

**City and County of San Francisco
Office of Contract Administration
Purchasing Division
City Hall, Room 430
1 Dr. Carlton B. Goodlett Place
San Francisco, California 94102-4685**

Agreement between the City and County of San Francisco and

CH2M HILL Engineers, Inc.

This Agreement is made this second day of October, 2017, in the City and County of San Francisco (“City”), State of California, by and between CH2M HILL Engineers, Inc., whose principal place of business is located at 150 Spear Street, Suite 750, San Francisco, CA 94105, hereinafter referred to as “Contractor” and the City and County of San Francisco, a municipal corporation, hereinafter referred to as “City”.

Recitals

WHEREAS, the Port of San Francisco (“Department”) wishes to contract for planning, preliminary engineering, and environmental services; and,

WHEREAS, this Agreement was competitively procured as required by San Francisco Administrative Code Chapter 21.1 through a Request for Proposal (“RFP”) issued on April 24, 2017, in which City selected Contractor as the highest qualified scorer pursuant to the RFP; and

WHEREAS, the Local Business Entity (“LBE”) subcontracting participation requirement for this Agreement is 21%

WHEREAS, Contractor represents and warrants that it is qualified to perform the Services required by City as set forth under this Agreement; and

WHEREAS, the City’s Civil Service Commission approved Contract number 45567-16/17 on May 15, 2017;

WHEREAS, approval for this Agreement was obtained by the Port Commission on August 8, 2017; and

WHEREAS, approval for this Agreement was obtained by the Board of Supervisors on ____.

Now, THEREFORE, the parties agree as follows:

Article 1 Definitions

The following definitions apply to this Agreement:

1.1 "Agreement" means this contract document, including all attached appendices, and all applicable City Ordinances and Mandatory City Requirements which are specifically incorporated into this Agreement by reference as provided herein.

1.2 "City" or "the City" means the City and County of San Francisco, a municipal corporation, acting by and through both its Director of the Office of Contract Administration or the Director's designated agent, hereinafter referred to as "Purchasing" and the Port of San Francisco."

1.3 "CMD" means the Contract Monitoring Division of the City.

1.4 "Contractor" or "Consultant" means between CH2M HILL Engineers, Inc., whose principal place of business is located at 150 Spear Street, Suite 750, San Francisco, CA 94105.

1.5 "Deliverables" means Contractor's work product resulting from the Services that are provided by Contractor to City during the course of Contractor's performance of the Agreement, including without limitation, the work product described in the "Scope of Services" attached as Appendix A.

1.6 "Effective Date" means the date upon which the City's Controller certifies the availability of funds for this Agreement as provided in Section 3.1.

1.7 "Mandatory City Requirements" means those City laws set forth in the San Francisco Municipal Code, including the duly authorized rules, regulations, and guidelines implementing such laws, that impose specific duties and obligations upon Contractor.

1.8 "Party" and "Parties" mean the City and Contractor either collectively or individually.

1.9 "Services" means the work performed by Contractor under this Agreement as specifically described in the "Scope of Services" attached as Appendix A, including all services, labor, supervision, materials, equipment, actions and other requirements to be performed and furnished by Contractor under this Agreement.

Article 2 Term of the Agreement

2.1 The term of this Agreement shall commence on the later of: (i) October 2, 2017; or (ii) the Effective Date and expire on October 1, 2027, unless earlier terminated as otherwise provided herein.

2.2 The City has one option to renew the Agreement for a period of one year. The City may extend this Agreement beyond the expiration date by exercising an option at the City's sole and absolute discretion and by modifying this Agreement as provided in Section 11.5, "Modification of this Agreement."

Article 3 Financial Matters

3.1 **Certification of Funds; Budget and Fiscal Provisions; Termination in the Event of Non-Appropriation.** This Agreement is subject to the budget and fiscal provisions of the City's Charter. Charges will accrue only after prior written authorization certified by the Controller, and the amount of City's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization. This Agreement will terminate without penalty, liability or expense of any kind to City at the end of any fiscal year if funds are not appropriated for the next succeeding fiscal year. If funds are appropriated for a portion of the fiscal year, this Agreement will terminate, without penalty, liability or expense of any kind at the end of the term for which funds are appropriated. City has no obligation to make appropriations for this Agreement in lieu of appropriations for new or

other agreements. City budget decisions are subject to the discretion of the Mayor and the Board of Supervisors. Contractor's assumption of risk of possible non-appropriation is part of the consideration for this Agreement.

THIS SECTION CONTROLS AGAINST ANY AND ALL OTHER PROVISIONS OF THIS AGREEMENT.

3.2 Guaranteed Maximum Costs. The City's payment obligation to Contractor cannot at any time exceed the amount certified by City's Controller for the purpose and period stated in such certification. Absent an authorized Emergency per the City Charter or applicable Code, no City representative is authorized to offer or promise, nor is the City required to honor, any offered or promised payments to Contractor under this Agreement in excess of the certified maximum amount without the Controller having first certified the additional promised amount and the Parties having modified this Agreement as provided in Section 11.5, "Modification of this Agreement."

3.3 Compensation.

3.3.1 Payment. Contractor shall provide an invoice to the City on a monthly basis for Services completed in the immediate preceding month, unless a different schedule is set out in Appendix B, "Calculation of Charges." Compensation shall be made for Services identified in the invoice that the Executive Director, in his or her sole discretion, concludes has been satisfactorily performed. Payment shall be made within 30 calendar days of receipt of the invoice, unless the City notifies the Contractor that a dispute as to the invoice exists. In no event shall the amount of this Agreement exceed thirty six million three hundred forty nine thousand and seven hundred forty dollars (\$36,349,740). The breakdown of charges associated with this Agreement appears in Appendix B, "Calculation of Charges," attached hereto and incorporated by reference as though fully set forth herein. A portion of payment may be withheld until conclusion of the Agreement if agreed to both parties as retainage, described in Appendix B. In no event shall City be liable for interest or late charges for any late payments.

3.3.2 Payment Limited to Satisfactory Services. Contractor is not entitled to any payments from City until the Port of San Francisco approves Services, including any furnished Deliverables, as satisfying all of the requirements of this Agreement. Payments to Contractor by City shall not excuse Contractor from its obligation to replace unsatisfactory Deliverables, including equipment, components, materials, or Services even if the unsatisfactory character of such Deliverables, equipment, components, materials, or Services may not have been apparent or detected at the time such payment was made. Deliverables, equipment, components, materials and Services that do not conform to the requirements of this Agreement may be rejected by City and in such case must be replaced by Contractor without delay at no cost to the City.

3.3.3 Withhold Payments. If Contractor fails to provide Services in accordance with Contractor's obligations under this Agreement, the City may withhold any and all payments due Contractor until such failure to perform is cured, and Contractor shall not stop work as a result of City's withholding of payments as provided herein.

3.3.4 Invoice Format. Invoices furnished by Contractor under this Agreement must be in a form acceptable to the Controller and City, and must include a unique invoice

number. Payment shall be made by City as specified in 3.3.6 ,” or in such alternate manner as the Parties have mutually agreed upon in writing.

3.3.5 LBE Payment and Utilization Tracking System. Contractor must submit all required payment information using the online LBE Utilization Tracking System (LBEUTS) as required by CMD to enable the City to monitor Contractor's compliance with the LBE subcontracting commitments in this Agreement. Contractor shall pay its LBE subcontractors within three working days after receiving payment from the City, except as otherwise authorized by the LBE Ordinance. The Controller is not authorized to pay invoices submitted by Contractor prior to Contractor’s submission of all required CMD payment information. Failure to submit all required payment information to the LBEUTS with each payment request may result in the Controller withholding 20% of the payment due pursuant to that invoice until the required payment information is provided. Following City’s payment of an invoice, Contractor has ten calendar days to acknowledge using the online LBEUTS that all subcontractors have been paid. Contractor shall attend a LBEUTS training session. LBEUTS training session schedules are available at www.sfgov.org/lbeuts.

3.3.6 Getting paid for goods and/or services from the City.

(a) All City vendors receiving new contracts, contract renewals, or contract extensions must sign up to receive electronic payments through the City's Automated Clearing House (ACH) payments service/provider. Electronic payments are processed every business day and are safe and secure. To sign up for electronic payments, visit www.sfgov.org/ach.

(b) The following information is required to sign up: (i) The enroller must be their company's authorized financial representative, (ii) the company's legal name, main telephone number and all physical and remittance addresses used by the company, (iii) the company's U.S. federal employer identification number (EIN) or Social Security number (if they are a sole proprietor), and (iv) the company's bank account information, including routing and account numbers.

3.4 Audit and Inspection of Records. Contractor agrees to maintain and make available to the City, during regular business hours, accurate books and accounting records relating to its Services. Contractor will permit City to audit, examine and make excerpts and transcripts from such books and records, and to make audits of all invoices, materials, payrolls, records or personnel and other data related to all other matters covered by this Agreement, whether funded in whole or in part under this Agreement. Contractor shall maintain such data and records in an accessible location and condition for a period of not fewer than five years after final payment under this Agreement or until after final audit has been resolved, whichever is later. The State of California or any Federal agency having an interest in the subject matter of this Agreement shall have the same rights as conferred upon City by this Section. Contractor shall include the same audit and inspection rights and record retention requirements in all subcontracts.

3.5 Submitting False Claims. The full text of San Francisco Administrative Code Chapter 21, Section 21.35, including the enforcement and penalty provisions, is incorporated into this Agreement. Pursuant to San Francisco Administrative Code §21.35, any contractor or subcontractor who submits a false claim shall be liable to the City for the statutory penalties set forth in that section. A contractor or subcontractor will be deemed to have submitted a false

claim to the City if the contractor or subcontractor: (a) knowingly presents or causes to be presented to an officer or employee of the City a false claim or request for payment or approval; (b) knowingly makes, uses, or causes to be made or used a false record or statement to get a false claim paid or approved by the City; (c) conspires to defraud the City by getting a false claim allowed or paid by the City; (d) knowingly makes, uses, or causes to be made or used a false record or statement to conceal, avoid, or decrease an obligation to pay or transmit money or property to the City; or (e) is a beneficiary of an inadvertent submission of a false claim to the City, subsequently discovers the falsity of the claim, and fails to disclose the false claim to the City within a reasonable time after discovery of the false claim.

3.6 Reserved (Payment of Prevailing Wages)

Article 4 Services and Resources

4.1 Services Contractor Agrees to Perform. Contractor agrees to perform the Services provided for in Appendix A, "Scope of Services." Officers and employees of the City are not authorized to request, and the City is not required to reimburse the Contractor for, Services beyond the Scope of Services listed in Appendix A, unless Appendix A is modified as provided in Section 11.5, "Modification of this Agreement."

4.2 Qualified Personnel. Contractor shall utilize only competent personnel under the supervision of, and in the employment of, Contractor (or Contractor's authorized subcontractors) to perform the Services. Contractor will comply with City's reasonable requests regarding assignment and/or removal of personnel, but all personnel, including those assigned at City's request, must be supervised by Contractor. Contractor shall commit adequate resources to allow timely completion within the project schedule specified in this Agreement.

4.3 Subcontracting.

4.3.1 Contractor may subcontract portions of the Services only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the work required to perform the Services. All Subcontracts must incorporate the terms of Article 10 "Additional Requirements Incorporated by Reference" of this Agreement, unless inapplicable. Neither Party shall, on the basis of this Agreement, contract on behalf of, or in the name of, the other Party. Any agreement made in violation of this provision shall be null and void.

4.3.2 City's execution of this Agreement constitutes its approval of the subcontractors listed below.

Arcadis US, Inc.	AGS, Inc.	Civic Edge Consulting, LLC
Baycat	CHS Consulting Group	Carollo Engineers, Inc.
CMG Landscape Architecture	Fugro USA Land, Inc.	Geotechnical Consultants, Inc.
GEHL Architects	Hollins Consulting, Inc.	HR&A Advisors, Inc.
ICF Jones & Stokes, Inc.	Kearns & West	Keyster Martson Assoc.
RDJ Enterprises, LLC	Saylor Consulting Group	Sedway Consulting, Inc.
Simpson, Gumpertz & Heger	Square One Productions	Telamon Engineering Consultants, Inc.
Structus, Inc.	TEF Design	WRA, Inc.

4.4 Independent Contractor; Payment of Employment Taxes and Other Expenses.

4.4.1 Independent Contractor. For the purposes of this Article 4, "Contractor" shall be deemed to include not only Contractor, but also any agent or employee of Contractor. Contractor acknowledges and agrees that at all times, Contractor or any agent or employee of Contractor shall be deemed at all times to be an independent contractor and is wholly responsible for the manner in which it performs the services and work requested by City under this Agreement. Contractor, its agents, and employees will not represent or hold themselves out to be employees of the City at any time. Contractor or any agent or employee of Contractor shall not have employee status with City, nor be entitled to participate in any plans, arrangements, or distributions by City pertaining to or in connection with any retirement, health or other benefits that City may offer its employees. Contractor or any agent or employee of Contractor is liable for the acts and omissions of itself, its employees and its agents. Contractor shall be responsible for all obligations and payments, whether imposed by federal, state or local law, including, but not limited to, FICA, income tax withholdings, unemployment compensation, insurance, and other similar responsibilities related to Contractor's performing services and work, or any agent or employee of Contractor providing same. Nothing in this Agreement shall be construed as creating an employment or agency relationship between City and Contractor or any agent or employee of Contractor. Any terms in this Agreement referring to direction from City shall be construed as providing for direction as to policy and the result of Contractor's work only, and not as to the means by which such a result is obtained. City does not retain the right to control the means or the method by which Contractor performs work under this Agreement. Contractor agrees to maintain and make available to City, upon request and during regular business hours, accurate books and accounting records demonstrating Contractor's compliance with this section. Should City determine that Contractor, or any agent or employee of Contractor, is not performing in accordance with the requirements of this Agreement, City shall provide Contractor with written notice of such failure. Within five (5) business days of Contractor's receipt of such notice, and in accordance with Contractor policy and procedure, Contractor shall remedy the deficiency. Notwithstanding, if City believes that an action of Contractor, or any agent or employee of Contractor, warrants immediate remedial action by Contractor, City shall contact Contractor and provide Contractor in writing with the reason for requesting such immediate action.

4.4.2 Payment of Employment Taxes and Other Expenses. Should City, in its discretion, or a relevant taxing authority such as the Internal Revenue Service or the State Employment Development Division, or both, determine that Contractor is an employee for purposes of collection of any employment taxes, the amounts payable under this Agreement shall be reduced by amounts equal to both the employee and employer portions of the tax due (and offsetting any credits for amounts already paid by Contractor which can be applied against this liability). City shall then forward those amounts to the relevant taxing authority. Should a relevant taxing authority determine a liability for past services performed by Contractor for City, upon notification of such fact by City, Contractor shall promptly remit such amount due or arrange with City to have the amount due withheld from future payments to Contractor under this Agreement (again, offsetting any amounts already paid by Contractor which can be applied as a credit against such liability). A determination of employment status pursuant to the preceding two paragraphs shall be solely for the purposes of the particular tax in question, and for all other purposes of this Agreement, Contractor shall not be considered an employee of City. Notwithstanding the foregoing, Contractor agrees to indemnify and save harmless City and its

officers, agents and employees from, and, if requested, shall defend them against any and all claims, losses, costs, damages, and expenses, including attorneys' fees, arising from this section.

4.5 **Assignment.** The Services to be performed by Contractor are personal in character and neither this Agreement nor any duties or obligations hereunder may be assigned or delegated by Contractor unless first approved by City by written instrument executed and approved in the same manner as this Agreement. Any purported assignment made in violation of this provision shall be null and void.

4.6 **Warranty.** Contractor warrants to City that the Services will be performed with the degree of skill and care that is required by current, good and sound professional procedures and practices, and in conformance with generally accepted professional standards prevailing at the time the Services are performed so as to ensure that all Services performed are correct and appropriate for the purposes contemplated in this Agreement.

4.7 **Bonding Requirements.** The Contractor is required to furnish a performance bond on the form in a form acceptable to the City, in a sum of not less than [insert bonding level] of the annual amount of the contract to guarantee the faithful performance of this contract. The bond must be approved as to sufficiency and qualifications of the surety by the Controller.

Article 5 Insurance and Indemnity

5.1 Insurance.

5.1.1 **Required Coverages.** Without in any way limiting Contractor's liability pursuant to the "Indemnification" section of this Agreement, Contractor must maintain in force, during the full term of the Agreement, insurance in the following amounts and coverages:

- (a) Workers' Compensation, in statutory amounts, with Employers' Liability Limits not less than \$1,000,000 each accident, injury, or illness; and
- (b) Commercial General Liability Insurance with limits not less than \$1,000,000 each occurrence for Bodily Injury and Property Damage, including Contractual Liability, Personal Injury, Products and Completed Operations; and
- (c) Commercial Automobile Liability Insurance with limits not less than \$1,000,000 each occurrence, "Combined Single Limit" for Bodily Injury and Property Damage, including Owned, Non-Owned and Hired auto coverage, as applicable.
- (d) Professional liability insurance, applicable to Contractor's profession, with limits not less than \$1,000,000 each claim with respect to negligent acts, errors or omissions in connection with the Services.

5.1.2 Commercial General Liability and Commercial Automobile Liability Insurance policies must be endorsed to provide:

- (a) Name as Additional Insured the City and County of San Francisco, its Officers, Agents, and Employees.
- (b) That such policies are primary insurance to any other insurance available to the Additional Insureds, with respect to any claims arising out of this Agreement, and that insurance applies separately to each insured against whom claim is made or suit is brought.

5.1.3 All policies shall be endorsed to provide thirty (30) days' advance written notice to the City of cancellation for any reason, intended non-renewal, or reduction in coverages. Notices shall be sent to the City address set forth in Section 11.1, entitled "Notices to the Parties."

5.1.4 Should any of the required insurance be provided under a claims-made form, Contractor shall maintain such coverage continuously throughout the term of this Agreement and, without lapse, for a period of three years beyond the expiration of this Agreement, to the effect that, should occurrences during the contract term give rise to claims made after expiration of the Agreement, such claims shall be covered by such claims-made policies.

5.1.5 Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit or provides that claims investigation or legal defense costs be included in such general annual aggregate limit, such general annual aggregate limit shall be double the occurrence or claims limits specified above.

