaging (UAI) was used for each inspection and was especially useful when diving conditions were hazardous.

Task Order 4: M&N performed underwater inspection of 35 submerged corrugated metal pipe (CMP) culverts, with a total length of 13,944 linear feet, crossing Interstate 10. The culverts were inspected using remotely operated vehicles (ROV) to identify areas of sediment buildup at each opening and at 50-ft intervals throughout the culvert.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, EI; Josh Martinez, PE; Jeffrey Gazarek*



Scope of Work Relevant to the Contract:

- NBIS UNDERWATER BRIDGE INSPECTION
- WORK ZONE SAFETY
- EMERGENCY DAMAGE INSPECTIONS
- BATHYMETRY AND IMAGERY SURVEYS
- NON-DESTRUCTIVE TESTING
- ELECTRONIC SUBMITTALS
- ASSETWISE W/ NBE AND BME RATINGS

17. Firm Experience:

Firm name	Moffatt & Nichol			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2017 Retainer Contract for Underwater Bridge Inspections, Statewide - Task Orders 3, 6, & 7**			Firm responsibility (prime or sub?)	Prime
Project number	4400009104	Owner's name	Louisiana DOTD		
Project location	Baton Rouge, LA			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)		$3,820
Services completed by this firm (mm/yy)	12/21		Cost of consultant services provided by this firm ($1,000's)		$3,017

As part of the LADOTD 2017 Retainer Contract for Underwater Bridge Inspections, M&N completed Task Orders 3, 6 and 7 (currently ongoing) All inspections were completed in accordance with current FHWA, CFR, AASHTO, and LADOTD standards and guidelines.

Task Orders 3 and 6: M&N performed underwater inspection of 592 bridges crossing small to mid-sized waterways, including six culverts requiring penetration dives. M&N was able to efficiently inspect these bridges using a combination of shore entry and small to mid-sized boats, completing all inspections on or ahead of schedule. Additionally, M&N inspected 12 bridges passing through large swamps that were between 3 and 14 miles long and 4 bridges crossing large waterways (Mississippi River & Wax Lake Outlet). M&N seamlessly integrated Engineering Operations (eO) inspector divers into the inspection teams for these task orders, which increased the project manager's ability to adapt to unforeseen changes and maintain schedule. Many of these bridges crossed waterways inhabited by alligators, which posed a potential threat to the inspectors. To decrease the probability of an incident, M&N implemented the use of a Louisiana Department of Wildlife and Fisheries-approved nuisance alligator trapper.

Task Order 7: This is the planned final task order for this retainer contract. Included in this task order will be the underwater inspection of 216 bridges in Districts 02, 03, 07, 08, 61, and 62, over small to midsized waterways.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, PE; Joshua Martinez, PE; Jeffrey Gazarek*

Scope of Work Relevant to the Contract:

- NBIS UNDERWATER BRIDGE INSPECTION
- WORK ZONE SAFETY
- EMERGENCY DAMAGE INSPECTIONS
- BATHYMETRY AND IMAGERY SURVEYS
- NON-DESTRUCTIVE TESTING
- ELECTRONIC SUBMITTALS
- ASSETWISE W/ NBE AND BME RATINGS

17. Firm Experience:

Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2017 Retainer Contract for Underwater Bridge Inspections, Statewide - Task Orders 3, 6, & 7**	Firm responsibility (prime or sub?)	Prime
Project number	4400009104	Owner's name	Louisiana DOTD
Project location	Baton Rouge, LA	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)	$3,820
Services completed by this firm (mm/yy)	12/21	Cost of consultant services provided by this firm ($1,000's)	$3,017

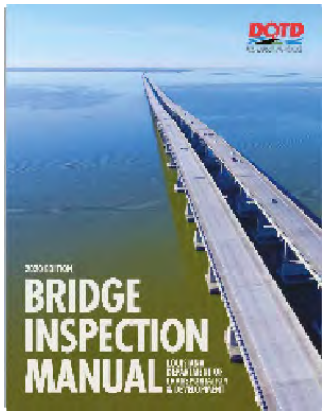
Moffatt & Nichol was tasked with the development of the first comprehensive Bridge Inspection Manual (BIM) for the Louisiana Department of Transportation & Development (DOTD) Bridge Program. Chace Hulon, PE, served as the Chief Editor of the DOTD BIM.

The BIM is designed to capture all previous policies, directives, memorandums, manuals, and forms into a single, centralized reference manual. The BIM will align the goals of the Bridge Inspection Office Headquarters with all nine DOTD districts. The BIM will also allow 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 as a reference file to be stored on tablets that is accessible to all DOTD bridge inspection team leaders. The BIM includes nine chapters that are intuitively ordered in a systemic fashion with hyperlinks throughout for quick referencing to vital documents. The BIM also allows for documented annual revisions or critical updates following federal policy changes.

Moffatt & Nichol was responsible for the following:

- Compiling all reference material within the DOTD
- Designing the outline of the BIM
- Holding routine (weekly) progress meetings with the DOTD project manager, Federal Highway Administration (FHWA) representative, and subject matter experts on the committee
- Providing statewide programmatic guidance with a national perspective
- Ensuring compliance with the FHWA's 23 National Bridge Inspection Program Metrics
- Presenting the BIM at a DOTD statewide conference



Scope of Work Relevant to the Contract:

- DOTD BRIDGE PROGRAM EXPERIENCE
- NBIS UNDERWATER BRIDGE INSPECTION POLICIES
- FHWA QA METRICS
- ASSETWISE W/ NBE AND BME RATINGS

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, PE*

17. Firm Experience:

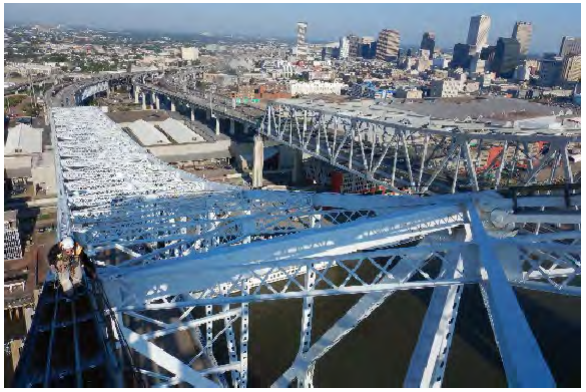
Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**IDIQ Contract for In-Depth Bridge Inspection**	Firm responsibility (prime or sub?)	Sub
Project number	4400009104	Owner's name	Louisiana DOTD
Project location	Baton Rouge, LA	Owner's Project Manager	Stephanie Doolittle, PE
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802 / 225.379.1500 / jasmine.galjour@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 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 have been inspected statewide, including many in District 02. 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 fresh waters 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.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, EI; Josh Martinez, PE; Jeffrey Gazarek*



Scope of Work Relevant to the Contract:

- NBIS BRIDGE INSPECTION
- ORLEANS DISTRICT
- NON-DESTRUCTIVE TESTING
- ELECTRONIC SUBMITTALS
- WORK ZONE SAFETY
- ASSETWISE W/ NBE AND BME RATINGS

17. Firm Experience:

Firm name	Moffatt & Nichol			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**IDIQ Contract for Inventory and Inspection of Sign Trusses Statewide**			Firm responsibility (prime or sub?)	Prime
Project number	4400017089	Owner's name	Louisiana DOTD		
Project location	Baton Rouge, LA			Owner's Project Manager	Haylye Brown, PE
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, LA 70802, (225)379-1500, haylye.brown@la.gov				
Services commenced by this firm (mm/yy)	09/20			Total consultant contract cost ($1,000's)	$3,000
Services completed by this firm (mm/yy)	Ongoing			Cost of consultant services provided by this firm ($1,000's)	$839

As part of the current five-year retainer contract, Moffatt & Nichol (M&N) is performing the inventory and inspection of overhead sign structures in accordance with FHWA guidelines. M&N previously lead the development of the LaDOTD Sign Truss Inspection Program and continues to improve the program with the added creation of an interactive GIS database.

Over 1,000 overhead sign structures have had their second routine inspection completed thus far, with an additional 200 interim inspections to monitor deficiencies more frequently. In addition, 205 post-event damage inspections were completed in 2020 due to Hurricane Laura and an additional 900 post-event damage inspections are being performed due to Hurricane Ida, including structures along this corridor.

Inspections included non-destructive techniques on steel and aluminum welds, high stress moment connections, and other fatigue prone details with deficiencies. Structure configurations largely consist of bridge and cantilever signs with drilled shafts, pile supported footings, or bridge mounted foundations. The majority of the structures are aluminum box trusses that have a shorter fatigue life. Ultrasonic flaw detection is used by certified inspectors to examine the anchor rods for fractures or partial fractures. Rope access techniques are utilized to safely access primary elements while eliminating traffic interruptions and conserving costs.

Work zone safety is a critical component to the overall safety and success of this project. M&N lead inspectors are ATSSA certified technicians and/or supervisors, along with an expert traffic control company to assist with safe temporary lane closures on the highway. M&N has humbly maintained a zero-incident safety record throughout the life of this contract.

M&N is creating the Inventory & Inspection Manual for Ancillary Structures for the LaDOTD under this current contract. Tablets were utilized in the field with a custom designed application that allowed for quick and efficient Quality Control reviews from the field. Separate QC 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 qualified NBIS team leader.Assurance reviews were performed on 5% of the reports by an independent NBIS team leader.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, PE; Jeffrey Gazarek; Joshua Martinez, PE*

Scope of Work Relevant to the Contract:

- Program Support
- Work Zone Safety
- Minimal Traffic Impacts
- Nondestructive Evaluation
- Rope Access and Fall Protection
- Repair Recommendations
- ASSTA work zone safety and TTC

17. Firm Experience:

Firm name	Moffatt & Nichol	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Mississippi Department of Transportation (MDOT) NBIS Underwater Bridge Inspections**	Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Mississippi Department of Transportation
Project location	MDOT Districts 1 & 2	Owner's Project Manager	Richard Withers, PE
Owner's address, phone, email	1401 North West Street, Jackson, MS, (601)359-7176, rwithers@mdot.ms.gov		
Services commenced by this firm (mm/yy)	08/14	Total consultant contract cost ($1,000's)	$600
Services completed by this firm (mm/yy)	12/16	Cost of consultant services provided by this firm ($1,000's)	$469

Under a three-year retainer contract, M&N performed Levels I, II and III underwater inspections (UWI) of 72 bridges in Districts 1 and 2. Underwater bridge inspections included the use of high-resolution scanning SONAR of selected bridge elements. All inspections were conducted by a team of ADCI-certified engineer-divers in accordance with the FHWA BIRM, AASHTO MBE, NBIS requirements, and MDOT PONTIS Inspection Manual. Several multi-span, continuous and non-continuous bridges consisting of concrete, steel, and timber elements were inspected. Site conditions consisted of riverine conditions with varying levels of current and minimal visibility.

Final inspection reports for each structure included a description of each bridge, the elements inspected, an underwater inspection plan, shoreline and waterway conditions, NBIS ratings, AASHTO and PONTIS element- level ratings, recommendations for repair and maintenance, and channel contour drawings. Bridges were reviewed and evaluated for critical structural conditions and a pre-defined critical finding protocol was implemented for necessary remedial action.

The M&N dive team responded to an emergency UWI request within 24 hours to perform interim underwater inspections of the I-55 Bridge over Hickahala Creek. High resolution acoustic imaging was utilized to identify structural deficiencies and determine the limits of scour around Piers I, II, and III. Riverine conditions allowed for safe diving conditions at the time of inspection. Engineer-divers performed the UWI in unison with acoustic imaging to accurately evaluate the subsurface conditions of the substructure units and the channel bottom.

Members Utilized in this Project Submittal: Chace Hulon, PE; Steven Armstrong, PE

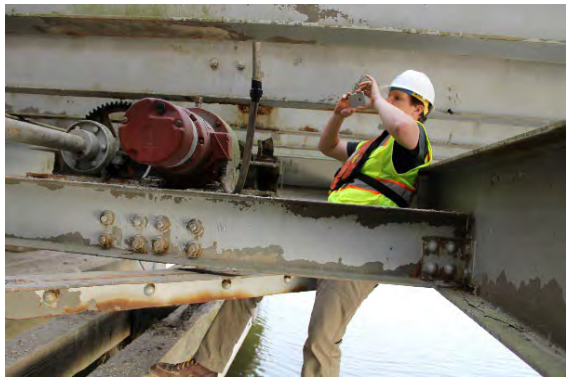
Scope of Work Relevant to the Contract:

- NBIS UNDERWATER BRIDGE INSPECTION
- UNDERWATER ACOUSTIC IMAGING
- EMERGENCY INSPECTION SERVICES
- BATHYMETRY AND IMAGERY SURVEYS
- NON-DESTRUCTIVE TESTING
- ELECTRONIC SUBMITTALS
- ASSETWISE W/ NBE AND BME RATINGS

17. Firm Experience:

Firm name	M&N	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**LADOTD In-Depth Bridge Inspection Contract**	Firm responsibility (prime or sub?)	Sub
Project number	H.009730.5	Owner's name	Louisiana Department of Transportation and Development
Project location	Baton Rouge, LA	Owner's Project Manager	Haylye Brown, PE
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70804 | 504.528.3309 | haylye.brown@la.gov		
Services commenced by this firm (mm/yy)	11/19	Total consultant contract cost ($1,000's)	$1200
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$695

M&N is part of a team responsible for performing bridge inspections of complex structures such as cantilever trusses, prestressed concrete segmental box bridges, and movable bridges for statewide projects covered by an indefinite delivery/indefinite quantity contract under separate task orders.



The contract involves providing all services required to perform statewide NBIS in-depth, routine, fracture critical, and underwater inspections of complex structures to include mechanical and electrical inspections by certified engineers. Coating system assessments, nondestructive evaluations, traffic control services, and specialty access services are often utilized on this project.

In-depth inspection reports include precision measurements and testing results of all elements and systems, element level data collection and corrections, and recommendations as to prioritized repairs and general maintenance functions. M&N has provided specialty access services to include confined space entry, mobile elevated work platforms, fall protection, rope access, UAS drone access, and underwater diving operations. M&N has also provided mechanical and electrical inspections with NHI-certified engineers on swing span bridges to evaluate hydraulic and electro-mechanical systems on swing bridges according to the AASHTO Movable Bridge Inspection, Evaluation, and Maintenance Manual.

