SERVICE PROVIDER AGREEMENT

This SERVICE PROVIDER AGREEMENT ("**Agreement**") is entered into this _____day of _____, 2025 ("**Effective Date**"), by and between the CITY OF ALAMEDA, a municipal corporation ("the **City**"), and SIMPSON, GUMPERTZ & HEGER, INC., a Massachusetts corporation, whose address is 1999 Harrison Street, Suite 2400, Oakland, CA 94612 ("**Provider**"), in reference to the following facts and circumstances:

RECITALS

A. The City is a municipal corporation duly organized and validly existing under the laws of the State of California with the power to carry on its business as it is now being conducted under the statutes of the State of California and the Charter of the City.

B. The City is in need of the following services: condition assessment of Alameda Point Piers 1-3. City staff issued an RFP on March 14, 2025 and after a submittal period of 41 days received 7 of timely submitted proposals. Staff reviewed the proposals, interviewed qualified firms and selected the service provider that best meets the City's needs.

C. Provider is specially trained, experienced and competent to perform the special services which will be required by this Agreement.

D. Whereas, the City Council authorized the City Manager to execute this agreement on _____.

E. The City and Provider desire to enter into an agreement for condition assessment of Alameda Point Piers 1-3, upon the terms and conditions herein.

AGREEMENT

NOW, THEREFORE, in consideration of the forgoing, which are incorporated herein by reference, and for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the City and Provider agree as follows:

1. TERM:

The term of this Agreement shall commence on the ____ day of _____ 2025 and shall terminate on the 30th day of June 2026, unless terminated earlier as set forth herein.

2. SERVICES TO BE PERFORMED:

Provider agrees to do all necessary work at its own cost and expense, to furnish all labor, tools, equipment, materials, except as otherwise specified, and to do all necessary work included in Exhibit A as requested. Provider acknowledges that the work plan included in Exhibit A is tentative and does not commit the City to request Provider to perform all tasks included therein.

3. COMPENSATION TO PROVIDER:

a. By the 7th day of each month, Provider shall submit to the City an invoice for the total amount of work done the previous month. Pricing and accounting of charges are to be according to the fee schedule as set forth in Exhibit A and incorporated herein by this reference.

b. If you wish to encumber department funds for the aggregate amount of the contract compensation, then state: The total compensation for this Agreement shall not exceed $768,000. Use of contingency shall be for items of work outside the original scope and requires prior written authorization by the City.

4. TIME IS OF THE ESSENCE:

Provider and the City agree that time is of the essence regarding the performance of this Agreement.

5. STANDARD OF CARE:

Provider shall perform all services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Provider represents that it is skilled in the professional calling necessary to perform all services contracted for in this Agreement. Provider further represents that all of its employees and subProviders shall have sufficient skill and experience to perform the duties assigned to them pursuant to and in furtherance this Agreement. Provider further represents that it (and its employees and subProviders) have all licenses, permits, qualifications, and approvals of whatever nature that are legally required to perform the services (including a City Business License, as needed); and that such licenses and approvals shall be maintained throughout the term of this Agreement. As provided for in the indemnification provisions of this Agreement, Provider shall perform (at its own cost and expense and without reimbursement from the City) any services necessary to correct errors or omissions which are caused by Provider's failure to comply with the standard of care provided for herein. Any employee of the Provider or its sub-providers who is determined by the City to be uncooperative, incompetent, a threat to the adequate or timely completion of any services under this Agreement, or a threat to the safety of persons or property (or any employee who fails or refuses to perform the services in a manner acceptable to the City) shall be promptly removed by the Provider and shall not be re-employed to perform any further services under this Agreement.

6. INDEPENDENT PARTIES:

Provider hereby declares that Provider is engaged as an independent business and Provider agrees to perform the services as an independent Provider. The manner and means of conducting the services and tasks are under the control of Provider except to the extent they are limited by statute, rule or regulation and the express terms of this Agreement. No civil service status or other right of employment will be acquired by virtue of Provider's services. None of the benefits provided by the City to its employees, including but not limited to unemployment insurance, workers' compensation plans, vacation and sick leave, are available from the City to Provider, its employees or agents. Deductions shall not be made for any state or federal taxes, FICA payments, PERS payments, or other purposes normally associated with an employer-employee relationship from any compensation due to Provider. Payments of the above items, if required, are the responsibility of Provider. Any personnel performing the services under this Agreement on behalf

of Provider shall also not be employees of City and shall at all times be under Provider's exclusive direction and control.

7. IMMIGRATION REFORM AND CONTROL ACT (IRCA):

Provider assumes any and all responsibility for verifying the identity and employment authorization of all of its employees performing work hereunder, pursuant to all applicable IRCA or other federal, or state rules and regulations. Provider shall indemnify, defend, and hold the City harmless from and against any loss, damage, liability, costs or expenses arising from any noncompliance of this provision by Provider.

8. NON-DISCRIMINATION:

Consistent with the City's policy and state and federal law that harassment and discrimination are unacceptable conduct, Provider and its employees, Providers, and agents shall not harass or discriminate against any job applicant, City employee, or any other person on the basis of any kind of any statutorily (federal, state or local) protected class, including but not limited to: race, religious creed, color, national origin, ancestry, disability (both mental and physical) including HIV and AIDS, medical condition (e.g. cancer), genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, pregnancy, political affiliation, military and veteran status or legitimate union activities. Such non-discrimination shall include but not be limited to all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff, or termination. Provider agrees that any violation of this provision shall constitute a material breach of this Agreement.

9. HOLD HARMLESS:

a. To the fullest extent permitted by law, Provider shall indemnify, defend (with counsel acceptable to the City) and hold harmless the City, its City Council, boards, commissions, officials, employees, agents and volunteers ("Indemnitees") from and against any and all loss, damages, liability, obligations, claims, suits, judgments, costs and expenses whatsoever, including reasonable attorney's fees and costs of litigation ("Claims"), arising from or in any manner connected to Provider's performance of its obligations under this Agreement or out of the operations conducted by Provider even if the City is found to have been negligent. If the Claims filed against Indemnitees allege negligence, recklessness or willful misconduct on the part of Provider, Provider shall have no right of reimbursement against Indemnitees for the costs of defense even if negligence, recklessness or willful misconduct is not found on the part of Provider. Provider shall not have any obligations to indemnify Indemnitees if the loss or damage is found to have resulted solely from the negligence or the willful misconduct of the City. The defense and indemnification obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement.

b. As to Claims for professional liability only, Provider's obligation to defend Indemnitees (as set forth above) is limited as provided in California Civil Code Section 2782.8.

c. Provider's obligation to indemnify, defend and hold harmless Indemnitees shall expressly survive the expiration or early termination of this Agreement.

10. INSURANCE:

a. On or before the commencement of the terms of this Agreement, Provider shall furnish the City's Risk Manager with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of insurance coverage in compliance with Sections 10.b. (1) through (5). The Certificate Holder should be The City of Alameda, 2263 Santa Clara, Ave., Alameda, CA 94501. Such certificates, which do not limit Provider's indemnification, shall also contain substantially the following statement:

> "Should any of the above insurance covered by this certificate be canceled or coverage reduced before the expiration date thereof, the insurer affording coverage shall provide thirty (30) days' advance written notice to the City of Alameda. Attention: Risk Manager."

Provider shall maintain in force at all times during the performance of this Agreement all appropriate coverage of insurance required by this Agreement with an insurance company licensed to offer insurance business in the State of California with a current A.M. Best's rating of no less than A:VII or Standard & Poor's Rating (if rated) of at least BBB unless otherwise acceptable to the City. Provider shall deliver updated insurance certificates to the City at the address described in Section 17.f. prior to the expiration of the existing insurance certificate for the duration of the term of Agreement. Endorsements naming the City, its City Council, boards, commissions, officials, employees, agents, and volunteers as additional insured shall be submitted with the insurance certificates.

DS Initial
SXY GSJ
Provider Initials

b. COVERAGE REQUIREMENTS:

Provider shall maintain insurance coverage and limits at least as broad as:

(1) Workers' Compensation:

Statutory coverage as required by the State of California, as well as a Waiver of Subrogation (Rights of Recovery) endorsement.

(2) Liability:

Commercial general liability coverage in the following minimum limits:

Bodily Injury:	$1,000,000 each occurrence $2,000,000 aggregate - all other
Property Damage:	$1,000,000 each occurrence $2,000,000 aggregate

If submitted, combined single limit policy with per occurrence limits in the amounts of $2,000,000 and aggregate limits in the amounts of $4,000,000 will be considered equivalent to the required minimum limits shown above. Provider shall also submit declarations and policy endorsements pages. Additional Insured Endorsement naming the City, its City Council, boards, commissions, officials,

employees, agents, and volunteers is required. The Additional Insured Endorsement shall include primary and non-contributory coverage at least as broad as the CG 2010.

(3) Automotive:

Comprehensive automobile liability coverage (any auto) in the following minimum limits:

Bodily injury:	$1,000,000 each occurrence
Property Damage:	$1,000,000 each occurrence
or	
Combined Single Limit:	$2,000,000 each occurrence

Additional Insured Endorsement naming the City, its City Council, boards, commissions, officials, employees, agents, and volunteers is required.

(4) Professional Liability:

Professional liability insurance which includes coverage appropriate for the professional acts, errors and omissions of Provider's profession and work hereunder, including, but not limited to, technology professional liability errors and omissions if the services being provided are technology-based, in the following minimum limits:

$2,000,000 each claim

Technology professional liability errors and omissions shall include, or be endorsed to include, property damage liability coverage for damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the City in the care, custody, or control of Provider. If not covered under Provider's liability policy, such "property" coverage of the City may be endorsed onto Provider's Cyber Liability Policy as covered property as follows: cyber liability coverage in an amount sufficient to cover the full replacement value of damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the City that will be in the care, custody, or control of Provider.

(5) Pollution Prevention:

Legal liability required for hazardous materials excavation in the amount of $2,000,000 each occurrence. Additional Insured Endorsement naming the City, its City Council, boards, commissions, officials, employees, agents, and volunteers is required.

As to commercial general liability and automobile liability insurance, such insurance will provide that it constitutes primary insurance with respect to claims insured by such policy, and, except with respect to limits, that insurance applies separately to each insured against whom claim is made or suit is brought. Such insurance is not additional to or contributing with any other insurance carried by or for the benefit of the City.

c. SUBROGATION WAIVER:

Provider hereby agrees to waive rights of subrogation that any insurer of Provider may acquire from Provider by virtue of the payment of any loss. Provider agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether the City has received a waiver of subrogation endorsement from the insurer. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of the City for all work performed by Provider, its employees, agents and subProviders.

d. FAILURE TO SECURE:

If Provider at any time during the term hereof should fail to secure or maintain the foregoing insurance, the City shall be permitted to obtain such insurance in Provider's name or as an agent of Provider and shall be compensated by Provider for the costs of the insurance premiums at the maximum rate permitted by law and computed from the date written notice is received that the premiums have not been paid.

e. ADDITIONAL INSUREDS:

The City, its City Council, boards, commissions, officials, employees, agents, and volunteers shall be named as additional insured(s) under all insurance coverages, except workers' compensation and professional liability insurance. The naming of an additional insured shall not affect any recovery to which such additional insured would be entitled under this policy if not named as such additional insured. An additional insured named herein shall not be held liable for any premium, deductible portion of any loss, or expense of any nature on this policy or any extension thereof. Any other insurance held by an additional insured shall not be required to contribute anything toward any loss or expense covered by the insurance provided by this policy. Additional Insured coverage under Provider's policy shall be primary and non-contributory and will not seek contribution from the City's insurance or self-insurance. Any available insurance proceeds broader than or in excess of the specified minimum insurance coverage requirements and/or limits shall be available to the additional insured(s).

f. SUFFICIENCY OF INSURANCE:

The insurance limits required by the City are not represented as being sufficient to protect Provider. Provider is advised to consult Provider's insurance broker to determine adequate coverage for Provider. The coverage and limits shall be (1) the minimum coverage and limits specified in this Agreement; or (2) the broader coverage and maximum limits of the coverage carried by or available to Provider; whichever is greater.

g. EXCESS OR UMBRELLA LIABILITY:

If any Excess or Umbrella Liability policies are used to meet the limits of liability required by this Agreement, then said policies shall be true "following form" of the underlying policy coverage, terms, conditions, and provisions and shall meet all of the insurance requirements stated in this Agreement, including but not limited to, the additional insured, SIR, and primary insurance requirements stated therein. No insurance policies maintained by the indemnified parties or Additional Insureds, whether primary or excess, and which also apply to a loss covered hereunder, shall be called upon to contribute to a loss until all the primary and excess liability policies carried by or available to the Provider are exhausted. **If a Provider is using an Excess Liability policy to supplement any insurance coverage required by this Agreement, they must submit the Excess Liability policy in full.**

11. CONFLICT OF INTEREST:

Provider warrants that it is not a conflict of interest for Provider to perform the services required by this Agreement. Provider may be required to fill out a conflict of interest form if the services provided under this Agreement require Provider to make certain governmental decisions or serve in a staff capacity as defined in Title 2, Division 6, Section 18700 of the California Code of Regulations.

12. PROHIBITION AGAINST TRANSFERS:

a. Provider shall not assign, sublease, hypothecate, or transfer this Agreement, or any interest therein, directly or indirectly, by operation of law or otherwise, without prior written consent of the City Manager. Provider shall submit a written request for consent to transfer to the City Manager at least thirty (30) days in advance of the desired transfer. The City Manager or their designee may consent or reject such request in their sole and absolute discretion. Any attempt to do so without said consent shall be null and void, and any assignee, sublessee, hypothecate or transferee shall acquire no right or interest by reason of such attempted assignment, hypothecation or transfer. However, claims for money against the City under this Agreement may be assigned by Provider to a bank, trust company or other financial institution without prior written consent.

b. The sale, assignment, transfer or other disposition of any of the issued and outstanding capital stock, membership interest, partnership interest, or the equivalent, which shall result in changing the control of Provider, shall be construed as an assignment of this Agreement. Control means fifty percent or more of the voting power of Provider.

13. APPROVAL OF SUB-PROVIDERS:

a. Only those persons and/or businesses whose names and resumés are attached to this Agreement shall be used in the performance of this Agreement. However, if after the start of this Agreement, Provider wishes to use sub-providers, at no additional costs to the City, then Provider shall submit a written request for consent to add sub-providers including the names of the sub-providers and the reasons for the request to the City Manager at least five (5) days in advance. The City Manager may consent or reject such requests in their sole and absolute discretion.

b. Each sub-provider shall be required to furnish proof of workers' compensation insurance and shall also be required to carry general, automobile and professional liability insurance (as applicable) in reasonable conformity to the insurance carried by Provider.

c. In addition, any tasks or services performed by sub-providers shall be subject to each provision of this Agreement. Provider shall include the following language in their agreement with any sub-provider: "Sub-providers hired by Provider agree to be bound to Provider and the City in the same manner and to the same extent as Provider is bound to the City."

d. The requirements in this Section 13 shall not apply to persons who are merely providing materials, supplies, data or information that Provider then analyzes and incorporates into its work product.

14. PERMITS AND LICENSES:

Provider, at its sole expense, shall obtain and maintain during the term of this Agreement, all appropriate permits, certificates and licenses, including a City business license that may be required in connection with the performance of the services and tasks hereunder.

15. REPORTS:

a. Each and every report, draft, work product, map, record and other document produced, prepared or caused to be prepared by Provider pursuant to or in connection with this Agreement shall be the exclusive property of the City.

b. No report, information or other data given to or prepared or assembled by Provider pursuant to this Agreement shall be made available to any individual or organization by Provider without prior approval of the City Manager or their designee.

c. Provider shall, at such time and in such form as City Manager or their designee may require, furnish reports concerning the status of services and tasks required under this Agreement.

16. RECORDS:

a. Generally, the City has the right to conduct audits of Provider's financial, performance and compliance records maintained in connection with Provider's operations and services performed under the Agreement. In the event of such audit, Provider agrees to provide the City with reasonable access to Provider's employees and make all such financial (including annual financial statements signed by an independent CPA), performance and compliance records available to the City. City agrees to provide Provider an opportunity to discuss and respond to any findings before a final audit report is filed.

b. Provider shall maintain complete and accurate records with respect to the services, tasks, work, documents and data in sufficient detail to permit an evaluation of Provider's performance under the Agreement, as well as maintain books and records related to sales, costs, expenses, receipts and other such information required by the City that relate to the performance of the services and tasks under this Agreement (collectively the "**Records**").

c. All Records shall be maintained in accordance with generally accepted accounting principles and shall be clearly identified and readily accessible. Provider shall provide free access to the Records to the representatives of the City or its designees during regular business hours upon reasonable prior notice. The City has the right to examine and audit the Records, and to make copies or transcripts therefrom as necessary, and to allow inspection of all proceedings and activities related to this Agreement. Such Records, together with supporting documents, shall be kept separate from other documents and records and shall be maintained by Provider for a period of three (3) years after receipt of final payment.

d. If supplemental examination or audit of the Records is necessary due to concerns raised by the City's preliminary examination or audit of records, and the City's supplemental examination or audit of the records discloses a failure to adhere to appropriate internal financial controls, or other breach of this Agreement or failure to act in good faith, then Provider shall

reimburse the City for all reasonable costs and expenses associated with the supplemental examination or audit.

17. NOTICES:

a. All notices shall be in writing and delivered: (i) by hand; or (ii) sent by registered, express, or certified mail, with return receipt requested or with delivery confirmation requested from the U.S. postal service; or (iii) sent by overnight or same day courier service at the party's respective address listed in this Section.

b. Each notice shall be deemed to have been received on the earlier to occur of: (x) actual delivery or the date on which delivery is refused; or (y) three (3) days after notice is deposited in the U.S. mail or with a courier service in the manner described above (Sundays and City holidays excepted).

c. Either party may, at any time, change its notice address (other than to a post office box address) by giving the other party three (3) days prior written notice of the new address.

d. All notices, demands, requests, or approvals from Provider to the City shall be addressed to the City at:

City of Alameda
Base Reuse and Economic Development
950 West Mall Square, Suite 205
Alameda, CA 94501
ATTENTION: Alesia Strauch
Ph: (510) 747-7449 / Email: astrauch@alamedaca.gov

e. All notices, demands, requests, or approvals from the City to Provider shall be addressed to Provider at:

Simpson, Gumpertz & Heger, Inc.
1999 Harrison Street, Suite 2400
Oakland, CA 94612
ATTENTION: Sam Yao
Ph: (510) 457-4600 / Email: sxyao@sgh.com

f. All updated insurance certificates from Provider to the City shall be addressed to the City at:

City of Alameda
Base Reuse and Economic Development
950 West Mall Square, Suite 205
Alameda, CA 94501
ATTENTION: Annie Cox
Ph: (510) 747-6893 / Email: acox@alamedaca.gov

18. SAFETY:

a. Provider will be solely and completely responsible for conditions of all vehicles owned or operated by Provider, including the safety of all persons and property during performance of the services and tasks under this Agreement. This requirement will apply continuously and not be limited to normal working hours. In addition, Provider will comply with all safety provisions in conformance with U.S. Department of Labor Occupational Safety and Health Act, any equivalent state law, and all other applicable federal, state, county and local laws, ordinances, codes, and any regulations that may be detailed in other parts of the Agreement. Where any of these are in conflict, the more stringent requirements will be followed. Provider's failure to thoroughly familiarize itself with the aforementioned safety provisions will not relieve it from compliance with the obligations and penalties set forth herein.

b. Provider will immediately notify the City within 24 hours of any incident of death, serious personal injury or substantial property damage that occurs in connection with the performance of this Agreement. Provider will promptly submit to the City a written report of all incidents that occur in connection with this Agreement. This report must include the following information: (i) name and address of injured or deceased person(s); (ii) name and address of Provider's employee(s) involved in the incident; (iii) name and address of Provider's liability insurance carrier; (iv) a detailed description of the incident; and (v) a police report.

19. TERMINATION:

a. In the event Provider fails or refuses to perform any of the provisions hereof at the time and in the manner required hereunder, Provider shall be deemed in default in the performance of this Agreement. If such default is not cured within two (2) business days after receipt by Provider from the City of written notice of default, specifying the nature of such default and the steps necessary to cure such default, the City may thereafter immediately terminate the Agreement forthwith by giving to Provider written notice thereof.

b. The foregoing notwithstanding, the City shall have the option, at its sole discretion and without cause, of terminating this Agreement by giving seven (7) days' prior written notice to Provider as provided herein.

c. Upon termination of this Agreement either for cause or for convenience, each party shall pay to the other party that portion of compensation specified in this Agreement that is earned and unpaid prior to the effective date of termination. The obligation of the parties under this Section 19.c. shall survive the expiration or early termination of this Agreement.

20. ATTORNEYS' FEES:

In the event of any litigation, including administrative proceedings, relating to this Agreement, including but not limited to any action or suit by any party, assignee or beneficiary against any other party, beneficiary or assignee, to enforce, interpret or seek relief from any provision or obligation arising out of this Agreement, the parties and litigants shall bear their own attorney's fees and costs. No party or litigant shall be entitled to recover any attorneys' fees or costs from any other party or litigant, regardless of which party or litigant might prevail.

21. HEALTH AND SAFETY REQUIREMENTS.

Provider acknowledges that the City shall have the right to impose, at the City's sole discretion, requirements that it deems are necessary to protect the health and safety of the City employees, residents, and visitors. Provider agrees to comply with all such requirements, including, but not limited to, mandatory vaccinations, the use of personal protective equipment (e.g. masks), physical distancing, and health screenings. Provider also agrees to make available to the City, at the City's request, records to demonstrate Provider's compliance with this Section.

22. COMPLIANCE WITH ALL APPLICABLE LAWS:

During the term of this Agreement, Provider shall keep fully informed of all existing and future state and federal laws and all municipal ordinances and regulations of the City of Alameda which affect the manner in which the services or tasks are to be performed by Provider, as well as all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. Provider shall comply with all applicable laws, state and federal and all ordinances, rules and regulations enacted or issued by the City. Provider shall defend, indemnify, and hold City (including its officials, directors, officers, employees, and agents) free and harmless from any claim or liability arising out of any failure or alleged failure to comply with such laws and regulations pursuant to the indemnification provisions of this Agreement.

23. CONFLICT OF LAW:

This Agreement shall be interpreted under, and enforced by the laws of the State of California without regard to any choice of law rules which may direct the application of laws of another jurisdiction. The Agreement and obligations of the parties are subject to all valid laws, orders, rules, and regulations of the authorities having jurisdiction over this Agreement (or the successors of those authorities). Any suits brought pursuant to this Agreement shall be filed with the courts of the County of Alameda, State of California.

24. WAIVER:

A waiver by the City of any breach of any term, covenant, or condition contained herein shall not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, or condition contained herein, whether of the same or a different character.

25. INTEGRATED CONTRACT:

Subject to the language of Section 33, the Recitals and exhibits are a material part of this Agreement and are expressly incorporated herein. This Agreement represents the full and complete understanding of every kind or nature whatsoever between the parties hereto, and all preliminary negotiations and agreements of whatsoever kind or nature are merged herein. No verbal agreement or implied covenant shall be held to vary the provisions hereof. Any modification of this Agreement will be effective only by written execution signed by both the City and Provider.

26. PREVAILING WAGES:

Provider is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq. as well as California Code of Regulations, Title 8, Section 1600, et seq., ("Prevailing

Wage Laws") which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. Provider agrees to fully comply with such Prevailing Wage Laws if the services are being performed as part of an applicable "public works" or "maintenance" project as defined by the Prevailing Wage Laws and if the total compensation is $1,000 or more. City, upon Provider's request, shall provide Provider with a copy of the prevailing rates of per diem wages in effect at the commencement of this Agreement. Provider shall make copies of the prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the services available to interested parties upon request; and shall post copies at the Provider's principal place of business and at the project site. Provider shall defend, indemnify, and hold the City (its elected officials, officers, employees, and agents) free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws.

27. DEPARTMENT OF INDUSTRIAL RELATIONS COMPLIANCE AND PREVAILING WAGE REQUIREMENTS ON PUBLIC WORKS PROJECTS:

a. For purposes of Sections 27 through 29 of this Agreement, the terms "claim", "Provider", "public works project" and "subProvider" shall have the same meanings set forth in Public Contract Code Section 9204.

b. No Provider or subProvider may be listed on a bid proposal for a public works project, nor engage in the performance of any public work contract, unless registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5 (with the limited exceptions for certaion bids pursuant to Labor code Section 1771.1(a)). Registration instructions may be found at the following website: https://www.dir.ca.gov/Public-Works/Provider-Registration.html

c. All Providers and subProviders must furnish electronic certified payroll records directly to the Labor Commissioner at the following website: https://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html

d. Provider is required to all post job site notices as prescribed by State law. (See 8 Cal. Code Regs, § 16451(d).)

e. In executing this Agreement, Provider acknowledges and agrees that

f. the work authorized by this Agreement may be subject to compliance monitoring and enforcement by the Department of Industrial Relations.

28. REGISTRATION OF PROVIDERS:

Before submitting bids for any work authorized by this Agreement, Providers shall be licensed in accordance with the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California.

29. PUBLIC CONTRACT CODE SECTION 9204 SUMMARY:

Notwithstanding anything else to the contrary stated in the Information For Bidders (IFB) or other documents associated with this Agreement, all claims, regardless of dollar amount,

submitted between January 1, 2017 and January 1, 2027 related to work performed or scheduled to be performed pursuant to this Agreement shall be governed by Public Contract Code Section 9204 and this section. The following provisions and procedures shall apply:

a. Provider shall submit each Claim (whether for a time extension, payment for money or damages) in writing and in compliance with Public Contract Code Section 9204. Provider must include reasonable documentation to support each claim.

b. Upon receipt of a claim, the City shall conduct a reasonable review and respond in writing within 45 days of receipt and shall identify in a written statement what portions of the claim are disputed and undisputed. Undisputed portions of the claim shall be process and paid within 60 days of the written statement. Undisputed amounts not paid in a timely manner shall bear interest at 7% per annum. The City and Provider may mutually agree to extend the 45 day response time.

c. If the City needs approval from the City Council to provide a written statement, the 45 days may be extended to 3 days following the next duly noticed public meeting pursuant to Public Contract Code Section 9204(d)(1)(C).

d. If the City fails to timely respond to a claim or if Provider disputes the City's response, Provider may submit a written demand for an informal meet and confer conference with the City to settle the issues in dispute. The demand must be sent via registered or certified mail, return receipt requested. Upon receipt, the City shall schedule the conference within 30 days.

e. Within 10 business days following the informal meet and confer conference, the City shall submit to Provider a written statement describing any issues remaining in dispute and that portion which is undisputed. Undisputed portions of the claim shall be processed and paid within 60 days of the written statement. Undisputed amounts not paid in a timely manner shall bear interest at 7% per annum. The issues remaining in dispute shall be submitted to non-binding mediation. If the City and Provider mutually agree on a mediator, each party shall pay equal portions of all associated costs. If within 10 business days, the City and Provider cannot agree on a mediator, each party shall select a mediator (paying all costs associated with their selected mediator), and those mediators shall select a qualified neutral third party to mediate the disputed issues. The City and Provider shall pay equal portions of all associated costs of such third party mediator.

f. Unless otherwise agreed by the City and Provider, any mediation conducted hereunder shall excuse any further obligation under Public Contract Code Section 20104.4 to mediate after litigation has commenced.

g. The City reserves all rights and remedies that it has pursuant to this Agreement, any associated plans and specifications, or at law or in equity which are not in conflict with Public Contract Code 9204.

30. CAPTIONS:

The captions in this Agreement are for convenience only, are not a part of the Agreement and in no way affect, limit or amplify the terms or provisions of this Agreement.

31. COUNTERPARTS:

This Agreement may be executed in any number of counterparts (including by fax, PDF, DocuSign, or other electronic means), each of which shall be deemed an original, but all of which shall constitute one and the same instrument.

32. SIGNATORY:

By signing this Agreement, signatory warrants and represents that they executed this Agreement in their authorized capacity and that by their signature on this Agreement, they or the entity upon behalf of which they acted, executed this Agreement.

33. CONTROLLING AGREEMENT:

In the event of a conflict between the terms and conditions of this Agreement (as amended, supplemented, restated or otherwise modified from time to time) and any other terms and conditions wherever contained, including, without limitation, terms and conditions included within exhibits, the terms and conditions of this Agreement shall control and be primary.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties have each caused this Agreement to be duly executed on its behalf as of the Effective Date.

SIMPSON, GUMPERTZ & HEGER, INC.,
a Massachusetts corporation

DocuSigned by:
Sam X. Yao
23DDDF5044434A2...