5.1.6 Should any required insurance lapse during the term of this Agreement, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this Agreement, effective as of the lapse date. If insurance is not reinstated, the City may, at its sole option, terminate this Agreement effective on the date of such lapse of insurance.

5.1.7 Before commencing any Services, Contractor shall furnish to City certificates of insurance and additional insured policy endorsements with insurers with ratings comparable to A-, VIII or higher, that are authorized to do business in the State of California, and that are satisfactory to City, in form evidencing all coverages set forth above. Approval of the insurance by City shall not relieve or decrease Contractor's liability hereunder.

5.1.8 The Workers' Compensation policy(ies) shall be endorsed with a waiver of subrogation in favor of the City for all work performed by the Contractor, its employees, agents and subcontractors.

5.1.9 If Contractor will use any subcontractor(s) to provide Services, Contractor shall require the subcontractor(s) to provide all necessary insurance and to name the City and County of San Francisco, its officers, agents and employees and the Contractor as additional insureds.

5.1.10 Should there be a change in scope of work, the City's Risk Management Division reserves the right to amend any and all insurance requirements.

5.2 Indemnification For Design Professionals. To the fullest extent permitted by law, Contractor shall assume the defense of (with legal counsel subject to approval of the City), indemnify and save harmless the City, its boards, commissions, officers, and employees (collectively "Indemnitees"), from and against any and all claims, loss, cost, damage, injury (including, without limitation, injury to or death of an employee of the Contractor or its subconsultants), expense and liability of every kind, nature, and description (including, without limitation, incidental and consequential damages, court costs, attorneys' fees, litigation expenses, fees of expert consultants or witnesses in litigation, and costs of investigation), that arise out of, pertain to, or relate to, directly or indirectly, in whole or in part, the negligence, recklessness, or

willful misconduct of the Contractor, any subconsultant, anyone directly or indirectly employed by them, or anyone that they control (collectively, "Liabilities").

5.2.1 **Limitations.** No insurance policy covering the Contractor's performance under this Agreement shall operate to limit the Contractor's Liabilities under this provision. Nor shall the amount of insurance coverage operate to limit the extent of such Liabilities. The Contractor assumes no liability whatsoever for the sole negligence, active negligence, or willful misconduct of any Indemnitee or the contractors of any Indemnitee.

5.2.2 **Copyright Infringement.** Contractor shall also indemnify, defend and hold harmless all Indemnitees from all suits or claims for infringement of the patent rights, copyright, trade secret, trade name, trademark, service mark, or any other proprietary right of any person or persons in consequence of the use by the City, or any of its boards, commissions, officers, or employees of articles, work or deliverables supplied in the performance of Services. Infringement of patent rights, copyrights, or other proprietary rights in the performance of this Agreement, if not the basis for indemnification under the law, shall nevertheless be considered a material breach of contract.

Article 6 Liability of the Parties

6.1 **Liability of City.** CITY'S PAYMENT OBLIGATIONS UNDER THIS AGREEMENT SHALL BE LIMITED TO THE PAYMENT OF THE COMPENSATION PROVIDED FOR IN SECTION 3.3.1, "PAYMENT," OF THIS AGREEMENT. NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT, IN NO EVENT SHALL CITY BE LIABLE, REGARDLESS OF WHETHER ANY CLAIM IS BASED ON CONTRACT OR TORT, FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE SERVICES PERFORMED IN CONNECTION WITH THIS AGREEMENT.

6.2 **Liability for Use of Equipment.** City shall not be liable for any damage to persons or property as a result of the use, misuse or failure of any equipment used by Contractor, or any of its subcontractors, or by any of their employees, even though such equipment is furnished, rented or loaned by City.

6.3 **Liability for Incidental and Consequential Damages.** Contractor shall be responsible for incidental and consequential damages resulting in whole or in part from Contractor's acts or omissions.

Article 7 Payment of Taxes

7.1 Except for any applicable California sales and use taxes charged by Contractor to City, Contractor shall pay all taxes, including possessory interest taxes levied upon or as a result of this Agreement, or the Services delivered pursuant hereto. Contractor shall remit to the State of California any sales or use taxes paid by City to Contractor under this Agreement. Contractor agrees to promptly provide information requested by the City to verify Contractor's compliance with any State requirements for reporting sales and use tax paid by City under this Agreement.

7.2 Contractor acknowledges that this Agreement may create a "possessory interest" for property tax purposes. Generally, such a possessory interest is not created unless the Agreement entitles the Contractor to possession, occupancy, or use of City property for private gain. If such a possessory interest is created, then the following shall apply:

7.2.1 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that Contractor, and any permitted successors and assigns, may be subject to real property tax assessments on the possessory interest.

7.2.2 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that the creation, extension, renewal, or assignment of this Agreement may result in a “change in ownership” for purposes of real property taxes, and therefore may result in a revaluation of any possessory interest created by this Agreement. Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report on behalf of the City to the County Assessor the information required by Revenue and Taxation Code section 480.5, as amended from time to time, and any successor provision.

7.2.3 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that other events also may cause a change of ownership of the possessory interest and result in the revaluation of the possessory interest. (see, e.g., Rev. & Tax. Code section 64, as amended from time to time). Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report any change in ownership to the County Assessor, the State Board of Equalization or other public agency as required by law.

7.2.4 Contractor further agrees to provide such other information as may be requested by the City to enable the City to comply with any reporting requirements for possessory interests that are imposed by applicable law.

Article 8 Termination and Default

8.1 Termination for Convenience

8.1.1 City shall have the option, in its sole discretion, to terminate this Agreement, at any time during the term hereof, for convenience and without cause. City shall exercise this option by giving Contractor written notice of termination. The notice shall specify the date on which termination shall become effective.

8.1.2 Upon receipt of the notice of termination, Contractor shall commence and perform, with diligence, all actions necessary on the part of Contractor to effect the termination of this Agreement on the date specified by City and to minimize the liability of Contractor and City to third parties as a result of termination. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation:

(a) Halting the performance of all Services under this Agreement on the date(s) and in the manner specified by City.

(b) Terminating all existing orders and subcontracts, and not placing any further orders or subcontracts for materials, Services, equipment or other items.

(c) At City’s direction, assigning to City any or all of Contractor’s right, title, and interest under the orders and subcontracts terminated. Upon such assignment, City shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

(d) Subject to City’s approval, settling all outstanding liabilities and all claims arising out of the termination of orders and subcontracts.

(e) Completing performance of any Services that City designates to be completed prior to the date of termination specified by City.

(f) Taking such action as may be necessary, or as the City may direct, for the protection and preservation of any property related to this Agreement which is in the possession of Contractor and in which City has or may acquire an interest.

8.1.3 Within 30 days after the specified termination date, Contractor shall submit to City an invoice, which shall set forth each of the following as a separate line item:

(a) The reasonable cost to Contractor, without profit, for all Services prior to the specified termination date, for which Services City has not already tendered payment. Reasonable costs may include a reasonable allowance for actual overhead, not to exceed a total of 10% of Contractor's direct costs for Services. Any overhead allowance shall be separately itemized. Contractor may also recover the reasonable cost of preparing the invoice.

(b) A reasonable allowance for profit on the cost of the Services described in the immediately preceding subsection (a), provided that Contractor can establish, to the satisfaction of City, that Contractor would have made a profit had all Services under this Agreement been completed, and provided further, that the profit allowed shall in no event exceed 5% of such cost.

(c) The reasonable cost to Contractor of handling material or equipment returned to the vendor, delivered to the City or otherwise disposed of as directed by the City.

(d) A deduction for the cost of materials to be retained by Contractor, amounts realized from the sale of materials and not otherwise recovered by or credited to City, and any other appropriate credits to City against the cost of the Services or other work.

8.1.4 In no event shall City be liable for costs incurred by Contractor or any of its subcontractors after the termination date specified by City, except for those costs specifically enumerated and described in Section 8.1.3. Such non-recoverable costs include, but are not limited to, anticipated profits on the Services under this Agreement, post-termination employee salaries, post-termination administrative expenses, post-termination overhead or unabsorbed overhead, attorneys' fees or other costs relating to the prosecution of a claim or lawsuit, prejudgment interest, or any other expense which is not reasonable or authorized under Section 8.1.3.

8.1.5 In arriving at the amount due to Contractor under this Section, City may deduct: (i) all payments previously made by City for Services covered by Contractor's final invoice; (ii) any claim which City may have against Contractor in connection with this Agreement; (iii) any invoiced costs or expenses excluded pursuant to the immediately preceding subsection 8.1.4; and (iv) in instances in which, in the opinion of the City, the cost of any Service performed under this Agreement is excessively high due to costs incurred to remedy or replace defective or rejected Services, the difference between the invoiced amount and City's estimate of the reasonable cost of performing the invoiced Services in compliance with the requirements of this Agreement.

8.1.6 City's payment obligation under this Section shall survive termination of this Agreement.

8.2 Termination for Default; Remedies.

8.2.1 Each of the following shall constitute an immediate event of default (“Event of Default”) under this Agreement:

(a) Contractor fails or refuses to perform or observe any term, covenant or condition contained in any of the following Sections of this Agreement:

3.5	Submitting False Claims.	10.10	Alcohol and Drug-Free Workplace
4.5	Assignment	10.13	Working with Minors
Article 5	Insurance and Indemnity	11.10	Compliance with Laws
Article 7	Payment of Taxes	13.1	Nondisclosure of Private, Proprietary or Confidential Information

(b) Contractor fails or refuses to perform or observe any other term, covenant or condition contained in this Agreement, including any obligation imposed by ordinance or statute and incorporated by reference herein, and such default continues for a period of ten days after written notice thereof from City to Contractor.

(c) Contractor (i) is generally not paying its debts as they become due; (ii) files, or consents by answer or otherwise to the filing against it of a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors’ relief law of any jurisdiction; (iii) makes an assignment for the benefit of its creditors; (iv) consents to the appointment of a custodian, receiver, trustee or other officer with similar powers of Contractor or of any substantial part of Contractor’s property; or (v) takes action for the purpose of any of the foregoing.

(d) A court or government authority enters an order (i) appointing a custodian, receiver, trustee or other officer with similar powers with respect to Contractor or with respect to any substantial part of Contractor’s property, (ii) constituting an order for relief or approving a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors’ relief law of any jurisdiction or (iii) ordering the dissolution, winding-up or liquidation of Contractor.

8.2.2 On and after any Event of Default, City shall have the right to exercise its legal and equitable remedies, including, without limitation, the right to terminate this Agreement or to seek specific performance of all or any part of this Agreement. In addition, where applicable, City shall have the right (but no obligation) to cure (or cause to be cured) on behalf of Contractor any Event of Default; Contractor shall pay to City on demand all costs and expenses incurred by City in effecting such cure, with interest thereon from the date of incurrence at the maximum rate then permitted by law. City shall have the right to offset from any amounts due to Contractor under this Agreement or any other agreement between City and Contractor: (i) all damages, losses, costs or expenses incurred by City as a result of an Event of Default; and (ii) any liquidated damages levied upon Contractor pursuant to the terms of this Agreement; and (iii), any damages imposed by any ordinance or statute that is incorporated into this Agreement by reference, or into any other agreement with the City.

8.2.3 All remedies provided for in this Agreement may be exercised individually or in combination with any other remedy available hereunder or under applicable laws, rules and regulations. The exercise of any remedy shall not preclude or in any way be deemed to waive any other remedy. Nothing in this Agreement shall constitute a waiver or limitation of any rights that City may have under applicable law.

8.2.4 Any notice of default must be sent by registered mail to the address set forth in Article 11.

8.3 **Non-Waiver of Rights.** The omission by either party at any time to enforce any default or right reserved to it, or to require performance of any of the terms, covenants, or provisions hereof by the other party at the time designated, shall not be a waiver of any such default or right to which the party is entitled, nor shall it in any way affect the right of the party to enforce such provisions thereafter.

8.4 **Rights and Duties upon Termination or Expiration.**

8.4.1 This Section and the following Sections of this Agreement listed below, shall survive termination or expiration of this Agreement:

3.3.2	Payment Limited to Satisfactory Services	9.1	Ownership of Results
3.3.7(a)	Grant Funded Contracts - Disallowance	9.2	Works for Hire
3.4	Audit and Inspection of Records	11.6	Dispute Resolution Procedure
3.5	Submitting False Claims	11.7	Agreement Made in California; Venue
Article 5	Insurance and Indemnity	11.8	Construction
6.1	Liability of City	11.9	Entire Agreement
6.3	Liability for Incidental and Consequential Damages	11.10	Compliance with Laws
Article 7	Payment of Taxes	11.11	Severability
8.1.6	Payment Obligation	13.1	Nondisclosure of Private, Proprietary or Confidential Information

8.4.2 Subject to the survival of the Sections identified in Section 8.4.1, above, if this Agreement is terminated prior to expiration of the term specified in Article 2, this Agreement shall be of no further force or effect. Contractor shall transfer title to City, and deliver in the manner, at the times, and to the extent, if any, directed by City, any work in progress, completed work, supplies, equipment, and other materials produced as a part of, or acquired in connection with the performance of this Agreement, and any completed or partially completed work which, if this Agreement had been completed, would have been required to be furnished to City.

Article 9 Rights In Deliverables

9.1 **Ownership of Results.** Any interest of Contractor or its subcontractors, in the Deliverables, including any drawings, plans, specifications, blueprints, studies, reports, memoranda, computation sheets, computer files and media or other documents prepared by

Contractor or its subcontractors for the purposes of this agreement, shall become the property of and will be transmitted to City. However, unless expressly prohibited elsewhere in this Agreement, Contractor may retain and use copies for reference and as documentation of its experience and capabilities.

9.2 **Works for Hire.** If, in connection with Services, Contractor or its subcontractors creates Deliverables including, without limitation, artwork, copy, posters, billboards, photographs, videotapes, audiotapes, systems designs, software, reports, diagrams, surveys, blueprints, source codes, or any other original works of authorship, whether in digital or any other format, such works of authorship shall be works for hire as defined under Title 17 of the United States Code, and all copyrights in such works shall be the property of the City. If any Deliverables created by Contractor or its subcontractor(s) under this Agreement are ever determined not to be works for hire under U.S. law, Contractor hereby assigns all Contractor's copyrights to such Deliverables to the City, agrees to provide any material and execute any documents necessary to effectuate such assignment, and agrees to include a clause in every subcontract imposing the same duties upon subcontractor(s). With City's prior written approval, Contractor and its subcontractor(s) may retain and use copies of such works for reference and as documentation of their respective experience and capabilities.

Article 10 Additional Requirements Incorporated by Reference

10.1 **Laws Incorporated by Reference.** The full text of the laws listed in this Article 10, including enforcement and penalty provisions, are incorporated by reference into this Agreement. The full text of the San Francisco Municipal Code provisions incorporated by reference in this Article and elsewhere in the Agreement ("Mandatory City Requirements") are available at http://www.amlegal.com/codes/client/san-francisco_ca/ .

10.2 **Conflict of Interest.** By executing this Agreement, Contractor certifies that it does not know of any fact which constitutes a violation of Section 15.103 of the City's Charter; Article III, Chapter 2 of City's Campaign and Governmental Conduct Code; Title 9, Chapter 7 of the California Government Code (Section 87100 *et seq.*), or Title 1, Division 4, Chapter 1, Article 4 of the California Government Code (Section 1090 *et seq.*), and further agrees promptly to notify the City if it becomes aware of any such fact during the term of this Agreement.

10.3 **Prohibition on Use of Public Funds for Political Activity.** In performing the Services, Contractor shall comply with San Francisco Administrative Code Chapter 12G, which prohibits funds appropriated by the City for this Agreement from being expended to participate in, support, or attempt to influence any political campaign for a candidate or for a ballot measure. Contractor is subject to the enforcement and penalty provisions in Chapter 12G.

10.4 **Reserved.**

10.5 **Nondiscrimination Requirements.**

10.5.1 **Non Discrimination in Contracts.** Contractor shall comply with the provisions of Chapters 12B and 12C of the San Francisco Administrative Code. Contractor shall incorporate by reference in all subcontracts the provisions of Sections 12B.2(a), 12B.2(c)-(k), and 12C.3 of the San Francisco Administrative Code and shall require all subcontractors to comply with such provisions. Contractor is subject to the enforcement and penalty provisions in Chapters 12B and 12C.

10.5.2 Nondiscrimination in the Provision of Employee Benefits. San Francisco Administrative Code 12B.2. Contractor does not as of the date of this Agreement, and will not during the term of this Agreement, in any of its operations in San Francisco, on real property owned by San Francisco, or where work is being performed for the City elsewhere in the United States, discriminate in the provision of employee benefits between employees with domestic partners and employees with spouses and/or between the domestic partners and spouses of such employees, subject to the conditions set forth in San Francisco Administrative Code Section 12B.2.

10.6 Local Business Enterprise and Non-Discrimination in Contracting Ordinance. Contractor shall comply with all applicable provisions of Chapter 14B ("LBE Ordinance"). Contractor is subject to the enforcement and penalty provisions in Chapter 14B. Contractor shall utilize LBE Subcontractors for at least 21% of the Services except as otherwise authorized in writing by the Director of CMD. Contractor shall incorporate the requirements of the LBE Ordinance in each subcontract made in the fulfillment of Contractor's LBE subcontracting commitments.

10.7 Minimum Compensation Ordinance. Contractor shall pay covered employees no less than the minimum compensation required by San Francisco Administrative Code Chapter 12P. Contractor is subject to the enforcement and penalty provisions in Chapter 12P. By signing and executing this Agreement, Contractor certifies that it is in compliance with Chapter 12P.

10.8 Health Care Accountability Ordinance. Contractor shall comply with San Francisco Administrative Code Chapter 12Q. Contractor shall choose and perform one of the Health Care Accountability options set forth in San Francisco Administrative Code Chapter 12Q.3. Contractor is subject to the enforcement and penalty provisions in Chapter 12Q.

10.9 First Source Hiring Program. Contractor must comply with all of the provisions of the First Source Hiring Program, Chapter 83 of the San Francisco Administrative Code, that apply to this Agreement, and Contractor is subject to the enforcement and penalty provisions in Chapter 83.