M&N is planning the SPRAT rope access operations for the main truss spans of the Vicksburg Bridge to safely eliminate the need for lane closures and avoid traffic disruptions to the public.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, PE; Jeffrey Gazarek; Christopher Eschenbach*

Scope of Work Relevant to the LaDOTD IDIQ Contract:

- LONG SPAN - COMPLEX MOVABLE BRIDGE Complex bridge inspection
- Movable bridge inspection with M&E
- Non-destructive testing
- Fatigue prone details
- Work Zone Safety
- Fall Protection
- Electronic Submittals
- Bridge IDIQ contract
- NBE, BME, and ADE ratings

17. Firm Experience:

Firm name	M&N	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**LADOTD In-Depth Bridge Inspection Contract**	Firm responsibility (prime or sub?)	Sub
Project number	H.009730.5	Owner's name	Louisiana Department of Transportation and Development
Project location	Baton Rouge, LA	Owner's Project Manager	Haylye Brown, PE
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, LA 70802 | 225.379.1500 | haylye.brown@la.gov		
Services commenced by this firm (mm/yy)	01/20	Total consultant contract cost ($1,000's)	$1060
Services completed by this firm (mm/yy)	On-going	Cost of consultant services provided by this firm ($1,000's)	$595

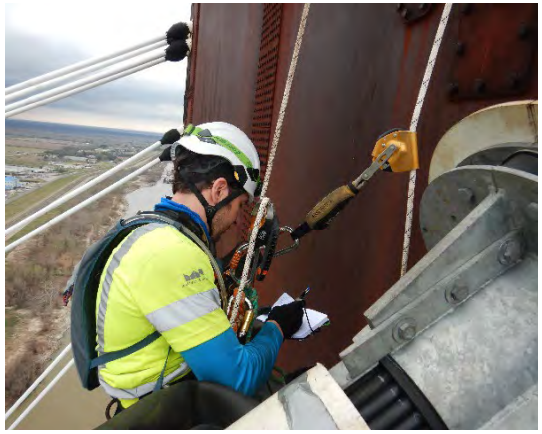
M&N is part of a team responsible for performing bridge inspections of complex structures such as long-span cantilever trusses, cable stayed bridges, and steel through arches for statewide projects covered by an indefinite delivery/indefinite quantity contract under separate task orders.

The contract involves providing all services required to perform statewide NBIS in-depth, routine, fracture critical, and underwater inspections of complex structures. Coating system assessments, nondestructive evaluations, traffic control services, and specialty access services are often utilized on this project.

In-depth inspection reports include precision measurements and testing results of all elements and systems, element level data collection and corrections, and recommendations as to prioritized repairs and general maintenance functions. M&N has provided specialty access services to SPRAT rope access (all levels), mobile elevated work platforms, fall protection, UAS drone access, and underwater diving operations.

M&N has safely and successfully introduced SPRAT rope access operations to the I-10 Bridge over the Mississippi River (New Bridge in Baton Rouge). The DOTD now prefers to utilize this method to safely eliminate the need for lane closures and avoid traffic disruptions to the public.

Members Utilized in this Project Submittal: *Chace Hulon, PE; Steven Armstrong, PE; Jeffrey Gazarek; Christopher Eschenbach; Joshua Martinez, PE; Charles Balzarini, PE; Matt Balzarini, PE*



Scope of Work Relevant to the LaDOTD IDIQ Contract:

- Complex bridge inspection
- Cable-stayed bridges
- Non-destructive testing
- Fatigue prone details
- Work Zone Safety
- Fall Protection
- Electronic Submittals
- Bridge IDIQ contract
- NBE, BME, and ADE ratings

17. Firm Experience:

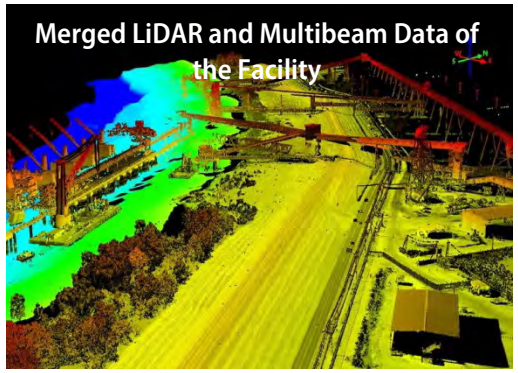
Firm name	Chustz Surveying, LLC	Past Performance Evaluation Discipline(s)*	Survey
Project name	**Impala Burnside Terminal Survey**	Firm responsibility (prime or sub?)	Prime
Project number	16-514	Owner's name	Impala Terminals Burnside, LLC
Project location	Ascension Parish, LA	Owner's Project Manager	Jonathan Shull
Owner's address, phone, email	5050 HWY 44, Darrow, LA | 225.289.5228 | jonathan.shull@impalaterminals.com		
Services commenced by this firm (mm/yy)	09/16	Total consultant contract cost ($1,000's)	$48
Services completed by this firm (mm/yy)	01/17	Cost of consultant services provided by this firm ($1,000's)	$48

Chustz Surveying was requested to perform high resolution multibeam and LiDAR surveys of the Impala Terminals Burnside facility in Darrow, Louisiana at Mississippi River mile 170. The topographic survey encompassed the entire facility and the hydrographic survey covered from water's edge to approximately 1200 feet into the Mississippi River.

Chustz deployed a two person multibeam hydrographic survey crew with a 28 foot survey vessel equipped with a Reason Seabat 7101 Multibeam Surveying System to the site to collect the required hydrographic data. A four person crew was deployed to the site to establish control utilizing RTK and GPS surveying methods. A two person Aerial LiDAR crew was also deployed conduct the aerial survey with our RiEGL RiCOPTER.

The Aerial LiDAR data was processed using RIEGL's RiProcess software while the RTK and Conventional data was processed utilizing Trimble TBC software. The hydrographic data was processed using the latest version of HYPACK and the data sets were merged and underwent our QC/QA procedures. Final deliverables were then prepared and submittal on time.

Members Utilized in this Project Submittal: *James H. Chustz, Jr., PLS; J. Alex Chustz, PLS.*



Scope of Work Relevant to the Contract:

- Hydrographic and Topographic Surveys
- Underwater Imaging

17. Firm Experience:

Firm name	Chustz Surveying, LLC	Past Performance Evaluation Discipline(s)*	Survey
Project name	**Mississippi, Atchafalaya, and Red River Revetment Surveys**	Firm responsibility (prime or sub?)	Prime
Project number	W912P8-20-C-0057	Owner's name	New Orleans District Army Corps of Engineers
Project location	Throughout the New Orleans District	Owner's Project Manager	M. Damien French
Owner's address, phone, email	7400 Leake Ave, New Orleans, LA | 504.862.1865 | michael.d.french@usace.army.mil		
Services commenced by this firm (mm/yy)	10/20	Total consultant contract cost ($1,000's)	$1,182
Services completed by this firm (mm/yy)	05/21	Cost of consultant services provided by this firm ($1,000's)	$1,182

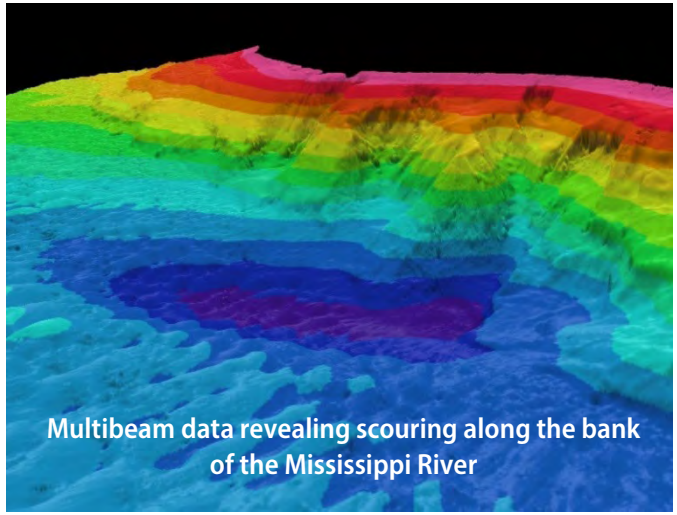
Chustz Surveying (CSI) was tasked to perform the Multibeam Hydrographic Surveys for the Automated Revetment Surveys on the Mississippi, Atchafalaya and Red Rivers including the Old River Control Channels from Mile 326.0 to Mile 0.0 utilizing multibeam hydrographic and real time mobile terrestrial laser scanning survey methods.

CSI developed a strategic work plan to cover as much geographic area as possible deploying multiple survey vessels on all three waterways to efficiently collect the data. Data was collected and transported back to the office on a daily basis for processing, editing, combining and transmittal. A Riegl LMS-Q120 2D laser scanner, an R2Sonic 2024, an R2Sonic 2022, and our Echoboat unmanned survey drone equipped with a R2Sonic 2020 multibeam echosounder were utilized to perform these tasks, each with its own specialized application.

The hydrographic data was processed by highly trained technicians with the latest version of HYPACK while the laser data is processed with Terrascan. All of the current data is compared to historical data as part of our QA/QC process prior to transmittal.

CSI has extensive experience with multibeam surveying and is confident in our ability to collect the most accurate data, while meeting or exceeding the requirements of the latest version of the USACE New Orleans District Guide for Minimum Survey Standards. All surveys were conducted in accordance with the then current USACE Engineer Manuals.

Members Utilized in this Project Submittal: *James H. Chustz, Jr., PLS; J. Alex Chustz, PLS; Mark Huber, CH.*



Multibeam data revealing scouring along the bank of the Mississippi River

Scope of Work Relevant to the Contract:

- HYDROGRAPHIC SURVEYS
- UNDERWATER IMAGING

17. Firm Experience:

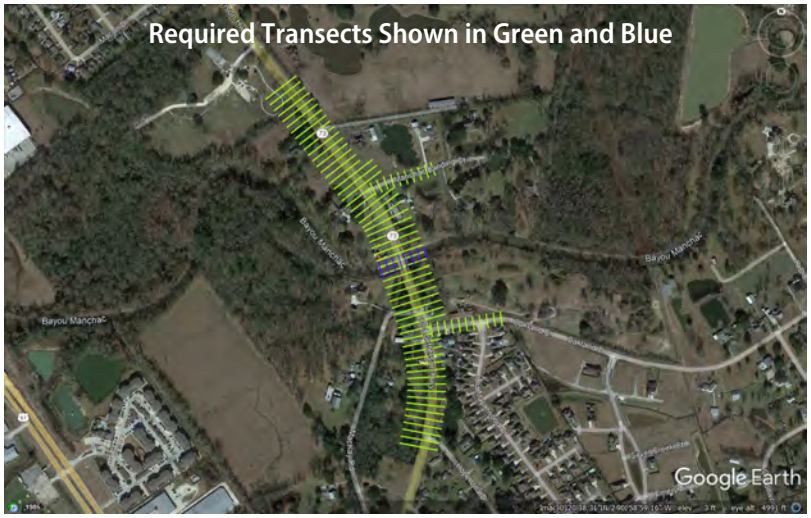
Firm name	Chustz Surveying, LLC	Past Performance Evaluation Discipline(s)*	Survey
Project name	**LA 73 Bayou Manchac Bridge**	Firm responsibility (prime or sub?)	Prime
Project number	H.012563.5	Owner's name	Louisiana Department of Transportation and Development
Project location	Prairieville, LA	Owner's Project Manager	Eric Lanier
Owner's address, phone, email	1201 Capitol Access Rd., Baton Rouge, LA | 225.379.1101 | eric.lanier@la.gov		
Services commenced by this firm (mm/yy)	11/21	Total consultant contract cost ($1,000's)	$101
Services completed by this firm (mm/yy)	02/22	Cost of consultant services provided by this firm ($1,000's)	$101

Chustz Surveying was tasked to conduct a bridge scour repair survey at Bayou Manchac. The survey along Bayou Manchac extended a minimum 175 feet upstream and 175 feet downstream from the faces of the bridge and extended a minimum 1150 feet south of the southern end of the bridge to 1675 feet north of the southern end of the bridge. A complete topographic survey including all utilities and all drainage features were surveyed. Bridge features surveyed included top of roadway deck elevations along centerline and right/left gutterlines, top of guard rail elevations, and centerline of bridge pier locations.

To accomplish this, Chustz deployed multiple crews to the site to begin the static GPS survey utilizing Trimble GPS/GNSS receivers. Once control was established, the crew began collecting the required toporaphic data using RTK and conventional survey methods with total stations.

Due to the narrow bridge and heavy traffic, Chustz had to collect the required bridge data using aerial LiDAR from our Reigl Ricopter sUAS equipped with a Reigl VUX-1uav laser scanner. Additional terrestrial LiDAR was collected to determine bridge pile centerlines and any other required bridge features from below. All data was processed utilizing Trimble Business Center where it was adjusted and constrained to the static GPS. The data was then mapped in Microstation InRoads and final deliverables included DGN, DTM, ALG, and ASCII files.

Members Utilized in this Project Submittal: *James H. Chustz, Jr., PLS; J. Alex Chustz, PLS; Mark Huber, CH.*



Scope of Work Relevant to the Contract:

- TOPOGRAPHIC SURVEYS

17. Firm Experience:

Firm name	Bridge Diagnostics, Inc. (BDI)	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Pier Movement Investigation of Bayou Teche Swing Bridge**	Firm responsibility (prime or sub?)	Prime
Project number	H.009730.5	Owner's name	Louisiana DOTD
Project location	St. Mary Parish, Louisiana	Owner's Project Manager	Haylye Brown
Owner's address, phone, email	Bridge Maintenance Section 51, DOTD Headquarters, Baton Rouge, LA 70802, (225) 379-1500, Haylye.brown@la.gov		
Services commenced by this firm (mm/yy)	05/21	Total consultant contract cost ($1,000's)	Unknown
Services completed by this firm (mm/yy)	05/21	Cost of consultant services provided by this firm ($1,000's)	$12

As part of our DOTD complex bridge inspection team with Gresham & Smith, BDI performed short-term testing on the pivot pier of the swing bridge along LA 324 over Bayou Teche on May 13, 2021. Prior to testing, the pivot pier was noted to be experiencing movements of 6 to 12 inches during the opening operation. The goal of this testing was to confirm and quantify this movement during a series of test openings. To achieve this goal, BDI installed tiltmeters and a laser displacement sensor along this pier and collected responses during six bridge operations. BDI was able to not only verify and quantify the observed movement per the original project objective but was also able to determine that the cause was primarily due to twisting action induced by the sudden braking of the span as it reached the open position. BDI provided a summary report with the finding from the processed data, and conclusions and recommendations based on the measured behavior. BDI was ultimately able to meet the project objectives and given the nature of the performance of the bridge, recommended that a short-term monitoring system be installed until the system operation adjustments and pile investigation/repair. BDI is waiting for further guidance/decision from our inspection team/DOTD at this time.

