

**CONTRACT FOR PROFESSIONAL ENGINEERING DESIGN SERVICES FOR
HERMOSA BEACH GREENBELT INFILTRATION PROJECT (CIP NO. 16-542)
BETWEEN THE CITY OF HERMOSA BEACH AND TETRA TECH, INC.**

This AGREEMENT is entered into this 12th day of September, 2017, by and between the CITY OF HERMOSA BEACH, a general law city a municipal corporation ("CITY") and TETRA TECH, INC., a limited liability company ("CONSULTANT").

RECITALS

- A. The City desires engineering design services for the Hermosa Beach Greenbelt Project for the Herondo Drain watershed. The Project is funded in part by the State Water Resource Control Board's (SWRCB) Proposition 1, Storm Water Grant Program- Implementation Round 1, with matching funds from the Beach Cities Watershed Management Group that includes the cities of Hermosa Beach, Manhattan Beach, Redondo Beach, and Torrance.
- B. The City does not have the personnel able and/or available to perform the services required under this agreement and therefore, the City desires to contract for consulting services to accomplish this work.
- C. The Consultant warrants to the City that it has the qualifications, experience and facilities to perform properly and timely the services under this Agreement.
- D. The City desires to contract with the Consultant to perform the services as described in Exhibit A of this Agreement.

NOW, THEREFORE, based on the foregoing recitals, the City and the Consultant agree as follows:

1. CONSIDERATION AND COMPENSATION

- A. As partial consideration, CONSULTANT agrees to perform the work listed in the SCOPE OF SERVICES, attached as EXHIBIT A.
- B. As additional consideration, CONSULTANT and CITY agree to abide by the terms and conditions contained in this Agreement.
- C. As additional consideration, CITY agrees to pay CONSULTANT a total amount of \$700,764 for CONSULTANT's services, unless otherwise specified by written amendment to this Agreement.
- D. No additional compensation shall be paid for any other expenses incurred, unless first approved by the City Manager or his/her designee.
- E. CONSULTANT shall submit to CITY, by not later than the 10th day of each month, its invoice for services itemizing the fees and costs incurred during the

previous month. CITY shall pay CONSULTANT all uncontested amounts set forth in CONSULTANT's invoice within 30 days after it is received.

2. SCOPE OF SERVICES.

- A. CONSULTANT will perform the services and activities set forth in the SCOPE OF SERVICE attached hereto as Exhibit A and incorporated herein by this reference.
- B. Except as herein otherwise expressly specified to be furnished by CITY, CONSULTANT will, in a professional manner, furnish all of the labor, technical, administrative, professional and other personnel, all supplies and materials, equipment, printing, vehicles, transportation, office space, and facilities necessary or proper to perform and complete the work and provide the professional services required of CONSULTANT by this Agreement.

3. PAYMENTS. For CITY to pay CONSULTANT as specified by this Agreement, CONSULTANT must submit an invoice to CITY which lists the reimbursable costs, the specific tasks performed, and, for work that includes deliverables, the percentage of the task completed during the billing period in accordance with the schedule of compensation incorporated in "Exhibit A."

4. TIME OF PERFORMANCE. The services of the CONTRACTOR are to commence upon receipt of a notice to proceed from the CITY and shall continue until all authorized work is completed to the CITY's reasonable satisfaction, in accordance with the schedule incorporated in "Exhibit A," unless extended in writing by the CITY.

5. FAMILIARITY WITH WORK. By executing this Agreement, CONSULTANT represents that CONSULTANT has (a) thoroughly investigated and considered the scope of services to be performed; (b) carefully considered how the services should be performed; and (c) understands the facilities, difficulties, and restrictions attending performance of the services under this Agreement.

6. KEY PERSONNEL. CONSULTANT's key person assigned to perform work under this Agreement is Jason Fussel, PE, PLS. CONSULTANT shall not assign another person to be in charge of the work contemplated by this Agreement without the prior written authorization of the City.

7. TERM OF AGREEMENT. The term of this Agreement shall commence upon execution by both parties and shall expire on June 30, 2020, unless earlier termination occurs under Section 11 of this Agreement, or this Agreement is extended in writing in advance by both parties.

8. CHANGES. CITY may order changes in the services within the general scope of this Agreement, consisting of additions, deletions, or other revisions, and the contract sum and the contract time will be adjusted accordingly. All such changes must be authorized in writing, executed by CONSULTANT and CITY. The cost or credit to CITY resulting from changes in the services will be determined in accordance with written agreement between the parties.

9. TAXPAYER IDENTIFICATION NUMBER. CONSULTANT will provide CITY with a Taxpayer Identification Number.

10. PERMITS AND LICENSES. CONTRACTOR will obtain and maintain during the term of this Agreement all necessary permits, licenses, and certificates that may be required in connection with the performance of services under this Agreement.

11. TERMINATION.

- A. Except as otherwise provided, CITY may terminate this Agreement at any time with or without cause. Notice of termination shall be in writing.
- B. CONSULTANT may terminate this Agreement. Notice will be in writing at least 30 days before the effective termination date.
- C. In the event of such termination, the CONSULTANT shall cease services as of the date of termination, and all finished or unfinished documents, data, drawings, maps, and other materials prepared by CONSULTANT shall, at CITY's option, become CITY's property, and CONSULTANT will receive just and equitable compensation for any work satisfactorily completed up to the effective date of notice of termination.
- D. Should the Agreement be terminated pursuant to this Section, CITY may procure on its own terms services similar to those terminated.

12. INDEMNIFICATION.

- A. CONSULTANT shall indemnify, defend with counsel approved by CITY, and hold harmless CITY, its officers, officials, employees and volunteers from and against all liability, loss, damage, expense, and cost (including without limitation reasonable attorneys fees, expert fees and all other costs and fees of litigation) of every nature arising out of or in connection with CONSULTANT's performance of work hereunder or its failure to comply with any of its obligations contained in this AGREEMENT, regardless of CITY'S passive negligence, but excepting such loss or damage which is caused by the sole active negligence or willful misconduct of the CITY. City's negligent failure to act after receiving Consultant's report is not passive negligence.

Should CITY in its sole discretion find CONSULTANT'S legal counsel unacceptable, then CONSULTANT shall reimburse the CITY its costs of defense, including without limitation reasonable attorneys fees, expert fees and all other costs and fees of litigation. The CONSULTANT shall promptly pay any final judgment rendered against the CITY (and its officers, officials, employees and volunteers) covered by this indemnity obligation. It is expressly understood and agreed that the foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the State of California and will survive termination of this Agreement.

- B. The requirements as to the types and limits of insurance coverage to be maintained by CONSULTANT as required by Section 17, and any approval of said insurance by CITY, are not intended to and will not in any manner limit or qualify the liabilities and obligations otherwise assumed by CONSULTANT pursuant to this Agreement, including, without limitation, to the provisions concerning indemnification.

13. ASSIGNABILITY. This Agreement is for CONSULTANT's professional services. CONSULTANT's attempts to assign the benefits or burdens of this Agreement without CITY's written approval are prohibited and will be null and void.

14. INDEPENDENT CONTRACTOR. CITY and CONSULTANT agree that CONSULTANT will act as an independent contractor and will have control of all work and the manner in which it is performed. CONSULTANT will be free to contract for similar service to be performed for other employers while under contract with CITY. CONSULTANT is not an agent or employee of CITY and is not entitled to participate in any pension plan, insurance, bonus or similar benefits CITY provides for its employees. Any provision in this Agreement that may appear to give CITY the right to direct CONSULTANT as to the details of doing the work or to exercise a measure of control over the work means that CONSULTANT will follow the direction of the CITY as to end results of the work only.