10.10 Alcohol and Drug-Free Workplace. City reserves the right to deny access to, or require Contractor to remove from, City facilities personnel of any Contractor or subcontractor who City has reasonable grounds to believe has engaged in alcohol abuse or illegal drug activity which in any way impairs City's ability to maintain safe work facilities or to protect the health and well-being of City employees and the general public. City shall have the right of final approval for the entry or re-entry of any such person previously denied access to, or removed from, City facilities. Illegal drug activity means possessing, furnishing, selling, offering, purchasing, using or being under the influence of illegal drugs or other controlled substances for which the individual lacks a valid prescription. Alcohol abuse means possessing, furnishing, selling, offering, or using alcoholic beverages, or being under the influence of alcohol.

Contractor agrees in the performance of this Agreement to maintain a drug-free workplace by notifying employees that unlawful drug use is prohibited and specifying what actions will be taken against employees for violations; establishing an on-going drug-free awareness program that includes employee notification and, as appropriate, rehabilitation. Contractor can comply with this requirement by implementing a drug-free workplace program that complies with the Federal Drug-Free Workplace Act of 1988 (41 U.S.C. § 701).

10.11 Limitations on Contributions. By executing this Agreement, Contractor acknowledges that it is familiar with section 1.126 of the City’s Campaign and Governmental Conduct Code, which prohibits any person who contracts with the City for the rendition of personal services, for the furnishing of any material, supplies or equipment, for the sale or lease of any land or building, or for a grant, loan or loan guarantee, from making any campaign contribution to (1) an individual holding a City elective office if the contract must be approved by the individual, a board on which that individual serves, or the board of a state agency on which an appointee of that individual serves, (2) a candidate for the office held by such individual, or (3) a committee controlled by such individual, at any time from the commencement of negotiations for the contract until the later of either the termination of negotiations for such contract or six months after the date the contract is approved. The prohibition on contributions applies to each prospective party to the contract; each member of Contractor’s board of directors; Contractor’s chairperson, chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than 20 percent in Contractor; any subcontractor listed in the bid or contract; and any committee that is sponsored or controlled by Contractor. Contractor must inform each such person of the limitation on contributions imposed by Section 1.126 and provide the names of the persons required to be informed to City.

10.12 Reserved (Slavery Era Disclosure)

10.13 Reserved (Working with Minors)

10.14 Consideration of Criminal History in Hiring and Employment Decisions.

10.14.1 Contractor agrees to comply fully with and be bound by all of the provisions of Chapter 12T, “City Contractor/Subcontractor Consideration of Criminal History in Hiring and Employment Decisions,” of the San Francisco Administrative Code (“Chapter 12T”), including the remedies provided, and implementing regulations, as may be amended from time to time. The provisions of Chapter 12T are incorporated by reference and made a part of this Agreement as though fully set forth herein. The text of the Chapter 12T is available on the web at <http://sfgov.org/olse/fco>. Contractor is required to comply with all of the applicable provisions of 12T, irrespective of the listing of obligations in this Section. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 12T.

10.14.2 The requirements of Chapter 12T shall only apply to a Contractor’s or Subcontractor’s operations to the extent those operations are in furtherance of the performance of this Agreement, shall apply only to applicants and employees who would be or are performing work in furtherance of this Agreement, and shall apply when the physical location of the employment or prospective employment of an individual is wholly or substantially within the City of San Francisco. Chapter 12T shall not apply when the application in a particular context would conflict with federal or state law or with a requirement of a government agency implementing federal or state law.

10.15 Reserved (Public Access to Nonprofit Records and Meetings)

10.16 Food Service Waste Reduction Requirements. Contractor shall comply with the Food Service Waste Reduction Ordinance, as set forth in San Francisco Environment Code Chapter 16, including but not limited to the remedies for noncompliance provided therein.

10.17 **Reserved (Sugar-Sweetened Beverage Prohibition)**

10.18 **Reserved (Tropical Hardwood and Virgin Redwood Ban)**

10.19 **Reserved (Preservative Treated Wood Products)**

Article 11 General Provisions

11.1 **Notices to the Parties.** Unless otherwise indicated in this Agreement, all written communications sent by the Parties may be by U.S. mail or e-mail, and shall be addressed as follows:

To City: Steven Reel
Project Manager, Seawall Resiliency Project
Port of San Francisco
Pier 1, The Embarcadero
Steven.Reel@sfport.com

To Contractor: Patrick King
Senior Vice President
CH2M – Ports & Maritime Group
150 Spear Street, Suite 750
San Francisco, CA 94105
Patrick.King@ch2m.com

Any notice of default must be sent by registered mail. Either Party may change the address to which notice is to be sent by giving written notice thereof to the other Party. If email notification is used, the sender must specify a receipt notice.

11.2 **Compliance with Americans with Disabilities Act.** Contractor shall provide the Services in a manner that complies with the Americans with Disabilities Act (ADA), including but not limited to Title II's program access requirements, and all other applicable federal, state and local disability rights legislation.

11.3 **Reserved.**

11.4 **Sunshine Ordinance.** Contractor acknowledges that this Agreement and all records related to its formation, Contractor's performance of Services, and City's payment are subject to the California Public Records Act, (California Government Code §6250 et. seq.), and the San Francisco Sunshine Ordinance, (San Francisco Administrative Code Chapter 67). Such records are subject to public inspection and copying unless exempt from disclosure under federal, state or local law.

11.5 **Modification of this Agreement.** This Agreement may not be modified, nor may compliance with any of its terms be waived, except as noted in Section 11.1, "Notices to Parties," regarding change in personnel or place, and except by written instrument executed and approved in the same manner as this Agreement. Contractor shall cooperate with Department to submit to the Director of CMD any amendment, modification, supplement or change order that would result in a cumulative increase of the original amount of this Agreement by more than 20% (CMD Contract Modification Form).

11.6 **Dispute Resolution Procedure.**

11.6.1 Negotiation; Alternative Dispute Resolution. The Parties will attempt in good faith to resolve any dispute or controversy arising out of or relating to the performance of services under this Agreement. If the Parties are unable to resolve the dispute, then, pursuant to San Francisco Administrative Code Section 21.36, Contractor may submit to the Contracting Officer a written request for administrative review and documentation of the Contractor's claim(s). Upon such request, the Contracting Officer shall promptly issue an administrative decision in writing, stating the reasons for the action taken and informing the Contractor of its right to judicial review. If agreed by both Parties in writing, disputes may be resolved by a mutually agreed-upon alternative dispute resolution process. If the parties do not mutually agree to an alternative dispute resolution process or such efforts do not resolve the dispute, then either Party may pursue any remedy available under California law. The status of any dispute or controversy notwithstanding, Contractor shall proceed diligently with the performance of its obligations under this Agreement in accordance with the Agreement and the written directions of the City. Neither Party will be entitled to legal fees or costs for matters resolved under this section.

11.6.2 Government Code Claim Requirement. No suit for money or damages may be brought against the City until a written claim therefor has been presented to and rejected by the City in conformity with the provisions of San Francisco Administrative Code Chapter 10 and California Government Code Section 900, et seq. Nothing set forth in this Agreement shall operate to toll, waive or excuse Contractor's compliance with the California Government Code Claim requirements set forth in San Francisco Administrative Code Chapter 10 and California Government Code Section 900, et seq.

11.7 Agreement Made in California; Venue. The formation, interpretation and performance of this Agreement shall be governed by the laws of the State of California. Venue for all litigation relative to the formation, interpretation and performance of this Agreement shall be in San Francisco.

11.8 Construction. All paragraph captions are for reference only and shall not be considered in construing this Agreement.

11.9 Entire Agreement. This contract sets forth the entire Agreement between the parties, and supersedes all other oral or written provisions. This Agreement may be modified only as provided in Section 11.5, "Modification of this Agreement."

11.10 Compliance with Laws. Contractor shall keep itself fully informed of the City's Charter, codes, ordinances and duly adopted rules and regulations of the City and of all state, and federal laws in any manner affecting the performance of this Agreement, and must at all times comply with such local codes, ordinances, and regulations and all applicable laws as they may be amended from time to time.

11.11 Severability. Should the application of any provision of this Agreement to any particular facts or circumstances be found by a court of competent jurisdiction to be invalid or unenforceable, then (a) the validity of other provisions of this Agreement shall not be affected or impaired thereby, and (b) such provision shall be enforced to the maximum extent possible so as to effect the intent of the parties and shall be reformed without further action by the parties to the extent necessary to make such provision valid and enforceable.

11.12 **Cooperative Drafting.** This Agreement has been drafted through a cooperative effort of City and Contractor, and both Parties have had an opportunity to have the Agreement reviewed and revised by legal counsel. No Party shall be considered the drafter of this Agreement, and no presumption or rule that an ambiguity shall be construed against the Party drafting the clause shall apply to the interpretation or enforcement of this Agreement.

11.13 **Order of Precedence.** Contractor agrees to perform the services described below in accordance with the terms and conditions of this Agreement, implementing task orders, the RFP, and Contractor's proposal dated June 2, 2017. The RFP and Contractor's proposal are incorporated by reference as though fully set forth herein. Should there be a conflict of terms or conditions, this Agreement and any implementing task orders shall control over the RFP and the Contractor's proposal.

Article 12 Department Specific Terms

12.1 **Reserved.**

Article 13 Data and Security

13.1 **Nondisclosure of Private, Proprietary or Confidential Information.**

13.1.1 If this Agreement requires City to disclose "Private Information" to Contractor within the meaning of San Francisco Administrative Code Chapter 12M, Contractor and subcontractor shall use such information only in accordance with the restrictions stated in Chapter 12M and in this Agreement and only as necessary in performing the Services. Contractor is subject to the enforcement and penalty provisions in Chapter 12M.

13.1.2 In the performance of Services, Contractor may have access to City's proprietary or confidential information, the disclosure of which to third parties may damage City. If City discloses proprietary or confidential information to Contractor, such information must be held by Contractor in confidence and used only in performing the Agreement. Contractor shall exercise the same standard of care to protect such information as a reasonably prudent contractor would use to protect its own proprietary or confidential information.

13.2 **Reserved (Payment Card Industry ("PCI") Requirements)**

13.3 **Reserved (Business Associate Agreement)**

Article 14 MacBride And Signature

14.1 **MacBride Principles - Northern Ireland.** The provisions of San Francisco Administrative Code §12F are incorporated herein by this reference and made part of this Agreement. By signing this Agreement, Contractor confirms that Contractor has read and understood that the City urges companies doing business in Northern Ireland to resolve employment inequities and to abide by the MacBride Principles, and urges San Francisco companies to do business with corporations that abide by the MacBride Principles.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day first mentioned above.

CITY

CONTRACTOR

Recommended by:

CH2M HILL Engineers, Inc.

Steven Reel
Project Manager, Seawall Resiliency Project
Port of San Francisco

Patrick King
Senior Vice President
CH2M - Ports & Maritime Group
150 Spear Street, Suite 750
San Francisco, CA 94105

City vendor number: 86818

Elaine Forbes
Executive Director
Port of San Francisco

Approved as to Form:

Dennis J. Herrera
City Attorney

By: _____
Timothy Yoshida
Deputy City Attorney

Approved:

Jaci Fong
Director of the Office of Contract Administration,
and Purchaser

Appendices

A: Scope of Services

- B: Calculation of Charges
- C: Hourly Rate Schedule
- D: Organizational Chart

DRAFT

Appendix A Scope of Services

Contractor agrees to perform services under this Agreement in accordance with the terms of this Agreement, the RFP, and its proposal dated **June 2, 2017**. The RFP and Contractor's proposal are incorporated by reference into this Agreement as though fully set forth herein. In the event of an inconsistency or conflict between the RFP and Contractor's proposal, the RFP shall take precedence. This Agreement shall take precedence over the RFP and Contractor's proposal.

1. Description of Services

Contractor will be required to assist the Port in implementing the Seawall Resiliency Project. The Contractor shall provide qualified personnel to assist the Port in three phases: Planning and Program Development (Phase 1), Preliminary Design and Environmental Compliance (Phase 2), and Support Services during Final Design and Construction (Phase 3). The following is a summary of tasks involved:

- Phase 1**
 - 1.01.00 Management and Coordination of Services, Phase 1
 - 1.02.00 Stakeholder Engagement, Phase 1
 - 1.03.01 Data Collection and Review
 - 1.03.02 Additional Investigations
 - 1.03.03 Existing Conditions Report
 - 1.04.01 Earthquake Risk Assessment
 - 1.04.02 Flood Risk Assessment and Adaptation Plan
 - 1.04.03 Utility Risk Assessment
 - 1.04.04 Transportation Risk Assessment
 - 1.04.05 Land Use Planning and Regulatory Assessment
 - 1.04.06 Urban Design Assessment
 - 1.04.07 Disaster Response and Recovery Assessment
 - 1.04.08 Environmental Conditions and Opportunities
 - 1.04.09 Economic Impact Assessment
 - 1.04.10 MHRA Report
 - 1.05.01 Design Criteria
 - 1.05.02 Needs, Risks, and Aspirations
 - 1.05.03 Alternative Formulation
 - 1.05.04 Alternative Comparison and Ranking
 - 1.05.05 Refine Design & Engineering of Highest Ranked Alternatives
 - 1.05.06 Final Evaluation, Selection and Preferred Program
 - 1.06.00 City Staff Training, Phase 1
 - 1.07.00 Seismic Peer Review Panel, Phase 1
- Phase 2**
 - 2.01.00 Management and Coordination of Services, Phase 2
 - 2.02.00 Stakeholder Engagement, Phase 2
 - 2.03.01 Design Basis Document (Initial Projects)

- 2.03.02 Detailed Investigations, Design Level (Initial Projects)
- 2.03.03 Preliminary Design, Engineering & Cost Est, General Plan (Initial Projects)
- 2.03.04 Preliminary Design, Engineering & Cost Est, 15% (Initial Projects)
- 2.03.05 Preliminary Design, Engineering & Cost Est, 35% (Initial Projects)
- 2.03.06 Design/Build Contract Packages (Initial Projects)
- 2.04.00 Pilot Projects
- 2.05.00 Emergency Projects
- 2.06.01 CEQA
- 2.06.02 NEPA
- 2.06.03 Permitting
- 2.07.00 City Staff Training, Phase 2
- 2.08.00 Seismic Peer Review Panel, Phase 2
- Phase 3** 3.01.00 Management and Coordination of Services, Phase 3
- 3.02.00 Stakeholder Management, Phase 3
- 3.03.00 Value Engineering
- 3.04.00 Independent Design Review

2. Task Orders

Performance of the service under this Agreement will be executed according to a task order process, and Contractor is required to provide adequate quality control processes and deliverables in conformance with the technical requirements of the task order. The Port Project Manager will initially identify tasks and request the contractor to propose a project scope, sub tasks, staffing plan, LBE utilization, schedule, deliverables, budget and costs to complete the task in accordance with Appendix B. All costs associated with the development of the scope of work shall be borne by Contractor. A final task order will be negotiated between the Port Project Manager and the Contractor and then submitted to the Bureau Manager for approval. However, the budget, if applicable, identified for tasks is an estimate, and the City reserves the right to modify the applicable budget allocated to any task as more specific information concerning the task order scope becomes available.

The task order request will be processed for Controller certification of funding, after which a *Notice to Proceed* will be issued. The Contractor is hereby notified that work cannot commence until the Contractor receives a written Notice to Proceed in accordance with the San Francisco Administrative Code. ***Any work performed without a Notice to Proceed will be at the Contractor's own commercial risk.*** The calculations of costs and methods of compensation for all task orders under this Agreement shall be in accordance with Appendix B.

These following tasks provide general guidance to the Contractor as to the anticipated scope of work which the Port reserves the right to modify or delete:

Services provided by the Contractor are intended to augment the City's workforce, through the provision of expertise in the development and management of this large-scale capital project; and, where needed,

through supplementary services to meet peak workload demands of the Seawall Resiliency Project. The Project Manager, or their designee, reserves the discretion and authority to affect the initiation, augmentation, alteration, or cessation of specific services and tasks provided through this contract. The estimates of work hours that are included in this scope are intended as a reference for the level of effort anticipated for each task.

Phase 1

Task 1.01.00 – Management and Coordination of Services, Phase 1

1.01.00.01 – Charter. Mobilize our team to initiate work upon notice to proceed, and to conduct a kick-off meeting with the Port’s team to review roles, tasks, and milestones; as well as to establish lines of communication.

1.01.00.02 – Project Management Work Plan (PMWP). Develop a draft PMWP. The PMWP will provide the baseline for Project roles, responsibilities, and processes for managing and reporting safety, quality assurance/control (QA/QC), cost, schedule, risk, scope, document control, and communications. The PMWP will also define the Project Vision, Goals, Key Performance Indicators, and Targets and inform design criteria.

1.01.00.03 – Tools and Processes. Implement a web-based data management system and project dashboard for file management and an at-a-glance status of schedule, budget, performance metrics, and risk. Develop a cost-loaded work breakdown structure and detailed critical path milestone schedule. Work with the Port to ensure integration with existing tools and processes.

1.01.00.04 – Project Management. Provide daily management and control of budgets, costs, schedule, scope, and risks. Conduct progress meetings and workshops to report progress and confirm alignment with Port milestones and objectives.

Deliverables:

Kick-off Meeting; PMWP (draft and final); QA/QC Plan; Risk Register; Progress Meetings and Workshops, including Presentations, Agendas, and Meeting Summaries; Web-based File sharing Site; Monthly Reports and Invoices.

Assumptions:

- Internal project leadership team kick off meeting
- Prepare and coordinate project initiation (kick-off) meeting with the Port’s team. Prepare agenda and send to meeting participants.
- Conduct Project Initiation (kick-off) meeting with the Port’s team to Charter the Project, review roles, tasks, and milestones; as well as to establish lines of communication.
- Prepare meeting minutes, distribute and finalize.
- Five development meetings for preparation of a draft PMWP and submit to Port for comments with PMO team.
- Address Port’s comments in PMWP.
- Submit final PMWP to Port.

- Prepare and coordinate PWMP discussion meeting with Executive team. Prepare agenda and send to meeting participants.
- Conduct meeting with the Port's Executive Steering Committee to review PMWP. Participants: RFP and C/A key/lead team members with Port Staff.
- Prepare meeting minutes, distribute and finalize.
- Complete due diligence on Port's existing tools. Meet with identified port staff (1 meeting)
- Develop tools and processes plan and discuss with Port to validate (1 meeting).
- Implement a web-based data management system and project dashboard for file management and at-a-glance status of schedule, budget, performance metrics, and risk.
- Establish Initial Baseline, Scope, Schedule, and Budget.
- Prepare a cost-loaded work breakdown structure and update critical path milestone schedule. Submit to Port for review and comments and finalize.
- Provide daily management and control of budgets, costs, schedule, scope, and risks.
- Continuous throughout project.
- Prepare monthly invoices.