Sam X. Yao
Senior Principal

Signed by:
Gayle S. Johnson
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Gayle S. Johnson
Senior Principal

CITY OF ALAMEDA,
a municipal corporation

Jennifer Ott
City Manager

RECOMMENDED FOR APPROVAL

Signed by:
Abigail Thorne-Lyman
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Abigail Thorne-Lyman
Director, Base Reuse and Economic Development Department

APPROVED AS TO FORM:
City Attorney

DocuSigned by:
Len Aslanian
765D25E39B18464...

Len Aslanian
Assistant City Attorney

ALAMEDA POINT PIERS 1-3 CONDITION ASSESSMENT

Proposal for Structural Engineering Services

1 MAY 2025

PREPARED FOR: CITY OF ALAMEDA

Alesia Strauch
Base Reuse Manager
Base Reuse and Economic Development Department
950 West Mall Square, Suite 205
Alameda, CA 94501

PREPARED BY: SIMPSON GUMPERTZ & HEGER

Sam Yao, Ph.D., P.E.
Senior Principal
1999 Harrison Street, Suite 2400
Oakland, CA 94612
M: 510.457.4452
E: sxyao@sgh.com

Alameda Point Piers 1-3, Alameda, CA
2025 Nearmap Reproduced with Permission

1 May 2025

City of Alameda
Base Reuse and Economic Development Department
Attn: Alesia Strauch, Base Reuse Manager
950 West Mall Square, Suite 205
Alameda, CA 94501

Re: Alameda Point Piers 1-3 Condition Assessment Proposal

Dear Ms. Strauch,

Thank you for the opportunity to submit a proposal to provide a condition assessment of Alameda Point Piers 1-3. Simpson Gumpertz & Heger (SGH) has significant experience at Alameda Point, and would be honored to return to perform this important work in such a thriving Bay Area development.

Founded in 1956, SGH is a national engineering firm with more than 750 professionals, including over 100 engineers in our Oakland office. Our Marine Engineering group, based in Oakland, has extensive experience with inspections, materials testing, engineering assessment, design, and repair of marine and waterfront structures. We have worked in the Alameda waterfront for more than a decade, such as the Alameda Grand Marina, Ballena Isle Marina, Alameda Marina Redevelopment, Alameda Landing Development, Alameda Shipways Development, and Encinal Terminal Development. Most importantly, in 2016-2017, SGH successfully completed the project of inspecting, testing, analyzing, and rehabilitating of Alameda Point Piers 1, 2, and 3. Our experience with this project has given us in-depth knowledge and insight of the condition and structural behavior of these piers.

We will take a three-step approach to the upcoming condition assessment of these piers, just as we did in the 2017 project. We will complete the inspection, analysis, and recommendations for repair and rehabilitation of the piers to preserve their service performance and prolong the service life. Due to our experience conducting the 2017 condition assessment and structural evaluations, we are best positioned to assess the condition changes and deterioration of these piers since that time, and make the optimum repair and preservation recommendations.

Our proposed team and key personnel are essentially those who completed the work in 2017, providing an established track record and continuity of service that the City of Alameda can rely on. All of the key personnel presented in this proposal have availability and interest in working on this project to further develop SGH's relationship with the City.

If our team is selected, we will accept the City's standard service provider agreement. This proposal includes all of the tasks in the scope of work in Exhibit C of the RFP without exception.

I will be the contact person responsible for the proposal. Please feel free to contact me at sxyao@sgh.com if you have questions or need additional information.

Sincerely yours,

SIMPSON GUMPERTZ & HEGER

Sam Yao, Ph.D, P.E.
Senior Principal, Vice President
CA License No. 53793 (Civil)
O: 510.457.4452
E: sxyao@sgh.com

CONTENTS

01 PROPOSER'S BACKGROUND AND CREDENTIALS

SIMPSON GUMPERTZ & HEGER

Simpson Gumpertz & Heger (SGH) is a national engineering firm committed to delivering holistic advice for our clients' most complex challenges. We leverage our collective and diverse experience, technical expertise, and industry knowledge of structures and building enclosures, advanced analysis, performance & code consulting, and applied science & research to deliver unrivaled, comprehensive solutions that drive superior performance. With 750 employees in nine office locations throughout the United States, SGH's industry-leading teams constantly seek to advance the meaning of what's possible.

OFFICE LOCATION

The work for this project will be completed by team members based in our Oakland, CA, office located at 1999 Harrison Street, Suite 2400, Oakland, CA 94612.

MARINE ENGINEERING

Aggressive shoreline environments produce their own set of engineering challenges from water and salt corrosion to wave, weather, and vessel docking forces. Moreover, in most marine settings, the danger of malfunction and the cost of downtime can be significant. SGH evaluates and repairs critical structures wherever waterfront and transportation intersect

SGH offers investigation, rehabilitation, and retrofit services that enable companies to maximize the operating life and capacity of their marine structures. We combine wide-ranging field experience with structural, mechanical, geotechnical, material, and fire protection engineering capabilities to resolve marine-specific challenges. We have extensive experience with liquid bulk terminals, container terminals, LNG terminals, ferry terminals, and specialty marine structures.

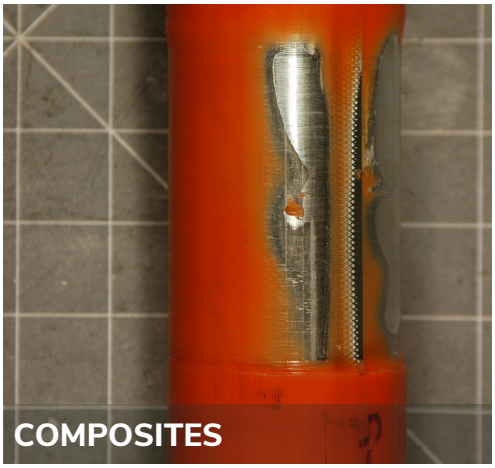
Our marine engineering capabilities include:

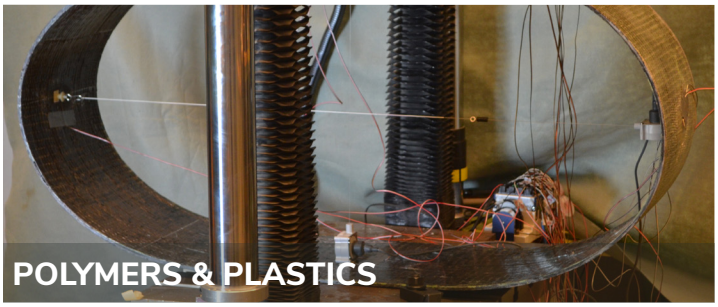
- Dolphin, pier, wharf, and terminal structural design
- Seawall, bulkhead, and cofferdam design
- Marine and waterfront rehabilitation
- Structural inspections
- Material investigation and testing
- Post-event inspections and response
- Mooring and berthing analysis and design
- Seismic analysis and design
- Mooring system assessment and design
- Fender system assessment and design
- Passing vessel effects analysis
- Dynamic mooring analysis
- Mechanical design
- Fire protection system design
- Pipeline stress analysis

ADVANCING THE SCIENCE OF MATERIALS.

Materials are all around us and we rely on their performance. SGH develops and conducts tests to evaluate new materials and new or unusual applications of traditional materials. We analyze materials to determine how production and service environments affect material properties to improve safety, reliability, and performance of components and systems. Our expertise encompasses a wide range of materials including:

- **Adhesives & coatings.** Identification, adhesion
- **Composites.** Manufacturing, mechanics, compatibility
- **Metals.** Metallurgy, cracking, welding, bolt joints, corrosion
- **Polymers & plastics.** Joining, environmental compatibility, long-term strength
- **Concrete & masonry.** Petrography, mix design, durability, strength
- **Glass.** Residual stress, fracture mechanics, coatings, efficiency
- **Roofing & waterproofing.** Compatibility, durability, permeability
- **Wood.** Species identification, biological deterioration, preservatives, composite behavior, adhesives, coatings





CONCRETE TESTING

SGH RESOURCES

SGH's experts provide insights for condition assessments, failure investigations, preservation, and repair and rehabilitation projects. Our comprehensive materials science services encompass dozens of specialized capabilities, including physical testing, chemical testing, and microscopic analysis of concrete. With decades of experience evaluating concrete and investigating materials-related failures, SGH continues to be at the forefront of concrete knowledge.

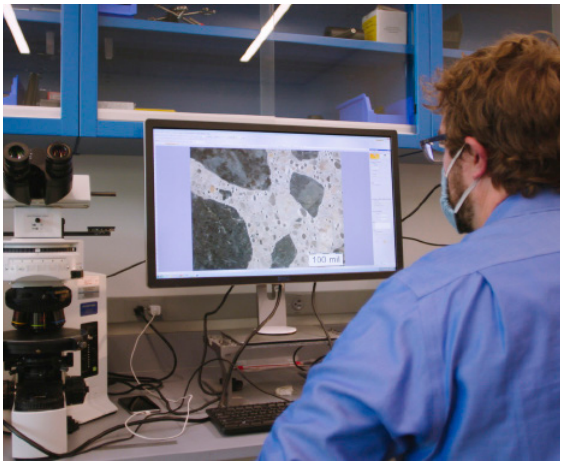
Our resources include:

- Materials scientists, petrographers, and chemists who are active in their professional fields
- Structural and building enclosure engineers with knowledge in the practical applications of materials science
- Multidisciplinary teams who work together to evaluate the properties and condition of concrete
- A state-of-the art microscopy laboratory equipped with a scanning electron microscope, a digital light microscope, petrographic microscopes, and stereomicroscopes
- Laboratory facilities for physical and chemical testing of concrete

TESTING CAPABILITIES

Our Applied Science and Research Center offers a broad range of testing for thorough evaluation of concrete, including:

- Petrography (ASTM C856)
- Scanning electron microscopy with energy dispersive spectroscopy (ASTM C1723)
- Compressive strength testing (ASTM C39)
- Acid-soluble chloride testing (ASTM C1152)
- Water-soluble chloride testing (ASTM C1218)
- Static modulus of elasticity testing (ASTM C469)
- X-ray diffraction analysis (ASTM E3294)
- Determination of Density, Absorption, and Voids in Hardened Concrete (ASTM C642)
- Analysis of Air-Void Systems in Hardened Concrete (ASTM C457)



SGH has formed a capable team with extensive experience and a successful track record in waterfront and marine engineering projects, including the 2017 condition assessment of Alameda Point Piers 1, 2, and 3. We have carefully selected the most qualified personnel to fill key positions on the team in order to ensure a successful project.

Detailed resumes of each of our key team members may be found in the Appendix of this proposal.

Sam Yao and Rune Iversen will manage and execute this project from SGH's Oakland office. Gayle Johnson will provide technical expertise and oversee quality assurance and quality control for the project. Max Argo will be the Team Leader for Above Water Inspection and Evaluation. Jonathon Boynton of L3 Engineering Inc. will be the Team Leader for Below Water Inspection. Mr. Boynton will lead the same diving team that performed the 2017 underwater inspection of Alameda Point Piers 1, 2, and 3.

Mr. Sam Yao has over 35 years of experience with engineering of waterfront and marine structures. His work experience includes inspection, condition assessment, structural design and repair design of a variety of marine structures (piers and wharves, docks, seawall, bridges, inlets and outfalls). He has extensive experience with design and rehabilitation of U.S. Navy piers and other structures. As a nationally recognized expert in marine concrete technologies and concrete repair, he has led many research and development projects sponsored by the U.S. Navy and U.S. Army Corps of Engineers on repair and engineering of marine structures. He co-authored ACI committee reports, including ACI 357.3R "Guide for Design and Construction of Waterfront and Coastal Concrete Marine Structures" and ACI 357.2R-10 "Floating and Float-in Concrete Structures." He is the lead design engineer and Engineer of Record in the Alameda Marine Development, Alameda Shipways Development, repair and retrofit of Alameda Grand Marina, and was the Principal in Charge for the 2017 condition assessment of the Alameda Point Piers.

Mr. Rune Iversen has more than 25 years of experience with audit, inspection, analysis. and design of marine structures. He has performed design and analysis of mooring and berthing systems for numerous piers and wharves in CA and TX, and has performed inspection and condition assessment of numerous marine terminals in CA. He was the lead engineer to provide the inspection and condition assessment of Alameda Point Piers in 2008 and 2017. He was also the lead in the inspection and condition assessment of the Alameda Landing wharf (over 2000 concrete piles), Port of Long Beach Berths 84-87 (834 concrete piles), Port of Long Beach Berths 82-83 (868 concrete piles), and Port of San Diego 10th Avenue Marine Terminal (4,650 ft of steel sheet pile bulkhead). He is the chair of the COPRI Berthing Velocities and Fender Design Task Committee, a member of PIANC MarCom Working Group 211 for Guidelines for the Design of Fender Systems. He is a contributing author to ASCE-COPRI Manual of Standard Practice 130 for Waterfront Facility Inspection and Assessment, the industry standard for the inspection and condition assessment of marine structures.

Mr. Gayle Johnson has more than 42 years of experience as a project engineer, project manager, and engineering manager with technical expertise in seismic engineering, especially in the marine industry. In addition to project experience, he has been very active in code writing activities and criteria development. Mr. Johnson is Chairman of ASCE 61, the Standards Committee on Seismic Design of Piers and Wharves. He is also a member of the BCDC Engineering Criteria Review Board (ECRB), an expert advisory panel for all Bay Area marine projects under BCDC jurisdiction. He has investigated the performance of industrial and marine facilities in more than twenty earthquakes throughout the world. Mr. Johnson was engineer of record for the rehabilitation of the Alameda Landing Wharf for the Catellus Development Company.

Mr. Jonathan Boynton (L3 Engineering) has more than 24 years of experience as a project engineer, project manager, dive supervisor, and commercially trained professional engineer and diver performing both underwater and above water structural condition assessments. His project experience includes underwater inspection, structural analysis, offshore oil platform well intervention and structural debris removal, and construction management. He has led as a team leader the underwater inspection of Alameda Point Piers 1, 2 and 3, Alameda Landing, and numerous inspections of marine and waterfront structures throughout the Bay area and United States, including 17 marine oil terminals in California in compliance with the California Code of Regulations (CCR), Title 24, Chapter 31F, otherwise known as the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). He is a member of the Cal-OSHA Technical Diving Advisory Committee, the Marine Diving Technology Advisory Committee for Santa Barbara City College, and a voting member of the ADCI Training Standard Committee.

Mr. Sidney Carter is a registered professional geologist with more than twenty years of research experience in concrete testing and materials science. As a petrographer at SGH for over 13 years, he has focused on petrographic examinations and scanning electronic microscopy of concrete and stone, as well as forensic investigations of a variety of construction materials using microscopy and spectroscopy. Sidney Carter will be the lead petrographer on this project.

Mr. Norman Perkins is the Director of SGH's Applied Science & Research Center. He provides strategic leadership and over 29 years of experience to the laboratory works including physical testing, materials science, and research programs. He is dedicated to advancing the role of the Center by continuing to expand testing capabilities and encouraging staff to explore creative project approaches. Norm brings his previous experience as a practicing engineer and researcher to management of the laboratory, including roles on a wide variety of civil, mechanical, environmental, structural, and fire protection engineering efforts.

Mr. Ali Naeem brings a multidisciplinary approach to structural engineering with specialized expertise in inspecting, evaluating, and designing both new and existing structures. Ali has led and supported projects involving inspecting and retrofitting waterfront infrastructure in coastal and marine environments. His background in structural and geotechnical engineering enables him to assess structural performance with an appreciation of aggressive marine environments, making him particularly effective at identifying early-warning signs and deterioration mechanisms in waterfront structures.

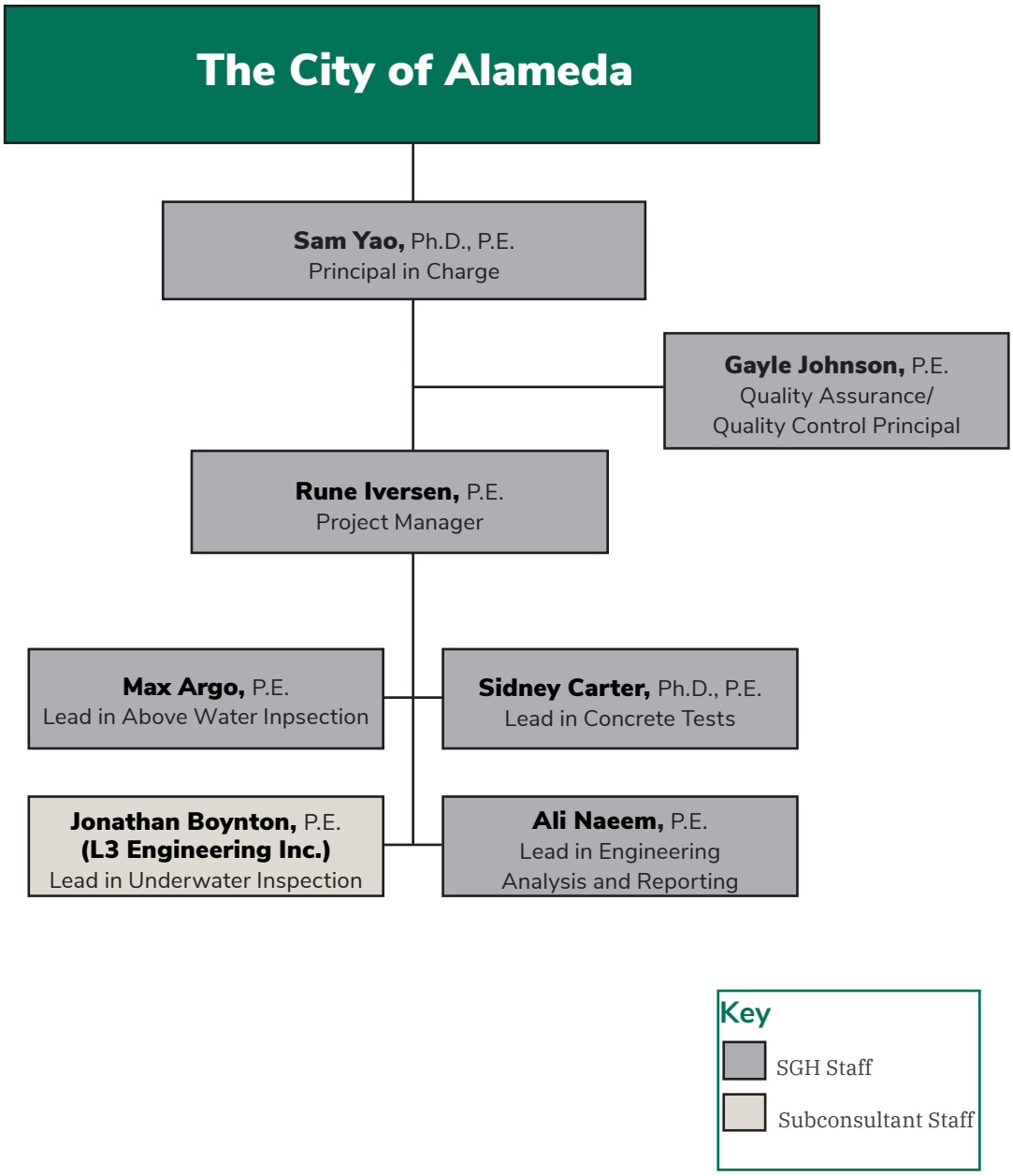
Ali's experience includes inspecting and evaluating aging infrastructure subjected to marine exposure, focusing on corrosion of reinforcement in saltwater conditions, scour-related foundation concerns, and seismic vulnerabilities. He has developed repair and retrofit recommendations that address both immediate safety concerns and long-term durability. His work routinely involves integrating field inspection findings, material testing, structural analysis and repairs to provide actionable recommendations. Ali's comprehensive approach aims to provide the client with practical solutions that balance performance, constructability, and lifecycle value.

Mr. Max Argo brings nearly a decade of experience in coastal and marine engineering, with a strong focus on inspecting, evaluating, and rehabilitating waterfront and marine structures. Max has performed numerous marine structural condition assessments for public agencies and private clients across California and beyond, including extensive inspections of piers, wharves, trestles, and terminal facilities. Notably, he has conducted condition assessments, due diligence, and post-event inspections, including reconnaissance following vessel allision and flooding events, providing him with firsthand experience evaluating aging waterfront infrastructure in high-exposure environments. He has led interval inspections of high-importance terminals, where his role often involves visual inspection, load evaluation, and repair recommendation development.

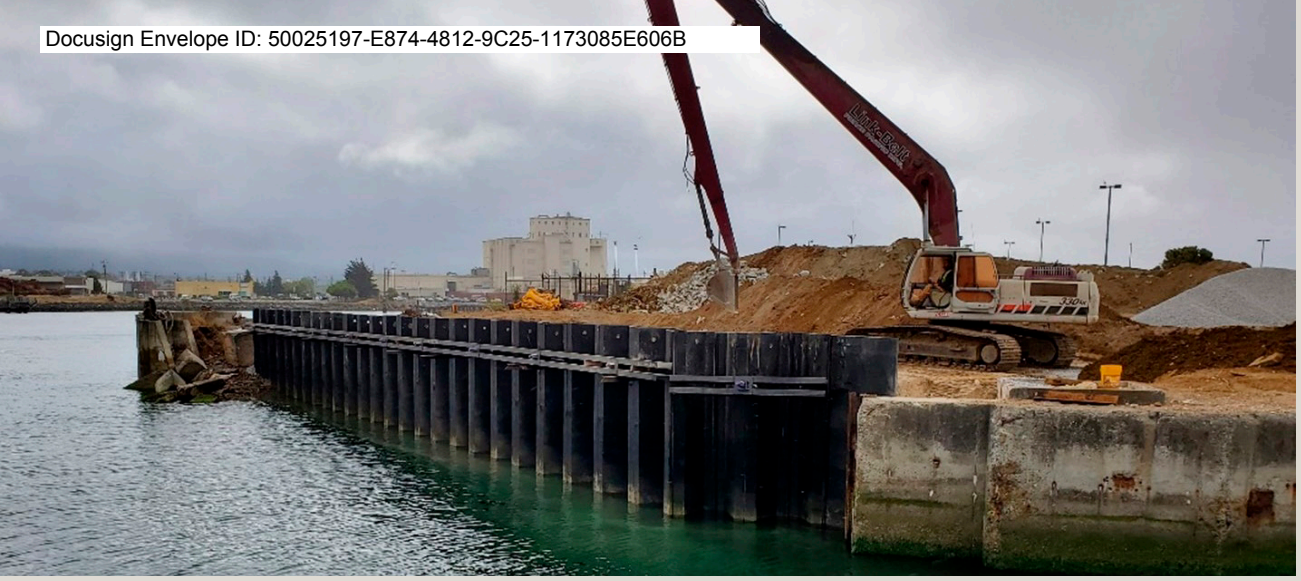
Max is a recognized contributor to the field of waterfront engineering. He serves on several ASCE/COPRI technical committees, including the Piers & Wharves Design Standard Committee and the Waterfront Facility Inspection Committee, where he co-authored updates to the ASCE Manual of Practice No. 130. He has published and presented extensively on topics such as inspection criteria for composite piles, fender design, and shoreline development in urban environments.

Organizational Chart

The organizational chart below outlines our key personnel roles and team reporting structure.



02 PRIOR EXPERIENCE



ALAMEDA MARINA SHORELINE REDEVELOPMENT ALAMEDA, CA

Alameda Marina is a 530-berth marina with a 44-acre backland. Built through the 1940s through 1970s, the seawalls and wharf had exceeded their useful life and show varying signs of distress. As part of the waterfront mixed-use redevelopment, SGH assessed the seawall and wharf condition and developed repair, retrofit and replacement options to help protect the marina and extend its operational life.

SCOPE | SOLUTIONS

With 4,000 ft of shoreline and varying site conditions, including abandoned dry docks, buried structures, and environmentally contaminated and hazardous soils, the marina required a multifaceted redevelopment approach. SGH conducted a condition assessment and evaluated each segment of the shoreline to assess its stability and earth retention. We developed repair, retrofit and replacement options to protect the waterfront assets against earthquakes, and storms, including sea-level rise. We helped the client transform their previously industrial site into prime real estate. Highlights of our work include:

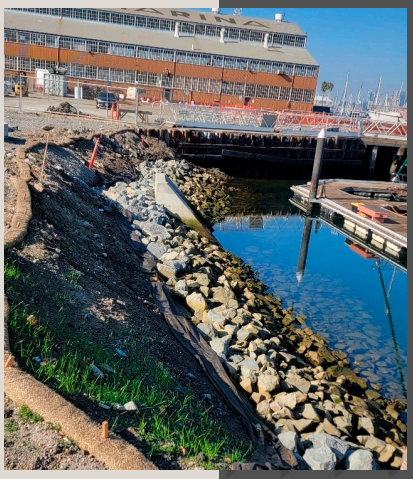
- Inspected and classified the various segments of the shoreline based on visible and forecasted deterioration
- Evaluated the geo-structural slope stability, including the shoreline soil-structure analysis and the influence of adjacent foundations on the seawall systems
- Extended the service life of the timber wharf by retrofitting piles and replacing deteriorated beams and decking
- Helped obtain shoreline rehabilitation permits from regulatory authorities, including the City of Alameda, Army Corp of Engineers, and the San Francisco Bay Area Conservation and Development Commission
- Coordinated with the developer and contractor to select the most cost-effective rehabilitation solution
- Developed detailed construction sequencing for shoreline retrofits and replacements
- Provided on-site construction support and inspection services for marine and subgrade work

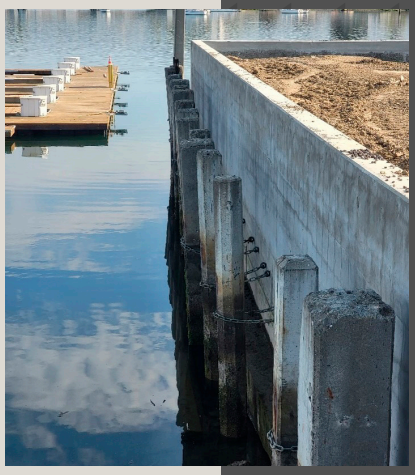
SERVICES Condition Inspection, Structural Design, and Construction Support

CLIENT REFERENCE Sean Murphy, Pacific Development; sean@alamedamarina.com; 415.602.8128

ANTICIPATED COMPLETION 2024

KEY STAFF Sam Yao, Principal in Charge; Gayle Johnson, Technical Reviewer; Ali Naeem, Project Engineer





ALAMEDA LANDING WHARF REHABILITATION ALAMEDA, CA

The wharf at Alameda Landing was originally built in the 1940s for the naval air station. Catellus Development Corporation undertook a project to create a residential development at the site and wanted to convert the industrial wharf to a pedestrian promenade. SGH served as engineer of record for the wharf rehabilitation.

SCOPE | SOLUTIONS

SGH provided structural engineering services for the project from initial inspection through construction completion. Highlights of our work include:

- Evaluated the condition of the wharf structure, including surveys from the water and underwater
- Developed seismic design criteria and presented to the San Francisco Bay Conservation & Development Commission Engineering Criteria Review Board
- Performed seismic analysis to assess the wharf's structural adequacy under combined kinematic and inertial loads
- Worked with a geotechnical engineer to develop deep soil mixing (DSM) ground improvements
- Developed rehabilitation plans, including demolishing and repairing portions of the wharf and installing sheet pile retaining walls for fill and DSM
- Consulted on the structural design for architectural features on the deck, shade structures, and the boat ramp
- Developed a seismic instrumentation plan
- Collaborated with other project team members, including BKF Engineers who provided civil engineering services
- Provided construction support services through project completion

SERVICES Condition Inspection, Structural Analysis, and Structural Design

CLIENT CONTACT Damir Priskitch, Catellus Development Corporation, 415.606.1140; dpriskich@catellus.com

COMPLETION 2022

KEY STAFF Gayle Johnson, Principal in Charge; Ali Naeem, Project Engineer; Max Argo, Project Engineer; Jonathan Boynton, Underwater Inspection

Rendering by Signature Development Group

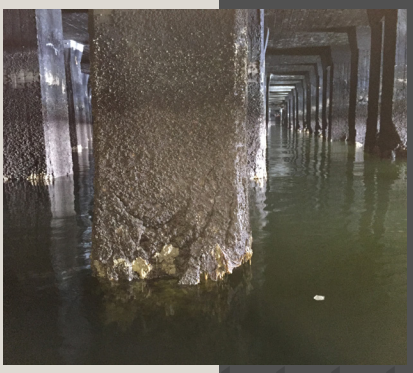
BROOKLYN BASIN OAKLAND, CA

The Brooklyn Basin project revitalizes 65 acres along Oakland's waterfront, transforming an industrial site into a mixed-use development. The new neighborhood offers more than 3,000 residences, public parks and trails, a new marina, and 200,000 sq ft of retail and commercial space. SGH was the engineer of record for several major structures.

