Torres Rojas, Genara FOI#12557

From: safa@ocean-coastal.com
Sent: Thursday, August 18, 2011 10:00 AM
To: Duffy, Daniel
Cc: Torres Rojas, Genara; Van Duyne, Sheree
Subject: Freedom of Information Online Request Form

Information:

First Name: Stephen
Last Name: Famularo
Company: Ocean and Coastal Consultants Engineering, P.C.
Mailing Address 1: 35 Corporate Drive
Mailing Address 2: Suite 1200
City: Trumbull
State: CT
Zip Code: 06611
Email Address: safa@ocean-coastal.com
Phone: 203-400-6560
Required copies of the records: Yes

List of specific record(s):
The below requested items are all with regards to PANYNJ RFP Number 16560 which we believe is entitled "Performance of Condition Surveys for Waterfront Structures through Engineering Department's Quality Assurance Division as Requested on Call-In Basis." It is our understanding that this was issued between 2007 and 2009. Requested Items: 1. Any and all submissions andor proposals. 2. Any and all correspondence or memoranda. 3. Any and all recommendation letters received in connection with all individuals and entities who submitted proposals. 4. Any internal reviews of any individuals, contractors, or entities, conducted in connection with RFP. 5. Any and all documents relating to agency reviews, including but not limited to any scoring system used in reviewing the proposals, results from respondent scores, and final selection rankings. Please note that above requests encompass all electronic communications, in addition to all written communications.

THE PORT AUTHORITY OF NY & NJ

Daniel D. Duffy
FOI Administrator

July 13, 2012

Mr. Stephen Famularo
Ocean and Coastal Consultants Engineering, P.C.
35 Corporate Drive, Suie 1200
Trumbull, CT 06611

Re: Freedom of Information Reference No. 12557

Dear Mr. Famularo:

This is a response to your August 18, 2011 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code", copy attached) for copies of records related to RFP No. 16560 - Performance of Condition Surveys for Waterfront Structures through Engineering Department's Quality Assurance Division as Requested on a Call-In Basis.

Material responsive to your request and available under the Code can be found on the Port Authority's website at http://www.panynj.gov/corporate-information/foi/12557-C.pdf. Paper copies of the available records are available upon request.

Certain material responsive to your request is exempt from disclosure pursuant to Exemption (2.b.) of the Code

Please refer to the above FOI reference number in any future correspondence relating to your request.

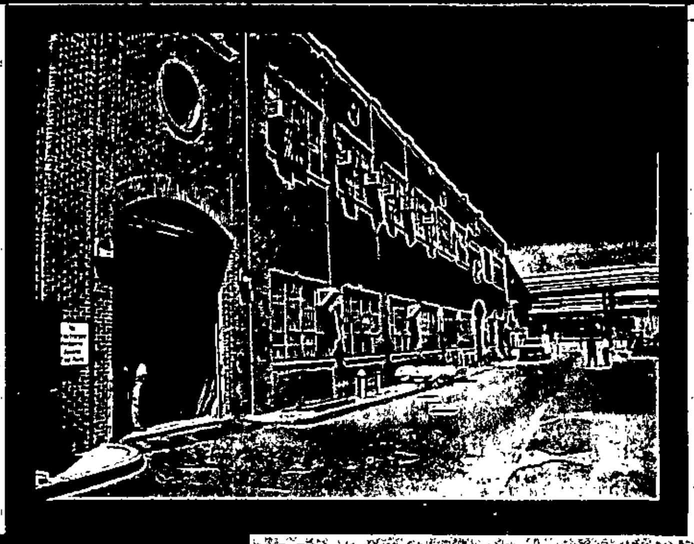
Very truly yours,

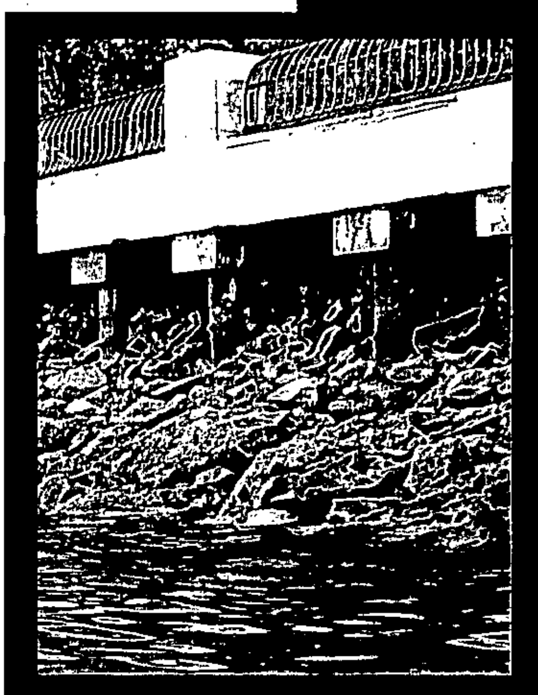
Daniel D. Duffy
FOI Administrator

Attachment

225 Park Avenue South
New York, , NY 10003
T: 212 435 3642 F: 212 435 7555

THE PORT AUTHORITY OF NY & NJ





Response to RFP #16560
for Expert Professional

Facility Condition Surveys for Waterfront Facilities on a Call-In Basis During 2009 (2010-2011)

October 9, 2008, 2:00 PM

Original

McLaren ENGINEERING

M. G. McLaren, P.C. Consulting Engineers
100 Snake Hill Road West Nyack, N.Y. 10994
(845) 353-6400 Fax (845) 353-6509

McLaren ENGINEERING GROUP

bridge, highway & rail engineering
entertainment engineering
subaqueous investigation
civil & site investigation
structural design
marine facilities
geotechnics
surveying
forensics

October 9, 2008

The Port Authority of New York and New Jersey
One Madison Avenue, 7^{th} Floor
New York, New York 10010

Attn: Tim Volonakis, Manager, Professional, Technical and Advisory Services Division

Re: Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities on a "Call-In" Basis During 2009, (2010-2011) RFP #16560

Dear Mr. Volonakis:

M. G. McLaren, P.C. (McLaren) is pleased to submit one (1) reproducible original and three (3) copies, along with one (1) compact disc copy of our proposal to provide Expert Professional Facility Condition Survey Services for Waterfront Facilities on a Call-In Basis during 2009. Based on McLaren's unique experience and qualifications, we strongly believe that we are ideally suited for this on-call agreement.

McLaren is one of few firms in the nation with expertise in the above and underwater inspection as well as the design of waterfront structures. We are an engineering firm with *extensive in-house inspection capabilities and experience, and when not in the field,* our inspectors are supporting the report and design effort. This allows our staff to not only perform inspections, but also execute effective condition assessments.

Key McLaren Attributes:

- ✓ ***Thirty-one Years of Waterfront Facilities Engineering Excellence...*** McLaren possesses a 31-year history of providing full structural engineering and above/ underwater inspection services for waterfront facility projects. Structures assessed range from piers and bulkheads to tunnels, buildings, bridges, and culverts.
- ✓ ***NYC Waterfront Experience...*** McLaren has successfully resourced and served the assessment of waterfront structures comprising approximately 75 percent of the perimeter of Manhattan Island and the surrounding areas within the last decade.
- ✓ ***Rapid Response...*** Given our expertise in mobilizing our inspection crews worldwide, in addition to our corporate depth, McLaren can provide the PANY&NJ hands-on, immediate response to its requests any time a need arises.
- ✓ ***Technical Hot Buttons...*** McLaren is well acquainted with the issues and "technical hot buttons" especially those that are likely to be focused on by the state and local agencies. We have hands on and recent experience with the issues of above/underwater inspection and design services on waterfront facilities in the New York area and are very familiar with the sensitivities of the region.
- ✓ ***Local Knowledge...*** McLaren has provided inspection, design, and construction support/administration services for many waterfront facilities presently in operation

M. G. McLAREN, P.C.
100 Snake Hill Road
West Nyack, New York 10994
Phone (845) 353-6400
Fax (845) 353-6509
e-mail: mgmclaren@mgmclaren.com
On the web: www.mgmclaren.com

in the greater New York area. We possess a strong local knowledge and this will provide value to the PANY&NJ especially relative to local ordinances and regional regulatory personnel.

✓ ***Working Relationship...*** McLaren understands and is familiar with the PANY&NJ standards, specifications and procedures, and we are particularly proud of our current professional working relationship with the PANY&NJ.

✓ ***Effective Cost Efficient Response...*** McLaren understands the PANY&NJ's need and concern for cost-effective technical response and the need to keep assignments on schedule and under budget. This will be a paramount concern to McLaren throughout this effort.

✓ ***Project Management Expertise...*** McLaren is known for its Management Expertise throughout the inspection process, resulting in cost efficiencies, exchange of ideas and information and development of the eventual proper design solution.

We believe McLaren's commitment to excellence and our experience in working with the PANY&NJ will assuredly provide you with the comprehensive breadth of expertise and capabilities necessary to perform successfully on this "Call-In" Agreement. Full effort will be made to meet the Port Authority's MBE/WBE goals participation.

Our proposal response is based on our thorough review of the RFP. We structured our proposal in accordance with the RFP order requirements to facilitate your review. Upon your receipt and review of our proposal, please do not hesitate to contact me or Mr. William J. McCarthy III, Director of Business Development, at 845-353-6400 if you have any questions or require any additional information from us.

Very truly yours,

The Office of
McLaren Engineering Group
M.G. McLaren, P.C.

Malcolm G. McLaren, P.E., SECB
President
MGMcL/WJM/jjc

Enclosures
cc: MGM, WJM, JHR, File - Internal
P:\Proj108\108458\1. Prop Tech Info\RFP Response\Proposal\Working Documents\108458 - Cover Letter.doc

Table of Contents

Section A
Attachment B

ATTACHMENT B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

M.G. McLaren, P.C.
d/b/a McLaren Engineering Group
NAME OF COMPANY

William J. McCarthy (W)
SIGNATURE OF OFFICER

William J. McCarthy, III
PRINT NAME OF OFFICER

Director of Business Development
TITLE

October 9, 2008
DATE

Section B
Multiplier

Section B
Multiplier

McLaren Engineering Group's multiplier and its breakdown is as follows:

M.G. McLaren P.C. Proposed Multiplier

Payroll	1.00
Overhead & Fringe Benefit	1.50 *
Subtotal	2.50
Profit (10%)	0.25
Audited Multiplier	2.75

Multiplier Proposed For This Assignment **2.75**

***2007 CONR 385 Multiplier Summary**

Distribution of Field and Office Expenses

. **Direct Labor**	**Amount**	**Percent**	**Total**
Office Engineering	$4,389,867	100%	$4,389,867
Field Engineering		0%	
Total	$4,389,867	0%	$4,389,867

. **Indirect Cost**	**Total**	**Field**	**Office**	**Non-Attributable**
Indirect Technical Payroll	$ 487,149		$ 487,149	
Administrative & Executive Payroll	$1,608,014			$ 1,608,014
Other Indirect Payroll	$1,287,581			$ 1,287,581
Payroll Taxes, Insurance & Fringes	$1,703,622		$1, 230,015	$ 473,607
Occupancy & Other Fixed Assets	$1,128,011		$ 814,424	$ 313,587
Computer / CADD	$ 109,062		$ 78,743	$ 30,319
Blueprinting / Reproduction				
Other Allowable Expenses	$ 678,808			$ 678,808
Less: Excess Bonus	$ (217,482)			$ (217,482)
Excess Compensation	$ (193,173)			$ (193,173)
Subtotal	$6,591,592		$2,610,331	$ 3,981,261
Distribution of Non-Attributable			$3,981,261	$ (3,981,261)
Total Allowable Indirect Cost	$6,591,592		$6,591,592	
Overhead Cost Rate (#2/#1*100)	**150%**		**150%**	

Section C
Resumes

Section C
Resumes and Technical Qualifications

McLaren Engineering Group has assembled a staff of highly qualified professionals with considerable expertise in the areas of under and above water inspection, with a specialty in the area of marine borers infestation and remediation; construction inspection services; marine design and engineering; and project management. Our staff's ability to provide the highest level of service is exemplified by our history of successfully executing projects of similar scope and is combined with an understanding of the underwater/waterfront environment and further augmented by our understanding of the materials and techniques used in marine site inspection, construction and rehabilitation. Our carefully selected staff is prepared to provide the PANYNJ with the appropriate facility inspection and condition assessment services for various waterfront structures.

Because McLaren retains its own forces for site investigations, it can easily and rapidly commit those forces, as frequently as may be necessary, to properly address the Port Authority's requirements over the course of this "call-in" agreement. McLaren can, and has, responded to emergency situations on an immediate basis; that is, within hours. This flexibility makes it possible to maintain high quality in both service and deliverables.

McLaren's staff has successfully performed the underwater investigation, design and construction inspection of waterfront structures comprising approximately 75 percent of the perimeter of Manhattan Island within the last decade.

As a result of this vast New York Harbor experience, McLaren's engineer inspectors have become proficient in many specialized aspects of waterfront inspection, design and engineering, such as:

- *Marine Borer and Zebra Mussel Identification*
- Effects of Current Velocity on Scour
- Cathodic Protection – both Galvanic and Impressed
- Measurement of Water Resistivity and Stray Current
- Low Visibility Diving (Tactile Investigations)
- Cold Weather Diving
- Underwater Videography and Photography
- Various Cleaning Methods – Pneumatic Brush, Hand Scraper, Water Blaster
- Ultrasonic Testing
- Statistical Relevance of Representative Sampling
- Structural Analysis/Design of Structural Repairs/Construction Inspection
- Comprehensive Report Preparations and Surveys
- Execution and management of On-Call agreements
- Possess established relationships with NYC, NYS and NJ regulatory agencies
- Industry protocols for damage assessment of buildings and bridges
- Extensive experience performing site inspections and assessment of building and bridge facility structural integrity
- Able to provide recommendations regarding public safety
- Experienced providing structural analyses and reports

- Knowledge of local and specialized testing laboratories when required
- Fluent providing recommendations regarding new technologies.

A proposed project Organization Chart for the *Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2009* is provided in Figure C-1, while a full Staff Availability chart can be found in Figure C-2.

Technical Qualifications of McLaren's Staff

- **Experts...** In all facets of above and underwater inspection, condition assessment and design of waterfront facilities structures ranging from piers, bulkheads, bridge foundations, and breakwaters to floating platforms and ferry terminals.
- **Experience...** On average, each proposed staff member has over 20 years of experience in the inspection, design, and construction supervision of waterfront facilities in New York Harbor. Collectively, the group offers over 240 years of experience in New York City waterfront experience, including the identification and remediation of marine borers infestation.
- **Coastal Engineering...**McLaren's proposed staff are experts in all facets of coastal engineering, including: wave analysis, wave attenuation, sediment transport, environmental loading, structural coastal interaction
- **Regulatory Agencies and Permits...** McLaren has established points of contact and good working relationships with most City, State and Local government agencies in the area. We are experts in preparation of permit packages for these agencies.
- **Loyality...** The McLaren Engineers/Inspectors that will be assigned to specific task orders under this "call-in" agreement have been with McLaren Engineering Group for many years and are loyal employees of the firm.
- **"Call-In" Agreements...** The same McLaren Engineers/Inspectors have inspected over one million piles in the NY Harbor. The McLaren Design Teams that will be assigned to specific task orders under this "call-in" agreement have worked previous "Call-In" cycles for various city and state agencies
- **Security Clearance...** All of our personnel possess the required security clearance required to work within the waters surrounding New York City, as mandated by the U.S. Coast Guard since September 11th. Most crewmembers also possess higher-level military security clearances from prior military service. All members will have TWIC credentials when the requirement comes into effect.
- **Coast Guard Protocol...** McLaren is familiar with and regularly use all U.S. Coast guard requirements, notifications and daily radio call-in procedures used while working from vessels within the East River, New York Harbor and the North River.
- **NYPD/FDNY Protocol...** McLaren is also familiar with proper NYPD and FDNY notification and security procedures while working along the New York waterfront.
- **Familiarity with McLaren...** McLaren vessels and crews are well known throughout the New York Waterfront.
- **Port Authority Standards...** Almost all of the key staff proposed in our organization chart have worked for the PANYNJ in the past and are intimately familiar with the applicable

standards, specifications, procedures, and guidelines, including the Port Authority of NY & NJ Condition Survey of Waterfront Structures guidelines

- **Professional Relationship...** McLaren's staff is proud of their past and current professional relationship with the Port Authority and is eager to continue providing their professional services to the Authority.

Capabilities

McLaren provides complete office support for the preparation of its deliverables, namely reports, studies, schedules, cost estimates, specifications, contract documents, bid documents, and graphics. The office includes word processing and CAD/drafting departments, reprographics facilities, a state-of-the-art library and computer facilities.

The office currently supports a Windows NT network of PCs for all word processing, accounting, analysis, CAD, engineering analysis and design, marketing, and graphic development operations. We are also serviced by T1 lines for both telephone and data transmission. To increase timeliness and maintain control of deliverables, McLaren has effectively created a mini-printing facility that is capable of handling all of its needs.

McLaren's departments use the latest versions of AutoCAD and Microstation. Documents generated can be produced in monochrome and high-resolution color. We also maintain an extensive library of office management to analytical software – as well as technical specifications and programs for most civil, structural, geotechnical and environmental disciplines requiring specifications, cost estimates, and schedules.

Some of the computer programs and software that could potentially be utilized to execute the task orders assigned under this contract include, but are not limited to:

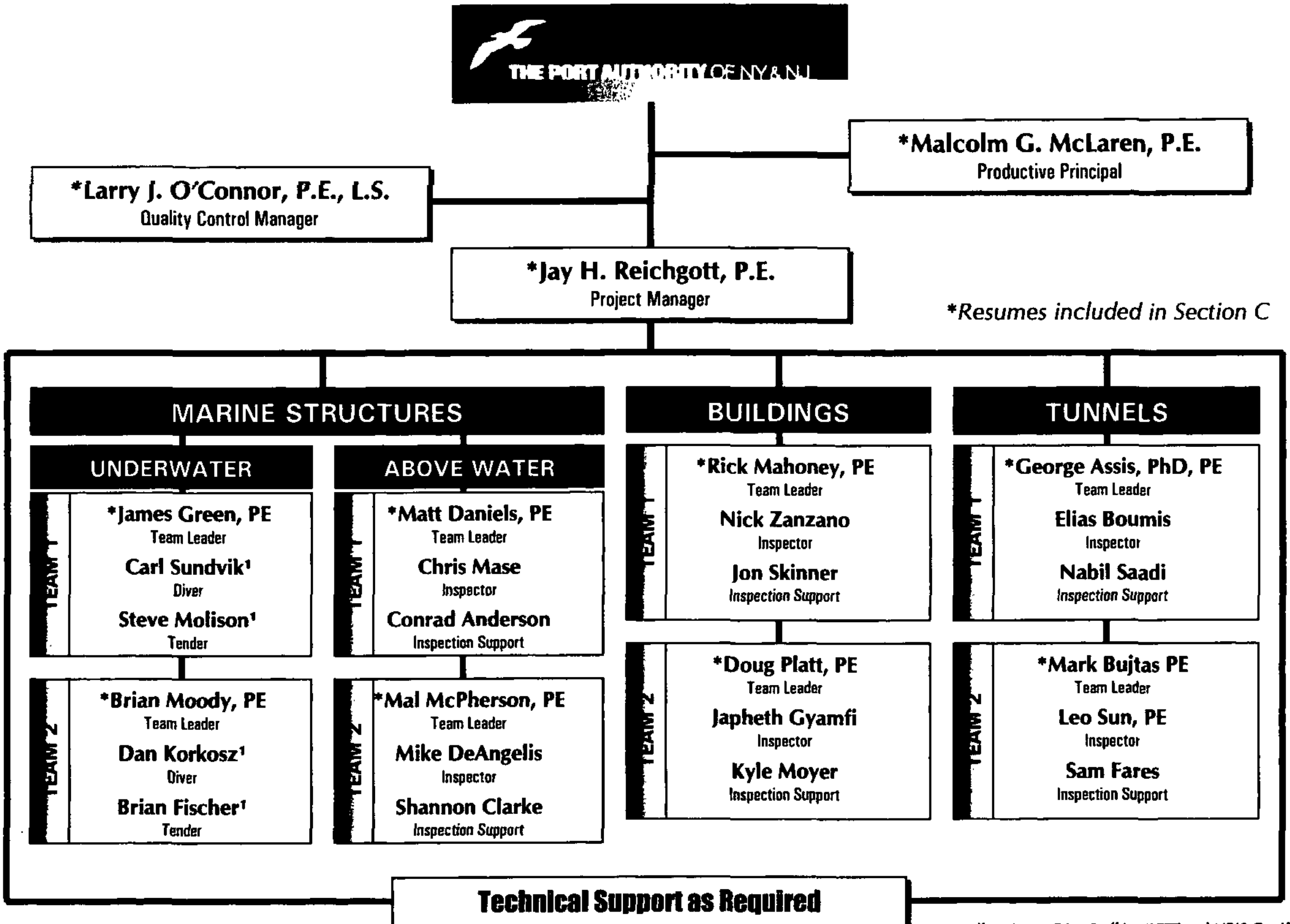
- AutoCAD 2009/LT
- Microstation V8
- Mathcad
- Risa 3D
- ETABS Non-Linear
- RamSteel
- Carlson
- ADOSS
- ADAPT
- Pushover
- Nastran 4D
- ACES
- Inventor
- EMS-1
- SAFE
- Real Wave
- Working Model
- RamFrame
- Tides & Currents
- Land Desktop

In addition, McLaren has developed and maintains dozens of spreadsheets that help us perform and organize various calculations and analyses. These include spreadsheets for general use, as well as pertaining to marine, geotechnical, and structural applications.

KEY PERSONNEL

Brief bios of our Productive Principal, Quality Control Manager, Project Manager, and Team Leaders are provided below. Full resumes for McLaren's staff described in our organization chart are provided following this proposal section.

Mr. Malcolm G. McLaren, P.E. will serve as **Productive Principal** for this contract. Mr. McLaren brings over 34 years of structural, marine, and geotechnical engineering and design experience to the project. One of Mr. McLaren's great professional pleasures has been his involvement in the



[1] All McLaren Dive Staff is NICET and NBIS Certified

Figure C-1

McLaren Engineering Group

THE PORT AUTHORITY OF NY & NJ

McLaren ENGINEERING GROUP

Staff Availability

Management	
Project Executive	Malcolm G. McLaren, PE, SECB
Quality Control	Larry J. O'Connor, PE, LS
Project Manager	Jay H. Reichgott, PE
Condition Surveyors	
Marine Structures	
Underwater Team 1	James Green, PE/ Carl Sundvik/ Steve Molison
Underwater Team 2	Brian Moody, PE / Dan Korkosz/ Brian Fischer
Above Water Team 1	Matt Daniels, PE/ Christopher Mase, EIT/ Conrad Anderson, EIT
Above Water Team 2	Malcolm McPherson, PE/ Mike DeAngelis, EIT/ Shannon Clarke, EIT
Buildings	
Team 1	Rick Mahoney, PE/ Nick Zanzano/ Jon Skinner
Team 2	Doug Platt, PE/ Japheth Gyamfi/ Kyle Moyer
Tunnels	
Team 1	George Assis, PhD, PE/ Elias Boumis, EIT/ Nabil Saadi
Team 2	Mark Bujtas, PE/ Leo Sun, PE/ Sam Fares, EIT
Surveyors	
Survey Crew	Larry J. O'Connor, PLS, PE/ Colin O'Connor/ Christopher Manzi
Structural Engineers	
Rick Mahoney, PE	B.S., Architectural Engineering, Pennsylvania State University
Doug Platt, PE	M.S. (University of Illinois); B.S. (NJ Institute of Technology), Civil Engineering
Yong Kim, PhD, PE	Ph.D., M.S., B.S., Civil & Environmental Engineering, Cornell University
Bill Gorlin, PE	M.Eng., B.S., Civil Engineering, Cornell University
George Assis, PhD, PE	Ph.D., Structural Engineering, Drexel University; M.S. George Washington University
Leo Sun, PE	M.S., Civil Engineering, Northwestern Univ.; M.S., Computer Science, Polytechnic University
Nathan Shuman, PE	B.S., Architectural Engineering, Pennsylvania State University
Andrea Shuman, PE	B.S., Architectural Engineering, Pennsylvania State University
Robert Chi, PE	M.S. Civil Engineering, University of Missouri; B.S., Taipei Institute of Technology
Jeremy Billig, EIT	M.S., B.S., Structural Engineering, Cornell University
Dominic DeSantis, EIT	B.S., Civil Engineering, Manhattan College
Christopher Mase, EIT	B.S., Civil Engineering, University of Delaware
Nick Zanzano	B.S., Civil Engineering, Farleigh Dickinson University
Jon Skinner	B.S., Civil Engineering, Arkansas State University
Site/ Civil Engineers	
Steven Grogg, PE	B.S., Civil Engineering, University of Maryland
Victor Frazita, PE	B.S., Civil Engineering, Manhattan College
Lamberto Santos, PE	B.S., Civil Engineering; B.S., Sanitary Engineering, Mapua Institute of Tech. (Philippines)
Chris Humphries, EIT	B.S., Civil Engineering; B.S., Architectural Engineering, Drexel University
Alison Scott, EIT	B.S., Civil Engineering Technology, Central Connecticut State University
Chris Leung, EIT	B.S., Civil Engineering, Ryerson Polytechnic University
Geotechnical Engineers	
Ray Volpe, PE	B.S., Civil Engineering, Northeastern University
Gerald Premus, PE	M.S., Civil Engineering - Structures, State University of New York at Buffalo
Marine Engineers	
James Green, PE	B.S., Civil Engineering, Manhattan College
Brian Moody, PE	M.S., Structural/ Geotechnical Engineering; B.S., Structural Engineering, Manhattan College
Malcolm McPherson, PE	M.S., B.S., Civil Engineering, Manhattan College
Rick Gilbert, PE	M.S., Ocean Engineering, University of Rhode Island
Shannon Clarke, EIT	M.S., Maritime Systems; B.S., Mechanical Engineering, Stevens Institute of Technology
Todd Manson, EIT	B.S., Ocean Engineering, University of Rhode Island
Doug Gemme, EIT	M.S., Ocean Engineering, University of Rhode Island
Caryn Connolly, EIT	B.S., Naval Engineering, Stevens Institute of Technology
Environmental Engineers	
James Green, PE	B.S., Civil Engineering, Manhattan College
Rick Gilbert, PE	M.S., Ocean Engineering, University of Rhode Island
Christopher Mase, EIT	B.S., Civil Engineering, University of Delaware
Mechanical & Electrical Engineers	
Stephen Sywak, PE	B.S., Mechanical Engineering, Washington University
Gerry O'Halloran	B.S., Electrical Engineering; B.S., Mechanical Engineering, NJ Institute of Technology
Paul Stoltenberg	B.S., Mechanical Engineering, University of Wisconsin

Figure C-2

design of very complex structures. His experience and expertise encompass all aspects of structural inspection, design and construction on the waterfront, having worked on many of these type projects worldwide. As Productive Principal, Mr. McLaren will provide conceptual design and management review, ensure that the appropriate resources of the team are available to conduct assignments, and provide senior level input to technical aspects of the project.

Larry O'Connor, P.E., L.S., will serve as the **Quality Control Manager** for this contract, and will be responsible for conformance of all report and design documents to McLaren's Quality Control Plan and the PANYNJ policies, procedures, and specifications. In this capacity, he will provide QA/QC review of all report findings and design recommendations. Mr. O'Connor has over 34 years of experience, with 12 years direct experience as a Designer, Quality Assurance Engineer, or Design Project Manager with NYSDOT, the City of Schenectady, C.T. Male Associates, NYSOPRHP and NYS Thruway as well as over 15 years as a consultant contract manager with NYSDOT, NYSOPRHP, Canal Corp. and Thruway. This extensive experience includes highway and railroad bridges, canal structures and drainage facilities.

Mr. Jay H. Reichgott, P.E. will serve as **Project Manager** for this contract. Mr. Reichgott is a structural engineer with over 21 years of experience. His expertise encompasses inspection, structural analysis, design, and construction management for a wide variety of projects ranging from the design and inspection of waterfront and underwater structures; waterborne transportation facility design, such as ferry terminals; and building condition assessment, restoration, and foundation design.

As Project Manager, Mr. Reichgott will report to the Port Authority of New York and New Jersey for all project-related issues and will ensure that all tasks associated with this project are managed effectively from start to finish. Mr. Reichgott role as Project Manager will entail but not be limited to the following:

- Providing direct oversight with regard to project execution and accountability
- Verifying and approving the project schedule and budget
- Implementing project changes as requested by the Port Authority of NY and NJ
- Providing all staff resources necessary for successful project implementation and completion
- Providing review and approval of project performance and deliverables

Mr. Richard Mahoney, P.E. will serve as **Building Inspection Team Leader (Team #1)** for this contract. Mr. Mahoney has over 35 years of experience in structural inspection, design and engineering. His expertise includes managing large, complex, multi-use projects as well as small building facility assignments. Mr. Mahoney has designed high and low-rise buildings, office complexes, parking garages, hotels, hospitals, libraries, performing arts centers, museums, and mixed-use facilities both on the waterfront and inland.

Mr. Doug Platt, P.E. will serve as **Building Inspection Team Leader (Team #2)** for this contract. Mr. Platt is a structural engineer with over 31 years of experience in the design of buildings and structures, such as, office buildings, parking garages, warehouses, tanks, sewage treatment plants, schools, hospitals, motels, churches, and retaining walls. His experience also includes investigation, structural analysis, and renovation of existing buildings. Mr. Platt has designed and managed projects of all sizes; and is intimately familiar with current building codes for both New York and New Jersey.

Mr. George F. Assis, Ph.D., P.E. (McLaren) will serve as **<u>Tunnel Inspection Team Leader (Team #1)</u>** for this project. Dr. Assis has provided structural engineering and inspection services in various projects involving bridges, tunnels, culverts, and marine structures for more than 30 years. His experience encompasses in-depth inspection, preparation of inspection reports, conceptual and preliminary studies, and preliminary and final design documents (including cost estimates and specifications) for a multitude of transportation facility projects.

Mr. Mark S. Bujtas, P.E. (McLaren) will serve as **<u>Tunnel Inspection Team Leader (Team #2)</u>** for this contract. As a senior engineer, Mr. Bujtas has over 29 years of experience in the areas of design, structural engineering, inspection and construction, specifically with all types of transportation structures. He has performed as Inspection Team Leader on multiple bridge inspection projects encompassing hundreds of bridges, tunnels and canals for LIRR, Metro-North, NYCT, NYSDOT, NYSTA, NYCDOT, and NJDOT.

Mr. James V. Green, P.E. will serve as **<u>Underwater Inspection Team Leader (Team #1)</u>** for this contract. Mr. Green has over 20 years of experience in the field of underwater inspections and repair analysis/design of waterfront structures. His background includes experience in all facets of structural inspection on the waterfront, including piles, fendering systems, shipping facilities, piers and wharves, and foundation engineering. He has worked extensively in these type roles on projects for the U.S. Navy, NYSDOT, NYCDOT, NHDOT, NJDOT, NYSTA, NYTA, EDC, the PANYNJ and various other agencies on their underwater investigations.

Mr. Brian Moody, P.E. will serve as **<u>Underwater Inspection Team Leader (Team #2)</u>** for this contract. Mr. Moody has over 11 years of experience in structural design and inspection projects, working assignments that include marine structures, canal structures, bridges, roadways, buildings and foundations. His responsibilities have included inspection, design and analysis, report preparation, and construction inspection. Mr. Moody's experience includes work for agencies such as the PANYNJ, the NYCEDC, NYSDOT, NYCDOT, NYSTA, New York Canal Corporation, New Jersey Transit, and the NHDOT.

Mr. Matthew Daniels, P.E. will serve as **<u>Above Water Inspection Team Leader (Team #1)</u>**. Mr. Daniels is an NYSDOT approved Team Leader with over eight years of experience. He has been involved with hundreds of comprehensive investigations and marine construction inspections. In *addition to his work as a Team Leader, Mr. Daniels has also served as in a design and resident* engineer role, developing rehabilitation designs and cost estimates, overseeing construction, and aiding in the developing of as-built drawings. His project experience includes work for various state DOTs, the PANYNJ, federal agencies, and various private clients.

Mr. Malcolm McPherson, P.E. will act as **<u>Above Water Inspection Team Leader (Team #2)</u>** for this project. Mr. McPherson is an Engineer with a wide array of experience in the design and inspection of piers, wharves, ferry landings, terminals and other associated waterfront structures. He is also well versed in NYSDOT standards and specifications, and is skilled in managing site operations, coordinating mobilization, and assembling inspection reports.

RESUMES FOR KEY STAFF ARE INCLUDED AT THE END OF THIS PROPOSAL SECTION.

Support Personnel for the project from McLaren include an array of inspectors, designers, engineers, technical drafters, and administrative staff to process the volume of data that will be generated in the course of inspection and assessment. Specific staff disciplines include CAD personnel, above and underwater inspection personnel, civil and structural engineering personnel, marine engineering and design staff, value engineering personnel, construction management, and support personnel (clerical and administrative). These individuals will handle the functions of preparing as-built drawings and microfilms, dive support, and discrete activities as directed by the Project Manager, or Resident Engineer.

SUBCONSULTANTS

Note: McLaren has built successful relationships with several firms who would be available to us if an element in a specific task order arises that requires the expertise of one or more of these firms. These sub-consultants are available and ready and willing to join our team upon selection. These firms include:

Firm Name	Disciplines
AIA Engineers, Ltd. (MBE) 505 8th Avenue, Fl 12A New York, NY 10018	Underwater Inspection, Fathometer Survey
AKRF, Inc. 34 South Broadway, Ste. 314 White Plains, NY 10601	Environmental Services
Barbara Thayer, PE, Arch., P.C. (WBE) 19 W. 44th Street, 18th Fl. New York, NY 10036	Architectural, Landscape Architecture, and Structural Design Support
Goshow Associates (W/SBE) 36 West 25th Street, 16th Fl New York, NY 10010	Architectural Services
KS Engineers, P.C. (MBE) 24 Commerce Street, 16th Fl Newark, NJ 07102	Land Surveying, Design and Inspection Support Services
Lakhani & Jordan, P.C. (MBE) 50 East 42nd Street New York, NY 10017	MEP Engineering/Design Services
Naik Prasad, Inc. (M/SBE) 10 Parsonage Road, Ste. 310 Edison, NJ 08837	Land Surveying
Rogers Surveying, PLLC (SBE) 1632 Richmond Terrace Staten Island, NY 10310	Fathometric Surveying

Over the past 31 years, McLaren has had continuous success in working with qualified, experienced MBE and WBE sub-consultant firms on assignments. McLaren will meet or exceed the Port Authority's goal of 12 percent participation by qualified and certified MBEs and 5 percent to qualified and certified WBEs.

Bonus: McLaren's staff has available to them all of the necessary equipment required to complete all above and underwater condition assessments that will be assigned during this "call-in" agreement.

Key Staff Resumes

Malcolm G. McLaren, P.E., SECB
President & Chief Executive Officer
Project Role: Productive Principal

Education:
Master of Science, Structural Engineering, Rutgers University, 1975
Bachelor of Science, Civil Engineering, Cornell University, 1973

Professional Registration:
Professional Engineer: New York and 37 other states
ADC and NASDS Certified Diver

Experience:
Mr. McLaren has more than 34 years of design, engineering and inspection experience for bridge/highway/rail, site/civil, geotechnical, structural, marine, and forensics projects nationwide. He has participated as engineer or manager on more than 7,000 projects varying in scope and difficulty. Design specialties include design of unique bridge and rail structures; land use development; design of mixed use high rise building structures; waterfront structure inspection and rehabilitation, especially relative to marine borer activity; waterborne transportation facility design; intermodal transportation planning; the design and use of composite materials; forensics investigations and litigation testimony; and the design of complex theatrical staging and mechanized effects. Representative projects include:

- **Ferry Shore Facilities; Citywide; for New York City Department of Transportation;** Project Executive for inspection, design, and resident engineering services on an as-needed basis for various ferry facilities. These facilities include ferry terminals and maintenance berthing facilities and their associated marine and upland structures; buildings; and facilities, including facilities for connecting transit modes. Encompassed are piers, pontoons, gangways and moveable bridges, ship fendering structures and mooring systems, passenger terminal buildings, soil retaining structures, dredged channels, fueling and bulk oil storage facilities, maintenance and industrial buildings, elevated traffic structures, rail rapid transit stations and bus terminals, and parking facilities on platforms over water and upland.
- **Structural Inspection, Assessment and Design of Repairs, PANYNJ;** Productive Principal for the following projects: Pier 40, Hudson River; Passenger Ship Terminals, Piers 88, 90, 92 & 94, Hudson River; Piers 1, 2, 3 & 5, Red Hook Terminal, Brooklyn; Piers 9A, 9B, 11 & 12, Clinton Wharf, Brooklyn; Piers A, C, and Headhouses, Hoboken.
- **Bruckneck Tunnel Design Services Agreement; Region 8, NY; for New York State Department of Transportation;** Project Executive for this contract to provide engineering services for the replacement and rehabilitation of a dozen bridges throughout the region. This included the structural inspection and rehabilitation design of the Bruckneck Tunnel.
- **Engineering and Inspection Services for Marine Structures; Manhattan, NY; for Battery Park City Authority;** Project Executive for this contract involving the structural inspection of the piles, precast concrete seawall skirt, and the riprap slope protection that surrounds the perimeter of the Battery Park City Authority parcel in lower Manhattan. McLaren assessed the condition of and made repair recommendations for approximately 3,500 precast concrete piles that support the relieving platforms at the Battery Park City esplanade, as well as timber piles which support a platform at the north end.

Malcolm G. McLaren, P.E., SECB
President & Chief Executive Officer
Project Role: Productive Principal

- **Indefinite Quantity Contract for Underwater Inspection Services; U.S. Navy Facilities Worldwide;** Productive Principal for an Indefinite Quantity Contract to provide underwater inspection, assessment and rehabilitation design services for Navy facilities worldwide:
  - U.S. Navy Fuel Support Pier, Melville, RI
  - U.S. Naval Station, Everett, WA
  - U.S. Navy Weapons Station, Concord, CA
  - U.S. Naval Station, Bremerton, WA
  - Vandenberg AFB, California
  - U.S. Naval Base, Pearl Harbor, HI
- **Rehabilitation of the Fulton Fish Market and Pier 17; New York City; NYC EDC/Turner Construction Company;** Productive Principal for project involving condition assessment of previously repaired timber elements at the Fulton Fish Market, and existing concrete elements (piles, pile caps and deck) at Pier 17. Work included a detailed technical assessment and load rating analysis of the existing facilities, and repair recommendations.
- **City of Yonkers "On-Call" Engineer; Yonkers, NY;** Project Executive for the 2005-2007 On-Call agreement with the City of Yonkers. Services provided include structural condition assessments, coordination of architectural and MEP assessments, design and coordination of all repair recommendations and cost estimating and construction bid support services.
- **Green Street Pier Inspection; Brooklyn, NY; for Park Tower Group;** Project Executive for this contract involving the inspection of the existing Greet Street Pier. McLaren provided Marine Engineering services including a condition survey of the existing pier and adjacent bulkhead, a condition report of the pier and bulkhead, alternatives study of at least three repair options for the pier, and designs for the pier and for the new bulkhead.
- **New York City Dept. of Buildings Structural Assessment On-Call Agreement, City of New York, NY;** Project Executive for an on-call agreement with the New York City DOB to provide structural investigation and assessment for various building structures throughout the city of New York.
- **2003-2005 Below Water Inspection of Canal Structures; Albany, Syracuse and Buffalo Divisions, NY; for New York State Thruway Authority;** Productive Principal for underwater inspection of approximately 100 canal structures along the New York Waterway Canal System. Structures encompass locks, guard gates, fixed crest dams, moveable dams, taintor gates, spillways, terminals, docks, guide structures and culverts. The assignment includes preparation of a comprehensive report, drawings, and photo documentation.
- **Pier 98 Fuel Oil Unloading Dock Inspection; NYC; Con Edison;** Project Executive for the structural condition assessment of the Pier 98 facility at Con Edison's 59th Street Station. A thorough tactile inspection of the facility was performed to enable the development of detailed and prioritized repair recommendations. All structural and fendering components were examined with emphasis on marine borer activity, deterioration, and damage.
- **Croton Beach Road and Tunnel Extension; Croton-on-Hudson, NY; for Metro North Railroad;** Project Executive for the design of a road and tunnel extension to eliminate a grade crossing in a high-speed territory called Brook Street Grade Crossing. Brook Street crosses over three main tracks and two sidetracks of Metro-North's Hudson Line in the Village of Croton-on-Hudson.

Lawrence J. O'Connor, P.E., L.S.
Deputy Bridge/Rail Division Chief
Project Role: Quality Control Manager

Education:
B.S., Civil Engineering, Union College, 1973
M.P.A., Public Affairs, SUNY Albany, 1979

Professional Societies:
New York State Society of Professional Engineers

Recent Awards:
2002 - "Engineer of the Year" - Capital District Chapter, NYSSPE
2004 – "Award for Contribution to Engineering Education" – Capital District Chapter, NYSSPE

Experience:
Mr. O'Connor has over 34 years of experience, with 12 years direct experience as a Designer, Quality Assurance Engineer, or Design Project Manager with NYSDOT, the City of Schenectady, C.T. Male Associates, NYSOPRHP and NYS Thruway as well as over 15 years as a consultant contract manager with NYSDOT, NYSOPRHP, Canal Corp. and Thruway. This extensive experience includes highway and railroad bridges, canal structures and drainage facilities. Representative job experience:

- **Design for the Rehabilitation of the Amott Drainage Culvert; Long Island, NY; for Long Island Rail Road;** QA/QC Engineer for the inspection and rehabilitation of the Amott Drainage Culvert after drainage problems caused the derailment of a train on the Port Jefferson Branch of the LIRR. McLaren provided Site/Civil, and Bridge and Roadway Engineering services including site investigation/culvert inspection, site survey, geotechnical investigations, hydraulic analysis, load ratings, preparation of environmental assessment report and permit identification, and preparation of conceptual design documents.
- **Structural Evaluation of Crane Installations for the NYC Department of Buildings;** Serves as Project Manager/Inspector for McLaren at various locations throughout New York City. Site observations include: tower crane erections, routine inspections of tower mast, tie-ins to the building and mast foundations; tower crane mast jump up and jump down including the installation/dismantling of tie-ins, and tower crane disassembly. Responsibilities also include providing plumbness survey checks of tower crane masts.
- **Glenwood Development; Yonkers, NY; for REMI Companies;** Senior Engineer for the Structural and Bridge Engineering services provided for the construction of a 16-story mixed use facility including retail, museum and loft space on the Hudson River. Project includes roadway design for the infrastructure of the complex.
- **Niagara Mohawk Power Corporation; QA Regional Coordinator:** Quality Assurance Engineer responsible for QA program for Albany and Glens Falls regions; PCB's and hazardous materials, hydro, electric T&D, and paving. Nuclear QA program duties, team member on a major site audit of Nine Mile II construction project and numerous vendor audits. Prepared and conducted investigations, surveys, operational audits, quality audits and reports on activities that affect quality including, design, procurement, fabrication,

materials management, construction, installation, inspection, test, operation, modification, repair and maintenance of plant, equipment and facilities.

- **New York State Department of Transportation; Design Bureau/Consultant Management:** Civil Engineer that negotiated and managed consultant contracts for highway and bridge design. Responsible for planning, estimating and scheduling design efforts. Negotiated contracts for design services, monitored performance, reviewed design plans and reports for accuracy and compliance with Department standards, coordinated and reconciled reviews by other Department offices and approved progress payments to consultants. Responsible for coordination of all activities of consultants and DOT Regional Offices to keep projects moving and on schedule through the federal and State Design process.
- **New York State Thruway Authority; Management Services, Office of Design:** Director responsible for leading several functions in the Office of Design including Railroads, Quality Assurance, Utilities, Permits, Metals, Fiber Optic Backbone Network, Drafting, Survey, and ROW. Recent accomplishments include development of a backlog analysis tool to predict design workload for NYSTA's multi-billion dollar capital program and development of MS Project schedule templates for use by design project managers.
- **New York State Department of Transportation; Main Office:** Civil Engineer responsible for various engineering duties in highway design, safety research, public transportation and materials. Performed duties as railroad program coordinator and liaison for the Bureau. Attended USDOT/Transportation Safety Institute – Rail Construction Inspection Course and NYSDOT Rail Track Fundamentals course. Responsible for coordination of quality assurance of materials used by NYSDOT in the construction of railroad facilities. General responsibilities also included specification writing and consultation on special material problems.
- **NYCTA – 27 Bridges; New York, NY;** Senior Engineer for the inspection of 27 SIRTOA Bridges, on concrete viaduct and a concrete culvert for the New York City Transit Authority. The project involves the inspection of structures that support two tracks of the Staten Island Railway providing passenger service from St. George Ferry Terminal to Tottenville Station in the borough of Staten Island.
- **Design Repairs to Bridge JS 67.05 over Wallkill River for Metro-North Railroad; Goshen, NY;** Bridge Design Engineer for this GEC 2005-2009 contract for the inspection, design and rehabilitation for this Metro-North Railroad Bridge over the Wallkill River. Providing technical oversight and quality assurance for the development of plans showing existing and proposed rail profiles.

Jay H. Reichgott, P.E.
Marine Division Chief
Project Role: Project Manager

Education:
B.S., Structural Engineering, Rutgers University, 1998
B.A., Mathematics, Bates College, 1988

Professional Registrations:
Professional Engineer: New York, New Jersey, Nevada (CE), Delaware

Experience:
Mr. Jay H. Reichgott, P.E. is a structural engineer with over 21 years of experience. His expertise encompasses inspection, structural analysis, design, and construction management for a wide variety of projects ranging from the design and inspection of waterfront and underwater structures; waterborne transportation facility design, such as ferry terminals; and building condition assessment, restoration, and foundation design. Mr. Reichgott also possesses a specialty in the design of scenic and entertainment structures, such as staging, rigging, and show action equipment. Representative projects include:

- **Underwater Inspection of Pier One; East Boston, MA; for Roseland Property Company;** Project Manager for this contract involving the underwater/above water condition survey of the substructure for Pier One to determine the appropriate and most cost effective method of restoring and strengthening the piles that support the pier. Includes preparation of inspection reports.
- **Ferry Shore Facilities; Citywide; for New York City Department of Transportation;** Project Manager for inspection, design, and resident engineering services on an as-needed basis for various ferry facilities. These facilities included ferry terminals and maintenance berthing facilities and their associated marine and upland structures; piers, pontoons, gangways and moveable bridges; ship fendering structures and mooring systems' passenger terminal buildings; soil retaining structures; dredged channels; fueling and bulk oil storage facilities; maintenance and industrial buildings; elevated traffic structures; rail rapid transit stations and bus terminals; and parking facilities located both on platforms over water and upland.
- **Rehabilitation of Berths 6, 7, and 7A; Brooklyn, NY; for Brooklyn Navy Yard;** Project Manager for this project involving the rehabilitation of Berths 6, 7, and 7A. McLaren provided condition survey, above and underwater inspection services, geotechnical survey, permitting and design services for this project that would protect and preserve the structural components of Berths 6, 7 and 7A from marine border infestation and restore each of these berths to a condition of full serviceability.
- **Waterfront Revitalization – 4th and 5th Street Piers at Kent Avenue; Brooklyn, NY; for RD Management Corp;** Project Manager for this redevelopment project along Williamsburg's waterfront in Brooklyn NY. The 4th and 5th Street Piers are being revitalized in two phases: the demolition phase and the construction phase. McLaren is performing detail design, construction inspection and construction administration services during these phases. McLaren performed an investigation of the waterfront structures including existing pile fields and bulkheads, and a hydographic survey of the project site area. McLaren provided a boring

Jay H. Reichgott, P.E.
Marine Division Chief
Project Role: Project Manager

plan, waterfront site investigation and permitting services, and conceptual designs in addition to supervising the taking of geotechnical boring samplings.

- **SUNY Maritime Pier Expansion; Throgs Neck, NY;** Project Manager for the rehabilitation and expansion of SUNY Maritime's Campus \Pier and other waterfront structures. Services include an in-depth inspection of the campus' Main Pier, structural and load rating analysis of the Pier and an extension to the pier to accommodate the docking of an additional sea-faring vessel. Work also includes rehabilitation of the 5,000 square foot deck surface and pier to help prevent future significant damage and deterioration, an in-depth inspection of the structural support members to fully access the extent of deterioration, replacement of the C channel whaler providing lateral support to the steel sheet piling, replacement of the timber bracing between the piles supporting the boat crane, replacement of the timber bracing between the piles supporting the campus boat shed and re-pointing of approximately 3,400 feet of the college's seawall.
- **Design of a Docking Facility at JFK Marina; Yonkers, NY;** Project Manager overseeing the upgrade of the docking facilities at the City of Yonkers JFK Marina by adding an approximately 900 s.f. dock. McLaren provided geotechnical survey/borings, design development, fendering, maintenance of passenger traffic, anchorage, and sustainable design while complying with ADA guidelines and requirements.
- **Pier 1 and Pier 2 Condition Assessment; Staten Island, NY; for NYCDOT;** Project Manager for the design and construction support services to repair the two pile supported concrete deck piers and adjacent waterfront structures used as wet storage and repair berthing for the Staten Island Ferryboats. The timber fender systems surrounding each pier as well as the utility systems used to facilitate vessel repair and storage also needed repair. McLaren performed condition survey of waterfront marine structures, hydrographic survey, engineering evaluation and design, and permitting as required.
- **Engineering and Inspection Services for Marine Structures; Manhattan, NY; for Battery Park City Authority;** Project Manager for the structural inspection of the piles, precast concrete seawall skirt, and the riprap slop protection that surrounds the perimeter of the Battery Park City Authority parcel. McLaren assessed the condition of and made repair recommendations for approximately 3,500 precast concrete piles that support the relieving platforms at the Battery Park City esplanade, as well as timber piles which support a platform at the north end.
- **Green Street Pier Inspection; Brooklyn, NY; for Park Tower Group;** Project Manager for this contract involving the inspection of the existing Greet Street Pier. McLaren provided Marine Engineering services including a condition survey of the existing pier and adjacent bulkhead, prepare condition report of the pier and bulkhead, perform alternatives study of at least three repair options for the pier, designs for the pier and for the new bulkhead, develop design of a water taxi landing and marina, and construction support services.

W. Richard Mahoney, P.E., SECB
Vice President, Structures Division Chief
Project Role: Building Inspection Team Leader (Team #1)

Education:
Pennsylvania State University, Bachelor of Architectural Engineering, 1971

Registration:
Professional Engineer: New York, New Jersey, Maryland

Professional Societies:
American Society of Civil Engineers
Structural Engineers Association of New York (SEAoNY), Founding Member/ Past President

Experience:
Mr. Mahoney has more than 35 years of experience in structural design, engineering, quality control, and project management. His experience includes high and low-rise buildings, office complexes, museums, hotels, hospitals, libraries, performing arts centers, parking facilities, marine terminals and mixed-use facilities. He is experienced in managing large, complex, multi-discipline projects. Representative projects include:

- **2005-2008 City of Yonkers Department of General Services On-Call Engineer; Yonkers, NY; for the City of Yonkers;** Project Manager responsible for associated "on-call" building condition assessment services for the City of Yonkers. Services include structural condition assessments, coordination of architectural and MEP assessments, design of structural and coordination of all repair recommendations, and construction cost estimating and construction bid support services. Facilities serviced under this contract thus far include historic structures, police and fire stations, water sewer-pumping stations, high-rise office buildings, and recreation facilities.
- **164 Kent Street; Williamsburg, NY;** Project Manager responsible for providing gravity and lateral analysis (utilizing ETABS and SAFE) for a 32-story concrete tower, six-story podium structure, and three-story parking garage during schematic and design development phases. Also designed slabs, columns, and piles. Attended project coordination meetings with architect and owner.
- **Rockland County Highway Department Facilities; Ramapo, NY; for Rockland County Department of General Services;** Lead Structural Engineer for design of a state-of-the-art, *multi building, transportation, storage, and repair facility on a 24 acre site with* substantial elevation changes. McLaren services include overall project management as well as structural, foundation, and site/civil engineering.
- **River Park Center; Yonkers, NY;** Lead Structural Engineer responsible for the redevelopment of an over 2 million sq. ft. site in downtown Yonkers, NY into a mixed-used retail, residential, office and entertainment facility. River Park Center will combine 950 apartments in two 50-story towers with 465,000 square feet of retail space, 90,000 square feet of restaurants, 475,000 square feet of offices and a 75,000 square foot hotel. Structural services include the engineering and design of the main component of the development ("Super Block") that contains a minor league baseball stadium, retail space, residential towers, parking structures, an office building, the Fire House; and hotel space.

W. Richard Mahoney, P.E., SECB
Vice President, Structures Division Chief
Project Role: Building Inspection Team Leader (Team #1)

- **The Kensington; Bronxville, NY;** Project Manager for the construction of a four-story residential structure, an accompanying 2-story underground parking garage, and an approximately 63,000 s.f. plaza deck. McLaren is providing foundation design services including the design of the framed concrete slabs for the parking garage, spread footing foundations, retaining walls, and excavation support or shoring necessary to maintain the adjacent trackbed during construction. McLaren is also performing the reconstruction/repair of the Metro-North platform that abuts the retaining wall.
- **Port Imperial Riverwalk – Building A; West New York, NJ; for Roseland Properties;** Project Manager for nine-story, mixed-use, 655,000sf building on a former rail yard on the Hudson River. McLaren provided structural design and geotechnical investigation for this light gage framed structure at the upper levels supported by structural steel and post-tensioned concrete transfer levels. Pile foundations support the building.
- **Almar Condominium; Cocoa Beach, FL;** Project Manager for multi-story concrete ocean-front condominium. Special considerations included systems to resist high-velocity hurricanes, storm surge and associated ocean water scouring effects, post-tensioned slab and corrosion-resistant concrete reinforcement throughout. 50-year life before renovation is more than double the local average.
- **Comprehensive Assessment of Line Structures; Bay Ridge and Bushwick Branches; for Long Island Rail Road;** Quality Control Engineer for the in-depth inspection of approximately 2,000 feet of retaining wall, the East Avenue tunnel, 23 undergrade bridges, and 46 overgrade bridges for Long Island Rail Road on the Bay Ridge and Bushwick Branches.
- **Structural Evaluation of Crane Installations for the NYC Department of Buildings;** Serves as Quality Control Manager for all work and associated reporting relative to the structural evaluations at various locations throughout New York City. Site observations include: tower crane erections, plumbness survey checks of tower crane masts; routine inspections of tower mast, tie-ins to the building and mast foundations; tower crane mast jump up and jump down including the installation/dismantling of tie-ins, and tower crane disassembly.
- **US Gypsum Ship Unloading Facilities Upgrade; Stony Point, NY;** Project Manager responsible for the structural design and coordination for an upgrade to an existing bulk gypsum unloading dock to accommodate larger vessels. Design included structural encasements to reinforce existing steel H-piles and upgrading bollards and fenders, as well as improvements to the pier building and conveyor systems.
- **Governors Island; New York, NY; for Triborough Bridge and Tunnel Authority;** Project Manager responsible for the structural design for renovations to the existing manmade island supporting the ventilation building for the Brooklyn Battery Tunnel. The project included repointing of masonry seawalls, repairing and filling expansion joints in the seawall, replacing deteriorated deck timber, and reestablishing riprap embankments.

V. Douglas Platt, Jr., P.E.
Senior Structural Engineer
Project Role: Building Inspection Team Leader (Team #2)

Education:
M.S., Civil Engineering, University of Illinois at Urbana-Champaign, 1973
B.S., Civil Engineering, New Jersey Institute of Technology, 1971

Professional Registration:
Licensed Professional Engineer: New Jersey, Illinois, Michigan

Experience:
Mr. Platt is a structural engineer with over 31 years of experience in the condition assessment, design, and construction inspection of a wide range of buildings and structures including office buildings, parking garages, transportation facilities, schools, hospitals, motels, churches, apartments, warehouses, stores, process equipment supports, tanks, signs, stage rigging, sewage treatment plants, and retaining walls. His experience includes structural steel, reinforced concrete, precast concrete, masonry, glue-laminated wood, stick-built wood and light gage steel framing. Investigation, structural analysis and renovation of existing buildings are a specialty of the experience he has acquired. Mr. Platt is well versed in the use of RAM Steel, RAM Frame and STAAD computer programs and is intimately familiar with current building codes. Mr. Platt's technical and analytical abilities have enabled him to design and manage large, difficult, and unusual projects.

- **UCP Glenlora Integrated Housing; Chester, NJ;** Senior Engineer responsible for the walk-through investigation and assessment of the structural condition of the existing building, as well as preparation of the letter report. The project consisted of a one-story wood framed addition to a three-story stone bearing wall building, which was constructed in the 1800's.

- **164 Kent Street; Williamsburg, Brooklyn, NY;** Assistant Project Manager responsible for the design of the pre-cast concrete plank of the affordable housing building, coordination with the architect, and development of the structural sections from the drawings for this two-building mixed-use site containing townhouses, affordable housing, parking garage, and retail space.

- **Port Imperial Riverwalk – Building 15; West New York, NJ; Roseland Property Company;** Assistant Project Manager responsible for the design of foundations, coordinating with the architect, and developing structural sections from the drawings for this waterfront development.

- **Bayonne Golf Club Clubhouse; Bayonne, NJ;** Assistant Project Manager responsible for overseeing and advising on the design of a 32,000 square foot, three-story building containing locker rooms, library, kitchen, office space and a bar. Responsibilities include analysis of alternate framing schemes, curtain walls and façade system development, assessment of construction materials and methods, attendance at meetings with the architect and oversight of preparation of final design based on architectural and MEP drawings.

- **Morristown Memorial Hospital Office Complex; Basking Ridge, NJ;** Project Manager responsible for a construction inspection and feasibility study to determine structural modification required for reuse of a 1975 office complex. The seven building complex was two to four stories high and contained 1.35 million square foot of steel framed office space over a 3900 car parking garage. A representative portion of the building was analyzed for current building code requirements. Design work included determination of an economical way to upgrade the current building to conform to current seismic requirements.

- **297 Knollwood Road-Parking Garage; White Plains, NY;** Project Manager responsible for the walk-thru investigation and assessment of the existing parking garage to develop corrective procedures and details for deteriorated structural members, as well as the preparation of the letter report.
- **Verizon Building, 5030 Broadway; New York, NY;** Senior Engineer responsible for performing a walk-thru investigation and structural condition survey of the building, which is proposed to become retail space on the first floor and parking space in the basement. Currently the building is three stories on one side and has an eight-story tower on the other side. Also prepared a letter report of findings.
- **Colonie Center – Theater Feasibility; Albany, NY;** Assistant Project Manager responsible for conducting a feasibility study to determine structural modifications required to add a multiplex movie theater on the roof of a 2-story shopping center built in 1965. Mr. Platt checked capacities of the existing structure and developed a system to make new and existing structures conform to code requirements for lateral loads. Also responsible for upgrading the existing building lateral load system to confirm to current code seismic load requirements.
- **Congregate Living Community; Tewksbury, NJ;** Assistant Project Manager responsible for preliminary plans and sections for the budget pricing of this single-story, 30,000 square foot residential community.
- **Meadowlands Sports Complex Mechanical Update; East Rutherford, NJ;** Project Manager for structural supports for a new heating and cooling system for the entire complex. Existing structures were evaluated to determine if new loads could be carried, and elements were strengthened as required. Mr. Platt designed structural slab for a new mechanical room, a support system for rooftop equipment, and pipes around the perimeter of the stadium. For the racetrack stadium, he designed a 4-story mechanical room addition, and supports for roof top equipment and large pipes throughout the existing building.
- **New Jersey Turnpike Rest Stop Renovations; Rest Stops 3S, 4N, 6S, 10S, 10N & 12S; Various Locations, NJ;** Project Manager for complete renovation of rest stop restaurant buildings originally built circa 1951 with numerous modifications and additions over the years. Condition assessment and design work included new building fascias and canopies, support of new mechanical roof top equipment, building additions and corrective work in structurally deficient areas.
- **Banana Building – Henley Place Sales Office; Weehawken, NJ;** Senior Engineer responsible for, in collaboration with team, remodeling existing building to add bay windows and upgrade lateral load system per current code for this wood-frame, 2,400 square foot building.

George F. Assis, Ph.D., P.E.
Roadway/Bridge/Rail Division Chief
Project Role: Tunnel Inspection Team Leader (Team #1)

Education:
Ph.D., Structural Engineering, Drexel University, 1992
M.S., Structural Engineering, George Washington University, 1982
B.S., Civil Engineering, University of Aleppo, Syria, 1976

Registrations & Certifications:
Prof. Engineer: Connecticut, New Jersey, New York, Pennsylvania, Maryland, Florida
National Bridge Inspection Standards (NBIS), 2005 – Course #FHWA-NHI-130055
LIRR Rail Safety Training, 2007
MNR Safety Training, 2007

Experience:
Dr. Assis has provided project management and inspection services for more than 30 years. His experience encompasses in-depth inspection, preparation of inspection reports, conceptual and preliminary studies, and preliminary and final design documents (including cost estimates and specifications) for a multitude of tunnel, bridge, and culvert projects. He has served as Project Manager or Quality Control Engineer on many projects such as biennial underwater bridge inspection and design contracts for the NYSDOT, NYCDOT, NJDOT, ConnDOT, and the NYS Thruway Authority. Representative projects include:

- **East Avenue Tunnel and Comprehensive Assessment of Line Structures; Bay Ridge and Bushwick Branches; for Long Island Rail Road;** Project Manager for the in-depth inspection of the East Avenue tunnel, 23 undergrade bridges, 46 overgrade bridges and approximately 2,000 feet of retaining wall for Long Island Rail Road on the Bay Ridge and Bushwick Branches. The types of bridges inspected included steel deck girders, thru girders, concrete slab and steel trusses.
- **Bruckneck Tunnel Design Services Agreement; Region 8, NY; for New York State Department of Transportation;** Project Manager for this contract to provide structural inspection and rehabilitation of the Bruckneck Tunnel, along with engineering services for the replacement and rehabilitation of a dozen bridges throughout the region.
- **Design Repairs to Bridge JS 67.05 over Wallkill River for Metro-North Railroad; Goshen, NY;** Project Manager and Quality Control Manager for this GEC 2005-2009 contract for the inspection, design and rehabilitation for the five-span concrete arch Bridge carrying Metro-North Railroad over the Wallkill River. Provided contract documents for concrete spall and crack repairs throughout the structure, while also overseeing the development of plans showing existing and proposed rail profiles.
- **Tunnel Extension at Croton Beach Road; Croton-on-Hudson, NY; for Metro North Railroad;** Project Manager for the design of a road and tunnel extension to eliminate a grade crossing in a high-speed territory called Brook Street Grade Crossing. Brook Street crosses over three main tracks and two sidetracks of Metro-North's Hudson Line in the Village of Croton-on-Hudson.

George F. Assis, Ph.D., P.E.
Roadway/Bridge/Rail Division Chief
Project Role: Tunnel Inspection Team Leader (Team #1)

- **Design for the Rehabilitation of the Amott Drainage Culvert; Long Island, NY; for Long Island Rail Road;** Project Manager for the inspection and rehabilitation of the Amott Drainage Culvert after drainage problems caused the derailment of a train on the Port Jefferson Branch of the LIRR. McLaren provided Site/Civil, and Bridge and Roadway Engineering services including site investigation/culvert inspection, site survey, geotechnical investigations, hydraulic analysis, load ratings, preparation of environmental assessment report and permit identification, and preparation of conceptual design documents.
- **Inspection and Rehabilitation of Yonkers Viaduct; Yonkers, NY; for Metro-North Railroad;** Project Manager for this project which included the inspection, evaluation and preparation of contract documents for the rehabilitation of four (4) railroad bridges for Metro-North Railroad. The work included structural steel repairs, bridge seat and backwall reconstruction, bearings replacement, waterproofing of bridge deck, drainage improvement, and rehabilitation of approximately 3,200 linear feet of concrete gravity type retaining walls supporting the track embankment.
- **Drainage/Structural Improvements at Five Locations; Queens and Long Island, NY; for Long Island Rail Road;** Project Manager for a GEC contract to provide structural and drainage/flood control improvements at five locations along three railroad commuter lines (Port Jefferson, Port Washington and Montauk). Included inspection, assessment, presentation of repair options, cost estimates, scheduling, and preparation of contract documents for final repairs. The five sites include Flushing, Manhasset, Great Neck, Oakdale and Smithtown.
- **NYCTA – 27 Bridges; New York, NY;** Project Manager for the inspection of 27 SIRTOA Bridges, one concrete viaduct and a concrete culvert for the New York City Transit Authority. The project involves the inspection of structures that support two tracks of the Staten Island Railway providing passenger service from St. George Ferry Terminal to Tottenville Station in the borough of Staten Island.
- **Comprehensive Re-Inspection of Over 110 Culverts: Confined Space Entry; Rockland County, NY (Region 8); for Rockland County Department of Highways;** Project Manager for the complete condition assessment and inventory of various types of culvert structures based on NYSDOT and FHWA regulations. The project included the preparation of condition reports with photo documentation and repair recommendations. McLaren provided services for the initial contract as well as this re-inspection contract.
- **2003-2005 Below Water Inspection of Canal Structures; Albany, Syracuse and Buffalo Divisions, NY; for New York State Thruway Authority;** Project Manager responsible for the underwater inspection of approximately 100 canal structures along the New York Waterway Canal System. Structures encompass locks, guard gates, fixed crest dams, moveable dams, taintor gates, spillways, terminals, docks, guide structures and culverts. The assignment included preparation of a comprehensive report.

Mark S. Bujtas, P.E.
Senior Engineer
Project Role: Tunnel Inspection Team Leader (Team #2)

Education:
B.S., Mechanical Engineering, New Jersey Institute of Technology, 1974
NYSDOT General Bridge Inspection and Load Rating Analysis Training, 1993

Professional Registration:
Professional Engineer: New York, New Jersey, Connecticut, Pennsylvania, and Maryland

Certifications:
National Bridge Inspection Standards (NBIS), 2005 – Course #FHWA-NHI-130055
Association of Diving Contractors (ADC) Certified, # 11304
American Red Cross First Aid and Adult CPR Certified
LIRR Rail Safety Trained
Metro-North Railroad Safety Trained
MTA / NYCT Track Safety Certified

Experience:
Mr. Bujtas has over 29 years of experience in the areas of bridge and tunnel design, inspection and construction. He is well versed in AISC, AASHTO, AREA, AWS and state and federal codes and is proficient in the preparation of bridge and highway contract drawings and specifications, bid documents, and change orders. Mr. Bujtas has served as On-Site Professional Engineer / Field Inspection Team Leader on assignments for the NYSTA, NYSDOT, NYCDOT, and NJDOT. He has prepared maintenance and protection of traffic plans for roadway and bridge projects, construction sequencing for all aspects of civil work, drainage design, and alignment and geometric features. Representative projects performed by Mr. Bujtas include:

- **East Avenue Tunnel and Comprehensive Assessment of Line Structures; Bay Ridge and Bushwick Branches; for Long Island Rail Road;** On-Site Professional Engineer and Team Leader for the in-depth inspection of the East Avenue tunnel, 23 undergrade bridges, 46 overgrade bridges, and approximately 2,000 feet of retaining wall for Long Island Rail Road on the Bay Ridge and Bushwick Branches. The types of bridges inspected included steel deck girders, thru girders, masonry arch, concrete slab, and steel trusses. Mr. Bujtas' responsibilities included in-depth inspection and report preparation.
- **Comprehensive Re-Inspection of Over 110 Culverts: Confined Space Entry; Rockland County, NY (Region 8); for Rockland County Department of Highways;** Team Leader for the complete condition assessment and inventory of various types of culvert structures based on NYSDOT and FHWA regulations. The project included the preparation of condition reports with photo documentation and repair recommendations. McLaren provided services for the initial contract as well as this re-inspection contract.
- **NYCTA – 27 Bridges; New York, NY;** Inspection Team Leader and Bridge Design Engineer for the inspection of 27 SIRTOA Bridges, one concrete viaduct and a concrete culvert for the New York City Transit Authority. The project involves the inspection of

structures that support two tracks of the Staten Island Railway providing passenger service from St. George Ferry Terminal to Tottenville Station in the borough of Staten Island.

- **Comprehensive Rehabilitation of the New Jersey Helix; Port Authority of New York & New Jersey;** Project Manager for the design of repairs to the deck and superstructure of concrete-encased steel beam slab on concrete columns and abutments, and steel superstructure on concrete piers, which carries the New Jersey Approach to the Lincoln Tunnel over JFK Boulevard East in Weehawken, NJ. Work consisted of repairs and paint to structural steel, concrete repairs to abutments, columns, deck slabs and girders, as well as the reconstruction of the median wall, parapet, deck joints, railings and overlay.
- **Comprehensive Assessment of Line Structures on Various LIRR Lines; New York;** Team Leader for this above and underwater bridge inspection contract throughout New York City, Suffolk and Nassau Counties in New York for the LIRR. The project involved the inspection of 16 bridges and one 27-span viaduct.
- **Specific Areawide Waterfront Improvements, Brooklyn Navy Yard; Brooklyn, NY; for Brooklyn Navy Yard Development Corporation;** Project Engineer for a major waterfront improvement project on a 213-acre site covering several marine structures. Responsibilities involved preparation of preliminary and final design documents, cost estimates for repairs, and construction management services during rehabilitation for the Group 2 Repair Package. Facilities include Pier K; and Berths 3A, 14A, 17 and 18.
- **Construction Support Services for the Bruckner Expressway, Contracts 3A & 3B; for New York State Department of Transportation;** Senior Structural Engineer for the approval of shop drawings, computations, interim site visits to review various construction activities, and approval of material samples. Reviewed design of hydraulic jacking frame towers for 2,500 k capacity and witnessed numerous viaduct girder lifts.
- **2003-2005 Below Water Inspection of Canal Structures; Albany, Syracuse and Buffalo Divisions, NY; for New York State Thruway Authority;** On-Site Professional Engineer/Team Leader for underwater inspection of approximately 100 canal structures along the New York Waterway Canal System. Structures encompassed locks, guard gates, fixed crest dams, moveable dams, taintor gates, spillways, terminals, docks, guide structures, and culverts. The assignment included preparation of a comprehensive report, drawings, repair recommendations, and photo documentation.
- **2005-2006 Above and Below Water Inspection of 300 Statewide Bridges; for Connecticut DOT;** Team Leader responsible for the engineering services associated with the above and below water bridge inspections and ratings of approximately 300 highway and railroad bridges. Contract included in-depth inspection, photography, permitting, reporting, and repair recommendations.

James V. Green, P.E.
Senior Engineer/P.E. Diver
Project Role: Underwater Inspection Team Leader (Team #1)

Education:
M.S. Candidate, Structural Engineering, Manhattan College
B.S., Civil Engineering, Manhattan College, 1992
A.S., Engineering Science, Rockland Community College, 1988

Registration:
Professional Engineer: New York, Maryland

Certifications:
National Bridge Inspection Standards (NBIS), 2005 – Course #FHWA-NHI-130055
American Red Cross – Adult CPR and Standard First Aid
Association of Diving Contractors, Commercial Diver Certification, #285
Open Water Diver Certification, 1994

Experience:
Mr. Green is a structural engineer with over 20 years of experience. His background encompasses resident engineering, field investigation, and construction inspection services, as well as, review of shop drawings, subaqueous investigation, and extensive structural design experience. He has worked on underwater inspection and assessment programs and construction inspection programs for the PANYNJ, NYCDOT, NYSDOT, ConnDOT, NHDOT, NJDOT, and the NYSTA. His background includes experience in all facets of structural and civil engineering design on the waterfront, including ferry terminals, shipping facilities, piers and wharves, and foundation engineering. He is involved in the preparation of permit applications, EIS documentations, and consistency review documents, as well as coordination with and between agencies on permitting issues to include the Army Corps of Engineers, the Department of Environmental Conservation, the Department of State, National Marine Fisheries Service, the Fish and Wildlife Service, and other local agencies. Representative projects performed by Mr. Green include:

- **Engineering and Inspection Services for Marine Structures; Manhattan, NY; for Battery Park City Authority;** Marine Engineer and Underwater Inspector for the structural inspection of the piles, precast concrete seawall skirt, and the riprap slop protection that surrounds the perimeter of the Battery Park City Authority parcel in lower Manhattan. McLaren assessed the condition of and making repair recommendations for approximately 3,500 precast concrete piles that support the relieving platforms at the Battery Park City esplanade, as well as timber piles which support a platform at the north end.

- **Underwater Inspection of Waterfront Structures at the Brooklyn Navy Yard: Brooklyn, NY; for Brooklyn Navy Yard Development Corporation;** Team Leader for underwater condition assessment of facilities including piers, bulkheads, and relieving platforms. Included pre-construction survey and construction inspection of timber piles, concrete pile caps, underdeck, and pile wraps. A comprehensive report was prepared including condition assessment, structural analysis, repair recommendations, and cost estimates.

- **Waterfront Revitalization – 4th and 5th Street Piers at Kent Avenue; Brooklyn, NY; for RD Management Corp;** Assistant Project Manager for this redevelopment project along Williamsburg's waterfront in Brooklyn NY. The 4th and 5th Street Piers are being revitalized in two phases: the demolition phase and the construction phase. McLaren is performing detail design, construction inspection and construction administration services during these phases. McLaren performed an investigation of the waterfront structures including existing pile fields and bulkheads, and a hydographic survey of the project site area. McLaren provided a boring plan, waterfront site investigation and permitting services, and conceptual designs in addition to supervising the taking of geotechnical boring samplings.

- **Underwater Condition Inspection, Assessment, and Design of Repairs at the U.S. Submarine Base; Pearl Harbor, HI; for U.S. Department of the Navy;** Team Leader/P.E. Diver for the topside and underwater inspection and condition evaluation of the waterfront structures at the U.S. Navy submarine base. Provided assistance with report preparation, including condition assessment, structural analysis and repair recommendations.
- **Construction Inspection; Throgs Neck Bridge;** Diver/Tender for engineering services to perform construction inspection of underwater repairs presently being conducted at various substructural elements of the Throgs Neck Bridge.
- **Williamsburg, The Edge Waterfront Development; for Douglaston Development; Brooklyn, NY;** Senior Engineer for the preliminary pier design and investigation of permitting issues for this waterfront development project along the East River. Project responsibilities include above and underwater inspection of piers and bulkheads; evaluation of soil conditions; site/civil inspection; feasibility studies for water related activities; and waterfront permitting services.
- **Pier 98 Fuel Oil Unloading Dock Inspection; New York, NY; for Con Edison;** Dive Team Leader for the structural condition assessment of the Pier 98 facility at Con Edison's 59th Street Station. A thorough tactile inspection of the facility was performed to enable the development of detailed and prioritized repair recommendations. All structural and fendering components were examined with emphasis on marine borer activity, deterioration, and damage reports, drawings, and condition rating.
- **FDR Drive Marine Borer Inspection Program; New York, NY; New York City Department of Transportation [HBCBORERS; PIN 84197BKBR087];** Team Leader/P.E. Diver for underwater inspection and assessment of approximately 15,000 piles, extraction of 1,000 cores (Level III inspection), and a Level II inspection of 30% of the piles. Identification of marine structures along the length of the FDR Drive was made, including low-level relieving platforms and concrete and stone masonry bulkheads.
- **Emergency Repairs to the FDR Drive Relieving Platform; New York, NY; for New York City Department of Transportation;** Dive Team Leader for damage investigation and impact assessment of the relieving platform structure supporting the FDR Drive. Structural assessment, alternative solutions, detailed construction drawings and specifications, and construction support / inspection services were provided. Repairs were completed in conjunction with a marine contractor within five months of initial damage.

Brian C. Moody, P.E.
Senior Engineer/P.E. Diver
Project Role: Underwater Inspection Team Leader (Team #2)

Education:
1999, Manhattan College, MSCE, Structural and Geotechnical Engineering
1997, Manhattan College, BSCE, Structural Engineering

Registrations & Certifications:
Professional Engineer - New York
National Bridge Inspection Standards (NBIS), 2005 – Course #FHWA-NHI-130055
Association of Diving Contractors, Commercial Diver Certification #4727

Professional Societies:
American Society of Civil Engineers

Experience:
Mr. Moody has over 10 years experience on underwater condition assessment, inspection, and structural design projects. He has worked on all types of structures, including bridges, marine structures, canal structures, roadways, buildings, and foundations. His responsibilities have included inspection, design and analysis, report preparation, and construction inspection. He has worked on projects for the NJDOT, NJT, NYCDOT, NYSDOT, NYSTA, New York Canal Corporation, Port Authority of NY and NJ, EDC, NHDOT and for various NJ Counties. As a Team Leader and P.E. Diver, Mr. Moody has performed the above and below water inspection of many bridges, piers, bulkheads, dams, and culverts. Representative projects for Mr. Moody include:

- **Pier 1 and Pier 2 Condition Assessment; Staten Island, New York; for New York City Department of Transportation;** Team Leader / Marine Engineer providing design and construction support services necessary to repair two pile supported concrete deck piers (Piers 1 and 2) as well as the adjacent waterfront structures used as wet storage and repair berthing for the Staten Island Ferryboats. Repairs will also encompass the timber fender system surrounding each pier. McLaren is performing the necessary inspections and designing the required repairs.
- **Subaqueous Rehabilitation of Slip 4; St. George Ferry Terminal, Staten Island, New York; for New York City Department of Transportation;** Team Leader / Marine Engineer for this contract to provide professional engineering design services, including resident engineering services, for the underwater rehabilitation of the supporting structure of the transfer bridge and terminal wing at Slip 4.
- **Green Street Pier Inspection; Brooklyn, NY; for Park Tower Group;** Assistant Project Manager for the inspection of the existing Greet Street Pier. McLaren provided Marine Engineering services including a condition survey of the existing pier and adjacent bulkhead, prepare condition report of the pier and bulkhead, perform alternatives study of at least three repair options for the pier, designs for the pier and for the new bulkhead, develop design of a water taxi landing and marina, and construction support services.
- **2003-2005 Below Water Inspection of Canal Structures; Albany, Syracuse and Buffalo, NY; for New York State Thruway Authority;** Dive Team Leader for underwater inspection of approximately 100 canal structures along the New York Waterway Canal System.

Brian C. Moody, P.E.
Senior Engineer/P.E. Diver
Project Role: Underwater Inspection Team Leader (Team #2)

Provided underwater condition assessment of structures, which included locks, guard gates, fixed crest dams, moveable dams, taintor gates, spillways, terminals, docks, guide structures and culverts. Prepared comprehensive reports, which included drawings and photo documentation.

- **Underwater Inspection of Brooklyn Piers 6, 7, & 8; Brooklyn, NY; for Port Authority of New York & New Jersey;** Team Leader for the underwater inspection of Pier 6, 7, & 8. Inspection included 100 percent visual inspection and 10 percent tactile inspection of piles, pile extensions and pile caps.
- **Inspection of the East Park Relieving Platform; Manhattan, NY; for Con Edison;** Underwater Assessment and Construction Inspection of the East Park Relieving Platform in which he was responsible for the assessment of the structural capacity, repair recommendations, inspection of construction work to ensure compliance with design drawings.
- **Assessment of the Water Club Marginal Wharf and Pier 11 Fender System; Manhattan, NY; for New York City Economic Development Corporation;** Team Leader/P.E. Diver for the Underwater Inspection and Assessment of the Water Club Marginal Wharf and the Pier 11 Fender System in Manhattan, NY for the New York City Economic Development Corporation.
- **Underwater Inspection and Assessment of Various Dams, Piers, and Bridge Structures; Various Locations, NJ;** Team Leader for the Underwater Inspection and assessment of various dams, piers, and bridge structures including the completion of inspection reports, photo documentation and recommendation and repair options for various clients.
- **Port Newark Berths 2-36; 3-25; Port Newark, NJ; for Port Authority of New York and New Jersey;** Engineer/Diver for underwater inspection and assessment of pier/berthing structures and preparation of comprehensive reports; including photographs, sketches, condition assessment, and repair recommendations.
- **Marine Borer Study of FDR Drive; New York, NY; for NYCDOT;** Engineer Diver on this contract for the underwater inspection and marine borer study of the FDR Drive. Participated in the underwater inspection and condition assessment of thousands of timber piles, which included sample coring of timber piles for statistical study of the level of Marine Borer infestation.
- **Governors Island Y Pier Inspection; Governors Island, NY; for U.S. Coast Guard;** Detailed Inspection of Y Pier at Governors Island, NY for the U.S. Coast Guard. Performed load rating for the impact-damaged pier using computer modeling.
- **Underwater Condition Inspection of Bulkheads at Piers 4, 5, & 11 at the New York Marine Terminal; Brooklyn, NY; for Port Authority of New York & New Jersey;** Team Leader for the Underwater Inspection and Assessment of the bulkhead between Piers 4 & 5 and along Pier 11

Matthew J. Daniels, P.E.
Senior Engineer/P.E. Diver
Project Role: Above Water Inspection Team Leader (Team #1)

Education:
B.S., Civil Engineering, Manhattan College, 2000

Active Registration:
Professional Engineer: New York, Delaware (Reciprocity Pending)

Certifications:
National Bridge Inspection Standards (NBIS) – Course #FHWA-NHI-130055
Bridge Inspection Workshop (2005), NYSDOT
Annual Bridge Inspector's Training (2005), NYSDOT
NICET Level I
NAUI Certified Open Water Diver
ADCI Entry-Level Tender/Diver

Experience:
Mr. Daniels has eight years of experience as a Team Leader on condition surveys of marine structures, as a Project Manager for fathometric surveys, and as a Resident Engineer. He has participated in structural integrity inspection and evaluation projects for various and marine structures, bridges, and culverts, including assignments for the Port Authority of New York & New Jersey, NYSDOT, NYCDOT, DELDOT, and various private clients. His expertise also includes design of marine structures, including rehabilitation designs and cost estimates. Representative projects include:

- **On-Call Waterfront Condition Surveys Technical Services; New York, NY; for PANYNJ;** Engineer and Fathometer Surveyor on over 80 assignments involving underwater quality assurance inspections of waterfront facilities undergoing repairs, and condition survey assessments of various types of marine structures including piers, wharves, relieving platforms, and bulkheads.
- **NYSDOT Bridge Diving Inspections & Fathometer Surveys; Regions 1 through 11; for NYSDOT;** Fathometer Surveyor that has performed 300 fathometric surveys of bridges spanning waterways utilizing Electronic Range-Azimuth and Differential Global Positioning Systems in conjunction with dual frequency hydrographic survey equipment to assess changing waterway scour patterns adjacent to bridge footings. Also prepared in excess of 240 CADD-generated contour maps of waterway bottoms using AutoCAD2000.
- **Box Culvert Inspection at Newark International Airport; Newark, NJ;** Project Engineer for the inspection and condition survey of runway support structures (box culverts).
- **Port Newark Marine Terminal, Berths 2 through 36; for PANYNJ;** Resident Engineer/Team Leader for the diving inspection and construction quality assurance of the substructural rehabilitation repairs throughout the 16,500 LF of active shipping terminals located in Port Elizabeth, NJ.

McLaren Engineering Group

Matthew J. Daniels, P.E.
Senior Engineer/P.E. Diver
Project Role: Above Water Inspection Team Leader (Team #1)

- **DELDOT Bridge Diving Inspections; Statewide, DE;** Engineer that has performed condition and fathometric surveys of 65 bridges spanning waterways, including superstructures on low-clearance bridges requiring PONTIS assessments. Assisted in preparation of reports.
- **Caesar's Bay Plaza Facility, Toys 'R Us Pier; Brooklyn, NY;** Project Engineer for the inspection and condition survey of four high-level platforms.
- **Robert Moses Causeway over the Great South Bay;** Team Leader for the inspection and construction quality assurance of the rehabilitation repairs to the substructure.
- **Third Avenue Bridge over Harlem River; for NYCDOT;** Team Leader for the inspection and construction quality assurance of the bridge reconstruction and cable installation
- **Madison Avenue Bridge over Harlem River; for NYCDOT;** Team Leader for the inspection and construction quality assurance of the bridge reconstruction and cable installation.
- **Port Elizabeth Marine Terminal, Berths 50 through 62 and 76 through 86; for PANYNJ;** Functioned as Team Leader for the inspection and construction quality assurance of the sub-structural rehabilitation repairs throughout the 8,500 LF of active shipping terminals located in Port Elizabeth, NJ.
- **Military Ocean Terminal Bayonne;** Project Engineer for the structural inspection of all submerged structural components of Berths N1, N4 and N5 including in-depth condition surveys of the timber and steel bulkheads and mudline profiles beneath the wharf.
- ***Passaic Valley Sewerage Commission Sludge Loading Dock;*** Engineer for the inspection and fathometric survey of ship berthing facility.
- **Bergen County Utilities Authority Sludge Loading Dock;** Engineer for the inspection and fathometer survey of mooring platforms and access piers.
- **Brooklyn Marine Terminal;** Engineer for the inspection and condition survey of Pier 1, relieving platform.
- **BICC Cables – Dock Facility North and West of Building No. 8 Hudson River Stage, Point Street Facility; Yonkers, NY;** Team Leader for the rehabilitation and design concept of the entire dock facility connecting Building No. 19 with the Hudson River Stage Building (EPRI Lab).
- **Manhattan Heliport Rehabilitation Inspection; for PANYNJ;** Engineer for the quality control inspections and condition survey of the steel pipe piles and cost-in-place concrete pile caps supporting the structure.
- **Brooklyn Marine Terminal Steel Sheeting Bulkhead Rehabilitation; for PANYNJ;** Engineer for the quality control inspection of repairs to steel sheeting at Piers 6, 7, and 8.

Malcolm McPherson, P.E.
Staff Engineer
Project Role: Above Water Inspection Team Leader (Team #2)

Education:
B.S., Civil Engineering, Manhattan College 2003

Registration:
Professional Engineer: New York

Specialized Training/Certification:
National Bridge Inspection Standards (NBIS), 2005 – Course #FHWA-NHI-130055
TDI – Enriched Air Diver, 2004
PADI – Open Water Diver, 2003
PADI – Advanced Open Water Diver, 2003
PADI – Rescue Diver, 2003
PADI – Drysuit Diver, 2003
American Red Cross, Adult CPR and First Aid Certified, 2003
SPRAT I – Rope Access Technician

Experience:
Mr. McPherson is an Engineer and Certified Diver with a wide array of experience. As Engineer, Mr. McPherson is an active participant in the inspection, design and assessment of piers, wharves, ferry landings, terminals and other associated waterfront structures. He also is SPRAT certified in the application of rope access systems as a result of his Poughkeepsie-Highland Railroad Bridge inspection work. He is well versed in NYSDOT standards and specifications. Project experience includes:

- **Rehabilitation of Berths 6, 7, and 7A; Brooklyn, NY; for Brooklyn Navy Yard;** Design Engineer for the rehabilitation of Berths 6, 7, and 7A. McLaren provided condition survey, above and underwater inspection services, geotechnical survey, permitting and design services for this project that would protect and preserve the structural components of Berths 6, 7 and 7A from marine border infestation and restore each of these berths to a condition of full serviceability.
- **Engineering and Inspection Services for Marine Structures; Manhattan, NY; for Battery Park City Authority;** Field Engineer/Diver for the inspection, assessment, design and construction inspection/management services for repairs to 3,500 concrete piles that support relieving platforms at the BPCA esplanade, as well as 6,200 l.f. precast concrete seawall skirt, and 3,500 l.f. of stone riprap slope protection. Directed field crews and permitting for the project, while participating in a non-destructive testing program to investigate "hot spots" (areas of significant deterioration).
- **Greenpoint Openspace Improvements; Brooklyn, NY;** Engineer for open space improvements that include a pier, waterfront esplanade, and a waterfront park. Provided engineering support to resolve waterfront access problems and make accurate recommendations based upon schematic designs. The project included underwater inspection of timber low-level relieving platform and concrete seawall and consultation for the park, which will give the Brooklyn community much-needed recreational space and accommodate future ferry service.

Malcolm McPherson, P.E.
Staff Engineer
Project Role: Above Water Inspection Team Leader (Team #2)

- **Rehabilitation of the Fulton Fish Market and Pier 17; New York City; for NYC Economic Development Corporation/Turner Construction Company;** Engineer for project involving a detailed technical assessment and load rating analysis of previously repaired timber elements at the Fulton Fish Market, and existing concrete elements (piles, pile caps and deck) at Pier 17. Performed initial underwater inspection, assisted in delivering repair recommendations and designs, and executed construction inspection.
- **U.S. Gypsum Pier Extension; Stony Point, NY;** Engineer for structural and marine engineering support, pier rehabilitation, and construction inspection. Produced a feasibility study and designed mooring towers, similar to an offshore oilrig, to accommodate a 20,000-ton cargo vessel. Also prepared construction documents for the project, which included structural analysis, environmental evaluation and geotechnical investigation.
- **Yonkers Pier; Yonkers, NY;** Engineer for the inspection of a timber pile supported concrete high level relieving platform. Responsibilities included inspection of concrete underdeck and pile cap faces, as well as report preparation.
- **Various Marine Engineering Services at Pier A; New York, NY; for PANYNJ and BPCA;** Engineer providing baseline drawings and assessments for design work at Pier A. Coordinated with survey teams to establish initial models, performed detailed underwater inspection of piles and helped analyze inspection findings. Also participated in preliminary site walkthroughs and the development of schematics for the demolition of the existing structure at Pier A.
- **Haverstraw Ferry Terminal and Parking Garage; Haverstraw, NY; for the Village of Haverstraw;** Engineer and inspector responsible for providing two miles of shoreline inspection data and making recommendations for the design of specific components of the Haverstraw site, which included a multi-purpose ferry terminal and an integrated 450-car parking structure. The project also included designs for a temporary parking lot and a temporary commuter shelter.
- **Queen Isabella Causeway Collapse; Port Isabel to South Padre Island, TX;** Engineer for the forensic structural analysis of the Queen Isabella Causeway after approximately 240 ft of the bridge collapsed when the Brown Water V and its four barges collided with Pier 32 of the Causeway. Involved forensic investigation, in-water inspection, repair design, resident engineering, construction inspection, and litigation reports. A comprehensive report including failure analysis was prepared.
- **Independence Harbor; Edgewater, NJ; for Hartz Mountain;** Field Engineer for forensic structural analysis and complete inspection of the Independence Harbor Condominium support structure and esplanade. Findings were compiled and provided in a written report detailing the damage assessment and repair recommendations. Also participated in construction inspection during the repair.

Section D
Names/Titles/Rates

Section D
Names / Titles / Rates

Hourly rates for McLaren staff are set forth below. The staff members reflected below represents the firm's technical staff. Other McLaren personnel, including administrators, are available as required to support the PANYNJ on this contract. Premium pay for non-salaried staff is straight time. Premium pay for non-salaried staff is paid at time and one-half.

Employee Name, Title	New Rate	Effective Date	Approved Multiplier	Billing Rate
Principal or Partner				
Malcolm G. McLaren P.E., President	$ 165.00	02/01/08		$ 165.00
Project Engineers/Managers				
George Assis, P.E., Phd, Senior Associate, VP	$ 66.45	02/01/08	x 2.75 -	$ 182.74
Jay Reichgott, P.E., Chief of Marine/Senior Associate	$ 59.55	02/01/08	x 2.75 -	$ 163.76
W. Richard Mahoney, P.E. Senior Associate, VP	$ 56.86	02/01/08	x 2.75 -	$ 156.37
William Gorlin, P.E. Senior Associate, VP	$ 51.88	02/01/08	x 2.75 -	$ 142.67
Lawrence O'Connor, P.E. Senior Engineer	$ 50.63	02/01/08	x 2.75 -	$ 139.23
Doug Platt, P.E., Senior, Engineer	$ 46.12	02/01/08	x 2.75 -	$ 126.83
Victor Frazita, P.E., Senior Engineer	$ 44.67	02/01/08	x 2.75 -	$ 122.84
Mark Bujas, P.E., Senior Engineer	$ 43.68	02/01/08	x 2.75 -	$ 120.12
Tsung Yuan Chi, P.E., Senior Engineer	$ 42.64	02/01/08	x 2.75 -	$ 117.26
Stephen Sywak, P.E., Senior Enginner	$ 42.33	02/01/08	x 2.75 -	$ 116.41
Nicholas Zanzano, Senior Engineer	$ 42.02	02/01/08	x 2.75 -	$ 115.56
Howard Israel, P.E. Sr. Engineer/Team Leader	$ 42.00	02/01/08	x 2.75 -	$ 115.50
James Green,P.E.,Sr. Engineer/Team Leader	$ 41.73	02/01/08	x 2.75 -	$ 114.76
Brian Moody, P.E. Sr. Engineer/Team Leader	$ 40.72	02/01/08	x 2.75 -	$ 111.98
Richard Vigiletti, P.E., Sr. Engineer	$ 39.00	02/01/08	x 2.75 -	$ 107.25
Richard Gilbert, P.E., Sr. Engineer	$ 38.79	02/01/08	x 2.75 -	$ 106.67
Nathan Shuman, P.E., Senior Engineer	$ 38.00	02/01/08	x 2.75 -	$ 104.50
Hsu-Huei Sun, P.E., Senior Engineer	$ 36.76	02/01/08	x 2.75 -	$ 101.09
Gerald O'Halloran, P.E., Senior Engineer	$ 36.50	02/01/08	x 2.75 -	$ 100.38
Gerald Premus, P.E., Senior Engineer	$ 34.26	02/01/08	x 2.75 -	$ 94.22
Lamberto Santos, P.E., Senior Engineer	$ 33.98	02/01/08	x 2.75 -	$ 93.45
Malcolm McPherson, P.E. Senior Engineer.	$ 33.50	02/01/08	x 2.75 -	$ 92.13
Andrea Homner Shuman, P.E., Senior Engineer	$ 33.06	02/01/08	x 2.75 -	$ 90.92
Yongwook Kim, P.E., Senior Engineer	$ 29.09	02/01/08	x 2.75 -	$ 80.00
Carl Sundvik, Chief of Field Operations	$ 36.51	02/01/08	x 2.75 -	$ 100.40
Daniel Kortosz, Asst. Chief of Field Operations	$ 35.02	02/01/08	x 2.75 -	$ 96.31
P. John St. Denis, Inspector/Dive Safety Officer	$ 32.94	02/01/08	x 2.75 -	$ 90.59
Fred Smith, Sr. Technical Designer	$ 40.00	02/01/08	x 2.75 -	$ 110.00
Murphy Gigliotti, Sr.Technical Designer	$ 36.83	02/01/08	x 2.75 -	$ 101.28
David Tipa, Technical Designer	$ 28.45	02/01/08	x 2.75 -	$ 78.24
Michel Karaoglan, Engineer	$ 30.90	02/01/08	x 2.75 -	$ 84.98
Elias Boumis, Engineer	$ 30.68	02/01/08	x 2.75 -	$ 84.37
Glenn Rosen, Engineer	$ 30.00	02/01/08	x 2.75 -	$ 82.50
Jeremy Billig, Engineer	$ 29.07	02/01/08	x 2.75 -	$ 79.94
Shing Wai Leung, Engineer	$ 28.74	02/01/08	x 2.75 -	$ 79.04
Alison Scott, Engineer	$ 28.64	02/01/08	x 2.75 -	$ 78.76
Sam Fares, Engineer	$ 28.50	02/01/08	x 2.75 -	$ 78.38
Chris Humphries, Engineer	$ 28.42	02/01/08	x 2.75 -	$ 78.16
Luke Daur, Engineer	$ 28.33	02/01/08	x 2.75 -	$ 77.91
Katherine Thuma, Engineer	$ 27.72	02/01/08	x 2.75 -	$ 76.23
Michael DeAngelis, Engineer	$ 27.60	02/01/08	x 2.75 -	$ 75.90
Japheth Larte-Gyamfi, Engineer	$ 26.50	02/01/08	x 2.75 -	$ 72.88
Nabil Saadi, Engineer	$ 26.26	02/01/08	x 2.75 -	$ 72.22
Shannon Clarke, Engineer	$ 26.15	02/01/08	x 2.75 -	$ 71.91
Melling Piao, Engineer	$ 26.00	02/01/08	x 2.75 -	$ 71.50
Douglas Gemme, Engineer	$ 26.00	02/01/08	x 2.75 -	$ 71.50
John Minier, Engineer	$ 26.00	02/01/08	x 2.75 -	$ 71.50
Richard Cassidy, Engineer	$ 26.00	02/01/08	x 2.75 -	$ 71.50
Christopher Mase, Engineer	$ 25.48	02/01/08	x 2.75 -	$ 70.07
Miao Zhou, Engineer	$ 25.31	02/01/08	x 2.75 -	$ 69.60
Kyle Mover, Engineer	$ 25.00	02/01/08	x 2.75 -	$ 68.75
Jon Skinner, Engineer	$ 25.00	02/01/08	x 2.75 -	$ 68.75
Stephen Craven, Engineer	$ 25.00	02/01/08	x 2.75 -	$ 68.75
Caryn Connolly, Engineer	$ 25.00	02/01/08	x 2.75 -	$ 68.75
Conrad Anderson, Engineer	$ 24.75	02/01/08	x 2.75 -	$ 68.06
Craig Plate, Engineer	$ 24.72	02/01/08	x 2.75 -	$ 67.98
Dominick DeSantis, Engineer	$ 24.72	02/01/08	x 2.75 -	$ 67.98
Todd Manson, Engineer	$ 24.60	02/01/08	x 2.75 -	$ 67.65
Brian Levine, Engineer	$ 24.00	02/01/08	x 2.75 -	$ 66.00
Douglas Hermi, Engineer	$ 23.00	02/01/08	x 2.75 -	$ 63.25
Stephen Molison, Inspector	$ 21.85	02/01/08	x 2.75 -	$ 60.09
Brian Fischer, Inspector	$ 18.72	02/01/08	x 2.75 -	$ 51.48
Timothy O'Connor, Sr., Principal Survey Technician	$ 45.00	02/01/08	x 2.75 -	$ 123.75
Chris Manzi, Survey Technician	$ 25.75	02/01/08	x 2.75 -	$ 70.81
Collin O'Connor, Survey Technician	$ 17.85	02/01/08	x 2.75 -	$ 49.09
Victor Bellucci, Intern	$ 16.32	02/01/08	x 2.75 -	$ 44.88
Margarito Malabunga, Intern	$ 13.50	02/01/08	x 2.75 -	$ 37.13

McLaren ENGINEERING GROUP

D. Draftsman/CAD Operators						
Woo Chung, Chief of CAD Dept	$	34.01	02/01/08	x 2.75 =	$	93.53
Joselito Magyawe, Chief of Production	$	32.94	02/01/08	x 2.75 =	$	90.59
Robert Curti, Sr. CAD Operator/Draftsman	$	32.26	02/01/08	x 2.75 =	$	88.72
Dalia Schneider, Jr. CAD Operator/Draftsman	$	27.50	02/01/08	x 2.75 =	$	75.63
Jay Issa, Sr. CAD Operator/Draftsman	$	27.43	02/01/08	x 2.75 =	$	75.43
Beverly Marquez, Sr. CAD Operator/Draftsman	$	27.11	02/01/08	x 2.75 =	$	74.55
Dewey Isler, Jr. CAD Operator/Draftsman	$	21.43	02/01/08	x 2.75 =	$	58.93
Lyndon DeLeon, Jr. CAD Operator/Draftsman	$	16.43	02/01/08	x 2.75 =	$	45.18
Chris Rodriquez, Jr. CAD Operator/Draftsman	$	14.49	02/01/08	x 2.75 =	$	39.85
P.E. Diver/Diver						
Jim Green, P.E. Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Brian Moody, P.E. Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Malcolm McPherson, P.E. Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Carl Sundvik, Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Daniel Korkosz, Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Brian Fischer, Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
P. John St. Denis, Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Stephen Molson, Diver	$	54.63	08/01/08	x 2.75 =	$	150.23
Tender						
Jim Green, P.E., Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Brian Moody, P.E. Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Malcolm McPherson, P.E. Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Carl Sundvik, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Daniel Korkosz, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Brian Fischer, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
P. John St. Denis, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Stephen Molson, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Shannon Clarke, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Michael DeAngelis, Tender	$	39.18	08/01/08	x 2.75 =	$	107.75
Diver/Tender Supplemental Fringe Benefit						
Jim Green, P.E. Diver	$	16.28	08/01/08	Direct non-salary cost		
Brian Moody, P.E. Diver	$	26.12	08/01/08	Direct non-salary cost		
Malcolm McPherson, P.E. Diver	$	25.24	08/01/08	Direct non-salary cost		
Carl Sundvik, Diver	$	16.75	08/01/08	Direct non-salary cost		
Daniel Korkosz, Diver	$	17.20	08/01/08	Direct non-salary cost		
Brian Fischer, Diver	$	29.70	08/01/08	Direct non-salary cost		
P. John St. Denis, Diver	$	26.60	08/01/08	Direct non-salary cost		
Stephen Molson, Diver	$	28.67	08/01/08	Direct non-salary cost		
Shannon Clarke, Tender	$	28.12	08/01/08	Direct non-salary cost		
Michael DeAngelis, Tender	$	27.44	08/01/08	Direct non-salary cost		
Survey Prevailing Wage						
Chris Manzi, Party Chief	$	29.82	02/01/08	x 2.75 =	$	82.01
Colin O'Connor, Instrumentman	$	25.01	02/01/08	x 2.75 =	$	68.78
Victor Bellucci, Rodman	$	21.95	02/01/08	x 2.75 =	$	60.36
Survey Supplemental Fringe Benefit						
Chris Manzi, Party Chief	$	1.51	02/01/08	Direct non-salary cost		
Colin O'Connor, Instrumentman	$	4.88	02/01/08	Direct non-salary cost		
Victor Bellucci, Rodman	$	4.50	02/01/08	Direct non-salary cost		

Section E
Relevant Firm Experience

Section E
Relevant Firm Experience

MCLAREN ENGINEERING GROUP, founded in 1977, and headquartered in West Nyack, New York, with offices in Baltimore, Maryland; Meridan, Connecticut; and Orlando, Florida; is a multi-discipline firm providing complete professional engineering services with specialties in the following areas:

- Above and Underwater Inspection Services
- Marine Engineering Design and Construction
- Waterborne Transportation Design Services
- Structural Engineering
- Coastal/Ocean Engineering
- Civil and Geotechnical Engineering

McLaren distinguishes itself as one of the nation's leading experts in the above and underwater inspection, assessment, design and construction inspection of waterfront structures. The firm has 31 years of experience in above and underwater inspection and structural assessment, varying in type from piers, bulkheads, and seawalls to bridge foundations and dams. Much of our work has been performed along the Eastern seaboard, which provides perhaps the greatest variation of diving media in the nation. Only a handful of engineering firms possess the specialized qualifications, experience and trained personnel necessary to perform above and below water inspection projects. The many varied underwater inspections performed by our dive crews have provided us with a tremendous database for the effects of water chemistry and flow on the life of various marine construction types and materials.

McLaren has successfully performed the above and underwater investigation, design and construction of waterfront structures comprising approximately 75 percent of the perimeter of Manhattan Island within the last decade. McLaren's overall waterfront experience can be summarized as follows:

- ***Number of Piles Inspected: 2,000,000***
- ***Length of Waterfront Inspected: 200 miles***
- ***No. of Facilities Upgraded, Repaired or Replaced: Over 450***
- ***Value of Construction: $3,000,000,000***

McLaren has successfully built a manifest of clients, particularly within the New York Harbor area, including the Port Authority of New York & New Jersey, the New York City Economic Development Corporation, Hudson River Park Trust, both the New York City and State Departments of Transportation, the Brooklyn Navy Yard Development Corporation, the New York City Department of Parks and Recreation, the New York City Department of Design and Construction, the New York City Department of Sanitation, Consolidated Edison Company, and many private industrial and development concerns.

SUBAQUEOUS MARINE INSPECTIONS AND CONDITION ASSESSMENTS

McLaren distinguishes itself as one of the nation's leading experts in the underwater inspection, assessment, design and construction inspection of waterfront structures, having performed such services for 31 years. McLaren has extensive experience in underwater inspection and structural assessment, varying in type from quay walls and piers to bridge foundations and dams. Much of our underwater work has been performed along the Eastern seaboard, which provides probably the greatest variation of diving media in the nation. The many varied underwater inspections performed by our dive crews have provided us with a tremendous database for the effects of water chemistry and flow on the life of various marine construction types and materials. Through these projects, McLaren has become proficient in many specialized engineering concepts, such as:

- Marine borer identification
- Effects of current velocity on scour
- Cathodic protection – both galvanic and impressed
- Measurement of water resistivity and stray current
- Low visibility diving (tactile investigations)
- Cold weather diving
- Underwater videography and photography
- Various cleaning methods – pneumatic brush, hand scraper, water blaster
- Ultrasonic testing
- Statistical relevance of representative sampling
- Design of structural repairs
- Fathometric surveys

MARINE ENGINEERING AND DESIGN SERVICES

Since our firm is involved in the engineering of all types of structures, our capabilities for design and analysis are comprehensive. We are familiar with materials and methods of construction, costs, specifications, and means of analysis. We are an engineering firm with diving capabilities and experience, and therefore possess an advantage in providing both above and underwater inspection and design services.

Our depth of experience and expertise encompass all aspects of marine design and construction, including:

- Underwater Engineering Inspections
- Bulkheads, relieving platforms, quay walls – rehabilitation and new construction
- Crane/Crane Rails and off-loading machinery and equipment
- Breakwaters
- Navigation aids
- Fendering and berthing energy absorption
- Marine Terminal Operations Analysis
- Port and Marine Terminal Planning and Development
- Terminals – berthing, loading and conveying systems
- Floating Structures (terminals and piers)
- Pier design – new or rehabilitation
- Permitting
- Dredging
- Recreational marinas for pleasure craft Multi-modal Facilities
- RO-RO Facilities
- Marina Designs/Studies/Permitting
- Effects of water chemistry on materials
- Tidal Influences
- Geotechnical Studies and Design
- Cathodic protection – investigation and design
- Marine borer studies and remediation, infestation and appropriate mitigation
- Gangways/ADA Compliance
- Application of advanced materials

McLaren provides waterfront facility master planning, development/design, and design-build RFP document preparation services. Port terminals and marine layout planning, dry bulk handing/conveying, container terminal feasibility studies/design, TEU loading/unloading analyses, RO-RO and LO-LO planning/design, liquid bulk transshipment planning and design, cruise ship terminal design, all are within the realm of expertise offered by McLaren Marine Division.

Through our extensive experience in this rather specialized field, we can offer expertise in cost estimating, life cycle analysis, and construction supervision. Our underwater inspection capabilities provide assurance that construction is carried out in conformance with plans.

We have provided structural engineering plans and specifications for thousands of structures worldwide. Much of our work involves the rehabilitation, retrofit, or modernization of marine facilities – including fender systems, bulkheads, piers, and wharves of all types. Our advanced technical procedures, excellence of staff, and sophisticated computer analysis provide safety and efficiency of design. Effective management and quality control make the design process flow smoothly and ensures constructibility.

We are expert at analysis, which must be used in situations where some of the conditions are hidden from view; selection of materials; and preparation of construction documents.

ENVIRONMENTAL PERMITTING

McLaren has successfully prepared the environmental permit applications and guided clients through the maze of waterfront-related permits and approvals for large municipal projects. Suggestions for innovative project alternatives greatly reduced the potential for impacts to aquatic biota and the estuarine habitats, thereby allowing the project to be successfully permitted within a relatively short time frame. Furthermore, by eliminating certain impact issues, the need for extensive fieldwork was eliminated.

McLaren has a good understanding of the process and issues that must be addressed in permitting waterfront projects. Because agency review of permit applications can be a lengthy process, it is extremely important to:

- ✓ Design projects in a way that minimizes potential problems during the review period to the extent practicable;
- ✓ Get review agency approval of overall project approach and concept as early as possible;
- ✓ Develop project construction schedules (including those for producing construction drawings) that recognize the uncertainties regarding the timing of permit issuance.

RELEVANT EXPERIENCE

Battery Park City Authority (BPCA) Inspection, Design, and Construction Inspection for Marine Structures. The services of McLaren were retained by BPCA to perform a structural inspection of the piles, the precast concrete skirt and the riprap slope that surrounds the perimeter of the BPCA parcel in lower Manhattan. This inspection involved approximately 3500 precast concrete piles. Upon completion of the inspection work and a review of its findings, McLaren embarked upon a testing program to further investigate the "hot spots" (areas of significant deterioration) so as to understand the cause and arrive at a correct repair scheme. In conjunction with the testing program, McLaren performed a statistical analysis of the inspection data gathered to arrive at a cause and extent of damage to the piles and seawall and will consider the effects of water chemistry, abrasion and impact in the analysis of the damage. Upon conclusion of our assessment of damage, McLaren developed repair alternatives with cost estimates. Upon arriving at a repair scheme or treatment for all the marine structures involved in the contract, McLaren prepared construction documents and specifications, and is providing construction administration services. These services include support of the bidding process and full time construction inspection services for a 20-week period.
Contact: Battery Park City Authority, Kevin Chin, 212-416-5367

2005-2009 NYCDOT Engineering Service Agreement, Design, Inspection & Resident Engineering Services for Buildings and Waterfront Facilities. McLaren was chosen by the

NYCDOT as their "On-Call" engineering consultant to provide on an as needed basis architectural, inspection, engineering and construction related services for their various waterfront and ferry facilities structures citywide. The facilities involved with this four-year term agreement include but are not be limited to intermodal transportation facilities, waterfront building structures, marine and upland structures, maintenance berthing facilities, and ferry terminals. Projects include assessment, design and construction inspection on passenger terminal buildings, maintenance/ industrial buildings, parking facilities, bus terminals, rail/rapid transit stations, elevated traffic structures, fuel/oil storage, dredged channels, soil retaining structures, mooring systems, ship fender structures, moveable bridges and piers, pontoons and gangways.

Contact: NYCDOT, Mr. Earl Baim, 212-487-8369

<u>On-Call Waterfront, Geotechnical, and Structural Engineering Consultant – PANYNJ</u>

a.) Pier A Ferry Landing, Manhattan, New York. In order to accommodate an increase in traffic caused by September 11, 2001 attack on the World Trade Center, the PANYNJ, NYCEDC and NYCDOT jointly sponsored an initiative to expand the available landing areas. McLaren was commissioned to design and coordinate construction of a floating ferry terminal at Battery Park City along Pier A, with the goal of providing six new slips. McLaren provided the engineering and construction documents on a fast-track basis, and coordinated closely with PANYNJ, NYCEDC, NY Waterway, and the Contractor throughout the construction. McLaren also provided construction management services for this project.

b.) Battery Park City Ferry Terminal (Temporary Structure), Battery Park City, New York. The temporary Battery Park Ferry Terminal, now replaced by a permanent floating structure (also designed by McLaren – see below) consisted of two buffer platforms, a gangway, and a floating terminal anchored to the existing seawall with a pair of innovative mooring arms. Designed to perform for three years as a temporary structure, the terminal remained in service for 15 years. The mooring system's complexity was due to restrictive site conditions, lack of overburden for driving anchor piles, and accommodations of six degrees of motion - rise, fall, run, pitch, roll and yaw.

c.) New York Marine Terminal, Brooklyn, New York. McLaren was retained by the PANYNJ to perform a detailed above water and underwater inspection of the bulkheads at Piers 2-3 and Piers 4-5 at the New York Marine Terminal in Brooklyn. The inspection included piles, pile caps, braces, deck, the seawall, and edge beams. The summary report and detailed drawings were prepared summarizing the observations of the inspection. Drawings depicted all observed conditions for all structural elements, and were used to base design of repairs. ***Over the past twenty years McLaren have inspected all of the Marine Terminal piers from Pier 1 to Pier 11 and Clinton Wharf.***

d.) Port Newark Marine Terminal, Port Newark, New Jersey. McLaren marine inspection services encompassing topside, above water, and underwater inspection of the Port Newark Marine Terminal - Berths 2 through 36 (even); and the Port Elizabeth Marine Terminal – Berths 1-18 (odd) and Berths 88-98 (even) plus the Turntable. Inspection work included assessment of crane rail structures. The facilities included timber, steel, and concrete structures, comprising multiple thousands of piles supporting both high-level and low-level platforms. Structural assessments and load ratings were conducted to establish existing maximum uniform line load capacities, as well as routine and priority repair recommendations. **Contact: Port Authority of New York & New Jersey,** Ms. Janet Cox, 212- 435-5650

SUNY Maritime Inspection and Rehabilitation Design of Campus Pier & Other Waterfront Structures. McLaren is performing marine structures inspection, and rehabilitation and repair design for the SUNY Maritime Campus' entire waterfront in Throgs Neck, New York. The project involves an in-depth inspection of the campus' Main Pier and comparison to a previous cursory investigation to access the full extent of damage and deterioration. McLaren also performed a structural and load rating analysis of the pier, and added an extension to the 5,000 square foot pier to accommodate the docking of an additional sea-faring vessel. McLaren also performed an inspection of the structural support members to the college's Student Activity Building to assess the extent of deterioration. McLaren will replace the C channel whaler providing lateral support to the steel sheet piling, clean and apply protective coating to the steel sheet piling support, and replace the timber bracing between the piles supporting the boat crane. McLaren will replace the timber bracing between the piles supporting the campus boat shed and re-point approximately 3,400 feet of the college's seawall as well. **Contact: State University Construction Fund,** Mr. James E. Biggane (518) 689-2591

Battery Park City Ferry Terminal, Manhattan, New York - McLaren was conducted to provide structural and marine engineering services for the design of a permanent floating ferry terminal, with a minimum 25-year life. The facility is the largest of its kind in the United States, *encompassing more than ¾ acres of floating structure.*

McLaren's services includes preparation of Stage I–Schematic Design Documents, Stage II–Preliminary Design Documents, Stage III–Detailed Design Documents, and Stage IV–Construction Administration. The floating terminal structure consists of a mono-hull main terminal; two anchorage towers anchored to bedrock, 75 feet below the water; and pedestrian walkways connecting to the Battery Park City Esplanade. McLaren was also responsible for the design of ADA-compliant access ramps to the ferries, fendering, staging, and constructibility. The technical design involved static and dynamic analyses of the floating structure.
Client: Port Authority of New York & New Jersey: Ms. Janet Cox, 212- 435-5650

FDR and Harlem River Drives Marine Borer Inspection – McLaren performed an in-depth underwater inspection and assessment of approximately 12 miles of relieving platform along the FDR and Harlem River Drives. The inspection included an assessment of 63,400 piles, marine borer identification, and destructive testing and evaluation. This work spanned nearly the entire length of the East side of Manhattan from the South Street Seaport to 181st Street and involved a multitude of waterfront structures of different ages and construction types, including:

- Low-level relieving platforms (timber and concrete)
- High-level platforms (timber, steel, and concrete)
- Steel sheet pile bulkheads
- Timber sheet pile bulkheads
- Concrete gravity seawalls
- Timber crib walls
- Riprap embankments

The condition survey was comprehensive, and was broken down into "location" and "segments". Destructive testing was performed (Level II timber cores were retrieved on hundreds of timber piles, and submitted by McLaren to testing labs to assess marine borer activity and creosote retention). The results of the inspection and studies were presented in detailed reports, with one report written by McLaren for each location. The reports included descriptions, methodology, observations, statistical assessments, laboratory results and assessments, recommendations, and appendices with figures, photographs, and tabulations of the field notes and observations.

In addition to the condition surveys, assessments and reporting, McLaren provided critical condition/flagging assessments with the reports. These reports were accompanied by detailed figures, sketches, photographs and recommendations. McLaren also provided engineering support in developing effective repairs recommendations with estimated construction costs. Due to the large volume of inspection, McLaren maintained weekly progress reports for management purposes.
Client: Parsons Brinckerhoff, Mr. Alex Matlin, P.E., (212) 465-5226

Maxwell House Waterfront Site Development, Hoboken, New Jersey - McLaren is working with the developer on the conversion of the former Maxwell House coffee industrial site to a residential, mixed-use facility along the Hudson River. Plans include the construction of 1.4 million square feet of residential and commercial space, and parking structures for over 1,600 cars. The project will also develop the waterfront area into a four-acre park and esplanade. McLaren is providing site/civil and infrastructure design services along with geotechnical, marine, and structural engineering services. This includes construction documents of demolition, and reconstruction of the existing pier and platforms, utilities, and roadway design. McLaren authored the CAFRA permit applications submitted to the state of New Jersey.
Client: ICCI Construction/Real Estate Development, Mr. Daniel Gans, (201) 792-9220

Brooklyn Navy Yard Areawide Waterfront Inspection and Design Services. As part of Brooklyn Navy Yard Development Corporation's 10-year Master Plan to revitalize the Navy Yard as an economic development facility, McLaren was selected to provide specific area waterfront rehabilitation services at this 213-acre site. Improvements were made to various marine structures at the site, including Piers C, D, G and K; Berths 3A, 14A, 17, 18, 20A, and 20B. McLaren performed above water and underwater inspection and assessment of piers, low-level relieving platforms, bulkheads/seawalls, and wharves and provided preliminary and final design services with construction cost estimates for rehabilitation. As the facilities are old timber structures, McLaren was exposed to nearly every type of timber construction and condition for which a solution was developed. Repairs included wrapping timber piles in plastic; posting timber piles and shimming non-bearing piles; encasing timber and steel piles in concrete; and replacing or encasing timber pile caps.

Client: Brooklyn Navy Yard Development Corporation, Mr. Michael Lee, (718) 907-5916

East Avenue Tunnel and Line Structure Assessment for LIRR - McLaren was retained by the Long Island Rail Road to perform in-depth field inspections and structural integrity evaluations on 23 the East Avenue Tunnel, approximately 2,000 feet of retaining walls, undergrade bridges, and 46 over grade bridges. Types of bridges inspected included steel deck girders, thru girders, concrete slab, and steel trusses.

Objectives McLaren fulfilled for this comprehensive assessment included in-depth inspections, material testing, and identification of substandard conditions affecting safety/serviceability/life of structure. McLaren also maintained information in LIRR's Asset Inspection Management System, evaluated structural integrity, determined live load capacity ratings and proposed solutions to eliminate heavy freight/speed restrictions. Potential expansion and capabilities were identified, as were fatigue and seismic vulnerabilities. McLaren ultimately determined the remaining useful life of each structure and prioritized structure rehabilitations.

Client: Long Island Rail Road, Mr. Horia Necula, (718) 558-3203

Emergency Repairs to the FDR Drive Relieving Platform. A portion of the wharf structure serving Consolidated Edison's Generating Station at 14th Street in lower Manhattan collapsed. McLaren was contacted by NYSDOT and NYCDOT to investigate the damage and assess the impact of the relieving platform structure that supports the FDR Drive. Underwater inspection of the site revealed extensive damage caused by a combination of marine borer activity and deterioration of the platform due to age. McLaren proposed several alternatives to rehabilitate the structure, including cutting the damaged piling out and replacing it with 16-foot-long steel posts. The posts were then encased with cast-in-place reinforced concrete, and the existing pile was also encapsulated in concrete where timber was found to be in fair condition. **Client:** NYCDOT, Henry Perahia, 212-788-1700

ConnDOT Biennial Above and Underwater Bridge Inspection - McLaren has participated in five cycles of biennial underwater bridge inspection programs for the Connecticut Department of Transportation. The program encompasses underwater inspection and assessment of bridges statewide, numbering from 280 to 360 in its first three cycles and over 500 on its next two.

As Prime Consultant, McLaren was responsible for supplying underwater inspection services, providing fathometric surveys, and preparing comprehensive reports (including database management, photographs, underwater video documentation, and assessment of data). Types of bridges inspected during all cycles include steel deck girders, thru girders, concrete slab, and steel trusses. These inspections conform to the National Bridge Inspection Standards (NBIS) and the ConnDOT's Bridge Inspection Manual (BIM version 2.1, September 2001). **Contact: ConnDOT**, Ms. Sandra Dumas, (860) 594-2072

The Northside-Williamsburg Inspection and Site Development. The Northside Williamsburg *property consists of two sites, designated as Site A and Site B, located in Brooklyn.* The severe deterioration of the existing waterfront structures at these sites rendered them nearly useless for future development. McLaren conducted an investigation of the sites to assess the required waterfront repairs between North 5th Street and North 10th Street. The investigation included an above water and underwater inspection of the waterfront structures and the property immediately upland. The collected data was evaluated to identify permit issues associated with the site to determine necessary waterfront infrastructure repairs, and develop conceptual improvements and reuse. **Contact: Douglaston Development**, Mr. Michael Kaye, (718) 281-0550, ext. 315

Pier 98 Fuel Oil Unloading Dock. McLaren was retained to perform professional engineering, design and construction support services associated with the repair of Con Ed's Pier 98 Fuel Oil Unloading Dock after performing structural condition assessment of the Pier 98 facility at Con Edison's 59th Street Station to aid with maintenance, repair, and upgrade planning efforts. Structural deficiencies included 36 corroded steel piles under the concrete slab portion with severe loss of section; 206 timber piles with less than 50% bearing capacity due to loss of the pile cross section from soft-rot or gap formations; 33 damaged fender piles; loose or damaged mooring hardware located along the south end of the pier; and deteriorated and partially collapsing wooden deck above the intake structure. **Contact: Consolidated Edison Company,** Mr. Michael Nuzzi, P.E., (212) 460-3398

Section F
Management Approach

PROJECT INITIATION

Upon contract award and the issuance of any task order under this term agreement, McLaren will initiate a kick-off meeting with the Port Authority of New York and New Jersey (PANYNJ) in order to solidify a clear understanding of the project requirements, and to open the channels of communication. We will then commence upon our respective tasks by finalizing our staffing requirements and implementing our schedule of operations. The schedule, along with the primary milestones, will be reiterated. In this way, we can ensure that our performance and production will accommodate the PANYNJ's desired schedule, and enable us to assign personnel the various work items over the life of the project, thus optimizing available manpower.

PROJECT MANAGEMENT APPROACH

For the multiple tasks that are likely to be assigned under this contract, McLaren plans to use a technical matrix management approach, with a single portal of contact and control to guide all activities during this condition assessment program. Our focus is to address project elements and variables in the most expeditious and professional manner, while providing the PANYNJ with a quality product. The benefit to the Authority is a highly qualified group of professionals with a successful history of similar work efforts. For McLaren, project management means control over all aspects of the project. Some of the elements of our *Project Management Approach* include:

- **Scheduling:** Up-to-date scheduling software, such as Microsoft Project©, will be used so a master schedule can easily incorporate various projects likely to be assigned under this term agreement into a logical, orderly chain of events. The Project Manager will use the scheduling software to track multiple projects worked and scheduled as well as discrete tasks within each of the projects. The Project Manager will also be responsible for determining the schedule impacts and providing the Authority with an analysis, revised schedule, justifications for time adjustment, and solutions for mitigating the delays and maximizing early completions in the master schedule.
- **Staff Coordination:** Coordination of all project staff members (including sub consultants) and the multiple projects and discrete tasks within the projects, likely to be assigned under this term agreement is vital to the timely completion of each specific project task order. Our controls will include screening to determine the most qualified candidate(s) with a proven track record in working with the various agencies, daily monitoring by the Project Manager of their work, internal reporting requirements, incremental progress review to assure schedule adherence, and quality control checks throughout the process. The ultimate goal is to deliver the prescribed scope of services in a timely, cost-effective manner.
- **Client Review Periods:** Client review periods at various points during the term agreement will be incorporated into the overall project schedule to encourage feedback from the PANYNJ. Client review periods will also foster a direct dialog with the

McLaren staff, and reiterate our emphasis on the value of good communication throughout the process.

- **Client Approval of Recommended In-Depth Inspection and Analyses:** Each field inspection survey will include, as a minimum, a close visual inspection of the existing structural elements. McLaren's building facilities inspection teams will obtain an overall assessment of the condition of the structures. Based on the findings of the overall assessment/inspection, should suspect integrity be revealed, McLaren will recommend and perform a more detailed inspection and analysis after receiving approval from the Port Authority.
- **Communication:** Communication is perhaps the most important aspect of management throughout the duration of any project. On a daily basis, we will transmit information via e-mail, phone and fax. Using our e-mail network and systems configurations, all communications sent over the Internet will automatically be distributed to the other team members. This will result in a seamless and immediate exchange of e-mail information, and will foster a more efficient manner of communication.
- **Team Coordination.** Project control meetings will be held as required by McLaren with all project staff members and the Project Manager in order to monitor overall progress, review data gathering and reporting efforts, and program multiple projects as well as discrete tasks within those projects.
- **Coordination and Meetings.** Coordination will be a significant task in the progress of the project. During each specific task order, McLaren will arrange and conduct all necessary meetings with the PANYNJ staff, and will direct the day-to–day field inspection activities with facility personnel, the Port Authority's own forces, and any outside agency's personnel who may be assigned to provide assistance in the performance of the inspection/condition assessment. McLaren's Project Manager will be responsible for organizing all required project coordination meetings,
- **Project Planning and Reporting.** Upon notice to proceed, we will prepare a Work Plan Document (WPD), which will serve as the operational manual for the project. Incorporated within the WPD will be the scope of work for each task and item within the project, staffing levels, and responsibilities of personnel involved, and a schedule of operations with milestone and interim goal dates established. The WPD will then be utilized as a dynamic document providing overall project control. This will result in the organized, logical, and cost effective completion of the project.
- **Defined Scope of Work.** In order to succeed, any project must have a clearly defined scope of work to which all parties involved understand and agree. This will allow the efficient completion of work desired by the PANYNJ, avoid the execution of unnecessary work, and avoid the potential for duplication of efforts.

  The assignment of staff levels, and the clear definition of responsibility serves several purposes. First, it provides a distinct chain of command and communication within the project, both on the part of McLaren and the PANYNJ. It also allows the proper application of specialty personnel to each task of the project, thereby avoiding lost time or duplication of efforts. Finally, staff assignments provide for the immediate movement within the project as a whole to accommodate emergency conditions, change in scope, or revision of interim schedule items so that the overall project schedule will remain unaffected.

- **Project Schedule and Milestones.** Within the overall project schedule, the WPD will set milestones and interim goal dates for all work **items** within the specified tasks. In this way, we can guarantee our performance will accommodate the desired schedule, and it allows us to assign personnel to various work items over the life of the project, thus optimizing available manpower. By employing the WPD schedule, we can offer the most cost effective staffing structure to the project.

- **Baseline Schedule.** McLaren has adopted and uses a Baseline Schedule and Cost Plan to chart the progress of each of its major scoping and design projects. This plan is used successfully by our firm on almost all projects.

- **Cost Control Plan.** The purpose of this plan is to outline the complete sequence of activities/tasks leading toward the attainment of the project objectives. The Baseline Schedule and Cost Plan is a Gantt Chart consisting of a summary schedule showing the major work items and individual schedules showing all tasks. Included with the schedule are project milestones and completion dates. Planned and actual costs associated with each major task are charted during the course of the project.

- **Daily Management Practices.** McLaren's Daily Management Practices assure quality of our engineering product as well as efficient flow of information and budget control. Our practice involves:

  1. *A written record of all project-related telephone conversations is made and kept on file. This serves as a means of recording directives and a method of backcheck requests of the client. The Project Principal receives a copy of all "telecons" and reads them daily to obviate any perceived problems.*
  2. *At the beginning of each project, a project initiation data sheet is developed by the Project Manager to record the scope of work, schedule, and needs of the client.*
  3. *Manpower budget sheets are generated for each project and are checked weekly for deviations.*
  4. *Internal executive management meetings are held each Monday at 12:00 p.m. in our office to monitor progress of work, redistribute manpower, and discuss specific technical problems.*
  5. *Minutes of all meetings are taken by the Project Manager and distributed to all attendees and interested parties, including the Project Principal.*
  6. *Field reports are issued for all site visits and inspections performed.*
  7. *A copy of all project-related incoming/outgoing mail is given to the Project Principal for information.*
  8. *Intra-office information exchange is recorded on "Intra-office Memorandum" sheets, which are filed.*
  9. *For significant projects, all information related to the project is kept by the Project Manager in a series of binders segregating the project into the following categories:*

- *Correspondence*
- *Transmittals*
- *Minutes of meetings*
- *Field reports*
- *Telecons*
- *Calculations (often broken into subcategories)*
- *Shop drawings*
- *Superseded calculations*
- *Reports (soils, testing, etc.)*
- *Design sketches and details*
- *Specifications*

10. *All shop drawings are logged in, and a record of data received/data returned and disposition is kept for each vendor.*
11. *Before any work is transmitted to the client, either the Project Principal or Project Manager must review the technical content of all drawings or reports, as a quality assurance control.*
12. *A daily record is compiled of all outgoing correspondence and its method of transmittance, whether by mail, fax, courier or hand delivered.*

We believe the preceding 12-step program provides proper controls for product quality assurance. We have used these basic techniques for the successful management and execution of more than 7,000 projects our 31-year history.

Section G
Firm's Affiliates

M.G. McLaren, P.C. doing business as **McLaren Engineering Group** presents the following affiliates:

- ***Highland Equipment.*** Certain equipment that we use in the performance of our services is rented from this affiliate. Their full name and address is as follows:

  Highland Equipment Rental
  P.O. Box 60
  West Nyack, NY 10994

- ***LandMetrics Engineering and Surveying PC,*** a subsidiary specializing in land surveys and related consulting. LandMetrics provides specialized surveys and design support that few surveyors can offer because it also has the full support of a large engineering firm.

  LandMetrics Engineering and Surveying PC
  100 Snake Hill Road
  West Nyack, NY 10994

Section H
QA/QC Plan

QUALITY CONTROL REVIEW PROCESS

McLaren has an established a Quality Control program within the firm (since 1985) that strives for quality in the constructed project. We have designed many controls in our office that allow for quality reviews at many stages throughout the life of a project in order to bring the best design to our clients. We pride ourselves in ensuring that our project timetables are met without sacrificing project quality.

Quality Control is an important function, and its implementation will be integrated into the overall project in such a manner as to cause the least disruption to the schedule flow, while ensuring that each element received through inspection for adherence to design criteria, while meeting your objectives. Senior-level personnel will be made available to review all work elements and to ensure a consistency of product along with the accuracy, completeness, and constructability required to successfully execute the project.

Our quality control procedures include the implementation of corrective action and a readily available paper trail to record and document all actions. The Program continually defines, reviews and augments the process encompassing all aspects of the operation. McLaren is committed to strict adherence to quality control, and aided by our new project management system, will meet PANYNJ requirements to ensure the successful outcome of any task assigned during this Term Agreement.

McLaren has a history of providing high quality products to its clients, both public and private. In fact, in our 31 years in business, we have developed hundreds of designs that were followed in the development of the technical products. Major elements of the design process generally includes the following:

- Formal kick-off meetings to fully define task requirements, input from client, technical approach, schedule and milestones, deliverables, risk areas, funding and personnel resources.
- Proper briefing of personnel prior to task initiation to ensure that they fully understand the scope of what they've been assigned and can accomplish the work in the hours allocated.
- Periodic reviews by line supervisors to ensure that the work is proceeding on schedule and within cost.
- Interim technical reviews at key milestones to assess quality, progress, identify problems, and define workarounds as required.
- Allocation of adequate time for checking by the Programming Manager as well as incorporating corrections and comments prior to issue to the client.
- Categorization of errors and statistical process techniques are used to identify and correct technical problems and to provide feedback to designers and engineers to minimize errors.

- Adherence to established requirements for senior management review and sign off. Project staff meetings are held approximately every Monday at 12:00 Noon to review project technical status as well as man-hour/cost expenditure and schedule status. The project review meeting is followed by a Quality Assurance meeting, chaired by the President and attended by the Director of Quality Assurance, Programming Manager, Project Managers and technical and Non-Technical Division heads and or their assistants. At this session various quality related matters are discussed. This may include: results of quality assurance checks, design deficiencies, revisions to various rules, regulations and standards that have impact on our work. The quality issues discussed at the meetings are tracked until they are satisfactorily resolved.

McLaren strives to produce the highest quality of technical products and continues to forge ahead in the quest to provide consistently high quality products to its clients. Our revised Project Management and Quality Control plans will enable us to extend the work ethic that the PANYNJ deserves.

Section I
No Conflict of Interest

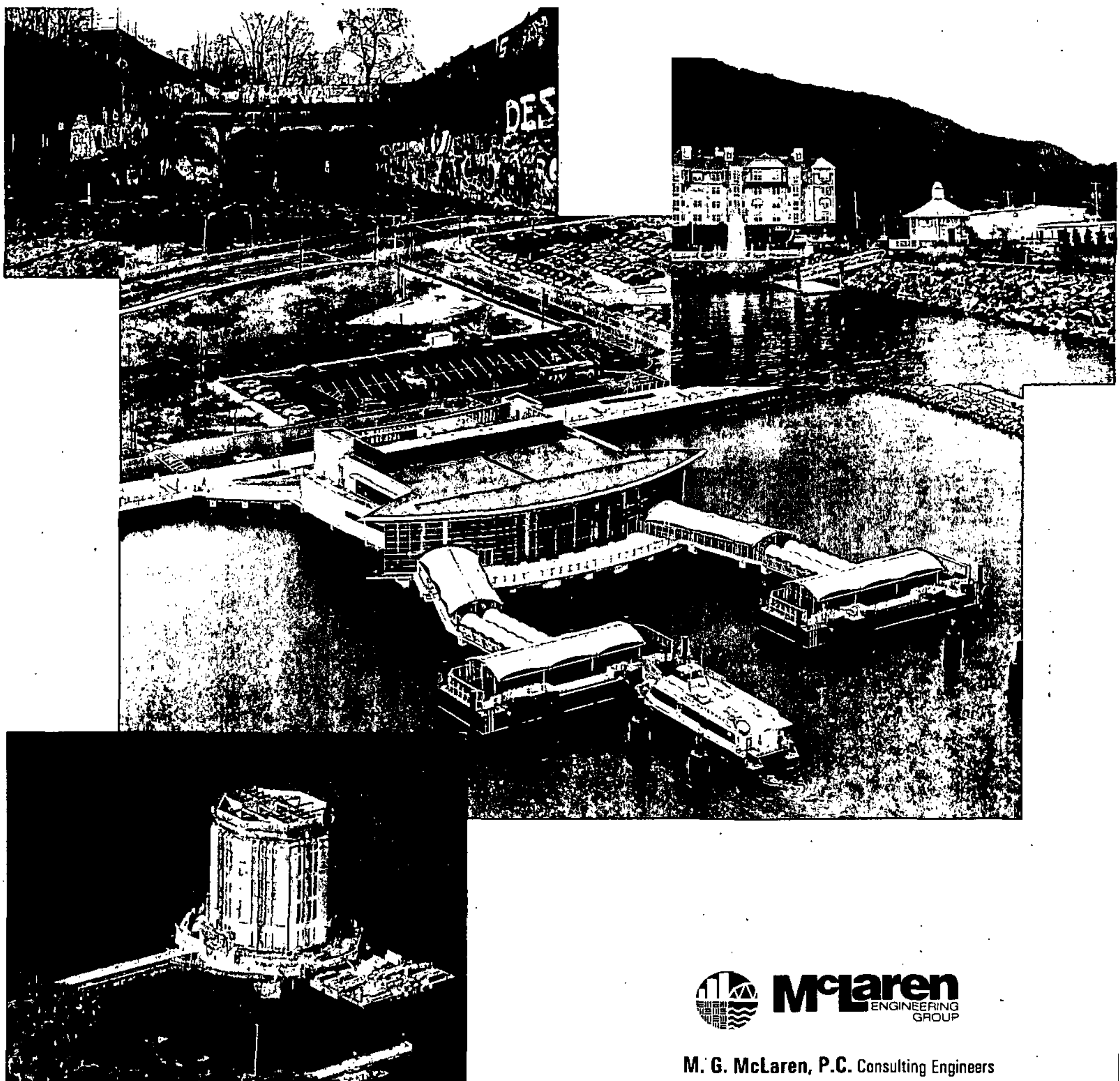
Section I
No Conflict of Interest

There exists No Conflict of Interest or an appearance of a possible Conflict of Interest relative to McLaren Engineering Group and our performance of work on this "Call-In" Waterfront Facility Condition Surveys Contract.