Task 1.02.00 – Stakeholder Engagement, Phase 1

The Team will work closely with the Port Team to design a purpose-driven stakeholder engagement strategy that identifies relevant stakeholders, and drives education and endorsement at key decision points. We will execute the approved strategy to convey the Project's need, solicit ideas, and gain feedback on the Project.

1.02.00.00 – Project Management for Task 2

Assumptions:

- 15 month duration

Deliverables:

- Monthly reports
- Weekly calls

Calls with technical teams

1.02.00.01 – Charter

Conduct chartering with the Port's Public Relations Team to gain alignment on strategy goals and objectives.

Assumptions:

- K&W to work with Civic Edge to prepare agenda
- K&W with support from Civic Edge to prepare chartering materials
- Attendees will include Public Relations Team, Port Staff, CH2M team.

Deliverables:

- Prepare Draft
- Chartering agenda and meeting
- Revise and Prepare Final Charter

1.02.00.02 – Stakeholder Outreach Survey.

Develop and review a list of stakeholders. Prepare a draft stakeholder survey. Perform an approved outreach survey. Summarize the findings and recommendations in a technical memorandum (TM) (draft and final) and PowerPoint presentation.

Assumptions:

- Survey is a combination of interviews, focus group-style meetings and electronic surveys.

Deliverables:

- List of stakeholders
- Draft Survey
- Meeting with Port to obtain survey approval
- Perform Survey
- Meetings with neighborhood groups for input
- Interviews (30 plus)
- Electronic survey
- Technical Memo (survey findings)
- Presentation

Task 1.03.00 – Existing Conditions Review and Documentation

1.03.01 – Data Collection and Review.

Assess the initial list of data and databases, and organize all relevant documents in a data repository. Develop a project “data dashboard” for easy access to data with secure user controls planning. Define phased data management goals that span predesign, design, construction, and operation and management.

1.03.02 – Additional Investigations.

Based on data gaps identified in 1.03.01, present the findings and recommend and secure approvals. Recommendations for additional site investigations will consider the value of new information to risk assessment and design development. Anticipated investigations include: geotechnical data collection, structural condition assessments (including abovegrade and underwater), and building data. Marine studies necessary to support permitting may also be identified at this phase. An allowance for additional investigations is included in our fee proposal.

1.03.03 – Existing Conditions Report.

Develop a comprehensive report detailing the existing condition to serve as the baseline for subsequent Phases. The report will provide information for subsequent detailed designs and include an initial asset inventory database (for example, building type, occupancy, criticality, condition, and other relevant information in a georeferenced format) for use in the multi-hazard risk assessment (MHRA) in Task 1.04. The report will link to previous studies, reports, and analysis through the data management system, and will include all past drawings in PDF or native files and all new drawings in AutoCAD.

Deliverables:

Existing Data Inventory Report; Additional Investigations TM; Existing Conditions Report (draft and final); GIS Database.

Assumptions:

- 1) Subtask 02
 - a) Level of Effort (LOE) includes oversight of additional investigations by others – no labor for oversight if investigations included in the cost.
 - b) LOE and/or cost of investigations themselves not included.
 - c) Marine and landside survey data investigation not included.
 - d) Underwater inspection diving services not included.
 - e) Design manual development not included.
 - f) Environmental investigation not included, such as soil sampling.
 - g) Utility investigation not included.
 - h) Assumed 1 (one) coordination/kickoff meeting.

Task 1.04.00 – Multi-hazard Risk Assessment.

Our MHRA will quantify risks and opportunities in common units (dollars) to allow direct comparison and inform infrastructure risk reduction decisions in a broader context of constraints and priorities. The assessment will inform evaluation criteria and the risks, needs, and aspirations that will be the basis of Alternatives Development (Task 1.05) and may identify emergency projects (Task 2.05). The methodology identifies critical assets (inventoried in Task 1.03), pairs those assets with defined hazards and quantifies impacts to assets and codependent infrastructure, such as utilities, transportation, and disaster response and recovery. Impacts are standardized to dollars per year, allowing relative ranking of risk.

1.04.01 – Earthquake Risk Assessment.

We will provide an assessment of earthquake vulnerability and structural risk that reduces uncertainty, results in the right level of design conservatism, and ensures hazards are not inadvertently underestimated. This assessment will serve as the basis for modeling earthquake hazards in our MHRA.

1.04.01.01 – Gather and review existing earthquake vulnerability assessments

CH2M Team will gather and review available earthquake vulnerability assessment reports performed for the Port, and relevant published research, information, and data with the goal to assess whether the work performed to-date is adequate for the characterization of the seawall vulnerability or whether updates are warranted.

1.04.01.02 – Determine data gaps and recommend further vulnerability assessment

CH2M Team will summarize data gaps and/or shortcomings from adopted analytical methods from reviewed reports. Assumptions and limitations in their simplified analytical methods will be documented and presented to the team. CH2M Team will summarize the limitations in existing vulnerability studies and propose to the Port for additional analyses, if necessary.

1.04.01.03 – Complete additional vulnerability assessment (subject to Port approval)

Upon approval, CH2M Team will lead the effort for additional vulnerability assessment. At the planning stage, we anticipate the scope will involve:

- Development of acceleration response spectra at Franciscan formation (3 hazard levels, USGS 2008 source model, NGAWEST2 GMPEs, 1 representative location, and 1 representative shear wave velocity); Per instruction by CH2M we will not develop site-specific spectra per UCERF3 at this phase of the project.
- Development of 3 single-component horizontal motions spectrally matched to target response spectra;
- Development of idealized soil profiles and properties for subsequent evaluations (10 2-D cross sections);
- 1-D site response analyses (4 1-D profiles, total stress using Deepsoil);
- Screening level liquefaction assessment (GIS-based, 2 empirical correlations (NCEER, B&I 2014));
- Screening level slope stability (10 2-D cross sections, Pseudostatic analyses using PLAXIS);
- 2-D numerical model validation against case histories (1 case history, 1 cross section);
- Advanced 2-D numerical analyses for slope stability (3 2-D cross sections per screening level study using FLAC); and
- Development of input for SE analyses (soil springs and surface acceleration response spectra).

The analyses will be performed once. There will be no additional analyses or iterations.

1.04.01.04 – Determine earthquake performance criteria

CH2M Team will work with the Port and design team to develop the earthquake performance criteria that is suitable for the POSF seawall structures and dikes. Current structures and future developments will be jointly considered.

1.04.01.05 – Evaluate, assess, and summarize earthquake risk

When finalized, the analyses, discussions and recommendations will be documented in the draft and final reports. We assume that the final report will address one round of comments by the ultimate client (POSF)

Deliverables:

Earthquake Risk Assessment TM (draft and final).

Assumptions:

- We assume no ongoing support to the team after submitting the final report. In addition, we assume that there will be no iterations or need for re-analyses for works described above.
- Only earthquake hazards will be evaluated in this Task. Limited retrofit alternatives will be evaluated in Task 1.05.

1.04.01.01 – Earthquake Performance Criteria.

Quantify probabilistic earthquake hazards at selected locations along the entire seawall for various timeframes, and quantify probabilistic consequences in terms of fragilities. Determine earthquake performance criteria to define potential consequences to critical assets. Develop preliminary design criteria to govern earthquake design events, seismic analyses, performance evaluations, and retrofit designs of the seawall structures and associated facilities.

1.04.01.02 – Basis of Design.

Develop a Basis of Design in close coordination with the Port, stakeholders, and other hazard team members. Define performance criteria and acceptable risk depending on functionality, criticality, and overall impacts (for example, fully operational with minimum damage for critical facilities and repairable damage for noncritical facilities).

1.04.01.03 – Likelihood and Consequence of Failure.

Work with the Port to qualitatively rank likelihoods and consequences (high to low); develop mitigation alternatives; evaluate mitigated relative risk; and identify highest priorities.

Deliverables:

Earthquake Risk Assessment TM (draft and final).

1.04.02 – Flood Risk Assessment and Adaptation Plan.

Our work will result in the identification of flooding vulnerabilities and potential adaptation alternatives.

1.04.02.01 – Joint Probability Analysis.

Develop a joint probability analysis to define the potential for combined high tide and rainfall events. Conduct swell and wind wave modeling to assess inundation and overtopping associated with the combined events at each planning horizons and sea level rise scenarios for combined high tide and rainfall.

1.04.02.02 – Flood Impact Analysis.

Identify impacts from wave overtopping, including damage to buildings and infrastructure, street closures, reduced wave protection, and loss of pedestrian access.

1.04.02.03 – Flooding Criteria.

Develop criteria to define thresholds and tipping points for responding to potential flood risks based on the occurrence probability of the various impacts.

1.04.02.04 – Flood Adaptation Alternatives.

Based on the above, develop range of flood protection options to address the identified flood risks. Develop probabilistic-based summary of potential flooding risk for each alternative and associated impacts due to still water inundation and wave overtopping.

Deliverables:

TM Outline; Flood Risk Assessment and Adaptation Plan TM (draft and final)

Assumptions:

- Joint probability analysis will involve developing a matrix of possible future extreme tide and hydrologic conditions and conducting joint probability analysis of coincident extreme tides and extreme rainfall events for selected points in the future (short, near, and long term) for sea level rise scenarios (low, medium, and high).
- Gather, review, synthesize, and summarize existing studies and data related to storm surge, tides, sea levels, and rainfall.
- Conduct only local wave modeling associated with select events to assess run-up and overtopping potentials.
- Develop annual exceedance probabilities for estimating future impacts.
- Perform a flood impact analysis through wave overtopping analysis, assessment of inundation extents and impacts, associated building/infrastructure damage, and hazard assessment modeling based on the sea level rise, storm surge, and rainfall scenarios developed.
- Develop flood criteria for choosing which coincident extreme tide and rainfall events will be considered.
- Review present sea level rise science to establish future extreme tidal predictions.
- Review future climate change scenarios and select three scenarios that represent low, medium, and high predictions.
- Use the annual exceedance probabilities and their potential impacts to define goals and criteria by which alternatives will be evaluated.
- Select the thresholds for response based on the impacts of greatest concern for the selected scenarios.
- Conduct two flood threat and design criteria workshops with the Port and City to aid in defining the events and scenarios (water levels, precipitation, wave conditions) that will be triggers or thresholds for action.
- For flood adaptation alternatives, consider rainfall and future interior drainage impacts in the alternatives.
- Conduct two flood hazard assessment workshops to screen and select preferred alternatives.

- No new sea level rise or surge modeling will be performed (review and use existing data to develop recommendations).
- No detailed modeling of existing City drainage system will be performed. Simplified drainage modeling and assessment of storm water drainage associated with flood adaption alternatives will be conducted.
- Select three flood adaption alternatives for additional assessment as part of the flood adaption alternatives task.
- One meeting to discuss team and client goals (define levels of flood risk and objectives).
- 4 workshops and 1 technical panel on hazard assessment validation (flood treat, design criteria, hazard assessment results) are assumed.

1.04.03 – Utility Risk Assessment.

We will assess earthquake and flooding hazard utility vulnerability.

1.04.03.01 – At-Risk Utilities.

Using the asset inventory collected in Task 1.03 and the earthquake and flooding evaluations, update the Project GIS to define at-risk utilities for each hazard scenario. Develop asset groupings (geographic) to provide a higher-level discussion of impacts and begin process of identifying Project reaches.

1.04.03.01 – Lifeline Council.

Coordinate with the Lifeline Council to evaluate impacts of hazards in light of criticality, redundancy, and system planning for electric, gas, water, sewer, and telecommunications infrastructure.

1.04.03.03 – Risk Analysis.

Evaluate the likelihood and consequence of failure for each hazard scenario. Estimate direct and indirect impacts, and the costs of repair and replacement.

Deliverables:

Utility Risk Assessment TM (draft and final).

Assumptions:

- Coordinate with approximately 15 -20 private utility agencies and City departments/divisions including but not limited to PG&E, AT&T, Verizon, Comcast, Level 2, Zayo, XO, SFPUC WVE, SFPUC CDD, SF Port, SF Port utilities, SFPUC AWSS, SFPUC Power Enterprise, SFMTA Muni, SFMTA DPT, and SFMTA Sustainable Streets.
- Assume 10 – 12 meetings for each deliverable.

1.04.04 – Transportation Risk Assessment.

Assess transportation system vulnerability for earthquake and flooding hazards.

1.04.03.01 – At-risk Transit Infrastructure.

Based on Task 1.03 and the earthquake and flooding evaluations, update the City’s GIS to define at-risk assets for each scenario.

1.04.03.01 – Transit Stakeholder Coordination.

Working with each transportation agency, determine criticality, useful life, operating costs, and system planning for water transportation services and the Embarcadero multimodal corridor.

1.04.03.03 – Risk Analysis.

Evaluate the likelihood and consequence of failure for each hazard scenario. Estimate direct and indirect impacts, and the costs of repair and replacement.

Deliverables:

TM Outline; Transportation Risk Assessment TM (draft and final).

Assumptions:

- Work with SFMTA and DPW to define Roadways using their current ownership responsibilities and emerging asset management standards. Assets to be considered include the following:
 - a) Roadway and all related signals and systems
 - b) Bus yard (Kirkland)
 - c) Rail yard (Muni Metro East)
 - d) Bus right of way (dedicated lanes, bus zones, and shelters)
 - e) Surface rail assets (trackway, stations, and systems)
 - f) SFMTA rail underground (tunnels, tracks, stations, and systems)
 - g) BART (tunnels, tracks, stations, and systems)
 - h) Other transit-related assets with potential risk such as Hotel Vitale property (leased by SFMTA) and the Transbay Transit Center
- Coordinate with asset owners and seek initial clarification of assets related to their location, construction, and resiliency to threats.
- Conduct seven meetings half-day meetings with major asset owning agencies: SFMTA bus; SFMTA rail; DPW; WETA; Golden Gate Ferry Transit; BART; TBD.
- Interface with agencies after initial meetings to locate and qualify assets.
- Identify key assets with outstanding questions.
- Compile, refine, and electronically document assets.
- Submit requests for agencies to make an independent first-pass to classify assets in advanced of individual working meetings.
- Conduct seven full day meetings with major asset owning agencies to define and refine classifications.
- Compile and electronically update documentation of assets.
- Meet with major asset owning agencies to assess risk to assets.
- Major asset owning agencies to independently review the documented risk assessment for transportation assets.

- Compile, refine, and electronically update documentation of assets.

1.04.05 – Land Use Planning and Regulatory Assessment.

The Team will document current land uses in the Project area, as well as all applicable land use plans and policies, and will develop additional information to inform design criteria, risks, needs, and aspirations.

1.04.05.01 – Existing Framework.

Conduct a comprehensive review of existing land use planning and regulatory framework. Create maps to illustrate how various plans overlap the Project area, and develop matrices describing relevant policies, land use restrictions, and allowances. Frame land use constraints and identify opportunities consistent with Port goals and objectives.

1.04.05.02 – Planning Agency Stakeholder Coordination.

Attend working sessions with planning agency staff to define needs, goals, and aspirations. Community outreach is included in 1.04.06.

1.04.05.03 – Land Use and Funding Nexus.

Support the Port in your evaluation of development revenue considerations, advancing the work conducted under your Waterfront Land Use Plan update, and coordinated with alternatives development and economic impact analysis. Evaluate trade-offs and opportunities.

Deliverables:

TM Outline; Land Use Planning Assessment TM (draft and final).

1.04.06 – Urban Design Considerations and Assessment.

Our team will document the existing conditions with a keen eye towards highlighting value, priorities, and aspirations for the future. Community and stakeholder engagement will be vital to analyzing how the waterfront is working as public space and which reaches have the most potential to be high-value public space for the Port and the community.

1.04.06.01 – Review Existing Plans, Policies, Studies, and Regulations.

Our initial review has identified over 40 of these types of documents, from area and public realm plans to transit studies to design guidelines. Develop a thorough inventory of applicable documents, followed by a summary of alignment, conflicts, and potential gaps.

1.04.06.02 – Historical Resources.

Review historical resource goals, constraints, trade-offs, and opportunities. Develop a historical preservation strategy.

1.04.06.03 – Public Life Survey.

Present a summary of Gehl Architects' approach to performing the renowned Public Life Public Space survey. With the Port's endorsement, Gehl will conduct the survey, using volunteer stakeholders.

1.04.06.04 – Urban Design Community Charrettes.

Conduct internal City and public charrettes to gain input on needs and aspirations. The form of charrettes will be informed by stakeholder surveys and Port preferences, with timing aligned to needs of bond outreach and an alternatives formulation.

Deliverables:

Public Life Survey; TM Outline; Urban Design Considerations and Assessment TM (draft and final).

1.04.07 – Disaster Response and Recovery Assessment.

Assess the vulnerability of City and Port lifeline and disaster response assets and plans.

1.04.07.01 – Existing Framework.

Work with Port’s homeland security staff, Water Emergency Transportation Authority, and City Office of Emergency Services, to assess existing City-wide disaster response plans, vulnerability assessments, and future needs.

• 1.04.07.02 – Disaster Response and Recovery Risk Criteria.

Develop criteria for the application to the alternatives formulation, specific to disaster response plans and lifeline facilities.

Deliverables:

Disaster Response and Recovery Assessment TM (draft and final).

Assumptions:

- Review and comment on City and Port disaster response plans as well as policies, procedures, staff training, and exercising.
- Review existing plans against the current emergency response planning state-of-the-practice generally as well as specifically against the standards of the National Incident Management System (NIMS), the National Response Framework (NRF) for securing resources, the State of California Standardized Emergency Management System (SEMS), and the Homeland Security Exercise and Evaluation Program (HSEEP).
- Additional plan reviews will consist of the City and County’s Emergency Management Agency Emergency Operation Plan (EOP), and the Area Maritime Security Plan (AMSP), coordinating with the United States Coast Guard (USCG) Captain of the Port (COTP) and US Customs and Border Protection if needed.
- Conduct risk assessment of the Port’s physical assets that are specific to disaster response and recovery with respect to both the earthquake and flood hazards. These are assumed to be physical assets such as emergency shelters apart from the seawall assets and, therefore, not already captured in the earthquake and flood risk assessments.
- This task does NOT include any on-site disaster response activities such as mobilization, demobilization, staff deployment, Incident Command System (ICS) position staffing, training, or any related services.
- Meet with Port’s homeland security staff to identify and gain an overview understanding of Port-specific disaster response plans and related documents including policies, procedures, staff training plans, and disaster exercise plans or Multi-Year Training and Exercise Plans (MYTEPS). This meeting will also cover the relationships among the Port and the other

agencies involved in disaster response and the intersections among their disaster response plans and programs.

