DOTD FORM: 24-102

(Revised March 1, 2022)

PROPOSAL TO PROVIDE CONSULTANT SERVICES

1. Contract title as shown in the advertisement	IDIQ Contracts for Non-Destructive Testing/Evaluation of Structures Statewide
2. Contract number(s) as shown in the advertisement	4400025002 and 4400025003
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)	Bridge Diagnostics, Inc.
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	EF.0005036
6. Prime consultant mailing address	Bridge Diagnostics, Inc. 740 South Pierce Ave. Unit 15 Louisville, CO 80027
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	Bridge Diagnostics, Inc. 4300 S I-10 Service Road W Ste 210 Metairie, LA 70001
8. Name, title, phone number, and email address of prime consultant's contract point of contact	Shane Boone, PhD, EI Senior Vice President - Nondestructive Evaluation (919) 907-8887 shaneb@bditest.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	Scott Aschermann, PE President (303) 494-3230 scotta@bditest.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. LADOTD reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.	Signature (shall be the same person as #9):  Date: September 29, 2022
11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): Firm(s)' %:

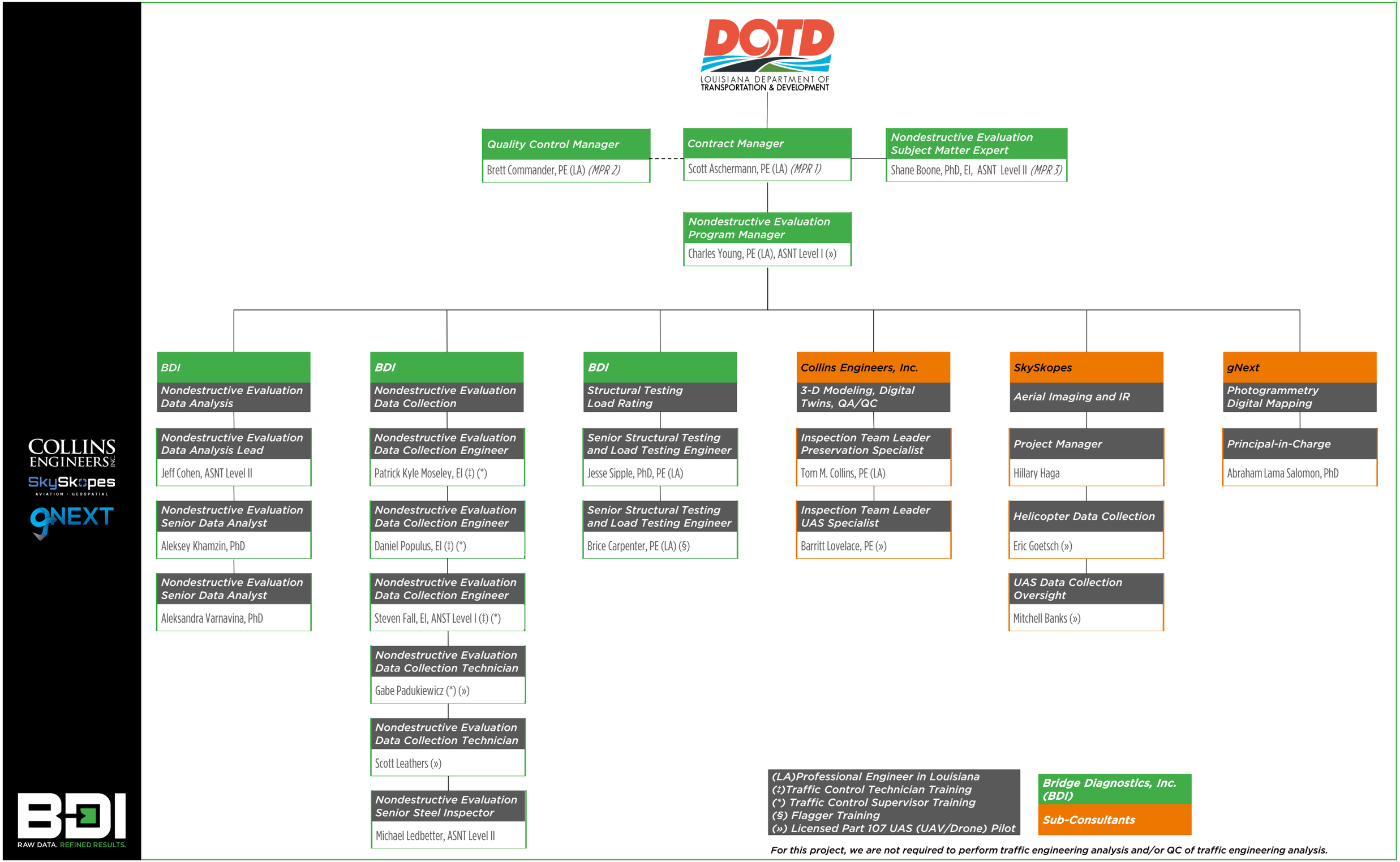
12. Past Performance Evaluation Discipline Table:

Sub-consultants are allowed to be used for this proposal. Fill in the table by identifying only those evaluation disciplines consistent with the approach and methodology proposed in Section 18 of the LADOTD Form 24-102*, the name of each firm that is part of the proposal, and the percentage of work in each past performance evaluation discipline to be performed by that firm. The percentage estimated for each evaluation discipline is for evaluation purposes only and will not control the actual performance or payment of the work. The percentages for the prime and sub-consultants must total 100% for each past performance evaluation discipline, as well as the overall total percent of the contract. (Add rows and columns as needed)						
Evaluation Discipline(s)	% of Overall Contract	Prime ***Bridge Diagnostics, Inc. (BDI)***	Firm B ***Collins Engineers, Inc.***	Firm C ***SkySkopes, Inc.***	Firm D ***gNext Labs, LLC***	Each Discipline must total to 100%
Bridge	40%	93%	5%	0%	2%	100%
Data Collection	40%	95%	5%	0%	0%	100%
Survey	20%	90%	5%	5%	0%	100%
Identify the percentage of work for the **overall contract** to be performed by the prime consultant and each sub-consultant.						
Percent of Contract	100%	93%	5%	1%	1%	------

13. Firm Size:

Firm name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this LADOTD Job Classification (if needed)
Bridge Diagnostics, Inc.	Principal	3	3
	Supervisor – Engineer	3	6
	Supervisor – Other	8	18
	Engineering – Aide	0	1
	Engineer – Other	1	3
	Engineer Intern	3	6
	Senior Technician	5	13
	Technician	1	5
	Computer Analyst	2	2
	Accountant	2	2
	Administrative	1	1
	Clerical	2	3
	Professional	6	7
Collins Engineers, Inc.	Principal	1	4
	Supervisor – Engineer	2	9
	Engineer	4	34
	Technician	1	3
SkySkopes, Inc.	Principal	1	6
	Technician	2	24
gNext Labs, LLC	Principal	1	1
	Computer Analyst	1	1

14. Organizational Chart:



For this project, we are not required to perform traffic engineering analysis and/or QC of traffic engineering analysis.

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	Scott Aschermann, PE	Bridge Diagnostics, Inc.	Professional Engineer (CE) / PE.0041050	LA	03/31/2023
2	Brett Commander, PE	Bridge Diagnostics, Inc.	Professional Engineer (CE) / PE.0035864	LA	03/31/2023
3	Shane Boone, PhD, EI	Bridge Diagnostics, Inc.	ASNT Level II GPR ASNT Level II IR	N/A N/A	10/08/2023 10/08/2023

16. Staff Experience:

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Scott Aschermann, PE		Years of relevant experience with this employer		21
Title	President		Years of relevant experience with other employer(s)		0
Degree(s) / Years / Specialization			BS / 2004 / Civil Engineering		
Active registration number / state / expiration date			PE.0041050 / Louisiana / 03/31/2023		
Year registered	2016	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Contract Manager; Principal-in-Charge ***(MPR1)***		

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).
03/01-Present	Scott Aschermann has been in the Nondestructive Evaluation, Structural Health Monitoring, and heavy civil industry for more than 20 years performing and managing NDE, testing, and monitoring for thousands of structures throughout the world. He has been involved in every aspect of SHM from the design and development of instruments and data acquisition, turnkey system design and deployment, and data interpretation. Beginning as an intern in 2001, Scott has since become President of the company. His titles and responsibilities through the years have included Chief Testing Engineer where he performed acquisition, management, and execution of bridge testing projects; and production oversight for BDI's instrumentation lines. He is also continuously involved with ongoing research and development projects with BDI's electrical team, developing new data acquisition and instrumentation for field applications. Scott's distinctions at BDI include serving as a Middle Eastern representative, Managing Director for BDI's UK Branch, and specializing in emergency and complex testing and monitoring programs. He has worked on multiple structures in Louisiana including load rating of the Bonnet Carre Spillway Bridge, emergency response monitoring of the Sunshine Bridge, Forte load testing, Vicksburg GPR monitoring, I-220 settlement monitoring, LA507 accelerated bridge construction bridge move monitoring, Bayou Teche Swing Bridge Monitoring, and the Forte emergency pile testing, amongst others.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Aschermann led BDI's QA/QC program for the NDE to determine the unknown foundations of 1,857 piles in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise. Mr. Aschermann was also the point of contact to LADOTD for this contract and negotiated all contracts for TOs as well as those for subcontractors.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) –-** Mr. Aschermann is the primary point of contact for LADOTD 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. Mr. Aschermann works with LADOTD to ensure contracting mechanisms and procedures are followed and met on a timely basis. Mr. Aschermann was also the point of contact to LADOTD for this contract and negotiated all contracts for TOs as well as those for subcontractors.
11/04–12/04 11/11–Present	**Bonnet Carre Spillway Load Testing, Rating, and Monitoring, LA** – 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 LADOTD capture weigh-in-motion data, strains induced by heavy loads, and photos of heavy loads. Health Monitoring is still ongoing. Over multiple contracts, Mr. Aschermann assisted in instrumentation plans and installation of sensors and load rating for the project.
11/21-Present	**Off-System Bridge Ratings and Evaluation, LA (Contract 4400010099) –** BDI is performing live-load testing of ten bridges throughout the state of Louisiana, including seven culverts and three reinforced concrete bridges of varying types to provide realistic load rating results for those structures. The process includes developing instrumentation plans, instrumenting, load testing, and load rating for each bridge. Load rating reports will be provided for each of the load-tested structures. Mr. Aschermann is the contract manager and report reviewer for this project.
07/19–12/19	**St. Claude Lift Bridge Balance and Operation Testing, LA** – Counterweight/span balance and friction calculations as well as structural performance evaluation of a double-heal trunnion Strauss Bascule Bridge. Strain gauge testing and various instrumentation tasks were performed during the investigation of a bearing failure on the span to counterweight link. Mr. Aschermann acted as the contract manager for this project.
04/18-10/19	**Sunshine Truss Emergency Monitoring, LA -** In 2018, the Sunshine Truss Bridge was struck by a crane barge, significantly damaging a bottom chord member. As part of the Modjeski and Masters' response team, BDI installed a laser displacement sensor within 48 hours of the event to monitor the behavior of the damaged 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. Aschermann acted as the contract manager and subject matter expert for this project.
02/20-12/20	**LA507 Over I-20 ABC Span Move Monitoring, LA** - During the replacement of this bridge, accelerated bridge construction was utilized where spans were cast nearby and moved into place during short outages. Mr. Aschermann acted as the contract manager and subject matter expert for this project.

Firm employed by **Bridge Diagnostics, Inc. (BDI)`**					
Name	Brett Commander, PE			Years of relevant experience with this employer	32
Title	Vice President of Engineering/Principal Engineer			Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization			MS / 1989 / Structural Engineering BS / 1986 / Civil Engineering		
Active registration number / state / expiration date			PE.0035864 / Louisiana / 3/31/2023		
Year registered	2010	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Quality Control Manager ***(MPR 2)***		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
10/89-Present	Mr. Commander has more than 30 years of experience with testing, monitoring, and evaluating measured structural responses on thousands of structures worldwide. He has performed/oversaw complete structural analyses and load ratings on more than 500 highway and railway bridges using a variety of design codes such as AASHTO, LADOTD BDEM – Part II – Vol. 5 Bridge Evaluation/Rating Load Rating Criteria, and many state-specific codes including Louisiana specifications. Mr. Commander has also designed/oversaw capacity testing projects of concrete and steel structures using various NDE techniques as well as implemented hundreds of structural monitoring systems.
11/12–9/22	**US-90 Bayou Ramos Bridge Load Testing and Monitoring, LA** – Due to unexpected cracking in PS concrete AASHTO beams, BDI performed load tests and load ratings to determine the cause and effect of cracks in continuous multi-span PS/C girders. Load ratings were completed according to LADOTD specifications. After the completion of the initial evaluation, monitoring systems were installed on the structure to monitor the state of two sections of the structure. Structural Health Monitoring is still ongoing. As a technical advisor/principal engineer, Mr. Commander oversaw live-load and thermal load monitoring that was performed during and after repairs to evaluate the performance of the retrofit.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Commander was the principal investigator for the NDE to determine the unknown foundations of 1,857 piles in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise.
11/04–12/04 11/11–Present	**Bonnet Carre Spillway Load Testing, Rating, and Monitoring, LA** – 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 LADOTD capture weigh-in-motion data, strains induced by heavy loads, and photos of heavy loads.

