

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

June 20, 2018

ADDENDUM NO. 1
STORM WATER MANAGEMENT AND SAMPLING SERVICES, OAHU,
STATE OF HAWAII, DEPARTMENT OF DEFENSE,
HAWAII ARMY NATIONAL GUARD, JOB NO. CA-1820

The items listed hereinafter are hereby made a part of the contract for the above mentioned project and shall govern the work taking precedence over previously issued contract documents governing the items mentioned. Receipt of this addendum is to be acknowledged on page OF-5 of the proposer's packet.

Added Documents:

Annual Monitoring Plan dated May 31, 2018, attached.

The following are questions submitted prior to the due date of June 13, 2018.

1. Page 1, Section I.A. The plans and documents prepared pursuant to the Permit requirements are listed in Part H of the Permit. Will these documents be made available to the Contractor to allow for appropriate consideration in bidding?

A. Attachment C – current Annual Monitoring Plan, dated May 31, 2018 is attached. Attachment A Storm Water Management Plan incorporates the required plans and checklists except for the Annual Monitoring Plan. Tracking documents and completed checklists will be provided to contractor subsequent to contract award.

Regarding the requirements to identify compliance issues and concerns, and to propose modifications and measures to enhance and improve the program, it appears that the intent is for the Contractor to perform an MS4 audit of the program. In order to provide consistency amongst bidders and to ensure bidders conduct such work with the appropriate amount of care consistent with industry practice, is the Contractor expected to follow the US EPA's MS4 Program Evaluation Guidance when conducting the audit/evaluation? If a level of service below the US EPA's MS4 Program Evaluation Guidance will be allowed, please elaborate as to what will be necessary.

A. The standard will be to meet regulatory requirements of NPDES Permit HI S000052 issued by the Hawaii Department of Health (DOH).

2. Page 1, Section I.B. What will happen if there is no qualifying storm event within the time period?

A. HIARNG may request an extension of performance period to accomplish this work; however, the Annual Monitoring Plan shall still be prepared as required by the permit by the specified deadline.

Will HIARNG be responsible for monitoring rainfall (e.g. using a rain gauge) on a daily basis to identify qualifying storm events, and notify the contractor? If contractor is responsible, will contractor be allowed to use nearest available online third party (rain gauge) data. Or is a rain gauge required to be installed on site by the contractor?

A. Contractor is responsible to monitor rainfall. Online third party (rain gauge) data will be acceptable if acceptable by DOH; however, rain gauge may also be installed on-site by contractor.

Section 12.0 of the 2017 Annual Monitoring Plan describes the use of an auto sampler. Will the Contractor be able to utilize this sampler?

A. No. Section V of the Scope of Work (SOW) stipulates "The contractor is responsible for furnishing all materials, supplies, equipment, personnel, transportation, and all other resources necessary to perform work related to this project."

Does this auto sampler have the capability of measuring pH and temperature within the first 15 minutes of discharge? How is the auto sampler powered? Will the specifications for this auto sampler be provided for bidding purposes?

A. N/A. HIARNG will not provide auto sampler.

Since sampling events may occur on any day of the week and any hour of the day, what kind of security or other access restrictions exist for the Contractor to access the sampling locations? Since such security and access restrictions likely exist, coupled with the requirement to mobilize to the Wahiawa site within 15 minutes in order to measure certain parameters within 15 minutes of discharge and subsequently collect the water sample, would HIARNG consider designating onsite (e.g. DOD) personnel responsible for the sampling and only require the contractor to provide training of the onsite personnel?

A. No, HIARNG personnel will not conduct sampling. The facility is guarded 24/7. HIARNG PM will coordinate access with facility personnel and Wheeler Army Airfield.

3. Page 2, Section I.D. The Permit renewal application is to be included in the Annual Report for the fiscal year prior to the expiration date of the Permit. Is the Contractor responsible for completing the entire Annual Report for this particular year or just the renewal application section of the Annual Report?

A. Per Part G.1.a of the permit, since this Annual Report serves as the renewal application, contractor shall prepare the entire Annual Report, including the requirements for the 4th year submission. However, HIARNG will provide a draft of the Annual Report, similar to the FY 2017 report, without the 4th year requirements, upon completion. Contractor is expected to be knowledgeable of the NPDES renewal process, and ensure the Annual Report meets the DOH permit submission requirements for permit renewal.

4. Page 2, Section II.A.1. Is the WP and SHP applicable only to field activities? If so, will HIARNG change the due date from "within ten (10) business days of receipt of NTP" to "at least ten (10) days prior to any field activities?"

A. The SHP is only applicable to field activities; the WP applies to the entire scope of work. See next answer for due dates.

If not, and the WP and SHP is to be required for the entire scope of work (e.g. review permits, prepare plans and reports), then 10 days from the NTP will not be enough time considering the many discussions and meetings that will be needed to ascertain methodologies, priorities, and scheduling. Will HIARNG change the due date from 10 days to 45 days of the NTP?

A. In the Scope of Work Section II.A.1. change “within ten (10) business days” to read as “within fifteen (15) business days”. Note that after award and execution of the contract, a pre-contract meeting is scheduled, at which time the WP can be discussed and NTP date decided.

5. Page 2, Section II.B.2. In order to accomplish this, the Contractor should request that certain documents be provided in advance of the site visits. Will the Contractor be able to assume that such requested records will be made available by HIARNG upon request and prior to the site visits?

A. The HIARNG Project Manager (PM) will provide pertinent documents that are available in the Environmental Office upon request.

6. Page 2, Section II.C.1. The Permit requires more plans than the five (5) listed in this section of the Scope of Work. The plans and documents prepared pursuant to the Permit requirements are listed in Part H of the Permit. Will the Contractor be required to review these plans (e.g. Trash Reduction Plan, Action Plan for Retrofitting Structural BMPs) as well and will these plans and documents be made available to the Contractor to allow for appropriate consideration in bidding?

A. Aside from the plans provided in Attachments A, B, C, and D to the SOW, there are no other separate plans; the required “plans” were incorporated into the Storm Water Management Plan. Contractor shall assess the adequacy of the plans, and modify/re-write, as needed.

7. Page 3, Section II.C.2.

a. Regarding the requirements to identify areas of concern, noncompliance, and discrepancies, should the Contractor follow the US EPA's MS4 Program Evaluation Guidance when conducting the audit/evaluation? If a level of service below the US EPA's MS4 Program Evaluation Guidance will be allowed, please elaborate as to what will be necessary.

A. HIARNG expects the Contractor to be knowledgeable of the federal and state regulatory requirements, as well as industry standards as respects compliance with NPDES permits. Contractor is expected to consult with DOH, with approval of the HIARNG PM, regarding any question as to compliance issues.

b. Will the recommendations for BMPs require the following information: a general description of the recommended BMP, specific type of BMP, manufacturer name of the particular BMP, cost of BMP, and/or detailed drawings/plans?

A. As a minimum, general description of the recommended BMP and specific type of BMP.

c. When providing recommendations for appropriate modifications to the Permit and plans and documents, is the Contractor expected to provide the specific language that is being recommended to modify the Permit, plan, and/or document? For example, if the Contractor finds that a particular Plan is inadequate, is the Contractor responsible for re-writing that Plan?

A. Yes.

d. There will be time needed to review available documents, request additional documents, HIARNG to provide the documents, verify via site visits and interviews, identify areas of concern, and develop recommendations. Will HIARNG change the deadline to provide the Evaluation and Recommendations Report from 45 calendar days to 180 calendar days?

A. In anticipation that this report will be helpful in preparing the Annual Report which will serve as the renewal application for this permit, Section II.C.2.d is changed to "The report shall be submitted to the HIARNG PM in electronic Word and pdf format by December 1, 2019."

8. Page 3, Section II.D.1.

What will happen if there is no qualifying storm event within the time period?

A. See first response to Question 2.

Will HIARNG be responsible for monitoring rainfall (e.g. using a rain gauge) on a daily basis to identify qualifying storm events, and notify the contractor? If contractor is responsible, will contractor be allowed to use nearest available online third party (rain gauge) data. Or is a rain gauge required to be installed on site by the contractor?

A. See second response to Question 2.

Section 12.0 of the 2017 Annual Monitoring Plan describes the use of an auto sampler. Will the Contractor be able to utilize this sampler?

A. See third response to Question 2.

Does this auto sampler have the capability of measuring pH and temperature within the first 15 minutes of discharge? How is the auto sampler powered? Will the specifications for this auto sampler be provided for bidding purposes?

A. N/A; HIARNG will not provide auto sampler.

Since sampling events may occur on any day of the week and any hour of the day, what kind of security or other access restrictions exist for the Contractor to access the sampling locations? Since such security and access restrictions likely exist, coupled with the requirement to mobilize to the Wahiawa site within 15 minutes in order to measure certain parameters within 15 minutes of discharge and subsequently collect the water sample, would HIARNG consider designating onsite (e.g. DOD) personnel responsible for the sampling and only require the contractor to provide training of the onsite personnel?

A. See fifth response to Question 2.

9. Page 4, Section II.E.1. For clarification, please include the year(s) for the dates indicated.
A. In the Scope of Work Section II.E.1. change “(July 1 – June 30)” to read as (July 1, 2018 – June 30, 2019)”.
10. Page 5, Section II.E.2. For clarification, please include the year(s) for the dates indicated.
A. In the Scope of Work Section II.E.2. change “(July 1 – June 30)” to read as (July 1, 2018 – June 30, 2019)”.
11. Page 5, Section II.F.1. Renewal of the NPDES Permit HI S000052 is to be included in the Annual Report. Will the Contractor be responsible for completing the entire Annual Report for this particular year or just the renewal application section of the Annual Report?
A. See response to Question 3.

How many points of contact at HIARNG will the Contractor need to contact to obtain the data and documentation necessary to complete the Annual Report and/or renewal application?

A. All requests for data and documents shall be through the HIARNG PM.

We are not aware of any fieldwork that would be necessary to renew a permit. Will HIARNG please clarify and/or give examples of any field work that HIARNG specifically knows need to be done during the permit renewal process?

A. See Sections B and C. Contractor is expected to visit sites to identify any discrepancies or concerns which may need to be resolved prior to completion of the Annual Report which serves as the renewal application.

12. Page 6, Section IV.D. Will HIARNG change the time requirement from 45 to 180 days? See Item #7.
A. See response to 7d.
13. Page 6, Section IV.E.1. From a contractual perspective, what will happen if there is no qualifying storm event within the time period?
A. See first response to Question 2.
14. Page 6, Section IV.F. For clarification, please include the years for the dates indicated in Sections F.1. and F.2.
A. In the Scope of Work Section IV.F.1 Annual Monitoring Plan: Change “April 15” to read as “April 15, 2019”.
In the Scope of Work Section IV.F.2 Annual Monitoring Report: Change “August 1” to read as “August 1, 2019”.
15. Page 7, Section VI.B. Will HIARNG revise language to read:

"Contractor shall be responsible for all violations, fines, and penalties assessed/levied against HIARNG that is the result of the Contractor's work or lack thereof performed under this contract pursuant to the HIARNG NPDES permit."

A. Yes. Section VI.B is changed to “Contractor shall be responsible for all violations, fines, and penalties assessed/levied against HIARNG that is the result of the Contractor's work or lack thereof performed under this contract pursuant to the HIARNG NPDES permit.”

16. Upon selection would all native files referenced be available?

A. Yes.

17. Scope of Work, Section II B.2 pertaining to site visits states “Identify areas of concern at the sites, and any discrepancies with the Permit and plans and documents required by the Permit.” Is documenting this information to be a stand-alone report, or is it supposed to be included in the Evaluation and Recommendations Report, or in the monthly status report?

A. Included in the Evaluation and Recommendations Report.

18. Will the Contractor be responsible for submitting DMRs to DOH's E-Permitting site?

A. Yes.

19. Is there a 2018 Annual Monitoring Plan available?

A. Yes. Copy attached.

20. The Annual Monitoring Plan refers to an auto sampler at Sample Location 1. Is this still in commission and is the contractor expected to utilize it?

A. See third response to Question 2.

21. We are hoping for additional information on the specific services requested and the locations of the services. We are aware that Hawaii Army National Guard (HIARNG) has facilities statewide.

1. Does the current permit cover all facilities across the entire state?

2. Will sampling be required at all facilities statewide?

3. Are there compliance issues HIARNG is aware of currently of that need to be addressed as part of this scope of work?

4. We would like more details on the locations and specific services of HIARNG's NPDES permit management and compliance issues so that we may appropriately bid the work as requested.

A.

1. The permit covers facilities listed on page 2 of the Storm Water Management Plan.

2. Sampling is only required at the HIARNG aviation facility at Wheeler Army Airfield. Although HIARNG has selected a sampling point, contractor is expected assess the selected location, and be knowledgeable of additional sampling that may be required due to exceedances, and investigation and mitigation methods for those exceedances.

3. Contractor is expected to provide services to determine non-compliance issues, as well as if there are areas where permit requirements may be reduced/eliminated based on NPDES regulations.

4. *The purpose of this project is to provide expertise in assessing and addressing all aspects of HIARNG's NPDES program as it relates to the NPDES permit and the permit renewal. Locations are as specified in Table 1.1, Permitted Facilities, of the Storm Water Management Plan.*
22. Page OF-6 indicates that the contractor must attach the "names and residence addresses of all officers of the company". Please confirm that "residence addresses" refers to places of work, not personal residence.
A. Yes, it refers to business addresses.
23. Page SN-3 indicates that "If made by a joint venture the name and post office address of each member of the individual form, partnership or corporation comprising the joint venture must be shown with other pertinent information required of individuals, partnerships or corporations as the case may be. The proposal must be signed by all parties to the joint venture or evidence in the form of a Joint Venture Agreement must be submitted showing the authority of the Joint Venture's representative to enter on behalf of said Joint Venture into contract with the State." As regards pages OF-1 and OF-6, should we enter both company's information in the single fields provided, or should we duplicate these pages to show each joint venture partner on a separate page?
A. Please enter both company's information in the single fields provided.
24. Does this opportunity accommodate a prime contractor using a subcontractor, or do the two companies need to team as a formal joint venture? If it's the former, where on the offer forms do we indicate that we're utilizing a subcontractor?
A. This contract may be awarded to a prime contractor OR a joint venture. There is no requirement to list subcontractors for this type of contract.
25. Does HIARNG require the use of a specific state-approved rate schedule?
A. Only if you have positions that fall under the DLIR State Wage Rate schedule published on the DLIR website <http://labor.hawaii.gov/rs/home/wages/72-2/> .
26. The bid documents indicate that the contract may be renewed by mutual agreement for no more than four one-year renewal periods. Will the contractor be granted the ability to revise their bid and related rates for subsequent years, or will they be held to their original "Year 1" bid and rates?
A. This is a standard option and is included to give the State the option to extend the contract if needed. This contract is estimated to be completed within 365 days from the NTP date. There should be no revision of the original bid. If there is a need to extend the time and/or a change to the original scope there may be fee negotiations.
27. Are bidders allowed to include a cover letter with our bid?
A. Yes, you may include a cover letter
28. Would HIARNG consider extending the deadline for the Evaluation and Recommendations Report? It may take more than 45 days from NTP for the contractor to assess HIARNG's program and provide recommendations.
A. See response to Question 7d.

29. Please confirm that this procurement is based solely on price, and not on the bidder's qualifications.
A. See Offer Form page OF-2, Note #1. "Contract will be awarded based on the total lump sum bid."
30. HIARNG's 2017 Annual Monitoring Plan refers to the use of an autosampler.
1. Is it HIARNG's expectation that the contractor utilize an autosampler?
A. No.
2. If so, will HIARNG provide the autosampler, or will the contractor be expected to provide that equipment as part of our bid?
A. Not applicable; autosampler not required. HIARNG will not provide autosampler.
31. Please confirm that per Statement of Work Section II.D.10, our fee should include the laboratory's cost to analyze the required samples. If so, does HIARNG have a preferred laboratory that contractors should engage with to develop our bid?
A. Fee should include laboratory costs. HIARNG does not have a preferred laboratory; however, Contractor shall ensure the laboratory is acceptable to DOH.
32. Please confirm that that no "Standard Questionnaire and Financial Statement for Bidders" (as referenced on Bid Documents page SN-1) or prequalification questionnaire (as referenced on Bid Documents page SN-2) are required or appropriate for this proposal?
A. The Department of Defense will not be requiring a Standard Questionnaire and Financial Statement for Bidders for this project.
33. Statement of Work Section II.C.1 states that the contractor shall review and analyze plans including, but not limited to, five specific plans. What other plans are anticipated to need review and analysis by the contractor?
A. All other "plans" that are required by the permit have been incorporated into the Storm Water Management Plan. See response to Question 6.
34. Statement of Work Section II.F.1 states that the contractor shall "determine requirements for renewing NPDES Permit HI S000052, conducting fieldwork as needed, and obtaining required documents and data." NPDES Permit section G.1.A states "the Annual Report for the fiscal year prior to the expiration date of the permit shall serve as the permit's renewal application." The contractor is not responsible in this Statement of Work for developing the Annual Report. Are we correct to presume that HIARNG will develop the Annual Report? Other than the Annual Report, what other materials are expected to be prepared by the contractor for renewing the NPDES permit?
A. See response to Question 3. Contractor is expected to be knowledgeable of any other requirements for renewing the NPDES permit.
35. Statement of Work Section II.A.2. states that the Work Plan shall detail the quality assurance and quality control measures to be taken. Please confirm that HIARNG does not expect a formal Quality Assurance Project Plan (QAPP) formatted per EPA guidelines?

A. Confirmed.

36. Please confirm that HIARNG expects only a final submittal of the Assessment and Recommendations Report (Statement of Work Section IV.D), not a draft and final submittal.

A. Confirmed.

37. Statement of Work Item II.D1 states that an annual sample will be collected within 5 months of NTP. IF NTP is given in July 2018, the 5 months will end prior to the rainy season from December to March. Is it possible to extend the 5 month deadline?

A. Section II.D.1 is changed to "Conduct one (1) annual water quality sample collection event, laboratory analysis, and rainfall data collection at up to three (3) sampling points for Army Aviation Support Facility #1 (AASF#1), Wheeler Army Airfield (WAAF), located in Wahiawa, Oahu, by April 1, 2019. See also first response to Question 2.

38. Regarding Statement of Work Item II.D2, based on the nature of the rain event and runoff characteristics and the equipment to be used for sample collection, collection of sufficient sample volume may not be possible to conduct QA samples. Can the requirement be changed from mandatory to if conditions allow for collection of sufficient sample volume?

A. Yes, assuming vendor's question relates to Section II.D.3. Section II.D.3 is changed to "The contractor shall collect at least one (1) quality assurance sample for each sampling event performed if conditions allow for collection of sufficient sample volume."

39. Regarding Statement of Work Item IV.F.1 and .2, please confirm that the dates are April 15 and August 1, 2019.

A. Confirmed. See response to Question 14.

40. Is HIARNG amenable to amending Section 7 of the General Conditions (Indemnification and Defense) in the contract agreement, as per the Special Condition which was previously accepted by the State of Hawaii for provision of professional services.

A. Yes, Section 7 of the General Conditions will be revised on a Special Conditions form in the contract to read as:

"7. Indemnification. The CONTRACTOR shall indemnify and hold harmless the State of Hawaii, the contracting agency, and their officers, employees and agents from and against all liability, loss, damage, cost, and expense, including all reasonable attorney's fees, and all claims, suits, and demands therefore, arising out of or resulting from the negligent, reckless, intentional, or wrongful acts, errors, or omissions of the CONTRACTOR or the CONTRACTOR's employees, officers, agents, or subcontractors under this Contract. The provisions of this paragraph shall remain in full force and effect notwithstanding the expiration or early termination of this Contract."

41. Will HARING consider the following modifications to Statement of Work Section VI.B. "Contractor shall be responsible to for all violations, fines, and penalties assessed/levied against HIARNG to the extent caused by Contractor's negligent

work or willful misconduct performed under this contract pursuant to the HIARNG NPDES permit."

A. See response to Question 15.

42. Will selected contractor be implementing the existing Annual Monitoring Plan and any revisions will be implemented in the following year? Or are we bidding on performance of the anticipated revised Monitoring Plan?

A. The attached Annual Monitoring Plan dated May 31, 2018.

43. Should we plan to pay the permit fee for the renewal application?

A. HIARNG will pay the \$1,000 permit fee.

44. Does the government own the ISCO refrigerated autosampler referenced in the SWMP? If so, is it functional and available for use?

A. See the third response in Question 2.

45. Please confirm if the deadlines listed (April 15 for the Annual Monitoring Plan and August 1 for the Annual Monitoring Report) are in 2019

A. Confirmed. See response to Question 14.

46. Scope of Work, initial page, Section I.A. (Bid package page 44)
We've conducted investigations of Copper, Nickel, and Zinc exceedances for the Hawaii Department of Transportation. This type of investigation would include sampling not covered in the scope. Should we present these concepts as optional bid items or wait to discuss and price them post-award?

A. See the attached Annual Monitoring Plan dated May 31, 2018. Note that it is suspected the exceedances resulted from non-industrial-related activity of the aviation transportation facility; contractor shall recommend degree of further investigation required. Any additional sampling deemed necessary in addition to the sampling specified in D.2 must be approved by the HIARNG PM, subject to funding availability.

47. Scope of Work, Initial Page, Section I.B (Bid package page 44/45)
Assuming we should price the worst case scenario of two sampling events with three (3) sampling points each. If only the first round of sampling occurs, will we need to break out those costs post-award?

A. No; however, the HIARNG PM will make the final determination of the sampling points, and if a second round of sampling under D.2 should be accomplished, based on Contractor recommendations.

48. Scope of Work, Page 2 of 7, Section I.C (Bid package page 45)
Will we be implementing the existing Annual Monitoring Plan and any revisions will be implemented in the following year? Or are we bidding on performance of the anticipated revised Monitoring Plan?

A. See response to Question 42.

49. Scope of Work, Page 2 Of 7, Section I.C (Bid package page 45)
The "Annual Monitoring Report" is listed as Section 8 in the "Annual Report". Should we assume that we will be creating this whole document (including a

facility assessment for each of the 5 facilities using the Water Quality Assessment Checklist)?

A. See response to Question 3. The Annual Monitoring Report will be addressed in the HIARNG draft of the Annual Report. Contractor is not required to conduct inspections using the HIARNG Water Quality Assessment Checklist; however, checklists conducted by HIARNG will be available to the Contractor.

50. Scope of Work, Page 4 of 7, Section II.D.10 (Bid package page 47)
Is there a list of qualified or un-qualified labs? What specific qualification is required?

A. Contractor shall ensure laboratory used is acceptable to the DOH.

51. Scope of Work, Page 5 of 7, Section III.B (Bid package page 48)
The attachment filename includes a statement that a draft of the 7/1/17 - 6/30/18 Annual Report will be provided upon completion by HIARNG. Will we receive a word format copy? Is this for information only or are we required to prepare the report for DOH?

A. See response to Question 3. Word format copy will be provided.

52. Scope of Work, Page 7 of 7, Section VII.A (Bid package page 50)
Will Certified Professional in Stormwater Quality (CPSWQ) certification fulfill verifiable professional experience?

A. Regardless of the certification, key personnel are still required to have at least three (3) years verifiable professional experience in the specified tasks.

Arthur J. Logan
Major General
Adjutant General

Posted: June 20, 2018

Hawaii Army National Guard Annual Monitoring Plan

National Pollutant Discharge Elimination System

Permit HI S000052



May 31, 2018



Prepared By:
Hawaii Army National Guard
3949 Diamond Head Road
Honolulu, HI 96816



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APPENDIX A: Figures

Acronyms

AASF 1	Army Aviation Support Facility 1
BMP	Best Management Practice
BOD	Biological Oxygen Demand
C	Celsius
CFS	Cubic Feet per Second
COC	Chain of Custody
COD	Chemical Oxygen Demand
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
DOH	Department of Health
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
EQCC	Environmental Quality Control Committee
HIARNG	Hawaii Army National Guard
IDDE	Illicit Discharge Detection Elimination
LID	Low Impact Design
MCM	Minimum Control measures
MS4	Municipal Separate Storm Sewer System
N	Nitrogen
ND	Non Detect
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
O&M	Operation and Maintenance
P	Phosphorus
pH	Potential Hydrogen
PPM	Part Per Million
POV	Privately Owned Vehicle
PPT	Part Per Thousand
QA/QC	Quality Assurance/Quality Control
SIC	Standard Industrial Code
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWPCP	Stormwater Pollution Control Plan
TSS	Total Suspended Solids
USAG-HI	United States Army Garrison – Hawaii
WAAF	Wheeler Army Airfield

Permit Cross Reference Table

Permit Requirement	Section in Plan
Part F.1.a. (1) Assess Compliance with Permit	Section 2.0
Part F.1.a.(2) Measure effectiveness of the Storm Water Management Plan	Section 3.0
Part F.1.a.(3) Assess Overall Health of Receiving Water	Section 4.0
Part F.1.a.(4) Characterize Stormwater Discharges	Section 5.0
Part F.1.a.(5) Pollutant Sources	Section 6.0
Part F.1.a.(6) Illicit Discharges	Section 7.0
Part F.1.a.(7) Watershed Quality	Section 8.0
Part F.1.b.(1) Monitoring Plan Objectives	Section 9.0
Part F.1.b.(2) Monitoring Data Analysis	Section 10.0
Part F.1.b.(3) Stormwater Management Practices	Section 11.0
Part F.1.b.(4) Stormwater Sampling	Section 12.0
Part F.1.b.(5) Sample Analysis	Section 13.0
Part F.1.b.(6) Quality Assurance/Quality Control	Section 14.0
Part F.1.b.(7) Stormwater Budget	Section 15.0

1.0 Introduction

The Hawaii Army National Guard (HIARNG) has prepared this Annual Monitoring Plan (The Plan) in accordance with part F.1 of National Pollutant Discharge Elimination System (NPDES) permit HI S000052 (herein referred to as The Permit). The Plan describes HIARNG's water quality monitoring program that has been established for the Army Aviation Support Facility 1 (AASF 1), located at U.S. Army Garrison Hawaii (USAG-HI) Wheeler Army Airfield (WAAF). Figure 1 shows the AASF 1 and vicinity.

2.0 Permit Compliance

HIARNG maintains compliance with The Permit by preventing non-stormwater discharges from the AASF 1 to the (USAG-HI WAAF Municipal Separate Storm Sewer System (MS4), by implementing Minimum Control Measures (MCMs), and submitting the required reporting documents within the deadlines established in The Permit. Table 2.1 provides a description of how each MCM is being implemented. Table 2.2 provides a reference and status of all Permit required submittals.

In accordance with Part A.1, A.2, and A.3 of The Permit, HIARNG maintains compliance with a Stormwater Management Plan (SWMP) dated September 2017. Copies of the SWMP, The Plan, and The Permit are retained at the AASF 1 and at the HIARNG Environmental Office.

Table 2.1 Minimum Control Measures

MCM	Implementation
Public Education & Outreach	Training, Websites, Posters, Logo, Slogan, Mascot, Storm Drain Placards
Public Involvement & Participation	Environmental Quality Control Committee (EQCC) Meetings, ENV Emergency Line 672-1013
Illicit Discharge Detection Elimination (IDDE)	MS4 connection permits, quarterly water quality facility assessments, complaint investigation, tracking the status and condition of the MS4, facilitating an enforcement policy, spill prevention and response, used oil and toxic material handling and disposal policies.
Construction Site Runoff Control	Construction Best Management Practices (BMP) Manual, Inventory of construction sites, Storm Water Pollution Prevention Plan (SWPPP) Review, Construction Inspections, Enforcement Response Plan, Training, Education

Post-Construction Stormwater Management in New Development and Redevelopment	Requirement for Low Impact Development (LID) and Post Construction BMPs, Design Review for LID per standard, Post construction BMP inspection and Operation and Maintenance (O&M) tracking in Asset Management Database, Education & Training on LID and post construction BMPs
Pollution Prevention/Good Housekeeping	Debris Control Program, Asset Management system and mapping, Inspection and maintenance schedule tracking, Storm Drain Placards, Action Plan for retrofitting BMPs, Trash Reduction Plan, Trash Control Measures, Trash Control Monitoring, Chemical Application Program Plan, Pesticide management, Fertilizer management, Erosion Control Program Plan, Identification of Erosion, Prioritization of sites, Temporary erosion control, Vegetation management plan, Maintenance Activities Program Plan
Industrial and Commercial Activities Discharge Management	Implement Storm Water Pollution Control Plan (SWPCP), Annual Water Quality Sampling and Discharge Monitoring Report (DMR) Submittal

Table 2.2 Permit Submittal Status

Permit Reference	Description	Submittal Due Date	Status
D.1.g.(4)	Prioritized areas for industrial and commercial facility and activity inspection status report.	10/16/2014	Submitted
D.1.d.(4)(iv)	SWPPP Review checklist.	11/15/2014	Submitted
D.1.d.(5)(iv)	Inspection form(s), inspection checklist, and reporting and corrective procedures.	11/15/2014	Submitted
D.1.e.(1)	Plan for requiring LID in its Standards.	2/17/2015	Submitted
F.1.a.	Annual Monitoring Plan	5/31/2017	Submitted
D.1.e.(1)	Draft of the revised Standards.	8/17/2015	Submitted
D.1.e.(1)	Final of the revised Standards.	8/17/2016	Submitted
D.1.f.(1)(iv)	Action Plan for Retrofitting Structural BMPs	8/17/2015	Submitted

D.1.f.(1)(v)	Trash Reduction Plan	8/17/2015	Submitted
D.1.f.(3)(iv)	Action Plan to address erosion at its storm drain system outlets.	8/17/2015	Submitted
D.1.f.(3)(v)	List of projects and implementation schedule for permanent erosion control improvements.	8/17/2015	Submitted
G.1.d.	Written strategy for determining effectiveness of its SWMP	8/17/2015	Submitted
G.2.	Annual Monitoring Report with Discharge Monitoring Reports	12/22/2017	Submitted
D.1.	Revised SWMP Plan.	9/13/2017	Submitted
D.1.d.(1)	Develop BMP Manuals: Construction BMP Field Manual, Maintenance Activities BMP Field Manual and Storm Water Permanent BMP Manual	9/17/2017	Submitted

3.0 Effectiveness of Stormwater Management Plan

HIARNG's goal for the SWMP is to provide AASF 1 owners and operators with a guidance manual on how to comply with permit requirements and prevent non-stormwater discharges which can negatively impact the quality of stormwater. HIARNG assesses the effectiveness of the SWMP by monitoring compliance through regular inspections and implementation of the seven (7) MCMs.

4.0 Health of Receiving Water WAAF

Stormwater discharges from AASF 1 enters into the USAG-HI MS4 at WAAF as overland flow and discharges into the subsurface stormwater sewer. Stormwater is conveyed from WAAF to multiple points of compliance at the upper Waikele Stream approximately 1 mile west of the AASF 1. According to studies conducted by the Environmental Protection Agency (EPA), Waikele Stream and downstream receiving waters are considered impaired water bodies, although no Total Maximum Daily Load (TMDL) has been established for the watershed.

The HIARNG continually assesses the quality of the stormwater leaving the AASF 1. At the time of this plan development, the overall health of the upper Waikele watershed is good. Stormwater quality leaving the AASF 1 is also good, although currently, there are several pollutants recognized in the waste stream. These pollutants include:

- Metals (Copper, Zinc, Nickel)
- Nitrates and Total Nitrogen

- Total Phosphorus
- Turbidity

5.0 Characterize Stormwater Discharges

HIARNG's stormwater discharges from the AASF 1 industrial facility are characterized by comparing current stormwater analytical results from monitoring events with the temporal distribution of the types of target pollutants in the Permit. Analytical data collected from the February 2016 event at Sampling Location #1 showed an increase in Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), Nitrate/Nitrite, Oil and Grease, and Salinity from the sampling conducted the previous year. Although the concentrations of these pollutants remain low, they are persistent and found site-wide. The suspected cause for the increase is fewer rain events resulting in more concentrated pollutant loads. These pollutants are not common to the facility industrial activities.

Stormwater discharge from the AASF 1 Sampling Location #1 was further characterized for the first time in February and July 2016 for presence and concentrations of total recoverable metals. Table 5.1 lists the stormwater analytical results collected to date at the AASF 1 Sampling Location #1.

Three additional Sampling Locations were established in July 2016 to assess the metals exceedances found in stormwater in the 2016 sampling events. Total metal results indicated the presence of six metals (barium, chromium, copper, lead, nickel, and zinc). Of these, copper, nickel, and zinc were detected at concentrations exceeding the acceptable levels (Freshwater Acute HAR 11-54-4). Table 12.1 lists the analytical results for the four (4) locations which are depicted on Figure 3.

No exceedance was detected at Sampling Location #2 which has since been determined to be the Sampling Location which best represents stormwater discharges for industrial activities related to Standard Industrial Code (SIC) 45 as explained in Section 6.0 below. It was suspected that the previous exceedance of copper, nickel, and zinc found at the other three (3) sample points were attributable to non-air transportation related activities; specifically, discharges from copper downspouts from the building structures at the AASF 1, non-HIARNG roadways and parking lots for privately owned vehicles (POVs) immediately up-gradient of the AASF 1, and on-site chain-link fencing, all of which discharge stormwater to the AASF 1 site.

Stormwater samples were subsequently taken in June 2017 from the copper downspouts along the Santos Dumont (northwest) side of Buildings 829 and 832, as well as sheet flow discharging from the POV parking lot in an effort to determine if these areas did in fact contribute to the exceedances. A composite sample was taken from the downspouts between 10-20 minutes after the start of the rainfall, with the results exceeding the acceptable limits for copper and zinc. A sheet flow grab sample was then taken from the parking lot 45 minutes after the start of rainfall; it contained all three

(3) metals, but exceeded the acceptable limit for copper and nickel. If the sample were taken within the first 15 minutes of the start of rainfall, it is anticipated the results for the metals would have been even higher. Table 12.2 lists the analytical results; Figure 2 depicts the sampling locations, along with the analytical results. Based on these results, it is surmised that the stormwater discharges from these two (2) non-industrial activity sources significantly contribute to the amount of metals in the stormwater discharged from this site.

Table 5.1 Water Quality Sampling Results from Sampling Location #1

Parameter	HIARNG 2013	HIARNG 2014	HIARNG 2016
Flow	0.229 cfs	0.085 cfs	0.49 csf
BOD	3.8 mg/L	<1 mg/L	5.1 mg/L
Chemical Oxygen Demand (COD)	32.3 mg/L	45.5 mg/L	38 mg/L
TSS	6.5 mg/L	119 mg/L	152 mg/L
Total Phosphorus (P)	0.027 mg/L	0.304 mg/L	0.30 mg/L
Total Nitrogen (N)	0.76 mg/L	2.62 mg/L	2.53 mg/L
Nitrate/Nitrite	0.093 mg/L	0.113 mg/L	0.175 mg/L
Oil and Grease	<5.1 mg/L	2.3 mg/L	11.7 mg/L
pH	7.40 pH unit	7.35 pH unit	6.0 pH unit
Ammonia as Nitrogen	<1 mg/l	0.03 mg/l	ND
Turbidity	13.7 NTU	13.3 NTU	7.85 NTU
Dissolved Oxygen (DO)	7.8 mg/L	6.2 mg/L	10.92 mg/L
Oxygen Saturation	100.13%	68.8%	100.3%
Salinity	0.03 ppt	0.03 ppt	1 ppt
Temperature	25.8 °C	20.4 °C	11.9 °C
Antimony	NA	NA	ND
Arsenic	NA	NA	ND
Barium	NA	NA	11 ug/L
Beryllium	NA	NA	ND
Cadmium	NA	NA	ND
Chromium	NA	NA	4 ug/L
Cobalt	NA	NA	ND
Copper	NA	NA	*111 ug/L
Lead	NA	NA	27 ug/L
Nickel	NA	NA	*8 ug/L
Selenium	NA	NA	ND
Silver	NA	NA	ND
Thallium	NA	NA	ND
Vanadium	NA	NA	ND
Zinc	NA	NA	*340 ug/L

Celsius (°C)/Cubic feet per second (cfs)/pH denotes pH unit/parts per thousand (PPT)/Nephelometric Turbidity Unit (NTU)

Not Analyzes (NA)/Non Detect (ND)/*Values indicate concentrations above allowable regulatory level (Freshwater Acute HAR 11-54-4) milligrams per liter (mg/L)/ micrograms per liter (ug/L)

6.0 Pollutant Sources

Specific sources of pollutants at the AASF 1 site include:

- Aircraft fueling
- Hazardous waste storage
- Solvent parts washers
- Aircraft parts containing cadmium and chromium
- Paint use during aircraft repairs and maintenance
- Grease trap
- Oil water separators
- Aircraft washing
- Sediment transport
- Trash and vegetative debris
- Galvanized metal siding and roofing
- Chain link fences
- Copper gutters and downspouts
- Motor vehicle roadways and parking areas

Of these, only stormwater discharges from the following activities are related to industrial activities at the facility for the applicable SIC 45 for transportation by air:

- Aircraft fueling which occurs on the tarmac
- Minimal aircraft maintenance on the tarmac

All other discharges at this site for air transportation industrial activities do not result in discharge to the stormwater conveyance system. Maintenance activities are almost entirely conducted under cover in the hangar where floor drains connect to an oil water separator. Also, aircraft is washed on the washrack which is also connected to the oil water separator. Effluent from the oil water separator discharges to the sanitary sewer system. Hazardous materials and waste are stored in flammable cabinets in the hangar and prefabricated concrete buildings with built-in secondary containment, and containers are checked monthly for integrity. Solvent tanks used for cleaning equipment are located in the hangar work spaces.

7.0 Illicit Discharges

There are no known illicit connections at the AASF 1 that contribute pollutants to the MS4. Illicit discharges from the AASF 1, although possible, have not been reported since the existence of The Permit. This is largely attributable to regular training

conducted for facility personnel on spill prevention, reporting, and response and the need to protect pathways to the sewer system. In addition, the staff at the facility have been provided the SWMP and Spill Prevention, Control, and Countermeasures (SPCC) Plan which document and provide guidance on HIARNG policies and procedures, and the facility is subject to quarterly water NPDES inspections which are conducted by the HIARNG Environmental Office.

8.0 Watershed Quality

The Waikele watershed receives stormwater from HIARNG's industrial facility AASF 1 via USAG-HI's MS4. The stormwater in the upper Waikele Stream area can be impacted negatively by, but not limited to, industrial activity at WAAF, as well as extrinsic agricultural, and urban runoff. The Waikele Stream discharges into the West Loch of Pearl Harbor. These receiving waters are listed as impaired by the State of Hawaii Department of Health (DOH). Watershed assessment studies by EPA for Waikele Stream (EPA ID HI3-4-10) in 2002, 2004, 2006, 2010, and 2014 identify causes of impairment to be attributed to the presence of Nitrate, Nitrite, Total Nitrogen, and Turbidity. Probable sources of excess nutrients and turbidity in the Waikele Stream are not reported by EPA, however are suspected to be non-point source runoff. There is no Total Maximum Daily Load established by the State of Hawaii at this time for the Waikele watershed.

9.0 Monitoring Plan Objectives

The main objective of the SWMP is to address all requirements of The Permit pertaining to stormwater monitoring at the AASF 1. Key objectives include reduction of pollutants to the maximum extent practical (MEP), to protect water quality, and to satisfy the regulatory requirements in accordance with The Permit. The objectives in the SWMP were met during the prior performance period. This is a result of the AASF 1 staff having the appropriate training and the HIARNG's implementation of the MCMs.

HIARNG monitors the MS4 at the AASF 1 for potential releases of chemicals to the environment through regular visual inspection, and by collecting representative samples of stormwater for analytical testing of target analytes as required in The Permit. Stormwater monitoring is primarily performed to include only the potential pollutants typical to the aviation industrial activity at AASF 1. This has been expanded to include additional assessment of target metals known to be present in the MS4 at the AASF 1. The objective of the additional metals assessment is to identify potential sources of the metals exceeding allowable levels. Overall, stormwater lab analyses will help identify those pollutants found in the MS4 which will need additional monitoring so that

appropriate BMP's may be placed in areas that will have the largest impact on improving the stormwater quality discharges.

10.0 Monitoring Data Analysis

Comparison of the lab data results from past stormwater sampling events allow the HIARNG to determine the level of compliance required by The Permit. Effluent pollutant concentrations are compared to HAR 11-54 *Water Quality Standards* to determine the level of compliance. HDOH was notified in a timely manner in 2016 when water quality criteria were not met. The HIARNG identified pollutants in the stormwater at the AASF 1 and possible sources. Some of the pollutants found are not common to the aviation industrial activities at the AASF 1. HIARNG and USAG-HI are working together to establish appropriate working BMPs to mitigate negative impacts to the surface water quality at WAAF as it relates to the AASF 1 industrial activities. Sample data will also be compared annually with previous sampling events to establish temporal and spatial relationships of pollutant transported in MS4 at WAAF, and to track the effectiveness of BMPs employed.

11.0 Stormwater Management Practices

The HIARNG has developed the SWMP as an important resource for performing stormwater monitoring at the AASF 1, as specified in The Permit. The SWMP provides the appropriate level of guidance useful in the identification of potential pollutants and implementation of best stormwater management practices to achieve measurable results. The HIARNG continues to monitor the MCMs as a tool to ensure compliance and monitors the effectiveness of all aspects of the SWMP.

Stormwater management measures which have proven to be effective at controlling non-stormwater discharges at AASF 1 include: use of secondary containment when storing fuels, hazardous chemicals, and wastes, sweeping up dirt and debris, performing aircraft maintenance under cover, using drip pans under leaking vehicles, keeping spill kits stocked and nearby fuel storage areas, cleaning up spills immediately using dry cleanup methods, general good housekeeping, and washing aircraft only in the designated wash rack which is connected to an oil water separator. Employees at AASF 1 are trained annually on the requirements of their stormwater permit, BMPs, detecting illicit discharges, and spill response. Additionally, stormwater flows are reduced through the use of vegetated swales prior to entering catch basins.

12.0 Stormwater Sampling

The primary sources of potential pollutants at this site resulting from industrial activities related to SIC 45 air transportation facilities is from the fueling operations and minimal maintenance conducted on the tarmac. As such, Sampling Location #2 on Figure 2 map is the sampling point from which stormwater samples will be obtained, since it receives sheet flow from the tarmac where those operations are conducted, and is considered most indicative of the quality of stormwater discharging from the AASF1 facility into USAG-HI's MS4. Additional sampling points may be used for monitoring any exceedances attributable to air transportation-related activities.

As discussed in Section 5.0, there were two stormwater sampling events in 2016 conducted by the HIARNG contractor Brown & Caldwell. The first event occurred in February 2016 and included a single sample collected at the Sampling Location #1, as specified in the June 2016 Annual Monitoring Plan. A second event occurred at Sampling Locations #1, #2, #3, and #4 on July 18 to investigate exceedances of copper, nickel, and zinc identified in the February laboratory results, which in general, were significantly lower than the February 2016 results. Figure 12.3 shows the stormwater sampling locations.

In an effort to investigate the contributory sources for the exceedances, a composite stormwater sample was taken on 14 June 2017 from the downspouts of Bldg. 829 and 832, and a grab sample from the runoff from the parking lot across Santos Dumont Avenue. Analytical results are shown in Table 12.2; Figure 12.2 shows the stormwater sampling locations.

The stormwater samples obtained at Sampling Location #1 were obtained using an auto sampler, and all others by grab techniques. As a standard, containers for dissolved oxygen and oil and grease were collected immediately, and the remaining containers were collected in quarterly aliquots each 15 minutes apart. Samples were collected using an approved clean sampler and transferred directly into labeled sampling containers. The sampling containers were placed in a clean cooler on ice and delivered to FQ Labs in Honolulu the day of sample collection.

Table 12.1 Total Metals Results AASF 1

Parameter	HAR 11-54 Limits*	2/16/16 Plan Sample	2/16/16 Duplicate QC	7/18/16 Additional Investigative Samples			
Sample Location No.		1	1	1	2	3	4
Copper	6 µg/L	110 µg/L	46 µg/L	37 µg/L	2 µg/L	9 µg/L	40 µg/L
Nickel	5 µg/L	8 µg/L	2 µg/L	ND	ND	3 µg/L	ND
Zinc	22 µg/L	340 µg/L	110 µg/L	48 µg/L	5 µg/L	17 µg/L	50 µg/L

* Freshwater Acute

Table 12.2 Total Metals Results – Downspouts and POV Parking Lot

Sample Location		6/14/2017 Downspouts	6/14/2017 Parking Lot
Copper	6 µg/L	29 µg/L	14 µg/L
Nickel	5 µg/L	1 µg/L	12 µg/L
Zinc	22 µg/L	102 µg/L	19 µg/L

Table 12.3 Parameters for Pollutant Loads

Analyte	Pollutant Source
BOD/COD	Organic compounds, oxidizing chemicals
TSS	Erosion and fine Sediments
Total Phosphorus	Waste water, fertilizers, detergents
Total Nitrogen	Waste water, fertilizers, vegetative debris
Nitrate - Nitrite	Waste water, fertilizers, vegetative debris
Ammonia Nitrogen	Waste water, fertilizers, vegetative debris
Oil and Grease	Aircraft Maintenance
Turbidity	Erosion of vegetated areas
Barium	Aircraft parts – All maintenance under cover
Cadmium	Aircraft parts – All maintenance under cover
Chromium	Aircraft parts – All maintenance under cover

Zinc	Galvanized Steel, Sheet metal Siding and roofing
Lead	Weapons cleaning, misc.
Copper	Downspouts

13.0 Sample Analysis

The sample analyses methods used by FQ Labs are consistent with the requirements specified by Part F of The Permit. Table 13.1 provides a list of effluent parameters and the analytical method to be used.

Table 13.1 Analytical Methods

Effluent Parameter	Analytical Method
Flow	Time Weighted Calculation
BOD	EPA 405.1
COD	EPA 410.4
TSS	EPA 160.2
Total Phosphorus	SM 4500-P E
Total Nitrogen	Calculation
Nitrate - Nitrite	EPA 300.1
Ammonia Nitrogen	EPA 350.1
Oil and Grease	EPA Method 1664, Revision A
Turbidity	EPA 180.1 & Oakton T-100 Turbidity Meter
Cadmium	EPA 3015/6020A
Chromium	EPA 3015/6020A
Zinc	EPA 3015/6020A
Lead	EPA 3015/6020A
pH	Hanna 929828 Multi-Parameter Sonde
DO	Hanna 929828 Multi-Parameter Sonde
Oxygen Saturation	Hanna 929828 Multi-Parameter Sonde
Temperature	Hanna 929828 Multi-Parameter Sonde
Salinity	SM2520B and Hanna 929828 Multi-Parameter Sonde

14.0 Quality Assurance/Quality Control

HIARNG's Quality Assurance and Quality Control (QA/QC) for water quality monitoring consists of following specific steps to ensure representative sample collection.

- Decontamination of the sampling equipment before use and between locations:
 - Wash with phosphate free detergent, rinse with potable water, and then rinse again with deionized water.
 - When sampling for trace metals, perform an acid rinse of the equipment after washing and rinse again with potable water.
- Wear powder free nitrile gloves throughout the sampling activity.
- Use of appropriate sampling apparatus and samplers in accordance with the industry standard protocols for collecting representative environmental samples.
- Store all clean sampling equipment in new plastic bags until use.
- Perform appropriate calibration of field instruments and record in field notebook.
- Label all bottles with indelible ink and include a unique sample ID, sampler's initials, parameters to be analyzed, preservation method, collection date, and time. Perform all field instrument calibrations according to manufacturer's specifications and confirm the calibration results are within an acceptable range prior to use.
- Decontaminate grab collection bucket with sample water between sampling locations.
- Place environmental samples immediately in a cooler on ice.
- Perform a post-sampling calibration.
- Perform a post-sampling calibration check of the field instruments and record in field notebook.
- Perform a post sampling calibration check with at least two conductivity standards to bracket the effluent sample results; readings should be within 5% of the standard.
- Record all calibration and post-calibration check results in the project field notebook.
- Complete chain of custody and Stormwater Monitoring Event Record form prior to relinquishing samples to the laboratory.

14.1 Chain of Custody

The COC forms will be used to trace the possession of each sample from the time it is collected until completion of analyses. All samples submitted to the laboratory will be accompanied with a COC form. The COC form details the following information, at minimum:

- Name and contact information of party responsible for collecting the samples
- Name and contact information for laboratory
- Sampling contract name

- Sample ID number
- Date and time of sample collection
- Sample matrix
- Sample location
- Number of containers
- Preservation method, if any
- Analytical test parameters
- Sample temperature
- Signature(s) of persons involved in the chain of custody
- Date and method of delivery

Each party involved will keep file copies of each COC form. Electronic copies of the completed COC forms will be submitted as an appendix of the Annual Monitoring Report.

15.0 Stormwater Budget

The HIARNG does not have a predictable stormwater budget for water quality monitoring or stormwater compliance. Each year a project specific request is made to the National Guard Bureau for stormwater compliance project funding, however approval for federal funding is not guaranteed but, generally provided.

APPENDIX A
FIGURES

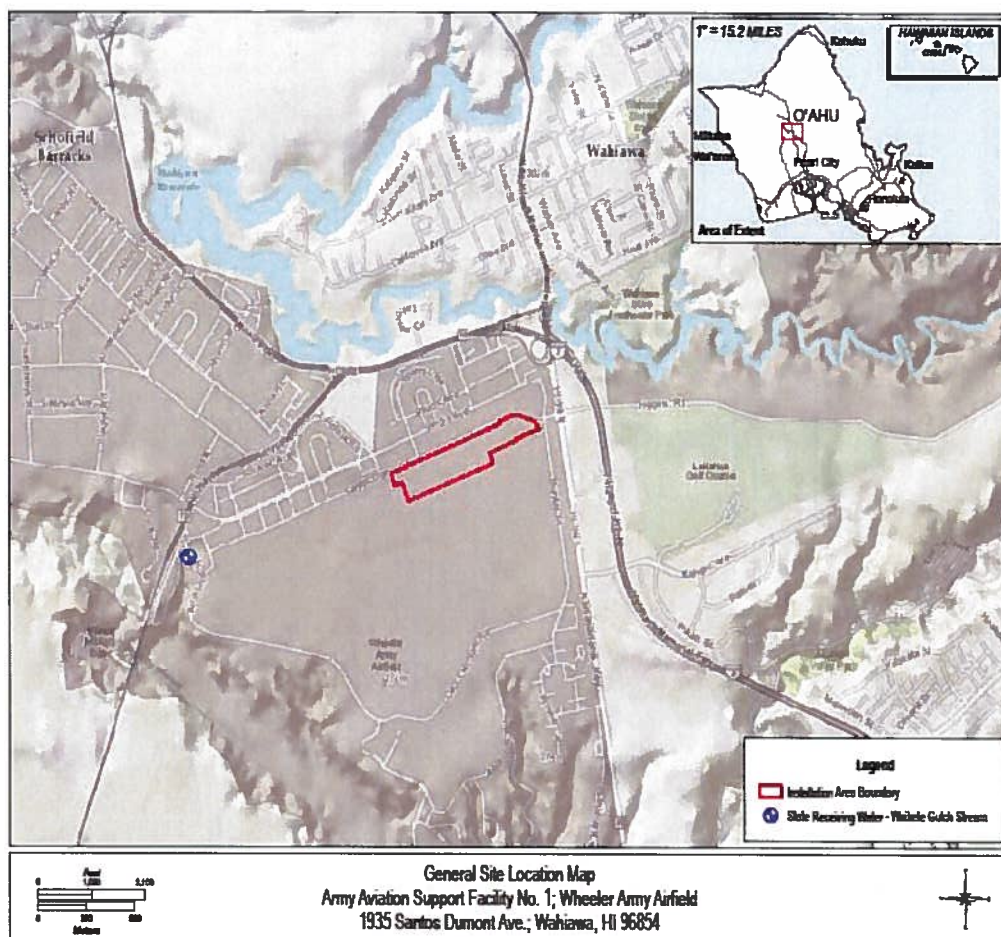


FIGURE 1

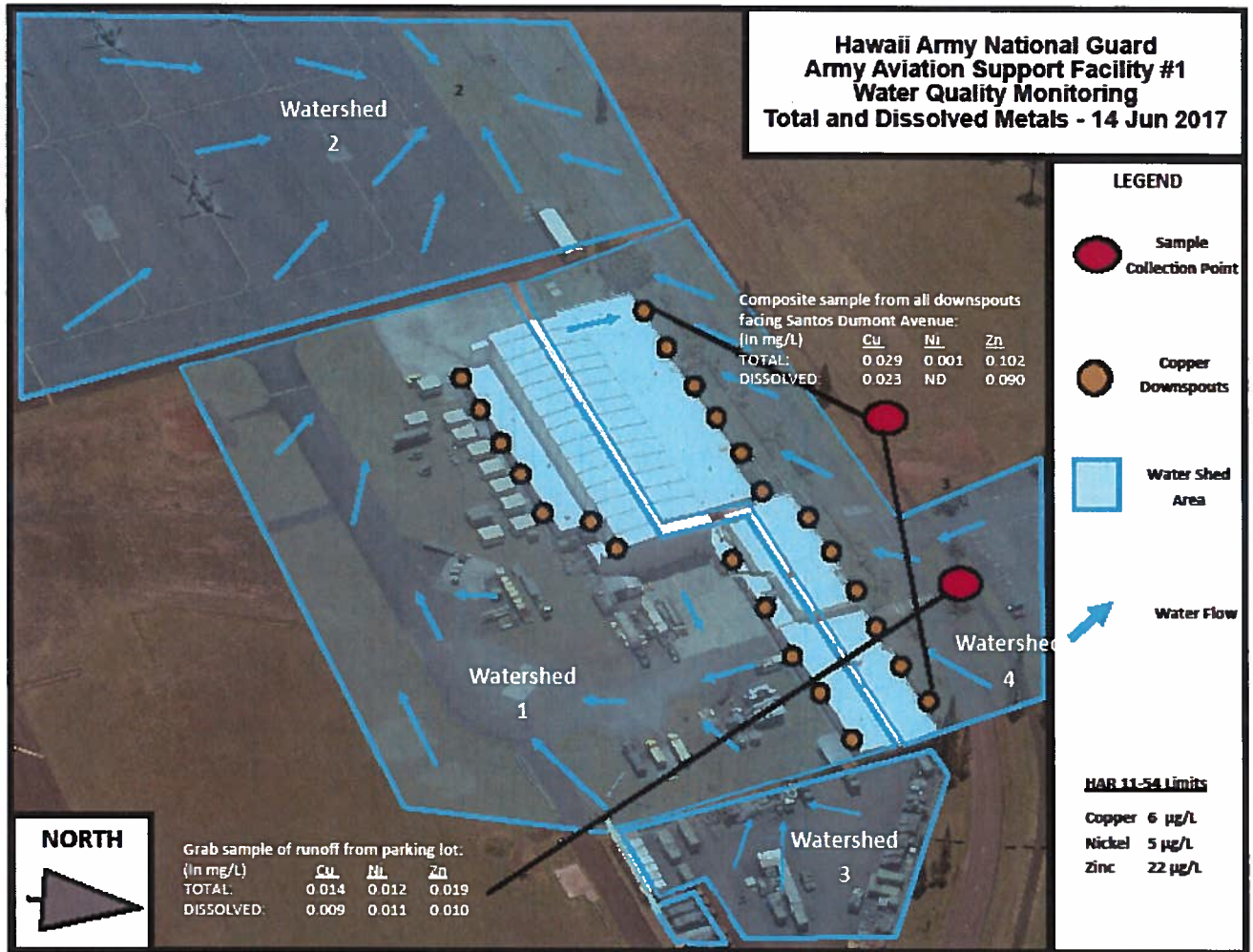


FIGURE 2

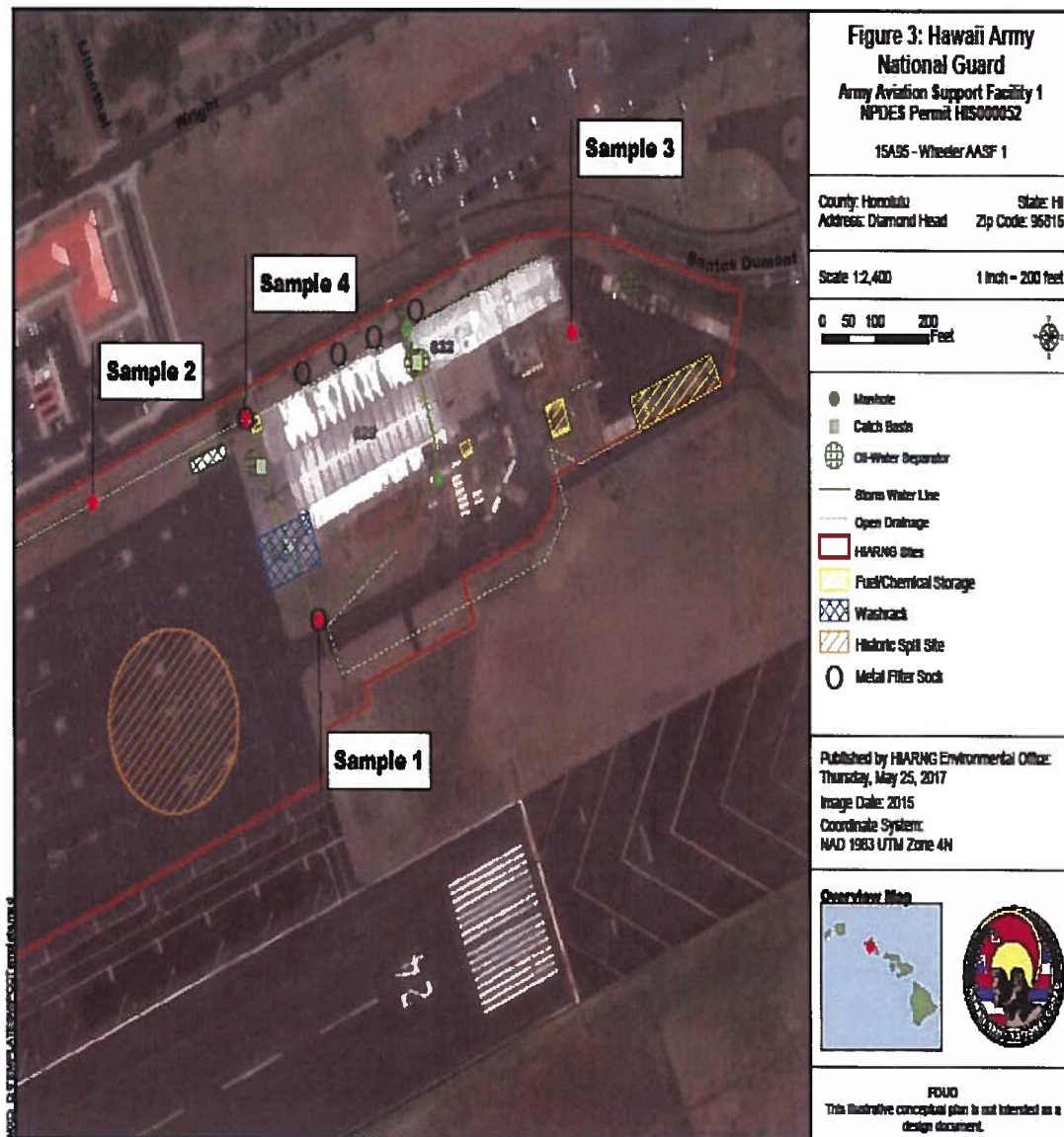


FIGURE 3