- Meet with Water Emergency Transportation Authority and City Office of Emergency Services to identify and gain an overview understanding of respective disaster response plans and related documents as they would pertain to the Port.
- Summarize content of each plan, relationships among involved agencies with respect to Port disaster response, and identify any gaps with respect to the state-of-the-practice regarding disaster response as well as general conformance with NIMS and SEMS principles as applicable.
- Prepare draft technical memorandum summarizing findings, conclusions, and recommendations and provide to Port for review.
- Meet with Port to discuss their review comments and incorporation into a final technical memorandum.
- Prepare and submit final technical memorandum.
- Assume three plan review meetings with two CH2M-Arcadis team participants, review of up to eight response plans, one technical memorandum review meeting with two CH2M-Arcadis team participants.
- Evaluating the risks associated with lifeline facilities with respect to the earthquake and flooding hazards used in the previous tasks.
- Meet with Port staff to identify, discuss, and obtain documentation regarding existing lifeline facilities (e.g., shelter-in-place facilities) and/or other physical assets necessary for disaster response but not already addressed in the earthquake and flood risk assessment. This may be conducted in accordance with FEMA ESF-6.
- Review documents that describe the lifeline facilities and/or other assets identified including mutual aid agreements to gain a fuller understanding of their intended uses, capacities, capabilities, locations, and relationships to the disaster response plans reviewed in the previous tasks.
- Develop a list of critical assets for these lifeline facilities and assets.
- Document the earthquake and flood hazard threats to be paired with these assets.
- Hold workshop with the Port team to confirm the critical hazard-asset pairs to be carried forward in the analysis and to jointly begin to develop the consequences to these assets associated with the earthquake and flood events.
- Perform risk analysis and provide results for Port review and validation.
- Meet with the Port team to review and solicit input on the results and discuss possible ways to improve the lifeline facilities/assets.
- Incorporate Port comments and finalize risk analysis.
- Prepare draft technical memorandum documenting results and provide to the Port for review and comment.

- Incorporate Port review comments and finalize the technical memorandum.
- Submit final technical memorandum documenting the results.
- Assume one documentation review meeting with two CH2M-Arcadis team participants; review of up to six documents regarding the disaster response assets; one hazard-asset pair and consequence development Port workshop with two CH2M-Arcadis team participants; one risk analysis Port workshop with two CH2M-Arcadis team participants.

1.04.08 – Environmental Conditions and Opportunities.

Develop a detailed understanding of design related environmental conditions, critical constraints, and opportunities.

1.04.08.01 – Review Existing Plans, Policies, Studies, and Regulations.

Using variable information key environmental conditions, including historic structures, biological habitat, spills, groundwater, water quality, traffic constraints, public access areas, and critical utilities to support environmental review and permitting.

1.04.08.02 – Environment/Regulatory Early Start.

To meet the Port’s schedule, we propose beginning the environmental assessment and permitting effort in Phase 1. Develop a permitting roadmap, assemble a CEQA/NEPA strategy, and identify data gaps and initiate additional studies.

Deliverables:

CEQA/NEPA Strategy Memorandum; Environmental Conditions and Opportunities TM (draft and final); Draft and Final Permitting Plan.

1.04.08.01 – Review Existing Plans, Policies, Studies, and Regulations. Using variable information key environmental conditions, including historic structures, biological habitat, water and sediment quality, hazardous material, groundwater, traffic constraints, public access areas, visual corridors and critical utilities to support environmental review and permitting.

ICF Work Products:

Environmental Conditions and Opportunities Report

Summary of environmental conditions for all resource areas

WRA Work products: Existing Biological Conditions and Opportunities section (included in overall Conditions and Opportunities Report)

Existing mapped resources and field review of existing conditions

Aquatic resources and permitting constraints review

GIS mapping of existing biological and permitting conditions, including agency jurisdictional limits

Identify areas of potential sea wall habitat enhancements and other habitat enhancement opportunities

Description of major regulatory policies and practices expected to be drivers of the permitting process and have the potential to influence design/construction

WRA attendance at up to four team meetings (4-6 hours each, in San Francisco) to support alternatives selection process

Assumes two draft and one final version of biological section of the Conditions and Opportunities Report.

1.04.08.02 – Environment/Regulatory Early Start.

To meet the Port's schedule, we propose beginning the environmental assessment and permitting effort in Phase 1. Develop a permitting roadmap, assemble a CEQA/NEPA strategy, and identify data gaps and initiate additional studies.

CEQA/NEPA strategy (ICF):

Identify environmental clearance approach to project, program, pilot projects and emergency projects.

Consult with Corps, Port, and Environmental Planning to develop and confirm strategy

Established critical path schedule for environmental clearance.

Permitting Roadmap (WRA)

Identify anticipated permits needed and underlying assuming major in-water work will be required

Identify relationships between permits

Identify statutory permitting time frames and estimate permit processing duration

Describe timing for permit preparation and submittal based on time frames identified

Identify data needed to complete permit applications and information gaps that may exist or are anticipated to be requested by agencies

WRA attendance at two team meetings, up to 4 hours each in San Francisco

1.04.09 – Economic Impact Assessment.

Incorporate the economic work that the Port and City have done to quantify cost of inaction using USACE economic standards.

1.04.09.01 – Existing Framework.

Evaluate the Port's existing database of real estate; critical landowner/real estate; and local demographic, economic, and market trends. Evaluate the Cost of Inaction methodology and recommend refinements for enhanced risk/benefit capture.

1.04.09.02 – Economic Impact Assessment Methodology.

Develop Project-wide standards to ensure alignment with USACE cost-benefit guidelines. Work with the Port's finance team to ensure consistency with prior analyses and City financing. With input from the Finance Working Group, further develop concepts related to Infrastructure Finance Districts and risk avoidance benefit capture.

1.04.09.03 – Risk and Benefit Capture.

Coordinate with other 1.04 subtasks to model economic impacts and benefits of infrastructure risk-reduction scenarios.

Deliverables:

Economic Impact Assessment TM (draft and final).

Assumptions:

- Assumes involvement in one round of engagement, including preparation with team, support of materials.
- Assumes regular remote attendance to MHRA team calls, etc. and six in person meetings (3 people during the MHRA Task development).

1.04.10 – Multi-Hazard Risk Assessment Report.

Incorporate the economic work that the Port and City have done to quantify cost of inunction with USACE economic standards. The CH2M-Arcadis Team will also prepare an MHRA Report. This will be a compendium report, integrating work performed for each individual risk assessment. CH2M will present the preliminary and final findings in milestone workshop.

Deliverables:

MHRA Report (draft and final); Workshop.

Assumptions:

- Consolidate the outputs of the individual risk assessments and applicable supporting efforts described in Tasks 1.04.01 through Task 1.04.09 to enable comparison of assets and hazards
- Individual risk assessments will address all consequences, vulnerabilities, and threats; no other risk component included in this task.
- Compile assessment results, work with the Port and stakeholders to review and analyze the results, and prepare the draft and final Multi-Hazard Risk Assessment reports.
- The following table summarizes the expected outputs from each of the individual risk assessments and supporting efforts required by the Port’s RFP and described by the tasks above. This shows how each will contribute to the consolidated MHRA to enable comparisons of risk among the wide variety of hazard-asset pairs, or to later tasks as applicable.
- The pages following the table provide the specific activities to be conducted during this task.
- Provide MHRA expertise, support, and continuity throughout the component risk assessments to ensure consistency of approach, assumptions, tools, and deliverables.
- Summarize risk assessment results in a single risk summary spreadsheet compiling the results of the individual risk assessments. Meet with Port to confirm the exact format based on the outcome of the previous tasks
- Present hazard-asset pairs; their consequence, vulnerability, and hazard likelihood values; and the resulting annual risk values in both matrix/tabular and graphical form.
- Conduct two half-day workshops with Port and stakeholders to present intermediate and final results of the risk summary; ensure the Port and stakeholders have a full and shared understanding of the results to provide a solid basis for the development of risk reduction measures, cost and risk reduction benefit estimations, and ancillary costs and benefits in subsequent tasks.

- Incorporate the workshop feedback from the Port and stakeholders into the MHRA process and risk summary tool.
- Prepare outline of final MHRA report and incorporate the Port's feedback; finalize the outline to serve as a foundation for the final report.
- Prepare and submit draft and final MHRA report, soliciting and incorporating one set of Port and/or stakeholder feedback at each step.
- Ten trips, five days per trip for modeling and analysis review.

Task 1.05.00 - Alternatives Development, Analysis, and Preferred Program

Develop design criteria, define the framework for alternatives development, formulate alternatives, evaluate alternatives against evaluation criteria, and select a masterplan vision and preferred program. At the outset of this task, CH2M will work with the Port to confirm methodology, select preferred tools and outputs, and confirm sequencing of City internal and external engagement.

1.05.01 – Design Criteria.

Establish project design criteria that will drive technical solutions and alternatives development. Planning level design criteria will be performance-based, depending on the assets that require protection.

1.05.01.01 – Outline.

Develop an outline to gain alignment on content and process.

1.05.01.02 – Civil/Structural Criteria.

Develop civil criteria, based on SFDPW and SFPUC standards, to be updated as needed. Confirm marine structures performance criteria refer to ASCE 61, Seismic Design of Piers and Wharves. Confirm buildings criteria refer to ASCE 41, Seismic Rehabilitation of Existing Buildings, which have been accepted by BCDC for rehabilitation of marine structures and buildings.

1.05.01.03 – Flooding Criteria.

Develop criteria that consider potential scenarios, such as the 100-year and 500-year storm tides, and that address expected design life, sea level rise projections, acceptable flooding, FEMA funding guidelines, and impacts on the character of the waterfront, land use, urban design, and the environment.

1.05.01.03 – Urban Design Criteria.

Develop planning-level urban design criteria reflecting stakeholder input and City plans and guidelines.

1.05.01.04 – Environmental Design Criteria.

Develop planning-level design criteria for environmental mitigation and enhancement.

1.05.01.05 – Socio-Economic Criteria.

Develop planning-level design criteria that reflect community values.

Deliverables:

Design Criteria Reports (draft and final); Workshops.

Assumptions:

- Workshop will be limited to one workshop with client staff, no public participation.
- Criteria development will identify applicable current standards and codes, and determine their application to the proposed projects.
- Marine/structural criteria will have to consider and incorporate both building and marine structure criteria, i.e. the criteria and applicable codes for an occupied/public building over water with a marine pile foundation.

1.05.02 – Risks, Needs, and Aspirations.

The work performed in 1.04 will be synthesized into the Risks, Needs, and Aspirations Report. This critical document will detail risks of no action under various scenarios and demonstrate risk reduction priorities. Aspirations will articulate the vision and define opportunities for waterfront public realm improvements and resilience improvements master plan. This Report will provide the foundational data for the subsequent Alternatives Formulation. To aid in public outreach, a Summary Fact Sheet will be developed.

Deliverables:

Risks, Needs, and Aspirations Report (draft and final); Public Fact Sheet (draft and final).

Assumptions:

- No additional investigation nor risk development is part of this cost and effort.
- No workshops are part of this effort.
- This effort consists of developing a report and fact sheet based on already available information from task 1.04.
- No action risk scenarios will be developed.

1.05.03 – Alternatives Formulation.

Through a series of charrettes, the integrated design team will develop a range of alternatives, which will build upon the design criteria formalized in earlier tasks and will respond to the Project risks, needs, and aspirations. Alternatives will include waterfront-wide concepts and reach-specific concepts. These will be combined to present a range of alternatives. Alternatives will be presented to Port staff in working sessions for further refinement. Additional input from City family stakeholders will be sought with the intent of selecting 4 to 6 viable alternatives for comparison and ranking.

Deliverables:

Alternatives Report (draft and final).

Assumptions:

- No additional investigation nor risk development is part of this effort.

- Participation in two charrettes is part of this effort, charrette planning and conduct by separate vender procured by the Port.
- 2 meetings/workshops with client/city stakeholders will be held as part of this effort.
- Concept alternative development limited to a baseline concept with an alternative description and 3 sheets per alternative.
- Concepts limited to 1-2% development under this subtask.
- Initial alternatives limited to 3 waterfront wide and 8 reach specific concepts.
- Charrette and workshop participation by CH team will require travel for some attendees, cost not included in this estimate.

1.05.04 – Alternatives Comparison and Ranking.

Through this step, we will compare and rank the 5 to 7 viable alternatives.

1.05.04.01 – Finalize Evaluation Criteria.

Work closely with the Port to confirm evaluation criteria reflect the Port’s values and objectives. Assign specific metrics to each criterion so alternatives can be objectively measured and compared.

1.05.04.02 – Evaluate Alternatives Concepts.

Assess each alternative concept against evaluation criteria such as constructability, fundability, construction impacts, public impacts and benefits, order of magnitude cost, and attainment of Projectwide goals.

1.05.04.03 – Formulate Programmatic Alternatives.

Formulate 3 to 4 programmatic alternatives incorporating high ranking waterfrontwide concepts and reach-specific concepts. Define the required level of detail necessary for Program formulation.

1.05.04.04 – Compare and Rank.

Compare alternatives against each other, as compared to evaluation criteria. This working-session-based approach will provide the Port and other City stakeholders with the opportunity to discuss the nuances of the performance of each alternative relative to the criteria. Endorse 2 to 3 alternatives for further refinement and public input. The Port will provide direction on Commission engagement prior to community workshops.

1.05.04.05 – Community Workshop.

Present the 2 to 3 highest ranking programmatic alternatives for public discussion, evaluation, and input. The goal of the workshop(s) is to further refine each alternative and gain broad-based community support for a master plan vision.

Assumptions:

- No additional investigation nor risk development is part of this effort.
- Participation in one public workshop will be part of this effort.
- No further concept development from subtask 1.05.04 will be done under this subtask.

- Workshop participation by CH team will require travel for some attendees, cost not included in this estimate.
- CADD, technical editing and document publication effort under Dominica’s LOE.

1.05.05 – Refine Design and Engineering of the Highest ranked Alternative.

Advance the design of the preferred alternative to a level of detail sufficient to develop cost estimates, construction sequencing, develop schedule, and initiate environmental process. At the end of this process, we will have a list of prioritized capital projects, each with baseline scope, budget, and targeted schedule.

Assumptions:

- No participation in public nor client workshops will be part of this effort.
- Concept development limited to 3-5% development.
- Concept alternative development limited to a baseline concept narrative and 20 sheets per alternative.
- The Alternative to be developed will consist of one waterfront-wide concept and up to three reach-specific concepts within the water-front wide concept.
- Cost estimate and schedule development based on level of concept development.
- A cost schedule risk analysis is not part of this cost.

1.05.06 – Final Evaluation, Selection, and Preferred Program.

Once a decision has been made as to what will be built where, the Program must be developed to optimize funding and schedule, while minimizing risk and impacts. Opportunities for schedule compression through accelerated financing can significantly reduce escalation costs and meet your resiliency goals sooner. Using Tailored Analytics and Comparative Techniques (TACT), CH2M’s economic modeling platform, we will evaluate alternative sequences, project acceleration scenarios, and funding stacks, to optimize the preferred Program. Through collaborative scenario development, we will apply the TACT tool to evaluate cost benefit ratios, and evaluate the inter-related variables of schedule and funding, to identify an optimized Program.

Deliverables:

Preferred Program and Master Plan (draft and final).

Assumptions:

- No participation in public nor client workshops will be part of this effort.
- This effort will consist of execution planning and sequencing already developed concepts.

Task 1.06.00 - City Staff Training, Phase 1

CH2M Team will prepare and participate (2) half day training sessions for Port and City engineering and technical staff on topics related to the Project. The content will include advanced earthquake analysis of soils and structures, tools for soil structure interaction, predicting and generating site specific earthquake response spectra, and marine construction techniques.

Task 1.07.00 - Seismic Peer Review Panel, Phase 1

An Independent Seismic Peer Review Panel shall be established at the start of the Seawall Project with the mission to review the approach to the seismic risk hazard risk and basis of design during planning, preliminary engineering, and final design. The Panel shall consist of recognized experts in the following specialties:

1. Seismic Hazard Assessment and Ground Motion Characterization,
2. Dynamic Soil Response and Soil Liquefaction / Cyclic Degradation,
3. Seismic Performance of Earth Structures, Earth Retention Systems, and Deep Foundations,
4. Analysis of Dynamic Soil-Foundation-Structure Interaction of Port Structures,
5. Seismic Performance of Port Waterfront Structures,
6. Mitigation of Seismic Hazards by Geotechnical and Structural Methods (e.g., ground treatment, structural strengthening, isolation, and/or retrofit),

The Seismic Peer Review Panel shall consist of a sufficient number of noted experts to provide the necessary breadth of insight for technical review and seismic hazard mitigation risks, yet small enough to remain nimble, responsive, and well-coordinated.

The Peer Review Panel shall be independent, meet regularly (a minimum of once per month during the planning phase, and quarterly thereafter), and provide advice and support throughout the Project. Meetings shall be planned in advance and documented.

The following individuals are proposed for the Seismic Peer Review panel:

Seismic Peer Review Chairman

Shahriar Vahdani, Ph.D., P.E., G.E. – Geotechnical Consultants, Inc.

Seismic Peer Review Vice-Chairman

Stephen Dickenson, Ph.D., P.E., D. PE - New Albion Geotechnical, Inc.

Seismic Peer Review Members At-Large

Jonathan Bray, Ph.D., P.E., NAE , U.C. Berkeley – Geotechnical Consultants, Inc.