Members Utilized in this Project Submittal: *Brice Carpenter, Project Field and Analysis Engineer*

Scope of Work Relevant to the Contract:

- Assessment of Instrumentation Needs & Instrumentation Plan Preparation e
- Field Instrumentation Installation
- Load Testing, Data Analysis

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 DOTD
Project location	Baton Rouge, Louisiana	Owner's Project Manager	Haylye Brown
Owner's address, phone, email	Bridge Maintenance Section 51, DOTD Headquarters, Baton Rouge, LA 70802, (225) 379-1500, Haylye.brown@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:

- 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

Members Utilized in this Project Submittal: *Shane Boone, Subject Matter Expert; Charlie Young, Project Manager and Lead Bridge & NDE Inspector*

Scope of Work Relevant to the Contract:

- INSTRUMENTATION AND NONDESTRUCTIVE TESTING

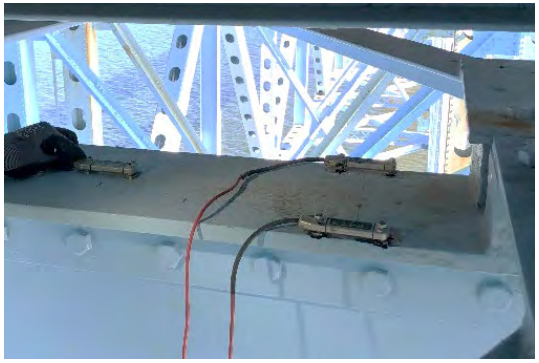
17. Firm Experience:

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	n/a	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 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.

As a risk mitigation step, VDOT decided to expand the monitoring system to all catch systems on the structuutre as well as perform load tasting 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.

Members Utilized in this Project Submittal: *Brett Commander, Principal-in-Charge; Shane Boone, Steel NDT Subject Matter Expert*



Scope of Work Relevant to the Contract:

- Assessment of Instrumentation Needs & Instrumentation Plan Preparation
- Field Instrumentation Installation
- Instrumentation, and Non-destructive Testing
- Data Acquisition & Communication
- Instrumentation Maintenance & Problem Resolution
- Load Testing, Data Analysis

17. Firm Experience:

Firm name	Bridge Diagnostics, Inc. (BDI)	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Sunshine Truss Bridge Emergency Monitoring**	Firm responsibility (prime or sub?)	Sub
Project number	H.009859.5	Owner's name	Louisiana DOTD
Project location	Donaldsonville, Louisiana	Owner's Project Manager	Ms. Jenny Fu, PE
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA (225) 379-1321, ZhengZheng.Fu@la.gov		
Services commenced by this firm (mm/yy)	10/18	Total consultant contract cost ($1,000's)	Unknown
Services completed by this firm (mm/yy)	08/19	Cost of consultant services provided by this firm ($1,000's)	$175

The Louisiana Route 70 Sunshine Truss Bridge is a steel cantilever through truss bridge that carries four lanes of traffic over the Mississippi River near Donaldsonville, LA. In October 2018, this structure was struck by a crane barge, significantly damaging a bottom chord member. As part of the Modjeski & Master's inspection response team, BDI quickly deployed a long-distance laser displacement sensor to monitor changes in horizontal displacement of the damage member. Once a monitoring plan was developed and approved by the team, BDI installed 40 strain gages via ropes access 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. These strain gages were used to compute changes in forces and evaluate load distribution, especially during the member replacement. BDI was onsite for multiple mobilizations throughout the repair portion of the project in order to reinstall or repair sensors as necessary. A base solar power datalogger was provided and installed near the damaged bottom chord at the Sunshine Truss Bridge. This system included UPS power, datalogger, cell modem, and all additional required wiring to make the system functional. Additionally, it was equipped with a modular wireless datalogging system in the case that more sensors needed to be added. All measured and computed response data was presented on BDI's monitoring website and made available to M&M and DOTD. The monitoring duration was 9 months so that the structural behavior after the repair could be evaluated.

Members Utilized in this Project Submittal: *Brice Carpenter, Project Engineer*

Scope of Work Relevant to the Contract:

- Assessment of Instrumentation Needs & Instrumentation Plan Preparation
- Field Instrumentation Installation
- Data Acquisition & Communication
- Instrumentation Maintenance & Problem Resolution
- Field Instrumentation Installation\
- Load Testing, Data Analysis

17. Firm Experience:

Firm name	KTA-Tator, Inc.	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**General Sullivan Bridge**	Firm responsibility (prime or sub?)	Sub
Project number	n/a	Owner's name	New Hampshire DOT VHB (Prime Consultant)
Project location	Dover, NH	Owner's Project Manager	Steve Hodgdon, VHB
Owner's address, phone, email	6 Bedford Farms Drive, Suite 607, Bedford, NH 03110 | 603.391.3920 | shodgdon@vhb.com		
Services commenced by this firm (mm/yy)	11/15	Total consultant contract cost ($1,000's)	$50
Services completed by this firm (mm/yy)	02/16	Cost of consultant services provided by this firm ($1,000's)	$12

The General Sullivan Bridge carries pedestrian traffic over the Little Bay. The bridge originally opened to vehicular traffic in 1934; in 1984, it was replaced by a new adjacent bridge. Records indicate that the original coating was a red lead and white lead alkyd system.

In 2015-2016, KTA performed a coating condition assessment, coatings laboratory testing, and prepared a report with recommendations for the rehabilitation of the coating system on this bridge. Included in the report were an opinion of probable construction costs and life cycle costs. Specifications were prepared for the remedial surface preparation and coating application operations.

Members Utilized in this Project Submittal: *Robert S. Lanterman*

Scope of Work Relevant to the Contract:

- Coating Condition Assessment
- Recoating Recommendations and Development of an Opinion of Probable Costs
- Specification Preparation for Coating Rehabilitation project

17. Firm Experience:

Firm name	KTA-Tator, Inc.	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**I-10 Calcasieu River Bridge**	Firm responsibility (prime or sub?)	Sub
Project number	44000005960	Owner's name	Louisiana DOTD (HNTB – Prime Consultant)
Project location	Baton Rouge, LA	Owner's Project Manager	James Gregg, HNTB
Owner's address, phone, email	10000 Perkins Rowe, Suite 640, Baton Rouge, LA 70810 | 225.368.2815 | jgregg@hntb.com		
Services commenced by this firm (mm/yy)	03/16	Total consultant contract cost ($1,000's)	$1,000
Services completed by this firm (mm/yy)	05/16	Cost of consultant services provided by this firm ($1,000's)	$19

The I-10 Calcasieu River Bridge carries I-10 over local roads, railroads, and the southern end of the Calcasieu River where it flows into Lake Charles. The bridge was constructed in 1952 and is a through truss structure.

In 2016, as a subconsultant to HNTB, KTA performed a coating condition assessment (visual examination, degree of rusting, coating system thickness and adhesion, substrate examination, and collection of samples for laboratory testing). The laboratory investigation consisted of microscopic examination, infrared spectroscopy (to determine the generic type of coating present), and ion chromatography. Schneider Laboratories Global, Inc. was engaged to perform inductively coupled plasma spectroscopy to detect total lead, chromium, and cadmium present. A report was prepared detailing the results of the assessment and laboratory testing and providing maintenance painting recommendations for the existing coating system on the bridge.

KTA also performed UT inspection services on the bridge pins, reviewed the inspection data, and prepared an opinion regarding the condition of the pins.

Members Utilized in this Project Submittal: *James A. Kretzler (supervision of UT inspection services)*

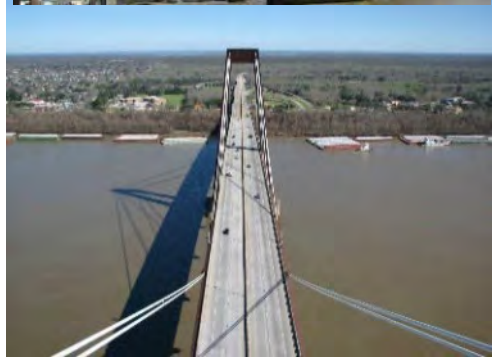
Scope of Work Relevant to the Contract:

- Coating Condition Assessment
- Development of Maintenance Painting Recommendations
- UT Inspection Services on Bridge Pins

17. Firm Experience:

Firm name	KTA-Tator, Inc.			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**I-310 Luling Bridge and US 90 Morgan City Bridges**			Firm responsibility (prime or sub?)	Sub
Project number	n/a	Owner's name	Louisiana DOTD (HNTB – Prime Consultant)		
Project location	Luling and Morgan City, LA			Owner's Project Manager	James P. Gregg, HNTB
Owner's address, phone, email	10000 Perkins Rowe, Suite 640, Baton Rouge, LA 70810 | 225.368.2815 | jgregg@HNTB.com				
Services commenced by this firm (mm/yy)	02/17	Total consultant contract cost ($1,000's)			$5,000
Services completed by this firm (mm/yy)	05/17	Cost of consultant services provided by this firm ($1,000's)			$27

The I-310 Bridge over the Mississippi River is referred to as the Hale Boggs Bridge or the Luling Bridge. The bridge is a cable stayed design with two main towers; two large box girders run along the underside of the entire bridge deck. The bridge members, including the towers, box girders, and cross girders, are fabricated from weathering steel. The bottom six feet of the tower interiors and the interiors of the cross girders are coated. In 2017, under HNTB's task order agreement, KTA performed a corrosion assessment of the weathering steel towers and girders, performed laboratory testing, and prepared a report detailing the conditions found and providing recommendations for the remediation of the corrosion problems.



In 2017, KTA performed a corrosion assessment of the US 90 Morgan City Bridge over the Atchafalaya River located in Morgan City, Louisiana. Ramp A, Ramp F, span over LA 182, Ramp I, Ramp J, span over Victor II, Crook Collins Canal, Levy Canal, East approach, and West approach spans were also included in the assessment. KTA also performed laboratory testing and prepared a report detailing the conditions found and providing recommendations for the remediation of the coating problems.

Members Utilized in this Project Submittal: *Robert S. Lanterman*

Scope of Work Relevant to the Contract:

- Corrosion and Coating Condition Assessments
- Recommendations for the Remediation of Corrosion and Coating Problems

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	44000013322, TO 1	Owner's name	Louisiana DOTD (Gresham Smith Partners – GSP – Prime Consultant)		
Project location	Alexandria, LA			Owner's Project Manager	John Weres, PE, 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)	2/20		Total consultant contract cost ($1,000's)		$5,000
Services completed by this firm (mm/yy)	5/20		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 the Red River Lift Bridge located in Alexandria, Louisiana. The coating condition assessment was performed on February 18-19, 2020. 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.

Members Utilized in this Project Submittal: *Robert S. Lanterman*

Scope of Work Relevant to the Contract:

- Coating Condition Assessment
- Development of a Maintenance Painting Strategy and Recoating Recommendations

18. Approach and Methodology:

PROJECT UNDERSTANDING & APPROACH Hardesty & Hanover (H&H) will be the prime consultant to manage this $5M, five-year IDIQ Bridge Inspection contract for complex bridge structures (Movable, Truss, and Cable Bridges). The Louisiana Department of Transportation and Development (DOTD), therefore, requires the services of highly qualified team leaders (TL) and specialized engineers to perform necessary NBIS inspections, evaluation, and miscellaneous repairs of critical conditions. We have also assembled a team of qualified specialty subconsultants for various required inspection tasks, such as Underwater Inspections, Protective Coating Inspections and Non-Destructive Evaluation (NDE). Team qualifications meet or exceed the requirements set forth in the DOTD's consultant advertisement, including all personnel qualifications, applicable specifications, and applications, as well as all other necessary criteria. In response to the project scope and objectives stated in the RFP, we have formulated a Project Management Plan (PMP) that is focused on: Meeting the project objectives and the DOTD's expectations; Providing quality inspection and engineering services and detailed reports; Maintaining project schedule and budget control; Providing open communication with DOTD personnel enabling a collaborative decision-making process. The PMP will be augmented for each specific bridge inspection assignment with the scope of work tailored to the specific bridge and type of inspection required.

TASK DELIVERY Dr. Babak Naghavi, PE will serve as H&H's Project Manager (PM) for the duration of the contract. He will be responsible for supervising all task order (TO) assignments and verify our services meet DOTD expectations. H&H will oversee and maintain current records of required inspection and safety training and certifications. H&H has prepared a preliminary work plan that can be used and/or modified to cater to all bridge inspection assignments under this contract. The sample schedule below identifies key tasks for the successful execution and delivery of an NBIS inspection of complex bridge structures.

TYPICAL BRIDGE INSPECTION SCHEDULE

Inspection Process	Duration	Months 1	2	3	4	5	6	7	8	9	10	11	12
1. Kickoff Meeting with LADOTD	1 Day												
2. Document Review	10 Days												
3. Site Visit	1 Day												
4. Inspection Plan	10 Days												
5. Access Plan & Logistics	5 Days												
6. Safety & Site Security Plan	5 Days												
7. Baseline Schedule	10 Days												
8. Internal Kickoff Meeting	1 Day												
9. Field Inspection	Varies												
10. Draft Report Preparation	30 Days												
11. LADOTD Draft Report Review	15 Days												
12. Final Report Preparation	15 Days												
13. Traffic Control Scheduling	-												
14. Progress Meetings	-												
15. Load Ratings (w/LADOTD Review)	-												
16. Emergency Response	-												
17. Repair/Rehabilitation Plans	-												
LEGEND		Office Work		Field Work			LADOTD Review		Meeting Time			Concurrent Task	

Kickoff Meeting: The H&H Team will align the goals and objectives of the task with the type of bridge and type of inspection assignment (Routine, Special, Underwater, Damage, In-Depth or Fracture Critical); establish communication protocols with DOTD; establish baseline schedule needs, including approvals and permits; identify work zone traffic control (WZTC) requirements/protocols; identify ongoing construction operations for coordination, identify key issues/existing conditions of concern; identify emergency response measures/protocols; identify supplemental requirements (i.e., Underwater, NDE and Paint Coating Assessments); and obtain all available documents such as drawings, previous inspection reports, and load ratings. Document Review: A thorough document review of the previous inspection reports, load ratings, and available construction documents will be performed by the inspection teams to allow the project personnel to prepare for the inspection. The document review task will allow the inspection teams to prepare and organize the various field note sheets prior to the field inspection. The document review will also allow inspection personnel to thoroughly familiarize themselves with any Special Emphasis and Fracture Critical details and other elements requiring special attention. Site Visit: Our assigned Task Manager will schedule a site visit to fully assess the technical and access needs of each bridge and evaluate key issues identified during our document review. Additionally, our engineers will engage with maintenance personnel to gather operational history and recent bridge maintenance issues. These discussions help us understand the overall health of the bridge so that we can determine the cause of the issues, not just the symptoms. Our engineers will inspect the bridge systems with extra attention on issues noted by maintenance and on typical failures of elements that fall outside applicable AASHTO, LADOTD, and FHWA inspection and evaluation manuals. Upon completion of the Kickoff Meeting, Document Review and Site Visit we will have sufficient information to finalize our Inspection, Access, and Safety & Security Plans and the Baseline Schedule. Inspection Plan: Upon notice to proceed, the H&H Team will perform one or more of the six required types of bridge inspection (Routine, Underwater, Special, Damage, In-Depth or Fracture Critical) utilizing qualified Professional Engineers with appropriate NHI inspection and safety training. H&H is highly experienced in using the Federal and State level requirements for AASHTO element level bridge inspection, having applied the element definitions, codes, and condition state rating guidelines on multiple NBIS inspections across the country for cable-stayed, suspension, segmental, movable, and other long span complex bridge types. Our team is knowledgeable with all element types and conditions for National Bridge Elements (NBE), Agency Defined Elements (ADE) and Bridge Management Elements (BME). In addition to NBIS requirements, our PM will employ the use of specialty subconsultants to meet the specific scope needs of the structure. Inspection intensity will be defined for each bridge component/element and a 100% hands-on Special Emphasis Fracture Critical inspection plan will be developed if necessary. For more information regarding each Complex Bridge type refer to our Technical Understanding section in this document. Access Plan & Logistics: All required equipment and lane closure schemes will be identified by the H&H Team to ensure access is provided to all bridge components that will fully satisfy the intensity requirements of our inspection plan. Equipment and WZTC arrangements will be made with local vendors. Access plan will limit disruptions to the traveling public and DOTD operations. Whenever possible, we will deploy multiple teams within established lane closures to limit their duration. Our team also has SPRAT certified rope access inspectors whose use can minimize lane closures. Our access plan will also identify on-going construction that may interfere with our access to