15. AUDIT OF RECORDS.

- A. CONSULTANT agrees that CITY, or designee, has the right to review, obtain, and copy all records pertaining to the performance of this Agreement. CONSULTANT agrees to provide CITY, or designee, with any relevant information requested and will permit CITY, or designee, access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with this Agreement. CONSULTANT further agrees to maintain such records for a period of three (3) years following final payment under this Agreement.
- B. CONSULTANT will keep all books, records, accounts and documents pertaining to this Agreement separate from other activities unrelated to this Agreement.

16. CORRECTIVE MEASURES. CONSULTANT will promptly implement any corrective measures required by CITY regarding the requirements and obligations of this Agreement. CONSULTANT will be given a reasonable amount of time as determined by the City to implement said corrective measures. Failure of CONSULTANT to implement required corrective measures shall result in immediate termination of this Agreement.

17. INSURANCE REQUIREMENTS.

- A. The CONSULTANT, at the CONSULTANT's own cost and expense, shall procure and maintain, for the duration of the contract, the following insurance

policies:

1. Workers Compensation Insurance as required by law. The Consultant shall require all subcontractors similarly to provide such compensation insurance for their respective employees. Any notice of cancellation or non-renewal of all Workers' Compensation policies must be received by the CITY at least thirty (30) days prior to such change. The insurer shall agree to waive all rights of subrogation against the CITY, its officers, agents, employees, and volunteers for losses arising from work performed by the CONTRACTOR for City.
 2. General Liability Coverage. The CONSULTANT shall maintain commercial general liability insurance in an amount of not less than two million dollars (\$2,000,000) per occurrence for bodily injury, personal injury, and property damage. If a commercial general liability insurance form or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the work to be performed under this Agreement or the general aggregate limit shall be at least twice the required occurrence limit.
 3. Automobile Liability Coverage. The CONSULTANT shall maintain automobile liability insurance covering bodily injury and property damage for all activities of the CONSULTANT arising out of or in connection with the work to be performed under this Agreement, including coverage for owned, hired, and non-owned vehicles, in an amount of not less than one million dollars (\$1,000,000) combined single limit for each occurrence.
 4. Professional Liability Coverage. The CONSULTANT shall maintain professional errors and omissions liability insurance for protection against claims alleging negligent acts, errors, or omissions which may arise from the CONSULTANT'S operations under this Agreement, whether such operations are by the CONSULTANT or by its employees, subcontractors, or subconsultants. The amount of this insurance shall not be less than one million dollars (\$1,000,000) on a claims-made annual aggregate basis, or a combined single-limit-per-occurrence basis. When coverage is provided on a "claims made basis," CONSULTANT will continue to renew the insurance for a period of three (3) years after this Agreement expires or is terminated. Such insurance will have the same coverage and limits as the policy that was in effect during the term of this Agreement, and will cover CONSULTANT for all claims made by CITY arising out of any errors or omissions of CONSULTANT, or its officers, employees or agents during the time this Agreement was in effect.
- B. Endorsements. Each general liability, automobile liability and professional liability insurance policy shall be issued by a financially responsible insurance company or companies admitted and authorized to do business in the State of California, or which is approved in writing by City, and shall be endorsed as

follows. CONSULTANT also agrees to require all contractors, and subcontractors to do likewise.

1. "The CITY, its elected or appointed officers, officials, employees, agents, and volunteers are to be covered as additional insureds with respect to liability arising out of work performed by or on behalf of the CONSULTANT, including materials, parts, or equipment furnished in connection with such work or operations."
 2. This policy shall be considered primary insurance as respects the CITY, its elected or appointed officers, officials, employees, agents, and volunteers. Any insurance maintained by the CITY, including any self-insured retention the CITY may have shall be considered excess insurance only and shall not contribute with this policy.
 3. This insurance shall act for each insured and additional insured as though a separate policy had been written for each, except with respect to the limits of liability of the insuring company.
 4. The insurer waives all rights of subrogation against the CITY, its elected or appointed officers, officials, employees, or agents.
 5. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its elected or appointed officers, officials, employees, agents, or volunteers.
 6. The insurance provided by this policy shall not be suspended, voided, canceled, or reduced in coverage or in limits except after thirty (30) days written notice has been received by the CITY.
- C. CONSULTANT agrees to provide immediate notice to CITY of any claim or loss against Contractor arising out of the work performed under this agreement. CITY assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve CITY.
- D. Any deductibles or self-insured retentions must be declared to and approved by the CITY. At the CITY's option, the CONSULTANT shall demonstrate financial capability for payment of such deductibles or self-insured retentions.
- E. The CONSULTANT shall provide certificates of insurance with original endorsements to the CITY as evidence of the insurance coverage required herein. Certificates of such insurance shall be filed with the CITY on or before commencement of performance of this Agreement. Current certification of insurance shall be kept on file with the CITY at all times during the term of this Agreement.
- F. Failure on the part of the CONSULTANT to procure or maintain required

insurance shall constitute a material breach of contract under which the CITY may terminate this Agreement pursuant to Section 11 above.

- G. The commercial general and automobile liability policies required by this Agreement shall allow City, as additional insured, to satisfy the self-insured retention ("SIR") and/or deductible of the policy in lieu of the Consultant (as the named insured) should Consultant fail to pay the SIR or deductible requirements. The amount of the SIR or deductible shall be subject to the approval of the City Attorney and the Finance Director. Consultant understands and agrees that satisfaction of this requirement is an express condition precedent to the effectiveness of this Agreement. Failure by Consultant as primary insured to pay its SIR or deductible constitutes a material breach of this Agreement. Should City pay the SIR or deductible on Consultant's behalf upon the Consultant's failure or refusal to do so in order to secure defense and indemnification as an additional insured under the policy, City may include such amounts as damages in any action against Consultant for breach of this Agreement in addition to any other damages incurred by City due to the breach.

18. USE OF OTHER CONSULTANTS. CONSULTANT must obtain CITY's prior written approval to use any consultants while performing any portion of this Agreement. Such approval must include approval of the proposed consultant and the terms of compensation.

19. FINAL PAYMENT ACCEPTANCE CONSTITUTES RELEASE. The acceptance by the CONSULTANT of the final payment made under this Agreement shall operate as and be a release of the CITY from all claims and liabilities for compensation to the CONSULTANT for anything done, furnished or relating to the CONSULTANT'S work or services. Acceptance of payment shall be any negotiation of the CITY'S check or the failure to make a written extra compensation claim within ten (10) calendar days of the receipt of that check. However, approval or payment by the CITY shall not constitute, nor be deemed, a release of the responsibility and liability of the CONSULTANT, its employees, sub-consultants and agents for the accuracy and competency of the information provided and/or work performed; nor shall such approval or payment be deemed to be an assumption of such responsibility or liability by the CITY for any defect or error in the work prepared by the Consultant, its employees, sub-consultants and agents.

20. CORRECTIONS. In addition to the above indemnification obligations, the CONSULTANT shall correct, at its expense, all errors in the work which may be disclosed during the City's review of the Consultant's report or plans. Should the Consultant fail to make such correction in a reasonably timely manner, such correction shall be made by the CITY, and the cost thereof shall be charged to the CONSULTANT. In addition to all other available remedies, the City may deduct the cost of such correction from any retention amount held by the City or may withhold payment otherwise owed CONSULTANT under this Agreement up to the amount of the cost of correction.

21. NON-APPROPRIATION OF FUNDS. Payments to be made to CONSULTANT by CITY for services performed within the current fiscal year are within the current fiscal budget and within an available, unexhausted fund. In the event that CITY does not appropriate sufficient funds for payment of CONSULTANT'S services beyond the current fiscal year, the Agreement

shall cover payment for CONSULTANT’S services only to the conclusion of the last fiscal year in which CITY appropriates sufficient funds and shall automatically terminate at the conclusion of such fiscal year.