Robert Harn, P.E., S.E. - Berger-Abam

Seismic Peer Review Liaison with the Project Design Team

Don Anderson, Ph.D., P.E. - CH2M

Nason McCullough, Ph.D., P.E. - CH2M

Seismic Peer Review scope shall include a review and assessment of the PDT approach for the following:

- Project Specific Seismic Design Criteria
- Project Specific Seismic Hazard

Should include a review and assessment of any or all of the following:

- Analytical methodology

- Independent Quality Assurance
- Design approach and critical details
- Retrofit strategy
- Other items as defined by the Port

Seismic Peer Reviews are intended to provide value by:

- Assisting Project Design Team in addressing complex technical issues.
- Reviewing the PDT's approach on engineering decision-making process and provide advice.
- Reviewing PDT's project cost saving alternatives, methods, and criteria to avoid an increased factor of safety for unknowns and provide advice and recommendations.
- Providing input on assessment and design criteria and its effects on the project.
- Providing advice on analytical methodology.
- Demonstrating to stakeholders that seismic design methods are appropriate for and consistent with the current state of the practice.

General Outline of the Seismic Peer Review Process:

The Seismic Peer Reviewer or Panel reviews the PDT teams approach and assessment of the seismic design criteria, seismic hazard, and other issues as required to meet the seismic performance goals and provides advice. The PDT shall evaluate how the Seismic Peer Review recommendations of the PDT's approach and assessment could potentially be incorporated into the project, and their project impacts. The PDT shall prepare project documentation regarding implementation of Seismic Peer Review recommendations and present them to the Seismic Peer Panel for consideration and concurrence.

If concurrence cannot be reached between the PDT and the Seismic Peer Panel, final resolution shall be made through the Chief Harbor Engineer.

Assumptions:

- 3 face to face meetings
- Preparation for Kick-off Meeting – Review approach for seismic risk assessment outlined in 1.04.01.01-1.04.01.03.
 - a) Assume 16 hours each panel member
- Kick- off face to face meeting with Panel
- Full day discussion on the PDT approach as outlined in Scope of Work for items 1.04.01.01-1.04.01.03, suggestions and advice
 - a) Prepare meeting notes on approach and revisions for PDT and Port's consideration
 - b) Assume 20 hours each panel member; 28 hours for chairman
- Two other face to face meetings

- Full day meetings to discuss key deliverables including Basis of Design, refine design/engineering alternatives analysis/mitigation measures, draft reports
 - a) 16 hours each member for preparation and review
- Prepare meeting notes on approach and revisions for PDT and Port's consideration
 - a) Assume 20 hours each panel member; 28 hours for chairman
- Monthly meetings (13) – Teleconference
- Chairman prep time – 1 hour
- Meeting/review time – 2 hours all members (Don Anderson every other meeting)
- Chairman summary of meeting – 1 hour
- Independent Quality Assurance Review
 - a) Peer Review members 5 individuals 40 hours each
 - b) Liaison members 2 individuals 20 hours each

Assume no on-going support to the team after submitting final report. Assume no iterations or need for re-analysis for work described above.

Phase 2

Task 2.01.00 – Management and Coordination of Services, Phase 2

Refine the organizational structure to reflect the design-focused Phase 2 tasks and to support the advancement of the CEQA/NEPA process and permitting. Update the PMWP to reflect Phase 2 activities. Continue focus on QA/QC throughout Phase 2.

Deliverables:

Kick-off Meeting; Phase 2 Project Management Work Plan (draft and final).

Task 2.02.00 – Stakeholder Engagement, Phase 2

The CH2M-Arcadis Team will adapt our stakeholder Engagement Strategy in Phase 2 to ensure alignment with design, engineering, and permitting tasks.

2.02.00.00 – Project Management for Task 2, Phase 2

Assumptions:

- 20 month duration

Deliverables:

- Monthly reports
- Weekly calls
 - Calls with technical teams

2.02.00.03 – Stakeholder Engagement Strategy Update

Assumptions:

- Check-in survey with key stakeholders (a subset of participants in the initial survey) to evaluate engagement to date

- Record renewed recommendations on engagement strategy in an updated strategy document and present to Staff and/or Committee/s.

Deliverables:

- Survey
 - a) Interviews (15)
 - b) Focus group-style meetings
 - c) Electronic survey
 - d) Prepare survey findings (TM)
- Draft updated strategy
- Meetings to review/endorse
 - a) PR team
 - b) Port staff
 - c) Technical team leads
- Final updated strategy

2.02.00.04 – Community Stakeholder Engagement.

Assumptions:

- 8 workshops
 - a) Phase 2 workshops support the environmental process. 5 workshops assumed in support of CEQA/NEPA and 3 workshops available to expand on engagement around specific milestones, or to support non-Environmental Review-related topics.
- Only providing technical content for website
 - a) Assumes website design and hosting by Port as part of their existing website.
- On-the-waterfront interactive engagement
 - a) In collaboration with other team members
 - b) Assumes a decrease in activity relative to Phase 1.
- EJ-specific outreach activities (meetings, information tables, etc.)
 - a) Collaborate with RDJ on EJ activities

Deliverables:

- Meeting agendas
- Meeting summaries
- Meeting materials and presentations
- Meeting facilitation
- Technical input for website content
- Technical input for newsletter

- On-the-waterfront engagement content and materials (in collaboration with other team members)
- EJ specific outreach materials

Task 2.03.00 - Initial Projects, Preliminary Design

The design leads who led the work during the alternatives evaluation phase will continue to advance the Project through design. Preliminary design milestones include 5%, 15%, and 35%, with the preparation of bid packages for alternative delivery included at the 35% milestone.

2.03.01 – Design Basis Document (DBD).

Develop a Program-level DBD to provide overarching design guidance. Conduct workshops to develop a DBD through an iterative process. Conduct bi-weekly working sessions to pose questions on standards and preferences, update code lists, and gain endorsement from key stakeholders.

Overall Deliverables for Task 2.03.00:

- DBD Outline; DBD (draft and final), 5%, 15%, and 35% design packages (including drawings, technical specifications, front end specifications)

Overall Assumptions for Task 2.03.00:

- 3 initial projects, construction value \$654.5 million.
- Architectural and Landscape architectural to develop only concept level design (5% design).
- One meeting with Port for each design phase, total of 3 meetings, 2 hours long each, attended by: Project Manager, DM (design manager), Geotechnical lead, Lead Architect.

2.03.02 – Detailed Investigations, Design Level.

Develop a prioritized list of additional site investigations required to complete the concept and preliminary design. Review the scope and estimated cost of investigations with Port staff to select priority studies for execution. Develop and execute a site investigation plan, prepare summary reports, and incorporate data into the GIS database. Present the results of investigations to Port staff in working meeting settings.

Deliverables:

- List of Site Investigations; Site Investigation Reports (draft and final).

Assumptions:

- Costs of detailed inspections is not included, only hours to identify what inspections are needed.

2.03.03 – Preliminary Design, Engineering & Cost Estimating, General Plan.

The General Plan level of development will advance the design of the initial improvements to 3 to 5% level of design.

2.03.03.01 – Design Development.

Complete preliminary design and engineering for initial improvements. Generate a building information modelling model and selected drawings to 3% to 5%. Conduct bi-weekly working sessions to pose design questions and alternative solutions, and to seek endorsement to enable

design progression. Develop additional conceptual renderings with landscape architects and architects. Prepare calculations and models.

2.03.03.02 – Technical Memorandum.

Prepare a TM documenting design assumptions, interdependencies, and issues to address in next design phase; review this with Port team.

2.03.03.03 – Environmental/Regulatory Coordination.

Coordinate with the NEPA/CEQA/ permitting team to identify potential pre-mitigation design considerations, construction constraints, and other design considerations.

2.03.03.04 – Cost Estimate.

Develop a Class 5 schedule and cost estimate for initial projects.

2.03.03.05 – Design Review Workshop.

Conduct a General Plan Workshop to review and confirm design decisions.

Deliverables:

General Plan Design, Engineering, and Cost Estimate Package.

2.03.04 – Preliminary Design, Engineering & Cost Estimating, 15% Design.

This task will progress preliminary design to 15%. Concept development will support the development of a Class 3 cost estimate, schedule, and contingency budget. Activities will be as in 2.03.03, but also will include development of initial specification list and Cost and Schedule Risk Analysis (CSRA) based on the USACE process.

Deliverables:

15% Plan Design, Engineering, and Cost Estimate Package; Initial Specification List; Milestone Workshop.

2.03.05 – Preliminary Design, Engineering & Cost Estimating, 35% Design.

Based on input from the 15% design review, we will advance design to 35%. This will involve developing additional detail, specifically in areas of high risk or areas of construction where defining the scope is key to the permitting process. For example, in-water scope will be expedited to support CEQA/NEPA. Port input on decisions that may affect usage, design life, and long-term operations and maintenance costs will be sought. Design elements and concepts will be frozen at the completion of the 35% design package. We will perform a constructability review, develop a Class 2 schedule and cost estimate, and update risk information and the CSRA. We will be especially focused on “Continuity of Operations” during design and construction phase by leveraging Best Practices and Lessons Learned, to ensure minimal impact to the Port’s operational excellence and reputation.

Deliverables:

35% Plan Design, Engineering, and Cost Estimate Package; Draft Specifications.

2.03.06 – Design/Build Contract Packages.

This task includes the development of a procurement strategy that aligns with Port objectives and design/build contract packages for alternative delivery procurement of initial projects, based on our experience supporting SFPUC, San Mateo, and other clients. We will consider interactions

between operations continuity, community impacts, schedule impacts, construction sequencing, project logistics, schedule impact, budget savings, project criticality, risk transfer, and private sector involvement.

Deliverables:

Three Design/Build Contract Packages; Support to Port Staff in Discussions with City Attorney on Bidding Strategy and Bidding Documents.

Task 2.04.00 - Pilot Projects

Pilot projects will be developed to evaluate the site investigation techniques and preferred retrofit options prior to a broader implementation. Findings will be used to refine the geotechnical and structural models to better determine the effectiveness of the retrofit options. Fugro will work with the design team to develop a pilot-project workplan describing objectives and benefits, data to be collected, and means and methods. Anticipated pilot projects will involve:

- Evaluation of the effectiveness of various techniques of assessing existing seawalls and associated infrastructure. Use techniques such as ground LiDAR, single- and multi-beam bathymetry surveys, geophysical surveys, and small- and large-diameter coring to delineate the locations, geometry and composition of structures. Coring can be conducted to confirm composition and quality of dikes, seawalls and piles, and pile-integrity testing can be used to determine pile length and;
- Development of preferred mitigation measures. Evaluate the feasibility and cost-effectiveness of mitigation measures, such as structural upgrades, cement deep soil mixing, jet grouting, stone columns, and/or ground compaction. For example, cement deep soil mixing has many significant advantages over jet grouting to stabilize the seawall including costs and the ability to work offshore and avoid onshore disruptions. The key issues will involve the cost of predrilling through the seawall (large diameter coring and backfilling with sand to facilitate rapid deep mixing) and containment of spoils to mitigate environmental concerns. A pilot project can be developed to assess the level of effort required and costs for these key activities.

Deliverables:

Recommended Pilot Projects TM; Drawings and Specifications; Field Reports; Draft and Final Pilot Project Reports.

Assumptions:

- Up to two pilot projects will be implemented.
- Contractor costs to implement the pilot projects not included.
- The duration of the field aspects of each pilot project is anticipated to be no more than two weeks.

Environmental Review and Permitting for Pilot Projects

The environmental team will provide environmental clearance (NEPA/CEQA) and permitting for identified pilot projects. Emphasis will be on the use of streamlined environmental review approaches (categorical exemption/categorical exclusions) and streamlined permits for investigatory activities (such as Nationwide Permit 6) where appropriate. As the pilot projects have not yet been identified or developed, the specific level of effort included in the cost

estimate is a placeholder and assumed only limited permitting effort. As pilot projects are identified, the environmental team will develop and environmental strategy for the most efficient environmental clearance and regulatory permitting in consultation with the Port and the Regulatory Agency Working Group.

Deliverables:

Environmental clearance memo(s), NEPA and CEQA documentation, regulatory permit applications (USACE, SFRWQCB, SF BCDC, CDFW, consultation with SHPO for NHPA Section 106 and with NMFS/USFWS for ESA Section 7, NMFS IHA).

Assumptions:

- One draft and one revised draft permit application package for one pilot project.
- Use of nationwide USACE permits and streamlined other permits.
- Use of categorical exemption under CEQA and Categorical Exclusion under NEPA.
- Permit application fees are not included in cost.
- Cost does not include implementation of mitigation or avoidance/minimization measures.

Task 2.05.00 – Emergency Projects

We will perform the permitting and engineering necessary to bid and construct projects that may be required under emergency circumstances. To expedite design, we have identified our California PE team to ensure an immediate and effective design delivery. Emergency projects are CEQA exempt; however, a NEPA categorical exclusion may be necessary. USACE also has issued Regional General Permit allowing for emergency actions.

Deliverables:

Emergency Project Design Deliverables.

Assumptions:

- Construction costs \$50 million.
- 3 projects.
- 3 meetings of each project with 5 teams members, 4 hours each meeting.
- Assumed design, bid, build and minimal construction assistance (submittal and RFI review only)
- No construction management cost included.

Environmental Review and Permitting for Emergency Projects

Emergency projects are exempt from CEQA. A categorical exclusion may however be necessary under NEPA. The San Francisco District of the Corps of Engineers has also issued Regional General Permit that allows for emergency actions. There are other provisions for emergencies in regards to other state permits, for example, from the SF RWQCB. The environmental team will develop an emergency project environmental clearance/permitting plan and consult with the regulatory agency working group to ensure procedures are acceptable. This plan can then be employed in the event of emergency conditions.

Deliverables:

Environmental clearance memo, NEPA documentation, regulatory permit applications (USACE, USCG, SF RWQCB, SF BCDC, CDFW, and consultation with SHPO for NHPA Section 106 and with NMFS/USFWS for ESA Section 7, NMFS IHA).

Assumptions:

- One draft and one revised draft permit application package emergency projects
- Permit application fees are not included in budget estimate
- Does not include implementation of mitigation or avoidance/minimization measures

Task 2.06.00 - Environmental Review and Permitting

As outlined in the approach, the environmental team will commence with background studies early in the planning phase to support design and to get a head start on the environmental process. The team will also complete an early identification of potential impacts and mitigation strategies in order to incorporate as much mitigation into project design and to further robust and acceptable environmental outcomes. We will integrate the concerns of the public, stakeholders, and agencies as derived from the outreach process into our environmental studies and analyses.

As outlined in the approach, the environmental team will commence with background studies early in the planning phase to support design and to get a head start on the environmental process. The team will also complete an early identification of potential impacts and mitigation strategies in order to incorporate as much mitigation into project design and to further robust and acceptable environmental outcomes. We will integrate the concerns of the public, stakeholders, and agencies as derived from the outreach process into our environmental studies and analyses.

2.06.01 – CEQA and 2.06.02 – NEPA.

Prepare and issue appropriate scoping documents for both Program and Project-level environmental documents, and hold scoping meetings. Provide early identification of potential impacts and mitigation strategies to incorporate mitigation into project design and further assure robust and acceptable environmental outcomes. Combined Program CEQA/NEPA (likely an EIR/EIS) and an initial improvements CEQA/NEPA document (possibly an EIR/EA or EIR/EIS). Work closely with the Port, USACE, and Environmental Planning and stakeholders to clearly define project objectives and develop an appropriate range of alternatives.

Deliverables:

- Notice of Intent (NEPA)/Notice of Preparation (CEQA)
- Scoping Report
- Technical Reports
 - a) Air Quality Technical Report
 - b) Biological Technical Report
 - c) Biological Assessment
 - d) Cultural Resources Inventory Report (prepared in Phase 1)
 - e) Hazards and Hazardous Materials
 - f) Noise Technical Memorandum

- g) Transportation Report
- Project EIR/EIS and Program EIR/EIS
 - a) Administrative Draft #1 EIR/EIS
 - b) Administrative Draft #2 EIR/EIS
 - c) Screen Check Draft EIR/EIS
 - d) Notice of Availability and Federal Noticing
 - e) Public Draft EIR/EIS
 - f) Administrative Final #1 EIR/EIS
 - g) Administrative Final #2 EIR/EIS
 - h) Screen Check Final EIR/EIS
 - i) Notice of Availability and Federal Noticing
 - j) Final EIR/EIS
 - k) Notice of Determination (CEQA)
 - l) Mitigation Monitoring and Reporting Plan (CEQA)
 - m) Record of Decision (NEPA)

Assumptions:

- Combined EIR/EIS documents for project and program.
- Sediment quality sampling not assumed to be required for EIR/EIS, therefore cost not included.
- Sampling of benthic invertebrate communities, may be required for the Biological Assessment, cost not included.

2.06.02 – See 2.06.01

2.06.03 – Permitting

As outlined in the approach, the permitting effort begins early in the planning phase with the establishment and functioning of the Regulatory Agency Working Group, the identification of critical agency impact issues, and the development of mitigation approaches. Through understanding the needs of each agency in detail, compliance strategies can be developed and agreed to in advance of the actual permitting process. Permit applications would developed during the CEQA/NEPA process to avoid potential delays in permit issuance after completion of environmental review.

The scope of work includes the following tasks:

- Draft permit applications for the U.S. Army Corps of Engineers (Individual Permit, unless Corps does internal permitting and project sponsor), San Francisco Regional Water Quality Control Board, San Francisco Bay Conservation and Development Commission, and California Department of Fish and Wildlife (Incidental Take Permit)
- Incidental Harassment Authorization from National Marine Fisheries Service

- Attendance at RAWG meetings
- Attendance at up to five Design Review Board and Engineering Criteria Review Board meetings, or combination meetings with the Waterfront Design Advisory Committee

Deliverables:

Permit Applications; Continued updates to Phase 1 Permitting Roadmap;

Assumptions:

- One draft and one revised draft permit application package for the project
- Permit application fees are not included in budget estimate
- Does not include implementation of mitigation or avoidance/minimization measures
- Assumes up to three formal revisions of the permitting roadmap based on RAWG meetings
- State Lands and Public Trust consistency determination/property interest is not included in this budget estimate

Assumptions:

- Completion of permit applications during CEQA/NEPA process. If sufficient design is not available to support permit applications, then this effort would shift to Phase 3.
- Does not include long term funding necessary to manage and maintain mitigation and habitat enhancements
- Assumes a maximum of five mitigation and habitat enhancement sites
- Does not include mitigation construction drawings
- Assumes integrated habitat enhancement construction drawings, cost not included.