Stiffening truss lower chord & gusset plates inspections performed by our highly trained bridge inspection team leaders utilizing a traveler/scissor lift system.

areas of the bridge. We will coordinate directly with the Project Engineer in instances where we can use shared lane closures and plan our access to areas prior to scheduled construction activities. Lastly our access plan will involve obtaining all necessary permits with local municipalities for lane closures and with the United States Coast Guard when working over/within navigable waterways. Safety & Site Security Plan: Safety is a top priority and a paramount concern for H&H during all inspection projects. H&H is committed to providing a safe work zone for our inspection personnel, contractors working adjacently, DOTD personnel and the travelling public. H&H's Proposed QC, TLs and Inspectors are OSHA trained and certified, and all field personnel will be required to complete the OSHA-10hr class at a minimum. Our Safe Work Practices include our company health and safety plan, project specific safe work plans, weekly toolbox talks, daily job hazard analysis briefing including COVID-19 checklists, equipment inspection forms, and personal protective equipment. The WZTC plan will follow the guidelines set forth in the MUTCD and DOTD's prescribed methods. Our safety plan will be prepared to reflect the hazards specific to the assigned bridge along with mitigation measures for each hazard. H&H is aware of heightened security concerns for major infrastructure assets. If identification badges are required, they will be worn at all times and be made visible for security personnel to easily view. H&H will communicate daily operations and specific work zone locations. If a team is diverted to a new location H&H will communicate the change to bridge facility personnel. Baseline Schedule: The baseline schedule will be prepared and submitted based on the kickoff meeting, document review, site visit and the inspection and access plans. The baseline schedule will identify inspection and reporting related tasks and milestones. The schedule will identify key components along with key staff for inspection such has cables, towers, trusses, machinery, and electrical equipment. Internal Kickoff Meeting: Prior to the commencement of the field inspection the H&H PM will have the full inspection team including all subconsultants attend an internal kickoff meeting to discuss the comprehensive scope requirements for the inspection. The Inspection Plan will be reviewed, and responsibilities assigned to specific staff and subconsultants. The Access Plan will be reviewed and procedures for lane closures will be identified and potential conflicts with construction will be highlighted. The Safety and Security Plans will be reviewed, and all hazards and security requirements will be identified to the full project team. Contact information will be shared and will include all project personnel (Consultant & DOTD) and emergency contact information (hospitals, local fire, and police). A hard copy of the Safety & Security Plan is to be maintained in the field with each Inspection Team. Lastly, the Baseline Schedule will be reviewed, and the milestones identified. Field Inspection: Our inspection team will begin the field work upon the completion of the pre-inspection activities. The inspection will be performed in accordance with the DOTD Bridge Inspection Manual, the AASHTO Manual for Bridge Element Inspection and FHWA/NBIS requirements. The major goals of a routine NBIS inspection will be (but not limited to): Ensuring safety to traveling public; Identification of critical conditions; Verification of SI&A data; Verification of load posting requirements; and Verification that load ratings reflect present condition. The inspection of the bridge structures and other miscellaneous components will include clear and concise notations for the condition of the inspected bridge and ancillary elements. Field notes will be explicit and unambiguous as to the condition of the elements and include quantitative measurements of deficiencies (i.e., concrete hollow and spall sizes, crack lengths and widths, section losses, etc.). The team will consist of a certified TL and Inspectors. Occasionally, the inspection team may be supplemented with an additional TL and/or Inspector due to time constraints for inspection access or to expedite the inspection task whereby the additional team member will assist with field notes, concrete sounding, or areas requiring thorough hands-on inspection. The baseline schedule will be modified and adjusted to maximize efficiencies in the scheduling of inspection access and WZTC equipment where multiple inspection teams may inspect the structure within a daily (or a nightly) lane closure. Scheduling multiple teams within a lane closure will minimize the number of closures required for inspection and reduce the inconvenience to the traveling public. QC activities will be highly visible during the inspection. Field meetings led by the QC Engineer and the TLs will take place every day in the first few weeks of inspection to assist inspection teams in providing documentation that is consistent and accurate. Throughout the field inspection phase, the QC Engineer will be on-site periodically to provide additional direction to teams and answer questions about inspection procedures, documentation, and other logistics issues that may arise. Additionally, the PM will be on-site frequently to assist in these discussions and help to assure that the bridge is inspected to our high standard of care. Digital cameras will be used for inspection photographs and will document the condition of the elements for deficiencies, repairs, and unusual features and will bear the date and time when the photograph was taken. Inspection photographs will be documented with the location, explanation, and descriptions of such conditions. Inspection documentation will include condition sketches and field notes of the inspected elements and members of the structure. Field sketches will include, at a minimum, bearing conditions; spalls, damp areas, hollow-sounding areas; cracks on structural concrete decks and substructures; visible deformation damage on structural elements; deficiencies due to deterioration; and other deficient conditions affecting the structural integrity of the bridge. Out team will utilize NDE & Load Testing techniques for steel elements such as pin and hanger connections, welded connections, and other steel elements utilizing ultrasonic testing (UT), magnetic particle testing (MT), dye penetrant testing (PT), Phased Array UT (PAUT), and other advanced NDE methods. These tests will be performed by ASNT Level 2 inspectors and overseen ASNT Level 3. Assessment of the coating systems will be conducted by a certified SSPC Protective Coating Specialist or a certified NACE Bridge Coating Inspector to determine the condition of the existing coating systems. For bridges with areas that are difficult to access with standard techniques, innovative approaches such as drones operated by

H&H's certified pilots will be used. The inspection teams will note changes due to construction and document them with photographs and sketches and obtain related as-built drawings to aid in updating the NBIS inventory in AssetWise. Two-week look ahead schedules will be provided to DOTD and identify all requested lane closures. At the conclusion of each work shift the TLs will record the days inspection events and any notable findings in the form of a Daily Report for review by the H&H PM. The PM will submit the Daily Report to DOTD by noon on the following day. During the course of the inspection monthly or bi-weekly progress meetings will be conducted with DOTD to identify progress, remaining schedule, access issues and critical findings.

Inspection Reports: Inspection reports and associated deliverables will be prepared in accordance with the LADOTD Bridge Inspection Manual. At a minimum, reports will include an executive summary, scope of work, inspection access and methodology, NBI ratings, element level ratings and condition notes, narrative on bridge component findings, repair recommendations, photographs, and sketches. Element level data, load rating data, and SI&A data will be submitted to LADOTD through AssetWise as appropriate. The pre-final reports will be prepared by the inspection team during the field inspection and reviewed by the Quality Control Engineer prior to submission to LADOTD. Draft Inspection Reports will be submitted for DOTD review within thirty (30) days from the last day of inspection. Upon completion of DOTD review H&H will finalize the reports and submit all final deliverables through AssetWise within 45 days from the last day of inspection.

Load Ratings & Emergency Response: The H&H Team has significant technical experience in handling critical conditions. Significant deficient conditions will be reported to the H&H PM immediately. The PM and QC will determine a proper course of action. Load rating analysis will be used to assess significant deteriorations or members exhibiting visible signs of distress (buckling, cracking) to determine remaining capacity. The PM will coordinate with the Design and Load Rating team to evaluate the condition and prepare plans for remedial measures. Our team is experienced with AASHTOWare Bridge Rating (BrR) and Bridge Design (BrD) and has 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, or other software to accurately determine the load ratings. We will perform refined analyses for load posting avoidance as needed. H&H will update load ratings following inspection, if required, due to newly identified conditions. Emergency Response Example 1:Throgs Neck Bridge -Two floortruss gusset plates, exhibited significant section loss with bowing to the plate and rivet head loss. The section loss was found to be approximately 50% to both gusset plates, with distortion and an average of 30% rivet head loss. H&H performed gusset plate load ratings and provided repair details and monitored the condition during repair contract procurement. Emergency Response Example 2: Marine Parkway Bridge - An underdeck truss gusset plate had significant section loss, holes, and edge losses. H&H TL thoroughly documented the geometry of the gusset plate to aid in the Whitmore section development for analysis. Load rating analysis determined that the gusset plate needed replacement. H&H developed repair details and a procedure for gusset plate replacement.

Emergency Response – Structural Red Flags at Throgs Neck Cable Bridge

Repair/Rehabilitation Plans: The H&H Team has extensive technical experience in design for developing repairs/ rehabilitation plans and cost estimates for complex bridge structures when required by the TO assignment. All plans will be developed per BDEM requirements. A QA/QC plan will be submitted to the DOTD PM within the designated period to ensure quality and adherence to established DOTD policies, procedures, standards and guidelines in the preparation and review of all deliverables.

TECHNICAL UNDERSTANDING Cable-Stayed Bridges: Key Components include: The Deck is integral to performance of the bridge as a whole, as well as the stability of both the edge girders and floorbeams and the bridge's ability to distribute live load to its framing system, it is essential that the deck's structural integrity is maintained and monitored. The top and bottom deck surfaces will be inspected for cracking and spalls. The roadway will be inspected for sources of water infiltration to the deck. Special attention will be given to the deck area at the intersection of the stay cable anchorages with the edge girders' top flanges and the portion of deck in proximity to the towers due high stress concentrations. Any evidence of deterioration will be noted on sketches and detailed within the inspection report. *Edge Girders & Floorbeams Audubon (Open Steel Girder) / Luling (Steel Box)* will receive a 100% hands-on inspection for their full length with high level of intensity at anchorages and the edge girder portions nearest the tower due to high cumulative stresses. *Stay-Cables* will be visually and hands-on inspected for proper condition and position of stay pipes, welds, guide deviators, tension rings, and damping devices. The condition of armor protection systems will be inspected for signs of stains, leaks, corrosion, or deformations. Additionally, the stay-cables will be observed for unusual vibrations. Stay-cable NDE will be performed by BDI as required by DOTD. *Anchorages* will receive 100% hands-on inspection for paint failure and corrosion, signs of deformations, movement, or cracking, excessive wax/oil leakage and for drainage ability and water proofing. *Back Span Tie Downs* will receive a 100% hands-on inspection for corrosion of anchorages and deformations of superstructure connecting members. *Towers Audubon Bridge (Concrete Towers) / Luling Bridge (Steel Towers)* both the interior and exterior portions will be inspected for defects such as cracking efflorescence, spalling, delamination, corrosion, missing fasteners, section loss, cracks, and deformation. *Access Towers and Stay-Cables* will be inspected utilizing a combination of rope access techniques and bucket trucks. The floor system and deck will be inspected utilizing built in travelers. An Underbridge inspection unit will be used if the travelers are nonfunctioning at the time of inspection. Truss Bridges: Tension and compression diagonal members will be inspected and checked for cracks, corrosion, section loss, alignment, and

signs of buckling. The upper and lower horizontal chords will be checked for the same deficiencies as those described for the diagonal members as well as for areas where water may pool along horizontal surfaces. The connections (gusset plates for member connections and connections for floorbeams-to-chords) are critical to the integrity of the entire structure and prone to corrosion as debris tends to build up on gusset connection plates thus retaining and pooling water and deicing agents. The gusset plates will be checked for cracks, corrosion and section loss, crevice corrosion, overstressing, fatigue, and loose connections. If necessary, the gussets will be wire brushed thoroughly and the thickness will be checked by either vernier calipers or D-meter testing. H&H will follow the FHWA Technical Advisory (TA) January 29, 2010: Inspection of Gusset Plates Using NDE Technologies. H&H will prepare sketches to document in great detail the condition of the gusset plates. Gusset plates that exhibit significant areas of corrosion will be grinded down thoroughly and the remaining thickness will be checked by D-meters. The as-built thickness shall also be recorded to determine the exact extent of section loss. Gusset plates found to be in poor condition may warrant a load rating analysis and will require additional measurements and investigations to fully evaluate the capacity of the gusset plate. Utilizing protractors inspectors will develop Whitmore Sections on the gusset plate to ascertain the positioning of the section loss within stress zones to support an accurate load rating.

Movable Bridges: Bridge operator's safety, comfort, and access, and visibility of the roadway, sidewalk, and channel are important for the overall operation, reliability, and safety of a movable bridge. Our inspectors will assess the condition of the Operator's House facilities including the roof, windows, doors, hatches, HVAC, and lavatories. 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 movements, such as crevice corrosion or failing grout – often an early sign of a developing problem. Movable span joints and associated structural supports will be inspected for indications of interference or excessive opening widths. Lift bridge items of inspection emphasis include Rocker bearing / load shoe assemblies – span seating and thermal movement, Lifting Girders and 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. For vertical lift bridges, trunnion shaft fatigue cracks are the most important area of inspection. 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 an infinite life, we can estimate the number of cycles to failure. During inspection, we strongly recommend removing the caps for a 100% visual inspection of the fillet surface, requiring a partial lift of the bridge. Once the area is thoroughly cleaned, we prefer to use liquid mag-particle to identify any crack indications. The wire rope inspection and mating sheave groove condition is another critical item for vertical lift bridges. The ropes oscillate in the wind and work the outer strands at this point, making outer wires susceptible to fatigue breaks. H&H mechanical engineers will assess for rope slippage and work closely with our electrical engineers to determine whether this phenomenon affects the skew control instrumentation and presents problems with seating the lift span. Bascule bridge inspections will focus on trunnion assembly condition, alignment, grease distribution and corrosion, and the possibility of water contamination. These 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. Our inspectors are also designers allowing focus on improvements that can be made within existing spatial confines to improve durability, performance, and maintainability. Swing bridge inspections will include assessment of the span balance and support system machinery. Wear at the bearing will lower the swing span elevation and increase loading at the span ends to raise ends flush with the approaches. If maximum torque protection is not provided, machinery components or supports can be damaged under this overload condition. 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. Electrical Systems Inspections: This 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, electrical equipment survivability from hurricanes/flooding events, motor loading and insulation condition, and control system interlocks. 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. Failure to maintain level can lead to jamming of the movable span in its guides and, without adequate protection, can lead to a bridge failure. Confirming that the condition of these components is in satisfactory condition is critical because obtaining any necessary items to repair the equipment can be time consuming and expensive. Aerial and droop cables are critical in providing power and control to any electrical equipment located on the lift span or opposing tower. They are expensive items to replace, and thus, it's best to use the full-service life of the cables. To determine the state of these cables, conductors shall be insulation resistance (megger) tested to ascertain the remaining service life of electrical components and wiring.