Section J
No Exceptions

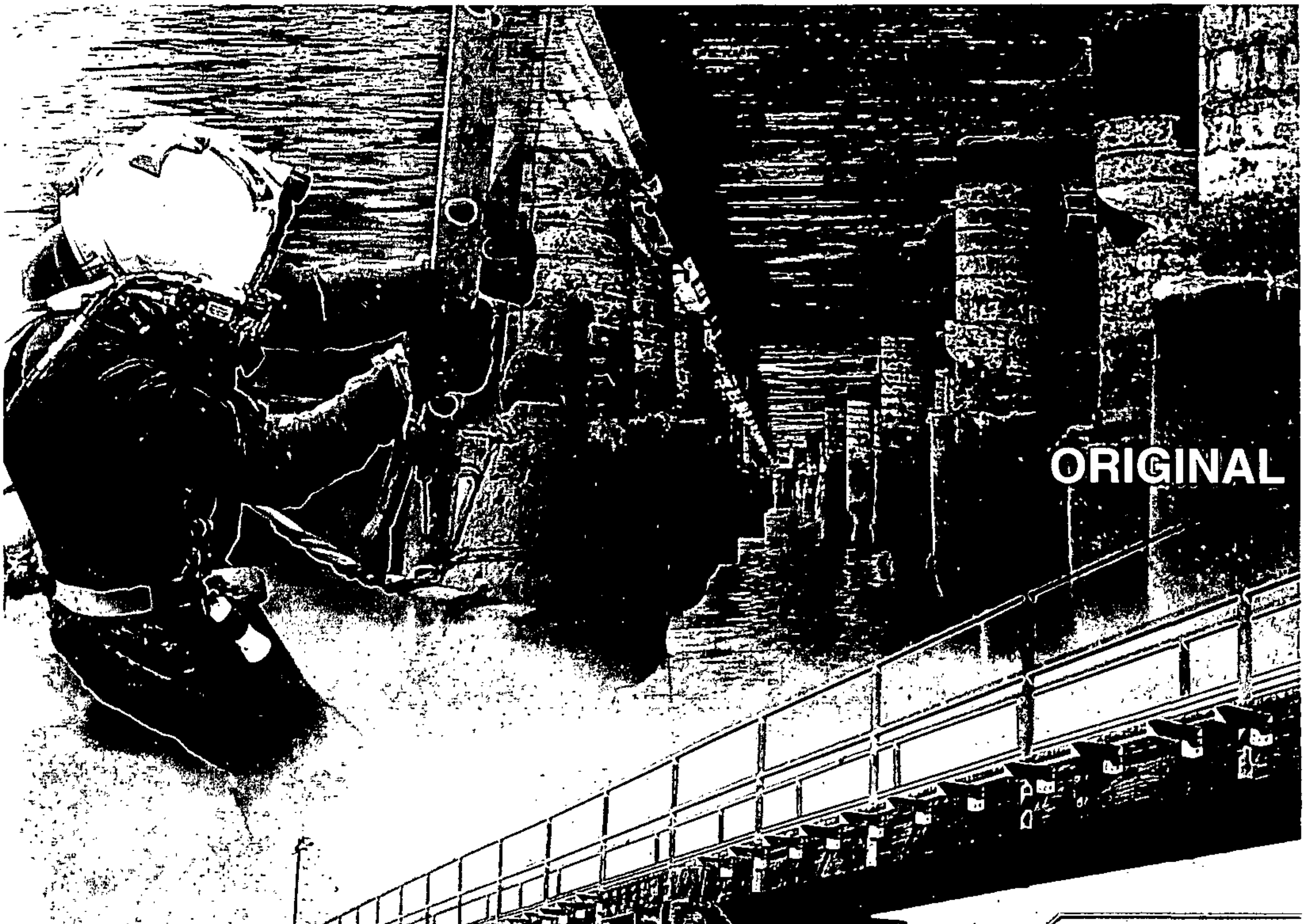
Section J
No Exceptions

McLaren Engineering Group has performed a cursory review of the contract terms and conditions and at this time have no exceptions based on the said review.



McLaren
ENGINEERING GROUP

M. G. McLaren, P.C. Consulting Engineers
100 Snake Hill Road West Nyack, N.Y. 10994
(845) 353-6400 Fax. (845) 353-6509
Contact: William McCarthy



ORIGINAL

October 9, 2008

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

RFP#: 16560

Presented to

THE PORT AUTHORITY OF NY & NJ

moffatt & nichol

Moffatt & Nichol

104 West 40th Street
14th Floor
New York, New York 10018

(212) 768-7454
Fax (212) 768-7936

October 8, 2008

The Port Authority of New York and New Jersey
One Madison Avenue, 7th floor
New York, NY 10010

Attention: RFP Custodian

Subject: Request for Proposals for the Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities As Requested on a "Call-In" Basis During 2009 – RFP No. 16560

Dear Sir/Madam:

Moffatt & Nichol is pleased to submit the enclosed proposal to provide Expert Professional Facility Condition Surveys for Waterfront Facilities to the Engineering Department of the Port Authority of New York and New Jersey. We are very interested in this potential "call-in" basis contract and have assembled a highly qualified team in pursuit of same.

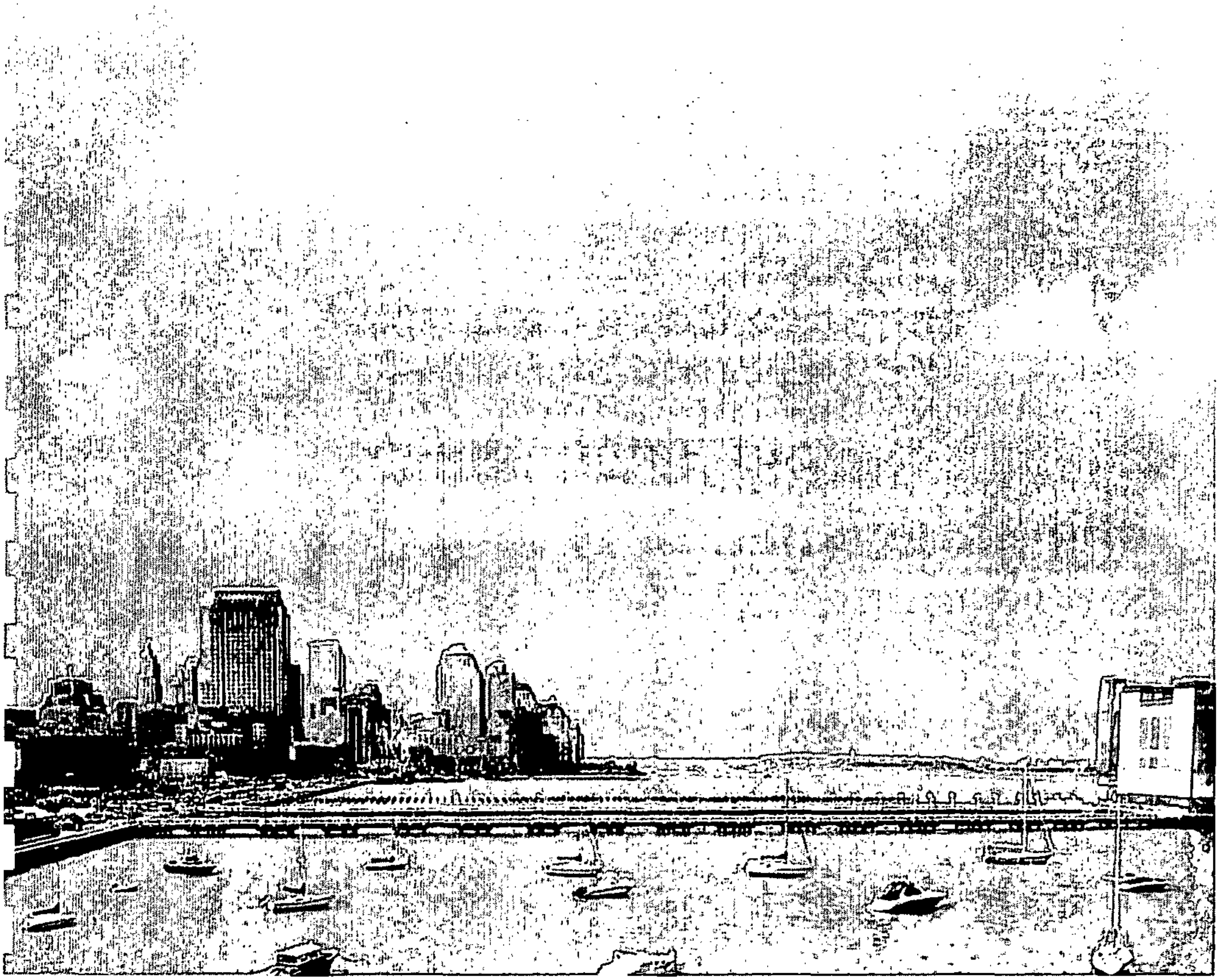
We thank you for the opportunity to submit our proposal and look forward to continuing to work successfully with the Engineering Department. As always, Moffatt & Nichol stands ready to provide the Port Authority of New York and New Jersey with the highest quality of professional services.

Sincerely Yours,
Moffatt & Nichol

Gregory R. Margeson, P.E.
Principal-in-Charge

Enclosures

A. Agreement on Terms of Discussion



A. Agreement on Terms of Discussion

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefore (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

MOFFATT & NICHOL
NAME OF COMPANY

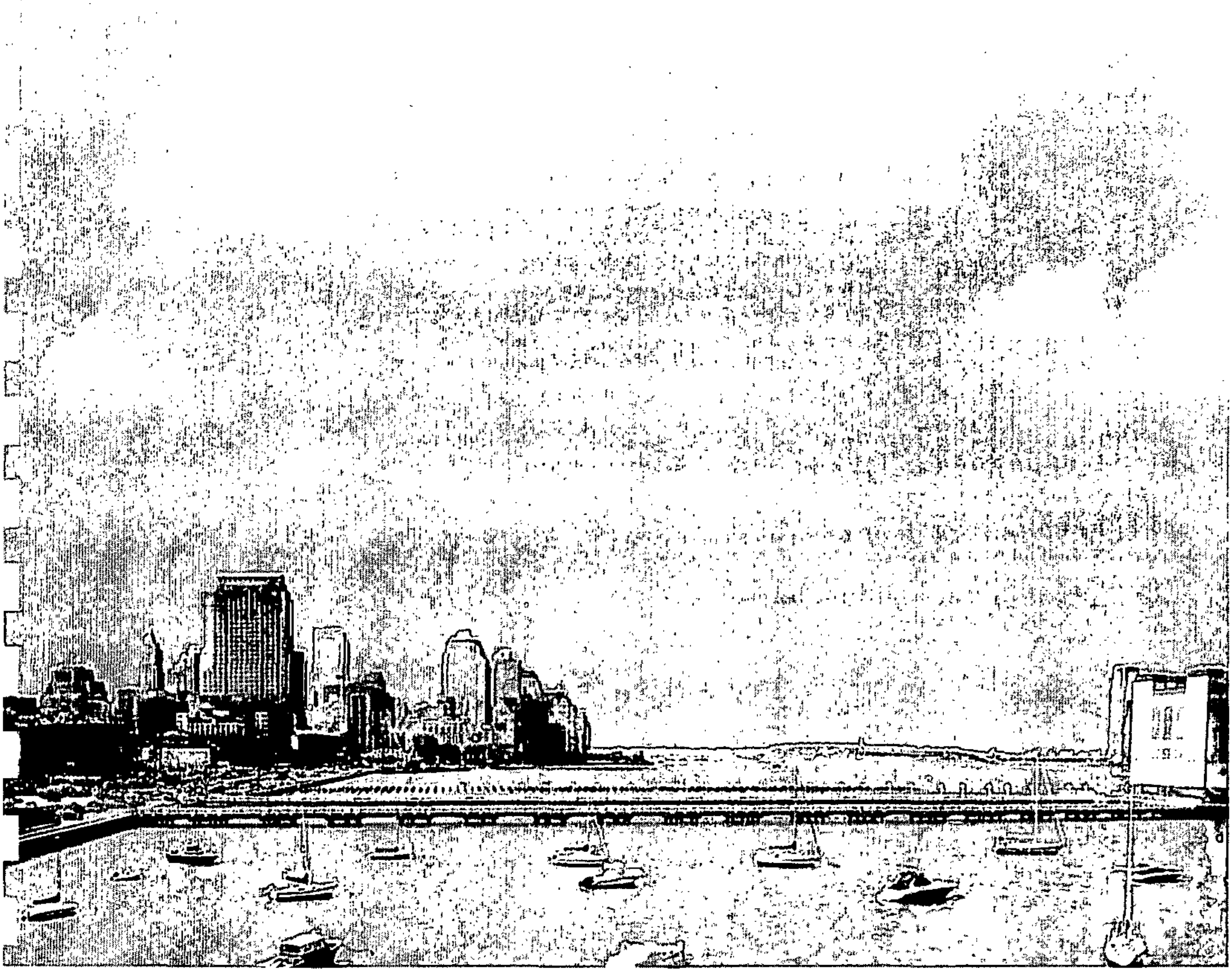
SIGNATURE OF OFFICER

Gregory R. Margeson, PE
PRINT NAME OF OFFICER

Principal-in Charge
TITLE

October 8, 2008
DATE

B. Multiplier

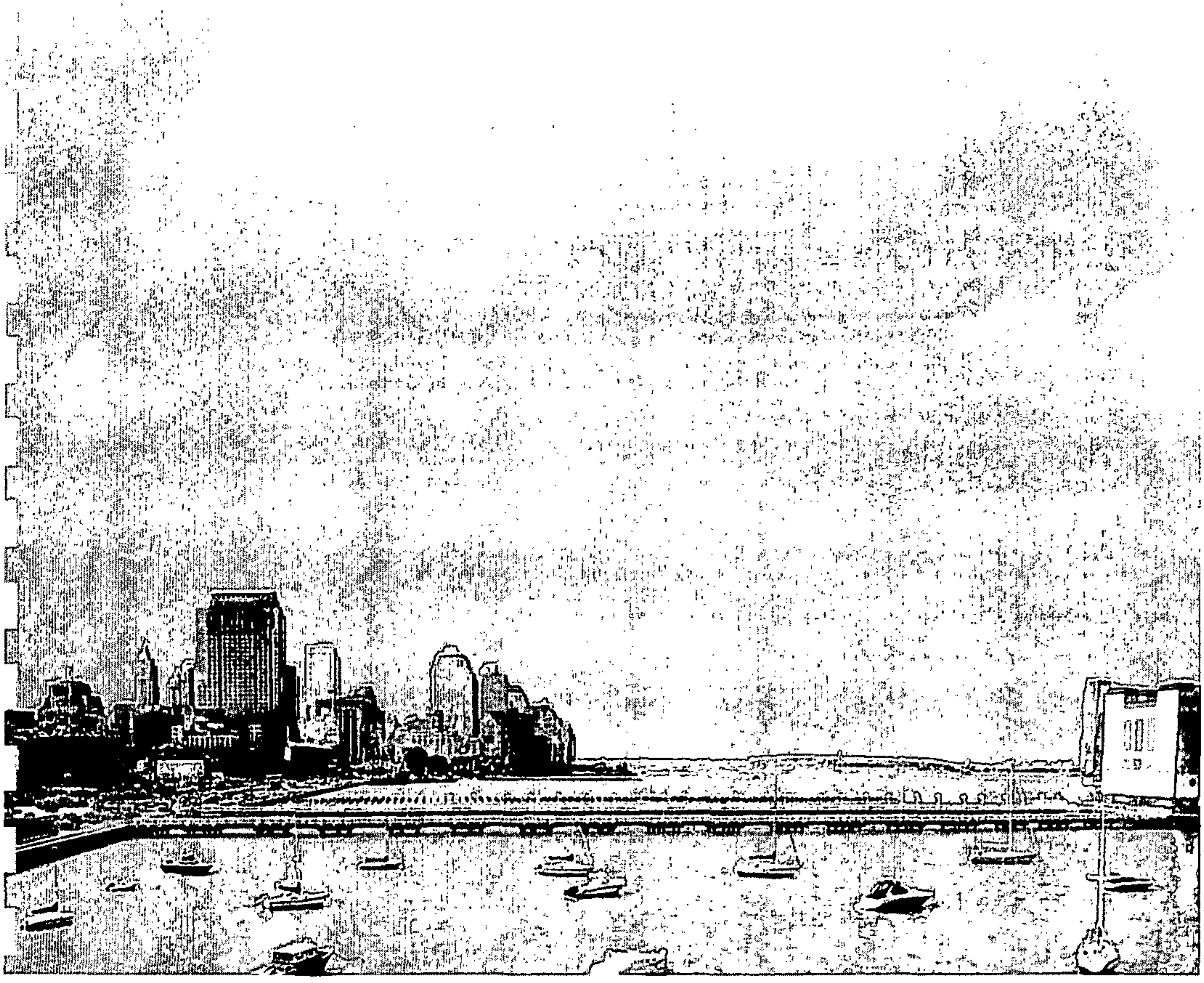


B. Financial Data / Mulipliers

1. Moffatt & Nichol "Standard Multiplier" – 2.79
(To be used in the first line of subparagraph 8.A of the Standard Agreement)

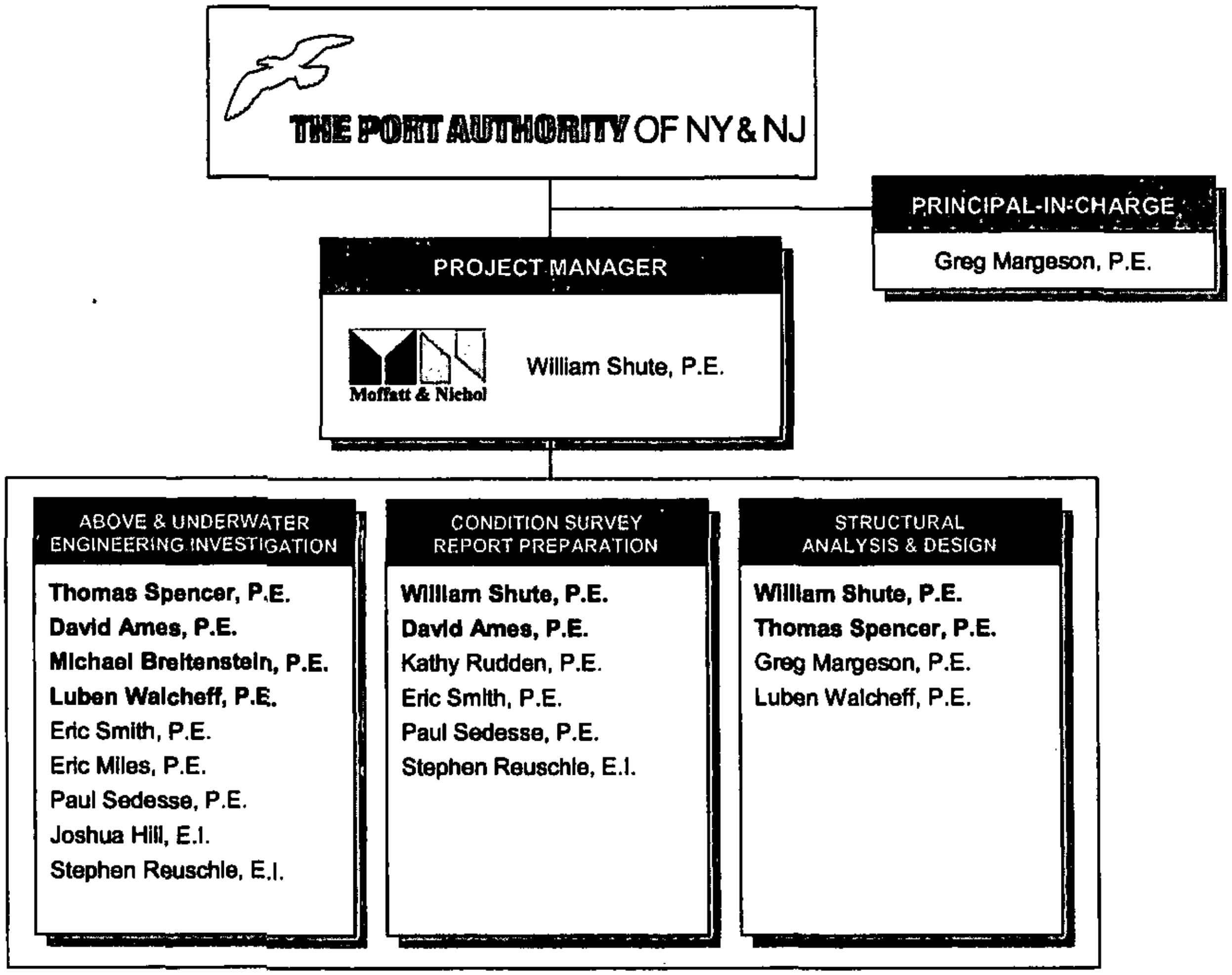
Breakdown		***49.95%***
	Fringe Benefit Rate	
(Vacation, sick, holiday)	(17.10%)	
(Workers Comp)	(1.00%)	
(Payroll Taxes)	(11.90%)	
(Other Fringe Costs)	(19.95%)	
		134.16%
General Overhead		
Rent	(18.70%)	
Insurance	(03.90%)	
Indirect Labor	(52.00%)	
Other G&A Overhead	(59.56%)	
Total Overhead		***184.11%***
Discount for PANYNJ		***(30.00%)***
Discounted Overhead		***154.11%***
Profit		***10.00%***
Total Multiplier		**2.79**

C. Resume



C. Resumes

Moffatt & Nichol proposes the following project team:



Note: **Bold** denotes team leader

The following pages contain the resumes of the staff members listed above.

GREGORY R. MARGESON, P.E.
Principal-in-Charge

EDUCATION:
M.S.E., Structural Engineering: University of Michigan, 1981
B.S.E., Civil Engineering: University of Michigan, 1981
B.S., Zoology: University of Michigan, 1978

EXPERIENCE:
Mr. Margeson is a Vice President at Moffatt & Nichol and is responsible for the operation of the New York office, as well as a Senior Structural Engineer. He has been responsible for planning, inspection, analysis, evaluation, design, and construction administration for new and repairs/renovation of existing waterfront structures including piers, wharves, bulkheads, floating/fixed docks and bridges throughout the United States. He offers more than 25 years of experience in planning, inspection, analysis, evaluation, design, and construction administration. As a certified diver, he has led field inspection teams in topside/underwater inspections of waterfront structures for a variety of recreational, industrial, commercial, and military sites. He is experienced in the application of various computer programs used to analyze structures, including analysis of fender pilings, moorings, piers, bulkheads, guide pile design for floating dock systems, and other marine structures. Mr. Margeson also serves as a Senior Cost Estimator, having completed numerous detailed cost estimates for waterfront projects.

Condition Survey Inspection of Brooklyn Piers 9A and 9B, Brooklyn, NY. Principal-in-Charge overseeing a cyclical condition survey of the underwater and above water elements of the Piers 9A and 9B at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of two pile supported piers and over 1,250 feet of shoreline bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete pile extensions, concrete decking, steel sheet pile, and mooring hardaware. As the Principal-in-Charge, Mr. Margeson oversaw all of the project operations and conducted the final Quality Assurance reviews of the Condition Assessment Report.

Condition Survey Inspection of Holland Tunnel Pier 34, New York, NY. Principal-in-Charge overseeing a cyclical condition survey of the underwater and above water elements of the Pier 34, located on the east bank of the Hudson River. The condition survey included inspection of two approach piers, protective apron around and façade of Holland Tunnel Ventilation Building and 250 feet of the shoreline bulkhead. Some of the elements inspected included steel pipe piles, precast concrete pile caps, prestressed concrete deck panels, fender assemblies, handrails, expansion joints, concrete encased steel girders and granite blocks. As the Principal-in-Charge, Mr. Margeson oversaw all of the project operations and conducted the final Quality Assurance reviews of the Condition Assessment Report.

Condition Survey Inspection of the LaGuardia Airport ILS Piers, Queens, NY. Principal-in-Charge for the inspection and conditional assessment of the LGA ILS Piers. Oversaw the supervision and coordination of all daily activities required to complete the above water and underwater inspections of the piers. As the Principal-in-Charge, Mr. Margeson oversaw all of the project operations and conducted the final Quality Assurance reviews of the Condition Assessment Report.

Condition Survey Inspection of Red Hook Wharves A, B, and B Extension (Pier 10) at the New York Marine Terminal, Brooklyn, NY. Principal-in-Charge and Project Manager overseeing a cyclical condition survey of the underwater and above water elements of the Wharves A, B, and B Extension at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of three wharfs and associated bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete deck, steel sheet pile bulkhead, and mooring hardaware. As the Project Manager and Principal-in-Charge, Mr. Margeson was involved in all of the day to day activities associated with the project.

Paulus Hook Ferry Pier & Terminal, Jersey City, NJ. Senior Structural Engineer for planning, design, construction documents, and construction support services to create a new ferry terminal comprised of new fixed and floating piers to support ferry service, private helistop, and support structure for the historic Colgate Clock. For the planning study, he developed multiple alternatives for the ferry pier including input as permit support. For the selected design alternative, provided design and construction documents for a 325-foot-long, steel pipe pile foundation, concrete superstructure ferry pier which included the guide pile system for floating ferry docks.

Port Newark Container Terminal, Berths 51-63, Port Newark, NJ. Provided QA/QC during design and construction document preparation for wharf and crane rail improvements as part of multi-million upgrade involving consolidating two existing terminals into a single 158-acre container terminal and deepening its berths to handle "beyond Post-Panamax" container vessels. Project involved repairs to the timber pile-supported ballasted deck structure (4,430-ft-long by 45-ft-wide) to restore damaged areas to original capacity of 500 psf as well as mooring/fendering systems upgrades necessary to accommodate larger vessels. Wharf restoration involved concrete repairs to front wall, pile caps, shear keys, and pile extensions as well as timber pile repairs accomplished by concrete encasement to strengthen areas weakened by marine borer attack.

Structural Inspection & Evaluation of Waterfront Facilities, USCG Station, Atlantic City, NJ. Lead Structural Engineer/Diver providing and directing subaerial and underwater inspection of all waterfront facilities including four steel sheet pile bulkheads, timber pier, concrete floating docks and guidepiles and a timber bulkhead. Provided structural evaluation of facilities, structure load ratings, problem identification and potential repair alternatives, and opinions of probable cost.

Structural Inspection & Evaluation of Waterfront Bulkheads, USCG Group Buffalo, NY. PM/Diver for subaerial/underwater inspection, structural analysis & evaluation, and development of conceptual designs for repair/replacement of waterfront timber and steel bulkheads. Provided inspection report describing conditions, structural analyses, & recommending repair/replacement.

51st Street Rail Yard Study, Brooklyn Waterfront Intermodal Improvements, Brooklyn, NY. Structural Engineer for topside/underwater condition inspection of 51st Street Float Bridge used by cross-harbor rail barge services. Steel float-bridge was found to be in a state of disrepair largely due to the age of the structure and apparent lack of maintenance. Provided condition assessment report, repair/ replacement alternatives with opinions of probable costs, and recommendations.

Structural Inspection & Evaluation of Waterfront Facilities, USCG Station, Wrightsville Beach, NC. Lead Structural Engineer/Diver for subaerial and underwater inspection of all waterfront facilities including concrete-faced steel sheet pile bulkhead, concrete pier, timber and concrete pier, floating dock and guide piles, fender piles, and two concrete retaining walls. Project includes structural evaluation of facilities, structure load ratings, problem identification, potential repair alternatives, and opinions of probable cost.

Moffatt & Nichol

WILLIAM M. SHUTE, P.E.
Project Manager

EDUCATION:
M.S., Engineering Management, Duke University, 2002
B.S., Civil Engineering, Bucknell University, 1996

EXPERIENCE:
Mr. Shute is a Senior Engineer and Project Manager with more than 10 years experience as a design engineer, project engineer, project manager, inspector, and owner's representative on various projects. He a part of the civil/structural department and has been involved in many multidisciplinary projects, directly interfacing with the company's coastal, and economics department, as well as with various clients and agencies. As Project Manager, Mr. Shute will be responsible for interfacing with the client, facilities, and managing the day to day activities of the internal staff. He will also periodically be onsite overseeing and directing the inspection team in order to ensure the condition assessments are properly completed.

Condition Survey Inspection of Brooklyn Piers 9A and 9B, Brooklyn, NY. Project Manager for the cyclical condition survey of the underwater and above water elements of the Piers 9A and 9B at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of two pile supported piers and over 1,250 feet of shoreline bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete pile extensions, concrete decking, steel sheet pile, and mooring hardaware. As the Project Manager, Mr. Shute coordinated all of the project operations. He also completed the topside and underdeck surveys, and authored the Condition Assessment Report.

Condition Survey Inspection of the LaGuardia Airport ILS Piers, Queens, NY. Project Manager for the inspection and conditional assessment of the LGA ILS Piers. Mr. Shute completed the coordination of all daily activities required to perform the above water and underwater inspections of the ILS piers. He also completed the topside and underdeck surveys, and authored the Condition Assessment Report.

Condition Survey Inspection of Holland Tunnel Pier 34, New York, NY. Project Manager supervising a cyclical condition survey of the underwater and above water elements of the Pier 34, located on the east bank of the Hudson River. The condition survey included inspection of two approach piers, protective apron around and façade of Holland Tunnel Ventilation Building and 250 feet of the shoreline bulkhead. Some of the elements inspected included steel pipe piles, precast concrete pile caps, prestressed concrete deck panels, fender assemblies, handrails, expansion joints, concrete encased steel girders and granite blocks. Supervised preparation of a condition assessment report which categorized inspection findings by both the extent of deterioration and priority of repairs and provided recommendations for the repair of the deteriorated structures.

East River Waterfront Esplanade and Piers Project, New York, NY. Project Manager supervising the planning, design, and construction document preparation for the waterfront elements of a $130 million waterfront park being constructed along a 2.2-mile-long section of the East River, in Lower Manhattan. Project components under consideration include widening Esplanade A, replacing Pier 15, adding a new, 100-slip marina near the Brooklyn Bridge, removing of a portion of Pier 36 to create a marine habitat, and modifying Pier 42 to an "urban beach". Mr. Shute serves as M&N's Project Manager providing project oversight, staff management, and day-to-day contact/

communication with the prime consultants and other members of the Joint Venture team, the NYC Economic Development Corporation, and Department of City Planning.

Marine Terminal Planning, Piers 7-9B, Brooklyn, NY. Project Manager for development of a conceptual planning study for Piers 7-9B in Brooklyn. Purpose of the study was to establish possible tenants at the facilities which would allow for the development of the facilities and preserve a maritime industrial presence at the site. Duties included the evaluation of the existing facilities, port planning, break-bulk cargo market studies, and economic evaluation of containerized cargo transportation between Port Newark and Red Hook.

Wharf Improvements, APM Container Terminal, Elizabeth, NJ. Project Engineer for installation of new container crane system and existing facility upgrades. Compiled design drawings, calculations, and permits required for Port Authority of New York and New Jersey project approval and to solicit bids from various contractors.

Port Newark Container Terminal Development, Port Newark, NJ. Resident Engineer/Inspector located onsite for the construction of a 15-acre, $16 million dollar, extension to the Port Newark Container Terminal. Daily activities included oversight of the Contractor, controlled construction inspections, design reviews and approvals, and interfacing with the Owner, and Port Authority of New York and New Jersey.

Condition Survey Inspection of the LaGuardia Airport Runway Extensions, La Guardia Airport Inspection, New York, NY. Team Leader/Project Engineer for the inspection and conditional assessment of the runway extensions. Duties included the supervision and coordination of all daily activities required to complete the above water and underwater inspections of the runway structures and associated piers. Mr. Shute personally completed the topside and underdeck inspections, and authored the comprehensive report and presentation of the inspection findings for the Port Authority of New York and New Jersey.

Inspection of West Midtown Ferry Mooring Towers and Ferry Floats, New York, NY. Inspector for ferry Mooring towers and floats for the Economic Development Corporation in New York City. Completed various inspection visits to multiple shipyards and fabrication facilities to document the construction evolution of the mooring towers and finger floats which are to be utilized to create a ferry terminal at Pier 79 on the Hudson River.

Rehabilitation of Berths 1-12 at Norfolk Naval Shipyard, Norfolk, VA. Project Engineer for the development of a Conceptual Design Report for rehabilitation of Berths 1-12 at the Norfolk Naval Shipyard in Norfolk, VA. Calculated, through the use of multiple structural analysis procedures, the existing capacity of various wharf structures. Analysis topics included anchored bulkhead design, pile foundation design, as well as concrete and steel design. Created multiple conceptual designs for both the abandonment and renovation of the wharves. Documented all analyses in a comprehensive calculation package and conceptual design report. Interfaced with the Client on a regular basis

Khalifa Port and Industrial Zone Master Plan, Abu Dhabi, UAE. Deputy Task Manager for the creation of a Port Master Plan, for a new major port facility in Al Taweelah, Abu Dhabi, in the United Arab Emirates. Scope of work includes the development of a new port and industrial zone free zone in a currently undeveloped portion of coastline in Abu Dhabi. Responsibilities ranged from assisting in the creation of the project proposal through delivery of a Port Master Plan. Completed conceptual analyses to support facility layout, berthing requirements, material handling, dredging and reclamation, and various other port planning activities. Completed a site investigation.

Moffatt & Nichol

THOMAS E. SPENCER, S.E., P.E.
Principal-in-Charge/Senior Diver

EDUCATION:
B.S., Civil Engineering, Oregon State University, 1981

EXPERIENCE:
Mr. Spencer is a Senior Structural Engineer with more than 27 years of experience in planning, inspection, analysis, design, construction document preparation, post-construction-award services, and litigation support for structural and civil engineering projects. His structural engineering experience has included marine and waterfront structures, bridges, buildings, and other structures; civil engineering experience has included civil site work, utilities, retaining structures, and storage tanks. Typical marine and waterfront structures have encompassed piers, wharves, bulkheads, drydocks, bridges, breakwaters, seawalls, revetments, fender systems, and reservoirs. Through work on these structure types he has experience with a range of structural materials – timber, steel, concrete, masonry, composites, rock, and soils – and many client types from government (federal, state, and local) through a variety of private entities including other professional services firms.

In particular, Mr. Spencer provides detailed knowledge and familiarity with topside and underwater inspection of structures having conducted extensive investigations of concrete, steel, and timber structures in marine and landside environments. This experience has provided him with intimate knowledge about the deterioration of cementitious materials including alkali-silica reaction, sulfate attack, delayed ettringite formation and corrosion and, combined with his publications on the subject, has earned him a nationwide reputation as a specialist in the performance and response of concrete structures in the marine environment. He is also a contributing author to the American Society of Civil Engineers Manual 101 "Underwater Investigations Standard Practice Manual".

Indefinite Delivery/Indefinite Quantity Contract for Underwater Inspection & Assessment of Waterfront Structures, U.S. Navy Worldwide. Project manager/engineer for numerous above/underwater inspection delivery orders for naval facilities located on the U.S. West Coast, Hawaii, Japan and Indian Ocean. Following report preparation, many of the tasks evolved into design of facility repairs.

Indefinite Delivery/Indefinite Quantity Contract for Waterfront Construction and Repairs, U.S. Navy, Southern CA. Project manager/engineer for a wide variety of marine structure projects including concrete pier, wharf and quaywall rehabilitation; above/below water inspection; hydrographic surveying and dredging; development of design-build solicitation packages; structure load capacity studies; and miscellaneous delivery orders.

Topside/Underwater Inspection & AIRIS Database Implementation, Port of Los Angeles, CA. Project manager/engineer/diver for multi-year inspection contract involving inspection and repair for 13+ miles of wharves operated by the Port of Los Angeles. Tasks included above and below water inspection; preparation of concrete repair documents; and implementation of AIRIS automated inspection and repair database.

Emergency Repairs, Ammunition Pier, Naval Magazine Indian Island, Port Hadlock, WA. Project manager/engineer/diver for replacement of ettringite-damaged piles involving underwater inspection, reports, extraction of cores (for petrographic analysis & scanning electron microscopy), preparation of construction documents, and construction inspection.

Inspection & Assessment, Admiral Clarey Bridge, Ford Island, Pearl Harbor, HI. Principal engineer diver leading engineering assessment of major bridge structure in accordance with FHWA "Safety Inspection of In-Service Bridges" guidelines. Assessment included sampling and laboratory testing of damaged concrete piles and development of repair/replacement strategies.

As-Needed Marine Structural Engineering Services, 2004-07, San Diego, CA. Project manager and chief consultant for multidiscipline services contract involving studies, repairs, and inspections of piers, wharves, and other marine facilities.

A partial list of projects Mr. Spencer has been responsible for include the following:

- **Investigation of the Ford Island Bridge, Pearl Harbor, HI.**
- **Special Facility Condition Assessment Program (S-FACP) – Naval Facilities Engineering Command, Washington, D.C.**
- **Rye Canyon Drive Retaining Wall Investigation – Las Vegas, NV**
- **Bulkhead Investigation – Pier 5002, Naval Submarine Base, San Diego, CA.**
- **Oceanside Marina Inn Building Rehabilitation, Oceanside, CA.**
- **Fremont Hotel and Casino Parking Garage Evaluation, Las Vegas, NV.**
- **Harvest HOA v. Western Pacific Housing, Temecula, CA.**
- **Mooring hardaware Analysis – U. S. Navy Fueling Facilities, Yokosuka and Sasebo, Japan.**
- **Expansion Planning and Analysis – U. S. Navy Deep Draft Wharf, Diego Garcia, British Indian Ocean Territories.**
- **British Petroleum Long Beach Facility Audit – Marine Oil Terminal Engineering Maintenance Standards, CA State Lands Commission.**
- **Investigation and Design of Repairs, Explosive Handling Wharf, Bangor, Washington.**
- **Investigation and Design of Repairs, Ammunition Pier, Port Hadlock, Washington.**
- **Olen V. Jones Litigation – Desert Club, Las Vegas, NV.**
- **Seawall Repair and Berth Deepening, 10th Avenue Marine Terminal Seawall, San Diego Unified Port District, San Diego, CA.**
- **Underwater Bridge Inspections, Washington State Department of Transportation, Olympia, WA.**
- **Underwater Inspection and Assessments Worldwide, Naval Facilities Engineering Service Center, East Coast Detachment**
- **Repair Fender Systems Piers 1, 2, 5, 6, 8 and 10, Naval Station, San Diego, CA.**
- **Repair Fender Systems Piers 5000, 5002 and 5003, Naval Submarine Base, San Diego, CA.**
- **Repair Fueling Pier 180, Fleet Industrial Supply Center Point Loma, CA.**
- **Palomar Hospital - Parking Garage, Escondido, CA.**
- **Institute of the Americas, University of CA, San Diego, CA.**
- **Surveys and reports of structural damage to buildings from January 17, 1994 Northridge**
- **Earthquake, State Farm Insurance.**
- **P-600 Operational Training Facility, Naval Air Station North Island, San Diego, CA.**
- **Washington Inventory Services, San Diego, CA.**
- **St. John's Plaza, San Diego, CA.**
- **Orchard Avenue, Oceanfront Stairs, San Diego, CA.**
- **Old Market Place, Encinitas, CA.**
- **Classified Materials Issuing Office, San Diego, CA.**
- **Rebuild Pier 5, Naval Station, San Diego, CA.**
- **Rebuild Pier 1, Naval Station, San Diego, CA.**

Moffatt & Nichol

DAVID C. AMES, P.E.
Senior Diver / Engineer

EDUCATION:
M.S., Civil/Environmental Engineering, Cornell University, 1995
B.S., Civil Engineering, Cornell University, 1991
Surface-Supplied Commercial Diver Training, Santa Barbara City College, 1996

EXPERIENCE:
Mr. Ames provides more than fifteen years of experience as a civil/environmental engineer, construction manager, marine structural designer and regional office manager in civil/marine engineering practice. This experience includes performing field investigations, design engineering, and project management for a variety of marine environment and related engineering projects. He has directed projects involving commercial and military marine terminals, waterfront rehabilitation, port and harbor development, and coastal/environmental surveys. His specific areas of expertise include civil, structural, and coastal design, underwater inspection, and marine facilities construction management.

New York City Passenger Ship Terminal, New York, NY. Project Manager for the master planning and marine engineering design including repairs and upgrades to existing Piers 88 and 90 in Manhattan, and the development of an interim cruise terminal facility at Pier 12 in Brooklyn. Master planning included development of construction alternatives, phasing concepts, and project costs. Design of the marine works included mooring analyses for independent breasting dolphins, pile repair details, and bulkhead replacement details.

Chevron-Texaco Asphalt Refinery, Perth Amboy, NJ. Project Manager for design and construction supervision of repairs to tanker and barge berthing facilities. The primary challenge of the project was to allow continued berth operation during construction. Both facilities were severely compromised due to advanced deterioration of steel piles, sheeting, and braces.

Port Newark Container Terminal, Newark, NJ. Program Manager/Client's Representative for this $87 million rehabilitation project which involved deepening of seven berths through the upgrade of quay wall structures and harbor dredging, demolition and reconstruction of terminal surfaces, upgrades of high-mast lighting and electrical systems, installation of closed-circuit security camera systems, construction of new terminal administration and maintenance buildings, and reconfiguration of the storm drainage system. Terminal operations continued throughout the construction process; therefore, a vital component of project management was the coordination of construction efforts with those ongoing operations.

Pier 3, Naval Weapons Station Earle, NJ. Project Engineer for inspection and design of repairs. The detailed above/underwater inspection included extensive testing of timber piles for marine borer infestation and structural deterioration. Such tests were typically accomplished with core-drilling techniques intended to determine the presence of teredo below the pile surfaces.

Repair to Port Facilities, Port of Salalah, Oman. Project Manager and Resident Engineer for construction of repairs to various conventional port facilities including, for example, refurbishment of 600 meters of deteriorated concrete quay wall, temporary emergency repairs to the damaged breakwater, and rehabilitation of the concrete loading platforms at the existing Oil Jetty.

MICHAEL E. BREITENSTEIN, P.E.
Senior Diver / Engineer

EDUCATION:
M.S.C.E., Civil Engineering (Construction Management): University of California, Berkeley, 1979
B.S.C.E., Civil Engineering: University of California, Berkeley, 1978

EXPERIENCE:
Mr. Breitenstein provides more than 27 years of civil engineering and construction experience acquired on a wide variety of waterfront projects, including industrial, commercial, public works, and environmental projects. His responsibilities have included quality assurance program management, detailed condition assessment of existing structures, field/shop inspections, development of special testing programs and procedures, feasibility studies, civil/structural design, quality and constructability reviews, permit processing, handling claims and arbitration processes, and providing expert testimony. Mr. Breitenstein has completed topside and underwater structural inspections of waterfront structures in a wide variety of environmental conditions including cold water, low visibility, and fast current. In 2005, he attended a 120-hour commercial dive training class to become familiar with surface-supplied, hard hat diving. This course involved classroom, pool, and field instruction and practice in the safe use of surface-supplied diving as well as certification in the use of Nitrox gas for diving.

Pier and Wharf Condition Assessments, Miscellaneous Locations. Team leader on detailed inspections of existing pile-supported and bulkhead facilities, including underwater inspections. Dive Supervisor for surface supplied air and scuba dive teams. Inspected substructure, deck, and superstructure elements. Performed non-destructive testing of concrete, wooden and steel structural members. Surveyed sites and adjacent areas, and researched original construction documents. Used testing and sampling tools including concrete and wood coring machines, ultrasonic thickness testers, Galvapulse, Bathycorrometer, pachometer, Schmidt Hammer, underwater camera systems, etc. Produced reports and drawings detailing existing conditions and evaluating repair alternatives. Produced proposals for repairs/rehabilitation including preliminary design drawings, specifications, cost estimates, and constructability reviews. Facilities assessed include:

- **Holland Tunnel Protective Pier 34 – Access Piers, New York, NY**
- **Brooklyn Piers 9A and 9B – Multiuse Terminal, Brooklyn, NY**
- **Red Hook Terminal – Container terminal, Brooklyn, NY**
- **Alameda Landing – Commercial wharf, Alameda, CA**
- **Kilo Wharf – US Naval Munitions Dock, Apra Harbor, Guam**
- **Port of Long Beach Piers E and D – Container and Bulk Handling facilities, Long Beach CA**
- **Chevron Long Wharf – Chevron Products Co. Marine Oil Terminal, Richmond, CA**
- **Port of Hueneme – Commercial wharves, Hueneme, CA**
- **Broadway Pier – Commercial wharf, San Diego, CA**
- **THUMS Islands Ferry Structures – Oil production facilities islands, Long Beach CA**
- **Kinder Morgan Potash Handling Facilities – Berth 503, Port of Portland, OR**
- **Santa Monica Public Pier – Santa Monica, CA**
- **Santa Cruz Wharf – Municipal wharf, Santa Cruz, CA**
- **Capitola Wharf – Municipal wharf, Capitola, CA**
- **Port of San Francisco Pier 1, Pier 80, and Pier 15/17 – Commercial Piers, San Francisco, CA**

Moffatt & Nichol

Luben Walcheff, P.E.
Senior Diver / Engineer

EDUCATION:
B.S., Structural Engineering, University of California at San Diego, 1989
B.A., Aquatic Biology, University of California at Santa Barbara, 1979

EXPERIENCE:
Mr. Walcheff combines commercial diving experience with B.S. degrees in structural engineering and aquatic biology. His experience involves above and below water inspection and design of repairs for a wide range of marine waterfront facilities including piers, wharves, quaywalls, bridges, oil platforms, fender systems, floating docks, and other miscellaneous structures. Mr. Walcheff holds numerous diving certifications including certification as a commercial diver in the U.S. and U.K. He is qualified as an Inspection Team Leader in accordance with Section 3.4.2 "Manual for Condition Evaluation of Bridges" American Association of State Highway Transportation Officials.

Condition Survey Inspection of Brooklyn Piers 9A and 9B, Brooklyn, NY. Underwater inspector and dive supervisor who completed a cyclical condition survey of the underwater and above water elements of the Piers 9A and 9B at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of two pile supported piers and over 1,250 feet of shoreline bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete pile extensions, concrete decking, steel sheet pile, and mooring hardaware.

US Navy N68711-01-D-3017 IDIQ Contract – Waterfront Construction and Repairs SWDIV. Project Engineer diver for numerous marine structure projects including concrete pier, wharf and quaywall rehabilitation; above and below water inspection; hydrographic surveying and dredging; development of design-build solicitation packages; structure load capacity studies; and miscellaneous delivery orders.

Inspection and Engineering Evaluation Services, Port of Los Angeles, CA. Project Engineer for multi-year inspection and repair contract involving more than 13 miles of war was operated by the Port of Los Angeles. Tasks included above and below under inspection; preparation of concrete repair documents; and an implementation of automated inspection and repair database (AIRIS).

US Navy N62473-0 6-D-3006 IDIQ Contract – Underwater Inspection and Assessment, NAVFACENGSERCTR Worldwide. Project Engineer diver for numerous above and below water inspection delivery orders for marine waterfront facilities located worldwide. Following report preparation and submittal, many of the tasks evolved into design of repairs for the facilities.

US Navy N62473-0 6-D-1008 IDIQ Contract – Waterfront Construction and Repairs SWDIV. Project Engineer diver for numerous marine structure projects including concrete pier, wharf and quaywall rehabilitation; above and below water inspection; hydrographic surveying and dredging; development of design-build solicitation packages; structure load capacity studies; and miscellaneous delivery orders.

Emergency Repairs of Ammunition Pier, Naval Weapons Station Port Hadlock, WA. Project Engineer diver for a series of inspection and repair projects for strategic northwest facility. These projects included above and below water inspection and video; extraction of concrete cones for petrographic analysis; reports; preparation of construction documents; and construction contract support services.

Moffatt & Nichol

ERIC D. SMITH, P.E.
Diver / Engineer

EDUCATION:
M.S.E., Naval Architecture and Marine Engineering, University of Michigan, 1997
B.S. Civil Engineering, Purdue University, 1996

EXPERIENCE:
Mr. Smith has provided marine engineering, underwater inspection, and coastal engineering services for a variety of projects. Mr. Smith has been trained in SCUBA and Surface Supplied Air, as well as underwater inspection techniques and technologies and routinely provides underwater/topside inspection of waterfront facilities. He has inspected a wide range of timber, concrete, and steel structures including bulkheads, piles, mooring buoys, and offshore structures as well as in the deployment of wave and current meters. This experience has involved a wide range of environmental conditions including cold water, low visibility, and fast currents.

Condition Survey Inspection of Brooklyn Piers 9A and 9B, Brooklyn, NY. Underwater inspector who completed a cyclical condition survey of the underwater and above water elements of the Piers 9A and 9B at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of two pile supported piers and over 1,250 feet of shoreline bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete pile extensions, concrete decking, steel sheet pile, and mooring hardaware.

Condition Survey Inspection of Holland Tunnel Pier 34, New York, NY. Performed the underwater inspection of Pier 34, located on the east bank of the Hudson River. The condition survey included inspection of two approach piers, protective apron around and façade of Holland Tunnel Ventilation Building and 250 feet of the shoreline bulkhead. Some of the elements inspected included steel pipe piles, precast concrete pile caps, prestressed concrete deck panels, fender assemblies, handrails, expansion joints, concrete encased steel girders and granite blocks.

Post-Incident Inspection of Ambrose Light Tower, Offshore New York/New Jersey. Diver/Engineer for inspection of damage to the Ambrose Light Tower following a vessel collision incident with the tower. The offshore light tower marks the entrance to New York Harbor's Ambrose Channel in 70-feet of water as well as serving as a NOAA weather station. Performed Level 1 inspection of damage to the jacket structure of the tower. Provided condition assessment report, structural analyses, and estimates for repair.

Structural Inspection & Evaluation of Waterfront Bulkheads, USCG Group Buffalo, NY. Coastal Engineer/Diver for subaerial/underwater inspection, structural analysis/evaluation, and development of conceptual designs for repair/replacement of waterfront timber and steel bulkheads. Provided inspection report detailing structure conditions, structural analyses, and recommending repair/replacement alternatives.

Facility Inspection Services, USCG, United States. Member of M&N's team of on-call diving inspection engineers for the US Coast Guard. Projects include underwater and topside inspections of piers, bulkheads, and wharves in Buffalo, NY; Port Huron, MI; Charleston, SC; and Portsmouth, VA. Provided emergency underwater inspection of the Ambrose Light tower, located offshore of Long Island in the Atlantic Ocean, after a passing vessel struck the tower.

ERIC E. MILES, P.E.
Diver / Engineer

EDUCATION:
B.S., Civil Engineering: University of Maryland, 2001

EXPERIENCE:
Mr. Miles has provided civil engineering services for port, coastal engineering, and more traditional civil engineering projects. His civil engineering experience has involved planning, inspection, analysis, permitting, design, construction document preparation, and/or post-construction-award services for civil site work, water resources, transportation, marinas, and shoreline/wetland restoration. In addition, Mr. Miles is a certified SCUBA diver who routinely participates in underwater inspection projects of nearshore structures for the company. In 2006, he attended a 120-hour-long commercial dive training class to become familiar with surface-supplied, hard hat diving. This course involved classroom, pool, and field instruction and practice in the safe use of surface-supplied diving as well as certification in the use of Nitrox gas for diving. Since attending that class, Mr. Miles has participated in underwater inspection projects utilizing surface-supplied diving.

Condition Survey Inspection of the LaGuardia Airport ILS Piers, Queens, NY. Mr. Miles performed the underwater inspection of the ILS piers at LaGuardia Airport. Inspection effort included a 100% visual and minimum of 10% hands-on inspection of steel pipe piles, timber piles, caps, and underdeck. Mr. Miles is also one of Moffatt and Nichol's certified boat operators.

Barge Unloading Pier Inspection & Evaluation, SemMaterials, Gloucester City, NJ. Provided underwater inspection using SCUBA of the piles supporting a portion of this petroleum unloading facility on the Delaware River to determine the structural condition of the main unloading platform and an associated barge breasting dolphin. Level I/Level II inspection was conducted utilizing pick penetrations on timber piles and ultrasonic measurements from the web/flange of the steel H-piles. Pile depths at the face of the platform and dolphin were ~35 feet.

Fruit Pier Reclamation and Site Improvements, South Locust Point Marine Terminal, Baltimore, MD. Topside Support Diver for a one-day-long, post-construction underwater inspection of shoreline protection for this 250-foot alongshore x 550-foot-wide slip, which was filled and reclaimed to provide more than three acres of new leaseable area for the port. Shoreline protection was comprised of an armor stone revetment placed along the 250-foot shoreline in water depths of 25 feet.

Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) Audit, Chevron Long Wharf, Richmond, CA. For two weeks, he was part of the inspection team that provided surface-supplied underwater structural inspection of the Chevron Long Wharf as part of determining its structural condition. As a diver, he provided Level I/Level II inspection of concrete piles and also served as boat operator during part of the two weeks.

Moffatt & Nichol

JOSHUA M. HILL, E.I.
Diver / Engineer

EDUCATION:
B.S., Civil Engineering: Old Dominion University, 2005

EXPERIENCE:
Mr. Hill joined M&N full time following graduation in 2005; prior to graduation, he had worked with the firm as a summer intern. During his time with M&N, Mr. Hill has spent a significant amount of time providing field investigations involving both topside and underwater inspection. This experience includes attending a 120-hr commercial dive training class in 2006 to become familiar with surface-supplied, hard hat diving. This course involved classroom, pool, and field instruction and practice in the safe use of surface-supplied diving as well as certification in the use of Nitrox gas for diving.

Condition Survey Inspection of Brooklyn Piers 9A and 9B, Brooklyn, NY. Underwater inspector who completed a cyclical condition survey of the underwater and above water elements of the Piers 9A and 9B at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of two pile supported piers and over 1,250 feet of shoreline bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete pile extensions, concrete decking, steel sheet pile, and mooring hardaware.

Condition Survey Inspection of the LaGuardia Airport ILS Piers, Queens, NY. Mr. Hill performed the underwater inspection of the ILS piers at LaGuardia Airport. Inspection effort included a 100% visual and minimum of 10% hands-on inspection of steel pipe piles, timber piles, caps, and underdeck.

Condition Survey Inspection of Holland Tunnel Pier 34, New York, NY. Performed the underwater inspection of Pier 34, located on the east bank of the Hudson River. The condition survey included inspection of two approach piers, protective apron around and façade of Holland Tunnel Ventilation Building and 250 feet of the shoreline bulkhead. Some of the elements inspected included steel pipe piles, precast concrete pile caps, prestressed concrete deck panels, fender assemblies, handrails, expansion joints, concrete encased steel girders and granite blocks.

Underwater Level I and Level II Bridge Inspections, Phase 1 City of Norfolk, VA. Project Manager for the underwater inspection of six bridges in the City of Norfolk. Assisted in taking detailed notes, soundings, and measurements regarding condition of structures and prepared an Underwater Bridge Inspection Report which included the condition assessment of the bridge, figures and photographs of the bridge, and the NBIS Rating of the bridge in its current condition.

Underwater Level I and Level II Bridge Inspections, Phase 2, City of Norfolk, VA. Project Manager for the underwater inspection of seven bridges in the City of Norfolk. Took detailed notes, soundings, and measurements regarding condition of structures and prepared an Underwater Bridge Inspection Report which included the condition assessment of the bridge, figures, and photographs of the bridge and the NBIS Rating of the bridge in its current condition.

VDOT Term Contract for Bridge Safety and Sign Structure Inspections for NOVA and Culpeper Districts, VA (2004-2005). Member of Inspection Team for four contract task orders to inspect bridges and more than 300 sign structures over major roadways and interstate highways in the Northern Virginia District. Performed structural inspection of ~50 sign structures and six bridge structures. Inspections were performed in accordance with VDOT and FHWA specifications.

Moffatt & Nichol

PAUL C. SEDESSE, JR., P.E.
Diver / Engineer

EDUCATION:
B.S., Structural Engineering: Pennsylvania State University, 2000

EXPERIENCE:
Mr. Sedesse has provided planning, evaluation, design, construction document preparation, and post-construction-award services for a variety of waterfront structure projects. This experience has included piers, wharves, bulkheads, fixed/floating docks and support pilings, and vessel mooring/fendering systems. During these projects, he has provided structural analysis using several state-of-the-art structural engineering computer programs and is comfortable familiar with their application. In addition, Mr. Sedesse routinely provides both topside and underwater inspection of waterfront structures. In 2005, he attended a 120-hour-long commercial dive training class to become familiar with surface-supplied, hard hat diving. This course involved classroom, pool, and field instruction and practice in the safe use of surface-supplied diving as well as certification in the use of Nitrox gas for diving.

Condition Survey Inspection of Brooklyn Piers 9A and 9B, Brooklyn, NY. Dive Team Leader who completed a cyclical condition survey of the underwater and above water elements of the Piers 9A and 9B at the New York Marine Terminal in Brooklyn, New York. The condition survey included inspection of two pile supported piers and over 1,250 feet of shoreline bulkhead. Some of the elements inspected included steel pipe piles, timber piles, concrete pile extensions, concrete decking, steel sheet pile, and mooring hardaware. Mr. Sedesse also assisted in the completion of the Condition Assessment Report.

Condition Survey Inspection of Holland Tunnel Pier 34, New York, NY. Performed the underwater inspection of Pier 34, located on the east bank of the Hudson River. The condition survey included inspection of two approach piers, protective apron around and façade of Holland Tunnel Ventilation Building and 250 feet of the shoreline bulkhead. Some of the elements inspected included steel pipe piles, precast concrete pile caps, prestressed concrete deck panels, fender assemblies, handrails, expansion joints, concrete encased steel girders and granite blocks.

Red Hook Marine Terminal, Brooklyn, NY. Utilizing Surface Supplied Air (SSA) equipment, he inspected a timber pile-supported concrete wharf and steel sheet pile bulkhead. The inspection included ultrasonic thickness measurements of steel bulkhead and underwater photography.

C.P. Crane Barge Pier, Baltimore, MD. Performed a condition inspection assessment of a timber pier (640-foot-long x 15-foot-wide) and timber mooring dolphins. Condition assessment involved both topside and underwater inspection. Inspection results were used to evaluate the pier's ability to handle mooring and berthing forces imposed by coal barges. The pier structure was analyzed using STAAD software and the dolphins were analyzed using the Florida Pier program. This project also includes the detailed design of necessary pier repair/improvements.

Union Wharf Bulkhead and Promenade, Baltimore, MD. Directed underwater inspection of 750 lf of existing waterfront structure including timber relieving platforms, steel and timber sheeting, and timber piers. Provided design for 650 lf of new steel sheet pile bulkhead utilizing three types of lateral support, including tension piles, tie rods and soil anchors, and a 3,000-sqaure-foot concrete pile-supported platform.

Moffatt & Nichol

STEPHEN R. REUSCHLE, E.I.
Diver / Engineer

EDUCATION:
B.S., Mechanical Engineering: North Carolina State University, 2005

EXPERIENCE:
He has assisted with project management and tracking, prepared plans for railway/highway grade crossings, reviewed construction documents and material lists. Mr. Reuschle attended a 120-hr commercial dive class to become familiar with surface-supplied, hard hat diving. This course involved classroom, pool, and field instruction and practice in the safe use of surface-supplied diving. He has also completed certification for the use of Nitrox when diving. Mr. Reuschle is also a Kirby Morgan Certified Maintenance & Repair Technician for Kirby Morgan diving helmets having completed their training course.

Condition Survey Inspection of the LaGuardia Airport ILS Piers, Queens, NY. Performed the underwater inspection of the ILS piers at LaGuardia Airport. Inspection effort included a 100% visual and minimum of 10% hands-on inspection of steel pipe piles, timber piles, caps, and underdeck.

Condition Survey Inspection of the Red Hook Marine Terminal, Brooklyn, NY. Utilizing Surface Supplied Air (SSA) equipment, he inspected a timber pile-supported concrete wharf and steel sheet pile bulkhead. The inspection included ultrasonic thickness measurements of steel bulkhead and underwater photography.

Throgs Neck Bridge Maintenance & Repair, New York, NY. Civil Engineer/Diver for underwater inspection of bridge protective systems – fender systems on the bridge towers, protective dolphins at abutments, and a fender system along the north abutment in an anchorage area. Tower fender systems were comprised of concrete-encased piles supporting steel framing attached to the tower and fronted by a timber fascia panels. Dolphins were three-pile timber dolphins. Northern abutment fender system comprised of three 12-pile dolphins connected by steel members fronted by timber fascia. Timber fascia was found to be in good condition while steel members were in poor condition.

Condition Survey, CITGO Terminal, Wilmington, NC. Following a vessel collision with the waterfront facilities, Mr. Reuschle provided a topside/underwater inspection of a scour unit platform and adjacent mooring dolphin. Scour platform was steel superstructure supported by steel H-piles and held a "turbine" that increased turbidity in its vicinity during tide flows and thereby decreased sedimentation. Dolphin superstructure was concrete supported by both steel pipe piles and concrete piles. Damage was limited to the scour unit platform's superstructure. Dolphin was found to be in typically bad condition primarily due to age.

British Petroleum Trunkline LNG Terminal, Lake Charles, LA. Provided underwater inspection of steel sheet pile bulkhead (1700 lf) including ultrasonic thickness measurements in ~25 ft of water to determine site suitability for future use. Sheet pile wall exhibited severe corrosion within the splash zone including several areas of complete section loss. Below the water surface, the bulkhead was in a serviceable condition given its 25 years of service.

Moffatt & Nichol

KATHY M. RUDDEN, P.E.
Senior Engineer

EDUCATION:
M.S., Civil Engineering, Manhattan College, May 2003
B.S., Civil Engineering, Manhattan College, May 2000

EXPERIENCE:
Ms. Kathy Rudden is a staff engineer who has served in a wide variety of roles during her time with M&N. She has experience in various aspects of civil and structural engineering, including marine structure design and rehabilitation, structure and site inspection, concrete and steel design, construction document preparation, and construction management. Ms. Rudden is proficient in many specialized engineering computer applications, including Staad/Pro and TERMSIM.

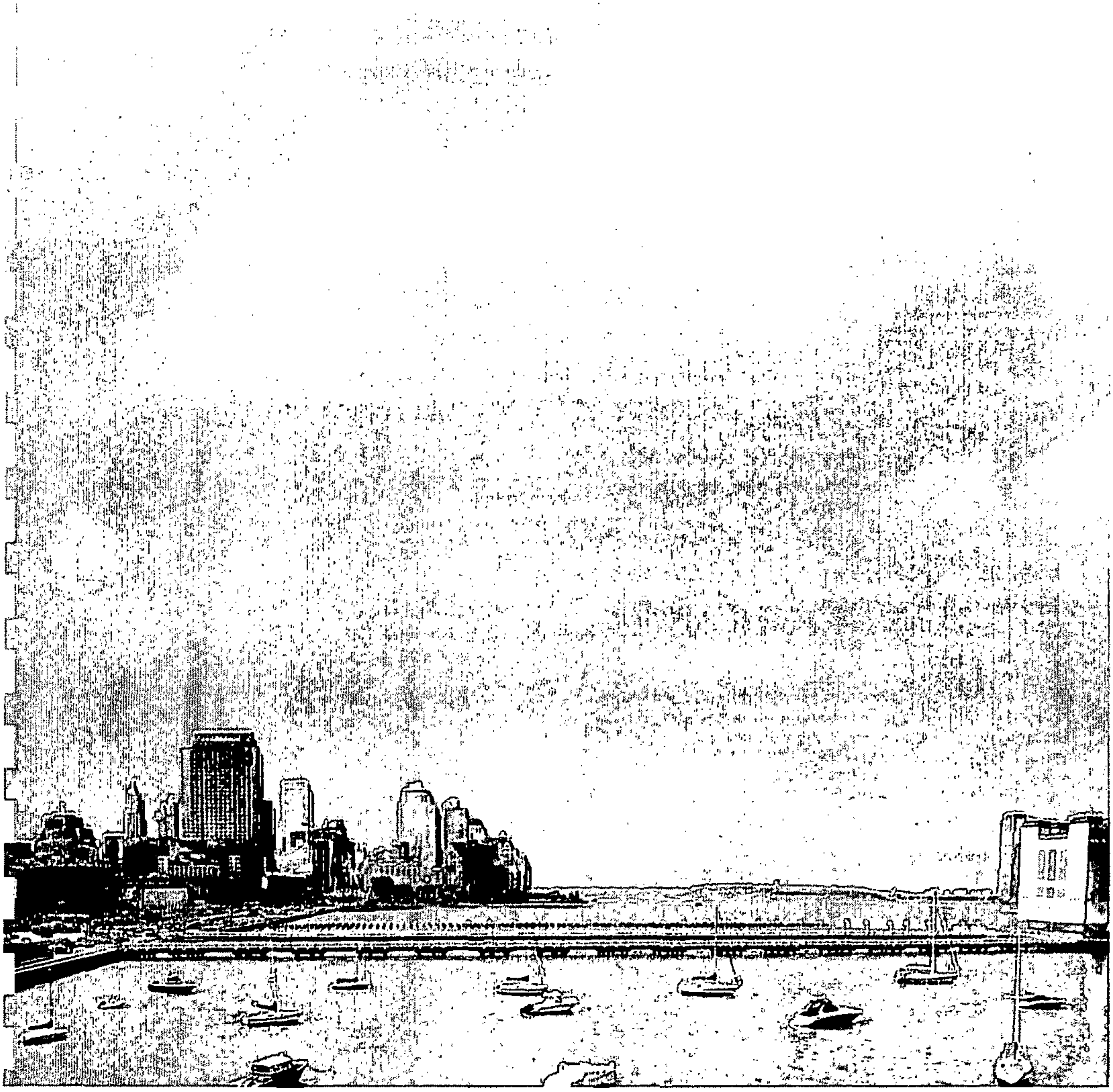
Seawall Repair and Replacement at USCG Battery Park Building, NY. Participated in site inspection of severely deteriorated steel sheet pile bulkhead adjacent to a high usage parking area. Loss of fill through the corroded bulkhead resulted in formation of numerous large sinkholes which prohibited safe usage of the facility. Performed a slope stability analysis to determine the capacity of the deteriorated existing sections of sloping backfill as well as evaluate the potential for further deterioration and sudden failure. Determined the capacity of the existing sheet pile to resist failure due to buckling and overturning. Designed new replacement sheet pile bulkhead.

Paulus Hook Ferry Pier & Terminal, Jersey City, NJ. Staff engineer for project involving waterfront elements of the $450 million Goldman Sachs supertower complex, which will feature the tallest building in the state when completed. Engineering services provided by M&N include site inspection, production of demolition plans for the existing Sussex St. Pier, design of a new pier and associated ferry berthing structures, design of a 3,000 sf ferry terminal building, provision of a new helicopter landing, and design of a structure to support the historic Colgate Clock. The construction cost of these new waterfront facilities was approximately $9.6 million. In addition to providing plans and specifications, M&N was responsible for cost estimates and scheduling services and provided construction support as required during the fast-track schedule.

Cape Vincent Marina, Cape Vincent, NY. Performed peer review of structural calculations and design drawings for a steel marina on the shore of Lake Ontario. Included reviewing methodology used to analyze proposed structures under wind, wave, dead and live loadings and considering fatigue due to shear and torsion. Reviewed documents for conformance with NY State and National codes.

Naval Station Roosevelt Roads, Puerto Rico. Staff engineer for project involving planning the reuse of an 8,600-acre naval facility. Assisted in the preparation of a model developed to analyze the capacity of approximately 65 miles of existing water main to service new facilities with potable water and fire protection. Performed similar analysis of approximately 45 miles of wastewater mains including the capacity of the existing three treatment plant facilities to handle the waste tributary to each. Included recommendations for upgrades to existing systems to manage demands on the water and wastewater systems. Assisted in preparation of cost estimate for recommended repairs.

D. Proposed



D. Proposed Staff and Hourly Rates

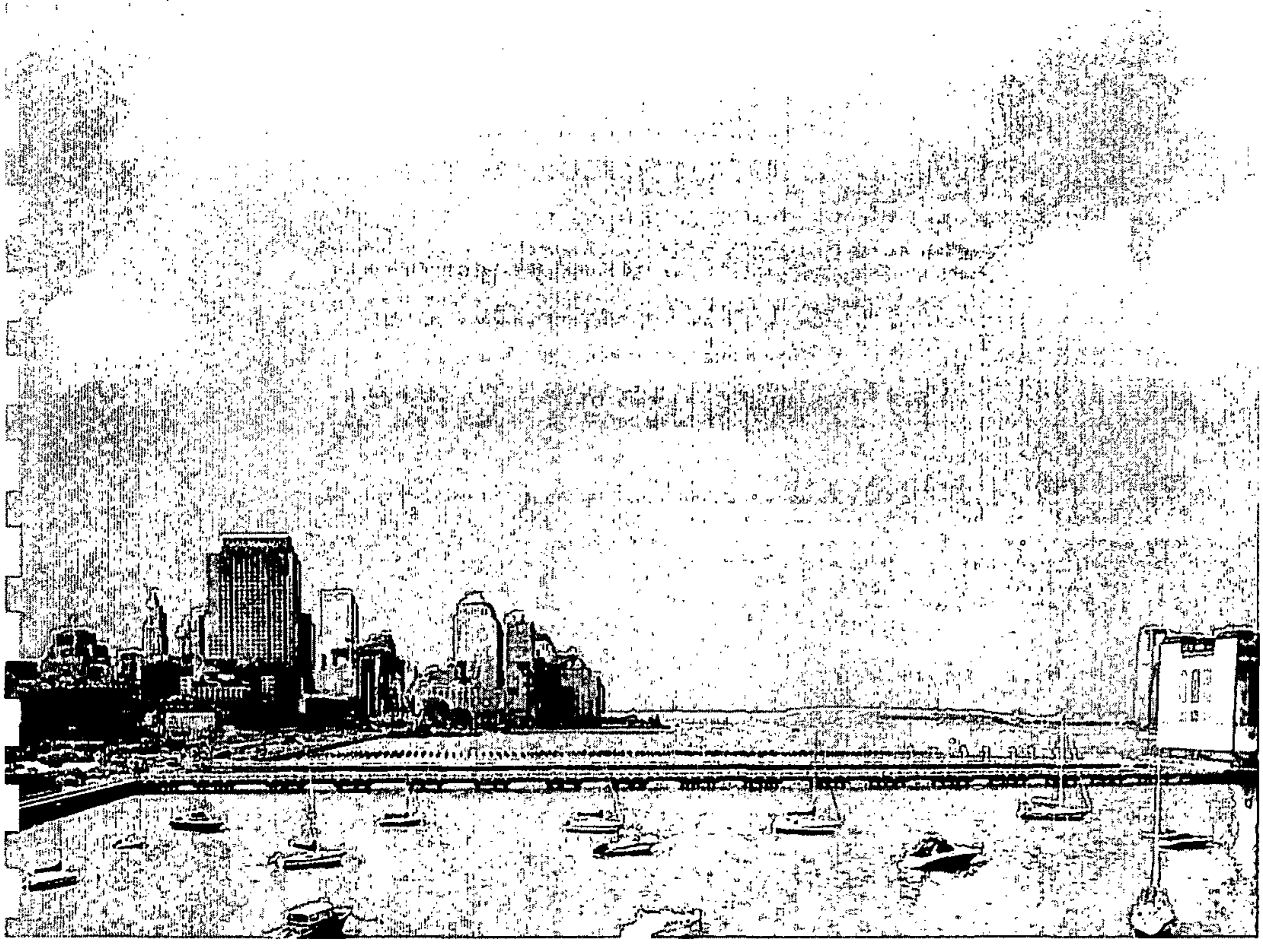
The following table summarizes proposal staff titles and billing rates. The staff proposed may change due to the need to provide additional services or as a result of personnel transfers or new hires.

Name	Title	Hourly Rate
Greg Margeson, P.E.	Principal	$215.00
Thomas Spencer, P.E.	Principal/Sr. Diver	$215.00
William Shute, P.E.	Project Manager	$54.00
David Ames, P.E.	Sr. Diver-Engineer	$70.00
Michael Breitenstein, P.E.	Sr. Diver-Engineer	$64.50
Luben Walcheff, P.E.	Sr. Diver-Engineer	$45.53
Eric Smith, P.E.	Diver-Engineer	$46.50
Eric Miles, P.E.	Diver-Engineer	$41.91
Joshua Hill, E.I.	Diver-Engineer	$39.37
Paul Sedesse, P.E.	Diver-Engineer	$42.51
Stephen Reuschle, E.I.	Diver-Engineer	$41.63
Kathy Rudden, P.E.	Senior Engineer	$40.50
Brian Ford	CADD Technician	$28.00
Chas Wolf	CADD Technician	$40.50
Blake Haag	CADD Technician	$34.00

Overhead & profit is at 179% for all but principal rate.

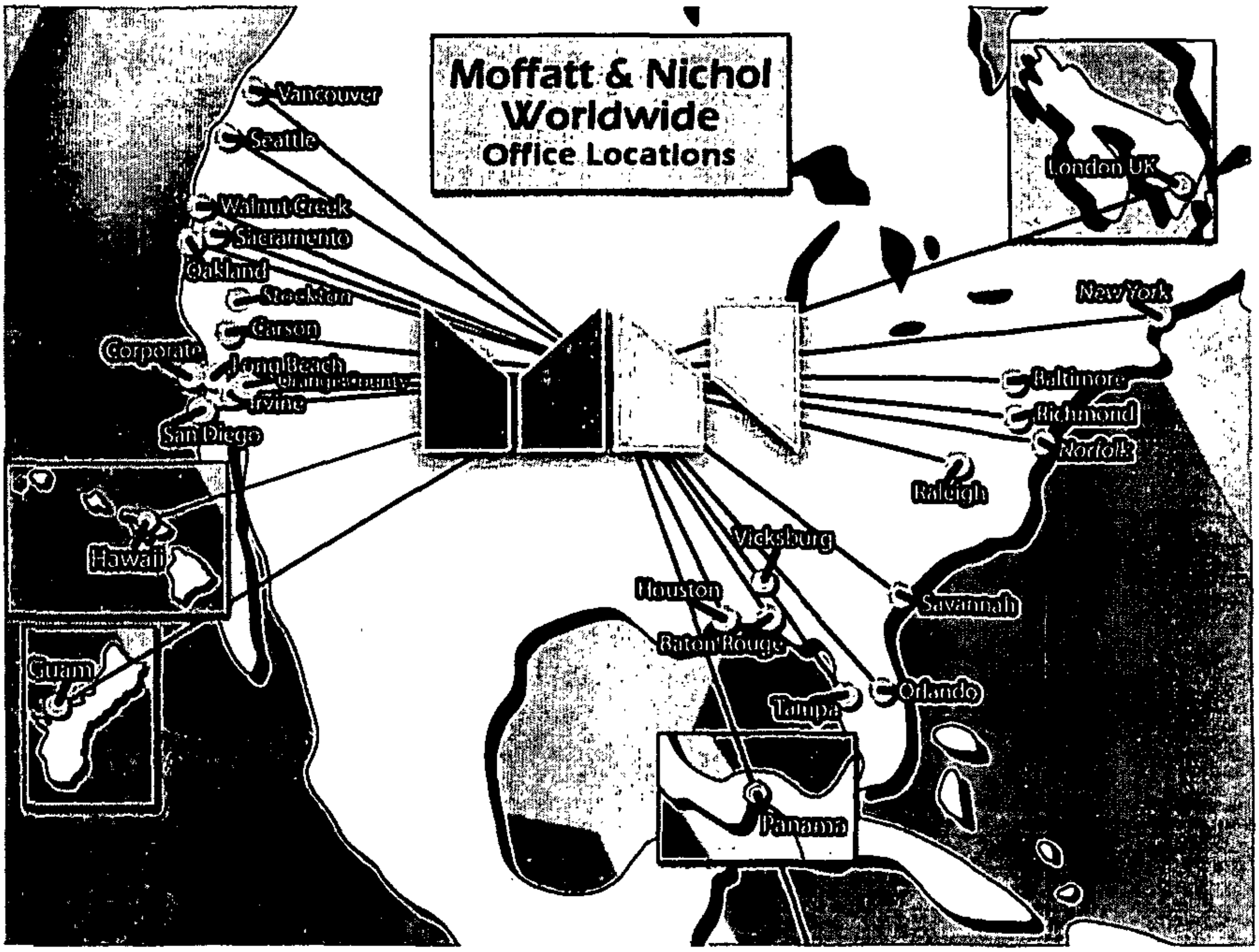
Moffatt & Nichol pays prevailing wage rates for all diving and tender services.

E. Firm Experience



E. Firm Experience

Moffatt & Nichol is a multidiscipline engineering and planning firm providing a full range of consulting services, including conceptual planning, feasibility studies, preliminary and final design services, waterfront inspections and construction support activities. **M&N** was founded in 1945 in Southern California and has grown over the last 60 years to 27 offices around the world, including an office located in New York, New York.



M&N is one of the fastest growing engineering firms in the U.S. and is currently ranked among the 175 Top Engineering Firms in the country by *Engineering News Record*. The firm is nationally recognized for providing quality engineering solutions in the areas of transportation and public works engineering. We have gained an international reputation as a leader in the inspection and design of structures located in the marine environment. In fact, the *John G. Moffatt - Frank E. Nichol Harbor and Coastal Engineering Award* was endowed by **M&N** in 1977 and is given annually to a member of the American Society of Civil Engineers. The award recognizes expertise in the marine engineering field, as well as new ideas that expand engineering, design, inspection, and construction techniques for harbor and coastal projects.

The firm's history includes numerous coastal, bridge, harbor and waterfront projects in connection with on-call and specific-project type contracts. We have also provided underwater inspection and

E. Firm Experience

condition survey services for these same structures. The ability to perform above and underwater inspection on marine structures is a crucial part of **M&N's** core business practice. These underwater inspections are conducted by the same professional engineers that prepare the inspection reports and, in many cases, prepare detailed repair plans and specifications. These engineer-divers provide valuable insight into structure performance and behavior.

M&N will provide **PANYNJ** with waterfront structure inspection and structural engineering design services, as well as project management and quality assurance. We are one of the few firms that specialize in underwater inspection, as well as waterfront facility design and engineering services. **M&N's** waterfront inspection and engineering experience includes over 2,500 projects.

Diving Qualifications, Training, and Certifications

The **M&N** team is organized to provide the highest quality underwater inspection at the best value to **PANYNJ**. Underwater inspection team leaders will be registered professional engineers, trained and qualified to perform diving operations. **M&N**'s team leaders average over 15 years of diving and inspection experience. Underwater inspections will be conducted in accordance with the requirements of the National Bridge Inspection Standards as published in 23 CFR 650 Subpart C. **M&N** believes in training newer engineer-divers by ensuring their field experience comes by an inspection team led by two or more senior members. This mentor-based system allows **M&N** to properly train its' less experienced members, and it also benefits **PANYNJ** by keeping our dive team labor rates competitive with other firms.

All diving operations will be performed in accordance with OSHA 1910 Subpart T, Commercial Diving Operations. All personnel performing diving operations will be trained in the operations assigned to the individual as well as first aid and CPR. All persons performing diving will have current annual physicals in compliance with OSHA requirements.

M&N has extensive experience in underwater inspection as mentioned above. The table on the following pages provides a partial list of inspection projects **M&N** has completed since 2006, and is intended to provide an idea of the depth and breadth of experience offered by the **M&N** Team:

E. Firm Experience

Project	Location	Owner Contact	Description	Concrete	Timber	Steel	On Time	In Budget
PANYNJ Condition Survey, Piers 9A and 9B, New York Marine Terminal	Brooklyn, NY	Suren M. Batra Port Authority of New York & New Jersey (973) 792-3940	Timber Pile Supported Piers Concrete Pile Extensions Steel Sheet Pile Bulkhead Concrete Superstructure and Deck	♦	♦	♦	♦	♦
PANYNJ Condition Survey, LaGuardia Airport Runway ILS Piers	Queens, NY	Jan Perez Port Authority of New York & New Jersey QAD (973) 792-3940	Timber and Steel Pile Supported Piers Concrete Caps Timber Superstructure	♦	♦	♦	♦	♦
PANYNJ Condition Survey, Pier 34, Holland Tunnel	New York, NY	Mitch Aldea Port Authority of New York & New Jersey (973) 792-3940	Steel Pile Supported Piers Concrete Pile Caps Granite Seawall	♦		♦	♦	♦
PANYNJ Condition Survey, Wharves A, B, B-Extension & Bulkhead, New York Marine Terminal	Brooklyn, NY	Suren M. Batra Port Authority of New York & New Jersey (973) 792-3940	Timber Pile Supported Piers Concrete Pile Extensions Steel Sheet Pile Bulkhead Concrete Superstructure and Deck	♦	♦	♦	♦	♦
Fender Inspection, Maintenance, & Repair – Throgs Neck Bridge	New York, NY	Nicolae Popescu Project Manager MTABT 718-904-4346	Anchorage and Pier Fender Systems Associated Dolphins	♦	♦	♦	♦	♦

E. Firm Experience

Project	Location	Owner Contact	Description	Concrete	Timber	Steel	On Time	In Budget
Waterfront Facilities Inspection Naval Magazine Pearl Harbor Wharfs 1 -5	Pearl Harbor, HI	Alex Viana *Naval Facilities* Engineering Service Center (212) 433-5516	Concrete Pile Supported *Wharfs* Concrete Superstructure Concrete and Timber Fendering	♦	♦		♦	♦
Waterfront Facilities Inspection Naval Base Kitsap Explosive Handling Wharf	Bangor, WA	Alex Viana Naval Facilities Engineering Service Center (212) 433-5516	Concrete and Steel Pile Supported Wharf Concrete Superstructure Steel and Timber Fendering	♦	♦	♦	♦	♦
Waterfront Facilities Inspection Naval Base San Diego Quaywall, Deperming Pier and Piers 1, 2, 7, 13, 14	San Diego, CA	Alex Viana Naval Facilities Engineering Service Center (212) 433-5516	Concrete Pile Supported Piers Concrete Superstructure Concrete and Steel Bulkheads Concrete, Timber and Composite Pile Fendering	♦	♦	♦	♦	♦
Post-Incident Inspection, ESSO Terminal	St. Georges Parish, Bermuda	Craig Tucker Terminal Manager Esso Bermuda (441) 294-5240	Steel Pile Supported Dolphins and Loading Platform Concrete Pile Caps Concrete Superstructure	♦		♦	♦	♦
Washington Channel Wharf Inspection, Ancostia Waterfront	Washington, DC	Uwe Brandes, VP Anacostia Waterfront Corporation (202) 406-4040	Steel Sheet Pile Bulkhead Concrete Cap Timber Relieving Platform Concrete Seawall	♦	♦	♦	♦	♦

E. Firm Experience

Project	Location	Owner Contact	Description	Concrete	Timber	Steel	On Time	In Budget
Open End Contract for Underwater Inspection & Engineering Services	Norfolk, VA	Tammy Halstead City of Norfolk 810 Union Street, 7th Floor Norfolk, VA 23510	Concrete Box Culvert Concrete Pile Bents and Superstructure Steel and Concrete Outfalls Concrete and Steel Bulkheads	◆		◆	◆	◆
Construction Inspection - Buchanan Pier	Norfolk, VA	Edward Hardison Buchanan Marine 1601 S. Main Street Norfolk, VA 23523 (757) 543-2859	Timber Pile Supported Pier Timber Superstructure Timber Fender System		◆		◆	◆
Bulkhead Inspection & Engineering Services	Norfolk, VA	Jim White City of Norfolk 810 Union Street, 7th Floor (757)-823-4018	Timber, Steel and Concrete Bulkhead Steel Bulkhead	◆	◆	◆	◆	◆
Open End Contract for Underwater Inspection & Engineering Services	Norfolk, VA	Chuck Joyner, P.E. Assistant City Engineer 810 Union Street, 7th Floor Norfolk, VA 23510	Timber Substructure for Boathouse (10) Concrete Pile Supported Bridges (1) Steel Pile Supported Bridge Concrete Pile Supported Pier Steel Sheet Pile Bulkhead	◆	◆	◆	◆	◆

E. Firm Experience

Project	Location	Owner Contact	Description	Concrete	Timber	Steel	On Time	In Budget
Imperial Beach Pier	Imperial Beach, CA	Bridgett Reid P. E. Port of San Diego (619) 725-6057	Timber Pile Supported Pier Timber Superstructure		♦		♦	♦
Waterfront Structure Inspection, Evaluation, & Repair – Edgewater Hotel	Seattle, WA	Jamie Colee Edgewater Hotel (206) 269-4550	Timber, concrete and concrete filled steel piles	♦	♦	♦	♦	♦
Kilo Wharf Extension (P-502)	Guam, Mariana Islands	Melvin Yoshimura NAVFAC, Pacific Division (808) 474-5406	Concrete/reinforced steel wharf	♦		♦	♦	♦

E. Firm Experience

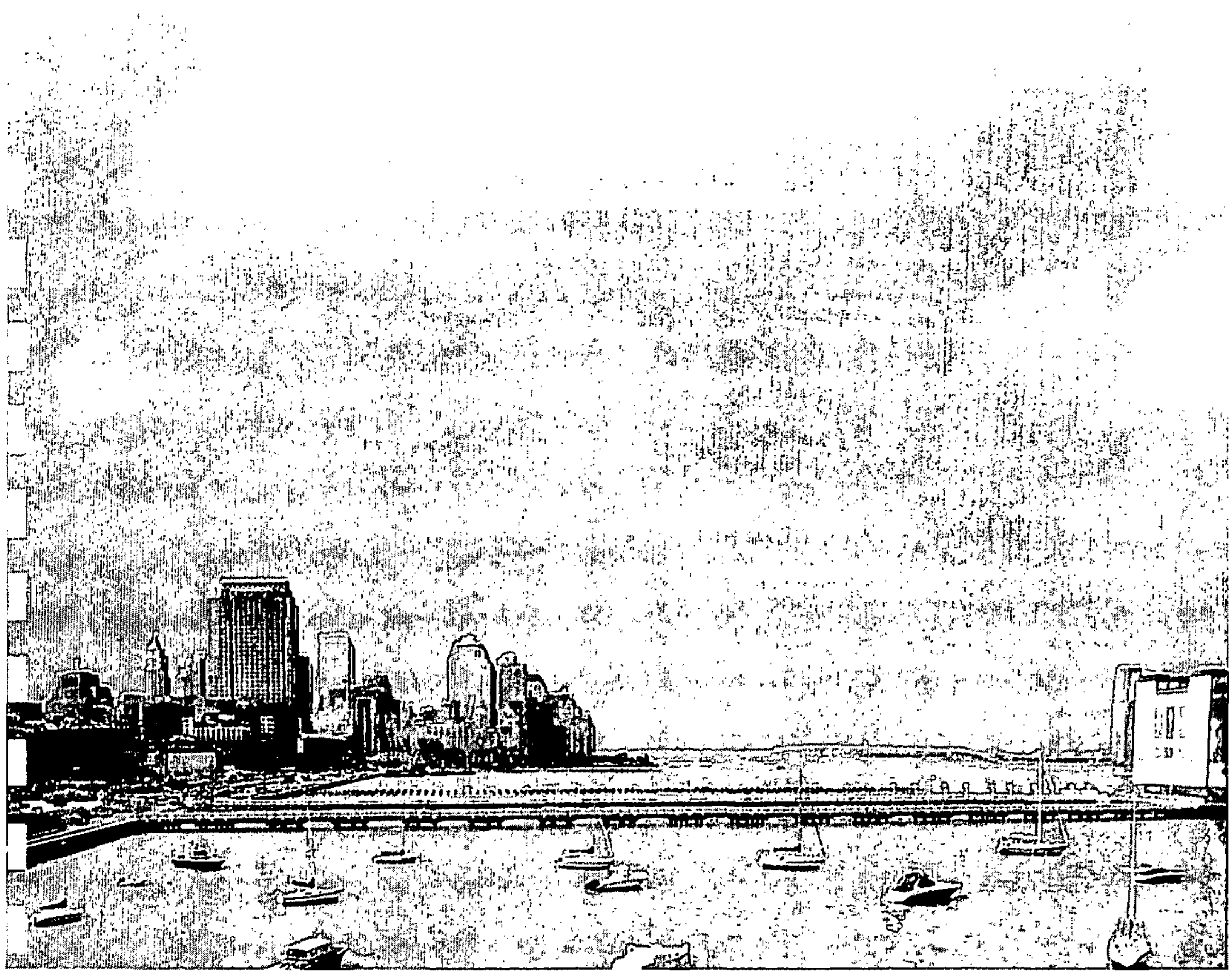
Moffatt & Nichol provided the following contacts with Exhibit I of the Request for Proposal and requested that they return the completed form directly to the Port Authority of New York and New Jersey.

1. **The Port Authority of New York and New Jersey**
   Barry Feldman, PE
   Manager, Facility Condition Surveys Unit
   Engineering Department
   3 Gateway Center, 3rd Floor
   Newark, NJ 07102
   (973) 792-3910

2. **United States Naval Facilities Engineering Service Center (NFESC)**
   Alex Viana, P.E.
   Program Manager
   Code 55AV
   NFESC ECDET Underwater Inspection Division
   720 Kennon Street SE, Bldg. 36, Suite 333
   Washington Navy Yard, DC 20374-5063
   (202) 433-5516

3. **City of Norfolk**
   Chuck Joyner, P.E.
   Assistant City Engineer
   810 Union Street, 7th Floor
   Norfolk, VA 23510
   (757) 664-4648

F. Mangement Approach



F. Project Management

Providing the Port Authority of New York and New Jersey (**PANYNJ**) with a comprehensive approach to managing projects will ensure that **Moffatt & Nichol (M&N)** provides the **PANYNJ** with the highest levels of quality and responsiveness for their waterfront facility condition survey projects. **M&N's** management approach begins with selection of the most appropriately qualified and cost-effective staff specialists for performance of requested tasks. The wide breadth of experience that typifies the **M&N** team allows us the flexibility to provide the highest level of service for work assigned to us for this contract.

M&N has extensive experience in dealing with large- and small-scale waterfront facility inspection, rehabilitation, and development projects in the New York Harbor region. We have worked successfully with the **PANYNJ** on various marine engineering and planning projects, including the completion of various waterfront facility condition surveys as part of the **PANYNJ** "Call-In" Contract from 2006 through 2008. In addition, we have accrued a great deal of direct experience with the critical issues surrounding this type of inspection work at various other marine terminals and NY/NJ waterfront facilities. Project planning is critical to the success of all of our projects. Our project team is experienced at working under pressure and tight schedules. We recognize that flexibility on a day-to-day basis is required to adapt to the mid-stream changes that many complex projects experience.

As mentioned in Section C, the **M&N** management team proposed for this contract consists of Mr. Greg Margeson (Principal-in-Charge), and Mr. William Shute (Project Manager). Thomas Spencer (Principal/Senior Diver) will also assist the management team specifically in the area of logistics and dive safety. This is the management team that has been responsible for the successful completion of several inspection projects in New York Harbor, including at Piers 9A, 9B and 10 in Red Hook; the ILS Piers at LaGuardia Airport, and Pier 34 along Manhattan's Hudson River coastline. Additionally, the team has worked together to provide engineering services to a range of local clients including Port Newark Container Terminal (PNCT), APM Terminals at Port Elizabeth, and several New York and Brooklyn waterfront facilities for the NYC Economic Development Corporation.

At the outset of each project, our Project Manager will meet with the **PANYNJ** Project Manager to develop a clear understanding of the needs and goals of waterfront facility condition survey. Items discussed during this "kick-off meeting will include:

- Previous inspection findings, existing conditions, and the specific procedure for the current survey
- Project schedules factoring in the potential impacts on facility operations
- Security considerations and site access
- Manpower analysis and cost estimate
- Identification of phasing issues, critical path and any long lead elements of the project

Key to our management approach is open communication, both between the project team and the **PANYNJ,** as well as within the **M&N** team. We pride ourselves on our responsiveness to changing and growing client needs and have developed an interactive planning process that allows us to work hand-in-hand with clients to move quickly and efficiently towards advanced "win-win" solutions to address even the most difficult facility condition survey and engineering issues.

To best satisfy the requirements of the **PANYNJ** Engineering Department, **M&N** will utilize this interactive process to explore and resolve project issues. This involves interaction between our consultant team and the Client. Typically, over the duration of a single inspection, the **M&N** team will meet with the **PANYNJ** at a minimum of four times, including

1. At the **PANYNJ** offices to "kick-off" the project,
2. On-site to discuss procedures with the facility
3. After completion of field activities to present inspection findings
4. Upon receipt of **PANYNJ** comments on the Final Condition Survey Report

M&N has found that meeting with the **PANYNJ** at these key milestones ensures that the project remains on-track for a timely completion and provides appropriate "real-time" updates to all of the involved parties with the status of the condition survey. This also gives the **PANYNJ** an opportunity to interact with the consultant team and identify any outstanding issues.

Along with the four key milestone meetings above, **M&N** will provide the **PANYNJ** with various other updates during the project duration. For example, during the field inspection portion of the project, **M&N** will provide the **PANYNJ** with weekly project progress reports which will summarize field activities completed over the course of the past week, anticipated field activities for the upcoming week, and approximate percentages of completion for the various elements being inspected. Additionally, on the 15th of each month, **M&N** will provide the **PANYNJ** with an accrual update on the project fees to ensure that the project is progressing within the established budget. This management approach has been utilized to achieve excellent results in our past contracts with the Port Authority of New York and New Jersey.

Based upon the **M&N's** previous waterfront inspection experience with **PANYNJ**, we have a keen understanding of the requirements of this contract. Moreover, **M&N's** project team offers a cost-effective approach to this underwater inspection contract. Cost-effectiveness stems from the use of engineer-divers who will quickly identify and prioritize structural deficiencies. These same divers will be utilized for any necessary structural analyses and also for the preparation of the report.

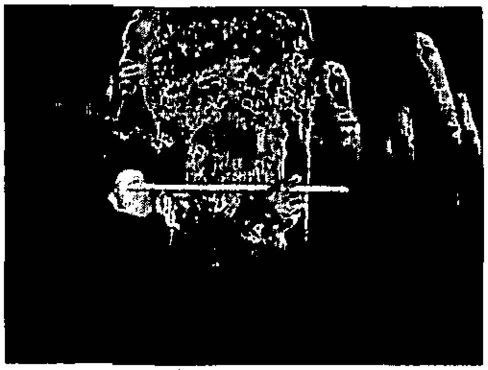
Approach to Performing Waterfront Inspections

M&N's waterfront inspection engineers are also trained and experienced divers. The professional staff of **M&N** developed this skill in response to problems arising in the interpretation of reports provided by non-engineer divers who neither fully recognized the significance of what they observed, nor possessed the technical skill/vocabulary to accurately describe underwater conditions to engineers on the surface. We have found that underwater inspection work is most effectively accomplished when the diver is also an engineer. The engineer-diver can make an initial, rapid and relatively inexpensive visual inspection and can photograph significant conditions appropriate to the project.

F. Project Management

Along with ensuring that we are placing technically qualified engineering divers in the water, **M&N** emphasizes that all operations are completed in a safe and secure manner. All of **M&N's** diver operations are completed in strict accordance with OSHA, USCG, USACE EM385-1-, and ADCI Consensus standards.

Technical Approach



Planning and Preparation. All available pertinent information for each structure will be collected prior to mobilizing for the inspection. Previous inspection reports for all structures will be reviewed during this phase. This preparation phase will consist of identifying the location, arrangement and specifics of each structure so that a coherent inspection schedule can be established based upon the requirements for each structure. Emphasis will be placed on identifying any previously noted deficiencies, especially those noted as priority repair recommendations, and any repairs that have been made.

From this review of previous inspection records, an inspection plan will be prepared for each waterfront structure which will emphasize efficiency of travel between structure sites. CADD drawings will be generated for each structure and be brought into the field to be used as a roadmap of the site during inspection. Structures will be sub-grouped as necessary based upon the need for special testing equipment, traffic control measures, etc. Standard checklists will be used in this planning phase to ensure that all information is reviewed and that all inspection equipment is available to support the level of effort required.

Scope of Inspection. All structural components will be inspected from mudline to the top of the structure. This inspection will include all accessible portions of structural elements and fender systems when necessary. The inspections will identify and quantify damage, cracking, settlement, steel corrosion, deteriorated and scoured concrete, deteriorated pointing, broken and/or dislodged stones in masonry structures, deterioration or damage to piling, insect damage, marine barrier damage, wood decay, etc. All inspections will be conducted in accordance with the guideline entitled "The Port Authority of NY & NJ Condition Survey of Waterfront Structures".

Level of Inspection Detail. The level of inspection will be negotiated on a case-by-case basis with **PANYNJ** however, based on our past experience will typically consist of all of the accessible underwater, below deck and topside elements being subjected to a Level I examination consisting of a visual/tactile inspection. In addition, a minimum of ten (10%) percent of all submerged substructure components will be subjected to a Level II examination consisting of cleaning of marine growth to facilitate a close-up, detailed inspection. The Level II inspection will also include limited measurements of designated components such as pile diameters, pick penetration of timber piles, or Ultrasonic thickness testing of steel elements. The extent and method used for removal of marine growth will depend on the type and extent of marine growth coverage, the type of substructure element and condition of the element. Hand tools, power grinders and power washers will be employed as necessary to remove marine growth. Piles will typically be cleaned of marine growth in three one-foot bands around the structure, located at the mudline, waterline and mid-point. This cleaning may be more or less frequent depending upon the condition of the underlying material.

Inspection of Concrete Members. Each concrete member will be inspected for spalling, cracking, and exposure of reinforcing steel, soundness, scaling and visible appearance. Masonry hammers will be used to sound the concrete and folding rulers will be used to measure defects. The location and size of defects such as spalls will be recorded in terms of width, height/length and depth of penetration. Defects such as cracks will be documented in terms of location, width, length and orientation; where the width is measured at a point beyond any edge spalls. Defect locations will be referenced from the plans or, in lieu of the plans, with the bents numbered from north or west, piles numbered from north or west and faces numbered from north or west counterclockwise. Photographs of typical defects will be taken underwater with a close-up lens and, if necessary, a clear water box.

Inspection of Steel Members. Each steel element will be inspected for condition of coatings, corrosion, section loss and misalignment. Masonry hammers and scrapers will be used to sound and clean surfaces, folding rulers will be used to measure member sizes, and calipers, micrometers and ultrasonic D-meters will be used to measure remaining steel thicknesses. Cross-bracing will be inspected wherever it extends below the waterline. Where piles are partially encased in concrete, the condition of the piles at the base of the encasement will be closely examined for section loss. Prior to removal of marine growth, the extent of corrosion will be documented in terms of light, moderate or severe. Light corrosion is defined as discoloration, staining or light pitting through the coating surface. Moderate corrosion is defined as loose corrosion product flaking or scaling with 1/16-inch or less surface pitting and no appreciable loss-of-section. Severe corrosion is defined as a heavy corrosion product with scaling and pitting of 1/8-inch or greater depth. Section loss will be recorded for each pile which exhibits severe corrosion. Section loss will be measured by conducting a close-up inspection of the pile to determine the worst area of deterioration and by scraping various areas to determine the extent of section loss. Areas to be measured will be scraped to bare metal and the remaining flange thicknesses will be measured with calipers or a micrometer. The remaining thickness of web sections or tubes will be measured using an ultrasonic D-meter. Photographs of typical areas exhibiting section loss will be taken underwater with a close-up lens or clear water box.

Inspection of Timber Members. Each timber element will be inspected for insect or marine borer infestation, fungal decay, collision damage, overstress damage, weathering, checking, splitting, surface roughness, proper batter angle and orientation/alignment. Ice picks or awls will be used to probe the timber element. Increment Borers will be used to core selected piles, folding rulers will be used to measure minimum pile diameters and ultrasonic V-meters will be used, where requested, to test the soundness of selected members. Cross-bracing will be inspected wherever it extends below the waterline and bolt holes will be inspected for evidence of deterioration. Minimum pile diameters and maximum ice pick/awl penetrations will be measured and recorded.

Inspection of Piers on Pile-Supported Footings. Each pier and its associated footing will be inspected and measurements will be verified where known, and recorded wherever unknown. Where piles are exposed beneath the footing, the number, orientation, spacing, material type and size of the piles will be recorded if unknown. The concrete piers and footings will be inspected for spalling, cracking, exposure of reinforcing steel, soundness, scaling and visible appearance. Masonry hammers will be used to sound the concrete and folding rulers will be used to measure defects. The areas where the piles enter the footing will be inspected in detail to determine the presence and extent of any cracking, spalling or voids. The height of exposed piling below footings which were originally constructed below the mudline will be recorded. The exposed piling will be inspected for soundness and section loss. Drift or other debris lodged between the exposed piling will be documented. Photographs of typical defects and the bottoms of exposed undermined footings will be taken as appropriate to document existing conditions.

Dimensional Verification/As-Built Documentation. Dimensions of substructure units will be measured in the field and compared to the plans provided. Any differences in these dimensions will be documented in the report. Additionally, any missing dimensions will be documented and included in the report. Finally, for structures which have no plans available, all appropriate substructure dimensions will be documented and scale drawings will be provided in the report.

Inspection Reports. Any underwater inspection conducted by **M&N** results in a thorough technical Condition Assessment Report of the inspection results including photographs or diagrams of areas of deterioration, evaluation of conditions encountered, structure element condition data and sounding data. These reports will comply with the **PANYNJ**'s requirements. Each report will be signed and sealed by the Dive Team Leader – a Registered Professional Engineer. Three copies of each report shall be submitted to **PANYNJ** for review. Upon receipt of comments on the draft report, **M&N** will revise the report and submit 18 copies of the final report, along with CDs which contain electronic versions of the report, photos, and CAD drawings. Additionally, M&N will submit all field notes to the PANYNJ. Detailed engineering drawings and engineering calculations for load rating analyses of the structure may be included if required by **PANYNJ.**

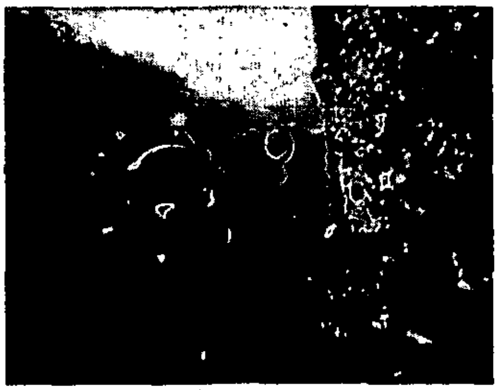
Each report submission will be subject to a rigid Quality Control review, and a checklist, signed by the Principal-in-Charge and documenting that a review of the key components of each report has been completed will be included with each submission.

Ability to Respond to PANYNJ's Needs

M&N has a highly skilled staff ready to respond immediately to complete any task within the required time allowed after Notice-to-Proceed is given for this contract. We offer experienced personnel at each key position which affords smooth project progression not dependent on any one

F. Project Management

individual. As mentioned in the introduction, **M&N** is one of the largest engineering firms specializing in marine construction projects. Consequently, we employ over 100 personnel specializing in the inspection and design of piers, wharves, bulkheads and a variety of other waterfront structures including over 40 certified engineer-divers. At any given time, personnel at **M&N** offices throughout the country are working on multiple waterfront projects. Because of this, **M&N** has developed an exceptional depth of personnel that are highly skilled in waterfront structure inspection, analysis, and design. Mr. William Shute will be responsible for the day-to-day management of any projects assigned under this contract as well as any coordination with the Dive Teams; however, the size and unique waterfront focus of our firm allows us to draw from available personnel at other **M&N** offices including Baltimore, Norfolk, Long Beach, Raleigh, and San Diego, to supplement our key staff, enabling us to complete any number or variety of tasks required by **PANYNJ**.



The **M&N Team** will conduct underwater inspections for **PANYNJ** *as described above.* **M&N** *Dive Teams will* be able to make initial, rapid and relatively inexpensive visual inspections of structure conditions and photograph significant conditions most appropriate to the project, resulting in significant time and cost savings over other approaches. The team also provides the additional capability for performing non-destructive and destructive testing if required, as well as any other engineering-related analyses that may be indicated, making for a more thorough inspection overall.

Demonstrated Ability to Mobilize Quickly and Meet Project Schedules

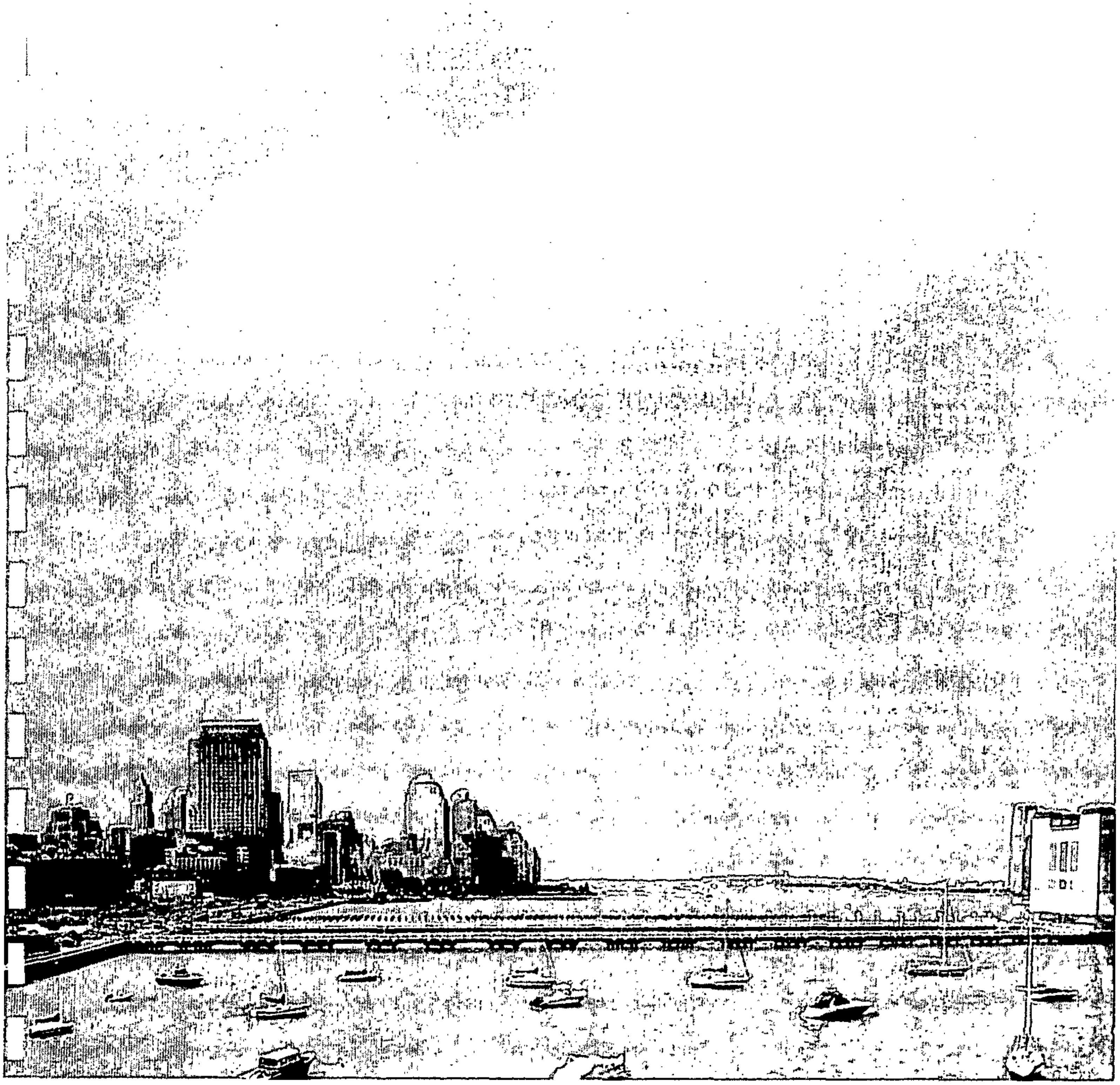
M&N is often called upon to respond quickly to the needs of our clients and we are highly adept at mobilizing quickly to project sites. For example, **M&N** was asked to conduct emergency inspection of ship-collision damage experienced at the U.S. Coast Guard's Ambrose light tower offshore of the Port of New York. The Coast Guard was gravely concerned that the light tower had experienced significant structural damage that could have resulted in collapse with associated impact on port navigation. Divers were mobilized in two days and performed the inspection in relatively rough/deep/cold water. The inspection was completed in a day and a letter report followed three days later. A second example concerns our annual Bulkhead Inspection contract for the City of Norfolk, Virginia. **M&N** *conducted an inspection of a sinkhole adjacent to a waterfront promenade* at Town Point Park. **M&N** received the call from the City in the morning, concerned that the sinkhole might cause injury to pedestrians visiting the park. **M&N** personnel performed a site visit and inspection that afternoon to determine the severity of the loss of backfill material and provide recommended actions for short-term and long-term solutions.

F. Project Management

Availability and Responsiveness of Key Staff

M&N has a highly skilled staff of engineer-divers ready to respond immediately to complete any underwater inspection required by **PANYNJ**. We have also evaluated our projected backlog of work over the next 12 months and determined that the personnel identified in this submittal will be available to complete the work required by **PANYNJ**. We are comfortable with relatively aggressive schedules as we are prepared to place multiple teams in the field if necessary, depending on project schedules, the size of the structures to be inspected, and the level of inspection each structure requires. Included as part of the **M&N** Team outlined in this submittal are six divers who qualify as Dive Team Leaders along with three additional engineer-divers, all of which have experience in the local market. Additionally, if necessary, **M&N** employs over 20 additional Registered Professional Engineer Divers available to field additional dive teams.

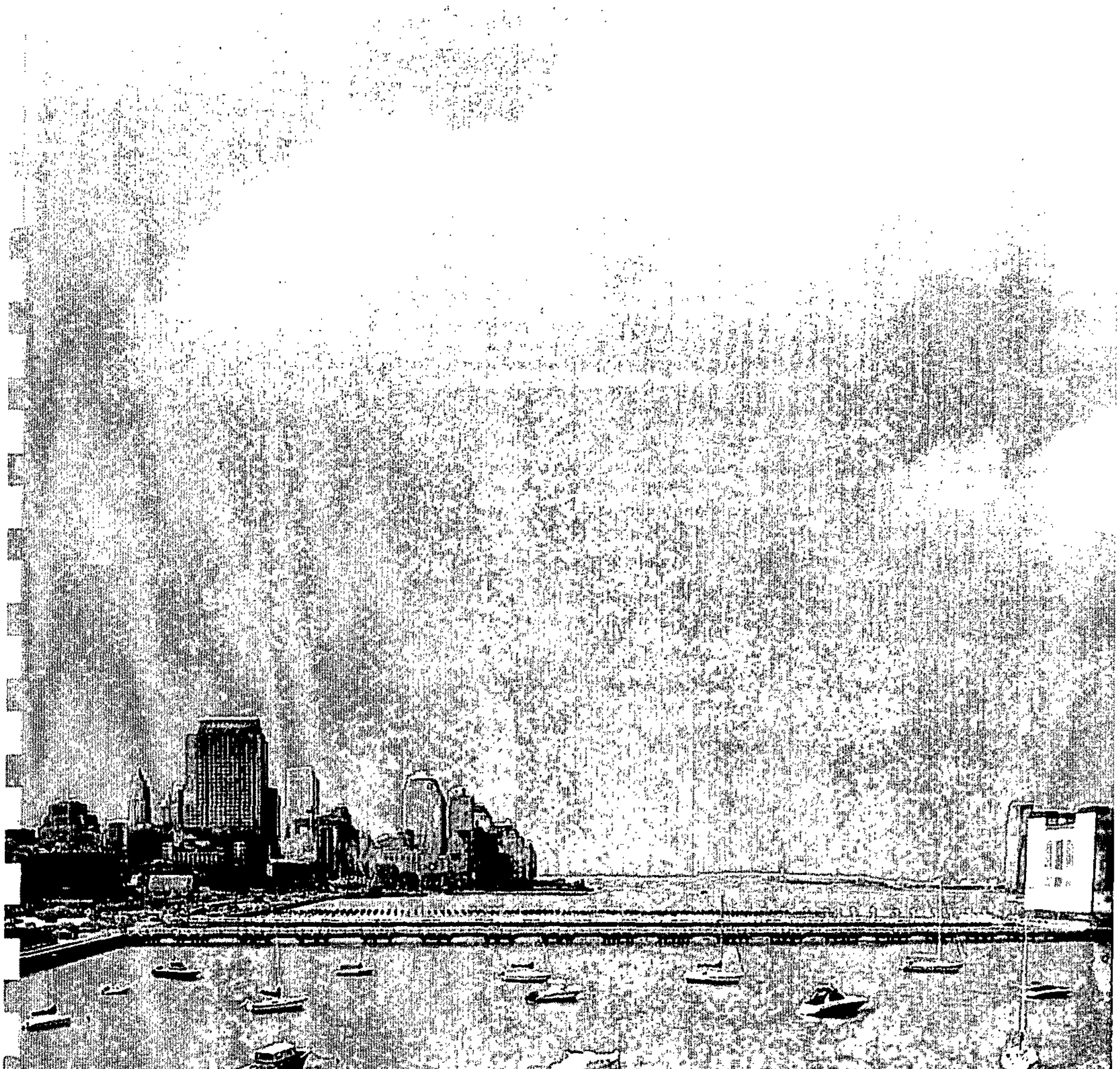
G. Affiliates



G. Affiliates

Moffatt & Nichol's affiliated firms consist of international firms Moffatt & Nichol London and Moffatt & Nichol Latin America. Our domestic firms include Moffatt & Nichol PC and Moffatt & Nichol Blaylock.

H. Quality Control Assurance Plan



H. Quality Control/Assurance Plan

The Quality Plan is the foundation of the **M&N** Quality System. It documents the specific procedures that will be followed on a project to implement the Quality System. A comprehensive Quality Plan is required for all projects. It is prepared by the Project Manager and approved by the Business Unit Leader before project start-up. It is submitted to the Corporate Director of Quality no later than 30 days after a Notice-to-Proceed is received from the client.

In addition to this organized system of checks and balances, **M&N** regularly conducts internal Quality Audits at intervals set by the Director of Quality to verify general compliance with the procedures of the Quality System. Quality Audits evaluate the quality of deliverables being produced, with special emphasis on compliance with the Quality System procedures. Quality Audits are for Quality Assurance and are designed to verify that Quality Control on any given project is being carried out in accordance with the project's Quality Plan. They are separate and apart from the project technical reviews done as part of Quality Control.

M&N Quality Control/Assurance Procedures

"The Quality Goal at Moffatt & Nichol is to deliver products and services in a manner that meets the stated requirements and expectations of the Client including conformance with contract requirements, prevailing industry standards, and applicable laws and licensing requirements."

This statement, which is the opening paragraph of our Quality Manual, reflects our belief that the success of our firm is due entirely to the high quality of the services we provide to our Clients. At **M&N**, quality is a team effort, and our control/assurance methods are a compendium of time-tested procedures that have proved successful on past award-winning projects. One of the fundamental tenets of our program is that "All **M&N** deliverables will be appropriately reviewed as determined by the Project Manager prior to external distribution to achieve our Quality Goal. No exceptions to this policy are allowed." Management pledges never to eliminate quality checks to save time, reduce cost or meet other short-term objectives. Additionally, **M&N** is very familiar with the **PANYNJ** Quality Control Program. As part of this system, the Principal-in-Charge will review each document prior to submission and include with the submission, a signed Consultant Quality Control Checklist which confirms that all of the key information in the Facility Condition Report is accurate and in accordance with **PANYNJ** requirements.

M&N's Quality Manual emphasizes the following:

- Active participation of peers and senior level personnel within the firm to share knowledge and produce high-quality work,
- A system of checks and balances designed to detect flaws early in the production process,
- Corrective actions to address client concerns and/or instances of non-compliance,
- Documentation of Quality Assurance/Quality Control activities,

H. Quality Control/Assurance Plan

- Conformance to prevailing industry standards,
- Responsiveness to client requirements, and
- Continuous improvement.

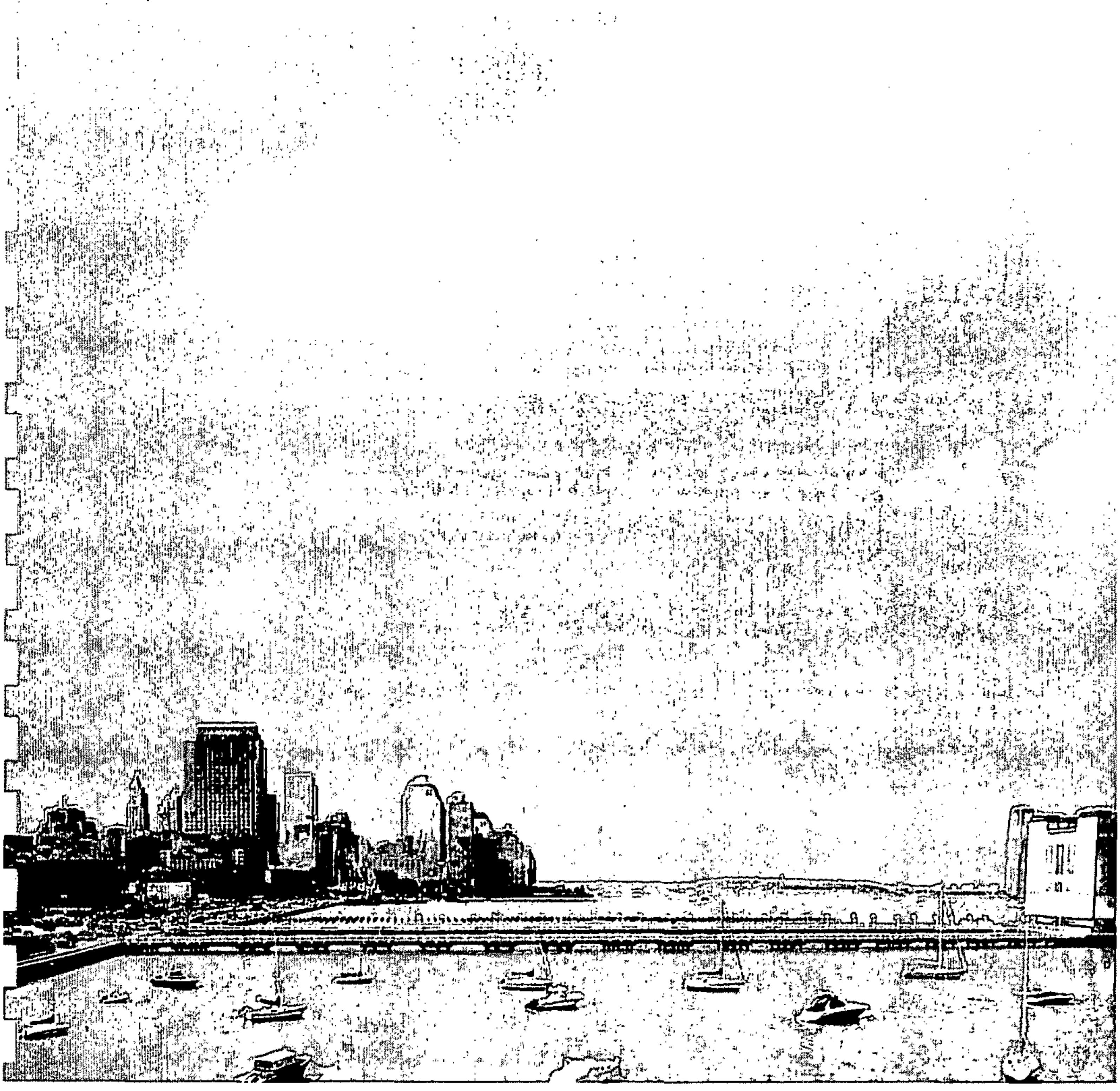
Quality at **M&N** results from close coordination between Line Managers, with support from the Director of Quality and the Technical Staff who perform the work. Line Managers and Staff work cooperatively to ensure the project teams have access to sufficient resources to complete the work on schedule and that deliverables are reviewed before they leave the control of the Company. To achieve success, the **M&N** Quality System requires Line Managers and Project Managers to mutually support our Quality Goal.

Quality Goal

All provisions stated in Attachment A of the RFP regarding the submission of specific Quality Control/Assurance Programs to the **PANYNJ** will be satisfied. Our goal in this contract is to provide the same high level of quality service that we have supplied over the last few years to **PANYNJ's Quality Assurance Division**, as well as various other departments. Our practice is built on the idea that our firm's success is a product of our ability to provide our clients with cost-effective, quality engineering solutions that meet with clients' budgets and schedules—as evidenced by a repeat client rate of more than 90 percent.

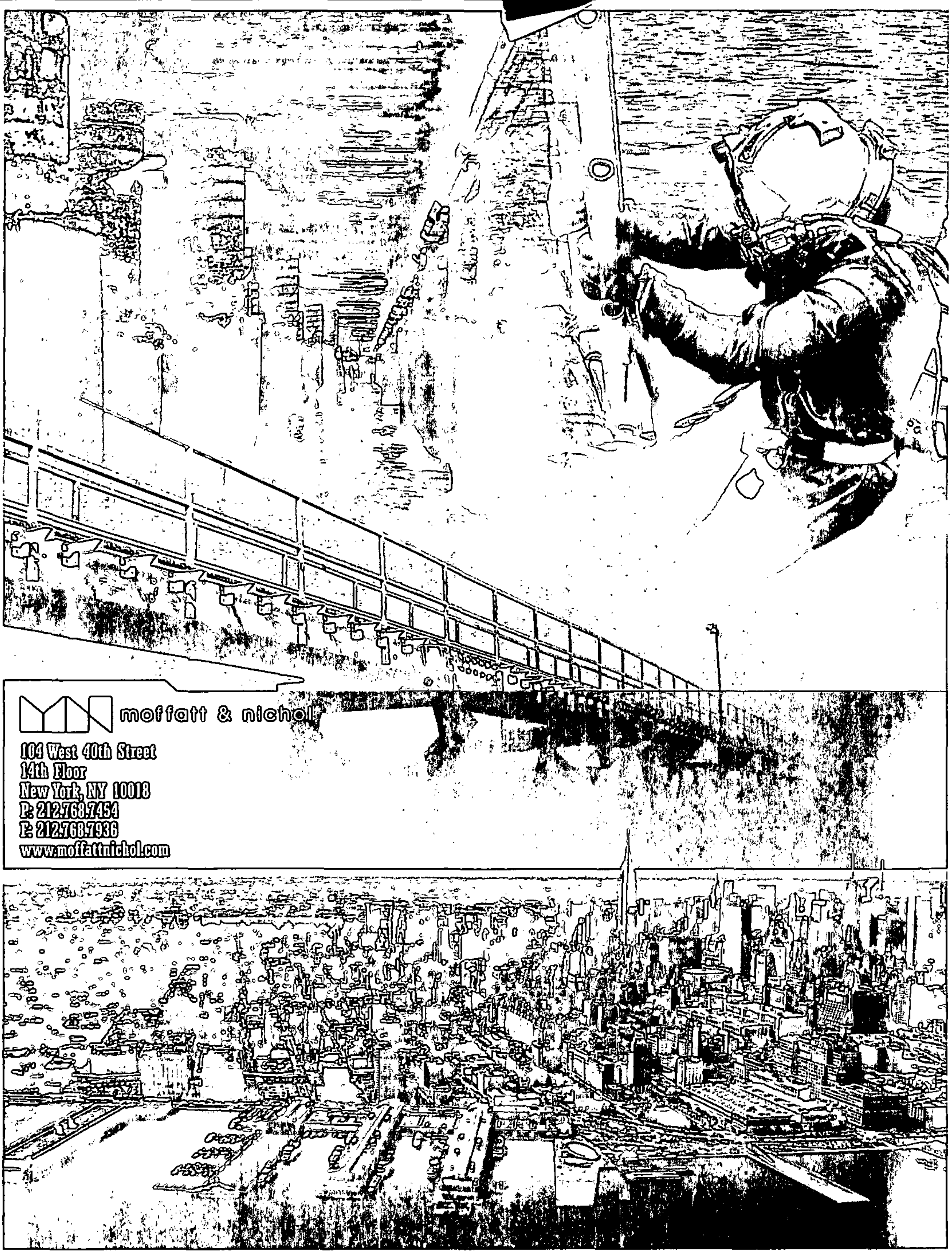
If selected, a copy of Moffatt & Nichol's Quality Manual is available upon request.

I. Conflict of Interest



I. Conflict of Interest

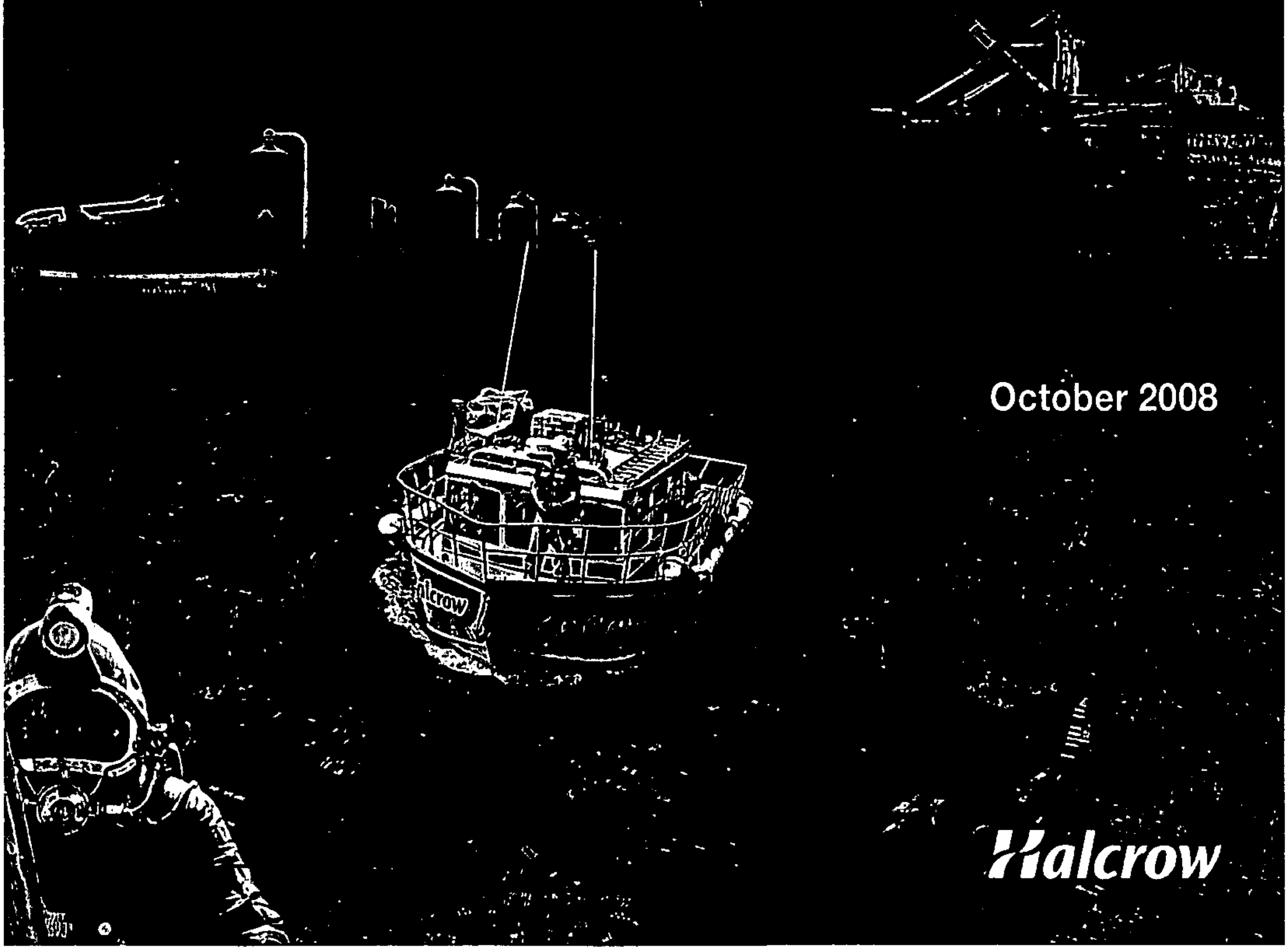
Moffatt & Nichol has no Conflict of Interest Issues with the proposed project and services.


moffatt & nichol
104 West 40th Street
14th Floor
New York, NY 10018
P: 212.768.7454
F: 212.768.7936
www.moffattnichol.com

THE PORT AUTHORITY
OF NY & NJ

Proposal for Expert Professional Facility Condition Survey Services for Waterfront Facilities as Requested on a "Call-In" Basis During 2009

RFP Number 16560



October 2008

Halcrow

Halcrow

October 9, 2008

The Port Authority of NY and NJ
One Madison Avenue, 7th Floor
New York, NY 10010

Attention: RFP Custodian

Reference: PROPOSAL FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS SERVICES FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

RFP NUMBER 16560

Dear RFP Custodian:

Halcrow, Inc. is pleased to submit this proposal in response to The Port Authority of NY & NJ (the Authority) Request for Proposal (RFP) for the Performance of Expert Professional Facility Condition Surveys Services for Waterfront Facilities as Requested on a "Call-In" Basis during 2009 (the Project). Halcrow has been providing facility condition surveys services to the Quality Assurance Division since 1990 as well as structural engineering services to the Engineering Department since 1992.

Halcrow has complied with all requirements of the RFP, including the 25 page limit. Enclosed are one reproducible original, three copies, and one CD of our proposal.

We are very excited to continue our relationship with the Authority. If you have any questions, comments, or need additional information, please do not hesitate to contact me at (212) 608-3990.

Very truly yours,

Halcrow, Inc.

Jonathan Goldstick, P.E.
Senior Vice President

Attachments: one original, three copies, and one CD of proposal

Halcrow, Inc
22 Cortlandt Street
New York, NY 10007
Tel (212) 608-3990
www.halcrow.com

Halcrow

October 9, 2008

The Port Authority of New York & New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010

Attention: RFP Custodian

Subject: Proposal for Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2009

Dear RFP Custodian:

Halcrow, Inc. (Halcrow) is pleased to submit this proposal for the referenced project. Since 1990, Halcrow (as Han-Padron Associates and HPA) has worked on previous versions of this contract and is still currently under contract to the Port Authority of New York & New Jersey (the Authority). Based upon this history, Halcrow is extremely familiar with the Authority's facilities and has tailored work procedures to meet the objectives of each assigned task. All work will be carried out by a highly competent team of experienced engineers, engineer-divers, AutoCAD designers and inspection divers drawn from the firm's regular staff. These Halcrow staff members will be supported by certified MBE and WBE firms to the maximum extent feasible.

Although Halcrow has a wide range of relevant experience to draw from, due to the page limitation set forth in the RFP, we felt that it was important to highlight the firm's specific experience delivering quality marine engineering services to the Authority. We are very proud of the work carried out under past contracts and believe that it ably demonstrates our ability to provide the highest quality services to the Authority. We also invite you to contact the clients presented in the Relevant Experience section of this proposal to whom we have been providing similar marine engineering and inspection services for many years

We sincerely appreciate being selected to submit a proposal for this contract and hope to have an opportunity to continue the excellent working relationship that we have established with the Authority. We would be pleased to meet with you at your convenience to present our qualifications in greater detail, or to discuss any aspects of this proposal.

Respectfully Submitted

Halcrow, Inc.

Jonathan L. Goldstick, P.E.
Senior Vice President

Attachments: Proposal (1 reproducible original, 3 copies, 1 CD)

Introduction

This proposal is submitted by Halcrow, Inc. (Halcrow) in response to the Port Authority of New York & New Jersey (the Authority) Request for Proposals (RFP) for Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2009 (the Project). Halcrow will utilize fully qualified and experienced project teams, drawn from the firm's regular full time staff and led by one of the firm's senior managers. Where feasible, the project team will utilize the services of certified Minority/Women Owned Business Enterprises (M/WBE) to achieve the M/WBE goals established by the Authority.

Halcrow is particularly pleased to present qualifications for this project and is excited about the opportunity to continue the firm's longstanding relationship with the Authority, for which Halcrow has been performing Facility Condition Surveys since 1990. During this period, Halcrow's staff of engineers, engineer-divers, CAD professionals, and technicians has gained a sound understanding of the Authority's requirements for this work and has established internal procedures to ensure that the Authority's objectives are achieved on each assignment. For this Project, Halcrow is prepared to assign many of the same key staff members that have a long history of successfully working with the Authority. This will eliminate any "learning curve" and facilitates the utilization of knowledge gained during the performance of the previous and current contracts.

Halcrow, Inc.

Halcrow acquired Han-Padron Associates, LLP (HPA) in 2005. HPA was a New York City-based firm, established in 1979, dedicated exclusively to projects in the marine environment. HPA is now part of Halcrow's 400-person maritime group, and references to Halcrow throughout this proposal include the experience and qualifications of HPA. A number of Halcrow's current and past projects have been "on-call"-type contracts involving the inspection, assessment, and design of waterfront facilities. Some of Halcrow's recent "call-in" experience is listed below:

Facility Condition Surveys, Quality Assurance Division,
Port Authority of NY & NJ

Waterfront Structural Engineering Services, Design Division,
Port Authority of NY & NJ

Marine Inspection, Design and Construction Administration,
Hudson River Park Trust

Worldwide Inspection and Assessment of Waterfront Facilities,
U.S. Navy

Marine Engineering Services,
NYC Economic Development Corporation

Indefinite Quantity Contract,
U.S. Coast Guard

Marine Engineering Services,
Northrop Grumman

Waterfront and Civil Engineering Services,
Port Everglades

This experience has permitted Halcrow to refine its work approach over the years to perform such "call-in" tasks in the most efficient and responsive manner possible, while delivering top quality services to the firm's clients.

Halcrow is a full service international firm, providing the highest quality services to industry and government in a variety of fields associated with facilities in the marine environment. The full range of engineering services required for the complete planning, design, and construction management of projects within these fields is provided. These services include:

- site screening studies
- above and underwater inspections
- economic and technical feasibility studies
- master planning
- research and development
- preliminary engineering and cost estimates
- detail design
- permitting
- contract plans and specifications
- construction planning, scheduling, and cost estimating
- materials and equipment procurement and expediting
- construction management, inspection, and quality control

As a full service engineering firm, Halcrow provides expertise in the following engineering disciplines: structural, civil, diving, coastal, geotechnical, electrical (including cathodic protection), mechanical, and maritime security.

Halcrow is able to respond quickly to requests for services and to make available to its clients, on a personal basis, the experience and expertise of the senior management of the company. Each of the Halcrow engineers nominated in this proposal is a specialist in his or her respective discipline specifically as that discipline relates to the marine environment.

In the 2007 rankings of port/marine engineering firms by Engineering News Record, Halcrow is ranked as the sixth largest in the nation. Halcrow has carried out more waterfront projects than any other consulting engineering firm in the New York region. Thus, Halcrow is in the unique position of being able to provide its clients with the attentive, personal service provided by a small firm and the full range of engineering expertise provided by a large firm.

Halcrow's Underwater Inspection Group was established in response to the increasing demand for high quality underwater inspection services. The services provided by Halcrow are unique in the industry. As a major consulting engineering firm specializing in marine projects, Halcrow's engineers and engineer-divers have developed a sound understanding of the design and analysis of all types of marine structures and are fully aware of the type of information that must be obtained from underwater inspections, and the form in which this information will be most useful. This team has many years of experience in marine engineering, commercial diving, underwater inspection, and underwater construction. This diverse experience includes the inspection and analysis of almost every type of underwater structure and spans a large variety of locations worldwide, including virtually all of the PANYNJ's waterfront structures.

To ensure the success of this Project, it is critical that underwater inspections of each structure be carried out by individuals with a sound understanding of the nature and effect of deterioration and damage to which all structural materials in the marine environment are subject. They must also be fully aware of the potential remediation measures and know which measures are applicable in each situation.

All underwater and above water inspection, engineering evaluation, design, drawings, specifications, cost estimating, and report writing is carried out by Halcrow's regular, full time staff, which means that Halcrow maintains full control of the quality of the individuals working on all phases of the project and insures that project schedules are met. Most equipment necessary to perform inspection work is owned by the company, thus assuring high reliability and full availability whenever required. Halcrow will conduct any necessary underwater inspection utilizing highly qualified engineer-divers from the firm's regular full time staff.

Based on the high quality and waterfront specialization of its core staff, Halcrow has established itself as the leading consultant in waterfront engineering. Halcrow is proud of its premier reputation for innovation, imaginative and sound application of technical principles, and, most importantly, accurate construction cost estimating and effective project cost control. Growth of the firm has been carefully controlled and judicious in order to maintain the company's high standards of excellence. Its success can be measured by the number of citations for engineering excellence that have been awarded by its peers as well as the large volume of repeat business from clients.

Proposal Arrangement

The remainder of this technical proposal is organized to provide all of the requested information in the sequence requested in the RFP. Halcrow's understanding of the general Scope of Work to be carried out under this contract is included as part of Tab F.

Sections of this proposal are presented in the lettered format specified in the Submission Requirements section of the RFP, separated with tab dividers as requested:

Tab A. Attachment B

Tab B. Multiplier

Tab C. Resumes

Tab D. Rates

Tab E. Relevant Experience

Tab F. Management Approach and Scope of Work

Tab G and H. Affiliates and Quality Control/Assurance

Tab I and J. Conflict of Interest and Standard Agreement

A. Attachment B

A. Attachment B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefore (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

Halcrow, Inc.
NAME OF COMPANY

Jonathan Goldstick
SIGNATURE OF OFFICER
Jonathan Goldstick

Senior Vice President
TITLE

October 9, 2008
DATE

B. Multiplier

B. Multiplier

The multiplier referred to in the first line of subparagraph 9.A of the Authority's Standard Agreement is proposed as **2.95**. The multiplier used on Halcrow's current contracts is 2.89, developed based on an overhead factor of 161%. In 2006, the firm had an overhead factor of 182.786% as indicated on the overhead analysis on the next two (2) pages, prepared by an independent auditor, Kreisher Miller. Using the 182.786% overhead factor and the same 10% profit margin previously applied to Authority contracts would result in a significantly higher multiplier than our existing one. Since the Authority is a particularly important client, we are requesting a reduced fixed multiplier rate of **2.95** for this contract.

HALCROW (USA), INC.