Task 2.07.00 - City Staff Training, Phase 2

Provide additional training to City and Port staff on relevant topics, as in Phase 1. The topics will be based on the upcoming decisions and work in Phase 2, such as site investigation techniques, use of GIS-based tool, and construction and management of geotechnical retrofits.

Assumptions:

Training sessions are limited to 3 (three) half day training sessions.

Task 2.08.00 - Seismic Peer Review Panel,, Phase 2

Continuation of scope as appropriate in Phase 2.

Assumptions:

- Quarterly meetings (9) via teleconference
- Chairman prep time – 1 hour
- Meeting/Review time – 2 hours all members
- Chairman summary of meeting – 1 hour

Phase 3

Support Services during Final Design/Engineering & Construction, Initial Project(s)

This scope includes providing expert technical and environmental services during final design and construction as other consultants and contractors complete final design, permitting, construction, and mitigation and monitoring plans. Others will also provide construction management services.

Task 3.01.00 - Consultant Team Management, Final Design & Construction

Services shall be similar to Task 1.01.00 but modified to reflect Phase 3 contract scope of services.

Task 3.02.00 - Stakeholder Engagement, Support

The Port and other consultants will take the lead in stakeholder engagement during this phase. The selected Consultant will provide supporting materials and attend meetings only to support consultant work scope during this Phase.

Task 3.03.00 - Value Engineering

Develop and lead 1-day value engineering (VE) workshops for all project(s) including preparation of all necessary materials, documenting workshop discussions, and preparation of results and outcomes. Facilities will be provided by the Port. VE workshops shall follow USACE guidance. For budgeting, assume (3) projects.

Task 3.04.00 - Independent Design Review

Lead an independent Design Review process for each final design/construction project to be executed by others. This design review shall include input from independent technical experts in each of the technical/engineering/environmental fields required for each project, including but not limited to: civil engineering, coastal engineering, hydraulic engineering, geotechnical engineering, structural engineering, environmental impacts, constructability, and cost estimating. Review shall take place at each formal step in design (assume Design Basis, revised 35% Design, 65% Design, 95% Design, 100% Design) and include review of technical reports, calculations, plans, specifications, cost estimates, and operations & maintenance plans. For budgeting, assume three projects.

Assumptions: Assumed 10 projects, 5 Independent Review Meetings per a project, 4 hours each meeting. Meeting attendees will be the Project Manager only. Technical experts will be supplied for the Independent review consultant (by others). CH2M team to lead meetings only.

Task 3.05.00 – Permit Assistance – NOT INCLUDED

Allowances:

For Phase 1 we had assumed 3 carefully targeted boreholes with some in-situ vane tests and advanced laboratory testing and 15 CPTs to characterize the young Bay Mud landside of the waterfront.

For Phase 2 we have assumed the Port should allow for the following to be procured separately:

Onshore (\$400k) - 15 boreholes and 60 CPTs as fill in for datagaps to characterize both liquefiable fills and Young Bay Muds landside of the waterfront. In addition we have included 10 boreholes to characterize landside seawall conditions and geometry; and

Overwater (1,000k) – geophysical survey to ascertain seawall geometry (\$150k); 12 overwater boreholes with in-situ vane testing (\$600k) and 10 overwater boreholes to characterize bay side seawall conditions and geometry (\$250k).

Laboratory testing (some of it advanced in nature) is included in the allowances for borehole drilling.

Allowances

Phase 1	\$100,000		100,000
Phase 2		\$1,400,000	1,400,000
Total	\$100,000	\$1,400,000	\$1,500,000

Appendix B Calculation of Charges

In accordance with Section 3.3.1 of this Agreement, the total compensation payable under this Agreement to CH2M HILL Engineers, Inc., (referred to also as “Contractor”) is detailed below, inclusive of all costs and meetings required to complete work specified in Appendix A. In no event shall the total costs under this Agreement exceed the amount provided in Section 3 of this Agreement.

Payment Requests and Insurance Documentation should be sent to:
Port of San Francisco - Contracts
Pier 1
San Francisco, CA 94111

Payments for Deliverables or Tasks

Total compensation for the Contractor’s scope of services under this Agreement will not exceed \$36,349,740, on a lump sum basis for the Scope of Services set forth in Appendix A of this Agreement, inclusive of all labor, materials, equipment, and Contractor’s incidental expenses, subject to the assumptions, limitations and exclusions described. This not-to-exceed fee shall not be increased without written authorization by the Port of San Francisco.

Contractor will not be entitled to reimbursement for reimbursement of travel expenses or other costs incurred in performing the services set forth in Appendix A such as mileage, costs for Contractor’s meals, accommodations, long distance and cellular phone charges, postage, vehicle rental, etc., without prior written approval of the Port.

Payments will be made by the Port to Contractor within 30 days after the Port has received Contractor’s payment request in accordance with Article 3 of this Agreement, provided that:

- 1) The Port has accepted as satisfactory, in the Port’s sole and absolute discretion, the services rendered by the Contractor to the Port in accordance with this Agreement;
- 2) A written status report has been provided to the Port by Contractor as part of the Contractor’s payment request documenting, to the extent practicable, the Contractor’s completion of tasks (stated as a percentage) identified in **schedule Appendix B-1 (attached hereto)**; and
- 3) Insurance documentation is current in accordance with Article 5 of the Agreement.

Prior to the City’s issuance of payment, each status report shall be signed by the Port’s Project Manager indicating his/her agreement with the Contractor’s description of completion of tasks identified in the status report. To the extent practicable, the Contractor shall submit monthly invoices reflecting the percentage of completion of those tasks identified in attached schedule Appendix B-1.

Appendix B-1

Task	Task Name	Total Hours	Total Price
Phase 1	1.01.00	Management and Coordination of Services, Phase 1	10,020 \$ 2,307,635
	1.02.00	Stakeholder Engagement, Phase 1	3,186 \$ 548,308
	1.03.01	Data Collection and Review	1,795 \$ 343,786
	1.03.02	Additional Investigations	940 \$ 244,205
	1.03.03	Existing Conditions Report	642 \$ 156,906
	1.04.01	Earthquake Risk Assessment	3,692 \$ 719,683
	1.04.02	Flood Risk Assessment and Adaptation Plan	3,144 \$ 587,903
	1.04.03	Utility Risk Assessment	1,370 \$ 210,852
	1.04.04	Transportation Risk Assessment	388 \$ 66,542
	1.04.05	Land Use Planning and Regulatory Assessment	840 \$ 208,421
	1.04.06	Urban Design Assessment	1,799 \$ 373,364
	1.04.07	Disaster Response and Recovery Assessment	756 \$ 193,476
	1.04.08	Environmental Conditions and Opportunities	2,858 \$ 433,022
	1.04.09	Economic Impact Assessment	1,040 \$ 263,038
	1.04.10	MHRA Report	3,598 \$ 901,407
	1.05.01	Design Criteria	1,102 \$ 276,911
	1.05.02	Needs, Risks, and Aspirations	768 \$ 188,852
	1.05.03	Alternative Formulation	2,450 \$ 616,599
	1.05.04	Alternative Comparison and Ranking	2,018 \$ 485,892
	1.05.05	Refine Design & Engineering of Highest Ranked Alternatives	1,482 \$ 377,219
	1.05.06	Final Evaluation, Selection and Preferred Program	1,588 \$ 435,925
1.06.00	City Staff Training, Phase 1	200 \$ 35,460	
1.07.00	Seismic Peer Review Panel, Phase 1	950 \$ 264,017	
	Subtotal Phase 1	46,626	\$ 10,239,424
Phase 2	2.01.00	Management and Coordination of Services, Phase 2	14,867 \$ 3,429,455
	2.02.00	Stakeholder Engagement, Phase 2	4,110 \$ 700,414
	2.03.01	Design Basis Document (Initial Projects)	377 \$ 86,049
	2.03.02	Detailed Investigations, Design Level (Initial Projects)	6,116 \$ 1,140,997
	2.03.03	Preliminary Design, Engineering & Cost Est, General Plan (Initial Projects)	6,860 \$ 1,373,706
	2.03.04	Preliminary Design, Engineering & Cost Est, 15% (Initial Projects)	3,505 \$ 640,929
	2.03.05	Preliminary Design, Engineering & Cost Est, 35% (Initial Projects)	2,600 \$ 511,262
	2.03.06	Design/Build Contract Packages (Initial Projects)	1,880 \$ 345,366
	2.04.00	Pilot Projects	3,396 \$ 604,939
	2.05.00	Emergency Projects	20,384 \$ 4,396,914
	2.06.01	CEQA	14,616 \$ 2,136,042
	2.06.02	NEPA	14,208 \$ 2,094,653
	2.06.03	Permitting	6,504 \$ 956,295
	2.07.00	City Staff Training, Phase 2	300 \$ 53,190
2.08.00	Seismic Peer Review Panel, Phase 2	126 \$ 34,944	
	Subtotal Phase 2	99,849	\$ 18,505,154
Phase 3	3.01.00	Management and Coordination of Services, Phase 3	31,980 \$ 7,072,754
	3.02.00	Stakeholder Management, Phase 3	715 \$ 161,440
	3.03.00	Value Engineering	1,008 \$ 215,049
	3.04.00	Independent Design Review	760 \$ 155,920
	Subtotal Phase 3	34,463	\$ 7,605,162
Grand Total		180,938	\$ 36,349,740

Appendix C
Hourly Rate Schedule

Company	Name	Position	Hourly Rate
A G S Inc	Khamanehpour, Bahram	Principal Geotechnical Engineer	253.61
A G S Inc	Litle, Kenneth	Principal Civil Engineer	253.61
A G S Inc	Tsao, James	Principal Structural Engineer	215.71
Arcadis	Appelbaum, Stu	USACE Feasibility Analysis	265.33
Arcadis	Atkinson, John	SME - Resiliency Flood Hazard	201.49
Arcadis	Baummy, Walter*	USACE Feasibility Analysis	261.90
Arcadis	Bosch, Lauren	Economic Assessment	84.68
Arcadis	Devick, Chris*	Key Technical Lead - Coastal Engineering	156.99
Arcadis	Dircke, Piet*	Technical Advisory - Coastal Resiliency	288.12
Arcadis	Fernandez, Edward	Flood/Coastal Resiliency Planning	146.88
Arcadis	Foster, Carly	Flood/Coastal Resiliency Planning	200.28
Arcadis	Fricke, Macy	Flood/Coastal Resiliency Planning	98.41
Arcadis	Fulks, David	Senior Civil Engineer	203.06
Arcadis	Gravenmier, Josh	Emergency Response and Recovery	246.34
Arcadis	Manguno, Rich	Economic Analysis	240.10
Arcadis	Marrone, Joe	Coastal Modeling/Engineering	277.04
Arcadis	Ohrt, Andrew	MHRA	164.58
Arcadis	Pomales, Melissa*	Key Technical Lead - Project Controls	280.00
Arcadis	Project Coordinator (Arcadis)	Project Coordinator (Arcadis)	114.84
Arcadis	Roberts, Hugh	Hydrodynamic Modeling	241.06
Arcadis	Roth, Lawrence	Geotechnical Engineering/Risk Analysis	271.57
Arcadis	Staff Professional (Arcadis)	Staff Professional (Arcadis)	215.61
Arcadis	Staphorsius, John	Civil Engineering	200.08
Arcadis	Stoddard, Ryan	Civil Engineering	197.52
Arcadis	Stirm, Paul*	Key Lead - Multi Hazard Analysis and Delivery Lead	300.00
Arcadis	Thurson, Kelli	Resiliency Planning	104.33
Arcadis	Tschirky, Paul	Coastal Engineering	233.38
Arcadis	Welch, Wayne	Civil Engineering	300.00
Arcadis	Westerhoff, Edgar	Resiliency Planning	226.40
Arcadis	Wijsman, Peter*	Global Resiliency Expert	287.48

Company	Name	Position	Hourly Rate
Civic Edge Consulting	Dulvka, Annie	Project Assistant	160.50
Civic Edge Consulting	Lauterborn, Peter	Project Manager	160.50
Civic Edge Consulting	Sunshine, Lizbet	Project Director	225.16
BAYCAT	Baycat	Baycat	185.00
Berger-Abam	Harn, Robert	Seismic Peer Review Members At-Large	290.00
C H S Consulting Group	Kluter, Andrew	Senior Transportation Planner	153.88
C H S Consulting Group	Liberman, William	Transit Planner	290.00
C H S Consulting Group	Shao, Chi-Hsin	Traffic Engineering Principal	290.00
Carollo Engineers, Inc	Cruz, Emilio*	Carollo PIC/Technical Advisor	290.00
Carollo Engineers, Inc	Dadik, Mike	Structural/Resiliency	239.35
Carollo Engineers, Inc	Deslauriers, Sarah	Sustainability/Climate Change	167.03
Carollo Engineers, Inc	Harold, Eric	CSOs/Collection System	261.18
Carollo Engineers, Inc	Karam, Walid	Ongoing Project Integration	290.00
Carollo Engineers, Inc	Prabhakar, Pavitra	Ongoing Project Integration	200.35
Carollo Engineers, Inc	Pyle, Richard	Alternative Delivery Evaluation	290.00
Carollo Engineers, Inc	Reisinger, Dan	Seawall/CSOs	138.78
Carollo Engineers, Inc	Warriner, Michael	Construction Management	290.00
CH2M	Aldrich, Jeff	Marine Structural and Assessments and Design	279.32
CH2M	Anderson, Don	Seismic Peer Review	290.00
CH2M	Anderson, Todd	Multi-Hazard Analysis	234.82
CH2M	Barash, Andrew	Engineering	246.46
CH2M	Bassetti, Luce	Coastal Modeling/Engineering	188.82
CH2M	Benson, Chris	Transportation Engineering	263.11
CH2M	Bhalerao, Camille	Seismic Analysis	184.83
CH2M	Bloomberg, Loren	Transportation	290.00
CH2M	Browning, Steve	USACE Civil Works	290.00
CH2M	Bundy, Summer*	Stakeholder Engagement	263.53
CH2M	Burkhart, Michelle	Alternate Delivery	245.92
CH2M	Coates, Erin	Civil	191.72
CH2M	Cumming Meyer, Loretta	Socioeconomics/NEPA/CEQA	272.71
CH2M	Das, Tapash	Climate Change/Sea Level Rise	202.57
CH2M	Dinos, George	Underwater Inspection	152.35
CH2M	Elledge, Lon*	QA/QC	290.00

Company	Name	Position	Hourly Rate
CH2M	Englesmith, Jaason	Sustainable Asset Management and Funding	290.00
CH2M	Fassardi, Claudio	Coastal Modeling/Engineering	290.00
CH2M	Fuller, Brady	Drainage	237.69
CH2M	Gist, Forrest	Multi-Hazard Analysis	290.00
CH2M	Goldstick, Jonathan	QA/QC	290.00
CH2M	Granzow, Edward	Transportation Planning	290.00
CH2M	Harnish, Laura	Environmental Assessment and Permitting	290.00
CH2M	Hatchett, Steve	Economic Analysis	290.00
CH2M	Hayes, Jack	Cost Estimating	244.70
CH2M	Heuston, Leo	Transportation Engineering	290.00
CH2M	Highstreet, Allan	USACE Feasibility Analysis	290.00
CH2M	Hosley, Lynne	Permitting/Biology	290.00
CH2M	Hsu, Wilfred	Drainage	258.20
CH2M	Hulett, Kristen	Building Design	242.60
CH2M	Jaworski, Mark	Living Shorelines	247.80
CH2M	Jeter, Drew	Program Management	290.00
CH2M	Johnson, Paul	Value Engineering	251.02
CH2M	Jones, Stacey*	Project Manager	300.00
CH2M	Kadiyala, Raja	Data Management	290.00
CH2M	Kapoi, Christina	Other Facility Structures	138.25
CH2M	Kealy, Mary Jo	Economic Analysis	279.95
CH2M	King, Patrick*	Global Executive Sponsor	290.00
CH2M	Kingery, Don	Coastal Modeling/Engineering	227.29
CH2M	Lai, Andrew	Underwater Inspection	189.33
CH2M	Matichich, Michael	Financing/Funding	277.50
CH2M	McAmis, Michael Steve	Civil	179.41
CH2M	McCullough, Nason*	Seismic Peer Review	239.76
CH2M	Mejia, Jasmin	NEPA/CEQA	143.42
CH2M	Mendoza, Juan	Marine Structural and Assessments and Design	212.01
CH2M	Miranda, Julio	Building Design	278.04
CH2M	Mogray, John	Underwater Inspection	167.48
CH2M	Munevar, Armin	Climate Change/Sea Level Rise	290.00
CH2M	O'Hara, Ginny	60-Day Start Up	290.00
CH2M	O'Neil, Sean	Coastal Modeling	290.00
CH2M	Onodera, Maki	Marine Structural and Assessments and Design	258.77
CH2M	Owen, John Brinley	Transportation Planning	290.00
CH2M	Paparis, Bill	Marine Structures	290.00

Company	Name	Position	Hourly Rate
CH2M	Pontee, Nigel	Living Shorelines	154.17
CH2M	Proctor, Lauren	Transportation Engineering	161.06
CH2M	Project Coordinator (CH2M)	Project Coordinator (CH2M)	114.84
CH2M	Riden, Kirk	Asset Management	290.00
CH2M	Roberts, Kelly	Health and Safety	261.64
CH2M	Rosidi, Dario	Geology	290.00
CH2M	Schmitz, Barbara	Project Controls	290.00
CH2M	Schulte, Robert*	Engineering	290.00
CH2M	Speaks, Joe	Transportation Planning	257.43
CH2M	Stasiak, Dominica	Engineering	235.01
CH2M	Strosnider, Megan	Scheduling	196.50
CH2M	Sztern, Shailee	Civil	169.07
CH2M	Winslow, Kyle	Hydrology/Water Quality	263.11
CMG Landscape Architecture	Conger, Kevin*	Director	275.46
CMG Landscape Architecture	Conrad, Pamela	Project Landscape Architect	175.30
CMG Landscape Architecture	Guillard, Chris	Principal Designer	230.38
CMG Landscape Architecture	Moss, Willett	Principal Designer	230.38
CMG Landscape Architecture	Simon, Cathy*	Urban Design and Planning	275.46
CMG Landscape Architecture	Staff Professional (CMG)	Staff Professional (CMG)	140.00
FUGRO	Chen, Weiyu	Earthquake Vulnerability Assessment	222.70
FUGRO	Dean, Cornelia	Site Exploration and Characterization	179.77
FUGRO	Fernandez, Alfredo	Seismic Hazard Assessment	171.03
FUGRO	Herlache, Andy	Geotechnical Retrofit Solutions	290.00
FUGRO	Project Professional (Fugro)	Project Professional (Fugro)	141.44
FUGRO	Senior Professional (Fugro)	Senior Professional (Fugro)	212.16
FUGRO	Staff Professional (Fugro)	Staff Professional (Fugro)	123.76
FUGRO	Travasarou, Thaleia*	Lead Geotechnical Engineer	290.00
FUGRO	Ugalde, Jose	Earthquake Vulnerability Assessment	169.09
FUGRO	Wood, Ray	Site Exploration and Characterization	290.00