19. Workload:

Firm(s)	Past Performance Evaluation Discipline(s)	State Project numbers	Project name	Remaining Unpaid Balance
Hardesty & Hanover, LLC	Bridge	H.002798.6	Bayou Teche Bridge at Oaklawn	$77,941
Hardesty & Hanover, LLC	Road	H.014363.5	Sidewalk Improvements to Conform to ADA – Task Order 1 St. Tammany Parish	$92,782
Hardesty & Hanover, LLC	CE&I/OV	H.001498.6	LA 24 and LA 316: Company Canal Bridge (CE&I), Terrebonne Parish	$2,627,889
Moffatt & Nichol	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges	$291,705
Moffatt & Nichol	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges	$396,988
Moffatt & Nichol	Planning	NA	Future of the Louisiana Waterways Transportation	$135,357
Moffatt & Nichol	Bridge	H.011331.5	LADOTD Inventory and Inspection of Sign Trusses	$420,203
Moffatt & Nichol	Bridge	H.009730.5	LADOTD Underwater Bridge Inspection Statewide	$715,252
Moffatt & Nichol	Environmental	NA	IDIQ Contract for Louisiana Watershed Initiative (LWI) Modeling	$745,498
Moffatt & Nichol	Data Collection	H.971294.1	LADOTD RIMS	$85,791
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44 17163	IDIQ Non-Destructive Evaluation of Structures via SounDAR Whiskey Bay and Pilot Channel – Task Order 10	$145,204
Bridge Diagnostics, Inc.	Bridge	H.014703.5 44 -17163	IDIQ for Non-Destructive Evaluation of Structures Calcasieu Parish – Task Order 9	$4,306
Bridge Diagnostics, Inc	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	$417,802
Bridge Diagnostics, Inc.	Bridge	H.012280.1 44 -09224	IDIQ for testing of Unknown Foundations, Statewide – Task Order 3 – 1802005	$45,904
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44 -17163	Retainer for Non-Destructive Evaluation of Structures Task Order 1 - General Services BDI1904004	$140,272
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44 -17163	Retainer for Non-Destructive Evaluation of Structures Task Order 7 - Bonnet Carre Spillway 2006002	$397,037

Bridge Diagnostics, Inc.	Bridge	H.009859.5 44-02791	Bonnet Carre & Bayou Ramos Monitoring System Maintenance	$12,197
Bridge Diagnostics, Inc.	Bridge	H.010603.6 44-02538	Mississippi Bridge at Vicksburg GPS Monitoring	$41,456
Bridge Diagnostics, Inc.	Bridge	H.012485.1 44-10099	IDIQ for Bridge Load Rating Services Statewide	160,744
KTA-Tator, Inc.	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
KTA-Tator, Inc.	Bridge	4400020156	State Project No. H.011965.5, LA 47; IWGO Bridge Rehabilitation (sub to TRC)	$11,294
Chustz Surveying, LLC	Survey	H012563.5	LA 73 Bayou Manchac Bridge	$25,315
Chustz Surveying, LLC	Survey	H014728.5	LA 20: LA 304 – LA 307	$203,570

20. Certifications/Licenses:

Team Certification and Licenses to follow.

Anderson, M. (Moffatt & Nichol)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Martin Anderson

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Whitman, Requardt & Associates, LLP

Date: October 6-8, 2020 *Hours of Instruction:* 18
Location: Virtual Delivery, MD

Instructor
Finn K. Hubbard
Instructor

Debra E. Rizzieri
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Martin Anderson

has participated in

FHWA-NHI-130091: Underwater Bridge Inspection

hosted by
Kansas Department of Transportation

Date: June 15-18, 2015 *Hours of Instruction:* 24
Location: Topeka, Kansas

Instructor Mark A. Bostick

Instructor Brian Dillmeth

Local Coordinator

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Martin Anderson

has participated in

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

hosted by

University of Delaware

Date: January 26 – February 6, 2015 *Hours of Instruction:* 67 hours
Location: Newark, DE

Instructor

Local Coordinator

Instructor

Valerie Briggs, Director
National Highway Institute

Association of Diving Contractors International

Cert. # 58774

Expires 12/04/2023

SURFACE-SUPPLIED AIR DIVER

MARTIN J. ANDERSON I.D. 8193

Commercial Diver Certification Card

Armstrong, S. (Moffatt & Nichol)

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

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
Location: Fredericksburg, Virginia

Hours of Instruction: 67 Hrs

Instructor
Instructor
Local Coordinator
Valerie Briggs, Director
National Highway Institute

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

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
Location: Frankfort, KY

Hours of Instruction: 25

Instructor
Instructor
Local Coordinator
Michael Davies, P.E.
Director, National Highway Institute

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

Certificate of Training

Steven Armstrong

has participated in

FHWA-NHI-130091 Underwater Bridge Inspection

hosted by

Terracon Consultants, Inc.

Date: December 6-9, 2016
Location: Cincinnati, OH

Hours of Instruction: 24

Instructor
Instructor
Local Coordinator
Valerie Briggs, Director
National Highway Institute

Association of Diving Contractors International

Cert. # 62023

Expires 11/18/2025

ADCI

SURFACE-SUPPLIED AIR DIVER

STEVEN ARMSTRONG I.D. 4740

Commercial Diver Certification Card

UNITED STATES OF AMERICA

DEPARTMENT OF TRANSPORTATION • FEDERAL AVIATION ADMINISTRATION

IV NAME
STEVEN BLAKE ARMSTRONG

V ADDRESS 3004 CANAAN PL
MANDEVILLE LA 70448-6300

VI NATIONALITY USA
IVa D.O.B. 13 NOV 1990

SEX	HEIGHT	WEIGHT	HAIR	EYES
M	60	215	BROWN	BROWN

IX HAS BEEN FOUND TO BE PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF
I REMOTE PILOT
III CERTIFICATE NUMBER 4162104
X DATE OF ISSUE 6 AUG 2019

XIV
VIII ACTING ADMINISTRATOR

U S A

FAA Aviation Safety

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 Mathes, Manager, National FAA Safety Team

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

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
Location: Baton Rouge, LA

Hours of Instruction: 6

Instructor
Instructor
Local Coordinator
Valerie Briggs, Director
National Highway Institute

Balzarini, C. (Moffatt & Nichol)

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 L. Bruchart
Local Coordinator

Dennis L. Burgess, 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

Instructor

William H. Landrey
Local Coordinator

Brian D. Dietrich
Instructor

Michael Davies
Michael Davies, Director
National Highway Institute

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT

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

ROBERT DUNSHEA, EVALUATIONS COMMITTEE CHAIR

WILLIAM McCOOK (TROLL), SPRAT PRESIDENT

©2012 - Present, Society of Professional Rope Access Technicians

Association of Diving Contractors International

ADCI

Cert. # 54103

Expires 06/19/2022

ENTRY LEVEL TENDER/DIVER

CHARLES G. BALZARINI I.D. 9858

Commercial Diver Certification Card

Balzarini, M. (Moffatt & Nichol)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NHI
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*

Instructor — Local Coordinator

Instructor — Michael Davies, Director, National Highway Institute

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT®

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

ROBERT DUNSHEA, EVALUATIONS COMMITTEE CHAIR

WILLIAM McCOOK (TROLL), SPRAT PRESIDENT

©2012 - Present; Society of Professional Rope Access Technicians

Association of Diving Contractors International

ADCI

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

U.S. Department of Transportation
Federal Highway Administration

Washington State Department of Transportation

Barabas, E. (Hardesty & Hanover)

U.S. Department Of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

NATIONAL HIGHWAY INSTITUTE
Training Solutions for Transportation Excellence

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

U.S.Department of Transportation
Federal Highway Administration

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

U.S.Department of Transportation
Federal Highway Administration

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

SPRAT®

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 TURELL, SPRAT PRESIDENT

Biddle, J. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

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

Jeannette Hudson
Local Coordinator

James A Seng PE
Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Jason Biddle

has participated in

NHI Course No. 130078
Fracture Critical Inspection Techniques for Steel Bridges

hosted by

RK&K

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

Hours of Instruction: 25

Instructor

Kaitlin Murphy
Local Coordinator

Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

Boone, S. (Bridge Diagnostics, Inc.)

BDI
RAW DATA. REFINED RESULTS.

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

BDI
RAW DATA. REFINED RESULTS.

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

Catarella-Michel, A (Urban Systems)

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

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

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

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

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

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Chustz, A. (Chustz Surveying)

LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 2/15/2022 the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:

Mr. Julian Alexander Chustz
14321 Ventress Road
Ventress, Louisiana 70783

Cut Here

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

Mr. Julian Alexander Chustz

License/Certificate Type - Number	Expiration Date
PLS.0005251	09/30/2023

Status: Active

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).

LA 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.

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.

Chustz, J. (Chustz Surveying)

LOUISIANA PROFESSIONAL ENGINEERING AND LAND SURVEYING BOARD

As of 6/16/2021 the Louisiana Professional Engineering and Land Surveying Board (LAPELS) has the following information on file:

Mr. James Huey Chustz Jr.
211 Richey Street
New Roads, LA 70760

Cut Here

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

Mr. James Huey Chustz Jr.

License/Certificate Type - Number	Expiration Date
PLS.0004657	03/31/2022

Status: ACTIVE

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).

LA 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.

Chustz, J. (Chustz Surveying)

If you need to make changes to your contact information, please choose one of the following options below:

Contact update for Individuals and Firms

License/Certificate Types:

EF = Engineering Firm VF = Land Surveying Firm

CPD = Continuing Professional Development Sponsor/Provider

*PE = Professional Engineer *PLS = Professional Land Surveyor

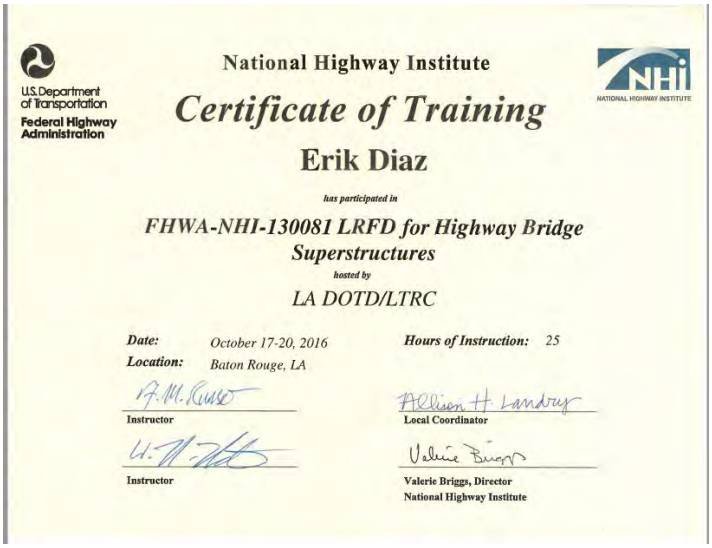
*EI = Engineer Intern *LSI = Land Surveyor Intern

*PE Discipline Codes

AG	Agricultural	ME	Mechanical
AR	Architectural	MI	Mining or Mineral
CH	Chemical	MT	Metallurgical
CE	Civil	MU	Manufacturing
CS	Control Systems	NV	Naval Architecture & Marine
EE	Electrical & Computer	NU	Nuclear
EV	Environmental	ST	Structural *
FP	Fire Protection	PT	Petroleum
IE	Industrial		

* An engineer that has passed the Structural I exam is listed as a Civil Engineer. An engineer that has passed both the Structural I and II exams is listed as Structural (ST) and a Civil (CE) Engineer.

Diaz, E. (Hardesty & Hanover)



U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Erik Diaz

has participated in

FHWA-NHI-130081 LRFD for Highway Bridge Superstructures

hosted by

LA DOTD/LTRC

Date: *October 17-20, 2016* ***Hours of Instruction:*** *25*

Location: *Baton Rouge, LA*

Instructor — Allison H. Landry, Local Coordinator

Instructor — Valerie Briggs, Director, National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

nhi national highway institute

Certificate of Training

ERIK DIAZ

has participated in

FHWA-NHI-130056 Safety Inspection of In-Service Bridges for Professional Engineers

hosted by

LA DOTD/LTRC

Date: *October 11-15, 2021* *Hours of Instruction:* 34

Location: *Baton Rouge, LA*

Instructor — Allison H. Landry, Local Coordinator

Instructor — Thomas Harman, Director, National Highway Institute

U.S. Department Of Transportation
Federal Highway Administration

National Highway Institute

NATIONAL HIGHWAY INSTITUTE
Training Solutions for Transportation Excellence

Certificate of Training

Erik Diaz

has participated in

NHI Course No. 130092 – Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures

hosted by

LA DOTD/LTRC

Date: **June 23-26, 2014** ***Hours of Instruction:*** **24**

Location: **Baton Rouge, LA**

Instructor — Allison H. Landry, Local Coordinator

Instructor — Richard Barnaby, Director, National Highway Institute

Mead & Hunt

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

Certificate of attendance and participation for:

Erik Diaz

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. Rattke, PE, SE

Drew, Robert. (Hardesty & Hanover)

U.S. Department Of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Robert S. Drew

has participated in

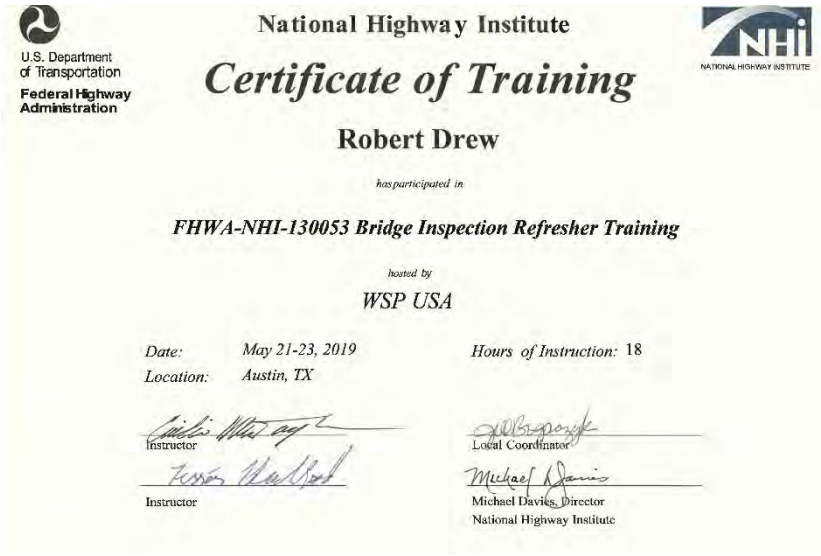
FHWA-NHI-130055 ***Safety Inspection of In-Service Bridges***

hosted by
Federal Highway Administration

Date: *October 19- 30, 2009*
Location: *Arlington , VA*

Hours of Instruction: 60

Instructor
Instructor
Local Coordinator
Richard Barnaby, Director
National Highway Institute