22. NOTICES. All communications to either party by the other party will be deemed made when received by such party at its respective name and address as follows:

CITY	CONSULTANT
City of Hermosa Beach 1315 Valley Drive Hermosa Beach, CA 90254 ATTN: Kristy Morris	Tetra Tech, Inc. 711 Tank Farm Road, Suite 110 San Luis Obispo, California 93401 ATTN: Jason Fussel, PE, PLS

Any such written communications by mail will be conclusively deemed to have been received by the addressee upon deposit thereof in the United States Mail, postage prepaid and properly addressed as noted above. In all other instances, notices will be deemed given at the time of actual delivery. Changes may be made in the names or addresses of persons to whom notices are to be given by giving notice in the manner prescribed in this paragraph. Courtesy copies of notices may be sent via electronic mail, provided that the original notice is deposited in the U.S. mail or personally delivered as specified in this Section.

23. SOLICITATION. CONSULTANT maintains and warrants that it has not employed nor retained any company or person, other than CONSULTANT’s bona fide employee, to solicit or secure this Agreement. Further, CONSULTANT warrants that it has not paid nor has it agreed to pay any company or person, other than CONSULTANT’s bona fide employee, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. Should CONSULTANT breach or violate this warranty, CITY may rescind this Agreement without liability.

24. THIRD PARTY BENEFICIARIES. This Agreement and every provision herein are generally for the exclusive benefit of CONSULTANT and CITY and not for the benefit of any other party. There will be no incidental or other beneficiaries of any of CONSULTANT’s or CITY’s obligations under this Agreement.

25. INTERPRETATION. This Agreement was drafted in, and will be construed in accordance with the laws of the State of California, and exclusive venue for any action involving this agreement will be in Los Angeles County.

26. ENTIRE AGREEMENT. This Agreement, and its Attachments, sets forth the entire understanding of the parties. There are no other understandings, terms or other agreements expressed or implied, oral or written.

27. RULES OF CONSTRUCTION. Each Party had the opportunity to independently review this Agreement with legal counsel. Accordingly, this Agreement will be construed simply, as a whole, and in accordance with its fair meaning; it will not be interpreted strictly for or against either Party.

28. AUTHORITY/MODIFICATION. The Parties represent and warrant that all necessary action has been taken by the Parties to authorize the undersigned to execute this Agreement and to engage in the actions described herein. This Agreement may be modified by written amendment with signatures of all parties to this Agreement. CITY's city manager, or designee, may execute any such amendment on behalf of CITY.

29. ACCEPTANCE OF FACSIMILE OR ELECTRONIC SIGNATURES. The Parties agree that this Contract, agreements ancillary to this Contract, and related documents to be entered into in connection with this Contract will be considered signed when the signature of a party is delivered by facsimile transmission or scanned and delivered via electronic mail. Such facsimile or electronic mail copies will be treated in all respects as having the same effect as an original signature.

30. FORCE MAJEURE. Should performance of this Agreement be impossible due to fire, flood, explosion, war, embargo, government action, civil or military authority, the natural elements, or other similar causes beyond the Parties' control, then the Agreement will immediately terminate without obligation of either party to the other.

31. TIME IS OF ESSENCE. Time is of the essence to comply with dates and schedules to be provided.

32. ATTORNEY'S FEES. The parties hereto acknowledge and agree that each will bear his or its own costs, expenses and attorneys' fees arising out of and/or connected with the negotiation, drafting and execution of the Agreement, and all matters arising out of or connected therewith except that, in the event any action is brought by any party hereto to enforce this Agreement, the prevailing party in such action shall be entitled to reasonable attorneys' fees and costs in addition to all other relief to which that party or those parties may be entitled.

33. STATEMENT OF EXPERIENCE. By executing this Agreement, CONSULTANT represents that it has demonstrated trustworthiness and possesses the quality, fitness and capacity to perform the Agreement in a manner satisfactory to CITY. CONSULTANT represents that its financial resources, surety and insurance experience, service experience, completion ability, personnel, current workload, experience in dealing with private consultants, and experience in dealing with public agencies all suggest that CONSULTANT is capable of performing the proposed contract and has a demonstrated capacity to deal fairly and effectively with and to satisfy a public agency.

34. OWNERSHIP OF DOCUMENTS. It is understood and agreed that the City shall own all documents and other work product of the Consultant, except the Consultant's notes and work papers, which pertain to the work performed under this Agreement. The City shall have the sole right to use such materials in its discretion and without further compensation to the Consultant, but any re-use of such documents by the City on any other project without prior written consent of the Consultant shall be at the sole risk of the City.

35. DISCLOSURE REQUIRED. (City and Consultant initials required at one of the following paragraphs)

By their respective initials next to this paragraph, City and Consultant hereby acknowledge that Consultant is a "consultant" for the purposes of the California Political Reform Act because Consultant's duties would require him or her to make one or more of the governmental decisions set forth in Fair Political Practices Commission Regulation 18701(a) (2) or otherwise serves in a staff capacity for which disclosure would otherwise be required were Consultant employed by the City. Consultant hereby acknowledges his or her assuming-office, annual, and leaving-office financial reporting obligations under the California Political Reform Act and the City's Conflict of Interest Code and agrees to comply with those obligations at his or her expense. Prior to consultant commencing services hereunder, the City's Manager shall prepare and deliver to consultant a memorandum detailing the extent of Consultant's disclosure obligations in accordance with the City's Conflict of Interest Code.

City Initials _____

Consultant Initials _____

OR

By their initials next to this paragraph, City and Consultant hereby acknowledge that Consultant is not a "consultant" for the purpose of the California Political Reform Act because Consultant's duties and responsibilities are not within the scope of the definition of consultant in Fair Political Practice Commission Regulation 18701(a) (2) (A) and is otherwise not serving in staff capacity in accordance with the City's Conflict of Interest Code.

City Initials _____

Consultant Initials _____

IN WITNESS WHEREOF the parties hereto have executed this contract the day and year first hereinabove written.

CITY OF HERMOSA BEACH

CONSULTANT

MAYOR

By: _____
Mauricio Argente, Vice President

ATTEST:

Elaine Doerfling, City Clerk

95-4148514
Taxpayer ID No.

APPROVED AS TO FORM:

Michael Jenkins , City Attorney

EXHIBIT A- SCOPE OF SERVICES

Scope of Services

WORK ELEMENTS

Work elements, comprised of the tasks that we will complete under this project along with their corresponding deliverables are described in this section. In addition to the -required and optional - tasks listed under Work Elements Section of the RFP, we added and described one (1) extra optional task in section. We believe addition of this task, if approved by the City of Hermosa Beach, will significantly upgrade value of the project by improving final design, generating adequate data and information for effective management of the constructed system, and subsequently better demonstrable results in terms of storm water quality improvement, all with minimal additional cost to the project.

Task 1. Survey, Utilities Evaluation, and Additional Geotechnical Investigation (4.2.1.1)

SURVEY

Our team will complete a topographic and utility survey of the project area. The topographic survey will be comprised of two major portions; ground survey and aerial photogrammetry. The Tetra Tech Team will perform the following tasks:

- The ground survey will establish horizontal and vertical control for the project site and fill in gaps in aerial survey.
- An aerial survey will then be performed to obtain a 40 scale, one (1) foot contour interval of the project site.
- Prepare a Topographic Map at a scale of 1" = 40'. The topography will show one-foot contours of the project site, adjacent streets, as well as other adjacent land that is part of the immediate watershed.

All data and mapping will be completed utilizing California State Plane Coordinates NAD 83 and County of Los Angeles Vertical Datum (NAVD 88) and will be prepared by a Licensed Land Surveyor in the State of California.

UTILITY EVALUATION

Utilizing USA Dig Alert's website, a comprehensive utility matrix will be developed, which Tetra Tech will use to request utility atlas information. The atlas information will be used to prepare an existing utility index map for the project area.

