Volume II

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Oahu Community Correctional Center

October 27, 2017

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Appendix G: 10-Year Inmate Forecast: Planning for Relocation and Expansion

Oahu Community Correctional Center

October 27, 2017

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SUMMARY

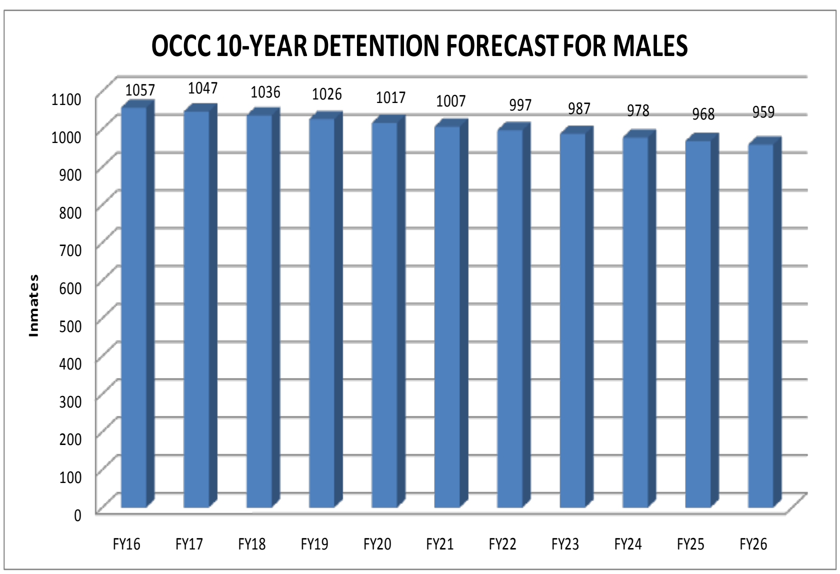
A population forecast for OCCC was prepared in order to assist planners in estimating the size of the replacement facility. OCCC inmates are a combination of two groups of people who have quite different housing and programming needs. Detention inmates are people who have been charged with a crime(s) and are still going through the court process. The detention group also includes people who have been found guilty of a crime(s) and received a sentence of up to one year. Pre-release inmates are near the end of a lengthier sentence and are transitioning from prison back to the community.

Initially, a 30-year forecast was considered, but this proved to be unfeasible for a number of reasons. The number of males has been declining slightly and it is unlikely this will continue for the long-term absent major policy changes. Furthermore, building a replacement facility on a 30 year decline would mean not having enough beds by the time the facility opens in about ten years. For example, if a 700 bed facility is forecast in 30 years and there will still be 1,000 inmates remaining in ten years, the facility will be short 300 beds when it opens. Conversely, the number of females has been increasing and continuing this increase over thirty years would drive the forecast three or four fold over today's population. This also seemed quite unlikely. The Project Team advised a 10-year forecast as well as a conservative growth rate in the number of females in order to estimate an adequate number of beds by the time the replacement facility opens.

The forecast is provided according to gender, custody classification and legal status. It offers opportunity and flexibility for deciding how to use the new housing modules.

Males

The forecasted number of detention males at OCCC in Fiscal Year 26 is 959 (from the current 1,057). Approximately one-third are sentenced. This number is based on the declining trend over the past few years, slight anticipated growth in the City and County of Honolulu population and a peaking factor to account for fluctuations in the number of inmates.



Contrary to the detention population for males, the pre-release population has not been declining. In fact, pre-release (also known as re-entry) is recognized throughout the country as a best practice in corrections that reduces crime and is cost beneficial.[1] As a result, many correctional systems are investing in expanding pre-release programs; likewise, PSD is also planning an increase in this area. PSD reported about 300 males on Oahu Island are ready for pre-release at any given time, so this number was used as the base for the forecast with a 2 percent growth rate.[2] The forecast predicts 392 pre-release males.

PRE-RELEASE BED FORECAST FOR MALES			
FORECAST YEAR	PREVIOUS YEAR	INMATE + HONOLULU GROWTH	TOTAL FORECAST
FY16	300	7	307
FY17	307	8	315
FY18	315	8	323
FY19	323	8	331
FY20	331	8	339
FY21	339	8	347
FY22	347	9	356
FY23	356	9	365
FY24	365	9	374
FY25	374	9	383
FY26	**383**	**9**	**392**

It is assumed the 96-bed Laumaka Work Furlough Center is not being relocated and will remain operational. This brings the net need to 296 pre-release beds (392 – 96 = 296). In summary, the total number of new rated beds required for detention and pre-release males is 1,255 (959 + 296 = 1,255).[3]

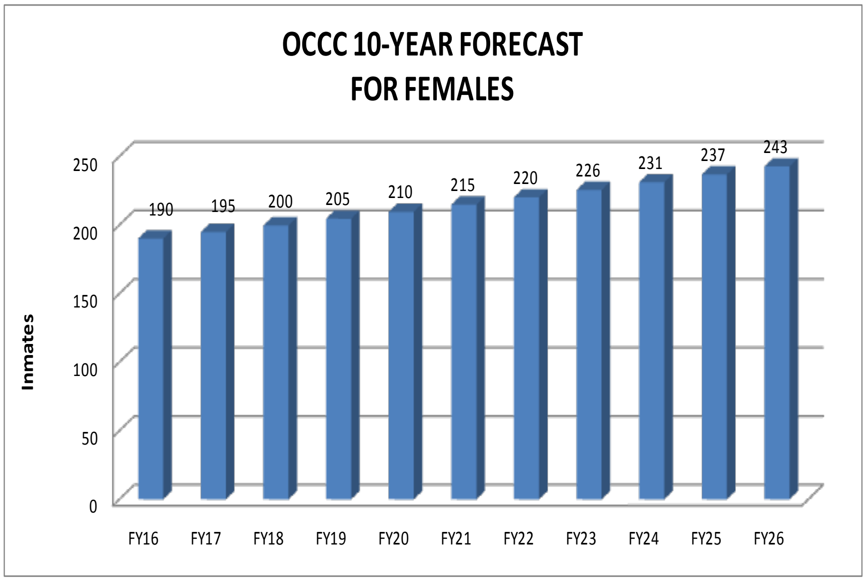
Females

Although it is planned for female inmates to only receive intake services at OCCC, females were included in the forecast in order to understand the system-wide impacts. The number of females in detention is expected to increase to 243 (from the current 190). Approximately one-quarter are sentenced.

1 Aos, S. & Drake, E. (2013). Prison, Police and Programs: Evidence-based options that reduce crime and save money. (DOC. No. 13-11 -1901) Washington State Institute for Public Policy, Olympia, Washington.

2 Per advice by the Project Team. A peaking factor is not included because when pre-release centers are full no inmates are added.

3 Rated beds do not include temporary housing such as segregation, infirmary and specials needs such as mental health. These numbers are discussed in the Interim Architectural Space Program.



The methodology used to forecast pre-release beds for females follows the same as the general forecast for females. The growth rate is two percent plus .47 percent for growth in the City and County of Honolulu population. A peaking factor is not added because when pre-release centers become full, no inmates are added. PSD reports about 60 females are qualified at any given time, so this number was used as the base of the forecast.

PRE-RELEASE BED FORECAST FOR FEMALES				
FORECAST YEAR	PREVIOUS YEAR	INMATE + HONOLULU GROWTH	TOTAL FORECAST	FORECAST YEAR
FY16	60	1	61	FY16
FY17	61	2	63	FY17
FY18	63	2	65	FY18
FY19	65	2	66	FY19
FY20	66	2	68	FY20
FY21	68	2	69	FY21
FY22	69	2	71	FY22
FY23	71	2	73	FY23
FY24	73	2	75	FY24
FY25	75	2	77	FY25
FY26	77	2	78	FY26

Female inmates participate in pre-release at WCCC. Currently, there are 40 beds for females (25 at the YWCA program and 15 at the Bridge program). Since there are 40 existing beds, the number of additional beds needed is 38 (78 – 40 = 38). Fortunately, the Ho'okipa Unit adjacent to WCCC is slated for renovation and is adequate to address the forecast once it is refurbished.

The total number of rated beds needed for females in FY26 is 281 (243 detention + 38 pre-release = 281 beds).

Overall Comments

Two other forecasts were completed over the past decade. In 2008, the DLR Group used a forecast provided by PSD to plan an OCCC replacement facility. The forecast was for 2,371 male inmates and 537 female inmates for a total of 2,908 inmates by 2013.[4] In contrast, a March 2014 forecast by the Criminal Justice Institute predicted OCCC would have 1,304 males and 188 females in 2025.[5] Given the two previous forecasts, the numbers contained in this forecast for OCCC are the most conservative.

The 2016 forecast has been through a rigorous review process. It has been reviewed by PSD, the Consultant Team, and an independent consultant that specializes in quality control of evaluations of governmental operations. Additionally, the forecast was presented to the Corrections Population Management Commission in October 2016. All corrections forecasts tend to spur conversations about whether there are too many or too few beds. Regardless of opinion, forecasts are most accurate in the near years versus the far years because they are highly subject to changes in arrest policies, laws, agency policies, urban population growth or decline, and the overall capacity of the courts.[6] As a result, even the best forecasts are quickly outdated.

A regular update of the forecast will assist PSD in capital and operational planning. For example, the ideal site for the replacement facility will allow for an additional housing unit or two if the forecast proves to be too conservative and not enough beds are available. Conversely, if policies are implemented that produce excess capacity through the further reduction of the inmate population, either the construction of a housing unit can be delayed or the excess capacity can be used to relieve crowding elsewhere. Therefore, it is recommended the forecast be updated at least annually so that trends are monitored and planning can be adjusted accordingly.

4 OCCC Project Development Report and Site Identification Selection Study, DLR Group, 2008.

5 Holmes, Lynette, Projections of PSD Inmate Populations by Custody Level, Gender, Legal Status and Island. Criminal Justice Institute, Hagerstown, Maryland, March 11, 2014.

6 Examples of 2016 changes in law include the potential early release of certain misdemeanants and a change in the felony threshold for Theft 2.

INTRODUCTION

The consultant was asked to project future OCCC population levels using previous studies as a starting point. The 2014 PSD inmate forecast estimates an 8.6 percent decline in population spread over thirty years (.3 percent annually). As noted several times in the 2014 forecast document, long-term forecasts are generally considered less reliable than short-term forecasts because of changes in laws, policies and operational practices that impact the correctional population. The report recommends updating the forecast at least twice annually to capture these trends.[7] Washington State updates their forecast three times per year.[8]

The 2016 forecast picks up where the 2014 forecast leaves off. The 2016 forecast uses data from FY13–15.[9] The recent 3-year trend at OCCC demonstrates just how dynamic the corrections population is and the need to update the forecast frequently. The overall OCCC inmate population has recently been declining by .7 percent annually, not by .3 percent as forecasted in 2014. Some of the reasons may pertain to turnover in the parole board (discretionary decisions) and the increased use of pre-release which is known to be a cost-beneficial use of correctional capacity.[10] Additionally, continuing the decrease for thirty years runs the risk of under-sizing the replacement facility. Even if the population was to continue declining for thirty years, the facility will be opened prior to that time and will not have enough capacity. Thus, a 30-year forecast is not defensible.

A practical forecast will provide a best estimate to facility planners about the proper mix of beds needed by the time the OCCC replacement facility opens. The optimal site will allow for growth in the event the inmate population grows faster than predicted. The 2016 OCCC forecast has been revised for a ten-year period by gender, classification and legal status. The forecast includes pre-trial and sentenced inmates, and general population versus higher risk inmates that require additional security.

It is recommended the forecast be revised at least every year because more changes are already on the horizon. For example, early release legislation that went into effect on July 1, 2016 allows the PSD director to release certain misdemeanants.[11] An additional law that also went into effect on July 1, 2016 changes the felony threshold of Theft in the Second Degree.[12] Since 1986, second degree theft was when the value against property or services was $300 or more. Under the new legislation the threshold is $750 or more. Although the full impact is not yet known, the first month of implementation showed an impact of about 35 inmates. This changes the blend of pretrial misdemeanants and felons. It could also change the number of sentenced inmates in jail versus prison. Further information is required prior to being able to account for the effects of this new legislation in the forecast, but it speaks to the need for periodic updates.

7 Holmes, Lynette, Projections of PSD Inmate Populations by Custody Level, Gender, Legal Status and Island. Criminal Justice Institute, Hagerstown, Maryland, March 11, 2014. Note: Data used in the report goes through the first six months of Fiscal Year 12.

8 Washington State Caseload Forecast Council, http://www.cfc.wa.gov/

9 Not all datasets for FY16 were available when this forecast study began.

10 Aos, S. & Drake, E. (2013). Prison, Police and Programs: Evidence-based options that reduce crime and save money. (DOC. No. 13-11 -1901) Washington State Institute for Public Policy, Olympia, Washington.

11 House Bill 2391 of the 2016 legislative session

12 Senate Bill 2964 of the 2016 legislative session, Section 37, 1a and 1b.

It is important to note that the average daily population for each gender is strikingly different. The number of males is declining by 1.2 percent annually while the number of females is increasing by 7.1 percent annually.[13] The decline for males is close to the reported overall decline throughout PSD of between 1.5 and 2.0 percent annually. Men represent 88 percent of the inmate population and women represent 12 percent. Although PSD's planning for the replacement of OCCC calls for women to be assigned to other facilities once they receive intake services at OCCC, they are still included in this forecast. This is intended to inform decision-makers about the system-wide impact of women being placed at other facilities, particularly the Women's Community Corrections Center (WCCC).

The major steps used to develop the updated forecast include:

1. Calculate the 3-year inmate trend of the assigned count at OCCC.[14] The assigned count versus the in-residence head count includes OCCC inmates at the federal detention center who would be at OCCC when there is adequate capacity. The assigned count also includes pre-release beds at Laumaka and inmates who are assigned to OCCC, but are temporarily not at the facility (such as a court order or escape).
2. Separate the detention population from the pre-release population because it is assumed the Laumaka facility will remain open after OCCC is replaced.
3. Calculate the forecasted population growth in the City and County of Honolulu.
4. Add a peaking factor (2.5 percent) to account for fluctuations in population. This reduces the likelihood of inmates sleeping on the floor and allows for fluctuations between the various security levels.[15]
5. Calculate the potential effect of the new early release legislation as of July 1, 2016 for information purposes only because the extent and duration of implementation are unknown. (-92 average daily population per year: 81 males and 11 females.) The year-by-year potential impact of the legislation has been included in the electronic Excel file submitted with this report.

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[13] Although the cause was not specifically analyzed, the previous forecast noted a decrease in the average length of stay (ALOS) of male parole violators and an increase in the ALOS of female parole violators.

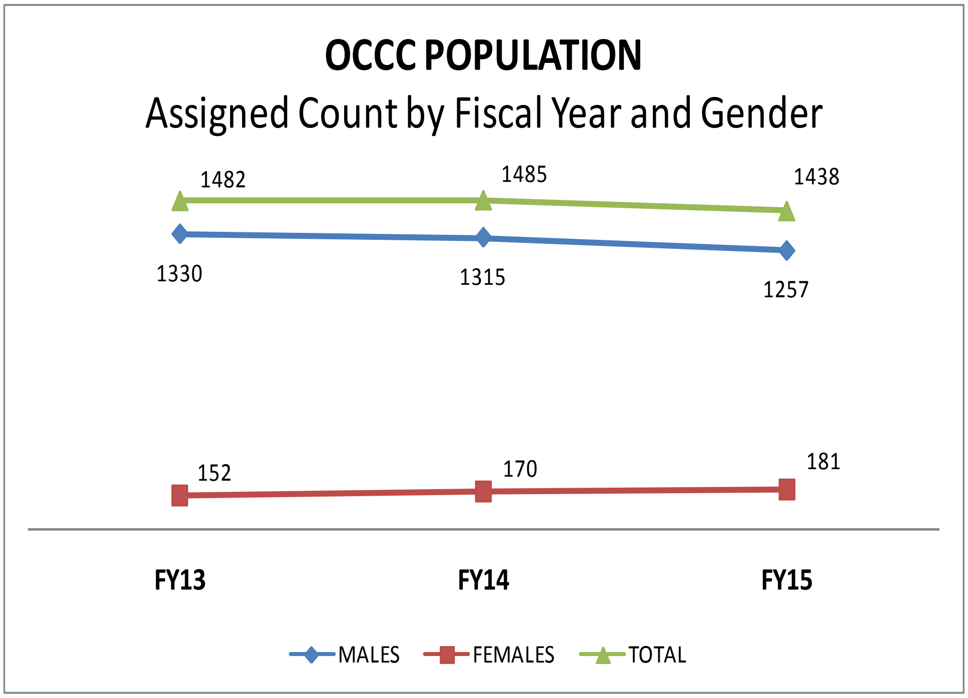
[14] A five year trend was considered, but the number of males in the early years was quite a bit higher and the average would have driven a steeper decline than in recent years.

[15] Peaking factors of between 2.5 and 5 percent are fairly standard throughout the industry. Since most OCCC inmates are classified between medium and community custody, the more conservative number was chosen because there is likely to be minimal fluctuation.

CURRENT TRENDS

1. Number of Inmates

The following graph shows the total OCCC inmate population by gender for the past three fiscal years.



The average change in OCCC's population over the past 3 years was –.7 percent.

OCCC AVERAGE CHANGE-ALL INMATES			
FISCAL YEAR	INMATES	CHANGE	PERCENT
FY13	1482	22	1.5%
FY14	1485	-3	-0.2%
FY15	1438	-47	-3.3%
3-year average			**-0.7%**

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The number of males decreased by 1.2 percent annually.

OCCC AVERAGE CHANGE IN NUMBER OF MALES			
FISCAL YEAR	INMATES	CHANGE	PERCENT
FY13	1330	29	2.2%
FY14	1315	-15	-1.1%
FY15	1257	-58	-4.6%
3-year average			**-1.2%**

The number of females increased by 7.1 percent annually.

OCCC AVERAGE CHANGE IN NUMBER OF FEMALES			
FISCAL YEAR	INMATES	CHANGE	PERCENT
FY13	152	7	4.6%
FY14	170	18	10.6%
FY15	181	11	6.1%
3-year average			**7.1%**

Detention Population

As mentioned, it was necessary to establish separate detention and pre-release forecasts for males due to the split location of the existing 216 pre-release beds. The table below indicates the decline in the detention population is slightly larger than for the total male population. This is because there was no decline in the pre-release population, so all of the change is absorbed by the detention population.

Males

YEAR	ASSIGNED COUNT	PRE-RELEASE ADP	DETENTION ADP	CHANGE FROM PREVIOUS YEAR	PERCENT
FY12	1301	216	1085		
FY13	1330	216	1114	29	2.6%
FY14	1315	216	1099	-15	-1.4%
FY15	1257	216	1041	-58	-5.6%
FY13-15 AVG	1301	216	1085	-15	**-1.4%**

2. Custody Classification and Legal Status

Knowing the custody classification and legal status of inmates helps planners determine the required security mix of beds.[16] PSD has five categories of classification which are defined as follows:

- Maximum for inmates who are chronically disruptive, violent, predatory or are a threat to the safe operation of a facility.
- Close for inmates with minimum sentences of 21 years of more, are serious escape risks or have chronic behavioral/management problems;
- Medium for inmates who have more than 48 months to their parole eligibility date; their institutional conduct and adjustment require frequent supervision;

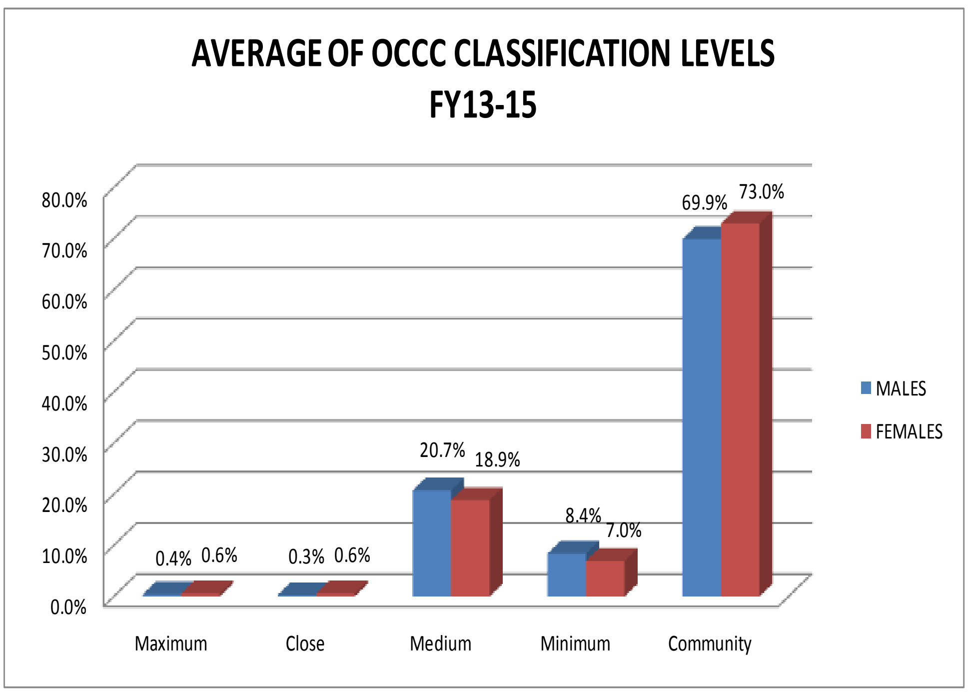
[16] Custody is a designated classification for inmates. It is not the security level of the building. Some inmates may be housed at a higher security level of housing than their custody classification. This may be due to mental health issues requiring more secure housing or other temporary behavior issues. Inmates may not be housed in a security level that is lower than their assigned custody. For example, a medium custody inmate cannot reside in minimum security.

- **Minimum** for inmates with less than 48 months until their parole eligibility date; they must have demonstrated through institutional conduct that they can function with minimal supervision in a correctional setting, or in the community under direct supervision.
- **Community** for inmates who have 24 months or less to serve on their sentence and are eligible to participate in community release programs such as work furlough, extended furlough, or residential transitional living centers.

As shown in the table and graph below, the overwhelming majority of inmates are classified as community. This is merely the lowest custody level indicating the inmate is eligible to participate in community release programs. It does not mean the inmates are living in the community.

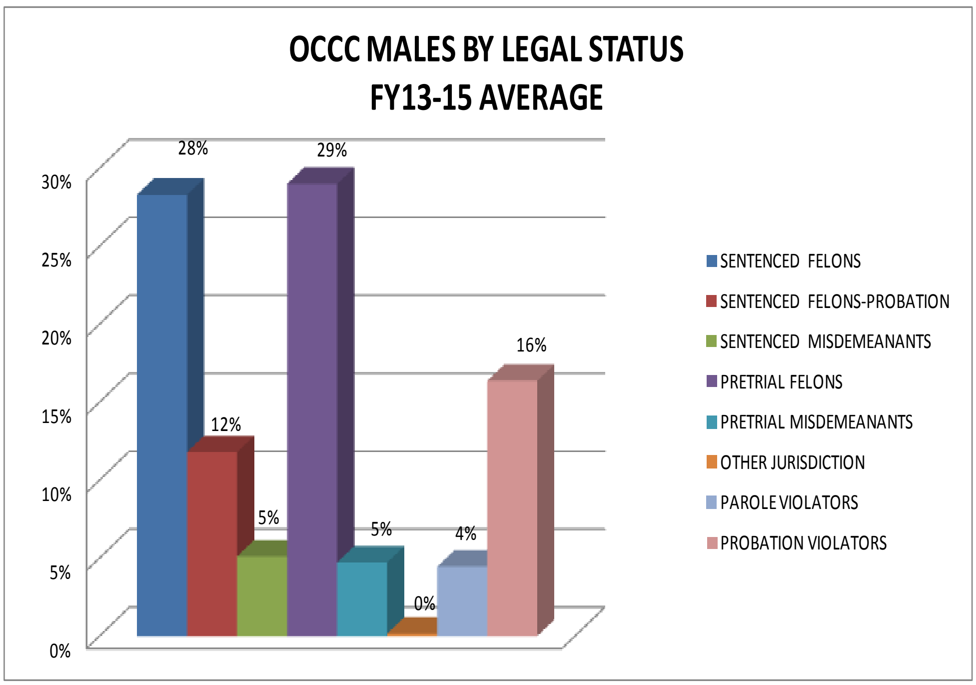
SUMMARY OF OCCC INMATE CLASSIFICATION LEVELS FY13-15 AVERAGE		
CLASSIFICATION	**MALES**	**FEMALES**
Maximum	0.4%	0.6%
Close	0.3%	0.6%
Medium	20.7%	18.9%
Minimum	8.4%	7.0%
Community	69.9%	73.0%
TOTAL	**99.7%**	**100.0%**

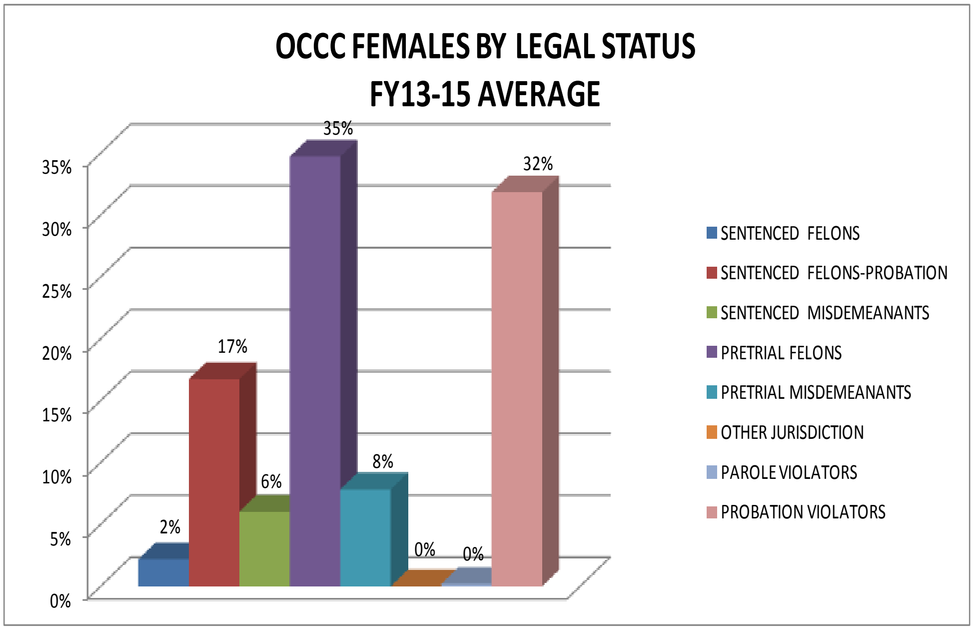
Numbers may not total 100 percent due to rounding.



The following table and graph show males and females by legal status.

OCCC INMATES BY LEGAL STATUS FY13-15 AVERAGE		
LEGAL STATUS	**MALES**	**FEMALES**
SENTENCED FELONS	28%	2%
SENTENCED FELONS-PROBATION	12%	17%
SENTENCED MISDEMEANANTS	5%	6%
PRETRIAL FELONS	29%	35%
PRETRIAL MISDEMEANANTS	5%	8%
OTHER JURISDICTION	0%	0%
PAROLE VIOLATORS	4%	0%
PROBATION VIOLATORS	16%	32%
TOTAL	**100%**	**100%**





Pre-Release

The functions at LWFC and Module 20 are partial confinement pre-release programs for males including community corrections, day reporting and work furlough.[17] Laumaka has 96 beds approximately one block from OCCC. Module 20 has 120 beds and is located on the grounds of OCCC. Female offenders participate in these programs at WCCC where there are 44 pre-release beds. PSD reports these beds stay full.

THE OCCC FORECAST

The 10-year forecast uses the trends above as the basis for the population projection. As previously mentioned, the projection also includes an annual growth rate for the City and County of Honolulu at .47 percent annually and a peaking factor of 2.5 percent.[18] The forecast for males is split between detention beds and pre-release beds.

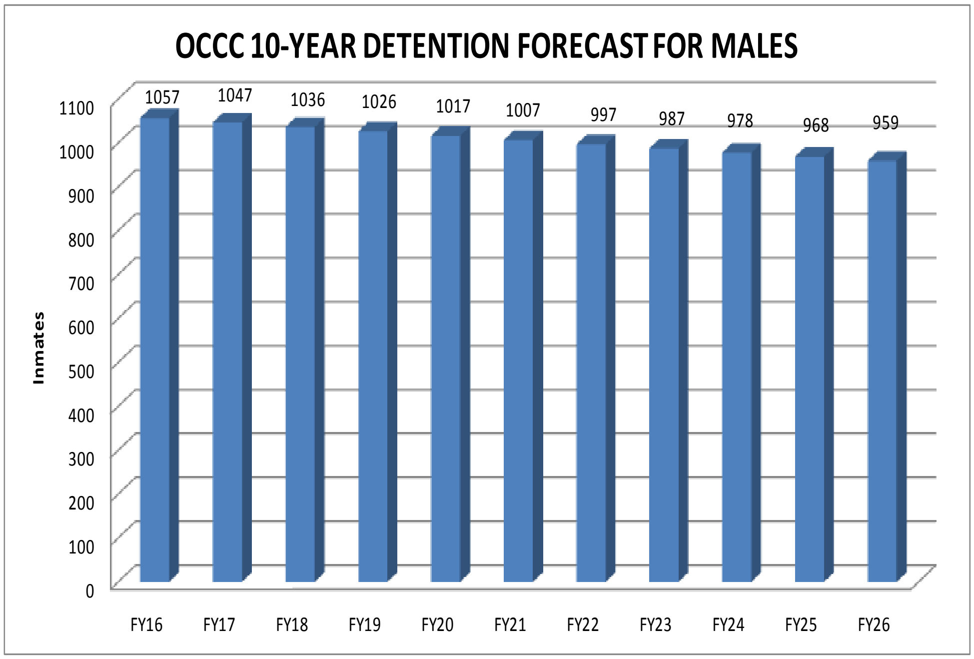
[17] The scope of this forecast does not extend to community corrections.

[18] Numbers by classification and legal status may vary slightly from the total forecast due to rounding.

FORECAST FOR MALES

1. Detention beds

   The detention forecast for males in FY26 is 959 inmates or 98 fewer than in FY16.[19]

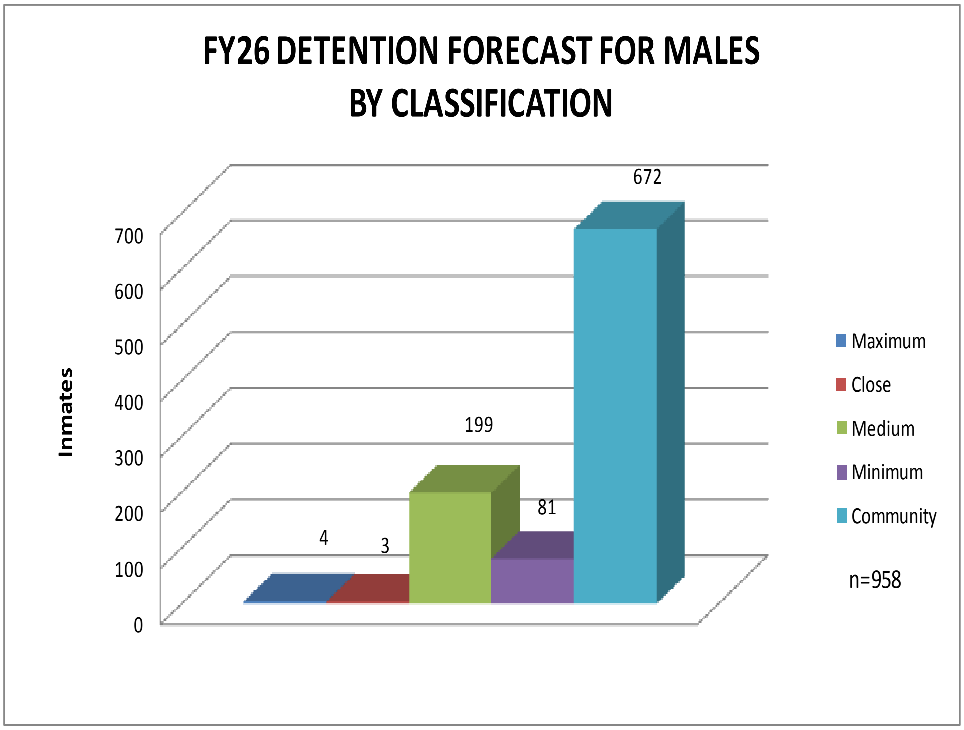


2. The following information shows detention males by classification by year.

OCCC DETENTION FORECAST FOR MALES BY CLASSIFICATION						
Year	**MAXIMUM**	**CLOSE**	**MEDIUM**	**MINIMUM**	**COMMUNITY**	**TOTAL**
	0.4%	**0.3%**	**20.7%**	**8.4%**	**70.0%**	**100%**
2016	4	3	219	89	740	1056
2017	4	3	217	88	733	1045
2018	4	3	215	87	726	1035
2019	4	3	213	87	719	1025
2020	4	3	211	86	712	1016
2021	4	3	209	85	705	1006
2022	4	3	207	84	698	996
2023	4	3	205	83	691	986
2024	4	3	203	82	685	977
2025	4	3	201	82	678	967
2026	4	3	199	81	672	958

The total may not match the overall forecast due to rounding.

[19] The forecast for FY16 is slightly higher than the FY15 actual of 1257 due to anticipated population growth and the peaking factor.



3. The table below estimates the detention forecast for males by legal status and custody classification. It provides opportunity and flexibility for deciding how to use the new housing modules at the replacement facility. For example, it may desirable to house pretrial felons separate from misdemeanants and to divide the sentenced population. It also may be desirable to house segments of the community custody population together.[20]

OCCC FY26 DETENTION FORECAST FOR MALES BY LEGAL STATUS AND CUSTODY CLASSIFICATION							
	MAXIMUM	CLOSE	MEDIUM	MINIMUM	COMMUNITY	TOTAL	PERCENT
Sentenced Felons	0.0	1.7	11.1	4.2	75.1	**92.1**	**9.6%**
Sentenced Felons-Probationers	0.2	0.7	26.7	16.6	107.9	**152.2**	**15.9%**
Sentenced Misdemeanants	0.2	0.0	6.9	2.2	62.1	**71.4**	**7.5%**
Parole Violators	0.0	0.5	4.4	1.2	0.0	**6.1**	**0.6%**
Probation Violators	0.5	0.0	45.8	20.7	141.2	**208.1**	**21.7%**
Pretrial Felons	3.0	0.0	100.3	34.0	221.0	**358.2**	**37.4%**
Pretrial Misdemeanants	0.0	0.0	3.9	1.7	62.2	**67.8**	**7.1%**
Other Jurisdiction	0.0	0.0	0.0	0.3	2.0	**2.2**	**0.2%**
TOTAL	**4**	**3**	**199**	**81**	**671**	**958**	**100.0%**
PERCENT	**0.4%**	**0.3%**	**20.8%**	**8.4%**	**70.1%**	**100.0%**	

4. Pre-Release for Males

PSD reports about 300 males are ready for pre-release at any given time, but only 216 beds are available. The forecast assumes the pre-release population will follow similar trends around the country of expanding re-entry services. Rather than applying the declining detention trend to pre-release, a

[20] Legal statuses for the detention pop are different than the total assigned count because some of the community custody inmates are at pre-release. Legal status percentages in this table will not match the total assigned count because adjustments were made when the pre-release population was subtracted from the total. Details are provided in the electronic file submitted with the report.

2 percent annual growth rate has been applied. Growth for the City and County of Honolulu has also been added. A peaking factor has not been applied because when pre-release is full, no more inmates are added.

The in-residence portion of PSD's pre-release program for males takes place at Module 20 of OCCC (120 beds) and at LWFC located one block from OCCC (96 beds). Planning for pre-release capacity is complicated by the fact that Module 20 needs to be replaced and LWFC does not.

The following table shows the pre-release forecast for males.

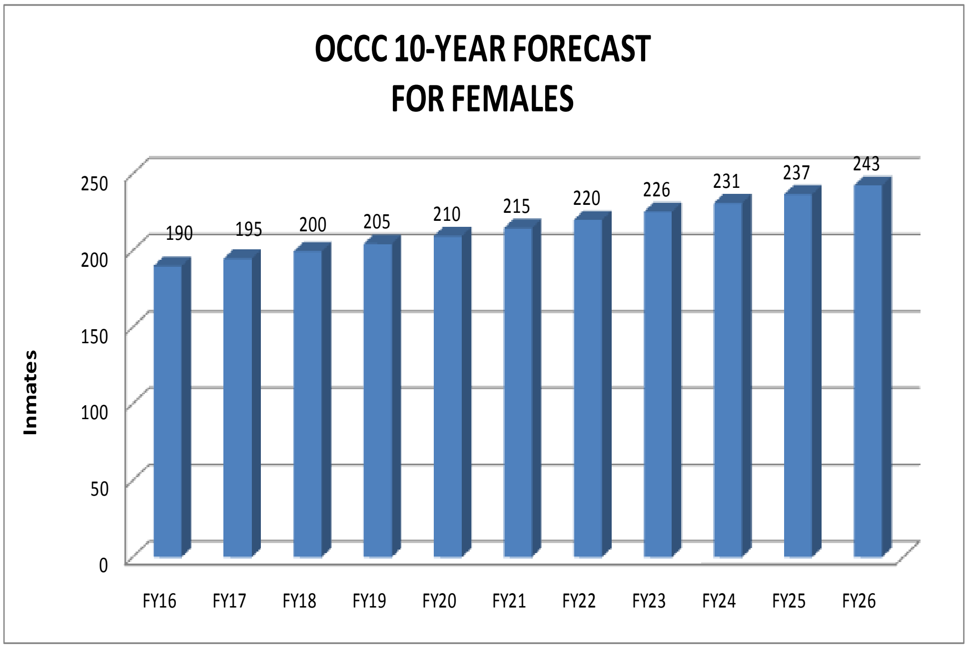
PRE-RELEASE BED FORECAST FOR MALES			
FORECAST YEAR	PREVIOUS YEAR	INMATE + HONOLULU GROWTH	TOTAL FORECAST
FY16	300	7	307
FY17	307	8	315
FY18	315	8	323
FY19	323	8	331
FY20	331	8	339
FY21	339	8	347
FY22	347	9	356
FY23	356	9	365
FY24	365	9	374
FY25	374	9	383
FY26	**383**	**9**	**392**

When subtracting the 96 beds that will remain online at LWFC, there is a need for 296 additional beds (392 – 96 = 296).

FORECAST FOR FEMALES

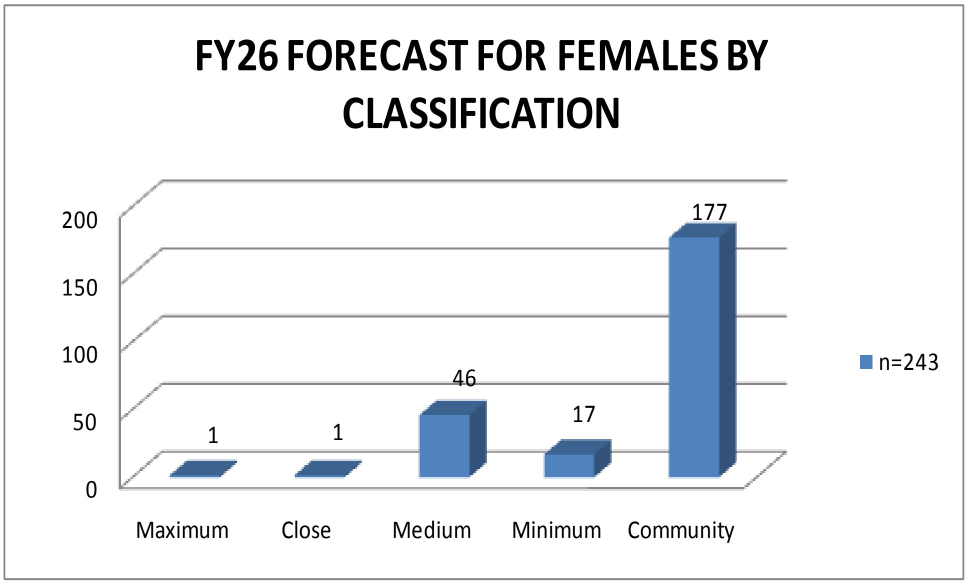
When the forecast for females is calculated at an annual *increase* of 7.1 percent for thirty years, the number of beds far exceeds what is plausible (well over 1,000). In discussion with PSD's statistician and the Project Team, it was agreed the number of females cannot be rationally projected based on the current trend. Therefore, a number of scenarios for women were calculated at annual increases of between one and three percent. The scenario used for the forecast uses a two percent growth factor which represents the average of the three scenarios.

1. Like the forecast for males, the annual City and County of Honolulu growth rate of .47 percent and a peaking factor of 2.5 percent are added to the inmate growth rate. The forecast predicts 53 additional inmates on average by FY26.



2. Female Population Forecast by Classification

OCCC YEARLY FORECAST FOR FEMALES BY CLASSIFICATION						
YEAR	MAXIMUM	CLOSE	MEDIUM	MINIMUM	COMMUNITY	TOTAL
	0.6%	0.6%	18.9%	7.0%	73.0%	100%
2016	1	1	36	13	139	190
2017	1	1	37	14	142	195
2018	1	1	38	14	146	200
2019	1	1	39	14	149	205
2020	1	1	40	15	153	210
2021	1	1	41	15	157	215
2022	1	1	42	15	161	220
2023	1	1	43	16	165	226
2024	1	1	44	16	169	231
2025	1	1	45	16	173	237
2026	1	1	46	17	177	243



3. The following table shows females by classification and legal status. Similar to the forecast for males, it provides opportunity and flexibility for deciding how to use the new housing modules at the replacement facility. For example, it may desirable to house pretrial felons separate from misdemeanants and to divide the sentenced population. It also may be desirable to house segments of the community custody population together.

OCCC FY26 FORECAST FOR FEMALES BY LEGAL STATUS AND CUSTODY CLASSIFICATION							
LEGAL STATUS	MAXIMUM	CLOSE	MEDIUM	MINIMUM	COMMUNITY	TOTAL	PERCENT
Sentenced Felons	0	0	1	4	0	5	**2%**
Sentenced Felons-Probationers	0	1	9	1	29	41	**17%**
Sentenced Misdemeanants	0	0	1	0	13	15	**6%**
Parole Violators	0	0	0	0	0	0	**0%**
Probation Violators	0	0	16	8	53	77	**32%**
Pretrial Felons	1	0	19	4	61	84	**35%**
Pretrial Misdemeanants	0	0	0	0	19	19	**8%**
Other Jursidiction	0	0	0	0	0	0	**0%**
TOTAL	**1**	**1**	**46**	**17**	**176**	**242**	**100%**
PERCENT	**0.6%**	**0.6%**	**18.9%**	**7.0%**	**72.9%**	**100.0%**	

Numbers may vary slightly from the overall forecast due to rounding.

4. Pre-Release for Females

Female inmates participate in pre-release via WCCC. Currently, there are 40 beds for females (25 at the YWCA program and 15 at the Bridge program). PSD reports about 60 females are qualified for work furlough. This means there is an immediate need for 20 additional beds.

The methodology used to forecast pre-release beds for females follows the same as the general forecast for females.[21] The growth rate is two percent plus 0.47 percent for growth in the City and County of

[21] It is not necessary to remove existing pre-release females from OCCC's assigned count because they are part of WCCC's count, not OCCC.

Honolulu population. A peaking factor is not added because when pre-release centers become full, no inmates are added.

PRE-RELEASE BED FORECAST FOR FEMALES				
FORECAST YEAR	PREVIOUS YEAR	INMATE + HONOLULU GROWTH	TOTAL FORECAST	FORECAST YEAR
FY16	60	1	61	FY16
FY17	61	2	63	FY17
FY18	63	2	65	FY18
FY19	65	2	66	FY19
FY20	66	2	68	FY20
FY21	68	2	69	FY21
FY22	69	2	71	FY22
FY23	71	2	73	FY23
FY24	73	2	75	FY24
FY25	75	2	77	FY25
FY26	77	2	78	FY26

Since there are 40 existing beds, the number of additional beds needed is 38 (78 – 40 = 38). Fortunately, the previously mentioned Ho'okipa Unit adjacent to WCCC is adequate to address the forecast once it is refurbished.

CLOSING STATEMENTS

PSD does not decide how many people are admitted to OCCC or how long they stay. This forecast is intended to help planners determine the quantity and security levels of beds needed for the OCCC relocation and replacement. The forecast has been through a rigorous review process. It has been reviewed by PSD, the Consultant Team, and an independent consultant that specializes in quality control of evaluations of governmental operations. Additionally, the forecast was presented to the Corrections Population Management Commission in October 2016. All corrections forecasts tend to spur conversations about whether there are too many or too few beds. Regardless of opinion, forecasts are most accurate in the near years versus the far years because they are highly subject to changes in arrest policies, laws, agency policies, urban population growth or decline, and the overall capacity of the courts. As a result, even the best forecasts are quickly outdated.

A regular update of the forecast will assist PSD in capital and operational planning. For example, the ideal site for the replacement facility will allow for an additional housing unit or two if the forecast proves to be too conservative and not enough beds are available. Conversely, if policies are implemented that produce excess capacity through the further reduction of the inmate population, either the construction of a housing unit can be delayed or the excess capacity can be used to relieve crowding elsewhere. Therefore, it is recommended the forecast be updated at least annually so that trends are monitored and planning can be adjusted accordingly.

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Appendix H: Construction Cost Estimates

Oahu Community Correctional Center

October 27, 2017

Prepared for:

State of Hawaii
Department of Accounting and General Services
Department of Public Safety

Prepared by:

CUMMING
Building Value Through Expertise

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CUMMING

Building Value Through Expertise

OCCC Site 1 - Animal Quarantine Station Site

Oahu, HI

Probable Cost Estimate for the
Programmatic Design Phase
September 28, 2017

Prepared for AHL

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EXECUTIVE SUMMARY

1.1 Introduction

This estimate has been prepared, pursuant to an agreement between AHL and Cumming Corporation, for the purpose of establishing a probable cost of construction at the Programmatic Budgeting design stage.

The project scope encompasses construction of a new jail facility to replace the Oahu Community Correctional Center in Kalihi, Honolulu. This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.

1.2 Project Schedule

	Start	Finish	Duration
Design, Engineering & Permitting	Jun-19	Jun-21	24 months
Construction	Jun-21	Jun-23	24 months

1.3 Key Assumptions & Exclusions

This document should be read in association with Appendices 1 - 3 which outline assumptions, project understanding, approach, and cost management methodology.

OCCC Site 1 - Animal Quarantine Station Site
Oahu, HI
Programmatic Design 09/28/17

TOTAL PROJECT COST DETAIL

Item Description	Detention Facility	Pre-Release Facility	Sitework	Off-Site Improvements	Sub Total	Group Total
BUILDING PERMITS						
Permit Fee Allowance	$4,334,123	$1,050,600	$305,679	$120,393	**$5,810,795**	
	$4,334,123	**$1,050,600**	**$305,679**	**$120,393**		**$5,810,795**
CONSTRUCTION COST						
Detention Facility	$ 288,941,504				**$288,941,504**	
Pre-Release Facility		$70,040,003			**$70,040,003**	
Sitework			$30,567,949		**$30,567,949**	
Off-Site Improvements				$12,039,277	**$12,039,277**	
	$288,941,504	**$70,040,003**	**$30,567,949**	**$12,039,277**		**$401,588,733**
NEW ANIMAL QUARANTINE STATION FACILITY						
Cost to rebuild Animal Quarantine Station west of current facility				$17,500,000	**$17,500,000**	
	$0	**$0**	**$0**	**$17,500,000**		**$17,500,000**
CONSTRUCTION PHASING						
Allowance for phasing and interim swing space cost	$200,000	$200,000			**$400,000**	
	$200,000	**$200,000**	**$0**	**$0**		**$400,000**
FF&E COSTS						
Allowance	$5,000,000	w/ main bldg.			**$5,000,000**	
	$5,000,000	**$0**	**$0**	**$0**		**$5,000,000**
EXTERIOR SIGNAGE						
Entry sign	$20,000				**$20,000**	
Misc. exterior signage	$15,000				**$15,000**	
	$35,000	**$0**	**$0**	**$0**		**$35,000**
SUPPORT EQUIPMENT						
Kitchen equipment					**Included**	
Laundry equipment					**Included**	
Departmental equipment					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
SYSTEMS						
Computer system					**Excluded**	
Security system software					**Excluded**	
Telephone system	$ 150,000	$75,000			**$225,000**	
Security system					**Included**	
	$150,000	**$75,000**	**$0**	**$0**		**$225,000**
COMMUNITY PARTNERING						
Partnering with host community					**TBD**	
	$0	**$0**	**$0**	**$0**		**$0**
INVENTORY (CONSUMABLES)						
Administrative supplies					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
DESIGN & PM COSTS						
Design Costs						
Allow 7% of construction, FF&E & equipment costs	$20,575,905	$4,902,800		$1,225,000	**$26,703,705**	
Allow 4% of construction costs			$1,222,718	$481,571	**$1,704,289**	
Reimbursable expenses	$2,057,591	$490,280	$122,272	$170,657	**$2,840,799**	
Sub Total Design Costs	**$22,633,496**	**$5,393,080**	**$1,344,990**	**$1,877,228**	**$31,248,794**	
Project Management						
Allow 4% of construction, FF&E & equipment costs	$11,757,660	$2,801,600	$1,222,718	$1,181,571	**$16,963,549**	
Reimbursable expenses	$1,175,766	$280,160	$122,272	$118,157	**$1,696,355**	
Sub Total PM Costs	**$12,933,426**	**$3,081,760**	**$1,344,990**	**$1,299,728**	**$18,659,904**	
Total Design and PM Costs	**$35,566,922**	**$8,474,840**	**$2,689,980**	**$3,176,956**		**$49,908,698**
WORKING CAPITAL/FINANCING						
Working capital					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
FINANCIAL, TAXES & LEGAL						
Legal					**Excluded**	
OCIP					**Excluded**	
Property taxes					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
CAPITALIZED INTEREST						
Capitalized Interest					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
CONTINGENCY						
Contingency on construction @ 10%	$28,894,150	$7,004,000	$3,056,795	$2,953,928	**$41,908,873**	
Contingency on soft costs @ 5%	$2,254,302	$480,022	$149,783	$164,867	**$3,048,975**	
	$31,148,453	**$7,484,022**	**$3,206,578**	**$3,118,795**		**$44,957,848**
LAND COSTS						
Cost of land					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
TOTAL PROJECT COSTS	**$365,376,001**	**$87,324,466**	**$36,770,186**	**$35,955,421**		**$525,426,074**

SUMMARY MATRIX

			Detention Facility		Pre-Release Facility		Sitework	Off-Site Improvements	Overall Totals	
			378,840 SF		115,072 SF		1,089,000 SF	1 LS	493,912 SF	
Element			Total	Cost/SF	Total	Cost/SF	Total	Total	Total	Cost/SF
A) Shell (1-5)			**$62,895,934**	**$166.02**	**$15,193,532**	**$132.04**			**$78,089,465**	**$158.10**
1 Foundations			$9,162,056	$24.18	$2,368,182	$20.58			$11,530,238	
2 Vertical Structure			$8,126,118	$21.45	$1,268,669	$11.03			$9,394,787	
3 Floor & Roof Structures			$23,507,022	$62.05	$4,566,057	$39.68			$28,073,079	
4 Exterior Cladding			$17,444,794	$46.05	$4,487,808	$39.00			$21,932,602	
5 Roofing and Waterproofing			$4,655,944	$12.29	$2,502,816	$21.75			$7,158,760	
B) Interiors (6-7)			**$43,555,235**	**$114.97**	**$9,004,384**	**$78.25**			**$52,559,619**	**$106.41**
6 Interior Partitions, Doors and Glazing			$30,295,835	$79.97	$5,983,744	$52.00			$36,279,579	
7 Floor, Wall and Ceiling Finishes			$13,259,400	$35.00	$3,020,640	$26.25			$16,280,040	
C) Equipment and Vertical Transportation (8-9)			**$14,054,964**	**$37.10**	**$2,963,104**	**$25.75**			**$17,018,068**	**$34.46**
8 Function Equipment and Specialties			$12,122,880	$32.00	$2,157,600	$18.75			$14,280,480	
9 Stairs and Vertical Transportation			$1,932,084	$5.10	$805,504	$7.00			$2,737,588	
D) Mechanical and Electrical (10-13)			**$64,178,161**	**$169.41**	**$17,606,825**	**$153.01**			**$81,784,986**	**$165.59**
10 Plumbing Systems			$13,126,806	$34.65	$3,222,016	$28.00			$16,348,822	
11 Heating, Ventilation and Air Conditioning			$21,878,010	$57.75	$5,523,456	$48.00			$27,401,466	
12 Electrical Lighting, Power and Communications			$26,518,800	$70.00	$8,055,040	$70.00			$34,573,840	
13 Fire Protection Systems			$2,654,545	$7.01	$806,313	$7.01			$3,460,858	
E) Site Construction (14-16)							**$19,538,280**	**$8,169,873**	**$27,708,153**	**$25.44**
14 Site Preparation and Demolition							$5,200,750	incl. below	$5,200,750	
15 Site Paving, Structures & Landscaping							$4,725,495	$1,000,000	$5,725,495	
16 Utilities							$9,612,035	$7,169,873	$16,781,908	
Subtotal Cost			**$184,684,293**	**$487.50**	**$44,767,845**	**$389.04**	**$19,538,280**	**$8,169,873**	**$257,160,291**	**$520.66**
		Off-Site								
General Conditions/Requirements	10.0%	5%	$18,468,429	$48.75	$4,476,784	$38.90	$1,953,828	$408,494	$25,307,535	$51.24
General Liability, Subguard, and GC Bond:	3.0%	3%	$5,540,529	$14.62	$1,343,035	$11.67	$586,148	$245,096	$7,714,809	$15.62
Contractor's Fee	3.5%	2%	$7,304,264	$19.28	$1,770,568	$15.39	$772,739	$176,469	$10,024,040	$20.30
Design Contingency	10.0%	10%	$21,599,751	$57.02	$5,235,823	$45.50	$2,285,100	$899,993	$30,020,668	$60.78
Escalation to MOC, 06/15/22	18.6%	18.6%	$44,296,884	$116.93	$10,737,654	$93.31	$4,686,294	$1,845,711	$61,566,542	$124.65
GET	2.5%	2.5%	$7,047,354	$18.60	$1,708,293	$14.85	$745,560	$293,641	$9,794,847	$19.83
Total Estimated Construction Cost			**$288,941,504**	**$762.70**	**$70,040,003**	**$608.66**	**$30,567,949**	**$12,039,277**	**$401,588,733**	**$813.08**

Sitework

SUMMARY - SITEWORK

Element		Subtotal	Total
E) Site Construction (14-16)			**$19,538,280**
14	Site Preparation and Demolition	$5,200,750	
15	Site Paving, Structures & Landscaping	$4,725,495	
16	Utilities on Site	$9,612,035	
	Subtotal		$19,538,280
	General Conditions/Requirements	10.00%	$1,953,828
	Subtotal		$21,492,109
	General Liability, Subguard, and GC Bonds	3.00%	$586,148
	Subtotal		$22,078,257
	Contractor's Fee	3.50%	$772,739
	Subtotal		$22,850,996
	Design Contingency	10.00%	$2,285,100
	Subtotal		$25,136,096
	Escalation to MOC, 06/15/22	18.64%	$4,686,294
	Subtotal		$29,822,390
	GET	2.50%	$745,560
TOTAL ESTIMATED CONSTRUCTION COST			**$30,567,949**

Total Area: 1,089,000 SF

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Other	Unit Cost	Total
14 Site Preparation and Demolition					
Site Clearance / Demolition					
HazMat Investigation - allowance	1	ls		$295,000	$295,000
Site preparation/stabilization - allowance	1	ls		$1,000,000	$1,000,000
Demolition with off-site disposal - allowance	1	ls		$2,000,000	$2,000,000
Earthwork					
Fine grading	1,089,000	sf		$1.00	$1,089,000
Erosion control	1,089,000	sf		$0.75	$816,750
Total - Site Preparation and Demolition					**$5,200,750**
15 Site Paving, Structures & Landscaping					
Site Development, Finished Site Area					
Hardscape					
AC paving at parking, yard, and service roads	400,000	sf		$5.00	$2,000,000
Concrete paving/sidewalks - allowance	20,000	sf		$20.00	$400,000
Landscape					
Landscape area - allowance	420,793	ls		$1.00	$420,793
Site Specialties					
Misc curbs, parking striping, signage allow	1	ls		$200,000.00	$200,000
Site Structures					
Physical Plant/Warehouse - allowance	17,047	sf		$100.00	$1,704,703
Total - Site Paving, Structures & Landscaping					**$4,725,495**

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Other	Unit Cost	Total
16 Utilities on Site					
Fire water improvements - allowance					
Fire water service	3,912	lf		$450.00	$1,760,400
Reduced pressure backflow preventer assembly	1	ea		$40,000.00	$40,000
Miscellaneous specialties (hydrants, etc.)	1	ls		$370,000.00	$370,000
Water system improvements - allowance					
Domestic water service	3,912	lf		$540.00	$2,112,480
Water meter	1	ea		$20,000.00	$20,000
Reduced pressure backflow preventer assembly	1	ea		$40,000.00	$40,000
Miscellaneous specialties	1	ls		$440,000.00	$440,000
Wastewater system improvements/rehabilitations - allowance					
Sanitary sewer service	1,605	lf		$430.00	$690,150
Sewage grinder, allowance	1	ls		$100,000.00	$100,000
Precast concrete vault	1	ls		$35,000.00	$35,000
Miscellaneous specialties (manholes, etc.)	1	ls		$170,000.00	$170,000
Gas distribution improvements - allowance					
Gas service	1	ls		$100,000.00	$100,000
Storm water conveyance - allowance					
Storm drain service	326	lf		$292.50	$95,355
Retention Basin and other BMP measures	1	ls		$610,000.00	$610,000
Miscellaneous specialties (manholes, etc.)	1	ls		$150,000.00	$150,000
Electrical system improvements - allowance	1	ls		$1,550,250.00	$1,550,250
Site lighting - allowance	1	ls		$1,328,400.00	$1,328,400
Total - Utilities on Site					**$9,612,035**

Off-Site Improvements

SUMMARY - OFF-SITE IMPROVEMENTS

Element		Subtotal	Total
E) Site Construction (14-16)			**$8,169,873**
14	Site Preparation and Demolition		
15	Site Paving, Structures & Landscaping	$1,000,000	
16	Utilities	$7,169,873	
	Subtotal		$8,169,873
	General Conditions/Requirements	5.00%	$408,494
	Subtotal		$8,578,367
	General Liability, Subguard, and GC Bonds	3.00%	$245,096
	Subtotal		$8,823,463
	Contractor's Fee	2.00%	$176,469
	Subtotal		$8,999,932
	Design Contingency	10.00%	$899,993
	Subtotal		$9,899,925
	Escalation to MOC, 06/15/22	18.64%	$1,845,711
	Subtotal		$11,745,636
	GET	2.50%	$293,641
TOTAL ESTIMATED CONSTRUCTION COST			**$12,039,277**

DETAIL ELEMENTS - OFF-SITE IMPROVEMENTS

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Included below				
Total - Site Preparation and Demolition				
15 Site Paving, Structures & Landscaping				
Roadway improvements - allowance	1	ls	$1,000,000.00	$1,000,000
Total - Site Paving, Structures & Landscaping				**$1,000,000**
16 Utilities				
Water system evaluation - allowance	1	ls	250,000	$250,000
Water system improvements - allowance	1	ls	780,000	$780,000
Water facility charge - allowance	1	ls	2,540,000	$2,540,000
Wastewater system investigation - allowance	1	ls	250,000	$250,000
Wastewater system improvements/rehabilitation - allowance	1	ls	1,848,000	$1,848,000
Wastewater facility charge - allowance	1	ls	460,000	$460,000
Electrical system improvements - allowance	1	ls	$429,000.00	$429,000
Connect to existing systems	1	ls	$20,000.00	$20,000
Transformer pad	1	ea	$2,785.00	$2,785
Switch pad	1	ea	$2,100.00	$2,100
Concrete manholes	6	ea	$5,748.00	$34,488
Underground primary conduits	1,000	lf	$54.00	$54,000
Trenching and backfill	2,500	lf	$60.00	$150,000
Concrete encasement	200	cy	$210.00	$42,000
Low voltage conduits w/fiber	1,500	lf	$120.00	$180,000
Low voltage conduits w/paired copper	1,500	lf	$85.00	$127,500
Total - Utilities				**$7,169,873**

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
General Project Info	- Escalation included through Q2 / 2022. - All sub trades to be competitively bid. - Labor pool from the State of Hawaii.
Detailed Assumptions	
1. Substructure / Foundations	- No basement - Premiums included for deep foundations. - Elevator pits.
2. Structure	- Concrete slab on grade. - Structural steel framing including buckling restrained braced frames. - Cementitious fireproofing. - Cellular metal deck with lightweight concrete fill. - Miscellaneous concrete and metals.
3. Envelope / Roofing	- Metal stud framing, sheathing, waterproofing, and drywall to interior face of exterior wall at, parapets, and precast concrete panels. - 80% of exterior wall as precast concrete panels. - Allowance for exterior doors, canopies, and soffits. - Single ply or built up roof, typical.
4. Interiors	- Concrete masonry unit walls to 60% of interior partitions. - A mix detention steel wall panels and metal stud framed partitions to remaining areas. - Miscellaneous security and aluminum-framed glazing. - Security hollow metal doors and standard commercial doors. - Walls: paint, epoxy paint, epoxy, ceramic tile. - Floors: urethane, epoxy, sealed concrete, polished concrete, ceramic tile, carpet tile, and vapor membrane barrier. - Ceilings: detention hollow metal, acoustic ceiling tile, gypsum board, security plaster. - Restroom and building specialties, and casework. - Detention equipment and sealants. - Kitchen and Laundry equipment (AV, video visitation, medical, and surgery equipment are excluded).

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
5. Vert. Transportation	- Metal pan / concrete filled stair units.
	- Mezzanine stairs.
	- MRL Elevators.
6. Plumbing	- General plumbing equipment, fixtures, and waste / vent piping.
	- Domestic water piping.
	- Roof Drainage.
7. HVAC	- Chillers, boilers, cooling towers, pumps, etc.
	- Chilled water piping.
	- Air handling units.
	- Air distribution ductwork and specialties.
	- Automatic Temperature Controls.
	- Test / balance / firestopping / seismic.
8. Electrical	- Emergency and Normal Service and Distribution
	- LED light fixtures.
	- Fire Alarm Systems.
	- Telephone Data Systems.
	- A/V Systems.
	- Security Systems ACS, CCTV, IC, wireless, duress, master controls.
	- Master Clock System.
9. Fire Protection	- Wet pipe sprinklers throughout.
Assumptions for New Animal Quarantine Facility Included in Soft Cost	
1. Office Building	- New 9,500 sf office building
2. Outdoor Dog Kennels	- 72 outdoor kennels similar to existing kennels
3. Outdoor Cat Kennels	- 36 outdoor kennels similar to existing kennels
4. Pasture Area	- Approx. 40,000 sf of pasture area
5. Holding Pens for Large Animals	- Approx. 30,000 sf of holding pens
6. Moving Cost	- Allowance of $200,000 for moving cost

APPENDIX 2 - RISK CONSIDERATIONS

Section	Description
Labor Availability	Hawaii's unemployment rate remains below 3.0%, the lowest rate since October of 2007. Demand for skilled workers are still expected in the following trades: carpenters, iron workers, plumbers, pipefitters, glaziers, sheet metal workers, welders, and electricians.
Material Costs	For domestic construction material costs cold-formed metal stud framing, concrete, reinforcing steel, lumber, and particle board continue to see price increases.
Productivity	Productivity impacts of construction trade workers is not anticipated.
Sub-Contractor Mark Up	CCMI cost managers continue to track subcontractor markups in the range of 15% - 20%.
Project Access	The project site is easily accessed from local roads.
Bidding Market	Honolulu construction spending has slowed but is expected to remain stable through 2018 before easing lower as the current cycle begins to wind down. This will be favorable for the projects construction schedule.
Escalation	Escalation has been included in this estimate at a rate of 18.6% taken through the midpoint of construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Basis of Estimate	This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.
Estimate Format	A component cost classification format has been used for the preparation of this estimate. Cost are classified by building system / element.
Cost Mark Ups	The following % mark ups have been included in each design option: - General Conditions / Requirements (10.00% on direct costs) - GC Fee (3.50% compound) - Insurance and Subguard (3.00% compound) - Design Contingency (10.00% compound) - Escalation (18.6% compound)
Escalation	All subcontract prices herein are reflective of current bid prices. Escalation has been included on the summary level to the stated mid point of construction.
Design Contingency	An allowance of 10.00% for undeveloped design details has been included in this estimate. As the design of each system is further developed, details which historically increase cost become apparent and must be incorporated into the estimate while decreasing the % burden.
Construction Contingency	It is prudent for all program budgets to include an allowance for change orders which occur during the construction phase. These change orders normally increase the cost of the project. A 10% construction contingency is currently included in the soft cost.
Construction Schedule	Costs included herein have been based upon a construction period of 24 months. Any costs for excessive overtime to meet accelerated schedule milestone dates are not included in this estimate.
Method of Procurement	The estimate is based on a design-bid-build delivery method for the building and associated site work.
Bid Conditions	This estimate has been based upon competitive bid situations (minimum of 3 bidders) for all items of subcontracted work.
Basis For Quantities	Wherever possible, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with other projects of a similar nature. We relied on prior estimates developed for the off-site and utility costs, these cost need to be validated especially for site number 3 which was not part of the prior study.
Sources for Pricing	This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design. These consultants have used pricing data from Cumming's database for Honolulu County construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Key Exclusions

The following items have been excluded from our estimate:
- Site acquisition.
- Relocation cost.
- Medical and surgical equipment.
- Security / detention glazing to exterior curtain walls.
- Skylights.
- Reclaimed water system.
- Medical gases.

Items Affecting Cost Estimate

Items which may change the estimated construction cost include, but are not limited to:
- Modifications to the scope of work included in this estimate.
- Unforeseen sub-surface conditions.
- Restrictive technical specifications or excessive contract conditions.
- Any specified item of material or product that cannot be obtained from 3 sources.
- Any other non-competitive bid situations.
- Bids delayed beyond the projected schedule.

Statement of Probable Cost

Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This estimate is made on the basis of the experience, qualifications, and best judgement of a professional consultant familiar with the construction industry. Cumming, however, cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

Cumming's staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

Pricing reflects probable construction costs obtainable in the project locality on the target dates specified and is a determination of fair market value for the construction of this project. The estimate is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all sub and general contractors with a range of 3 - 4 bidders for all items of work. Experience and research indicates that a fewer number of bidders may result in higher bids. Conversely, an increased number of bidders may result in more competitive bid day responses.

Recommendations

Cumming recommends that the Owner and the Architect carefully review this entire document to ensure it reflects their design intent. Requests for modifications of any apparent errors or omissions to this document must be made to Cumming within ten days of receipt of this estimate. Otherwise, it will be assumed that its contents have been reviewed and accepted. If the project is over budget or there are unresolved budget issues, alternate systems / schemes should be evaluated before proceeding into further design phases.

It is recommended that there are preparations of further cost estimates throughout design by Cumming to determine overall cost changes since the preparation of this preliminary estimate. These future estimates will have detailed breakdowns indicating materials by type, kind, and size, priced by their respective units of measure.

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CUMMING

Building Value Through Expertise

OCCC Site 2 - Kalihi

Oahu, HI

Probable Cost Estimate for the
Programmatic Design Phase
September 28, 2017

Prepared for AHL

1132 BISHOP STREET, SUITE 1570 • HONOLULU • HAWAII • 96813
PHONE: 808-947-4525 • FAX: 808-440-3833

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EXECUTIVE SUMMARY

1.1 Introduction

This estimate has been prepared, pursuant to an agreement between AHL and Cumming Corporation, for the purpose of establishing a probable cost of construction at the Programmatic Budgeting design stage.

The project scope encompasses construction of a new jail facility to replace the existing Oahu Community Correctional Center in Kalihi, Honolulu. This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.

1.2 Project Schedule

	Start	Finish	Duration
Design, Engineering & Permitting	Jun-19	Jun-21	24 months
Construction	Jun-21	Jun-23	24 months

1.3 Key Assumptions & Exclusions

This document should be read in association with Appendices 1 - 3 which outline assumptions, project understanding, approach, and cost management methodology.

TOTAL PROJECT COST DETAIL

Item Description	Detention/ Pre-Release Facility	Sitework	Off-Site Improvements	Sub Total	Group Total
BUILDING PERMITS					
Building Department Fees/Permits	$5,609,291	$600,044	$134,256	**$6,343,591**	
	$5,609,291	**$600,044**	**$134,256**		**$6,343,591**
CONSTRUCTION COST					
Detention/Pre-Release Facility	$373,952,739			**$373,952,739**	
Sitework		$60,004,413		**$60,004,413**	
Off-Site Improvements			$13,425,619	**$13,425,619**	
	$373,952,739	**$60,004,413**	**$13,425,619**		**$447,382,770**
CONSTRUCTION PHASING					
Allowance for phasing and interim swing space cost	$5,000,000			**$5,000,000**	
	$5,000,000	**$0**	**$0**		**$5,000,000**
FF&E COSTS					
Allowance	$5,000,000			**$5,000,000**	
	$5,000,000	**$0**	**$0**		**$5,000,000**
EXTERIOR SIGNAGE					
Entry sign	$20,000			**$20,000**	
Misc. exterior signage	$15,000			**$15,000**	
	$35,000	**$0**	**$0**		**$35,000**
SUPPORT EQUIPMENT					
Kitchen equipment				**Included**	
Laundry equipment				**Included**	
Departmental equipment				**Excluded**	
	$0	**$0**	**$0**		**$0**
SYSTEMS					
Computer system				**Excluded**	
Security system software				**Excluded**	
Telephone system	$150,000			**$150,000**	
Security system				**Included**	
	$150,000	**$0**	**$0**		**$150,000**
COMMUNITY PARTNERING					
Partnering with host community				**TBD**	
	$0	**$0**	**$0**		**$0**
TEMPORARY HOUSING					
Temporary housing for existing OCCC			$30,000,000	**$30,000,000**	
	$0	**$0**	**$30,000,000**		**$30,000,000**
INVENTORY (CONSUMABLES)					
Administrative supplies				**Excluded**	
	$0	**$0**	**$0**		**$0**
DESIGN & PM COSTS					
Design Costs					
Allow 7% of construction, FF&E & equipment costs	$26,526,692			**$26,526,692**	
Allow 4% of construction costs		$2,400,177	$537,025	**$2,937,201**	
Reimbursable expenses	$2,652,669	$240,018	$53,702	**$2,946,389**	
Sub Total Design Costs	**$29,179,361**	**$2,640,194**	**$590,727**	**$32,410,282**	
Project Management					
Allow 4% of construction, FF&E & equipment costs	$15,158,110	$2,400,177	$537,025	**$18,095,311**	
Reimbursable expenses	$1,515,811	$240,018	$53,702	**$1,809,531**	
Sub Total PM Costs	**$16,673,920**	**$2,640,194**	**$590,727**	**$19,904,842**	
Total Design and PM Costs	**$45,853,281**	**$5,280,388**	**$1,181,454**		**$52,315,124**
WORKING CAPITAL/FINANCING					
Working capital				**Excluded**	
	$0	**$0**	**$0**		**$0**
FINANCIAL, TAXES & LEGAL					
Legal				**Excluded**	
Property taxes				**Excluded**	
	$0	**$0**	**$0**		**$0**
CAPITALIZED INTEREST					
Capitalized Interest				**Excluded**	
	$0	**$0**	**$0**		**$0**
CONTINGENCY					
Contingency on construction @10%	$37,395,274	$6,000,441	$1,342,562	**$44,738,277**	
Contingency on soft costs @5%	$2,832,379	$294,022	$1,565,786	**$4,692,186**	
	$40,227,652	**$6,294,463**	**$2,908,347**		**$49,430,463**
LAND COSTS					
Cost of land				**Excluded**	
Allowance for temporary lease of adjacent land for parking during construction			$150,000	**$150,000**	
	$0	**$0**	**$150,000**		**$150,000**
TOTAL PROJECT COSTS	**$475,827,963**	**$72,179,308**	**$47,799,677**		**$595,806,949**

SUMMARY MATRIX

Element			Detention/Pre-Release Facility 510,312 SF Total	Cost/SF	Sitework 716,998 SF Total	Off-Site Improvements 1 LS Total	Overall Totals 510,312 SF Total	Cost/SF
A) Shell (1-5)			**$72,834,688**	**$142.73**			**$72,834,688**	**$142.73**
1 Foundations			$11,688,084	$22.90			$11,688,084	
2 Vertical Structure			$8,364,014	$16.39			$8,364,014	
3 Floor & Roof Structures			$26,194,315	$51.33			$26,194,315	
4 Exterior Cladding			$20,483,413	$40.14			$20,483,413	
5 Roofing and Waterproofing			$6,104,862	$11.96			$6,104,862	
B) Interiors (6-7)			**$58,685,880**	**$115.00**			**$58,685,880**	**$115.00**
6 Interior Partitions, Doors and Glazing			$40,824,960	$80.00			$40,824,960	
7 Floor, Wall and Ceiling Finishes			$17,860,920	$35.00			$17,860,920	
C) Equipment and Vertical Transportation (8-9)			**$18,804,997**	**$36.85**			**$18,804,997**	**$36.85**
8 Function Equipment and Specialties			$16,329,984	$32.00			$16,329,984	
9 Stairs and Vertical Transportation			$2,475,013	$4.85			$2,475,013	
D) Mechanical and Electrical (10-13)			**$88,695,815**	**$173.81**			**$88,695,815**	**$173.81**
10 Plumbing Systems			$18,524,326	$36.30			$18,524,326	
11 Heating, Ventilation and Air Conditioning			$30,873,876	$60.50			$30,873,876	
12 Electrical Lighting, Power and Communications			$35,721,840	$70.00			$35,721,840	
13 Fire Protection Systems			$3,575,773	$7.01			$3,575,773	
E) Site Construction (14-16)					**$38,353,343**	**$9,110,647**	**$47,463,990**	**$66.20**
14 Site Preparation and Demolition					$9,728,522	incl. below	$9,728,522	
15 Site Paving, Structures & Landscaping					$20,644,853	$2,500,000	$23,144,853	
16 Utilities					$7,979,968	$6,610,647	$14,590,615	
Subtotal Cost			**$239,021,381**	**$468.38**	**$38,353,343**	**$9,110,647**	**$286,485,370**	**$561.39**
		Off-Site						
General Conditions/Requirements	10.0%	5%	$23,902,138	$46.84	$3,835,334	$455,532	$28,193,005	$55.25
General Liability, Subguard, and GC Bonds	3.0%	3%	$7,170,641	$14.05	$1,150,600	$273,319	$8,594,561	$16.84
Contractor's Fee	3.5%	2%	$9,453,296	$18.52	$1,516,875	$196,790	$11,166,960	$21.88
Design Contingency	10.0%	10%	$27,954,746	$54.78	$4,485,615	$1,003,629	$33,443,990	$65.54
Escalation to MOC, 06/15/22	18.6%	18.6%	$57,329,739	$112.34	$9,199,123	$2,058,247	$68,587,109	$134.40
GET	2.5%	2.5%	$9,120,799	$17.87	$1,463,522	$327,454	$10,911,775	$21.38
Total Estimated Construction Cost			**$373,952,739**	**$732.79**	**$60,004,413**	**$13,425,619**	**$447,382,770**	**$876.68**

Sitework

SUMMARY - SITEWORK

Element	Subtotal	Total
E) Site Construction (14-16)		**$38,353,343**
14 Site Preparation and Demolition	$9,728,522	
15 Site Paving, Structures & Landscaping	$20,644,853	
16 Utilities on Site	$7,979,968	
Subtotal		$38,353,343
General Conditions/Requirements	10.00%	$3,835,334
Subtotal		$42,188,677
General Liability, Subguard, and GC Bonds	3.00%	$1,150,600
Subtotal		$43,339,277
Contractor's Fee	3.50%	$1,516,875
Subtotal		$44,856,152
Design Contingency	10.00%	$4,485,615
Subtotal		$49,341,767
Escalation to MOC, 06/15/22	18.64%	$9,199,123
Subtotal		$58,540,891
GET	2.50%	$1,463,522
TOTAL ESTIMATED CONSTRUCTION COST		**$60,004,413**

Total Area: 716,998 SF

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Site Clearance / Demolition				
HazMat Investigation - allowance	1	ls	$295,200	$295,200
Site preparation/stabilization - allowance	1	ls	$1,008,600	$1,008,600
Demolition of existing buildings on site with off-site disposal - allowance	716,998	sf	$10	$7,169,976
Earthwork				
Fine grading	716,998	sf	$1.00	$716,998
Erosion control	716,998	sf	$0.75	$537,748
Total - Site Preparation and Demolition				**$9,728,522**
15 Site Paving, Structures & Landscaping				
Site Development, Finished Site Area				
Hardscape				
AC paving at parking, yard, and service roads	150,000	sf	$5.00	$750,000
Concrete paving/sidewalks - allowance	20,000	sf	$20.00	$400,000
Landscape				
Landscape area - allowance	390,151	sf	$1.00	$390,151
Site Specialties				
Misc curbs, parking striping, bollards allow	1	ls	$200,000.00	$200,000
Site Structures				
Physical Plant/Warehouse - allowance	17,047	sf	$100.00	$1,704,703
Parking structure (2 levels - 430 stalls) - allowance	1	ls	$17,200,000.00	$17,200,000
Total - Site Paving, Structures & Landscaping				**$20,644,853**

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Unit Cost	Total
16 Utilities on Site				
Fire water improvements - allowance				
Fire water service	2,395	lf	$450.00	$1,077,840
Reduced pressure backflow preventer assembly	1	ea	$20,000.00	$20,000
Miscellaneous specialties (hydrants, etc.)	1	ls	$220,000.00	$220,000
Water system improvements - allowance				
Remove existing waterline	1	ls	$50,000.00	$50,000
Domestic water service	2,395	lf	$540.00	$1,293,408
Water meter	1	ea	$20,000.00	$20,000
Reduced pressure backflow preventer assembly	1	ea	$40,000.00	$40,000
Miscellaneous specialties	1	ls	$410,000.00	$410,000
Wastewater system improvements/rehabilitations - allowance				
Sanitary sewer service	1,209	lf	$430.00	$519,870
Sewage grinder, allowance	1	ls	$100,000.00	$100,000
Precast concrete vault	1	ls	$35,000.00	$35,000
Miscellaneous specialties (manholes, etc.)	1	ls	$270,000.00	$270,000
Gas distribution improvements - allowance				
Gas service	1	ls	$455,100.00	$455,100
Storm water conveyance - allowance				
Storm drain service	1,180	lf	$292.50	$345,150
Stormwater quality structure and other BMP measures	1	ls	$285,000.00	$285,000
Miscellaneous specialties (manholes, etc.)	1	ls	$260,000.00	$260,000
Electrical system improvements - allowance	1	ls	$1,250,200.00	$1,250,200
Site lighting - allowance	1	ls	$1,328,400.00	$1,328,400
Total - Utilities on Site				**$7,979,968**

Off-Site Improvements

SUMMARY - OFF-SITE IMPROVEMENTS

Element		Subtotal	Total
E) Site Construction (14-16)			**$9,110,647**
14	Site Preparation and Demolition		
15	Site Paving, Structures & Landscaping	$2,500,000	
16	Utilities	$6,610,647	
	Subtotal		$9,110,647
	General Conditions/Requirements	5.00%	$455,532
	Subtotal		$9,566,179
	General Liability, Subguard, and GC Bonds	3.00%	$273,319
	Subtotal		$9,839,499
	Contractor's Fee	2.00%	$196,790
	Subtotal		$10,036,289
	Design Contingency	10.00%	$1,003,629
	Subtotal		$11,039,918
	Escalation to MOC, 06/15/22	18.64%	$2,058,247
	Subtotal		$13,098,165
	GET	2.50%	$327,454
TOTAL ESTIMATED CONSTRUCTION COST			**$13,425,619**

DETAIL ELEMENTS - OFF-SITE IMPROVEMENTS

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Included below				
Total - Site Preparation and Demolition				
15 Site Paving, Structures & Landscaping				
Roadway improvements - new easement, entries and roadwork - allowance	1	ls	$2,500,000.00	$2,500,000
Total - Site Paving, Structures & Landscaping				**$2,500,000**
16 Utilities				
Water system evaluation - allowance	1	ls	$307,500.00	$307,500
Water system improvements - allowance	1	ls	$239,850.00	$239,850
Water facility charge - allowance	1	ls	$3,124,200.00	$3,124,200
Wastewater system investigation - allowance	1	ls	$307,500.00	$307,500
Wastewater system improvements/rehabilitation - allowance	1	ls	$1,136,520.00	$1,136,520
Wastewater facility charge - allowance	1	ls	$565,800.00	$565,800
Electrical system improvements - allowance	1	ls	$420,000.00	$420,000
Connect to existing systems	1	ls	$20,000.00	$20,000
Transformer pad	1	ea	$2,785.00	$2,785
Switch pad	1	ea	$2,100.00	$2,100
Concrete manholes	4	ea	$5,748.00	$22,992
Underground primary conduits	800	lf	$54.00	$43,200
Trenching and backfill	1,850	lf	$60.00	$111,000
Concrete encasement	145	cy	$210.00	$30,450
Low voltage conduits w/fiber	1,050	lf	$120.00	$126,000
Low voltage conduits w/paired copper	1,050	lf	$85.00	$89,250
Gas distribution improvements - allowance	1	ls	$61,500.00	$61,500
Total - Utilities				**$6,610,647**

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
General Project Info	- Escalation included through Q2 / 2022. - All sub trades to be competitively bid. - Labor pool from the State of Hawaii.
Detailed Assumptions	
1. Substructure / Foundations	- No basement - Premiums included for deep foundations. - Elevator pits and tower crane foundations.
2. Structure	- Concrete slab on grade. - Structural steel framing including buckling restrained braced frames. - Cementitious fireproofing. - Cellular metal deck with lightweight concrete fill. - Miscellaneous concrete and metals.
3. Envelope / Roofing	- Metal stud framing, sheathing, waterproofing, and drywall to interior face of exterior wall at, parapets, and precast concrete panels. - 80% of exterior wall as pre-cast concrete panels. - Allowance for exterior doors, canopies, and soffits. - Single ply or built up roof, typical.
4. Interiors	- Concrete masonry unit walls to 60% of interior partitions. - A mix detention steel wall panels and metal stud framed partitions to remaining areas. - Miscellaneous security and aluminum-framed glazing. - Security hollow metal doors and standard commercial doors. - Walls: paint, epoxy paint, epoxy, ceramic tile. - Floors: urethane, epoxy, sealed concrete, polished concrete, ceramic tile, carpet tile, and vapor membrane barrier. - Ceilings: detention hollow metal, acoustic ceiling tile, gypsum board, security plaster. - Restroom and building specialties, and casework. - Detention equipment and sealants. - Kitchen and Laundry equipment (AV, video visitation, medical, and surgery equipment are excluded).