	Health Monitoring is still ongoing. Over multiple contracts, Mr. Commander was the principal-in-charge of this project in its many phases which included responsibilities such as testing program oversight, structural analysis, the load rating of structure for atypical load configurations, on-site data interpretation, report creation and submittal, and providing recommendations for future crossings.
07/21–Present	**NDE of the Whiskey Bay and Piot Channel Bridge Decks, LA** – NDE of 3.5M sf of bridge deck on the structure carrying I-10 over the Atchafalaya Basin between Baton Rouge and Lafayette, LA. Testing included IR/HRI, CWSF GPR, and SounDAR from BDI's mobile NDE testing van. IR/HRI bridge deck data was also collected via drone. BDI also performed substructure inspection to satisfy LADOTD's NBI requirements of the structure with IR/HRI via drone. The data will be used to quantify and locate areas for repair and preservation, and to report NBE and NBI data to FHWA. Mr. Commander is providing QA/QC and PE reviews.
07/19–01/20	**St. Claude Lift Bridge Balance and Operation Testing, LA –** Mr. Commander was the project principal engineer responsible for counterweight/span balance and friction calculations as well as structural performance evaluation of a double-heal trunnion Strauss Bascule Bridge. Strain gauge testing and various instrumentation tasks were performed during an investigation of a bearing failure on the span to counterweight link including strain gage testing on the link frame as well as on counterweight balance procedures.
06/14–Present	**Phinney Avenue Bridge Load Testing, Rating, and NDE, WA** – As part of BDI's On-Call contract with the Seattle Department of Transportation, BDI was contracted to perform diagnostic load tests and structural reinforcement investigation on the Phinney Avenue bridge. Instrumentation, load tests, and a reinforcement investigation were performed with the overall goal of these tests to better understand the structures' load distribution, and reinforcement details, and in turn provide refined load ratings. Mr. Commander acted as the principal engineer and oversaw testing plan development, field-verified model calibration, load ratings performed according to SDOT/WSDOT specifications, and reporting.
08/18–12/20	**Live Load Testing and Field-Verified Load Rating of 16 Bridges, VA –** As part of BDI's Virginia DOT Monitoring On-Call contract, BDI provided load testing and field-verified load rating of 16 structures in the Fredericksburg and Richmond districts. BDI was responsible for the design of load testing requirements, development of instrumentation plans, execution of fieldwork and load testing, data analysis, finite element (FE) model creation, and calibration, and eventual load rating per VDOT and AASHTO requirements. Mr. Commander acted as principal engineer and subject matter expert for this project and his responsibilities included overseeing testing program development.
01/22-Present	**Varina-Enon Bridge Structural Health Monitoring, VA** – As part of BDI's Virginia DOT Monitoring On-Call contract, BDI is providing a comprehensive structural health monitoring (SHM) system on the iconic Varina-Enon bridge. The project includes the design, installation, and operation of the SHM system. Mr. Commander serves as a Technical Advisor on this project.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Shane Boone, PhD, EI, ASNT Level II			Years of relevant experience with this employer	7
Title	Senior Vice President – Nondestructive Evaluation			Years of relevant experience with other employer(s)	13
Degree(s) / Years / Specialization			PhD / 2008 / Civil Engineering MS / 2005 / Structural Engineering BS / 2002 / Civil Engineering		
Active registration number / state / expiration date			22748 / TN / N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Subject Matter Expert ***(MPR3)***		

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).
05/02-Present	Dr. Boone has spent more than 20 years in the government, academic, and private sectors of specialized infrastructure inspection, NDE, and monitoring. He specializes in the research, development, and application of nondestructive testing and evaluation technologies and monitoring of civil infrastructure. Previously, Dr. Boone managed NDE programs at the Federal Highway Administration (FHWA) and Oak Ridge National Laboratory. He serves as the chair of the American Society for Nondestructive Testing's Structural Materials Technology Conference, chair of the ASNT Infrastructure Committee, and sits on TRB's Standing Committee on Testing and Evaluation of Transportation Structures, AKB40. Dr. Boone is a certified ASNT Level II GPR and IR inspector.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Dr. Boone was the Subject Matter Expert (SME) for the NDE to determine the unknown foundations of 1,857 piles in Louisiana to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Dr. Boone provided guidance to subcontractors, worked with LADOTD to develop presentations and reports for outside stakeholders and provided data analysis feedback when required for reporting.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -** Dr. Boone is the SME for statewide NDE of structures for LADOTD 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 LADOTD with identifying proper technologies for application and best methods for analysis and reporting of findings into LADOTD's AssetWise. Dr. Boone interacts with LADOTD and BDI staff daily to ensure data collection, analysis, and reporting are meeting BDI's Quality Management

	Plan (QMP) and are on schedule and budget. Dr. Boone also assisted LADOTD in generating presentations and reports to outside stakeholders based on the findings from the TOs awarded under this contract.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV/Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Dr. Boone is the SME for this project and works with LADOTD and BDI staff to coordinate staffing, scheduling, and budgets.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Dr. Boone was the subject matter expert for this project.
11/19-02/20	**NDT of Pins at the Simmesport Truss Bridge, LA –** Dr. Boone was the principal investigator to perform Ultrasonic Testing (UT) of the 8 False Chord Pins on the US 1 Simmesport Truss Bridge (Structure Number 08050520500001) near Simmesport, LA. The structure carries US 1 over the Atchafalaya River and is owned and maintained by the Louisiana Department of Transportation and Development (LADOTD). A total of 8 pins were inspected at panel points 19 and 19'. The locations include a top and bottom pin at the upstream and downstream location of panel point 19 and a top and bottom pin at the Upstream and Downstream location of panel point 19'.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Charles Young, PE, ASNT Level I			Years of relevant experience with this employer	5
Title	Nondestructive Evaluation Program Manager			Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization			MS / 2017 / Structural Engineering BS / 2012 / Architectural Engineering		
Active registration number / state / expiration date			PE.0042773 / Louisiana / 3/31/2023		
Year registered	2018	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Program 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).
05/18-Present	Mr. Young has more than 11 years of experience in nondestructive evaluation and testing (NDE/NDT), and structural monitoring and testing. Mr. Young is responsible for project management, analysis, and field services related to NDT of civil infrastructure. He works closely with a multifaceted group of engineers and technicians to perform NDE on bridges, culverts, pavements, and other civil infrastructures. Mr. Young is heavily involved in testing and instrumentation of existing structures using NDE methods (acoustic, ultrasonic, electromagnetic, and electrochemical), performing dynamic and digital signal processing and analysis, and numerical and finite element modeling of complex structures. Mr. Young is a SPRAT Level 1 Rope Access Certified, NBIS Certified Bridge Inspector, ASNT Level I GPR Inspector, and a Licensed Part 107 UAS (UAV/Drone) Pilot.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Young was the project manager and lead field engineer for the NDE to determine the unknown foundations of 1,857 piles in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -** Mr. Young is the project manager for statewide NDE of structures for LADOTD 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. Mr. Young also assists LADOTD with identifying proper technologies for application and best methods for analysis and reporting of findings into LADOTD's AssetWise. He also provides coordination with all subcontractors for work performed under this contract and its TOs.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include

	high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of all measurements made for all structures. This analysis is utilizing all datasets to quantify, and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Young is the project manager for this work and will assist with data review, 3D modeling, digital twin generation, and report review.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Young was the project manager for this project as well as an NBIS inspector, provided a review of the draft report, and oversaw the uploading of data to AssetWise.
08/19–07/20	**NDE of City Park Lake Bridge LA –** Mr. Young was the project manager for the 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), and high-resolution video (HRV). The remote inspection was performed on the substructure utilizing visual inspection and IR.
11/19-02/20	**NDT of Pins at the Simmesport Truss Bridge, LA –** Mr. Young was the project manager to perform Ultrasonic Testing (UT) of the 8 False Chord Pins on the US 1 Simmesport Truss Bridge (Structure Number 08050520500001) near Simmesport, LA. The structure carries US1 over the Atchafalaya River and is owned and maintained by the Louisiana Department of Transportation and Development (LADOTD). A total of 8 pins were inspected at panel points 19 and 19'.
10/18–08/19	**Sunshine Truss Emergency Monitoring, LA –** In 2018, the Sunshine Truss Bridge was struck by a crane barge, significantly damaging a bottom chord member. As part of the Modjeski & Masters response team, BDI quickly deployed a laser displacement sensor to monitor the behavior of the damaged member. Once a monitoring plan was developed and approved by the team, BDI installed strain gages on nearby chord members that were used to evaluate the state of the structure before, during, and after the replacement of the damaged bottom chord member. Mr. Young acted as an installation technician and site supervisor for this project.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Jeff Cohen, ASNT Level II			Years of relevant experience with this employer	6
Title	NDE Division Manager, Senior Data Scientist			Years of relevant experience with other employer(s)	6
Degree(s) / Years / Specialization			BS / 2010 / Physics		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Data Analyst Lead		

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).
06/2010-Present	With more than twelve years of experience working within the Nondestructive Evaluation (NDE) industry, Mr. Cohen has gained experience in every role in the execution of NDE services for a variety of infrastructures having planned, performed, and reported on successful investigations on bridges, dams, telecom towers, and other civil structures. He has deployed and provided instruction on a multitude of acoustic, electromagnetic, and electrochemical NDE technologies and techniques. Furthermore, he drives the development of software, hardware, and methodology to support the company's use of various NDE methods, helping to maintain the company's high standard for quality data collection, data analysis, and reporting. Much of his work centers around the integration of machine learning algorithms and automation tools into the practices of the company, helping to improve the quality of results and reporting. Mr. Cohen is an ASNT Level II GPR and ASNT Level II IR Certified Inspector.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Cohen was the lead data analyst for the NDE to determine the unknown foundations of 1,857 piles in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Cohen was the lead data analyst for the statewide NDE of structures for LADOTD 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. Mr. Cohen leads the data analysis team and oversees QA/QC of all data collection, analysis, and processing. Mr. Cohen works with the team daily to ensure data is being processed according to BDI's QMP plan as well as the scoped deliverables of each LADOTD TO associated with this project.

04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of all measurements made for all structures. This analysis is utilizing all datasets to quantify, and map specified bridge deck conditions. The different IR data sets are being compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Cohen is the lead data analyst for this work and will oversee all data review, 3D modeling, digital twin generation, and reviewing reports.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Mr. Cohen is the lead data analyst for this project and is reviewing all NDE maps and results, will oversee all data review, assist with 3D-modeling and digital twin generation, and provide draft and final report review.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Cohen was the lead data analyst for this project, oversaw all data processing and analysis, and generated the reports.
09/21-06/21	**NDE of the Acosta Bridge Deck, FL -** BDI performed NDE of the Acosta Bridge deck in Jacksonville, FL. Testing included CWSF GPR and SounDAR from BDI's mobile NDE testing van and IR/HRI bridge via drone. BDI supplemented the NDE with manual chain drag and cores to validate identified areas of delamination. Of the areas selected for chain drag and coring, the results from the NDE matched the validation testing at 100% accuracy. Mr. Cohen was the lead data analyst for this project.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Aleksey Khamzin, PhD		Years of relevant experience with this employer	2	
Title	Senior Data Analyst		Years of relevant experience with other employer(s)	12	
Degree(s) / Years / Specialization			PhD / 2015 / Geological Engineering MS / 2011 / Geological Sciences BS / 2009 / Geological Sciences		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Senior Nondestructive Evaluation Data Analyst		

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).
06/12-Present	Dr. Khamzin has more than 14 years of experience with the nondestructive evaluation of civil infrastructure that includes the acquisition, processing, and interpretation software for a variety of NDE methods including infrared thermography, ground penetrating radar (GPR) - ground-coupled and air-launched, deck acoustic response (SounDAR), multi-channel analysis of surface waves (MASW), frequency-domain and time-domain electromagnetic methods (FDEM & TDEM), refraction, reflection, and borehole seismic, impact echo (IE), ultrasonic surface waves (USW), magnetic, sub-bottom profiler and bathymetric echo sounder. He participated in more than 65 externally funded research projects on the acquisition, processing, and interpretation of NDE data. Research projects included bridge deck and pavement investigations, karst investigations, slope stability assessments, utility investigations, dam seepage investigations, and archaeological investigations.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163)** Dr. Khamzin performed data collection and analysis for statewide NDE of structures for LADOTD 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. Khamzin performs data collection, data analysis, integration of new technologies into the BDI data collection program, process data, and assists with report generation.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of all measurements made for all structures. This analysis is utilizing all datasets to quantify, and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR,

	GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended. Dr. Khamzin is performing data collection and analysis for this work.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Dr. Khamzin performed data collection and is currently assisting in the analysis for this project.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Dr. Khamzin performed data collection and analysis for this project. He reviewed all IR data and assisted with the 3D Radar analysis and reporting.
07/21-08/22	**NDE of I-80 Corridor Bridges in Salt Lake City, UT -** BDI performed NDE of 710,000 sf of bridge deck from 36 individual structures utilizing IR/HRI, CWSF GPR, and SounDAR. IR/HRI was collected from BDI's mobile NDE testing van and via drone. BDI also collected 260 cores from the bridge deck and 132 powder samples from the substructure and tested those samples for chloride content. BDI utilized specialized algorithms to fuse NDE data sets to quantify and prioritize areas of repair such that UDOT could determine which bridge decks needed immediate repair/replacement of the decks and which bridge decks were in satisfactory condition. NDE quantities were classified into AASHTO NBE condition states as well such that UDOT could utilize the data for FHWA reporting. Dr. Khamzin provided data analysis and reporting expertise. He also was a part of the field data collection team with the BDI NDE SounDAR van.
01/21-07/22	**NDE of I-470 over the Ohio River, WV -** BDI collected more than 171 concrete cores to test for chloride contamination, strength, and petrography to pair with the NDE of the bridge deck carrying I-470 over the Ohio River in Wheeling, WV. NDE testing will include IR/HRI, CWSF, and SounDAR via BDI's mobile NDE testing van. The results are anticipated to assist WVDOH in producing an asset management plan for the bridge and determining quantities needed for immediate repair and preservation of the bridge deck. Dr. Khamzin provided data analysis and reporting expertise.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Aleksandra Varnavina, PhD		Years of relevant experience with this employer	4	
Title	Senior Data Analyst		Years of relevant experience with other employer(s)	12	
Degree(s) / Years / Specialization			PhD / 2015 / Geological Engineering MS / 2011 / Geological Sciences BS / 2009 / Geological Sciences		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Senior Nondestructive Evaluation Data Analyst		