U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Robert Drew

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by
WSP USA

Date: *May 21-23, 2019*
Location: *Austin, TX*

Hours of Instruction: 18

Instructor
Instructor
Local Coordinator
Michael Davies, Director
National Highway Institute

U.S. Department Of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Robert Drew
has participated in

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

hosted by
Whitman, Requardt and Associates, LLP

Date: *July 20 - 23, 2010*
Location: *Baltimore, MD*

Hours of Instruction: *21*

Instructor
Instructor
Local Coordinator
Richard Barnaby, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Christopher Eschenbach

has participated in

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

hosted by

California Department of Transportation

Date: *November 26-December 07, 2018* ***Hours of Instruction:*** 67
Location: *Sacramento, CA*

Randall Leonard PE
Instructor

Local Coordinator

Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

Association of Diving Contractors International

Cert. # 57633

Expires 04/09/2023

SURFACE-SUPPLIED AIR DIVER

CHRISTOPHER ESCHENBACH I.D. 4036

Commercial Diver Certification Card

SPRAT

ROPE ACCESS TECHNICIAN

Level: I

Christopher Allen Eschenbach

Baton Rouge, LA
USA

SPRAT Cert. # 200515
Certification Date: 7 MAR 2020
Renewal Date: 7 MAR 2023

Eschenbach, C. (Moffatt & Nichol)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Christopher Eschenbach

has participated in

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

hosted by

California Department of Transportation

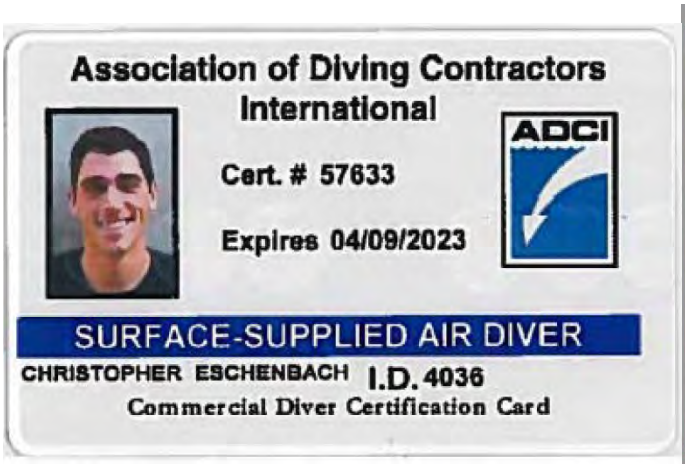
Date: *November 26-December 07, 2018* ***Hours of Instruction:*** 67
Location: *Sacramento, CA*

Randall Leonard PE
Instructor

Local Coordinator

Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute



Association of Diving Contractors International

Cert. # 57633

Expires 04/09/2023

ADCI

SURFACE-SUPPLIED AIR DIVER

CHRISTOPHER ESCHENBACH I.D. 4036

Commercial Diver Certification Card

SPRAT

ROPE ACCESS TECHNICIAN

Level: I

Christopher Allen Eschenbach

Baton Rouge, LA
USA

SPRAT Cert. # 200515
Certification Date: 7 MAR 2020
Renewal Date: 7 MAR 2023

Gazarek, J. (Moffatt & Nichol)

U.S. Department of Transportation
Federal Highway Administration

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* ***Hours of Instruction:*** *67*

Location: *Baton Rouge, LA*

Guy R Lang PE
Instructor

Allison H. Landry
Local Coordinator

Dennis R. Bough P.E.
Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

nhi 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* *Hours of Instruction:* 18

Location: *Web-Conference Course*

Instructor

Instructor

Allison H. Landry
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT
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

CHARLEY RANKIN, EVALUATIONS COMMITTEE CHAIR

WILLIAM McCOOR (TROLL), SPRAT PRESIDENT

©2012 - Present, Society of Professional Rope Access Technicians

Association of Diving Contractors International

Cert. # 47951

Expires 08/21/2023

ADCI

MIXED GAS DIVING SUPERVISOR

JEFFREY M. GAZAREK I.D. 3224

Commercial Diver Certification Card

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

NHI NATIONAL HIGHWAY INSTITUTE

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

Gravatt, K. (Moffatt & Nichol)

National Highway Institute

Certificate of Training

Kimberly M. Gravatt

has participated in

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

hosted by

Arora and Associates, P.C.

Date: January 5-16, 2009 *Hours of Instruction:* 60

Location: Harrisburg, PA

Instructor

Instructor

Local Coordinator

Joseph S. Toole, Associate Administrator
Office of Professional and Corporate Development

National Highway Institute

Certificate of Training

Kimberly M. Gravatt

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Maryland Department of Transportation

Date: *June 04-06, 2019* *Hours of Instruction:* 18

Location: *Baltimore, MD*

Instructor

Instructor

Local Coordinator

Michael Davies, Director
National Highway Institute

National Highway Institute

Certificate of Training

Kim Gravatt

has participated in

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

hosted by

Indiana Department of Transportation

Date: Nov. 6-9, 2017 *Hours of Instruction:* 25

Location: Indianapolis, Indiana

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

Association of Diving Contractors International

Cert. # 59433

Expires 04/05/2024

SURFACE-SUPPLIED AIR DIVER

KIMBERLY GRAVATT I.D. 0647

Commercial Diver Certification Card

National Highway Institute

Certificate of Training

Kimberly Gravatt

has participated in

FHWA-NHI-130091 Underwater Bridge Inspection

hosted by

U.S. Army Corps of Engineers

Date: *April 8-11, 2014* *Hours of Instruction:* 21

Location: *Portland, OR*

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute

Harr, C. (Moffatt & Nichol)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Clint Harr

has participated in

FHWA NHI 130091 Underwater Bridge Inspection

hosted by

Connecticut Department of Transportation

Date: June 3 - 6, 2019
Location: Newington, CT

Hours of Instruction: 24

Instructor

Instructor

Local Coordinator

Michael Davies, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Clint Harr

has participated in

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

hosted by

West Virginia Department of Transportation

Date: July 30-August 10, 2018
Location: Charleston, WV

Hours of Instruction: 67

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

Association of Diving Contractors International

ADCI

Cert. # 62866

Expires 04/28/2026

SURFACE-SUPPLIED AIR DIVER

CLINT J. HARR I.D. H600119367957

Commercial Diver Certification Card

Harrington, T. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

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*

Guy R Lang PE
Instructor

Randall L Leonard PE
Instructor

Local Coordinator

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

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

Instructor

Tess Macias
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

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

Instructor

Local Coordinator

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT

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 DUNSHEA, EVALUATIONS COMMITTEE CHAIR

WILLIAM McCOOK ITZOLLI, SPRAT PRESIDENT

©2012 - Present: Society of Professional Rope Access Technicians

SPRAT Level I ROPE ACCESS TECHNICIAN

otthy Joseph Harrington
ria, NY

AT Cert # 140662
fication Date: 5 APR 2019
ewal 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

Last updated: 5/18/2020

Mark W. Huber
Hydrographer
mark.w.huber@att.net

Professional Information

Chustz Surveying Inc
2910 Angela Ct.
Gastonia
North Carolina
28056 United States
[Map]

Hydrographer Type #1: InShore

Hydrographer Number #1: 181

Hydrographer Expire Date: 12/31/2022

Hydro Status: Active

Hulon, C. (Moffatt & Nichol)

CERTIFICATE OF COMPLETION

This certificate is awarded to

CHACE HULON

For completion of the following course

MARINE ENGINEERING SONAR COURSE - LEVEL ONE

Presented by

STS
SONAR TRAINING SOLUTIONS

Given on 11-14 June, 2018, in Traverse City, MI.
Total Contact Hours for this course: 32 Hours

Instructor/Member of Sonar Training Solutions, LLC

15 June, 2018
Date

U.S. Department Of Transportation
Federal Highway Administration

National Highway Institute
Certificate of Training

Chace Hulon

has participated in
Safety Inspection of In Service Bridges
NHI Course 130055A
hosted by
Iowa State University

Location: Des Moines, IA
Date: June 20 – July 1, 2005
Hours of instruction: 80

Instructor
Instructor
Director, National Highway Institute
Federal Highway Administration

Coordinator
Director, Office of Professional and Corporate Development
Federal Highway Administration

U.S.Department of Transportation
Federal Highway Administration

National Highway Institute
Certificate of Training

Chace Hulon

has participated in
FHWA-NHI-130091B Underwater Bridge Repair, Rehabilitation, and Countermeasures
hosted by
Texas Department of Transportation

Date: July 17 –18, 2018
Location: Fort Worth, TX
Hours of Instruction: 14

Instructor
Instructor
Local Coordinator
Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute
Certificate of Training

Chace Hulon, PE

has participated in
FHWA-NHI-130053 Bridge Inspection Refresher Training
hosted by
Boston Society of Civil Engineers Section/ASCE

Date: October 1-3, 2019
Location: Boston, MA
Hours of Instruction: 18

Instructor
Instructor
Local Coordinator
Michael Davies, P.E.
Director, National Highway Institute

SPRAT
Society of Professional Rope Access Technicians

November 22, 2017

Chace Hulon
15859 Antietam Ave
Baton Rouge, LA 70817
USA

Dear Chace:

Congratulations! You have successfully completed certification testing for Level II Rope Access Technician and are hereby awarded the enclosed certificate. Please note that you are required to adhere to the Society's consensus safety standard, *Safe Practices for Rope Access Work* - most recent edition.

Once again, congratulations! Be sure to contact the Society 90 days prior to the expiration of this certification to arrange for re-certification testing.

Sincerely,

Charley Rankin, Evaluations Committee Chair

William McCook (Troll), SPRAT President

Association of Diving Contractors International

Cert. # 33443

Expires 07/06/2025

ADCI

SURFACE-SUPPLIED AIR DIVING SUPERVISOR

CHACE M. HULON I.D. 5159

Commercial Diver Certification Card

Hunter, O. (Hardesty & Hanover)

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

Location: Virtual Delivery, MD

Hours of Instruction: 18

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

Instructor

Earl E. Dubin

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

Instructor

Debra Rizzieri

Local Coordinator

Thomas Harman

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-130053 Bridge Inspection Refresher Training

hosted by

Whitman, Requardt & Associates, LLP

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

Hours of Instruction: 18

Digitally signed by Colleen A. MacDougall, P.E.
Date: 2020.10.16 15:52:05 -04'00'

Instructor

Finn K. Hubbard
Instructor

Debra E. Rizzieri
Local Coordinator

Thomas Harman
Thomas Harman, 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-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

Instructor

Local Coordinator

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

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

Kovacs, B. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

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*

Location: *Baltimore, MD 21231*

Hours of Instruction: 67

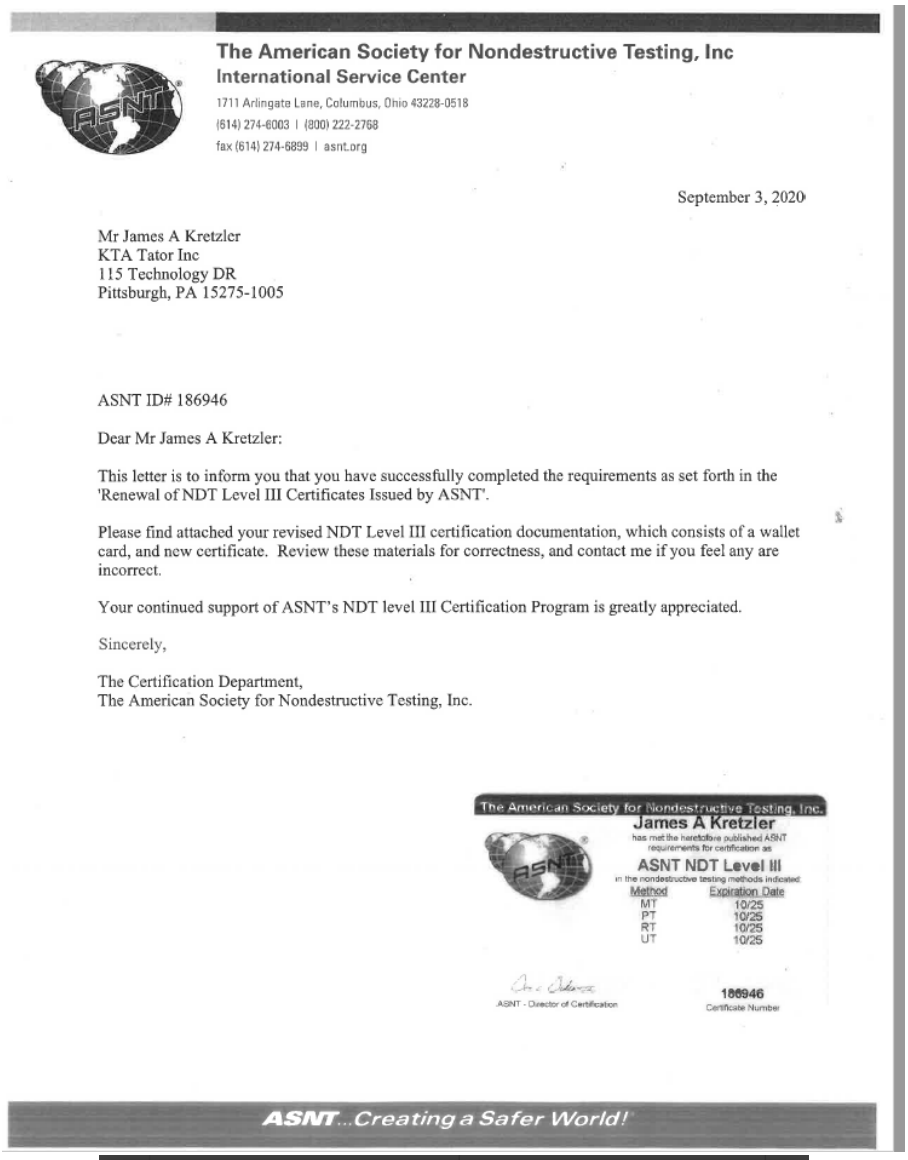
William R Gardner PE
Instructor

Local Coordinator

P.E.
Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

Kretzler, J. (KTA-Tator)



The American Society for Nondestructive Testing, Inc
International Service Center
1711 Arlingate Lane, Columbus, Ohio 43228-0518
(614) 274-6003 | (800) 222-2768
fax (614) 274-6899 | asnt.org

September 3, 2020

Mr James A Kretzler
KTA Tator Inc
115 Technology DR
Pittsburgh, PA 15275-1005

ASNT ID# 186946

Dear Mr James A Kretzler:

This letter is to inform you that you have successfully completed the requirements as set forth in the 'Renewal of NDT Level III Certificates Issued by ASNT'.

Please find attached your revised NDT Level III certification documentation, which consists of a wallet card, and new certificate. Review these materials for correctness, and contact me if you feel any are incorrect.

Your continued support of ASNT's NDT level III Certification Program is greatly appreciated.