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
5. Vert. Transportation	- Metal pan / concrete filled stair units. - MRL Elevators.
6. Plumbing	- General plumbing equipment, fixtures, and waste / vent piping. - Domestic water piping. - Roof Drainage.
7. HVAC	- Chillers, boilers, cooling towers, pumps, etc. - Chilled water piping. - Air handling units. - Air distribution ductwork and specialties. - Automatic Temperature Controls. - Test / balance / firestopping / seismic.
8. Electrical	- Emergency and Normal Service and Distribution - LED light fixtures. - Fire Alarm Systems. - Telephone Data Systems. - A/V Systems. - Security Systems ACS, CCTV, IC, wireless, duress, master controls. - Master Clock System.
9. Fire Protection	- Wet pipe sprinklers throughout.

APPENDIX 2 - RISK CONSIDERATIONS

Section	Description
Labor Availability	Hawaii's unemployment rate remains below 3.0%, the lowest rate since October of 2007. Demand for skilled workers are still expected in the following trades: carpenters, iron workers, plumbers, pipefitters, glaziers, sheet metal workers, welders, and electricians.
Material Costs	For domestic construction material costs cold-formed metal stud framing, concrete, reinforcing steel, lumber, and particle board continue to see price increases.
Productivity	Productivity impacts of construction trade workers is not anticipated.
Sub-Contractor Mark Up	CCMI cost managers continue to track subcontractor markups in the range of 15% - 20%.
Project Access	The project site is easily accessed from local roads. Delivery of materials poses a constraint as sufficient laydown area is not available on site.
Bidding Market	Honolulu construction spending has slowed but is expected to remain stable through 2018 before easing lower as the current cycle begins to wind down. This will be favorable for the projects construction schedule.
Escalation	Escalation has been included in this estimate at a rate of 18.6% taken through the midpoint of construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Basis of Estimate	This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.
Estimate Format	A component cost classification format has been used for the preparation of this estimate. Cost are classified by building system / element.
Cost Mark Ups	The following % mark ups have been included in each design option: - General Conditions / Requirements (10.00% on direct costs) - GC Fee (3.50% compound) - Insurance and Subguard (3.00% compound) - Design Contingency (10.00% compound) - Escalation (18.6% compound)
Escalation	All subcontract prices herein are reflective of current bid prices. Escalation has been included on the summary level to the stated mid point of construction.
Design Contingency	An allowance of 10.00% for undeveloped design details has been included in this estimate. As the design of each system is further developed, details which historically increase cost become apparent and must be incorporated into the estimate while decreasing the % burden.
Construction Contingency	It is prudent for all program budgets to include an allowance for change orders which occur during the construction phase. These change orders normally increase the cost of the project. A 10% construction contingency is currently included in the soft cost.
Construction Schedule	Costs included herein have been based upon a construction period of 24 months. Any costs for excessive overtime to meet accelerated schedule milestone dates are not included in this estimate.
Method of Procurement	The estimate is based on a design-bid-build delivery method for the building and associated site work.
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CUMMING

Building Value Through Expertise

OCCC Site 3 - Halawa

Oahu, HI

Probable Cost Estimate for the
Programmatic Design Phase
September 28, 2017

Prepared for AHL

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EXECUTIVE SUMMARY

1.1 Introduction

This estimate has been prepared, pursuant to an agreement between AHL and Cumming Corporation, for the purpose of establishing a probable cost of construction at the Programmatic Budgeting design stage.

The project scope encompasses construction of a new jail facility to replace the Oahu Community Correctional Center in Kalihi, Honolulu. This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.

1.2 Project Schedule

	Start	Finish	Duration
Design, Engineering & Permitting	Jun-19	Jun-21	24 months
Construction	Jun-21	Jun-23	24 months

1.3 Key Assumptions & Exclusions

This document should be read in association with Appendices 1 - 3 which outline assumptions, project understanding, approach, and cost management methodology.

TOTAL PROJECT COST DETAIL

Item Description	Detention/ Pre-Release Facility	Sitework	Off-Site Improvements	Sub Total	Group Total
BUILDING PERMITS					
Building Department Fees/Permits	$5,631,646	$597,519	$154,324	**$6,383,489**	
	$5,631,646	**$597,519**	**$154,324**		**$6,383,489**
CONSTRUCTION COST					
Detention/Pre-Release Facility	$375,443,046			**$375,443,046**	
Sitework		$59,751,913		**$59,751,913**	
Off-Site Improvements			$15,432,422	**$15,432,422**	
	$375,443,046	**$59,751,913**	**$15,432,422**		**$450,627,381**
CONSTRUCTION PHASING					
Allowance for phasing and/or interim swing space cost	$1,000,000			**$1,000,000**	
	$1,000,000	**$0**	**$0**		**$1,000,000**
FF&E COSTS					
Allowance	$5,000,000			**$5,000,000**	
	$5,000,000	**$0**	**$0**		**$5,000,000**
EXTERIOR SIGNAGE					
Entry sign	$20,000			**$20,000**	
Misc. exterior signage	$15,000			**$15,000**	
	$35,000	**$0**	**$0**		**$35,000**
SUPPORT EQUIPMENT					
Kitchen equipment				**Included**	
Laundry equipment				**Included**	
Departmental equipment				**Excluded**	
	$0	**$0**	**$0**		**$0**
SYSTEMS					
Computer system				**Excluded**	
Security system software				**Excluded**	
Telephone system	$150,000			**$150,000**	
Security system				**Included**	
	$150,000	**$0**	**$0**		**$150,000**
OPERATING EQUIPMENT					
Partnering with host community				**TBD**	
	$0	**$0**	**$0**		**$0**
INVENTORY (CONSUMABLES)					
Administrative supplies				**Excluded**	
	$0	**$0**	**$0**		**$0**
DESIGN & PM COSTS					
Design Costs					
Allow 7% of construction, FF&E & equipment costs	$26,631,013			**$26,631,013**	
Allow 4% of construction costs		$2,390,077	$617,297	**$3,007,373**	
Reimbursable expenses	$2,663,101	$239,008	$61,730	**$2,963,839**	
Sub Total Design Costs	**$29,294,115**	**$2,629,084**	**$679,027**	**$32,602,225**	
Project Management					
Allow 4% of construction, FF&E & equipment costs	$15,217,722	$2,390,077	$617,297	**$18,225,095**	
Reimbursable expenses	$1,521,772	$239,008	$61,730	**$1,822,510**	
Sub Total PM Costs	**$16,739,494**	**$2,629,084**	**$679,027**	**$20,047,605**	
Total Design and PM Costs	**$46,033,609**	**$5,258,168**	**$1,358,053**		**$52,649,830**
WORKING CAPITAL/FINANCING					
Working capital				**Excluded**	
	$0	**$0**	**$0**		**$0**
FINANCIAL, TAXES & LEGAL					
Legal				**Excluded**	
OCIP				**Excluded**	
Property taxes				**Excluded**	
	$0	**$0**	**$0**		**$0**
CAPITALIZED INTEREST					
Capitalized Interest				**Excluded**	
	$0	**$0**	**$0**		**$0**
CONTINGENCY					
Contingency on construction @10%	$37,544,305	$ 5,975,191	$ 1,543,242	**$ 45,062,738**	
Contingency on soft costs @5%	$2,842,513	$ 292,784	$ 75,619	**$ 3,210,916**	
	$40,386,817	**$ 6,267,976**	**$ 1,618,861**		**$48,273,654**
LAND COSTS					
Cost of land				**Excluded**	
	$0	**$0**	**$0**		**$0**
TOTAL PROJECT COSTS	**$473,680,117**	**$71,875,577**	**$18,563,661**		**$564,119,355**

OCCC Site 3 - Halawa

Oahu, HI

Programmatic Design Phase 08/30/17

SUMMARY MATRIX

Element			Detention/Pre-Release Facility 493,912 SF Total	Cost/SF	Sitework 217,800 SF Total	Off-Site Improvements 1 LS Total	Overall Totals 493,912 SF Total	Cost/SF
A) Shell (1-5)			**$78,803,037**	**$159.55**			**$78,803,037**	**$159.55**
1 Foundations			$13,575,537	$27.49			$13,575,537	
2 Vertical Structure			$10,860,631	$21.99			$10,860,631	
3 Floor & Roof Structures			$27,209,612	$55.09			$27,209,612	
4 Exterior Cladding			$21,248,588	$43.02			$21,248,588	
5 Roofing and Waterproofing			$5,908,669	$11.96			$5,908,669	
B) Interiors (6-7)			**$56,799,880**	**$115.00**			**$56,799,880**	**$115.00**
6 Interior Partitions, Doors and Glazing			$39,512,960	$80.00			$39,512,960	
7 Floor, Wall and Ceiling Finishes			$17,286,920	$35.00			$17,286,920	
C) Equipment and Vertical Transportation (8-9)			**$18,525,651**	**$37.51**			**$18,525,651**	**$37.51**
8 Function Equipment and Specialties			$15,805,184	$32.00			$15,805,184	
9 Stairs and Vertical Transportation			$2,720,467	$5.51			$2,720,467	
D) Mechanical and Electrical (10-13)			**$85,845,380**	**$173.81**			**$85,845,380**	**$173.81**
10 Plumbing Systems			$17,929,006	$36.30			$17,929,006	
11 Heating, Ventilation and Air Conditioning			$29,881,676	$60.50			$29,881,676	
12 Electrical Lighting, Power and Communications			$34,573,840	$70.00			$34,573,840	
13 Fire Protection Systems			$3,460,858	$7.01			$3,460,858	
E) Site Construction (14-16)					**$38,191,952**	**$10,472,467**	**$48,664,419**	**$223.44**
14 Site Preparation and Demolition					$14,784,450	incl. below	$14,784,450	
15 Site Paving, Structures & Landscaping					$15,209,703	$1,000,000	$16,209,703	
16 Utilities					$8,197,799	$9,472,467	$17,670,266	
Subtotal Cost			**$239,973,948**	**$485.86**	**$38,191,952**	**$10,472,467**	**$288,638,367**	**$584.39**
		Off-Site						
General Conditions/Requirements	10.0%	5%	$23,997,395	$48.59	$3,819,195	$523,623	$28,340,213	$57.38
General Liability, Subguard, and GC Bonds	3.0%	3%	$7,199,218	$14.58	$1,145,759	$314,174	$8,659,151	$17.53
Contractor's Fee	3.5%	2%	$9,490,970	$19.22	$1,510,492	$226,205	$11,227,667	$22.73
Design Contingency	10.0%	10%	$28,066,153	$56.82	$4,466,740	$1,153,647	$33,686,540	$68.20
Escalation to MOC, 06/15/22	18.6%	18.6%	$57,558,214	$116.54	$9,160,413	$2,365,905	$69,084,532	$139.87
GET	2.5%	2.5%	$9,157,147	$18.54	$1,457,364	$376,401	$10,990,912	$22.25
Total Estimated Construction Cost			**$375,443,046**	**$760.14**	**$59,751,913**	**$15,432,422**	**$450,627,381**	**$912.36**

Sitework

SUMMARY - SITEWORK

Element		Subtotal	Total
E) Site Construction (14-16)			**$38,191,952**
14	Site Preparation and Demolition	$14,784,450	
15	Site Paving, Structures & Landscaping	$15,209,703	
16	Utilities on Site	$8,197,799	
	Subtotal		$38,191,952
	General Conditions/Requirements	10.00%	$3,819,195
	Subtotal		$42,011,147
	General Liability, Subguard, and GC Bonds	3.00%	$1,145,759
	Subtotal		$43,156,905
	Contractor's Fee	3.50%	$1,510,492
	Subtotal		$44,667,397
	Design Contingency	10.00%	$4,466,740
	Subtotal		$49,134,137
	Escalation to MOC, 06/15/22	18.64%	$9,160,413
	Subtotal		$58,294,550
	GET	2.50%	$1,457,364
TOTAL ESTIMATED CONSTRUCTION COST			**$59,751,913**

Total Area: 217,800 SF

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Site Clearance / Demolition				
HazMat Investigation - allowance	1	ls	$172,200	$172,200
Site preparation/stabilization - allowance	1	ls	$14,169,600	$14,169,600
Demolition of existing special needs building with off-site disposal - allowance	1	ls	$61,500	$61,500
Earthwork				
Fine grading	217,800	sf	$1.00	$217,800
Erosion control	217,800	sf	$0.75	$163,350
Total - Site Preparation and Demolition				**$14,784,450**
15 Site Paving, Structures & Landscaping				
Site Development, Finished Site Area				
Hardscape				
Access drives/service areas/parking - allowance	100,000	sf	$5.00	$500,000
Concrete paving/sidewalks - allowance	10,000	sf	$20.00	$200,000
Landscape				
Landscape area - allowance	10,000	ls	$4.50	$45,000
Site Specialties				
Misc curbs, parking striping, bollards allow	1	ls	$200,000.00	$200,000
Site Structures				
Retaining walls incl. foundation, excavation, backfill, etc.	6,000	sf	$60.00	$360,000
Physical Plant/Warehouse - allowance	17,047	sf	$100.00	$1,704,703
Parking structure (2 levels - 305 stalls) - allowance	1	ls	$12,200,000.00	$12,200,000
Total - Site Paving, Structures & Landscaping				**$15,209,703**

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Unit Cost	Total
16 Utilities on Site				
Fire water improvements - allowance				
Fire water service	1,780	lf	$450.00	$800,820
Reduced pressure backflow preventer assembly	1	ea	$20,000.00	$20,000
Miscellaneous specialties (hydrants, etc.)	1	ls	$170,000.00	$170,000
Water system improvements - allowance				
Domestic water service	1,780	lf	$540.00	$960,984
Water meter	1	ea	$20,000.00	$20,000
Reduced pressure backflow preventer assembly	1	ea	$40,000.00	$40,000
Miscellaneous specialties	1	ls	$310,000.00	$310,000
Wastewater system improvements/rehabilitations - allowance				
Sanitary sewer service	2,762	lf	$430.00	$1,187,445
Sewage grinder, allowance	1	ls	$100,000.00	$100,000
Precast concrete vault	1	ls	$35,000.00	$35,000
Miscellaneous specialties (manholes, etc.)	1	ls	$530,000.00	$530,000
Gas distribution improvements - allowance				
Gas service	1	ls	$100,000.00	$100,000
Storm water conveyance - allowance				
Storm drain service	1,180	lf	$292.50	$345,150
Underground storage retention basin and other BMP measures	1	ls	$555,000.00	$555,000
Miscellaneous specialties (manholes, etc.)	1	ls	$370,000.00	$370,000
Electrical system improvements - allowance	1	ls	$1,325,000.00	$1,325,000
Site lighting - allowance	1	ls	$1,328,400.00	$1,328,400
Total - Utilities on Site				**$8,197,799**

Off-Site Improvements

SUMMARY - OFF-SITE IMPROVEMENTS

Element		Subtotal	Total
E) Site Construction (14-16)			**$10,472,467**
14	Site Preparation and Demolition		
15	Site Paving, Structures & Landscaping	$1,000,000	
16	Utilities	$9,472,467	
	Subtotal		$10,472,467
	General Conditions/Requirements	5.00%	$523,623
	Subtotal		$10,996,090
	General Liability, Subguard, and GC Bonds	3.00%	$314,174
	Subtotal		$11,310,264
	Contractor's Fee	2.00%	$226,205
	Subtotal		$11,536,470
	Design Contingency	10.00%	$1,153,647
	Subtotal		$12,690,117
	Escalation to MOC, 06/15/22	18.64%	$2,365,905
	Subtotal		$15,056,022
	GET	2.50%	$376,401
TOTAL ESTIMATED CONSTRUCTION COST			**$15,432,422**

DETAIL ELEMENTS - OFF-SITE IMPROVEMENTS

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Included below				
Total - Site Preparation and Demolition				
15 Site Paving, Structures & Landscaping				
Roadway improvements - New access road	1	ls	$1,000,000.00	$1,000,000
Total - Site Paving, Structures & Landscaping				**$1,000,000**
16 Utilities				
Water system evaluation - allowance	1	ls	$307,500.00	$307,500
Water system improvements - allowance	1	ls	$233,700.00	$233,700
Water facility charge - allowance	1	ls	$3,124,200.00	$3,124,200
Wastewater system investigation - allowance	1	ls	$307,500.00	$307,500
Wastewater system improvements/rehabilitation - allowance	1	ls	$3,693,690.00	$3,693,690
Wastewater facility charge - allowance	1	ls	$565,800.00	$565,800
Electrical system improvements - allowance	1	ls	$475,000.00	$475,000
Connect to existing systems	1	ls	$20,000.00	$20,000
Transformer pad	1	ea	$2,785.00	$2,785
Switch pad	1	ea	$2,100.00	$2,100
Concrete manholes	4	ea	$5,748.00	$22,992
Underground primary conduits	1,200	lf	$54.00	$64,800
Trenching and backfill	3,200	lf	$60.00	$192,000
Concrete encasement	240	cy	$210.00	$50,400
Low voltage conduits w/fiber	2,000	lf	$120.00	$240,000
Low voltage conduits w/paired copper	2,000	lf	$85.00	$170,000
Total - Utilities				**$9,472,467**

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
General Project Info	- Escalation included through Q2 / 2022. - All sub trades to be competitively bid. - Labor pool from the State of Hawaii.
Detailed Assumptions	
1. Substructure / Foundations	- No basement - Premiums included for deep footings. - Elevator pits and tower crane foundations.
2. Structure	- Concrete slab on grade. - Structural steel framing including buckling restrained braced frames. - Cementitious fireproofing. - Cellular metal deck with lightweight concrete fill. - Miscellaneous concrete and metals. - Tube steel support framing for detention metal mesh.
3. Envelope / Roofing	- Metal stud framing, sheathing, waterproofing, and drywall to interior face of exterior wall at, parapets, and precast concrete panels. - 80% of exterior wall as pre-cast concrete panels. - Allowance for exterior doors, canopies, and soffits. - Single ply or built up roof, typical..
4. Interiors	- Concrete masonry unit walls to 60% of interior partitions. - A mix detention steel wall panels and metal stud framed partitions to remaining areas. - Miscellaneous security and aluminum-framed glazing. - Security hollow metal doors and standard commercial doors. - Walls: paint, epoxy paint, epoxy, ceramic tile. - Floors: urethane, epoxy, sealed concrete, polished concrete, ceramic tile, carpet tile, and vapor membrane barrier. - Ceilings: detention hollow metal, acoustic ceiling tile, gypsum board, security plaster. - Restroom and building specialties, and casework. - Detention equipment and sealants. - Kitchen and Laundry equipment (AV, video visitation, medical, and surgery equipment are excluded).

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
5. Vert. Transportation	- Metal pan / concrete filled stair units. - Mezzanine stairs. - MRL Elevators.
6. Plumbing	- General plumbing equipment, fixtures, and waste / vent piping. - Domestic water piping. - Roof Drainage.
7. HVAC	- Chillers, boilers, cooling towers, pumps, etc. - Chilled water piping. - Air handling units. - Air distribution ductwork and specialties. - Automatic Temperature Controls. - Test / balance / firestopping / seismic.
8. Electrical	- Emergency and Normal Service and Distribution - LED light fixtures. - Fire Alarm Systems. - Telephone Data Systems. - A/V Systems. - Security Systems ACS, CCTV, IC, wireless, duress, master controls. - Master Clock System.
9. Fire Protection	- Wet pipe sprinklers throughout.

APPENDIX 2 - RISK CONSIDERATIONS

Section	Description
Labor Availability	Hawaii's unemployment rate remains below 3.0%, the lowest rate since October of 2007. Demand for skilled workers are still expected in the following trades: carpenters, iron workers, plumbers, pipefitters, glaziers, sheet metal workers, welders, and electricians.
Material Costs	For domestic construction material costs cold-formed metal stud framing, concrete, reinforcing steel, lumber, and particle board continue to see price increases.
Productivity	Productivity impacts of construction trade workers is not anticipated.
Sub-Contractor Mark Up	CCMI cost managers continue to track subcontractor markups in the range of 15% - 20%.
Project Access	The project site is easily accessed from local roads. Delivery of materials poses a constraint as sufficient laydown area is not available on site.
Bidding Market	Honolulu construction spending has slowed but is expected to remain stable through 2018 before easing lower as the current cycle begins to wind down. This will be favorable for the projects construction schedule.
Escalation	Escalation has been included in this estimate at a rate of 18.6% taken through the midpoint of construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Basis of Estimate	This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.
Estimate Format	A component cost classification format has been used for the preparation of this estimate. Cost are classified by building system / element.
Cost Mark Ups	The following % mark ups have been included in each design option: - General Conditions / Requirements (10.00% on direct costs) - GC Fee (3.50% compound) - Insurance and Subguard (3.00% compound) - Design Contingency (10.00% compound) - Escalation (18.6% compound)
Escalation	All subcontract prices herein are reflective of current bid prices. Escalation has been included on the summary level to the stated mid point of construction.
Design Contingency	An allowance of 10.00% for undeveloped design details has been included in this estimate. As the design of each system is further developed, details which historically increase cost become apparent and must be incorporated into the estimate while decreasing the % burden.
Construction Contingency	It is prudent for all program budgets to include an allowance for change orders which occur during the construction phase. These change orders normally increase the cost of the project. It is recommended that a 5% construction contingency is carried in this respect. A 10% construction contingency is currently included in the soft cost.
Construction Schedule	Costs included herein have been based upon a construction period of 24 months. Any costs for excessive overtime to meet accelerated schedule milestone dates are not included in this estimate.
Method of Procurement	The estimate is based on a design-bid-build delivery method for the building and associated site work.
Bid Conditions	This estimate has been based upon competitive bid situations (minimum of 3 bidders) for all items of subcontracted work.
Basis For Quantities	Wherever possible, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with other projects of a similar nature. We relied on prior estimates developed for the off-site and utility costs, these cost need to be validated especially for site number 3 which was not part of the prior study.
Sources for Pricing	This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design. These consultants have used pricing data from Cumming's database for Honolulu County construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Key Exclusions

The following items have been excluded from our estimate:
- Site acquisition.
- Relocation cost.
- Medical and surgical equipment.
- Security / detention glazing to exterior curtain walls.
- Blast design / upgrades to curtain wall.
- Skylights.
- Reclaimed water system.
- Medical gases.

Items Affecting Cost Estimate

Items which may change the estimated construction cost include, but are not limited to:
- Modifications to the scope of work included in this estimate.
- Unforeseen sub-surface conditions.
- Restrictive technical specifications or excessive contract conditions.
- Any specified item of material or product that cannot be obtained from 3 sources.
- Any other non-competitive bid situations.
- Bids delayed beyond the projected schedule.

Statement of Probable Cost

Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This estimate is made on the basis of the experience, qualifications, and best judgement of a professional consultant familiar with the construction industry. Cumming, however, cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

Cumming's staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

Pricing reflects probable construction costs obtainable in the project locality on the target dates specified and is a determination of fair market value for the construction of this project. The estimate is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all sub and general contractors with a range of 3 - 4 bidders for all items of work. Experience and research indicates that a fewer number of bidders may result in higher bids. Conversely, an increased number of bidders may result in more competitive bid day responses.

Recommendations

Cumming recommends that the Owner and the Architect carefully review this entire document to ensure it reflects their design intent. Requests for modifications of any apparent errors or omissions to this document must be made to Cumming within ten days of receipt of this estimate. Otherwise, it will be assumed that its contents have been reviewed and accepted. If the project is over budget or there are unresolved budget issues, alternate systems / schemes should be evaluated before proceeding into further design phases.

It is recommended that there are preparations of further cost estimates throughout design by Cumming to determine overall cost changes since the preparation of this preliminary estimate. These future estimates will have detailed breakdowns indicating materials by type, kind, and size, priced by their respective units of measure.

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CUMMING
Building Value Through Expertise

OCCC Site 4 - Mililani Tech Park
Oahu, HI

Probable Cost Estimate for the
Programmatic Design Phase
September 28, 2017

Prepared for AHL

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TABLE OF CONTENTS

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This estimate has been prepared, pursuant to an agreement between AHL and Cumming Corporation, for the purpose of establishing a probable cost of construction at the Programmatic Budgeting design stage.

The project scope encompasses construction of a new jail facility to replace the Oahu Community Correctional Center in Kalihi, Honolulu. This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.

1.2 Project Schedule

	Start	Finish	Duration
Design, Engineering & Permitting	Jun-19	Jun-21	24 months
Construction	Jun-21	Jun-23	24 months

1.3 Key Assumptions & Exclusions

This document should be read in association with Appendices 1 - 3 which outline assumptions, project understanding, approach, and cost management methodology.

TOTAL PROJECT COST DETAIL

Item Description	Detention Facility	Pre-Release Facility	Sitework	Off-Site Improvements	Sub Total	Group Total
BUILDING PERMITS						
Building Department Fees/Permits	$4,334,123	$1,050,600	$578,535	$159,141	**$6,122,399**	
	$4,334,123	**$1,050,600**	**$578,535**	**$159,141**		**$6,122,399**
CONSTRUCTION COST						
Detention Facility	$288,941,504				**$288,941,504**	
Pre-Release Facility		$70,040,003			**$70,040,003**	
Sitework			$57,853,542		**$57,853,542**	
Off-Site Improvements				$15,914,054	**$15,914,054**	
	$288,941,504	**$70,040,003**	**$57,853,542**	**$15,914,054**		**$432,749,103**
CONSTRUCTION PHASING						
Allowance for phasing and interim swing space cost	$200,000	$200,000			**$400,000**	
	$200,000	**$200,000**	**$0**	**$0**		**$400,000**
FF&E COSTS						
Allowance	$5,000,000	w/ main bldg			**$5,000,000**	
	$5,000,000	**$0**	**$0**	**$0**		**$5,000,000**
EXTERIOR SIGNAGE						
Entry sign	$20,000				**$20,000**	
Misc. exterior signage	$15,000				**$15,000**	
	$35,000	**$0**	**$0**	**$0**		**$35,000**
SUPPORT EQUIPMENT						
Kitchen equipment					**Included**	
Laundry equipment					**Included**	
Departmental equipment					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
SYSTEMS						
Computer system					**Excluded**	
Security system software					**Excluded**	
Telephone system	$150,000	$75,000			**$225,000**	
Security system					**Included**	
	$150,000	**$75,000**	**$0**	**$0**		**$225,000**
COMMUNITY PARTNERING						
Partnering with host community					**TBD**	
	$0	**$0**	**$0**	**$0**		**$0**
INVENTORY (CONSUMABLES)						
Administrative supplies					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
DESIGN & PM COSTS						
Design Costs						
Allow 7% of construction, FF&E & equipment costs	$20,575,905	$4,902,800			**$25,478,705**	
Allow 4% of construction costs			$2,314,142	$636,562	**$2,950,704**	
Reimbursable expenses	$2,057,591	$490,280	$231,414	$63,656	**$2,842,941**	
Sub Total Design Costs	**$22,633,496**	**$5,393,080**	**$2,545,556**	**$700,218**	**$31,272,350**	
Project Management						
Allow 4% of construction, FF&E & equipment costs	$11,757,660	$2,801,600	$2,314,142	$636,562	**$17,509,964**	
Reimbursable expenses	$1,175,766	$280,160	$231,414	$63,656	**$1,750,996**	
Sub Total PM Costs	**$12,933,426**	**$3,081,760**	**$2,545,556**	**$700,218**	**$19,260,961**	
Total Design and PM Costs	**$35,566,922**	**$8,474,840**	**$5,091,112**	**$1,400,437**		**$50,533,311**
WORKING CAPITAL/FINANCING						
Working capital					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
FINANCIAL, TAXES & LEGAL						
Legal					**Excluded**	
Property taxes					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
CAPITALIZED INTEREST						
Capitalized Interest					**Excluded**	
	$0	**$0**	**$0**	**$0**		**$0**
CONTINGENCY						
Contingency on construction @10%	$28,894,150	$7,004,000	$5,785,354	$1,591,405	**$43,274,910**	
Contingency on soft costs @5%	$2,254,302	$480,022	$283,482	$77,979	**$3,095,785**	
	$31,148,453	**$7,484,022**	**$6,068,837**	**$1,669,384**		**$46,370,696**
LAND COSTS						
Cost of land			$14,500,000		**$14,500,000**	
	$0	**$0**	**$14,500,000**	**$0**		**$14,500,000**
TOTAL PROJECT COSTS	**$365,376,001**	**$87,324,466**	**$84,092,026**	**$19,143,016**		**$555,935,508**

OCCC Site 4 - Mililani Tech Park
Oahu, HI
Programmatic Design Phase **09/28/17**

SUMMARY MATRIX

Element			Detention Facility 378,840 SF Total	Cost/SF	Pre-Release Facility 115,072 SF Total	Cost/SF	Sitework 825,723 SF Total	Off-Site Improvements 1 LS Total	Overall Totals 493,912 SF Total	Cost/SF
A) Shell (1-5)			**$62,895,934**	**$166.02**	**$15,193,532**	**$132.04**			**$78,089,465**	**$158.10**
1 Foundations			$9,162,056	$24.18	$2,368,182	$20.58			$11,530,238	
2 Vertical Structure			$8,126,118	$21.45	$1,268,669	$11.03			$9,394,787	
3 Floor & Roof Structures			$23,507,022	$62.05	$4,566,057	$39.68			$28,073,079	
4 Exterior Cladding			$17,444,794	$46.05	$4,487,808	$39.00			$21,932,602	
5 Roofing and Waterproofing			$4,655,944	$12.29	$2,502,816	$21.75			$7,158,760	
B) Interiors (6-7)			**$43,555,235**	**$114.97**	**$9,004,384**	**$78.25**			**$52,559,619**	**$106.41**
6 Interior Partitions, Doors and Glazing			$30,295,835	$79.97	$5,983,744	$52.00			$36,279,579	
7 Floor, Wall and Ceiling Finishes			$13,259,400	$35.00	$3,020,640	$26.25			$16,280,040	
C) Equipment and Vertical Transportation (8-9)			**$14,054,964**	**$37.10**	**$2,963,104**	**$25.75**			**$17,018,068**	**$34.46**
8 Function Equipment and Specialties			$12,122,880	$32.00	$2,157,600	$18.75			$14,280,480	
9 Stairs and Vertical Transportation			$1,932,084	$5.10	$805,504	$7.00			$2,737,588	
D) Mechanical and Electrical (10-13)			**$64,178,161**	**$169.41**	**$17,606,825**	**$153.01**			**$81,784,986**	**$165.59**
10 Plumbing Systems			$13,126,806	$34.65	$3,222,016	$28.00			$16,348,822	
11 Heating, Ventilation and Air Conditioning			$21,878,010	$57.75	$5,523,456	$48.00			$27,401,466	
12 Electrical Lighting, Power and Communications			$26,518,800	$70.00	$8,055,040	$70.00			$34,573,840	
13 Fire Protection Systems			$2,654,545	$7.01	$806,313	$7.01			$3,460,858	
E) Site Construction (14-16)							**$36,978,559**	**$10,799,303**	**$47,777,862**	**$57.86**
14 Site Preparation and Demolition							$18,254,683	incl. below	$18,254,683	
15 Site Paving, Structures & Landscaping							$5,675,004	$250,000	$5,925,004	
16 Utilities							$13,048,873	$10,549,303	$23,598,176	
Subtotal Cost			**$184,684,293**	**$487.50**	**$44,767,845**	**$389.04**	**$36,978,559**	**$10,799,303**	**$277,230,000**	**$561.29**
		Off-Site								
General Conditions/Requirements	10.0%	5%	$18,468,429	$48.75	$4,476,784	$38.90	$3,697,856	$539,965	$27,183,035	$55.04
General Liability, Subguard, and GC Bonds	3.0%	3%	$5,540,529	$14.62	$1,343,035	$11.67	$1,109,357	$323,979	$8,316,900	$16.84
Contractor's Fee	3.5%	2%	$7,304,264	$19.28	$1,770,568	$15.39	$1,462,502	$233,265	$10,770,599	$21.81
Design Contingency	10.0%	10%	$21,599,751	$57.02	$5,235,823	$45.50	$4,324,827	$1,189,651	$32,350,053	$65.50
Escalation to MOC, 06/15/22	18.6%	18.6%	$44,296,884	$116.93	$10,737,654	$93.31	$8,869,379	$2,439,743	$66,343,659	$134.32
GET	2.5%	2.5%	$7,047,354	$18.60	$1,708,293	$14.85	$1,411,062	$388,148	$10,554,856	$21.37
Total Estimated Construction Cost			**$288,941,504**	**$762.70**	**$70,040,003**	**$608.66**	**$57,853,542**	**$15,914,054**	**$432,749,103**	**$876.17**

Sitework

SUMMARY - SITEWORK

Element	Subtotal	Total	Subtotal	Total
E) Site Construction (14-16)				**$36,978,559**
14 Site Preparation and Demolition			$18,254,683	
15 Site Paving, Structures & Landscaping			$5,675,004	
16 Utilities on Site			$13,048,873	
Subtotal				$36,978,559
General Conditions/Requirements			10.00%	$3,697,856
Subtotal				$40,676,415
General Liability, Subguard, and GC Bonds			3.00%	$1,109,357
Subtotal				$41,785,772
Contractor's Fee			3.50%	$1,462,502
Subtotal				$43,248,274
Design Contingency			10.00%	$4,324,827
Subtotal				$47,573,102
Escalation to MOC, 06/15/22			18.64%	$8,869,379
Subtotal				$56,442,480
GET			2.50%	$1,411,062
TOTAL ESTIMATED CONSTRUCTION COST				**$57,853,542**

Total Area: 825,723 SF

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Other	Unit Cost	Total
14 Site Preparation and Demolition					
Site Clearance / Demolition					
HazMat Investigation - allowance	1	ls		$295,200	$295,200
Site preparation/stabilization - allowance	825,723	ls		$20.00	$16,514,467
Earthwork					
Fine grading	825,723	sf		$1.00	$825,723
Erosion control	825,723	sf		$0.75	$619,293
Total - Site Preparation and Demolition					**$18,254,683**
15 Site Paving, Structures & Landscaping					
Site Development, Finished Site Area					
Hardscape					
Access drives/Service areas/parking - allowance	300,000	sf		$5.00	$1,500,000
Concrete paving/sidewalks - allowance	20,000	sf		$20.00	$400,000
Landscape					
Landscape area - allowance	250,301	sf		$1.00	$250,301
Site Specialties					
Misc curbs, parking striping, bollards allow	1	ls		$200,000.00	$200,000
Site Structures					
Retaining walls incl. foundation, excavation, backfill, etc.	27,000	sf		$60.00	$1,620,000
Physical Plant/Warehouse - allowance	17,047	sf		$100.00	$1,704,703
Total - Site Paving, Structures & Landscaping					**$5,675,004**

DETAIL ELEMENTS - SITEWORK

Element	Quantity	Unit	Other	Unit Cost	Total
16 Utilities on Site					
Fire water improvements - allowance					
Fire water service	4,464	lf		$450.00	$2,008,800
Reduced pressure backflow preventer assembly	1	ea		$20,000.00	$20,000
Miscellaneous specialties (hydrants, etc.)	1	ls		$410,000.00	$410,000
Water system improvements - allowance					
Remove existing waterline	1	ls		$50,000.00	$50,000
Domestic water service	4,464	lf		$540.00	$2,410,560
Water meter	1	ea		$20,000.00	$20,000
Reduced pressure backflow preventer assembly	1	ea		$40,000.00	$40,000
Miscellaneous specialties	1	ls		$750,000.00	$750,000
Wastewater system improvements/rehabilitations - allowance					
Sanitary sewer service	3,989	lf		$430.00	$1,715,055
Sewer pump station	1	ls		$250,000.00	$250,000
Sewage grinder, allowance	1	ls		$100,000.00	$100,000
Precast concrete vault	1	ls		$35,000.00	$35,000
Miscellaneous specialties (manholes, etc.)	1	ls		$850,000.00	$850,000
Gas distribution improvements - allowance					
Gas service	1	ls		$100,000.00	$100,000
Storm water conveyance - allowance					
Storm drain service	2,619	lf		$292.50	$766,058
Retention basin and other BMP measures	1	ls		$400,000.00	$400,000
Miscellaneous specialties (manholes, etc.)	1	ls		$470,000.00	$470,000
Electrical system improvements - allowance	1	ls		$1,325,000.00	$1,325,000
Site lighting - allowance	1	ls		$1,328,400.00	$1,328,400
Total - Utilities on Site					**$13,048,873**

Off-Site Improvements

SUMMARY - OFF-SITE IMPROVEMENTS

Element		Subtotal	Total
E) Site Construction (14-16)			**$10,799,303**
14	Site Preparation and Demolition		
15	Site Paving, Structures & Landscaping	$250,000	
16	Utilities	$10,549,303	
	Subtotal		$10,799,303
	General Conditions/Requirements	5.00%	$539,965
	Subtotal		$11,339,268
	General Liability, Subguard, and GC Bonds	3.00%	$323,979
	Subtotal		$11,663,247
	Contractor's Fee	2.00%	$233,265
	Subtotal		$11,896,512
	Design Contingency	10.00%	$1,189,651
	Subtotal		$13,086,163
	Escalation to MOC, 06/15/22	18.64%	$2,439,743
	Subtotal		$15,525,906
	GET	2.50%	$388,148
TOTAL ESTIMATED CONSTRUCTION COST			**$15,914,054**

DETAIL ELEMENTS - OFF-SITE IMPROVEMENTS

Element	Quantity	Unit	Unit Cost	Total
14 Site Preparation and Demolition				
Included below				
Total - Site Preparation and Demolition				
15 Site Paving, Structures & Landscaping				
Roadway improvements - allowance	1	ls	$250,000.00	$250,000
Total - Site Paving, Structures & Landscaping				**$250,000**
16 Utilities				
Water system evaluation - allowance	1	ls	$307,500.00	$307,500
Water system improvements - allowance	1	ls	$959,400.00	$959,400
Water facility charge - allowance	1	ls	$3,124,200.00	$3,124,200
Wastewater system investigation - allowance	1	ls	$307,500.00	$307,500
Wastewater system improvements/rehabilitation - allowance	1	ls	$3,409,560.00	$3,409,560
Wastewater facility charge - allowance	1	ls	$565,800.00	$565,800
Electrical system improvements - allowance	1	ls	$575,000.00	$575,000
Connect to existing systems	1	ls	$20,000.00	$20,000
Transformer pad	1	ea	$2,785.00	$2,785
Switch pad	1	ea	$2,100.00	$2,100
Concrete manholes	6	ea	$5,748.00	$34,488
Underground primary conduits	2,000	lf	$54.00	$108,000
Trenching and backfill	5,500	lf	$60.00	$330,000
Concrete encasement	407	cy	$210.00	$85,470
Low voltage conduits w/fiber	3,500	lf	$120.00	$420,000
Low voltage conduits w/paired copper	3,500	lf	$85.00	$297,500
Total - Utilities				**$10,549,303**

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
General Project Info	- Escalation included through Q2 / 2022. - All sub trades to be competitively bid. - Labor pool from the State of Hawaii.
Detailed Assumptions	
1. Substructure / Foundations	- No basement - Premiums included for deep foundations. - Elevator pits.
2. Structure	- Concrete slab on grade. - Structural steel framing including buckling restrained braced frames. - Cementitious fireproofing. - Cellular metal deck with lightweight concrete fill. - Miscellaneous concrete and metals. - Tube steel support framing for detention metal mesh.
3. Envelope / Roofing	- Metal stud framing, sheathing, waterproofing, and drywall to interior face of exterior wall at, parapets, and precast concrete panels. - 80% of exterior wall as precast concrete panels. - Allowance for exterior doors, canopies, and soffits. - Single ply or built up roof, typical.
4. Interiors	- Concrete masonry unit walls to 60% of interior partitions. - A mix detention steel wall panels and metal stud framed partitions to remaining areas. - Miscellaneous security and aluminum-framed glazing. - Security hollow metal doors and standard commercial doors. - Walls: paint, epoxy paint, epoxy, ceramic tile. - Floors: urethane, epoxy, sealed concrete, polished concrete, ceramic tile, carpet tile, and vapor membrane barrier. - Ceilings: detention hollow metal, acoustic ceiling tile, gypsum board, security plaster. - Restroom and building specialties, and casework. - Detention equipment and sealants. - Kitchen and Laundry equipment (AV, video visitation, medical, and surgery equipment are excluded).

APPENDIX 1 - SCOPE ASSUMPTIONS

Description	Assumed Scope
5. Vert. Transportation	- Metal pan / concrete filled stair units. - Mezzanine stairs. - MRL Elevators.
6. Plumbing	- General plumbing equipment, fixtures, and waste / vent piping. - Domestic water piping. - Roof Drainage.
7. HVAC	- Chillers, boilers, cooling towers, pumps, etc. - Chilled water piping. - Air handling units. - Air distribution ductwork and specialties. - Automatic Temperature Controls. - Test / balance / firestopping / seismic.
8. Electrical	- Emergency and Normal Service and Distribution - LED light fixtures. - Fire Alarm Systems. - Telephone Data Systems. - A/V Systems. - Security Systems ACS, CCTV, IC, wireless, duress, master controls. - Master Clock System.
9. Fire Protection	- Wet pipe sprinklers throughout.

APPENDIX 2 - RISK CONSIDERATIONS

Section	Description
Labor Availability	Hawaii's unemployment rate remains below 3.0%, the lowest rate since October of 2007. Demand for skilled workers are still expected in the following trades: carpenters, iron workers, plumbers, pipefitters, glaziers, sheet metal workers, welders, and electricians.
Material Costs	For domestic construction material costs cold-formed metal stud framing, concrete, reinforcing steel, lumber, and particle board continue to see price increases.
Productivity	Productivity impacts of construction trade workers is not anticipated.
Sub-Contractor Mark Up	CCMI cost managers continue to track subcontractor markups in the range of 15% - 20%.
Project Access	The project site is easily accessed from local roads.
Bidding Market	Honolulu construction spending has slowed but is expected to remain stable through 2018 before easing lower as the current cycle begins to wind down. This will be favorable for the projects construction schedule.
Escalation	Escalation has been included in this estimate at a rate of 18.6% taken through the midpoint of construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Basis of Estimate	This estimate was prepared using documents provided by AHL on August 2, 2017. These documents included architectural space plans, programmatic block diagrams of the buildings with blocks describing functional areas within the building, site plans and infrastructure requirements.
Estimate Format	A component cost classification format has been used for the preparation of this estimate. Cost are classified by building system / element.
Cost Mark Ups	The following % mark ups have been included in each design option: - General Conditions / Requirements (10.00% on direct costs) - GC Fee (3.50% compound) - Insurance and Subguard (3.00% compound) - Design Contingency (10.00% compound) - Escalation (18.6% compound)
Escalation	All subcontract prices herein are reflective of current bid prices. Escalation has been included on the summary level to the stated mid point of construction.
Design Contingency	An allowance of 10.00% for undeveloped design details has been included in this estimate. As the design of each system is further developed, details which historically increase cost become apparent and must be incorporated into the estimate while decreasing the % burden.
Construction Contingency	It is prudent for all program budgets to include an allowance for change orders which occur during the construction phase. These change orders normally increase the cost of the project. It is recommended that a 5% construction contingency is carried in this respect. A 10% construction contingency is currently included in the soft cost.
Construction Schedule	Costs included herein have been based upon a construction period of 24 months. Any costs for excessive overtime to meet accelerated schedule milestone dates are not included in this estimate.
Method of Procurement	The estimate is based on a design-bid-build delivery method for the building and associated site work.
Bid Conditions	This estimate has been based upon competitive bid situations (minimum of 3 bidders) for all items of subcontracted work.
Basis For Quantities	Wherever possible, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with other projects of a similar nature. We relied on prior estimates developed for the off-site and utility costs, these cost need to be validated especially for site number 3 which was not part of the prior study.
Sources for Pricing	This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design. These consultants have used pricing data from Cumming's database for Honolulu County construction.

APPENDIX 3 - APPROACH & METHODOLOGY

Key Exclusions

The following items have been excluded from our estimate:
- Relocation cost.
- Medical and surgical equipment.
- Security / detention glazing to exterior curtain walls.
- Skylights.
- Reclaimed water system.
- Medical gases.

Items Affecting Cost Estimate

Items which may change the estimated construction cost include, but are not limited to:
- Modifications to the scope of work included in this estimate.
- Unforeseen sub-surface conditions.
- Restrictive technical specifications or excessive contract conditions.
- Any specified item of material or product that cannot be obtained from 3 sources.
- Any other non-competitive bid situations.
- Bids delayed beyond the projected schedule.

Statement of Probable Cost

Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This estimate is made on the basis of the experience, qualifications, and best judgement of a professional consultant familiar with the construction industry. Cumming, however, cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

Cumming's staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

Pricing reflects probable construction costs obtainable in the project locality on the target dates specified and is a determination of fair market value for the construction of this project. The estimate is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all sub and general contractors with a range of 3 - 4 bidders for all items of work. Experience and research indicates that a fewer number of bidders may result in higher bids. Conversely, an increased number of bidders may result in more competitive bid day responses.

Recommendations

Cumming recommends that the Owner and the Architect carefully review this entire document to ensure it reflects their design intent. Requests for modifications of any apparent errors or omissions to this document must be made to Cumming within ten days of receipt of this estimate. Otherwise, it will be assumed that its contents have been reviewed and accepted. If the project is over budget or there are unresolved budget issues, alternate systems / schemes should be evaluated before proceeding into further design phases.

It is recommended that there are preparations of further cost estimates throughout design by Cumming to determine overall cost changes since the preparation of this preliminary estimate. These future estimates will have detailed breakdowns indicating materials by type, kind, and size, priced by their respective units of measure.

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Appendix I: Financing Plan Options

Oahu Community Correctional Center

October 27, 2017

Reprinted from January 5, 2017

Prepared for:

State of Hawaii
Department of Accounting and General Services
Department of Public Safety

Prepared by:

Louis Berger

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1.0 INTRODUCTION

The Hawaii Department of Public Safety (PSD) operates community correctional centers (CCCs) on the islands of Oahu, Maui, Hawaii, and Kauai. Each CCC houses short-term sentenced (felons, probation, and misdemeanor), pretrial (felon and misdemeanor), other jurisdiction, and probation/parole violators. CCCs provide the customary county jail function of managing both pre-trial detainees and locally-sentenced misdemeanant offenders and others with a sentence of one year or less. CCCs also provide an important pre-release preparation/transition function for prison system inmates who are transferred back to their county of origin when they reach less than a year until their scheduled release. Most of these former prison inmates are transferred to a dedicated work furlough unit where they are able to begin working in the community on supervised work crews or in individual placements as determined by needs and classification assessments and individualized pre-release plans.

With increasingly aged and obsolete correctional facilities, PSD has proposed improving its corrections infrastructure through modernization of its existing facilities and construction of new institutions to replace others. Among its priority projects is the replacement of the Oahu CCC (OCCC).

Developing new correctional facilities are time-consuming, complex, and expensive undertakings. For purposes of this analysis it has been recognized that the State of Hawaii will require substantial investments to its correctional facilities to accommodate future inmate populations and meet state and national standards. Therefore, it is appropriate that the state evaluate financing plan options available for financing construction of a new OCCC, recognizing that the investments needed now and in the future could have a major impact on future budgeting cycles.

The purpose of this document is to identify and describe the range of financing plan options available to finance new OCCC construction. Under each of these options, it is assumed that PSD continues to operate all current and future jail and prison facilities in Hawaii.

2.0 FINANCING PLAN OPTIONS FOR DEVELOPING A NEW OAHU COMMUNITY CORRECTIONAL CENTER

The decision on whether to obtain public or private financing for a public works project such as a new correctional facility is driven by various legal, financial, and political factors including the nature and scale of the project and the fiscal health of the public entity sponsoring its construction and operation. Public financing of a large capital project could be constrained by legal limits on the degree to which municipal, county or state governments can incur debt and/or if development of the project will adversely affect its ability to fund additional public facilities and infrastructure improvements, on-going operations and other obligations. Government jurisdictions incurring too much debt or are having difficulty meeting current obligations can be subjected to a credit rating downgrade which increases the cost of borrowing and can limit its capacity to finance future public works and infrastructure investments.

Public financing can also be constrained by political factors. Correctional facilities are often viewed by the public as low priorities for public financing and convincing an electorate to approve a bond to fund such projects can be far from guaranteed in light of pressing needs for financing of new schools, health care facilities, transportation systems, and other public facilities. With the advent of public private partnerships (PPPs or P3), along with a slow-growth national economy, city, county and state governments across the U.S. have become increasingly amenable to leveraging private sector capital and expertise in designing, building, and financing new public facilities and infrastructure. Although private sector partnering has been most frequently used to finance transportation projects, where the developer can recoup its investment through tolls and user fees, PPPs for other types of public infrastructure has become possible using innovative partnership arrangements.

Under PPPs, when the upfront investment is associated with social infrastructures, such as schools, health care, libraries or government buildings, the public agency typically repays the private investor directly through leasing fees, or "availability payments" (with payment made on the basis of continued availability of the services). It should be noted that private sector partnering, including the use of private financing, can be useful not just when a public agency faces debt limits, but also when it creates the potential for spreading project risks and for structuring incentives to expedite the construction timeframe.

Government policies and preferences for providing public services can also influence decisions as to which financing plan option to employ. These policies can guide the government in establishing the most appropriate criteria. This means that the community objectives and priorities, the economic development plans and long-term strategies can serve as tools in the decision-making process. Applicable policies include:

- Long-term objectives
- Taxation framework
- Legislative framework
- Financial resources and status

Other economic development, land use, and employment objectives are also relevant because they could determine when private financing should be considered. Usually governments establish the conditions under which private or public financing would be used. A jurisdiction's residents and employees will also influence policies affecting the attractiveness of private financing with resistance to private participation arising from concerns over loss of control, higher financing costs and other considerations.

The taxing framework could also be an important factor in attracting private sector investment. If for example, private firms are exempt from local taxes because of the public use of the facility or if the revenue associated with maintaining or operating the facility is tax deductible, private investors might well be attracted to forming a PPP. Finally, the existing legal framework will also influence the potential for using PPPs. Some jurisdictions have restrictions or outright prohibitions on the use of such arrangements, rendering private sector participation infeasible until and unless the government entity alters it legal framework regarding private sector participation in public sector projects.

A review of various Hawaii State government documents and annual financial reports did not identify any legal or financial impediments to pursuing public or private sector financing for jail improvements or expansions. During the third quarter of 2015,[1] Hawaii's economic indicators for the tourism industry, tax revenues, the

[1] Fiscal Year 15 ended June 30, 2015, and the Comprehensive Annual Financial Report (CAFR) of the State of Hawaii was submitted on December 30, 2015. Therefore, the FY2016 report should be available in December 2016.

construction industry, and unemployment were mostly positive.[2] Hawaii's economy depends on conditions in the U.S. economy and key international economies, especially Japan. According to the latest Department of Business, Economic Development and Tourism (DBEDT) forecast, Hawaii's economy will continue positive growth in the near future. DBEDT projects Hawaii's inflation, as measured in terms of changes in the Honolulu CPI, to increase 2.3 percent in 2016. The State GDP deflator is forecast to grow by 1.6 percent in 2016.

The following sections describe the primary financial instruments and approaches currently being used by state, county, and city governments for construction of various forms of public facilities and infrastructure.

3.0 CONVENTIONAL PUBLIC FINANCING OPTIONS

Jails, courthouses and similar public safety facilities, like other public infrastructure, have historically been funded by either "pay as you go" or by issuing a bond. "Pay as you go" involves the appropriation of public monies necessary to complete the proposed project within a single fiscal year. If project construction spans more than a year, then additional funds must be appropriated for each year of construction activity. Under the "pay as you go" approach a project is explicitly funded as a line item in a government's annual budget. This funding method is commonly used for small capital projects that can be accommodated within the jurisdiction's typical annual budget. This approach is not effective when the investment required for a large capital project is of such magnitude that to fund it as a line item would likely force cutbacks in other projects or require additional means for raising tax revenues. Both options are particularly challenging for projects which have few constituents.

"Pay as you go" is the least costly financing plan option over the life cycle of a project because it would involve incurring no debt and the associated accrued interest payment. An additional benefit is that future revenues are not encumbered and actual expenditures can be handled more efficiently when the revenues are appropriated from the current budget. However, given the finite resources available to any entity, whether private or public, the "pay as you go" option requires less spending on other projects or services or increasing taxes and fees to accommodate the increase in spending. These are also opportunity costs that must be considered.

For larger capital projects, including those which require large investments and multiple years to construct, governments typically finance construction costs by issuing bonds. Schools, parks and recreational facilities, cultural institutions, and health care facilities are among the most common public improvement projects funded through the issuance of bonds.

A bond is a security instrument which acknowledges that the issuer has borrowed money and must repay it to the bondholder at a specified rate of interest at periodic intervals. A bondholder also receives the amount lent (the principal) when the bond reaches its maturity. Bonds are known as debt securities and are different from loans because as a security they can be publicly traded and have values that can fluctuate. Debt securities with a maturity of 13 months or less are known as *notes*; however, bond maturity can last up to 30 years.

Different types of bonds can be issued by a government and each type has ramifications for the level of interest rates paid by the issuer, a jurisdiction's credit rating, and impact on debt ceilings. For example, most, but not all,

2 State of Hawaii Comprehensive Annual Financial Report (CAFR). Fiscal year ended June 30, 2015. Accessed at: http://ags.hawaii.gov/accounting/annual-financial-reports/.

government-issued bonds are tax-exempt. For these types of bonds, buyers are willing to accept a lower return than for a taxable bond because they will not have to give up some of their return paying taxes.

3.1 State of Hawaii Financial and Regulatory Environment

The ability of governments to use bonds to finance public facilities and infrastructure projects is often limited by legal restrictions on the uses of public debt and the total amount that can be issued. As of June 30, 2015, the State of Hawaii had total bonded debt outstanding of $8.4 billion. Of this amount, $6.5 billion comprises debt backed by the full faith and credit of the State and $1.9 billion (i.e. revenue bonds) is revenue bonded debt that is payable from and secured solely by the specified revenue sources. Hawaii's legal debt limit percentage is 18.5 percent of the total assessed valuation. The State's average general fund revenues of the three preceding fiscal years amounted to $6.3 billion. The state's total long-term debt increased by $911.6 million, or 12.1 percent, to $7.2 billion compared to FY14. The State Constitution limits the amount of general obligation bonds that may be issued. The legal debt margin at June 30, 2015, was $470.6 million, which the Director of Finance confirmed by law was within its legal debt limit.

The state's capacity to repay its bonds is based on the overall health of its economy. By most measures Hawaii's economy has recovered from the 2008 recession and is considered to be on solid financial ground with housing prices increasing in recent years. The statewide seasonally adjusted unemployment rate as of November 2015 was 3.2 percent, compared to 5 percent nationally. This is an increase in employment from the previous year when the State's seasonally adjusted unemployment rate stood at 4 percent (compared to 5.8 percent nationally). The Council of Revenues (Department of Taxation) in September 2015 revised the State's General Fund tax revenue growth rate for FY16 from 2.7 percent to 6 percent and also adjusted the revenue growth rate for FY17 to 5.5 percent. Cumulative general fund tax revenues for the first five months of FY15 were $2.5 billion, an increase of $213.7 million from the same period last fiscal year. General excise and use tax collections, which are the largest source of state revenue and a good measure of economic growth, increased 4.9 percent. While optimistic about Hawaii's economic recovery the State imposed a 10 percent spending restriction on discretionary operating expenses of general funds for all departments and agencies for the Executive Branch for FY16.

As of June 30, 2015, the State of Hawaii's underlying general obligation bond ratings were Moody's Investors Service (Aa2), Standard and Poor's Corporation (AA) and Fitch Ratings (AA) based on the credit of the state. Bonded debt activity for FY15 included issuance of $6.5 billion of general obligation bonds and $666.2 million in revenue bonds.[3]

[3] CAFR, 2015.

4.0 ALTERNATIVE BOND AND REVENUE GENERATION INSTRUMENTS

4.1 General Obligation Bonds

Until the 1980s, General Obligation Bonds (GOs) were the most frequently used form of public financing for correctional facility construction. However, the use of obligation bonds has declined as states and counties faced higher budget deficits and fiscal challenges, including limits on accrued debt as well as competing priorities for the use of bond financing. Other forms of public financing for correctional facility construction includes a mixture of GOs and revenue bonds or certificates of participation (CoPs). Revenue bonds are commonly characterized as "limited obligations" or "special obligations" and as such the debt does not count towards a state's debt limit. Revenue bonds typically finance public projects such as toll roads, bridges, airports, water and sewage treatment facilities, hospitals and subsidized housing.[4]

By 1997, revenue bonds accounted for at least 50 percent of all publicly-issued debt. While the national market for CoPs is less developed than the markets for GOs and revenue bonds, in states such as California, where the restrictions on GO debt are quite severed, a strong market has developed for CoPs. However, the sale of CoPs backed by a pledge of appropriates generally requires higher interest coupons than general obligation bonds or revenue bonds.[5]

Build America Bonds are a taxable municipal bond created under the American Recovery and Reinvestment Act of 2009 that carry special tax credits and federal subsidies for either the bond holder or the bond issuer. Many issuers have taken advantage of the Build America Bond provision to secure financing at a lower cost than issuing traditional tax-exempt bonds. The Build America Bond provision, which expired on January 1, 2011, was open to governmental agencies issuing bonds to fund capital expenditures.[6]

GOs are secured either by a pledge of the full faith and credit of the issuer or by a promise to levy taxes in an amount as necessary to pay debt service, or both. With very few exceptions, local agencies are not authorized to issue "full faith and credit" bonds. The GOs of such agencies are typically payable only from ad valorem (in proportion to the value) property taxes, which are required to be levied in an amount sufficient to pay interest and principal on the bonds coming due in each year. To secure a GO, the jurisdiction must seek voter approval.

GOs are still a relatively low cost method for obtaining capital for large public infrastructure projects. This is because GOs are fully backed by a pledge of the issuer to collect sufficient revenue (e.g., tax revenue) to repay the principal and interest. Because they are backed by the "full faith and credit" of the local government, financial markets consider GOs among the most secure investments. Accordingly, the low risk of GOs translates into reduced interest rates paid to investors and a lower overall project cost.

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4 Municipal Bond Wikipedia website. Available at: https://en.wikipedia.org/wiki/Municipal_bond#cite_note-9; accessed December 5, 2016.

5 Association of State Correctional Administrators. Alternatives for Financing Prison Facilities. Prepared by Brown & Wood LLP, 1999. Available at: http://www.asca.net/system/assets/attachments/2085/Alternatives_for_Financing_Prison_Facilities-3.pdf?1296161869, accessed December 5, 2016.

6 Municipal Bond Wikipedia website.

By the end of the 1990s, approximately one-third of all publicly-issued debt was GO debt. These bonds were used for a broad variety of public works projects including roads, airports, parks and correctional facilities. The monies obtained from the sale of the bonds are restricted to financing infrastructure construction only. Operating costs for any infrastructure financed using GOs must be recovered through other means including but not limited to user fees and taxes.

All bonds of the State other than special purpose revenue bonds must be authorized by a majority vote of the members to which each house of the Legislature is entitled. Special purpose revenue bonds of the State must be authorized by two-thirds vote of the members to which each house of the Legislature is entitled.[7]

4.2 Revenue Generation Alternatives

Other revenue generating options are available to finance important public works and infrastructure projects.

4.2.1 Revenue Bonds

Revenue bonds differ from GOs in that repayment is not directly secured through the taxing power of the government jurisdiction but rather through a pledge of a specific stream of revenues. Because of this difference, revenue bonds are referred to as “limited obligation” or “special obligation” bonds. The ultimate source of the funds to repay the debt could derive from a variety of sources, including fees, tolls, special district taxes, or general tax revenue that must be re-appropriated on an annual basis.

To issue a revenue bond, the government creates a separate non-profit organization to issue lease revenue bonds. This non-profit organization, usually a state or county development authority, uses the bond revenue to build the facility and then leases it to the government at a rate that will allow full repayment to the investors (principle and interest) by the end of the lease period. The title of the facility reverts to the government agency when the bond or the lease has been paid in full.

These bonds are not counted towards the jurisdiction’s debt limit, and therefore, do not require voter approval. However, the fact that the pledged revenue stream is not directly supported by state or county funds, but by lease payments subject to appropriation, translates into a higher interest rate paid to the bond investors. County and state governments tend to use revenue bonds when the debt ceiling has been reached or when it is very difficult to obtain voter approval for obligation bonds. Exhibit 1 depicts how a revenue bond is issued and used to finance capital projects, while Exhibit 2 depicts the process and checklist for this financing plan option.

[7] State of Hawaii, Department of Budget and Finance website. Available at: http://budget.hawaii.gov/budget/about-budget/state-debt/.

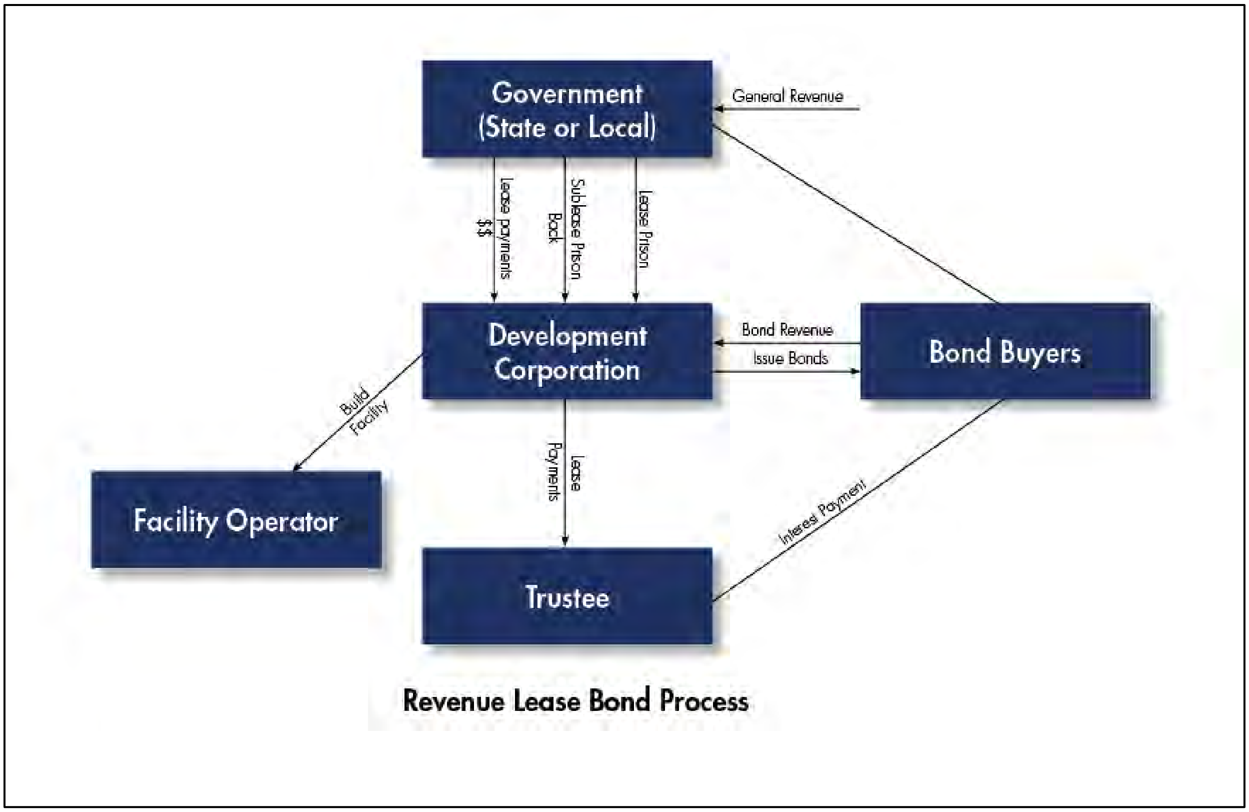
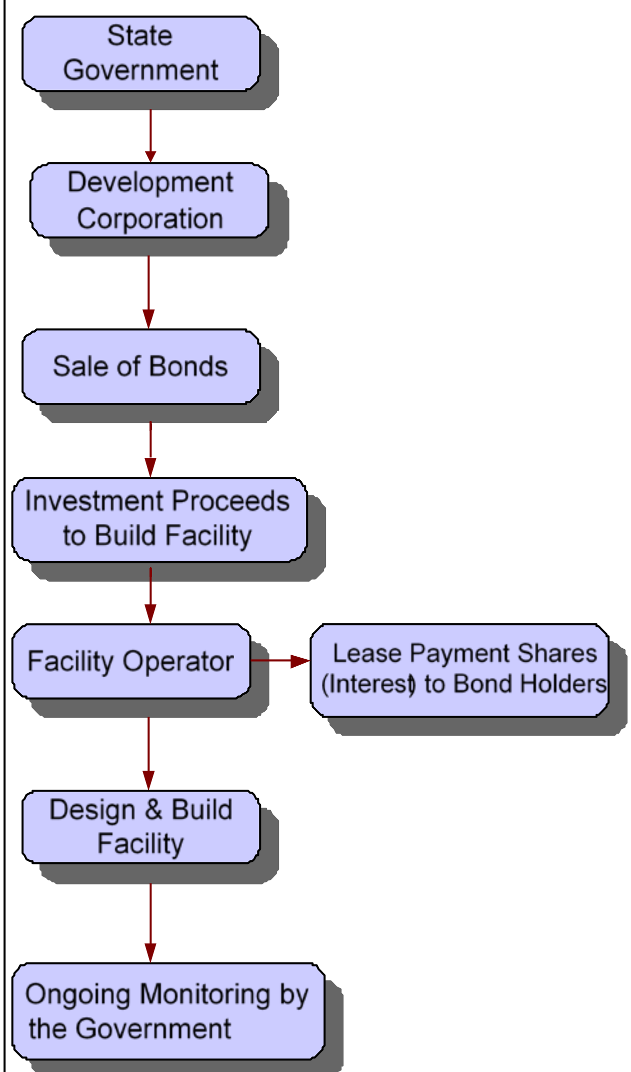


Exhibit 1: Revenue Bond Financing

Lease Revenue Bonds

Revenue Bond is the issuance of debt which is secured by a revenue stream coming from leasing the facility to an independent operator .



Checklist of Information Needed to Move Ahead

- ☐ Identify Projects that might be amenable to a Revenue Bond
- ☐ Develop a Feasibility Report
  - ☐ Demand Projections
  - ☐ Select Location
  - ☐ Capacity of Facility
  - ☐ Layout of Facility
  - ☐ Preliminary Design
  - ☐ Establish a Schedule
  - ☐ Financing Alternatives
  - ☐ Environmental Analysis
  - ☐ Cost Estimate
- ☐ Assemble Financing Team
  - ☐ Financial Advisor
  - ☐ Bond Counsel
  - ☐ Investment Banking Firm
  - ☐ Underwriter
  - ☐ Trustee
- ☐ Select Method of Sale through the Financing Team
- ☐ Create Development Corporation
- ☐ Notice of Sale
  - ☐ Date and Time of Placement
  - ☐ Description of Bonds
  - ☐ Delivery of Bonds
- ☐ Secure Credit Ratings
  - ☐ Rating Agencies
  - ☐ Bond Insurance
- ☐ Sale of Bonds
- ☐ Investment of Proceeds
- ☐ Design & Build of Facility
  - ☐ Monitoring
- ☐ Collect Lease Payment Shares
- ☐ Pay Interest on Lease Payment Shares to Bond Buyers
- ☐ Develop Monitoring Program

Exhibit 2: Revenue Bond Financing Checklist

4.2.2 Sales Tax Revenues

One mechanism for generating a regular revenue stream would be the imposition of a special sales tax that could be directed exclusively for OCCC construction. Under this approach, an additional levy would be added to the current tax rate that is collected at the point of sales by retail establishments operating in the state.

Hawaii does not impose a sales tax, but it does have a gross receipts tax called the General Excise Tax (GET). The GET applies to nearly every conceivable type of transaction and is technically charged to the business rather than the consumer. Hawaii allows businesses and vendors to pass the gross receipts tax on to the consumer, similar to a sales tax, but unlike a sales tax they cannot list it as a separate charge on the receipt. The gross receipts tax is applicable to almost every type of transaction, including goods and services, and transactions for goods and services such as groceries, medical services, and rent are subject to the tax (while they are exempt from the sales tax completely in many other states). Tax-exempt non-profits, which are exempt from sales tax in many states, are not exempt from the Hawaii gross receipts tax.

The GET is 4 percent throughout most of Hawaii, and 4.5 percent on Oahu, but the state allows a business to charge their customers a maximum of 4.712 percent to help recoup some of the total GET.[8] The State General Fund tax revenues increased by 10.8 percent, during the first nine months of 2015 compared to the same period in 2014. Among its components, net individual income tax collections increased by 17.8 percent, general excise and use tax (GET) collections increased by 6.5 percent, transient accommodations tax (TAT) collections were up by 6.7 percent, and net corporate income tax revenues increased by 45.1 percent.[9]

4.2.3 Sale of State Assets

Another approach for potentially generating significant funds, although on a one-time basis, would be to designate selected state property and assets as surplus and put them up for sale. Before such property or an asset can be sold, however, the state must declare it to be surplus. In addition, prior to taking any such action, it would be prudent to conduct a comprehensive review of its current and future needs for the property and the financial impact of selling assets to finance a large capital project of this nature as once state assets are sold to private investors those assets are forever lost for public purposes.

4.3 Certificates of Participation

In recent years, governments have begun using a specialized type of revenue bonds to finance capital projects, referred to as Certificates of Participation (CoPs). CoPs are lease financing agreements in the form of securities that can be issued and marketed to investors in a manner similar to tax-exempt debt. By entering into a tax-exempt lease financing agreement, a public agency is using its authority to acquire or dispose of property, rather than its authority to incur debt. Public agencies may enter into a leasing agreement with a non-profit organization to directly lease the asset they wish to acquire, construct, or improve. CoPs are sold through an underwriter and the proceeds of the sale of the CoPs are used to pay the cost of acquiring or constructing improvements.

[8] Sales taxes in the United States Wikipedia website. Available at: https://en.wikipedia.org/wiki/Sales_taxes_in_the_United_States#Hawaii.

[9] CAFR, 2015.

The concept behind a CoP is that instead of receiving interest payments, the owner of the bond receives a share of the lease payments on a specified periodic basis until the bond reaches maturity. The bond maturity is reached when the lease period ends. Under this approach the lessor assigns the payments to a trustee, who then distributes the payments to the CoPs holders. CoPs, like other types of bonds, can be resold to another entity prior to its maturation date.

CoPs, like revenue bonds, are more costly to issue than obligation bonds because they require a higher interest rate to attract buyers. Also, like revenue bonds, repayment is not directly supported by tax revenue but by lease payments subject to annual appropriations. Some of these bonds require insurance, which in turn, increases their cost. It should also be noted that revenue bonds and CoPs can be directly negotiated with private entities or individuals which can reduce the competitive bidding for their purchase. Exhibit 3 depicts the procedure for the accessing the Revenue Bonds/CoP option. The process and checklist for this financing plan option is presented in Exhibit 4.

5.0 PUBLIC PRIVATE PARTNERSHIPS

Public Private Partnerships (PPPs) are collaborations between governments and private entities to provide public infrastructures, facilities, or services for long-term periods through the sharing of risks, responsibilities and rewards. These partnerships are formed to optimize the advantages that the private sector can offer in building and/or operating public facilities and infrastructure. As noted earlier, this document focuses on the potential to use private entities for financing and constructing a new OCCC facility, with jail operation remaining the sole responsibility of PSD.