SCOPE | SOLUTIONS

SGH designed the structure and foundation for all waterfront structures and also developed a complete coastal shoreline protection plan. Highlights of our work include the following:

- Performed a detailed inspection of deteriorated piles under the 9th Avenue Wharf, constructed in the 1930s
- Inspected and evaluated the capacity of more than 2,000 piles, designed repairs, and prioritized the repairs
- Evaluated the existing wharf structure for anticipated seismic, mooring, and berthing loads
- Designed a seismic retrofit for the existing 1,300 ft by 80 ft wharf and various structures above the wharf deck and performed three-dimensional nonlinear finite element analyses to verify the design approach
- Collaborated with the geotechnical engineer to develop and finalize a cost-effective toe wall design to stabilize the rock dike slope for the maximum design earthquake
- Prepared demolition plans and specifications for partially removing numerous existing structures at the project site
- Designed two new pier structures and a 200 ft long, pile-supported ramp structure over the water in Shoreline Park
- Developed a structural rehabilitation program for an existing 200 ft long access bridge near the wharf
- Designed retaining walls, wharves, docks, bulkheads, and outfall structures
- Performed wind and wave load analyses and designed coastal protection along more than 6,000 ft of shoreline
- Designed storm drains and other utilities



Rendering by Signature Development Group

Rendering by Signature Development Group

SERVICES Marine and Waterfront Structures

CLIENT REFERENCE Patrick Vanness, Signature Development Group; PVanness@signaturedevelopment.com 510.251.9272

ANTICIPATED COMPLETION 2029

CONSTRUCTION VALUE $2 billion

KEY STAFF Sam Yao, Ali Naeem, Joshua Core, Justin Pyun, Max Argo

PORT OF SAN FRANCISCO WATERFRONT RESILIENCE PROGRAM (WRP) SAN FRANCISCO, CA

The Port of San Francisco (POSF) manages 7.5 miles of shoreline along the bay, including the three-mile long Embarcadero Seawall extending from Fisherman's Wharf to Oracle Park. The POSF is overseeing the Embarcadero Seawall Program to create a more sustainable and resilient waterfront. In 2017, POSF selected a team led by CH2M Hill to manage a ten-year program to systematically mitigate risks to their waterfront facilities and infrastructures due to earthquakes, flooding, and sea-level rise. SGH has served as the lead structural consultant on the WRP team through all phases of the program, including the Multi-Hazard Risk Assessment (MHRA), Seismic Solutions Strategies Study (S4), Needs Assessment Report (NAR), and Alternatives Analysis Report (AAR).

SCOPE | SOLUTIONS

SGH provided specialized structural engineering services to comprehensively assess seismic vulnerabilities, develop mitigation strategies, and evaluate alternatives for the selected Early Projects. Highlights of our work include:

- MHRA: Completed a seismic vulnerability study of 117 marine structures and 108 port-owned buildings along the northern waterfront. This included nonlinear analysis of over a dozen marine structure model types to develop a suite of over 70 seismic fragility functions. This effort resulted in an estimate of probabilistic losses for over 200 port assets, an understanding of key vulnerabilities, and a method for the Port to prioritize seismic mitigations.
- S4: Studied the feasibility of several high-level mitigation concepts through MHRA; interpreted results; and performed additional structural analyses.
- NAR: Performed a site-specific assessment for several of the Port's selected Early Projects, including Pier 9, Pier 15, and the Ferry Building. In this task we identified the problems, opportunities, objectives, and constraints for seismic mitigation. We developed preliminary engineering solutions to meet the project objectives, and recommended project alternatives for further study.
- AAR: Performed an alternatives analysis for the Early Projects, including Pier 9, Pier 15, the Ferry Building, and Wharf J9. In this task we used nonlinear finite element analysis to further develop the NAR alternatives, develop cost estimates, and perform an alternatives analysis. This effort resulted in recommendations to the Port regarding the alternatives to progress to conceptual design.

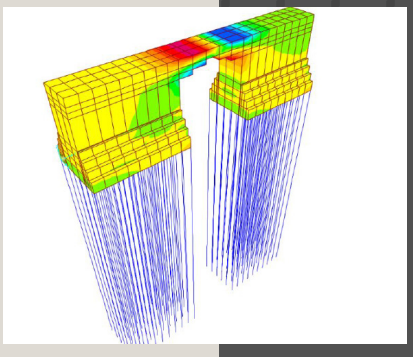
SERVICES Structural Analysis and Structural Design

CLIENT REFERENCE Ramon Perez, Jacobs, +34.613.05.93.15

OWNER CONTACT Steven Reel, Port of San Francisco, 415.793.5352

CONSTRUCTION VALUE Pier 9: $12-26 million; Pier 15: $2-5 million; Ferry Building: $50-100+ million; Wharf J9: $33-71 million

KEY STAFF Gayle Johnson, Principal in Charge; Julie Galbraith, Project Manager; Justin Pyun, Project Engineer



03 APPROACH

APPROACH

Our approach to this project is divided into the following principal tasks:

1. Above water and below water inspections
2. Material testing
3. Structural analysis and evaluation
4. Repair/retrofit recommendations and cost estimate
5. Report

Task 1 - Above- and Below-water Inspection

1.1 ABOVE WATER INSPECTION

SGH will provide a two-person inspection team to conduct a full site structural inspection at each pier site. The above-water inspection includes a 100% visual inspection of all accessible structural components above the high water line. For Pier 1, this includes the above water portions of the king piles, sheet piles, pile caps, deck, curbs, mooring and berthing hardware. For Pier 2 and Pier 3, this includes the above water portions of the piles, pile caps, top and bottom surfaces of the deck, curbs, mooring and berthing hardware. SGH will provide a Coast Guard-approved boat and kayak with well-trained operator to visually survey the structures by water. We will inspect, measure, and document steel corrosion and other damage to concrete structures. Prior to inspection, the team will review the 2017 field inspection notes and confirm any pier condition changes since 2017 during the inspection.

The underdeck inspection of Pier 3 presents unique challenges to the above water below deck inspection team. The spacing and layout of the piles, as well as the fender system, may prevent access via a small boat to some areas of the pier. In order to accomplish a complete inspection of these areas, the inspection team will be supplemented with a qualified inspector swimming around each pile and the inspector will report the findings to a second team member positioned nearby in a small craft who can accurately record any deficiencies found.

SGH recognizes that Pier 1 and Pier 3 are currently being used by tenants. It is important that our inspections, both above and below water, have no adverse impact of the berthing of vessels and use of the piers. Both SGH and L3 Engineering divers have extensive experience working successfully in operating piers with berthing vessels and deck loads.

1.2 BELOW WATER INSPECTION

SGH has teamed with L3 Engineering (L3) to conduct the underwater portions of the inspection and will direct the efforts of a three-person underwater inspection team consisting of at least one registered Professional Engineer-diver who is experienced in the inspection and repair of concrete and steel piles. All diving will be performed by commercially certified divers in accordance with OSHA regulations and the Association of Diving Contractors (ADC) guidelines governing safe diving practices.

L3's principal inspection team members have a combined 71 years of underwater structural condition assessment experience. Jonathan Boynton, P.E., served as the underwater inspection team leader during the 2016 Inspection and will be the primary inspection team leader for this assessment. Michael Grams, EIT, was a primary inspection diver during the 2016 Inspection. Both individuals are intimately aware of the complexities of the site and will carry forward the experience and expertise gained during the previous inspection. This is important to this project because it not only provides the highest quality inspection due to their intimate knowledge of the piers from their experience with the 2016 inspection but also ensures the ability to quickly recognize load paths, failure modes, and the structural significance of what they observe. This ability greatly enhances the technical value of the inspection, while saving both time and money. They know what information in the current condition is meaningful and important in comparison with the 2016 conditions of the piers.

L3's commitment to safety and quality cannot be overstated. A comprehensive dive safety plan including emergency procedures and diver recovery procedures will be developed and adhered to. L3's topside dive stage and dive support vessels include custom fabricated diver recovery systems for fast and efficient diver recovery in case of emergency. Rigorous safety training, including emergency preparedness drills, are a cornerstone of L3's commitment to safety.

Real time, digital note taking ensures efficient and consistent recording of field data throughout the course of the inspection and eliminates the possibility of transcription error during post-processing.

The underwater inspection includes the standard scope of work for Routine Inspections as described in the RFP and in accordance with American Society of Civil Engineers (ASCE) Waterfront Facilities Inspection and Assessment Manual of Practice (MOP 130), or equivalent. Three levels of inspection efforts are to be undertaken and are summarized as follows for clarity:

- **Level I Inspection Effort** - A Level I inspection effort is essentially a 100% visual/tactile inspection of all of the accessible steel piles, concrete piles, sheet piles, and concrete infill panels from the mudline to the high-water elevation. This inspection will determine whether any piles of the piers are grossly damaged.

- **Level II Inspection Effort** - A Level II inspection effort involves the removal of marine growth and close inspection of the exposed area at three elevations on the piles and concrete panels. Level II cleanings will be in accordance with the recommendations of MOP 130 – Section 3.1.3.

- **Level III Inspection Effort** - A Level III inspection effort involves additional non-destructive and / or destructive testing of a structural element and is typically performed at select Level II locations. This will be conducted at Pier 1 at the frequency specified in the RFP Exhibit C. The locations of the Level III inspections will be selected by SGH working with the L3 inspection team leader. At Pier 1, Ultrasonic thickness measurements will be taken on steel piles and sheet piles as specified in RFP Exhibit C. At Pier 3, 4-inch diameter by 8-inch-long concrete cores will be taken from 15 piles above the water column, at mid-water, and 3 feet below the mudline. Core holes will be filled with marine grade repair grout.

Figure 1. Diving inspection and concrete pile coring at Alameda Point Pier 2 in 2016. The same team led by Jonathan Boynton is proposed for the upcoming inspection at the Alameda Point Piers.

Task 2 - Material Testing

One of the key findings in our 2017 study was that different portions of the piers are experiencing different levels of deterioration due to chemical attack. We believe this is due to variance in the concrete mix and materials used during construction and has significant impact on the remaining life of the structures.

Based on our experience and knowledge from the inspection and evaluation of Alameda Point Pier No. 3 in 2017, we will strategically select the location of concrete coring on the piles as required by the contract. A total of 45 cores will be from 15 piles in Pier 3 at the locations that are strategically selected by the responsible SGH engineers in consultation with the City Staff. The cores will be stored in wooden boxes and shipped to SGH's Applied Science & Reserach Center, in Waltham, MA.

SGH has maintained its own laboratory since the founding of the company in 1956. It has advanced test equipment and highly qualified full-time lab professionals to perform routine and sophisticated tests of construction materials such as concrete, masonry, coating, metals, polymers, plastics, glass, wood, roofing and waterproofing products. All of the concrete tests required in the RFP, including petrographic examination, scanning electron microscope, chloride profiling, and compressive strength tests, will be conducted by professional material scientists and petrographers. This proposal includes resumes of our senior petrographer, Sidney Carter, and director of the laboratory, Norman Perkins. A concrete test report will be prepared to document all test results, chemical and petrographic analyses, and conclusions from the tests with regards to the nature and extent of concrete conditions and deterioration of the piles at Pier 3. We will provide an assessment of the long-term potential deterioration of the concrete piles in the future. The concrete test report will be prepared in a similar manner as our 2017 test report for Pier 2.

Figure 2. SGH's Applied Science & Research Center in Waltham, MA

Task 3 - Engineering Analysis and Evaluation

In the 2017 condition assessment project, the SGH team performed the geotechnical evaluation of the piers site and the ship mooring and berthing analyses in accordance with UFC 4-159-03. The loads from the same mooring and berthing analysis will be used to evaluate the piers for operating lateral loads with load combinations in accordance with UFC 4-152-01. Structural capacity checks will be performed against the load criteria per UFC 4-152-01 and operating criteria in UFC 4-152-01. The vertical and lateral pile capacity will be evaluated on the basis of field inspection results, geotechnical evaluations, and structural evaluations with due consideration of the current conditions of the piles. Structural capacity of the deck will be evaluated using three-dimensional finite element analysis with due consideration of deteriorated conditions of the piles.

The piers will be evaluated for both overall global loads as well as local loads at each representative mooring point. For evaluation of the lateral load capacity of the Pier 2 and Pier 3 structures, we will establish a finite element model with nonlinear soil springs based on geotechnical engineering analyses of soils in various areas and at various depths. The analyses will provide insights on the critical load path, redundancy in the pier structure, safety margin, and structural deficiency in various structural components of the piers.

Since Pier 1 is a gravity bulkhead structure, we will perform stability analysis and lateral load analysis using the analysis programs SLIDE and PYWall, based upon our current assessment and previous engineering evaluation in 2017. For evaluation of the local mooring capacity of the structure and mooring hardware, we will perform structural analysis using refined finite element models with due consideration of the current conditions of the mooring structures.

Some individual pile deterioration may not directly result in critical failure of the pier deck or pier structure. Structural checks will be performed assuming deterioration in selected piles, which will provide the basis for prioritization of the pile and deck repair sequence. Furthermore, durability of structural components will be estimated, based upon material testing and field inspection.

Task 4 - Repair Recommendations

Based upon the inspection results, engineering analysis and structural evaluation, SGH will make recommendations for repairs and maintenance of the pier deck, piles, mooring and berthing hardware, and other structural components as necessary to meet the MARAD lease requirements, and meet any functional requirements of the pier as requested by the City. Our recommendations will include a repair prioritization tailored to specific uses of the piers, identifying relative urgency for all structural deficiencies and non-structural deterioration.

SGH will evaluate various repair schemes, including installation of new piles (of similar or alternate materials), repair of piles with jacketing, encasement, or wraps, and splicing of existing piles to new piles. Repair of deck damage will be engineered based on results of the material testing. All damage identified in the inspection will be addressed with suitable repair schemes and supported by engineering analysis and calculations.

All repair schemes will be reviewed amongst our team for construction feasibility, including specific insight from marine contractor CS Marine, to provide the most efficient repair strategy satisfying engineering requirements and restoring the life of the structures. The recommendations will include an order-of-magnitude budgetary cost estimate for any repair and modification of the piers, and prioritization for budgetary needs of the City of Alameda. The goal is to achieve satisfactory service performance and long service life of the piers with an effective funding plan.

Task 5 - Report

The pier condition assessment report will include inspection reporting and notes, material test reports, types and rate of structural deterioration of each pier since the 2017 inspection, structural analysis and evaluation of the pier structures and mooring hardware, pier condition plan drawings, repair recommendations (methods, size and configuration), and ROM cost estimates for repairs and modifications.

The results of the above water and below water inspection will be presented in a report that will include both above water and underwater photographs of the conditions observed, field measurements such as concrete crack and spall sizes, ultrasonic measurements of steel members, as well as a general plan with representative cross-sections of the structures inspected. The report will provide a summary of the observed conditions, a list of deficiencies, and a general engineering evaluation. To the best extent possible, we will compare the 2025 inspection results with the 2008 and 2017 condition assessments, and document the condition changes since 2008. Based upon the comparison, we will provide an estimate of the deterioration rates in various structural components.

A condition rating will be given to each individual piles using the six-point rating scheme in accordance with "Underwater Inspection Manual of Standard Practice" ASCE Manuals and Reports on Engineering Practice NO. 101. Above water structural components and overall structural condition will be rated in accordance with "Waterfront Facilities Inspection and Assessment" ASCE Manuals and Reports on Engineering Practice NO. 130. These rating systems are widely used in the marine industry throughout California and United States.

The report will be stamped by a professional engineer licensed in California.

Quality Control and Quality Assurance

Quality is the cornerstone of SGH's practice, and the best project approach can fall short if the deliverables lack quality. "Committing to get the job done right" from all levels of our staff, is why SGH is so successful. It starts with building an appropriate project team with the ability and staff to complete the necessary work.

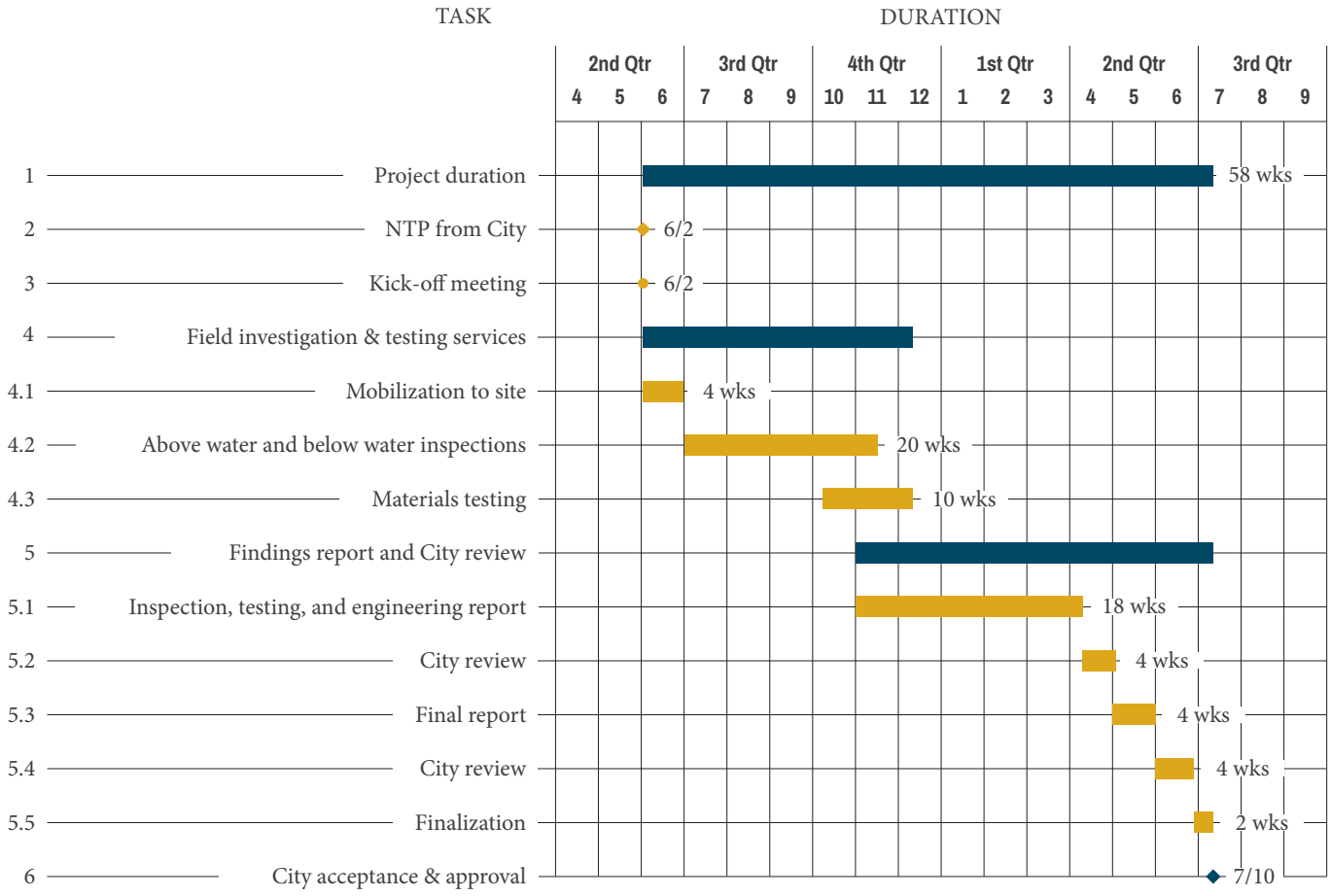
Our internal practices for quality will permeate this project from start to finish. Our QA/QC Principal manages projects by utilizing the following protocol:

- At the onset of the project, prepare a Project Information Sheet designating qualified managers, key staff, and the quality reviewer.
- Perform all work with complete objectivity and high ethical standards.
- Engage other qualified personnel to oversee work outside of one's own expertise.
- Establish the objectives and scope of the project by consulting with the client.
- Manage cost controls and monitor expenditures.
- Inform the client regularly about work progress, schedule, and budget.
- Clearly understand and apply the criteria that apply to each project.
- Summarize, in writing, observations, decisions, instructions, and agreements made during field trips, conferences, and telephone conversations with individuals outside SGH.
- Confirm important oral instructions and agreements via a follow-up letter.
- Organize reports consistently.
- Review calculations, reports, and drawings for accuracy.
- Perform a quality review before submitting the work product to the client.

A senior SGH staff member performs an independent in-house quality review. The reviewer reads reports, reviews plans and specifications, and acts critically to review assumptions, concepts, designs, plans, and specifications. They examine major project decisions, and verify that work product meet the project objectives, client expectations, and contract requirements. If substantial changes result from this review, the work product is reviewed again and revised before it is presented to our client.

A copy of our Corporate Quality Manual can be provided upon request.

04 TIMEFRAME FOR INSPECTION AND REPORTING



05 FEES AND EXPENSES

We propose to perform the work in Exhibit C of RFP for a fixed fee of $768,000. This fee includes all anticipated reimbursable expenses with markup. An approximate breakdown of this fee is provided in the table below. If additional meeting time, site visits, or other additional services are required beyond that already estimated for this scope of work, this can be performed for an additional cost on a negotiated basis as mutually agreed upon by the City and SGH. This fee is valid for 60 days from the date of this proposal, after which time we reserve the right to modify it to reflect changing economic conditions.

Approximate Breakdown of Fixed Fee		
Task No.	**Task**	**Totals**
1	Above-water inspection (above and below decks)	$85,000
2	Below-water inspection and data collection/documentation	$315,000
3	Concrete coring and shipping	$121,000
4	Concrete sample testing	$120,000
5	Engineering analysis and design check of piers	$45,000
6	Repair/retrofit recommendation and cost estimate	$37,000
7	Report preparation and finalization	$35,000
8	Meetings and project management	$10,000
	Totals	**$768,000**

Our fees will be invoiced monthly, based on the estimated percentage of completion of project scope during that month. Invoices are payable within 30 days of receipt. We reserve the right to suspend services if payments fall substantially in arrears.

This fee is based on the following assumptions:

1. The City of Alameda will provide access to the site to perform the necessary inspection work from both the land and water sides of the piers.
2. The underwater inspection company, L3 Engineering Inc., is a non-union professional engineering company with inspection diving personnel. This fee estimate does not include prevailing wages for dive team members. Should prevailing wages be required, SGH and L3 reserve the right to modify and negotiate fee for underwater inspection.
3. As an engineering firm and marine employer utilizing engineer-divers for the underwater inspection of waterfront structures and carrying the appropriate insurance policies, L3 Engineering Inc. does not perform construction services. In the event that additional forms of coverage or increased limits are required, L3 reserves the right to review this estimate and retain or modify it.
4. This fee does not include efforts to develop safety planning in excess of SGH's safety manual and L3's typical dive planning and site-specific training.
5. Vessels utilized for inspection tasks are less than 5 gross tons.

06 SERVICE AGREEMENT ACCEPTANCE

SGH will comply with the Service Provider Agreement included in Exhibit D of the RFP.

07 APPENDIX - PROJECT TEAM RESUMES

Sam Yao, Ph.D., P.E.
Senior Principal, Vice President
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REGISTRATIONS

Professional Engineer

AK	NY	TX
CA	NC	VA
LA	OR	WA
MA		

OTHER

NCEES

EDUCATION

University of Illinois, Urbana, IL
Ph.D. in Civil Engineering, 1989
M.S. in Civil Engineering, 1984

Tongji University, Shanghai, China
B.S. in Civil Engineering, 1982

AWARDS

2014 NCSEA Award, Engineer of Record for the Repair of SR-520 Floating Replacement Bridge Cycle 1 Pontoons

2012 Senacyt Panama Award for serving on Technical Advisory Board of the Panama Canal Expansion Program

Sam Yao has more than 35 years of engineering experience with design of various marine structures and heavy civil works, including bridges, tunnels, piers and wharves, locks and dams, pump stations, intakes and outfalls, dry docks, excavation shoring and cofferdam, seawalls, deep foundation and ground improvement, flood protection structures, and coastal shoreline protections. He has frequently served as an engineering expert to assist in construction dispute resolution and litigation.

Experience

- Simpson Gumpertz & Heger Inc. (SGH), Oakland, CA. Senior Principal and Vice President, from January 2015 to present.
- Ben Gerwick, Inc., CA. (COWI) Vice President and Chief Engineer from 2009 to 2015.
- Ben Gerwick, Inc., CA. (COWI) Project Manager and Senior Engineer from 1993 to 2009.
- Interactive Resources Inc., CA. Staff Engineer, from 1992 to 1993.
- Harza Engineering Inc., IL. Staff Engineer from 1990 to 1992.
- Klein and Hoffman, IL. Engineer from 1989 to 1990.

Representative engineering projects

- **Potrero Waterfront Development, CA.** This $3-billion mixed-use real estimate development project is located along the San Francisco Bayshore waterfront. Mr. Yao has served as the lead structural and marine engineer (Engineer of Record) in the following tasks: (1) design of a berthing facility including a 120 ft X 15 ft floating dock and 42 in. diameter guide steel pipe piles, mooring fittings, fenders, a 100 ft long gangway, and pile-supported wharf structure, (2) retrofit of old seawall and design of new seawalls, (3) seismic retrofit of all existing waterfront facilities such as intakes and outfalls, with permanent tiebacks and grouting, and (4) assessment and design of shoreline protection and breakwater for the entire project.
- **Brooklyn Basin Waterfront Development Project, CA.** Mr. Yao has served as the lead design engineer and Engineer of Record in the waterfront real estate development project. His responsibility includes, but not limited to, lead structural designer and Engineer of Record for (1) seismic retrofit design of a 2,000' by 80 ft wharf structure, (2) evaluation of over 2,000 concrete and timber piles, develop repair methods, and design repair of the piles, and prioritize the pile repair in accordance with the funding stream, (3) design of two new wharf structures and an approximately 200 ft long pile-supported ramp structure, (4) design of 300 ft long seawall with permanent tiebacks and grouting, (4) rehabilitation of a 150 ft access bridge to the wharf, (5) seismic retrofit of a 180 ft in length, 140 ft in width, and 38 ft tall warehouse as the future Community Center and ferry building, (6) shoreline protection of over 5,000 ft long shoreline coast of the Brooklyn Basin Development (wave analysis, erosion/sedimentation studies, riprap, and concrete armor protection, (7) waterfront retaining walls and outfall structures, (8) development of partial demolition plans and specifications for new construction. In order to meet the modern design code for the wharf structure built in the 1930s, Mr. Yao developed an innovative seismic retrofit design of the existing 9th Avenue Wharf that saved millions of dollars in retrofit cost. Mr. Yao also played an important role in assisting the developer to obtain permits from the Bay Conservation and Development Commission, US Army Corps of Engineers, and the City of Oakland by providing sound engineering planning and design.