Once the site investigations and review component is complete, the Tetra Tech team will perform a site visit to verify the accuracy of data obtained and the locations of the utilities based on the utility atlases received. Tetra Tech will also verify the appropriate right-of-way, and incorporate the utility investigation into the AutoCAD base maps. This information will be used in verifying the preliminary design layout and minimizes utility conflicts.

ADDITIONAL GEOTECHNICAL INVESTIGATION

After a review of the existing geotechnical report by Geosyntec (April 7, 2017), the following issues will need to be addressed to complete the report and bring it to compliance with 2016 CBC standards and to provide the data required from our experience for the project design:

- Provide recommendations for Seismic Design Parameters per 2016 CBC;
- Provide recommendations for earth pressures and seismic earth pressure increments;
- Provide recommendations for temporary excavations and shoring design;
- Regarding Seismic and Liquefaction Hazard Evaluation:

- *Liquefaction hazard needs to be evaluated per 2016 CBC for the MCE (Maximum Considered Earthquake) event and not the MDE (Maximum Design Earthquake) as done by the consultant. So all the liquefaction calculations need to be redone. Larger liquefaction effects are expected.*
- *The shallowest mapped groundwater depth, rather than the groundwater level at the time of the investigation used by the consultant, needs to be used in the liquefaction assessment.*
- *Evaluation of the seismically induced settlement of dry soils.*
- Provide an evaluation of the potential hazard of tsunamis;
- The infiltration rates need to be adjusted with the appropriate correction factors per County of Los Angeles Department of Public Works Guidelines GS 200.1 (2014);
- For sites where the historic high groundwater is within 10 feet of the proposed invert of infiltration, but the existing well data in the vicinity of the site shows groundwater deeper than 10 feet below the invert of infiltration, existing well data may be used per GS200.1(2014) for the design. Therefore, documentation of nearby existing well data needs to be collected and evaluated;
- Provide recommendations for subgrade preparation for the infiltration units;
- Provide recommendations for buried utility pipes; and
- Provide an evaluation of the corrosion potential of the on-site soils.

Tetra Tech will review the Geosyntec report and either accept or modify the presented recommendations and provide the remaining needed recommendations as stated above in an Addendum to the Geosyntec Report. These services will be provided in accordance with the attached labor rate schedules in order to create the Addendum to the Geosyntec Report.

Assumptions for this cost estimate include:

- No additional field work or lab work has been included in this estimate as requested by the City of Hermosa Beach.
- It is assumed that the design of the proposed infiltration facilities will not involve any pavement design.

Geosyntec did not include any corrosion testing results within their report. Tetra Tech assumes that laboratory results from corrosion testing including pH, resistivity, Chlorides and Sulfates, will be provided to Tetra Tech by Geosyntec or by the City of Hermosa Beach. If laboratory data is not available, Tetra Tech will need to obtain soils samples from the site for this evaluation at an extra cost, or recommend conservative design values to be verified during construction.

Tetra Tech will evaluate the information provided by Geosyntec in their geotechnical report with the exception of the environmental testing and data.

Deliverables: Draft and Final Addendums to the original Geotechnical Report prepared by Geosyntec. Topographical map (prepared by a licensed land surveyor) and AutoCAD file of the mapped utility found through the utility requests.

Task 2. Preliminary Design, Planning Activities (4.2.1.2)

A preliminary schedule for the project is provided in the sections of this proposal. In this task our team will provide a schedule from the commencement of work through completion demonstrating how we will meet requirements of the grant schedule, as well as the EWMP milestones.

Using the information gathered or generated under Task 1, including: data and maps generated under surveying activities, utilities evaluation results, existing and additional geotechnical investigation, along with a refined hydrologic and hydraulic model of the project, and additional knowledge of the City of Hermosa

Beach's priorities and concerns gained during the project inception and Task 1 completion, our team will revisit and, if necessary, revise the current conceptual design approach.

The preliminary design developed under this task will specifically take into consideration approaches to maximize the amount of storm water captured by the project, and as a result, maximizing contribution of the project in achieving goals of the EWMP.

A PDR will be prepared to define storm water design issues, identify potential BMP options, analyze up to three project alternatives, and provide cost estimates for each line item of each element of the presented alternatives, as well as each alternative as a whole.

Where applicable, engineering design of all project elements shall be compatible and in accordance with the latest versions/updates of the followings as applicable:

- Caltrans Highway Design Manual
- Caltrans Standard Plans
- Caltrans Standard Specifications
- California Manual on Uniform Traffic Control Devices (latest edition)
- Los Angeles County Hydrology Manual
- American Public Works Association Standard Specifications for Public Works Construction
- American Public Works Association Standard Plans
- American Water Works Association
- City of Hermosa Beach Standard Plans

Deliverables:

1. *Project Schedule in electronic format;*
2. *Preliminary Design Report in electronic format.*

Task 3. CEQA Documentation, Permits (4.2.1.3)

Environmental Science Association (ESA) will be completing the task of California Environmental Quality Act (CEQA) documents preparation. As described in this section, and after reviewing the related document currently available, ESA will prepare documentation required to comply with the CEQA Phase 1 Environmental Site Assessment Information/Document request report.

The Tetra Tech Team will support the City of Hermosa Beach by preparation of documents, including application packages, required to obtain other permits as applicable and listed in the task 3.2.

Task 3.1 CEQA Documentation

AIR QUALITY

ESA will perform an air quality analysis pursuant to the standards and guidelines set forth by the California Air Resources Board (CARB) and the South Coast Air Quality Management District (SCAQMD). ESA will quantify construction and operational emissions using SCAQMD's recommended California Emissions Estimator Model (CalEEMod). Construction emissions will be based on the client-provided construction schedule, equipment mix, earthmoving operations, and number of construction worker and delivery trips. Localized impacts will be evaluated using the SCAQMD Localized Significance Threshold (LST) mass-rate

lookup tables. Assuming a relatively short construction schedule and the transitory nature of park-users (i.e. no long term exposure, ESA is not proposing a quantitative health risk assessment.

Operational impacts will be assessed qualitatively due to the minimal nature of operations and maintenance activities (i.e. to powered mechanical equipment, etc.). In addition, odor impacts will be assessed qualitatively.

If potentially significant impacts are found, ESA will develop mitigation measures for construction and operational emissions, where feasible, to address significant air quality impacts. Air Quality modeling results will be appended to the IS/MND and the results discussed in the respective sections of the IS/MND. No stand-alone technical report will be prepared.

BIOLOGICAL RESOURCES

ESA will review available relevant literature and data on sensitive habitats and special-status species distribution to determine those protected resources that have the potential to occur within the project site. ESA will review the California Department of Fish and Wildlife (CDFW) Natural Diversity Data Base (CNDDDB) and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants for information regarding special-status species and sensitive habitats recorded as occurring in the region. In addition, the City of Hermosa Beach PLAN Hermosa Draft EIR of October 2016 will be reviewed. An ESA biologist will conduct a general biological inventory at the project site to assess habitat and to characterize biological resources occurring, or potentially occurring, within the project site.

ESA will prepare a memorandum summarizing the biological resources found on the project site. In addition, ESA will prepare draft responses to the State CEQA Guidelines Appendix G Checklist questions to accompany a proposed Mitigation Negative Declaration (MND).