The roles of the private sector can vary depending on a project, but it is ultimately the government's responsibility to ensure the integrity of the facility. Private corrections firms, for example, operate under various types of contractual arrangements with federal, state and local governments. Such arrangements and partnerships clearly delineate the physical ownership of the facility, what role a private firm is going to fill in the development and operation of the facility as well as the contractual obligations of the private corrections firm. This analysis, while not excluding the participation of private corrections firms, does preclude the role of such firms in providing services devoted to inmate supervision.

In contracting with private firms, governments must balance their obligations to protect the public and provide for the social welfare with the private firms' need to run its operations in an efficient and effective manner. If a government imposes too few regulations or oversight, the firm may have an incentive to act contrary to the government's interest; if it imposes too many regulations, it may be too costly for the firm to operate. There are several different types of PPP contracts depending on the extent of the private sector's involvement (Table 1).

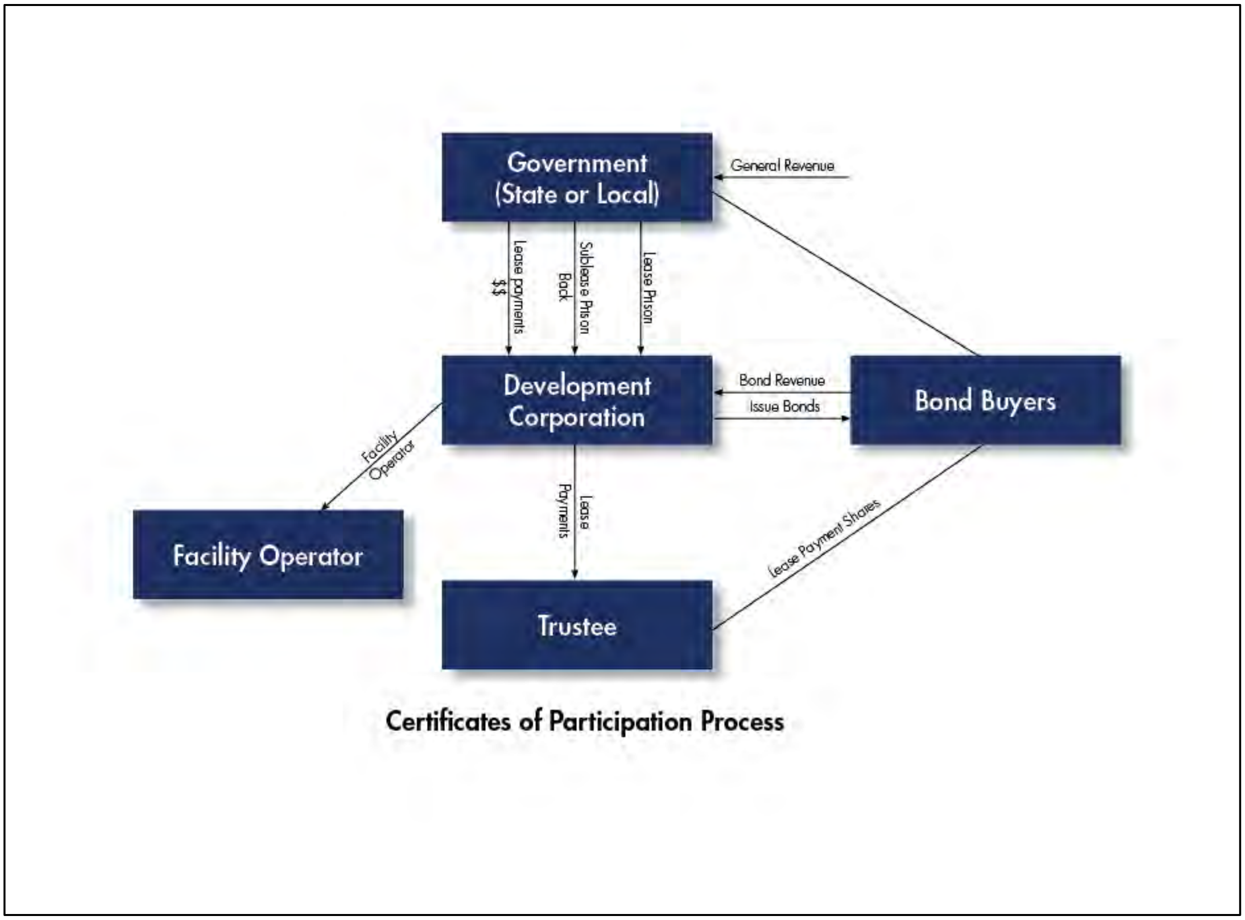
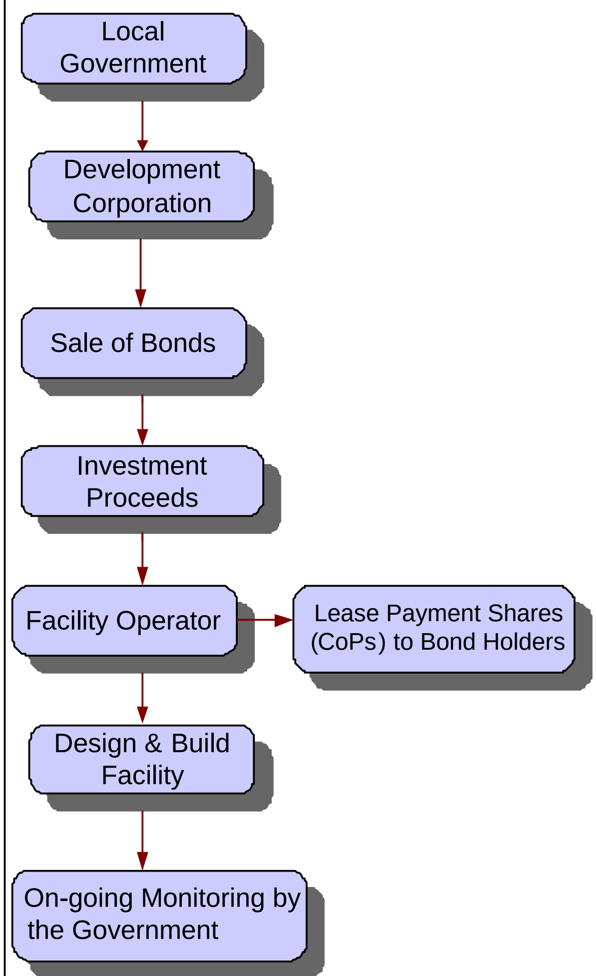


Exhibit 3: Certificates of Participation Financing

Certificates of Participation

CoP is a form of revenue bond in which the government agrees to pay a fixed amount to the lessor in exchange for use of the facility



Checklist of Information Needed to Move Ahead

- ☐ Identify Projects that might be amenable to CoP
- ☐ Develop a Feasibility Report
  - ☐ Demand Projections
  - ☐ Select Location
  - ☐ Capacity of Facility
  - ☐ Layout of Facility
  - ☐ Preliminary Design
  - ☐ Establish a Schedule
  - ☐ Financing Alternatives
  - ☐ Environmental Analysis
  - ☐ Cost Estimate
  - ☐
- ☐ Assemble Financing Team
  - ☐ Financial Advisor
  - ☐ Underwriter
  - ☐ Trustee
- ☐ Select Method of Sale through the Financing Team
- ☐ Create Development Corporation
- Notice of Sale
  - ☐ Date and Time of Placement
  - ☐ Description of Bonds
  - ☐ Delivery of Bonds
- ☐ Secure Credit Ratings
  - ☐ Rating Agencies
  - ☐ Bond Insurance
- ☐ Sale of Bonds
- ☐ Investment of Proceeds
- ☐ Design & Build Facility
  - ☐ Monitoring
- ☐ Collect Lease Payment Shares
- ☐ Pay Lease Payment Shares to Bond Buyers
- ☐ Develop Monitoring Program

Exhibit 4: Certificates of Participation Financing Checklist

Table 1: Public Private Partnership Types

Type of Public Private Partnerships	Description
Private-finance-build-transfer	Private partner finances and provides for design and construction of the facility and transfers it to the public entity
Design-build-finance	Private partner provides the financing, design and construction
Performance-based infrastructure	Responsibilities for designing, building, financing, and maintaining are bundled together and transferred to private sector partners. Lease payments to private entity contingent on performance.
Developer finance	Private partner finances the construction of the facility in exchange for the right to build residential housing, commercial or industrial developments
Lease/purchase	Private partner finances and builds the facility which it then leases to a public entity

5.1 Private-Finance-Build-Transfer

The Private-Finance-Build-Transfer (PFBT) plan option is a type of PPP organized to build a new facility. Under a PFBT arrangement for example, the State of Hawaii would contract a private firm to finance and build the facility and would pay the private firm lease payments for a pre-determined period. These lease payments would cover the capital costs incurred by the private firm and provide them with a negotiated rate of return on that investment. At the end of the lease period, the private firm would transfer ownership of the facility to the state.

While the private firm would build and retain ownership of the facility throughout the lease term, the state would provide the manpower to perform all of the activities associated with housing and supervising the inmates. Regardless of whether those staff would be employees of PSD or by subcontractors, those functions would not be performed by the PPP firm and therefore would not be accountable for the quality of those operations. Under this arrangement, the private firm bears the financing and construction risk while the state would retain the operational risk. The following example shows that PFBTs can be arranged in various ways.

In 2008, Mohave County, Arizona used the PFBT method when it sought financing for its jail facility project where under Arizona law, the County must lease its land by a competitive bidding process. The debt financing also required voter approval and approval to debt finance the jail project was unlikely. The County dealt with the lease impediment by issuing a carefully crafted Request for Proposal ("RFP") which solicited competitive bids to lease County land, with the successful proposer having to agree to many conditions, such as:

- Execute a ground lease for a period of time not to exceed the term of the financial instrument—in this case, CoPs
- Design, construct, and furnish the jail facility to meet County standards and specifications set forth in the RFP
- Make the entire jail facility and the leased land available to the County at a rental rate meeting the requirements of the RFP

- Execute a lease with the County for the jail facility that gives the County the option to purchase the facility at the redemption cost of any outstanding financing
- Release any leasehold interest to the County with respect to the facility and the leased land at the termination of the lease for no further consideration

The County dealt with the debt financing and voter approval impediments by partnering with Faulkner USA, Inc., a nationwide design-builder. Faulkner formed the Mohave Jail Facility Finance Corporation ("Corporation"), a non-profit corporation under the laws of the State of Arizona, which issued $46 million in CoPs ("2008 CoPs") to finance the construction of the new jail facility. The Corporation then contracted with Faulkner to build the 688-bed facility for Mojave County.

To avoid a conflict of interest between Faulkner and the Corporation (e.g., Falkner contracting with itself), County officials assumed positions on the Corporation's Board. According to the County's Finance Director, a significant advantage to this type of structure was the level of County control it provides over the project. In discussions with the authors, he also said that this was the second time the County has used this type of financing, and it has worked so well that the County is planning to use it on another upcoming project.

The 2008 CoPs were not considered debt in the County budget. The County made the lease payments from monies in its capital improvement fund, appropriated for such purpose by the Board of Supervisors in the County's annual budget. The following outlines the specific ownership and responsibilities of a facility financed and constructed by a private builder:

- Financing: Private firm finances the facility
- Construction: Private firm builds the facility
- Ownership: Private firm owns the facility and transfers it back to the public agency after a pre-determined period; the public agency may need to transfer the land to the private entity before the start of construction
- Maintenance: Public agency performs any required routine maintenance and the private firm performs the major maintenance
- Operations: Public agency operates the facility
- Payments: Public agency pays the private firm lease payments for the construction of the facility

Private-Finance-Build-Transfer is the main variant of the PPP model that is limited to construction of a public facility. However, it can be extended and encompass activities that continue into the operational phase of the facility although the private entity would not actually operate the facility. The following PPP options describe facility maintenance and support activities that can outsourced while the core operations of the new OCCC is retained by the public entity; in this case PSD. The process and checklist for this financing plan option is presented in Exhibit 5.

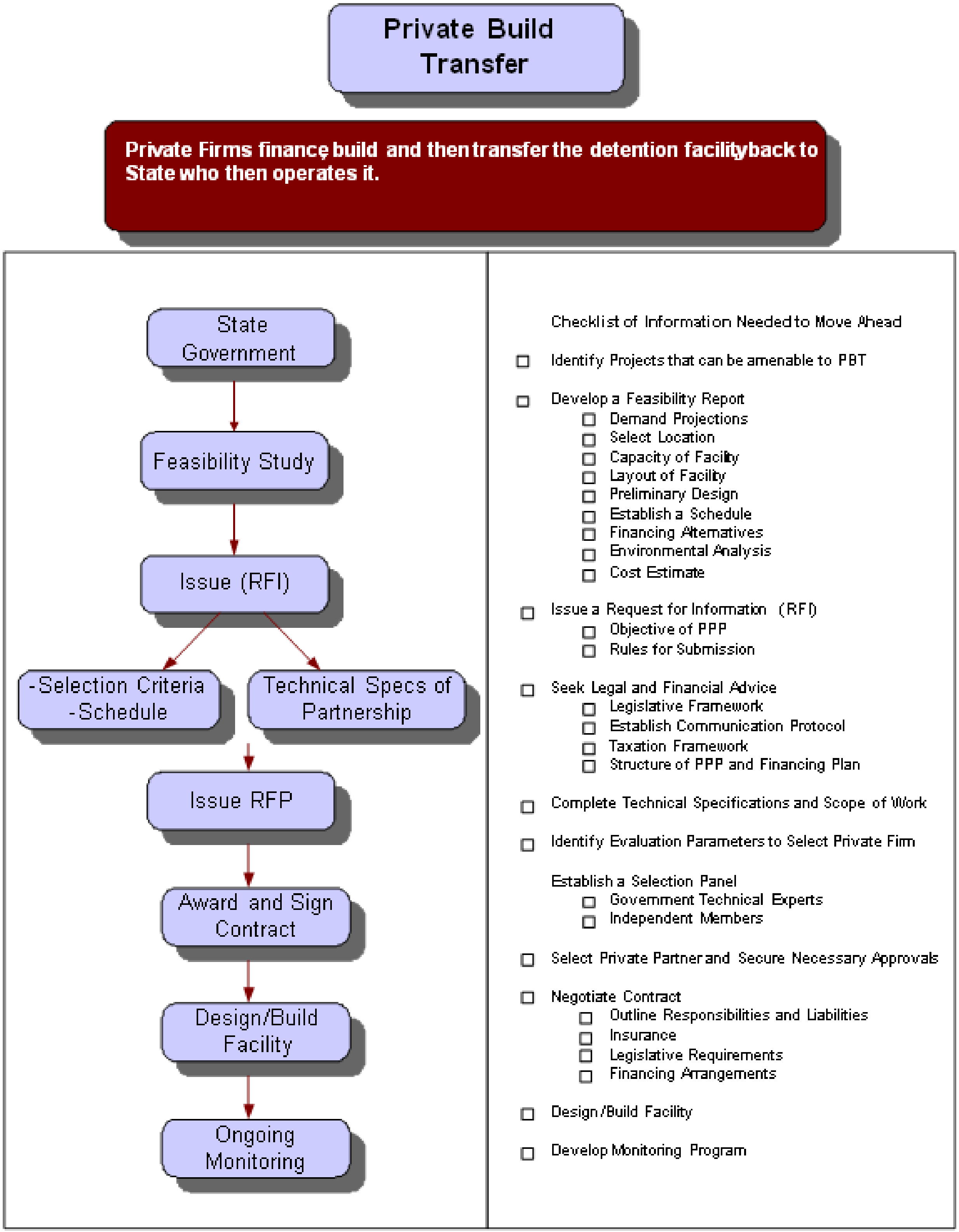


Exhibit 5: Private-Finance-Build-Transfer Financing Checklist

5.2 Design-Build-Finance

Under a Design Build Finance (DBF) arrangement, the private partner provides both design and construction of a project to the public agency in addition to the financing. This type of partnership can reduce time, save money, provide stronger guarantees and allocate additional project risk to the private sector. It also reduces conflict by having a single entity responsible to the public owner for the design and construction. The public sector partner owns the assets and has the responsibility for the operation and maintenance. The structure of DBF has some variations that are developed according to the needs of each project sponsor. Presented below are several that may be applicable to Santa Clara County.

A Design-Build-Finance-Maintain (DBFM) model is similar to a DBF except the maintenance of the facility for a set period of time becomes the responsibility of the private sector partner. The benefits are similar to the DBF with maintenance risk being allocated to the private sector partner and the guarantee expanded to include maintenance. The public sector partner owns and operates the assets.

While the potential exists to reap substantial rewards by utilizing this integrated approach, states and counties that are not accustomed to or experienced in this approach must take great care to specify all standards to which they want their facilities designed, constructed, and maintained. With DBF procurement, owners relinquish much of the control they typically possess with more traditional project financing and delivery.

This type of financing is also known as Performance Based Infrastructure (PBI). PBI is a partnership between the public sector owner and a private project company that finances, designs, and builds the facility (and then is responsible for maintenance). The PBI approach was first used in the United States to build the Long Beach Courthouse (completed in 2013).

Performance-based financing can be defined as a mechanism by which private entities are, at least partially, repaid on the basis on their performance. PBI partnerships capitalize on the development expertise of the private entity while ensuring that projects meet their objective of providing high-quality infrastructure for the public.

There is a great deal of variety in PBI arrangements in the United States, and especially the degree to which financial responsibilities are actually transferred to the private sector. One commonality that cuts across all PBI projects is that they are either partly or wholly financed by debt leveraging revenue streams dedicated to the project. Future revenues are leveraged to issue bonds or other debt that provide funds for capital and project development costs. They are also often supplemented by public sector grants in the form of money or contributions in kind. In certain cases, private partners may be required to make equity investments as well. Value for money can be attained through life-cycle costing.

A public agency may use PBI procurements for two primary reasons: cash flow constraints and a desire to defer payments. In cases where a public agency has cash flow constraints, it will identify the level of funding that it has available for the project at the time the procurement is released and require the design-build entity to finance any development costs in excess of that amount over a specified period of time. In other cases, the public agency may specify the maximum amount that it can pay a design-builder each year for a project. That specified amount and the overall cost of the project would, in turn, drive the length of the repayment period.

Other PBI procurements may be motivated by the public agency's desire to defer payment for the project. This motivation could be due to lack of current funding or the desire to use the deferred payment to incentivize the design-builder to accelerate construction of the project.

Under the PBI approach, the public agency would issue a procurement request asking bidders to provide the cost for developing the project today, with the payment of that amount promised at a later time. By accepting a deferred payment, a PBI partner assumes additional risks beyond those of a traditional DBF contract, including the risk associated with future appropriations expected to make project funding available.

5.3 Developer Finance

Under this approach, the private party contributes capital and finances the construction or expansion of a public facility in exchange for the right to develop residential, commercial and/or industrial facilities at or near the site. This financing plan option is unlikely unless a new facility was built on a site sufficiently large to accommodate a jail development and other commercial or residential land uses.

5.4 Lease/Purchase

A lease/purchase is an installment-purchase contract. Under this approach, the private sector finances and builds a new facility, which it then leases to a public agency. The public agency makes scheduled lease payments to the private party. The public agency accrues equity in the facility with each payment. At the end of the lease term, the public agency owns the facility or purchases it at the cost of any remaining unpaid balance in the lease. Lease/purchase arrangements have been used by the U.S. General Services Administration for developing federal office buildings and by a number of states (e.g. California, Arizona, and Ohio) [10] to construct new correctional facilities.

6.0 ADVANTAGES AND DISADVANTAGES OF ALTERNATIVE FINANCING PLAN OPTIONS

The advantages and disadvantages to alternative financing methods for jail construction are summarized in Table 2. It should be noted that some of the disadvantages to the general obligation bond alternative are of less relevance to entities such as the State of Hawaii as a result of its high credit rating and where the debt capacity is limited by law or a majority vote of the members of the legislature is needed for bonding authority. Hawaii's is currently within the 18.5 percent legal limit; the primary issue would be the legislature's approval of a bond for new OCCC construction.

[10] See California: http://www.dca.ca.gov/publications/legal_guides/s-10.shtml; Ohio: http://codes.ohio.gov/orc/1351; Arizona: https://www.aaronline.com/2012/03/leasepurchase-and-leaseoption-agreements-2/.

Table 2: Advantages and Disadvantages of Financing Plan Options

Financing Plan Option	Advantages	Disadvantages
General obligation bonds	• Low interest rate on the bond; public agency maintains ownership throughout the life of the facility • Bond and interest payments backed by property tax revenues instead of appropriations or other funding sources • Public agency maintains full control of jail operations • Public agency may implement the project using any delivery method	• Voter or legislature approval may be required to issue bonds for jail construction. • Interest rate and available bondholders subject to conditions in the financial markets • Public agency's debt ceiling may have been reached • Advice should be sought from public sector market-makers to assess the financial viability of new bond issuance
Revenue bonds	• Bondholder assumes financial risk of the investment • Voter approval of bond issuance not required • Public agency maintains full control of jail operations • Public agency may implement the project using any delivery method	• Higher risk due to the lack of guaranteed availability of funding sources throughout the life of the project • Government regulations may apply as to the limits of specific types of funding sources
Special sales taxes	• Project can be funded without incurring additional debt while retaining full ownership	• In place of sales tax, Hawaii has a gross receipts tax levied on businesses which is, in many ways, stricter than a standard sales tax
Sale of state land and other assets	• If sold parcels and assets are sufficiently large, project could be funded in part though one time sale while incurring a lessor amount of debt	• Sale to private sector removes valuable asset(s) from the state's resource inventory
Private public partnerships	• Privatization of the construction will not impact the government's capital budget • Public agency will not have to acquire capital from the financial markets nor work with public sector market-makers • Public agency does not bear the financing or construction risk of the new facility	• Public agency may not have control of project delivery method • Operational responsibility is retained by the public agency

Private sector participation in construction, maintenance, and operation of public facilities and infrastructure increased significantly over the last decade, but its appropriateness in terms of benefitting the public sector varies depending on the specific project under consideration. A PPP could be appropriate if one of more of the following criteria is met:

- Budget and/or debt limitations constrain public sector financing.
- Project is complex and public sector seeks to spread some risk to private sector.
- Quality of the project or the service (operator) would benefit.
- Private partner can be incentivized to complete the project on a faster timeframe.
- Legal framework is in place that is conducive to private sector involvement (in particular no prohibitions of private involvement).
- Completed project is able to generate lease payments and/or user fees to provide investor with sufficient return on investment.
- Electorate is amenable to private sector involvement.
- Taxation framework confers advantages for private sector partners.

A project would have to meet multiple criteria for the conditions to be conducive for a successful PPP. As seen from the criteria, the factors favoring or disfavoring private participation are legal, economic, financial, and political. In some localities there is strong constituency for retaining public sector control over all aspects of traditional public facilities and operations. States such as Hawaii are resident to public sector unions who may be skeptical to any role by the private sector in building and owning a jail facility. From the onset of a proposed PPP project, the state would need to make it unambiguously clear that jail operations would remain within the domain of PSD and at most the PPP would be charged only with the maintenance of the physical facility under a performance-based infrastructure delivery model.

If the State of Hawaii was to consider a PPP plan option, a thorough analysis would be necessary to compare the life cycle costs of a PPP plan option to a conventional public financed and owned option. The analysis would need to take into account how project construction and operation risks would be apportioned under the different scenarios. The lowest cost alternative might not be the optimal choice if the risks are higher compared to other alternatives. Risk allocations will also have an impact on how any PPP is configured. The higher the risk allocated to the private sector partner, the higher the return on investment that will be expected by the partner to make the investment attractive.

7.0 EXAMPLES OF INNOVATIVE AND CONVENTIONAL FINANCING OF PUBLIC FACILITIES

Example 1: Performance-Based Infrastructure: Long Beach Courthouse, California

The Long Beach Courthouse, located in downtown Long Beach, California, is the Court's main facility for its South District. The courthouse was originally built in 1959 and handles a variety of civil litigation and all criminal matters for the cities of Long Beach, Signal Hill, San Pedro, Wilmington, Harbor City, and a portion of the City of Los Angeles. The courthouse averages 385 felony and 3,327 misdemeanor filings per month. On average, the courthouse moves 225 in-custody defendants through its corridors each day and 109,000 people enter the building per month. The courthouse was deemed inadequate to continue to be used as it suffered from fundamental flaws, overcrowding, and a failure to meet accessibility requirements, making it incapable of meeting the growing demand for court services in the Long Beach area.

In 2007, the California Administrative Office of the Courts (AOC) evaluated the feasibility of a courthouse replacement project during which the Council reviewed the option of renovating and expanding the existing facility. This option was not considered viable, due to age, physical condition, and functional issues and a new building would be needed.

Funds were appropriated for a new courthouse with construction to occur from January 2011 to September 2013. The finished 545,000 square foot, five-story building, houses 31 courtrooms as well as administrative offices, Los Angeles County lease space, and retail space. The total contract value was $364 million of which approximately $339 million was for construction.

Delivered through a public-private partnership (PPP) agreement between Long Beach Judicial Partners LLC (LBJP) and the Judicial Council of California, the Governor Deukmejian Courthouse was the first social infrastructure project in the U.S. procured under the principles of Performance-Based Infrastructure contracting. Under a turnkey PPP, the cost and risk of the courthouse, including development, design, construction, operations, and maintenance were transferred from the public sector to the private-sector team.

The developer, Meridiam Infrastructure, paid $49 million in equity at financial close. The rest of the money was arranged in loans with a seven-year floating rate to cover a three-year construction period. The lenders include several large international banks including BNP Paribas, Credit Agricole and Deutsche Bank. The payment for the first year of occupancy was set at $53 million assuming no deductions for poor performance.

The decision to use PBI financing was supported by analysis on the financing and project delivery method that would provide best value to the state. The Judicial Council retained Ernst & Young Advisory, Inc. and David Langdon & Seah International consultants who determined that PBI delivery for the courthouse project was the best approach to address the public's need for a safe and accessible courthouse and the best value financing method for the residents of California.

Compared to the traditional state project delivery, PBI enables a project to proceed without state financing and can produce a more innovative and better-performing facility with significantly speedier project delivery by leveraging the private development by allowing the state to transfer certain risks to the private sector. It also provides for the on-going maintenance and performance of the facility.

Under the PBI agreement, AOC owns the building and is leasing a six-acre parcel of land to the private sector for 50 years. The Superior Court of Los Angeles County occupies the building space with the AOC paying an annual availability payment for 35 years. Under the terms of the agreement, the AOC can deduct a specific amount from the availability payment if components of the building do not function properly (e.g. a $5,000 deduction for every two hours that certain elevators are inoperable).

The service fee of $53 million encompasses a fixed capital charge component and an operating charge component (increased by inflation). There is also a revenue stream for the County from the parking structure, guaranteed at 1.5 percent of total revenue and a retail fee of 0.5 percent of total revenue.

If the project agreement expires as scheduled in 35 years, and everyone has performed satisfactorily, the lease will terminate and control of the property will revert to the State. If the State fails to abide by the agreement, the private partner has the right to evict it, convert the property to a profitable use, and operate it for the final 15 years of the agreement.

Execution of the project required a commitment to scheduling while maintaining the price-certain contract with stakeholder input. Under this delivery method, the project met the goals of the client and the expertise of the private-sector team was integrated into the development and design-build process. Additionally, the courthouse was delivered 11 days ahead of schedule.

Example 2: Public Private Partnership: Green Rock and Pocahontas Correctional Centers, Virginia[11]

Green Rock and Pocahontas Correctional Centers were the first two correctional facilities to be built under the 2002 Public-Private Education Facility and Infrastructure Act (PPEA) standards. Balfour Beatty Construction, the project's private-sector partner, delivered two facilities in a short period of time while minimizing costs to and time commitment from the Virginia Department of Corrections (VDOC).

During state procurement processes, VDOC took on considerable risk spending time and resources acquiring land, hiring a design team and procuring construction services. Due to funding limitations, the correctional facilities had to be built quickly and at the lowest cost possible. VDOC decided that the design-build process would effectively meet its service goals and a PPP financing structure, partnered with Balfour Beatty Construction, would transfer risk and provide the additional funding needed.

The Green Rock Correctional Center ($66.2 million) and the Pocahontas Correction Center ($61.4 million) were both opened in 2007. By constructing the two facilities simultaneously, Balfour Beatty Construction established economies of scale and project efficiencies. The two facilities are now valued at $140 million.

Originally, both Green Rock and Pocahontas were contracted for $125 million and were about $2.6 million over budget. Though the facilities are not operating at full capacity, they were built to supplement the increased prison population in Virginia. The increased need for additional prison bed space influenced Balfour Beatty to

11 See http://www.ncppp.org/resources/case-studies/real-estate-and-economic-development/green-rock-and-pocahontas-correctional-centers/.

design a facility that had a greater capacity for expansion. Each new facility includes 1,024 beds, though the average daily population at the Pocahontas facility is about 910 and at the Green Rock facility it is about 987. At present, the facilities can accommodate between 30 and 110 additional inmates, based on daily averages.

The general contract scope for the two projects included site design and development, design-build and construction services while not exceeding the negotiated price of the facilities. Both were completed in 943 days from the issuance of the Notice to Proceed to the VDOC's final acceptance.

Example 3: Public-Private Partnership: Calgary Courts Center, Alberta, Canada[12]

The Calgary Courts Center, located in downtown Calgary, houses the Calgary Court of Appeals, the Court of Queen's Bench and four divisions of the Provincial Court. For over 20 years, the City of Calgary and the Province of Alberta had planned to consolidate three court systems and five court buildings to create an accessible and efficient justice system on one large campus.

The Court Center includes two towers of 20 and 24 floors; walking connector bridges; office space for 600 staff, including 75 justices/judges, 180 security staff and 360 agency personnel; and underground parking accommodating 200 vehicles. The subsequent demolition of the Court of Queen's Bench facility provided an additional underground parking garage with 450 spaces below 1.46 acres of public park space.

Alberta's goals included financing a facility with a long life cycle that could be delivered quickly and innovatively. Therefore, a PPP offered a solution as an integrated approach for competition and the transfer of risk. The private sector partner for this project was HDR, Inc.; an architectural, engineering and consulting firm.

The Province of Alberta contributed $320 million for the project ($300 million for construction and $20 for furnishings), while a consortium of development and architectural firms participated in the design-build delivery process including GWL Realty Architecture, Inc. (development manager); CANA Management Ltd. (builder); Kasian Architecture Interior Design and Planning (architect); SNC-Lavalin ProFac Inc. (building operator).

The Province of Alberta contracted with HDR, Inc. for consulting and project management services for a consolidated and sustainable large-scale design-build project. HDR acted as a consultant and advisor throughout the process, providing project management, planning and programming for the facility. The role of HDR was to provide oversight and PPP advisory services to provincial government throughout the planning and implementation process. A four-phase approach was employed that allowed the government to develop four bridging documents providing conceptual conditions for the facility, performance requirements, agreement terms and evaluation criteria. These provisions created a 73 percent building efficiency rate and the design build approach allowed the Court Center to be completed within five years.

12 See http://www.ncppp.org/resources/case-studies/real-estate-and-economic-development/calgary-courts-centre/.

Example 4: Public-Private Partnership: UCSF Sandler Neurosciences Center, California[13]

The Sandler Neurosciences Center is one of the largest neuroscience complexes in the world. The development company Clark, Inc. provided design-build services for the facility located on UCSF's Mission Bay Campus. The 237,000 square-foot, five-story center houses approximately 100 principal investigators and more than 500 additional researchers and staff. The building follows an efficient and flexible design that allows for cutting-edge research.

The project financing mechanism was contracted under a PPP arrangement between Edgemoor/McCarthy Cook Partners, L.P., and UCSF. Edgemoore/McCarthy Cook Partners, L.P. were responsible to coordinate all the development undertakings, including permits, design and asset management and supervision. The design team simulated the construction schedule and logistics to visually communicate and analyze project activities, thereby helping to reduce potential delays and sequencing problems.

Edgemoor arranged pre-development financing with a commercial bank based in California to cover initial costs of architecture and engineering. Permanent funding was provided through a lease-leaseback structure involving UCSF, Edgemoor/McCarthy Cook, and a newly formed corporation. Edgemoor/McCarthy Cook will own the building for the 38-year term of the lease.

The project costs were funded by Build America Bonds issued by the non-profit. The credit for the bond repayment is a lease between UCSF and Edgemoor/McCarthy Cook. The lease payments cover capital (building delivery costs) repayment along with guaranteed operations and routine maintenance throughout the lease term.

The building was built under a fast-track method with a 24-month design and construction period. The center building was delivered for a fixed price, schedule, and lease rate, and the PPP arrangement will operate and maintain the facility for 30 years. The contract value was $166,291,000 and at the end of the lease term, the building's ownership will transfer to UCSF. The project was completed in 2012.

Example 5: Lease Purchase: Natomas Unified School District, California[14]

The Natomas Unified School district employed a PPP to address overcrowding in its high school facilities. Using a lease-leaseback model, the district leased part of its land to a private developer that financed and built a new school on the land. The school district will make lease payments to the developer until the end of the lease period, at which time ownership of the school will be transferred to the school district.

A lease purchase is an installment-purchase contract, under which the private partner finances and builds a new facility, which is then leased to a public agency. The public agency accrues ownership to the facility over time. At the end of the lease term, the public agency owns the facility or purchases it at the cost of any remaining unpaid balance in the lease. Under this arrangement, the facility may be operated by either the public agency or

[13] See http://www.clarkconstruction.com/our-work/projects/ucsf-sandler-neurosciences-center.

[14] California Debt & Investment Advisory Commission. Issue Brief: Privatization vs. Public-private Partnerships: A comparative analysis. Issue Brief, CDIAC #07-05. August 2007.

the private developer during the term of the lease. Lease/purchase arrangements have been used by the General Services Administration for building federal office buildings and by a number of states to build prisons and other correctional facilities.

When the Natomas area recently experienced unprecedented growth, it led to overcrowding in the only high school in the District. A newly renovated high school would relieve the area of overcrowding and provide the community with a regional center for education and community activities. However, the District was challenged by inadequate funding while trying to complete necessary capital programs for existing schools renovation and expansion. Thus, the district structured a non-profit leasing and development arrangement with Turner Construction Company. This arrangement allowed the developer to fund, construct and own the school facilities to be built upon land leased to the developer by the District.

This partnership led to construction of the state-of-the-art 2,000-student Inderkum High School located in a 200-acre community, which was completed one month ahead of schedule and $2 million under budget, at a total construction cost of $80 million. The new school has 72 classrooms, sports stadium, regulation football field and track, 2 baseball fields, gymnasium, theaters and much more. It is an energy efficient building with a 465 kW solar system and underground geothermal system, which helped the school district cut its energy consumption and earn rebates from the local utility.

Natomas Unified School District structured a non-profit leasing and development arrangement whereby underwriters, bond counsel and District count were directed to accomplish the benefits while allowing the issuance of tax exempt certificates of participation (a form of lease revenue bonds) to fund the project's construction. Given that the District had credit concerns, it was a challenge to sell the bonds at triple-A rate. Overall, the arrangement was successful in getting a large financial institution to guarantee the bonds and on May 8, 2003, $66 million in bonds were successfully sold bearing an interest rate of 1.6 percent. The project was completed under budget and ahead of schedule.[15]

Example 6: Ontario Ministry of Community Safety and Correctional Services, Canada

The project involved the construction of 18 new Ontario Provincial Police detachments, regional headquarters and forensic identification services in 16 communities across Ontario. The new facilities, which in many cases are replacing buildings that have exceeded their useful life, feature up-to-date amenities to better support the demands of modern police operations and meet the needs of the community. It developed into a Performance Based Infrastructure project assigned to Shield Infrastructure Partnership, comprising various firms. The contract was valued at $293 million and under the terms of the project agreement, Shield Infrastructure Partnership performed the following functions:

- Design and build the facilities
- Finance the construction and capital costs over the term of the project
- Obtain a third-party independent certification
- Provide facility management and life-cycle maintenance for the 30-year service period under pre-established maintenance performance standards

[15] See http://www.brookhurstcorp.com/projects.html.

- Ensure that, at the end of the contract term, the facilities meet the conditions specified in the project agreement

The private entity receives incremental payments from the local government and a final lump sum substantial completion payment when the final site was delivered. This payment is followed by monthly service payments over a 30-year period for construction of the facility, building maintenance, life-cycle repair and renewal and project financing.

Example 7: Goose Creek Correctional Center, Alaska[16]

In 2008, the Matanuska-Susitna Borough, a municipal corporation of the State of Alaska, issued approximately $244 million in lease revenue bonds (the "2008 Bonds") to finance the construction of the Goose Creek Correctional Center.[17]

The issue of the 24-year, 2008 Bonds sold for an average interest rate of 5.4 percent. The Borough used the proceeds to develop, design, construct and equip the correctional center. Initially, under a lease purchase agreement, the Borough will lease the correctional center to the Alaska State Department of Administration. The Goose Creek Correctional Center is a 1,536-bed, medium-security prison for male felony offenders, located on a 150-acre site owned by the Borough, and contains approximately 450,000 square feet of floor space.

The State operates the correctional center, and will eventually own it when the 2008 Bonds are repaid. The 2008 Bonds are limited obligations of the Borough payable solely from lease payments received from the State under the lease purchase agreement. The obligation of the State to make lease payments is subject to legislative appropriation in its regular fiscal budgets. The State has never failed to appropriate funds for any outstanding lease obligation.

The Bonds are not general obligations of the Borough or the State or any departments, agencies, or instruments of the State. And neither the full faith and credit nor the taxing power of the Borough, the State or any political subdivision of the State is pledged to the payment of the principal and interest on the Bonds.

Example 8: University of California, Merced 2020 Project[18]

The goal of the UC Merced 2020 Project is to expand the physical capacity of the campus to support projected enrollment growth from 6,700 current students to 10,000 students within 5 to 7 years. The scope of construction is 790,000 assigned square feet to be developed on the 219-acre university-owned site. In July 2016, the UC Regents approved a budget of $1.3 billion for the Merced 2020 Project. Of that total, $600 million will come from UC external financing; the developer, Plenary Properties Merced, will contribute $590.35 million; and campus funds will account for $148.13 million.

The expanded UC Merced will deliver the following facilities: academic and research space; 1,700 student residential beds; 1,500 parking spaces; NCAA-II competition pool; conference center; wellness center; competition recreation field; early childhood education center expansion; dining facility; and student life facilities.

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16 See http://emma.msrb.org/MS275692-1.pdf

17 The 2008 Bonds are authorized to be issued under Bond Ordinance Serial No. 08-139, adopted by the Borough Assembly.

18 See http://merced2020.ucmerced.edu/. Accessed on December 2, 2016.

The project agreement is for a 39-year term, commencing on the date of contract execution (four-year construction period and 35-year operating period).

The Merced 2020 Project funding is a public-private partnership known as an "availability-payment concession," in which a single private development team designs, builds, operates and maintains major building systems and partially finances the entire project under a single contract known as the project agreement. During construction, the university will make predetermined progress payments to the developer. Once the buildings become available for use, the university will make performance-based "availability payments" that cover remaining capital costs, as well as the operations and maintenance of major building systems. This hybrid model has the same time and cost advantages of a "design-build" approach and adds a preventative capital-maintenance program and capital-renewal program. It does not transfer the university's property rights, nor does it assign revenue streams and is not a lease.

Appendix J: Wetlands Report for Proposed OCCC Locations

Oahu Community Correctional Center

October 27, 2017

Prepared for:

State of Hawaii
Department of Accounting and General Services
Department of Public Safety

Prepared by:

Louis Berger

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Wetlands Report: Proposed Oahu Community Correctional Center

1.0 SUMMARY

The Hawaii Department of Public Safety (PSD) operates the Oahu Community Correctional Center (OCCC), which acts as the local detention center for the First Circuit Court. Located within an approximately 16-acre property at 2199 Kamehameha Highway in Honolulu, the OCCC is currently the largest jail facility in the state of Hawaii. From its beginning in 1975 as a part of the county-based community corrections system concept with 456 beds, the facility has been expanded to its current design capacity of 628 beds and an operational capacity of 954 beds and consistently operates above these capacities. With increasingly aged and obsolete correctional facilities, PSD is proposing to improve its corrections infrastructure through modernization of existing facilities when possible and construction of new institutions to replace others when necessary. Among its priority projects is the replacement of OCCC which, when constructed, will take advantage of the newest cost-savings technologies and improve correctional services and safety for inmates, staff, and the public. The project would also involve upgrades and expansions to the housing and supporting infrastructure at the Women's Community Correctional Center (WCCC) in Kailua to accommodate the relocation of female inmates from the OCCC to that facility.

Louis Berger is supporting PSD in investigating potential sites for developing a new facility to replace the existing OCCC. In furtherance of the State's objective to develop a new facility, Louis Berger's wetland scientists examined four alternative OCCC development sites for the presence of wetlands and other waters of the United States (OWUS) under Section 404 of the Clean Water Act. A desktop review of available resource data and a field survey of the property were conducted using the methodology outlined in the U.S. Army Corps of Engineers' (USACE) *Wetland Delineation Manual* (USACE 1987) and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawaii and Pacific Islands Region (Version 2.0)* (USACE 2012). Based on the desktop review and field determination, Louis Berger concludes the following:

- No wetlands or OWUS are present on the existing OCCC site.
- No wetlands or OWUS are present on the Animal Quarantine Station site.
- Jurisdictional wetlands are present within the Halawa Correctional Facility site.
- No wetlands or OWUS are present within the area proposed for development on the Mililani Technology Park, Lot 17 site.
- Jurisdictional wetlands are present within the WCCC property.

The methodology and results of these investigations are described in the sections that follow.

2.0 INTRODUCTION

PSD intends to develop a new OCCC to replace the existing facility at one of four alternative locations on Oahu (including the site of the existing OCCC). The proposed facility would consist of a multi-custody secure OCCC (minimum, medium, maximum, close custody, special management, and furlough) for adult males who are either in pretrial status or sentenced to the facility. The project is intended to replace the existing OCCC, located at 2199 Kamehameha Highway in Kalihi, with a new facility to provide a safe, secure, and humane environment for the care and custody of current and future adult male offenders originating from the Island of Oahu.

During 2016–2017, an inventory of prospective OCCC development sites were assembled and each of the 12 prospective sites were screened based on evaluation of six major criteria including: proximity, land and environmental resources, infrastructure availability, development costs, community services/other factors and community acceptance. This involved an evaluation of each alternative site, including, among other factors, land configuration, topographic conditions, water resources, biological resources, cultural and historic resources, utility systems, land use and zoning designations, transportation services and social and community values. Through the site-screening process, 4 of the 12 prospective OCCC development sites have been selected for further evaluation in an Environmental Impact Statement (EIS) process. The four sites are:

- Oahu Community Correctional Center, Kalihi (existing location)
- Hawaii Department of Agriculture (HDOA), Animal Quarantine Station, Halawa
- Halawa Correctional Facility, Halawa
- Mililani Technology Park, Lot 17, Mililani

As noted earlier, development of a new OCCC is intended to house adult male offenders only with female inmates being relocated to the WCCC located in Kailua. WCCC is the only all-female facility in Hawaii, providing for the long-term care and custody of female sentenced felons. The purpose for relocating females from OCCC to WCCC is to provide greater access to rehabilitation programs and improved family visitation. At the present time, females would continue to receive intake services in the future at the new OCCC.

Located on the site of the former Hawaii Youth Correctional Facility, the original housing buildings along with most of the support infrastructure comprising the WCCC were constructed in 1952 and adapted with minor renovations. Construction of an additional cottage to house the female sentenced population was completed by 1999. To accommodate the additional female population, upgrades and expansions to the housing and supporting infrastructure at the WCCC is planned; therefore, the WCCC is included as an additional project location for purposes of the EIS process.

Louis Berger investigated each of these five locations to determine the presence or absence of wetlands and OWUS. This report documents the findings of the wetland determinations conducted at the existing OCCC site in Kalihi; the HDOA, Animal Quarantine Station site in Halawa; the Halawa Correctional Facility site in Halawa; the Mililani Technology Park, Lot 17 site in Mililani; and WCCC located in Kailua.

2.1 Regulatory Authority

Regulated wetlands are defined by the state of Hawaii using the U.S. Army Corps of Engineers (USACE) manual (see HAR §11-54-1). The state regulates state waters, which are defined as "all waters, fresh, brackish, or salt around and within the State, including, but not limited to, coastal waters, streams, rivers, drainage ditches, ponds, reservoirs, canals, ground waters, and lakes ... including wetlands." The primary regulation the state of Hawaii uses to protect wetlands is Section 401 of the Clean Water Act. Section 401 requires that applicants for a federal permit also receive a Water Quality Certification (WQC) that indicates a proposed project would not violate local water quality standards. If a federal permit is not required (i.e., a project does not involve USACE jurisdictional waters), then a Hawaii WQC is not required. However, the Clean Water Branch (CWB) of the Hawaii Department of Health (HDOH) has the authority to protect existing uses and the level of water quality under the "General Policy of water quality anti-degradation" (HAR §11-54- 1.1). The anti-degradation policy applies to all waters in Hawaii, including wetlands, whether or not they fall under federal jurisdiction.

Wetlands and OWUS are considered jurisdictional by the USACE if they are relatively permanent waters (RPW); are an ephemeral, intermittent, or perennial stream; are adjacent to a RPW; or have a significant nexus to a RPW (USEPA 2006). A significant nexus analysis assesses the flow characteristics of a stream tributary and the functions of both a tributary and any adjacent wetlands. The assessment seeks to determine if the stream and its adjacent wetlands have significant chemical, physical, and biological effects on downstream traditional navigable waters (TNW); thus a consideration of hydrologic and ecologic factors are considered. Additionally, if wetland hydrology is derived from groundwater discharge (spring or seep), or if the wetland was created to mitigate for former impacts, the USACE can decide to take jurisdiction over them. However, these decisions are considered on a case by case basis, and interpretation of the 2015 wetlands ruling (USACE and USEPA 2015). A final decision over jurisdiction is ultimately determined by the USACE.

2.2 Jurisdictional Determination Request

Honolulu District USACE Approved Jurisdictional Determination Forms were used to ensure all required information was provided in the applications and are provided as Attachment 1 for reference for all applicable locations. As requested in the checklist of information to include with requests for jurisdictional determinations, the names, addresses, and phone numbers of the three current property owners of the five project locations, the applicant, and the wetland delineator are as follows:

Existing OCCC Site	Property Address: 2199 Kamehameha Hwy, Honolulu, HI 96819
Halawa Correctional Facility Site	Property Address: 99-902 Moanalua Road, Halawa, HI 96701
WCCC Property	Property Address: 42-477 Kalanianaole Hwy, Kailua, HI 96734
Current Property Owner:	State of Hawaii, Department of Public Safety Attn: Clayton Shimazu, Chief Planner Office: 919 Ala Moana Blvd, 4th Floor, Honolulu, HI 96814 Tel: 808-587-1237 Email: clayton.h.shimazu@hawaii.gov
HDOA Animal Quarantine Station Site	Property Address: 99-951 Halawa Valley Street, Aiea, HI 96701
	State of Hawaii, Department of Agriculture Attn: Scott E. Enright, Chairperson Office: 1428 S. King Street, Honolulu, HI 96814 Tel: 808-973-9550 Email: scott.enright@hawaii.gov
Mililani Tech Park, Lot 17 Site	Property Address: 601 Kahelu Avenue, Mililani, HI, 96789
	Castle & Cooke Properties, Inc. Attn: Christopher M. Lovvorn, VP – Commercial Development Office: 680 Iwilei Road, Suite 510, Honolulu, HI 96817 Tel: 808-559-0653

Email: clovvorn@castlecooke.com

Applicant: State of Hawaii, Department of Public Safety
Attn: Clayton Shimazu, Chief Planner
Office: 919 Ala Moana Blvd, 4th Floor, Honolulu, HI 96814
Tel: 808-587-1237
Email: clayton.h.shimazu@hawaii.gov

Wetland Delineator: Louis Berger U.S., Inc.
Attn: Tara Stewart
Office: 412 Mount Kemble Avenue, Morristown, NJ 07962
Tel: 973-407-1473
Email: tstewart@louisberger.com

3.0 METHODS

A desktop review of resource maps, soil interpretation, site photography, National Wetlands Inventory (NWI) data, and general observations of topographic and hydrologic conditions was conducted. Site visits were also conducted of each location by a Louis Berger wetland scientist from June 5–9, 2017, searching for any wetland indicator parameters (vegetation, soils, or hydrology) of wetlands or OWUS.

Water courses are categorized as either TNW, RPW, or non-RPW (USEPA 2006). TNWs are all tidal waters and waters that have been, could be, or are used in interstate or foreign commerce. TNWs are jurisdictional by the USACE and any tributary that continually flows directly or indirectly, at least seasonally, into a TNW is also jurisdictional. RPWs are tributaries that flow year-round or have continuous flow at least seasonally, and that flow directly or indirectly into a TNW. Non-RPWs are tributaries that have less than seasonal flow, and that flow directly or indirectly into a TNW.

Wetlands can also be classified as abutting a tributary, adjacent to a tributary, or isolated (USEPA 2006). A wetland that abuts a tributary has no distinction between the immediate edge of the tributary and the wetland itself. An adjacent wetland has a barrier between itself and the tributary, but is connected by surface flow. Abutting and adjacent wetlands are jurisdictional waters of the U.S. Isolated wetlands are wetlands that satisfy the three criteria but have no direct surface connection to navigable waters or their tributaries that may or may not be jurisdictional waters of the U.S. (under the significant nexus ruling).

If evidence was observed that suggested at least one positive wetland indicator parameter (vegetation, soils, or hydrology) is present, then further investigation, as detailed below, was performed to make a positive wetland determination. An area would not be considered a regulatory wetland if indicators for any one of these three parameters are not observed under normal environmental conditions.

3.1 Determining Hydric Vegetation

A plant community is considered to be hydrophytic (wetland) vegetation if the vegetation displays indicators of hydrophytic vegetation, as defined in the delineation methodology (USACE 2008). Most often the "Dominance Test" is used as the indicator. A sample plot is evaluated at each possible wetland area, and meets the dominance test for hydrophytic vegetation if more than 50 percent of the dominant species from all strata have obligate wetland, facultative wetland, and/or facultative indicator status. Indicator status is provided by the

USACE's *National Wetland Plant List* (USACE 2016) and in the *State of Hawaii 2016 Wetland Plant List* (Lichvar et al. 2014). Dominant species are identified as the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum (absolute percent cover), plus any other species that, by itself, accounts for at least 20 percent of the total. The wetland indicator status for each dominant species is then used to determine whether the plant community is dominated by hydrophytic vegetation. The "Prevalence Index" may also be used as the indicator of hydrophytic vegetation. The Prevalence Index is a weighted-average of all plant species in the sample plot.

3.2 Determining Hydric Soils

Soil test pits are hand dug with a spade to approximately 20 inches deep to examine soils for hydric soil indicators. These soil test pits are labelled with a data point number and located on a site map. Colors of the soil, including concentrations, depletions, or gleying, if present, are identified using a Munsell color chart (Munsell 2000). Field Indicators of Hydric Soils in the United States (NRCS 2017) are used to determine hydric soils presence or absence, and soil pits helped reveal where the approximate wetland boundaries occur.

3.3 Determining Hydrology

The hydrology of each area is evaluated by recording the depth to shallow groundwater and/or soil saturation in each soil test pit. Other indicators of hydrology are observed, including but not limited to water marks, drift lines, sediment deposits, and drainage patterns. These data provided information on timing and duration of ponding and/or saturation in the site.

Drainage features, include swales, erosional features, or small washes are assessed for the presence of a defined bed and bank, a discernible ordinary high water mark, and a connection to a jurisdictional water of the U.S. Ditches (including roadside ditches) draining only uplands and without a relatively permanent flow of water, and uplands transporting overland flow generated from precipitation, are non-jurisdictional.

4.0 FINDINGS – EXISTING OCCC SITE

Investigations included a desktop/office review of resource maps, on-site vegetation identification, soil interpretation, site photography, and general field observations of hydrologic and other environmental conditions. Since no evidence was observed that suggested the presence of any streams or positive wetland indicator parameters, the further investigations described above (vegetation sample plots, soil test pits) were not required. Findings are described below. Site photographs taken during the June 5–9, 2017 field inspections are included as Attachment 2a.

4.1 Site Description

The approximately 16-acre existing OCCC site is located at 2199 Kamehameha Highway, Honolulu, HI (see Figure 1). The majority of the property has already been developed with inmate housing, administrative, program and support structures, maintenance buildings, storage areas, vehicle access and parking areas (see Figure 2).

4.2 Topography

The existing OCCC site is located at approximately 10 feet above mean sea level (amsl). Site topography is relatively flat due to past construction activities, but is gently sloping from east to west (see Figure 3).

4.3 Soils

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service indicates that soils on the property consist of two soil units (see Figure 4). The soil map units are: “Fill, mixed,” which comprises approximately 22 percent of the property; and “Ewa silty clay loam, moderately shallow, 0 to 2 percent slopes”, which comprises approximately 78 percent of the property. “Fill, mixed” describes soils that are “mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources” (USDA 2017). This type of soil is commonly used for urban development in Hawaii, including airports, housing areas, and industrial facilities. The “Ewa silty clay loam, moderately shallow, 0 to 2 percent slopes” soils have a hydrologic rating of “B”, defined as “moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission” (USDA 2017).

4.4 Hydrology

The existing OCCC site is located in the lower Kalihi stream drainage basin, approximately 0.2 mile east of its outlet into the Keehi Lagoon, which ultimately flows into the Pacific Ocean. The Kalihi Stream watershed is located on the southern coast of the island of Oahu and drains the southwestern slope of the Koolua Mountain Range located north of central Honolulu. The stream’s drainage area is approximately 6.7 square miles, most of which is upstream of the existing OCCC site (HDOT 1996).

No TNWs are located within the site boundaries (see Figure 5). The nearest water feature is the Kalihi Stream, which is approximately 900 feet to the north and eventually flows into the Keehi Lagoon to the west of the property.

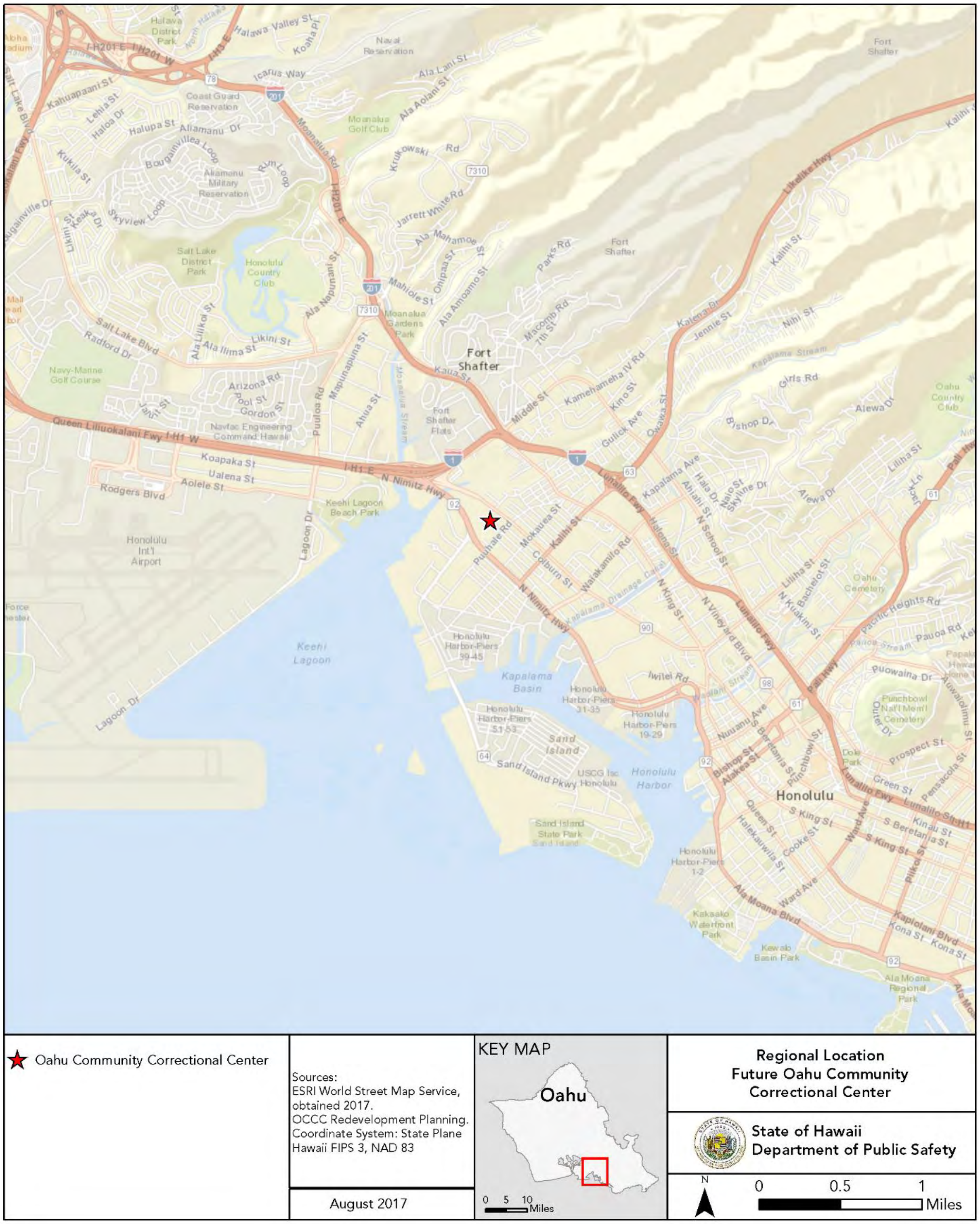


Figure 1: Regional location – Existing OCCC Site

Figure 2: Aerial View – Existing OCCC Site

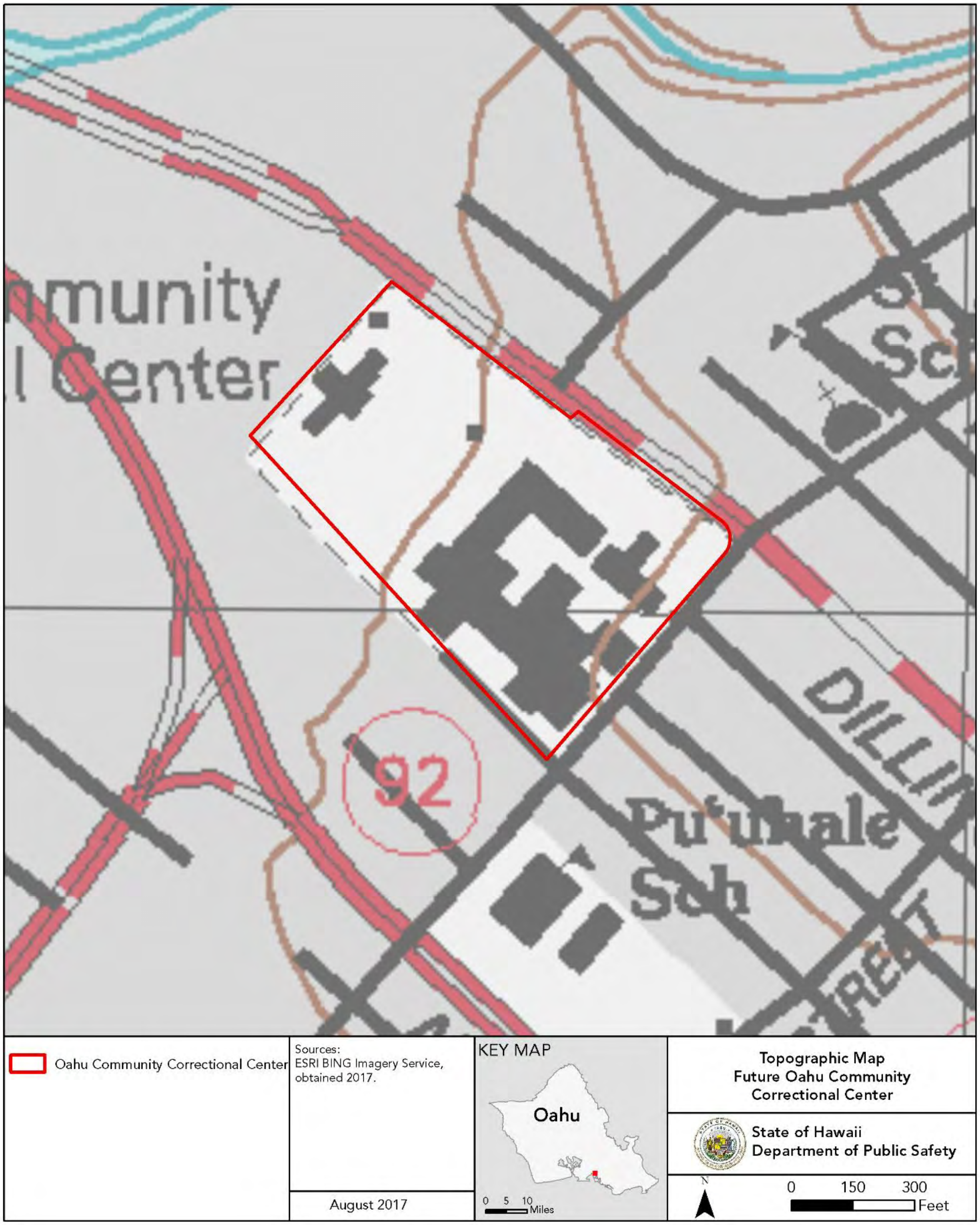


Figure 3: Topographic Map – Existing OCCC Site

Figure 4: Soils Map – Existing OCCC Site

Figure 5: Hydrology and Wetlands Map – Existing OCCC Site

4.5 Wetlands and OWUS

The NWI mapping (USFWS 2016) shows no mapped wetlands within the existing OCCC site (see Figure 5). The nearest mapped wetlands are estuarine and marine wetlands approximately 800 feet northwest of the site, associated with Kalihi Stream, and are riverine and freshwater emergent wetlands 900 feet northeast of the site, both associated with Kalihi Stream. Dense commercial and industrial development lies between the site and the Kalihi Stream wetlands.

A field survey of the existing OCCC site was conducted on June 9, 2017. During the field survey, a Louis Berger wetland scientist used the methodology outlined in the USACE's *Wetlands Delineation Manual* (USACE 1987) and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawai'i and Pacific Islands Region (Version 2.0)* (USACE 2008) to conduct field investigations. No wetlands or OWUS were identified within the site boundaries during desktop or field investigations.

4.6 Vegetation

The majority of the site is disturbed by development and has been converted to impervious surfaces (pavement, concrete, or buildings) which comprise approximately 85 percent of the land area. Undeveloped areas have mowed lawn with occasional ornamental trees, shrubs, and other landscape plants. The largest undeveloped area is a recreational field that consists of mowed lawn and bare dirt.

4.7 Wildlife

Located within a highly developed environment, the existing OCCC site provides no natural habitat, and any wildlife found in the area would be species that are adapted to urban environments. Wildlife expected to utilize the site include small terrestrial mammals, birds, insects, and arachnids. Wildlife observed during field investigations include insects and several zebra doves (*Geopelia striata*).

Correspondence from the United States Fish and Wildlife Service (USFWS) Pacific Islands Fish and Wildlife Office (included in Attachment 4) states that no federally designated or proposed critical habitat occurs within the immediate vicinity of the existing OCCC site. According to USFWS, the following federally listed species may occur or transit through the vicinity of the site: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*); endangered band-rumped storm-petrel (*Oceanod roma castro*); threatened Newell's shearwater (*Puffinus newelii*); and Hawaiian seabirds protected under the Migratory Bird Treaty Act (MBTA), such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*). Correspondence from the State of Hawaii Department of Land and Natural Resources (included in Attachment 4) states that the Hawaiian hoary bat, state endangered Hawaiian short-eared owl (*Asio flammeus sandwichensis*), and state threatened white tern (*Gygis alba*) have the potential to occur within the vicinity of the existing OCCC site. No federal or state listed species were observed during field investigations. Based on the developed nature of the property and the lack of natural habitat, it is highly unlikely that threatened or endangered species of plants or animals would be present within the site.

4.8 Conclusion – Existing OCCC Site

Based on the desktop analysis and field determination, Louis Berger concludes that no regulated wetlands or OWUS are present within the boundaries of the existing OCCC Site, and has requested written concurrence from the USACE that no permit is necessary if the existing OCCC site is selected for development of the proposed OCCC.

5.0 FINDINGS – ANIMAL QUARANTINE STATION SITE

Investigations included a desktop/office review of resource maps, on-site vegetation identification, soil interpretation, site photography, and general field observations of hydrologic and other environmental conditions. Since no evidence was observed that suggested the presence of any streams or positive wetland indicator parameters, the further investigations described above (vegetation sample plots, soil test pits) were not required. Findings are described below. Site photographs taken during the June 5, 2017, field inspection are included as Attachment 2b.

5.1 Site Description

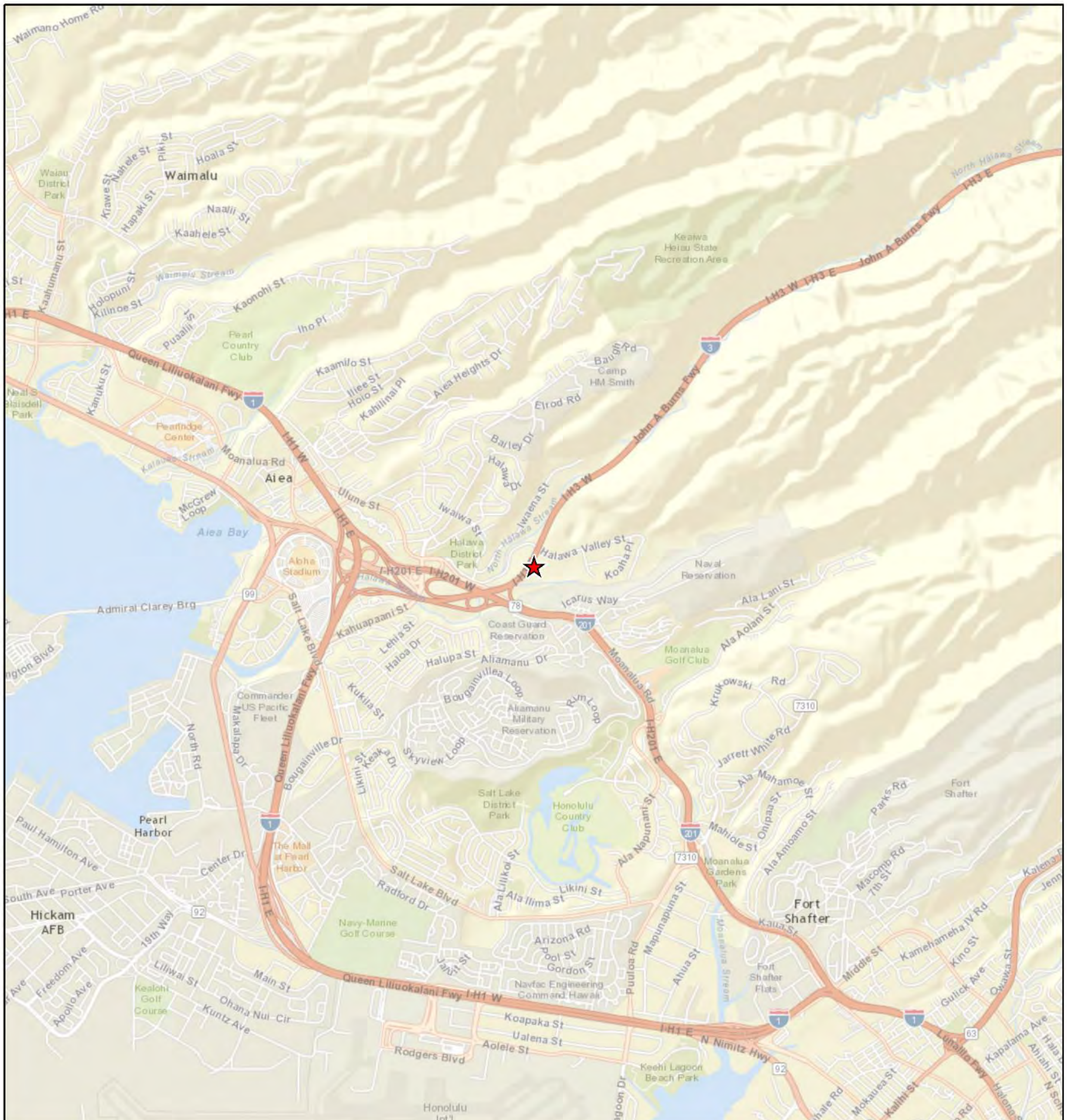
The HDOA Animal Quarantine Station site is located at at 99-951 Halawa Valley Street, Aiea, Hawaii (see Figure 6). The property is owned by the State of Hawaii, which acquired the property in 1968 from the United States Navy. Existing facilities on the property include the administrative building for the Division of Animal Husbandry, the State Veterinary Laboratory, and the Animal Quarantine Station (see Figure 7). The Animal Quarantine Station comprises approximately 50 percent of the property and includes approximately 1,700–1,900 dog kennels (most not in use), 9 cat buildings, a livestock corral/loading facility, a pasture area, a maintenance facility, a caretaker's residence, and various parking areas. Historical aerial photos showed various structures located at the present day parking area, which were demolished prior to construction of the existing facilities (Kimura International, Inc. 2004).

5.2 Topography

The site is relatively flat due to past construction activities, but is gently sloping from north to south, between 85 and 140 feet amsl (see Figure 8).

5.3 Soils

The USDA, Natural Resources Conservation Service indicates that soils on the property consist of two soils (see Figure 9). The soil map units include "Fill, mixed" comprising approximately 85 percent of the property, and "Quarry" comprises approximately 15 percent of the property. "Fill, mixed" describes soils that are "mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources" (USDA 2017). This soil type is commonly used for urban development in Hawaii, including airports, housing area, and industrial facilities. The "Quarry" soil map unit describes rock pits or quarries, which relates to the Hawaiian Cement facility that is located to the north of the property, across Halawa Valley Street.

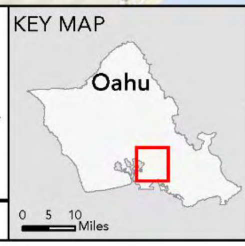


★ Animal Quarantine Facility

Sources:
ESRI World Street Map Service, obtained 2017.
OCCC Redevelopment Planning.
Coordinate System: State Plane Hawaii FIPS 3, NAD 83

August 2017

KEY MAP



Regional Location
Future Oahu Community Correctional Center

State of Hawaii
Department of Public Safety

N
0 0.5 1
Miles

Figure 6: Regional Location – Animal Quarantine Station Site

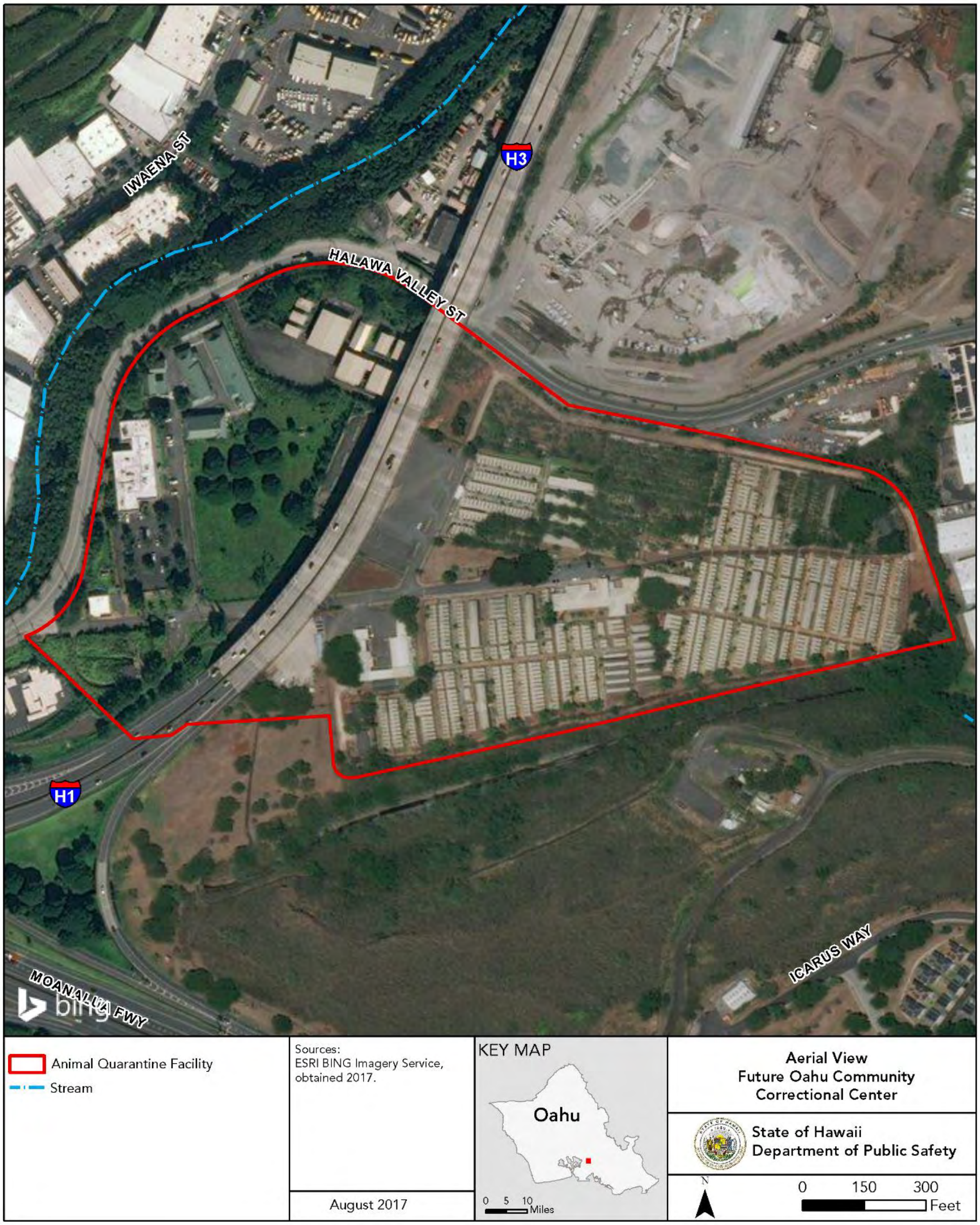


Figure 7: Aerial View – Animal Quarantine Station Site

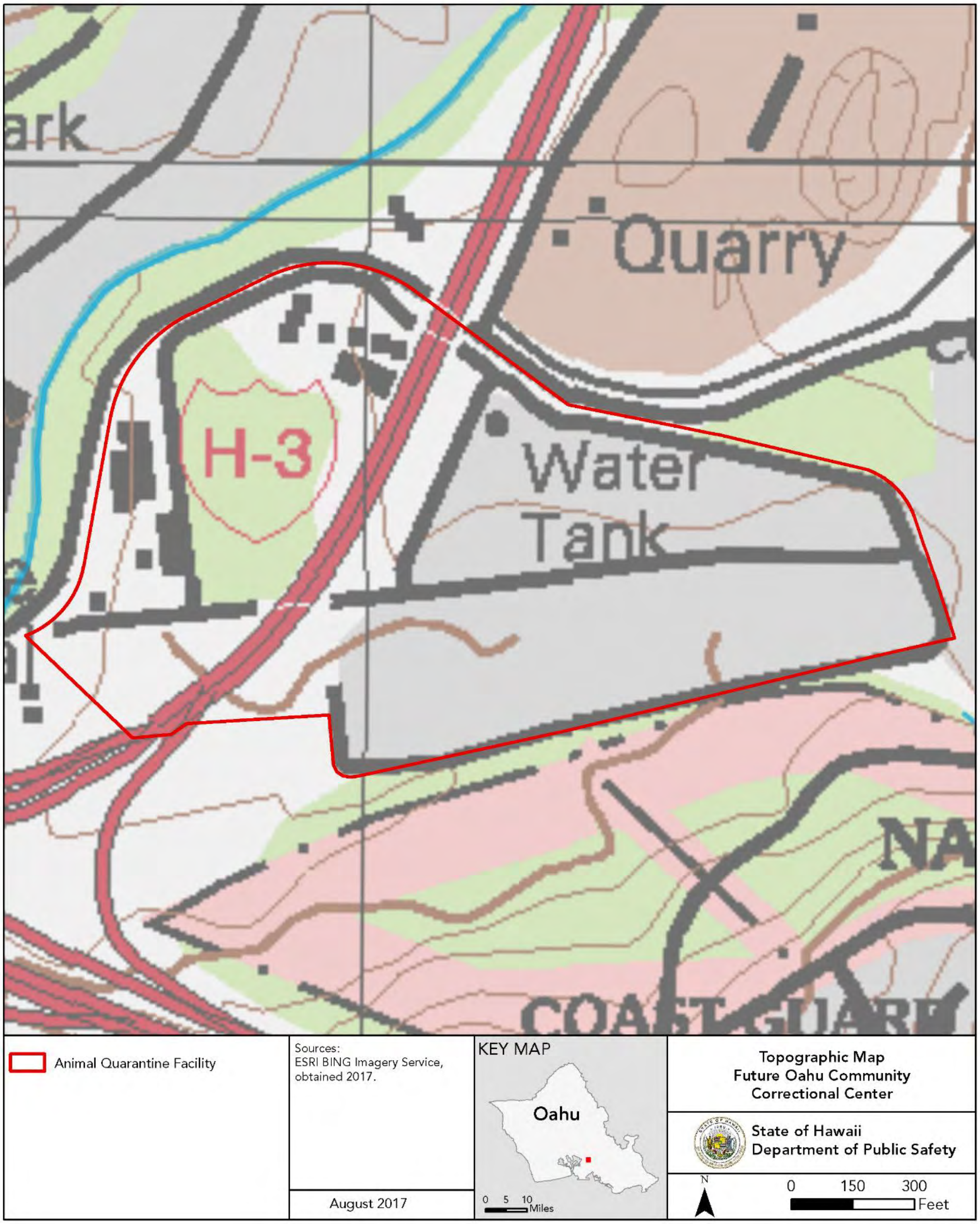


Figure 8: Topographic Map – Animal Quarantine Station Site

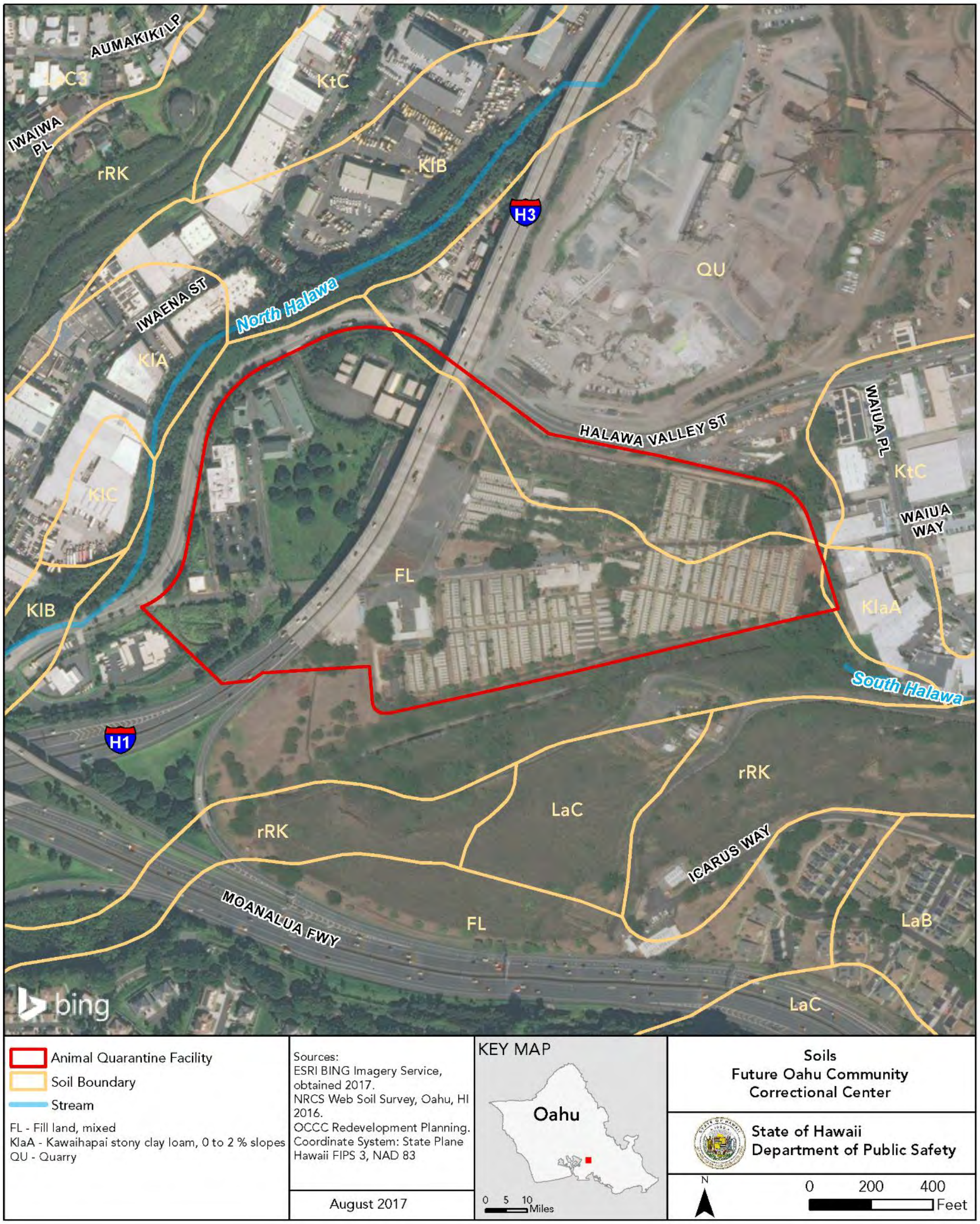


Figure 9: Soils Map – Animal Quarantine Station Site

5.4 Hydrology

The HDOA Animal Quarantine Station site is located in the lower Halawa drainage basin is on the leeward side of the crest of the Koolau Range. The watershed has a drainage area of 8.90 square miles, most of which is upstream of the site (Wong 2005). Halawa Stream flows into the East Loch of Pearl Harbor and originates at the confluence of North and South Halawa Streams, at the intersection of the H-3 Highway and the H-201 (Moanalua Freeway). These streams are more than 100 feet above the freshwater-lens water table throughout the Halawa Valley; although North Halawa Stream is larger than South Halawa, streamflows are intermittent in most years (Wong 2005). The HDOA Animal Quarantine Station is located just upstream of the confluence of these two streams.