- **Encinal Terminal Wharf Project, Alameda, CA.** As a part of waterfront real estate development project, the existing 1,200 ft long pile-supported wharf needs seismic retrofitting. Mr. Yao led the design from concept development to the final design and permitting as the Engineer of Record and design manager.
- **The New Panama Canal Locks, Panama.** Sam Yao served as a member of Technical Advisory Board to Panama Canal Authority for the new locks. The work included technical review of the lock design criteria and preliminary design, development of performance requirements and structural/foundation design criteria for the new locks including the ship collision protection system, hydraulic system design and lock gate design. He also served as a consultant on various technical structural and seismic design issues related to the new Panama Canal Locks (Post-Panama Locks) and the existing locks and dams along the canal. Sam Yao received 2012 Senacyt Panama Award: Panama National Award "for significant contributions in science and technology" from the Panama Government. The award recognizes his contribution on the Technical Advisory Board to the Panama Canal Authority in the new ship locks design and construction project.
- **Alameda Grand Marina, Alameda, CA.** The pile-supported marine wharf was constructed in 1960 and has experienced substantial deterioration. Mr. Yao served as the lead engineer and Engineer of Record for retrofitting design for the wharf.
- **Alameda Point Piers 1, 2, and 3 Project, Alameda, CA.** Principal in charge of inspection, evaluation, and repair of three piers for mooring MARAD ships in city of Alameda.
- **Alameda Navy Pier No. 2 Fender Replacement Project.** The existing fenders at the pier have been damaged in the past storms. Mr. Yao served as the lead designer and Principal-in-Charge to develop the preliminary design and final design of replacement fendering systems.
- **Dock A-0 Renovation Project, 18 20th Avenue, Astoria, NY.** The 850 ft by 60 ft dock consists of steel box girders on concrete-filled steel caissons. A recent inspection and condition assessment concluded that the existing dock is in structurally “poor” to “serious” deteriorated conditions. The owner intended to renovate the dock for future use as a Tesla battery storage site. Mr. Yao served as the lead designer for providing a preliminary design of the dock renovation and rough-order-magnitude cost estimate.
- **Alameda Marina Development, CA.** This waterfront real estate development project includes maritime, commercial, and residential development involving over 4,000 ft shoreline. Mr. Yao served as the lead marine structural engineer responsible for engineering design of (1) marina improvement, (2) seawall improvement, (3) boatyard and dockyard improvement, (4) new boat hoist and dry boat storage, (4) Waterfront access and shoreline protection, (5) graving dock rehabilitation with tiebacks and post-grouting, and (6) permit assistance.
- **Terminal One Waterfront Development, CA.** Wharf No. 1 was constructed in 1915, and was used for nearly a century as a loading and unloading facility. The structure is now being repurposed to be a public waterfront park. Mr. Yao has been the lead structural engineer and design manager for the inspection, condition assessment, seismic evaluation, and retrofit design of the wharf, shoreline protection, and breakwater.
- **Shipways Alameda, Alameda, CA.** Project manager for performing a condition assessment and preliminary repair and demolition plans. The work included an above-water structural survey and design concepts and cost estimates for repair and/or demolition of four Finger Piers and a Welding Platform at the project site. The project objective is to turn the disused WWII Shipways into a new residential and recreational site.
- **Paenal Quay Wall, Angola.** Design Manager for evaluation and strengthening of existing prefabrication yard and out-loading facilities for offshore platforms. The structure is a pile-supported concrete deck with sheet pile quay walls. PLAXIS 3D/2D was used to analyze the soil-structure interaction.
- **Pier 12 Replacement and Upgrades to Pier 13, Naval Base San Diego, CA.** The design-build project includes a new 117 ft x 1,500 ft general-purpose berthing pier to replace the old Pier 12. The new pier structure consists of a cast-in-place concrete deck supported by prestressed concrete piles. Mr. Yao served as an engineering consultant to the design builder on the structural design of the new pier.
- **U.S. Navy San Diego Replacement Berthing Pier 10 and 11.** The design-build project include the structural design of a 1,500-ft long new Navy pier to replace the old Navy Pier 10 and 11. Mr. Yao served as an engineering consultant to the design-builder on the structural design of piles and deck, fender, and mooring fittings. The design-build project was completed eight months ahead of schedule and was on budget.
- **Ambatovy Project, Madagascar.** Project Manager for the detailed design and independent design check of the Pier Mole B and conveyor structures, including the design of the piles, pile cap and connection, and concrete-filled large-diameter steel pipe piles.

- **Rehabilitation of the Venice Pier; Los Angeles, CA.** The reinforced concrete fishing pier was subjected to corrosion damages. Sam Yao served as the lead structural engineer to provide condition assessment, develop rehabilitation design concept, and the final design of the pier rehabilitation. His work included pier condition assessment, structural evaluation, and seismic retrofit analysis, structural design of precast concrete deck replacement with post-tensioning strands, and corrosion damage repair of the fishing pier.
- **Modular Repair of Navy Piers and Wharves.** Aging and deterioration of many Navy waterfront infrastructures resulted in over $1.0 billion maintenance backlog. The Office of Naval Research sponsored a multidiscipline research program, led by Mr. Yao as the principal investigator, to develop modular systems for rapid repair of piers and wharves. The research developed the modular repair concepts and the engineering approach for expedient repair of the Navy structures. It also establishes the criteria for selection of repair methods and engineering design on the basis of various governing parameters such as available time, availability of materials and equipment on-site, construction logistics, and cost.
- **Underwater World Aquarium at Pier 39; San Francisco, CA.** The San Francisco Underwater World Aquarium is a pilesupported wharf structure designed for carrying very high vertical loads and high dynamic seismic loads. Mr. Yao served as the lead structural engineer in the design of the new wharf structure. His work includes seismic analysis and structural design of piles and deck, and detailing of piles and deck framing, non-linear push-over analysis for high seismic loads, constructability evaluation, plans, and specifications. The innovative design proved to be cost-effective for the high design load criteria. By allowing the contractor to perform several pile installation techniques, installation in difficult driving conditions could be performed.
- **Pier 300 Container Wharf Project; CA.** Lead design engineer in the design of the 100-acre terminal new wharf structure. The work includes seismic analysis and design of pile-supported wharf structure, mooring and berthing analysis, and bollards design to accommodate vessels up to 160,000 deadweight tons and potential future berthing of vessels up to 275,000 deadweight tons, dredging design up to 85 ft, and slope protection design using rip raps.

Publications and presentations

- **Yao, Sam and Muhammad Naeem,** "Innovative Shoring Techniques for Deep Excavation in Downtown San Francisco", 2025 DFI-EFFC International Conference.
- **Gregory R. Fischer, Sam Yao, Gurpreet Bala, Mike O'Sullivan, Christoffer Brodbaek, and John Brestin,** "NAVFAC Drydock Emergency Repairs: Dynamic Soil Structure Interaction Analyses Confirmed Design Solution in Real-Time", 2025 ASCE OPRI PORTS 25 Convention.
- **Allison DiGregorio, Joshua Core, Muhammad Naeem, and Sam Yao,** "Innovative Engineering Solutions for Development of the Shoreline at the Potrero Power Station", 2025 ASCE OPRI PORTS 25 Convention.
- **Joshua Core, Muhammad Naeem, Allison DiGregorio, and Sam Yao,** "Optimization of Seawall Design at Alameda Marina", 2024 Deep Foundation Institute Annual Convention.
- **Yao, Sam, and Jeff Fippin,** "Seismic Retrofit Solutions of Waterfront Structures against Lateral Soil Spreading," *2021 ASCE Geo-Extreme Conference.*
- **Yao, Sam, William Rudolph, and Julie Galbraith,** "Engineering Assessment of Jet Grouting Pressures and Effects in the Elliott Bay Seawall Project," accepted for presentation at *ASCE Geo-Congress,* February 2020.
- **Yao, Sam,** invited presentation on engineering of floating structures, *ASCE COPRI/DFI Seminar,* November 2019.
- **Yao, Sam, Ali Naeem, Sara Barrett, and Joshua Core,** "Performance Based Seismic Retrofit Solutions for Wharf Preservation," *ASCE PORT '19,* September 2019.
- **Yao, Sam, Ali Naeem, and Rune Iversen,** "Decommissioning of a Floating Bridge in Seattle, WA," *ASCE PORT '19,* September 2019.
- **Yao, Sam, Ali Naeem, and Sara Barret,** "Performance Based Seismic Retrofit Design of Brooklyn Basin Wharf," *43rd Annual Conference of Deep Foundation Institute,* 2018.
- **Yao, Sam, and Justin Pyun,** "Seismic Retrofit of the historic Ninth Avenue Terminal Warehouse in Oakland, CA," *2018 SEAOC Conference.*
- **Yao, Sam,** "Applications of Fiber Reinforced Plastics in Major Bridges and Marine Structures," *2017 University of Kansas Structural Engineering Conference.*
- **Yao, Sam,** "Structural Repair of SR-520 Floating Replacement Bridge Cycle 1 Pontoons," *FHWA Structural Seminar,* 2016.

- **Yao, Sam, S., Hill, A., and Schwanz, N.,** "Investigations of Stability Improvements for Submerged Berm on Soft Clay in South Louisiana," *ASCE GeoCongress 2012,* Oakland CA.
- **Zhang, Y., Sam Yao, and Sam Christie,** "Non-linear and equivalent linear site response analysis for the Izmit Bay Bridge," *FLAC/DEM Symposium* in con-junction with *CSRME Annual Seminar on Numerical and Physical Simulation* on 22-24 Oct 2013 in Hangzhou, China.
- **Yao, Sam, and O'Hagan Michael,** "Design of Emergency Water Supply Tunnel at Warm Springs Dam," *32nd USSD Annual Conference,* 2012.
- **Yao, Sam, and Patrick Durnal,** "Seismic Retrofit of Bridge Foundations," *Journal of Concrete International,* Sept 2004.
- **Yao, Sam, and Ben Gerwick,** "Underwater Concrete Part I, Part II, and Part III," *Journal of Concrete International,* Jan to Mar 2004.
- **Yao, Sam, and Dale Berner,** "Proposed Design Criteria on Thin-Wall Precast Panels for Hydraulic Concrete Structures," *USACE Publication, TR-03-14,* 2003.
- **Yao, Sam, and Ben Gerwick,** "Positioning and Guiding Systems for Float-in and Lift-in Construction in Inland Waterways," *USACE Publication, TR-02-22,* 2002.
- **Yao, Sam, Ben Gerwick, and Dale Berner,** "An Overview of Current Prestressing Technology in Offshore Structures," *USACE Publication, ERDC/GSL TR-00-1,* 2000.
- **Yao, Sam, Ben Gerwick, Robert Bittner, and Dale Berner,** "An Assessment of Heavy Lift Equipment for In-the-Wet Construction of Navigation Structures," *USACE Publication, ERDC/GSL TR-00-2,* 2001.
- **Yao, Sam,** "Development of Self-compacting Lightweight Concrete for RFP Reinforcement Floating Concrete Structures," *Proceedings of International Symposium on High Performance Concrete,* Hong Kong, Dec 2000.
- **Yao, Sam, and Mette Geiker,** "Effective Assessment of Repairs," *Journal of Concrete International,* March 1999.
- **Yao, Sam, and Ben Gerwick,** "Assessment of Underwater Concrete Technologies for In-the-Wet Construction," *USACE Publication, INP-SL-1,* 1999.
- **Sam Yao,** "Modular Concepts for Rapid Repair of Navy Waterfront Structures," *Proceedings of Ports 98,* 1998.
- **Gerwick, Ben, and Sam Yao,** "Repair of Corrosion Damages and Protection of Cooling Water Intake/Circulation Structures," *Proceedings of IABSE Symposium, Extending the Lifespan of Structures,* San Francisco, 1997.

Gayle S. Johnson

P.E.

Senior Principal

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REGISTRATIONS

Civil Engineer

CA, AK, MA, OR, WA

OTHER

NCEES

EDUCATION

University of California, Berkeley, CA
M.S. in Structural Engineering and Structural Mechanics, 1981

University of Minnesota, Minneapolis, MN
B.S. in Civil Engineering, 1980

Gayle Johnson has more than forty years of experience as a project engineer, project manager, and engineering manager. His technical expertise is in seismic engineering, especially in the oil and gas and marine industries. In addition to project experience, he has been very active in code writing activities and criteria development. He was the Committee Chairman and primary editor for the first edition of ASCE's Guidelines for Seismic Evaluation and Design of Petrochemical Facilities and is Chairman of ASCE 61, the Standards Committee on Seismic Design of Piers and Wharves. He is also the U.S. delegate to PIANC Working Group 153 on Design of Marine Oil Terminals. He has investigated the performance of industrial facilities in more than twenty earthquakes throughout the world.

Experience

- Simpson Gumpertz & Heger Inc. (SGH), San Francisco, and Oakland, CA. From 2012 to present.
- Han-Padron Associates (HPA)/Halcrow, Oakland, CA. From 2002 to 2012.
- EQE International/ABS Consulting, San Francisco, CA, and Oakland, CA. From 1986 to 1988 and 1990 to 2002.
- PMB Engineering/Bechtel, San Francisco, CA, and Oslo, Norway. From 1981 to 1986 and 1988 to 1990.

Representative assignments

- **Port of San Francisco Embarcadero Seawall Program, San Francisco, CA.** Lead engineer for seismic assessment of marine structures and the seawall along the entire San Francisco Waterfront from Oracle Park to Fisherman's Wharf. Supervised structural analyses of numerous structures along the waterfront for inertial and kinematic loads. Developed fragilities for marine structures for input into multi-hazard risk assessment used to prioritize remediation projects for the seawall. Developed and evaluated alternative concepts to address sea level rise and seismic vulnerabilities, incorporating structural retrofit alternatives in coordination with seawall remediation and ground improvement alternatives.
- **Red Hill Fuel Storage Tanks Independent Evaluation, Pearl Harbor, HI.** Technical lead for independent assessment of fuel spill at the Navy's Red Hill storage facility, a complex of large underground storage tanks.
- **CARB at-Berth Feasibility Studies, Multiple Locations.** Assisted multiple marine oil terminals in evaluating the feasibility of shore-based and barge-based emission control systems and alternative marine power systems for vessels at berth, as instituted by the California Air Resources Board (CARB).
- **Marathon Martinez Refinery Seismic Assessment and Retrofit Design, Martinez, CA.** Project manager and engineer for the seismic assessment of eighteen processing units of the Marathon Martinez refinery in response to California Accidental Release Prevention (CalARP) program regulatory requirements. Managed seismic retrofit design of equipment supports and structures for numerous units. Performed other as-needed seismic assessments, retrofit designs, and repair designs for systems and structures throughout this entire refinery on a regular basis for more than twenty years.
- **Corteva Agriscience Seismic Evaluation and Design, Pittsburg, CA.** Performed on-site walkdowns and led seismic evaluations and retrofit designs for industrial structures, equipment, and piping.

- **Catellus Alameda Landing Wharf Rehabilitation, Alameda, CA.** Engineer of record (EOR) for structural modification of existing industrial wharf to pedestrian promenade as part of large development project. Developed seismic design criteria for wharf remediation and presented to BCDC Engineering Criteria Review Board for approvals. EOR for partial demolition, including seismic analysis of remaining wharf structure for kinematic and inertial loads, including deep soil mixing (DSM) ground improvements. EOR for design of sheet pile retaining wall for fill and DSM buttresses. Developed seismic instrumentation plan.
- **Hydes Gas Conditioning Plant, Earthquake Damage and Repair Assessment, Papua New Guinea.** Performed site visit to evaluate damage, emergency repairs, and long-term repairs for ExxonMobil facility located within a few miles of the February 2018 M7.5 earthquake in a remote mountainous region of Papua New Guinea. Performed on-site walkdown inspection and provided guidance for prioritization of long-term repairs and modifications to emergency repairs where needed, with emphasis on avoiding lengthy service shutdown following future events.
- **Seismic Assessment of Esso Australia Facilities.** Performed on-site walkdowns and seismic evaluations of Esso Australia terminals at Longford and Long Island Point and the Altona Refinery. Managed performance-based seismic assessment of process structures and tanks at these facilities.
- **Shell Mormon Island Terminal Rebuild, Independent Peer Review, Wilmington, CA.** Project manager for independent peer review on owner's behalf of structural and mechanical design of marine terminal replacement at Berth 168 at the Port of Los Angeles (POLA). Reviewed structural concepts, structure and system layouts, and regulatory compliance of design by teams hired by POLA and terminal operator. Used above-water and underwater inspections to develop load restriction ratings of wharf structures to be used until replacement structures are designed and constructed by POLA.
- **Martinez Refining Company (former Shell Martinez Refinery) Seismic Assessment and Retrofit Design, Martinez, CA.** Project manager and engineer for the seismic assessment of more than twenty processing units of the Shell refinery in response to California Accidental Release Prevention (CalARP) program regulatory requirements. Managed seismic retrofit design of equipment supports and structures for numerous units. Have performed other as-needed seismic assessments, retrofit designs, and repair designs for systems and structures throughout this entire refinery on a regular basis from 1989 to the present.
- **Marine Oil Terminal Repair and Upgrade Design, Chemoil Terminal, Long Beach, CA.** Engineer of record for concrete repairs and design of fender system upgrades at the Chemoil terminal at Berths F209 and G211A at the Port of Long Beach.
- **NuStar Selby Terminal, Marine Oil Terminal Evaluation, Selby, CA.** Project manager and audit team leader for 2018 audit of marine terminal structures and facilities at this terminal as required by California State Lands Commission MOTEMS regulations. Included above-water and underwater structural inspections, mooring and berthing analysis, and audits of fire protection, electrical, and mechanical systems.
- **NuStar Wilmington Terminal, Marine Oil Terminal Evaluation, Wilmington, CA.** Project manager and audit team leader for 2018 audit of marine terminal structures and facilities at the Port of Los Angeles Berth 163 as required by California State Lands Commission MOTEMS regulations.
- **Petro-Diamond Inc., Marine Oil Terminal Evaluations, Port of Long Beach Berths 82 – 83, Long Beach, CA.** Project manager for audits of terminal as required by California State Lands Commission MOTEMS regulations. Included above-water and underwater inspection and seismic assessment of marginal concrete pile–supported wharf. Included assessment of damage due to possible slope failure due to liquefaction, as well as mooring and berthing analysis, and audits of fire protection, electrical, and mechanical systems. Responsible for Initial Audit in 2010, review of upgrade designs, and 2013, 2018, and 2022 subsequent audits. Responsible for design of upgrades to fender system. Performed while at SGH and at Halcrow.
- **Shell Mormon Island Terminal, Marine Oil Terminal Evaluation, Wilmington, CA.** Project manager and audit team Leader for 2017 audit of marine terminal structures and facilities at the Port of Los Angeles Berths 167 – 169 as required by California State Lands Commission MOTEMS regulations.
- **Marathon Logistics, Marine Oil Terminal Evaluations, Port of Long Beach Berths 76 – 78, Long Beach, CA.** Project manager and audit team leader for 2017 and 2021 audits of marine terminal structures and facilities at Marathon Terminal 2 (T2) as required by California State Lands Commission MOTEMS regulations. Included above-water and underwater structural inspections, mooring and berthing analysis, and audits of fire protection, electrical, and mechanical systems.
- **Andeavor Logistics, Marine Oil Terminal Evaluations, Port of Long Beach Berths 84 – 86, Long Beach, CA.** Project manager and audit team leader for 2017 and 2021 audits of marine terminal structures and facilities at Marathon Long Beach Terminal (LBT) as required by California State Lands Commission MOTEMS regulations. Included above-water and underwater structural inspections, mooring and berthing analysis, and audits of fire protection, electrical, and mechanical systems.

- **Alameda Marina Seawall Rehabilitation Review, Alameda, CA.** Project engineer for independent review performed for City of Alameda of developer's proposed seawall rehabilitation concepts. Performed site investigation and developed rehabilitation concepts for new seawalls and deep soil mixing.
- **Marine Oil Terminal Upgrade Design, Port of Long Beach, CA.** Lead engineer for upgrade design to Berths 84 – 87 at the Port of Long Beach, operated by Tesoro (now Marathon). Includes ground improvement, seismic retrofit of the wharf structure, repairs, and design of a new fender system.
- **PSA Panama Container Wharf, Panama City, Panama.** Performed independent design review on behalf of owner of seismic-related portions of design of wharf expansion and backlands.
- **Kenai Pipeline (KPL) Marine Terminal, Risk Assessment, Nikiski, AK.** Facilitated risk assessment to evaluate damage to pipelines crossing between structures due to seismic, ice, and thermal loads.
- **ExxonMobil and Kvaerner, Design Review, Hebron Offshore GBS Oil Platform, Oslo, Norway.** Participated in design and constructability review for special issues related to the GBS to be installed offshore Canada.
- **Shell Martinez Crude Storage Tank Damage Investigation and Design Review, Martinez, CA.** Project manager and engineer. The project included investigation of a damaged ringwall during construction of a 190 ft diameter by 72 ft high crude oil storage tank. Investigation included impact-echo testing of concrete to locate interior spalling and complete independent design review of tank and foundation.
- **City of Santa Rosa Water Tank Investigation, Santa Rosa, CA.** Lead engineer for investigation of seismic capacity of three water storage tanks for City of Santa Rosa. Performed structural evaluations of the tank and ringwall for current building code requirements. Identified deficiencies requiring remediation and provided structural and operational mitigation options and costs. SGH was a subconsultant to West-Yost Associates.
- **City of Napa Water Tank Investigation, Napa, CA.** Lead engineer for investigation of damage to a 1 million gal water storage tank from the August 2014 Napa earthquake. Performed structural evaluations of the tank and ringwall for estimated actual earthquake loading and for current building code requirements. Identified deficiencies requiring remediation and provided structural and operational mitigation options and costs. SGH was a subconsultant to geotechnical team leaders Group Delta.
- **Crude Oil Storage Tank Seismic Evaluation, Martinez, CA.** Lead engineer and project manager for the seismic assessment of seventeen crude oil storage tanks at the Shell refinery that are near neighborhood properties. The tanks were built between the early 1900s and the early 2000s and include Shell's oldest storage tanks in the country. The project included walkdown assessments and seismic analyses of all tanks and risk mitigation recommendations.
- **Sacramento Regional Wastewater Treatment Plant, CalARP Seismic Assessment, Elk Grove, CA.** Project manager and engineer for the CalARP seismic assessment of the equipment and systems at the Elk Grove facility. Included a specific assessment of earthquake-induced sloshing in Digester 5, which had experienced roof damage from sloshing in the 1989 Loma Prieta earthquake and was undergoing repairs to the roof due to damage from a prior overflow blockage.
- **Lyttelton Port of Christchurch, Design of New Oil Berth, New Zealand.** Project manager for conceptual design of new oil berth to replace structures damaged by multiple earthquakes in New Zealand from 2010 to 2011.
- **Lyttelton Port of Christchurch, Peer Review of Earthquake Assessments, Cashin Quay Terminals, New Zealand.** Project manager and lead engineer to perform independent peer review of forensic analyses performed on container terminal structures that experienced three M7 events within a two-year period in New Zealand. Reviewed detailed geotechnical and structural analyses to determine sequence of structural failures and progressive collapse resulting from cumulative effects of multiple events for the purpose of allocating insurance payment responsibilities.
- **BP Trinidad and Tobago, Seismic Assessments of Company Assets, Port of Spain, Trinidad.** Project engineer performing on-site seismic assessments of multiple offshore platforms topsides, onshore terminals, and high-rise office headquarters buildings. Performed as a subcontractor to KBR in Houston.
- **ExxonMobil Development Company, Seismic Assessment of Arkutun-Dagi Offshore Platform Topsides.** Performed on-site seismic assessment of topsides facilities while being constructed at Daewoo Shipyard in South Korea prior to installation scheduled for early 2014. Platform deck is base-isolated and will be located in seismic region offshore Sakhalin Island, Russia.
- **Other Marine Oil Terminal Evaluations.** Led portions of audits of marine terminal structures and facilities at numerous other facilities as required by California State Lands Commission MOTEMS regulations. Includes Phillips 66 Rodeo terminal, Martinez Refining Company (formerly Shell), IMTT Richmond, Plains Richmond, Marathon Amorco, Marathon Avon, and Port of San Diego 10th Avenue Marine Terminal. Performed while with SGH and Halcrow.

- **Other Facilities, Seismic Assessment and Retrofit Design.** Project manager and project engineer for numerous refinery and chemical plant seismic assessments and retrofit designs for conformance with CalARP requirements. Performed similar projects of varying scopes for numerous Bay Area industrial facilities, including Air Liquide Rodeo, Air Products Martinez, Air Products Avon, Air Products Sacramento, Dole Atwater, Sacramento Regional Wastewater Treatment Plant, Beringer Winery, Bayer Pharmaceuticals, Borden Chemicals, Raychem, Space Systems/Loral, General Chemical Richmond and Bay Point Plants, Imperial West, Quemetco, Zeneca Agricultural Products, PG&E Power Plants (Potrero, Pittsburg, and Contra Costa), and numerous others. Performed while with SGH, Halcrow, Han-Padron, and EQE.

The following are several key projects managed and performed by Mr. Johnson prior to joining SGH.

- **Seismic Assessment, Adriatic LNG Terminal, Offshore.** Performed an independent seismic design review of the Adriatic LNG Terminal, offshore Italy, for ExxonMobil. Scope included design review of topsides facilities during the EPC design stage and construction walkdown at the Dragados yard in Spain prior to sailaway and commissioning.
- **Sakhalin 1 Development Project, Russia.** Served as project management team member for ExxonMobil Development Company in Houston, coordinating the earthquake design of all facilities included in $12 billion development project on Sakhalin Island, Russia. Scope of responsibilities includes offshore platform substructure and process facilities, onshore drilling facilities, modular onshore processing facilities, marine terminals, onshore pipelines, and offshore pipelines. Specific responsibilities include supervision of seismic engineering tasks and interfaces for numerous design contractors (located in Houston, Vancouver, Calgary, and Moscow), development of seismic design criteria, technical guidance, quality assurance, development and review of procurement specifications, and interface with Russian regulators. Began project during FEED stage and followed through EPC design and performed construction walkdowns in yards in Korea.
- **AIOC Sangachal Terminal, Azerbaijan.** Project manager and engineer. The project included seismic evaluation of terminal and tank farm servicing offshore platforms in Caspian Sea. Reviewed systems designs, procurement specifications, vendor packages, and piping analyses for seismic vulnerabilities.
- **Shell Waste Boiler Seismic Assessment, Martinez, CA.** Project manager for seismic assessment of a boiler system in support of permitting with the State of California.
- **Shell Martinez Refinery, Seismic Retrofit of Vacuum Flasher.** Project manager for seismic retrofit design of large tabletop reinforced concrete support frame.
- **Post-Earthquake Investigation, Turkey, Lead Investigator for Industrial Facilities.** Appointed to U.S. investigative team for damage investigations for the August 1999 Turkey earthquake (Magnitude 7.4), as lead investigator for industrial facilities. Team was sponsored by FEMA and the National Science Foundation (NSF). Spent ten days in Turkey immediately following the earthquake, visiting more than twenty-five industrial facilities to document damage and facility performance. Upon return, presented workshops in Los Angeles, San Francisco, and Washington, DC, on investigation results. Also represented NSF in determining research needs and grant requirements for university-funded research on damage from this earthquake. Acted as Co-principal investigator on NSF-funded research project into catastrophic collapse of 350 ft tall chimney at the country's largest refinery. Visited site one year after earthquake to review repairs and follow-up damage investigations, met original chimney designer, and obtained original design documents. Research efforts led to future building code changes.

Professional activities and honors

American Society of Civil Engineers/Coastal, Oceans, Ports, and Rivers Institute (COPRI) 61. Chairman of standards committee for seismic design of piers and wharves.

American Society of Civil Engineers. Past chairman, committee on seismic evaluation and design of petrochemical facilities.

The World Association for Waterborne Transport Infrastructure (PIANC). U.S. delegate to working group 153, design of marine oil terminals.

American Society of Civil Engineers/COPRI. Member.

Ports and Harbors Committee. Member of PORTS 2013 technical committee.

Appiled Technology Council (ATC) 76-2. Member of the project technical committee for development of seismic design guidelines for port and harbor facilities.

Honors and awards

American Society of Civil Engineers. Awarded the 2000 Stephen D. Bechtel energy award.

American Society of Civil Engineers/COPRI. In 2017, named as honorary member of ports and harbor committee in recognition of lifetime achievements and contributions to the committee and industry.

Bay Conservation and Development Commission (BCDC) Engineering Criteria Review Board (ECRB). Member of advisory board assisting BCDC in evaluating projects along San Francisco Bay requiring BCDC permits.

Publications

Mr. Johnson has authored or co-authored more than forty technical publications, including the following:

- **With J. Reynolds, S. Dickenson, and S. Cortes,** "Seismic Performance Requirements in the Urban Waterfront: Case Study – Repurposed 1940's Navy Wharf," ASCE PORTS 2022 Conference, Honolulu, HI, September 2022.
- **With C. Ospina and W. Bruin,** "Proposed Framework for Seismic Assessment and Rehabilitation of Pile-Supported Piers and Wharves," ASCE PORTS 2022 Conference, Honolulu, HI, September 2022.
- **G. Johnson, H. Seligson, M. Wickens, and J. Pyun,** "Seismic Fragility and Risk Assessment of Waterfront Structures at the Port of San Francisco," ASCE PORTS 2019 Conference, Pittsburgh, PA, September 2019.
- **G. Johnson, C. Lai, W. Bruin, and J. Chun,** "Rehabilitation, Safety Improvement, and Life Extension of a Geriatric Concrete Marine Oil Terminal," ASCE PORTS 2019 Conference, Pittsburgh, PA, September 2019.
- **With J. Galbraith, M. Wickens, and N. McCullough,** "Seismic Analyses for San Francisco Port-Wide Risk Assessment," ASCE PORTS 2019 Conference, Pittsburgh, PA, September 2019.
- **With W. Bruin, P. Fikse, and L. Palacios,** "Seismic Design of Marine Loading Arms and Cargo Hose Towers," ASCE PORTS 2016 Conference, New Orleans, LA, June 2016.
- **With R. Iwashita, J. Galbraith, and M. Percher,** "Effect of Moored Vessels on Seismic Response of Structures," ASCE PORTS 2016 Conference, New Orleans, LA, June 2016.
- "Program Plan for the Development of Seismic Design Guidelines for Port Container, Wharf, and Cargo Systems," NIST GCR 12-917-19, Member of Project Technical Committee and author of various sections, September 2012.
- **R. Harn, T. Mays, and G. Johnson,** "Seismic Detailing Criteria for Piers and Wharves," presented at the ASCE PORTS 2010 Conference, Jacksonville, FL, April 2010.
- **S. Hardy, and G. Johnson**, "History of Seismic Design Codes for Piers and Wharves," presented at the ASCE Technical Committee for Lifeline Earthquake Engineering (TCLEE) Conference, Oakland, CA, June 2009.
- **M. Percher, W. Bruin, and G. Johnson,** "Seismic Assessment and Rehabilitation of California Marine Oil Terminals," presented at the ASCE Technical Committee for Lifeline Earthquake Engineering (TCLEE) Conference, Oakland, CA, June 2009.
- **G.S. Johnson,** "Proposed Liquefied Natural Gas Terminal Engineering and Maintenance Standards (LNGTEMS)," presented at the Prevention First 2008 Conference, Long Beach, CA, September 2008.
- **A. Arulmoli, P. Yin, O. Jaradat, T. Mays, and G. Johnson,** "Geotechnical Considerations and Soil-Structure Interaction: Proposed ASCE Standards for Seismic Design of Piers and Wharves," Geotechnical Earthquake Engineering and Soil Dynamics IV, Sacramento, CA, May 2008.
- **G.S. Johnson,** "Use of International Codes for Seismic Design of Petrochemical Facilities," ASCE Structures Congress, Long Beach, CA, May 2007.
- **G.S. Johnson,** "New Performance-Based Standards for Seismic Design of Piers and Wharves," presented at the American Association of Port Authorities Facilities Workshop, San Diego, CA, November 2007.
- **G.S. Johnson,** "Use of International Codes for Seismic Design of Petrochemical Facilities," ASCE Structures Congress, Long Beach, CA, May 2007.
- **G.S. Johnson,** "Operational and Design Details (How Not to Mess Up an Isolation System)," presented at the MCEER Seminar on Advanced Technologies for the Seismic and Multi-Hazard Design and Retrofit of Offshore Structures, Industrial Structures, and LNG Tanks, Houston, TX, December 2006.
- **G.S. Johnson,** "LNG Terminal Engineering and Maintenance Standards (LNGTEMS)," Prevention First 2006, Long Beach, CA, September 2006.
- **M. Eskijian, W. Bruin, and G. Johnson,** "Guidelines for the Periodic Inspection of Marine Oil Terminals," Ports 2004, Houston, TX, May 2004.

- Contributor to Earthquake Engineering Handbook, W. Chen and C. Scawthorn, Editors, "Chapter 20 – Equipment and Systems," CRC Press – Routledge, Oxfordshire, UK, 2003.
- **G.S. Johnson,** "Refinery Damage and Emergency Response in the 1999 Izmit, Turkey Earthquake," Prevention First 2002, Long Beach, CA, September 2002.
- **P. Gould, W. Huang, R. Martinez, Y. Petrina, and G. Johnson,** "Investigation of the Collapse of a Heater Stack During the Ismit (Kocaeli) Turkey Earthquake of August 17, 1999," Seventh U.S. National Conference on Earthquake Engineering (7NCEE), Boston, MA, July 2002.
- **M. Aschheim, H. Sezen, and G.S. Johnson,** "The Marmara, Turkey Earthquake of August 17, 1999: Reconnaissance Report," Performance of Industrial Facilities, Technical Report MCEER 00 0001, Multidisciplinary Center for Earthquake Engineering Research, March 2000.
- **C. Scawthorn, and G. Johnson,** "Preliminary Report, Kocaeli (Izmit) earthquake of 17 August 1999," Engineering Structures 22.
- **C. Scawthorn, K. Porter, and G. Johnson,** "Seismic Reliability Assessment of Critical Lifeline Equipment," 5th U.S. Conference on Lifeline Earthquake Engineering, Seattle, WA, 1999.
- **R.E. Sheppard, M.D. Quilici, S.J. Eder, C.R. Scawthorn, and G.S. Johnson,** "Seismic Reliability Assessment of Critical Facilities: A Handbook, Supporting Documentation, and Model Code Provisions," Technical Report MCEER-99-0008. Multidisciplinary Center for Earthquake Engineering Research, Buffalo, NY.
- **S.J. Eder, R.E. Sheppard, S.P. Harris, and G.S. Johnson,** "A Method to Assess and Improve the Operational Reliability of Critical Systems Following Earthquakes," Presented at the 6th U.S. National Conference on Earthquake Engineering, Seattle, WA, June 1998.
- **R.E. Sheppard, T.M. Miller, P.W. Marshall, and G.S. Johnson,** "Fatigue Reassessment of the Cerveza and Cerveza Ligera. Platforms for Use in New Deepwater Developments," OTC 8737. Presented at the 1998 Offshore Technology Conference, Houston, TX, May 1998.
- **S.J. Eder, R.E. Sheppard, S.P. Harris, and G.S. Johnson,** "The Development of Model Code Provisions to Address System Reliability Following Earthquakes," Presented at the ATC 29 1 Seminar on Seismic Design, Retrofit, and Performance of Nonstructural Components, San Francisco, CA, January 1998.
- "Seismic Evaluation and Design of Petrochemical Facilities," ASCE Task Committee on Seismic Evaluation and Design of Petrochemical Facilities. (Committee chairman, contributing author, and primary editor.) July 1997.
- **C.E. Smith, and G.S. Johnson,** "Seismic Evaluation of Topsides Systems on Existing Platforms," OTC 8424, presented at the 1997 Offshore Technology Conference, Houston, TX, May 1997.
- **G.S. Johnson,** "The ASCE Task Committee on Seismic Evaluation and Design of Petrochemical Facilities," Presented at the 1997 ASCE Structures Congress, Portland, OR, April 1997.
- **G.S. Johnson,** "Considerations for Seismic Assessment of Existing Petrochemical and Terminal Facilities," Presented at the California and the World Ocean 1997 Conference, San Diego, CA, March 1997.
- **F.J. Puskar, and G.S. Johnson,** "Protecting Existing Facilities Against Extreme Natural Hazards Such as Hurricanes and Earthquakes," Presented at the 1997 AIChE Spring Meeting, Houston, TX, April 1997.
- **L.J. Bragagnolo, and G.S. Johnson,** "Identification and Assessment of Seismic Risk in Petrochemical Facilities," for the Second International Conference and Exhibition on Loss Prevention (Safety, Health, & Environment) in the Soil, Chemical and Process Industries, 4 – 8 December 1995, Singapore.
- **D.W. Jones, and G.S. Johnson,** "Evaluating Process Plant Buildings for Explosion and Fire Risk," for the Second International Conference and Exhibition on Loss Prevention (Safety, Health, & Environment) in the Soil, Chemical, and Process Industries, 4 – 8 December 1995, Singapore.
- **L.J. Bragagnolo, and G.S. Johnson,** "A Structured Method for the Seismic Assessment of Existing Process Facilities," For the Second International Workshop on Wind and Earthquake Engineering for Offshore and Coastal Facilities, January 17 – 19, 1995, University of California, Berkeley, CA.
- **K. Porter, S.J. Eder, M.M. Zadeh, C. Scawthorn, and G.S. Johnson,** "Seismic Vulnerability of Equipment in Critical Facilities: Life Safety and Operational Consequences," Technical Report NCEER 93 0022. National Center for Earthquake Engineering Research.

- **Sharrock, M.P. Wong, and G.S. Johnson,** "Seismic Evaluation of Offshore Platform Topsides Equipment," Presented at the 2nd International Conference and Exhibition, "Offshore Structural Design Against Extreme Loads," London, UK, November 3 – 4, 1993.
- **C. Scawthorn, M. Zadeh, S. Eder, and G.S. Johnson,** "Economic Impacts of Earthquake Damage to Nonstructural Components," 40th North American Meetings of the Regional Sciences Association International, Houston, TX, 1993.
- **G.S. Johnson,** "Effects of Aging on the Seismic Performance of Petrochemical Facilities," Presented at the DOE Workshop on Aging of Energy Production and Distribution Systems, Houston, TX, October 1992.
- **M.K. Ravindra, W.H. Tong, M.J. Griffin, and G.S. Johnson,** "Seismic Assessment Under RMPP: Recent Applications," In proceedings for the HAZMACON 1991 Conference, Santa Clara, CA.
- **A.E. Hasle, R.F. Figgers, and G.S. Johnson,** "Evaluation of Wear in Compliant Tower Pile Systems," OTC 5912, Presented at the 21st Annual Offshore Technology Conference, Houston, TX, May 1 – 4, 1989.
- **Yanev, S.J. Eder, and G.S. Johnson,** "Qualification of Nuclear Plant Raceway Systems Based on Earthquake Experience Data," Presented at the 9th SMiRT Conference, 1987.

Rune Iversen

P.E.

Principal

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REGISTRATIONS

Civil Engineer

CA

EDUCATION

Norwegian University of Science and Technology, Department of Marine Technology (NTNU), Trondheim, Norway

M.Sc. in Structural Engineering, 1999

OTHER TRAINING

Governor's Office of Emergency Services, CA, Disaster Service Worker Volunteer (SAP67124)

Rune Iversen specializes in floating and fixed near-shore and offshore structures and facilities, as well as coastal engineering. His experience has been focused on inspection, condition assessment, rehabilitation, and design of mooring and berthing systems and marine structures.

Rune is the chair of the COPRI Berthing Velocities and Fender Design Task Committee, a member of PIANC MarCom Working Group 211 for Guidelines for the Design of Fender Systems and Working Group 231 for Mooring Bollards & Hooks: Selection, Maintenance, and Testing, an active member of the ASCE-COPRI Ports and Harbors Committee, a member of the ASCE COPRI Waterfront Rehabilitation Committee, a member of the ASCE COPRI Waterfront Inspection Committee, and a member of the SNAME Hull Structures Committee. He is a contributing author to ASCE-COPRI Manual of Standard Practice 130 for Waterfront Facility Inspection and Assessment, the industry standard for the inspection and condition assessment of marine structures.

Experience

- Simpson Gumpertz & Heger Inc. (SGH), San Francisco, and Oakland, CA. From 2012 to present.
- Halcrow/CH2M HILL, Oakland, CA, Senior Engineer – Marine Engineering. From 2008 to 2012.
- Moffatt & Nichol, Walnut Creek, Marine Engineer – Marine Engineering. From 2006 to 2008.
- Herbert Engineering Corp., Alameda, CA, Senior Naval Architect – Naval Architecture and Marine Engineering. From 1999 to 2006.
- Battery 51M (Aircraft Artillery), Bodø, Norway, Crew Chief. From 1993 to 1996.

Representative assignments

- **Port of Long Beach, Berth 78 Fender Replacement, Andeavor Long Beach Terminal 2, Long Beach, CA.** Project manager responsible for replacement of fenders and reconfiguration of fender support chains at Berth 78. Project included selection of fenders for replacement, design of fender support chains and anchor points, and construction support for the project.
- **Mooring Hook Upgrades, Andeavor Long Beach Terminal, Long Beach, CA.** Project manager responsible for concept development, selection of mooring hooks, design, and procurement support for six new mooring hook assemblies to improve safety and operations at the terminal. The hooks had to be selected and designed to fit with existing structure capacities, current operations at the terminal, and requirements from the California State Lands Commission.
- **Port of Long Beach, Fender System Upgrade Design, Petro-Diamond Marine Terminal, Berths 82 and 83, CA.** Project manager responsible for developing upgrade concepts for fender system for compliance with MOTEMS requirements. The fender system had to minimize impact on existing operations by the client as well as two co-tenants at the same berths.
- **Port of Long Beach, Terminal Operating Limits, Tesoro T2 Berths 76, 77, and 78, Long Beach, CA.** Project manager responsible for developing safe mooring arrangements and wind limits for the range of barges and tanker vessels calling at the terminal. Work involved assessment of vessel classes and available mooring lines, assessment of the existing fender systems at the berths for berthing and mooring loads, and analysis of mooring arrangements under various environmental conditions.

- **NuStar Selby Marine Terminal, Mooring Hook Upgrades, Selby, CA.** Project manager responsible for successful selection and installation of new mooring hooks at the terminal. Work involved selection, anchorage design, and ensuring regulatory compliance for installation of new mooring hooks with integrated allision avoidance system, line tension monitoring, environmental monitoring, and remote release systems.
- **Shell Martinez Refinery Marine Terminal, Mooring Hook Upgrades, Martinez, CA.** Project manager responsible for successful selection and installation of new mooring hooks at two berths at the terminal. Work involved selection, anchorage design, and ensuring regulatory compliance for installation of new mooring hooks with integrated allision avoidance system, line tension monitoring, environmental monitoring, and remote release systems.
- **Shell Martinez Refinery Marine Terminal, Loading Hose Reach Envelopes, Martinez, CA.** Project manager responsible for assessing safe reach limits for cargo transfer hoses at the terminal. Work involved assessment of vessel sizes arriving at the terminal, manifold locations, motion limits, as well as operational considerations.
- **Port of Long Beach, Tesoro Long Beach Terminal, Terminal Operating Limits, Berth 84A, 86, and 86 Lube Rack, Long Beach, CA.** Project manager responsible for developing safe mooring arrangements and wind limits for the range of barges and tanker vessels calling at the terminal. Work involved assessment of vessel classes and available mooring lines, passing vessel scenarios, and analysis of mooring arrangements under various environmental conditions.
- **Port of Long Beach, Terminal Operating Limits, Tesoro Berth 121, Long Beach, CA.** Project manager responsible for developing safe mooring arrangements and wind limits for the range of tanker vessels calling at the terminal. Work involved assessment of vessel classes and available mooring lines, assessment of the existing fender system for berthing and mooring loads, evaluation of passing vessel scenarios, and analysis of mooring arrangements under various environmental conditions.
- **Lyttleton Port of Christchurch, Mooring and Berthing System Conceptual Design, Christchurch, New Zealand.** Project engineer responsible for conceptual layout and design of mooring and berthing system for a potential new oil terminal to replace old terminal damaged by the 2011 earthquake.
- **Port of Long Beach, MOTEMS Upgrades, Tesoro Marine Terminal (POLB Berths 84 – 87), Long Beach, CA.** Project engineer responsible for developing fender layout and fender system for upgraded fender system to address fender system deficiencies noted in the MOTEMS (California Marine Oil Terminal Engineering and Maintenance Standards) audit. Work involved complete replacement of the fender system to accommodate both barge and vessel operations.
- **Shell Oil Products US, Shell Martinez Refinery Marine Terminal, Fender System Upgrade, Martinez, CA.** Project engineer responsible for study of alternative systems to original foam fender design. Work involved replacement of the deteriorated fender system with a new system capable of handling both barges and large vessels.
- **IMTT-Richmond-CA, Marine Terminal Upgrade, International Matex Tank Terminals, Richmond, CA.** Project engineer responsible for overall terminal layout and mooring and berthing system design for an upgraded terminal to address mooring and berthing system as well as seismic deficiencies noted in the MOTEMS audit. Work involved complete replacement of existing wharf structure to accommodate handling both barges and tanker vessels. (With Halcrow/CH2M HILL.)
- **Port of Los Angeles, Berth 239 ExxonMobil Terminal Mooring Dolphin Design, Los Angeles, CA.** Project engineer responsible for determining mooring loads for sizing of the mooring hook and dolphin. Scope of work included design of emergency replacement of an existing mooring dolphin at POLA Berth 239. This was a fast-track project completed within less than two months. (With Halcrow/CH2M HILL.)
- **Fender Panel Study, RasGas, Doha Qatar.** Project engineer responsible for creating and analyzing a 3D model of the steel frontal frame for a fender at an LNG Carrier Berth. The project included development and creation of the model, development of an appropriate load and constraint system, sensitivity analysis, and an evaluation of the results. (with Moffatt & Nichol.)
- **City of Alameda, Alameda Point Piers 1, 2, and 3, Condition Assessment, Alameda, CA.** Project manager in charge of inspecting, analyzing, and providing an assessment of Alameda Point Piers 1, 2, and 3 overall condition and mooring hardware. Condition was compared to Unified Facilities Criteria and requirements set forth by MARAD. Work includes field work with inspection and documentation, comparison with criteria and documentation of condition and the assessment, dynamic mooring analyses to evaluate the mooring hardware, and developing repair options.
- **Port of San Francisco, Port of San Francisco Piers, Condition Assessment, San Francisco, Alameda, CA.** Project manager in charge of inspecting, analyzing, and developing a framework for an asset management plan for six of the Piers at the Port.Includes inspection management, organization and analysis of results, future projection of deterioration based on types of damage, and repair cost estimation and forecasting based on rate of repair.
- **Port of San Francisco, Port of San Francisco Pier 23, Post Allision Inspection, San Francisco, CA.** Project manager responsible for above-water and underwater inspection of damaged concrete piles following an allision by a tugboat and

cruise vessel during berthing operations. Work includes inspection and assessment of the piles and supported deck, as well as management of dive operations.

- **Shell Martinez Marine Terminal, Post Allision Inspection, Martinez, CA.** Project manager responsible for above water inspection of steel platform following an allision by a tanker during berthing operations. Work involved assessment of berthing operations, damage to the structure, recommended repairs for the impacted structures, and response to the California State Lands Commission.
- **IMTT-Richmond-CA, Post Allision Inspection, International Matex Tank Terminals, Richmond, CA.** Project engineer responsible for suggested actions following an allision between a barge and the timber dock. Work involved an inspection and assessment of the damage from the allision, suggested follow-up actions, and response to the California State Lands Commission.
- **Marathon Amorco Terminal, Above Water and Underwater Inspection, Martinez, CA.** Project manager responsible for above water and underwater inspection of the terminal in accordance with MOTEMS regulations. Work involved inspection of concrete, steel, and timber piles, steel and timber frames, concrete decks, panel fenders, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **Port of Long Beach, Marathon Berth 121, Above Water and Underwater Inspection, Long Beach, CA,** Project manager responsible for above water and underwater inspection of the terminal in accordance with MOTEMS regulations. Work involved inspection of steel piles, steel frames, concrete decks, panel fenders, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **Marathon Trestles, Above Water and Underwater Inspection, Dominguez Channel and Los Angeles River, Long Beach, CA.** Project manager responsible for above-water and underwater inspection of ten pipeline trestles. Work involved inspection of steel, concrete, and timber piles and frames, as well as an assessment of deficiencies and reporting of the results.
- **State Route 520 Bridge Demolition, Seattle, WA.** Project manager responsible for naval architecture calculations for floating bridge during demolition of the bridge. Work involved assessment of draft, trim and stability of various sections of the bridge at different stages of the demolition sequence, as well as suggestions for ballasting and demolition sequence. Work also involved assessment of wave loads on the bridge at the same stages of the demolition sequence to avoid interference with completed new bridge.
- **Port of San Diego Tenth Avenue Marine Terminal, Above Water and Underwater Inspection, San Diego, CA.** Project manager responsible for above water and underwater inspection of the terminal in accordance with MOTEMS regulations. Work involved inspection of steel sheet piles, concrete cap beams, concrete decks, panel fenders, foam fenders, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **Shell Martinez Refinery Marine Terminal, Timber Approach Trestle Repair Inspection and Design, Martinez, CA.** Project manager responsible for above water inspection and design of repair details to address structural deficiencies for timber approach trestle. Work involved an above-water inspection, assessment of existing condition of the structure, and selection and design of appropriate repair details for the trestle.
- **Port of Long Beach, Tesoro Berth 121, Above Water and Underwater Inspection, Long Beach, CA.** Project engineer responsible for above water and underwater inspection of the terminal. Work involved inspection of steel piles, steel frames, concrete decks, panel fenders, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **Port of Long Beach, Petro-Diamond Berth 82 and 83, Above Water and Underwater Inspection, Long Beach, CA.** Project manager responsible for above water and underwater inspection of the terminal in accordance with MOTEMS regulations. Work involved inspection of concrete piles, concrete decks, timber fender system, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **Port of Long Beach, Tesoro Terminal 2, Berth 77 and 78, Above Water Inspection, Long Beach, CA.** Project manager responsible for above water inspection of the terminal in accordance with MOTEMS regulations. Work involved inspection of concrete piles, concrete decks, timber fender system, pneumatic fenders, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **NuStar Selby Marine Terminal, Above Water and Underwater Inspection, Selby, CA.** Project manager responsible for above water and underwater inspection of the terminal in accordance with MOTEMS regulations. Work involved inspection of steel piles, concrete decks, panel fender system, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.

- **IMTT-Richmond-CA, Above Water and Underwater Inspection, International Matex Tank Terminals, Richmond, CA.** Project engineer responsible for above water and underwater inspection of the terminal. Work involved the inspection of timber and steel piles, timber framing system and timber deck, timber fender system, and mooring hardware, as well as an assessment of deficiencies and reporting of the results.
- **BP Berth 121, Mooring and Berthing Calculations, Long Beach, CA.** Project engineer responsible for performing mooring and berthing calculations for the terminal for large tankers and assessed limitations in wind conditions, approach velocity, and ship displacement for compliance with California State regulations. (With Halcrow/CH2M HILL.)
- **BP Richmond, Above Water Inspection, Richmond, CA.** Project manager responsible for inspecting, assessing, and reporting on condition of above-water concrete structures and mooring hardware used in mooring operations at the BP Richmond in compliance with California State regulations. (With Halcrow/CH2M HILL.)
- **Topside Design, Port of Los Angeles, San Pedro, CA.** Project engineer responsible for developing vessel size limitations and operating envelopes for loading arms and gangways at ExxonMobil Berth 238. (With Halcrow/CH2M HILL.)
- **NuStar Berth 163, Above Water Trestle Inspection, Port of Los Angeles, Wilmington, CA.** Project engineer responsible for assessing and reporting on condition of timber structure and of the approach trestle at the berth in compliance with California State regulations. (With Halcrow/CH2M HILL.)
- **Plains Martinez Terminal, Above Water Inspection, Martinez, CA.** Project engineer responsible for assessing and reporting on condition of timber and concrete structures as well as mooring hardware at the berth in compliance with California State regulations. (With Halcrow/CH2M HILL.)
- **POLA Berth 239, New Mooring Dolphin Design, Port of Los Angeles, San Pedro, CA.** Project engineer responsible for developing mooring loads on new mooring dolphin design. Loads included effects from wind, current, and passing vessels. (With Halcrow/CH2M HILL.
- **POLA Berth 238/239, Above Water Inspection, Port of Los Angeles, San Pedro, CA.** Project engineer responsible for inspecting, assessing, and reporting on condition of above-water concrete structures and mooring hardware used in mooring operations at the terminal in compliance with California State regulations. (With Halcrow/CH2M HILL.)
- **Port of Long Beach, Back Channel Widening Project, CA.** Project engineer responsible for determining vessel size limitations for the planned widening of the Port of Long Beach Back Channel. Work included assessment of current world container vessel fleet and limitations to vessels in length, beam, draft, and air draft. (With Halcrow/CH2M HILL.)
- **IMTT, Marine Oil Terminal Audit, Richmond, CA.** Project engineer responsible for performing mooring and berthing calculations for the terminal for three sizes of ships and assessed limitations in wind conditions, approach velocity and ship displacement for compliance with California state regulations. (With Halcrow/CH2M HILL.)
- **AWC Terminal, Post Allision Inspection, Richmond, CA.** Project engineer responsible for inspecting and reporting on damage to concrete structure and fendering system following an allision by a container vessel at the AWC Terminal. Work was focused on fast reporting of the damage to allow continued operation at the terminal. (With Halcrow/CH2M HILL.)
- **Port of Los Angeles, Berth 240 Inspection, San Pedro, CA.** Project engineer responsible for assessing and reporting on condition of timber structure and mooring hardware of Berth 240 in compliance with California state regulations. (With Halcrow/CH2M HILL.)
- **Port of Los Angeles, Berth 165 Inspection, Wilmington, CA.** Project engineer responsible for assessing and reporting on condition of timber structure and mooring hardware used in mooring operations at the adjacent Berth 164 in compliance with California state regulations. (With Halcrow/CH2M HILL.)
- **Martinez Marine Terminal, Pacific Atlantic Terminals, Berthing Calculations, Martinez, CA.** Project engineer responsible for developing berthing calculations for the terminal for four sizes of ships and assessed limitations in approach velocity and ship displacement for compliance with California state regulations. (With Halcrow/CH2M HILL.)
- **Shell Oil Products US, Berthing Calculations, Shell Martinez Refinery Marine Terminal, Martinez, CA.** Project engineer responsible for performing berthing calculations for the terminal for four sizes of ships and assessed limitations in approach velocity and ship displacement for compliance with California state regulations. (With Halcrow/CH2M HILL.)
- **Water Transit Authority, South San Francisco Ferry Terminal Design, South San Francisco, CA** Project engineer responsible for creating and analyzing 3D model of concrete float for design of concrete hull and supporting beams. Designed steel access ramp structures and led effort to produce design drawings for the float and ramp structures. (With Moffatt & Nichol.)

- **USCG, Condition Assessment of Deck of USCG Pier at Tongue Point, Tongue Point, OR.** Project engineer responsible for inspecting and providing an assessment of the deck of the pier. The project included over- and under-deck inspection, layout of locations for concrete core extraction, suggestions for analysis of the cores, and documentation of the findings. (With Moffatt & Nichol.)
- **Fugro, BART Transbay Tube Analyses, San Francisco-Oakland, CA.** Project engineer responsible for creating and analyzing a 2D model of a cross section of the BART Transbay Tube to investigate the possible effects of increased soil pressures resulting from earthquake retrofit measures. The work included the development and creation of an appropriate model, boundary conditions reflection of actual conditions, load application, analysis, development of evaluation criteria, and evaluation of the results. Developed a 2D model of a cross section of the Transbay Tube to determine effects on the cross section from restraints induced by installation of micropiles. The project also included the development and creation of an appropriate model, boundary conditions reflection of actual conditions, load application, analysis, and evaluation of the results. Developed a simplified model of the Transbay Tube to be used in a larger geotechnical model. The model was developed to give adequate stiffness values in bending in two directions, axial load, shear, and rotation, compared to the actual section while keeping the model at a very simplified level. (With Moffatt & Nichol.)
- **Port of San Francisco, Assessment of Steel Drydock #1, San Francisco, CA.** Project engineer responsible for inspecting and assessing the condition of the fabricated stiffened steel structure of Drydock #1. The work included inspection of the general steel structure as well as the existing mooring hardware and mooring system for the drydock. (With Moffatt & Nichol.)
- **City of Alameda, Condition Assessment, Alameda Point Piers 1, 2, and 3, Alameda, CA.** Project engineer tasked with inspecting and providing an assessment of Alameda Point Piers 1, 2, and 3 overall condition as well as electrical systems and mooring hardware. Condition was compared to Unified Facilities Criteria and requirements set forth by MARAD. The work included field work with inspection and documentation, comparison with criteria, and documentation of condition and assessment. (With Moffatt & Nichol.)
- **Catellus, Condition Assessment, Alameda Landing Wharf, Alameda, CA.** Project engineer responsible for inspecting and providing an assessment of the condition of the wharf. The work was used to identify necessary repairs and modifications for continued safe use of the wharf and included field work with over and under-deck inspection, extraction of concrete cores, and documentation of the findings. (With Moffatt & Nichol.)
- **MPA, Berth 4 Crane Rail FE Analysis, Seagirt Marine Terminal, MD.** Project engineer responsible for creating and analyzing a 3D solid element model to investigate the effects of increased loads on an existing crane rail. The work included development of an appropriately sized model, linear and non-linear material options, analysis, and evaluation. (With Moffatt & Nichol.)
- **Matson, Matson C9 Steel Auto Garage Design, Oakland, CA.** Project engineer tasked with providing design work for fabricated steel auto garage structure to be added to the Matson C9 class of steel container ships. The ships were previously only carrying containers. The project provided design of additional over-deck structure to provide the possibility of carrying cars and trailers. The work included load definition, definition of design criteria, design of the auto deck steel structure, supporting columns, modifications to existing structure, and structural details, as well as an FE analysis of the structure. Optimization studies were done to determine stiffener and steel girder layout. (With Herbert Engineering Corp.)
- **Chevron Shipping, Chevron Tanker Ultimate Strength Calculations, San Ramon, CA.** Project engineer for the analysis of the ultimate hull girder strength of several of the oil tankers operated by Chevron Shipping. The ultimate strength analysis of representative sections was performed using the US Navy developed program ULTSTR. The results in the form of ultimate strength capacities can be used as quick guidelines for maximum allowable still water bending moments in salvage situations. (With Herbert Engineering Corp.)
- **Passenger Ship Ultimate Strength, Ship Structures Committee, Alameda, CA.** Project engineer involved in part of a Ship Structures Committee-sponsored study, responsible for project evaluating a large passenger ship for damage stability and ultimate strength of the hull girder after damage and flooding. Special considerations needed to be made with the special structural design of cruise ships, with very light deck structure. As a result, the ships are designed to always operate with a hogging hull girder bending moment with the upper decks in tension. This project studied the possibilities of damage and flooding that might cause the upper decks to see compressive loads. Analyses were done to evaluate the ultimate strength of the hull girder under these conditions. (With Herbert Engineering Corp.)
- **Chevron Shipping, Metal Fatigue Analysis of Tanker Stiffener Connections, San Ramon, CA.** Project engineer for an assessment of existing fatigue damage of bottom stiffener connections on two older single-hull tankers operated by Chevron Shipping. An analysis and design of fatigue repairs and new connection details to extend the fatigue life of the details were also provided. (With Herbert Engineering Corp.)