CULTURAL RESOURCES

The project site is developed with a landscaped green belt that includes a pedestrian trail that is lined with mature trees, shrubs and other grasses. The project site encompasses a 600-foot segment of the larger 3.7-mile Hermosa Valley Greenbelt that runs parallel between Ardmore and Valley Drive and was once part of the Santa Fe Railroad easement until it was shut down in the 1960s. Review of aerial photographs indicate that the project site was developed as a green belt sometime between 1972 and 1994. The project would include the installation of subsurface diversion pipes, a diversion structure, infiltration gallery structures, and a forebay structure. When complete, all of the project components would be located underneath the green belt and proposed excavations are anticipated to reach depths between 6 and 10 feet below the surface, and possibly deeper. ESA will conduct a phase I cultural resources assessment of the project in compliance with CEQA. The scope of work for this assessment will include a cultural resources records search through the South Central Coastal Information Center, a Sacred Lands File search through the California Native American Heritage Commission, a paleontological resources records search through the Natural History Museum of Los Angeles County, and a pedestrian survey of the project site. If no resources are identified as a result of the record searches and survey, ESA will determine the potential to encounter buried resources during construction based on the results of the record searches, subsurface geological conditions, on-site disturbances, land use history (i.e., historic map and Sanborn map review), and the proposed excavation parameters. If the proposed Project has the potential to encounter soils/sediments conducive to retaining buried resources, appropriate mitigation measures such as monitoring during construction, will be recommended. This discussion will be provided, supported in a letter technical report and summarized in the Cultural Resources MND Section. This scope of work assumes that ESA will not assist the City of Hermosa Beach in AB 52 Native American consultations and that the City will be providing the information for the Tribal Cultural Resources Section in the MND. This scope of work also assumes that no cultural resources will be identified at the project site. If resources are identified, additional fees may be necessary to record and evaluate the resources (i.e., Phase II Assessment).

GREENHOUSE GAS EMISSIONS (GHGS)

ESA will analyze GHG emissions of project construction and operation in accordance with the latest CEQA GHG guidelines. The analysis will estimate GHG emissions attributable to the construction of the project, using the most recent version of the CalEEMod computer model. In addition, the project's GHG emissions will be compared to the goals and recommended actions of the State's Climate Change Scoping Plan and other applicable state regulations. If it is determined that the design features/mitigation measures are concluded to be necessary to reduce GHG emissions, ESA will identify feasible measures. If potentially significant impacts are found, ESA will develop mitigation measures for GHG emissions where feasible to address significant impacts. GHG modeling results will be appended to the IS/MND and the results discussed in the respective sections of the IS/MND. No stand-alone technical report will be prepared.

NOISE

ESA will prepare detailed responses to the State CEQA Guidelines Appendix G checklist questions for the project and evaluate potential noise impacts associated with construction activities and operations of the project. ESA will characterize the existing noise environment by surveying noise-sensitive land uses, identifying existing noise sources and features affecting noise transference in the project area, and conducting noise monitoring at up to three locations for 15 minutes to establish ambient noise levels in proximity to potentially affected noise-sensitive land uses. ESA will assess temporary noise levels at nearby noise sensitive uses from project construction based on the client-provided construction schedule and equipment usage. ESA will evaluate project operational noise qualitatively. In addition, ESA will provide an assessment of vibration impacts associated with use of heavy-duty equipment during construction of the project. If potentially significant impacts are found, ESA will develop mitigation measures, where feasible. The scope of services for the noise section does not include post construction noise and vibration monitoring and analysis because operational noise and vibration is not expected to occur. Noise modeling results will be appended to the IS/MND and the results discussed in the respective section of the IS/MND. No stand-alone technical report will be prepared.

Initial Study/Mitigated Negative Declaration

ADMINISTRATIVE DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (IS/MND)

ESA will prepare a comprehensive, accurate, and objective Initial Study for the proposed project that fully complies with CEQA and the State CEQA

Guidelines and all applicable guidance and procedures established by the City of Hermosa Beach for the purpose of environmental review. The Initial Study format will include (1) an Introduction that will include the statutory authority and purpose of the environmental document, (2) Project Description that will include location, project features, construction activities and project approvals and (3) Environmental Checklist and Evaluation that will include a discussion of each environmental impact category supported by adequate documentation.

In addition to incorporating the findings and conclusions from the technical evaluation identified above, ESA will incorporate the findings and conclusions of the Preliminary Geotechnical Investigation, the Hydrology and Hydraulics Modeling, and Phase I Environmental Site Assessment prepared by Geosyntec. Following are the environmental issues that ESA will address in the Initial Study.

- Aesthetics (ESA to provide brief discussion)
- Agriculture and Forestry Resources (ESA to provide brief discussion)
- Air Quality (incorporate ESA's technical evaluation)
- Biological Resources (incorporate ESA's technical evaluation)
- Cultural Resources including Tribal Cultural Resources (incorporate ESA's technical evaluation and the City's AB 52 documentation)
- Geology and Soils (incorporate Geosyntec's technical evaluation)

- Greenhouse Gas Emissions (incorporate ESA's technical evaluation)
- Hazards and Hazardous Materials (incorporate Geosyntec's Phase I Environmental Site Assessment)
- Hydrology and Water Quality (incorporate Geosyntec's technical evaluation)
- Land Use and Planning (ESA to provide discussion including consistency evaluation with the City and Coastal Act's policies)
- Mineral Resources (ESA to provide brief discussion)
- Noise (incorporate ESA's technical evaluation)
- Population and Housing (ESA to provide brief discussion)
- Public Services (ESA to provide brief discussion)
- Recreation (ESA to provide brief discussion)
- Traffic and Circulation (ESA to provide brief discussion and incorporate Geosyntec's traffic/ pedestrian control plan)
- Utilities (ESA to provide brief discussion)

After completing a draft of the Initial Study, ESA will prepare a draft version of the Notice of Intent to Adopt A Mitigated Negative Declaration (NOI) and submit the draft versions of the NOI and IS to the City of Hermosa Beach for review. In addition, ESA will prepare draft versions of the Notice of Completion/ Environmental Document Transmittal (NOC/EDT) and public agency distribution list for review and comment by City of Hermosa Beach staff.

Deliverable: One electronic copy of the draft Initial Study, NOI, NOC/EDT, and Distribution List

DRAFT MND

Following receipt of a consolidated set of City of Hermosa staff comments on the draft Initial Study, NOI, NOC/EDT, and Distribution List, ESA will provide revisions as directed by City staff and in accordance with the overall scope of work. It is ESA's intent that this submittal will satisfactorily address all City staff comments on the draft Initial Study, NOI, NOC/EDT, and Distribution List. ESA will submit an electronic copy of the public review version of the Draft MND that includes the NOI and IS for a final review and authorization to distribute by City staff. A total of 40 CDs of the Draft MND and 15 paper copies of the Executive Summary will be reproduced. ESA will distribute 15 CDs and 15 paper copies of the Executive Summary to the State Clearinghouse along with one paper copy of the NOC/ EDT. The remaining 25 CDs will be provided to public agencies on the distribution list and the City and one paper copy of the public notice. ESA assumes that the City will place public notice in newspaper such as the Daily Breeze and place an electronic version of the Draft MND on the City's website for public review.

Deliverable: One electronic copy of the Draft MND for City approval for distribution, reproduction and distribution of 40 CDs of the Draft MND and 15 paper copies of the Executive Summary, and 40 paper copies of a one-page public notice.

RESPONSE TO COMMENTS/FINAL MND

ESA will provide responses to public and agency comments that raise substantive environmental issues associated with the proposed project. The responses will be provided in a separate Response to Comments Document. ESA has budgeted approximately 16 hours for technical staff to respond to comments. In addition, ESA will prepare a draft version of the Mitigation Monitoring and Reporting Program (MMRP). After City review of the draft versions of the Response to Comments Document and MMRP, ESA will finalize both documents and send electronic versions of the Response to Comments Document and MMRP to the City to place on the City's website for public review.

Deliverable: Submit one electronic copy of the Draft Response to Comments Document and Draft MMRP to the City for review, submit one electronic copy of the Final Response to Comments Document and Final MMRP to the City to place on the City's website for public review.