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).
06/12-Present	Dr. Varnavina has more than 16 years of experience and extensive knowledge working with NDE technologies, including infrared thermography, ground penetrating radar, and acoustic methods for bridge deck evaluation. She has participated in more than 80 externally funded research projects on the acquisition, processing, and interpretation of NDE data. Dr. Varnavina has authored and co-authored peer-reviewed publications, conference papers, numerous technical reports, and short course manuals describing the application of near-surface geophysical methods to study the integrity of engineering structures (such as bridge decks, concrete/pavement roadways, dams, etc.) and processes in the shallow subsurface.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Dr. Varnavina performed data analysis and analysis for statewide NDE of structures for LADOTD 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. Varnavina typically leads all GPR analysis tasks and assists the data collection teams in ensuring that the data collected meets BDI's quality standards and those appropriate for a specific TO.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR

	methodologies for different data collection types (i.e., network vs. program level) will be recommended. Dr. Varnavina is leading the GPR analysis for this project.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Dr. Varnavina performed data analysis for this work and led the GPR analysis.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Dr. Varnavina performed data analysis for this work and led the analysis of all GPR data.
09/21–11/21	**GPR Inspection of a Sub-Pavement Cross Drain Leakage (DOTD Contract No. 4400015262/4400017163 TO 9) –** BDI performed GPR inspection of a pavement system to identify settlement and drainage issues in a cross-drain system under the roadway in Lake Charles, LA. The results identified areas of settlement beneath the roadway such that LADOTD could selectively identify repair areas and properly determine fill quantities. Dr. Varnavina performed data analysis of the GPR data to determine the location and size of the voids beneath the roadway surface.
04/21-08/21	**NDE of the Dunwoody Bridge Complex Decks, MN -** BDI performed NDE of the Dunwoody Bridge Complex decks including IR/HRI, CWSF GPR, and SounDAR to detect existing degradation, debonding, and shallow delaminations. IR/HRI data was collected via drone. BDI also collected cores and concrete powder samples to test for chloride concentration. The data was utilized by MnDOT to establish a preservation and maintenance plan for the structure and to determine quantities for repair. Dr. Varnavina provided data analysis and reporting.
04/20-05/20	**Validation of Infrared Thermography for Nevada Bridge Decks, NV** - Nevada DOT contracted BDI to perform a validation study of previously collected IR data after the previous results did not match those collected with chain drag. BDI performed an independent NDE data collection of the bridge with SounDAR and reported those results to NVDOT. NVDOT utilized the results to determine the precision of previously collected IR data and utilized the SounDAR data to determine repair quantities. Dr. Varnavina provided data analysis and reporting expertise.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Patrick Kyle Moseley, EI			Years of relevant experience with this employer	4
Title	Nondestructive Evaluation Field Engineer			Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization			BS / 2018 / Geophysical Engineering		
Active registration number / state / expiration date			EI Civil / LA / N/A		
Year registered	2022	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Data Collection 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).
06/18-Present	Mr. Moseley serves as a field engineer for the NDE Division of BDI and is responsible for field services related to NDT of civil infrastructure. He works closely with a multifaceted group of engineers and technicians to perform NDE on bridges, culverts, pavements, and other civil infrastructures. Mr. Moseley is involved in testing and instrumentation of existing structures using NDE methods (acoustic, ultrasonic, electromagnetic, and electrochemical), and performing field inspection services. Mr. Moseley has completed Traffic Control Technician and Traffic Control Supervisor Training that is valid through 2025.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Moseley performed field data collection, reporting, updating AssetWise, and site supervision for the NDE to determine the unknown foundations of 1,857 piles in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Moseley performed data collection and site supervision for statewide NDE of structures for LADOTD 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. Mr. Moseley assists in scheduling field resources for data collection, supervises field crews, processes data, and assists with report generation.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of

	all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Moseley performed data collection and site supervision for this project.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Mr. Moseley performed data collection and site supervision for this project. He is also assisting with report generation, data integration, and data processing.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 -TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Moseley performed data collection and site supervision for this project. He is also assisting with report generation, data integration, and data processing.
09/21–11/21	**GPR Inspection of a Sub-Pavement Cross Drain Leakage (DOTD Contract No. 4400015262/4400017163 TO 9) –** BDI performed GPR inspection of a pavement system to identify settlement and drainage issues in a cross-drain system under the roadway in Lake Charles, LA. The results identified areas of settlement beneath the roadway such that LADOTD could selectively identify repair areas and properly determine fill quantities. Mr. Moseley performed data collection, and analysis, and generated the final results and all reporting.
10/21–01/22	**Ultrasonic Testing of Anchor Bolts for the Town of Tempe Dam –** BDI performed ultrasonic testing (UT) of more than 260 anchor bolts at the Town of Tempe Dam. The objective of the project was to identify deficiencies in the stressed anchor bolts using straight beam UT. Mr. Moseley performed the data collection and testing and analyzed all data for the project. He also generated CAD maps and the draft report for review.
08/19–07/20	**NDE of City Park Lake Bridge LA –** Mr. Moseley performed data collection and site supervision 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), and high-resolution video (HRV). The remote inspection was performed on the substructure utilizing visual inspection and IR.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Daniel Populus, EI			Years of relevant experience with this employer	4
Title	Nondestructive Evaluation Field Engineer			Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization			MS / 2017 / Engineering Management BS / 2015 / Civil Engineering		
Active registration number / state / expiration date			EI Civil / LA / N/A		
Year registered	2018	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Data Collection 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).
06/18-Present	Mr. Populus is responsible for field services related to the nondestructive testing of civil infrastructure. He works closely with a multifaceted group of engineers and technicians to perform NDE on bridge dams, culverts, telecommunication structures, pavements, and other civil infrastructures. Mr. Populus is involved in testing and instrumentation of existing structures using NDE methods (acoustic, ultrasonic, electromagnetic, and electrochemical), and performing field inspection services. Mr. Populus will also be responsible for dynamic and digital signal processing and analysis, and report writing. Mr. Populus has completed Traffic Control Technician and Traffic Control Supervisor Training that is valid through 2025.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Populus performed field data collection, reporting, and updating AssetWise for NDE to determine the unknown foundations of 1,857 piles in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Populus performed field logistics planning, field data collection, data reduction, and reporting for statewide NDE of structures for LADOTD under this contract. Scope items include testing of bridge decks, concrete substructures, unknown foundations, tunnels, culverts, and other highway transportation infrastructure. Mr. Populus assists with developing access plans, performing data collection, coordinating with subcontractors, and generating CAD and reports for review.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR),

	and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Populus will perform data collection for this project as well as assist with data processing, and CAD and report generation.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 -TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Populus performed data collection for this project and assisted with data processing, and CAD and draft reports.
06/19 – 08/19	**I-10 Emergency Fire Inspection, LA (DOTD Contract No. 4400015262/4400017163 TO 3) –** BDI performed an emergency inspection of a section of I-10 that had fire damage due to a tanker truck accident on the bridge. BDI deployed local field crews, including Mr. Populus, to inspect the bridge with SounDAR, IE, and MIRA. The data identified existing delaminations and areas damaged by the fire. Mr. Populus performed the data collection and assisted with the data processing, CAD, and reporting.
08/19–07/20	**NDE of City Park Lake Bridge LA –** Mr. Populus performed data collection 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), and high-resolution video (HRV). The remote inspection was performed on the substructure utilizing visual inspection and IR.
09/21–11/21	**GPR Inspection of a Sub-Pavement Cross Drain Leakage (DOTD Contract No. 4400015262/4400017163 TO 9) –** BDI performed GPR inspection of a pavement system to identify settlement and drainage issues in a cross-drain system under the roadway in Lake Charles, LA. The results identified areas of settlement beneath the roadway such that LADOTD could selectively identify repair areas and properly determine fill quantities. Mr. Populus performed data collection, analysis, and reporting for this project.
11/19 -02/20	**NDT of Pins at the Simmesport Truss Bridge, LA –** Mr. Populus assisted in the inspection of all pins and produced the draft report for internal BDI review for the Ultrasonic Testing (UT) of the 8 False Chord Pins on the US 1 Simmesport Truss Bridge (Structure Number 08050520500001) near Simmesport, LA. The structure carries US1 over the Atchafalaya River and is owned and maintained by the Louisiana Department of Transportation and Development (LADOTD). A total of 8 pins were inspected at panel points 19 and 19'.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Steven Fall, EI, ASNT Level I			Years of relevant experience with this employer	4
Title	Nondestructive Evaluation Field Engineer			Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization			BS / 2019 / Civil Engineering		
Active registration number / state / expiration date			EI Civil / LA / N/A		
Year registered	2019	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Data Collection 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).
06/19-Present	Mr. Fall performs NBIS inspection and data collection for NDE. He works closely with a multifaceted group of engineers and technicians to perform NDE and data collection and analysis on bridges culverts, pavements, and other civil infrastructures. Steven is involved in the testing of existing structures using NDE methods (acoustic, ultrasonic, electromagnetic, and electrochemical), and performing field inspection and data management services. Mr. Fall has completed Traffic Control Technician and Traffic Control Supervisor Training that is valid through 2025, is an ASNT Level I GPR Certified Inspector, and is an NBIS Certified Bridge Inspector.
01/17-01/22	**Retainer Contract for Testing of Unknown Foundations Statewide (DOTD Contract No. 4400009224)** – Mr. Fall performed field data collection, reporting, and updating AssetWise for NDE to determine the unknown foundations of up to 1,900 bridges in Louisiana. The project utilized multiple methods of NDE including ultraseismic testing, parallel seismic survey, sonic echo/impulse response, and guided wave. Thousands of piles have been tested to determine the embedded depth for subsequent NBIS 113 scour evaluation and reporting. BDI also assisted LADOTD in FHWA reporting these items by uploading all reports into AssetWise.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Fall performed data collection for statewide NDE of structures for LADOTD 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. Mr. Fall assists BDI with identifying proper technologies for application and best methods for analysis and reporting of findings into LADOTD's AssetWise.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI is providing a complete analysis of

	all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Fall performed data collection for this project.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Mr. Fall performed data collection, data reduction, reporting, and NBIS inspection for this project.
06/19 – 08/19	**I-10 Emergency Fire Inspection, LA (DOTD Contract No. 4400015262/4400017163 TO 3) –** BDI performed an emergency inspection of a section of I-10 that had fire damage due to a tanker truck accident on the bridge. BDI deployed local field crews, including Mr. Fall, to inspect the bridge with SounDAR, IE, and MIRA. The data identified existing delaminations and areas damaged by the fire. Mr. Fall performed the data collection and assisted with the data processing, CAD, and reporting.
09/21–11/21	**GPR Inspection of a Sub-Pavement Cross Drain Leakage (DOTD Contract No. 4400015262/4400017163 TO 9) –** BDI performed GPR inspection of a pavement system to identify settlement and drainage issues in a cross-drain system under the roadway in Lake Charles, LA. The results identified areas of settlement beneath the roadway such that LADOTD could selectively identify repair areas and properly determine fill quantities. Mr. Populus performed data collection, analysis, and reporting for this project.
09/21-06/21	**NDE of the Acosta Bridge Deck, FL -** BDI performed NDE of the Acosta Bridge deck in Jacksonville, FL. Testing included CWSF GPR and SounDAR from BDI's mobile NDE testing van and IR/HRI bridge via drone. BDI supplemented the NDE with manual chain drag and cores to validate identified areas of delamination. Of the areas selected for chain drag and coring, the results from the NDE matched the validation testing at 100% accuracy. Mr. Fall performed data collection for this project.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Gabe Padukiewicz			Years of relevant experience with this employer	4
Title	UAV Pilot/NDE Field Technician			Years of relevant experience with other employer(s)	0
Degree(s) / Years / Specialization			BS / 2018 / Homeland Security and Emergency Management AA / 2016 / General Studies		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Data Collection Technician/UAS Pilot		

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	As lead UAV pilot and NDE technician, Mr. Padukiewicz is responsible for drone operations including, flight plans, airspace authorizations/requests to the FAA, drone maintenance, and other NDE field technician responsibilities. He works closely with a multifaceted group of engineers and technicians to perform NDE on bridges, culverts, pavements, and other civil infrastructures. Mr. Padukiewicz is involved in the testing and instrumentation of existing structures using NDE methods (coring, ultrasonic, high-resolution, and infrared video). Mr. Padukiewicz has completed Traffic Control Supervisor Training that is valid through 2025 and is a licensed Part 107 UAS (UAV/Drone) Pilot.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Padukiewicz was the UAS pilot for this project and assisted with other data collection for statewide NDE of structures for LADOTD under this contract. Scope items include testing of bridge decks, concrete substructures, unknown foundations, tunnels, culverts, and other highway transportation infrastructure. Mr. Padukiewicz assists BDI with identifying proper UAV technologies for application and the best methods for testing and stitching of 3D-models and digital twins.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV / Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI will provide a complete analysis of all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR

	methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Padukiewicz was the UAS pilot for this project and assisted with other data collection for this project.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Mr. Padukiewicz was the UAS pilot for this project and assisted with other data collection for this project.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Padukiewicz was the UAS pilot for this project and assisted with other data collection for this project.
02/22-08/22	**NDE of I-65 over the Tennessee River, AL -** Alabama DOT repaired the deck of the structure carrying I-65 over the Tennessee River near Decatur, AL approximately 10 years ago. Since that time, ALDOT has documented visual degradation of the deck above areas that were previously patched. BDI performed IR and High-Resolution Imaging (IR/HRI) with UAV, CWSF GPR, and SounDAR via BDI's mobile NDE testing van. The results will allow ALDOT to identify areas of concern and determine estimated quantities for repair. Additionally, the results will provide insight to ALDOT on the efficacy of their previous repair. Mr. Padukiewicz was the UAV pilot and performed data collection for this project.
01/21-07/22	**NDE of I-470 over the Ohio River, WV -** BDI collected more than 171 concrete cores to test for chloride contamination, strength, and petrography to pair with the NDE of the bridge deck carrying I-470 over the Ohio River in Wheeling, WV. NDE testing will include IR/HRI with UAV, CWSF, and SounDAR via BDI's mobile NDE testing van. The results are anticipated to assist WVDOH in producing an asset management plan for the bridge and determining quantities needed for immediate repair and preservation of the bridge deck. Mr. Padukiewicz performed data collection for this project as well as the UAV pilot.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Scott Leathers			Years of relevant experience with this employer	1
Title	Structural Testing and Nondestructive Evaluation Project Manager			Years of relevant experience with other employer(s)	11
Degree(s) / Years / Specialization			BS / 2010 / Physics		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Nondestructive Evaluation Data Collection Technician		