- **Structural Analysis of Top Deck Support Structure for Floating Production Storage and Offloading (FPSO).** As a part of the design of a steel FPSO structure for a confidential client, the effects of the additional loads from the processing equipment on the deck of the ship were analyzed. A finite element analysis using the ABS SafeHull software package was completed, with additional loads added from the processing equipment. The results from this analysis were used for design of additional under-deck support structure. (With Herbert Engineering Corp.)
- **NASSCO, SeaRiver Oil Tanker Contract Design, San Diego, CA.** Project engineer for structural steel design and analysis to NASSCO shipyard in San Diego on the contract design of proposed oil tankers designed for service in the TAPS trade. Work included optimization calculations for steel stiffener and web frame spacing, design and analysis of steel cargo deck block and forebody structure using the ABS SafeHull program and submittal to ABS for design approval. (With Herbert Engineering Corp.)
- **NASSCO, BP Pipe Class Alaskan Tanker Structural Design and Analysis, San Diego, CA.** Project engineer for the design of the fabricated steel cargo deck subassembly and forebody structure of BP's new Cape Class of oil tankers designed for service in the TAPS trade. The work included design of steel structure, extensive structural analysis using the ABS SafeHull program and submittal to ABS for approval. The design included several owner-specified requirements that went outside the requirements set by ABS, which needed to be implemented in the evaluation of the steel structure. (With Herbert Engineering Corp.)
- **Japan National Oil Company, JNOC, Turret Structure Analysis, Japan.** Project engineer for analysis of a fabricated steel turret structure for a FPSO designed for JNOC. Work included modeling, non-linear load application, and analysis of the turret structure. Loads included mooring loads as well as constraints and contact loads from the steel FPSO. (With Herbert Engineering Corp.)
- **American Ship Management, Metal Fatigue Analysis of C10 Class of Ships, Oakland, CA.** Project engineer for metal fatigue analysis of C10 Class of Ships. These ships have experienced metal fatigue cracks in several locations, among them in longitudinal stiffener connections to transverse web frames. An analysis was done to benchmark fatigue analysis results with the actual fatigue damage on the ships and new connection details were designed and analyzed for adequate fatigue life. (With Herbert Engineering Corp.)

Professional activities

- **ASCE**. Member.
- **ASCE/COPRI Ports and Harbor Committee**. Member.
- **ASCE/COPRI Committee on Berthing Velocities and Fender Design.** Chair.
- **ASCE Committee on Design of Piers and Wharves.** Member.
- **PIANC Working Group 211 on Fender Design.** Member.
- **PIANC Working Group 231 on Mooring Hooks and Bollards.** Member.
- **AISC.** Member.
- **SNAME.** Member of Hull Structures Committee.

Publications

- **Bea, R.G., R. Iversen, A. Kareem, and X. Chen,** "RAM PIPE REQUAL, Pipeline Requalification Guidelines Project Report 2, Risk Assessment and Management (RAM) Based Guidelines for Requalification of Marine Pipelines," To Petroleos Mexicanos (PEMEX), Instituto Mexicano de Petroleo (IMP), and Minerals Management Service (MMS), July 1999.
- **Bea, R.G., R. Iversen, and T. Xu,** "Wave-in-Deck Forces on Offshore Platforms," Journal of Offshore Mechanics and Arctic Engineering, Volume 123, Issue 1, Feb. 2001.
- **Iversen, R.,** "Structural Survivability of a Modern Passenger Ship," Marine Technology and SNAME News, Volume 43, No. 2, April 2006.R. Iversen, "Structural Considerations for Installations of Mooring Hooks on Existing Structures," PIANC 2014 World Congress, San Francisco, CA.
- **Iversen, R., and W.M. Bruin,** "Mooring Line Systems for Tanker Vessels – Current Standards in Analysis and Design Compared to Real Life Data," SNAME 2016 Maritime Convention, Bellevue, WA.
- **Iversen, R.,** "Analysis of Measured Marine Oil Terminal Berthing Velocities," SNAME 2017 Maritime Convention, Houston, TX.

- **Iversen, R.,** "Real Time Mooring Line Tension Monitoring at High Current Sites," PIANC 2017 Smart Rivers Conference, Pittsburgh, PA.
- **Iversen, R., J.A. Galbraith, M.L. Argo, and W.M. Bruin,** "Applying PIANC Fender Design Guidance to US Design Codes - Proposed Rational Approach to Implementing the PIANC Fender Design Guidance in US Designs," PIANC 2018 World Congress, Panama.
- **Argo, M.L., R. Iversen, W.M. Bruin, J. Hooge, and J. Watson,** "Establishing a Rational Inspection Criteria for Composite Materials Used in Waterfront Structures," ASCE COPRI 2019 PORTS Conference, Pittsburgh, PA.
- **Cortes, S.C., R. Iversen, M.L. Argo, W.M. Bruin, and J.J. Pyun,** "Analysis of Measured Marine Oil Terminal Berthing Velocities," ASCE COPRI 2019 PORTS Conference, Pittsburgh, PA.
- **Phan, B.L., R. Iversen, W.M. Bruin, and J.J. Pyun,** "A Proposed Rational Approach to Design of Fenders and Supporting Structures in the US," ASCE COPRI 2019 PORTS Conference, Pittsburgh, PA.
- **Iversen R., W.M. Bruin, and J.A. Galbraith**, "Challenges in Selection, Anchorage Design, and Installation of Mooring Hooks on Existing Structures," ASCE COPRI 2019 PORTS Conference, Pittsburgh, PA.

Sidney W. Carter

Ph.D., P.G. (KY)

Senior Technical Manager

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REGISTRATIONS

Professional Geologist

KY

CERTIFICATIONS

ACI Concrete Field Technician – Grade 1
NRMCA Certified Concrete Technologist, Level 2

EDUCATION

Stanford University, Stanford, CA
Ph.D. in Geological and Environmental Sciences, 2008

Dartmouth College, Hanover, NH
A.B. in Classical Archaeology modified with Earth Sciences, 2000

Sidney Carter is a geologist with more than twenty years of research experience in geology, materials science, and archaeology. As a petrographer, he conducts petrographic examinations of concrete and stone, as well as forensic investigations of a variety of building materials using microscopy and spectroscopy.

Experience

- Simpson Gumpertz & Heger Inc. From July 2013 to present.
- Massachusetts Institute of Technology. Research Scientist from 2011 to 2013, and Technical Instructor from 2007 to 2011.

Laboratory expertise

- Optical microscopy (petrography and metallography).
- Scanning electron microscopy – energy-dispersive spectroscopy (SEM-EDS).
- X-ray diffraction (XRD).

Representative investigations

Concrete

- **Comerford Dam, Monroe, NH, and Barnet, VT.** Evaluation of materials-related deterioration in concrete.
- **Massachusetts Bay Transportation Authority Orange Line Southwest Corridor – Boat and Tunnel Structure Concrete Investigation.** Petrographic examination of concrete and evaluation of alkali-silica-reaction (ASR) severity.
- **Charles Street Viaduct, Charles Circle, Boston, MA.** Petrographic examination of concrete and evaluation of ASR severity.
- **Camp Walker, Daegu, Korea.** Petrographic evaluation of concrete variability.
- **Mount Saint Mary Academy, Watchung, NJ.** Investigation of cracking in precast concrete retaining wall blocks.
- **Massachusetts Institute of Technology, Building 66, Cambridge, MA.** Facade condition survey.
- **Harvard University, Carpenter Center for Visual Arts, Cambridge, MA.** Petrographic evaluation of precast concrete panels.
- **Investigation of Deteriorated Residential Concrete, CT**. Over 300 individual projects.

Stone and aggregate

- **Massachusetts Highway Department, Boston, MA.** Review of historical performance of New England aggregate, statewide ASR inspection and testing.
- **Princeton University, Firestone Library, Princeton, NJ.** Parapet coping stone condition assessment.
- **Massachusetts Institute of Technology, Buildings 46, E62, and NW35, Cambridge, MA.** Stone assessment and development of repair options.
- **Glenstone I Renovation, Glen Road, Potomac, MD.** Evaluation of limestone durability using petrography and physical testing.

- **University of Michigan, Alice Lloyd Hall Renovation, Ann Arbor, MI.** Investigation of limestone deterioration using petrography and physical testing.
- **Trinity College, Trinity Chapel, Hartford, CT.** Falling brownstone investigation.
- **Ferry Building, San Francisco, CA.** Evaluation of Colusa Sandstone deterioration.

Mortar

- **Smithsonian Arts and Industries Building, Washington, DC.** Evaluation of historic mortar and recommendations for replacement.
- **University of Colorado, Old Main, Boulder, CO.** Evaluation of historic mortar and recommendations for replacement.
- **The Inn at Henderson's Wharf, Baltimore, MD.** Evaluation of historic mortar and recommendations for replacement.
- **Arlington Street Church, Boston, MA.** Evaluation of historic mortar and recommendations for replacement.
- **Wachusett Dam, Clinton, MA.** Evaluation of historic mortar and recommendations for replacement.
- **High Bridge over Harlem River, New York, NY.** Evaluation of deteriorated modern natural cement mortar setting bed.

Historic preservation

- **National Memorial Cemetery of the Pacific at Punchbowl, Honolulu, HI.** Evaluation of replacement stone for tablet replacement using petrography and accelerated weathering.
- **Charles River Reservation, Edward A. Hatch Memorial Shell, Boston, MA.** Petrographic examination of rustic terrazzo.
- **The First Church of Christ, Scientist - West Palm Beach, West Palm Beach, FL.** Condition assessment of architectural precast concrete.
- **The Nativity of Blessed Virgin Mary Chapel, Flagstaff, AZ.** Petrographic examination of cast stone.
- **Whispering Bench, Tanglewood, Lenox, MA.** Petrographic examination of concrete.
- **Lovell Health House, Los Angeles, CA.** Petrographic examination on historically significant gunite construction.
- **Crocker Art Museum, Sacramento, CA.** Petrographic examination of plaster.
- **One M&T Plaza, Buffalo, NY.** Evaluation of fused glass panels for replacement cladding.
- **Academy of Motion Pictures Arts and Sciences, The Academy Museum of Motion Pictures at Los Angeles County Museum of Art, Los Angeles, CA.** Examination of deteriorated glass mosaic tiles.

Forensic

- **McDonald's, Carrollton, KY.** Microscopic and compositional characterization of potentially expansive fill.
- **El Capitan High School, Merced, CA.** Examination of membrane layers in a debonded brick veneer system.
- **Lyndon B. Johnson Apartments, Cambridge, MA.** Dust analysis.
- **DuCharme Place, Detroit, MI.** Evaluation of cracking in fiber cement panels.

Flooring

- **Promotion in Motion Warehouse Facility, Franklin Township, NJ.** Investigation of multiple coatings in a delaminated flooring system.
- **Apple Store Union Square, San Francisco, CA.** Terrazzo cracking investigation.
- **University of the Pacific, Arthur A. Dugoni School of Dentistry, San Francisco, CA.** Floor failure investigation.
- **Columbia University, Manhattanville, NY.** Underlayment floor investigation.
- **Kaiser San Leandro, San Leandro, CA.** Flooring failure investigation.

Norman Perkins

P.E., PMP

Director of Applied Science & Research

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REGISTRATIONS

Professional Engineer

CT, FL, MA, NY, WI

OTHER

NCEES Record
OSHA 10 Hour Certified

CERTIFICATIONS

Project Management Professional (PMP)
Certified through Project Management Institute (PMI), Newtown Square, PA, 2021

EDUCATION

Wentworth Institute of Technology, Boston, MA
B.S. in Civil Engineering Technology (with highest honors), 1996

NBIS BRIDGE INSPECTION QUALIFICATIONS

Successfully completed the FHWA-approved comprehensive bridge training courses:

FHWA-NHI-130055, *Safety Inspection of In-Service Bridges,* 2004

FHWA-NHI-130078, *Fracture Critical Inspection Techniques for Steel Bridges,* 2007

Norman (Norm) provides strategic leadership and oversight for SGH's Applied Science & Research Center, including physical testing, materials science, and research programs. He is dedicated to advancing the role of the center by continuing to expand testing capabilities and encouraging staff to explore creative project approaches. Norm brings his previous experience as a practicing engineer and researcher to SGH, including roles on a wide variety of civil, mechanical, environmental, structural, and fire protection engineering efforts that brought him to work in seven countries outside the U.S. Clients love working with Norm because he approaches every problem as his own, and strives to take any worry off a client's mind once he is on a project.

Experience

- Simpson Gumpertz & Heger Inc., Waltham, MA. From 2019 to present.
- Alden Research Laboratory, Inc. (ARL), Holden, MA. From 2015 to 2019.
- Colfax Fluid Handling, Inc. (CFH), Warren, MA. From 2014 to 2015.
- Alden Research Laboratory, Inc. (ARL), Holden, MA. From 2008 to 2014.
- Baker Engineering, NY, Inc. (BENY), Rocky Hill, CT. From 2000 to 2008.
- Fuss & O'Neill, Inc. (FOI), Manchester, CT. From 1998 to 2000.
- Rybak Engineering, Inc. (REI), Warren, MA. From 1996 to 1998.

Management

Director of Applied Science & Research

- Provide strategic leadership and oversight for physical testing and materials science program and research program.

Chief Operating Officer

- Responsible for providing the leadership, management, and vision necessary to effectively grow the organization and to ensure the financial strength of the company. (With ARL.)

Director of Special Projects and Strategic Initiatives

- Responsible for providing high-level project management support to Alden's larger projects as well as to strategic program areas which required high levels of coordination and management between projects and/or between Alden and its clients. (With ARL.)

Senior Sales Engineer

- Responsible for sales and business development of positive displacement pumps for the oil and gas, pulp and paper, and power generation industries. Management responsibilities included project administration from order booking through product shipment. Regions of responsibility: Europe, Africa, and Russia. (With CFL.)

Investigation and legal/insurance-claim assistance

- **Athos, Thomas Miller BV Greek Branch.** Opined on whether a significant portion of cement was still capable of being used after seawater breach of the ship cargo hold.
- **Doherty Memorial High School, Investigation of Reported Fire Damage, Worcester, MA.** Supported the investigation of the condition of steel beams and bolted connections in the vicinity of a fire that affected the roof that was under construction.
- **Chester Diversion Hydroelectric Plant, Fremont County, ID.** Assessment of the overall performance of the intake and turbines. (With ARL.)
- **The St. Regis Residences, Rye, NY.** Supported the investigation of materials to determine if the proper materials were installed and to identify damage to the materials.
- **602 High Ridge Road, Stamford CT.** Supported investigation of the condition of a 50 ft tall brick structure including the determination of the make-up of the construction and extent of reported deterioration.

Testing

Material physical testing

- Responsible for development of new and specialized testing procedures to characterize material properties and performance of building materials, components, and assemblies.
- Management of SGH's approximately 13,500 sq ft in-house laboratory facilities enabling our employees to conduct testing and analyses for condition assessments, failure evaluations, and new designs. Provide comprehensive investigations into many materials and systems (i.e. concrete, composites, polymers and plastics, wood, metals, glass, masonry and ceramics.)
- **Ultra-High-Performance Concrete.** Testing for multiple clients including compression, tension, modulus of elasticity, and epoxy-coated reinforcement pull-out.
- **The Getty Institute.** Supported the accelerated aging of a novel coating for asbestos abatement to evaluate long-term efficacy and aesthetics for use at the historic Eames House. Testing included color spectrophotometry and SEM/EDS analysis.
- **NextEra Energy Seabrook Station, Seabrook, NH.** Developing a test procedure to determine a method for measuring the in situ strain in rebar in reinforced concrete walls.
- **Numerous Municipal and Power Generation Carbon-Fiber Reinforced Concrete (CFRP) Repair Projects**. Supported the determination of epoxy resin degree of cure using differential scanning calorimetry and tensile strength testing.
- **Offshore Energy Safety Institute, Integrity Assessment of Steel Grating**. Supported development of innovative testing methods and analysis for assessing remaining service life of steel grating based on vibrational response measured with accelerometers and impact hammer testing.
- **DECOi Architects**. Supported development of a customized test setup utilizing multiple load cells, actuators, and potentiometers with data acquisition for a large-scale novel construction material prototype.
- **Minnesota Vikings Stadium, Minneapolis, MN.** Building investigation.
- **X-Band Radar (XBR).** Support of radome testing, including time-to-failure testing, biaxial tension testing, and accelerated environmental exposure testing.
- **Confidential Client, USA.** Thermal and displacement measurements of a nuclear device undergoing thermal cycle loading via electric heating and cryogenic liquid cooling.
- **Massachusetts Bay Transportation Authority (MBTA) Haymarket Station, Boston, MA.** In situ load testing of tunnel roof to confirm capacity after accidental impact.

Fluid dynamics

- **Third Set of Locks, Panama Canal, Panama.** Performance test measurements of the filling and emptying systems of the newly constructed third set of locks. (With ARL.)

Hydraulic performance

- **Dominion's Millstone Nuclear Power Station Unit 2, Waterford, CT.** Performance tests of four 137,200 gpm pumps using the dye dilution technique. (With ARL.)

- **Dominion's Millstone Nuclear Power Station Unit 3, Waterford, CT.** Performance tests of six 152,000 gpm pumps using the dye dilution technique. (With ARL.)
- **Dominion's North Anna Nuclear Generating Station Unit 1 and Unit 2, Mineral, VA.** Measured the combined flow of four 238,200 gpm pumps per unit using the dye dilution technique. (With ARL.)
- **Florida Power and Light's Turkey Point Nuclear Generating Station Unit 3 and Unit 4, Homestead, FL.** Measured the combined flow of four 165,000 gpm pumps using the area velocity method with custom-built pitot probes. (With ARL.)
- **Great River Energy's Stanton Power Station, Stanton, ND.** Performance tests of two 50,000 gpm pumps using the dye dilution technique. (With ARL.)
- **Southern Company's Lay Hydroelectric Power Station, Clanton, AL.** Flow measurement testing of two turbines by integrating the velocity distribution using type A current meters. (With ARL.)
- **Southern Company's Bouldin Hydroelectric Power Station, Wetumpka, AL.** Flow measurement testing of one turbine using the dye dilution technique. (With ARL.)
- **Southern Company's Jordan Hydroelectric Power Station, Wetumpka, AL.** Flow measurement testing of one turbine by integrating the velocity distribution using type A current meters. (With ARL.)
- **New York Power Authority's Lewiston Pump-Generating Plant, Lewiston, NY.** Flow measurement testing of a 35 Mw pump-turbine. Flow was calculated by integrating the velocity distribution using type A current meters. (With ARL.)
- **Wheelabrator's Baltimore Waste-to-Energy Facility, Baltimore, MD.** Performance tests of two 22,000 gpm pumps using the dye dilution technique. (With ARL.)

Research

- Supported the design and execution of a test program to evaluate the performance of novel MgO materials entering the construction market.
- **Confidential Client, USA.** Supported testing of sacrificial anodes in our laboratory to assess anode performance in three different concrete repair materials.
- **Hybrid Steel-Cross-Laminated Timber (CLT) Carbon-Negative Research**. DOE-funded research project with Northeastern University to develop and test carbon-negative de-constructable steel-CLT structures.
- **Millstone Nuclear Power Facility Flow Monitoring Feasibility Study, Waterford, CT.** Feasibility study to monitor the intake flow rate and prototype in situ differential pressure calibrations and feasibility. (With ARL.)
- **Electric Power Research Institute, Feasibility Study of Feedwater Flow Monitoring.** Research project to gather information to reliably measure power plant feedwater flow rate, performance monitoring, and performance improvements. (With ARL.)
- **Electric Power Research Institute, Evaluation of Debris and Fish Mortality Mitigation Alternatives at Five Èlectricité de France (EDF) Power Facilities.** Assessment of technology and management alternatives with the potential to reduce or mitigate plant outages due to debris blockages of cooling water intakes and fish and shellfish losses at several EDF generating facilities located throughout France. (With ARL.)
- **Electric Power Research Institute, Best Management Practices for Preventing Cooling Water Intake Blockage.** Research project to gather information to prevent or minimize intake blockages precluding plant outages or reduced operating efficiency. (With ARL.)
- **Electric Power Research Institute, Solicitation, and Selection of a Site to Test a Fish-Friendly Hydropower Turbine.** Study to identify a demonstration project for the installation and testing of the Alden fish-friendly hydropower turbine. (With ARL.)

Design/analysis

Power generation

- **Manitowoc Public Utilities, Manitowoc, WI.** Thermal/hydraulic modeling evaluation of a raw water pump station intake screen system subject to blockage due to icing. (With ARL.)
- **Holyoke Gas & Electric, Holyoke, MA.** Evaluation of downstream fish passage alternatives and conceptual designs. (With ARL.)

Bridges

- **Connecticut Department of Transportation's List 6, State Bridge Rehabilitation Program.** Design of a three-span replacement structure. (With BENY.)
- **New York City Department of Environmental Protection, Inspection, Evaluation and Reconstruction of Twelve Upstate Reservoir Bridges (CAT-140).** In-depth inspections and condition rating of nine concrete rigid-frame bridges and one steel multi-girder bridge. (With BENY.)
- **Connecticut Department of Transportation, Complex Bridge Inspections.** Routine and in-depth inspections of more than 100 Class II and Class III bridges with spans ranging in length from 24 to 600+ ft. (With BENY.)
- **New Jersey Department of Transportation, I-295 Pavement Rehabilitation and Post Design.** Computations and code compliance of three bridge-mounted tubular sign structures and two overhead sign bridges supporting variable message signs (VMS). (With BENY.)
- **City of Bridgeport, Connecticut, Seaview Avenue Design Study, Bridgeport, CT.** Design calculations and plans for study report of bridge alternatives. (With BENY.)
- **New York City Department of Environmental Protection, Bridge and Culvert Reconstruction/Rehabilitation.** Structural analysis and in-depth inspections of three steel multi-girder, one pre-stressed multi-girder bridges, and ten concrete culverts. These structures were also analyzed for their hydraulic capacities. (With BENY.)
- **Connecticut Department of Transportation's New Britain-Hartford Busway (BRT).** Structure type studies and rehabilitation study reports for seven existing bridges, two culverts, and two new structures. (With BENY.)
- **Connecticut Department of Transportation's State of Connecticut Highway Sign Inspection Program.** Inspection of overhead. (With BENY.)
- **Massachusetts Highway Department's Biennial Safety Inspection of Highway Bridges.** Inspection of numerous bridges around the State of Massachusetts. (With BENY.)
- **Massachusetts Highway Department's Bridge Load Rating Project.** Load rating of various bridges and bridge types throughout the State of Massachusetts. (With BENY.)

Buildings

- **Connecticut Department of Transportation, New Haven Bus Maintenance Facility, New Haven, CT.** Structural design calculations for maintenance building including the structural steel and building "skin." (With BENY.)
- **Connecticut Department of Transportation, Shore Line East Railroad Stations, Branford, Guilford, and Clinton, CT.** Structural design of three railroad stations along the Shore Line East commuter rail line, including calculations, specifications, and plans. (With BENY.)

Other structures

- **Kuwait Institute for Scientific Research.** Peer reviewed the design of the research and testing laboratories project at the Kuwait Institute for Scientific Research.
- **Private Residence - Johnson Mill Pond Dam, East Haddam, CT.** Structural inspection and analysis of 80 ft long wood truss dam under various loading conditions. (With FOI.)

Wastewater hydraulics

- **City of Groton, Wastewater Treatment Facility, Groton, CT.** Process piping design for a 12 million gallons per day (MGD) wastewater treatment plant upgrade. (With FOI.)
- **Town of Newtown, Wastewater Systems, Newtown, CT.** Design of force main and gravity sewers. (With FOI.)

Fire protection

- **University of Massachusetts Science Center, Boston, MA.** Design of wet, dry, foam, and single and double interlock detection fire suppression system systems. (With REI.)
- **Bethany Assembly of God, Agawam, MA.** Design of fire protection system. (With REI.)

Honors and awards

- Beatty Medal for highest G.P.A. of graduating class (4.0/4.0).

- Tau Alpha Pi National Honor Society, Delta Alpha Chapter.
- Phi Theta Kappa Society, International Scholastic Order.

Professional activities

- **ASCE 7-28 Main Committee.** Associate.
- **ASCE 7-22 Main Committee.** Associate.
- **ASCE 7-22 General Structural Requirements Subcommittee.** Associate
- **ASME PTC 18-20?? (Revision of ASME PTC 18-2020) Hydraulic Turbines and Pump-Turbines.** Chair.
- **ASME PTC 18-2020 (Revision of ASME PTC 18-2011) Hydraulic Turbines and Pump-Turbines.** Member.
- **American Council of Independent Laboratories (ACIL)**. Member.
- **ACIL's Construction Materials Engineering & Testing (CMET).** Chair and Executive Committee Member.
- **American Society of Civil Engineers (ASCE).** Member.
- **American Society of Mechanical Engineers (ASME).** Member.
- **Connecticut Society of Civil Engineers (CSCE).** Member.
- **Project Management Institute (PMI).** Member.
- **Southern New England Chapter of PMI.** Member.
- **Timber Framers Guild.** Member.
- **Timber Frame Engineering Council.** Member.
- **Wentworth Institute of Technology,** Member of Industry Professional Advisory Committee, Civil Engineering (CE-IPAC).
- **Wentworth Institute of Technology,** Member of the School of Engineering Dean's Advisory Council.

Publications

- **Douglas, R.M., M.J. Roth, and N.F. Perkins, "**Testing a First of its Kind: Applied Science & Research Protocols for Assessing Prototypes," Sept. 2023.
- **Perkins, N.F.,** "Diverse Offering Inspires New Member," *Scantlings: Newsletter of the Timber Framers Guild*, Sept. 2019.
- **Ludewig, P., G. Hecker, P. Jacobson, and N.F. Perkins,** "Considering the Alden Turbine for a Plant Rehab," *HydroReview*, Apr. 2018.
- **Perkins, N.F., D. Gessler, and P.S. Stacy,** "Testing the New Locks - Expansion of the Panama Canal," *Civil Engineering,* June 2017.
- **Stacy, P.S., D. Voisine, N.F. Perkins, and S.J. Korellis,** "Improved Fluid Flow Measurements: Evaluation of an Existing Flow Meter," *Electric Power Research Institute,* EPRI Report #3002006150, 2015.
- **Perkins, N.F. and D.A. Dixon,** "An Economic Evaluation of the Alden "Fish-Friendly" Turbine," *The International Journal on Hydropower & Dams,* Volume 21, Issue 4, 2014.
- **Perkins, N.F., D.A. Dixon, R. Dham, and J.M. Foust,** "Development Status of the Alden "Fish-Friendly" Turbine," *Power Engineering*, June 2013.
- **Perkins, N.F., D.A. Dixon, R. Dham, and J.M. Foust,** "Development Status of the Alden "Fish-Friendly" Turbine," *HydroReview*, Mar. 2013.
- **Perkins, N.F., and D.A. Dixon,** "Best Management Practices Manual for Preventing Cooling Water Intake Blockages," *Electric Power Research Institute,* EPRI Report # 1026781, 2013.
- **Perkins, N.F., N. Olken, C.N. Fay, and S.J. Korellis,** "Improved Fluid Flow Measurements: Feedwater Flow," *Electric Power Research Institute,* EPRI Report # 1023915, 2012.
- **Fay, C.N., G. Hecker, T.W. Hogan, N.F. Perkins, and J. Harvey,** "Alden Turbine Market Analysis for New York State," *New York State Energy Research and Development Authority,* NYSERDA Report Number 13-19, Sept. 2012.

- **Perkins, N.F., D.A. Dixon, P. Williams, J.T. Walsh, R. Dham, and J.M. Foust,** "Fish-Friendly Hydropower Turbine Development & Deployment: Alden Turbine Preliminary Engineering and Model Testing – Supplemental Research," *Electric Power Research Institute,* Final Technical Report, June 2012.
- **Perkins, N.F., and D.A. Dixon,** "Alden Turbine Update," *International Water Power and Dam Construction,* Jan. 2011.
- **Perkins, N.F., and D.A. Dixon,** "Demonstration Development Project: Solicitation and Selection of a Site to Test a Fish-Friendly Hydropower Turbine," *Electric Power Research Institute,* EPRI Technical Update #1022538, 2011.
- **Perkins, N.F., and K.D. Zammit,** "Keeping Cool, A new study analyzes the sources of cooling water intake blockage," *Power Engineering,* Mar. 2010.

Presentations

- **Palkovic, S.D., and Perkins, N.F.,** "SGH Applied Science and Research Laboratory Tours and Presentation," *American Nuclear Society (ANS) Northeastern US Section's February Meeting,* Waltham, MA, Feb. 2024.
- **Morgan, J., Perkins, N.F., Pierrot, R., Sullivan, D., Swider, J., and Wentworth, S.,** "The Challenges and Trends Panel Discussion - with ACIL section leaders," *American Council of Independent Laboratories (ACIL) Annual Meeting,* San Diego, CA, Oct. 2023.
- **Perkins, N.F.,** "VFDs - Engineering Constraints and Considerations," *2017 Cooling Water Intake Operation, Maintenance, & Optimization Interest Group Annual Meeting,* Iowa City, IA, Oct. 2017.
- **Perkins, N.F.,** "VFDs - Engineering Constraints and Considerations," *Great Lakes 316(b) Interest Group Annual Meeting,* Milwaukee, WI, Sept. 2017.
- **Perkins, N.F. and P.S. Stacy,** "What is Your Actual Pump Flow Rate?" *13th ASME/US NRC Pump and Valve Symposium,* Silver Spring, MD, July 2017.
- **Perkins, N.F., D. Gessler, and P.S. Stacy,** "Testing the third set of locks on the Panama Canal Project," *ASCE Hydraulic Measurements and Experimental Methods 2017 Conference,* Durham, NH, July 2017.
- **Perkins, N.F., G.E. Hecker, and S.V. Amaral,** "Retrofit of the Alden Turbine at New York Power Authority's Crescent Hydroelectric Project," *HydroVision 2017,* Denver, CO, June 2017.
- **Perkins, N.F.,** "Circulating Cooling Water: Pump Field Flow Calibrations," *2017 EPRI Heat Rate Improvement Conference,* Atlanta, GA, Feb. 2017.
- **Perkins, N.F.,** "CFD Study to Evaluate Intake Flow Changes Resulting from Fine Mesh Screens at ConEd's East River Generating Station, New York City, NY, USA," *2016 Cooling Water Intake Operation, Maintenance, & Optimization Interest Group Annual Meeting,* Holden, MA, Nov. 2016.
- **Perkins, N.F.,** "O&M Issues Associated with the Continuous Operation of Traveling Water Screens, Along with other Fish Protection Modifications," *2016 Cooling Water Intake Operation, Maintenance, & Optimization Interest Group Annual Meeting,* Holden, MA, Nov. 2016.
- **Perkins, N.F.,** "Circulating Cooling Water Pump Flow Calibration," *Ohio River Ecological Research Program (ORERP) Annual Meeting,* California, KY, Mar. 2016.
- **Perkins, N.F.,** "Actual Intake Flow Measurements and Benefits for 316(b) Compliance," *Clean Water Act §316(b): Conference on Engineering, Biological and Economic Challenges of the New Existing Facility Rule,* Charlotte, NC, Nov. 2015.
- **Perkins, N.F.,** "Actual Intake Flow Measurements and Benefits for 316(b) Compliance," *American Fisheries Society 145th Annual Meeting,* Portland, OR, Aug. 2015.
- **Goarant, A., N. Peru, N.F. Perkins, and D.A. Dixon,** "Study of a Fish-Friendly Pump System as a Mean to Improve Fish Survival: A Case Study at Cordemais' Power Plant (Loire River, France)," *American Fisheries Society 144th Annual Meeting,* Quebec City, QC, Aug. 2014.
- **Perkins, N.F., and D.A. Dixon,** "Alden Fish-Friendly Turbine Economics," *HYDRO 2013,* Innsbruck, Austria, Oct. 2013.
- **Perkins, N.F.,** "Measuring Flow Accurately," *2013 EPRI Heat Rate Improvement Conference,* Scottsdale, AZ, Feb. 2013.
- **Perkins, N.F., and S.J. Korellis,** "Improved Fluid Flow Measurements: Feedwater Flow," *2013 EPRI Heat Rate Improvement Conference,* Scottsdale, AZ, Feb. 2013.

- **Hogan, T.W., N.F. Perkins, and D.A. Dixon,** "Planned Demonstration of the Alden Fish-Friendly Hydropower Turbine in the U.S. and France," *American Fisheries Society 142nd Annual Meeting,* St. Paul, MN, Aug. 2012.
- **Perkins, N.F., D.A. Dixon, and B. Murtha,** "Better Turbines – for the economy and fish alike," *World Bank HQ - Workshop on Rehabilitation of Hydropower,* Washington, DC, Oct. 12-13, 2011.
- **Foust, J., S. Coulson, G. Hecker, G. Allen, and Perkins, N.F.,** "Alden Fish-Friendly Turbine: Final Considerations for Development and Application," *American Fisheries Society 141st Annual Meeting,* Seattle, WA, Sept. 2011.
- **Perkins, N.F., and D.A. Dixon,** "Demonstrating the Performance of the Alden Turbine in the Real World," *2011 EPRI-DOE Conference on Environmentally-Enhanced Hydropower Turbines,* Washington, DC, May 2011.
- **D.A. Dixon, and N.F. Perkins,** "EPRI's Program to Develop, Install and Test the "New Wheel": The Alden Turbine Story," *2011 EPRI-DOE Conference on Environmentally-Enhanced Hydropower Turbines,* Washington, DC, May 2011.
- **Murtha, B.A., J.M. Foust, J.A. Smith, R.K. Fisher, and N.F. Perkins**, "The Alden Fish Friendly Turbine: Preliminary Design, Model Performance, and Applicability to Hydro Sites," *2011 EPRI-DOE Conference on Environmentally-Enhanced Hydropower Turbines,* Washington, DC, May 2011.
- **Perkins, N.F.,** "Field Testing and Turbine Efficiency," *National Hydropower - Hydraulic Power Committee Fall Meeting,* Tacoma, WA, Sept. 13 to 15, 2010.
- **Amaral, S.V., N.F. Perkins, G. Hecker, D.A. Dixon, and P. Jacobson,** "Development of Theoretical Models for Estimating Hydrokinetic Turbine Strike Probability and Survival," *American Fisheries Society 140th Annual Meeting,* Pittsburgh, PA, Sept. 2010.

Ali Naeem

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REGISTRATIONS

Civil Engineer

CA, TX

OTHER

NCEES

EDUCATION

University of California, Berkeley, CA
M.S. in Structural Engineering, Mechanics and Materials, 2012

University of South Florida, Tampa, FL
B.S. in Structural and Geotechnical Engineering, 2011

Ali Naeem specializes in structural design, investigation, and evaluation of new and existing structures. He utilizes his background in structural and geotechnical engineering to solve complex problems related to marine construction and soil-structure interaction in piers, wharves, seawalls, floating bridges, excavation support systems, and other retaining structures.

Experience

- Simpson Gumpertz & Heger Inc., San Francisco and Oakland, CA. From 2015 to present
- Ben C. Gerwick, Inc. (BCG) / COWI CA, Oakland, CA. From 2013 to 2015.

Marine structures

- **Alameda Marina Promenade Wharf, Alameda, CA.** Evaluation and retrofit/repair of existing wharves for gravity and lateral loading.
- **Alameda Marina Boat Hoist, Alameda, CA.** Boat hoist design, dredging improvements, and dry boat storage.
- **Potrero Waterfront Development, San Francisco, CA.** Design of a new berthing facility, including a floating dock with steel pipe guide piles, mooring fittings, fenders, gangway, and pile-supported wharf structure.
- **Potrero Waterfront Intakes and Outfalls, San Francisco, CA.** Seismic assessment and retrofit of existing waterfront facilities and seawalls.
- **Alameda Shipways, Alameda, CA.** Repair and retrofit of existing wharf and seawall and assessment of existing piles and concrete deck.
- **Navy Drydock Seismic Performance Evaluation at Bremerton, WA.** Seismic retrofit of existing drydocks with a dynamic soil-structure time-history analysis.
- **P209 Dry Dock #3 Replacement at Pearl Harbor, HI.** Design alternative for a new drydock using cut-off walls and braced excavation shoring and cofferdams.
- **Surry Nuclear Power Plant Intake Pipe Replacement Project, VA.** Floating cofferdam design for in-the-dry replacement of water intake pipes.
- **Dock A-0 Renovation Project, 18 20th Avenue, Astoria, NY.** Marginal wharf evaluation and retrofit.
- **Brooklyn Basin 9th Avenue Wharf Retrofit, Oakland, CA.** Design and retrofit of existing wharf and terminal building, performance-based design with nonlinear pushover analysis, assessment of existing piles and concrete deck.
- **Clinton Basin Seawall, Oakland, CA.** Design of new bulkhead retaining wall, performance-based design with nonlinear pushover analysis, evaluation of backfill for global stability, evaluating load demands on retaining walls, determining embedment and layout of piles.
- **Promenade Wharf at Shoreline Park, Oakland, CA.** Design of new promenade wharf, performance-based design with nonlinear pushover analysis, evaluation of seismic slope stability.
- **NASSCO Dry Docks, CA.** Mooring Dolphin soil-structure evaluation and pile geotechnical design.
- **Fort Mason Pier 3, San Francisco, CA.** Pier soil-structure evaluation and seismic assessment.
- **Alameda Landings, Alameda, CA.** Evaluation of existing marine structures, conceptual retrofit design for graving dock and seawall, temporary shoring design with tieback systems.

- **BWC Bert 8 MOT, Stockton, CA.** Design of breasting and mooring dolphin for a new marine oil terminal
- **I-90 Floating Bridge, Seattle, WA.** Assessment of existing bridge for mooring assessment for construction vessels and barges.
- **SR520 Evergreen Point Floating Bridge Demolition, Seattle, WA.** Design services for existing anchor cables assessment, design of pontoon de-tensioning and separating workplans, design of lift span removal concept and workplan, assessment of towing plan, assessment of mooring and floating stability, evaluation of crane lifting procedures and clearances, and demolition sequencing.
- **Hood Canal Floating Bridge Anchor Replacement, Seattle, WA.** Investigation of anchor cable anomalies and design of new cable hardware.
- **Terminal One Development, Richmond, CA.** Repair and retrofit of existing wharf, performance-based design with nonlinear pushover analysis, assessment of existing piles and concrete deck.
- **Valero Wilmington, Long Beach, CA.** Fender pile soil-structure evaluation and fender performance evaluation.
- **SR520 Evergreen Point Floating Bridge Replacement, Seattle, WA.** Investigation and rehabilitation of pontoons for cracking, assessment of dry dock and floating cofferdam repair plans, and design of new anchor cable test frames. (With BCG.)
- **Cape Wind Offshore Windfarm Project, Nantucket Sound, MA.** Design of upending frame for installing offshore monopile foundations. (With BCG.)

Shoring and construction engineering

- **301 Mission Foundation Retrofit, San Francisco, CA.** Shoring design and construction support for the foundation retrofit.
- **Confidential project Shoring Design, CA.** Basement shoring design and foundation construction support.
- **Emeryville Market Shoring and Dewatering, Emeryville, CA.** Shoring design and construction support for new development adjacent to Union Pacific railroads
- **Salesforce Tower, San Francisco, CA.** Shoring design for a deep 90 ft excavation in a dense urban area with complex multi soil-structure interactions
- **Genentech Building 15, South San Francisco, CA.** Reviewed contractor means and methods as owner's representative for temporary shoring for basement utility improvements
- **Animal Care and Control Building, San Francisco, CA.** Shoring of existing URM walls, basement walls, and foundations during renovation and retrofit of the historic Municipal Railway overhead lines building into a new animal care and control facility.
- **75 Howard Street, San Francisco, CA.** Peer review and structural assessment of a shared shoring wall between an existing high-rise building and a deeper adjacent excavation.
- **One Bellevue Center, Seattle, WA.** Peer review of adjacent excavation impact on the existing twenty-one-story tower.
- **555 Howard Street, San Francisco, CA.** Shoring bid design of an 80 ft excavation, design of a soldier pile CSM wall with internal waler and strut bracing system.
- **Maine Medical Center, Portland, ME.** New design of temporary anchored shoring wall and permanently anchored secant pile wall.
- **1700 Jones Street, San Francisco, CA.** Shoring design for a soft-story, including shoring of existing walls, beams, and columns.
- **I-90 Floating Bridge, Seattle, WA.** Assessment of existing bridge for light rail construction.
- **Presidio Parkway, San Francisco, CA.** Design of CDSM wall with internal waler and strut bracing and tieback systems, analysis of adjacent property global stability. (With BCG.)

Forensic engineering and litigation support

- **Kalin Bridge Emergency Repair, El Centro, CA.** Repair and retrofit of existing bridge due to mitigate slope stability and scour protection.
- **Tappan Zee Bridge Project, NY.** Investigation and evaluation of the partial collapse of the old Tappan Zee Bridge East Anchor Span and Tower

- **Broadway Subway Project, Vancouver, Canada.** Investigate claims involving design changes related to tunnel design, and foundation pile design.
- **Floating dock failure investigation, WA.** Investigation and evaluation of a floating tubular dock
- **Los Angeles Metro Crenshaw/LAX Extension Line, Los Angeles, CA.** Cost dispute resolution for temporary excavation support structures. Assessment of Metro structures, including tunnels, train stations, above-ground stations, and bridges.
- **Eel River Bridge Seismic Retrofit, CA.** Investigation and evaluation of cost and schedule claims related to seismic retrofit and bearing pad replacement of an existing bridge
- **Cruise Pier at Port Zante, Basseterre, St. Kitts.** Cost dispute litigation support related to the pier piling and dredging.
- **Greenswood Bay Seawall, Tiburon, CA.** Evaluation of existing seawall and design of new anchored seawall
- **Muir Woods Pedestrian Bridge, Mill Valley, CA.** Investigation and evaluation of pedestrian bridges for the NPS.
- **Torpedo Wharf, San Francisco, CA.** Investigation and evaluation of an existing wharf structure
- **EUTURN-1 Bridge Project, Dubai, UAE.** Assess damage to overpass pier during girder post-tensioning.
- **Elliott Bay Seawall Project, Seattle, WA.** Temporary shoring of existing seawall for jet-grouting, investigation of existing structures adjacent to seawall, performance-based design with nonlinear pushover analysis.
- **BART Warm Springs Extension Project, Fremont, CA.** Fatigue analysis and strength checks of the cross-passage doors and egress door for the BART Warm Springs Station.
- **Morro Bay Seawall, CA.** Seawall rehabilitation and replacement design.
- **SR-91 Extension, Riverside, CA.** Investigation and litigation support for replacement bridges and widened bridge structures.

Foundation and Retaining wall design

- **Alameda Marina Seawalls, Alameda, CA.** Evaluation and retrofit/repair of existing seawalls and graving dock. Slope stability and shoreline protection.
- **Khosla Ski Wasatch Peaks, Morgan County, UT.** Design of shoring system for a hillside structure.
- **120 East Grand Ave, South San Francisco, CA.** Design of ACIP piles for three multi-story buildings
- **UCSF Mission Bay Block 34, San Francisco, CA.** Peer and plan check review of a buried tank shoring design.
- **UCSF Parnassus Research and Academic Building, San Francisco, CA.** Peer and plan check review of temporary walls, permanent tieback shoring system, and foundation design along a hillside for a new nine-story building.
- **Lake Merritt BART Bldg B for Senior Affordable Housing, Oakland, CA.** Foundation design with isolation casing of a seven story building directly adjacent to a BART station and underground tunnels.
- **Napa Pipe Drydock, Napa, CA.** Investigation and evaluation of existing drydock facilities adjacent to site improvements.
- **Berth 18, Stockton, CA. Shiploader** Foundation design with isolation casings to protect existing structures and bulkhead walls.
- **944 Via Lido, Newport Beach, CA.** Seismic assessment and replacement of existing seawall.
- **Alameda Welness Center, Alameda, CA.** Design of drilled displacement sand cement columns for ground improvement.
- **Chicken Ranch Casino Resort, Jamestown, CA.** Slope evaluation and retaining wall design
- **Martinez Refining Company, Martinez, CA.** Various anchored retaining walls and secant pile walls for slope stability and fluid containment
- **5000 Shoreline Park Improvements, South San Francisco, CA.** Design of new HP Piles to support retrofits and improvements adjacent to an existing structure.
- **385 14th Street, Oakland, CA.** Design of ACIP piles for a forty-story residential tower.
- **Arroyo Green Apartments, 707 Bradford, Redwood City, CA.** Design and evaluation of drilled displacement sand cement columns as part of ground improvement.
- **PG&E Millbrae Tower, CA.** TUBEX pile structural and geotechnical design for new transmission towers

- **Kavli Foundation, Los Angeles, CA.** EDTTEX pile structural and geotechnical design for airport support structures
- **LAX Terminal 6, Los Angeles, CA.** ACIP pile geotechnical design for airport support structures
- **PG&E Bird's Landing, CA.** Driven HP pile geotechnical design for PG&E transmission towers
- **Cambria Hotel, Santa Clara, CA.** Design of drilled displacement sand cement columns for ground improvement.
- **1298 Howard Street, San Francisco, CA.** Design of drilled displacement sand cement columns for ground improvement.
- **1 Hotel, Sunnyvale, CA.** ACIP pile structural and geotechnical design for a multi-story building
- **1150 Walsh Avenue, Santa Clara, CA.** ACIP pile structural and geotechnical design for a multi-story building
- **Genentech Building 50, 1 DNA Way, South San Francisco, CA.** Torque-down pile structural and geotechnical design.
- **Alameda Seaplane Lagoon, Alameda, CA.** Evaluation and assessment of prestressed concrete pile lifting plan.
- **Treasure Island Ferry Terminal, San Francisco, CA.** Evaluation and assessment of concrete sheet pile lofting plan.
- **Uber Mission Bay, San Francisco, CA.** TUBEX pile evaluation and repair.
- **SFO Airport Parking, South San Francisco, CA.** ACIP Foundation design for high mast lighting posts.
- **PG&E Tower #61 Foundation Design, Sacramento, CA.** EDTTEX pile structural and geotechnical design.
- **1600 Amphitheatre Parkway, Mountain View, CA.** Design of drilled displacement pile piles.
- **950 Market Street, San Francisco, CA.** Design of torque-down and auger cast-in-place piles for a twelve-story building over two basement levels below-grade. Project site is within the Bay Area Rapid Transit (BART) tunnel zone of influence.
- **349 8th Street, San Francisco, CA.** Design of auger cast-in-place piles for a six-story residential structure.
- **Ohio River Bridge, Jeffersonville, IN, and Louisville, KY.** Construction engineering for bridge pier caps. (With BCG.)

Professional activities

- **Structural Engineers Association of Northern California.** Member, Continuing Education Committee.
- **American Society of Civil Engineers.** Member.
- **Deep Foundations Institute.** Member.

Honors and awards

- **2014 NCSEA and SEAONC.** Recipient of the outstanding project for the repair of Washington state sr-520 floating replacement bridge pontoons.

Publications and presentations

- **Ali Naeem, Sam Yao, Josh Core, Allison DiGregorio,** 'Optimization of Seawall Design at Alameda Marina' publication and presentation at ASCE PORTS 2022.
- **Ali Naeem, Rune Iversen, and Sam Yao,** "Decommissioning of SR520 Floating Bridge," presentation at *ASCE PORTS 2019* Conference, Pittsburgh, PA.
- **Julie Galbraith, Ali Naeem, Bill Bruin,** "Seismic Evaluation of Marine Structures for Kinematic Effects," presentation at *ASCE PORTS 2019* Conference, Pittsburgh, PA.
- **Ali Naeem,** "PORTS 101 Geotechnical and soil-structure introduction course," at ASCE PORTS 2019 Conference, Pittsburgh, PA.
- **Sam Yao, Bill Konicki, Dean Rutila, Ali Naeem,** "Development of Waterproof Excavation Shoring Systems as Permanent Load Bearing Walls," presentation at *SGH Research Project*, 2019.
- **Sam Yao, Ali Naeem,** "Performance-Based Seismic Retrofit Design of Brooklyn Basin Wharf," presentation at *43rd Annual Conference of Deep Foundation Institute*, 2018.
- **Sam Yao, Ali Naeem, Sara Barret,** "Concrete Pile Repair at Brooklyn Basin Terminal Wharf", publication and presentation at ICRI Annual Conference, 2017.

Maximo L. Argo

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REGISTRATIONS

Civil Engineer

CA

CERTIFICATIONS

California Office of Emergency Services Safety Assessment Program Disaster Service Worker Volunteer

EDUCATION

Oregon State University, Corvallis, OR
M.S. in Civil Engineering, 2016

New Mexico State University, Las Cruces, NM
B.S. in Civil Engineering, 2013

Maximo Argo works with clients to assess, repair, and design marine and civil structures. He specializes in coastal wave modeling, coastal engineering, marine engineering, mooring and berthing design, and waterfront structural inspections.

Experience

- Simpson Gumpertz & Heger Inc. (SGH), San Francisco and Oakland, CA. From 2016 to present.
- Research Assistant at Oregon State University, Corvallis, OR. From 2015 to 2016.

Coastal engineering

- **Various Locations.** Collection of environmental data and preparation of metocean reports, including analysis of wind, current, tides, flooding, precipitation, seiching, waves, and temperature.
- **Potrero Power Plant, San Francisco, CA.** Design of a small craft berthing facility, wave analysis, sediment transport analysis, revetment design, and propeller wash evaluation.
- **Brooklyn Basin Development, Oakland, CA, and Alameda Marina Development, Alameda, CA.** Wave analysis and design of revetment for shoreline protection.
- **Confidential Site, Anacortes, WA.** Wave loading and environmental conditions assessment for litigation.
- **Alameda Landing Wharf, Alameda, CA, and Terminal One, Richmond, CA.** Wave analysis and wave loading on existing wharf for future development and assessment of existing shoreline protection.
- **Surry Power Plant, Surry, VA.** Environmental conditions assessment including wind loading, wave loading, current loading, hydrodynamic loading, and floating stability for a floating cofferdam.

Marine engineering

- **Pier 80, Port of San Francisco, CA.** Marine fender and mooring point design, demolition scope, and basis of design for Port of San Francisco Marine Facilities.
- **Pier 27, Port of San Francisco, CA.** Partial demolition of the pier slab and installation of mooring points to increase terminal vessel capacity.
- **Marathon Avon Wharf, Martinez, CA.** Demolition plans, permitting assistance, and current monitor installation for terminal compliance.
- **Berth 82/83 and Berth G211A, Port of Long Beach, CA.** Marine fender design and assessment.
- **Downtown San Francisco Ferry Terminal, San Francisco, CA.** Float fender design and design criteria.
- **Berth 163, Port of Los Angeles, CA, and Berth 76, Port of Long Beach, CA.** Fender capacity determination of existing timber fender systems using soil structure interaction program LPILE.
- **Marathon Amorco Wharf, Martinez, CA.** Mooring dolphin capacity modeling using SAP and LPILE.
- **Alameda Marina Development, Alameda, CA, and Warm Water Cove, San Francisco, CA.** San Francisco Bay Conservation and Development Commission (BCDC) permitting quantity estimates.

- **Marathon Long Beach Terminal, Long Beach, CA.** Prepared as-built drawings for the installation of new mooring hooks and fender rub strips.
- **Shell Martinez Wharf, Martinez, CA.** Prepared as-built drawings for new mooring hooks.
- **Various Locations.** Developed repair drawings for various concrete structures, including piles, soffits, decks, mooring equipment, and berthing equipment. Developed specifications for various repair drawings, including concrete, reinforcing steel, rock slope protection, and special provisions.
- **Port of Oakland, CA.** Developed standard repair details for concrete piles and soffit and inspection plan.
- **Gold Bond Richmond Marine Terminal, Richmond, CA.** Timber pile repair drawings, permitting assistance, construction estimates, and construction support.

Mooring and berthing

- **Alameda Point Piers 1, 2, and 3, Alameda, CA.** Dynamic mooring analysis of MARAAD Navy vessels.
- **Pacific Gas and Electric Company Tower Installation, Petaluma River, CA; I-90 Pontoon Bridge, Lake Washington, WA.** Mooring analysis and berthing of construction barges.
- **NuStar Blue Island, Blue Island, IL; NuStar Portland, Portland, OR; Lehigh Hanson Tidewater Wharf, Oakland, CA; Ciner Dry Bulk Wharf Berths 18 and 19, Stockton, CA; Tesoro Pasco Washington Terminal, Pasco, WA.** Mooring and berthing analysis.
- **Chevron Richmond Long Wharf, Richmond, CA; BWC Stockton, Stockton, CA; NuStar Selby, Selby, CA; IMTT, Richmond, CA; Shell Martinez, Martinez, CA; Terminal 2 (T2) Tesoro, Long Beach, CA; Long Beach Terminal (LBT) Tesoro, Long Beach, CA; Marathon Berth 121, Long Beach, CA; Marathon Avon Berth 1, Martinez, CA.** Created analysis, prepared calculation reports, and prepared drawings for terminal operating limits for vessels called to marine oil terminals.

Inspections

- **Wind River Business Park Wharf, Alameda, CA; Oracle Park Pedestrian Bridge, San Francisco, CA.** Due diligence marine structural inspection.
- **Gold Bond Richmond Marine Terminal, CA; Alameda Landing Wharf, Alameda, CA; Terminal One Wharf, Richmond, CA; Pier 94, San Francisco, CA; Lehigh Stockton Berth 8/9, Stockton, CA; Lehigh Hanson Tidewater Facility Wharf, Oakland, CA; Cote D'Azur Condominiums, Sausalito, CA; Jack London Square Boardwalk, Oakland, CA; Pipeline Trestles in the Dominguez Channel and the Los Angeles River, Los Angeles, CA.** Marine structural condition assessments.
- **Pier 45, Pier 35, Pier 33, Pier 9, Pier 50, and Pier 54, San Francisco, CA.** Marine structural condition assessments.
- **Avon Wharf, Martinez, CA; Amorco Wharf, Martinez, CA; Marathon Refining Company Wharf, Martinez, CA; NuStar Selby, Selby, CA; IMTT, Richmond, CA; Terminal 2 (T2) Tesoro, Long Beach, CA; Long Beach Terminal (LBT) Tesoro, Long Beach, CA; Tesoro Pasco Terminal, Pasco, WA; NuStar Stockton Berth 10/11, Stockton, CA.** MOTEMS interval inspections of marine oil terminals.
- **Lehigh Hanson Tidewater Facility, Oakland, CA.** Structural condition assessment of elevated gantry conveyor.
- **Pier 23, San Francisco, CA.** Post-allision reconnaissance inspection.
- **Northeastern University at Mills College.** Post-flooding spillway inspection.

Professional activities

- **ASCE**. Associate Member.
- **ASCE/COPRI Port and Harbors Standards Committee.** Member. Coauthor for Chapter Five - Mooring and Berthing Committee.
- **ASCE/COPRI Sea Level Change Task Committee.** Member.
- **ASCE/COPRI Waterfront Facility Inspection Committee.** Member. Coauthor for revisions to Chapters Two and Four of Manual of Practice No. 130.

Publications and presentations

- **Argo, M.L., and R. Iverson,** "Wind loads: Codes, Design, and Implementation for Buildings and Moored Vessels," AIA Course No. WINDLOADS60, presentation for American Institute for Architects, *SGH National Webinar*, 15 Aug. 2022.

Conference papers

- **Iverson R., W.M. Bruin, M.L. Argo, J. Hooge, and J. Watson,** "Establishing a Rational Inspection Criteria for Composite Piles and Materials Used in Waterfront Structures," in *Ports 2019*, American Society of Civil Engineers, 2019, pp. 165–74, *DOI.org (Crossref)*, https://doi.org/10.1061/9780784482612.016.
- **Iversen, R., et al.,** "A Proposed Rational Approach to Design of Fenders and Supporting Structures in the United States," in *Ports 2019*, 448–58, Pittsburgh, Pennsylvania, American Society of Civil Engineers, 2019, https://doi.org/10.1061/9780784482629.043.
- **Brenna, P.F., K. Frega, and M.L. Argo,** "A Flood of Red Tape: Comparing the Floodplain Development Regulations of Port Cities," in *Ports 2022*, 1–10, Honolulu, Hawaii, American Society of Civil Engineers, 2022, https://doi.org/10.1061/9780784484401.001.