Coastal Development Permit

ESA shall provide assistance to the City by preparing the Coastal Development Permit (CDP) application and coordinating the processing of the CDP for the Greenbelt Infiltration Project. The CDP application will largely be based on information found in the environmental document, technical studies, and project plans that describes the development of the project in detail. ESA will prepare and submit a draft CDP application package to City staff for review. ESA will then update the CDP application package to address comments from City staff before submitting the CDP application package to the California Coastal Commission's (CCC) South Coast District office in Long Beach, California for review. ESA will coordinate with City staff, Tetra Tech, and CCC staff during the preparation and review of the CDP application and preparation of the CCC CDP staff report by attending up to two in-person meetings with City staff at City offices, up to three in-person meetings with CCC staff at their South Coast District office, and one CCC hearing in Southern California.

Deliverable: Submit one electronic copy of the draft CDP application package to City staff, one electronic copy and one paper copy of the CDP application package to the CCC CDP staff, attend two in-person meetings with City staff, three in-person meetings with CCC staff, and one CCC hearing in Southern California

Task 3.2 Other Permits Support

In coordination with the City of Hermosa Beach and based on agency contacts conducted during predesign, the Team will prepare necessary permit application packages for submission to relevant agencies. Relevant permit application forms, mapping, and supplemental information will be included. Project information (design report, drawings, etc.) will be reformatted as necessary for each permit application package. Draft permit application packages will be submitted to the City for review, and after incorporation of comments, the Team will finalize the applications and submit, with application fees, to appropriate agencies. It is assumed that the City will pay all permitting fees.

The permitting support provided by Tetra Tech will comprise of two distinct efforts. First, we will identify the necessary ministerial permits required to complete the project. Second, as necessary, our team will support the City during the Design Phase and bring the plans to a "ready to issue" status for the contractor to pull appropriate permits.

Task 4. Final Design (4.2.1.4)

Tetra Tech will provide contract documents suitable for bidding including plans, specifications and engineer's estimate of probable costs, as well as supporting documents such as calculations and construction schedule. The PS&Es will be submitted at 60% and 100% design levels. Tetra Tech will attend a design review workshop after the 60% design submittal. Documents to be reviewed shall be submitted a minimum of one (1) week prior to each meeting.

Task 4.1. 60% Plans, Specifications and Estimate (PS&E) Estimate (4.2.1.4.1)

For the 60% design submittal, the team will develop plans to the 60% level overall. Approximately 90% of the final design drawings will be developed to some degree and many will be nearly complete. Outline specifications and cost estimates will be prepared.

A 60% Design Workshop will be convened at a location to be named by the City of Hermosa Beach, approximately one (1) week following receipt of the 60% Design Submittal. A review comment matrix will be prepared to capture review comments and responses of all comments. The responses will be meaningful and

descriptive enough to allow for the Sanitation District Project Manager to fully understand the nature of the comment and how the comment was closed.

Most plan sheets will be at 1" = 20' scale. We anticipate including a few plan sheets that will show overall layouts, and these may be at 1" = 100' scale. The hydraulic profile of the system will be shown where applicable. Traffic control plans will be prepared for work performed within the travelway(s). The drawings to be developed in AutoCAD format. The following is a list of anticipated drawings:

SHEET INDEX

SHT. DESCRIPTION NO.

1	TITLE SHEET
2	SHEET INDEX LEGEND AND ABBREVIATIONS
3	NOTICE TO CONTRACTORS
4	NOTICE TO CONTRACTORS
5	BORING LOGS
6	OVERALL CONSTRUCTION SEQUENCE PLAN
7	EROSION CONTROL PLAN
8	DEMOLITION PLAN
9	HORIZONTAL PLAN
10	PRECISE GRADING PLAN
11	STORM DRAIN PLAN AND PROFILE
12	UTILITY DEMOLITION AND RELOCATION PLAN
13	DETAILS
14	DETAILS
15	DETAILS
16	DETAILS
17	DETAILS
18	PLANTING PLAN
19	IRRIGATION PLAN
20	IRRIGATION NOTES
21	IRRIGATION AND PLANTING DETAILS
22	IRRIGATION AND PLANTING DETAILS
23	IRRIGATION AND PLANTING DETAILS
24	STRUCTURAL NOTES
25	STRUCTURAL OBSERVATION REQUIREMENTS
26	DIVERSION STRUCTURE FOUNDATION & ROOF PLANS
27	TYPICAL STRUCTURE DETAILS
28	TYPICAL STRUCTURE DETAILS
29	TRAFFIC CONTROL PLAN
30	ELECTRICAL NOTES
31	ELECTRICAL PLAN

32 ELECTRICAL SINGLE LINE DIAGRAM AND DETAILS

An Engineer's Cost Estimate will be prepared for the 60% submittal and updated for the 100% submittal. The estimate will be prepared based on coordination with product manufacturers, recent bid results for the region, historical Caltrans data and RS Means. The estimate will be prepared in a format approved by the City and will break the project down into the different components (i.e. diversion structure, pretreatment, pump station, conveyance, infiltration tanks, etc.).

Tetra Tech will develop calculations for dry- and wet- weather storm flow and sizing of hydraulic structures to accommodate the existing flood control capacity of the existing storm drain. Other calculations are listed below by category:

- Hydrology and hydraulics
- BMP analysis
- Structural analysis
- Earthworks
- Pipe distribution sizing
- Electrical engineering and instrumentation, if applicable

Deliverables: *Three (3) full size (24"x36") of the design plans, draft Standard Special Provisions (SSP), preliminary quantities and estimates, pay item list and design calculations will be submitted in hard copy and electronic format.*

Task 4.2. 100% PS&E (4.2.1.4.2)

For the 100% design submittal, the Tetra Tech team will incorporate review comments from the City and from the, QA/QC review, constructability review and provide a complete set of plans and specifications suitable for the bid phase of the project. Drawings will conform to the Sanitation District Standards and will be stamped by a registered civil engineer in the State of California. Project specifications and cost estimates will be stamped with the original signature and stamped by a registered civil engineer.

Deliverables: *Original Copy of City Redlined plans, three (3) full size (24"x36") of the design plans, Standard Special Provisions (SSP), preliminary quantities and estimates, pay item list and design calculations will be submitted in hard copy and electronic format.*

Task 5. Development of Detail Plans, Specifications and Estimate (PS&E)

After receiving final feedbacks from the City of Hermosa Beach on the 100% PS&E documents, our team will generate the final plans, reports, specifications, and calculations. Plan sheets will be signed by the engineer in charge of plan development and the engineer the engineer who performed the independent plan check. Blank reproducible sample plan sheets and any needed standard drawings will be provided in this task.

Deliverables:

1. *Three (3) full size (24"x36") of hard copies and electronic sets of signed final design plans*
2. *Three (3) hard copies and electronic copies of signed final specifications*
3. *Three (3) hard copies and electronic copies of final cost estimate and final quantity calculations*
4. *Three hard copies and Electronic copies of final design calculations*
5. *Three hard copies and Electronic files in its original format and in PDF of all plans, specifications, and estimates*

Task 6. Construction Bidding Phase (4.2.1.6)

ATTEND PRE-BID MEETING/JOB WALK

The Tetra Tech team will attend the pre-bid conference/ job walk to be held with interested bidders during the bid phase. Our team will take notes and produce meeting minutes, as appropriate, to be included in an addendum. We will prepare up to two (2) addenda to respond to questions and comments raised during the bid phase.

ASSIST THE CITY WITH BID EVALUATION

The team will review the three (3) apparent lowest bidders to verify that the bidder has satisfied the bid requirements and make an award recommendation to the City.

PREPARE "AS-BID" DOCUMENTS

Our team will incorporate all changes to plans and specifications as documented in the addenda to the bid documents, and prepare a set for City review. Changes to the specifications will be noted using distinctive typeface and other means, as defined by the City, to denote changes made to the specifications.