Company	Name	Position	Hourly Rate
GEHL Architects	Bela, John	Public Life Research & Community Engagement	290.00
GEHL Architects	Merker, Blaine	Public Life Research & Community Engagement	290.00
Geotechnical Consultants Inc	Agnew, Dustin	Staff Engineer	134.56
Geotechnical Consultants Inc	Bray, Jonathan	Seismic Peer Review Members At-Large	290.00
Geotechnical Consultants Inc	Khatri, Kavin	Staff Engineer	117.28
Geotechnical Consultants Inc	Neelakantan, Neel	Principal/Geotechnical Engineer	257.26
Geotechnical Consultants Inc	Patterson, Aurie	Senior Geologist	135.75
Geotechnical Consultants Inc	Peterson, Mark	Senior Engineer	257.26
Geotechnical Consultants Inc	Sastry Jayavani	Project Assistant	109.35
Geotechnical Consultants Inc	Seibold, Joe	Senior Geotechnical Engineer	192.40
Geotechnical Consultants Inc	Telson, Tanya	Project Assistant	63.64
Geotechnical Consultants Inc	Thurber, James	Lead Geologist	207.08
Geotechnical Consultants Inc	Vahdani, Shahriar	Seismic Specialist	270.80
Geotechnical Consultants Inc	Van Hoff, Deron	Senior Geotechnical Engineer	205.08
Hollins Consulting Inc	Berry, Margaret	Program Controls	251.99
Hollins Consulting Inc	Cooper, Derrick	Utility/Interagency Coordination	174.45
Hollins Consulting Inc	Futnani, Kali	Utility/Interagency Coordination	139.32
Hollins Consulting Inc	Hollins, Guy*	Utility/Interagency Coordination	221.70
Hollins Consulting Inc	McCrimmon, Catherine	Utility/Interagency Coordination	151.44
HR&A Advisors, Inc.	Barthakur, Amitabh	Partner in Charge	290.00
HR&A Advisors, Inc.	Jang, Brittany	Analyst	165.00
HR&A Advisors, Inc.	Moss, Olivia	Project Manager	290.00
HR&A Advisors, Inc.	Project Professional (HR&A)	Project Professional (HR&A)	145.00
HR&A Advisors, Inc.	Sand, Pamela	Director	275.00
HR&A Advisors, Inc.	Silvern, Paul	Senior Advisor	290.00
HR&A Advisors, Inc.	Torres Springer, Jamie	Senior Advisor	290.00

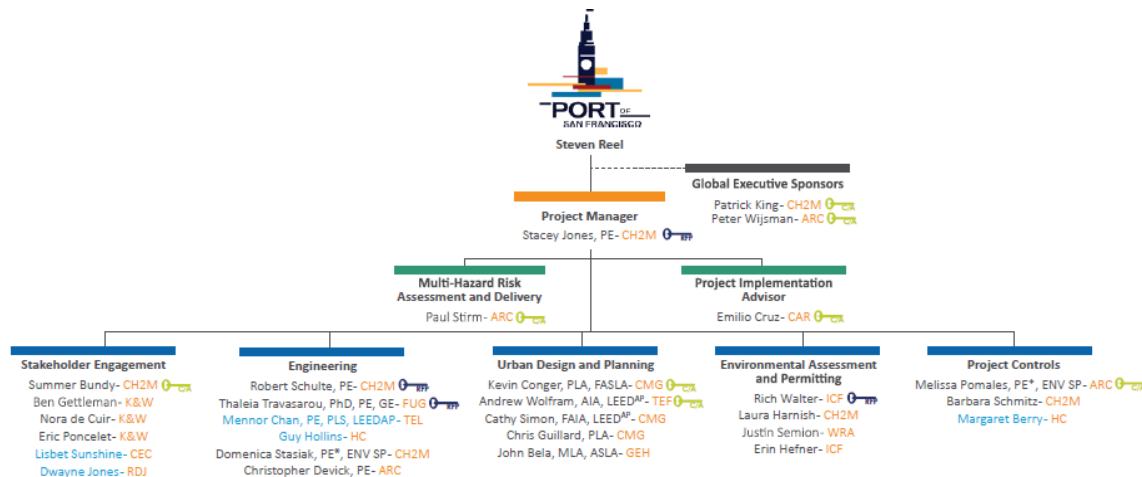
Company	Name	Position	Hourly Rate
ICF Jones & Stokes, Inc.	AQ / Noise Analyst (ICF)	AQ / Noise Analyst (ICF)	96.62
ICF Jones & Stokes, Inc.	Archaeologist (ICF)	Archaeologist (ICF)	98.37
ICF Jones & Stokes, Inc.	Beckstrom, Chad	Port Environ Compliance Sr. Advisor	255.80
ICF Jones & Stokes, Inc.	Clendenin, Gary	Geo and Hazmat	197.74
ICF Jones & Stokes, Inc.	Document Production (ICF)	Document Production (ICF)	133.84
ICF Jones & Stokes, Inc.	Efner, Erin	CEQA Task Lead	211.43
ICF Jones & Stokes, Inc.	Elder, Tait	Archeology	139.47
ICF Jones & Stokes, Inc.	Elliott, Chris	Corps Environ Compliance Sr. Advisor	264.07
ICF Jones & Stokes, Inc.	Envtl Planner (ICF)	Envtl Planner (ICF)	144.24
ICF Jones & Stokes, Inc.	GIS Analyst (ICF)	GIS Analyst (ICF)	114.37
ICF Jones & Stokes, Inc.	Hatcher, Shannon	Air Quality/GHG	186.39
ICF Jones & Stokes, Inc.	Historian (ICF)	Historian (ICF)	124.77
ICF Jones & Stokes, Inc.	Huber, Anne	Hydrology/Water Quality	138.35
ICF Jones & Stokes, Inc.	Lassell, Susan	Cultural (built) Resources	209.36
ICF Jones & Stokes, Inc.	Mitchell, Bill	Bio	208.02
ICF Jones & Stokes, Inc.	Mozumder, Kailash	Bio	125.13
ICF Jones & Stokes, Inc.	Permitting Support (ICF)	Permitting Support (ICF)	111.85
ICF Jones & Stokes, Inc.	Senior Advisor (ICF)	Senior Advisor (ICF)	255.80
ICF Jones & Stokes, Inc.	Senior Noise Analyst (ICF)	Senior Noise Analyst (ICF)	237.60
ICF Jones & Stokes, Inc.	Senior Technical Specialist (ICF)	Senior Technical Specialist (ICF)	197.74
ICF Jones & Stokes, Inc.	Stock, Jen	Aesthetics/Visual Quality	147.09
ICF Jones & Stokes, Inc.	Trisal, Shilpa	Enviro. Justice/Socioeconomic	183.63
ICF Jones & Stokes, Inc.	Walter, Rich*	Lead Environmental Engineer	255.41
Kearns & West	Associate (Kearns & West)	Associate (Kearns & West)	113.00
Kearns & West	Cross, Ellen	Vice President	270.00
Kearns & West	De Cuir, Nora	Director	171.60
Kearns & West	Gettleman, Ben	Senior Director	187.51
Kearns & West	Ponceleto, Eric	Principal	270.00
Kearns & West	Project Coordinator (Kearns & West)	Project Coordinator (Kearns & West)	97.69
Kearns & West	Rugani, Kelsey	Senior Associate	112.51
Keyster Marston Associates	Kern, Debbie	Economic & Fiscal Analysis	252.64

Company	Name	Position	Hourly Rate
RDJ Enterprises LLC	Dilger, Rosemary	Public Relations	90.44
RDJ Enterprises LLC	Hopkins, Vivian Ann	Meeting Facilitation Community Engagement	108.42
RDJ Enterprises LLC	Jones, Rudolph Dwayne	LBE Coordination	154.12
Saylor Consulting Group	Ritchie, Ed	Senior Infrastructure Estimator	222.87
Saylor Consulting Group	Saylor, Brad	Principal Estimator	222.87
Sedway Consulting Inc	Herman, Amy	Sr Project Manager	280.00
Sedway Consulting Inc	Sedway, Lynn	Principal	290.00
Sedway Consulting Inc	Smitheram, Mary	Sr Project Manager	280.00
Simpson, Gumpertz & Heger	Bruin, William M.	Structural Engineer	290.00
Simpson, Gumpertz & Heger	Iversen, Rune	Marine Engineer	217.48
Simpson, Gumpertz & Heger	Johnson, Gayle	Structural Engineer	290.00
Simpson, Gumpertz & Heger	Lewis, Aaron	Structural Engineer	290.00
Simpson, Gumpertz & Heger	Moore, Kevin S.	Structural Engineer	290.00
Square One Productions	Carroll, Nichola	Production Artist	121.34
Square One Productions	Lin, Angela	Project Manager	174.09
Structus Inc	Chang, Fu-Lien (Henry)	Project Manager	290.00
Structus Inc	Chappell, Don	QA/QC Manager	227.24
Structus Inc	Surjana, Burhan	Project Engineer	140.95
Structus Inc	Yu, Peter	Structural EOR	256.01
TEF Design	Cooper, Paul	Project Manager	231.00
TEF Design	Rostami, Maryam	Project Designer	161.70
TEF Design	Tom, Douglas	Managing Principal	290.00
TEF Design	Verzhbinsky, Alyosha	Consulting Principal	290.00
TEF Design	Vithalani, Viral	Project Architect	176.22
TEF Design	Wolfram, Andrew*	Project Principal/Design Principal	290.00
Telamon Engineering	Chan, Mennor	Project Manager	266.76
Telamon Engineering	Chan, Stephen	Contract Support	125.54
Telamon Engineering	Decosta, Paul	Party Chief - Field	141.70

Company	Name	Position	Hourly Rate
Telamon Engineering	Kwok, Wayne	Project Coordinator	69.05
Telamon Engineering	LyLy Lam	Civil Engineer 1	94.15
Telamon Engineering	Mak, Toni	Project Coordinator	84.74
Telamon Engineering	Munoz, Amador	Field Survey Crew	116.31
Telamon Engineering	Nguyen, Khang	CAD Tech	100.43
Telamon Engineering	Rodriguiz, Ray	Utility Locator	94.15
Telamon Engineering	Salinas, Veronica	Field Survey Crew	126.01
Telamon Engineering	Tran, Joe	CAD Tech	94.15
Telamon Engineering	Woods, Earl	Survey Manager	188.30
Telamon Engineering	Zuuring, Doug	Senior Engineer	164.77
WRA, Inc	Bello, Nate	Mitigation Specialist	192.19
WRA, Inc	Chase, Daniel	Fisheries Biologist	135.97
WRA, Inc	Kalnins, Mark	Regulatory Permitting Specialist	135.97
WRA, Inc	Knecht, Ellie	Regulatory Permitting Specialist - BCDC	104.21
WRA, Inc	Lazarotti, Leslie	Regulatory Permitting Specialist	192.19
WRA, Inc	Salvaggio, George	Landscape Architect	209.57
WRA, Inc	Semion, Justin	Aquatic Biologist/Permitting	200.79

**Key Staff*

Appendix D Organizational Chart



INTEGRATING SERVICES Engineering Joseph Marrone, PE*-ARC Luce Bassetti, PhD, PE*-CH2M Health Safety and Environment Kelly Roberts, CSP, OHST-CH2M Sustainable Asset Management and Funding Jaason Englesmith-CH2M Financing/Funding Michael Matichich-CH2M Cary Foster, CFM, AICP-ARC Data Management Raja Kadiyala, PhD-CH2M 60-Day Start Up Ginny O'Hara-CH2M QA/QC Lon Elledge, PE-CH2M	Coastal Modeling/Engineering Joseph Marrone, PE*-ARC Luce Bassetti, PhD, PE*-CH2M Kyle Winslow, PhD, PE-CH2M Don Kingery, PE-CH2M Claudio Fassardi-CH2M Marine Structural and Assessments and Design Maki Onodera, PE*-CH2M Juan Mendoza, PE-CH2M Jeff Aldrich, PE, SE-CH2M Gayle Johnson, PE-SGH Flood/Coastal Resiliency Planning Edgar Westerhof-ARC Site Exploration and Characterization Ray Wood-FUG Cornelia Dean, RG, CEG-FUG Seismic Analysis Jennifer Elwood, PE, SE-CH2M Camille Bhalerao, PE-CH2M Seismic Hazard Assessment J. Alfredo Fernandez, PhD, PE-FUG Living Shorelines Haihong Zhou, PhD Nigel Pontee, PhD, CEEng, CWEM-CH2M Mark Jaworski-CH2M	Geotechnical Earthquake Vulnerability Wei-Yu Chen, PhD, PE, GE-FUG José Ugaldé, PE-FUG Dario Rosidi, PhD, PE, GE-CH2M Larry Roth, PE, GE-ARC Devon van Hoff, PE, GE-GTC Multi-Hazard Analysis Forrest Gist, PE*, CPP-CH2M Todd Anderson, PE-CH2M Building HAZUS Kevin Moore, PE, SE-SGH Other Facility Structures Christina Kapoi, ENV SP-CH2M Geotechnical Retrofits Andy Herlache, PE, GE-FUG Bahram Khamenehpour, PhD, GE-AGS Building Design Kristen Hulett, PE, SE-CH2M Julio Miranda, PE, SE-CH2M Henry Chang, SE-STR Stormwater and Coastal Drainage Jack Hayes-CH2M Paul Tschirky, PhD, PEng-ARC Wilfred Hsu, PE-CH2M	Resiliency Flood Hazard Analysis John Atkinson, PhD-ARC Civil John Staphorsius-ARC Steve McAmis, PE-CH2M Erin Coates, PE-CH2M Shailee Sztren, PE*-CH2M Wayne Welch, PE*-ARC David Fulks, PE-ARC Ryan Stoddard, PE*-ARC Constructability Lon Elledge, PE-CH2M Value Engineering Paul Johnson, CVS-CH2M Emergency Response and Recovery Josh J. Gravenmier-ARC USACE Feasibility Analysis Walter Baumy, PE*-ARC Allan Highstreet, PMP-CH2M Stu Appelbaum-ARC Alternative Delivery Michelle Burkhardt, PE*-CH2M Cost Estimating Jack Hayes-CH2M Edward Ritchie-SC Brad Saylor-SC Scheduling Megan Stroszider, PE-CH2M	Transportation Planning Joe Speaks-CH2M Brin Owen-CH2M Loren Bloomberg, PE-CH2M Edward Granzow-CH2M Transportation Engineering Lauren Proctor, PE-CH2M Christopher Benson, PE-CH2M Leonard Heuston, PE-CH2M Urban Planning/Financial Analysis Willett Moss, PLA, FAAR-CMG Olivia Moss-HRA Blaine Merker-HRA Pamela Conrad, PLA, LEEDAP-CMG Lynn Sedway-SCI Debbie Kern-KMA Architecture Alysha Verzhbivsky, FAIS-TEF Paul Cooper, AIA, LEEDAP-TEF Sustainable Buildings Maryam Rostami, LEEDAP-TEF Historic Structures Andrew Wolfram, AIA, LEEDAP-TEF Asset Management Kirk Riden, PE*-CH2M Youth Engagement Villy Wang-BAY	NEPA/CEQA Jasmin Mejia-CH2M Chad Backstrom-ICF Loretta Meyer, AICP-CH2M Aesthetics Angela Lin-SQ1 Biology Justin Semion-WRA Lynne Hosley-CH2M Biological Mitigations Nathan Bello-WRA Fisheries Biologist Daniel Chase-WRA Geology Dario Rosidi, PhD, PE, GE-CH2M Geology/Hydrology Gary Clendenin, PG-ICF Economic Analysis Steve Hatchett, PhD-CH2M Air Quality/Noise Shannon Hatcher-ICF Climate Change/Sea Level Rise Armin Munévar, PE-CH2M Tapash Das, PhD-CH2M Sarah Deslauriers, PE-CAR Hydrology/Water Quality Kyle Winslow, PhD, PE-CH2M Recreation Jessica Veramontes-ICF	Socioeconomics Shilpa Trisal-ICF Loretta Meyer, AICP-CH2M Cultural Resources Susan Lassell-ICF J. Tait Elder, RPA-ICF Permitting Mark Kalnins-WRA Lynne Hosley-CH2M BCDC Ellie Knecht-WRA USFWS Jason Yakich-WRA NOAA Dan Chase-WRA Corps of Engineers (404) Mark Kalnins-WRA RWQCB Leslie Lazarotti-WRA SHPO Susan Lassell-ICF Economics Analysis Mary Jo Kealy-CH2M Richard Manguno-ARC Underwater Inspection John Mogray, PE-CH2M George Dinos, PE-CH2M Andrew Lai-CH2M	SEISMIC PEER REVIEW Nason McCullough, PhD, PE-CH2M Joanthan Bray, PhD UC Berkeley Don Anderson, PhD, PE-CH2M Shahriar Vahdani, PhD, PE-GTC GLOBAL EXPERTS Waterfront Planning Andrew Barash, PE*-CH2M Ferry Facilities Doug Playter, PE*-CH2M Marine Structures Bill Papis, PE*-CH2M Coastal Modeling Sean O'Neil, PhD, PE*-CH2M Hugh Roberts, PE*-ARC Principal Architect Douglas Tom, FAIA-TEF USACE Civil Works Steve Browning, PE*-CH2M Program Management Drew Jeter-CH2M Coastal Resiliency Piet Dircke-ARC
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