Overhead Rate Schedule
Year Ended December 31, 2006

Description	General Ledger Balance	Exclusions		Direct Costs	Allowable Indirect Costs
Direct labor	$ 11,252,494	$ -		$ 11,252,494	$ -
Fringe benefits:					
Paid time off	2,358,653	-		-	2,358,653
Employee benefits	2,770,152	-		-	2,770,152
Payroll taxes	1,369,953	-		-	1,369,953
Officers' life insurance	20,075	20,075	(1)	-	-
Total fringe benefits	6,518,833	20,075		-	6,498,758
General overhead:					
Indirect labor	6,212,007	-		-	6,212,007
Subcontractor cost	14,770,659	-		14,700,241	70,418
Other direct cost	1,853,614	-		1,853,614	-
Temporary administrative staff	40,707	-		-	40,707
Office rent	1,868,441	-		-	1,868,441
Administrative services	7,772	-		-	7,772
Repairs and maintenance - buildings	39,729	-		-	39,729
Security	1,586	-		-	1,586
Cleaning	32,390	-		-	32,390
Other accomodation costs	67,705	-		-	67,705
Overseas housing allowance	11,400	-		-	11,400
Electricity	99,663	-		-	99,663
Repairs & maintenance - vehicles	26,016	-		-	26,016
Vehicle rental	13,832	-		-	13,832
Insurance - vehicles	27,283	-		-	27,283
Depreciation - vehicles	10,903	-		-	10,903
Fuel, oil and sundry vehicle expenses	33,954	35	(2)	-	33,919
Mileage	13,062	-		-	13,062
Air, rail and taxi fares	407,376	1,500	(2)	-	405,876
Subsistence	95,636	28,691	(3), (4)	-	66,945
Hotel accomodation	268,962	86,964	(3), (4)	-	181,998
Prints and photos	35,276	3,677	(2)	-	31,599
Photocopying	21,775	-		-	21,775
Telecommunications	147,231	131	(5)	-	147,100
Mobile telephones	119,633	5	(5)	-	119,628
Internet costs	85,298	-		-	85,298
Repairs and maintenance - computers	38,836	-		-	38,836
Rental - computers	5,771	-		-	5,771
Depreciation - computers	86,016	-		-	86,016
Software maintenance	73,987	-		-	73,987
Repairs and maintenance - equipment	86,965	-		-	86,965
Rental - equipment	180,253	60	(5)	-	180,193
Depreciation - equipment	454	-		-	454
Rental - furniture and fittings	7,649	-		-	7,649
Insurance - furniture and fittings	10,660	-		-	10,660
Supplies	148,136	-		-	148,136
Depreciation - other	286,020	-		-	286,020
Consumable materials	23,824	-		-	23,824
Medical and eye test fees	2,957	-		-	2,957
First aid items	1,978	-		-	1,978
Protective clothing and equipment	3,450	-		-	3,450
Entertaining	20,204	20,204	(4)	-	-
Advertising	11,386	11,386	(6)	-	-
Stationery	176,515	1,499	(2)	-	175,016
Postage, courier, etc	79,681	3,421	(2)	-	76,260
Microfilming and storage	18,556	-		-	18,556
Office other costs	33,928	-		-	33,928

See accompanying notes to overhead rate schedule.

Continued...

HALCROW (USA), INC.

Overhead Rate Schedule, Continued
Year Ended December 31, 2006

Description	General Ledger Balance	Exclusions		Direct Costs	Allowable Indirect Costs
Insurance - equipment	43,575	-		-	43,575
Insurance - general	328,656	10,038	(1)	-	318,618
Insurance - property insurance	275,540	-		-	275,540
Insurance - long term disability	22,000	22,000	(2)	-	-
Library charges	1,246	-		-	1,246
Technical literature	6,367	-		-	6,367
Subscriptions - corporate	36,114	-		-	36,114
Subscriptions - individual	7,377	-		-	7,377
Donations	2,844	2,844	(7)	-	-
Advertising (recruitment)	1,317	-		-	1,317
Recruitment fees	218,452	-		-	218,452
Moving costs	38,731	-		-	38,731
Bank charges	11,813	1,037	(8)	-	10,776
Bank guarantees	1,506	1,506	(8)	-	-
Vending machines	60	-		-	60
Staff restaurant	1,530	1,530	(9)	-	-
Tea and coffee, etc	29,277	29,277	(9)	-	-
Company functions	53,468	53,468	(9)	-	-
Fitness club	1,903	-		-	1,903
Staff welfare	5,998	5,998	(9)	-	-
Other staff related costs	2,072	-		-	2,072
Immigration expenses	7,362	-		-	7,362
Audit, other	14,000	-		-	14,000
Taxation advice	15,221	-		-	15,221
Accountancy fees	22,692	-		-	22,692
Legal fees	88,637	-		-	88,637
Other professional fees	72,756	-		-	72,756
License fees	32,823	-		-	32,823
Training courses	8,890	-		-	8,890
Training materials	2,599	-		-	2,599
Conferences	26,727	-		-	26,727
Bad debts expense	508,568	508,568	(10)	-	-
Realized and unrealized exchange gains	(1,055)	-		-	(1,055)
Regional reallocations	1,749	-		-	1,749
Home office allocation	1,904,583	-		-	1,904,583
Interest expense	90,313	90,313	(8)	-	-
Taxation - corporate	4,175	-		-	4,175
Accrued costs	8,207	-		-	8,207
Error suspense	(499)	(499)	(2)	-	-
	$ 38,025,563	$ 903,728		$ 16,553,855	$ 20,567,980

General and Administrative Overhead Rate = $\frac{\text{Allowable Indirect Costs}}{\text{Direct Labor}} = \frac{\$\ 20,567,980}{\$\ 11,252,494} = 182.7860\%$

Note References:
1. Key man life insurance expenses are unallowable per FAR 31.205-19.
2. Expenses related to prior years are unallowable per FAR 31.201-4.
3. Costs of alcoholic beverages are unallowable per FAR 31.205-51.
4. Entertainment costs are unallowable per FAR 31.205-14.
5. Penalties are unallowable per FAR 31.205-15.
6. Public relations and advertising costs are unallowable per FAR 31.205-1.
7. Contributions or donations are unallowable per FAR 31.205-8.
8. Interest expenses are unallowable per FAR 31.205-20.
9. Costs of gifts and recreation are unallowable per FAR 31.205-13
10. Bad debts and any directly associated costs are unallowable per FAR 31.205-3.

See accompanying notes to overhead rate schedule.

C. Resumes

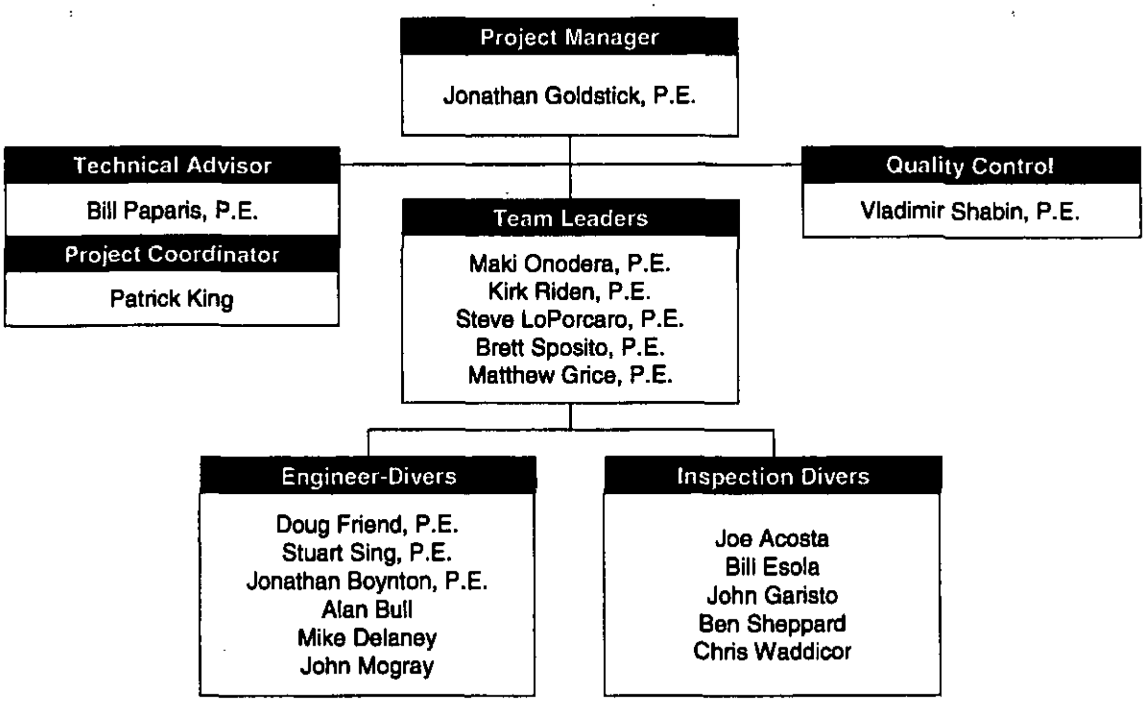
C. Staff Qualifications and Resumes

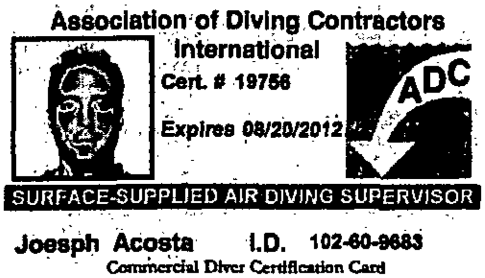
Halcrow is proud to be able to put forward the highly skilled, experienced, and committed people presented in the following resumes. The firm puts a great deal of emphasis on recruiting and retaining the highest caliber of marine engineering experts in the field and we are pleased to make this expertise available to the Authority. All of the individuals presented in these resumes have direct relevant experience in working on Authority projects, and five of the individuals have been involved in every PANYNJ contract Halcrow has held, dating back to 1990. As with the relevant firm experience presented in this proposal, Halcrow has focused the information in these resumes on the depth of our staff's specific experience on Authority projects, however we have also included a few relevant outside projects for your reference. Halcrow strongly encourages the Authority to contact the referenced client contacts presented in this proposal to inquire about the capabilities of any of the key staff presented *herein*.

All of the proposed Team Leaders and inspection team members are certified commercial divers registered with the Association of Diving Contractors and are well versed in all of the OHSA regulations governing safe diving practices. This enables the firm to ensure that operations are carried out in the safest, most effective manner, and in strict accordance with the relevant regulations.

Further, all of the proposed Project team members are experts in the assessment and repair of structural components, upland, above water, and under the water. Members of the Project team have developed industry guidance manuals for engineering and inspection for the ASCE, the US NAVY, the USCG, and a host of private clients.

Project Organization





Credentials

University of Pennsylvania School of Medicine
Graduate Studies Molecular Biology

SUNY/College at Old Westbury
Bachelor of Science Biological Sciences

Divers Academy of the Eastern Seaboard
Commercial Diver Certification

NICET Level I Certification in Transportation Engineering Technology/Bridge Safety Inspection

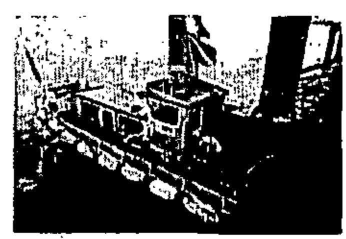
FHWA National Highway Institute Training
Safety Inspection of In-Service Bridges

Twelve years experience as a commercial diver performing above and underwater inspection, environmental monitoring, construction, and construction supervision for consulting engineering and marine construction companies. Projects include marine terminals, coastal and waterfront structures, landfills, and building structures. Specific areas of expertise include non-destructive testing, timber coring, underwater still and video photography, condition evaluations, and report preparation.

Selected Port Authority of New York & New Jersey Experience

Brooklyn Piers 6 through 8 and 9B, Port Authority of NY & NJ. Senior Dive Supervisor/Inspection Diver for detailed design level inspection. This project required detailed measurements of previously reported defects in order to design repairs. The inspection included timber piles, concrete extensions and steel sheet pile bulkhead.

Greenville Yards, Bayonne, NJ, Port Authority of NY & NJ. Senior Dive Supervisor/Inspection Diver for the above and underwater inspection of 880 feet by 120 feet of a timber pile supported, timber deck, high level platform pier; 1,030 feet by 200 feet of an earth filled pier buttressed by timber relieving platforms; 1,335 feet of steel sheet pile bulkhead constructed immediately offshore of a timber crib bulkhead; and, 900 feet of a collapsed timber crib bulkhead, currently consisting of a sloped shore.



Brooklyn Piers 6, 7 and 8, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for the underwater and above water inspection of the timber piles, concrete extensions, and steel sheet pile bulkhead. The inspection included a 100% swim-by of all piles and extensions, as well as a level II inspection of 10% of the piles. Underwater photography was performed using a digital camera.

Holland Tunnel Piers 9 and 204, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for cyclical general condition survey of the timber piles and pile caps that support the piers, which allow emergency vehicles and personnel access to the tunnel vent building in the event that the tunnel must be evacuated in an emergency. Underwater photography was performed using a digital camera.

Selected Port Authority of New York & New Jersey Experience (cont'd)

Hoboken Ferry Terminal, NJ, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for a general condition project which included the underwater and above water inspection of steel pipe piles that support the ferry terminal and the pedestrian walkways. The inspection included a 100% swim-by of all piles and the underside of the two spud barges to which the ferries dock. A level II inspection of 10% of the piles and at several locations along the barges was also performed. Underwater photography was performed using a digital camera.

Port Newark Berths 2 through 36, NJ, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for a cyclical general condition survey of several structures and elements throughout the port. Elements inspected included timber, steel and concrete piles, as well as steel and timber sheet pile bulkheads. Underwater photography was performed using a digital camera.

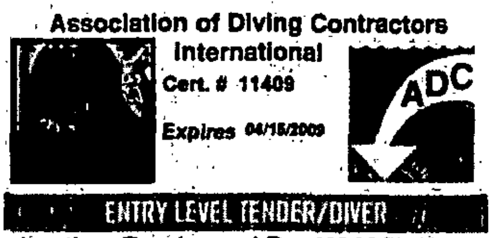
Brooklyn Piers 1 through 5, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for an underwater and above water inspection of timber piles underneath a low-level relieving platform. The inspection included detailed measurements of pile and bent spacing, as well as deck to mudline clearances.

Port Newark, NJ, Port Authority of NY & NJ. Dive Supervisor/ Inspection Diver for an inspection of 26 buildings at the port. The structural integrity of the buildings as well as immediate safety concerns were addressed in this inspection.

Brooklyn Pier 9A, Port Authority of NY & NJ. Dive Supervisor/ Inspection Diver for an emergency inspection of the pier. The underwater inspection included an assessment of the extent of damage to the timber piles and concrete extensions in the area of impact, as well as the adjacent areas. The above water inspection included an assessment of the extent of damage to the concrete deck in the area of impact.

Brooklyn Pier 8, Port Authority of NY & NJ. Dive Supervisor/ Inspection Diver for an underwater inspection of the steel sheet pile bulkhead. The inspection included taking ultrasonic thickness readings of the steel sheets to determine whether the deterioration had accelerated since the previous inspection.

LaGuardia Airport, Queens, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for an underwater and above water inspection of the steel pipe piles, concrete beams, deck, and steel sheet pile. This was a general condition inspection involving ultrasonic thickness measurements of the steel pipe piles and bathycorrometer readings of the sacrificial cathodic protection system.



Jonathan Boynton I.D. 625-93-7729
Commercial Diver Certification Card

Registration

Licensed Professional Engineer – State of CA

Credentials

California Polytechnic State University, San Luis Obispo, 1999
Bachelor of Science, ARCE (Structural Engineering)

Santa Barbara City College, Marine Diving Technology
ANSI/ACDE Commercial Diving Certification
ADC Commercial Diving Certification
EMT California Emergency Medical Technician Certification

Federal Highway Administration – National Highway Institute

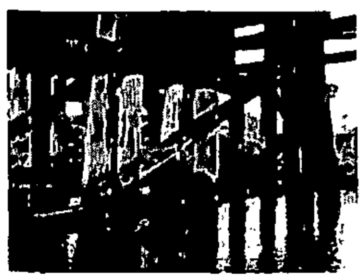
Safety Inspection of In-Service Bridges

Nine years of structural engineering and architectural design experience. Certified as a commercially trained diver. Project experience includes forensic analysis of foundation failures and repair design, structural analysis and framing design for residential and commercial buildings, underwater inspection, construction management, offshore platform well intervention and structural debris removal, and architectural design.

Selected Relevant Experience

Pier 76 on the Hudson River, Manhattan, NY. Project Engineer-Diver for an above water and underwater inspection. Performed a 100% visual and 10% level II inspection of over 6,400 timber piles with reinforced concrete extensions, reinforced concrete pile caps, and concrete deck structure.

Elizabeth Port Authority Marine Terminal, NJ, Maersk. Engineer-Diver for the underwater construction inspection of the cathodic protection installed on King Piles at the container terminal. The inspection included a determination as to whether or not the cathodic protection was installed to specifications. In addition, measurements were taken of the spacing between King piles at the mudline, in order to determine if they were driven to specifications.



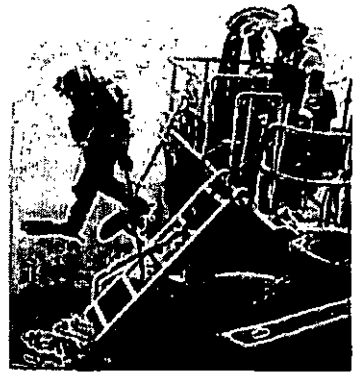
Norfolk Naval Shipyard, VA, Naval Facilities Engineering Service Center. Project Engineer-Diver for a full detailed above water and underwater inspection of steel sheet pile bulkheads, steel and concrete piles, and various marine structures.

Pier 13 at St. Helena's Annex, Portsmouth, VA. United States Navy. Engineer-Diver for an above and underwater inspection which included a 100% swim-by as well as a level II inspection of 10% of the piles, and at several locations along the bulkhead. Underwater photography was performed using a digital camera.

Selected Relevant Experience (cont'd)

BP Pipeline, Dominguez Channel and Los Angeles River, Carson/Long Beach, CA. Professional Engineer-Diver for the underwater inspection of six BP pipeline trestles. The project included a 100% visual and 10% level II inspection of timber and steel piles and four concrete piers.

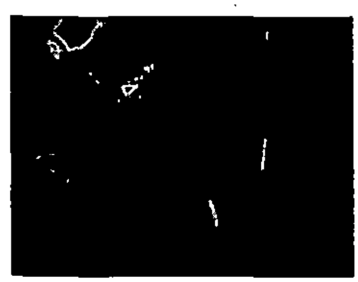
Port of Los Angeles, Berths 240B/240C, San Pedro, CA, ExxonMobil. Professional Engineer-Diver for the MOTEMS complicance inspection of ExxonMobil marine oil terminal. The project included a 100% visual and 10% level II inspection of timber and concrete encased piles.



Oxnard Harbor District Berth 4, Port Hueneme, CA. Project Engineer-Diver for an above water and underwater inspection. Work was required due to a crane accident which caused significant damage to the concrete deck. The deck and concrete piles in the vicinity of the damage were inspected to document extent of damage and provide information required for the repair design.

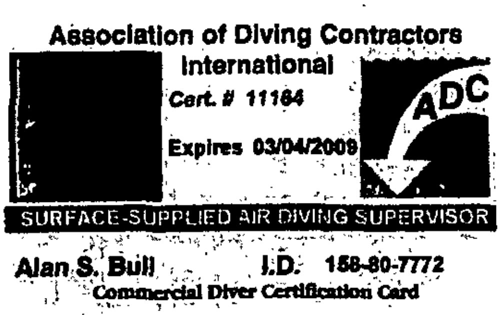
Cote D'Azur Condominium Complex, Sausalito, CA for the Cote D'Azur Condo Association. Engineer for the inspection and repair design. The project included full detailed above water baseline inspection of the foundation and seismic bracing for three condominium buildings located in the tidal zone, report preparation of inspection findings, repair design, and preparation of repair plans.

King's Harbor Apartments, Redondo Beach, CA. Project Engineer-Diver for an above water and underwater inspection of the concrete support piles. Performed a 100% visual and 20% level III inspection the steel encased concrete piles.



Ecopetrol PLEMS (Pipe Line End Manifolds), Colombia, South America. Project Engineer-Diver for the underwater inspection of two PLEMS (Pipe Line End Manifolds) at two different sites in Colombia. Inspections included Level III thickness readings on the adjoining sub-sea pipelines, corrosion potential readings, and detailed measurements of existing structures.

ALAN S. BULL III — Engineer-Diver



Credentials

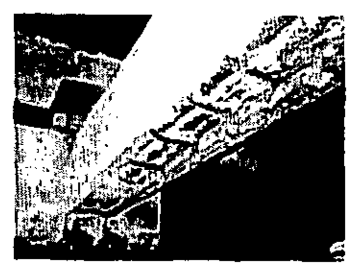
Virginia Military Institute, BSc in Mechanical Engineering

Divers Academy of the Eastern Seaboard
Commercial Diver Certification

New Mexico State University
National Bridge Inspector Certification

More than seven years of experience as a commercial diver performing above and underwater inspection and construction supervision for consulting engineering company. Projects include marine terminals, coastal and waterfront structures, and building structures. Specific areas of expertise include non-destructive testing, timber coring, underwater still photography, condition evaluations, and report preparation.

Selected Port Authority of New York & New Jersey Experience



Piers 9 & 204, Jersey City, New Jersey, Port Authority of NY & NJ. Engineer-Diver for an above and underwater inspection which included 100% swim-by of all timber piles and location of all sink holes and possible areas of future loss. The inspection took place in extreme low overhead diving conditions.

Port Newark, New Jersey, Port Authority of NY & NJ. Engineer-Diver for an above and underwater inspection of the odd berths. The inspection included the riprap profiles throughout the berths, Level I and Level II inspections of over 16,000 timber piles, a visual swim by inspection of newly installed steel pipe piles, concrete under deck and pile cap visual inspection, and a topside visual inspection of the mooring elements and any deficiencies with deck cap.

LaGuardia Airport Runway, Queens, Port Authority of NY & NJ. Engineer-Diver for an underwater and above water inspection of the pier. The inspection included 100% swim-by of all steel pipe piles and cathodic protection system for the entire runway. Also a level II and III inspection of 10% of the piles was done for further assessment of the runway.

Port Elizabeth Marine Terminal, Berths 50 through 86, Elizabeth, New Jersey, Port Authority of NY & NJ. Engineer-Diver for this cyclical condition survey. Inspected elements included over 2 mi. of wharf structure supported by over 17,000 steel and timber piles, concrete pile extensions and pile caps, concrete seawall, and timber and steel sheet pile wall.

Red Hook Container Terminal, New York Marine Terminal, Brooklyn, Port Authority of NY & NJ. Engineer-Diver for this cyclical condition survey . Inspected elements included three (3) separate wharves supported by timber and steel pipe piles with concrete pile extensions, prestressed concrete girders and deck panels, and steel sheet pile bulkhead.

Selected Port Authority of New York & New Jersey Experience (cont'd)

Downtown Manhattan Heliport, Port Authority of NY & NJ. Project Manager/Team Leader for this condition survey. The work included inspection of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform.

Lincoln Tunnel Vent Buildings, New York, Port Authority of NY & NJ. Engineer-Diver for cyclical condition survey of the waterfront structures comprising the Lincoln Tunnel New York River Ventilation Buildings. The scope of the condition survey included above water and underwater inspection of the accessible faces of the granite block walls, which clad the north and center caisson foundations at the mudline, and the granite fascia panels, which clad the lower portions of the north and center ventilation buildings immediately above the caissons to the surrounding Pier 79 deck underside. The concrete deck underside of Pier 79 was also inspected immediately adjacent to the ventilation buildings.

Piers 1 and 3, New York Marine Terminal, Brooklyn, Port Authority of NY & NJ. Engineer-Diver for this cyclical condition survey. The above water and underwater inspections of all structural elements of Pier 1, which included 1,315 treated timber piles, 1,313 concrete pile extensions, approximately 550 lin ft of concrete-encased steel sheet pile and timber sheet pile bulkhead, and 925 lin ft of steel sheet pile bulkhead; Pier 3, which included 3,448 treated timber piles and 3,447 concrete pile extensions; as well as various other elements at both of the structures. The two-month investigation found no immediate actions to be required.

Piers 6, 7, and 8, Brooklyn, Port Authority of NY & NJ. Engineer-Diver for the underwater and above water inspection, including 100% swim-by of all piles and concrete extensions, as well as a level II inspection of 10% of the piles, evaluation of the concrete decking, and pier hardware.

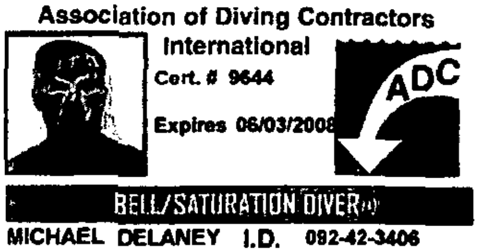
Howland Hook Marine Terminal, Staten Island, Port Authority of NY & NJ. Engineer-Diver for the above and underwater inspection of pre-formed and pre-stressed concrete piles and concrete decking.

Brooklyn Pier 12 and Wharf 10, Port Authority of NY & NJ. Engineer-Diver for the above and underwater inspection, including a 20% swim by of piles supporting the structures, existing condition of the bulkhead, all topside elements including the concrete deck, hardware, and light poles.

Other Relevant Experience

Pier 90, NY Passenger Ship Terminal, NYC Economic Development Corporation. Engineer-Diver for the underwater removal of timber pile wraps, DO testing, and timber coring.

Pepsi-Cola Factory Pier, Queens West, Brooklyn, NY. Engineer-Diver for the above and under water inspection of the pier. The inspection survey was to observe the remaining standing area of the pier and map out the collapsed section of the pier. The inspection also included mapping out the remaining pile spacing and to survey the bottom of the immediate river.



Commercial Diver Certification Card

Credentials

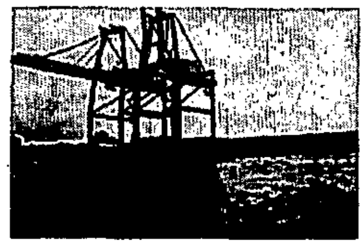
Manhattan College
Bachelor of Engineering in Civil Engineering

New Mexico State University, Las Cruces
Certified Bridge Inspector

Professional Diving School of NY
Certified Diver

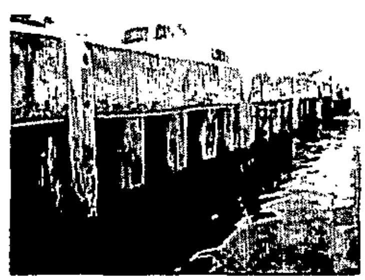
Over twenty-nine years experience as an engineer-diver performing under-water construction and marine civil/structural engineering for marine construction contractors and consulting engineers. Projects have included virtually every type of waterfront structure, submarine pipelines, submarine cables, bridges, and dams. Specific areas of competence are underwater U/T, photography and video, hydrographic surveys, structure condition evaluation, waterfront/underwater construction cost estimating, and construction supervision.

Selected Port Authority of New York & New Jersey Experience



"On-call" Engineering Services for Condition Surveys of Waterfront Facilities for the Port Authority of NY & NJ. Engineer-Diver for multiple contracts involving numerous projects, including regular maintenance work and emergency response inspections for waterfront facilities of myriad types and constructions. Typically, projects entailed 100% visual inspection of all structural elements and 10% detailed inspection of select elements. Detailed inspections include cleaning of the structural elements, ultrasonic thickness measurement of steel, sounding of concrete, and evaluation of timber elements with regard to the presence of marine borers.

Piers 1, 2, 3, 4 and 5 and Related Bulkheads in Brooklyn, Port Authority of NY & NJ. Project Engineer-Diver for this structural integrity inspection and assessment. The work included ultrasonic thickness measurements, wood core analysis, detailed examination of substructure elements, and documentation with underwater video and still photography.



Arthur Kill Railroad Bridge Elizabeth, NJ, Crossing the Arthur Kill Waterway, Staten Island, Port Authority of NY & NJ. Project Engineer-Diver for underwater inspection. The work was performed for the Port Authority of NY and NJ. A condition survey of all structural elements, bottom scour profiling, and ultrasonic testing of steel sheet pile fendering cells was carried out.

Port Newark Berths 51, 53 and 61, NJ, Port Authority of NY & NJ. Project Engineer-Diver for the emergency inspection following a ship/crane collision.

Selected Port Authority of New York & New Jersey Experience (cont'd)

Passenger Ship Terminal Piers 88, 90, 92, 94 and Pier 40 and Related Bulkheads, Port Authority of NY & NJ. Project Engineer-Diver for this structural integrity inspection and assessment. The work included ultrasonic thickness testing, wood core analysis, detailed examination of substructure elements, and documentation with underwater video and still photography.

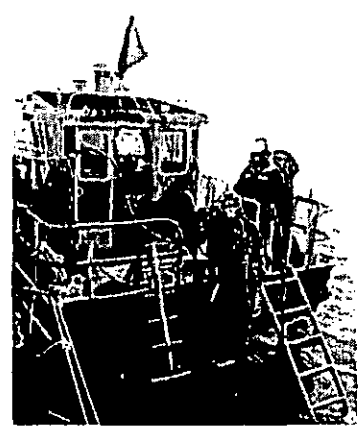
Piers 9 and 9A, Red Hook Terminal, Brooklyn, NY, Port Authority of NY & NJ. Engineer-Diver for the site investigation, assessment of structural condition, design and repair of damaged bulkhead between Repair incorporated new sheeting adapters, grouting with nylon forming bags, and underwater welding.

Hoboken Ferry Terminal Barge and Ferry Slips, NJ, Port Authority of NY & NJ. Engineer-Diver for the underwater condition survey of piles and structural framing of the consisting of visual and photographic inspection, timber core sampling and analysis, and ultrasonic thickness measurements of wide flange steel beams.

Port Newark, NJ, Port Authority of NY & NJ. Engineer-Diver for the underwater structural integrity inspection of eighteen berths at Port Newark. The structures consist of approximately sixteen thousand timber, steel and concrete piles with most berths featuring concrete decks. The data collected resulted in structural assessments and recom-mendations for various repair alternatives.

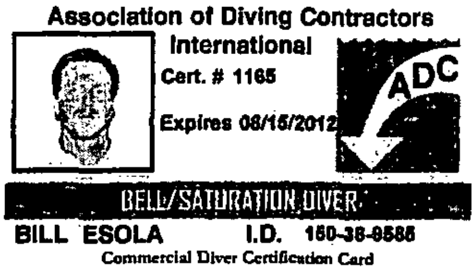
Other Relevant Experience

Point Molate Pier, Naval Supply Center, Oakland, CA, Chesapeake Division, Naval Facilities Engineering Command. Underwater inspection, structural evaluation, and preliminary design and cost estimate for measures required to correct deficiencies for the pier. The work was carried out for underwater and above water inspection.



Neddill 2 Exploration Drillship, NJ. Underwater inspection and recovery operation for drillship located 40 miles offshore of the New Jersey Coast. Operations included 230-ft dives utilizing mixed gas and surface decompression, for the retrieval of lost mooring equipment.

Richmond-San Rafael Bridge, Benicia-Martinez, and Carquinez Bridges, CA, CALTRANS. Performed underwater construction inspection services to for the seismic retrofit of three major toll bridges in Northern California. Construction support services are being provided during extensive underwater work, including new piles, jackets, sleeves, footings, etc.



Credentials

Stockton State College & Somerset County College

Professional Diving School of New York
ADC Commercial Diver Certification

P.A.D.I Diving Instructor

Remotely Operated Vehicle, (ROV) Pilot

Pisces Class, Manned Submersible Pilot (Pisces VI)

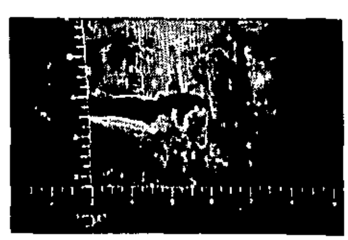
Medic/ First Aid – Diving emphasis
Certified Oxygen Provider

Occupational Safety and Health Administration – 10 hour

USCG Captains License, 50 ton Master Grade

More than twenty-nine years experience as a commercial diver performing underwater structural inspections, construction inspections, and construction supervision for consulting engineering and marine construction companies. Projects have included waterfront structures, offshore platforms, coastal structures, submarine pipelines and cables, bridges, and dams. Specific areas of expertise are underwater still and video photography, non-destructive testing, fathometric and hydrographic survey, timber and concrete coring, evaluation of existing cathodic protection systems, structural condition evaluations, report writing and CAD work. Additional specialized training in manned submersible piloting, ROV Piloting, PADI Open Water Diver Instruction, Climbing and repelling inspection techniques for specialized inspection projects, and a wide variety of non-destructive testing techniques.

Selected Port Authority of New York & New Jersey Experience



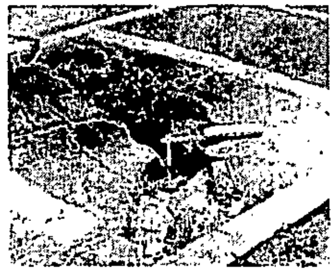
"On-call" Engineering Services for Condition Surveys of Waterfront Facilities for the Port Authority of NY & NJ. Technician Diver for multiple contracts involving numerous projects, including regular maintenance work and emergency response inspections for waterfront facilities of myriad types and constructions.

Port Newark Berths 2 through 36, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for this cyclical condition survey. Inspected elements included steel, timber and concrete sheet pile bulkheads; pipe, pre-cast concrete, and timber piles; and concrete and timber pile caps and decking.

Berths 86 through 98, Elizabeth Port Authority Marine Terminal, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for an underwater and above water inspection of timber piles. The inspection was a general condition assessment of the berths. Personal responsibilities included planning, execution and supervision of all diving activities conducted during the extent of the project.

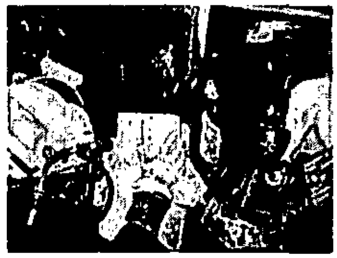
Brooklyn Piers 9 and 9A, Red Hook Terminal, Port Authority of NY & NJ. Performed site investigation, assessment of structural condition, design and repair of damaged bulkhead between the piers. Repair incorporated new sheeting adapters, grouting with nylon forming bags, and underwater welding.

Selected Port Authority of New York & New Jersey Experience (cont'd)



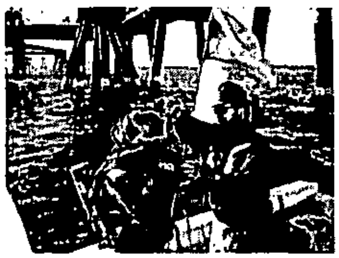
Arthur Kill Railroad Bridge, Elizabeth, NJ, Crossing to the Arthur Kill Waterway, Staten Island, Port Authority of NY & NJ. Dive Supervisor/Inspection Diver for an underwater inspection. A condition survey of all structural elements, bottom scour profiling, and ultrasonic testing of steel sheet pile fendering cells was carried out.

Berths 51, 53 and 61, Port Elizabeth, Port Authority of NY & NJ. Performed emergency inspection for the sinkholes and associated causes were documented and detailed using underwater photography and various measuring devices. Remaining steel thickness readings were recorded using ultrasonic methods. Repairs enable normalization of work procedures for tenant.



Passenger Ship Terminal Piers 88, 90, 92, and Pier 40 and Related Bulkheads, Port Authority of NY & NJ. Performed structural integrity inspection and assessment of the piers and bulkheads. The work included ultrasonic thickness testing, wood core analysis, detailed examination of substructure elements, and documentation with underwater video and still photography.

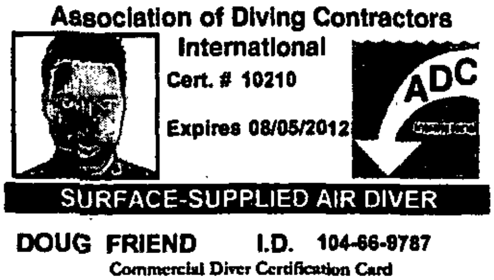
Brooklyn Piers 1, 2, 3, 4, and 5 and Related Bulkheads, Port Authority of NY & NJ. Structural integrity inspection and assessment of The work included ultrasonic thickness measurements, wood core analysis, evaluation of marine borer activity, detailed examination of substructure elements and documentation with underwater video and still photography.



Pier J at the Brooklyn Navy Yard, Port Authority of NY & NJ. Performed underwater inspection of the pier. The pier was supported by large diameter, concrete filled caissons that have no exposure above the waterline. The inspection work was completed in low visibility water with strong current conditions. The fieldwork was followed by the preparation of a condition report that outlined the findings of the inspection.

Pier 40, Manhattan, Port Authority of NY & NJ. Performed underwater and above water inspection of the deck elements, piles, pile repairs and cathodic protection of system. Work included inspection of over 10,000 piles, underwater photography, ultrasonic thickness measurements and a comprehensive report.

Brooklyn Piers 6, 7 and 8 on the East River, Port Authority of NY & NJ. Conducted underwater and underdeck inspection of Piers 6, 7 and 8. The piers were comprised of approximately 11,000 timber with concrete extensions supporting a concrete deck. One hundred percent of the structural elements were visually inspected and 10% of the elements were inspected in-depth including cleaning of piles to evaluate the presence of surface marine borers. Timber cores were taken under a separate contract to evaluate the presence of internal marine borers.



Registration

Licensed Professional Engineer – Commonwealth of MA

Credentials

Manhattan College, BSc in Civil Engineering
Columbia University, MASc in Civil Engineering
Santa Barbara City College, Commercial Diving Instruction
Scuba Schools International, Stress and Rescue Diver
Specialized Climbing and Rappelling Training

More than eleven years of experience in inspection, evaluation, analysis and design of marine and waterfront structures. Has been Team Leader and Project Engineer-Diver for a multitude of projects, including piers, platforms, bulkheads, wharves, bridge structures, and other marine facilities. Specific areas of competence are condition structural evaluation, construction supervision and inspection, steel and concrete design, and analysis of marine structures. Mr. Friend was the Project Manager for Halcrow's facility condition survey call-in basis contract for the United States Coast Guard.

Selected Port Authority of New York & New Jersey Experience

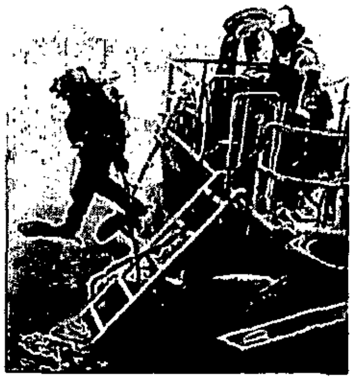
Brooklyn Piers 1, 2, 3 and 5, Port Authority of NY & NJ's Facility Condition Survey Program. Engineer-Diver for the underwater and above water inspection of the piers. Scope of work included general condition inspections of the substructures and superstructures at Piers 1, 3, and 5 and a detailed inspection of the substructure and superstructure at Pier 2. All of the piers consist of concrete decks supported by timber piles. Of primary concern was the level of deterioration of the timber piles due to marine borer infestation. Inspection included extensive underwater photography.

Piers 6, 7, and 8 on the East River in Brooklyn, Port Authority of NY & NJ. Project Engineer/Inspection Team Leader for the above and underwater inspection. The survey included the examination of approximately 11,000 timber piles with associated concrete extensions, which support a concrete deck. All of the structural elements were visually inspected in-depth, including cleaning of piles to evaluate the presence of surface marine borers. Timber cores were taken under a separate contract to evaluate the presence of internal marine borers. Prepared a detailed inspection survey report including underwater photographs and detailed inspection sketches.

Brooklyn Piers 1 and 3, Brooklyn, Port Authority of NY & NJ. Engineer-Diver for cyclical inspection. Tasks included full detailed above water and underwater inspection of pier platforms and retaining structures, analysis of findings, and report preparation.

Selected Port Authority of New York & New Jersey Experience (cont'd)

Berths 88 through 98, Port Elizabeth Marine Terminal, NJ, Port Authority of NY & NJ. Engineer-Diver for an underwater and above water inspection. The berthing area consists of low-level relieving platforms supported by timber piles. The project included 100 percent visual and 10 percent hands-on inspection of the timber piles, concrete pile extensions, pile caps, deck, and mooring fittings. Hands-on inspection included cleaning structural elements, probing with picks or hammers to determine soundness, and detailed mapping of defects observed. Additionally, profiles of the rip-rap dike elevation were taken at approximately 100 ft intervals. Results of the inspections were presented in condition survey reports including photographs and figures depicting observed conditions.



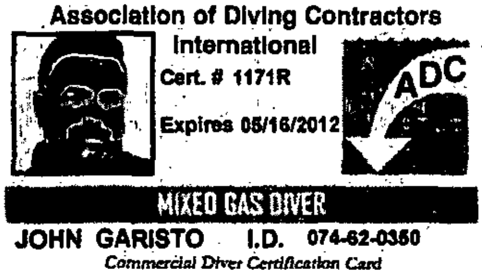
Berths 51 through 63, Port Elizabeth Marine Terminal, NJ, Port Authority of NY & NJ. Engineer-Diver for the general condition inspection of the port. The berthing area consists of low-level relieving platforms supported by timber piles. The inspections included 100 percent visual and 10 percent hands-on inspection of the piles, pile extensions, pile caps, deck, and mooring fittings. Hands-on inspection included cleaning structural elements, probing with picks or hammers to determine soundness, and detailed mapping of observed defects.

Other Relevant Experience

"On-Call" Marine Engineer, New York City Economic Development Corporation. Provided comprehensive "on-call" marine engineering services for waterfront sites in all five boroughs of New York City. The services provided include above and underwater inspections; condition evaluations; recommendations for maintenance; preparation of designs, drawings, and specifications for repairs; cost estimating; and inspection of construction.

39th Street Pier and Bulkhead, South Brooklyn Marine Terminal, New York City Economic Development Corporation. Project Engineer for the underwater and above water inspection of the. The inspection included approximately 3100 LF of steel sheet pile bulkhead, 324 LF of timber pile supported relieving platform, 215 LF of concrete and granite block seawall, and approximately 820,000 SF of concrete floor and apron slabs. A comprehensive report on the above water and underwater inspections was provided. This included observed conditions, structural condition assessments, recommendations for priority and maintenance repair programs, and cost estimates for repairs for the structures.

Halcrow



Credentials

State University of New York at Buffalo
BA in Environmental Science

State University of California at Santa Barbara
Commercial Diver Certification

Professional Association of Dive Instructors
Master Dive Trainer
Medic First Aid
Oxygen Provider Trainer

Federal Bridge Inspection Training

Eleven years of experience in the analysis, design, and inspection of various structures and mechanical systems, with 7 years specifically in the marine environment. Projects and studies have included commercial and military waterfront facilities, public esplanades, industrial facilities and systems, bridges, and commercial and institutional building systems. Specific areas of expertise include underwater inspection, structural condition evaluation of marine and waterfront structures and design and construction supervision of the rehabilitation of marine and waterfront structures.

Selected Port Authority of New York & New Jersey Experience

Greenville Yards, Bayonne, NJ, Port Authority of NY & NJ. Senior Dive Supervisor/Inspection Diver for the above and underwater inspection of 880 feet by 120 feet of a timber pile supported, timber deck, high level platform pier; 1,030 feet by 200 feet of an earth filled pier buttressed by timber relieving platforms; 1,335 feet of steel sheet pile bulkhead constructed immediately offshore of a timber crib bulkhead; and, 900 feet of a collapsed timber crib bulkhead, currently consisting of a sloped shore.

Berths 88 through 96 and Turntable, Elizabeth Port Authority Marine Terminal, NJ, Port Authority of NY & NJ. Performed underwater and above water inspection of timber piles, bulkhead and underdeck for this inspection. The inspection was a general condition assessment of the berths and also included riprap dike profiles.

Brooklyn Piers 1 through 5, Port Authority of NY & NJ. Performed underwater and above water inspection of timber piles underneath a low-level relieving platform for this inspection. The inspection included detailed measurements of pile and bent spacing, as well as deck to mudline clearances.

Port Newark, NJ, Port Authority of NY & NJ. Inspected 26 buildings for this survey. The structural integrity of the buildings as well as immediate safety concerns were addressed in this inspection

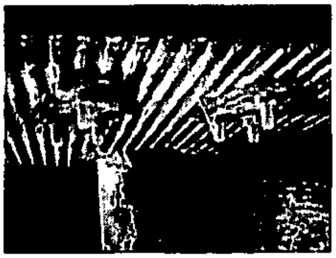
Brooklyn Piers 1 through 3, Port Authority of NY & NJ. Inspected and performed fathometric survey of the piers. The inspection was a general condition assessment of the wall under Pier 2.

Selected Port Authority of New York & New Jersey Experience (cont'd)

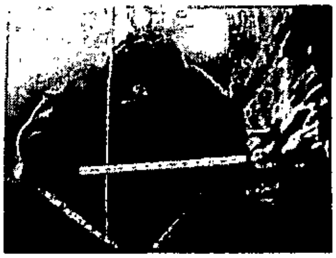
Brooklyn Pier 9A, for the Port Authority of NY & NJ. Performed emergency inspection of the pier. The underwater inspection included an assessment of the extent of damage to the timber piles and concrete extensions in the area of impact, as well as the adjacent areas. The above water inspection included an assessment of the extent of damage to the concrete deck in the area of impact.

Pier 8, Brooklyn, NY, Port Authority of NY & NJ. Performed underwater inspection of the steel sheet pile bulkhead. The inspection included taking ultrasonic thickness readings of the steel sheets to determine whether the deterioration had accelerated since the previous inspection.

Hoboken, NJ Ferry Terminal for the Port Authority of NY & NJ. Performed underwater and above water inspection of the collapsing pier. The underwater inspection was a general condition assessment of timber piles and pile caps, the underdeck of the pier, and the exterior of the fixed barge. The above water inspection concentrated on the condition of the steel trestle, the interior columns, the interior of the barge, and ceilings throughout the terminal. In addition, ultrasonic thickness readings were performed on both the exterior and interior of the barge.



Brooklyn Piers 1, 2, 3 and 5, Port Authority of NY & NJ. Dive Supervisor for the underwater and above water inspection of timber piles, steel pipe piles, and concrete extensions underneath the high-level platform. The inspection included a 100% swim-by of all piles and extensions, as well as a level II inspection of 10% of the piles. Underwater photography was performed using a 35mm camera.



Howland Hook Marine Terminal, Staten Island, Port Authority of NY & NJ. Dive Supervisor for the underwater and above water inspection of pre-formed and pre-stressed concrete piles, and steel pipe piles. This inspection was to assess areas in which priority repairs would be required. Underwater photography was performed using 15mm and 35 mm cameras.

Brooklyn Piers 1 and 3, Port Authority of NY & NJ. Underwater Inspector for the survey of the piers. This inspection included 100% visual inspection of timber piles, concrete pile extensions, steel sheet pile bulkhead, and timber bulkhead. Level II inspections on 10% of the piles was performed, as well as Level II inspections every 50 ft on the steel and timber bulkheads. Underwater photography was performed using a 35mm camera.

Mudline and Rip Rap Dike Profile, Howland Hook Marine Terminal, Staten Island, Port Authority of NY & NJ. Served as Dive Supervisor for this underwater inspection. This inspection was conducted to determine whether the 1996 profiles or the 1999 profiles were more accurate. This inspection encompassed Bents 73 through 119, the area of wharf that is to be strengthened.

Registration

Licensed Professional Engineer – State of NY

Credentials

Massachusetts Institute of Technology
Bachelor of Science in Ocean Engineering

United States Coast Guard Academy
Ocean Engineering

Twenty seven years of domestic and international experience in coastal and waterfront engineering and project management. Experience has included extensive involvement in the design, analysis, construction, rehabilitation, and installation of a wide variety of fixed and floating marine structures. He has extensive experience managing call-in basis contracts throughout New York Harbor and its environs. Mr. Goldstick has served as Principal-in-Charge for many years of ongoing service to the Port Authority of NY & NJ in a series of call-in basis contracts since 1988.

Selected Port Authority of New York & New Jersey Experience

"Call-In" Engineering Services for Condition Surveys of Waterfront Facilities, Port Authority of NY & NJ. Principal-in-Charge for various projects under multiple previous contracts of this type. Tasks include cyclical inspection work and emergency response inspections for waterfront facilities of various types and constructions. Typical work scope for these projects include one hundred percent visual inspection of all structural elements and ten percent detailed inspection of select elements. Detailed inspections may consist of destructive or non-destructive testing of the structural elements including timber, steel or concrete core sampling, ultrasonic thickness measurements of steel, sounding of concrete, and evaluation of timber elements with regard to the presence of marine borers. Specific descriptions of tasks resulting from recent call-in basis contracts follow.

Brooklyn Piers 7, 8, and 9B, Port Authority of NY & NJ. Principal-in-Charge for the design-level inspection of the timber piles, concrete extensions, and steel sheet pile bulkhead. Additional tasks included the preparation of an inspection letter report to provide recommendations to the Authority on the scope of repairs, the development of contract drawings and specifications, and associated construction cost estimate.

Greenville Yards, Bayonne, NJ, Port Authority of NY & NJ. Principal-in-Charge for an above and underwater inspection of 880 feet by 120 feet of a timber pile supported, timber deck, high level platform pier; 1,030 feet by 200 feet of an earth filled pier buttressed by timber relieving platforms; 1,335 feet of steel sheet pile bulkhead constructed immediately offshore of a timber crib bulkhead; and, 900 feet of a collapsed timber crib bulkhead, currently consisting of a sloped shore.

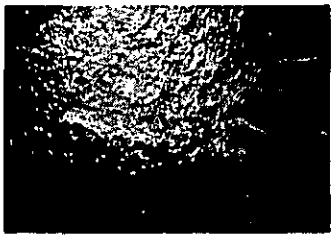
Selected Port Authority of New York & New Jersey Experience (cont'd)

Brooklyn Piers 6, 7 and 8, Port Authority of NY & NJ. Principal-in-Charge for an underwater and above water inspection of the timber piles, concrete extensions, and steel sheet pile bulkhead. The inspection included a 100% swim-by of all piles and extensions, as well as a level II inspection of 10% of the piles. Underwater photography was performed using a digital camera.

Port Elizabeth Marine Terminal, Berths 50 through 86, Elizabeth, New Jersey, Port Authority of NY & NJ. Principal-in-Charge for this extensive cyclical condition survey. Inspected elements included over 2 mi. of wharf structure supported by over 17,000 steel and timber piles, concrete pile extensions and pile caps, concrete seawall, and timber and steel sheet pile wall.

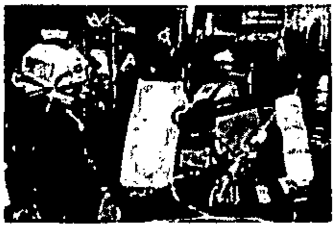
Downtown Manhattan Heliport, Manhattan, New York, Port Authority of NY & NJ. Principal-in-Charge for this condition survey. The work included inspection of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform.

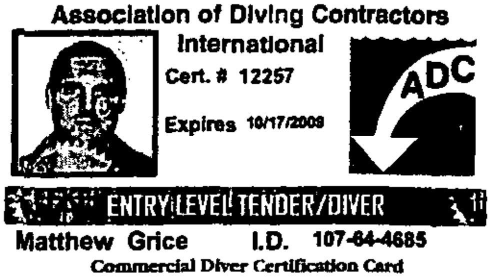
Piers 1 and 3, New York Marine Terminal, Brooklyn, NY, Port Authority of NY & NJ. Principal-in-Charge for this cyclical condition survey. Performed an above water and underwater inspections of all structural elements of Pier 1, which included 1,315 treated timber piles, 1,313 concrete pile extensions, approximately 550 lin ft of concrete-encased steel sheet pile and timber sheet pile bulkhead, and 925 lin ft of steel sheet pile bulkhead; Pier 3, which included 3,448 treated timber piles and 3,447 concrete pile extensions; as well as various other elements at both of the structures.



Holland Tunnel Protective Pier 9/204, Jersey City, NJ, Port Authority of New York & New Jersey. Principal-in-Charge for this condition survey to determine the overall condition of the structures and to identify structural and non-structural deficiencies. The inspection specifically addressed the condition of the center pier of Pier 9 in order to maintain emergency vehicle access to the Holland Tunnel river ventilation building; the condition of Pier 204 in order to maintain light vehicle traffic and emergency egress of personnel and patrons from the Holland Tunnel; and the condition of the north and south piers of Pier 9 in order to ensure their ability to support their existing dead and snow loads.

ALS 13 Pier, ILS/ALS 22 Pier and Beacon/Marker Platform, Localizer Roadway and Platform, VOR Pier and Transmissometer Pier, LaGuardia Runway Extensions 4-22 and 13-31, Queens, NY, Port Authority of NY & NJ. Principal-in-Charge for this baseline condition survey of the underwater and above water elements. The purpose of the inspection was to determine the overall condition of the five structures and to identify structural and non-structural deficiencies.





Registration

Licensed Professional Engineer - State of NY

Credentials

Manhattan College, Riverdale, NY
Bachelor of Science Civil Engineering

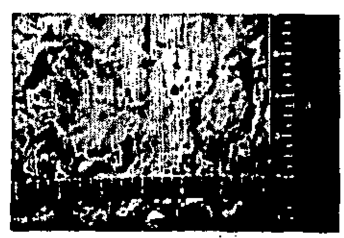
National Association of Underwater Instructors
Master Scuba Diver Certification)

Seven years experience as an engineer performing above and directing underwater inspection, design, and construction supervision for consulting engineering. Projects include marine terminals, coastal and waterfront structures, excavation support, foundation and building structures. Specific areas of expertise: condition survey evaluations, structural analysis and design, as well as report preparation.

Selected Port Authority of New York & New Jersey Experience

Brooklyn Piers 7, 8, and 9B, Port Authority of NY & NJ. Project Engineer for the design-level inspection of the timber piles, concrete extensions, and steel sheet pile bulkhead. Additional tasks included the preparation of an inspection letter report to provide recommendations to the Authority on the scope of repairs, the development of contract drawings and specifications, and associated construction cost estimate.

Brooklyn Piers 6, 7, and 8, Port Authority of NY & NJ. Inspection Team Leader/Engineer-Diver for inspection of the piers. The survey included the examination of approximately 11,000 timber piles with associated concrete extensions, which support a concrete deck. All of the structural elements were visually inspected in-depth including cleaning of piles to evaluate the presence of surface marine borers. Underwater photographs, ultrasonic thickness measurements, and a comprehensive report were provided.



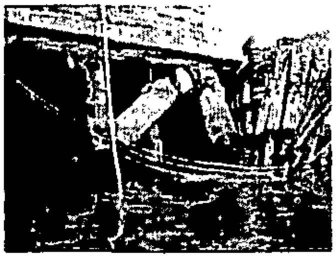
Port Newark Berths 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 and 36, New Jersey Marine Terminal, Port Authority of NY & NJ. Lead Engineer-Diver for the inspection of all structural elements comprising the marine terminal including approximately 9,600 piles, 1,200 pile cap beams, 9,600 lin ft of steel and timber pile bulkhead, 10,000 lin ft of concrete seawall, and 450,000 sq ft of top of deck. The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies. Underwater photographs, ultrasonic thickness measurements, and a comprehensive report were provided.

Halcrow

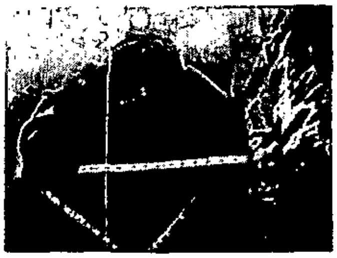
Selected Port Authority of New York & New Jersey Experience (cont'd)

Berths 50 through 78, Port Elizabeth Marine Terminal, Port Authority of NY & NJ. Inspection Team Leader/Engineer-Diver for underwater and above water inspection of timber piles, bulkhead and under deck. The inspection was a priority repair assessment of the berths and also included design of 17 different types of repairs, generation of bid documents, cost estimates, and specifications.

Other Relevant Experience



Throgs Neck Bridge, Bronx, Triborough Bridge and Tunnel Authority. Project Engineer/PE-Diver for the 2007 biennial diving inspection. Scope included underwater photography, probe measurements for scour potential and overall assessment of brides support structures. A report to serve as a baseline survey for completed repairs was generated. All inspection work was completed in accordance with the NYSDOT Diving Inspection Guidelines.

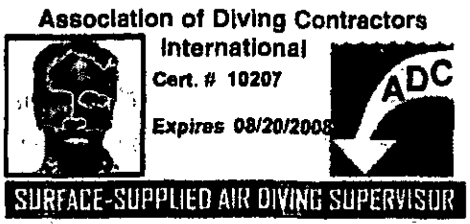


Distrigas Plant, Everett, MA. Inspection Team Leader/ Engineer-Diver for the above water and underwater inspection for the Unloading Platform. The inspection included 16 steel pipe piles, two concrete pile cap beams, one concrete deck soffit, five foundation elements, and one steel service platform. The purpose of the underwater and above water inspection was to assess the general overall condition of the unloading platform and, to the extent practical, verify authoritative documents describing the "as-built, possibly modified, and repaired structure, as well as an evaluation of issues concerning the possible removal/replacement or reuse of the loading arm foundation anchoring elements. Underwater photographs, video ultrasonic thickness measurements were taken, and a comprehensive report and narrated video DVD were provided.

Enterprise Plant, Morgan Point, TX. Lead Engineer-Diver for the underwater and above water inspection for the Enterprise Plant Loading Jetty. The investigation included all of the waterfront structures comprising the Jetty including one pipe pile supported trestle, one gangway, one jetty head loading platform, two breasting dolphins, and four mooring dolphins. The general overall condition of the jetty facility was assessed, repairs were recommended, and cost estimates for the necessary repairs were provided.

Quay Pier at Penn's Landing, Philadelphia, PA. Inspection Team Leader/ Engineer-Diver for the above water and underwater inspection of areas of the Quay Pier alleged to be damaged by the collision of the ship, Izumo Bay, reported on March 14, 2006. The inspection included all structural elements from the pier's deck level to the mudline. The inspection and report established probable damages related to the collision, recommended the necessary repairs, and provided cost estimates for such repairs.

PATRICK R. KING — Project Coordinator



PATRICK KING I.D. 286-76-6325
Commercial Diver Certification Card

Credentials

Ohio University, Bachelor of Arts

Santa Barbara City College, Surface Supplied Diving Certification

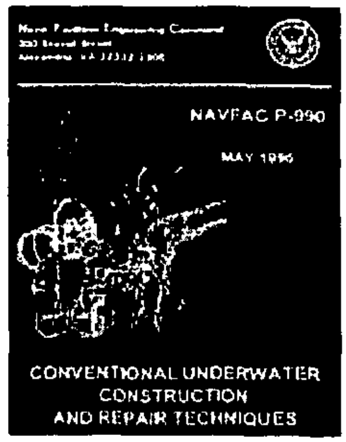
Professional Diving School of NY, Commercial Diver Certification

Specialized Climbing and Repelling Course Certification

Professional Association of Diving, Instructors Certification

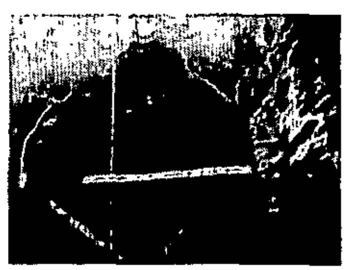
Twenty-two years of experience as a structural inspector and commercial diver performing underwater inspection, construction, and construction supervision for consulting engineering and marine construction companies. Projects have included marine terminals, coastal and waterfront structures, submarine pipelines, dams, and bridges. Specific areas of expertise are non-destructive testing, coring, underwater still and video photography, condition evaluations, report writing, and project management. Authored a study on the structural implications of marine borer infestation and contributed to the U.S. Navy's "Concrete Condition Assessment Manual" (which enables field assessments of remaining structural capacity in concrete elements) and "Conventional Underwater Construction and Repair Techniques".

Selected Port Authority of New York & New Jersey Experience



"On-call" Engineering Services for Condition Surveys of Waterfront Facilities for the Port Authority of NY & NJ. Project Director for this "on-call". Halcrow held multiple contracts involving numerous projects, including regular maintenance work and emergency response inspections for waterfront facilities of myriad types and constructions. Typically, projects entailed 100% visual inspection of all structural elements and 10% detailed inspection of select elements. Detailed inspections include cleaning of the structural elements, ultrasonic thickness measurement of steel, sounding of concrete, and evaluation of timber elements with regard to the presence of marine borers.

Brooklyn Piers 7, 8, and 9B, Port Authority of NY & NJ. Project Director for the design-level inspection of the timber piles, concrete extensions, and steel sheet pile bulkhead at. Additional tasks included the preparation of an inspection letter report to provide recommendations to the Authority on the scope of repairs, the development of contract drawings and specifications, and associated construction cost estimate.



World Trade Center Cooling Water Intake System, WM Group on behalf of the Port Authority of NY & NJ. Project Director/Project Manager for the evaluation of the Cooling Water Intake System on the Hudson River. Tasks included the above and underwater inspection of the intake tunnels and chambers, preparation of an inspection summary letter, and recommendations for repair.

Selected Port Authority of New York & New Jersey Experience (cont'd)

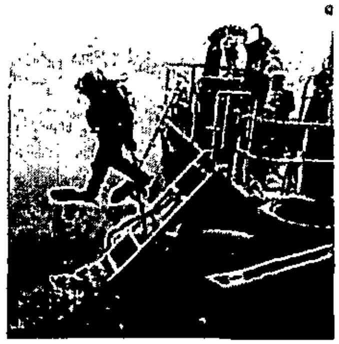
Port Newark Berths 2 through 36, Cyclical Condition Survey, Newark, NJ, Port Authority of NY & NJ. Inspected elements included steel, timber and concrete sheet pile bulkheads; steel pipe, precast concrete, and timber piles; concrete and timber pile caps and decking. Ultrasonic thickness of steel elements were taken, concrete was sounded, and timber elements were evaluated for marine borer infestation.

Port Elizabeth Marine Terminal Cargo Loading Facility, Elizabeth, NJ, Port Authority of NY & NJ. Performed detailed inspections including marine borer investigations. Elements inspected include timber piles, concrete extensions, concrete caps and timber bulkhead, along with a complete bottom profile below the relieving platforms.

LaGuardia Airport Condition Survey, Queens, NY, Port Authority of NY & NJ. Underwater and above water inspection of the steel pipe piles, concrete beams, deck, and steel sheet piles. General condition inspection involved ultrasonic thickness measurements of the steel pipe piles and bathycorrometer reading of the sacrificial cathodic protection system.

Piers 6, 7 and 8 on the East River, Brooklyn, NY, Port Authority of NY & NJ. Conducted underwater and underdeck inspection of approximately 11,000 timber piles with concrete extensions supporting a concrete deck. One hundred percent of the structural elements were visually inspected and ten percent of the elements were inspected in-depth including cleaning of piles to evaluate the presence of surface marine borers. Timber cores were taken under a separate contract to evaluate the presence of internal marine borers.

Port Elizabeth, NJ, Port Authority of NY & NJ. Complete underwater inspection of six containerized cargo berths and a heavy lift crane turntable. The work included the inspection of the timber pile supported berths, underwater photography and underdeck evaluation.



Berths 86 through 98, Elizabeth Port Authority Marine Terminal, Port Authority of NY & NJ. Underwater and above water inspection of timber piles and relieving platform structures. The inspection was a cyclical general condition assessment of the berths.

Pier 40, West Side, Manhattan, NY, Port Authority of NY & NJ. Underwater and above water inspection of the deck elements, piles, pile repairs and cathodic protection of system . Work included inspection of over 10,000 piles, underwater photography, ultrasonic thickness measurements and comprehensive report.

Representative Publications

"How to Protect New York's Piers Against Marine Borers", New York Construction News, August 1996.

Steve Loporcaro I.D. 107-70-9631
Commercial Diver Certification Card

Registration

Licensed Professional Engineer – States of NY, NJ, FL

Credentials

SUNY College of Environmental Science and Forestry at Syracuse University, BSc in Civil/Environmental Engineering

FHWA National Highway Institute Training
Safety Inspection of In-Service Bridges

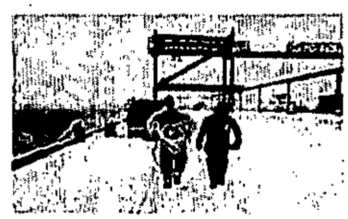
Professional Association of Diving Instructors
Open Water SCUBA Certification

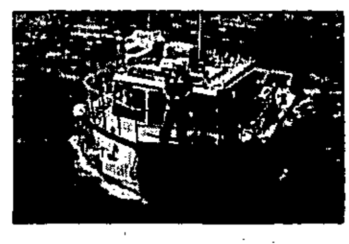
OSHA training:
- 40-hour Hazardous Waste Operations and Emergency Response
- 8-hour HAZWOPER Refresher Course
- Confined Space Entry
- 10-Hour Construction Safety
- CPR/First Aid and O2 Provider

Mr. LoPorcaro has more than twelve years of experience as an engineer-diver, project manager, design engineer and hydrographic surveyor performing inspection, rehabilitation design, and construction supervision at marine terminals, various waterfront facilities, and bridges. Specific areas of expertise are structural condition evaluation and rehabilitation, non-destructive and destructive underwater testing, and technical report preparation. Mr. LoPorcaro has experience with DGPS and Range-Azimuth hydrographic survey equipment, and is proficient in MS Office applications, AutoCad 2004 and Land Development Desktop, HYDROpro, and EaglePoint. He also has a working familiarity with MicroStation.

Selected Port Authority of New York & New Jersey Experience

"Call-In" Engineering Services for Condition Surveys of Waterfront Facilities, Port Authority of NY & NJ. Has served as Project Manager/Senior Engineer-Diver for the provision of services under this contract. From 1999 to 2003, served as Engineer-Diver/Team Leader for various projects under previous contracts of this type. Tasks include cyclical inspection work and emergency response inspections for waterfront facilities of various types and constructions. Typical work scope for these projects include one hundred percent visual inspection of all structural elements and ten percent detailed inspection of select elements. Detailed inspections may consist of destructive or non-destructive testing of the structural elements including timber, steel or concrete core sampling, ultrasonic thickness measurements of steel, sounding of concrete, and evaluation of timber elements with regard to the presence of marine borers.





Port Elizabeth Marine Terminal, Berths 50 through 86, NJ, Port Authority of NY & NJ. Project Engineer/Senior Engineer-Diver for this cyclical condition survey. Inspected elements included over 2 mi. of wharf structure supported by over 17,000 steel and timber piles, concrete pile extensions and pile caps, concrete seawall, and timber and steel sheet pile wall.

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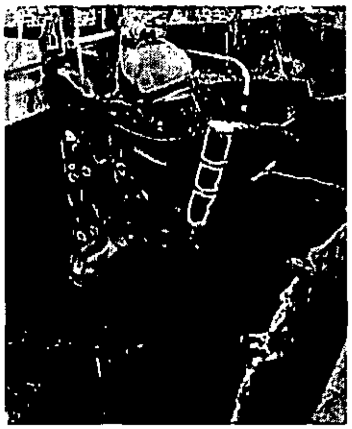
Selected Port Authority of New York & New Jersey Experience (cont'd)



Bulkheads at Pier 5 and between Piers 5 & 6, New York Marine Terminal, Brooklyn, Port Authority of NY & NJ. Project Manager/Team Leader for a cyclical condition survey of approximately 700 LF of pile supported wharf structures over two (2) NYC subway tunnels. Inspected elements included timber and steel pipe piles, concrete pile extensions, prestressed concrete girders and steel sheet pile bulkhead.

Downtown Manhattan Heliport, Manhattan, New York, Port Authority of NY & NJ. Project Manager/Team Leader for this condition survey. The work included inspection of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform.

Pier 12 Emergency Inspection, New York Marine Terminal, Brooklyn, Port Authority of NY & NJ. Project Engineer/Team Leader for an emergency inspection performed to delineate a crack in the pier foundation. Deliverables included repair recommendations.

Red Hook Container Terminal, New York Marine Terminal, Brooklyn, Port Authority of NY & NJ. Project Engineer/Team Leader for this cyclical condition survey. Inspected elements included three (3) separate wharves supported by timber and steel pipe piles with concrete pile extensions, prestressed concrete girders and deck panels, and steel sheet pile bulkhead.

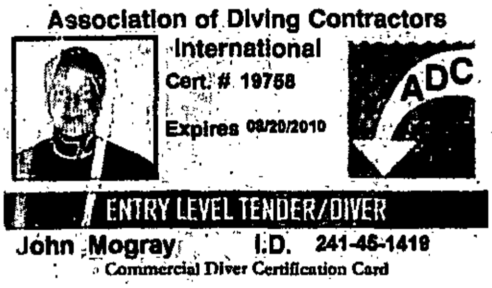
LaGuardia Airport, Queens, Port Authority of NY & NJ. Project Engineer/Team Leader for a cyclical condition survey of substructural elements supporting the runways. Inspected elements included 3,500 steel pipe piles equipped with cathodic protection. The inspection involved bathycorrometer measurements of the piles to determine electrical potentials.

Brooklyn Pier 1 through Pier 9B, New York Marine Terminal, Port Authority of NY & NJ. Engineer-Diver for various construction inspection projects between 1999 and 2002. The projects included construction quality control for concrete encasements, pile wraps, and steel bulkhead repairs.

Berths 2 through 36, Port Newark, NJ, Port Authority of NY & NJ. Engineer-Diver for a cyclical condition survey. Inspected elements include steel, timber, and concrete sheet pile bulkheads, steel, concrete, and timber piles supporting concrete and timber pile caps and decking. The condition survey included non-destructive testing of all structural elements.

Pile Wrapping Studies, New York Marine Terminal, Brooklyn Piers, Port Authority of NY & NJ. Engineer-Diver for various projects associated with pile wrap studies. The projects consisted of destructive and non-destructive testing by means of pile wrap removal, timber coring, and dissolved oxygen testing.

Halcrow



Less than one year's experience as an engineer performing above and underwater inspection and design for consulting engineer. Projects include piers, quay walls, and fender systems. Specific areas of expertise include condition survey evaluations, structural analysis and design, as well as report preparation.

Credentials

University of California, Berkeley
  Master of Science in Civil Engineering

North Carolina State University
  Bachelor of Science in Civil Engineering

Professional Association of Diving Instructors
  Open Water Diver

Minnesota Commercial Diver Training Center
  ADCI Entry Level Tender/Diver Certification

Technical Diving International
  Advanced Nitrox Diver, Nitrox Gas Blender

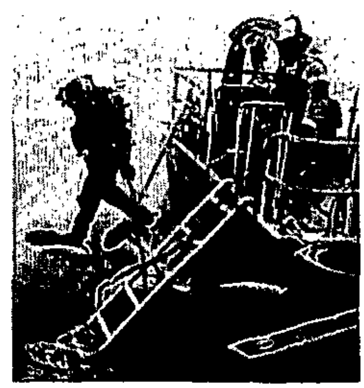
Divers Alert Network (DAN)
  Oxygen First Aid for Diving Injuries

Emergency First Response
  First Aid & CPR

Kirby Morgan Dive Systems, Inc.
  Helmet/Bandmask Operator/User

Selected Relevant Experience

USA: Waterfront Investigation, San Diego, CA. Engineer-Diver. Evaluation of multiple waterfront structures throughout Naval Base San Diego and Naval Base Point Loma. The project involved the evaluation of multiple piers and several miles of quay wall along the shoreline of San Diego. Work involved above and below water inspection and preparation of reports. The work was performed for NAVFAC.



Maki Onodera I.D. 214-61-3203
Commercial Diver Certification Card

Registration

Licensed Professional Engineer - States of NY and PA

Credentials

Columbia University, BSc in Civil Engineering (2001)

Columbia University, MASc in Civil Engineering (2002)

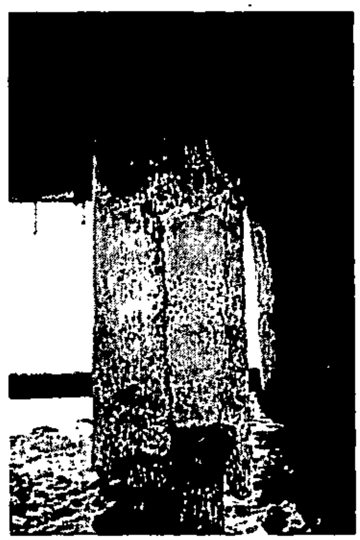
Six years of experience in the analysis, design, and inspection of marine facilities. Specific experience includes underwater inspection and structural condition evaluation of marine and waterfront structures, as well as design and construction supervision of marine and waterfront rehabilitation projects.

Selected Port Authority of New York & New Jersey Experience

Waterfront Inspection Services On-Call Contract, NY Harbor, Port Authority of NY & NJ. Project Manager for tasks under this agreement consisting of above and underwater cyclical condition surveys of the Authority's waterfront structures in the five Boroughs of New York City and New Jersey as summarized in formal condition reports.

Brooklyn Piers 7, 8, and 9B, Port Authority of NY & NJ. Project Manager for the design-level inspection of the timber piles, concrete extensions, and steel sheet pile bulkhead. Additional tasks included the preparation of an inspection letter report to provide recommendations to the Authority on the scope of repairs, the development of contract drawings and specifications, and associated construction cost estimate.

Pier 34, New York City, Port Authority of NY & NJ. Team Leader and Project Engineer-Diver for the above water and underwater inspection of the pier. Tasks included the inspection of steel pipe piles, concrete beams and deck, and the preparation of an inspection findings letter, contract drawings, specifications, and cost estimate for concrete beam repairs.



Holland Tunnel Piers 9 and 204, Jersey City, NJ, Port Authority of NY & NJ. Project Engineer for the baseline condition survey of the pier. Tasks included above and underwater inspection of the timber pile supported low-level timber platform and a steel beam supported concrete and timber deck, and preparation of an inspection findings report.

World Trade Center Cooling Water Intake System, WM Group on behalf of the Port Authority of NY & NJ. Team Leader and Project Engineer for the evaluation of the Cooling Water Intake System on the Hudson River. Tasks included the above and underwater inspection of the intake tunnels and chambers, preparation of an inspection summary letter, and recommendations for repair.

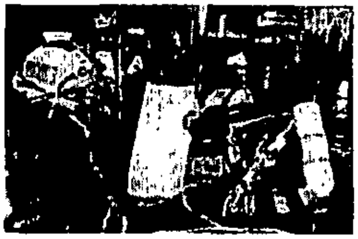
Other Relevant Experience

East River Esplanade, Manhattan, New York City Economic Development Corporation. Project Manager for the inspection and design of repairs to the existing granite faced concrete bulkhead along the East River between Pier 17 and Pier 35.

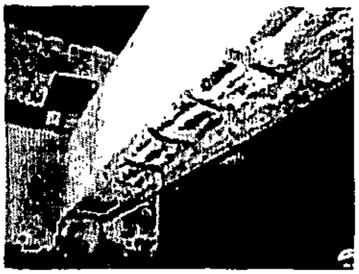
Hunts Point Peninsula Bulkhead, Bronx, New York City Economic Development Corporation. Team Leader and Project Engineer for the inspection of the Hunts Point Peninsula Bulkhead. Tasks included the above water and underwater inspection of a timber pile-supported low-level relieving platform and a steel cell bulkhead and the preparation of a Routine Level Inspection Report in accordance with EDC guidelines. The inspection report included the engineering analysis of inspection findings, establishment of load ratings, repair alternatives, and associated order-of-magnitude cost estimates.

Tappan Zee Bridge, New York, NYS Thruway Authority. Structural Engineer/Inspector for a cyclical underwater inspection of substructural elements supporting the bridge. Inspected elements include 190 water-based piers of various construction, including timber piles with concrete pile caps, concrete filled circular cells, and concrete box caissons.

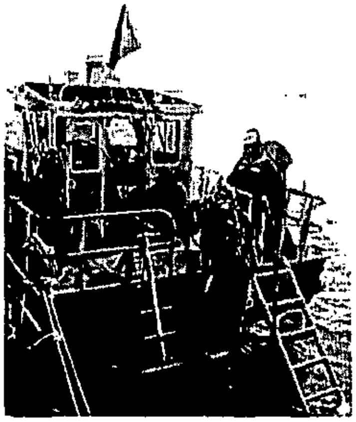
Piers 25, 26, and 54, Manhattan, Hudson River Park Trust. Team Leader and Project Engineer-Diver for the 12 month inspection of the piers. Tasks included an above water and underwater inspection of the timber piles, timber caps, and concrete deck; engineering analysis of findings; and report preparation.



Battery Maritime Building, Manhattan, New York City Economic Development Corporation. Project Engineer for the rehabilitation of the foundations and substructure of the ferry terminal. Tasks included the inspection of the timber piles, steel H-piles, timber pile caps, fender racks, and timber transfer bridge for the preparation of repair contract documents and associated cost estimates.



Hudson River Park Bulkhead, Manhattan, Hudson River Park Trust. Team Leader and Project Engineer for the inspection and preparation of repair drawings and specifications for the rehabilitation of a section of collapsed seawall at the former Pier 80. Tasks include the above water and underwater inspection of the partially collapsed seawall and preparation of contract documents for the repair of the seawall.



Sheepshead Bay, Brooklyn, New York City Economic Development Corporation. Project Engineer for the inspection and preparation of repair drawings and specifications for the rehabilitation of the north, west, and south bulkheads. Tasks included the above water and underwater inspection of the various bulkhead structures and the development of rehabilitation options with their associated cost estimates, and a preliminary design submission. Preparation of final drawings, specifications, and estimate to be completed upon client review of preliminary design.

Halcrow

Registration

Licensed Professional Engineer – States of NY and NJ

Credentials

Columbia University
Bachelor of Science in Civil Engineering
Master of Science in Civil Engineering

Professional Association of Diving Instructors
Scuba Diver Certification

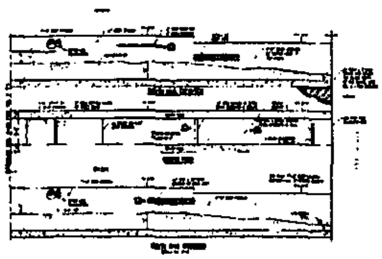
Thirty-two years of experience on many marine related projects involving structural inspection, rehabilitation, upgrades and new construction design, planning, cost estimating, and construction management. Mr. Paparis' background includes inspection diving, as a certified diver, and on-site construction management for marine and waterfront projects. Has served as Manager of Halcrow's Inspection Department and is currently Manager of Halcrow's Maritime Structures Group.

Selected Port Authority of New York & New Jersey Experience

"Call-In" Engineering Services for Condition Surveys of Waterfront Facilities, Port Authority of NY & NJ. Over the last 18 years, has served various roles for the provision of services under this contract, ranging from Engineer-Diver and Team Leader to Engineering Technical Advisor. Tasks include cyclical inspection work and emergency response inspections for waterfront facilities of various types and constructions. Typical work scope for these projects include one hundred percent visual inspection of all structural elements and ten percent detailed inspection of select elements. Detailed inspections may consist of destructive or non-destructive testing of the structural elements including timber, steel or concrete core sampling, ultrasonic thickness measurements of steel, sounding of concrete, and evaluation of timber elements with regard to the presence of marine borers. As Manager of Halcrow's Maritime Structures Group, Mr. Paparis has primary responsible for design of all repair elements.

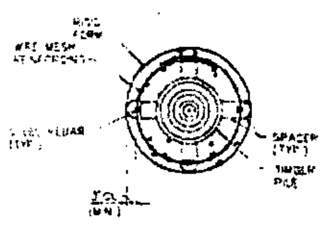
Port Elizabeth Marine Terminal, NJ, Port Authority of NY & NJ and Maersk Container Services Company. Project Manager and Lead Structural Engineer for all phases to date of the improvement of 6,000 LF of wharves. The work included the strengthening and deepening of the wharves by provision of a sheet pile cut off wall and new crane foundations to accommodate 152,000 LT container vessels, and Super Post-Panamax container cranes.

Selected Port Authority of New York & New Jersey Experience (cont'd)



Howland Hook Container Terminal, Staten Island, Port Authority of NY & NJ. Project Manager for detail design to expand and upgrade HHCT. The major elements of the project included strengthening of the northernmost 945 ft of the existing wharf to permit future dredging, a 300 ft extension of the wharf to the north and a 175 ft extension to the south. The design relied on the installation of new high capacity steel pipe piles to resist sufficient vertical load so as to make it unnecessary for the existing outboard row of piles to resist any load. Steel sheet piling is to be driven and supported by these new pipe piles, to stabilize the dike below the wharf.

Brooklyn Piers 7 through 12, Port Authority of NY & NJ and the NYC Economic Development Corporation. Principal-in-Charge for development of substructure maintenance costs for these facilities, which are currently owned by the Port Authority and are to be turned over to the EDC. The work involved using the results of the most recent condition surveys to estimate future deterioration rates and corresponding capacities of structural elements and fender systems for each of these facilities. The piers are typically constructed of timber or steel piles with concrete decks and timber fender systems, while the bulkheads are typically of anchored steel sheet pile construction. Life cycle costs were developed typically based on maintaining the original load capacity of these piers through 2029, although for two facilities the costs were based on converting the piers to cruise terminals.



SECTION A-A

Pier 34, New York, NY, Port Authority of NY & NJ. Project Director for inspection and design of repairs to this protective pier for the New York side of the Holland Tunnel. Work involved an inspection of the pier and trestle, and the development of contract documents for repairs to the concrete encased steel beams and steel caissons of the protective pier.

Berth 64 King Pile Repair, Port Elizabeth Marine Terminal, NJ, Port Authority of NY & NJ. Emergency inspection led to design of repair for damaged cutoff wall.

Port Elizabeth/Port Newark, New York Harbor, Port Authority of NY & NJ. Underwater and above water inspection of a total of fifty-six container, general cargo, and specialized berths that make up the port complex, followed by structural evaluation of all berths and preliminary designs and cost estimates for required rehabilitation.

Halcrow

Commercial Diver Certification Card

Registration

Licensed Professional Engineer – State of NY

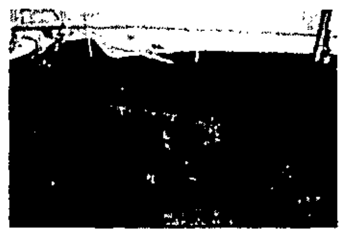
Credentials

Texas A&M University, Galveston, BSc in Maritime Systems Engineering

Professional Association of Diving Instructors, Advanced Open Water SCUBA Certification

Over eleven years experience as a project manager, project engineer, designer, and engineer-diver performing above and underwater inspection. Responsible for planning, design, and construction supervision of new and rehabilitated offshore and waterfront facilities. Commercial projects have included bridges, mobile offshore drilling units (jack-ups and semisubmersibles), bulkheads, piers, urban public access waterfronts, and shore side civil works. Specific areas of expertise are maintenance planning, condition evaluation, and rehabilitation design for offshore and waterfront projects. Mr. Riden is currently the Project Manager for Halcrow's call-in basis agreement with the U.S. Navy for condition survey assignments.

Selected Port Authority of New York & New Jersey Experience



Immediate Inspection of Sinkholes at the Hoboken Ferry Terminal, Railroad Pier, Port Authority of NY & NJ. Team Leader and Lead Engineer-Diver for five-day underwater and above water inspection to investigate two sinkholes that developed at the pier and determine the condition of the pier within areas of public access. As a result of the inspection, the area surrounding the eastern sinkhole was immediately cordoned off by Port Authority personnel, with the eastern 30 ft of the canopy passenger shelter restricted from use. Repair of the sinkholes and stabilization of the remaining areas of public access was then carried out on a priority basis, with repair details developed and evaluated as part of a repair alternatives study performed by Halcrow in conjunction with the PANYNJ Project Management Division.

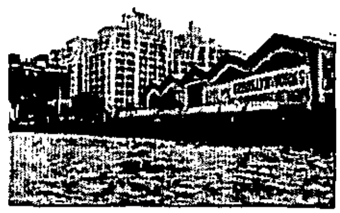
LaGuardia Airport, Queens, Port Authority of NY & NJ. Engineer-Diver for this cyclical condition survey of substructural elements supporting the runways. Inspected elements included 3,500 steel pipe piles equipped with cathodic protection. The inspection involved bathycorrometer measurements of the piles to determine electrical potentials.

Brooklyn Piers 2, 5 (including Old Pier 17) and the Old Pier 6 area of Pier 1, New York Marine Terminal, Port Authority of NY & NJ. Engineer-Diver for this cyclical condition survey. The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies. Tasks included full detailed above water and underwater inspection of pier platforms and retaining structures.

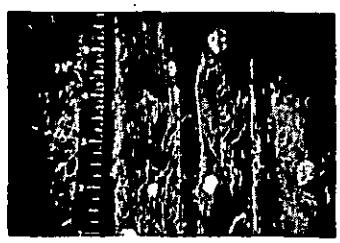
Selected Port Authority of New York & New Jersey Experience (cont'd)

Piers 1 and 3, New York Marine Terminal, Brooklyn, NY, Port Authority of NY & NJ. Team Leader and Engineer-Diver for this cyclical condition survey performed in the fall of 2004 . The condition survey included above water and underwater inspections of all structural elements of Pier 1, which included 1,315 treated timber piles, 1,313 concrete pile extensions, approximately 550 lin ft of concrete-encased steel sheet pile and timber sheet pile bulkhead, and 925 lin ft of steel sheet pile bulkhead; Pier 3, which included 3,448 treated timber piles and 3,447 concrete pile extensions; as well as various other elements at both of the structures.

Holland Tunnel Protective Pier 9/204, Jersey City, NJ, Port Authority of NY & NJ. In the summer of 2003, Halcrow performed this condition survey to determine the overall condition of the structures and to identify structural and non-structural deficiencies. The inspection specifically addressed the condition of the center pier of Pier 9 in order to maintain emergency vehicle access to the Holland Tunnel river ventilation building; the condition of Pier 204 in order to maintain light vehicle traffic and emergency egress of personnel and patrons from the Holland Tunnel; and the condition of the north and south piers of Pier 9 in order to ensure their ability to support their existing dead and snow loads. Mr. Riden reviewed the inspection findings and served as engineer-diver for this project.



ALS 13 Pier, ILS/ALS 22 Pier and Beacon/Marker Platform, Localizer Roadway and Platform, VOR Pier and Transmissometer Pier, LaGuardia Runway Extensions 4-22 and 13-31, Queens, NY, Port Authority of NY & NJ. In the summer of 2004, Halcrow performed a baseline condition survey of the underwater and above water elements of the . The purpose of the inspection was to determine the overall condition of the five structures and to identify structural and non-structural deficiencies.



Other Relevant Experience

Indefinite Quantity Underwater Inspection, Condition Assessment, and Repair Design Contract, United States Navy. Project Manager-Diver for Halcrow's multi-year contract. Tasks under this worldwide contract include the condition inspection and design of repairs for various waterfront facilities including bridges, piers, and bulkheads. As a routine part of this contract, HPA provides prioritized repair recommendations for the Navy's use in preparing facility maintenance management plans.

Design Program Management, New York, NY, Hudson River Park Trust. Project Engineer providing design commentary relating to structural and marine aspects of multiple park segments with particular focus on code compliance, design economy, design practicality, and drafting quality.

Piers 25, 26, and 84, New York, NY, Hudson River Park Trust. Lead Engineer-Diver for inspection and load rating analysis. Served as Project Engineer for the load testing and monitoring of Piers 25 and 84.

Registration

Licensed Professional Engineer – States of NY, CT and PA

Credentials

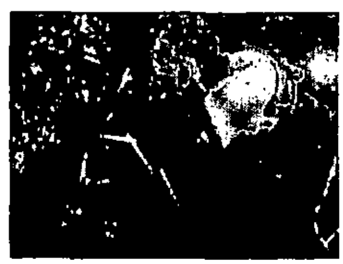
Institute of Automobile Transport and Highway Engineering, Kiev, Ukraine
Bachelor of Science in Civil Engineering

Polytechnic Institute, New York, NY
Graduate Courses in Civil and Environmental Engineering

NAUI Rescue Open-Water Diver
Scuba Diver Certification

More than thirty-one years of diversified experience in the design and construction of buildings, highway and rail road bridges, tunnels, industrial buildings, and marine terminals. Proficient in the design of conventional and special concrete, steel and pre-stressed concrete structures. Worked on numerous projects in different capacities for public agencies and private corporations alike. Has preformed various tasks as construction liaison engineer, bridge inspection team leader, quality control/assurance engineer, and has reviewed designs/analyses as principal structural engineer. Extensively used computer software for design, analysis, drafting and, documentation. Also, has performed value engineering services.

Selected Port Authority of New York & New Jersey Experience



Port Authority of NY & NJ Quality Assurance Division, 1998-2007. Served as Structural Engineer and Task Leader with responsibilities that included performance of field audits of consultant performance and review of inspection reports. Other tasks included preparation of schedules and budgets for condition surveys of Port Authority facilities, review of proposal and design documents submitted by consultants, performance of in-house inspection, and preparation of inspection reports. Also, performed investigation of immediate actions and provided design and coordination for immediate repairs. Specific site locations in the New York City Metropolitan Area included Newark International Airport Bridges, George Washington Bridge, Bayonne Bridge, Goethals Bridge, Outerbridge Crossing, Lincoln Tunnel, Holland Tunnel, PATH Railroad Tunnels and High Mast Lighting structures, PA Bus Terminal, G. Washington Bridge Buildings, Harrison Car Shop, and the NY & NJ Marine Terminal.

Pier 9/204, New York, Port Authority of NY & NJ. Quality Control Engineer for the inspection of the pier.

Pier 8, New York, Port Authority of NY & NJ. Immediate repair, design of timber pile and concrete extension of the pier.

Other Relevant Experience

Underwater Inspections for New York City Economic Development Corporation. Quality Control Engineer for the underwater inspections and reports.

Ben Sheppard **I.D. 000-00-0077**
Commercial Diver Certification Card

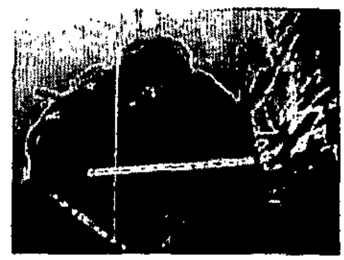
Credentials

Electrical Technology

Commercial Diving Certification

More than nine years experience as a commercial diver performing above and underwater inspection, environmental monitoring, construction, and construction supervision for consulting engineering and marine construction companies. Projects include marine terminals, coastal and waterfront structures, landfills, and building structures. Specific areas of expertise include non-destructive testing, timber coring, underwater still and video photography, and condition evaluations.

Selected Port Authority of New York & New Jersey Experience



Greenville Yards, Bayonne, NJ, Port Authority of NY & NJ. Dive Supervisor for underwater inspections and assessments of waterfront facilities. This project included above and underwater inspection of 780 feet by 120 feet of a timber pile supported, timber deck, high level platform pier, 1,030 feet by 200 feet of an earth filled pier buttressed by timber relieving platforms, 1,335 feet of steel sheet pile bulkhead constructed immediately offshore of a timber crib bulkhead, and 900 feet of a collapsed timber crib bulkhead.

Port Elizabeth Marine Terminal, Berths 50 through 86, Port Authority of NY & NJ. Dive Supervisor for this cyclical condition survey. Inspected elements included over 2 mi. of wharf structure supported by over 17,000 steel and timber piles, concrete pile extensions and pile caps, concrete seawall, and timber and steel sheet pile wall.

Berth 64 King Pile Repair, Port Elizabeth Marine Terminal, NJ, Port Authority of NY & NJ. Dive Supervisor for this emergency inspection leading to design of repair of damaged cutoff wall.

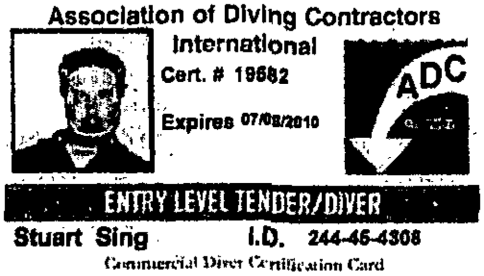
Red Hook Container Terminal, New York Marine Terminal, Brooklyn, New York, Port Authority of NY & NJ. Dive Supervisor for this cyclical condition survey . Inspected elements included three (3) separate wharves supported by timber and steel pipe piles with concrete pile extensions, prestressed concrete girders and deck panels, and steel sheet pile bulkhead.

Piers 6, 7 and 8, East River, NY, Port Authority of NY & NJ. Inspection Diver for the above and underwater inspections, including the examination of approximately 11,000 timber piles with associated concrete extensions, which support a concrete deck. All of the structural elements wee visually inspected in-depth including cleaning of piles to evaluate the presence of surface marine borers. Timber cores were taken under separate contract to evaluate the presence of internal marine borers.

Brooklyn Piers 1 and 3, Brooklyn, NY, Port Authority of NY & NJ. Inspection Diver for cyclical inspection. Tasks included full detailed above water and underwater inspection of pier platforms and retaining structures, analysis of findings, and report preparation.

STUART SING, P.E.

Professional Engineer-Diver



Registration

Licensed Professional Engineer – State of NY

Credentials

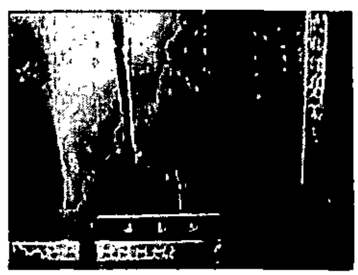
North Carolina State University
Bachelor of Science in Civil Engineering
Minnesota Commercial Diver Training Center
ADCI Entry Level Diver/Tender
ADC Certified Commercial Diver - USA

Thirteen years of experience specialising in the design and inspection of marine and foundation structures. Projects have included marine terminals, railroad structures, retaining walls, building foundations, bridges, piers, dry docks and wharves. Specific areas of expertise include finite element analysis modelling, support of excavation design, structural pile design, underwater inspection and remediation of existing structures.

Selected Relevant Experience

Con Edison North 1st Street Facility, New York. Project Manager/ Team Leader/PE Diver for an underwater waterfront inspection and recommendations for a defunct fuel-oil terminal.

Con Edison East 74th Street, New York. Team Leader/PE Diver for an underwater inspection to provide a pre-construction condition survey and construction inspection services for repairs to cooling water intake and discharge tunnels.



Independence Harbor, New York. Team Leader/Resident Engineer for an underwater and topside inspection of a former factory platform over the Hudson River that currently serves as the foundation of a modern condominium complex. Collected all of the inspection data and made repair designs. Served as resident engineer for the time period when repair construction was ongoing.

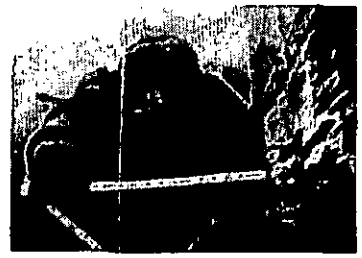
Lowe's Home Center, New York. Team Leader/Project Engineer for an underwater waterfront inspection and rehabilitation design for a deteriorated timber crib wall on Gowanus canal. Designs were made to rehabilitate the crib wall so that the existing bulkhead line could be maintained to avoid any loss of existing property.

Con Edison East 74th Street Facility, New York. Team Leader for an underwater inspection and repair design recommendations for intake and discharge cooling water tunnels.

US 11 Bridge Inspection, New Orleans, LA. Team Leader. Underwater inspection of 20 percent of the six-mile bridge that crosses Lake Pontchartrain between Slidell and New Orleans, LA.

Selected Relevant Experience (cont'd)

Con Edison Pier 98, New York. Project Manager/Team Leader/PE Diver for an emergency inspection and repair designs for a pier that was damaged as the result of an allision with a fuel barge.



Glenwood Pier, New York. Project Engineer for the structural rehabilitation of a deteriorating platform that serves as the foundation for a condominium complex over the Hudson River. Staged demolition and rehabilitation design for foundation structures.

Brooklyn Navy Yard, Berths 6, 7 and 7A, Brooklyn Navy Yard Development Corporation. Project Manager for the rehabilitation of deteriorating quay walls. Replacement design of existing pile-supported stone parapet wall and timber sheet pile cut-off wall with cantilevered steel king pile wall.

US Gypsum Facility, Stony Point, New York. Project Manager for the improvement of an existing bulk offloading facility. New mooring and breasting dolphins were designed and extensions and improvements were designed for the existing catwalks in order to accommodate a larger ship that the company wished to use.

Williamsburg Bridge, New York. Project Engineer for the modernization of the Williamsburg Bridge. Developed finite element analysis models to analyze the capacities of various bridge pier foundations while working for a contractor on a claim to determine the necessity of redundant structural elements.

Maher Terminals Berths 66 through 74, Port Elizabeth, NJ. Project Engineer for the improvements to Berths 66 through 74 that included berth deepening and design of new crane rail beams, support piles, stow pin wells, rail stops, king piles and tie-downs to accommodate new 100-foot gauge gantry cranes for offloading of larger, deeper draught container ships.

Norfolk Naval Shipyard, VA. Project Engineer for the reconfiguration of the shipyard. Designed mooring dolphins, breasting dolphins, spud piles, brackets and vehicle ramps for a new floating dry dock.

Woodrow Wilson Memorial Bridge, VA. Project Engineer for the replacement of the bridge. Designed all of the pipe pile supported bridge pier foundations for the new bridge using finite element analysis models that took into account pile group effects, scour, and seismic and allision forces. Designed the bascule pier's pile-supported fender structure to withstand an allision with a 7000 ton vessel.

Registration

Licensed Professional Engineer - States of NY and OR

Credentials

University of Washington
Bachelor of Science in Civil Engineering
Chi Epsilon, National Civil Engineering Honor Society

Federal Highway Administration (FHWA) National Highway Institute Training, Safety Inspection of In-Service Bridges

National Oceanic and Atmospheric Administration (NOAA)

Divemaster, Contaminated Water Diving Seminar

Professional Association of Diving Instructors, Advanced Open Water SCUBA Certification

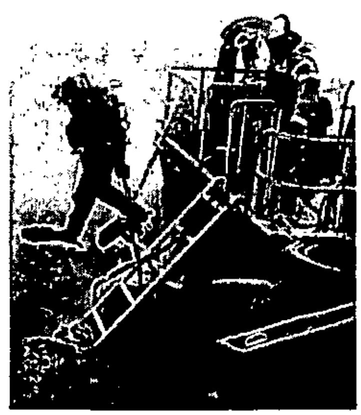
Professional Scuba Inspectors, visual High Pressure Cylinder Inspector

High Pressure related HAZMAT Training

CPR/First Aid and DAN Oxygen First Aid Training

More than nine years experience as an engineer-diver performing approximately 860 underwater structure inspections over 560 days for Halcrow and the Oregon Department of Transportation. Three years of experience as a fathometer surveyor performing 60 fathometer surveys of bridges over major waterways. One year of experience as a bridge designer performing design and providing construction support, concurrent with underwater bridge inspection experience. Projects have included bridges, piers, wharves, bulkheads, dams, culverts, tidegates, and fender/pier protection systems. Specific areas of expertise include underwater inspection, structural condition evaluation of bridges, non-destructive and destructive underwater testing, underwater repair, underwater still photography, technical report preparation, and fathometer surveying. Excellent oral and written communication skills.

Selected Port Authority of New York & New Jersey Experience



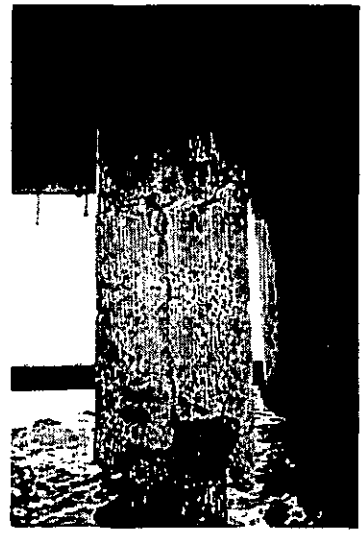
Greenville Yards, Bayonne, NJ, Port Authority of NY & NJ. Team Leader and Project Engineer-Diver for the above and underwater inspection of 880 feet by 120 feet of a timber pile supported, timber deck, high level platform pier; 1,030 feet by 200 feet of an earth filled pier buttressed by timber relieving platforms; 1,335 feet of steel sheet pile bulkhead constructed immediately offshore of a timber crib bulkhead; and, 900 feet of a collapsed timber crib bulkhead, currently consisting of a sloped shore.

Other Relevant Experience

Pier 26, Manhattan, Hudson River Park Trust. Team Leader and Project Engineer-Diver for the above water and underwater inspection of the pier. The purpose of the construction inspection was to determine if there were any typical items of non-conformance with design documents and perform an underwater debris survey. This project included the inspection of 841 ft by 120 ft of precast prestressed concrete deck plank pier, 29 concrete pile caps, and 94 precast prestressed concrete piles.

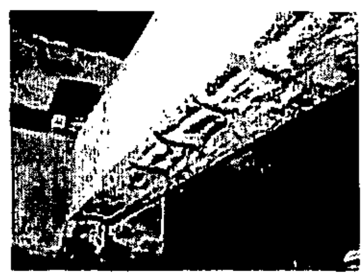
Other Relevant Experience (cont'd)

Fort Mifflin, Philadelphia, PA, U.S. Army Corps of Engineers. Team Leader and Project Engineer-Diver for the underwater inspection of repairs to the eastern approximately 60 ft of the South Pier. The purpose of the quality assurance inspection was to ensure that repairs to the timber piles and installation of new steel pipe piles for the breasting dolphins were completed in accordance with the contract drawings and specifications and to evaluate the quality and completeness of the repair work. Repairs included installation of timber shims, nails and bolts, steel bands, steel angles, new timber wale segments, and steel pipe piles.

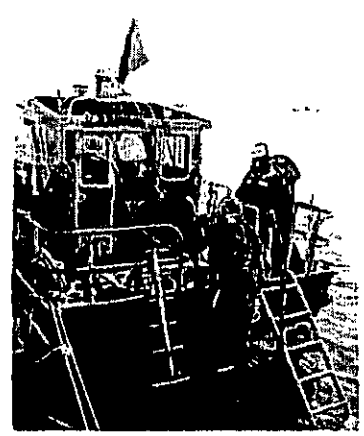


Jacksonville Port Authority "On-call" Engineering Services, FL. Engineer-Diver for above and underwater inspections and assessments of waterfront facilities, including above and underwater inspection of three prestressed concrete pile supported bridges monitored by the Florida State Department of Transportation, and condition assessment of over 2 miles of prestressed concrete pile and steel sheet pile supported wharf structures.

Port Everglades Bond Engineering Services, Broward County, FL. Team Leader and Project Engineer-Diver for the underwater inspections and assessments of waterfront facilities, including an underwater inspection and condition assessment of approximately 5 miles of steel single sheet pile bulkhead and combined wall bulkhead, two steel pile shell-concrete pile supported piers, one concrete pile supported pier, two concrete pile supported bridges, six steel breasting dolphins, and a concrete mooring dolphin.

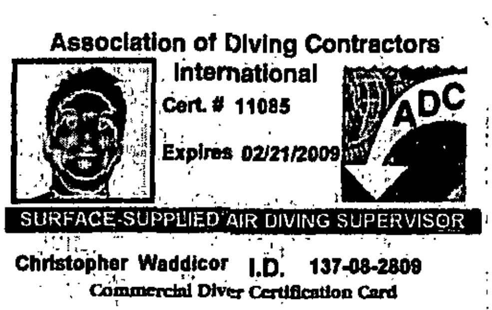


Rodeo Marine Oil Terminal, Rodeo, CA. Team Leader and Project Engineer-Diver for the above water and underwater structural condition inspection of the ConocoPhillips Marine Oil Terminal. This inspection was conducted as part of the Initial Audit of the terminal, in compliance with the California Code of Regulations, Title 24, Chapter 31F, otherwise known as the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). The project included underwater inspection and condition assessment of approximately 1700 reinforced concrete piles, prestressed concrete piles, steel H-piles, and steel pipe piles, as well as concrete framing members and concrete decking.



Barbados Coast Guard Base HMBS PELICAN, Barbados. Team Leader and Project Engineer-Diver for the damage assessment and condition survey services, including an above and underwater inspection and assessment of a quay wall. The purpose of the inspection was to determine the cause of damage to structural elements from a recent storm and recommend repair approaches. This project also included a condition assessment of 184 meters of quay wall consisting of a concrete capping block supported by concrete block columns.

CHRIS WADDICOR — Inspection Diver



Credentials

Diver's Academy of the Eastern Seaboard, Camden, New Jersey

University of Wales Institute Cardiff, United Kingdom
Environmental Engineering, B.Eng.

Manchester Polytechnic Institute, Manchester, United Kingdom
Engineering Foundation

Fort Bovisand Underwater Center, Plymouth, United Kingdom

U.S.D.O.T. Federal Highways Administration/National Highways Institute - National Bridge Inspection Standards (NBIS)

ADC Commercial Air Diver

ANSI / ACDE Commercial Diver Certificate (IMCA recognized)

NDT/UT Level 1 Certified

PADI Rescue Diver

DAN Oxygen Provider

Professional career founded in underwater inspection, forged in maritime design/ repair, and perfectly applied to waterfront development and underwater construction management. Experience and knowledge of marine structures has advanced every waterfront project under his direct management to safe, successful completion ahead of schedule. Management skills include the early identification of scope creep and subsequent conversion to additional project opportunities.

Selected Port Authority of New York & New Jersey Experience

Piers 1, 2, 3, 4, & 5, New York Marine Terminal for the Port Authority of NY & NJ. *Engineer-Diver/Tender for the visual inspection of all above* water elements including the deck underside, edge beams, reinforced concrete pile extensions, and stay lathing/bracing, as well as detailed underwater inspection services for the bulkheads. A comprehensive report was prepared including condition assessment, repair recommendations, and cost estimates.

Selected Relevant Experience

25th Street Wharf, Brooklyn, Lafarge North America. Engineer-Diver for an underwater condition survey. Provided assistance with report preparation and repair recommendations.

State-Wide Bridge Inspections, Connecticut Department of Transportation. Engineer-Diver/Tender for above and below water bridge inspections for approximately 300 highway and railroad bridges. Included in-depth inspection, photography, permitting, reporting, and repair recommendations.

Selected Relevant Experience (cont'd)

Eastern New York State Regions 1, 2, 7, 8 & 9, New York State Department of Transportation. Engineer- Diver/Tender for the two-year bridge contract, including underwater inspection and fathometric survey services for 93 bridges consisting of 186 SSU's.

North River Waste Treatment Plant, New York, CH2M Hill/New York City Department of Environmental Protection. Engineer-Diver for an inspection of the outfall treatment plant which included a substructure inspection of steel pile caissons beneath the plant. Performed a 370-foot hazardous materials and confined space underwater pipe penetration inspection.

Battery Park City, Manhattan, Battery Park City Authority. Marine Construction Project Manager for the rehabilitation of concrete pre-stressed piles. Provided the initial project set-up, procurement and technical co-ordination for the rehabilitation to underwater concrete pre-stressed piles. Phase One of construction accounts for approximately 600 piles for structural and non-structural repair. Contract totals approximately 3000 piles due for repair.

Con Edison East 74th St. Generating Station, Manhattan. Marine Construction Project Manager for the installation of horizontal struts in intake tunnels, placement of approximately 120 cu Yds concrete in pinned grout bags beneath severely scoured out granite fascia wall, tunnel fascia repairs, and recovery and placement of 10 large granite blocks in bulkhead fascia. Project located ¼ mile south of Hell's Gate and thus the difficulty increased due to intensity of current flow.

Kent Avenue Pier and Esplanade, Williamsburg, NY. Marine Construction Project Manager for the new construction of pier and esplanade, 164 Kent Ave, in the East River. Project Manager for the initial phase of bulkhead construction and pile layout. Stringent dates for phase construction met, overcoming severe interferences during driving of the steel sheet-pile.

Bulkhead Assessment and Repair, Edgewater, NJ. Design Engineer and Diver for the rapid structural and sub-structural assessment of failed bulkhead sections and associated penetrant culverts at Independence Harbour. Produced cost effective design repair and full inspection/consultancy to the contractor for the immediate repair of client property.

D. Rates

D. Staff Rates

The names and hourly direct salary rates of personnel who may be assigned to perform services for this project are listed by job classification in the table below. The hourly rates are actual rates for the 2008 calendar year. Halcrow adjusts salaries on January 1st of each year, and some employees may receive additional adjustments during the year. Rates will be submitted for approval to the Authority's Project Manager when adjustments are made, and billings will be based on the approved actual rates.

Halcrow's policy on compensation for premium pay is stated in the Staff Handbook and Policy Manual as follows: *When an employee who normally receives payment for overtime is required to work on a recognized holiday, the employee will receive his or her regular holiday pay plus the regular base rate for the hours worked.*

The table below lists personnel proposed for this proposal. We have presented billing rates for senior management personnel.

NAME	TITLE	HOURLY RATE
Senior Management		
Padron, Dennis	Executive Vice President	Billing Rate $270
Goldstick, Jonathan	Senior Vice President	Billing Rate $270
Paparis, Bill	Senior Vice President	Billing Rate $270
Faeth, Mark	Senior Vice President	Billing Rate $270
Carr, Chris	Senior Vice President	Billing Rate $270
King, Patrick	Vice President	Billing Rate $235
Cunningham, Lawrence	Vice President	Billing Rate $235
Personnel		
Acosta, Joe*	Technician Diver	$48.22
Acosta, Maria	CAD Designer	$39.86
Acosta, Victor	CAD/GIS Designer	$41.11
Austin, Adon*	P.E.-Diver	$40.14
Bayram, Attilla	Senior Engineer	$44.70
Beasley, Robert	Senior Engineer	$71.97
Borodulina, Tania	CAD Designer	$37.50
Boynton, Jonathan*	Engineer-Diver	$39.90
Bull, Alan*	Engineer-Diver	$30.29
Buzeta, Ramiro	Engineer	$43.27
Carroll, Paul	CAD Designer	$39.42
Chial, Lorraine	Engineer	$43.27
Choi, Joseph*	Engineer-Diver	$35.82
Cumberbatch, Curtis	CAD Designer	$32.81
Daniell, Charlie	Principal Engineer	$66.11
Daniell, Patrick	Senior Engineer	$52.88
Delaney, Michael*	Principal Engineer-Diver	$58.17
Driscoll, Andrew	Principal Engineer	$66.35
Esola, Bill*	Technician Diver	$45.91

NAME	TITLE	HOURLY RATE
Fradkin, Leonid	Senior Engineer	$45.91
Friend, Douglas*	P.E.-Diver	$50.52
Garisto, John*	Technician Diver	$32.69
Grice, Matthew*	P.E.-Diver	$40.14
Hayes, John	Senior Engineer	$59.42
Irving, Eugene	CAD Designer	$37.26
Kaminski, Louis	Engineer	$30.96
Kehoe, Matthew*	Engineer-Diver	$28.99
Korsgaard, Jens	Principal Engineer	$76.92
Kwong, Ivy	Engineer	$40.72
Lai, Andrew*	Technician Diver	$31.97
Larson, Alan	Senior Engineer	$53.46
Lew, Kenneth	Engineer	$45.00
Libunao, Reynaldo	Engineer	$45.67
Licata, Alicia	Engineer	$36.06
Licata, Guisppe (Joe)	CAD Designer	$49.52
LoPorcaro, Stephen*	P.E.-Diver	$50.48
Luo, Jack	Principal Engineer	$65.63
Millar, Gillian	Engineer	$46.39
Miller, Kelby*	Engineer-Diver	$27.64
Misra, Shubhra	Senior Engineer	$47.12
Mogray, John*	Engineer-Diver	$27.40
Nauss, Sam	Principal Engineer	$67.36
Nekoz, Anastasia	Engineer	$30.96
Oneil, Sean	Senior Engineer	$72.12
Onodera, Maki*	P.E.-Diver	$49.04
Ortmann, Fred	Principal Engineer	$65.63
Patel, Madhu	Senior Engineer	$48.56
Portalatin, Armando	CAD Designer	$49.52
Qayyum, Sheikh	Principal Engineer	$74.52
Rees, Matt	Engineer	$52.40
Riden, Kirk*	P.E.-Diver	$68.32
Shabin, Vladimir	Senior Engineer	$51.92
Shen, Daoxian	Senior Engineer	$55.00
Sheppard, Ben*	Technician Diver	$35.00
Sing, Stuart*	P.E.-Diver	$39.42
Sposito, Brett*	P.E.-Diver	$47.21
Tutuncu, Ilker	Engineer	$51.44
Victor, Joel	Engineer	$39.90
Waddicor, Chris*	Technician Diver	$42.31
Waller, Al	Principal Engineer	$84.18
Yang, Songtao	Engineer	$37.07
Yurynets, Bohdan	Engineer	$36.06

* Note: These rates are non-diving (office) rates. As per NY State labor law, all diving and tending work is performed at the prevailing wage field rates provided in the table below, which include all applicable supplemental benefits. The diver rate applies to the member of the inspection team that actually performs the diving work for the day that work is performed. The tender rate applies to the member of the team that tends the diver for the day that work is performed.

	Prevailing Wage (Diver)	Prevailing Wage (Tender)
Acosta, Joe	$187.17	$141.59
Austin, Adon	$194.44	$148.86
Boynton, Jonathan	$193.71	$148.14
Bull, Alan	$193.73	$148.15
Choi, Joseph	$193.82	$148.24
Delaney, Michael	$184.98	$139.40
Esola, Bill	$186.02	$140.45
Friend, Douglas	$185.95	$140.37
Garisto, John	$188.84	$143.26
Grice, Matthew	$193.44	$147.86
Kehoe, Matthew	$194.42	$148.85
Lai, Andrew	$188.92	$143.34
LoPorcaro, Stephen	$186.92	$141.34
Miller, Kelby	$194.53	$148.96
Mogray, John	$194.56	$148.99
Onodera, Maki	$191.86	$146.28
Riden, Kirk	$185.00	$139.42
Sheppard, Ben	$188.73	$143.16
Sing, Stuart	$188.87	$143.29
Sposito, Brett	$188.18	$142.60
Waddicor, Chris	$188.62	$143.04

E. Relevant Experience

E. Relevant Experience

Halcrow believes our relevant project experience is unparalleled in the industry. The firm can certainly lay claim to having carried out as many or more waterfront facility assessments for the Authority than any other marine engineering consultant. However, in order to stay within the stated page limit, we have chosen to primarily focus on our most relevant Port Authority experience in the project description sheets in this section. In addition, we have provided some information regarding call-in basis contracts of similar scale that Halcrow currently holds with other clients. These projects illustrate the wide range of our capabilities, ranging from multi-month condition surveys of enormous scale to immediate action investigations leading to recommendations for quick repair.

Historically, a large number of Halcrow's projects have been "on-call"-type contracts involving the inspection, assessment, and design of waterfront facilities. A testament to our commitment to successfully delivering projects is the extremely high percentage of repeat business that comes from clients such as the Authority, with whom we have longstanding relationships. The most accurate assessment of Halcrow's capabilities and performance will undoubtedly come from our existing clients and we urge you to contact the following individuals so that they may share their experiences and opinions regarding the high quality of our work. As requested, copies of Exhibit I have been sent to these individuals for direct submission to the Authority. Further information on Halcrow's work on these, or any other, contracts can be furnished upon request.

Port Authority of New York & New Jersey
Facility Condition Surveys
Mr. Barry Feldman
(973) 792-3910

New York City Economic Development Corporation
Marine Engineering Services
Mr. Dan Zarrilli
(212) 312-3774

Naval Facilities Engineering Service Center,
East Coast Detachment
Worldwide Inspection and Assessment of Waterfront Facilities
Mr. Alex Viana
(202) 433-5516

Port Authority of New York & New Jersey
Waterfront Structural Engineering Services
Mr. Owen Lee
(973) 792-4510

DeRose Design Consultants, Inc.
Port Everglades Waterfront Condition Surveys
Mr. Lawrence DeRose
(954) 942-7703

Hudson River Park Trust
Marine Inspection, Engineering, Design, &
Construction Administration
Mr. Marc Boddewyn
(212) 627-2020

Facility Condition Survey Seuthority of NY & NJ

New York Harbor

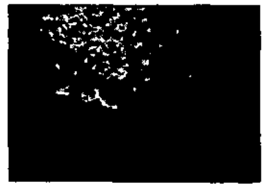
Halcrow (formerly HPA) has held fourteen consecutive annual open-ended, multi-task contracts awarded by the Port Authority of NY & NJ's Quality Assurance Division.

Typical work under these contracts consists of performing above water and underwater condition surveys and preparing Condition Survey Reports for the specified waterfront installations. These reports outline the condition of the facilities at the time of inspection, identify deficiencies which may present a hazard to personnel or the environment, including recommendations and cost estimates for correcting such deficiencies.

Some projects under these contracts have been conducted on an emergency basis, where Halcrow has quickly mobilized inspection teams to respond to specific incidents such as vessel collision or rapid development of sinkholes.

In a number of cases, the inspection projects have continued to the design stage where Halcrow has been responsible for the design of repairs to piers, wharves, bulkheads, buildings, bridges, bridge pier protection, and other miscellaneous structures.

As shown in the adjacent lists, Halcrow has an extensive history of performing exemplary condition survey work to assist the PANYNJ in maintaining your high standard of quality. Brief descriptions of selected recent PANYNJ task orders and other call-in basis contracts are provided on the following pages to illustrate the wide range of our capabilities and experience.



Airports

LaGuardia:
Inspection of Piles/Cathodic Protection ('03)
Runway Extensions 4-22 & 13-31 ('04, '99, '06)
Superstructure, Deck, Runway ILS Piers ('04)

JFK International:
Bergen Basis Barge Piers ('02)
ILS Pier for Runway 4-22R ('95)

Newark:
Bridge O27 ('98) Culverts ('94)

Heliports

Downtown Manhattan: ('92, '99, '05)

West 30th St.: ('93)

Tunnels

Holland:
Protective Pier 9/204 ('03, '07)
Rehabilitation Alternatives ('01)
NYRB Protective Structure Repairs ('05)

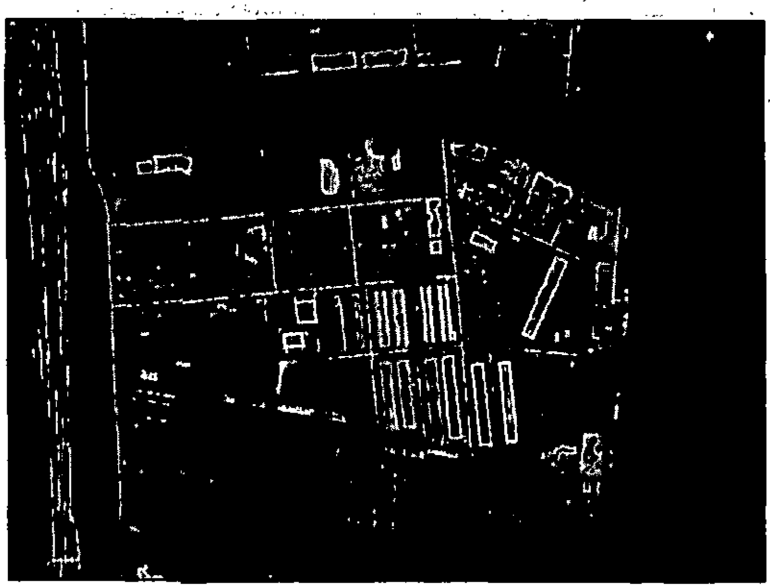
Lincoln:
Ventilation Building ('97, '05)
Security Netting 3 & 4 ('02)

Ferry Terminals

Hoboken Ferry Terminal ('99, '03, '06)

Port Newark Even Berths 2-36

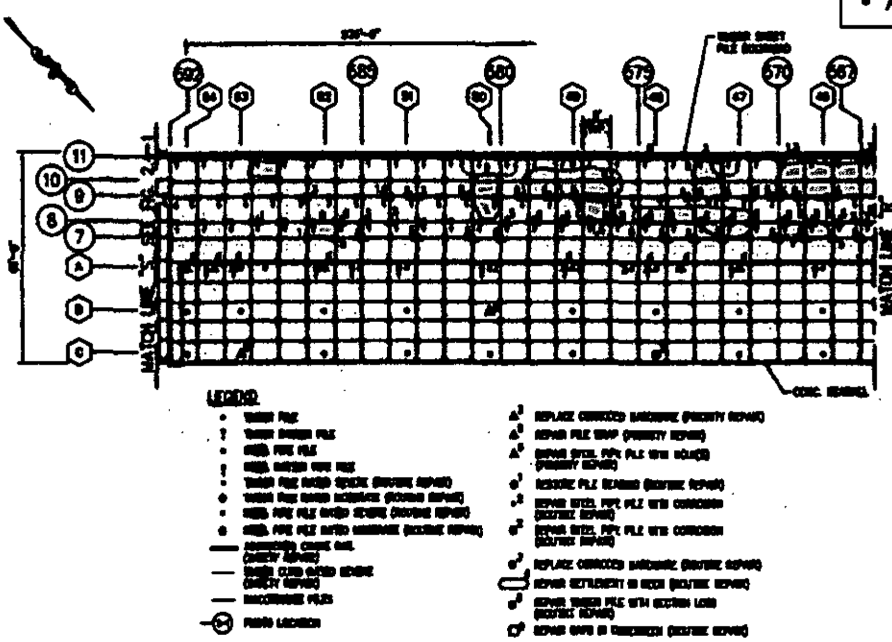
Port Newark, New Jersey

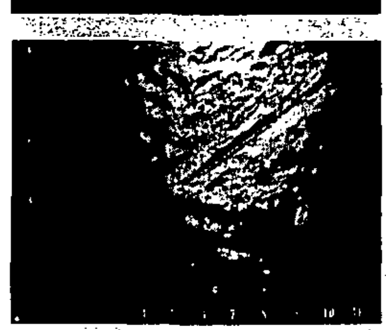


In the summer of 2006, Halcrow performed a cyclical condition survey of New Jersey Marine Terminal, Port Newark Berths 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, and 36 in New Jersey. The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies. The overall condition of each berth was found to be Good. There were no conditions found that required immediate repairs at any berth. There are 22 Priority repairs at 879 locations, 3 Safety repairs at 79 locations, and 14 Routine repairs at 1,641 locations.

The survey included a 100% visual and 10% hands-on inspection of all structural elements comprising the marine terminal including piles, pile cap beams, steel and timber pile bulkhead, concrete seawall, and top of deck of each berth. structures were inspected under the direction of a registered Professional Engineer. The above water and underwater inspections were performed by a three-person team consisting of a professional engineer-diver, an engineer-diver, and a technician-diver. All underwater inspection work was conducted utilizing surface-supplied air and a hard-wire communications tether. Operations were staged from a 30 ft dive boat or an inspection van located on the berth decks.

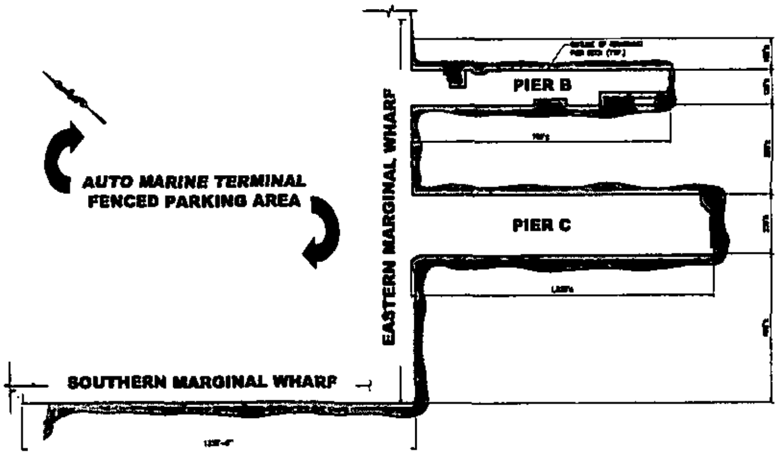
Elements inspected include:
- 6,642 timber piles
- 871 steel pipe piles
- 451 steel H piles
- 1,070 prestressed concrete piles
- 720 concrete repair encasements
- Approx 450,000 sf of top of decks
- Approx 9,600 lf of bulkhead
- Approx 10,000 lf of concrete seawall



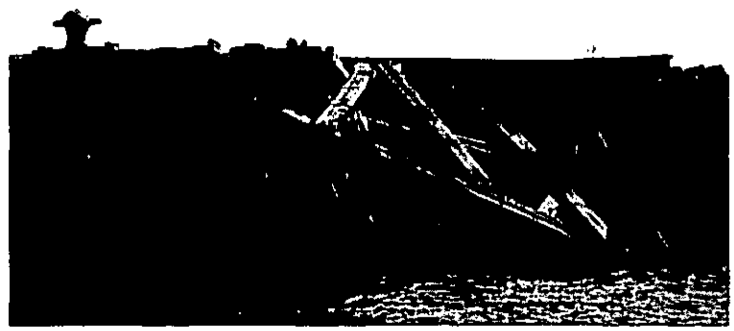


Greenville Yards

Bayonne, New Jersey



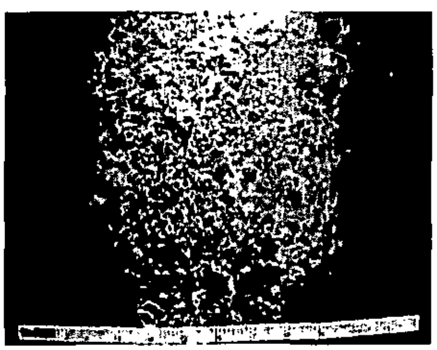
Halcrow performed a condition survey of the Greenville Yards located in Bayonne, New Jersey during the summer of 2007. The condition survey included an inspection of Pier B (only above water), Pier C, the Southern Marginal Wharf, and the Eastern Marginal Wharf (only above water). The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies.



Pier B

Overall, Pier B is in Poor condition and has been condemned. The level of deterioration on the pier has gotten slightly worse since the previous inspection as there are more areas with loose timbers identified during this inspection.

There were two previous Priority repair recommendations, including the demolition of the entire pier to prevent floating debris and the demolition of the inshore timber crib bulkhead and stabilization of the shoreline. Neither the pier nor the bulkhead has been removed. This inspection identifies no new Priority repairs. The pier and bulkhead should still be demolished and the shoreline stabilized as Priority repairs.

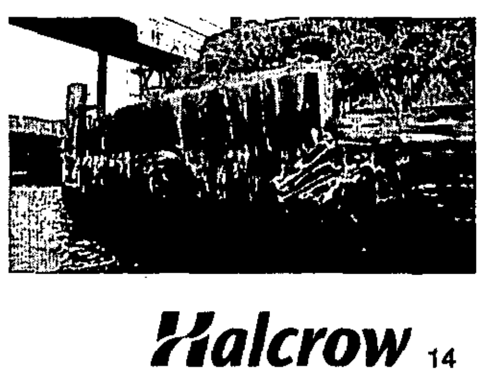


Pier C

Overall, Pier C remains in Fair condition except for small isolated areas that are in Poor condition. The condition of Pier C has gotten worse since the previous inspection as there are additional deteriorated piles, pile caps, and timber decking that were identified during this inspection. Limnoria damage was found at most timber piles along with Teredo on some piles. Most piles exhibited minor and moderate section loss (< 35%).

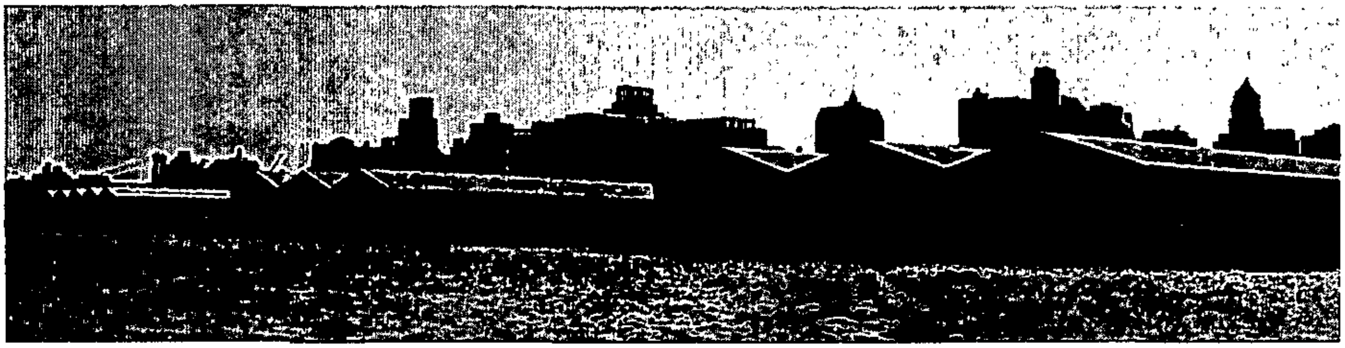
Marginal Wharves

Overall, the Eastern and Southern Marginal Wharves were found to be in poor condition. The level of deterioration on the Southern Marginal Wharf has increased, with additional partially collapsed sections of bulkhead found. The condition of the Eastern Marginal Wharf has not significantly changed.



Brooklyn Piers 6, 7, 8, and Bulkhead at Pier 11

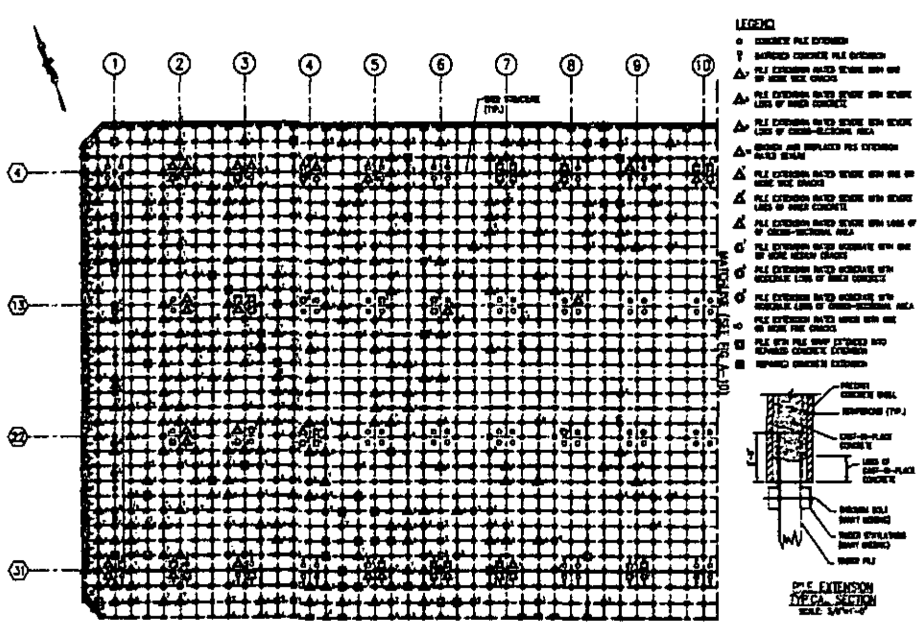
Brooklyn Marine Terminal and Red Hook Container Terminal, New York

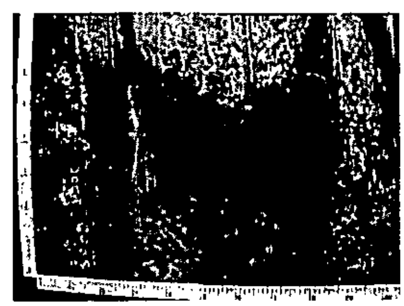


Halcrow conducted a condition survey of Piers 6, 7, and 8 at the Brooklyn Marine Terminal and the bulkhead at Pier 11 at the Red Hook Container Terminal in Brooklyn, New York in the spring and summer of 2007. Elements inspected by our engineer-divers included treated timber piles and their corresponding concrete pile extensions, steel pipe piles, reinforced concrete edge beams, decks and steel sheet pile bulkhead. The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies.

Elements inspected include:
- 11,319 timber piles
- 9 steel pipe piles
- 11,190 concrete pile extensions
- Approx. 6,100 lf of concrete edge beams
- Approx. 692,200 sf of concrete deck soffit
- 175,020 sf of top of decks
- 129 mooring elements
- Approx. 44,800 sf of steel sheet pile bulkhead

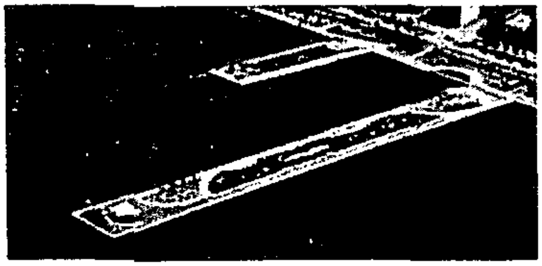
The overall condition of all structures was found to be Good, with one condition requiring Immediate repair identified at Pier 8: a broken pile and concrete extension at Pile 2 in Bent 9+2. The replacement of the pile and extension are currently under construction following Halcrow's recommendation for repair. Overall, a modest increase in the level of observed marine borer activity was found since the previous inspection.





Hudson River Park Marine Inspection Services

New York, New York

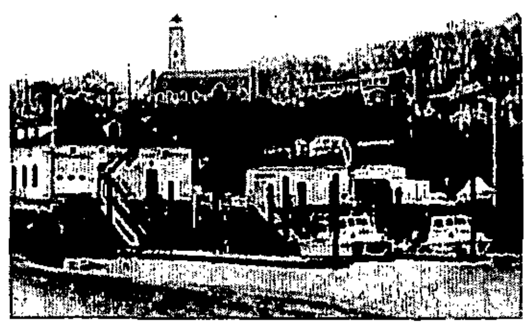


Hudson River Park, currently under development, is a five-mile park stretching along the Hudson River in New York City. When completed, the park will encompass over 550 acres of riverfront property and include thirteen pier structures. Halcrow's work includes condition surveys to monitor structures that are scheduled for replacement, inspection and rehabilitation design of structures that will remain in use, inspection and design of demolition plans for structures that will be removed, and monitoring of pile fields for previously demolished piers.

On-Call Marine Engineering Services

Northeast United States

Halcrow is providing professional marine engineering services on an as-needed basis to the United States Coast Guard Civil Engineering Unit Providence for an Indefinite Delivery/Indefinite Quantity for projects throughout the First US Coast Guard District. Services under the multi-year contract include:



- conducting above and underwater marine surveys to ascertain existing conditions and state of repair for various waterfront installations
- preparing reports with recommendations and cost estimates for identified repair/replacement work
- preparing competitive bid, marine construction contract documentation

Projects to date have included above and underwater condition surveys of Coast Guard stations in Eaton's Neck, NY; Lynde Point, CT; Bristol Harbor, RI; and Burlington, VT.

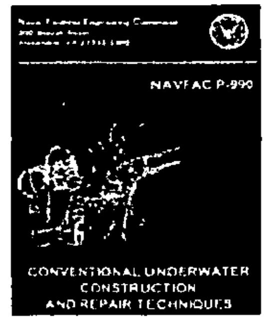
Waterfront Engineering Call-in Basis Services

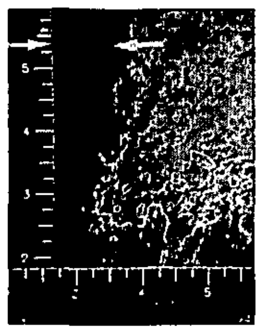
New York, New York

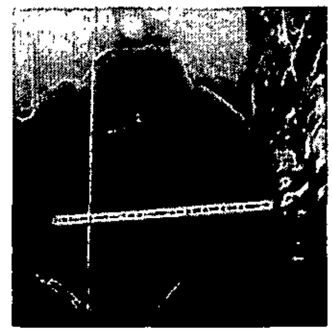
For more than ten years, Halcrow has provided waterfront engineering services throughout New York City to the Economic Development Corporation. Assignments include above and underwater inspection, analyses, the preparation of designs, drawings, and specifications for repairs and new construction; preparation of permit applications; and construction services.

Underwater Inspection/Assessment Call-in Basis Contracts

Worldwide







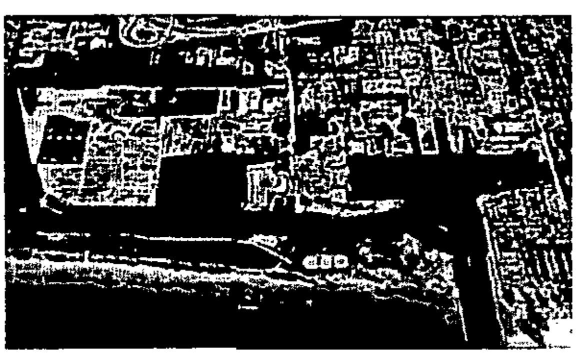
The U.S. Navy's Underwater Inspection Program addresses the problem of an increasing backlog of maintenance and repairs required at Navy waterfront facilities around the world. The East Coast Detachment of NFESC was assigned responsibility for management of the ongoing program. Halcrow has completed over 60 assignments for the NFESC in support of this Underwater Inspection Program under a number of consecutive and ongoing contracts since the late 1980's.

The underwater inspections and assessments under this contract are conducted by Halcrow's in-house staff of engineer-divers. Upon completion of the inspections, structural analyses are prepared for each of the facilities inspected and recommendations, preliminary designs, and cost estimates developed for repair and rehabilitation of each facility. Repairs encompass different construction types including timber, concrete, and steel. Also under this contract, Halcrow updated the Navy's manual P-990, "Conventional Underwater Construction and Repair Techniques", which Halcrow had originally written in 1984. This manual is used as a training text and field reference for all of the Navy's waterfront inspection and repair work. Assignments under this contract have included the inspection and repair design for US Naval facilities in such locations as:

- Naval Base Guam
- Naval Air Test Center, Patuxent, MD
- Naval Station and Naval Academy, Annapolis, MD
- Naval Station New York, Staten Island, NY
- Naval Undersea Warfare Center, Keyport, WA
- Naval Training Center, Orlando, FL
- Naval Submarine Base, Kings Bay, GA
- Naval Station, Guantanamo Bay, Cuba
- Naval Ordnance Station, Indian Head, MD
- Naval and Marine Corps Reserve Center, Tacoma, WA
- USCG Training Center, Cape May, NJ
- Fleet and Industrial Supply Center, Pearl Harbor, HI
- Naval Weapons Station Earle, Colts Neck, NJ
- Naval Weapons Station, Seal Beach, CA
- Moffett Federal Airfield, Moffett Field, CA
- Naval Supply Center - Craney Island, VA
- Defense Fuel Support Point, Ozal, CA
- Naval Submarine Base, New London, CT
- US Naval Support Center, Diego Garcia, B.I.O.T.
- Norfolk Naval Shipyard, Norfolk, VA
- Pearl Harbor Naval Shipyard, Pearl Harbor, HI

Port Everglades Waterfront Facility Condition Surveys

Broward County, Florida



Halcrow was retained to provide bond engineering services to include full underwater evaluations of Port Everglades' waterfront structures in years 2005, 2007, and 2009. The purpose of the evaluations was to identify structural and non-structural deficiencies using non-destructive testing methods and to provide thorough and concise inspection reports that detail inspection findings while providing repair recommendations and associated cost estimates.