Sincerely,

The Certification Department,
The American Society for Nondestructive Testing, Inc.

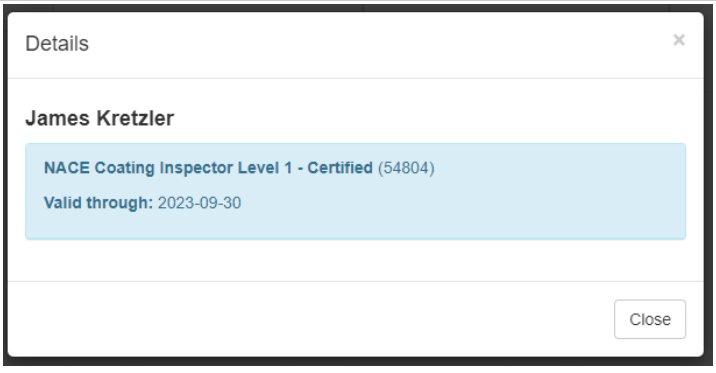
The American Society for Nondestructive Testing, Inc.
James A Kretzler
has met the heretofore published ASNT requirements for certification as
ASNT NDT Level III
in the nondestructive testing methods indicated:

Method	Expiration Date
MT	10/25
PT	10/25
RT	10/25
UT	10/25

ASNT - Director of Certification

186946
Certificate Number

ASNT...Creating a Safer World!



Lanterman, R. (KTA-Tator)

SSPC The Society for Protective Coatings

800 Trumbull Drive Pittsburgh, PA 15205 P: 412.281.2331 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

NACE INTERNATIONAL INSTITUTE

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.

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

Lynch, D. (Hardesty & Hanover)

National Highway Institute

Certificate of Training

David S. Lynch

has participated in

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

hosted by

Whitman, Requardt & Associates, LLP

Date: *June 2-13, 2014* ***Hours of Instruction:*** 67

Location: *Baltimore, Maryland*

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute

National Highway Institute

Certificate of Training

David S. Lynch

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

AECOM

Date: *November 13-15, 2018* ***Hours of Instruction:*** 18

Location: *Hunt Valley, MD*

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

National Highway Institute

Certificate of Training

David S. Lynch

has participated in

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

hosted by

Whitman, Requardt and Associates, LLP

Date: *November 1-4, 2016* ***Hours of Instruction:*** 25

Location: *Baltimore, Maryland 21231*

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

Marinelli, D. (Hardesty & Hanover)

National Highway Institute

Certificate of Training

Donald Marinelli

has participated in

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

hosted by

AECOM Technical Services, Inc.

Date: August 20, 2010
Location: Baltimore, MD

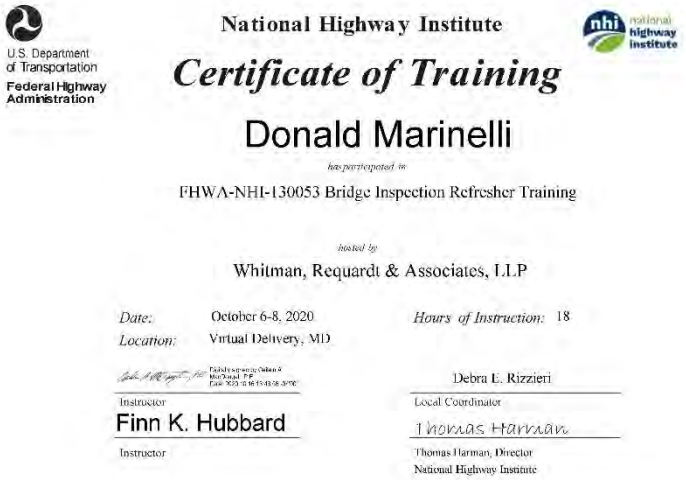
Hours of Instruction: 80
CEU's: 60

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute



U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Donald Marinelli

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Whitman, Requardt & Associates, LLP

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

Hours of Instruction: 18

Instructor

Finn K. Hubbard

Instructor

Debra L. Rizzieri

Local Coordinator

Thomas Harman

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

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

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

Marzuillo, P. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

NATIONAL HIGHWAY INSTITUTE

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 R Lang PE
Instructor

Randall T Leonard PE
Instructor

Local Coordinator

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

nhi national highway institute

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

Instructor

Tess Macias
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

NATIONAL HIGHWAY INSTITUTE

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*

J H Rowe
Instructor

Instructor

Mahendra Patel
Local Coordinator

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

SPRAT

Technician Evaluation Form **Serial Number:** 32403

Candidate Information:
SPRAT Number: 15233
Last Name(s): Marzuillo
First Name(s):
Middle Name(s):
Date of Birth: Year: Month: Day:
E-mail:
Phone:
Street Address:
City:
State / Province:
Zip / Postal:
Country:

Evaluation Session Information:
Date:
Location:
Host:
Evaluator:
Evaluator Number:
☐ ID Verified ☐ Logbook Hours:
☐ Candidate Affidavit

	I	II	III
Rope Access Program			
Roles and Responsibilities	X		
Equipment Use and Inspection	X		
Job Safety	X		
Management and Communication			
Team Scenario			
Individual Maneuvers			
Use of Backup Devices	X		
Use of Descenders	X		
Use of Ascenders	X		
Change-overs	X		
Passing Knots	X		
Rope-to-Rope Transfer	X		
Deviation	X		
Re-anchor (>2 m)	X		
Negotiate Edge	X		
Rope and Sling Protection	X		
Horizontal Aid Climbing	X		
Vertical Aid Climbing			
Rescue			
Level 1 Rescue Scenario	X		
Through Knots			
Through Deviation or Re-anchor			
From middle of Re-anchor or Rope-to-Rope			
From Horizontal Aid Climbing			
Rigging			
Knots: ☐ end ☐ join ☐ mid ☐ stop	X		
Hitches: ☐ prusik ☐ tied-off münter hitch			
Rigging and System Dynamics			
Anchorage Systems	X		
Hauling and Lowering System			
Rope Access System Pre-rigged to Lower			
Retrievable Rope Systems			
Pitch Head Break In and Lower			
Cross-Haul			
Hauling and Lowering through Knots			
Tensioned Rope Systems			
Written Test Score: ____ %			

Evaluation Result: Pass Fail **Level Attained:** N/A 1 2 3

Comments:

Evaluator Signature:

I hereby affirm that this candidate has performed as described on this form.

Candidate Signature:

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

Mastropietro, D. (Hardesty & Hanover)

U.S. Department Of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Douglas Mastropietro

has participated in

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

hosted by

AECOM Technical Services, Inc.

Date: August 20, 2010
Location: Baltimore, MD

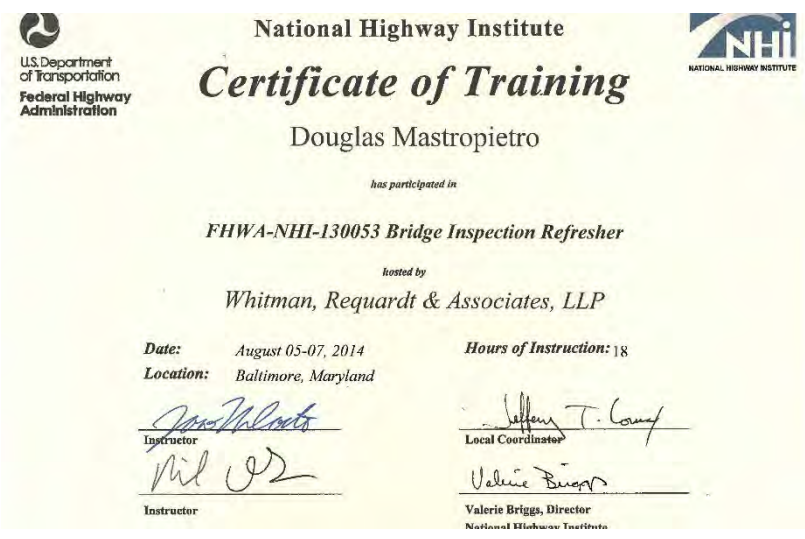
Hours of Instruction: 80
CEU's: 60

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute



U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Douglas Mastropietro

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher

hosted by

Whitman, Requardt & Associates, LLP

Date: August 05-07, 2014
Location: Baltimore, Maryland

Hours of Instruction: 18

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Doug Mastropietro

has participated in

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

hosted by

Whitman, Requardt and Associates, LLP

Date: November 1-4, 2016
Location: Baltimore, Maryland 21231

Hours of Instruction: 25

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT

Acknowledges that

DOUGLAS MASTROPIETRO

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

AWARDED: MAY 2, 2014
Expires: May 2, 2017

IAN BEVAN, EVALUATIONS COMMITTEE CHAIR

MICHAEL SPAL, SPRAT PRESIDENT

SPRAT ROPE ACCESS TECHNICIAN LEVEL I

Douglas Mastropietro
59 Terrace Ave
Floral Park, NY 11001
SPRAT Cert. #: 140555
Certification Date: 5-2-14
Renewal Date: 5-2-17

Morgan, R. (Bridge Diagnostics, Inc)

ANSI ACCREDITED
ISO/IEC 17024
Personnel Certification Program
#0644

The American Society for Nondestructive Testing, Inc.

Be it known that

Ricky L Morgan

Has met the established and published Requirements for Certification by ASNT as

NDT Level III

In the following Nondestructive Testing Methods:

Method	Issue Date	Expiration Date
Liquid Penetrant Testing	11/20	11/25
Magnetic Particle Testing	11/20	11/25
Ultrasonic Testing	11/20	11/25

ASNT THE AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING, INC.

56955

Certificate Number

Certification Management Council Chair

ASNT President

Note: All ASNT NDT Level III exams are developed and maintained in accordance with ISO/IEC 17024 guidelines for certification of persons. The following exams are currently accredited by the American National Standards Institute (ANSI) - BASIC, ET, MT, PT, RT, UT, and VT. This certificate is the property of ASNT, is not official without ASNT's raised gold seal and is subject to revocation prior to the listed expiration date. This certificate shall be verified on the ASNT website or by contacting ASNT.

Babak Naghavi, PE

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 *Hours of Instruction:* 18
Location: Baton Rouge, LA

Instructor
Instructor
Local Coordinator
Richard Barnaby, Director
National Highway Institute

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 *Hours of Instruction:* 12 Hours
Location: Richmond, VA

Instructor
Instructor
Local Coordinator
Valerie Briggs, 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
SAVES ROADS SAVE LIVES

Training & Products Dept. Director
President, CEO

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 *Hours of Instruction:* 21
Location: Baton Rouge, LA

Instructor
Local Coordinator
Valerie Briggs, Director

ATSSA
SAVES ROADS SAVE LIVES

AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION

SLOW

This is to affirm that

Babak Naghavi

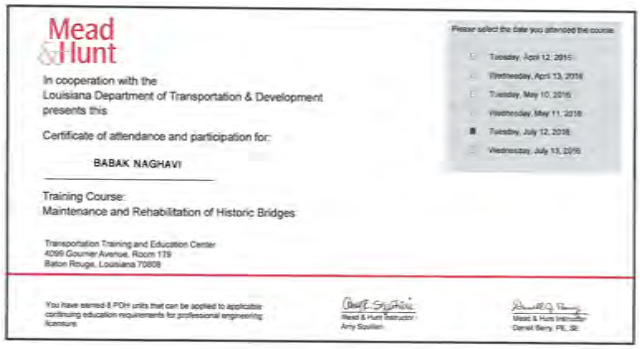
has satisfied the requirements to be designated as a

REGISTERED FLAGGER

Expiration Date: Mar 2019 State Issued: LA

Instructor Signature

Verification available by calling 1-877-642-4337 or at http://www.flagger.com



Mead & Hunt

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
4099 Gourrier 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.

Mead & Hunt Instructor
Amy Squillari

Mead & Hunt Instructor
Daniel Berry, PE, SE

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

Nolan, R. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute
Certificate of Training

RYAN C. NOLAN

has satisfactorily completed training in

FHWA-NHI-130055 *SAFETY INSPECTION OF IN-SERVICE BRIDGES*

conducted by

Michael Baker, Jr., Inc.

Location: **Maryland State Highway Administration**

Date: **September 27 thru October 8, 1999**

Hours of instruction: **80**

Continuing Education Units: **6.0**

Instructor

Coordinator

Director
National Highway Institute

Federal Highway Administrator

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute
Certificate of Training

Ryan C. Nolan

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Whitman, Requardt & Associates, LLP

Date: *May 08-10, 2018*

Location: *Baltimore, MD*

Hours of Instruction: 18

Instructor

Local Coordinator

Instructor

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute
Certificate of Training

Ryan C. Nolan

has participated in

NHI Course No. 130078

Fracture Critical Inspection Techniques for Steel Bridges

hosted by

RK&K

Date: June 25-28, 2018

Location: Baltimore, Maryland

Hours of Instruction: 25

Instructor

Local Coordinator

Instructor

Valerie Briggs, Director
National Highway Institute

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT®

Acknowledges that

RYAN CHARLES NOLAN

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 #151141

AWARDED: July 17, 2015
Expires: July 17, 2018

IAN BEVAN, EVALUATIONS COMMITTEE CHAIR

IAIN GAULT, SPRAT PRESIDENT

Patel, K. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Kaushil Patel

has participated in

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

hosted by

MP Engineers, P.C.

Date: February 09-20, 2015
Location: North Brunswick, NJ

Hours of Instruction: 67

Instructor

Instructor

Mahendra Patel
Local Coordinator

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

NATIONAL HIGHWAY INSTITUTE

Certificate of Training

Kaushil Patel

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

MP Engineers, P.C.

Date: March 16-18, 2020
Location: Kingston, NJ

Hours of Instruction: 18

Instructor

Instructor

Mahendra Patel
Local Coordinator

Michael Davies, P.E.
Director, National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NATIONAL HIGHWAY INSTITUTE

Certificate of Training

Kaushil Patel

has participated in

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

hosted by

MP Engineers, P.C.