Conference presentations

- **Iversen, R., J.A. Galbraith, M.L. Argo, and W.M. Bruin,** "Applying PIANC Fender Design Guidance to US Design Codes – Proposed Rational Approach to Implementing the PIANC Fender Design Guidance in US Designs," presentation at the *PIANC 2018 World Congress*, Panama.
- **M.L. Argo, R. Iversen, W.M. Bruin, J. Hooge, and J. Watson,** "Establishing a Rational Inspection Criteria for Composite Piles and Materials Used in Waterfront Structures," presentation at *ASCE COPRI 2019 PORTS Conference,* Pittsburgh, PA, 2019.
- **S.C. Cortes, R. Iversen, M.L. Argo, W.M. Bruin, and J.J. Pyun,** "Analysis of Measured Marine Oil Terminal Berthing Velocities," presentation at *ASCE COPRI 2019 PORTS Conference*, Pittsburgh, PA, 2019.
- **M.L. Argo,** "Ports 101: Vessel Particulars (101013)," presentation at the ASCE-COPRI PORTS '22 Conference, Honolulu, Hawaii, 20 Sept. 2022.
- **M.L. Argo,** "Design considerations for shoreline developments in urban environments," presentation at the *PIANC America 2023 Conference,* Fort Lauderdale, FL, 24-27 Apr. 2023.

Key Qualifications

Jonathan Boynton has more than 24 years of experience as a project engineer, project manager, dive supervisor, and commercially trained professional engineer diver performing both underwater and above water structural condition assessments. His project experience includes underwater inspection, structural analysis, offshore oil platform well intervention and structural debris removal, construction management, forensic analysis of foundation failures, repair design, and architectural design and framing design for residential and commercial buildings.

Mr. Boynton has performed numerous inspections of marine and waterfront structures throughout the United States and internationally. He has been the structural inspection team leader for 17 marine oil terminals in California in compliance with the California Code of Regulations (CCR), Title 24, Chapter 31F, otherwise known as the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). He is a member of the Cal-OSHA Technical Diving Advisory Committee, the Marine Diving Technology Advisory Committee for Santa Barbara City College, and a voting member of the ADCI Training Standard Committee.

Registrations/Certifications

Professional Engineer – California (Civil) #C71056
Professional Engineer – Washington (Civil) #47859
Surface Supplied Mixed Gas Diving Supervisor, ADCI #68692
USCG Licensed Captain – 50 Ton Master Inland, Towing Endorsement (expired)
Bridge Inspection Team Leader, Safety Inspection of In-Service Bridges Training, NHI
Rope Access Technician, SPRAT Level I - #141244
Kirby Morgan Maintenance and Repair Technician – T-10908
OSHA Construction Safety and Health Certification (30-hr)
Emergency Medical Technician – EMT-I #SB5160510 (expired)
Basic Life Support First Aid / CPR / AED Provider Certification
Emergency Oxygen Provider Certification

Education

BS, ARCE (Structural Engineering), California Polytechnic State University, San Luis Obispo, CA.
Commercial Diver, Santa Barbara City College, Marine Diving Technology, Santa Barbara, CA

Key Skills

Strong understanding of all modes of diving and associated dive planning and risk assessment
Level I, II, and III inspection including non-destructive and destructive testing
Detailed electronic data collection, multi-media presentation of findings, report generation
Underwater photography, ROV operations, SONAR surveying and acoustic imaging
Surface-Supplied Diving Equipment Repair and Maintenance
Boat Operator

Professional Affiliations

American Society of Civil Engineers, M. ASCE
Professional Association of Diving Instructors

Experience

2018 - Present **California Department of Transportation (Caltrans)**
Structure Maintenance and Investigations (SM&I)
Underwater Investigations Program
Program Manager - Senior Bridge Engineer – Dive Supervisor - Inspection Diver
Program manager responsible for the underwater inspection of over 800 CA bridges. Responsible for ensuring that all inspections are performed safely and in compliance with federal regulations. Supervises a crew of full-time commercially trained underwater inspection divers. Responsibilities include planning for and performing underwater inspections of local and state bridges, preparation of inspection reports, contract management, coordination with state and local stakeholders, and quality control. He is a participating member of the Caltrans Dive Safety Board.

2013 - 2018 **Shoreline Engineering, Inc.**
Owner / Vice President
Professional Engineer – Commercial Inspection Diver
Partner and Underwater Inspection Practice Lead for a small engineering firm. The primary focus of the business was high quality structural condition assessment and rehabilitation design of waterfront structures.

2005 - 2013 **CH2M Hill (Jacobs)(Halcrow)(HPA)(Han Padron Associates)**
Project Manager / Senior Engineer Diver
Professional Engineer – Commercial Inspection Diver
Project manager and senior engineer-diver for inspection and rehabilitation projects worldwide. Specializing in condition assessment of waterfront structures including destructive and non-destructive testing, cathodic protection surveys, acoustic imaging, corrosion monitoring, and rehabilitation design.

Relevant Inspection Experience

Structural Condition Assessment of Alameda Point Piers 1-3, Alameda, CA

Project manager / Professional Engineer-Diver / Inspection Team Leader / Dive Supervisor for underwater and above water inspections of three piers supported by prestressed and conventionally reinforced concrete piles at Alameda Point. Level I, II, and III inspections were performed including 100% visual/tactile inspections (Level I), removal of marine growth with detailed visual (Level II), ultrasonic thickness measurements, and large diameter concrete coring (Level III). 2016-2017

Structural Condition Assessment of Alameda Landing, Alameda, CA

Project manager / Professional Engineer-Diver / Inspection Team Leader / Dive Supervisor for underwater and above water inspections of 1499 concrete piles supporting the wharf structures at Alameda Landing. Level I and II inspections were performed including 100% visual/tactile inspections (Level I) and removal of marine growth with detailed visual (Level II). 2018

Structural Condition Assessment of San Francisco Oakland Bay Bridge, Oakland, CA

Professional Engineer-Diver for underwater inspections of both the new East Span and the older West Span of the San Francisco Oakland Bay Bridge. The inspection included a 100% Level I and 10% Level II & Level III inspection of all underwater structural elements. 2019 and 2024

Structural Condition Assessment of Port of San Francisco Pier 94

Project manager / Professional Engineer-Diver / Inspection Team Leader / Dive Supervisor for an underwater inspection of over 600 concrete piles. The inspection included a 100% Level I and 20% Level II inspection of all underwater structural elements. 2018

Structural Condition Assessment of Newport and Balboa Piers, Newport Beach, CA

Professional Engineer-Diver / Dive Supervisor for underwater inspections of both the Newport and Balboa Piers. The inspection included a 100% Level I and 10% Level II inspection of all underwater structural elements. 2016 and 2021

Structural Condition Assessments of Coronado, Carquinez, Dumbarton, San Mateo, and Benicia Bridges

Professional Engineer-Diver for underwater inspections of San Diego and San Francisco Bay bridges. The inspections included a 100% Level I and 10% Level II & Level III inspection of all underwater structural elements. 2019, 2022, 2023, 2024

MOTEMS Structural Condition Assessment of the Phillips 66 Rodeo Terminal, Rodeo, CA

Professional Engineer-Diver / Dive Supervisor for a MOTEMS compliant underwater inspection of all structures. The Phillips 66 Refinery Terminal is located near the mouth of the Carquinez Strait and is supported by over 2000 prestressed and conventionally reinforced concrete, steel, and timber piles. 2017

Structural Condition Assessment of Seal Beach Pier, Seal Beach, CA

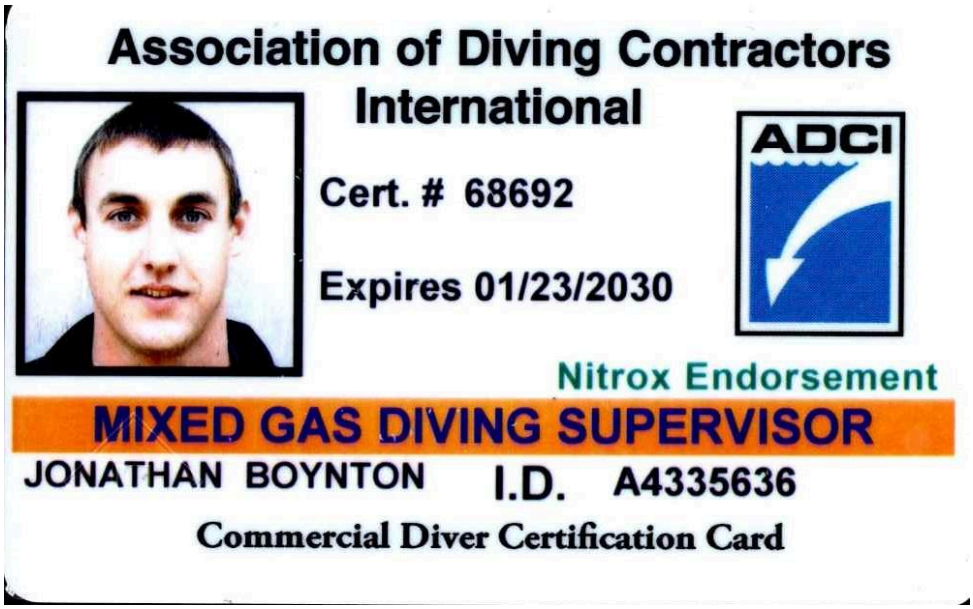
Professional Engineer-Diver / Dive Supervisor for an underwater inspection of the Seal Beach Pier. The inspection included a 100% Level I and 10% Level II inspection of all underwater structural elements. 2016

Underwater and Above Water Structural Condition Assessment of the Pismo Beach Pier, Pismo Beach, CA

Professional Engineer-Diver / Inspection Team Leader / Dive Supervisor for an underwater and above water inspection of the timber and steel pile supported pier. Structural components below the pier deck were inspected using industrial rope access techniques and equipment. Level III inspections included ultrasonic thickness readings and large diameter timber coring. 2015

Underwater and Above Water Structural Condition Assessment, Interim Repair Plan, and Structural Rehabilitation Design of the Cayucos Pier, Cayucos, CA

Professional Engineer-Diver / Inspection Team Leader / Dive Supervisor for an underwater and above water inspection of the timber pile supported pier. The project included the development of an interim repair plan as well as, complete rehabilitation plan for the structure. After a comprehensive reconstruction of the outer two-thirds of the pier, the facility was reopened to the public in 2015. 2013



Association of Diving Contractors International

Cert. # 68692

Expires 01/23/2030

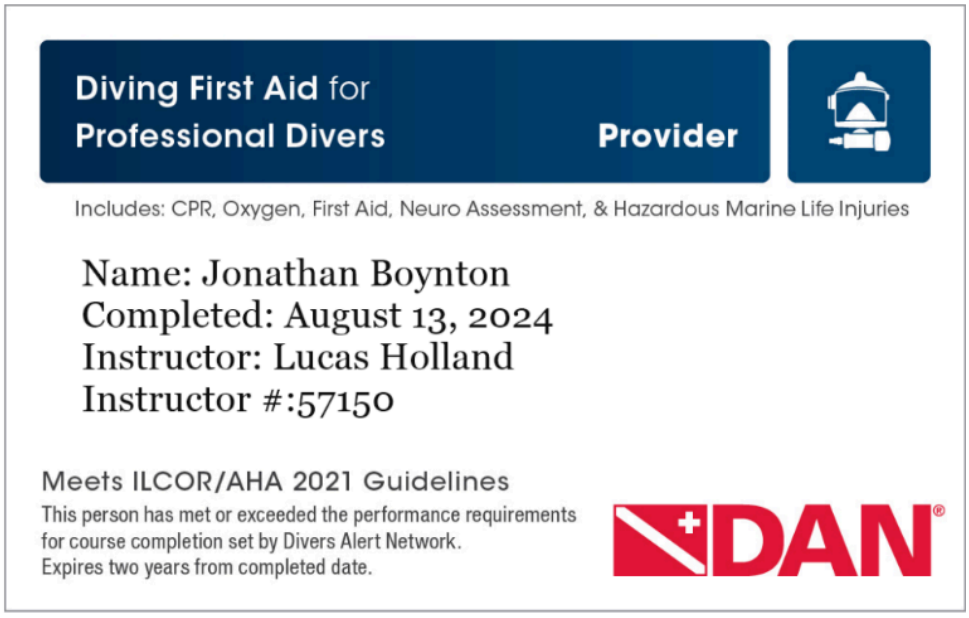
ADCI

Nitrox Endorsement

MIXED GAS DIVING SUPERVISOR

JONATHAN BOYNTON I.D. A4335636

Commercial Diver Certification Card



Diving First Aid for Professional Divers Provider

Includes: CPR, Oxygen, First Aid, Neuro Assessment, & Hazardous Marine Life Injuries

Name: Jonathan Boynton
Completed: August 13, 2024
Instructor: Lucas Holland
Instructor #:57150

Meets ILCOR/AHA 2021 Guidelines

This person has met or exceeded the performance requirements for course completion set by Divers Alert Network.
Expires two years from completed date.

DAN

CORPORATE RESOLUTION

I, Martin Mullins (Name), as Secretary (Title) of Simpson Gumpertz & Heger Inc.

(the "Company"), a corporation organized under the laws of the Commonwealth of Massachusetts, hereby certify that the following reflects a resolution of predominantly similar language and intent adopted at a meeting of the Board of Directors of said Company, duly held on the 10th day of May, 2024:

> "RESOLVED that Sam X. Yao is hereby authorized to make, execute and approve on behalf of this company, any and all contracts and to execute and approve on behalf of this company, other instruments, a part of or incident to such contracts; effective until otherwise ordered by the Board of Directors."

AND I DO FURTHER CERTIFY that the above resolution has not been in any way altered, amended or repealed and is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of October, 2024.

(Signature)

Title: Secretary

SIMPGUM-01 MMCFARLANE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 1/6/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Ames & Gough
859 Willard Street
Suite 320
Quincy, MA 02169

CONTACT NAME:
PHONE (A/C, No, Ext): (617) 328-6555 FAX (A/C, No): (617) 328-6888
E-MAIL ADDRESS: boston@amesgough.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Phoenix Insurance Company A++, XV	25623
INSURER B : Travelers Property Casualty Company of America, A++, XV	25674
INSURER C : Travelers Indemnity Company, A++, XV	25658
INSURER D : Lexington Insurance Company A, XV	19437
INSURER E :	
INSURER F :	

INSURED
Simpson Gumpertz & Heger Inc.
480 Totten Pond Road
Waltham, MA 02451

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR	X	X	P6303646P601TIA25	1/1/2025	1/1/2026	DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 15,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT X LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
B	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO	X	X	BA2L5447902443G	1/1/2025	1/1/2026	BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
B	X UMBRELLA LIAB X OCCUR						EACH OCCURRENCE	$ 10,000,000
	EXCESS LIAB CLAIMS-MADE	X	X	CUP3W1976622443	1/1/2025	1/1/2026	AGGREGATE	$ 10,000,000
	DED X RETENTION $ 10,000							$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						X PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N (Mandatory in NH)	N / A	X	PKUB3W2842472443G	1/1/2025	1/1/2026	E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
D	Prof & Poll Liab			023462679	7/2/2024	7/2/2025	Per Claim	2,000,000
D				023462679	7/2/2024	7/2/2025	Aggregate	2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
If Additional Insured box is checked, GL Endorsement Form #CGD604, Auto AI #CAT353 to the extent provided therein applies and all coverages are in accordance with the policy terms and conditions.

City of Alameda, its City Council, boards, commissions, officials, employees, and volunteers shall be included as additional insured with respects to General, Auto, and Umbrella Liability where required by written contract. General, Auto, and Umbrella Liability are Primary and Non-contributory as required per written contract. A Waiver of Subrogation and 30 Day Notice of Cancellation is provided in accordance with the policy terms and conditions.

Initial HN 4/30/2025 DS LC 5/21/2025

CERTIFICATE HOLDER

The City of Alameda
2263 Santa Clara, Ave.
Alameda, CA 94501

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Jared Maxwell

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BUSINESS AUTO EXTENSION ENDORSEMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

GENERAL DESCRIPTION OF COVERAGE – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to the Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Limitations and exclusions may apply to these coverages. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

A. BROAD FORM NAMED INSURED

B. BLANKET ADDITIONAL INSURED

C. EMPLOYEE HIRED AUTO

D. EMPLOYEES AS INSURED

E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS

F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS

G. WAIVER OF DEDUCTIBLE – GLASS

H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT

I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT

J. PERSONAL PROPERTY

K. AIRBAGS

L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS

M. BLANKET WAIVER OF SUBROGATION

N. UNINTENTIONAL ERRORS OR OMISSIONS

PROVISIONS

A. BROAD FORM NAMED INSURED

The following is added to Paragraph **A.1.**, **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any organization you newly acquire or form during the policy period over which you maintain 50% or more ownership interest and that is not separately insured for Business Auto Coverage. Coverage under this provision is afforded only until the 180th day after you acquire or form the organization or the end of the policy period, whichever is earlier.

B. BLANKET ADDITIONAL INSURED

The following is added to Paragraph **c.** in **A.1.**, **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any person or organization who is required under a written contract or agreement between you and that person or organization, that is signed and executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to be named as an additional insured is an "insured" for Covered Autos Liability Coverage, but only for damages to which this insurance applies and only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured provision contained in Section **II**.

C. EMPLOYEE HIRED AUTO

1. The following is added to Paragraph **A.1.**, **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in an "employee's" name, with your permission, while performing duties related to the conduct of your business.

2. The following replaces Paragraph **b.** in **B.5.**, **Other Insurance**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

b. For Hired Auto Physical Damage Coverage, the following are deemed to be covered "autos" you own:

(1) Any covered "auto" you lease, hire, rent or borrow; and

(2) Any covered "auto" hired or rented by your "employee" under a contract in an "employee's" name, with your

permission, while performing duties related to the conduct of your business.

However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".

D. EMPLOYEES AS INSURED

The following is added to Paragraph **A.1.**, **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any "employee" of yours is an "insured" while using a covered "auto" you don't own, hire or borrow in your business or your personal affairs.

E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS

1. The following replaces Paragraph **A.2.a.(2)**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

(2) Up to $3,000 for cost of bail bonds (including bonds for related traffic law violations) required because of an "accident" we cover. We do not have to furnish these bonds.

2. The following replaces Paragraph **A.2.a.(4)**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

(4) All reasonable expenses incurred by the "insured" at our request, including actual loss of earnings up to $500 a day because of time off from work.

F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS

The following replaces Subparagraph **(5)** in Paragraph **B.7.**, **Policy Period, Coverage Territory**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

(5) Anywhere in the world, except any country or jurisdiction while any trade sanction, embargo, or similar regulation imposed by the United States of America applies to and prohibits the transaction of business with or within such country or jurisdiction, for Covered Autos Liability Coverage for any covered "auto" that you lease, hire, rent or borrow without a driver for a period of 30 days or less and that is not an "auto" you lease, hire, rent or borrow from any of your "employees", partners (if you are a partnership), members (if you are a limited liability company) or members of their households.

(a) With respect to any claim made or "suit" brought outside the United States of America, the territories and possessions of the United States of America, Puerto Rico and Canada:

(i) You must arrange to defend the "insured" against, and investigate or settle any such claim or "suit" and keep us advised of all proceedings and actions.

(ii) Neither you nor any other involved "insured" will make any settlement without our consent.

(iii) We may, at our discretion, participate in defending the "insured" against, or in the settlement of, any claim or "suit".

(iv) We will reimburse the "insured" for sums that the "insured" legally must pay as damages because of "bodily injury" or "property damage" to which this insurance applies, that the "insured" pays with our consent, but only up to the limit described in Paragraph **C.**, Limits Of Insurance, of SECTION **II** – COVERED AUTOS LIABILITY COVERAGE.

(v) We will reimburse the "insured" for the reasonable expenses incurred with our consent for your investigation of such claims and your defense of the "insured" against any such "suit", but only up to and included within the limit described in Paragraph **C.**, Limits Of Insurance, of SECTION **II** – COVERED AUTOS LIABILITY COVERAGE, and not in addition to such limit. Our duty to make such payments ends when we have used up the applicable limit of insurance in payments for damages, settlements or defense expenses.

(b) This insurance is excess over any valid and collectible other insurance available to the "insured" whether primary, excess, contingent or on any other basis.

(c) This insurance is not a substitute for required or compulsory insurance in any country outside the United States, its territories and possessions, Puerto Rico and Canada.

You agree to maintain all required or compulsory insurance in any such country up to the minimum limits required by local law. Your failure to comply with compulsory insurance requirements will not invalidate the coverage afforded by this policy, but we will only be liable to the same extent we would have been liable had you complied with the compulsory insurance requirements.

(d) It is understood that we are not an admitted or authorized insurer outside the United States of America, its territories and possessions, Puerto Rico and Canada. We assume no responsibility for the furnishing of certificates of insurance, or for compliance in any way with the laws of other countries relating to insurance.

G. WAIVER OF DEDUCTIBLE – GLASS

The following is added to Paragraph **D.**, **Deductible**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

No deductible for a covered "auto" will apply to glass damage if the glass is repaired rather than replaced.

H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT

The following replaces the last sentence of Paragraph **A.4.b.**, **Loss Of Use Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

However, the most we will pay for any expenses for loss of use is $65 per day, to a maximum of $750 for any one "accident".

I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT

The following replaces the first sentence in Paragraph **A.4.a.**, **Transportation Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

We will pay up to $50 per day to a maximum of $1,500 for temporary transportation expense incurred by you because of the total theft of a covered "auto" of the private passenger type.

J. PERSONAL PROPERTY

The following is added to Paragraph **A.4.**, **Coverage Extensions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Personal Property

We will pay up to $400 for "loss" to wearing apparel and other personal property which is:

(1) Owned by an "insured"; and

(2) In or on your covered "auto".

This coverage applies only in the event of a total theft of your covered "auto".

No deductibles apply to this Personal Property coverage.

K. AIRBAGS

The following is added to Paragraph **B.3.**, **Exclusions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Exclusion **3.a.** does not apply to "loss" to one or more airbags in a covered "auto" you own that inflate due to a cause other than a cause of "loss" set forth in Paragraphs **A.1.b.** and **A.1.c.**, but only:

a. If that "auto" is a covered "auto" for Comprehensive Coverage under this policy;

b. The airbags are not covered under any warranty; and

c. The airbags were not intentionally inflated.

We will pay up to a maximum of $1,000 for any one "loss".

L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS

The following is added to Paragraph **A.2.a.**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

Your duty to give us or our authorized representative prompt notice of the "accident" or "loss" applies only when the "accident" or "loss" is known to:

(a) You (if you are an individual);

(b) A partner (if you are a partnership);

(c) A member (if you are a limited liability company);

(d) An executive officer, director or insurance manager (if you are a corporation or other organization); or

(e) Any "employee" authorized by you to give notice of the "accident" or "loss".

M. BLANKET WAIVER OF SUBROGATION

The following replaces Paragraph **A.5.**, **Transfer Of Rights Of Recovery Against Others To Us**, of **SECTION IV – BUSINESS AUTO CONDITIONS** :

5. Transfer Of Rights Of Recovery Against Others To Us

We waive any right of recovery we may have against any person or organization to the extent required of you by a written contract signed and executed prior to any "accident" or "loss", provided that the "accident" or "loss" arises out of operations contemplated by

such contract. The waiver applies only to the person or organization designated in such contract.

N. UNINTENTIONAL ERRORS OR OMISSIONS

The following is added to Paragraph **B.2.**, **Concealment, Misrepresentation, Or Fraud**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

The unintentional omission of, or unintentional error in, any information given by you shall not prejudice your rights under this insurance. However this provision does not affect our right to collect additional premium or exercise our right of cancellation or non-renewal.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BLANKET ADDITIONAL INSURED – AUTOMATIC STATUS IF REQUIRED BY WRITTEN CONTRACT (CONTRACTORS)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

The following is added to **SECTION II – WHO IS AN INSURED**:

Any person or organization that:

a. You agree in a written contract or agreement to include as an additional insured on this Coverage Part; and

b. Has not been added as an additional insured for the same project by attachment of an endorsement under this Coverage Part which includes such person or organization in the endorsement's schedule;

is an insured, but:

a. Only with respect to liability for "bodily injury" or "property damage" that occurs, or for "personal injury" caused by an offense that is committed, subsequent to the signing of that contract or agreement and while that part of the contract or agreement is in effect; and

b. Only as described in Paragraph **(1)**, **(2)** or **(3)** below, whichever applies:

(1) If the written contract or agreement specifically requires you to provide additional insured coverage to that person or organization by the use of:

(a) The Additional Insured – Owners, Lessees or Contractors – (Form B) endorsement CG 20 10 11 85; or

(b) Either or both of the following: the Additional Insured – Owners, Lessees or Contractors – Scheduled Person Or Organization endorsement CG 20 10 10 01, or the Additional Insured – Owners, Lessees or Contractors – Completed Operations endorsement CG 20 37 10 01;

the person or organization is an additional insured only if the injury or damage arises out of "your work" to which the written contract or agreement applies;

(2) If the written contract or agreement specifically requires you to provide additional insured coverage to that person or organization by the use of:

(a) The Additional Insured – Owners, Lessees or Contractors – Scheduled Person or Organization endorsement CG 20 10 07 04 or CG 20 10 04 13, the Additional Insured – Owners, Lessees or Contractors – Completed Operations endorsement CG 20 37 07 04 or CG 20 37 04 13, or both of such endorsements with either of those edition dates; or

(b) Either or both of the following: the Additional Insured – Owners, Lessees or Contractors – Scheduled Person Or Organization endorsement CG 20 10, or the Additional Insured – Owners, Lessees or Contractors – Completed Operations endorsement CG 20 37, without an edition date of such endorsement specified;

the person or organization is an additional insured only if the injury or damage is caused, in whole or in part, by acts or omissions of you or your subcontractor in the performance of "your work" to which the written contract or agreement applies; or

(3) If neither Paragraph **(1)** nor **(2)** above applies:

(a) The person or organization is an additional insured only if, and to the extent that, the injury or damage is caused by acts or omissions of you or your subcontractor in the performance of "your work" to which the written contract or agreement applies; and

(b) Such person or organization does not qualify as an additional insured with respect to the independent acts or omissions of such person or organization.

The insurance provided to such additional insured is subject to the following provisions:

a. If the Limits of Insurance of this Coverage Part shown in the Declarations exceed the minimum limits required by the written contract or agreement, the insurance provided to the additional insured will be limited to such minimum required limits. For the purposes of determining whether

this limitation applies, the minimum limits required by the written contract or agreement will be considered to include the minimum limits of any Umbrella or Excess liability coverage required for the additional insured by that written contract or agreement. This provision will not increase the limits of insurance described in Section **III** – Limits Of Insurance.

b. The insurance provided to such additional insured does not apply to:

(1) Any "bodily injury", "property damage" or "personal injury" arising out of the providing, or failure to provide, any professional architectural, engineering or surveying services, including:

(a) The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders or change orders, or the preparing, approving, or failing to prepare or approve, drawings and specifications; and

(b) Supervisory, inspection, architectural or engineering activities.

(2) Any "bodily injury" or "property damage" caused by "your work" and included in the "products-completed operations hazard" unless the written contract or agreement specifically requires you to provide such coverage for that additional insured during the policy period.

c. The additional insured must comply with the following duties:

(1) Give us written notice as soon as practicable of an "occurrence" or an offense which may result in a claim. To the extent possible, such notice should include:

(a) How, when and where the "occurrence" or offense took place;

(b) The names and addresses of any injured persons and witnesses; and

(c) The nature and location of any injury or damage arising out of the "occurrence" or offense.

(2) If a claim is made or "suit" is brought against the additional insured:

(a) Immediately record the specifics of the claim or "suit" and the date received; and

(b) Notify us as soon as practicable and see to it that we receive written notice of the claim or "suit" as soon as practicable.

(3) Immediately send us copies of all legal papers received in connection with the claim or "suit", cooperate with us in the investigation or settlement of the claim or defense against the "suit", and otherwise comply with all policy conditions.

(4) Tender the defense and indemnity of any claim or "suit" to any provider of other insurance which would cover such additional insured for a loss we cover. However, this condition does not affect whether the insurance provided to such additional insured is primary to other insurance available to such additional insured which covers that person or organization as a named insured as described in Paragraph **4.**, Other Insurance, of Section **IV** – Commercial General Liability Conditions.