F. Management Apprroach and Scope of Work

F. Management Approach and Scope of Work

Management Approach

The specific management approach will depend upon the requirements and scope of a given assignment. The key to success in managing on-call contracts is the ability to tailor the management style and staff to meet the unique requirements of each assignment. Because of Halcrow's extensive experience with similar work, most specifically our previous and current contracts with the Authority, the Authority can be assured that it will always be provided with a flexible, adaptable project team and work approach. Halcrow's goal is to provide the level of management formality, reporting, and communication that is required for each assignment, and which best suits the Authority's needs. Unlike large projects, smaller projects often require a less structured management approach. Halcrow will approach each task with the governing objective of efficiency and cost-effective performance.

Point of Contact

Jonathan Goldstick will be Halcrow's Project Manager for this project and is always available to the Authority. Maki Onodera, as Halcrow's Team Leader, will be the regular point of contact for this Project. Maki is Halcrow's Team Leader for our current waterfront facilities condition survey call-in contract with the Authority. As such, he has a deep understanding of the work to be carried out and is fully aware of the requirements of the contract. He will coordinate the efforts of team members, insure adequate staffing, control the project budget, keep the Authority adequately informed, submit periodic invoices, keep the assignments on schedule, and monitor quality. Typically, when notified by the Authority that an assignment is pending, Maki will carefully review the scope of work for the assignment, discuss the scope with appropriate Authority personnel to obtain any clarifications that may be required, discuss facility operations and access arrangements, and review all available information on the present condition of the areas to be inspected and evaluated.

Once the work is clearly defined, Maki will work closely with Patrick King to determine the most suitable team to perform the work. Then, based upon the team composition and the work required, he will then formulate a proposal for Authority approval. Maki will draw resources from a deep pool of experienced Project Engineers/Team Leaders, many of whom have led and managed projects under various contracts, including for the Authority for many years.

Work Plan

Once the proposal is submitted and approved, a work plan will be developed. Planning is a crucial key to the success of the project. A good work plan defines all team roles and responsibilities. It describes how the knowledge and skills of the project team will be used to meet or exceed the Authority's project requirements. The work plan is a powerful tool for creating a high-quality project. It can be quite elaborate or very simple depending upon the scope and complexity of the assignment.

Once the work plan has been finalized, it will be reviewed with the team members so that the work is defined to everyone prior to commencement. This will maximize the team's effectiveness in the field.

Good stewardship of the tasks is required throughout the work in order to ensure the highest quality of work for the Authority. The Project Manager will be involved through all phases, advising and guiding the Team Leader and acting as the liaison to the Authority to ensure that they are always aware of project developments. More detail on these phases of the task work and Halcrow's approach are presented in the Scope of Work section of this proposal. A Project Organization Chart is presented in the Resumes and Qualifications section.

Cost Control

Realizing that cost control is crucial in developing responsive engineering solutions, Halcrow has developed an internal Project Control and Reporting System that permits a Project Manager to readily access up-to-date information relevant to a particular project. This system will allow Jonathan to maintain tight control of budgets established for this project. Examples of some of the reports available through Halcrow's system include:

- Project Control Report showing budget versus labor and expenses charged to a given project.
- Accounts Payable Report tracking vendor invoices and payment information.
- Billing Report that automates monthly billing and produces actual invoices.
- Project Schedule

Schedule

During the work definition phase, Halcrow and the Authority will agree on a schedule for the completion of a given assignment. Once determined, Halcrow will allocate the balance of the proper resources and equipment to complete the work within that established timeframe. If a particular task is large enough to warrant the preparation of a formal schedule, Halcrow maintains several software packages suitable for schedule development. As with the other elements of project management, the level of detail in the task schedules will be dictated by the respective tasks.

Scope of Work

In accordance with the information provided in the RFP, the services to be provided will generally consist of performing condition surveys and submitting a detailed Condition Survey Report to the Authority for the required structure(s) involved in a particular work assignment. Structures to be inspected may include buildings, bridges, tunnels, piers, wharves, bulkheads, or other miscellaneous structures. The goal of the inspection efforts will be to determine the condition of the specified structures and to identify structural and non-structural deficiencies, if any, which may present a potential safety hazard. Recommendations will be prepared for correcting any deficiencies found.

For each new work assignment, Halcrow will visit the site to evaluate the work required to meet the Authority's objectives. Once determined, a cost estimate for Task A work, as specified in the standard contract requirements, will be prepared and submitted to the Authority for approval. Once approved, Halcrow will commence work. The general requirements of an inspection project are outlined below.

Task A - Preparation of Procedure Outline

The objective of Task A is to develop a specific inspection procedure outline to define the scope of work and to estimate the labor requirements and cost for the assignment. One of the first steps in performing the work will be to establish the project team to carry out the work. The scope of services for the assignment will be carefully evaluated and the individuals that are best suited for the various work tasks will be determined and assigned to the project team. Additionally, the feasibility of utilizing certified M/WBE subconsultants will be reviewed and subconsultants will be selected, when appropriate, so that the Authority's goals for MBE and DBE participation can be met.

With the scope of work defined and the project team established, the labor required to carry out each task of the assignment will be estimated to establish a cost estimate for the given tasks. This cost estimate will be submitted to the Authority for review and authorization to proceed. At a minimum, the following will be included in the Task A effort:

- identification of the locations to be inspected
- define the structural, architectural, mechanical, and other elements to be inspected
- carry out a one day inspection to evaluate the level of effort required for Task B work
- define the technical approach including, but not limited to, description of the level of inspection for each location and element, and methodology and equipment to be used for inspection
- develop a schedule for the inspection and an analysis of the required labor for Tasks B and C.

Also during this preliminary phase of the work assignment, a review will be conducted of all available information regarding the configurations and existing conditions of the relevant structures. Halcrow will obtain and review documentation from the Authority, including all drawings relevant to the structure(s) to be evaluated and previous inspection reports. This review will provide the project team with a thorough understanding of the nature and details of the facilities to be inspected and evaluated. Halcrow will then meet with the Authority to discuss and define specific task requirements, facility operations and to make access arrangements. After the assignment has been clarified and Halcrow's inspection procedure outline and cost estimate for the fieldwork is approved, the inspection team will prepare and mobilize.

Task B - Field Inspection

The objective of Task B is to determine the condition and establish the extent of rehabilitation required for the buildings, roads, utilities, piers, wharves, bulkheads, fender systems, ship services, and mooring fittings included in the project scope. The inspection will be carried out in conformance with the approved inspection procedure outline developed in Task A as described in the preceding section. The following discussion is a supplement to that description.

<u>Inspection Plan and Survey Sketches</u>

Adequate planning and preparation is critical to the efficient completion of the inspection survey. Time spent at this stage returns large dividends during the progress of the work. The extent of preparation necessary at this point depends on available information on the present condition of the structure(s) to be inspected. The following discussion is based on the assumption that a reasonable amount of information about the configuration and condition of the structures is available from the Authority.

In order to expedite and simplify the recording of pier, wharf, and bulkhead inspection data, a set of survey plans, elevations, and cross-sections will be prepared in advance of the survey. This will permit the inspection team to graphically delineate the extent and seriousness of deterioration or damage discovered. Although original engineering or contractor-prepared fabrication and construction drawings may be available, their format and purpose render them unsuitable for inspection survey requirements. In order for the drawings to be most useful for inspection, typical details need to be repeated to enable location of deterioration graphically on the drawings of all of the appropriate structural members.

It is critically important to the effectiveness of the survey to properly select the typical areas to be examined. Proper selection requires an understanding of the structural analysis performed for the original design so that the areas subject to maximum stress, fatigue, and impact forces can be determined and a sufficient, but not excessive, number of these areas can be selected for inspection. Knowledge of deterioration and damage theory is required and, consequently, the inspection survey plans will be prepared by well-qualified engineers familiar with waterfront structures. At this stage, the survey equipment most suitable for the required tasks will be determined.

The size of survey drawings is important to the inspection team. Large oversized drawings that require folding are a nuisance to field personnel and are particularly bothersome in bad weather conditions or in restricted space areas. Therefore, the survey drawings will be prepared on 8.5 x 11 in. and 11 x 17 in. waterproof paper for field use and the figures can be more readily incorporated into the final report.

Alternatively, for large scale inspection projects, Halcrow utilizes Microsoft Access to develop project specific databases that collect and process inspection information. The databases can be set up to accept general or site specific deficiencies for various structural components, and are linked to the facility AutoCad drawing files. When applicable, the databases increase efficiency during the collection of structural condition information, and minimize post-processing time by automatically placing predetermined condition symbols into the AutoCad drawings when synchronized. Port Authority projects for which an Access database was used include Port Elizabeth Berths 50 through 86, Brooklyn Pier 12, Brooklyn Piers 1 and 3, Greenville Yards, and Brooklyn Piers 5 and 6 Bulkheads. Use of these databases improves efficiency and also provides an easy method of accessing and comparing information contained in previous inspection field notes with subsequent inspections.

Building/Landside Inspection

The detailed inspection plan will provide information significant to each building inspection, and will include a checklist to help pinpoint damage and deterioration, gather information on equipment through nameplate data (if existing drawings do not detail this information), and provide sufficient space for survey team member notes. One standard reference to be used in developing the inspection checklist to the required level will be the "Means Facilities Maintenance Standards" by Roger W. Liska, P.E., particularly with regard to inspection and evaluation of building materials and equipment, suggested life cycles of building components, and deterioration of building elements. Halcrow's experience with such surveys will also be employed to its best advantage in developing inspection criteria for architectural, civil, and structural items such as:

- Roof Inspections: Cracks, blisters, wrinkles, ponding, gravel displacement, wet insulation, dry felts, water stains, cracks in flashing, open joints or end laps, pull aways, deteriorated caulking, rusted galvanized iron, expansion joint cracks, deteriorated membranes, etc.
- Hung Ceilings: Type, size, and spacing of hangers and framing, determination of hot-rolled or cold-rolled members, type and size of all connections, and thickness of ceiling materials. Comparison of the existing ceiling structure will be made with current Authority standards
- Exterior Walls: Cracks, paint condition, moisture, efflorescence, caulking/mortar deterioration
- Exterior Doors: Damage, operation faulty closers, locks, surface deterioration (e.g., corrosion)

- Similar criteria will be applied to the structural system, stairs and handrails, interior walls and ceilings, floors, windows, and doors.

A set of survey plans will be developed for each landside (buildings, roads, and utilities) inspection team. In developing the inspection plan, the age of the facilities and date of subsequent facility improvements will be of great importance. Items of survey equipment required will be minimal. It is anticipated that cameras, ladders, binoculars, hand-held tape recorders, high intensity flashlights, standard measuring devices, volt-ohmmeters, and, in some instances, a scissor lift will be required.

Waterfront Facility Inspections

Waterfront evaluations will be conformed in strict accordance with the Authority's inspection manual "Guidelines for Condition Survey of Waterfront Structures", and with the specifications set forth in the RFP and associated Appendices. All waterfront inspections will consist of both above and underwater evaluations of the structural components which can generally be summarized as follows.

Underwater Inspection

Underwater inspection costs often constitute a significant portion of the engineering cost for a particular project. Therefore, it is necessary to carefully evaluate the type of inspection to be carried out for each phase of each project. There are a number of different inspection levels generally used for inspecting marine facilities and they are distinguished by the resources and preparation, and consequently the cost, needed to do the work and most importantly, the objectives to be achieved. The different types of inspection can include cursory, swim-by, emergency, routine, design level, etc. In each of these inspection types, three levels of inspection effort are typically employed, defined as follows:

Level 1 - Visual Inspection - This type of inspection effort does not involve cleaning of any structural elements and generally consists of the inspectors "swimming by" structural components and visually and tactilely examining the surface for defects. The Level I effort is typically sufficient to detect obvious damages due to overstress, impacts, severe corrosion, or extensive biological attack.

Level 2 – Detailed Visual Examination - A statistically meaningful percentage of the structural elements is selected for a detailed inspection and bands of marine growth 1 ft square, or 1 ft high around the circumference of the piles, are removed, typically at three elevations over the height of the structural member. This enables the inspectors to identify damages typically obscured by biofouling such as cracking, minor spalling, and minor to moderate corrosion, and to take measurements of the defects and/or the remaining cross-sectional area. The findings of these inspections can be extrapolated to estimate the typical conditions for all of the structure's components.

Level 3 – Testing and Sampling – A percentage of the components selected for Level II examination are also tested to gauge conditions that can not be otherwise assessed. This testing typically includes taking ultrasonic thickness readings to gage remaining thickness and/or potentiality readings to gage cathodic protection levels on steel members. The testing can also sometimes include the extraction of timber core samples to gage marine borer infestation and creosote retention levels on timber members. Similarly, concrete core samples can be taken to determine the cause of certain concrete degradation and/or the remaining capacity of concrete members.

The majority of the inspections to be carried out under this Call-In agreement will most likely be Routine Level inspections, although Halcrow has carried out all of the other types of inspections for the Authority under previous Call-In agreements. The Routine Level inspection requires a mixture of Level I, II, and III inspection efforts, typically consisting of a complete (100%) Level I examination of all of a given structures components, a sampling of approximately (15%) of the underwater components for Level II examination and up to 5% of the same components for Level III testing.

All significant observations, such as loss of cross-sectional area, organism or fungal-caused deterioration, location and extent of damage, alignment problems, and condition of fastenings, will be recorded in the field forms or directly into the database system. All defects of piles and other elements revealed during the inspection will also be recorded on drawings that delineate their specific locations.

Above Water Inspection

The above water inspection of the specified piers, wharves, and bulkheads will be conducted by the same team that conducted the underwater evaluation. The crew will inspect all waterfront elements of the structure, including the deck surface, deck soffit, above water pile sections, caps, bracing, extensions, the utilities and ship's services facilities, fender systems, mooring fittings, backing logs, crane tiedowns, and camels, to fully define the condition of all waterfront facilities within the scope of the assignment.

Halcrow inspection teams will consist of an experienced licensed P.E.-diver, an engineer-diver, and an inspection-diver from Halcrow's regular, full time staff. All of Halcrow's divers proposed for these assignments are commercially certified and all diving operations will be performed in strict accordance with applicable OSHA and Military regulations governing surface supplied diving operations.

Task C - Report

The objective of Task C is to prepare a Condition Survey Report summarizing the results of the building/landside, underwater and above water inspection of the specified facilities. The report will include an overall evaluation of the condition of each structure, detailed inspection findings, and recommendations for rehabilitation or improvements, as appropriate. The recommendations will be listed using the Authority's classification system: "Immediate", "Priority", "Routine", and "Safety".

The detailed report will summarize the findings of Task B. The report will contain the results of the landside, above and underwater inspection, and the assessment of the condition and adequacy of the facilities. Full details of the existing conditions will be provided, including digital photographs to adequately illustrate deficiencies. Detailed AutoCAD figures documenting the structural configuration and pertinent conditions will also be included. Recommendations for rehabilitation and improvements will be fully documented, along with a discussion of the alternatives considered and the reasons for selecting the recommended work. Halcrow has prepared many such reports for the Authority and is intimately familiar with the Authority's needs and requirements in this regard.

G. H. Affiliates and QA/QC

G. Affiliates

Halcrow has no affiliates to declare.

H. Quality Control / Quality Assurance

Quality assurance and control is the highest priority of Halcrow. The firm's senior management is deeply involved with overseeing all aspects of the firm's work and with providing guidance to developing staff through all phases of a project. All reports, calculations, and bid documents are checked by engineers that did not prepare the original work, all drawings are checked by the engineer that prepared the design on which the drawings are based, and all work is reviewed by both the Project Manager and the Quality Assurance Engineer prior to submission.

Halcrow's standard Quality Assurance Program starts with the hiring of new personnel and is continually applied through every project. The principal features of the program are:

- Rigorous investigation and analysis of employment candidates
- Regular instruction and updating of Quality Assurance procedures
- Regular reporting to the project manager by the project engineer
- Dual review of all written reports for grammatical and informational errors
- All findings presented in the report are cross-checked by a third party reviewer with the field notes to insure the accuracy of the documented conditions
- Cross checking of all text referenced figures, tables, and photographs
- Constructability reviews of all repair recommendations by the Project Manager and the Quality Assurance Engineer
- Checking and signing of all computations and drawings by a qualified reviewer
- Extensive interdisciplinary coordination to eliminate interference between disciplines
- Interface checking of contract documents, specifications, and permit applications (as applicable)

In order to make certain that work performed by Halcrow is most responsive to the client's requirements, project managers maintain constant communication with clients to insure that the client's company procedures and standards are incorporated in the standards set for the assignment and are reflected in the work throughout the project. Also, Halcrow has developed an extensive in-house Quality Assurance/Quality Control Manual, a copy of which is included.

I,J. Conflict of Interest and Standard Agreement

I. Conflict of Interest

Halcrow (including all employees, agents or subcontractors) has no conflicts of interest to declare.

J. Standard Agreement

Halcrow has thoroughly reviewed the Authority's Standard Agreement and has found it to be in keeping with past contracts. Halcrow has no specific exemptions as part of this call-in basis contract.

Halcrow Quality Assurance Plan

QUALITY ASSURANCE PLAN

SEPTEMBER 2008

Halcrow

QUALITY ASSURANCE PLAN

SEPTEMBER 2008

Halcrow
22 Cortlandt Street
New York, NY 10007

STATEMENT BY THE VICE PRESIDENT OF QUALITY CONTROL

The management of Halcrow is dedicated to providing consistently high quality services commensurate with client requirements. An effective quality assurance program is essential to maintaining this policy. This document describes the quality assurance program that has been implemented within the company. This plan defines the lines of authority and the responsibilities of those individuals charged with implementing and maintaining the program. It describes the procedures for reviewing work products, performing system audits, and monitoring the plan's effectiveness.

The consistent and appropriate application and continued review and maintenance of this plan are hereby mandated by the Vice President of Quality Control of Halcrow.

Bill Paparis

Bill Paparis
Director of Quality Control

QUALITY ASSURANCE PLAN

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2. QUALITY ASSURANCE POLICY

2.1 INTRODUCTION

Halcrow is committed to providing quality services to its clients. This commitment to quality is embodied in this QA Plan and supported by the policies and *goals the company has adopted. Halcrow's success depends foremost upon the quality* of services provided to each client.

Policies have been established to ensure that quality services are provided to all clients. These policies define the quality of delivered work products (deliverables) and how quality is monitored and maintained.

All personnel are accountable for the proper application of standard procedures, guidelines, methods, and instructions to activities in which they are engaged. Accountability will be established by documentation or physical evidence related to, or in demonstration of, the implementation of quality control procedures.

Section 3 describes the Halcrow management organization as it applies to the implementation of quality assurance and quality control.

2.2 DEFINITIONS

2.2.1 Quality

Quality, as it applies to this plan, means that the project deliverable is acceptable for its intended use. Characteristics of quality are precision, accuracy, representativeness, clarity, consistency, completeness, and comparability. Quality work must also meet the following requirements:

- Protect public health and environment.
- Meet client's technical requirements.
- Conform to client's specifications.
- Conform to Halcrow policies, procedures, guidelines, and standards.
- Comply with applicable federal, state, and local regulations.
- Comply with contractual requirements.

2.2.2 Quality Assurance

Quality assurance includes all those activities required to determine that the quality control system is performing adequately. Quality is assured by establishing standards for work products, verifying that these standards have been followed, and evaluating the effectiveness of the standards and control activities in meeting quality objectives.

2.2.3 Quality Control

Quality control is the exercise of appropriate influence over activities by the routine examination of performance for accuracy, applicability, and conformance with criteria, guidelines, policies, instructions, procedures, and standards. Quality control functions include discipline review, project review, and independent review of work products.

2.3 DOCUMENTATION

The project team will perform the engineering and technical services for the project according to this QA Plan, including documentation of the quality control functions performed. Documentation requirements are defined in this QA Plan. Auditing of quality control activities is a quality assurance function.

2.4 APPLICABILITY

The quality assurance program is applicable to Halcrow services and project deliverables.

2.4.1 Halcrow Services

The services Halcrow provides for the permitting, investigation, study, evaluation, design, procurement, fieldwork, and construction phases of projects will be subject to the controls described in this QA Plan. The functions and interrelationships of systems and components used to perform the work are also subject to quality control review.

2.4.2 Project Deliverables

Halcrow project deliverables include contracts, correspondence, studies, reports, calculations, design drawings and plans, design specifications, technical papers, policy and procedure manuals, construction activities, and other work produced by Halcrow.

2.4.3 Consultants and Subcontractors to Halcrow

Services of consultants and subcontractors to Halcrow are subject to the QA/QC requirements of this QA Plan, as required by contract. Review of project deliverables from consultants and subcontractors is discussed in Subsection 4.7.5.

2.5 QUALITY ASSURANCE ORGANIZATION

The director of quality assurance is responsible for initiating and implementing programs to instruct all Halcrow professional and technical personnel in the application of the QA Plan. Each technical director and regional resource manager is responsible for coordinating quality assurance program implementation with the director of quality assurance. Instruction of personnel will be performed to satisfy both project and company requirements.

The project manager is responsible for assuring that the project team knows and understands the QA/QC requirements for the project. Instruction will include familiarizing personnel with this QA Plan, technical objectives of the project, codes and standards, contract requirements, regulations, and administrative and quality control procedures. Specific technical client requirements applicable to a project will also be identified and presented.

2.6 QUALITY REQUIREMENTS

All project functions and documents are subject to evaluation to ensure that they conform to Halcrow policies, procedures, guidelines, and standards. Quality controls, including applicable project budgets and schedules, will be established at the beginning of a project to achieve and verify the quality of the work product. These controls will be exercised throughout the project to provide a quality product.

To verify that work is of acceptable quality, various reviews will be conducted. Section 4.0 of this plan defines the required reviews, specifies who may perform the reviews, and describes how the reviews will be conducted during work product preparation.

2.7 MANAGEMENT REVIEW

The director of quality assurance is responsible for the management and assessment of the QA Plan. The director of quality assurance will audit project work for compliance with the QA Plan and determine the plan's effectiveness and efficiency. Results of audits will be documented in a summary report and submitted to the Vice President of Quality Control. Copies of the summary reports will be provided to the project manager, consultants, and subcontractors being audited. The summary reports will contain a brief, narrative description of the audits; identification of compliance status, problems, and non-conformances; and analysis of corrective action status, if appropriate.

3. QUALITY ASSURANCE MANAGEMENT

The quality assurance program has two organizational levels: quality assurance program management and quality assurance project management. This section describes organizational structure, functional responsibilities of key staff, levels of authority, and lines of communication for both levels.

3.1 QUALITY ASSURANCE PROGRAM MANAGEMENT

The Halcrow quality assurance program organization is shown on Figure 3-1. Individual responsibilities within the program management structure are described in the following subsections.

3.1.1 Vice President of Quality Control

The Vice President of Quality Control, Bill Paparis, is responsible for overall program direction. The Vice President of Quality Control will establish objectives, formulate policies for the organization, provide adequate Halcrow resources, establish and monitor the Halcrow QA Plan, and monitor the organization's overall performance.

3.1.2 Director of Quality Assurance

The Halcrow director of quality assurance, John Conlon, is responsible to the Vice President of Quality Control for the management of the quality assurance program and the evaluation of its effectiveness. The director of quality assurance will monitor the quality assurance program and report to the Vice President of Quality Control. The primary functions of the director of quality assurance are to verify that activities are being performed in compliance with the QA Plan, and that activities are adequately controlling the quality of the work. The director of quality assurance has authority and responsibility for the following:

- Establishing quality assurance procedures to carry out quality assurance responsibilities in an orderly and documented manner.

- Providing guidance and input for the development and revision of quality assurance program documents.

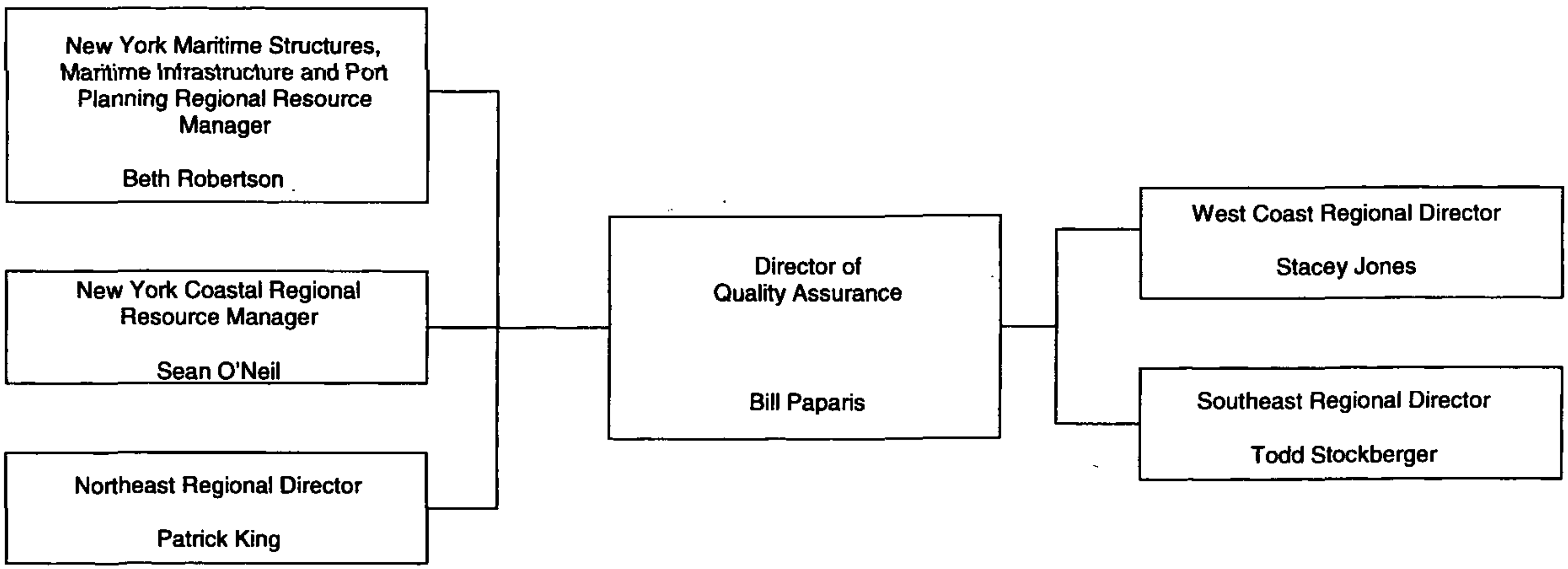


Fig 3-1 Quality Assurance Program Organization

will include the review period based on the complexity and length of the work product(s) to be reviewed. Sufficient time must be allocated for the reviewer to complete the review.

It is imperative that an independent review be scheduled at the beginning of a project of short duration (task periods of 3 months or less) so that reviews can be scheduled to meet the submittal date. On large projects of longer duration, the independent review will be scheduled in the early stages of project development.

4.6.2 Request for Independent Review

A request for an independent review will be made on the Request for Independent Review form (Figure 4-3). The project manager or project engineer will prepare the request for review and submit it to the director of quality assurance. The completed request form will be reviewed, and the suggested reviewer approved or modified, as necessary. The director of quality assurance will issue an Independent Review Record form (Figure 4-2), which will include the information on the request form and the name of the approved reviewer.

4.6.3 Review Records

When the independent review is completed, the reviewer must initial the original Independent Review Record form, indicate the review disposition, and return the form to the project team along with the document and review comments. A disposition of "No Exceptions Noted" (NEN) indicates the reviewer had no comment. A disposition of "Exceptions Noted" (EN) indicates the reviewer had only minor comments. If the first review disposition is NEN or EN, the initials of the reviewer are not required under "Final Approval."

A disposition of "Returned for Corrections" (RFC) indicates the reviewer had significant comments and concerns that must be addressed to the reviewer's satisfaction before the work product is released. If the initial review disposition is RFC, the initials of the reviewer must be shown under "Final Approval" to indicate that all concerns have been resolved to the reviewer's satisfaction.

(Copy of completed Discipline and Project Review Record form must be attached.)

REQUEST FOR INDEPENDENT REVIEW

Project No.: Phase No.: Task No.:	Requested by:	Date:
Client:		
Project: Phase: Task:		
Work Product:		
Project Manager:	Project Engineer:	
Description of Specific Items to be Reviewed:		
Date Scheduled for Review:	Date Scheduled to Complete Review:	

Independent Reviewer(s): (Project manager may list the name of a preferred reviewer. The Quality Assurance Manager will make the final determination of the independent reviewer.)	
Date Entered in Log:	Entered in Log By:

Fig 4-3 Request For Independent Review

- *Assisting the regional resource managers in developing internal quality* assurance indoctrination programs, as appropriate, and providing assistance for additional indoctrination of personnel whenever special situations develop.

- Reviewing and evaluating compliance with the QA Plan and recommending corrective action, when required.

- Reporting specific non-conforming items to the Vice President of Quality Control and project management personnel and verifying correction of that non-conformance.

- Reviewing the effectiveness of the quality assurance program and its procedures periodically, and reporting to the Vice President of Quality Control.

- Initiating audits of quality control documentation for compliance with the plan.

- Conferring with regional resource managers to establish applicable and effective quality control procedures.

- Preventing the release of documents that do not conform with the requirements of the QA Plan until management has determined an acceptable disposition.

- Maintaining records of quality assurance program activities.

The director of quality assurance may delegate his responsibilities to others when necessary. The designated person(s) will report directly to the director of quality assurance on all matters related to the delegated responsibilities.

3.1.3 Regional Resource Managers

Each regional resource manager is responsible for providing effective technical quality control services in support of projects. Regional resource managers are responsible for implementing company policies, procedures, and standards. They may be assisted by local resource managers who may include discipline leaders in this task.

Regional resource managers have authority and responsibility to effectively perform the following:

- Implement QA/QC policies and procedures in the regional office.
- Assign project managers to projects.
- Evaluate the quality and effectiveness of technical services and apply corrective action as required.
- Allocate qualified personnel for each project as required.
- Monitor the adequacy and effectiveness of personnel assigned to each project.
- Provide special discipline instructions, standards, and guidelines, including instructions amplifying the procedures in this QA Plan, and training personnel in its application.
- Implement educational training programs to develop or maintain personnel capabilities.
- Conduct discipline reviews as required.

3.2 QUALITY ASSURANCE PROJECT MANAGEMENT

Project teams are assembled to perform the work for each project. The project director selects a project manager to direct all project functions. The quality assurance project organization is shown on Figure 3-2.

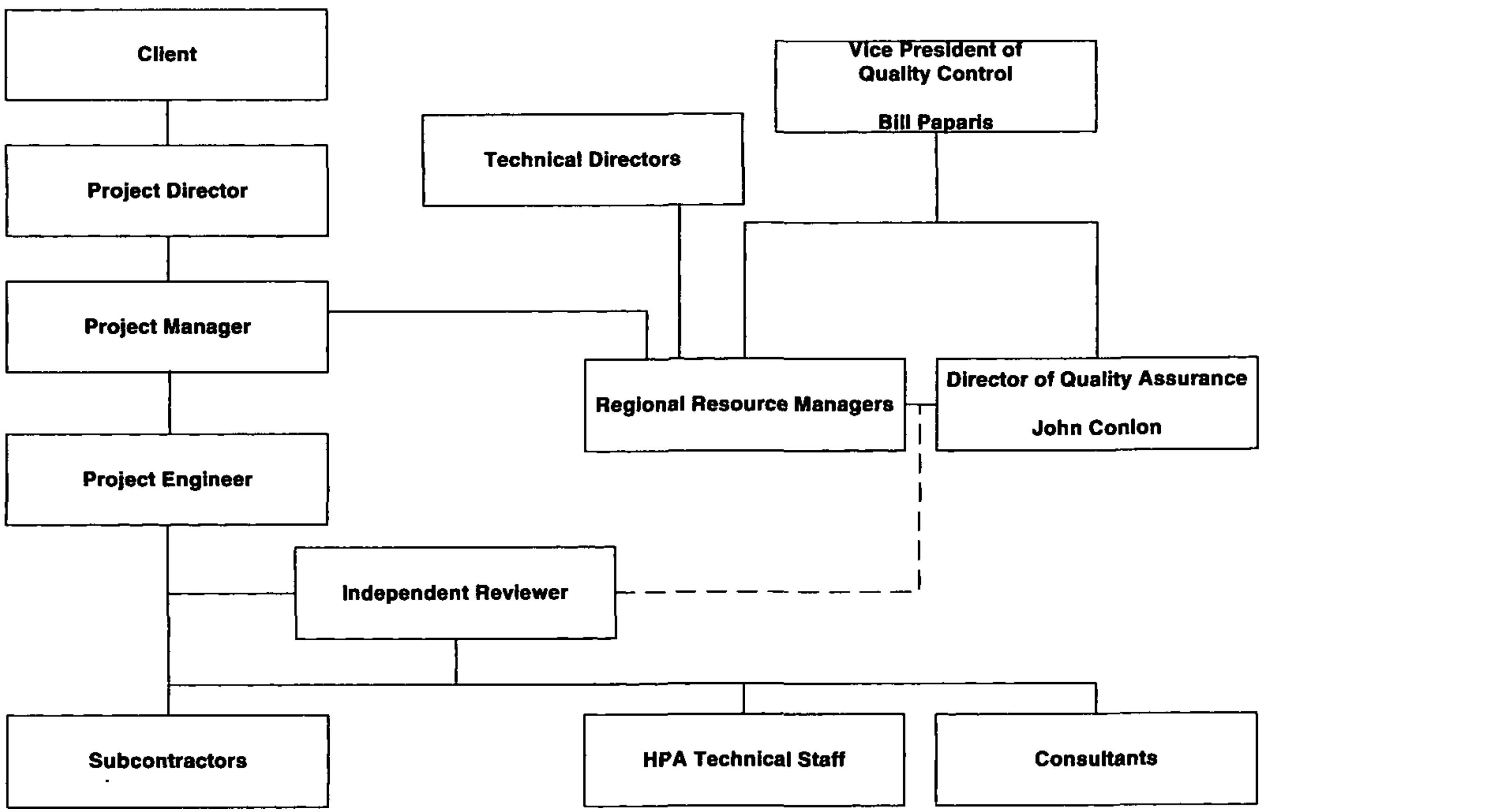


Fig 3-2 Quality Assurance Project Organization

3.2.1 Project Manager

The project manager is responsible to the project director for all project matters. He is responsible to the client for fulfilling contractual obligations related to the project. The project team members report to the project manager, usually through a project engineer, on all project matters. The quality control functions for each project operate within project management activities, but interface with QA Plan management to ensure that Halcrow quality assurance goals are understood and achieved.

The project manager is responsible for the quality control activities on the assigned project. He has the primary responsibility for verifying that all project work meets the quality assurance objectives associated with work assignments. At the inception of any work assignment, the project manager will define the quality assurance goals of the project. The project manager evaluates the qualifications and experience of all project team members.

The project manager oversees quality control operations relative to the project activities. He ensures that project quality assurance goals and objectives are recognized and that efforts necessary to attain them are defined. The project manager is responsible for the following:

- Reporting to the project director on the quality control status of ongoing project activities.

- Maintaining project-specific quality control reports and other vital information, plans, and directives.

- Maintaining the list of project personnel who need to receive quality control reports and information as part of the document control system.

- Reviewing and overseeing consultants and subcontractor QA/QC activities.

- Reviewing all work products for quality and verifying that all client and contract requirements are met.

- Providing project status reports that address quality control activities.

3.2.2 Project Engineer

The project engineer reports directly to the project manager and is responsible for the daily technical direction of assigned duties. Primary duties consist of providing specific technical direction, project team coordination, dissemination of information, cost control, and adherence to the project schedule. The project engineer will review work products and incorporate any necessary revisions before those products are submitted for quality control review. The project engineer is responsible for reviewing the work of subcontractors and consultants to ensure that quality work has been performed and products meet contract requirements.

3.2.3 Project Staff

The Halcrow project staff members will be selected for assignment based upon their abilities to perform specific project-related tasks. Staff members will be responsible for applying established quality control procedures in their work and for interfacing and coordinating with other project staff members to ensure that the contract requirements are met.

3.2.4 Subcontractors and Consultants

Subcontractors and consultants are considered members of the project team and, as such, are subject to the same quality control procedures. All subcontractors and consultants will be required to implement an acceptable quality assurance program for their portion of the project.

4. QUALITY CONTROL PROCEDURES

To effectively control the quality of services provided to clients, it is necessary to control the quality of all work as it is performed. Therefore, ongoing quality control functions are performed through reviews by the personnel performing the work, as well as the project manager and project engineer.

This program is based on the premise that the quality control process is more than a review of deliverables. Quality control begins as soon as a work assignment is received and continues through the planning, execution, documentation, and close-out of the project. The project manager and project engineer continually monitor project status to maintain quality control. The formal review process provides the assurance that quality control was maintained and that the work products are conceptually correct, complete, easy to understand, and meet all contract requirements.

4.1 QUALITY CONTROL REVIEWS

The control of work quality must be an ongoing activity throughout the course of a project, from inception to final delivery of the product. To ensure that quality is being maintained, three levels of quality control reviews have been established. The first level is within the technical discipline; a peer in that particular discipline reviews each set of tasks. The second level is a review by project management. The third level is an independent review by someone at the senior engineer level or higher, who is not on the project team.

4.1.1 Discipline Review

Discipline reviews are conducted throughout the project to ensure that work begins and progresses on a sound basis and that design documents clearly present the concepts of the designer. Work products such as standard designs, drawings and specifications, standard procedures, and calculations will be checked in detail during the discipline review. The work will be reviewed to ensure that it meets the requirements for which it will be issued.

The project manager will initiate a discipline review and contact the appropriate discipline leader under which the work was performed. The discipline leader or his designee will review the document in detail. The work product will be checked for the following:

- Conformance to Halcrow policies and standards.
- Use of appropriate concepts, equations, and assumptions.
- Accurate performance of mathematical calculations.
- *Supporting calculations for design and discipline procedures will be checked* in detail.

4.1.2 Project Review

Before any work product is issued, the project team will review it. Usually, the project manager will review the work product, but the task may be delegated to the project engineer, if necessary.

The project reviewer will verify that the work product has been subjected to a discipline review and that it is consistent with the client's requirements, other project *documents, and overall project needs. The project reviewer will also verify that the work* has been properly coordinated between disciplines, between Halcrow and its sub-contractor/sub-consultants, and between sub-contractors/sub-consultants. The project reviewer will further insure that the cost estimate is consistent with the drawings and specifications. In addition, the project reviewer will insure the overall completeness of the product and verify that it is clear and understandable. He/she shall also confirm that all contractual language, general conditions, and general notes are appropriate for the *project and consistent with the client's requirements.*

4.1.3 Independent Review

The independent review is a thorough, but not detailed, review of the completed work product by an engineer with an equal or higher experience level than those persons who prepared it. The independent reviewer must be someone who did not work on the project. Client specifications and contract requirements, scope of work, and supporting information sources will be reviewed to verify the basis for the work. Each work product will be checked for accuracy, clarity, conformance to Halcrow and client requirements, and applicability. Work products will be compared for consistency and compatibility, and discipline and project reviews will be verified. Table 4-1 presents a list of typical quality control items to be checked in reports, drawings, and specifications.

Table 4-1
Typical Independent Review Check Items

Item	Checked
Compliance with applicable codes, standards, and federal, state, or local regulations	
Compliance with Halcrow policies and standards	
Compliance of written documents with governing guidance documents or requirements	
Technical content of written documents, including assumptions, logic, and conclusions	
Completeness of reports, technical papers, design reports, and design memoranda	
Verification of proofreading and editing	
Design philosophy, processes, and criteria for each discipline	
Agreement among basis of design, design criteria, design memoranda, and contract documents	
Agreement among drawings, general conditions, and technical specifications	
Agreement between text, figures, tables, and photos in a report	
Agreement among calculation results, details, and contract documents	
Completeness of drawings	
Confirmation that appropriate reference elevations and control points are used	
Adequacy of design and details	
Constructability	
Compliance with all contract requirements	
Coordination of dimensions, sizes, elevations, details, and other data within a discipline and among disciplines	
Appropriate application of titles, cross-references, notes, legends, abbreviations, title blocks, and North arrow	
Adequacy of qualifying language where limited conditions or facts prevent a firm conclusion or recommendation	
Appropriate differentiation between new and existing construction, and between items to remain and items to be removed	

4.2 REVIEW SCHEDULES

Quality control reviews are project tasks and are to be included in the project scope and schedule. Discipline reviews are to be scheduled and completed in a timely manner so that subsequent project tasks are not adversely affected. Scheduling of these reviews will allow each task to progress on a timely basis and allow project management to determine staffing needs to meet project objectives in an orderly and efficient manner. As a minimum, a quality control review shall accompany each official submission to the client. The number of reviews per project shall be agreed upon at the project inception by the QCM, PM, and regional resource managers/technical director.

The project manager will submit a copy of the project schedule and all revisions of the schedule to the director of quality assurance for each project. These shall account for initial and final reviews. The director of quality assurance will use the project schedules to track quality control activities within the discipline and project review levels and to determine staffing requirements for independent reviews.

4.3 DOCUMENTATION

All quality control reviews will be documented. The discipline and project reviews will be recorded on the Discipline and Project Review Record form shown on Figure 4-1.

The independent review will be recorded on the Independent Review Record form shown on Figure 4-2.

4.3.1 Discipline and Project Review Records

The project manager will prepare the Discipline and Project Review Record form, providing all requested project information. The name of each reviewer, the reviewer's discipline, and the name of the document or work task will be entered on the form. After the review has been completed and all comments resolved, each reviewer will initial and date the form. When the review process is completed, the project manager will indicate acceptance by signing and dating the form. The original record form will be placed in the project file. A copy will be sent to the director of quality assurance.

When both a discipline review and a project review are required for a document, as indicated in Table 4-2, the same form can be used. A copy of the form will be submitted to the director of quality assurance after each review has been completed. If more than one form is required, particularly for discipline reviews, they will be numbered sequentially.

The project review and discipline reviews, when required, must be completed, and the *Discipline and Project Review Record form must be submitted before* an independent review will be authorized.

PROJECT INFORMATION

Project No.: Phase No.: Task No.:	Client:
Project: Phase: Task:	
*Work Product:	
Project Manager:	Project Engineer:

*Identify stage, e.g., 35%

DISCIPLINE REVIEW RECORD

Name of Reviewer	Discipline	Document Reviewed	Initial Review			Final Approval			Technical Director or Regional Resource Manager Approval		Comments
			Initials	Date	Disposi-tion	Initials	Date	Disposi-tion	Initials	Date	

Accepted: ______________________________ Date: ________
Project Manager

Approved: ______________________________ Date: ________
Director of Quality Assurance

Disposition: NEN - No Exceptions Noted; EN - Exceptions Noted; RFC - Returned for Corrections

PROJECT REVIEW RECORD

Name of Reviewer	Document Reviewed	Initial Review			Final Approval			Comments
		Initials	Date	Disposition	Initials	Date	Disposition	

Accepted: ______________________________ Date: ________
Project Manager

Approved: ______________________________ Date: ________
Director of Quality Assurance

Date Transmitted to Client: Transmitted By:

Fig 4-1 Discipline and Project Review Record

INDEPENDENT REVIEW RECORD

Project No.: Phase No.: Task No.:	Requested by:	Date:
Client:		
Project: Phase: Task:		
*Work Product:		
Project Manager:	Project Engineer:	
Description of Specific Items to be Reviewed:		
Date Scheduled for Review:	Date Scheduled to Complete Review:	
Independent Reviewer: ______________________	Date Documents Received: Date Review Started:	

	Initial Review			**Final Approval			Comments
	Initials	Date	Disposition	Initials	Date	Disposition	

NEN: No Exceptions Noted
EN: Exceptions Noted
RFC: Returned for Corrections

Approved: ______________________ Project Manager	Date: __________
Approved: ______________________ Director of Quality Assurance	Date: __________
Date Transmitted to Client:	Transmitted By:

* Identify stage, e.g., 35%

** Final approval section must be completed for initial review disposition of "Return for Corrections". It is optional for "Exceptions Noted".

Fig 4-2 Independent Review Record

4.3.2 Independent Review Records

The director of quality assurance will prepare the Independent Review Record form from information provided on the request form. The name of the reviewer and all pertinent project information will be entered on the form. After the review has been completed and all comments resolved, the reviewer will initial and date the form. The original record form will be placed in the project file, and a copy will be sent to the director of quality assurance.

The project manager will sign and date the form before submitting it to the director of quality assurance for signature.

4.4 DISCIPLINE REVIEW PROCEDURES

When a task is completed, the project manager will advise the appropriate discipline leader. The originator will provide a copy of the work to be reviewed and all supporting documents to the assigned discipline leader. In no instance will the originator of the work conduct the review.

4.4.1 Review Schedule

Discipline reviews will be scheduled according to Section 4.2 of this manual. The work will be checked in detail before subsequent tasks supported by the work are started. The project manager will be responsible for including discipline reviews in the project schedule.

4.4.2 Review Procedures

The project manager will initiate a discipline review and contact the appropriate discipline leader for the discipline that performed the work. A discipline leader or his designee, who is of the same discipline and who is qualified to perform the work but who did not work on the task, will review the work in detail. The work will be checked for the following:

- Conformance to Halcrow policies and standards
- Conformance to project design criteria
- Use of appropriate concepts, equations, and assumptions
- Accurate performance of mathematical calculations

- Conformance w/SOW

Drawings will be checked to ensure accuracy and completeness, including conformance to Halcrow standards, graphic representation of calculations, and agreement with design criteria.

4.4.3 Review Records

The project manager will prepare a Discipline and Project Review Record form, providing the name of the reviewer(s) and the work to be reviewed. After the review is completed, the reviewer(s) will initial and date the original form and indicate the review disposition, then return the form to the project team along with the work product and review comments. A disposition of "No Exceptions Noted" (NEN) indicates the reviewer had no comments. A disposition of "Exceptions Noted" (EN) indicates the reviewer had only minor comments. If the first review disposition is NEN or EN, the initials of the reviewer are not required under "Final Approval."

A disposition of "Returned for Corrections" (RFC) indicates the reviewer had significant comments and concerns that must be resolved. If the initial review disposition is RFC, the initials of the reviewer must be shown under "Final Approval" to indicate that all concerns have been resolved to the reviewer's satisfaction.

After the review is completed and the appropriate initials and dates are entered, the project manager will sign and date the form. If more than one record form is required, they will be numbered sequentially, and the project manager must sign each form. One copy of the review form(s) will be submitted to the director of quality assurance. The original will be placed in the project file.

If an independent review is required, a copy of the Discipline and Project Review Record form will be submitted with the request for an independent review.

4.5 PROJECT REVIEW PROCEDURES

When a work product is ready for issue, the project engineer or the project manager will review it. The project manager may delegate this review to the project engineer but remains responsible for the quality of the work product. The project review must be completed before an independent review can be requested.

4.5.1 Review Schedule

The project manager will be responsible for including the project review in the project schedule. The project review will be performed after all discipline reviews have been completed.

4.5.2 Review Procedures

The work product(s) will be checked for completeness and quality. The reviewer will verify that all necessary discipline reviews have been performed and that the finished work product(s) incorporates all contract requirements. The work product(s) will be prepared then for submittal to the client or for an independent review, if required.

4.5.3 Review Records

The project manager will prepare a Discipline and Project Review Record form, providing the name of the reviewer. After the review is completed, the reviewer will initial and date the form. The project manager will sign and date the form, even if he or she was the reviewer. The original record form will be placed in the project file. A copy of the record will be submitted to the director of quality assurance.

If an independent review of the work product is required, the copy for the director of quality assurance will accompany the request for the independent review.

4.6 INDEPENDENT REVIEW PROCEDURES

When a work product is ready for an independent review, a reviewer will be identified. In no instance will a member of the project team that prepared the work product conduct the independent review. The project manager will provide a copy of the work product and a copy of all supporting documents, including scope of work, to the reviewer.

4.6.1 Review Schedule

Because the independent review may be extensive, it must be scheduled in advance to allow the reviewer to plan for it. The project manager will submit a project schedule to the director of quality assurance for each project. The schedule will include the review period based on the complexity and length of the work product(s) to be reviewed. Sufficient time must be allocated for the reviewer to complete the review.

It is imperative that an independent review be scheduled at the beginning of a project of short duration (task periods of 3 months or less) so that reviews can be scheduled to meet the submittal date. On large projects of longer duration, the independent review will be scheduled in the early stages of project development.

4.6.2 Request for Independent Review

A request for an independent review will be made on the Request for Independent Review form (Figure 4-3). The project manager or project engineer will prepare the request for review and submit it to the director of quality assurance. The completed request form will be reviewed, and the suggested reviewer approved or modified, as necessary. The director of quality assurance will issue an Independent Review Record form (Figure 4-2), which will include the information on the request form and the name of the approved reviewer.

4.6.3 Review Records

When the independent review is completed, the reviewer must initial the original Independent Review Record form, indicate the review disposition, and return the form to the project team along with the document and review comments. A disposition of "No Exceptions Noted" (NEN) indicates the reviewer had no comment. A disposition of "Exceptions Noted" (EN) indicates the reviewer had only minor comments. If the first review disposition is NEN or EN, the initials of the reviewer are not required under "Final Approval."

A disposition of "Returned for Corrections" (RFC) indicates the reviewer had significant comments and concerns that must be addressed to the reviewer's satisfaction before the work product is released. If the initial review disposition is RFC, the initials of the reviewer must be shown under "Final Approval" to indicate that all concerns have been resolved to the reviewer's satisfaction.

(Copy of completed Discipline and Project Review Record form must be attached.)

REQUEST FOR INDEPENDENT REVIEW

Project No.: Phase No.: Task No.:	Requested by:	Date:
Client:		
Project: Phase: Task:		
Work Product:		
Project Manager:	Project Engineer:	
Description of Specific Items to be Reviewed:		
Date Scheduled for Review:	Date Scheduled to Complete Review:	

Independent Reviewer(s): (Project manager may list the name of a preferred reviewer. The Quality Assurance Manager will make the final determination of the independent reviewer.)	
Date Entered in Log:	Entered in Log By:

Fig 4-3 Request For Independent Review

After all review comments are resolved, the initialed original form will be sent to the project manager for signature, indicating that the document is ready for release. The project manager will complete the form by indicating the date transmitted to the client and the person transmitting the document. The completed form will be sent to the director of quality assurance for signature.

The director of quality assurance will sign the form and return it to the project manager. The completed original form will be placed in the project file. A copy will be retained by the director of quality assurance for the quality system records.

4.6.4 Review Procedures

The project manager will provide a copy of the work product(s) and all supporting documents, including scope of work, to the independent reviewer, who will thoroughly check the document. The independent reviewer will make comments on the work product or separate review comments sheets. The independent reviewer will return the review comments sheet(s) to the project manager for resolution of comments.

As comments are addressed, the project manager and/or originator(s) will indicate the action taken on the review comments sheet(s). Comments not incorporated will be identified as "not incorporated," and the differences will be resolved with the independent reviewer. When all comments have been addressed, the revised work product and the review comments sheet(s) will be resubmitted to the independent reviewer. This cycle will be repeated until the independent reviewer is satisfied that the work product is ready for issue. Comments or concerns that cannot be resolved by the independent reviewer and project manager will be resolved by the Halcrow director of quality assurance or the Vice President of Quality Control.

The independent reviewer will initial the original Independent Review Record form, indicating that the work product meets review requirements and may be issued.

If a work product is revised after the review is completed, it must be reviewed again; but, only the revisions must be reviewed, unless major changes are made.

Revisions to work products that have been subjected to an independent review do not require another independent review; however, the project engineer, the initial reviewer, or project manager may request a complete review.

4.7 DOCUMENT REVIEW LEVELS

The review levels required for various types of project documents are summarized in Table 4-2 and described in the following subsections.

4.7.1 Project Planning Documents

Most planning documents, such as work plans, schedules, and project procedures, are developed by the project manager and/or the project engineer, or under their direct supervision. Therefore, a discipline review is not required unless the project manager requests it. However, these documents will be subject to both a project and an independent review.

4.7.2 Design Memoranda

Design memoranda represent the efforts of several disciplines and set many design parameters for the project. A thorough review of design memoranda is warranted. The memoranda will receive a discipline review in each discipline that participated in preparing the document, a project review, and an independent review.

4.7.3 Calculations

Because calculations are not routinely issued with a document, errors could go undetected if a detailed quality assurance review is not performed. Because subsequent work is based on these calculations, it is imperative that the calculations be checked. Therefore, a discipline review will be performed concurrently with the development of subsequent documents. This review will include verifying data, examining assumptions and calculation methods, and checking mathematical accuracy. Input data to computer calculations will be reviewed, and the reviewer will verify that the computer program used is accepted by the director of quality assurance, as stated in Subsection 4.9.1. Calculation reviews must be completed before the documents utilizing the calculation results are submitted for review. The independent reviewer may also request to see calculations as part of the independent review. In addition, the project reviewer must check to insure that all calculations are properly organized, complete, easy to follow, and consistent with the drawings and specifications.

Table 4-2
Review Requirements for Project Deliverables

Document	Discipline Review	Project Review	Independent Review
Project Planning Documents	O	R	R
Design Memoranda	R	R	R
Calculations	R	R	O
Drawings, Specifications & Cost Estimates			
• Preliminary (prior to 60%)	R	R	O
• Final (60% - Bid Docs.	R	R	R
Permit Application		R	
Subcontractor Documents	O	R	O
Shop Drawings	R	R	
As-Built Documents	O	R	
Field Data	O	R	O
Laboratory Data		R	O
Reports			
• Initial	O	R	R
• Final	O	R	O
• Client's Revision		R	
Correspondence	O	R	

Note: R = Required
O = Optional

After all review comments have been resolved, the reviewer will initial and date each page of the calculations in the "checked by" box in the upper right corner of the calculation sheets.

Calculations that are revised after a review has been performed will be clearly marked. Information to be changed will be marked out (not erased), and the revised information will be added. Voided information or pages will be marked "void." The revised calculations will receive the same review as the original calculations, and the person changing the calculations must sign and date them.

4.7.4 Drawings and Specifications

Drawings and specifications, initially issued as preliminary work products to describe the design concept, must provide enough detail to show how the design relates to other parts of the project. Therefore, it is important that these work products conform to the appropriate standards and accurately reflect the originator's intent. In the preliminary stage, they will be subject to discipline reviews. Standard specifications, standard details, or other standard documents that are to become part of the drawings or specifications without revision will be reviewed for applicability. Standard specifications, standard details, or other standard documents that have been revised or have new information will be thoroughly reviewed. Calculations supporting the document will be reviewed and checked to ensure that the information was properly applied.

After the discipline reviews have been completed and the individuals who developed the work product and the reviewer have signed the work product, it will be submitted to the project manager or project engineer for a project review. An independent review will not be required at this time unless requested by the client, the project manager, or the director of quality assurance. Before drawings or specifications are issued as final, they will be subject to all appropriate discipline and project reviews. They will also receive an independent review, and after all the reviews are completed, they will be stamped with the appropriate seal and signed, if required.

4.7.5 Consultant and Subcontractor Documents

When consultants or subcontractors perform work for Halcrow, the client views their performance as part of Halcrow's performance; therefore, it is necessary for Halcrow to review their work.

Documents that consultants or subcontractors prepare for Halcrow will receive a project review and an independent review, if deemed necessary by the project team, to assess their applicability to the project. A Discipline Project Review Record form and an Independent Review Record form, if applicable, will be completed for these reviews. Project management will request assistance from the appropriate department or regional resource manager, as needed, and that department or discipline can perform the project review with the approval of the director of quality assurance. Detailed checks of a consultant's or a subcontractor's work are not required unless the client or the project manager specifically requests them.

When an agreement with a consultant or subcontractor requires that they submit a QA/QC plan, that plan will be submitted to the director of quality assurance or his designee for approval before any contractor documents can be approved.

4.7.6 Shop Drawings

Shop drawing reviews are a form of quality control that Halcrow exercises over manufacturers, vendors, and contractors. Discipline reviews will be performed to determine compliance with specified requirements. Shop drawing submittals with comments will be returned to the originator. When revised copies have been received, the reviewer will check the revised issue against the previous comments to verify that all comments were adequately handled. Copies of the document as submitted and the reviewer's comments will be maintained in the project files until project closeout. The project staff will maintain a status record of approvals to verify that the supplier revises all drawings and returns them for Halcrow review as appropriate. At closeout, only the final shop drawing will be maintained in the project files.

Copies of approved shop drawings will be sent to the client and field personnel responsible for ensuring that only approved materials and equipment are incorporated into the work.

Proprietary designs or a supplier's standard designs, such as pre-engineered building designs, etc. will not be checked in detail unless the project manager or the client specifically requests it.

The project team shall also check shop drawings to insure that they are consistent with the latest set of Contract Documents, and that they incorporate any changes which may not be reflected on the Drawings.

4.7.7 "As-Built" Documents

When field revisions must be incorporated into design documents, they will be subject to project reviews before implementation and approval, just as any other design document revision. At the request of the project manager or the client, the field revisions will be shown on "as-built" drawings after the project has been completed.

4.7.8 Field Data

The project manager will request a site manager to supervise the fieldwork and provide quality control of these activities. The site manager will document quality control activities by keeping field logbooks. The field logbook will be a step-by-step account of field activities and include information necessary to reconstruct site operations. If the project is large enough to warrant the use of weekly summary sheets documenting the past week's activities, these summary sheets will also become part of the permanent site project file. The field logbooks, field data sheets, and weekly summary sheets will be the quality control mechanisms by which all field data-gathering activities are documented and verified.

4.7.9 Laboratory Data

The ultimate responsibility for the quality control of laboratory data rests with the project manager. The laboratory must have a quality assurance plan of its own, which Halcrow will review for adequacy before contracting its services.

All reports from a laboratory will be reviewed to verify that the data are consistent with project requirements, the laboratory has reported the results in proper units, and the data are in compliance with applicable protocol. The project manager will spot-check the data or perform a full validation of all data.

4.7.10 Reports

The term "report" means those documents intended to record the results of work or to present conclusions or recommendations based on data collection and evaluation. Examples are feasibility study reports, inspection and evaluation reports, technical memoranda, and letter reports. In relation to quality control, documents such as trip reports and progress reports, although they may be lengthy, are not subject to independent review unless specifically requested by the project manager or the director of quality assurance.

Because a client may accept a report that was issued as a draft, it is important that each issue meet the quality standards that are normally applicable only to final documents. Therefore, reports will be subject to quality control reviews at each issue.

Because conclusions and recommendations presented in a report are based on the evaluation of data collected, a project review will be performed for all reports. Calculations based on data collected will be checked in detail. Conclusions and recommendations will be reviewed to ensure that they reasonably represent the results of evaluations of data collected and agree with appropriate calculations.

Discipline reviews (if requested by the project manager), a project review, and an independent review will be performed on the initial issue. If comments on that issue are received from an outside source, such as the client, and those comments, with no other changes, are incorporated into the document, the report may be reissued without another independent review. A project review will be required in any case. Subsequent issues, incorporating additions to the report or other revisions not resulting directly from comments, will be reviewed in the same manner as the original issue. If comments result in major revisions to a report, another independent review will be performed before reissue.

4.7.11 Correspondence

Normal project correspondence, such as memoranda, telephone memoranda, meeting notes, progress reports, and trip reports, are not subject to formal reviews, although the project manager and project engineer are responsible for their content. All minutes of meetings, with clients, subconsultants, and subcontractors, as well important in-house meetings shall be issued in draft format by the project manager, to all parties for comment, before finalizing, to insure that follow-up action steps are agreed upon by all parties. A project review will be performed on project correspondence. All correspondence with conclusions or recommendations will require a discipline review.

4.7.12 Abstracts, Technical Papers, Articles, and Speeches

All Halcrow employees are encouraged to prepare and present technical papers, articles, and speeches in areas of technical competence as a means of projecting the firm's professional qualifications. In doing so, all abstracts, technical papers, articles, and speeches shall be reviewed and approved by the Halcrow director of quality assurance before submittal or release. Authors must submit a copy of the document to the regional resource manager for review and approval. The regional resource manager will forward those documents meeting regional approval to the director of quality assurance. The director of quality assurance will review each document for conformance with company policy, appropriateness of intended audience, and applicability. Participation in panel sessions, conferences, or similar activities will also be cleared through the regional resource manager and the Halcrow director of quality assurance.

4.8 DISPOSITION OF REVIEW RECORDS

All internal review comments on Halcrow documents and Halcrow's comments on consultant and subcontractor documents will be discarded after each issue of the document has been submitted. All quality control records and client or agency review comments will be retained in the permanent project records.

4.9 HALCROW STANDARDS

Halcrow standards include computer programs, standard practices, technical policies and procedures, and standard specifications. Because these are usually developed for general use throughout the company rather than for a specific project, a project review is not applicable. The quality control review processes for these are described in the following sections.

4.9.1 *Computer Programs*

All computer programs will be verified before being released for use. Purchased programs, regardless of their general acceptance by industry or government, will be tested in the same manner as those written by Halcrow staff. Only computer programs provided by the client for use specifically on that client's project are exempt from verification testing.

4.9.2 Standard Practices and Standard Specifications

Standard practices and standard specifications will receive a discipline review and an independent review. A project review will not be required.

After approval, each reviewer will initial the original document rather than a review record form. The initialed original will be sent to the director of quality assurance for approval. The director of quality assurance will add the standard to the list of approved standards and file and retain the original document. No further review of these documents will be required for their subsequent use. Revised design details or specifications will be subject to the same reviews as new documents. Nevertheless, it should be emphasized that all standards should be treated as guidelines, and it is the responsibility of the discipline engineer and project team to review and modify them for applicability to the specific project.

4.9.3 Technical Procedures

Technical procedures will be subject to the same reviews as standard design details and specifications.

5. QUALITY ASSURANCE AUDITS

The director of quality assurance periodically conducts audits and field reviews to verify that quality assurance procedures are being consistently and correctly applied, and that, when correctly applied, they are effective. The following four types of audits and the field review are described in this section.

- Performance audits
- System audits
- Client audits
- Consultant or subcontractor quality assurance activity audits

5.1 PERFORMANCE AUDITS

Performance audits are conducted to determine whether the QA Plan is being consistently and correctly applied. A performance audit may be conducted as a result of client requirements, a request from the project manager, or at the discretion of the director of quality assurance or the Vice President of Quality Control.

The director of quality assurance will determine the extent of the performance audit, which may be conducted at any time during project execution or after project completion.

The audit will consist of a review of QA/QC documents relating to a project or portion of a project by the director of quality assurance or his designee to ensure compliance in the following areas:

- Each work product was checked according to the Halcrow QA Plan or project specific quality assurance plan, whichever is appropriate.

- The person reviewing each work product meets the qualifications for that function.

- All documentation was completed and filed as directed in the QA Plan.

- The necessary approvals were obtained before the work products were released to the client.

At the completion of a performance audit, an audit report will be sent to the Vice President of Quality Control and the appropriate project manager. This report will describe the audit and note discrepancies. If corrective action is warranted, the audit report will request that the project manager submit a corrective action plan.

5.2 SYSTEM AUDITS

A system audit evaluates the effectiveness of Halcrow procedures, including the QA/QC procedures.

Management may initiate system audits at a client's request, if reports of unsatisfactory work are received, if organizational changes indicate a need to reevaluate procedures, or as a routine matter. For example, if performance audits show that *procedures are being followed but unsatisfactory work is being issued, a system* audit of the QA/QC procedures might be performed. If QA/QC functions identify problems before documents are issued, the procedures used to develop these documents might be audited.

System audits can also be performed to evaluate the QA/QC manpower requirements and time restraints created by QA/QC functions.

The director of quality assurance will define the purpose and scope of system audits for each audit, and then send copies to each project manager and regional resource manager involved. Following the audit, a report stating the results of the audit and recommendations for revising procedures (if warranted) will be sent to the Vice President of Quality Control.

5.3 CLIENT AUDITS

Clients may choose to perform QA/QC audits of work Halcrow performs for them. When a client announces its intention to perform QA/QC audits, the project manager should ascertain when the audits will be performed and what documents the client will review. The project manager will inform the director of quality assurance of the client's requirements and make all necessary information available to the client.

The project manager or a designee will accompany the client during the review of QA/QC documents and prepare a report for the director of quality assurance stating his observations. He will attach a copy of the client's audit report, if available. The director of quality assurance will prepare a report for the Vice President of Quality Control and will recommend what action (if any) is required to satisfy the client. A copy of this report will be sent to the project manager.

5.4 CONSULTANT OR SUBCONTRACTOR QUALITY ASSURANCE ACTIVITY AUDITS

In some instances, agreements with consultants or subcontractors will require them to submit their QA/QC plans to Halcrow. These agreements may also stipulate that Halcrow may, at its discretion, audit the consultant's or subcontractor's QA/QC activities.

When an audit is to be performed, the project manager will notify the consultant or subcontractor of the audit two (2) weeks before it begins. The project manager will make arrangements and develop procedures for conducting the audit and submit the procedures to the director of quality assurance for approval. The director of quality assurance or his designee will conduct the audit.

6. CORRECTIVE ACTION

The correction of non-conformances discovered by quality assurance activities is the final step in achieving acceptable quality. It is the responsibility of the director of quality assurance to ensure the following actions occur:

- Corrective action plan is in place or is developed
- Appropriate person is notified when non-conformances are discovered
- Corrective action is taken
- Both the non-conformance and corrective action are documented

6.1 QUALITY CONTROL REVIEWS

The review of work products before they are used or issued is a routine quality control function, and the correction of errors or omissions is part of the work's development. When a review has been completed, comments will be returned to the originator of the work, who will incorporate the changes or justify the original work to the reviewer. The revised work will then be reviewed, and the reviewer will sign and date the appropriate review record form.

No record of the corrective action beyond the signing of the review records is required for this corrective action.

6.2 PERFORMANCE AUDITS

Non-conformances discovered as a result of a performance audit will be reported to the project manager. If requested by the director of quality assurance, the project manager will prepare a corrective action plan and submit it to the director of quality assurance for approval. Upon approval, the project manager will implement the plan and notify the director of quality assurance when corrective action is completed. The project manager will submit monthly status reports to the director of quality assurance on the status of the action.

An audit of the corrective measures may be performed at the discretion of the director of quality assurance.

6.3 SYSTEM AUDITS

System audits are performed to evaluate the effectiveness of the company's systems and procedures; therefore, corrective action is a Halcrow responsibility, not a project responsibility.

After preparing the audit report, the director of quality assurance will decide what corrective action is to be taken and designate a system manager to be responsible for the action. The system manager will develop a corrective action plan, including a schedule and manpower requirements, and provide the director of quality assurance with a copy. The system manager, under the direction of the director of quality assurance, will then revise the system or procedure in question.

While revisions are in progress, the system manager will provide monthly status reports to the director of quality assurance. When corrective action is completed and the new system or procedure is in use, the system manager will notify the director of quality assurance. A quality assurance audit of the new system or procedure may be performed at the discretion of the director of quality assurance.

6.4 CLIENT AUDITS

Non-conformances reported by the client as a result of his audit might be either a performance problem or a system problem, and the client must agree to corrective action according to the contract.

The Halcrow project manager usually receives an audit report from a client, which may be in any form, including oral. The project manager will discuss the report with the client and make his own report to accompany the client's report. This report will be sent to the director of quality assurance, who will determine whether any non-conformances noted in the report are performance problems, system problems, or both. The project manager will then request a corrective action plan from the appropriate party, as described in Sections 6.2 and 6.3.

The project manager must approve the corrective action plan before it is presented to the director of quality assurance, regardless of whether the non-conformances are performance problems or system problems. The project manager is responsible for obtaining client acceptance of the plan.

Corrective action taken in response to a client report of a system or procedure problem does not necessarily involve other projects. At the discretion of the director of quality assurance, the corrective action may be used on the client's project only.

If, during a client audit, the client finds errors in project documents that were not detected by Halcrow quality control checks, resolution of the errors may be handled within the project team without a formal corrective action plan or approval from the director of quality assurance. However, the client's report must still be sent to the director of quality assurance, with a letter from the project manager stating that resolution will be a project matter. When corrective action is complete, the project manager will notify the director of quality assurance.

6.5 CONSULTANT OR SUBCONTRACTOR QUALITY ASSURANCE/QUALITY CONTROL ACTIVITY AUDITS

When audits of consultant or subcontractor QA/QC activities reveal non-conformances in performance or procedures, the Halcrow project manager will request a corrective action plan from the consultant or subcontractor. When the project manager receives the plan, he or she will forward it to the director of quality assurance. The project manager will notify the director of quality assurance when the corrective action is completed.

6.6 CORRECTIVE ACTION PLANS

Corrective action plans will be submitted to the director of quality assurance for approval before any action is authorized. The plan must include the following information:

- Date
- Number of audit that prompted corrective action
- Project or program number (if applicable)
- Name of the individual responsible for implementation of the plan
- Expected duration of corrective action
- Manpower budget
- Description of the proposed action

7. REPORTING

A primary feature of effective quality assurance is reporting the results of quality assurance activities. Reports might be prepared by clients, subcontractors, project managers, auditors, or the director of quality assurance. The director of quality assurance accumulates all QA/QC reports and generates summaries for management use.

7.1 AUDIT REPORTS

When a Halcrow staff member performs an audit, that person must prepare an audit report. The report will include the following information:

- Purpose of the audit
- Date audit began and ended
- Name of auditor
- Description and proposed date of issue of documents audited
- Name and department of originator of work
- Description of discrepancies or problems noted
- Auditor's recommendations regarding corrective action
- Project number (if applicable)
- Name of project manager (if applicable)

All QA/QC audits, regardless of origin, will be sent to the director of quality assurance, who will assign a unique audit number to each one and distribute the audit report to the audited group and project manager.

7.2 CORRECTIVE ACTION STATUS REPORT

After a corrective action plan has been approved, the individual responsible for implementing the action will prepare a Corrective Action Status Report on the 15th of each month until the corrective action is completed. At that time, he or she will file a final status report. Each status report will include the following items:

- Date
- Audit number

- Project name and number
- Name of the individual responsible for correction action
- Description of action taken and progress made
- Estimate of percent completed

7.3 SUMMARY OF AUDITS

The director of quality assurance will periodically prepare an audit summary report to the Vice President of Quality Control that lists the quality assurance audits performed since the last report and all audits for which corrective action is pending. The report will include the following items:

- Audit number
- Date of audit report
- Project name and number
- System, procedure, or documents audited
- Reason for audit
- Brief description of audit
- Brief statement of results, including requirements for corrective action

7.4 SUMMARY OF CORRECTIVE ACTION

The director of quality assurance will periodically prepare a corrective action summary report to the Vice President of Quality Control that lists the audits initiated in the previous quarter and the status of corrective action. Each entry will continue to be listed until corrective action is completed. The summary report will include the following information about each corrective action listed:

- Audit number
- Date of audit report
- Brief description of need for correction action
- Date of corrective action plan
- Scheduled corrective action completion date
- Brief description of action completed

8. QUALITY ASSURANCE PLAN CONTROL

Just as it is necessary to control the quality of the work performed for clients with this QA Plan, it is necessary to control the content and use of this manual. Revisions, which will occasionally be necessary, must be controlled. Use of the QA Plan is controlled through the distribution of copies.

8.1 PLAN MAINTENANCE

Revisions to this manual are controlled by the Vice President of Quality Control of Halcrow, who must authorize and approve all revisions.

Project managers, regional resource managers, or other staff members may propose revisions by memorandum to the Halcrow director of quality assurance. The memorandum must define the need for a revision and include a description of the proposed revision. The director of quality assurance will review the proposal and determine the necessity of the change.

When revisions are necessary, the director of quality assurance will make all revisions and assemble a review copy, clearly marking each revision. The date on the footer must be changed whenever the plan is revised. The director of quality assurance will transmit this copy to the Vice President of Quality Control with a memorandum stating the reasons revisions are required and describing the proposed revisions.

After any comments and changes are incorporated into the document, the Vice President of Quality Control will acknowledge his approval of the revised plan and direct the director of quality assurance to distribute the revised pages (or entire plan if necessary) in accordance with the procedures outlined in Section 8.2 below.

8.2 QUALITY ASSURANCE PLAN DISTRIBUTION

The director of quality assurance is responsible for affecting the posting of the QA Plan in each office where it is accessible by all Halcrow staff members. Only the director of quality assurance or his designee shall be authorized to change or delete the QA Plan or other Halcrow quality system documents posted on the intranet. Staff members may print portions of these documents for their immediate use, but such hard copies shall be valid only for the day it was printed, after which the hard copy will become an uncontrolled copy. Uncontrolled copies of quality system documents may not be used to guide work activities where the use of an outdated document could adversely impact the quality of the project deliverable.

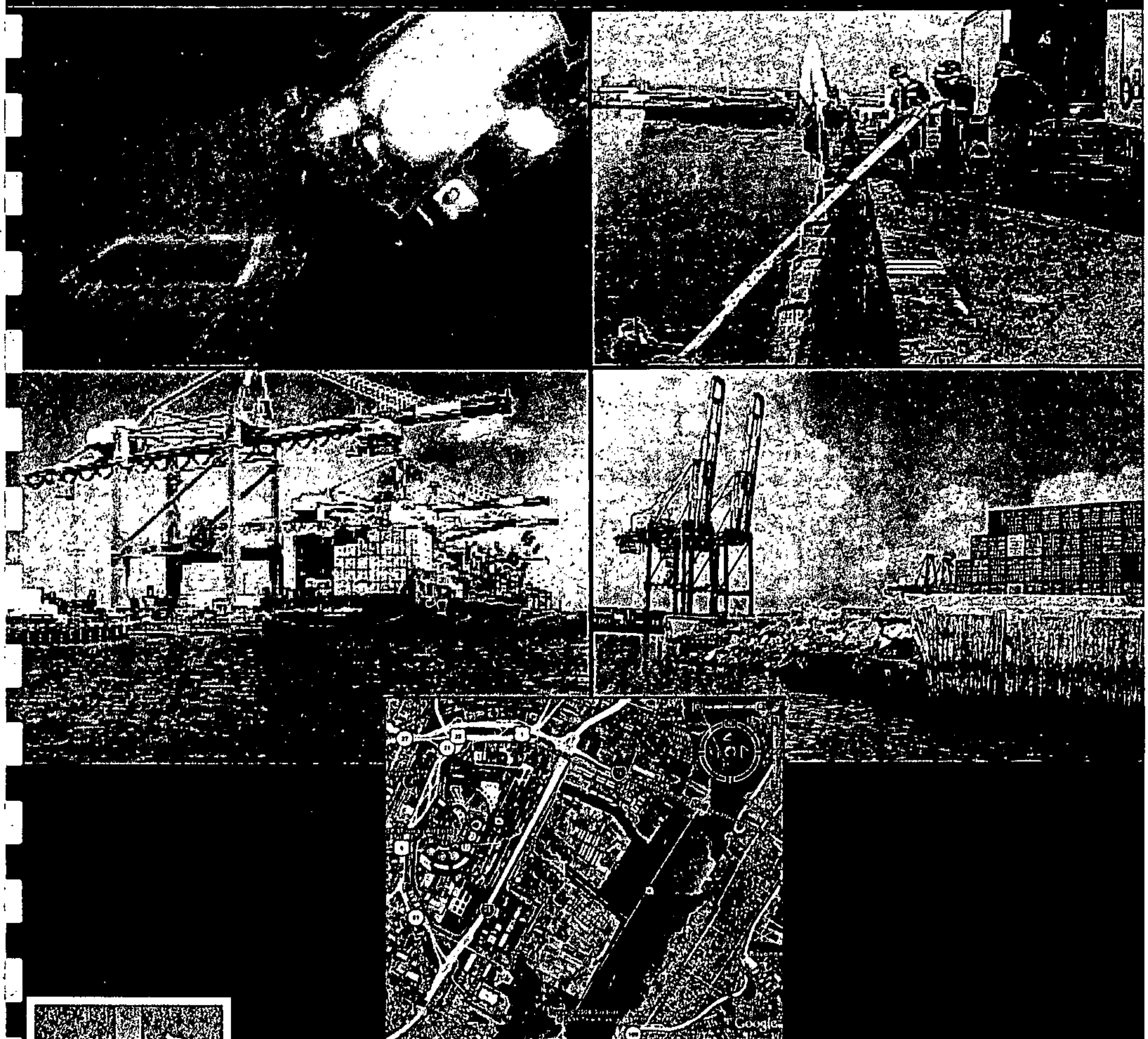
Halcrow

halcrow.com

THE PORT AUTHORITY OF NY & NJ

RFP NUMBER 16560

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009



EST. 1924

BOSWELL ENGINEERING INC.

October 9, 2008

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SECTION I

BOSWELL ENGINEERING

ENGINEERS ■ SURVEYORS ■ PLANNERS ■ SCIENTISTS

EST. 1924

330 Phillips Avenue • P.O. Box 3152 • South Hackensack, N.J. 07606-1722 • (201) 641-0770 • Fax (201) 641-1831

VIA FEDERAL EXPRESS

October 3, 2008

The Port Authority of NY & NJ
One Madison Avenue, 7th Floor
New York, New York 10010

Attention: RFP Custodian

Re: Performance of Expert Professional Facility Condition Surveys For Waterfront Facilities As Requested On A "Call-In" Basis During 2009
RFP Number 16560
Our File No. PR-08-2041

Boswell Engineering, Inc. (Be) is pleased to submit one (1) reproducible original and three (3) copies of our proposal, along with one (1) compact disk copy, to provide underwater inspection and technical services on the above-referenced contract as requested by your RFP dated September 18, 2008.

As a recognized leader in the field of marine infrastructure inspection, Boswell is one of the few engineering consulting firms nationwide that has total in-house hard hat diving capabilities on a commercial scale. Our staff of divers includes professional engineers trained in commercial hard hat diving techniques utilizing diver-to-surface communications.

Our Marine Engineering Division is specifically committed to investigating and evaluating the structural integrity of waterfront facilities including buildings, bridges and submerged marine structures such as piers, wharves, bulkheads, and relieving platforms. This translates into highly technical reports and designs that are thorough, accurate and consistent with structural engineering practices and terminology.

We are highly interested in performing this work for The Port Authority of New York and New Jersey and will bring the same level of professionalism, attention to detail, and quality reporting to this contract that has already gained us a strong national reputation. Boswell Engineering is currently ranked 303rd among the Top ENR 500 Design Firms and 38th among the Top ENR 100 Construction Management Firms and possesses the largest full-time staff of engineer divers and array of commercial diver support gear among these noteworthy groups.

BE has more than enough qualified personnel and equipment in-house to conduct the work expediently and efficiently. BE has performed underwater inspections/structural assessments for more than 35 public agencies, including the PANY&NJ, the U.S. Naval Facilities Engineering Command, the U.S. Coast Guard, the New York Power Authority, and the New York State Department of Transportation.

With regard to responsiveness, we have currently the means to field a minimum of four (4) three-man inspection dive teams fully equipped with commercial hard hat diver support equipment on any given day with less than 24 hours notification. This number will escalate to seven (7) in the near future as we are currently in the midst of a new growth phase, thus giving us a client response capability unequalled anywhere in the industry.

Our relevant experience has been demonstrated with over 800 diving related projects involving the inspection of bridges spanning waterways, including low clearance bridges and culverts, marine terminals, piers, wharves, relieving platforms, bulkheads, dams, submerged pipelines, intake and discharge structures, water storage tanks, underground reservoirs, hydroelectric dams, and other marine facilities.

Our proposed Project Manager & Quality Control Engineer, Michael J. Ganas, P.E., P.P., has managed over 800 projects involving the underwater investigation of bridge and marine structures over a span of 28 years and is currently a member of the Transportation Research Board (TRB) Subcommittee A3C06(1) on Inspection and Maintenance of Underwater Structures. He will be available to work on this contract as required until completion. Mr. Ganas has attained national recognition in this field, having authored numerous magazine articles on underwater inspection. In addition, he has authored a feature article entitled, *"Underwater Inspection of Waterfront Facilities and Bridges: Typical Considerations and Widespread Abuses"*, which was published in the March 2003 edition of the Water Operation and Maintenance Bulletin (No. 203) issued by the U.S. Department of the Interior's Bureau of Reclamation. According to the Bureau of Reclamation, this bulletin was distributed to all relevant government agencies. To date, Mr. Ganas had headed every PANY&NJ waterfront facility project/investigation (292 in total) assigned to Boswell under the thirteen (13) agreements awarded to the firm since 1989.

The Primary Team Leader/On-Site P.E. Diver proposed for this project will be Ljupcho Naumchevski, P.E., who will be responsible for the technical quality of field inspections and deliverables required in the contract. He has previously served as Team Leader on more than 100 projects involving underwater investigations and structural assessments of waterfront facilities, many of them for the PANY&NJ, and has prepared over 950 condition survey reports.

Mr. Jeremy Pope, P.E., is another highly experienced Team Leader/On-Site P.E. Diver, having participated in many of the assignments and projects issued to Boswell by the PANY&NJ. He will also be available to head many of the Authority's projects as they arise.

Mr. Dennis Cassidy will function as Chief Inspector Diver for this contract. Since 1992, he has served as Team Leader on over 280 underwater inspection/condition survey assignments for the

PANY&NJ. **Mr. Cassidy has recently completed the American Welding Society's (AWS) Certification Course and is an AWS Certified Associate Welding Inspector (CAWI).**

Mr. Casey Doryumu, P.E., will serve in the capacity of Chief Structural Engineer on this contract and has over 27 years experience in the management, design, and inspection of buildings, bridges, and pier projects. Mr. Doryumu has participated in several PANY&NJ waterfront assignments in the past.

BE's exceptional diving staff and unmatched technical capabilities will enable you to successfully carry out the underwater inspection and maintenance program of your facilities in a timely fashion while allowing you access to highly reliable and accurate information concerning the condition of your structures, recommendations for repair, and should the PANY & NJ opt for it, alternatives involving conceptual repair design.

As you are already aware, BE has been fulfilling the contracts for Waterfront Condition Surveys Technical Services on a "Call-In" Basis for the PANY & NJ since 1989 and has developed an excellent reputation for providing reliable and top-quality services during this time. To date, we have worked effectively and expediently on approximately 292 project assignments for the Port Authority involving waterfront condition surveys and quality assurance diving inspections. While thirty (30) of these assignments were performed for the Quality Assurance Division (QAD), the remainder of these projects were coordinated through the PA Materials Engineering Division (MED).

In the process we have established a harmonious rapport with such PA representatives as Rob Gill, Dennis Cavaliere, Frank DeLassio, "Kaz" Bognacki, Dan Webber, Pat Rose, Barry Feldman, Jan Perez, Suren Batra, John Lin, Rene Barrios, and a host of other PA personnel. These individuals have been highly satisfied with the quality of our reports, repair designs, and the responsiveness of our service. This type of performance can only be achieved by a large and stable organization such as Boswell, which has the necessary financial resources to maintain a sizable staff of full-time engineer and inspector divers and a huge array of diver support equipment. BE dive crews never go into the field without secondary backup equipment in order to avoid production delays.

We should point out that Boswell has gained a tremendous amount of expertise with regard to marine borer attack associated with marine facilities. Virtually all members of BE's key diving staff have become experts at identifying and evaluating various types of marine borer intrusion in waterfront timber structures. Boswell has conducted several dozen marine borer investigations using both statistical random sampling and judgment sampling techniques to assess the full extent of biodeterioration caused by Limnoria and Teredo infestation of timber structures located in New York Harbor and the waterways contiguous with New Jersey and Long Island. Many of these structures are owned by the Port Authority of NY & NJ and were sampled primarily by coring methods. In addition, Boswell has been extensively involved in the PANY & NJ's Marine Borer Monitoring Program when it was in effect, providing the PA Materials Engineering Division with a substantial amount of core sampling data and other information related to marine borer biodeterioration rates in various types of treated and untreated wood structures.

Boswell has a strong interest in the PANY & NJ's facilities maintenance in general, and the monitoring of deterioration in their submerged components in particular. Our commitment to this contract is reflected in a proposed staff of our best engineer and inspector divers who have considerable inspection experience pertaining to a wide assortment of submerged structures and who will be assigned to this project until completion.

All BE diving personnel have been trained in accordance with ADC and OSHA Diving Standards, Subpart T - Commercial Diving Operations, and have recently undergone the required physical examinations mandated by OSHA. In addition, all BE divers have been trained and are proficient in administering first aid and cardiopulmonary resuscitation (CPR). Additionally, BE has developed its own Safe Diving Operations Manual for its diving operations. A copy of this manual will be provided to you upon request.

Boswell is committed on all its projects and engineering assignments to use its best efforts in order to meet or exceed the established DBE, MBE and WBE goals. This is attained by providing meaningful and maximum participation opportunities to minority and women-owned consulting firms.

For this assignment, all work will be conducted from Boswell Engineering's Corporate Headquarters located in South Hackensack, New Jersey, where its affiliate Boswell Underwater Inspection, Inc. is also located. BE currently has two (2) 25-ft. dive vessels routinely berthed on the Hudson River in Jersey City for rapid deployment to various sites in New York Harbor.

Please be advised that BE will provide round-the-clock, 7 days per week coverage, including weekends and holidays, on this contract, both on a routine or emergency basis.

We have enjoyed serving the Port Authority of NY & NJ on past contracts, considering your organization to be our most valued client, and it is our hope that we can continue this mutually beneficial relationship. Based on this relationship, we do not take any exception to the PA's Standard Agreement, having performed work on thirteen (13) similar previous agreements for the PANY&NJ without having any exceptions.

We appreciate the opportunity to submit this proposal. Should you require any additional information, please do not hesitate to contact this office.

Very truly yours,

BOSWELL ENGINEERING, INC.

Michael J. Ganas

Michael J. Ganas, P.E.
Director & General Manager

MJG/kc

BOSWELL ENGINEERING EST. 1924

SECTION II

SECTION II EXPERIENCE OF THE FIRM

EXPERIENCE OF THE FIRM

Since its founding in 1924, BOSWELL ENGINEERING has kept pace with the rapidly changing technological advancements in the industry in order to provide its clients with state-of-the-art engineering services. BOSWELL offers a unique package of services that have been developed to accommodate increased demand by state and federal agencies to have the condition of their waterfront facilities and bridges spanning waterways investigated, assessed, and rehabilitated. With over 220 employees manning four offices in the northeast, BOSWELL ENGINEERING is a progressive, diversified, full service consulting engineering firm, possessing design, commercial diving, and land surveying capabilities that extend into municipal, highway, sanitary, hydrological, bridge, marine, environmental, and mechanical disciplines.

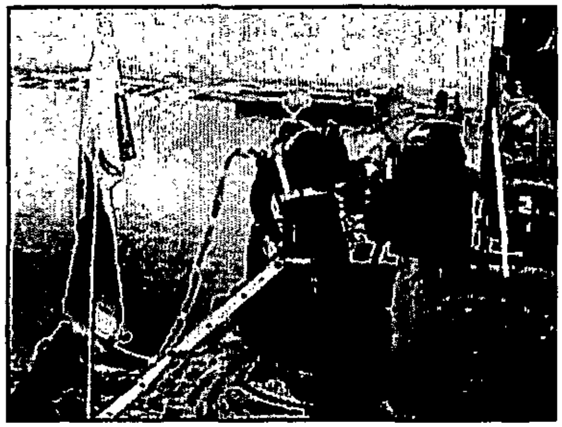
Boswell Underwater Engineering (BUE), a marine division of BOSWELL ENGINEERING, has a highly qualified staff specifically committed to inspecting and evaluating the condition of submerged components of bridges and marine structures. BOSWELL ENGINEERING is currently ranked number 303 among ENR's Top 500 Design Firms and number 38 among ENR's Top 100 Construction Management Firms and possesses the largest staff of engineer divers, commercial inspector divers, and fathometer surveyors among these noteworthy groups. BOSWELL'S uniqueness centers on the fact that it is not dependent on subcontractors that provide commercial diving or hydrographic survey services for the purpose of inspecting waterfront and bridge structures. In this regard, the firm is one of the limited number of engineering consultants to have total in-house diving and fathometric surveying capabilities on a commercial scale. Underwater engineering and hard hat diving expertise have been consolidated under one roof in order that strict control of the work proliferates within its ranks. Such a combined package equates to better hands-on performance and an underlying cost savings to the client by eliminating specialty subcontractors. In addition, work is executed in a more timely fashion since coordination of separate contract entities is largely avoided.

BRIDGE DIVING INSPECTION, FATHOMETER SURVEYING, DESIGN & MARINE CONSTRUCTION SUPERVISION EXPERIENCE

Since its inception in 1987 through 2007, the unique Underwater Engineering Division of the Boswell Organization has completed over 800 marine related projects, many of which involved the assessment and rehabilitation of waterfront facilities, submerged structures, and marine and ferry terminals. One hundred twenty-nine (129) of these projects required diving inspection during new construction or repairs of existing marine facilities to assess conformance of contractor workmanship with bid documents and to verify pay quantities. **In addition, through the year 2007, the firm has performed bridge diving inspections on a total of 8,186 substructure units (SSU) encompassing 2,578 bridges spanning waterways, and fathometer surveys on an additional 767 bridges situated over water**. This type of performance can only be achieved by a large and stable organization such as BOSWELL which has the necessary financial resources to maintain a permanent and sizeable staff of full time engineer and inspector divers, including structural and CADD engineers, and a huge array of diver support equipment. BUE dive crews never go into the field without secondary backup equipment in order to avoid production delays. Additionally, BOSWELL'S Highway and Structural Divisions have designed more than 215 bridge and marine structures and have inspected the superstructures of more than 800 bridges. Supplementing this, our Construction Management Division has supervised the construction or retrofitting of more than 78 bridges, 29 over water.

SECTION III

PROJECT DESCRIPTION / CLIENT REFERENCE



The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

Suren Batra – Project Manager/QAD
(973) 792-3959, (973) 792-2908- Fax
Jan Perez – Project Manager/QAD
(973) 792-3986, (973) 792-3909 - Fax
Barry Feldman - Project Manager/QAD
(973) 792-3910

Services Provided

BUE recently received its third consecutive 3-year contract for Expert Professional Services for Performance of Condition Surveys of Waterfront Facilities on a Call-In Basis for the Quality Assurance Division (QAD) of the Port Authority of NY & NJ **since 2000 (Term Agreements 405-00-02, 2000-2002; 405-03-007, 2003-2005, 405-06-018, 2006-2008). Twenty-nine (29) project assignments to-date involving condition surveys of piers, wharves, bulkheads, bridges, and buildings predominantly involving underwater inspections to identify structural and non-structural deficiencies presenting safety hazards. Recommendations for correcting deficiencies and repair designs were also developed (2000-2008). Total Fee: $3,899,185. (All schedules and budgetary constraints were successfully adhered to.) These projects were as follows:**

Agreement No.	Years	No. of Assignments	Fee
405-00-02	2000-2002	7	$ 502,217
405-03-007	2003-2005	12	$ 1,942,650
405-06-018	2006-2008	10	$ 1,454,318
TOTAL		29	$ 3,899,185

- **Condition Survey Inspection of Battery Park Ferry Terminal (BUE-0007-01). Fee: $27,132**
- **Biennial Inspection of NJ Marine Terminal Bridges at Berths 3 and 50 (BUE-0007-02). Fee: $20,052**
- **Condition Survey Inspection of Downtown Manhattan Heliport (BUE-0007-03). Fee: $150,549**
- **Condition Survey Inspection of JFK International Airport ILS Pier off Runway 4R-22 (BUE-0007-04). Fee: $43,828**
- **Condition Survey Inspection of JFK International Airport ILS Pier off Runway 7-25, including Audit Inspection of Brooklyn Piers 6, 7, & 8 (BUE-0007-05). Fee: $71,684**
- **Pier 10 Bulkhead Inspection at Brooklyn Marine Terminal (BUE-0007-06). Fee: $24,045**
- **Condition Survey of Port Newark Berths 2 thru 26, 28, 30,32, 33, 34, and 36 (BUE-0007-07).Fee: $164,927**
- **Brooklyn Piers 6, 7, & 8 Pile Rehabilitation Inspection (BUE-0303-01). Fee: $367,439.**
- **Port Newark/Port Elizabeth Shipping Berths. Priority Pile Inspections of PN Berths 3, 5, 6 thru 15, 25, 34, & 36; PE Berths 50, 52, 54, 56, 58, 60, 62, 76, 78, 80, 82, 84 & 86 (BUE-0303-02). Fee: $419,084**

PROJECT DESCRIPTION / CLIENT REFERENCE

(CONTINUED)

The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

Suren Batra – Project Manager/QAD
(973) 792-3959, (973) 792-2908- Fax
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(973) 792-3910

- **Condition Survey Inspection of Port Newark Even Numbered Berths (BUE-0303-03A). Fee: $225,683.**
- **Condition Survey Inspection of Port Newark Odd Numbered Berths (BUE-0303-0B). Fee: $224,048.**
- **Brooklyn Pier 9A Underwater Inspection (BUE-0303-04). Fee: $32,301**
- **Holland Tunnel Vent Building & Pier 34 (BUE-0303-05). Fee: $99,942**
- **Newark Liberty International Airport Bridge/Culvert Inspection (BUE-0303-06). Runway and Taxiway over Storm Drain Ditch. Fee: $51,618**
- **Port Elizabeth Berths 88 thru 98 and Turntable Condition Survey (BUE-0303-07). Fee: 187,144**
- **Brooklyn Piers 9A and 9B and Red Hook Wharf-A Bulkhead (BUE-0303-08). Fee: $188,693**
- **Condition Survey of Howland Hook Wharf (BUE-0303-09). Fee: $123,372**
- **Condition Survey of Port Ivory Concrete Culvert at Richmond Terrace and Western Avenue Bridge (BUE-0303-10). Fee: $12,835**
- **Port Newark Berth 4-6 and 10-12 (BUE-0303-11). Fee: $10,491**
- **Condition Survey Inspection of New Jersey Marine Terminal, Port Newark Berths 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23 and 25 (BUE-0603-01). Fee: $266,229**
- **Condition Survey of New Jersey Marine Terminal, Port Elizabeth Berths 51, 53, 55, 57, 59, 61 and 63 (BUE-0603-02). Fee: $227,883**
- **Condition Survey of Bulkheads at Brooklyn Piers 6, 7, 8 & 12 and Between 6&7, 7&8, 8&9A and Piles Spanning Subway Tunnel at Pier 2 (BUE-0603-03). Fee: $137,312**
- **Condition Survey Inspection of Piers at Bergen Basin at JFK International Airport (BUE-0603-04).**
  Fee: $57,199
- **Underwater Inspection of Overloaded, Collapsed Sections at Berths 36 and 63 in Port Elizabeth**
  (BUE-0603-05). Fee: $27,063 (included in total fee for BUE-0603-02).
- **Condition Survey of Port Elizabeth Marine Terminal Berths 50 Thru 86 (BUE-0603-06). Fee: $424,514**
- **Condition Survey Inspection of Berths 1 & 2, Concrete Mooring Dolphins and Timber Walkways at Auto Marine Terminal in Bayonne, New Jersey (BUE-0603-07). Fee: $66,024**
- **Underwater Diving Investigation of New Jersey Marine Terminal Berths 36 and 63 (BUE-0603-08). Fee: $26,389**
- **JFK – Condition Survey of ILS Piers 4-22 & 7-25 and Sewer Outfalls (BUE-0603-09). Fee: $242,126**
- **Condition Survey of Former Allied Chemical Pier at Port Elizabeth (BUE-0603-10). Fee: $6,642** ***(All projects were completed on schedule and within budget.)***

PROJECT DESCRIPTION / CLIENT REFERENCE

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Quality Assurance Division (QAD)
Port Authority Technical Center
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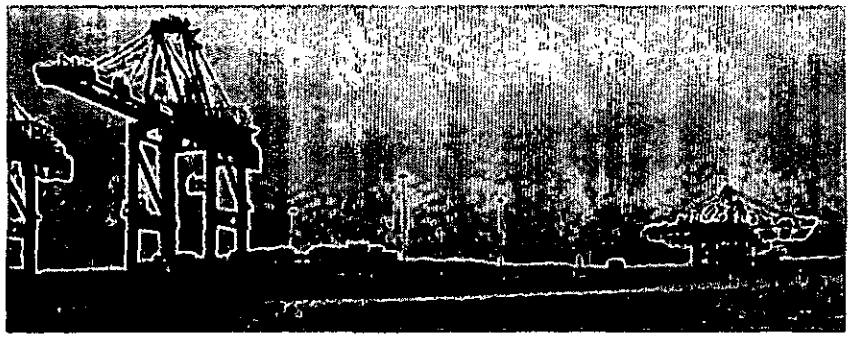
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

Suren Batra – Project Manager/QAD
(973) 792-3959
(973) 792-2908 - Fax



Services Provided

As the most recent portion of a cyclical contract for **Expert Professional Services** to evaluate the overall condition of the structures and to identify any structural and non-structural deficiencies for the **Quality Assurance Division of the Port Authority of NY & NJ,** BUE performed visual inspections on 100% of all structural and safety items. Also, a hands on inspection was performed on 10% of the foundation piles, with methods including but not limited to ultrasonic thickness measurements and probes throughout the **Port Authority Marine Terminal at Elizabeth Berth Nos. 50 through 86.** This inspection was performed in order assess the condition of and recommend repairs for Berth Nos. 50 through 86 and also to update the status of all load restrictions and priority repair recommendations from the previous report. A total of 95 days in the field using a 3-man dive team were spent in carrying out the work which spanned the spring and summer of 2007 (Job No. BUE-0603-06).

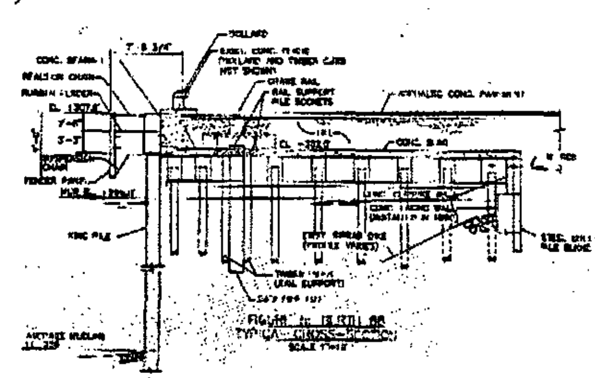


Table 4
Summary of Conditions - Berths 50 Through 86

	Total Number	Rating Condition: Moderate Routine No.	Moderate Routine %	Severe Routine No.	Severe Routine %	Severe Priority No.	Severe Priority %
Timber Piles	16048	97	0.6%	84	0.5%	51	0.3%
Steel Pipe Piles	1780	--	--	--	--	--	--
Concrete Pile Caps	4262	87	2.0%	37	0.9%	47	1.1%
Concrete Pile Extensions	10235	311	3.0%	51	0.5%	23	0.2%

Total Fee: $424,514 ***(Completed on schedule and within budget.)***

PROJECT DESCRIPTION / CLIENT REFERENCE

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Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
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Jan Perez – Project Manager/QAD
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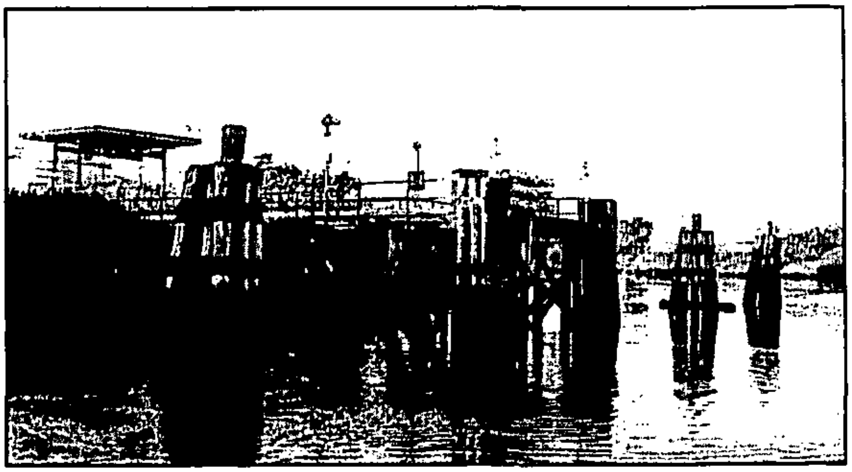
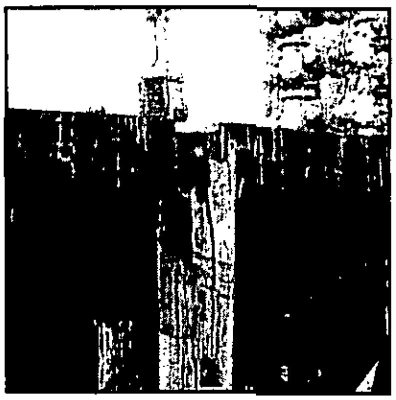
(973) 792-3909 - Fax



Services Provided

As part of a "Call-In" Basis contract, **Expert Professional Services** provided by BUE carried out a **Condition Survey Inspection of JFK International Airport Bergen Basin Barge Piers (Piers 1,2,3,A and B)** for the **Quality Assurance Division of the Port Authority of NY & NJ.** The purpose of the survey was to determine the overall condition of the structures through a 100% visual inspection and a 25% hands-on inspection of approximately 161 treated timber piles, timber pile caps, cross bracings, deck, utilities, and fender system. Also included was the inspection of safety features and the taking of water depth soundings along 2 faces of each fender dolphin system. The information collected was presented in the form of above and underwater photographs, written text, and graphically in maps. A 3-man dive team conducted the inspection during the fall of 2006 (Job No. BUE-0603-04).



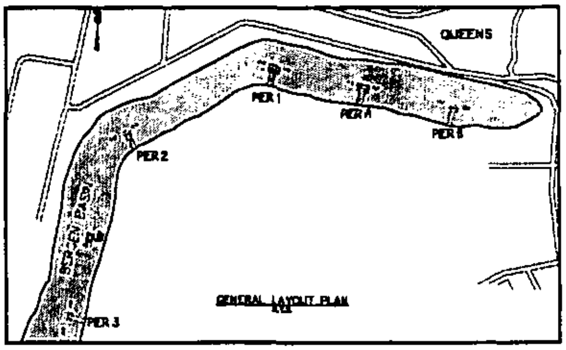


TABLE 2
BERGEN BASIN BARGE PIER CHARACTERISTICS

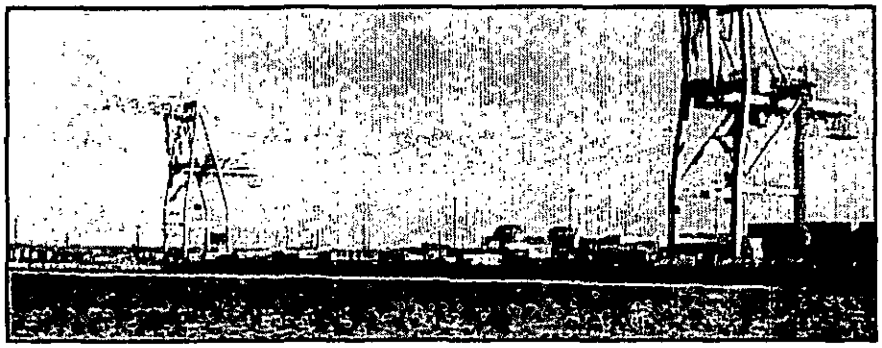
Pier No.	Approx. Length	Approx. Width (Max.)	Number of Bents	Type of Construction
1	72 ft	42 ft	8	Creosote-treated timber bearing piles; dolphin piles; cap beams; joists; cross bracing. Chromated Copper Arsenate (CCA) treated timber decking; railing; pipe saddles.
2	72 ft	26 ft	8	Creosote-treated timber bearing piles; dolphin piles; cap beams; joists; cross bracing. Composite plastic lumber decking; pipe saddles. Fiberglass railing.
3	82 ft	30 ft	9	Creosote-treated timber bearing piles; dolphin piles; cap beams; joists; cross bracing. Composite plastic lumber decking. Combination of CCA-treated timber and composite plastic lumber pipe saddles. Fiberglass railing.
A	82 ft	48 ft	9	Creosote-treated timber bearing piles; dolphin piles; cap beams; joists; cross bracing. Composite plastic lumber decking. Combination of CCA-treated timber and composite plastic lumber pipe saddles. Fiberglass railing.
B	72 ft	26 ft	8	Creosote-treated timber bearing piles; dolphin piles; cap beams; joists; cross bracing. Composite plastic lumber decking. Galvanized steel railing.

Total Fee: $57,199 (*Completed on schedule and within budget.*)

PROJECT DESCRIPTION / CLIENT REFERENCE

The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

Suren Batra – Project Manager/QAD
(973) 792-3959
(973) 792-2908 - Fax



Services Provided

As a portion of a cyclical contract for **Expert Professional Services** to evaluate the overall condition of the structures and to identify any structural and non-structural deficiencies for the **Quality Assurance Division of the Port Authority of NY & NJ,** BUE performed a Level I visual inspection on 100% of the structural elements, including the topside deck, comprising the **New Jersey Marine Terminal, Port Elizabeth Berths 51, 53, 55, 57, 59, 61 and 63.** Also, a hands-on inspection was performed on 10% of the foundation piles, with methods including but not limited to ultrasonic thickness measurements and probing. The fender system and rip rap dike profiles were excluded from the scope of work. This inspection was performed to assess the condition of and recommend repairs in order to remediate and correct structural deterioration; all findings were presented in a condition survey report. A 3-man dive team carried out the work over the course of the summer of 2006 (Job No. BUE-0603-02).

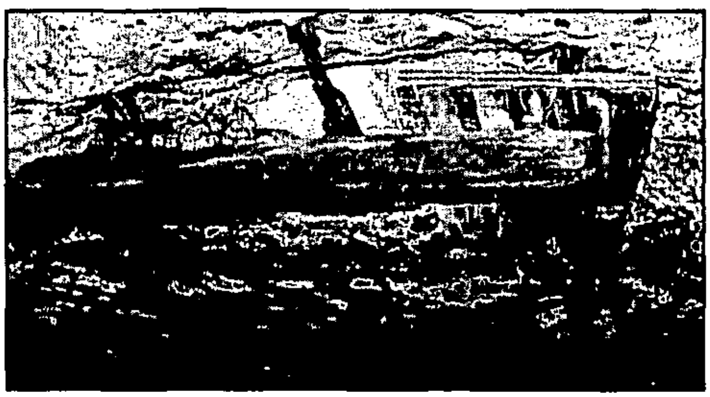


TABLE 3:
BERTH CHARACTERISTICS

Berth No.	Length (ft)	Width (ft)	No. of Bents	No. of Timber Piles	No. of Steel Pipe Piles	No. of Steel H-Piles
51	808	45	101	1,058	0	7
53	768	45	96	964	0	0
55	760	45	95	951	0	0
57	760	45	95	1,011	63	0
59	776	45	97	974	97	0
61	600	45	75	730	75	0
63	872	45	109	1,042	53	0
TOTALS	5,344	—	668	6,728	288	7

Total Fee: $227,883 *(Completed on schedule and within budget.)*

PROJECT DESCRIPTION / CLIENT REFERENCE

New York State Department of Transportation
Structures Design and Construction
Bridge Inspection Unit
50 Wolf Road, POD 43
Albany, NY 12232

Ikram Mohl, P.E., Bridge Inspection Program Manager
(518) 457-8275
(518) 457-6945 Fax

Services Provided

Bridge Diving Inspections & Fathometer Surveys. NBIS bridge diving and scour erosion inspections, including fathometric/scour evaluation assessments, of bridges spanning waterways.

Since 1991 through the end of 2007, the firm will have performed bridge diving inspections on a total of 4,857 substructure units (SSU) encompassing 1,463 bridges spanning waterways, and fathometer surveys on an additional 703 bridges situated over water for the New York State Department of Transportation. The work was performed in all eleven (11) regions of the state.

To date, BOSWELL has been awarded twelve consecutive term agreements for this type of work and is the only consulting engineering firm, acting in the capacity of prime consultant, to have ever been issued concurrent, overlapping bridge diving inspection contracts by the NYSDOT. This has happened four (4) times and first occurred in 1997 when the NYSDOT Western and Southern Agreements were executed concurrently by BUE, again from 1998 through 2000 when the NYSDOT Southern and Eastern Agreements overlapped, and again in 2003 and 2004 when the NYSDOT Western and Southern Agreements overlapped. From 1994 through 1997, the Western Agreement included 434 bridges in Regions 3, 4, 5, and 6, while the Southern Agreement included a total of 261 bridges from 1997 through 2000 in Regions 10 and 11 (which includes the New York City Metropolitan area and all of Long Island).

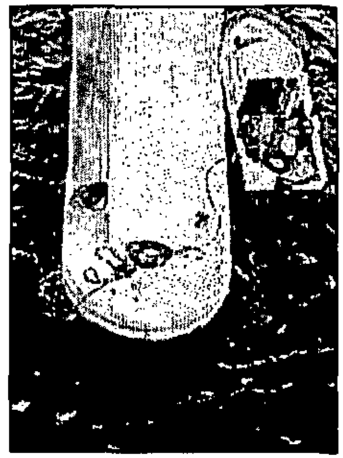
Agreement Nos.	Regions	Years	Bridges	SSU	FS Surveys
D006001	10 & 11	1991-1992	54	260	41
D006129	1,2,7,8 & 9	1992-1993	217	494	49
D007403; SA1	3,4,5 & 6	1994-1997	316	646	118
D008928; SA2	10 & 11	1997-2000	122	1367	139
D010140; SA1	1,2,7,8 & 9	1998-1999	150	327	40
D010471	1,2,7,8 & 9	2000-2001	103	209	55
D015139	3,4,5 & 6	2002-2003	125	246	86
D015236	10 & 11	2003-2004	65	651	80
D015361	3, 4, 5, & 6	2004-2005	135	240	19
D015537	1, 2, 7, 8, & 9	2006-2007	176	417	76

Total Fee To-Date: $13,758,000. (*Completed on schedule and within budget.*)

PROJECT DESCRIPTION / CLIENT REFERENCE

State of Delaware
Department of Transportation
930 Public Safety Blvd.
Dover, DE 19903

Douglas E. Finney, P.E.
Bridge Management Project Manager
(302) 760-2314
(302) 739-3854, Fax



Services Provided

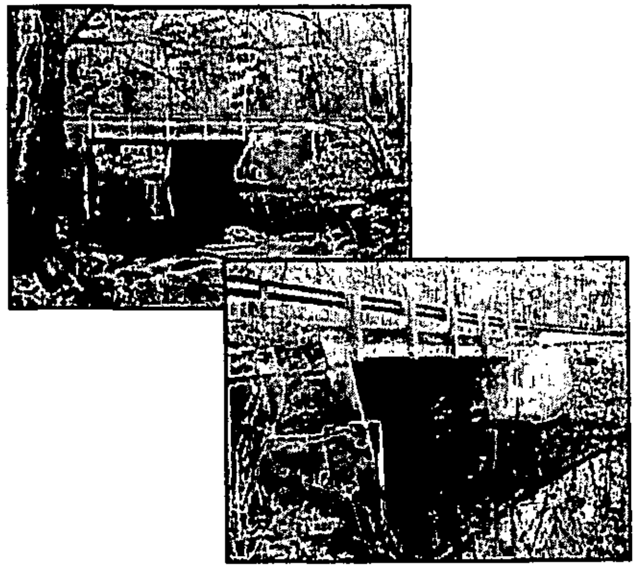
1995-2007 Bridge Diving Inspections. Awarded four (4) consecutive 3-year, open-ended contracts to perform underwater inspections of high-clearance bridges and low-clearance bridges throughout the state, with Contract 1289 extended one additional year. The low-clearance bridges included a full inspection of all substructure and superstructure elements. The inspections were performed in accordance with NBIS standards with the inspections of the low-clearance structures conforming to the PONTIS Bridge Management System requirements.

Bridges Inspected To-Date	Bridges	SSU
Routine NBIS Diving Inspections	299	695
High Clearance Structures	180	417
Low Clearance Structures	119	278
Number of Bridges with:		
Structural Yellow Flags	5	5
Scour Yellow Flags	0	0
Structural Red Flags	5	6
Fathometric Surveys	5	

Agreement No.	Years	Bridges	SSU
755	1995-1997	77	179
905	1998-2000	79	184
1114	2001-2003	37	86
1289	2004-2007	106	246
	Total To-Date	**299**	**695**

Total Fee To-Date: $1,200,000. (*Completed on schedule and within budget.*)

PROJECT DESCRIPTION / CLIENT REFERENCE



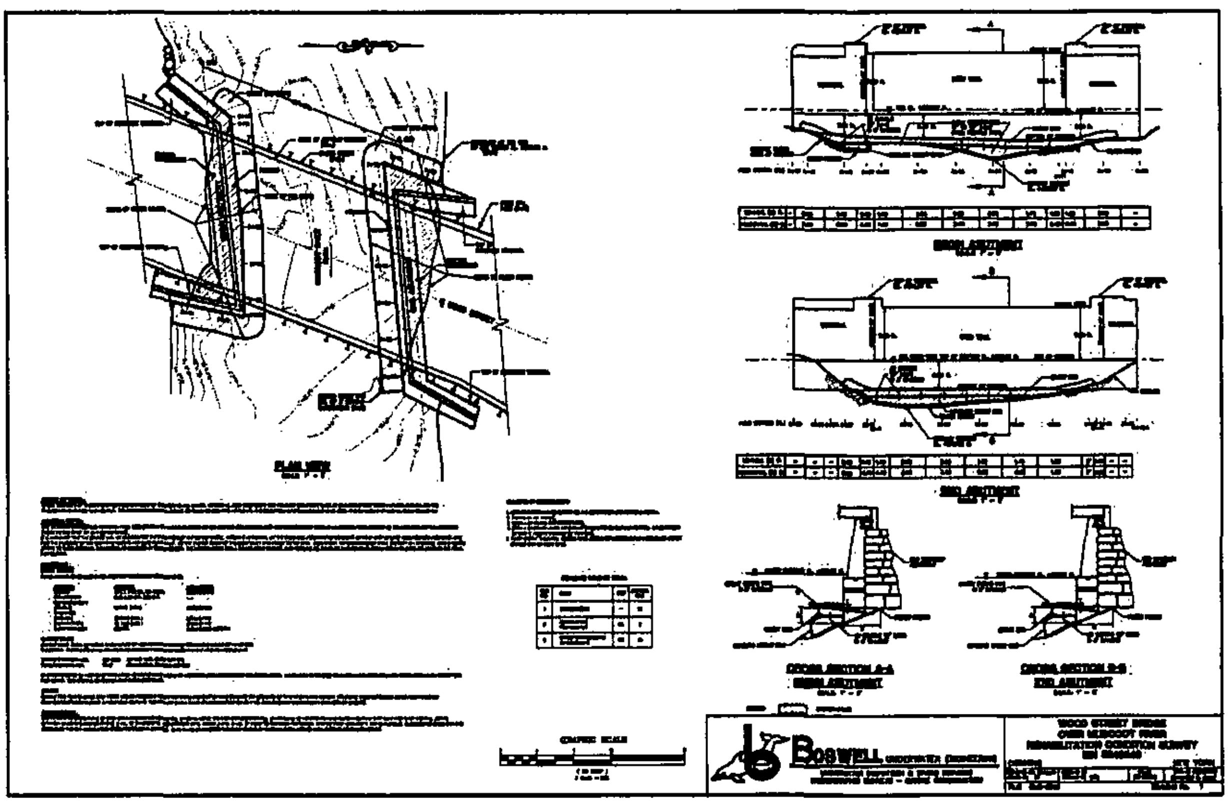
Westchester County Department of Public Works
148 Martine Avenue, Room 500
White Plains, New York 10601

Mr. Scott Donnelly, P.E.
(914) 995-8110
(914) 995-2564 (fax)

Wood Street Bridge over the Muscoot River
Ossining, New York

Services Provided

Wood Street Bridge Rehabilitation of Undermined Abutments (for Westchester County Department of Public Works). BUE performed a detailed Level II underwater inspection of both the begin and end abutments of the bridge, which recently developed excessive scour and undermining requiring the bridge to be closed. Upon completion of the inspection, BUE designed repairs for the undermining along with scour countermeasures to prevent future scour of the bridge. Work was performed in November of 2007 (Job No. BUE-0718).



Total Fee: $20,000. (*Completed on schedule and within budget.*)

PROJECT DESCRIPTION / CLIENT REFERENCE

New Jersey Water Supply Authority
1851 State Highway 31
P.O. Box 5196
Clinton, New Jersey 08809

Sharmila F. Rahman, P.E.
Project Engineer
(908) 638-6121
(908) 638-5961, Fax

Services Provided

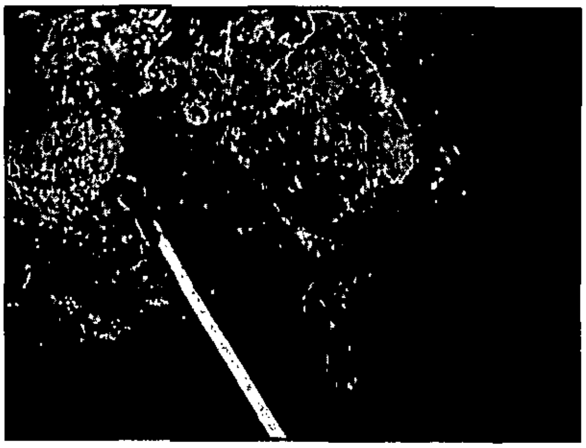
2007 Investigation of Submerged Culvert Structures along the Delaware and Raritan Canal. BUE was contracted to provide complete inspection services for 12 culverts, 10 of which were completely inundated with water. The inspections were carried out in conformance with NBIS standards (BUE-0712).

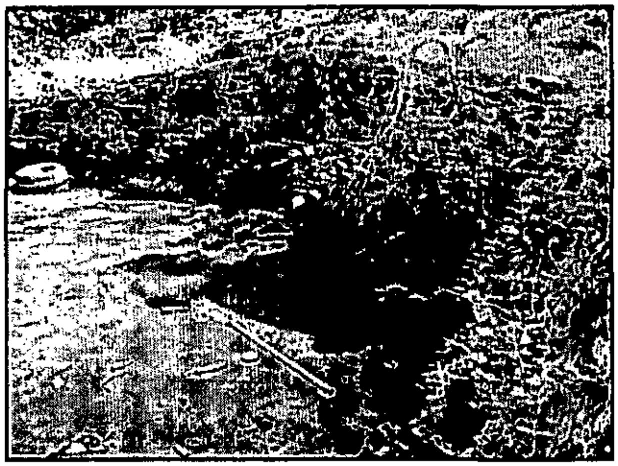
As part of the maintenance of the Delaware and Raritan Canal, the New Jersey Water Supply Authority had identified 12 culverts in need of investigation and rehabilitation. The culverts were predominantly drop style structures fully inundated with water.

In order to do the investigations, BUE performed a series of low clearance dives, adhering to all confined space diving procedures, including OSHA and ADCI regulations relating to commercial diving operations.

The deliverables consisted of detailed condition survey reports, including repair suggestions and cost estimates.

The information obtained by BUE engineer divers assisted New Jersey Water Supply Authority in planning their maintenance requirements for the next five (5) years.





Total Fee: $59,200 (*Completed on schedule and within budget.*)

SECTION IV

SECTION IV

ORGANIZATIONAL SIZE & STRUCTURE

ORGANIZATIONAL SIZE & STRUCTURE

Boswell Engineering, Inc. has 6 Senior Engineer Divers (with P.E. registration in various states), who act as team leaders and project managers on all field assignments involving underwater inspections, hydrographic surveys, scour evaluations, and topside waterfront facility condition surveys.

Currently assigned to projects involving underwater investigations on PANY & NJ projects are 3 P.E. Divers, 1 Engineer Diver and 6 Commercial Inspector Divers. Among these current 10 individuals, 8 are qualified and experienced hydrographic/fathometric surveyors. Backup resources in the form of 24 CAD Operators/Drafters, 7 Structural Engineers, and 26 Land Surveyors provide BUE with the capability of taking on projects of large magnitude and completing objectives, including emergency repair design and cost estimating, in a timely fashion.

Our large contingent of engineer divers, structural engineers, and backup engineering resources provides us with the means to expediently conduct several projects of scale concurrently in diverse geographical locations.

Our Underwater Engineering Division is uniquely staffed with individuals who are highly qualified and specifically committed and trained in inspecting and evaluating the structural condition of submerged components of both existing structures and marine substructures under construction or repair. In addition, this diving staff is one of the most stable in the industry, with all of its various members having been rotated through many of the same projects. BUE has also developed an extensive track record involving hydrographic/fathometric surveys of waterways.

BOSWELL's key diving staff consists of full-time bonafide employees. This allows the firm to avoid having to hire transient divers for call-out work, a common occurrence in the diving industry. Thus a higher standard of inspection can be achieved. In addition, BUE staff divers will be available to answer questions and to provide supplemental information long after the field work is completed. This also provides for better continuity and consistency of personnel during the execution of construction and post-construction phase services.

All of Boswell's proposed staff will be available for both diving and topside inspection and will be integrated into the field teams as needed, all of them periodically rotating back to the office for assessment of findings and report preparation. These individuals are:

P.E. Divers	Engineer Divers	Commercial Inspector Divers
Michael J. Ganas, P.E.	Hoi Leung	Dennis Cassidy
Ljupcho Naumchevski, P.E.		Marco Giacchi
Jeremy Pope, P.E.		Paul Dombrowski
John Kazawic, P.E.		Tracy McMahon
Bruce Boswell, P.E.		Jamie Faraldi
Kevin Boswell, P.E.		Gary Watson

Thirteen (13) BOSWELL key diving staff members have at least five (5) years experience with inspecting marine facilities and have been approved as qualified divers by both the New York State Department of Transportation, the U.S. Navy, the U.S. Coast Guard, the Port Authority of NY & NJ, and an assortment of other public agencies.

All BOSWELL key diving staff members are highly experienced with inspecting waterfront facilities and bridges spanning waterways, both typical and low clearance type structures. They are also experienced with identifying and assessing biodeterioration caused by marine borers, including limnoria, teredo and bankia, and have participated extensively in the Marine Borer Monitoring Program conducted by the Materials Division of the Port Authority of NY & NJ.

BOSWELL can easily field as many as four (4) 3-man dive teams on any given day in the northeast with less than 24-hours notification. This is by virtue of having a sufficiently large and stable dive staff that is supplemented with a wide array of diver support equipment which is company owned.

During underwater inspections, all dive team members will undergo frequent diver changeovers in order that fatigue is avoided, maximum efficiency is achieved, and inspection quality is kept high.

All of the diver candidates proposed for this contract have previously worked on PANY&NJ waterfront assignments and meet the diver qualification requirements set forth by the Bridge Inspection Manual published by the FHWA. The majority of them have also worked as divers on contracts awarded to BOSWELL by the New York Power Authority, the Arkansas State Highway & Transportation Department, the New York State Department of Transportation, the New Jersey Department of Transportation, the Triborough Bridge & Tunnel Authority, the Delaware River Port Authority of PA & NJ, and the U.S. Navy.

SECTION V

SECTION V MANAGEMENT APPROACH

MANAGEMENT APPROACH

The Director of Boswell Underwater Engineering, acting as Project Manager/ Directing Engineer Diver, and the On-Site P.E./Team Leader (Chief Engineer Diver) assigned to this contract will, within 24 hours of notification by the Port Authority of New York and New Jersey (PANY&NJ) to perform a waterfront facility condition survey or repair design, meet with the Authority's designated representative(s) to review the work scope requirements and obtain all necessary and pertinent information of a particular task order or assignment. When appropriate, other Boswell staff members assigned to the project will also attend the meeting with the Authority. Boswell's Project Manager will then review this data with his Chief Engineer Diver and/or Chief Structural Engineer assigned to the project and discuss any specific details involved. A cost estimate and manpower analysis to execute the Scope of Work is then prepared (in conformance with Task A as presented in the RFP) and submitted to the PANY&NJ for approval. If necessary, the Authority will request a modification of the proposed Scope of Work and/or cost estimate which is then revised by Boswell's Project Manager and resubmitted for approval. Once approved, an inspection schedule is submitted to the Authority based on project site access requirements, if any have been stipulated.

Upon the Authority's approval of the schedule, Boswell's Project Manager will then commence mobilizing the necessary personnel and equipment as required to effectively execute the work scope.

Although the amount and diversity of personnel and equipment assigned to each individual project or assignment under this contract may vary with the work scope requirements, Boswell's experience with waterfront condition surveys on Port Authority facilities has normally involved the deployment of a 3-man field inspection team, equipped with commercial diver support gear, underwater 35-mm photographic equipment with 15-mm super wide-angle lens and/or underwater digital cameras, and ultrasonic thickness gauging instrumentation to accomplish inspections. In some cases, an appropriate sized boat and/or underwater videotape equipment is provided. Occasionally, Boswell will perform a hydrographic survey using an electronic range-azimuth system in combination with a digital recording fathometer.

Prior to commencing the survey, the owner/tenant is contacted and consulted regarding the facility's schedule in order to avoid interference with daily operations. This often involves the arrival and departure of ships at various berthing facilities in Port Newark and Port Elizabeth. In addition, much of our work is scheduled around tides to provide the most efficient inspection.

While performing field inspections, the On-Site P.E./Team Leader (i.e., the Chief Engineer Diver or Senior Engineer Diver) heading each team will develop and maintain all necessary inspection records and documentation. For topside structural evaluations of buildings and related facilities, Boswell's Chief Structural Engineer will visit the site(s) to conduct the condition surveys, as a prelude to performing load bearing calculations when required. Upon completion of the field work, the Team Leaders will develop the inspection reports, drawings, photo logs, and sketches, working closely with Boswell's Project Engineers who will coordinate the preparation of all drawings in an AutoCAD or Microstation format. Before the preliminary reports are completed, they are thoroughly reviewed by Boswell's Quality Control Engineer and/or Chief Structural Engineer prior to consulting with the team's Project Manager.

Several tiers of quality control will follow the preparation of the preliminary report whereby it is first reviewed by the On-Site P.E. / Team Leader, followed by the Chief Structural Engineer and/or the Quality Control Engineer, and finally Boswell's Project Manager prior to submission.

All preliminary and final reports will be submitted in a timely fashion in order to facilitate the maintenance of PA facilities, particularly with regard to immediate, priority, routine, and safety repairs. The Port Authority will be notified immediately if structurally critical areas are discovered in surveyed waterfront installations which require immediate action.

On projects of larger magnitude, Boswell's Project Manager & Directing Engineer Diver, the Chief Engineer Diver/Quality Control Engineer, and/or the Chief Structural Engineer will accompany the inspection team(s) into the field, directing and coordinating operations, and performing condition surveys.

SECTION VI

SECTION VI

QUALITY CONTROL / ASSURANCE PLAN

QUALITY CONTROL / ASSURANCE PLAN

Since its founding in 1924, Boswell Engineering, Inc. has developed a reputation that has been signified by providing quality service. This quality service is presently being provided through utilization of a comprehensive Quality Assurance Plan (QAP) that ensures that the professional services rendered satisfy the goals established by the client by maintaining a high level of technical quality throughout the duration of the project. The main objective of the plan is to ensure the successful completion of the contracted assignment so that excellence of quality is achieved. This will be accomplished through well defined procedures for in-house project reviews and effective communication with the PANY & NJ. The result to be obtained is a high quality product which meets the project schedule and established budget.

Quality Control During Field Inspection

Due to the complexity of the project and the necessity to accurately record the existing conditions, quality assurance and quality control (QA/QC) will be of critical importance. The Quality Control Engineer will be responsible for the technical quality of the field work. This will be accomplished in the following manner.

The Quality Control Engineer will:

- Periodically visit the site(s) to evaluate each team members assessment of existing conditions.
- Review all field notes with designated office engineers whose job will be to assimilate the field notes.
- Check the developed as-built plans against the actual field conditions encountered to ensure minimal discrepancies.
- Review all non-destructive testing information, as well as core samples on a periodic basis, making conclusions and recommendations.
- Oversee the team leaders in their execution of the inspections.

The Team Leaders will:

- Check and verify the team's field notes.
- Check the recorded as-built structural member locations against the actual field conditions to ensure that no discrepancies exist.

During underwater inspections, an in-water check will be made each time a new diver enters the water. This will be done by having the second diver verify the conditions found on four (4) structural members previously inspected by the first diver.

In-house meetings will be held to keep field team members informed of all recent findings or anomalies that have occurred.

Quality Control During Report Preparation

The Project Manager will provide guidance and insight to the field staff, focusing his considerable underwater inspection and condition survey experience toward solid quality control. He will be responsible for the overall progress and quality of the work and its administrative management to assure the project is proceeding properly and that it stays within the approved budget.

Several tiers of quality control will follow the preparation of the reports whereby they are first reviewed by the Inspector or Engineer Divers, followed by the On-Site P.E./Team Leaders, then the Chief Structural Engineer. The Quality Control Engineer will then make a preliminary review of the deliverable(s) before turning it over to Boswell's Project Manager for a final review.

All reviews and reports will be submitted in a timely fashion. The PANY & NJ will be notified immediately if changes to the work scope are required or if structurally critical areas are discovered that jeopardize public safety or the safety of Port Authority personnel.

SECTION VII

SECTION VII PERSONNEL HOURLY RATES

PERSONNEL HOURLY RATES

CLASSIFICATION	NAME(s)	CURRENT UNBURDENED OFFICE RATE
Project Manager/Directing Engineer Diver/ QC Engineer	Michael Ganas, P.E.	94.00
Chief Engineer Diver	Ljupcho Naumchevski, P.E.	62.84
Senior Engineer Diver	Jeremy Pope, P.E.	52.88**
Engineer Diver	Hoi Leung	27.50**
Chief Inspector Diver	Dennis Cassidy	56.83
Senior Inspector Diver	Marco Giacchi	33.00**
	Paul Dombrowski	29.19**
Inspector Diver	Jamie Faraldi	19.25**
	Tracy McMahon	21.00**
	Gary Watson	23.34**
Chief Fathometer Surveyor	Frank Krupinski, P.L.S.	48.13
Fathometer Surveyor	Jeremy Pope, P.E.	52.88**
	Tracy McMahon	21.00**
Chief Structural Engineer/QC Engineer	Casely Doryumu	68.28
Structural Engineer	John Valentin	57.50
	Hiral Gaudani	34.45
Technical Engineer	Ahmad Sohanaki	31.12
CAD Operator	Kamol Kongtong	24.08

Regular Multiplier (for 8-hr. regular time and authorized overtime) 2.70***

NOTE:

1. The wage rates listed for each classification may vary, but are subject to annual increases due to performance merit, escalating cost of living, and promotions to higher categories.

2. Multipliers include all diver support equipment customarily required for the execution of the work, including underwater camera with 15-mm lense and electronic flash or underwater digital camera.

3. Work authorized to take place beyond 8 hours of each day or on Saturdays, Sundays, or holidays will be considered overtime. As such, listed wage rates will be increased by a factor of 1.5 for overtime work executed during week days and Saturdays, and by a factor of 2.0 for work executed on Sundays and holidays.

4. Based on past experience with Port Authority projects, each field inspection unit will normally consist of a two or three-man team comprised of any combination of Inspector Divers, Chief Inspector Diver, Engineer Divers, Senior Engineer Divers, Chief Engineer Diver, or Directing Engineer Diver.

5. Under certain conditions, a two-man field inspection unit is sufficient to execute the work.

*6. A three-man land survey crew is available, if required, for establishing reference points, and vertical and horizontal controls.

**7. A current wage rate of $54.63/hr. will be applied to the categories of Senior Engineer Diver, Engineer Diver, Senior Inspector Diver, and Inspector Diver for diving or fathometric survey work conducted in the field. Authorized overtime will increase the union wage rate by a factor of 1.5 for field work performed on weekdays and Saturdays, and by a factor of 2.0 for field work performed on Sundays and holidays. The field rate is based on the Dockbuilders Local 1456 collective bargaining agreement for the first six (6) months of 2009. Union wage rates are subject to periodic increases. In summary, the client will be billed in the following manner.

Straight-Time Labor

B = (2.70 RT)

Overtime Labor - During Week Days and Saturdays

B = 2.70 RP + 0.5 RP

Overtime Labor - During Sundays and Holidays

B = 2.70 RP + RP

where

R = current wage rate

T = total number of regular hours worked

P = total number of overtime hours worked

B = billable amount

***8. Multiplier Breakdown:

Direct Labor:	100%
Components of Overhead:	
Payroll Taxes	12.8%
Group Insurance	5.7
Paid Leaves	17.7
Indirect Salaries	53.8
Profit Sharing	1.2
Depreciation	3.9
Insurance	10.4
Auto Expense	5.9
Rent	3.1
Utilities	1.7
Professional Fees	4.5
Dues & Subscriptions	2.9
Office Supplies	11.0
Maintenance	1.6
Telephone	2.9
Engineering Supplies	1.7
Miscellaneous Taxes	1.1
Miscellaneous	0.7
Reimbursed Costs	2.4
	145%
Profit:	10%

Multiplier = 1.10 x (1.00 + 1.42) = 2.70

9. As under previous "call-in" contracts with the PANY & NJ, penetration dive premiums will be applied for projects requiring lateral penetration dives into enclosed spaces fully inundated with water or into enclosed environments such as sewer lines which present highly contaminated conditions (See the BUE Schedule of Lateral Penetration Dive Rates in the Appendix).

SECTION VII

SECTION VIII

SPECIALTY EQUIPMENT RATES

SPECIALTY EQUIPMENT RATES

TYPE	RATE
25-ft. Workboat	37.50/hr.
Workboat (less than 25-ft.)	27.50/hr.
U/W Video Camera System (Color)	250.00/day
Cygnus 1 UT Gauge	150.00/day
Thermal Recording Fathometer	250.00/day
Concrete & Wood Coring Equipment	300.00/day
U/W Steel Cutting Equipment	300.00/day
Waterblaster (3000 psi)	150.00/day
Water Jet Pump	250.00/day
Air Lifting Equipment	300.00/day
HAZMAT Diver Encapsulation Gear (for diving contaminated environments)	250.00/day
Differential GPS or Range-Azimuth System with Thermal Recording Fathometer	580.00/day

***NOTE**:

1. Specialty Equipment rates include multipliers.
2. Mileage to and from project sites will be billed at a rate of $0.67 per mile traveled when using the Boswell cargo vans for transporting equipment and personnel.
3. All other mileage will be billed at a rate of $0.41 per mile.

SECTION IX

SECTION IX

TECHNICAL QUALIFICATIONS OF KEY PERSONNEL

MICHAEL J. GANAS, P.E., P.P.
Project Manager & Directing Engineer Diver

EDUCATION

MSCE, New Jersey Institute of Technology - Construction Management major
BSCE, Cornell University
MBA, Fairleigh Dickinson University - Finance Major

REGISTRATION

Professional Engineer - New York, New Jersey, Connecticut, Maine, Maryland, Pennsylvania, North Carolina, South Carolina, Florida, New Hampshire, West Virginia, Indiana, Virginia, Georgia, and Arkansas

Professional Planner - New Jersey

DIVING CERTIFICATIONS

- Deep Sea Commercial Diver - Coastal Diving Academy
- SSI Advanced Open Water Scuba Diving Instructor
- NAUI Advanced Open Water Scuba Diver
- Civil Defense Scuba Rescue Squad
- Confined Space Entry – OSHA 29 CFR 1910.146(g)(4)
- ADCI (Association of Diving Contractors International) Surface-Supplied Air Diver I.D. 379, Certification No. 17897

BRIDGE INSPECTION CERTIFICATIONS

- Underwater Inspection and Repair of Bridges, George Washington University
- 2006 Bridge Inspection Workshop, New York State Department of Transportation (20 hrs)
- 2006 Annual Bridge Inspector's Training, New York State Department of Transportation (5.5 hrs)

KEY QUALIFICATIONS

Mr. Ganas has over 27 years of extensive experience in management and administration of more than 600 marine engineering and construction projects. He has also managed numerous projects entailing rehabilitation/repair design of dam structures. He is the Managing Vice-President of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation, structural evaluation, and design of marine structures and hydrographic/fathometric surveying of waterway bottoms. With a substantial background on civil, structural, and construction engineering projects, he is skilled in project management and administration, cost estimating/analysis, project planning and control, and possesses a strong background in marine construction techniques. Having performed over 400 hydrographic surveys, hydrography and fathometric charting techniques are among his forte, including scour analysis and scour remediation of bridge substructures, subaqueous mapping locating of utility crossings, and contour mapping of channel improvement and reprofiling projects.

He has physically performed underwater diving inspections on the submerged components of over 370 water-spanning bridges and over 200 waterfront structures such as piers, wharves, and relieving platforms. He has managed numerous projects involving underwater condition surveys of bridge structures in conformance with NBIS Standards for a wide array of public agencies, including the New York State, Connecticut, Delaware, New Jersey, Minnesota and Arkansas DOTs, overseeing the underwater inspection and quality control of over 8,186 substructure units supporting 2,578 bridges since 1987. He has also been the engineer-in-charge during the performance of over 767 fathometer surveys on water-spanning bridges to assess scour patterns during this same time period. He holds certification in the Underwater Inspection and Repair of Bridges from George Washington University. He is also a member of the Transportation Components of Structures.

He is an expert in all aspects of identifying, assessing, and remediating marine borer intrusion in timber structures. This expertise was manifested in a magazine article which he co-authored entitled *"Marine Borer Activity on the Rise in New York Harbor"*, which appeared in the December '93 edition of Public Works Magazine. He has also authored *"Underwater Inspection of Waterfront Facilities and Bridges: Typical Considerations and Widespread Abuses"*, which was published in the March 2003 edition of the Water Operation and Maintenance Bulletin issued by the U.S. Department of the Interior's Bureau of Reclamation.