Task 7. Construction Support Phase (4.2.1.7)

The Tetra Tech Team will provide "As Needed" support services during construction phase of the Hermosa Beach Greenbelt Infiltration Project. Members of the same design team that prepares the design plans will provide construction support services in coordination with the City of Hermosa Beach. Upon notification by the City of Hermosa Beach, we will attend pre- construction meeting of the project. Other services in this phase include:

- submittals and shop drawings review;
- assistance to the City of Hermosa Beach to resolve discrepancies in the contract documents;
- review and approve addenda and clarifications to plans and specifications;
- monitor project progress, maintain project files, and control quality of the work performed;
- bringing deficiencies in construction work to the City of Hermosa Beach's attention;
- prepare final record drawings plans incorporating field marked prints supplied by the City; and
- prepare Operation and Maintenance (O&M) documentation.

During construction phase of the project our team will act as a liaison with affected agencies, and coordinate plan check, design topics, permits and any other issues with the City of Hermosa Beach, other agencies, and utility companies as required.

Our team will cover necessary drawings for corrections and change orders required by errors and omissions in our own design drawing.

Under this task, we are assuming our efforts to include: one pre-construction meeting; fifteen (15) submit and 10 re-submit review of submittals and shop drawings; assistance with 25 RFIs; eight (8) construction site visits 35 sheets of final record drawings plans; meetings, management and progress reports; and O&M documents preparation.

Deliverables:

1. *One (1) signed set of final record drawings with one (1) electronic copy (in AutoCAD and pdf formats);*
2. *Operation and Maintenance (O&M) Document in electronic format.*

Optional Task 8. Monitoring Plan and QAPP (4.2.1.8)

A Performance Monitoring and Reporting Plan (MRP) will include a description of water quality and volume capture monitoring objectives, the monitoring activities including the types of water quality constituents to be monitored, the sampling location, frequency/schedule for the monitoring activities, as well as a schedule for the monitoring reports. The Team will also develop a Quality Assurance Project Plan (QAPP) in accordance with the State Water Board's Surface Water Ambient Monitoring Program (SWAMP) data reporting requirements. Additionally, the plan will define how to measure the additional benefits associated with the project.

An Operations and Maintenance Plan (OMP) that features care and maintenance schedules for the green infrastructure systems and plant profiles. Additionally the Team will collaborate with City of Hermosa Beach staff to develop a plan for quarterly maintenance training seminars.

Optional Task 9: Water Quality Analysis and Optimization

The Tetra Tech Team will collaborate with City of Hermosa Beach staff to develop tools for optimizing the performance of the Project. The Tetra Tech team has developed a suite of tools that provide a state-of-the-science system for hydrologic and pollutant load assessments to support BMP design. Each analysis we perform for our clients in the Los Angeles region has provided an opportunity to improve and advance our methods to achieve more accurate and informative results that clearly visualize the effects of key design parameters. For example, as part of the recent WMP and EWMP modeling efforts, our team was exclusively responsible for conceiving and implementing the modeling framework for representing regional and green infrastructure BMPs to accurately account for site availability and realistic diversion structure flow rates. These analyses provide the foundation for executing the BMP design work at the Example Project site. Moreover, this system of modeling tools is specifically designed to be consistent with methods used by regulators to quantify the benefit of BMPs for TMDL compliance. As a result, these tools are not only ideal for sizing of BMP features, but can also be used to demonstrate compliance progress with regulatory requirements such as those outlined in the EWMP/WMP.

ACTIVE CONTROLS ASSESSMENT

Of critical importance to this project is the potential introduction of active, real-time controls to the design process. Integrating "smart" controls on a project that are linked to weather-prediction services and are able to predict flows and/or demands can greatly increase the capacity of a BMP to capture, store, and use water. In some environments, the performance of the subject BMP can be increased by up to 90 percent. If this technology is successfully demonstrated to be advantageous at this project site, it could greatly reduce the overall number of BMPs ultimately required to achieve compliance with the TMDLs as outlined in the EWMP/WMPs.

Our team has demonstrated these tools to design and size BMPs such as underground detention, above-ground detention, green infrastructure, and other BMPs throughout the country and specifically in the Los Angeles region as part of several projects, including Albion Riverside Park, Aliso Creek – Limekiln Creek, Mayfair Park, Bolivar Park, Carriage Crest Park, Santa Monica's Pico-Kenter Drain and Pier Drain, the LA Zoo, Peck Park, and Elmer Paseo. Our team proposes continuing this innovative approach to assess the load reduction potential at the example site. The modeling results will include the quantification of expected pollutant load reductions for dry- and wet-weather flows providing an estimated target for BMP performance.

INNOVATIVE BMP COMPONENTS AND CONSIDERATIONS

Once the approximate BMP sizes and configurations have been determined, the Tetra Tech team will apply their years of experience planning, designing, and implementing BMPs to incorporate innovative concepts, to maximize the performance of the BMPs in multiple components including:

- **Effective Pretreatment:** Dry-weather flows are traditionally loaded with gross solids and will be especially foul in appearance and smell. Effective pre-treatment will be a necessity before discharging runoff to surface BMPs. We have designed many different types (hydrodynamic separators, baffles, etc.), depending on the needs of the particular project.
- **Maintenance Implications:** While maintenance of BMPs is typically considered after the design, it is important to consider and minimize the maintenance requirements during the predesign process, including the selection of BMPs, minimizing specialized equipment, considering access issues, and preventing weeds and pests. During design, the Tetra Tech team will consider maintenance activities and approximate costs and how they play a role in optimizing the system.

It should be noted that the mechanics of managing such a system can be complex. As part of our recent work evaluating regional stormwater harvesting in Lakewood, Carson and Santa Monica, our team created a custom-built analysis specifically designed to evaluate the feasibility of infiltrating, harvesting or combination of the two, at a regional level. Through the use of active controls, our team has seen a dramatic increase in BMP performance. A recent analysis performed by Tetra Tech for the Lakewood Stormwater Capture Project estimated pollutant load removal increases in the order of 30%.

Deliverable: Draft and Final memorandum summarizing findings, results and project recommendations.

Prop 1 STORMWATER GRANT PROGRAM - BUDGET DETAIL

Proposer: Tetra Tech

Date: 04/27/2017

Project: Professional Engineering Design Services for Hermosa Beach Greenbelt Infiltration Project

Proposer shall insert its own labor category rows as needed for each subtask - example categories are provided in the first two subtasks as a guide. Proposer shall insert additional budget detail sheets for each subconsultant and roll up costs for subconsultants into a line item under each subtask in the main spreadsheet by subtask.

Budget Category	Discipline/Consultant/ Description	Labor Costs			Consulting/Materials/Equipment				TOTALS
		Rate	# of Hours	Total Labor	Unit Cost	Units	# of Units	Total Cost	
1. Planning/Design/Engineering/ Environmental									
Subtask 1.1 Survey, Utilities Evaluation, Additional Geotechnical Investigation	Project Manager	\$220	12	\$2,640					\$2,640
	Deputy Project Manager	\$200	21	\$4,200					\$4,200
	Sr. Civil Engineer	\$175	4	\$700					\$700
	Mid Civil Engineer	\$130	10	\$1,300					\$1,300
	Jr. Civil Engineer	\$110	16	\$1,760					\$1,760
	Landscape Architect	\$125	6	\$750					\$750
	Land Surveyor	\$160	4	\$640					\$640
	Assistant Land Surveyor	\$90	8	\$720					\$720
	Two Man Survey Crew (Tetra	\$210	16	\$3,360					\$3,360
	CAD Designer	\$95	48	\$4,560					\$4,560
	Sr. Electrical Engineer	\$235	4	\$940					\$940
	Principal Engineer/Geologist	\$230	8	\$1,840					\$1,840
	Project Engineer	\$145	40	\$5,800					\$5,800
	Field Geologist	\$145	2	\$290					\$290
	Drafting Geotechnical Support	\$120	2	\$240					\$240
	Office Geotechnical Support	\$85	2	\$170					\$170
	Potholing Vendor TBD							\$4,000	\$4,000
	Arrowhead Mapping Corp (see additional Budget Detail sheet)							\$2,833	\$2,833
Subtotal Subtask 1.1			203	\$29,910				\$6,833	\$36,743
Subtask 1.2 Preliminary Design, Planning activities	Principal	\$300	4	\$1,200					\$1,200
	QA/QC Manager	\$250	2	\$500					\$500
	Project manager	\$220	16	\$3,520					\$3,520
	Deputy Project Manager	\$200	46	\$9,200					\$9,200
	Stormwater Quality Manager	\$230	12	\$2,760					\$2,760
	Sr. Water Resources Engineer	\$215	36	\$7,740					\$7,740
	Mid Water Resources Engineer	\$155	104	\$16,120					\$16,120
	Jr. Water Resources Engineer	\$115	152	\$17,480					\$17,480
	Sr. Civil Engineer	\$175	20	\$3,500					\$3,500
	Mid Civil Engineer	\$130	58	\$7,540					\$7,540
	Jr. Civil Engineer	\$110	106	\$11,660					\$11,660
	Landscape Architect	\$125	10	\$1,250					\$1,250
	Structural Engineer	\$220	4	\$880					\$880
	Structural Designer	\$125	16	\$2,000					\$2,000
	CAD Designer	\$95	60	\$5,700					\$5,700
	Council for Watershed Health (see additional Budget Detail sheet)							\$68,096	\$68,096
Subtotal Subtask 1.2			646	\$91,050				\$68,096	\$159,146
Subtask 1.3 CEQA documentation, Permits	Project Manager	\$220	4	\$880					\$880
	Deputy Project Manager	\$200	21	\$4,200					\$4,200
	Sr. Water Resources Engineer	\$215	8	\$1,720					\$1,720
	Mid Water Resources Engineer	\$155	16	\$2,480					\$2,480
	Jr. Water Resources Engineer	\$115	24	\$2,760					\$2,760
	Mid Civil Engineer	\$130	8	\$1,040					\$1,040
	Jr. Civil Engineer	\$110	24	\$2,640					\$2,640
	ESA - Environmental Science Associates (see additional Budget Detail sheet)							\$61,204	\$61,204
Subtotal Subtask 1.3			105	\$15,720				\$61,204	\$76,924
Subtask 1.4 Final Design	Principal	\$300	2	\$600					\$600
	QA/QC Manager	\$250	8	\$2,000					\$2,000
	Project Manager	\$220	26	\$5,720					\$5,720
	Deputy Project Manager	\$200	44	\$8,800					\$8,800
	Sr. Civil Engineer	\$175	60	\$10,500					\$10,500
	Mid Civil Engineer	\$130	120	\$15,600					\$15,600
	Jr. Civil Engineer	\$110	210	\$23,100					\$23,100
	Structural Engineer	\$220	24	\$5,280					\$5,280
	Structural Designer	\$125	60	\$7,500					\$7,500
	CAD Designer	\$95	330	\$31,350					\$31,350
	Sr. Electrical Engineer	\$235	30	\$7,050					\$7,050
	Electrical Designer	\$95	90	\$8,550					\$8,550
	Council for Watershed Health (see additional Budget Detail sheet)							\$3,828	\$3,828
Subtotal Subtask 1.4			1004	\$126,050				\$3,828	\$129,878
Subtask 1.5 Detailed Plans, Specifications and Construction Estimate	Principal	\$300	1	\$300					\$300
	QA/QC Manager	\$250	2	\$500					\$500
	Project Manager	\$220	12	\$2,640					\$2,640
	Deputy Project Manager	\$200	20	\$4,000					\$4,000
	Sr. Civil Engineer	\$175	10	\$1,750					\$1,750
	Mid Civil Engineer	\$130	20	\$2,600					\$2,600
	Jr. Civil Engineer	\$110	40	\$4,400					\$4,400
	Structural Engineer	\$220	4	\$880					\$880
	Structural Designer	\$125	10	\$1,250					\$1,250
	CAD Designer	\$95	50	\$4,750					\$4,750
	Sr. Electrical Engineer	\$235	4	\$940					\$940
	Electrical Designer	\$95	10	\$950					\$950
Subtotal Subtask 1.5			183	\$24,960				\$0	\$24,960
Subtask 1.6 Construction Bidding Phase	Principal	\$300	2	\$600					\$600
	Project Manager	\$220	6	\$1,320					\$1,320
	Deputy Project Manager	\$200	22	\$4,400					\$4,400
	Mid Civil Engineer	\$130	20	\$2,600					\$2,600
	Jr. Civil Engineer	\$110	8	\$880					\$880
	CAD Designer	\$95	60	\$5,700					\$5,700
	Council for Watershed Health (see additional Budget Detail sheet)							\$3,223	\$3,223
Subttotal Subtask 1.6			118	\$15,500				\$3,223	\$18,723
Subtask 1.7 Construction Support Phase	Principal	\$300	4	\$1,200					\$1,200
	Project Manager	\$220	16	\$3,520					\$3,520

	Deputy Project Manager	\$200	93	\$18,600				\$18,600
	Sr. Civil Engineer	\$175	26	\$4,550				\$4,550
	Mid Civil Engineer	\$130	75	\$9,750				\$9,750
	Jr. Civil Engineer	\$110	5	\$550				\$550
	Landscape Architect	\$125	12	\$1,500				\$1,500
	Structural Designer	\$125	29	\$3,625				\$3,625
	CAD Designer	\$95	56	\$5,320				\$5,320
	Sr. Electrical Engineer	\$235	10	\$2,350				\$2,350
Subtotal Subtask 1.7			326	\$50,965			\$0	\$50,965
Subtotal Task 1			2,585	\$354,155			\$143,184	\$497,339
2. Optional Services								
Subtask 2.1 Monitoring Plan and QAPP	Project Manager	\$220	4	\$880				\$880
	Deputy Project Manager	\$200	16	\$3,200				\$3,200
	Council for Watershed Health (see additional Budget Detail sheet)						\$79,126	\$79,126
Subttotal Subtask 2.1			20	\$4,080			\$79,126	\$83,206
Subtask 2.2 Water Quality Analysis and Optimization	Project Manager	\$220	5	\$1,100				\$1,100
	Deputy Project Manager	\$200	10	\$2,000				\$2,000
	Stormwater Quality Manager	\$230	24	\$5,520				\$5,520
	Sr. Water Resources Engineer	\$215	48	\$10,320				\$10,320
	Mid Water Resources Engineer	\$155	216	\$33,480				\$33,480
	Jr. Water Resources Engineer	\$115	232	\$26,680				\$26,680
	OptiRTC (see additional Budget Detail sheet)							
Subtotal Subtask 2.2			535	\$79,100			\$0	\$79,100
Subtask 2.3 Pre-Construction Flow Monitoring	Council for Watershed Health (see additional Budget Detail							
Subtotal Subtask 2.3								
2.4 Project WebPage	Council for Watershed Health							
Subtotal Subtask 2.4								
2.5 Community Outreach	Council for Watershed Health						\$8,553	\$8,553
Subtotal Subtask 2.5							\$8,553	\$8,553
2.6 O&M Training	Council for Watershed Health						\$32,567	\$32,567
Subtotal Subtask 2.6							\$32,567	\$32,567
Subtotal Task 2			555	\$83,180			\$79,126	\$203,425
Grand Total:								\$700,764