There are no TNWs located within the site boundaries (see Figure 10). Honolulu Harbor and the Pacific Ocean are the nearest TNW, approximately two miles downstream of the site. A channelized concrete-lined stretch of South Halawa Stream flows parallel to the southern boundary of the property, approximately 200 feet beyond the site boundary. This portion of South Halawa Stream is classified as R4SBC (Riverine, Intermittent, Streambed, Seasonally Flooded) (NWI 2016). This tributary stream is a RPW and joins the North Halawa Stream downstream of the site, beneath the highway interchange of H-3 and H-201. Due to development, both stream channels have been altered (i.e., straightened) through this area, which was common upstream during the H-3 highway construction (Wong 2005). After North and South Halawa Streams join southwest of the site, they flow approximately 2 miles to Honolulu Harbor (see Figure 10). According to the *Pearl Harbor Wetlands Inventory* (Wil Chee Planning, Inc. and AECOS, Inc. 2007), Halawa Stream is confined to a concrete culvert downstream until it crosses Salt Lake Blvd.

An off-site concrete-lined tributary to South Halawa Stream was observed adjacent to the eastern site boundary. The streambed was dry at the time of inspection. No hydrologic connection from off-site waters to the site was evident.

5.5 Wetlands and OWUS

The NWI mapping (USFWS 2016) shows no mapped wetlands within the HDOA Animal Quarantine Station (see Figure 10). The nearest mapped wetlands are seasonally flooded palustrine forested broad-leaved evergreen and intermittent riverine streambed wetlands, both associated with Halawa Stream, northwest of the site boundary.

A field survey of the HDOA Animal Quarantine Station was conducted on June 5, 2017. During the field survey, a Louis Berger wetland scientist used the methodology outlined in the USACE's *Wetlands Delineation Manual* (USACE 1987) and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawai'i and Pacific Islands Region (Version 2.0)* (USACE 2008) to conduct field investigations. No wetlands or OWUS were identified within the site boundaries during desktop or field investigations.

Figure 10: NWI Wetlands – Animal Quarantine Station Site

5.6 Vegetation

The majority of the site is disturbed by development and has been converted to impervious surfaces (pavement, concrete, kennels, or buildings), which comprise approximately 75 percent of the land area. All undeveloped areas are completely covered with some type of vegetation, both native and nonnative. Woody species observed within the developed portions of the site include Koa haole (*Leucanena leucocephala*), Fiji fan palm (*Pritchardia pacifica*), cook pine (*Araucaria columnaris*), hibiscus (*Hibiscus* sp.), and monkeypod trees (*Albizia saman*). Maintained lawns and an animal pasture occupy the largest area of undisturbed land. Vegetation within the animal pasture is dominated by grasses with scattered woody species, including five large monkeypod trees.

5.7 Wildlife

Wildlife expected to utilize the site include small terrestrial mammals, bats, birds, insects, arachnids, and snails. Wildlife observed during field investigations include insects, small Asian mongoose (*Herpestes javanicus*), and various passerine bird species including common myna (*Acridotheres tristis*).

Correspondence from the USFWS, Pacific Islands Fish and Wildlife Office (included in Attachment 4), states that no federally designated or proposed critical habitat occurs within the immediate vicinity of the Animal Quarantine Station site. According to USFWS, the following federally listed species may occur or transit through the vicinity of the site: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*); endangered band-rumped storm-petrel (*Oceanod roma castro*); threatened Newell's shearwater (*Puffinus newelii*); and Hawaiian seabirds protected under the MBTA, such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*). Correspondence from the State of Hawaii Department of Land and Natural Resources (included in Attachment 4) states that the Hawaiian hoary bat, state endangered Hawaiian short-eared owl (*Asio flammeus sandwichensis*), and state threatened white tern (*Gygis alba*) have the potential to occur within the vicinity of the Animal Quarantine Station site. No federal or state listed species were observed during field investigations. Based on the developed nature of the property and the limited available natural habitat, it is unlikely that threatened or endangered species of plants or animals would be present within the site.

5.8 Conclusion – Animal Quarantine Station Site

Based on the desktop analysis and field determination, Louis Berger concludes that no regulated wetlands or OWUS are present within the boundaries of the HDOA Animal Quarantine Station site, and has requested written concurrence from the USACE that no permit is necessary if the Animal Quarantine Station site is selected for development of the proposed OCCC.

6.0 FINDINGS – HALAWA CORRECTIONAL FACILITY SITE

Investigations included a desktop/office review of resource maps, on-site vegetation identification, soil interpretation, site photography, and general field observations of hydrologic and other environmental conditions. Findings are described below. Site photographs were taken during the June 7, 2017, field inspections and are presented in Attachment 2c.

6.1 Site Description

The Halawa Correctional Facility (the site) is located at 99-902 Moanalua Road, Halawa, Hawaii (see Figure 11). Existing facilities on the approximately 32-acre property include inmate housing, administrative, program and support structures, maintenance buildings, an outdoor recreation area, and vehicle parking lots (see Figure 12). The area being considered for proposed development consist of approximately 3.3 acres of nearly level land that is currently used as the correctional facility's inmate outdoor recreation area.

6.2 Topography

Located at approximately 200 feet amsl, site topography slopes from northwest to southeast (see Figure 13). Topography in the area being considered for the proposed development is gently sloping. Land directly to the north, south, and east of the property is steeply sloped and undeveloped.

6.3 Soils

The USDA, Natural Resources Conservation Service, indicates that the property consist of three soils units (see Figure 14). The majority of the proposed development area consists of one map unit: KaeB – Kaena stony clay, 2 to 6 percent slopes. Soil units within the remainder of the property boundary consist of KlaA – Kawaihapai stony clay loam, 0 to 2 percent slopes and KtC – Kokokahi clay, 6 to 12 percent slopes. Descriptions of these soil map units from the USDA Custom Soil Resource Report for Island of Oahu (USDA 2017) are provided below.

- KaeB—Kaena stony clay, 2 to 6 percent slopes: The Kaena component makes up 100 percent of this map unit. This component is on colluvial slopes fans. The parent material consists of formed alluvium and colluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained and water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded. A seasonal zone of water saturation is at 42 inches during January, February, March, April, November, and December. This soil does not meet hydric soil criteria.
- KlaA—Kawaihapi stony clay loam, 0 to 2 percent slopes: The Kawaihapai component makes up 100 percent of this map unit. This component is on stream valleys alluvial fans. The parent material consists of basic igneous rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is occasionally

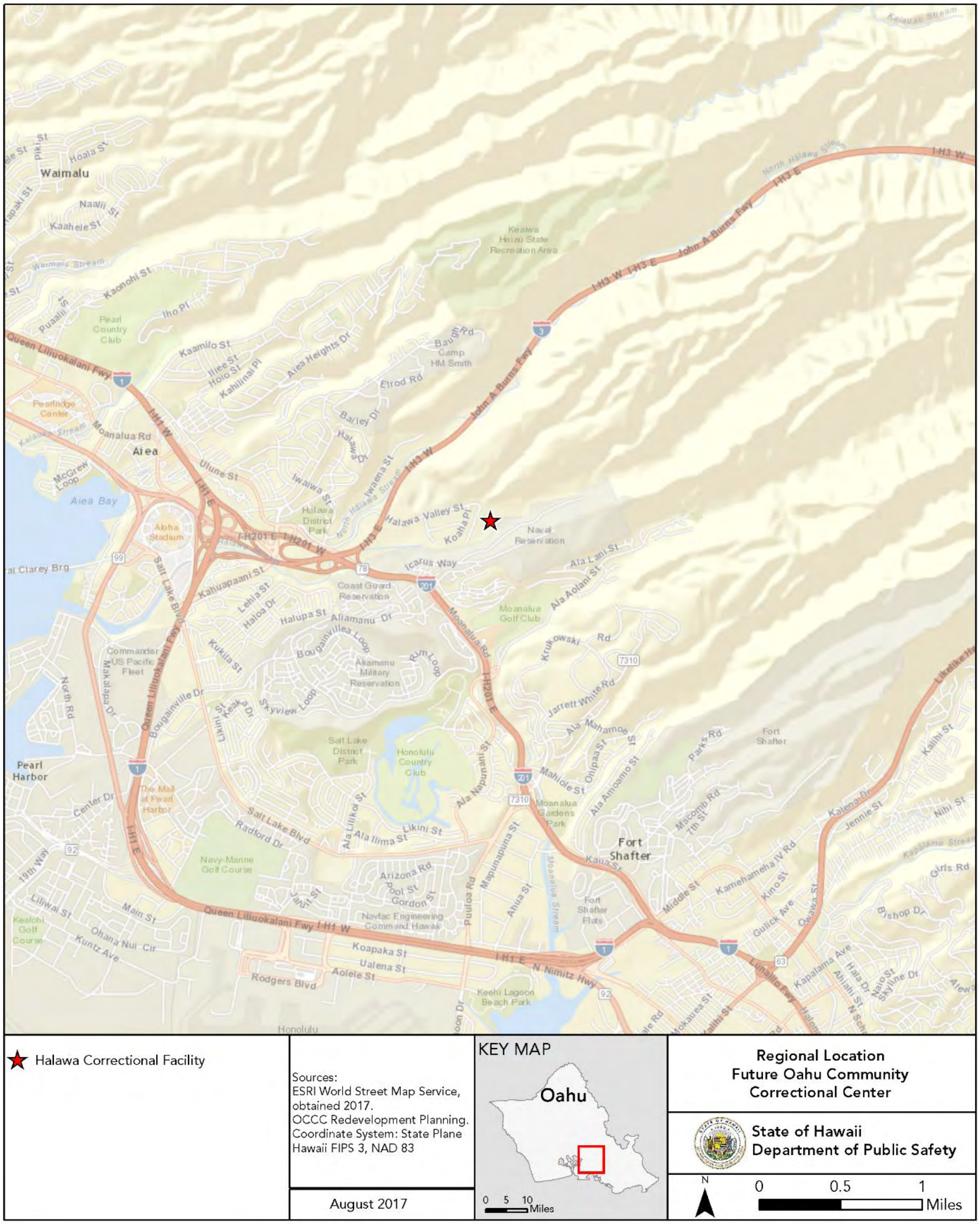


Figure 11: Regional Location – Halawa Correctional Facility Site

Figure 12: Aerial View – Halawa Correctional Facility Site

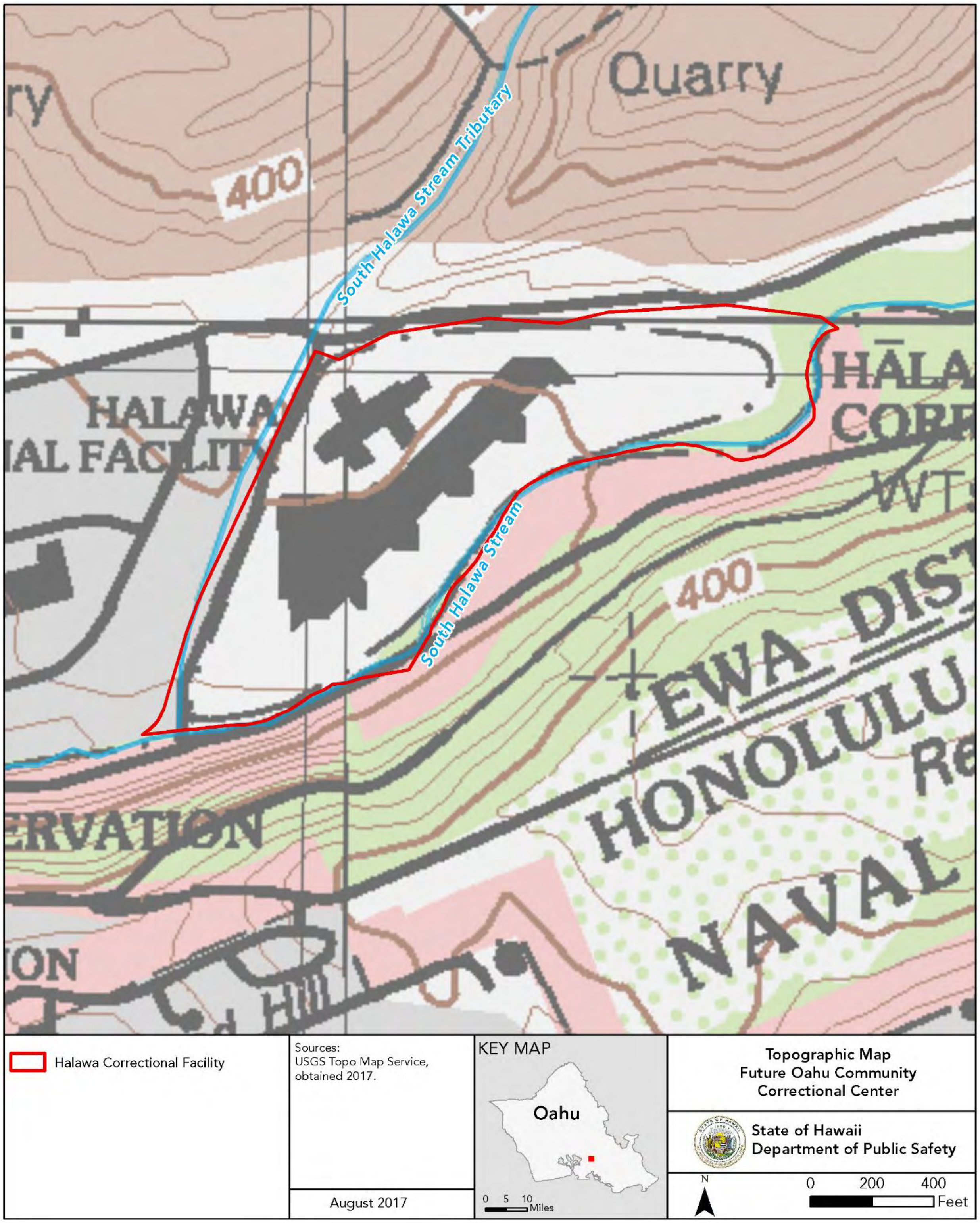


Figure 13: Topographic Map – Halawa Correctional Facility Site

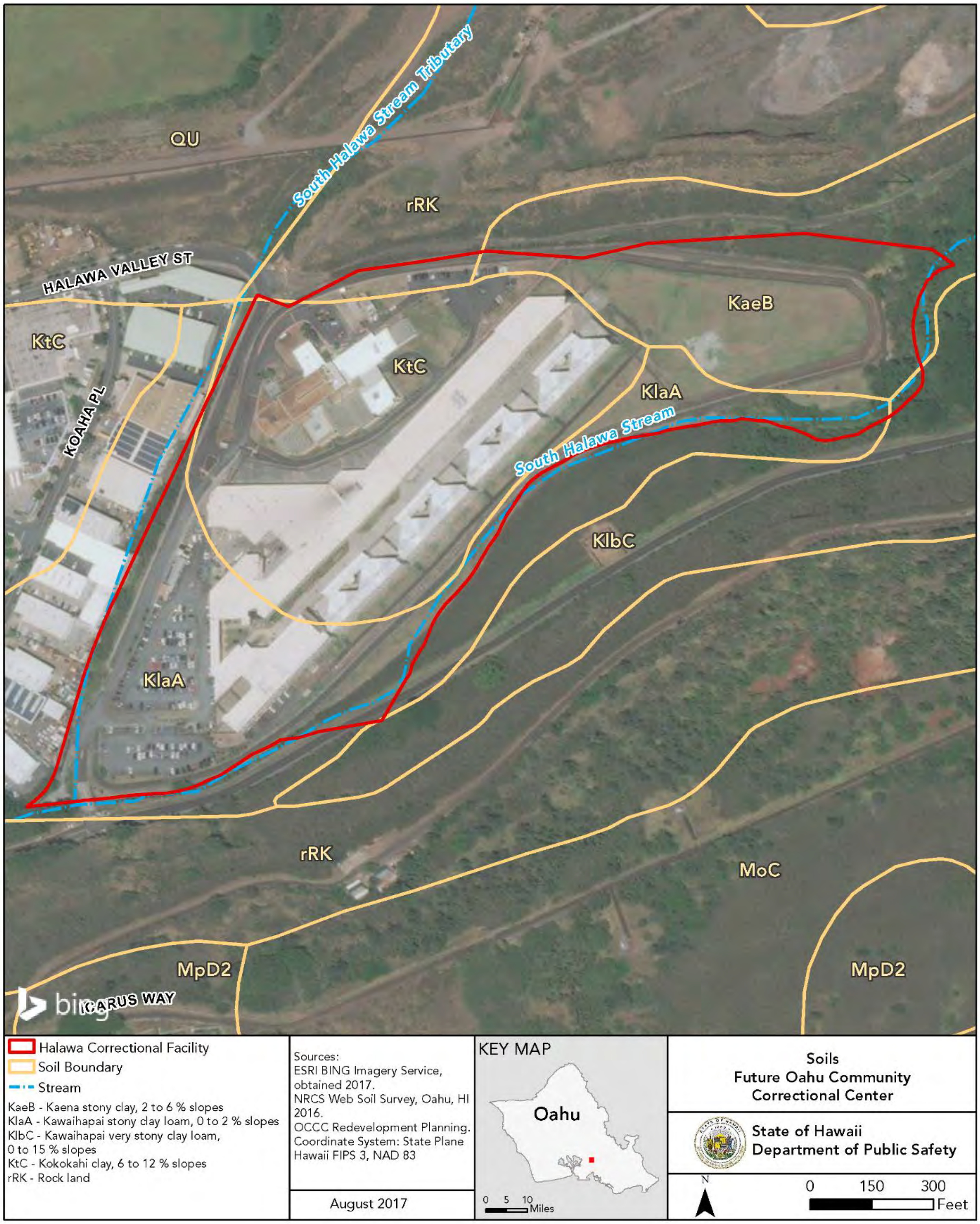


Figure 14: Soils Map — Halawa Correctional Facility Site

flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.

- **KtC—Kokokahi clay, 6 to 12 percent slopes:** The Kokokahi component makes up 100 percent of this map unit. This component is on alluvial fans coastal plains. The parent material consists of basalt. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained and water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. This soil is not flooded or ponded. No zone of water saturation occurs within a depth of 72 inches. This soil does not meet hydric soil criteria.

6.4 Hydrology

The Halawa Correctional Facility site is located in the lower Halawa drainage basin, and is on the leeward side of the crest of the Koolau Range. The site's watershed has a drainage area of 8.90 square miles, most of which is upstream of the site (Wong 2005).

There are no TNWs located within the site boundaries (see Figure 15). Pearl Harbor and the Pacific Ocean are the nearest TNW, approximately three miles downstream of the site. Halawa Stream flows into the East Loch of Pearl Harbor and originates at the confluence of North and South Halawa Streams, at the intersection of the H-3 Highway and the H-201 (Moanalua Freeway). The Halawa Correctional Facility is located approximately 0.8 mile upstream of the confluence of these two streams. These streams are more than 100 feet above the freshwater-lens water table throughout the Halawa Valley; although North Halawa Stream is larger than South Halawa, streamflows are intermittent in most years (Wong 2005).

South Halawa Stream flows along the eastern boundary, and a channelized concrete-lined tributary of South Halawa Stream flows along the west site boundary. Both channels converge at the southwest corner of the property. These channelized stretches of South Halawa Stream are classified as R4SBCx (Riverine, Intermittent, Streambed, Seasonally Flooded, Excavated) (NWI 2016). The concrete-line channel terminates adjacent to the site boundary in the northeast corner of the site, and a natural channel continues upstream. Streams within and adjacent to the site are considered RPWs. Due to development, both stream channels have been altered (i.e., straightened) through this area, which was common upstream during the H-3 highway construction (Wong 2005). After North and South Halawa Streams join southwest of the site, they flow approximately 2 miles to Pearl Harbor. According to the Pearl Harbor Wetlands Inventory (Wil Chee Planning, Inc. and AECOS, Inc. 2007), Halawa Stream is confined to a concrete culvert downstream until it crosses Salt Lake Blvd.

6.5 Wetlands and OWUS

As depicted on Figure 15, riverine wetlands are mapped along the east, west, and south site boundaries, associated with South Halawa Stream. However, field inspections showed that the length of the stream along the entire west and south site boundary consisted of a concrete-lined channel outside of the property limit. Along the east side of the property, Halawa Stream is a concrete-lined channel until the northeast corner where the structure ends. Upstream of the terminus of this concrete structure, PFO3 (Palustrine, Forested, Broad-Leaved Evergreen, Seasonally Flooded) wetlands are mapped along the length of South Halawa Stream.

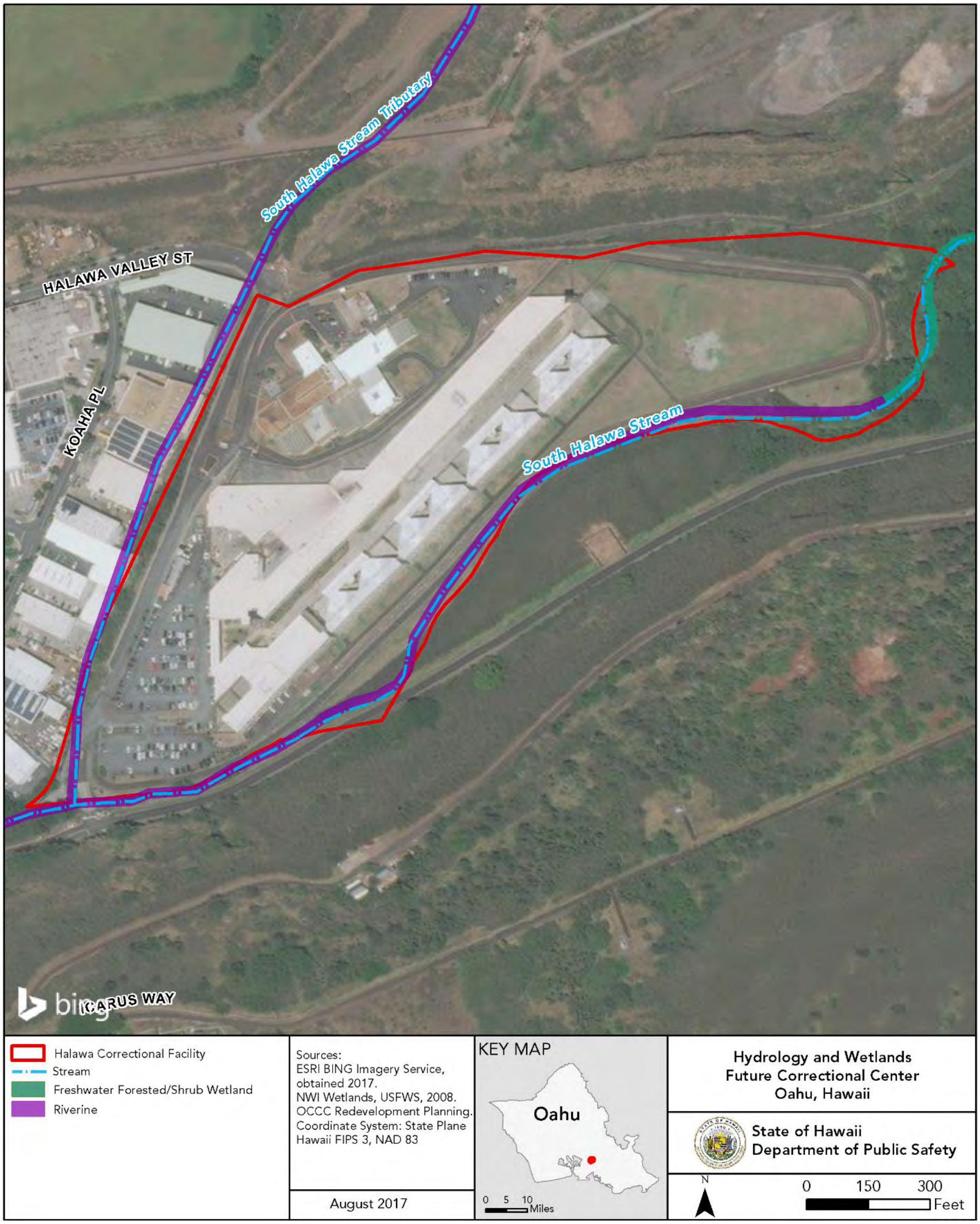


Figure 15: Hydrology and Wetlands Map – Halawa Correctional Facility Site

Louis Berger wetland scientist used the methodology outlined in the USACE's *Wetlands Delineation Manual* (USACE 1987) and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawaii and Pacific Islands Region (Version 2.0)* (USACE 2008) to conduct field investigations. Field investigations confirmed the presence of 0.63-acre of riverine and riparian wetlands associated with South Halawa Stream along the northeast corner of the property, east of the recreational field. The boundaries of wetland were located to sub meter accuracy using ESRI collector software and a Trimble R1 GNSS GPS receiver. Wetland Delineation Data Forms documenting the vegetative, soil, and hydrologic characteristics of the wetland are included as Attachment 3a. Figures 16 and 17 show the delineated wetland boundaries.

The delineated wetlands consist of riverine and palustrine forested/scrub shrub wetland adjacent to South Halawa Stream. Most of the wetland within the site boundary consist of well-defined channel steeply sloping to upland. As the stream meanders upstream and offsite it is less defined and has adjacent palustrine forested/scrub shrub riparian wetlands. The delineated wetlands are dominated by hydrophytic vegetation and contain hydric soils and evidence of wetland hydrology. The uplands adjacent to the delineated wetlands had no evidence of wetland hydrology.

6.6 Vegetation

The majority of the site is disturbed by development and has been converted to impervious surfaces (pavement, concrete, or buildings) which comprise approximately 85 percent of the land area. The only undeveloped areas are the recreational field which was overgrown at the time of the field inspection but is usually mowed, and a strip of vegetation adjacent to South Halawa Stream east of the recreational field. The recreational field is predominately grasses that were not maintained at the time of inspection, with scattered golden crownbeard and (*Verbesina encelioides*) and koa haole (*Leucaena leucocephala*). Guinea grass (*Urochloa maxima*) is dominant along the slopes leading down to South Halawa Stream. Other riparian vegetation includes castor bean (*Ricinus communis*), monkeypod (*Albizia saman*) and java plum (*Syzygium cumini*).

Vegetation found in the remaining undeveloped land consists maintained lawn areas. To the east of the facility begins a swath of undeveloped forest, extending approximately four miles to Mount Pu'ukahuauli, which provides habitat to such species as koa and kod'ohi'a forest, native trees such as 'ahakea, kalia, kopiko, lama, manono, and an understory of native uluhe fern (Buck et al. 1988). However, a majority of forests in this area have non-native Koster's curse (*Clidemia hirta*) and strawberry guava (*Psidium cattleianum*) in the understory.

6.7 Wildlife

The Halawa Correctional Facility site provides minimal natural habitat, and any wildlife found in the area would be species that are adapted to urban environments. Wildlife expected to use the site include small terrestrial mammals, bats, birds, insects, small reptiles, arachnids, and snails. Wildlife observed during field investigations include small Asian mongoose (*Herpestes javanicus*), feral chickens, feral pigs, insects, and various passerine bird species.

Figure 16: Delineated Wetlands – Halawa Correctional Facility Site

Figure 17: Delineated Wetlands (Close-up) — Halawa Correctional Facility Site

Correspondence from the USFWS, Pacific Islands Fish and Wildlife Office (included in Attachment 4), states that no federally designated or proposed critical habitat occurs within the immediate vicinity of the Halawa Correctional Facility site. According to USFWS, the following federally listed species may occur or transit through the vicinity of the site: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*); endangered band-rumped storm-petrel (*Oceanod roma castro*); threatened Newell's shearwater (*Puffinus newelii*); and Hawaiian seabirds protected under the MBTA, such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*). Correspondence from the Hawaii Department of Land and Natural Resources (included in Attachment 4) states that the Hawaiian hoary bat, state endangered Hawaiian short-eared owl (*Asio flammeus sandwichensis*), and state threatened white tern (*Gygis alba*) have the potential to occur within the vicinity of the Halawa Correctional Facility site.

No federal or state listed species were observed during field investigations. Based on the developed nature of the property and the limited available natural habitat, it is unlikely that threatened or endangered species of plants or animals would be present within the site.

6.8 Conclusion – Halawa Correctional Facility Site

Based on the desktop analysis and field determination, regulated wetlands of the United States are present within the site. Approximately 0.63-acre of palustrine wetland under state and federal jurisdiction were identified within the site boundary. The delineated wetlands are dominated by hydrophytic vegetation and contain hydric soils and evidence and/or presence of wetland hydrology and are subject to a Jurisdictional Determination by the USACE. A report has been submitted to the USACE for concurrence and approval of jurisdictional limits under Section 404 of the Clean Water Act.

7.0 FINDINGS – MILILANI TECHNOLOGY PARK, LOT 17, SITE

Investigations included a desktop/office review of resource maps, on-site vegetation identification, soil interpretation, site photography, and general field observations of hydrologic and other environmental conditions. Because no evidence was observed within portion of the Mililani Technology Park, Lot 17, property that is proposed for development that suggested the presence of any streams or positive wetland indicator parameters, the further investigations described above (vegetation sample plots, soil test pits) were not required. Findings are described below. Site photographs were taken during the June 5 and June 6, 2017, field inspections and are presented in Attachment 2d.

7.1 Site Description

The Mililani Technology Park, Lot 17 site is located along the H-2 corridor, off of Kahelu Avenue in Mililani, Hawaii (see Figure 18). The approximately 41-acre property is owned by Castle & Cooke Properties, a commercial real estate developer. There are no existing facilities or infrastructure on the property (see Figure 19).

Figure 18: Regional Location – Mililani Technology Park, Lot 17 Site

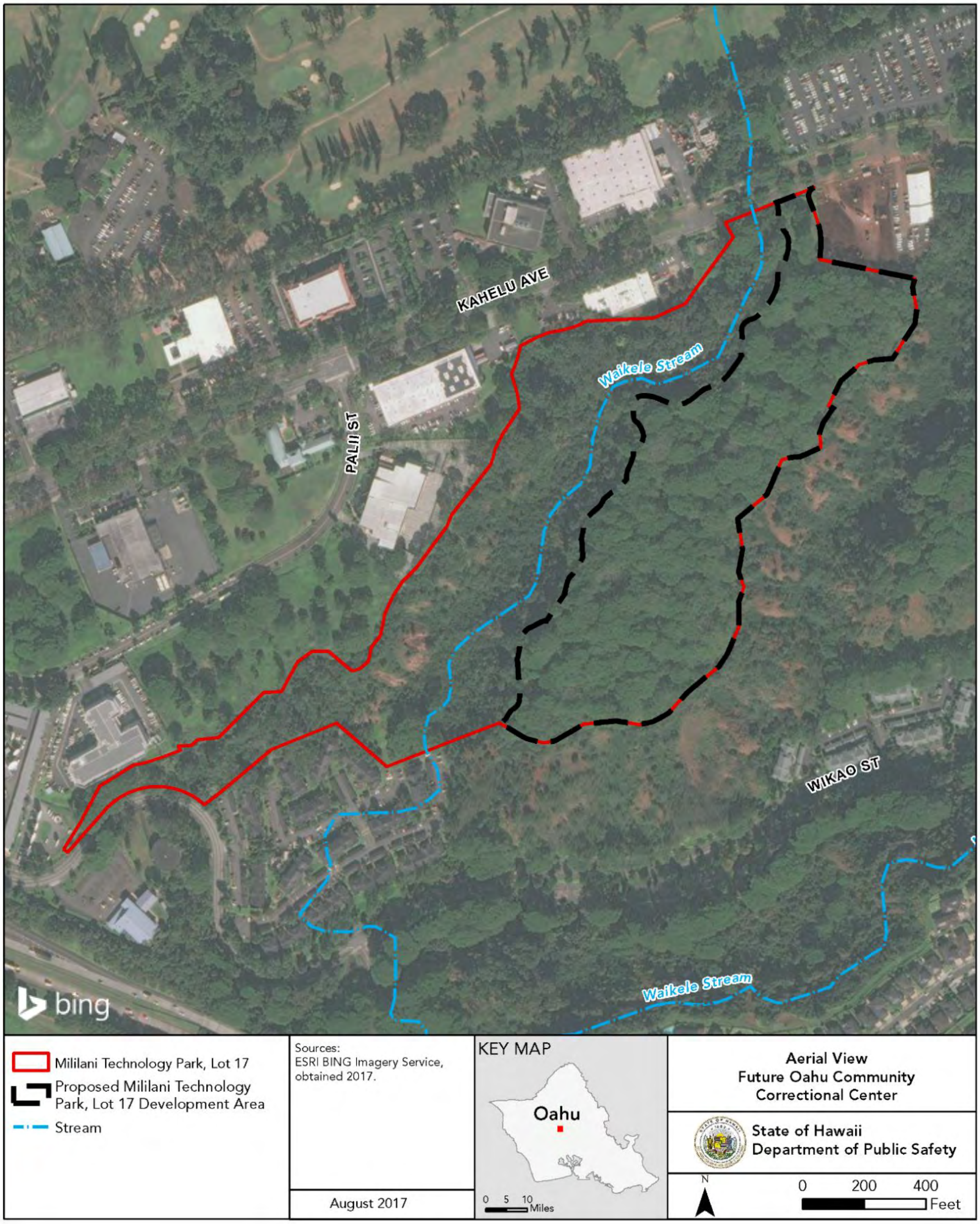


Figure 19: Aerial View – Mililani Technology Park, Lot 17 Site

The site consists of an approximately 19-acre plateau sloping down to Waikakalaua Gulch on the west side. Both slopes of the Waikakalaua Gulch are within the property boundary, and the western, southern, and northern property limits border residential development, commercial properties, and roadway. The eastern edge of the plateau forms the eastern/southeastern property boundary. Land to the east and southeast of the property is steeply sloped and undeveloped.

Only the approximately 19-acre portion of the property at the top of the plateau is being considered for development of the proposed OCCC, and therefore is the focus of the wetland determination. The remaining 22 acres of the property would serve as a buffer to neighboring landscape, light industrial, and residential properties.

7.2 Topography

Located at approximately 796–862 feet amsl, the property consists of a plateau with steep slopes descending to lower elevations to the south, east, and west. Topography in the area being considered for the proposed development is nearly level (see Figure 20).

7.3 Soils

The USDA, Natural Resources Conservation Service, indicates that soils on the property consist of four soils units (see Figure 21). The majority of the proposed development area consists of one map unit: LeB – Leilehua silty clay, 2 to 6 percent slopes. Soil units within the gulch consist primarily of HLMG – Helemano silty clay, 30 to 90 percent slopes. Smaller areas along the southwestern property boundary lie within the WaA – Wahiawa silty clay, 0 to 3 percent slopes and WaB – Wahiawa silty clay, 3 to 8 percent slopes map units. Descriptions of these soil map units from the USDA Custom Soil Resource Report for Island of Oahu (USDA 2017) are provided below.

- LeB—Leilehua silty clay, 2 to 6 percent slopes: The Leilehua component makes up 100 percent of this map unit. This component is on uplands. The parent material consists of basalt and the depth to a root restrictive layer is greater than 60 inches. These soils are well drained and water movement in the most restrictive layer is moderately low. This soil is not flooded or ponded and there is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 6 percent. This soil does not meet hydric criteria (USDA 2017).
- HLMG—Helemano silty clay, 30 to 90 percent slopes: The Helemano component makes up 100 percent of this map unit. This component is on gulches. The parent material consists of basic igneous material. Depth to a root restrictive layer is greater than 60 inches. These soils are well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. This soil is not flooded or ponded and there is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This soil does not meet hydric criteria.

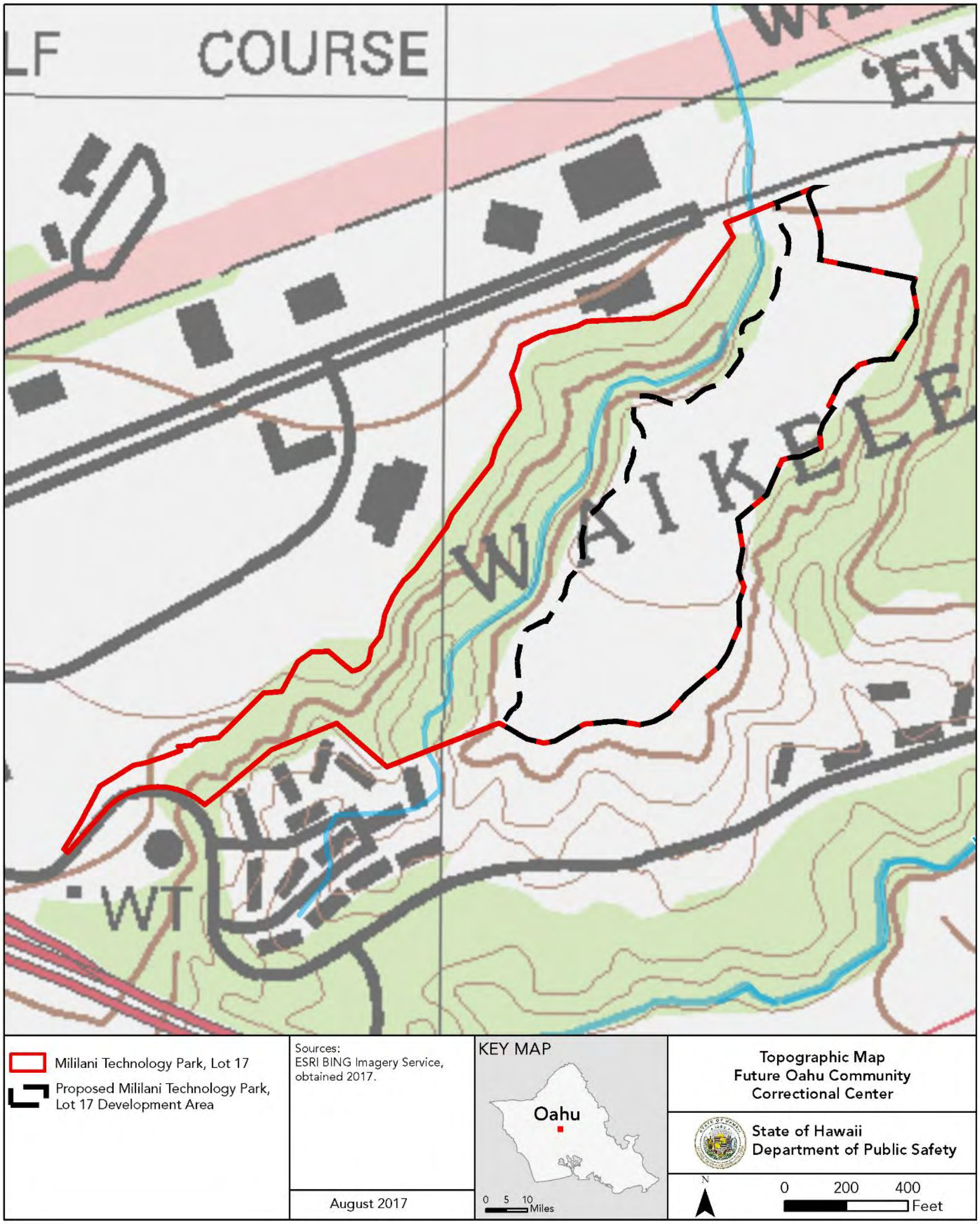


Figure 20: Topographic Map – Mililani Technology Park, Lot 17 Site

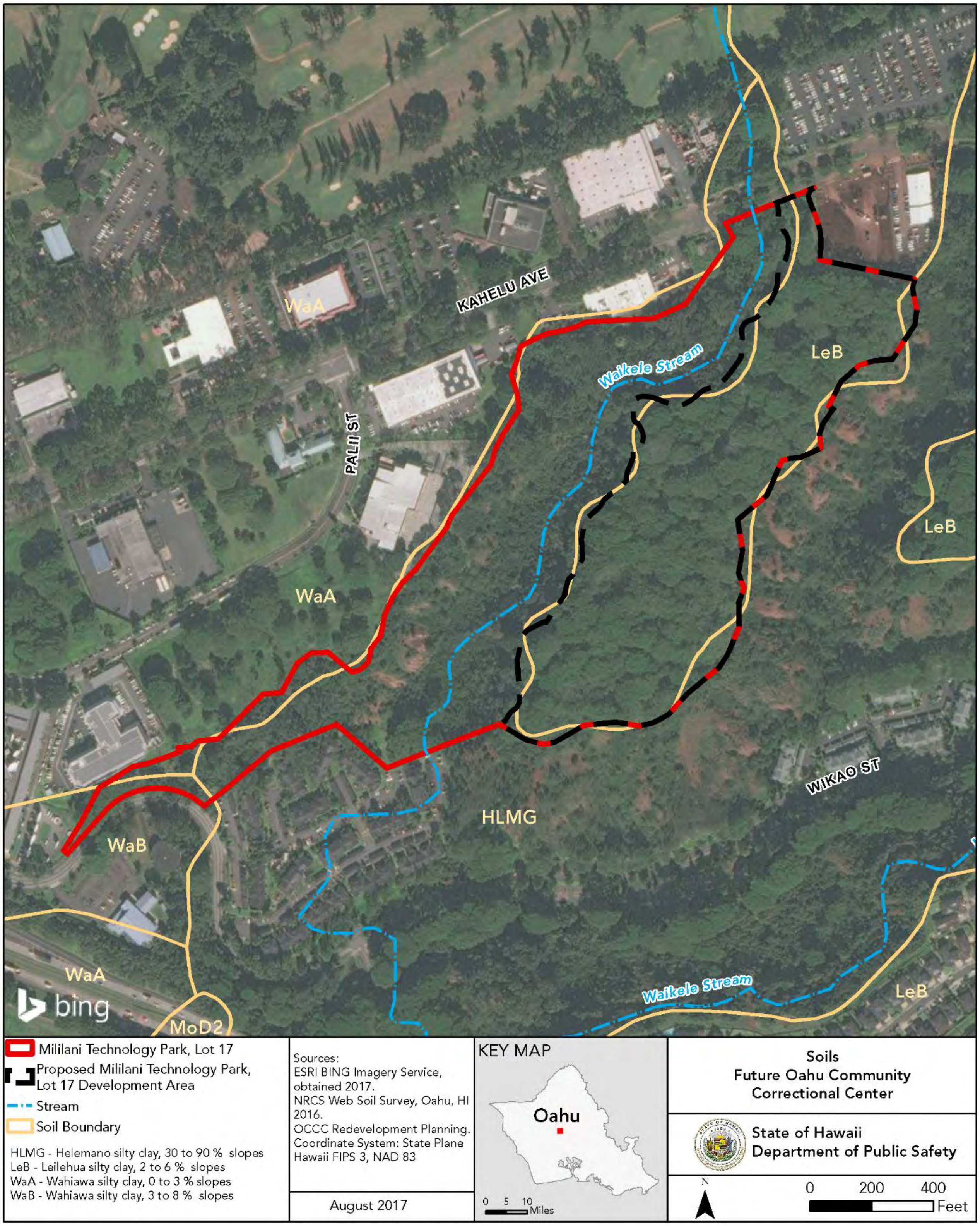


Figure 21: Soils Map – Mililani Technology Park, Lot 17 Site

- **WaA—Wahiawa silty clay, 0 to 3 percent slopes:** The Wahiawa component makes up 100 percent of this map unit. This component is on undissected uplands. The parent material consists of basalt and the depth to a root restrictive layer is greater than 60 inches. These soils are well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded and there is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This soil does not meet hydric criteria.
- **WaB—Wahiawa silty clay, 3 to 8 percent slopes:** The Wahiawa component makes up 100 percent of this map unit. This component is on undissected uplands. The parent material consists of basalt. Depth to a root restrictive layer is greater than 60 inches. These soils are well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded and there is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. This soil does not meet hydric criteria.

7.4 Hydrology

The Mililani Technology Park, Lot 17 site is located in the lower Waikakalaua drainage basin is on the leeward side of the crest of the Koolau Range. The watershed has a drainage area of approximately 7 square miles, most of which is upstream of the proposed site. The lower half of the drainage is largely urban land. The upper half includes agricultural (19 percent) and forested (37 percent) land (USGS 2017). Waikakalaua Stream merges with other tributaries to become Waikele Stream. The Waikakalaua-Waikele Stream system is the longest riverine network on the island of Oahu (Water Resources Engineers 1973).

There are no surface water features within the area proposed for development of the new OCCC. There are no TNWs located within the property boundaries. Waikele Stream meanders across the floor of Waikakalaua Gulch, parallel to the western development area boundary to the west of the plateau (see Figure 22). Waikele Stream in non-perennial, and observed portions within the property boundary were dry, while off-site portions had shallow, slow moving water. The observed portions of Waikele Stream had very defined, steep banks sloping up to the gulch edges.

7.5 Wetlands and OWUS

As depicted on Figure 22, no wetlands or OWUS are located within the proposed development area. Outside the proposed development area, the NWI mapping shows freshwater forested/shrub wetland associated with Waikele Stream at the base of Waikakalaua Gulch within the property boundary.

Louis Berger wetland scientist used the methodology outlined in the USACE's *Wetlands Delineation Manual* (USACE 1987) and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawai'i and Pacific Islands Region (Version 2.0)* (USACE 2008) to conduct field investigations. Field investigations confirmed the presence of freshwater forested/shrub wetlands at the base of the gulch, adjacent to Waikele Stream. No wetlands or OWUS were identified within the area proposed for development during desktop or field investigations.

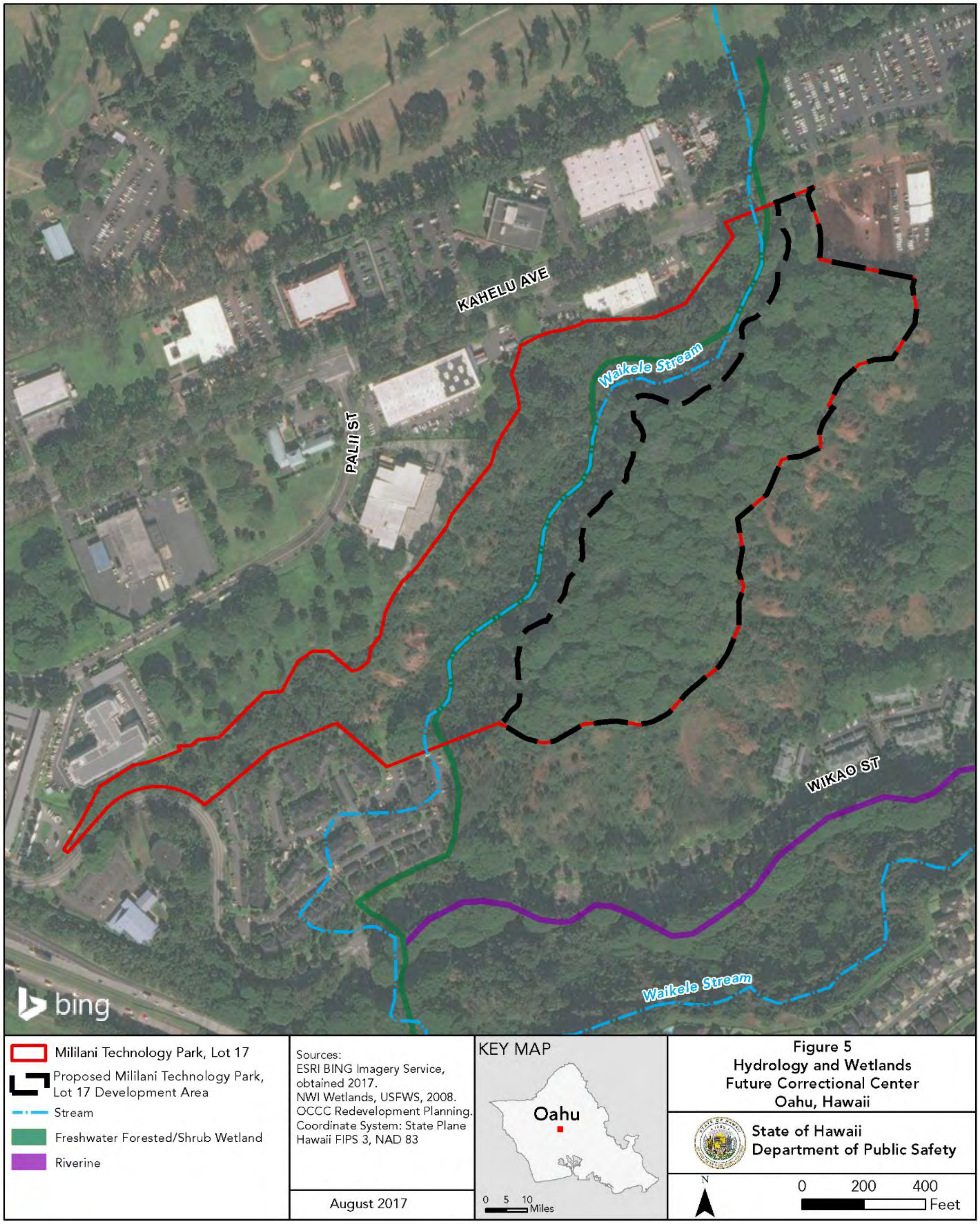


Figure 22: Hydrology and Wetlands Map – Mililani Technology Park, Lot 17 Site

7.6 Vegetation

The area proposed for development is very densely vegetated by a mix of non-native trees, shrubs, and an understory of weedy grasses and vines. Dominant woody species including albizzia (*Falcataria moluccana*), strawberry guava (*Psidium cattleianum*), and Christmas berry (*Schinus terebinthifolius*) with scattered lantana (*Lantana camera*) and Koster's curse (*Clidemia hirta*) observed. Guinea grass (*Urochloa maxima*) is the dominant in the understory. The slopes of the plateau, as well as the gulch is also densely vegetated with similar species, while developed areas along the south and western property boundaries contained mowed lawn and landscape species.

7.7 Wildlife

Wildlife expected to use the site include small terrestrial mammals, bats, birds, insects, arachnids, and snails. Wildlife observed within the area proposed for development during field investigations include insects and various passerine bird species. Other species expected utilize the plateau include small Asian mongoose (*Herpestes javanicus*), rodents, and small reptiles. Outside the area of proposed development, feral cats (*Felis catus*), small Asian mongoose, and feral chickens were observed.

Correspondence from the USFWS, Pacific Islands Fish and Wildlife Office (included in Attachment 4), states that no federally designated or proposed critical habitat occurs within the immediate vicinity of the Mililani Technology Park, Lot 17 site. According to USFWS, the following federally listed species may occur or transit through the vicinity of the site: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*); endangered band-rumped storm-petrel (*Oceanod roma castro*); threatened Newell's shearwater (*Puffinus newelii*); and Hawaiian seabirds protected under the MBTA, such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*). Additionally, USFWS stated that the Hawaiian hoary bat are likely to forage within the site. Correspondence from the State of Hawaii Department of Land and Natural Resources (included in Attachment 4) states that the Hawaiian hoary bat, state endangered Hawaiian short-eared owl (*Asio flammeus sandwichensis*), and state threatened white tern (*Gygis alba*) have the potential to occur within the vicinity of the Mililani Technology Park, Lot 17 site.

No federal or state listed species were observed during field investigations. Based on agency correspondence and field investigations, Hawaiian hoary bat, Hawaiian short-eared owl, and white tern may utilize habitat within the site, including the area being considered for proposed development.

7.8 Conclusion – Mililani Technology Park, Lot 17 Site

Based on the desktop analysis and field determination, Louis Berger concludes that no regulated wetlands or OWUS are present within the area proposed for development within the Mililani Technology Park, Lot 17 site, and has requested written concurrence from the USACE that no permit is necessary if the Mililani Technology Park, Lot 17 site is selected for development of the proposed OCCC.

8.0 FINDINGS – WOMEN'S COMMUNITY CORRECTIONAL CENTER

Investigations included a desktop/office review of resource maps, on-site vegetation identification, soil interpretation, site photography, and general field observations of hydrologic and other environmental conditions. Findings are described below. Site photographs were taken during the June 8, 2017 field inspections and are presented in Attachment 2e.

8.1 Site Description

The WCCC (the site) is located at 42-477 Kalanianaole Highway in Kailua, Hawaii (see Figure 23). Existing facilities on the approximately 124-acre property include inmate housing, administrative, program and support structures, maintenance buildings, an outdoor recreation area, and vehicle parking lots (see Figure 24). The area being considered for proposed development consists of approximately 5–10 acres of mowed grass field generally located on the west side of the property.

8.2 Topography

The WCCC property ranges in elevation from 160 feet to 310 feet amsl (see Figure 25). Topography slopes gradually from lower elevations on the west to higher elevations on the east, with moderate to steep slopes on the east side of the property. Topography in the area being considered for the proposed development is nearly level.

8.3 Soils

The USDA, Natural Resources Conservation Service, indicates that the property consist of eight soils units (see Figure 26). The majority of the proposed development area consists of one map unit: PkC–Pohakupu silty clay loam, 8 to 15 percent slopes. Descriptions of soil map units from the USDA Custom Soil Resource Report for Island of Oahu (USDA 2017) are provided below.

- AeE – Alaeloa silty clay, older substrate, 15 to 35 percent slopes: The Alaeloa, older substrate component makes up 100 percent of the map unit. This component is found on low mountains of islands. The parent material consists of residuum weathered from basalt. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.
- ALF – Alaeloa silty clay, 40 to 70 percent slopes: The Alaeloa component makes up 100 percent of the map unit. This component is on uplands. The parent material consists of basic igneous rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.

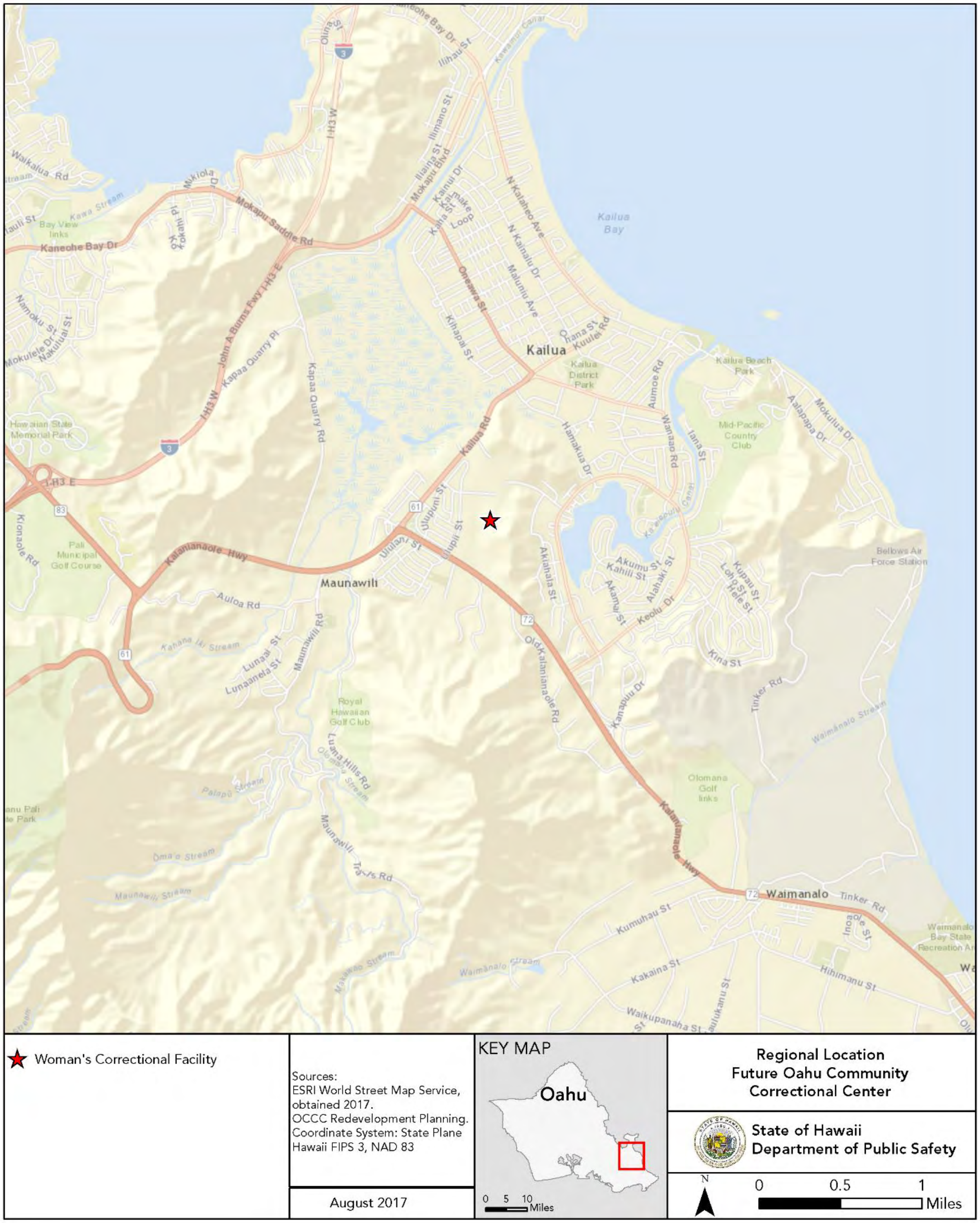


Figure 23: Regional Location – Women's Community Correctional Center

Figure 24: Aerial View – Women's Community Correctional Center

Figure 25: Topographic Map – Women's Community Correctional Center

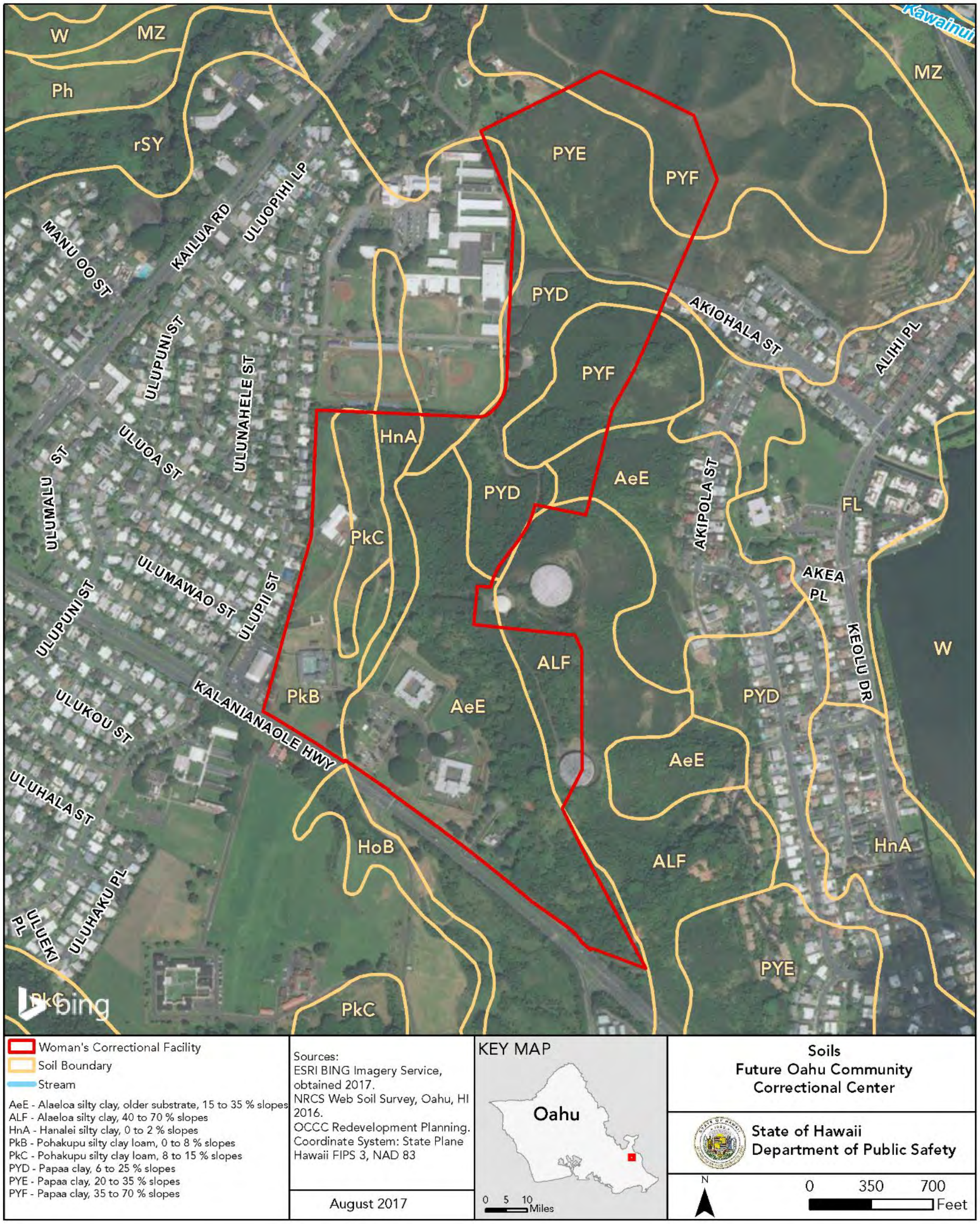


Figure 26: Soils Map – Women's Community Correctional Center

- **HnA – Hanalei silty clay, 0 to 2 percent slopes:** The Hanalei component makes up 85 percent of the map unit. This component is on flood plains on valley floors on islands. The parent material consists of alluvium derived from basalt. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is frequently flooded and is occasionally ponded. A seasonal zone of water saturation is at 42 inches year round. The Hanalei ponded component makes up 15 percent of the map unit and meets hydric soil criteria.
- **PkB – Pohakupu silty clay loam, 0 to 8 percent slopes:** The Pohakupu component makes up 100 percent of the map unit. This component is on and terraces alluvial fans. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.
- **PkC – Pohakupu silty clay loam, 8 to 15 percent slopes:** The Pohakupu component makes up 100 percent of the map unit. This component is on terraces and alluvial fans. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.
- **PYD – Papaa clay, 6 to 25 percent slopes:** The Papaa component makes up 100 percent of the map unit. This component is on uplands. The parent material consists of basalt. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.
- **PYE – Papaa clay, 20 to 35 percent slopes:** The Papaa component makes up 100 percent of the map unit. This component is on uplands. The parent material consists of basalt. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric soil criteria.
- **PYF – Papaa clay, 35 to 70 percent slopes:** The Papaa component makes up 100 percent of the map unit. This component is on uplands. The parent material consists of basalt. Depth to a root restrictive layer, bedrock, paralithic, is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. This soil do not meet hydric soil criteria.

8.4 Hydrology

The WCCC site is located in the Ka'elepulu watershed in the Koolau Poko Region. The watershed has a drainage area of approximately 4.6 square miles (Bishop Museum 2008). There are no TNWs located within or adjacent to the site (see Figure 27). A narrow, well-well defined unnamed stream is present in the central area of the site.

8.5 Wetlands and OWUS

As depicted on Figure 27, there is an R5UBFx (Riverine, Unknown Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated) stream mapped within the site. A Louis Berger wetland scientist used the methodology outlined in the USACE's *Wetlands Delineation Manual* (USACE 1987) and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawaii and Pacific Islands Region (Version 2.0)* (USACE 2008) to conduct field investigations. Field investigations confirmed the presence of a narrow streambed with PEM1 (Palustrine, Emergent, Persistent) fringe wetland along a portion of the stream within the site. The stream originates at a culvert and runs north to the project boundary. The stream lies within the HnA soil unit described above and is assumed to be the actual location of the R5UBFx stream depicted on Figure 28.

The delineated boundaries are depicted on Figures 28 and 29. The boundaries of the emergent wetland were located to sub-meter accuracy using ESRI collector software and a Trimble R1 GNSS GPS receiver. The stream was delineated using aerial imagery, soil map interpretation, NWI mapping, and field observations.

The delineated feature consists of 1,637-linear feet of narrow streambed steeply sloping to upland, with 0.07-acre of fringe emergent wetland adjacent to the southern extent of the stream. Wetland Delineation Data Forms documenting the vegetative, soil, and hydrologic characteristics of the wetland are included as Attachment 3b. The wetland is dominated by hydrophytic vegetation and contain hydric soils and evidence of wetland hydrology. The uplands adjacent to the stream banks had no evidence of wetland hydrology. No wetlands or OWUS were observed within the area proposed for development within the WCCC site.

8.6 Vegetation

Vegetation within the undeveloped portions of the site consist of mowed lawn with ornamental plantings, large stands of guinea grass (*Urochloa maxima*), and forested areas with species such as papaya tree (*Carica papaya*), mango (*Mangifera indica*), koa haole (*Leucaena leucocephala*), monkeypod (*Albizia saman*), and Christmas berry (*Schinus terebinthifolia*). Planted species observed within the site include Ti (*Cordyline fruticose*) and Ulu tree (*Artocarpus altilis*). Vegetation observed adjacent to unnamed stream includes guinea grass, para grass (*Urochloa mutica*), coco-yam (*Colocasia esculenta*), castor bean (*Ricinus communis*), banana (*Musa* sp.) and bamboo (*Bambusa vulgaris*). The northern half of the property is undeveloped and densely forested.

Four large monkeypod trees near the southern site boundary are designated at Exceptional Trees by the Arborist Advisory Committee of the City and County of Honolulu (City and County of Honolulu Department of Parks and Recreation 2017).

Figure 27: Hydrology and Wetlands Map – Women's Community Correctional Center

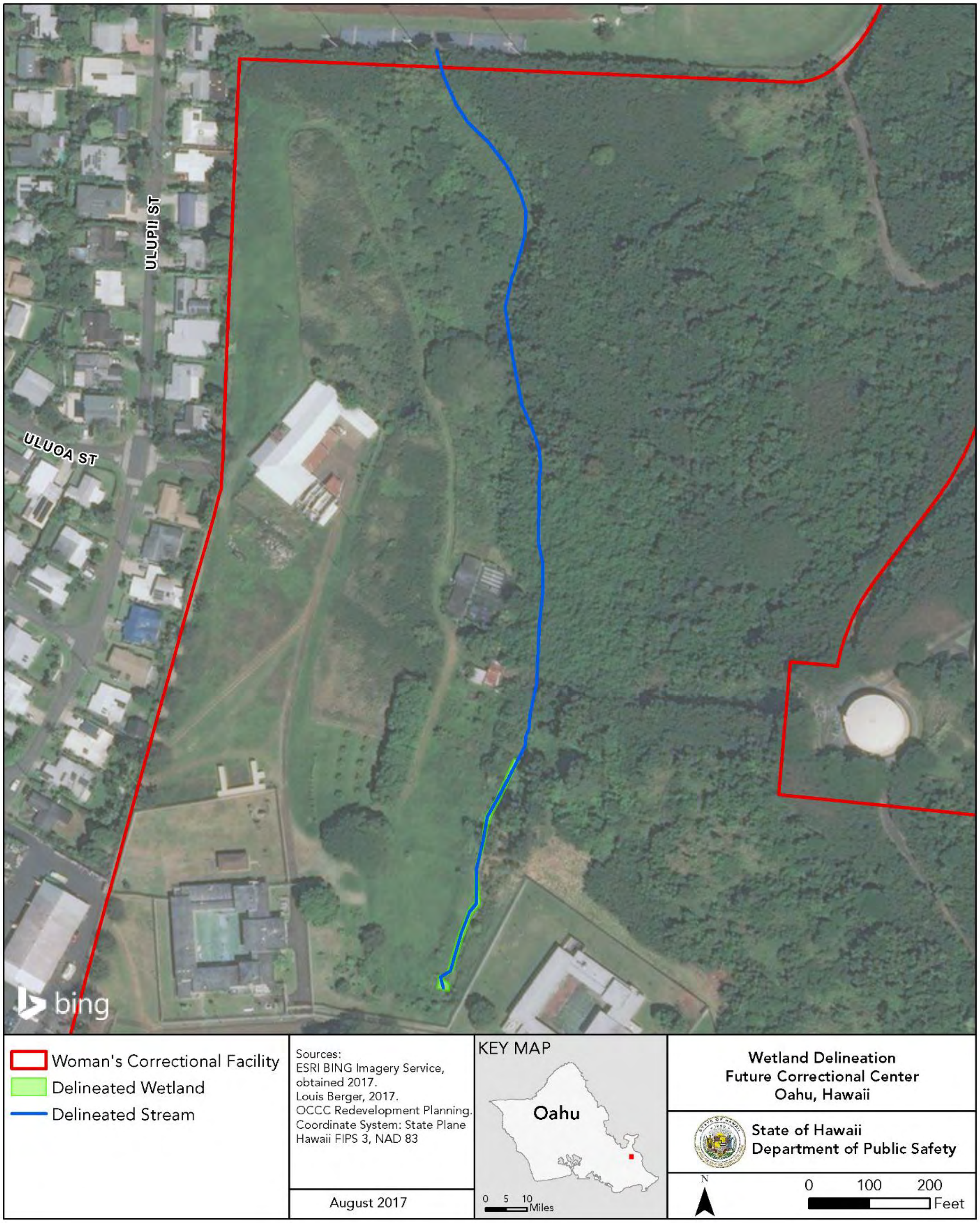


Figure 28: Delineated Wetlands – Women's Community Correctional Center

Figure 29: Delineated Wetlands (Close-up) – Women's Community Correctional Center

8.7 Wildlife

Wildlife expected to use the site include small terrestrial mammals, bats, birds, insects, small reptiles, arachnids, and snails. Wildlife observed during field investigations include feral chickens, feral cats, cattle egret (*Bubulcus ibis*), insects, and various passerine bird species. Asian mongoose (*Herpestes javanicus*) and feral pigs are also known to occur on the property.

Correspondence from the USFWS, Pacific Islands Fish and Wildlife Office (included in Attachment 4), states that no federally designated or proposed critical habitat occurs within the immediate vicinity of the WCCC site. According to USFWS, the following federally listed species may occur or transit through the vicinity of the site: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*); endangered band-rumped storm-petrel (*Oceanod roma castro*); threatened Newell's shearwater (*Puffinus newelii*); and Hawaiian seabirds protected under the MBTA, such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*). Correspondence from the Hawaii Department of Land and Natural Resources (included in Attachment 2) states that the Hawaiian hoary bat, state endangered Hawaiian short-eared owl (*Asio flammeus sandwichensis*), and state threatened white tern (*Gygis alba*) have the potential to occur within the vicinity of the WCCC Site. Additionally, state and federally listed waterbirds such as the Hawaiian duck (*Anas wyvilliana*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian moorhen (*Gallinula chloropus sandvicensis*) are likely to occur within a mile of the WCCC site where suitable habitat is available.

No federal or state listed species were observed during field investigations. It is likely that threatened or endangered species of birds may occur as transients, most likely in the undeveloped areas in the north and east of the property that are not subject to frequent human activity and away from the area under consideration for development.

8.8 Conclusion

Based on the desktop analysis and field determination, regulated wetlands and OWUS of the United States are present within the site. A 1,637-linear foot unnamed stream with adjacent emergent wetland under state and federal jurisdiction was identified within the site boundary. The delineated 0.07-acre wetland is dominated by hydrophytic vegetation and contains hydric soils and evidence and/or presence of wetland hydrology and are subject to a Jurisdictional Determination by the USACE. A report has been submitted to the USACE for concurrence and approval of jurisdictional limits under Section 404 of the Clean Water Act.

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Attachment 1: U.S. Army Corps of Engineers Jurisdictional Determination Form

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): July 7, 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District (CEPOH-RO);
Oahu Community Correctional Center EIS - Halawa Correctional Facility Wetland Determination, Halawa, Oahu Island, Hawaii

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Hawaii County/parish/borough: Honolulu City: Halawa
Center coordinates of site (lat/long in degree decimal format): Lat. 21.373946° **N**, Long. -157.896102° **W**.
Universal Transverse Mercator: NAD 83 / UTM Zone
4 Name of nearest waterbody: Pearl Harbor

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pearl Harbor and the Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): Oahu Watershed, USGS Cataloging Unit: 20060000

- [x] Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- [ ] Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- [ ] Office (Desk) Determination. Date: Field
- [ ] Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- [ ] Waters subject to the ebb and flow of the tide.
- [ ] Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**

   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]

   - [ ] TNWs, including territorial seas
   - [ ] Wetlands adjacent to TNWs
   - [x] Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - [ ] Non-RPWs that flow directly or indirectly into TNWs
   - [x] Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - [ ] Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - [ ] Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - [ ] Impoundments of jurisdictional waters
   - [ ] Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet, width (ft) and/or acres.
   Wetlands: 0.63 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by mean (average) high waters.**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]

   - [ ] Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW:

Summarize rationale supporting determination:

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: .

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☐ changes in the character of soil
☐ shelving
☐ vegetation matted down, bent, or absent
☐ leaf litter disturbed or washed away
☐ sediment deposition
☐ water staining
☐ other (list):
☐ the presence of litter and debris
☐ destruction of terrestrial vegetation
☐ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width): .

☐ Wetland fringe. Characteristics: .

☐ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☐ Not directly abutting

- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .

☐ Vegetation type/percent cover. Explain: .

☐ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately (   ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: (ft) Or acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: NWI classification .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters:

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Wetland adjacent to stream classified as seasonally flooded by NWI

Provide acreage estimates for jurisdictional wetlands in the review area: 0.63 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
■ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: see attached JD application

■ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
■ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
■ U.S. Geological Survey map(s). Cite scale & quad name: 7.5 min. series, Pearl Harbor Quad.
■ USDA Natural Resources Conservation Service Soil Survey. Citation: Custom Soil Resource Report for Island of Oahu, Hawaii.
■ National wetlands inventory map(s). Cite name: USFWS NWI 2008.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
■ Photographs: ■Aerial (Name & Date): ESRI Bing Imagery aerial, 2017.
or ■ Other (Name & Date): See Attachment 2 of JD application report, photos take June 7, 2017
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Attachment 2a: Site Photographs – Existing OCCC Site (Taken: June 9, 2017)

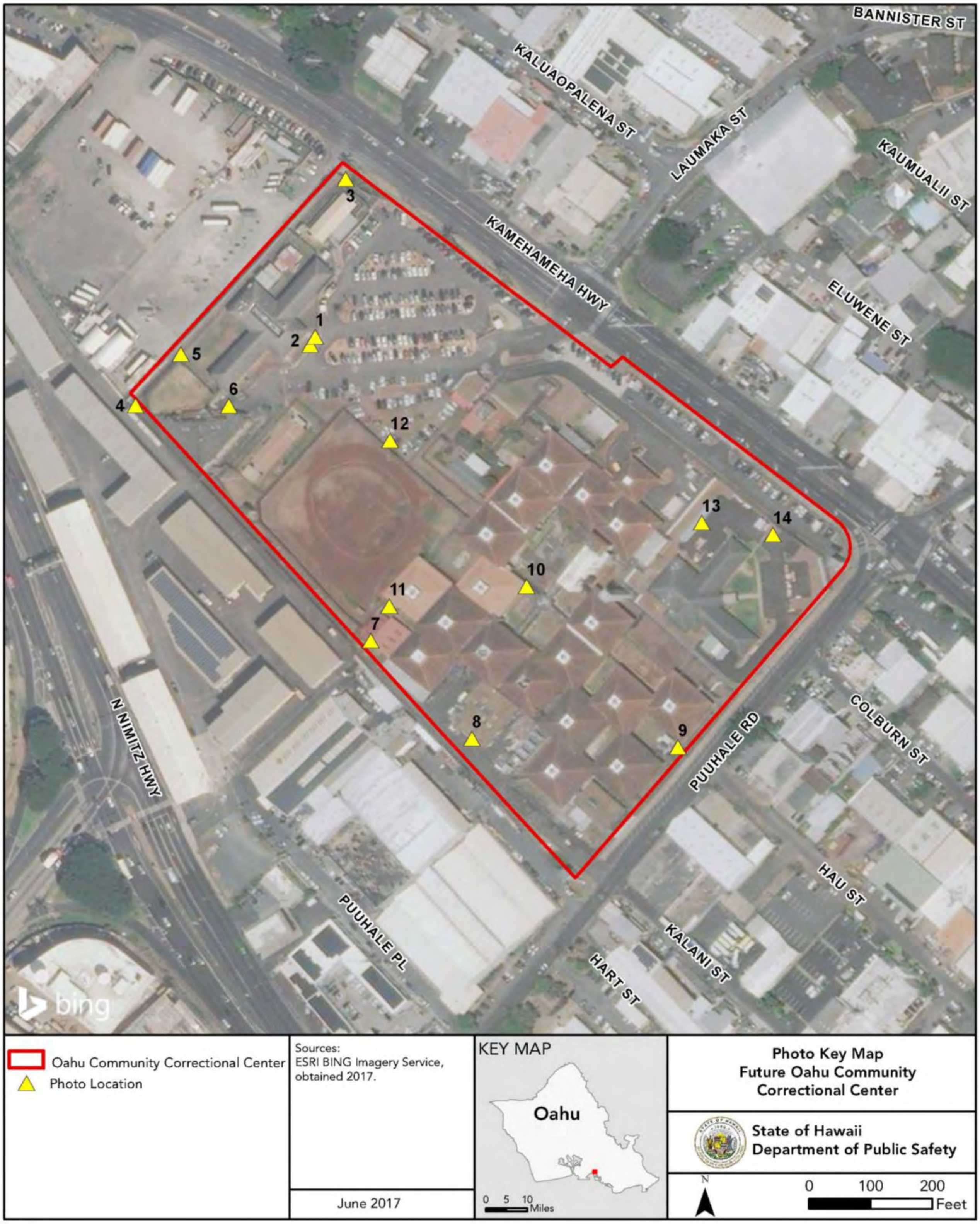


Photo Key Map: Existing OCCC Site

Photograph 1: Paved parking lot and landscaped islands, view facing west

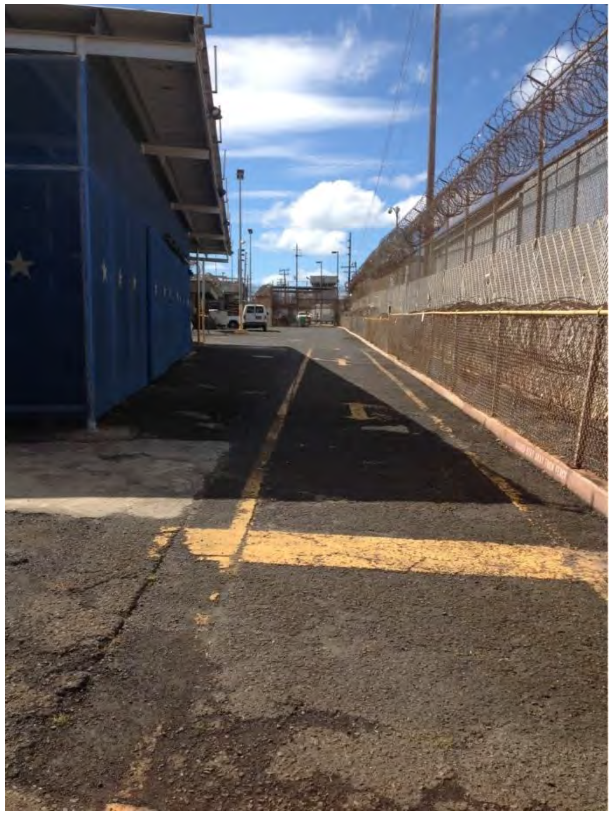
Photograph 2: Paved parking lot and facility buildings west of parking lot, view facing west

Photograph 3: View from northwest corner, facing southwest along perimeter road

Photograph 4: View from west corner of site, facing southeast along perimeter road

Photograph 5: Recreation area for Annex 2, view facing southeast

Photograph 6: Ornamental plantings along access road



Photograph 7: Paved access road along southwest perimeter

Photograph 8: Storage/trash area

Photograph 9: Typical maintained lawn adjacent to buildings and paved roads

Photograph 10: Outdoor visiting area in center of facility

Photograph 11: Recreational field, view facing northwest

Photograph 12: Recreational field, view facing southwest

Photograph 13: Paved lot and storage container in northeast portion of the site

Photograph 14: Mowed lawn, landscape plantings, and building in northeast portion of the site

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Attachment 2b: Site Photographs – Animal Quarantine Station Site (Taken: June 5, 2017)

Photo Key Map: Animal Quarantine Station Site

Photograph 1: Typical Animal Quarantine Station kennel area, view facing south

Photograph 2: Fire break along southern site boundary, view facing west

Photograph 3: View facing east along southern site boundary

Photograph 4: Abandoned kennels in the northeast area of the site, view facing west

Photograph 5: View looking south from northeast corner of site

Photograph 6: Grass field used as canine training center

Photograph 7: Cement-line ditch adjacent to east site boundary

Photograph 8: View of channelized, concrete-lined stretch of South Halawa Stream in background, approximately 200 feet south of southern site boundary

Photograph 9: View of grass field from under H-3 overpass

Photograph 10: Corral area in the northwest portion of the site

Photograph 11: Pasture area, view looking north

Photograph 12: Monkeypod trees in pasture

Photograph 13: Parking lot with landscape plantings, view looking east

Photograph 14: Cook pines along site access road

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Attachment 2c: Site Photographs – Halawa Correctional Facility Site (Taken: June 7, 2017)

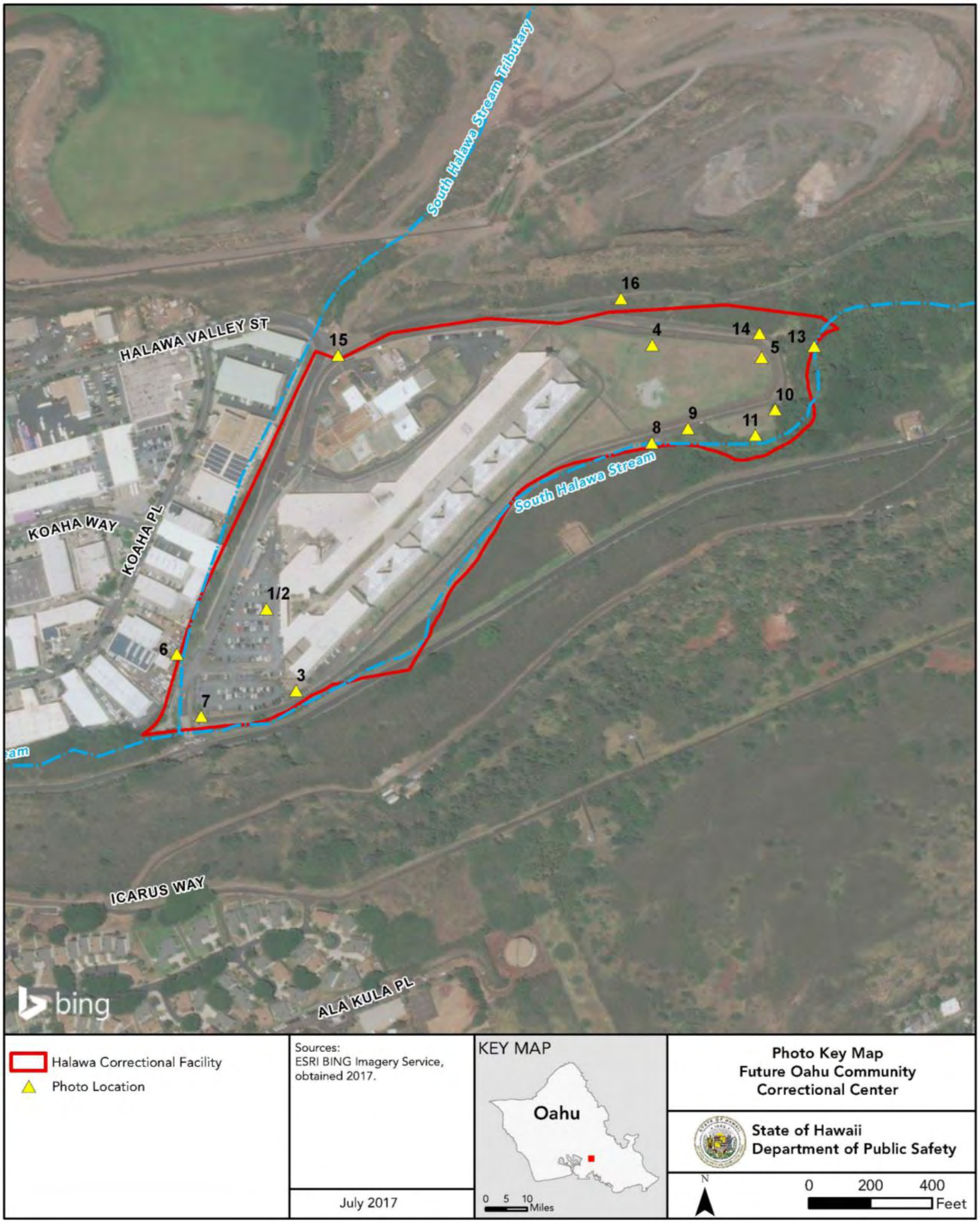


Photo Key Map: Halawa Correctional Facility Site

Photograph 1: View of paved parking lot and facility buildings

Photograph 2: Paved parking area on west side of facility

Photograph 3: View looking southeast at southern property boundary showing concrete lined channel and steep slope of adjacent property

Photograph 4: View of recreational field with construction staging/storage area

Photograph 5: Scattered koa haole in recreational field

Photograph 6: Concrete-lined channel along western boundary, view looking south

Draft

Photograph 7: Concrete-lined channel along southern site boundary

Photograph 8: Concrete-lined channel along east boundary, view looking southwest

Draft

Photograph 9: South Halawa Stream, upstream of terminus of concrete-lined channel

Photograph 10: Edge of wetland near Wetland Flag T8

Photograph 11: Wetland boundary at Wetland Flag T4, streambed in background

Photograph 12: Streambed near Wetland Flag T11

Draft

Photograph 13: South Halawa Stream at northeast site boundary

Photograph 14: View looking west along northeast perimeter road

Photograph 15: View looking east along perimeter road from northeast corner of the property

Photograph 16: Looking downslope at recreational field

Attachment 2d: Site Photographs – Mililani Technology Park, Lot 17, Site (Taken: June 5–6, 2017)

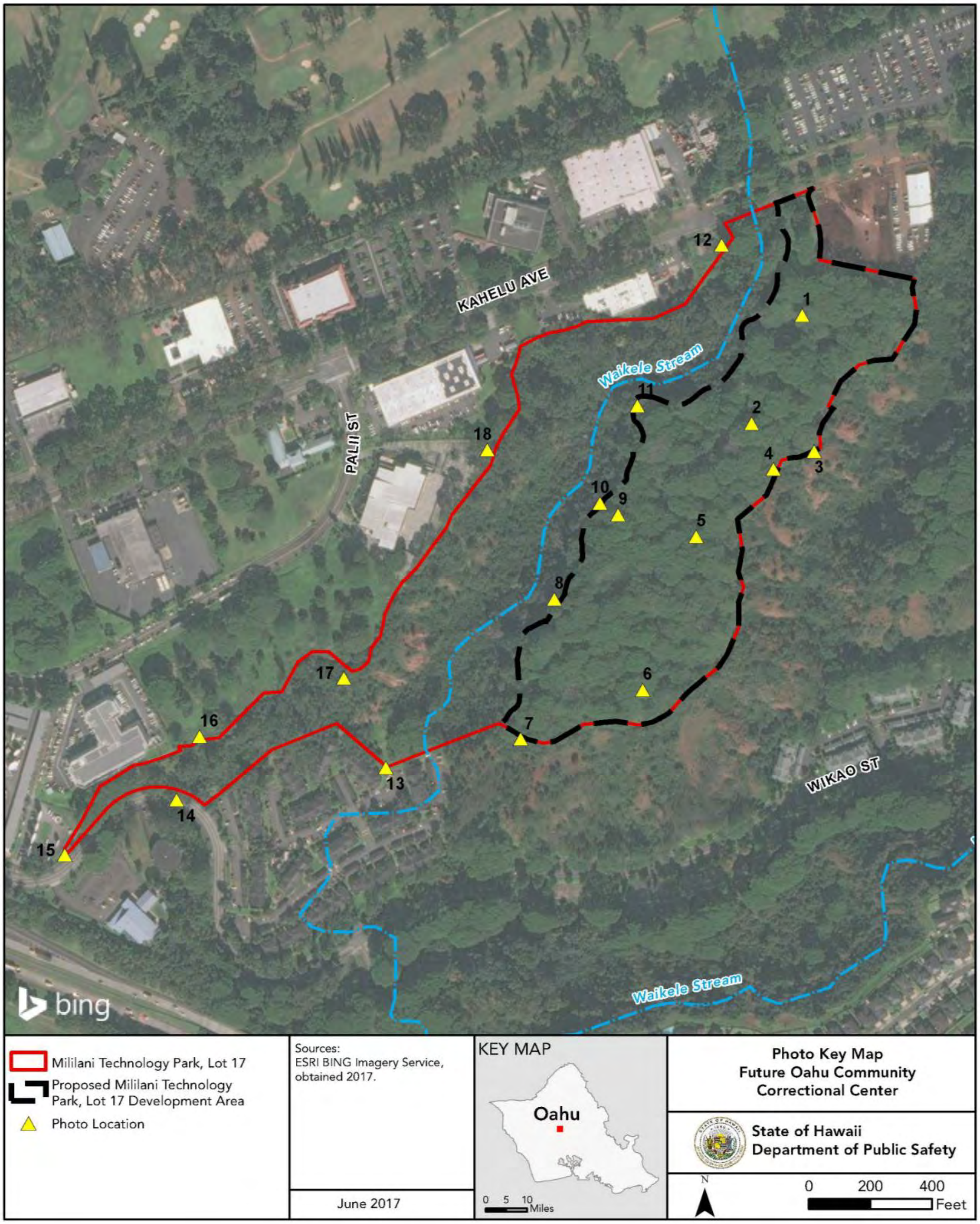


Photo Key Map: Mililani Technology Park, Lot 17 Site

Photograph 1: Typical view of northern portion of the plateau/proposed development area—albizia canopy with dense understory of guinea grass

Photograph 2: Predominantly woody area with less dense understory in north-central portion of the plateau/proposed development area

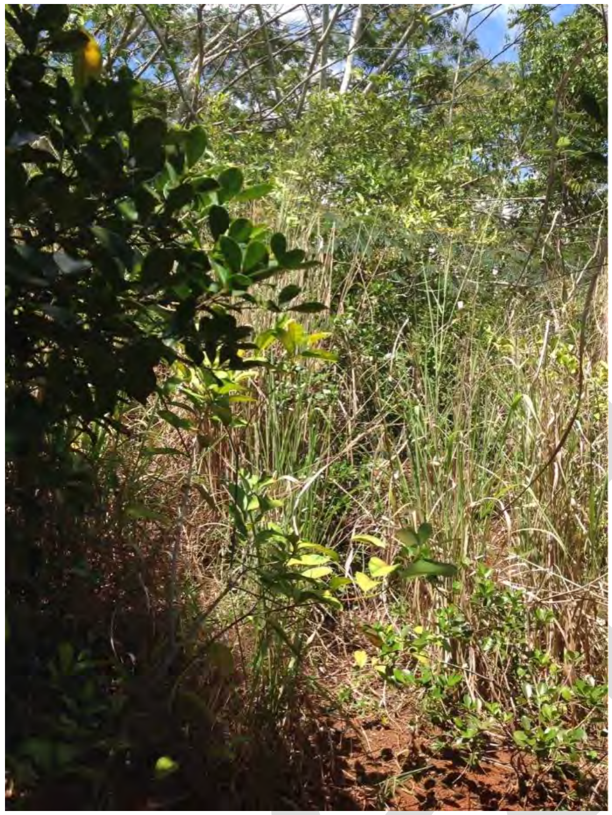
Photograph 3: Strawberry guava frequently observed in northeast plateau/proposed development area

Photograph 4: View looking east from eastern property boundary

Photograph 5: Guinea grass and albizia near center of plateau/proposed development area

Photograph 6: Typical view of vegetation in southeast portion of the plateau/proposed development area

Draft



Photograph 7: View looking south from southern tip of plateau/proposed development area

Photograph 8: View looking east from western edge of plateau/proposed development area

Draft

Photograph 9: Dense vegetation in west-central portion of plateau/proposed development area

Photograph 10: View looking downslope from western edge of plateau/proposed development area

Draft

Photograph 11: Koster's curse, common in northwest plateau/proposed development area

Photograph 12: View looking downslope from northwest property boundary toward Waikele Stream

Draft

Photograph 13: View facing north from southern property boundary adjacent to residential development

Photograph 14: View looking west along southern property boundary adjacent to Wikao Street

Photograph 15: View looking northeast from southwest corner of the property along Wikao Street

Photograph 16: View looking northeast along western property boundary

Photograph 17: View looking downslope from western property boundary

Photograph 18: View looking east from western property boundary

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Attachment 2e: Site Photographs – Women's Community Correctional Center (Taken: June 8, 2017)

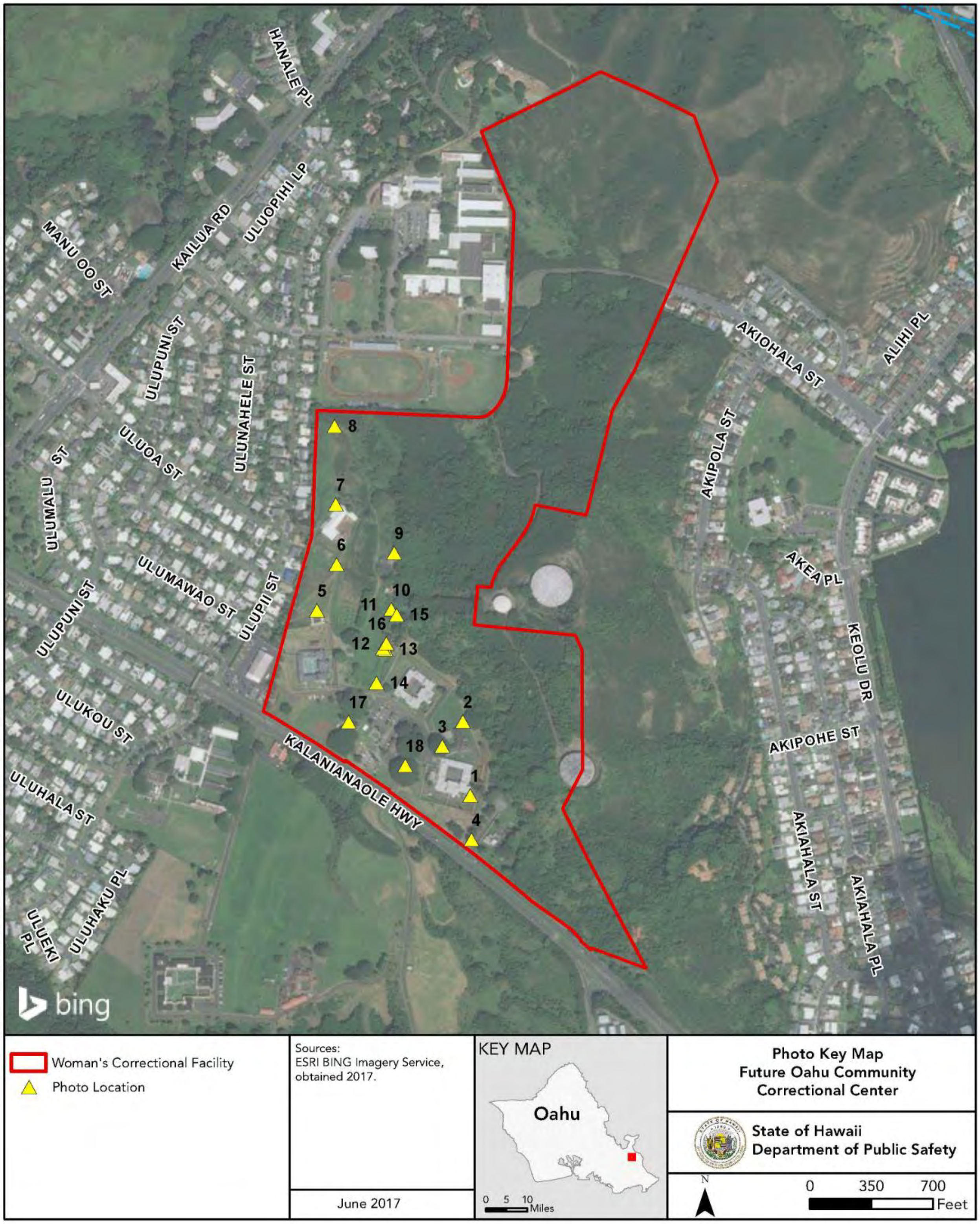

Photo Key Map – Women's Community Correctional Center

Photograph 1: View of paved parking lot and facility buildings

Photograph 2: Recreational field with facility buildings in background, view facing northeast

Photograph 3: Mowed lawn and cottage

Photograph 4: View of WCCC from Hookipa Cottage, looking northwest

Photograph 5: Mowed grass field on west side of property

Photograph 6: View looking east across proposed development area

Photograph 7: Cattle egret near maintenance building on west side of the site

Photograph 8: Mowed path through dense vegetation near west site boundary

Photograph 9: Dense vegetation adjacent to unnamed stream

Photograph 10: Bamboo along slope of unnamed stream

Photograph 11: Banana plant and vines adjacent to unnamed stream

Photograph 12: Streambed and adjacent upland, view looking south

Photograph 13: Well-defined, narrow streambed with steep sloped banks

Photograph 14: Culvert at southern end of stream

Photograph 15: Dry streambed at northern stretch of the stream

Photograph 16: Streambed near Wetland Flag T9

Photograph 17: Monkeypod in southern, developed area; one of four “exceptional trees” found at the site

Photograph 17: Monkeypod in southern, developed area; one of four “exceptional trees” found at the site

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Attachment 3a: Wetland Delineation Forms – Halawa Correctional Facility Site

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Oahu CCC/Halawa Correctional Facility City: Halawa Sampling Date: 06-07-17 Time: 10:30

Applicant/Owner: Hawaii Department of Public Safety State/Terr/Comlth.: Hawaii Island: Oahu Sampling Point: T wet

Investigator(s): T. Stewart TMK/Parcel: 99010030

Landform (hillslope, coastal plain, etc.): stream slope Local relief (concave, convex, none): concave

Lat: -157.89610267700 Long: 21.373946671 Datum: WGS 84 Slope (%): 6

Soil Map Unit Name: KaeB - Kaena stony clay, 2 to 6 percent slopes NWI classification: PFO3C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5)			
1. Urochloa maxima	100	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15)			
1.			
2.			
	___ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	1	x 3 = 3
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	1 (A)	3 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

Plot on slope of stream

SOIL

Sampling Point: T wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	5YR 2/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 4

Water Table Present? Yes ✓ No ___ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland adjacent to stream

WETLAND DETERMINATION DATA FORM – Hawai‘i and Pacific Islands Region

Project/Site: Oahu CCC/Halawa Correctional Facility City: Halawa Sampling Date: 06-07-17 Time: 10:40

Applicant/Owner: Hawaii Department of Public Safety State/Terr/Comlth.: Hawaii Island: Oahu Sampling Point: T up

Investigator(s): T. Stewart TMK/Parcel: 99010030

Landform (hillslope, coastal plain, etc.): terrace Local relief (concave, convex, none): concave

Lat: -157.8961269 Long: 21.374137779 Datum: WGS 84 Slope (%): 2

Soil Map Unit Name: KaeB - Kaena stony clay, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5)			
1. Urochloa maxima	20	no	FAC
2. Cynodon dactylon	70	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: 15)			
1.			
2.			
= Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	20	x 3 = 60
FACU species	70	x 4 = 280
UPL species		x 5 =
Column Totals:	90 (A)	340 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks:

Mowed grasses adjacent to access road.

SOIL

Sampling Point: T up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 4/3	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Muck Presence (A8)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Dark Surface (S7)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ Stratified Layers (A5)
__ Sandy Mucky Mineral (S1)
__ Red Parent Material (F21)
__ Very Shallow Dark Surface (TF12)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock

Depth (inches): 12

Hydric Soil Present? **Yes** ______ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Inundation Visible on Aerial Imagery (B7)
__ Water-Stained Leaves (B9)
__ Aquatic Fauna (B13)
__ Tilapia Nests (B17)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres on Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Thin Muck Surface (C7)
__ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
__ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

__ Surface Soil Cracks (B6)
__ Sparsely Vegetated Concave Surface (B8)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Salt Deposits (C5)
__ Stunted or Stressed Plants (D1)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No x Depth (inches):
Water Table Present? Yes ______ No x Depth (inches):
Saturation Present? (includes capillary fringe) Yes ______ No x Depth (inches):

Wetland Hydrology Present? **Yes** ______ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Mowed lawn adjacent to access road

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Attachment 3b: Wetland Delineation Forms –Women's Community Correctional Center

WETLAND DETERMINATION DATA FORM – Hawai‘i and Pacific Islands Region

Project/Site: Oahu CCC/Women's CCC City: Kailua Sampling Date: 06-08-17 Time: 09:30

Applicant/Owner: Hawaii Department of Public Safety State/Terr/Comlth.: Hawaii Island: Oahu Sampling Point: T wet

Investigator(s): T. Stewart TMK/Parcel: 42003004

Landform (hillslope, coastal plain, etc.): stream Local relief (concave, convex, none): concave

Lat: -157.74875281 Long: 21.3790114008 Datum: WGS 84 Slope (%): 6

Soil Map Unit Name: HnA - Hanalei silty clay, 0 to 2 % slopes NWI classification: R5UBFx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are “Normal Circumstances” present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. Urochloa mutica	60	yes	FACW
2. Colocasia esculenta	20		OBL
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 15)			
1.	5		
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	60	x 2 = 120
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	80 (A)	140 (B)

Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks:

Plot is adjacent to streambed

SOIL

Sampling Point: T wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/2	100					silty clay loam	
8-20	2.5Y 3/2	95	2.5YR 4/6	5	C	PL	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ✓ **No**

Remarks:

Boring taken adjacent to streambed

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ______ Depth (inches): 4

Water Table Present? Yes ✓ No ______ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ______ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Emergent wetland present along southern extent of narrow stream.

WETLAND DETERMINATION DATA FORM – Hawai‘i and Pacific Islands Region

Project/Site: Oahu CCC/Women's CCC City: Kailua Sampling Date: 06-08-17 Time: 09:45

Applicant/Owner: Hawaii Department of Public Safety State/Terr/Comlth.: Hawaii Island: Oahu Sampling Point: T up

Investigator(s): T. Stewart TMK/Parcel: 42003004

Landform (hillslope, coastal plain, etc.): terrace Local relief (concave, convex, none): concave

Lat: -157.748803049 Long: 21.379010221 Datum: WGS 84 Slope (%): 3

Soil Map Unit Name: PkB - Pohakupu silty clay loam, 0 to 8 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5)			
1. Urochloa maxima	30	no	FAC
2. Cynodon dactylon	60	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 15)			
1.			
2.			
	___ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	30	x 3 = 90
FACU species	60	x 4 = 240
UPL species		x 5 =
Column Totals:	90 (A)	330 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks:

Mowed lawn

SOIL

Sampling Point: T up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					silty clay loam	gravel/rocks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Muck Presence (A8)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Dark Surface (S7)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ Stratified Layers (A5)
__ Sandy Mucky Mineral (S1)
__ Red Parent Material (F21)
__ Very Shallow Dark Surface (TF12)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock

Depth (inches): 12

Hydric Soil Present? Yes ______ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Inundation Visible on Aerial Imagery (B7)
__ Water-Stained Leaves (B9)
__ Aquatic Fauna (B13)
__ Tilapia Nests (B17)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres on Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Thin Muck Surface (C7)
__ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
__ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

__ Surface Soil Cracks (B6)
__ Sparsely Vegetated Concave Surface (B8)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Salt Deposits (C5)
__ Stunted or Stressed Plants (D1)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches):
Water Table Present? Yes ______ No X Depth (inches):
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches):

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Mowed lawn

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Attachment 4: Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2017-SL-0024

DEC 23 2016

Ms. Tara Stewart
Senior Environmental Scientist
Louis Berger
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962

Subject: Species List Request for the Oahu Community Correctional Center Replacement Project, Oahu

Dear Ms. Stewart:

The U.S. Fish and Wildlife Service (Service) received your email on October 21, 2016, requesting a species list for the proposed Oahu Community Correctional Center (OCCC) Replacement Project. We understand the State of Hawaii, Department of Public Safety (DPS) is implementing a plan of action to replace the existing OCCC and nearby Laumaka Work Furlough Center. The Service also received your email on November 28, 2016, with a map containing 11 prospective sites for the OCCC Replacement Project. We understand you are currently in the site selection phase and are evaluating the 11 prospective sites by screening the sites against a number of environmental criteria, including known special species status/habitats at each site and potential special species status at each site. The 11 prospective sites for the project are:

- OCCC;
- Halawa Correctional Facility;
- Animal Quarantine Facility;
- Kalaeloa Parcel B;
- Kalaeloa Parcel C;
- Kalaeloa Parcels 6A/7;
- Kalaeloa Parcels 18A/18B;
- Barbers Point Riding Club Property;
- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

The following comments have been prepared pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.), as amended (ESA); and other authorities mandating Federal oversight of environmental resources including the Migratory Bird Treaty Act of 1918 (16 U.S.C. 103 *et seq*.), as amended (MBTA). Based on these authorities, we offer the following comments for your consideration.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program as it pertains to listed species and designated critical habitat. No federally designated or proposed critical habitat occur within the immediate vicinity of the OCCC site, Halawa Correctional Facility, Animal Quarantine Facility, Kalaeloa Parcels 18A/18B, Barbers Point Riding Club Property, Mililani Parcel 17, Waiawa Property 1 (Castle & Cooke), and Waiawa Property 2 (Kamehameha Schools).

Our data indicate that Kalaeloa Parcels B and C are adjacent to critical habitat unit Oahu—Lowland Dry—Unit 11). Kalaeloa Parcel B lies to the north and shares a boundary along San Juacinto Street. Kalaeloa Parcel C lies to the south and shares a boundary. The endangered *Chamaesyce skottsbergii* var. *skottsbergii* is known to occur within this unit. Oahu—Lowland Dry—Unit 11 is one of the four locations included in this final critical habitat designation that is essential to the conservation of *C. skottsbergii* var. *skottsbergii*. Additionally, Oahu—Lowland Dry—Unit 11 is essential for the conservation and recovery of the following lowland dry species: *Achyranthes splendens* var. *rotundata, Bidens amplectens, Bonamia menziesii, Chamaesyce celastroides* var. *kaenana, Euphorbia haeleeleana, Gouania meyenii, G. vitifolia, Hibiscus brackenridgei, Isodendrion pyrifolium, Melanthera tenuifolia, Neraudia angulata, Nototrichium humile, Schiedea hookeri, S. kealiae, or Spermolepis hawaiiensis*.

Kalaeloa Parcels 6A/7 are adjacent to critical habitat unit Oahu—Lowland Dry—Unit 10. Kalaeloa Parcels 6A/7 are east of the critical habitat unit and share a boundary along Hornet Avenue. *Chamaesyce skottsbergii* var. *skottsbergii is known to occur within this unit*. Oahu—Lowland Dry—Unit 10 is one of the four locations included in this final critical habitat designation that is essential to the conservation of *C. skottsbergii* var. *skottsbergii*. Additionally, Lowland Dry—Unit 10 is essential for the conservation and recovery of the following lowland dry species: *A. splendens* var. *rotundata, B. amplectens, B. menziesii, C. celastroides* var. *kaenana, E. haeleeleana, G. meyenii, G. vitifolia, H. brackenridgei, I. pyrifolium, M. tenuifolia, N. angulata, N. humile, S. hookeri, S. kealiae, or S. hawaiiensis*.

Our data indicate that the following federally listed species may occur or transit through the vicinity of the project area: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*), endangered band-rumped storm-petrel (*Oceanodroma castro*), threatened Newell's shearwater (*Puffinus newelii*), and seabirds protected under the Migratory Bird Treaty Act (MBTA), such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*), hereafter collectively referred to as Hawaiian seabirds.

Hawaiian hoary bat

The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the following project areas:

- Halawa Correctional Facility;
- Animal Quarantine Facility;
- Kalaeloa Parcel B;
- Kalaeloa Parcel C;
- Kalaeloa Parcels 6A/7;
- Kalaeloa Parcels 18A/18B;
- Barbers Point Riding Club Property;
- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Hawaiian hoary bats have been documented at various sites throughout Oahu. Surveys conducted by the U.S. Geological Survey detected Hawaiian Hoary bats at Schofield Barracks East Range (Pinzari 2014, p. 2). The detectors at Schofield Barracks East Range are approximately 1.2 miles (mi) [1.9 kilometers (km)] east of Mililani Parcel 17, 3.1 mi (5 km) north of Waiawa Property 1 (Castle & Cooke), and 3.4 mi (5.5 km) north of Waiawa Property 2 (Kamehameha Schools). Hawaiian hoary bats have been documented traveling up to 6.8 mi (10.9 km) one-way in a single night to forage (Bonaccorso 2015, p. 69). Based upon what is known about the foraging habits of the bat, existing potential foraging habitat within the project areas, and documented detections of bats within 4 mi (6.4 km) of the project areas, it is likely that Hawaiian hoary bats may forage within the following project areas:

- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Threats to the Hawaiian hoary bat include habitat destruction (elimination of roosting sites), direct and indirect effects of pesticides, disease, colliding with wind turbines, and entanglement on barbed wire fences (USFWS 2011a, pp. 8-9). Hawaiian hoary bats are more vulnerable to barbed wire fences that occur in open areas than fences in forested areas (Jeffrey 2007 pers. comm. 2007). We recommend that any fencing used for the proposed project be designed to avoid the use of barbed wire at the following project areas:

- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Hawaiian seabirds

Outdoor lighting, such as street lights and night-time work, can adversely impact listed and migratory seabird species found in the vicinity of the proposed project. Seabirds fly at night and are attracted to artificially lighted areas which can result in disorientation and subsequent fallout due to exhaustion or collision with objects such as utility lines, guy wires, and towers that protrude above the vegetation layer. Once grounded, they are vulnerable to predators or often struck by vehicles along roadways. Wedge-tailed shearwater nesting colonies are located on offshore islets and several locations on Oahu and every year many young shearwaters are downed and struck along Oahu roadways. Any increase in the use of night-time lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality.

If outdoor lighting is proposed for the project, the Service recommends a comprehensive lighting plan be developed and incorporated into the Draft EIS to minimize and avoid artificial lighting impacts to seabirds. If lights cannot be eliminated due to safety or security concerns then they should be positioned low to the ground, be motion-triggered and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below. We recommend avoiding night-time construction activities from September 15 through December 15 and providing all project staff with information about seabird fallout and that downed birds can be taken to Sea Life Park for rehabilitation.

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with ESA compliance.

General comments

Hawaii's native ecosystems are heavily impacted by exotic invasive plants. Whenever possible we recommend using native plants for landscaping purposes. If native plants do not meet the landscaping objectives, we recommend choosing species that are thought to have a low risk of becoming invasive. The following websites are good resources to use when choosing landscaping plants: Pacific Island Ecosystems at Risk (http://www.hear.org/Pier/), Weed Risk Assessment for Hawai'i and Pacific Islands (http://www.botany.hawaii.edu/faculty/daehler/wra/) and Global Compendium of Weeds (http://www.hear.org/gcw/).

We appreciate your efforts to conserve endangered species. If you have questions regarding these comments, please contact Nanea Valeros, Fish and Wildlife Biologist (phone: 808-792-9400, email: nanea_valeros@fws.gov).

Sincerely,

Leila Nagatani

for Aaron Nadig
Island Team Manager
Oahu, Kauai, North Western Hawaiian Islands, and American Samoa

cc: Mr. Joshua Schnabel

Literature Cited

Bonaccorso, F. J., C. M. Todd, A. C. Miles, and P. M. Gorresen. 2015. Foraging range movements of the endangered Hawaiian hoary bat, *Lasiurus cinereus semotus* (Chiroptera: Vespertilionidae). Journal of Mammalogy 96: 64-71.

Jeffrey, J. 2007. Personal Communication. Biologist, Hakalau National Wildlife Refuge, United States Fish and Wildlife Service.

Pinzari, C. 2014. *Hawaiian Hoary Bat: Seasonal Acoustic Monitoring Study on Oahu Army Installations, 2010-2014*. 17 pp.

U.S. Fish and Wildlife Service. 2011. Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), 5-Year Review Summary and Evaluation. 13 pp.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

May 16, 2017

TO: Russell Y. Tsuji, Administrator
Land Division

ATTN: Lydia Morikawa

FROM: James Cogswell
Wildlife Program Manager

SUBJECT: Division of Forestry and Wildlife Comments on Oahu Correctional Center Replacement Project

The Department of Forestry and Wildlife has received your request for a list threatened and endangered species known to occur in the prospective project areas listed in the table below. The Division has reviewed the prospective sites using GIS and has provided the following comments.

Site Name	Location	Tax Map Key Number
Hawaii Dept. of Agriculture, Animal Quarantine Facility	99-521 A, B, & C Halawa Valley Street, Aiea	99010058, 99010057, 99010054, 990010046, 99010006
Oahu Community Correctional Center	2199,2233, 2109 & 2247 Kamehameha Hay., Kalihi	12013002
Mililani Technology Park, Lot 17	Kahelu Ave., Mililani	95046042
Women's Community Correctional Center	42-499 Kalanianaole Highway, Kailua	42003004
Halawa Correctional Facility	99-902 Moanalua Rd., Halawa	99010030

Hawaiian hoary bat
The State and Federally listed Hawaiian hoary bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the proposed project. Hawaiian hoary bats roost in both exotic and native trees. If any trees are planned for removal during the bat breeding season there is a risk of injury or mortality to juvenile bats. To minimize the potential for impacts to this species, site clearing should be timed to avoid disturbance to breeding Hawaiian hoary bats; woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

Hawaiian short-eared owl
The state endangered Hawaiian short-eared owl or Pueo (*Asio flammeus sandwichensis*) has the potential to occur in the project vicinity site. Pueo are a crepuscular species, most active during dawn and dusk twilights. DOFAW recommends twilight pre-construction surveys prior to

clearing vegetation. If Pueo nests are present, a buffer zone should be established in which no clearing occurs until nesting ceases and notify DOFAW staff.

Waterbirds

State and Federally listed waterbirds such as the Hawaiian duck (*Anas wyvilliana*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian moorhen (*Gallinula chloropus sandvicensis*) are likely to occur within a mile of the proposed Kailua site. To minimize the potential for take, surveys for waterbirds by a qualified biologist are recommended before any land clearing or excavation activities occur, and should be repeated if these activities are delayed more than three days. If a nest is discovered at any point, please contact DOFAW staff. If a bird is present during ongoing activities, then all activities within 100 feet (30 m) of the bird should cease, and the bird should also not be approached. Work may continue after the bird leaves the area of its own accord.

White tern

If tree trimming or removal is planned, DOFAW strongly recommends surveying for the presence of white terns prior to any action that could disturb the trees. White terns (*Gygis alba*) pairs lay their single egg in a branch fork with no nest. The eggs and chicks can be easily dislodged by construction equipment that nudges the trees.

Finally, we note that artificial lighting can adversely impact seabirds that may pass through the prospective site areas at night causing disorientation which could result in collision with manmade artifacts or grounding of birds. If nighttime lighting is required DOFAW recommends that any lights used be fully shielded to minimize impacts.

We appreciate your efforts to work with our office for the conservation of native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Katherine Cullison, Conservation Initiatives Coordinator at (808)587-4148 or Katherine.cullison@hawaii.gov.

Attachment 5: Approved Jurisdictional Determination Forms

DEPARTMENT OF THE ARMY
HONOLULU DISTRICT, U.S. ARMY CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

September 08, 2017

SUBJECT: Permit Determination, Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii, Department of the Army File No. POH-2017-00159

Ms. Tara Stewart
Louis Berger
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, New Jersey 07962

Dear Ms. Stewart:

The Honolulu District, U.S. Army Corps of Engineers (Corps), Regulatory Branch has received your request for a jurisdictional determination and clarification whether a Department of the Army (DA) permit is required for the replacement of the Oahu Community Correctional Center (OCCC). The replacement of the OCCC involved the investigation of five sites: the OCCC existing location in Kalihi, the Hawaii Department of Agriculture (HDOA) Animal Quarantine Facility in Aiea, the Mililani Technological Park Lot 17 in Mililani, the Halawa Correctional Facility in Aiea, and the Women's Community Correctional Center (WCCC) in Kailua, all located on Island of Oahu, Hawaii. Your request has been assigned DA file number POH-2017-00159. Please reference this number in all future correspondence with our office relating to this action.

Based on our review of the information you provided and the enclosed approved jurisdictional determinations (AJDs) for the OCCC existing location, the HDOA Animal Quarantine Facility, and the Mililani Technological Park Lot 17, dated July 21, 2017, these three sites, as defined in the Wetland Report for each site, do not contain waters of the U.S., including wetlands or navigable waters of the U.S., as defined by 33 CFR Parts 328 and 329, respectively. Therefore, a DA permit under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899 is not required. The basis for our jurisdictional determination is on the enclosed AJD Forms with attached maps for each of these three sites (Enclosures 1, 2, and 3).

While a DA permit is not required for the placement of fill, structures, or work in these three sites as defined by the Wetland Report for each site, you are responsible for obtaining all other applicable Federal, state, or local authorizations required by law.

For the remaining two sites, the Halawa Correctional Facility and the WCCC, we have reviewed your submittal pursuant to Section 404 of the Clean Water Act (33

U.S.C. 1344; "Section 404") and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403; "Section 10"). Section 404 requires DA authorization for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. Section 10 requires DA authorization for the placement of structures in, under or over navigable waters of the U.S. and/or other work affecting the course, location, condition or navigable capacity of such waters. To determine if a DA permit is required for a proposed action, the Corps must first determine whether the proposed project is located within the Corps' geographic jurisdiction (i.e., whether the activity is located within a water of the U.S.). If the activity is within a water of the U.S., the Corps must then determine whether the proposed project is a regulated activity under Section 10 and/or Section 404 or if the activity is exempt under Section 404(f). The determination provided in this letter pertains only to the question of geographic jurisdiction.

The review area for the Halawa Correctional Facility AJD is 32 acres of the existing facility including inmate housing, administrative, program and support structures, maintenance buildings, an outdoor recreation area and vehicle parking lots located at 99-902 Moanalua Road in Halawa. The potential OCCC relocation area on Halawa Correctional Facility site would be an approximately 3.3-acre area of level land that is currently used as the correctional facility's inmate outdoor recreation area within the larger review area. The review area for the WCCC AJD is 124 acres of the existing facility including inmate housing, administrative, program and support structures, maintenance buildings, an outdoor recreation area and vehicle parking lots located at 42-477 Kalanianaole Highway in Kailua. The potential OCCC relocation area on the WCCC site would be an approximately 5-acre area of mowed grass field on the west side of the WCCC property within the larger review area. Based on project information submitted to our office and additional desktop reviews conducted by the Corps, the Corps has determined that there are waters of the U.S. on the project site in the locations depicted on the enclosed map for each site, attached to each of the AJD forms. The basis for this determination can be found in the enclosed AJD forms (Enclosures 4 and 5).

The enclosed Halawa Correctional Facility and WCCC AJDs provide the Corps' concurrence on the jurisdiction of the unnamed streams on each property, but does not provide the Corps' final concurrence on the lateral limits of jurisdiction (e.g. Ordinary High Water Mark) for the unnamed streams within each review area. The location of the ordinary high water mark (OHWM) must be included on your project plans for computation of impacts and may be subject to field verification by the Corps.

The enclosed Halawa Correctional Facility and WCCC AJDs provide the Corps' concurrence on the limits of jurisdiction for the 0.63 acre Palustrine Emergent (PEM) riverine wetland and 0.07 acre Palustrine Emergent (PEM) riverine wetland within the Halawa Correctional Facility and WCCC review areas respectively. The delineation of the wetland boundary must be included on project plans of any proposed projects in the review areas and will be used for computation of impacts.

This letter contains AJDs for the aforementioned review areas. If you wish to submit new information regarding this jurisdictional determination, please do so within 60 days. We will consider any new information submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. If you object to this determination, you may request an administrative appeal under 33 CFR Part 331. We have enclosed a Notification of Appeal Process and Request for Appeal (NAP/RFA) form for each of the five sites (Enclosures 6, 7, 8, 9, and 10). If you wish to appeal this determination, you must submit a completed RFA form within 60 days of the date on the NAP to the Corps' Pacific Ocean Division office at the following address:

Kate Bliss
Civil Works and Regulatory Program Manager
U.S. Army Corps of Engineers
Pacific Ocean Division, ATTN: CEPOD-PDC
Building 525
Fort Shafter, Hawaii 96858-5440

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Pacific Ocean Division office by November 5, 2017.

This determination has been conducted to identify the presence or absence of jurisdictional aquatic resources and the geographic limits of the wetlands, but not the geographic limits of the streams since OHWM was not provided, on both the at the Halawa Correctional Facility and WCCC sites identified in your request, and is valid for five (5) years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Thank you for your cooperation with the Honolulu District Regulatory Program. If you have any questions related to this determination, please contact me at 808-835-4310 or via e-mail at Vera.B.Koskelo@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

For additional information about our Regulatory Program, visit our web site at http://www.poh.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

Vera B Koskelo

Digitally signed by
KOSKELO.VERA.B.1370139110
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=KOSKELO.VERA.B.1370139110
Date: 2017.09.11 08:30:08 -10'00'

Vera B. Koskelo
Regulatory Specialist, Regulatory Branch

Enclosures

DRY LAND APPROVED JURISDICTIONAL DETERMINATION FORM[1]
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): July 21, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: POH-2017-00159 (Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii) – OCCC review area

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Hawaii County/parish/borough: Oahu City: Kalihi (2109 Kamehameha Highway)
Center coordinates of site (lat/long in degree decimal format): Lat. 21.329667 °, Long. -157.883613 °
Universal Transverse Mercator: UTM Zone 4 N
Name of nearest waterbody: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 20060000 (Oahu); 33011 (DLNR HUC for Kalihi)

- [x] Check if map/diagram of review area is available upon request.
- [ ] Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- [x] Office (Desk) Determination. Date: September 8, 2017
- [ ] Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

SECTION III: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- [x] Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Project Location Map attached
- [ ] Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report.
- [ ] Data sheets prepared by the Corps:
- [ ] U.S. Geological Survey Hydrologic Atlas:
  - [ ] USGS NHD data.
  - [ ] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- [x] USDA Natural Resources Conservation Service Soil Survey. Citation: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report; Hydrologic Rating from NRCS' Web Soil Survey website, accessed September 6, 2017, websoilsurvey.nrcs.usda.gov/
- [x] National wetlands inventory map(s). Cite name: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report
- [ ] State/Local wetland inventory map(s):
- [ ] FEMA/FIRM maps:
- [ ] 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report, Google Earth Pro
- [ ] or [x] Other (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- [ ] Previous determination(s). File no. and date of response letter:
- [ ] Applicable/supporting case law:
- [ ] Applicable/supporting scientific literature:
- [x] Other information (please specify): field survey notes provided by the agent in an email dated September 7, 2017: "The site located within a highly developed urban area and is surrounded by major roadways and industrial and commercial properties. The majority (approximately 85%) of the site is developed and consists of pavement, concrete, and buildings. Undeveloped areas are limited to mowed lawn interspersed between buildings with occasional landscape plantings. The largest undeveloped area is approximately two-acre recreation field consisting of dirt and mowed lawn. No wetland signatures were identified upon review of aerial photos of the site;

[1] This form is for use only in recording approved JDs involving dry land. It extracts the relevant elements of the longer approved JD form in use since 2007 for aquatic areas and adds no new fields.

no wetlands or hydric soils are mapped on-site; and there were no observations of wetland hydrology, hydrophytic vegetation, or any wetland indicators during the field investigation."

B. REQUIRED ADDITIONAL COMMENTS TO SUPPORT JD. EXPLAIN RATIONALE FOR DETERMINATION THAT THE REVIEW AREA ONLY INCLUDES DRY LAND: Project is in all uplands. No water features are on the parcel of land.

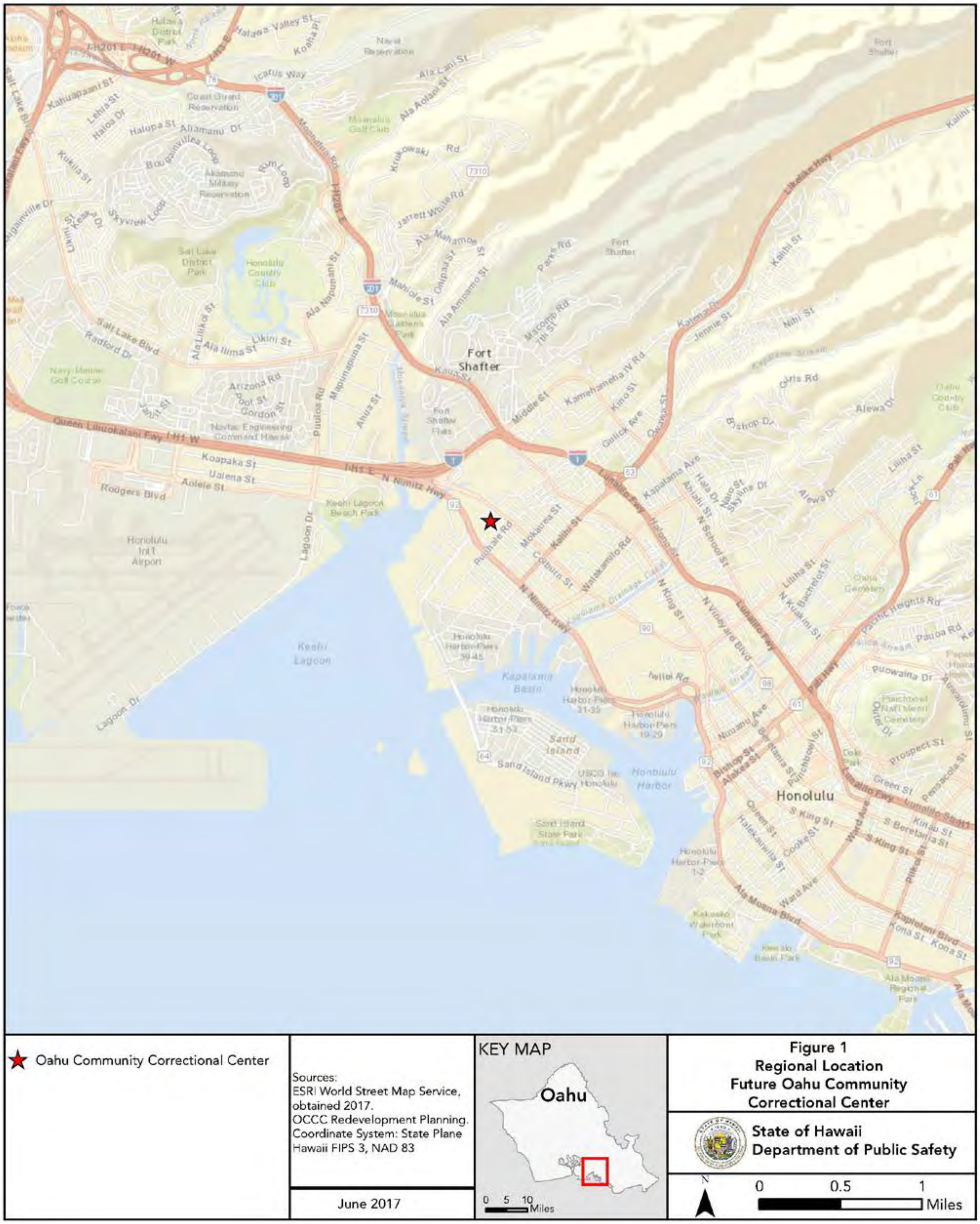

Figure1: Regional location.

Figure 2: Aerial view.

DRY LAND APPROVED JURISDICTIONAL DETERMINATION FORM[1]
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): July 21, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: POH-2017-00159 (Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii) – Hawaii Department of Agriculture (HDOA) Animal Quarantine Facility review area

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Hawaii County/parish/borough: Oahu City: Aiea (99-951 Halawa Valley Street)
Center coordinates of site (lat/long in degree decimal format): Lat. 21.371749 °, Long. -157.912328 °
Universal Transverse Mercator: UTM Zone 4 N
Name of nearest waterbody: North Halawa Stream
Name of watershed or Hydrologic Unit Code (HUC): 20060000 (Oahu); lower Halawa drainage basin

☑ Check if map/diagram of review area is available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☑ Office (Desk) Determination. Date: September 8, 2017

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

SECTION III: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Project Location Map attached

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

  ☐ Office concurs with data sheets/delineation report.

  ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps:

☐ U.S. Geological Survey Hydrologic Atlas:

  ☐ USGS NHD data.

  ☐ USGS 8 and 12 digit HUC maps.

☑ U.S. Geological Survey map(s). Cite scale & quad name: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report

☑ USDA Natural Resources Conservation Service Soil Survey. Citation: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report; Hydrologic Rating from NRCS' Web Soil Survey website, accessed September 6, 2017, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx, note: although the Web Soil Survey shows the South Halawa Stream running through the southeast portion of the site, that area is already occupied by structures on that portion of the site, indicating that the stream is either incorrectly mapped or has already been piped beneath or diverted away from the project site.

☑ National wetlands inventory map(s). Cite name: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☑ Photographs: ☑ Aerial (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report, Google Earth Pro

☐ or ☑ Other (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report

☐ Previous determination(s). File no. and date of response letter:

☐ Applicable/supporting case law:

☐ Applicable/supporting scientific literature:

☑ Other information (please specify): field survey notes provided by the agent in an email dated September 7, 2017: "The site is surrounded by commercial and industrial buildings, a cement plant and adjoining mining operation, and major roadways. The majority (approximately 75%) of the site is developed and consists of pavement, concrete, kennels, and buildings. Undeveloped land consists of narrow mowed grassed areas interspersed between actively-used kennels areas and narrow strips of unmaintained vegetation interspersed

[1] This form is for use only in recording approved JDs involving dry land. It extracts the relevant elements of the longer approved JD form in use since 2007 for aquatic areas and adds no new fields.

between abandoned kennels, mowed lawns between buildings, and the cattle pasture. No hydrophytic vegetation, water-stained leaves, seeps, topographic depressions, swales, or drainage patterns were observed in any of the undeveloped areas. One soil pit (approximately 12" deep) dug in the cattle pasture showed no soil saturation or water table present in the pit. Inspection of the soils did not identify any oxidized rhizospheres, redoximorphic features, hydrogen sulfide odor, or other hydric soil indicators. A concrete-lined channel is present off-site, adjacent to the eastern site boundary. The concrete feature was dry at the time of inspection and no hydrologic connection to the site was evident. No wetland signatures were identified upon review of aerial photos of the site; no wetlands or hydric soils are mapped on-site; and there were no observations of wetland hydrology, hydric soils, or hydrophytic vegetation during the field investigation."

B. REQUIRED ADDITIONAL COMMENTS TO SUPPORT JD. EXPLAIN RATIONALE FOR DETERMINATION THAT THE REVIEW AREA ONLY INCLUDES DRY LAND: Project is in all uplands. No water features are on the parcel of land.

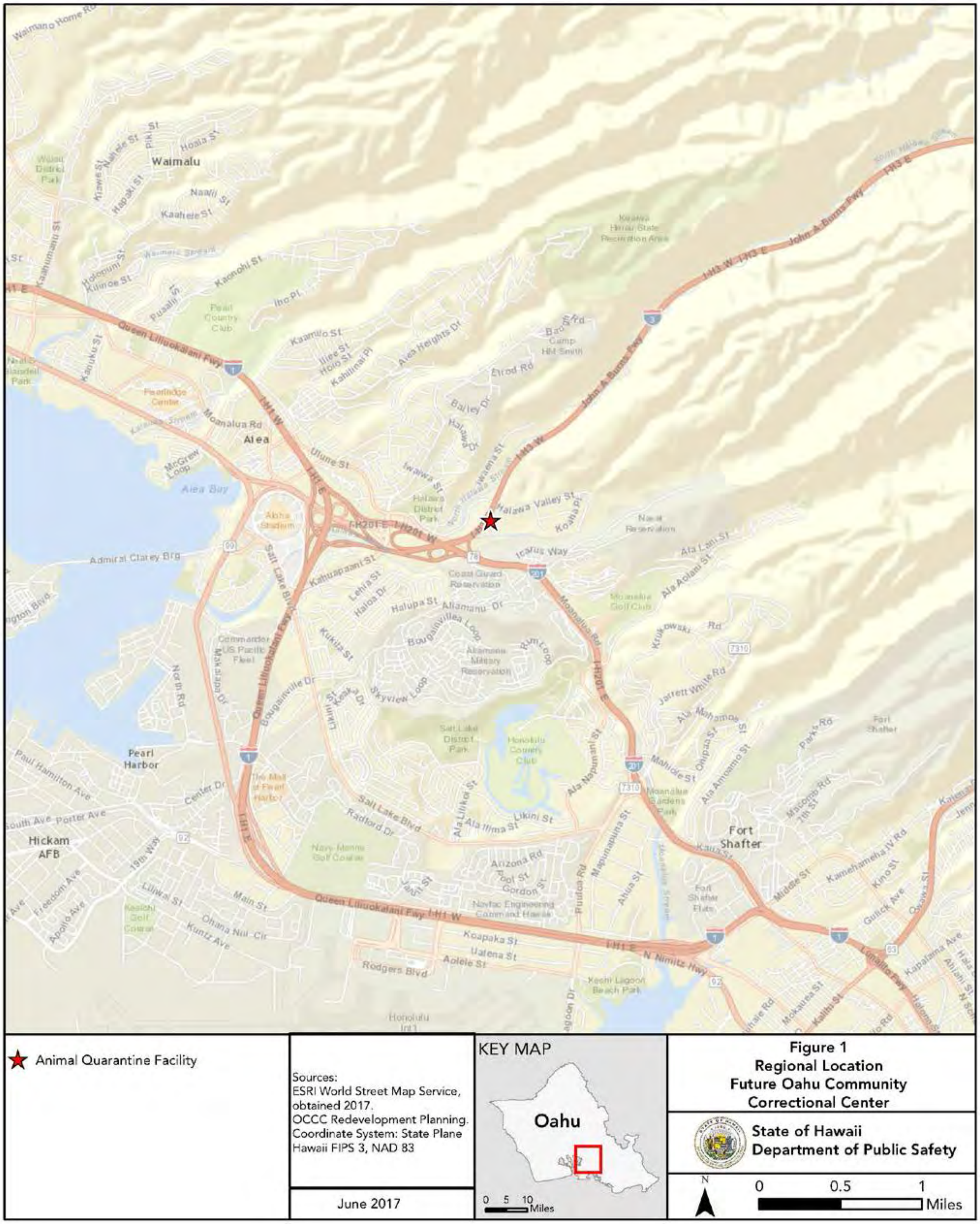

Figure 1: Regional location.

Photo Key Map

DRY LAND APPROVED JURISDICTIONAL DETERMINATION FORM[1]
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): July 21, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: POH-2017-00159 (Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii) – Mililani Technological Park Lot 17 review area

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Hawaii County/parish/borough: Oahu City: Mililani (along the H-2 corridor off of Kahelu Avenue)
Center coordinates of site (lat/long in degree decimal format): Lat. 21.480199 °, Long. -157.013390 °
Universal Transverse Mercator: UTM Zone 4 N
Name of nearest waterbody: Waikele Stream
Name of watershed or Hydrologic Unit Code (HUC): 20060000 (Oahu)

☑ Check if map/diagram of review area is available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☑ Office (Desk) Determination. Date: September 8, 2017

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

SECTION III: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Project Location Map attached
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps:
☐ U.S. Geological Survey Hydrologic Atlas:
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☑ U.S. Geological Survey map(s). Cite scale & quad name: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report
☑ USDA Natural Resources Conservation Service Soil Survey. Citation: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report; Hydrologic Rating from NRCS' Web Soil Survey website, accessed September 6, 2017, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

☑ National wetlands inventory map(s). Cite name: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report
☐ State/Local wetland inventory map(s):
☐ FEMA/FIRM maps:
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☑ Photographs: ☑ Aerial (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report, Google Earth Pro
☐ or ☑ Other (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
☐ Previous determination(s). File no. and date of response letter:
☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☑ Other information (please specify): field survey notes provided by the agent in an email dated September 7, 2017: "The site consists of 40 acres of undeveloped, vegetated land within a suburban business park. Due to topography, only approximately 19 acres are suitable for OCCC development and were the focus of our investigations. The 19-acre area proposed for development is a level plateau surrounded by gulches. The plateau is a former pineapple field that is now densely vegetated by a mix of mostly non-native trees, shrubs, and an understory of weedy grasses and vines. There was no significant change in vegetation community or structure throughout the plateau, and

[1] This form is for use only in recording approved JDs involving dry land. It extracts the relevant elements of the longer approved JD form in use since 2007 for aquatic areas and adds no new fields.

the topography remained level throughout. No hydrophytic vegetation, water-stained leaves, seeps, topographic depressions, swales, or drainage patterns were observed. Four soil pits (approximately 12" deep) were dug in various locations across the plateau. No soil saturation or water table was evident in any pit. Inspection of the soils did not identify any oxidized rhizospheres, redoximorphic features, hydrogen sulfide odor, or other hydric soil indicators. No wetland signatures were identified upon review of aerial photos; no wetlands or hydric soils are mapped within the development area; and there were no observations of wetland hydrology, hydric soils, or hydrophytic vegetation during the field investigation."

B. REQUIRED ADDITIONAL COMMENTS TO SUPPORT JD. EXPLAIN RATIONALE FOR DETERMINATION THAT THE REVIEW AREA ONLY INCLUDES DRY LAND: Project is in all uplands. No water features are on the parcel of land.

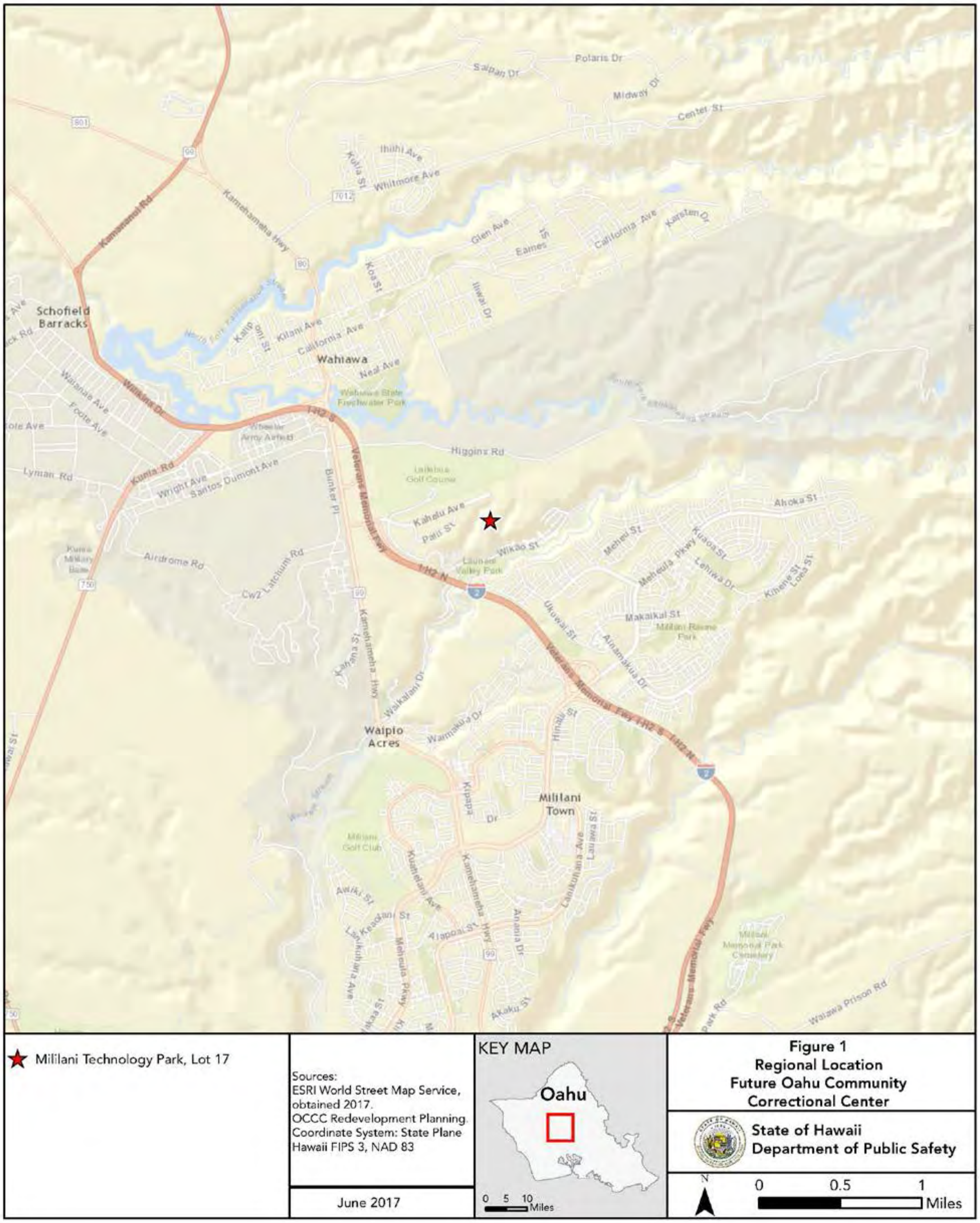

Figure1: Regional location.

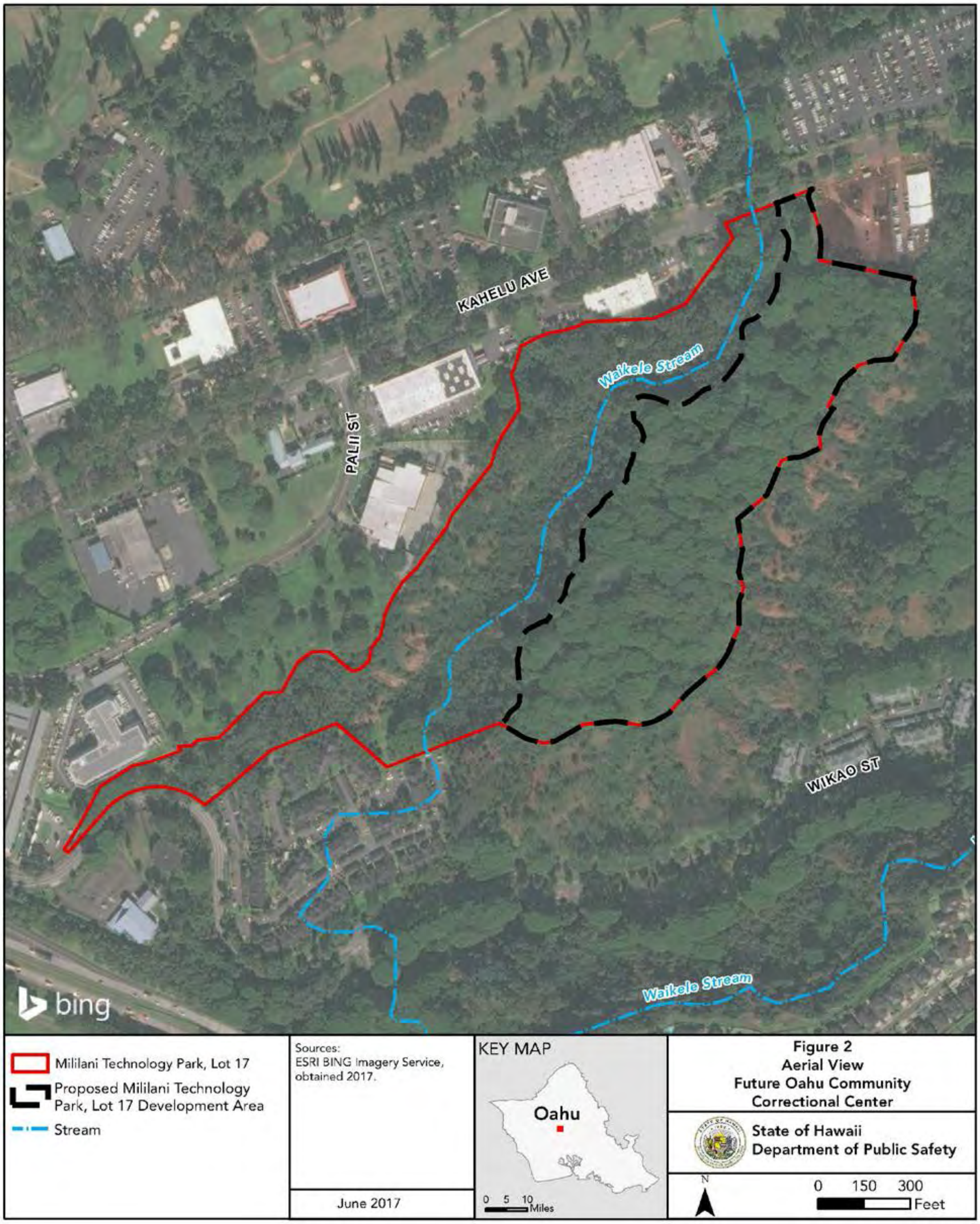

Figure 2: Aerial view.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): July 21, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District, POH- 2017 **–** 00159 (Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii) – Halawa Correctional Facility review area

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Hawaii County: Oahu City: Aiea (99-902 Moanalua Road)
Center coordinates of site (lat/long in degree decimal format): Lat. 21.373727 ° *N*, Long. -157.899190 °W
Universal Transverse Mercator: UTM Zone 4 N
Name of nearest waterbody: South Halawa Stream
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 200600000

- [x] Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- [ ] Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- [x] Office (Desk) Determination. Date: September 8, 2017
- [ ] Field Determination. Date(s): *Click here to enter a date.*, *Click here to enter a date.*

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are no "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- [ ] Waters subject to the ebb and flow of the tide.
- [ ] Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: *Click here to enter text.*

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. ***[Required]***

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]

- [ ] TNWs, including territorial seas
- [ ] Wetlands adjacent to TNWs
- [x] Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
- [ ] Non-RPWs that flow directly or indirectly into TNWs
- [x] Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- [ ] Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
- [ ] Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
- [ ] Impoundments of jurisdictional waters
- [ ] Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 2291 linear feet South Halawa Stream, 119 linear feet unnamed tributary of South Halawa Stream
   Wetlands: 0.63 acres.

   c. **Limits (boundaries) of jurisdiction** based on: 1987 Delineation Manual and Hawaii and Pacific Islands Regional Supplement

   Elevation of established OHWM (if known): *Click here to enter text.*

2. **Non-regulated waters/wetlands (check if applicable):**[3]

- [ ] Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: *Click here to enter text.*

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: *Click here to enter text.*

Summarize rationale supporting determination: *Click here to enter text.*

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": *Click here to enter text.*

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 597 square miles
Drainage area: 8.90 square miles (lower Halawa drainage basin)

Average annual rainfall: 58.74 inches in Aiea
Average annual snowfall: none

(ii) Physical Characteristics:
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☑ Tributary flows through 2 tributaries before entering TNW.

Project waters are 2-5 river miles from TNW.
Project waters are 1 (or less) river miles from RPW.
Project waters are 2-5 aerial (straight) miles from TNW.
Project waters are 1 (or less) aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: No, N/A

Identify flow route to TNW[5]: the unnamed tributary flows into South Halawa Stream flows into Halawa Stream, which flows into the East Lock of Pearl Harbor, a TNW that drains directly into the Pacific Ocean
Tributary stream order, if known: 2nd – South Halawa Stream, 1st – unnamed tributary

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural

☐ Artificial (man-made). Explain: *Click here to enter text.*

☑ Manipulated (man-altered). Explain: South Halawa Stream and a portion of an unnamed tributary of South Halawa Stream within the project area are concrete lined

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary properties with respect to top of bank (estimate): dimensions and geometry of the channel were not provided
Average width: # feet
Average depth: # feet
Average side slopes: *Choose an item.*

Primary tributary substrate composition (check all that apply):

- ☐ Silts
- ☐ Sands
- ☑ Concrete
- ☐ Cobbles
- ☐ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The channel has vertical banks and is a stable concrete-lined channel.
Presence of run/riffle/pool complexes. Explain: There are no run/riffle/pool complexes in the armored portion of the channel.
Tributary geometry: Relatively Straight
Tributary gradient (approximate average slope): not provided in Wetland Report

(c) Flow:
Tributary provides for: Seasonal Flow
Estimate average number of flow events in review area/year: number of flow events, flow regime, duration, and volume information was not provided in Wetland Report
Describe flow regime: *Click here to enter text.*
Other information on duration and volume: *Click here to enter text.*

Surface flow is: Discrete and Confined Characteristics: *Click here to enter text.*

Subsurface flow: Unknown Explain findings: *Click here to enter text.*
- ☐ Dye (or other) test performed: *Click here to enter text.*

Tributary has (check all that apply):
- ☑ Bed and banks
- ☑ OHWM[6] (check all indicators that apply):
  - ☐ clear, natural line impressed on the bank
  - ☐ the presence of litter and debris
  - ☐ changes in the character of soil
  - ☐ destruction of terrestrial vegetation
  - ☐ shelving
  - ☐ the presence of wrack line
  - ☐ vegetation matted down, bent, or absent
  - ☐ sediment sorting
  - ☐ leaf litter disturbed or washed away
  - ☐ scour
  - ☐ sediment deposition
  - ☐ multiple observed or predicted flow events
  - ☑ water staining
  - ☐ abrupt change in plant community *Click here to enter text.*
  - ☐ other (list):
- ☐ Discontinuous OHWM.[7] Explain: *Click here to enter text.*

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list): *Click here to enter text.*
- ☐ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: information not provided in Wetland Report
Identify specific pollutants, if known: none known

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width): *Click here to enter text.*

☑ Wetland fringe. Characteristics: PEM wetland dominated by Urochloa maxima

☐ Habitat for:

☐ Federally Listed species. Explain findings: In a letter dated December 23, 2016, USFWS stated that the Hawaiian hoary bat could use trees on the property for pupping. However the stream and abutting PEM wetland area do not contain any trees.

☑ Fish/spawn areas. Explain findings: it is possible for small fish to survive in the streams during times of flow

☐ Other environmentally-sensitive species. Explain findings: *Click here to enter text.*

☐ Aquatic/wildlife diversity. Explain findings: *Click here to enter text.*

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.63 acres

Wetland type. Explain: PEM dominated by Urochloa maxima

Wetland quality. Explain: Studies to determine the functional or conditional quality of the wetland were not conducted. However, given the location of the wetland in a highly urbanized setting and the regular mowing that occurs on the wetland, one may infer that the wetland is of poor quality.

Project wetlands cross or serve as state boundaries. Explain: *Click here to enter text.*

(b) General Flow Relationship with Non-TNW:

Flow is: Ephemeral Flow Explain: the South Halawa Stream is concrete lined and is therefore cut-off by a man-made barrier from base-flow from the surrounding ground and wetland and would only receive overland sheet flow from the wetland during and shortly following a storm

Surface flow is: unknown, but due to lack of observed discrete and/or confined flow, surface flow is assumed to be overland sheet flow

Characteristics: *Click here to enter text.*

Subsurface flow: Unknown Explain findings: *Click here to enter text.*

☐ Dye (or other) test performed: *Click here to enter text.*

(c) Wetland Adjacency Determination with Non-TNW:

☑ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain: *Click here to enter text.*

☐ Ecological connection. Explain: *Click here to enter text.*

☐ Separated by berm/barrier. Explain: *Click here to enter text.*

(d) Proximity (Relationship) to TNW

Project wetlands are 2-5 river miles from TNW.

Project waters are 2-5 aerial (straight) miles from TNW.

Flow is from: Wetland to Navigable Waters

Estimate approximate location of wetland as within the *Choose an item.* floodplain. Due to concrete lining, straightening, and incising of the channel, the abutting wetland may get flooded less frequently than they likely had prior to the stream being manipulated.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Flow in the wetland was not observed during the agent's site visit.

Identify specific pollutants, if known: information not provided in Wetland Report

(iii) Biological Characteristics. Wetland supports (check all that apply):

☑ Riparian buffer. Characteristics (type, average width): PEM abutting South Halawa Stream

☑ Vegetation type/percent cover. Explain: PEM dominated (100%) by Urochloa maxima

☐ Habitat for:

☐ Federally Listed species. Explain findings: see explanation in non-TNW stream section above

☐ Fish/spawn areas. Explain findings: *Click here to enter text.*

☐ Other environmentally-sensitive species. Explain findings: *Click here to enter text.*

☐ Aquatic/wildlife diversity. Explain findings: *Click here to enter text.*

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: 1

Approximately (0.63) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Yes	0.63	*Y/N*	*#*

Y/N	*#*	*Y/N*	*#*
Y/N	*#*	*Y/N*	*#*
Y/N	*#*	*Y/N*	*#*

Summarize overall biological, chemical and physical functions being performed: the primary functions of the wetland relative to downstream benefits is assisting in providing overland sheetflow to the stream during and shortly following a storm and purifying the water that is transferred to the stream.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: *Click here to enter text.*

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: *Click here to enter text.*

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: *Click here to enter text.*

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: *#* linear feet *#* width (ft), Or, *#* acres.
   - ☐ Wetlands adjacent to TNWs: *#* acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: *Click here to enter text.*.
   - ☑ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Photographs taken during the agent's site visit on June 7, 2017 show flow in both the South Halawa Stream and in the unnamed tributary. Given that the summer is the dry part of the year in Aiea and that the area, flow in the two streams indicates that the stream flows at least seasonally, if not more frequently.

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☑ Tributary waters: 2291 linear feet South Halawa Stream, 119 linear feet unnamed tributary of South Halawa Stream
   - ☐ Other non-wetland waters: *#* acres.
     Identify type(s) of waters: *Click here to enter text.*

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: # linear feet # width (ft).

☐ Other non-wetland waters: # acres.

Identify type(s) of waters: Click here to enter text.

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

☑ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Click here to enter text.

☑ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: the wetland is located directly next to South Halawa Stream

Provide acreage estimates for jurisdictional wetlands in the review area: 0.63 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: # acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: # acres.

7. **Impoundments of jurisdictional waters.[9]**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

☐ which are or could be used for industrial purposes by industries in interstate commerce.

☐ Interstate isolated waters. Explain: Click here to enter text.

☐ Other factors. Explain: Click here to enter text.

Identify water body and summarize rationale supporting determination: Click here to enter text.

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: # linear feet # width (ft).

☐ Other non-wetland waters: # acres.

Identify type(s) of waters: Click here to enter text.

☐ Wetlands: # acres.

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[8]See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: *Click here to enter text.*
- ☐ Other: (explain, if not covered above): *Click here to enter text.*

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): # linear feet # width (ft).
- ☐ Lakes/ponds: # acres.
- ☐ Other non-wetland waters: # acres. List type of aquatic resource: *Click here to enter text.*.
- ☐ Wetlands: # acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): # linear feet # width (ft).
- ☐ Lakes/ponds: # acres.
- ☐ Other non-wetland waters: # acres. List type of aquatic resource: *Click here to enter text.*.
- ☐ Wetlands: # acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: provided with July 21, 2017 Wetland Report
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☑ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: *Click here to enter text.*
- ☐ Corps navigable waters' study: *Click here to enter text.*
- ☐ U.S. Geological Survey Hydrologic Atlas: *Click here to enter text.*
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite scale & quad name: ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report; Hydrologic Rating from NRCS' Web Soil Survey website, accessed September 6, 2017, websoilsurvey.nrcs.usda.gov (note: The hydric rating layer in the Web Soil Survey indicates the approximate percentage of hydric soils in a mapping unit based on characteristics of the mapping unit (e.g. depth to water table). Mapping units describe large areas of soils which means that the lateral variability of a soil can still have differences from its mapped unit, i.e. although the hydric rating based on mapping units indicated that the entire Halawa Correctional Facility parcel has zero percent wetlands, it is possible for site-specific characteristics to have resulted in a wetland area within the mapping unit, as is the case for this review area.)
- ☑ National wetlands inventory map(s). Cite name: ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- ☐ State/Local wetland inventory map(s): *Click here to enter text.*
- ☐ FEMA/FIRM maps: *Click here to enter text.*
- ☐ 100-year Floodplain Elevation is: *Click here to enter text.* (National Geodectic Vertical Datum of 1929)
- ☑ Photographs: ☑ Aerial (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report, Google Earth Pro
- ☐ or ☑ Other (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- ☐ Previous determination(s). File no. and date of response letter: *Click here to enter text.*
- ☐ Applicable/supporting case law: *Click here to enter text.*
- ☐ Applicable/supporting scientific literature: *Click here to enter text.*
- ☐ Other information (please specify): *Click here to enter text.*

B. ADDITIONAL COMMENTS TO SUPPORT JD: *Click here to enter text.*

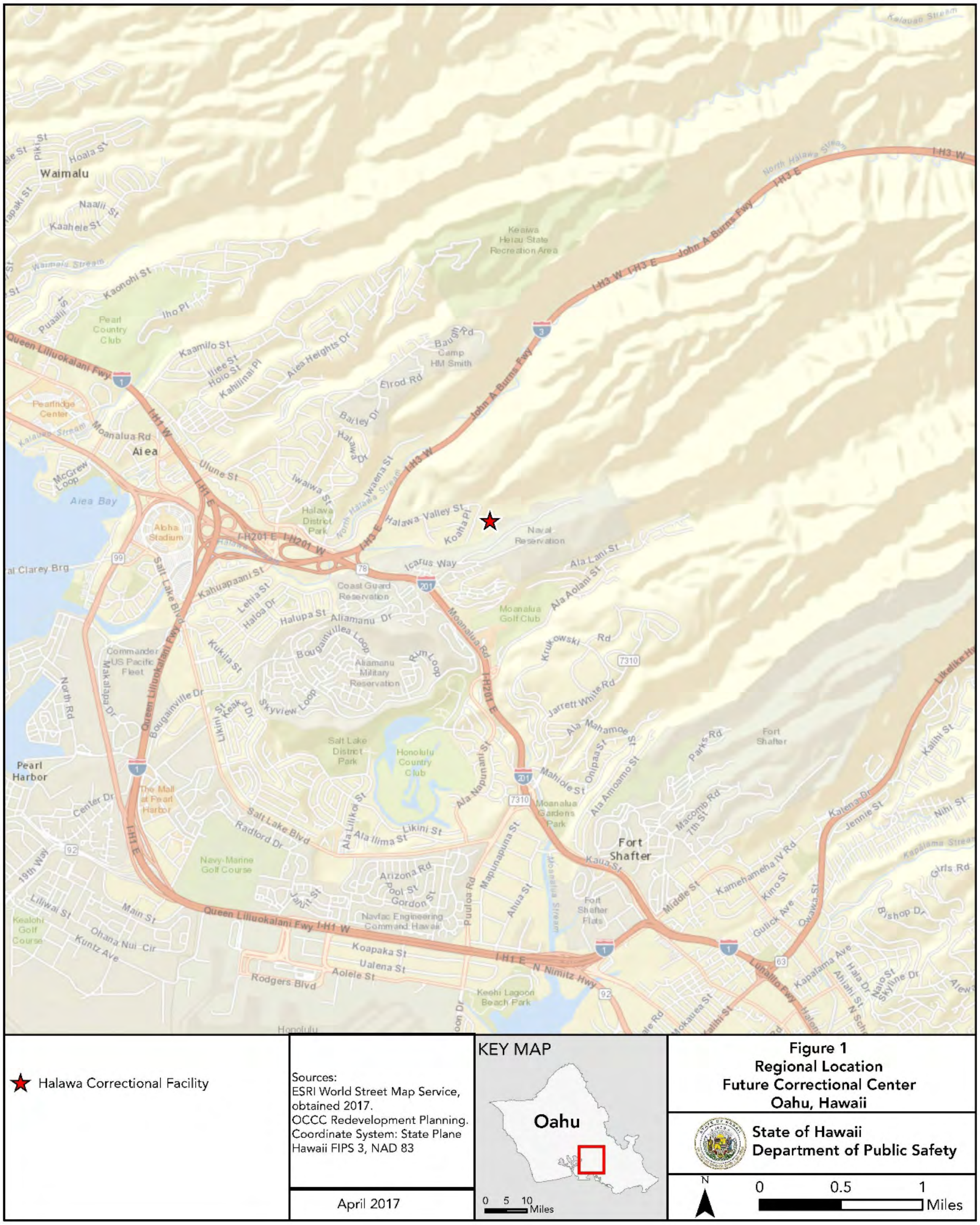

Figure 1: Regional location.

Figure 5: Hydrology and wetlands map.

Figure 6a: Delineated wetlands.

Figure 6b: Delineated wetlands.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): July 21, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District, POH- 2017 – 00159 (Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii) – Women's Community Correctional Center (WCCC) review area

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Hawaii County: Oahu City: Kailua (42-477 Kalanianaole Highway)
Center coordinates of site (lat/long in degree decimal format): Lat. 21.377507 ° *N*, Long. -157.748755 °W
Universal Transverse Mercator: UTM Zone 4 N
Name of nearest waterbody: Kailua Ditch
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 200600000

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☑ Office (Desk) Determination. Date: September 8, 2017

☐ Field Determination. Date(s): *Click here to enter a date.*, *Click here to enter a date.*

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are no "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: *Click here to enter text.*

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. ***[Required]***

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]

☐ TNWs, including territorial seas

☐ Wetlands adjacent to TNWs

☑ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs

☐ Non-RPWs that flow directly or indirectly into TNWs

☑ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

☐ Impoundments of jurisdictional waters

☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. **Identify (estimate) size of waters of the U.S. in the review area:**
Non-wetland waters: 1637 linear feet
Wetlands: 0.07 acres.

c. **Limits (boundaries) of jurisdiction** based on: 1987 Delineation Manual and Hawaii and Pacific Islands Regional Supplement

Elevation of established OHWM (if known): *Click here to enter text.*

2. **Non-regulated waters/wetlands (check if applicable):**[3]

☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: *Click here to enter text.*

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: *Click here to enter text.*

Summarize rationale supporting determination: *Click here to enter text.*

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": *Click here to enter text.*

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 597 square miles (Oahu)
Drainage area: 4.6 square miles (Kaelepulu watershed)

Average annual rainfall: 58.74 inches in Aiea
Average annual snowfall: none

(ii) Physical Characteristics:
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☑ Tributary flows through 1 tributaries before entering TNW.

Project waters are 2-5 river miles from TNW.
Project waters are 1 (or less) river miles from RPW.
Project waters are 2-5 aerial (straight) miles from TNW.
Project waters are 1 (or less) aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: No, N/A

Identify flow route to TNW[5]: Kailua Ditch flows north offsite to Maunawili Stream, which flows directly into the Pacific Ocean
Tributary stream order, if known: 1st

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☑ Natural

☐ Artificial (man-made). Explain: *Click here to enter text.*

☐ Manipulated (man-altered). Explain:

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary properties with respect to top of bank (estimate): dimensions and geometry of the channel were not provided
Average width: # feet
Average depth: # feet
Average side slopes: *Choose an item.*

Primary tributary substrate composition (check all that apply):

- ☐ Silts
- ☐ Sands
- ☐ Concrete
- ☐ Cobbles
- ☐ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☑ Other. Explain: the nature of the substrate in Kailua Ditch was not provided. The brown color of the water in the photographs provided with the Wetland Report may indicate the presence of silt in the substrate.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Based on photographs provided with the Wetland Report, the channel appears to be narrow, but with vegetated banks, meandering pattern, and overall stable character.

Presence of run/riffle/pool complexes. Explain: While the presence of run/riffle/pool complexes in the stream was not mentioned in the Wetland Report, the photographs provided with the Wetland Report indicate the absence of run/riffle/pool complexes in Kailua Ditch.

Tributary geometry: Meandering
Tributary gradient (approximate average slope): not provided in Wetland Report

(c) Flow:

Tributary provides for: Perennial Flow

Estimate average number of flow events in review area/year: as stated in the Wetland Report, Kailua Ditch has a Cowardin Classification of R5UBFx (Riverine, Unknown Perennial, Unconsolidated Bottom, Semi-permanently Flooded, Excavated)

Describe flow regime: *Click here to enter text.*

Other information on duration and volume: flow regime and volume were not provided in the Wetland Report. Given that the stream is perennial, flow duration would be constant.

Surface flow is: Discrete and Confined Characteristics: *Click here to enter text.*

Subsurface flow: Unknown Explain findings: Given that the stream is perennial, it is assumed that there is some subsurface flow contributing to baseflow.

- ☐ Dye (or other) test performed: *Click here to enter text.*

Tributary has (check all that apply):

- ☑ Bed and banks
- ☑ OHWM[6] (check all indicators that apply):
  - ☐ clear, natural line impressed on the bank
  - ☐ changes in the character of soil
  - ☐ shelving
  - ☑ vegetation matted down, bent, or absent
  - ☐ leaf litter disturbed or washed away
  - ☐ sediment deposition
  - ☐ water staining
  - ☐ other (list):
  - ☐ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☐ sediment sorting
  - ☐ scour
  - ☐ multiple observed or predicted flow events
  - ☐ abrupt change in plant community *Click here to enter text.*
- ☐ Discontinuous OHWM.[7] Explain: *Click here to enter text.*

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list): *Click here to enter text.*
- ☐ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: The photographs provided with the Wetland Report show the brown color of the water in Kailua Ditch.
Identify specific pollutants, if known: none known

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): *Click here to enter text.*
- ☑ Wetland fringe. Characteristics: PEM wetland dominated by Urochloa mutica (FACW) with Colocasia esculenta (OBL), Urochloa maxima, Ricinus communis, Musa spp. and Bambusa vulgaris.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: In a letter dated December 23, 2016, USFWS stated that the Hawaiian hoary bat could use trees on the property for pupping. However the stream and abutting PEM wetland area do not contain any trees.
  - ☑ Fish/spawn areas. Explain findings: it is possible for small fish to survive in the streams during times of flow
  - ☐ Other environmentally-sensitive species. Explain findings: *Click here to enter text.*
  - ☐ Aquatic/wildlife diversity. Explain findings: *Click here to enter text.*

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.07 acres

Wetland type. Explain: PEM dominated by Urochloa mutica

Wetland quality. Explain: Studies to determine the functional or conditional quality of the wetland were not conducted. However, given the location of the wetland in an undeveloped area and the hydrologic exchange likely between the stream and wetland since the stream is small and runs through the wetland, one may infer that the wetland is of at least moderate quality.

Project wetlands cross or serve as state boundaries. Explain: *Click here to enter text.*

(b) General Flow Relationship with Non-TNW:

Flow is: Perennial Flow Explain: Given that the Kailua Ditch is a perennial stream, the abutting wetland likely provides regular flow to the stream.

Surface flow is: Overland Sheetflow

Characteristics: *Click here to enter text.*

Subsurface flow: Unknown Explain findings: Although studies have not been conducted to quantify subsurface flow from the wetland to the stream, given that the stream has perennial flow, the wetland likely provides baseflow for the stream through subsurface conveyance.

☐ Dye (or other) test performed: *Click here to enter text.*

(c) Wetland Adjacency Determination with Non-TNW:

- ☑ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: *Click here to enter text.*
  - ☐ Ecological connection. Explain: *Click here to enter text.*
  - ☐ Separated by berm/barrier. Explain: *Click here to enter text.*

(d) Proximity (Relationship) to TNW

Project wetlands are 2-5 river miles from TNW.

Project waters are 2-5 aerial (straight) miles from TNW.

Flow is from: Wetland to Navigable Waters

Estimate approximate location of wetland as within the 2-year or less floodplain. The wetlands are immediately abutting what appears to be a small channel without any barriers between the wetland and stream, so any storm flow would be expected to expand on to the wetland.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: information not provided in Wetland Report

Identify specific pollutants, if known: information not provided in Wetland Report

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☑ Riparian buffer. Characteristics (type, average width): PEM abutting Kailua Ditch
- ☑ Vegetation type/percent cover. Explain: PEM dominated (60%) by Urochloa mutica
- ☑ Habitat for:
  - ☐ Federally Listed species. Explain findings: see explanation in non-TNW stream section above
  - ☑ Fish/spawn areas. Explain findings: In times of high flow, it is possible that fauna could migrate from the stream into the immediately abutting areas of the wetland for reproduction and growth of fast-growing species.
  - ☐ Other environmentally-sensitive species. Explain findings: *Click here to enter text.*
  - ☐ Aquatic/wildlife diversity. Explain findings: *Click here to enter text.*

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: 1

Approximately (0.07) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Yes	0.07	Y/N	#
Y/N	#	Y/N	#
Y/N	#	Y/N	#
Y/N	#	Y/N	#

Summarize overall biological, chemical and physical functions being performed: The wetland purifies water, contributes baseflow to the stream, and provides habitat to aquatic fauna over short time frames.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: *Click here to enter text.*

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: *Click here to enter text.*

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: *Click here to enter text.*

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: # linear feet # width (ft), Or, # acres.
   - ☐ Wetlands adjacent to TNWs: # acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: *Click here to enter text.*.
   - ☑ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Photographs taken during the agent's site visit on June 7, 2017 show flow in both the South Halawa Stream and in the unnamed tributary. Given that the summer is the dry part of the year in Aiea and that the area, flow in the two streams indicates that the stream flows at least seasonally, if not more frequently.

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☑ Tributary waters: 1637 linear feet
   - ☐ Other non-wetland waters: # acres.
     Identify type(s) of waters: *Click here to enter text.*

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: # linear feet # width (ft).
   - ☐ Other non-wetland waters: # acres.
     Identify type(s) of waters: *Click here to enter text.*

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☑ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: *Click here to enter text.*
   - ☑ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: the wetland is located directly next to Kailua Ditch

   Provide acreage estimates for jurisdictional wetlands in the review area: 0.07 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: # acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: # acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: *Click here to enter text.*
- ☐ Other factors. Explain: *Click here to enter text.*

Identify water body and summarize rationale supporting determination: *Click here to enter text.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: # linear feet # width (ft).
- ☐ Other non-wetland waters: # acres.
  Identify type(s) of waters: *Click here to enter text.*
- ☐ Wetlands: # acres.

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: *Click here to enter text.*
- ☐ Other: (explain, if not covered above): *Click here to enter text.*

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): # linear feet # width (ft).
- ☐ Lakes/ponds: # acres.
- ☐ Other non-wetland waters: # acres. List type of aquatic resource: *Click here to enter text.*.
- ☐ Wetlands: # acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): # linear feet # width (ft).
- ☐ Lakes/ponds: # acres.
- ☐ Other non-wetland waters: # acres. List type of aquatic resource: *Click here to enter text.*.
- ☐ Wetlands: # acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: provided with July 21, 2017 Wetland Report
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☑ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: *Click here to enter text.*
- ☐ Corps navigable waters' study: *Click here to enter text.*
- ☐ U.S. Geological Survey Hydrologic Atlas: *Click here to enter text.*
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite scale & quad name: ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: ESRI BING Imagery service - - provided with July 21, 2017 Wetland Report; Hydrologic Rating from NRCS' Web Soil Survey website, accessed September 6, 2017, websoilsurvey.nrcs.usda.gov
- ☑ National wetlands inventory map(s). Cite name: ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- ☐ State/Local wetland inventory map(s): *Click here to enter text.*
- ☐ FEMA/FIRM maps: *Click here to enter text.*
- ☐ 100-year Floodplain Elevation is: *Click here to enter text.* (National Geodectic Vertical Datum of 1929)
- ☑ Photographs: ☑ Aerial (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report, Google Earth Pro
- ☐ or ☑ Other (Name & Date): ESRI BING Imagery service - provided with July 21, 2017 Wetland Report
- ☐ Previous determination(s). File no. and date of response letter: *Click here to enter text.*
- ☐ Applicable/supporting case law: *Click here to enter text.*
- ☐ Applicable/supporting scientific literature: *Click here to enter text.*
- ☐ Other information (please specify): *Click here to enter text.*

B. ADDITIONAL COMMENTS TO SUPPORT JD: *Click here to enter text.*

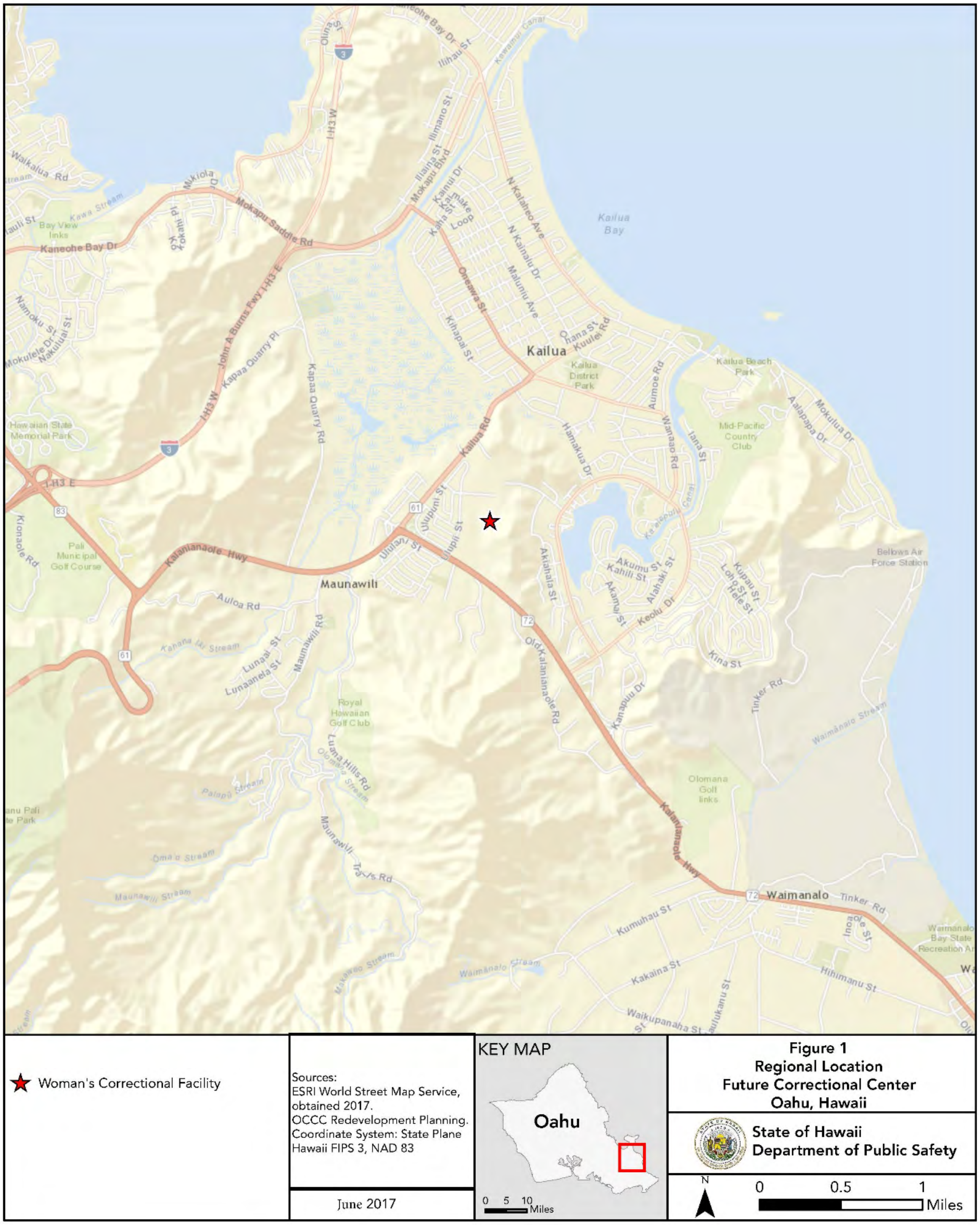

Figure 1: Regional location.

Figure 5: Hydrology and wetlands map.

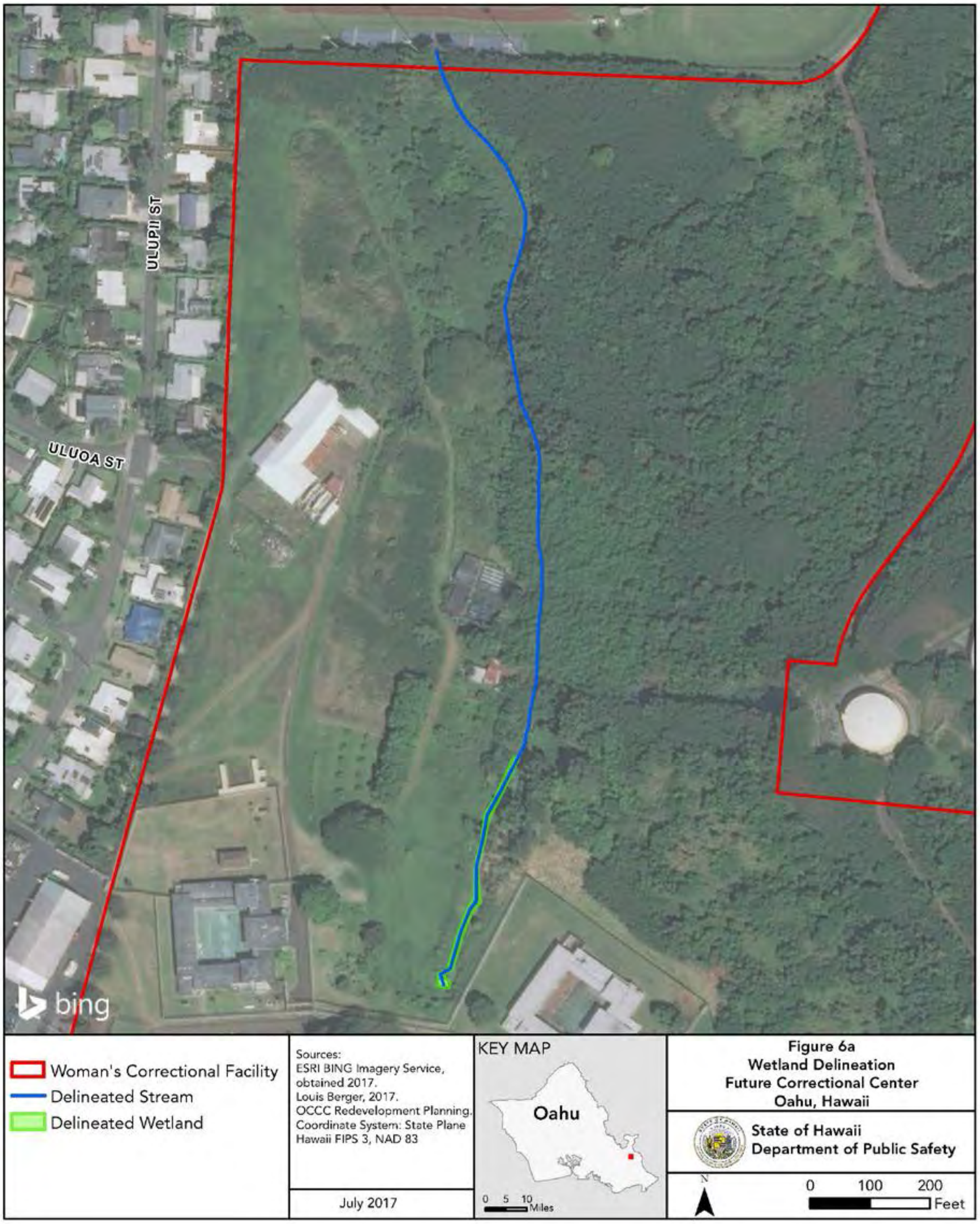

Figure 6a: Delineated wetlands.

Figure 6b: Delineated wetlands.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ms. Tara Stewart, Louis Berger		File Number: POH-2017-00159 – OCCC review area	Date: September 8, 2017
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)		A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)		B
	PERMIT DENIAL		C
x	APPROVED JURISDICTIONAL DETERMINATION		D
	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A. INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit or a Letter of Permission (LOP), you may sign the permit document and return it to the district commander for final authorization. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district commander. Your objections must be received by the district commander within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district commander will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district commander will send you a proffered permit for your reconsideration, as indicated in Section B below.

B. PROFFERED PERMIT: You may accept or appeal the permit

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- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division commander. This form must be received by the division commander within 60 days of the date of this notice.

C. PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division commander. This form must be received by the division commander within 60 days of the date of this notice.

D. APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.**
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E. PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

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If you have questions regarding this decision and/or the appeal process you may contact: Honolulu District, U.S. Army Corps of Engineers Regulatory Office, CEPOH-RO Building 230 Fort Shafter, Hawaii 96858-5440 808-835-4303	If you only have questions regarding the appeal process you may also contact: Kate Bliss Regulatory Program Manager U.S. Army Corps of Engineers, Pacific Ocean Division Building 525 Fort Shafter, HI 96858-5440 808-835-4626 Kate.m.bliss@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Commanders personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

__________________________ Signature of appellant or agent.	Date:	Telephone number:

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ms. Tara Stewart, Louis Berger	File Number: POH-2017-00159 – HDOA Animal Quarantine review area	Date: September 8, 2017

	Attached is:	See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
x	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

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C. PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division commander. This form must be received by the division commander within 60 days of the date of this notice.

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Signature of appellant or agent.	Date:	Telephone number:

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ms. Tara Stewart, Louis Berger	File Number: POH-2017-00159 – Mililani Technological Park Lot 17 review area	Date: September 8, 2017

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
x	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

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Signature of appellant or agent.	Date:	Telephone number:

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ms. Tara Stewart, Louis Berger	File Number: POH-2017-00159 – Halawa Correctional Facility review area	Date: September 8, 2017

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
x	APPROVED JURISDICTIONAL DETERMINATION	D
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Signature of appellant or agent.	Date:	Telephone number:

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Ms. Tara Stewart, Louis Berger	File Number: POH-2017-00159 – WCCC review area	Date: September 8, 2017

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
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A. INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit or a Letter of Permission (LOP), you may sign the permit document and return it to the district commander for final authorization. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district commander. Your objections must be received by the district commander within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district commander will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district commander will send you a proffered permit for your reconsideration, as indicated in Section B below.

B. PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit or a Letter of Permission (LOP), you may sign the permit document and return it to the district commander for final authorization. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division commander. This form must be received by the division commander within 60 days of the date of this notice.

C. PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division commander. This form must be received by the division commander within 60 days of the date of this notice.

D. APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.**
- **APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division commander. This form must be received by the division commander within 60 days of the date of this notice.**

E. PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Honolulu District, U.S. Army Corps of Engineers Regulatory Office, CEPOH-RO Building 230 Fort Shafter, Hawaii 96858-5440 808-835-4303	Kate Bliss Regulatory Program Manager U.S. Army Corps of Engineers, Pacific Ocean Division Building 525 Fort Shafter, HI 96858-5440 808-835-4626 Kate.m.bliss@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Commanders personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
Signature of appellant or agent.		

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Appendix K: Biological Resources Impact Assessment

Oahu Community Correctional Center

October 27, 2017

Prepared for:

State of Hawaii
Department of Accounting and General Services
Department of Public Safety

Prepared by:

Louis Berger

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BIOLOGICAL RESOURCES IMPACT ASSESSMENT

1.0 BACKGROUND

The Hawaii Department of Public Safety (PSD) operates the Oahu Community Correctional Center (OCCC), which acts as the local detention center for the First Circuit Court. Located at 2199 Kamehameha Highway in Kalihi, the OCCC is currently the largest jail facility in the state of Hawaii. With increasingly aged and obsolete correctional facilities, PSD is proposing to improve its corrections infrastructure through modernization of existing facilities when possible and construction of new institutions to replace others when necessary. Among its priority projects is the replacement of OCCC.

Four sites located on the island of Oahu have been identified as potential locations for the proposed OCCC facility: the Animal Quarantine Station in Halawa; the Halawa Correctional Facility in Halawa; the current site of the OCCC in Kalihi; and the Mililani Technology Park, Lot 17, in Mililani. The project also involves upgrades and expansions to the housing and supporting infrastructure at the Women's Community Correctional Center (WCCC) in Kailua to accommodate the relocation of female inmates from OCCC to that facility. The purpose of the proposed project is to provide a safe, secure, and humane environment for the care and custody of adult male and female offenders originating from the County of Oahu.

Development of the proposed OCCC and improvements to WCCC will result in potential impacts to biological resources during the periods of construction and following activation of the facilities. This report assesses the current biological environment at each of the proposed project locations and the potential for impacts to biological resources to occur during facility development and operation. In addition, measures to mitigate potential impacts are also addressed.

2.0 INTRODUCTION

Biological resources, including flora, fauna, special status species, and wetlands, within the existing OCCC, Animal Quarantine Station, Halawa Correctional Facility, and Mililani Technology Park sites and the WCCC were determined through the use of agency contacts, available database inventories and maps, and on-site inspections. National Wetland Inventory (NWI) maps, available Geographic Information Systems data, contacts with state and federal agencies, and thorough field investigations were utilized in determining the presence or absence of such resources.

3.0 CURRENT CONDITIONS

3.1 Flora

Prior to the arrival of Europeans, most of the Hawaiian Islands were dominated largely by complex and unique native flora. Waves of human colonizers added large numbers of introduced and invasive plants to the flora. Early Polynesian settlers carried with them a number of important food plants, including taro (*Colocasia esculenta*), sweet potatoes (*Ipomoea batatas*), breadfruit (*Artocarpus altilis*), bananas (*Musa acuminata*), and yams (*Dioscorea* spp.). Settlement by Europeans (and, later, by Americans, Japanese, and others) led to large-scale agricultural development, primarily for sugarcane (*Saccharum officinarum*) production. Following World War II, lands in sugarcane production were converted to pastureland, secondary agro-forestry, and subsistence agriculture. Large-scale agriculture (e.g., for pineapple [*Ananas comosus*] and coffee [*Coffea* spp.]) remains prevalent in some areas, along with small commercial enterprises that grow food for local consumption. Many areas have become urbanized and industrialized with large areas utilized for tourism and military purposes (USACE 2012).

Following European inhabitation of Oahu, large areas of native upland forests have been converted into commercial agriculture, cattle ranches, and non-native species have replaced native plants. Urbanization has replaced vegetative cover with buildings and roads, and landscaping of mainly introduced species. Common introduced trees include eucalyptus (*Eucalyptus* spp.), common ironwood (*Casuarina equisetifolia*), rose apple (*Syzygium jambos*), albizia (*Albizia* spp.), and strawberry guava (*Psidium cattleianum*).

3.1.1 Existing Oahu Community Correctional Center Site

The existing OCCC site comprises approximately 16 acres of land within a highly developed urban environment comprising residential, commercial and industrial buildings, major roadways and similar uses. Approximately 85 percent of the site has been disturbed by development and converted to impervious surfaces (pavement, concrete, or buildings). The largest undeveloped area remaining on-site is a recreational field that consists of mowed lawn and bare earth. The other small undeveloped areas consist of mowed lawn with occasional ornamental trees, shrubs, and other landscape plants.

3.1.2 Animal Quarantine Station Site

The Animal Quarantine Station site lies within a highly developed urban environment comprising commercial and industrial buildings, nearby cement plant and adjoining mining operation, major roadways and similar developments. Comprising approximately 30 acres of land bisected by H-3, approximately 75 percent of the site is disturbed by development and has been converted to impervious surfaces (pavement, concrete, kennels, or buildings). The few remaining undeveloped areas are covered with some type of vegetation, both native and non-native.

Woody species observed within the developed portions of the site include Koa haole (*Leucanena leucocephala*), Fiji fan palm (*Pritchardia pacifica*), cook pine (*Araucaria columnaris*), hibiscus (*Hibiscus* sp.), and monkeypod trees (*Albizia saman*). Maintained lawns and an animal pasture located west of H-3 comprise the largest area of undisturbed land remaining within the site. Vegetation within the animal pasture is dominated by grasses with scattered woody species, including several large monkeypod trees.

3.1.3 Halawa Correctional Facility Site

The Halawa Correctional Facility encompasses approximately 31 acres of land within a highly developed urban environment comprising commercial and industrial buildings, mining operations, major roadways and similar developments. The proposed OCCC site encompasses approximately 5 acres located within the northeastern portion of the 31-acre property. The majority of the overall Halawa Correctional Facility property has been disturbed by development and converted to impervious surfaces (pavement, concrete, or buildings) which comprise approximately 85 percent of the total land area. The only undeveloped areas are the recreational field (which is regularly mowed) and a strip of vegetation adjacent to South Halawa Stream located east of the recreational field. The area proposed for OCCC development is the currently undeveloped recreation field which is predominately covered by grasses with scattered golden crownbeard (*Verbesina encelioides*) and koa haole (*Leucaena leucocephala*).

Guinea grass (*Urochloa maxima*) is dominant along the slopes leading down to the South Halawa Stream. Other riparian vegetation includes castor bean (*Ricinus communis*), monkeypod (*Albizia saman*) and java plum (*Syzygium cumini*). Vegetation found in the remaining undeveloped land consists of maintained lawn areas. To the east of the facility begins a swath of undeveloped forest, extending approximately four miles to Mount Pu'ukahuauli, which provides habitat to such species as koa and kod'ohi'a forest, native trees such as 'ahakea, kalia, kopiko, lama, manono, and an understory of native uluhe fern (Buck et al. 1988). However, a majority of forests in this area have non-native Koster's curse (*Clidemia hirta*) and strawberry guava in the understory.

3.1.4 Mililani Technology Park, Lot 17 Site

The Mililani Technology Park, Lot 17, site comprises approximately 40 acres of undisturbed land within a well-developed suburban business park largely comprised of industrial and commercial buildings. To the west, south and east are the Waikakalaua and Kipapa gulches. Given the size, topography, and location of the gulches, approximately 19 acres of the site are suitable for OCCC development with the balance to remain in its natural condition as a buffer between the developed portion of the site and neighboring properties which comprise undeveloped lands, residences, light industrial uses, and community uses.

The 19-acre area proposed for development is a former agricultural field (for pineapple) on a level plateau currently very densely vegetated by a mix of non-native trees, shrubs, and an understory of weedy grasses and vines. Dominant woody species including Moluccan albizzia (*Falcataria moluccana*), strawberry guava, and Christmas berry (*Schinus terebinthifolius*) with scattered lantana (*Lantana camera*) and Koster's curse observed. Guinea grass is the dominant plant in the understory. The slopes of the plateau, as well as the gulches, are also densely vegetated with similar species, while developed areas bordering the property along the southern and western boundaries contain mowed lawn and landscape species.

3.1.5 Women's Community Correctional Center

WCCC comprises approximately 94 acres of land situated north of the Kalanianaole Highway. The area proposed for development is the undeveloped area within the south-central portion of the property consisting largely of mowed lawn.

Vegetation within the undeveloped portions of the WCCC property consist of mowed lawn with ornamental plantings, large stands of guinea grass, and forested areas with species such as papaya tree (*Carica papaya*), mango (*Mangifera indica*), koa haole, monkeypod, and Christmas berry. Vegetation observed adjacent to an unnamed stream that flows north-south through a portion of the property includes guinea grass, para grass (*Urochloa mutica*), coco-yam (*Colocasia esculenta*), castor bean (*Ricinus communis*), banana (*Musa* sp.) and bamboo (*Bambusa vulgaris*).

Planted species observed within the site include Ti (*Cordyline fruticose*) and Ulu tree (*Artocarpus altilis*). The northern half of the property is undeveloped and densely forested. Four large monkeypod trees near the southern site boundary are designated at Exceptional Trees by the Arborist Advisory Committee of the City and County of Honolulu (City and County of Honolulu Department of Parks and Recreation 2017). While these trees are a common introduced species in Oahu and are not of biological significance, their status as exceptional trees indicates that trees have "…historic or cultural value, or that by reason of age, rarity, location, size, aesthetic quality or endemic status, is designated by a county arborist advisory committee as worthy of preservation". The Exceptional Tree Act (Act 105) protects designated trees from improper trimming and unnecessary removal.

3.2 Fauna

Urbanization on Oahu has replaced much of the native wildlife habitat with developments and infrastructure. In addition, exotic species introduced by European settlers have replaced native species, with species such as feral cats (*Felis catus*), small Asian mongoose (*Herpestes javanicus*), black rat (*Rattus rattus*), Norway rat (*Rattus norvegicus*), and barn owl (*Tyto alba*) becoming predators of native birds. Rats have been implicated as one of the major causes of the decline of native birds in the early 1900's (Atkinson 1977). Avian poxvirus that was introduced to the islands by European colonists, and malaria that was brought to the islands by introduced passerines in the 1920's heavily impact native bird populations today (Van Riper and Scott 2001).

From 1778 to 1962, a minimum of 142 bird species were intentionally released or escaped from captivity on Oahu. Today, 42 alien land bird species are reproducing on Oahu, with only five native land bird species (the Hawaiian short-eared owl, the 'Amakihi, the 'Apapane, the 'I'iwi, and the 'Elepaio) remaining (Walther 2015). Wildlife likely to occur within the project sites today consist of species adapted to urban environments.

3.2.1 Existing Oahu Community Correctional Center Site

Located within a highly developed environment, the existing OCCC site provides no natural habitat and any wildlife found in the area consists solely of common species that are adapted to urban environments. Wildlife expected to utilize the site include small terrestrial mammals, birds, insects, and arachnids. Wildlife observed during field investigations included insects and several zebra doves (*Geopelia striata*).

3.2.2 Animal Quarantine Station Site

The Animal Quarantine Station site provides minimal natural habitat, and any wildlife found in the area would comprise common species that are adapted to urban environments. Wildlife expected to utilize the Animal Quarantine Station site include small terrestrial mammals, bats, birds, insects, arachnids, and snails. Wildlife observed during field investigations included insects, small Asian mongoose, and various passerine bird species including common myna (*Acridotheres tristis*).

3.2.3 Halawa Correctional Facility Site

The Halawa Correctional Facility site provides minimal natural habitat, and any wildlife found in the area would be common species that are adapted to urban environments. Wildlife expected to use the site include small terrestrial mammals, bats, birds, insects, small reptiles, arachnids, and snails. Wildlife observed during field investigations include small Asian mongoose, feral chickens, feral pigs, insects and various passerine bird species although many of these species avoid the fenced and maintained area comprising the outdoor recreation field that comprises the OCCC development site.

3.2.4 Mililani Technology Park, Lot 17 Site

Wildlife expected to use the Mililani Technology Park site include small terrestrial mammals, bats, birds, insects, arachnids, and snails. Wildlife observed within the 19-acre plateau area proposed for development during field investigations included insects and various passerine bird species. Other species expected to utilize the plateau include small Asian mongoose, rodents, and small reptiles. Outside the area of proposed development, feral cats (*Felis catus*), small Asian mongoose, and feral chickens were observed.

3.2.5 Women's Community Correctional Center

Wildlife expected to use the WCCC include small terrestrial mammals, bats, birds, insects, small reptiles, arachnids, and snails. Wildlife observed during field investigations included feral chickens, feral cats, cattle egret (*Bubulcus ibis*), insects, and various passerine bird species. Small Asian mongoose and feral pigs are also known to occur on the overall property albeit away from the more developed and actively maintained areas.

3.3 Special Status Species

The Endangered Species Act (ESA) of 1973 provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing the ESA are U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS). The act requires agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The act also prohibits any action that causes a "take" of any listed species of endangered fish or wildlife. The term "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Critical habitat, as defined in the ESA, is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

In addition to the ESA, the Migratory Bird Treaty Act (16 USC §§703-712, July 3, 1918, U.S. as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989), makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase or barter, any migratory bird, or the parts, nests, or eggs of such a bird, except under the terms of a valid permit issued pursuant to Federal regulations. Title 50, Section 10.13, of the Code of Federal Regulations (50 CFR 10.13) lists the bird species protected under the Migratory Bird Treaty Act (MBTA).

Correspondence from the USFWS Pacific Islands Fish and Wildlife Office (included as Attachment A) states that no federally designated or proposed critical habitat occurs within the immediate vicinity of the four alternative OCCC sites and WCCC. However, according to USFWS, the following federally listed species may occur or transit through the vicinity of these sites: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*); endangered band-rumped storm-petrel (*Oceanod roma castro*); threatened Newell's shearwater (*Puffinus newelii*); and Hawaiian seabirds protected under the MBTA. Correspondence from the Division of Forestry and Wildlife - Hawaii Department of Land and Natural Resources (DLNR) (included as Attachment A) states that the Hawaiian hoary bat, state endangered Hawaiian short-eared owl (*Asio flammeus sandwichensis*), and state threatened white tern (*Gygis alba*) have the potential to occur within the vicinity of the four alternative OCCC sites and WCCC (DLNR 2017). A description of each of these special status species is provided below.

- **Hawaiian hoary bat (*Lasiurus cinereus semotus*)**—The Hawaiian hoary bat is the only native land mammal to the Hawaiian archipelago. It is a subspecies of the hoary bat found across North America and has been listed as a federally endangered species. Hawaiian hoary bats are nocturnal, foraging on insects at night and roosting solitarily in the upper portions of trees during the day in forested areas.

Important foraging areas include water courses, coastlines and forest edges. Hawaiian hoary bats have been documented to breed on only the islands of Hawaii, Kauai, and Oahu, but are found on most of the larger islands. They are thought to be threatened by habitat loss, deforestation, pesticides, predation, and roost disturbance (DLNR 2015, USFWS 2017b). The distribution of Hawaiian hoary bats on Oahu is unknown, although fatalities associated with wind turbines and other recent captures have demonstrated that there is a breeding population present on the island (DLNR 2015, H.T. Harvey and Associates 2015). The Hawaii Division of Forestry and Wildlife has plans to conduct further research on the distribution of Hawaiian hoary bat on Oahu. Although Oahu presumably has a smaller population than on less developed islands such as the Main Island Hawaii, Maui, and Kauai, it is possible that the Hawaiian hoary bat could occur within any treed areas in proximity to the project sites (J. Cogswell pers. comm. 2017). The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away (USFWS 2016).

- Hawaiian petrel (*Pterodroma sandwichensis*)—The federally listed endangered Hawaiian petrel is endemic to Hawaii and is one of the state's most endangered seabirds. It is a mid-sized, nocturnal petrel that was formerly found on all of the main Hawaiian Islands, but today is restricted to the higher elevation volcanoes where they nest in burrows or rock crevices and cracks in lava tubes. The largest remaining number of nesting Hawaiian petrels, approximately 2,000 birds, nest in the Haleakala crater on Maui; smaller populations nest on Mauna Loa and Mauna Kea on the Island of Hawaii. As described for all nesting seabirds on Hawaii, the greatest threat to the petrel is nest depredation by feral cats, mongooses, and rats (DLNR 2015, USFWS 2017b). The Hawaiian petrel is very uncommon on Oahu (DLNR 2015). The Hawaiian petrel may transit through the vicinity of the project sites; however, none of the project sites provide suitable habitat for this species.
- Band-rumped storm petrel (*Oceanodroma castro*)—This federally listed endangered band-rumped storm petrel is the smallest and rarest seabird that breeds in Hawaii. This species is highly pelagic and its diet primarily consists of small fish, squid, and some crustaceans. Nesting sites are in burrows and in crevices, holes, and on protected ledges along cliff faces. They are known to nest in remote cliff locations on Kauai and Lehua Island, in steep open to vegetated cliffs, and in little vegetated, high-elevation lava fields on Hawaii Island. Kauai is believed to have the largest population. Predation by non-native animals on nests and adults during the breeding season is the greatest threat to this species (DLNR 2015, USFWS 2016a). The band-rumped storm petrel no longer occurs on Oahu (DLNR 2015) and the project sites do not provide suitable habitat for this species.
- Newell's shearwater (*Puffinus auricularis newelli*)—The federally listed threatened Newell's shearwater is endemic to Hawaii. This species was once abundant on all of the main Hawaiian Islands, but is now mainly restricted to nesting on mountainous terrain between 500 to 2,300 feet above mean sea level (amsl). Over 75 percent of Newell's shearwaters nest on Kauai; although they have also been documented nesting on Hawaii, Molokai, and Lehua. Nests are located in burrows, beneath ferns on forested slopes. The greatest threat to the Newell's shearwater is nest depredation by feral cats, mongooses, and rats. A second threat is its attraction to light and increasing human development and manmade lighting which has resulted in substantial problems for fledgling shearwaters during their first flight to the ocean from their nesting grounds (DLNR 2015, USFWS 2017b). It is unlikely but unknown if the Newell's shearwater occurs on Oahu (DLNR 2015). The Newell's shearwater may transit through the vicinity of the project sites; however, none of the sites provide suitable habitat for this species.

- **Hawaiian seabirds**—Seabirds are ocean-dwelling birds that spend most of their time foraging on the open oceans, coming to land to breed and raise their young in colonies on coastal islands, rocks, and cliffs (USFWS 2008). The Hawaiian Archipelago is globally important to seabird conservation, providing nesting habitat to twenty species and foraging habitat to an additional twenty species. While every Hawaiian island historically supported high densities of seabirds, most are now restricted to the Northwestern Hawaiian Islands or to predator-free offshore islands within the larger Main Hawaiian Islands, such as Oahu and Kauai. Primary threats to seabirds in Hawaii include predation by feral cats and invasive, non-native rodents (e.g. rats) and mongooses, as well as habitat loss or degradation due to invasive plants or animals, and human disturbances. A few birds nest in high elevations, such as the Hawaiian petrel and Newell's shearwater (both federally listed species described above), and are more protected due to inaccessible locations (e.g., sheer cliffs) (DLNR 2015). The Hawaiian petrel and the Newell's shearwater nest nowhere else on earth. The wedged-tail shearwater is a common, abundant Hawaiian seabird, but is protected under the MBTA. This species breeds on low, flat islands and sand spits with little or no vegetation. Two other seabirds nest almost exclusively in Hawaii, but have small colonies elsewhere: Laysan albatross (*Phoebastria immutabilis*) and black-footed albatross (*Phoebastria nigripes*) (USFWS 2017a). The USFWS *Regional Seabird Conservation Plan, Pacific Region* identifies three additional Hawaiian seabird species as "High Concern": the Christmas shearwater (*Puffinus nativitatis*), the Tristram's storm petrel (*Oceanodroma tristrami*), and the blue-gray noddy (*Procelsterna cerulean*) USFWS (2005). Outdoor lighting, such as street lights and night-time work, can adversely impact seabird species since seabirds fly at night and are attracted to artificially lighted areas which can result in disorientation and subsequent fallout due to exhaustion or collision with objects such as utility lines and towers that protrude above the vegetation layer. Once grounded, they are vulnerable to predators or often struck by vehicles along roadways. An increase in the use of night-time lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality (USFWS 2016). Hawaiian seabirds may transit through the vicinity of the project sites; however, none of the project sites provide suitable habitat for these species.
- **Hawaiian short-eared owl (*Asio flammeus sandwichensis*)**—The state-listed endangered Hawaiian short-eared owl is an endemic subspecies of the nearly cosmopolitan species, occurring on all continents except Australia and Antarctica. Short-eared owls are diurnal, unlike most owls, foraging for small mammals during daylight. Little is known about the breeding biology of the Hawaiian short-eared owl, but nests have been found throughout the year. They are found on all of the Main Hawaiian Islands, from sea level to 8,000 feet amsl, preferring open fields, rangelands, and other non-forested habitats. The Hawaiian short-eared owl is susceptible to many of the same factors that threaten other native Hawaiian birds, including habitat loss and degradation, predation by non-native mammals, and disease (DLNR 2015) This species occurs on Oahu but is unlikely to occur within any of the project sites due to either human development and activity or lack of this species' preferred open, non-forested habitat.
- **White tern (*Gygis alba*)**—The state-listed threatened white tern is a small, entirely white tern that is distributed across the tropical oceans of the world. White tern often form mixed flocks with other birds to prey on juvenile fish that are driven to the surface by larger, predatory fish. White terns breed on a variety of beach conditions on oceanic islands. They do not form nesting colonies like most other terns, preferring to nest in loosely associated groups or singly. Nests are located on whatever suitable depression is available, including volcanic pinnacles, cliffs, rocky slopes, large bushes or trees, and man-made structures. The Hawaii white tern population is estimated at 15,000 breeding pairs, with the largest populations occurring on Midway, Nihoa, and Laysan. On Oahu, the number of pairs has increased between 1961 and 2005 from one to greater than 250 (DLNR 2015). White tern first

colonized Oahu in 1961 at Koko Head and since then have spread into the civic center of Honolulu, with over 250 nesting sites occurring from Kapi‘olani Park to ‘Iolani Palace. The Oahu population breeds and roosts exclusively in large trees (Morgan 2007). Large trees present within several of the project sites may provide suitable nesting sites for white tern.

3.3.1 Existing Oahu Community Correctional Center Site

No federal or state-listed special status species were observed during field investigations of this site. Based on the developed nature of the property and the lack of natural habitat, it is highly unlikely that threatened or endangered species of plants or animals would be present within the existing OCCC site.

3.3.2 Animal Quarantine Station Site

No federal or state-listed species were observed during field investigations of this site. Mature trees within the Animal Quarantine Station site may provide suitable habitat for Hawaiian hoary bat, white tern, and migratory birds; however, these species are unlikely to utilize the site. Based on the developed nature of the property and the limited available natural habitat, it is unlikely that threatened or endangered species of plants or animals would be present within the Animal Quarantine Station site except as occasional transients.

3.3.3 Halawa Correctional Facility Site

No federal or state-listed species were observed during field investigations of this site. Mature trees within the Halawa Correctional Facility site may provide suitable habitat for Hawaiian hoary bat, white tern, and migratory birds; however, these species are unlikely to utilize the site. Based on the developed nature of the property and the limited available natural habitat, it is unlikely that threatened or endangered species of plants or animals would be present within the Halawa Correctional Facility site except as occasional transients.

3.3.4 Mililani Technology Park, Lot 17 Site

No federal or state-listed species were observed during field investigations of this site. Mature trees within the Mililani Technology Park site may provide suitable habitat for Hawaiian hoary bat, white tern, and migratory birds; however, these species are unlikely to use the site. Based on the developed nature of the property and the limited available natural habitat, it is unlikely that threatened or endangered species of plants or animals would be present within the Mililani Technology Park site except as occasional transients.

3.3.5 Women's Community Correctional Center

In addition to the special status species mentioned above, correspondence from the DLNR (included as Attachment A) states that state and federally listed waterbirds such as the Hawaiian duck (*Anas wyvilliana*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian moorhen (*Gallinula chloropus sandvicensis*) are likely to occur within a mile of WCCC where suitable habitat is available (DLNR 2017). These species are described below.

- **Hawaiian duck (*Anas wyvilliana*)**—The state and federally endangered Hawaiian duck is one of two extant native duck species found in Hawai‘i. Hawaiian ducks forage in shallow water in a wide variety of freshwater habitats, including artificial wetlands. Nesting occurs year round, and nests are usually on the ground near water, but few nests are found in areas frequented by humans or areas supporting populations of mammalian predators (DLNR 2017a).

- **Hawaiian stilt (*Himantopus mexicanus knudseni*)**—The state and federally endangered Hawaiian stilt forage in ephemeral fresh, brackish, or saltwater habitats, preferring sites with a water depth of less than nine inches with limited and low growing vegetation, or exposed tidal flats. Nesting occurs on freshly exposed mudflats with some low growing vegetation. Hawaiian stilt will also nest on islands in fresh and brackish ponds or artificial floating nest structures (DLNR 2017a).
- **Hawaiian moorhen (*Gallinula chloropus sandvicensis*)**—The state and federally endangered Hawaiian moorhen is endemic to Hawaii. The species uses a variety of freshwater habitats and can be somewhat secretive. Nesting habitat is restricted to areas with standing freshwater less than 24 inches deep with dense emergent vegetation (DLNR 2017a).

While Hawaiian duck, Hawaiian stilt, Hawaiian moorhen, and other waterbirds may occur within one mile of WCCC, suitable habitat is not present within WCCC boundaries.

No federal or state listed species were observed during field investigations of WCCC. Mature trees within the WCCC site may provide suitable habitat for Hawaiian hoary bat, white tern, and migratory birds. It is expected that threatened or endangered species of birds would occur only as transients, most likely in the undeveloped areas in the northern and eastern portions of the property that are not subject to frequent human activity and away from the area under consideration for development.

3.4 Wetlands

Wetlands are areas that are inundated or saturated by surface water or groundwater with a frequency and duration sufficient to support a prevalence of vegetation or aquatic life typically adapted for those soil conditions. Actions that could affect wetlands require review under Section 404 of the Clean Water Act (33 USC 1344), which establishes the U.S. Army Corps of Engineers (USACE) permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. USACE regulation of activities within navigable waters is also authorized under the 1899 Rivers and Harbors Act.

Regulated wetlands are defined by the state of Hawaii using the USACE manual (see HAR §11-54-1). The state regulates state waters, which are defined as "all waters, fresh, brackish, or salt around and within the State, including, but not limited to, coastal waters, streams, rivers, drainage ditches, ponds, reservoirs, canals, ground waters, and lakes...including wetlands." The primary regulation the state of Hawaii uses to protect wetlands is Section 401 of the Clean Water Act. Section 401 requires that applicants for a federal permit also receive a Water Quality Certification (WQC) that indicates a proposed project would not violate local water quality standards. If a federal permit is not required (i.e., a project does not involve USACE jurisdictional waters), then a Hawaii WQC is not required. However, the Clean Water Branch (CWB) of the Hawaii Department of Health has the authority to protect existing uses and the level of water quality under the “General Policy of water quality anti-degradation” (HAR §11-54- 1.1). The anti-degradation policy applies to all waters in Hawaii, including wetlands, whether or not they fall under federal jurisdiction.

Desktop analysis and field wetland investigations were conducted at each of the five project sites, and the findings are summarized below. A letter from the Honolulu District USACE documenting concurrence with these findings and issuing Approved Jurisdictional Determinations (AJDs) for each site is included in Attachment A.

3.4.1 Existing Oahu Community Correctional Center Site

As depicted on Figure 1, Existing OCCC Hydrology and Wetlands Map, no mapped wetlands are located within the existing OCCC site. The nearest mapped wetlands are estuarine and marine wetlands located approximately 800 feet northwest of the site, associated with Kalihi Stream, and riverine and freshwater emergent wetlands located approximately 900 feet northeast of the site, both associated with Kalihi Stream. Dense commercial and industrial developments lie between the site and the Kalihi Stream wetlands. A field survey conducted in June 2017 confirmed that there are no wetlands or Other Waters of the U.S. (OWUS) present within the existing OCCC site. A report documenting the desktop and field wetland investigations of the existing OCCC site is included as Appendix J to the OCCC EIS.

3.4.2 Animal Quarantine Station Site

As depicted on Figure 2, *Animal Quarantine Station Site Hydrology and Wetlands Map*, no mapped wetlands are located within the site. The nearest mapped wetlands are seasonally flooded palustrine forested broad-leaved evergreen and intermittent riverine streambed wetlands, both associated with Halawa Stream, northwest of the site boundary. A channelized concrete-lined stretch of South Halawa Stream flows parallel to the southern boundary of the property, approximately 200 feet beyond the site boundary. This portion of South Halawa Stream is classified as R4SBC (Riverine, Intermittent, Streambed, Seasonally Flooded) (USFWS 2016b). This tributary joins the North Halawa Stream downstream of the site, beneath the highway interchange of H-3 and H-201. Due to development, both stream channels have been altered (i.e., straightened) through this area, which was common upstream during the H-3 highway construction (Wong 2005). After the North and South Halawa Streams join southwest of the site, they flow approximately two miles to Honolulu Harbor.

A field survey of the Animal Quarantine Station conducted in June 2017 confirmed that there are no wetlands or OWUS present within the site boundaries. A concrete-lined tributary to South Halawa Stream was observed off-site and adjacent to the eastern site boundary. The streambed was dry at the time of inspection, and no hydrologic connection to the site was evident. A report documenting the desktop and field wetland investigations of the Animal Quarantine Station site is included as Appendix J to the OCCC EIS.

Figure 1: Existing OCCC Hydrology and Wetlands Map

Figure 2: Animal Quarantine Station Site Hydrology and Wetlands Map

3.4.3 Halawa Correctional Facility Site

As depicted on Figure 3, *Halawa Correctional Facility Site Hydrology and Wetlands Map*, riverine wetlands are mapped along the eastern, western, and southern site boundaries, associated with South Halawa Stream. Field inspections, however, showed that the length of the stream along the entire western and southern site boundary consisted of a concrete-lined channel outside of the property limit. Along the east side of the property, Halawa Stream is a concrete-lined channel until the northeast corner where the structure ends. Upstream of the terminus of this concrete structure, PFO3 (Palustrine, Forested, Broad-Leaved Evergreen, Seasonally Flooded) wetlands are mapped along the length of South Halawa Stream.

Field investigations conducted in June 2017 confirmed the presence of 0.63-acre of riverine and riparian wetlands associated with South Halawa Stream along the northeast corner of the property, east of and away from the recreational field (the location of the proposed OCCC development site). The delineated wetland boundaries are depicted on Figure 4, *Halawa Correctional Facility Delineated Wetlands*. The delineated wetlands consist of riverine and palustrine forested/scrub shrub wetland adjacent to South Halawa Stream. Most of the wetland within the site boundary consist of a well-defined channel steeply sloping to upland. As the stream meanders upstream and off the Halawa Correctional Facility property it is less defined and has adjacent palustrine forested/scrub shrub riparian wetlands. A report documenting the desktop and field wetland investigations of the Halawa Correctional Facility site, including vegetative, soil, and hydrologic characteristics of the wetland, is included as Appendix J to the OCCC EIS.

3.4.4 Mililani Technology Park, Lot 17 Site

As depicted on Figure 5, *Mililani Technology Park Site Hydrology and Wetlands Map*, no wetlands or OWUS are located within the proposed 19-acre development area. Outside the proposed development area, the NWI mapping shows freshwater forested/shrub wetland associated with Waikele Stream at the base of Waikakalaua Gulch within the property boundary. Field investigations conducted in June 2017 confirmed the presence of freshwater forested/shrub wetlands at the base of the gulch, adjacent to Waikele Stream. No wetlands or OWUS were identified within the area proposed for development. A report documenting the desktop and field wetland investigations of the Mililani Technology Park site is included as Appendix J to the OCCC EIS.

3.4.5 Women's Community Correctional Center

As depicted on Figure 6, *WCCC Hydrology and Wetlands Map*, an R5UBFx (Riverine, Unknown Perennial, Unconsolidated Bottom, Semi-permanently Flooded, Excavated) stream was mapped within the WCCC property. Field investigations conducted in June 2017 confirmed the presence of a narrow streambed with PEM1 (Palustrine, Emergent, Persistent) fringe wetland along a portion of the stream within the property. The stream originates at a culvert and runs north to the project boundary. The stream lies within the HnA (Hanalei silty clay, 0 to 2 percent slopes) soil unit and is assumed to be the actual location of the R5UBFx stream depicted on Figure 6. The delineated feature is depicted on Figure 7, *WCCC Delineated Wetlands*, and consists of 1,637 linear feet of narrow streambed steeply sloping to upland, with 0.07-acre of fringe emergent wetland adjacent to the southern extent of the stream. No wetlands or OWUS were observed within the area proposed for development. A report documenting the desktop and field wetland investigations of the WCCC property, including the vegetative, soil, and hydrologic characteristics of the delineated wetland, is included as Appendix J to the OCCC EIS.

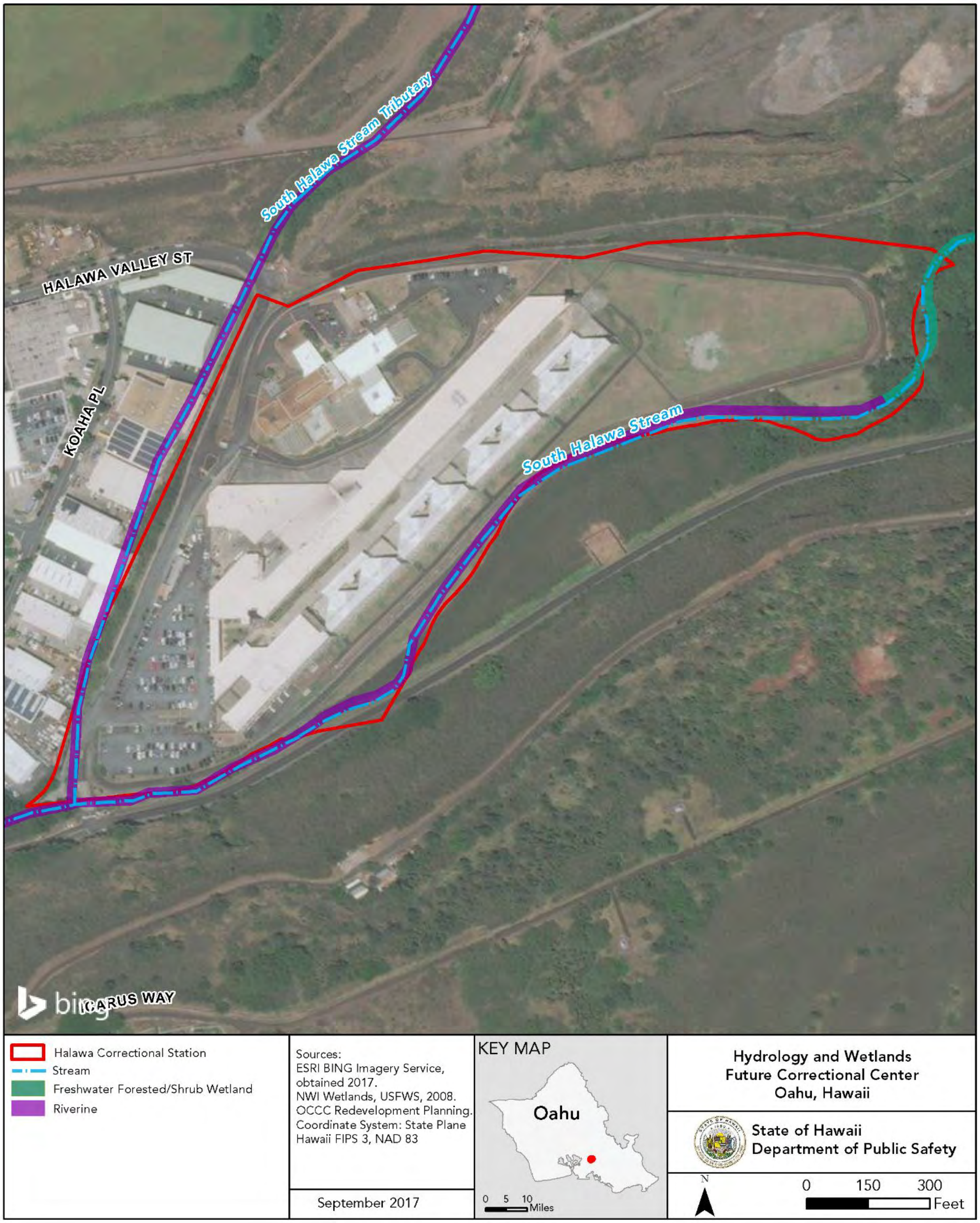

Figure 3: Halawa Correctional Facility Site Hydrology and Wetlands Map

Figure 4: Halawa Correctional Facility Delineated Wetlands

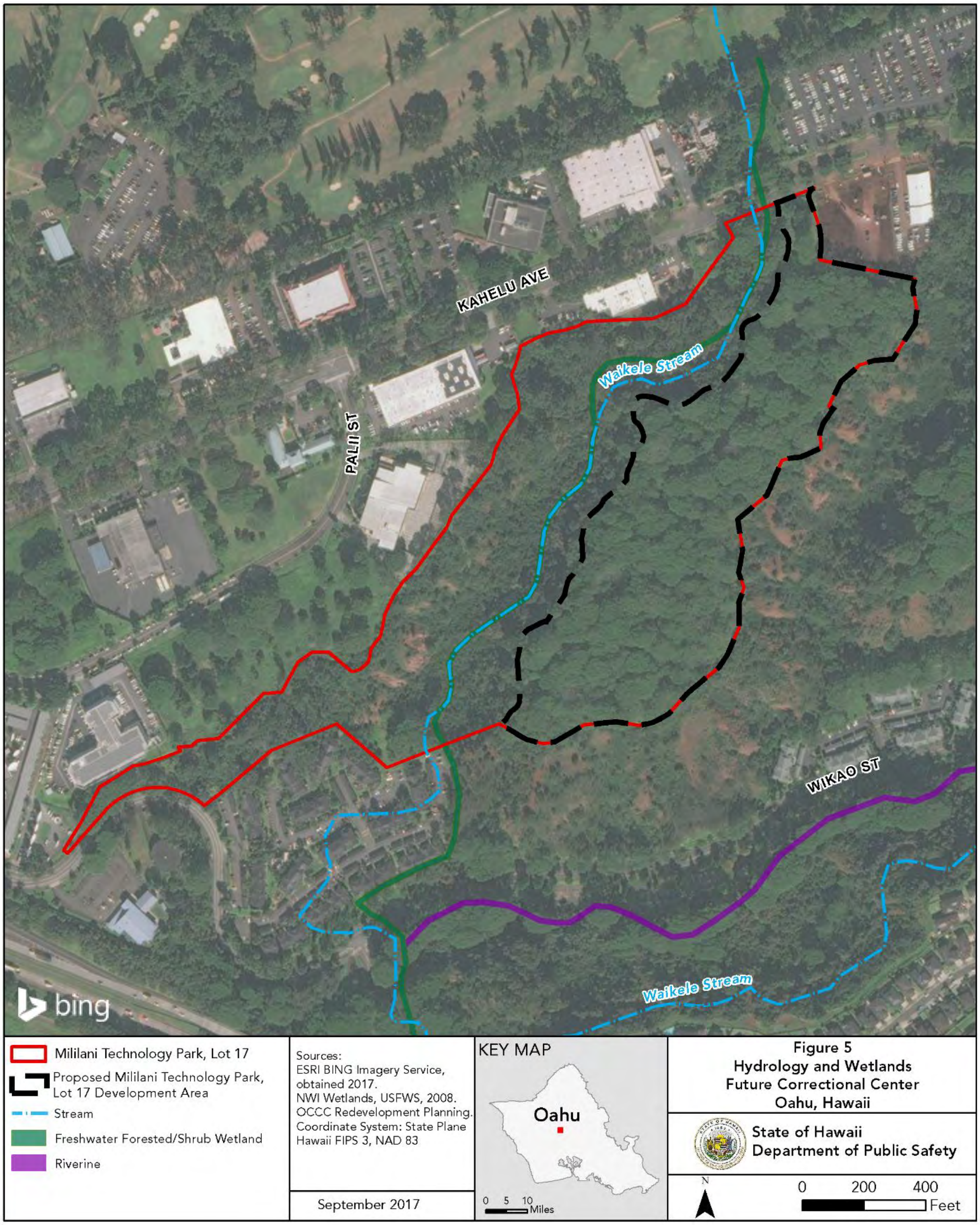

Figure 5: Mililani Technology Park Site Hydrology and Wetlands Map

Figure 6: WCCC Hydrology and Wetlands Map

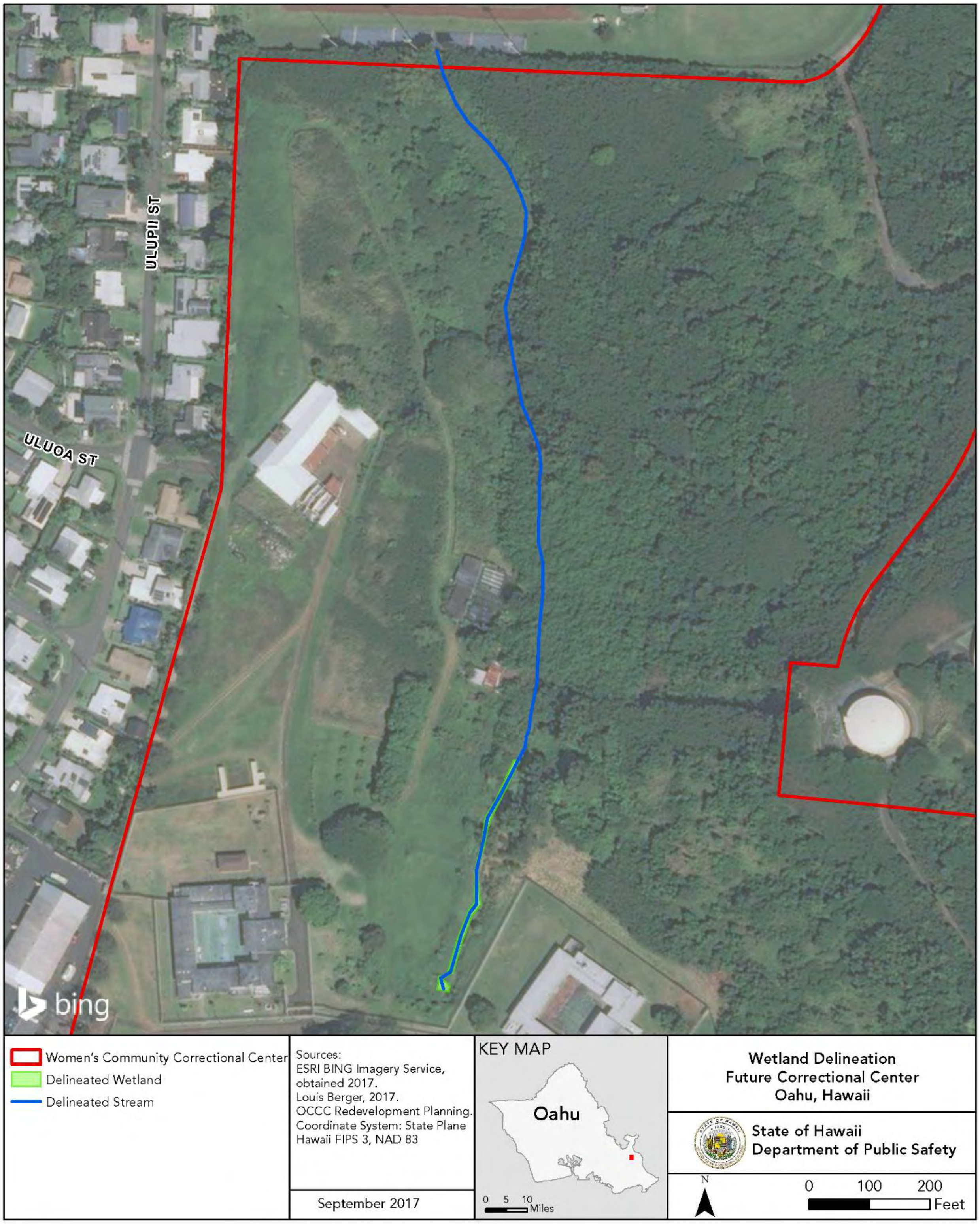

Figure 7: WCCC Delineated Wetlands

4.0 POTENTIAL IMPACTS AND MITIGATION

4.1 Flora

Potential project-related impacts were assessed based on the potential for loss of vegetation, changes to existing vegetation, a decrease in size of a population of local plant species, or a change in the type or amount of suitable habitat available to plant species that currently occur within the sites. Direct impacts on vegetation may occur when vegetated areas are cleared for the construction of buildings and infrastructure. Other impacts may consist of a reduction in on-site species diversity and habitat suitable for use by plant species. Additionally, opportunistic, non-native, invasive species can spread or become established following ground disturbance associated with construction. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to out-compete native species. Best management practices (BMPs) would be implemented, to the extent practicable, to prevent the introduction of invasive species; provide for their control; and minimize the ecological impacts that invasive species cause.

4.1.1 Impacts Common to all Sites

Development of the proposed projects at any of the five locations would have both short-term (temporary) and long-term (permanent) impacts on vegetative resources located within the immediate vicinity of the selected OCCC site and WCCC. Short-term impacts to vegetation are directly related to construction activities required for the establishment of the construction pads; (i.e. clearing, cutting and filling, etc.). Given the conditions found at the existing OCCC, Animal Quarantine Station, and Halawa Correctional Facility sites and WCCC, the potential for short-term impacts is lessened considerably by the development that has occurred at these locations and the extent of commercial and industrial development that surrounds these locations.

In addition to mitigation measures established during OCCC and WCCC project permitting, where applicable, the following BMPs would be utilized during construction to further reduce potential vegetative impacts. Depending on their practicability and applicability, BMPs to be followed may include:

- To the maximum extent possible, existing surface water drainage patterns would be maintained through the use of pipes, swales and culverts.
- Access routes to the construction locations shall be minimized to the maximum extent practicable. Matting or track equipment would be used when the ground is soft to avoid soil compaction. When used, matting should not remain in place for more than five days. If it is necessary to leave matting in place long enough that underlying vegetation would perish, the disturbed area would be revegetated with appropriate native species as soon as practical.
- Excess soil material may be spread evenly over the ground surface in shallow lifts and would not form an impediment to surface water flow.
- Disturbance/removal of trees for access to construction sites shall be minimized to the extent practicable. Whenever trees must be removed, selective removal of trees less than four inches in diameter is preferred in lieu of removal of larger trees.
- Temporarily disturbed areas would be restored to their pre-existing conditions. Planting of disturbed areas would occur as soon as possible to minimize the possibility of erosion. Storm water outlets would be designed to minimize outlet velocities that might otherwise cause downstream erosion.

- Construction activities would be performed in accordance with an approved Soil Erosion and Sediment Control Plan. The limits of disturbance would be indicated on the final design plans and would be the maximum necessary for the construction.
- Where possible, equipment storage would be restricted to areas disturbed for actual construction.

Temporary construction impacts would be associated with construction access roads and construction equipment staging and storage areas. In these areas, potential impacts include vegetation clearing, vehicular movements possibly resulting in tire ruts and surface soil disturbance. Mitigation in these areas would commence upon construction completion. Restoration would include grading and leveling to remove surface disturbance and tire ruts, followed by revegetation.

Long-term impacts include the permanent loss of vegetation within the footprints of development and changes in the type/composition of vegetative communities. Given the conditions found at the existing OCCC, Animal Quarantine Station, and Halawa Correctional Facility sites and WCCC, the potential for long-term impacts is also lessened considerably by the development that has occurred that these locations.

4.1.2 Existing Oahu Community Correctional Center Site

Development of the proposed OCCC at this alternative site would result in negligible impacts to vegetation. Vegetation within the existing OCCC site is limited to areas of mowed lawn with occasional ornamental trees, shrubs, and other landscape plants. Vegetative impacts would include the loss of the two-acre recreation field along with smaller maintained grassed areas interspersed between Annex 1, 2 and 3 buildings and the parking lot in the northwest portion of the property (totalling approximately 0.5-acre). Implementation of this alternative would also require construction of temporary housing for a small portion of the OCCC inmate population to the Halawa Correctional Facility during the duration of OCCC construction, resulting in an additional three to five acres of direct, temporary impacts to the existing inmate recreation field at the Halawa Correctional Facility. The grassed recreation field would be restored to pre-existing conditions following completion of OCCC development and the removal of temporary inmate housing at the Halawa Correctional Facility.

Removal of vegetation at the existing OCCC site (for OCCC development) and at the Halawa Correctional Facility (for installation of temporary inmate housing during OCCC construction) would be restricted to the areas planned for the buildings and associated access roads and parking lot installations to minimize the loss of vegetation. Impacts to vegetation would be mitigated by restoring the sites with native species following construction and incorporating BMPs to avoid the spread or introduction of invasive plants. To prevent the spread of invasive species, construction equipment would be thoroughly cleaned prior to leaving a work location where disturbance to vegetation has occurred. Temporarily disturbed areas that would remain undeveloped would be re-vegetated following completion of construction using native species.

4.1.3 Animal Quarantine Station Site

Development of the proposed OCCC at this alternative site would result in minor, long-term impacts to vegetation. This alternative would require much of the approximately 20-acre land area located east of H-3 to be cleared of vegetation, Animal Quarantine Station structures, and all kennels (both abandoned and in use) for development of the proposed OCCC, proposed Animal Quarantine replacement facility and associated support structures, employee and visitor parking areas. Vegetative loss on the east side of the property for OCCC development would include areas of maintained vegetation including the narrow grassed areas interspersed between kennels and an open grassed field just east of H-3; and areas of unmaintained vegetation including narrow areas with shrubs and small trees interspersed between abandoned kennels on the northern portion of property. Implementation of this alternative would also result in the loss of approximately five acres of existing cattle pasture field located west of H-3, including up to nine monkeypod trees present within the field where the replacement Animal Quarantine Station would be developed. Overall, approximately 20 to 25 mature trees located within and along the periphery of the eastern and western portions of the site would be removed.

Removal of vegetation would be restricted to the areas planned for buildings and associated access roads and parking lot installations to minimize the loss of vegetation. Impacts to vegetation would be mitigated by restoring undeveloped portions of the site with native species following construction and incorporating BMPs to avoid the spread or introduction of invasive plants. To prevent the spread of invasive species, construction equipment would be thoroughly cleaned prior to leaving a work location where disturbance to vegetation has occurred. Temporarily disturbed areas that would remain undeveloped would be re-vegetated following completion of construction using native species.

4.1.4 Halawa Correctional Facility Site

Development of the proposed OCCC at this alternative site would result in minor, long-term impacts to vegetation with losses of up to approximately 5.5 acres of vegetation within the existing perimeter road consisting of the approximately five-acre grass recreation field for the footprint of the new OCCC building and parking structure and an approximately 0.5-acre area required for an improved access road leading to the facility's parking structure. This alternative also includes the potential to clear approximately 1-1.5 acres of vegetation outside of the existing perimeter road, including up to ten mature trees, if required by facility design.

Removal of vegetation would be restricted to the areas planned for the building and parking structure and associated access road to minimize the loss of vegetation. Impacts to vegetation would be mitigated by restoring undeveloped areas with native species following construction and incorporating BMPs to avoid the spread or introduction of invasive plants. To prevent the spread of invasive species, construction equipment would be thoroughly cleaned prior to leaving a work location where disturbance to vegetation has occurred. Temporarily disturbed areas that would remain undeveloped would be re-vegetated following completion of construction using native species.

4.1.5 Mililani Technology Park, Lot 17 Site

Development of the proposed OCCC at this alternative site would result in a moderate, long-term impact on vegetation. The 19-acre area proposed for development on the level plateau is very densely vegetated by a mix of non-native trees, shrubs, and an understory of weedy grasses and vines. Approximately 18 acres of this area would be cleared on the level plateau, leaving approximately 1 acre of undisturbed vegetation along the periphery and bordering on the gulches. Vegetation within the approximately 20-acre gulches would not be impacted, leaving such areas in their natural condition.

Removal of vegetation would be restricted to the areas planned for buildings and associated access roads and parking lot installations to minimize the loss of vegetation. Impacts to vegetation would be mitigated by restoring undeveloped areas with native species following construction and incorporating BMPs to avoid the spread or introduction of invasive plants. To prevent the spread of invasive species, construction equipment would be thoroughly cleaned prior to leaving a work location where disturbance to vegetation has occurred. Temporarily disturbed areas that would remain undeveloped would be re-vegetated following completion of construction using native species.

4.1.6 Women's Community Correctional Center

Development of the proposed WCCC improvements would result in a minor, long-term impact on vegetation. Approximately two acres of maintained grassed lawn and two acres of naturally vegetated areas would be cleared for development.

Removal of vegetation would be restricted to the areas planned for the buildings and associated access roads and parking lot improvements to minimize the loss of vegetation. The four large monkeypod trees located near the southern site boundary that have been designated as Exceptional Trees by the Arborist Advisory Committee of the City and County of Honolulu (City and County of Honolulu Department of Parks and Recreation 2017) would not be affected by the proposed WCCC improvements. While these tree are a common introduced species in Oahu and are not of biological significance, their status as exceptional trees requires their protection and preservation.

Impacts to vegetation would be mitigated by restoring undeveloped areas with native species following construction and incorporating BMPs to avoid the spread or introduction of invasive plants. To prevent the spread of invasive species, construction equipment would be thoroughly cleaned prior to leaving a work location where disturbance to vegetation has occurred. Temporarily disturbed areas that would remain undeveloped would be re-vegetated following completion of construction using native species.

4.2 Fauna

Project impacts to wildlife were assessed based on the extent of disturbance to wildlife and wildlife habitat. Potential impacts to wildlife may include a disturbance to wildlife during construction, a decrease in size of a population of local wildlife species, or a change in the type or amount of suitable habitat available to wildlife that currently utilize the sites.

4.2.1 Impacts Common to all Sites

During construction of the proposed OCCC facility, wildlife may be harmed or displaced, primarily as a result of construction machinery operations during initial site clearing and similar earthwork. Less mobile species, such as small mammals, reptiles, and amphibians have the potential to incur greater mortality than more mobile species. More mobile species such as small mammals and birds may disperse to adjacent habitat when disturbed by construction activities. Large, contiguous areas with similar habitats are present adjacent to the Animal Quarantine Station, Halawa Correctional Facility, Mililani Technology Park and WCCC sites and are expected to accommodate most of the displaced wildlife. Wildlife which is unable to find adequate breeding and foraging habitat may fail to breed successfully or disperse greater distances, increasing the probability of mortality. Temporarily disturbed upland forests would likely be re-colonized by wildlife communities similar to pre-existing communities after construction has been completed.

Increased noise levels as a result of construction activities can affect wildlife by inducing physiological changes, nest or habitat abandonment, behavioral modifications or disrupt vocalization of species required for breeding or defense. The Environmental Impact Data Book (Golden et. al., 1980) suggests that noise levels higher than 80 to 85 dBA are sufficient to startle or frighten birds and small mammals. At 800 feet from the source, the noise level would be reduced to 62 - 65 dBA, with little potential for disturbing wildlife.

Increased noise levels during construction are largely confined to the site preparation stage when earth-moving equipment is in use. Following the site preparation stage, which is expected to last several months following groundbreaking, noise levels are expected to decrease considerably and continue to decline as the construction advances from site preparation to foundation excavation, building erection and interior fit out. The vast tracts of undeveloped forest land which adjoin the Halawa Correctional Facility, Mililani Technology Park and WCCC sites are expected to provide a buffer from increased noise levels and accommodate wildlife that may be displaced as a result of construction activities at those sites. As a result, wildlife impacts associated with construction noise are expected to be temporary and negligible, lasting only for the duration of construction.

Construction during breeding season and while rearing of young can reduce or prevent successful reproduction. To minimize construction-related impacts on wildlife, consideration may be given to limiting certain construction activities based on important biological periods.

Long-term impacts include the permanent loss of habitat within the footprints of development, and a decrease in the quality of the habitat immediately adjacent to the proposed OCCC and WCCC facilities due to increased noise levels, traffic, and other human activities. In addition, long-term changes in the availability and type/ composition of natural habitat, including an increase in habitat fragmentation, are a possibility. Given the conditions found at the existing OCCC, Animal Quarantine Station, and Halawa Correctional Facility sites and WCCC, the potential for long-term impacts is also lessened considerably by the development that has occurred that these locations and the extent of commercial and industrial development that surrounds these sites.

4.2.2 Existing Oahu Community Correctional Center Site

Because the project area is almost entirely developed, it does not support quality habitat for wildlife. Impacts on the common wildlife species that may utilize portions of the site are expected to be negligible and limited to temporary avoidance of building zones due to noise and activity during construction.

Operation of the new OCCC at this location would have little effect on motor vehicle traffic, building and grounds maintenance, and other human activities that could impact wildlife utilizing this site. The proposed building site is located in a highly developed area and an environment where human activities occur daily as a result of the existing OCCC operation. As a result, impacts to wildlife would be negligible once construction is complete.

4.2.3 Animal Quarantine Station Site

The Animal Quarantine Station site does not support quality habitat for wildlife. Adjacent natural habitat found south of the site would not be impacted by the project as construction activity would be localized to within the perimeter fence of the existing facility. Impacts on the common wildlife species that may utilize the site are expected to be negligible and limited to temporary avoidance of construction zones due to noise and activity during construction.

Operation of the new OCCC and relocated (replacement) Animal Quarantine Station would result in increased motor vehicle traffic, building and grounds maintenance, and other human activities that could impact wildlife utilizing this site. However, the proposed site is located in a developed area and an environment where human activities occur daily as a result of existing Animal Quarantine Station operation. As a result, impacts to wildlife would be negligible once construction is complete.

4.2.4 Halawa Correctional Facility Site

Because the project area is nearly completely developed with no natural habitat, it does not support quality habitat for wildlife. Adjacent natural habitat north and east of the site would not be impacted by the project as construction activity would be limited to the outdoor recreation field located within the perimeter road of the existing correctional facility. Impacts on wildlife are expected to be negligible and limited to temporary avoidance of construction zones due to noise and activity during construction.

Operation of the new OCCC would increase motor vehicle traffic, building and grounds maintenance, and other human activities that could impact wildlife utilizing the site. However, the proposed building site is located in a developed area and an environment where human activities occur daily as a result of Halawa Correctional Facility operation. As a result, impacts to wildlife would be negligible once construction is complete.

4.2.5 Mililani Technology Park, Lot 17 Site

The Mililani Technology Park, Lot 17 site comprises approximately 40 acres of undisturbed land including the Waikakalaua and Kipapa gulches. Given the size, location, and topography of the gulches, 19 acres are suitable for OCCC development with the balance to remain in its natural condition in order to maintain the quality habitat that has long existed there. Development of the proposed OCCC at this alternative site would result in a long-term impact on wildlife due to the permanent loss of approximately 19 acres of natural habitat available to wildlife. Impacts on the common wildlife species that may utilize the developable portion of the site are expected to be minor due to the presence of larger, undisturbed natural habitats adjacent to the development area that will remain available to such species, and the ability of most species to disperse to adjacent habitat when disturbed by construction activities.

Operation of the new OCCC would increase motor vehicle traffic, building and grounds maintenance, and other human activities that could impact wildlife utilizing the site. However, the proposed building site is located within a developed suburban business park and an environment where human activities occur daily as a result of operation of the many commercial and industrial uses comprising the park. As a result, impacts to wildlife would be negligible once construction is complete.

4.2.6 Women's Community Correctional Center

The developed portion of the WCCC site does not support quality habitat for wildlife. Natural habitat present in the northern portion of the site would not be impacted by the project as construction activity would be localized to within the developed and actively maintained portion of the existing facility. Impacts on wildlife are expected to be negligible and limited to temporary avoidance of construction zones due to noise and activity during construction.

Operation of the expanded WCCC would increase motor vehicle traffic, building and grounds maintenance, and other human activities that could impact wildlife utilizing the site. However, the areas proposed for additional development adjoin existing developed areas and represent an environment where human activities occur daily as a result of WCCC operation. As a result, impacts to wildlife would be negligible once construction is complete.

4.3 Special Status Species

Project impacts to special status species were assessed based on the extent of disturbance to potential habitat for any federal or state-endangered, threatened, or special concern species. Potential impacts may include disturbance to special status species during construction or the diminishment of habitat for endangered, threatened, or rare plant or animal species.

4.3.1 Impacts Common to all Sites

Except for occasional transients, the likelihood of threatened and endangered species occurring within the existing OCCC, Animal Quarantine Station, and Halawa Correctional Facility sites and WCCC is low. However, the following proposed measures would avoid or minimize potential impacts should any such species be present within the selected alternative site.

Woody plants greater than 15 feet tall would not be disturbed, removed, or trimmed during the Hawaiian hoary bat birthing and pup rearing season (June 1 through September 15) to avoid any potential impacts to roosting Hawaiian hoary bats. Additionally, the facility design would not include barbed wire fencing that could pose a risk of entanglement to bats.

Efforts would be made to develop a lighting plan for the proposed facility that minimizes and avoids artificial lighting impacts to seabirds. Use of high-mast lights and similar high intensity security lighting common to prisons and other correctional facilities are not proposed. Instead, lighting would be largely confined to traditional parking lot and walkway lighting common to most commercial establishments for safety purposes. In general, lighting would be consistent with USFWS recommendation so that lights would be positioned low to the ground and be shielded and/or full cut-off. Effective light shields would be opaque, sufficiently large, and positioned so that the bulb is only visible from below (USFWS 2016). Based on USFWS recommendations, night-time project construction activities would be avoided from September 15 through December 15 and all project staff would be provided with information about seabird fallout and where any downed birds can be taken for rehabilitation.

The DLNR recommends twilight pre-construction surveys for the state endangered Hawaiian short-eared owl prior to clearing vegetation. If nests are present, DLNR should be notified and a buffer zone should be established in which no clearing occurs until nesting ceases (DLNR 2017). The DLNR also recommends surveying for the presence of white terns prior to any action that could disturb trees (such as trimming or removal). White terns lay a single egg in a branch with no nest, so eggs and chicks can be easily dislodged by construction equipment (DLNR 2017).

4.3.2 Existing Oahu Community Correctional Center Site

Development of the proposed OCCC at this alternative site would have no adverse impact on threatened and endangered species due to the developed nature of the property, the lack of natural habitat for threatened and endangered species, and the minimization and avoidance measures to be implemented during construction.

4.3.3 Animal Quarantine Station Site

Development of the proposed OCCC at this alternative site would have no significant adverse impact on threatened and endangered species due to the developed nature of the property, the lack of natural habitat for threatened and endangered species, and the minimization and avoidance measures to be implemented during construction. Tree clearing at this site would be limited to up to approximately 25 mature trees interspersed between abandoned kennels on the northern portion of property and along the periphery of the site, and up to nine mature trees within the field where the replacement Animal Quarantine Station would be developed. The proposed tree removal would result in negligible impacts on migratory bird species because the trees do not provide high quality nesting habitat due to their proximity to human disturbance. It is anticipated that passerine birds would temporarily leave the area during construction due to noise and disturbance. Although Hawaiian hoary bats are unlikely to occur within the Animal Quarantine Station site except as occasional transients, restricting disturbance of woody plants greater than 15 feet tall during the bat birthing and pup rearing season would avoid any potential impacts to roosting Hawaiian hoary bats.

4.3.4 Halawa Correctional Facility Site

Development of the proposed OCCC at this alternative site would have no significant adverse impact on threatened and endangered species due to the developed nature of the property, the lack of natural habitat for threatened and endangered species, and the minimization and avoidance measures to be implemented during construction. Tree clearing at this site would be limited to up to ten mature trees, only if required by the final facility design. The proposed tree removal would result in negligible impacts on migratory bird species because the trees do not provide high quality nesting habitat due to their proximity to human disturbance. It is anticipated that passerine birds would temporarily leave the area during construction due to noise and disturbance. Although Hawaiian hoary bats are unlikely to occur within the Halawa Correctional Facility site except as occasional transients, restricting disturbance of woody plants greater than 15 feet tall during the bat birthing and pup rearing season would avoid any potential impacts to roosting Hawaiian hoary bats.

4.3.5 Mililani Technology Park, Lot 17 Site

Development of the proposed OCCC at this alternative site would have a minor, adverse impact on threatened and endangered species. Tree removal with the 19-acre development area would result in loss of potential habitat for threatened and endangered species and migratory birds. However, the impact is considered minor due to the lack of preferred habitat within the development area and the minimization and avoidance measures to be implemented during construction. Larger, undisturbed natural habitats adjacent to the development area will remain intact, and it is anticipated that species that may be present would disperse to adjacent habitat when disturbed by construction activities. Additionally, woody plants greater than 15 feet tall would not be disturbed during the bat birthing and pup rearing season to avoid any potential impacts to roosting Hawaiian hoary bats.

4.3.6 Women's Community Correctional Center

Development of the proposed WCCC improvements is not expected to pose an adverse impact on threatened and endangered species due to the nature of the property slated for additional development and its lack of suitable habitat for the threatened and endangered species known to occur in the region, as well as the minimization and avoidance measures to be implemented during construction. Tree clearing would be minimal as the proposed development area consists mainly of mowed lawn. Any proposed tree removal would result in negligible impacts on migratory bird species because the trees do not provide high quality nesting habitat due to their proximity to human disturbance. It is anticipated that passerine birds would temporarily leave the area during construction due to noise and disturbance. Although Hawaiian hoary bats are unlikely to occur within the portion of the WCCC property proposed for development, restricting disturbance of woody plants greater than 15 feet tall during the bat birthing and pup rearing season would avoid any potential impacts to roosting Hawaiian hoary bats.

While suitable habitat for Hawaiian duck, Hawaiian stilt, Hawaiian moorhen, and other waterbirds is not present within WCCC boundaries, these species may occur within one mile of WCCC. To minimize the potential for take, DLNR recommends surveys for waterbirds before any land clearing or excavation activities occur at the WCCC site, and should be repeated if these activities are delayed more than three days. If a nest is discovered, DLNR should be notified, and if a listed waterbird is present during construction, all construction activity within 100 feet of the bird should cease. The bird should not be approached, and construction may continue after the bird leaves of its own accord (DLNR 2017).

4.4 Wetlands

Potential impacts on wetlands were assessed based on the presence of regulated wetlands within the area of the proposed action at each site.

4.4.1 Impacts Common to all Sites

The proposed facility layout would be designed to avoid unnecessary impacts to wetlands, if present within the selected alternative site. Soil erosion and sediment control measures would be implemented during construction to further minimize potential impacts to wetlands or OWUS.

4.4.2 Existing Oahu Community Correctional Center Site

There are no wetlands or OWUS located within the existing OCCC site; therefore, no direct impacts to wetlands or OWUS would occur. Wetlands and streams located in surrounding areas would similarly be unaffected as the potential for indirect impacts associated with soil erosion and sedimentation is considered negligible given the distance from the site to such resources and the soil erosion and sediment control measures that would be implemented during construction.

4.4.3 Animal Quarantine Station Site

There are no wetlands or OWUS located within the Animal Quarantine Station site; therefore, no direct impacts to wetlands or OWUS would occur. Channels located adjacent to the periphery would similarly be unaffected as the potential for indirect impacts associated with soil erosion and sedimentation is considered negligible given the nature of these manmade, concrete channels and the soil erosion and sediment control measures that would be implemented during construction.

4.4.4 Halawa Correctional Facility Site

The proposed facility layout would avoid disturbance to wetlands located within the northeast corner of the property (but outside the existing perimeter road); therefore, no direct impacts to wetlands or OWUS would occur. The use of BMPs would prevent or minimize short-term, indirect impacts to wetlands from erosion and storm water runoff. Wetlands and streams located outside the property boundary would similarly be unaffected as the potential for indirect impacts associated with soil erosion and sedimentation is considered negligible given the sediment control measures that would be implemented during construction.

4.4.5 Mililani Technology Park, Lot 17 Site

There are no wetlands or OWUS located within the area of proposed development; therefore, no direct impacts to wetlands or OWUS would occur. Wetlands and streams located at the base of the gulch would be unaffected as the potential for indirect impacts associated with soil erosion and sedimentation is considered negligible given the distance from the proposed development area to such resources and the soil erosion and sediment control measures that would be implemented during construction.

4.4.6 Women's Community Correctional Center

There are no wetlands or OWUS located within the area of proposed WCCC improvements; therefore, no direct impacts to wetlands or OWUS would occur. The small wetland and stream located along the eastern boundary of the WCCC property would be unaffected as the potential for indirect impacts associated with soil erosion and sedimentation is considered negligible given the distance from the proposed development area to such resources and the soil erosion and sediment control measures that would be implemented during construction.

5.0 REFERENCES

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Attachment A: Agency Correspondence

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 18, 2017

Louis Berger
Attention: Ms. Tara Stewart,
Senior Environmental Scientist
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962

via email: tstewart@louisberger.com

Dear Ms. Stewart:

SUBJECT: Oahu Correctional Center Replacement Project

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you on May 16, 2017, enclosed are comments from the Division of Forestry & Wildlife on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

17382

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2017 MAY 17 AM 7:53
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 19, 2017

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__ Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Oahu Correctional Center Replacement Project
LOCATION: Island of Oahu; TMK: (1) various
APPLICANT: State Department of Public Safety

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **May 15, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:
Print Name: James Cogswell
Date: 16 May 17

cc: Central Files
S. Case, BLNR Chairperson

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

May 16, 2017

TO: Russell Y. Tsuji, Administrator
Land Division

ATTN: Lydia Morikawa

FROM: James Cogswell
Wildlife Program Manager

SUBJECT: Division of Forestry and Wildlife Comments on Oahu Correctional Center Replacement Project

The Department of Forestry and Wildlife has received your request for a list threatened and endangered species known to occur in the prospective project areas listed in the table below. The Division has reviewed the prospective sites using GIS and has provided the following comments.

Site Name	Location	Tax Map Key Number
Hawaii Dept. of Agriculture, Animal Quarantine Facility	99-521 A, B, & C Halawa Valley Street, Aiea	99010058, 99010057, 99010054, 990010046, 99010006
Oahu Community Correctional Center	2199,2233, 2109 & 2247 Kamehameha Hay., Kalihi	12013002
Mililani Technology Park, Lot 17	Kahelu Ave., Mililani	95046042
Women's Community Correctional Center	42-499 Kalanianaole Highway, Kailua	42003004
Halawa Correctional Facility	99-902 Moanalua Rd., Halawa	99010030

Hawaiian hoary bat
The State and Federally listed Hawaiian hoary bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the proposed project. Hawaiian hoary bats roost in both exotic and native trees. If any trees are planned for removal during the bat breeding season there is a risk of injury or mortality to juvenile bats. To minimize the potential for impacts to this species, site clearing should be timed to avoid disturbance to breeding Hawaiian hoary bats; woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

Hawaiian short-eared owl
The state endangered Hawaiian short-eared owl or Pueo (*Asio flammeus sandwichensis*) has the potential to occur in the project vicinity site. Pueo are a crepuscular species, most active during dawn and dusk twilights. DOFAW recommends twilight pre-construction surveys prior to

clearing vegetation. If Pueo nests are present, a buffer zone should be established in which no clearing occurs until nesting ceases and notify DOFAW staff.

Waterbirds
State and Federally listed waterbirds such as the Hawaiian duck (*Anas wyvilliana*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian moorhen (*Gallinula chloropus sandvicensis*) are likely to occur within a mile of the proposed Kailua site. To minimize the potential for take, surveys for waterbirds by a qualified biologist are recommended before any land clearing or excavation activities occur, and should be repeated if these activities are delayed more than three days. If a nest is discovered at any point, please contact DOFAW staff. If a bird is present during ongoing activities, then all activities within 100 feet (30 m) of the bird should cease, and the bird should also not be approached. Work may continue after the bird leaves the area of its own accord.

White tern
If tree trimming or removal is planned, DOFAW strongly recommends surveying for the presence of white terns prior to any action that could disturb the trees. White terns (*Gygis alba*) pairs lay their single egg in a branch fork with no nest. The eggs and chicks can be easily dislodged by construction equipment that nudges the trees.

Finally, we note that artificial lighting can adversely impact seabirds that may pass through the prospective site areas at night causing disorientation which could result in collision with manmade artifacts or grounding of birds. If nighttime lighting is required DOFAW recommends that any lights used be fully shielded to minimize impacts.

We appreciate your efforts to work with our office for the conservation of native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Katherine Cullison, Conservation Initiatives Coordinator at (808)587-4148 or Katherine.cullison@hawaii.gov.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 16, 2017

Louis Berger
Attention: Ms. Tara Stewart,
Senior Environmental Scientist
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962

via email: tstewart@louisberger.com

Dear Ms. Stewart:

SUBJECT: Oahu Correctional Center Replacement Project

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division – Oahu District on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

'17 APR 20 AM11 38 ENGINEERING

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 19, 2017

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__ Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

Fern:

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Oahu Correctional Center Replacement Project
LOCATION: Island of Oahu; TMK: (1) various
APPLICANT: State Department of Public Safety

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **May 15, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:

Print Name: Carty S. Chang, Chief Engineer
Date: 4/24/17

cc: Central Files
S. Case, BLNR Chairperson

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Oahu Correctional Center Replacement Project

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a designated Flood Hazard.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

The applicant should include water demands and infrastructure required to meet project needs. Please note that the projects within State lands requiring water service from their local Department/Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

The applicant is required to provide water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update projections.

Signed: ______________________
CARTY S. CHANG, CHIEF ENGINEER

Date: 4/27/17

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 19, 2017

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__ Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Oahu Correctional Center Replacement Project
LOCATION: Island of Oahu; TMK: (1) various
APPLICANT: State Department of Public Safety

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **May 15, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(x) We have no comments.
( ) Comments are attached.

Signed: Darlene Bryant-Takamatsu

Print Name: Darlene Bryant-Takamatsu
Date: 4/24/17

cc: Central Files
S. Case, BLNR Chairperson

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2017-SL-0209

APR 2 8 2017

Ms. Tara Stewart
Senior Environmental Scientist
Louis Berger
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962

Subject: Additional Species List Request for the Oahu Community Correctional Center Replacement Project, Kailua, Oahu

Dear Ms. Stewart:

The U.S. Fish and Wildlife Service (Service) received your letter on April 06, 2017, requesting additional species list information for the proposed Oahu Community Correctional Center (OCCC) Replacement Project. We understand Louis Berger is supporting the State of Hawaiʻi, Department of Public Safety (DPS) in implementing a plan of action to replace the existing OCCC. The Service provided information on December 23, 2016 regarding listed species and designated critical habitat within the vicinity of 11 prospective sites, from which four finalist sites have been selected. We understand in addition to the four finalist OCCC sites that have been selected to advance further through an in-depth EIS study process, one additional site is being considered for possible development. The additional site is the Women's Community Correctional Center (WCCC), which is located at 42-477 Kalanianaole Highway, Kailua, Hawaii 96734. While female offenders are currently housed at OCCC, it is intended to relocate females from the new OCCC (when constructed) to the existing WCCC in Kailua following improvements and expansions to accommodate the larger female population.

We offer the following comments for your consideration. Our comments are provided under the authorities of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA).

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaiʻi Biodiversity and Mapping Program as it pertains to listed species and designated critical habitat in accordance with section 7 of the ESA. There is no federally designated critical habitat within the immediate vicinity of the proposed project. Our data indicate that the Hawaiian hoary bat (*Lasiurus cinereus semotus*) may occur or transit through the vicinity of the proposed project area.

Hawaiian hoary bat

The Hawaiian hoary bat may forage and roost within the vicinity of the project area. The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will

Ms. Tara Stewart 3

leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the project area.

Threats to the Hawaiian hoary bat include habitat destruction (elimination of roosting sites), direct and indirect effects of pesticides, disease, colliding with wind turbines, and entanglement on barbed wire fences. Hawaiian hoary bats are more vulnerable to barbed wire fences that occur in open areas than fences in forested areas. We recommend that any fencing used for the proposed project be designed to avoid the use of barbed wire.

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with ESA compliance. We appreciate your efforts to conserve Hawaii's natural resources. If you have questions regarding these comments, please contact Nanea Valeros, Fish and Wildlife Biologist (phone: 808-792-9400, email: nanea_valeros@fws.gov).

Sincerely,

Aaron Nadig
Island Team Manager
Oahu, Kauai, North Western Hawaiian Islands, and
American Samoa

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2017-SL-0024

DEC 2 3 2016

Ms. Tara Stewart
Senior Environmental Scientist
Louis Berger
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962

Subject: Species List Request for the Oahu Community Correctional Center Replacement Project, Oahu

Dear Ms. Stewart:

The U.S. Fish and Wildlife Service (Service) received your email on October 21, 2016, requesting a species list for the proposed Oahu Community Correctional Center (OCCC) Replacement Project. We understand the State of Hawaii, Department of Public Safety (DPS) is implementing a plan of action to replace the existing OCCC and nearby Laumaka Work Furlough Center. The Service also received your email on November 28, 2016, with a map containing 11 prospective sites for the OCCC Replacement Project. We understand you are currently in the site selection phase and are evaluating the 11 prospective sites by screening the sites against a number of environmental criteria, including known special species status/habitats at each site and potential special species status at each site. The 11 prospective sites for the project are:

- OCCC;
- Halawa Correctional Facility;
- Animal Quarantine Facility;
- Kalaeloa Parcel B;
- Kalaeloa Parcel C;
- Kalaeloa Parcels 6A/7;
- Kalaeloa Parcels 18A/18B;
- Barbers Point Riding Club Property;
- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Ms. Tara Stewart 2

The following comments have been prepared pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA); and other authorities mandating Federal oversight of environmental resources including the Migratory Bird Treaty Act of 1918 (16 U.S.C. 103 *et seq.*), as amended (MBTA). Based on these authorities, we offer the following comments for your consideration.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program as it pertains to listed species and designated critical habitat. No federally designated or proposed critical habitat occur within the immediate vicinity of the OCCC site, Halawa Correctional Facility, Animal Quarantine Facility, Kalaeloa Parcels 18A/18B, Barbers Point Riding Club Property, Mililani Parcel 17, Waiawa Property 1 (Castle & Cooke), and Waiawa Property 2 (Kamehameha Schools).

Our data indicate that Kalaeloa Parcels B and C are adjacent to critical habitat unit Oahu—Lowland Dry—Unit 11). Kalaeloa Parcel B lies to the north and shares a boundary along San Juacinto Street. Kalaeloa Parcel C lies to the south and shares a boundary. The endangered *Chamaesyce skottsbergii* var. *skottsbergii* is known to occur within this unit. Oahu—Lowland Dry—Unit 11 is one of the four locations included in this final critical habitat designation that is essential to the conservation of *C. skottsbergii* var. *skottsbergii*. Additionally, Oahu—Lowland Dry—Unit 11 is essential for the conservation and recovery of the following lowland dry species: *Achyranthes splendens* var. *rotundata, Bidens amplectens, Bonamia menziesii, Chamaesyce celastroides* var. *kaenana, Euphorbia haeleeleana, Gouania meyenii, G. vitifolia, Hibiscus brackenridgei, Isodendrion pyrifolium, Melanthera tenuifolia, Neraudia angulata, Nototrichium humile, Schiedea hookeri, S. kealiae, or Spermolepis hawaiiensis.*

Kalaeloa Parcels 6A/7 are adjacent to critical habitat unit Oahu—Lowland Dry—Unit 10. Kalaeloa Parcels 6A/7 are east of the critical habitat unit and share a boundary along Hornet Avenue. *Chamaesyce skottsbergii* var. *skottsbergii is known to occur within this unit.* Oahu—Lowland Dry—Unit 10 is one of the four locations included in this final critical habitat designation that is essential to the conservation of *C. skottsbergii* var. *skottsbergii*. Additionally, Lowland Dry—Unit 10 is essential for the conservation and recovery of the following lowland dry species: *A. splendens* var. *rotundata, B. amplectens, B. menziesii, C. celastroides* var. *kaenana, E. haeleeleana, G. meyenii, G. vitifolia, H. brackenridgei, I. pyrifolium, M. tenuifolia, N. angulata, N. humile, S. hookeri, S. kealiae, or S. hawaiiensis.*

Our data indicate that the following federally listed species may occur or transit through the vicinity of the project area: endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered Hawaiian petrel (*Pterodroma sandwichensis*), endangered band-rumped storm-petrel (*Oceanodroma castro*), threatened Newell's shearwater (*Puffinus newelii*), and seabirds protected under the Migratory Bird Treaty Act (MBTA), such as the wedge-tailed shearwater (*Puffinus pacificus chlorhynchus*), hereafter collectively referred to as Hawaiian seabirds.

<u>Hawaiian hoary bat</u>

The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the following project areas:

- Halawa Correctional Facility;
- Animal Quarantine Facility;
- Kalaeloa Parcel B;
- Kalaeloa Parcel C;
- Kalaeloa Parcels 6A/7;
- Kalaeloa Parcels 18A/18B;
- Barbers Point Riding Club Property;
- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Hawaiian hoary bats have been documented at various sites throughout Oahu. Surveys conducted by the U.S. Geological Survey detected Hawaiian Hoary bats at Schofield Barracks East Range (Pinzari 2014, p. 2). The detectors at Schofield Barracks East Range are approximately 1.2 miles (mi) [1.9 kilometers (km)] east of Mililani Parcel 17, 3.1 mi (5 km) north of Waiawa Property 1 (Castle & Cooke), and 3.4 mi (5.5 km) north of Waiawa Property 2 (Kamehameha Schools). Hawaiian hoary bats have been documented traveling up to 6.8 mi (10.9 km) one-way in a single night to forage (Bonaccorso 2015, p. 69). Based upon what is known about the foraging habits of the bat, existing potential foraging habitat within the project areas, and documented detections of bats within 4 mi (6.4 km) of the project areas, it is likely that Hawaiian hoary bats may forage within the following project areas:

- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Threats to the Hawaiian hoary bat include habitat destruction (elimination of roosting sites), direct and indirect effects of pesticides, disease, colliding with wind turbines, and entanglement on barbed wire fences (USFWS 2011a, pp. 8-9). Hawaiian hoary bats are more vulnerable to barbed wire fences that occur in open areas than fences in forested areas (Jeffrey 2007 pers. comm. 2007). We recommend that any fencing used for the proposed project be designed to avoid the use of barbed wire at the following project areas:

- Mililani Parcel 17;
- Waiawa Property 1 (Castle & Cooke); and
- Waiawa Property 2 (Kamehameha Schools).

Hawaiian seabirds

Outdoor lighting, such as street lights and night-time work, can adversely impact listed and migratory seabird species found in the vicinity of the proposed project. Seabirds fly at night and are attracted to artificially lighted areas which can result in disorientation and subsequent fallout due to exhaustion or collision with objects such as utility lines, guy wires, and towers that protrude above the vegetation layer. Once grounded, they are vulnerable to predators or often struck by vehicles along roadways. Wedge-tailed shearwater nesting colonies are located on offshore islets and several locations on Oahu and every year many young shearwaters are downed and struck along Oahu roadways. Any increase in the use of night-time lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality.

If outdoor lighting is proposed for the project, the Service recommends a comprehensive lighting plan be developed and incorporated into the Draft EIS to minimize and avoid artificial lighting impacts to seabirds. If lights cannot be eliminated due to safety or security concerns then they should be positioned low to the ground, be motion-triggered and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below. We recommend avoiding night-time construction activities from September 15 through December 15 and providing all project staff with information about seabird fallout and that downed birds can be taken to Sea Life Park for rehabilitation.

If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with ESA compliance.

General comments

Hawaii's native ecosystems are heavily impacted by exotic invasive plants. Whenever possible we recommend using native plants for landscaping purposes. If native plants do not meet the landscaping objectives, we recommend choosing species that are thought to have a low risk of becoming invasive. The following websites are good resources to use when choosing landscaping plants: Pacific Island Ecosystems at Risk (http://www.hear.org/Pier/), Weed Risk Assessment for Hawai'i and Pacific Islands (http://www.botany.hawaii.edu/faculty/daehler/wra/) and Global Compendium of Weeds (http://www.hear.org/gcw/).

We appreciate your efforts to conserve endangered species. If you have questions regarding these comments, please contact Nanea Valeros, Fish and Wildlife Biologist (phone: 808-792-9400, email: nanea_valeros@fws.gov).

Sincerely,

Leila Nagatani

for Aaron Nadig
Island Team Manager
Oahu, Kauai, North Western Hawaiian Islands, and American Samoa

cc: Mr. Joshua Schnabel

DEPARTMENT OF THE ARMY
HONOLULU DISTRICT, U.S. ARMY CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

September 08, 2017

SUBJECT: Permit Determination, Oahu Community Correctional Center Replacement Project, Island of Oahu, Hawaii, Department of the Army File No. POH-2017-00159

Ms. Tara Stewart
Louis Berger
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, New Jersey 07962

Dear Ms. Stewart:

The Honolulu District, U.S. Army Corps of Engineers (Corps), Regulatory Branch has received your request for a jurisdictional determination and clarification whether a Department of the Army (DA) permit is required for the replacement of the Oahu Community Correctional Center (OCCC). The replacement of the OCCC involved the investigation of five sites: the OCCC existing location in Kalihi, the Hawaii Department of Agriculture (HDOA) Animal Quarantine Facility in Aiea, the Mililani Technological Park Lot 17 in Mililani, the Halawa Correctional Facility in Aiea, and the Women's Community Correctional Center (WCCC) in Kailua, all located on Island of Oahu, Hawaii. Your request has been assigned DA file number POH-2017-00159. Please reference this number in all future correspondence with our office relating to this action.

Based on our review of the information you provided and the enclosed approved jurisdictional determinations (AJDs) for the OCCC existing location, the HDOA Animal Quarantine Facility, and the Mililani Technological Park Lot 17, dated July 21, 2017, these three sites, as defined in the Wetland Report for each site, do not contain waters of the U.S., including wetlands or navigable waters of the U.S., as defined by 33 CFR Parts 328 and 329, respectively. Therefore, a DA permit under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899 is not required. The basis for our jurisdictional determination is on the enclosed AJD Forms with attached maps for each of these three sites (Enclosures 1, 2, and 3).

While a DA permit is not required for the placement of fill, structures, or work in these three sites as defined by the Wetland Report for each site, you are responsible for obtaining all other applicable Federal, state, or local authorizations required by law.

For the remaining two sites, the Halawa Correctional Facility and the WCCC, we have reviewed your submittal pursuant to Section 404 of the Clean Water Act (33

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U.S.C. 1344; "Section 404") and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403; "Section 10"). Section 404 requires DA authorization for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. Section 10 requires DA authorization for the placement of structures in, under or over navigable waters of the U.S. and/or other work affecting the course, location, condition or navigable capacity of such waters. To determine if a DA permit is required for a proposed action, the Corps must first determine whether the proposed project is located within the Corps' geographic jurisdiction (i.e., whether the activity is located within a water of the U.S.). If the activity is within a water of the U.S., the Corps must then determine whether the proposed project is a regulated activity under Section 10 and/or Section 404 or if the activity is exempt under Section 404(f). The determination provided in this letter pertains only to the question of geographic jurisdiction.

The review area for the Halawa Correctional Facility AJD is 32 acres of the existing facility including inmate housing, administrative, program and support structures, maintenance buildings, an outdoor recreation area and vehicle parking lots located at 99-902 Moanalua Road in Halawa. The potential OCCC relocation area on Halawa Correctional Facility site would be an approximately 3.3-acre area of level land that is currently used as the correctional facility's inmate outdoor recreation area within the larger review area. The review area for the WCCC AJD is 124 acres of the existing facility including inmate housing, administrative, program and support structures, maintenance buildings, an outdoor recreation area and vehicle parking lots located at 42-477 Kalanianaole Highway in Kailua. The potential OCCC relocation area on the WCCC site would be an approximately 5-acre area of mowed grass field on the west side of the WCCC property within the larger review area. Based on project information submitted to our office and additional desktop reviews conducted by the Corps, the Corps has determined that there are waters of the U.S. on the project site in the locations depicted on the enclosed map for each site, attached to each of the AJD forms. The basis for this determination can be found in the enclosed AJD forms (Enclosures 4 and 5).

The enclosed Halawa Correctional Facility and WCCC AJDs provide the Corps' concurrence on the jurisdiction of the unnamed streams on each property, but does not provide the Corps' final concurrence on the lateral limits of jurisdiction (e.g. Ordinary High Water Mark) for the unnamed streams within each review area. The location of the ordinary high water mark (OHWM) must be included on your project plans for computation of impacts and may be subject to field verification by the Corps.

The enclosed Halawa Correctional Facility and WCCC AJDs provide the Corps' concurrence on the limits of jurisdiction for the 0.63 acre Palustrine Emergent (PEM) riverine wetland and 0.07 acre Palustrine Emergent (PEM) riverine wetland within the Halawa Correctional Facility and WCCC review areas respectively. The delineation of

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the wetland boundary must be included on project plans of any proposed projects in the review areas and will be used for computation of impacts.

This letter contains AJDs for the aforementioned review areas. If you wish to submit new information regarding this jurisdictional determination, please do so within 60 days. We will consider any new information submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. If you object to this determination, you may request an administrative appeal under 33 CFR Part 331. We have enclosed a Notification of Appeal Process and Request for Appeal (NAP/RFA) form for each of the five sites (Enclosures 6, 7, 8, 9, and 10). If you wish to appeal this determination, you must submit a completed RFA form within 60 days of the date on the NAP to the Corps' Pacific Ocean Division office at the following address:

Kate Bliss
Civil Works and Regulatory Program Manager
U.S. Army Corps of Engineers
Pacific Ocean Division, ATTN: CEPOD-PDC
Building 525
Fort Shafter, Hawaii 96858-5440

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Pacific Ocean Division office by November 5, 2017.

This determination has been conducted to identify the presence or absence of jurisdictional aquatic resources and the geographic limits of the wetlands, but not the geographic limits of the streams since OHWM was not provided, on both the at the Halawa Correctional Facility and WCCC sites identified in your request, and is valid for five (5) years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Thank you for your cooperation with the Honolulu District Regulatory Program. If you have any questions related to this determination, please contact me at 808-835-4310 or via e-mail at Vera.B.Koskelo@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

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For additional information about our Regulatory Program, visit our web site at http://www.poh.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

Vera B Koskelo

Digitally signed by KOSKELO.VERA.B.1370139110
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=KOSKELO.VERA.B.1370139110
Date: 2017.09.11 08:30:08 -10'00'

Vera B. Koskelo
Regulatory Specialist, Regulatory Branch

Enclosures

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Appendix L: Archaeological and Architectural Surveys

Oahu Community Correctional Center

October 27, 2017

Prepared for:

State of Hawaii
Department of Accounting and General Services
Department of Public Safety

Prepared by:

Louis Berger

ABSTRACT

The Hawaii Department of Public Safety (PSD) operates the Oahu Community Correctional Center (OCCC), which acts as the local detention center for the First Circuit Court. Located within an approximately 6.5-hectare (16-acre) property at 2199 Kamehameha Highway in Honolulu, OCCC is currently the largest jail facility in the State of Hawaii. Since its beginning in 1975 as a part of a community corrections system concept with 456 beds, the facility has been expanded to its current design capacity of 628 beds and an operational capacity of 954 beds and consistently operates above these capacities. With increasingly aged and obsolete correctional facilities, PSD is proposing to improve its corrections infrastructure by modernizing existing facilities when possible and constructing new institutions to replace others when necessary. Among its priority projects is the replacement of OCCC, which, when constructed, will take advantage of the newest cost-savings technologies and improve correctional services and safety for inmates, staff, and the public. The project also involves upgrades and expansions to the housing and supporting infrastructure at the Women's Community Correctional Center (WCCC) in Kailua to accommodate the relocation of female inmates from OCCC to that facility.

On behalf of PSD, Louis Berger U.S., Inc. (Louis Berger) completed archaeological and architectural surveys for the proposed OCCC replacement project. Four sites located on the island of Oahu have been identified as the potential location for the proposed new OCCC facility. WCCC was also the subject of study given the plans to upgrade and expand the facility to receive female inmates currently housed at OCCC. The area of potential effect (APE) is not currently fully delineated, and therefore these surveys examined the largest possible extent of project-related impacts in each project area.

As part of the preparation of an Environmental Impact Statement (EIS) for the proposed OCCC project, conducted in accordance with Hawaii Revised Statutes (HRS) 343, archaeological and architectural resources must be taken into account as required by and in conformance with Procedures for Determining Site Eligibility for the National Register of Historic Places (36 CFR 60 and 63); Hawaii Law HRS Division 1, Title 1, Chapter 6E, Section 6E-8; and Hawaii Administrative Rules (HAR), Chapters 13-276 and 13-275. The archaeological survey does not fulfill the definition of an archaeological inventory survey, as outlined in HAR. Instead, and as agreed to in consultation with the Hawaii State Historic Preservation Division (SHPD), the surveys are intended to provide support for the project's historic preservation compliance and consultation effort, as outlined in HAR Chapter 13-275, and contribute to the consideration of the five alternative site locations in a Draft EIS. Louis Berger will work with PSD to obtain a determination from the SHPD as to whether further archaeological and architectural studies will be required as described in HAR Chapter 13-276.

As part of the Historic Preservation Review as outlined in HAR 13-275, this report is intended to identify any significant or previously recorded archaeological or architectural resources (properties) in the project areas. This information will be used to determine the significance and impacts of the proposed project on historic resources. The report includes a literature review of background environmental and historical research and an outline of previous archaeological surveys and sites, and management recommendations on proposed OCCC development. The documentary research was conducted by Louis Berger using available resources at the SHPD, the Bishop Museum, the Hawaii State Archive, and the University of Hawaii, Manoa.

Louis Berger identified various previously documented cultural resources and various levels of disturbance in all five areas.

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1.0 INTRODUCTION

The Hawaii Department of Public Safety (PSD) operates the Oahu Community Correctional Center (OCCC), which acts as the local detention center for the First Circuit Court. Located within an approximately 6.5-hectare (16-acre) property at 2199 Kamehameha Highway in Honolulu, OCCC is currently the largest jail facility in the State of Hawaii. Since its beginning in 1975 as a part of a community corrections system concept with 456 beds, the facility has been expanded to its current design capacity of 628 beds and an operational capacity of 954 beds and consistently operates above these capacities. With increasingly aged and obsolete correctional facilities, PSD is proposing to improve its corrections infrastructure through modernization of existing facilities when possible and construction of new institutions to replace others when necessary. Among its priority projects is the replacement of OCCC, which, when constructed, will take advantage of the newest cost-savings technologies and improve correctional services and safety for inmates, staff, and the public. The project also involves upgrades and expansions to the housing and supporting infrastructure at the Women's Community Correctional Center (WCCC) in Kailua to accommodate the relocation of female inmates from OCCC to that facility.

On behalf of PSD, Louis Berger U.S., Inc. (Louis Berger) completed archaeological and architectural surveys for the proposed OCCC replacement project. Four sites located on the island of Oahu have been identified as potential locations for the proposed OCCC facility. WCCC is also the subject of study given the plans to upgrade and expand the facility to receive female inmates currently housed at OCCC. Accordingly, the five site locations included in this study are the Animal Quarantine Station in Halawa; the Halawa Correctional Facility in Halawa; the current site of the OCCC in Kalihi; Mililani Technology Park, Lot 17 in Mililani; and WCCC in Kailua (Figure 1). The area of potential effect (APE) is not currently fully delineated, and therefore this assessment examines the largest possible extent of project-related impacts in each project area.

As part of the preparation of an Environmental Impact Statement (EIS) for the proposed OCCC project, conducted in accordance with Hawaii Revised Statutes (HRS) 343, archaeological and architectural resources must be taken into account as required by and in conformance with Procedures for Determining Site Eligibility for the National Register of Historic Places (36 CFR 60 and 63); Hawaii Law HRS Division 1, Title 1, Chapter 6E, Section 6E-8; and Hawaii Administrative Rules (HAR) Chapters 13-276 and 13-275. The archaeological survey does not fulfill the definition of an archaeological inventory survey as outlined in HAR Chapter 13-276. Instead, and as agreed to in consultation with the Hawaii State Historic Preservation Division (SHPD), the surveys are intended to provide support for the project's historic preservation compliance and consultation effort, as outlined in HAR Chapter 13-275, and contribute to the consideration of the five alternative site locations in a Draft EIS. Louis Berger will work with PSD to obtain a determination from SHPD as to whether further archaeological and architectural inventory and evaluation studies will be required as described in HAR Chapter 13-276 once a preferred project site has been selected as a result of the ongoing EIS process.

In accordance with the Historic Preservation Review as outlined in HAR 13-275, the current study is intended to identify any significant or previously recorded archaeological or architectural resources (properties) in the project area. This information will be used to determine the significance and impacts of the proposed project on archaeological and architectural resources in the five proposed project areas. The report includes a literature review

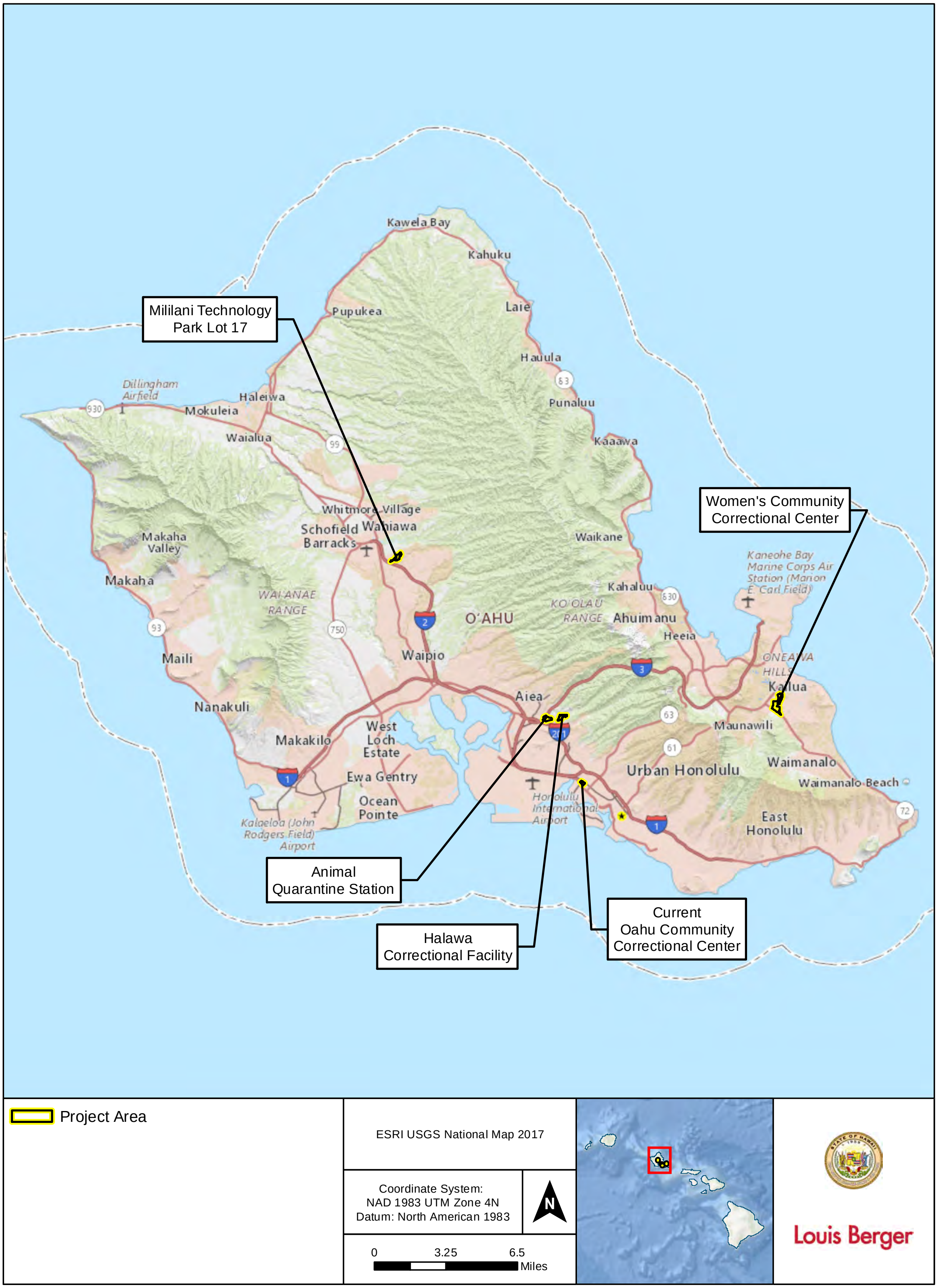


Figure 1: Location of Project Areas

of background environmental and archaeological documentary research and an outline of previous archaeological surveys and sites, the results of the archaeological pedestrian reconnaissance survey, the results of the architectural survey, and management recommendations on the proposed siting for the OCCC. Louis Berger conducted the research using available resources at the SHPD, the Bishop Museum, the Hawaii State Archive, and the University of Hawaii, Manoa.

The report is organized into six chapters. After this introduction Chapter 2.0 presents the results of the background research, including an environmental setting and traditional and historic contexts for the five project sites. Chapter 3.0 reviews the previous archaeological research and recorded sites in the project areas. Chapter 4.0 provides the results of the archaeological and architectural surveys. Chapter 5.0 contains a summary and recommendations for cultural resource potential. The report concludes with a list of the references cited. Louis Berger Senior Vice President Hope Luhman, Ph.D., served as Principal Investigator supervising the archaeological investigations under Permit Number 17-37, issued by the Hawaii State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per HAR Chapter 13-282. Louis Berger Archaeologist Kathryn Wilkins and Field Manager David Boschi completed the background research and literature review. Mrs. Wilkins wrote the report with contributions from Director of Historic Preservation Steven Bedford, Ph.D., Archaeologists Andrew Wilkins, Ph.D., and Erin Hudson, Ph.D. Dr. Wilkins conducted the archaeological pedestrian reconnaissance under the direction of Dr. Luhman. Louis Berger Architectural Historian Natalie Thomas conducted the architectural survey under the direction of Dr. Bedford. The archaeological and architectural fieldwork was conducted from July 24 to July 28, 2017. Principal Editor Anne Moiseev edited the report with assistance from Senior Technical Editor Denise Short, and Principal Draftsperson/GIS Analyst Jacqueline L. Horsford and GIS Analyst Linda Green prepared the graphics.

2.0 BACKGROUND

2.1 Environmental Setting

The five project areas are located on the island of Oahu in the districts of Ewa, Kona, and Koolaupoko. Each project area is unique with regard to topography, soil profile (Figure 2), and historic land use; therefore each location will be discussed individually.

2.1.1 Animal Quarantine Station

The Animal Quarantine Station site (TMK: 99010058; 99010057; 99010054; 99010046; 99010006) is located in Halawa Ahupuaa, Ewa District on approximately 16 hectares (39.5 acres) of land bisected by the H-3 and close to the Halawa Correctional Facility to the east, the Red Hill Naval Reservation to the south, and the Hawaiian Cement Co. Halawa Quarry to the north. The project area is approximately 1.5 miles inland from Aiea Bay and ranges in elevation between 24 and 43 meters (80 and 140 feet) above mean sea level (amsl). Rainfall amounts to 101 to 127 centimeters (40 to 50 inches) annually (Juvik and Juvik 1998; USDA-NRCS 2017). The project area is situated in the Halawa Valley between the North Halawa Stream branch and intermittent South Halawa Stream branch ridge and valley juncture.

The USDA-NRCS (2017) data indicate that the soils present in the project area are suggestive of heavily disturbed contexts, consisting of Fill land, mixed (FL) and Quarry (QU) series soil types (Table 1). The mixed Fill land series (FL) consists of well-drained soils situated on alluvial flats with slopes at 0 to 3 percent. The area is

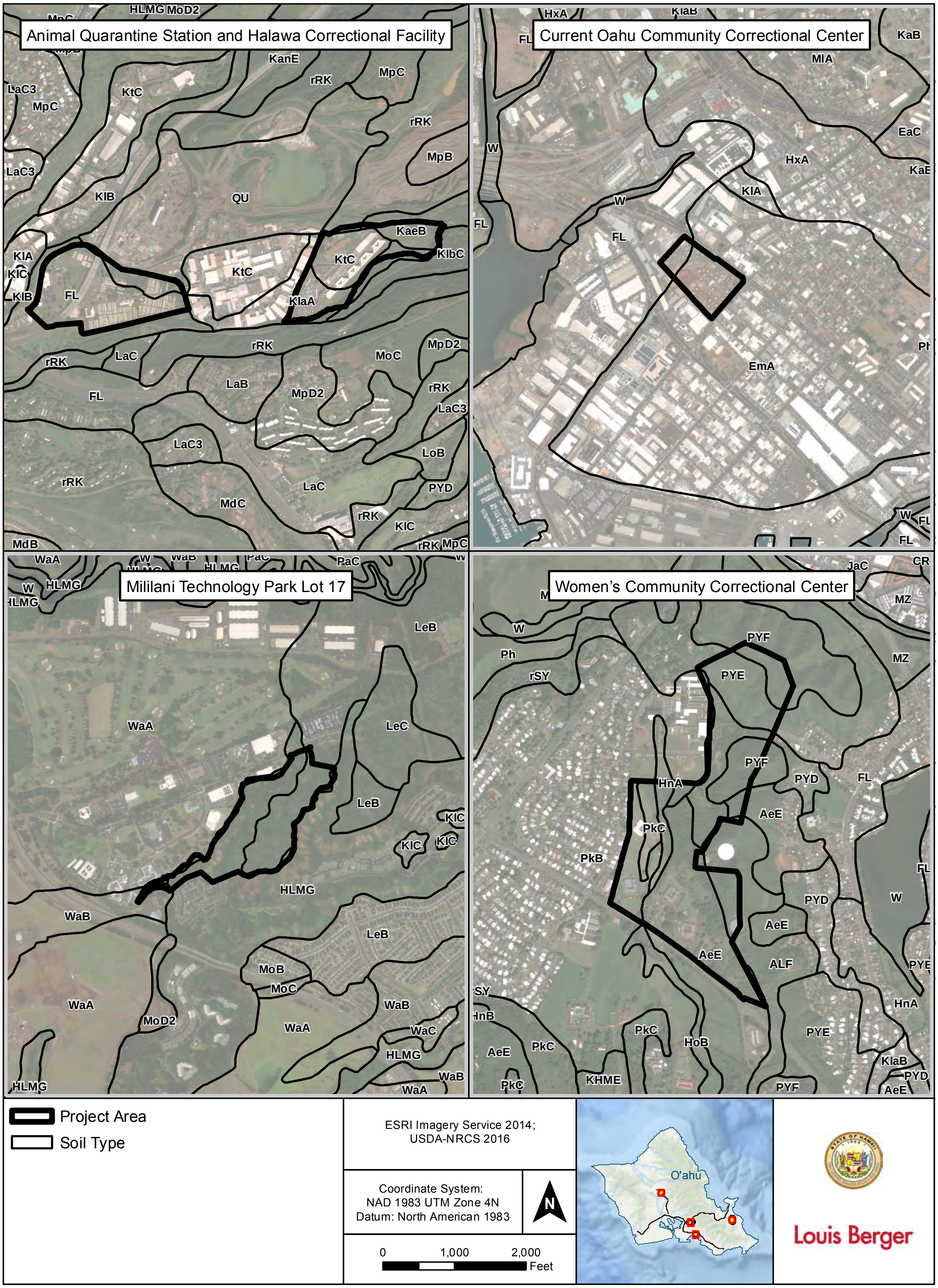


Figure 2: Aerial Map Showing Soils in Project Areas

classified as not prime farmland. Approximately 90 percent of the proposed project area is covered by this soil type. Portions of the project area border the built environment associated with the Hawaiian Cement Co. and Halawa Quarry. These Quarry series (QU) soils consist of variable redistributed soils associated with modern landforms constructed by the active quarry. The built environment consists of modern buildings associated with the Animal Quarantine Station. Historic land use includes predominantly agricultural terracing and modern quarrying activities (Hammatt et al. 2013).

Table 1: Soils in Animal Quarantine Station Project Area

Name	Horizon	Soil Horizon Depth	Texture	Slope (%)	Drainage	Landform
Fill land, mixed (FL)	H1 H2 H3	0–15 cm (0–6 in) 15–152 cm (6–60 in) 152–178 cm (60–70 in)	Grl Sa Lo Fi Sa Lo Bdr	0-3	Well drained	Flats
Quarry (QU)	N/A	Varies	Varies	Varies	Varies	Modern land/ active quarry/ redistribution of soils

KEY: *Soils:* Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand, Org – Organics
Other: / – Mottled, Grl – Gravel, Cbs – Cobbles, Pbs – Pebbles, Rts – Roots, C – Coarse, Ch - Channery, Fi – Fine, BdR - Bedrock

2.1.2 Halawa Correctional Facility

The Halawa Correctional Facility project area (TMK: 99010030) is also located in the Halawa Ahupuaa, Ewa District. The entire Halawa Correctional Facility encompasses approximately 13 hectares (32 acres) of land, within which the proposed OCCC site would occupy approximately 2 hectares (5 acres) in the east portion of the property. The project area is approximately 2 miles inland from Aiea Bay and ranges in elevation between 55 and 95 meters (180 and 310 feet) amsl. Rainfall amounts to 51 to 127 centimeters (20 to 50 inches) annually (Juvik and Juvik 1998; USDA-NRCS 2017). The project area is situated in a valley between two branches of the South Halawa Stream. The area is dominated by ridge and valley topography, although it appears to be heavily disturbed as a result of the surrounding built environment.

The USDA-NRCS (2017) soil survey data indicate that the soils present in the project area include Kawaihapai (KlaA), Kokokahi (KtC), and Kaena (KaeB) soil series with additional areas of Rock land (rRK) in areas disturbed by the neighboring quarry activity (Table 2).

The Kawaihapai series (KlaA) consists of well-drained sandy loam with a stony clay loam topsoil on alluvial fans produced from basic igneous rock parent material. The soil is considered to be mostly prime farmland if properly irrigated and contains slopes of 0 to 2 percent. The Kokokahi series (KtC) consists of moderately well-drained soils developed on coastal plains from basalt. The soil is not prime farmland and contains slopes of 6 to 12 percent. The Rock Land (rRK) covers the north section of the proposed project area, bordering the modern quarry activity. Natural bedrock from the pahoehoe lava flows is exposed in these areas and runoff is very high. This landform is not ideal for prime farmland, but natural vegetation is present. The Kaena series (KaeB) consists of poorly drained deep stony clay soils formed into fans developed in alluvium and colluviums from the basic igneous parent material. This soil is described as not prime farmland with 2 to 6 percent slopes. The built environment in the project area is exclusively associated with the Halawa Correctional Facility. Historic land use includes predominantly agricultural pursuits and modern quarrying activities (Hammatt et al. 2013).

Table 2: Soils in Halawa Correctional Facility Project Area

Name	Horizon	Soil Horizon Depth	Texture	Slope (%)	Drainage	Landform
Kawaihapai stony clay (KlaA)	H1 H2 H3	0–56 cm (0–22 in) 56–81 cm (22–32 in) 81–137 cm (32–54 in)	St Cl Lo Sa Lo Sa Lo	0–2	Well drained	Alluvial Fans
Kokokahi clay (KtC)	H1 H2	0–35.5 cm (0–14 in) 35.5–112 cm (14–44 in)	Cl Cl	6–12	Moderately well drained	Coastal Plains
Kaena stony clay (KaeB)	H1 H2 H3	0–25 cm (0–10 in) 25–94 cm (10–37 in) 94–137 cm (37–54 in)	St Cl St Cl St Cl	2–6	Poorly drained	Fans
Rock land (rRK)	H1 H2 H3	0–10 cm (0–4 in) 10–20 cm (4–8 in) 20–51 cm (8–20 in)	Si Cl Si Cl BdR	Varies	Well drained	Pahoehoe lava flows

KEY: *Soils:* Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand, Org – Organics
Other: / – Mottled, Grl – Gravel, Cbs – Cobbles, Pbs – Pebbles, Rts – Roots, C – Coarse, Ch – Channery, Fi – Fine, BdR – Bedrock, St – Stony

2.1.3 Current Oahu Community Correctional Center Site

The existing OCCC site is located in the Kalihi Ahupuaa, Kona District on approximately 6.5 hectares (16 acres) of land situated in an urban built environment (TMK: 12013002). The project area lies in the Kalihi Valley approximately 0.8 kilometer (0.5 mile) inland from Keehi Boat Harbor and Keehi Lagoon. The site ranges in elevation between 2 and 7 meters (7 and 21 feet) amsl, and rainfall amounts to 51 to 127 centimeters (20 to 50 inches) annually (Juvik and Juvik 1998; USDA-NRCS 2017). The project area, situated along the coastal plain, appears to be heavily disturbed as a result of the surrounding built environment.

The USDA-NRCS (2017) soil survey data indicate that the soils present in the project area include predominantly Ewa soil series with additional areas of Fill land, mixed (FL). These Fill areas are located closer to the lagoon, where infilling of the historic fishponds has occurred (Table 3).

The Ewa soil series consists of well-drained, moderately shallow silty clay loam soils formed on alluvial fans from the basic igneous parent material. This soil is described as prime farmland if irrigated with low runoff as slopes are moderate at 0 to 2 percent. The Fill land, mixed (FL) series consists of well-drained soils situated on alluvial flats with slopes of 0 to 3 percent. The area is classified as not prime farmland and runoff is low. Approximately 20 percent of the proposed project area is covered by this soil type and can be attributed to the historic infilling of the fishponds in the project area. The built environment in the project area is entirely associated with the boundaries of the current OCCC operational facility.

Table 3: Soils in Current OCCC Project Area

Name	Horizon	Soil Horizon Depth	Texture	Slope (%)	Drainage	Landform
Ewa silty clay loam, moderately shallow (EmA)	H1 H2 H3	0–20 cm (0–8 in) 20–74 cm (8–29 in) 74–99 cm (29–39 in)	Si Cl Lo Si Cl Lo BdR	0–2	Well drained	Basins and Alluvial Fans
Fill land, mixed (FL)	H1 H2 H3	0–15 cm (0-6 in) 15–152 cm (6–60 in) 152–178 cm (60–70 in)	Grl Sa Lo Fi Sa Lo Bdr	0–3	Well drained	Flats

KEY: *Soils:* Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand, Org - Organics
Other: / - Mottled, Grl – Gravel, Cbs – Cobbles, Pbs – Pebbles, Rts – Roots, C – Coarse, Ch - Channery, Fi – Fine, BdR – Bedrock, St – Stony

2.1.4 Mililani Technology Park, Lot 17

The Mililani Technology Park, Lot 17 site (TMK: 95046042) is located in the Waikele Ahupuaa, Ewa District on approximately 16 hectares (40 acres) of undisturbed land, of which 7.7 hectares (19 acres) are suitable for OCCC development. The developable OCCC site occupies a geographic landform that is bordered by the Waikakalaua and Kipapa gulches, in an area surrounded by a built environment featuring a technology park, religious centers, and suburban housing. The project area is approximately 10.3 kilometers (6.4 miles) inland from Middle Loch in Pearl Harbor and ranges in elevation between 200 and 260 meters (656 and 854 feet) amsl. Rainfall amounts to 152 to 203 centimeters (60 to 80 inches) annually (Juvik and Juvik 1998; USDA-NRCS 2017).

The USDA-NRCS (2017) soil survey data indicate that the soils present in the project area belong entirely to the Leilehua (LeB) soil series, with the surrounding hillslope and gulch soils identified as Helemano soil series. The project area is confined to the dimensions of the geographic landform (Table 4).

Leilehua soils consist of well-drained, silty clay soils formed on hilltops and mountains from the basalt parent material. This soil is described as prime farmland if irrigated with low runoff as slopes are slight at 2 to 6 percent. Helemano soils consist of well-drained, silty clay soils found in gulches and backslopes and formed from the basic igneous parent material. This soil is described as unsuitable for farmland, with medium runoff potential as slopes can range from 30 to 90 percent. Historic land uses include primarily pre-contact settlement and taro farming; the area is also known as the site of a major battle between ancient Hawaiian populations. In the post-contact era the area has been widely used for plantations cultivating sugar and pineapple.

Table 4: Soils in Mililani Technology Park, Lot 17 Project Area

Name	Horizon	Soil Horizon Depth	Texture	Slope (%)	Drainage	Landform
Leilehua silty clay (LeB)	H1 H2	0–30 cm (0–12 in) 30–190.5 cm (12–75 in)	Si Cl Si Cl	2–6	Well drained	Mountains
Helemano silty clay (HLMG)	H1 H2 H3	0–25 cm (0–10 in) 25–104 cm (10–41 in) 104–152 cm (41–60 in)	Si Cl Si Cl (para-gravelly) Si Cl (very para-gravelly)	30–90	Well drained	Gulches

KEY: *Soils:* Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand, Org – Organics
Other: / – Mottled, Grl – Gravel, Cbs – Cobbles, Pbs – Pebbles, Rts – Roots, C – Coarse, Ch – Channery, Fi – Fine, BdR – Bedrock, St – Stony

2.1.5 Women's Community Correctional Center

The WCCC site project area (TMK: 42003004; 42003008; 42003026; 42003025; 42003024) is located in the Kailua Ahupuaa, Koolaupoko District on 38 hectares (94 acres) of land situated north of the Kalanianaole Highway and south of Kailua High School. The project area is located on the windward side of Oahu approximately 2.4 kilometers (1.5 miles) inland from Kailua Bay and ranges in elevation between 30 and 110 meters (98 and 360 feet) amsl. Rainfall amounts to 76 to 304 centimeters (30 to 120 inches) annually (Juvik and Juvik 1998; USDA-NRCS 2017). The project area lies within the current grounds of WCCC and extends along a ridge line to the east, encompassing the adjacent water storage tanks and access road.

The USDA-NRCS (2017) soil survey data indicate that the soils present in the project area include the Alaeloa (AeE and ALF), Hanalei (HnA), Pohakupu (PkB and PkC), and Papaa (PYF) soil series (Table 5).

Alaeloa soils (AeE and ALF) consist of well-drained, older silty clay soils formed on hilltops and mountains weathered from the basalt parent material. The soil is described as not prime farmland with medium runoff and slopes ranging from 15 to 35 and 40 to 70 percent, respectively. Hanalei soil series consists of poorly drained silty clay soils formed on floodplains and on valley floors as alluvium derived from basalt parent material. The soil is described as not prime farmland where runoff is negligible, with frequent flooding and occasional ponding. Slopes are minimal at 0 to 2 percent. Pohakupu (PkB and PkC) soils consist of well-drained, silty clay loams with slopes of 0 to 8 and 8 to 15, respectively, with low to medium runoff potential. These soils are formed on alluvial fans from the alluvial parent material and considered prime farmland if irrigated. Papaa series (PYD and PYF) soils are formed on well-drained clay slope landforms. Runoff is considered medium to high as slopes range from 6 to 25 and 35 to 70 percent, respectively. These sloped conditions are not suitable for farmland. Since many of the soils in the project area are considered unsuitable as farmland, historic land use primarily focused on ranching with some areas used for agriculture. Part of the built environment includes a small section of the inoperative tunnels, pump houses, and ditches infrastructure for the historic (ca. 1923) Waimanalo Irrigation System (SIHP #50-80-15-4042) (Hammatt et al. 1999).

Table 5: Soils in WCCC Project Area

Name	Horizon	Soil Horizon Depth	Texture	Slope (%)	Drainage	Landform
Alaeloa silty clay, older substrate (AeE)	Ap	0–25 cm (0–10 in)	Si Cl	15–35	Well drained	Mountains
	Bt1	25–46 cm (10–18 in)	Si Cl			
	Bt2	46–74 cm (18–29 in)	Si Cl			
	Bt3	74–122 cm (29–48 in)	Si Cl			
	Bt4	122–147 cm (48–58 in)	Si Cl			
	C	147–178 cm (58–70 in)	St Si Cl			
Alaeloa silty clay (ALF)	Ap	0–25 cm (0–10 in)	Si Cl	40–70	Well drained	Mountains
	Bt1	25–46 cm (10–18 in)	Si Cl			
	Bt2	46–74 cm (18–29 in)	Si Cl			
	Bt3	74–122 cm (29–48 in)	Si Cl			
	Bt4	122–147 cm (48–58 in)	Si Cl			
	C	147–178 cm (58–70 in)	St Si Cl			
Hanalei silty clay (HnA)	Apg	0–15 cm (0–6 in)	Si Cl	0–2	Poorly drained	Floodplains on valley floors
	Ag1	15–25 cm (6–10 in)	Si Cl			
	Ag2	25–33 cm (10–13 in)	Si Cl			
	Bg1	33–46 cm (13–18 in)	Si Cl Lo			
	Bg2	46–66 cm (18–26 in)	Si Cl Lo			
	Cg	66–91 cm (26–36 in)	Si Cl Lo			
Papaa clay (PYD)	H1	0–30 cm (0–12 in)	Cl	6–25	Well drained	Slope
	H2	30–71 cm (12–28 in)	Cl			
	H3	71–102 cm (28–40 in)	Si Cl Lo			
	H4	102–127 cm (40–50 in)	BdR			
Papaa clay (PYF)	H1	0–30 cm (0–12 in)	Cl	35–70	Well drained	Slope
	H2	30–71 cm (12–28 in)	Cl			
	H3	71–102 cm (28–40 in)	Si Cl Lo			
	H4	102–127 cm (40–50 in)	BdR			
Pohakupu silty clay loam (PkB)	H1	0–33 cm (0–13 in)	Si Cl Lo	0–8	Well drained	Alluvial fans
	H2	33–193 cm (13–76 in)	Si Cl Lo			

Table 5 (continued)

Name	Horizon	Soil Horizon Depth	Texture	Slope (%)	Drainage	Landform
Pohakupu silty clay loam (PkC)	H1 H2	0–33 cm (0–13 in) 33–193 cm (13–76 in)	Si Cl Lo Si Cl Lo	8–15	Well drained	Alluvial fans

KEY: *Soils:* Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand, Org – Organics
Other: / – Mottled, Grl – Gravel, Cbs – Cobbles, Pbs – Pebbles, Rts – Roots, C – Coarse, Ch – Channery, Fi – Fine, BdR – Bedrock, St – Stony

2.2 Traditional and Historic Context

The six moku (or districts) of Oahu are subdivided into smaller ahupuaa, areas of land organized as wedges running from the mountains to the sea. Modern maps generally follow these ancient land divisions, and the history of these places is closely tied to these boundaries. The traditional and historic context for the five project locations within four ahupuaa on Oahu have been extensively documented by previous archaeologists and historians (Barna and Rechtman 2015; Fong et al. 2007; Hommon and Ahlo, Jr. 1983; Hammatt and Shideler 2002; Hammatt and Yucha 2015; Hammatt et al. 1999; Hammatt et al. 2009; Hammatt et al. 2012; Hammatt et al. 2013; Hammatt et al. 2014; Klieger 1995; Medina and Hammatt 2013; Rechtman and Henry 1998). The following cultural context is an abbreviated summary of those reports.