A certified Deep Sea Commercial Diver and an SSI Advanced Open Water Diving Instructor, he has provided underwater investigations, inspections, and survey work on structural assignments, many of which required videotape documentation and ultrasonic thickness gauging of steel, wood, and concrete submerged members. He has also devised methodology and procedure for performing underwater inspections on an assortment of marine structures, including subaqueous pipelines, bridges, spanning waterways, and various port facilities such as piers, wharves, and bulkheads. On past projects, he has investigated and evaluated the effectiveness of various generic timber pile guard systems against marine borer attack, and the effectiveness and longevity of various cathodic protection systems against electrolytic corrosion of marine steel substructures. His experience includes an expertise on investigating and assessing the extent of marine borer intrusion and fungal attack in waterfront timber structures and the effects of biodeterioration on the load bearing capacity of structural members.

With over 3,800 hours logged underwater as a construction and inspection diver, Mr. Ganas has considerable insight relating to factors affecting subaqueous construction and inspection. This experience has manifested itself in published technical material which he has authored.

RELEVANT EXPERIENCE

PANY&NJ Waterfront Condition Surveys Technical Services on Call-In Basis. Project Manager on over 291 projects (spanning 13 consecutive term agreements) conducted on various port and harbor facilities and marine structures such as piers, wharves, bulkheads, relieving platforms, intake screens, and sluice gates. Projects involved underwater condition surveys, repair designs, and construction inspection of concrete, steel, and timber waterfront facilities, often including hydrographic/fathometric surveys of adjacent waterway bottoms. Inspections frequently utilized core sampling, NDT ultrasounding instrumentation, electronic differential GPS or range-azimuth hydrographic survey systems, videotape and photographic documentation. Thirteen (13) consecutive contracts; Term Agreements 426-89-14, 40-90-007M, 410-92-003M, 426-94-010, 426-95-001, 426-96-009, 426-97-007, 426-98-012 & 426-99-003, 426-06-006, 405-00-02, 405-03-007, 405-06-18. Port Authority of New York and New Jersey (1989 - Present).

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. Director & Quality Control Engineer on 13 contracts (5 overlapping and concurrent) involving underwater inspections of 1463 water-spanning bridges (4857 SSU) and 703 fathometric surveys of waterways. New York State Department of Transportation. (January '91 - Present).

DELDOT Bridge Diving Inspections. Project Manager and Quality Control Engineer on four (4) consecutive, 3-year contracts involving underwater inspections on a total of 299 bridges (695 SSU), including low-clearance structures spanning waterways. (Agreement Nos. 755, 905, 1114, 1289). Delaware Department of Transportation. (June '95 - Present).

NYPA On-Call Engineering & Diving Services All Facilities. Project Manager on an indefinite quantity three-year term contract for the New York Power Authority to provide underwater diving and professional engineering services. BUE performed the first diving inspection of the trash rack guides, stop log guides, heat gate guides and draft tube at the Robert Moses Power Plant on the Niagara River (2003-2005).

TOTAL YEARS OF EXPERIENCE 27 years

LJUPCHO NAUMCHEVSKI, P.E.

Project Manager / Chief Engineer Diver / Chief Fathometer Surveyor

EDUCATION

BSCE, Kiril and Metodij University, Skopje, Macedonia

REGISTRATION

Professional Engineer – New York, Delaware, Pennsylvania, Connecticut, New Jersey (Pending), California (Pending-took Seismic & Survey Exam on 10/27/07)

DIVING CERTIFICATIONS

- PADI Certified Open Water Diver
- BUE On-The-Job Training in Commercial Hard Hat Diving Techniques
- BUE On-The-Job Training in Underwater Inspection of Bridge
- Confined Space Entry – OSHA 29 CFR 1910.146(g)(4)
- ADCI (Association of Diving Contractors International) Surface-Supplied Air Diver I.D. 489, Certification No. 15186

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection for In-Service Bridges - FHWA National Highway Institute Certificate of Training (80 hrs.)
- 2005 Bridge Inspection Workshop, New York State Department of Transportation (40 hrs.)
- 2005 Annual Bridge Inspector's Training, New York State Department of Transportation (16 hrs.)
- 2007 Annual Bridge Inspector's Training, New York State Department of Transportation (16 hrs.)
- 2007 Inspecting Steel Bridges for Fatigue, New York State Department of Transportation (8 hrs.)

KEY QUALIFICATIONS

Mr. Naumchevski is a key staff member of Boswell Underwater Engineering (BUE), a division of Boswell Engineering specializing in the investigation and structural evaluation and design of marine infrastructures. As a BUE staff member, he serves in the capacity of project manager, engineer diver, and hydrographic/fathometric surveyor and has physically performed underwater diving inspections on the submerged components of more than 710 bridges spanning waterways and conducted over 420 hydrographic/fathometric surveys. He has gained substantial experience over a 18 year span on diving projects requiring underwater inspections of port and harbor facilities, bridge substructures, piers, relieving platforms, waterfront bulkheads, submerged pipeline installations, and offshore platforms, logging over 4100 hours underwater on inspection assignments. Concurrent with this, he has developed a handsome track record of hydrographic/fathometric surveying experience, a substantial amount of which involved scour investigations of bridges spanning waterways and pre-and-post dredging surveys. In addition, his background includes structural design and analysis of bridges, box culverts, and marine facilities, as well as bridge, pier, and relieving platform rehabilitation design and rating. He is skilled in commercial hard hat diving techniques, underwater photographic and videotape documentation, ultrasounding of metal structural elements for determining section loss, and hydrographic surveying techniques using electronic range-azimuth and differential GPS systems. He has extensive experience in the preparation of condition survey reports and is skilled in the use of interactive Auto-CAD software for preparing plan, elevation, and fathometer contour drawings. He is an expert at identifying and evaluating the extent of biodeterioration caused by marine borer intrusion in submerged timber structures through core sampling techniques. He is also actively engaged in BUE's in-house marine borer research test board program, which seeks new ways of controlling marine borer intrusion in timber structures.

RELEVANT EXPERIENCE

Representative projects on which Mr. Naumchevski has worked as a ***Project Manager, Team Leader, On-Site P.E. Diver, and Design Engineer*** *include:*

PANY&NJ QAD Division On-Call Waterfront Condition Survey Contracts. On-Site P.E. Diver/Team Leader performing condition surveys, structural evaluations, and repair designs on over 28 major assignments for the Port Authority of New York & New Jersey Quality Assurance Division involving shipping berths, piers, bulkheads, and relieving platforms comprised of timber, steel and reinforced concrete. Some of the facilities included Port Newark and Port Elizabeth, NJ, the New Jersey Auto Marine Terminal, Brooklyn Piers 9A and 9B, NY, Howland Hook Marine Terminal, NY, Manhattan Ferry Terminals, and Airports. (Term Agreements 405-00-02, 2000-2002; 405-03-007, 2003-2005, 405-06-018, 2006-2008) (January '00 - Present).

PANY&NJ Materials Engineering Division (MED) On-Call Waterfront Technical Service Contracts. On-Site P.E. Diver/Team Leader on over 100 inspection assignments involving port and harbor facilities, shipping berths, and waterfront structures owned by the Port Authority of New York and New Jersey. (February '92 – Present).

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. Project Manager & On-Site P.E. Diver/Team Leader on thirteen (13) consecutive NYSDOT Bridge Diving Contracts during the last 18 years (including five (5) overlapping contract agreements) involving routine underwater inspections of 1,463 bridge structures (4,857 SSU) and fathometer surveys of an additional 703 bridges located in the Eastern, Western, and Southern Regions of New York State. New York State Department of Transportation. (April '91 - Present).

Delaware Department of Transportation Bridge Diving Inspections. Performed condition surveys of 299 bridges spanning waterways (695 substructures) on four (4) consecutive term agreements, including superstructures on low-clearance bridges, in conformance with NBIS Standards and PONTIS Bridge Management System, functioning as On-Site P.E. Diver/Team Leader, and prepared all reports. Delaware Department of Transportation. (Agreement Nos. 755, 905, 1114, and 1289). (February '94 - Present).

State University of New York / New York State Office of General Services (NYSOGS) - Phase I – Condition Survey & Assessment of Multiple Waterfront Structures: Conducted a condition survey and assessment of multiple waterfront structures for the State University of New York (SUNY) Maritime College at Fort Schuyler in May of 2001. The purpose of the survey was to determine the overall condition of the structures and to identify any structural, non-structural or safety deficiencies which would comprise their integrity. Then developed the recommendations for correcting any deficiencies that were found. **Phase II – Rehabilitation Design of Pier Support Structures (OGS Project No. 8849):** Due to a critical condition found at the Approach Pier while conducting Phase I, imminent failure of several structural reinforced concrete and steel elements was possible due to the advanced state of deterioration. Therefore, the original scope of work was expanded and approved under a separate agreement with the New York State Office of General Services (NYSOGS). The additional scope required immediate repair design and implementation, followed by construction inspection services to assure contractor compliance with plan and specification documents. Recommended and designed a 50-foot temporary bridge was installed to provide continuous operations at the Maritime College. Prior to preparing a design, a comprehensive structural analysis was performed on Pile Bents T, U, and W and the deck slabs spanning between them. Based on this, it was determined that these structural members could not withstand HS 20 type loading. As a result, four (4) 12.75 O.D. x 0.375 steel pipe piles were driven to depths of 45 feet and filled with concrete. Each pile had a minimum capacity of 40 tons. In carrying out the construction inspection portion of the work, test borings were conducted to determine the substrata suitability for driven piles, followed by monitoring of pile driving operations to verify required depths and driving resistance. The project concluded with the observance of dynamic load testing of the driven piles which proved to be sufficient for bearing the required loads. (May '91)

TOTAL YEARS OF EXPERIENCE **18 years**

JEREMY POPE, P.E.
Senior Engineer Diver / Fathometer Surveyor

EDUCATION:

Bachelor of Engineering in Civil Engineering, Stevens Institute of Technology

REGISTRATION:

Professional Engineer – New Jersey

DIVING CERTIFICATIONS

- PADI Certified Open Water Diver
- BUE On-The-Job Training in Commercial Hard Hat Diving Techniques
- BUE On-The-Job Training in Underwater Inspection of Bridges

BRIDGE INSPECTION CERTIFICATIONS

- Bridge Inspection Refresher Course – FHWA National Highway Certificate of Training
- Shipyard Competent Person Course

KEY QUALIFICATIONS:

Mr. Pope is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of dam structures and marine infrastructures. He is proficient in commercial diving techniques utilizing surface-supplied air and hard hat equipment and has logged more than 2500 hours underwater on inspection assignments. In addition, he is experienced in fathometer surveying techniques and underwater videographic and photographic documentation. He is also highly skilled in the use of computer AutoCAD software for preparing engineering drawings, reports and contour maps. Altogether, he has inspected the submerged components of over 400 water-spanning bridges, more than 80 waterfront structures, and 4 hydroelectric dam facilities. Furthermore, he has performed over 100 fathometric surveys associated with bridge scour assessments and dredging projects.

RELEVANT EXPERIENCE:

*Mr. Pope has functioned in the capacity of **Project Manager, Team Leader, On-Site P.E. Diver and/or Fathometer Surveyor** on the following projects:*

United States Coast Guard Station. Underwater structural inspection and condition assessment of concrete pier structure at Nawiliwili Harbor, Kauai, Hawaii. (May '08).

Kawaihae Harbor Pier 2 Emergency Inspection. Underwater structural inspection and condition survey of Pier 2 to assess damage following the October 2006 earthquake near coast of Kona, Hawaii. (Oct. '06).

Kakaako Survey of Open Channel. Pre-construction survey of pre-cast concrete struts and pre-cast concrete sheetpile bulkhead. (Sept. '06).

Pier 52 Honolulu Harbor. Underwater structural inspection and repair design of concrete piles damages by ship impact. (April '06).

Ford Island Bridge Inspection. Underwater pre-construction inspection and construction quality assurance inspection of structural piles repairs. Pearl Harbor, Hawaii. (March 06' – April '06).

Avon Wharf MOTEMS Inspection. Underwater structural inspection and condition assessment of Avon Wharf in accordance with California State Lands Commission (SLC) Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). (Feb. '06).

Wharves B10-B14, Pearl Harbor, Hawaii. Pre-construction inspection of concrete piles, pile-caps, beams and slab soffit including detailed documentation of of deficiencies for the preparation of repair design documents. (April '05 – May '05).

Reconstruction of Third Avenue Bridge over Harlem River. Underwater inspection and construction quality assurance of the bridge reconstruction and cable installation. New York City Department of Transportation. (Nov. '04 – April '05)

Blenheim Gilboa – Power Project Underwater Diving Inspection and Professional Services. On-Site P.E. Diver/Team Leader for the underwater inspection of the Crescent and Vischer Ferry Hydroelectric Facilities. New York Power Authority. (Sept. '04 – Jan. '05)

Limited Condition Survey & Assessment of Rip-Rap and Substructures at Various Locations Within the proposed Brooklyn Bridge Park. Underwater pre-construction inspection of Brooklyn Piers 1 through 6 and adjacent relieving platforms, bulkheads, and rip-rap slopes for the redevelopment of waterfront facilities to park usage. (June '04 – Aug. '04)

Military Ocean Terminal Bayonne. Underwater structural inspection of Berth S1 including ultrasonic thickness measurements of steel caissons. (May'04 – June '04)

PANY & NJ Facility Condition Surveys for Waterfront Facilities. On-Site P.E. Diver/Team Leader for the underwater inspection and structural analysis of various waterfront facilities, including the inspection of 3 low-clearance bridges/culverts. Prepared diving inspection reports in accordance with New Jersey Department of Transportation procedures. Port Authority of NY & NJ. (April '04 – May '04)

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. Underwater inspections and fathometric surveys of over 400 bridges spanning waterways. Also prepared in excess of 60 CADD-generated contour maps of waterway bottoms. New York State Department of Transportation. (April '97 – Nov '99; Jan. '03- March '05)

PANY&NJ Waterfront Condition Surveys Technical Services on a Call-In Basis (MED & QAD). Engineer diver on over 50 assignments involving underwater quality assurance inspections on waterfront facilities undergoing repairs, and condition survey assessments of various types of marine structures including piers, wharves, relieving platforms, bulkheads, intake screens, and sluice gates. Port Authority of NY & NJ. (Oct. '96 – Nov. '99; Jan. '03 – March '05)

Indefinite Quantity Term Contract for Underwater Inspection, Condition Assessment and Repair Designs of Navy Facilities at Various Locations, Worldwide. Condition surveys of Fuel Wharf 128 Naval Air Station and Naval Support Activity in New Orleans, Louisiana, Pier Papa Naval Station in Charleston, South Carolina, the Naval Submarine Base in Kings Bay, Georgia, and the Naval Weapons Detachment in Pearl Harbor, Hawaii, under the direction of the U.S. Naval Facilities Engineering Command. Performed underwater inspections, structural assessments, and prepared drawings showing observed deterioration using AutoCAD Version 12 software. (July '95 – Feb. '97)

TOTAL YEARS OF EXPERIENCE:

14 Years

DENNIS P. CASSIDY
Chief Inspector Diver / Team Leader

EDUCATION

The Ocean Corporation
- Advanced Open Water (NAUI Scuba)
- Commercial Air and Mixed Gas Diving
- Nuclear and Contaminated Environment Diving
- Underwater Welding and Cutting
- Still Photography and Visual Inspection
- Confined Space Entry – OSHA 29 CFR 1910.146 (g) (4)

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection of In-Service Bridges-FHWA-National Highway Institute Certificate of Training - NHI No.13055 (80 hour)
- Underwater Inspection & Repair of Bridges Certification, George Washington University
- Bridge Safety Inspection NICET Level III Certification No. 116326

WELDING CERTIFICATION

American Welding Society Buildings and Bridges (7018 all position)
American Welding Society (AWS)
Certified Associate Welding Inspector (CAWI)

DIVING CERTIFICATIONS

- Confined Spaced Entry – OSHA 29 CFR 1910.146 (g) (4)
- Diving Certification No. 0988909196-03
- ADCI (Association of Diving Contractors International) Surface Supplied Air Diving Supervisor I.D. 228, Certification No. 15182

KEY QUALIFICATIONS

Mr. Cassidy is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of marine infrastructures. Having worked as a construction and inspection diver for the past 18 years, he has extensive experience in the maintenance, rehabilitation, and inspection of dam structures and submerged structures such as pipelines, canal bulkheads, in-take tunnels, pile supports to piers and wharves, and bridge substructures. He is also skilled in underwater videotape and photographic documentation techniques, ultrasonic thickness gauging, Eddie current and other nondestructive testing (NDT) methods.

He is an expert at identifying and evaluating the extent of biodeterioration caused by marine borer intrusion in submerged timber structures through core sampling techniques. He is also actively engaged in BUE's in-house marine borer research test board program which seeks new ways of controlling marine borer intrusion in timber structures.

Mr. Cassidy has also acquired considerable insight related to marine construction management, having participated on numerous projects as a construction inspection diver and providing guidance to owners regarding the feasibility of repairs and contractor claims prevention. He has also performed condition surveys on more than 360 marine facilities and prepared the associated reports. In addition, he has performed over 480 bridge diving inspections. Altogether, he has logged in excess of 6700 hours underwater on inspection assignments.

RELEVANT EXPERIENCE

PANY&NJ Waterfront Condition Surveys Technical Services (MED & QAD). Team Leader/Inspection Diver on over 289 assignments encompassing 13 contracts involving condition survey assessments and construction inspection diving of marine structures such as piers, wharves, relieving platforms, bulkheads, intake screens, and sluice gates. Port Authority of NY & NJ. (January '92 - Present).

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. Senior Inspection Diver on 12 contracts involving underwater inspections of 1463 water-spanning bridges (4857 SSU) and fathometer surveys of more than 703 bridges. New York State Department of Transportation. (January '92 - Present).

Reconstruction of Third Avenue Bridge over Harlem River. Underwater inspection and construction quality assurance of the bridge reconstruction and cable installation. New York City Department of Transportation. (November '04 - Present).

Blenheim Gilboa – Power Project Underwater Diving Inspection and Professional Services. On-Site P.E. Diver/Team Leader for the underwater inspection of the Crescent and Vischer Ferry Hydroelectric Facilities. New York Power Authority. (September '04 - January '05).

Brooklyn Bridge Park. Underwater pre-construction inspection of Brooklyn Piers 1 through 6 and adjacent relieving platforms, bulkheads, and rip-rap slopes for the redevelopment of waterfront facilities to park usage. (August '04 - September '04).

Military Ocean Terminal Bayonne. Underwater structural inspection of Berth S1 including ultrasonic thickness measurements of steel caissons. (May '04 - June '04).

Passaic Valley Sewerage Commission Sludge Loading Dock. Underwater inspection and fathometer survey of ship berthing facility. Passaic Valley Sewerage Commission. (March '04 - April '04).

Port Elizabeth, Berths 88 to 98. Diving inspection and construction quality assurance of the bulkhead repairs to Berths 88 through 98 at Port Elizabeth, New Jersey. Port Authority of NY and NJ. (August '96 - December '96).

Ridge Road Culvert Wingwall Foundations. Resident engineering and quality assurance diving inspection services of the repairs to the Ridge Road Culvert Wingwall Foundations to monitor the work of the contractor for conformance with contract bid documents. Rockland County Highway Department. (August '96).

Port Newark, Port Elizabeth and Brooklyn Piers Marine Borer Investigation. Underwater inspection on Port Newark Berths 2 and 19, Port Elizabeth Berths 50 and 96 and Brooklyn Piers 9A, 9B and 12 to detect the presence of marine borers. Port Authority of NY and NJ. (July '96 - September '96).

Pier D Condition Survey. Levels I and II underwater inspection of the outer perimeter of approximately 900 timber support piles on Pier D in Weehawken. Hartz Mountain Industries, Inc. (June '96 - July '96).

New Jersey Port Terminal, Berths 64 and 66. Underwater inspection and construction quality assurance of the restoration of the rip-rap below Berths 64 and 66 at the New Jersey Port Terminal. Port Authority of NY and NJ. (May '96 - August '96).

<u>TOTAL YEARS OF EXPERIENCE</u>

19 years

PAUL DOMBROWSKI
Senior Inspection Diver / Technical Diver

EDUCATION

Bachelor of Science in Geological Science, Rutgers University

DIVING CERTIFICATIONS

- NASDS Certified Open Water Diver
- Professional Diving School of New York, Certified Commercial Diver
- Professional Diving School of New York, North Sea Certification Program
- Remotely Operated Vehicle Training Center, Certified ROW Pile/Technician
- Confined Space Entry – OSHA 29 CFR 1910.146(g)(4)
- OSHA 40-Hour Haz-Mat Certification
- ADCI (Association of Diving Contractors International) Surface-Supplied Air Diving Supervisor I.D. 230, Certification No. 15183

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection of In-Service Bridges – FHWA National Highway Certificate of Training (80 Hour Course; 2008)
- 2005 Bridge Inspection Workshop, New York State Department of Transportation (20 hrs)
- 2005 Annual Bridge Inspector's Training, New York State Department of Transportation (5.5 hrs)
- Bridge Safety Inspection NICET Level III Certification

KEY QUALIFICATIONS

Mr. Dombrowski has extensive underwater experience in all phases of commercial diving and is a seasoned inspector of dam structures, *marine facilities* and bridge substructures, having performed condition surveys on over 180 marine structures and more than 400 bridges spanning waterways. He is proficient in surface-supplied hard hat diving techniques, as well as mixed gas bell diving, logging over 5460 hours on underwater assignments. In addition to construction and oilfield experience, he is skilled in underwater videographic and photographic techniques, as well as in the use of various destructive and non-destructive testing methods for assessing the integrity of structural elements consisting of timber, steel, and concrete.

RELEVANT EXPERIENCE

PANY & NJ Waterfront Condition Surveys Technical Services on Call-In Basis (MED & QAD). Inspection Diver on more than 200 assignments involving underwater quality assurance inspections of various types of marine structures such as piers, wharves, bulkheads, and relieving platforms undergoing repair. Underwater condition assessments of various waterfront facilities were also conducted. Port Authority of NY & NJ. (March '97 – Present).

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. Inspection Diver on 9 contracts involving underwater inspections of over 700 water-spanning bridges. New York State Department of Transportation. (May '97 - Present).

James Fitzpatrick Nuclear Power Plant – Installation and Service of Fish Deterrent System. Inspection Diver. Entergy Nuclear Operations, Inc. (April '04 – August '05).

NYPA Niagara Power Station, Niagara River. Performed underwater inspection and detailed measurements of trash rack system with full video documentation utilizing surface supplied diving techniques. Also performed as a decompression technician. New York Power Authority. (2005)

Third Avenue Bridge over Harlem River. Inspection Diver conducting underwater inspection and construction quality assurance of the bridge reconstruction and cable installation. New York City Department of Transportation. (2006).

Madison Avenue Bridge over Harlem River. Inspection Diver conducting underwater inspection and construction quality assurance of the bridge reconstruction and cable installation. New York City Department of Transportation. (2005).

MTA Metro-North Bridge Inspections. Inspection Diver on project involving the underwater inspection of 26 railroad bridges. Metropolitan Transportation Authority. (January '98 - February '98).

NYSBA Underwater Bridge Pier Inspections. Performed underwater inspections on five (5) bridges spanning the Hudson River (36 SSU) – Newburgh-Beacon Bridges, Mid-Hudson Bridge, Kingston-Rhinecliff Bridge, and Rip Van Winkle Bridge. New York State Bridge Authority. (April '97 - May '97).

Passaic Valley Sewerage Authority Pipeline Construction. Quality assurance diving inspection during construction of sewage transfer pipeline, Newark Bay, New Jersey. Inspected contractor's workmanship to insure compliance with and adherence to project specifications, including installation of pipe sections, mating of flanges, grouting, excavations, backfill, and placement of rip-rap. (December '87- October '88).

Pile Inspection, Howland Hook Marine Terminal. Underwater inspection of pile integrity and condition at the Marine Terminal (November '87).

Salvage of White Star Ocean Lines, "Republic". Surface air diver, decompression technician, ROV pilot on the salvage project off Nantucket, Mass. in 250 feet of water. (June '87 - August '87).

Inspection of Damaged Communications Cable. Damage assessment to AT & T Trans-Atlantic cable off of Sandy Hook, New Jersey. (April '87).

Diving Support of Exploratory Drilling. Mixed gas, bell saturation diver, decompression technician on the exploratory driller vessel, "Neddrill II", Maccae, Brazil. Responsible for placement and maintenance of all underwater equipment in 275 feet of water. December '85 -July '86).

Field Test of U.S. Navy Tracking System. Surface supplied air diver, ROV pilot/technician, submersible support/technician on field tests of U.S. Navy submarine tracking system, Gulf of Mexico, Florida. (October '85 -November '85).

Geophysical Investigation of Drilling Operation. Surface supplied air diver involved in the placement and retrieval of pneumatic guns and acoustical array used to locate the position of drill string and stratigraphic horizons for Shell Oil Co., Gulf of Mexico, Texas. (August '85).

Shell Oil Pipeline Construction Inspection. ROV pilot/technician on the construction of high pressure gas pipeline, Long Beach, California. Conducted around the clock video inspection of construction activity as well as placement of survey markers on pile sections using remotely operated vehicles. (June '85 - July '85).

TOTAL YEARS OF EXPERIENCE

16 years

MARCO A. GIACCHI

Senior Inspector Diver / Assistant Fathometer Surveyor / CADD Manager

EDUCATION

Bergen Community College, Associate of Science
- Technical Engineering / Drafting and Design

CADD CERTIFICATIONS

Intergraph Solutions for MicroStation (Version J)
Land Development Desktop R2 AutoCadd (Civil 3D 2006)

DIVING CERTIFICATIONS

- NAUI – Advanced Open Water Diver
- BUE On-The-Job Training in Underwater Inspection of Bridges
- Confined Space Entry – OSHA 29 CFR 1910.146 (g) (4)
- OSHA - Construction Safety (10 hour)
- ADCI (Association of Diving Contractors International) Entry Level Tender/Diver I.D. 196; Certification No. 15185

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection of In-Service Bridges Course - FHWA National Highway Institute Certificate of Training - NHI No. 13055 (80 hour)
- Bridge Safety Inspection NICET Level III Certification

KEY QUALIFICATIONS

Mr. Giacchi is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of marine infrastructures. He has gained extensive experience performing commercial diving techniques Logging over 2570 hours underwater on inspections, condition surveys and fathometer surveys on a wide array of marine structures, including bridges spanning waterways and waterfront facilities, such as piers, wharves, bulkheads, and relieving platforms. He is also skilled in analyzing information associated with underwater bridge inspections, including PONTIS assessments of low–clearance structures requiring full inspections. He is proficient in preparing reports and drawings utilizing AutoCADD and Microstation, and in performing fathometer surveys based on hydrographic positioning techniques.

RELEVANT EXPERIENCE

*Projects on which **Marco Giacchi** has served as **Team Leader, Inspector Diver** and or **CADD Manager include:***

PANY&NJ Waterfront Condition Surveys Technical Services on a Call-In Basis (Med & QAD). Team Leader/ Inspector diver and Fathometer Surveyor on over 270 assignments including repair designs and/or recommendations for rehabilitation, of various types of marine structures including piers, wharves, relieving platforms, bulkheads, intake screens, sluice gates, and outfall pipelines. Also performed several pre-and-post dredging and rip-rap placement fathometer surveys to determine re-profiled bottom contours and quantities removed or installed, including the preparation of reports and drawings. Port Authority of NY & NJ.

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. Underwater inspections and fathometric surveys of over 600 bridges spanning waterways. Also prepared in excess of 60 CADD-generated contour maps of waterway bottoms. New York State Department of Transportation.

World Trade Center Emergency Response - September 11, 2001, Manhattan, NY; Performed an environmental investigation of the two (2) Port Authority Trans-Hudson (PATH) tunnels connecting Exchange Place Station in Jersey City, New Jersey to the World Trade Center (WTC) in New York City, New York. The project was designed to investigate the tunnels for various contaminants including PCBs released from the WTC electrical transformers, petroleum hydrocarbons from the building's ruptured underground storage tanks (USTs), pollutants that may have washed into the tunnels by both the fire fighting and dust suppression efforts at Ground Zero, and biological agents from mold and bacterial growth within the tunnels.

DelDOT Bridge Diving Inspections. Inspector diver on project involving condition surveys of bridges spanning waterways, including superstructures on low-clearance structures, in conformance with NBIS Standards and PONTIS Bridge Management System; physically inspected 75 bridges (172 SSU) and assisted in preparation of reports. Delaware Department of Transportation.

ConnDOT Underwater Bridge Inspection Program. Inspector Diver and CADD Manager on project involving routine (Level 1 & 2) inspections and PONTIS assessments of 393 bridges spanning waterways within the State of Connecticut. Also coordinated and prepared reports, including analyzing scour, undermining, erosion and settlement of the channel bottoms with superstructure and substructure element deficiencies. Also included PONTIS, BRI 18, 19 and 39 type in-depth inspections. ConnDOT.

Passaic Valley Sewerage Commission Sludge Loading Dock. Underwater inspection and fathometer survey of ship berthing facility. Passaic Valley Sewerage Commission.

Military Ocean Terminal Bayonne. Underwater structural inspection of Berth S1 including ultrasonic thickness measurements of steel caissons.

Third Avenue Bridge over Harlem River. Underwater inspection and construction quality assurance of the bridge reconstruction and cable installation. New York City Department of Transportation.

BICC Cables - Dock Facility North and West of Building No. 8 Hudson River Stage, Point Street Facility, Yonkers, New York Inspector Diver for the Rehabilitation and Design Concept of the entire dock facility connecting Building No. 19 with the Hudson River Stage Building (EPRI Lab). Applied for permit allocation for rehabilitation of the dock facility. Work was performed in 2001.

LGA UT Program. Inspector Diver conducting underwater condition survey of steel pipe piles supporting runways at LaGuardia Airport utilizing ultrasounding equipment with an oscilloscope in measuring wall thickness. Port Authority of NY & NJ.

NYPA On-Call Engineering & Diving Services All Facilities. Inspector Diver performing the first diving inspection of the trash rack guides, stop log guides, heat gate guides and draft tube at the Robert Moses Power Plant on the Niagara River.

Holland Tunnel Air Ventilation Buildings on the Hudson River. High pressure water blasting used for removing marine growth prior to conducting condition survey. Underwater inspection using photographic and videotape documentation. Port Authority of NY & NJ.

Lincoln Tunnel Air Ventilation Buildings on the Hudson River. Conducting condition survey with an Underwater inspection of the rehabilitation. Port Authority of NY & NJ.

TOTAL YEARS OF EXPERIENCE **10 years**

TRACY McMAHON
Inspector Diver / Fathometer Surveyor

DIVING CERTIFICATIONS

NAUI - Advanced Open Water Diver
BUE On-The-Job Training in Underwater Inspection of Bridges
Commercial Diving Certificate - DAES

EDUCATION

Jackson Memorial High School
Divers Academy of Eastern Seaboard (DAES)

KEY QUALIFICATIONS

Mr. McMahon is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of marine infrastructures. He has gained extensive experience performing underwater condition surveys on a wide array structures, including bridges spanning waterways and waterfront facilities, such as piers, wharfs, bulkheads, and relieving platforms. He is also proficient in performing fathometric surveys based on hydrographic positioning techniques utilizing range-azimuth and GPS systems. To date, he has logged over 3200 hours underwater on inspection assignments.

RELATIVE EXPERIENCE

PANY & NJ Waterfront Condition Surveys Technical Services on a Call-In-Basis (MED & QAD). Inspector diver and fathometric surveyor on various assignments involving underwater quality assurance inspections on waterfront facilities undergoing repairs, and condition survey assessments, including repair designs and/or recommendations for rehabilitation, of various types of marine structures including piers, wharfs, relieving platforms and bulkheads, intake screens, and sluice gates. Port Authority of NY & NJ. (May '03 - Present).

New York State Thruway Authority 2006-2007 Biennial Bridge Inspection. Assistant fathometer surveyor on fathometer surveys of two Region 11 bridges. Wilbur Smith Associates/NYSTA. (May - June '07).

NYSDOT Regions 3, 4, 5, & 6 Bridge Diving Inspection and Fathometer Surveying Project (NYSDOT Contract No. D015361). Assistant fathometer surveyor on 19 fathometer surveys in Regions 3, 4, 5, & 6. New York State Department of Transportation. (October '04).

NYSDOT Regions 10 and 11 Bridge Diving Inspections & Fathometer Surveys. (NYSDOT Contract No. D015236). Assistant fathometer surveyor and inspection diver on over 80 fathometer surveys. New York State Department of Transportation. (July '03 - October '03; October '04).

NYSDOT Regions 3, 4, 5, and 6 Bridge Diving Inspection and Fathometer Surveying Project (NYSDOT Contract No. D015139). Assistant fathometer surveyor on over 29 fathometer surveys. New York State Department of Transportation. (August' 03).

J.F. Creamer. Performed construction and rehabilitation of various land and waterway bridges, pile driving, sheeting, pile caps, bulkheads, and design and building of forms for reinforced concrete. (May '02 - April '03, Tom Taylor (201) 247-7572).

Simpson & Brown. Performed pier rehabilitation in Port Elizabeth and Brooklyn Piers. Created material list and the design and building of forms and fiber jackets for reinforcing concrete. (October 01 - March' 02, John Nastasi (732) 245-2431).

Dive Masters. Cablecrossing inspection off Cape May. (April' 01).

Atlantic Subsea. Pump inspection and dredging at Salem Nuclear Power Plant. (March '01, Tim Tonneson (732) 996-8913).

In Depth Marine Construction. Performed rehabilitation of bridges, piers, piles, pile caps, decks, and bulkheads. Created material list and schedule for tasks to be performed. Dredging was performed to reveal areas in need of reconstruction. Concrete block mat was used as shoring around pier and abutment footings to repair scouring. Design and building of forms and fiber jackets for reinforced concrete to restore structural support to various piers and bridges. Projects include repairs to Cape May Coast Guard Station, Newark Bay Extension, Schukyll River bridges, Bass River bridge pile removal, and various waterfront projects in Philadelphia, Hamden, CT, Atlantic City, and Trenton. (March '99 - April '01, Bob Daullary).

Under Water Logistics. Traveling water screen and trash rack inspection and cleaning, and pump inspections at GPU power plant in Trenton. (December '98).

Crest Engineering. Land surveyor on various heavy construction projects including land and waterway bridges. Performed coordination of tasks to be completed, project layout, condition surveys, and reports. (May '96 - October '98, Kevin John Schnorrbusch (908) 415-3442).

<u>TOTAL YEARS OF EXPERIENCE</u>

11 years

HOI LEUNG
Engineer Diver

EDUCATION:

Bachelor of Science (Honors Science & Business), University of Waterloo, Canada

DIVING CERTIFICATIONS:

Commercial Deep-Sea Diving Certificate - Divers Academy of the Eastern Seaboard
BUE On-The-Job-Training in Underwater Bridge Inspection
PADI Open Water Scuba Diving Instructor
Confined Space Entry – OSHA 29 CFR 1910.146 (g) (4)

KEY QUALIFICATIONS:

Mr. Leung is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of marine infrastructures. He is proficient in both underwater videographic and photographic documentation techniques. In addition, he is skilled in blackwater tactile surveys and has accrued considerable experience in the use of ultrasonic non-destructive testing equipment in evaluating the integrity of structural elements. He is also skilled in underwater construction techniques, including welding and cutting. To date, Mr. Leung has physically performed underwater inspections on more than 184 bridges spanning waterways and on more than 20 waterfront facilities. In addition, he has been involved in performing fathometer surveys of more than 100 water-spanning bridges using electronic range-azimuth, differential GPS, and EDM equipment. He is also proficient in the use of AutoCAD (Version 14) and Microstation '95 computer software for preparing condition survey drawings, design of marine structures, and contour maps of waterway bottoms.

RELEVANT EXPERIENCE:

Mr. Leung has functioned in the capacity of ***engineer diver, lead diver, assistant fathometer surveyor, and fathometer surveyor*** *on the following projects:*

NYSDOT Regions 1 through 11 Bridge Diving Inspections and Fathometer Surveys. Inspection diver and assistant fathometer surveyor on two concurrent contracts involving underwater inspections of 330 water-spanning bridges. Performed underwater inspections and operated electronic range-azimuth system during fathometer surveys; prepared contour drawings of waterway bottoms to assess developing scour in vicinity of bridge footings, including comparisons with previous surveys. Also participated in hydraulic scour study involving BIN folder research to assess pile tip elevations in relation to changing waterway bottom profiles over time. New York State Department of Transportation. Apr '98 – Dec '98,' Apr '99 – Nov '99; Aug '03 - Present.

PANY & NJ Waterfront Condition Surveys Technical Services on Call-In Basis. Inspection diver and fathometer surveyor on more than 20 assignments involving underwater quality assurance inspections, condition surveys, and pre-and-post construction fathometer surveys, of various types of marine structures such as piers, wharves, bulkheads, and relieving platforms undergoing repair. Nov '97 – Mar '98; Jan '99 – Mar '99.

NYSDOT Regions 3, 4, 5, 6, 10 & 11 Bridge Diving Inspections. Inspection diver and assistant fathometer surveyor on two concurrent contracts involving underwater inspections and fathometer surveys of 288 water-spanning bridges. Performed underwater inspections and operated electronic range-azimuth system during fathometer surveys; prepared contour drawings, including comparison with previous surveys. New York State Department of Transportation. May '97 – Nov '97.

Inspection of the Mobile Arctic Caisson "Molikpaq for Beaudril in the Beaufort Sea. Visual and video survey as well as thickness readings of the outer hull and interior ballast tanks. May '97.

Inspection of Pump Hose equipment and impellers for Suncor in Alberta. Visual inspection and documentation of condition of intake pumps. Replacement of stainless steel screens of pump structure and construction quality assurance. May '97.

Construction and Inspection of pipeline in Kootenay Lake for the town of Kaslo in British Columbia. Construction of and subsequent video inspection of pipeline that went to a depth of 120'. Also performed bathymetric survey of pipe profile. April '97.

Construction and Inspection of pipeline for PCL Construction in the North Sakatchewan River in Alberta. Installation of 54" concrete and steel pipe and subsequent video inspection of exterior surface of the pipe including a 300' penetration and survey of the pipeline interior. Also performed pre-and-post excavation bathymetric surveys to assess re-profiled pipe cover and backfill quantities. Feb '97 - March '97.

Video inspection and fathometer survey of the Brazeau Dam for TransAlta in Alberta. Feb '97.

Video inspection and fathometer survey of the Shell Waterfront dam in Alberta. Jan '97.

Repairs and video inspection of effluent pipeline for Weldwood in Alberta. Oct '96- Dec '96.

Bridge Inspections for Arkansas Highway Dept. Visual inspection with photographic documentation of sixteen bridges, both steel and concrete. Also performed fathometric surveys to assess scour trends. Aug '96-Sept '96

Rockland County, Lake DeFores/Ridge Road, NY. Diving inspection and construction quality assurance of scour protection project. Aug '96.

Underwater survey at Ashokan Reservoir, NY. Diving inspection and construction quality assurance for scour protection project. Aug '96.

Underwater inspection, conditions assessment and repair designs of Navy Facilities. Naval Trident Submarine Base at King's Bay, Georgia under the direction of the U.S. Naval Facilities Engineering Command. July '96.

In-lieu of dry-dock inspection for Atlantic class container vessels. Video inspection of hull, running gear and sea chests of five vessels for Sealand in various locations including Port of Baltimore and Boston Harbor. May '96-July '96.

Inspection of 20" Force Main under the Passaic River. Damage assessment to 20.0" low-pressure cast iron pipeline crossing the Passaic River. Gerald Gardner Associates/Fairlawn Industries. June '95.

United States Coast Guard Station. Underwater inspection, condition assessment, fathometric survey, and repair designs of steel bulkhead and pier facilities located at the Hoboken USCG Station. March '95 - May '95.

TOTAL YEARS OF EXPERIENCE:

12 years

GARY WATSON

Inspector Diver / Equipment Specialist / Diver Tender / Boat Operator

EDUCATION:

Bergen Tech – Stick Welding
Hi-Tech Training – Heavy Equipment Operator
William Paterson College – 2 yrs.

DIVING CERTIFICATION:

- NAUI – Assistant Instructor/ First Aid CPR Certified
- BUE On-The-Job Training in Underwater Inspection of Bridges
- BUE On-The-Job Training in Hard Hat Diving
- Confined Space Entry – OSHA 29 CFR 1910.146(g)(4)
- OSHA – Construction Safety (10 Hour)
- IANTD – Nitrox Diver
- Bridge Safety Inspection NICET Level III Certification

KEY QUALIFICATIONS:

Mr. Watson is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of marine infrastructures. He has gained extensive experience performing underwater condition surveys and fathometer surveys on a wide array of marine structures, including bridges spanning waterways and waterfront facilities, such as piers, wharves, bulkheads, and relieving platforms. He is also skilled in analyzing information associated with underwater bridge inspections, including PONTIS assessments of low–clearance structures requiring full inspections.

RELEVANT EXPERIENCE:

*Projects on which Mr. Watson has served as a **Boat Operator, Inspector Diver and Dive Tender:***

PANY&NJ Waterfront Condition Surveys Technical Services on a Call-In Basis (MED & QAD). Inspector diver and fathometer surveyor on over 11 assignments involving underwater quality assurance inspections on waterfront facilities undergoing repairs, and condition survey assessments, including repair designs and/or recommendations for rehabilitation, of various types of marine structures including piers, wharves, relieving platforms, bulkheads, intake screens, and sluice gates. Also performed numerous pre-and-post dredging and rip-rap placement fathometer surveys to determine re-profiled bottom contours and quantities removed or installed, including the preparation of reports and drawings. Boat operator for drainage canal bridge inspection surrounding Newark Liberty International airport. Port Authority of NY & NJ.

ConnDOT Underwater Bridge Inspection Program. Performed routine (Level 1) inspections and PONTIS assessments of 37 bridges spanning waterways within the State of Connecticut. Reports included analyzing scour, undermining, erosion and settlement of the channel bottoms with superstructure and substructure element deficiencies. ConnDOT.

Yonkers Waste Water Treatment Facility. Performed the underwater portion of a survey and engineering investigation to determine the thickness and general condition of the steel sheet piling, evaluation for the need of a cathodic protection system and impact damage due to navigational mishap, on the cellular bulkhead which constitutes the Hudson River boundary of the Yonkers Joint Treatment Plant. DVIRKA and BARTILUCCI/ CORR PRO.

Oswego, New York Dive Tender and boat operator for biannual servicing Sound Projectors for a Fish Deterrent System in Lake Ontario.

NYSDOT Bridge Diving Inspections & Fathometer Surveys, Regions 10 & 11. Inspector diver and fathometer surveyor, performing underwater inspections on more than 48 bridges. Prepared fathometer survey assessments of more than 28 bridges spanning waterways. Developed comparisons of waterway bottom contours between current and previous surveys; analyzed scour trends in relation to bridge footings and their potential effects on the stability of bridge substructures. New York State Department of Transportation.

TOTAL YEARS OF EXPERIENCE:

9 years

CASELY N. DORYUMU, P.E., SECB
CHIEF STRUCTURAL ENGINEER

YEARS OF EXPERIENCE: 28 Years

EDUCATION:

BSCE, University of Science & Technology
(University of London)

REGISTRATION:

Professional Engineer - New Jersey, New York, Pennsylvania, Florida
Structural Engineering Certification Board

EXPERIENCE:

Mr. Doryumu has over 28 years of experience in the management, design, and design supervision of structural engineering projects of varying sizes. As a Project Manager his responsibilities include technical direction, maintenance of schedules, implementing policy decisions with respect to budgets and quality assurance control. His structural experience encompasses varying types of projects which include highway bridges, dams, interchange structures, marine structures, and buildings of varying sizes. He has participated in in-depth inspection, preparation of inspection reports, preparation of conceptual and preliminary studies, and preparation of preliminary and final design documents for numerous highway structures, including grade separations, waterway crossings and railroad bridges.

As a Project Manager, Mr. Doryumu has coordinated work of staff with various agencies and organizations, some of which are the New York State DOT, New York State Thruway Authority, New Jersey DOT, Pennsylvania DOT, Pennsylvania Turnpike Commission, New Jersey Highway Authority, New Jersey Turnpike Authority, Connecticut DOT, and various other organizations.

As a structural engineer. He has extensive experience in the design, analysis, inspection and report preparation of bridge and highway structures, dams, marine structures and buildings of varying sizes. He has participated in all phases of projects from initial concept through contract analysis.

Mr. Doryumu's project experience includes:

- Project Manager for the rehabilitation and restoration of River Road over Pohatcong Creek Bridge in Warren County, NJ. The Project involved the arch strengthening of an existing truss bridge (historical structure) in order to increase the load carrying capacity of the bridge.
- NJHA: Project Manager for the design of the Interchange 77 Improvements. The project involved the design of the Toll Plaza, Walkway Tunnel, Office Building and 1,625 feet Proprietary Retaining Wall.
- County of Bergen: Structural Project Manager for the design of the River Road Improvements in Edgewater, New Jersey. Project involved the design of a 1,300 feet retaining wall to accommodate the roadway widening. Several retaining wall schemes had to be evaluated in order to select the most feasible design scheme.
- County of Bergen: Project Engineer for the replacement design of East Glen Avenue Bridge. The project included the design of 450 feet of retaining wall.
- Project Manager responsible for the retrofitting design of the Hudson Waterfront Structure in Yonkers, New York. The project also involved the design of a truck access bridge connecting two building partially projecting over the Hudson River.

- Rehabilitation and retrofitting of the Pier Support Structure and Foundation (piling) at the Maritime College, Fort Schuyler, Bronx, New York.
- Project Manager for the improvements of Interchange 60 on the Wilbur Cross Parkway in Hamden, Connecticut. The project involved the superstructure replacement and widening of Route 15 over Route 10 (single span steel plate girder) and Route 15 over Connolly Parkway and abandoned railroad (5 span steel plate girder bridge).
- Project Manager for the rehabilitation of three (3) bridges on Hamburg Turnpike in Passaic County, NJ. The project involved the replacement of the bridge superstructures and general rehabilitation of the substructures.
- Project Manager for the analysis and design of three sign structures on the Garden State Parkway in New Jersey.
- Project Manager for deck replacement and rehabilitation of 10 limited access bridges on Merit Parkway, I-95 and I-84 for the Connecticut Department of Transportation.
- Project Manager for the replacement design of the Prospect Avenue Culvert over Peckmen Creek, West Orange, NJ.
- Project Manager for the design of the 54th Street Culvert (700 ft. long) in Elmwood Park, NJ.
- Project Manager for the design of superstructure replacement and substructure rehabilitation of Pierson Road Bridge over West Branch of the Rahway River in Maplewood, NJ.
- Project Manager for the inspection and report preparation of 81 bridges for the New Jersey Highway Authority.
- Project Manager for the inspection and report preparation of 22 off-system bridges in Sussex County, NJ.
- Project Manager for the inspection and report preparation of four bridges in Albany County, New York.
- Inspection of building and report preparation for the Garfield Boys Club. This involved the field inspection and recommendation for repair of deteriorated roof members including the preparation of construction cost estimate.
- $110 million Cable beach hotel in the Bahamas. Project Engineer responsible for the checking of design computations and drawings prepared by other consultants, checking of shop drawings relating to the construction of the project and site visitation for resolution of on-site structurally related problems.
- Project Engineer for the design review and shop drawing review of Coral World bridge and Underwater Observatory Structure in Nassau, Bahamas.
- Senior Engineer for the design of the bridge at Fort Charlotte in the Bahamas.
- Senior Engineer responsible for the design of docks in Clarence Town, Long Island, Cat Island, and Cockburn Town.
- Project Engineer for the review of design calculations and shop drawings for the $100 million Crystal Palace Hotel in the Bahamas.
- Design Engineer for the design of an Industrial Complex in Abidjan, Ivory Coast. This project was undertaken as a joint venture between the US and French Teams under a World Bank grant.

PUBLICATIONS:

"Influence of Rigid Transverse Beams On Grillage Bridges"

AFFILIATIONS:
American Concrete Institute
American Society of Civil Engineers
National Society of Professional Engineers

JOHN R. VALENTIN, P.E.
PROJECT MANAGER - STRUCTURES

YEARS OF EXPERIENCE: 21 Years

EDUCATION:

BSCE, University of Pittsburgh

REGISTRATION:

Professional Engineer - New Jersey, New York

EXPERIENCE:

Mr. Valentin has over 21 years of structural experience related to the inspection, design and construction of bridges and buildings. He has served as a Project Manager and a Project Engineer on structural projects for numerous governmental agencies. These agencies include the New Jersey Turnpike Authority (NJTA), New Jersey Department of Transportation (NJDOT), New York City Transit (NYC Transit), New York City Department of Transportation (NYCDOT), the Triborough Bridge and Tunnel Authority (TBTA), Metro-North Railroad (Metro-North), New York State Department of Transportation (NYSDOT), New York State Thruway Authority (NYSTA), and the Port Authority of NY & NJ (PANY&NJ).

Representative project experience includes:

- Project/structural engineer on the following design and inspection contracts:
- Dulles International Airport Main Terminal Expansion and Ramp Widening.
- PANY&NJ Rehabilitation of Highway Bridges at JFK International Airport.
- NYCDOT Rehabilitation of Williamsburg Bridge.
- Design of I-10 Casa Grande Highway in Phoenix, Arizona.
- TBTA Throgs Neck Bridge Steel Stringer Repair Contract.

- **Metro-North - Movable Bridges:** Inspector for rehabilitation of the Cos Cob and Devon double-leaf bascule span moveable bridges and the Walk swing span movable bridge along the New Haven line. Responsibilities included inspection of structures, preparation of contract plans, and performance of rating analysis of the structural steel trusses using AREA Design Criteria for Railroad Engineering.
- **Staten Island Rapid Transit Operating Authority - Design of Structural Rehabilitation II, Staten Island, NY:** Senior Structural Engineer for the visual inspection of the St. George Tunnel and analysis to determine its structural integrity, inspection of right-of-way retaining walls, and preparation of repair contract documents.
- **NYCDOT - Park Avenue Viaduct:** Inspector for rehabilitation of this structure. Responsibilities included inspection, preparation of contract plans based on the inspection report, development of maintenance and protection of traffic scheme for rehabilitation, and performance of rating analysis.
- **NJDOT - Manhattan Avenue Viaduct:** Structural Engineer for the inspection and rehabilitation design of this structure, including limited in-depth inspection to determine existing condition; preparation of report; rating analysis of the structural steel girders; design of new reinforced concrete deck; design of existing bearing rehabilitation, including computation of jacking forces; design of new alignment to improve substandard highway criteria; and computation of quantities and estimate.
- **NYSTA - Rehabilitation of Two Structures:** Project Manager for the rehabilitation of the Rynex Corners Road over the Thruway structure, and the Thruway over the Otsquago Creek structure. The scope of services includes an in-depth inspection, site survey and mapping, level 1 load ratings, BRPR, final plans, specifications, and cost estimates.
- **NYSDOT - Bridge Component Rehabilitation, Queens, Brooklyn and Staten Island:** Project Engineer for inspection, design, and construction inspection for the rehabilitation of critical portions of 22 structures under the Component Rehabilitation Program. This effort included the evaluation, design and construction inspection of seven different concrete bridges over streams together with the inspection of structures, making recommendations for the rehabilitation of those portions of the structure, which will significantly extend the useful life of the structure, the preparation of drawings

for the implementation of these recommendations, and the construction inspection of the rehabilitation.

- **NJDOT - Arnot Street Bridge over Saddle River, Lodi, NJ:** Project Engineer (Structural) for the final design of the replacement structure. The project included extensive coordination with local agencies and the USACE, utility relocation, environmental and stream encroachment impacts and the design of a new single-span, prestressed box beam superstructure supported on new abutments reconfigured to minimize disruption to stream flow. This design is in accordance with USACE requirements for flood control improvements along the Saddle River.
- **NYSDOT - Long Island Expressway (LIE), HOV and Capacity Improvement Project, Cross Island Parkway to the NYC Line, Exits 30-32, Queens County, NY**: Structural engineering task leader for improvements to the expressway mainline and service roads on this 2.9 kilometer long project. Major design elements of this project include the widening and provision of an HOV lane on the EB side of the LIE, including realignment and access modification of the southern portion of the LIE/Cross Island Parkway Interchange (CIP), and widening of both sides of the LIE from Marathon Parkway to the Queens/Nassau County Line. Directly responsible for the replacement design of the new Marathon Parkway bridge over the LIE and widening of the existing LIE Bridge over the Little Neck Parkway and construction staging.
- **MTA Bridges and Tunnels – Value Engineering:** Team Member to study the expansion of the service building facilities at the Whitestone Bridge, Brooklyn Battery Tunnel, and the Queens Midtown Tunnel. Tasks included review of preliminary plans, specifications and cost estimates to develop value engineering proposals for discussion with design consultants and client. Ratings of acceptability and potential cost savings were also included.
- **TBTA - Repairs to Bridge Substructures, New York:** Inspector for repairs to substructures of the following bridges: Throgs Neck; Bronx-Whitestone; Henry Hudson; Triborough; Verrazano-Narrows; Marine Parkway; and, Cross Bay Boulevard. Tasks included inspection and preparation of contract documents, plans, specifications and estimate.
- **NYCDOT - Queens Boulevard Bridge, Long Island City, NY:** Inspector for interim rehabilitation of this 19-span structure. Responsibilities included limited in-depth inspection of the bridge's critical areas, rating analysis, and preparation of rehabilitation contract documents.
- **NYCDOT - Coney Island Viaduct, Brooklyn, NY:** Inspector for contractor performing rehabilitation work on this structure. Tasks included analyzing the structure for construction equipment capacity (load rating evaluation) and development of temporary shoring details.
- **PANY&NJ - Goethals Bridge and Outerbridge Crossing, New York:** Team Leader for the structural integrity inspection of both bridges. Responsible for the inspection of these cantilevered suspension truss bridges, documentation of findings, preparation of reports, and evaluation of their structural integrity.
- **NJ Transit – Inspection of Bergen Tunnels, Jersey City, NJ:** Project Engineer for the in-depth inspection and infra-red scanning of the Twin Tunnels which carry four tracks of the Morris-Essex commuter railroad. Work includes inspection, report, and remedial recommendations.
- **NYSDOT - Brooklyn Bridge, Brooklyn, New York:** Inspector for the biennial inspection of this structure including preparation of bridge inspection and condition reports.
- **PANY&NJ - New Jersey Marine Terminal Bridges, Port Newark and Port Elizabeth, NJ:** Quality Control Engineer for the inspection and preparation of condition survey reports of seven (7) bridges for the Quality Assurance Division.

AFFILIATIONS:

American Society of Civil Engineers

FRANK M. KRUPINSKI, P.L.S.
CHIEF OF SURVEY

YEARS OF EXPERIENCE: 24 Years

EDUCATION:

New Jersey Institute of Technology

REGISTRATION:

Professional Land Surveyor - New Jersey

EXPERIENCE:

Mr. Krupinski has provided surveying services for both the public and private sector and has been involved in every aspect of the firm's survey projects. He has performed and/or directed control, topographic, hydrographic, structural, cadastral, route, construction and railway surveys for federal, state, county and municipal agencies, as well as transportation authorities, utilizing state-of-the-art global positioning system equipment, total stations and data collectors. Mr. Krupinski is highly experienced in the discipline of boundary surveying, which includes record research, deed analysis and the establishment of property and right of way lines, as well as the preparation of complete right of way documents for various state departments of transportation. He has performed and/or directed numerous boundary surveys ranging from 5,000 square feet to 181 acres. He is also proficient in the use of CADD engineering/surveying software and is directly responsible for the processing of field data and the preparation of mapping.

His project experience includes:

- ***Newark Liberty International Airport – Utility Management System, Newark, NJ.*** Responsible for downloading, processing and drafting underground utility locations (both as-built and mark-out), as well as other pre-construction and post construction topographic surveys.

- ***New Jersey Department of Transportation (NJDOT) – Widening of Sussex Turnpike, Randolph, NJ.*** On this 4-mile widening project, responsibilities included planned and executed the master control survey, which was performed utilizing GPS. The GPS system was also used for establishing horizontal and vertical control for the aerial mapping. Responsible for the downloading and processing of all data. Also, responsible for deed search and filed map acquisition, and the establishment of the existing right-of-way lines, preparation of proposed right-of-way documents, specifically general property parcel maps, entire tract maps, individual parcel maps and legal descriptions.

- ***New Jersey Department of Transportation (NJDOT) - Route 80, Section 20 Roadway Widening (Metric), Hackensack, South Hackensack and Teterboro, NJ.*** Responsibilities included planned and executed the master control survey, which was performed utilizing G.P.S. The G.P.S. system was also used for establishing horizontal and vertical control for the aerial mapping. Responsible for the downloading and processing of all data.

- ***NJDOT - Route 9W, Section 1J Roadway Widening (Metric), Englewood Cliffs, NJ.*** This 1.2-mile roadway widening project included deed search and field map acquisition. Responsibilities for field locating the existing centerline monumentation and the subsequent analysis of the same; establishing existing right-of-way; the preparation of proposed right-of-way documents, specifically general property parcel maps, entire tract maps, individual parcel maps and descriptions; and the preparation of jurisdictional limit maps. Field survey requirements were to edit and update existing aerial mapping; determine heights of primary and secondary electric wires; and staking proposed soil borings.

- ***NJDOT - Billingsport Road over Conrail Deepwater Line (Metric), Greenwich and Paulsboro, NJ.*** This grade crossing elimination project included the field location of the existing property corners, establishing the existing right-of-way utilizing field locations and current deeds of record. Responsibilities also included the preparation of proposed right-of-way documents, specifically general property parcel maps, entire tract maps, individual parcel maps and descriptions.

- ***NJDOT - Route 4, Section 2AB - Farview Avenue over Rte. 4, Paramus, NJ.*** Responsible for deed search and filed map acquisition, and the establishment of the existing right-of-way lines, preparation of proposed right-of-way documents, specifically general property parcel maps, Entire tract maps, cut-outs and agreements.

- ***NJDOT - Route 4, Section 2Y - Rte. 4 over Kinderkamack Road & Hackensack Avenue over Rte. 4, Hackensack and River Edge, NJ.*** Responsible for deed search and filed map acquisition, establishing establishment of the existing right-of-way lines, preparation of proposed right-of-way documents, specifically general property parcel maps, entire tract maps, Riparian Grant Application, cut-outs and agreements.

- ***NJDOT - Route 4 & Route 17 Interchange Improvement (Metric), Paramus, NJ.*** Responsibilities included the horizontal control survey utilizing G.P.S, established existing right-of-way and the existing construction baselines, based on deeds, filed maps, field locations and DOT. field notes and mapping, prepared the alignment preservation map and the advanced right-of-way plans, consisting of general property parcel maps, entire tract maps, cut-outs and descriptions. Also, supervised the field crew in the aerial mapping edit and update, as well as the final base mapping.

- ***Long Island Railroad - Penn Station (Platform 11 Extension, 5X Crossover and JO Interlocking), NY.*** As Chief of Survey responsibilities included detailed surveys of the platforms and tracks, as well as locating critical structural points and utilities. All work was performed during off-peak hours.

- ***NYSDOT - Route 35 / Route 100 Intersection Improvement, Westchester County, NY.*** This 15,000 L.F. widening project included establishing existing and proposed highway boundaries; the preparation of abstract request maps, right-of-way plans, appropriation maps and descriptions; and calculating taking areas for all parcels.

- ***NYSDOT - Route 35 / I-684 Interchange Improvement, Westchester County, NY.*** Responsibilities included establishing existing and proposed highway boundaries, preparing right-of-way plans, appropriation maps and descriptions; and calculating taking areas for all parcels, as well as calculating stations and offsets to all property corners.

- ***Molly Ann's Brook Flood Control Project, Passaic County, NJ.*** As chief of survey for the rehabilitation and/or replacement of six bridges, responsibilities included locating property corners and performed topographic surveys utilizing existing aerial control and established existing right-of-way, as well as base mapping for each bridge, preparation of complete right-of-way documents, consisting of general property parcel maps, entire tract maps, cut-outs and agreements.

- ***NJDOT - Stage II Scour Evaluation, Hunterdon, Mercer and Warren Counties, NJ.*** Responsibilities included obtaining stream cross sections and preparing mapping for twenty-nine (29) roadway bridges. Total project length was approximately 12,500 L.F.

SECTION X

APPENDICES

SECTION A-1

BUE Schedule of Lateral Penetration Dive Rates

BOSWELL ENGINEERING

ENGINEERS ■ SURVEYORS ■ PLANNERS ■ SCIENTISTS

330 Phillips Avenue • P.O. Box 3152 • South Hackensack, N.J. 07606-1722 • (201) 641-0770 • Fax (201) 641-1831

October 3, 2008

The Port Authority of NY & NJ
One Madison Avenue, 7th Floor
New York, New York 10010

Re: Performance of Expert Professional Facility Condition Surveys For Waterfront Facilities As Requested On A "Call-In" Basis During 2009
RFP Number 16560
Penetration Dives
Our File No. PR-08-2041

Dear :

In anticipation of the possibility of making potentially dangerous penetration dives in confined spaces under our 2009 contract agreement, a Penetration Dive Premium will be applied to all work requiring such an undertaking.

This penetration premium will be billed as follows:

0 – 40 feet of penetration:
    No premium
41 – 300 feet of penetration
    $2.00 per foot per diver per day
301 – 500 feet of penetration
    $3.50 per foot per diver per day
501 – 1000 feet of penetration
    $4.50 per foot per diver per day
Greater than 100 feet of penetration
    Negotiable
*Note: Only maximum penetration of each diver is billed no matter how many penetration dives that diver makes during the day.

Examples of how these premiums would be applied are as follows:

<u>Example No. 1</u>: A diver must make a 130 foot horizontal penetration into a fully flooded 48-in. I.D. intake pipeline structure. A second diver will tend his umbilical hose at the entrance to the structure for safety reasons and to prevent his hose from fouling. The penetration diver makes a total of four (4) dives during the day, penetrating to

60-ft., 95-ft., 130-ft., and 100-ft. A Penetration Dive Premium amounting to $180.00 (i.e., $2.00/ft. x (130 ft.-40 ft.) would be filled in addition to the dive team's labor costs.

Example No. 2: A diver must make a 750-foot penetration into a 72-in. fully flooded pipeline which drops 40 feet vertically before turning 90 degrees and running horizontally for a distance of 310 feet where it again turns 90 degrees horizontally. One tending diver will be stationed at each bend. Diver #1 will be at the 40-ft. mark, Diver #2 will be at the 350-ft. mark, and Diver #3 will penetrate as far as 750-ft. A total of two (2) dives will be executed during the day. Between each dive, all divers will be out of the water. On the second dive, Diver # 4 replaces Diver #3 and penetrates a distance of 670-ft Diver # 1 and Diver #2 are stationed as before. The billing would be as follows:

Diver #1		
0 – 40 ft.	= $0.00/ft. x 40 ft.	=$ 0.00
Diver #2		
0 – 40 ft.	= $0.00/ft x 40 ft.	=$ 0.00
41 – 300 ft.	= $2.00/ft. x (300 ft. - 40 ft.)	=$ 530.00
301 – 350 ft.	= $3.50/ft. x (350 ft. – 300 ft.)	=$ 175.00
		$ 695.00
Diver #3		
0 – 40 ft.	= $0.00/ft. x 40 ft.	=$ 0.00
41 – 300 ft.	= $2.00/ft. x (300 ft. – 40 ft.)	=$ 520.00
301 – 500 ft.	= $3.50/ft. x (500 ft. – 300 ft.)	=$ 700.00
501 – 750 ft.	= $4.50/ft. x (750 ft. – 500 ft.)	=$1125.00
		$2345.00
Diver #4		
0 – 40 ft.	= $0.00/ft. x 40 ft.	=$ 0.00
41 – 300 ft.	= $2.00/ft. x (300 ft. – 40 ft.)	=$ 520.00
301 – 500 ft.	= $3.50/ft. x (500 ft. – 300 ft.)	=$ 700.00
501 – 750 ft.	= $4.50/ft. x (650 ft. – 50 ft.)	=$ 765.00
		$1985.00
	Total Penetration Dive Premium	**=$5025.00**

Should you have any questions regarding this, please do not hesitate to contact me.

Very truly yours,

BOSWELL UNDERWATER ENGINEERING

Michael J. Ganas, P.E.
Director & General Manager

MJG/kc

SECTION A-2

Agreement on Terms of Discussion

ATTACHMENT B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

Boswell Engineering, Inc.
NAME OF COMPANY

Steph T. Boswell
SIGNATURE OF OFFICER

Stephen T. Boswell
PRINT NAME OF OFFICER

President / CEO
TITLE

October 1, 2008
DATE

SECTION A-2

PANY & NJ RFP & Contract Agreement

P.A. AGREEMENT # *-09-*****
DATE

FIRM
STREET
CITY, STATE ZIP

Attention: ***

SUBJECT: REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL * SERVICES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009**

Dear ***:

1. The Port Authority of New York and New Jersey (hereinafter referred to as the "Authority") hereby offers to retain *** (hereinafter referred to as "the Consultant" or "you") to provide expert professional services as more fully set forth in Attachment A, which is attached hereto and made a part hereof, on a "call-in" basis during *2009*.

At the Authority's discretion, the Consultant may be required to enter into a new agreement for each of the following two years (2010, 2011). Said agreement(s) shall be identical to this agreement unless otherwise mutually agreed upon by the parties. Subsequent agreements shall be sent to the Consultant as noted above at least 30 days prior to the end of the current term.

The Authority does not guarantee the ordering of any services under this Agreement and specifically reserves the right, in its sole discretion, to use any person or firm to perform the type of services required hereunder.

This agreement shall be signed by you, and the Director of Procurement. As used herein "Chief Engineer" shall mean the Chief Engineer, or the Deputy Chief Engineer of the Authority, acting either personally or through their duly authorized representatives acting within the scope of the particular authority vested in them unless specifically stated to mean acting personally.

For the purpose of administering this Agreement, the Chief Engineer has designated **** Manager, to act as his duly authorized representative. The Project Manager for this project is ***, tel. (201) ***-****, or e-mail address <u>****@panynj.gov</u> .

2. Your services shall be performed as expeditiously as possible and at the time or times required by the Chief Engineer. Time is of the essence in the performance of all your services under this Agreement.

3. In response to a request for specific services hereunder and prior to the performance of any such services, you shall submit in writing to the Chief Engineer for approval an estimated cost and staffing analysis of such services to the Authority. Approval of such cost and direction from the Chief Engineer in writing to proceed shall effectuate the performance of services under this Agreement. After the point at which your expenditures for such services reach such approved estimated cost, you shall not continue to render any such services unless you are specifically

authorized in writing to so continue by the Chief Engineer and you shall submit to him for approval a revised written estimated cost of such services. If no such authorization is issued, the performance of the specifically requested services under this Agreement shall be terminated without further obligation by either of the parties as to services not yet performed, but you shall be compensated as hereinafter provided for services already completed. It is understood, however, that this limitation shall not be construed to entitle you to an amount equal to the approved estimated cost. Preparation of the cost estimate and staffing analysis mentioned in the first sentence of this paragraph shall not be a compensable service hereunder.

4. In order to effectuate the policy of the Authority, the services provided by the Consultant shall comply with all provisions of Federal, State, municipal, local and departmental laws, ordinances, rules, regulations, and orders which would affect or control said services if the services were being performed for a private corporation, unless the Authority standard is more stringent, in which case the Authority standard shall be followed, or unless the Consultant shall receive a written notification to the contrary signed by the Chief Engineer personally, in which case the requirements of said notification shall apply.

5. The Consultant shall meet and consult with Authority staff as requested by the Chief Engineer in connection with the services to be performed herein. Any Contract Drawings and Technical Specifications and other items to be submitted or prepared by the Consultant hereunder shall be subject to the review of the Chief Engineer. The Chief Engineer may disapprove, if in his sole opinion said items are not in accordance with the requirements of this Agreement, sound engineering principles, or are impractical, uneconomical or unsuited in any way for the purpose for which the contemplated construction is intended. If any of the said items or any portion thereof are so disapproved, the Consultant shall forthwith revise them until they meet the approval of the Chief Engineer, but the Consultant shall not be compensated under any provision of this Agreement for performance of such revisions. No approval or disapproval or omission to approve or disapprove, however, shall relieve the Consultant of his responsibility under this Agreement to furnish in accordance with an agreed upon schedule, a complete, practical, economical design and Contract Drawings and Technical Specifications, and corrections and changes therein which are best suited for the contemplated construction, are done in accordance with sound engineering principles and are signed and sealed by a licensed Professional Engineer.

6. When services to be performed by the Consultant include the preparation of contract documents, or the performance of post award services, the Consultant shall submit its specific Quality Control/Assurance Program to the Engineer prior to the performance of services. Upon completion of specific services requested hereunder the Consultant shall submit a letter to the Engineer certifying the Consultant's conformance with the aforementioned Quality Control/Assurance Program.

7. You shall not continue to render services under this Agreement after the point at which the total amount to be paid to you hereunder including reimbursable expenses reaches the combined total of each of the approved estimated costs unless you are specifically authorized in writing to

so continue by the Chief Engineer. If no such authorization is issued, this Agreement shall be terminated without further obligation by either of the parties as to services not yet performed, but you shall be compensated as hereinafter provided for services already completed.

When the services to be performed by the Consultant include the preparation of computer aided design and drafting (CADD) documents, said documents must be prepared using the latest available revision of Autodesk's "AUTOCAD" software or Integraph's "Microstation" software or as directed by the Engineer prior to the performance of specific services and shall be submitted to the Authority on compact discs, 3.5" floppy diskettes, or as otherwise required.

8. As full compensation for all your services and obligations in connection with this Agreement, the Authority will pay you the total of the amounts computed under subparagraphs A, B, C, D, E and F below, subject to the limits on compensation and provisions set forth in paragraphs 3 and 4 above. Subject to the terms and conditions below, travel time is not reimbursable under subparagraphs A, B, and C hereunder.

A. The Consultant shall be compensated at an amount equal to *.* times the actual salaries paid by you to professional and technical personnel but not partners, principals, for time actually spent by them in the performance of services hereunder, plus an amount equal to the number of hours actually spent by partners and principals in the performance of services hereunder times the billing rate (no multiplier applied) described below but in each case excluding premium payments for overtime work or night work or for performing hazardous duty. Attached hereto is a schedule of actual salaries and titles of architects, engineers, technical staff or other permanent professional and technical personnel employed by you, as well as rates customarily billed for partners and principals on projects such as this. Said staffing analysis shall clearly indicate any of your employees, proposed by you to perform the requested services that are former Port Authority employees. For compensation purposes under this Agreement, no said salary or amount shall exceed the salary or amount received by said personnel or rate customarily billed for a partner or principal as of the effective date of this Agreement unless the Chief Engineer has been notified in advance, in writing, of the increased salary, rate or amount and approves the increase.

The Authority reserves the right of approval of all personnel, amounts, billing rates and salaries of said personnel performing services under this Agreement. When requesting salary or billing rate adjustments for one or more of its personnel, the Consultant shall submit his/her name, title, current direct hourly rate or billing rate, proposed new direct hourly salary or billing rate, resulting percentage increase, effective date and reason for the requested change setting forth in detail any increased costs to the Consultant of providing the services under this Agreement which has given rise to the request for increased salary. For adjustments submitted after the effective date of this Agreement it is the intention of the Authority to grant an increase if the Consultant demonstrates compliance with all of the following conditions: that increases in salary, or partner's or principal's billing rate or amount are in a) accordance with the program of periodic merit and cost of living increases normally administered by it, b) are warranted by increased costs of providing services under this Agreement, c) are based upon increases in salaries and billing rates which are generally applicable to all of Consultant's clients and d) are in accordance with the Authority's salary rate increase policy for the current year for Authority employees possessing comparable skills and experience. If during any calendar year, Authority limits are not available to the Consultant in a timely fashion, increases falling within such limits may be approved retroactively, as appropriate. The amount of increase in salary or billing rate, if any, to be applicable under this agreement shall therefore in all cases be finally determined by the Chief Engineer or their designee, in their sole and absolute discretion.

Notwithstanding the above, the multiplier set forth in the first line of this subparagraph shall be applied only in the case of personnel other than partners or principals who are permanent employees.

B. An amount equal to the premium payments for overtime work or night work or for performing hazardous duty, actually paid to professional and technical employees, but not partners, principals for time actually spent by them in the performance of services hereunder when such overtime or other premium payments have been demonstrated to be in accordance with the Consultant's normal business practice and have been authorized in advance by the Chief Engineer in writing. The Project Manager for the Authority shall have the right to authorize and approve premium payments up to a total amount of $1,000 per occasion. Payments above said total amount shall be subject to the prior written authorization of the Chief Engineer. Such premium payments to supervisory employees, who do not receive such payments in the Consultant's normal business practice shall not be given under this Agreement.

C. An amount equal to the amounts actually paid to subconsultants hereunder who have been retained after the written approval by the Chief Engineer of the subconsultant and the compensation to be paid the subconsultant. The Consultant shall submit a copy of the terms and conditions of the subconsultant's compensation (including multiplier, if applicable), as well as an estimate of the number of hours required by the subconsultant to perform his services, as part of any request for approval of the subconsultant.

D. The Consultant shall also be compensated at an amount equal to the out-of-pocket expense, approved in advance by the Director, necessarily and reasonably incurred and actually paid by you in the performance of your services hereunder. Out-of-pocket expenses are expenses that are unique to the performance of your services under this Agreement and generally contemplate the purchase of outside ancillary services, except that for the purpose of this Agreement, out-of-pocket expenses do include amounts for mailing and delivery charges for submittal of drawings, specifications and reports; long distance telephone calls; rentals of equipment; travel and local transportation; and meals and lodging on overnight trips.

Notwithstanding the above the Authority will pay an amount approved in advance by the Chief Engineer and computed as follows for the reproduction of submittal drawings, specifications and reports:

1) If the Consultant uses its own facilities to reproduce such documents, an amount computed in accordance with the billing rates the Consultant customarily charges for reproduction of such documents on agreements such as this, or

2) If the Consultant uses an outside vendor for the reproduction of such documents, the actual, necessary and reasonable amounts for the reproduction of such documents.

The expenses do not include expenses that are usually and customarily included as part of the Consultant's overhead. For the purposes of this Agreement out-of-pocket expenses do not include amounts for typing, utilization of computer systems, computer aided design and drafting (CADD), cameras, recording or measuring devices, flashlights and other small, portable equipment, safety supplies, phones, telephone calls, electronic messaging including FAX, Telex and telegrams, or expendable office supplies. Unless otherwise indicated, required insurance is not a reimbursable expense.

When the Consultant is asked to provide services outside the Port District, the actual cost of transportation as well as the cost for hotel accommodations and meals shall be reimbursable hereunder when approved in advanced in writing by the Engineer. The cost for all meals and lodging on approved overnight trips are limited to the amounts established by the United States General Services Administration for that locality.

General Services Administration (GSA) Rates:

Domestic Rates:
http://www.gsa.gov/Portal/gsa/ep/contentView.do?programId=9704&channelId=-15943&ooid=16365&contentId=17943&pageTypeId=8203&contentType=GSA_BASIC&programPage=%2Fep%2Fprogram%2FgsaBasic.jsp&P=MTT

You shall obtain the Chief Engineer's written approval prior to making expenditures for out-of-pocket expenses in excess of $1,000 per specific expenditure and for all overnight trips, which are reimbursable expenditures as set forth above. You shall substantiate all billings for out-of-pocket expenses in excess of $25 with receipted bills and provide said receipts with the appropriate billing.

E. As used herein:

"Port District" is an area comprised of about 1,500 square miles in the States of New York and New Jersey, centering about New York Harbor. The Port District includes the Cities of New York and Yonkers in New York State, and the cities of Newark, Jersey City, Bayonne, Hoboken and Elizabeth in the State of New Jersey, and over 200 other municipalities, including all or part of seventeen counties, in the two States.

"Salaries paid to employees" or words of similar import shall mean salaries and amounts actually paid (excluding payments or factors for holidays, vacations, sick time, bonuses, profit participations and other similar payments) to architects, engineers, designers, drafters or other professional and technical employees of the Consultant for time actually spent directly in the performance of technical services hereunder and recorded on daily time records which have been approved by the employee's immediate supervisor, excluding the time of any employee of the Consultant to the extent that the time of such employee of the Consultant is devoted to typing/word processing, stenographic, clerical or administrative functions. Such functions shall be deemed to be included in the multiplier referred to in subparagraph A above.

9. You shall keep, and shall cause any subconsultants under this Agreement to keep, daily records of the time spent in the performance of services hereunder by all persons whose salaries or amounts paid thereto will be the basis for compensation under this Agreement as well as records of the amounts of such salaries and amounts actually paid for the performance of such services and records and receipts of reimbursable expenditures hereunder, and, notwithstanding any other provisions of this Agreement, failure to do so shall be a conclusive waiver of any right to compensation for such services or expenses as are otherwise compensable hereunder. The Authority shall have the right to audit all such records.

The Authority shall have the right to inspect your records, and those of your subconsultants, pertaining to any compensation to be paid hereunder, such records to be maintained by you and your subconsultants for a period of one year after completion of services to be performed under this Agreement.

10. On or about the fifteenth day of each month, you shall render a bill for services performed and reimbursable out-of-pocket expenses incurred in the prior month, accompanied by such records and receipts as required, to the Project Manager. Each invoice shall bear your taxpayer number and the purchases order number provided by the Engineer. Upon receipt of the foregoing, the Chief Engineer will estimate and certify to the Authority the approximate amount of compensation earned by you up to that time. As an aid to you the Authority shall, within fifteen days after receipt of such certification by the Chief Engineer, advance to you by check the sum certified minus all prior payments to you for your account.

11. The Authority may at any time for cause terminate this Agreement as to any services not yet rendered, and may terminate this Agreement in whole or in part without cause upon three (3) days notice to you. You shall have no right of termination as to any services under this Agreement without just cause. Termination by either party shall be by certified letter addressed to the other at its address hereinbefore set forth. Should this Agreement be terminated in whole or in part by either party as above provided, you shall receive no compensation for any services not yet performed, but if termination is without fault on your part, the Authority shall pay you as the full compensation to which you shall be entitled in connection with this Agreement the amounts computed as above set forth for services completed to the satisfaction of the Chief Engineer through the date of termination, minus all prior payments to you.

12. You shall not issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the services performed in connection with this Agreement, unless you first obtain the written approval of the Chief Engineer. Such approval may be withheld if for any reason the Chief Engineer believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

13. Under no circumstances shall you or your subconsultants communicate in any way with any contractor, department, board, agency, commission or other organization or any person whether governmental or private in connection with the services to be performed hereunder except upon prior written approval and instructions of the Chief Engineer, provided, however that data from

manufacturers and suppliers of material shall be obtained by you when you find such data necessary unless otherwise instructed by the Chief Engineer.

14. Any services performed for the benefit of the Authority at any time by you or on your behalf, even though in addition to those described herein, even if expressly and duly authorized by the Authority, shall be deemed to be rendered under and subject to this Agreement (unless referable to another express written, duly executed agreement by the same parties), whether such additional services are performed prior to, during or subsequent to the services described herein, and no other rights or obligations shall arise out of such additional services.

15. No certificate, payment (final or otherwise), acceptance of any work nor any other act or omission of the Authority or the Chief Engineer shall operate to release you from any obligations under or upon this Agreement, or to estop the Authority from showing at any time that such certificate, payment, acceptance, act or omission was incorrect or to preclude the Authority from recovering any money paid in excess of that lawfully due, whether under mistake of law or fact or to prevent the recovery of any damages sustained by the Authority.

16. Mylars of the contract drawings, originals of technical specifications, estimates, reports, records, data, charts, documents, renderings, computations, computer tapes or disks, and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which are prepared or compiled in connection with this Agreement, shall become the property of the Authority, and the Authority shall have the right to use or permit the use of them and any ideas or methods represented by them for any purpose and at any time without other compensation than that specifically provided herein. The Consultant hereby warrants and represents that the Authority will have at all times the ownership and rights provided for in the immediately preceding sentence free and clear of all claims of third persons whether presently existing or arising in the future and whether presently known to either of the parties of this Agreement or not. This Agreement shall not be construed, however, to require the Consultant to obtain for the Consultant and the Authority the right to use any idea, design, method, material, equipment or other matter which is the subject of a valid patent, unless owned by the Consultant, or subconsultant, or an employee of either. Whether or not your Proposal is accepted by the Authority, it is agreed that all information of any nature whatsoever which is in any way connected with the services performed in connection with this Agreement, regardless of the form of which has been or may be given by you or on your behalf, whether prior or subsequent to the execution of this Agreement, to the Authority, its Commissioners, officers, agents or employees, is not given in confidence and may be used or disclosed by or on behalf of the Authority without liability of any kind, except as may arise under valid existing or pending patents, if any.

17. If research or development is furnished in connection with the performance of this Agreement and if in the course of such research or development patentable subject matter is produced by the Consultant, his officers, agents, employees, or subconsultants, the Authority shall have, without cost or expense to it, an irrevocable, non-exclusive royalty-free license to make, have made, and use, either itself or by anyone on its behalf, such subject matter in connection with any activity now or hereafter engaged in or permitted by the Authority.

Promptly upon request by the Authority, the Consultant shall furnish or obtain from the appropriate person a form of license satisfactory to the Authority, but it is expressly understood and agreed that, as between the Authority and the Consultant the license herein provided for shall nevertheless arise for the benefit of the Authority immediately upon the production of said subject matter, and shall not await formal exemplification in a written license agreement as provided for above. Such license agreement may be transferred by the Authority to its successors, immediate or otherwise, in the operation or ownership of any real or personal property now or hereafter owned or operated by the Authority but such license shall not be otherwise transferable.

18. Notwithstanding anything to the contrary herein, the work product of the Consultant, its officers, agents, employees, or sub-consultants which is produced in accordance with the Agreement, whether it consists of computer programming or documentation thereof, including source code, and on any media whatsoever, shall be deemed to belong exclusively to the Authority, and the Authority shall have the exclusive right to obtain and to hold in its own name any and all copyrights, patents, trade secrets or other proprietary rights and protection as may be produced as part of this work product, including the right to extensions or renewals, where appropriate. The work product shall not be destroyed or released to anyone outside of the Technology Services Department without express written authorization of the Director. The Authority shall have the exclusive right to use or permit the use of them and any ideas or methods represented by them for any purpose and at any time without other compensation than that specifically provided for herein. You agree to contract with your employees for the benefit of the Authority to insure that the Authority has such rights and to give to the Authority or any party designated by the Authority all assistance reasonably required to perfect the rights herein above stated. You shall indemnify and hold harmless the Authority against any claims of proprietary rights infringement arising out of such use of your work product.

19. You shall promptly and fully inform the Director, in writing, of any intellectual property disputes, whether existing or potential, of which you have knowledge, relating to any idea, design, method, material, equipment or other matter related to the subject matter of this Agreement or coming to your attention in connection with this Agreement.

20. You shall promptly and fully inform the Chief Engineer in writing of any patents or patent disputes, whether existing or potential, of which you have knowledge, relating to any idea, design, method, material, equipment or other matter related to the subject matter of this Agreement or coming to your attention in connection with this Agreement.

21. This Agreement being based upon your special qualifications for the services herein contemplated, any assignment, subletting or other transfer of this Agreement or any part hereof or of any moneys due or to become due hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that you may sublet services to subconsultants with the express consent in writing of the Chief Engineer. All persons to whom you sublet services, however, shall be deemed to be your agents and no subletting or approval thereof shall be deemed to release you from your obligations under this

Agreement or to impose any obligation on the Authority to such subconsultant or give the subconsultant any rights against the Authority.

22. The Authority has a long-standing practice of encouraging Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) to seek business opportunities with it, either directly or as subconsultants or subcontractors. "Minority-owned business" or "MBE" means a business entity which is at least 51 percent owned by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least 51 percent of the stock of which is owned by one or more members of one or more minority groups; and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens. "Women-owned business" or "WBE" means a business which is at least 51 percent owned by one or more women; or, in the case of a publicly held corporation, 51 percent of the stock of which is owned by one or more women: and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

A. Black persons having origins in any of the Black African racial groups not of Hispanic origin;

B. Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central or South American culture or origin, regardless of race;

C. Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands;

D. American Indian or Alaskan Native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

The Chief Engineer has set a goal of 12 percent participation by qualified and certified MBEs and 5 percent to qualified and certified WBEs on technical service projects.

To be "certified" a firm must be certified by the Authority's Office of Business and Job Opportunity.

In order to facilitate the meeting of this goal, the Consultant shall use every good-faith effort to utilize subconsultants who are certified MBEs or WBEs to the maximum extent feasible.

The Authority has a list of certified MBE/WBE service firms which is available to you at your request. The Consultant will be required to submit to the Authority's Office of Business and Job Opportunity for certification the names of MBE/WBE firms he proposes to use who are not on the list of certified MBE/WBE firms.

23.NOTIFICATION OF SECURITY REQUIREMENTS

The Authority has facilities, systems, and projects where terrorism or other criminal acts may have a significant impact on life safety and key infrastructures. The Authority reserves the right to impose multiple layers of security requirements on the Consultant, its staff and subconsultants and their staffs depending upon the level of security required, as determined by the Authority. These security requirements may include but are not limited to the following:

- Consultant/subconsultant identity checks and background screening, including but not limited to: inspection of not less than two forms of valid/current government issued identification (at least one having an official photograph) to verify staff's name and residence; screening federal, state, and/or local criminal justice agency information databases and files; screening of any terrorist identification files; multi-year check of personal, employment and/or credit history; access identification to include some form of biometric security methodology such as fingerprint, facial or iris scanning, or the like;
- Issuance of Photo Identification cards;
- Access control, inspection, and monitoring by security guards.

The Consultant may be required to have its staff, and any subconsultant's staff, authorize the Authority or its designee to perform background checks. Such authorization shall be in a form acceptable to the Authority. The Consultant may also be required to use an organization designated by the Authority to perform the background checks. The cost for said background checks shall be reimbursable to the Consultant as an out-of-pocket expense as provided herein.

The Authority may impose, increase, and/or upgrade security requirements for the Consultant and its staff and subconsultants during the term of this agreement to address changing security conditions and/or new governmental regulations.

24. The Consultant assumes the following distinct and several risks to the extent arising from the negligent or willful intentional acts or omissions of the Consultant or its subconsultants in the performance of services hereunder:

A. The risk of loss or damage to Authority property arising out of or in connection with the performance of services hereunder;

B. The risk or loss or damage to any property of the Consultant or its subconsultants arising out of or in connection with the performance of services hereunder;

C. The risk of claims, arising out of or in connection with the performance of services hereunder, whether made against the Consultant or its subconsultants or the Authority, for loss or damage to any property of the Consultant's agents, employees, subcontractors, subconsultants, materialmen or others performing services hereunder;

D. The risk of claims, just or unjust, by third persons made against the Consultant or its subconsultants or the Authority on account of injuries (including wrongful death), loss or damage of any kind whatsoever arising in connection with the performance of services hereunder including claims against the Consultant or its subconsultants or the Authority for the payment of workers' compensation, whether such claims are made and whether such injuries, damage and loss are sustained at any time both before and after the completion of services hereunder.

The Consultant shall indemnify the Authority against all claims described in subparagraphs A through D above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys. If so directed, the Consultant shall defend against any claim described in subparagraphs B, C and D above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority, such defense to be at the Consultant's cost.

The provisions of this clause shall also be for the benefit of the Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this clause if they were named at each place above at which the Authority is named, including a direct right of action against the Consultant to enforce the foregoing indemnity, except, however, that the Authority may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the completion of services hereunder nor the making of payment (final or otherwise) shall release the Consultant from his obligations under this clause. Moreover, neither the enumeration in this clause or the enumeration elsewhere in this Agreement of particular risks assumed by the Consultant or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this clause or of any other clause of this Agreement relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Agreement, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

No third party rights are created by the Agreement, except to the extent that the Agreement specifically provides otherwise by use of the words "benefit" or "direct right of action".

Inasmuch as the Authority has agreed to indemnify the Cities of New York and Newark against claims of the types described in subparagraph D above made against said cities, the Consultant's obligation under subparagraph D above shall include claims by said cities against the Authority for such indemnification.

25. LIABILITY INSURANCE AND WORKERS' COMPENSATION INSURANCE

A. Commercial Liability Insurance:

1) The Consultant shall take out and maintain at his own expense Commercial General Liability Insurance including but not limited to Premises-Operations, Completed Operations and Independent Contractor coverages in limits of not less than $2,000,000 combined single limit per occurrence for Bodily Injury Liability and Property Damage Liability. And if vehicles are to be used to carry out the performance of this contract, then the Consultant shall also take out, maintain and pay

the premiums on Automobile Liability Insurance covering all owned, non-owned and hired autos in not less than $2,000,000 combined single limit per accident for bodily injury and property damage. In addition, the liability policies (other than Professional Liability) shall include the Authority and Port Authority Trans Hudson Corp (PATH) as an additional insured and shall contain a provision that the policy may not be canceled, terminated or modified without thirty (30) days written advance notice to the Project Manager as noted below. Moreover, the Commercial General Liability policy shall not contain any provisions (other than a Professional Liability exclusion, if any) for exclusions from liability other than provisions or exclusions from liability forming part of the most up to date ISO form or its equivalent unendorsed Commercial General Liability Policy. The liability policy (ies) and certificate of insurance shall contain separation of insured condition (cross-liability) and severability of interests provisions so that coverage will respond as if separate policies were in force for each insured.

Further, the certificate of insurance and the liability Policy (ies) shall be specifically endorsed that " *The insurance carrier(s) shall not, without obtaining the express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statutes respecting suits against the Port Authority"*

2) Additional Coverages: The Consultant shall have the policy endorsed when required by the Engineer for specific services hereunder and include the additional premium cost thereof as an out-of-pocket expense:

   (a) Endorsement to eliminate any exclusions applying to the underground property, explosion and collapse hazards.

   (b) Endorsement to eliminate any exclusions on account of ownership, maintenance, operation, use, loading or unloading of watercraft.

   (c) Coverage for work within 50 feet of railroad.

B. Workers' Compensation Insurance:

1) The Consultant shall take out and maintain Workers' Compensation Insurance in accordance with the requirements of law and Employer's Liability Insurance with limits of not less than $1,000,000 each accident

2) Additional Coverages: The Consultant shall have the policy endorsed when required by the Engineer for specific services hereunder and include the additional premium cost thereof as an out-of-pocket expense:

   a) United States Longshoremen's and Harbor Workers' Compensation Act Endorsement.

b) Coverage B Endorsement - Maritime (Masters or Members of the Crew of Vessels), in limits of not less than $1,000,000 per occurrence.

c) Amendments to Coverage B, Federal Employers' Liability Act in limits of not less than $1,000,000 per occurrence.

C. Professional Liability Insurance:

Not less than $2 million each occurrence, covering acts, errors, mistakes, and omissions arising out of the work or services performed by Consultant, or any person employed by Consultant. All endorsements and exclusions shall be evidenced on the certificate of insurance. The coverage shall be written on an occurrence basis or may be written on a claims made basis with a minimum of a three-year reporting/discovery period.

D. Compliance:

Prior to commencement of work at the site, the Consultant shall deliver a certificate from its insurer evidencing policies of the above insurance stating the title of this Agreement, the P. A. Agreement number and containing a separate express statement of compliance with each of the requirements above set forth, via e-mail, to the Project Manager.

1) Upon request of the Manager, Risk Management/Treasury, the Consultant shall furnish to the Authority a certified copy of each policy itself, including the provisions establishing premiums.

2) The requirements for insurance procured by the Consultant shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Consultant under this contract. The insurance requirements are not a representation by the Authority and/or PATH as to the adequacy of the insurance to protect the Consultant against the obligations imposed on them by law or by this or any other Contract.

The General Manager, Risk Management must approve the certificate(s) of insurance before work. If at any time any of the certificates or policies shall become unsatisfactory to the Authority, the Contractor shall promptly obtain a new and satisfactory certificate and/or policy.

26. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST), INDICTMENT, CONVICTION, DEBARMENT, SUSPENSION, DISQUALIFICATION AND DISCLOSURE OF OTHER INFORMATION

By proposing on this Agreement, each Consultant and each person signing on behalf of any Consultant certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that the Consultant and each parent and/or affiliate of the Consultant has not:

A. been indicted or convicted in any jurisdiction;

B. been suspended, debarred, found not responsible or otherwise disqualified from entering into any agreement with any governmental agency or been denied a government agreement for failure to meet standards related to the integrity of the Consultant;

C. had a agreement terminated by any governmental agency for breach of agreement or for any cause based in whole or in part on an indictment or conviction;

D. ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal;

E. had any business or professional license suspended or revoked or, within the five years prior to proposal opening, had any sanction imposed in excess of $50,000 as a result of any judicial or administrative proceeding with respect to any license held or with respect to any violation of a federal, state or local environmental law, rule or regulation;

F. had any sanction imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, proposal rigging, embezzlement, misrepresentation or anti-trust regardless of the dollar amount of the sanctions or the date of their imposition; and

G. been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency.

27. NON-COLLUSIVE PROPOSING, AND CODE OF ETHICS CERTIFICATION, CERTIFICATION OF NO SOLICIATION BASED ON COMMISION, PERCENTAGE, BROKERAGE, CONTINGENT OR OTHER FEES

By proposing on this Agreement, each Consultant and each person signing on behalf of any Consultant certifies, and in the case of a joint proposal, each party thereto certifies as to its own organization, that:

A. the prices in its proposal have been arrived at independently without collusion, consultation, communication or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other Consultant or with any competitor;

B. the prices quoted in its proposal have not been and will not be knowingly disclosed directly or indirectly by the Consultant prior to the official opening of such proposal to any other Consultant or to any competitor;

C. no attempt has been made and none will be made by the Consultant to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition;

D. this organization has not made any offers or agreements or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics dated April 11, 1996 (a copy of which is available upon request to the individual named in the clause hereof entitled "Consultant's Questions"), nor does this organization have any knowledge of any act on the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code;

E. no person or selling agency other than a bona fide employee or bona fide established commercial or selling agency maintained by the Consultant for the purpose of securing business, has been employed or retained by the Consultant to solicit or secure this Agreement on the understanding that a commission, percentage, brokerage, contingent, or other fee would be paid to such person or selling agency;

F. the Consultant has not offered, promised or given, demanded or accepted, any undue advantage, directly or indirectly, to or form a public official or employee, political candidate, party or party official, or any private sector employee (including a person who directs or works for a private sector enterprise in any capacity), in order to obtain, retain, or direct business or to secure any other improper advantage in connection with this Agreement; and

G. no person or organization has been retained, employed or designated on behalf of the Consultant to impact any Port Authority determination with respect to (i) the solicitation, evaluation or award of this Contract; or (ii) the preparation of specifications or request for submissions in connection with this Contract.

The foregoing certifications, shall be deemed to be made by the Consultant as follows:

* if the Consultant is a corporation, such certification shall be deemed to have been made not only with respect to the Consultant itself, but also with respect to each parent, affiliate, director, and officer of the Consultant, as well as, to the best of the certifier's knowledge and belief, each stockholder of the Consultant with an ownership interest in excess of 10%;

* if the Consultant is a partnership, such certification shall be deemed to have been made not only with respect to the Consultant itself, but also with respect to each partner.

Moreover, the foregoing certifications, if made by a corporate Consultant, shall be deemed to have been authorized by the Board of Directors of the Consultant, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the Consultant cannot make the foregoing certifications, the Consultant shall so state and shall furnish with the signed proposal a signed statement, which sets forth in detail the reasons therefor. If the Consultant is uncertain as to whether it can make the foregoing certifications, it shall so indicate in a signed statement furnished with its proposal, setting forth in such statement the reasons for its uncertainty. With respect to the foregoing certification in paragraph "27G.", if the Consultant cannot make the certification, it shall provide, in writing, with the signed proposal: (i) a list of the name(s), address(es), telephone number(s), and place(s) of principal employment of each such individual or organization; and (ii) a statement as to whether such individual or organization has a "financial interest" in this Contract, as described in the Procurement Disclosure policy of the Authority (a copy of which is available upon request to the Director of the Procurement Department of the Authority). Such disclosure is to be updated, as necessary, up to the time of award of this Contract. As a result of such disclosure, the Authority shall take appropriate action up to and including a finding of non-responsibility.

Failure to make the required disclosures shall lead to administrative actions up to and including a finding of non-responsibility.

Notwithstanding that the Consultant may be able to make the foregoing certifications at the time the proposal is submitted, the Consultant shall immediately notify the Authority in writing during the period of irrevocability of proposals on this Agreement or any extension of such period of any change of circumstances which might under this clause make it unable to make the foregoing certifications or require disclosure. The foregoing certifications or signed statement shall be deemed to have been made by the Consultant with full knowledge that they would become a part of the records of the Authority and that the Authority will rely on their truth and accuracy in awarding this Agreement. In the event that the Authority should determine at any time prior or subsequent to the award of this Agreement that the Consultant has falsely certified as to any material item in the foregoing certifications or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certifications required to be disclosed, the Authority may determine that the Consultant is not a responsible Consultant with respect to its proposal on the Agreement or with respect to future proposals on Authority agreements and may exercise such other remedies as are provided to it by the Agreement with respect to these matters. In addition, Consultants are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see, e.g. New York Penal Law, Section 175.30 et seq.). Consultants are also advised that the inability to make such certification will not in and of itself disqualify a Consultant, and that in each instance the Authority will evaluate the reasons therefor provided by the Consultant.

28. CONSULTANT ELIGIBILITY FOR AWARD OF AGREEMENTS - DETERMINATION BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC AGREEMENTS

Consultants are advised that the Authority has adopted a policy to the effect that in awarding its agreements it will honor any determination by an agency of the State of New York or New Jersey that a Consultant is not eligible to proposal on or be awarded public agreements because the Consultant has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a Consultant whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a proposal on an Authority agreement and then to establish that it is eligible to be awarded a agreement on which it has proposal because (i) the state agency determination relied upon does not apply to the Consultant, or (ii) the state agency determination relied upon was made without affording the Consultant the notice and hearing to which the Consultant was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

29. NO GIFTS OR GRATUITIES

During the term of this Agreement, the Consultant shall not offer, give or agree to give anything of value either to an Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority of duties involving transactions with the Consultant on behalf of the Authority, whether or not such duties are related to this Agreement or any other Authority agreement or matter. Any such conduct shall be deemed a material breach of this Agreement.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Agreement or any other Authority agreement), etc. which might tend to obligate the Authority employee to the Consultant, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Agreement or any other Authority agreement. Where used herein, the term "Port Authority" shall be deemed to include all subsidiaries of the Authority.

The Consultant shall insure that no gratuities of any kind or nature whatsoever shall be solicited or accepted by it and by its personnel for any reason whatsoever from the passengers, tenants, customers or other persons using the Facility and shall so instruct its personnel.

30. NON-DISCLOSURE/CONFIDENTIALITY, OFFERS OF EMPLOYMENT

During the term of this Agreement, the Consultant shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated April 11, 1996 (a copy of which is available upon request to the Office of the Director of the Authority). Without the express written approval of the Director, you shall keep confidential, and shall require your employees, your subconsultants, and your subconsultant's employees to keep confidential a) all information disclosed by the Authority or its consultants to you or b) developed by you or your subconsultants in the performance of services hereunder. Disclosure of any such information shall constitute a material breach of the Agreement.

The Consultant shall include the provisions of this clause in each subagreement entered into under this Agreement.

31. CONFLICT OF INTEREST

During the term of this agreement, the Consultant shall not participate in any way in the preparation, negotiation or award of any agreement (other than a agreement for its own services to the Authority) to which it is contemplated the Authority may become a party, or participate in any way in the review or resolution of a claim in connection with such a agreement if the Consultant has a substantial financial interest in the Consultant or potential Consultant of the Authority or if the Consultant has an arrangement for future employment or for any other business relationship with said Consultant or potential Consultant, nor shall the Consultant at any time take any other action which might be viewed as or give the appearance of conflict of interest on its part. If the possibility of such an arrangement for future employment or for another business arrangement has been or is the subject of a previous or current discussion, or if the Consultant has reason to believe such an arrangement may be the subject of future discussion, or if the Consultant has any financial interest, substantial or not, in a Consultant or potential Consultant of the Authority, and the Consultant's participation in the preparation, negotiation or award of any agreement with such a Consultant or the review or resolution of a claim in connection with such a agreement is contemplated or if the Consultant has reason to believe that any other situation exists which might be viewed as or give the appearance of a conflict of interest, the Consultant shall immediately inform the Chief Engineer in writing of such situation giving the full details thereof. Unless the Consultant receives the specific written approval of the Chief Engineer, the Consultant shall not take the contemplated action which might be viewed as or give the appearance of a conflict of interest. In the event the Chief Engineer shall determine that the performance by the Consultant of a portion of its services under this Agreement is precluded by the provisions of this numbered paragraph, or a portion of the Consultant's said services is determined by the Chief Engineer to be no longer appropriate because of such preclusion, then the Chief Engineer shall have full authority on behalf on both parties to order that such portion of the Consultant's services not be performed by the Consultant, reserving the right, however, to have the services performed by others and any lump sum compensation payable hereunder which is applicable to the deleted work shall be equitably adjusted by the parties. The Consultant's execution of this document shall constitute a representation by the Consultant that at the time of such execution the Consultant knows of no circumstances, present or anticipated, which come within the provisions of this paragraph or which might otherwise be viewed as or give the appearance of a conflict of interest on the Consultant's part. The Consultant acknowledges that the Authority may preclude it from involvement in certain disposition/privatization initiatives or transactions that result from the findings of its evaluations hereunder or from participation in any agreements, which result, directly or indirectly, from the services provided by the Consultant hereunder.

32. DEFINITIONS

As used in sections 26 to 31 above, the following terms shall mean:

Affiliate - Two or more firms are affiliates if a parent owns more than fifty percent of the voting stock of each of the firms, or a common shareholder or group of shareholders owns more than fifty percent of the voting stock of each of the firms, or if the firms have a common proprietor or general partner.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the Consultant by whatever titles known.

Parent - An individual, partnership, joint venture or corporation which owns more than 50% of the voting stock of the Consultant.

33. The entire agreement between the parties is contained herein and no change in or modification, termination or discharge of this Agreement in any form whatsoever shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith, or his duly authorized representative, provided, however, that termination in the manner hereinbefore expressly provided shall be effective as so provided.

34. No Commissioner, officer, agent or employee of the Authority shall be charged personally by you with any liability or held liable to you under any term or provision of this Agreement, or because of its execution or attempted execution or because of any breach hereof.

35. If the foregoing meets with your approval, please indicate your acceptance by signing the original and the additional enclosed copy in the lower left-hand corner and returning them to the Authority.

Very truly yours,

THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

Lillian D. Valenti
Director
Procurement Department

Date ___________________

ACCEPTED:

Company: ________________________

By: _____________________________

Title: __________________________

Date: ___________________________

INSTRUCTIONS

If the selected Consultant firm is not located in the States of New York or New Jersey, change the number of the last Paragraph of this Agreement from "35" to "36" and insert a new Paragraph "35" as follows:

35. This Agreement shall be governed by and construed in accordance with the Laws of the State of New York.

(9/26/08)
ATTACHMENT A

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

I. BACKGROUND

The Port Authority of New York and New Jersey (the "Port Authority" or "Authority") is an agency of the States of New York and New Jersey, created and existing by virtue of the Compact of April 30, 1921, made by and between the two States, and thereafter consented to by the Congress of the United States. It is charged with providing transportation, terminal and other facilities of trade and commerce within the Port District. The Port District comprises an area of about 1,500 square miles in both States, centering about New York Harbor. The Port District includes the Cities of New York and Yonkers in New York State, and the cities of Newark, Jersey City, Bayonne, Hoboken and Elizabeth in the State of New Jersey, and over 200 other municipalities, including all or part of seventeen counties, in the two States. The Authority manages and/or operates all of the region's major commercial airports (Newark Liberty International, John F. Kennedy International, Teterboro, LaGuardia and Stewart International Airports, marine terminals in both New Jersey and New York (Port Newark and Elizabeth, Howland Hook and Brooklyn Piers); and its interstate tunnels and bridges (the Lincoln and Holland Tunnels; the George Washington, Bayonne, and Goethals Bridges; and the Outerbridge Crossing), which are vital "Gateways to the Nation."

II. SCOPE OF WORK

The services of the Consultant shall consist of performing a Condition Survey(s) at an Authority facility(ies) and submitting a Report for the structure(s) as identified in the specific scope of work provided by the Authority. The structure(s) to be inspected may include buildings, tunnels, piers, wharves, bulkheads, and other miscellaneous structures.

The inspection shall determine the condition of the specific structures and identify structural and non-structural deficiencies, if any, which may present a potential safety hazard. The Consultant shall develop recommendations for correcting any deficiencies found.

III. DESCRIPTION OF CONSULTANT'S TASKS

In response to a request for services, as indicated in paragraph three (3) of the Agreement, the Consultant's services shall typically consist of conducting a site visit, as required, to prepare and submit for approval a cost estimate for performance of the following tasks:

TASK A:

1. Before conducting any field inspections to determine the scope of work (Task B), meet with the Authority to:
   a. Review all available information on the present condition of the areas to be inspected;
   b. Discuss specific project requirements;

c. Discuss facility operations and access arrangements.

d. Prepare comprehensive field inspection forms that will incorporate all observations made during the inspection. Such forms shall be approved by the Authority prior to start of inspection

2. Prepare and submit for approval by the Authority a specific inspection procedure outline to include, but not be limited to, the following:

   a. Locations to be inspected;

   b. Structural, architectural, mechanical, and other elements to be inspected;

   c. Technical approach including, but not limited to, description of inspection for each location and element, methodology and equipment to be used;

   d. Schedule for inspection and estimated cost and manpower analysis for performance of Tasks B and C for the specific structure(s).

3. Provide all equipment including rigging, scaffolds and ladders as required to inspect the structure and to maintain traffic under and over the structure. Staging of inspection work may be required.

<u>TASK B: FIELD INSPECTION</u>

1. Conduct the field inspection survey in accordance with the approved inspection procedure outline prepared in Task A. As a minimum, conduct a close visual inspection including, but not limited to, decks, roofs and floors along with their framing systems, columns, bracing, connections, bearings, deck expansion joints, stairways, abutments, retaining walls, bearing walls, sign and light structures, utility supports, safety railings, pile caps, piles (above and below water), bulkheads, seawalls, sheet piling and visible portions of foundations. Should areas of suspect integrity be revealed, recommend the performance of in-depth analyses as deemed necessary for the determination of the structure's condition. These in-depth analyses may include physical testing, review of original design calculations, and engineering calculations to check the structural adequacy in the present condition. Compensation for additional in-depth analyses shall be computed in accordance with the paragraph of this Agreement relating to compensation.

2. Elements to be inspected may include, but not be limited to, the following, as determined by the Consultant, and as approved by the Authority:

   a. All structural elements in both tenant and non-tenant areas which are visible or easily accessible;

   b. All critical structural elements and all structural elements whose condition is suspect regardless of location;

   c. All non-structural elements, including architectural finishes (for example, fascia panels and ceilings) in public tenant areas (as defined in the specific scope of work) and non-tenant areas whose failure could pose a threat to the public safety or whose condition could cause or accelerate deterioration of structural systems;

   d. Support systems for mechanical and electrical systems;

e. Exposed structural or architectural elements of weathering steel, if any.

3. For each hung ceiling/soffit in the structure, a complete determination of the types of ceiling/soffit components shall be made, including, but not limited to, sizes and spacings of hangers and framing, determination of hot rolled or cold rolled members, types and sizes of all connections, thickness of ceiling and use of bridging members. The support system for the ceiling/soffits shall be compared to the current Port Authority "Lightweight Ceilings and Design Criteria" and "Plaster Ceiling Design Standards", and any non-compliance shall be immediately brought to the attention of the Project Manager. Further investigation and analysis, if required, shall be performed by the Consultant as directed by the Project Manager.

4. The Consultant shall be responsible for the removal of easily removable architectural finishes (ceiling tiles and the like) to gain access for inspection. Restore areas to their original condition after inspection. No one is permitted to enter an architectural ceiling of any kind or impose any additional loadings on a ceiling unless one of the following is prepared by the Consultant, and submitted to the Project Manager for review and approval:

   a. an analysis indicating that the ceiling can support the additional live load, or

   b. an acceptable ceiling shoring system.

   Remove any mud, dirt, debris, vegetative growth, loose scale, or rust through use of chipper hammers, scrapers and wire brushes to gain access, as required for performance of a thorough visual inspection and for determining the extent of deterioration.

5. Inform the Project Manager if removal of major architectural elements requiring restorative construction is necessary. Recommend methods for gaining access to these areas. The Authority will provide for this access.

6. Immediately contact the Project Manager if, during the performance of services hereunder the Consultant determines that:

   a. immediate repairs or shoring of any element is required to assure the integrity of the structure and/or public safety (immediate repairs are defined in Task C);

   b. evidence of recent settlement or abnormal movement is detected.

7. Any extra work related to developing remedial action or repairs, or providing construction supervision shall be performed by the Consultant subject to Authority approval and compensation shall be computed in accordance with provisions of the paragraph of the Agreement relating to compensation.

8. Provide the services of a diving team to perform an underwater inspection of the existing structure. The underwater inspection shall, at a minimum, obtain an overall assessment of the condition of the structure, including determination of the presence and extent of marine borers. If a more detailed underwater inspection is deemed necessary, based on the findings of the above inspection, it shall be performed subject to the Authority approval.

9. Provide all equipment including watercraft, rigging, scaffolds, ladders, instruments, and tools required to inspect the structure.

10. Meet with the Authority staff as directed by the Project Manager to review the progress of the inspection.

11. Complete comprehensive field inspection forms incorporating all observations made during the inspection. Indicate the condition of all areas inspected including those found to be satisfactory. Include color photographs, as required.

TASK C: REPORT

Upon completion of the field inspection and evaluation of the structure's condition, prepare a Condition Survey Report to include the following:

1. All information on the condition of the existing structures gathered during the inspection.

2. Clear color photographs of significant elements referenced in the report, suitably captioned, and interspersed within the text of the report. One (1) copy of the finalized report must contain only original color photographic prints. Only color photographic reprints or full-page color glossy photographic reproductions of the original color prints are to be used for producing the required number of report copies. See Section III, Schedule of Submissions, for required number of copies. "Xerox" copies are not acceptable.

3. Complete location plan(s) of the structures, referencing the locations of all deficiencies found and all photos included in the report.

4. Ceilings:

   a. Condition Evaluation

      An evaluation of the overall integrity of each hung ceiling/soffit in the structure shall be clearly stated including, but not limited to, any defects, cracks, sags, deformation, missing components and connections, and leakage.

   b. Component Description

      A complete description of the types of ceiling/soffit components, as described in Task B.3. above, shall be completely described in the report.

5. Prioritize conceptual recommendations for any rehabilitation or repairs required to restore and maintain structural integrity.

   The recommendation shall be listed in order of priority in four categories, which are defined as follows:

   "Immediate" Requires "immediate" action including possible closing of the structure or areas affected for safety reasons until interim remedial measures, such as shoring or removal of potentially unsafe structures (or elements) can be implemented. These closings or interim remedial actions, if any, always require immediate action upon discovery.

   "Priority" Conditions for which no immediate action may be required, or for which immediate action has been completed, but for which further investigations, design and implementation of interim or long term repairs should be undertaken on a priority basis, (i.e. taking precedence over all other scheduled work).

"Safety" Condition that presents a potential hazard and which should be repaired as soon as possible.

"Routine" Conditions requiring further investigation or remedial work, which can be undertaken as part of a scheduled maintenance program, other scheduled project, or routine facility maintenance depending on the action required.

Report Format

The content and format of the report shall comply with the following:

1. EXECUTIVE SUMMARY (Max. 2 - 3 pages)

   Provide a brief description of the project scope, an overall evaluation statement for each structure, key findings and recommendations, and a description of "immediate" repairs, if any, which were implemented during the inspection phase. (Use terminology, which is easily understandable to a non-engineer.)

2. TABLE OF CONTENTS

   Also includes 'Index of Drawings and Photographs'

3. LOCATION PLAN

   The structure(s) should be located on a local area map or facility plan.

4. SUMMARY (Condensed version of the text)

   Include a brief description of the project scope and structures inspected, an overall evaluation statement for each structure, significant and typical findings, a description of "immediate" repairs, if any, which were implemented during the inspection phase, and a summary of priority and typical routine recommendations for the existing structure(s).

5. SCOPE OF WORK AND INSPECTION PROCEDURE

   Summarize the Scope of Work. Include definitions of "Immediate", "Priority" and "Routine" recommendations as shown above. Describe inspection procedures such as equipment and methods used, type of testing performed, areas inspected up-close, and Authority assistance provided.

*6. GENERAL DATA

   List name, location, structure, type, year built, overall dimensions, and dates of this inspection and previous inspection.

*7. STRUCTURE DESCRIPTION AND HISTORY

   Provide a general overall description of the structure and components, the function of the structure, and a brief history, including previous repair work performed.

*8. DETAILED INSPECTION FINDINGS AND CONCLUSIONS

   Include all significant and typical findings and conclusions. Provide an overall evaluation statement for each major element. A description of the components in each category should precede the findings. Appropriate captioned photos showing significant and typical conditions and deficiencies should be interspersed throughout this section, either on separate pages or on pages with text. Include general plans locating significant deficiencies and all photos in the report. (Note: For structures *with multiple tenant areas, each area should be described separately.)*

*9. RECOMMENDATIONS

List recommendations in order of priority in the four categories:

Immediate, Priority, Safety, or Routine

10. APPENDIX

Provide all supplementary information. (i.e., memos, test results, measurements, etc.)

* For reports with more than one structure, provide separate Sections 6 through 9 for each structure.

IV. <u>SCHEDULE OF SUBMISSIONS</u>

Submit the work identified above for review by the Chief Engineer within the number of calendar days stipulated below after receipt by you of one copy of the Agreement executed by the Authority.

A. Submit three (3) copies of the inspection procedure outline (TASK A) within ten (10) calendar days.

B. Submit three (3) copies of the field inspection reporting forms and field inspection notes each month or as otherwise directed by the Project Manager.

C. Submit five (5) copies of the complete Condition Survey Report (TASK C) for review, and one copy of all field inspection reporting forms, field inspection notes and color photographs, within specified calendar days. Authority comments will be forwarded to you within thirty (30) calendar days after receipt of said submission.

D. Submit twenty (20) finalized copies of the Condition Survey Report (TASK C) within specified calendar day.

E. Submit two (2) complete copies of the field inspection notes bound separately, including all photographs taken during the field inspection, with the finalized Report.

F. Submit five (5) CDs of entire report, six (6) CDs of the CAD files, two (2) CDs of photographs, and two (2) CDs of word files.

V. <u>ADDITIONAL INFORMATION FOR THE PERFORMANCE OF THE INSPECTION</u>

A. <u>Guidelines</u>

The investigation shall be conducted taking into consideration the current issue of each of the following guidelines, as appropriate:

1. The Authority's *Condition Survey of Buildings***
2. The Authority's "Lightweight Ceilings Design Criteria" and "Plaster Ceiling Design Standards"**
3. Work Area Protection Schemes**

** Included herewith and made a part hereof.

B. Coordination

Overall project coordination by the Consultant shall be maintained with the Project Manager. The Consultant shall, however, be required to coordinate day-to-day field inspection activities with facility personnel and with the Authority's own construction forces (SEMAC) and outside Contractor's personnel who may be assigned to provide assistance to the Consultant in the performance of his inspection. The Project Manager will meet with the Consultant and other personnel prior to the start of the field inspection to establish these guidelines.

C. Meet with the Authority and incorporate Authority comments after submittals.

D. Railroad Flagman

A railroad flagman is required for work within and adjacent to railroad tracks. The Authority will make arrangements for flagmen with the appropriate railroads, however, the Consultant shall pay for the services of the flagmen as an out-of-pocket expense (except for PATH). Notify the Project Manager forty-eight (48) hours in advance of any such scheduled work requiring a flagman and do not proceed in performance of such services without the expressed approval of the Project Manager.

E. Roadway Work Area Requirements

1. The following typical methods and procedures for traffic control shall be used when working on Authority roadways. At the end of each work-day, all traffic control devices shall be removed from roadway areas and stored in a safe place.

   Four (4) typical work area protection schemes are illustrated herein. (See Attachments A-1, A-2, A-3 and A-4, included herewith and made a part hereof.) They include:

   a. Left Lanes

   b. Right Lanes and Curved Roadways

   c. Three Lane Roadways

   d. Four Lane Roadways

   The schemes shall be used as appropriate and shall serve as a guide for conditions not illustrated. No traffic control scheme shall be implemented without obtaining prior approval from the Authority.

2. Provide, install and maintain traffic control devices throughout the duration of the work at the site and immediately remove them thereafter. Where operations are performed in stages, only those devices that apply to the existing conditions be in place. Signs not applicable to existing conditions shall be removed, covered, or turned so that not to be readable by oncoming traffic.

   A flashing arrow sign consists of lights in the form of an arrow with lights flashing to indicate the desired traffic movement.

3. Conform to all applicable standards and ordinances in providing traffic protection and signing for closed lanes in streets and roads not under the Authority's jurisdiction.

Notify the Project Manager at least forty-eight (48) hours in advance of any such lane closing and shall not proceed without the express approval of the Engineer.

VI. CONDITIONS AND PRECAUTIONS

A. General

Vehicular, air, ship, and rail traffic and all other facility operations shall always have priority over any and all of the Consultant's operations. Schedule inspections of the structures in such a manner so as not to delay, endanger, or interfere with facility operations and as approved by the Project Manager.

B. Work Areas

Limit inspection work to the areas necessary for the performance of such inspection and shall not interfere with the operation of the facility without first obtaining specific approval from the Project Manager.

During all periods of time when not performing inspections at the work site, the store all equipment being used for the inspection in areas designated by the Project Manager. Do not permit any objects or pieces of equipment to lie unattended on sidewalks, roadways or structures at any time. Provide all security required for such equipment.

C. Work Hours

Perform work at the site between the hours of 8:00 A.M. and 4:00 P.M., Monday through Friday, unless otherwise approved by the Chief Engineer. Working hours for inspection of structures requiring roadway lane or railroad track closing shall be as determined by the Engineer.

All activities in tenant areas and concessions must be coordinated with the tenants through the designated representative for the Authority facility operations.

In any case, no work shall be performed at the site on legal holiday recognized by the State of New York/State of New Jersey.

D. Suspected Asbestos-Containing Materials

1. General

a. Friable asbestos containing materials may be present within structures scheduled for inspection. This section specifies the requirements for the condition survey in areas where asbestos-containing material (ACM) are discovered or suspected. Extensive care is to be exercised during all phases of inspections that could involve ACM.

b. In the event that asbestos-containing materials are suspected within areas being inspected, the Consultant shall immediately notify the Engineer and Project Manager.

c. The Authority will provide a Consultant or Authority representative to determine the content and condition of the materials, and to evaluate the situation. The inspection shall not proceed until approval is given by the Engineer.

d. Care shall be taken to avoid disturbing utilities and structural components, which are covered with known or suspected ACM.

   i) Prior to the commencement of inspection in areas suspected of containing loose or dust deposits of ACM, the Authority will provide services and use appropriate equipment (High Efficiency Particulates Absolute Vacuum) for the collection of dust and debris, and will clean these areas so that the inspection work can be performed.

   ii) It may be necessary to remove ACM form structural members for the purpose of inspection and testing. If removal is considered necessary for access and evaluation of structural components, notify the Project Manager. Removal services will be provided by the Authority in these cases.

2. Protection

If ACM is suspected, all necessary precautions within the work area being inspected shall be implemented to prevent disturbance of ACM and possible contamination. In addition, comply with the following:

a. Respirators: Workers shall wear respiratory protection equipment approved by OSHA under 29 CFR 1910.1001; Mine Safety and Health Administration (MSHA), Department of Labor, under Provision 20 CFR Part 11, subpart H, I, and J as amended; or National Institute of Occupational Safety and Health (NIOSH), Department of Health. Half face mechanical purifying respirators with High Efficiency Particulates Absolute (HEPA) filters are to be used. NIOSH and MSHA certification for "Radionuclides", Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists, and color-coded in accordance with ANSI Z228.2 (1980). Single use or disposable type masks are specifically prohibited.

b. Special Clothing: Workers shall wear disposable full body coveralls and disposable head and foot wear covers in subject areas.

c. Head Gear: Hard hats shall be worn over hoods of coveralls during inspection and testing unless "vortex type" respiratory system or full-face mask is used.

d. Gloves: Disposable rubber gloves shall be worn by all workers.

e. Exiting the Inspection Area: Upon completion of inspection in an area known or suspected of containing loose ACM; before leaving the inspection areas the workers shall vacuum each other thoroughly before removing protective clothing using a High Efficiency Particulates Absolute (HEPA) Vacuum, and shall wipe down faces and respirators with a wet cloth before removal. Disposable clothing shall be placed in six (6) millimeter think polyethylene bags, sealed and disposed of by the Authority as asbestos waste.

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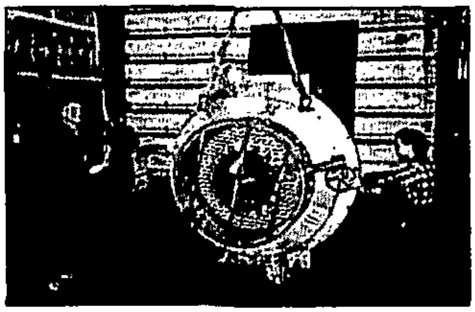
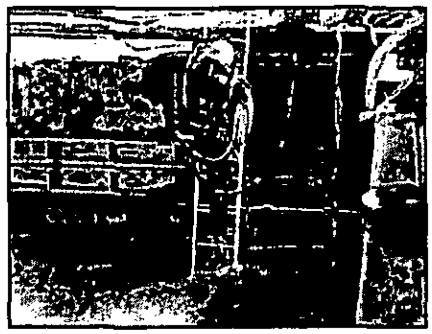
SECTION A-3

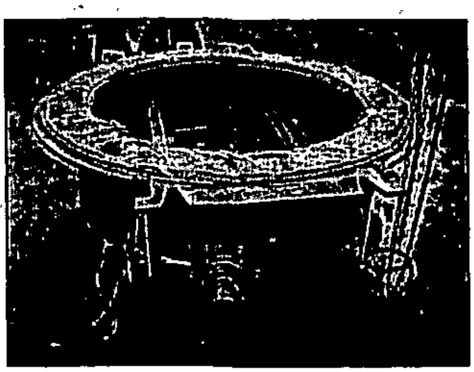
Publications

WATER OPERATION AND MAINTENANCE BULLETIN

No. 203 March 2003







IN THIS ISSUE . . .

- Repair of a Leaking Conduit Through the Swan Lake Arch Dam Near Ketchikan, Alaska
- Underwater Inspection of Waterfront Facilities and Bridges: Typical Considerations and Widespread Abuses

UNITED STATES DEPARTMENT OF THE INTERIOR Bureau of Reclamation

Available on the Internet at: http://www.usbr.gov/infrastr/waterbull

UNDERWATER INSPECTION OF WATERFRONT FACILITIES AND BRIDGES: TYPICAL CONSIDERATIONS AND WIDESPREAD ABUSES

by Michael J. Ganas, P.E.

The importance of inspecting the substructures of bridges spanning waterways and waterfront facilities during the development of maintenance programs or prior to preparing rehabilitation or repair designs is often overlooked by public officials and engineering consultants who are ultimately responsible for overseeing such activities.

By its very nature, the substructure of a marine facility is frequently hidden from view since most of the structural elements comprising it are submerged. Therefore, to assess the actual condition of structural members situated below the waterline generally requires the services of divers who possess a basic knowledge of the effects of deterioration on the safe load-bearing capacity of a marine-based structure. However, because submerged components remain visually covert, there is a widespread tendency to allocate relatively low budgets toward inspection of these items within the overall scheme of facility maintenance. Such a scenario lends credence to the age-old adage, "Out of sight, out of mind." Unfortunately, giving underwater inspection less importance or a lower priority on the budgetary scale with respect to other tasks has often proved to be disastrous, both in terms of facility maintenance costs and, more importantly, safety.

Purpose of Underwater Inspection

In order to fully understand the role of underwater inspection and its relationship to the management of marine facility upkeep, one must consider the goals for which its use has a significant impact. Underwater inspection has four primary purposes:

- Ensuring public safety
- Protecting public assets
- Preventing or reducing facility downtime
- Initiating proactive maintenance

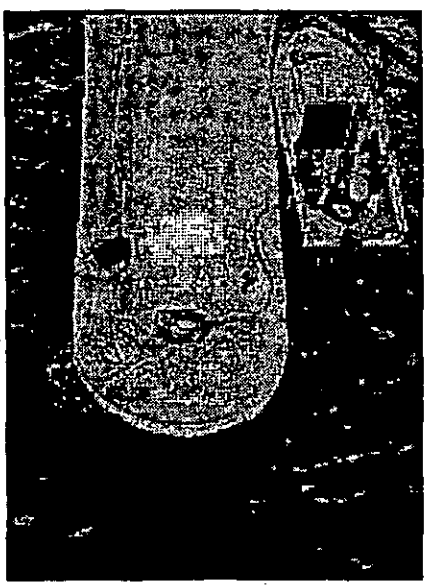
Many structures situated over water, particularly bridges spanning waterways and waterfront facilities such as marine terminals, piers, wharves, and relieving platforms, are heavily used by the public. While one can logically argue that ensuring the safety of the public of and by itself warrants the implementation of periodic and meaningful underwater inspection aimed at preventing catastrophic failure that could lead to casualties, the reality is that such justification is frequently neglected or diminished by key administrators, decisionmakers, and technical personnel involved with developing budgets for facility maintenance programs.

In fact, the costs associated with underwater inspection are commonly viewed by many facility owners as negligible in comparison to the total maintenance costs. At the heart of this problem is a substantial contingent of consulting engineering firms that provide services to marine facility owners, often establishing unrealistic and dangerous precedents based on misconceptions about the true nature of underwater inspection. Through association with the engineer, such misconceptions are frequently adopted by the owner. This usually results in past, but improper practices and performances by a predecessor becoming benchmarks for other consultants to follow at the urging of the owner, particularly during price negotiations when previous rates of production and costs are brought into sharp focus, thus proliferating a very risky and perpetual Catch-22, with no end in sight.

Types of Underwater Inspection

Underwater inspections are categorized into six types: Inventory, Routine, Damage, In-Depth, Interim, and Construction. Each is intended to accomplish distinct objectives.

- *Inventory Inspections*: Inventory inspections are normally performed following new construction, modifications, and repairs of bridge or waterfront facilities. Such inspections are intended to establish as-built or baseline structural conditions and to collect Structural Inventory and Appraisal (SI&A) data. Inventory inspections are often referred to as **"baseline inspections"** since they generally become the benchmark for assessing the results of all future inspections. Baseline and inventory inspections identify potential structural problems such as if the facility is scour critical. They are typically conducted on renovated or newly constructed facilities prior to owner acceptance and/or final payment to the contractor, frequently providing the actual plan, elevations, and section drawings of the structure as opposed to the original design configuration. This type of inspection establishes the time interval for the next inspection.



NBIS mandates that the *interval for routine inspections* of bridges spanning waterways should never exceed 5 years.

- *Routine Inspections*: Routine inspections determine the physical and functional condition of the facility, identifying changes from inventory, baseline, or previously recorded conditions. They are intended to assess the overall condition of the structure by assigning condition assessment ratings to the various facility components. They also ensure that the structure continues to satisfy its current service requirements and can include objectives aimed at quantitatively analyzing both local and global structural capacity as a result of damage or deterioration. Routine inspections should be performed on a regular, cyclical basis and are a proactive approach to maintenance since deteriorated elements will be detected and remedied before the deficiencies progress to a level that could jeopardize the structural integrity of the facility. Recommendations for future courses of action usually accompany a report of routine inspection findings, including followup maintenance or repair activities and the time interval to the next routine or other type of inspection.

The frequency interval between routine inspections varies from 1 to 6 years and is a function of material type, age of the structure, the service environment, the economic importance of the facility, the rate of further anticipated deterioration, and other factors. National Bridge Inspection Standards (NBIS), however, mandate that the interval for routine inspections of bridges spanning waterways should never exceed 5 years. Because of the covert nature of underwater inspection, reports containing diver observations and descriptions of findings on routine underwater inspections are generally accepted at face value. If a critical structural deficiency on a marine substructure goes undetected or is misinterpreted by the inspection diver or team leader supervising the inspection, structural failure may result a short time later.

- *Damage Inspections*: Sometimes referred to as **post-event inspections,** damage inspections are typically unscheduled inspections aimed at rapidly assessing the stability of a structure in the aftermath of a significant, potentially damage-causing event and determining whether further attention to the structure is warranted as a result of the event. Such events as floods, earthquakes of significant magnitude, vessel impact, high concentrations of corrosive chemicals in the water, tidal waves, major runoff caused by a severe storm, and scouring currents induced by the presence of ice floes or debris buildup may all dictate the need for a damage inspection, particularly if significant misalignment of structural members above the waterline is evident, usually an indication of severe section loss on submerged supporting elements or loss of foundation support. The scope of work or level of effort in this type of inspection can vary substantially and is generally determined by the type and severity of the event. However, damage inspections typically focus on the event-related damage only in an attempt to assess the need for immediate or longer-term repairs and often determine whether load restrictions or closure to traffic should be imposed on the structure. They also may determine the need for a more involved followup inspection effort supplemented by testing.

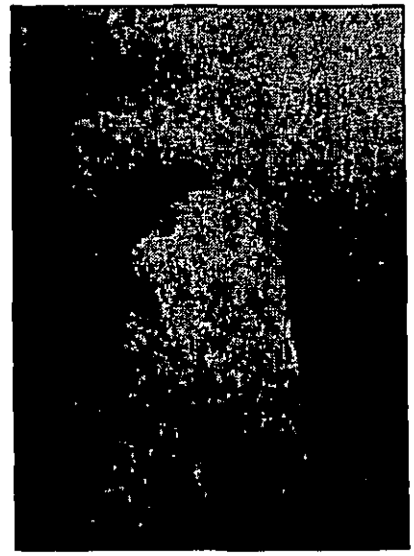
- *In-Depth Inspections*: Because in-depth inspections are most often performed to record defects requiring repairs, they are more frequently referred to as "**repair design inspections.**" In-depth or repair design inspections are normally scheduled when there is prior evidence of structural distress, typically upon the recommendation made after a routine inspection. Although they have no standard scope of work, they are commonly performed when the salvageability of an existing substructure must be determined for supporting a new or modified superstructure and can include a load rating analysis to calculate the residual capacity of the structural members. However, they are predominately performed to keep existing marine-based structures in continuous service. This type of inspection generally involves an extensive close-up, Level II hands-on assessment of structural members identified in the routine inspection as requiring repair or those elements that are anticipated to be modified for supporting a new superstructure. It commonly includes a Level III inspection effort involving non-destructive and/or partially destructive testing of structural components whereby laboratory analysis of extracted material samples are performed.

Although inconclusive results from a routine inspection will frequently dictate the need for an in-depth or repair design inspection, an in-depth inspection may be called for without being preceded by a routine inspection, particularly when the need for repairs is obvious. This frequently occurs following a damage inspection, which recommends that an in-depth inspection be conducted using testing techniques. An in-depth inspection also may be combined with a routine inspection, but the distinction between the two is not always clearly defined.

If improperly performed, an in-depth inspection will invariably result in the preparation of poor quality construction plans and specifications since erroneous or incomplete inspection findings will become the basis of the construction documents. Faulty bid documents will ultimately open the door to unanticipated and costly contractor claims and change orders once the work has begun. Thus, the sins or failings of the underwater inspector will eventually reveal themselves to the owner, assuming that the repair work went out for bid within a relatively reasonable time-frame following the repair design inspection. If the firm that performed the diving inspection was hired on a low bid basis by the design engineer responsible for preparing the construction plans, then the owner's wrath will ultimately befall the engineer for failing to exercise a professional standard of care.

For example, a consulting engineering firm prepares repair documents for the rehabilitation of an active, low-level pier facility, showing that 200 out of 5,000 timber piles averaging 25 feet in exposed length must be posted with treated wood. The posts will average 5 feet in length and will replace the upper portions of those piles that have been damaged by Limnoria, a type of marine borer. The repair plans are based on an in-depth underwater inspection performed by a diving subcontractor that was selected by the engineer with the owner's approval on a low bid basis. The cost of the underwater investigation equates to 10 percent of the consulting engineer's overall fee to perform the work.

Built in 1933, the pier was constructed during a time when pollution levels were high enough in the harbor where the pier is located to completely prevent marine borers from thriving. Thus, there was no need to treat the wood against biodeterioration caused by borers at the time of construction. However, as pollution levels dropped, obvious Limnoria attack began to manifest itself in the timber. This was documented in previous routine inspection reports, which showed some of the supporting piles taking on an hourglass configuration as their load-bearing capacities gradually diminished with advancing section loss. As Limnoria activity increased, pile diameters shrunk. In assessing if the facility can still function up to its required load-bearing capacity, the owner hired the engineer to perform a structural analysis on the pier and to determine the appropriate repairs necessary to restore the structural capacity of the damaged piles. To accomplish this, the engineer developed the scope of work for an in-depth underwater inspection that would provide the information required to perform the analysis and develop the repair designs. Although the scope did not include destructive core sampling of the timber to evaluate covert deterioration occurring within the piles, it did stipulate that penetration tests using an ice pick in conjunction with hammer strikes had to be performed on 20 percent of the timber piles at 5-foot intervals along their lengths to assess the soundness of the wood and would include those portions located at the mudline. The engineer also required that minor cleaning of marine growth had to be performed where necessary for the inspection diver to carryout the work. According to past inspection reports, the piles were heavily coated with barnacles and other marine organisms.



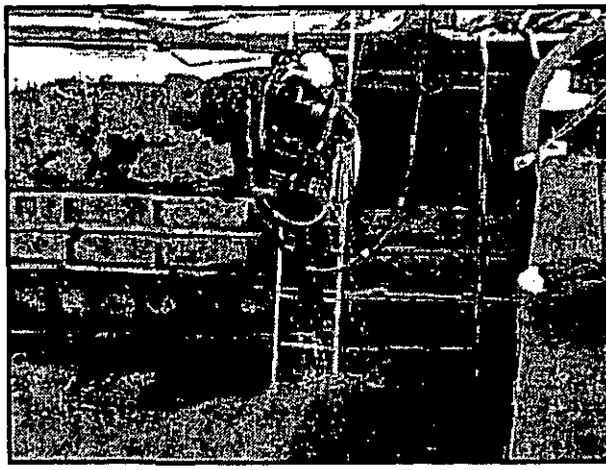
Timber pile exhibiting severe *section loss caused by* Limnoria attack.

After initiating the repair work, the marine contractor discovers the existence of substantial but hidden Teredo infestation permeating the piles. As it turns out, both types of marine borers, Limnoria and Teredo, are actively destroying the untreated timber comprising the piles identified for posting, with the Teredo actually pre-dominating and being more destructive. The contractor performs a statistical random sampling of the other piles and determines that the damage caused by Teredo is quite extensive and is widespread throughout most of the pile population, causing heavy deterioration in at least 3,000 piles, which are heavily riddled with Teredo tunnels along most of their exposed lengths. By striking the piles with a hammer near the mudline, the contractor was able to expose cavities in the timber with as much as 75 percent section loss. The contractor also notes that water velocity peaks at 2.5 feet per second during maximum tidal flow, making it extremely difficult to work during these periods. The contractor informs the owner that concrete encasement, rather than posting, is the appropriate method of repair and that posting will be a waste of money since it will not restore the hidden but severe section loss that will continue to progress in the piles below the planned postings. In fact, the facility is in imminent danger of collapse and should be closed until effective repairs are completed. This is confirmed when the owner hires another consultant to validate the contractor's claim. Ultimately, the owner blames the original design engineer for failing to note the severity of damage and sues for malpractice.

- *Interim Inspections*: Also called "**special inspections**," they are used to monitor known or suspected deficiencies that have the potential for compromising the structural integrity of a facility and are performed for the purpose of collecting more detailed information than normally obtained during a routine or repair design inspection. Although they have no standard scope of work, they are conducted for a predetermined purpose. Evidence of or the potential for such occurrences as differential settlement, migrating scour, marine borer attack, or corrosive environments may dictate the need for an interim or special inspection, although they are often scheduled at the discretion of the facility owner and may commonly require the inspection of only one substructure unit or structural element. Interim or special inspections are typically performed on an exceptional basis as a result of a recommendation made after a routine inspection and generally focus on obtaining information necessary to better understand the nature and extent of deterioration prior to determining the need for and type of repairs that will be appropriate.

  For example, measurement of electrical potentials at various points on a steel bulkhead are scheduled to be taken at 6-month intervals to determine the effectiveness of an existing cathodic protection system. In addition, this type of inspection can be used to estimate the remaining useful life of the structure based on deterioration rates of various material components determined from trends established from previous inspection reports. Core sampling of timber elements suspected of hidden biodeterioration as a result of Teredo or shipworm attack is an example of a destructive testing technique that may be used in performing a special inspection. Where appropriate, this type of inspection is sometimes performed concurrently with a routine inspection or an in-depth inspection, making it possible that all three types of inspection can be combined into one in certain cases.

- *Construction Inspections*: Construction inspections essentially fall into two categories: new construction inspections and repair construction inspections. Both types are intended as quality control measures to ensure that the work of a contractor is carried out in conformance with construction documents. In addition, such inspections serve to verify repair or installation quantities for contractor payment and to develop a list of deficiencies, or a punchlist, for which the contractor is to take corrective action. In general, repair construction inspections should be periodically conducted throughout the repair process rather than at the conclusion of the project to properly interpret and implement the design intent of the construction or bid documents. Not only do they act as a countermeasure against contractor claims, they help keep the project within the established budget and schedule, often resolving field problems and questions.


Underwater construction inspections act as countermeasures against contractor claims.

The scope and frequency of repair construction inspections is typically dictated by the type of repairs specified by the construction documents and also by the repair methods used by the contractor. On more complex projects where there is a sequence of underwater tasks to be performed, some of which would hinder or make impossible the inspection of preceding work items, continuous diving inspections on a daily basis may be warranted to stay on top of the contractor's work. Marine construction projects failing to have sufficient and competent underwater inspection, particularly when a substantial amount of repair work is submerged, will almost always result in at least one, if not all, of the following problems:

1. Poor workmanship by the contractor

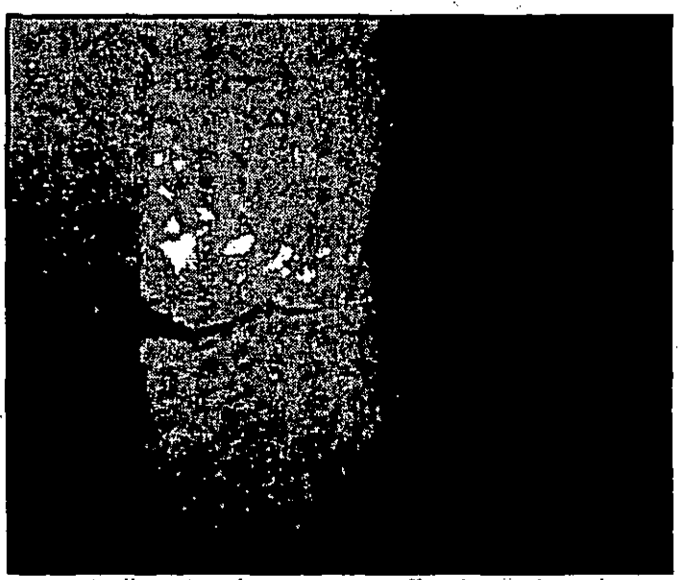
2. Costly change orders emanating from unverified contractor claims

3. Hidden construction defects, which may not manifest themselves until years after the project's warranty period has expired, ultimately resulting in expensive repairs that sometimes exceed the original project cost

Unfortunately, there has been an emerging trend in recent years in which the construction documents place the burden of quality control in the hands of the contractor who must make the repairs. This entails subcontracting with an independent party to carryout the construction inspection, with the cost of the inspection services coming out of the contractor's bid price. This is analogous to entrusting the fox with the keys to the chicken coop.

Levels of Effort in Underwater Inspection and Diver Production Rates

Certain inspection types, such as routine and in-depth, focus on the investigation of a statistically representative sample of underwater elements comprising a waterfront or bridge substructure by using a particular effort level of inspection on a percentage of those elements that will adequately define the sample. Three levels of underwater inspection are recognized by both the American Society of Civil Engineers (ASCE) and the National Bridge Inspection Standards (NBIS) and are defined as follows:



Typically, a Level I inspection effort is conducted on 100 percent of all exposed and accessible components comprising a substructure situated below the waterline with the objective of identifying all severe damage.

Level I

This entails a visual or tactile inspection of the entire exposed exterior surface of all accessible submerged components without the removal of marine growth. Commonly known as a "swim-by" inspection effort, it has the dual objective of confirming the as-built condition of a structure and detecting obvious major damage and other glaring deficiencies that could compromise the integrity of the structure, such as discontinuity of structural elements and undermining or exposure of normally buried components. Typically, a Level I effort is conducted on 100 percent of all exposed and accessible components comprising a substructure situated below the waterline. Photographic documentation is often used to record typical and atypical findings. In addition, this level of effort will determine which elements, if any, are to receive a Level II or Level III inspection.

Production rates for inspecting various types of structural elements will vary widely under this level of effort. For instance, as a general rule of thumb, with fairly good underwater visibility (i.e., 8 feet or greater) and little or no current, an experienced diver can inspect anywhere from 200 to 300 timber piles per 8-hour day when piles average 25 feet in exposed length and are spaced within 6 feet of one another. This assumes approximately 5 hours of time spent in the water after taking into consideration other field tasks such as mobilization to the site, dive station setup and breakdown, bent row numbering/stationing, diver changeovers, and demobilization. This equates to an inspection rate of 40 to 60 piles per hour, with each diver averaging 60 to 90 seconds per pile.

Keep in mind that the diver must alternately descend down one pile to a depth of at least 7 feet to be able to observe the pile where it enters the mudline before traversing over to an adjacent pile and ascending. Concurrent with this, the diver must keep verbally communicating his location and observations to the team leader stationed topside. During this process, he will frequently answer questions and clarify observations, often halting his movements while findings and measurements are documented or the surface tender pulls up or slackens his umbilical air hose upon the diver's directives. Very often he will carry a camera for documenting discovered damage and must periodically take photographs. Significant time can be lost if his umbilical hose becomes snagged on an obstruction, in which case the diver must backtrack to unsnag it.

However, as conditions become more adverse in the way of reduced underwater visibility, stronger currents, deeper water, and lower water temperatures, this production rate will drop considerably. For instance, zero underwater visibility in combination with a water velocity of 2 feet per second will frequently result in 70 piles or less being inspected at Level I during 5 hours of water time, assuming an experienced diver is performing the inspection. In zero visibility, a diver must first descend and then ascend along the same pile before swimming to the next pile on which to perform a tactile inspection, otherwise disorientation will ensue. A water velocity of 2 feet per second is about the highest flow most physically fit divers can handle for any extended period before fatigue sets in. In harbors and tidally affected waterways, diver productivity will be greatest during slack flow periods, particularly at low tide when some of the damage may be seen above the waterline. Although the scheduling of inspection dives to coincide with slack tide occurrences are advantageous to a dive team, such events are typically of short duration before water velocity escalates.

A variation of this type of effort is a **surface swim-by inspection** that, as the name implies, keeps the inspector positioned at or within 3 feet of the water surface while examining structural elements. Unless the water depth is shallow and underwater visibility is good, a surface swim-by inspection will not allow the diver to observe all exposed exterior surfaces of submerged elements. Because of this, its use has limited value in locating all of the existing severe damage on most marine structures situated in deeper, murkier water. Although neither the ASCE nor the NBIS would recognize this mode of inspection as an acceptable level of effort if it fails to reveal all major damage that would have been obvious to a diver at depth, many divers will inappropriately substitute a surface swim-by in lieu of a Level I inspection even though the scope of work specified that a Level I effort be performed. While this occurs predominantly out of ignorance as to what a Level I swim-by actually entails, surface swim-by inspections are frequently misused by divers falling behind their inspection schedule and are applied as a means of catching up.

Unfortunately, surface swim-bys are also widely misused by firms low-balling a bid price to perform an inspection. However, unless authorized by the owner as part of the defined scope, a surface swim-by effort should never be employed when the water depth exceeds the underwater visibility. In general, a diver claiming a Level I inspection rate of 100 piles per hour is indicative of a surface swim-by.

A Level II inspection effort requires partial cleaning of marine growth or other fouling encrustations from portions of the substructure to reveal hidden deterioration. Here, a diver used a hand scraper to remove barnacles from a timber pile prior to measuring its circumference.

Level II

More detailed in nature than a Level I inspection, a Level II effort requires partial cleaning of marine growth or other surface fouling encrustations from portions of the substructure to reveal hidden deterioration. Because of the additional expense and time-consuming labor of removing bio-fouling growth or other encrusting substances such as heavy rust, a Level II inspection effort is limited to representative portions of the components on which the inspection is being performed. Often referred to as a **"hands-on" inspection,** it typically includes measurements not only intended to document the type of defect and its size or dimensions, but also its position on the structural element as well as the element's location with respect to the structure. Photographic or video documentation is commonly included in a Level II effort.

As an example, a Level II inspection on steel members may also involve the scraping away of oxidized metal or rust on 2 to 10 percent of their surface area to assess the remaining cross-section obscured by the rust. This information may then be used in determining the appropriate type of repair needed to correct the damage. This type of inspection effort also may involve the technique of tapping and sounding a component with a hammer to identify weakened sections of steel or concrete or hollow areas in members comprised of timber that have been eaten away by marine borers.

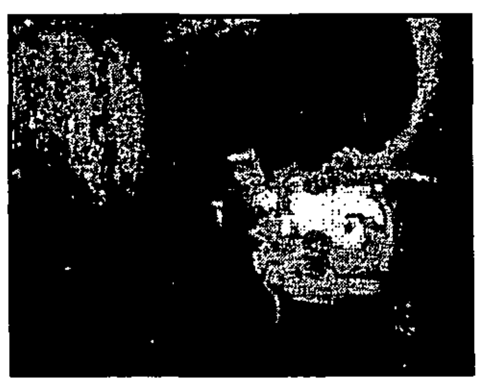
In addition, a Level II inspection on wooden elements may frequently employ a simple penetration test using an ice pick or awl to determine if the timber is undergoing soft rot. In particular, timber piles subjected to a Level II examination may often warrant systematic circumferential measurements at specific elevations along their length to ascertain overt section loss caused by abrasion or Limnoria attack. The documented residual pile diameters resulting from the inspection may then be used in a load-bearing analysis of the structure to compute residual capacity and perhaps to determine what structural modifications or retrofits will be required in a repair design aimed at restoring or increasing a pile's original load-bearing capacity.

A Level II effort is typically conducted on at least 10 percent of the submerged components of a structure, particularly during execution of a routine underwater inspection which normally consists of a 100 percent Level I and 10 percent Level II effort. By contrast, repair design inspections will frequently entail a 30 percent or higher Level II effort in combination with a 100 percent Level I, although the number of components requiring a Level II inspection has been known to include all submerged structural elements in some cases.

Production rates for inspecting different types of structural components will vary markedly when performing a Level II inspection effort and will depend on such factors as the structural materials comprising the underwater members, the environmental conditions encountered, the amount of biofouling growth or other encrusting substances that must be removed, the configuration of the substructure, the amount of existing deterioration, and the proficiency level of the diver. However, Level II inspections are generally much more time consuming than a Level I. With fairly good underwater visibility and little or no current, an experienced diver can inspect an average of 14 steel H-piles per hour at Level II while working in water depths of 25 feet. This production rate will lessen as conditions get worse.

Level III

A Level III inspection effort is highly detailed in nature, typically utilizing non-destructive testing (NDT) or partially destructive testing methods to detect covert or interior material section loss and damage. Such techniques are generally focused on suspected areas of representative or critical structural members. Often requiring extensive cleaning, detailed measurements, and the use of ultrasounding technology to evaluate material homogeneity or remaining section for corrosion profiling of steel members, a Level III effort is conducted on a statistically representative sample, normally 5 percent, of a specific population of structural components such as piles or pile caps. It may also involve physical material sampling in which timber or concrete corings are removed for laboratory analysis. Typically, Level III inspections are substantially slower in execution than a Level II effort.



A Level III inspection effort on a timber substructure will often include destructive core sampling of piles to evaluate the extent of marine borer infestation.

For example, a Level III effort conducted on steel H-piles under good conditions would equate to a production rate of roughly 5 piles per hour. This is because more extensive cleaning is performed in combination with the taking of more detailed measurements, noting zones of corrosion and thickness of flanges and webs at various elevations using ultrasonic thickness measuring devices and micrometers.

Minimum Technical Qualifications of Inspection Personnel

A properly conducted underwater inspection goes well beyond the documentation of observed defects, frequently necessitating that sound judgment be applied to decisions made throughout the inspection process. An understanding of load paths, structural redundancy, and the structural significance of observed damage are all important aspects of underwater investigations, particularly when assigning condition assessment ratings to the various components of a structure during a routine inspection. Inspection personnel must not only be proficient in commercial diving techniques to gain access to submerged structural elements, they must also possess a firsthand knowledge of a wide array of deterioration and their causes for the purpose of quantifying the damage and determining the most economical and cost-effective repairs.

The task of measuring and recording section loss along a member of and by itself can be meaningless unless it is determined where the loss has occurred relative to the point of maximum bending moment or shear. For example, conducting an interim or special inspection on a population of timber piles undergoing Limnoria attack may require documenting circumferences at periodic intervals along representative members to evaluate section loss against bending moments at various locations along the piles. Ultimately, the results of the special inspection may recommend that a followup in-depth or repair design inspection be performed. However, the special inspection findings will generally dictate the appropriate levels of followup inspection effort, including testing, to be undertaken based on the repairs that will be most cost effective. Obviously, piles that are to be jacketed to remediate Limnoria-induced biodeterioration will not require the same level of inspection effort as piles on which each defect will be repaired individually by such methods as posting, shimming, and concrete encasement.

A dive team leader communicating with the inspection diver during underwater inspection being documented on videotape.

While the *Underwater Investigations Standard Practice Manual* published by the ASCE recommends that an underwater inspection team shall be led by and be under the direct on-site supervision of a registered professional civil or structural engineer who acts as team leader, the ASCE also stipulates that the team leader should be a trained diver who physically performs at least 25 percent of the diving inspection work. The ASCE further recommends that the team leader should have a minimum of 5 years experience conducting subaqueous structural investigations in combination with a minimum of 5 years engineering experience specifically related to the type of facility being inspected.

Although such recommended requirements typically apply to baseline (inventory), routine, damage (post-event), special (interim), and repair design (in-depth) inspections, the ASCE has less stringent team leader requirements relating to construction inspections, whether they be focused on new construction or repair construction. In such cases, a graduate of a 4-year civil or structural engineering curriculum will suffice as team leader in lieu of a licensed professional engineer as long as the individual has a minimum of 2 years of construction inspection experience. However, the ASCE also concedes that for construction inspections, an individual with a minimum of 10 years construction inspection experience and possessing certification from a nationally recognized building authority such as the National Institute for Certification in Engineering Technologies (NICET Level IV) or the U.S. Department of Transportation's 80-hour course in "Safety Inspection of in-Service Bridges" can also qualify as a team leader.

ASCE guidelines further suggest that other dive team members should either hold a 4-year engineering degree or have completed a course of study in structural inspections such as "Safety Inspection of In-Service Bridges."

Diver Training and Safety

Of equal importance alongside technical qualifications, an underwater inspector should be experienced and proficient as a diver to perform structural inspections under hostile environmental conditions. Commonly encountered factors in the form of swift currents, swirling vortices, poor underwater visibility, cold water, confined spaces, and submerged hazards can often distort an inspection diver's perceptions about the actual condition of a submerged structure, frequently disorienting the diver as well as subjecting him to substantial physical and psychological duress. Even a recreational sport scuba diver with hundreds of

Inspection divers must be sufficiently trained and experienced to perform meaningful inspections in harsh environments.

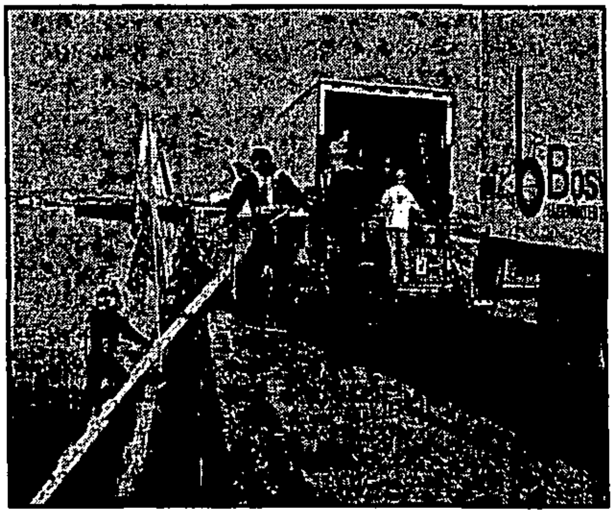
hours logged underwater may not be fully prepared to adjust to such adverse conditions. As a general rule, sport divers typically restrict their diving to open water settings where warm, clear water and slower currents often predominate. Whereas recreational scuba enthusiasts dive for enjoyment and will usually have the option of selecting a comfortable environment, inspection divers are task oriented and very often must deal with a harsh environment to complete the job. This necessitates that they receive training in commercial diving techniques to learn how to function effectively under more difficult conditions.

OSHA makes a valid distinction between commercial diving and recreational scuba diving. The training and certification a recreational diver obtains is relatively miniscule in comparison to the hundreds of training hours a commercial diver receives. Recreational dive training organizations, such as NAUI, PADI, and YMCA openly acknowledge that diving certification under their auspices is inadequate training for underwater commercial work which, by its very nature, normally utilizes hard hat gear supported by surface-supplied air in combination with diver-to-surface audio communications and frequently employs the use of underwater tools.

The use of scuba equipment in underwater commercial operations has minimal value, particularly when applied to Level II and Level III inspection efforts since its limited air supply and lack of communications render it both impractical and inefficient for subqueous structural inspections. By contrast, diving investigations using surface-supplied air produce far better results. For one, diver measurements and observations can be readily documented by topside personnel, thus providing accurate information on which to base complex rehabilitation schemes and repair designs. In addition, the umbilical air hose used in conjunction with such an investigation not only tethers the diver to a supporting cast on the surface, but also provides him with an unlimited supply of breathable air, making diving much safer and allowing extended underwater operations, both of which contribute immeasurably to the effectiveness and overall quality of the inspection.

Currently, the minimum manning requirement for a commercial diving operation as mandated by both OSHA and Coast Guard regulations is three persons—the team leader, diver, and tender. However, a standby safety diver must be added to the dive team as a fourth member when diving in excess of 100 feet of seawater (fsw), when in-water decompression is necessary, or when underwater hazards exist. Furthermore, an additional diver must be stationed at the underwater point of entry for the purpose of tending the primary diver's umbilical hose whenever diving is conducted in enclosed or physically confining spaces. According to the commercial diving standards put forth by the governing agencies, each in-water diver must be continuously tended from the surface by a separate dive team member. Based on these guidelines, an underwater inspection carried out in a confined space environment would warrant a dive team comprised of six persons—the team leader, primary inspection diver, in-water diver/tender, standby safety diver, and two surface tenders. Such an operation would require three separate umbilical air hose rigs in combination with diver communications, each with a compressed air supply consisting of both primary and backup sources, and if the dive surpassed a depth of 100 fsw or exceeded the no-decompression limits, a recompression chamber should be readily available at the site.

Unfortunately, recreational divers continue to be hired for underwater inspection work in which they are insufficiently trained, experienced, and equipped to undertake. In point of fact, the utilization of recreational divers to perform underwater structural inspections that are clearly commercial in nature is extremely widespread among many public agencies and engineering consulting firms alike. Quite often, this is attributable to an ignorance of the risks involved in this type of work. Such ignorance commonly manifests itself in criteria found in issued RFPs, bid requests, and contracts that nebulously stipulate that the inspector need only be certified as a diver, thus allowing an individual with only basic YMCA sport diver training to qualify for the work.



Based on OSHA and Coast Guard guidelines, an underwater inspection carried out in a confined space environment would warrant a dive team comprised of six persons.

Sometimes this can lead to a tragedy like the one which occurred in March 1997 when two recreationally trained scuba divers hired by a State agency in Washington entered an underground, 104-foot-deep water-filled tunnel with only a limited air supply in the form of scuba tanks strapped to their bodies, no surface tethering, no means of communication, and lacking a stand-by safety diver immediately on hand. After the divers failed to emerge from the murky, 40-degree Fahrenheit water, the agency called in two additional scuba divers, also with limited training and inadequate equipment, to effect a rescue. The end result was that all four divers perished after running out of air. Several times a year, unqualified and poorly trained divers lose their lives in very similar accidents.

In view of this type of catastrophe, it follows that public agencies and engineering consulting firms should take heed of the potentially dangerous liability of hiring recreational divers to undertake commercial diving work since, in the event of an accident, it can be viewed as negligence that significantly contributed to the dire consequence. Even citing recreational diving certification as a prerequisite to qualify for the work can lead to possible OSHA violations since OSHA regulations stipulate that an employer's obligation exists for compliance with all provisions of the commercial diving standards.

The Washington disaster was carried out in a manner that defied commercial diving safety standards on three major counts: insufficient training, undermanning, and inadequate equipment. An undertaking of this scale would have required a minimum of six properly trained and experienced individuals on the dive crew, equipped with surface-supplied diver support gear with primary air and at least two separate sources of backup air, diver-to-surface communications, and a recompression chamber. And while such an operation would have been many times more expensive than the one that ended in tragedy, the lower cost of using recreational divers supported by marginal equipment will ultimately prove to be insignificant when weighed against the staggering liability costs that will surely result once the smoke clears from this debacle.

Sacrificing Safety and Quality in Favor of Reduced Underwater Inspection Costs

Even with an awareness of OSHA guidelines, there are some public agencies and engineering firms that will frequently sacrifice safety in favor of the potential cost savings associated with using recreational divers. As a general rule, correctly performed underwater inspections are expensive and require considerable effort to execute. Associated costs will vary and are sensitive to many factors, including the size and type of submerged structure, the inspection level of effort performed, water depth, water velocity, polluted water, water temperature, the extent of underwater visibility, the existence of confined or enclosed spaces, the amount of obscuring marine growth or other encrustations requiring removal, and the presence and amount of obstructing debris. Special equipment requirements such as workboats, underwater cameras and video systems, waterblasters for removing marine growth, ultrasonic instruments for gauging section loss or remaining thickness of steel members, hydraulically powered coring tools for obtaining timber and concrete samples, and recompression chambers will further contribute to the cost.

The desire to curtail costs at the expense of quality and safety can be a strong motivational force among organizations that are routinely strapped with limited budgets. Most owners of marine facilities will rely almost exclusively on engineering consulting firms either to develop a maintenance program for its facility or to work on some phase of their maintenance program involving underwater inspection, often contracting with the consultant offering the lowest price from among a short-listed field of the most technically qualified firms submitting proposals to perform the owner's stipulated scope of work. It is not uncommon for the owner to ask the consultant to sharpen its pencil further before an agreement is reached that favors the owner's budget. If one cannot be reached, the owner will occasionally go to the next firm in the short-list ranking until a reduction in price is achieved without a corresponding modification of the workscope. Sometimes, the owner will select a firm based strictly on technical merit, then enter into negotiations with the chosen firm until a not-to-exceed price or upset limit is agreed upon for the consultant to provide the required services. The riskiest contracting approach, however, occurs when the owner puts the work out for bid without giving any consideration whatsoever to a firm's qualifications. This tactic has occasionally proved to be disastrous, sometimes putting public safety at risk.

Quite often, the owner will have a preconceived but unrealistic expectation of what the engineering services should cost and will use this as a basis for negotiating the price downward to levels that will compromise the quality of the work. When this happens, the risk of reduced safety escalates, not only in terms of the personnel performing the diving inspection, but also in terms of diminished safety to the public since poor quality can easily translate into the potential for impending structural failure conditions to be overlooked. Such unrealistic expectations are typically predicated on previous work performed by past consultants who, eager to get the work, did not adhere to underwater inspection protocol established by the ASCE and OSHA and who either intentionally or mistakenly under-estimated the minimum amount of time needed to properly conduct the inspection. In fact, breaches in quality and safety are most often proliferated by consulting engineering firms, making underwater inspection one of the most abused areas within the civil engineering industry. Because of its covert nature, poorly conducted inspection activities taking place below the waterline can routinely go unchallenged, the consequences of which can be extremely costly to an owner over the long term. A diver failing to note relatively minor deterioration that can be remediated at minimal expense in its early stages may ultimately cost the owner millions of dollars in major repairs down the road if left unchecked.

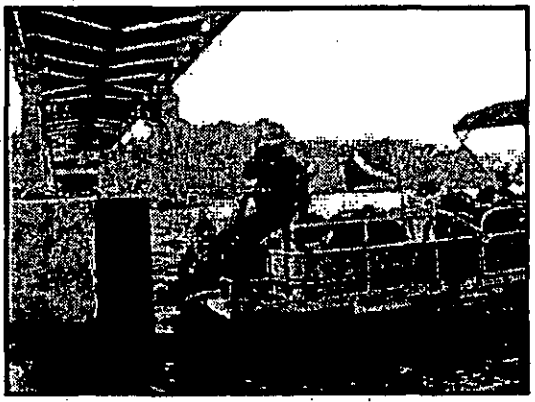
Once the work is awarded, the consultant will normally invoice the owner on either a lump sum or a time and materials basis, depending on the contract stipulations. If the hired engineering firm lacks in-house diving capability, the consultant, in an effort to achieve maximum profitability, will frequently subcontract with the least expensive diving entity to collect information about the condition of the submerged structure(s) requiring inspection. However, there is a widespread propensity among many engineering firms demonstrating an expertise in marine engineering to perceive themselves as having qualified divers on staff simply because some of their engineers happen to possess basic scuba certification. These same firms also have a tendency to believe that basic scuba gear is all that is needed to accomplish an underwater inspection.

Generally speaking, most scuba certified divers are too inexperienced to adequately cope with adverse underwater environmental conditions to perform a meaningful inspection, often spending the majority of their diving time adapting to difficult situations and frequently becoming physically exhausted, hypothermic, or disoriented. The existence of strong currents, poor underwater visibility, and cold water will invariably hamper the quality of an untrained, inexperienced diver's inspection, substantially hindering productivity and causing such work to take longer to complete than originally anticipated. In an attempt to save face with their employers, these same divers may be forced to shortcut an inspection to satisfy allotted timeframes and budgeted man-hours, factors which ultimately determined the firm's final negotiated price or bid. If these same divers carryout the work using scuba gear, the accuracy of the inspection findings may be seriously flawed and incomplete since the documentation of various types and sizes of defects on a relatively large, but deteriorated substructure would be made all the more difficult, to say the least, assuming none of the personnel examining the structural elements were endowed with a photographic memory. Keep in mind that unless SCUBA bottles are used in conjunction with a band mask or diving helmet that incorporates diver-to-surface communication, the diver must keep coming to the surface to report observations and measurements to topside personnel. In addition, a major shortcoming of SCUBA is the limited time it permits the diver to say submerged. On a fairly large substructure, there is always the temptation to rush the inspection to avoid having to change air tanks.

Various types and combinations of diving conditions encountered can directly affect the amount of time required to inspect a substructure in a manner that conforms to ASCE and NBIS guidelines. Swift currents and vortices will dramatically increase inspection time. One must remember that most bridges span the narrowest gap in a channel where water velocity is usually at a maximum and will quickly sap a diver's strength. Cold water can also slow the inspection and will constrain a diver's water time before the effects of hypothermia create mental confusion and drain the diver's energy. Deep water will limit bottom times because of dissolved nitrogen buildup in the tissues. Note that a diver working as deep as 60 feet is limited to 60 minutes in the water without having to undergo decompression. This time restriction becomes more severe with increasing water depth. Additionally, poor underwater visibility can easily cause a diver to become disoriented.

Construction debris in the form of cables, H-piles, pipes, and other items that commonly exist around bridge footings and the base of other types of marine structures are all potential diver hazards. Submerged driftwood and tree limbs can also hamper a diver, catching and entangling an umbilical hose. Ice floes pushed along by tidal and river currents during cold weather can also menace inspection divers.

Overall, the more adverse the conditions, the less time a diver can realistically spend performing an inspection before he becomes ineffectual or endangers himself. For this reason, more frequent diver changeover is needed to continue the inspection. Because of this, one or more additional divers may be required to conduct the inspection in a safe, efficient, and reliable manner. A diver that is easily fatigued or has trouble equalizing the ambient pressure on his eardrums while submerged on an inspection assignment will often become a liability to the success of the project, no matter how skilled he is at recognizing deterioration that can lead to



Frequent diver changeovers are important when adverse conditions exist to avoid burnout and to ensure the quality of the inspection.

structural compromise. To avoid excruciating ear pain or risking personal safety, such an individual may defer going more than a few feet below the waterline altogether, only performing a surface swim-by inspection, at most.

To go a step further, if adverse diving conditions exist but were either unanticipated or disregarded during the bid proposal or price negotiation process, the diving contractor may very likely have insufficient manpower and equipment to execute a competent or meaningful inspection, thus burning out his diver or divers all too quickly. As a rule of safety, and to ensure the quality and completeness of the inspection requirements, all members of the dive team should be qualified inspection divers whenever adverse conditions are present so that frequent diver changeovers are possible.

Cutting Costs Can Cost Lives

Because of these problems, bridges and other water-based structures located in environments where severe conditions preside are often the most likely candidates for a structural collapse due to undetected compromise when award of the underwater inspection work is acquired through unrealistically low bid prices or cost negotiations which overwhelmingly favor the owner. Consulting engineers and owners must come to realize that unrealistic pricing tends to cultivate four primary conditions that can lead to poor underwater inspection and ultimately be very costly to an owner over the long run. These are summarized as follows:

1. The inspection diver is technically unqualified to recognize structural deterioration and deficiencies and their relationship to the integrity of the marine facility

2. The diver is too inexperienced with adverse underwater conditions to give the inspection his full attention and complete all scope requirements

3. The dive team is improperly and/or insufficiently manned and equipped to effectively execute the inspection

4. The diver spends insufficient time inspecting the substructure

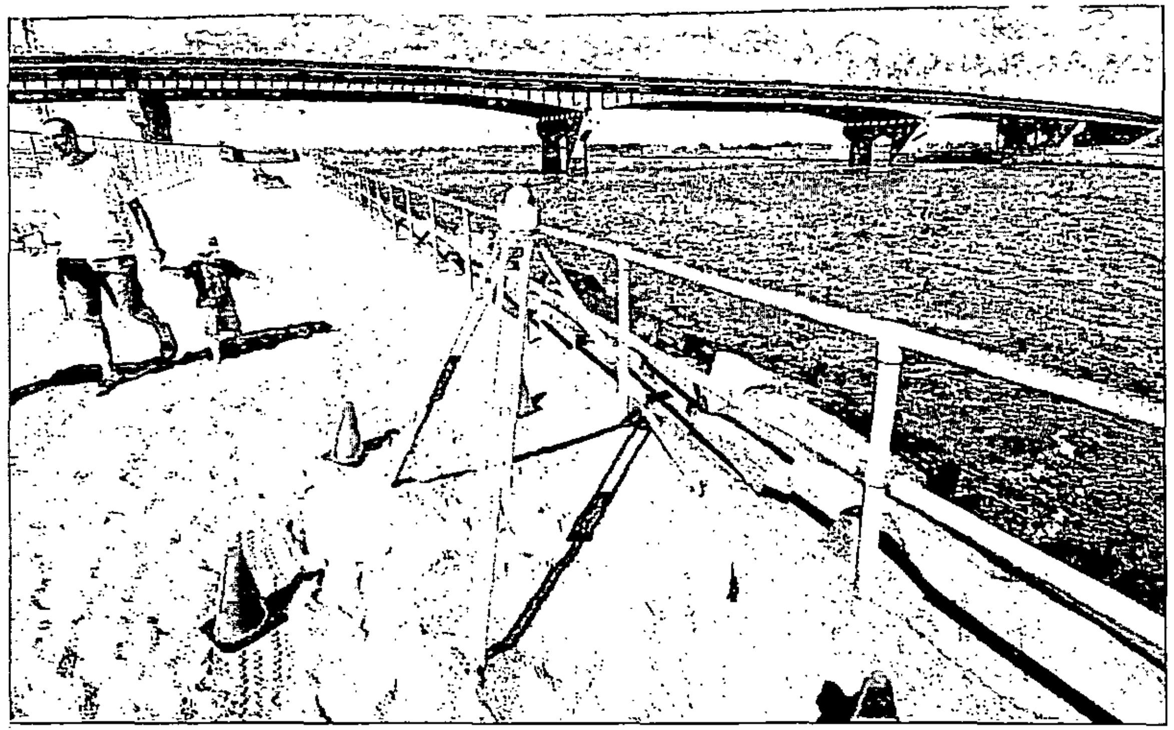
While many consulting engineers and owners are cognizant of such problems and have taken steps to avoid them, there remains a substantial contingent that will have to learn about them the hard way – in the pocketbook! Unfortunately, those are the ones that continue to put the public at risk.

Michael J. Ganas, P.E., is the Director and General Manager of Boswell Underwater Engineering, the marine division of Boswell Engineering, located in South Hackensack, New Jersey. He has managed commercial hard hat diving operations aimed at assessing the structural integrity and repair of marine facilities for more than 24 years. Boswell Engineering may be contacted by phone at (201) 373-8914.

SECTION A-3

Press Releases

Divers give Indian River Inlet Bridge its annual inspection



Special to The News Journal/CHUCK SNYDER

A surveyor's target on the shore provides a reference point for the team inspecting the Indian River Inlet Bridge this week.

Few engineers are qualified for dirty, dangerous job

By SUMMER HARLOW
The News Journal

The water was cold and rough, filled with old, tangled fishing lines and cables.

Hundreds of fish darted everywhere, making it even tougher to see in the two-foot visibility.

ONLINE EXTRA

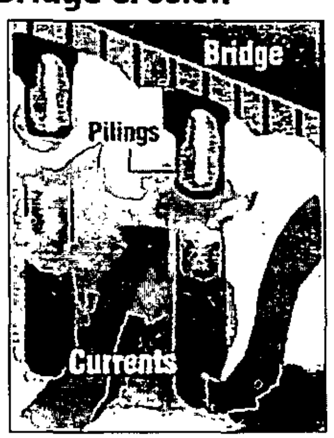
Watch a video of *divers inspecting* the Indian River Inlet Bridge at **www.delawareonline.com.**

The three-man crew on board the boat were working on a tight schedule. The rapid current – one of the fastest on the East Coast – means they have a mere 45-minute window every six hours, during "slack tide," in which it's safe to dive into the murky Indian River Inlet.

The divers were inspecting the supports of the bridge that spans the inlet, which has been deemed "structurally deficient" by the federal government. It is closely monitored for scouring – erosion of the inlet's bottom that leaves the steel beams that support the bridge exposed and potentially insecure.

These divers are engineers who have traded in their suits and ties for wet suits and flippers. They spend their days on the open water, not tied to a desk and office.

Bridge erosion



Daily tidal flow has eroded the bottom of the inlet. In 1965, when the current bridge was built, the inlet was about 28 feet deep. A 1999 survey showed some the bottom depth exceeding 100 feet. The more the pilings are exposed, the less stable they are.

The News Journal

And there are probably only two dozen engineers across the country like them, certified not only as professional engineers but also as commercial divers.

"We're few and far between," said Dennis Cassidy, an engineer diver with New Jersey's Boswell Engineering, before he headed out for the annual underwater inspection of the Indian River Inlet Bridge this week. "It's a hazardous environment, with polluted water, and the currents."

David Severns, chairman of the Association of Diving Contractors International engineering diving committee, said it's a rarity to find a professional engineer who also has undergone the 464 hours of training to become a commercial diver.

And with roughly 150,000 bridges across the country requiring water inspections, and fewer than two dozen professional engineer divers, states often must turn to nonengineers to complete inspections, Severns said.

"There just aren't enough to go around, and that's a problem," he said.

Underwater, there's not someone looking over inspectors' shoulders to doublecheck their work, which is why it's so important to have professional engineer divers, he said.

Built in 1965, the Indian River Inlet Bridge, a vital connection between Dewey Beach and Bethany Beach, has been subject to divers' inspections since 1996, said Jason Gleockler of the Delaware Department of Transportation.

See BRIDGE — A9

Bridge: Divers' report due in two weeks

FROM PAGE A1

The bridge is unique because four of its eight feet are under water, and thus susceptible to scouring and wear and tear from the rushing water, Gleockler said.

Significant scouring first was reported in the 1980s. Since the bridge's construction, the mud level has dropped more than 70 feet, leaving the tops of the steel support beams exposed. However, Gleockler said, huge boulders have been placed where the soil has washed away.

The inspection report is expected in about two weeks, but the Boswell team said conditions look unchanged from last year. The diving inspection is in addition to electronic sensors recently installed on the bridge.

Despite its structurally deficient rating, the bridge is safe, Gleockler said.

"If it was not safe, we would close it," he said. "This is the most monitored bridge in the state. We have a really good grasp on the conditions and safety of the bridge at any given time."

Replacement of the bridge, which carries 16,000 to 18,000 cars a day, is expected to begin in about a year, Gleockler said.

On Tuesday afternoon, Cassidy jumped into the inlet just after 2 p.m., when water speeds slowed to about four knots.

With temperatures at about 74 degrees, his full-body wet suit provided more than enough warmth for the hour-long dive.

While below the surface, he tested the thickness of the bridge's steel beams and took soil samples.

After another dive Wednesday morning, the team then crossed up and down the channel, taking sonar readings to calculate the depth of the water surface to the mud line below – important for determining how much of the mud supporting the bridge's piers is eroding.

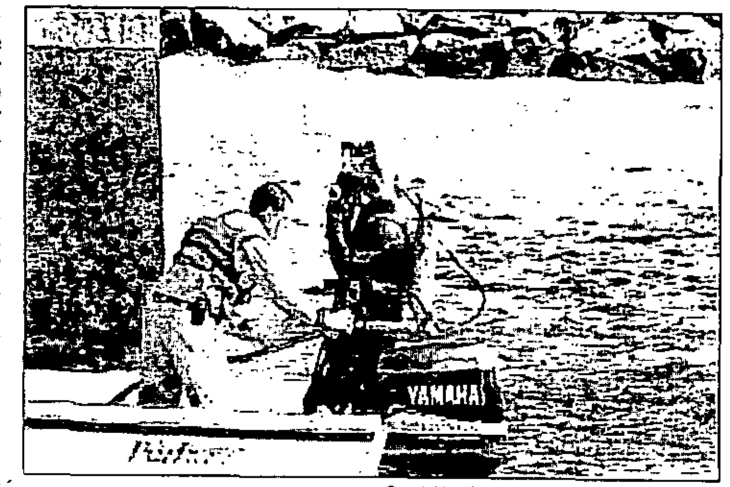
Commercial diving is nothing like the blue-water fun that comes to mind when thinking of scuba diving, Severns said.

"Commercial divers jump in murky water where you can't see your hand in front of your face, the water is cold and swift, and there's tons of debris," he said. "There's entanglement hazards, and you're dealing with confined spaces, wriggling up under and around things."

While the scenery at the inlet left something to be desired, engineer diver Ljupcho Naumchevski said, the beauty of his job is that he gets to stay outdoors.

"Most of the time we go places not everybody goes and we can see things most everybody can't see," he said.

Contact Summer Harlow at 324-2794 or sharlow@delawareonline.com.



Special to The News Journal/CHUCK SNYDER

An engineer diver from Boswell Engineering prepares to dive into the Indian River Inlet to inspect piling supporting the Indian River Inlet Bridge.

"If it was not safe, we would close it. This is the most monitored bridge in the state. We have a really good grasp on the conditions and safety of the bridge at any given time."

Jason Gleockler, spokesman for the Delaware Department of Transportation

The News Journal
www.delawareonline.com
THURSDAY Sept. 20, 2007
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· FINAL EDITION

WASTEWATER

The Clark County Water Reclamation District (CCWRD) retained **MHW Global**, Broomfield, Colo., to provide program management services for a number of capital improvement projects, valued at $961 million, scheduled to be designed and constructed during the next three years. MHW Global's contract is worth $11 million. The projects will address CCWRD's need to renovate aging infrastructure and to provide expanded facilities that will meet federal and state water quality standards. As program manager, MWH will be responsible for the coordinated management, delivery, and monitoring of a portfolio of the projects.

Wheaton, Ill.-based **RJN Group, Inc.**, was selected by the city of Baltimore to provide a comprehensive flow-monitoring program throughout the Gwynns Falls and Patapsco sewersheds, as well as the city's main interceptor system. The three-year program will consist of using state-of-the-art wireless technology and open-channel flow monitoring to determine a system-wide capacity assessment.

ARCADIS will provide engineering design services for the new Western Wake Regional Water Reclamation Facility in western Wake County, N.C. Under a $9 million contract, the firm will design and build an 18 million-gallon-per-day (mgd), regional wastewater treatment facility, expandable to 30 mgd, to provide the necessary capacity and to comply with the terms of an Interbasin Transfer agreement. The design is to be completed in 16 months and the plant will go online in 2010.

Cole & Associates, Inc., St. Louis, with subconsultants **Glenn E. Borgard, P.E.**, and **Terracon**, has been named the design consultant on the Chesterfield Valley Sewer and Water Extension Project. Cole & Associates completed the planning and feasibility study for the project last year, which includes extending sanitary sewer and domestic water service to undeveloped areas in the west end of Chesterfield Valley around the Spirit of St. Louis Airport. Design is expected to be complete by the end of the year, with construction completed by late 2007 or early 2008.

POTABLE WATER

The New York City Department of Environmental Protection selected **Gannett Fleming**, Locust Valley, N.Y., to perform detailed facility planning for the $2.5 billion Kensico City Tunnel project in Westchester County and the Bronx, N.Y., as part of the UTG Team, a tri-venture composed of the **URS Corp.**, **TAMS/Earth Tech**, and Gannett Fleming. The UTG Team will provide a facility plan and preliminary design for a third aqueduct to the city, including an alternative analysis, route selection, tunnel size and method of construction, public review, and environmental impact analysis. When complete, the tunnel will convey drinking water from the Kensico Reservoir in Westchester County to the Van Cortlandt Valve Chamber in the Bronx.

The Village of Villa Park, Ill., hired **RJN Group, Inc.**, to conduct a water main master plan, including survey and assessment of the existing water distribution system and development of a hydraulic model to size the new water mains to meet current demand and criteria.

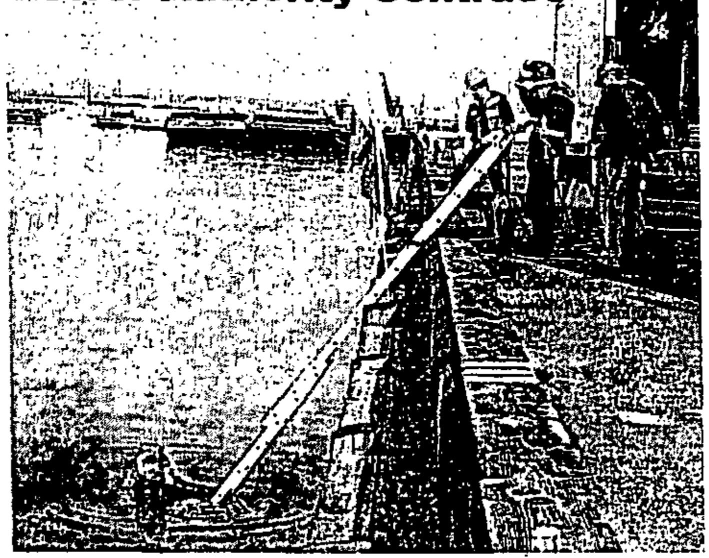
Westin Engineering, Inc., Rancho Cordova, Calif., was awarded a $7.8 million contract by the city of Chicago Department of Water Management for a new supervisory control and data acquisition (SCADA) system. The new SCADA system will consolidate distribution operations at the Jardine Water Purification Plant, one of the world's largest water treatment plants.

TRANSPORTATION

Boswell Underwater Engineering, South Hackensack, N.J., was awarded two, three-year on-call contracts by the Port Authority of New York and New Jersey involving waterfront marine facilities engineering and diving inspection services. The firm began 45 days of diving inspection services to monitor underwater repairs at the Pier 9A and 9B facilities located in Brooklyn, N.Y. In addition, Boswell was awarded its 11th consecutive New York State Department of Transportation contract for bridge diving inspections and fathometer surveys. The latest contract involves 235 bridges in five regions of the state during the next two years.

Kitsap County, Wash., selected **Otak, Inc.**, Seattle, Wash., to

Boswell Awarded New York Power Authority Contract



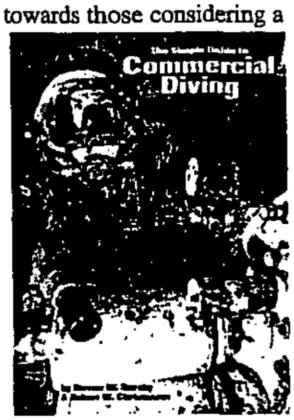
Boswell Underwater Engineering (BUE) was awarded a three-year contract to provide the New York Power Authority (NYPA) on-call diving and engineering services. With an upset limit of $525,000, the contract will extend through 2006 and can entail work at any one of the NYPA' s numerous facilities.

BUE was recently authorized to perform condition surveys at the NYPA's Crescent and Vischer Ferry facilities, where diving inspections were carried out on hydroelectric dam structures, including concrete monoliths, wing walls, sluice gates, tailraces, spillways, and tainter gates. Inspection work amounted to four weeks in the field using three-man and four-man dive teams headed by a professional engineer/diver.

In addition, BUE was selected by the Delaware Department of Transportation (DelDOT) to perform bridge diving inspections through 2007. This is the fourth consecutive cycle in which DelDOT has chosen BUE to carry out this type of work for the agency. BUE initially began inspecting bridges spanning waterways in Delaware in 1995 and has preformed underwater inspections every year for DelDOT since then. **uw**

New Book Outlines Basics of Commercial Diving

The Simple Guide to Commercial Diving is the latest book from Hammerhead Press of Ventura, California. Written by Steve Barsky and Bob Christensen, the book is geared towards those considering a career in commercial diving. It emphasizes the work ethic and philosophy of the industry, providing details on the tools and duties of tenders and commercial divers. This is not a sugar-coated version of the business – it lays out the plain facts about what it takes to be a commercial diver, both good and bad.



Chapter topics include how to select a commercial diving school, job hunting, working as a tender, using tools underwater, rigging, and the future of the industry. At 178 pages with over 150 images, this is an ideal reference for the person who is uncertain whether or not commercial diving is for them. Visit www.hammerheadpress.com or call 805-985-4644. **uw**

SECTION A-3

Company Brochures

INTRODUCTION

BOSWELL ENGINEERING, one of ENR's *Top 500 Engineering firms and Top 100* Construction Management firms, is a progressive, full service organization. Since our founding in 1924, BOSWELL has kept pace with the rapidly changing technological advancements in the industry and is therefore able to provide public and private sector clients with a comprehensive range of professional services.

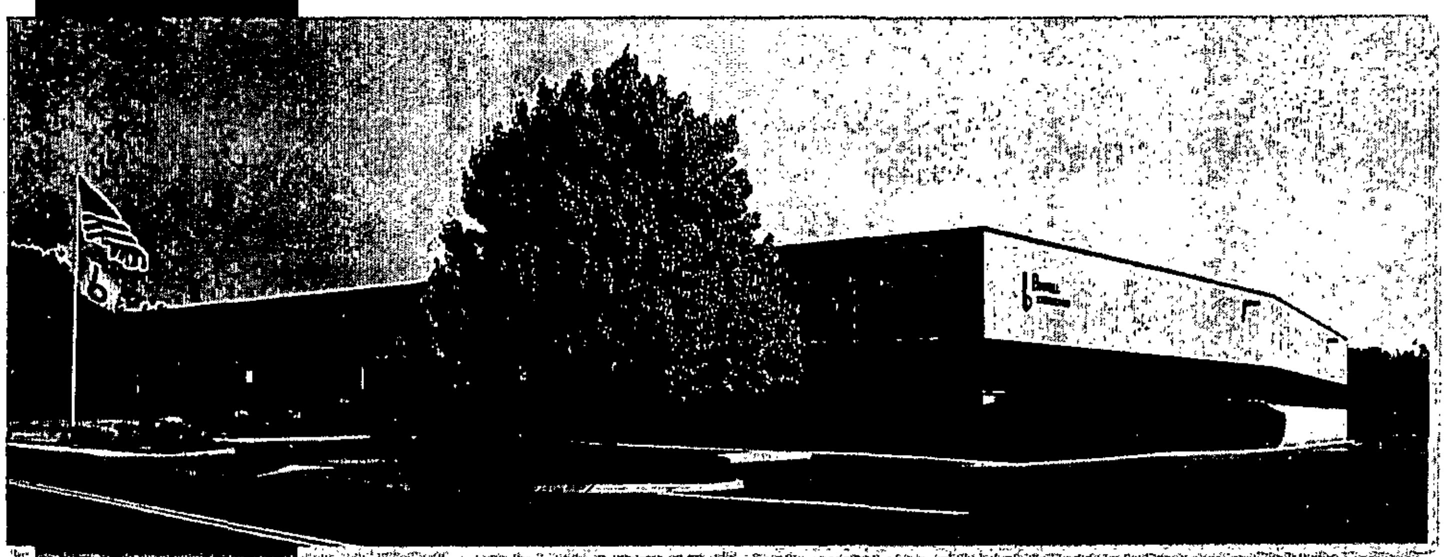
BOSWELL's solid foundation in all facets of the engineering business enables us to be an integrated source of consulting, design, construction management and project management services. The ability to advance the firm's capabilities through the development and utilization of novel approaches and technologies on a wide variety of challenging projects, is a direct result of a highly trained and versatile *professional and technical staff.*

Whether a team of experts is needed or just one specialist, BOSWELL selects those qualified to meet the requirements of each client.

The BOSWELL Organization is committed to providing exceptional and personalized service to each client on every project. And we can do it efficiently, effectively and within budget.

When the BOSWELL name is on a project, whether it is a survey, report, design assignment or construction supervision, our reputation is on the line.

BOSWELL- where a commitment to excellence is backed by our reputation developed over the past 75 years.

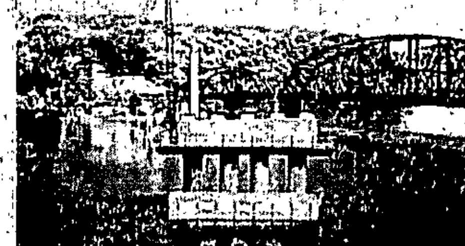


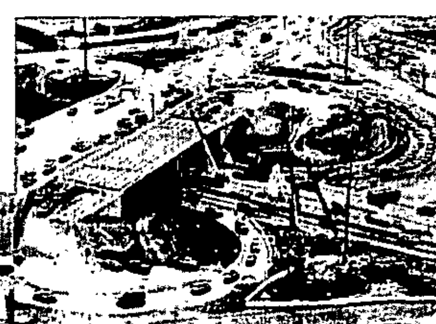
CONSTRUCTION SUPERVISION/MANAGEMENT

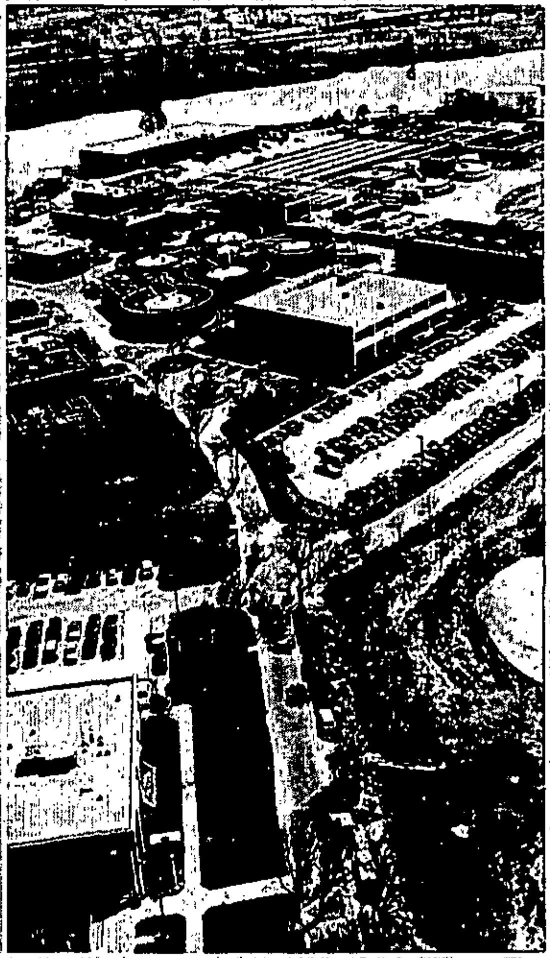
With our full spectrum of construction phase services, BOSWELL is able to oversee every phase of construction for all engineering projects. We assure that the final project is in accordance with plans and specifications and that payments to the contractor reflect the work performed.

BOSWELL's expert staff of civil and structural engineers, construction managers, resident engineers and field inspectors coordinate each stage of construction, from initial constructibility review through completion. Our computerized field operations promote accuracy, facilitate on-the-spot revisions and maintain the project schedule, all while minimizing construction claims.

BOSWELL has frequently been called upon by public agencies to serve as a consultant in mediation and settlement of construction claims and constructibility reviews.







ENVIRONMENTAL ENGINEERING

Environmental engineering services offered by BOSWELL range from water and wastewater treatment, to site remediation of spills and leaking underground storage tanks, to landfill site development and capping, resource recovery projects and permitting assistance.

Representative environmental projects include design and/or construction management of:

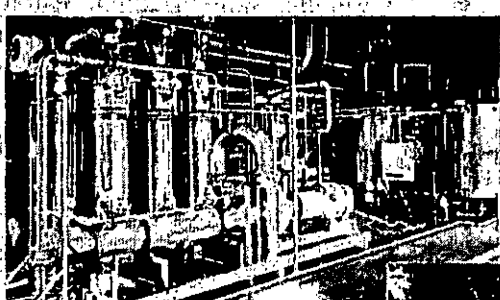
- Storm and sanitary sewers
- Secondary and tertiary wastewater treatment plants
- Combined sewer overflow separation projects
- Pumping stations and force mains
- Air stripping facilities for potable water and groundwater cleanup
- Removal/installation of underground and aboveground storage tanks
- Environmental testing plans
- Landfill capping

BOSWELL excels in permit acquisition, including determination and securing of required permits.

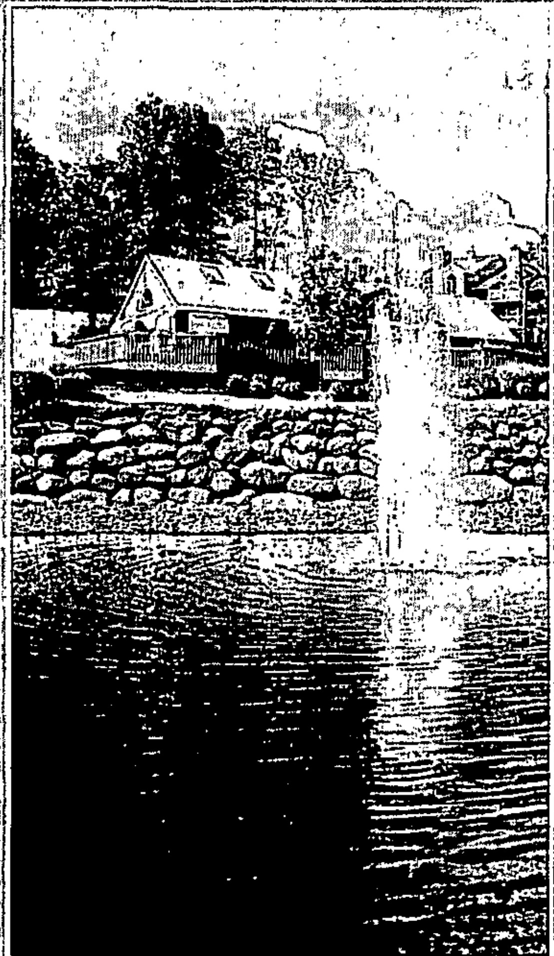
ENVIRONMENTAL SCIENCE

BOSWELL's Environmental Science Division has a wealth of experience in areas affecting our natural resources, including biology, chemistry, hydrology and hydrogeology.

This division is comprised of a team of versatile specialists with expertise in all aspects of environmental resource analysis. They provide a spectrum of services including:



- Environmental impact studies, assessments and audits
- ASTM Phase I and Phase II reports
- Water quality management
- Wetlands investigation, delineation and reports
- FEMA studies
- Noise and air quality studies
- Asbestos and lead surveys
- Soil erosion and sedimentation control
- Regulatory compliance assistance



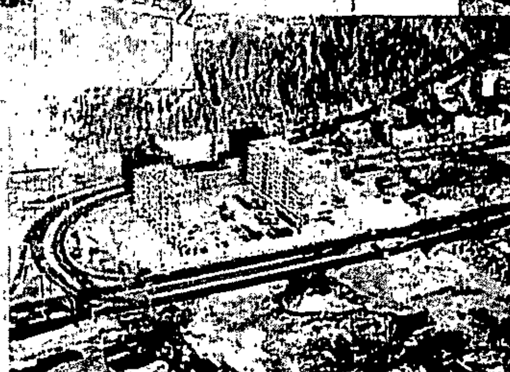
SITE ENGINEERING

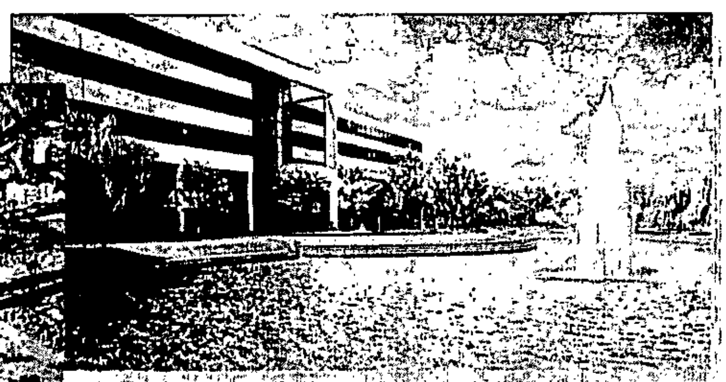
BOSWELL's engineering expertise, surveying knowledge, and highly experienced staff provide the optimal combination of talents required for any development project. Our national reputation in this field has been acquired through our representation of the country's largest commercial, retail and residential developers.

Site engineering capabilities include:

- Preparation of detailed topographical and boundary surveys
- Site environmental assessments
- Soil testing
- Design and construction supervision of on-site/off-site improvements
- Site grading designs
- Conceptual, preliminary and final subdivision layouts and site plans
- Right-of-way and roadway designs
- Traffic studies
- Hydrologic and hydraulic studies
- Drainage and flood control system designs
- Storm and sanitary sewer designs
- Wetlands delineation and preparation of wetlands reports
- Utility provisions
- Soil erosion and sediment control plans
- Construction stakeout

BOSWELL also assists clients in preparing the necessary applications and documents, and provides expert representation on behalf of applicants to regulatory bodies to obtain required approvals.





SERVICES SUMMARY

Civil/Structural

- Engineering, Planning & Feasibility Analyses
- Master Planning
- Scoping & Preliminary Engineering Studies
- State & Interstate Highway Design
- Road & Street Design
- Airport Ramp & Runway Design
- Pavement Management Planning
- Bridge & Culvert Design
- Bridge Inspections/Rating
- IVHS Design
- Traffic Studies
- Traffic Signalization Design
- Site Engineering
- Site Plan Review
- Zoning Analysis
- Municipal Engineering
- Parks & Recreational Facilities Design
- Underwater Structural Investigation/Inspection
- Bridge Diving Inspections
- Bridge Scour Investigations
- Subaqueous Condition Survey Reports
- Marine Borer Investigation
- Marine Construction Inspection
- Hydrologic & Hydraulic Studies/Reports
- Dam Inspection & Design
- Dam Classification/Reclassification Studies
- Erosion & Sedimentation Control Plans
- Channel Stabilization Design
- Storm Water and CSO Management
- Storm Drainage Analysis & Design
- Landscape Design
- Structural Integrity Inspection
- Value Engineering
- Grant Applications

Construction Management

- Administration of Bid Procedure
- Contract Administration
- Construction Cost Estimates & Reports
- Constructibility Review
- Construction Supervision & Field Testing
- Change Order Preparation & Review
- Progress Schedule Review
- Preparation of As-Builts
- Shop Drawing Review
- Claims Analysis & Defense

Surveying & Digital Mapping

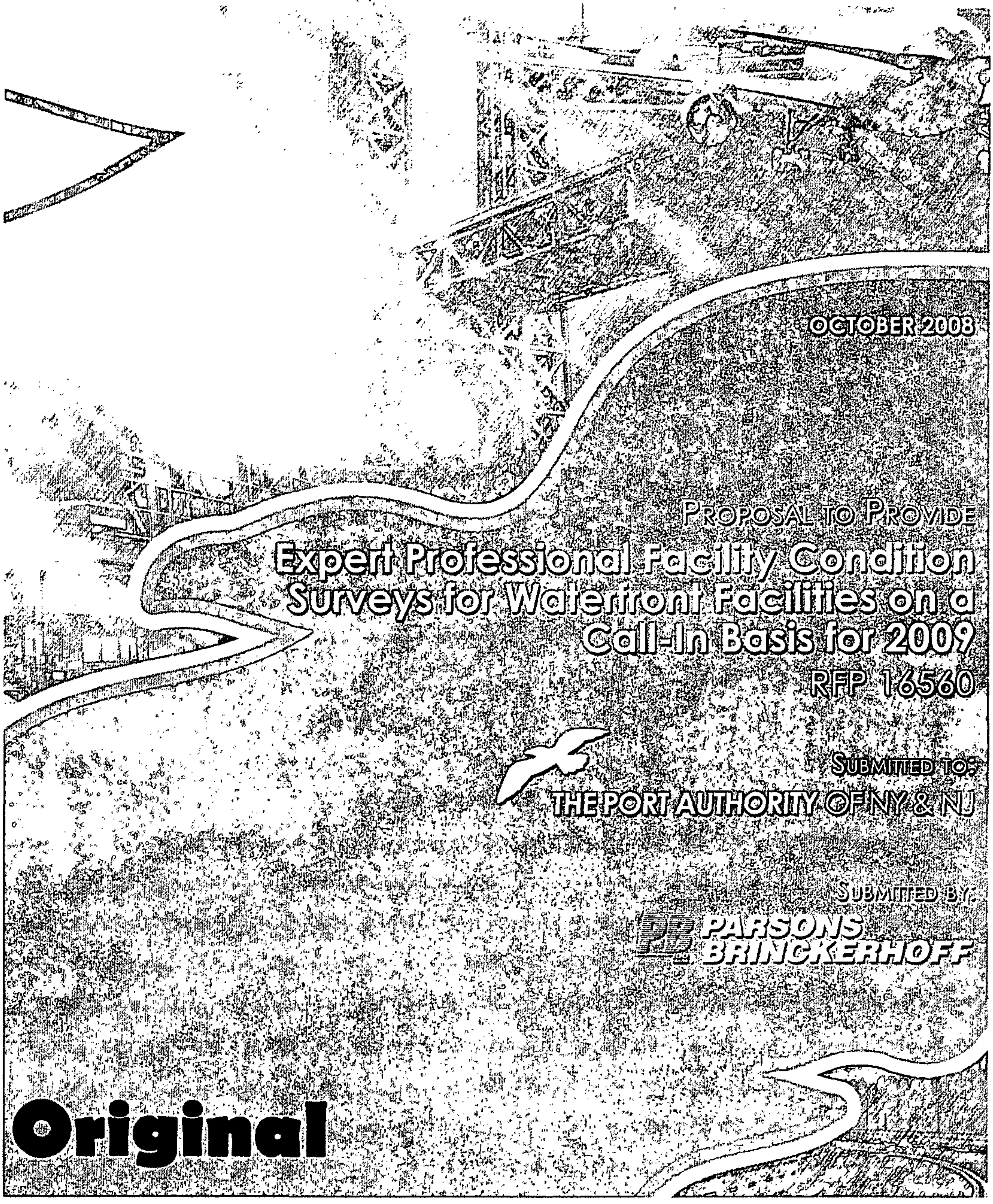
- Boundary and Topographic Surveys
- Global Positional Systems Surveying (GPS)
- Engineering Surveys
- Photogrametric Control Surveys
- Trigonometric Surveys
- Riparian Claims
- Horizontal & Vertical Ground Control Surveys
- Right-of-Way and Property Surveys
- Settlement & Deformation Surveys
- Hydrographic & Fathometric Surveys
- Acquisition Map Preparation
- Tax Assessment Map Preparation & Revision
- Stakeout of Utilities, ROW, Centerline, etc.
- Construction Stakeout
- Ground Control & Baseline Survey
- Topographic & Utility Mapping
- Digital Terrain Modeling
- Computer-Aided Drafting
- Data Management
- Geographic Information Systems (GIS)

Environmental

- Phase I Preliminary Site Assessments
- Phase II Site Investigations
- Groundwater Sampling/Modeling/Remediation
- Remedial Investigations
- Site Remediation
- Removal/Installation of UST's & AST's
- Facility Decommissioning
- Landfill Site Development & Capping
- Resource Recovery Facilities
- Air Stripping & Carbon Adsorption Facilities Design
- Bioremediation
- Water Supply Distribution
- Water & Wastewater Treatment
- Secondary & Tertiary Sewage Treatment Plant Design
- Sanitary Sewer Studies & Design
- Combined Sewer Separation
- Pump Stations & Force Main Design
- Infiltration/Inflow Analyses
- Asbestos & Lead Surveys
- Environmental Impact Statements/Assessments
- SEQRA Evaluations & Reports
- Wetlands Delineation/Reports/Mitigation
- ISRA Assessment/Investigations/Closures
- FEMA (Flood) Studies
- Geophysical Surveys
- Permitting & Regulatory Compliance Assistance

Mechanical/Electrical

- HVAC Systems Design
- Piping Design & Layout
- Energy Conservation & Audits
- Electrical Design
- Utility Extensions
- Control Systems & Instrumentation
- Illumination/Lighting
- Lockout/Tagout Safety Procedures



OCTOBER 2008

PROPOSAL TO PROVIDE

Expert Professional Facility Condition Surveys for Waterfront Facilities on a Call-In Basis for 2009

RFP 16560

SUBMITTED TO:

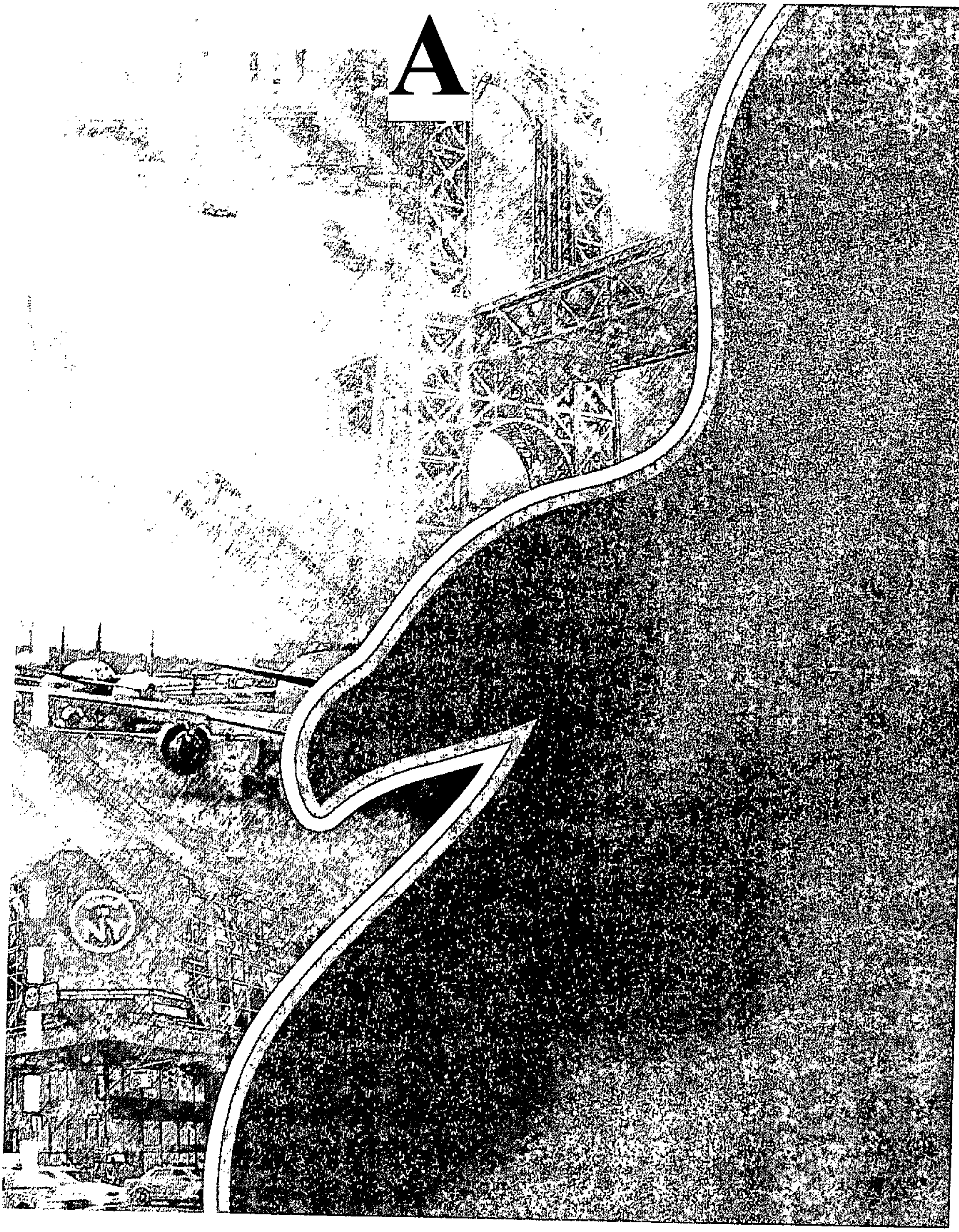
THE PORT AUTHORITY OF NY & NJ

SUBMITTED BY:

PARSONS BRINCKERHOFF

Original

A



ATTACHMENT B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

PB Americas, Inc.
NAME OF COMPANY

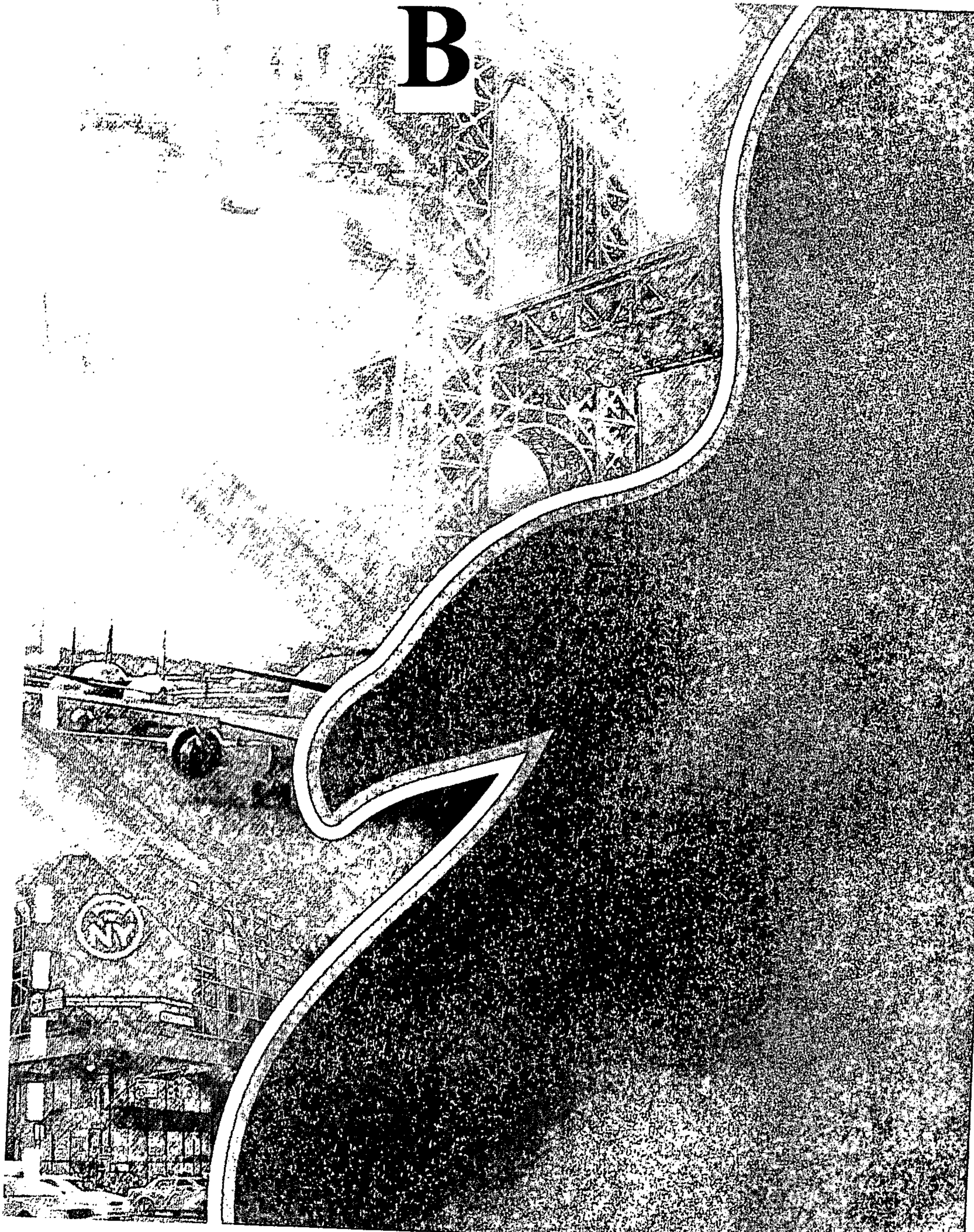
M J Cuddy
SIGNATURE OF OFFICER

Michael J. Cuddy, P.E.
PRINT NAME OF OFFICER

Vice President/New York Business Manager
TITLE

October 8, 2008
DATE

B

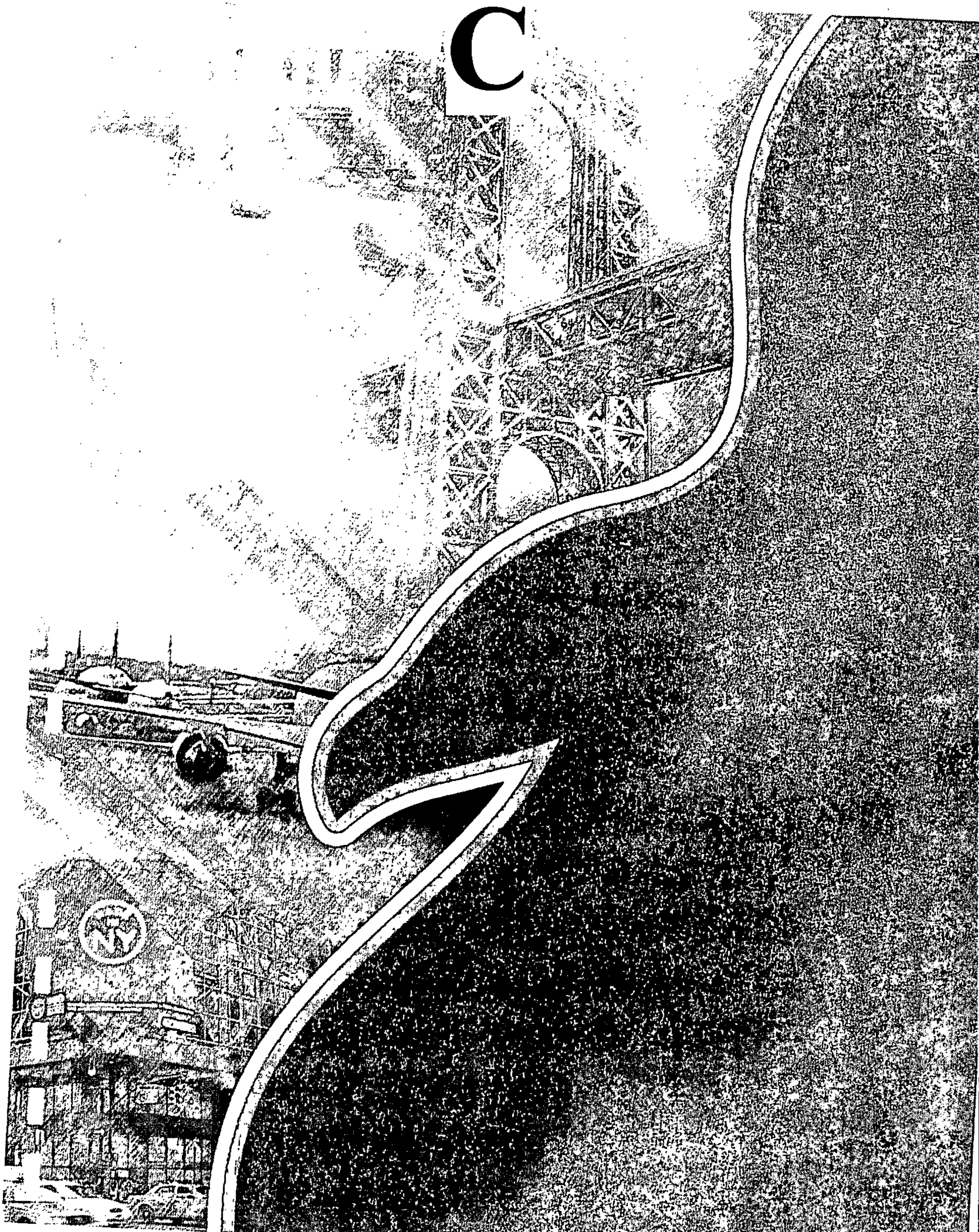


B. MULTIPLIER AND BREAKDOWN

lultiplier for PB Americas is	2.735
ıverhead is made up of%	
Payroll Taxes	8.6%
Group Insurance and Workers' ;ompensation	6.8%
Fringe Salaries	12.7%
Other Employee Benefits	4.4%
Office Rent	17.7%
Depreciation	1.9%
Amortization	1.4%
Repairs and Maintenance	2.5%
Indirect Salaries	37.7%
Fringe Benefits (Administrative)	12.3%
Computer, Supplies, Reproduction	7.2%
Travel and Related Expenses	4.5%
Office Relocation and Moving	0.0%
Communications	1.9%
Subscriptions, Books, Publications	0.4%
Consultant Fees	2.9%
Additional Compensation	6.4%
Miscellaneous Expenses	3.6%
General Insurance Others	0.5%
E & O Insurance	6.8%
Other Taxes	0.8%
State & Local Income Taxes	0.6%
Audit and Legal	2.3%
Bids and Proposals/Research and)evelopment	9.2%
Facilities Cost of Capital	0.3%
'otal Overhead	**153.4%**
'rofit	**8%**

Multiplier for Subconsultant Appledore Marine Engineering, Inc. is	3.08
Overhead Rate is 180% based on below components and respective percentages	
Vacation, Holiday & Sick Leave	7.3%
Health & Life Insurance	6.2%
Payroll Taxes	7.1%
Pension Plans	2.0%
Incidental Travel	0.6%
Indirect Reproduction	0.1%
Bonuses & Commissions	0.9%
Indirect Clerical	0.7%
Indirect Salaries of Technical Personnel	23.1%
Indirect Principal Salaries	13.7%
Accounting	0.2%
Licenses	0.8%
Office Equipment	0.2%
Indirect Telephone	1.4%
Office Supplies	1.6%
Subscriptions	0.4%
Office Rent	12.7%
Utilities	5.2%
Maintenance/Repair	0.1%
Indirect Automobile	0.5%
Professional Liability Insurance	2.6%
Workers Compensation Insurance	3.3%
Computer Services	2.5%
Cafeteria	0.2%
General Liability Insurance	0.5%
Indirect Postage	0.1%
Interest Expense	0.4%
Real Estate Taxes	1.3%
Conferences	2.1%
Bank Fees	0.2%
State/Local Taxes	1.3%
Legal	0.7%
Total Overhead	**100.0%**
Profit	**10%**

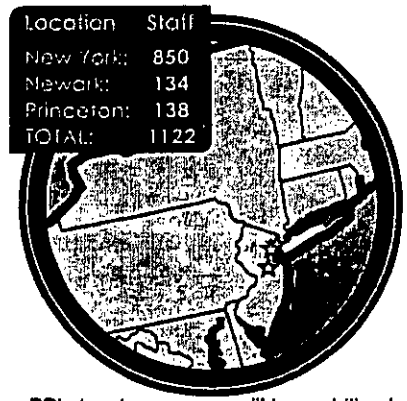
C



C. STAFF QUALIFICATIONS

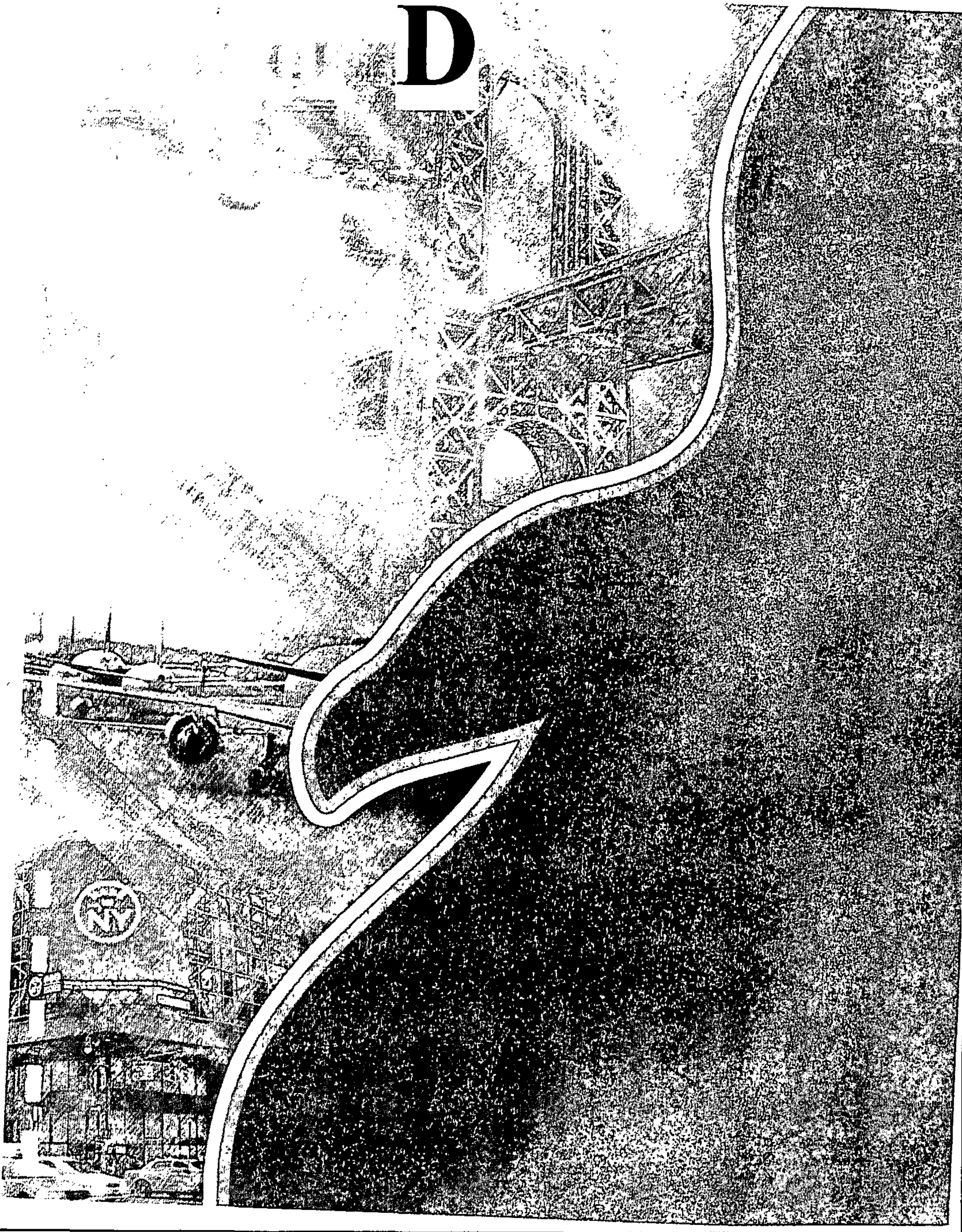
Depth of Resources

The Port Authority of New York & New Jersey (the Authority) is seeking the services of a consultant to serve as a supplement to its staff to perform inspections and condition assessment surveys of its waterfront infrastructure and facilities to ensure that they remain in a state of good repair. By their very nature, on-call services contracts require that consultants possess sufficient resources that can be mobilized rapidly when task orders are issued by the Authority to inspect one of its waterfront facilities. Parsons Brinckerhoff (PB) can ensure the Authority that we have a deep pool of experienced structural, civil, geotechnical, mechanical/ electrical, and environmental engineers and inspectors with extensive experience in providing expert condition assessment and inspection services to the Authority in support of its infrastructure capital program. With more than 1,100 staff in the New York/New Jersey metropolitan area, PB has the resources available to assist the Authority in keeping its waterfront facilities operating efficiently and safely as vital pieces of the regional transportation network.



PB's local resources will be mobilized rapidly to respond to Authority needs

D



): NAMES, TITLES AND HOURLY RATES

3 Americas, Inc. proposes a multiplier of **2.735** for services provided under this proposal as referred to in the st line of subparagraph 8A of the Standard Agreement.

ie table below details the names, project titles, status of professional engineering registrations in the states New York and New Jersey, and current hourly rates for the technical personnel who will be assigned to rform requested services. If needed, other staff members may be assigned. The rates listed in the salary hedule are those currently in effect. There will be salary reviews for the listed individuals on an annual isis. The date of salary reviews is the end of August each year. The rates for principals are an hourly billing te without the multiplier.

vertime pay for contractor's and subcontractor's non-exempt employees shall be paid at 1.5 times direct oor (including wages, payroll taxes and payroll insurance). Overtime pay for contractor's and subcontractor's empt employees shall be paid at 1.0 times direct labor (including wages, payroll taxes and payroll surance).

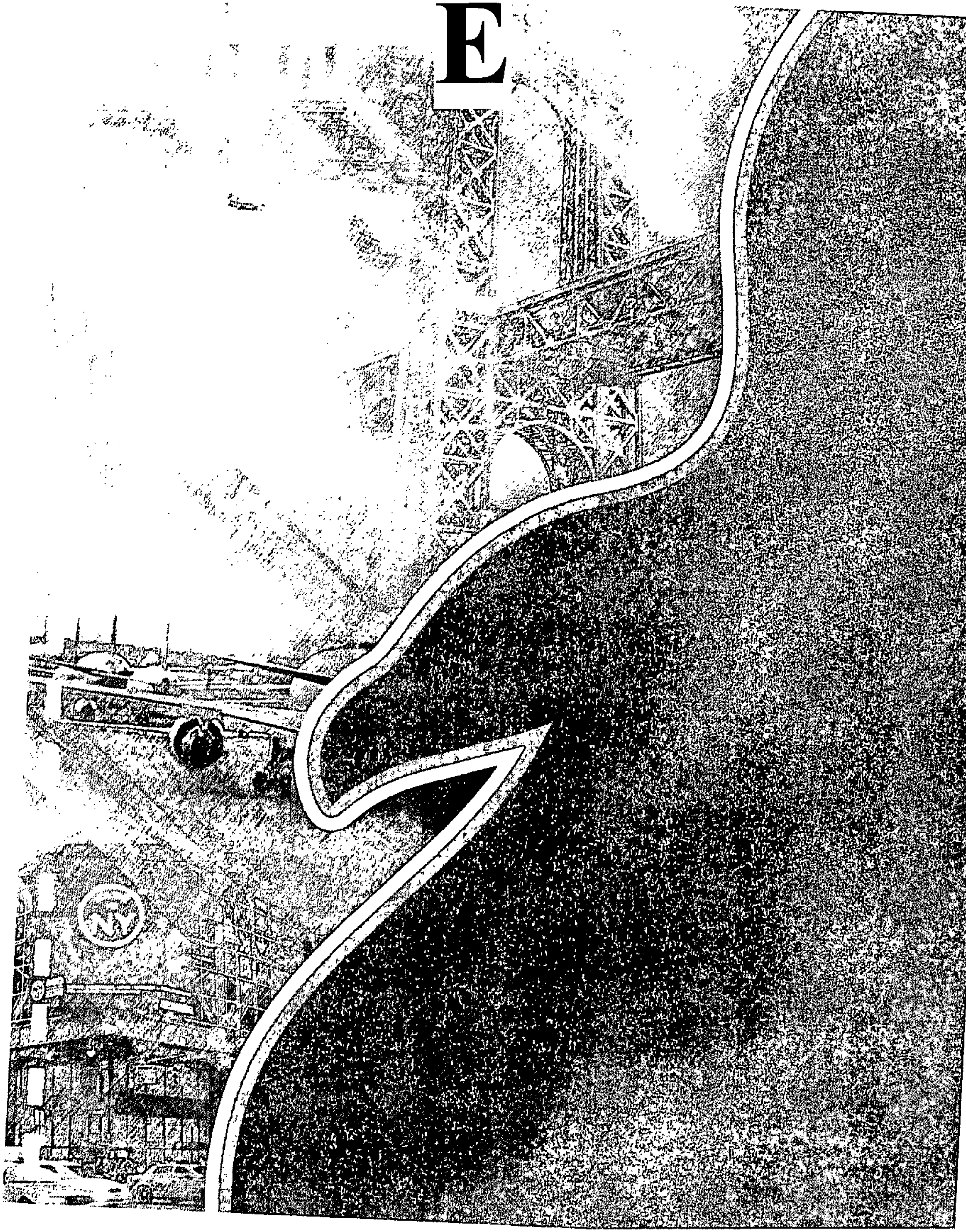
3 Americas, Inc. (with a multiplier of 2.735)

AME	PROJECT TITLE	NY PE	NJ PE	HOURLY RATE
	Principal In Charge	√		$275 (billing rate)
	Project Manager/ Proj. Engineer	√		$59.73
	Quality Control Manager			$70.04
	Team Leader - Marine Structures	√		$41.08
	Team Leader - Buildings	√	√	$65.98
	Team Leader - Buildings	√		$45.72
	Structural Engineer / Inspector	√		$57.07
	Structural Engineer / Inspector	√		$54.06
	Structural Engineer / Inspector			$31.77
	Structural Designer / Inspector	√		$45.97
	Structural Engineer / Inspector	√		$52.57
	Structural Engineer / Inspector	√		$49.35
	Civil Engineer / Inspector			$38.20
	Team Leader - Tunnels	√		$80.63
	Tunnel Engineer / Inspector			$72.65
	Sr. Supervising CADD Designer			$40.07
	CADD			$30.88

ppledore Marine Engineering, Inc. (with a multiplier of 3.08)

NAME	PROJECT TITLE	NY PE	NJ PE	HOURLY RATE
	Team Leader - Diving Inspection – Principal	√		176.44 (billing rate)
	Team Leader - Diving Inspection - Principal	√	√	176.44 (billing rate)
	Principal / Engineer - Diver			176.44 (billing rate)

E



E. FIRM EXPERIENCE

Project Understanding

The Port Authority of New York and New Jersey (the Authority) is charged with providing transportation, terminal and other facilities of trade and commerce within the Port District, a 1,500-square mile area in the States of New York and New Jersey surrounding New York Harbor. The Authority seeks to supplement its engineering staff with qualified consultants to perform hands-on and visual inspections to compile data on the current condition of its waterfront facilities. This data is then used to prioritize the necessary rehabilitation and repair measures needed so that funds can be allocated to implement the necessary corrective and preventive actions.

Pier 9/204 Engineering Services-PANY&NJ
A temporary steel deck spanned the areas of zero live-load capacity.

Firm Qualifications

For more than 122 years, **PB Americas, Inc. (PB)**, has dedicated our resources to improving transportation and mobility throughout the New York City metropolitan area. We offer to the Authority the lessons learned and expertise gained from more than 100 years of hands-on experience in the design, inspection, rehabilitation and repair of bridges throughout the metropolitan area and around the world. PB has participated in the Nationwide Bridge Inventory and Inspection Program since its inception in the early 1970s and we continue to push the envelop and advance the state-of-the-practice through the development and application of innovative designs and methods that create signature structures that become a part of the communities that serve. Local offices in New York City, Newark and Princeton, New Jersey constitute our largest concentration of engineering and planning professionals worldwide, who are readily accessible and immediately available to the Authority for this on-call services contract.

Our Subconsultant Appledore Marine Engineering, Inc. will provide the professional engineer diving inspectors. Appledore Marine has completed over 200 task orders for the US Coast Guard, US Navy and other agencies in the past 13 years. These task orders have been delivered on time and on budget.

Appledore Marine has an unprecedented record with both the U.S. Coast Guard and U.S. Navy in responding quickly and consistently meeting project schedules. We have done this through effective Project Management and forecasting our work projections to maintain an appropriate level of staff while at the same time accounting for emergency and unscheduled projects.

Waterfront Inspection Project Experience

PB has completed many waterfront and bridge projects involving inspection, rehabilitation, design and construction supervision, taking these projects through their full cycle of planning, design, construction,

		supported relieving platforms/roadways along the East River in Manhattan.
/aterside Plaza Housing ·evelopment, New York City	Waterside Plaza, LLC	Marine engineer for condition inspection and repair design for the waterfront substructure of this complex consisting of residential apartment buildings, commercial and retail space, plazas and esplanades along the East River in Manhattan.
ayswater Peaking Facility ulkhead, Far Rockaway,)ueens, New York	Florida Power Light and Energy	Condition inspection and repair design for an anchored steel sheet-pile bulkhead.
iattery Park City South Cove lepairs, New York City	Battery Park City Authority	Inspection and rehabilitation of timber and miscellaneous waterfront structural elements located in the South Cove of Battery Park City.
larlem River Drive Esplanade - iast 42nd to east 45th Street, lew York City	Turner Construction Company and the New York City Economic Development Corporation	Design services for reconstruction of the waterfront esplanade.
:ast 60th Street Pier, New York :ity – On-Call	NYCEDC	Above deck and underwater inspection of the waterfront pier structure.
'ier G Mega Terminal Expansion Phase II, Port of Long Beach, .ong Beach, California	City of Long Beach Harbor Department	Construction of Berth G232, a 1,343-linear-foot marginal wharf and container terminal backlands for loading and unloading container ships.
'ort of Long Beach Piers G and J 'rogram Management, Long 3each, California	City of Long Beach Harbor Department	Port's Mega Terminal Development Program.
'ier 9/204 Bulkhead, Jersey City, lew Jersey	Port Authority of New York & New Jersey	Replacement of the existing timber Pier 9/204 bulkhead. The replacement structure consists of a cantilevered steel sheet pile bulkhead protected by concrete facing. PANY&NJ.
Norfolk International Terminal North Wharf Expansion, Norfolk, /irginia	Virginia Port Authority	The berthing analysis consisted of calculating berthing energies and designing a fender system to handle 212,000-ton Suezmax container ships. The mooring analysis consisted of using OPTIMOOR to determine the limiting wind speeds of the existing bollards for the larger Suezmax ships.

Client	Scope of Services	Project Duration
PANYNJ	Call-In Structural Engineering Services	1984 — present
	Call-In Geotechnical Engineering Services	1994 — present
	Call-In Electrical Engineering Services	1984 — 1989
	Call-In Aviation Services	1994 — 1996 2003 — 2004 2008 — present
	Call-In Program Management for Security Projects	2003 — 2007
	Call-In Facility Condition Surveys	2004 — 2005 2006 — 2008
	Call-In Tunneling Technology Services	2002 — present
	Call-In General Traffic Engineering Services	2008 — present
	Call-In Traffic Engineering Planning Services	2008 — present
	Call-In Construction Management Services	2006 — present
	Call-In Mechanical Engineering Services	2007 — present
NYCT	Indefinite Quantity Design Services for Miscellaneous Construction Projects	2001 — 2005 2004 — 2008 2008 — present
	Indefinite Quantity Geotechnical Services	2004 — 2008
	Indefinite Quantity Functional Planning and Conceptual Engineering Services for Miscellaneous Capital Projects	2001 — 2006 2007 — present
	Indefinite Quantity Services for MTA Security Projects	2004 — 2009
	Indefinite Quantity Environmental Engineering Consulting Services	1998 — 2002
TBTA/MTA Bridges & Tunnels	As-Needed Facility Inspection Services	2004 — 2007
	As-Needed Design Services	2004 — present
MTA LIRR	General Engineering Consultant - 2001 Design Bridges	2001 — 2005
	General Engineering Consultant – Trackwork	2004
MTA Metro North Commuter Railroad	Call-In General Engineering and Planning Services	1997 — present
NYCEDC	On-Call Planning, Traffic & Environmental Assessment	2000 — 2002
NYCDOT	Call-In Services	1997 — 2004

Bayswater Peaking Facility Bulkhead Rehabilitation
Far Rockaway, Queens, New York City

Project Overview

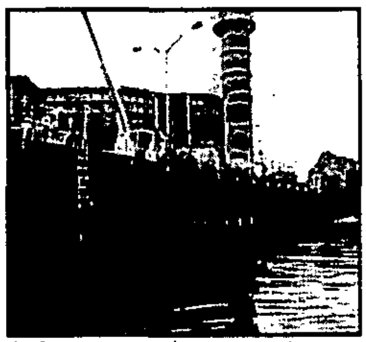
The west bulkhead at the Bayswater Peaking Facility located on Motts Basin in the environmentally sensitive Jamaica Bay was in an advanced state of deterioration. PB inspected the bulkhead and prepared a condition report which included evaluation of alternative rehabilitation methods both in terms of feasibility, costs and environmental impacts. Inspection found large holes in the sheeting along with a short length of the wall experiencing some movement, the result of the sheets pulling away from the tierod anchorage. Proposed rehabilitation alternatives developed included a full height concrete facing on the wall with soil anchors at the location where the wall was experiencing movement, a replacement sheet pile wall driven just outboard of the existing wall, stone filled gabion baskets placed outboard of the wall requiring a pile foundation, full height rip-rap revetment in front of the wall and a partial height rip-rap revetment (to approximately mid tide level) with a concrete facing above. Alternatives were evaluated both for ease of construction, safety, maintaining an operational facility and environmental impacts in the waterway which would impact ease of permitting. Upon selection of the chosen alternative, a full height concrete facing, PB prepared permit applications for submission to the Federal, State and City Agencies. PB was also tasked with preparing the final design, contract documents (plans and specifications), construction cost estimates as well as limited construction phase services.

Client Reference
Jim Kuretski

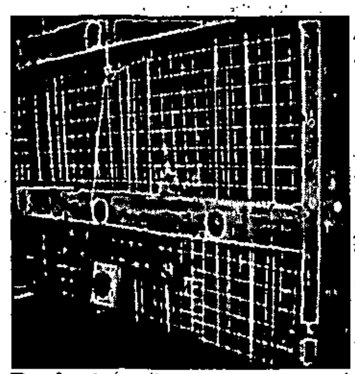
FPL Energy Bayswater Peaking Facility, LLC
(561) 691-2641
Jim.Kuretski@fpl.com

Project Schedule
March 2005 —August 2007
Completed on time and within budget

Proposed Staff Participation
- Robert Smith, Jr.
- Brian P. Cresenzi, P.E.


Before

Scope of Services
- Bulkhead inspection
- Permitting
- Final design
- Engineering Plans & Specifications
- Construction Cost Estimates
- Construction Services


During


After

Protection Against Marine Borers at FDR Drive New York City

Project Overview

Continuing improvement in water quality in New York Harbor has resulted in increased marine borer activity that adversely affects submerged timber structures. Portions of a major artery in New York, FDR Drive, are built on or in proximity to, timber pile-supported relieving platforms that are subject to marine borer attack. In an effort to combat the deterioration of submerged timber elements, NYCDOT has embarked on a major project entailing repair and protection of these platforms against further marine borer attack.

The timber pile-supported relieving platforms under or near the drive comprise approximately 6,890 linear feet (2,100 linear meters) of the drive and include about 15,000 timber piles. The typical relieving platform construction consists of a concrete deck cast on top of piles, with a sheet pile cut-off wall along its inboard edge, and a concrete retaining wall (seawall) along the outboard face of the structure. Compacted backfill was placed behind the seawall and above the concrete deck. The roadway was constructed either on top of the backfill or behind the cut-off wall.

Piles in good condition will be wrapped in a flexible synthetic material that creates a barrier to prevent the penetration of borers into the wood. The wrap also cuts the oxygen of the borers already inside, killing them.

Piles exhibiting higher levels of marine borer damage will be repaired by encapsulation in cementitious or epoxy grout, which also serves as protection against borers. For piles with deteriorated tops and/or reduced bearing areas, the pile top portion will be replaced, a procedure commonly known as pile posting.

In areas toward the inboard edge of the platform where low headroom restricts divers' access, the entire space under the deck will be filled with lightweight concrete to prevent marine borer attack where wrapping and encapsulation are not feasible.

Scope of Services

- Data collection
- Underwater inspection and evaluation of marine borer activity
- Load rating analysis
- Preliminary and final design of structural repairs and marine borer protection
- Preparation of contract documents

At a Glance

Client Reference
Sarra Lyandres, P.E.
NYC Department of Transportation,
Bureau of Roadway Bridges
59 Maiden Lane
New York, NY 10038
(212) 487-7841
slyandres@dot.nyc.gov

Project Schedule
1999 — Present

Proposed Staff Participation
- Robert Smith, Jr.
- Brian P. Cresenzi, P.E.

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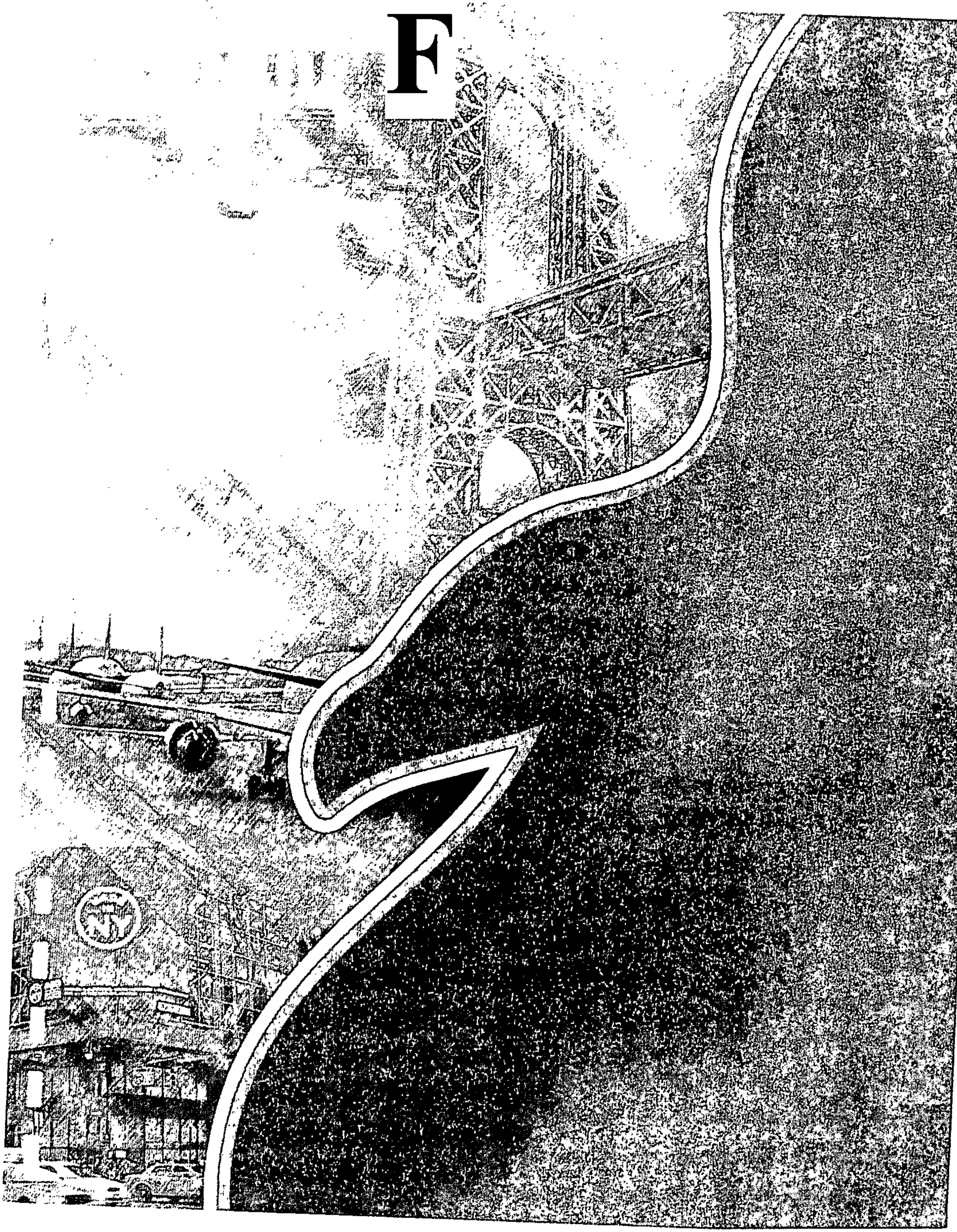

F. MANAGEMENT APPROACH

he Port Authority of New York and New Jersey (the Authority) is seeking the services of a consultant to upplement its in-house engineering staff to perform on-call inspection services of its waterfront facilities. By heir very nature, on-call assignments can involve a myriad of components that comprise the Authority's uperstructures, substructures, electrical/mechanical equipment, roadways, toll plazas, and the like. The key o success of on-call, task-order assignments is to have a deep resource pool that can be tapped into on an s-needed basis to readily mobilize so as to effectively and efficiently respond to task orders as they are ssigned.

B Americas, Inc. (PB) and the Authority have a proven record of successful collaboration in completion of on-all projects involving all Authority facilities, including waterfront structures, tunnels, buildings, bridges, airport acilities, and the PATH system. Our reputation for success is founded on our proven management approach o meeting the Authority's objectives, which is predicated on careful planning, scheduling and managing of osts by embracing frequent communications, strict budget control, team commitment, and conflict avoidance. Ve are confident that the combination of technical skill, management ability, and PB's knowledge of the uthority's facilities, personnel and needs, make PB ideally suited to serve the Authority for this on-call ssignment.

ssignment of Skilled Personnel

3ased on his 18 years of experience in design and inspection of all ypes of facilities and structures, our proposed project manager Robert Smith, Jr. knows that the field teams are the key to a uccessful inspection project. In selecting his team leaders and nspectors for this assignment, Robert chose individuals with experience and expertise in delivering the services outlined in the Scope of Work included in the RFP. The PB Team offers the uthority the ideal combination of inspectors and design professionals who bring to the Authority:

PB understands that the ultimate success of a project relies on the skills, proven experience and abilities of the key personnel than on any other single factor.

- Professional expertise in the planning, inspection, design and rehabilitation projects.
- Extensive experience in performing on-call inspection services for the Authority and other agencies in the region and across the country.
- Availability, since our team is comprised entirely of local resources resident in the New York/New Jersey metropolitan area who can be on-site within hours of notice.
- Exceptional inspection team leadership ability, based on extensive experience in hands-on inspection of bridge structures throughout the New York/New Jersey metropolitan area as well as across the U.S.
- Proven ability to respond to multiple task orders simultaneously, made possible by the depth and breadth of experience of our proposed project team, backed by the full resources of an additional 10,000 employees available if required by the Authority.

nspection Team Leaders — Brian Cresenzi, Genaro Lozano, Ferdinand Portuguez, and Kyle Ott have been ;elected to serve as team leaders for the waterfront/marine structures, building, and tunnel inspection ıssignments respectively. The Subconsultant, Appledore Marine Engineering will provide the diving team. Noah J. Elwood and Lawrence J. Wagner will serve as the diving team leaders and Craig R. Morin will serve ıs team leaders for the waterfront/marine structures. They all serve as the field leaders and will be 'esponsible for the scheduling and conduct of all visual and hands-on inspections. They will conduct daily oriefings with all inspectors prior to each day's inspections to address that day's activities and any safety, naintenance and protection of traffic, logistics issues or areas of special concern that require extra attention. They will then hold debriefings at the end of each shift to summarize the day's activities and report on progress /s. plant as well as to address any concerns or issues that arose that may need to be brought to the project nanager's attention for communication to the Authority. The inspection team leaders will be in the field for the luration of each inspection assignment and will coordinate all field activities with Authority staff for safety of he inspectors and the traveling public.

Principal-in-Charge— Mike Cuddy will serve as Principal-in-Charge for this assignment. His will be a dual 'ole: to obtain feedback from the Authority on the performance of the project team and ensure that the appropriate action is being taken to resolve issues and to ensure that our Project Manager Robert Smith, Jr. nas the resources he needs to satisfy the requirements of all task orders assigned to PB under this contract. Should PB be responding to several task-orders simultaneously, Mike will ensure that Robert has the full 'esources of the company at his disposal to complete all task orders in a timely and cost-effective manner.

Proven Project Management Tools

As an ISO-9000:2001 certified firm, PB has in-place procedures that must be followed on every project that we undertake in order that we deliver a quality product in accordance with the project requirements. While these procedures are used on every project, they are customized for the specific and unique requirements of each project.

Project Management Plan — At the outset of the project, we will conduct a kickoff meeting with the Authority's Project Manager and staff to lay out the Authority's objectives and expectations for the project. Our Project Manager Robert Smith, Jr. will then develop the Project Management Plan describing the makeup of the project team, project requirements, project resources and a clear statement as to what defines "client success". The plan will define the goals of each assignment in order to respond to the needs of the Authority, address all anticipated concerns, and maximize efficiency by cultivating a creative environment for quality and innovation through the project assignment process. The plan will establish a control plan that creates clear lines of communication between the Authority's management personnel, PB's Project Manager and key technical staff. It will be structured to address every task assigned to PB.

The Project Management Plan will include quality assurance/quality control (QA/QC), risk management, environmental and safety plans as appropriate. It will include information such as the scope of work, the project team organization chart, project schedule, project budget and documentation of the project control and administration processes. It will also cover key areas such as the understanding of issues and goals of the project; the roles/responsibilities of the project team members; schedule of deliverables; budgets; communication protocol; document control procedures; quality review procedures; and discipline disagreement resolution hierarchy. The plan will be reviewed and approved by the Principal-in-Charge and PB's technical managers (resource center and/or service line) prior to distribution.

?roject Third-Parties

ᴾB recognizes the significant roles played by Authority personnel. They are the project's "clients" and we will ıot forget that. During the early stages of a project assignment our task managers will establish, and maintain, :lose working relationships with the individual assignment managers. There may also be additional "third-›arty" participants involved in implementation of some project elements including, but not limited to, the New ′ork State, New Jersey and New York City Departments of Transportation; other local, state or regional ıgencies; utility companies; Port Authority tenants and consultants working on adjacent projects. ⁄lanagement of the roles and participation of third-party participants will be crucial to project success. PB has ›xisting relationships with many of these parties from our work with them on other projects and will implement ı collaborative environment with all parties to facilitate project implementation.

MBE/WBE Participation

ᴾB acknowledges and supports the Authority's goals to achieve 12% MBE and 5% WBE participation hroughout the life of this agreement. We plan to accomplish this by incorporating qualified subconsultants for specific task assignments where appropriate roles can be identified. While it is not possible to forecast the ›xact nature of the expertise required of MBE and WBE subconsultants in advance of specific assignments, ᴾB has long-standing relationships with qualified MBE/WBE firms that will we call on based upon the specific ıature of forthcoming assignments, with the consent of the Port Authority, to supplement our in-house :apabilities.

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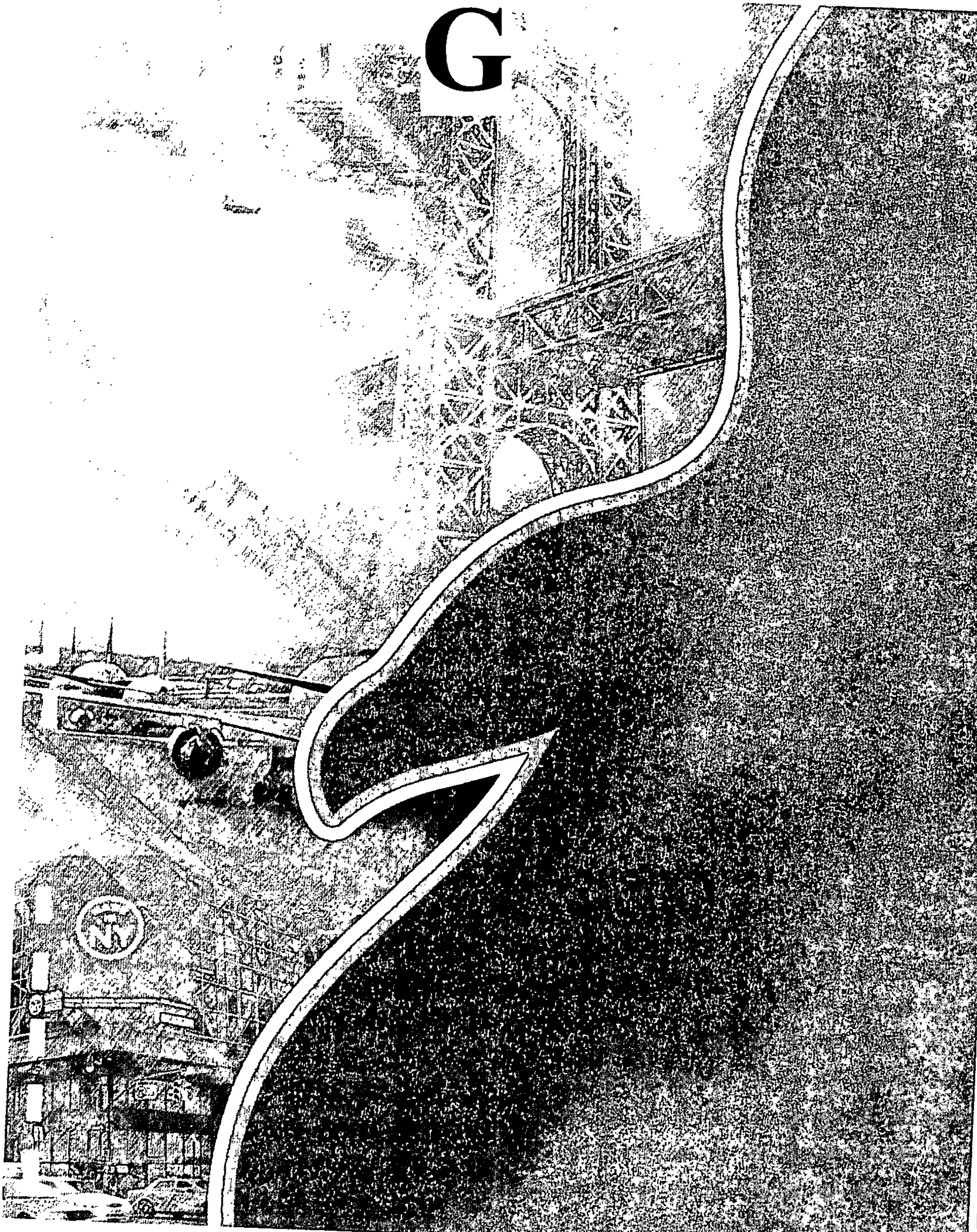

G. PB AMERICAS AFFILIATES

Company	Relationship
Parsons Brinckerhoff Inc.	Holding Company
Parsons Brinckerhoff-FG, Inc.	Affiliate
PB Constructors, Inc.	Affiliate
PB Services Inc.	Affiliate
PB US Services Inc.	Affiliate
PB Consult Inc.	Affiliate
Parsons Brinckerhoff Group Administration, Inc.	Affiliate
PB Telecommunications, Inc	Affiliate
Parsons Brinckerhoff Development Corporation	Affiliate
Parsons Brinckerhoff Infrastructure Development Company Inc.	Affiliate
ALLTECH, Inc.	Affiliate
PB Energy Storage Services Inc.	Affiliate
Parsons Brinckerhoff International Inc.	Affiliate
Parsons Brinckerhoff Michigan, Inc.	Subsidiary
Parsons Brinckerhoff Ohio, Inc.	Subsidiary
PB Transit & Rail Systems, Inc.	Subsidiary
PB Booker Associates Inc.	Subsidiary
PB Aviation, Inc.	Subsidiary
PB Facilities Inc.	Affiliate
PB Power, Inc.	Affiliate
PB Architecture, Inc.	Subsidiary
Associated Engineers, Inc.	Subsidiary

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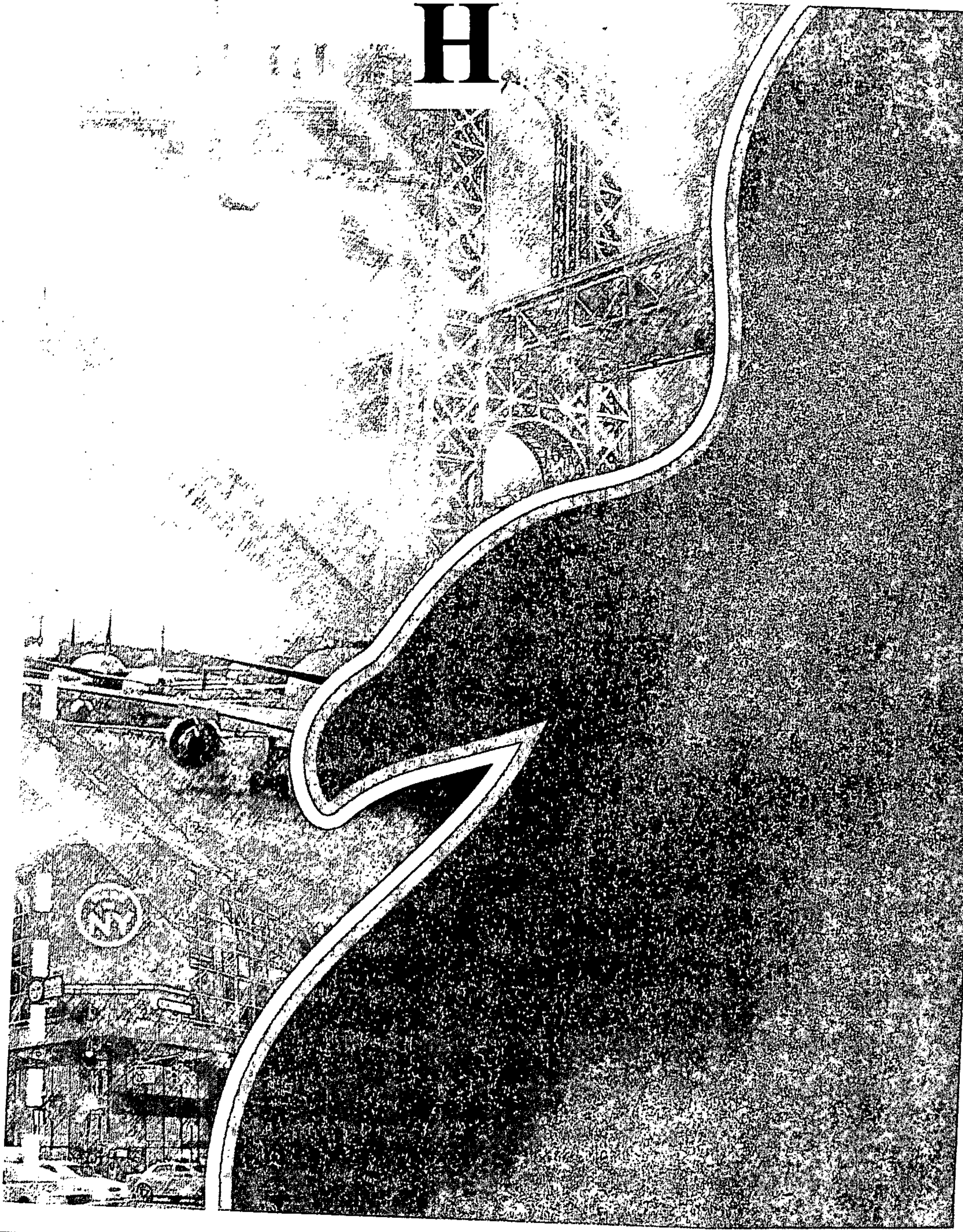

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PARSONS BRINCKERHOFF

PB AMERICAS, INC.
QUALITY ASSURANCE PROGRAM
(QAP)

Prepared by:
Raymond R. Crawford
PB Americas, Director of Quality

Revision History:

Rev	*Date*	*Description*
0	05/08	Initial issue
1	09/08	Revised to include new procedures for project execution

Quality Policy

As the Chief Operating Officer of Americas, I personally affirm my commitment to quality. Through this statement of quality I wholeheartedly endorse and incorporate this as the Americas Quality Policy.

Quality professional services are required from every employee in the company. To illustrate the solid quality commitment the company is making, I am taking full and personal responsibility for the entire Business Management System (BMS). I expect supervisors at all levels to convey the essence and requirements of the BMS to the employees they supervise.

The objectives of the Americas quality system are:

- to satisfy all business requirements in a cost-effective manner,
- to continue to improve the methods used to deliver our professional services, and
- to seek ways to increase client satisfaction with our performance.

Your contribution to Americas' quality goals and objectives is fundamental to maintaining PB's position at the forefront of the industry on into the 21st Century. Let's work together to meet these objectives.

George J. Pierson, COO
January 2008

Together, these procedures form the QAP which has quality as its basis. The QAP is applied by PB Americas' to all Tasks, regardless of the type of task, client or funding source.

3 QUALITY CONTROL PROCEDURES

3.1 <u>The PB Americas Project Specific Quality Management System (QMS)</u>

The PB America's procedures describe the QMS associated with the PB America's projects and internal office operations. This QAP defines PB America's policy on quality assurance and quality control regarding standardizing procedures in order to promote project efficiency and client satisfaction. All applicable sections of this QAP shall be adhered to during the duration of this project, unless otherwise noted in the Project Management Plan (PMP).

3.2 <u>QC/QA Review Procedures</u>

The Project Manager or respective staff member will coordinate and schedule the internal review of the respective tasks/deliverables with the appropriate reviewer. Written and/or marked up review comments will be written onto the draft document (calculations, design, plans, etc.), and returned to the Project Manager and respective Task Leader within the appropriate time frame set prior to the start of the review period. Additional sheets for comments will be affixed to the marked-up documents.

The respective task leader or project engineer will be responsible for addressing the review comments, and distributing the revised document(s) to the original reviewer or other designated staff member. The review process will continue, until the reviewer is satisfied that the document meets the particular project criteria and requirements. The Project Manager will be kept abreast of all ongoing QC/QA activities. Reviewed documents and comments will be stored as part of the project file system..

If applicable, the QC/QA reviewers will select and utilize the appropriate check sheets in performing their reviews. If needed, the check sheets may be modified to accommodate particular project tasks, deliverables, or other pertinent items. The documents to be reviewed consist of calculations, design, reports, sketches, plan sheets, estimates, specifications, and/or any other project related items affecting the quality of the final product delivered to the client.

3.3 <u>QC/QA Review Records</u>

Internal Quality Control and Quality Assurance activities will be documented on Quality Control Review Forms, QA Review Check Lists, and/or other memo type forms (written or electronic) that indicate the completion of quality reviews. The Project Manager or designee will review QC/QA activities, and maintain a file of the completed Review Forms and Check Lists.

An interim QC/QA compliance statement indicating that the plans were developed according to the approved QC/QA plan will be sent at every milestone submittal. This

PROJECT DELIVERY

1 PURPOSE

The purpose of the Project Delivery Management System (PD) is to describe the technical and administrative requirements for project delivery and to describe the functions and responsibilities of project delivery. It is also a guide to identify the interactions of other the PB Americas business processes with project delivery. This document along with the procedures describes the project delivery execution related to operation of the PB organization and contains mandatory requirements for the performance of activities for all PB tasks.

The PD procedures have been developed to standardize existing project delivery practices and implement best management practices for work processes that involve project delivery personnel. Successful implementation of this system will improve the professional services provided to our clients. Both of these achievements should then promote the continued growth and prosperity of the firm.

2 ROLES AND RESPONSIBILITIES

The individuals with specific responsibilities associated with PD system are:

2.1 Principle in Charge (PIC) – The PIC has the responsibility to add value to the PB America's project delivery (quality and project management), to provide general project oversight and guidance, and to act on behalf of PB Americas' to maintain a high level of client satisfaction. The PIC will be a well-established technical and management proficiency appropriate for the project. Specifically the PIC will:

- Provide appropriate mentorship to the PM in the performance of the project to achieve technical, financial and client success
- Ensure feedback is obtained from the client by the PIC on PB Americas' performance and ensure that the appropriate action is being taken to resolve issues
- Assist the PM with resolution of project issues as they relate to technical management of the projects

2.2 Project Manager (PM) – The PM has the responsibility of managing the assigned project in accordance with PB Americas' core values and the accountability to provide project services and the level of quality agreed to by the PB and the client. The overall performance of the PM is monitored and managed by the Deputy Project Manager (DPM) and the Task Leaders (TL). The PM provides personal leadership to the project team and is accountable for technical success, financial success, schedule compliance, and client satisfaction. Unless otherwise stated, all actions arising from project delivery, as defined in the following procedures are the responsibility of the assigned PM. Specific responsibilities during project start-up and execution include:

staff is responsible and reports to the PM for performance of their assigned duties in accordance with the PMP.

3 PROCEDURES SUMMARY

Project delivery is the process of managing client relations and project resources to deliver technical and commercial requirements of a contract. The combination of adhering to a clearly defined process and implementing proper control will result in a well-coordinated, comprehensive project delivery system with a reduction of risks normally associated with the PB Team projects and achievement of client satisfaction.

Project teamwork and the importance of communication can not be stressed enough. Effective communication and collaboration at all levels assure scope, schedule, budget clarity and commitment. Establishing interface management and conflict resolution processes enables project delivery success. Aligning the project delivery system with client resources and practices is an important step in effective project delivery. Successful project delivery requires implementation of management systems that enable project delivery teams to control changes to key factors in scope, schedule, costs, and quality.

Appendix A, "Project Delivery Flow Diagram" provides the graphic representation of the project delivery procedure, form and appendices interrelationships. Additional applicable Quality Procedures from the PB America's business system documents may be included. Together, these documents provide written procedures or instructions for the activities that may affect the quality of design for this project. The following paragraphs describe the key elements of the project delivery process.

3.1 Project Start-Up – project start-up describes the technical and administrative requirements for starting a project and includes:

- Contract administration
- Document control process
- Internal Project Numbering process
- Work Breakdown Structure (WBS) process
- Project Management Plan (PMP) process

PD 201, "Project Start-up", is the procedure that describes in detail this process and responsibilities of America's employees to setup and start a project.

3.2 Project Execution – This procedure documents how PB Americas' manages and controls project work that is undertaken. PD 204, "Project Execution", provides a detailed explanation of the process and requirements for the PM.

3.3 Project Technical Review and Verification – Project technical review and verification includes the technical review of deliverables such as specifications, calculations, reports, drawings and construction, engineering and inspection reporting during project execution of the project for the project records. PD 206, "Project Technical Review and Verification", provides a detailed explanation of the process and requirements for the PM.

PROJECT START-UP

1 PROCEDURE

On award of contract or notification of authorization to proceed, all files (both soft and paper) relating to the pursuit shall be formally transferred to the PM and managed in accordance with the project delivery procedures including requirements for retention of documents and archiving.

2 PROJECT MANAGEMENT PLAN

As each project is initiated, the PM shall develop a PMP at project start-up detailing the project team (i.e. PM, PIC, TL, and PA), project requirements, project resources and a clear statement as to what defines "client success". The PMP will be reviewed and approved by the PIC, TL, other service line managers depending on the size of the project and CRM for that client. The PMP shall be of a size and in a format appropriate for the project. QA/QC, risk management, environmental and safety plans will be included in the PMP as appropriate.

The PMP provides a plan tailored to a specific project. It is intended to be a tool to provide one source for the information required by the project team to effectively and efficiently manage and complete the project. The PMP includes information such as the Scope of Work, the Project Team, Project Schedule, Project Budget and documents the Project Control and Administration processes.

The PMP will cover key areas to improve quality delivery of services including the understanding of issues and goals of the project; identifying the roles/responsibilities of the project team members; schedule of deliverables, budgets, communication protocol; document control procedures; quality review procedures; and discipline disagreement resolution hierarchy. The PMP will be communicated to all team members and its implementation monitored to ensure that it is strictly adhered to. Regularly scheduled team meetings will be held to review progress, review the quality control, assess risks, identify dependent needs, resolve problems, and maintain a coordinated effort between various disciplines and subconsultants on the project. The PMP is updated and enhanced throughout the project's duration as necessary to reflect current conditions. This is an important step as PB Americas' believes keeping up-to-date and applying lesson learned throughout the process improves the overall quality of a project and reduces risk.

The PMP will be overseen by the Principal-in-Charge, who will periodically seek feedback on our performance and take necessary measures to correct problems that may develop. For example, highly experienced senior engineering managers from PB Americas' will provide QA/QC reviews for Civil/Highway Engineering, Structural Engineering, Traffic Engineering, and Construction Management, respectively. Reviews are performed to ensure that the requirements of the PMP are met throughout the design and implementation of the project. Additionally, at project commencement, each subconsultant will identify a QC Manager who will be responsible for the initial QC prior to a deliverable being forwarded to PB Americas'. The PB QA manager will then review the deliverables prior to their submission to the client to ascertain that the design packages are complete and consistent with the client's needs and standards, the plans are checked; and the proposed construction is sound, economical, and meets good engineering practices.

The PMP also provides a document that identifies which of the PB America's guidelines and procedures will be applicable to the project, as well as identifying other project specific Quality Assurance/Quality Control (QA/QC) requirements for the project by the client and/or other project stakeholders. The PMP includes information such as the Scope of Work, the Project Team, Quality Procedures specific to the project, External Standards applicable to the project, Project Review Requirements, Document and Change Control Procedures, Project Team and Client Review Processes and the procedures to resolve Technical Differences. The end result is a project specific PMP that will jointly meet the QA/QC requirements of the Client, Project Stakeholders and PB Americas'.

2.1 *Quality Assurance (QA)/Quality Control (QC):*

Developing a project specific QA/QC plan is a key element in the planning process at the onset of a project. The QA/QC plan establishes the parameters within which the project team will function and clearly identifies how the PM will control the quality of services via the management of scope, schedule, and budget. Expectations, both client and PB Americas', are identified. Processes and procedures necessary to meet those expectations are established.

Under the PB Americas QMS system, the project specific QA/QC plan is an integral part of the project and therefore should be periodically reviewed and updated as the project progresses and/or significant changes are made to the contract deliverables/tasks.

The project QA/QC Plan should address at a minimum the following elements:

- General Quality Control Procedures: A statement or outline of the general quality control procedures to be followed by the project staff. This should include references to any manuals or procedures prescribed by the client or considered appropriate by the PM.
- Detailed Quality Control Procedures: Written instructions that give clear guidance to the project staff on the subjects of:
    - Project technical criteria to be used
    - Control of design consistency, compatibility and cross checking of details
    - Checking frequency, initialing, and signatures
    - Checking of finished deliverables
    - Maintenance and checking of calculations and computer results

- Assessment of meeting client needs: Define what constitutes client success (e.g. client feedback requirements)
- Project Reviews: Management of various reviews and verifications (e.g. peer reviews and technical reviews)
- Identification of Project Audits: Define what specific internal and external audits will be required as part of company certification programs and client requirements.

3 DOCUMENT CONTROL:

Document control is a process by which the PM is able to store and retrieve all documents pertaining to the development of a project. Document control should begin upon notice of selection to track all pre-contract documents. A document control system shall be established to suit the requirements of the project in accordance with PB Americas' document control procedures. As a minimum, this will comprise a pre-determined filing plan with defined protocols for the retention and issue of all hard copy documents, e-mail and soft copy for incoming and outgoing documents. More comprehensive document control systems may be adopted for specific projects, as appropriate. All documents shall be referenced to include the project number.

3.1 *Correspondence Numbering*

All correspondence shall contain the applicable project number assigned by the Project Manager. This shall pertain to letters, faxes, memos, phone call records, e-mail, and other project related documentation.

3.2 *Correspondence and Communication*

Communication of all types (e-mails, phone calls, etc.) regarding the project will be handled by the Project Manager or designee. Communication activities may be coordinated by other team members, as delegated by the Project Manager. The Project Manager will be copied on any correspondence submitted by the project team. The Project Manager will coordinate the distribution of all communications for information and filing.

Communications from any the PB Team member to the client must be forwarded to the Project Manager for his review and/or signature. When letters are written by staff members other than the Project Manager, the originals will be sent to the Project Manager for his signature. Incoming communications are to be addressed to the Project Manager's attention, so that copies may be directed through the proper channels for early action (if required).

All incoming project related mail will be stamped or marked with the receipt date and a copy retained in the project files. A copy will be retained in the project file of all outgoing correspondence and documents, including applicable transmittal pages or letters.

PROJECT CONTROLS

1 PROCEDURE

A cornerstone in project delivery is in setting up, monitoring, and managing the project work. Project control tools and techniques that the PM must use are discussed here.

The purpose of project controls is managing scope, schedule, budget, and quality in accordance with the contract. Key elements in project control are establishing plans, measuring performance, adjusting plans and documenting results. This means controlling the PB America's resources on the project and delivering the services with a level of certainty expected from our clients, describing the tasks, when they are expected to be performed and at what cost (resources and time). It is the PM's responsibility to control the scope of services, budget, and schedule for the client and for the PB Team. If the tasks assigned under the scope are program management, design management or construction management, the same diligence and understanding of third-party performance is delivered through project controls. Understanding the development from the highest level to the most detailed level allows the PM the insight to advise the client on courses of action within a project's life.

The following project control elements should be employed by the PM on each project to the level of detail needed to deliver the work pursuant to the contract terms and conditions and the PB Team operating requirements:

1.1 *Scope Management:*

Project scope is defined as the work that must be done to meet client requirements as depicted in the contract. Depending on assignment it may also mean the work that must be done to meet a client's program goals for space, function, features, and level of quality. In many ways, scope management is the foundation on which the other project elements are built. From project inception, project scope defines the boundaries within which the delivery team and the external stakeholders work. Effective scope management requires accurate definition of a client's requirements from the proposal phase through negotiations and a systematic process for monitoring and managing all factors that may impact or change the client's requirements throughout the project delivery process.

"Scope" is typically identified in the prime agreement under a separate section entitled "Scope of Services." However, it is not uncommon for "services" to also be identified in the general and special provisions or other appendices. In some cases, the prime agreement incorporates the PB Team technical and/or cost proposal into the contract; thereby, potentially expanding the definition of what services are to be provided under the terms of the agreement. The PM prepares management processes start with estimates and the establishment of budgets that align with scope, schedule and quality requirements and continue with estimates-to-complete and change management impacts and corrective actions. The PB team costs are mostly impacted by resource usage and scope *accomplishment. If a task was to include the development of 30% design* submittal and the estimate of resources required (based on the specific staff) budget/cost management could track the hours expended and the work accomplished. These two indicators could be compared to the schedule of this task and the combination would provide PM's with critical information on project status. If plans are not being realized, the timely reporting of this status could enable adjustments such that the task still can be completed with the 1,000 hours and on-schedule.

A budget is a tool that sets the financial starting point for a project as the baseline against which progress can be measured. Three common types of budgets are listed below:

- <u>Project Budget</u> – Includes all consulting, procurement, real estate, construction and commissioning
- <u>Construction Budget</u> – Includes contractors' bid/award and changes (current and forecasted)
- <u>the PB team Budget</u> – Includes direct labor hours and cost, overhead, contingency and margin

The PM is responsible to manage all three types of budgets as applicable and appropriate to the particular type of work/deliverable. While each of the three managed variables – scope, schedule and budget – are approximately equal in importance, budget frequently receives the most attention. This is understandable since performance relative to the budget is a clear and unmistakable indication of a project's success, even though the three variables are independent. To approach the budget, the PM must have a clear understanding of the project's deliverables, scope, and schedule. In subsequent iterations, if necessary, the budget will vary as changes to scope, schedule or deliverable are integrated into the budget. The PM's budget control methodology should be based on this concept.

While the following cost control, change control, schedule control and claims mitigation topics are focused toward program and construction projects, the same principles and practices apply to any type of project and deliverables.

The original budget is base lined and does not change until it is replaced by an approved current budget. In maintaining the budget, it is necessary to make frequent estimates of work required to complete the project, to assess the actual cost of work completed to date, and to take into account changes in process or changes being contemplated. The most effective tool for maintaining the budget

PROJECT EXECUTION

1 PROCEDURE

1.1 *Reporting*

Reporting is critical to overall project success. The PM is required to report in a timely fashion on various items so that the required overview and governance can be applied. Even though some required reporting may seem burdensome to the PM, such reports are of key importance to others. In addition, the PM must fulfill reporting procedures in accordance with the client's needs; including what's required for the client to approve our invoices and what our client PM's require reporting to their management. Such client reporting shall be listed in the PMP.

Required internal reporting includes:

- Project management monitoring planned schedule/progress-to-date to progress-to date
- Project management monitoring planned cost-to-date to actual cost-to-date
- Project resource planning, which is a forward estimate of remaining work
- Remaining cost to complete the project (including both inter-office and inter-service line progress and that of any sub consultants) by work preformed against plan
- Results of periodic project reviews which cover costs to date, estimate to complete vs. plan, accounts receivable, unbilled costs, project percent complete and earned value, as well as any other technical or financial issues that add risk
- Unresolved issues with the potential to impact any of the above items

Internal reporting is required every four-week period to compare project plan with actual.

1.2 *Communications:*

The PM has the key role of communicating among all entities: client, stakeholders, PB Americas' staff, sub-consultants and other external entities. There are many techniques, mediums and tools, both formal and informal, that can be used to communicate and which the PM has at their disposal, such as:

- Oral and written communications
- WBS and OBS (see PD 202, "Project Control")
- Reports: daily, weekly, monthly, quarterly, etc.
- Meeting minutes
- Contract documents
- Project Solve

1.4 ***Succession Planning & Change of PM Audit:***

The purpose of this section is to establish an orderly transition plan for replacement of the incumbent PM, maintain fundamental adherence to scope, schedule, budget and contract terms, and communicate PM changes to the client and receive concurrence. Upon determination that the PM is to be replaced the following action shall be taken:

- The PIC and/or PB service line manager confers with the PM on current status
- Communicate with the client and obtain permission for the PM's replacement, including introducing the new PM to the client
- The existing PM shall review and update project data and estimates to complete and meet with the new PM to assess the overall status

The new PM shall establish a transition plan based on the review, advise the TL of any perceived issues relating to the transition plan, revise the contract as needed to incorporate changes in key personnel, and meet with the staff and assume control of the project, identifying any unstated risks or issues that were not previously identified by the independent review.

1.5 ***Best practices - Continual Improvement Process:***

A key component to the successful project is to document what went well and what could have been improved. The process of recording the best practices should be a standard mode of operation for the PM to be accomplished after each deliverable at a minimum. In this manner, sharing the successes and issues with the TL, PIC and others will improve PB America's and the PM's delivery, and ultimately the client's satisfaction.
Senior management regularly participates in reviews of quality issues and is apprised of activities of quality improvement (QI) meetings and has mandated that all employees receive training on this quality system as a part of the employee's initial orientation to the company. We have both an individual employee suggestion program and a team continual improvement program, called the Performance Improvement Team (PIT) program, which function to provide continual improvement to our operations throughout the organization.

1.6 Control of Non-conforming Product, Material or Service:

Project plans, quality plans, health and safety plans, environmental plans, standards and specifications may identify the requirements for conforming products, materials or services. It is the responsibility of the PM to ensure that non-conforming products are segregated, identified and prevented from being used or from further processing. Where services provided to the client are found not to comply with the stated requirements then they shall be deemed non-conforming. The non-conforming condition shall be documented, reviewed and a decision made to determine appropriate action. Where appropriate, non-conforming services shall be suspended pending frequent calibrations than are necessary for the types of services. Calibrations may be at less frequent intervals where there is technical expertise to support less frequent calibration and is approved by the MOP. The frequency of calibration for equipment requiring calibration shall be noted in the calibration log.

Prior to initiating field activities, the task leader or user shall inspect equipment necessary for the field assignment to verify that it is in working condition. Any suspect equipment shall be clearly marked "Do Not Use", reported to the MOP and shall not be used until its status has been clarified. If equipment is found to be out of calibration after use, the extent shall be quantified and the PM or Task Leaders of tasks that used the equipment since the last calibration shall assess the impact and take corrective action. The affected project records shall show the conclusion of this assessment, either if it was of no consequence or a description of the corrective action.

Field equipment damaged during use on a project shall be reported by the responsible task leader and repaired or replaced as directed by the owner of the equipment. At the end of the fieldwork, all equipment used shall be checked to ensure that it is still in working condition, and returned to its proper storage location. Subject equipment shall be identified and reported as indicated above.

1.9 <u>Control of client supplied documents and material:</u>

The PM is responsible for identifying an item as falling within the purview of these requirements, and for ensuring that the requirements of this procedure are met. This procedure describes the requirements for controlling client or third party supplied data, equipment and documents to ensure that such items are maintained, are accessible to appropriate project personnel, are updated as necessary and are returned to the client *on request*.

The PM establishes an accessible storage location. The selected storage location provides adequate protection from damage or loss.

The PM reviews all client or third party supplied items and identifies their suitability and criteria for use on the project. A log is maintained of client or third party supplied items that are expected to be returned to the client or third party at the conclusion of the project or when they are no longer needed. The log may include: a description of the item, the date of its receipt, the date of receipt of any modifications to the item, an indication of its suitability and criteria for use, the physical storage location of the item and the expected date of its return to the client.

If material is received that is damaged, lost or questionable in content, the PM notifies the client or third party of the flaw in the materials received. Records of the resolutions of such issues are maintained.

The PM distributes copies or a list of the available data, documents and equipment to the affected task leaders and other project staff, as appropriate, advising of their presence, their suitability and the criteria for their use.

TECHNICAL REVIEWS AND PROJECT VERIFICATION

1 PROCEDURE

Technical review includes review of methodologies, design parameters, technical approach and use of the available knowledge. Verification includes the review and assessment of the technical adequacy and correctness of deliverables such as specifications, calculations, drawings, letters and reports during project execution.

The review of deliverables prior to submission to the client is a joint effort among PB Americas' technical resource center, service line managers and the project team. The PM is responsible for establishing the level of technical review required for the project, for selecting appropriately qualified personnel to perform the required reviews, and for defining the level of review and verification in the PMP. The PM is also responsible for maintaining a record of each review and the disposition of the review comments. This also includes the PM's review of all correspondence leaving the project.

The task leader is responsible for preparing project discipline-related criteria and for designating personnel to prepare and check the deliverables, along with technical resources to assist during the preparation.

1.1 *Reviews:*

A review is performed for each project deliverable prior to its submittal to the client and at least two other times prior to the completion of the deliverable (preferably at the start and when approximately 50% of the deliverable has been completed. Deliverable review evaluates the overall validity of the deliverable with respect to the project requirements and is independent of document checking, which takes place prior to the review. The intensity of the review is commensurate with the size and complexity of the project. The PMP, developed by the PM, specifies the schedule for reviews, the type and intensity of the review required for each project deliverable, and the appropriate personnel to perform the reviews. This may include experienced staff actively involved in other aspects of the project, PB Americas' staff not involved in the project or independent consultants called in solely for the purpose of the review. The PM should draw on the guidance of other service line managers and should involve other PB Americas technical experts wherever practical. The deliverable review assesses the project deliverable against the following:

- Applicable project design criteria and requirements
- Applicable codes, technical guidelines and professional standards
- Available design documents
- Incorporation of PB Americas' experience on other projects
- Previous review comments, if applicable
- Interface requirements with other system elements
- Accepted industry practices and best practice experience

industry standards appropriate to the type of work performed are used, as defined by the task leader.

The project specifications shall be reviewed by the PM to verify completeness and consistency with client and project requirements and to verify that all specification sections are coordinated among the various disciplines on the project. Any changes necessary as a result of that review shall be communicated to the originators and checkers.

1.4 Report Writing:

Reports include brief reports and e-mails going to the client, such as letter reports, as well as more elaborate reports, such as inspection reports, geotechnical reports, alternative study reports, engineering design reports, transportation planning studies, alternative alignment studies, environmental impact statements, major investment studies or other multi-discipline reports. The PM communicates the objectives of the report and any specific requirements for content or format to the preparer, contributors and checker.

- The checker investigates materials included in the report and verifies that the information presented conforms to the requirements established for the project, that the presentation is effective and orderly, and that the material included has been checked for accuracy.
- The checker also evaluates the report to establish that the material presented justifies any conclusions drawn and that the report addresses the appropriate issues in accordance with the scope of the assignment.
- For brief reports, such as letter reports and e-mails, a single person customarily prepares the report and the report is checked by the task leader, or if prepared by the task leader, checked by the PM, prior to submittal to the client.
- Revisions resulting from the internal checking process are reviewed and initialed by the originator(s) prior to being incorporated into the submission-ready report.
- The 'as-submitted' copy of the report is initialed by the checker as evidence of the review. All marked copies need not be kept unless required by the contract.

MANAGEMENT OF SUBCONSULTANTS

1 PROCEDURE

The requirements of this procedure apply to all subconsultants engaged by PB Americas' to provide input in the development of deliverables to be submitted to the client. Subconsultants used to augment PB Americas' staff, to provide advice (for example, serve on a project's board of consultants), or to provide a service that is not directly related to PB Americas' deliverables are specifically excluded from these requirements.

1.1 *Selection of Subconsultants:*

The selection of subconsultants is done on a task-by-task basis. The PM evaluates the qualifications of all possible subconsultants and selects the best one using a "Best Value" approach, if possible. The inclusion of the subconsultant's name in the proposal signed by the Business Manager, or designee, acts as a record of the approval. If the subconsultant is added to the project team during the course of the work, the PM evaluates the subconsultant's qualifications, has the subconsultant approved by the Officer in Charge, informs the client of the selection and requests the client's approval, if required by the contract.

1.2 *Proposed Services by Subconsultant:*

The scope of work, schedule and budget of tasks to be performed by the subconsultant is established by the PM and the subconsultant. Upon award of the contract to PB Americas', the PM informs the subconsultant and prepares a subcontract agreement. The agreement addresses subconsultant scope, schedule and budget, including quality control and assurance provisions. At a minimum, the subcontract agreement includes QA/QC provisions for the subconsultant to provide evidence of internal review of deliverables, to cooperate with PB Americas' audits, (if audits are required), and to initiate and implement corrective actions, (if quality problems are identified). The PM shall not authorize the subconsultant to start work pending the execution of the subcontract agreement until after their submittal of insurance certificates.

1.3 *Subconsultant Quality Control Plans:*

Each subconsultant is required to document its quality control measures for the work to be performed. These measures include the identification of key personnel and the quality activities that will be performed. The plan should be appropriate for the size and complexity of the assignment. For many specialty or small assignments, the subconsultant's plan could be as simple as a one paragraph statement stating that the work will be performed by the individuals named in the proposal, and that all work will be checked by a qualified person prior to submittal to PB Americas'. For significant multidisciplinary design

1.5 ***Review of Subconsultant Deliverables:***

The PM or designee reviews each subconsultant work product prior to its use or incorporation into other project work, or prior to its submission to the client. The review is for technical adequacy, consistency with the scope of work and for meeting the project quality requirements. The review does not relieve the subconsultant from its responsibilities in meeting the technical and quality requirements of its work.

1.6 ***Evaluation of Subconsultant Performance:***

Annually and at project closeout, the PM evaluates subconsultant performance on the project relative to responsiveness, timeliness and adequacy of deliverables. The annual evaluation is in the form of a memo to the files and is copied to the PIC and AM. The "Subconsultant Evaluation Form" is completed as part of the project closeout report.

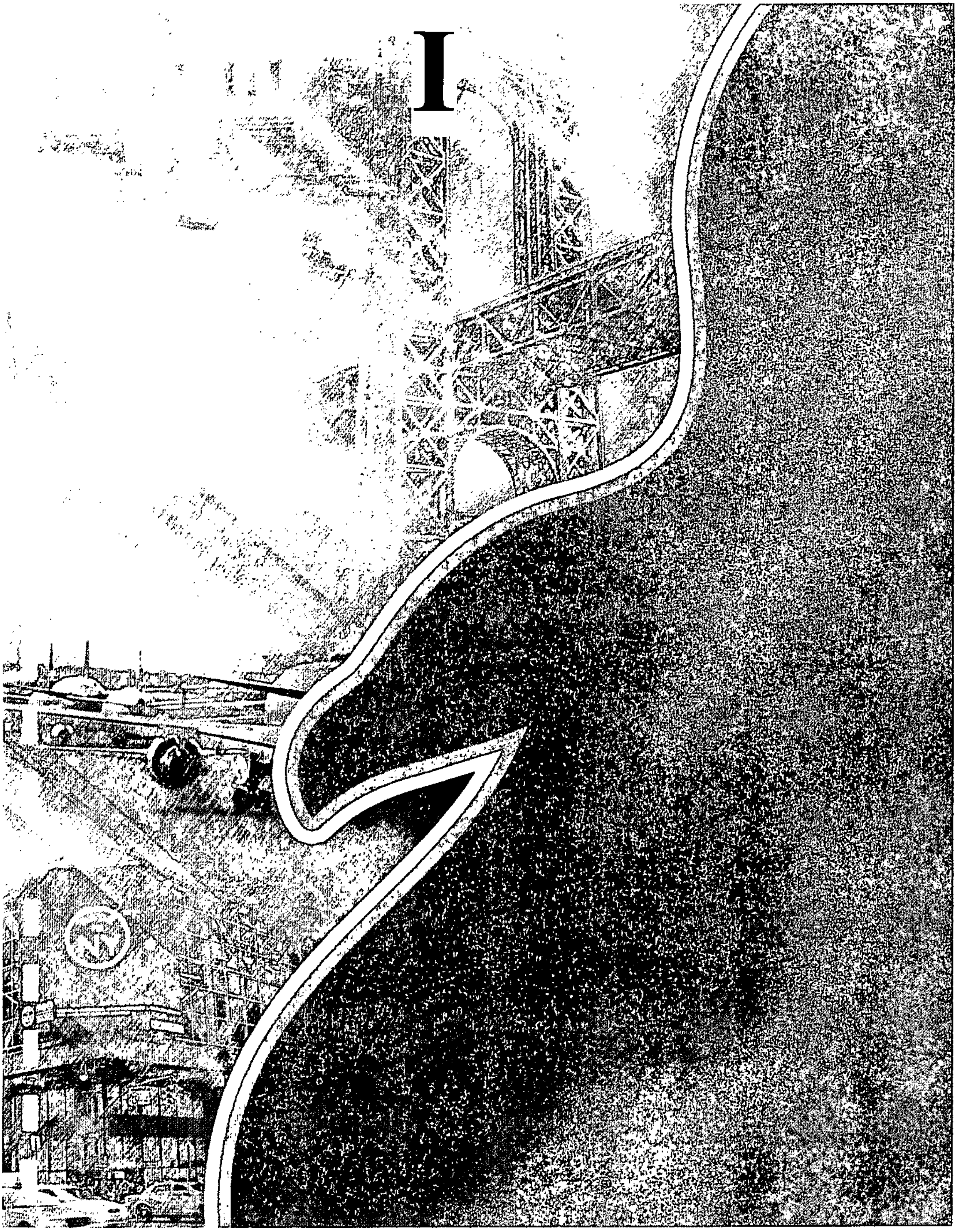
APPENDIX B

SCOPE OF WORK AND DELIVERABLES

APPENDIX D

PROJECT BUDGET

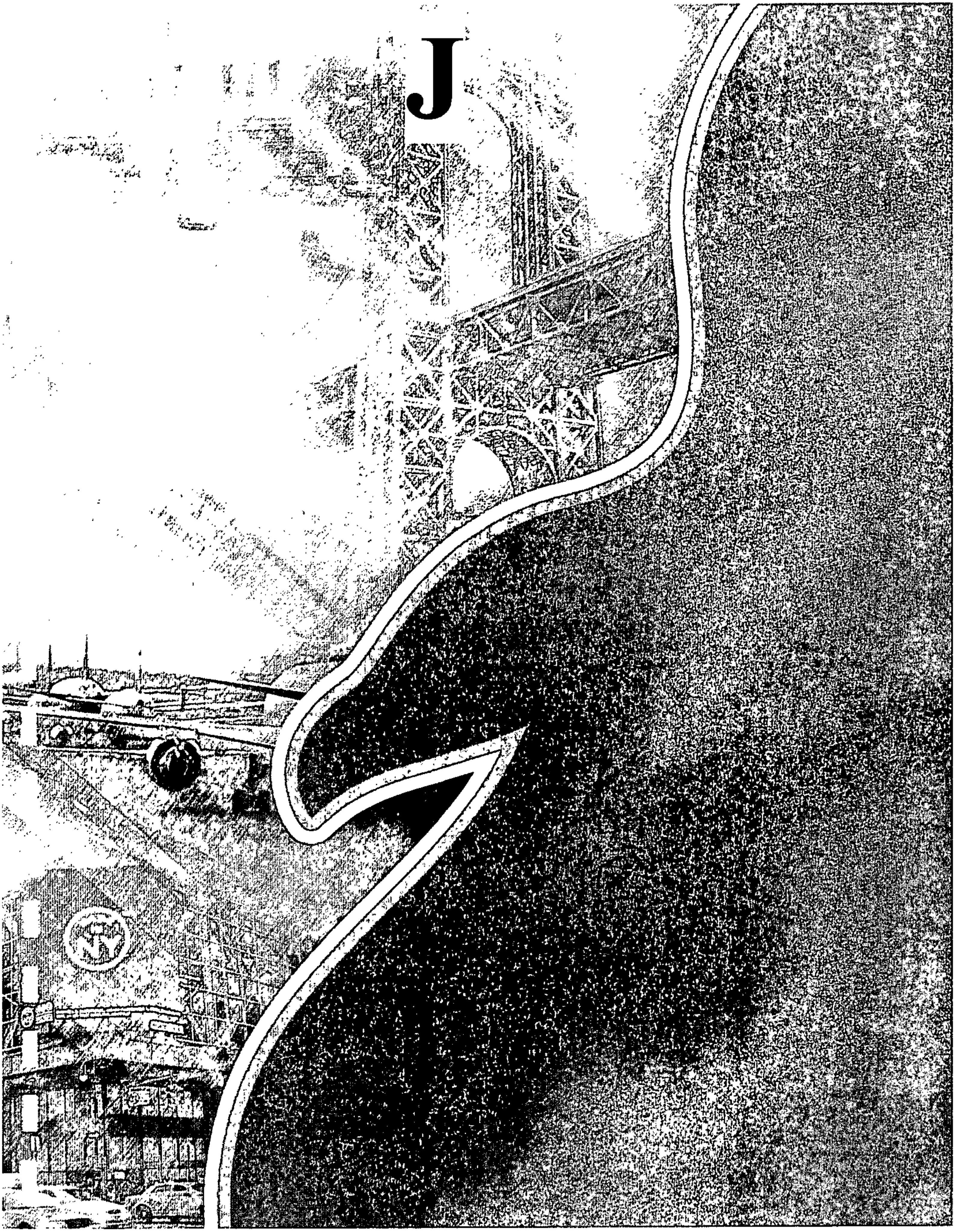
I



I. CONFLICT OF INTEREST

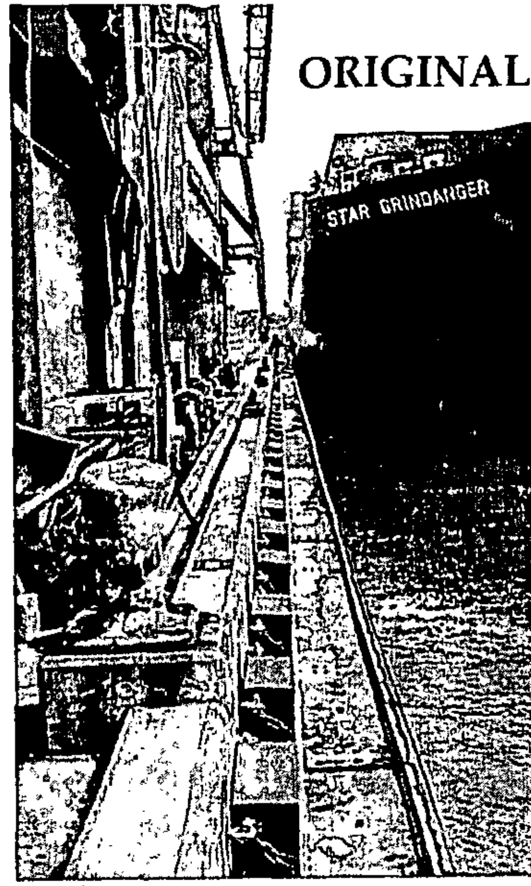
Neither PB Americas, Inc., nor any of its employees, agents, or subcontractors, is aware of any possible conflict of interest or appearance of conflict of interest relating to the provision of facility condition survey services for bridge facilities on a call-in basis, as defined in Article 31 of the Standard Agreement attached to this *Request for Proposals*. *If we become aware of a conflict, or the appearance of a conflict, we will* immediately notify the Authority as required, giving full details thereof.

J



J. CONTRACT EXCEPTIONS

PB Americas, Inc. has reviewed the form of contract and its terms and conditions included with RFP Number 16560. PB Americas, Inc. takes no exceptions.



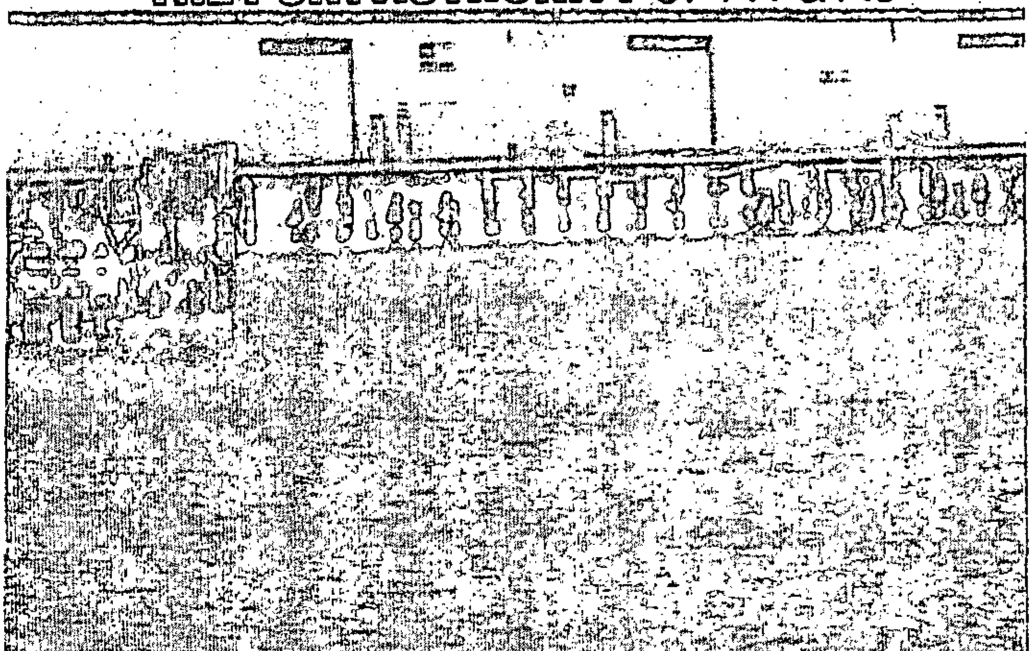
ORIGINAL

Proposal for:

The Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities As Requested on a "Call-In" Basis During 2009 RFP #16560

Submitted to:

THE PORT AUTHORITY OF NY & NJ



Submitted by:

COLLINS ENGINEERS P.C.

1058 Broadway
Albany, NY 12204
Phone 518.436.0392
Fax 518.436.0395
www.collinsengr.com

October 2008

COLLINS
ENGINEERS P.C.

October 9, 2008

RFP Custodian
The Port Authority of New York and New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010

Reference: Request for Proposals for the Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2009 (RFP #16560)

Collins Engineers, P.C. (Collins) is very pleased to have been invited to submit this proposal for the Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" basis during 2009. I believe that you will find our qualifications and experience to be outstanding. We are accustomed to the response time and varied expertise that "Call-In" projects demand. Collins has performed numerous assignments on a call-in basis as well as being on-site immediately after an emergency call.

All work for the Port Authority of New York and New Jersey (Authority) will be based out of our Albany, New York office. All Collins' staff is readily available to the Authority and its facilities and will provide a quick response time.

Our Project Manager has successfully performed in this capacity for past projects for the Authority's Engineering Department from 1995 to 2000 and has continued to perform that role on waterfront related structures and facilities. We are excited about our management approach and the technical competence of the team we propose.

Collins has always met or exceeded MBE/WBE requirements and this "Call-In" contract is no exception. To meet the required 12% MBE/DBE and 5% WBE goal set forth on this assignment, the Collins Team will be joined by KS Engineering, P.C. (MBE) and Barbara Thayer, PC (WBE). In the past, both firms have successfully assisted Collins on inspection projects and have been an asset to our project team.

We look forward to continuing our working relationship with the Authority. If you have any questions or concerns, please call me at your convenience at (518) 436-0392.

Sincerely,

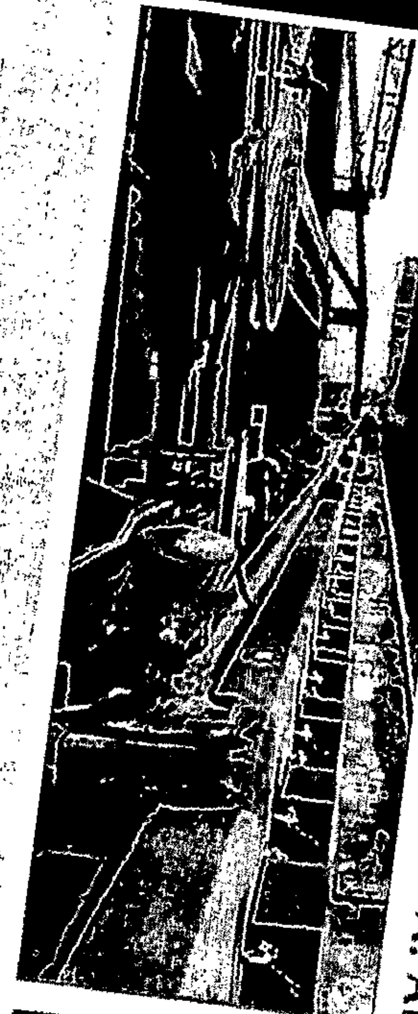
COLLINS ENGINEERS, P.C.

Eric K. Thorkildsen

Eric K. Thorkildsen, P.E.
Project Executive

TABLE OF CONTENTS

A. Attachment B



A. Attachment B

A. ATTACHMENT B

Attachment B is presented on the following page.

ATTACHMENT B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

Collins Engineers, P.C.
NAME OF COMPANY

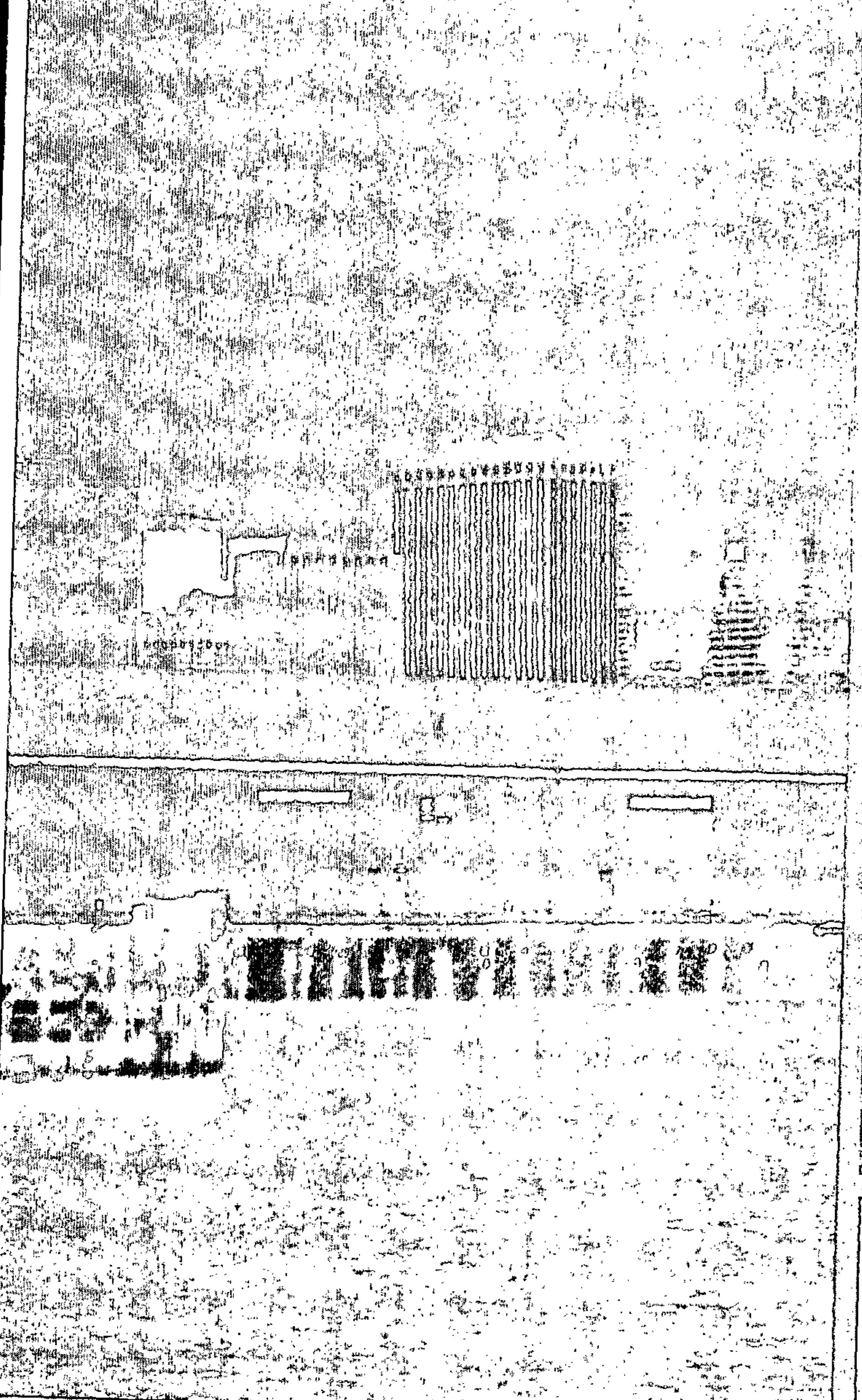
Eric K. Thorkildsen
SIGNATURE OF OFFICER

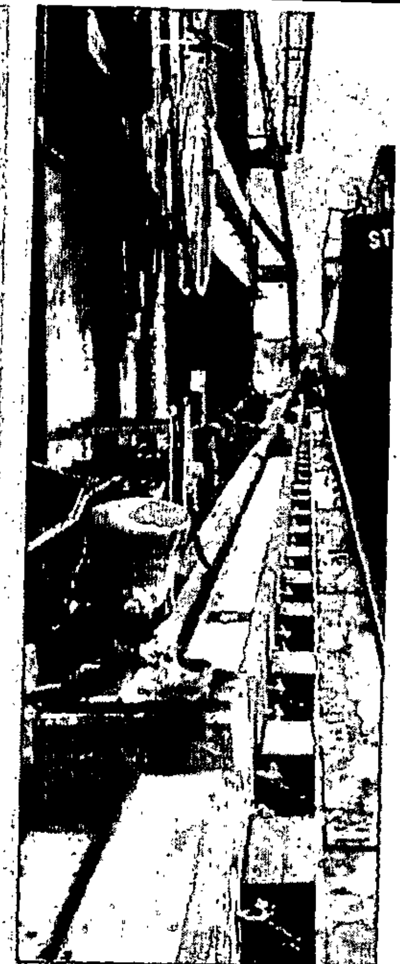
Eric K. Thorkildsen
PRINT NAME OF OFFICER

Project Executive
TITLE

October 9, 2008
DATE

B. Multiplier



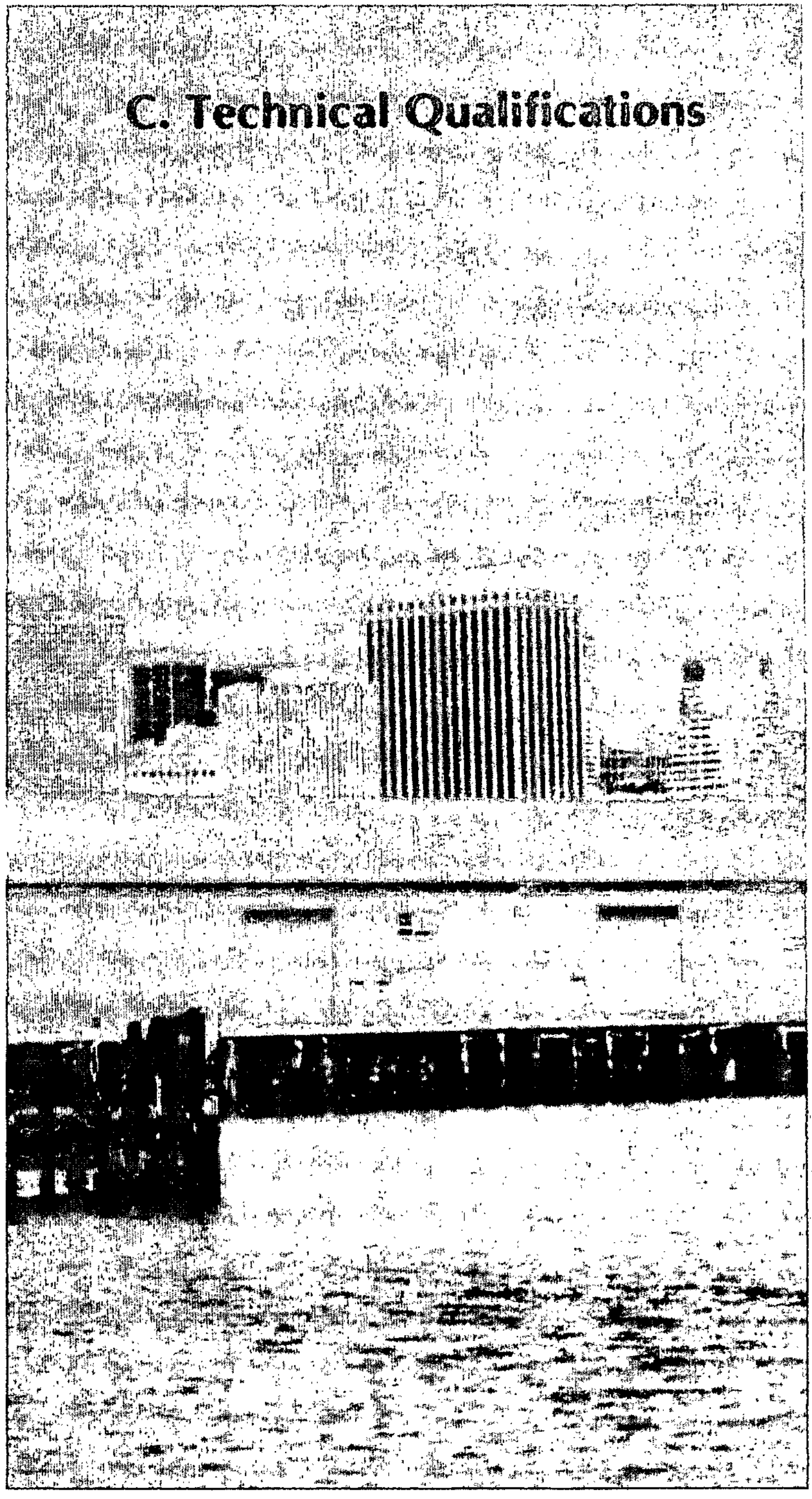


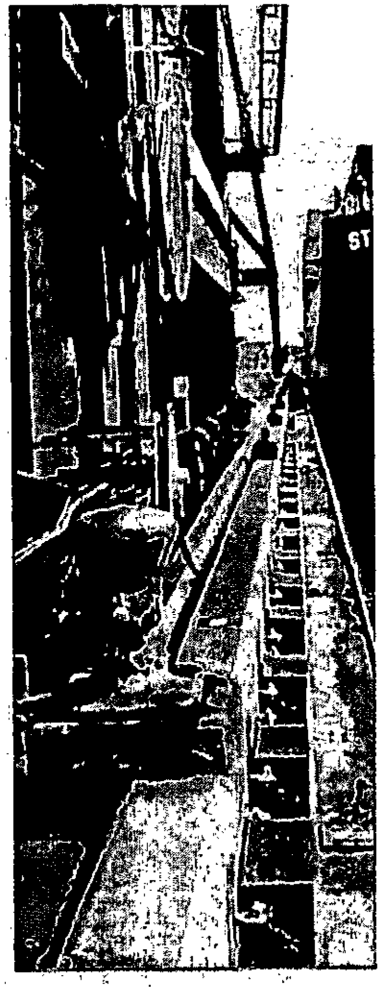
B. Multiplier

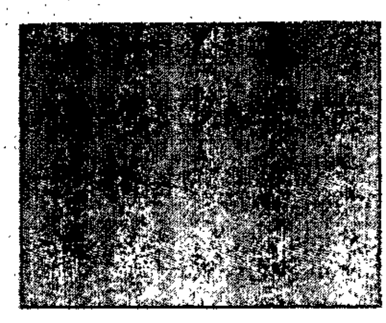
B. MULTIPLIER

The multiplier for Collins Engineers, P.C. is 2.89.

C. Technical Qualifications



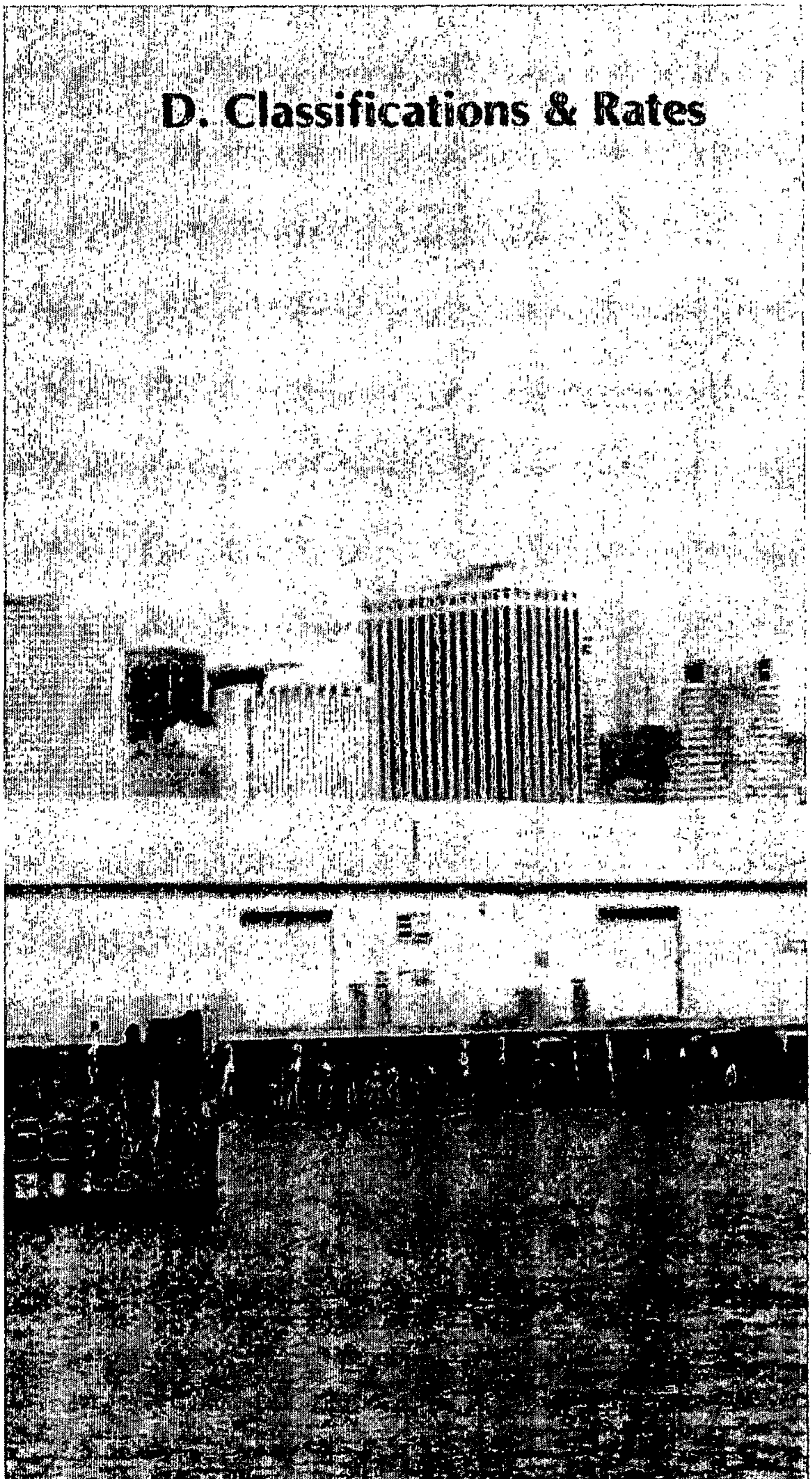


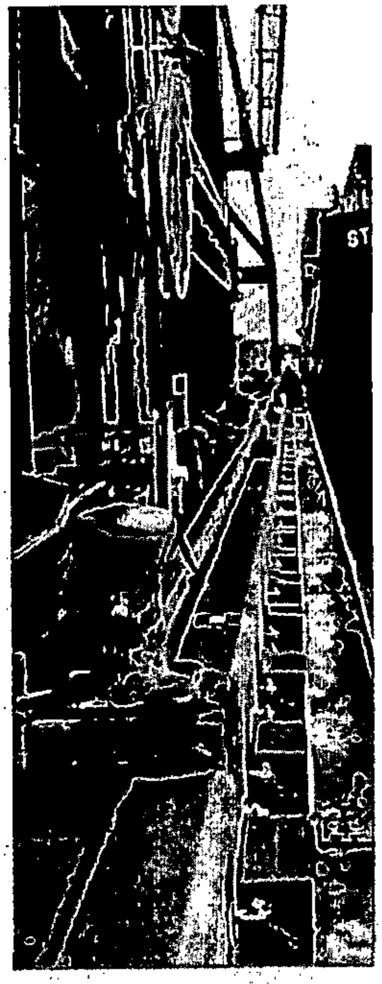


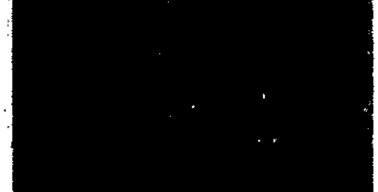
C. Technical Qualifications

C. TECHNICAL QUALIFICATIONS

D. Classifications & Rates







D. Classifications & Rates

D. CLASSIFICATIONS AND RATES

THE PORT AUTHORITY OF NY & NJ 2008 HOURLY RATES

		Hourly Rate		
Employee	**Classification**	**Current Hourly Rate**	**2009 3.00% Escalation**	**Principal Billing Rate**
	Principal Engineer (E8)	$81.92	$84.38	$232.00
	Principal Engineer (E8)	$81.92	$84.38	$232.00
	Principal Engineer (E7)	$81.92	$84.38	$235.93
	Principal Engineer (E7)	$77.84	$80.18	
	Principal Engineer (E7)	$74.42	$76.65	
	Senior Engineer (E5)	$52.90	$54.49	
	Engineer (E4)	$43.27	$44.57	
	Engineer (E3)	$42.52	$43.80	
	Junior Engineer (E2)	$32.31	$33.28	
	Senior Engineering Tech (T3)	$34.17	$35.20	
	Senior CAD Technician (D3)	$35.37	$36.43	

Note: Divers are paid a $5.00/hour premium, when at a dive site in a diving capacity.

Annual Salary Adjustments (Raises) are given January 1, April 1, and August 1 of the calendar year and are generally between 3% and 5%.

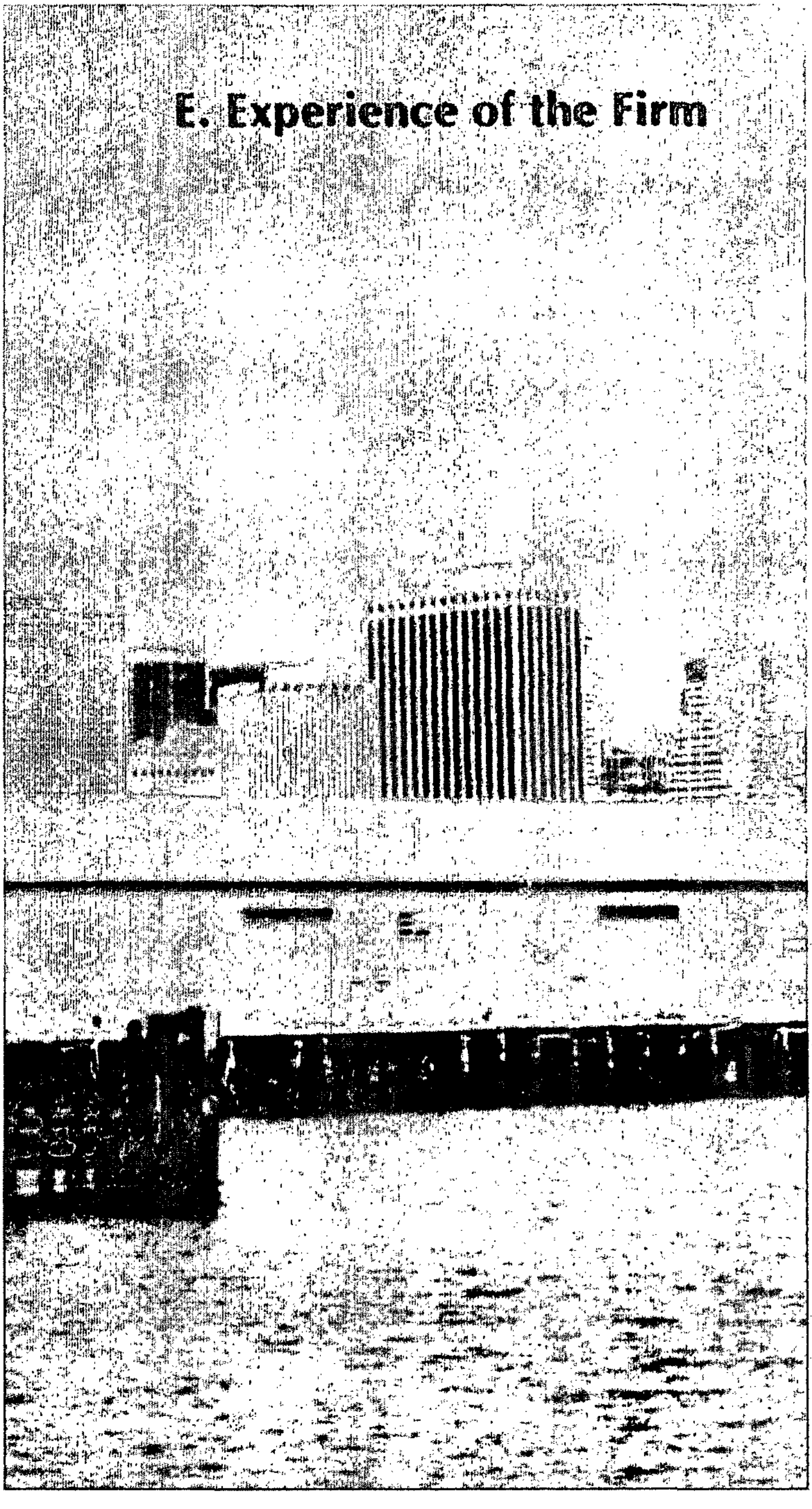
Company Policy for Compensation for Premium Pay

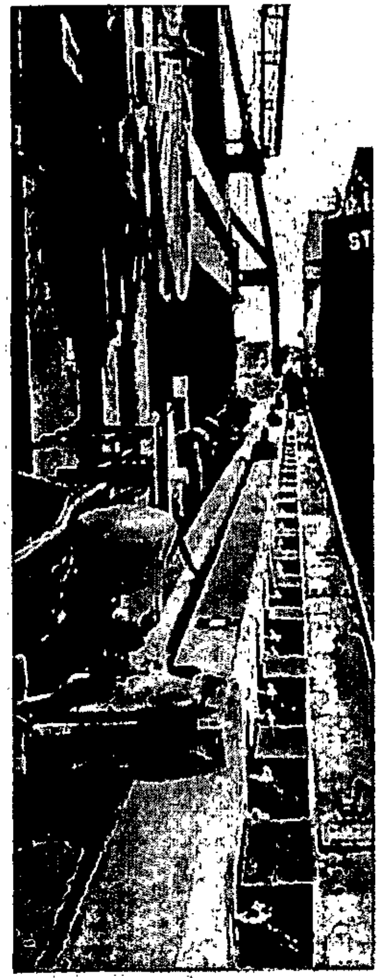
Collins Engineers employees are paid premium pay according to their classification under the Fair Labor Standards Act.

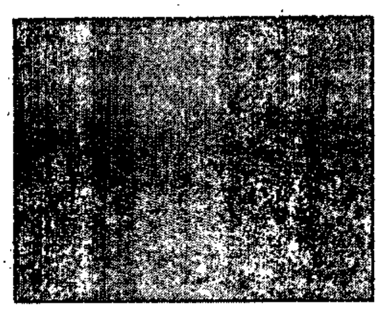
Exempt:
All employees who are considered to be executive, professional, or administrative employees are exempt from any legal requirement to be paid overtime. If overtime is required for exempt staff, straight time will be paid for approved overtime.

Non-exempt:
An employee who devotes most of his/her working hours to activities that are not classified as managerial, administrative, or professional under the Fair Labor Standards Act is non-exempt and is entitled to time and one-half pay for hours worked over 40 hour per week. All non-exempt employees will be paid time and one-half for overtime in accordance with Federal and State wage and hour laws.

E. Experience of the Firm







E. Experience of the Firm

E. EXPERIENCE OF THE FIRM

Collins Engineers' staff of registered professional civil and structural engineers has developed experience worldwide in waterfront inspection, construction support, analysis, design, and rehabilitation at both private facilities and United States Navy installations. Collins routinely delivers a cost-effective match of structural engineering, site development, and underwater/coastal inspection expertise for diverse projects ranging from project planning, site investigation, and design to construction inspection. These diverse qualifications, and an attitude of awareness to special client needs, allow us the flexibility to tackle small and unusual assignments and site work, as well as major structural design projects. Engineering services include:

- Pier, Wharf, and Bulkhead Design
- Fendering and Mooring Analysis
- Structural Load Rating Analysis
- Above and Below Water Facility Inspection and Assessment by Engineer-Divers
- Hydrographic Surveying
- Scour Analysis
- Dredging Engineering
- Facility Maintenance Management Programming
- Coastal Engineering
- Civil Site Engineering
- Contractor Support Services
- Emergency Response

Collins Engineers has been performing above and below water facility condition assessments since 1979, many of which have included design of repairs or replacements. A summary of our inspection and assessment history is shown below.

Description	Total
Concrete Piles	111,000 ±
Steel Pipe and H Piles	30,250 ±
Timber Piles	30,250 ±
Steel Sheet Piles	8.25 miles ±
Stone Bulkhead	5 miles ±
Timber Bulkhead	13 miles ±

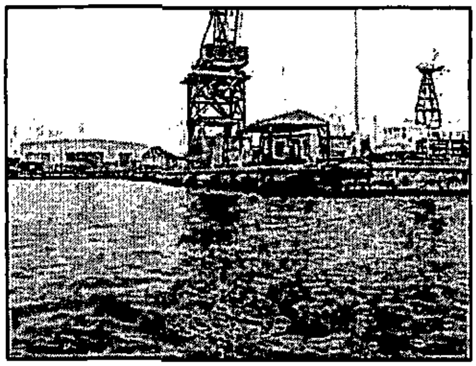
Description	Total
Concrete Bulkhead	8 miles ±
Riprap	3 miles ±
Water Tanks	70 ±
Submarine Cables	4.5 miles ±
Floating Structures	12 miles ±

RELEVANT PROJECT EXPERIENCE

An Exhibit I has been sent to the following three Clients and asked to forward tho Exhibits back to the Port Authority. A copy of each is included at the end of this sectio

- Mr. Lonnie Winkleman, U.S. Navy (Naval Facilities Engineering Service Center)
- Mr. Alex Viana, U.S. Navy (Naval Facilities Engineering Service Center)
- Lt. Neil Orlich, United States Coast Guard

USCG Baltimore Bulkhead Renovation, Maryland (2003-2006, 2008)
United States Coast Guard
Lt. Eric Larsen (410) 636-7521



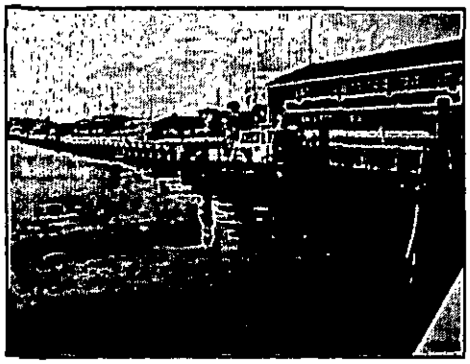
Collins Engineers performed a site investigation to determine the existing construction, conditions and present usage of Pier 1. The nature, extent and location of any problem areas were noted, and detailed recommendations for repair and requirements for future usage, including a preliminary cost estimate, were generated within an inspection report. Additionally, Collins Engineers inspected and assessed the condition of the wood piers and associated bulkheads. The work included above and below water inspection of the facilities and preparation of a comprehensive inspection report.

Based on observations of the inspection of the Lot 23 Bulkhead, Collins Engineers performed above water and underwater inspections of the steel sheetpile bulkhead. Lot 23 bulkhead fronts an EPA Superfund site and the inspection took precautions in this regard. Lot 23 Bulkhead is approximately 150 feet long and has exhibited loss of fill for several years. The above water and underwater inspection of the bulkhead included nondestructive testing of the steel sheet piles to determine their condition and remaining life. A sonar scan image of the complete bulkhead was also conducted. No construction documents were available for the bulkhead, and a complete field investigation of the construction was conducted in order to provide complete and accurate repair documents. A complete inspection report was provided to the USCG, which documented the condition of the bulkhead and provided evaluations and preliminary cost estimates of several possible repair methods. Following the selection of the preferred repair, complete construction documents, including calculations, drawings, specifications, environmental permit applications and a cost estimate, were developed. Services are currently on schedule and within budget.

USCG Above and Below Water Inspection and Assessment - 10 Facilities, Sector Detroit (2007)
United States Coast Guard Sector Detroit
Lt. Neil Orlich (216) 902-6249

An extremely aggressive schedule required that the inspection and report process be abbreviated to only 60 days upon notice to proceed. The ten facilities contain very diverse structure types that include fixed docks, wharfs, bulkheads, marine railways, jetties, breakwaters and supporting structures for vehicular, weight handling and boat handling equipment. The professional engineering services that were provided included on-site Level I inspections of the above- and below-water portions of the facilities and assessment reports for each of the facilities that included AutoCAD Drawings, repair accessible components above 3 feet MLLW and included piles, pile caps, bridge deck topsides, all mooring hardware, as well as dolphins and deadmen. This project was completed on an accelerated schedule due to ship docking and was completed within budget.

USCG Station St. Petersburg Waterfront Inspection (2007)
St. Petersburg, FL
United States Coast Guard
Mr. Robert Guzman, P.E. (305) 278-6780



Collins Engineers was retained as a follow to up a 2005 underwater inspection report with a site visit and design documents for the repair of the waterfront near the north moorings on the St. Petersburg USCG Station. The focus was the existing bulkhead, wharf, and travel lift pier. These areas required both an above water and underwater investigation to determine the current status of the existing waterfront facilities, confirm the scope of the project, and to create a preliminary construction estimate. Design documents and specifications were created to show the repairs, demolition, and new work of the waterfront facilities. To remain in compliance with NEPA, a survey of the benthic, sea grasses, and endangered species was also conducted. Services were completed on schedule and within budget.

Adak Underwater Assessment (2007)
Adak, AK
Naval Facilities Engineering Service Center
Mr. Craig Tullar (202) 433-5359

Collins Engineers performed a structural assessment of 2 waterfront piers at the Adak Naval Air Station in Alaska. The inspection included Level I and II inspection efforts to ascertain the current extent of deterioration and present structural capacities with regard to future intended use of the facilities. Based on the inspection findings, an assessment report was prepared, including plans and specifications for necessary repair work to bring the two facilities up to acceptable condition for proposed usage. This project was completed on-time and within budget.

Mooring Camel Fender System Design (2005)
Philadelphia, PA
United States Coast Guard
Lt. Neil Orlich (216) 902-6249

A thorough site survey was performed to determine and document existing construction conditions, deficiencies, and required usages. A new sound design of the fendering system for the TATE (a 176 foot-long buoy fender with a very unique hull) was prepared. Collins Engineers prepared conceptual estimates for use in the initial budgeting and feasibility determinations, prepared calculations, cost estimates, specifications, and design plans. Collins Engineers also attended a pre-construction meeting to provide construction support and to answer/clarify any design related issues.

EXHIBIT I

SUBJECT: RFP #16560 - REFERENCE CHECK FOR COLLINS ENGINEERS, INC.

Reference Firm Name: United States Coast Guard (CEU-Cleveland)

Address: 1240 East Ninth Street, Room 2179

Cleveland, OH 44199

Contact Name: Lt. Neil Orlich

Telephone: 757-591-7720

E-Mail Address (of contact person): ______

Date of Service/Project Performance: 2003

Description of Services provided:
Collins performed an above and below water inspection of ten facilities throughout the USCG Sector Detroit. An extremely aggressive schedule required that the inspection and report process be abbreviated to only 60 days upon notice to proceed. The ten facilities contain very diverse structure types that include fixed docks, wharfs, bulkheads, marine railways, jetties, breakwaters and supporting structures for vehicular, weight handling and boat handling equipment. The professional engineering services that were provided included on-site Level I inspections of the above- and below-water portions of the facilities and assessment reports for each of the facilities that included AutoCAD Drawings, repair recommendations with associated cost estimates and the development of a "Structural Inspection Database".

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
3. Was the quality of the work product acceptable? Yes☐ No☐
4. Would you hire them again? Yes☐ No☐
5. If not, why not?
<Utilize this space to explain why you would not hire this firm again>

____

____

____

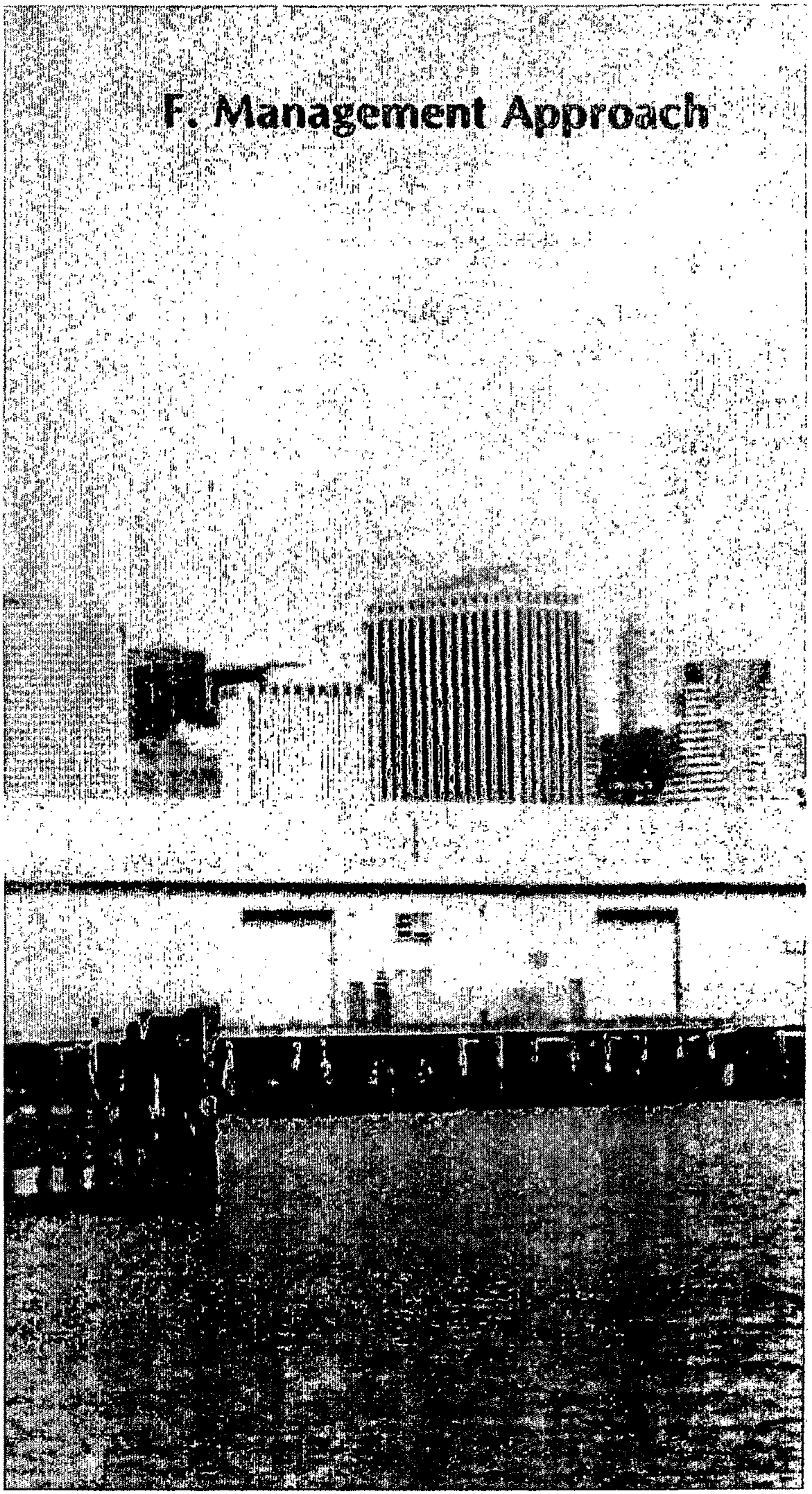
____

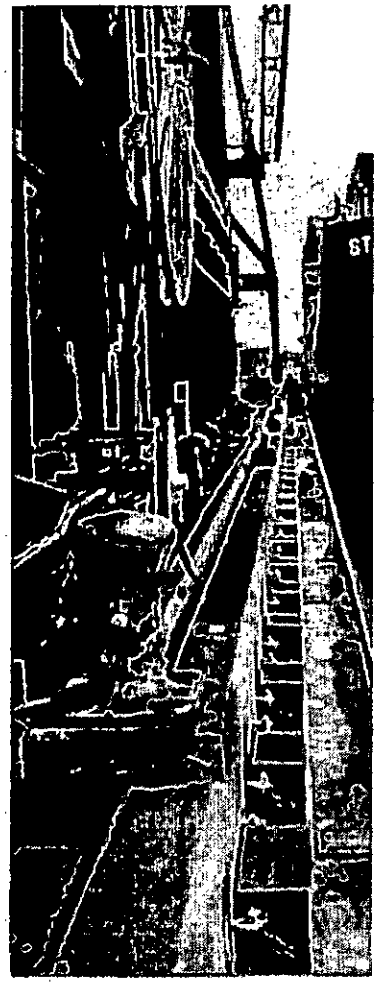
____

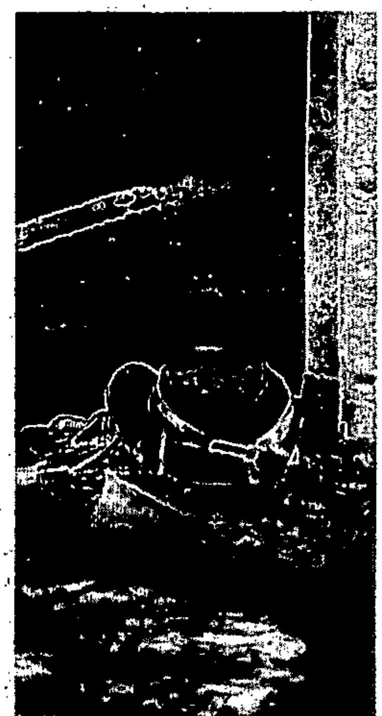
PLEASE RETURN FORM BY OCTOBER 9, 2008 TO:

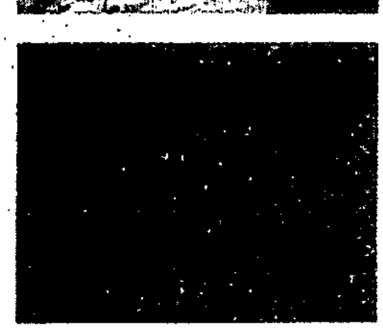
The Port Authority of New York and New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010
Attention: Mary Lou Rivera, RFP# 16560

F. Management Approach









F. Management Approach

F. MANAGEMENT APPROACH

The professional staff of Collins Engineers pioneered the role of the engineer as a diving inspector in 1979. We believe that underwater inspection work is most effectively and accurately accomplished when the diver is also an engineer. The Engineer-Diver can make an initial, rapid and relatively inexpensive visual inspection and can pictorially record significant conditions appropriate to the project. Collins Engineers' underwater inspection teams exceed the ASCE *Guidelines for Underwater Inspection, including:*

- Direct on-site supervision by a team leader who is a registered, licensed professional engineer. These team leaders are also trained divers who actively participate in the inspection by personally diving to conduct a significant portion (minimum of 25%) of the diving inspection work.
- Team leaders who have a minimum of 5 years of experience conducting underwater structural inspections and a minimum of 5 years engineering experience, specifically related to the type of facility under investigation.

Inspection Capabilities

- S.E., P.E., and NBIS qualified team leaders and inspectors
- Surface-supplied air and scuba diving operations
- Difficult access/current operations
- Visual/tactile inspection
- Fracture critical inspection
- ROV use

Underwater Documentation
- Color photography (35mm and digital)
- Real time and taped videography (digital technology)
- Clearwater box photography under limited visibility conditions

Above Water Documentation
- Color photography/videography
- Computer-based data collection and reporting

Scour Investigation
- Multi-disciplinary team approach
- Soundings
- Recording fathometer
- Hydrographic surveying
- Sub-bottom profiling

Diving Conditions / Surface Supplied Diving

Collins Engineers' diver training includes 80 hours of commercial, surface-supplied dive training conducted in accordance with ANSI/ACDE standards for Commercial Diver Training. Because of the large number of underwater inspections conducted by our staff each year, every diver completes many dives throughout the year, thus maintaining their high level of competence and dive capabilities. Collins has a safety record of **zero lost time dive accidents** in the 29-year history of the firm. In addition, Collins maintains all necessary insurance coverage including Workman's Compensation, Longshoreman's and Jones Act coverage; all with no lost time accident claims over the history of the firm. Because Collins Engineers recognizes the importance of proper diver training, Collins Engineers pays all costs for our engineers to become certified divers, including first aid training, physicals, and off-site training. Therefore allowing all divers to be trained in accordance with OSHA and ANSI/ACDE standards.

Planning and Preparation

Prior to mobilizing for the inspection, all available pertinent information will be collected. Previous inspection reports and available drawings for all bridges will be reviewed during this phase. All necessary hydraulics and waterway information will also be obtained, if applicable. This preparation phase will consist of identifying the location, arrangement and specifics of each waterfront facility so that an efficient and accurate above/underwater inspection plan can be established based on the requirements for each facility. Particular emphasis will be placed on identifying any previously noted deficiencies and any repairs that have been made.

Following the review of the previous inspection records, available drawings and waterway information, an inspection plan will be prepared for the waterfront facilities, and groups thereof, which will emphasize efficiency based on locations and inspection needs. Structures will be sub-grouped as necessary based upon the need for special testing equipment, etc. Standard checklists will be used in this planning phase to ensure that all information is reviewed and that all inspection equipment is available to support the level of effort required.

The main point of contact for the Authority throughout this project will be with our Project Manager, Mr. Eric K. Thorkildsen, P.E. He will be in constant communication with the Authority keeping the Authority apprised of project status and will ensure that all resources are made available so that a quality project is delivered on-time and within the established budget.

A separate report will be prepared for each waterfront structure, including:

- Cover sheet and table of contents.
- Introduction discussing the inspection scope, general description of the structure, and inspection methodology and equipment used.
- Discussion of existing conditions at the waterfront facility site. This discussion will include the waterline elevation, reference for waterline elevation, average water speed (measured 3' to 5' below the water surface at the center of the channel), underwater visibility, water temperature, weather conditions, bank conditions, presence and extent of scour and/or soft channel bottom material, and all detected structural deficiencies including type, size, and location.
- Evaluation of the significance of the inspection findings, their impact on the overall structural integrity of the facility, and recommendations for remedial actions to correct the deficiencies.
- Each written report will include figures detailing the inspection findings, color photographs showing typical views of the existing conditions and specific areas of deterioration, and any required Agency forms.

The required number of copies of each report will be submitted to the Authority, and if requested, additional copies will be furnished. Each report generated for this project will be developed, reviewed, signed, and sealed by a New York or New Jersey Licensed Engineer.

We also have the in-house capability to provide automated hydrographic surveys, side-scan sonar surveys, and sub-bottom profiling. These services are routinely provided in support of scour investigation studies and during or immediately following flood events.

Administration

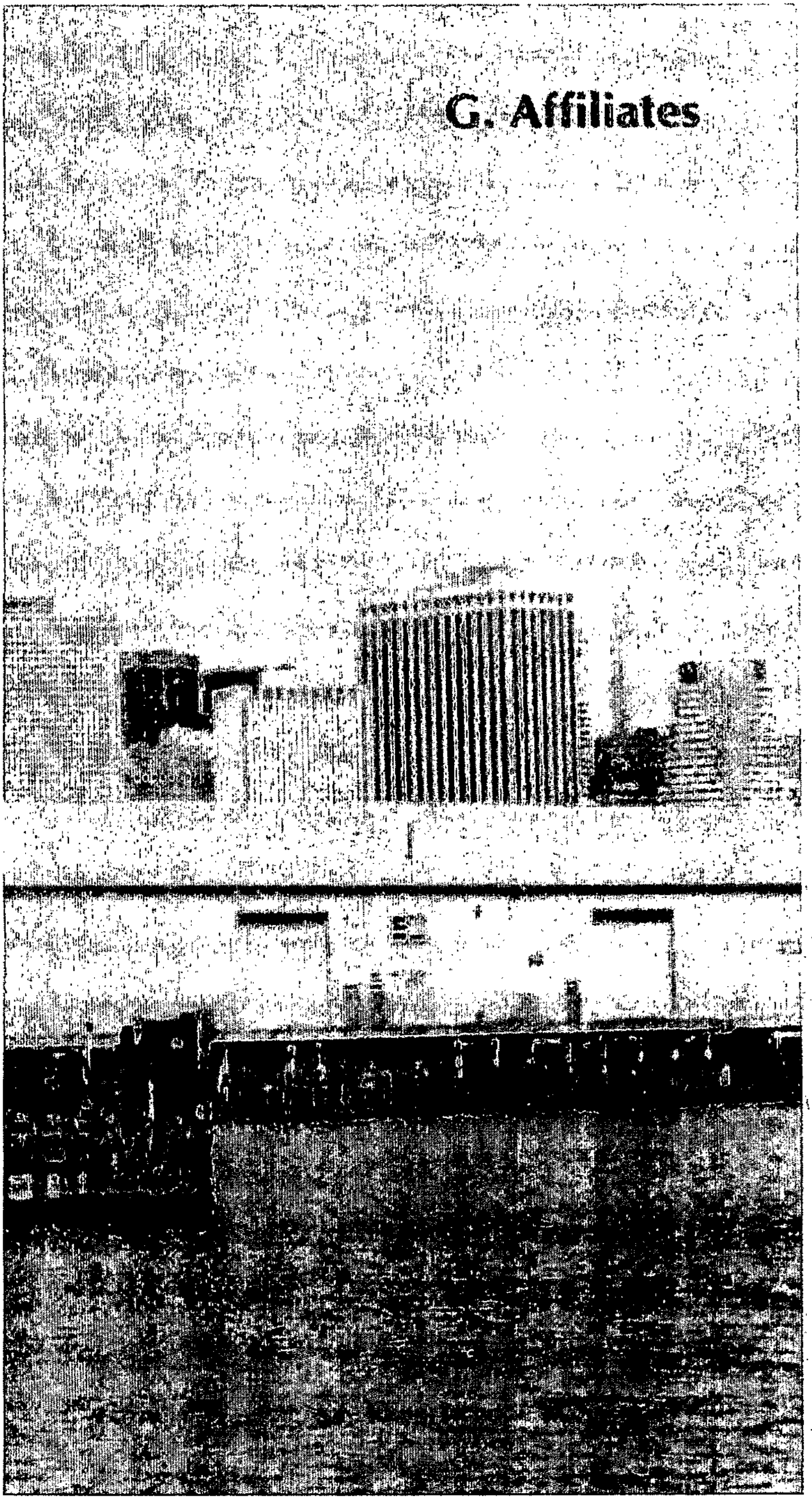
All of the divers working on this project will be subject to and covered under the Workers' Compensation requirements of the State for diving, and the Federal requirements of the United States Longshoremen and Harborworkers Act. Collins' diving insurance coverage will include Workers' Compensation Insurance, USL&H Insurance, and Jones Act Maritime Insurance.

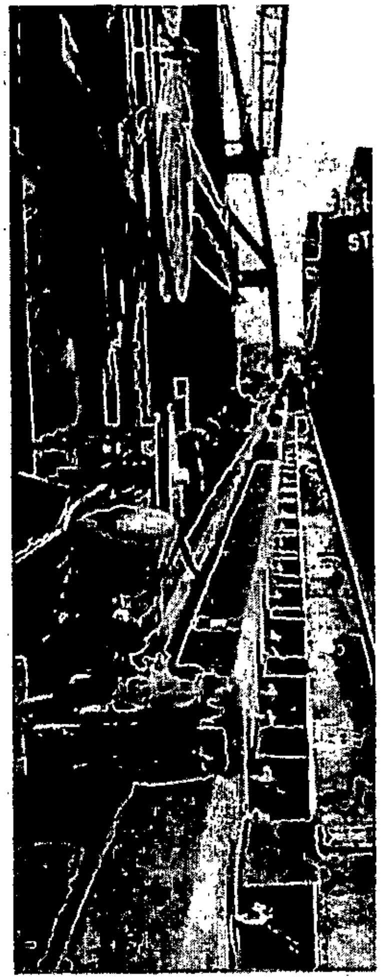
Project Consultant Quality Plan

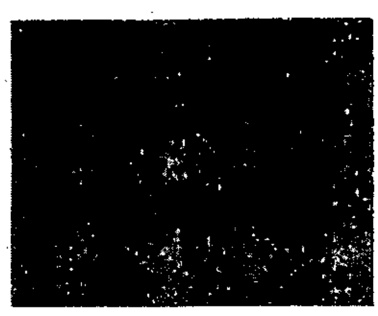
The Collins Engineers Team will prepare and submit to the Authority a project specific Consultant Quality Plan or CQP for the execution of the waterfront facility condition survey work to be performed under this contract. The CQP will be developed in accordance with the Authority's CQP Guidelines and provide for a documented means by which the work of Collins and our subconsultants can be managed, controlled, checked and reported to the Authority's QC Manager.

This effort will be administered and overseen by a Quality Representative, Mr. Thomas J. Collins, P.E., S.E., who will administer this program for the team over the course of this contract. The Quality Representative will be responsible for:

G. Affiliates







G. Affiliates

G. AFFILIATES

Collins Engineers, P.C. is licensed in the State of New York to provide professional engineering services. It is affiliated with Collins Engineers, Inc. headquartered in Chicago, Illinois. Collins Engineers is also licensed with the State of New Jersey. For this project, the New York Regional Office will be the point of contact.

Office Locations

Headquarters:
123 N. Wacker Drive,
Suite 300
Chicago, IL 60606
(312) 704-9300 (Main)
(312) 704-9320 (Fax)

Regional Offices:
1058 Broadway
Albany, NY 12204
(518) 436-0392 (Main)
(518) 436-0395 (Fax)

277 Alexander Street
Suite 204
Rochester, NY 14607
(585) 262-0456 (Main)
(585) 262-0458 (Fax)

259 Nevada Street
Auburn, CA 95603
(530) 887-8151 (Main)
(530) 887-0911 (Fax)

1711 115th Street, Suite 200
Boulder, CO 80302
(303) 447-0090 (Main)
(303) 447-9141 (Fax)

101 Hammer Mill Road
Rocky Hill, CT 06067
(860) 571-0384 (Main)
(860) 571-0385 (Fax)

7616 Southland Boulevard, Suite 100
Orlando, FL 32809
(407) 826-5150 (Main)
(407) 826-5155 (Fax)

Harbor Forest Professional Plaza
1481A Dean Forest Road, Suite A
Savannah, GA 31405
(912) 790-0123 (Main)
(912) 790-0125 (Fax)

12932 168th Avenue,
Suite A
Grand Haven, MI 49417
(616) 844-9083 (Main)
(616) 844-9096 (Fax)

1180 Sam Rittenberg Boulevard
Charleston, SC 29407
(843) 763-1576 (Main)
(843) 763-1582 (Fax)

745 Bluecrab Road,
Suite B
Newport News, VA 23606
(757) 873-0251 (Main)
(757) 873 0261 (Fax)

2033 W. Howard Avenue
Milwaukee, WI 53221
(414) 282-6905 (Main)
(414) 282-6955 (Fax)

Ireland:
Centrepoint Business Park, Unit A9
Oak Road, Dublin 12, Ireland
(011) 353-1-4264984 (Main)
(011) 353-1-4264982 (Fax)

6A Upper Water Street
Newry, County Down
BT34 1DJ
(011) 44-2830251516 (Main/Fax)

Institute (ANSI), ANSI-ACDE-02-1997, Minimum Standard for Commercial Diver Training.

Insurance Considerations:
COLLINS maintains a broad range of insurance coverage, including General Liability, Professional Liability (Errors and Omissions), Automobile, Valuable Papers, and Workers Compensation with a U.S. Longshoremen and Harbor Workers (USL&H) endorsement and a Jones Act Maritime endorsement. Certificates of insurance Can be provided to PANYNJ as required. This will ensure that our insurer is aware of where we are working and can advise us as to any special insurance requirements.

The personnel participating in each project will be organized as follows:

<u>Management Team</u>

Project Officer (PO)	-
Project Manager (PM)	-
PANYNJ Project Manager	-

<u>Field Inspection Team</u>

PM and/or other qualified Team Leader
Engineer-Diver (one or more)
Technician-Diver (one or more)
Tender (as required)
Field QC Assignee

<u>Report/Office Team</u>

PM/Engineer-Diver	- Write draft report sections
PM/Engineer-Diver	- Review and revise report
Report QC Assignee	- Review Report/Quality Assurance
Drafter/CAD Operator	- Drawings as needed
Engineer/Technician	- Assemble the report

<u>Ratings/Scour Evaluation/Design Team</u>

Project Manager	*- Overall management of design effort*

1. Field Records

Field records provide the link between the field inspection and the written report; therefore, it is necessary that all required inspection forms be compiled prior to mobilizing the field crew. In order to compile the necessary inspection forms, the PM will review the complete scope of work and the previous inspection report, if available, and obtain facility drawings for first-time inspections or if the previous report is not available. Drawings and previous inspection reports will be requested from the PANYNJ's Project Manager. The forms to be included in the Field Inspection Book include:

FORM	EXHIBIT
Pre-Dive Operation Record and Checklist	3
Post-Dive Operation Record and Checklist	4
Inspection Checklist	5
Underwater Pile Inspection	6
Pile Cap and Deck Inspection	7
Bulkhead Inspection	8
Sounding Log	9
Mooring Hardware	10
Photo Log	11
Level II and III Log	12
Field Report	13

Samples of all the above forms, Exhibits 3 through 13, can be found in the Appendix. All common data items such as structure name, location, contract number, and COLLINS job number will be filled out prior to copying the inspection forms and assembling the Inspection Book. The front and back cover of the Inspection Book will be heavy-duty card stock. The cover shall clearly identify the facility being inspected. The first page of the Inspection Book will be an inspection checklist. The following pages in the Inspection Book will include forms for Pile Inspection, Pile Cap and Deck Inspection, and Bulkhead Inspection, and a Sounding Log and Photo Log. A more complete description of the Inspection Book is included in Section III (D). Depending on the size and type of structure to be inspected, one field book will be allocated for each structure. The use of individual field books prevents incorrect data entry and reduces the amount of exposure to the elements.

EQUIPMENT LISTS	EXHIBIT
General Equipment	14
Inspection Equipment	15
Underwater Photography Equipment	16
Underwater Video Equipment	17
Air Supply Equipment	18
Surface-Supplied Air Equipment	19
Recompression Equipment	20
14-ft. Aluminum Boat	21
18-ft. Fiberglass Boat w/Outboard Motor	22
22-ft. Fiberglass Boat w/IB/OB Motor	23
Mesotech scanning equipment	

Checklists of required company-owned equipment are included in the Appendix, Exhibits 14 through 23. Exhibit 24 is a summary checklist of the above items. Furthermore, checklists are available for company-owned survey and NDT equipment. The PM will select equipment to be brought to the site, ensure that such equipment is available and in good operating condition, and arrange for its transportation to the site. Depending on the location of the facility to be inspected, COLLINS may elect to rent equipment such as air tanks and purchase air fills locally, rather than utilize company-owned air compressors. If local equipment is to be used, arrangement will be made prior to mobilization.

Individually Owned Equipment:
Each individual member of the inspection team will provide their own personal equipment, which will include at a minimum:

- Buoyancy compensator
- Exposure suits
- Regulator
- Face mask
- Fins/Boots
- Weight belt
- Dive knife
- Dive watch
- Air gauge
- Depth gauge
- Dive computer

significant or questionably significant defects found during the inspection will be closely investigated by the PM and brought to the attention of the PANYNJ's Project Manager, if deemed necessary.

For jobs of longer duration it may be necessary to rotate the field personnel. It shall be the PM's responsibility to schedule the personnel changes such that the exiting Team Leader/Person-in-Charge (PIC) and the entering PIC have time to meet. The purpose of the meeting shall be for the exiting PIC to brief the entering PIC on the general conditions encountered, a summary of work completed, the work to be accomplished, and any site-specific requirements of the facility.

On jobs requiring more than three straight weeks in the field, the PO may elect to visit the site near the midway point of the work and review field procedures. He should also interview all inspectors to further confirm that they are qualified and understand the project requirements.

B. Client Check-in and Check-Out Procedures

The field team will generally check in and check out on a daily or weekly basis with the principal Point of Contact. Furthermore, the PM will check in and check out each day with any on-site PANYNJ staff. The exact persons to check with each day and the specific contact requirements will be established at the beginning of the contract.

It is important that the principal Point of Contact be informed of the status of the work and the location where COLLINS' Inspectors will be working each day. To accomplish this, COLLINS will establish communication channels and keep the Point of Contact up to date. Each inspection team will carry a radio or telephone in case emergency contact is necessary. COLLINS has marine radios and cellular telephones.

During all dive operations, an Alpha Dive Flag (and Recreational Dive Flag when requested) shall be prominently displayed in the immediate vicinity of the on-going dive operations. At the end of each workday, all parties notified of the diving operations will again be notified that diving operations have ceased for that day.

At the end of a field inspection visit, an exit briefing is conducted by the inspection team to the PM to provide an overview of the inspection results. The briefing serves to notify the PM of conditions found during the inspection, Recommendations – At this point only general recommendations should be made regarding repair of the typical types of deterioration or damage observed. Further analysis is typically required for the final repair recommendations. However, it is important to let the PM know where the analysis is headed.

Photographs are the most effective means of presenting the findings of the inspection. Representative photographs similar to those that will be presented in the report should be selected from all photographs taken during the inspection. The selected photographs should be sent to the PM via email or delivered in person for purposes of relaying findings at the site.

C. Inspection Procedure

The field inspection will be conducted in full compliance with ADC, NBIS and the COLLINS Manual of Safe Dive Practices. The Scope of Work determines the levels of effort required at waterfront structure. The various levels of inspection effort are: Level I - general examination, Modified Level I - general examination at a specific elevation, Level II - detailed examination, and Level III - highly detailed examination. A detailed definition of each level of inspection is included in Exhibit 27.

A Level I examination is generally a "swim-by," which does not involve cleaning, and is normally made over the entire surface area of the underwater structure. The Level I examinations will be used to confirm as-built drawings, and detect obvious major damage, severe deterioration, or extensive changes form previous conditions. The manner in which the Level I examinations are carried out will be dependent on water clarity. Under conditions where the visibility is good, the inspector may be able to view several piles at the same time, allowing a zigzag pattern to inspect an entire bent. When underwater visibility is limited or non-existent, each pile will be individually inspected by swimming a spiral pattern on each pile. Tactile methods of inspection will be used when necessary to complete Level I examinations.

Modified Level I examinations will be carried out when a specific type of defect is consistently found at a certain elevation. For example, scaled concrete with rounded corners from two feet below mean low water to three feet above mean low water.

Scaling - Elevation limits, length, maximum and typical penetration.

All other defects encountered shall be recorded in a similar manner such that there is no question as to the type, extent or location of the defect. At the same time the defects are recorded, a preliminary repair recommendation shall be made based on the extent of deterioration and loss of section. Also at the time of recording the defect, the inspector shall state whether or not a photograph of the defect is required.

Photographs shall be taken and developed on a daily basis when needed, if a 35mm camera is used to ensure that an adequate number of high-quality prints can be included in the underwater inspection and assessment report. Same-day photograph processing will be used whenever possible so that any unclear photograph can be re-taken. Digital cameras will be used both above and below water whenever possible in order to facilitate inclusion of electronic photographs in the report and facilitate on-site verification of photos. The Photo Log in the back of the Inspection Book shall be completed to document the location, elevation and subject matter for each photograph. The Team Leader will ensure that the proper photographs, both the correct number and appropriate views, have been taken prior to leaving the site.

The Team Leader or a designated field team member shall complete the Pre-Dive and Post-Dive Operations Record and Checklist. These forms shall be completed at the beginning and end of each workday. The purpose of these records is to fulfill OSHA requirements, record the health of the divers, record dive conditions and dive times, and give a brief summary of the inspection. In addition, the site-specific COLLINS Dive Operations Plan, in general, and specifically the 'Take 5 for Safety' briefing shall be utilized and/or completed each day.

The Team Leader shall fill out a Field Report Form on a daily basis. The Field Report Form will include a summary of COLLINS' personnel dive times; dive conditions; the facilities inspected; quantities of Level I, II and III examinations; and the general condition of the facilities inspected that day. The Field Report Form shall be signed by the Team Leader and submitted to the PM on a routine basis. Any unsafe condition or major structural damage will be immediately reported to the PANYNJ's Project Manager and to any other designated Point of Contact responsible for the waterfront facilities.

Refer to Appendix G (Diving Medicine) for treatments of situations requiring recompression therapy and Appendix H (Basic First Aid), both in the COLLINS Manual of Safe Dive Practices for treatments of situations not requiring recompression therapy. It is required that all Company divers maintain current first aid and CPR certifications. The CPR technique is included in Appendix I of the COLLINS Manual of Safe Dive Practices.

Any diving-related injury or illness which requires any dive team member to be hospitalized for 24 hours or more must be reported to the Company Diving Coordinator and the Director of Human Resources as soon as practical. The circumstances of the incident and the extent of any injury or illness must be specified. The Dive Supervisor or designated Person-in-Charge is responsible for making this report.

For any cases of decompression sickness, the Dive Supervisor, in conjunction with the Company Diving Coordinator, must submit a Decompression Procedure Assessment (See Exhibit 7 in the COLLINS Manual of Safe Dive Practices or Exhibit 29 in this manual) describing the circumstances surrounding the incident. Written statements from the dive team members concerning the incident must be included.

V. REPORT PREPARATION

Each report will go through a three-step review process before a Draft copy is submitted to the PANYNJ for review. The PM shall designate one person to be the Author of the report. The Author shall be responsible for compiling and reviewing a complete bound copy of the report, including all text, figures, photographs and appendices. The Author shall review the report for conformance with the Quality Control Review Checklist, and initial each section of the Checklist as it is verified. The report shall then be submitted to the PM for review.

The PM shall review the report for technical accuracy, spelling and grammar, and cross check references to page numbers, figure numbers and photograph numbers. As the PM reviews the report, he shall also follow the Quality Control Review Checklist and initial all sections for conformance. When the PM is satisfied with the report, it will be submitted to the PO for review.

The PO shall spot check the report for general content and final in-house approval. If the PO participated in the field inspection, another senior engineer who is not familiar with the site conditions should review the report to ensure it will be clear to someone who is not familiar with the site conditions. The PO shall initial only the sections of the

CHECK PRINT

CHECKED__________ DATE__________

CORR.__________ DATE__________

BKCH.__________ DATE__________

COMPUTER CHECK

	PROGRAM REVIEW
	INPUT DATA
	INDEPENDENT CHECK

BY:__________

DATE:__________

The following procedure and color coding shall be used when reviewing and back-checking:

- **Red:** Corrections shall be noted in red, using standard text-editing annotation. Extensive changes or supplements may be on additional sheets, but these shall be numbered and noted on the first page near the stamp. When the reviewer has considered all aspects, he shall initial and date the appropriate spaces.

- **Green:** Corrections are verified or back-checked by the correcting engineer or secretary, using a green checkmark through the correction. When all corrections are complete, the person making the corrections shall initial and date the check copy in the appropriate spaces.

- **Yellow:** As the Author confirms that the corrections are made, he shall overlay the red notations with yellow. When satisfied, the back-checker shall initial and date the check copy.

The checking process should be accomplished in an orderly and timely manner. Subsequent work must never be founded on unchecked work. Checking of design computations must precede all other checking, and checking plans should precede checking specifications. The PM normally controls the checking process and must *require timely checking in house, and confirm that subconsultants are also performing* timely checking.

Computations

The checker must consider applicable criteria and methodology, as well as industry, regulatory and client standards. The checker should be aware of missing or incomplete data. The checker should not just simply review or check what is presented on the sheet, but check the logic and assumptions, and assure himself that the calculations and conclusions make sense.

The checker will make an exact copy of the original computation sheet(s). If the checker agrees, a very small red dot is placed adjacent to the statement or numerical data, and is so located as to preclude confusion as a decimal point. If an individual item is not numerically exact, but a change does not materially affect the end result, a small red checkmark is used instead of a dot.

Whenever possible, an independent check or alternative method check shall also be made to verify the reasonableness of answers or conclusions. Independent or alternative computations in checking must be clearly labeled "independent check" to preclude confusion. In no case shall independent or alternative checks be substituted for a detailed step-by-step check, as intermediate data could be in error, and carried on if used elsewhere.

If the checker discovers an error, the new value is marked in red adjacent to the item. If an error is so large as to have an extensive effect on subsequent computations, *the checker shall consult with the PM before proceeding. If the sheet is extensively* marked up it shall be redone by the originator. Correction of errors shall normally be accomplished by the originator of the computation.

The checker must satisfy himself that the error has been resolved. Differences of opinion as to methods or data will be resolved by the PM.

At the end of each computation segment the checker should stop and ask, "Does the answer make sense? Is it reasonable? Are the units correct? Are they logical? Are you sure you understand EVERY method or factor?"

Spreadsheet formula and numeric printout shall be marked up in the same fashion as other computations to verify checking.

A complete set of properly executed checked calculations must be assembled, bound together, and maintained with the project files.

After all items on the computer printout are satisfactory, the checker shall stamp the sheets with the computer check stamp and initial and date them. All computer work incorporated into projects shall be so stamped to confirm checking.

Graphic Material

All final graphic material shall be thoroughly checked. This includes plans, reports, exhibits, details and sketches.

When a graphic document is completed, the title shall be filled in and the document shall be dated and hand-initialed by the designer and drafter. A blue or black-line check print shall be run and shall be stamped in the lower left-hand border of the sheet, using the check print stamp. If extensive revisions or additions require subsequent check prints, they should be stapled to the first to show progress of development.

The checker must determine that he has all pertinent and applicable computations, and that they have been checked and are available for reference. Graphic material shall not be checked using unverified data or without referring to background computations.

The checker must review line work as well as alphanumeric data. Construction drawing information must be clear, concise and adequate for construction. What is missing is usually more damaging than what is shown. Consistency is considered by judges to be equivalent to godliness; therefore, follow through to other sheets or drawings with any changes or clarifications. Avoid duplication of details if at all possible; show it once - clearly! Perfect graphic material is a laudable goal and the standard of the industry is very, very good. We are judged against the industry standard.

The following procedure and color code will be used for graphics checking:

- **Yellow:** Correct items are highlighted or crossed out in yellow.

Owner-supplied/mandated nontechnical specifications shall be checked by senior staff members before technical specification preparation is begun. In the event of such specifications, the PM must secure documents early. This check shall consider high liability provisions and those inconsistent with project objectives.

Nonstandard or special provisions shall be checked for consistency with the nontechnical specifications.

Nontechnical specifications prepared by COLLINS shall be submitted to the Owner for his review and written acceptance. Such acceptance is to be in hand before advertisement for bidding.

COLLINS subconsultants shall be provided the specification format required. Subconsultant specifications shall be checked with COLLINS work but shall not be rewritten or reformatted. Subcontractors must correct their own specifications.

Technical specifications shall be initially checked by the Author, section by section, as completed. The check shall be made against the applicable computations and graphic documents which should be in an advanced state of completion.

Upon completion of the Author's check, the section shall be checked by a checker in the involved discipline. A check copy of the section shall be run, clearly labeled "check copy."

The following procedure and color code shall be used:

- **Red:** Corrections shall be noted in red, using standard text-editing annotation. Extensive changes or supplements may be on additional sheets, but these shall be numbered and noted on the first page near the stamp. When the checker has considered all aspects, he shall initial and date the appropriate spaces.

- **Yellow:** As the Author confirms that the corrections are made, he shall overlay the red notations with yellow. When all corrections are complete, the person making the corrections shall initial and date the check copy in the appropriate spaces.

- **Green:** Corrections are verified or back-checked by the checker, using a green checkmark through the correction. When satisfied, the back-checker shall initial and date the check copy.

APPENDIX

COLLINS ENGINEERS

EXHIBIT 2
Sheet 1 of 6

COLLINS DIVE OPERATIONS PLAN

1e llowing, except for the 'Take 5 for Safety' Briefing, shall be completed, either electronically or by hand, by the Dive u isor and submitted to the Company Diving Coordinator for approval prior to mobilizing for any Company dive-ılated activity. *The 'Take 5 for Safety' Briefing shall be completed by the Dive Team under the direction of the Dive* upervisor just prior to conducting any dive operation. After completion of the dive-related activity, the fully completed ive Operations Plan shall be submitted to the Company Diving Coordinator.

IVE SUPERVISOR	**DATE PREPARED**
ROJECT NAME AND JOB NUMBER	
/ATERWAY NAME	**LOCATION**
IVE OBJECTIVE	

OB SPECIFIC EQUIPMENT

/pe of Operation	☐ SCUBA (30 cf bailout req'd w/separate regulator)			☐ Surface-supplied Air (30 cf bailout req'd)		
iver's Dress	☐ Dry	☐ Wet	☐ Hot Water			
oat Required	☐ Pontoon	☐ 20'/22' V-hull	☐ 18'/20' Skiff	☐ 16' John	☐ 14' John	☐ 14' V-Hull
ᴾ Compressor	☐ Quincy	☐ Honda				
P Compressor	☐ Bauer (8hp)	☐ Bauer (5.5hp)	☐ Bauer (Gas/Elec.)			
ther Air Source/Reserve	☐ Volume Tank	☐ Lrg Cylinders	☐ Bank of Tanks	☐ ________		
ir Console/Comm. System	☐ DCS Box 1	☐ DCS Box 2	☐ ________			
mbilical	☐ 70'	☐ 100'	☐ 150'	☐ 300'	Number Req'd ____	
elmet/Mask	☐ EXO 57	☐ Auga Mask	☐ Superlite 17	☐ Superlite 27	Number Req'd ____	
W Camera	☐ Nikonos	☐ Digital	☐ Video	☐ Clearwater Box	☐ ________	
irst	☐ EMT Kit	☐ O2 Kit				

ther Equipment:

tandard Equipment: Personal Gear, Dive Knife, Dive Flag, Dry Box, Extra Keys, Radio, Cell Phone, Tool Box, Film, Paper, Pencils, Field Forms

NTICIPATED CONDITIONS Depth ___ ft. TBT ___ No. of Dives ___

Water	☐ Salt	☐ Fresh	Temperature ___ F	Visibility ____ft.
Surface	☐ Calm	☐ Choppy	☐ Rough	
Surf	☐ Small	☐ Medium	☐ Large	
Tide	☐ High	☐ Low	☐ ________	
Current	☐ Fast	☐ Moderate	☐ Slow	Velocity ____ft./sec.
Weather	☐ Sunny	☐ Cloudy	Air Temperature ___F	

)IVE PLAN AND PROCEDURES:

'oints of Contact:

Enter text

;cope of Work: (possible attachments: client scope, proposal, workplan, contract, etc.)

Enter text

;overning Regulations:

Enter text

;pecial Site Conditions:

Enter text

;ite-specific Hazard Analysis: (potential hazards: water temperature, water conditions, water current, weather patterns, exit/entry points, penetrations/obstructions, drift/debris, marine life, watercraft/port operations, other contractor operations, lock-out/tag-out)

Enter text

COLLINS DIVE OPERATIONS PLAN

eam Members

iver Name	Position	CPR Date	First Aid Date	02 Date	ADC Number

EMERGENCY INFORMATION

ive Site Location: ____________________

ecompression Chamber Location: ____________________ Phone: ____________

ospital Location: ____________________ Phone: ____________

hysician Location: ____________________ Phone: ____________

ransportation: ____________________

mergency Notification ____ U.S. Coast Guard Ch 16 (Duty Officer) ___ Local Emergency 911 (non-coastal)

earest Rescue Center (Coast Guard, Fire Dept.,etc.):

ocation: ____________________ Phone: ____________

ational Diving Accident Network:
uke University Medical Center
mergency Assistance: 919/684-8111

U.S. Navy Experimental Diving Unit
Panama City, Florida
Duty Phone: 904/234-4355

e ready with: Name of Patient, Location of Incident, and Nature of Injury.

f you receive a busy signal, call the Operator and state that this is a life or death situation. Request that the ircuit be broken.

ocation Map (site/facility plan, driving directions, boat launch info, etc.)

COLLINS DIVE OPERATIONS PLAN

Risk Assessment Values
Low Risk = 0 to 12 Caution = 13 to 25 High Risk = 26 to 35

*High-risk operations assigned a value of 20-35 require consultation and further approval by Collins Diving Coordinator and a more detailed dive plan. When two or more areas are assigned a risk factor of 5, the overall rating is to be considered high risk.

Action(s) to be Taken to Reduce Assigned Risk Values If Total Assigned Operations Risk is Over 15

Planning:

Organization and Equipment:

Physical Requirements:

Team Members:

Weather:

Waterway:

Duration:

Additional Hazard Analysis for High-Risk Assessment

Attachment Checklist

- ☐ Dive Physicals
- ☐ Diver Resumes
- ☐ CPR, First Aid, 02 Certifications
- ☐ Compressor Air Test Certificates
- ☐ Scuba Cylinder Maintenance Logs
- ☐ Other:

COLLINS ENGINEERS INC

EXHIBIT 3

PANYNJ FACILITIES
PRE-DIVE OPERATIONS RECORD AND CHECKLIST

Location: ______________________ Contract No: ______________
Facility: ______________________ D.O: ______________
Team Leader: ______________________ Collins Project No: ______________
Inspector(s): ______________________ Date: ______________
Note Taker: ______________________ Start Time: ______________

Purpose of Dive:			
Type of Dive:			
Dive Platform:	☐ Shore ☐ Small Boat ☐ Other:		
Equipment:	☐ Open Circuit SCUBA ☐ Umbilical Supplied: ☐ Other:		
Breathing Medium:	☐ Air ☐ Other:		
Water Temperature:	° F	Air Temperature:	° F
Maximum Depth:	Ft	Current:	Knots
Wave Height:	Ft	Planned Bottom Time:	Minutes

Repetitive Dives: Attach repetitive dive worksheet as necessary.

TEAM ASSIGNMENTS AND DIVE DURATIONS:

		Time of Dive (Minutes)							
	Name	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Assignment**
1									Person-in-Charge
2									
3									
4									
5									
6									

PRE-DIVE BRIEFING CHECKLIST

- ☐ *First Aid Kit w/Handbook*
- ☐ Bag type resuscitator
- ☐ Emergency Aid list attached
- ☐ Timekeeping device
- ☐ Describe task to be completed
- ☐ Inquire as to current health of dive team members and review procedures for reporting problems during or after dive
- ☐ *Review safety procedures*
- ☐ Review line and hand signals
- ☐ Decompression, Repetitive, and No-Decompression tables attached
- ☐ Pre-dive inspection of equipment
- ☐ Unusual hazards:

Remarks:

____

____

____

COLLINS ENGINEERS INC

EXHIBIT 5

INSPECTION CHECKLIST

Location: ______________________ Contract No: ______________
Facility: ______________________ D.O: ______________
Team Leader: ______________________ Collins Project No: ______________
Inspector(s): ______________________
Notetaker: ______________________

FACILITY:

____

SUMMARY OF INSPECTION:

____

LEVEL I

____

Inspection Item	Completed	QA
1. Soundings around facility		
2. Verify drawings		
a. Plan – location and number		
b. Typical section – dimensions		
3. Provide field sketch showing numbering sequence of facility		
4. General picture of facility topside		
5. Estimate of marine growth		
6. Water visibility estimate		
7. Photographs		
8. Note inaccessible areas		
9. General assessment of facility		
10. Other		

INSPECTOR: ______________________________

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EXHIBIT 7

PILE CAP AND DECK INSPECTION FORM

Location: ____________________ Contract No: ____________________
Facility: ____________________ D.O: ____________________
Team Leader: ____________________ Collins Project No: ____________________
Inspector(s): ____________________
Notetaker: ____________________

Pile Cap	Defect	Recommendations

Deck between Bents __________ and __________

Deck/Beam	Defect	Recommendations

			Photos Required
___ Spalling	___ Exposed Rebar	___ Cap Failure	
___ Cracking	___ Rust Stains	___ Beam Failure	
___ Scaling	___ Impact Damage	___ Deck Failure	

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EXHIBIT 9

SOUNDING LOG FORM

Location: ______________________ Contract No: __________

Facility: ______________________ D.O: __________

Team Leader: ______________________ Collins Project No: __________

Inspector(s): ______________________

Notetaker: ______________________

TOP OF CURB TO WATERLINE: ______________________

Bent or Station	Value from Top of Curb		Value from MLW	
	Side	Side	Side	Side

TYPICAL MARINE GROWTH: ______________________

COLLINS ENGINEERS INC

EXHIBIT 11

Location: ______________________ Contract No: ______________
Facility: ______________________ DO: ______________
Team Leader: ______________________ Collins Project No: ______________
Inspector(s): ______________________
Notetaker: ______________________

LEVEL II AND III INSPECTION LOG

Level IIs	Level IIs	Level IIs	Level IIIs	Level IIIs
1. ________	21. ________	41. ________	1. ________	21. ________
2. ________	22. ________	42. ________	2. ________	22. ________
3. ________	23. ________	43. ________	3. ________	23. ________
4. ________	24. ________	44. ________	4. ________	24. ________
5. ________	25. ________	45. ________	5. ________	25. ________
6. ________	26. ________	46. ________	6. ________	26. ________
7. ________	27. ________	47. ________	7. ________	27. ________
8. ________	28. ________	48. ________	8. ________	28. ________
9. ________	29. ________	49. ________	9. ________	29. ________
10. ________	30. ________	50. ________	10. ________	30. ________
11. ________	31. ________	51. ________	11. ________	31. ________
12. ________	32. ________	52. ________	12. ________	32. ________
13. ________	33. ________	53. ________	13. ________	33. ________
14. ________	34. ________	54. ________	14. ________	34. ________
15. ________	35. ________	55. ________	15. ________	35. ________
16. ________	36. ________	56. ________	16. ________	36. ________
17. ________	37. ________	57. ________	17. ________	37. ________
18. ________	38. ________	58. ________	18. ________	38. ________
19. ________	39. ________	59. ________	19. ________	39. ________
20. ________	40. ________	60. ________	20. ________	40. ________

COLLINS ENGINEERS INC

EXHIBIT 13

FIELD REPORT FORM

Location: ____________________
Facility: ____________________
Team Leader: ____________________
Inspector(s): ____________________
Notetaker: ____________________

Contract No: ______
D.O: ______
Collins Project No: ______

INSPECTION PERSONNEL:

Time In Water	Out of Water	Name

Government Personnel on Site: ______

EQUIPMENT: ______

Weather: ______
Air Temp: ______
Water Temp: ______
Water Depth: ______
Visibility: ______
Waves: ______
Current: ______

FACILITY INSPECTED	SUMMARY OF CONDITIONS

REMARKS: ____________________

SIGNED: ____________________

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ENGINEERS INC

EXHIBIT 15

UNDERWATER STRUCTURE INSPECTION
EQUIPMENT CHECKLIST

Location: ______________________ Contract No: ______________
Facility: ______________________ D.O: ______________
Team Leader: ______________________ Collins Project No: ______________
Date: ______________

II. INSPECTION EQUIPMENT

DESCRIPTION	REQ'D.	CHECKED/ PACKED	COMMENTS
1) HAND TOOLS			
A. SCRAPERS			
B. ICE PICK			
C. CALIPERS			
D. PROBE ROD			
2) MEASURING TAPE			
3) SOUNDING POLE			
4) CONTINUOUS READING FATHOMETER w/ TRANSDUCER AND BRACKETS			
A. EAGLE			
B. BATTERY			
C. SPARE PAPER			
5) WOOD-CORING EQUIPMENT			
A. HARDWOOD DOWELS			
B. PRESERVATIVE			
6) CURRENT METER			
A. BAG AND CABLE			
7) BOTTOM MATERIAL CONTAINER			
8) CAMERA - IF U/W CAMERA NOT INCLUDED			
9) NON-DESTRUCTIVE TESTING			
A. V-METER w/ TRANSDUCERS AND BATTERY CHARGER			
10) OTHER			

COLLINS
ENGINEERS INC

EXHIBIT 17

UNDERWATER STRUCTURE INSPECTION
EQUIPMENT CHECKLIST

Location: ______________________ Contract No: ______________
Facility: ______________________ D.O: ______________
Team Leader: ______________________ Collins Project No: ______________
Date: ______________

IV. U/W VIDEO PHOTOGRAPHY EQUIPMENT

	DESCRIPTION	REQ'D.	CHECKED/ PACKED	COMMENTS
1)	SONY 3-CHIP DIGITAL VIDEO CAMERA			
2)	SONY 8mm HANDYCAM VIDEO CAMERA			
3)	SONY HANDYCAM VIDEO BATTERY PACK "15 MIN."			
4)	SONY HANDYCAM VIDEO BATTERY PACK "30 MIN."			
5)	SONY HANDYCAM BATTERY PACK CHARGER			
6)	DIGITAL or 8mm TAPES			
7)	AMPHIBICO – U/W VIDEO HOUSING			
8)	GATES – U/W VIDEO HOUSING			
9)	IKELITE VIDEO LIGHTS "A"			
10)	IKELITE VIDEO LIGHTS "B"			
11)	IKELITE VIDEO LIGHT BATTERY PACK "A"			
12)	IKELITE VIDEO LIGHT BATTERY PACK "B"			
13)	IKELITE VIDEO LIGHT BATTERY PACK "C"			
14)	IKELITE VIDEO LIGHT BATTERY CHARGER			
15)	MONITOR			
16)	VCR RECORDER AND CABLES			
17)	VCR TAPES			
18)	U/W VIDEO CORD W/STRAIN LINE			
19)	U/W VIDEO BOX			
20)	CLEARWATER BOX (FOR VIDEO)			
21)	WATER CONTAINER FOR CLEARWATER BOX, HOSE			
22)	OTHER			

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ENGINEERS INC

EXHIBIT 19

UNDERWATER STRUCTURE INSPECTION
EQUIPMENT CHECKLIST

Location: ____________________ Contract No: ______________
Facility: ____________________ D.O: ______________
Team Leader: ____________________ Collins Project No: ______________
Date: ______________

VI. SURFACE-SUPPLIED EQUIPMENT

	DESCRIPTION	REQ'D.	CHECKED/ PACKED	COMMENTS
1)	UMBILICAL SAFETY LINE 200 FT. "RED"			
2)	UMBILICAL SAFETY LINE 200 FT. "BLUE"			
3)	LARGE VOLUME CYLINDERS 250 CU. FT (12)			
4)	LARGE VOLUME TANK "1"			
5)	LARGE VOLUME TANK "2"			
6)	LARGE VOLUME TANK "3"			
7)	CONTROL CONSOLE BOX			
8)	BACK-UP AIR SOURCE - AIR TANK 80 CU. FT.			
9)	L.P. HOSES			
10)	SPIDER CONNECTIONS w/REGULATOR			
	A. FOR LARGE VOLUME CYLINDERS			
	B. FOR BACK-UP AIR SOURCE			
11)	FULL FACE BANK MASK "A"			
12)	FULL FACE BANK MASK "B"			
13)	SUPERLITE HELMET			
14)	COMMUNICATION BOX			
15)	BATTERIES FOR COMMUNICATION BOX			
16)	HARNESS			
17)	TOOL BOX			
18)	SPARE FITTINGS KIT			
19)	TASCOM REGULATOR			
20)	OTHER			

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EXHIBIT 21

UNDERWATER STRUCTURE INSPECTION
EQUIPMENT CHECKLIST

Location: ______________________ Contract No: ______________
Facility: ______________________ D.O: ______________
Team Leader: ______________________ *Collins Project No:* ______________
Date: ______________

VIII. 14-FT. ALUMINUM BOAT

	DESCRIPTION	REQ'D.	CHECKED/ PACKED	COMMENTS
1)	OUTBOARD MOTOR			
2)	GAS CAN FOR OUTBOARD MOTOR W/GAS HOSE			
3)	ANCHOR			
4)	LINES			
5)	PADDLES OR OARS			
6)	OIL (2 cycle)			
7)	DRAIN PLUG			
8)	LIFE PRESERVERS			
9)	DIVE FLAGS AND MOUNTING BRACKETS			
10)	BAIL BUCKET			
11)	OTHER			

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EXHIBIT 23

UNDERWATER STRUCTURE INSPECTION
EQUIPMENT CHECKLIST

Location: ______________________ Contract No: ______________
Facility: ______________________ D.O: ______________
Team Leader: ______________________ Collins Project No: ______________
Date: ______________

X. 22-FT. FIBERGLASS BOAT w/IB/OB MOTOR

	DESCRIPTION	REQ'D.	CHECKED/ PACKED	COMMENTS
1)	OIL (HEAVY WT.)			
2)	ANCHOR			
3)	LINES			
4)	GAS CAN - 5 GAL.			
5)	PADDLES			
6)	DRAIN PLUG			
7)	2-WAY MARINE RADIO			
8)	FIRE EXTINGUISHERS			
9)	TYPE I OR II PFDs AND 1 TYPE IV THROWABLE PFD			
10)	DIVE FLAGS AND MOUNTING BRACKETS			
11)	FLARE GUN AND FLARES			
12)	LEAD FOR GAS OR USE LEADED GAS			
13)	HORN			
14)	KEYS FOR BOAT			
15)	KEYS FOR HITCH LOCK			
16)	SPARE TIRE FOR BOAT TRAILER			
17)	OTHER			

COLLINS ENGINEERS INC

EXHIBIT 25

UNDERWATER STRUCTURE INSPECTION EQUIPMENT CHECKLIST

Location: ____________________
Facility: ____________________
Team Leader: ____________________

Contract No: ____________
D.O: ____________
Collins Project No: ____________
Date: ____________

PERSONAL DIVE EQUIPMENT

____ Buoyancy Compensator

____ Dive Skin, Boots, Gloves, Hood

____ Wet Suit, Boots, Gloves, Hood

____ Dry Suit, Mitts, Hood

____ SCUBA

____ Face Mask

____ Weight Belt

____ Dive Knife

____ Dive Watch

____ Depth Gauge

____ Dive Light

____ Dive Computer

LEVEL I, II AND III INSPECTIONS

LEVEL I: General Examination: This level of effort is essentially a "swim-by" overview, which does not involve cleaning of any structural elements, and can therefore be conducted much more rapidly than the other levels of examination. The Level I examination should confirm as-built structural plans and detect obvious major damage or deterioration due to overstress (ship impact, ice), severe corrosion, or extensive biological growth and attack.

The underwater inspector shall rely primarily on visual and/or tactile observations (depending on water clarity) to make condition assessments. These observations *are normally made over the total exterior surface area of the underwater structure* whether it is a quaywall, bulkhead, seawall, pile or mooring.

Visual documentation (utilizing underwater television and/or photography) may be included with the quantity and quality adequate for documentation of the findings which will be representative of the facility condition.

MOD LEVEL I: Modified Level I: This level of effort consists of a "swim-by" of every pile at an elevation of two or four feet below mean low waterline to detect any obvious gross or major damage.

LEVEL II: Detailed Examination: This level of effort is directed toward detecting and identifying damaged/deteriorated areas which may be hidden by biofouling organisms or surface deterioration. At this level, a limited amount of measurements may be made. These data should be sufficient to permit gross estimates of the facility load capacity to be made. Level II examinations will often require cleaning of structural elements. Since cleaning is time consuming, it is generally restricted to areas that are critical or which may be representative of the entire structure itself. The amount and thoroughness of cleaning to be performed is governed by what is necessary to discern the general condition of the overall facility. Simple instruments such as calipers, measuring scales and ice picks are commonly used to take physical measurements. However, a small percentage of more accurate measurements may also be taken with more sophisticated instruments for several reasons. These will validate large numbers of simple measurements and in some hard-to-measure areas will actually be easier and faster to obtain. Where the visual scrutiny, cleaning, and/or simple measurements reveal extensive deterioration, a small sampling of detailed measurements will enable gross estimates to be made of the structure's integrity. For example, on extensively corroded steel H-piles a small *percentage should receive ultrasonic thickness measurements to determine typical* cross-section profiles. The cross sections determined by these spot checks would be used to

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EXHIBIT 28

EMERGENCY INFORMATION

DIVE SITE: ______________________________

DECOMPRESSION CHAMBER: ______________________________

Location ______________________ Phone No. ______________________

HOSPITAL:

Location ______________________ Phone No. ______________________

PHYSICIAN:

Name ______________________ Phone No. ______________________

TRANSPORTATION: ______________________________

NEAREST U.S. COAST GUARD RESCUE COORDINATION CENTER:

____

NATIONAL DIVING ACCIDENT NETWORK:

Duke University Medical Center - Emergency Assistance 919/684-8111

U.S. Navy Experimental Diving Unit:

Panama City, Florida - Duty Phone Number 904/234-4355

Have the following information available:

Name of Patient, Location of Accident and Nature of Emergency

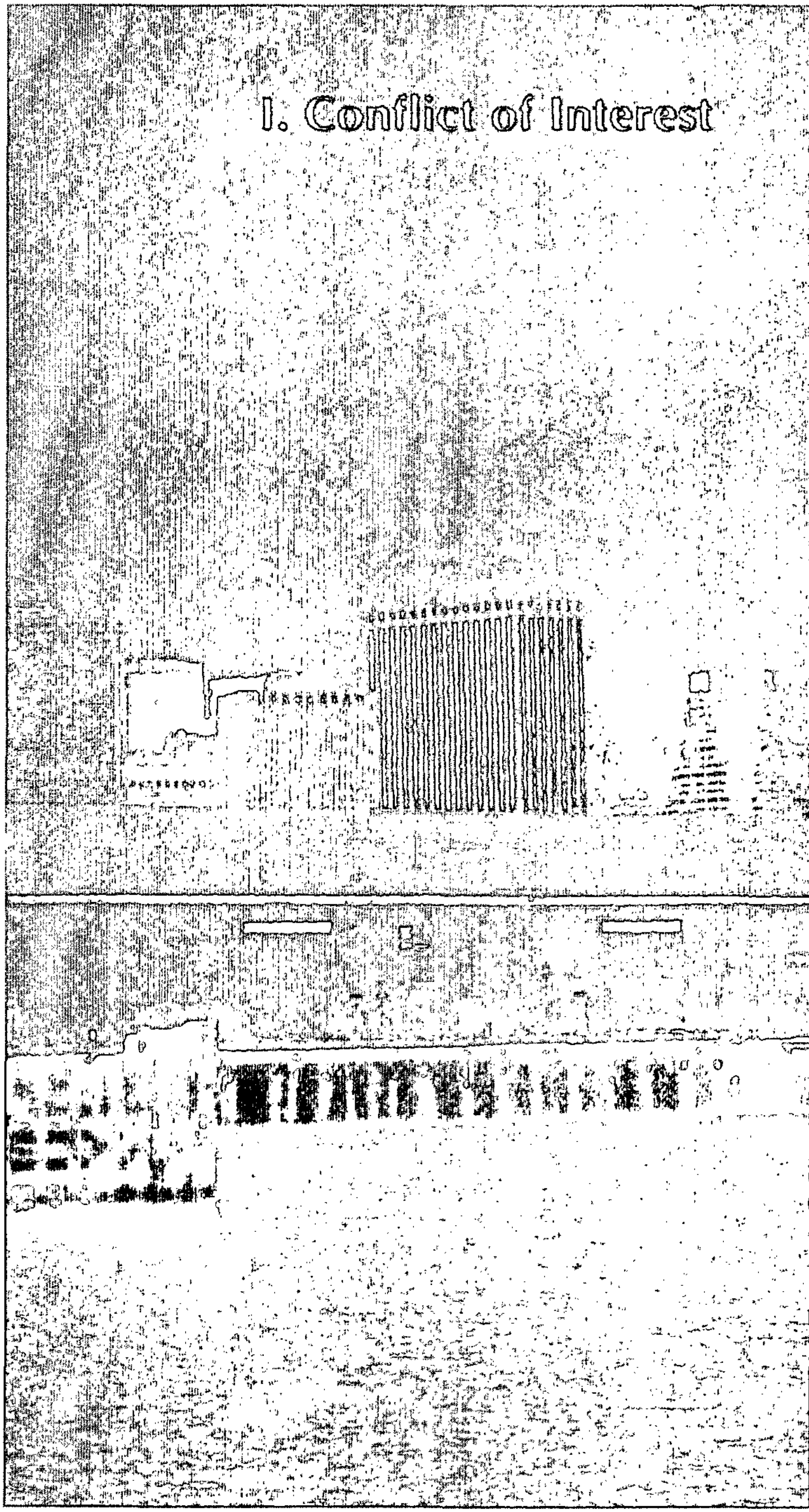
If you receive a busy signal, call the Operator and state that this is a life-or-death situation, and request that the circuit be interrupted.

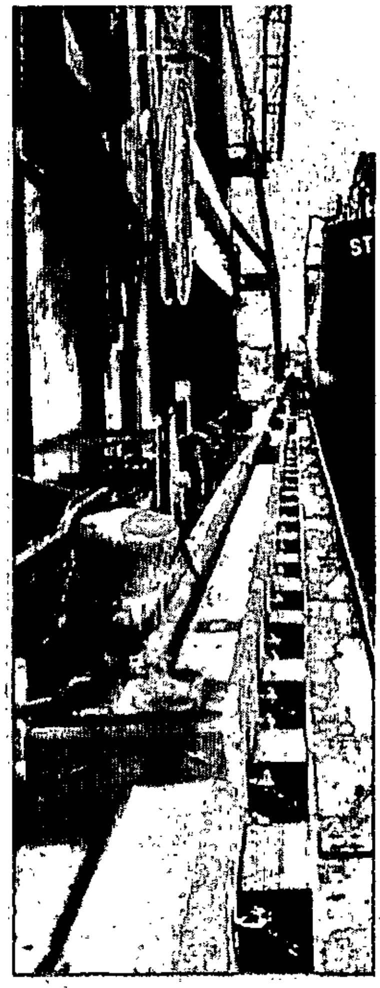
QUALITY CONTROL REVIEW CHECKLIST FOR UNDERWATER FACILITIES INSPECTION AND ASSESSMENTS REPORTS

	A (QA)	PM (QC)	PO* (QA)
FORMAT			___
1. Margins: Top 1" Left 1 1/2" Right 1" Bottom 1" (Format: L=5, R=77; T=0; B=14; I=15)	___	___	
2. Type: 12 Point Arial; Regular Style	___	___	
3. Page Numbers centered between Left and Right margins, 3/4 inch in from bottom of page. For 11"x17" pages, locate page number 4 inches in from the right edge of the paper. (iii,....; 1-1, 1-2, ...3-1.... Title page is "i" and unnumbered)*	___	___	
*Section page numbers shall include the section (ie. Section 1 shall be numbered 3.1-1, 3.1-2....) Appendices shall include the letter designation of the appendix (ie. A-1, B-1....)			
4. Paragraphs: Minimum of two lines on each page.	___	___	
5. Spacing: Set as 1.35 with double space before and after section headings.	___	___	
6. Tabs: 12 point space before each paragraph. Read from front of report; base of typing along page.	___	___	

	A (QA)	PM (QC)	PO* (QA)
XI. SECTION 3.1 TO 3.99 - INSPECTION OF FACILITY NO.			
1. Brief introductory statement including date when facility built, usage data, previous inspections, and modification or repairs made.	___	___	___
A. Description Of The Facility			___
1. Location within facility; refer to location map	___	___	
2. Geometric shape	___	___	
3. Overall dimensions	___	___	
4. Materials of construction	___	___	
5. Summary structure components	___	___	
6. Marine growth	___	___	
7. Refer to pile plan	___	___	
B. Observed Conditions			___
1. Report general and specific conditions	___	___	
2. Designate damaged components in table form	___	___	
3. Refer to pictures illustrating condition described	___	___	
4. Photograph Captions: Describe condition to be noted	___	___	
Show location			
Typical? Cleaned?			
C. Comparison Of Previous Inspection Results			___
1. Brief summary of previous condition and previously recommended repairs	___	___	
2. Indicate current status of repairs	___	___	
D. Structural Condition Assessment			___
1. Comment on all conditions described above	___	___	
2. Are any restrictions on use and reasoning for restrictions clear	___	___	
3. Comment on necessity for repairs which are needed to prevent further deterioration	___	___	

I. Conflict of Interest

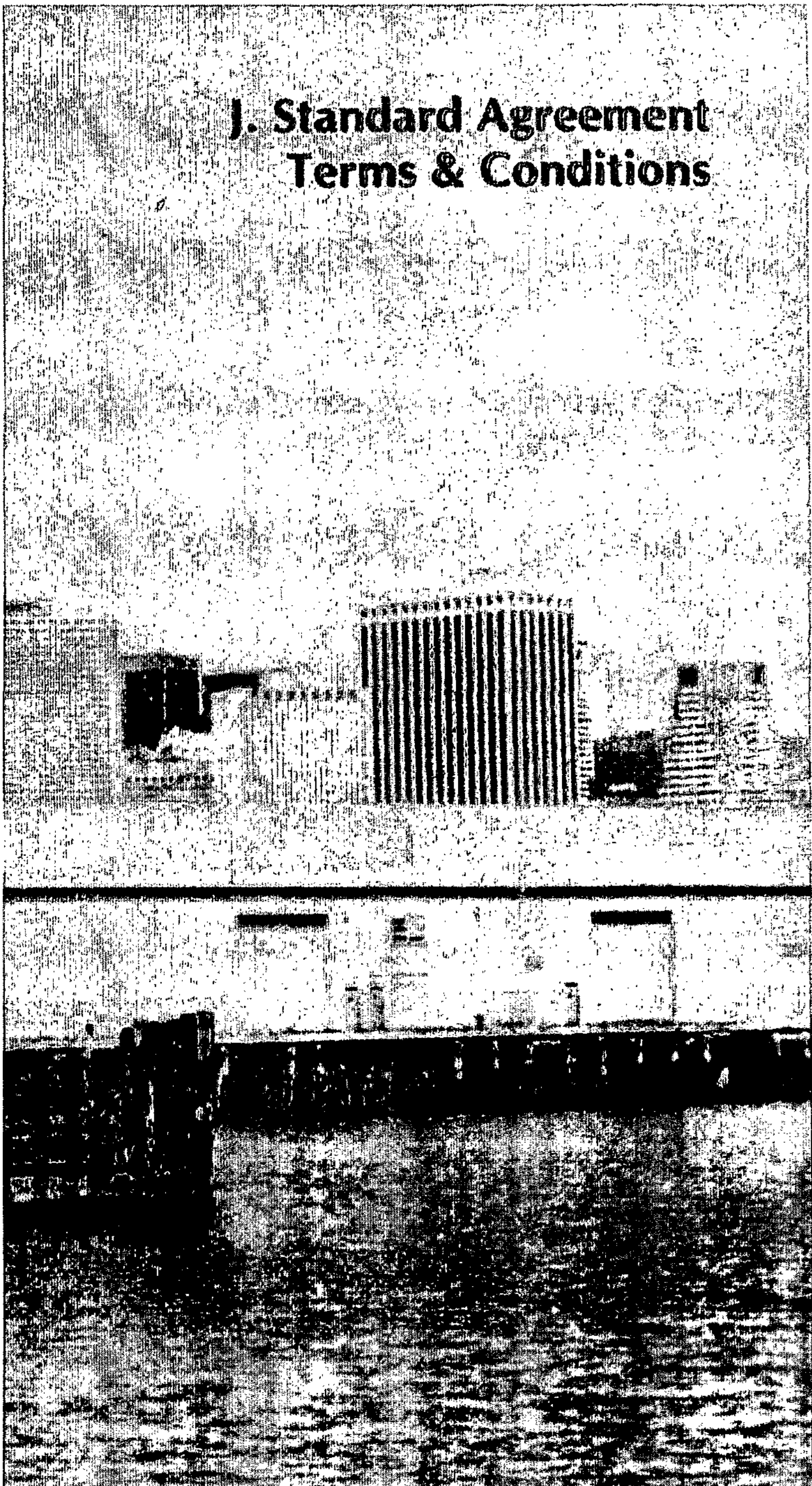


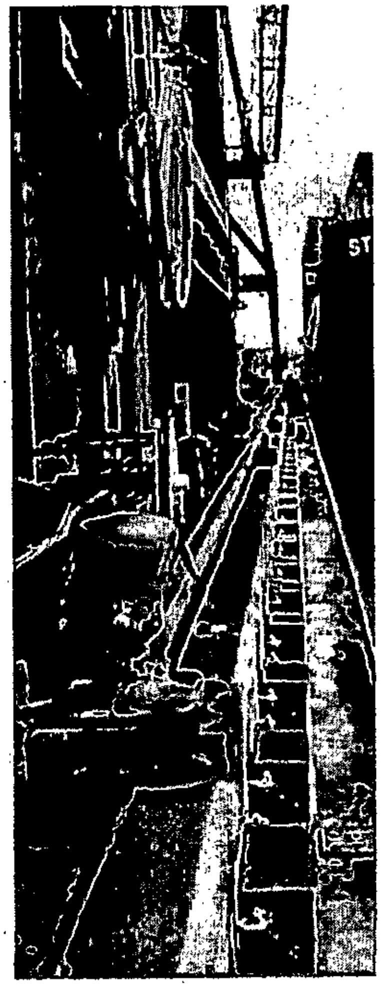


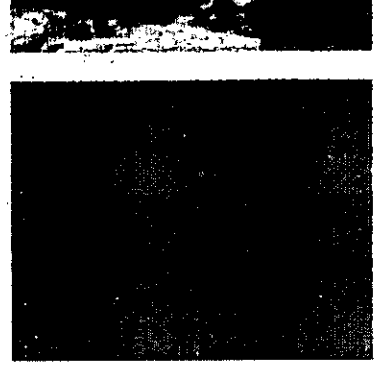
I. CONFLICT OF INTEREST

Collins Engineers, P.C. does not foresee a conflict of interest.

J. Standard Agreement Terms & Conditions



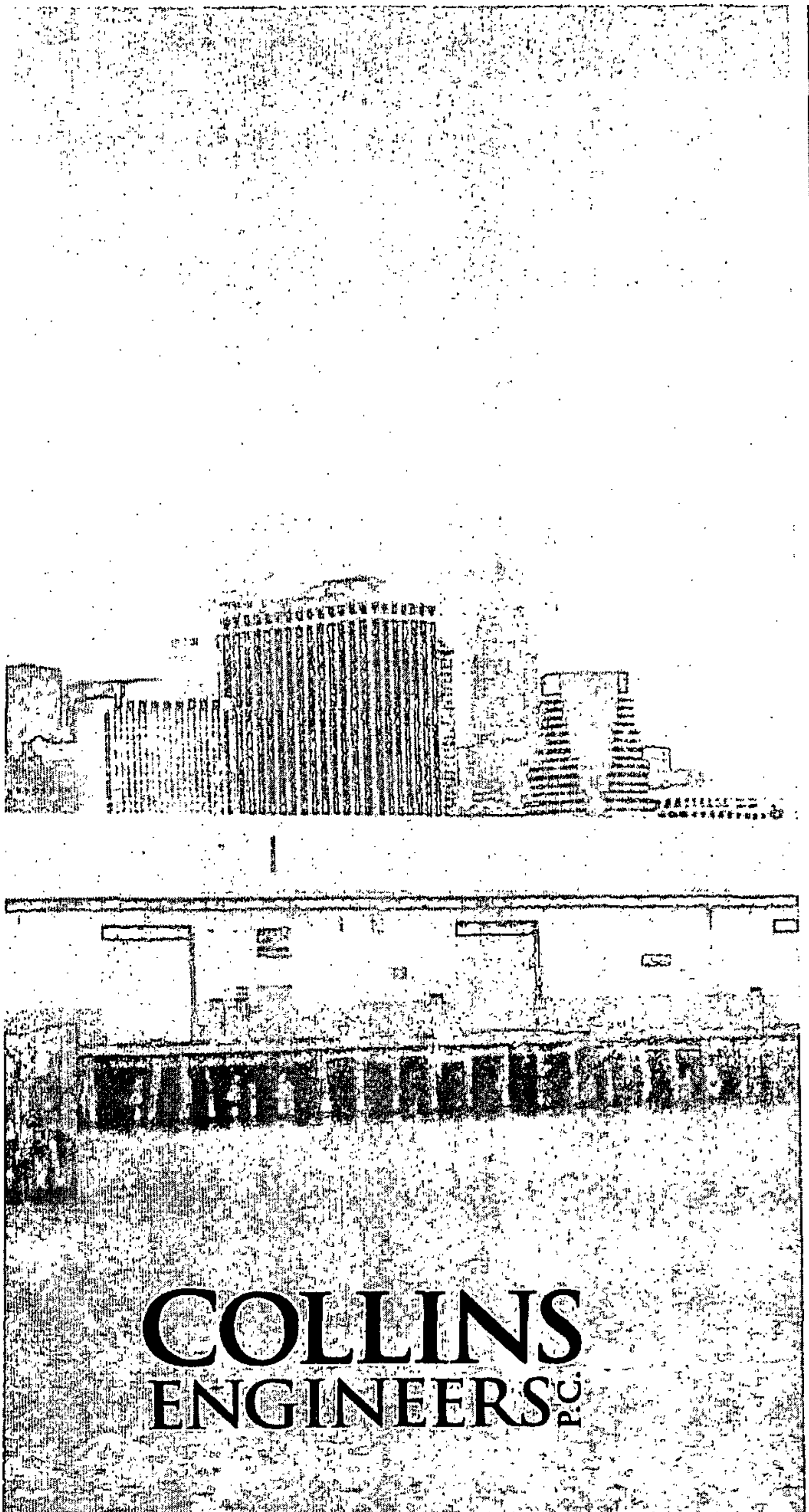


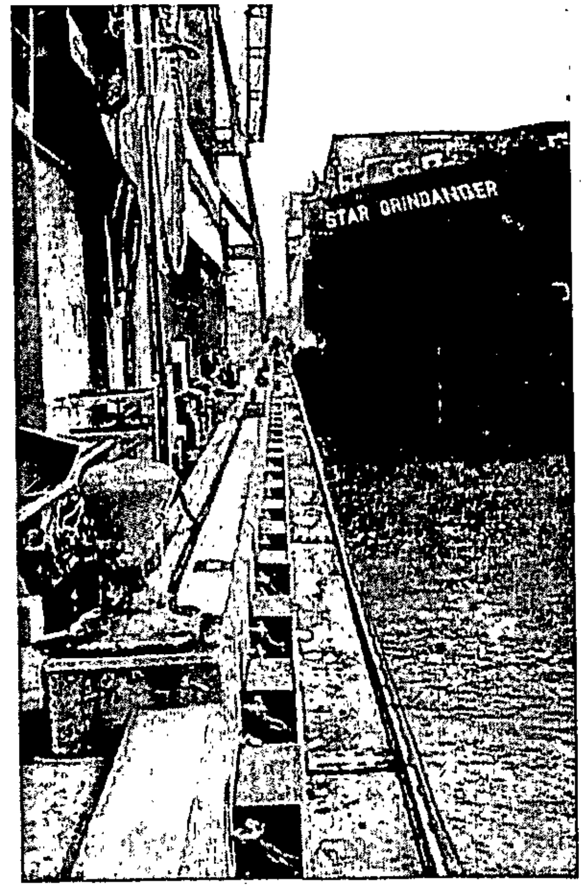


J. Standard Agreement Terms & Conditions

J. STANDARD AGREEMENT

Collins Engineers, P.C. does not take any exceptions to the Standard Agreement.


COLLINS
ENGINEERS P.C.


STAR GRINDANGER

PROPOSAL FOR THE PERFORMANCE OF
EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR
WATERFRONT FACILITIES AS REQUESTED ON
A "CALL-IN" BASIS DURING 2009

RFP NO. 16560

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
ONE MADISON AVENUE, 7TH FLOOR
NEW YORK, NY 10010

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA – 225 WEST 34TH STREET
NEW YORK, NY 10122

PORT AUTHORITY VENDOR NO. 113631

OCTOBER 9, 2008

October 9, 2008

The Port Authority of New York and New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010

Attention: RFP Custodian

Re: Proposal for Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2009 (RFP Number 16560)
MRCE Port Authority Vendor Number 113631
MRCE File No. P08-274

Dear Sir or Madam:

Thank you for your request for a proposal for the performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2009. Mueser Rutledge Consulting Engineers (MRCE) has provided geotechnical, foundation, and marine structural engineering services directly to the Port Authority of New York and New Jersey (PANYNJ) or as a subconsultant to other engineering or contracting firms working on PANYNJ projects. In response to your request, the information requested follows behind lettered tabs.

MRCE will use every good faith effort to utilize subconsultants who are certified MBEs or WBEs to the maximum extent possible to facilitate meeting the Port Authority's stated goals for MBE and WBE participation.

MRCE appreciates the opportunity to submit this proposal and looks forward to providing the professional services that the Port Authority may require.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: Roderic A Ellman Jr
Roderic A. Ellman, Jr., PE, Partner

Contents

TABLE OF CONTENTS

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

A

ATTACHMENT B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

Mueser Rutledge Consulting Engineers
NAME OF COMPANY

Roderic A Ellman Jr
SIGNATURE OF OFFICER

Roderic A. Ellman
PRINT NAME OF OFFICER

Partner
TITLE

October 9. 2008
DATE

B

TAB B
MULTIPLIER

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

Multiplier for Full-Time Employees: 2.9

The multiplier to be used in the first line of subparagraph 8.A of the Standard Agreement is 2.9. This rate has been used for Port Authority projects since the early 1990s and is being maintained, despite significant increases in the firm's overhead factor. This Preferred Client discount, representing a 12% discount off the MRCE standard charge rate, is provided in consideration of the volume of all the work we perform for the PANYNJ. We respectfully request that this figure be kept confidential.

TAB C

RESUMES AND TECHNICAL QUALIFICATIONS OF PERSONNEL

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

PILE TEST, INC.
SPECIALIZED UNDERWATER INSPECTION SERVICES

PH-732 888 1010

PH-732 899 3034

Fax 732 888 6075

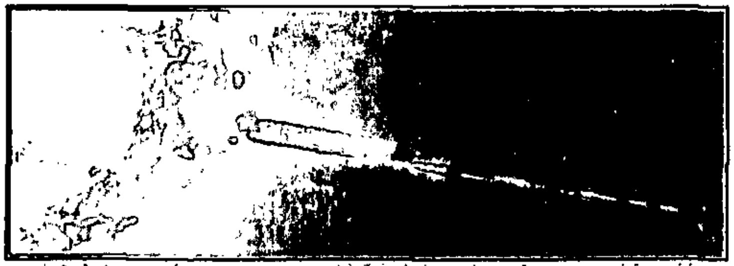
MARINE BORER INSPECTIONS AND CONDITION ASSESSMENT

Pile With Heavy Limnoria Infestation-Brooklyn NY

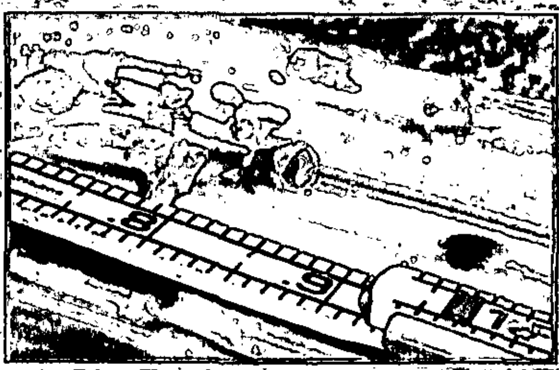
MARINE BORER INSPECTIONS

Infestation by marine borers (Limnoria and Teredo) has caused the failure of several structures supported by wood piles in the New York and New Jersey areas. Heavy Limnoria infestations can reduce a pile's diameter by 1" in less than a year. Significant environmental efforts to clean the waters has brought back the marine borers that has resulted in the aggressive attack on the wood supported infrastructure. Underwater inspections of wood structures can be by both destructive and nondestructive methods such as the removal of core samples.

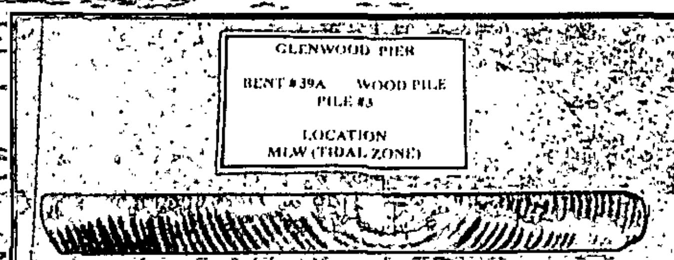
Core Bit Removing Sample Core



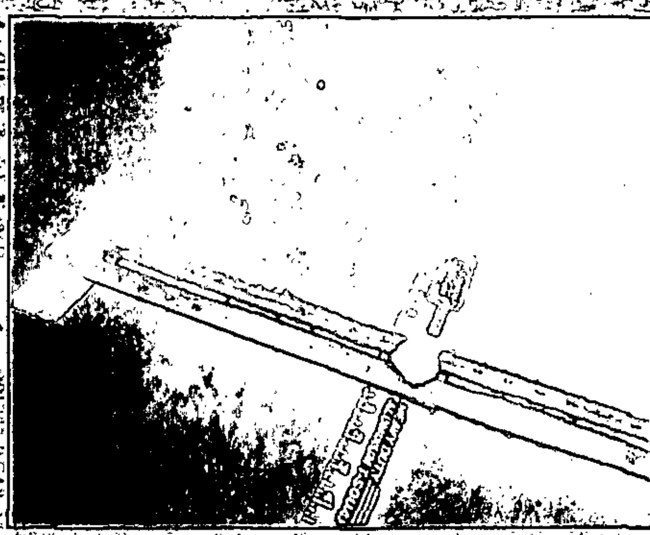
Wood core samples are taken for evaluation and identification of physical properties such as remaining residual strength, wood species identification, preservative retention and mechanical compression testing. Marine borers are identified for type and amount of infestation including activity assessment with any microbiological deterioration.



Live Teredo From Port Newark



Core Sample With Identification Tag



Underwater Measurements Of Piles Diameter

UNDERWATER INSPECTION OF TIMBER & WRAPPED PILES

Non Functioning Wrap With Live Limnoria Under Wrap

Liability or Asset?
Do You Know? Are the marine borers alive and well in your wrapped piles?
Can you afford not to test your marine structures?
The advertised purpose of pile wrapping is to arrest marine borer infestation and prevent the introduction of new larva by creating a barrier of stagnant water around the pile.

All wrap manufacturers guarantee their systems only if properly installed and maintained.

The whole concept is based on a barrier of stagnant water. If the integrity of the wrap or its seal is compromised, in any way, the marine borers will receive a new supply of oxygenated water with each tide cycle. This provides them a safe and better environment than before the wraps were installed.

Testing is performed by trained technicians with certified and calibrated scientific equipment.

This non-destructive testing will verify if the water quality inside the wrap can support the marine borers life. <u>Water is tested for dissolved oxygen levels, temperature, salinity, conductivity and PH.</u>

Marine borers require all the above parameters in proper levels to survive. This scientific, nondestructive testing will verify if your wraps are protecting the piles.

<u>Pile Test Inc.</u> offers this **patented,** cost effective testing procedures for any wrapped pile.

Call for information on patented foam injection procedures that will insure the wraps will function 100%.

Dye Test On PVC Wrap
Utilizing a harmless dye injected behind the wrap, the damaged area and source of fresh water intrusion can be found and repaired.

Pilings, Piers and Bulkheads Ignore them and they will go away?
The most expensive real-estate is that which comes in contact with the water. Your docks, piers and retaining walls should be inspected on a routine basis. These are structures in which a little preventative maintenance can save you thousands of dollars.

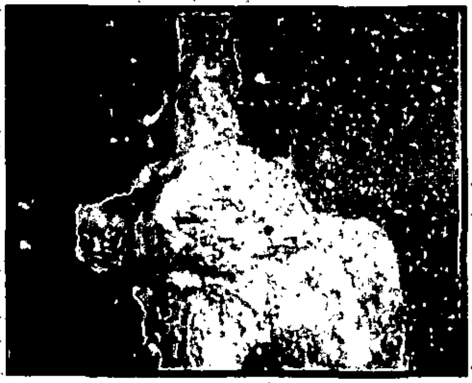
Percentage Assessment of Pile Bearing - East River
Wood piles are inspected for the percentage bearing between header and pile. This information is supplied to the engineers who design the required repairs and assign the piers load rating and maximum capacity.

Testing Of Water Outside The Wrapped Piles
The testing procedure is started by testing the water outside the wrapped pile and then these results are used as the base line to verify if the wrap is protecting the pile as intended.

UNDERWATER STRUCTURAL STEEL & CONCRETE

Steel H-Piles
Whitehall Ferry, NY
Severe deterioration with holes in both flange and web of H-beams supporting towers. Structural assessment and detailed condition reports resulted in major rehabilitation of entire substructure.

***UTM* Readings Of Steel Sheeting**
Ongoing electrolysis causes the severe deterioration to steel sheeting and bulkheads. Scheduled inspections and underwater UTM readings can avoid costly replacement by giving condition surveys that allow for repairs prior to failure.



Condition Rating & Inspection Of Sluice Gate Stem Guides, Shafts & Controls

12" Concrete Intake Line Video Inspection -
Placement of Rover video in reservoirs intake line prior to slip-lining to assess internal conditions & determine best repair methods & costs.

Cracked Concrete Bridge Pile - Long Island, NY
Cracks, spalls, exposed and rusting rebar are some of the deficiencies commonly found on bridges.

Outfall Inspection and Epoxy Repair of Concrete

UNDERWATER CONSTRUCTION COMPLIANCE

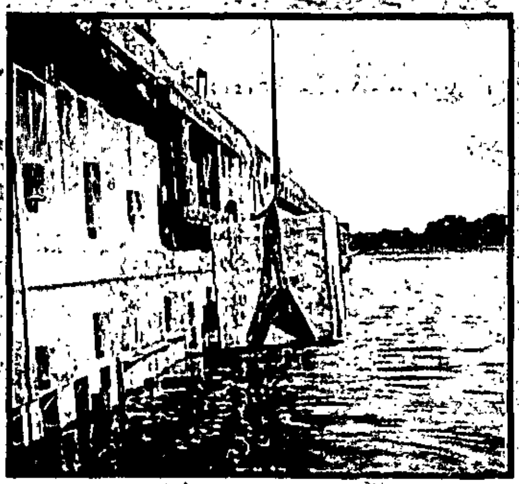
Demolition Of Old Concrete Jacket

Timber Pile Prepped For Concrete

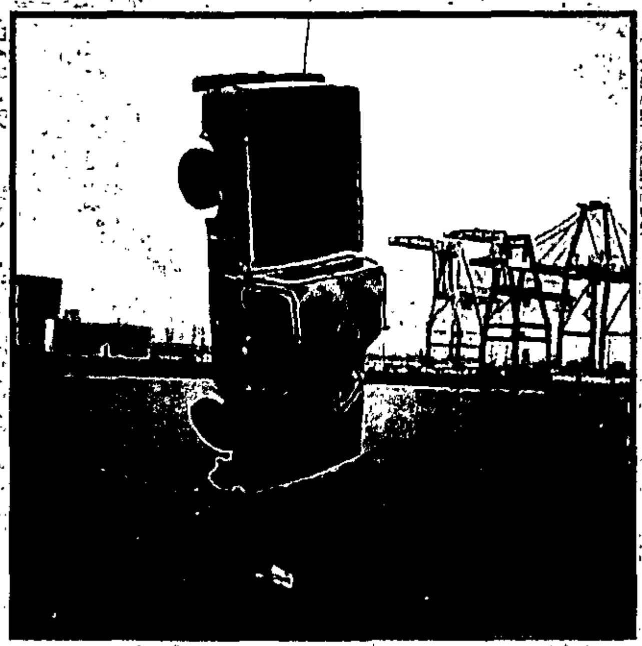
Reinforcement Wire Being Put In Place

Nylon Bag Being Pumped With Concrete

UNDERWATER SALVAGE



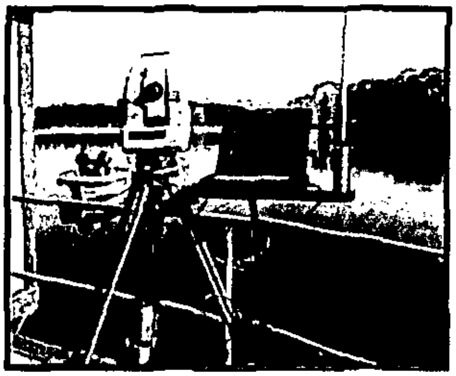
Recovery of Aluminum Ingots - Fairless Hills, PA
Several thousand dollars of ingots were recovered from Atlantic Marine Terminal.



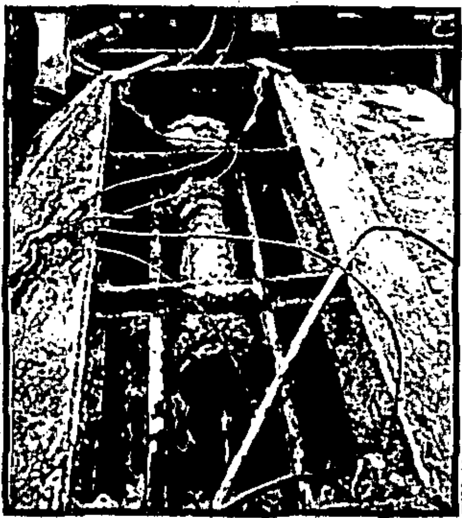
They Said They Were In A Hurry & It Was Coffee Time
Salvage can range from tools, equipment, vehicles or any conceivable thing used on or around the water.

HYDROGRAPHIC AND BATHYMETRIC SURVEYS

The latest equipment using shore based laser ranging with GPS and the data is available as ACSII files or printed using CAD to your required specifications.

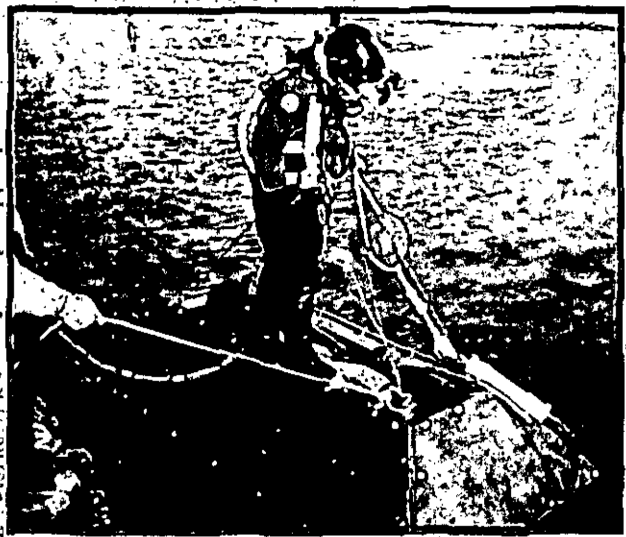


SCIENTIFIC DATA COLLECTION INSTRUMENTATION SYSTEMS PLACEMENT & RETRIEVAL

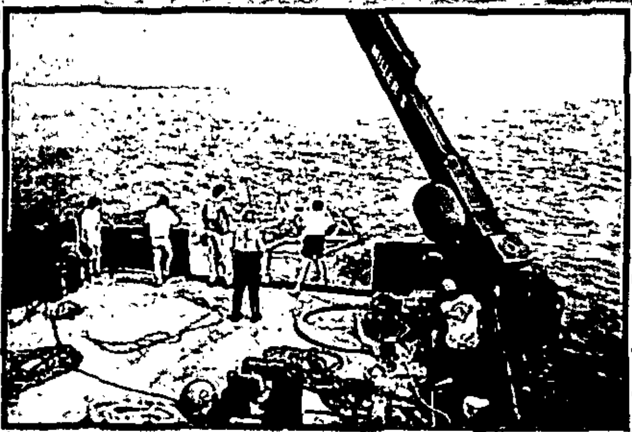


Recovered ADCP Unit

- **Current Meters**
- **Telemetry Systems**
- **Wave and Tide Gauges**
- **Multi-Parameter Probes**

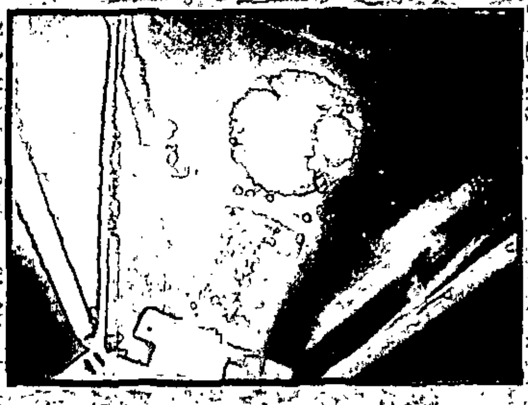


PRECISION EQUIPMENT PLACEMENT

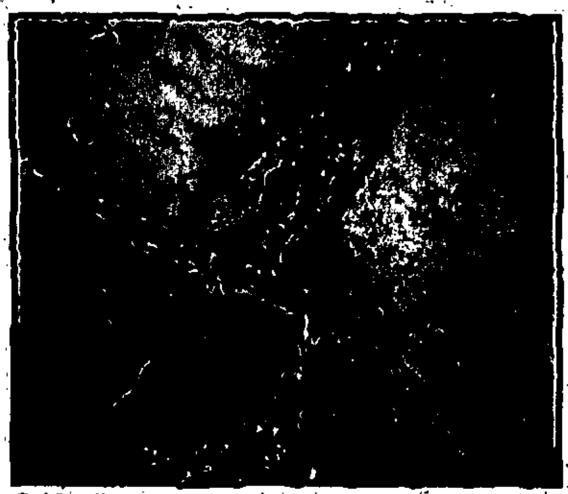


SCIENTIFIC OCEANOGRAPHIC INSTRUMENTATION

We have been involved in the placement and retrieval of several instrumentation systems both tethered and untethered. We can assist in the proper routing of armored data cables around debris or securing them to the ocean bottom.



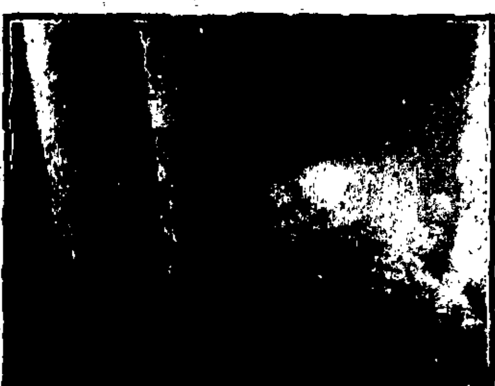
SPECIALIZED UNDERWATER INSPECTIONS & BURNING



Bridge Power Cables At Jones Beach
Power cables and utility lines are inspected for construction compliance during installation.
Existing cables are regularly checked for scour and undermining that can expose them to damage by debris and marine vessels.

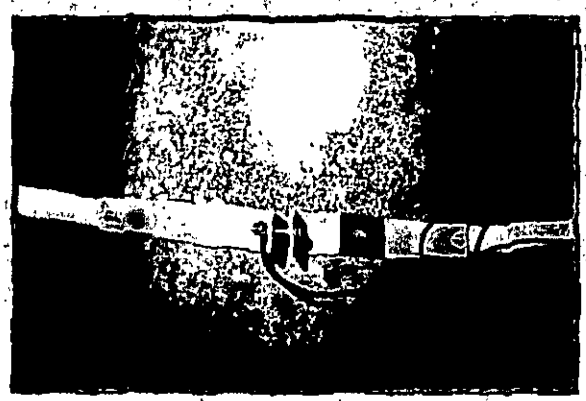
Underwater Burning For Directional Boring
Steel sheeting is burned to allow the directional bit to enter pit area for final transition and connection of new pipe line.

Industrial Fire Pumps & Intakes
Because of the serious ramifications of not having fire pump systems functioning at full capacity, regularly scheduled inspections will insure your systems will perform in emergency situations.



Power Company Intake Grates
Regular inspections and repair will insure that intake structures function as intended & do not allow debris to enter pump & screen wells.

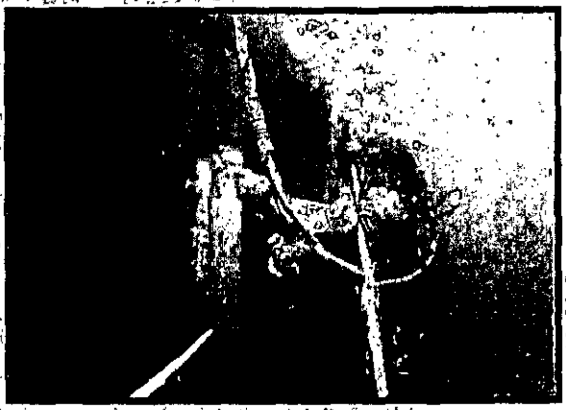
Platinum Cathodic Protection Installed



Water Towers - They present a challenge in that no two seem to be alike. Access, set-up and additional safety procedures to lock out drains, valves and pumps all that may be operated manually or from remote locations or may be on timers and float switches. Internal bracing, cold water with no outside light also make them more difficult than most commercial diving jobs.
Inspections and repairs are all done with full video and photographic documentation. Repairs or removal of cathodic protection systems or new updated installations. Welding or mechanical repairs to bracing, valves, drains or replacement of sheared keys are all done without draining the towers.

Qualifications

- Complete compliance with OSHA & USCG regulations
- Complete dive safety plan specific to each job
- All required health and safety certifications
- Full hazmat certifications
- Commercially certified diving P.E. available
- Full CADD and computer capability
- Engineering and design
- Feasibility studies
- In-depth written, video and photo reports
- AWS welding certified
- Certified DOT bridge inspectors
- Fully insured
- Asbestos certified level II
- Commercially certified divers
- NDT level II & III inspectors



Burning Bracing Bolts - Brooklyn, NY

TYPICAL PROJECTS

- Documented comprehensive underwater investigations
- Detailed engineering surveys
- Inspection and construction compliance documentation
- Ultrasonic and magnetic surveys of steel structures and vessels
- Ultrasonic and nondestructive testing
- Bridge, pier & dam substructure inspection level II & III
- Bridge, dam, outfalls/intakes and cable scour evaluations
- Marine borer biodeterioration investigations & assessments
- Patented testing of wrapped piles for proper installation
- Dye surveys of intake and outfall pipes
- Bathymetric and fathometer hydrographic surveys
- Pipeline and cable surveys
- Underwater video and photography documentation
- Demolition & salvage
- Underwater burning & welding
- Hazardous material and contamination diving
- U/W blasting and demolition support
- U/W hydraulic concrete splitting demolition
- Penetration diving with video/photo inspections
- Sonar search and surveys-Side scan sonar and metal detectors
- Airlifting and jetting (Equipment recovery uncovering water mains, sewer lines, intakes/outfalls, pipelines and cables for inspection)
- Cathodic protection assessment
- Service for power utility, chemical plants, oil companies, municipal water and sewage authorities
- Small diameter pipe internal video documentation
- Expert witness for any underwater projects & litigation
- Foam Injection Of Wrapped Piles

CLIENT LIST

- New York City Department of Sanitation
- Port Authority of New York & New Jersey
- New York State Department of Transportation
- New York City Economic Development Corporation
- New York City Department of Environmental Protection
- U.S. Army Corps of Engineers
- Consolidated Edison
- Atlantic Electric Energy Company
- Amerada Hess Corporation
- Maher Terminals
- Mueser Rutledge Consulting Engineers
- URS Greiner Inc.
- Turner Construction
- Lev Zetlin Associates
- Killam Associates Consulting Engineers
- HNTB Architects Engineers
- Hardesty & Hanover, LLP
- Atlantic Engineering

PILE TEST, INC.

585 MIDWOOD AVE.

BRICK, NJ 08724

PH 732 888 1010 Pager 732 899 3034

Fax 732 888 6075 Fax 732 899 8805

D

TAB D

Hourly and Billing Rates

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

MUESER RUTLEDGE CONSULTING ENGINEERS

Port Authority Salary Schedule as of July 1, 2008 October 9, 2008
All Port Authority Agreements

	RATE
PARTNERS	
	$290.00
	$290.00
	$290.00
	$290.00
	$290.00
	$290.00
	$290.00
	$290.00
CONSULTANT	
	$325.00
SENIOR ASSOCIATES	
ASCE- ENGINEER VIII	
	$84.92
	$79.08
	$78.89
	$78.62
	$76.15
	$76.98
	$76.62
	$75.69
	$74.31
	$72.46
ASSOCIATES	
ASCE- ENGINEER VII	
	$73.08
	$72.00
	$72.00
	$71.38
	$70.62
	$69.85
	$69.54
	$69.38
	$68.46
	$67.54
	$65.08
	$64.46

MANAGING ENGINEER

ASCE- ENGINEER VI

$72.00

$64.31

SUPERVISING ENGINEERS

ASCE- ENGINEER VI

$66.92

$64.62

$63.69

$60.92

$60.77

$58.77

$58.46

$58.15

$57.54

$51.08

SENIOR ENGINEERS

ASCE- ENGINEER V

$48.62

$47.69

$47.23

$46.77

$44.92

$44.92

$44.62

ENGINEERS

ASCE- ENGINEER IV

$45.54

$45.54

$43.85

$43.38

$42.92

$42.77

$42.77

$42.00

$41.54

$41.08

$39.38

$37.54

$36.92

$36.31

$35.85

ENGINEERS

GEOLOGISTS

$37.17
$27.08

TECHNICIANS II

$36.31
$30.71

TECHNICIANS I

$26.46
$26.31
$25.23

CONSTRUCTION SPECIALISTS

$50.62
$37.00
$35.00

CHIEF DESIGNER

$48.31

ENGINEERING DESIGNER

$40.62

DESIGNER/DRAFTER

$35.69
$35.23
$35.08
$32.46
$30.62
$28.15

DRAFTPERSONS

$29.38
$28.62
$28.15
$28.00
$26.31
$18.46

******* Note: Rates subject to escalation on July 1, of each year*******
Above rates except Partners are multiplied by 2.9 for billing purposes.

Joseph N. Courtade - Director of Finance

E

TAB E

MRCE EXPERIENCE

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

MRCE General Experience:

Firm History Mueser Rutledge Consulting Engineers (MRCE), founded in 1910, is the nation's first engineering firm to combine a geotechnical specialty with structural foundation design engineering. More than 11,000 projects have been completed in the United States and around the world. Two-thirds of the firm's work entails the structural design of foundations and waterfront structures, and providing owners, contractors and engineers with construction assistance and expert testimony. The remaining one-third of the firm's work involves geotechnical studies, including analyses of site conditions, soil and rock properties, and performance of subsurface materials. MRCE is an *ENR* Top 500 Design Firm, with its offices in New York City, NY and a website address at **www.mrce.com**.

MRCE was the first firm in the United States to establish a private soil engineering laboratory which is used exclusively on the firm's own design assignments. MRCE has provided subsurface investigation, testing, analyses and determination of soil design parameters and criteria, and foundation recommendations for many projects.

Personnel MRCE's technical staff is comprised of nearly 100 geotechnical and structural foundation engineers, 13 CADD designers and draftspersons and 5 soils laboratory technicians on its staff of more than 142. Timely completion of each project is engendered by active participation in and close monitoring by a Partner-in-Charge. The firm has established a long list of repeat clients by providing fast, efficient, and workable solutions to assignments.

MRCE Relevant Project Experience:
MRCE has extensive experience in site investigation and design of waterfront development projects encompassing landfills and all types of marine structures including piers, jetties, wharves, bulkheads, drydocks, platforms, marinas, and ferry terminals. The firm specializes in the rehabilitation and preservation of existing marine facilities, including marine fender protection systems, support systems, braced and cellular cofferdams, underpinning of structures, pile foundations, relieving platforms, mooring dolphins, anchored bulkheads, piers and wharf structures, as well as the design of breakwaters and revetments.

MRCE has an extensive number of staff who specialize in waterfront/marine design and construction techniques. The resumes attached represent only a few of the firm's skilled engineers who will be available to work on the Port Authority of New York and New Jersey (PANYNJ)'s projects. MRCE has the ability to respond in a timely manner to PANYNJ's "call-in" requirements with a variety of expertise levels. The firm also has a comprehensive understanding of waterfront construction methodology commonly used by contractors within

- Modification of Transit Sheds Nos. 4 and 5
- Maintenance Dredging
- Rail Replacement at Sheds Nos. 1 to 4
- Maintenance Building Expansion
- Modification of an existing wharf to carry rail cars with loads up to 1 million lbs. for heavy lift operations (2004)
- Ports of Albany and Rensselaer Maintenance Dredging (2006)

Client/Owner: Albany Port District Commission
106 Smith Boulevard, Albany, NY 12202
Mr. Frank Keane, General Manager
(518) 463-8763
fwkeane@portofalbany.com

Construction dates: 1984 – Present

3. Hudson River Park - Segment 5 and Master Plan, *New York, NY*
MRCE performed structural designs for various marine structures and waterfront treatments including pile supported high level piers and platforms, new steel sheet pile bulkheads, pier repairs and bulkhead repairs. The limits of Segment 5 of Hudson River Park are from West 12th Street to West 24th Street. New piers include Pier 54 which is adjacent to the Gansevoort Peninsula and will have mooring and fendering for historic vessels and space for public events. Piers 62 and 63 are just north of the Chelsea Piers Sports Complex and will support sculpted earthen mounds as a prominent landscape feature. A marine underpinning of the existing Pier 64 was investigated. The new piers will be joined to an upland park which is being laid out by the Segment 5 Landscape Architects.

Additional work involved the preparation of detailed demolition drawings for existing marine structures to be removed. Our geotechnical responsibilities included the preparation of geologic sections and studies of the extra long piles required to support the piers due to the thick layers of river mud encountered and the extreme depth at which a competent bearing stratum is achieved.

MRCE previously assisted with geotechnical and marine structure conceptual design for the Hudson River Park Master Plan. MRCE is also the general geotechnical engineer for the Route 9A project which consists of reconstruction of the surface roadway along the west side of Manhattan, bounding Hudson River Park.

Owner/Client: Hudson River Park Trust
Pier 40 at W. Houston Street, New York, NY 10014
Mr. Marc Boddewyn, VP Design and Construction
(917) 661-8740
mboddewyn@hrpt.state.ny.us

Construction dates: 2001 – Present

including bulkheads, relieving platforms, and buildings. Advanced deterioration of exposed timber pilings and pile caps from marine borer attack and concrete and steel members from exposure to the marine environment has necessitated construction to rehabilitate the structure and restore ferry service from the original slips.

Current design projects include:

- Demolition and reconstruction of the north wall of the terminal
- Underpinning existing finger pier columns
- Underpinning and structural repairs of the North Canal Bulkhead
- Finger Piers 1-7
- Waiting room
- Ferry concourse and clock tower substructures
- New elevated reinforced concrete floor slab in the team concourse and finger piers

Client: STV, Inc.
225 Park Avenue South, New York, NY 10003
Mr. Bruce Jabbonsky, RA, Associate - Stations and Terminals
(212) 777-4400
bruce.jabbonsky@stvinc.com

Owner: NJ Transit
One Penn Plaza East, Newark, NJ 07105-2246
Mr. Frank Smolar, Director of Capital Projects
(973) 491-7313
fsmolar@njtransit.com

Construction dates: 1993 - Present

6. Reconstruction of Route 70 Bridge (September 11th Memorial Bridge), *Brielle, NJ*
The Route 70 project has been designed both to address the structural and functional deficiencies of the existing bridge crossing and also to provide for the long-term regional transportation needs along the Route 70 corridor and the Manasquan River. The design will carry the dual section of Route 70 across the Manasquan River and complete the infrastructure improvements from Jack Martin Boulevard to the Brielle Circle. The bridge will have a 12-foot median, two 12-foot lanes, and one 10-foot shoulder in each direction. Sidewalks and parapets are included on each side of the bridge, resulting in an overall bridge width of 94 ft. 8 in.

MRCE was retained to provide geotechnical and foundation engineering services, including the design of temporary structures and evaluation of bridge pier foundation alternatives for the reconstruction of the Route 70 Bridge. MRCE designed temporary sheeting for deadman construction, as well as a temporary excavation support system between construction stages. The project also encompassed the design of temporary NJDOT support system and pre-cast form work for the bridge piers.

part of an emergency ferry facility for NYC Department of Correction. MRCE prepared contract documents for construction and permit applications to USACOE, NYSDEC, and NYSDOS.

Additionally, MRCE was retained under a design-build contract by the NYCDOC to design a marina for the Harbor Unit. The firm's services included a geotechnical subsurface investigation; a bathymetric survey; the determination of wind, wave, and current loadings; the development of marina layout to accommodate vessels used by Harbor Patrol; the design of wave screen and anchor piles; and the design of floating docks and anchor piles, new gangway, new lighting, and power receptacles. The project required the evaluation of alternative marina layouts. MRCE prepared permit applications and obtained permits from the US Army Corps of Engineers, NYS Department of Environmental Conservation and NYS Department of State Coastal Zone Management. MRCE also prepared construction documents and provided engineering support (review of shop drawings and field assistance) during construction.

Owner/Client: City of New York Department of Corrections
60 Hudson Street, 7th Floor
New York, NY 10013
Mr. Hardee Saini, Director, Capital Policy & Development, Div. of Engineering
(212) 266-1825
hardee.saini@doc.nyc.gov

Completion Status: 2005

9. New Astoria Energy Plant, *Astoria, NY*
Mueser Rutledge Consulting Engineers (MRCE) provided geotechnical and marine foundation engineering services for a new New York Power Authority Power plant.

MRCE performed a bulkhead inspection and evaluation in preparation for the offloading of two approximately 6 million pound HRSG units. These units are a major component of the new Astoria Energy Power Plant and were fully constructed, piped, and outfitted in Indonesia and then shipped.

The bulkhead comprises steel cells, which were determined to have insufficient capacity to support the units due to the potential to destabilize the cells as a result of the high horizontal earth pressure induced from the HRSG load.

A local pile-supported reinforced concrete relieving platform was constructed upland of the steel cell cofferdams to shield the cells from excess surcharge load. A large temporary steel plank bridge was extended from the barge to the temporary relieving platform, and the HRSG was moved to land on rubber-tired transporter vehicles.

MRCE's services include:

- Geotechnical subsurface investigation
- Bulkhead inspection for cellular cofferdam

F

TAB F

MRCE PROPOSED MANAGEMENT APPROACH

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

Mueser Rutledge Consulting Engineers (MRCE) maintains its only design office and geotechnical laboratory at 14 Penn Plaza, New York, NY. This permits efficient interaction by the Partner-in-Charge and staff members as the projects develop. The firm will perform all functions at this office aside from any required field work.

Each Port Authority project will be personally headed by a Partner. One of the firm's structural associates will act as the Project Manager and will oversee all functional groups and maintain project momentum to meet the completion schedule. The Partner and Associate will plan and schedule any field investigations, preliminary and final design for the projects, and identify the team members to successfully complete the project. Sub-contractors to accomplish inspections, test pits and other exploration will be selected, if required. An MRCE staff engineer will be present in the field on a full time basis to guide the sub-contractor's work efforts during the investigation. The Partner-in-Charge and/or the Project Manager will periodically visit the site and maintain constant contact with the project throughout the work.

Analysis, conceptual designs and final designs will be performed by the firm's structural staff engineers. The Project Manager will supervise staff engineers and coordinate the laboratory and drafting effort. Draftsmen and technical typists will be supervised by a structural Project Engineer. Laboratory work will be supervised by the Laboratory Manager, whose function will be to ensure quality control of the testing and coordinate the preparation of report exhibits of laboratory test results.

Project execution will be coordinated and managed by the Project Manager. The Project Engineer will conduct the day-to-day activities, and ensure uniform results and quality control. The Project Manager has overall responsibility for this activity. Support is provided by all of the appropriate groups: structural, geotechnical, drafting and laboratory, as well as sub-contractors. Project meetings will be conducted on a regular basis to coordinate and discuss the progress of the work. The client is requested to identify a project representative, so that decision-making and coordination responsibility can be established, information transmitted and project changes managed responsibly and expeditiously. The Project Manager interfaces with Partner-in-Charge on a continuing basis. The Partner-in-Charge participates in the development, review and approval of all recommendations, reports and contract documents.

MRCE reports will include descriptive text and appropriate illustrations in accordance with project needs and client requirements. The Port Authority will be kept appraised of investigation findings and recommendations during the progress of the work. A draft copy of

G

TAB G

MRCE AFFILIATES (NONE)

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

Mueser Rutledge Consulting Engineers (MRCE) maintains its only office at 14 Penn Plaza, 225 West 34th Street, New York, NY and has no affiliates.

H

TAB H

MRCE'S QUALITY CONTROL/ASSURANCE PLAN

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

MRCE will be a subcontractor to the primary engineering consultant for the project and we will comply with their plan. In general, we perform, review, and check our design packages as follows:

1. **Preparation and Review of Calculations**

   It is the policy of MRCE to have design calculations prepared in a professional manner by the engineering staff, and for those calculations to be checked by a higher level individual (senior engineer, supervisory engineer, associate, senior associate). The Partner-in-charge is responsible for verifying that the appropriate procedures for design, review and checking are being followed. The Project Engineer is responsible for developing design strategy and managing the ongoing design. This policy is applicable to all design calculations, computer analysis, design sketches, etc. Documentation includes red line mark-ups that are returned to the individual who made the calculations. The original calculations are corrected by the designer and the red line marks yellowed and returned to the checker for final verification. The initials of both the designer and checker are put on the original calculations.

2. **Preparation and Review of Contract Drawings and Specifications**

   It is the policy of MRCE to have contract drawings and specifications prepared, reviewed and checked prior to approval and final issuance of the documents. The Partner-in-charge is responsible for periodically verifying that the appropriate procedures for drafting are being followed. The Project Engineer is responsible for checking that the specifications and contract drawings conform to the objectives of the project and owner/agency requirements. Documentation includes red line mark-ups of drawings and specifications by the checker that are yellow lined after the corrections are made. The initials of both the drafter and the checker are put on the final drawings.

3. **Review of Shop Drawings**

   It is the policy of MRCE to review shop drawings for conformance with the contract plans and specifications. Documentation includes marking correct information in yellow and marking corrections in red. The red marks are put on the shop drawing with a disposition stamp that is dated and initialed by the reviewer.

I

TAB I

CONFLICT OF INTEREST

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

MRCE is presently providing geotechnical and structural foundation engineering services to the Port Authority or other related users / developers on numerous World Trade Center rebuilding projects.

Our role in these projects has been defined for the Port Authority and other than these projects at the World Trade Center, to the best of our knowledge we believe that no other conflicts or potential conflicts exist.

J

TAB J

STANDARD AGREEMENT

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

Please see attached letter with comments regarding the standard agreement and the RFP.

Mueser Rutledge Consulting Engineers

14 Penn Plaza • 225 W. 34th Street • New York, NY 10122
Tel: (917) 339-9300 • Fax: (917) 339-9400
www.mrce.com

October 9, 2008

Alfred H. Brand
Hugh S. Lacy
David M. Cacoilo
Joel Moskowitz
Peter W. Deming
James L. Kaufman
Roderic A. Ellman, Jr.
Francis J. Arland
Partners

George J. Tamaro
Peter H. Edinger
Elmer A. Richards
Edmund M. Burke
John W. Fowler
J. Patrick Powers
Consultants

Raymond J. Poletto
Thomas R. Wendel
Theodore Popoff
David R. Good
Domenic D'Argenzio
Walter E. Kaeck
Robert K. Radske
Harro R. Streidt
Ketan H. Trivedi
Hiren J. Shah
Senior Associates

Michael J. Chow
Alice Arana
Douglas W. Christie
Dong K. Chang
Anthony DeVito
Joel L. Volterra
Tony D. Canale
Frederick C. Rhyner
Jan Cermak
Gregg V. Piazza
Sissy Nikolaou
Pablo V. Lopez
Associates

Joseph N. Courtade
Director of Finance and Administration

Martha J. Huguet
Marketing Manager

The Port Authority of New York and New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010

Attention: RFP Custodian

Re: Proposal for Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2009 (RFP Number 16560)
<u>MRCE Port Authority Vendor Number 113631</u>
MRCE File No. P08-274

Dear Sir or Madam:

In accordance with your RFP for the performance of expert professional facility condition surveys for waterfront facilities as requested on a "call-in" basis during 2009, dated September 18, 2008, we include herewith our specific exceptions to select provisions of the PA Standard Agreement as follows:

1. PA Standard Agreement, Article 8, Paragraph A, "conditions for salary adjustments, subparagraph d):

   This requires MRCE annual salary adjustments to be in accordance with the Authority's salary rate increase policy. MRCE must make salary adjustments consistent with other firms providing similar services in private industry in the Port Authority's region to remain competitive and be able to provide the quality of service demanded by our clients.

2. PA Standard Agreement, Article 13:

   At the end of this provision, add "This section shall not apply to information in whatever form that comes into the public domain, nor shall it restrict the Consultant from giving notices required by law or complying with an order to provide information or data when such order is issued by a court, administrative agency or other authority with proper jurisdiction, or if it is reasonably necessary for the Consultant to defend itself from any suit or claim."

Exhibits

EXHIBIT I

SUBJECT: RFP #16560 - REFERENCE CHECK FOR MUESER RUTLEDGE CONSULTING ENGINEERS (MRCE)

Reference Firm Name: Albany Port District Commission

Address: 106 Smith Boulevard, Albany, NY 12202

Contact Name: Mr. Rich Hendrick, General Manager

Telephone: (518) 463-8763

E-Mail Address (of contact person): frichhendrick@portofalbany.com

Date of Service/Project Performance: 1984 – present (various projects)

Description of Services provided:
Port of Albany, Various Projects: MRCE has provided various structural and geotechnical services for the rehabilitation of the Port of Albany for over 20 years. For the most current project, MRCE is providing marine structural engineering services for a new wharf that extends from Shed No. 4 to Shed No. 5.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
3. Was the quality of the work product acceptable? Yes☐ No☐
4. Would you hire them again? Yes☐ No☐
5. If not, why not?
<Utilize this space to explain why you would not hire this firm again>

PLEASE RETURN FORM BY OCTOBER 9, 2008 TO:

The Port Authority of New York and New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010
Attention: Mary Lou Rivera, RFP# 16560

FORM MAY ALSO BE E-MAILED TO MLRIVERA@PANYNJ.GOV OR BY FAX AT (212) 435-3992.

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EXHIBIT I

SUBJECT: <u>RFP #16560 - REFERENCE CHECK FOR MUESER RUTLEDGE CONSULTING ENGINEERS (MRCE)</u>

Reference Firm Name: Hudson River Park Trust

Address: Pier 40, 2nd Floor, West St. at W. Houston St., New York, NY 10014

Contact Name: Marc Boddewyn, Vice President of Design & Construction

Telephone: (917) 661-8740

E-Mail Address (of contact person): mboddewyn@hrpt.state.ny.us

Date of Service/Project Performance: 2003 to present

Description of Services provided:
HRPT Pier 53 Rehabilitation and FDNY Marine Company 1 Firehouse, New York, NY MRCE provided structural foundation engineering and marine engineering services for the rehabilitation of Pier 53 (completed in 2003) and is currently providing marine engineering design services for the new pier structure to support new marine Company 1 Firehouse Building over water.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
3. Was the quality of the work product acceptable? Yes☐ No☐
4. Would you hire them again? Yes☐ No☐
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Reference Firm Name: Washington Group International (WGI)

Address: 1 Penn Plaza - 32nd Floor, New York, NY 10119-2901

Contact Name: Shah Habibullah, Proj Engineering Mgr, Bridges & Highway Design

Telephone: 212 268 3093

E-Mail Address (of contact person): shah.habibullah@wgint.com

Date of Service/Project Performance: 1999 - present

Description of Services provided:
Belt Parkway Bridges Rehabilitation and Embankment Widening, Brooklyn, NY: MRCE performed a geotechnical investigation of site subsurface conditions and established seismic design parameters for two NYCDOT bridges. For one, the Gerritsen Inlet Bridge, a 520-foot-long, 105-foot-wide 11-span bridge, MRCE established design recommendations and cost estimates for foundations and performed seismic crosshole and downhole tests.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
3. Was the quality of the work product acceptable? Yes☐ No☐
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Reference Firm Name: HNTB Corporation

Address: 5 Penn Plaza, 6th Floor, New York NY 10001-1810

Contact Name: Mr. Thomas J. Hicks, Project Manager
Telephone: (212) 594-9717

E-Mail Address (of contact person): thicks@hntb.com

Date of Service/Project Performance: 1999 - present

Description of Services provided:
Belt Parkway Bridges Rehabilitation and Embankment Widening Brooklyn, NY: MRCE performed a geotechnical investigation of site subsurface conditions and established seismic design parameters for two NYCDOT bridges. For one, the Mill Basin Bridge, an 865-foot-long, 14-span double-leaf trunion bascule bridge, MRCE performed services for the HNTB team. MRCE established design recommendations and cost estimates for foundations.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
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Contact Name: Marc Boddewyn, Vice President of Design & Construction
Telephone: (917) 661-8740

E-Mail Address (of contact person): mboddewyn@hrpt.state.ny.us

Date of Service/Project Performance: 2001 – 2012 (currently in construction)

Description of Services provided:
Hudson River Park - Segment 5 and Master Plan, New York, NY: MRCE performed geotechnical engineering and structural designs for various marine structures and waterfront treatments including pile-supported high level piers and platforms, new steel sheet pile bulkheads, pier repairs and bulkhead repairs for the Segment 5 phase of the Hudson River Park. . The new piers will be joined to an upland park.

FOR FIRMS:

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Reference Firm Name: STV, Inc. (Client)

Address: 225 Park Avenue South, New York, NY 10003

Contact Name: Bruce Jabbonsky, RA, Associate - Stations and Terminals
Telephone: (212) 777-4400

E-Mail Address (of contact person): bruce.jabbonsky@stvinc.com

Date of Service/Project Performance: 1993 - to present

Description of Services provided:
Hoboken Ferry Terminal Rehabilitation, Hoboken, NJ: The current project involves the design and development of contract documents for a three phase rehabilitation of the terminal. MRCE performed numerous underwater and geotechnical field investigations at the terminal, designed repairs for maintaining structures including bulkheads, relieving platforms, and buildings.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
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Reference Firm Name: N J Transit

Address: One Penn Plaza East, Newark, NJ 07105-2246

Contact Name: Frank J. Smolar, Director of Capital Projects
Telephone: (973) 491-7313

E-Mail Address (of contact person): fsmolar@njtransit.com

Date of Service/Project Performance: 1993 - to present

Description of Services provided:
Hoboken Ferry Terminal Rehabilitation, Hoboken, NJ: The current project involves the design and development of contract documents for a three-phase rehabilitation of the terminal. MRCE performed numerous underwater and geotechnical field investigations at the terminal, designed repairs for maintaining structures including bulkheads, relieving platforms, and buildings.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
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Reference Firm Name: George Harms Construction Co. Inc.

Address: 62 Yellowbrook Road, Howell, NJ 07731

P.O. Box 817, Farmingdale, NJ 07727-0817

Contact Name: Joseph G. Griffin, P.E.
Telephone: (732) 938-4004

E-Mail Address (of contact person): JGriffin@GHCCI.com

Date of Service/Project Performance: 2006 – present (Construction to be completed 2010)

Description of Services provided:
Reconstruction of Route 70 Bridge (September 11 Memorial Bridge), Brielle, NJ: MRCE is providing geotechnical and foundation engineering, including the design of temporary structures and evaluation of bridge pier foundation alternatives. MRCE designed temporary sheeting for deadman construction, as well as a temporary excavation support system. .

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
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Reference Firm Name: The Taubman Company (Management Firm)

Address: 200 E. Lang Lake Road, Suite 300, Bloomfield Hills, MI 48303-0200

Contact Name: Mark Bedell, AIA, VP of Engineering and Construction
Telephone: 248/258-6800

E-Mail Address (of contact person): mbedell@taubman.com

Date of Service/Project Performance: 2003 - 2006

Description of Services provided:
The Pier at Caesars, Atlantic City, NJ. MRCE provided geotechnical, structural foundation and marine engineering services for the transformation of the Ocean One shopping mall pier into the new Pier at Caesars shops. Services included modifications to the existing pier deck and foundations to accept the much larger new development scheme.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
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Reference Firm Name: New York City Department of Corrections

Address: 60 Hudson Street, 7th Floor, New York, NY, 10013

Contact Name: Mr. Hardee Saini, Director, Capital Policy & Dev., Div. of Engineering
Telephone: (212) 266-1825

E-Mail Address (of contact person): hardee.saini@doc.nyc.gov

Date of Service/Project Performance: 2000-2005

Description of Services provided:
Rikers Island Emergency Ferry Facility & Marina, Rikers Island, NY: MRCE designed a floating dock and anchorage for a 400-passenger ferry. MRCE also designed a fixed platform with pedestrian gangway to access the floating dock. This work was part of an emergency ferry facility. MRCE prepared contract documents for construction and permit applications and was also retained under a design-build contract to design a marina for the Harbor Unit.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
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SUBJECT: RFP #16560 - REFERENCE CHECK FOR MUESER RUTLEDGE CONSULTING ENGINEERS (MRCE)

Reference Firm Name: The Shaw Group, Inc. (formerly Stone & Webster, Inc.)

Address: 9201 E Dry Creek Rd., Centennial, CO 80112

Contact Name: Mr. O. Elmer Mitchell, P.E., Engineering Manager, Project Engineering
Telephone: 303.741.7549

E-Mail Address (of contact person): elmer.mitchell@shawgrp.com,

Date of Service/Project Performance: 2005 (Phase I)

Description of Services provided:
New Astoria Energy Plant, Astoria, NY: MRCE provided geotechnical and marine foundation engineering services for this new NY Power Authority Power plant. MRCE performed a bulkhead inspection and evaluation in preparation for the offloading of two approximately 6 million pound HRSG units. These units are a major component of the new Astoria Energy Power Plant and were fully constructed, piped, and outfitted in Indonesia and then shipped.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
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Reference Firm Name: Parsons (Client)

Address: 290 Elwood Davis Road, Liverpool, NY, 13083

Contact Name: Mr. Michael B. Broschart, Project Manager
Telephone: 315-451-9560

E-Mail Address (of contact person): Michael.Broschart@parsons.com

Date of Service/Project Performance: Ongoing

Description of Services provided:
Lake Onondaga Bulkhead, Syracuse, NY: MRCE designed a steel sheet pile bulkhead on the shore of Lake Onondaga. The bulkhead serves the dual purpose of being both a hydraulic barrier for environmental purposes, and serving as shoreline stabilization, in conjunction with rip rap slopes, for future adjacent permanent parkland.

FOR FIRMS:

1. Did the services provided meet the required schedule? Yes☐ No☐
2. Were the services performed within the estimated cost? Yes☐ No☐
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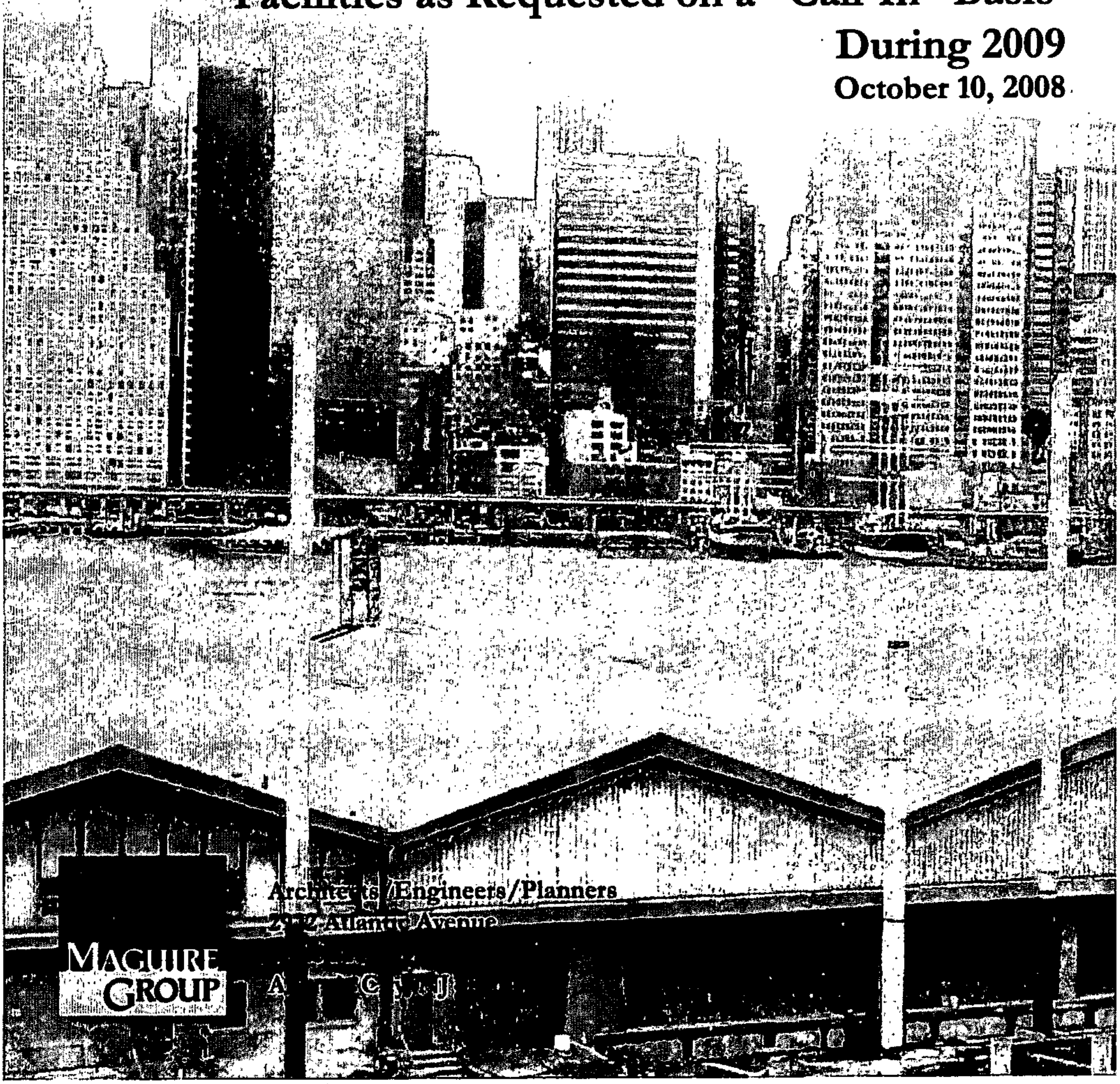
THE PORT AUTHORITY OF NY & NJ

RFP Number 16560

Expert Professional Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2009

October 10, 2008



Maguire Group Inc.
Engineers/Planners
2922 Atlantic Avenue
Suite 200-1
Atlantic City, NJ 08401
Telephone: (609) 304-4942
Fax: (609) 345-8683

October 9, 2008

The Port Authority of New York and New Jersey
One Madison Avenue, 7th Floor
New York, New York 10010

Attn: RFP Custodian

RE: RFP #16560
Request for Proposals for Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities As Requested on a "Call-In" Basis During 2009

Ladies and Gentlemen:

Maguire Group Inc. is pleased to submit one (1) reproducible original, three (3) copies and one (1) compact disc copy of our Proposal response to the Port Authority of New York and New Jersey for the above referenced project. Maguire has extensive experience in providing on-call engineering and management services to state, federal, municipal and private sector clients and is currently celebrating 70 years of success. We are proud of our previous work for the Port Authority and look forward to renewing our professional relationship.

Our Project Team is well known to the Engineering Department and includes experienced professionals in the disciplines of structural engineering, marine engineering, facility inspection, building evaluation and design support services. The team will be working under the direction of our Project Manager, Dino Fiscaletti, P.E. As a marine engineer, Mr. Fiscaletti has over 25 years of design, construction and management related experience.

Mr. Fiscaletti will be coordinating the efforts of our team and will be the primary point of contact for the Authority as he has been on several previous Port Authority assignments.

Complimenting Maguire's design and management staff to the on-call services, qualified and certified MBE/WBE firms, will be invited to perform specific tasks to achieve the Port Authority of New York and New Jersey 12% goal participation for MBE's and 5% to WBE's.

We appreciate the opportunity of responding to your request and look forward to the opportunity of working with the Port Authority in a Call-In capacity. Should you have any questions or require any additional information, please contact me or Mr. Fiscaletti.

Sincerely,
MAGUIRE GROUP INC.

Thomas Hevner, P.E., LSP
Vice President

TABLE OF CONTENTS

PROJECT TEAM

THE PORT AUTHORITY OF
NEW YORK & NEW JERSEY
RFP Number 16560
Condition Survey
CALL-IN Basis During 2009

QUALITY CONTROL/
QUALITY ASSURANCE

PROJECT MANAGEMENT

MARINE/STRUCTURAL

MBE/WBE SUBCONSULTANT
SUPPORT
Underwater Inspection
Other Support Disciplines as required

SUPPORT

Maguire's In-House Support Services
Mechanical – Electrical-Plumbing/Fire Protection – Water/Wastewater
Architectural – Transportation – Site/Civil – Construction Inspection

Team Billing Rates

Billing Rates for Employees

Name	Project Title	Hourly Rate
	Quality Control/Quality Assurance	$59.62
	Project Manager	$47.56
	Senior Project Manager	$44.88
	Team Leader	$44.35
	Structural Inspector	$46.05
	Structural Inspector	$36.06
	Structural Inspector	$43.46
	Structural Inspector	$41.48
	CADD Operator/Draftsmen	$36.68
	CADD Operator/Draftsmen	$38.75
	Geotechnical	$41.41

Maguire Group Inc. does not have a company policy for compensation for premium pay. Employees classified as non-exempt under Fair Labor Standards Act are paid at 1.5 times their standard hourly wage for every hour of overtime that they work, regardless of whether the overtime occurs on a regular work day, a holiday, a weekend or at night. CADD Operators, Designers and Administrative Assistants are non-exempt employees.

Project Managers, Engineers, Architects, Inspectors and other technical support staff not listed above are typically exempt employees who are paid at 1.0 times their standard hourly wage for every hour of overtime that they work, regardless of whether the overtime occurs on a regular work day, a holiday, a weekend or at night.

Condition Surveys and Engineering Services
The Port Authority of New York & New Jersey
Brooklyn Marine Terminal

Client: The Port Authority of New York and New Jersey (PANYNJ)

Project Features

- Condition surveys
- Geotechnical evaluations
- Bulkhead rehabilitation
- Contract documents
- Construction administration services
- Bulkhead rehabilitation
- Site *inspections/remediation* and demolition

Reference

Mr. Owen Lee
PANYNJ
973-792-4510

Cost: $7.6 million

Year of Completion: 1997-2005

A by-product of strict environmental regulation and the cleansing of the nations' rivers has been the re-introduction of marine borers to the New York/New Jersey waterfront. The abundance of timber-pile-supported structures in combination with improved water quality has created a near-perfect environment for these destructive creatures. Their return has put many of The Port Authority's older structures at risk. Under a "Call-In" contract with The Port Authority, Maguire Group was selected to help repel this most recent infestation and to extend the service life of many structures along the Brooklyn waterfront.

The efforts of The Port Authority and of Maguire resulted in four separate construction contracts. Maguire involvement started with performing topside condition surveys, supervising diver surveys, assessing conditions, formulating rehabilitation concepts, completing designs, and preparing contract documents and cost estimates. Our involvement continued through construction as we assisted The Port Authority's resident engineers by performing various construction administrative services such as reviewing shop drawings, responding to requests for information, and providing construction modifications to address changed conditions inherent in any rehabilitation project.

The program for the pier and platform rehabilitation took several forms. Where practical and economical, platform piles and pile caps were encased in concrete. At Pier 2, the degree of structural degradation in the low-level relieving platform prohibited repair. Roughly 4,000 square feet of relieving platform were demolished and replaced with a concrete structure supported on high-capacity steel-pipe piles. High-capacity piles were used to minimize the number of piles required to be driven in this obstruction-laden environment. At Pier 3 and between Piers 1 and 2, areas in need of repair were deemed no longer necessary for facility operations. Value engineering resulted in the removal of these platforms.

Condition Survey, Damage Assessment and Repair Design
Frederiksted RO/RO
Frederiksted, USVI

Client: Virgin Islands Port Authority St. Thomas

Project Features

- Condition Survey
- Wave evaluation
- Bulkhead restoration
- Shore protection
- Permits

Reference

Virgin Islands Port Authority (VIPA)
Mr. Dale Gregory
Director of Engineering
340-774-1629

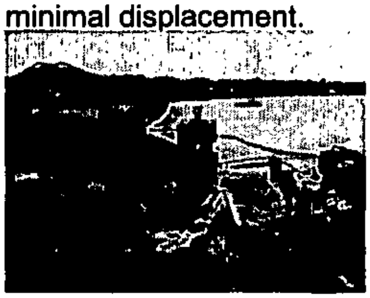
Cost: $1,115,000

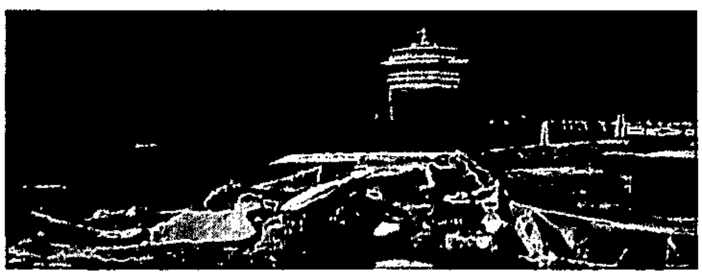
Year of Completion: 2003

The Frederiksted RO/RO Pier, located within the Ann E. Abramson Marine Facility, is a pile-supported concrete deck which transitions to a reinforced-concrete ramp. It is used primarily by inter-island cargo vessels which berth and load/off-load, "stern-to" the pier. The area adjacent to the pier is used for public ceremonies and as a welcoming area for tourists disembarking from cruise ships at an adjacent pier at the facility.

In November of 1999, this portion of the facility was severely damaged during Hurricane Lenny, a Category 4 storm with 150 mph (241 km/h) winds. The entire pile-supported deck was lifted off its pile bents, displaced and destroyed by the storm's wave action. In upland areas, concrete slabs-on-grade and pavements were severely undermined, leading to collapse. The shore protection was breached, leading to eventual failure and additional erosion of upland areas.

VIPA enlisted Maguire Group to survey and assess the damages, evaluate the site conditions, and design suitable repairs and improvements. A prime objective of site rehabilitation was to increase protection against future storm damage while staying within the Federal Emergency Management Agency's (FEMA) assessed budget for damages. This was accomplished by increasing the size of the armor stone in the shore protection scheme, extending cut-off walls to protect upland structures and pavements from undermining and erosion, and casting on-shore ramp sections monolithically so that they can withstand storm wave impacts while suffering minimal displacement.





Oak Bluffs Ferry Terminal Expansion
Martha's Vineyard, Massachusetts

Client: Woods Hole/ Nantucket & Martha's Vineyard Steamship Authority

Project Features

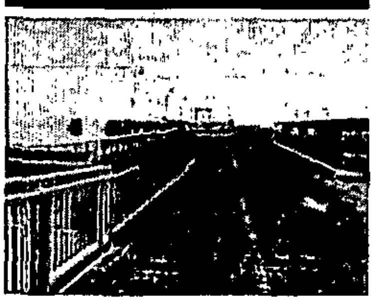
- Condition Surveys
- Facility Planning
- Federal, state and local permitting
- Intermodal facility
- Local public participation program
- Facility Expansion
- Site improvements
- ADA-accessible passenger walkway

Reference

Woods Hole/Nantucket & Martha's Vineyard Steamship Authority
Mr. Carl Walker, Director of Engineer
508/548-5011 ext. 288

Cost: $15,000,000

Year of Completion: 1999-2007



Maguire Group was selected to assist the Steamship Authority with the permit process and to prepare construction documents for the rehabilitation and modernization of the ferry terminal in Oak Bluffs.

The existing facility had suffered the pains of many years of use at this exposed location. The terminal required improvements to continue to efficiently accommodate its current level of use and to meet safety and security requirements. Several studies and investigations resulted in a number of improvement schemes. Public participation in the planning and permitting stages was high. The approved improvement scheme consisted of a reconfigured ferry slip with new berthing dolphins; transfer bridge and passenger accessways; widening of the existing pier to move vehicular staging off of the street and onto the pier; and a separate, covered, ADA-accessible passenger walkway to ease foot traffic and further isolate vehicles and pedestrians.

Maguire and our sub-consultants were involved from planning through construction, formulating and completing a subsurface geotechnical boring/testing program, performing traffic and parking studies, completing wave and littoral drift analysis, preparing all state and federal permit applications, providing architectural services and structural, marine, civil and electrical engineering and working with the Steamship Authority in the management of three separate construction contracts. A unique aspect of the project was the use of Spin Fin® piles, which proved to be an economical solution to obtaining the high-tensile capacity required of the berthing dolphin piles.

This project is the second ferry terminal to be completed by Maguire for the Steamship Authority. The first terminal was the Nantucket Ferry Terminal project done in 1983.

Condition Survey and Interim Shoring Design
Interstate Route 195
Providence, Rhode Island

Client: Rhode Island Department of Transportation (RIDOT)

Project Features

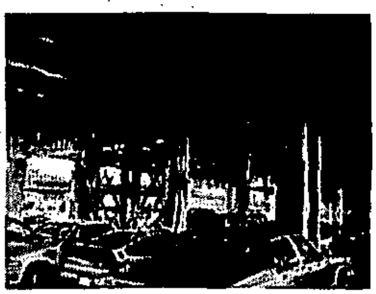
- Condition Survey
- Damage Assessment
- Interim shoring of piers on the 6-lane bridge
- Prepared contract documents and cost estimates

Reference

RIDOT
Mr. Kazam Farhoumand
401/222-2023

Cost: $300,000

Year of Completion: 2006



Maguire Group Inc. was responsible for performing condition surveys which led to the preparation of contract specifications and estimates for interim shoring of the piers on the 6-lane bridge which carries 195 over the Providence River. Shoring was designed for several of the adjacent bridges along I-195 as well. The project was intended to shore heavily deteriorated piers in the interim until their replacement by the relocated I-195.

Based on the routine inspections performed by RIDOT, identifying areas of heavy deterioration, a more thorough condition survey was performed by Maguire Group Inc. to identify the limits of the delaminated areas. These areas were tested and it was determined some areas needed to be shored to provide adequate safety to the traveling public. Maguire performed the design of the shoring based on the loads available from existing design calculations.

Maguire Group Inc was responsible for developing what has become the "standard shoring system" for use where substructure deterioration has necessitated the use of temporary supports. The painted structural tubing and slender bracing now used at many locations has replaced the bulky unsightly timber supports once used randomly to shore bridges and has significantly improved the visual impact and confidence factor perceived by the motoring public.

Maguire is equipped and prepared to perform the required services and to be responsive to the needs of the Port Authority. Through Maguire's extensive experience with the repair and rehabilitation of waterfront facilities and through our previous work with the Port Authority, we know how the engineer-owner relationship must work for it to be effective. The Port Authority needs only one key point of contact with Maguire; the Project Manager. The Project Manager will collect information, assess the needs of the Port Authority, and identify the key disciplines and personnel that should be involved in the tasks at hand. When the work involves condition surveys, the project manager will work with Maguire's Team Leader to formulate the necessary scope of work and develop a reasonable project schedule.

For the performance of condition surveys and the evaluation of field data, Maguire has assembled a team of professionals that all have experience, not only with waterfront facilities, but with the facilities of the Port Authority of New York & New Jersey. The director of the team and the primary point of contact for the Port Authority will be the Project Manager, Mr. Dino Fiscaletti. Since 1997, Mr. Fiscaletti has been involved, in some capacity or another, with nearly every task assigned to Maguire through our previous waterfront facility "Call – In Basis" contracts with the Port Authority. Mr. Fiscaletti has over 25 years of experience in the evaluation, design and management of marine projects.

In addition, we offer Mr. John Maynard, Senior Project Manager who will be available if the number of assignments exceeds the capacity of a single project manager. Mr. Thomas Hevner will act as the Quality Assurance/Quality Control Manager, and will oversee the work to see that it meets Port Authority and Maguire standards.

Maguire's Team Leader for the performance of condition surveys will be Mr. James Jackson. Mr. Jackson also has a wealth of experience with Port Authority projects.

Maguire understands the importance of a quick turn around and response in providing effective on-call services to the Port Authority and is proud of the service record provided to the Authority over most of the past eighteen years. Our management staff is committed to continue with the same timely service if selected for this contract.

Kick-Off Meeting

Upon notification of a potential assignment, Maguire's project manager will attend an initial meeting, at the Port Authority's offices or at the project site, to discuss the Authority's project goals, task order description, objectives, schedules, etc. The survey team leader and additional staff will also attend when directed by the Authority or if the complexity of the project requires additional design disciplines.

The Project Manager is the focal point for Port Authority communications, therefore, avoiding potential misunderstandings and assuring that he is aware of all issues. The Project Manager must work very closely with the Port Authority and the survey team to ensure all technical and financial issues are being addressed and to maintain budgets and controls for the project. The Team Leader will be expected to be in daily contact with the Project Manager.

In that an On-Call type program typically involves multiple Task Orders, it is suggested that the Project Manager meet/communicate bi-weekly to review and update the Port Authority on the progress and status of all tasks. Should it be useful, the Project Manager has available to him the resources of Maguire's Management Services Group, whereby multiple project and task schedules can be developed to assist the team and the Port Authority in monitoring and tracking of multiple tasks.

Maguire has completed an aggressive program in computerized information management systems. To facilitate the transfer of information to the Port Authority, Maguire can offer communication via teleconference, e-mail and the internet as we do with our affiliate offices.

Performance

The performance of condition surveys and the subsequent preparation of reports will follow the procedures outlined in Attachment A in the Request for Proposals. All work will be done in conformance with the Port Authority Guidelines for Condition Survey of Waterfront Structures. Condition surveys will be carried out in a systematic manner to maximize data collection and minimize field time. Objectives of the survey and planned usage of each facility will be established prior to planning the condition survey. Available information such as previous survey reports and drawings of record will be collected and reviewed. A preliminary reconnaissance of the facility will be conducted.

During performance of the survey, detailed notes and sketches will be maintained. Communication between the team leader and project manager will be made frequently and in no case les than daily. The condition survey procedure will be directed toward identifying and recording information in such detail as to allow for the development of appropriate course of action. Extreme or unforeseen conditions will be reported to the Port Authority immediately.

Should diver services be required, Maguire has extensive experience teaming with many metro region engineer/divers who are currently working with the Port Authority or who

The Maguire Corporation & Subsidiaries	
Company	**Address**
The Maguire Corporation	33 Commercial Street Suite 1 Foxborough, Massachusetts 02035
Maguire Group Inc.	33 Commercial Street Suite 1 Foxborough, Massachusetts 02035
East Atlantic Casualty Company, Ltd.	Craig Appin House 8 Wesley Street Hamilton, Bermuda HM11
L.B.C. & W., Inc.	33 Commercial Street Suite 1 Foxborough, Massachusetts 02035
CE Maguire North Carolina, Inc.	33 Commercial Street Suite 1 Foxborough, Massachusetts 02035
Maguire Group Architects, Inc.	One Court Street New Britain, Connecticut 06051
Maguire Group, Architects, Engineers, Planners, Ltd.	225 Chapman Street Providence, Rhode Island 02905

- The Committee Chairman will write a report on their findings and present this to the Project Manager in a meeting format. The Project Manager will respond to the Committee's findings both verbally and in writing.

CONTRACT DOCUMENT QUALITY REVIEW (80-85% Completion)

- A qualified committee of Engineers/Architects is assembled by the Location/Region who will perform the review. The same Committee who performs the Schematic/Preliminary Engineering Quality Review will perform this review.

- The Project Manager will make a presentation to the Committee describing the various design criteria used, determine what the anticipated costs are and also alternatives, if any, he/she investigated. Sufficient number of drawings, reports, etc., will be given to the Committee for their review.

- The Committee will be given sufficient time to review this phase of design for its technical quality and adherence to the previously determined design criteria.

- The Committee Chairman will write a report on their findings and present this to the Project Manager in a meeting format. The Project Manager will respond to the Committee's findings, both verbally and in writing.

SPECIFICATION QUALITY REVIEW

- The Project Manager sends to the appropriate Reviewing Location/Region, a copy of the Specifications and Contract Documents.

- The person reviewing the Specifications will make written comments and submit to the Project Manager.

- The Project Manager reviews comments and responds, in writing, as to how each comment was handled.

CONSTRUCTABILITY QUALITY REVIEW

- The Project Manager sends to the appropriate Reviewing Location/Region, a copy of the Specifications and Contract Documents.

- The reviewing Location/Region designates a qualified construction individual to review the project for constructability. This individual will write his/her comments and send them to the Project Manager.

- The Project Manager reviews comments and responds, in writing, as to how each comment was handled.

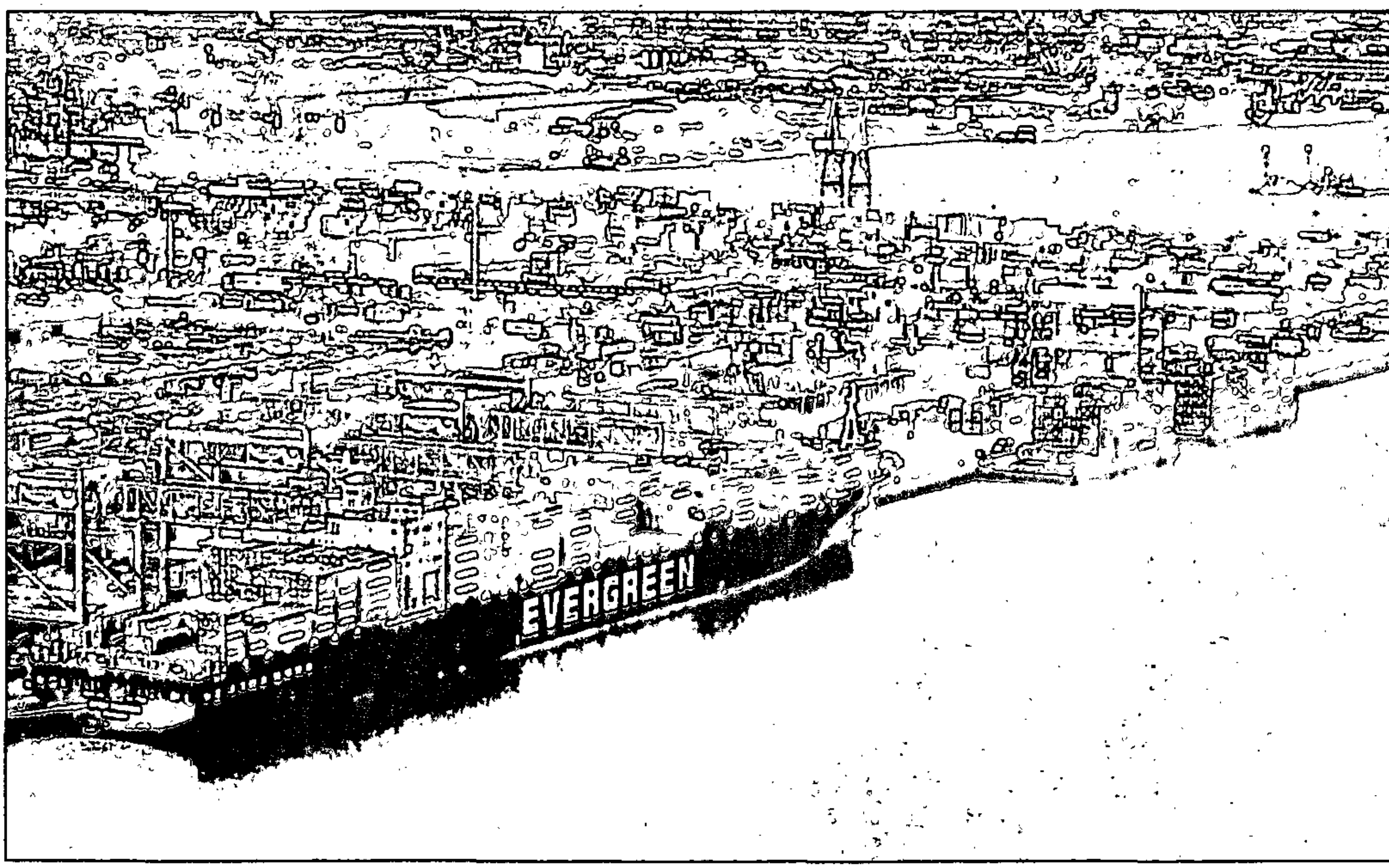
Proposal

Facility Condition Surveys for Waterfront Facilities Call-in Services during 2009

RFP Number 16560

THE PORT AUTHORITY OF NY & NJ

Port Authority of New York & New Jersey



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FAY, SPOFFORD & THORNDIKE

October 9, 2008

ENGINEERS
FST
Since 1914

FAY, SPOFFORD & THORNDIKE
111 John Street, Suite 245
New York, NY 10038
Toll Free: 866.378.6969
T: 212.233.0011
F: 212.233.6999
www.fstinc.com

October 7, 2008

Port Authority of New York & New Jersey
One Madison Avenue, 7th Floor
New York, NY 10010

Attention: RFP Custodian

**Re: Professional Facility Condition Surveys for Waterfront Facilities as Requested on a Call-In Basis during 2009
RFP Number 16560**

Gentlemen/Ladies:

Enclosed is **Fay, Spofford & Thorndike of New York, Inc.**'s response to your Request for Proposal for the above-referenced contract. FST has provided these on-call condition survey, inspection and repair services for Port Authority facilities for over 20 years. As a multidisciplinary firm offering expertise in structural, civil, mechanical and electrical engineering, as well as related supporting disciplines, we will staff these assignments with highly-qualified and experienced staff in a wide range of disciplines. Key staff have played lead roles on previous Port Authority assignments, and are thoroughly familiar with Authority design standards, operating procedures, methodologies, and performance criteria.

As requested, we have enclosed one reproducible original and three copy along with one CD of our proposal package. Our submittal includes resumes, Experience Tables detailing FST's work on previous condition survey assignments for the Authority, and descriptions of relevant waterfront inspection and repair projects.

We look forward to continuing our support to the Port Authority for this important program, and are available to respond to any additional inquiries you may have.

Very truly yours,

FAY, SPOFFORD & THORNDIKE of New York, Inc.
By

Robert E. Bertolino
Senior Vice President

ZB N8F33

PROPOSAL

Facility Condition Surveys for Waterfront Facilities on a Call-in Basis during 2009

Table of Contents

A. Attachment B-
Agreement on Terms
of Discussion

A. AGREEMENT ON TERMS OF DISCUSSION

ATTACHMENT B

The Port Authority's receipt or discussion of any information (including information contained in any proposal, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with, or after this letter, either orally or in writing, is not given in confidence and may be used or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this agreement, whether made as part of or in connection with any information received from us, or made at any other time in any fashion, shall be void and of no effect. This letter is not intended, however, to grant to the Port Authority rights to use any matter, which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Port Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Authority's Freedom of Information Resolution adopted by its Committee on Operations on August 13, 1992, not to disclose to any competitor of the undersigned, information submitted which deals with pricing or other financial matters, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a Proposal.

Fay, Spofford & Thorndike of New York, Inc
NAME OF COMPANY

SIGNATURE OF OFFICER

Senior Vice President
TITLE

October 9, 2008
DATE

B. Firm Multiplier and Overhead

B. FIRM MULTIPLIER AND OVERHEAD

Fay, Spofford & Thorndike of NY, Inc.'s multiplier for this contract with the Port Authority will be 2.62.

A schedule of the firm's overhead rates is found below.

(For the Year ended December 29, 2007)

	Percentage of Direct Labor Rate
Direct Labor	100%
Rent	28.27%
Absentee compensation	14.92%
Administrative compensation	14.77%
Payroll taxes	14.67%
Group insurance	10.39%
Supplies	8.47%
Proposal and negotiation compensation	7.94%
Professional services	6.47%
Auto and travel expense	4.96%
Proposal and negotiation expenses	4.01%
Depreciation and amortization	3.51%
Telephone	3.30%
Recruiting	2.95%
Rentals and maintenance	2.78%
Workman's compensation insurance	2.68%
Utilities	1.34%
Temporary help	1.30%
Meals	1.29%
Dues, memberships, and education	1.12%
Postage	1.04%
Miscellaneous	1.00%
Casualty and indemnity insurance	0.55%
Taxes miscellaneous	0.41%
Reproduction	0.21%
Tuition reimbursements	0.01%
Total Indirect Costs	138.36%

C. Project Staffing

E. Relevant Experience

E. RELEVANT EXPERIENCE

FAY, SPOFFORD & THORNDIKE of New York, Inc. is a consulting engineering and planning firm which provides the highest caliber of professional engineering services over a broad spectrum of disciplines. Projects include highways and bridges; transportation facility planning; airports; transit systems; waterfront facilities; wastewater collection, treatment, and disposal systems; storm drainage; water supply, distribution, and treatment facilities; environmental impact document and permit preparation; and military, commercial, and industrial buildings

FAY, SPOFFORD & THORNDIKE of New York, Inc. maintains offices in New York City and Farmingdale, NY; and Fairfield, NJ. Other offices are located in Connecticut, Massachusetts and New Hampshire.

The firm's professional staff (over 240 employees) includes professionals with expertise in planning, design, and construction monitoring for a wide range of projects. The staff is multidisciplined, with traffic, civil, marine, environmental, structural, electrical, and mechanical, engineers; landscape architects; transportation and environmental planners.

RELEVANT EXPERIENCE

FAY, SPOFFORD & THORNDIKE of New York, Inc., Inc. offers a particularly strong record of performance on as-needed services contracts. We have been selected by numerous state, federal, and municipal agencies to complete a wide range of services under this type of contracting vehicle. When original contracts have expired and the client has extended the term of services beyond that of the original contract, the firm has repeatedly been selected to complete further services.

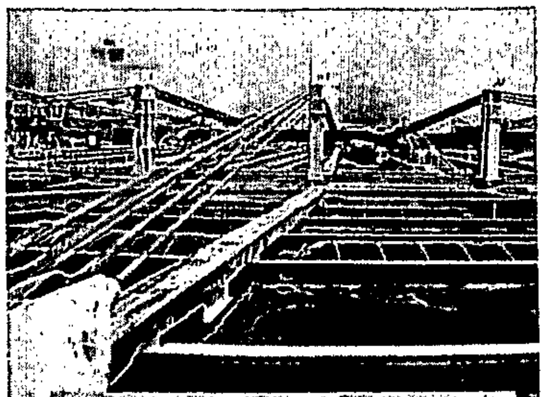
Our success with this type of demand-responsive contract has sharpened our ability to listen to and understand our clients' needs quickly; staff an assignment with qualified people; begin work immediately; and follow through to the task order's successful and timely conclusion. With the array of skills we have available in-house, we typically are able to staff most assignments entirely, which facilitates project start-up through complete implementation.

This background includes numerous assignments completed under on-call condition survey, civil, and traffic engineering services contracts with the Port Authority.




- **Architectural Systems**

Inspection of architectural elements and their supports for signs of structural distress including exterior facades, siding, panels, etc, and interior surfaces. Specialized inspections of suspended ceiling and soffit systems and evaluation based on current code criteria.



Roof Cable Suspension System
Terminal 3, JFK Int'l Airport

- **Utility Supports**

Evaluation of the structural support of utilities

- **Miscellaneous Items**

Determination of the condition of structural systems of miscellaneous items including signs and their attachments, retaining walls, canopies, baggage conveyors, mail conveyors, building cranes, etc.

- **Electrical/Mechanical Systems**

Electrical and mechanical systems are typically not requested for Quality Assurance Division surveys. However, we have this capability available if requested.

Through subcontractors, we have used a variety of mechanical lift equipment, scaffolds, boatswain's chairs, etc. to complete the inspection of elevated structures or elements. We have also made numerous ceiling openings, with and without ACM contamination, to inspect ceiling support systems and structural elements. Testing of materials and various types of weldment tests have been completed with the assistance of subconsultants.

Based on our field investigation, located deficiencies are categorized and assigned a repair status. Repair items are reviewed by the owner and incorporated into a maintenance plan or repair contract. Deficiencies that are of a high priority nature are classified as immediate or emergency repairs. FST personnel have developed rehabilitation design for emergency repairs on several occasions. We have worked as or with the owner's construction administration personnel to complete these repairs according to plan.

As has been the case with our previous contracts for this work with the Port Authority, the firm has completed a wide variety of assignments. Included at the end of this section is a table outlining the many work orders completed under these contracts within the past 10 years.

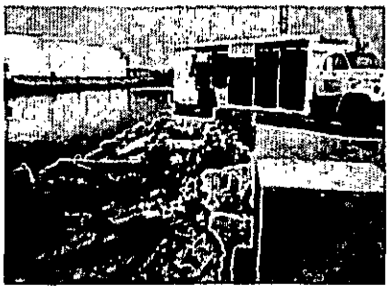
Following is an overview of the buildings inspected, to date, under this contract within the past three years:

New York Marine Terminal, Port Ivory, Staten Island

- Inspection of roof framing, Buildings 52, 53, 54, 55 & 56 (and over 30 buildings in the last ten years)

LaGuardia Airport

- Central Terminal Buildings – survey of expansion joints along Departure level roadway and Arrivals level ceiling



Waterfront Improvements
Union Beer Distributors

We applied our waterfront expertise to the Union Beer property in the Williamsburg section of Brooklyn along English Kills, a tributary from the East River. Once a site where commodities arrived by water, with the dominance of truck shipment, the waterfront facilities were unused and in a state of significant deterioration.

FST performed a condition survey including such elements as the bulkhead, seawalls, pilings, and rip rap, as well as utilities, and developed a condition report providing recommendations for the needed repairs to improve the overall safety of the facility.

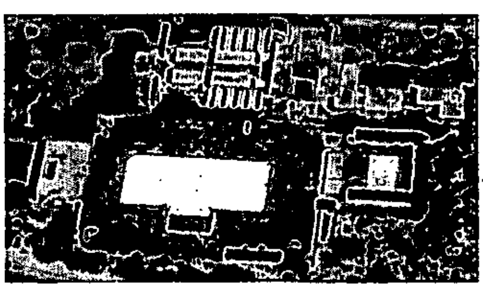
Subsequently, FST designed wharf repairs, a new sheetpile bulkhead, and drainage improvements. The bulkhead allows recovery of an area lost to erosion, which is now used for parking and maneuvering trucks. The bulkhead is anchored with steel tie rods connected to a sheet pile deadman system located behind it.

Repairs to infrastructure included replacement and repair of portions of the concrete seawall along the English Kills. The seawall and the soil behind it are supported by a timber platform, which is, in turn, supported by timber pile bents. Repairs were made to the piles, pile caps, and timber platform to increase the load carrying capacity of the platform.

The project included replacement of the existing yard storm drainage system to increase capacity. This involved regrading and repaving the yard. As well, various methods of protecting the existing building from flooding were assessed and preliminary details, developed.

Client Contact:
Michael Brophy
L. Knife & Sons
781.497.2407

Project Performance:
The project was complete in 2006



Heckscher State Park Pile Inspection
New York State Office of Parks, Recreation and Historic Preservation – Long Island Region

We are providing diverse services at a number of Long Island parks under our current on-call contract with the NYS OPRHP, primarily involving structural, mechanical, and electrical design.

Waterfront Facilities Term Contract
Massachusetts Port Authority

We are providing services related to the design of improvements and/or repairs to infrastructure at the Authority's maritime facilities.

FST is responsible for providing professional civil, structural, marine and other required services on an on-call, as-needed basis. Specifics include inspections, preparation of reports, studies, design, and development of contract bid documents related to improvements and/or repairs to pier and wharf structures, pavement systems or site utilities at the Authority's maritime facilities.

FST has performed the following tasks:

- Evaluation of the elevated concrete platform (TS1) for storage of container
- Conley Terminal building inspections for conditions and code compliance
- Chassis Repair Building inspection
- Prepared a variety of contract documents for an On-Call Construction contract
- Prepare fender panel cost estimate at Berth 12
- Investigate Berth 14 & 15 timber deck
- Investigate maritime facilities safety issues at Berths 14 and 15
- Partial pier demolition - Pier 3
- Prepared and engineering fee for the inspection of all waterfront facilities
- Prepared recommendations for repair of deteriorated pile supported slab of the Transit Shed
- Field investigation and report of two crane rail expansion joints at Berth 11
- Prepared an On-Call Construction contract for Maritime facilities
- Pavement design in the Refrigerated Container area (Reefer)

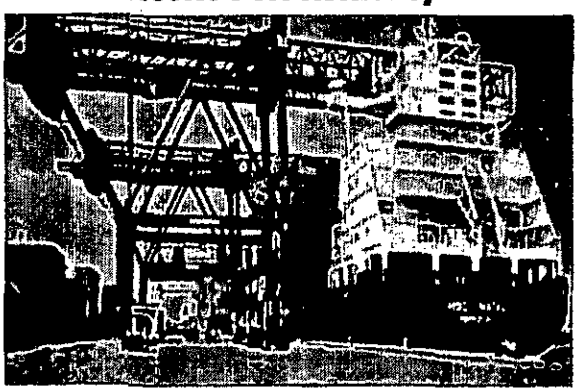
Client Contact:

James Donegan, P.E.
Massachusetts Port Authority
617.568.5975

Project Performance:

The project is a term contract that is on-going and will wrap up in 2011. We have been providing continuous service to Massport for decades.

Conley Terminal Conceptual Planning
Massachusetts Port Authority



We are providing Massport with conceptual terminal planning services for the Paul W. Conley Terminal to maximize container throughput capacity within the existing footprint plus an expanded footprint that includes the adjacent Coastal Oil property to the west. Improvements will be planned to minimize impacts on the neighborhood to the South, incorporate an efficient and high security gate operation at all phases of expansion, utilize existing structures when practical,

ENGINEERS FST Since 1914

meters for feedwater, condensate return, and soft water make-up for the Central Steam Plant condensate return system.

A major challenge was to complete the work with minimal disruption to existing operations. FST developed a construction sequencing plan along with identification of contractor laydown areas. FST prepared a comprehensive demolition plan for the 30' high boiler as well as a 130' tall and 4' diam. exhaust stack; and for the Pure Water Facility including a 2,000 gallon sulfuric acid storage tank; 4,000 gallon sodium hydroxide tank; 10,000 gallon waste neutralization tank; and regenerative demineralizers, pumps, and controls.

FST arranged and coordinated sampling and testing. Specifications also addressed removal and remediation of hazardous materials such as asbestos and lead-based paint.

Client Contact:
Mr. Greg Retzler (ACOE Phila District)
EFANE, U.S. Navy
215.656.6570

Project Performance:
The project is a term contract and was completed in 2003.

F. Management Approach

F. MANAGEMENT APPROACH

Drawing on our extensive and recent experience providing on-call services to port authorities, state and federal agencies, and municipalities, including the Port Authority, Fay, Spofford & Thorndike of NY, Inc. can immediately draw from a broad range of skills required in some cases for simultaneous completion of multiple work orders and tasks.

Efficient processing of projects requires effective communication and coordination among project team members and the contracting agency, as well as ongoing coordination with other agencies which may have control over particular elements of a project. At Fay, Spofford & Thorndike of NY, we have developed a proven management approach that allows us to coordinate and complete our work orders on time and within budget.

A firm basis for controlling the design of the project shall be established at an internal kickoff meeting. Topics which shall be discussed in-depth include the project scope, budget and schedule, design criteria, design standards, acceptable software, organizational setup of the project, chain of responsibility, control of project-related technical documents, and correspondence procedures.

A target schedule shall be prepared based on project milestones established in the Agreement and assigning a level of effort and time component to each task, consistent with the scheduling constraints of the project. This target schedule shall be monitored on a monthly basis and a recovery plan shall be initiated for any slippage from the target schedule. Schedule deviations caused by outside factors beyond the control of the project team shall be brought to the attention of the Port Authority.

PROJECT MANAGEMENT

Our team is led by the Project Manager who is responsible for the technical and administrative aspects of the contract. The Project Manager will assign Work Order Managers to individual assignments under the Call-In contract. Each Work Order Manager is responsible for all technical, performance, schedule, and administrative requirements specific to the particular assigned project. Work Order Managers are selected based on the technical requirements of the assignment, drawing from our multidisciplined staff. The Project Manager may also function in the capacity of Work Order Manager, as appropriate. The Project Manager and Work Order Managers collaborate to assign and supervise a sufficient number of appropriately skilled staff to ensure timely completion and the highest quality results.

The Project Manager is the principal point of contact for contractual matters, scoping issues, negotiation of fees, and reporting on overall progress. Reporting Work Order Managers will be responsible for daily conduct and progress of individual work orders, as well as interfacing with the client and end users on work order-specific matters.

PROJECT CONTROLS

Our management approach is a most effective method of assembling, mobilizing, and managing a multidisciplined team of experts under contracts of this type, which often call for the completion of multiple work orders concurrently. It incorporates required project monitoring and reporting to the

Thorndike of NY team. This information formalizes quality control record keeping and dissemination of information procedures.

COST CONTROL AND BUDGET REVIEW is the overall responsibility of the Project Manager, with Work Order Managers directly responsible to the QA/QC Manager for cost control and budget review on particular work orders. Labor and costs are monitored on a regular basis, as often as weekly in many instances, by these individuals and controlled on a daily basis by the Work Order Managers.

Anticipated changes or problems that may affect the scope, schedule, or costs will be presented promptly. The management team will work closely with the client's project manager(s) to identify the impact of the change or problem, as well as ways of managing and minimizing the impact.

Of particular importance is the *independent technical review* As part of our QA/QC, design calculations are checked by a staff engineer not involved in the project design. This independent review not only accomplishes the need check of the computations/ calculations, but also provides an unbiased evaluation of the methodology and approach for the design.

G. Firm's Affiliates

G. FIRM'S AFFILIATES

Fay, Spofford & Thorndike, Inc. is the affiliate of Fay, Spofford & Thorndike of New York, Inc. With our affiliated firm, Fay, Spofford & Thorndike of New York, Inc. is able to call on the firm's full resources of over 240 across a wide variety of disciplines.

H. Quality Assurance/Quality Control

H. Quality Assurance Quality Control Plan

QUALITY ASSURANCE / QUALITY CONTROL PLAN

September 2008

1.0 INTRODUCTION

The purpose of the Design Quality Assurance Program or Quality Control Program (QCP) is to control the quality of work and to ensure that the specified quality is achieved. The QCP will apply to the control of quality throughout all areas of the Contract.

2.0 ORGANIZATION

As a part of our project management structure, we have designated a Quality Control Principal, who is responsible for the overall administration and implementation of the QCP. He will designate a top level QAQC Manager fro each assignment and the QC reviews will be conducted under the direct control of the Manager so designated.

3.0 FIELD INSPECTION CONTROLS

A. Scope

The Field Inspection Control procedures prescribed herein are applicable to the field inspection and survey process

B. General Requirements

During inspection, Quality Assurance is achieved by:

- Pre-Inspection Education
  It is the Senior Engineer (Work Order Leader)'s responsibility to ensure that each team member is familiar with the construction details, design methodology, and key structural elements of the facility or structure under consideration.

- Review of Findings
  Inspection team members are instructed to inform the Work Order Leader of significant deficiencies and of possible deficiency situation which they do not understand. The team leader must also review field notes and photographs to insure that severe deficiencies have been identified.

- "Spot Checks"
  During the inspection process, it is the responsibility of the Work Order (Team) Leader to make random "spot checks" of the team members' work as the work progresses after the inspection is complete to determine the adequacy of the filed notes.

3. The Lead Disciplines Engineers will meet frequently with their design groups to review project procedures and to assure that their design groups follow Design Control procedures.

4. The Lead Discipline Engineers will affix their Professional Registration stamp to all drawings for which they are responsible in their field of expertise.

D. Design Deliverables Furnished by Subconsultants

Prior to submission, all Design Deliverables furnished to FST by Subconsultants will be reviewed by their firm's Lead Discipline Engineers for adherence to these Quality Control Procedures.

E. Corrective Action

Design not properly documented or not conforming to Project Procedures will be promptly identified by the Lead Discipline Engineers and forwarded to the Quality Control Manager with recommendations for corrective action.

F. Reports

Preliminary & Final Reports

The survey inspection and recommendation reports will be technically reviewed by the FST Project Manager and then submitted to the QAQC manager for independent review. For large volume reports, he will then select a senior engineer or project engineer who is completely unfamiliar with the project (and may be from one of FST's other offices to ensure an unbiased review) to perform a thorough detailed review of the report text including editing and cross referencing of the text, photos, and drawings, etc. We are committed to providing the Quality Assurance Division with a superior product in all aspects of the work.

G. Calculations

This procedure covers all design calculations prepared for the support of studies, analyses, detailed design, or other related investigations, and defines the requirements for documentation, handling and retention of calculations.

Preparation:

All calculations will be made on standard preprinted computation sheets or other special forms with proper labeling, references and documentation. Calculations will be prepared by engineers or designers, as assigned by the Lead Discipline Engineers responsible for the work. Calculations will be made in a neat and logical manner with sufficient notes to make the calculations easily understandable.

Calculations will be identified by company name, project title and job number, page number, name of person performing the calculations, date of calculation, name of checker, and date of check. The designer will begin the calculations with a cover sheet stating the design element, the methods used for the calculations, special data and formulae, and will list the applicable design criteria and assumptions and the sources for this information. Included will be specific references to the dates, editions, and revisions for all referenced codes and documents.

For computer calculations, computer input and output sheets along with a calculation cover sheet will represent the calculation. The name of the computer program, the name of the designer, checker, and dates will be included on a cover sheet for each computer run. Only approved computer programs will be used, as determined by the Lead Discipline Engineers and approved for use on the project by the

Discipline Engineers prior to proceeding with the checking.

Revisions:

All changes made after calculations have been approved will be made as revisions. Minor changes will be annotated neatly on the original calculations in a way that is clearly distinct from the original calculations. Annotation of the revision number will be made in the right margin in red, beside the parts of the calculation being revised. On the calculation's cover sheet, the originator will add the number the revision, give a brief description of the change and provide a signature and date. The Lead Discipline Engineers will verify that revisions have been checked and approved in the same manner as defined for the original calculations.

Major changes which cannot be annotated on the original calculation sheets will be prepared as new calculations, which supersede the original calculations. The designer responsible for preparation of the revision will annotate the original calculation's cover sheet, identifying the revision number and clearly noting that the original calculations are superseded.

Approvals:

When all comments and differences have been resolved between the originator and the checker, the checker will initial each calculation sheet and sign the calculation cover sheet indicating that the calculation is acceptable.

After the calculations have been signed by the checker, the Lead Discipline Engineers will determine that the calculations have been organized and checked properly, and that the results obtained by the designer and checker are in agreement, and within the acceptance criteria for the type of calculation performed. The Lead Discipline Engineers will then approve the calculations by signing the cover sheet.

Retention of Originals:

The original copy of active calculations will be put in a Project File by the Lead Discipline Engineers responsible for the design. The calculations will be placed in binders organized by subject and sequentially by calculation number. If the calculation to be filed supersedes another calculation, the superseded calculation will be marked void and placed immediately to the rear of the new calculation. While being developed, the calculations will be retained by the Lead Discipline Engineers until completion of design, at which time the calculations will be placed in the central Project File.

Checking prints of contract drawings will be retained until all corrections or revisions have been made on the original and backchecked. Intermediate and final check prints will not be destroyed without the approval of the Quality Control Manager.

5.0 DOCUMENT CONTROL

A. Scope

The Document Control Procedure applies to all documents received from the Port Authority and all documents generated by FST and our Subconsultants.

enclosures accompanying the correspondence. Correspondence will be filed chronologically by date of correspondence, the most recent on top. The original copies of all correspondence will be kept in these files.

Meeting Minutes:
There is a separate subject file for minutes of meetings. All FST and Subconsultant personnel who attend technical meetings will keep their own detailed notes concerning salient points of discussion. However, one official set of minutes will be prepared by a person assigned at the start of the meeting. The official minutes of in-house technical meetings, including meetings with Subconsultants, will be recorded by the convener or a designee named at the beginning of the meeting. All draft copies will be clearly identified as such. The final typed copy of the minutes will always be initialed by the preparer of the minutes. Minutes will be prepared in a timely manner, but not more than three working days after the meeting, and forwarded to the FST Project Manager for distribution to the appropriate personnel.

Minutes of meetings with the Port Authority and other agencies of the city, state, or federal government; private organizations; or the general public will be kept by a designated FST attendee.

Telephone Documentation:
Telephone discussions which involve coordination and technical issues, or address decisions, policy or contractual matters, will be recorded on a *Record of Telephone Call* form by the person handling the call. The record of call will be prepared and distributed as soon as the call is completed. The record will indicate the required distribution and file number. The distribution will always include participants in the telephone conversation, the Project Manager. Documentation of telephone calls is extremely important because it greatly improves communication, and avoids miscommunication.

I. Conflict of Interest

I. CONFLICT OF INTEREST

Fay, Spofford & Thorndike of New York, Inc. is not aware of any ongoing or pending contract with any agency or any other entity that would constitute a conflict of interest with this upcoming contract for the Port Authority.

J. Standard Agreement

J. STANDARD AGREEMENT

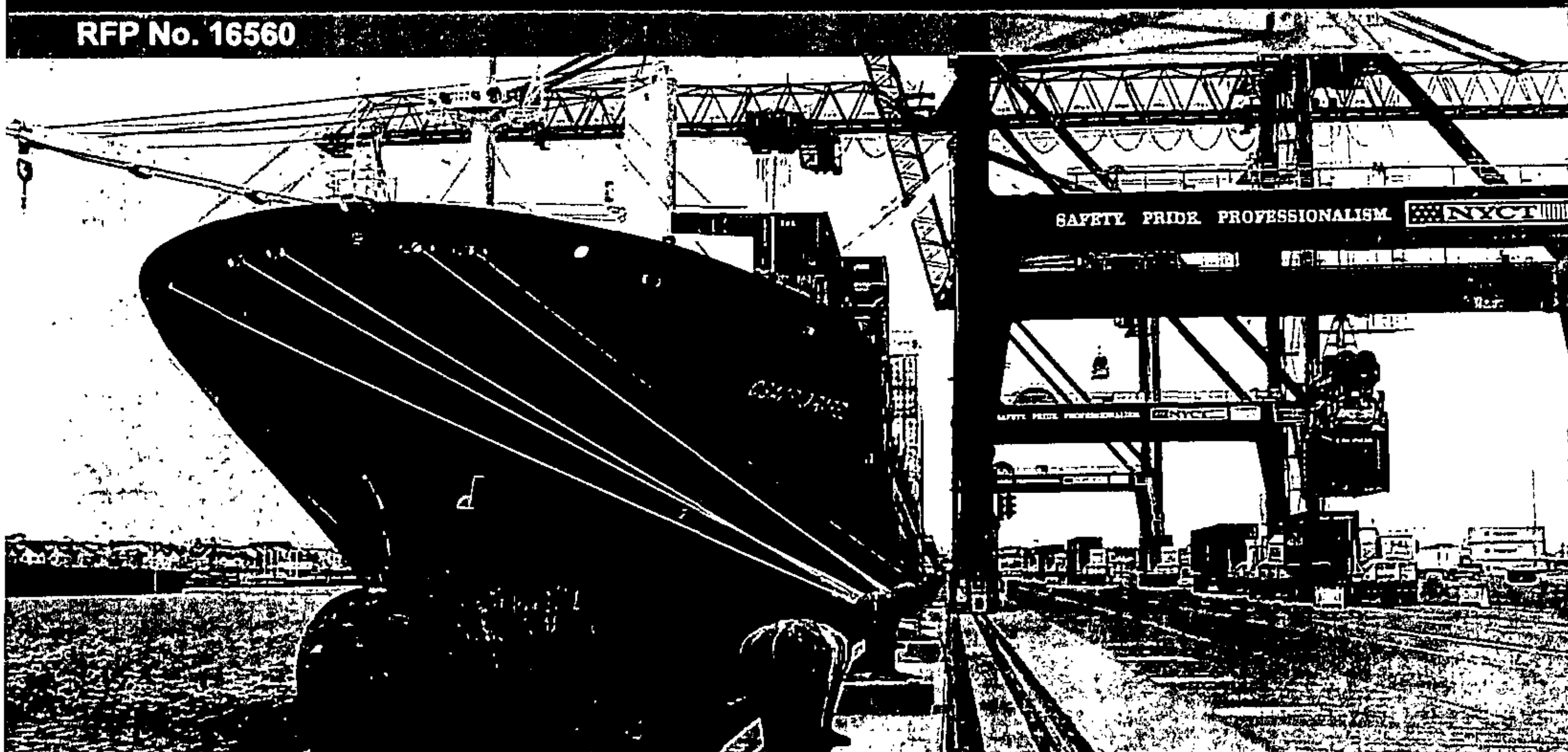
Fay, Spofford & Thorndike of New York, Inc. agrees with the terms and conditions of the Port Authority's Standard Agreement, and is prepared to complete the tasks for this contract as set forth in Attachment A to the Standard Agreement.

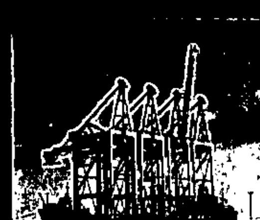
DMJM HARRIS | AECOM

Proposal for

Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "CALL-IN" Basis During 2009

RFP No. 16560





Submitted to
THE PORT AUTHORITY OF NY & NJ

Submitted by
DMJM+HARRIS, Inc.

ORIGINAL
October 9, 2008

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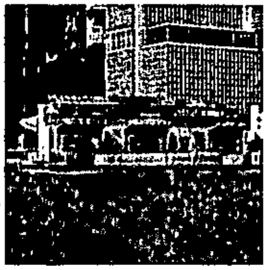
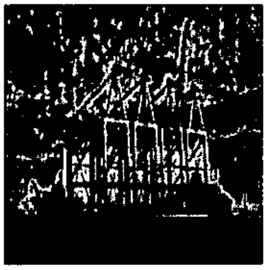
Proposal for
Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "CALL-IN" Basis During 2009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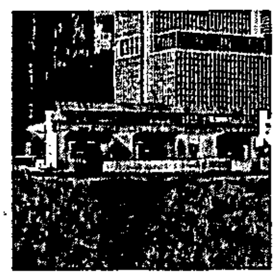
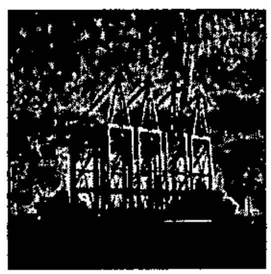
Certification Statement provided in a seperate sealed envelope.

Attachment B

Proposal for
Performance of Expert Professional Facility Condition
Surveys for Waterfront Facilities as Requested on a
"CALL-IN" Basis During 2009





ATTACHMENT B

PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2009

AGREEMENT ON TERMS OF DISCUSSION

: Port Authority's receipt or discussion of any information (including information contained in ' proposal, ideas, models, drawings, or other material communicated or exhibited by us or on behalf) is not to impose any obligation whatsoever on the Port Authority or to entitle us to ' compensation therefor (except to the extent specifically provided in such written agreement, ny, as may be entered into between the Port Authority and us). Any such information given he Port Authority before, with, or after this letter, either orally or in writing, is not given in ifidence and may be used or disclosed to others, for any purpose at any time without igation or compensation and without liability of any kind whatsoever. Any statement which inconsistent with this agreement, whether made as part of or in connection with any ormation received from us, or made at any other time in any fashion, shall be void and of no ect. This letter is not intended, however, to grant to the Port Authority rights to use any tter which is the subject of valid existing or potential letters patent. The foregoing applies to ' information, whether or not given at the invitation of the Port Authority.

twithstanding the above, and without assuming any legal obligation, the Port Authority will ploy reasonable efforts, subject to the provisions of the Authority's Freedom of Information solution adopted by its Committee on Operations on August 13, 1992, not to disclose to any npetitor of the undersigned, information submitted which deals with pricing or other financial tters, which may be disclosed by the undersigned to the Port Authority as part of or in nection with the submission of a Proposal.

DMJM+HARRIS, Inc.
NAME OF COMPANY

SIGNATURE OF OFFICER

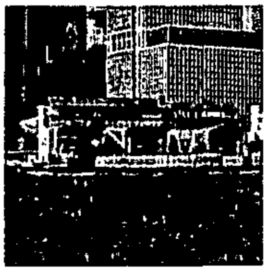
Abbas Sarmad, PE
PRINT NAME OF OFFICER

Vice President
TITLE

October 8, 2008
DATE

Cover Letter

Proposal for
Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "CALL-IN" Basis During 2009



DMJM HARRIS | AECOM

HARRIS, Inc.
Avenue, New York, New York 10158
'3-2900 F 212-973-3000 www.dmjmharris.com

r 9, 2008

rt Authority of New York and New Jersey
adison Avenue, 7th Floor
ork, NY 10010
on: RFP Custodian

FP Number 16560: Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities uested on a "Call-in" Basis During 2009

ir/Madam:

Harris is pleased to submit our proposal to provide engineering services for the above referenced project. We our qualifications make us well suited to perform on-call services for the Port Authority for these reasons:

JM Harris is a world-renowned, multi-discipline engineering firm with full service capabilities housed in our New rk City headquarters. Since our inception in 1927, and as ENRs #2 ranked company amongst the Top 10 Marine d Port Facilities Design Firms, we bring demonstrated local, national, and worldwide experience in the condition aluation of waterfront facilities through an outstanding staff of planners, designers, engineers, construction special-s, and support personnel.

supplement and assist our staff with the inspection of underwater elements our team includes Boswell Underwater gineering, the marine division of Boswell Engineering, with a highly qualified staff specifically committed to inspect-j and evaluating the condition of submerged components of marine structures. Boswell possesses one of the larg-t staff of engineer-divers and commercial inspector divers, and is ranked amongst ENRs top 500. Since 1987, the ique Underwater Engineering Division of the Boswell organization has completed over 800 marine related projects, ny of which involved the assessment and rehabilitation of waterfront facilities, submerged structures, and marine d ferry terminals.

e believe that we are well qualified for this project based upon the hands-on experience of our staff on similar spections and evaluations on dozens of waterfront structures, both for the Port Authority and local metro area agen-es, and world-wide as demonstrated by a few of our more recent and salient projects that are described herein.

pacity to Perform: DMJM Harris maintains an experienced and knowledgeable staff of over 2,400 professionals. All y staff proposed for this project are among the 800 employees located in the NY/NJ metro area. If necessary, we ve the ability to draw from over 41,000 employees within the AECOM family of companies of which we are a part. JM Harris provides clients with an unusually broad spectrum of services, ranging from port and harbor planning, ndition surveys and feasibility studies, through design and into construction, start-up and operation. DMJM Harris kes great pride in providing a staff that will fulfill the requirements and demands of the Port Authority of NY & NJ. e firm also realizes that the staff will serve as an extension to the Port Authority's personnel and is there to assist in y capacity needed. Specifically, DMJM Harris has assigned to this project many of the same personnel that have orked on the previous waterfront facilities call-in projects. This will provide the PANYNJ with a project team that is miliar with many of the project sites and thoroughly knowledgeable of your needs and requirements. The Authority s always had and will continue to receive our firm's top priority.

r staff has extensive experience managing projects within the NY/NJ region. Our designated project manager, hn Carel, is a registered PE in NY and NJ and has over 35 years of experience managing the evaluation, design, gineering, and construction of marine structures. Supporting John is an experienced team of professionals and ns that has:

Multiplier

Proposal for
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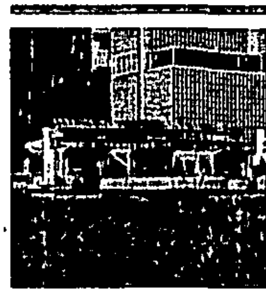
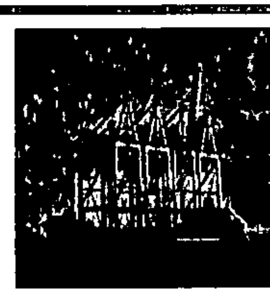


ltiplier

IJM Harris Schedule of Burden Fringe and Overhead Costs FY07 (FY Ending 3/28/07)Government Overhead Rates (Excluding unallowables)		
:T LABOR	**$90,074,263**	**100.0%**
)LL BURDEN AND FRINGE		
'ENSATED ABSENCES	$14,316,936	15.9%
)LL TAXES	$9,666,418	10.7%
(ERS COMPENSATION	$401,102	0.4%
ANCE AND OTHER	$8,789,642	9.8%
)RMANCE AWARDS (1]	$3,004,526	3.3%
ION EXPENSE	$3,058,490	3.4%
K MATCH	$2,180,838	2.4%
R EMPLOYEE BENEFITS	$688,630	0.8%
ANCE		
L	**$42,106,583**	**46.7%**
ECT/OVERHEAD LABOR (1]	**$25,626,928**	**28.5%**
ECT/OVERHEAD NON LABOR		
:E RENT AND OCCUPANCY COSTS	$17,080,094	19.0%
'MENT RENTS & LEASES	$4,373,209	4.9%
ANCE	$5,520,404	6.1%
AND PROFESSIONAL SERVICES	$4,925,518	5.5%
'M/ASG ALLOCATIONS [1]	$7,613,731	8.5%
STATE + LOCAL INCOME TAXEX	$374,928	0.4%
:, PLANT, & EQUIP-DEPRECIATION	$1,616,369	1.8%
:E SUPPLIES / REPRODUCTION	$2,840,486	3.2%
IUNICATIONS	$1,766,029	2.0%
EL	$5,439,544	6.0%
OYEE RELOCATION	$195,908	0.2%
R TAXES	$1,099,543	1.2%
/LICENSES/PUBLICATIONS	$523,509	0.6%
OYMENT SERVICES	$404,457	0.4%
IRS & MAINTENANCE	$1,743,593	1.9%
R BENEFITS	$3,105,236	3.4%
)VERIES AND MISCELLANEOUS	$(1,255,449)	-1.4%
L	**$57,367,111**	**63.7%**
L INDIRECT/OVERHEAD COSTS	**$125,100,621**	**138.89%**
(CLUDES COMPENSATION> 597,912		
IT		**10%**
IPLIER		**2.63**

Multiplier Breakdown:

Direct Labor:	100%
Components of Overhead:	
Payroll Taxes	12.8%
Group Insurance	5.7
Paid Leaves	17.7
Indirect Salaries	53.8
Profit Sharing	1.2
Depreciation	3.9
Insurance	10.4
Auto Expense	5.9
Rent	3.1
Utilities	1.7
Professional Fees	4.5
Dues & Subscriptions	2.9
Office Supplies	11.0
Maintenance	1.6
Telephone	2.9
Engineering Supplies	1.7
Miscellaneous Taxes	1.1
Miscellaneous	0.7
Reimbursed Costs	2.4
	145%
Profit:	**10%**

Multiplier = 1.10 x (1.00 + 1.42) = 2.70

ınder previous "call-in" contracts with the PANY & NJ, penetration dive premiums will be applied for projects ıiring lateral penetration dives into enclosed spaces fully inundated with water or into enclosed environments such ;ewer lines which present highly contaminated conditions (See the BUE Schedule of Lateral Penetration Dive Rates ıe Appendix).

ALTY EQUIPMENT RATES

	RATE
Workboat	37.50/hr.
ɔoat (less than 25-ft.)	27.50/hr.
/ideo Camera System (Color)	250.00/day
ıs 1 UT Gauge	150.00/day
ıal Recording Fathometer	250.00/day
ete & Wood Coring Equipment	300.00/day
Steel Cutting Equipment	300.00/day
blaster (3000 psi)	150.00/day
Jet Pump	250.00/day
ting Equipment	300.00/day
IAT Diver Encapsulation Gear (for diving contaminated environments)	250.00/day
ential GPS or Range-Azimuth System with Thermal Recording Fathometer	580.00/day

Technical Qualifications of Personnel/Organization Chart

Proposal for
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Surveys for Waterfront Facilities as Requested on a
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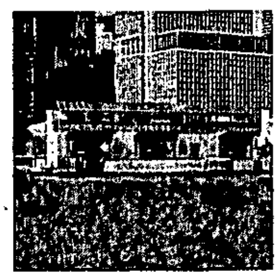
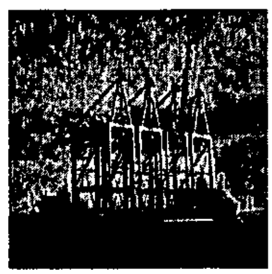


Resumes

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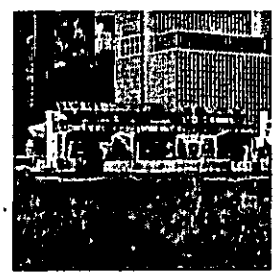

Hourly Rates

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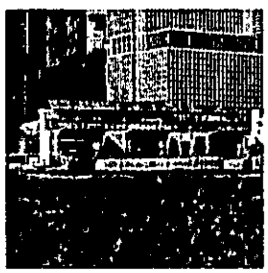
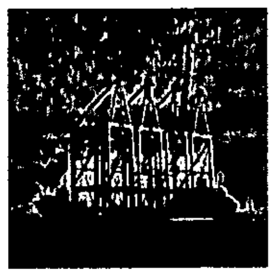


posed Rates

nnel	Classification	2008 Base Salary ($/Hr)	Billing Rate Multiplier 2.63
and Geotech			
	Engineer	$42.28	$111.10
	Senior Geotechnical	$47.47	$124.74
	Sr. Project Manager	$81.11	$213.14
	Engineer	$41.35	$108.66
	Engineer	$50.35	$132.31
	Engineer	$37.09	$97.46
	Drafter	$36.32	$95.44
	Senior Geotech	$53.85	$141.50
	Technical Manager	$58.74	$154.35
	Project Engineer	$48.89	$128.47
	Drafter	$33.60	$88.29
	Construction Manager	$61.28	$161.03
	Project Engineer	$50.53	$132.78
	Engineer	$46.22	$121.45
	Project Manager	$67.10	$176.32
	Technical Manager	$72.12	$189.51
	Project Officer	$89.29	$234.63
	Project Engineer	$55.24	$145.16
	Project Engineer	$63.17	$165.99
	Project Engineer	$50.07	$131.57
	Engineer	$28.86	$75.84
	CADD Manager	$41.13	$108.08
	Technical Specialist	$24.48	$64.33
	Engineer	$33.81	$88.84
	Drafter	$37.36	$98.17
	Drafter	$38.46	$101.06
	Project Manager	$58.35	$153.33
	Project Engineer	$53.37	$140.24
	Geotechnical Lead	$74.75	$196.42
	Engineer	$34.07	$89.53
	Project Officer	$160.00	N/A Bill Base
	Project Manager	$63.56	$167.02
	Project Manager	$59.82	$157.19
	Engineer	$55.11	$144.82
	Engineer	$43.77	$115.02

nnel	Classification	Current Unburdened Office Rate
	Chief Structural Engineer/QC Engineer	68.28
	Structural Engineer	57.50
	Structural Engineer	34.45
	Technical Engineer	31.12
	CADD Operator	24.08

Specific Relevant Experience

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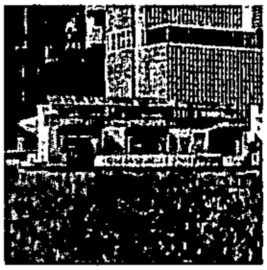
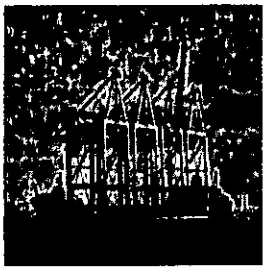




Specific Relevant Project Experience

Pier for Kuwait National Petroleum Company *Kuwait City, Kuwait*

s Involved: DMJM Harris
Completion: 2006 / 2007
$10 million
Contact: Ibrahim Al-
i, Kuwait National Petroleum
any, KSC
5-398-6574

DMJM Harris Services:

Inspected and designed measures to allow the existing South Pier, which was designed to berth medium size tanker vessesl, to permanently moor very large LNG vessels. Both the pier head and the approach trestle were inspected both above and below water, as well as the independent mooring & berthing dolphins located in front of the pier. *The 50-year old pier was found to be inadequate* to resist the large berthing and mooring loads, which led to the conceptual design of new structures, independent of the pier.

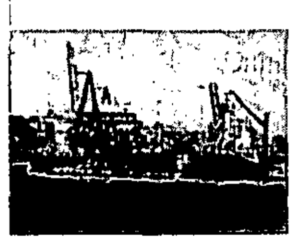
International Terminals, Berths 3 to 5 and 6A to 6D Oriental Berths 3 to 6 Occidental, East and West water *Puerto de Haina, Dominican Republic*

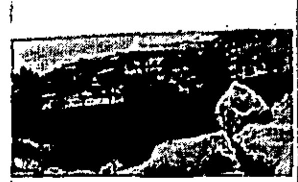
s Involved: DMJM Harris
Members:
Completion: 2008/ongoing
$45 million (Total)
Contact: Armando Rivas,
International Terminal
37 6154

DMJM Harris Services:

Performed rapid inspection and prepared cost estimates for the repair of container and general cargo berths along both sides of the Haina River at the Port. A condition survey report was prepared for the Terminal; documenting immediate, priority and routine repairs of the facilities. Field surveys were performed to obtain details of the existing construction for the purpose of developing repair details and recommendations for which record drawings were unavailable.

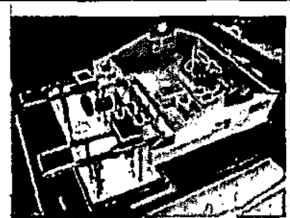
Structure types included both high-level prestressed concrete pile supported platforms, steel sheet pile bulkheads with and without narrow marginal outboard marginal concrete platforms supported on concrete piles. Construction repair and replacement cost estimates where also prepared in menu form in order to allow repairs to be selected and phased as deemed appropriate for the Terminal's needs.





Specific Relevant Project Experience

ɜ Transfer Station Program *New York, NY*

ɪs Involved: DMJM Harris **Completion:** 2003/ .g $450 million **Contact:** Walter tacky New York City tment of Sanitation (212))39	**DMJM Harris Services:** • Design of six (6) replacement access ramp structures with new alignment to the proposed new marine transfer station • Complex ramp structures are located in the Hudson River and East River, and are designed for tractors and equipment loads greater than HS25 truck • Due to the constraints of the property lines, these curved *ramps have very tight radius. The proposed ramp* structures will be cast-in-place concrete box girders, supported by concrete piers on steel pipe piles and drilled shafts. • Responsibilities included all ramp structures, marine structures, foundations, fenderings, slip layouts, dredging, marine foundations,mechanical engineering, electrical engineering, architecture, MPT and construction phasing and packaging.	

'ork Cruise Terminal (Piers 88, 90 and 92) *New York, NY*

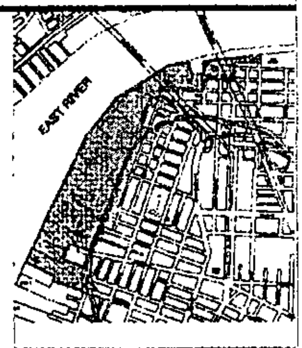
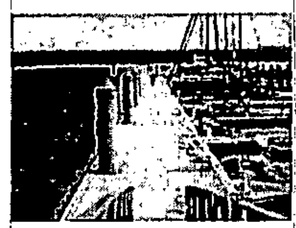
ɜs Involved: DMJM Harris **' Completion:** 2008 / ɪg $55 million **: Contact:** Dmitri Konan :DC) (212) 312-3847	**DMJM Harris Services:** • Services included inspection & evaluation, design & construction management • Long term preservation of 1930s vintage piles • Selected pile preservation method consisted of epoxy encapsulation • Previous pile repairs consisted of pile wraps • Multi-phases of construction within on-going cruise operations	 

Specific Relevant Project Experience

ın Meridian *New York/New Jersey*

ıs **Involved:** DMJM Harris, ·ll **Completion:** 2007 / 2008 $2.5 million **Contact:** Peter Casler n Meridian (212) 608-6600	**DMJM Harris Services:** Inspection of waterfront facilities (piers, bulkheads, ferry float), development of permit documents, development of design documents for maintenance and repairs, services during construction are pending.	

:lyn Bridge Park *New York, NY*

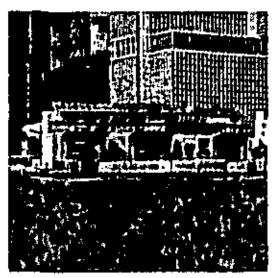
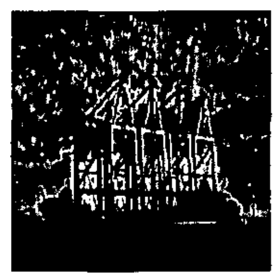
ıs **Involved:** DMJM Harris **Completion:** 2002 / 2013 $200 million **Contact:** Paul A. Seck yn Bridge Park Development ration (212) 243-2506	**DMJM Harris Services:** DMJM Harris is supporting the development of a comprehensive master plan, environmental impact statement, permitting and complete design for approximately 50 acres of Brooklyn Waterfront that extends approximately 3 miles along the shoreline from just north of the Manhattan and Brooklyn Bridges south to the Port Authority of New York and New Jersey pier structures one through six. DMJM Harris' site investigation services includes topographic, location, utility and bathymetric surveys, CCTV inspection of existing utilities, underwater inspection of pier and bulkhead conditions and geotechnical borings. DMJM Harris' engineering work includes marine, civil, electrical, plumbing and geotechnical services. The types of infrastructure elements include new fixed pier structures, wave attenuation features such as wave fences and floating walkways, water taxi landings and sheet pile bulkheads. Additional project features include selective pier demolition, bulkhead modifications including new revetments, the creation of shallow water habitat and the provision of utility services throughout the park as necessary.	

s 1 through 9 and Dry Cargo Berth at Hovensa Refinery *St. Croix, USVI*

es **Involved:** DMJM Harris / **Completion:** 2005 / 2007 $5 million t **Contact:** Sloan Schoyer, ısa, LLC (340) 692-3520	**DMJM Harris Services:** Inspected and designed measures to rehabilitate Docks 1 through 9 and the Dry Cargo Berth at the Hovensa Refinery in St. Croix, USVI. The work included both above and below water inspection of existing structures at the docks, preparation of design details to rehabilitate or upgrade as necessary, provision of new fender system at selected locations, prepartion of permit packages and bid documents.	

Management Approach

Proposal for
Performance of Expert Professional Facility Condition
Surveys for Waterfront Facilities as Requested on a
"CALL-IN" Basis During 2009


Management Approach

ntroduction

his section describes the Management Approach which vould be followed for performance of Facility Condition Surveys for Waterfront Facilities on a Call-In Basis during 2009.

he basic tenet of project management rests in a single vord: **COMMUNICATION.**

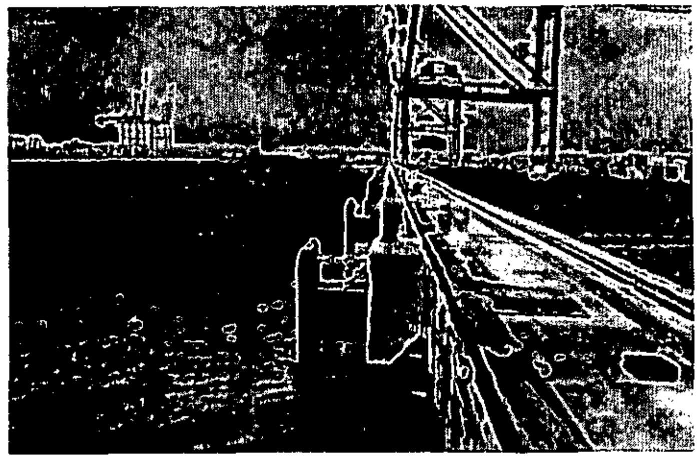
he DMJM Harris Team possesses the capabilities and ools to provide this communication. Each participant must now his/her role in the process and must understand precisely what is expected of him or her, not only in terms of technical and/or administrative prowess, but also in how his/her role impacts the schedule and budget.

t is the Project Manager's responsibility to define and communicate each of the roles this team will play, to set schedules and budgets and convey same to the team, to nstill in his team the need for the highest level of professionalism, and to monitor team's performance as the project progresses. He must be fully cognizant of what is happening at all times and have the innate sense to detect deviation from the plan and the skill to get the project back on track when the inevitable disturbances occur.

Our management philosophy demands a hands-on approach on the part of the Project Manager. He is responsible for all phases of an assignment and is given the appropriate authority to back up that level of responsibility. He is assisted in their management role not only by the engineers in each discipline, but also by administrative support commensurate with the size and complexity of the project. The Project Management Team will be supported by a full staff of technical and administrative personnel to ensure the successful and on-time completion of this project.

The exceptional team of professionals assembled for this project brings together the specialized technical expertise, knowledge of the Authority procedures, and extensive local resources essential for its success.

> The basic tenet of project management rests in a single word: *COMMUNICATION.*



Essential Elements of the Management Plan/ Philosophy

The DMJM Harris Management Plan includes the essential elements to achieve the successful performance of Call-In Waterfront Facility Condition assignments. These include:

- Establishment of an engineering organization with well-defined duties and responsibilities and clearly defined lines of authority and communication
- Staffing of each assignment with qualified and experienced personnel
- Close and timely supervision of all personnel in the performance of their duties
- Preparation of complete and concise project activities and methodologies required to complete the assignments' tasks
- Establishment of project objectives and goals and deadlines for their achievement; delegation of defined individual project tasks to appropriate project personnel and follow-up actions to ensure assigned tasks have been successfully accomplished.
- Continuous review and updating of project objectives to reflect the current status of the project work
- Establishment and operation of a document system to record all required project data, store this data in defined locations, log its content and location, track its progress through the system, flag required actions and retrieve when required

The successful completion of any assignment
equires a complete understanding and appreciation
of condition evaluation of marine structures...

- Construction methods and materials which may be successfully used for repair or rehabilitation
- Scheduling of construction to ensure continued use of a facility while repair or rehabilitation is completed

Prior to beginning the work, the assignment scope is eviewed. Our standard practice is to work with key Authority staff beginning with a kick-off meeting at which expectations regarding roles and responsibilities, prior work products such as previous reports, simultaneous work efforts underway, issues and concerns regarding process or products, and any general thoughts or ideas would be set to progress the work effort. Our Project Manager will then develop a Project Work Plan (PWP) structured to define and maintain control of every task from initiation through completion for review by the Authority. This provides the basis for establishing goals and priorities, firming up and preparing a detailed scope and work plan to guide the project as the work progresses. The PWP will encompass the following elements and will be updated as necessary during the assignment to reflect changes in the scope, schedule or budget of the task:

- Inspection approach to assigned scope including levels of inspection
- Participating staff: their organization(s), responsibilities and authorities
- Work breakdown structure with associated budgets for the assignment
- Inspection and report schedule, including time allowance for Authority reviews, prepared in MS Project
- Project Procedures
  - Administrative rules
  - Inspection Methodology
  - Distribution list
  - Communication and coordination procedures
- Project Organization Plan
  - Functional roles and responsibilities
  - Interface of organizational units
  - Interface and coordination requirements – Tenant Coordination
- Project Budget and Cost Control
  - Cost control procedures
  - Cost to complete procedures
  - Schedule control procedures
- Project Control
  - Contract administration
  - MBE/WBE participation
  - Document control
  - Billing and collection
- Reporting and Review Procedures
  - Internal/external communications
  - Distribution list
  - Letters, memos, telephone conversation procedures
- Project QA/QC (fully consistent with the Authority's Quality plan)
  - Quality Standards
  - Quality Procedure
  - Quality Audits

Assignments Management Plan

The procedure that we would follow during the course of each assignment is briefly described as follows:

- For each Facility Condition Survey requested by the Authority, a Specific Inspection Procedure Outline will be prepared detailing the location and type of elements to be inspected, the planned level of inspection and

- Physical testing of structural elements

fter the inspection has been completed, exposed areas ould be restored to their original condition. Restorative onstruction, or the initial exposure of structural members r access which is beyond the capability of the firm to erform, would be arranged by the Authority after recom-endations by DMJM Harris of the requirements.

- Field inspection forms would be developed and all observations made during the inspections would be recorded on these forms. The daily field inspection notes, field inspection forms and suitably captioned color photographs would form the field record of inspection activities.
- The Authority would be immediately notified if evidence of recent settlement, abnormal movement of any structural elements or conditions representing a safety hazard is detected or observed during inspections. This notification would include advice regarding the urgency of immediate repairs, or the necessity of shoring of any element to assure the integrity of the structure and/or public safety
- DMJM Harris would also recommend the proper permanent remedial action or repair, which should be accomplished to assure the structural integrity and could inspect the remedial construction which is approved by the Authority
- All data collected by DMJM Harris during a specific facility inspection, along with our findings, evaluation and recommendation, would be incorporated into the comprehensive report. This report would be in the format and contain the information required by the Authority for the specific facility inspection.

Schedule and Cost Control – The keys to success in a "call-in" contract are effective cost control and a well-managed schedule. This is because assignments require expeditious response to situations as they develop, and so t is imperative to control the schedule and the cost of each assignment. We are quite accustomed to assembling a eam of qualified personnel on short notice and beginning assignments immediately upon authorization from the client. We are prepared to mobilize multiple teams should he need arise to handle one or more projects. Managing he performance is also critical to meeting a specific deliverable at a specific time, and so we emphasize the assignment schedule and cost control.

DMJM Harris is an ISO-9000 certified firm that ensures a strict Quality Control structure.

Progress Reports/Schedule - Our project manager will prepare and submit on a bi weekly basis a progress report to the Authority. The Authority will be advised daily during the inspection phase of changes in the schedule. The length and content of the progress report would be commensurate with the complexity of the assignment.

The progress report will describe the technical progress of each inspection and report, the outstanding issues and needed information, and each planned activity. In addition, the report will address the progress of the assignment schedule and cost, and will assess and report the actual physical completion versus cost spent for each assignment and the projected cost at the completion of each assignment. *It will also identify any critical issues that could affect* the project.

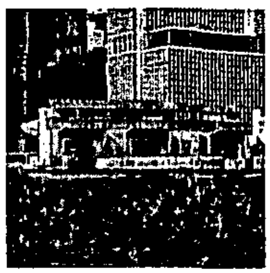
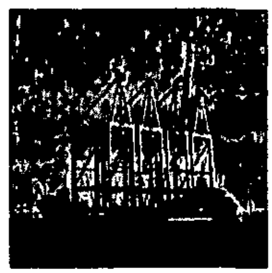
In addition, our project manager will meet with the Authority's project manager on a regular basis, when the project is active, to report on the technical and administrative progress of each assignment. Meetings will be documented and the minutes will be distributed to the attendees.

Quality Control/Quality Assurance Plan (Project Excellence Assurance) - DMJM Harris is an ISO-9000 certified firm that ensures a strict Quality Control structure. As such, it is our policy that "no document shall be released or officially transmitted to the client or any third party without having received a suitable quality review". All work performed under this contract would be conducted in accordance with the overall DMJM Harris Quality Control/ Quality Assurance Manual as described in Section H "Quality Assurance Plan".

MBE/WBE Participation – We acknowledge the Authority's goals to achieve MBE/WBE participation. While specific roles cannot be identified at this time, it is our expectation that for assigned tasks, appropriate opportunities may be available in surveying and testing of materials to enable DMJM Harris to meet the Authority's goals. Our Project Manager will identify opportunities for these firms (and others as may be appropriate) and will monitor and periodically report the results.

List of Affilliates

Proposal for
Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "CALL-IN" Basis During 2009


List of Affiliates

Parent Company
AECOM Technology Corporation
Address: 555 South Flower Street, Los Angeles, CA 90071

Affiliates

AECOM Aviation Group
Address: 555 South Flower Street, Los Angeles, CA 90071

AECOM Consult, Inc.
Address: 3101 Wilson Blvd., Suite 400, Arlington, VA 22201

AECOM Government Services, Inc.
Address: 555 South Flower Street, Los Angeles, CA 90071

AECOM Systems Integration Group, Inc.
Address: 555 South Flower Street, Los Angeles, CA 90071

AECOM Management Services, Inc.
Address: 555 South Flower Street, Los Angeles, CA 90071

AECOM Enterprises, Inc.
Address: 515 South Flower Street, 4h Floor, Los Angeles, CA 90071

AECOM Facilities, Inc.
Address: 555 South Flower Street, Los Angeles, CA 90071

AECOM Global, Inc.
Address: 555 South Flower Street, Los Angeles, CA 90071

Austin AECOM Corporation
Address: 303 East Wacker Drive, Chicago, IL 60601-5276

Cansult Maunsell Middle East
Address: P.O. Box 43266, Abu Dhabi, United Arab Emirates

Consoer Townsend Envirodyne Engineers, Inc.
Address: 303 East Wacker Drive, Chicago, IL 60601-5276

DMJM Aviation
Address: 2202 North West Shore Blvd., Tampa, FL 33607

DMJM H&N, Inc.
Address: 999 Town & Country Road, Orange, CA 92868

EarthTech
Address: 300 Oceangate, Long Beach, CA 90802

ENSR
Address: 2 Technology Park Drive, Westford, MA 01886

EDAW
Address: 150 Chestnut Street, San Francisco, CA 94111

Faber Maunsell
Address: Malborough House, Upper Marlborough Road, St. Albans, Herfordshire, AL1 3 UT, United Kingdom

Hayes Seay Mattern & Mattern, Inc.
Address: 1315 Franklin Road, SW, Roanoke, VA 24034

Maunsell Australia & Asia
Address: 12 Cribb Street, Milton Old 4064 (P.O. Box 1823), Austrailia

Mausell Consultants Asia Ltd.
Address: Yue Hwa International Bldg., 14th Floor, 1 *Kowloon Park Drive, Kowloon, Hong Kong*

The McClier Corporation
Address: 303 East Wacker Drive, Chicago, IL 60601-5276

Metcalf & Eddy, Inc.
Address: 701 Edgewater Drive, Wakefield, MA 01880

AECOM International Development, Inc.
Address: 1025 Thomas Jefferson St. North West, Washington, DC 20007

Resource Sciences Corporation
Address: 555 South Flower Street, Los Angeles, CA 90071

STS Acquisition Co., d/b/a STA Consultants Ltd.
Address: 750 Corporate Woods Parkway, Vernon Hills IL 60061

TCB Group Holding Company, Inc.
Address: 5757 Woodway Drive, Houston, TX 77057

UMA Group Ltd.
Address: 1700-1066 West Hastings Street, Vancouver, B.C. Canada V6L 1S7

Quality Assurance/Assurance Plan as per Attachment A

Proposal for
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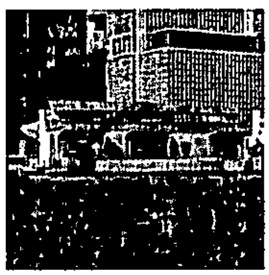
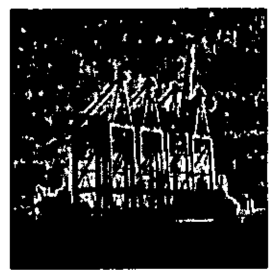




Quality Assurance Plan

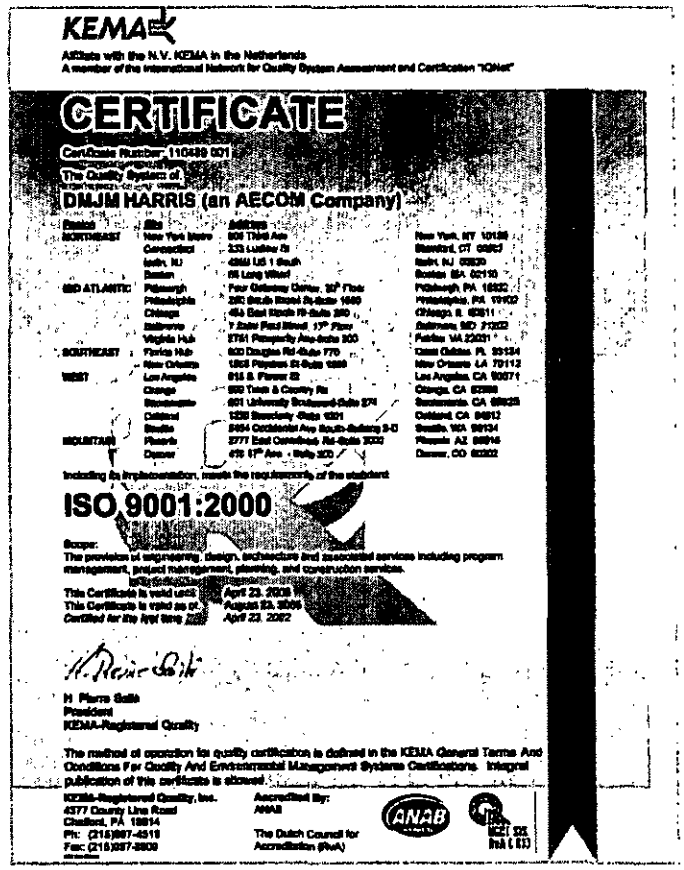
Commitment to Quality

DMJM Harris has a longstanding commitment to quality; it has been part of the company's legacy for more than 70 years. This commitment is demonstrated by the company's certification to the ISO 9001:2000 Quality Management standard. DMJM Harris's program includes not only the required ISO elements but the lessons learned and best practices established by AECOM (DMJM Harris's parent company), by DMJM Harris's predecessor companies, and by AECOM sister companies throughout the world. The company is currently certified in all of its major offices in the United States. Regardless of size, all operating units are using this program as a means of standardizing operating requirements to provide a consistent level of quality. The technical and project management staff are trained on the Quality Management System. In addition, the company has six regional quality managers with extensive training on the program as well as other subject matter experts in quality assurance and quality control.

DMJM Harris ISO 9001:2000 Quality Assurance (QA) Program

The DMJM Harris quality management system is a complete QA program developed to meet the ISO 9001:2000 standards. The system includes a quality management policy (reflected in a quality program manual) and a series of implementing procedures that are subdivided into key process sections. The sections are specifically designed to address the critical activities of a project, from planning through construction. The procedure sections are as follows:

- **Section 1**—Administrative Procedures (AP)
- **Section 2**—Contract Control Procedures (CCP)
- **Section 3**—Project Management Procedures (PMP)
- **Section 4**—Engineering and Design Control Procedures (EP)
- **Section 5**—Construction Support Services Procedures (CSSP)
- **Section 6**—Quality Assurance Procedures (QAP)



Project-Specific QC Plan

Upon notice to proceed, DMJM Harris requires the development of a project-specific project work plan. This plan reflects the development of key planning documents and the identification of key links between contractual requirements and project implementation. As a subset, volume, or section of the project work plan, a quality assurance plan is to be developed. This project-specific quality control plan (QCP), based on the DMJM Harris corporate program, is developed to specifically address the needs and challenges of the project. The QCP includes the following items:

- QA/QC organization chart, description of responsibilities, and program description
- Client-mandated quality requirements
- Summary of subconsultant QA program and oversight requirements
- Identification of key quality issues and actions
- List of controlled documents