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).
06/11-Present	As a structural testing / NDE Project Manager at BDI, Mr. Leathers applies various NDE methods coupled with visual inspection to measure and verify all features of interest to perform investigations. He leads the field testing and instrumentation of existing structures using destructive and nondestructive methods including, but not limited to acoustic, electromagnetic, and electrochemical tests. Mr. Leathers also leads dynamic and digital signal processing efforts and provides analysis and reports to clients' specifications. Mr. Leathers is a licensed Part 107 UAS (UAV/Drone) Pilot.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Leathers was the site supervisor for this project and assisted with planning, logistics, and testing for statewide NDE of structures for LADOTD 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. Mr. Leathers assists BDI with identifying proper technologies for application and best methods for analysis and reporting of findings into LADOTD's AssetWise, assists with field logistics, access, and planning, performs data collection, and assists with data processing and report generation.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 (DOTD Contract No. 4400015262/4400017163 TO 11) –** BDI is performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land that will include high-altitude HRI and IR (via helicopter), unmanned aerial vehicles (UAV/Drone) and land vehicle-based IR, High-Resolution Imaging (HRI), Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR), and Deck Acoustic Response (DAR) utilizing BDI's SounDAR system. BDI will provide a complete analysis of all measurements made for all structures. This analysis will utilize all datasets to quantify and map specified bridge deck conditions. The different IR data sets will be compared/contrasted and compared to SounDAR, GPR, and HRI data sets to determine the resolution levels of each method. A recommendation on IR

	methodologies for different data collection types (i.e., network vs. program level) will be recommended. Mr. Leathers will be the site supervisor for this project and assisted with the planning, logistics, and testing for this project. He will also assist with UAV operations, 3D modeling and digital twin generation, data processing, and report generation and review.
07/21–Present	**Whiskey Bay and Pilot Channel NDE (DOTD Contract No. 4400015262/4400017163 TO 8 & 10) -** The objective of this project is to perform an NHI routine inspection of the bridge carrying I-10 over the Atchafalaya Basin between New Baton Rouge and Lafayette along with targeted NDE techniques at various critical portions of the structure. These technologies included IR, HRI, CWSF GPR, and SounDAR Also included are supplemental inspection access techniques including (UAV). Nondestructive evaluation includes a multi-technology bridge deck assessment including Deck Acoustic Response, Ground Penetrating Radar, Infrared Thermography, and High-Resolution Imagery. Mr. Leathers was the site supervisor for this project and assisted with planning, logistics, and testing for this project.
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Leathers assisted with data processing, report generation, and review.
02/22-08/22	**NDE of I-65 over the Tennessee River, AL -** Alabama DOT repaired the deck of the structure carrying I-65 over the Tennessee River near Decatur, AL approximately 10 years ago. Since that time, ALDOT has documented visual degradation of the deck above areas that were previously patched. BDI performed IR and High-Resolution Imaging (IR/HRI), CWSF GPR, and SounDAR via BDI's mobile NDE testing van. The results will allow ALDOT to identify areas of concern and determine estimated quantities for repair. Additionally, the results will provide insight to ALDOT on the efficacy of their previous repair. Mr. Leathers performed data collection for this project.
01/21-07/22	**NDE of I-470 over the Ohio River, WV -** BDI collected more than 171 concrete cores to test for chloride contamination, strength, and petrography to pair with the NDE of the bridge deck carrying I-470 over the Ohio River in Wheeling, WV. NDE testing will include IR/HRI, CWSF, and SounDAR via BDI's mobile NDE testing van. The results are anticipated to assist WVDOH in producing an asset management plan for the bridge and determining quantities needed for immediate repair and preservation of the bridge deck. Mr. Leathers performed data collection for this project, assisted with coordination for access, and performed data processing, and report generation and review.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Michael Ledbetter, ASNT Level II			Years of relevant experience with this employer	3
Title	Nondestructive Evaluation Senior Technician			Years of relevant experience with other employer(s)	23
Degree(s) / Years / Specialization			High School / 1993 / All Required		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Senior Steel 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).
06/19-Present	Mr. Ledbetter is a highly experienced nondestructive testing inspector with more than 26 years of experience spanning a diverse range of industries. His experience includes testing multiple types of infrastructure, weld configurations, and materials. Mr. Ledbetter is an ASNT Level II NDE certified inspector for UT, MT, PT, VT, and PAUT, and is also TWIC accredited.
01/19-Present	**IDIQ Contract for Nondestructive Evaluation of Structures Statewide (DOTD Contract No. 4400015262/4400017163) -**Mr. Ledbetter performs steel inspection and assists with other field data collection for statewide NDE of structures for LADOTD under this contract. Scope items include testing of bridge decks, concrete substructures, unknown foundations, steel elements such as welds and pin and hanger assemblies and welds, tunnels, culverts, and other highway transportation infrastructure.
09/22–Present	**Robert O. Norris Bridge Pin Inspection, Grey's Point, VA–** BDI is performing pin and hanger inspection of the bridge carrying US Route 3 over the Rappahannock River. Mr. Ledbetter is assisting the NBIS inspection by inspecting 316 pin assemblies above the fall protection system utilizing straight beam ultrasonic testing (UT).
10/20–09/22	**Bonnet Carre Spillway Inspection and Nondestructive Evaluation, LA (DOTD Contract No. 4400015262/4400017163 TO 7) –** This project involved an NHI routine inspection of the Bonnet Carre Spillway Bridge and targeted NDE techniques at various critical portions of the structure. Also included were supplemental inspection access techniques including (UAV). The nondestructive evaluation included a multi-technology bridge deck assessment including SounDAR, CWSF GPR, IR, and HRI. Mr. Ledbetter assisted with the NDE of the bridge deck and UT of the steel beams of the structure to determine the loss of cross section due to corrosion.
05/21–10/21	**Coleman Memorial Bridge Anchor Bolt Inspection, Yorktown, VA –** BDI performed a nondestructive evaluation (NDE) of the wheel track anchor bolts which support the double-swing assembly on the George P. Coleman Memorial Bridge in Yorktown, VA. The testing methodology consisted of performing ultrasonic testing of each anchor bolt by an ASNT II 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. Mr. Ledbetter performed UT and phased array ultrasonic testing (PAUT) of all bolts.
09/20–11/20	**Devon Bridge Pin Inspection, Devon, CT–** BDI performed a pin inspection of the bridge carrying the Metro North Transit Rail over the Housatonic River near Devon, CT. The structure, built in 1848, is constructed of primarily cast-iron structural members, and thus the inspection of the pins is difficult. Mr. Ledbetter assisted the BDI team in identifying the correct transducer and testing systems to properly measure the pins to ensure there were no cracks or other degradation. He also performed an inspection of all pins at the bridge in both the top and bottom cords.
02/22-08/22	**NDE of I-65 over the Tennessee River, AL -** Alabama DOT repaired the deck of the structure carrying I-65 over the Tennessee River near Decatur, AL approximately 10 years ago. Since that time, ALDOT has documented visual degradation of the deck above areas that were previously patched. BDI performed IR and High-Resolution Imaging (IR/HRI), CWSF GPR, and SounDAR via BDI's mobile NDE testing van. The results will allow ALDOT to identify areas of concern and determine estimated quantities for repair. Additionally, the results will provide insight to ALDOT on the efficacy of their previous repair. Mr. Ledbetter assisted with data collection for this project.
01/21-07/22	**NDE of I-470 over the Ohio River, WV -** BDI collected more than 171 concrete cores to test for chloride contamination, strength, and petrography to pair with the NDE of the bridge deck carrying I-470 over the Ohio River in Wheeling, WV. NDE testing will include IR/HRI, CWSF, and SounDAR via BDI's mobile NDE testing van. The results are anticipated to assist WVDOH in producing an asset management plan for the bridge and determining quantities needed for immediate repair and preservation of the bridge deck. Mr. Leathers performed data collection for this project as well as extracted multiple cores and prepared them for chloride testing.
11/19-02/20	**NDT of Pins at the Simmesport Truss Bridge, LA –** Mr. Populus assisted in the inspection of all pins and produced the draft report for internal BDI review for the Ultrasonic Testing (UT) of the 8 False Chord Pins on the US 1 Simmesport Truss Bridge (Structure Number 08050520500001) near Simmesport, LA. The structure carries US1 over the Atchafalaya River and is owned and maintained by the Louisiana Department of Transportation and Development (LADOTD). A total of 8 pins were inspected at panel points 19 and 19'.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Jesse Sipple, PhD, PE			Years of relevant experience with this employer	8
Title	Testing, Monitoring, and Engineering Program Manager			Years of relevant experience with other employer(s)	9
Degree(s) / Years / Specialization			PhD / 2013 / Civil Engineering MS / 2008 / Civil Engineering BS / 2007 / Civil Engineering		
Active registration number / state / expiration date			PE.0041028 / Louisiana / 03/31/2023		
Year registered	2016	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Senior Structural Testing and Load Testing 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).
01/14-Present	Dr. Sipple oversees the testing, monitoring, engineering, and ongoing monitoring groups of BDI's Services. The projects performed by these groups range from large SHM systems on signature structures to complex testing and analysis of constructed systems, and maintenance and support of in-service systems. In addition to managerial oversight, Dr. Sipple also oversees the quality control aspects of these projects.
11/21-Present	**Off-System Bridge Ratings and Evaluation, LA (Contract 4400010099) –** BDI is performing live-load testing of ten bridges throughout the state of Louisiana, including seven culverts and three reinforced concrete bridges of varying types to provide realistic load rating results for those structures. The process includes developing instrumentation plans, instrumenting, load testing, and load rating for each bridge. Load rating reports will be provided for each of the load-tested structures. Dr. Sipple is an analysis engineer and engineering reviewer for this project.
07/18–09/18	**Collier County Bridge Load Testing, FL –** BDI performed diagnostic load tests on the FDOT Bridge 034190 which spans over a small drainage ditch in a residential area in Immokalee, Florida. The overall goal of these tests was to better understand the structure's transverse distribution, provide refined load ratings, and reevaluate the current posting levels. Load tests were performed, and the collected structural responses were used to generate a field-verified finite-element model (FEM). This field-verified FEM was then used to compute refined load ratings. Dr. Sipple acted as project manager and QA/QC reviewer for this project.
06/18–03/19	**Phinney Avenue Bridge Load Rating and NDE, WA –** BDI was contracted by SDOT to perform diagnostic load tests and structural reinforcement investigation on the Phinney Ave bridge that spans over North 57th St in Seattle, WA. Instrumentation, load tests, and reinforcement investigation were performed with the overall goal of

	these tests to better understand the structures' load distribution, and reinforcement details, and in turn provide refined load ratings. Dr. Sipple acted as the project manager and QA/Qc reviewer for this project.
07/19–12/19	**St. Claude Lift Bridge Balance and Operation Testing, LA** – Dr. Sipple was the quality control manager for counterweight/span balance and friction calculations as well as structural performance evaluation on a double-heal trunnion Strauss Bascule Bridge. Strain gauge testing and various instrumentation tasks were performed during the investigation of a bearing failure on the span to counterweight link.
08/18–12/20	**Live Load Testing and Field-Verified Load Rating of 16 Bridges, VA** – 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 fieldwork and load testing, data analysis, finite element (FE) model creation, and calibration, and eventual load rating per VDOT and AASHTO requirements. Dr. Sipple acted as quality control manager for this project.
04/18-10/19	**Sunshine Truss Emergency Monitoring, LA -** In 2018, the Sunshine Truss Bridge was struck by a crane barge, significantly damaging a bottom chord member. As part of the Modjeski and Masters' response team, BDI installed a laser displacement sensor within 48 hours of the event to monitor the behavior of the damaged member. Once a monitoring plan was developed and approved by the team, BDI installed strain gages along nearby chord members that were used to evaluate the state of the structure before, during, and after the replacement of the damaged bottom chord member. Dr. Sipple was the project manager responsible for monitoring plan development and project oversight.
02/20-12/20	**LA507 Over I-20 ABC Span Move Monitoring, LA** - During the replacement of this bridge, accelerated bridge construction was utilized where spans were cast nearby and moved into place during short outages. Dr. Sipple was a field/analysis engineer responsible for monitoring plan implementation, instrumentation, monitoring during span moves, on-site data interpretation, and data processing and reporting.
01/22-Present	**Varina-Enon Bridge Structural Health Monitoring, VA –** Virginia Department of Transportation contracted BDI to provide a comprehensive structural health monitoring (SHM) system on the Varina-Enon bridge. The project includes the design, installation, and operation of the SHM system. Dr. Sipple is a senior engineer contributing to system design, architecture, and installation support in his current capacity on this project.

Firm employed by **Bridge Diagnostics, Inc. (BDI)**					
Name	Brice Carpenter, PE			Years of relevant experience with this employer	13
Title	Senior Engineer / Engineering Department Lead			Years of relevant experience with other employer(s)	2
Degree(s) / Years / Specialization			MS / 2009 / Civil Engineering BS / 2007 / Structural Engineering		
Active registration number / state / expiration date			PE.0039341 / Louisiana / 03/31/2023		
Year registered	2014	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Senior Structural Testing and Load Testing 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).
07/09-Present	During his tenure and more than 250 bridges tested and load rated using advanced techniques, Mr. Carpenter has become BDI's Engineering Lead responsible for testing plan oversight, data processing and investigation, structural analysis, load rating, and reporting. Mr. Carpenter has been involved with the testing, monitoring, and evaluation of hundreds of structures of various types (steel, reinforced concrete, prestressed concrete, in simple to complex geometry and configurations) using a variety of design codes such as AASHTO, AREMA, and many state-specific codes including Louisiana specifications. Mr. Carpenter also has years of experience in capacity testing of concrete and steel structures using various NDE techniques and has completed LADOTD Flagger Training which is valid through 2025.
11/12-Present	**US-90 Bayou Ramos Bridge Load Testing & Monitoring, LA –** Due to unexpected cracking in PS concrete beams, BDI performed load tests and load ratings to determine the 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 the structure. Health Monitoring is still ongoing. As lead analysis engineer, Mr. Carpenter performed field-verified load ratings and acts as the project engineer for monitoring system maintenance and troubleshooting.
11/11-Present	**Bonnet Carre Spillway Load Testing and Monitoring, LA –** 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 LADOTD capture weigh-in-motion data, strains induced by heavy loads, and photos of heavy loads. Mr. Carpenter performed superload load ratings and reporting for LADOTD and currently acts as the project engineer for monitoring support to LADOTD.
05/15–10/15 02/18–08/18	**Truss Monitoring on US 84 Over the Mississippi River, MS –** 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 of field prep, field installation, data analysis, and reporting.