Date: Mar 29, 2016-Apr 1, 2016
Location: North Brunswick, NJ

Hours of Instruction: 25

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

SPRAT

ROPE ACCESS TECHNICIAN
Level: I

Kaushil Patel
Brooklyn, NY
USA

SPRAT Cert. # 190378
Certification Date: 22 FEB 2019
Renewal Date: 22 FEB 2022

SOCIETY OF PROFESSIONAL ROPE ACCESS TECHNICIANS

SPRAT

Acknowledges that

KAUSHIL PATEL

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 #190378

AWARDED: February 22, 2019
Expires: February 22, 2022

ROBERT DUNSHEA, EVALUATIONS COMMITTEE CHAIR

WILLIAM MCCOOK (TROY L), SPRAT PRESIDENT

©2012 - Present Society of Professional Rope Access Technicians

Ray, M. (Moffatt & Nichol)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

NATIONAL HIGHWAY INSTITUTE

Margaret Ray

has participated in

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

hosted by

WSP

Date: *September 17-28, 2018*
Location: *Mooresville, NC*

Hours of Instruction: 67

Dennis R. Baughman, P.E.
Instructor

Local Coordinator

Instructor

Valerie Briggs
Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

NATIONAL HIGHWAY INSTITUTE

Margaret Ray

has participated in

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

hosted by

Office of State Aid Road Construction

Date: *January 21-24, 2020*
Location: *Ridgeland, MS*

Hours of Instruction: 25

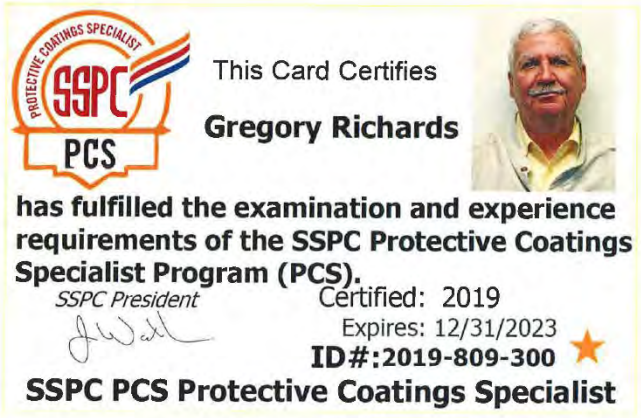
Instructor

Marie Allenton
Local Coordinator

Instructor

Michael Davies, P.E.
Director, National Highway Institute

Richards, G. (KTA-Tator)



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

NACE INTERNATIONAL INSTITUTE

Certificate of Achievement

The NACE International Institute Recognizes

Gregory R Richards

As a Certified

NACE Certified Coating Inspector - Level 3

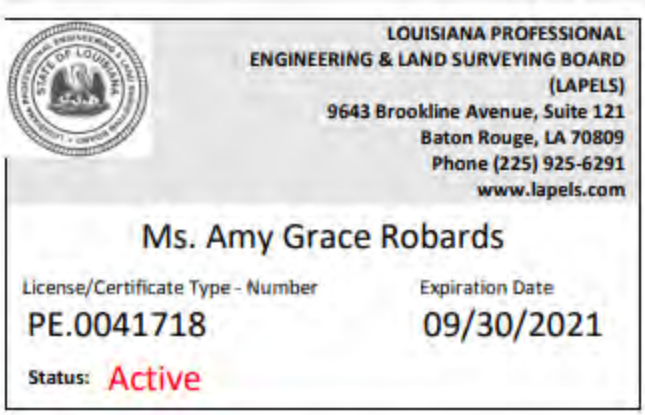
Executive Director
NACE International Institute

Expires
June 30, 2023

Cert No.6092

131775

Amy Robards, PE



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: PE.0041718
Expiration Date: 09/30/2021
Status: Active

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

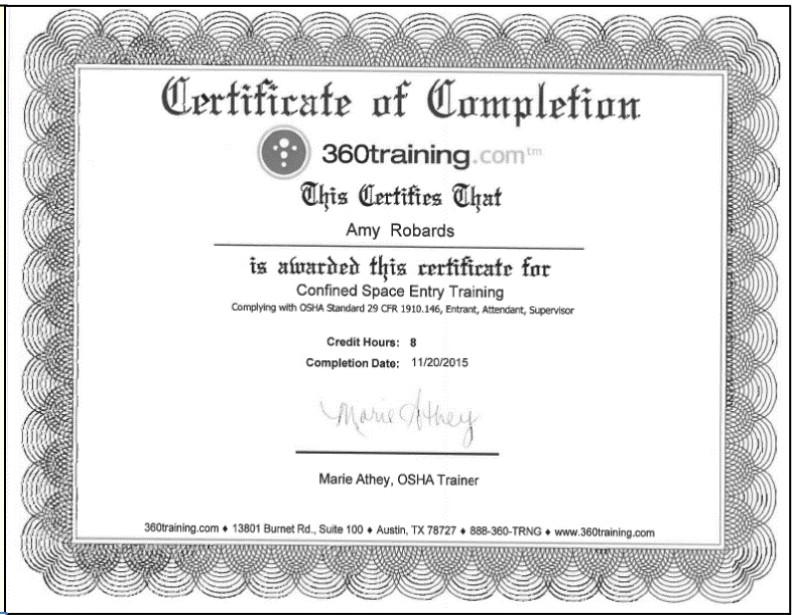
Amy Robards

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*

Instructor
Local Coordinator
Instructor
Valerie Briggs, Director
National Highway Institute



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, OSHA Trainer

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

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, EVALUATIONS COMMITTEE CHAIR

WILLIAM McCOOK (TROLL), SPRAT PRESIDENT

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

ATSSA
SAFER ROADS SAVE LIVES

Training & Products Dept. Director

President, CEO

Russell, M. (Moffatt & Nichol)

National Highway Institute

Certificate of Training

Mike Russell

FHWA-NHI-130053 Safety Inspection of In-Service Bridges

Hawaii Department of Transportation

National Highway Institute

Certificate of Training

Mike Russell

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

COLLIERS ENGINEERING & DESIGN

FAA Aviation Safety

Certificate of Achievement

This is to certify that

Michael Russell

has successfully completed the FAA Safety Team Aviation Learning Center Online Course

Part 107 Small Uas Recurrent

Course Number ALC-977

Presented by Online Courses

September 28, 2021

Certificate Number 120330-210210728-66677

SPRAT

ROPE ACCESS TECHNICIAN

Level: III

Mike Russell

Clinton, CT
USA

SPRAT Cert. # 150926

Certification Date: 16 NOV 2018

Renewal Date: 16 NOV 2021

I UNITED STATES OF AMERICA XI

DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

IV NAME
MICHAEL PAUL RUSSELL

V ADDRESS 379 BOCEVILLE RD
BROOKTONDALE NY 14817-9569

U

VI NATIONALITY USA

SEX M | HEIGHT 73 | WEIGHT 180 | HAIR BROWN | EYES BROWN

IVa D.O.B. 10 APR 1989

IX HAS BEEN FOUND TO BE PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF

A

8 REMOTE PILOT

8 CERTIFICATE NUMBER 3985644

8 DATE OF ISSUE 27 MAR 2017

S

XIV

VIII ADMINISTRATOR

Sanchez, P. (KTA-Tator)

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

March 31, 2020

RECEIVED
MAY 26 2020
KTA - Tator, Inc.

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

Sincerely,

Jennifer Merck
Director of Training & Certification

May 7, 2019

Pedro Miguel Sanchez
10885 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.

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

Stewart, A. (Urban Systems)

Certificate of Completion

presented to

Nicole Stewart

for completing the

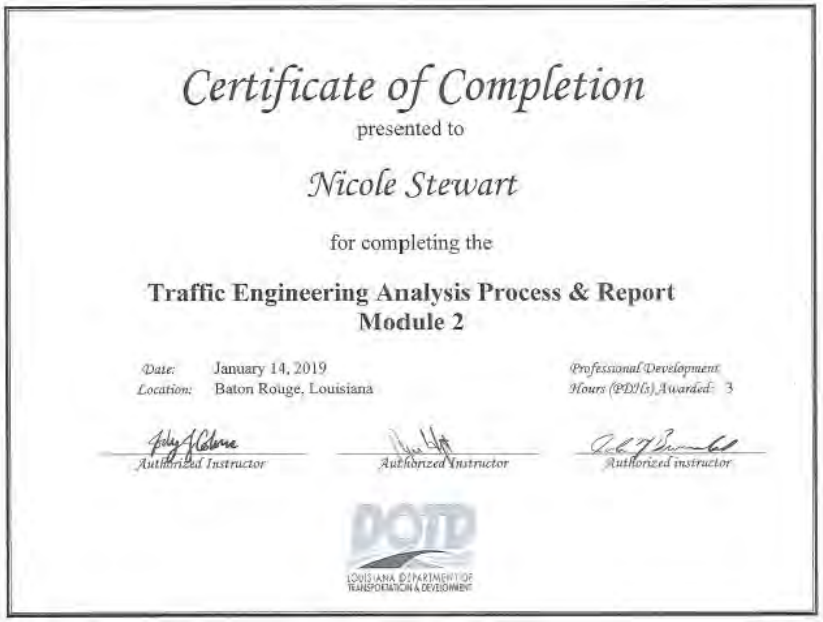
Traffic Engineering Analysis Process & Report
Module 1

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

Professional Development Hours (PDHs) Awarded: 2

Authorized Instructor | Authorized Instructor | Authorized instructor

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT



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

Authorized Instructor | Authorized Instructor | Authorized instructor

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

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

Authorized Instructor | Authorized Instructor | Authorized instructor

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Warncke, J. (Hardesty & Hanover)

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Jordan Warncke
has participated in

FHWA-NHI-130055 Safety Inspection of In-Service Bridges
hosted by
Marlin Engineering, Inc.

Date: *July 13-24, 2015* ***Hours of Instruction:*** 67
Location: *Plantation, FL*

Instructor

Local Coordinator

Instructor

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Jordan Warncke, SE, PE
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

Instructor

Instructor

Debra Rizzieri
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

SPRAT

Technician Evaluation Form

Serial Number: 14952

Candidate Name	JORDAN WARNCKE
Street Address	201 YORK ST. APT 3
City	JERSEY CITY
ZIP/ Postal	07302
State/ Province	NJ
Country	USA
E-mail	JORDAN.WARNCKE@GMAIL.COM
Phone	908-670-0759
Date of Birth	M 12 D 6 Y 1989
Current Level	
SPRAT Number	
First Aid Expiration	
CPR Expiration	

Evaluation Date	8-7-2015
Evaluation Location	HALEVSACK, NJ
Evaluation Host	CAN-USA
Trainer Name	TROLL
Evaluator Name	TROLL
Evaluator Number	060152

I certify that this candidate has demonstrated all skills relevant to his or her level of certification consistent with SPRAT Safe Practices and Certification Requirements and that all SPRAT Evaluation procedures have been followed.

Evaluator's Signature: TROLL

☐ Liability Release ☐ Gov. Issued ID verified by Eval.

☐ Logbook Hours: _____ ☐ Test Score: 94%

Comments:

Circle Evaluation Result: Pass Fail

Level Attained: I II III

If Evaluation result is marked **PASS**, this form serves as a provision certification for 60 days from the Evaluation Date marked above. An official SPRAT certification card should be presented beyond this provisional period.

Society of Professional Rope Access Technicians
994 Old Eagle School Rd, Suite 1019, Wayne, PA 19087-1866
610.971.4850 www.sprat.org info@sprat.org

	1	2	3
Equipment Use & Inspection	X		
Job Safety Analysis and Awareness	A	A	
Management & Communication	■	A	
Knot: ☐ Mid ☐ End ☐ Join ☐ Stop	X		
Hitches: ☐ Friction LII ☐ Load-release LIII	■		
Back-up device handling	X		
Ascender (Ascent/Descent)	X		
Descender (Ascent/Descent/Lock off)	X		
Use of Work Seat	X		
Pass Knots (isolate damaged rope)	X		
Rope-to-rope Transfer	X		
Deviation (redirect)	X		
Short Rebelay (<6 ft/1.8 M)	X		
Long Rebelay (>6 ft/1.8 M)	X		
Negotiate edge	X		
Install/Pass Rope Protection	X		
Simple Structural Anchor	X		
Load-sharing Anchors	A		
Pull-through Anchors	■		
Anchors Pre-rigged to Lower	■	■	
Mechanical Anchor Systems	■	■	A
Climbing w/ Shock-absorbing Lanyards	X		
Aid Climbing (Horizontal or Incline)	■		
Belaying w/communication	X		
Lowering	X		
Pick-off (Casualty descending)	X		
Pick-off (Casualty ascending)	■		
Pick-off through obstacle (knot, rebelay, long rebelay, deviation)	■	■	
Rescue hauling: Platform or pitch head	■		
Cross Hauling (team exercise)	■		
Guideline or Highline	■	■	
Rescue from aid traverse	■	■	
Team Rescue/Work Scenario	■	■	

I hereby affirm that I have completed all of the skills listed above and I accept the evaluation results. I have read and I am familiar with the SPRAT documents applicable to the level of certification for which I am applying, including the current version of SAFE PRACTICES FOR ROPE ACCESS WORK as well as CERTIFICATION REQUIREMENTS FOR ROPE ACCESS WORK. I am qualified for certification under these requirements, and I am physically fit and capable of undertaking the activities described. All of the information provided on this form is true and correct.

Candidate Signature:

Original · SPRAT Yellow · Evaluator Pink · Host Gold · Candidate

Document # E01

Martinez, J. (Moffatt & Nichol)

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

Certificate of Training

Joshua Martinez

has participated in

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

hosted by

CDM Smith

Date: *April 13-24, 2015* **Hours of Instruction:** 67 hours
Location: *Cary, NC*

Instructor — Local Coordinator

Instructor — Valerie Briggs, Director, National Highway Institute

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

Certificate of Training

Joshua Martinez

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Arizona Department of Transportation

Date: *October 22-24, 2019* *Hours of Instruction:* 18
Location: *Phoenix, AZ*

Instructor — Local Coordinator

Instructor — Michael Davies, P.E.
Director, National Highway Institute

National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

Certificate of Training

JOSHUA MARTINEZ

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*

Instructor — Local Coordinator

Instructor — Michael Davies, Director
National Highway Institute

Association of Diving Contractors International

Cert. # 62022

Expires 11/18/2025

ADCI

SURFACE-SUPPLIED AIR DIVER

JOSHUA MARTINEZ I.D. 0713

Commercial Diver Certification Card

Young, C. (Bridge Diagnostics, Inc)

Zahalan, R. (Hardesty & Hanover)

U.S. Department Of Transportation
Federal Highway Administration

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*

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute

NATIONAL HIGHWAY INSTITUTE

U.S. Department of Transportation
Federal Highway Administration

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*

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

NATIONAL HIGHWAY INSTITUTE

U.S. Department of Transportation
Federal Highway Administration

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*

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

NATIONAL HIGHWAY INSTITUTE

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

22. Sub-consultant information:

Firm Name (as registered with Louisiana's Secretary of State)	Address	Point of Contact and email address	Phone Number
Moffatt & Nichol, Inc.	301 Main Street, Suite 800 Baton Rouge, LA 70801	Chace Hulon chulon@moffattnichol.com	225.610.1932
Bridge Diagnostics, Inc	4300 S I-10 Service Road W Ste 210 Metairie, LA 70001	Brett Commander commander@bditest.com	303.494.3230
KTA-Tator, Inc.	145 Enterprise Drive Pittsburgh, PA 15275	Robert S. Lanterman rlanterman@kta.com	412.722.0745 (office) 412.303.9407 (cell)
Chustz Surveying, LLC	211 Richey St. New Roads, Louisiana 70760	James H. Chustz, Jr. jchustz@chustz.com	225.638.5949
Urban Systems, Inc.	2000 Tulane Avenue, Suite 200 New Orleans, LA 70112	Alison C. Michel acmichel@urbansystems.com	504.569.3958

23. Location: