Torres Rojas, Genara

FOI 2413337

From:	safa@ocean-coastal.com
Sent:	Friday, July 13, 2012 2:40 PM
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 26350 titled: Request for proposals for the performance of expert professional facility condition surveys for waterfront facilities as requested on a "call-in" basis during 2012. This RFP was issued in September of 2011. 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 related to agency reviews, including but not limited to any scoring system used in reviewing 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

September 10, 2012

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

Re: Freedom of Information Reference No. 13339

Dear Mr. Famularo:

This is a response to your July 13, 2012 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code") for copies of records related to RFP No. 26350 - Performance of Expert Professional Facility Condition Surveys for Waterfront Facility as Requested on a "Call-In" Basis During 2012.

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/13339-O.pdf. Paper copies of the available records are available upon request.

Certain material responsive to your request is exempt from disclosure pursuant to Exemptions (1), (2.b.) and (5) 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

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

The Port Authority of New York and New Jersey
"CALL-IN" CONSULTANT PROPOSAL EVALUATION

TREAT AS ORIGINAL

RFP #: 26350

QAD (WATERFRONT)- "CALL-IN" PROGRAM DURING 2012

PM: MITCH ALDEA

RANK	FIRM	MULT Cons Office/ PA Office	TECHNICAL EVALUATION Staff Quals (50%)	Firm Quals (30%)	Mngt Appr (20%)	SCORE	AGR EXCEPT (X)	NOTES
A-1	Boswell Underwater Engineering	2.75	9	9	9	90		
A-2	Halcrow	2.9	9	9	9	90		Orig Mult: 2.95
A-3	M.G. McLaren, P.C.	2.72	8	9	8	83		
A-4	Moffatt & Nichol	2.93	8	8	8	80		Orig Mult: 3.35
B-5	Ocean and Coastal Consultants Engineering, P.C.		7	8	7	73		
NR	Greenman-Pedersen, Inc.							
NR	KPFF, Inc. d/b/a KPFF Consulting Engineers							

TECHNICAL RATINGS: EXCELLENT = 10 GOOD = 9 - 8 FAIR = 7 - 6 UNSATISFACTORY = 5 - 0

NR = Non-responsive (failed to submit a proposal in response to this RFP.)

(X) = Any exceptions to the agreement by firms eligible for award of an agreement **must** be resolved prior to Award.

Solicitation Manager(s): Mary Lou Rivera/Jessica Smith

Committee

MATTHEW SMITH 12/19/11 DATE

OWEN LEE 12/20/11 DATE

MITCH ALDEA 12-20-11 DATE

CONCURRED: ASSISTANT CHIEF ENGINEER QUALITY ASSURANCE 12/22/11 DATE

CONCURRED: MANAGER, PTASD 12/27/11 DATE

APPROVED: CHIEF ENGINEER 12/28/11 DATE

The Port Authority of New York and New Jersey

"CALL-IN" CONSULTANT PROPOSAL EVALUATION

RFP #: 26350

QAD (WATERFRONT)- "CALL-IN" PROGRAM DURING 2012

PM: MITCH ALDEA

RANK	FIRM	MULT Cons Office/ PA Office	TECHNICAL EVALUATION Staff Quals (50%)	Firm Quals (30%)	Mngt Appr (20%)	SCORE	AGR EXCEPT (X)	NOTES
A-1	Boswell Underwater Engineering	2.75	9	9	9	90		
A-2	Halcrow	2.9	9	9	9	90		Orig Mult: 2.95
A-3	M.G. McLaren, P.C.	2.72	8	9	8	83		
A-4	Moffatt & Nichol	2.93	8	8	8	80		Orig Mult: 3.35
B-5	Ocean and Coastal Consultants Engineering, P.C.		7	8	7	73		
NR	Greenman-Pedersen, Inc.							
NR	KPFF, Inc. d/b/a KPFF Consulting Engineers							

TECHNICAL RATINGS: EXCELLENT = 10 GOOD = 9 - 8 FAIR = 7 - 6 UNSATISFACTORY = 5 - 0

NR = Non-responsive (failed to submit a proposal in response to this RFP.)

(X) = Any exceptions to the agreement by firms eligible for award of an agreement **must** be resolved prior to completion of the proposal evaluation process.

Solicitation Manager(s): Mary Lou Rivera/Jessica Smith

Committee:

MATTHEW SMITH DATE

OWEN LEE DATE

MITCH ALDEA DATE

CONCURRED: DIVISION MANAGER DATE

CONCURRED: MANAGER, PTASD DATE

APPROVED: CHIEF ENGINEER DATE

February 15, 2012

Boswell Engineering, Inc.
330 Phillips Avenue
P. O. Box 3152
South Hackensack, NJ 07606

Attention: Michael J. Ganas, P.E., P.P.

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (P.A. AGREEMENT #405-12-022)

Dear Mr. Ganas:

Per our telephone conversation of today, transmitted herewith are two copies of the Authority's standard agreement with the corrected name of your firm. Please sign both original copies and return them to The Port Authority of New York and New Jersey, Attention: Ms. Mary Lou Rivera, Principal Contract Specialist, 2 Montgomery Street, 3rd Floor, Jersey City, NJ 07302. The return of one copy executed by the Authority will effectuate the Agreement.

If you have any questions, please contact me at mlrivera@panynj.gov or (201) 395-3465.

Sincerely,

Mary Lou K. Rivera

Mary Lou K. Rivera
Principal Contract Specialist
Professional, Technical & Advisory Services Division
Procurement Department

Enclosures

THE PORT AUTHORITY OF NY & NJ

January 27, 2012

Ocean and Coastal Consultants Engineering, P.C.
35 Corporate Drive, Suite 1200
Trumbull, CT 06611

Attention: Stanley M. White, P.E., D.CE, D.PE, President and Managing Engineer

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

Dear Mr. White:

We have completed our review of the proposals received for performance of the subject work. While not selected at this time, your firm's proposal was ranked highly. Your firm may be requested to submit proposals in response to a task order proposal request (mini-RFP) under the subject "call-in" program. If your task order proposal is accepted, or if additional agreements for the performance of the subject services are required, you may be awarded an agreement at that time. Any such agreement shall be based upon your proposal submission in response to the subject RFP.

Thank you for the time spent by you and members of your staff in the preparation of the proposal.

Sincerely yours,

Tim Volonakis
Manager
Professional, Technical & Advisory Services
Procurement Department

Procurement Department
2 Montgomery Street, 3rd Floor
Jersey City, NJ 07302

THE PORT AUTHORITY OF NY & NJ

January 25, 2012

Hatch Mott MacDonald NY, Inc.
475 Park Avenue South, 10th Floor
New York, NY 10016

Attention: Nicholas M. DeNichilo, President

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR TUNNEL FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (P.A. AGREEMENT #405-12-019)

Dear Mr. DeNichilo:

I am pleased to inform you that your firm has been selected for performance of the subject services.

Transmitted herewith are two copies of the Authority's standard agreement. Please sign both original copies and return them to The Port Authority of New York and New Jersey, Attention: Ms. Mary Lou Rivera, Principal Contract Specialist, 2 Montgomery Street, 3rd Floor, Jersey City, NJ 07302. The return of one copy executed by the Authority will effectuate the Agreement.

If you have any questions, please contact Ms. Rivera at mlrivera@panynj.gov or (201) 395-3465.

Sincerely,

Tim Volonakis
Manager
Professional, Technical & Advisory Services Division
Procurement Department

Enclosures

THE PORT AUTHORITY OF NY & NJ

January 25, 2012

Jenny Engineering Corporation
2 Edison Place
Springfield, NJ 07081

Attention: Prakash M. Donde, P.E., President

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR TUNNEL FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (P.A. AGREEMENT #405-12-020)

Dear Mr. Donde:

I am pleased to inform you that your firm has been selected for performance of the subject services.

Transmitted herewith are two copies of the Authority's standard agreement. Please sign both original copies and return them to The Port Authority of New York and New Jersey, Attention: Ms. Mary Lou Rivera, Principal Contract Specialist, 2 Montgomery Street, 3rd Floor, Jersey City, NJ 07302. The return of one copy executed by the Authority will effectuate the Agreement.

If you have any questions, please contact Ms. Rivera at mlrivera@panynj.gov or (201) 395-3465.

Sincerely,

Tim Volonakis
Manager
Professional, Technical & Advisory Services Division
Procurement Department

Enclosures

THE PORT AUTHORITY OF NY & NJ

January 25, 2012

Mueser Rutledge Consulting Engineers (MRCE)
14 Penn Plaza
225 W. 34th Street
New York, NY 10122

Attention: Francis J. Arland, Partner

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR TUNNEL FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (P.A. AGREEMENT #405-12-021)

Dear Mr. Arland:

I am pleased to inform you that your firm has been selected for performance of the subject services.

Transmitted herewith are two copies of the Authority's standard agreement. Please sign both original copies and return them to The Port Authority of New York and New Jersey, Attention: Ms. Mary Lou Rivera, Principal Contract Specialist, 2 Montgomery Street, 3rd Floor, Jersey City, NJ 07302. The return of one copy executed by the Authority will effectuate the Agreement.

If you have any questions, please contact Ms. Rivera at mlrivera@panynj.gov or (201) 395-3465.

Sincerely,

Tim Volonakis
Manager
Professional, Technical & Advisory Services Division
Procurement Department

Enclosures

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

February 22, 2012

Ms. Mary Lou K. Rivera
Principal Contract Specialist
The Port Authority of
New York and New Jersey
2 Montgomery Street, 3rd Floor
Jersey City, New Jersey 07302

Re: Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2012
P.A. Agreement No. 405-12-022
Our File No. BUE-1203

Dear Ms. Rivera:

In accordance with your letter dated February 15, 2012, we are returning herewith two (2) revised original Agreements, for the above referenced project, which have been signed by Dr. Stephen T. Boswell, P.E., SECB.

Also enclosed, in accordance with the terms of the Agreement, is our Certificate of Insurance which has been revised to reflect "Boswell Engineering, Inc." as the Insured.

Pursuant to signing by the Authority, kindly return a fully executed Agreement to me.

Thank you for the opportunity to be of continued service to The Port Authority of New York and New Jersey. Should you have any questions or require anything further, please do not hesitate to contact Mr. Michael J. Ganas, P.E., P.P., or me.

Very truly yours,

BOSWELL ENGINEERING

Jim Kelly

James D. Kelly

JDK/lb
Enclosures
cc (w/copy of Agreement):
Michael J. Ganas, P.E., P.P.

120222LBL1.DOC

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

January 31, 2012

Ms. Mary Lou Rivera
Principal Contract Specialist
The Port Authority of
New York and New Jersey
2 Montgomery Street, 3rd Floor
Jersey City, New Jersey 07302

Re: Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2012
P.A. Agreement No. 405-12-022
Our File No. BUE-1203

Dear Ms. Rivera:

In accordance with the letter dated January 25, 2012, which you signed for Mr. Tim Volonakis, we are returning herewith two (2) original Agreements, for the above referenced project, which have been signed by Dr. Stephen T. Boswell, P.E., SECB. As requested, attached to each Agreement is our firm's salary schedule.

Also enclosed, in accordance with the terms of the Agreement, is our Certificate of Insurance.

Pursuant to signing by the Authority, kindly return a fully executed Agreement to me.

Thank you for the opportunity to be of continued service to The Port Authority of New York and New Jersey. Should you have any questions or require anything further, please do not hesitate to contact Mr. Michael J. Ganas, P.E., P.P., or me.

Very truly yours,

BOSWELL ENGINEERING

Jim Kelly

James D. Kelly

JDK/lb
Enclosures
cc (w/copy of Agreement):
Michael J. Ganas, P.E., P.P.

120131LBL1.DOC

Rivera, MaryLou

From: Alfageme, Santiago [salfageme@moffattnichol.com]
Sent: Thursday, December 08, 2011 4:30 PM
To: Rivera, MaryLou
Cc: Shute, William
Subject: RFP #26350 Moffatt & Nichol

Dear Ms. Rivera,

Regarding PA RFP #26350 *"Request for Proposal for the Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a Call-In Basis During 2012"*, Moffatt & Nichol has taken the opportunity to review our proposed multiplier.

We will discount the premium for Equipment Costs etc. from 20% to 5%.

As a result, we are able to reduce the **Total Proposed Multiplier to 2.93 .**

Please do not hesitate to contact me should you have any questions or require additional information.

Santiago Alfageme

Rivera, MaryLou

From: Goldstick, Jonathan [goldstickJL@halcrow.com]
Sent: Tuesday, December 06, 2011 4:04 PM
To: Rivera, MaryLou
Cc: King, Patrick; Sposito, Brett; Riden, Kirk; Corley, John/WDC
Subject: RE: RFP No. 26350 Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2012

Mary Lou,

Thank you for calling to follow up on your message providing Halcrow with an opportunity to revisit our proposed multiplier for the Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis during 2012, RFP No. 26350.

As you said, the 2.95 that we proposed is higher than the 2.93 that we are using on our current contract for the same work. While our underlying overheads have risen since we proposed the 2.93, we would now like to propose a **multiplier of 2.90**. This is based on an expectation that our actual overheads will decrease over the life of the contract.

Please confirm your receipt of this email and advise me if any other information is required.

Thank you again ,

Jonathan

Jonathan Goldstick
Senior Vice President

Halcrow
A CH2M HILL COMPANY
22 Cortlandt Street
New York, NY 10007
Tel: 212-608-3990
Cell: 914-582-7358
Fax: 212-566-5059

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Rivera, MaryLou

From: William J. McCarthy [WMcCarthy@MGMcLaren.com]
Sent: Thursday, December 08, 2011 11:35 AM
To: Rivera, MaryLou
Cc: Lin, Chung-Ching
Subject: 111610 RE: RFP FOR EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012

Sensitivity: Private

Dear Mary Lou.....

I just concluded a meeting with our CEO, CFO and our Accounting Manager.

My sincere apologies here as I think I may have confused things.

Please note, our proposed multiplier of 2.72 DOES in fact include the items delineated in Item C, page 3 of the subject RFP INCLUDING boat rental, dive van rental, and dive station rental. We will not be seeking compensation for their use.

I hope this clears this matter up. Let me know if we can be of any further help.

Kindest regards,

Bill

William J. McCarthy III
Director of Business Development
McLaren Engineering Group
100 Snake Hill Road
West Nyack, NY 10994
845 353-6400 x354
845 353-6509 Fax
website: www.mgmclaren.com
wmccarthy@mgmclaren.com

M.G. McLaren, P.C. transmits this electronic file(s) for reference only. The enclosed file(s) shall not be modified, altered, copied, distributed to third parties, or used on any other project, without prior written permission from M.G. McLaren, P.C. These file(s) are not to be used, in whole or in part, as Construction Documents or Shop Drawings, without M.G. McLaren, P.C.'s official seal and signature on each document. Any use of the enclosed file(s) other than that herewith expressed will be prosecuted to the fullest extent permitted by law.

From: William J. McCarthy
Sent: Thursday, December 08, 2011 9:19 AM
To: Rivera, MaryLou
Subject: RE: RFP FOR EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012
Sensitivity: Private

Mary Lou,

CC Lin asked me the same question yesterday.....let me explore this further with our accounting groups.

I will forward you my exchange with Mr. Lin.

Thanks for your time.

Bill

William J. McCarthy III
Director of Business Development
McLaren Engineering Group
100 Snake Hill Road
West Nyack, NY 10994
845 353-6400 x354
845 353-6509 Fax
website: www.mgmclaren.com
wmccarthy@mgmclaren.com

M.G. McLaren, P.C. transmits this electronic file(s) for reference only. The enclosed file(s) shall not be modified, altered copied, distributed to third parties, or used on any other project, without prior written permission from M.G. McLaren, P.C. These file(s) are not to be used, in whole or in part, as Construction Documents or Shop Drawings, without M.G. McLaren, P.C.'s official seal and signature on each document. Any use of the enclosed file(s) other than that herewith expressed will be prosecuted to the fullest extent permitted by law.

From: Rivera, MaryLou [mailto:mlrivera@panynj.gov]
Sent: Thursday, December 08, 2011 8:22 AM
To: William J. McCarthy
Cc: Jaclyn M. Hernandez
Subject: RE: RFP FOR EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012
Sensitivity: Private

Hi, Bill – I have a question regarding your Waterfront proposal. On Page 3, paragraph C of the RFP letter, you are requested to provide a multiplier. In addition, a statement confirming that all equipment, vehicles, boats, etc. that you own should be included in your multiplier, and that you will not seek compensation for their use as an expense item.

Your proposal includes the following statement: "The above multiplier breakdown does include all expenses (as delineated in The RFP), with the exception of certain specialty equipment (e.g. dive boats and vans) that are used only on specific type projects." Since the "specialty equipment" was not included in the multiplier, as requested in the RFP letter, please confirm that, should this equipment become necessary, you will not be seeking compensation for their use. If this is not accurate, please explain why they were not included in the multiplier.

Thank you.

From: William J. McCarthy [mailto:WMcCarthy@MGMcLaren.com]
Sent: Monday, December 05, 2011 2:18 PM
To: Rivera, MaryLou
Cc: Jaclyn M. Hernandez
Subject: RFP FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR BUILDING FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (111603)
Sensitivity: Private

Dear Mary Lou:

We are going to stay with our multiplier of 2.72.

Additionally, it should be noted our salary levels are lower than other firms, particularly those in the City. Therefore, the total fees are generally less.

Hope this helps.

Let me know if we can be of any further help at this time.

Thank you.....

Bill

William J. McCarthy III
Director of Business Development
McLaren Engineering Group
100 Snake Hill Road
West Nyack, NY 10994
845 353-6400 x354
845 353-6509 Fax
website: www.mgmclaren.com
wmccarthy@mgmclaren.com

M.G. McLaren, P.C. transmits this electronic file(s) for reference only. The enclosed file(s) shall not be modified, altered, copied, distributed to third parties, or used on any other project, without prior written permission from M.G. McLaren, P.C. These file(s) are not to be used, in whole or in part, as Construction Documents or Shop Drawings, without M.G. McLaren, P.C.'s official seal and signature on each document. Any use of the enclosed file(s) other than that herewith expressed will be prosecuted to the fullest extent permitted by law.

From: Jaclyn M. Hernandez
Sent: Friday, December 02, 2011 3:22 PM
To: mlrivera@panynj.gov
Cc: William J. McCarthy; Carbon Copy 6
Subject: FACILITY CONDITION SURVEYS-"CALL-IN" - RFP FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR BUILDING FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (111603)

Ms. Rivera,

I am sending this e-mail on behalf of Bill McCarthy. My name is Jackie, you and I spoke earlier today in reference to the subject project.

Bill has asked me to inform you that we will get back to you on Monday, December 5th regarding our multiplier.

Thank you and have a great weekend!

Jackie

Jaclyn M. Hernandez
McLaren Engineering Group
100 Snake Hill Road
West Nyack, NY 10994
845 353-6400 x 394
845 353-6509 Fax
*website: **www.mgmclaren.com***
jhernandez@mgmclaren.com

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Ex.5

From: William J. McCarthy [mailto:WMcCarthy@MGMcLaren.com]
Sent: Thursday, February 02, 2012 11:48 PM
To: Rivera, MaryLou
Cc: Volonakis, Tim; Carbon Copy 6
Subject: 111610 - P.A. Agreement #405-12- 024 Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a Call In Basis 2012

Dear Mary Lou:

We are pleased to learn that we have been selected for the performance of the subject services and we look forward to serving the PANY&NJ's needs with our technical expertise.

We are reviewing the documentation forwarded to us for execution. Are we required to re-submit our salary roster/schedule or is the one we submitted with our proposal satisfactory.

Please advise and thank you for your time and consideration.

Kindest regards,
Bill

William J. McCarthy III
Director of Business Development
McLaren Engineering Group
100 Snake Hill Road
West Nyack, NY 10994
845 353-6400 x354
845 353-6509 Fax

OCEAN AND COASTAL CONSULTANTS

OCEAN AND COASTAL CONSULTANTS
ENGINEERING P.C.
35 CORPORATE DRIVE, SUITE 1200
TRUMBULL, CT 06611
PH 203-268-5007 FX 203-268-8821
www.ocean-coastal.com

VIA HAND DELIVERY

October 14, 2011

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

Attention: Mr. Tim Volonakis
Manager, Professional, Technical & Advisory Services Division
Procurement Department

Reference: Response to Request for Proposals for the Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2012 - Proposal Number 26350

Dear Mr. Volonakis:

With great enthusiasm and excitement, Ocean and Coastal Consultants Engineering, P.C. (OCC) submits our proposal for Professional Facility Condition Surveys for Waterfront Facilities for 2012.

We believe that the Port Authority of New York and New Jersey should select our team for this project based upon three primary factors:

- **Experience** - OCC has unmatched experience in performing the scope of work requested in this proposal. Our team of 19 engineer-divers has performed inspections of hundreds of waterfront facilities throughout New York and New Jersey Harbor over the last 11 years. This experience is highlighted in Section F along with relevant project profiles.

- **Proposed Staff** - OCC's proposed staff is extremely familiar with New York Harbor waterfront facilities. Our Project Manager will be **Mr. Stephen A. Famularo, P.E.** (PE Diver and Structural Engineer). Mr. Famularo has managed and performed inspections as a PE-diver throughout New York and New Jersey Harbor for the last 15 years. He is an expert in the development of computerized maintenance management systems and was the Project Engineer responsible for the inspection many of the Port Authority of New York and New Jersey piers with his former employer. For the NYCEDC, he has inspected many facilities formerly(or currently) leased to the PANYNJ.

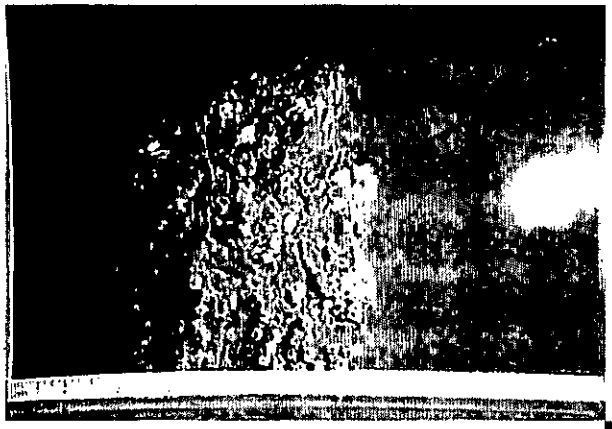
- **Schedule and Approach** - OCC will use its experience with other similar projects, to maximize use of all available information and perform assigned tasks in an efficient manner.

We sincerely hope that the above proposal meets your expectations. If you have any questions, please do not hesitate to contact me.

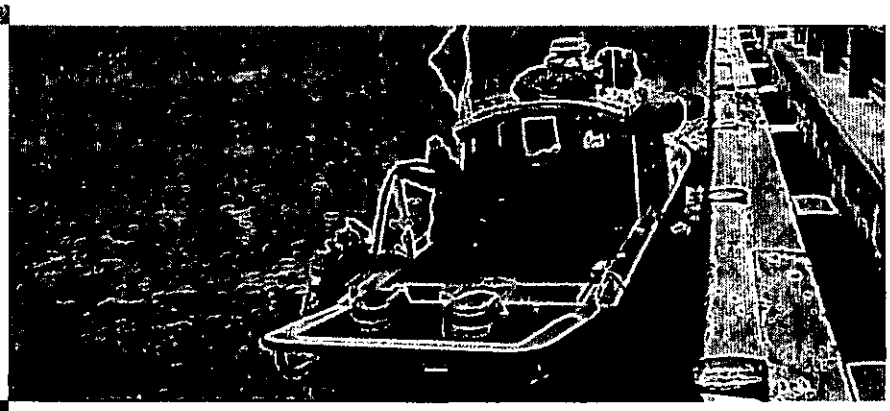
Very truly yours,

OCEAN AND COASTAL CONSULTANTS ENGINEERING, P.C.

Stanley M. White, P.E.
President and Managing Engineer

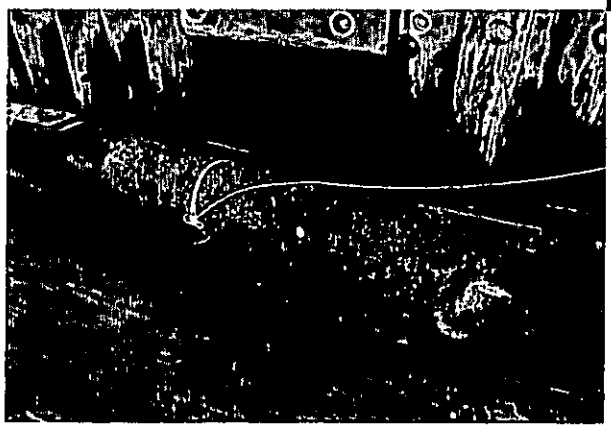


OCEAN AND COASTAL
CONSULTANTS
a COWI company



RFP Number 26350

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFROST FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012



The Port Authority of New York and New Jersey
Attention: RFP Custodian
One Madison Avenue, 7th Floor
New York, NY 10010

October 14, 2011

Ocean and Coastal Consultants Engineering, P.C.
35 Corporate Drive, Suite 1200
Trumbull, CT 06611
1-800-OCC-9511

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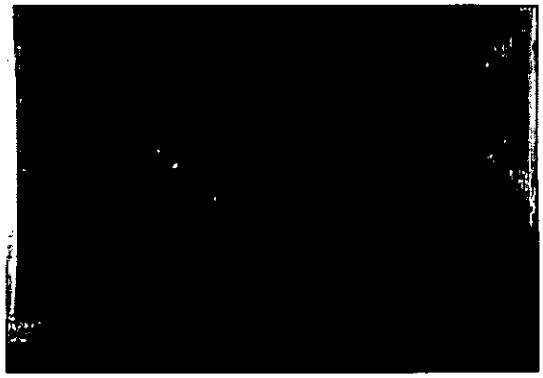

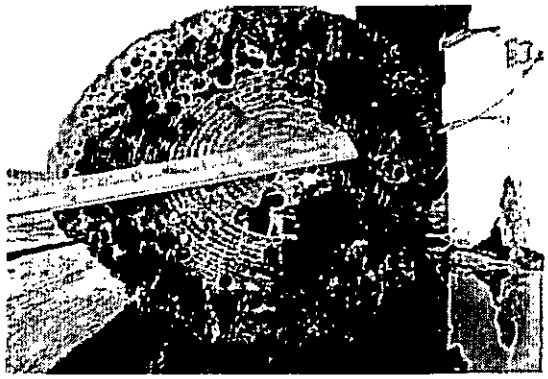

A- Agreement on Terms

ATTACHMENT B

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or 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 Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information 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 this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to 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 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 Policy and Procedure adopted by the Port Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/corporate-information/freedom-of-information.cfm* , not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

Ocean and Coastal Consultants Engineering, P.C.
(Company)

Stephen A. Fanucchi
(Signature)

Vice President/Chief Project Manager
(Title)

October 13, 2011
(Date)

B - Company Profile

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

1. Company Name (print or type):

   Ocean and Coastal Consultants Engineering, P.C.

2. Business Address (to receive mail for this RFP):

   35 Corporate Drive, Suite 1200

   Trumbull, CT 06611

3. Business Telephone Number: 203-268-5007

4. Business Fax Number: 203-268-8821

5. Firm website: www.ocean-coastal.com

6. Federal Employer Identification Number (EIN): Ex.1

7. Date (MM/DD/YYYY) Firm was Established: 07 / 31 / 2003

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   Ocean and Coastal Consultants, Inc. EIN Ex.1

   20 E. Clementon Road, Suite 201N, Gibbsboro, NJ 08026

9. Officer or Principal of Firm and Title:

   Stanley M. White, P.E., D.CE, D.PE, President and Managing Engineer

10. Name, telephone number, and email address of contact for questions:
    Stephen A. Famularo, P.E., Project Manager

    Direct Phone: 203-400-6560 e-mail: safa@ocean-coastal.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

    If yes, please attach **Port Authority** certification as a part of this profile.

    If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

C - Multiplier

OCEAN AND COASTAL
CONSULTANTS

Ocean and Coastal
Consultants Engineering, P.C.
35 Corporate Drive
Ste 1200
Trumbull, CT 06611
Tel 203 268 5007
Fax 203 268 8821
www.ocean-coastal.com

CONFIDENTIAL BUSINESS INFORMATION

Section C - Multiplier

Ex.2.b

Ex.2.b

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www.ocean-coastal.com

CONFIDENTIAL BUSINESS INFORMATION

Section E - Staff Rates

Full Name	Title	Rate Type	Rate (USD)
	Managing Engineer	Billing Rate	220.00
	Senior Project Manager	Direct Labor	75.44
	Senior Project Manager	Direct Labor	67.31
	Senior Project Manager	Direct Labor	60.10
	Senior Project Manager	Direct Labor	53.85
	Chief Project Manager	Direct Labor	61.90
	Chief Project Manager	Direct Labor	60.10
	Project Manager	Direct Labor	40.87
	Project Manager	Direct Labor	57.39
	Project Manager	Direct Labor	48.08
	PE-Diver/Team Leader	Direct Labor	37.50
	PE-Diver/Team Leader	Direct Labor	43.27
	PE-Diver/Team Leader	Direct Labor	36.92
	PE-Diver/Team Leader	Direct Labor	52.00
	Engineer-Diver	Direct Labor	24.04
	Engineer-Diver	Direct Labor	24.04
	Engineer-Diver	Direct Labor	25.00
	Engineer-Diver	Direct Labor	26.00
	Engineer-Diver	Direct Labor	26.59
	Engineer-Diver	Direct Labor	29.72
	Engineer-Diver	Direct Labor	28.36
	Engineer-Diver	Direct Labor	27.58
	Technician-Diver	Direct Labor	36.50
	Technician-Diver	Direct Labor	27.85
	Structural Engineer	Direct Labor	26.00
	Project Administrator	Direct Labor	27.04
	Civil Engineer	Direct Labor	24.04
	Structural Engineer	Direct Labor	36.93
	Geotechnical Engineer	Direct Labor	36.06
	Structural Engineer	Direct Labor	37.98
	Project Engineer	Direct Labor	33.65
	Structural Engineer	Direct Labor	39.14
	Civil Engineer	Direct Labor	33.65
	Civil Engineer	Direct Labor	40.87

Ex.1

CONFIDENTIAL BUSINESS INFORMATION

Full Name	Title	Rate Type	Rate (USD)
	Senior Construction Specialist/Diver	Direct Labor	51.90
	Structural Engineer	Direct Labor	43.27
	Technical Engineer	Direct Labor	30.29
	Chief CAD Specialist	Direct Labor	44.57
	CADD I	Direct Labor	21.33
	CADD II	Direct Labor	24.04
	CADD II	Direct Labor	32.52
	Project Engineer	Direct Labor	32.69

Ex.1

Notes:

- The wage rates listed are subject to annual increases for cost of living, performance merit or promotion to higher categories. In addition, the prevailing wage rate for diving and tending will change yearly, typically on July 1st of each year.

- For exempt employees (e.g. management and engineering staff), our company policy is that overtime, holidays, weekends, or night work is paid at straight time (i.e. normal staff salary).

- For non-exempt employees (e.g. CADD staff and technicians), our company policy is that that overtime, holidays, weekends, or night work is paid at 1.5 x straight time (i.e. time and a half).

- Diving and tending will be paid at the prevailing wage rate for New York Harbor. This includes both labor and benefits and will be based upon the following formula for each individual employee: **Direct Labor x Multiplier + (Prevailing Wage Labor Rate - Direct Labor) + (Prevailing Wage Benefits - Current OCC Employee Specific Hourly Benefit)**. For overtime and Saturday, the formula will be modified such that the Prevailing Wage Labor Rate will be multiplied by 1.5. For work on Sundays and Holidays, the formula will be modified such that the Prevailing Wage Labor Rate will be multiplied by 2.0.

- Penetration diving (for tunnels, culverts, or outfalls) will be paid at

- The minimum field team for work is 2 persons. However, 3 persons on-site may be necessary for safety reasons when working underneath piers.

- The minimum diving team is 3 persons.

F - Specific Relevant
Firm Experience

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www.ocean-coastal.com

Section F - Specific Relevant Firm Experience

OCC is a 50-person consulting engineering firm, founded in 1983, that is dedicated to projects in the marine environment. While we provide a wide range of waterfront services, our particular area of expertise is in the inspection, rehabilitation and maintenance management of piers, wharves, bulkheads, culverts, tunnels and other miscellaneous marine structures. This introductory letter provides some details on our firm's experience in providing services similar to those contemplated in the PANYNJ's RFP. In addition, we have provided 13 project profiles which more specifically identify comparable services performed during the last three (3) years. These profiles provide the owners and contact information (for verification purposes). All of these projects were completed within the schedule accepted by the client and within budget.

Engineer-Divers

OCC's engineer and professional engineer-divers are leaders in the field of waterfront structure investigation, design, and rehabilitation. With years of collective engineering expertise and active participation in conferences, committees, and in-house seminars, our inspection staff is skilled in the identification of damage and deterioration, evaluation of the cause and significance of findings, and development of constructible durable repairs.

Our engineer-divers that lead the inspection are directly responsible for the preparation of load calculations, service-life analyses, construction cost estimates, inspection reports, short and long-term maintenance plans, and contract bid documents. All inspections are carried out entirely by our in-house staff of commercially trained divers.

Key Statistics

Some key information with regards to OCC's inspection and waterfront rehabilitation experience:

- OCC has been performing underwater inspection services since 2000.
- We currently have on staff 21 inspection divers. Nine of these divers are professional engineers, ten are engineer-divers, and two are technician-divers.
- Since 2003, we have trained 27 engineers in surface-supplied diving operations with approximately 285 man-days spent at commercial diving schools in Florida, Minnesota, and British Columbia.
- We have performed over 2,800 safe commercial dives across the United States and Caribbean. Most of the dives have been performed in the Northeast.

Inspection Services

The particular inspection and rehabilitation services relevant to this contract include:

- field investigations including above water inspection, underwater inspection (performed by Professional Engineer-Divers and Engineer-Divers), surveying (above water and hydrographic), and GPS/GIS mapping of waterfront infrastructure;
- specialized condition assessments of waterfront structures including use of destructive testing and non-destructive testing (NDT) techniques (including evaluation of cathodic protection systems);
- engineering analysis of waterfront facilities, systems, and components, often without previous calculations, reports, and drawings;
- structural evaluation of existing facilities using hand calculations or computer aided tools such as 2-D and 3-D finite element models and vessel/structure interaction software;
- waterfront information technology including creation of GIS maps of waterfront infrastructure, rendered 3-dimensional models, and database design for both local facility data (e.g. desktop database software to record defects, ratings, and recommended repairs during a routine inspection) and for organization-wide tracking and asset management (e.g. web-based applications with enterprise database backend and GIS based inventory storage);
- preparation of reports including: feasibility studies; maintenance action plans; inspection and condition assessment reports; alternative analyses; and, basis of repair/design reports;
- design of repairs and new structures for waterfront facilities;
- regulatory support including preparation of environmental studies in support of permit applications to federal, state, and local regulatory agencies;
- waterfront construction support for new and existing structures including; and
- commercial diving operations in conformance with OSHA standards.

Equipment Available

OCC has the diving, inspection, and testing equipment to safely field 5 dive teams. This equipment includes:

- Five (5) Complete Surface-Supplied Air Diving Stations with Basic Inspection Tools.
- Two (2) Cygnus 1 Multiple Echo Ultrasonic Underwater Thickness Gauges
- Protovale Covermaster CM-9 Rebar Locator.
- Cathodic Protection Testing Equipment (Multimeter and Reference Electrodes for Salt, Brackish and Fresh Water).
- Digital Cameras with Underwater Housing including Custom Designed "Clearwater" Box for Photography in Low Visibility and Turbid Water.
- Three (3) Underwater Helmet-Mounted Color Video Systems with Digital Video Recording.
- VideoRay Pro III Remotely Operated Vehicle (ROV) with GPS positioning.

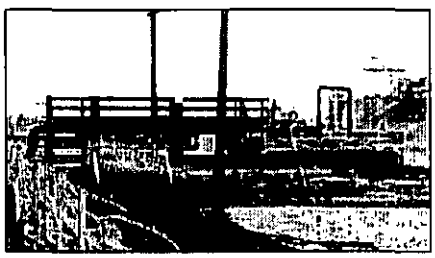
- 20, 25, and 32 foot Diving/Survey Boats.
- Cargo Vans, Pick-ups, and Box Trailer.

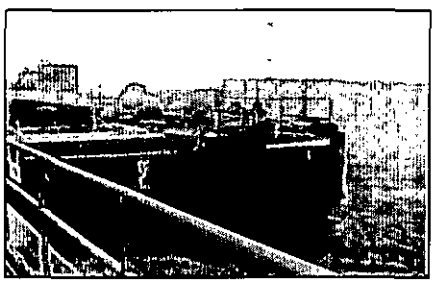
Clients

OCC has many existing long-term relationships with government, municipal and private clients: Some of our key clients include:

- Sprague Energy in New England (Since 2003),
- International Matex Tank Terminals in Bayonne, New Jersey (Since 1994),
- New York City Economic Development Corporation (Since 2001), and
- The United States Coast Guard (as lead or sub on IDIQ Ocean Engineering teams since 2003).

OCEAN AND COASTAL CONSULTANTS
a COWI company





project experience profile

Project Title: **Emergency Shoring and Stabilization of a Fuel Manifold and Salt Water Intake Pump, PSEG, Sewaren Generating Facility**, Sewaren, NJ

Client: Public Service Enterprise Group - Fossil

Reference: Eileen Spanicciati
Public Service Enterprise Group - Fossil
751 Cliff Road,
Sewaren, NJ, 07077
609-599-7043

Project Cost:

Engineering:	$ 64,000
Permitting:	$ 15,000
Construction:	$ 890,000

Completion Date:

Engineering:	2007
Construction:	2008

Project Role: Prime Consultant

Permits/Agency: USACE
NJDEP: Emergency Permit NJDEP: Waterfront Development Permit

OCC was retained to provide a second opinion as to the condition of the fuel barge off loading wharf at the Sewaren Generating Facility and to provide conceptual remedial actions.

Based on the underwater investigation performed by OCC's PE-Divers, we recommended that PSEG *discontinue use of the wharf.* Rather than performing a complete demolition and reconstruction, OCC recommended plans for the emergency shoring and stabilization of the fuel offloading manifold and salt water intake pump.

The fuel receiving manifold was relocated to a new pile-supported concrete deck structure, adjacent to the existing manifold system. Safety piles were installed to support the salt water intake pump at the opposite end of the wharf. An arch fender system was added to an adjacent cofferdam cell to provide for safe fuel barge berthing. Finally, a catwalk and pipe bridge was installed to provide safe personnel access and to support the fuel piping. All construction took place within the footprint of the existing wharf.

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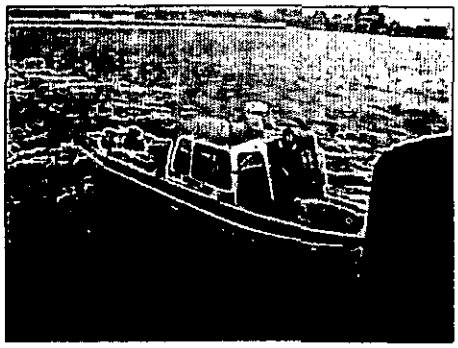

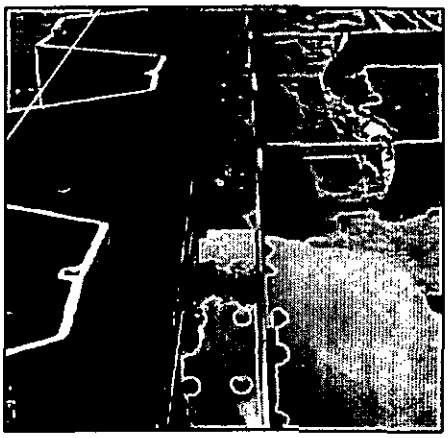

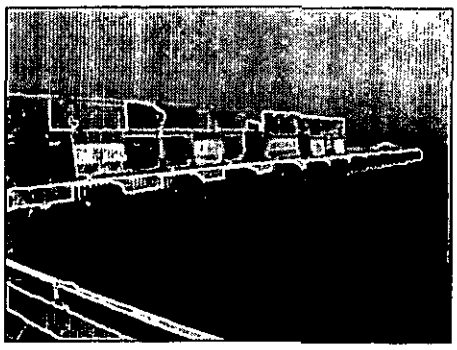

project experience profile

Project Title: **SBMT Bulkhead Rehabilitation**
New York, New York

Client: Turner Construction / New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718) 439-5373

Project Cost:

Engineering:	$403,000
Construction:	$14.1 million

Completion Date:

Engineering:	2009
Construction	2011

Project Role: Prime Consultant

Permits/Agency: NYSDEC, USACOE, NYSDOS, NYCCP, & NYC DSBS

OCC was selected to perform the rehabilitation design of the steel sheet pile bulkhead at the 39th Street Pier in Brooklyn. OCC PE-divers and engineer-divers performed the above water and underwater inspection of the steel bulkhead and timber piles to prepare a design protocol. After selection of a final repair alternative, OCC prepared design, permitting, and follow on consulting services during construction.

OCC's design tasks for the site included the rehabilitation of approximately 1,200 linear feet of existing steel sheet pile bulkhead and two separate steel cellular bulkhead structures. Design of the new bulkhead's tie-back system utilized new tie-rods connected to existing steel and concrete anchorage structures. OCC determined that service life of the cell structures would be prolonged most effectively by the installation of a new sacrificial anode system. OCC also provided design and resident engineering services for the emergency stabilization of a failed portion of the bulkhead.

On site construction began in the fall of 2009 and completed in the spring of 2011. OCC's follow on services include the review of select contractor submittals and an advisory role for the project's construction management company.

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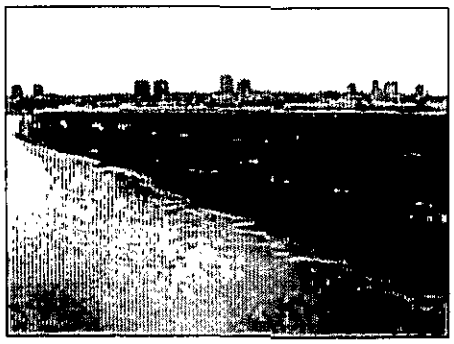

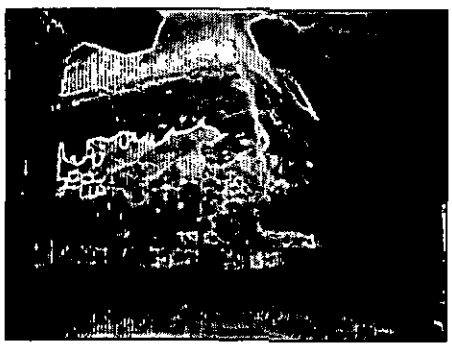

project experience profile

Project Title: **Pier 92 Inspection and Rehabilitation**
Manhattan Cruise Terminal
Manhattan, New York

Client: *Turner Construction /* New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718) 439-5373

Project Cost:

Construction:	$8,500,000
Engineering:	$215,700

Completion Date:

Construction:	2011
Engineering:	2011

Project Role: Primary Consultant

Permits/Agency: NYC DEC
NYS DOS
US ACOE
NYC DSBS

OCC was selected as the primary consultant for the inspection and rehabilitation of Pier 92, located in the Manhattan Cruise Terminal along the Hudson River in New York City. The project included a design level inspection, which was performed in conjunction with the routine inspection.

OCC performed the inspection in the Winter of 2008 using a team of PE-Divers, Engineer-Divers, and Technician-Divers. The design level inspection was not only intended to identify all defects, but also to identify defects requiring repair and to assess repair options and feasibility.

The results of the inspection were incorporated into the Routine Inspection Report, which was prepared in accordance with the standards of the EDC's Waterfront Maintenance Management Program. OCC also prepared a set of contract documents based on the results of the inspection that fit into EDC's available budget. The contract documents included a full set of construction drawings as well as a detailed specifications package to install structural repairs and non-structural preventative repairs.

OCC also prepared all local, state, and federal permits associated with the rehabilitation of the pier and assisted with the bidding process.

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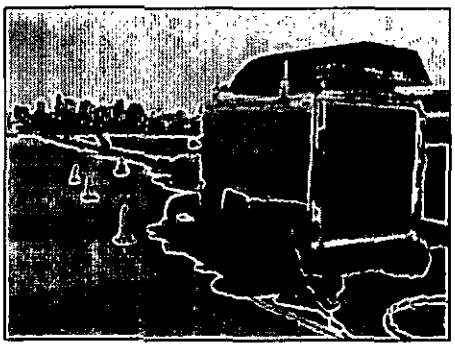

project experience profile

Project Title: **BCT - Pier 12 Investigation and Design**
Red Hook
Brooklyn, New York

Client: Turner Construction / New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718)630-2447

Project Cost:

Construction	$3,000,000
Engineering:	$200,000

Completion Date:

Engineering:	2010

Project Role: Primary Consultant

Permits/Agency: NYC DEC
NYS DOS
US ACOE
NYC DSBS

OCC was selected as the primary consultant for the rehabilitation of Pier 12. The design level inspection was performed in the Spring of 2009 in conjunction with the routine inspection. The scope of the project included the above water and underwater inspection of the structure, preparation of a routine inspection report, contract drawings, specifications, and all local and state permits.

OCC's PE-Divers, Engineer-Divers, and Technician-Divers performed the underwater inspection of the course of 4 weeks. OCC utilized a database to record both above and underwater inspection notes. Early in the inspection, OCC noticed several consistent defects and performed a cursory structural analysis to develop a repair criteria matrix. This allowed the repair recommendations to be made during the inspection by the team of Engineer-Divers.

OCC prepared a routine inspection report that documented the observed conditions, provided recommended priority and routine repairs, and cost estimates.

OCC used the information obtained during the inspection to perform a more complete structural analysis that refined the repair criteria. The results of the analysis, along with the data obtained during the investigation, were used to prepare a set of contract drawings and specifications. In addition, OCC prepared the required permit applications.

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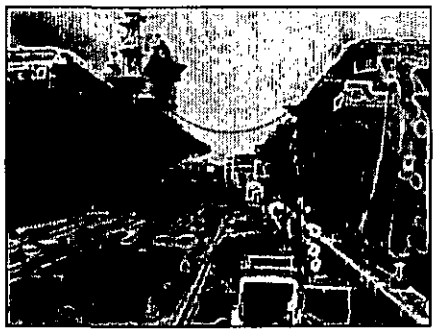
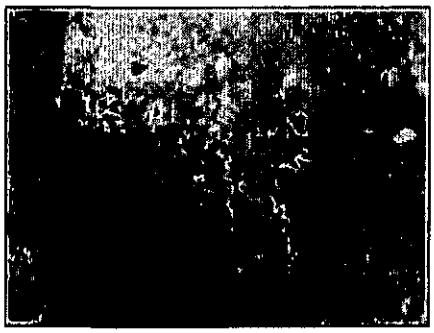
a COWI company





project experience profile

Project Title: **Philadelphia Navy Yard Pier 4 Structural Investigation**

Client: HDR Shiner Moseley

Reference: Michael Krieber
HDR Shiner Moseley
555 N. Carancahua
Suite 1650
Corpus Christi, TX

Project Cost:

Engineering:	$198,000
Construction:	$10 million

Completion Date:

Engineering:	2008
Construction	TBD

Project Role: Subconsultant

Permits/Agency: None

OCC was retained as a subconsultant to the design/build team of Triton Marine Construction/HDR Shiner Moseley to provide a detailed underwater inspection of Pier 4.

The purpose of the investigation was to provide HDR with detailed information regarding the existing condition and configuration of the pier substructure, including documentation of previous repairs. This information was required by HDR to perform a detailed structural analysis and rehabilitation plan for the facility to meet the Navy's need to moor larger vessels at the facility.

OCC performed an above and below water investigation of the Pier 4 substructure elements from the bottom of the concrete deck to the mudline, including piles, pile caps, deck beams, diaphragm walls, and mooring hardware.

In addition to visual inspections of the piles and underdeck, OCC performed modified Level II inspections on 25 percent of the piles. The Level II inspections included detailed measurements to quantify loss of pile section, or loss of bearing. OCC also took timber core samples from the piles and concrete core samples from the crane rail beams, pile caps and diaphragm walls for materials testing and analysis. OCC also used a bathycorrometer to measure the level of cathodic protection for the steel piles, which had been retrofitted with magnesium anodes during the 1990's.

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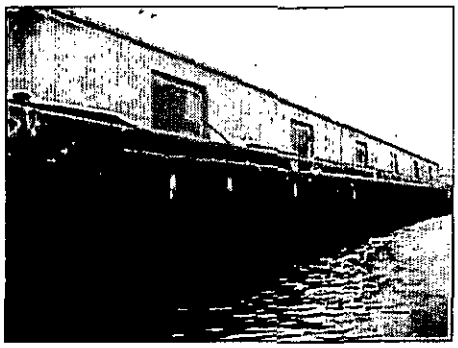

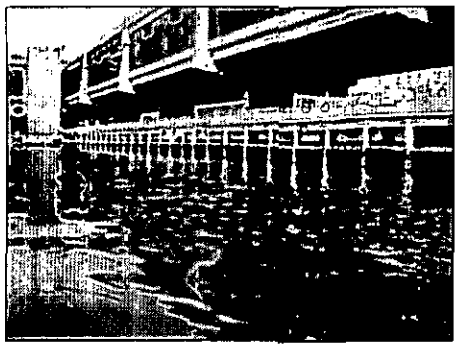

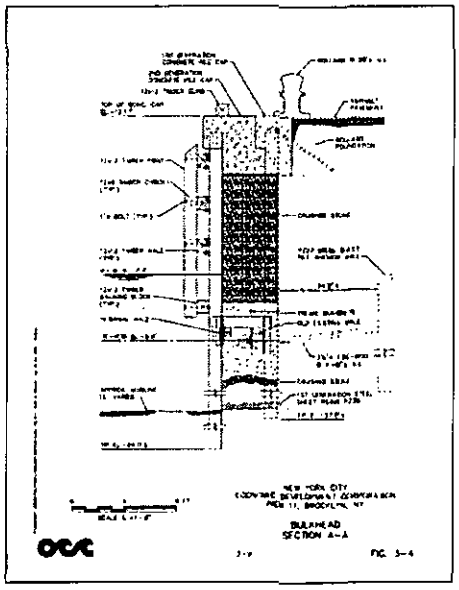

project experience profile

Project Title: **NYCEDC FY 2009 Routine Inspections**
New York and Brooklyn, New York

Client: Turner Construction / New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718) 439-5373

Project Cost:

Engineering: $80,000

Completion Date:

Engineering: 2009

Project Role: Primary Consultant

In 2008, OCC was selected to perform Routine Inspections at Pier 11 in Brooklyn and the inshore platforms of the Manhattan Cruise Terminal. The scope of the project included the above water and underwater inspection of the structure and preparation of a routine inspection report.

OCC's PE-Divers, Engineer-Divers, and Technician-Divers performed the underwater inspection of the course of two weeks. Diving inspections were conducted using surface-supplied diving equipment with full-time hardwire communication between the diver and topside personnel.

OCC prepared two routine inspection reports that documented the observed conditions, provided recommended priority and routine repairs, and cost estimates.

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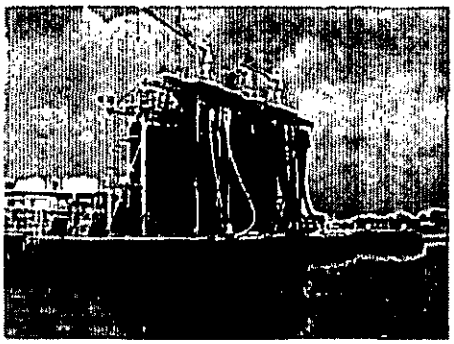
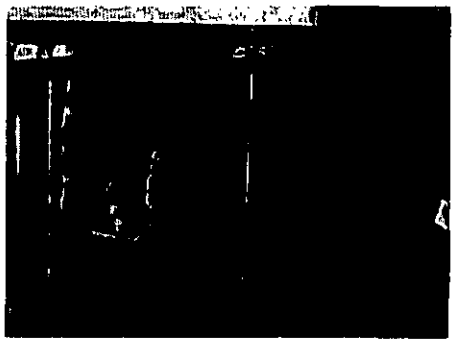
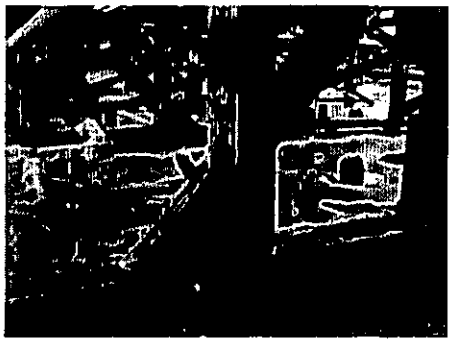
a COWI company







project experience profile

Project Title: **Kinder Morgan - Carteret Dock 3 Condition Investigation**
Carteret, New Jersey

Client: Kinder Morgan Liquid Terminals, LLC

Reference:

Project Cost:

Engineering: $43,150

Completion Date:

Engineering: 2009

Project Role: Primary Consultant

In 2009, OCC was selected as the primary consultant for a Condition Investigation of Dock 3, located at the Kinder Morgan Terminal. The scope of the project included the above water and underwater inspection of the structure and preparation of a routine condition inspection report. As a result of damages observed, OCC prepared all local and state permits to accommodate future construction activities.

OCC's PE-Divers, Engineer-Divers, and Technician-Divers performed the underwater inspection over the course of five days. Diving activities were staged from our custom built 32-foot aluminum dive boat. Diving inspections were conducted in accordance with OSHA 29-CFR-1910 regulations. All diving was performed using surface-supplied diving equipment with full-time hardwire communication between the diver and topside personnel.

The inspection was comprised of timber piles, steel sheet piles, concrete encasements, hose tower support structure and mooring dolphins.

OCC prepared a routine inspection reports that documented the observed conditions, provided recommended priority and routine repairs, and cost estimates.

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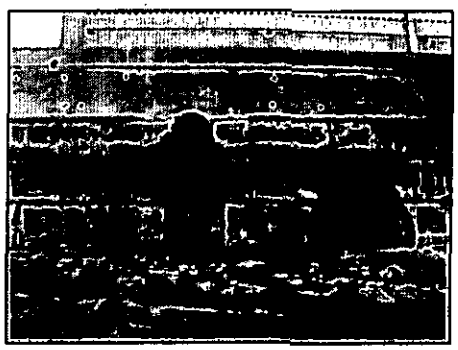

project experience profile

Project Title: **Pier 94 Seawall Investigation and Resident Engineering**
New York, New York

Client: Turner Construction / New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718) 439-5373

Project Cost:

Construction	$600,000
Engineering:	$100,000

Completion Date:

Engineering: 2011

Project Role: Primary Consultant

Permits/Agency: NYC DEC
NYS DOS
US ACOE
NYC DSBS

In 2009, OCC was selected to assist with the rehabilitation of the piles and seawall at Pier 94 in Manhattan. OCC performed above water and underwater inspections of the seawall to identify missing or deteriorating granite blocks as well as missing or failed masonry grout. Inspection data was used to prepare contract drawings, specifications, and local and state permits.

In addition, OCC provided resident engineering services to review the contractor's progress on both the seawall and pier rehabilitation. This included periodic above water and underwater inspection of the progress and submission of daily field reports.

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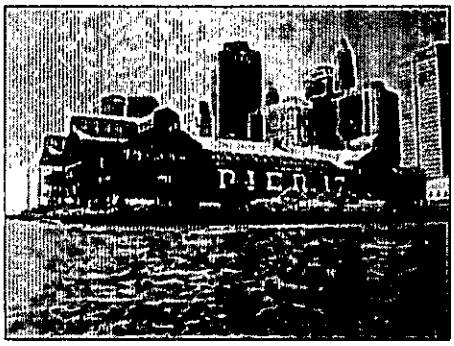

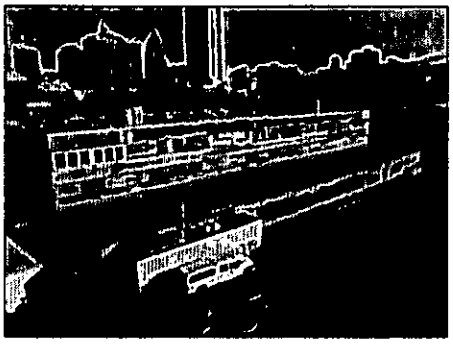

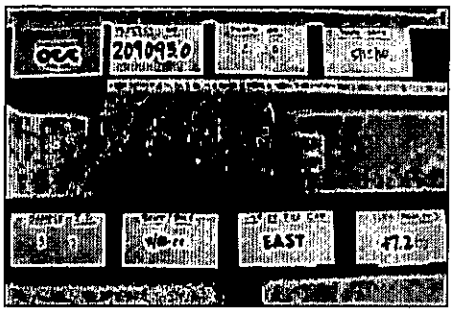

project experience profile

Project Title: **NYCEDC FY 2010 Routine Inspections**
New York, New York

Client: Turner Construction / New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718) 439-5373

Project Cost:

Engineering: $252,500

Completion Date:

Engineering: 2010

Project Role: Primary Consultant

In 2010, OCC was selected to perform Routine Inspections at Pier 17 and Old Fulton Fish Market at the South Street Seaport in Manhattan. The scope of the project included the above water and underwater inspection of the structure and preparation of a routine inspection report. This was OCC's 2nd inspection of these structures, as we previously inspected these structures in the FY 2006 Routine Inspection cycle.

OCC's PE-Divers, Engineer-Divers, and Technician-Divers performed the underwater inspection of the course of eight weeks. Diving inspections were conducted using surface-supplied diving equipment with full-time hardwire communication between the diver and topside personnel.

As a result of observations from the 2006 inspection, OCC was also tasked with performing an investigation of the concrete caps supporting Pier 17. OCC obtained concrete cores for subsequent mechanical and petrographic testing. In addition, OCC performed NDT on the concrete caps to evaluate corrosion risk and on the piles to evaluate their overall length for use in further structural analysis of the pier.

OCC prepared two routine inspection reports that documented the observed conditions, provided recommended priority and routine repairs, and cost estimates.

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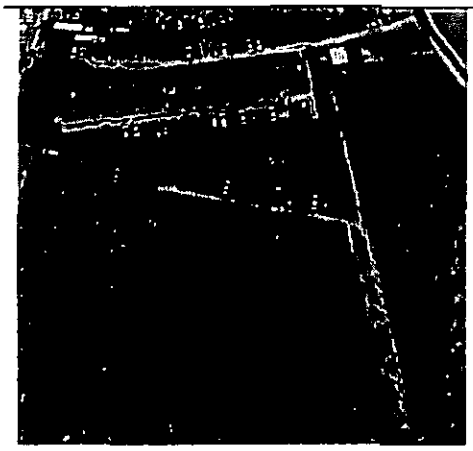

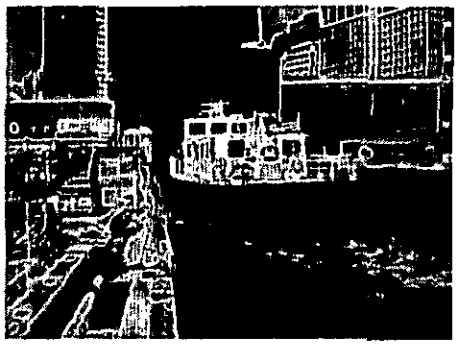

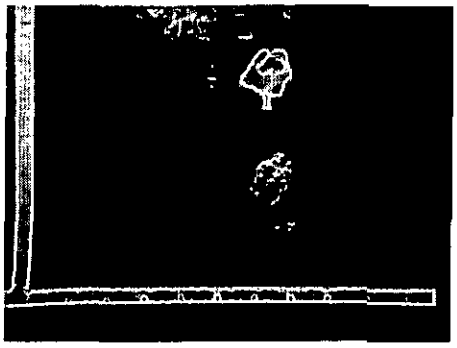

project experience profile

Project Title: **USCG MIO Battery Station**
New York, New York

Client: United States Coast Guard (USCG)

Reference:

Project Cost:

Engineering: $86,000

Completion Date:

Engineering: 2011

Project Role: Sub- Consultant

Permits/Agency:

The U.S. Coast Guard MIO Station at the Battery in New York City services the National Parks Services Ellis Island employee transport vessel as well as the Regional Examination Center (REC). OCC in conjunction with a Small Business Enterprise were selected by the Coast Guard to provide above water and underwater inspections of their facility.

The MIO Station consists of 400 linear feet of granite seawall, 150 linear feet of a steel bulkhead, 350 linear feet of a gravity pier and a 35 foot simply supported transfer bridge.

A Facilities Condition Report was generated which included a structural condition assessment and recommended maintenance and repair items. A load restriction was recommended due to heavy corrosion to structural elements associated with a transfer bridge.

OCC performed life cycle cost analyses of multiple rehabilitation and replacement options to assist the Coast Guard in their facility planning process.

All diving operations were performed in accordance with OSHA 29-CFR-1910 and the Association of Diving Contractors International (ADCI), using surface-supplied diving equipment with full-time hardwire communication between the diver and topside personnel.

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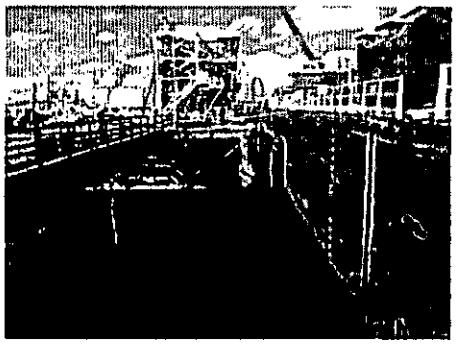

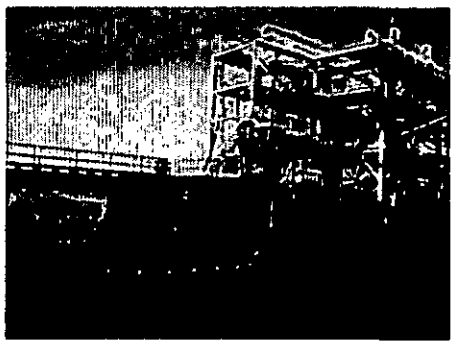

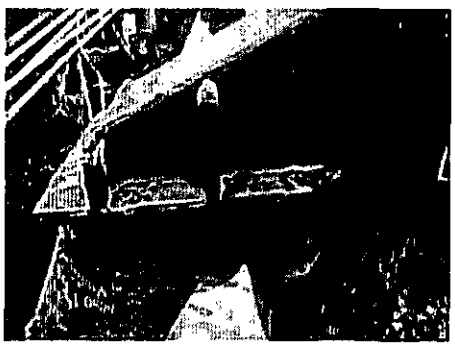

project experience profile

Project Title: **Pier 1 - Condition Investigation**
Bayonne, New Jersey

Client: International Matex Tank Terminals (IMTT)

Reference: Mr. Jim Osman
Director of Engineering

Project Cost:

Engineering: $78,510.00

Completion Date:

Engineering: 2011

Project Role: Primary Consultant

In 2011, OCC was selected to perform Routine Inspections at Pier 1 at the International Matex Tank Terminals (IMTT) in Bayonne, New Jersey. The scope of the project included the above water and underwater inspection of the structure and preparation of a routine inspection report.

Diving operations were staged from our 32-foot dive boat, *R/V Barbara White.* Diving operations were conducted in accordance with OSHA 29-CFR-1910 and the Association of Diving Contractors International (ADCI), using surface-supplied diving equipment with full-time hardwire communication between the diver and topside personnel. Underwater video recording was also used to document defects found. The structural conditions of the elements were rated in accordance with ASCE manual for Underwater Investigations.

As a result of our inspection findings immediate repairs and protocols were established for using the pier. Three broken steel pipe piles required to be re-connected using mechanical connections. Additionally, a mooring and berthing analysis was performed to determine safe tug breasting locations along the pier.

OCC prepared a routine inspection reports that documented the observed conditions, provided recommended priority and routine repairs, and cost estimates.

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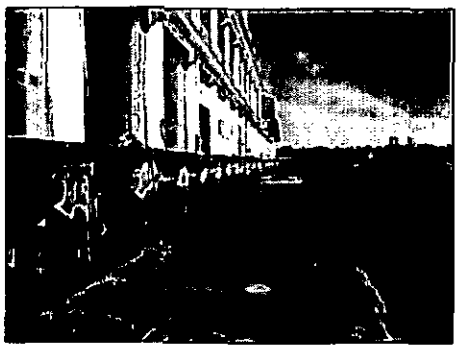

project experience profile

Project Title: **Pier 88 and 90 Investigation and Design**
New York, New York

Client: Turner Construction / New York City Economic Development Corporation (EDC)

Reference: Dan Fine
Turner Construction
Brooklyn Army Terminal
140 58th Street
Brooklyn, NY 11220
(718) 439-5373

Project Cost:

Construction	$8,000,000
Engineering:	$265,000

Completion Date:

Engineering:	2011

Project Role: Primary Consultant

Permits/Agency: NYC DEC
NYS DOS
US ACOE
NYC DSBS

In 2011, OCC was selected as the primary consultant for Routine Inspection of Piers 88 and 90, located at the Manhattan Cruise Terminal. The scope of the project included the above water and underwater inspection of the structure and preparation of a routine inspection report. As a result of damage observed, OCC prepared contract drawings, specifications, and all local and state permits.

OCC's PE-Divers, Engineer-Divers, and Technician-Divers performed the underwater inspection of the course of eight weeks. Diving inspections were conducted using surface-supplied diving equipment with full-time hardwire communication between the diver and topside personnel. OCC utilized a database to record both above and underwater inspection notes. Early in the inspection, OCC observed severe marine borer attack in the timber and developed criteria that allowed the repairs to be determined in the field.

OCC prepared two routine inspection reports that documented the observed conditions, provided recommended priority and routine repairs, and cost estimates.

The results of the analysis, along with the data obtained during the investigation, were used to prepare a set of contract drawings and specifications. OCC also prepared subsequent permit applications.

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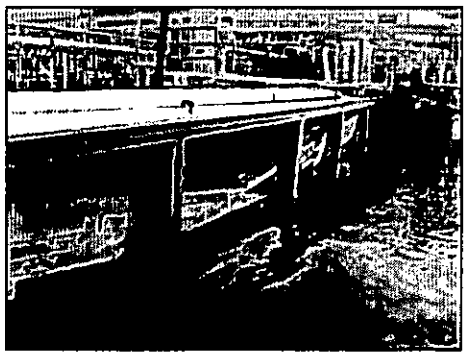

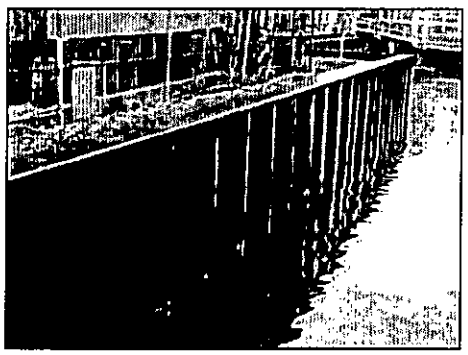

project experience profile

Project Title: **IMTT Pier 1 Bulkhead Rehabilitation,** Kill Van Kull, between Staten Island, NY and Bayonne, NJ

Client: IMTT

Reference: Mr Jim Osman
IMTT -Bayonne
250 East 22nd St
Bayonne NJ 07002
(201) 858-6871

Project Cost:

Construction $1,750,000

Engineering: $150,000

Completion Date:

Engineering: 2010

Construction: 2011

Project Role: Primary Consultant

OCC conducted a complete site survey of approximately 540 linear feet of bulkhead to be rehabilitated at Pier 1, one of IMTT-Bayonne's largest and most frequently used Pier's for the transshipment of petrochemicals. The existing bulkhead in the vicinity of the Pier was comprised of failing timber cribbing, a timber sheet and soldier pile wall with a failing shotcrete face.

Due to various loading conditions upland of the existing bulkhead, constructability interferences with existing infrastructure and the Clients' need to keep Pier 1 operational during construction, OCC developed this innovative construction detail to stabilize bulkhead beneath Pier 1.

The bulkhead could not be conventionally over sheeted with steel sheet piles due to pipeline interference and clearance issues.

Constructability was the main priority for this phase of the rehabilitation. The moment connection was prefabricated using pipe sections that were a little larger than the piles being installed. Chairs for the wale connections were also preinstalled

G -Proposed
Management Approach

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Tel 203 268 5007
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www.ocean-coastal.com

Section G - Proposed Management Approach

Performing the Required Services

A key requirement for successful management of this contract is a Task Order planning, implementation and monitoring process, which assures satisfactory delivery of work tasks on time and within budget. In order to achieve these goals, our management philosophy embodies the following four (4) basic principles:

1. Interactive and rapid lines of communication and a single responsive point of contact,
2. Clarity in assignment of responsibilities and authority,
3. Thoroughness in carrying out coordination between the task team and the client, and
4. Commitment of OCC resources to fully satisfy client needs.

For this contract, Mr. Stephen Famularo, P.E. will be Project Manager and lead point of contact for all tasks. Mr. Famularo will coordinate all contract issues and communications and assign a Team Leader for each task order. Each Team Leader will be a PE-diver (in New York or New Jersey, as necessary) with experience to lead that particular assignment. A number of highly qualified professionals, covering all the necessary disciplines required for the project, are available from the within OCC.

Mr. Famularo will perform internal project management and coordination through our Friday project manager meetings. These meetings have been a tradition at OCC and form the basis of our scheduling and management style. The meetings cover all active and planned projects addressing schedule, utilization and balancing of staff and equipment resources, and prioritization of work. All project managers attend whether by phone or web conference. Intra and inter office communication is our key to success.

Mr. Famularo will utilize Deltek Vision, our company-wide project management and financial software. This web-based system is available through both in the office and in the field. It integrates company and project financial data to provide near real time resource and earned value management of projects. For instance, Mr. Famularo will use Vision to review the hours budgeted versus both the hours spent and future planned hours to monitor project schedule and budgets.

Being Responsive to the Authority's Needs

Being responsive to our clients is a core value at OCC. We consider responsiveness as being quick to react in times of urgency as well as providing the appropriate level of services to meet our clients' needs. With regards to quick reaction, OCC's Project Manager for this contract and the Team Leaders for the various task orders within the contract will be available by phone, fax and e-mail at nearly any time of day. We can provide multiple underwater inspection teams to any site in the New York and New Jersey Harbor region within hours of notification and dedicate the office resources to rapidly address any waterfront engineering issue that the Authority encounters.

In addition to our ability to respond quickly, OCC is responsive to our clients' needs by listening to the issues and concerns and providing the appropriate services to solve the problem. Mr. Famularo and the relevant Team Leader will meet with key staff of the Authority at the start of each task order, provide weekly updates on progress, meet agreed upon deadlines, and deliver quality reports and deliverables.

Keeping the Authority Appraised of the Project Status

As previously discussed, OCC will have a single point of contact for all project assignments. During open task orders, Mr. Famularo will contact the Authority after each of our weekly Friday project manager meetings to update key staff on status of existing work and review upcoming work for the next few weeks. In addition, Mr. Famularo will update the Authority by phone or e-mail of any significant changes to the project plan or field observations that may require immediate action.

Ensuring the Quality of the Work Product

OCC's Quality Control Program (See Section I) is an essential component of our company wide dedication to exceeding customer expectations. OCC's Quality Control Program ensures our client's effort to QA our work is minimized. It should be noted that many of our clients have minimal to no internal QA process and they rely entirely on OCC to produce quality inspection reports, structural assessments, design plans, specifications and cost estimates.

Some of the highlights of our quality control system include:

- A three-tiered approach to quality control / quality assurance:
  - Tier 1 – a documented system for quality control including standard operating procedures, including simplifying compliance with the documented procedures through the use of check lists or other documentation methods.
  - Tier 2 – defining responsibilities, authority and accountability through a structured review process.
  - Tier 3 – management controls to ensure an efficient implementation of the quality system and a quality product.

- Three (3) levels of structured internal review:
  - Project Team Review
  - Internal Technical Review
  - Final Internal Review

Project team review is the most important level of review. The purpose of project team review is to lessen the dependence on inspection to achieve quality. Building quality into the product in the first place eliminates the need for re-inspection and will help prevent problems from developing. Project team members are required to review each other's work with regard to technical issues and project goals. While the project manager is typically the responsible party for implementing team review, all team members will be active in the process.

The second level of review is an independent Internal Technical Review. The Internal Technical Review is typically completed by a project manager or senior project manager staff member, although a Team Leader may be used as appropriate. The purpose of the Internal Technical Review is to confirm that the product:

- Meets the scope of work
- Meets the client requirements
- Is technically sound, and
- Conforms to OCC and industry standards

The person completing the review will be familiar with the project and with the type of deliverable and be well versed in the engineering standards that apply to the project. However, they will not be involved with the project on a day to day basis.

The Final Internal Review is typically completed by the Managing Engineer. As appropriate, the Managing Engineer may delegate the final internal review to an Office Director, Service Line Manager or Senior Project Manger. The purpose of the Final Internal Review is to confirm project goals are met, ensure the project deliverable is clear and understandable, and that the project is consistent with company policies.

H - Firm Affiliates

OCEAN AND COASTAL
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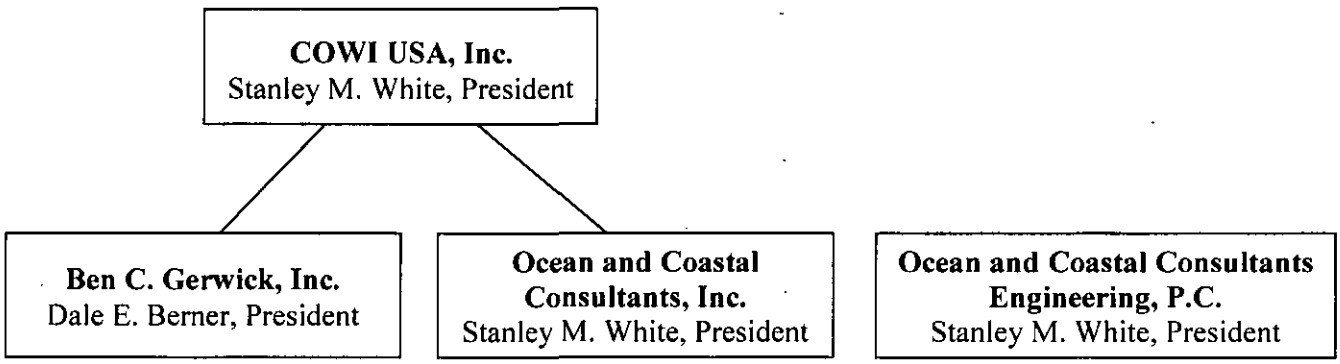
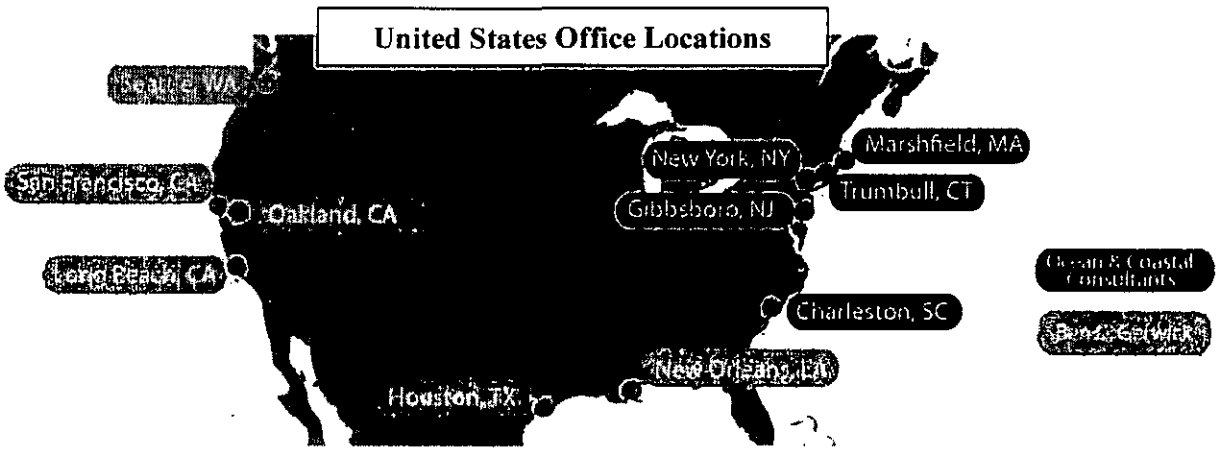
Trumbull, CT 06611
Tel 203 268 5007
Fax 203 268 8821
www.ocean-coastal.com

Section H - Firm Affiliates

Ocean and Coastal Consultants Engineering, P.C. (OCC) does not have any Affiliates as defined in Section 32 of the Authority's Standard Agreement. However, OCC does share some commonality with Ocean and Coastal Consultants, Inc., Ben C. Gerwick, Inc. and COWI USA, Inc. as shown below:



Ocean and Coastal Consultants, Inc. and Ben C. Gerwick, Inc. are Affiliates of COWI USA, Inc. Ben C. Gerwick is a marine engineering firm in California with specialization in design-build of large bridge and marine structures, marine foundations, marine concrete and general waterfront engineering. COWI provides the international resources of an additional 150 marine engineers as well as an additional 20 staff in the materials group with worldwide expertise in marine concrete deterioration and steel corrosion.



I - Quality Control/Assurance Plan

OCEAN AND COASTAL
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www.ocean-coastal.com

Section I - Quality Control/Assurance Plan

The following document is OCC's Quality Manual. It is utilized from proposal generation through project execution. However, for conciseness, we have provided only the sections on project related tasks for PANYNJ review.

COWI USA

Quality Management in COWI USA Companies

February 2009

Ben C. Gerwick, Inc.

OCEAN AND COASTAL CONSULTANTS, INC.

COWI

COWI USA

Quality Management in COWI USA Companies

February 2009

Report no.	
Version no.	0.1
Date of issue	February 2009
Prepared	ROSN
Checked	BRJO
Approved	STWH

Table of Contents

1. Introduction

2. Proposal

3. Agreement(s)

4. Planning

5. Executing

6. Closing

Appendices

Introduction

Purpose

The target group of this manual is the small and medium sized COWI Group Companies operating in the USA, which do not have a quality management system in place.

The project manual presents how to prepare, plan and execute projects the COWI way. The manual is an operational elaboration of the COWI Group Quality Management and Environmental Management Manual.

Content/structure

The manual is structured in accordance with COWI's Project Execution Model and covers the last five phases of this model:

- Proposals
- Agreement(s)
- Planning
- Executing
- Closing

The activities in each phase are described in one or more procedures supplemented with the pertinent forms and check lists.

In the manual the word 'must' is used when an activity is required to be done as specified, and the words 'could', 'should', 'may' or similar are used when the course of action described is the recommended way of performing the activity. In these cases the company or the Project Manager is free to choose another course of action if this is deemed to be more appropriate in the actual situation. This changed course of action must be documented (e.g. in the Project Quality Plan).

Revision

The manual is based on procedures used by various companies in the COWI Group, and the manual will be revised and adjusted in line with experience and feed-back from the users and hereby provide best practices available to all the employees in the COWI Group. All employees are urged to propose adjustments and revisions and hereby contribute to the improvement of the manual. All suggestions for improvements should be directed to Bryan Jones (brjo@ocean-coastal.com).

Table of Contents - Planning

Procedures

4-01 Project management - planning
4-02 Planning - activities, time and budget
4-03 Project deliverables - planning and registration
4-04 Setting up a project file

Forms/check lists

4-01.1 Identifying the project basis, check list
4-01.2 Guide to risk evaluation during planning
4-01.3 Project Quality Plan, form
4-01.4 ATR sheet (Activity, Time and Resources)

COWI USA Quality Management

4-01 Project Management - Planning, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

The Project Manager is responsible for planning the project in accordance with the consultancy agreement, the COWI Group's fundamentals and policies, the COWI USA Company's policies and internal rules and procedures, and in such a way that both the client's and the COWI USA Company's needs and expectations are fulfilled.

The Project Manager is responsible that considerations, specific plans and instructions to be followed by the project, are compiled in a Project Quality Plan/ Project Manual for the project. The Project Manager is responsible that the Project Quality Plan is kept updated and adhered to by the project organisation.

2 Course of action in planning of the project

2.1 General

The project must be registered in the COWI USA Company's administrative system.

The Project Manager must analyse the conditions of the project and must use his knowledge and competence to identify any conditions considered special or unusual.

On this basis the Project Manager must plan the execution of the project, including a re-calculation and a re-planning to verify a proposal given, if any.

The form and extent of the deliverables are to be planned so they meet the client's needs and expectations.

The Project Manager must include considerations and decisions taken with the President/Vice President/Regional Manager at the handing over meeting, cf. 3-03. Handing over the project into the planning.

The Project Manager should evaluate whether the procedures and guides prepared by the COWI Group and the COWI USA Company are adequate or if they should be supplemented with discipline specific procedures and instructions or if new procedures should be drawn up, e.g. as a result of requirements from the client. New procedures must:

- be in compliance with the COWI Group Quality and Environmental Management Manual
- reflect the intentions of the guides prepared by the COWI Group.

If a client demands his own Quality Management System used the Project Manager must ensure, that the client's system is supplemented so the quality management of the project also fulfils the requirements of the COWI Group Quality and Environmental Management Manual.

2.2 The client and other external parties

Stakeholders and authorities

The Project Manager should identify the project's stakeholders and how they may be able to influence the project. The Project Manager should consider to what extent they should be involved. The necessary approvals from the authorities should be identified.

Success criteria

The Project Manager must identify the success criteria of the client.

Services supplied by the client

In planning the project, the Project Manager should incorporate the agreed deliverables of the client. The Project Manager should specify as necessary, for instance details regarding time of delivery and deadlines for approvals.

Confidentiality

The Project Manager should pay attention to any special demands regarding confidentiality, and in planning the project ensure that these demands are observed.

2.3 Project basis

The project basis should be identified and described.

If the project basis is inadequate, the Project Manager should suggest possible supplementary activities to the client. Should the client request that a project be initiated on an inadequate project basis, the client should accept in writing possible consequences of this, e.g. re-design.

If the project implies that the work be carried out on a preliminary project basis, the Project Manager should plan the process to ensure that the project staff at any time is working on the same basis and on the best possible basis.

Guideline: Cf. 4-01.1 Identifying the project basis, check list.

2.4 Interfaces

Interfaces within the project and between the actual project and other projects should be identified. The Project Manager should determine how to manage the interfacing activities both with respect to responsibility and method.

2.5 Project organisation and project staff

Organisation and project staff

The Project Manager should set up and describe a project organisation (preferably by drawing up an organisation chart) which is capable of executing the assignment. Selection of project staff should take place in co-operation with the President/Vice President/Regional Manager.

Responsibilities and authorities

The Project Manager should determine the responsibilities and authorities of the project staff including the authority to sign and the responsibilities of the discipline leaders/sub-project managers in respect to economy, planning and reporting.

The Project Manager should ensure that all project staff is fully informed of their duties and responsibilities/authorities as well as of the objectives of the project.

2.6 Sub-consultants

The Project Manager must determine how to ensure, that results from sub-consultants are correct and in accordance with the agreement between the COWI Group Company and the sub-consultant. In this respect the following should be observed:

- the result of the evaluations during the selection process
- the effect of the services on the final product
- project risks.

The Project Manager should ensure that it is agreed with the sub-consultant, which quality management system the sub-consultant has to follow.

The Project Manager should agree with the sub-consultant on matters where it is important that procedures are coordinated and agreed, e.g. external communication and submitting of documents.

The Project Manager should evaluate whether changes to the general procedures and guidelines are necessary considering the services of the sub-consultant, if it is agreed that the Project Quality Plan covers the services from the sub-consultant as well.

2.7 Activities, time, budget and evaluation of progress

Activities

The Project Manager should ensure that all project work is broken down into an appropriate number of activities for which specific activity content, time, budget, and results are defined, cf. procedure 4-02 Planning - activities, time and budget.

Evaluation of progress

The Project Manager should plan the form and content of the progress evaluation, cf. 5-04 Monitoring and follow-up - activities, time and budget, as well as the frequency of the evaluation, which should be at least once a month.

2.8 Communication

Communication with the client

The Project Manager must ensure that the client is kept informed about the course of the project and the results achieved. This may be done through a close dialogue with the client e.g. through a series of meetings.

The Project Manager should determine, which employees can communicate directly with the client and on which issues. Also the communication with stakeholders and involved authorities should be planned.

Internal communication

The Project Manager should plan the internal project communication (meetings, information) to ensure that all project team members obtain the necessary knowledge and insight in the project and are comfortable with their duties. The Project Manager should convene a start up meeting with the project team members, if possible.

E-mail and paper based mail

If the Project Manager decides to supplement the existing office procedures concerning handling of e-mail and paper based mail, the supplements must be stated in the Project Quality Plan.

2.9 Risks

The Project Manager should analyse the conditions of the project and identify any special or unusual conditions considered. The Project Manager should include as a basis the initial risk screening, cf. 2-01.1 Risk Screening which was carried out prior to submitting the proposal/entering into the agreement, and any discussions, which have taken place in connection with handing over the project. The Project Manager should consider whether the identified special or unusual conditions will require a revision of the initial risk screening, which formed the basis for the management's acceptance of the company's involvement in the project.

In planning the project, the Project Manager must give appropriate considerations to risks, both internal and external and both technical and cultural as well as risks concerning personal safety, etc.

Guideline:

Examples of planning and mitigation measures:

- *draw up a safety plan for work in potential unsafe project areas*
- *increase time or financial reserves*
- *increase project checks or perform reviews*
- *introduce special ways of communication.*

Cf. 4-01.2 Guide to risk evaluation during planning

2.10 Health, safety, environment and social conditions

Due consideration should be taken to health, safety, environment and social conditions.

When completing the check list "Handing over the project", at the handing over meeting, the Project Manager and President/Vice President/Regional Manager jointly evaluates whether HSE and social conditions aspects require special attention. If there is no handing over meeting, the Project Manager should make this evaluation himself.

2.11 Planning and registration of project deliverables

The Project Manager should plan the preparation, check, approval and review of the project deliverables documenting the services of the COWI Group Company. This also includes planning of level of checking. The planning should be in compliance with procedure 4-03 Project deliverables, planning and registration.

2.12 Document and data control

Identification and layout

The Project Manager should determine if the company's standard procedure for identification of documents and files and layout of documents can meet the requirements of the project. If additions or alterations are needed the Project Manager must determine and describe such changes.

Filing

The Project Manager should determine how to organise the project file, both the digital file and the paper file, cf. procedure 4-04 Setting up a project file.

2.13 Technical facilities

IT-programs

The Project Manager should specify the IT-facilities, including name, revision and version of the programs, which are to be used for the execution of the assignment.

Measuring equipment

Measuring equipment to be used should be determined and specified in order to ensure traceability.

2.14 Previous experience

The Project Manager should identify previous projects to be used as best practice (maximum of 3). This may also include projects performed by other COWI Group Companies.

2.15 Other necessary activities

The Project Manager must evaluate any other activities, which are deemed to be critical for the success of the project.

3 Documentation

The planning activities must be documented in a Project Quality Plan (may also be named Project Plan or Project Manual) with pertinent appendices.

The Project Quality Plan may be prepared using a form, cf. 4-01.3 Project Quality Plan, form. Only relevant sections should be filled in. Sections not applicable should be marked 'NA'.

Alternatively, the Project Quality Plan may be prepared in the format for reporting that applies to the project. The list of contents of the Project Quality Plan could be the sub-headings of chapter 2 of this document.

Concerning best practices Project Quality Plans for large projects, please contact Corporate Quality Management.

Check and approval — The Project Quality Plan should be subject to check by the Head of Department, the company's Quality Manager or a sparring partner. The plan must be approved by the Project Manager.

Distribution — The Project Quality Plan should be made known to and easy accessible by all persons involved in the project.

Application — The Project Quality Plan must be filed in the project file and appear from the project's document list.

COWI USA Quality Management

4-01.1 Identifying the project basis, check list, ver 0.1

The project basis is primarily established by going through the consultancy agreement and the proposal if prepared. In addition to this the following list may serve as an inspiration.

- Local regulatory requirements, current legislation, circulars, government orders etc.
- Maps, district plans, local authority projects etc.
- Client's functional requirements as regards system/structure.
- Requirements or needs as regards the user.
- Third party aspects.
- Requirements as regards external environment and working environment.
- Local conditions (e.g. traditions, materials, climate, demography, maintenance possibilities).
- Applicable codes of practice and standards, etc.
- Determination of variables in codes of practice and standards (e.g. safety class, acceptance criteria).
- System requirements (e.g. traffic load, structure clearance, pressure, temperature).
- External loads (e.g. earthquakes, wind, waves, current, temperature, snow, rain, noise, fire, explosion, vibrations).
- External conditions (e.g. soil conditions, water level, existing utilities, archaeological interests, roads and buildings).
- Requirements as regards materials (e.g. strength, density, elasticity, corrosion resistance).
- Operational and maintenance requirements.
- Requirements as regards execution (e.g. logistics, fitting technique).

The project basis should be stated in the Project Quality Plan. It is not the intention that obvious documents shall be listed. E.g. common laws and regulations should only be identified, if of special relevance to the project, or in cases where there could be doubts about which edition is valid.

4-01.2 Guide to risk evaluation during planning, ver 0.1

Example:

Conditions	Hazard	Prob-ability	Conse-quences	Risk	Response/action/risk control plan
Example of use in italics. *Instead of using terms like "large", "medium", etc., numbers can be used as shown (e.g. 1-3), or probabilities and amounts.*					
Tight time schedule	*Exceeding*	*large*	*large*	*high*	*The project manager and the person responsible for the technical discipline shall follow up every week.*
Unsafe area	*Kidnapping of project staff*	*medium*	*large*	*high*	*The project manager shall prepare a safety plan*
Many stakeholders	*Some are not heard*	*1*	*2*	*2*	*The project manager shall prepare a communication plan in co-operation with the client*
New technical discipline - too little knowledge	*Wrong solution*	*2*	*3*	*6*	*An expert to be hired in for the project. The project manager and the Head of department to discuss further.*
Inexperienced project manager regarding budgeting	*Inadequate budget follow-up*	*80%*	*100,000*	*80,000*	*Weekly sparring between the project manager and the Head of department at the initiative of the Head of department.*
Contracts with quantity-responsibility	*Quantity calculations incorrect*	*20%*	*3 million*	*600,000*	*Systematic check and sharp interface check. The project manager and the discipline leader shall determine the checks.*

Terms and method:

Conditions — Conditions are built-in or attached to any project, setting the terms according to which the project shall be executed. Experience within the COWI Group indicates special attention if: a high-risk project according to the screening; an unusual organisation, a different culture, the COWI USA Company is responsible for quantities, a tight time schedule, the project manager is inexperienced, a new technical discipline, lack of staff resources in the department/company.

Hazard — On the basis of the conditions of the project, the likely unwanted hazards/ situations should be identified, i.e.:

- sudden hazards, which might take place, and which we cannot prevent, but where it would be an advantage to be prepared.
- hazards, which is a consequence of known (difficult) situations, which we can affect in such a way as to not occur or as to occur with less likelihood and/or less consequences.

Probability — The probability is assessed of a hazard taking place.

Consequence — The consequence of each hazard shall be assessed.

Risk	The risk is calculated as the combination/the product of the consequence and the probability.
Response	The project should be planned so that appropriate consideration is given to the most essential risks, and so that distribution of responsibility is clear - also for following up.

Please remember that no matter the extent and the form of the risk management, the terms/conditions often change in the course of the project. Furthermore, it is not always possible to identify everything at the beginning. Re-assessment is important.

4-01.3 Project Quality Plan

Company:	Project id.:
Document no.:	Revision no.:

Project Manager:	Prepared:	Checked:	Approved:	Date:

General:

(To be cont. in App. No. .....)

Scope of work:

(To be cont. in App. No. ....)

The client and other external parties:

Relation	Name	Address	E-mail	Tel/fax	Contact person
Client					

(To be cont. in App. No. ....)

Client's success criteria:

Requirements regarding confidentiality:

Services supplied by the client:

(To be cont. in App. No. ....)

Project basis:

(To be cont. in App. No. ....)

Interfaces (identification and management):

(To be cont. in App. No. ....)

External QM requirements:

(To be cont. in App. No. ....)

Project organization, including responsibilities and authority:

(To be cont. in App. No. ....)

Company:	**Project id.:**
Document no.:	**Revision no.:**

Time schedule:

Act. code:	Name of activity:	Starting date:	Finalising date:

(To be cont. in App. No. ....)

Budget:

Act. code:	Name of activity:	Budget:

(To be cont. in App. No. ....)

Progress evaluation; frequency and report form:

(To be cont. in App. No. ....)

Coordination, including schedule of meetings:

(To be cont. in App. No. ....)

Risk,

Special and unusual conditions:

Safety for personnel:

(To be cont. in App. No. ....)

Health, safety, environment and social conditions (HSE&S):

(To be cont. in App. No. ....)

Project review: (in addition to obligatory Project Manager review)

Date	Phase/status/subject	Project review team

(To be cont. in App. No. ....)

Company:	**Project id.:**
Document no.:	**Revision no.:**

Document list/check/distribution:

Doc. no.	Rev.	Document title	Date	Prepar. by:/init	Checked		Appro. by/init.	Distributed to
					Extent	Init.		
								(To be cont. in App. No. ....)

Distribution of the document register; frequency and recipients:

(To be cont. in App. No. ....)

Check of sub-consultant's results:

(To be cont. in App. No. ....)

Document identification and layout:

Numbering system:

Version numbering

- Draft documents:
- Approved documents:

(To be cont. in App. No. ....)

Filing system and data control:

(To be cont. in App. No. ....)

Technical facilities applied:

IT systems:

Measuring equipment:

(To be cont. in App. No. .....)

Experience:

Reference projects:

Specific experience gathered during the project:

(To be cont. in App. No. .....)

Company:	**Project id.:**
Document no.:	**Revision no.:**

Any other business:

(To be cont. in App. No. .....)

Project changes:

Date	Change	References
		(To be cont. in App. No. ....)

Procedures applied:

COWI USA guides are to be used unless stated otherwise below.

COWI USA guides are replaced/supplemented as listed below:

Doc. no.:	Title	Replace/ supplement

4-01.4 ATR sheet (Activity, Time and Resources)

Company:				Project id.:	
Activity no.	Ver. no.	Date	Prepared	Checked	Approved

Activity name	Rev.
Objective	
Scope	
Basis/assumptions and interfaces	
Start-up and deadline	
Responsible for activity	

Resources	Hours	Rate	EUR	Expenses	EUR
Project manager				IT/CAD	
Specialist					
Senior consultant					
Consultant					
Junior consultant				Transport	
				Copying	
IT assistant				Miscellaneous	
Technical assistant				Subtotal	
Secretary					
Subtotal				Total	

Result/deliverables

COWI USA Quality Management

4-02 Planning - activities, time and budget, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

The Project Manager is responsible for the planning of activities, time schedule and budget.

2 Course of action

2.1 Describe the Work Breakdown Structure (WBS)

Describe WBS

The entire work to be performed is broken down into an appropriate number of activities at the initiation of the project. The size and complexity of the project will determine the degree of detailing.

The activity breakdown should be structured in a manner which ensures that information from the company's financial management system can be used directly for controlling the project. E.g. there should not be discrepancies between the Work Breakdown Structure and the company's financial management system.

Define activities

An activity should:

- have a well defined output/deliverable/result
- contain the work that leads directly to the output and no other work
- have a well defined start- and end date
- have a limited duration
  (typically 1 week for IT development, 2 weeks for planning and 4 weeks for design, or 40 hours, 100 hours and 300 hours respectively)
- be clear in its contents
- be clear about responsibility (only one person responsible for an activity)
- have a linear resource usage.

Define deliverables

For each activity, the deliverable is a measurable result of the performance of the activity, which will provide an unequivocal proof of completion of the activity, i.e. the objectives have been achieved. The deliverables may be an output that is used in a subsequent activity.

Documentation

WBS with activities defined by name, number and deliverables will constitute the documentation.

2.2 Detail activity planning

For each activity identified with **name, number and deliverables**, the following should be described:

- objective
- activity descriptions (work to be undertaken)
- project basis/assumptions
- interfaces
- dates of commencement and completion
- person responsible for the particular activity
- estimated consumption of resources (salary/hours, IT and miscellaneous expenditures in connection with carrying out the project inclusive internal administrative expenses).

Use ATR sheets

4-01.4 ATR sheet (Activity, Time and Resources) are recommended for use when defining activities in details, and the sheets can also conveniently be used as basis for internal commitment agreements between individuals, team members and the *Project Manager*.

Documentation

Detailed activity descriptions will constitute the documentation.

2.3 Prepare the time schedule

Before the start of the project or before the start of the next phase in the project a time schedule showing the sequence of the activities should be prepared to an appropriate detail depending of the specific project conditions. The basis is the defined activities.

Milestones

Insert the milestones as per contract conditions and other external requirements which may influence the activities to be performed (rainy season, factory shutdown for maintenance, etc.). Insert other milestones caused by interfaces between various disciplines, if relevant.

Documentation

Activity bar chart with milestones will constitute the documentation.

2.4 *Prepare the budget*

The activity costs derived from the activity-, time- and cost descriptions is the basis for establishment of the total budget as well as the budget distribution over time.

Develop budget

The level of detailing should match the contract, requirements for follow-up as well as the nature and complexity of the project. Furthermore, the budget must correspond to the WBS elements defined for the project.

The Project Manager should prepare a revenue budget (fees and reimbursable) and a cost budget (man-hrs, reimbursable- and non reimbursable expenses).

The cost budget must be estimated as the most likely budget, i.e. foreseen uncertainties are taken into consideration. This budget (exclusive of contingencies) is called the baseline cost.

Apply contingencies

In addition to the estimated most likely budget, contingency elements are supplemented to the uncertainties already taken into account during detailed budget estimation.

The total amount of contingencies should correspond to the size, nature and complexity of the project.

Guidelines:

The total amount of contingencies will normally vary from 5 to 15 % depending on the risk involved, uncertainties identified and the size, nature and the complexity of the project. In special cases the contingencies may even be higher.

Evaluate the project commercially

The cost budget incl. of contingencies is evaluated against the Total Revenue, Other Expenses, Man hrs. Costs, Contribution and/or Multiplier (factor).

The baseline cost and the contingencies constitute a commercial agreement between the Project Manager and the President/Vice President/Regional Manager. This agreement should be transparent.

2.5 Conclude the baseline plan

Review plan

The baseline plan comprising activity sheets, cost and time schedules with milestones and the baseline cost is reviewed by key team members. Findings and comments are discussed, and appropriate corrections and adjustments are made, and the Project Manager can eventually approve the baseline plan.

Obtain approvals

The baseline plan is presented to external parties for approval, if required according to contractual conditions.

Approve baseline plan

The approved baseline plan is the basis for measuring project performance.

Documentation

The approved baseline plan constitutes the documentation.

2.6 Prepare a billing plan

Prepare cash flow projections

The Project Manager should prepare cash flow projections on basis of the baseline plan and the payment mechanisms laid down in the contract, if required.

Prepare billing plan

The Project Manager should conclude a billing plan on fees and reimbursable expenses with accompanying instructions to the finance department.

In case of Joint Ventures, the Project Manager should set up the financial administration procedures in collaboration with the finance department.

Documentation

Billing plan and instructions to the finance department will constitute the documentation.

2.7 Alternative when man-hour costs are not transparent

If for various reasons the man-hour costs are not transparent, the man-hours themselves could be budgeted in the same way as the man-hour costs.

However, one should bear in mind that this approach may lead to misleading results, if team members are replaced by team members with a different salary. To a certain extent this could be handled by introducing various staff categories, and then introduce correction factors when replace a team member with a person from another staff category.

If man-hours themselves are budgeted two baselines are defined:

- baseline costs related to expenses
- baseline man-hours

and the same principles as outlined above should be applied.

COWI USA Quality Management

4-03 Project deliverables - planning and registration, ver. 0.1

1 Field of application and responsibilities

Field of application

This procedure applies to all projects in the COWI USA Company, unless otherwise specified in the Project Quality Plan.

The terms project deliverables are to be interpreted as all deliverables to document the consultancy (e.g. reports, notes, calculations, drawings, power point shows) including the underlying calculations, analyses and measurements.

Responsibility

The Project Manager is responsible for planning the preparation, check, approval and reviews of the project deliverables and for ensuring that the planning is documented.

The discipline leader is responsible for the detailed planning of the project deliverables within the specific discipline.

2 Procedure for planning of preparation, check, approvals and reviews

2.1 Preparation

The Project Manager must in co-operation with the discipline leaders determine the deliverables to be prepared and to decide who to prepare each deliverable and when.

The discipline leader can determine that the check lists for the preparation must be filled in. If so, the requirement must be stated in the Project Quality Plan.

2.2 Discipline check

All project deliverables must be subjected to a discipline check. The discipline check must be planned.

Determination of the level of discipline check

The discipline leader must determine the level of the discipline check in co-operation with the department responsible for the discipline.

The level of the discipline check may be either a minimum check or an extended check. When determining the level of the discipline check focus must be

on the risk of errors with critical consequences for the surrounding community, the client, the COWI Group or the COWI USA Company.

As a minimum, the following issues are to be considered:

- consequences for the personal safety in case of errors
- environmental impacts in case of errors
- reliability of supply in case of errors
- financial consequences in case of errors
- prestige related consequences in case of errors
- relevant experience of the person(s) preparing the document
- experience within the company from similar projects
- the complexity of the project/the product/the works
- the level of standardisation

In principle, all project deliverables prepared using computer systems not fulfilling the following requirements

- The system version in use have been on the market for more than six months or minor revisions of these, and the program has been on the market for more than two years.

- The system version in use is fully documented and essentially without errors

must be subjected to an extended check.

The level of the discipline check must appear from the preparation and check plans, cf. section 3. If some parts of the project material are subjected to an extended check and other parts of the same project material are subjected to a minimum check, it must be specified.

Application of checklists

The discipline leader can determine that the verification check lists must be filled in. If so, this requirement must be stated in the Project Quality Plan.

Appointing the Checker

The appointed checker must be competent to prepare the project deliverables to be checked, but must not have participated in the actual preparation of the documents.

A person who is taking part in the discussions of the execution of the project can act as Checker. It is a precondition that this person can execute the check with the same objectivity and attention as if the project deliverable was new to him.

In case extended checks are required it must be assessed if the company possesses the adequate expertise to check the critical elements, or if it is necessary to seek assistance from experts internal in the COWI Group or external.

For project material, e.g. reports, where several Checkers participate, a check coordinator may be appointed to ensure that the comments made by the different Checkers are co-ordinated and considered.

2.3 Interface check

The Project Manager should in co-operation with the discipline leaders and if necessary with other consultants, define the interface checks to be performed, how they should be performed and by whom.

Guideline:

Interface check should always be carried out when a discipline group is basing its design on information (e.g. specifications, quantities, geometry, and time schedule) provided by other discipline groups.

2.4 Check of sub-consultants

The check of a sub-consultant's services is to be planned on the basis of the agreement between the sub-consultant and the company.

Manpower services

For deliverables prepared in the name of the COWI Group Company the same rules apply as if the deliverables had been prepared by an employee of the COWI Group Company.

Specialist services

For deliverables prepared by a specialist the Project Manager appoints the Checker. To the extent possible the result of the specialist's work is checked in the same way as if the deliverables had been prepared by an employee of the COWI USA Company.

Services undertaken by other firms

For deliverables prepared in the name of another company the Project Manager appoints an employee as responsible for the check of the services provided, and determine the extent of the documentation.

2.5 Project review

The Project Manager should plan the work process, so that project deliverables only are released subject to a review by the Project Manager, cf. procedure 5-02 Project deliverables - from preparation to approval.

The Project Manager may plan any project reviews, which are in excess of the review performed by the Project Manager, cf. procedure 5-03 Project review.

2.6 Approval

The discipline leader must approve the project deliverable. Any other or supplementary approval is to be planned by the Project Manager in co-operation with the discipline leader.

The Project Manager in co-operation with the discipline leader should evaluate the need for approvals from the authorities and the Client, and plan these activities.

2.7 Documentation of checks and approvals

The Project Manager should determine how the preparation, check and approval must be documented.

The standard method is

- Preparation: The employee, who has prepared the deliverable, signs (initials) on a copy of the deliverable
- Discipline check: The employee, who has performed the discipline check, signs (initials) on the copy of the deliverable
- Approval: The discipline leader signs on the copy of the deliverable
- Interface check: The employee, who has performed the interface check, signs on a check form

If the Project Manager decides another documentation method, this method *must be described in the Project Quality Plan.*

Examples of other documentation methods:

- *List of project deliverables with the Checker/Approver's signature next to each version of the document in question*
- *Check form with the Checker's signature to confirm that the Checker's comments have been sufficiently incorporated (only documentation of check)*
- *E-mail/letter from the Checker/Approver with unambiguous reference to the document version.*

3 Procedure for registration

3.1 Document control plan

The results of the planning activities must be documented in such a way that for each deliverable it appears who will prepare, check and approve and when these activities will be performed. Further, the level of the discipline check as well as the project reviews if any must appear.

This may be documented in the project quality plan or in a specific document control plan.

3.2 List of project deliverables

The Project Manager must ensure that a list of project deliverables is established and maintained. The list should contain information on title, document number, version and date of the deliverable. All versions of the deliverable, the applicable versions as well as the obsolete versions, should appear from the list. Furthermore, the list must state to whom the deliverables have been distributed.

Guideline:

It may often be an advantage to prepare the list of deliverables and the document control plan in the same table.

4 Documentation in the project file

The documentation includes:

- document control plan
- list of project deliverables

The documentation should be kept updated to reflect the development of the project.

COWI USA Quality Management

4-04 Setting up a project file, ver. 0.1

1 *Field of application and responsibility*

Field of application

This guide applies to all projects in the COWI USA Company, unless otherwise stated in the Project Quality Plan

Responsibility

The Project Manager is responsible for:

- Establishing a filing key and that the filing structure is sufficiently detailed
- Establishing and maintaining the project files
- Oversee access rights to the project files.

2 Definition

By filing is meant storing of digital material (digital file) as well as archiving of paper documents etc. (paper file).

The entire project file consists of:

- Data server
- Mail server
- Paper file
- The document handling system, if any.

3 Project file

3.1 General

Unless all documentation is digital, both a digital project file and a paper file should be established.

Structure

The Project Manager has to determine if the company's standard filing procedures and standard filing key can meet the requirements of the project. If not, the filing procedures and the filing key must be decided and described in the Project Quality Plan.

In appendix 1 is shown an example of an overall filing key.

The Project Manager should ensure that the digital file and the paper file are structured in the same way (same filing key).

Confidential material

Filing of confidential material must be agreed with the Managing Director

Obsolete documents

Previous versions of approved documents should be filed separately from the rest.

To the extent where "not-approved" documents may become of importance as documentation, e.g. regarding a project change, these should be filed in the same place as approved, obsolete documents.

3.2 Paper file

When the filing key has been prepared, binders and boxes should be established, depending on the size of the project. The back of all binders and boxes should carry a label with the project number and name, and filing key numbers or subjects. The filing key must be placed at the front of the first binder.

4 Documentation

The filing key and the file itself.

Appendix 1

Example of an overall filing key

Primary folder - digital	Filing structure - paper	Contents, examples	Filing period - paper
1_LOI	1 Letter of Interest	Submitted Letter of Interest	Expiry date of LOI + 1 year
2_Prop	2 Proposal	Submitted proposal incl comments, notes etc forming basis for the proposal	Expiry date of the proposal + 1 year
3_Contract	1 Contract basis	Agreements (client, sub-consultants) Consultancy services Proposal	20 years
4_Basis	2 Project basis	Client's input Collected data Maps	20 years
5_Pdoc	3 Project documents	CAD (Drawing administration, Drawings) DATA (Calculations, analyses...) DOC (Notes, Reports, ...)	20 years
6_Comm	4 Communication documents	LET (Letters) MEMO MOM (Minutes of meetings)	Liability period + 1 year (usually 6 years)
7_Plan	5 Planning & tracking	Activities Time Resources Cost	Liability period + 1 year (usually 6 years)
8_Adm	6 Administration	Billing correspondence	Liability period + 1 year (usually 6 years)
9_QE	7 Quality and environment	QUAL (Project Quality Plan, check, review) ENVI (Environmental plan, Environmental considerations...)	Liability period + 1 year (usually 6 years)
10_PM	8 Confidential materials	Sensitive project material, limited access	Most likely: Liability period + 1 year (usually 6 years)
11_Obsolete	9 Obsolete documents	Previous editions of documents.	0-1year

The filing period for digital material is 20 years.

Please note: Some countries may have laws regulating filing conditions.

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5-01 Project management - execution, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

It is the responsibility of the Project Manager that the project is executed and closed in accordance with the consultancy agreement and the COWI Group's fundamentals, policies and the COWI USA Company's policies and internal rules and procedures.

2 Procedure

The Project Manager must maintain and extend the dialogue with the client and other key stakeholders during the project period, and hereby ensure a joint understanding of the outcome of the COWI USA Company's efforts. The Project Manager must ensure that the services and the deliverables at any time fulfil expectations and needs.

The Project Manager must ensure an efficient communication and dialog internally in the project in order to execute the project in the most appropriate and efficient way.

The Project Manager must conduct an open and constructive dialogue with his President/Vice President/Regional Manager and inform if substantial changes in the agreed/planned activities are encountered.

The Project Manager must manage the execution of the project, supervise that work plans are adhered to, identify risks/ possible problems and adjust and supplement plans as required, if necessary through dialogue with the client and the President/Vice President/Regional Manager. The Project Manager must be aware of any possible improvements and of any signals which may lead to potential problems.

The Project Manager must currently evaluate whether the work performed is part of the agreement. If not, the work in question must be handled in accordance with procedure 5-31 Change control management or, alternatively, stopped.

3 Additional information

Should any special conditions or problems arise, reference is made to Corporate Business Support for assistance and guidance.

COWI USA Quality Management

5-02 Project deliverables - from preparation to approval, ver. 0.1

1 Field of application and responsibilities

Field of application

This procedure applies to all projects in the COWI USA Company, unless otherwise specified in the Project Quality Plan for the project.

The terms project deliverables are to be interpreted as all deliverables to document the consultancy (e.g. reports, notes, calculations, drawings, power point shows) including the underlying calculations, analyses and measurements.

Responsibility

The responsibility of the professional service rests with the person preparing the project deliverable. This person is nominated the Preparer.

It is the responsibility of the appointed Checker that the project deliverable is checked to the agreed extent.

The discipline leader is responsible for initiating interface check and for approval of the project deliverable unless another person has been appointed to be in charge of the approval.

2 Procedure

2.1 Preparation and initial check

The preparer should prepare the project deliverable and perform initial check thereof in compliance with the following check lists:

- 5-01.2 Preparation of calculations
- 5-01.4 Preparation of drawings
- 5-01.6 Preparation of reports
- 5-01.8 Preparation of tender documents

2.2 Discipline check

Request

The Preparer must deliver the material to the Checker for carrying out the discipline check. The check must be requested using check form, cf. 5-01.1 Check form. For discipline check, the extent of the check must be stated.

Execution

The discipline check should be carried out in compliance with the following check lists:

- 5-01.3 Discipline check of calculations
- 5-01.5 Discipline check of drawings
- 5-01.7 Discipline check of reports
- 5-01.9 Discipline check of tender documents

The Checker must submit comments by filling-in the check form. If the comments are made on a copy of the checked project deliverable, this copy must be attached to the check form.

Incorporation of comments

The comments of the Checker must be examined and incorporated by the Preparer. If a Checker's comments cannot be incorporated in full, the Checker must be contacted to accept that the comments have been sufficiently incorporated.

Disagreements

If the Preparer and the Checker cannot reach an agreement on the incorporation of comments, the discipline leader must be consulted and if necessary the Project Manager and the President/Vice President/Regional Manager.

Documentation of check

The Preparer must make a note on the check form of what agreements have been reached (yes/no), and date and sign the check form.

The Checker must document that the comments have been sufficiently incorporated by signing (initials) the project deliverables, unless otherwise specified in the Project Quality Plan. The Preparer must procure this signing.

2.3 Interface check

Request

The discipline leaders must initiate the interface check as laid down in the document control plan. The interface check must be requested using check form, cf. 5-01.1 Check form.

Execution

The check must be executed to ensure that there are no discrepancies between the project deliverable from the various disciplines and that the complete project deliverables are adequate.

Incorporation of comments

The comments of the Checker must be examined and incorporated by the Preparer. If a Checker's comments cannot be incorporated in full, the Checker must be contacted to accept that the comments have been sufficiently incorporated.

If the Preparer and the Checker cannot reach an agreement on the incorporation of comments, the discipline leaders of the various disciplines must be consulted and if necessary the Project Manager and the President/Vice President/Regional Manager.

Documentation of interface check

The Checker must sign the check form to document that the interface check has been carried out.

The Preparer of the project deliverable must make a note on the check form if the comments have been incorporated (yes/no). The Preparer must then date and sign the check form.

2.4 Check of sub-consultants

Manpower services

The deliverables are to be checked and the check is to be documented as described in subsection 2.2 of the procedure.

Specialist services

The results of the services performed by the specialist must to the extent possible be checked and the check to be documented as described in subsection 2.2 of this procedure.

At a minimum, the Checker must evaluate the services performed by the specialist, the recommendations and conclusions, and if possible compare with similar results from other projects. The Checker must ensure that the results can meet a professional review, and that a mutual understanding exists of how to perceive the results.

Services undertaken by other firms

Services provided by the sub-consultant must be checked to ensure that the extent and the quality of the professional services comply with the services as defined in the agreement.

Documentation of this check is only required if specifically stated in the Project Quality Plan.

2.5 Approval

Once the project deliverable has been checked as planned, the discipline leader or the person agreed to be in charge of the approval - the Approver - must approve the deliverable for use outside the discipline. This approval confirms that the project deliverable has been checked as planned, and that the deliverable has been prepared and checked by qualified persons.

The approval is documented by the signature of the Approver on the project deliverable, unless otherwise specified in the Project Quality Plan. The Preparer must procure this signature.

2.6 Project manager review

At a minimum, the Project Manager or a person authorised by the Project Manager, must review the project deliverables prior to release. The person responsible for the project manager review must ensure that:

- conclusions and assessments are well formulated and well-founded
- the project deliverables are coherent and meets the client's needs and requests as defined in the agreement
- the deliverables solely regard issues, which the COWI Group Company in accordance with the agreement shall cover.

Furthermore, the reviewer must evaluate if the material contains phrases or conclusions that could be interpreted politically or could question the COWI Group Company's impartiality. Should this be the case the Project Manager must discuss the matter with the Managing Director.

If it is decided to initiate further project reviews than stated above, this work should be in accordance with procedure 5-03 Project review.

3 Corrections to approved deliverables

Evaluation of effect

When a project deliverable is corrected, the person who corrects the project deliverable should evaluate the effects, if any, on other project deliverables and other disciplines. If it is assessed that consequential corrections are needed, the discipline leader and the Project Manager must be notified.

Information

The Project manager must inform the client, other consultants and other disciplinary groups to the extent deemed necessary.

Check and approval

Corrected project deliverable must be subjected to the same check and approval procedures as those applicable to the original project deliverable. In this connection, the discipline leader must evaluate if the corrections institute a more stringent check level.

Marking

Corrected parts must be marked, e.g. by use of revision log/revision label, and/or by direct marking of the corrected parts in the project material (e.g. by encircling them, or by a vertical line in the margin). If directly marked in the project deliverable, only corrections related to the latest version should be shown.

4 Documentation in the project file

The documentation includes:

- the approved project deliverables
- check forms.

5-02.1 Check form

Company:	Project Name:	Project Number:

To be filled in by the person initiating the check:

From: Date:	To (Checker): Response time limit:
Extent of check: ☐ Minimum check ☐ Extended check ☐ Interface check ☐ Other check	Supplementary information:

Document identification

Document No.:	Version	Title

To be filled in by the Checker:

Identification (Page No., etc.)	Checkers comments: (to be written below or given via reference to comments written directly in the document)
Checker's signature:	Date:

To be filled in by the Preparer:

Comments incorporated Yes	No
Preparer's signature: Date:	

Checker's signature for acceptable incorporation of the comments in the document:

Checker:	Date:
(Not mandatory as the signature on the final document is sufficient unless decided otherwise by the Project Manager)	

5-02.2 Preparation of calculations, check list

Company:	Project ID:
	Calculation ID:

Requirements for preparation of calculations	Req. fulfilled	Comments
General requirements		
The calculations shall state all background assumptions, applicable norms and standards and special requirements from the client.		
The calculation shall be paginated and contain project name, project number, current date (and possibly time) and the calculator's initials.		
The print-out of a calculation shall, if possible, document both the input data used (e.g. chosen parameters) and the results.		
Where specific calculations are less important than reasoning or qualified estimates, the latter shall be presented in such a way that the line of thought can be followed, i.e. by logical inferences (step by step) or by references to previous calculations.		
Tried and tested IT tools		
To the extent possible the person designated to make the calculations (the calculator) shall use existing, well-tried IT tools known by the company to be reliable.		
The calculator should be familiar with the use of the specific IT tool.		
The calculator shall keep a log of the use of the IT tool. The log shall show: • the calculation situations for which the IT tool has been used • whether data have been transferred between various IT tools (digitally or manually) and in the affirmative, which data • whether the IT tool has been used for more than its ordinary and well-tried function (work arounds) and in the affirmative, how.		
Where several IT tools are used for a calculation, data shall be transferred digitally between the tools, if possible.		
Hand calculations, spreadsheets and ad hoc programmes		
Any formula used must be expressed with letter symbols, followed by a definition of symbols and units, if the formula is not simple and generally known in the discipline.		
The calculations shall be presented in such a way that there can be no doubt as to the values of the parameters used.		
Calculations which are not simple and generally known shall contain references to the literature used.		
The calculations shall, as needed, be accompanied by sketches and text giving short and clear explanations. It shall be possible for a reader who does not know the project to follow the calculations without being given an explanation.		
For presentation the calculator shall make results accessible through the use of tables and diagrams. The results shall be commented and conclusions derived from the calculations given.		
Initial check		
An evaluation of whether the values are of a reasonable size.		
An evaluation of whether the presentation gives a sufficient overview.		
Assessment of the level of uncertainty (accuracy of the results).		
Random check calculation on formulas, e.g. check that the cells used in the spreadsheet are the correct ones.		

5-02.3 Discipline check of calculations, check list

Company:	Project ID:
	Calculation ID:

Minimum check:	Done	NA
A check of computer calculations, taking any comments in the user's manual and the programme database concerning the application of the IT system and possible "work arounds" into consideration		
A check of input data and all manually transferred data for computer calculations.		
A check that the results and accuracy of the calculations are not in contradiction with the assumption.		
A check that the calculation basis has been reasonably assumed or is sufficiently supported - also in cases where the basis is formed by external requirements or information.		
A review of the calculations in order to check that there are no serious misunderstandings in the calculations, and that the calculation models adopted are reasonable.		
A consideration whether or not variations in assumptions should be taken into consideration (sensitivity analysis).		
A rough check of calculation results by comparing with calculation results from other similar projects, or by making rough hand calculations.		
Extended check shall, in add. to the above comprise the following:	**Done**	**NA**
For computer calculations a spot check must be carried out on critical points by rough calculations or by using a different computer program, independent of the one applied.		
For hand calculations and spreadsheet calculations all numerical calculations shall be checked.		
For ad hoc programmes all numerical calculations shall be checked, if possible. Alternatively, the extent of test checks shall be enlarged so that the correctness of the results is sufficiently trustworthy.		
Possible supplementary checks: (to be specified by the Preparer of the calculation)	**Done**	**NA**

5-02.4 Preparation of drawings, check list

Company:	Project ID:
	Document ID:

Specifications for the preparation of drawings	Specifications complied with	Com-ments
Before initiating the preparation of drawings, the project shall be broken down into project parts, which are subsequently divided into more detailed levels. The drawings shall be arranged showing the necessary illustrations without deficiencies or unnecessary repetitions, uniformly oriented and grouped in such a manner that the users of the drawings will get a natural understanding of the project.		
The numbering of drawings shall be defined in such a way that the grouping is appropriate and provide the possibility of adding new drawings. The breakdown of the numbering system should allow for a number of parameters, which could be for example geographical/geometric position (of the project part in question), project phases (conceptual, preliminary, detailed design etc.), type of content (concrete, reinforcement, mechanical and electrical installations, etc.), and the actual delineation (layout plans, sections, or details).		
The drawings shall be readable, unambiguous, well organised and easy to use as basis for production. The layout must comply with the standards and the codes of practice, which apply where the drawings are to be used.		
The drawings must first give an overall impression of the project and subsequently be divided into more detailed levels corresponding to the work routine of those using the drawings.		
Each drawing shall be arranged so that the drawing items are placed in a logical relationship.		
Scales are determined in accordance with current standards and engineering practice. If more than one scale is used on a drawing, all drawing items must state the scales.		
The indication of measurements must always be connected to an overall system. It shall appear from the drawings to which system of co-ordinates reference is made. Measurements and co-ordinates to intermediate points must always be calculated on the basis of the overall system and not on approximated geometric values for previously calculated intermediate points. Measurements shall be shown, corresponding to the setting-out technique used at the place where the drawing will be used.		
The original format of the drawing shall be specified, so that when reproducing the drawings it can be established if a change of scale has occurred.		
Is the drawing in standard format? If not, can the drawing be rearranged/divided into more drawings, which will simplify the reproduction and the handling of the drawing?		
It shall be assessed how the drawing is to be reproduced, and if the use of colours, shadings, fonts, drawing format, are suitable for the reproduction method in question. Should the drawing be readable as a black and white 8.5x11 fax transmission? Is it possible?		
Title and revision block shall be placed in the lower right hand fold on the drawing. The remaining space on the right hand is reserved for notes, legends and references.		
The drawing shall be planned so that transmission by e-mail or by fax can take place without loss of information.		
Initial-check		
It shall be assessed if the drawing is well organised.		
It shall be assessed if the drawing is unambiguous both as an individual drawing and in relation to the set of drawings in question.		

5-02.5 Discipline check of drawings, check list

Company:	Project ID:
	Drawing ID:

Minimum check:	Done	NA
Location and orientation of the object.		
All basic design criteria, including existing conditions.		
Layout of structures etc. and choice of materials.		
The primary measurements shown on the drawings and their compliance with the overall reference system.		
Compliance between essential dimensions and calculations.		
Essential relationships between the individual drawings and the related group of drawings.		
Any other matters of vital importance to the safety, function and economy of the structure.		
Compliance of drawings with the general procedures of the discipline or specially prepared project orientated procedures.		
Notes and signatures.		
Check that all necessary illustrations and figures have been included.		
Extended check shall, in add. to the above, comprise the following:	**Done**	**NA**
The set of drawings correspond to the list of drawings.		
All plans and sections of the main drawings are oriented, i.e. defined with reference to the points of the compass, baselines or setting-out plans.		
The drawings have been provided with necessary references to drawings at lower levels, i.e. from main drawing to details,		
All details have been defined in relation to the main drawings (reference lines, levels, etc.),		
All measurements are sufficient to define the geometry of the object,		
No dimensions or measurements have been omitted (e.g. for pipes),		
No dimensions are repeated, if possible,		
The calculations of measurements are correct,		
The notes are comprehensible and correct,		
the reference lines from the notes end in the right places,		
The drawing is in compliance with the calculations, measurements and observations, which have been carried out or made in the field, as well as with any other assumptions,		
The drawing is in compliance with any other written documents for the project, e.g. evaluation reports, bills of quantities and specifications, without repetitions if possible.		
Possible supplementary checks: (to be specified by the Preparer)	**Done**	**NA**

5-02.6 Preparation of reports, check list

Company:	Project ID:
	Document ID:

Requirements for preparation of reports/notes	Req. fulfilled	Comments
Reporting		
The editor must determine exactly what he/she wants to communicate, and to whom, by answering the following questions: • What is the purpose of the report? • Who will use the results? • *How much background knowledge do the readers have?* • How much information does the client want (data, analyses, results)? • *Through which medium does the client wish to receive the report (DVD, power point presentation etc.).*		
Writing the report:		
The report should consist of an introductory section, including introduction, summary and conclusions, and a main section including appendices, if any. The structure of the report must be clear.		
Introduction:		
The introduction should provide answers to the following questions: • Who is the client? • What is the problem, or for which purpose has the report been prepared? • When was the work performed? • Who performed the work (the COWI USA Company, name of sub-consultants, external specialists and representatives of the client, if they participated actively).		
The main limitations of the work carried out shall be given.		
Guidelines must always be prepared for large reports.		
Copyrights and other restrictions in the use of the report shall be apparent.		
Summary:		
The report should contain an adequate summery of the contents of the report.		
Conclusions:		
Conclusions and recommendations shall be clear and adequate, and important reservations shall be included. The text shall be reviewed as to whether certain formulations can be misunderstood or misinterpreted.		
The main part:		
The main part of the report should present data, methodology, analyses and results in such a way that the reader does not lose the overview. Where data amounts are large, model descriptions comprehensive or analyses complex, the editor should consider whether it would be better to place such information in appendices.		
Initial check		
The person who has prepared the document (or if several persons are involved, the editor of the document) shall always personally check that the document is complete, correct and comprehensible.		

5-02.7 Discipline check of reports, check list

Company:	Project ID:
	Document ID:

Minimum check:	Done	NA
Check that the report is informative and covers the client's wishes and needs.		
Check that the background, purpose and limitations are clearly stated.		
Check that the report states technical facts and expresses impartial professional services.		
Evaluate whether relevant options have been examined, considered and presented.		
Evaluate whether special knowledge has been applied where needed.		
Evaluate the most important recommendations and conclusions.		
Evaluate whether important numeric information and data seem reasonable.		
Check that the basic data are sufficient for the conclusions and recommendations.		
Check that conclusions and recommendations are clear and adequate, and that the necessary reservations or qualifications have been made, including an evaluation of whether formulations could be misunderstood or misinterpreted.		
Check that all references to figures, tables etc. are correct.		
Check that measurements and calculations have been referenced correctly.		
Check by an employee with adequate linguistic proficiency to ensure that the report is written in easily understood and correct language without spelling or grammatical errors.		
Extended check shall, in add. to the above, comprise the following:	**Done**	**NA**
A critical evaluation of all reasoning, recommendations and conclusions, among other things by examining the background material and assumptions for serious errors.		
A check that measurements and calculations have been carried out in compliance with applicable procedures.		
Possible supplementary checks: (to be specified by the Preparer)	**Done**	**NA**

5-02.8 Preparation of Bid Documents Check List

Company:	Project ID:
	Document ID:

Requirements concerning preparation of bid documents	Req. fulfilled	Comments
General		
Due consideration to the requirements of the client and to the laws and practice of the country in question to be observed. Please observe that e.g. WB, ADB and EU have their own procedures for the implementation of construction contracts.		
Invitation to bid, if any, is prepared (available paradigm to be used)		
The structure and content of the bid documents should be described in the conditions. In connection with an early invitation to bid the content should be clearly specified and a descriptive bill of quantities prepared.		
Shall the bid documents include a draft contract? (available paradigm to be used)		
The documents should be paginated and divided into main sections and sub-sections.		
Special conditions and a draft contract, if any, shall be approved by the client before bidding. For major projects the client is recommended to let his legal adviser approve the documents on his behalf.		
Instructions to the bidders on how, when and where to submit the bid shall be given. If the client has specific requirements these should be strictly adhered to.		
Special conditions		
The special conditions should be prepared on the basis of recognized standards/best practices within the country or internationally, e.g. FIDICs standard conditions (can be obtained from the corporate legal department).		
The special conditions should specify all matters pertaining to the administration of the contract.		
The special conditions should inform about the project organisation for execution of the works.		
Any deviations from and amendments to the recognized standards/best practices should be written in a separate document/section with specific reference to the paragraph in the recognized standards/best practices referred to.		
The special conditions should specify essential conditions concerning the execution of the contract, such as: Conditions of bid and quotation. Contract interfaces Time conditions, including main time schedule, liquidated damages and incentive arrangements Quality management conditions Environmental management conditions Terms of payment Conditions of Health and Safety management Matters pertaining to authorities, neighbours, etc. Insurance requirements, if any.		

The special conditions should include any decisions regarding ways of cooperation.		
Special specifications		
The structure of the special specifications shall be consistent. It is the intention that the user can navigate logically both in the bidding situation and during execution.		
A specification shall be prepared for each trade or discipline.		
For each trade or discipline the following should be defined in the specification: general specifications materials execution - requirements of execution verification - requirements of verification.		
Bill of quantities		
A bill of quantities shall be prepared for each contract.		
The bill of quantities should be prepared on the basis of recognized standards/best practices within the country or internationally.		
The bill of quantities should be provided with a front page, i. e. a bid form with space for the bid sum and the contractor's signature.		
The bill of quantities should be divided into work sections corresponding to the individual work specifications and items corresponding to the items specification.		
If several trades or disciplines are included in the same bill of quantities, the Project Manager should ensure that the same principles are applied for the different disciplines and that there is an adequate balance between the individual items.		
Items shall be specified indicated with identification of each service.		
The items shall specify the basis of bidding and payment and shall cover all the bided works.		
Each item shall contain the necessary information for pricing the service or the production of a component.		
In a bid for a turn-key contract the most important content of the specification is the performance specification for the works, the quality requirements to the components and the requirements to quality management. It must be defined how the client or the client's consultant will check that the requirements are complied with.		
Basis of bidding and payment		
Introduction with a general description of the basis of bidding and payment which shall include a specification of how to determine quantities.		
For the individual items or groups of items the basis of bidding and payment shall give a clear and unambiguous description of the service and special conditions, if any, regarding calculation of quantities or summarized items.		
Initial check	**Req. fulfilled**	**Comments**
An assessment of whether conditions, specifications, bills of quantities and drawings supplement each other without overlap.		

5-02.9 Discipline check of bid documents, check list

Company:	Project ID:
	Document ID:

Minimum check:	Done	NA
That the necessary and sufficient conditions for the performance of the works are defined, including a clear definition of the scope of work.		
That client's requirements have been complied with.		
That the interfaces between the individual trades or work sections have been clearly defined.		
The consistency between the specification, the drawings and the bill of quantities.		
Quantities have been correctly stated.		
Extended check shall, in addition to the above, comprise the following:	**Done**	**NA**
the requirement of quality is unambiguously determined,		
the requirement of extent of check and inspection and documentation is reasonable,		
references in the specification are correct,		
standard formulations have been applied,		
options in codes of practice referred to have been considered,		
the details in the bill of quantities are appropriate and sufficient,		
the basis of bidding and payment is described sufficiently accurate and detailed,		
the specification is in compliance with any calculations and other assumptions.		
Possible supplementary check : (to be specified by the Preparer)	**Done**	**NA**

COWI USA Quality Management

5-03 Project review, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to project reviews as stated in the Project Quality Plan.

Responsibility

The Project Manager is responsible for the implementation of the project review, including identification of the subjects and appointing the Reviewers.

The Reviewer is responsible for performing the review in accordance with the purpose and the subjects identified by the Project Manager.

2 Purpose

A project review is defined as a documented, coherent and systematic examination of a project or part of a project in order to

- evaluate whether the project meets the specified and implied requirements
- evaluate whether identified potential problems are sufficiently considered
- identify possible new potential problems and propose solutions to meet these.

A project review is a review/evaluation of the project and must not be mixed up/replaced by discipline check. For certain kind of services, e.g. feasibility studies and assessments, check and review will often merge and be performed as an ongoing process during the performance of the services.

3 Course of action

3.1 Planning

When

The Project Manager should prepare a time schedule for the project reviews at the beginning of the project.

Review performed early in a project will often be an advantage. In this way an early evaluation of the conditions, the decisions taken, and decided general principles will be obtained.

Further, reviews should be considered at each change in project phase.

Purpose and subjects to be reviewed

Well before each review the Project Manager must define the purpose and the subjects to be reviewed. These may both have relations to the service itself and the process of providing the service.

When selecting the subjects the Project Manager should pay attention to:

- identified special and unusual conditions as listed in the Project Quality Plan
- areas where project errors may result in loss of human lives or may have serious financial or environmental consequences
- areas where the Project Manager does not feel confident (e.g. conditions, chosen solutions, organization, performance of the services, contact with the client)
- unusual/controversial solutions
- realized critical or weak areas in the project or during performing the services
- changes of the project
- deviations from prepared plans (resources, time, economy)
- the client's success criteria for the project.

Appointing the Reviewers

Project reviews must be performed by experienced people.

The Project Manager must appoint the Reviewers based on the purpose and the identified subjects, and he must obtain their acceptance to participate.

For design assignments it may be useful to include supervision personnel, to make sure the project will be evaluated from a construction point of view.

Convene the review meeting

The Project Manager should convene the review meeting and at least one week in advance he should submit a review plan to the participants containing the following information:

- subjects
- time and place for the meeting
- budget frame for the review
- special conditions, which the reviewer should pay special attention to
- documents relevant for the review

and the relevant documents.

In order to answer questions from the Reviewers the Project Manager convenes relevant discipline leaders and other project team members to participate in the meeting.

3.2 Implementation

The duties of the reviewer

Prior to the review meeting each Reviewer should

- make up his mind on the subjects, the Project Manager has pointed out
- make up his mind on the subjects, the reviewer him-/herself considers to be important for the project
- be aware of more general aspects.

Guidelines:

Following list may be used for inspiration concerning aspects that the Reviewer should pay special attention to:

- *if there are decisions, solutions, or conclusions, outside normal practice*
- *if the relevant best practices are used*
- *if R & D results are used as input, or if an innovative design has been used*
- *how the project has been carried through (e.g. agreement, organising and manning, cooperation/communication with other interested parties)*
- *if relevant risks have been evaluated*
- *implications of worst possible accidents, and measures to be taken to meet them*
- *implications on health, safety and environment*
- *sensitivity to changes in the project criteria*
- *if all important decisions are taken, e.g. in a design brief*
- *if the project documents have the same and correct degree of detailing for all disciplines, and if this is in accordance with the conditions for tendering*
- *if the project criteria, the individual discipline has used as basis for its work, are still forthcoming and able to be fulfilled*
- *if consequences of possible changes to the project performed within one discipline, are considered by the other disciplines*
- *if there are omissions in the project*
- *if the time schedule (also for a possible construction phase) is realistic*
- *constructability*
- *maintenance and operation.*

At the meeting the Reviewer should present his point of views in dialogue with the other participants.

The duties of the Project Manager

The Project Manager chairs the project review meeting and makes sure that the minutes of the review are taken.

3.3 Minutes of the review meeting

Minutes of meeting stating the conclusions are prepared and the minutes must cover:

- the topics where agreement could be reached at the meeting
- the topics, where agreement could not be reached at the meeting
- critical areas and errors, which the review has disclosed.

The minutes should be attached:

- the review plan
- any written comments from the Reviewers.

3.4 Follow-up

The Project Manager appoints a responsible person for each action point in the minutes of meeting.

The Project Manager must follow up on all outstanding matters and, in cooperation with the appointed persons, ensure that the problems are solved satisfactorily.

4 Documentation

The minutes of meeting together with a written report on clarification of the identified problems must be included in the project files.

COWI USA Quality Management

5-04 Monitoring and follow-up - activities, time and budget, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

The Project Manager is responsible for monitoring of activities, time schedules and follow-up including generating corrective actions as well as change control.

2 Monitor and evaluate progress

2.1 Performance measurement

In order to be able to measure the performance the following activities are performed:

- Calculate actual (costs) of work performed
- Estimate remaining work
- Calculate percentage complete
- Calculate earned value
- Evaluate and mitigate

Calculate actual (costs) of work performed

The accounts in the administrative system are checked for erroneous postings and unexpected man-hours/costs and other expenses preferably weekly and at least once per month, and any adjustments are made.

Calculate the 'Actual Costs of Work Performed' (ACWP). If the man-hours costs are not transparent both a calculation of the man-hours spent and the expenses spent will be required.

Estimate remaining work

For each activity the remaining work to complete the activity is estimated - 'Estimate-To-Complete' (ETC) for each reporting period, or at least once a month. The preparation of the ETC will often require communication and clarification sessions with the key team members.

Calculate Percent Complete	Based on ACWP and the ETC the Project Manager must calculate the Percent Complete for each activity and the total using the formula: **% complete = (ACWP x 100) / (ACWP+ETC)**
Calculate Earned Value	The Earned Value shall be calculated for each activity and for the total project using the formula: **Earned Value = % complete x Baseline Cost** where the Baseline Cost is the original budget, exclusive of contingencies. If S-curves are used on the project they can be plotted for easy overview.
Evaluate and mitigate	The Project Manager should compare the Earned Value with ACWP and identify suffering activities in terms of cost overrun and time schedule slip. The reasons should be identified as far as practicable possible, and problems should be discussed with key team members. The Project Manager should decide on mitigation measures and corrective actions. In case the Earned Value analyses reveal potential risks for substantial deviations from planned scope, schedule, cost or quality this must be highlighted to the President/Vice President/Regional Manager. The Project Manager and the President/Vice President/Regional Manager should together decide on appropriate actions.
Project Performance Report	The project performance may be documented in a Project Performance Report. The report summarizes the information gathered during the performance measurement and presents the results of the evaluation of progress. Formats for a Project Performance Report could include bar charts, S-curves, histograms and tables with Earned Value calculations, and progress evaluation data could be presented in tabular form. The performance reports provide information on project performance against the project baseline plan. The reports may alert the project team to issues that may cause problems in the future and trigger requests for changes.
Documentation	The documentation should all be composed of, as appropriate: • Project Performance Report • Earned Value calculations • Updated planning documents, still maintaining the Baseline Project Plan unchanged. • *Memos on mitigative measures and corrective actions* • Excel sheets, MS Project reports or S-curves as appropriate.

2.2 Monitor and follow-up on payments

Monitor actual payments	The Project Manager should monitor actual payments from the client and actively take part in follow-up and dunning actions, as required.
Check billing potentials and take action	The Project Manager should take action on billing potentials revealed from the Earned Value calculations.
Documentation	Issued invoices and follow-up correspondence with the client (fees and expenses) will constitute the documentation.

2.3 Comply with external requirements to reporting

Any external requirements to progress/status reporting to be adhered to and produced based on the internal Project Performance Report.

COWI USA Quality Management

5-05 Change control management, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

The Project Manager is responsible for identifying and handling of changes.

2 Procedure

The Project Manager should collect inputs on possible change requests and use it in his control of:

- changes to the project scope
- changes to the project schedule
- changes to the project budget
- changes to the project quality.

The Project Manager must determine whether a change has occurred, and manage the actual changes as and when they occur.

Change requests

Changes may require

- expanding the scope or may allow shrinking it,
- extending the schedule or may allow accelerating it,
- increasing the budget or may allow decreasing it,
- corrections to already approved deliverables
- extended check to comply with relevant quality standards or may allow for random check procedures and still reach the required quality.

The Project Manager prepare a proposal for the change request in writing, stating clearly the nature of the request and the impact on the project schedule, costs, resources and quality.

The Project Manager must ensure that the proposed change request is passed on to all persons involved in the specific part of the project, and that their services or involvement will be performed in accordance with the proposed change request.

Client's approval	The Project Manager must evaluate if the change is of a type that must be approved by the Client, and if so required the Project Manager must submit the proposed change request to the Client for comments and written approval prior to implementing the change. The approved change request must be formalized in an amendment to the agreement. If an approval cannot be obtained, the Project Manager must consider the consequences for the COWI USA Company in consultation with the President/Vice President/Regional Manager.
Implementation of changes	When the change has been approved, the Baseline Project Plan and other relevant project documents should be updated accordingly and distributed, including already approved deliverables. Appropriate stakeholders must be notified as needed. The change now forms part of the project.
Documentation	The approved change request document (amendment to the agreement) and the change incorporated into relevant project documents will constitute the documentation. Copy of the approved change request document (amendment) is filed in the project file and the original approved change request (amendment) is filed in the company's administrative file.

5-32 Addressing criticism of the COWI USA Company, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure must be used whenever criticism is raised of the services provided by any COWI USA Company or complaints against any COWI USA Company.

Responsibility

The employee is responsible for bringing forward criticism of a COWI USA Company to the President/Vice President/Regional Manager.

The Managing Director is responsible for the criticism being dealt with at the right level within the COWI Group.

2 Purpose

The purpose is an effective addressing of criticism/complaints:

- from clients
- from sub-consultants and JV partners
- from third parties
- raised in the media.

3 Course of action

Action by employee

If an employee receives criticism, verbal or in written format, or comes across negative press coverage of any COWI USA Company, the employee must bring *forward the criticism to his/her President/Vice President/Regional Manager.*

Action by the Managing Director

If the COWI USA Company is criticised, the Managing Director will handle the case.

If another COWI Group Company is criticised, the Managing Director must inform the Managing Director of that company about the criticism, and he must handle the case.

Evaluation of the criticism

The first step in addressing criticism is to evaluate whether or not the criticism is deserved. On this basis it is decided what to reply, and which measures to take. If it is deemed to be an error, this error must be handled in accordance with procedure 5-07 Dealing with errors and loss and claim jobs.

5-07 Dealing with errors and loss and claim jobs, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

Every employee, who identifies an error or suspects that an error is in the services undertaken by the COWI USA Company, is responsible for initiating that errors are dealt with in accordance with this guide.

It is the responsibility of the Project Manager that:

- all affected by an error are informed as necessary
- loss and claim jobs are reported, treated and if required notified towards the insurance company
- corrective actions within the project organisation are initiated and followed up.

The President/Vice President/Regional Manager is responsible for initiating and follow up on corrective actions within the department/company.

The Quality Manager is responsible for follow up on corrective actions which can be utilized in the quality management system in general.

2 Purpose

The purpose is as quickly as possible to treat and inform internally as well as externally of any error in the services performed by the COWI USA Company.

3 Definitions

Errors

An error is defined as when the client receives incorrect information or the services provided/products supplied are not in accordance with what has been agreed.

Loss and Claim Jobs

A project is defined as a loss and claim job if the nature of the error/the suspected error gives reason to believe that a claim for damages can be advanced against the COWI USA Company.

4 Course of Action

4.1 Errors in the deliverables (misinformation)

Before approval of the deliverable

The employee, who has identified an error, contacts the person, who has prepared the deliverable. This person corrects the error and evaluates whether the error will have consequences in terms of time and cost for any of the parties involved in the project. If so he must contact the Project Manager.

The Project Manager evaluates the consequences of the error and the pertinent correction. The Project Manager must ensure that discipline leaders, other involved companies and the client are informed as necessary.

After approval of the deliverable

The employee detecting or suspecting an error must without delay contact the Project Manager, and if relevant and possible informs the Project Manager about potential consequences in terms of time or cost for any of the involved parties. Further the employee should if possible inform about any proposals for corrective actions and the reason for the error.

The Project Manager is - in consultation with the President/Vice President/ Regional Manager and the relevant specialists - to decide how to correct the error.

It must always be decided whether and how the client is to be informed of the error.

In the event of errors, which may have consequences in terms of time and cost for any of the involved parties in the project, the Project Manager and the Head of Department/Managing Director are to evaluate whether the error may result in claims for damages. Where there is even a minor risk, the case is to be treated as a Loss and claim job, see section 4.3.

4.2 Non-compliance of the agreement

If non-compliance with the agreement concerning time, cost, the content or extent of deliveries etc. poses any risk of claims for damages, cf. definition above, the project must be handled as a Loss and claim job, cf. section 4.3.

4.3 Handling of Loss and claim jobs

Registration

The Project Manager call for meeting with the stakeholders including President/Vice President/Regional Manager with the purpose to discuss the problem, its possible consequences, proposals for corrective action, and, if possible, the causes for the problem. If deemed necessary the Corporate Legal Department may be involved. A plan of action is agreed.

If there is any risk whatsoever, that the claim may exceed the deduction of the professional indemnity insurance, the claim must be notified to the insurance company.

A note describing the problem, its possible consequences, the action plan agreed, and, if possible, the causes for the problem is prepared by the Project Manager and forwarded to the Vice President, Business Unit 7 with copy to Corporate Quality Management.

During consideration

The Project Manager keeps the President/Vice President/Regional Manager and the Vice President, Business Unit 7 abreast of the case.

The Managing Director takes in consultation with the Vice President, Business Unit 7 all decisions beyond what has been agreed in the action plan.

Closing of loss and claim jobs

When the case has been settled, the Project Manager prepares a closing note describing:

- final settlements with the client including payment from the insurance company
- the reason
- attachments (e.g. action plan, arbitration, the judgment)

The note is distributed to: Managing Director, Quality Manager, Vice President Business Unit 7, Corporate Quality Management

4.4 Corrective actions

In case of repeated errors and in case of any error, which have/may have consequences in terms of time and cost for any of the parties involved in the project, the Project Manager must take the initiative to identify the cause(s) of the arisen error. The extent of corrective actions is evaluated by the Project Manager, the President/Vice President/Regional Manager and possibly the Quality Manager and relevant specialists. Agreed corrective actions are to be documented in a minutes of meeting recording decisions taken.

5 Documentation

The documentation comprises the closing note with attachments.

The documentation is filed in the project file, and in the Quality Manager's file for loss and claim jobs.

5-07.1 Notifying and Closing of Loss and Claim Jobs

Company::	Project id:

Registration:

Type of Loss and Claim job:
- A potential risk that claim is advanced : ☐
- COWI USA Com does not receive the fee it is entitled to: ☐

Brief account of the case:

Estimated loss and risk:
- Maximum extent of loss : ..... US $
- CGC's maximum share : ..... US $ incl. internal costs
- CGC's probable share : ..... US $ incl. internal costs

Insurance: (to be filled in if there is a risk of any claim against the CGC)
Type of insurance ☐ *General insurance* ☐ *Project insurance*

Details:
- Insurance company : .....
- Insurance amount : ..... US $
- Deductable : ..... US $

Date: **Managing Director:**
Distribution: Quality Manager, Vice President, Business Unit 7, Corporate Quality Management

Closing:

Outcome of the Case (fee reduction, arbitration, judgment, settlement, etc.):

Damages paid or reduction of fee, if any:
- Total damages paid to the injured party : ..... US $
- Damages paid by CGC's insurance company : ..... US $
- *Damages paid by CGC/reduction of fee* : ..... US $

Other expenses paid by CGC (all expenses - apart from the damages - including an estimate of the items not specifically charged to the project) : ..... US $

State on a separate attachment:
- Why the project became a Loss and Claim Job
- Please propose how to avoid recurrences in the future

Date: **Managing Director:**
Distribution: Quality Manager, Vice President Region, Corporate Quality Management

Table of Contents - Closing

Procedures

6-01 Project management - closing

6-01 Project management - closing, ver. 0.1

1 Field of application and responsibility

Field of application

This procedure applies to all projects in the COWI USA Company.

Responsibility

It is the responsibility of the Project Manager that the project is closed financially and technically, feed back is given and appropriate experience is collected and made available to colleagues.

2 Procedure

The Project Manager should

- maintain the dialogue with the client and if appropriate obtain the client's evaluation of the services provided and the collaboration between the client and the project team
- get feed-back internally from project team members
- ensure that all extra works is paid
- ensure that the final invoice is sent to the client
- close the project in the company's administrative system
- file the project in the company's archive in accordance with the company's archiving procedures
- update as appropriate marketing material (references, brochures etc)
- evaluate the experience gained and share valuable experience with colleagues within the COWI USA Company and COWI USA professional networks and file valuable experience in a COWI USA Best Practices manual.

OCEAN AND COASTAL
CONSULTANTS

Ocean and Coastal
Consultants Engineering, P.C.
35 Corporate Drive
Ste 1200
Trumbull, CT 06611
Tel 203 268 5007
Fax 203 268 8821
www.ocean-coastal.com

Section J - Conflict of Interest Statement

To the best of our knowledge, Ocean and Coastal Consultants Engineering, P.C.. (OCC) does not have any real or apparent conflicts of interest for any work that may be performed for the Port Authority of New York and New Jersey (the Authority). We have no employees, agents or subcontractor that have formerly been employees of the Authority, nor do we have any existing or pending waterfront engineering work that is in opposition to sites or projects of the Authority.

K - Exceptions

OCEAN AND COASTAL
CONSULTANTS

Ocean and Coastal
Consultants Engineering, P.C.
35 Corporate Drive
Ste 1200
Trumbull, CT 06611
Tel 203 268 5007
Fax 203 268 8821
www.ocean-coastal.com

Section K - Exceptions

Ocean and Coastal Consultants Engineering, P.C. (OCC) does not take any exceptions to the standard agreement and terms and conditions for this RFP.

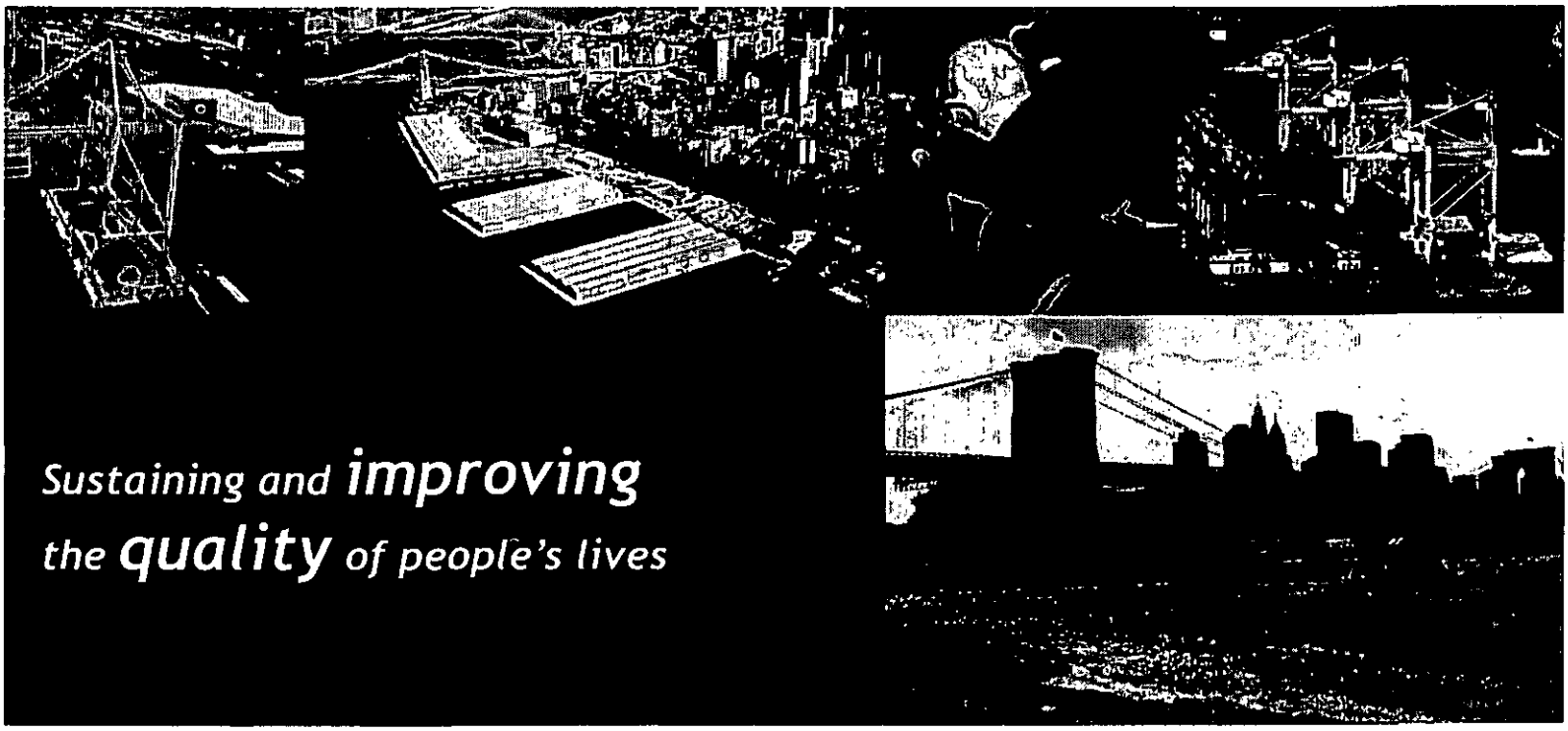
THE PORT AUTHORITY OF NY & NJ

Request for Proposals

Expert Professional Facility Condition Surveys for Waterfront Facilities as requested on a "Call-In" Basis during 2012

RFP Number 26350

ORIGINAL



submitted by:

Halcrow

October 2011

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6. Project Experience
7. Management Approach
8. Firm Affiliates
9. QA/ QC Plan

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

Halcrow

October 14, 2011

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 2012

Dear RFP Custodian:

Halcrow Engineers, PC. (Halcrow) is pleased to submit this proposal for the referenced project. Since 1990, Halcrow (also as Han-Padron Associates and HPA) has worked on previous versions of this contract and is still 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 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 Engineers, P.C.

Jonathan L. Goldstick, P.E.
Vice President

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

1. Attachment B

Halcrow

ATTACHMENT B

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or 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 Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information 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 this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to 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 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 Policy and Procedure adopted by the Port Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/corporate-information/freedom-of-information.cfm* , not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

Halcrow Engineers, PC
(Company)

(Signature)

Vice President
(Title)

October 14, 2011
(Date)

2. Attachment C

Halcrow

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

1. Company Name (print or type):

   Halcrow Engineers, P.C.

2. Business Address (to receive mail for this RFP):

   22 Cortlandt Street, 31st Floor

   New York, NY 10007

3. Business Telephone Number: 212-608-3990

4. Business Fax Number: 212-566-5059

5. Firm website: www.halcrow.com

6. Federal Employer Identification Number (EIN): _____

7. Date (MM/DD/YYYY) Firm was Established: 11 / 17 / 2004

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   Not Applicable

9. Officer or Principal of Firm and Title:

   Jonathan Goldstick, Vice President

10. Name, telephone number, and email address of contact for questions:
    Jonathan Goldstick 212-608-3990 jgoldstick@halcrow.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

    If yes, please attach **Port Authority** certification as a part of this profile.

    If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

1. *Company Name (print or type):*

   Halcrow Engineers, P.C.

2. Business Address (to receive mail for this RFP):

   22 Cortlandt Street, 31st Floor

   New York, NY 10007

3. Business Telephone Number: 212-608-3990

4. Business Fax Number: 212-566-5059

5. Firm website: www.halcrow.com

6. Federal Employer Identification Number (EIN): Ex.1

7. Date (MM/DD/YYYY) Firm was Established: 11 / 17 / 2004

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   Not Applicable

9. Officer or Principal of Firm and Title:

   Jonathan Goldstick, Vice President

10. Name, telephone number, and email address of contact for questions:
    Jonathan Goldstick 212-608-3990 jgoldstick@halcrow.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

    If yes, please attach ***Port Authority*** *certification as a part of this profile.*

    If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

3. Multiplier

Halcrow

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 also 2.95, developed based on an overhead factor of 161%. In 2010, the firm had an overhead factor of 190.4917% as indicated on the overhead analysis on the next three pages, prepared by an independent auditor, Kreisher Miller. Using the 190.4917% 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.

The multiplier requested includes all equipment, vehicles, boats, etc. owned by Halcrow and additional compensation will not be sought for their use.

HALCROW (USA), INC.

Overhead Rate Schedule
Year Ended December 31, 2010

Description	General Ledger Balance	Exclusions	Reference Note	Direct Costs	Allowable Indirect Costs
Direct labor	$ 19,431,463	$ -		$ 19,431,463	$ -
Fringe benefits:					
Paid time off &				-	
Other Fringe Benefits, Payroll Tax, Insurancce, etc	10,227,612	1,054	(1)	-	10,226,558
Total fringe benefits	10,227,612	1,054		-	10,226,558
General overhead:					
Indirect labor	14,854,489	72,718	(1)	-	14,781,770
Subcontractor cost	16,653,676	-		16,653,676	-
Other direct cost	3,048,311	-		3,048,311	-
Subconsultants	199,669	-		-	199,669
Office Rent & Office Accomodation Costs	3,855,142	-	(3) (4) (9) (11)	-	3,855,142
Service Charges	1,914	1,914		-	-
Repairs and maintenance	197,161	-	(2)	-	197,161
Security	2,466	-	(2)	-	2,466
Overseas housing allowance	-	-		-	-
Utilities & Other Occupancy Costs	112,722	-		-	112,722
Vehicle Expenses	161,703	-		-	161,703
Depreciation Expenses	727,518	-		-	727,518
Travel- Hotel, Air & Rail Fares, Meals	1,686,058	513,859	(12)	-	1,172,198
Prints, Photos & Photocopying	182,089	61,371	(2), (6)	-	120,718
Telecommunications	671,286	-		-	671,286
Computer & Related Expenses	182,777	-		-	182,777
Software & Related Maintenance	128,948	3,432		-	125,516
Rental - equipment	296,690	-		-	296,690
Supplies & Equipment	43,956	-		-	43,956
Rental - Furniture	(23,000)	21,464	(2) (11)	-	(44,465)
Insurance	175,798	-		-	175,798
Insurance - Property	622,890	-		-	622,890
Consumable materials	23,659	21,976	(11)	-	1,683
Medical and eye test fees	1,186	-		-	1,186
First aid items	898	-		-	898
Protective clothing and equipment	23,240	-		-	23,240
Entertaining	46,552	46,552	(4)	-	-
Advertising	71,270	71,270	(6)	-	-
Stationery & Office Costs	178,786	6,574	(2)	-	172,212
Postage, courier, etc	84,362	-		-	84,362
Microfilming and storage	53,844	-		-	53,844
Computer Service Bureau Costs	47,287	-		-	47,287
Dues, Subscriptions & Technical Publications	389,817	267,158	(4) (6) (7) (9) (13)	-	122,659
Donations	47,253	47,253	(7)	-	-
Advertising (recruitment)	1,462	-		-	1,462
Recruitment fees	190,219	-		-	190,219
Relocation	(8,201)	-		-	(8,201)
Bank charges	18,453	18,453	(8)	-	-
Bank guarantees	1,351	1,351	(8)	-	-
Staff restaurant	79	79	(9)	-	-
Tea and coffee, etc.	86,753	86,753	(9)	-	-
Company functions	56,013	56,013	(9)	-	-
Club Dues & Expenses	20,104	20,104	(9)	-	-
Staff welfare	20,515	20,515	(9)	-	-
Other staff related costs	6,479	6,479	(9)	-	-
Immigration expenses	83,341	-		-	83,341
Audit, other	32,802	-		-	32,802
Taxation advice	96,270	-		-	96,270
Legal fees	124,673	33,339	(14)	-	91,334
Other professional fees	34,940	-		-	34,940
License fees	76,324	-		-	76,324
Training Courses & Materials	67,170	-		-	67,170
Conferences	123,878	123,878	(3) (4) (6)	-	-
Bad debts expense	(325,814)	(325,814)	(10)	-	-
Realized and unrealized exchange gains	155,348	155,348	(5)	-	-
Home office allocation	2,792,710	597,935	(17)	-	2,194,775
Dividend Income	(53,544)	(53,544)	(15)	-	-
Goodwill & Dividends	771,833	771,833	(16)	-	-
Taxation - corporate	(24,481)	(64,463)	(2)	-	39,981
(Profit) or Loss on Disposal of Equipment	(24,528)	-		-	(24,528)
	$ 59,302,177	$ 2,584,857		$ 19,701,987	$ 37,015,333

General and Administrative Overhead Rate = $\frac{\text{Allowable Indirect Costs}}{\text{Direct Labor}}$ = $\frac{\$\ 37,015,333}{\$\ 19,431,463}$ = 190.4917%

HALCROW (USA), INC.

Overhead Rate Schedule
Year Ended December 31, 2010

Note References:

1. Excess Compensation and the Directly Associated Costs are Unallowable per FAR 31.201-6(a) Using the Ohio DOT Compensation Schedules. When using the criteria of surveys such as those published by Economic Researce Institute (ERI) there is no excess compensation.
2. Expenses related to prior and future 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. Contingencies are uanllowable per FAR 31.205-7.
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.
11. The Capital Assets with an expected usefull life in excess of one must be recovered over the assets' expected usefull life in order to comply with (GAAP) and FAR 31.201-2(a)(3)
12. Additional Costs of First Class Air Fare, reimbursements in excess per diem limitations, and other travel costs in excess of the limits set forth in FAR 31.205-46 are unallowable.
13. Lobbying and political activity expenses are unallowable per FAR 31.205-47.
14. Legal Fees & Costs related to Mergers and Acquistions and pursuit of claims against the government are unallowable per FAR 32.205-47.
15. Income items unrelated to expenses are not part of the composition of allowable costs per FAR 31.201-1.
16. Goodwill is unallowable per FAR 31.205-49.
17. Recoverry of Home Office Expenses have been limited to those costs recoverable and allocable under the provisions of Cost Accounting Standard 403

See accompanying notes to overhead rate schedule.

HALCROW (USA), INC.

Schedule of Office and Field General and Administrative Allocations
Year Ended December 31, 2010

	Allocable Indirect Costs	Office Allocation %	Field Allocation %	Amount Allocated to Office	Amount Allocated to Field	Allocation Method No.
Paid Time Off and Other Employee Benefits	$ 10,226,558	97.81%	2.19%	$ 10,002,925	$ 223,633	(1)
Indirect labor	14,781,770	97.81%	2.19%	$ 14,458,524	$ 323,246	(1)
Subconsultants	199,669	99.76%	0.24%	199,182	487	(2)
Office Rent & Office Accomodation Costs	3,855,142	99.76%	0.24%	3,845,745	9,397	(2)
Repairs and maintenance	197,161	97.81%	2.19%	192,850	4,311	(1)
Security	2,466	97.81%	2.19%	2,412	54	(1)
Utilities & Other Occupancy Costs	112,722	97.81%	2.19%	110,257	2,465	(1)
Vehicle Expenses	161,703	97.81%	2.19%	158,167	3,536	(1)
Depreciation Expenses	727,518	97.81%	2.19%	711,609	15,909	(1)
Travel- Hotel, Air & Rail Fares, Meals	1,172,198	97.81%	2.19%	1,146,565	25,633	(1)
Prints, Photos & Photocopying	120,718	97.81%	2.19%	118,078	2,640	(1)
Telecommunications	671,286	97.81%	2.19%	656,606	14,680	(1)
Computer & Related Expenses	182,777	99.76%	0.24%	182,331	446	(2)
Software & Related Maintenance	125,516	99.76%	0.24%	125,210	306	(2)
Rental - equipment	296,690	99.76%	0.24%	295,967	723	(2)
Supplies & Equipment	43,956	97.81%	2.19%	42,995	961	(1)
Rental - Furniture	- 44,465	97.81%	2.19%	(43,493)	- 972	(1)
Insurance	175,798	97.81%	2.19%	171,954	3,844	(1)
Insurance - Property	622,890	99.76%	0.24%	621,372	1,518	(2)
Consumable materials	1,683	99.76%	0.24%	1,679	4	(2)
Medical and eye test fees	1,186	99.76%	0.24%	1,183	3	(2)
First aid items	898	97.81%	2.19%	878	20	(1)
Protective clothing and equipment	23,240	97.81%	2.19%	22,732	508	(1)
Stationery & Office Costs	172,212	99.76%	0.24%	171,792	420	(2)
Postage, courier, etc	84,362	99.76%	0.24%	84,156	206	(2)
Microfilming and storage	53,844	99.76%	0.24%	53,713	131	(2)
Computer Service Bureau Costs	47,287	97.81%	2.19%	46,253	1,034	(1)
Dues, Subscriptions & Technical Publications	122,659	97.81%	2.19%	119,977	2,682	(1)
Advertising (recruitment)	1,462	99.76%	0.24%	1,458	4	(2)
Recruitment fees	190,219	97.81%	2.19%	186,059	4,160	(1)
Relocation	- 8,201	97.81%	2.19%	(8,022)	- 179	(1)
Immigration expenses	83,341	97.81%	2.19%	81,519	1,822	(1)
Audit, other	32,802	97.81%	2.19%	32,085	717	(1)
Taxation advice	96,270	97.81%	2.19%	94,165	2,105	(1)
Legal fees	91,334	97.81%	2.19%	89,337	1,997	(1)
Other professional fees	34,940	97.81%	2.19%	34,176	764	(1)
License fees	76,324	97.81%	2.19%	74,655	1,669	(1)
Training Courses & Materials	67,170	97.81%	2.19%	65,701	1,469	(1)
Home office allocation	2,194,775	97.81%	2.19%	2,146,780	47,995	(1)
Taxation - corporate	39,981	97.81%	2.19%	39,107	874	(1)
(Profit) or Loss on Disposal of Equipment	- 24,528	97.81%	2.19%	(23,992)	- 536	(1)
Total Allocable & Allowable Expenses	$ 37,015,333			$ 36,314,647	$ 700,686	

Office Rate = Office allocation / Direct labor (Office) = $ 36,314,647 / $ 19,006,539 = 191.0640%

Field Rate = Field allocation / Direct labor (Field) = $ 700,686 / $ 424,925 = 164.8965%

See accompanying notes to overhead rate schedule.

4. Key Personnel

Halcrow

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

PROJECT MANAGER
Jonathan Goldstick, PE

PROJECT ADVISOR
Bill Paparis, PE

QUALITY CONTROL
Dennis Padron, PE

PROJECT COORDINATOR
Patrick King

TEAM LEADERS
Brett Sposito, PE
Kirk Riden, PE
Steve LoPorcaro, PE
Michael DeAngelis, PE
George Dinos, PE

ENGINEER DIVERS
Doug Friend, PE
Jonathan Boynton, PE
Alan Bull
John Mogray, PE

INSPECTION DIVERS
Joseph Acosta
Bill Esola
John Garisto
Benjamin Sheppard
Chris Waddicor

Halcrow

Patrick King

Senior Vice President, NE Regional Director

Specialization
Inspection and Rehabilitation Design

Registration
N/A

Year Joined Halcrow
1991

Years with other Firms
3

Education
BA, Ohio University

Surface Supplied Diving Certification, Santa Barbara City College

Commercial Diver Certification, Professional Diving School of New York

Specialized Climbing and Repelling Course Certification

Instructors Certification, Professional Association of Diving

Professional Affiliations
N/A

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

Key Qualifications

Mr. King has more than 20 years of experience leading structural inspection programs and commercial diving operations to evaluate and rehabilitate marine facilities around the world. Throughout his career, Mr. King has managed a wide variety of inspection, construction, and construction supervision projects for consulting engineering and marine construction companies. Evaluation and rehabilitation projects he has managed have included marine terminals, coastal and waterfront structures, submarine pipelines, dams, and bridges. His specific areas of expertise include timber and concrete structural repair, destructive and non-destructive sampling, underwater still and video photography, condition evaluation and analysis, report writing, and project management. His published manuals and articles include studies on the structural implications of marine borer infestation, in-situ concrete assessment, and conventional diving techniques. Currently Mr. King serves Halcrow as the Technical Director of the Engineering Divers Group and the Regional Director for the US Northeast.

Relevant Experience

US NAVY, Indefinite Quantity Contract for Underwater Inspection, Condition Assessment and Repair Design, Worldwide

Project Director responsible for all tasks for this worldwide contract with the United States Navy which include the condition inspection and design of repairs for various waterfront facilities including bridges, piers, and bulkheads. As a routine part of this contract, Mr. King provides prioritized repair recommendations for the Navy's use in preparing facility maintenance management plans. On-going

Underwater Inspection/Assessment Call-In Basis Contracts for US Navy, Worldwide

Project Director for a worldwide contract with the US Navy which included the condition inspection and design of repairs for various waterfront facilities including bridges, piers, and bulkheads. As a routine part of this contract, Mr. King provides prioritized repair recommendations for the Navy's use in preparing facility maintenance management plans. On-going

PANYNJ, Waterfront Inspection Services On-Call Contract, Manhattan, NY

Project Director responsible for all tasks under this agreement for the Port Authority of New York & New Jersey, which consist of above and underwater cyclical condition surveys of the Authority's waterfront structures in the five boroughs of New York City and northern New Jersey summarized in formal condition reports. Work also includes the development of detailed design documents for the rehabilitation of a transfer facility and bulkhead in New Jersey. On-going $1M year, three-year cap

HRPT, On-Call Hudson River Waterfront Inspection Contract, Manhattan, NY

Project Director for Halcrow's On-Call Waterfront Inspection and Rehabilitation Contract with the Hudson River Park Trust. Tasks under this contract include the cyclical inspection of piers, wharves, bulkheads, and pile fields within the 5 miles of Hudson River Park on Manhattan's West Side. Major design assignments have included the replacement of Piers 25 & 26, and the aircraft carrier pier, Pier 86 The Intrepid Museum. On-going $4M on-call, detail design $1.7 million

HRPT, Waterfront Inspection On-Call Contract, Manhattan, NY

Project Director for an On-Call Waterfront Inspection Contract with the Hudson River Park Trust. Tasks under this contract included the cyclical inspection of piers, wharves, bulkheads, and pile fields within the Hudson River Park on Manhattan's West Side. Recent projects have included the rehabilitation of Pier 86, the Intrepid Museum, inspections/evaluations of Piers 76 and 54, construction supervision for the replacement of Piers 95 and 96, and rehabilitation of the bulkhead at Pier 80. 2005

NYCOMB, Evaluation of Waterfront Structures, New York, NY

Project Manager for the evaluation of multiple waterfront structures in Manhattan and Queens, New York as part of the New York City Office of Management and Budget's (NYCOMB) Asset Management System, Work Order #5. Mr. King underwent training provided by the NYCOMB for the evaluation and development of costed reports. The project involved the evaluation of 79 assets along the shores of the East River, Harlem River, and Hudson River. Work involved cursory above water inspection, capture of date in NYCOMB database, and approval of developed costed reports. The work was performed for Gannett Fleming on behalf of the NYC Office of Management and Budget. 2008

NYCEDC, Downtown Manhattan Heliport, Manhattan, NY

Project Director/Project Manager for the condition survey and assessment for the New York City Economic Development Corporation. This project included an inspection and assessment of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform. The assessment included structural analyses for remaining live load carrying capacity, and estimates for the remaining life of the pier and barge. Mr. King also included repair and replacement alternatives with associated cost estimates in the deliverables. 2008

NYCEDC, East River Esplanade Repairs, Manhattan, NY

Project Director for the inspection and design of repairs to the existing granite faced concrete bulkhead along the East River between Pier 17 and Pier 35 for the New York City Economic Development Corporation. Mr. King provided a submittal review, QA inspections, and part-time resident engineering services. 2008

Halcrow

Jonathan Goldstick, PE

Senior Vice President

Specialization

Ocean engineering

Registration/Certifications

PE: NY #062097 (1985); NJ #24GE04827000 (2009)

Year Joined Halcrow

1995

Years with other Firms

15

Education

BSc, 1980, Ocean Engineering, Massachusetts Institute of Technology

1976 - 1978, Ocean Engineering studies, US Coast Guard Academy (No Degree)

Professional Affiliations

American Society of Civil Engineers (ASCE), Member

Society of American Military Engineers (SAME), Member

Society of Naval Architects and Marine Engineers (SNAME), Member

Key Qualifications

Jonathan Goldstick has 30 years of domestic and international experience in waterfront engineering and project management. He has been involved in the design, analysis, construction, rehabilitation, and installation of a wide variety of waterfront structures worldwide. His expertise also includes project management and engineering support for urban waterfronts.

Relevant Experience

PANYNJ "On-Call" Waterfront Condition Surveys, NY and NJ

Principal-in-charge of "on-call" engineering services for condition surveys of waterfront facilities. Oversaw the regular maintenance work and emergency response inspections for waterfront facilities of various types and constructions. Typically, these projects entailed 100 percent visual inspection of all structural elements and ten percent detailed inspection of select elements. Detailed inspections included 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. Project fee $1 M/year, 1995 – 2010

PANYNJ) Brooklyn Bridge Park Master Plan, Brooklyn, NY

Project manager for waterfront elements of the master plan for the development of a new waterfront park at the foot of the Brooklyn Bridge, including Brooklyn Piers 1-5. Expertise was provided in the following areas: shoreline rehabilitation to evaluate options for restoring dilapidated sections of the waterfront; evaluation of the feasibility of including a floating marina in the master plan; and establishment of the existing geometry and construction of the waterfront. Project fee $100 K, 2000 - 2002

PANYNJ Regional Private Ferry Study, New York and New Jersey Harbor, NY and NJ

Project director for the review and market analysis of existing and potential private ferry services in the greater NY and NJ Harbor. The study examined how ferry service is currently funded, what role ferry service plays in the regional transportation network, the public and private sector roles in ferry transportation, and what funding and financing options are available. The potential for new routes was explored. Study findings helped guide strategies to better integrate ferries into the regional transportation network and enhance the financial stability of the privately-operated ferry services. Project fee $475 K, 2009 - 2010

HRPT Hudson River Park Parkwide "On-Call", New York, NY

Principal-in-charge of the inspection, engineering, design, and construction administration services for the marine structures throughout the full length of the Hudson River Park, a five-mile park stretching along the Hudson River. Had final authority for all work performed, including condition surveys to monitor structures that were scheduled for replacement, inspection and rehabilitation design of structures that were to remain in use

Publications

"Fixed Wave Screen Designs", American Society of Civil Engineers (ASCE) Ports '04, Houston, TX, May 2004.

"Irvington, NY Brownfield Waterfront Remediation", American Society of Civil Engineers (ASCE) Ports '01, Norfolk, VA, May 2001.

"Pier 79 West Midtown Ferry Terminal Development, NY, NY", American Society of Civil Engineers (ASCE) Ports '01, Norfolk, VA,

"Developing the Mina Raysut Container Terminal", Society of Naval Architects and Marine Engineers (SNAME) 1997 Transportation Operations, Management and Economics Symposium, Secaucus, NJ, May 1997. May 2001.

"69th Street Pier Composite Pier Design in Brooklyn, NY", American Society of Civil Engineers (ASCE) Ports '98, Long Beach, CA, March 1998.

by the park, inspection and design of demolition plans for structures that were to be removed, and monitoring of pile fields for previously demolished piers. Structures inspected included timber and steel pile supported piers, granite block seawalls, and timber pile fields. Project fee $1.8 M, 2002 - 2010

New York State Parks Department, Roberto Clemente State Park Bulkhead/Shoreline Evaluation and Design, Bronx, NY

Principal-in-charge for the evaluation and rehabilitation design of the existing bulkhead and shoreline. The scope of the waterfront work included an above and underwater inspection of 2,095 lin ft of steel bulkhead, approximately 275 lin ft south of the bulkhead, and approximately 2,000 lin ft to the north of the bulkhead. The inspection included all structural elements of the bulkhead from the deck level to the mud line, a hydrographic survey of the Harlem River along the park, and a "swim by" inspection of the waterfront. Subsequently awarded a follow-on contract to design the upgrade of the waterfront. The conceptual plan is to construct a new 2,100-ft-long anchored sheet pile bulkhead immediately outboard of the existing structure. Services also include obtaining all required environmental permits (including the design of any required mitigation works), and supporting the client through the construction process with design and engineering services. Also responsible to re-inspect and develop repair designs for the 2,000-ft length of shoreline that is defined by stone revetments. Reconstruction and repairs of the upland esplanade utilities, structures, and amenities are also included. $16 M, 03/2006 - Anticipated completion 06/2012

Brooklyn Navy Yard Development Corporation, Brooklyn Navy Yard Rehabilitation, Brooklyn, NY

Project manager for the rehabilitation of Berths 1A, 8, 8A, 8B, 9, 9A, 10, 10A and structures at the small boat basin. The majority of the structures are timber relieving platforms between and at the entrances to the dry docks. The timber had deteriorated from rot and marine borer attack. Various repair scenarios were developed, and detailed designs were prepared for repairs that included the removal of all fill, encasement of piles, and re-filling with lightweight concrete to seal the relieving platform floors. The project began with detailed underwater inspections of the 19 structures for which only limited documentation existed. $21 M, 2009 – 2012

NYCEDC, North Shore Esplanade, Staten Island, NY

Principal-in-charge for the entire scope of work including site investigations, development and supervision of a geotechnical boring program to establish design parameters for new waterfront structures for a shoreline bicycle plan. Also oversaw preparation of concept design alternatives for stabilizing or reconstructing the shoreline using various solutions such as steel sheet pile bulkheads and engineered stone revetments. $2.6 M, 2007 - 2008

Halcrow

Kirk Riden, PE
QA/QC Manager

Specialization
Structural engineering, condition assessment, maritime structure design, asset management and engineering

Registrations/ Certifications
PE: NY #81564 (2003)

Advanced Open Water SCUBA Certification, 1994, Professional Association of Diving Instructors

Surface-Supplied Air Diver, 2008, Association of Diving Contractors International

Entry Level Tender/Diver, 2003, Association of Diving Contractors International

Safety Inspection of In-Service Bridges Training, 2005, National Highway Institute Course 130055A

Year Joined Halcrow
2003

Years with other Firms
6

Education
BS, 1998, Maritime Systems Engineering, Texas A&M University Galveston

Professional Affiliations
None

Key Qualifications

Kirk Riden has more than 13 years experience as a project manager, project engineer, designer, and engineer-diver performing above and underwater inspection. He is responsible for planning, design, and construction supervision of new and rehabilitated offshore and waterfront facilities. His commercial projects have included bridges, mobile offshore drilling units (jack-ups and semi-submersibles), bulkheads, piers, urban public access waterfronts, and shore side civil works. Kirk specializes in condition evaluation and rehabilitation design for offshore and waterfront projects, he also served as resident engineer on major offshore upgrade projects.

Relevant Experience

Con Edison, Sherman Creek Substation Inspection, New York, NY
Engineer-in-charge for the above and underwater inspection the Sherman Creek Substation for Con Edison. Reporting tasks included the preparation of a comprehensive condition inspection report, complete with a feasibility study for the eventual re-use of the site as a heavy-lift staging area and waterfront park. Project fee $65,000, Completion 2005

Con Edison, 74th St Substation Tunnels under FDR Drive, New York, NY
Engineer-in-charge for the above and underwater inspection of Con Edison's 74th Street Substation Tunnels that pass below FDR Drive and connect to the East River. Project fee $35,000, Completion 2004

PANYNJ, LaGuardia Runway Extension Condition Assessment, New York, NY
Project director for the above water inspection of the LaGuardia Airport runway extensions. Project fee $250,000, Completion date 07/2011

Brooklyn Bridge Park, Condition Assessment and Life Cycle Cost Model, Brooklyn, NY
Project manager for the comprehensive above and underwater inspection of the marine infrastructure within the new, $350 million Brooklyn Bridge Park, including more than 12,000 timber and concrete substructure elements and 7,000 linear feet of bulkhead structure. Following the inspection, Halcrow performed partially destructive testing of the timber elements in order to determine the remaining life of the piles. All inspection data was input into a Halcrow-designed inspection database with GIS interface. The database was utilized to automatically generate loading capacity plans and contract documents for repairs. Investigations were undertaken by Halcrow in-house engineer-divers. Most recently, Halcrow was retained to prepare a life cycle cost model in order to provide a comprehensive view of required operations and maintenance costs over the next 50 years for the waterfront infrastructure. This task included inputs from Halcrow's concrete technologists in order to develop reliable estimates of useful remaining

service life and helped to optimize the O&M cost estimations. Park construction value $350 M, Project fee to date $1 M, Completion 2011

US Navy, Indefinite Quantity Underwater Inspection Condition Assessment and Repair Design Contract, Worldwide

Project manager-diver for an Indefinite Quantity Underwater Inspection, Condition Assessment, and Repair Design Contract with the United States Navy. 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, Halcrow provides prioritized repair recommendations for the Navy's use in preparing facility maintenance management plans. Recent (within the past 12 months) task orders have included the inspection of Navy and Coast Guard facilities in Djibouti, Guam, Norfolk, VA, Patuxent River, MD, Annapolis, MD, and Diego Garcia, BIOT. Recent rehabilitation design projects have been performed in Cape May, NJ, Earle, NJ, and Patuxent River, MD. Project fee $1 M per year, Completion date 06/2011

US Navy, Asset Inventory Development, US

Project manager for the inventory of ca. 120 waterfront assets in the Navy's inventory, using ASTM UNIFORMAT II hierarchy, and developing CAD-based inventory plans. Project fee $270,000, Completion 2009

NYCEDC, Fulton Fish Market Relocation to Hunt's Point, Bronx, NY

Project engineer for the Fulton Fish Market Relocation to Hunt's Point, Bronx for Turner/EDC. Provided waterfront site survey and design and engineering services for the development of construction documents for a graded riprap revetment and anchored steel sheet pile bulkhead. The construction documents included comparative construction cost estimates for multiple site development alternatives, construction drawings, ACOE permit applications, and technical specifications. Construction value $1.75 M, Completion 2007

HRPT, On-Call Hudson River Waterfront Inspection Contract, New York, NY

Project manager-diver for Halcrow's On-Call Waterfront Inspection Contract with the Hudson River Park Trust. Tasks under this contract include the cyclical inspection of piers, wharves, bulkheads, and pile fields within the Hudson River Park on Manhattan's West Side. Project fee per year $500,000, Completion 2006

Publications

AAPA Facilities Engineering Conference – Presentation on Maritime Asset Management, November, 2009.

Riden, Kirk, et al, *"NYC Office of Management and Budget Major Maintenance Guidelines"*, 2006.

Riden, Kirk, et al, *"US Navy P-990, Conventional Underwater Repair Techniques"*, 2010.

Awards

2011 – ACEC NY Gold Award for Engineering Excellence – Brooklyn Bridge Park Marine Assessment, Brooklyn, NY

2008 – ACEC NY Platinum Award for Engineering Excellence – AIMS Major Maintenance Guidelines for Waterfront Management, New York, NY

2000 Young Engineer of the Year - American Society of Mechanical Engineers (ASME) NTS Petroleum Division

Halcrow

Brett Sposito, PE
Project Manager/Senior Engineer Diver

Specialization
Project management, maritime development design and planning

Registration/ Certifications
PE: NY #086247 (2011), OR #57885PE (2012)

Association of Diving Contractors Commercial Diver Certification, Entry Level Tender/Diver

National Oceanic and Atmospheric Administration (NOAA) Divemaster (2004), Contaminated Water Diving Seminar

Professional Scuba Inspectors, Visual High Pressure Cylinder Inspector (2004)

Professional Association of Diving Instructors, Advanced Open Water SCUBA Certification (1999)

High Pressure-related HAZMAT Training

CPR/First Aid and DAN Oxygen First Aid Training

Federal Highway Administration (FHWA) National Highway Institute Training:

Bridge Inspection Refresher Training (2009)

Safety Inspection of In-Service Bridges (2003)

Year Joined Halcrow
2007

Key Qualifications

Brett Sposito has more than 14 years experience as an engineer diver, and has performed approximately 940 underwater structure inspections over 680 days for Halcrow and the Oregon Department of Transportation (ODOT). He has three years of experience as a fathometer surveyor performing 60 fathometer surveys of bridges over major waterways. In addition, he has one year of experience as a bridge designer performing design and providing construction support, concurrent with underwater bridge inspection experience. Brett's 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.

Relevant Experience

Con Edison, 74th Street Station Intake Tunnel Inspection, New York, NY
Team leader and project engineer diver for an underwater condition survey of the intake tunnel. The purpose of the inspection was to provide a condition assessment, to identify and quantify existing defects, to analyze and evaluate the defects, and to recommend repair actions with associated cost estimates. The project included inspection of 100 ft of reinforced concrete tunnel. Project fee
$58 K, 2010

PANYNJ, Waterfront Inspection Services On-Call Contract, New York, NY
Project manager overseeing a call-in contract to provide waterfront inspection services to PANYNJ. Tasks under this agreement consist of above and underwater cyclical condition surveys of the Authority's waterfront structures in the five Boroughs of NYC and New Jersey as summarized in formal condition reports. Recent condition surveys performed in 2009-2010 include Port Newark Berths 3-25 in Elizabeth, NJ, Port Elizabeth in Elizabeth, NJ, the Auto Marine Terminal in Bayonne, NJ, and selected bridge and culvert structures at the Newark Liberty International Airport in Newark, NJ. Project fee $600 K, 2009 - 2011

Hudson River Park Trust, Pier 54 Inspection, New York, NY
Team leader and project engineer diver for the annual underwater and above water inspection of Pier 54. The purpose of the inspection was to identify structural and non-structural deficiencies and provide recommendations for repair and rehabilitation actions required to maintain the condition of the pier for its current usage. Pier 54 is 770 ft long by 100 ft wide and consists of timber piles and bracing, timber pile caps, concrete pedestals, underside of the concrete deck and asphalt deck surface. Project fee $55 K, 2009 - 2010

Years with other Firms
10

Education
BS, Civil Engineering, (1991), University of Washington

Professional Affiliations
Chi Epsilon, National Civil Engineering Honor Society (1991)

PANYNJ, Port Newark Inspection, Newark, NJ

Team leader and project engineer diver for an underwater and above water condition survey of the odd-numbered Berths 3 through 25, to include the bulkheads at Berth 19 and east of Berth 25, at the Port Newark Marine Terminal. The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies. The project included inspection of timber, concrete, and steel pile supported wharves, and timber and steel sheet pile bulkheads. The project is part of Halcrow's waterfront inspection services on-call contract with PANYNJ. Project fee $348 K, 2009

NYCEDC, Battery Maritime Building to the South Side of Pier 16 Inspection, New York, NY

Team leader and project engineer diver for an underwater and above water investigation of the gravity wall bulkhead from the Battery Maritime Building to the south side of Pier 16. The purpose of the routine level investigation was to assess the general overall condition of the structure, estimate the remaining useful life, and determine recommended actions with associated costs. The secondary purpose of this inspection was to identify potential sources of fill loss to address historical problems with settlement in the area. Ground Penetrating Radar (GPR) was also employed upland to identify voided areas due to fill migration. The project included evaluation of over 2,500 lin ft of gravity wall bulkhead, a timber pile supported low level relieving platform, manholes, and concrete and asphalt surface up to 35 ft behind the offshore face. Project fee $103 K, 2009

US Navy, Waterfront Facilities Inspection at Naval Amphibious Base Little Creek, VA

Team leader and project engineer diver for an underwater and above water inspection and assessment services for the waterfront facilities at Naval Amphibious Base Little Creek. The purpose of the inspection was to assess the general physical condition of the structural, electrical and mechanical components of the waterfront facilities, recommend repair actions, and provide associated cost estimates. The project included evaluation of 244 facilities, to include timber and concrete pile supported piers and wharves, and concrete and steel sheet pile bulkheads. Project fee $800 K, 2009

Hudson River Park Trust, Pier 60 Inspection, New York, NY

Team leader and project engineer diver for an underwater water inspection of Pier 60. The purpose of the repair inspection was to determine if there were items of non-conformance with repair design documents. This project included the inspection of 85 posted timber piles. 2008

Halcrow

Douglas Friend, PE
Project Manager

Specialization
Engineer diver

Registration/ Certifications
PE: MA #43334 (2002)

ADCI Commercial Air Diver (2001)

Santa Barbara City College, Commercial Diving Instruction (2000)

Professional Association of Diving Instructors, Open Water Diver (1998)

Scuba Schools International, Stress and Rescue Diver (2004)

American Red Cross, Adult CPR, First Aid and AED Certified

DAN Oxygen Provider

Federal Highways Administration/National Highways Institute, Safety Inspection of In-Service Bridges (2006)

Year Joined Halcrow
1997

Years with other Firms
1

Education
MS, 2005, Civil Engineering, Columbia University

BS, 1994, Civil Engineering, Manhattan College

Key Qualifications

Douglas Friend has more than 14 years of experience in inspection, evaluation, analysis and construction supervision of marine and waterfront facilities. His project experience includes piers, offshore platforms, bulkheads, wharves, bridges, dams, and marine terminals. Doug's specific areas of competence are condition structural evaluation, construction supervision and inspection, rehabilitation design, and analysis of marine structures. Doug served as resident engineer on major marine construction projects and is currently serving as project manager for various underwater inspection projects and for the NYC Economic Development Corporation, Hudson River Park Trust, NYC Department of Transportation, and the US Army Corps of Engineers "on-call" contracts.

Relevant Experience

Con Edison, Inspection of the Farragut Substation, Brooklyn, NY
Project manager for project that included core sampling and an assessment of a timber pile supported wharf structure. Deliverables included live load carrying capacity analyses and repair recommendations with associated cost estimates. 2010

Con Edison, Hudson Avenue Station Fuel Dock, Brooklyn, NY
Project manager and engineer for the underwater inspection and evaluation at the Hudson Avenue Station. Project included inspection and destructive testing the timber-pile-supported fuel unloading dock. The evaluation included a structural analysis for existing live load carrying capacity, an estimate for the remaining life of the dock, and repair recommendations with alternatives and associated cost estimates. 2009

Con Edison, 74th Street Underwater Tunnel Inspection, New York, NY
Project manager for the inspection of two submerged tunnels below Con Edison's 74th Street Generating Station. The purpose of the inspection was to provide a condition assessment, to identify and quantify existing defects, to analyze and evaluate the defects, and to recommend repair actions with associated cost estimates. The project included inspection of 100 feet of *reinforced concrete tunnel. Subsequent to the inspection, services included* assessment of deteriorated tunnels, preparation and delivery of a detailed inspection report containing the observed findings, recommendations, and cost estimates. 2009

Con Ed Hellgate Dock, Bronx, NY
Project manager for the above water and underwater investigation of the Hellgate Dock on the East River. The scope of services included: the inspection of thirteen, 6 ft wide by 31 ft long concrete Pier-Walls, approximately 15,000 sq ft of concrete deck and associated deck soffit, a 400 ft penetration dive of an abandoned concrete discharge tunnel. Issuance

of a detailed inspection report per the requirements of the Con Ed Waterfront Facilities Maintenance System specification, repair recommendations with associated cost estimates, as well as narrated video DVD. 2008

HRPT, On-Call Hudson River Waterfront Inspection Contract, New York, NY

Project manager and team leader for Halcrow's On-Call Waterfront Inspection Contract with the Hudson River Park Trust. Tasks under this contract include cyclical inspection of piers, wharves, bulkheads, and pile fields within Hudson River Park on Manhattan's West Side. 2010 - ongoing

NYCEDC, South Brooklyn Marine Terminal, Routine Waterfront Inspection, Brooklyn, NY

Project manager for the above water and underwater inspection performed for Turner Construction Company on behalf of NYCEDC. The scope of services included a routine inspection of five structures at SBMT, including steel sheet pile bulkheads, stone riprap revetments, and a timber pile supported relieving platform. Subsequent to the inspection, additional services included a presentation of preliminary findings and the submittal of a final report containing observed conditions, rehabilitation recommendations, figures, and estimates of probable costs of recommended actions. 2011

NYCEDC, Hunts Point, Routine Waterfront Inspection, Bronx, NY

Project manager for the routine inspection performed for Turner Construction Company on behalf of NYCEDC. The scope of services included an inspection of a timber pile supported relieving platform. Subsequent to the inspection, additional services included a presentation of preliminary findings and the submittal of a final report containing observed conditions, rehabilitation recommendations, figures, and estimates of probable costs of recommended actions. 2011

NYCEDC, On-Call Marine Engineering Services, New York, NY

Project manager and team leader responsible for providing 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 rehabilitation, cost estimating, and inspection and support of construction. 2006 - ongoing

Professional Affiliations

American Society of Civil Engineers (ASCE), Member

Publications

"NYC Office of Management and Budget Major Maintenance Guidelines", 2006 – Contributor

Halcrow

Bill Paparis, PE

Maritime Structures, Skill Group Director

Specialization

Structural engineering

Registration/Certifications

PE: NY #57991; NJ #32879; NC #033898

PADI Scuba Diver Certification (1982)

Year Joined Halcrow

1984

Years with other Firms

8

Education

MS, 1976, Civil Engineering, Columbia University

BS, 1975, Civil Engineering, Columbia University

Professional Affiliations

American Society of Civil Engineers, Member

National Society for Petroleum Engineers, Member

Tau Beta Pi

Publications

"Modernizing a Three Decade Old Wharf Structure for the Next Generation of Containerships", Proceedings of Port '2004, Houston, May 2004.

"Joint Effort Rapid Response Minimizes Downtime during Fuel-oil Dock Replacement".

Key Qualifications

Bill Paparis has more than 34 years of experience on many marine related projects involving structural inspection, rehabilitation, upgrades and new construction design, planning, cost estimating, and construction management. His background includes inspection diving, as a certified diver, and on-site construction management for marine and waterfront projects.

Bill has served as manager of the inspection department and is currently Skill Group Director of the Maritime Structures Group.

Relevant Experience

PANYNJ "On-Call" Waterfront Condition Surveys, NY and NJ

Project manager of "on-call" engineering services for condition surveys of waterfront facilities. Oversaw the regular maintenance work and emergency response inspections for waterfront facilities of various types and constructions. Typically, these projects entailed 100 percent visual inspection of all structural elements and ten percent detailed inspection of select elements. Detailed inspections included 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. 2007-2010

Norfolk Naval Shipyard, Pier 3 and Berth 25, Norfolk, VA

Lead structural engineer responsible for design of Pier 3 and Berth 25 for the Atlantic Division of the US Navy. The pier is to accommodate aircraft carriers, submarines, and all other classes of Navy vessels. The work included the evaluation of numerous alternatives, including platform structures and bulkheads. The options of replacement and building outboard of the existing structures were evaluated. On-going estimated completion date 2011

Naval Weapons Station Earle Pier Replacement, Colts Neck, NJ

Assistant project manager replacement of an ammunition loading pier for the US Navy. Work involved steel pipe piles, precast concrete caps, a composite prestressed/cast-in-place concrete deck, fender systems, mooring fittings, dredging, mechanical and electrical works, and buildings. On-going project valued at $130 M.

Jebel Ali Container Terminal, Dubai

Project manager responsible for design of marine works for Terminal 3 for Dubai Ports World, which included 2,700 m of concrete block quaywall, fenders, bollards and ladders, revetments, over 20,000 cu m of dredging, reclamation, and bridge piers for D.P. World. The work included numerical remodeling of the layout to consider the effects of water temperature and salinity on a adjacent property owners. It also included physical modeling of the bridge piers for the effects of wave loading during the construction stage.

Piers 6, 7, 8 and Bulkhead 9B, Brooklyn, NY

Project director responsible for inspection and design of repairs to Piers 6, 7, 8 and Bulkhead 9B at the Port Authority of NY and NJ's Brooklyn Piers. The work included repair of concrete extension on timber piles, plating repairs to steel sheet piling, and the installation of a new steel sheet pile bulkhead.

Global Container Terminal Extension, Bayonne/Jersey City, NJ

Project director and project manager responsible for a 900 ft terminal extension for Global Terminal & Container Services. The major challenge of the project is spanning over an existing storm water sewer outfall which runs at an acute angle to the length of the wharf. In order to accomplish this, a 190 ft long by ca. 30 ft deep steel truss was designed to span over the outfall pipe and support the waterside crane rail. Resilient high energy absorption rubber fenders and 150 ton capacity bollards will be provided along the face of the wharf. The scope of work also includes electrical and mechanical utilities and pavement design.

Mobile (Choctaw Point) Container Terminal Development, Mobile, AL

Project director/project manager responsible for planning, design, engineering, and construction supervision for a new container terminal at Choctaw Point for APM Terminals. The work includes final planning and layout of the terminal and gate, considering future expansions. Detail design was performed for an Administration Building, Maintenance Building, Longshoremen's Shelter, and several smaller buildings and gate. In addition, design of the container yard, including grading, paving, storm drainage, fire water, domestic water, sewage, electrical, and communications was carried out. Also providing full time resident engineering and construction support services.

Piers 88 and 90 Passenger Ship Terminal Redevelopment, New York, NY

Project director responsible for the redevelopment design including pile repairs and structural upgrades to existing Piers 88 and 90, and the addition of new pile supported concrete decks with fendering along each side of the existing piers. Master planning included development of construction alternatives, phasing concepts, and project costs. The Terminal was designed to berth a variety of cruise ships including the QM2.

Cruise Ship Terminal, Brooklyn, NY

Project director responsible for design of upgrades to Pier 12 to convert the facility from a general cargo pier to a cruise terminal for the New York City Economic Development Corporation. Completed 2005

Halcrow

Joseph Choi, PE
Engineer Diver

Specialization
Marine structures

Registration/ Certifications
PE: MA # 49331 (2011)

Open Water Diver, PADI Certification (2009)

OSHA 10 hr Construction Safety

Year Joined Halcrow
2006

Years with other Firms
4

Education
MS, 2009, Civil Engineering, Columbia University

BS, 2002, Mechanical Engineering, University of Rochester

Professional Affiliations
None

Publications
None

Key Qualifications

Joseph Choi has nine years of analysis, design, inspection of waterfront structures, submarines systems, and other maritime projects. His specific experience includes structural inspections, repair designs, and structural analysis of marine and waterfront structures, supervision of rehabilitation construction and subsurface investigations, consulting on submarine fluid systems and components as well as project engineering duties such as drafting, cost estimating, permitting, submittal review and engineering reports.

Relevant Experience

Massachusetts Bay Transportation Authority, Bridge Inspection, Bayside Engineering, Boston, MA

Team leader responsible for the underwater inspection of three MBTA rail bridges. The inspection included evaluations of granite block and concrete abutments, rip-rap embankments and a concrete culvert. A report was prepared, which included the inspection findings and condition ratings for the inspected elements. 2011

Battery Park City Authority, Pier A Structural Analysis, New York, NY

Structural engineer for structural analysis of Pier A. The pier consisted of a concrete deck and timber substructure. The analysis was based on inspection findings and timber material testing and was in support of an ongoing rehabilitation effort of Pier A. The analysis included a load rating of the pier as well as analyses for HS20 truck, man-lifts, and scaffolding. 2011

PANYNJ, LaGuardia Runway Deck Rehabilitation Inspection and Lifecycle Recommendations, New York, NY

Project engineer and team leader responsible for the inspection of the runway deck at LaGuardia Airport and subsequent report, for Jacobs Engineering on behalf of PANYNJ. The project supports a PANYNJ capital program which has been evaluating the structure's condition, maintenance, and lifecycle program. The report consisted of inspection findings, condition figures, and repair and lifecycle recommendations. The facility is constructed of prestressed and post-tensioned concrete girders and deck planks. 2011

NYCEDC/NYC Waterways, Piers 79 Fast Ferry Berthing System, New York, NY

Design engineer responsible for conceptual design to replace a portion of the berthing system at Pier 79 for the NYC Waterways fast ferry operations. The design of the berthing system included a monopile fender design. 2010

NYCEDC, Manhattan Cruise Terminal, Piers 88 & 90 Offshore Apron Rehabilitation, New York, NY

Team leader, project and design engineer responsible for inspection, conceptual design, and design to rehabilitate the offshore apron of two cruise ship terminals. The offshore aprons function as mooring and berthing structures, support cargo transfer operations, and provide storage. The rehabilitation effort includes the design of a steel pipe supported concrete structure to support 120 ton bollards, fender system, and concrete deck. The deliverables include a conceptual design presentation, and follow-on contract drawings, specifications, and cost estimate. 2010

AUTEC Fuel Pier Rehabilitation, US Navy, Andros Island, Bahamas

Project and design engineer responsible for design of repairs to two Navy fuel piers constructed of steel sheet pile bulkheads. The rehabilitation effort includes crack and spall repairs for concrete surfaces, reconditioning mooring hardware, and retrofitting a fender system to accommodate barges and small naval vessels. The deliverables include contract drawings, specifications, and a cost estimate. 2010

NYC Office of Management and Budget, Waterfront Structures Evaluation, New York, NY

Inspector for the evaluation of multiple waterfront structures throughout the five boroughs of the City of New York, New York as part of the NYCOMB Asset Management System. The project involved the evaluation of 59 assets along the shorelines of Manhattan, Brooklyn, Queens, Staten Island and the Bronx. Work involved cursory above water inspection, capture of data in NYCOMB database, and approval of developed cost reports. The work was performed for Gannett Fleming on behalf of the NYCOMB. 2010

PANYNJ, High-Level Platform Rehabilitation, Brooklyn, NY

Project and design engineer responsible for the design of repairs to an existing timber pile supported concrete pier and a steel sheet pile bulkhead. The rehabilitation effort included timber pile encasements, corrosion hole repairs, and concrete beam spall repairs. The deliverables include contract drawings, and specifications. 2010

PANYNJ, Holland Tunnel Pier 9/204 Condition Survey, Jersey City, NJ

Project engineer responsible for the condition survey of Pier 9/204. Tasks included above water and underwater inspection of the timber pile supported low-level timber platform and a steel beam supported concrete and timber deck. A report was prepared, which included the inspection findings, structural analysis, and recommendations for repair. 2009

Halcrow

Michael DeAngelis, PE
Engineer Diver

Specialization
Civil engineering, project management

Registration/ Certifications
PE: NY # 087124 (2009)

Confined Space and Fall Protection Certification (2006)

OSHA Training

Advanced Open Water SCUBA, PADI Certification

PADI Emergency First Responders (2011)

DAN DEMP (2011)

Year Joined Halcrow
2011

Years with other Firms
6

Education
MBA, 2011, Business Administration Candidate, Fordham University

BS, 2004, Civil Engineering, Manhattan College

Professional Affiliations
American Society of Civil Engineers (ASCE), Member

Publications
None

Key Qualifications

Michael DeAngelis has more than six years of solid engineering experience with a proven track record in structural engineering and project management of public and private projects, including inspection and structural design of piers, bridges, ferry terminals, retaining walls, revetments, foundations and other complex structures. Michael is versed in various computer applications such as Risa-3D, ETABS, ACES, Mathcad, and AutoCAD.

Relevant Experience

Prior to joining Halcrow, Michael's experience includes:

Con Edison Locust Ave Substation Inspection, Bronx, NY
Project manager and team leader for the underwater and topside condition inspection of a concrete wharf and roll-on-roll off (Ro-Ro) structure. The work included a detailed inspection of the concrete wharf structure and fender system; generation of a condition report with repair recommendations and cost estimates; and construction drawings providing structural repairs to the concrete wharf structure and a new fender system. Project fee $50,000, Completion 2008

Con Edison Pier 98, New York, NY
Project engineer and diver providing construction support services for the rehabilitation of a timber and concrete fuel pier. The work included a 100 percent pre-construction inspection of the timber substructure; pre-concrete placement inspections and post concrete placement inspections; daily field reports prepared for the client; and a project close-out inspection. Project fee $100,000, Completion 2008

New Jersey Transit, Hoboken Ferry Terminal, Hoboken, NJ
Project manager responsible for the marine segment rehabilitation of Hoboken's historic ferry terminal. The project included the design of six pedestrian timber gangways/bridges and one aluminum gangway/bridge, as well as the development of berthing/impact ferry loads and the design of pile anchorage for six floating ferry landings. Construction value $40 M, Project fee $250,000, Completion 2010

Williamsburg Edge Waterfront Development, Williamsburg, NY
Project manager responsible for the development of waterfront park and open space. The project included the design of 17,000 ft2 of new steel and concrete pier structures; 12,000 ft2 of public open space; 500 linear feet of riprap revetment and steel sheet pile bulkhead; configuration and design of a ferry landing; and the acquisition of necessary waterfront permits. Construction value $11 M, Project fee $350,000, Completion 2010

Glenwood Pier Condition Assessment, North Bergen, NJ
Assistant project manager and team leader for the condition survey of approximately 100,000 ft^2 of concrete deck and 3100 timber piles. The

condition inspection included 100 percent Level 1, hands-on inspection of all structural elements, 15 percent Level 2 inspection of timber piles, and 5 percent Level 3, destructive testing, of timber piles, timber pile caps, and concrete pile cap elements. The assessment included analysis, load rating, repair recommendations, and cost estimates. Project fee $450,000, Completion 2010

Garden Pier Condition Survey, Atlantic City, NJ

Project manager and team leader for underwater and topside condition inspection of a concrete pier substructure. The work included underwater inspection of concrete piles and topside inspection of the concrete pile caps and concrete deck. A load rating and a detailed report was provided outlining existing conditions and recommendations to be used in the construction of a new casino and hotel. Project fee $25,000, Completion 2007

Condition Survey of SI Ferry Maintenance Facility, Staten Island, NY

Assistant project manager and team leader supervised the condition survey of 20,000 ft2 of piers and berthing structures, including the analysis, load rating and rehabilitation design and report preparation. The work was conducted for the New York City Department of Transportation (NYCDOT). Project fee $150,000, Completion 2007

Edgewater Ferry Terminal, Edgewater, NJ

Project engineer for the development of a new ferry terminal and upland connection for the town of Edgewater, New Jersey. The project included the design of two timber piers, one aluminum gangway, as well as the development of berthing/impact ferry loads and design of the pile anchorage for a floating ferry landing. In addition, the project included the design of a timber and steel breakwater structure for the protection of the existing marina. Project fee $50,000, Completion 2006

Connecticut DOT, In-Depth Inspection of Bridges, CT

Team leader for the routine and in depth inspection of 300 bridges, above water and underwater inspection, conditioning rating and written report. Project fee $1.1 M, Completion 2006

LaFarge, 25th Street Wharf, Brooklyn, NY

Engineer-diver providing construction support services for the rehabilitation of the timber pile supported wharf. The work included a 100 percent pre-construction inspection of the timber substructure; pre-concrete placement inspections; steel reinforcement inspections; and post concrete placement inspections; daily field reports prepared for the client; and a project close-out inspection. Completion 2005

Halcrow

George Dinos, PE
Engineer Diver

Specialization
Inspection and rehabilitation

Registration/ Certifications
PE: CA #78814 (2011)

Surface-Supplied Air Diver, Association of Diving Contractors International (2008)

10-hour Occupational Safety and Health Training Course, OSHA (2008)

Emergency First Responder, Professional Association of Diving Instructors

Confined Space Entrant

Year Joined Halcrow
2008

Years with other Firms
None

Education
BS, 2008, Civil Engineering, Cooper Union

Professional Affiliations
None

Publications
None

Key Qualifications

George Dinos has more than two years experience as an engineer performing above and underwater inspection and rehabilitation design and construction management consulting services.

Relevant Experience

Hudson River Park Trust, Pier 54, New York, NY
Team leader and project engineer diver led inspection team in the full comprehensive inspection of Pier 54 above and below water. Developed complete condition survey with recommendations, deficiency plans, repair actions and live load ratings for the facility. Project fee $50 K, 2011

Hudson Meridian, Pier 35 & 36, East River Esplanade, New York, NY
Team leader and project engineer diver provided support for on-site resident engineer through the construction process of the Pier 35 and 36 Rehabilitation. Tasks included developing and implementing inspection methodology for quality control inspections on all work performed underwater. Project fee $134 K, 2011

Freeport McMoran, Smelter Dock, Carteret, NJ
Team leader and project engineer diver headed the inspection of a no longer utilized pier with the objective of providing technical feedback and creating a life cycle overview assessment to determine the optimal scenario between rehabilitation or replacement of the pier. Project fee $13 K, 2011

US Navy, Guam Naval Base, Arpor Harbor, Guam
Engineer-diver and team member for the asset inventory, underwater and topside inspection of several waterfront facilities for the Guam Naval Base. This project is part of the Indefinite Quantity underwater inspection condition assessment and repair design contract with US Navy. Project fee $1 M per year, 2010

PANYNJ, Port Elizabeth, Elizabeth, NJ
Team leader headed onsite inspection of Berth 50 -66. Developed full condition report with deficiency plans and repair recommendations. Prepared and gave exit briefing for client to report inspection findings. Project fee $225 K, 2010

PANYNJ, Newark International Airport Bridges, Newark, NJ
Engineer-diver involved with onsite inspection of multiple bridges throughout the airport. Performed load capacity analysis of compromised area to determine safe loading by essential vehicles. Developed deficiency plans and repair recommendations of several bridges for the final report. Project fee $58 K, 2010

PANYNJ, Port Newark, Newark, NJ

Team leader led interim inspections of Berths 3 & 14 to monitor the condition of the severely deteriorated structures. Developed appropriate facility restrictions to maintain safe operations until rehabilitation can be implemented. Participated in the design of immediate repairs to stabilize Berth 3. Project fee $39 K, 2010

Brooklyn Bridge Park Corporation, Brooklyn Bridge Park, Brooklyn, NY

Engineer diver led inspection team in collection of timber pile core samples from Piers 5 & 6 for analysis to develop life cycle models. Led the pile wrap removal inspection to determine condition of otherwise inaccessible piles. Project fee
$398 K, 2010

Hudson River Park Trust, 40th Street Platform, New York, NY

Team Leader led an inspection team investigating the low level timber platform on the north and south side of Pier 81 on the Hudson River. Developed report identifying locations of repairable defects and verifying the accuracy of rehabilitation design drawings developed in 2005. Project fee $45 K, 2010

US Navy, NAVFAC, AUTEC, Andros Island, Bahamas

Engineer-diver participated as a team member in the asset inventory, underwater and topside inspection of several waterfront facilities for AUTEC. This project is part of the Indefinite Quantity underwater inspection condition assessment and repair design contract with US Navy. Project fee $1 M per year, 2009

PANYNJ, Port Newark, Newark, NJ

Engineer-diver and one of three team leaders heading onsite inspection. Performed analysis of load capacity for partially collapsed berth. Developed deficiency plans and repair recommendations for Berths 3-25. Project fee $348 K, 2009

US Navy, NAVFAC, Pearl Harbor Naval Shipyard, Honolulu, HI

Engineer-diver participated as a team member in the asset inventory, underwater and topside inspection of several waterfront facilities for the Pearl Harbor Naval Shipyard. This project is part of the Indefinite Quantity underwater inspection condition assessment and repair design contract with US Navy. Project fee $1 M per year, 2009

ConocoPhillips, Bayway Refinery, Linden NJ

Project engineer led dive inspections for development of repair schedule for structures at the Bayway Refinery. Utilized collected data to develop the repair schedule and details to rehabilitate several active piers to a full 30-year service life. Project fee $235 K, 2009

Halcrow

Robert Garrity, PE
Engineer Diver

Specialization
Marine and waterfront structures/ dredging

Registration/ Certifications
PE: MA #46474 (Civil) (2006)

Association of Diving Contractors International, Commercial Diver Certification, Surface Supplied Air Diver

Maine DOT Local Project Administration Certification 2004

Year Joined Halcrow
2010

Years with other Firms
12

Education
BS, 1998, Civil Engineering, University of Massachusetts

Courses Attended
Dynamics of Structures, MIT, ASCE Structural Group, 1999

Key Qualifications

Robert Garrity is an accomplished senior engineer diver with more than 13 years of experience in underwater and topside inspection (condition assessment), structural analysis, and design of marine structures. Structures he has assessed include piers, wharfs, seawalls and bulkheads, ferry terminals, marine railways, and floating dock design. Bob has also led the supervision of repairs and construction of new marine structures in addition to dredge engineering, permitting, construction monitoring, and dredge studies including hydrographic surveys, and dredge volume calculations.

Relevant Experience

Irving Oil Marine Terminal, Irving Oil, Revere, MA
Project manager for inspection of the marine terminal, design and construction services for a new mooring/breasting dolphin, repairs to existing product transfer pier, mooring analysis and barge mooring point design for the Irving Oil Marine Terminal located on the Chelsea Creek. Construction value $2 M, 2010 - Present

Town of Rockport, Marine Structures Inspection, Rockport, MA
Engineer diver for the underwater inspection of all municipal owned marine structures including a breakwater located 1.5 miles offshore. Halcrow provided underwater inspection services. April 2011

Massport, Conely Terminal Berth 12 Inspection, South Boston, MA
Engineer diver for the underwater inspection of berth 12 at the Massport Conley Terminal. Halcrow provided underwater inspection services as a subconsultant and was responsible for the inspection and reporting of all elements of the pier below the waterline. July 2011

Liberty Wharf, Structural Modifications to Pier Platform, South Boston, MA
Project manager for the design of structural modifications to the pier platform at Liberty Wharf. New restaurant build-out required plumbing that ran underdeck and cores had to be made through the existing precast prestressed concrete deck. Scans of the deck were made to locate existing reinforcing steel and prestressing tendons. Calculations were performed to determine structural integrity of the precast panels. Construction value $200 K, April 2011

Distrigas, Precast Prestress Beam Investigation & Repairs, Everett, MA
Engineering lead for the investigation and repairs of precast prestressed box beams and mooring/breasting dolphins, located at the Distrigas LNG terminal on the Mystic River. Contract drawings were developed for the repairs of various structures at the Distrigas facility. Construction value $1 M, July 2011

US Navy, Design Level Investigation, Diego Garcia, BIOT

Project manager for structural investigation of the petroleum, oil and lubricants pier, located on Diego Garcia. During the investigation, coordination with 4 separate entities and collaboration with a subcontractor was required in order to successfully complete the work on the remote atoll. The inspection was a follow up to a routine inspection that indicated that repairs to the facility were warranted. A report of findings was prepared and plans created that included all defects, their locations and quantities required for design and the creation of construction documents. Construction value $5 M, July 2010 - 07/11

US Navy, Naval Air Station Design Level Investigation, Patuxent River, MD

Team leader for the structural investigation of the Fuel Pier and Seaplane Ramp 1171 at the Naval Air Station in Patuxent River, MD. The investigation included underwater and topside inspection of a timber pier structure and concrete pile supported seaplane ramp for the preparation of repair designs. July 2011

Prior to joining Halcrow, Mr. Garrity's experience includes:

US Navy Japan, Yokosuka & Sasebo

Engineer diver for structural investigations of all waterfront facilities for CFAY Yokosuka and CFAS Sasebo bases in Japan. Inspections included seawalls, piers, wharves, floating docks, moorings, and revetments. A report of findings was compiled and repair recommendations and estimates prepared. 2010

US Navy Japan, FISC facilities for all of Japan

Engineer diver for field investigations and hydrographic surveys of fleet fueling facilities throughout Japan. In addition to the underwater investigations of all of the USN FISC Facilities in Japan we were tasked to complete hydrographic surveys of each berth in order to verify berth depths and complete a berthing analysis for each facility. 2010

US Coast Guard Station Castle Hill, Newport, RI

Engineer diver for the underwater inspection and assessment of the USCG Station Castle Hill marine structures. Inspection included review of the timber superstructure and concrete caisson foundations for the small craft pier and boathouse, and inspection of the concrete floating docks and of the concrete gravity retaining wall. 2010

Professional Affiliations

American Society of Civil Engineers (ASCE), Member

Boston Society of Civil Engineers (BSCE), Member

Chi Epsilon, National Civil Engineering Honor Society

Publications

None

Halcrow

Matthew Grice, PE
Engineer Diver

Specialization
Underwater Inspection, Structural Analysis/Design, Project Management

Registration/ Certifications
PE: NY #82516 (2005)

Commercial Diver
The Ocean Corporation
Houston, TX (2005)

Master Scuba Diver Certification, National Association of Underwater Instructors
(NAUI Worldwide, 2005)

Year Joined Halcrow
2006

Years with other Firms
7 years

Education
BS Civil Engineering, Manhattan College
Riverdale, NY (1998)

Professional Affiliations
American Society of Civil Engineers (ASCE)

Key Qualifications

Matt Grice has more than 13 years of diversified experience in the inspection, planning, construction support services and design of waterfront structures and commercial/industrial buildings. Projects have included ports, general cargo terminals, recreational facilities, container terminals, and military facilities. Specific areas of competence include structural design and analysis, geotechnical engineering, and inspection.

Relevant Experience

Con Edison, Pier 98, 59th St Generating Station, New York, NY
Team leader/professional engineer diver for the above water and underwater inspections of Pier 98 located on the Hudson River. The inspection was performed on behalf of Con Edison. The scope of services included; the inspection of a timber pier structure located directly adjacent to a concrete pier structure as well as a 600 ft penetration dive and an 800 ft penetration dive of two respective concrete discharge tunnels. Issuance of a detailed inspection report per the requirements of the Con Ed Waterfront Facilities Maintenance System specification, repair recommendations with associated cost estimates, as well as narrated above water and underwater video. 2010

Con Edison, Hellgate Dock, Bronx, NY
Team leader/professional engineer diver for the routine level above water and underwater investigation of the Hellgate Dock on the East River. The inspection was performed on behalf of Con Edison. The scope of services included; the inspection of thirteen, 6 ft wide by 31 ft long concrete Pier-Walls, approximately 15,000 sq ft of concrete deck and associated deck soffit, a 400 ft penetration dive of an abandoned concrete discharge tunnel. Issuance of a detailed inspection report per the requirements of the Con Edison Waterfront Facilities Maintenance System specification, repair recommendations with associated cost estimates, as well as narrated video DVD. 2008

Brooklyn Navy Yard, Underwater and Above Water Inspection, Brooklyn, NY
Professional engineer diver/team leader for the repair design level above water and underwater investigation of Pier D, Berths 8, 8A, 8B, 9, 9A, 10, 10A, and Small Boat Basin at The Brooklyn Navy Yard in Brooklyn, New York. The inspection was performed on behalf of the facilities owner, Brooklyn Navy Yard Development Corporation (BNYDC). The scope of services included; the inspection of four low level timber pile supported relieving platforms. Additional tasks included the preparation of six letter reports to provide recommendations to BNYDC on the scope of repairs, current berthing practices and associated construction cost estimates. 2009

PANYNJ, Brooklyn Piers 7, 8, and 9B, Bulkhead and Pile Rehabilitation, Brooklyn, NY

Team leader/project engineer for the repair level inspection at Brooklyn Piers 7, 8, and 9B bulkhead and pile rehabilitation for the Port Authority of NY & NJ. Responsibilities included leading the field inspection work, issuing preliminary findings report, developing repair designs, contract documents, and construction cost estimate. Additional tasks included research of new repair materials and systems in order to provide an alternative approach to the traditional repairs that were found to be ineffective over time. This research included responding to comments from the PANYNJ structural, materials, contracts and law, and port departments. 2008

Shell Deer Park Concrete Piling Restoration Inspection, Deer Park, TX

Project manager/team leader for inspection assess the concrete piles at West Dock, Center Dock, East Dock and Crude Dock previously identified as Priority 1 repairs in the Five Year Structural Inspection and Condition Assessment report issued to Shell October 20, 2009. The purpose of the repair design inspection was to verify and record all relevant structural conditions and defect attributes such that repair options can be evaluated and construction cost estimates prepared. Upon completion of the inspection, a draft summary report of inspection findings was be submitted to Shell. The report included a plan of each structure, final field notes, and photographs depicting deteriorated elements, sketches as necessary to document the required repairs and an engineer's estimate of the construction costs of the repairs. 2011

NYCEDC, Water Club Marginal Wharf, New York, NY

Inspection team leader/ professional engineer-diver for the routine level above water and underwater investigation of the Water Club Marginal Wharf on the East River, for NYCEDC and Turner Construction Company. The scope of services included the inspection of all structures and components comprising the facility to identify and document the extent of structural and non-structural deterioration, and subsequent to the field effort, the development of a detailed inspection report per the requirements of the NYCEDC Waterfront Facilities Maintenance System – Inspection Guidelines Manual containing the inspection findings, a structural analysis, projected life-of-structure expectancy, and repair recommendations with associated cost estimates. 2008

Pier 84, Impact Assessment, New York, NY

Team leader/structural engineer for the above water and underwater inspection of the finger pier at Pier 84. The finger pier was reported to be damaged by the collision of the Sea Wolf Marine tugboat Sea Lion. Additional tasks included structural analysis of the existing damage, the issue of an impact assessment report, as well as attendance of site meetings with client's legal counsel involved parties. 2007-2008

Halcrow

Stephen LoPorcaro, PE

Engineer Diver

Specialization

Underwater inspection

Registration/ Certifications

PE: FL #58913 (2002); NY #80164 (2002); NJ #43468 (2002)

Registered OUPV Captain- Inland Waters

Registered ADC Surface-Supplied Air Diver #19621

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

Open Water SCUBA Certification

OSHA training: Confined Space Entry and 10-Hour Construction Safety

CPR/First Aid and O2 Provider

Managing Projects, 2005, ESI International, New York

Year Joined Halcrow

2002

Years with other Firms

6

Education

BS, 1996, Civil/Environmental Engineering, SUNY College of Environmental Science and Forestry at Syracuse University

Key Qualifications

Stephen LoPorcaro has more than 14 years of experience as an engineer diver, hydrographic surveyor, project manager, and design engineer performing inspection and rehabilitation design, construction supervision, and hydrographic surveys at marine terminals, various waterfront facilities, and bridges. His specific areas of expertise are structural condition evaluation and rehabilitation, non-destructive and destructive underwater testing, and technical report preparation. Stephen has performed and managed waterfront inspection and assessment projects for large port facilities and fuel terminals throughout the US and is proficient in Autodesk Civil and Land Desktop 2010.

Relevant Experience

Con Edison, Hudson Avenue Generating Station, Brooklyn, NY

Project engineer for the underwater design-level inspection and evaluation of a timber-pile-supported fuel unloading dock. Also performed a routine inspection of more than 1,200 lin ft of intake and discharge tunnels. The evaluation included a structural analysis of the dock to identify strategic repair locations for the supporting piles in order to facilitate required load capacity requirements. Project fee $130 K, 06/2011 - 7/2011

Con Edison, Inspection and Evaluation of the Farragut Substation, Brooklyn, NY

Senior engineer diver for project that included core sampling and an assessment of a timber pile supported wharf structure. Deliverables included live load carrying capacity analyses and repair recommendations with associated cost estimates. Project fee $87 K, 06/2010 - 10/2010

Con Edison, Hudson Avenue Generating Station and the Farragut Substation, Brooklyn, NY

Project engineer for the underwater inspection and evaluation included penetration of more than 1,200 lin ft of intake and discharge tunnels and core sampling of a timber-pile-supported fuel unloading dock. The evaluation included a structural analysis for existing live load carrying capacity, an estimate for the remaining life of the dock, and repair recommendations with alternatives and associated cost estimates. Project fee $148 K, 2005

Con Edison, East River Generating Station, New York, NY

Project engineer involved with design and development of contract documents including repair drawings for the East River Generating Station. Repairs include timber pile posting, timber pile cap replacement, concrete encasement, and the removal and replacement of pre-cast concrete planks which serve as a roadway foundation for a major thoroughfare in NYC. Project fee $100 K, 2005

Professional Affiliations

Professional Association of Diving Instructors (PADI), Member

Publications

None

Con Edison, East River Generating Station and the Jackson Street Pumphouse, New York, NY

Project engineer/team leader for a facility inspection located along the East River, including penetration diving of submerged concrete intake tunnels and cast iron discharge pipes, and underwater core sampling of a timber-pile-supported fuel unloading dock. The evaluation included a structural analysis for existing live load carrying capacity and remaining life of the dock. Also included were repair recommendations with cost estimates. 2004

Con Edison, East River Station, New York, NY

Project engineer/team leader that performed emergency damage inspection to determine the extent of above and below water damage caused by a barge collision with the facility dock. Deliverables included repair design recommendations and a cost estimate. 03/2004

NYCEDC, Resident Engineer Services at Brooklyn Cruise Terminal, Pier 12, Brooklyn, NY

Part time resident engineer for a pier rehabilitation project. Responsible for tasks including, but not limited to, reviewing, tracking, and monitoring submittals, construction progress, and change orders. Also responsible for providing periodic quality assurance and control inspections. Project fee $256 K, 5/2011 - Present

NYCEDC, Downtown Manhattan Heliport, New York, NY

Senior engineer diver/team leader for an inspection and assessment of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform. The assessment included structural analyses for remaining live load carrying capacity and estimates for the remaining life of the pier and barge. Repair and replacement alternatives with associated cost estimates were included in the deliverables. Project fee $338 K, 2008

US Navy, Above and Underwater Inspection of Waterfront Facilities at the Naval Support Facility, BIOT, Diego Garcia

Senior engineer diver/team leader for an above and underwater inspection and condition assessments of a total of 15 waterfront structures of various types and construction supporting the naval facility. Project fee $1.1 M, 2006

NYS Department of Transportation, Cyclical Underwater Inspection of the Smith Point Bridge, Long Island, NY

Senior engineer diver/fathometer surveyor for underwater still photography and river bottom probing for scour analysis. The survey equipment included differential GPS and a thermographic sounder to record horizontal and vertical coordinates. Project fee $26 K, 2006

Halcrow

John Mogray, PE
Engineer Diver

Specialization
Engineer diver

Registration/ Certifications
PE: CA # 77792 (2011)

Association of Diving Contractors International, Surface-Supplied Air Diver, 2009

Federal Highway Administration, NHI Underwater Bridge Inspection Course, 2009

Year Joined Halcrow
2008

Years with other Firms
None

Education
MS, 2008, Civil Engineering, University of California, Berkeley

BS, 2007, Civil Engineering, North Carolina State University

Professional Affiliations
American Society of Civil Engineers (ASCE), Member

Society of American Military Engineers (SAME), Member

Publications
None

Key Qualifications

John Mogray has three years of experience as an engineer performing above and underwater inspection and design. His projects include piers, bulkheads, and fender systems. His specific areas of expertise include condition survey evaluations, structural analysis and design, and report preparation.

Relevant Experience

NYC Office of Management and Budget, Asset Information Management Systems (AIMS) Waterfront Inspection, New York, NY

Team leader performed evaluation of multiple waterfront structures throughout the five boroughs of the City of New York, as part of NYCOMB's Asset Information Management System (Task Order 21). The project involved the evaluation of multiple assets along the shores of the Upper New York Harbor, East River, Harlem River, and Hudson River. Work involved cursory above water inspection, capture of data in NYCOMB database, and assisting with development of costed reports. The work was performed for Gannett Fleming on behalf of the NYCOMB. 2009-2011

NYCEDC, Routine Waterfront Inspection, South Brooklyn Marine Terminal, Brooklyn, NY

Team leader performed inspection for Turner Construction Company on behalf of NYCEDC. The scope of services included a routine inspection of five structures at SBMT, including steel sheet pile bulkheads, stone riprap revetments, and a timber-pile-supported relieving platform. Subsequent to the inspection, additional services included a presentation of preliminary findings and the submittal of a final report containing observed conditions, rehabilitation recommendations, drawings, and cost estimates. 2011

ConocoPhillips Bayway Oil Refinery, Underwater and Above Water Inspection, Waterfront Gate Bridge, Linden, NJ

Team leader responsible for the scope of services, which included a design-level inspection of a timber trestle bridge intended for use as an emergency evacuation route. Subsequent to the inspection, additional services included the submittal of a final report containing observed conditions, rehabilitation recommendations, structural calculations, drawings, and cost estimates. 2011

PANYNJ, Deck Preservation Program Inspection, LaGuardia Airport, Queens, NY

Engineer diver conducted a condition survey of offshore, pile-supported runways at LaGuardia Airport for Jacobs on behalf of the PANYNJ. Tasks included small boat, underdeck inspection of concrete superstructure elements including pile caps, prestressed deck planks, and prestressed girders. 2010-2011

US Army Corps of Engineers, Military Academy, Waterfront Facilities Inspection, West Point, NY

Team leader performed inspection for the URS Corporation on behalf of the US Army Corps of Engineers. The scope of inspection services included a design level condition assessment and asset inventory of underwater and above water assets including an adjacent to North Dock and South Dock. Subsequent to the inspection, additional services included a preliminary report outlining the observed areas of distress and the submittal of a final report containing observed conditions, rehabilitation recommendations, drawings, and cost estimates. 2010

US Navy, Naval Base Guam, Underwater and Above Water Investigation, Apra Harbor, Guam

Assistant team leader performed the scope of inspection services included a routine level condition assessment and asset inventory of all structural, electrical, and mechanical systems for various waterfront structures within the facility boundaries. 2010

Hunter's Point South Outfall Inspection, Queens, NY

Team leader performed inspection at Hunter's Point South. The scope of services included inspection of two ductile iron pipe outfalls beneath the Water Taxi Beach in Long Island City. A letter report was submitted subsequent to the inspection. 2010

US Navy Air Station, Defense Energy Support Center, Fuel Pier Underwater and Above Water Design Level Investigation, Patuxent River, MD

Scope of inspection services included a design level condition assessment and asset inventory of all structural, electrical, and mechanical systems for a fuel pier and six berthing dolphins. Subsequent to the inspection, additional services included assessment of deteriorated assets, preparation and delivery of an exit briefing and preliminary report outlining the observed areas of distress, the submittal of a final report containing observed conditions, rehabilitation recommendations and drawings, and cost estimates. 2009

PANYNJ, Pier 9/204 Condition Survey, Jersey City, NJ

Team leader/diver performed condition survey of Pier 9/204 in Jersey City. Tasks included above water and underwater inspection of the timber pile supported low-level timber platform and a steel beam supported concrete and timber deck. 2009

US Navy, Craney Island Pier D, Fleet Industrial and Supply Center, Underwater and Above Water Investigation, Norfolk, VA

Engineer/diver for the inspection of Pier D mooring dolphins and adjacent catwalks with supporting piles. Work involved topside inspection and assisting diving and boating operations. 2009

Halcrow

Christopher Waddicor
Project Manager

Specialization
Marine construction project management and underwater inspection

Registration/ Certifications
OSHA, 30 Hour Construction Site Safety, 2009

American Red Cross, Adult CPR, First Aid and AED Certified, 2001, 2003, 2005, 2007, 2009

DAN Oxygen Provider, 2001, 2003, 2005, 2007, 2009

ADC Commercial Air Diving Supervisor, 2005

USDOT. Federal Highways Administration/National Highways Institute, National Bridge Inspection Standards (NBIS), 2005

ADC Commercial Air Diver, 2001

ANSI/ACDE Commercial Diver Certificate (IMCA recognized), 2001

NDT/UT Level I and II Certified, 2001

PADI Rescue Diver, 1997

Health & Safety Executive, Pt. 4, Scientific Diver, 1996

Year Joined Halcrow
2008

Years with other Firms
12

Key Qualifications
Chris Waddicor's professional career of more than 14 years of experience was founded in underwater inspection and forged in maritime design/repair and construction. He has several years experience in heavy marine construction management in New York City. Chris' experience and knowledge of marine structures has advanced every waterfront project under his direct management to safe, successful completion ahead of schedule. His management skills include the early identification of scope creep during contract performance. Chris' client relations develop rapidly and are trustfully maintained with a professional attitude, practical approach and personable manner. His strong interpersonal skills coupled together with on-site field experience further the promotion of confidence in the client, employer and employees.

Relevant Experience

Con Edison Client Manager, New York, NY
Client Manager overseeing all of the project Halcrow performs for Con Edison, understanding Con-Ed's goals and expectations and direct line of communication with Con-Ed.

Hutchison Port Holdings, Freeport Container Port, Post-Event Engineering Assistance, Grand Bahama
Owners representative and site agent (personally requested by the client) for the rehabilitation work being undertaken to restore the damaged areas of the wharf through the events of the tornado. Restoration work entails structural concrete repairs, gantry crane rail refurbishment, and installation of new crane end stops at the north of the berth. Providing valuable supervision of the contract works, held by multiple vendors. Employing knowledge of FIDIC terms and conditions of construction contracts in performing contract administration services to the client for the works. Project value $1M+, 10/2010 - 01/2011. Client exercised option to extend the services of owners representative and site agent. Contract extension from 6/2011 - 8/2011

Hutchison Port Holdings, Freeport Container Port, Post-Event Engineering Assistance, Grand Bahama
Owners representative and site agent who provided assistance to FCP in an effort to qualify and quantify the extent of the damage to container port facility and marine civil structures caused by tornado. Worked directly alongside FCP and HPH civil engineering to provide rapid visual and tactile inspection assessments and data collection in an effort to facilitate FCP initial damage assessment and estimate of event damage. Specific elements that were inspected included the port crane rail and crane rail clips in the vicinity of crane impacts, precast concrete under deck, cast-in-place structural elements beneath the apron, precast beams of the berth, and vessel mooring hardware. Performed at no cost to assist valued client. 04/2010

Education

2001, Diver's Academy of the Eastern Seaboard, Camden, NJ

BEng, 1996, Civil Engineering, University of Wales Institute Cardiff, UK

Engineering Foundation, 1992, Manchester Polytechnic Institute, Manchester, UK

1996, Fort Bovis and Underwater Center, Plymouth, UK

Professional Affiliations

American Society of Civil Engineers (ASCE), Member

Structural Engineering Institute (SEI), Member

Coasts, Oceans, Ports, and Rivers Institute of the American Society of Civil Engineers (COPRI), Member

Project Management Institute (PMI), Member

American Society for the Advancement of Project Management (ASAPM), Member

International Project Management Association (IPMA), Member

Publications

Contributed to Jones, "Scanning Method Yields Fast, Accurate Underwater Surveys," Civil Engineering, ASCE, July 2010

Cruise Terminal Refurbishment Program, Freeport Harbor, Grand Bahama

Marine construction resident engineer who provided construction management and international contract administration (ICE/FIDIC) of a major port refurbishment project at the international harbor terminal. Instrumental in providing additional momentum to the progression of works under extremely difficult conditions, and notably, discovered a major deficiency in the provision of materials to the site by the contractor. Rapidly developed a working solution to the problem that was acceptable to both the owner and the contractor, resulting in almost a 'zero' delay to the construction schedule. The refurbishment work was brought to safe and successful completion at approximately $1 M under budget. Project value $14 M, 07/2008 - 09/2009

Prior to joining Halcrow, Chris' experience includes:

Con Edison, East 74th St Generating Station Dock Repairs, New York, NY

Heavy marine construction project manager for the installation of horizontal struts in intake tunnels, placement of approximately 120 cu yd 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 0.25 miles south of Hell's Gate and thus the difficulty increased due to intensity of current flow. Project value $1.78 M, 2007 - 2008

Con Edison, East 14th St Dock Rehabilitation, New York, NY

Marine construction project manager for the East River Steam Generation Plant project initiated with immediate outage to underwater intake and discharge tunnels to perform emergent repairs to sub-structural intake tunnel walls and structural beams. Underwater timber repairs to the low and high level relieving platforms ultimately consisted of approximately 450 pile post repairs; 600 lin ft of pile cap repair; 2000 lin ft of fascia board repair, concrete tunnel fascia repairs, and multiple concrete mooring pedestal repairs on deck. Additional tasks that were generated included a 24hr/day, 16-day dive operation (during second station outage) to complete immediate underwater concrete repairs to critical voids in structural wall of intake tunnel, placement of temporary screens across intake tunnels, and heavy debris removal. Project value $5.6 M, 2006 - 2008

Con Edison, Steel Sheet-Pile Construction and Rehabilitation of West Blow-Down Slip, Brooklyn, NY

Marine construction project manager for the Hudson Avenue Steam Generation Plant project involved construction of approximately 100 lin ft of steel sheet pile bulkhead and placement of rip-rap slope. Project operated from barge based equipment made technical due to close proximity of overhead steam generation lines. Project value $1.3 M, 06/2006 - 02/2007

Halcrow

Sebastien Templeton, PE

Engineer Diver

Specialization
Underwater inspection and construction management

Registrations
PE: FL #73173 (2011)

Year Joined Halcrow
2006

Years with other Firms
2

Key Qualifications

Sebastien Templeton, PE, has more than seven years of experience as an engineer/diver performing structural condition evaluation and rehabilitation, non-destructive and destructive underwater testing, underwater still photography, and technical report preparation. Projects have included bridges, piers, wharves, bulkheads, dams, and fender/pier protection systems. He also has three years experience as a project engineer and construction inspector reviewing contract documents, processing RFIs, ASIs, and addendums to the contract documents, verification and QA/QC of site construction, while working directly with architects, engineers, sub-contractors, inspectors, and state/city officials. Projects have included multi-story cast-in-place structural concrete, structural steel, and load bearing architectural precast concrete buildings with masonry, precast concrete, and/or glass exteriors.

Relevant Experience

Con Edison, Routine Condition Inspection of the Farragut Substation, Brooklyn, NY

Engineer diver performed an above and underwater routine condition inspection of the waterfront structure associated with the Farragut Substation. The structure inspected consists of a 1,105 ft long lower level concrete relieving platform supported by a total of 4,792 timber piles. The purpose of the inspection was to identify structural and non-structural deficiencies using non-destructive and destructive testing methods including the obtainment of core samples to ascertain the presence of marine borers within the piles. 2010

Port of Freeport, Settlement Study of Berth 7, Freeport, TX

Engineer-diver performed an above and underwater inspection of the newly constructed steel sheet pile bulkhead at Berth 7 within the Port of Freeport. The purpose of the inspection was to verify the continuity of the exposed sheet pile interlocks and their interface with the low level concrete relieving platform above, and confirm the elevation of the recently dredged mudline along the wharf. 2010

ConocoPhillips Marine Terminal, Lake Charles Refinery, MTEAMS Major Survey and "Fit for Purpose" Assessment, LA

Engineer-diver performed an above and underwater inspection of the marine terminal docks located at the Lake Charles Refinery. The condition survey of the terminal included a steel pipe pile supported loading and unloading platform, and a steel pipe pile supported and two timber pile supported transfer docks. The purpose of the inspection was to determine the current condition of the docks and evaluate the terminal to ensure that it is "fit for purpose", and was conducted in accordance with the Marine Terminal Engineering and Maintenance Standard (MTEAMS). The survey included obtaining ultrasonic thickness readings on the steel piles, electric potential readings to determine the effectiveness of the existing cathodic

Education

BS, Mechanical Engineering University of Maryland

Institut National Polytechnique de Grenoble

Ecole National Supérieure d'Hydraulique et de Mécanique de Grenoble

Entry Level Tender/Diver, Commercial Diving Academy, Association of Diving Contractors International Registration

Maintenance and Repair Technician, Kirby Morgan Dive Systems, Inc.

National Association of Underwater Instructors (NAUI), Open Water SCUBA Certification

OSHA Training: 40-Hour Hazardous Waste Operations and Emergency, Response Standard (HAZWOPER); 10-Hour Construction Safety Course; Confined Space Entry

Federal Highway Administration

Underwater Bridge Inspection – NHI Course No. 130091

Emergency First Response

First Aid and CPR

Divers Alert Network (DAN)

Oxygen First Aid for Diving Injuries

protection systems, and timber cores to ascertain the presence of marine borers within the piles. 2010

Port Everglades Bond Engineering Services, Broward County, FL

Completed underwater inspections and assessments of waterfront facilities as team leader and engineer/diver. This project included underwater inspection and condition assessment with numerical analyses of data obtained over several years to determine corrosion rates for the entire facility. Structures inspected include 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. 2009

US Navy, NFESC, Waterfront Facility Inspection and assessment at the Pearl Harbor Naval Shipyard, Hawaii

This project included a comprehensive condition survey and an inventory assessment of all in-service waterfront structures, and mechanical and electrical utilities comprising the Naval Station and the Pearl Harbor Naval Shipyard. Inspection and assessment findings were recorded and presented for analysis using the Navy's Uniformat II codes and asset management schema. 2009

Dames Point Container Terminal, Jacksonville, FL

Provided inspection and construction management services for the $220 million development of a new 160 acre container terminal with several structural steel and architectural precast concrete buildings, 3000 lf of bulkhead capable of accommodating 8 post-panamax 100 ft gage container cranes, and paving for RTG operations. 2007-2009

NYCEDC, 65th Street Transfer Bridge, Brooklyn, NY

This project included an above and underwater inspection of a timber pile supported steel transfer bridge, and also included an existing live load capacity analysis, with repair recommendations and cost estimates. 2006

NYCEDC, Rockaway Park Bulkhead, Queens, NY

This project included an above and underwater inspection of approximately 1,300 ft of steel sheet pile bulkhead. Deliverables included condition assessments with repair recommendations and cost estimates. 2006

Halcrow

William Esola
Technician Diver

Specialization
Diving, construction inspection, resident engineering

Registration/Certifications
ADC Commercial Diver Certification, Professional Diving School of New York

PADI Diving Instructor, Professional Association of Diving Instructors

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

Year Joined Halcrow
1988

Years with other Firms
6

Education
Stockton State College

Somerset County College

Professional Affiliations
None

Publications
None

Key Qualifications

Bill Esola is a senior dive supervisor with more than 26 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. Bill has 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.

Relevant Experience

Con Edison, Gowanus Gas Turbine Plant, New York, NY
Dive supervisor for rehabilitation of severely deteriorated H-piles. Repair entailed the installation of special channel sections spanning the corrosion zone and returning the pier to its original load capacity.

NYCEDC, South Brooklyn Marine Terminal Bulkhead Rehabilitation, Brooklyn, NY
Resident engineer for South Brooklyn Marine Terminal's bulkhead rehabilitation. The project consisted of over-sheeting an existing steel sheet pile bulkhead with AZ 37-700 sheet piles, installation of a new, internal wale, and installation of new tie rods anchored to an existing deadman structure. Additional work involved re-routing and upgrading existing site utilities, installation of a stone revetment slope, anode installation on two existing steel-cell bulkheads and replacement of upland storage and roadway surfaces. Est. $15 M, 2009-2010

NYCEDC, Pier 88 Passenger Ship Terminal Redevelopment, New York, NY
Resident engineer and resident inspector for the marine portion of the project which involved the expansion of the pier apron. The work included the installation of 18 in and 24 in steel piles, casting of 5 ft x 3 ft concrete pile caps, the installation of precast, prestressed deck panels, installation of a 12 in-22 in topping slab, bollard installation, cathodic system installation, installation of eight breasting panels and a plastic pile turning fender at each offshore corner of the pier. The work included working directly with the contractors pile drivers, dock builders, lathers and carpenters to make sure the project work was completed properly and as timely as possible, with submittal of daily and weekly reports to Turner Construction Co, assessing and providing rapid and acceptable in-field solutions for problems encountered by the contractor, contractor invoice reviews and detailed record keeping of the construction schedule. $80 M, 2004-2008

TBTA, Throgs Neck Bridge Construction Management, New York, NY

Chief construction inspector for the fender improvements and scour backfill at the Throgs Neck Bridge. The work involved installation of 12 in, 14 in and 36 in piles for protection of the bridge foundation from wayward vessels, installation of multi-layered stone scour protection and many fender system rehabilitation issues. Responsibilities included completion of daily and weekly job progress reports; daily interaction with the contractor, US Coast Guard and Bridge Security personnel to make sure that the Homeland Security Zone was not compromised; supervision of all inspection diving activities; constant vigilance of the contractor to make sure design specifications were strictly adhered to; and daily piloting of the project support vessel under a wide range of environmental conditions. $20 M, 2006

PANYNJ, Brooklyn Navy Yard Pier J Inspection, Brooklyn, NY

Dive supervisor for underwater inspection of Pier J. 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.

PANYNJ, LaGuardia Airport Inspection, Queens, NY

Dive supervisor for 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 reading of the sacrificial cathodic protection system.

PANYNJ, Port Elizabeth Marine Terminal Inspection, Elizabeth, NJ

Dive supervisor for underwater and above water inspection of timber piles comprising Berths 86 through 98. The inspection was a general condition assessment of the berths. The work included planning, execution and supervision of all diving activities.

PANYNJ, East River Inspection, Brooklyn, NY

Dive supervisor for the underwater and underdeck inspection of Piers 6, 7 and 8. Piers were comprised 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.

Halcrow

Matthew Kehoe
Technician Diver

Specialization
Engineer diver

Registrations
None

Year Joined Halcrow
2007

Years with other Firms
3

Education
BS, Civil Engineering – Magna Cum Laude, Manhattan College

Inland Commercial Diver Training Center

ADCI Surface-Supplied Air Diver

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

National Highway Institute (NHI)

Underwater Bridge Inspection Certification

ASCE Membership

Engineer-In-Training – State of NY

Key Qualifications

Matthew Kehoe has more than four years experience as an engineer performing and above and underwater inspection, design, and construction supervision for consulting engineering. Projects include marine terminals, coastal and waterfront structures, foundation and building structures. His specific areas of expertise are condition survey evaluations, structural analysis, and proposal and report preparation.

Relevant Experience

NYCEDC, East River Esplanade, New York, NY
Engineer/diver performed scope of inspection services including the on-going inspection/assessment of manhole chambers, outfalls layouts, and outfall penetrations through a concrete/masonry block bulkhead. Deliverables included hand-sketches locating relevant assets. 2009

Brooklyn Navy Yard Development Corporation, Permitting, Brooklyn, NY
Team leader for the inspection services to identify the limits of a timber bulkhead behind a collapsed berth. The limits of slope stabilization riprap was determined for the collapsed area and related to MLLW elevations to determine the volume of water that would have to be mitigated during the partial restoration of the berth. 2009

US Naval Air Station, DESC Fuel Pier Underwater and Above Water Design Level Investigation, Patuxent River, MD
Engineer/diver performed scope of inspection services that included a design level condition assessment and asset inventory of all structural, electrical, and mechanical systems for a fuel pier and its six berthing dolphins. Subsequent to the inspection, his additional duties included assessment of deteriorated assets, preparation and delivery of an exit briefing. 2009

Brooklyn Bridge Park, Piers 2, 3, 5, and 6, Marine Inspection and Engineering Services, Brooklyn, NY
Assistant team leader performed scope of inspection services that included 100% visual inspection of all piles and pile extensions supporting the piers. Minimum diameters and exposed lengths were determined for each pile and used to calculate loading capacities across the pier deck. Repair designs are based upon the loading conditions incurred by the client's intended use of the pier. 2009

PANYNJ, Port Newark, Condition Survey Inspection of Berths 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, and 25, Newark, NJ
Engineer/diver performed scope of inspection services that included the development and utilization of a database to collect and organize all inspection data in the field. The inspection included a 100% visual and 10% hand-on inspection of all piles supports and condition survey of all

structural underdeck and topside components. Additional scope requirements included design level inspection of a collapsed structure, Berth 3. Subsequent to the inspection, additional services included assisting in the reduction of field data and in reporting on the observed conditions, providing repair recommendations and cost estimates. 2009

US Navy, Pearl Harbor Naval Shipyard, Waterfront Facility Inspection, HI

Engineer/diver performed scope of inspection services including various waterfront structures within the facility boundaries. Subsequent to the inspection, additional services included assisting the preparation deliverables summarizing observed conditions, rehabilitation recommendations, and cost estimates. 2009

Liberty State Park Ferry Slip, Underwater Routine Inspection, Jersey City, NJ

Team leader for inspection services performed for the State of New Jersey DPMC Bureau of Design & Construction, that included the assessment of the 216 accessible timber piles supporting a concrete platform and offshore timber pile cluster. Beyond visually inspecting all pile, the scope included obtaining detail information on the condition of 10% of the piles, taking core samples to analyze pile deterioration and creosote retention, and providing a hand sketch confirming the orientation of piles supporting the platform. All findings and evaluations were summarized in a letter report with recommendations for repair. 2009

Naval Amphibious Base Little Creek, Underwater and Above Water Investigation, Norfolk, VA

Engineer/diver performed scope of inspection services that included 237 various waterfront structures within the facility boundaries. Subsequent to the inspection additional responsibilities included assisting in assessment of deteriorated assets, in the preparation of an exit briefing and preliminary report outlining the observed areas of distress, and in the submittal of a final report containing observed conditions, rehabilitation recommendations, and cost estimates. 2008-2009

PANYNJ, Piers Inspections, Brooklyn, NY

Inspection of Piers 6, 7, 8, and 9A on the East River in Brooklyn, NY. 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. 2007-2008

Professional Affiliations

None

Publications

None

Halcrow

Andrew Lai
Technician Diver

Specialization
Underwater construction and structural inspection

Registration/Certifications
ADC Commercial Diver #6062, Divers Academy of the Eastern Seaboard

National Highway Institute Bridge Inspector Certification, New Mexico State University

PADI Open-Water Certified

Industrial Rope Access Trade Association (IRATA) 1/25175

OSHA 10 Hour Construction Safety and Health

Confined Space Safety, Entry Supervisor , 8 Hour Entrant and Attendant

First Aid and Cardiopulmonary Resuscitation

Automated External Defibrillator (AED)

Divers Alert Network (DAN) Oxygen Provider

New York Fire Department, Non Flammable Compressed Gas and Air Compressor Handling

Smith System Defensive Driving Course

US Coast Guard, Boating and Seamanship

Key Qualifications

Andrew Lai is an inspection diver with more than 14 years experience in a variety of commercial diving and marine construction projects. He has extensive experience and knowledge of underwater construction and structural inspection and is also knowledgeable in project bidding and office administration.

Relevant Experience

Con Edison, Underwater Construction Inspection of Gas Main Repair, New York, NY
Quality control inspection diver/construction inspector for the underwater repair of an exposed gas main. Andy inspected the placement of ~18 in. stone for coverage of exposed pipe prior to placement of an articulating concrete mat.

Con Edison, 74th Street Station Intake and Discharge Structure Inspection, New York, NY
Inspection diver for inspection of intake and discharge structure. The work included ~400 ft penetration dives to collect intake tunnel and discharge evaluations. This included general assessment of concrete structures and determination of any obstructions.

Brooklyn Navy Yard Underwater Inspection, Palmark Cogeneration Plant, Brooklyn, NY
Inspection diver for underwater inspection of the cooling water intake structure. The work involved field inspection of bulkhead encasing intake unit for structural integrity.

PANYNJ, Greenville Yard, Underwater Inspection, Bayonne, NJ
Inspection diver for the condition survey of a timber pile-supported timber pier, steel sheet pile bulkhead, low-level timber relieving platform, and additional marginal wharves.

PANYNJ, Port Elizabeth Marine Terminal, Underwater and Above Water Inspection, Newark, NJ
Inspection diver of above and underwater timber piles at Port Elizabeth. Inspection encompassed the general condition assessment of berths 50-86.

PANYNJ, LaGuardia Airport, Underwater and Above Water Inspection, NY
Inspection diver of above and underwater steel and timber piles at LaGuardia Airport's Deck and ILS Piers. Performed general condition survey of tarmac and timber pier supporting navigation system.

Hudson River Park Trust, Pier 97 Underwater and Above Water Inspection, New York, NY

Year Joined Halcrow
1997

Years with other Firms
1

Education
Long Island University, Southampton College (non degree)

Professional Affiliations
None

Publications
None

Inspection diver for underwater and above water inspection of Pier 97. This inspection was a general condition survey conducted as part of an inspection encompassing 550 acres of riverfront property that is to include thirteen pier structures along the Hudson River in New York City. A Level II inspection was performed on 10% of the timber elements that support the pier. Underwater photography was taken with a 35mm camera to document typical conditions, as well as any observed defects.

Piers 13 & 14 Underwater Inspection, New York, NY
Inspection diver for marine borer study conducted at Piers 13 and 14. Project included the removal of existing pile wraps, as well as the installation of new pile wraps from a variety of wrap manufacturers. DO readings were also taken at the piles that were wrapped to determine the effectiveness of each wrap type. The two-year long study culminated in a published paper and presentation at ASCE's Ports. 2004

PANYNJ, Howland Hook Marine Terminal Underwater Inspection, Staten Island, NY
Inspection diver for underwater inspection of the three 30 in. corrugated metal pipe outfalls. This inspection was performed on the three northernmost outfalls, and was conducted to assess the general condition of each, as well as to recommend repair alternatives, as needed.

Toys-R-Us, Underwater Inspection, Kings Bay Facility, Brooklyn, NY
Inspection diver for 1,500 corrugated concrete-supported pipe piles. Inspection also included above deck and pile coring for further analysis.

Naval Facility Engineering Service Center, Naval Station Facility Inspections, Norfolk, VA
Inspection diver performing above and underwater inspection of Berths 1-12 and Piers A & B. This included a detailed inspection of the piers, platforms and retaining structures.

Brooklyn Navy Yard, Berth Rehabilitation, Brooklyn, NY
Inspection diver at Brooklyn Navy Yard Development Corporation's rehabilitation of Berths 11, 12 and boat basin. Performed above and underwater inspection of wharves consisting of timber piles and bulkheads for general conditions survey.

POLB, Underwater Inspection, Long Beach, CA
Inspection diver for improving waterways in the Port of Long Beach. Located and identified utility and abandoned debris for future dredging for safe navigable waterways in the port.

Halcrow

Joshua Singer
Technician Diver

Specialization
Marine and waterfront structures

Registration/Certifications
None

Year Joined Halcrow
2008

Years with other Firms
8

Education
BS, 2002, Civil Engineering, Northeastern University

BS, 1993, Marine Biology, Boston University

Professional Affiliations
American Society of Civil Engineers (ASCE), Member

Publications
None

Key Qualifications

Joshua Singer has eight years of experience in underwater and topside inspection (condition assessment), structural analysis, and design of marine structures. He has worked with structures that include piers, wharfs, seawalls and bulkheads, ferry terminals commercial marine ports, and ship lifting systems and in the supervision of repairs and installation of new marine structures.

Relevant Experience

Brooklyn Bridge Park, Inspection of Pier Facilities, Brooklyn, NY

Project manager who led the team that performed underwater and topside inspection of 12,000 piles and more than 900,000 SF of deck elements. Divers used computer-based asset management database tools to perform the inspection. The structural capacity of each facility was established and delivered to client using a GIS-based mapping format system. Repairs were designed and a series of construction documents produced in order to achieve the capacity necessary to support the park loadings. Project manager for additional work including Life-Cycle Cost Analysis of structures and resident engineering of installation of designed repairs. Project fee $1.2 M, Completion ongoing

Logan Water Transportation Facility and Conley Container Terminal, Underwater inspection of ARFF Pier, East Boston, MA

Project manager/team leader responsible in leading underwater inspection of structural elements for multiple facilities for Massachusetts Port Authority. Structures inspected included steel pier support piles, steel mooring piles and associated guide bracket assemblies, steel floats, and all associated connections, timber piles, timber dolphins and associated timber wales, timber fender panels and concrete floats. A comprehensive underwater thickness measurement program was performed on all steel elements. Recommendations for repairs included structural concrete encasements and a sacrificial anode system for steel elements. Project fee $39,000, Completion ongoing

Timber Bridge Inspection, Conoco Phillips, Bayway Terminal, Linden, NJ

Team leader who led inspection of two timber bridges at Bayway facility and performed structural analysis on foundation and topside elements using STAAD. Bridge load ratings were reduced and repairs designed to return ratings to desired levels. Project fee $47,000, Completion 2009

Forensic Investigation of Berthing Facility, Fall River, MA

Diver engineer who investigated potential causes for damage and assisted in providing a structural/stability-analysis of damaged area of a berthing slip at terminal was damaged by large mooring line forces on bollards. Project fee $11,000, Completion 2009

NYCEDC, Inspection of Pier 79, New York, NY

Diver-engineer performed underwater and topside inspection of high capacity commuter ferry terminal. Elements inspected included, steel piles, steel sheet pile bulkhead, steel berthing floats and mooring piles. Project fee $35,000, Completion 2009

Prior to joining Halcrow, Joshua had the following experience:

Underwater and Topside Inspection and Assessment of US Naval Facilities, Worldwide

Lead diver for the inspection of US Navy waterfront facilities in Norfolk VA, Yokosuka Japan, Boston MA, Rota Spain, Earle NJ New Orleans LA and Parris Island SC. Responsible for the inspection, structural analysis, and recommendation of repairs for waterfront facilities located on various bases. During inspections he determined the extent of structure deterioration, repairs for structures were prioritized, and engineer cost estimates created. Project fee $2 M, Completion 2008

Underwater and Topside Inspection and Condition Assessment US Naval Reserve Basin Philadelphia, PA

Project engineer conducted UW and topside inspection of all waterfront facilities at Naval Reserve Basin. Structures included: timber relieving platforms, steel sheet pile cells, mooring dolphins, berthing fender assemblies, all mooring hardware and concrete piers supported by timber piles. All structures were assigned a condition rating using US navy rating system, repair recommendations were made and cost estimate generated. Project fee $300,000, Completion 2007

UW and Topside Inspection, Structural Assessment and Design of Repairs of Fuel Pier NATO Base, Rota Spain

Project engineer for the design level inspection of the Fuel Pier at the NATO base in Rota, Spain. Elements inspected included: Steel piles, concrete encasements, sacrificial anodes, vessel fendering elements and concrete deck. Each element was inspected and structurally assessed for proposed loadings and repairs were designed to bring all elements in line with proposed loading levels. Repair designs included, sacrificial anode replacement and additional concrete encasements of steel piles. Project fee $100,000, Completion 2007

Halcrow

Joseph Acosta

Dive Supervisor/ Dive Safety Officer

Specialization

Under and above water inspection, environmental monitoring, construction, and construction supervision

Registration/Certifications

Certified Commercial Diver

NICET Level 1 Certification, Transportation Engineering Technology/Bridge Safety Inspection

Association of Diving Contractors International Certificate No. 10206, Surface Supplied Dive Supervisor

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

OSHA training: Confined Space Entry; 10-Hour Construction Safety; CPR/First Aid and O_2 Provider

Year Joined Halcrow

1998

Years with other Firms

2

Key Qualifications

Joe Acosta has more than 15 years of experience as a commercial diver performing above and underwater inspection, environmental monitoring, construction, and construction supervision for consulting engineering and marine construction companies. His past 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.

Relevant Experience

Con Edison Company, 59th Street Generating Station and Farragut Substation, NY

Senior dive supervisor/senior inspection diver for an underwater inspection of timber pile supported low level relieving platforms. The inspection was a general condition survey that included a 100% Level I visual inspection of all substructural elements, and a 10% Level II inspection. Elements inspected include timber piles and pile caps, timber sheet pile bulkheads, timber and concrete underdecks and a concrete seawall. 2010

Con Edison, Hudson Ave Facility, Brooklyn, NY

Senior dive supervisor/senior inspection diver for the underwater inspection and timber coring of the timber piles and pile caps that support the loading platform at the Hudson Ave facility. The inspection included a 100% swim-by of all piles, and a level II inspection of 10% of the timber piles. A level III inspection was also performed on 46 timber piles. This included the extraction of two- 2" diameter x 2" deep timber core samples from each pile, as well as one incremental core from each pile. Underwater photography was performed using a digital camera. 2009

Hudson Meridian, Rehabilitation at Pier 35, New York, NY

Senior dive supervisor/senior inspection diver for an underwater construction inspection at Pier 35. This inspection involved measuring the exposed lengths of timber piles following excavation, and measuring pile diameters, to ensure that the contractor adhered to the specifications in the repair design. 2011

NYCEDC Pier 16 Inspection, New York, NY

Senior dive supervisor/senior inspection diver for an underwater construction inspection of concrete encased timber piles supporting the wharf just south of Pier 16. Underwater photography was performed using a digital camera. 2011

Brooklyn Bridge Park Development Corporation, Piers 2-6, Brooklyn, NY

Deputy project manager, senior dive supervisor/senior inspection diver for an above water and underwater inspection and design level Inspection of approximately 14,000 timber piles and concrete extensions, the steel sheet

Education

BS, 1994 Biological Sciences, SUNY College at Old Westbury

Graduate Studies, Molecular Biology, University of Pennsylvania School of Medicine

Divers Academy of the Eastern Seaboard

Professional Affiliations

None

Publications

"Pile Wrap Evaluation Study," Proceedings of ASCE Ports 2004 Conference, Houston, TX.

pile bulkheads, and the timber fender system that comprise Piers 2-6. This was a general condition survey as well as a design level inspection, performed for the BBPDC in order to gather the information necessary to design repairs which would allow the piers to accept the design loads necessary in order to develop this area into a park. Underwater photography was performed using a digital camera. 2009

Brooklyn Navy Yard, Piers 8, 8A, 9, 9A, 10, 10A, and D, Brooklyn, NY

Senior dive supervisor/senior inspection diver for an above and underwater structural inspection of all the structural elements of these low-level relieving platforms from the mudline to the top of deck. The elements inspected included timber piles, pile caps and decking, as well as concrete retaining walls. Underwater photography was performed using a digital camera. 2009

Hudson River Park Trust, Pier 54, New York, NY

Senior dive supervisor/senior inspection diver for a detailed condition survey of the timber piles that support the pier. The inspection included a 100% swim-by of all piles, as well as a level II inspection of 10% of the piles. In addition, minimum diameters were measured on 100% of the timber piles. Underwater photography was performed using a digital camera. 2008

PANYNJ, Brooklyn Piers 6, 7, 8 and 9B, Brooklyn, NY

Senior dive supervisor/senior inspection diver for the detailed design level inspection for detailed measurements of previously reported defects, in order to design repairs. The inspection included timber piles, concrete extensions and steel sheet pile bulkhead. 2008

NYCEDC, Downtown Manhattan Heliport, New York, NY

Senior dive supervisor/senior inspection diver for an inspection and assessment of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform. The assessment included structural analyses for remaining live load carrying capacity, and estimates for the remaining life of the pier and barge. Repair and replacement alternatives with associated cost estimates were included in the deliverables. 2008

PANYNJ, Hoboken Ferry Terminal, Cyclical Condition Survey, Hoboken, NJ

Senior dive supervisor/senior inspection diver for the underwater and above water inspection of the 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. 2006

Halcrow

Alan Bull

Dive Supervisor/ Dive Safety Officer

Specialization

Diving, maritime engineering, under and above water inspection

Registration/Certifications

Commercial Diver Certification, Divers Academy of the Eastern Seaboard

National Bridge Inspector Certification, New Mexico State University

PADI Enriched Air Diver

NAUI SCUBA Diver

Merchant Mariner 6 Passenger

Captain's License (OUPV)

Year Joined Halcrow

2001

Years with other Firms

2

Education

BS, 1999, Mechanical Engineering, Virginia Military Institute

Professional Affiliations

None

Publications

None

Key Qualifications

Alan Bull has more than 10 years of experience as a commercial diver performing above and underwater inspection and construction. His projects include marine terminals, coastal and waterfront structures, and building structures. Alan's specific areas of expertise include non-destructive testing, timber/concrete coring, underwater still photography, condition evaluations, and report preparation.

Relevant Experience

Con Edison, Hudson Ave Station Inspection, Brooklyn, NY

Dive supervisor for underwater inspection of the discharge and intake cooling tunnels at the Hudson Ave Station. The inspection included over 900 ft penetration swim by condition inspection of the concrete walls, ceiling, and debris survey of all the discharge and intake tunnels. 2011

Con Edison, East 59th Street Station Inspection, New York, NY

Dive supervisor for underwater inspection of the discharge and intake cooling tunnels, the steel H piles supporting the pier, concrete bulkhead, and timber support and fender piles at the East 59th Street Station. The inspection included over 900 ft penetration swim by condition inspection of the concrete walls, ceiling, and debris survey of all the discharge tunnels, level I swim by of the steel and timber support piles, level II inspection of 10% of the piles including potential readings of the cathodic protection system, all timber fender piles, and the concrete bulkhead. 2010

Con Edison, Hudson Ave Station Inspection, Brooklyn, NY

Engineer diver for an above and underwater inspection and timber coring evaluation of the Hudson Ave Station. The inspection of the facility, included penetration diving of submerged concrete intake and underwater core sampling of a timber pile supported fuel unloading dock. The evaluation included an analysis to determine the live load carrying capacity and remaining life of the dock, and repair recommendations and cost estimates for the facility. 2009

Con Edison Inspections, New York, NY

Engineer diver for an above and underwater inspection and evaluation of the East River Generating Station, and the Jackson Street Pumphouse for Con Edison. The inspection of the facility, located along the East River, included penetration diving of submerged concrete intake tunnels and cast iron discharge pipes, and underwater core sampling of a timber pile supported fuel unloading dock. The evaluation included an analysis to determine the live load carrying capacity and remaining life of the dock, and repair recommendations and cost estimates for the facility. 2004

Con Edison, East 75th Street Station Inspection, New York, NY

Engineer diver for underwater inspection of the discharge and intake cooling pipes at the East 75th Street Station. The inspection included a 250

ft penetration swim by condition inspection of the concrete walls, ceiling, and debris survey.

Con Edison, Underwater Inspection, Bronx, NY

Engineer diver for the inspection, which included a penetration dive and inspection of the concrete cooling system for the electric power plant.

Asset Information Management Systems (AIMS) Waterfront Inspection, NYC Office of Management and Budget, New York, NY

Engineer diver for above water inspection for over 300 shoreline structures in the five boroughs of New York City. The inspection included 100% visual survey and asset inventory of all City owned assets to determine the cost of repairs and life cycle. 2007 - 2011

Hudson River Park Trust, Pier 54 Cyclical Inspection, New York, NY

Dive supervisor for above and underwater inspection of Pier 54. The inspection included a condition swim by and level II inspections to determine the percent of deterioration of the piles and concrete pedestals supporting the facility. 2006, 2008, 2011

NYCEDC, East River Esplanade, Pier 35 Inspection, New York, NY

Dive supervisor for underwater construction management inspection of the work being performed on Pier 35. The inspection included a work performed inspection to make sure the contractors were installing the pile repairs in accordance with the specification drawings. 2011

ConocoPhillips Bayway Refinery, Barge Piers Inspection, Linden, NJ

Dive supervisor for the underwater construction management inspection of the work being performed on the ConocoPhillips loading piers. The inspection included a work performed inspection to make sure the contractors were installing the pile repairs in accordance with the specification drawings. 2011

PANYNJ, Berth 3 Inspection, Port Newark, Newark, NJ

Dive supervisor for above and underwater inspection of berth 3 at Port Newark. The inspection included Level I and Level II inspections of the timber piles, a visual swim by inspection of newly installed steel H piles, concrete under deck and pile cap visual inspection, and a topside visual inspection. 2011

Halcrow

John Garisto

Diving Supervisor/ Dive Safety Officer

Specialization

Underwater inspections, health and safety

Registration/Certifications

Commercial Diver Certification, State University of California at Santa Barbara

Surface Supplied Diver, Association of Diving Contractors International

Diving Emergency Management Provider (DAN)

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

OSHA 10 Hour Construction Safety

Confined Space Entry

Smith System Defensive Driver Instructor

Year Joined Halcrow

1999

Years with other Firms

11

Education

BS, Environmental Science,

State University of New York at Buffalo

Professional Affiliations

None

Publications

None

Key Qualifications

John Garisto is an accomplished diving inspector with more than 12 years of experience as a commercial diver performing above and underwater inspection, environmental monitoring, construction, and construction supervision for consulting engineering and marine construction companies. His experience includes 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. John has 11 years specialized experience in environmental engineering performing site surveys environmental studies assessments and also in waste water treatment and hazardous waste remediation.

John is a certified commercial diver who has achieved his Master Dive Trainer, Emergency First Responder.Instructor and Oxygen Provider Trainer certifications through the Professional Association of Dive Instructors. In addition, he maintains his certification as a Surface Supplied Diver and DAN, Diving Emergency Management provider.

Relevant Experience

Con Edison, Hudson Ave Station Inspection, Brooklyn, NY

Dive supervisor for an above and underwater inspection and timber coring evaluation of the Hudson Ave Station. The inspection of the facility included penetration diving of submerged concrete intake and underwater core sampling of a timber pile supported fuel unloading dock. The evaluation included an analysis to determine the live load carrying capacity and remaining life of the dock, and repair recommendations and cost estimates for the facility. 2009

Con Edison, Above and Underwater Inspection East River Generating Station, and Jackson Street Pumphouse, New York, NY

Engineer inspection diver responsible for an above and underwater inspection and evaluation of the facility, including penetration diving of submerged concrete intake tunnels and cast iron discharge pipes, and underwater core sampling of a timber pile supported fuel unloading dock. The evaluation included an analysis to determine the live load carrying capacity and remaining life of the dock, and repair recommendations and cost estimates for the facility. 2004

Con Edison, Underwater Inspection, Gas Main Repair, New York, NY

Inspection diver responsible for providing quality control to Consolidated Edison for an underwater exposed gas main repair. Inspected placement of an 18-in stone for coverage of exposed pipe prior to concrete articulating mat placement. 2004

Port Authority of NY & NJ, Port Newark, Newark, NJ

Dive supervisor for inspections of berths 3 and 14 to monitor the condition of the severely deteriorated structures. Developed appropriate facility restrictions to maintain safe operations until rehabilitation can be implemented. Participated in the design of immediate repairs to stabilize berth 3. The project is part of Halcrow's waterfront inspection services on-call contract with PANYNJ. Project fee $39 K, 2011

NYC Office of Management and Budget, Asset Information Management Systems (AIMS) Waterfront Inspection, New York, NY

Team leader performed over 300 evaluations of waterfront structures throughout the five boroughs of the City of New York, as part of NYCOMB's Asset Information Management System. The project involved the evaluation of multiple assets along the shores of the Upper New York Harbor, East River, Harlem River, and Hudson River. Work involved cursory above water inspection, capture of data in NYCOMB database, and assisting with development of costed reports. The work was performed for Gannett Fleming on behalf of the NYCOMB. 2006-2011

Brooklyn Bridge Park Trust Corporation, Pier Inspection, Brooklyn, NY

Dive supervisor for the underwater construction management inspection of the work being performed on Piers 2, 5, and 6. The inspection included a work performed inspection to make sure the contractors were installing the pile repairs in accordance with the specification drawings. Project fee $398 K, 2010

Port Authority of NY & NJ, Floating Bridge Inspection, Greenville Yards, Jersey City, NJ

Dive supervisor for underwater and above water inspection of the floating rail bridge at Greenville Yards. The inspection included 100% swim-by of all steel H piles and concrete pedestals, as well as a level II inspection of 10% of the piles, evaluation of the timber decking, and mechanical systems for the lift bridge operations. The project is part of Halcrow's waterfront inspection services on-call contract with PANYNJ. 2010

NYCEDC, Routine Waterfront Inspection, South Brooklyn Marine Terminal, Brooklyn, NY

Dive supervisor performing inspections for Turner Construction Company on behalf of NYCEDC. The scope of services included a routine inspection of five structures at SBMT, including steel sheet pile bulkheads, stone riprap revetments, and a timber-pile-supported relieving platform. Subsequent to the inspection, additional services included a presentation of preliminary findings and the submittal of a final report containing observed conditions, rehabilitation recommendations, drawings, and cost estimates. Construction value $15 M, 2011

Halcrow

Benjamin Sheppard

Dive Supervisor/ Dive Safety Officer

Specialization

Engineer-diver

Registration/Certifications

Commercial Diving Certification

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

Association of Diving Contractors International Certificate #19755, Surface Supplied Dive Supervisor

Electrical Technology

Year Joined Halcrow

2002

Key Qualifications

Benjamin Sheppard has more than eight years of experience as a commercial diver performing above and underwater inspection, environmental monitoring, construction, and construction supervision for consulting engineering and marine construction companies. His 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.

Relevant Experience

Con Edison, Above and Underwater Inspections, New York, NY

Inspection diver for above and underwater inspection services for Consolidated Edison as needed at various NY waterfront facilities. Services have included inspection, emergency repair design, and destructive and non-destructive testing. Task orders to date have included Hell Gate Substation Wharf, Bronx - inspection, emergency repair design, penetration dives into tunnels with 5-man teams, destructive testing and petrographic analysis of concrete; 74th Street Station, Manhattan - inspection, penetration dives into tunnels with 5-man teams; East River Station, Manhattan - inspection, emergency repair design, penetration dives into tunnels with 5-man teams, destructive testing of cast iron and timber.

Brooklyn Bridge Park Pier 6, Brooklyn, NY

Dive supervisor for above and underwater inspections and of Pier 6 at Brooklyn Bridge Park for Skanska. The survey included the examination of approximately 900 timber piles through destructive testing. The inspection included the removal of timber bracing and asbestos forms to determine the extent of internal marine borer damage. 2010

Port Authority of NY and NJ, Pier 35 Holland Tunnel, New York, NY

Dive supervisor for an above and underwater inspection for the Port Authority of New York and New Jersey at Pier 35 Holland Tunnel. The project included underwater inspection and condition assessment of approximately 1200 timber piles and the associated timber caps and under deck. The underwater inspection also included a detailed evaluation of potential sinkholes. 2009

Arthur Kill Lift Bridge, NY and NJ

Dive supervisor for a Pre-Design above and underwater investigation of existing cofferdams, fendering structures and sub structures of bridge piers 1 & 2. The inspection also included destructive testing by burning 1ft by 3ft holes in existing sheet-pile and coring 4in diameter by 10in deep concrete samples. 2009

NYCEDC, Battery Maritime Building to Pier 16 Bulkhead Inspection, New York, NY

Publications

"Developing the Mina Raysut Container Terminal", Society of Naval Architects and Marine Engineers (SNAME) 1997 Transportation Operations, Management and Economics Symposium, Secaucus, NJ, May 1997

"69th Street Pier Composite Pier Design in Brooklyn, NY". American Society of Civil Engineers (ASCE) Ports '98, Long Beach, CA, March 1998

"Pier 79 West Midtown Ferry Terminal Development, NY, NY". American Society of Civil Engineers (ASCE) Ports '01, Norfolk, VA, May 2001

"Irvington, NY Brownfield Waterfront Remediation". American Society of Civil Engineers (ASCE) Ports '01, Norfolk, VA, May 2001

"Fixed Wave Screen Designs". American Society of Civil Engineers (ASCE) Ports '04, Houston, TX, May 2004

Dive supervisor for a routine level above water and underwater investigation of the gravity wall bulkhead from the Battery Maritime Building (BMB) to the south side of Pier 16 (over 3000 LF), to include a low level relieving platform as well as the outfalls, manholes, and concrete and asphalt surface up to 35 ft behind the offshore face. 2009

Bayway Refinery, ConocoPhillips, Linden, NJ

Dive supervisor for underwater inspections and assessments of waterway facilities for ConocoPhillips at the Bayway Refinery Facility. This project included above and underwater inspection of two 1000 ft. concrete pile supported fuel piers and 3 concrete pile supported wharfs, containing over 1600 piles. 2009

NYCEDC, Downtown Manhattan Heliport, New York, NY

Dive supervisor for a condition survey and assessment of the Downtown Manhattan Heliport. This project included inspection and assessment of a steel pipe pile supported aircraft landing platform and the interior and exterior of a steel spud barge used as a parking platform.

Port Authority of NY & NJ, Greenville Yards, Bayonne, NJ

Dive supervisor for underwater inspections and assessments of waterfront facilities at Greenville Yards. 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.

Brooklyn Bridge Park Corporation, Piers 2-6 Construction Inspection, Brooklyn, NY

Diving supervisor/senior inspection diver for construction management quality assurance underwater inspections to verify the work of three different marine contractors working at the Park. Ongoing

Port Authority of NY & NJ, Pier 6-8 Inspections, Brooklyn, NY

Inspection diver for above and underwater inspections of Piers 6, 7 and 8 on the East River in Brooklyn, NY. 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 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.

Halcrow

Jack Hayes

Cost Estimating & Scheduling

Specialization

Construction planning, scheduling and cost estimating

Registration/ Certifications

None

Year Joined Halcrow

2005

Years with other Firms

15

Education

MS, 2004, Construction Management, New York University

BE, 1991, Engineering (Naval Architecture), State University of New York Maritime College

Professional Affiliations

None

Publications

None

Key Qualifications

Jack Hayes has more than 20 years of diversified domestic and international experience in construction and engineering. For the past 10 years, he has specialized in cost estimating, planning, scheduling, and project management. He has extensive experience in the field working as a project manager and brings a proven ability to accurately measure costs as they apply to construction. His project experience in estimating, planning, and scheduling includes marine facilities, residential developments, and high rise building construction. His focus of expertise includes scheduling, cost estimating, construction management, project management, cost engineering and permit acquisition. Jack is also proficient at using Microsoft Project or Primavera to perform project scheduling.

Relevant Experience

Con Edison, Above Water and Underwater Inspection On-Call, New York, NY

Estimator/scheduler for cost estimates and schedules for a call-in basis contract to provide above water and underwater inspection services as needed at various waterfront facilities throughout the New York metropolitan region. Representative services include inspection, emergency repair design, and destructive and non-destructive testing.

PANYNJ, Brooklyn Marine Terminal Bulkhead and Pile Rehabilitation, Brooklyn, NY

Estimator/scheduler for cost estimates and schedules for a design-level investigation and rehabilitation design of the existing timber piles, concrete pile extensions, and steel sheet pile bulkhead at Piers 7, 8, and 9B. The work involved preparing contract drawings, technical specifications, and cost estimates as well as construction support services in the form of submittal review and answering contractor RFI's throughout construction. $2.8 Million

NYCDOT, Engineering Service Agreement (ESA) for Engineering, Design and Inspection Services and Bulkhead Rehabilitation, New York, NY

Estimator/scheduler for cost estimates and schedules for all marine/waterfront engineering services for a three year "on-call" contract. This agreement provided engineering services for survey, street/highway design, traffic engineering/analysis and simulation, structural design, bridge design, shop drawing review, value engineering, construction inspection and constructability review activities. The first task performed under this agreement was an immediate respond to an emergent request by NYCDOT to attend the Old Slip/Marginal St location in lower Manhattan. At the site a large sinkhole had developed in the sidewalk and roadway of Marginal Street. Construction value: $4.5 Million, project fee: $100,000

Greenpoint Manufacturing and Design Center, Newtown Creek Wharf Inspection, Brooklyn, NY

Estimator/scheduler for cost estimates and schedules for above water and underwater inspection of the wharf located along the historic Chelsea Fiber Mills building on Newtown Creek to determine the condition of the wharf structure. The inspection results supported a comprehensive structural evaluation and were used for identifying multiple options for the phased stabilization and upgrade of the wharf.

NYC Department of Planning, Expansion of 79th St Boat Basin, New York, NY

Estimator/scheduler for cost estimates and schedules for planning studies for the rehabilitation and expansion of the 79th Street Boat Basin. The work included evaluation of structural conditions, utility services, fire protection, environmental and permit issues, and costs.

Brooklyn Navy Yard Development Corporation, Brooklyn Navy Yard Rehabilitation, Brooklyn, NY

Estimator/scheduler for cost estimates and schedules for the rehabilitation of 1A, 2, 3, 6, 8/8A, 11, 12, and 57.

PANYNJ, High-Level Platform Design-Level Inspection, Brooklyn, NY

Estimator/scheduler for cost estimates and schedules for the design-level inspection at Brooklyn Piers 9A, the bulkhead between Pier 9B and Red Hook, and Wharf B.

NYCEDC, Passenger Ship Terminal Pier Rehabilitation, New York, NY

Estimator/scheduler for cost estimates and schedules for the rehabilitation of Piers 15, 16, 88, 90, and 94 on the Hudson River.

LaGuardia Airport Runway Safety Areas Improvement Analysis, Port Authority of New York & New Jersey, New York, NY

Estimator/scheduler for life cycle cost estimates and schedules for six alternatives for improving the safety of runways. Scope of improvements ranged from full 1,000 ft extensions over water to localized improvements on existing conditions. Alternate costs ranged from several million to hundreds of millions dollars. Project fee: $970,000, 2010

5. Billing Rates

Halcrow

2. Office Rates:

PID #	Name	As of 10/14/11 Salary Hourly Rate
019712	Acosta, Joseph	**55.24**
019656	Acosta, Maria L.	**44.39**
019657	Acosta, Victor G.	**45.17**
019698	Bayram, Atilla	**49.23**
019658	Borodulina, Tatiana	**40.97**
020803	Boynton, Jonathan	**46.78**
019715	Bull, Alan S.	**33.19**
020965	Carroll, Paul D.	**43.08**
022818	Choi, Joseph S.	**40.63**
019690	Daniell, Patrick	**56.39**
025422	Day, Dean J.	**40.97**
085899	Deangelis, Michael R.	**37.50**
088006	Dinos, George I.	**29.19**
019713	Esola, William P.	**50.21**
090133	Folk, David K.	**49.52**
019668	Fradkin, Leonid	**50.17**
019716	Friend, Douglas	**63.46**
019719	Garisto, John	**35.37**
022106	Grice, Matthew R	**44.79**
082713	Hartman, Danielle	**43.15**
020713	Hayes, John	**65.05**
089613	Hill, Caroline A.	**31.29**
082598	Hung, Chun Wai	**31.72**
020964	Kaminski, Louis	**36.10**
090715	Katnik, Michal	**33.82**
081827	Kehoe, Matthew J.	**31.68**
087804	Kotzev, Tzvetomir R.	**32.20**
022936	Lai, Andrew	**34.86**
021848	Lew, Kenneth	**49.41**
019664	Licata, Giuseppe	**54.73**
019717	Loporcaro, Stephen	**55.42**
019672	Luo, Jack Xiedong	**72.74**
087632	Mogray, John M.	**31.86**
019691	Nauss, Sameh	**77.59**
021968	Ostroff, Gary	**63.96**
024637	Paranjape, Amol M.	**31.36**
019661	Portalatin Jr., Armando	**54.36**
025282	Prilutsky, Victor M	**62.12**
019674	Qayyum, Sheikh A	**82.20**
019689	Rees, Matthew	**62.99**
019718	Riden, Kirk F	**80.14**
089121	Schulte, Robert P.	**85.68**

019721	Sheppard, Benjamin D	**38.61**
092787	Singer, Joshua R.	**44.12**
024208	Sposito, Brett L.	**52.08**
080381	Stasiak, Domenica A.	**39.06**
022935	Templeton, Sebastian R.	**32.52**
019696	Victor, Joel	**43.60**
090310	Waddicor, Christopher J.	**48.49**
019685	Waller, Alan K.	**91.48**
020761	Yang, Songtao	**44.52**
019683	Yurynets, Bohdan	**50.35**

Halcrow

On-Call Contract Experience

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 United States Navy, Port Authority of New York and New Jersey, New York Economic Development Corporation (NYCEDC), North Atlantic Refinery in Newfoundland, Port of Tampa, Port of Los Angeles, and many other Port Authorities in America and throughout the world, 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 our references in section 3 so that they may share their experiences and opinions regarding the high quality of our work.

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

Ms. Teri Bahr
(212) 312-3714

Naval Facilities Engineering Service Center, East Coast Detachment
Worldwide Inspection and Assessment of Waterfront Facilities

Mr. Shawn Lindmark
(202) 433-5480

Mr. Alex Viana
(202) 433-5516

New York City Department of Parks & Recreation
Facility Condition Surveys

Mr. Michael Bradley
(212) 788-8268

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

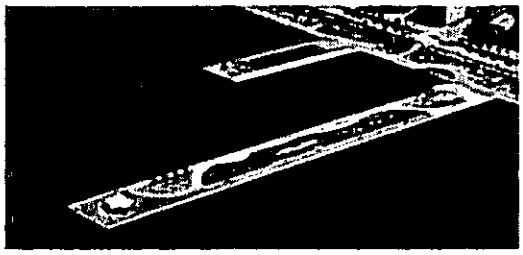
Hudson River Park Trust
Marine Inspection, Engineering, Design, & Construction Administration

Ms. Noreen Doyle
(971) 661-8756

Mr. Marc Boddewyn
(212) 627-2020

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.

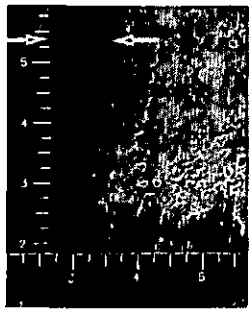
Waterfront Engineering Call-in Basis Services

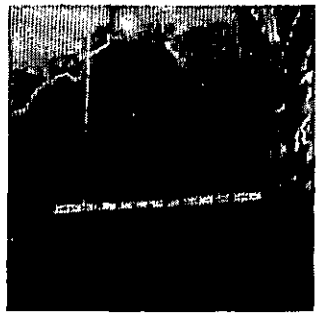
New York, New York

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.

Halcrow

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. Brett Sposito, as Halcrow's Team Leader, will be the regular point of contact for this Project. Brett 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, Brett 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, Brett 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. Brett 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.

Inspection Plan and Survey Sketches

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.

Halcrow

8. Firm Affiliates

Halcrow

Halcrow has no affiliates to declare.

9. QA/QC Plan

Halcrow

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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1. INTRODUCTION

It is the policy of Halcrow to provide consistently high quality services commensurate with client requirements. An effective Quality Assurance (QA) Plan is essential to maintaining this policy. The performance of quality services is the responsibility of each individual within the company. Ensuring that these services consistently meet Halcrow standards is the responsibility of the Vice President of Quality Control. This QA Plan defines the authority, responsibilities, and procedures for quality assurance. Compliance with the quality assurance requirements and quality control activities presented in this plan will fulfill the quality objectives for all Halcrow assignments.

This plan applies to all work performed by Halcrow personnel, including studies, investigations, reports, designs, cost estimates, scopes of work for subcontracts, and technical papers. The objectives of the QA Plan include the following:

- To make employees aware of the quality assurance/quality control (QA/QC) procedures.
- To follow a consistent quality assurance policy for all work.
- To satisfy all quality requirements for the work.
- To clearly delineate the quality assurance activities of Halcrow and its subcontractors and consultants, and the interaction between the project team members and the client.
- To effectively use resources to resolve technical problems related to the implementation of quality assurance project plans for each project.

This plan defines the minimum controls required to achieve the quality goals established for each project. Additional quality control functions may be required for specific projects.

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.

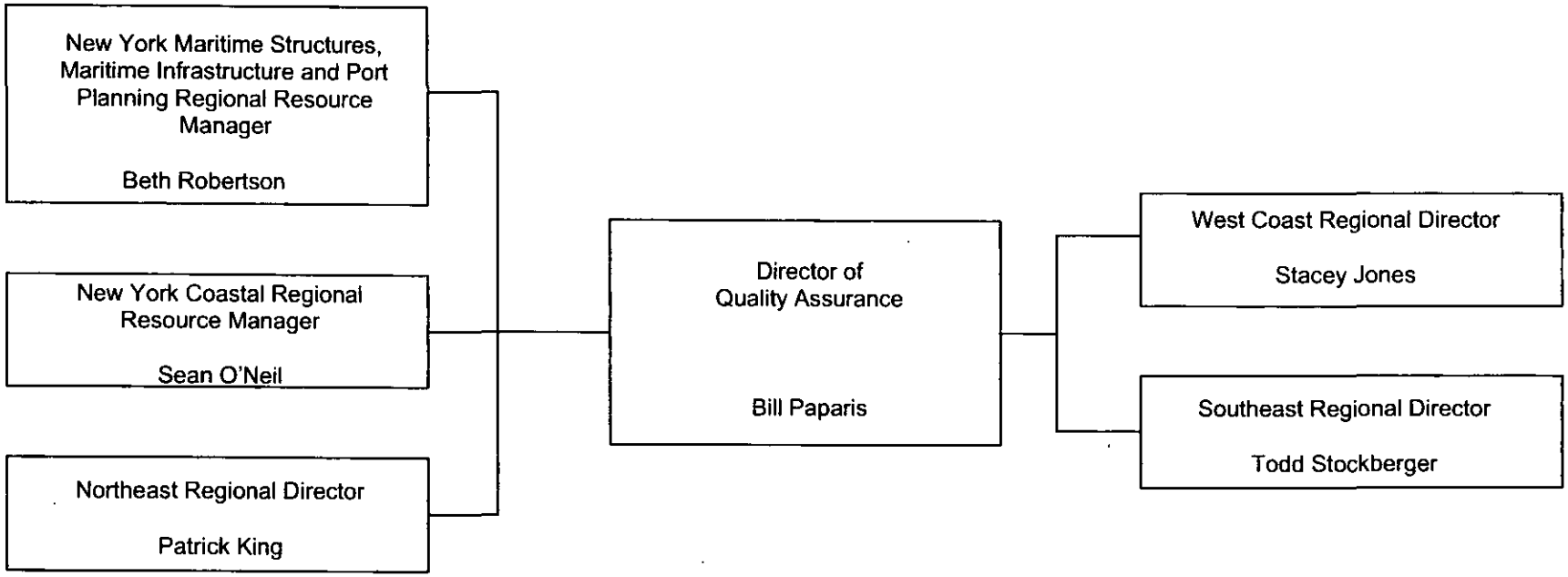


Fig 3-1 Quality Assurance Program Organization

- 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.

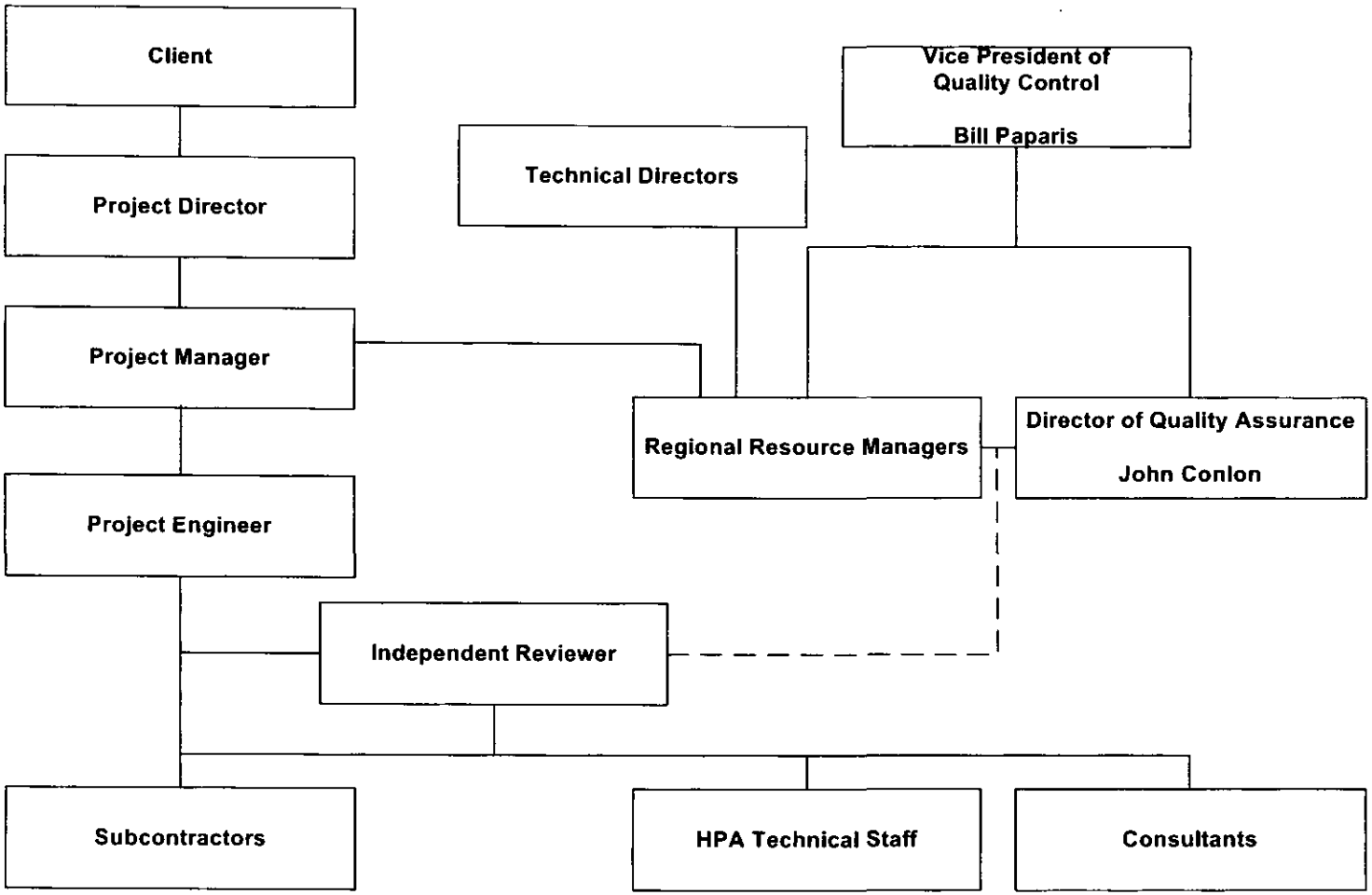


Fig 3-2 Quality Assurance Project Organization

Direct Responsibility

Indirect Responsibility

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

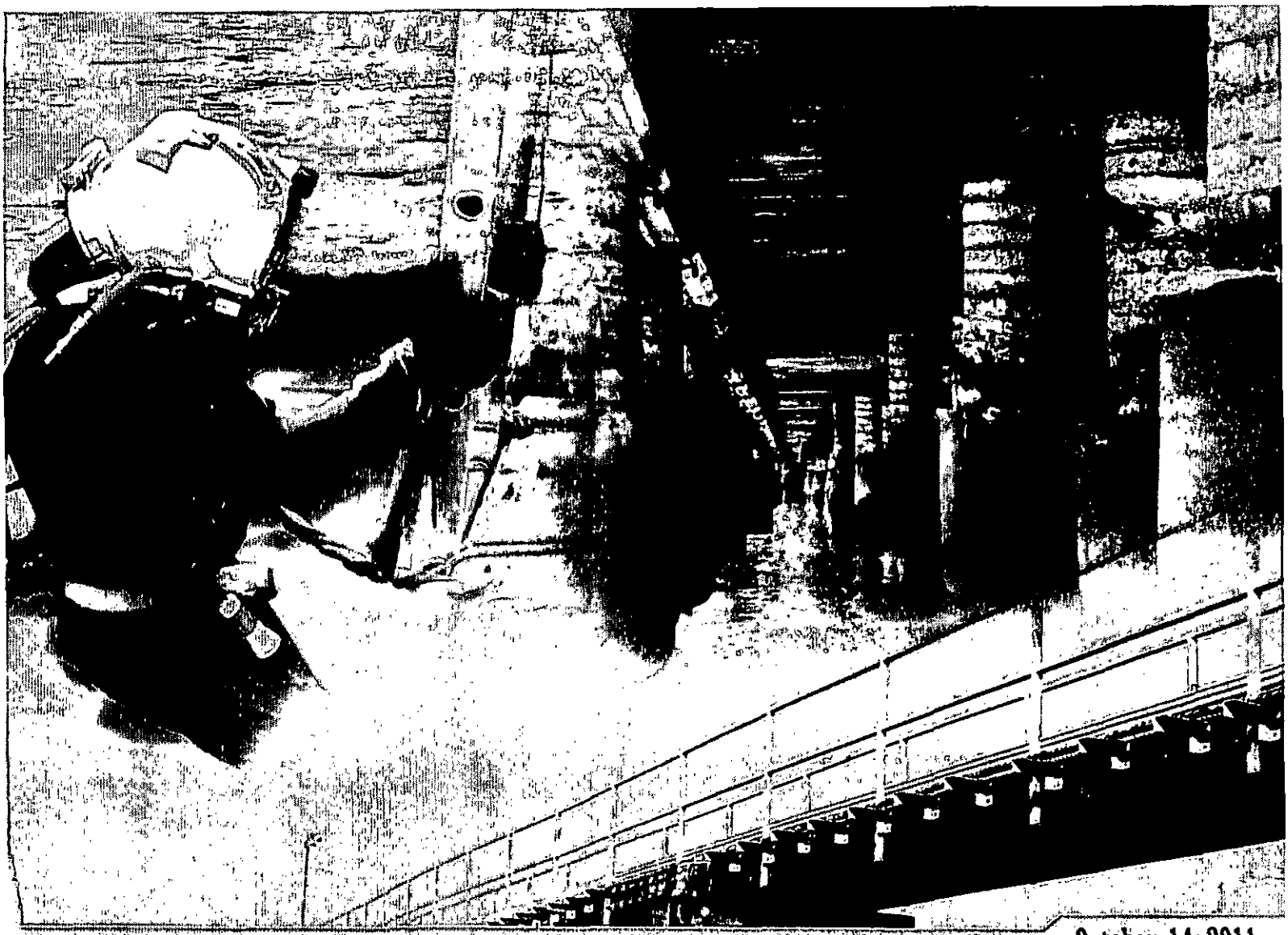
The director of quality assurance is responsible for affecting the posting of the QA Plan in each office where it is accessible by all Halcrow staff members. Only the director of quality assurance or his designee shall be authorized to change or delete the QA Plan or other Halcrow quality system documents 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 Engineers PC
22 Cortlandt Street
New York, NY 10007
212.608.3990

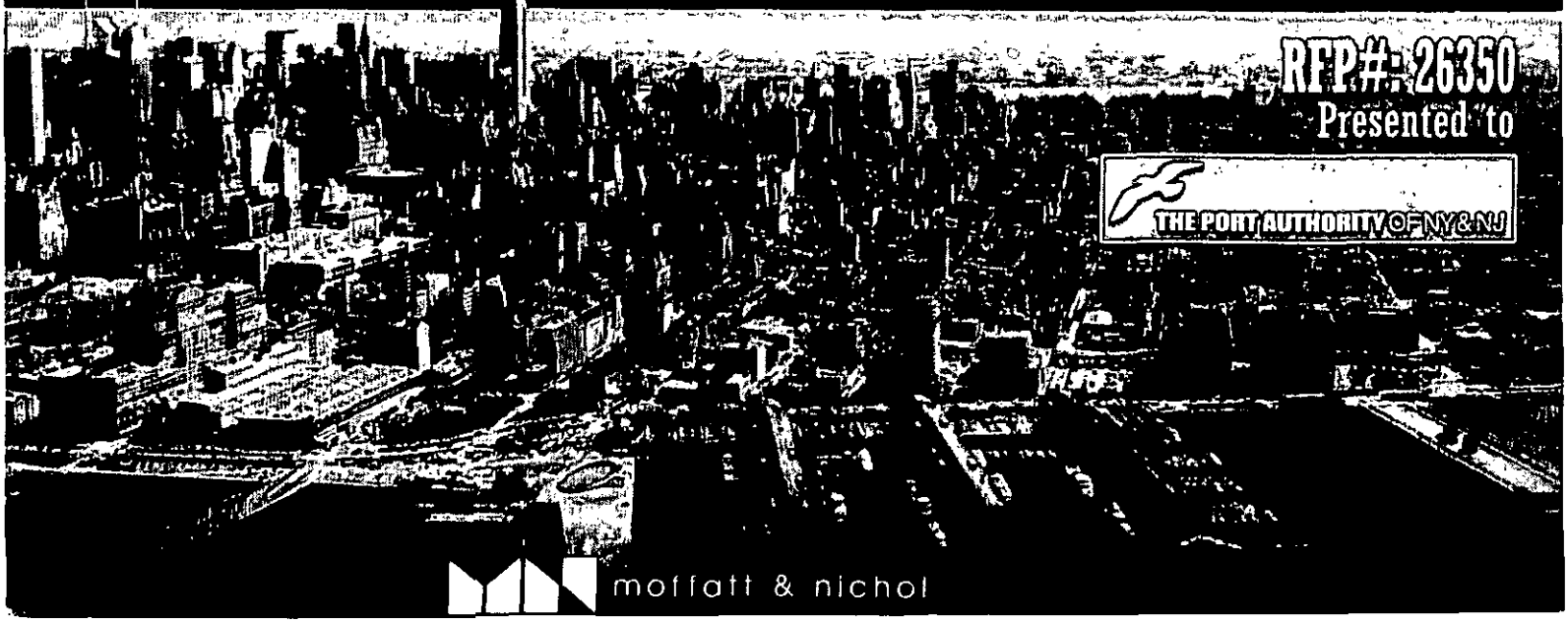
halcrow.com

Halcrow



October 14, 2011

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012



RFP#: 26350

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 14, 2011

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 2012 – RFP No. 26350***

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

Santiago Alfageme, P.E.
Principal-in-Charge

Enclosures

A. Agreement on Terms of Discussion

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or 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 Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information 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 this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to 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 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 Policy and Procedure adopted by the Port Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/corporate-information/freedom-of-information.cfm* , not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

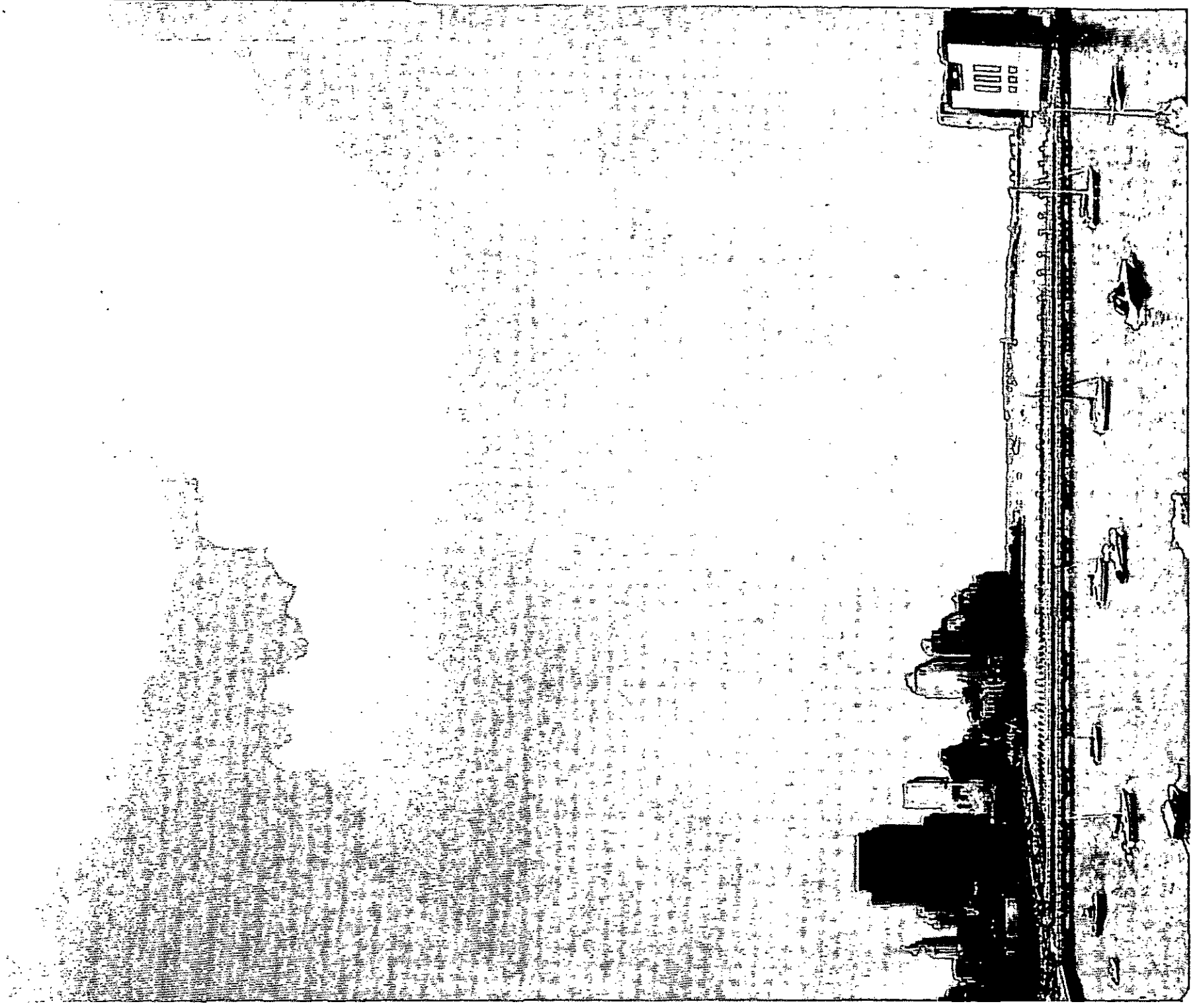
MOFFATT & NICHOL
NAME OF COMPANY

SIGNITURE OF OFFICER

Santiago R. Alfageme, P.E.
PRINT NAME OF OFFICER

Principal-in Charge
TITLE

October 14, 2011
DATE



B. Company Profile

1. Company Name (print or type):

   Moffatt & Nichol

2. Business Address (to receive mail for this RFP):

   104 West 40th Street, 14th Floor

   New York, New York 10018

3. Business Telephone Number: (212) 768-7454
4. Business Fax Number: (212) 768-7936
5. Firm website: www.moffattnichol.com
6. Federal Employer Identification Number (EIN): Ex.1
7. Date (MM/DD/YYYY) Firm was Established: 07/01/1945
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   Moffatt & Nichol, International
   3780 Kilroy Airport Way, Suite 750
   Long Beach, California 90806
   EIN: Ex.1

   Craney Island Design Partners, LLC
   800 World Trade Center
   Norfolk, Virginia 23510
   EIN: Ex.1

   Moffatt & Nichol, Latin America, Inc.
   Ocean Business Centre, Oficina 1204
   Ave Aquilino de la Guardia y Calle 47
   Republica de Panamá
   EIN: Ex.1

   Moffatt & Nichol, London
   5 St. Helen's Place
   Bishopsgate
   London EC3A 6AU, United Kingdom
   EIN: Ex.1

   Moffatt & Nichol Engineering, P.C.
   104 West 40th Street, 14th Floor
   New York, New York 10018
   EIN: Ex.1

   Wetland and Estuary Tides, LLC
   P.O Box 3493
   Norfolk, Virginia 23510
   EIN: Ex.1

9. Officer or Principal of Firm and Title:

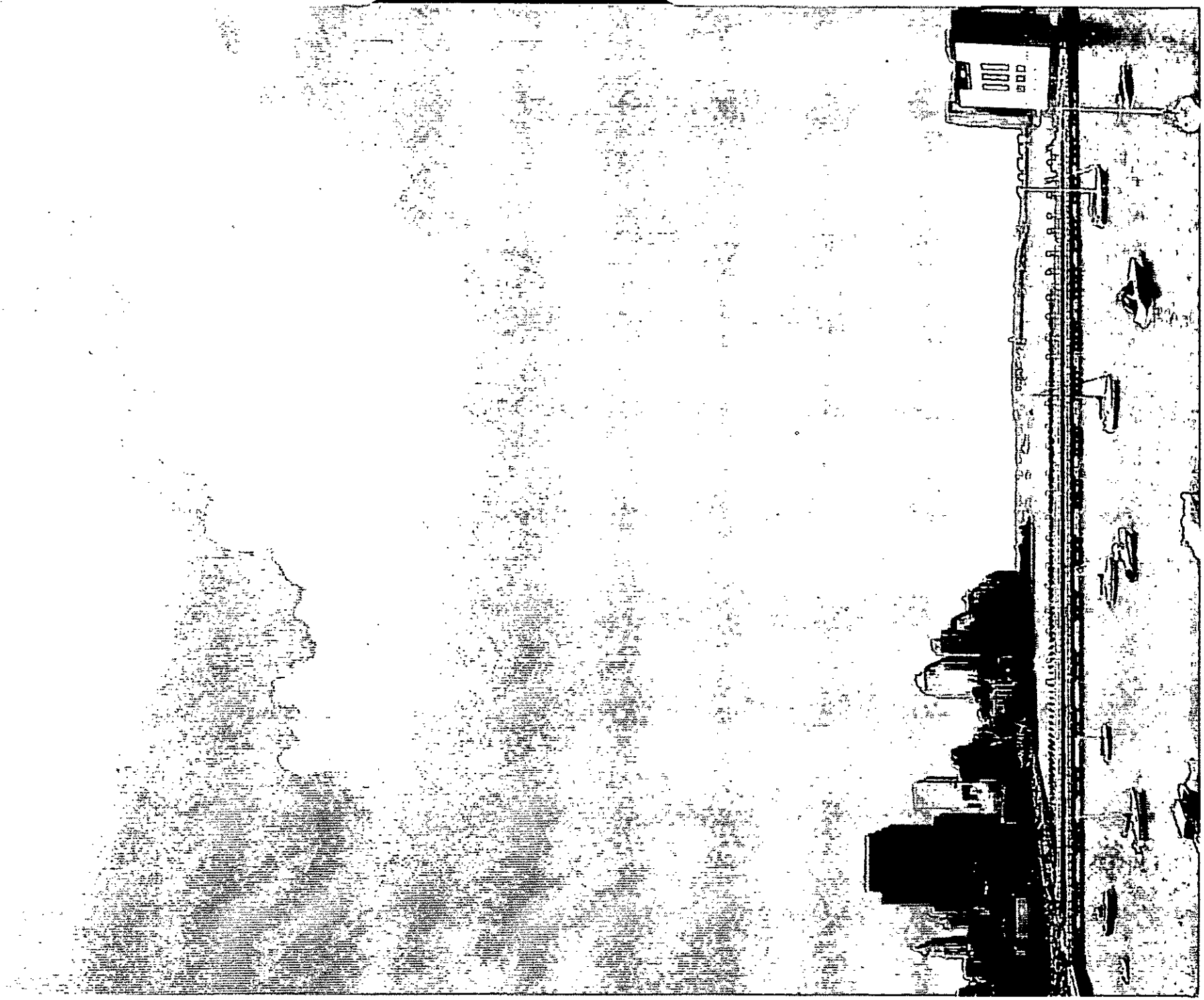
   Eric A. Nichol, Ph.D., P.E., President

10. Name, telephone number, and email address of contact for questions:

    Santiago R. Alfageme, P.E.

    (212) 768-7454, salfageme@moffattnichol.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

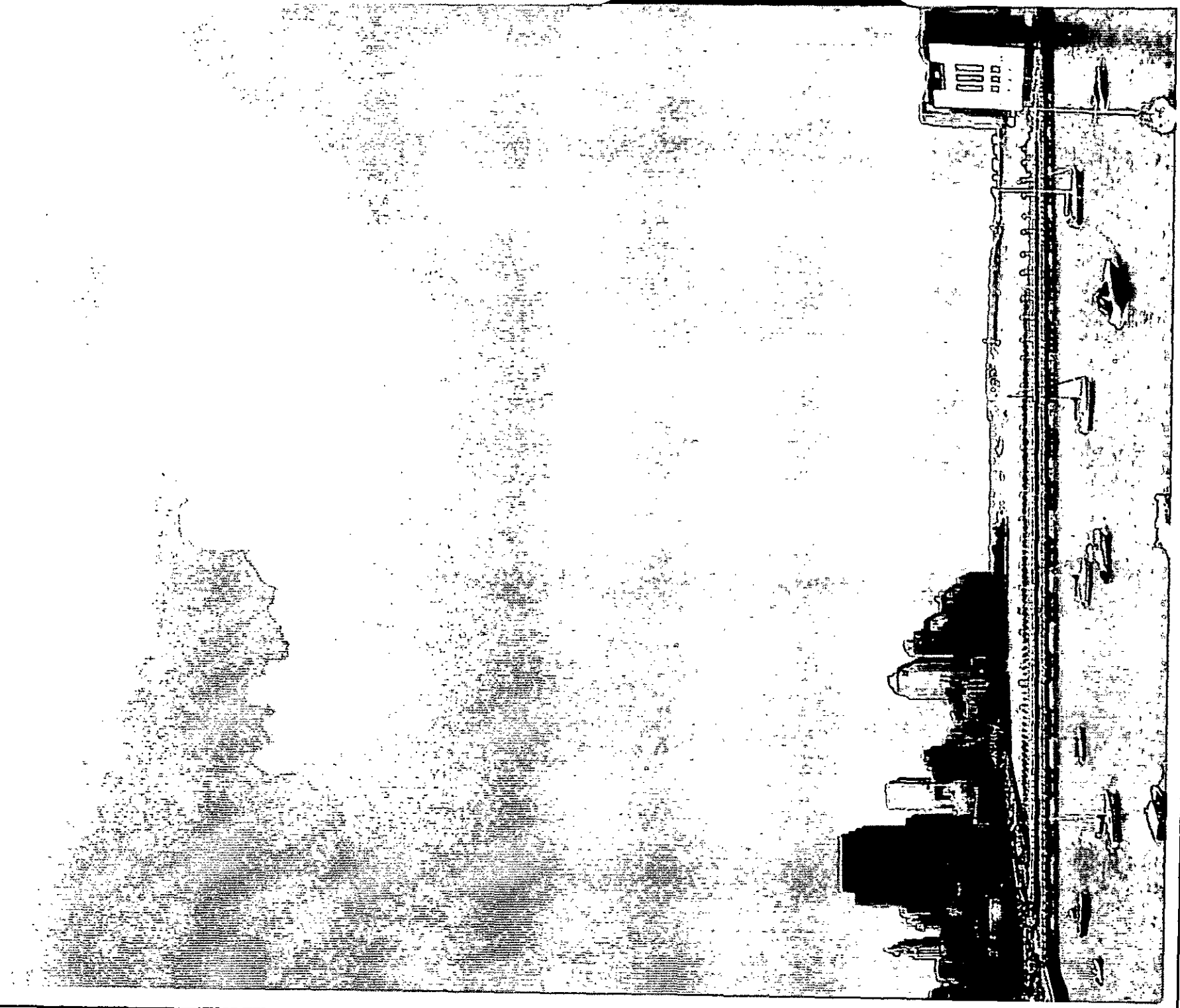


C. Multiplier

1. Moffatt & Nichol "Multiplier"
(To be used in the first line of subparagraph 9.A of the Standard Agreement)

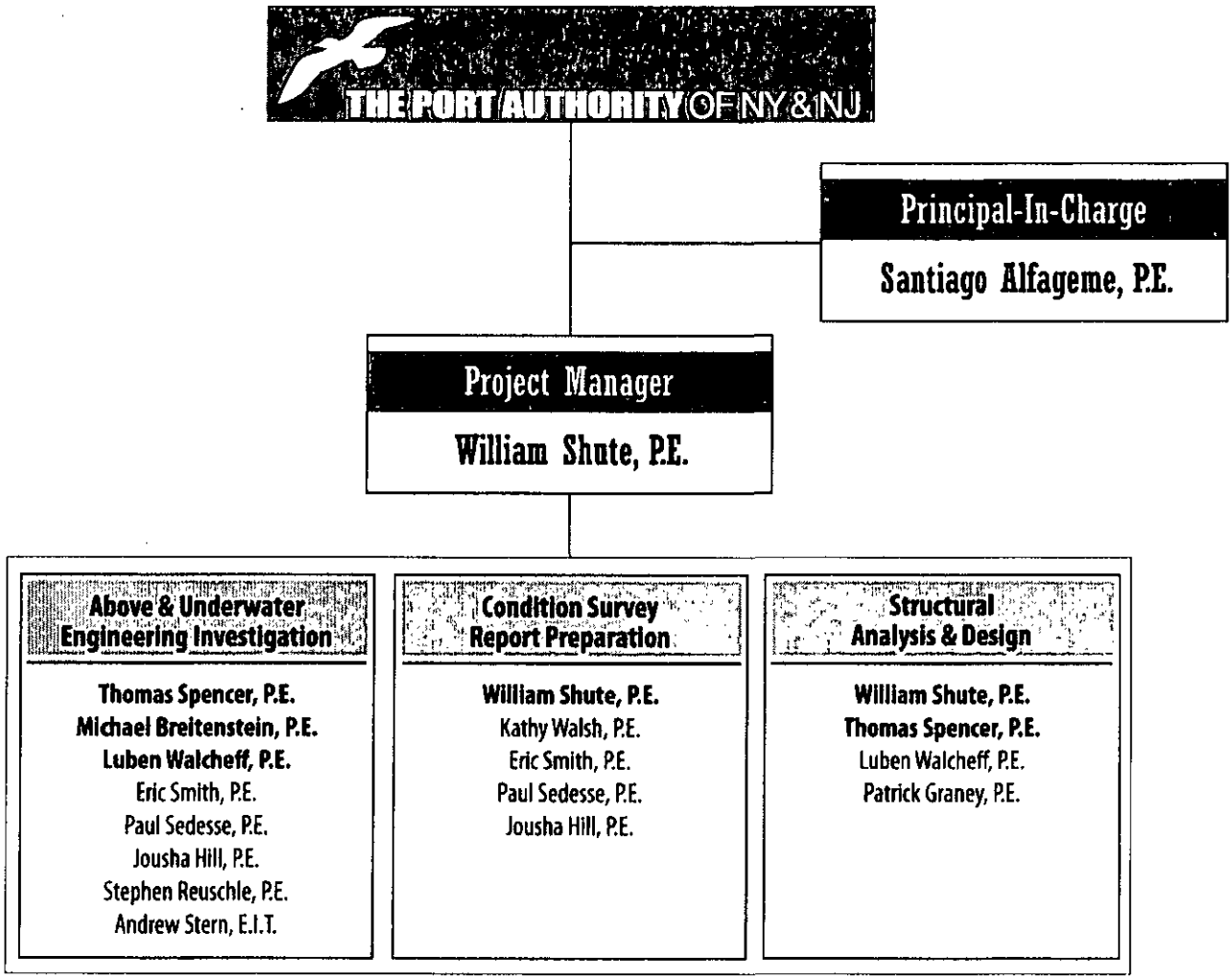
Breakdown		***53.61%***
	Fringe Benefit Rate	
(Vacation, sick, holiday)	(17.87%)	
(Workers Comp)	(0.97%)	
(Payroll Taxes)	(14.85%)	
(Other Fringe Costs)	(19.92%)	
		136.92%
General Overhead		
Rent	(20.73%)	
Insurance	(4.22%)	
Indirect labor	(51.48%)	
Other G&A Overhead	(60.49%)	
Total Overhead Rate		***190.53%***
Discount Extended to Client		***(36.89%)***
Discounted Overhead Rate		***153.64%***
Profit		***10%***
Sub-Total Multiplier:		***2.79***
Other Direct Costs (Equipment, vehicles, boats, etc. that Moffatt & Nichol Owns as stipulated in the RFP)		***20%***
Total Proposed Multiplier:		**3.35**

Note: As requested in Part II-C of the RFP, M&N has incorporated all equipment, vehicles, boats, etc. that the company owns in the Total Proposed Multiplier, in place of billing these costs as out-of-pocket expenses as has been done historically. In order for Moffatt & Nichol to recover these direct costs through its labor multiplier, a 20% uplift has been applied to the base 2.79 labor multiplier. The result of which is a Total Proposed Multiplier of 3.35.



D. Resumes and Technical Qualifications

Moffatt & Nichol proposes the following project team:



Note: **Bold** denotes team leader

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

D. Resumes and Technical Qualifications

WILLIAM M. SHUTE, P.E.
Project Manager

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

EXPERIENCE:
Mr. Shute is a Senior Engineer and Project Manager with more than 13 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.

Port Authority of New York and New Jersey Waterfront Inspection "Call-In" Contract, New York, NY. Since 2006, Mr. Shute has served as the Project Manager overseeing Moffatt & Nichol's Waterfront Inspection "Call-In" contract with the Port Authority of New York and New Jersey (PANYNJ). In this role, Mr. Shute has been responsible for interfacing with the client, organizing the inspection team, coordinating site access with tenants, providing progress updates, and creating the Condition Assessment Reports. He has also been a member of the inspection team that performed the inspections. Over the past three years, Mr. Shute has ensured the successful completion of numerous inspections for the PANYNJ including locations such as:

- **Brooklyn Piers 9A and 9B** – included over 5,000 piles and encasements, 40,000 square feet of concrete deck and 1,250 linear feet of shoreline bulkhead.
- **NYMT and the Bulkhead between Pier 9B and Red Hook** – included inspection of over 4,500 steel and timber piles, prestressed concrete beams, concrete deck, and 1,700 linear feet of shoreline bulkhead.
- **JFK Airport Outfall No. 10** – consisted of a 1,000 linear feet concrete culvert beneath an active runway
- **LGA Airport ILS Piers** – included five different pier structures and platforms which extend from the LGA Airport Runway Extensions
- **Holland Tunnel Pier 34** – included two approach piers, protective apron around and façade of Holland Tunnel Ventilation Building and 250 feet of the shoreline bulkhead.

Mr. Shute has also been responsible for PANYNJ Condition Assessments at Port Jersey South, as well as the Brooklyn Cruise Terminal Pier 12 and NYMT Piers 8, 10, and 11.

Routine Inspection of the Battery Maritime Building Substructure and Ferry Slips, New York, NY. Mr. Shute served as the Project Manager and an inspection team member, for a routine inspection of the Battery Maritime Building Substructure, as well as the elements that comprise Ferry Slips 5, 6, and 7 for the Governors Island Ferry for Turner Construction and the NYCEDC.

D. Resumes and Technical Qualifications

WILLIAM M. SHUTE, P.E.
(continued)

As part of this project, Mr. Shute coordinated site access and interfaced daily with site operations personnel to ensure inspection activities did not interrupt daily ferry operations. He served as an inspection team member and also oversaw the completion of the Condition Assessment Report, which was completed in accordance with the NYCEDC Waterfront Facilities Maintenance Management System Inspection Guidelines Manual.

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. 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 hardware. 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 coordinated all daily activities required to perform the above- and underwater inspections of the ILS piers. He also completed the topside and underdeck surveys and 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. Inspected elements 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 Moffatt & Nichol'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 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.

D. Resumes and Technical Qualifications

SANTIAGO R. ALFAGEME, P.E.
Principal-in-Charge

EDUCATION:
M.S., Coastal and Oceanographic Engineering, University of Florida
M.E., Civil Engineering, University of Cantabria, Santander, Spain

EXPERIENCE:
Mr. Alfageme serves as both project engineer and project manager on a wide range of projects involving coastal and estuarine processes, state-of-the-art modeling, shore protection measures, sediment management, coastal structure design, ecosystem restoration, navigation improvements, and dredging. His environmental restoration experience includes numerical studies of wetland hydraulics and sediment transport processes, engineering and design of marsh and tidal creek restoration projects, and preparation of final design documents. His coastal erosion and sediment transport experience includes detailed analysis of shoreline and profile evolution, historic and projected-future erosion rates, and development of inlet and shoreline sediment budgets, development of shoaling reduction measures in channels and harbor basins. Mr. Alfageme also has extensive experience in sediment transport modeling using the full range of available numerical tools: from simple analytical/spreadsheet methods to the most sophisticated 3D sediment transport and morphological models. He is currently supervisor of the coastal engineering department in the New York office.

Primarily Technical Reviews of Coastal, Navigation, and Flood Control Projects, New York, NY. Project Manager/Coastal Engineer for each of the tasks Moffat & Nichol completed under this open-end contract including:

- **Reviews for Fire Island to Montauk Point Reformulation Study, Long Island, NY.** Completed review of SOW and product submittals for ADCIRC and SBEACH modeling completed by the USACE's Waterways Experiment Station as part of the FIMP Reformulation Study
- **Additional Water Quality Modeling, New York/New Jersey Harbor Navigation Study.** Moffat & Nichol performed additional hydrodynamic and water quality model calibration/verification to supplement previous modeling efforts.

IDC for Shore Protection and Coastal Inlet Studies with the North Atlantic Division, New York, NY. Project Manager/Coastal Engineer for each of the tasks completed by Moffatt & Nichol including:

- **Coney Island-Sea Gate Shoreline Analysis and Protection Design.** Finalized the design of the USACE-chosen shore protection alternative (T-head groins) involving data analysis, numerical modeling (GENESIS-T & Delft3D), coastal engineering analysis, physical modeling, and construction document preparation.
- **Section 14 Emergency Streambank Erosion Control Project, Woodbine Avenue Harbor, Northport, NY.** Completed fast-track design and construction documents for streambank erosion protection.

SANTIAGO R. ALFAGEME, P.E.
(continued)

Fire Island to Montauk Point Reformulation Study, NY. Project Manager/Coastal Engineer for many of the tasks under a multi-year, multi-task reformulation study of a comprehensive shore protection and storm damage reduction project for more than 80 miles of primarily low-lying barrier islands subject to the effects of storm surge flooding, waves, overwash, and breaching. Performed detailed coastal engineering analysis including: storm surge modeling (ADCIRC/Delft3D), beach erosion modeling (SBEACH), hydrodynamic and water quality modeling (MIKE21), sediment transport and morphological modeling (DELFT3D) for Fire Island, Moriches & Shinnecock Inlets, and development of regional sediment budgets. Supervised all development/screening of alternative storm damage reduction measures as well as potential mitigation features. Directed development of detailed flood hazard maps in GIS.

Dredged Material Management Plan, New York Harbor, NY. As Coastal Engineer, he participated in a feasibility study for a dredged material Confined Disposal Facility (CFD) in New York Harbor. Developed preliminary designs of various containment methods, including rock dikes, concrete caissons, and sheetpile cofferdams. Performed a detailed analysis of winds, water levels and wave conditions at the site to size the different structures. Evaluated construction methods and estimated construction and maintenance costs to recommend an optimal solution.

Ferry Terminal at 30 Hudson Street, NJ. Coastal Engineer for a new ferry terminal in upper New York Harbor. Performed a detailed analysis of design winds, water levels and wave conditions at the site. Developed hydrodynamic and wave loads on proposed fixed and floating mooring structures. Assessed ferry navigation needs including approach route and required water depths.

New York and New Jersey Harbor Navigation Study EIS. Developed 3-D hydrodynamic and water quality model (MIKE3) used as a means of assessing harbor deepening impacts on estuarine hydrodynamics (currents, water levels, salinities, temperature, and various other water quality parameters) as input to the Environmental Impact Statement (EIS). Supervised the development of boundary conditions (tides, salinity, and temperature), model setup (grid development, nesting scheme, and environmental forcings), model calibration/ verification, and model runs for different dredging scenarios.

D. Resumes and Technical Qualifications

THOMAS E. SPENCER, S.E., P.E.
Principal / Senior Diver

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

EXPERIENCE:
Mr. Spencer is a Senior Structural Engineer with more than 30 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".

Port Authority of New York/New Jersey Waterfront Inspection "Call-in" Contract, New York, NY. Provided oversight of inspection and strategic assessment for two tasks under this Port Authority of New York/New Jersey (PANYNJ) contract. Efforts included underwater inspections, assessments, estimated costs, and repair prioritization. Tasks included:

- **Condition Survey, Piers 9A and 9B, New York Marine Terminal.** I&R team inspected twin 620-ft-long by 325-ft-wide piers involving 5,200 piles/encasements, 400,000 sf of concrete deck, and 1,250 lf of shoreline bulkhead.
- **Condition Survey, Outfall No. 10, John F. Kennedy Airport.** I&R team inspected three 850-ft-long concrete culverts.

Waterfront Inspection "Call-in" Contract, New York, NY. Under a second, consecutive on-call PANYNJ inspection contract, he again provided oversight of inspection and strategic assessment for three tasks involving underwater inspections, assessments, estimated costs, and repair prioritization:

- **Condition Inspection of Wharves A, B, and B-Extension, Red Hook Terminal.**
- **Condition Assessment, Outfalls No. 10 and 12, John F. Kennedy Airport.**
- **Immediate Action Inspection and Baseline Condition Assessment, Military Ocean Terminal Bayonne.**

THOMAS E. SPENCER, S.E., P.E.
(continued)

Philadelphia Regional Port Authority Strategic Facilities Assessment, Philadelphia, Pennsylvania. Inspection and rehabilitation oversight for the inspection and strategic assessment of 11 facilities for the Port Authority. Efforts included underwater inspections, assessments, estimated costs, and repair prioritization.

N62473-06-D-3006 IQC: Underwater Inspection and Assessment, Worldwide. For NAVFAC's Engineering Service Center, he was Project Manager for numerous above- and below-water inspection delivery orders for facilities located on the U.S. West Coast, Hawaii, and Japan. Deliverables included reports with above and below water photographs, CAD drawings, repair recommendations, and cost estimates. Many of the reports also include materials assessment including petrographic analysis and other methodologies. A number of the inspection projects resulted in follow-up tasks to design repairs for the facilities.

N62473-06-D-1008 IDIQ Contract – Waterfront Construction and Repairs SWDIV. Project Manager/Engineer/Diver for a wide variety of 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.

IQC: A-E Services for Waterfront Facilities Projects, Various Locations, CA. For Facilities Engineering Center, Southwest, he was Project Manager for a wide variety of marine structure projects including concrete pier, wharf, and quaywall rehabilitation; above and below water inspections; topographic surveying and dredging; development of design-build solicitation packages; load capacity studies; and miscellaneous delivery orders.

Above and Below Water Inspection/AIRIS Database, 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 include above and below water inspection; preparation of concrete repair documents; and implementation of AIRIS automated inspection and repair database.

Emergency Repairs of Ammunition Pier, Naval Weapons Station Port Hadlock, WA. Project Manager/Engineer/Diver for replacement of ettringite – damaged piles. Project included underwater inspection; reports; extraction of cores (for petrographic analysis and scanning electron microscopy); preparation of plans, specifications and cost estimates; and construction inspection.

Inspection/Assessment of Ford Island "Admiral Clarey" Bridge, Pearl Harbor, HI. Principal Engineer/Diver who led an engineering assessment of a major bridge structure in accordance with FHA "Safety Inspection of In-Service Bridges" guidelines. Assessment included sampling and laboratory testing of damaged concrete piles and development of repair/replacement strategies.

D. Resumes and Technical Qualifications

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

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

EXPERIENCE:
Mr. Breitenstein provides more than 30 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.

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 hardware.

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.

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.

Pier and Wharf Condition Assessments, Miscellaneous locations. Performed detailed inspection of existing pile-supported and bulkhead facilities, including underwater inspections. Collected samples and directed testing of wooden and steel structural members. Surveyed sites and adjacent areas, and researched original construction documents. Produced reports and drawings detailing existing conditions. Created proposals, including preliminary design drawings, specifications, cost estimates, and constructability reviews for repairs/rehabilitation.

D. Resumes and Technical Qualifications

MICHAEL E. BREITENSTEIN, P.E.
(continued)

Facilities assessed include:

- Port of Hueneme – Commercial wharves, Hueneme, CA
- Santa Monica Public Pier – Santa Monica, CA
- Escravos Wharf – Support facilities for Chevron Nigeria Limited operations at Escravos, Nigeria.
- 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
- Point Molate – Commercial wharf, Richmond, CA
- Chevron Long Wharf – Chevron Products Co., Richmond, CA
- Outzen Pier – Commercial Pier/Dock and Bulkhead, Moss Landing, CA

Waterfront Facilities Inspections, Miscellaneous Locations. Team leader for the inspection of existing and under-construction pile-supported and bulkhead facilities, including underwater inspections. Dive supervisor for surface supplied air and scuba dive teams. Inspected substructure, deck, and superstructure elements, and performed non-destructive testing of concrete, wooden, and steel structural members. Surveyed sites and adjacent areas, and researched original construction documents. Utilized testing and sampling tools including concrete and wood coring machines, ultrasonic thickness testers, Galvapulse, Bathycorrometer, pachometer, Schmidt Hammer, underwater camera and video systems, etc. Produced reports and drawings that detailed existing conditions/construction progress, and evaluated repair alternatives. Produced proposals for repairs/rehabilitations that included preliminary design drawings, specifications, cost estimates, and constructability reviews. Facilities inspected include:

- PANYNJ Piers 8 and 11– Commercial Wharves, Brooklyn, NY
- PANYNJ Red Hook Terminal – Container terminal, Brooklyn, NY
- PANYNJ Piers 9A and 9B – Commercial Wharves, Brooklyn, NY
- PANYNJ Pier 34, Holland Tunnel – Tunnel ventilation structure and approaches, New York, NY
- Sumay Cove and Clipper Landing Cove, Apra Harbor Naval Base, Guam
- Wharf Victor, Apra Harbor Naval Base, Guam
- Naval Base Pt. Loma – Submarine Base Waterfront Facilities, San Diego, CA
- Naval Base Coronado – Waterfront Facilities, San Diego, CA
- Manhattan Beach Pier – Municipal Pier, Manhattan Beach, CA
- Port Hueneme Outfall Replacement, Port Hueneme, CA
- Pier F Rock Slope, Port of Long Beach, CA
- Fruitvale Ave. Railroad Bridge Piers (USACE), Oakland/Alameda, CA
- Port of Hueneme Ship Strike Damage Assessment, Port Hueneme, CA
- Seal Beach Naval Weapons Station Waterfront Facilities, Seal Beach, CA
- Hunters Point Naval Shipyard Bulkheads, San Francisco, CA
- Vopak Marine Oil Terminal, Port of Los Angeles, CA (MOTEMS)
- Mobil Marianas Marine Oil Terminals – Guam, Rota, & Tinian

D. Resumes and Technical Qualifications

LUBEN S. WALCHEFF, P.E.
Senior Diver / Engineer

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

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 hardware.

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.

D. Resumes and Technical Qualifications

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

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

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 hardware.

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 and 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 Moffatt & Nichol'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.

D. Resumes and Technical Qualifications

JOUSHA M. HILL, P.E.
Diver / Engineer

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

EXPERIENCE:
Mr. Hill has 7 years of experience and provides civil engineering support, project management and construction inspection for projects throughout the Tidewater area, predominantly focusing on civil works infrastructure involving water resources, hydrology, and hydraulics. He is a certified commercial diver and has performed above- and underwater inspection and evaluation of many types of waterfront structures, both as stand-alone projects and as part of larger repair and rehabilitation projects. Mr. Hill has also performed above- and underwater inspections for a number of municipal structures including bridges, bulkheads, and culverts. In many cases, these inspections have resulted in the development of cost effective repair and/or rehabilitation alternatives, along with plans, specifications and opinions of probable cost.

Pier 34 Inspection, New York, NY. Served as dive team member for the underwater inspection of the finger pier and ventilation shaft structure for the Holland Tunnel. Performed Level I, Level II and Level III inspection on steel piles including ultra-sonic testing.

LaGuardia Airport ILS Piers Inspection, New York, NY. Dive team member who inspected the ILS Piers associated with LaGuardia Airport. Performed Level I and Level II evaluation on steel and timber piles to determine the structural condition of the piers, Level III inspection was also completed on the steel piles which included ultra-sonic testing.

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 hardware.

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.

D. Resumes and Technical Qualifications

JOUSHA M. HILL, P.E.
(continued)

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.

D. Resumes and Technical Qualifications

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

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

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 instruction and practice in the safe use of surface-supplied diving and certification in using 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 hardware. 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.

D. Resumes and Technical Qualifications

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

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

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 and 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 and 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.

D. Resumes and Technical Qualifications

PATRICK R. GRANEY, P.E.
Diver / Engineer

EDUCATION:
M.C.E., Civil Engineering: North Carolina State University
B.S., Civil Engineering: North Carolina State University (Magna Cum Laude)

EXPERIENCE:
Mr. Graney has served as a civil/structural engineer with Moffatt & Nichol for over 14 years on inspecting a wide variety of marine and coastal structures throughout the world. He has routinely managed or participated in topside and underwater inspections of various marine and coastal structures including wharves, piers, bulkheads, floating docks, revetments, pipelines, pipeline supports, buoys, and fender systems. These projects have involved the field investigations, developing detailed condition assessment reports and preparing repair documents.

- Performed Numerous Topside and Underwater inspection of Port and Marine facilities.
- Extensive Experience in Developing Condition Assessment Reports.
- Experience in Preparing Repair and Retrofit Drawings.

Inspection and Repair of Ferry Slips and Transfer Bridge System, USCG Station Governor Island, NY. Structural Engineer/Diver for topside/underwater inspection of two ferry slips comprised of timber piles and deck, steel girders, abutments, steel H piles, and timber sheathing and wales.

Structural Inspection and Evaluation of Waterfront Bulkheads, USCG Group Buffalo, NY. Structural Engineer/Diver for subaerial/underwater inspection, structural analysis and evaluation, and development of conceptual designs for repair/ replacement of waterfront timber and steel bulkheads. Assisted in preparation of inspection report describing conditions, structural analyses, and recommended repair/replacement alternatives.

Waterfront Inspection, USCG Station Hatteras Inlet, Cape Hatteras, NC. Project Manager/Structural Engineer/Diver for detailed topside/underwater inspection, structural analysis/evaluation, and conceptual designs for repair of concrete-capped, anchored sheet pile bulkhead, anchored sheet pile bulkhead twin travel lift piers, concrete floating docks, timber pile fender system, and eight dolphins. Prepared inspection report detailing structure condition, providing structural analysis, and recommending repairs/replacement with opinions of probable costs.

Waterfront Structures Inspection, USCGC BRAMBLE Moorings, Port Huron, MI. Structural Engineer for underwater/topside structural inspection and evaluation of 140-ft-long steel and 130-ft-long timber sheet pile bulkheads, and four timber pile mooring dolphins. Included coring of timber bulkhead and ultrasonic measurements of steel sheet pile bulkhead.

Inspection and Evaluation of Waterfront Facilities, ISC New Orleans, LA. Structural Engineer/Diver for above/underwater site investigation of concrete deck/timber substructure wharf. Provided load rating of wharf and conceptual design for replacement structure.

PATRICK R. GRANEY, P.E.
(continued)

Inspection and Evaluation of Waterfront Facilities, ANT Dulac, LA. Structural Engineer/Diver for underwater/topside inspection of waterfront structures. Assisted in preparation of inspection report that included recommended repairs, structure load ratings, estimated remaining serviceable lives, and replacement alternatives with opinions of probable costs.

Berths 1-6, Dundalk Terminal, Port of Baltimore, MD. Structural Engineer who inspected selected sections at each berth to determine existing condition and deficiencies in the timber and steel pile-supported, timber relieving platform backed by a steel sheet pile bulkhead. (Steel piles supported wharf's crane rail.) Provided subsequent structural analysis to determine load capacity of structure and assisted preparation of design alternatives for pile repair/replacement.

Structural Inspection and Evaluation of Greenville Town Commons Esplanade, Greenville, NC. Project Manager for the topside and underwater dive investigation of the concrete sheet piles, tie-rods, existing weep holes, storm water drainage outfalls, handrails and utilities. Inspection included obtaining ultrasonic thickness measurements of the steel sheet piles to determine the extent of corrosion of the existing bulkhead. Inspection was supplemented by a concrete coring program and geotechnical exploration to determine the extent of undermining under the existing concrete slab. Moffatt & Nichol prepared a detailed condition assessment report with photographic documentation and recommended repair alternatives with figures and associated opinions of probable cost.

Structural Inspection/Evaluation of Screwpile Foundation, Thomas Point Light, MD. Project Manager/Structural Engineer/Diver for topside/underwater inspection of cast-iron screwpile foundation. Prepared inspection report evaluating foundation and identifying necessary repairs.

Underwater Inspection, Short-Term Wharf Repairs, USCG Harbor Facility, Corpus Christi, TX. Structural Engineer for underwater inspection of timber piles repaired using pile splices as well as other timber piles wrapped with plastic protective wrap. Prepared inspection report.

Underwater Inspection, Bellevue Front Range Structure, Delaware River, DE. Structural Engineer/Diver for underwater/subaerial inspection of this concrete superstructure/steel H-pile substructure platform supporting navigation range light to assess its condition.

Inspection/Evaluation of Pile Deterioration at Seagirt Marine Terminal, Baltimore, MD. Lead Structural Engineer/Diver who inspected and evaluated existing piles that were heavily deteriorated. Prepared inspection report and recommended alternative for repair.

Emergency Inspection of Collapsed Pier 7 at North Locust Point, Baltimore, MD. Structural Engineer/Diver who inspected a collapsed pier. Pier consisted of concrete ballasted deck supported on timber piles. Inspection involved delineating the extent of failure and evaluating the remainder of the existing structure.

Clinton Street Pier Inspection, Baltimore, MD. Structural Engineer/Diver who inspected a 100 year old timber pile support wharf supporting an existing asphalt paved street. Inspected timber piles, timber bulkhead, bent caps and stringer. Provided inspection report outline the findings from the investigation.

D. Resumes and Technical Qualifications

ANDREW R. STERN, E.I.T.
Diver / Engineer

EDUCATION:
B.S., Ocean Engineering, Florida Institute of Technology

EXPERIENCE:
Mr. Stern is experienced in a variety of coastal, ocean, and port projects both in the US and overseas involving vessel moorings, navigation improvement, port development, and shore protection. His experience includes dynamic simulation of moored vessel responses to waves, currents, and winds, simulation of vessel maneuvering in harbors and waterways, design of onshore and offshore vessel mooring systems. He has analyzed and designed mooring systems and navigation routes for terminals and port facilities worldwide. In addition, he is a certified diver and a member of Moffatt & Nichol's inspection staff of diver-engineers. Mr. Stern has completed the 120 Hours Commercial Dive Training and is a certified SCUBA, CPR, First Aid & DAN Oxygen Provider.

Brooklyn Marine Terminal, Piers 9a and 9b, Brooklyn, NY. Inspected piles at Piers 9A and 9B of the Brooklyn Marine Terminal using Level I and Level II inspection techniques. At Pier 9B, sections of sheetpile were visually inspected, as well as examined for section loss using an Ultrasonic Thickness Gauge.

ESSO Terminal, St. Georges Parish, Bermuda. Performed a post-incident inspection on each mooring dolphin structure as well as the center loading platform. Inspection involved checking the conditions of the piles, concrete caps, and evaluating the condition of the topside of the structures.

Poplar Island, Chesapeake Bay, MD. Performed a visual inspection of the toe armor stone placed for the closure of Cell 6 at Poplar Island. The toe armor stone consists of 2,000 lb rocks with a median size of 2.25 feet. The length of the closure work was 1000 feet. The scope of work included 100% visual inspection of the toe. Inspection assessed the quality of the stone placement, as well as looking for major areas or gaps where stone may be deficient.

Cove Point LNG Terminal, Dominion Cove, MD. Performed inspection of the following pile-supported structures (for a total of 98 piles):

- Breasting Dolphins (four steel pipe piles each): number 3, 7, 9 and 10 on each berth
- Mooring Dolphins (six-ten steel pipe piles each): number 1, 2, and 4 on each berth
- Ten Intermediate Walkway Supports

A 100% visual and approximately 10% hands-on inspection was completed on all steel pipe piles and concrete pipe piles from the pile cap to the mudline. Inspection involved cleaning the pile in the tidal zone, at mid-pile, and at the mudline, to detect signs of concealed deterioration. Performed boat operator duties for duration of job as well as diving.

Condition Survey, Philadelphia Regional Port Authority, Philadelphia, PA. Moffatt & Nichol conducted a topside and underwater inspection of assets owned by the Philadelphia Regional Port Authority (PRPA). The assets included steel and timber pile supported pier and wharf structures located along the Delaware River in Philadelphia. Mr. Stern participated in the underwater inspection effort which contributed necessary information to a strategic economic planning report Moffatt & Nichol provided for PRPA.

D. Resumes and Technical Qualifications

KATHY M. WALSH, P.E.
Senior Engineer

EDUCATION:
M.S., Civil Engineering, Manhattan College
B.S., Civil Engineering, Manhattan College

EXPERIENCE:
Ms. Walsh is a waterfront structural engineer who has served in a variety of planning and engineering roles for waterfront projects. 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. Walsh is proficient in STAAD/Pro and TERMSIM.

Paulus Hook Ferry Pier and Terminal, Jersey City, NJ. Staff Engineer for project involving waterfront elements of the $450 million Goldman Sachs supertower complex, which features the tallest building in the state. Engineering services provided by Moffatt & Nichol 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-square-foot 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.

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.

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 state and national code conformance.

East River Waterfront Esplanade and Piers Project, New York, NY. Project involved marine elements design development of a $130 million waterfront park along the East River. Project elements included the design development of a new pier, overwater walkway, and marina, along with the rehabilitation of various existing pier structures and bulkheads. As Structural Engineer, she performed structural modeling for a pile support deck platform connecting the shore to a new pier.

North Cove Marina, New York, NY. North Cove Marina is a private marina located in downtown Manhattan, adjacent to the Winter Garden. An adjacent ferry terminal is creating a wave environment within the marina basin that is unacceptable to the marina operator. Moffatt & Nichol was retained to model the existing wave conditions and provide conceptual design and opinions of probable cost for solutions to suppress the wave action within the basin. Ms. Walsh provided project management and structural engineering and cost estimating for several conceptual solutions.

D. Resumes and Technical Qualifications

BRIAN D. FORD
CADD Technician

EDUCATION:
Certificate, Mechanical Drafting, Wake Technical Community College

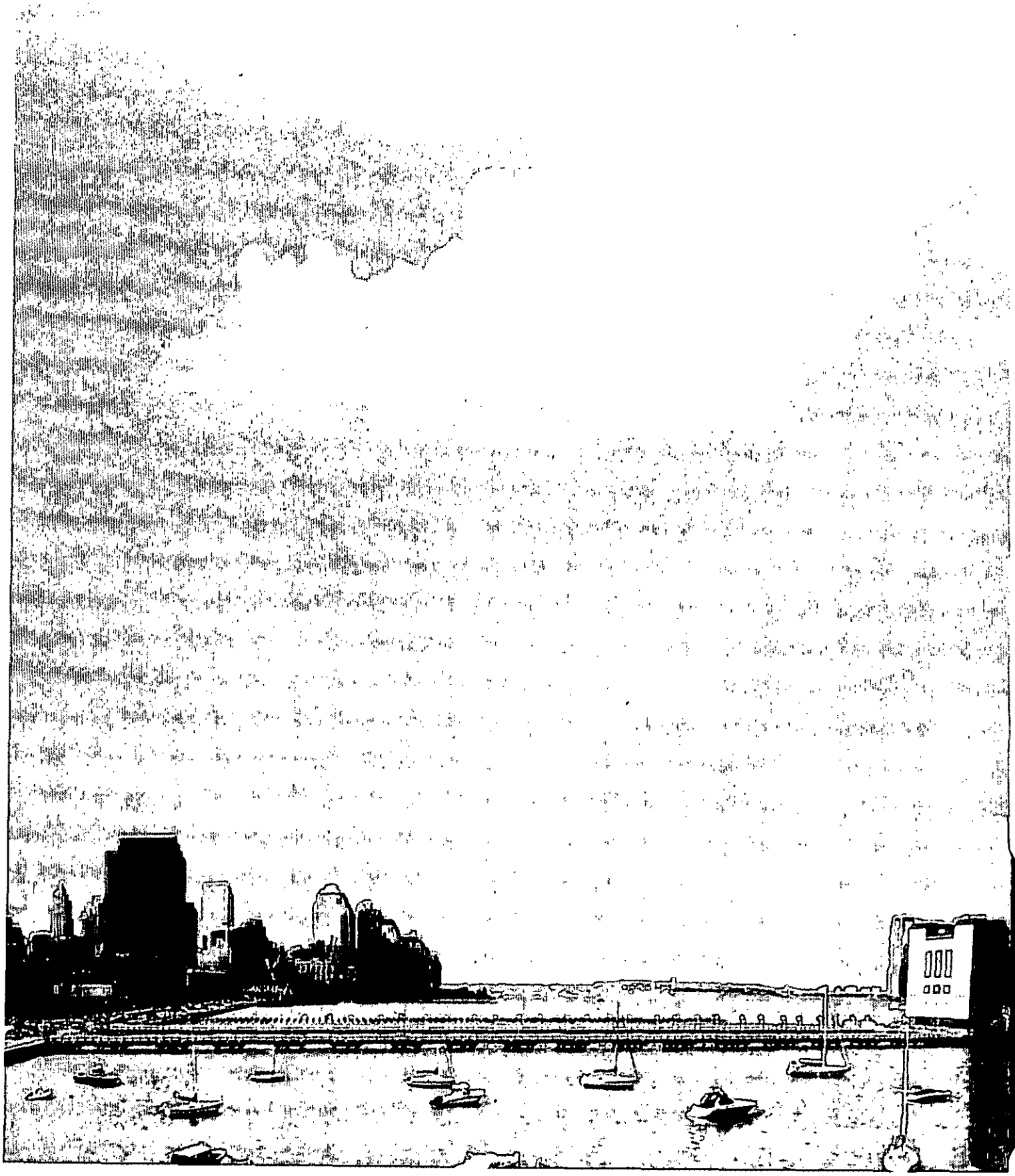
EXPERIENCE:
Mr. Ford has more than 15 years' experience as a designer and detailer for a variety of port projects involving civil and structural planning and engineering for port authorities located throughout the United States and around the world. He has provided project support services involving drawings, plans, estimates, and construction documents including digital terrain modeling, project layout and quantity determination. Typical port projects have involved waterfront structures, site/backland development, and coastal and environmental engineering and permit applications. Site and backland development aspects have included site layout, grading, pavements, parking, and roadway layout involving traffic staging and traffic control, utilities (water, sewer, stormwater, fuel, and communications), flood control, stormwater management, and drainage and erosion control. Representative experience includes:

Port Newark Container Terminal Development, NJ. Engineering Technician for site planning and design of a new container terminal that involved a multi-million dollar upgrade and consolidation of two 30-yr-old low-density container terminals into a single, 158-acre high-density terminal capable of handling beyond Post-Panamax vessels. Assisted design and provided detailing and construction drawings for site grading and drainage system. Drainage system utilized prefabricated trench drains with special drainage tops to allow utilization of existing manholes on trunk lines within the site and thereby reduce costs. System designed for 145,000 lb wheel loads.

Container Yard Improvements, Phase 2, APM Terminals, Elizabeth, NJ. Engineering Intern for site work associated with upgrade of this 70-acre container yard from wheeled chassis operation to a high-density, grounded container operation. Prepared quantities and drawings for preliminary/final container yard layouts, asphalt pavement sections for top loader operations, and reinforced concrete runways for RTG operation. Also assisted in preparation of site stormwater study and detailing/ construction document preparation for trench drain system to convey runoff to stormwater mainline.

Container Yard Improvements, Phase 3, APM Terminals, Elizabeth, NJ. Civil Designer for site work associated with upgrade of this 80-acre container yard (at a site adjacent to Phase 2) from wheeled chassis operation to a high-density, grounded container operation. Prepared quantities and drawings for container yard layouts, asphalt pavement sections for top loader operations, and reinforced concrete runways for RTG operation. Also assisted in preparation of site stormwater study and detailing/construction document preparation for trench drain system to convey runoff to stormwater mainline.

Berth 8 Replacement, Port of Wilmington, NC. Engineering Technician for planning, design, and construction document preparation for a replacement wharf that utilized two different superstructure designs supported by precast/prestressed concrete piles. Superstructure designs were: 1) precast concrete deck panel with cast-in-place topping slab supported by concrete bent caps and 2) two-way slab section. Also included existing wharf demolition and crane beams (50-ft and 100-ft-gauge), new fender system, mooring hardware, crane and railroad rail, hurricane tie-downs, and crane stops.



E. Proposed Staff

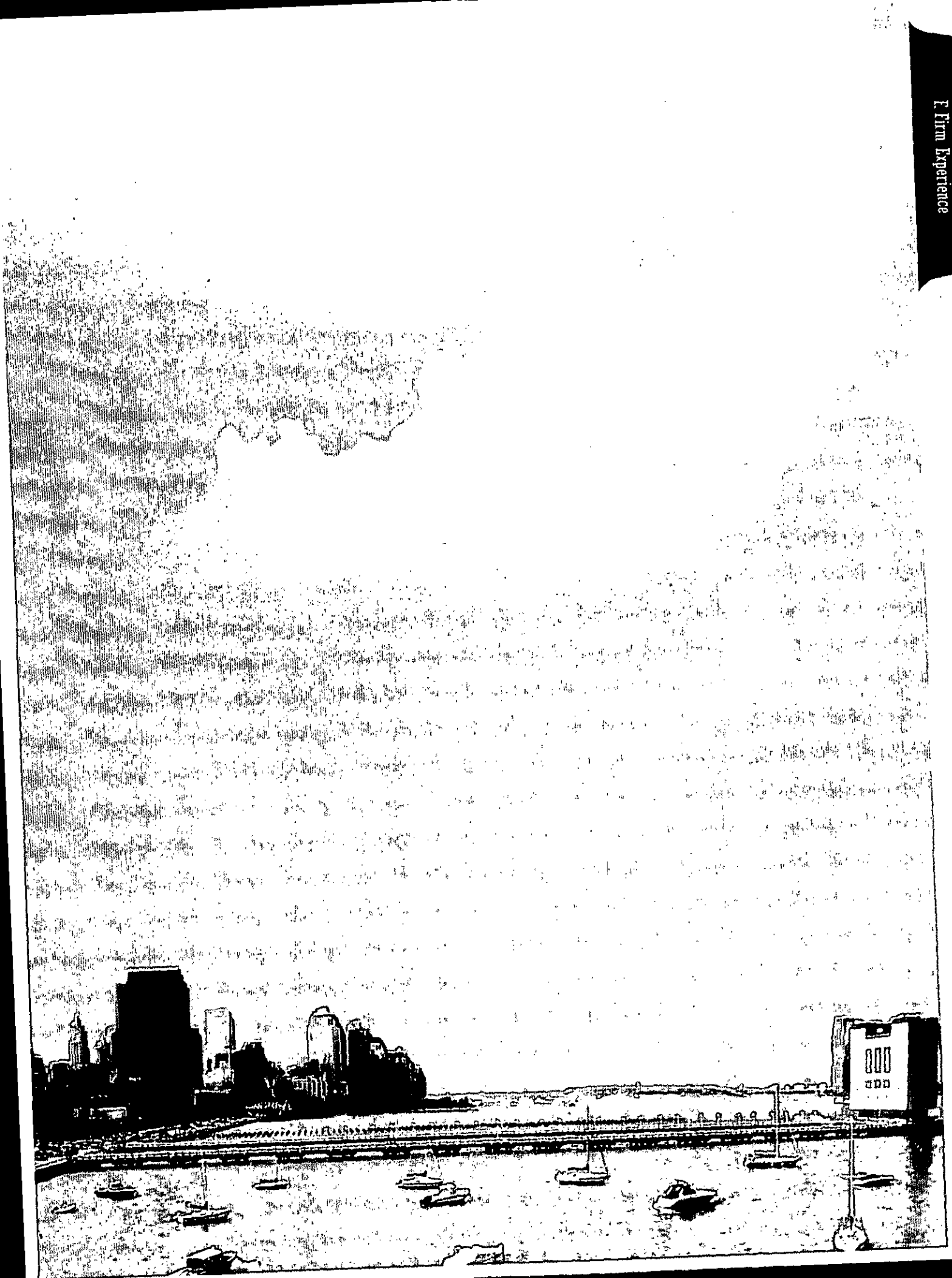
E. Proposed Staff

The following table summarizes proposal staff titles and hourly 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
William M. Shute, P.E.	Project Manager	$62.50
Santiago R. Alfageme	Principal-in-Charge	$215.00
Thomas E. Spencer, P.E.	Principal / Senior Diver	$215.00
Michael E. Breitenstein, P.E.	Senior Diver / Engineer	$65.50
Luben S. Walcheff, P.E.	Senior Diver / Engineer	$50.50
Eric D. Smith, P.E.	Diver / Engineer	$51.00
Jousha M. Hill, P.E.	Diver / Engineer	$32.50
Paul C. Sedesse, P.E.	Diver / Engineer	$36.00
Stephen R. Reuschle, P.E.	Diver / Engineer	$34.25
Patrick R. Graney, P.E.	Diver / Engineer	$52.50
Andrew R. Stern, E.I.T.	Diver / Engineer	$31.25
Kathy M. Walsh, P.E.	Senior Engineer	$45.50
Brian D. Ford	CADD Technician	$31.50
Yelena Chibisova	CADD Technician	$31.30

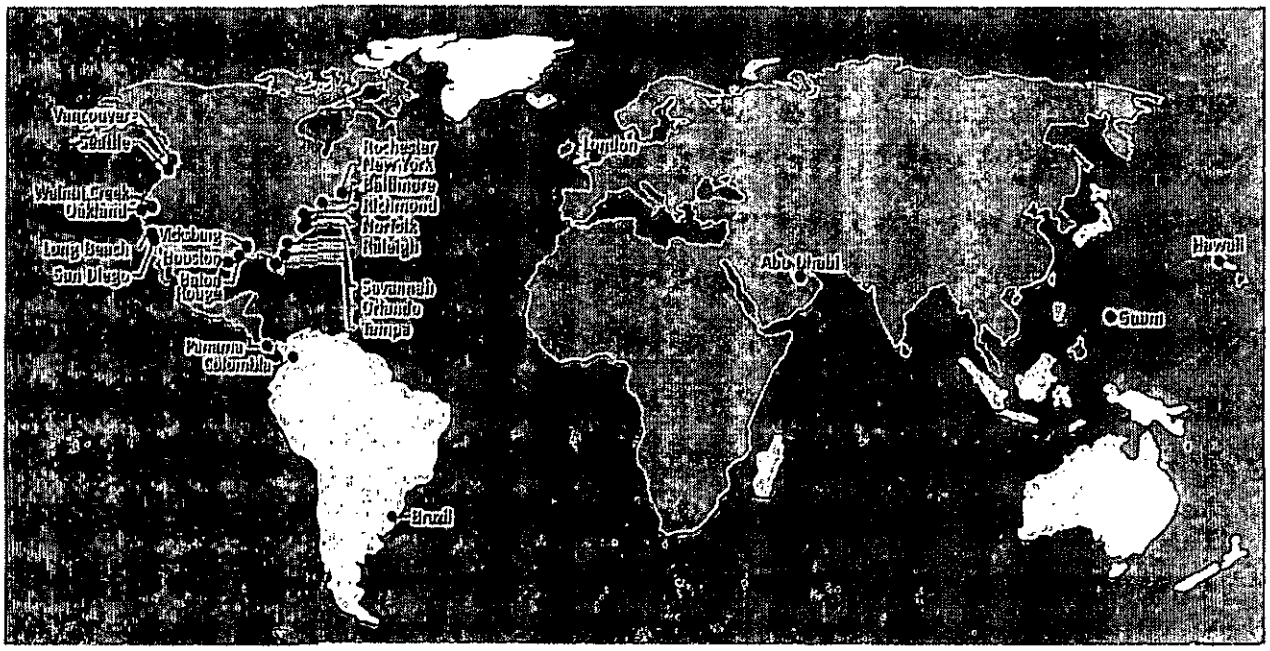
Principal rates are shown as billing rates. Overhead and profit is at 178% for all other staff.

A normal working schedule for regular full-time employees consists of 40 hours each work week. Moffatt & Nichol follows the provisions of the Federal FLSA, in accordance with the provisions of state and federal law. Overtime is calculated on a weekly basis for hours worked over forty. Only those employees classified as non-exempt are entitled to overtime compensation.



F. 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. Moffatt & Nichol was founded in 1945 in Southern California and has grown to 26 offices around the world, including *a local office in New York, New York.*



Moffatt & Nichol is one of the fastest growing engineering firms in the U.S. and ranks among the 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,* endowed by Moffatt & Nichol in 1977, 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 condition survey services for these same structures. The ability to perform above- and underwater inspection on marine structures is a crucial part of Moffatt & Nichol's core business practice. *These underwater inspections are conducted by the same professional engineers that prepare the inspection reports and, in many cases, the detailed repair plans and specifications.* These engineer-divers provide valuable insight into structure performance and behavior.

F. Firm Experience

Moffatt & Nichol 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.* Moffatt & Nichol's waterfront inspection and engineering experience includes over 2,500 projects.

Diving Qualifications, Training, and Certifications

The Moffatt & Nichol 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. Moffatt & Nichol'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. Moffatt & Nichol 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 Moffatt & Nichol to properly train its' less experienced members, and 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.

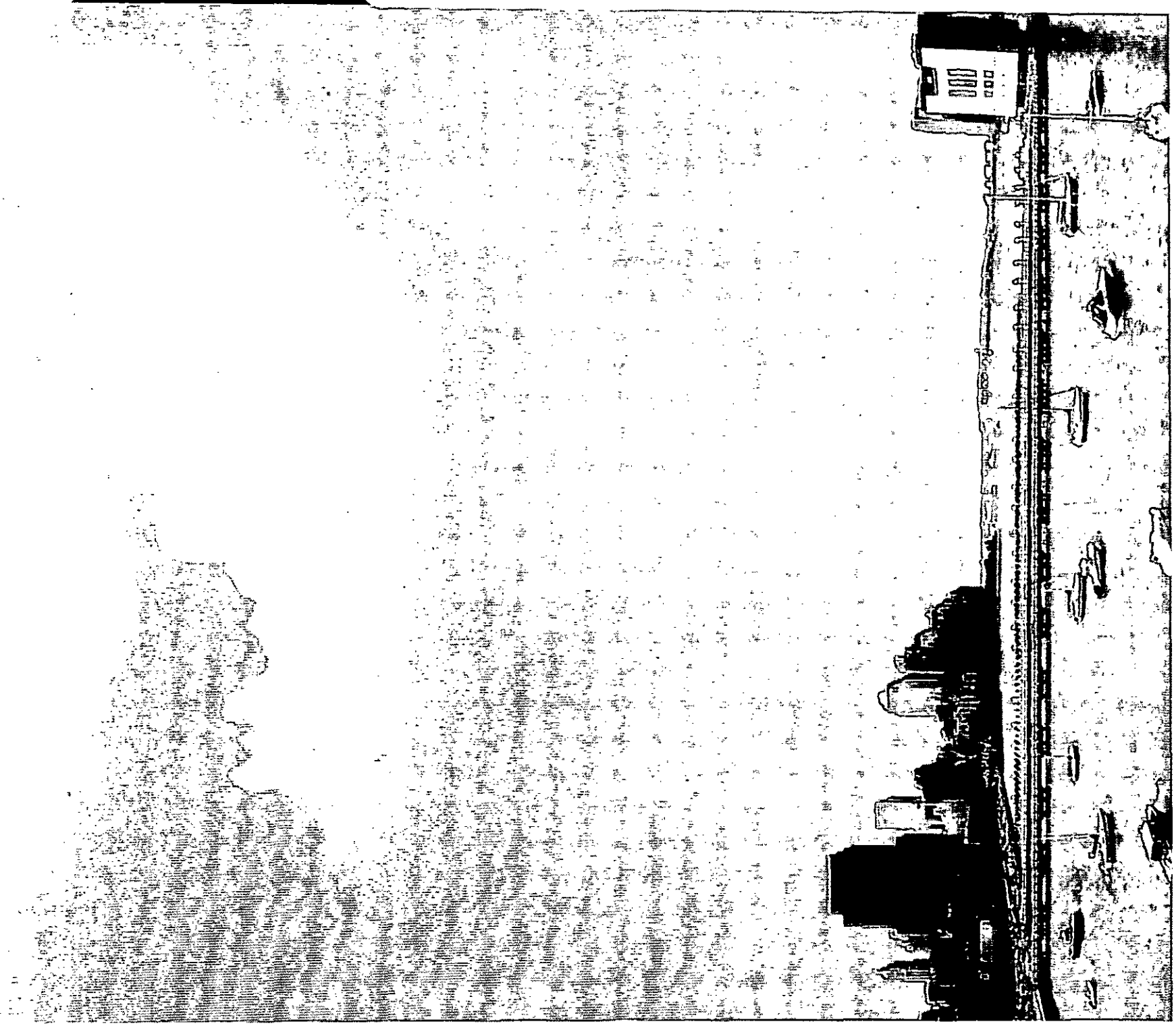
Moffatt & Nichol has extensive experience in underwater inspection as mentioned above. The table on the following pages provides a partial list of inspection projects Moffatt & Nichol has completed in the past three (3) years, and offers insight into the depth and breadth of experience offered by the Moffatt & Nichol team:

F. Firm Experience

Project	Location	Owner Contact	Description	On Time	In Budget
Inspection of Wharfs A, B, and B Extension	Brooklyn, NY	C.C. Lin, P.E. PANYNJ (973) 792-3940	Timber and Steel Piles, Concrete Extensions, Prestressed Concrete Girders, Concrete Deck	Yes	Yes
JFK Outfalls Nos. 10 and 12 – Conditional Assessment	Queens, NY	Steven Vecchione, P.E. PANYNJ (973) 792-3997	Concrete culverts	Yes	Yes
Holland Tunnel Pier 34 – Conditional Assessment	New York, NY	Camille Dagher, P.E. PANYNJ (973) 792-3958	Steel piles, Precast Concrete Caps, Concrete Deck	Yes	Yes
NYMT Piers 8 and 11 – Conditional Assessment	Brooklyn, NY	C.C. Lin, PE PANYNJ (973) 792-3900	Timber Piles, Concrete Extensions, Concrete Deck, Steel Sheet Pile, Steel Piles	Yes	Yes
MOTBY – Immediate Action Assessment	Bayonne, NJ	C.C. Lin PANYNJ (973) 792-3940	Timber Piles, Timber Caps, Low Level Relieving Platform	Yes	Yes
MOTBY – Baseline Condition Assessment	Bayonne, NJ	C.C. Lin PANYNJ (973) 792-3940	Timber Piles, Timber Caps, Low Level Relieving Platform, Concrete encased steel piles, Precast Concrete Bridges, Steel H Piles	Yes	Yes
NYMT Pier 12 and Bulkhead – Conditional Assessment	Brooklyn, NY	C.C Lin PANYNJ (973) 792-3940	Timber Piles, Concrete Extensions, Concrete Deck, Steel Sheet Pile, Steel Piles	Yes	Yes
JFK Culvert Inspection	Queens, NY	Steven Vecchione PANYNJ (973) 732-3997	Concrete culverts	Yes	Yes

F. Firm Experience

Project	Location	Owner Contact	Description	On Time	In Budget
Battery Maritime Building Ferry Pier Inspection	Manhattan, NY	Alex Rau Turner Construction (718) 630-2447	Steel floats and piles	Yes	Yes
Heavy Marine Structural Engineering for Quonset Business	North Kingstown, RI	Evan Matthews Quonset Development Corporation (401) 295-0044	Steel sheet pile, concrete, fender system	Yes	Yes
Pier 11 Platform Replacement	New York, NY	Kevin Chase Turner Construction Co. (718) 630-2449	Concrete encased timber piles, concrete deck slab, steel sheetpile bulkhead	Yes	Yes
Waterfront Facilities Inspection (WFI) Puget Sound Naval Shipyard	Bremerton, WA	Shawn Lindmark, P.E. NAVFAC ESC (202) 433-5480	Revetments, wharves, piers, bulkheads, fender systems, dry docks	Yes	Yes
WFI Naval Base Point Loma/Naval Base Coronado	San Diego, CA	Shawn Lindmark, P.E. NAVFAC ESC (202) 433-5480	Revetments, marginal wharves, piers, bulkheads, fender systems	Yes	Yes
WFI Naval Magazine, Lualualei	Pearl Harbor, HI	Shawn Lindmark, P.E. NAVFAC ESC (202) 433-5480	Revetment, marginal wharf, bulkhead, fender systems	Yes	Yes
WFI Victor Wharf	Apra Harbor, Guam	Eric Funasaki NAVFAC Pacific (808) 472-12773	Steel sheet pile bulkhead, fendering systems, mooring	Yes	Yes
Sumay Cove Waterfront Facilities Repair and Modernization	Naval Base, Guam	Chris Halpin NAVFAC Marianas (671) 333-3184	Steel sheet piling	Yes	Yes
ID/IQ Underwater Inspection and Engineering Services	Norfolk, VA	Chuck Joyner, P.E. City of Norfolk (757) 664-4648	Timber, steel, & concrete piles, steel, timber & concrete bulkheads, and concrete decks	Yes	Yes



G. Management Approach

Providing the Port Authority of New York and New Jersey (PANYNJ) with a comprehensive approach to managing projects, will ensure that Moffatt & Nichol provides the PANYNJ with the *highest levels of quality and responsiveness for their waterfront facility condition survey projects.* Moffatt & Nichol'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 Moffatt & Nichol team allows us the flexibility to provide the highest level of service for work assigned to us for this contract.

Moffatt & Nichol 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 to present.* 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 D, the Moffatt & Nichol management team proposed for this contract consists of Mr. Santiago Alfageme (Principal-in-Charge), and Mr. William Shute (Project Manager). Thomas Spencer (Principal / Senior Diver) will 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 Piers 9A, 9B 10, 11 and 12 at New York Marine Terminal in Red Hook; the ILS Piers at LaGuardia Airport; Pier 34 along Manhattan's Hudson River coastline; various culverts at JFK airport; and, multiple structures at Port Jersey South in Bayonne, NJ. 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 the 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

G. Management Approach

Key to our management approach is open communication, both between the project team and the PANYNJ, as well as within the Moffatt & Nichol team. We pride ourselves in being responsive to client needs and developing interactive planning processes that allows us to work with clients to move quickly and efficiently towards advanced "win-win" solutions that address even the most difficult facility condition survey and engineering issues.

To best satisfy the requirements of the PANYNJ Engineering Department, Moffatt & Nichol 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 Moffatt & Nichol 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

Moffatt & Nichol 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, Moffatt & Nichol will provide the PANYNJ with various other updates during the project duration. For example, during the field inspection portion of the project, Moffatt & Nichol 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, Moffatt & Nichol 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 Moffatt & Nichol's previous waterfront inspection experience with PANYNJ, we have a keen understanding of the requirements of this contract. Moreover, Moffatt & Nichol'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 for the preparation of the report.

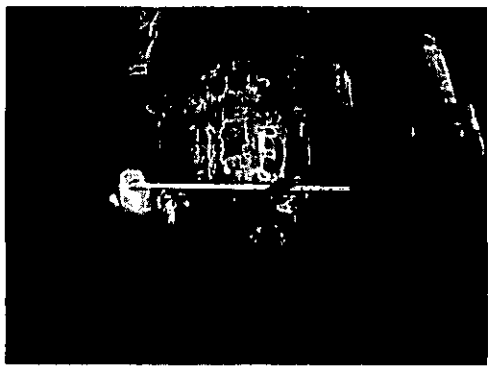
Approach to Performing Waterfront Inspections

Moffatt & Nichol's waterfront inspection engineers are also trained and experienced divers. The professional staff of Moffatt & Nichol 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.

Along with ensuring that we are placing technically qualified engineering divers in the water, Moffatt & Nichol emphasizes that all operations are completed in a safe and secure manner. All of Moffatt & Nichol'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.

G. Management Approach

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 that have no plans available, all appropriate substructure dimensions will be documented and scale drawings will be provided in the report.*

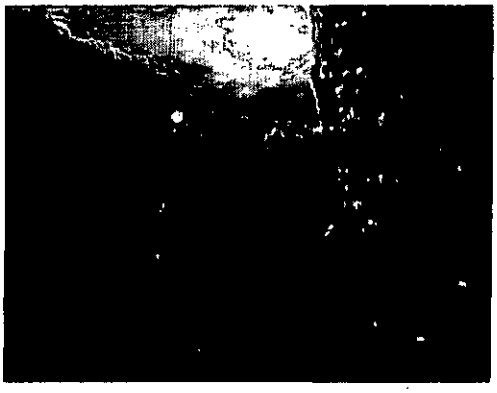
Inspection Reports. Any underwater inspection conducted by Moffatt & Nichol results in *a thorough technical Condition Assessment Report of the inspection results including photographs or diagrams of areas of deterioration, evaluation of conditions encountered, structure element condition data and sounding 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, Moffatt & Nichol 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, Moffatt & Nichol 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.

G. Management Approach

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

Moffatt & Nichol 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 individual. As mentioned in the introduction, Moffatt & Nichol 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 Moffatt & Nichol offices throughout the country are working on multiple waterfront projects. Because of this, Moffatt & Nichol 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 Moffatt & Nichol 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 Moffatt & Nichol team will conduct underwater inspections for PANYNJ as described above. *Moffatt & Nichol 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

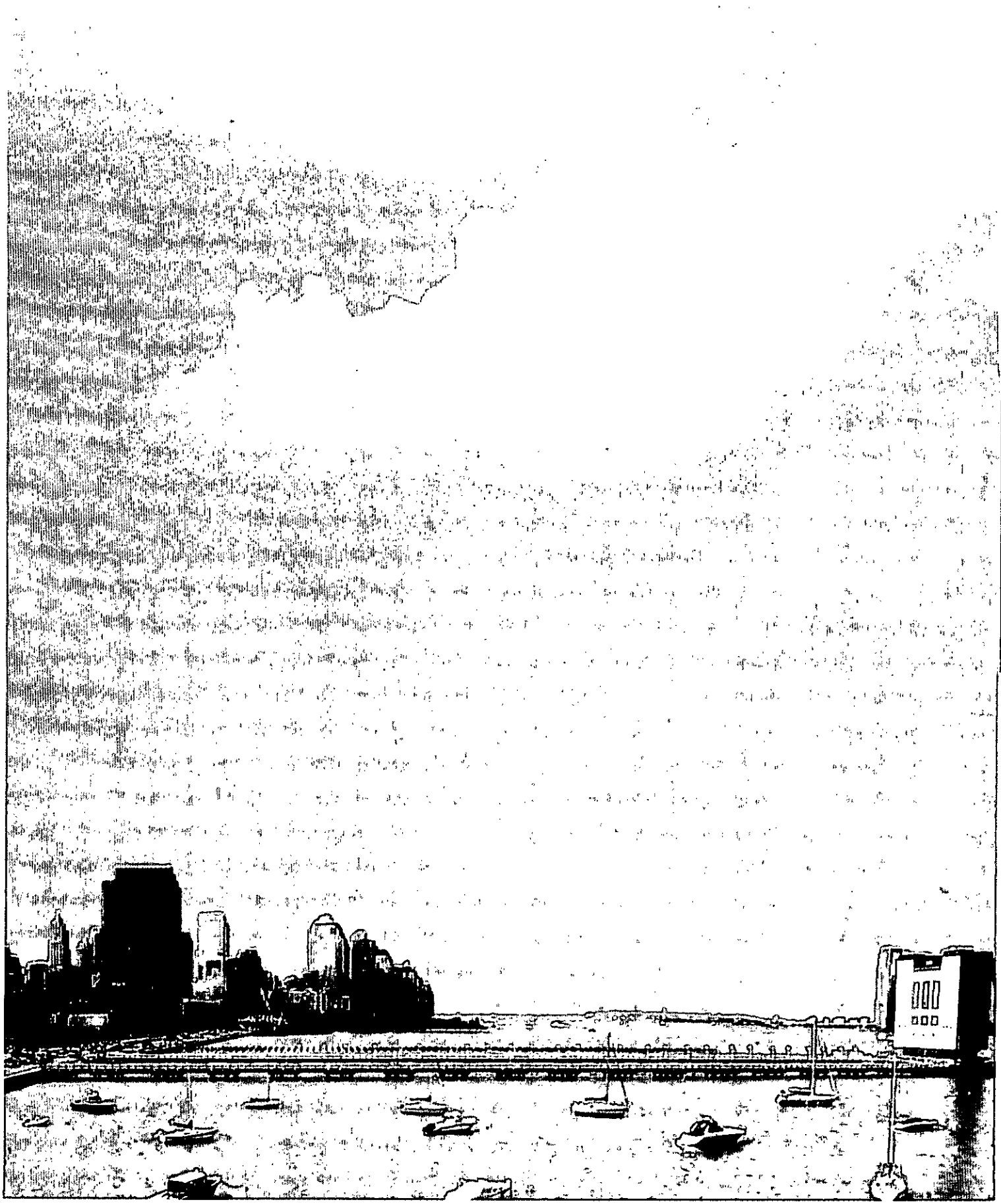
Moffatt & Nichol is often called upon to respond quickly to the needs of our clients and we are highly adept at mobilizing quickly to project sites. For example, Moffatt & Nichol was asked to conduct emergency inspection of ship-collision damage experienced at the U.S. Coast Guard's Ambrose light tower 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

G. Management Approach

Inspection contract for the City of Norfolk, Virginia. Moffatt & Nichol conducted an inspection of a sinkhole adjacent to a waterfront promenade at Town Point Park. Moffatt & Nichol received the call from the City in the morning, concerned that the sinkhole might cause injury to pedestrians visiting the park. Moffatt & Nichol 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.

Availability and Responsiveness of Key Staff

Moffatt & Nichol 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 Moffatt & Nichol team outlined in this submittal are seven divers who qualify as Dive Team Leaders along with three additional engineer-divers, all of which have experience in the local market. Additionally, Moffatt & Nichol employs over 20 additional Registered Professional Engineer Divers available, as necessary, to field additional Dive Teams.



H. Affiliates

The following companies are affiliates of Moffatt & Nichol:

Moffatt & Nichol, International
3780 Kilroy Airport Way, Suite 750
Long Beach, California 90806
Tel: (562) 590-6500

Moffatt & Nichol, Latin America, Inc.
Ocean Business Centre, Oficina 1204
Ave Aquilino de la Guardia y Calle 47
Republica de Panamá
Tel: + 407-301-0901

Moffatt & Nichol Engineering, P.C.
104 West 40th Street, 14th Floor
New York, New York 10018
Tel: (212) 768-7454

Craney Island Design Partners, LLC
800 World Trade Center
Norfolk, Virginia 23510
Tel: (757) 628-8222

Moffatt & Nichol, London
5 St. Helen's Place
Bishopsgate
London EC3A 6AU, United Kingdom
Tel: + 44 20 7036 0440

Wetland and Estuary Tides, LLC
P.O Box 3493
Norfolk, Virginia 23510
Tel: (757) 629-9259

I. Quality Control/Assurance Plan

The Quality Plan is the foundation of the Moffatt & Nichol 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, *Moffatt & Nichol 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.

Moffatt & Nichol 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 Moffatt & Nichol, 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 Moffatt & Nichol 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, Moffatt & Nichol 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.

Moffatt & Nichol'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,

I. Quality Control/Assurance Plan

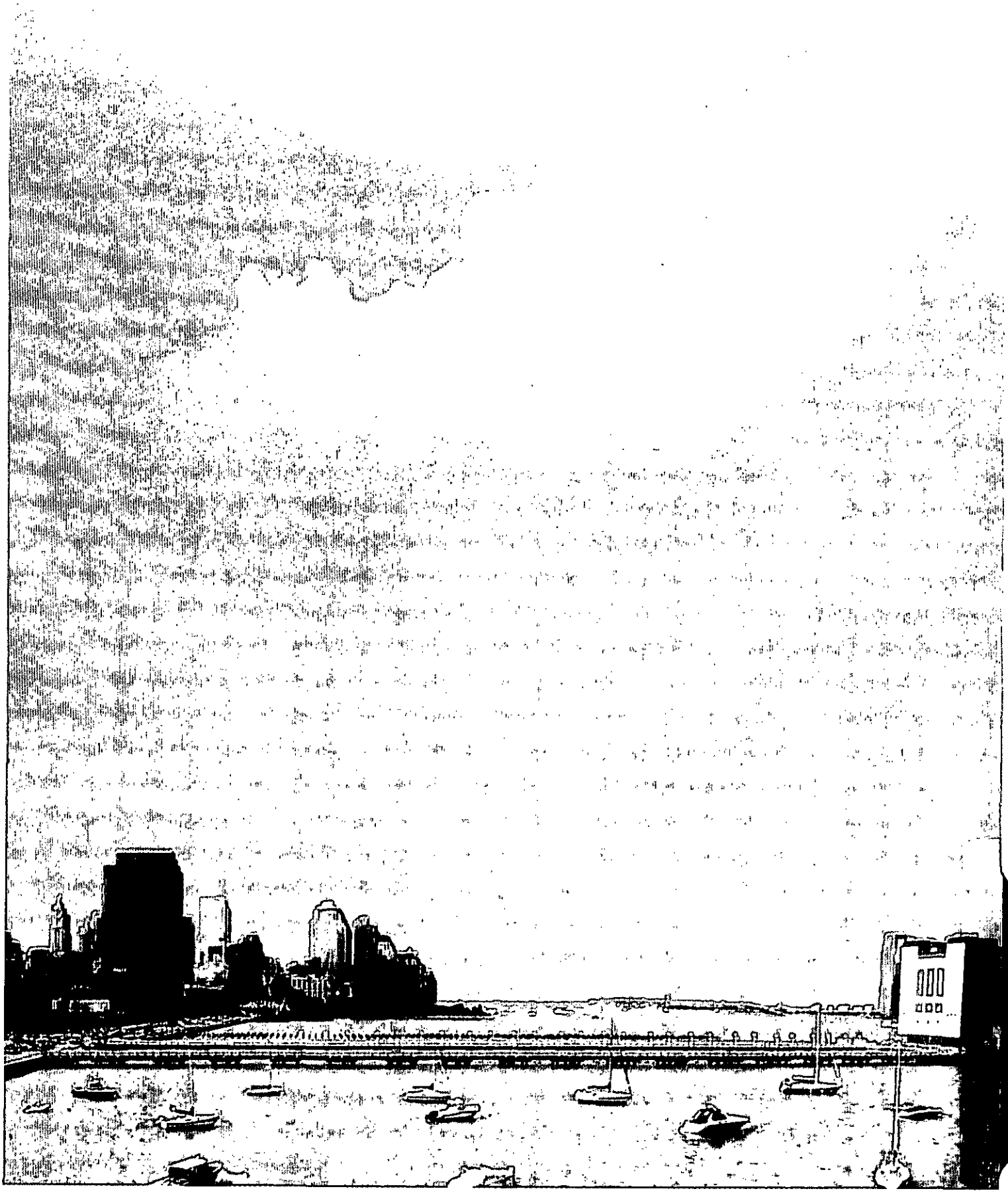
- Documentation of Quality Assurance/Quality Control activities,
- Conformance to prevailing industry standards,
- Responsiveness to client requirements, and
- Continuous improvement.

Quality at Moffatt & Nichol 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 Moffatt & Nichol Quality System requires Line Managers and Project Managers to 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.*

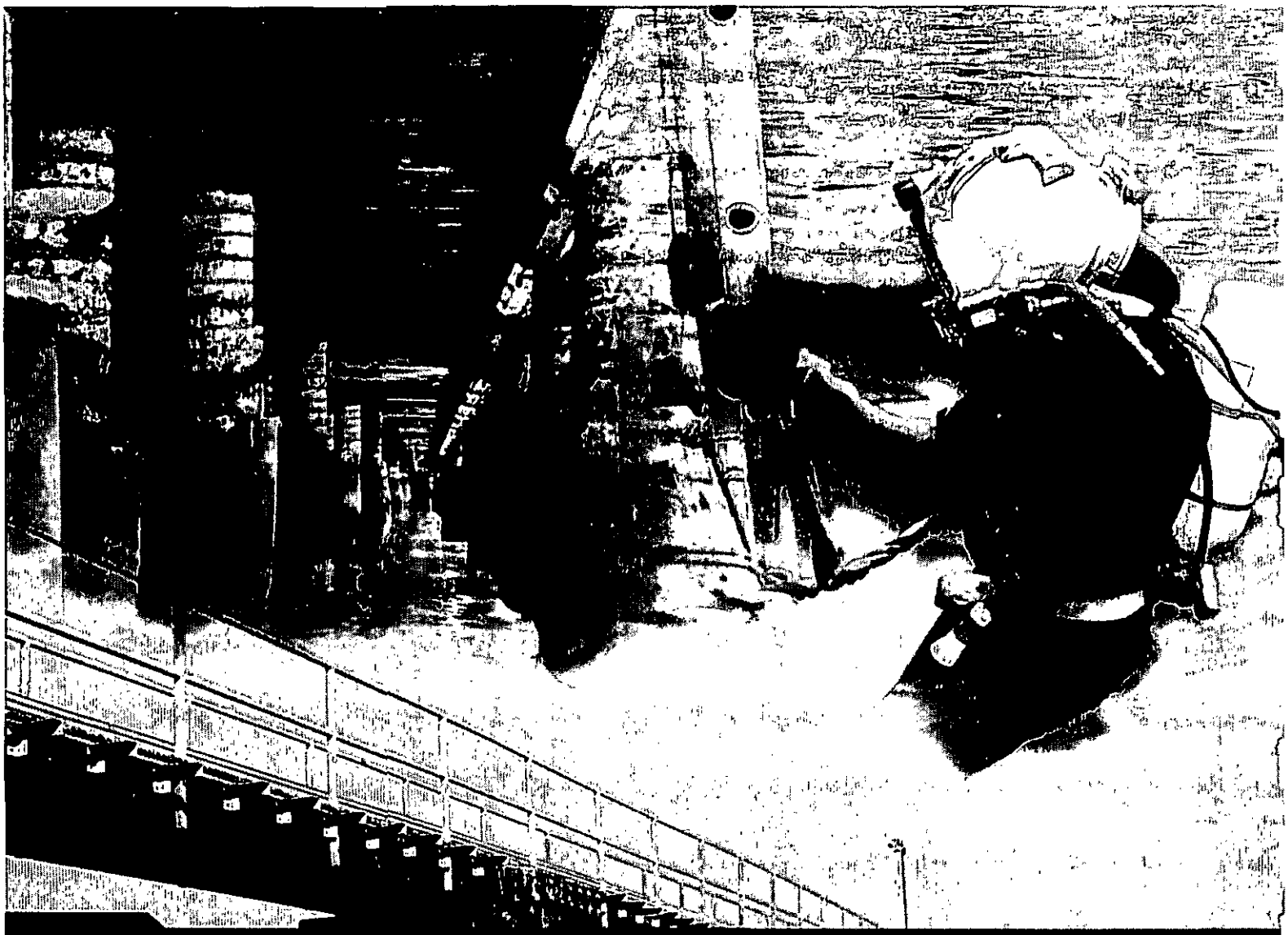
If selected, a copy of Moffatt & Nichol's Quality Manual is available upon request.



J. Conflict of Interest

J. Conflict of Interest

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



moffatt & nichol

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ork, NY 10018
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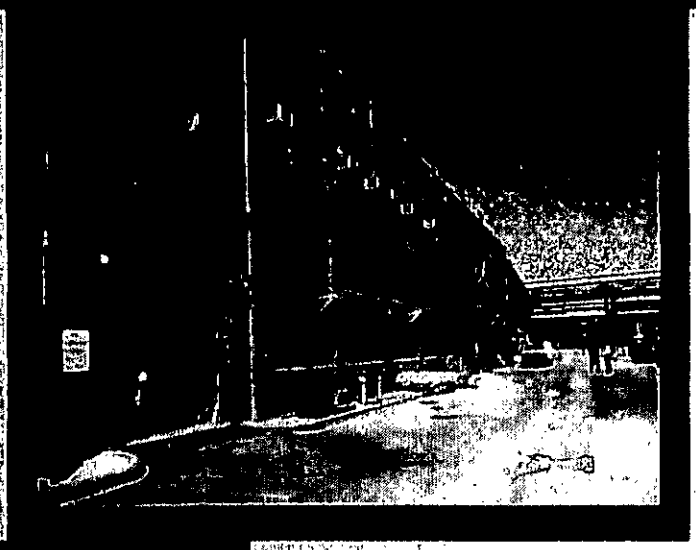
THE PORT AUTHORITY OF NY & NJ



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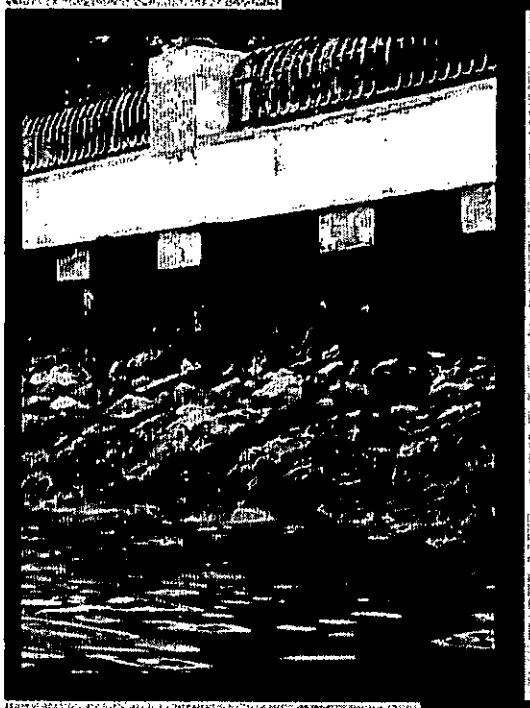
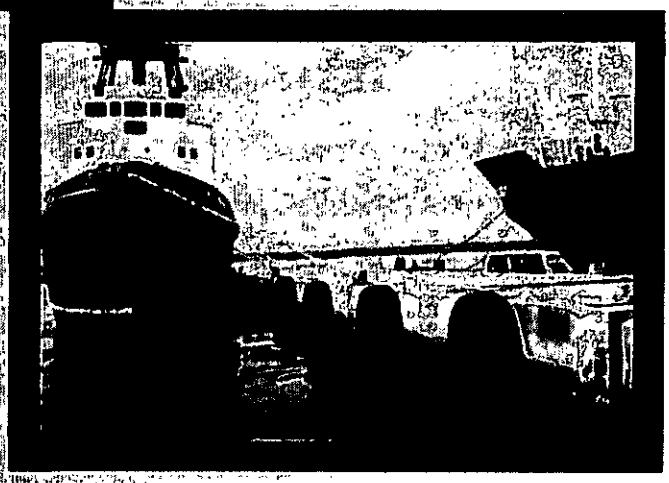


Response to RFP #26350
Performance of Expert Professional

Facility Condition Surveys for Waterfront Facilities As Requested on a "Call-In" Basis During 2012

October 14, 2011, 2:00 PM



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
applied ingenuity

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

October 13, 2011

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

Attn: RFP Custodian

Re: Performance of Expert Professional Facility Condition Surveys for Waterfront Facilities as Requested on a "Call-In" Basis During 2012, RFP #26350; McLaren File No. 111610

To Whom it May Concern:

M. G. McLaren, P.C. (McLaren) is pleased to submit one (1) reproducible original and three (3) copies, along with four (4) compact disc copies of our proposal to provide Expert Professional Facility Condition Survey Services for Waterfront Facilities as requested on a Call-In Basis during 2012. 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 and repair designs.

Key McLaren Attributes:

- ✓ ***Thirty-four Years of Waterfront Facilities Engineering Excellence...*** McLaren possesses a 34-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.
- ✓ ***Full-Service Engineering...*** With seven full-fledged technical divisions, McLaren can cover almost all aspects of major facility development projects. We have a long history of combining marine and structural engineering with survey services for the inspection, assessment and design of all types of structures, a history that is substantiated by our extensive experience portfolio as described herein.
- ✓ ***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.

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

Offices: New York, Maryland, Florida, Connecticut, California

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New Hampshire • New Jersey• New Mexico • New York • North Carolina • Ohio • Oklahoma • Oregon • Pennsylvania • Rhode Island
South Carolina• Tennessee•Texas•Trinidad & Tobago•Utah•USVI•Vermont•Virginia • Washington •West Virginia • Wisconsin • Wyoming

- ✓ ***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 in the greater New York metropolitan 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 participation goals.

Our proposal is based on our thorough review of the RFP. We structured it in accordance with the RFP order requirements to facilitate your review and upon receipt, 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.

Very truly yours,

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

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

Enclosures
cc: File 111610, MGM, WJM, SDF – Internal

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SECTION A
Attachment B

ATTACHMENT B

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or 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 Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information 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 this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to 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 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 Policy and Procedure adopted by the Port Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/corporate-information/freedom-of-information.cfm* , not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

McLaren Engineering Group
(Company)

(Signature)

Director of Business Development
(Title)

October 10, 2011
(Date)

SECTION B
Attachment C

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

1. Company Name (print or type):

   M.G. McLaren P.C. dba McLaren Engineering Group

2. Business Address (to receive mail for this RFP):

   100 Snake Hill Road

   West Nyack, NY 10994

3. Business Telephone Number: 845-353-6400

4. Business Fax Number: 845-353-6509

5. Firm website: http://www.mgmclaren.com/

6. Federal Employer Identification Number (EIN): Ex.1

7. Date (MM/DD/YYYY) Firm was Established: 2 / 1 /1977

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

Highland Equipment Rental, P.O. Box 60, West Nyack, NY 10994, EIN: Ex.1

LandMetrics Engineering & Land Surveying, 100 Snake Hill Rd., W. Nyack,NY 10994, EIN: Ex.1

9. Officer or Principal of Firm and Title:

   Malcolm G. McLaren/President & CEO

10. Name, telephone number, and email address of contact for questions:
    William J. McCarthy III

    Tel: 845-353-6400 x354/ E-mail: wmccarthy@mgmclaren.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

    If yes, please attach **Port Authority** certification as a part of this profile.

    If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

SECTION C
Multiplier

Section C
Multiplier Breakdown

McLaren's multiplier and its breakdown is as follows:

M.G. McLaren, P.C. Proposed Multiplier

Payroll	1.00
Overhead & Fringe Benefit	1.473 *
Subtotal	2.473
Profit (10%)	0.247
Audited Multiplier	2.72
Multiplier Proposed For This Assignment	**2.72**

***2010 CONR-385 Multiplier Summary in accordance with FAR Part 31**

Distribution of Field and Office Expenses

1. Direct Labor	**Amount**	**Percent**	**Total**
Office Engineering	$4,698,002	100%	$4,698,002
Field Engineering		0%	
Total	$4,698,002	0%	$4,698,002

2. Indirect Cost	**Total**	**Field**	**Office**	**Non-Attributable**
Indirect Technical Payroll	$ 863,157		$ 801,355	$ 61,802
Administrative & Executive Payroll	$1,905,012			$ 1,905,012
Other Indirect Payroll	$1,153,571			$ 1, 153,571
Payroll Taxes, Insurance & Fringes	$1,623,650		$1, 187,927	$ 435,723
Occupancy & Other Fixed Assets	$1,072,803		$ 784,905	$ 287,898
Computer / CADD	$ 99,254		$ 72,618	$ 26,636
Blueprinting / Reproduction				
Other Allowable Expenses	$ 666,951			$ 666,951
Less: Excess Bonus	$ (420,000)			$ (420,000)
Excess Compensation	$ (44,784)			$ (44,784)
Subtotal	$6,919,614		$2,846,805	$ (4,072,809)
Distribution of Non-Attributable			$4,072,809	$ (4,072,809)
Total Allowable Indirect Cost	$6,919,614		$6,919,614	
3. Overhead Cost Rate (#2/#1*100)	**147.3%**		**147.3%**	

The above multiplier breakdown does include all expenses (as delineated in the RFP), with the exception of *certain specialty equipment (e.g. dive boats and vans) that are used only on specific type projects.*

McLaren ENGINEERING GROUP

SECTION D
Resumes & 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.

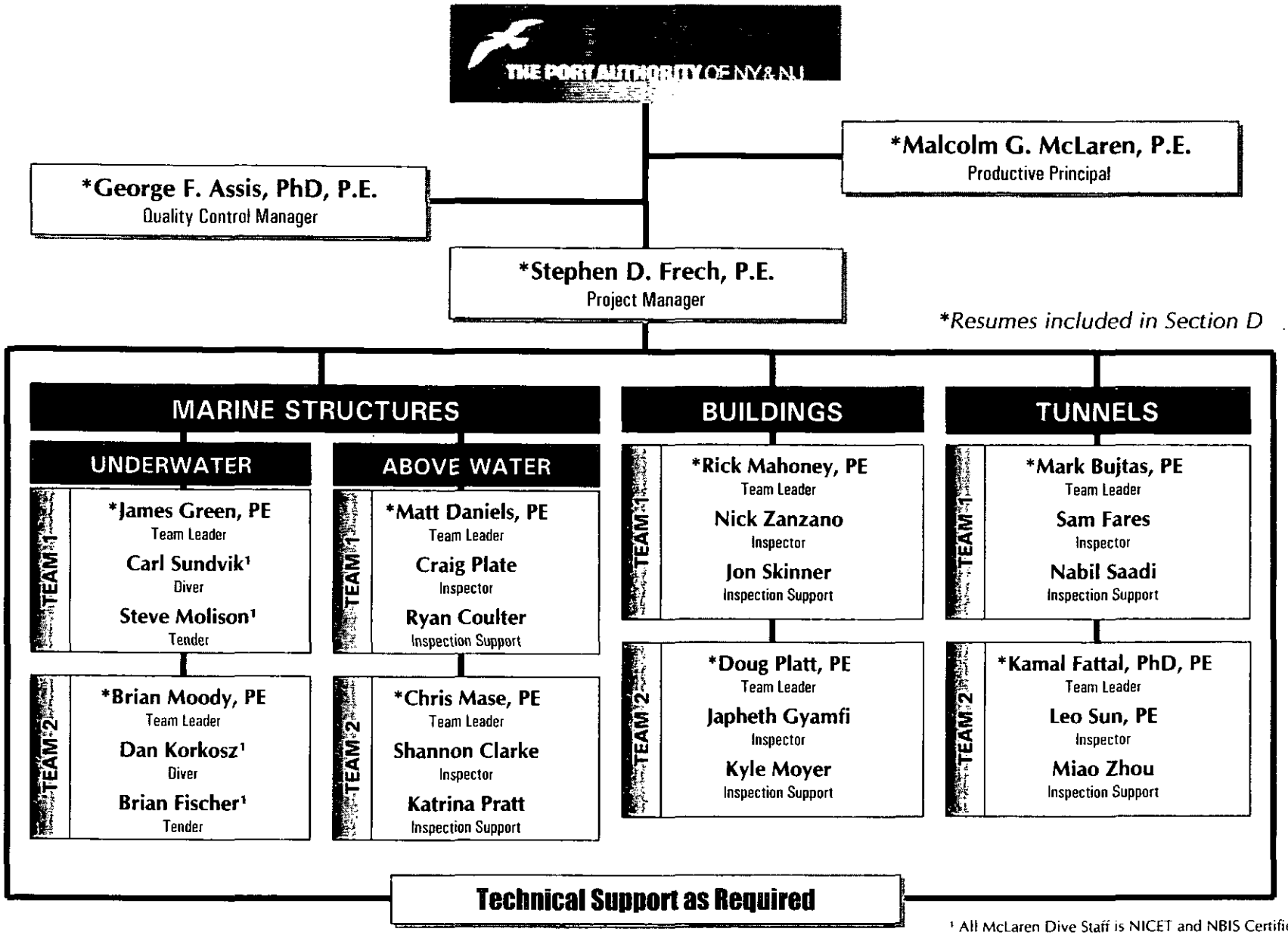
Because McLaren retains its own forces for site investigations, it can easily and rapidly commit those forces, as frequently as may be necessary, to properly address the Port Authority's requirements over the course of this "call-in" agreement. McLaren can, and has, responded to emergency situations 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 2012* is provided in Figure D-1, while a full Staff Availability chart can be found in Figure D-2.



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

Figure D-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	George F. Assis, PhD, PE
Project Manager	Stephen D. Frech, 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/ Craig Plate/ Ryan Coulter
Above Water Team 2	Chris Mase, PE/ Shannon Clarke/ Katrina Pratt
Buildings	
Team 1	Rick Mahoney, PE/ Nick Zanzano/ Jon Skinner
Team 2	Doug Platt, PE/ Japheth Gyamfi/ Kyle Moyer
Tunnels	
Team 1	Kamal Fattal, PhD, PE/ Sam Fares/ Nabil Saadi
Team 2	Mark Bujtas, PE/ Leo Sun, PE/ Miao Zhou
Surveyors	
Survey Crew	Donald Viele, PLS/ Christopher Manzi/ Dewey Tyler
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
Robert F. Oleck Jr., Ph.D, PE	Ph.D. Civil Engineering, Syracuse University, NY; M.S. Architectural Engineering, PennState
Nathan Shuman, PE	B.S., Architectural Engineering, Pennsylvania State University
David McLaren, PE	B.S. Civil Engineering, University of Maryland
Nick Zanzano	B.S. Civil Engineering, Farleigh Dickinson University
Gang Xuan, PE, LEED AP	M.S. Structural Engineering, Universary of Cinncinatti; B.S. Civil Engineering, Tongji University
Kyle Moyer	B.S. Civil Engineering, Pennsylvania State University
Mark Cunningham	B.S. Civil Engineering, Pennsylvania State University
Douglas Herrit	B.S., Civil Engineering, Pennsylvania State University
Bill Gorlin, PE	M.Eng. & B.S. Civil Engineering, Cornell University, NY
Jeremy Billig, PE	M.S. & B.S., Structural Engineering, Cornell University, NY
Fred Smith	B.S. Mechanical Engineering, NJIT; B.A. Liberal Studies, Iowa State University
Curtis P. Nordin, EIT	M.S. Civil Engineering, University of Tennessee; B.S. Civil Engineering, University of Alaska
Andrew Habel, PE	B.S. Civil Engineering, University of Alabama; Huntsville, Alabama
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
Andrea Shuman, PE	B.S., Architectural Engineering, Pennsylvania State University
Dominic DeSantis, EIT	B.S., Civil Engineering, Manhattan College
Christopher Mase, PE	B.S., Civil Engineering, University of Delaware
Miao Zhou	M.S. Civil Engineering, Rensselaer Polytechnic; B.S., Civil Eng, Tongji University
Jon Skinner	B.S. Civil Engineering, Arkansas State University
Site/ Civil Engineers	
Steven Grogg, PE	B.S, Civil Engineering, University of Maryland
Lamberto Santos, PE	B.S. Civil Engineering; B.S., Sanitary Eng. Mapua Institute of Technology
Pete V. Mellits, P.E., LEED AP	B.S. Civil Engineering Technology, Old Dominion University, VA ; Fire Officer IV Certification
Thomas Crawley, PE	B.S. Civil Engineering Technology, Bucknell University, PA
Ana Gallardo	M.S. Environmental Engineering, Georgia Institute of Technology
Luke Daur, EIT, LEED AP	B.S. Civil Eng. Manhattan College; US Navy Civil Engineering Corp Training
Alison Scott, EIT	B.S. Civil Engineering Technology, Central Connecticut State University
Chris Leung, EIT, LEED AP	B.S. Civil Engineering, Ryerson Polytechnic University, Toronto, Ontario, Canada
Stephen Zaskey	B.S. Civil Engineering, University of New Hampshire
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, NY
Brian Moody, PE	M.S. Structural/Geotechnical Eng.; B.S. Structural Engineering, Manhattan College, NY
Matthew Daniels, PE	B.S. Civil Engineering, Manhattan College, NY
Christopher Mase, PE, LEED AP	B.S. Civil Engineering, University of Delaware
Stephen Frech, PE	B.S. Civil Engineering, Washington University, St. Louis, MO
Stephen Collins	B.S. Civil Engineering, Manhattan College, NY
Michel Karaoglan	M.S. Civil Engineering, Polytechnic, NY; B.S. Civil Engineering, Northeastern University, MA
Dominic DeSantis, EIT	B.S. Civil Engineering, Manhattan College, NY
Craig Plate, EIT	B.S. Civil Engineering, Manhattan College, NY
Ryan Coulter, EIT	M.S. Structural Engineering; B.S. Civil Engineering, Manhattan College, NY
Katrina Pratt	B.S. Civil and Environmental Engineering, Cornell University College of Engineering, NY
Brian Fischer	Diver's Academy of the Eastern Seaboard; AAS Portland Community College
Steve Molison	Divers Institute of Technology, Inc.; Coursework, Niagara County Community College
John St. Denis	U.S. Navy Dive School; The Ocean Corporation, Commercial Dive School
Carl Sundvik	Civil Engineering Technician, Westchester CC; U.S.C.G. Emergency Medical Technician School
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
Environmental Engineers	
James Green, PE	B.S., Civil Engineering, Manhattan College
Christopher Mase, PE	B.S., Civil Engineering, University of Delaware

Figure D-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.
- **Loyalty...** 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
- 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 identified 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 37 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 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.

Dr. George F. Assis, P.E. 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. Dr. Assis has served as QA/QC Engineer, On-Site Professional Engineer/Team Leader, Project Engineer and Project Manager for the management and execution of various inspection, assessment, and design services assignments for the PANYNJ, NYSDOT, NYCDOT, NYS Thruway Authority, and NJDOT as well as many private sector clients. He is currently a member of the American Society for Quality (ASQ).

Mr. Stephen D. Frech, P.E. will serve as **Project Manager** for this contract. Mr. Frech has over 12 years of experience in marine structural engineering, and has worked on projects involving various marine structures and installations, such as piers, wharves, landings, ferry terminals, and docks, and building structures ranging from commercial to industrial to educational. He possesses a specialty in the mechanics of high performance structures and the production demands that come from working with clients on tight schedules.

As Project Manager, Mr. Frech will ensure that all of the needs and requirements of the Port Authority are satisfied. He will report to the Authority all project-related issues and will ensure that all tasks associated with this project are managed effectively from start to finish. Mr. Frech's 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. James V. Green, P.E. will serve as **Underwater Inspection Team Leader (Team #1)** for this contract. Mr. Green has over 23 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 **Underwater Inspection Team Leader (Team #2)** for this contract. Mr. Moody has over 14 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 **Above Water Inspection Team Leader (Team #1)**. Mr. Daniels is an NYSDOT approved Team Leader with over 11 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. Christopher Mase, P.E. will serve as **Above Water Inspection Team Leader (Team #2)** for this project. Mr. Mase is an engineer with extensive marine structure inspection, design and construction management experience encompassing ferry terminals, piers, piles, pile caps, shoreline stabilization, and seawalls and bulkheads. He has provided these services in projects for several private clients, as well as for public agencies like the PANYNJ, NYCDOC, and NYSDOT. Mr. Mase is also well versed in permit preparation for the NYCDEC, Army Corp, and Department of State.

Mr. Richard Mahoney, P.E. will serve as **Building Inspection Team Leader (Team #1)** for this contract. Mr. Mahoney has over 38 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 34 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. Mark S. Bujtas, P.E. will serve as **Tunnel Inspection Team Leader (Team #1)** for this contract. As a senior engineer, Mr. Bujtas has over 32 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.

Dr. Kamal G. Fattal, P.E. will serve as **Tunnel Inspection Team Leader (Team #2)** for this project. Dr. Fattal is a structural engineer with over 34 years of experience in the areas of design, inspection, analysis, and construction of many highway and railroad tunnels and bridges. His experience also includes structural engineering for various marine structures, buildings, and industrial facilities. He has designed, inspected and rated hundreds of highway and railroad bridges New York metropolitan area and is intimately familiar with the challenges involved on state and local levels.

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. 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
Barbara Thayer, PE, Arch., P.C. (WBE) 19 W. 44th Street, 18th Fl. New York, NY 10036	Architectural, Landscape Architecture, and Structural Design Support
Environmental Planning Management, Inc. (WBE) 1983 Marcus Ave. Ste 109 Lake Success, NY 11042	Environmental and Hazardous Materials
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
Rogers Surveying, PLLC (SBE) 1632 Richmond Terrace Staten Island, NY 10310	Fathometric Surveying

Over the past 34 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, New Jersey and 42 other states
ADC and NASDS Certified Diver

Experience:
Mr. McLaren has more than 37 years of design, engineering and inspection experience for structural, bridge/highway/rail, site/civil, geotechnical, marine, and forensics projects nationwide. He has participated as engineer or manager on more than 8,000 projects varying in scope and difficulty. Design specialties include 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; design of mixed use high rise building structures; design of unique bridge and rail structures; land use development; and the design of complex theatrical staging and mechanized effects. Representative projects include:

- **Condition Survey Inspection of Berths 51-63, at Port Elizabeth Marine Terminal; Port Authority of New York and New Jersey;** Project Executive for the condition survey of the New Jersey Marine Terminal, Port Elizabeth Berths 51, 53, 55, 57, 59, 61, and 63. The condition survey included an underwater inspection of the treated timber piles, steel H-piles, steel pipe piles, timber bulkheads, and an above water inspection of the concrete pile extensions, deck soffit, and top of deck. A condition survey report was also provided.
- **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. McLaren also performed a testing program to investigate "hot spots" (areas of significant deterioration), provided statistical analysis of inspection data, developed repair alternatives with cost estimates, prepared construction documents and specifications, and provided construction administration services and full-time construction inspection.
- **Areawide Waterfront Rehabilitation Design Services Contract – Rehabilitation of Berths and Wharves; Brooklyn, NY; for Brooklyn Navy Yard Development Corporation;** Project Executive for the design of repairs, reinforcing, and protection of various waterfront structures at this 213-acre site, including Piers C, D, G and K; Berths 3A, 14A, 17, 18, 20A and 20B. Work included above and underwater inspection and assessment of piers, low-level relieving platforms, bulkheads/seawalls, and wharves. Services provided included preliminary and final design as well as preparation of construction cost estimates for the rehabilitation.
- **Ferry Shore Facilities – Inspection & Design of Piers, Wharves, and Marine Terminals; 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, their associated fendering systems, marine installations, 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 and distribution facilities, maintenance and industrial buildings, elevated traffic structures, and parking facilities on platforms over water and upland.

- **Battery Park City Ferry Terminal; Battery Park City, NY; for PANYNJ;** Project Executive and Chief Engineer for this contract to provide structural, marine, geotechnical and civil engineering design services for a $70 million, 32,000 square foot floating terminal for the Port Authority of New York & New Jersey.
- **2009-2012 Above and Below Water Inspection of Statewide Bridges; for Connecticut DOT;** Productive Principal responsible for the engineering services associated with the above and below water inspection services at roughly 450 bridges carrying state and local roadways. Responsibilities include the inspection and preparation of comprehensive reports, which will include underwater photography/ videography and data assessment.
- **Condition Survey Inspection of Brooklyn Pier 12 and Bulkhead – New York Marine Terminal; Port Authority of New York and New Jersey;** Project Executive for the field survey of Pier 12. Services included visual inspection and a ten percent hands-on inspection of all timber, and steel piles; all pile cap beams and pile extensions; all exposed and accessible surfaces along the entire length of the timber and steel sheet pile bulkhead, including ultrasonic thickness measurements of steel sheet pile bulkhead and soundings were taken along the bulkhead; a twenty percent hands-on inspection of the deteriorated portions of the deck soffit; and a visual inspection of the concrete edge beam and wharf topside. A condition survey report was also provided.
- **Comprehensive Assessment of Line Structures and East Avenue Tunnel for Long Island Rail Road;** Project Executive for the in-depth inspection of 23 undergrade bridges, 46 overgrade bridges, the East Avenue tunnel 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.
- **SUNY Maritime Pier Rehabilitation; Throgs Neck, NY;** Project Executive for the rehabilitation and expansion of the 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, an in-depth inspection of the structural support members, and replacement of the C channel whaler.
- **U.S. Gypsum Berthing Facility Fendering System Design; Stony Point, NY;** Project Executive for this contract involving the rehabilitation of breasting and mooring dolphins used to accommodate a 20,000-ton cargo vessel. Included structural analysis to determine the combined stresses due to axial compression and bending in unbraced battered steel H-piles; as well as analyses of berthing energy and criteria of the vessel for fender selection; determination of environmental forces such as wind, wave, current and ice; and geometric studies of the vessel to determine optimum positioning during operation.

George F. Assis, Ph.D., P.E.
Vice President, QA/QC
Project Role: Quality Control Manager

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:
Professional Engineer: New York, New Jersey, Connecticut, Pennsylvania, Maryland and Florida
National Bridge Inspection Standards (NBIS), 2005 – Course #FHWA-NHI-130055
MNR Safety Training, 2004
LIRR Rail Safety Training, 2003, 2004

Experience:
Dr. Assis' has provided project management and design services for more than 35 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 bridge, highway, culvert, site/civil, and marine projects. He is well versed in NYSDOT and bridge inspection and design manual requirements, and 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 New York State Thruway Authority. Dr. Assis is also a member of the American Society for Quality (ASQ), AREMA Committees 9 and 15, and the American Railway Engineering and Maintenance-of-Way Association. Representative projects include:

- **Battery Park City Ferry Terminal – Complete Marine and Fendering Design; Battery Park City, NY; for Port Authority of New York & New Jersey;** Performed Quality Control review for this contract, in which McLaren provided structural, marine, geotechnical and civil engineering design for a $70 million, 32,000 square foot floating terminal for the Port Authority of New York & New Jersey. Services included structural, marine, geotechnical and civil engineering design, including extensive fendering design.
- **Areawide Waterfront Rehabilitation Design Services Contract at Brooklyn Navy Yard – Rehabilitation of Berths and Wharves; for the Brooklyn Navy Yard Development Corporation;** Quality Control Manager for the design of repairs, reinforcing, and protection of various waterfront structures at the site. Covers various contracts including Berths 3A, 6, 7, 7A, 14A, 17 and 18, and Pier K.
- **Indefinite Quantity Contract for Underwater Inspection Services at U.S. Navy Facilities Worldwide;** Quality Control Manager for an Indefinite Quantity Contract to provide underwater inspection, assessment and rehabilitation design services for Navy facilities worldwide. On call agreement has included projects such as:
  - *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*
- **Battery Park City Esplanade Structural Remediation; New York, NY; for the Battery Park City Authority;** Project Manager for site investigation, rehabilitation designs, assistance in the procurement

process, and management of the construction process for five sites at the BPCA Esplanade. Deficiencies were generally in concrete walls and pathways, caused by losses of soil fill and/or substructure movement. Repair designs included compaction grouting and expansion joint remediation.

- **Design Repairs to Bridge JS 67.05 over Wallkill River for Metro-North Railroad; Goshen, NY;** Project Manager for this recently awarded GEC 2005-2009 contract for the inspection, design and rehabilitation for this Metro-North Railroad Bridge over the Wallkill River. Provided technical oversight and quality assurance for the development of plans showing existing and proposed rail profiles.
- **Comprehensive Assessment of Line Structures; Bay Ridge and Bushwick Branches; for Long Island Rail Road;** Project Manager for the in-depth inspection and load rating of the East Avenue tunnel, approximately 2,000 feet of retaining wall, 23 undergrade bridges, and 46 overgrade bridges 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.
- **Independence Harbor; Edgewater, NJ;** Project Manager for the forensic structural engineering analysis and complete structural inspection of the Independence Harbor Condominium support structure. Findings were compiled and provided in a written report detailing the damage assessment and repair recommendations.
- **2009-2012 Above and Below Water Inspection of Statewide Bridges; for Connecticut DOT;** Project Manager responsible for the engineering services associated with the above and below water inspection services at roughly 450 bridges carrying state and local roadways. Responsibilities include the inspection and preparation of comprehensive reports, which will include underwater photography/ videography and data assessment.
- **Inspection and Inventory of over 16,000 Culverts; Region 9; for NYSDOT;** Project Manager for the inventory and inspection of over 16,000 small culvert structures throughout New York State Region 9. Project involves development of a GIS Database by means of a GIS/GPS Integration, Project Management and Report Preparation.
- **Long Island Rail Road Bridge Inspection Training Program;** Project Manager/Lead Instructor for the training and qualification of the LIRR staff to perform evaluations and condition assessment of overgrade and undergrade bridges, viaducts, culverts, and tunnel structures in compliance with FRA, AREMA, and NYS Highway-Rail Law. The overall objective was to assist the LIRR in maintaining an effective and efficient bridge management system that will facilitate and ensure safety and long life, coupled with low maintenance of their railroad line structures.
- **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. Services provided included 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.

Stephen D. Frech, P.E.
Senior Engineer
Project Role: Project Manager

Education:
B.S., Civil Engineering, Washington University

Active Registration:
Professional Engineer: New York, #7295887

Professional Affiliations:
Structural Engineers Association of New York – Existing Building Codes Committee

Experience:
Mr. Frech is a licensed Professional Engineer with over 12 years of experience in inspection, design, construction, and project management for a wide range of project types. His extensive expertise encompasses various marine structures and installations, such as wharves, marinas, ferry terminals, piers, and landings, and docks, in addition to buildings and structures ranging from commercial to industrial to educational. His experience also includes architecturally exposed, environmentally sensitive structures and high-rise flat-plate construction. Mr. Frech possesses a specialty in the mechanics of high performance structures and the production demands that come from working with clients on tight schedules. Representative projects include:

- **Design of an Oceanfront Pier, Ferry Terminal and Waterfront Destination; City of Long Branch, New Jersey;** Project Manager responsible for marine and structural engineering services needed to design and construct a new, $120 million oceanfront pier in Long Branch, New Jersey. The pier will include multi-functional retail and entertainment space, a learning center, a ferry terminal providing commuter access to New York City and will also incorporate renewable energy resources. The pier is a critical aspect of the City's redevelopment plan, which will enhance its identity as a premier United States destination.
- **Feasibility Study – Relocation of P.J. Sharp Boathouse, Sherman Creek; New York, New York;** Senior Engineer for marine-related services in determining the feasibility of relocating the P.J. Sharp Boathouse. Mr. Frech is assisting in the assessment, in addition to design of modifications for an existing kayak launch at the site and development of a shoreline cleanup and stabilization plan. Construction support services will also be provided.
- **Investigation of and Repair Design for Piers C & D; Weehawken, NJ; for Hartz Mountain;** Senior Engineer for the provision of ongoing marine-related services at Piers C & D in Weehawken, New Jersey. Mr. Frech is helping coordinate design and construction administrative services for repairs to the piers and other marine installations at the Charthouse Restaurant site.
- **Inspection and Repair Design, Arthur's Landing Restaurant Substructure; Weehawken, New Jersey;** Project Manager for the inspection and condition assessment of substructure supporting the former Arthur's Landing Restaurant. Mr. Frech is leading the design of repairs to the failed steel sheet pile bulkhead west of the Restaurant.
- **Ferry Shore Facilities – Miscellaneous Engineering Services (On-Call); for NYCDOT;** Senior Engineer/ Manager providing project management oversight for on-call Civil Engineering and Allied Services in relation to construction contracts for structural reconstruction of ferry facilities and other miscellaneous work when and where directed by the NYCDOT. Mr. Frech is currently overseeing the

replacement of elevated slabs at Slips 4, 5 and 6, an effort that involves slab design – from demolition through construction documents – construction cost estimates, and bid phase support.

- **India St. Pier Marina Design; Brooklyn, NY;** Senior Engineer/ Manager providing project management oversight for the condition survey, hydrographic and side scan survey and schematic design of this marina with high-end boat slips. Services encompassed an above water condition survey of the existing shoreline and piers, which included findings, recommendations for repair or replacement and a construction cost estimate for the selected alternative. Close coordination with the owner/developer was required to provide cost effective solutions to meet client needs.
- **Ferry Shore Facilities – Harper St. Asphalt Plant Dock Facility 25-10; for New York City Department of Transportation;** Project Manager for the underwater condition inspection and schematic design of repairs or the rehabilitation and reconstruction of the pile-supported docking platform at the Harper Street Asphalt Plant located in Corona, NY.
- **Green Street Pier Stabilization, Demolition and Replacement Design; Brooklyn, NY; for Park Tower Group;** Senior Engineer/ Manager providing project management oversight for the shoreline stabilization, demolition and construction at the Greet Street Pier. Services include preparation of shoreline stabilization plans, details and sections; demolition plans and details; and pier reconstruction plans indicating piles, deck framing and fendering.
- **East and Harlem River Ferry Landings; New York, NY; for New York City Economic Development Corporation;** Senior Engineer providing technical oversight for the structural and marine design of various ticket booths and ferry landing facilities for a $10 million civil-structural-marine engineering project to develop three waterfront locations as ferry landing sites to accommodate vessels, passengers, and intermodal transportation along the East and Harlem Rivers of Manhattan.
- **Tall Ship Mooring Design at Berths 6, 7, and 7A; Brooklyn, NY; for Brooklyn Navy Yard;** Senior Engineer/ Manager providing project management oversight at Brooklyn Navy Yard Berths 6, 7, and 7A. It has been determined that the reconstructed berths at 6, 7 and 7A represent an opportunity for vessels to berth in the New York Harbor. Design services to convert these berths are being provided in anticipation of Tall Ship berthing, which will begin in the summer 2011.
- **Green Street Pier Stabilization, Demolition & Replacement Design; Brooklyn, NY; for Park Tower Group;** Senior Engineer/ Manager providing project management oversight for the shoreline stabilization, demolition and construction at the Greet Street Pier. Services include preparation of shoreline stabilization plans, details and sections; demolition plans and details; pier reconstruction plans indicating piles, deck framing and fendering.
- **Spirit of Baltimore Relocation; Baltimore, Maryland;** Senior Engineer/ Manager providing project management oversight for the assessment of the finger pier at the west end of Baltimore Harbor to provide docking and mooring of the Spirit of Baltimore. The assessment will determine if the pilings, pier, fender system and mooring hardware are adequate or improvement or augmentation is needed.
- **Waterfront Development at Liberty Harbor North; Jersey City, New Jersey;** Project Manager for a new, 500,000 square foot residential building located on the Jersey City Waterfront. The building consisted of flat-plate concrete construction with the residential block situated over a parking garage. The design required extensive load transfers to accommodate the parking layout below.

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

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

Registration:
Professional Engineer: New Jersey, New York, Delaware, Maryland, California, Connecticut, Pennsylvania, Virginia

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 22 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. Representative projects include:

- **Waterfront Structural Engineering Services for the New Jersey Marine Terminal; Elizabeth, NJ; for PANYNJ;** Structural Engineer/Inspection Team Leader responsible for providing waterfront structural engineering services for the inspection, evaluation, and rehabilitation design for the New Jersey Marine Terminal structures. Mr. Green prepared contract drawings and construction cost estimates for priority repairs for the structures, which included berths, a turntable, mooring dolphins, and timber walkways.
- **Port Elizabeth Berths 88-98 & Turntable; Newark/Elizabeth, New Jersey; for Port Authority of New York & New Jersey;** P.E. Diver for a condition survey of Berths 88, 90, 92, 94, 96, 98, and Turntable located at Elizabeth – Port Authority Marine Terminal. Involved with underwater inspection of timber and steel piles, pile caps and extensions and assessment of the concrete edge beam, wharf topside, and steel sheet pile bulkhead. After inspection, McLaren prepared a report to indicate inspection findings, present pertinent photographs, and make priority repair recommendations.
- **Engineering and Inspection Services for Marine Structures; Manhattan, NY; for Battery Park City Authority;** Inspection Team Leader/Structural Engineer for the repair of the esplanade including piles, precast concrete seawall skirt, and the riprap slope protection that surrounds the perimeter of the Battery Park City Authority parcel in lower Manhattan. Mr. Green was responsible for the assessment of and design of repairs for approximately 3,500 precast concrete piles that support the relieving platforms at the esplanade. He also helped perform a testing program to investigate areas of significant deterioration, statistical analysis of inspection data, and development of repair alternatives with cost estimates.

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

- **FDNY Marine 9 Barracks at Staten Island Homeport, Staten Island, NY; for NYCEDC;** Waterfront Inspector/P.E. Diver for the provision of construction management services at the FDNY Barracks and wave attenuator at the Stapleton Pier located in Staten Island, New York. Mr. Green reviewed the design, prepared cost estimates, and performed a construction inspection at the project site.
- **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.
- **Underwater Inspection and Repair Design of Waterfront Structures at the Brooklyn Navy Yard: Brooklyn, NY; for Brooklyn Navy Yard Development Corporation;** Team Leader/P.E. Diver for underwater condition assessment of facilities including piers, bulkheads, and relieving platforms. Project 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.
- **Underwater Investigation of the East River Park Promenade; New York, NY;** Team Leader for the provision of underwater inspection services to survey and inventory the connections between the in-place concrete fascia panels and pile caps. Mr. Green was also responsible for a sweep of the area below the platform to note any excessive debris from contractor operations and for generating a condition report to document the findings of the investigation.
- **Fresh Kills Floating Maintenance Facility; Staten Island, NY; for NYC Department of Sanitation;** Team Leader/P.E. Diver for the underwater condition inspection and assessment of the Fresh Kills Floating Maintenance Facility. Coordinated dive program, which included analysis of the facility's mechanical floatation system. Prepared letter report including condition assessment, repair recommendations and cost estimates.
- **Navy Wavemaker Mounting System Design; for MAR, Inc.;** Senior Marine Engineer for the rehabilitation design, as well as removal and disposal design of existing wavemaker systems and the installation design of a new wavemakers in the MASK, Deep Towing, and High Speed Basin facilities. *Mr. Green was responsible for an above and under water inspection of existing mounting system* conditions, remediation of mounting locations, and design of new mounting systems for the new wavemakers.
- **SUNY Maritime Academy Pier Rehabilitation and Expansion; Throgs Neck, NY;** Project Engineer responsible for design and construction services for a 200-foot extension of the college pier, an addition to the approach pier, and an expansion of the working pier. Mr. Green was also involved with the management of NYSDEC and Army Corp permitting processes. The project includes design of new pile and pier deck design and rehabilitation, mooring and berthing dolphin design, fendering design floating docks, and bulkhead remediation.
- **Resident Engineering Inspection for the Hunter's Point South Infrastructure and Park; Queens, NY;** Inspection Team Leader responsible for the construction supervision and inspection services at Hunter's Point South. Mr. Green is inspecting new rip-rap and bulkhead installed at the site, in addition to construction of a marsh. Demolition was performed; construction began Spring 2010.

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 078994-1-2003
Transportation Worker Identification Credentials (TWIC)
National Bridge Inspection Standards (NBIS), 2005 -- Course #FHWA-NHI-130055
National Bridge Inspection Standards (NBIS),– 2010 Refresher Course #FHWA-NHI-130053
Association of Diving Contractors International, Surface-Supplied Air Diver #4727
Fatigue and Fracture Critical Bridge Inspection Course, March 2011

Professional Societies:
American Society of Civil Engineers

Experience:
Mr. Moody has over 13 years experience with underwater condition assessment, inspection, and structural design projects. He has worked on all types of structures, including wharves, piers, bulkheads, bridges, 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 PANYNJ, NJDOT, NJT, NYCDOT, NYSDOT, NYSTA, New York Canal Corporation, NYCEDC, NHDOT and for various NJ Counties. As a Team Leader, Mr. Moody has performed the above and below water inspection of many bridges, piers, bulkheads, dams, and culverts. Representative projects include:

- **Port Newark Berths 2-36; 3-25; Port Newark, NJ; for Port Authority of New York and New Jersey;** Marine Engineer/ Team Leader for underwater inspection and assessment of pier/berthing structures and preparation of comprehensive reports including photographs, sketches, condition assessment, and repair recommendations.
- **25th Street Wharf Structural Rehabilitation; Brooklyn, NY; for Lafarge North America;** Project Engineer for the inspection and design rehabilitation of the 25th Street Wharf, located along the Gowanus Canal in Brooklyn. Responsible for the above water and underwater inspection and assessment of the wharf, which comprises a low-level relieving platform, provision of preliminary and final design services with construction cost estimates for rehabilitation and life cycle cost analysis.
- **Condition Survey Inspection of Berths 51-63, at Port Elizabeth Marine Terminal; Port Authority of New York and New Jersey;** Team Leader/P.E. Diver responsible for the condition survey of the New Jersey Marine Terminal, Port Elizabeth Berths 51, 53, 55, 57, 59, 61, and 63. The condition survey included an underwater inspection of the treated timber piles, steel H-piles, steel pipe piles, timber bulkheads, and an above water inspection of the concrete pile extensions, deck soffit, and top of deck. A condition survey report was also provided.
- **Battery Park City Ferry Terminal; Battery Park City, NY; for Port Authority of New York & New Jersey;** Marine Engineer responsible for design and technical oversight and budget monitoring of ongoing construction administration services for the construction of a 32,000sf floating terminal valued at $70 million in construction cost. Also responsible for computer modeling of the ferry terminal's two anchorage towers anchored to bedrock 75 feet below the water. Designed steel vessel loading ramps

and steel main terminal ADA-compliant access ramps. The terminal consists of a mono-hull main terminal with five ferry slips with variable height landing systems.

- **Underwater Inspection of Brooklyn Piers 6, 7, & 8; Brooklyn, NY; for Port Authority of New York & New Jersey;** *Marine Engineer/ 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.
- **Design of Transmitter Park and Pier; Brooklyn, NY;** Marine Engineer/ Team Leader for open space improvements that include a pier, waterfront esplanade, and a waterfront park with the objective of giving the community much needed recreational space, connecting residents to the waterfront and accommodating future ferry service. Services included underwater inspection of timber low-level relieving platform and concrete seawall, schematic design, and consultation for the proposed park.
- **Staten Island Homeport Bulkhead/Seawall Rehabilitation; Staten Island, NY; for NYCEDC;** Project Engineer for the design and construction support services for long-term rehabilitation of a collapsed portion of steel sheet pile bulkhead located at Staten Island Homeport. Services provided include engineering analysis and design for a replacement tied back bulkhead. A full set of *construction drawings and technical specifications were prepared, as well as construction cost* estimates and assistance with bidding.
- **Below Water Inspection of Canal Structures; Albany, Syracuse and Buffalo, NY; for New York State Thruway Authority;** Marine Engineer/ Team Leader for the underwater inspection of approximately 100 canal structures along the New York Waterway Canal System. 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.
- **Staten Island Ferry Transfer Bridge Inspection; Staten Island, NY;** Team Leader/Marine Engineer for the inspection of 21 transfer bridges at various NYCDOT facilities. The task order included surface inspection utilizing visual and tactile procedures, and included investigation of the feasibility of transporting the Denka Lift on upper bridge/gangplanks at each terminal.
- **New York Marine Terminal Inspection of Piers 2, 3, 4, 5, & 11; Brooklyn, NY; for Port Authority of New York and New Jersey;** Marine Engineer/ Team Leader for underwater inspection and assessment of bulkheads (timber piles, steel H-piles, pile cap beams, pile extensions, steel sheet piles) between Piers 2 and 3, Piers 4 and 5 and along Pier 11. A topside inspection of the concrete seawall and wharf was also performed to determine its general condition.
- **White Hall Ferry Terminal Repairs; Staten Island, NY; for NYCDOT;** Team Leader/Marine Engineer supporting structural evaluations at various terminal locations including load-bearing analysis of piles and pile caps. Responsibilities included underwater inspections, construction reports, preparation of existing reports, and load rating.
- **Green Street Pier Inspection; Brooklyn, NY;** 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.

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
NAUI Certified Open Water Diver
ADCI Entry-Level Tender/Diver

Experience:
Mr. Daniels has 11 years of experience as a Team Leader on above and underwater condition surveys of marine structures, as a Marine Design Engineer, and as a Resident Engineer. He has participated in structural integrity inspection and evaluation projects for various 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.
- **Engineering and Inspection Services for Marine Structures; Manhattan, NY; for Battery Park City Authority;** Senior Engineer/Inspector for the performance of construction administration and inspection services associated with marine structure repairs at the Battery Park City Authority parcel in lower Manhattan. Mr. Daniels performed above and underwater inspection of pile repairs under the Battery Park City Esplanade (Phase 1) and additional inspections for similar repairs, which began in Spring 2010 (Phase 2). The project involves the assessment of and repair recommendations for approximately 3,500 precast concrete piles that support the relieving platforms at esplanade, as well as timber piles that support a platform at the north end.
- **Pier 61 Damage Assessment; New York, NY;** Senior Engineer for investigating pile failures at the two locations of Pier 61, Chelsea Piers. Mr. Daniels was involved with the field inspection, dive inspection, document research, structural analysis/modeling, meetings, and a report of observations and assessment for each failure location.
- **Inspection of Ellis Island Seawall; for HDR Engineering;** Senior Engineer/Inspector for the underwater and topside inspection of the Ellis Island Seawall and preparation of Class C, Class B and Class A Construction Cost Estimates. Mr. Daniels performed a "hands-on" inspection on 5,333 LF of existing seawall and has prepared a condition survey report. His effort also included preparation of construction cost estimates for schematic and preferred alternatives as well as the final design.
- **Ferry Shore Facilities – Miscellaneous Engineering Services (On-Call); for New York City Department of Transportation;** Senior Engineer/Inspector for on-call Civil Engineering and Allied Services in relation to construction contracts for structural reconstruction of ferry facilities and other

miscellaneous work when and where directed by the NYCDOT. Mr. Daniels is managing the replacement of elevated slabs at Slips 4, 5 and 6, an effort that involves slab design – from demolition through construction documents – construction cost estimates, and bid phase support. In a separate task, he was involved with the inspection and damage assessment at St. George Ferry Terminal Slip 5.

- **Village of Dobbs Ferry Waterfront Park; Dobbs Ferry, NY;** Senior Engineer for the evaluation of existing riprap condition along the Village's Hudson River shoreline. Project also includes design of shoreline stabilization improvements, which may include new riprap, and/or sheet piling; preparation of cost analysis for construction; meetings with Village Officials; and environmental permitting. Construction documents will be prepared and construction administration will be provided.
- **Survey and Inspection of Coney Island Outfall; Brooklyn, NY; for Malcolm Pirnie/Baker Engineering;** Senior Engineer/Inspector for the condition inspection of the Coney Island Outfall. Mr. Daniels was involved with underwater inspection/reconnaissance of the damaged section of the Outfall. Project also included topographic and hydrographic survey, including location of surrounding structures; and side-scan sonar for entire length of Outfall pipe.
- **Ferry Shore Facilities – Staten Island Ferry Permitting Support; for New York City Department of Transportation;** Project Manager for the provision of support in obtaining permits from the NYSDEC, the U.S Army Corp of Engineers, and the NYS Department of State to perform general maintenance activities at Staten Island Ferry, City/Hart Island Ferry, and various "Private Ferry" sites. Mr. Daniels is currently working with the DEC to modify existing permits to facilitate the performance of emergency repairs at NYCDOT facilities.
- **Port Newark Marine Terminal, Berths 2 through 36 Inspection; 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.
- **Ferry Shore Facilities – Staten Island Ferry Environmental Support; for New York City Department of Transportation;** Project Manager for the closure of a fuel oil spill at St. George Ferry Terminal. Mr. Daniels helped develop and execute a work plan, which was submitted to the DEC, for boring and testing needed for location/identification of remaining oil at the site. He supported preparation of an Environmental Sampling/Site Investigation Report, which determined that the existing conditions were acceptable and recommended that the spill be closed. DEC determination is pending.
- **Port Elizabeth Marine Terminal, Inspection of 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.
- **Inspection of 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.
- **Inspection of Bergen County Utilities Authority Sludge Loading Dock;** Engineer for the inspection and fathometer survey of mooring platforms and access piers.

Christopher M. Mase, P.E.
Senior Engineer
Project Role: Above Water Inspection Team Leader (Team #2)

Education:
B.S., Civil Engineering, University of Delaware, 2005

Registration:
Professional Engineer: New York
Transportation Worker Identification Credentials (TWIC)

Professional Societies:
Civil Engineering Honor Society

Experience:

Mr. Mase is an engineer with extensive marine structure inspection experience, coupled with expertise in design of piers, piles, pile caps, and bulkheads. He has provided these services in projects for several private clients, as well as for public agencies like the PANYNJ, NYCDOC, and NYSDOT. His construction management experience includes bid phase support, coordination with contractors, shop drawing review, responding to RFIs, and site visits. Mr. Mase is also well versed in the preparation of permit applications for the NYCDEC, NJDEP, Army Corps of Engineers, and other regulatory agencies in the New York Metropolitan area. Representative projects include:

- **Battery Park City Ferry Terminal; Battery Park City, NY; for Port Authority of New York & New Jersey;** Project Engineer responsible for providing construction administration services for the 32,000sf floating ferry terminal valued at $70 million in construction cost. Responded to all RFIs, provided shop drawing review, and made minor design recommendations during construction phase. Also was involved with design of below-deck supports. The terminal consists of a mono-hull main terminal with five ferry slips with variable height landing systems.
- **Vernon C. Baim Center Dry Docking Inspection and Repair Design; New York, NY; for NYCDOC;** Project Engineer involved with the inspection and design of repairs for the Vernon C. Baim Center barge and upland facilities. Coordinated above and underwater inspection of the barge, which involved a non-destructive testing program, with field team. Based on inspection findings, then provided design recommendations for the sheetpile bulkhead repair and replacement of the barge fendering system. Recommended use of plastic lumber for the new fendering system.
- **Newport Bulkhead Study and Rehabilitation; Jersey City, NJ;** Project Engineer for the modification and upgrade of the Newport Bulkhead. Designs were to prepare the bulkhead for extension of the Hudson River Walkway, which runs along the bulkhead. Performed calculations and structural analysis of the existing bulkhead in order to identify and design the necessary support, such as concrete cut-off walls. Also was involved with the design of low-level decking repairs to eliminate sinkholes at the Newport Tennis Pier.
- **NYPD Marinas; Randall's Island/College Point, NY; for NYCEDC;** Project Engineer for this contract to provide professional engineering and design services for two marinas owned by the NYPD. Mr. Mase assisted with the condition inspection and design of upgrades and replacements of the marinas and other coastal structures. Included the analysis of geotechnical borings for the structural design. Construction administration services are being provided.
- **Williamsburg, The Edge Waterfront Development; Brooklyn, NY; for Douglaston Development;** Project Engineer for the design of pile caps, a concrete cut-off wall, and an irrigation room at this widespread waterfront development project along the East River. Overcame significant challenges in

the pile cap design caused by variable elevations at the site – due to various stairs, pathways and structures – and differing construction materials. McLaren performed an in-depth physical inspection of piers and bulkheads, evaluated soil conditions, produced feasibility studies for waterborne activities, and provided design drawings.

- **Beach Channel High School Seawall Remediation and Upgrades; Far Rockaway, NY;** Project Engineer for the design of a new revetment at the Beach Channel High School Seawall. Optimized shoreline protection by altering the position of the seawall and using the existing seawall to provide support. Produced design drawings for the new revetment and then prepared joint permit application for the NYCDEC, Army Corp, and Department of State. The Seawall's deterioration had caused subsidence and sinkholes in an access path above it.
- **Maxwell House Waterfront Site Development; Hoboken, NJ;** Project Engineer provided construction inspection services for The Waterfront Walkway Improvements. Mr. Mase was also involved in the overall conversion design of the former Maxwell House coffee industrial site to a residential mixed-use facility.
- **Design of an Oceanfront Pier, Ferry Terminal and Waterfront Destination; City of Long Branch, New Jersey;** Project Engineer for the marine and structural engineering services needed for the design and construction of a new $120 million oceanfront pier in Long Branch, New Jersey. Mr. Mase is involved with the planning for ferry operations at the pier. The pier will include multi-functional retail and entertainment space, a learning center, ferry terminal providing commuter access to New York City and incorporating renewable energy resources. The pier is a critical aspect of the City's redevelopment plan, which will enhance its identity as a premier United States destination.
- **Columbia Island (Little Pea Island) Pier Boat Landing Dock; New Rochelle, NY;** Engineer for the preparation of permit applications and construction documents, and construction management services for a boat landing dock at the existing pier on the west side of Columbia Island. Construction documents included ferry landing plans and technical specifications for piles, gangways, operating equipment, fendering, and navigational lighting. Construction administration included shop drawing review and site visits.
- **Port Imperial Marina; Weehawken, NJ; for Roseland Property Company;** Project Engineer for this contract involving the redesign of the existing marina. The new layout will accommodate 100 high-end slips for vessels up to 50 feet in length. This project included a dredging plan, condition survey of existing breakwater, permit preparation, and construction cost estimates.
- **Waterfront Revitalization – 4th and 5th Street Piers at Kent Avenue; Brooklyn, NY; for RD Management Corp;** Project Engineer for the revitalization of the 4th and 5th Street Piers at Williamsburg, Brooklyn. Involved with both design and construction management of the project. During construction, Mr. Mase was responsible for site visits, preparing progress reports, and acting as a point-of-contact for the contractor and client. On the design side, Mr. Mase assisted in the design of the pre-cast piers, pre-cast piles and a cantilevered sheetpile bulkhead wall. The project included detailed underwater inspection, hydrographic survey, geotechnical services, design services, construction inspection services, and construction administration services.

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

Education:
Pennsylvania State University, Bachelor of Architectural Engineering

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

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

Experience:
Mr. Mahoney has more than 38 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:

- **2005-2012 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.
- **LIRR Jamaica Station Headquarters Structural Inspection and Rehabilitation;** Senior Engineer for the structural rehabilitation, design and construction phase services associated with the exterior rehabilitation of the Jamaica Station Building. Services include structural inspection, material testing, preparation of a rehabilitation report, structural and architectural design, painting, and lighting upgrades.
- **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.
- **Banana Town Homes & Condos: Weehawken, New Jersey; for WESKetch Architecture;** Project Manager responsible for the design of a development including four residential clusters, each with a group of four-story town homes (40,000 ft2 to 80,000 ft2) and a six-story condo building (65,000 ft2) and a heavily planted, elevated terrace. Upper stories: Vescom composite floors (town homes) or long span 6" metal deck (condos) with light gage bearing walls. First story garage: concrete slabs and walls. Grade level slabs are framed and pile supported, including roadways between clusters. Designed for IBC seismic design category D, including modal analysis and special detailing for walls and columns.

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

- **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;** Served as Quality Control Manager for all work and associated reporting relative to the structural evaluations at various locations throughout New York City. Site observations included: 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.
- **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.
- **City Center Mall; White Plains, NY; for Cappelli Development Group;** Project Manager for a 35-story mixed-use retail and residential use complex including 650,000 s.f. of retail space and three residential 725,000 s.f. high-rise buildings.
- **Colonie Center Expansion & Redevelopment; Albany, NY;** Project Manager responsible for the structural design of an expansion and redevelopment of the Colonie Center Mall. McLaren designed this new 74,000 sq. ft. structure on the third floor above the roof of the existing mall to house a new Regal Cinema multiplex theater. The structural design included a new project mezzanine, third level framing as required, a new roof structure, a new lateral system for the altered portion of the building and the reinforcement of foundations and structural steel beams, columns, connections as required. The project also encompassed the design of a 20,000 sq. ft. addition to a Barnes & Noble Bookseller on the ground level.
- **66 Main Street Building Collapse; Yonkers, NY;** Project Manager responsible for the forensic investigation and analysis for this project after a concrete plank fell and fatally injured a worker who was adjusting it on the 6th floor. McLaren investigated the site, tested the concrete plank, and will be providing forensic testimony on behalf of the plank's manufacturer, J.P. Carrara & Sons, Inc.
- **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.
- **Stevens Institute of Technology, School of Technology Management; Hoboken, NJ;** Project Manager responsible for the design of this new six-story 90,000 s.f. structural steel framed academic building. The building was designed using a moment-resisting steel framing system designed to resist both gravity and lateral forces. The floor deck consists of lightweight concrete slab over galvanized metal deck supported by composite steel beams and girders.

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
B.S., Civil Engineering, New Jersey Institute of Technology

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

Experience:
Mr. Platt is a structural engineer with over 34 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 32-story, 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.

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

- **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.
- **Hard Rock Park; Myrtle Beach, SC;** Senior Structural Engineer for the risk assessment of a 140-acre theme park, which has both renovated and new construction structures. Special consideration was given to the direct effects of hurricane force winds, as well as to the effects of window blown projectiles striking various park roller coasters and other theme park attractions and buildings. Mr. Platt reviewed structural calculations for the rides and buildings, and visited the site to determine the condition of the park structures as well as the risks to the park due to the condition of the structures in the surrounding areas.
- **New Roc Center Additions/Alterations; New Rochelle, NY;** Senior Structural Engineer for the provision of structural design services during the renovation phases of this $170 million, 450,000-square foot retail, sports and entertainment complex. The project included structural alterations to accommodate a Super Target, Kohl's, and other retail space. These modifications included replacement of lateral systems, new floor construction, removal of basement columns, and design of a new core area to span from the retail building to the parking garage located across the street.

Mark S. Bujtas, P.E.
Senior Engineer
Project Role: Tunnel Inspection Team Leader (Team #1)

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 32 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 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 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.

- **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.
- **2009-2012 Above and Below Water Inspection of 270 Statewide Bridges; for Connecticut DOT;** Team Leader responsible for the engineering services associated with the above and below water inspection services at roughly 450 bridges carrying state and local roadways. Responsibilities include the inspection and preparation of comprehensive reports, which will include underwater photography/ videography and data assessment.
- **Long Island Rail Road Bridge Inspection Training Program;** QA/QC Manager and Field Instructor for the training and qualification of the LIRR staff to perform evaluations and condition assessment of overgrade and undergrade bridges, viaducts, culverts, and tunnel structures in compliance with FRA, AREMA, and NYS Highway-Rail Law. The overall objective was to assist the LIRR in maintaining an effective and efficient bridge management system that will facilitate and ensure safety and long life, coupled with low maintenance of their railroad line structures.
- **Inspection of 21 Transfer Bridges; New York, NY; for NYCDOT;** Team Leader/Inspector for the inspection of 21 NYCDOT transfer bridges at various facilities throughout New York City and Staten Island. The task order included surface inspection utilizing visual and tactile procedures. Calculations and analysis, preliminary sketches, a conceptual cost estimate, a forecast of whether the physical work could be effected with the upper bridge/gangplanks in situ or otherwise and an estimated work duration was also included. Preliminary and final designs are being prepared, and. services during construction, working drawings and resident engineering during inspection will be provided.
- **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.
- **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.

Kamal G. Fattal Ph.D., P.E.
Senior Engineer
Project Role: Tunnel Inspection Team Leader (Team #2)

Education:
PhD, Structural Engineering, George Washington University, 1989
M.S., Structural Engineering, UCLA, 1986
M.S., Structural Engineering, George Washington University, 1982
B.S., Civil Engineering, Aleppo University, 1977

Software:
STAAD Pro v8i, RAM Steel v8i, PRO-SHEET, PCA Programs, Mathcad, Micro Station V7 and V8, AutoCAD; Working knowledge with: MDX, ETABS, SAP, GT-STRUDL, ADINA and BAR7

Registrations & Certifications:
Professional Engineer: New Jersey # GE4415300

Experience:
Mr. Fattal is a structural engineer with over 34 years of experience in the areas of design, inspection, analysis, and construction of many railroad and highway bridges. His experience also includes structural engineering for various marine structures, buildings, and industrial facilities. Mr. Fattal has designed, inspected and rated highway and railroad bridges in New York and New Jersey. Mr. Fattal's responsibilities have also included the review of shop drawings, construction supervision, and the evaluation of building conditions. Representative projects include:

- **The Tunnel Partnership/ARC;** Senior Structural Engineer
  - **Croxton Yard Viaduct:** Designed the starting and ending viaduct abutments by calculating both static and seismic loads acting on the abutments. Developed 100% final design drawings for the construction of the abutments. Checked the final superstructure design including seismic design details. Designed and prepared drawings for over 3000 feet of MSE retaining walls and developed all the required drawings which resulted in a significant cost reduction in construction. This cost reduction was accomplished by switching into MSE wall type from reinforced concrete type walls. Prepared and checked quantities for all designed sections that were at 60% and 100% of the design stages.
  - **FRL Station Platform and Viaduct:** Calculated and designed the viaduct abutment for both static and seismic loads and developed the 100% final design drawings for construction. Checked the final 100% superstructure design calculations including through girders, floor beams, knee brackets, stiffeners, and floor beam connections.
  - **Loop Track Main Line Segment:** Prepared and checked 60% of all structures and structural components including sheet pile walls, soldier pile walls, and reinforced concrete wall designs. Generated all drawings for structures and prepared and checked design calculations. Analyzed and prepared the staging drawings for construction sequences so that the main line would continue to run at all times without any interruptions.
- **MEGA Engineering;** Senior Structural Engineer
  - **Passaic-Bergen DMU/NJ-Transit:** Manager for the conceptual and preliminary design of 10 stations, two park and ride stations, maintenance facility, car wash facility and fueling facility.

Kamal G. Fattal Ph.D., P.E.
Senior Engineer
Project Role: Tunnel Inspection Team Leader (Team #2)

- **MTA/NYCTA Fulton Street Transit Center:** Senior structural engineer for the secant pile wall and foundation design. Involved in the load assessment from adjacent structures, nine-story buildings, the A/C and 4/5 lines. The team created initial models for the construction sequence of the foundation and designed rakers support framing. Coordinated electrical, mechanical, and HVAC disciplines equipment requirements, which were integrated into foundation slab and secant pile wall. Prepared sketches for all penetration and waterproofing details, designed uplift and gravity loads on foundation slab, and load transfer to tube ties to secant piles steel profiles. Checked structural calculations for underpinning and temporary support of existing nine-story buildings, and reviewed and checked all structural drawings.
- **SEPTA/Philadelphia, Elwyn-Wawa Catenaries Structural Inspection:** Lead structural engineer for the catenaries structures inspection of the concrete pier foundations and steel framing. Prepared the final conditions report, which described and detailed deficiencies. Recommended necessary repairs required to keep catenaries in service.
- **Caton Avenue Substation:** Senior structural engineer responsible for the modernization and extension of this existing underground substation. Performed a preliminary study that included preparation of plans for borings and test pits. Prepared sketches of the sections for the existing and new parts of the underground building. Assessed the impact of the extension on the adjacent school building and evaluated the new extension for underpinning requirements against the existing building using NYCT design guidelines.

- **STV;** Structural Engineer
  - **MTA/LIRR East Side Access Project/WB Bypass through Girder Railroad Bridge in Queens, NY:** Senior structural engineer responsible for the design of a 144-foot-long, three span, through girder bridge to carry two tracks. Design of the superstructure through girders and floor beams. Prepared design calculations for the bridge abutments, wing walls, and piers. Prepared the bridge geometry and track alignment calculations using CTCOGO software.
  - **MTA/LIRR East Side Access Project/GM Service Facility Access Bridge in Queens, NY:** Senior structural engineer responsible for the analysis and design of a 103-foot-long, single span roadway bridge to provide access to the service facility. Design of the abutments and wing walls. Checked bearings design and prepared deflection and camber calculations.
- **URS / Washington Group;** Structural Engineer
  - **NJ TRANSIT HBLRT Baldwin Avenue Light Rail Viaduct:** Responsible for the structural analysis and design of a 750-foot long span viaduct. The superstructure included a concrete deck, concrete piers and abutments with concrete caissons foundations. Seismic analysis of viaduct, pier column design, bridge deck design, and steel girders design was performed.
  - **NYSDOT Rehabilitation Design of 18 Bridges, Suffolk County:** Responsible for project specification, quantity estimates calculations, and preparation of quantities book.
  - **NJ TRANSIT HBLRT Jersey Avenue Light Rail Viaduct:** Structural engineer responsible for checking the steel girder and piers design. The concrete piers and abutments were founded on concrete caissons. Seismic analysis check of viaduct, pier column design, bridge deck design, and steel girders design was also performed.

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.

Last Name	First Name	Suffix	Title	Effective Date	Current Rate	Billing Rate (Rate X 2.72 Multiplier)
Principal or Partner						
McLaren	Malcolm	P.E.	Principal/CEO	3/10/2011		$170.00
Project Engineers/Managers						
Assis	George	Ph.D., P.E.	Engr Mgr	3/10/2011	$71.20	$193.66
Gorlin	William	P.E., S.E., SECB	Engr Mgr	3/10/2011	$70.67	$192.22
Mahoney	W. Richard	P.E.	Engr Mgr	3/10/2011	$59.16	$160.92
Grogg	Steven	P.E.	Engr Mgr	3/10/2011	$63.05	$171.50
Viele	Donald		Prin Surveyor	3/10/2011	$46.13	$125.47
Bujtas	Mark	P.E.	Sr Eng 3	3/10/2011	$46.35	$126.07
Frech	Stephen	P.E.	Sr Eng 3	7/14/2011	$53.94	$146.72
Green	James	P.E.	Sr Eng 2	3/10/2011	$44.28	$120.44
Moody	Brian	P.E.	Sr Eng 2	3/10/2011	$43.42	$118.10
Daniels	Matthew	P.E.	Sr Eng 2	3/10/2011	$41.20	$112.06
Speer	John	P.E.	Sr Eng 2	7/7/2011	$41.00	$111.52
Sun	Hsu-Huei	P.E.	Sr Eng 1	3/10/2011	$39.59	$107.68
Santos	Lamberto	P.E.	Sr Eng 1	3/10/2011	$35.88	$97.59
Drik	Aleksandr	P.E.	Sr Eng 1	8/18/2011	$39.00	$106.08
Sundvik	Carl		Chief Field Operations	2/25/2010	$38.17	$103.82
Premus	Gerald	P.E.	Staff Eng 3	3/10/2011	$36.01	$97.95
Clarke	Shannon		Staff Eng 2	3/10/2011	$30.71	$83.53
Mase	Christopher	P.E.	Staff Eng 2	3/10/2011	$34.68	$94.33
Xuan	Gang		Staff Eng 2	3/10/2011	$35.29	$95.99
Schodorf	Marcus		Staff Eng 2	4/25/2011	$35.00	$95.20
Fattal	Kamal	PhD	Staff Eng 2	5/27/2011	$35.00	$95.20
Karaoglan	Michel		Resident Eng 2	3/10/2011	$32.95	$89.62
Plate	Craig		Jr Eng 3	3/10/2011	$29.00	$78.88
Manson	Todd		Jr Eng 3	3/10/2011	$29.79	$81.03
DeSantis	Dominic		Jr Eng 3	3/10/2011	$29.00	$78.88
Skinner	Jon		Jr Eng 3	3/10/2011	$29.50	$80.24
Nordin	Curtis		Jr Eng 3	3/10/2011	$30.00	$81.60
Moyer	Kyle		Jr Eng 3	3/10/2011	$30.00	$81.60
Yeager	Adam		Jr Eng 3	3/10/2011	$30.00	$81.60
Haggerty	Alaina	EIT	Jr Eng 2	3/10/2011	$27.50	$74.80
Pratt	Katrina		Jr Eng 2	3/10/2011	$28.00	$76.16
Collins	Stephen		Jr Eng 1	3/10/2011	$28.28	$76.92
Coulter	Ryan		Jr Eng 1	3/10/2011	$27.00	$73.44
Eras	Diego		Jr Eng 1	5/24/2011	$25.00	$68.00
Knorr	Rebecca		Jr Eng 1	6/20/2011	$27.00	$73.44
Chiang	Randa	EIT	Jr Eng 1	8/8/2011	$27.00	$73.44
Can	Daniel		Jr Eng 1	8/16/2011	$26.00	$70.72
Korkosz	Daniel		Eng Tech 4	3/10/2011	$36.99	$100.61
Molison	Stephen		Eng Tech 4	3/10/2011	$28.43	$77.33
Fares	Osama		Eng Tech 4	7/1/2010	$35.10	$95.47
Leung	Shing-Wai		Eng Tech 3	3/10/2011	$31.09	$84.56
Zhou	Miao		Eng Tech 3	3/10/2011	$27.50	$74.80
Saadi	Nabil		Eng Tech 3	3/10/2011	$28.01	$76.19
St. Denis	Philip		Eng Tech 2	2/25/2010	$34.10	$92.75
Fischer	Brian		Eng Tech 2	3/10/2011	$20.00	$54.40
Perez	Daniel		Eng Intern 2	5/16/2011	$16.00	$43.52
Margarito	Malabunga		Eng Intern 1	3/10/2011	$18.00	$48.96
Saadi	Felix		Eng Intern 1	3/10/2011	$10.40	$28.29
Manzi	Christopher		Survey Crew Chief	3/10/2011	$28.94	$78.72
Draftsman/CAD Operations						
Magyawe	Joselito		Chief Cad Officer	3/10/2011	$36.88	$100.31
Chung	Woo		Sr Cad Operator	3/10/2011	$36.80	$100.10
Curti	Robert		Sr Cad Operator	3/10/2011	$34.91	$94.96
Issa	Jay		Cad Operator 2	3/10/2011	$29.40	$79.97
Marquez	Beverly		Cad Operator 2	3/10/2011	$29.05	$79.02
Grip	Robert		Cad Operator 1	3/27/2011	$26.50	$72.08
Rowe	Osbourne		Cad Operator 1	3/3/2011	$27.50	$74.80
Tyler	Dewey		Jr Cad Operator	3/10/2011	$25.00	$68.00

P.E. Diver/Diver

Daniels	Matthew	P.E.		3/10/2011	$58.95	$160.34
Green	James	P.E.		3/10/2011	$58.95	$160.34
Moody	Brian	P.E.		3/10/2011	$58.95	$160.34
Fischer	Brian			3/10/2011	$58.95	$160.34
Korkosz	Daniel			3/10/2011	$58.95	$160.34
Molison	Stephen			3/10/2011	$58.95	$160.34
Plate	Craig			3/10/2011	$58.95	$160.34
St. Denis	Philip			2/25/2010	$58.95	$160.34
Sundvik	Carl			2/25/2010	$58.95	$106.34

Tender

Clarke	Shannon			7/1/2011	$42.10	$114.51
Collins	Stephen			7/1/2011	$42.10	$114.51
Coulter	Ryan			7/1/2011	$42.10	$114.51
Daniels	Matthew	P.E.		7/1/2011	$42.10	$114.51
DeSantis	Dominic			7/1/2011	$42.10	$114.51
Green	James	P.E.		7/1/2011	$42.10	$114.51
Moody	Brian	P.E.		7/1/2011	$42.10	$114.51
Fischer	Brian			7/1/2011	$42.10	$114.51
Karaoglan	Michel			7/1/2011	$42.10	$114.51
Korkosz	Daniel			7/1/2011	$42.10	$114.51
Mase	Christopher	P.E.		7/1/2011	$42.10	$114.51
Molison	Stephen			7/1/2011	$42.10	$114.51
Plate	Craig			7/1/2011	$42.10	$114.51
St. Denis	Philip			7/1/2011	$42.10	$114.51
Sundvik	Carl			7/1/2011	$42.10	$114.51

Diver/Tender Supplemental Fringe Benefit

Clarke	Shannon			7/1/2011	$32.58	Direct non-salary cost
Collins	Stephen			7/1/2011	$26.32	Direct non-salary cost
Coulter	Ryan			7/1/2011	$29.07	Direct non-salary cost
Daniels	Matthew	P.E.		7/1/2011	$22.66	Direct non-salary cost
DeSantis	Dominic			7/1/2011	$34.15	Direct non-salary cost
Green	James	P.E.		7/1/2011	$19.01	Direct non-salary cost
Moody	Brian	P.E.		7/1/2011	$28.70	Direct non-salary cost
Fischer	Brian			7/1/2011	$34.16	Direct non-salary cost
Karaoglan	Michel			7/1/2011	$27.84	Direct non-salary cost
Korkosz	Daniel			7/1/2011	$22.18	Direct non-salary cost
Mase	Christopher	P.E.		7/1/2011	$27.34	Direct non-salary cost
Molison	Stephen			7/1/2011	$35.79	Direct non-salary cost
Plate	Craig			7/1/2011	$33.82	Direct non-salary cost
St. Denis	Philip			7/1/2011	$34.65	Direct non-salary cost
Sundvik	Carl			7/1/2011	$21.58	Direct non-salary cost

Survey Prevailing Wage

Manzi	Christopher		Survey Crew Chief	7/1/2011	$32.86	$78.72
Tyler	Dewey		Instrumentman	7/1/2011	$27.28	$68.00
Daur	Luke	P.E.	Instrumentman	7/1/2011	$27.28	$98.63
Fischer	Brian		Rodman	7/1/2011	$23.74	$98.63
Molison	Stephen		Rodman	7/1/2011	$23.74	$98.63

Survey Supplemental Fringe Benefit

Manzi	Christopher		Survey Crew Chief	7/1/2011	$0.50	Direct non-salary cost
Tyler	Dewey		Instrumentman	7/1/2011	$8.04	Direct non-salary cost
Daur	Luke	P.E.	Instrumentman	7/1/2011	$6.16	Direct non-salary cost
Fischer	Brian		Rodman	7/1/2011	$7.80	Direct non-salary cost
Molison	Stephen		Rodman	7/1/2011	$10.37	Direct non-salary cost

SECTION F
Relevant Firm Experience

MCLAREN ENGINEERING GROUP, founded in 1977, and headquartered in West Nyack, New York, with offices in New York City, New York; Baltimore, Maryland; Meriden, 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 34 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 34 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)
- Underwater videography and photography
- Various cleaning methods – pneumatic brush, hand scraper, water blaster
- Ultrasonic testing
- Statistical relevance of representative sampling

- Cold weather diving
- 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/Off-loading Machinery
- 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's 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

Long Branch Ferry Terminal & Entertainment Pier Design. McLaren is providing overall Program Management, as well as marine, site/civil, structural, geotechnical engineering and surveying services needed for design and construction of a new oceanfront pier in Long Branch, New Jersey. The $120 million pier will include multi-functional retail and entertainment facilities, a ferry terminal providing commuter access to New York City, renewable energy resources, and a learning center. The pier is a critical aspect of the City's redevelopment plan, enhancing its identity as a premier United States destination. The McLaren project team identified funding opportunities for the terminal and pier to become a long-term source of sustainable economic development for the City. In order to keep the community fully engaged in the vision of the new pier, McLaren is leading an inclusive, collaborative public process that will strengthen the design and execution as the project moves forward. A series of facilitated workshops, known as "charrettes," have been organized to identify important questions and articulate the shared priorities – an effective means of achieving broad support for the project over the long-term. **Contact: BBPCA, Inc.,** Mr. Brian Dowling, 410-266-7800

2005-2011 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

On-Call Waterfront, Geotechnical, and Structural Engineering Consultant – PANYNJ

Inspection of New Jersey Marine Terminal – Berths 88-98 (Even) and Turntable, Port Elizabeth. McLaren provided marine engineering services in connection with the performance of a condition survey of Berths 88, 90, 92, 94, 96, 98 and Turntable located at the New Jersey Marine Terminal. McLaren performed an underwater inspection including a visual inspection (swim-by) and a hands-on (tactile) inspection of all timber and steel piles; all pile cap beams and pile extensions; and deteriorated portions of the deck soffit, as identified during the visual inspections. The piles were inspected from the mudline up to the undersides of the pile caps or pile extensions. A visual examination of the concrete edge beam and wharf topside was also performed to determine their general conditions and to identify sinkhole locations. Visual inspection (swim-by) of the exposed and accessible surfaces along the entire length of the steel sheet pile bulkhead was performed, and soundings were taken at 50 feet intervals along the bulkhead. At the conclusion of fieldwork, McLaren prepared a condition survey report, which contained inspection findings, conclusions, and recommendations. Repair recommendation plan sketches were included and identified all priority, routine, and safety repairs.

Rehabilitation of JFK Outfall #10 & 13. McLaren was retained to provide engineering services for the reconstruction design of Outfalls #10 and 13 at JFK International Airport. The outfalls, which are located on the south side of the airport adjacent to Runway 31L/13R, convey a portion of the airport drainage to the Grassy Bay.

The largest outfall, Outfall #10, consists of a pile-supported triple barrel 13' x 7' box culvert constructed of cast-in-place concrete. Outfall #13 is a pile supported 60-inch diameter outfall located east of Outfall #10. The existing outfall is installed in a 13' x 7' box culvert. The project included inspection and structural design services.

Underwater Inspection at Lincoln Tunnel Ventilation Building. McLaren performed an underwater condition survey of the exterior faces of the Lincoln Tunnel New York River Ventilation Building. Services included a hands-on inspection on the entire surface area of the encasement walls, which involved underwater and above water inspection of the granite block walls, which clad the north and center tube caisson foundations, and the granite fascia panels, which clad the lower portions of the river ventilation building. A complete visual inspection and partial hands-on inspection of the deteriorated portions of the Pier 79 deck soffit, as identified during the visual inspections, was performed. Soundings were also taken at 10-foot intervals along the faces of the north and center tube shafts. The status of all previously recommended repairs were verified and compared with the previous condition survey inspection and a condition survey report, which contained the inspection findings, conclusions, and recommendations, was prepared.
Contact: Port Authority of NY&NJ, Mr. Chung Lin, 973-792-3909; Mr. Suren Batra, (973)-792-3959

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 then provided construction administration services. These services included support of the bidding process and full time construction inspection services. **Contact: Battery Park City Authority,** Mr. Kevin Chin, 212-416-5367

Marine Engineering and Design Services for Vernon C. Bain Floating Facility & Other Marine Structures. Under this on-call term agreement for the New York City Department of Corrections, McLaren is performing marine and geotechnical engineering, underwater and site inspections, and permitting services for the dry-docking of the Vernon C. Bain Center (VCBC) on Riker's Island and for other NYCDOC marine structures on an as-needed basis. For the dry-docking of the VCBC floating facility, McLaren is performing physical condition surveys and assessment of VCBC structural steel surfaces (including surfaces located underwater) and other areas; generating pre-design, design, and final design documents; and performing construction administration services. McLaren reviewed and specified a transportation system for transporting the prison barge to a dry docking facility, and prepared all designs to re-dock the prison barge at the same or new location upon its return from the dry docking phase. Additional marine engineering tasks could be assigned as part of this agreement for other facilities on Riker's Island as well as various DOC-owned facilities throughout New York. Contact: NYCDOC, Mr. Hardee Saini, 718-546-0806

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 contracted 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. **Contact: Port Authority of New York & New Jersey**, Ms. Nilgun Ozdemir, (973) 792-4766

NYCDOB "On-Call" Emergency Structural Assessment Agreement. McLaren is providing "On-Call" Emergency Building Condition Assessment Services that include structural condition assessments; coordination of architectural and MEP assessments; design and coordination of structural repair recommendations; and cost estimating; and construction support services. Facilities include various building design and construction types, including historic structures, along with tower crane structures. Facilities inspected to date have included emergency engineering response to stabilize an earthen slope where a retaining wall collapsed at 41-57 Waterview Court in Staten Island, New York. Survey monitoring, vibration monitoring and engineering services to stabilize hazardous conditions of the slope supporting the building were completed. In addition, in emergency response to the tower crane collapse of March 2008, the DOB tasked McLaren to perform observations of various cranes and their installations. **Contact**: NYC Department of Buildings, Mr. Dan Eschenasy, (212) 566-3845

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

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, 6, 7, 7A, 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 many forms of timber construction and conditions. 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. James Corley, Jr., (718) 852-1441

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

Port Imperial Ferry Terminal – Marine and Fendering Design – Ferry operations returned to the New York Harbor in 1986 with service provided by New York Waterway and Arthur Imperatore. Several temporary facilities were created throughout the harbor to service the operation, and ridership has increased to a consistent level sufficient to support a major intermodal terminal. The facility includes a three-level, 38,000-square foot terminal building, four ferry slips on two floating platforms, and intermodal interface with the Hudson-Bergen light rail transit system. Ramps and access are compliant with the 1999 regulations for accessibility by the American Disabilities Act (ADA). The magnificent structure includes a fabric roof lantern, 39-foot-high curtain walls, balconies, and public access throughout. The building platform will be a pre-cast concrete slab supported by pre-cast beams, pile caps and steel piles. The 120-ton H-piles were driven to bedrock, approximately 80 feet below the mudline. McLaren provided all marine, structural, foundation, and accessibility design services associated with this contract. As a key commuter option in the New York Metropolitan area, ferry vessels embark / disembark from the Port Imperial Ferry Terminal many times daily. **Contact: GGES,** Mr. Donald Liloia, (201) 370-3326.

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

SECTION G
Proposed Management Approcah

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 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 8,000 projects our 34-year history.

SECTION H
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 I
Quality Control Plan

Section I
Quality Control Plan

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 of the schedule flow, while ensuring that each element received through inspection for adherence to design criteria, while meeting the objectives of the PANY&NJ. Senior level personnel will be made available to review all work elements and to ensure a consistency of project, along with the highest engineering quality to meet the demands of the projects.

Our quality control procedures include the implementation of corrective action and a readily available paper trail to record and document all actions. Our Quality Services Program continually defines, reviews, and augments the process, encompassing all aspects of the operation. McLaren Engineering Group is committed to strict adherence to quality control, and will meet the PANY&NJ's requirement to insure this project's successful outcome.

Key features of our Quality Control Process are:

- Formal kick-off meetings to fully define task requirements, input from client, technical approach, schedule and milestones, deliverable, 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 have been assigned and can accomplish the work in the time and hours allocated.
- Periodic reviews by line supervisors to ensure that 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 Department Manager and Project Manager as well as incorporating corrections prior to issue to client.

Upon request, this plan will be made available to the PANY&NJ.

SECTION J
No Conflict of Interest

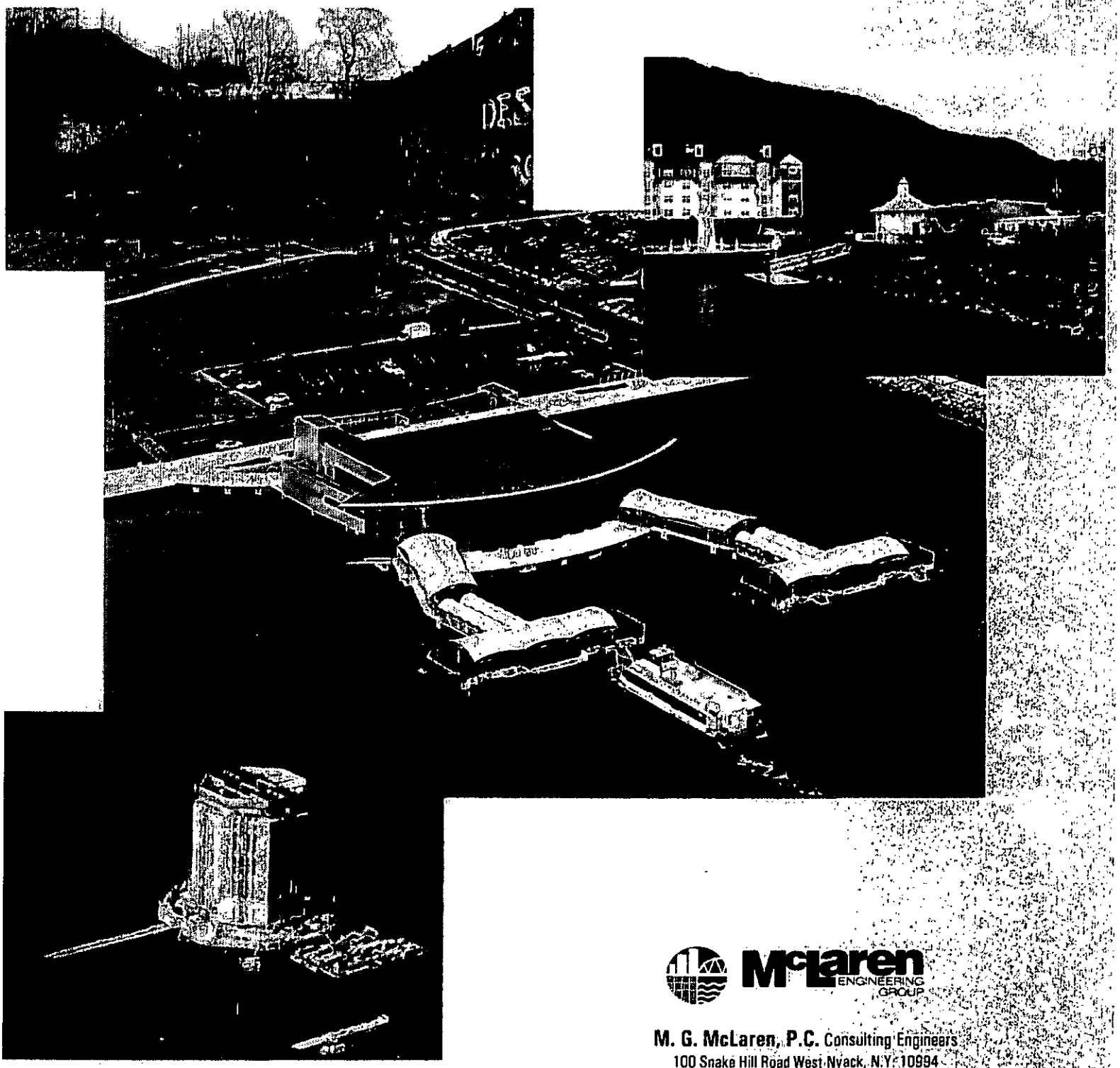
Section J
No Conflict of Interest

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" Contract.

SECTION K
No Exceptions

Section K
No Exceptions

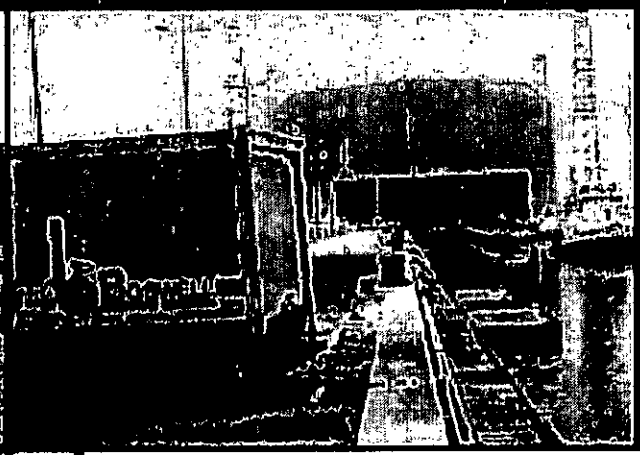
McLaren Engineering Group has performed a cursory review of the contract terms and conditions and at this time have no exceptions based on the said review.



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 III

THE PORT AUTHORITY OF NY & NJ

RFP NUMBER 26350
PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012



Boswell Underwater Engineering

A Division of Boswell Engineering

October 14, 2011

ATTACHMENT B

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or 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 Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information 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 this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to 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 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 Policy and Procedure adopted by the Port Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/corporate-information/freedom-of-information.cfm* , not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, 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
(Company)

Kevin J. Boswell
(Signature)

Kevin J. Boswell, P.E.
Vice President
(Title)

October 13, 2011
(Date)

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SECTION I

SECTION I

LETTER OF TRANSMITTAL

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

HAND DELIVERY

October 13, 2011

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 2012
RFP Number 26350
Our File No. PR-11-4059

Boswell Engineering, Inc. (BE) is pleased to submit one (1) reproducible original and three (3) copies of our proposal, along with four (4) compact disk copies, to provide underwater inspection and technical services on the above-referenced contract as requested by your RFP dated September 22, 2011.

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 208th among the Top ENR 500 Design Firms and 40th 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.

Our relevant experience has been demonstrated with over 830 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 120 projects involving underwater investigations and structural assessments of waterfront facilities, many of them for the PANY&NJ, and has prepared over 1100 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 300 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. John Valentin, P.E., will serve in the capacity of Chief Structural Engineer on this contract and has over 24 years experience in the management, design, and inspection of buildings, bridges, and pier projects. Mr. Valentin 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 318 project assignments for the Port Authority involving waterfront condition surveys and quality assurance diving inspections. While forty-three (43) 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 Chung-Ching Lin, Jan Perez, Suren Batra, John Lin, Rene Barrios, Rob Gill, Dennis Cavaliere, Frank DeLassio, "Kaz" Bognacki, Dan Webber, Pat Rose, Barry Feldman, 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 ADCI 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 fifteen (15) 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, P.E.
Director & General Manager

MJG/kc

BOSWELL ENGINEERING

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 250 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 208 among ENR's Top 500 Design Firms and number 40 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.

WATERFRONT & BRIDGE DIVING INSPECTION, FATHOMETER SURVEYING, DESIGN & MARINE CONSTRUCTION SUPERVISION EXPERIENCE

Since its inception in 1987 through 2010, the unique Underwater Engineering Division of the Boswell Organization has completed over 830 marine related projects, many of which involved the assessment and rehabilitation of waterfront facilities, submerged structures, and marine and ferry terminals. One hundred thirty-five (135) 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 2010, the firm has performed bridge diving inspections on a total of 9,917 substructure units (SSU) encompassing 2,774 bridges spanning waterways, and fathometer surveys on an additional 844 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

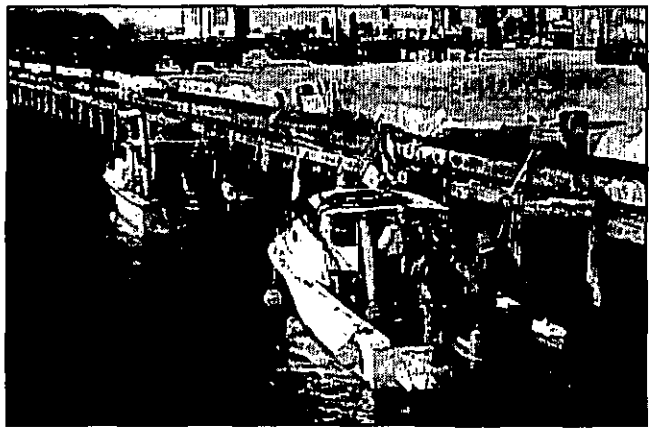
SECTION III

PROJECT DESCRIPTIONS / CLIENT REFERENCES

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

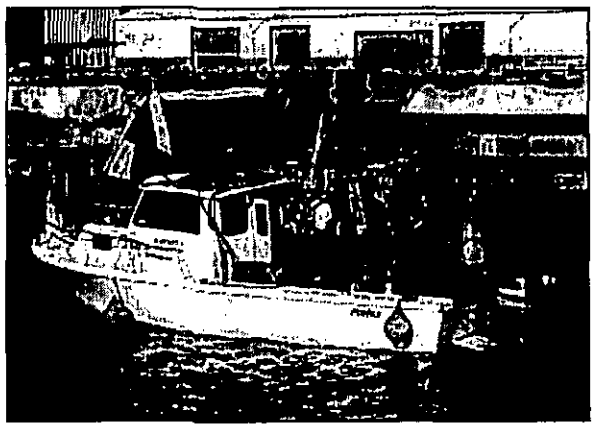
BUE recently received its 4th consecutive 3-year contract for Expert Professional Services for Performance of Condition Surveys of Waterfront Facilities on a Call-In Basis for the Quality Assurance Division (QAD) of the Port Authority of NY & NJ since 2000 (Term Agreements 405-00-02, 2000-2002; 405-03-007, 2003-2005, 405-06-018, 2006-2008; 405-09-025, 2009-2011). Forty-three (43) project assignments to-date involving condition surveys of piers, wharves, bulkheads, bridges, and buildings predominantly requiring underwater inspections to identify structural and non-structural deficiencies presenting safety hazards. Recommendations for correcting deficiencies and repair designs were also developed (2000-2011). Total Fee: $5,644,602. (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	11	$ 1,456,967
405-09-025	2009-2011	13	$ 1,742,768
TOTAL		43	$ 5,644,602

- **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**
- **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**

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
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Jan Perez – Project Manager/QAD
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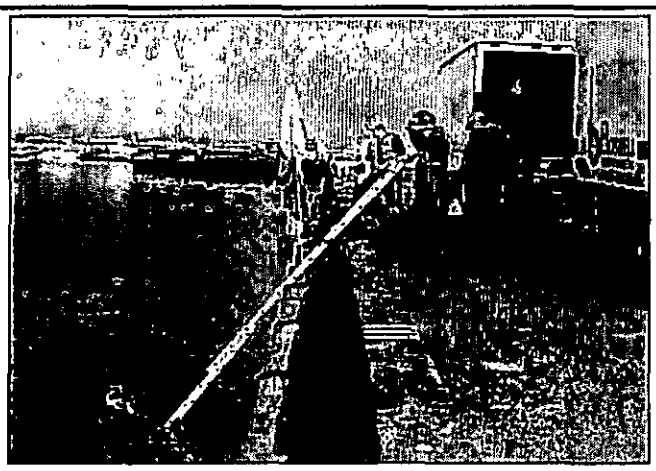
Barry Feldman - Project Manager/QAD
(973) 792-3910

- 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-0603-05).
- 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: $6,649
- Underwater Diving Investigation of New Jersey Marine Terminals, Port Newark Berth 19 (BUE-0603-11). Fee $2,649
- Emergency Post-Collapse Inspection of Berth 3, Port Newark (BUE-0903-01). Fee: $17,366
- LGA Condition Survey of Runway Extensions and Bowery Bulkhead (BUE-0903-02). Fee: $274,491
- Port Newark Even Berths, 2, 4, 6, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 & 36 Condition Survey (BUE-0903-04). Fee: $276,576
- Port Elizabeth Marine Terminal Berths 68-86 Condition Survey (BUE-0903-05). Fee: $253,321
- Greenville Yard Condition Survey (BUE-0903-06). Fee: $191,273
- JFK International Airport Five Bergen Basin Barge Piers Condition Survey (BUE-0903-07). Fee: $54,373
- LaGuardia ILS & ALS Runway Piers Condition Survey (BUE-0903-08). Fee: $100,882
- Condition Survey of Berths N1 & N2 at Port Jersey South (BUE-0903-10). Fee: $157,220
- JFK – Condition Survey of ILS Pier 4-22 (BUE-0903-11). Fee: $108,057
- Condition Survey of Brooklyn Piers 9A & 9B at New York Marine Terminal (BUE-0903-12). Fee: $225,633
- Immediate Inspection of Berths 11 & 82 at New Jersey Marine Terminal (BUE-0903-14). Fee: $19,860
- Post Hurricane Inspection of Various Marine Structures (BUE-0903-15). Fee: $8,716
- Condition Survey of Inspection of 65th Street Rail Yard Transfer Bridges (BUE-0903-16). Fee: $55,000

PROJECT DESCRIPTION / CLIENT REFERENCE

The Port Authority of NY & NJ
Materials Engineering Division (MED)
241 Erie Street, Room 234
Jersey City, NJ 07310-1397

Rob Gill - Staff Services Engineer/
Materials Engineering Division
(201) 216-2918



Services Provided

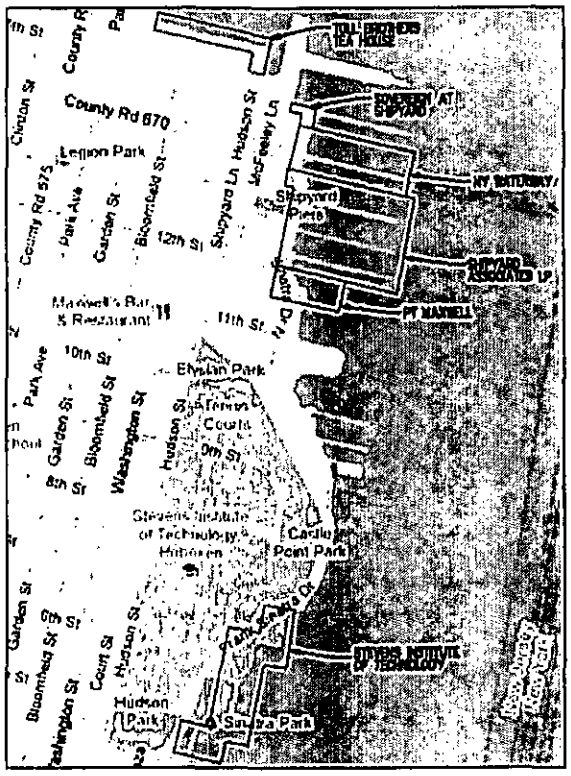
- Underwater investigations/condition surveys/audits
- Quality assurance marine construction inspection
- Verification of contractor payment quantities
- Contractor claims prevention
- Marine borer intrusion surveys
- Structural inventory and appraisal
- Concrete and timber core sampling
- Pre-and-post dredging hydrographic surveys
- Feasibility studies
- Alternative rehabilitation designs
- Cost estimating for facility repairs
- Pile wrap systems testing and evaluation
- New materials testing and evaluation
- Ultrasonic thickness gauging

BUE has been fulfilling the contracts for **Waterfront Condition Surveys Technical Services on a "Call-In" Basis for the Materials Engineering Division of the Port Authority of NY & NJ** since 1989 on 11 successive term agreements (of $500,000 or more each) and has developed an excellent reputation for providing reliable and high-quality services during this time period. To date, Boswell has worked effectively and expediently on 275 projects for the PANY & NJ, many of them concurrent and often requiring the fielding of four (4) inspection dive teams during a single workday. More than 90 of these projects involved quality assurance diving inspections during marine construction to assess the contractor's compliance with contract documents. The majority of these projects involved condition surveys of numerous waterfront facilities such as piers, wharves, bulkheads, relieving platforms, and ferry terminals comprised of timber, steel, concrete and composite structural members. Twenty-six (26) of these projects entailed both statistical random sampling and judgment sampling techniques to assess the full extent of biodeterioration caused by marine borer intrusion of timber structures. Core sampling techniques were used to assess the level of Teredo infestation (1989-Present). **Total Fee: $8,720,000.**

		No. of Assignments				
Agreement No.	**Years**	**CI**	**CS**	**MBS**	**Other**	**Total**
426-89-14	1989		1			1
410-90-007M	1990-1991		4	3		7
410-92-003M	1992-1993	6	12	4		22
426-94-010	1994	4	4	2		10
426-95-001	1995	2	2	2		6
426-96-009	1996-1997	15	19	2	1	37
426-98-012	1998	6	8	3		17
426-99-003	1999-2002	27	49	4	1	81
426-03-015	2003-2005	18	46	4		68
426-06-006	2006-2008	4	2	3	4	13
426-09-012	2009-2011	9	2		2	13
	Totals	**91**	**149**	**27**	**8**	**275**

Note: CI = Construction Inspections CS = Condition Surveys MBS = Marine Borer Surveys

PROJECT DESCRIPTION / CLIENT REFERENCE



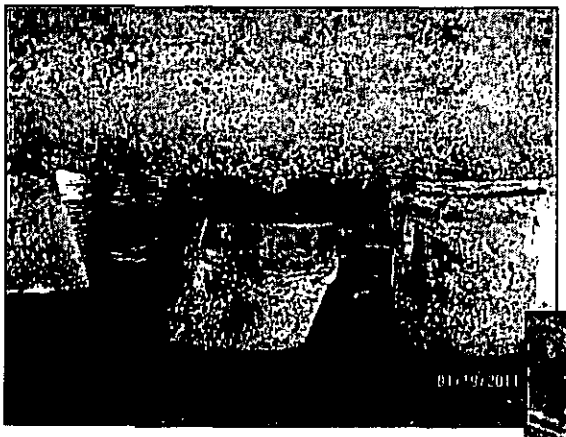
City of Hoboken
94 Washington Street
Hoboken, NJ 07030

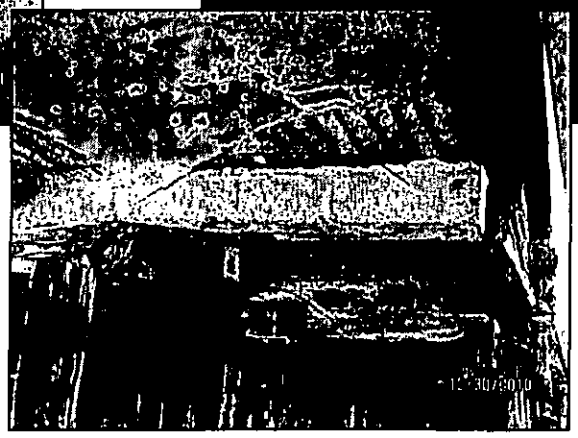
Jennifer W. Maier
Director of Environmental Services
(201) 420-2049
(201) 222-3830 (Fax)

Services Provided

Hoboken Privately-Owned Waterfront Structures Inspection. BUE performed condition survey inspections of all privately-owned waterfront facilities in the City of Hoboken. Inspection services were performed from November 2010 through February 2011 and lasted 52 field days utilizing a 3-man crew consisting of engineer and inspector divers utilizing commercial hard hat diving gear with surface-supplied air and diver-to-surface communication.

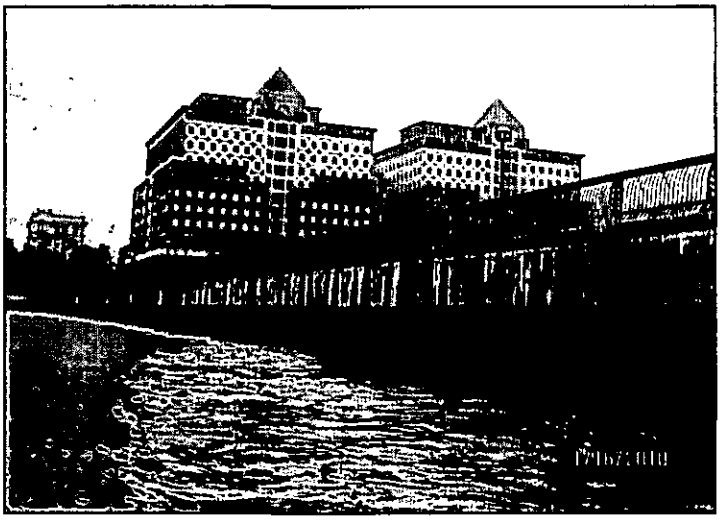
The condition surveys included 100% Level I and 10% Level II inspections of all substructure elements. The inspection encompassed 17 different structures of varying types and configurations including 872 steel pipe piles, 884 steel H-piles, 2,384 timber piles, 80 pre-stressed concrete piles and more than 1,500 LF of timber cribbing bulkhead. As a result of this project, Boswell was selected as the City's Waterfront Engineer to proceed performing subsequent tasks it had recommended in its report, including repair designs. (Job No. BUE-1010).





Total Fee: $247,620

PROJECT DESCRIPTION / CLIENT REFERENCE



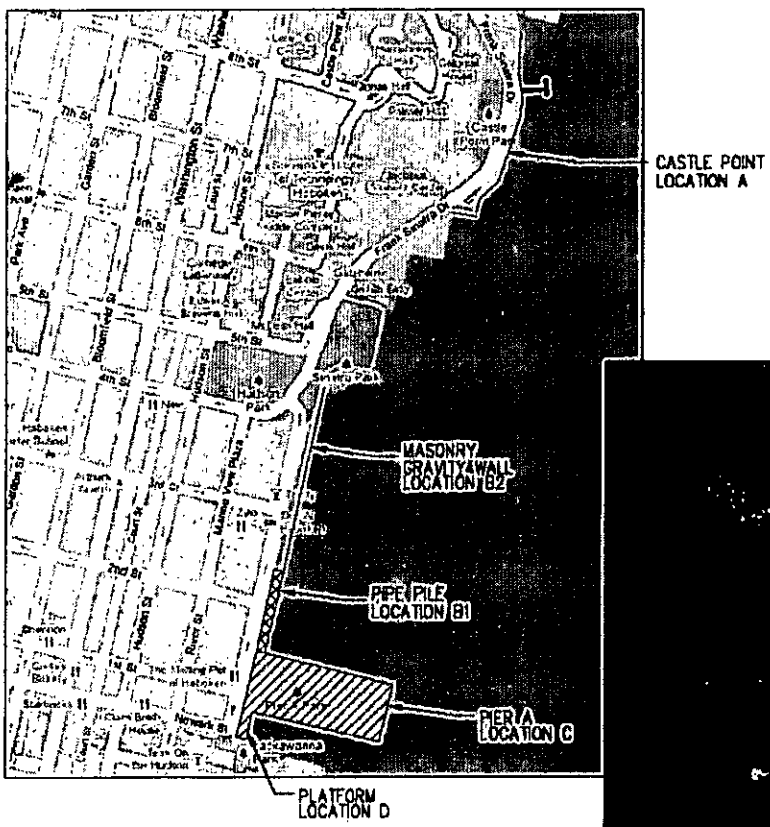
City of Hoboken
94 Washington Street
Hoboken, NJ 07030

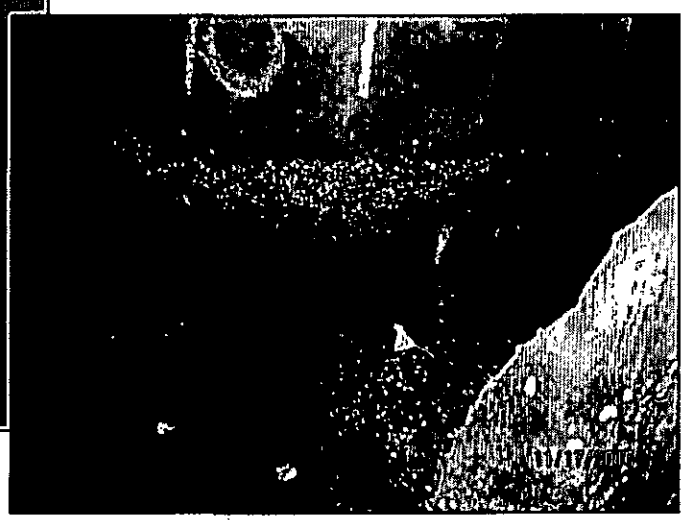
Jennifer W. Maier
Director of Environmental Services
(201) 420-2049
(201) 222-3830 (Fax)

Services Provided

Hoboken City-Owned/City-Leased Waterfront Structures Inspection. BUE performed condition survey inspections of all city-owned and city-leased properties in the City of Hoboken. Inspection services were performed from November 2010 to January 2011 and lasted 18 field days using a 3-man crew consisting of engineer and inspector divers utilizing commercial hard hat diving gear with surface-supplied air and diver-to-surface communication.

The work included 100% Level I visual inspection and 10% Level II inspections of all substructure elements. Facilities inspected included a concrete-encased steel H-pile supported pier (Pier A), a masonry gravity wall supported on timber cribbing and a concrete seawall and steel pipe pile supported high-level platform. As a result of this project, Boswell was selected as Waterfront Engineer by the City of Hoboken, upon which the firm began performing follow-up tasks it had recommended, including repair design of Pier A. (Job No. BUE-1009).

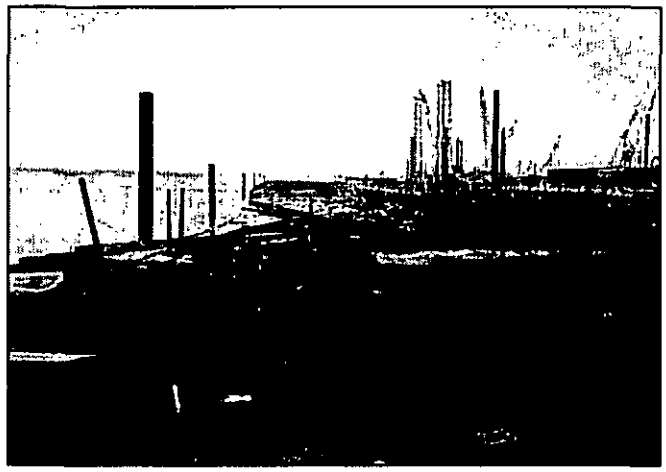




Total Fee: $86,775

PROJECT DESCRIPTION / CLIENT REFERENCE

POST HURRICANE INSPECTIONS
of Various Marine Structures



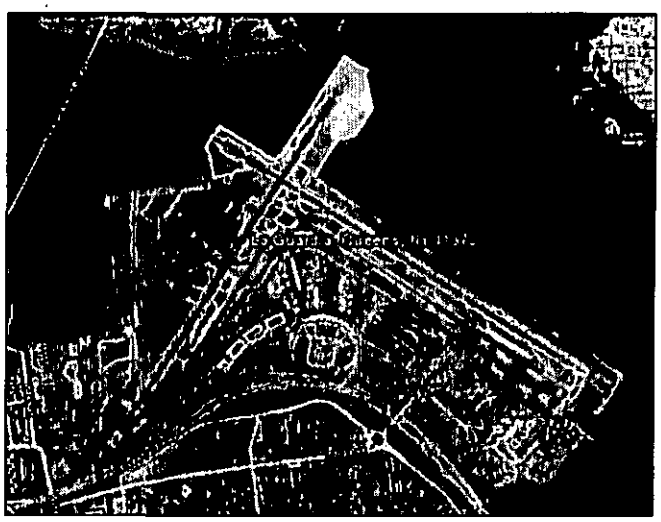
The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

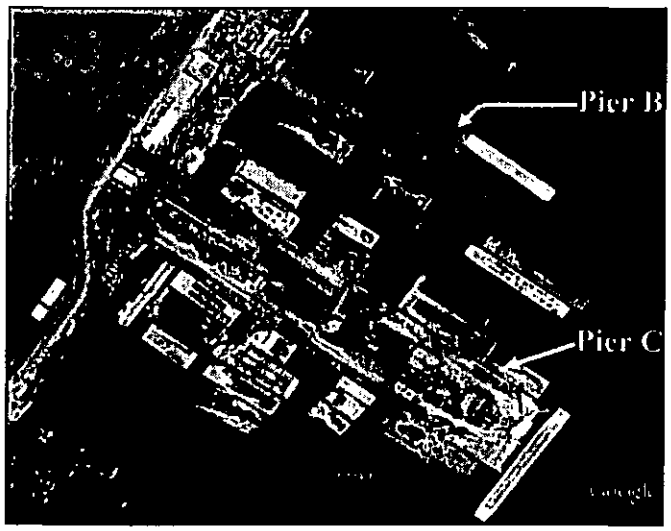
Chung-Ching Lin – Project Manager/QAD
(973) 722-3959
clin@panynj.gov

Services Provided

As part of a term agreement for Expert Professional Services **to evaluate the condition of structures and to identify any structural and non-structural deficiencies for the Quality Assurance Division of the Port Authority of NY & NJ, Boswell Underwater Engineering (BUE) performed Post-Hurricane inspections of the LaGuardia runway extensions in Queens, New York and Greenville Yards Piers B and C in Bayonne, New Jersey.** The condition survey of the LaGuardia runway extensions entailed an above water visual inspection of all pile caps, beams and underdeck. A visual inspection of all under pier utility hangers, conduit and raceways was performed to check for any damage to the elements caused by storm surge from Hurricane Irene.

The inspection at Greenville Yards entailed an above water visual inspection of Piers B and C; prior to the inspection, both structures had existing areas of partial collapse. The inspections were performed to document the limits of collapse and to determine if the hurricane had caused further damage to the structures. The inspections were performed by a 3-man team over the course of 3 days in August, 2011 (Job No. BUE-0903-15).

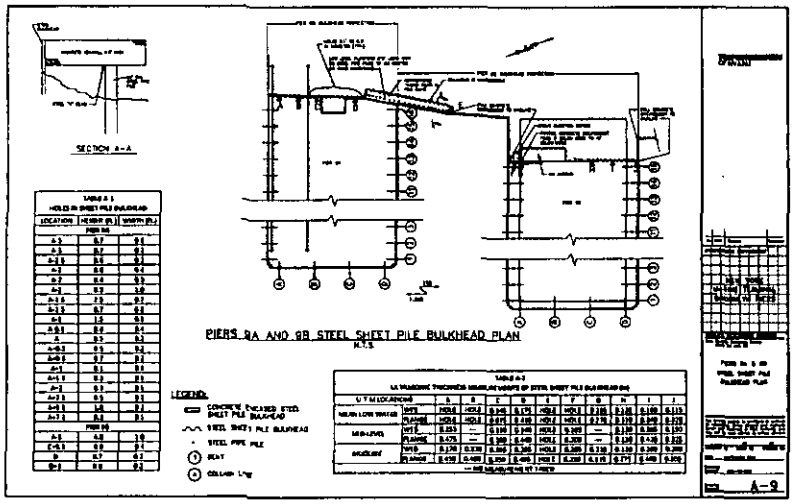




Total Fee: $8,716

PROJECT DESCRIPTION / CLIENT REFERENCE

CONDITION SURVEY INSPECTION
of Piers 9A and 9B including Bulkheads
Brooklyn, NY



The Port Authority of NY & NJ
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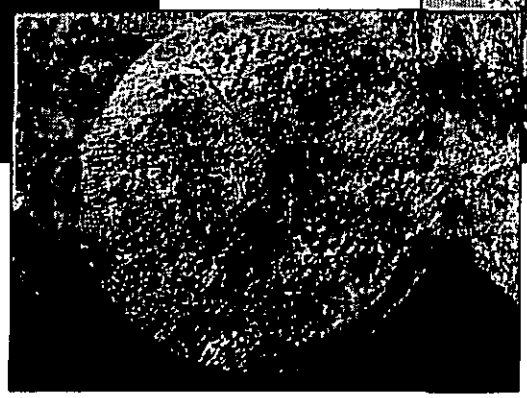
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

Chung-Ching Lin – Project Manager/QAD
(973) 722-3959
clin@panynj.gov

Services Provided

As part of a term agreement for Expert Professional Services **to evaluate the condition of structures and to identify any structural and non-structural deficiencies for the Quality Assurance Division of the Port Authority of NY & NJ, Boswell Underwater Engineering (BUE) performed a Condition Survey of Piers 9A and 9B in Brooklyn, New York**. The condition survey entailed the inspection of all structural elements of both piers including 5,176 timber piles with concrete pile extensions, 140 steel pipe piles and 1,175 linear feet of steel sheet pile bulkhead. A Level I visual inspection was performed on all structural elements and a Level II inspection was performed on 10 percent of all timber piles, steel pipe piles and steel sheet pile bulkhead. The Level II inspections for the steel piles and steel sheet pile bulkhead included ultrasonic thickness measurements of the steel to determine remaining cross-sectional area. Due to extensive marine borer damage of the timber piles, BUE was tasked with removing a timber pile to assess the extent of internal marine borer damage over the length of the pile. A total of 42 days in the field using a 3-man dive team were spent in carrying out the work which occurred during the summer of 2011 (Job No. BUE-0903-12).



Total Fee: $225,633

PROJECT DESCRIPTION / CLIENT REFERENCE

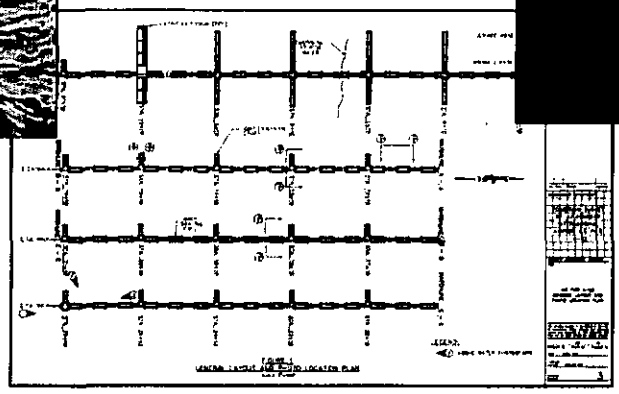
J.F. Kennedy International Airport
ILS Pier 4-22

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

Steven Vecchione – Project Manager/QAD
(973) 792-3997
svecchione@panynj.gov

Services Provided

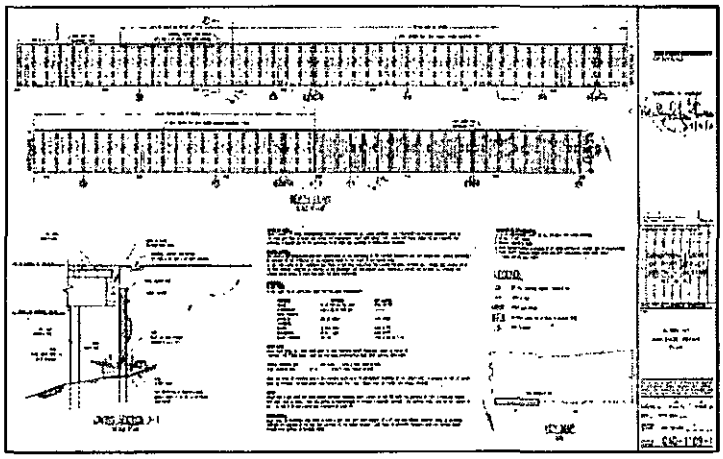
As the 2009 portion of a cyclical contract for **Expert Professional Services** to evaluate the overall condition of structures and to identify any structural and non-structural deficiencies for the **Quality Assurance Division of the Port Authority of NY & NJ,** BUE performed visual inspections on 100% of the structural elements and the topside deck. 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 **JFK Runway 4-22 ILS Pier.** The fender system was excluded from the scope of work. This inspection was performed in order to assess the condition of and recommend repairs in order to counteract the structural deterioration of Timber Piles, Bracing, Stringers and Associated Hardware, of which all findings were presented in a condition survey report. A total of 30 days in the field using a 3-man dive team were spent in carrying out the work over the course of the winter of 2011 (Job No. BUE-0903-11).



Total Fee: $108,057

PROJECT DESCRIPTION / CLIENT REFERENCE

BERTHS N1 and N2
at Port Jersey South

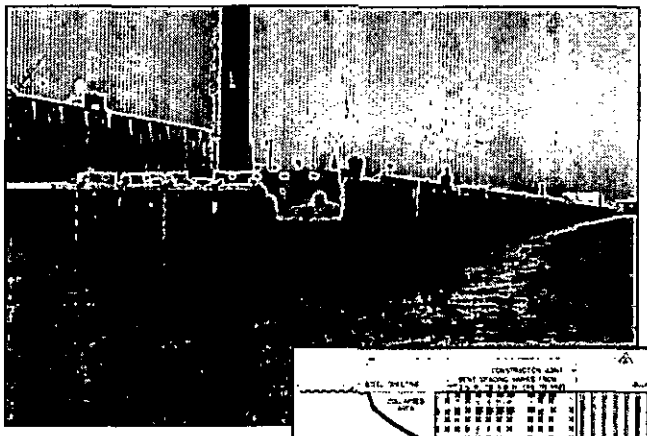


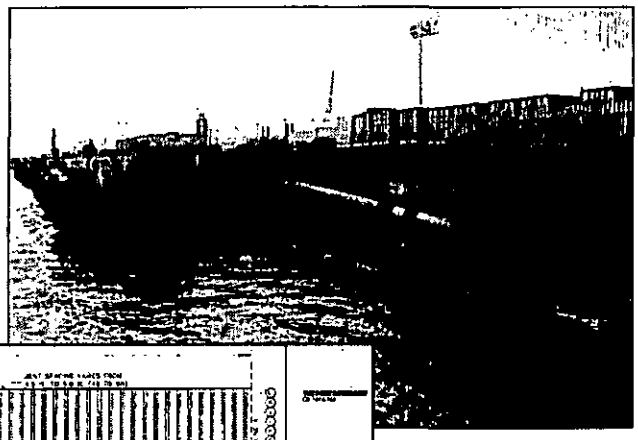
The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

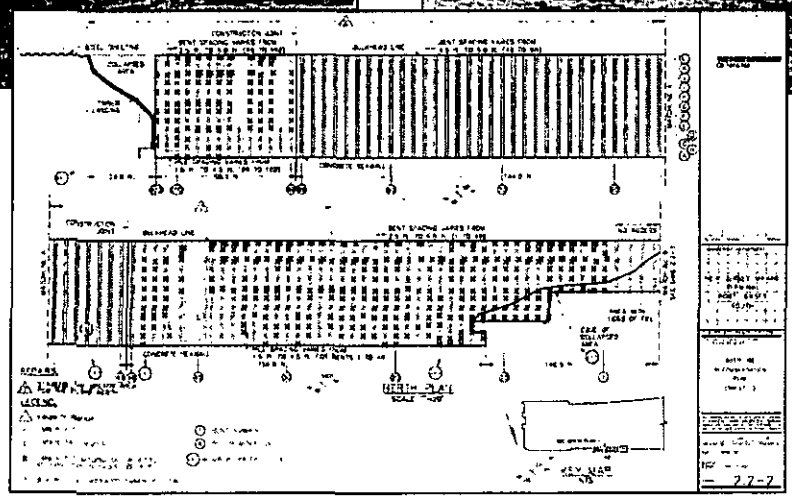
Chung-Ching Lin – Project Manager/QAD
(973) 722-3959
clin@panynj.gov

Services Provided

As part of a "Call-In" Basis contract, **Expert Professional Services provided by BUE carried out a Baseline Condition Survey Inspection of Berths N1 and N2 at Port Jersey South 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 10% hands-on inspection of treated timber piles, concrete p/s 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, tables, and plan and elevation drawings. A 3-man dive team conducted the inspection during the summer of 2011 (Job No. BUE-0903-10).





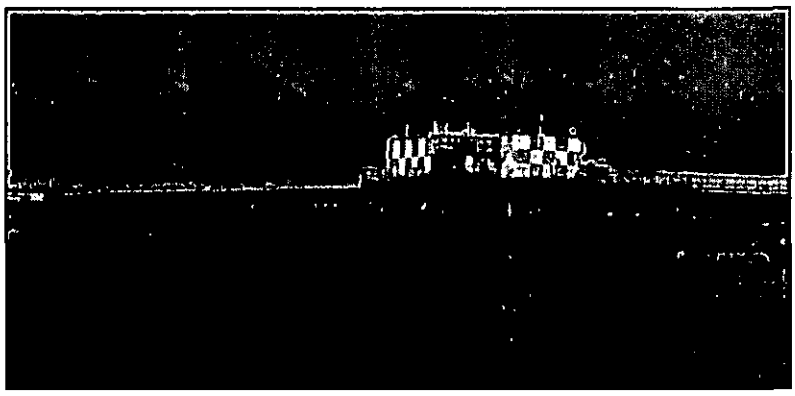


Total Fee: $157,220

PROJECT DESCRIPTION / CLIENT REFERENCE

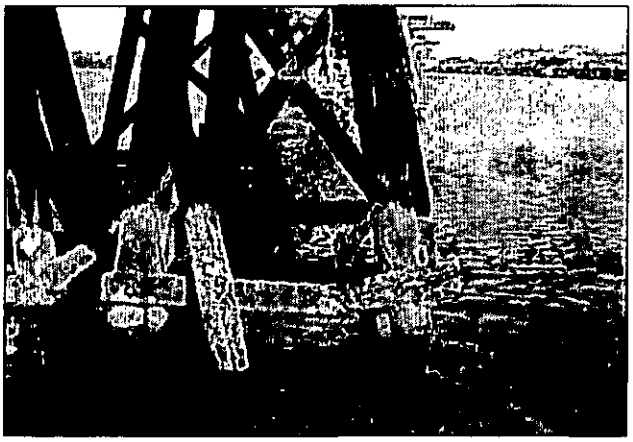
The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

Jan Perez – Project Manager/QAD
(973) 792-3986
(973) 792-3909 - Fax



Services Provided

Boswell Underwater Engineering performed a **cyclical condition survey of the underwater and above water elements of the ALS 13 Pier, ILS/ALS 22 Pier and Beacon/Marker Platform, Localizer Roadway Pier and Platform, VOR Pier, and Transmissometer Pier, which extend from the LaGuardia Airport Runway Extensions 4-22 and 13-31, located in Queens, New York**. The purpose of the inspection was to determine the overall condition of the structures and to identify structural and non-structural deficiencies. The survey included a 100% visual and minimum of 10% hands-on inspection of approximately 1000 timber piles and their associated timber caps and bracing, 85 steel pipe piles and their associated concrete caps, steel hardware for timber bracing, timber deck stringers, timber and fiberglass grate decking, curbing and handrails. Also, depth soundings were taken along the length of each of the piers, with the data collected from the soundings being used to generate mudline profiles in their respective locations. 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 summer of 2010 (Job No. BUE-0903-08).



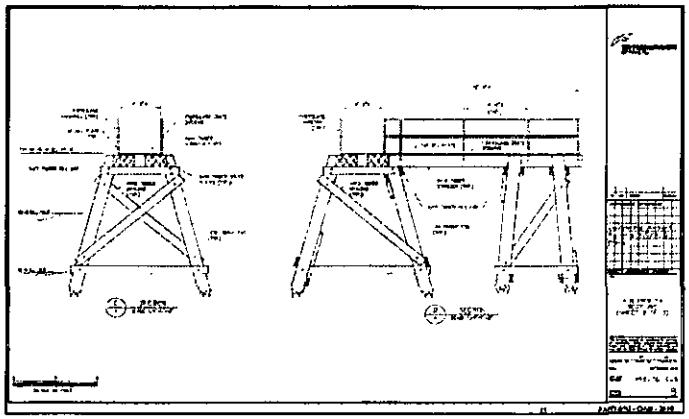
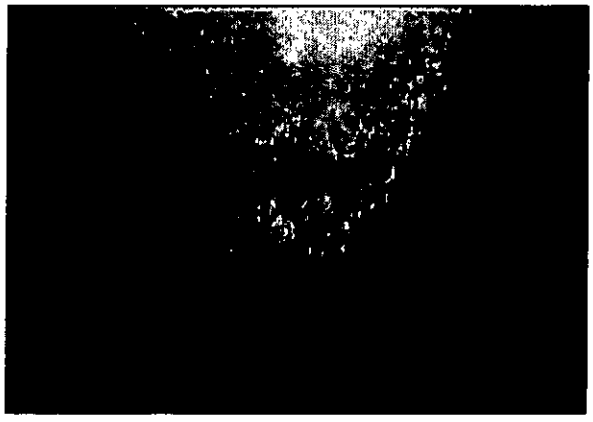


Table 5 – Safety Repair Recommendations

Repair Item No.	Inspection Condition: Location/Element	Inspection Condition: Description	Repair Recommendations	Reference Dwg./Photo
1	ALS 13 Pier - 10 Locations ILS ALS 22 Pier and Beacon Marker Platform 20 Locations Transmissometer - 5 Locations VOR Pier - 1 Location Fiberglass Handrail	Missing or unsecured handrail	Repair railing	2, 4, 5 / -- 10, 11, 12, 14, 15 / 14, 15 21 / -- 19 / --
2	ILS ALS 22 Pier and Beacon Marker Platform - 3 Locations Wiring	Exposed wiring	Protect exposed wiring	19, 21 / 12
3	Localizer Roadway Pier - 2 Locations Reflector	Missing reflectors	Replace missing reflectors	16 / 13
4	ALS 13 Pier - 1 Location Localizer Roadway Pier and Platform - 11 Locations Deck Plank	Broken deck planks	Repair broken deck planks	2 / -- 16 / 11
5	ALS 13 Pier - 33 Locations Transmissometer - 1 Location Kick Plate	Detached or loose kick plate	Repair detached or loose kick plate	2, 6 / 10 21 / --

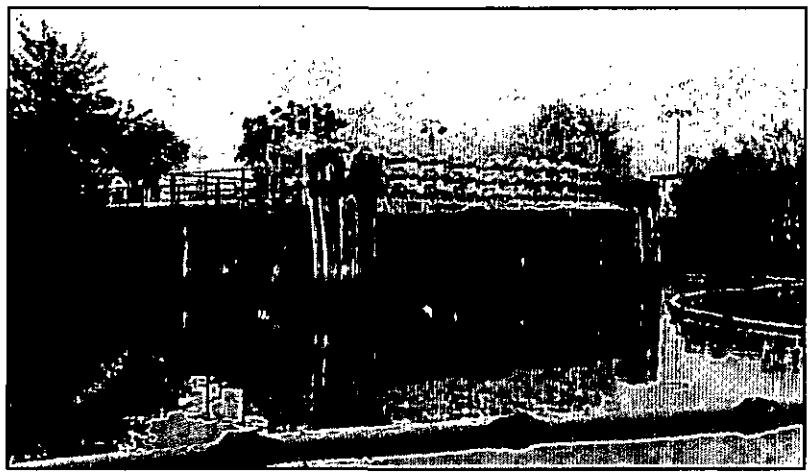


Total Fee: $100,882

PROJECT DESCRIPTION / CLIENT REFERENCE

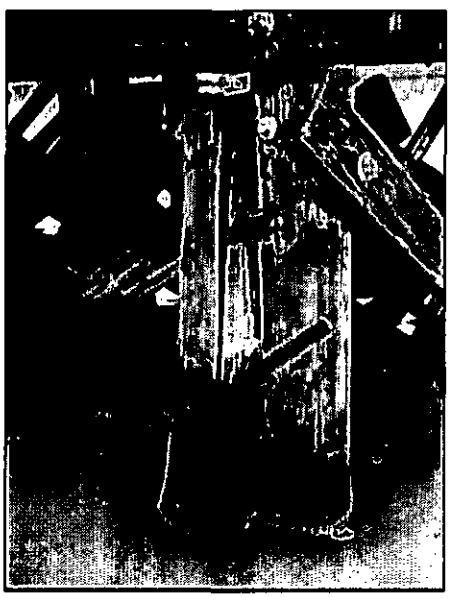
The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

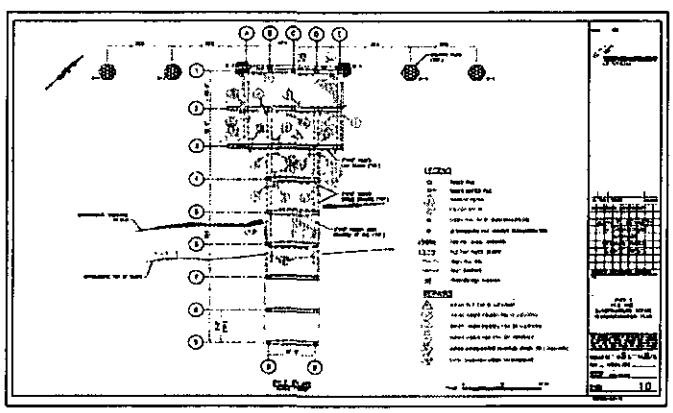
Jan Perez – Project Manager/QAD
(973) 792-3986
(973) 792-3909 - Fax

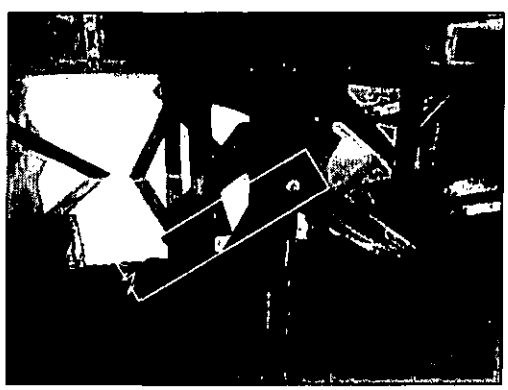


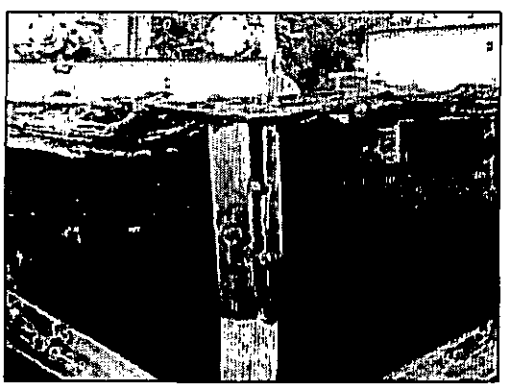
Services Provided

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 10% 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 2010 (Job No. BUE-0903-07).









Total Fee: $54,373

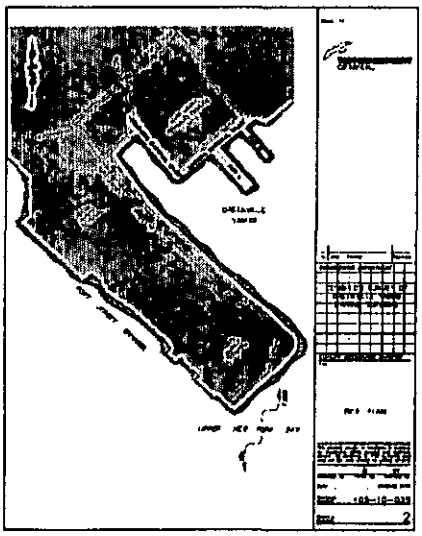
PROJECT DESCRIPTION / CLIENT REFERENCE

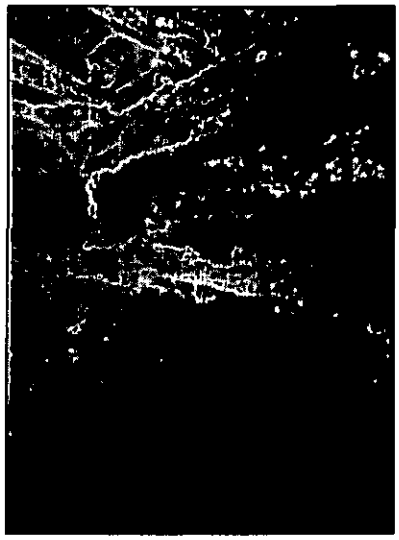
The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

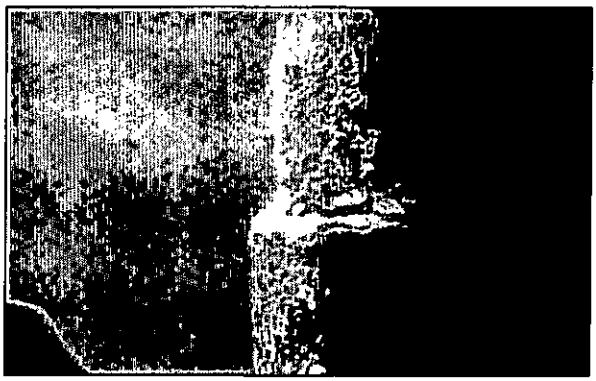
Suren Batra – Project Manager/QAD
(973) 792-3959
(973) 792-2908 - Fax

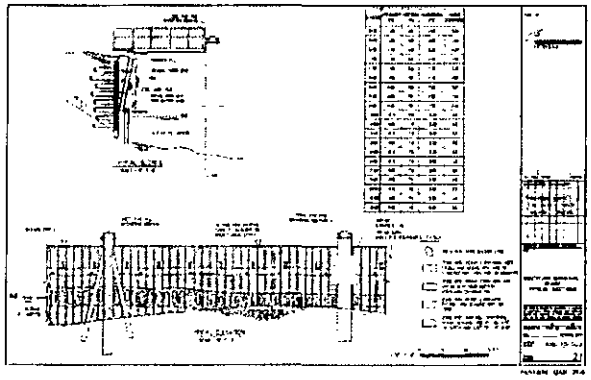
Services Provided

As 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, Boswell Underwater Engineering (BUE) performed a condition survey of the Greenville Yards**, located in Bayonne, New Jersey. The condition survey entailed an inspection of all structural elements of Pier C, which included 3,617 accessible timber piles of a total of 4,765 piles, and approximately 2,040 linear ft of concrete gravity walls. An above water inspection of Pier B was performed from a boat to delineate areas of potential collapse and items that may become a floating debris hazard. The Southern Marginal Wharf, which included approximately 1,335 linear ft of steel sheet pile bulkhead and 12 steel pipe pile breasting dolphins, and the Eastern Marginal Wharf, which included approximately 900 linear ft of collapsed timber crib bulkhead were also inspected. The fender system was not included in the scope of this condition survey. The inspection was conducted at various percentages of visual and hands-on inspection. During the course of the inspection, one condition was found that required immediate action. Due to severely deteriorated timber piles and pile caps, load restrictions were recommended for portions of Pier C. A total of 30 days in the field using a 3-man dive team were spent in carrying out the work which spanned the spring and summer of 2010 (Job No. BUE-0903-06).







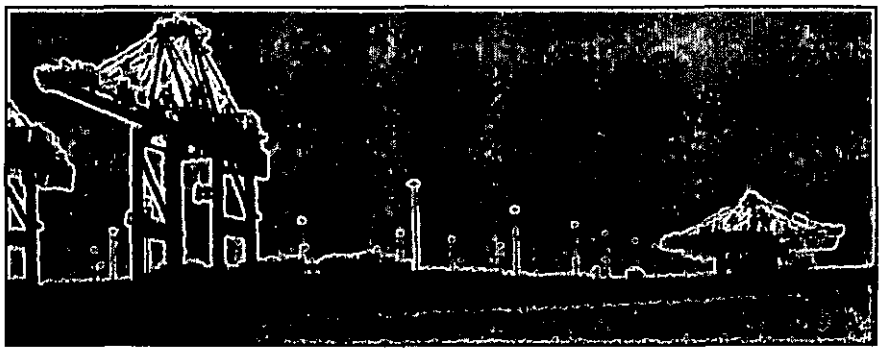


Total Fee: $191,514

PROJECT DESCRIPTION / CLIENT REFERENCE

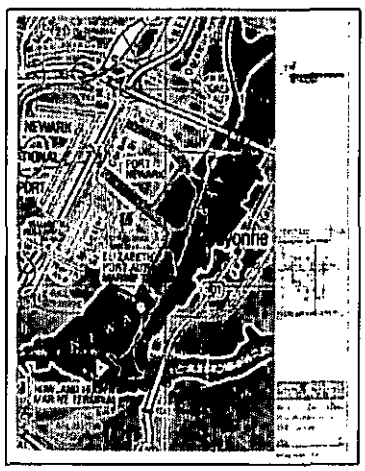
The Port Authority of NY & NJ
Quality Assurance Division (QAD)
Port Authority Technical Center
100 Mulberry Street
3 Gateway Center, 3rd Floor
Newark, New Jersey 07102

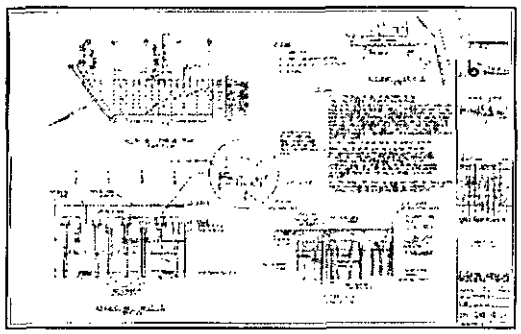
Suren Batra – Project Manager/QAD
(973) 792-3959
(973) 792-2908 - Fax



Services Provided

As 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. 68 through 86.** This inspection was performed in order assess the condition of Berth Nos. 68 through 86 and also to update the status of all load restrictions and priority repair recommendations from the previous report. During the course of the inspection an area of 6 broken piles was noted. After calculating the remaining structural capacity of the element, immediate repair design was implemented. A total of 55 days in the field using a 3-man dive team were spent in carrying out the work which spanned the spring and summer of 2010 (Job No. BUE-0903-05).





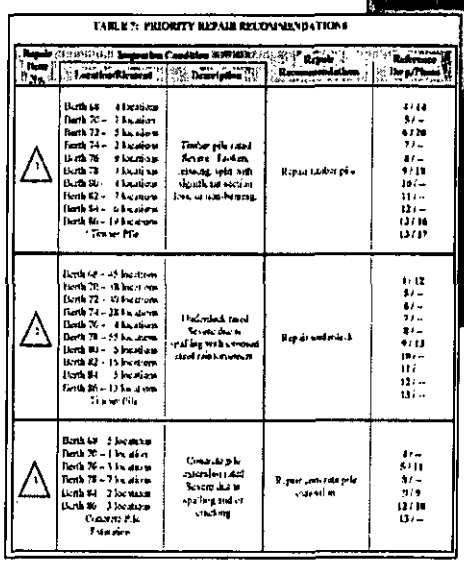


TABLE 7: PRIORITY REPAIR RECOMMENDATIONS

Repair Priority	Inspection Condition Location/Element	Description	Repair Recommendation	Reference Item/Photo
1	Berth 68 - 4 locations Berth 70 - 3 locations Berth 72 - 5 locations Berth 74 - 3 locations Berth 76 - 9 locations Berth 78 - 3 locations Berth 80 - 4 locations Berth 82 - 7 locations Berth 84 - 6 locations Berth 86 - 14 locations Timber Pile	Timber pile rated Severe. Broken, missing, split with significant section loss or non-bearing.	Repair timber pile	4 / 14 5 / – 6 / 20 7 / – 8 / – 9 / 19 10 / – 11 / – 12 / – 13 / 16 13 / 17
2	Berth 68 - 45 locations Berth 70 - 48 locations Berth 72 - 45 locations Berth 74 - 28 locations Berth 76 - 4 locations Berth 78 - 55 locations Berth 80 - 5 locations Berth 82 - 15 locations Berth 84 - 5 locations Berth 86 - 13 locations Timber Pile	Underdeck steel Severe due to spalling with exposed steel reinforcement	Repair underdeck	1 / 12 2 / – 3 / – 4 / – 7 / – 8 / – 9 / 13 10 / – 11 / – 12 / – 13 / –
3	Berth 68 - 2 locations Berth 70 - 1 location Berth 76 - 3 locations Berth 78 - 7 locations Berth 84 - 2 locations Berth 86 - 3 locations Concrete Pile Foundation	Concrete pile exposed steel Severe due to spalling and/or cracking	Repair concrete pile exposed steel	4 / – 5 / 11 6 / – 9 / 9 12 / 10 13 / –

Total Fee: $253,321

SECTION IV

SECTION IV

ORGANIZATIONAL SIZE & STRUCTURE

ORGANIZATIONAL SIZE & STRUCTURE

Boswell Engineering, Inc. has 5 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, 2 Engineer Divers 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.	Joseph Gaylord, E.I.T.	Marco Giacchi
Jeremy Pope, P.E.		Paul Dombrowski
Bruce Boswell, P.E.		Tracy McMahon
Kevin Boswell, P.E.		Jamie Faraldi
		Gary Watson

Ten (10) of the 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/QC 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

PERSONNEL HOURLY RATES & MULTIPLIER

PERSONNEL HOURLY RATES

CLASSIFICATION	NAME(s)	CURRENT UNBURDENED OFFICE RATE
Project Manager/Directing Engineer Diver/ QC Engineer	Michael Ganas, P.E.	97.35
Chief Engineer Diver / Team Leader	Ljupcho Naumchevski, P.E.	68.65
Senior Engineer Diver / Team Leader	Jeremy Pope, P.E.	55.60**
Engineer Diver (s)	Joseph Gaylord, E.I.T.	23.00**
	Hoi Leung	27.50**
Chief Inspector Diver / Assistant Team Leader	Dennis Cassidy	59.75
Senior Inspector Diver(s) / Assistant Team Leader(s)	Marco Giacchi	33.00**
	Paul Dombrowski	30.07**
Inspector Diver(s) / Assistant Team Leader(s)	Jamie Faraldi	25.50**
	Tracy McMahon	25.00**
Inspector Diver	Gary Watson	24.04**
Chief Fathometer Surveyor	Frank Krupinski, P.L.S.	52.05
Fathometer Surveyor	Jeremy Pope, P.E.	55.60**
	Tracy McMahon	25.00**
Chief Structural Engineer/QC Engineer	John Valentin, P.E.	61.56
Structural Engineer	Tom O'Fallon	39.75
CAD Operator	Kamol Kongtong	24.45

Regular Multiplier (for 8-hr. regular time and authorized overtime) 2.75***

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 company-owned diver support equipment, vehicles, boats, etc. customarily required for the execution of the work; as such, Boswell will not seek compensation for their use as expense items. However, mileage and tolls or items that must be rented, leased or purchased in order to perform the work will be included as Pass Through Expenses. Any items purchased to replace company-owned equipment will not be included in Pass Through Expenses.

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. When submerged diving is not required, such as floating during a low tide event, a two-man field inspection unit may occasionally be 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 $58.95/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 current collective bargaining agreement. Union wage rates are subject to periodic increases. In summary, the client will be billed in the following manner.

Straight-Time Labor

B = (2.75 RT)

Overtime Labor - During Week Days and Saturdays

B = 2.75 RP + 0.5 RP

Overtime Labor - During Sundays and Holidays

B = 2.75 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	13.13%
Group Insurance	10.52
Paid Leaves	18.10
Indirect Salaries	67.07
Profit Sharing	5.58
Depreciation	2.74
Insurance	9.73
Auto Expense	3.99
Rent	0.29
Utilities	1.45
Professional Fees	4.58
Dues & Subscriptions	1.44
Office Supplies	5.51
Maintenance	1.54
Telephone	1.23
Engineering Supplies	0.18
Miscellaneous Taxes	2.28
Miscellaneous	0.04
Reimbursed Costs	0.47
	149.87%
Profit:	10%

Multiplier = 1.10 x (1.00 + 1.50) = 2.75

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 VII

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 VIII

SECTION VIII

TECHNICAL QUALIFICATIONS OF KEY PERSONNEL

MICHAEL J. GANAS, P.E., P.P.
Project Manager & Directing Engineer Diver / QC Engineer

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.)
- 2008 Annual Bridge Inspector's Training, New York State Department of Transportation (5.5 hrs.)
- 2011 Annual Bridge Inspector's Training, New York State Department of Transportation (14.5 hrs.)

KEY QUALIFICATIONS

Mr. Ganas has over 33 years of extensive experience in management and administration of more than 830 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 9,917 substructure units supporting 2,774 bridges since 1987. He has also been the engineer-in-charge during the performance of over 844 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 Research Board (TRB) Subcommittee A3C06(1) on Inspection and Maintenance of Underwater 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 (MED & QAD). Project Manager on over 314 projects (spanning 15 consecutive or concurrent term agreements) conducted on various port and harbor facilities and marine structures such as shipping berths, ferry terminals, piers, wharves, bulkheads, relieving platforms, bridges, 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. 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, 426-09-012, 405-00-02, 405-03-007, 405-06-18, 405-09-025. 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 15 contracts (5 overlapping and concurrent) involving underwater inspections of 1637 water-spanning bridges (6,507 SSU) and 776 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 33 years

State Of New Jersey
New Jersey Office of the Attorney General
Division of Consumer Affairs

THIS IS TO CERTIFY THAT THE
Board of Prof. Engineers & Land Surveyors

HAS LICENSED

MICHAEL J. GANAS
EX. 1

FOR PRACTICE IN NEW JERSEY AS A(N): Professional Engineer

03/16/2010 TO 04/30/2012
VALID

24GE03266600
LICENSE/REGISTRATION/CERTIFICATION #

Signature of Licensee/Registrant/Certificate Holder

ACTING DIRECTOR

New Jersey Office of the Attorney General
Division of Consumer Affairs
THIS IS TO CERTIFY THAT THE
Board of Prof. Engineers & Land Surveyors
HAS LICENSED
MICHAEL J. GANAS
Professional Engineer
03/16/2010 TO 04/30/2012
VALID
SIGNATURE
24GE03266600
License/Registration/Certificate #
ACTING DIRECTOR

PLEASE DETACH HERE

IF YOUR LICENSE/REGISTRATION/ CERTIFICATE ID CARD IS LOST PLEASE NOTIFY:
Board of Prof. Engineers & Land Sur
P.O. Box 45015
Newark, NJ 07101

PLEASE DETACH HERE

The University of the State of New York
Education Department
Office of the Professions

REGISTRATION CERTIFICATE
Do not accept a copy of this certificate

License Number: 062754-1 Certificate Number: 6640801

GANAS MICHAEL J
BOSWELL ENGINEERING
330 PHILLIPS AVE
SOUTH HACKENSACK NJ 07606-0000

is registered to practice in New York State through 06/30/2012 as a(n)
PROFESSIONAL ENGINEER

LICENSEE/REGISTRANT

COMMISSIONER OF EDUCATION

EXECUTIVE SECRETARY

ASSOCIATE COMMISSIONER
OFFICE OF THE PROFESSIONS

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Association of Diving Contractors International
Cert. # 17897
Expires 06/28/2016

SURFACE-SUPPLIED AIR DIVER

Michael J. Ganas I.D. 379

Commercial Diver Certification Card

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, California (Pending)

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
- 40-Hour Health and Safety for Hazardous Waste Site Investigation Personnel

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.)
- 2009 Annual Bridge Inspector's Training, New York State Department of Transportation (16 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 780 bridges spanning waterways and conducted over 400 hydrographic/fathometric surveys. He has gained substantial experience over a 21 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 39 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; 405-09-025, 2009-2011) (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 fifteen (15) consecutive NYSDOT Bridge Diving Contracts during the

last 20 years (including five (5) overlapping contract agreements) involving routine underwater inspections of 1,637 bridge structures (6,507 SSU) and fathometer surveys of an additional 776 bridges located in the Eastern, Western, and Southern Regions of New York State. New York State Department of Transportation. (April '91 - Present).

ConnDOT Railroad Bridge Diving Inspections. On-Site P.E. Diver/Team Leader on bridge diving inspection project involving underwater condition surveys of 13 railroad bridges (34 SSU) owned by the Connecticut Department of Transportation. Boswell acted as subconsultant to Purcell Associates. (January '09 - 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).

ConnDOT Underwater Bridge Inspections. Project Manager on statewide project involving diving inspections of 380 bridges, including low-clearance structures spanning waterways. Performed quality assurance of report preparation efforts, including PONTIS assessments of low-clearance structures. Reviewed bathymetric surveys performed by subcontractor for quality and accuracy. Connecticut Department of Transportation. (September '98 - August '00).

MTA Metro-North Railroad Bridge Undergrade Inspections. Senior Engineer Diver/Team Leader on project involving underwater and above water inspections of 26 railroad bridges supporting four (4) commuter rail lines. MTA Metro-North Railroad. (January '98 - January '99).

PennDOT, Greensburg Expressway, Greensburg, Pennsylvania. Design of both superstructure and substructure of four (4) bridges and five (5) culverts. Pennsylvania Department of Transportation. (June '89 - May '91).

ConnDOT. Inspection and rehabilitation design of five (4) bridges at the Merrit Parkway. Connecticut Department of Transportation. (June '90 - June '91).

NJDOT, Hunterdon County. Design of Bridge R-178 and Q-30 over the Prescott Brook and Second Noshank River, respectively. New Jersey Department of Transportation (May '90 - June '91).

NJDOT, Sussex County. Inspection and load rating of 64 bridges. New Jersey Department of Transportation (September '89 - March '93).

NJHA. Inspection and load rating of 30 bridges on the Garden State Parkway. New Jersey Highway Authority. (September '92 - December '92).

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 22 years

State Of New Jersey
New Jersey Office of the Attorney General
Division of Consumer Affairs

THIS IS TO CERTIFY THAT THE
Board of Prof. Engineers & Land Surveyors

HAS LICENSED

Ljupcho Naumchevski
Ex.1

FOR PRACTICE IN NEW JERSEY AS A(N): Professional Engineer

01/20/2011 TO 04/30/2012
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Professional Engineer

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NAUMCHEVSKI LJUPCHO TODOR
BOSWELL ENGINEERING
330 PHILLIPS AVENUE
SOUTH HACKENSACK NJ 07606-0000

is registered to practice in New York State through 04/30/2013 as a(n)
PROFESSIONAL ENGINEER

LICENSEE/REGISTRANT

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Association of Diving Contractors International

Cert. # 15186

Expires 06/28/2016

SURFACE-SUPPLIED AIR DIVER

Ljupcho Naumchevski I.D. 489

Commercial Diver Certification Card

JEREMY POPE, P.E.
Senior Engineer Diver / Fathometer Surveyor

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
- ADCI Surface-Supplied Air Diving Supervisor Certificate No.#11748
- Confined Space Entry – OSHA 29CFR1910.46(4)

EDUCATION:

Bachelor of Engineering in Civil Engineering, Stevens Institute of Technology

REGISTRATION:

Professional Engineer – New Jersey and New York

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 3058 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. He also has experience in the design and analysis of marine structures, including platforms, seawalls, fender systems, temporary shoring systems and pier rehabilitation design. Altogether, he has physically inspected the submerged components of over 430 water-spanning bridges, more than 1050 waterfront structures, and 4 hydroelectric dam facilities. Furthermore, he has performed over 100 fathometric surveys associated with bridge scour assessments and dredging projects.

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection of In-Service Bridges – FHWA National Highway Certificate of Training (80 Hour Course; 2009)
- Bridge Inspection Refresher Course – FHWA National Highway Certificate of Training
- 2011 Annual Bridge Inspectors Training, New York State Department of Transportation (16 hours)
- Shipyard Competent Person Course

RELEVANT EXPERIENCE:

Mr. Pope has functioned in the capacity of ***Project Manager, Team Leader, On-Site P.E. Diver, Design Engineer*** *and/or* ***Fathometer Surveyor*** *on the following projects:*

PANY&NJ Waterfront Condition Surveys Technical Services on a Call-In Basis (MED & QAD). On-Site P.E. Diver/Team Leader and Fathometer Surveyor on over 62 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, Oct.'08 – Present)

NYSDOT Regions 1 through 11 Bridge Diving Inspections & Fathometer Surveys. On-Site P.E. Diver/Team Leader performing underwater inspections and fathometric surveys of over 310 bridges spanning waterways. Also prepared in excess of 150 CADD-generated contour maps of waterway bottoms. New York State Department of Transportation. (April '97 – Nov '99; Jan. '03- March '05, Oct.'08 - Present)

BICC Cables, Yonkers, New York. On-Site P.E. Diver/Team Leader on underwater structural investigation of various pier facilities, and preparation of plans and specifications for pier demolition, temporary structure design and new timber dolphins. (Feb.'09 – Sept.'09)

Kinder Morgan Liquids Terminal Facility Dock No. 2. On-Site P.E. Diver/Team Leader on underwater structural inspection and condition survey of timber pier and steel caisson facility. (March '09)

Irving Tissue Plant, Fort Edward, New York. On-Site P.E. Diver/Team Leader for underwater structural investigation and structural analysis of masonry culverts. (April '09)

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)

Passaic Valley Sewerage Commission Sludge Loading Dock. Underwater inspection and fathometer survey of ship berthing facility. Passaic Valley Sewerage Commission. (March '04 – April '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)

DELDOT Bridge Diving Inspections. Performed condition surveys of over 30 bridges spanning waterways, including superstructures on low-clearance bridges. Assisted in preparation of reports. Delaware Department of Transportation. (Aug. '96 to Nov. '97)

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)

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. (July '96 – Sept. '96)

Conduit Bathymetric Survey at Crescent and Vischer Ferry Projects. Conducted a bathymetric/fathometric survey in the near vicinity of the Crescent and Vischer Ferry Projects on the Mohawk River to determine suitability for high-frequency sonic fish barrier system (June '96 - Sept. '96).

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 ON PROJECTS INVOLVING BRIDGE INSPECTIONS **16 years**

State Of New Jersey
New Jersey Office of the Attorney General
Division of Consumer Affairs

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HAS LICENSED

Jeremy W. Pope
Ex.1

FOR PRACTICE IN NEW JERSEY AS A(N): Professional Engineer

03/04/2010 TO 04/30/2012
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POPE JEREMY W
12 BROOKFIELD DR
MILFORD NJ 08848-1547

is registered to practice in New York State through 04/30/2012 as a(n)
PROFESSIONAL ENGINEER

LICENSEE/REGISTRANT

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Cert. # 11748

Expires 06/28/2016

SURFACE-SUPPLIED AIR DIVER

Jeremy W. Pope **I.D. 144-72-5988**

Commercial Diver Certification Card

DENNIS P. CASSIDY
Chief Inspector Diver / Assistant 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)

WELDING CERTIFICATION

American Welding Society Buildings and Bridges (7018 all position)
American Welding Society (AWS)
Certified Welding Inspector (CWI)

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
- 40-HourHealth and Safety for Hazardous Waste Site Investigation Personnel

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

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 21 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 390 marine facilities and prepared the associated reports. In addition, he has performed over 530 bridge diving inspections. Altogether, he has logged in excess of 6310 hours underwater on inspection assignments.

RELEVANT EXPERIENCE

PANY&NJ Waterfront Condition Surveys Technical Services (MED & QAD). Team Leader/Inspection Diver on over 314 assignments encompassing 15 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 14 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).

TOTAL YEARS OF EXPERIENCE

21 years

PAUL DOMBROWSKI
Senior Inspector Diver / Assistant Team Leader

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 ROV Pilot/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

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 280 marine structures and more than 360 bridges spanning waterways. He is proficient in surface-supplied hard hat diving techniques, as well as mixed gas bell diving, logging over 6060 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.

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

RELEVANT EXPERIENCE

PANY & NJ Waterfront Condition Surveys Technical Services on Call-In Basis (MED & QAD). Inspection Diver on more than 220 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 Team Leader / 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 **12 years**

TRACY McMAHON
Inspector Diver / Assistant Team Leader / Fathometer Surveyor

DIVING CERTIFICATIONS

NAUI - Advanced Open Water Diver
BUE On-The-Job Training in Underwater Inspection of Bridges
Commercial Diving Certificate – DAES
Safety Inspection of In-Service Bridges – FHWA National Highway Certificate of Training (60 Hours Course, 2011)
ADCI Surface-Supplied Air Diver Cert. No. 15184

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 3800 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).

ConnDOT Railroad Bridge Diving Inspections. Inspector Diver on bridge diving inspection project involving underwater condition surveys of 13 railroad bridges (34 SSU) owned by the Connecticut Department of Transportation. Boswell acted as subconsultant to Purcell Associates. (January '09 - 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).

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection for In-Service Bridges - FHWA National Highway Institute Certificate of Training (60 hrs, 2011)

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).

TOTAL YEARS OF EXPERIENCE

13 years

JAMIE FARALDI

Inspector Diver / Assistant Team Leader / Fathometric Surveyor

EDUCATION

Graduated Dec. 2006
Bachelor of Arts in Physics, Rutgers University, New Jersey

2000-2001
Studied Mechanical Engineering, Stevens Institute of Technology, New Jersey

DIVING CERTIFICATIONS

- PADI Certified Open Water Diver
- NAUI Certified Advanced Open Water Diver
- BUE On-The-Job Training in Commercial Hard Hat Diving Techniques
- ADCI Surface-Supplied Air Diver Certification #40176

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection of In-Service Bridges – FHWA National Highway Certificate of Training (80 Hour Course, 2008)
- 2009 Bridge Inspection Workshop, New York State Department of Transportation (40 hrs.)

KEY QUALIFICATIONS

Mr. Faraldi 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 his 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. Altogether he has logged over 120 hours underwater on inspection assignments including inspection of the submerged components of piers and waterfront structures. In addition, he has performed over 60 fathometric surveys associated with bridge scour assessments and is proficient in preparing reports and drawings utilizing Autodesk Land Desktop 2006, and in preparing fathometric survey contour drawings based on hydrographic positioning techniques.

RELEVANT EXPERIENCE

Boswell Underwater Engineering
*Mr. Faraldi has functioned in the capacity of **Fathometric Surveyor, Inspector Diver, and CAD Operator** on the following projects:*

PANY&NJ Waterfront Condition Surveys Technical Services on a Call-In Basis (QAD & MED). Fathometric Surveyor and Diver on twelve 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. Port Authority of NY & NJ. (June '07 - Present).

ConnDOT Railroad Bridge Diving Inspections. Inspector Diver on bridge diving inspection project involving underwater condition surveys of 13 railroad bridges (34 SSU) owned by the Connecticut Department of Transportation. Boswell acted as subconsultant to Purcell Associates. (January '09 - Present).

NYSDOT Regions 1, 2, 7, 8 & 9 Bridge Diving Inspections & Fathometric Surveys. Performed 103 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 70 CADD-generated contour maps of waterway bottoms using AutoCAD 2000. New York State Department of Transportation. (June '07 – Dec. '07; May '08 – Dec. '08; May '09 – Nov. '09; May '10 – Jan. '11).

DELDOT Bridge Fathometric Surveys. Performed the fathometric survey on the Indian River Inlet bridge and 10 other bridges 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 CADD-generated contour maps of

waterway bottoms using AutoCAD 2006 for several other projects. Delaware Department of Transportation. (June '07 – November '07).

Hartz Mountain Piers C and D. Functioned as Fathometer Surveyor/Diver/CAD Operator for the inspection and rehabilitation of existing structures in Weehawken, New Jersey. (December '07 - February '08).

New Jersey Water Supply Authority. Functioned as the CAD Operator for the preparation of fathometric and graphic representations of the inspection of culverts along the Delaware and Raritan canal. (September '07 - October '07).

PANY&NJ Port Elizabeth Marine Terminal, Berths 50 thru 62 and 76 thru 86. Prepared bathymetric surveys and assisted in the writing of reports. (December '07).

Faraldi Group, Inc. – Professional Land Surveyors and Planners
Jamie Faraldi has gained valuable surveying experience through his work over the past 12 years with the family owned and operated surveying firm, Faraldi Group, Inc.

Jamie began working on a part time and seasonal basis during his summers and vacations in high school showing a keen interest in the field. He has continued as an employee on either a part time, seasonal or full time basis throughout his college education and beyond, including most recently working for the firm during the spring of 2008.

Jamie has had hands on experience as a survey technician in all facets of field work involving boundary and topographic surveys as well as construction layouts. In the office, he has regularly assisted in performing deed research and other clerical tasks in a supportive capacity to the licensed land surveyors.

Jamie has worked on both small and large projects, from boundary surveys for private home owners and small businesses to large scale commercial and industrial projects. Some of the later projects upon which Jamie has worked have included establishing boundary and topographic surveys and/or construction layouts for the following:

- **Essex County Veterans Memorial Parking Garage, Verona, NJ**– Century 21 Construction Corp.
  Topographic survey; line/grade to set curbs for new construction parking garage
  (2 months; April '08 – May '08)
- **Ruggiero Seafood Freezer Warehouse, Newark, NJ** - Century 21 Construction Corp.
  Mark out building for construction for new construction warehouse
  (3 months; March '08 – May '08)
- **United Auto Group (Toyota/Nissan Dealership), Jersey City, NJ** - Albanese Construction Co., Inc.
  Layout of new building; line/grade to set curbs
  (3 months; February '08 – April '08)
- **Liberty Harbor Waterfront, Jersey City, NJ** – Liberty View Construction
  Residential/Commercial & Marina Development
  Construction layout of columns, floors, elevators and piles
  (5 months; December '07 – April '08)
- **Essex County College, Newark, NJ** – Fuscon Enterprises, Inc.
  Topographic survey for campus expansion
  (6 months; June '06 – September '06, May '07 - June '07)
- **Shop Rite Retail Complex, Lodi, NJ** – Century 21 Construction Corp.
  Location of monitoring wells; topographic survey
  (9 months; December '04 – February '04, December '05 – February '05, December '06 – February '06)

TOTAL YEARS OF EXPERIENCE
With Boswell Engineering – 4.25 years
With Faraldi Group – 1.75 years
Total – 6 years

JOSEPH GAYLORD, E.I.T.
Engineer Diver / Fathometric Surveyor

EDUCATION

Bachelor of Science in Civil Engineering Technology, SUNY Institute of Technology at Utica/Rome, New York; Graduated May 2009

Associates of Science in Math/Science, Onondaga Community College, New York; Graduated May 2007

Divers Academy International, Commercial Diving, Erial, New Jersey; Graduated October 2009

DIVING CERTIFICATIONS

- SSI Certified Open Water Diver
- ACDE Commercial Diver, No. 9104
- Kirby Morgan Dive Systems Helmet Inspector.
- Crosby API RP-2 ED. 6 Rigging Certification
- 40-hr HAZWOPER certified
- ADCI Surface-Supplied Air Diver Cert. No. 40177

BRIDGE INSPECTION CERTIFICATIONS

- Safety Inspection of In-Service Bridges – FHWA National Highway Certificate of Training (60 Hour Course, 2011)

KEY QUALIFICATIONS

Mr. Gaylord is the newest staff member of Boswell Underwater Engineering, a division of Boswell Engineering specializing in the investigation and structural evaluation of marine infrastructures. He has gained experience performing underwater condition surveys and fathometer surveys on a rapidly growing 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. Altogether he has logged over 215 hours underwater on inspection assignments including inspection of the submerged components of piers and waterfront structures. In addition, he has performed 32 fathometric surveys associated with dredging operations and is proficient in preparing reports and drawings utilizing Autodesk Land Desktop 2006, and in preparing fathometric survey contour drawings based on hydrographic positioning techniques.

RELEVANT EXPERIENCE

Boswell Underwater Engineering
Mr. Gaylord has functioned in the capacity of ***Engineer Diver, Fathometric Surveyor, and CAD Operator*** *on the following projects:*

PANY&NJ Waterfront Conditions Surveys & Construction Inspection (QAD & MED). Engineer Diver and Fathometric Surveyor on 12 assignments involving condition surveys and underwater quality assurance inspections of waterfront facilities undergoing repairs. Port Authority of NY & NJ. (January '10 - Present).

NYSDOT Regions 10 & 11 Bridge Diving Inspections & Fathometric Survey Reports. Performed fathometric surveys and prepared in excess of 38 CADD-generated contour maps of waterway bottoms using AutoCAD 2006. Created fathometric survey reports 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. New York State Department of Transportation. (November '09 – Present).

Passaic Valley Sewage Commission (PVSC). Diver/Tender while performing dredge and obstruction survey at the sludge dock. Underwater inspection to locate and identify possible obstructions to dredging operation. Measure mudline elevations as part of a survey report.

NYPD Harbor Unit – LRS Marina / Phoenix Marine. Performed pre-dredge, interim, and post-dredge survey inside the marina utilizing Electronic Range-Azimuth and Differential Global Positioning Systems in conjunction with dual frequency hydrographic survey equipment to analyze dredging operation and perform volumetric calculations.

Avery Engineering & Land Surveyors, P.C. – Engineers, Land Development, Surveyors
Joseph Gaylord has gained valuable engineering experience through his work over the past 5 years with Avery Engineering & Land Surveyors, P.C., located in Rochester, NY.

Joe began working as an engineer intern at the firm following his first year of college during the summer of 2005. He would continue his work at the firm during his winter and summer vacations from college totaling 24 months of experience throughout his college career.

Joe received hands-on experience as a land development and structural engineer in all aspects of office assignments involving preliminary and final design, and field assignments involving construction inspection. In the office, he expanded his knowledge of various versions of AutoCAD as a draftsman as well as assisting in the design of many projects as an engineer intern.

Joe has worked on both small and large projects, from single lot site plans to large multi-lot subdivisions, the structural design of many office buildings ranging from single floor buildings to multi-story complexes, as well as the structural design of small bridges.

TOTAL YEARS OF EXPERIENCE
With Boswell Engineering – 1.58 yrs.
With Avery Engineering – 2.00 yrs.
Total – 3.58 yrs.

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)
ADCI Surface-Supplied Air Diver Cert. No. 16229

KEY QUALIFICATIONS:

Mr. Leung is a key staff member of Boswell Underwater Engineering, a division of Boswell Engineering pecializing in the investigation and structural evaluation of marine infrastructures. He is proficient in both nderwater videographic and photographic documentation techniques. In addition, he is skilled in blackwater actile surveys and has accrued considerable experience in the use of ultrasonic non-destructive testing quipment in evaluating the integrity of structural elements. He is also skilled in underwater construction echniques, including welding and cutting. To date, Mr. Leung has physically performed underwater inspections n more than 184 bridges spanning waterways and on more than 20 waterfront facilities. In addition, he has een involved in performing fathometer surveys of more than 100 water-spanning bridges using electronic ange-azimuth, differential GPS, and EDM equipment. He is also proficient in the use of AutoCAD (Version 4) and Microstation '95 computer software for preparing condition survey drawings, design of marine tructures, and contour maps of waterway bottoms.

RELEVANT EXPERIENCE:

Mr. Leung has functioned in the capacity of ***engineer diver, lead diver, assistant fathometer surveyor, and athometer surveyor*** *on the following projects:*

YSDOT Regions 1 through 11 Bridge Diving Inspections and Fathometer Surveys. Inspection diver and ssistant fathometer surveyor on two concurrent contracts involving underwater inspections of 330 water-panning bridges. Performed underwater inspections and operated electronic range-azimuth system during athometer surveys; prepared contour drawings of waterway bottoms to assess developing scour in vicinity of ridge footings, including comparisons with previous surveys. Also participated in hydraulic scour study ivolving BIN folder research to assess pile tip elevations in relation to changing waterway bottom profiles over me. New York State Department of Transportation. Apr '98 – Dec '98,' Apr '99 – Nov '99; Aug '03 - resent.

'ANY & NJ Waterfront Condition Surveys Technical Services on Call-In Basis. Inspection diver and athometer surveyor on more than 20 assignments involving underwater quality assurance inspections, condition urveys, and pre-and-post construction fathometer surveys, of various types of marine structures such as piers, harves, bulkheads, and relieving platforms undergoing repair. Nov '97 – Mar '98; Jan '99 – Mar '99.

YSDOT Regions 3, 4, 5, 6, 10 & 11 Bridge Diving Inspections. Inspection diver and assistant fathometer urveyor on two concurrent contracts involving underwater inspections and fathometer surveys of 288 water-panning bridges. Performed underwater inspections and operated electronic range-azimuth system during athometer surveys; prepared contour drawings, including comparison with previous surveys. New York State epartment of Transportation. May '97 – Nov '97.

nspection of the Mobile Arctic Caisson "Molikpaq for Beaudril in the Beaufort Sea. Visual and video urvey as well as thickness readings of the outer hull and interior ballast tanks. May '97.

nspection of Pump Hose equipment and impellers for Suncor in Alberta. Visual inspection and ocumentation of condition of intake pumps. Replacement of stainless steel screens of pump structure and onstruction quality assurance. May '97.

:onstruction and Inspection of pipeline in Kootenay Lake for the town of Kaslo in British Columbia. :onstruction of and subsequent video inspection of pipeline that went to a depth of 120'. Also performed athymetric survey of pipe profile. April '97.

:onstruction and Inspection of pipeline for PCL Construction in the North Sakatchewan River in ıberta. Installation of 54" concrete and steel pipe and subsequent video inspection of exterior surface of the ipe including a 300' penetration and survey of the pipeline interior. Also performed pre-and-post excavation athymetric surveys to assess re-profiled pipe cover and backfill quantities. Feb '97 - March '97.

'ideo inspection and fathometer survey of the Brazeau Dam for TransAlta in Alberta. Feb '97.

'ideo inspection and fathometer survey of the Shell Waterfront dam in Alberta. Jan '97.

:epairs and video inspection of effluent pipeline for Weldwood in Alberta. Oct '96- Dec '96.

:ridge Inspections for Arkansas Highway Dept. Visual inspection with photographic documentation of ixteen bridges, both steel and concrete. Also performed fathometric surveys to assess scour trends. Aug '96- ept '96

:ockland County, Lake DeFores/Ridge Road, NY. Diving inspection and construction quality assurance of :our protection project. Aug '96.

Inderwater survey at Ashokan Reservoir, NY. Diving inspection and construction quality assurance for :our protection project. Aug '96.

Inderwater inspection, conditions assessment and repair designs of Navy Facilities. Naval Trident ubmarine Base at King's Bay, Georgia under the direction of the U.S. Naval Facilities Engineering Command. uly '96.

n-lieu of dry-dock inspection for Atlantic class container vessels. Video inspection of hull, running gear nd sea chests of five vessels for Sealand in various locations including Port of Baltimore and Boston Harbor. Iay '96-July '96.

nspection of 20" Force Main under the Passaic River. Damage assessment to 20.0" low-pressure cast iron ipeline crossing the Passaic River. Gerald Gardner Associates/Fairlawn Industries. June '95.

Inited States Coast Guard Station. Underwater inspection, condition assessment, fathometric survey, and :pair designs of steel bulkhead and pier facilities located at the Hoboken USCG Station. March '95 - May '95.

'OTAL YEARS OF EXPERIENCE:

2 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, division of Boswell Engineering specializing in the investigation and tructural evaluation of marine infrastructures. He has gained extensive xperience performing underwater condition surveys and fathometer urveys on a wide array of marine structures, including bridges panning waterways and waterfront facilities, such as piers, wharves, ulkheads, and relieving platforms. He is also skilled in analyzing nformation associated with underwater bridge inspections, including 'ONTIS assessments of low–clearance structures requiring full nspections.

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). nspector diver and fathometer surveyor on over 21 assignments involving underwater quality assurance nspections on waterfront facilities undergoing repairs, and condition survey assessments, including repair esigns and/or recommendations for rehabilitation, of various types of marine structures including piers, harves, relieving platforms, bulkheads, intake screens, and sluice gates. Also performed numerous pre-and-ost dredging and rip-rap placement fathometer surveys to determine re-profiled bottom contours and quantities emoved or installed, including the preparation of reports and drawings. Boat operator for drainage canal bridge nspection surrounding Newark Liberty International airport. Port Authority of NY & NJ.

onnDOT Underwater Bridge Inspection Program. Performed routine (Level 1) inspections and PONTIS ssessments of 37 bridges spanning waterways within the State of Connecticut. Reports included analyzing cour, undermining, erosion and settlement of the channel bottoms with superstructure and substructure element eficiencies. ConnDOT.

onkers Waste Water Treatment Facility. Performed the underwater portion of a survey and engineering nvestigation to determine the thickness and general condition of the steel sheet piling, evaluation for the need f a cathodic protection system and impact damage due to navigational mishap, on the cellular bulkhead which onstitutes the Hudson River boundary of the Yonkers Joint Treatment Plant. DVIRKA and BARTILUCCI/ ORR PRO.

swego, New York Dive Tender and boat operator for biannual servicing Sound Projectors for a Fish eterrent 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:

.0 years

JOHN R. VALENTIN, P.E.
PROJECT MANAGER - STRUCTURES

YEARS OF EXPERIENCE: 29 Years

EDUCATION:

BSCE, University of Pittsburgh

REGISTRATION:

Professional Engineer - New Jersey, New York

EXPERIENCE:

Mr. Valentin has over 29 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.
- **Castle Point and Sinatra Park Waterfront Walkway Reconstruction, Hoboken, NJ** This project involved the inspection, design, and preparation of contract plans for the replacement of collapsed portions of the sea walls at Castle Point (150') and Sinatra Park (38'). Items of work include construction of new pile supported retaining walls and platform structures, concrete repairs and pile jacketing at portions of existing seawall to remain, and replacement of damaged walkway and soccer field sections. Acquisition of the necessary NJDEP and ACOE permits was also performed.
- **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 these truss structures, preparation of contract plans, and performance of rating analysis of the structural steel trusses using AREA Design Criteria for Railroad Engineering.
- **Sussex County – Rehabilitation of Bridges No. P-13 over Little Flat Brook, Township of Sandyston; B-03 over Culver Creek, Borough of Branchville; and D-30 over Papakating Creek, Township of Frankford.** Structural Task Leader on this project which included superstructure replacements and substructure repairs for Bridges P-13 and D-30; and superstructure/substructure repairs for Bridge B-03. Due to the short construction window available, replacement of the P-13 superstructure was designed using prefabricated concrete deck/steel beam panels. Contract plans implementing staged construction utilizing portable signals were developed for Bridge no. D-30. (2009)
- **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.
- **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.
- **NYCDOT – Rehabilitation Unionport Bridge over Westchester Creek, Bronx, NY:** Senior Project Engineer responsible for the design of improvements to this double-leaf bascule bridge. Tasks included the in-depth inspection of the structural as well as the mechanical/electrical component systems and preparation of the BRPR. (1997)
- **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.
- **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.
- **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.
- **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.
- **PORT AUTHORITY OF NY & NJ QAD, Condition Survey of Port Newark Berths 2-36.** Structural Task Leader on this project for structural capacity analysis of Berth 6 at Port Newark. The project entailed underwater inspection to verify the extent of deterioration to the berth structural elements (timber piles, timber pile caps, and timber decking); and analysis to determine the remaining capacity of the berth structure based on the field measured reduced cross sections. Several loading scenarios were analyzed to advise the client of the permissible loads for the safe operation of equipment on the berth structure. (2005) Suren Batra, 973-792-3959.

AFFILIATIONS:

American Society of Civil Engineers

FRANK M. KRUPINSKI, P.L.S.

CHIEF OF SURVEY

YEARS OF EXPERIENCE: 25 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 (G.P.S.) equipment, including real-time kinematic (R.T.K.), 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, N.J.*** 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) – U.S. Route 30 (White Horse Pike) & Evesham Avenue Intersection Improvements, Magnolia, N.J.*** Responsible for planning and processing of 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 input and adjustment of survey baselines, downloading and processing of field survey data, and supervising right-of-way document preparation.
- ***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.
- ***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, N.J.*** 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, N.J.*** 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, N.J.*** 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, N.J.*** 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, N.J.*** 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), N.Y.*** 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, N.Y.*** 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, N.Y.*** 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.
- ***sMolly Ann's Brook Flood Control Project, Passaic County, N.J.*** 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, N.J.*** Responsibilities included obtaining stream cross sections and preparing mapping for twenty-nine (29) roadway bridges. Total project length was approximately 12,500 L.F.
- ***Henry Hudson Bridge Approach, N.Y.*** As chief of survey on roadway widening and drainage repair project for the Triborough Bridge and Tunnel Authority responsibilities included performing a closed horizontal control loop and detailed topographic survey within the 3,500 L.F. project limits, as well as the preparation of the base mapping.

THOMAS W. O'FALLON, P.E.
STRUCTURAL ENGINEER

YEARS OF EXPERIENCE: 11 Years

EDUCATION:

BSCE, New Jersey Institute of Technology
MSCE, New Jersey Institute of Technology

REGISTRATION:

Professional Engineer - New Jersey

EXPERIENCE:

Mr. O'Fallon has 11 years of experience in the design of structural engineering projects of varying sizes. 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. O'Fallon's project experience includes:

- Design Engineer 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 buildings partially projecting over the Hudson River.
- Design Engineer responsible for the replacement of Kingsland Road Bridge over Third River for Passaic County. This project also involved design of prestressed box beam superstructure and reinforced concrete abutments and retaining walls. All design in conformance with AASHTO and NJDOT Design Manual.
- Design Engineer responsible for replacement of River Street Railroad Bridge in Hackensack, NJ. The project also involved design of 90'+ railroad bridge, including steel superstructure and concrete substructure supported on CIP piles. All design in conformance with AASHTO, AREMA, and NJDOT Design Manual.
- Design Engineer responsible for replacement of Central Avenue Culvert along Green Brook in Essex County, NJ. This project also involved design of precast box culvert and associated reinforced concrete retaining walls. All design in conformance with NJDOT Design Manual.
- Design Engineer responsible for rehabilitation of the Meadowlands Parkway Bridge over NS/CSX Railroad, NJ Transit Railroad, Roadway and Ditch in Secaucus, NJ.

This project included design of retrofits and rehabilitation to a 5 span steel girder bridge. Design of replacement pedestrian bridge cantilevered from existing structure. All design in conformance with AASHTO, AREMA, and NJDOT Design Manual.

- Design Engineer for Highland Avenue over Stream, Borough of Wanaque, County of Passaic. The project included the design of 2 new precast arch culverts and associated R.C. retaining walls. All design in conformance with AASHTO and NJDOT Design Manual (2003)

- Design Engineer for Essex County - Replacement of Springfield Avenue and Chancellor Avenue Culverts over Lightning Brook in Springfield. The project included a preliminary and final design of replacement of two (2) culverts. Also designed new foundations and wingwalls for new three-sided culverts. Prepared plans, specifications, and estimate. (2005)

- Design Engineer for the Rehabilitation of Bear Swamp Road Bridge over the Ramapo River in the Township of Mahwah, Bergen County, NJ. Performed design for the rehabilitation of the single span historic truss bridge over the Ramapo River. Design included analysis of truss bridge and retrofit necessary to increase capacity to HS-25 loading. Design also included rehabilitation of existing masonry abutments (2006)

- Design Engineer for the rehabilitation of Bergen Turnpike over Overpeck Creek in the Village of Ridgefield Park. Inspected abutments and piers for concrete repairs, designed new prestressed concrete slab fascia beams, prepared plans, specifications, and estimates. (2005)

- Design Engineer for New Building and Chambers at Pump Station #5, Elmwood Park, NJ. Responsibilities included the design of new one block utility building with timber roof. Design of associated chambers and supports. All design in conformance with BOCA, ACI, and AISC.

- Design Engineer for the Rehabilitation of Rea Avenue Culverts over Goffle Brook in Hawthorne, Passaic County, NJ. Performed inspection to document extent of deterioration. Prepared contract documents for replacement of sidewalks and substandard railing; and concrete repairs to deck, abutments and wingwalls. (2006-2007)

- Design Engineer for the Rehabilitation of Prospect Street Bridge over Pequest River in Belvidere, Warren County, NJ. Performed inspection to verify extent of repairs prior to finalizing plans. Designed new pedestrian bridge substructure to be supported on sheet piles limiting extent of construction impact to waterway. Prepared plans, specifications, and estimate for the rehabilitation of the existing single span spandrel arch bridge. (2007)

- Design Engineer responsible for Passaic County Technical Institute Academic Addition in Passaic County, NJ. The project also included design of prestressed planks and gluelam beams.

SECTION IX

APPENDICES

ATTACHMENT B

AGREEMENT ON TERMS OF DISCUSSION

ATTACHMENT B

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or 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 Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information 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 this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to 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 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 Policy and Procedure adopted by the Port Authority's Board of Commissioners on November 20, 2008, which may be found on the Authority website at *http://www.panynj.gov/corporate-information/freedom-of-information.cfm* , not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause substantial injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, 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
(Company)

Kevin J. Boswell
(Signature)

Kevin J. Boswell, P.E.
Vice President
(Title)

October 13, 2011
(Date)

ATTACHMENT C

COMPANY PROFILE

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL FACILITY CONDITION SURVEYS FOR WATERFRONT FACILITIES AS REQUESTED ON A "CALL-IN" BASIS DURING 2012 (RFP #26350)

1. Company Name (print or type):

   Boswell Engineering

2. Business Address (to receive mail for this RFP):

   330 Phillips Avenue

   South Hackensack, NJ 07606

3. Business Telephone Number: 201-641-0770

4. Business Fax Number: 201-641-1831

5. Firm website: marketing@boswellengineering.com

6. Federal Employer Identification Number (EIN): _____

7. Date (MM/DD/YYYY) Firm was Established: 6 / 30 / 1969

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   _____

   _____

9. Officer or Principal of Firm and Title:

   Stephen T. Boswell, Ph.D., P.E., SECB, President

10. Name, telephone number, and email address of contact for questions:
    Stephen T. Boswell, Ph.D., P.E., SECB - 201-373-8900

    marketing@boswellengineering.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

    If yes, please attach **Port Authority** certification as a part of this profile.

    If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

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 14, 2011

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 2012
RFP Number 26350
Penetration Dives
Our File No. PR-11-4059

Dear Custodian:

In anticipation of the possibility of making potentially dangerous penetration dives in confined spaces under our 2012 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:

Example No. 1: 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,

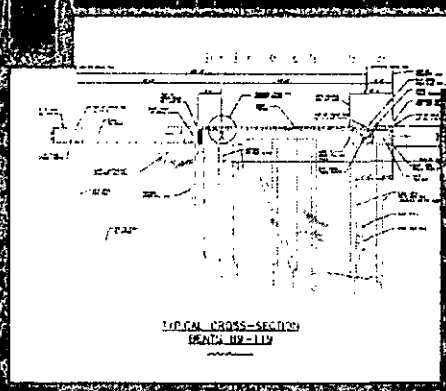
BOSWELL UNDERWATER ENGINEERING

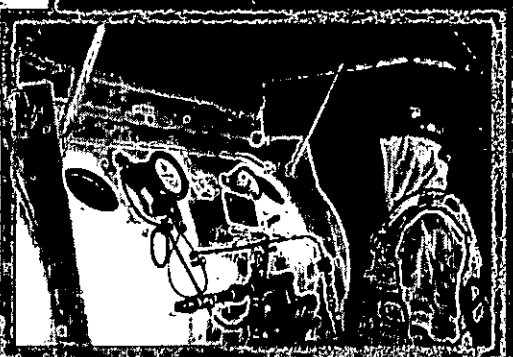
Michael J. Ganas, P.E.
Director & General Manager

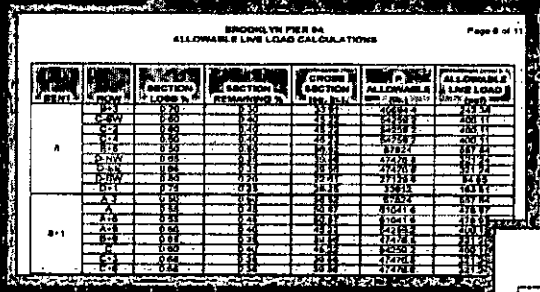
MJG/kc

BOSWELL ENGINEERING

THE PORT AUTHORITY OF NY&NJ



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ALLOWABLE LIVE LOAD CALCULATIONS

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BENT	ROW	SECTION LOSS %	SECTION REMAINING %	GROSS SECTION	ALLOWABLE	ALLOWABLE LIVE LOAD
A	B-1	0.20	0.30	33.6	40414.4	429.34
	C-NW	0.40	0.60	41.2	49559.2	400.11
	C-1	0.60	0.40	41.2	49559.2	400.11
	D-1	0.60	0.40	49.1	54759.7	400.11
	E-1	0.50	0.50	49.1	87924	687.44
	D-NW	0.65	0.35	49.1	47479.8	387.23
	D-S	0.84	0.16	49.1	47479.8	387.23
	D-SW	0.84	0.16	49.1	27139.8	84.65
	D-1	0.74	0.26	49.1	35615	143.61
B-1	A-2	0.80	0.20	49.1	87924	357.84
	A	0.18	0.82	49.1	810414	476.97
	A-16	0.53	0.47	49.1	810414	476.97
	A-8	0.50	0.50	49.1	810414	476.97
	B-8	0.69	0.31	49.1	47479.8	387.23
	B	0.60	0.40	49.1	54759.7	400.11
	C-1	0.60	0.40	49.1	47479.8	387.23
	C-8	0.74	0.26	49.1	47479.8	387.23

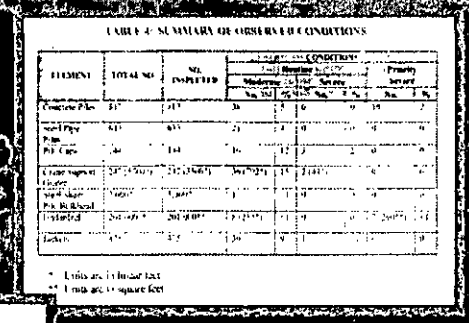


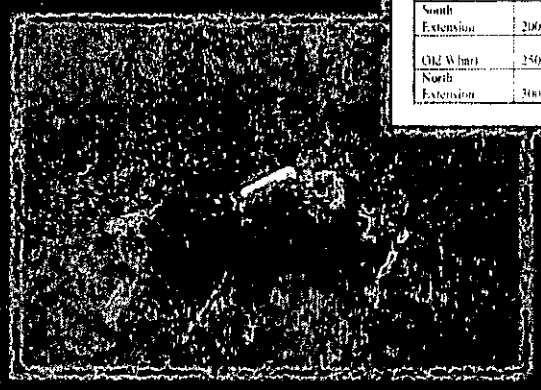
TABLE 4: SUMMARY OF OBSERVED CONDITIONS

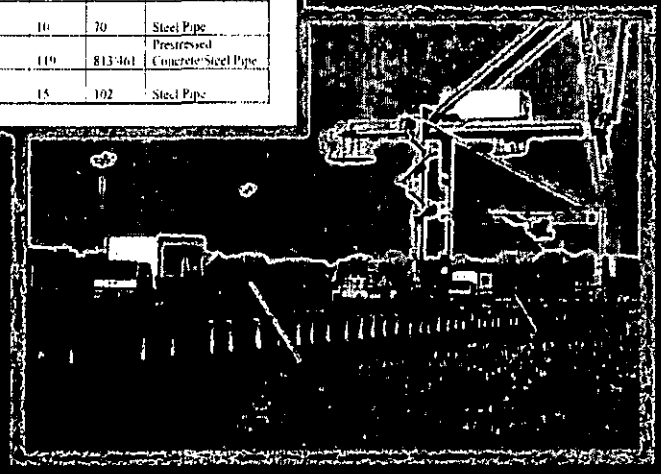
ELEMENT	TOTAL NO.	NO. INSPECTED	CONDITIONS								Priority Repairs	
			Good		Moderate		Severe					
			No.	%	No.	%	No.	%	No.	%	No.	%
Concrete Piles	[illegible]	[illegible]	[illegible]	[illegible]	36	[illegible]	0	0	19	[illegible]	[illegible]	[illegible]
Steel Pipe	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	[illegible]	[illegible]	[illegible]	[illegible]
Pipe Pil. Caps	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cross Stringers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Deck Slabs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fix. Bulkhead	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Unlisted	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Totals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* Units are in linear feet
** Units are in square feet

TABLE 3: WHARF CHARACTERISTICS

Section	Length (Ft.)	Width (Ft.)	No. of Bents	No. of Piles	Type of Piles
South Extension	200	67	10	70	Steel Pipe
Old Wharf	2500	67	119	813/461	Prestressed Concrete/Steel Pipe
North Extension	300	67	15	102	Steel Pipe





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