07/20–12/20	**LA507 over I-20 ABC Span Move Monitoring, LA –** 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 –** As part of a LADOTD 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.
07/19–12/19	**St. Claude Lift Bridge Balance and Operation Testing, LA –** Project engineer and field/analysis engineer responsible for counterweight/span balance and friction calculations, and structural performance evaluation on a double-heal trunnion Strauss Bascule Bridge. Strain gauge testing and various instrumentation tasks were performed during the investigation of a bearing failure on the span to counterweight link.
08/16-05/17	**Live Load Testing of Eight Culverts and Testing, LA –** BDI worked in coordination with LSU, LTRC, and LADOTD to perform comprehensive diagnostic live-load tests that allowed these structures to be better evaluated based on induced live-load effects, observed distribution, and general fixity at the culvert walls. BDI manufactured the structural testing system used for this testing based on LSU's specifications and needs. Mr. Carpenter acted as a project and testing engineer on this project.
07/09-11/12	**Load Testing and Rating of 35 Rhode Island Bridges, RI –** BDI performed field testing on 35 bridges located throughout the state of Rhode Island. For all the structures, BDI collected and reviewed the strain, displacement, and NDE (GPR) data and provided it directly to AECOM for evaluation. For select bridges, BDI also used the field data to calibrate finite element models and develop accurate load ratings using the AASHTO Manual of Bridge Evaluation. Mr. Carpenter acted as analysis and rating engineer responsible for data processing and review, structural analysis, load rating, and reporting.
11/20-06/21	**Terminal 5 Bridge Load Testing and Rating, WA –**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 to better understand the structures' load distribution and behavior and in turn provide refined load ratings. Mr. Carpenter acted as the lead analysis/rating engineer responsible for data processing, model calibration, and load ratings and reporting according to SDOT/WSDOT specifications.

Firm employed by **Collins Engineers, Inc.**					
Name	Thomas M. Collins, PE			Years of relevant experience with this employer	23
Title	Vice President of UAS, Reality Modeling, and Artificial Intelligence			Years of relevant experience with other employer(s)	4
Degree(s) / Years / Specialization			BS / 1998 / Civil Engineering BS / 1995 / Biology		
Active registration number / state / expiration date			PE 46464 / Louisiana / 9/30/2024		
Year registered	2022	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Inspection Team Leader and Bridge Preservation Specialist		

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).
06/95-Present	Mr. Collins is a Civil/Structural Engineer with more than 27 years of experience. He has performed safety inspections on over 2,500 structures throughout his career from simple bridges to complex steel truss structures and NDE for concrete, steel, and timber structures. Mr. Collins has overseen the construction of over $2.5B of infrastructure including over 100 bridges: slab spans, steel, and concrete deck girder structures, plate girder structures, steel tub flyovers, cut and cover tunnels, and post-tensioned concrete structures. His construction experience includes corridor management of multiple simultaneous projects, Mega Construction team management of engineering and inspection staff (of up to 100 individuals), interagency coordination, claims resolution, electronic documentation, schedule review, shop drawing review, submittal review, processing of RFIs, processing of change orders, project status reporting, documentation auditing, contractor inspection, material certification documentation, and quality assurance review. He has also authored and co-authored various bridge inspection manuals, bridge construction manuals, and bridge preservation studies. Training: FHWA-NHI Course 130055 - Safety Inspection of In-Service Bridges; FHWA-NHI Course 130053 - Bridge Inspection Refresher Training; FHWA-NHI Course 130091 - Underwater Bridge Inspection
03/21–07/22	**I-80 Bridge Preservation Feasibility Study, Salt Lake County, UT – Bridge Inspection, Preservation Scoping, Study Co-Author** **Phase 1:** The project included developing a comprehensive asset management plan for 36 bridges along the I-80 corridor in Salt Lake County, Utah. Collins teamed with WSP, DEA, and BDI to inspect the structures, consolidate information regarding previous rehabilitation and maintenance activities, perform a literature review of existing preservation practices and testing methods, and deliberate various treatments with other DOT practitioners and industry experts. The deliverables include a matrix for the studied structures and potential preservation needs, a risk analysis workshop, and a summary of each structure including recommended testing methods and rehabilitation strategies. Responsibilities included bridge inspection, UAS, and 3-D video

	photogrammetry, defect prioritization, preservation best practices research, determination of applicable project practices, and testing determination for Phase 2. **Phase 2:** The project included utilizing the results of Phase 1 to perform non-destructive testing (NDT) and partially destructive testing of the 36 structures to develop a phased preservation and rehabilitation plan. Methods for the bridge decks included visual inspection, sounding (SounDAR), ground penetrating radar, high-resolution imagery, infrared imaging (IR-UTD), overlay coring for thickness, and chloride testing of concrete. Additionally, girder coating and substructure chloride testing were performed as a part of this study. The results of the testing were used to group bridges according to work type, preservation costs, location, and traffic control requirements to develop a long-term asset management plan for this corridor.
01/20-Present	**Deer Creek Reservoir Water Intake Modernization, Provo County, UT – Project Planning and Implementation Engineer** - The project includes the planning and development of contract documents and construction oversight for the rehabilitation of the existing water intake and the construction of an auxiliary water intake. Work includes the development of NDE specifications and field testing for steel and concrete support structures, 1930's steel penstock pipes, and new construction penstock pipe connections, steel shop fabrication.
01/19-09/21	**Routine Above Water Bridge Inspections, Statewide, UT** – QC Engineer **-** The project included the inspections of 240 structures consisting of 228 routine, six fracture critical, four scour critical, and two rope access. The second year of the 5-year project included 336 structures with 10 fracture critical, 20 scour critical, and 2 rope access. The third year of the 5-year contract included 360 structures with 10 to 15 fracture critical, 20+ scour critical, 2 to 5 rope access, and 24 other special inspections. The fourth year of the 5- year project included 360 structures with 20+ fracture critical, 20+ scour critical, 2 to 5 rope access, and 25+ special inspections. In the fourth year, we also helped UDOT with testing and implementing InspectX data collector along with the use of drones on routine inspections. The other special inspections include but are not limited to deck soundings, drafting, and the use of drones on inspections with high traffic or limited access. The fifth year of the 5- year project included 360 structures with 20+ fracture critical, 20+ scour critical, 2 to 5 rope access, and 25+ special inspections. In the fifth year, we also continued using InspectX data collector along with regular use drones on routine inspections. The other special inspections include but are not limited to deck soundings, drafting, emergency inspections, and the use of drones on inspections with high traffic or limited access. Responsible for program management, inspection, reporting, and meeting with UDOT to review bridge findings.

Firm employed by **Collins Engineers, Inc.**					
Name	Barritt Lovelace, PE			Years of relevant experience with this employer	8
Title	Vice President of UAS, Reality Modeling, and Artificial Intelligence			Years of relevant experience with other employer(s)	26
Degree(s) / Years / Specialization			BS / 1996 / Civil Engineering		
Active registration number / state / expiration date			PE 40456 / Minnesota / 6/30/2024		
Year registered	2000	Discipline	Civil Engineering		
Contract role(s) / brief description of responsibilities			Inspection Team Leader and UAS Specialist		

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).
06/96-Present	Mr. Lovelace has more than 26 years of structural engineering experience in bridge design, load rating, safety inspection, and bridge rehabilitation. He has been the Lead Design Engineer for over 50 bridge projects including prestressed concrete, steel, cast-in-place concrete, curved steel, and timber bridges. Mr. Lovelace has performed above and underwater inspections of numerous bridges and marine facilities. He has performed the safety inspection of over 3,000 bridges, including major river crossing bridges. Mr. Lovelace is a certified rope access technician and is experienced in non-destructive testing and fracture critical inspection procedures. He was the project manager for the development of the Minnesota Department of Transportation's Bridge Inspection Program Manual. Barritt has performed UAS work on over 1000 bridge and other asset inspections and has led or been a team member on 7 UAS-related research projects. He has given over 300 presentations worldwide on using UAS and digital twins for engineering applications. Barritt has generated 3D digital twins of hundreds of bridges including numerous large-scale complex structures throughout the United States. **Training:** Society of Professional Rope Access Technician – SPRAT Level I; FHWA-NHI Course 130055 - Safety Inspection of In-Service Bridges; FHWA-NHI Course 130053 - Bridge Inspection Refresher Training; FHWA-NHI Course 130078 - Fracture Critical Inspection Techniques for Steel Bridges; FHWA-NHI Course 130091 - Underwater Bridge Inspection; UAS Part 107 Pilot
05/21-11/21	**St. Croix Crossing Bridge Inspection, Stillwater, MN – Inspection Team Member/UAS Pilot** -Responsible for leading UAS inspections on the bridge and creating a 3D digital twin model of the structure. The project included the two-week long inspection of the St. Croix Crossing Bridge, a new main river crossing that spans Minnesota Trunk Highway (TH) 95, the Union Pacific Railroad (UPRR), wetlands, and the St. Croix River between the communities of Oak Park Heights, MN, and St. Joseph, WI. The St. Croix Crossing Bridge totals 5,579 ft in length with four main spans of 600 ft. It consists of eight concrete box girder approach spans and six extradosed main spans. Multiple access methods were employed including rope access, under bridge inspection

	vehicles, boats, man lifts, and drones. A significant amount of the inspection effort was geared toward the interior of the concrete boxes where confined space entry methods were utilized.
05/19-09/19	**St. Croix Crossing Bridge Inspection, Stillwater, MN – Project Manager/UAS Pilot** - The project manager and leading inspection teams throughout the inspection, led UAS inspections on the bridge and created a 3D digital twin model of the structure. The project included the two-week long inspection of the St. Croix Crossing Bridge, a new main river crossing that spans Minnesota Trunk Highway (TH) 95, the Union Pacific Railroad (UPRR), wetlands, and the St. Croix River between the communities of Oak Park Heights, MN, and St. Joseph, WI. The St. Croix Crossing Bridge totals 5,579 ft in length with four main spans of 600 ft and consists of eight concrete box girder approach spans and six extradosed main spans. Multiple access methods were employed including rope access, under bridge inspection vehicles, boats, man lifts, and drones. A significant amount of the inspection effort was geared toward the interior of the concrete boxes where confined space entry methods were utilized.
05/19-11/19	**Complex Inspection of Blatnik Bridge, Superior, WI – Inspection Team Member/UAS Pilot -** Responsible for being an inspection team member and he also led UAS inspections on the bridge and created a 3D digital twin model of the structure. The project included the complex, fracture-critical, and ultrasonic testing (UT) of 202 bridge pins on the Blatnik Bridge (B-16-0005) per the NBIS and WisDOT Structure Inspection Manual. Four (4) snooper trucks were required to perform an inspection of approach spans as well as the underdeck of main spans. Manlifts (1) were used to inspect the truss-tied arch span above the deck and access inspection locations from the ground underneath the bridge. SPRAT rope access climbing was available and used as necessary to perform the truss inspection. A drone/UAV was used to supplement the inspection teams. Additional NDT was performed as necessary to verify cracks and/or section loss.
10/21-12/21	**Complex Inspection of Rio Grande Gorge Bridge, Taos, New Mexico – Inspection Team Member/UAS Pilot –** An inspection team member throughout the inspection, also led UAS inspections on the bridge and created a 3D digital twin model of the structure. Collins performed the fracture critical inspection of the Rio Grande Gorge Bridge. The Bridge is a 1,200-foot-long steel deck truss bridge spanning over the Rio Grande River, approximately 600 feet below the bridge deck. The project involved the fracture critical inspection of the lower chord of the deck truss. A team of four rope access inspectors utilized rope-to-rope transfers to achieve an arms-length inspection of the lower chord and gusset connections.

Firm employed by **SkySkopes, Inc.**					
Name	Hillary Haga			Years of relevant experience with this employer	3 months
Title	Project Manager			Years of relevant experience with other employer(s)	10
Degree(s) / Years / Specialization			BS / 2012 / Interdisciplinary Studies (Business and Communications		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Mobile Data Collection		

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).
06/12-Present	Ms. Haga has more than 10 years of experience in various roles in telecom communication and construction, most recently at SkySkopes, Inc. where she manages client expectations in partnership with the organizations to guarantee all goals are met timely, on budget, and within the scope of work, serves as the primary point of contact for full responsibility and accountability for project deliverables and performance per scope, budget, and schedule, and manages all aspects of assigned projects, including legal, and regulatory compliance, operational systems and issues, logistics, and financial plans for each project. She is also responsible for organizing, planning, and monitoring multiple activities spanning end-to-end project delivery, people, and resource management.
06/22–Present	**Aerial Imaging and UAV Inspection of I-15 –** SkySkopes is assisting BDI in performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land with the high-altitude HRI and IR (via helicopter) portion of the scope. Ms. Haga is the project manager for SkySkopes for this project.

Firm employed by **SkySkopes, Inc.**					
Name	Eric Goetsch		Years of relevant experience with this employer	6	
Title	VP of Helicopter Operations		Years of relevant experience with other employer(s)	0	
Degree(s) / Years / Specialization			BS /2016/ UAS Operations & Manned Aviation (FAA Commercial License)		
Active registration number / state / expiration date			3620656/ USA- FAA/ No Expiration Date		
Year registered	N/A	Discipline	Commercial Pilot Level 1 Thermographer		
Contract role(s) / brief description of responsibilities			Helicopter Data Collection & Sensor Operator		

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).
2020-Present	Mr. Goetsch oversees all aspects of helicopter operations nationwide including maintenance, project scheduling, and operation of LiDAR and camera gimbal-based optical, thermal, and UVs sensors. Mr. Goetsch is a Licensed Part 107 UAS (UAV/Drone) Pilot, Commercial Pilot, and Level I Thermographer.
04/22–Present	**Aerial Imaging and UAV Inspection of I-15 –** SkySkopes is assisting BDI in performing an inspection of the bridge carrying I-15 over US 51 and Louisiana swamp land with the high-altitude HRI and IR (via helicopter) portion of the scope. Mr. Goetsch is the helicopter operations manager for this project.
2016-Present	Operated airborne thermal sensors for building inspections, bridge inspections, utility inspections, vegetation management, wildlife surveys, groundwater mapping, and methane detection.

Firm employed by **SkySkopes, Inc.**					
Name	Mitchell Banks			Years of relevant experience with this employer	4
Title	VP of Unmanned Operations			Years of relevant experience with other employer(s)	1
Degree(s) / Years / Specialization			BS / 2019 / Advertising		
Active registration number / state / expiration date			4262701/ USA FAA/ No Expiration		
Year registered	N/A	Discipline	Part 107 Commercial small Unmanned Aerial System Operator		
Contract role(s) / brief description of responsibilities			VP of Unmanned Aviation - sUAS Data Collection Oversight		

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-Present	Mr. Banks is responsible for the development of strategic initiatives and oversight of the Unmanned Operations department.
09/20-07/21	**Purdue Bridge Deck Study, IN –** SkySkopes assisted BDI in performing NDE of 10 bridge decks in the State of Indiana using drone-based IR/HRI. The bridges were located in three of the six INDOT Districts in Indiana. The results of the evaluation provided plan area maps showing areas of corrosion and delamination and were used by Purdue to provide INDOT with a summary of state-of-the-art bridge deck NDE testing methodologies. Mr. Banks managed and performed drone operations for this project.
04/20-07/20	**NDE of Bridge Decks in North Dakota, ND –** SkySkopes assisted BDI in performing drone-based IR of 6 bridge decks for the University of North Dakota (UND). The purpose of the project was to determine the efficacy of IR in North Dakota for identifying and quantifying delaminations in bridge decks. The data was utilized by UND to report their findings to the NDDOT for future use of IR for bridge deck evaluation. Mr. Banks managed and performed drone operations for this project.
07/20-07/21	Directed nationwide flight operations while coordinating interdepartmentally to fulfill client schedules and deliverable requirements. Responsible for year-over-year updates to the Unmanned Flight Operations manual.
11/19-07/20	Managed 74 field personnel performing power utility inspections. Coordinated with the client to develop inspection profiles and fulfill regulatory requirements. Developed and updated safety observation and training programs.
05/19-11/19	Planned and executed LiDAR flight operations in Western North Dakota's Bakken oilfields. Planned and executed visual inspection flight operations on power utility structures in Southern California.

Firm employed by **gNext Labs, LLC**					
Name	Abraham Lama Salomon, PhD		Years of relevant experience with this employer	5	
Title	Co-Founder and CEO		Years of relevant experience with other employer(s)	0	
Degree(s) / Years / Specialization			PhD / 2016 / Civil Engineering MENG / 2016 / Computer Engineering MS / 2014 / Civil Engineering BS / 2011 / Civil Engineering		
Active registration number / state / expiration date			N/A		
Year registered	N/A	Discipline	N/A		
Contract role(s) / brief description of responsibilities			Principal-in-Charge - Technical lead for the processing/stitching/visualization/management of optical and thermal data (images and video).		

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).
12/16-Present	Dr. Salomon provides the technical and administrative direction at gNext dedicated mainly to the development of new technologies for the civil engineering industry using data science, computer vision, and machine learning. This technology is used to find, quantify, visualize, and manage defects and other features of interest that are visible in the data, such as cracks, concrete spalling, concrete patches, concrete efflorescence, and others. This combined with the ability for online collaboration between inspecting engineers and other interested stakeholders, new efficiencies are introduced to shorten both inspection and repair cycles which reduce costs and time for all involved parties.
04/22–Present	**Automation of HRI and IR NDE Data Analysis –** Dr. Salomon is assisting BDI with the development of automated orthomosaic stitching photogrammetry and detection of cracks, spalls, and patches for HRI inspection and delaminations for IR inspection. These algorithms are being utilized for multiple LADOTD NDE inspections such as the Bonnet Carre Spillway, Whiskey Bay, and Pilot Channel Bridges, D3 I-10 Bridge, and I-15 deck inspections.

17. Firm Experience:

Firm name	**Bridge Diagnostics, Inc.**		Past Performance Evaluation Discipline(s)*		Bridge, Data Collection, Survey
Project name	Bonnet Carre Spillway Nondestructive Evaluation and NBIS Inspection		Firm responsibility (prime or sub?)		Prime
Project number	44-15262 Task Order 7	Owner's name	Louisiana Department of Transportation and Development		
Project location	Bonnet Carre Spillway, 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)	11/20	Total consultant contract cost ($1,000's)			$1,363
Services completed by this firm (mm/yy)	09/22	Cost of consultant services provided by this firm ($1,000's)			$1,338

BDI was the prime consultant under LADOTD contract 44-15262 Task Order 7 to perform NDE of the approximately 10-mile bridge deck and substructure of the bridge carrying I-10 over the Bonnet Carre Spillway between Metairie, LA, and Baton Rouge, LA. Additionally, BDI performed an NBIS inspection for the substructure and deck and assisted LADOTD in uploading that data into AssetWise for FHWA reporting. NDE included a multi-technology bridge deck assessment including Deck Acoustic Response (SounDAR), GPR with 3D-Radar, IR, and HRI. HRI and IR data were collected with a UAV (drone) in applicable areas and with a pole-mounted unit on BDI's testing van in areas near the Louis Armstrong New Orleans International Airport, where UAS was not permitted. BDI also performed a steel inspection of the steel bents of the structure. Deliverables for this project include a 3D model of the bridge deck with HRI, and CAD drawings / as-built plans, with quantities of degradation, for IR, GPR, and SounDAR. The HRI data can be utilized to create a digital twin of the bridge deck. This data, along with the NBIS inspection data will assist LADOTD in FHWA reporting requirements and continued asset management of the structure.

Relevant scope of services for this proposal: Concrete deficiency location and size, Integrity, Strength, Dimensions, Corrosion; Steel Deficiency location and size

Relevant Staff: Scott Aschermann, Contract Manager & QA/QC; Brett Commander, Principal Investigator; Shane Boone, Subject Matter Expert; Charles Young, Project Manager; Jeff Cohen, Lead Data Analyst; Aleksandra Varnavina, Data Analyst; Aleksey Khamzin, Data Collection, and Analysis; Patrick Kyle Moseley, Data Collection; Steven Fall, Data Collection; Daniel Populus, Data Collection; Gabe Padukiewicz, UAS Pilot and Data Collection; Scott Leathers, Data Processing and Reporting; Michael Ledbetter, Data Collection, Steel Thickness Testing.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Bridge***

Firm name	**Bridge Diagnostics, Inc.**	Past Performance Evaluation Discipline(s)*	Bridge, Data Collection, Survey
Project name	City Park Lake Bridge Nondestructive Evaluation	Firm responsibility (prime or sub?)	Prime
Project number	44-15262 Task Order 6	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)	02/20	Total consultant contract cost ($1,000's)	$97
Services completed by this firm (mm/yy)	05/20	Cost of consultant services provided by this firm ($1,000's)	$71

BDI acted as the prime consultant under LADOTD contract 44-15262 Task Order 6 to perform NDE of the bridge deck and substructure of the bridge carrying I-10 over City Park Lake in Baton Rouge, LA. Additionally, BDI performed NBIS inspection data from the substructure and via UAS with HRI and IR, and other remote sensing platforms and assisted LADOTD in uploading that data into AssetWise for FHWA reporting. NDE included a multi-technology bridge deck assessment including Deck Acoustic Response (SounDAR), Ground Penetrating Radar, Infrared Thermography (IR), and High-Resolution Imagery (HRI). Deliverables for this project include CAD drawings / as-built plans, with quantities of degradation, for IR, GPR, and SounDAR, all overlaid on a visual map presenting the HRI data. This data, along with the NBIS inspection data will assist LADOTD in FHWA reporting requirements and continued asset management of the structure.

Relevant Scope of Services for this proposal: Concrete deficiency location and size, Integrity, Strength, Dimensions, Corrosion

Relevant Staff: Scott Aschermann, Contract Manager & QA/QC; Brett Commander, Principal Investigator; Shane Boone, Subject Matter Expert; Charles Young, Project Manager; Jeff Cohen, Lead Data Analyst; Kyle Moseley, Data Collection; Steven Fall, Data Collection; Dan Populus, Data Collection.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Bridge***

Firm name	**Bridge Diagnostics, Inc.**	Past Performance Evaluation Discipline(s)*	Bridge, Data Collection

Project name	Vicksburg Bridge Pier Movement GPS Monitoring	Firm responsibility (prime or sub?)	Sub
Project number	4400002538, 4400017263	Owner's name	Louisiana Department of Transportation and Development
Project location	Vicksburg, MS	Owner's Project Manager	Artur D'Andrea, PE
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA (225) 379-1319, Arthur.dandrea@la.gov		
Services commenced by this firm (mm/yy)	03/16	Total consultant contract cost ($1,000's)	Unknown
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$355

Due to a deep slip plane in the Mississippi River, the side of the hill, that the new Vicksburg Bridge was built on, fails when the river level recedes. As a result, pier heads have had to be extended to provide bearing surfaces for several of the spans. BDI worked with the Modjeski & Masters (M&M) engineering team and LADOTD to access the most appropriate monitoring technology for this project based on its limitations. Based on this coordination, BDI installed a GPS-based displacement monitoring system on piers E1, E2, E3R, and W1 to ensure Northing, Easting, and vertical movements are tracked in real-time. E3R is used as a reference monitoring point to validate corrections and accuracy as it is outside of the slip plane mentioned above. The system provides 1/8" accuracy displacement tracking of each pier head, provides an early warning if thresholds are exceeded, and data is provided on BDI's cloud-based website. Each pier monitoring system is a standalone system that has a battery backup, is powered by bridge power, and communicates to the processing servers via cellular modems. Custom GPS mounts were fabricated to allow for better positioning of the GPS antennas. BDI monitoring engineers with work M&M engineer's inquiries into the data as well as troubleshooting. BDI is also responsible for required maintenance for this system, which includes a recent field visit in April 2021 where BDI identified power and communication issues, coordinated a field visit with M&M and LADOTD, and troubleshot and resolved the issues.

Relevant Scope of Services for this proposal: In-place measurement for tilt & displacement

Relevant Staff: Scott Aschermann, Subject Matter Expert; Brett Commander, Data Analysis; Jesse Sipple, Project Manager & Data Analyst; Brice Carpenter, Project Engineer; Steven Fall, Field Technician.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Data Collection***

Firm name	**Bridge Diagnostics, Inc.**		Past Performance Evaluation Discipline(s)*	Bridge, Data Collection	
Project name	Sunshine Truss Bridge Emergency Monitoring		Firm responsibility (prime or sub?)	Sub	
Project number	H.009859.5	Owner's name	Louisiana Department of Transportation and Development		
Project location	Donaldsonville, LA		Owner's Project Manager	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	

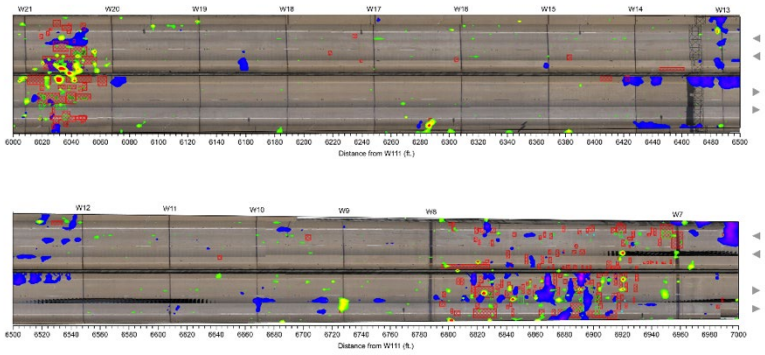
The Louisiana Route 70 Sunshine Truss Bridge is a steel cantilever through truss bridge that carries four lanes of traffic over the Mississippi River near Donaldsonville, LA. In October 2018, this structure was struck by a crane barge, significantly damaging a bottom chord member. As part of the Modjeski & Master's inspection response team, BDI quickly deployed a long-distance laser displacement sensor to monitor changes in the horizontal displacement of the damaged 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 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 LADOTD. The monitoring duration was 9 months so that the structural behavior after the repair could be evaluated.

Relevant Scope of Services for this proposal: In-place measurement for strain, tilt, & displacement

Relevant Staff: Scott Aschermann, Subject Mater Expert and Contract Manager; Brett Commander, Subject Matter Expert; Jesse Sipple, Project Manager; Brice Carpenter, Project Engineer & Field Engineer, Charles Young, Site Supervisor, and Field Technician.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Data Collection***

Firm name	**Bridge Diagnostics, Inc.**		Past Performance Evaluation Discipline(s)*		Bridge, Data Collection
Project name	Vicksburg Bridge Deck Nondestructive Evaluation			Firm responsibility (prime or sub?)	Prime
Project number	44-15262 Task Order 2	Owner's name	Louisiana Department of Transportation and Development		
Project location	Bonnet Carre Spillway, 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)	06/19	Total consultant contract cost ($1,000's)		$110	
Services completed by this firm (mm/yy)	10/19	Cost of consultant services provided by this firm ($1,000's)		$53	



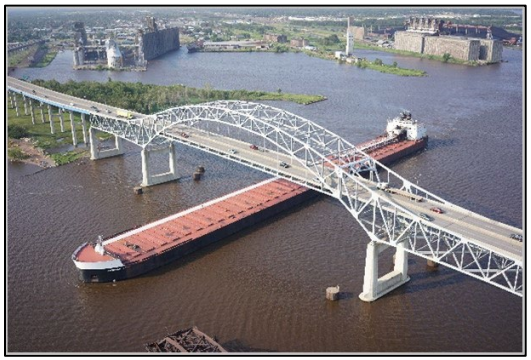
BDI acted as the prime consultant under LADOTD contract 44-15262 Task Order 7 to perform NDE of the 8,546' deck and substructure of the bridge carrying I-20 over the Mississippi River near Vicksburg, MS. Various NDE techniques were utilized to target critical portions of the structure. NDE included a multi-technology bridge deck assessment including Deck Acoustic Response (SounDAR), Ground Penetrating Radar, Infrared Thermography (IR), and High-Resolution Imagery (HRI). Deliverables for this project included CAD drawings / as-built plans with quantities of degradation for IR, GPR, and SounDAR. This data, utilized with validation data from the repair of the bridge deck, gave LADOTD confidence in these technologies for future use and subsequent task orders involving NDE of large bridge deck structures throughout LA.

Relevant Scope of Services for this proposal: Concrete deficiency location & size

Relevant Staff: Scott Aschermann, Contract Manager & QA/QC; Shane Boone, Subject Matter Expert; Charles Young, Project Manager; Jeff Cohen, Lead Data Analyst; Patrick Kyle Moseley, Data Collection; Steven Fall, Data Collection; Daniel Populus, Data Collection.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Bridge***

Firm name	**Collins Engineer, Inc.**		Past Performance Evaluation Discipline(s)*		Bridge, Data Collection, Survey
Project name	Blatnik Bridge			Firm responsibility (prime or sub?)	Prime
Project number	11910.00	Owner's name	Wisconsin Department of Transportation		
Project location	Superior, WI		Owner's Project Manager	Travis McDaniel	
Owner's address, phone, email	4822 Madison Yards Way, Madison, WI 53705; 608-266-5097; travis.mcdaniel@dot.wi.gov				
Services commenced by this firm (mm/yy)	2019	Total consultant contract cost ($1,000's)			$325
Services completed by this firm (mm/yy)	2019	Cost of consultant services provided by this firm ($1,000's)			$170



The project included the complex and fracture critical inspection biennial inspection which also included ultrasonic testing (UT) of 202 bridge pins on the Blatnik Bridge (B-16-0005) per the NBIS and WisDOT Structure Inspection Manual. The Blatnik bridge is a complex border bridge between Wisconsin and Minnesota and carries I-535 over the Saint Louis Bay of Lake Superior crossing between Superior, WI, and Duluth, MN. The bridge consists of 52 spans totaling nearly 8,000 ft in length with a 600 ft main span featuring a steel through truss-arch design.

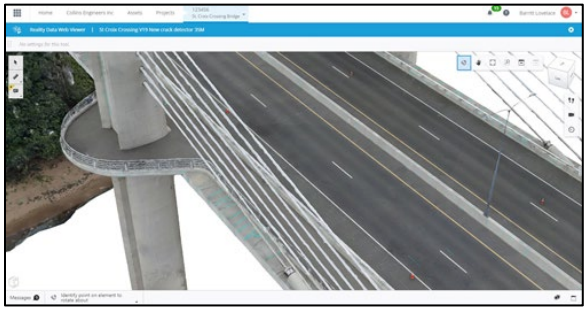
Extensive coordination was required to perform the inspection while minimizing lane closures and disruptions of traffic. A combination of access techniques was coordinated simultaneously which included the use of four under-bridge inspection vehicles and an 85 ft man lift. Unmanned Aerial Systems were used to collect thousands of high-resolution images of the bridge and along with ground control a digital twin of the entire bridge was created. This digital twin is being used as part of the bridge management study. BDI also performed SounDAR and GPR on this structure to identify delaminations and precursors to degradation, respectively.

Relevant Scope of Services for this proposal: UAV Inspection capture and/or Processing, 3D digital twin, crack detection, Concrete deficiency location & size

Relevant Staff: Barritt Lovelace 3D-Modeling and Digital Twin; Shane Boone, Subject Matter Expert; Scott Aschermann, Data Collection.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Bridge***

Firm name	**Collins Engineers, Inc.**		Past Performance Evaluation Discipline(s)*		Bridge, Data Collection, Survey
Project name	St. Croix Crossing Complex Bridge Inspection			Firm responsibility (prime or sub?)	Prime
Project number	13152.00	Owner's name	Wisconsin Department of Transportation		
Project location	Stillwater, MN		Owner's Project Manager	Travis McDaniel	
Owner's address, phone, email	4822 Madison Yards Way, Madison, WI 53705; 608-266-5097; travis.mcdaniel@dot.wi.gov				
Services commenced by this firm (mm/yy)	2019	Total consultant contract cost ($1,000's)			$192
Services completed by this firm (mm/yy)	2021	Cost of consultant services provided by this firm ($1,000's)			$110



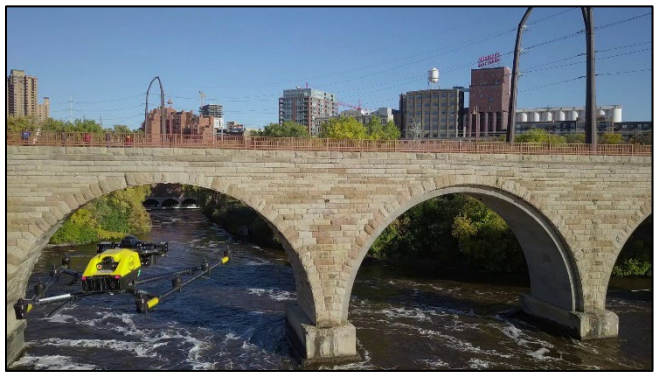
The St. Croix Crossing Bridge is the main river crossing that spans Minnesota Trunk Highway (TH) 95, the Union Pacific Railroad (UPRR), wetlands, and the St. Croix River between Oak Park Heights, MN, and St. Joseph, WI. The St. Croix Crossing Bridge totals 5,579 ft in length with four main spans of 600 ft. It consists of eight concrete box girder approach spans and six extradosed main spans. Collins completed an inspection of this signature structure in 2019 and 2021. The scale of the bridge required a large team of inspectors. Multiple access methods were employed including rope access, under bridge inspection vehicles, boats, man lifts, and drones. A significant amount of the inspection effort was geared toward the interior of the concrete boxes where confined space entry methods were used. The planning of the inspection was critical to the success of the project. The bridge was flown with a drone to create a map of the bridge and its immediate surroundings for inspection planning purposes. This map was annotated with items such as span and substructure numbers, access points, safety information, and meeting areas. The map was shared via cloud server to all team members so that it was accessible by mobile device throughout the inspection. During the field inspection UAS was used to collect over 8,000 high-resolution images of the bridge which along with ground control was processed into a 3D digital twin of the bridge. Artificial intelligence was used to find and document cracks on the exterior of the bridge.

Relevant Scope of Services for this proposal: UAV Inspection capture and/or Processing, 3D digital twin, crack detection

Relevant Staff: Barritt Lovelace, 3D-Modeling, and Digital Twin.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Bridge***

Firm name	**Collins Engineering, Inc.**		Past Performance Evaluation Discipline(s)*		Bridge, Data Collection, Survey
Project name	Stone Arch Bridge Rehabilitation			Firm responsibility (prime or sub?)	Prime
Project number	13152.00	Owner's name	Minnesota Department of Transportation		
Project location	Minneapolis, MN		Owner's Project Manager	Amber Blanchard	
Owner's address, phone, email	1500 W. County Road B-2, Roseville, MN 55113, 651-234-7770; amber.blanchard@state.mn.us				
Services commenced by this firm (mm/yy)	2020	Total consultant contract cost ($1,000's)			$1,200
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)			$511



The Stone Arch Bridge is located in downtown Minneapolis and crosses the Mississippi River. The bridge is a 2,100-foot-long, 22-span masonry stone arch bridge built by James J. Hill for his Great Northern Railroad in 1883. The bridge served rail traffic until the early 1990's when it was converted to a pedestrian bridge. The Stone Arch Bridge is historically significant and is a landmark for the City of Minneapolis and the State of Minnesota. The bridge has become an icon for the City and State and is likely the most photographed bridge in Minnesota if not the most photographed location. The Stone Arch Bridge is currently in the final design phase of a significant bridge rehabilitation project. The objective of the project is to identify deficiencies and repair the bridge to ensure the bridge remains a valuable cultural and physical asset for years to come. To make rehabilitation and design decisions, Collins Engineers performed a detailed inspection of the Stone Arch Bridge. Detailed information on the condition of the masonry was required to develop repair plans and calculate repair quantities. As part of this project, the team utilized UAS and digital to document the bridge. The UAS work did not replace the traditional inspection but supplemented the inspection and provided a workflow that improved the efficiency of the inspection along with an improvement in the amount and quality of data collected. The digital twin is being used extensively by team members to make decisions on the repairs needed and is proving to reduce project costs and risks for MnDOT.

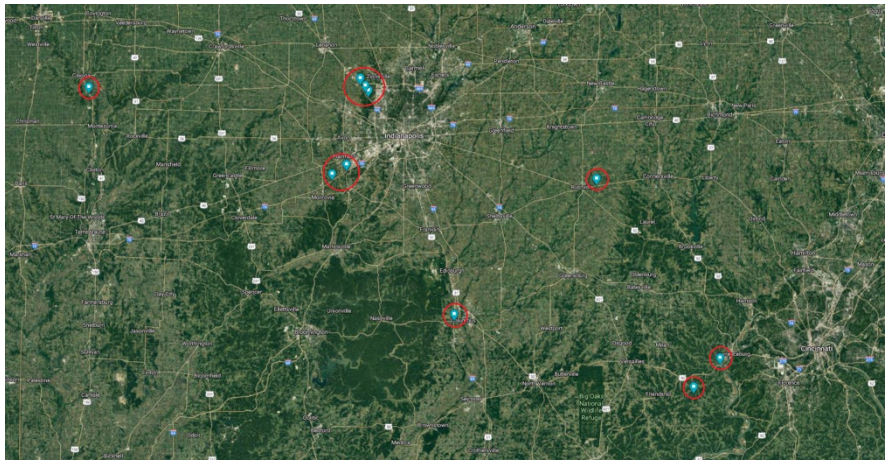
Relevant Scope of Services for this proposal: UAV Inspection capture and/or Processing, 3D digital twin, crack detection

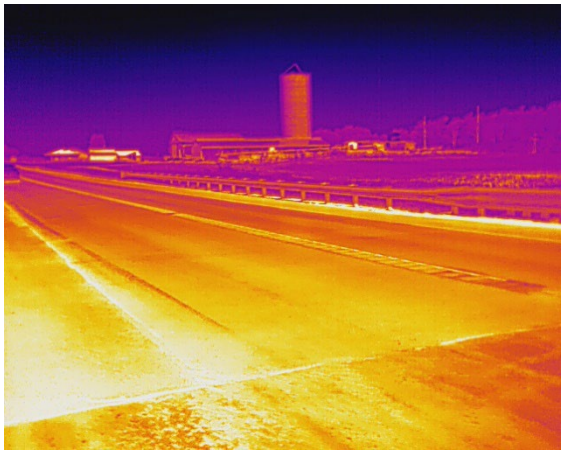
Relevant Staff: Barritt Lovelace, 3D-Modeling, and Digital Twin.

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent. ***Bridge***

Firm name	**SkySkopes, Inc.**		Past Performance Evaluation Discipline(s)*	Survey	
Project name	Purdue Bridge NDE Study		Firm responsibility (prime or sub?)	Sub	
Project number	17369	Owner's name	Purdue University		
Project location	Various Bridge Locations in Indiana		Owner's Project Manager	Chris Williams, PhD	
Owner's address, phone, email	550 Stadium Mall Drive, West Lafayette, IN 47907-2051				
Services commenced by this firm (mm/yy)	09/20	Total consultant contract cost ($1,000's)		$55.5	
Services completed by this firm (mm/yy)	07/21	Cost of consultant services provided by this firm ($1,000's)		$18.5	

SkySkopes assisted BDI in performing NDE of 10 bridge decks in the State of Indiana using drone-based IR/HRI. The bridges were located in three of the six INDOT Districts in Indiana. The results of the evaluation provided plan area maps showing areas of corrosion and delamination and were used by Purdue to provide INDOT with a summary of state-of-the-art bridge deck NDE testing methodologies.





Relevant Scope of Services for this proposal: UAV Inspection capture and/or Processing

Relevant Staff: Mitchell Banks, Project Manager, and UAS Pilot; Shane Boone, Subject Matter Expert; Charles Young, Site Engineer, and Project Manager.

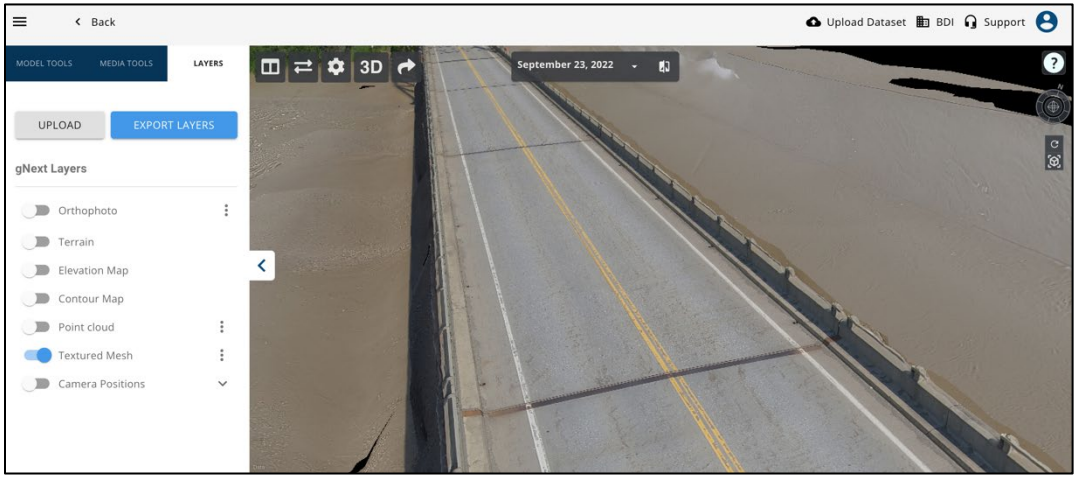
Firm name	**SkySkopes, Inc.**		Past Performance Evaluation Discipline(s)*	Survey	
Project name	2004002-ND_UND_County Decks		Firm responsibility (prime or sub?)	Sub	
Project number	ND0025234-S1	Owner's name	University of North Dakota		
Project location	Pointe Coupee, Plaquemines, Jefferson Parish, LA		Owner's Project Manager	Sattar Dorafshan, PhD	
Owner's address, phone, email	264 Centennial Dr. Stop 7306, Grand Forks, ND 58202				
Services commenced by this firm (mm/yy)	04/20	Total consultant contract cost ($1,000's)	$50		
Services completed by this firm (mm/yy)	07/20	Cost of consultant services provided by this firm ($1,000's)	$15		

SkySkopes assisted BDI in performing drone-based IR of 6 bridge decks for the University of North Dakota (UND). The purpose of the project was to determine the efficacy of IR in North Dakota for identifying and quantifying delaminations in bridge decks. The data was utilized by UND to report their findings to the NDDOT for future use of IR for bridge deck evaluation.

Relevant Scope of Services for this proposal: UAV Inspection capture and/or Processing

Relevant Staff: Mitchell Banks, Project Manager, and UAS Pilot; Shane Boone, Subject Matter Expert; Charles Young, Site Engineer, and Project Manager.

Firm name,	**gNext**		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	Development of Automated Orthomosaic and 3D-Modeling for Bridge Decks		Firm responsibility (prime or sub?)	Prime	
Project number	BDI-UAS-Stitching-001	Owner's name	Bridge Diagnostics, Inc.		
Project location	Louisville, CO		Owner's Project Manager	Shane Boone	
Owner's address, phone, email	740 S. Pierce Ave Unit 15, Louisville, CO 80027				
Services commenced by this firm (mm/yy)	02/21	Total consultant contract cost ($1,000's)	89		
Services completed by this firm (mm/yy)	Present	Cost of consultant services provided by this firm ($1,000's)	89		



Under direction from BDI, gNext has developed automated 3D-modeling capabilities to create orthomosaic and 3D images of bridge decks captured from UAS, and cameras mounted on the BDI testing van. These algorithms utilize GPS coordinates and images captured from still frames or video to stitch a group of HRI or IR data into an orthomosaic image that can be measured geospatially. These algorithms also have the capability to automatically identify any visual degradation including patching, spalls, cracks, efflorescence, etc.

Relevant Scope of Services for this proposal: UAV Inspection capture and/or Processing, 3D digital twin

Relevant Staff: Abraham Lama Salomon, Data Scientist; Shane Boone, Subject Matter Expert; Charles Young, Project Manager, and Drone Pilot; Scott Leathers, Data Analyst and Drone Pilot; Jeff Cohen, Data Integration with BDI Data.

18. Approach and Methodology:

Bridge Diagnostics, Inc. (BDI), working under Contract No. 4400015262/4400017163, IDIQ Contract for Non-Destructive Evaluation of Structures Statewide, has performed NDE services for LADOTD under 13 Task Orders (TO) over the last three and a half years. BDI is familiar with the TO process and will work with LADOTD to assist in scope development to ensure solutions are proposed to achieve LADOTD's needs. BDI is uniquely staffed with civil (structural and geotechnical), mechanical, and electrical engineers; physicists, mathematicians, data scientists, computer scientists, Certified Bridge Inspectors, and ASNT Level I, II, and III Certified NDT Inspectors who have specified, designed, and implemented techniques encompassed in this advertisement. Additionally, BDI has a fully staffed office with NDE and monitoring experts in Metairie, LA, and can mobilize to any site in LA within hours as demonstrated on TO 3 of Contract No. 4400015262/4400017163 for which BDI was called on to evaluate fire damage on I-10 in August of 2019.

As part of any project, BDI will perform the general activities with an associated, typical, schedule as presented in Table 1. Likely, projects awarded under these contracts will vary dramatically in both scope and timeline; therefore, the units of time will be highly dependent on whether the project is a quick-turn validation of rebar, for example (1 day of work), or the evaluation of a 10-mile causeway (1+ years of work). While the description of the work to be performed and a proposed project schedule provide a typical project layout and schedule, BDI can perform and has past performance in all the requested services identified in the Advertisement for Contract Nos. 4400025002 and 4400025003 including, but not limited to, NDE, instrumentation, load rating, and monitoring services, as presented in Table 2 and subsequent paragraphs.

Table 1 – Typical Description of Work Performance and Proposed Project Schedule

Typical Activities	Typical Schedule *(Units of Time May Vary)*
Assist with scope development, if applicable.	
Provide a technical and cost proposal to LADOTD for the specific scope.	
Contracting Process - respond to TO RFP, execute TO, obtain NTP prior to beginning work.	
Schedule a kickoff meeting and any other required pre-planning meetings, once awarded.	
Coordinate with LADOTD for traffic control and/or structure access.	
Perform field data collection through NDT/E and/or structural testing, monitoring, and load rating.	
Review data with LADOTD stakeholders.	
Provide draft reports for review.	
Incorporate comments with a comment/resolution process and BDI's Quality Management Plan.	
Submit a final report with as-built plans per deliverable requirements	
Upload required data into AssetWise.	
Project closeout	

Table 2 – Nondestructive Testing/Evaluation Methods and Applicability

Material Type	Physical Property Measured	NDT/E Technology Utilized by BDI
Concrete	Deficiency Location & Size	Impact Echo (IE), Ultrasonic Pulse Velocity (UPV), Ultrasonic Tomography (MIRA)
	Delaminations	Deck Acoustic Response (SounDAR), Infrared Thermography (IRT), IE, MIRA, Hammer Sounding, and manual Chain Drag
	Spalls	High-Resolution Imaging (HRI)
	Honey Comb & Voids	SounDAR, IE, MIRA
	Integrity	Impulse Response (IR), Ultrasonic Surface Waves (USW), IE, MIRA, Hammer Sounding, and manual Chain Drag
	Strength	IE, MIRA, Rebound Hammer, Pull-off strength, coring, and compression strength testing
	Stiffness (Dynamic Modulus)	IE, IR, USW, MIRA
	Rebar Cover	Ground Penetrating Radar (GPR), Ferroscanning (eddy current), MIRA
	Dimensions (Thickness / Size of Member)	IE, GPR, MIRA
	Corrosion (Probability / Potential)	Half-Cell Potential (HCP), Electrical Resistivity (ER), Galvanostatic Testing, Chloride penetration sampling, and testing, Coring, and Petrography
Timber	Integrity	IE, UPV, MIRA, Shigometer, Penetration Resistance, Hammer Sounding
	Moisture	ER, Shigometer, Moisture Meter
Steel	Deficiency Location & Size	Ultrasonic Testing (UT), Magnetic Particle Testing (MT), Dye Penetrant Testing (PT), Eddy Current Testing (ET)
	Corrosion	UT, ET
	Cracks	UT, MT, PT, ET
	Weld Flaws (Porosity, Slag, and Cracking)	UT, Phased Array Ultrasonic Testing (PAUT), Total Focus Method / Full Matrix Capture (TFM/FMC), Dye Penetrant (PT), Magnetic Particle (MT)

A unique aspect of BDI's NDE program is our ***specialized high-speed and mobile bridge deck inspection utilizing a multi-technology approach with a goal of providing high-quality data while minimizing the effect on traffic and the general public.*** BDI's approach involves high-speed ground penetrating radar (GPR) with 3D-Radar, infrared thermography (IR), High-Resolution Imaging (HRI), and BDI's mobile deck acoustic response (SounDAR) system. The multi-technology approach, including ***acoustic*** and ***electromagnetic*** testing to bridge deck NDE is a methodology in which technologies are strategically and sequentially performed to deliver quantitative data sets to the client for improved asset management. Although this van is a great example of BDI's multi-technology approach, our general NDE practice operates in a very similar fashion - using multiple data collection techniques to validate and ensure the reliability of results. BDI owns all this technology (also presented in Table 2) and has mechanisms in place with vendors to rent specialty probes were needed to supplement non-standard data collection.

Based on NDE findings and other applications defined by LADOTD, BDI can provide a full suite of testing and monitoring services including:

- Diagnostic Testing: Short-term sensor and data acquisition installation for issues such as force imbalances, misalignments, or failing members. This type of work typically does not require any equipment to be purchased by LADOTD, rather using BDI's internal inventory of close to a thousand various instruments to capture the appropriate measurement parameter. This can be paired with our in-house data analysis, load rating, and data hosting services. Depending on the task order, this may be a simplified qualitative data review or a complete structural analysis using finite element analysis, model correlation, and load ratings.
- Structural Monitoring: In many cases, comprehensive testing and analysis are not necessary. Instead, semi-permanent or permanent instrumentation can be deployed to track any ongoing changes in a structural parameter. For example, NDE identifies a crack in a structure that cannot be repaired immediately. In such a case, BDI would install a crack monitoring system to track any ongoing changes and alert on any critical thresholds that may be exceeded. These monitoring systems can be as simple as a single sensor or as comprehensive as a structure-wide structural health monitoring system. Regardless of system size, all data is presented on BDI's online monitoring portal and critical alerts can be sent via SMS, email, and/or automated phone call. BDI has deployed tens of thousands of sensors to measure various parameters, including all those mentioned in the advertisement for Contract Nos. 4400025002 and 4400025003 (***strain, acceleration/vibration, tilt, wind speed, and slope stability***).

In addition to all of the NDE, instrumentation, testing, and monitoring methods identified above, BDI also provides in-house ***UAV inspection data capture and processing to create 3D digital twins with crack, spall, and patch detection***. For this contract, BDI will

also utilize subcontractors to supplement these UAV services (***Collins Engineers, Inc.*** and ***SkySkopes, Inc.***) to ensure we can complete all means of data collection potentially required under this contract. For example, and similar to the project "Aerial Imaging and UAV Inspection of I-15" project mentioned in BDI's resumes, ***SkySkopes*** is providing data collection via helicopter to increase efficiency and lower the cost of data collection vs. driving and flying a UAV at discrete sites spread over a large geographical area. In several other LADOTD projects under BDI's Contract No. 4400015262/4400017163 and presented throughout this proposal, UAVs have been successfully used by BDI for aerial-based data collection. Our platforms, including heavy lift chassis, can collect high-resolution images, infrared, and LIDAR data. Once data is collected, BDI uses in-house and ***gNext Labs LLC*** software to perform automated image stitching to create orthomosaics and 3D models that can be incorporated into digital twins. Proprietary algorithms are then used for automated crack, spall, patch, efflorescence, and other visual degradation detection and mappings. Manual QA/QC is performed on a cursory basis and presented via hosted web service or presented in CAD and/or inspection reports. BDI has been partnering with ***gNext*** on projects with five other State DOTs to perform these services. BDI's field data collection techniques have been harmonized with their platform to minimize labor and human error. Note that these results are exportable into common formats so LADOTD can integrate them into the software package(s) of their choice. With the future of inspection moving to digital twins, BDI has included ***Collins*** in this team to support the migration of these results into a usable and actional digital twin process. ***Collins*** has been performing this service with eight DOTs for more than 10 years and is an industry leader in this process. BDI has provided NDE inputs, like pin and hanger inspection and SounDAR data, for example, into these models for several of these states. BDI will provide a final review of all subconsultant deliverables, data collection, data analysis, and reporting in accordance with its Quality Management Plan (QMP), and upload any necessary documents and/or ***as-built plans*** into ***AssetWise*** under LADOTD direction.

BDI provides a cradle-to-grave solution by offering a complete suite of NDT/E, load testing and rating, structural monitoring, and instrumentation services, as described above. With individual expertise exceeding 20 years in each of these fields, BDI can provide customized solutions, proven professional services, and data management to provide LADOTD with the results that they need to improve the preservation, maintenance, budgeting, and asset management of their structures. BDI ensures this methodology by utilizing the knowledge, analysis, and technology expertise that sit under one roof. BDI currently has multiple field personnel working on LADOTD Contract No. 4400015262/4400017163. As those personnel all have the required work zone training and will be performing the field inspections and testing for this project, ***BDI is already compliant with the work zone requirements of this project*** and will continue to be for both this project as well as one of Contract No. 440025002 or 440025003, if awarded. BDI also actively updates its quality assurance/quality control plans for the overall company and specific projects. This proposal has been reviewed to meet the QA/QC requirements of BDI's Quality Management Plan which identifies and defines all QA/QC measures followed by the company and meets the minimum requirements of the LADOTD Bridge Design Section Policy for QA/QC as stated in Part I, Chapter 3 of the LADOTD Bridge Design & Evaluation Manual (BDEM). These processes will also be utilized for all testing, monitoring, and reporting.

19. Workload:

Firm(s)	Past Performance Evaluation Discipline(s) *	State project number	Project name	Remaining Unpaid Balance**
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 1 General Services BDI1904004	$14,397
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 7 Bonnet Carre Spillway 2006002	$24,903
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 8 I-10 Atchafalaya Floodway (EB&WB) and I-10 Over Whiskey Bay Pilot Channel	$60,341
Bridge Diagnostics, Inc.	Bridge	H.014703.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 9 Non-Destructive Evaluation of Structures Calcasieu Parish	$4,085
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 10 Non-Destructive Evaluation of Structures Structures 300333-612404500700651, 300335-612404500700652, and 300330-612404500700141	$8,310
Bridge Diagnostics, Inc.	Bridge	H.009859.5 44-02791	Bridge Monitoring System Maintenance	$25,952
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 11 Non-Destructive Deck Evaluation of Structures Structures 623030, 621450, 623040, 620248, 623060, 623070, 621460, 623050, 620249, and 623020	$414,510
Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 12 Deck Evaluation of I-10 Atchafalaya Basin Bridges District 03	$268,031

Bridge Diagnostics, Inc.	Bridge	H.009730.5 44-17163	Retainer for Non Destructive Evaluation of Structures Task Order 13 NBI Inspection of I-10 Bonnet Carre Spillway Bridges District 02	$76,272
Bridge Diagnostics, Inc.	Data Collection	H.010603.6 44-17263	Mississippi Bridge at Vicksburg GPS Monitoring	$109,063
Collins Engineers, Inc.				N/A
SkySkopes, Inc.				N/A
gNext Labs, LLC				N/A

20. Certifications/Licenses:

If the advertisement requires submission of licenses and/or certificates, include them here. Otherwise, leave this section blank.

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

If the advertisement requires submission of a QA/QC plan or Work plan, include them here. Otherwise, leave this section blank.

22. Sub-consultant information:

If one or more sub-consultants will be used, provide the name, address, point of contact and phone number for each. Otherwise, leave this section blank.

Firm Name (as registered with Louisiana's Secretary of State)	**Address**	**Point of Contact and email address**	**Phone Number**
Collins Engineers, Inc.	7967 Office Park Boulevard Baton Rouge, LA 70809	Thomas M. Collins tmcollins@collinsengr.com	(414) 930-4641
SkySkopes, Inc.	8813 N Tarrant Pkwy, North Richland Hills, TX 76182	Chase Attwood chase.attwood@skyskopes.com	(214) 681-8479
gNext Labs, LLC	709 S Jefferson St Roanoke, VA 24016	Abraham Lama Salomon, PhD abraham.lama@gnextlabs.com	(540) 602-5329

(Add rows as needed)

23. Location:

If location is an evaluation criterion for this advertisement and the prime consultant intends to establish a local presence, describe the plan for doing so. Otherwise, leave this section blank.