2.2.1. Traditional

The ridge and valley landscape of Oahu is dotted with traditional and unique place names, providing the researcher with a link to Hawaiian culture and oral tradition. Place names connect pre-contact and early historic sites with the present-day landscape. For example, many sacred pools and religious sites are located along the ancient trails linking major population centers. These sacred places can be associated with the many gods and goddesses of the island or reinforce family connections to the area. When Polynesians first came to the Hawaiian Islands, they concentrated on settling in the coastal regions where natural resources were plentiful and easily exploited. As the populations grew and competition for resources increased, land divisions became more organized and controlled (Hammatt et al. 2009; Rechtman and Henry 1998).

2.2.1.1 Ewa District

Place name origins and a general history of Ewa during pre-contact times can be construed based on the written and oral stories. These sources can provide details about the past landscape and people interacting with the landscape. Because private property was not acknowledged by ancient Hawaiians, and all land was essentially controlled by the chief (or king), land divisions were often redefined (Hammatt et al. 2009). Based on early historical accounts, pre-contact Ewa was a heavily populated region of Oahu. Large populations could be sustained by the abundant resources provided by terrestrial and marine sources, and Ewa was the birthplace of distinguished chiefly lineages: with access to arable lands and several mountain-fed streams emptying into Pearl Harbor, the area was well equipped to sustain the type of agricultural lifestyle needed to support the resident chiefs and their people (Hammatt et al. 2009). Several fishponds are located in the Ewa district and are believed to indicate that agricultural success was a direct link to the chiefs' political success and population growth.

Ewa was known as an ancestral political center, but the ahupuaa of Halawa was not the most sacred or populous region of Ewa. Halawa was regarded as a marginal region and a place between important political centers (Klieger 1995). The area was primarily considered a place to travel through to get from one political center to another; however, Halawa is noted in traditional histories for the production of the awa plant. This plant was commonly used for fishing (Medina and Hammatt 2013) and ingested as a stimulant frequently used during early traditional rituals (Klieger 1995). The interior plateau of Oahu, including the mountain streams and springs of Waikele, were used to irrigate the taro fields and provide water to the floodplain for rice and sugar cane cultivation (Hammatt et al. 2012). The border between the ahupuaa of Wahiawa, the ahupuaa of Waipio, and the ahupuaa of Waikele is believed to be the ancient location of the Oahunui stone (see discussion in Section 3.4.1). The area is also traditionally remembered as the location of several legendary accounts and early Hawaiian histories (Hammatt et al. 2012).

2.2.1.2 Kona District

The Kona District covers much of the southeast portion of Oahu near Honolulu. The amphitheater-like geography of the ahupuaa of Kalihi in Kona and the entire Kalihi Valley is fed by the Kalihi stream. This area has traditionally been divided into three sections; the current project area is located in the Kalihi Kai, or Kalihi "by the sea." The area has experienced rapid development within recent years and is now a suburb of Honolulu, with large residential, commercial, and industrial areas.

Although many traditional stories recount historical events concerning the Kalihi Valley in general, very few document Kalihi Kai. Hammatt and Yucha (2015) recount many of the legends and detailed stories recounting events in the upland Kalihi Valley, including several that document the goddess and other stories involving visitors or legendary inhabitants of upland Kalihi. Historically, several fishponds and fisheries were abundant in the Kalihi Kai area, and a few traditional stories concentrate on these fishponds, recounting people and events near the islets and caves and noting the calm waters of the Kalihi Basin (Hammatt et al. 2014).

2.2.1.3 Koolaupoko District

The Kailua Ahupuaa, in the district of Koolaupoko, is the setting for several legendary accounts and oral histories that provide insight into pre-contact land usage (Fong et al. 2007). The natural coastal sand barrier provided early Polynesian settlers in the area an ideal location. Kawainui Marsh and Kaelepulu Pond, prominent features on the landscape near the regionally distinctive sand barrier, are traditionally thought to be the two inland water sources for which Kailua (meaning "two seas") is named (Fong et al. 2007). These resources provided residents with access to irrigation opportunities for agriculture, as well as terrestrial and marine resources near the marsh and pond (Fong et al. 2007). Legendary accounts and traditional histories also suggest that Kailua was the home or birthplace of several late pre-contact and early historic Oahu ruling chiefs.

2.2.2 Historical Post-Contact

2.2.2.1 Halawa Ahupuaa

During the early post-contact period, when the earliest Western visitors were first beginning to explore the islands, Otto von Kutzebue partially mapped the ahupuaa of Halawa on a Russian expedition to the area in 1817 (Hammatt et al. 2013). This map illustrates the general settlement pattern of the Halawa Valley, including irrigated taro fields with dense habitation along Pearl Harbor and stretching inland, following the streams (Figure 3).

Figure 3: 1817 Map of South Oahu Coast

The unification of the islands under Kamehameha I shifted the center of political power to Honolulu and Waikiki from Kona. During the post-contact period the entire Ewa district became less populated and more areas were purposefully modified to sustain agriculture and ranching pursuits. Kamehameha granted Isaac Davis and John Young (foreign advisers that provided service during Kamehameha's conquest of Oahu) the ahupuaa of Halawa in 1795 to split between them; half went to Young and half went to Davis (Hammatt et al. 2013). As is customary in Hawaiian tradition, upon their death ownership of the land would revert back to the chief. Although they were unable to negotiate successfully to make these lands inheritable before their deaths, the Halawa ahupuaa was still partly awarded to family members by the time of the Mahele (the extensive Hawaiian land redistribution enacted in 1848; see below); in 1848 Grace Kamaikui Young Rooke (John Young's daughter) retained a portion of John Young's share, and Mataio Kekuanaoa received Isaac Davis's portion (Hammatt et al. 2013:22).

The concept of private property was introduced to Hawaiian society with the Organic Acts of 1845 and 1846 (Hammatt et al. 2009). The Board of Commissioners to Quiet Land Titles (Land Commission) was established in 1845 to introduce the Mahele, or the division of lands among the king of Hawaii and the royal house, the ruling government, the alii (rulers or chiefs) and their land managers, and the common people (Hammatt et al. 2013). Land titles received by the alii were called Land Commission Awards (LCAs), and it is through these records that specific and detailed information about land use and life in the nineteenth and early twentieth centuries can be examined. The distribution of smaller LCAs across the landscape reflects settlement patterns and agricultural practices; habitation concentrated along the Pearl Harbor floodplain near the mouth of the Halawa Stream, and land use consisted of wetland agriculture. The LCAs awarded to Grace Kamaikui Young Rooke (Award 8516B) and Mataio Kekuanaoa (Award 7712) can be seen in the Covington (1881) map of Oahu (Figure 4). The distribution of smaller LCAs in Halawa were used for wetland agriculture, pasture, or house lots and were located closer to the floodplain of Pearl Harbor and the mouth of the Halawa Stream (Hammatt et al. 2013).

By the mid-1800s the sugar industry was growing and demand for sugar cultivation was increasing. Early attempts to cultivate the Halawa ridges and valleys for sugar production failed, largely because there was no railroad system to transport the sugar cane to the mills (Figures 5 and 6). During the mid-1800s Halawa was used primarily by cattle ranchers and for plantation agriculture (Plate 1). Commercial sugar cane production resurfaced in 1899 with the introduction of the Oahu Railway and Land Company (OR&L) along the coast of Halawa (see Figure 4). Sometime in the early 1900s, the OR&L Railway extended into the Halawa Valley (Figure 7). Now with access to a railway system, the Honolulu Sugar Company began cultivating and transporting sugar cane (Plate 2) directly from the Halawa Valley. Early U.S. War Department maps suggest that much of the Halawa landscape near the Animal Quarantine Station and Halawa Correctional Facility project areas was undeveloped sugar cane fields (Hammatt et al. 2013).

Figure 4: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1881

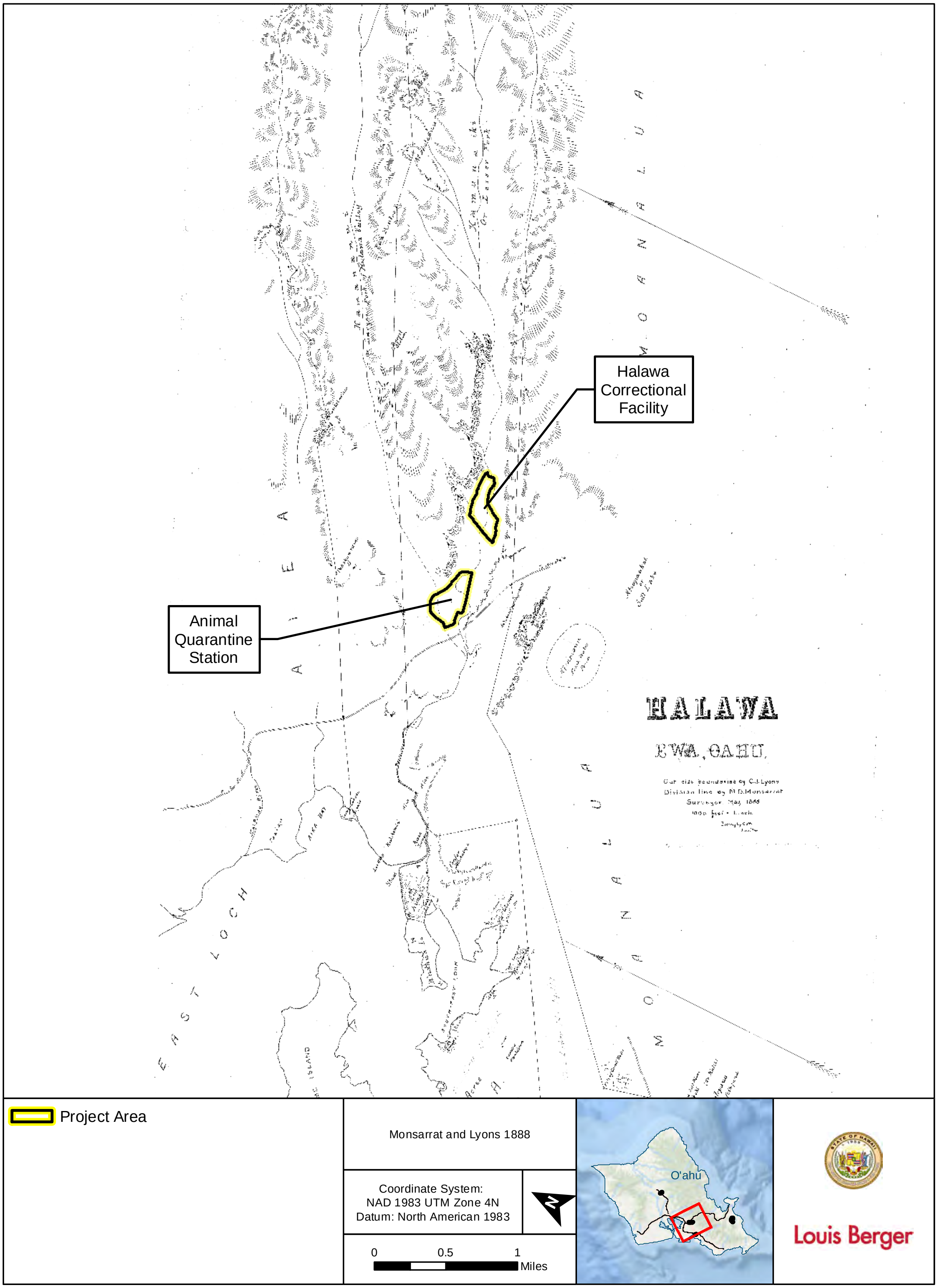


Figure 5: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1888

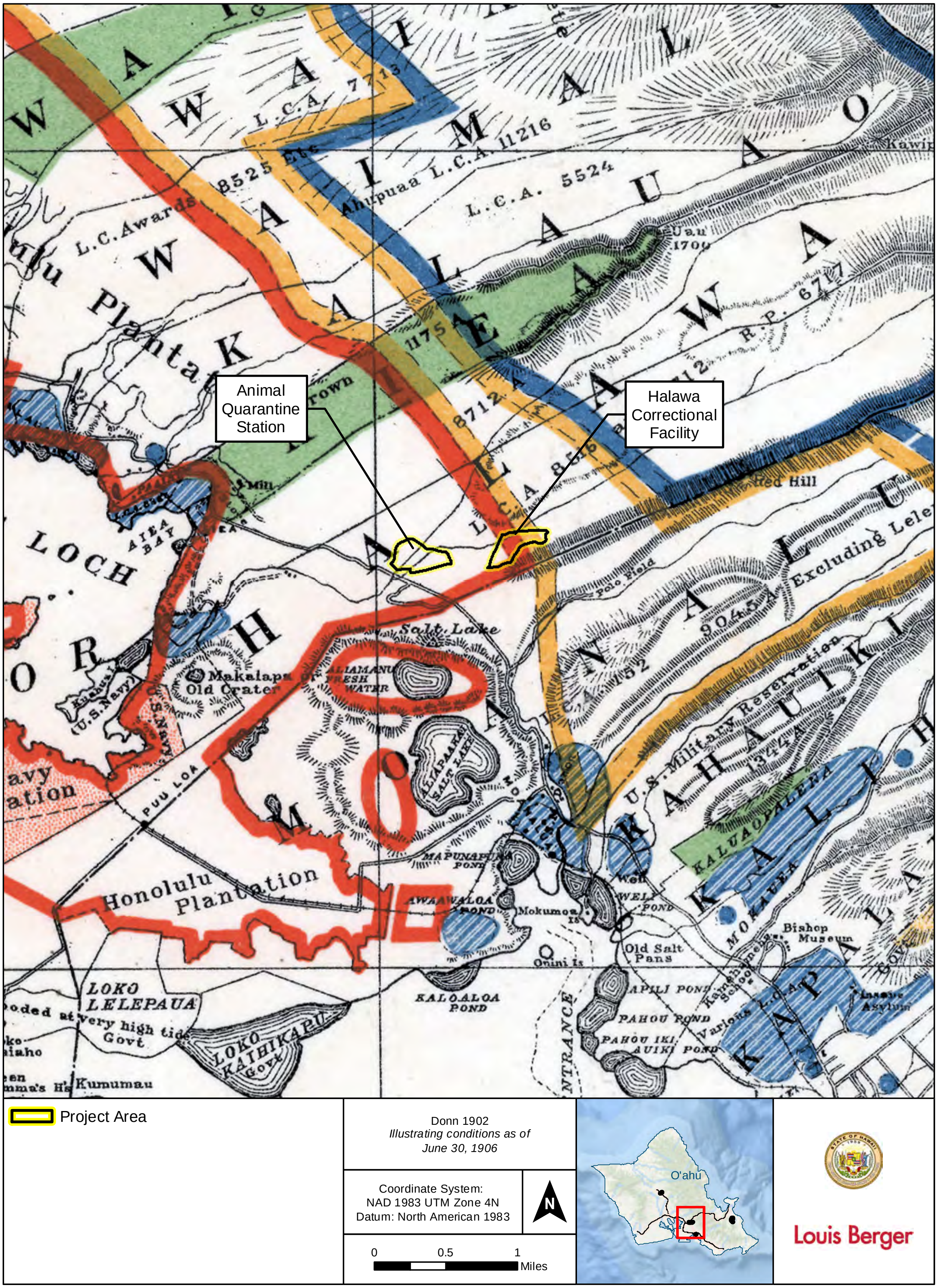


Figure 6: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1906

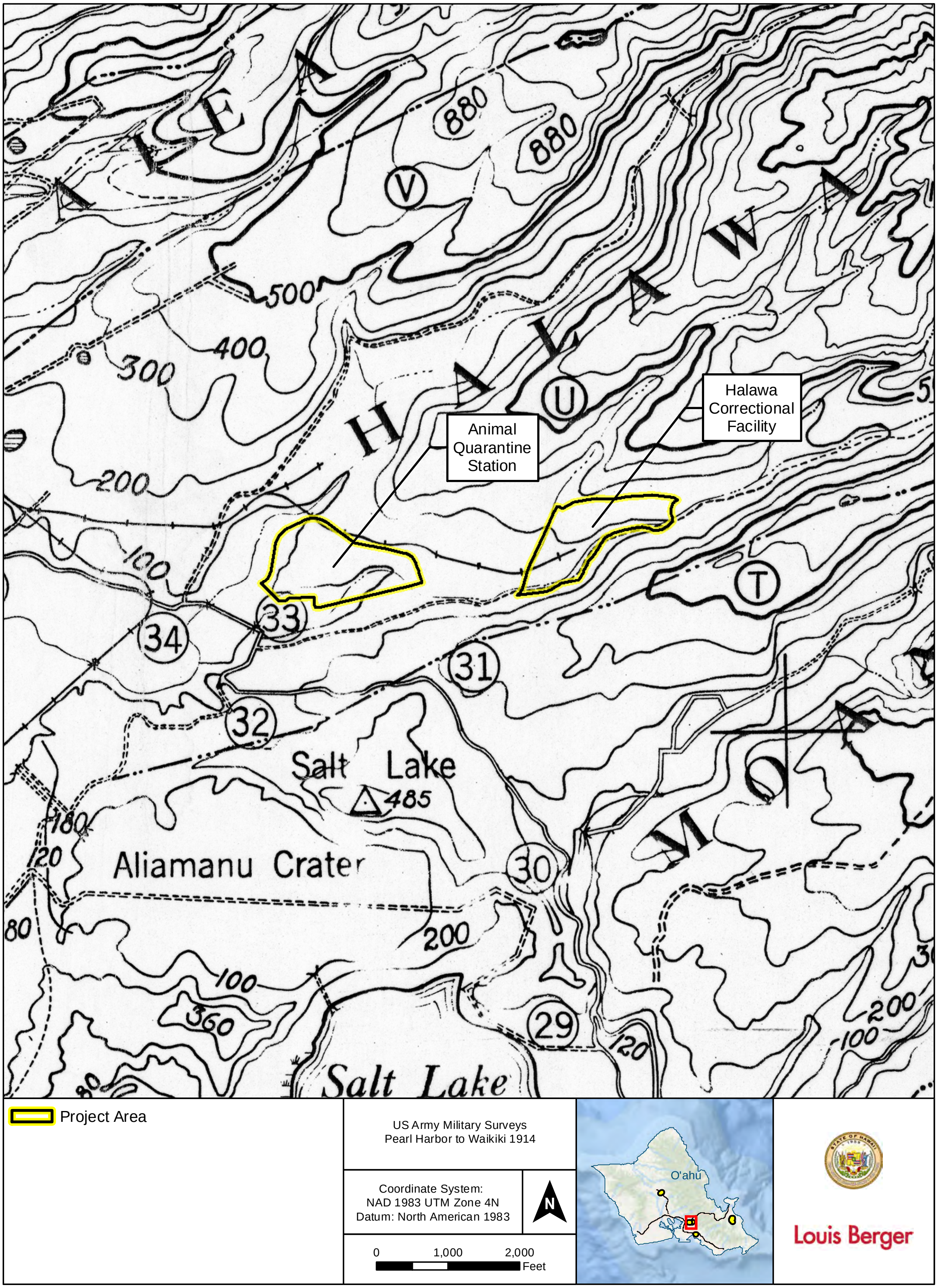


Figure 7: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1914

Plate 1: North Halawa Valley Entrance, 1884, Illustrating Land Used for Ranching (Klieger 1995)

Plate 2: South Halawa Valley, ca. 1930, Illustrating Land Used for Sugar Cultivation (Klieger 1995)

In the early twentieth century Pearl Harbor became a focus for military and urban development. The U.S. Geological Survey (USGS) and U.S. War Department map series illustrate the extensive changes throughout the Halawa Valley during the first half of the twentieth century (Figures 8-12). These maps document the changing landscape, including agricultural and plantation land use (Figure 13), and the emergence of new roads and railroads providing access to the inland terrain around the current project area. The U.S. military acquired the land associated with the Red Hill facility in the early 1900s and used it for training purposes (Rechtman and Henry 1998). By 1953 or 1954, the quarry and Red Hill Military Reservation had become prominent features near the current Animal Quarantine and Halawa project areas.

2.2.2.2 Waikele Ahupuaa

During the Mahele the ahupuaa of Waikele was awarded to Nahuina, an alii who quickly returned the land to the government for reimbursement. The land was quickly redistributed to several other alii (Hammatt et al. 2012), subdividing the ahupuaa into smaller ili. No LCAs were claimed or awarded within the current proposed project boundaries (Hommon and Ahlo, Jr. 1983); however, land use most likely consisted of taro production during this early historic period (Figures 14 and 15). Later, in 1906, the Mililani Park project area was listed as utilized for pineapple production and continued to be cultivated for pineapple production through the mid-twentieth century (see Figure 13; Figure 16). The USGS and U.S. War Department map series illustrate the extensive changes around Mililani during the first half of the twentieth century (Figures 17-21), including the development of Mililani town and Wheeler Air Field.

2.2.2.3 Kalihi Ahupuaa

In the early nineteenth century, when Europeans were first beginning to explore the islands, Kalihi Valley had a large resident population supported by extensive cultivated agricultural areas along the valley floodplains and the local fishponds (Hammatt and Yucha 2015). Five fishponds were already established and located near the OCCC project area along the coastline: Ananoho, Auiki, Pahouiki, Pahounui, and Apili. This network of coastal resources was documented on several early maps of the area produced by Western visitors, including the Kotzebue (1817) map (see Figure 3). These fishponds were extensively utilized and had been in use since their construction sometime in the sixteenth and seventeenth centuries; the paleo-environmental study for Auiki and Ananoho loko (ponds) by Athens and Ward (2002) confirms this assumption (Hammatt and Yucha 2015).

Commercial use of the fishponds was popular by the late 1800s, but by the turn of the twentieth century, many of the ponds were beginning to deteriorate owing to lack of maintenance and purposeful episodes of infilling for land reclamation (Figures 22-24). McAllister (1933) described the ponds during his island-wide archaeological survey. He combined the ponds into two sites: Ananoho and Auiki (Site 73) and Pahouiki, Pahounui, and Apili (Site 74). The fishponds were likely still intact until the 1920s, when improvements for the Honolulu Harbor filled in the features. By the 1940s the ponds were completely filled in (Hammatt et al. 2014).

By the mid-1850s the population around Kalihi had decreased, and the Mahele of 1848 and LCAs drastically changed settlement and land use patterns in the Kalihi Valley. Prior to the mid-1850s, few people lived near the fishponds, preferring to remain farther inland away from the storm surges and tidal mud-flats. Observations regarding settlement patterns in the Kalihi area include using the natural terracing of the Kalihi Stream for house and garden plots in the lower valley region during the mid-1850s (Hammatt and Yucha 2015). The LCAs provide detailed accounts of types of habitation, land use, irrigation systems, and land divisions. LCAs covered most of the project area in Kalihi, consisting primarily of irrigated patches used for taro cultivation, pasture lands,

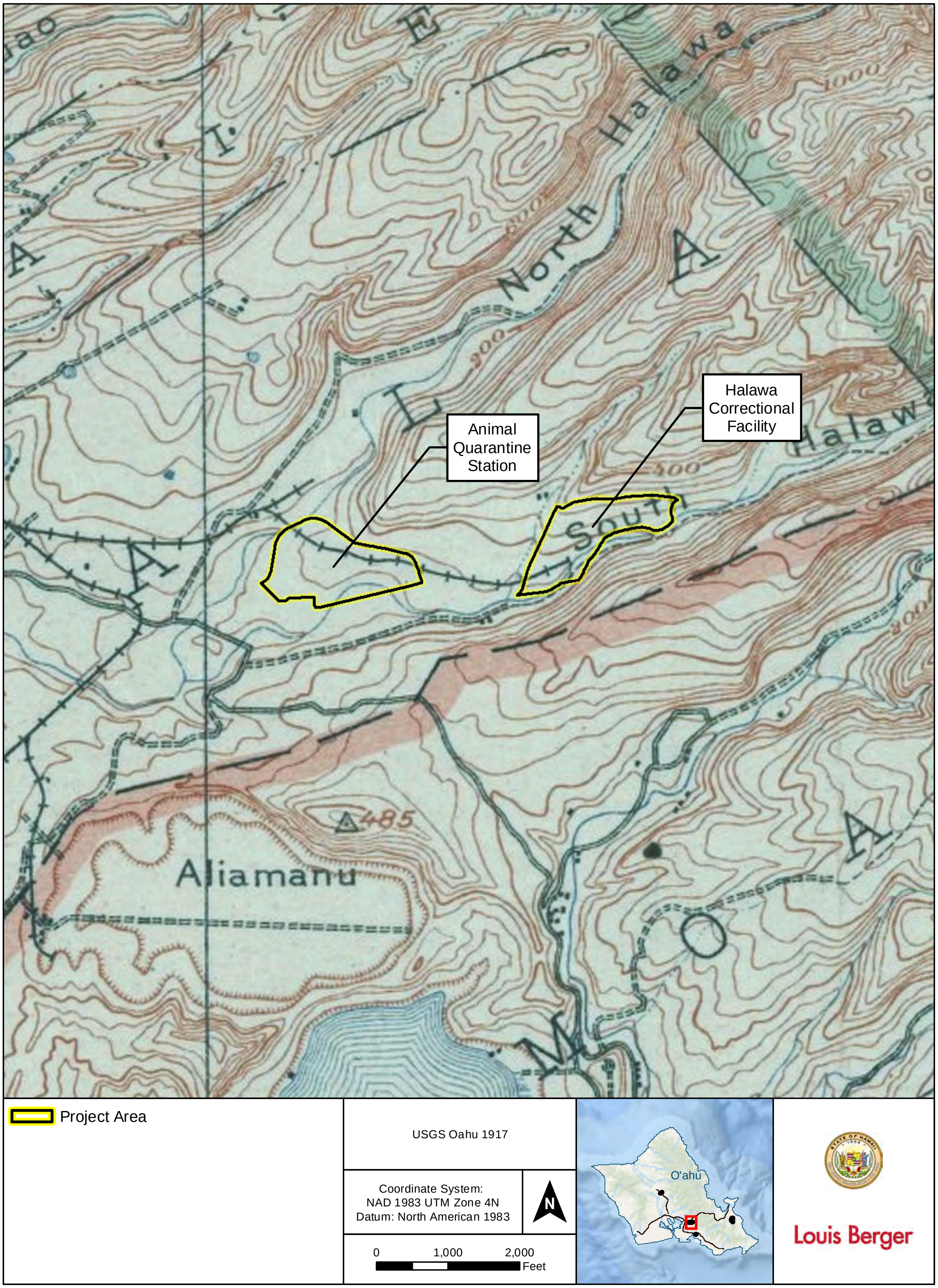


Figure 8: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1917

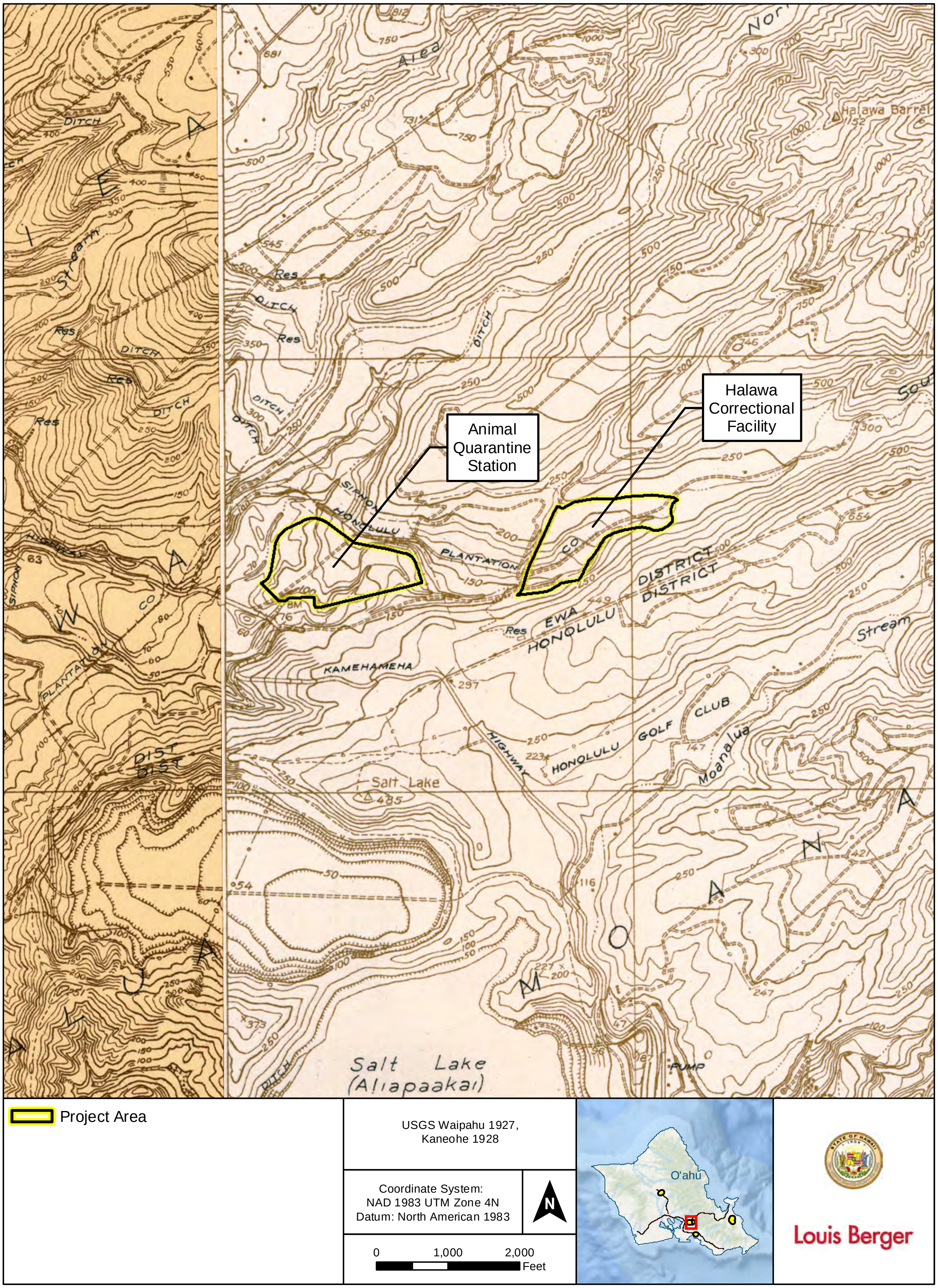


Figure 9: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1927

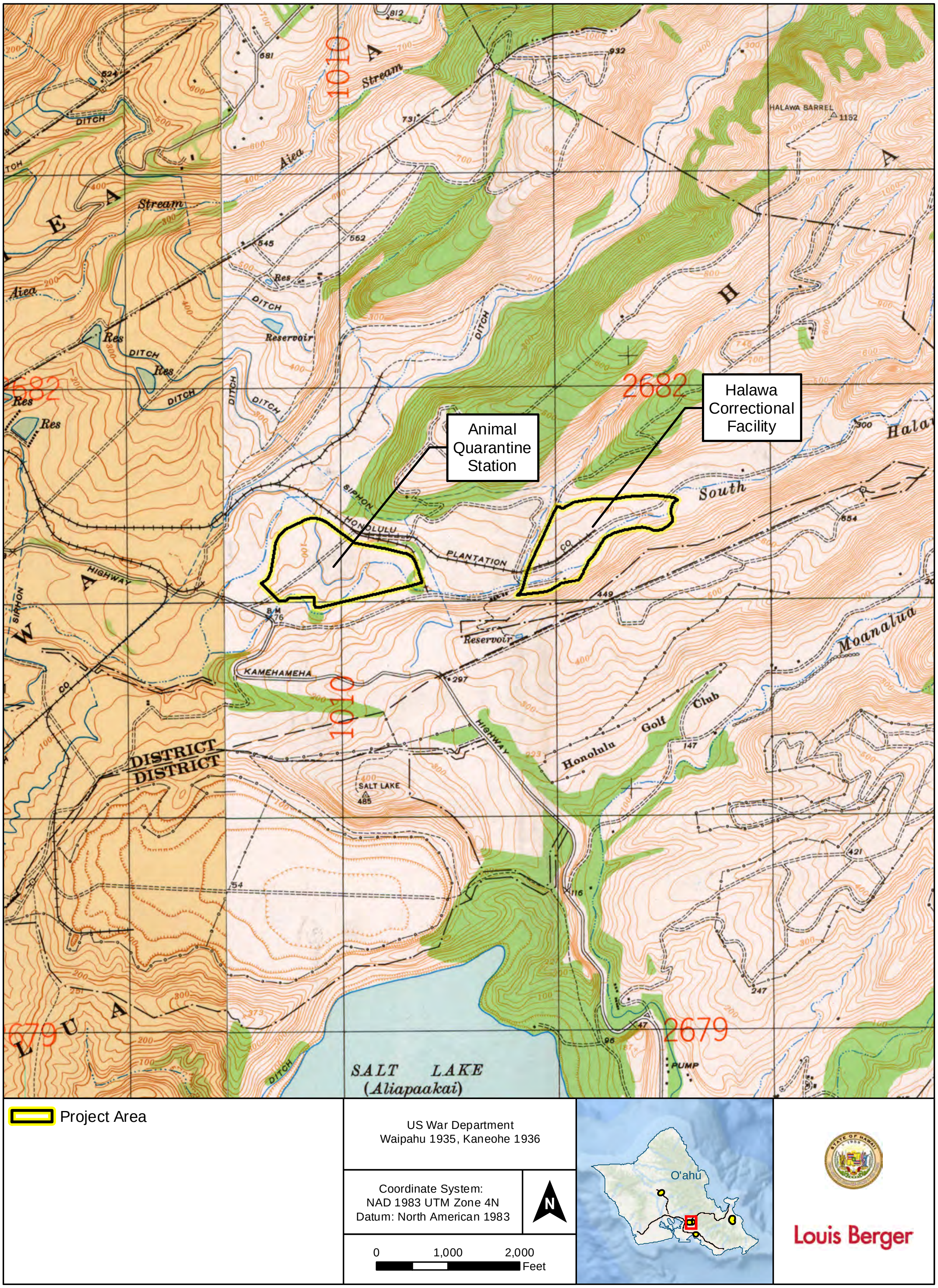


Figure 10: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1935

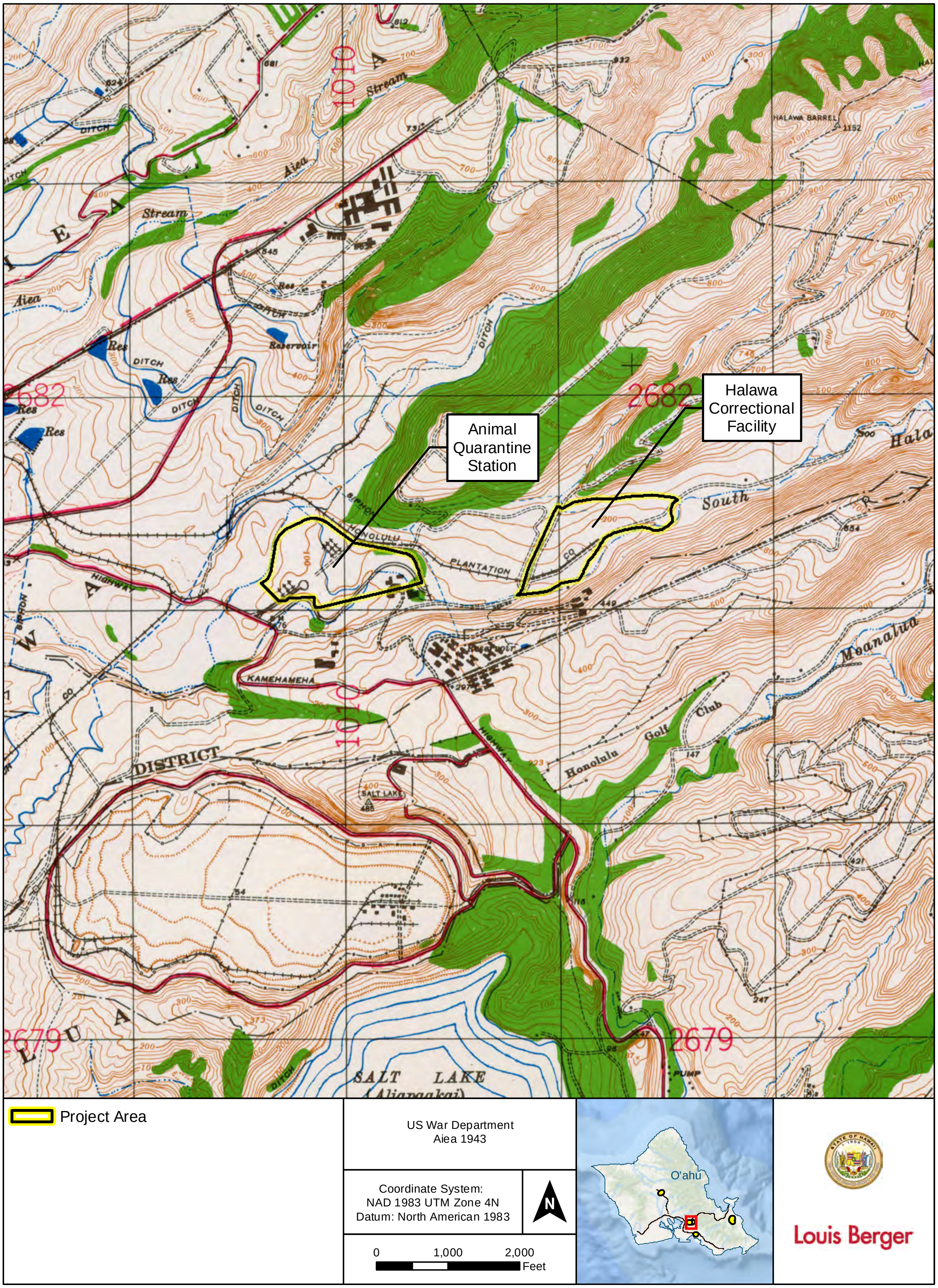


Figure 11: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1943

Figure 12: Location of Animal Quarantine Station and Halawa Correctional Facility Project Areas in 1954

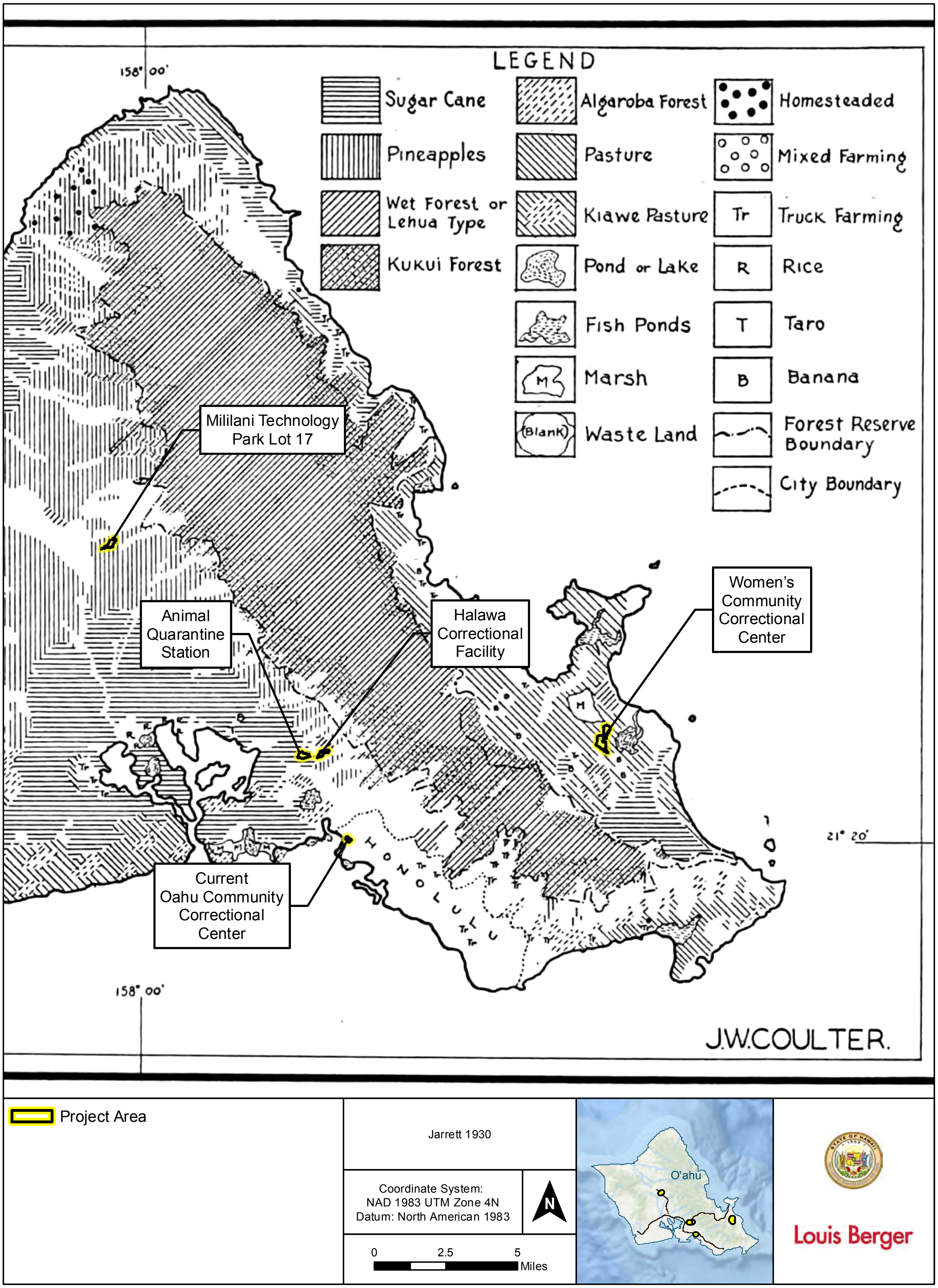


Figure 13: Location of Project Areas, 1930 Oahu Land Use Map

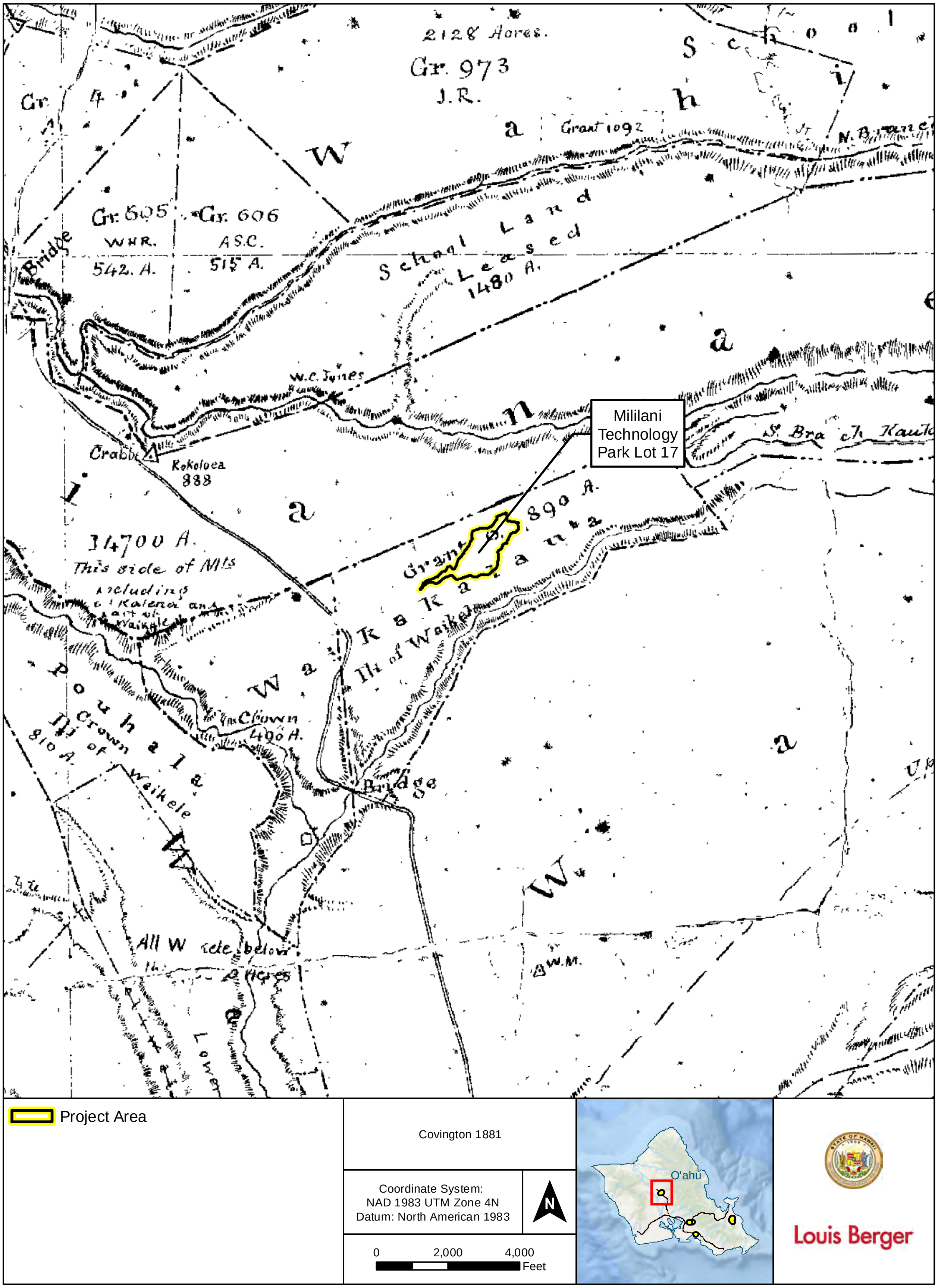


Figure 14: Location of Mililani Technology Park Lot 17 Project Area in 1881

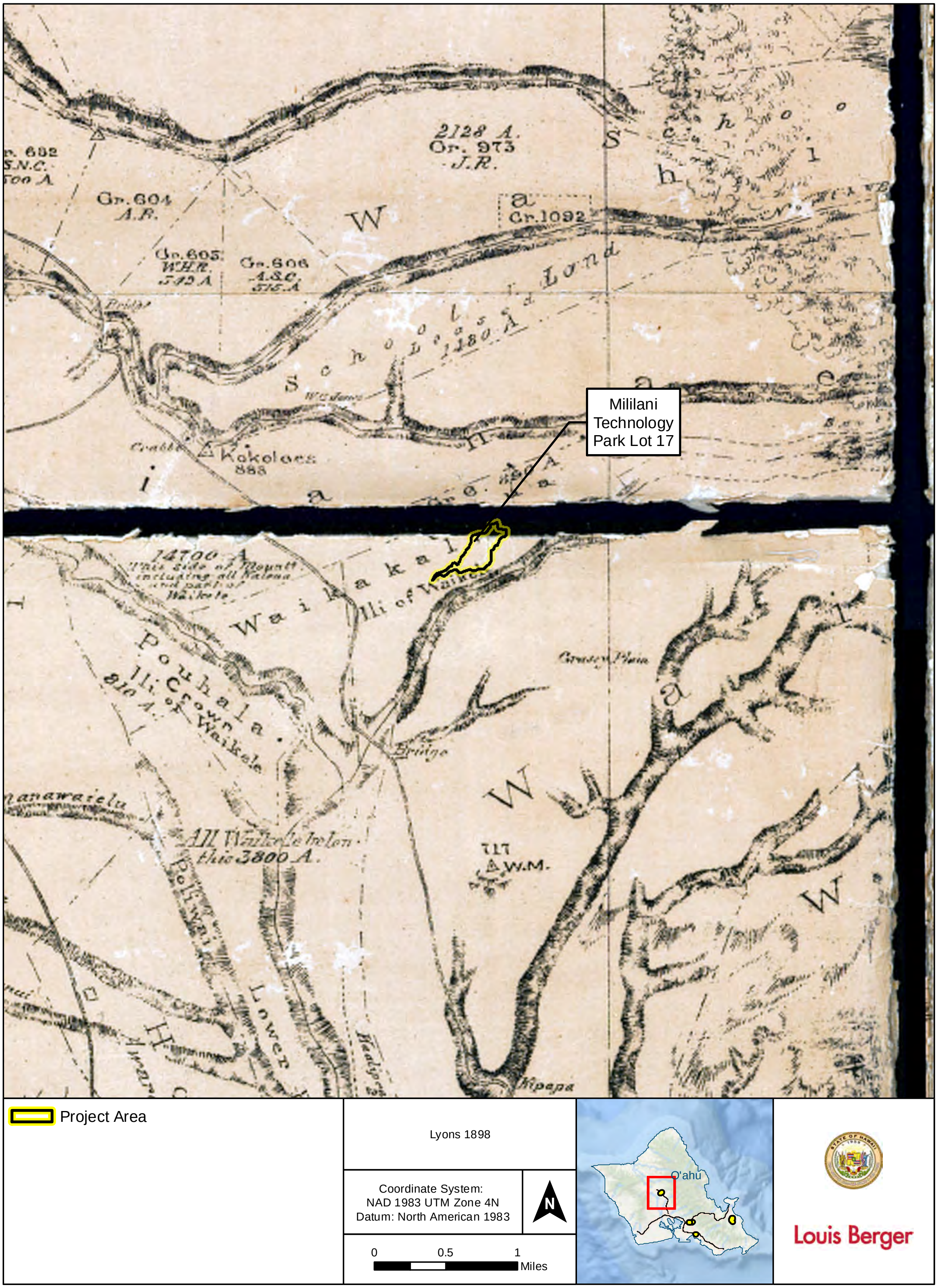


Figure 15: Location of Mililani Technology Park Lot 17 Project Area in 1898

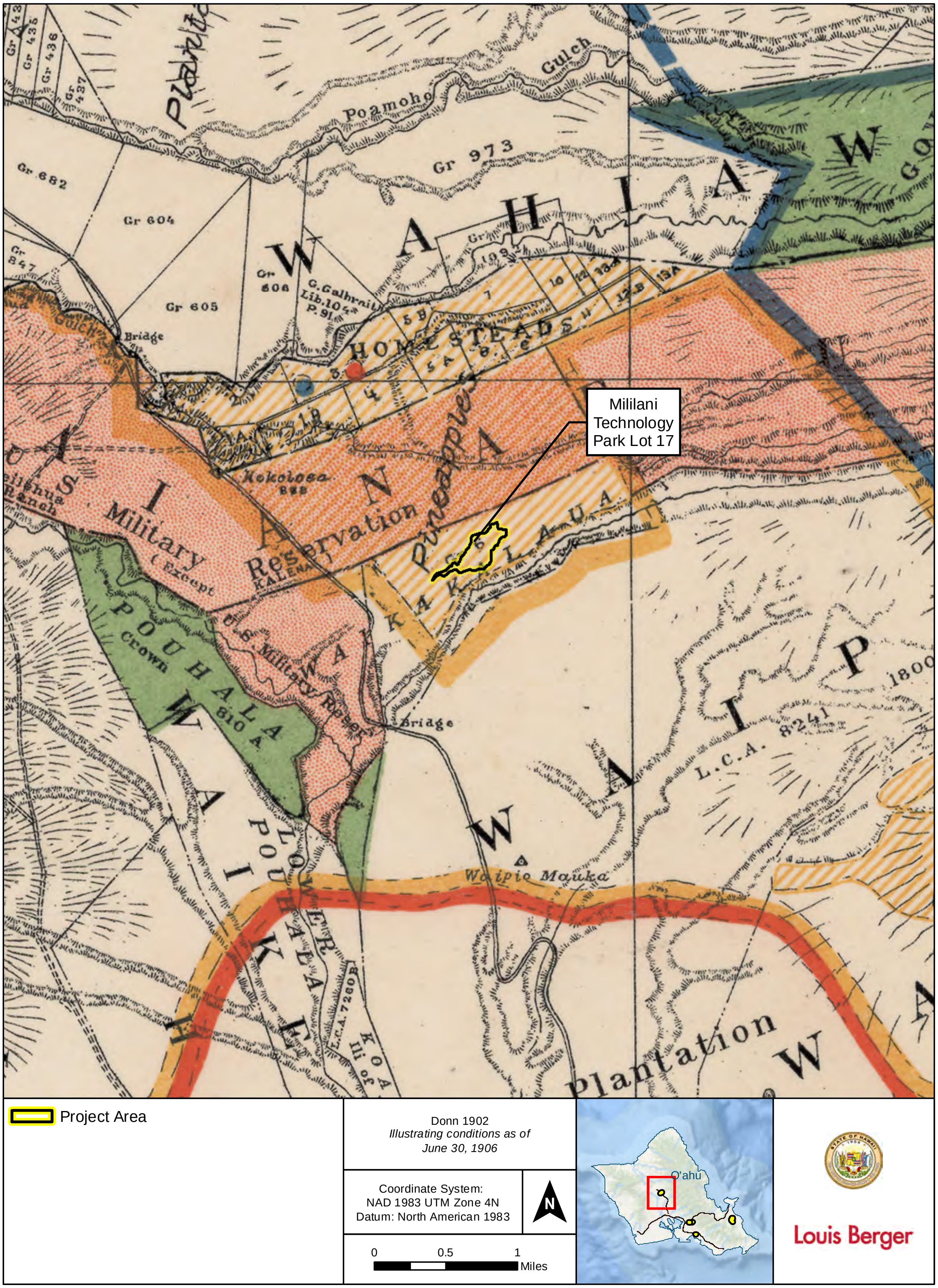


Figure 16: Location of Mililani Technology Park Lot 17 Project Area in 1906

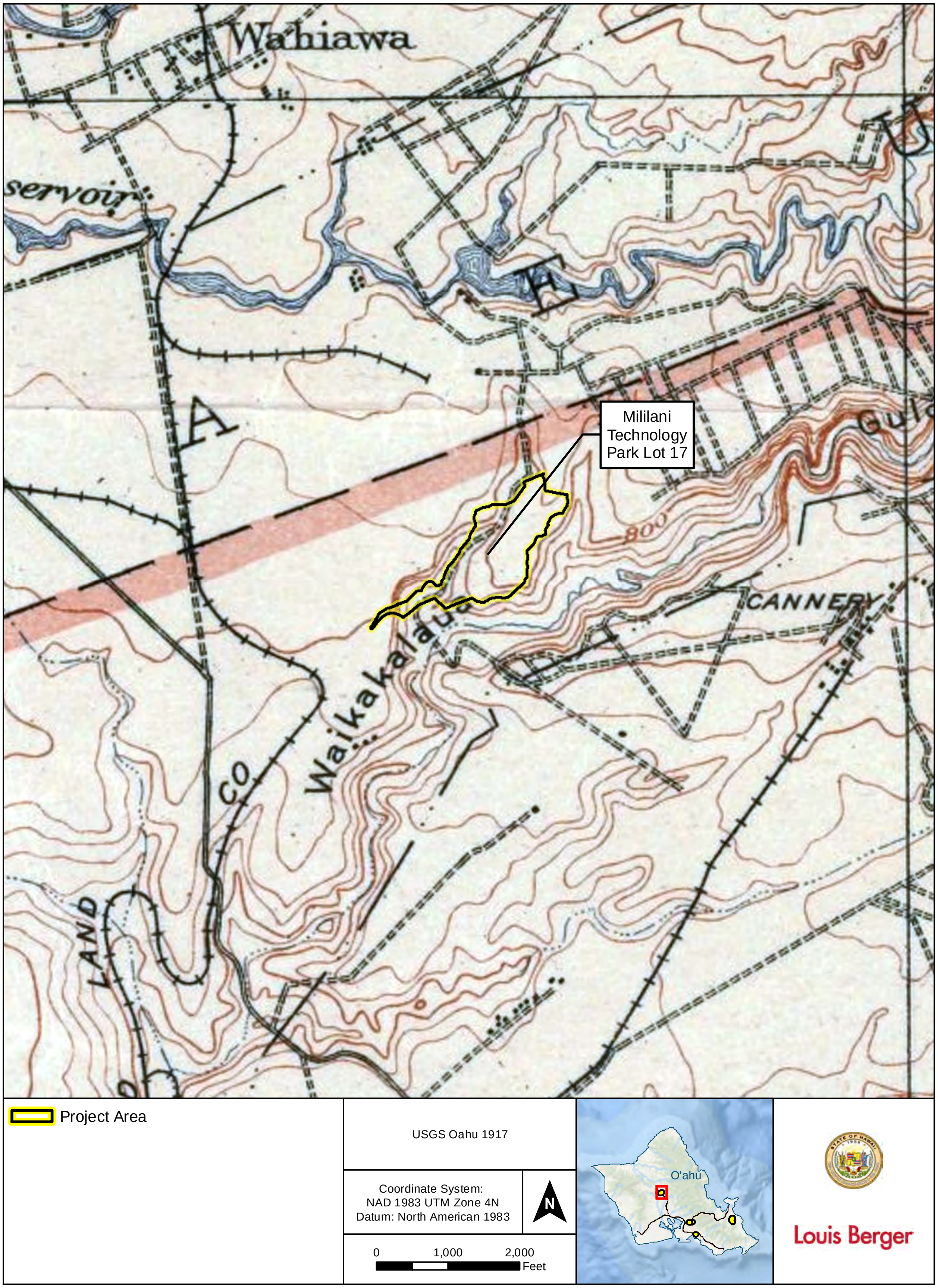


Figure 17: Location of Mililani Technology Park Lot 17 Project Area in 1917

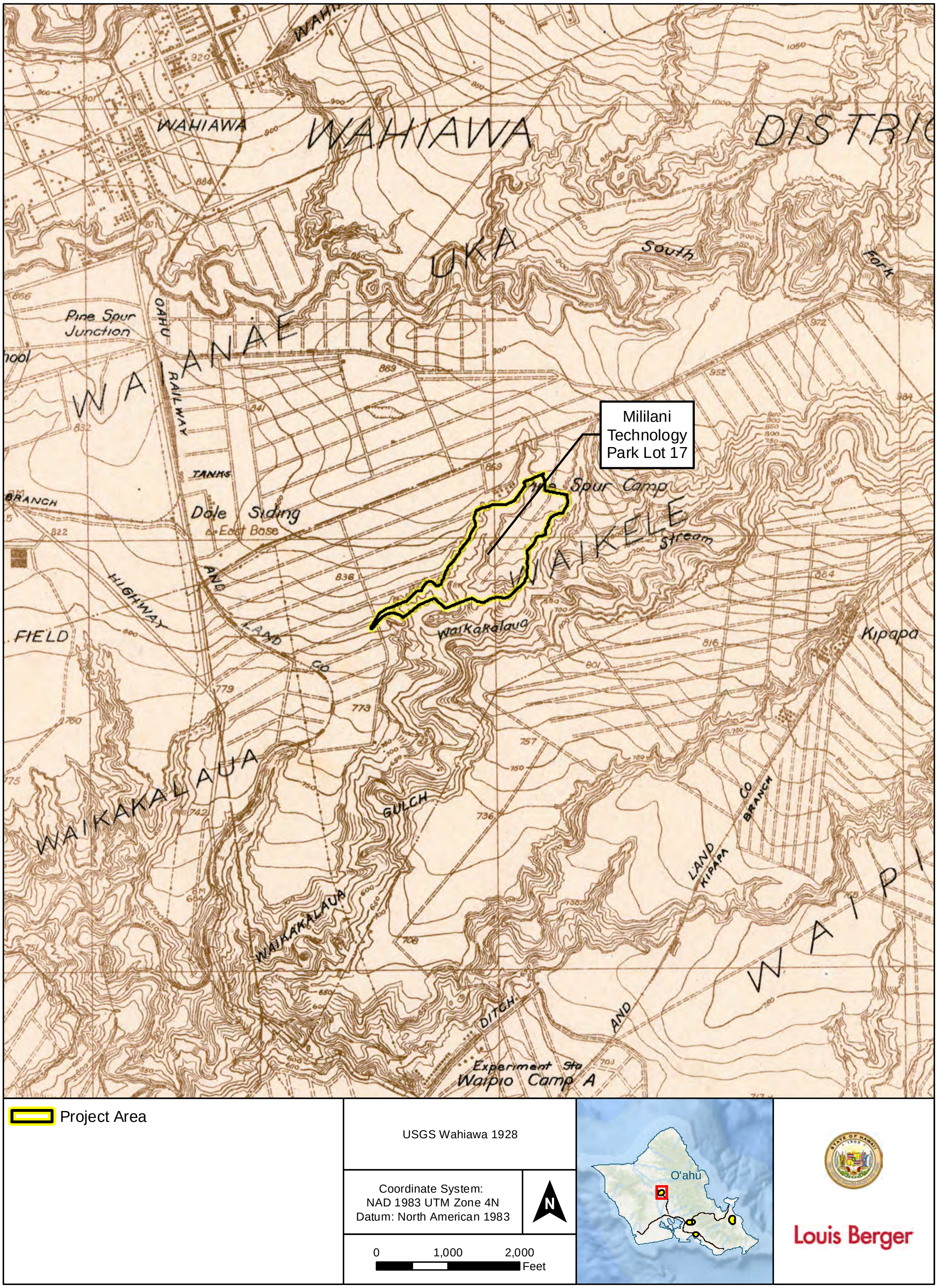


Figure 18: Location of Mililani Technology Park Lot 17 Project Area in 1928

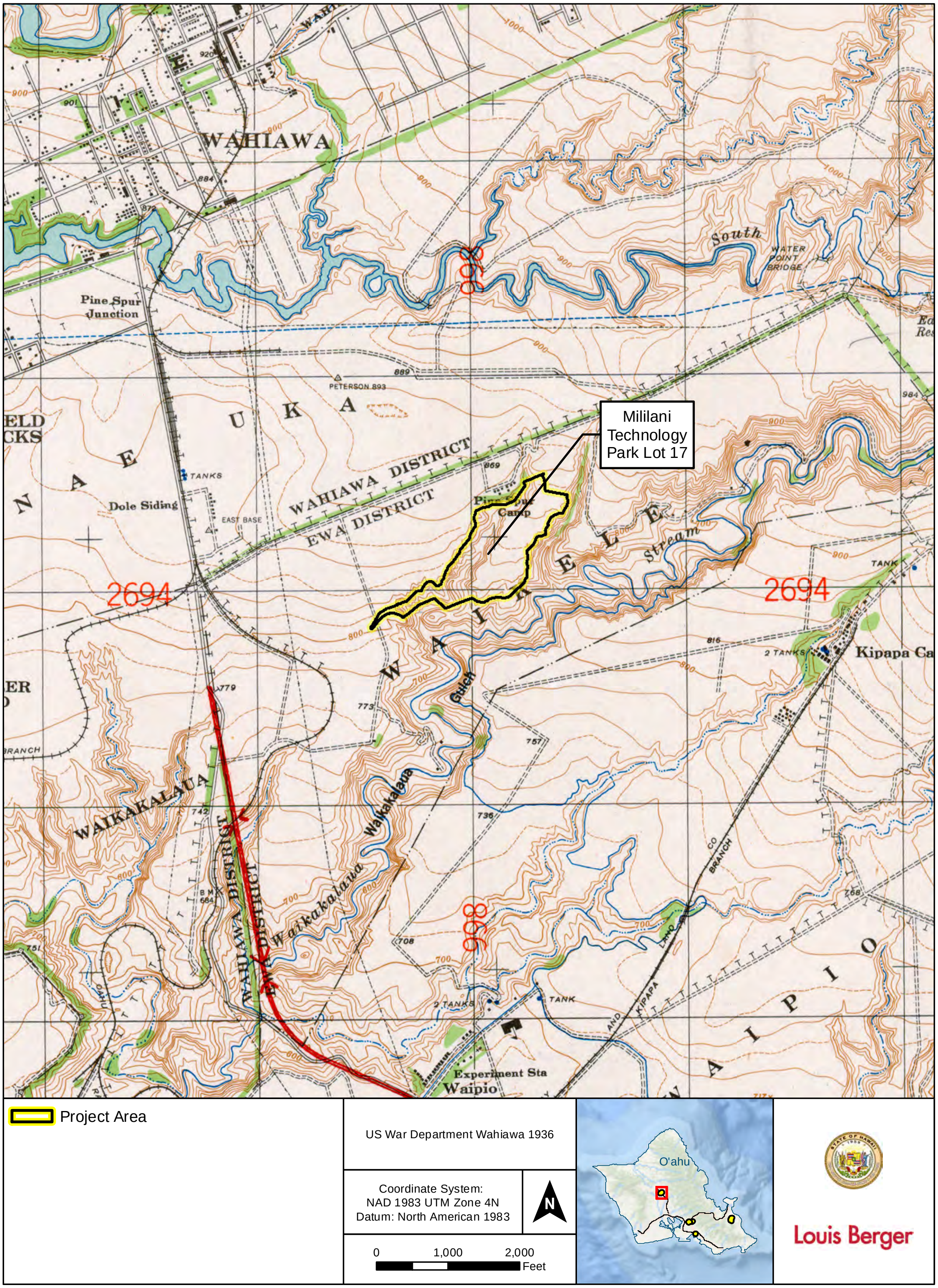


Figure 19: Location of Mililani Technology Park Lot 17 Project Area in 1936

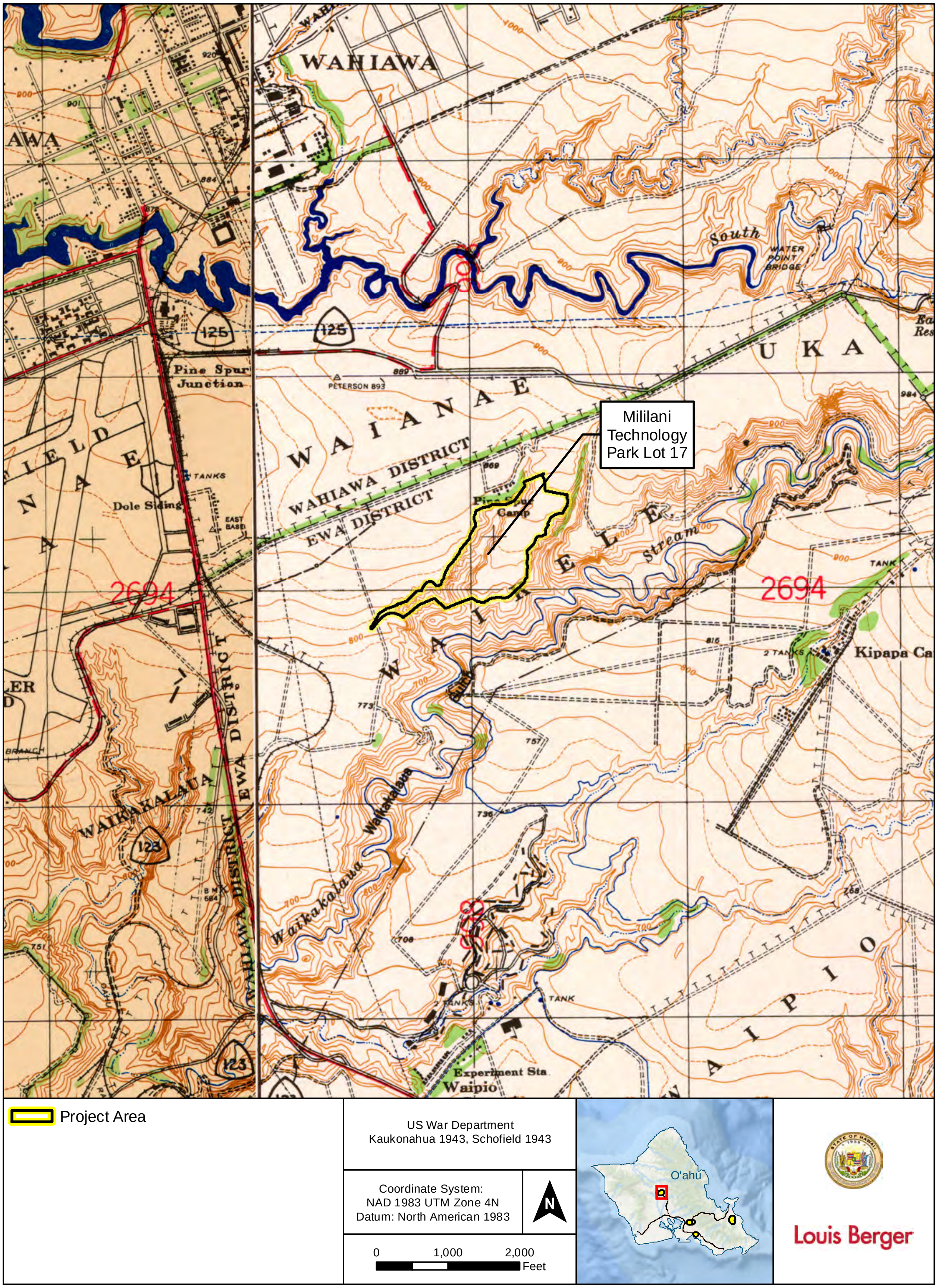


Figure 20: Location of Mililani Technology Park Lot 17 Project Area in 1943

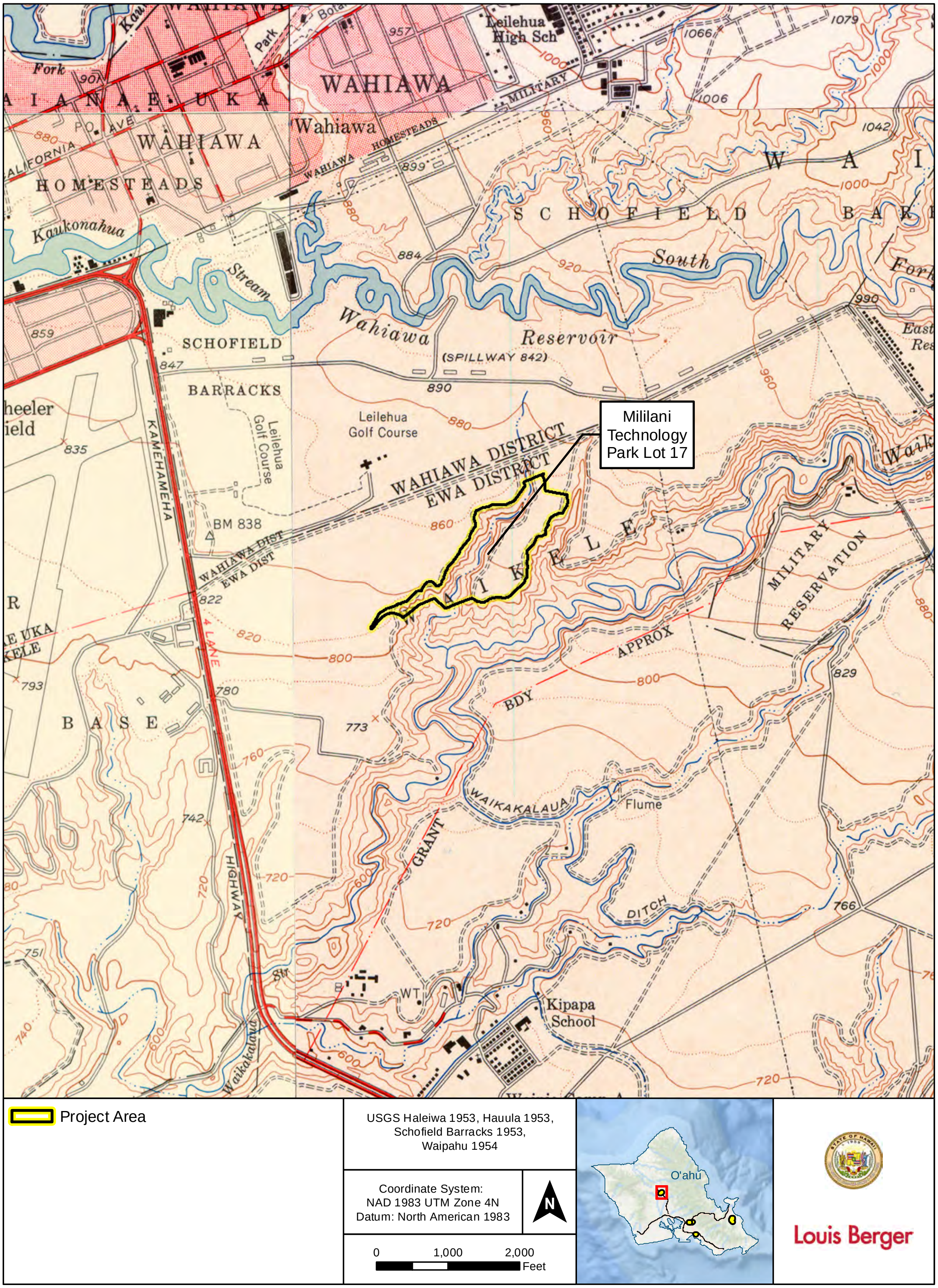


Figure 21: Location of Mililani Technology Park Lot 17 Project Area in 1953

Figure 22: Location of OCCC Project Area in 1881

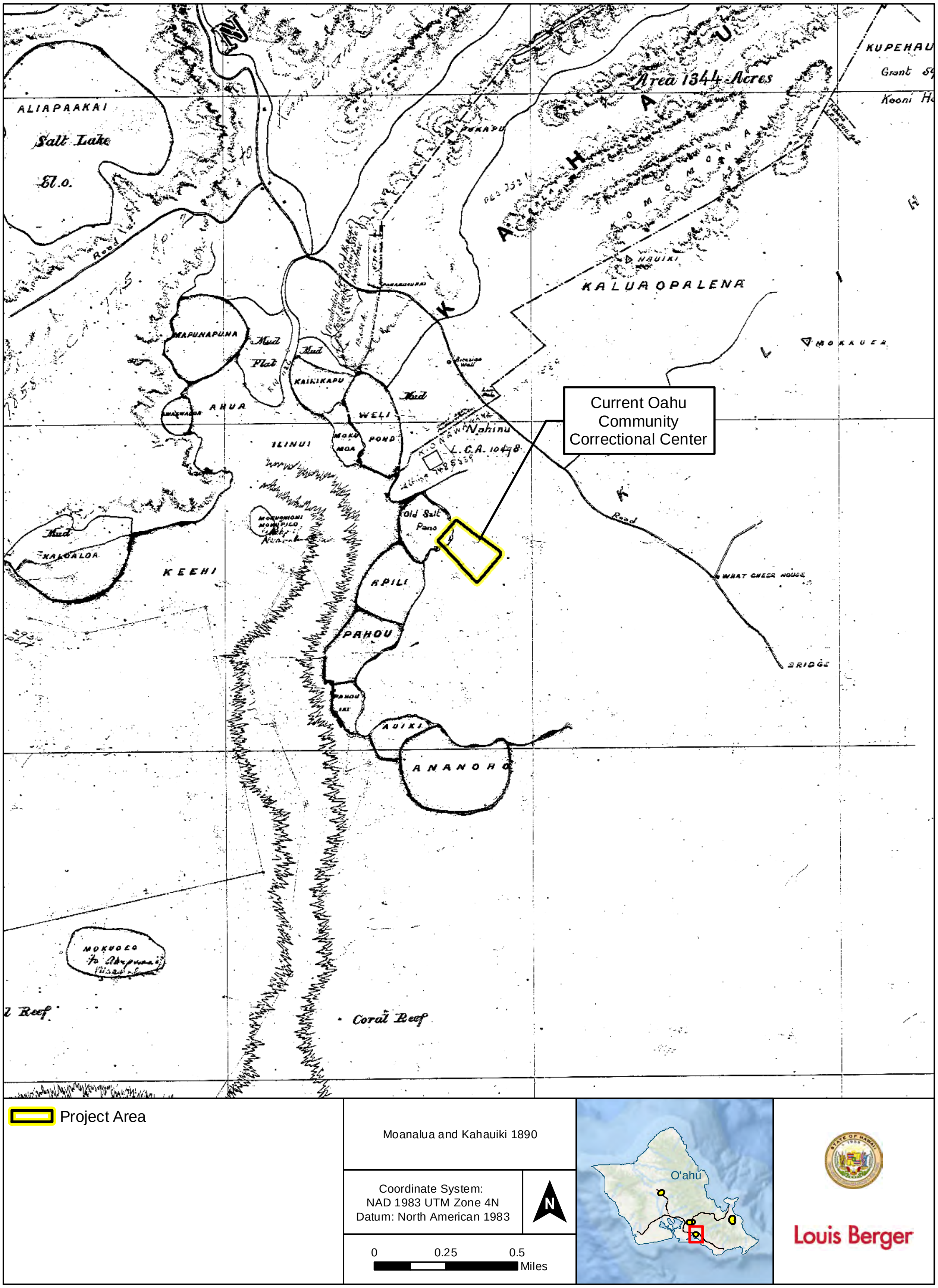


Figure 23: Location of OCCC Project Area in 1890. Note fishponds and "Old Salt Pans"

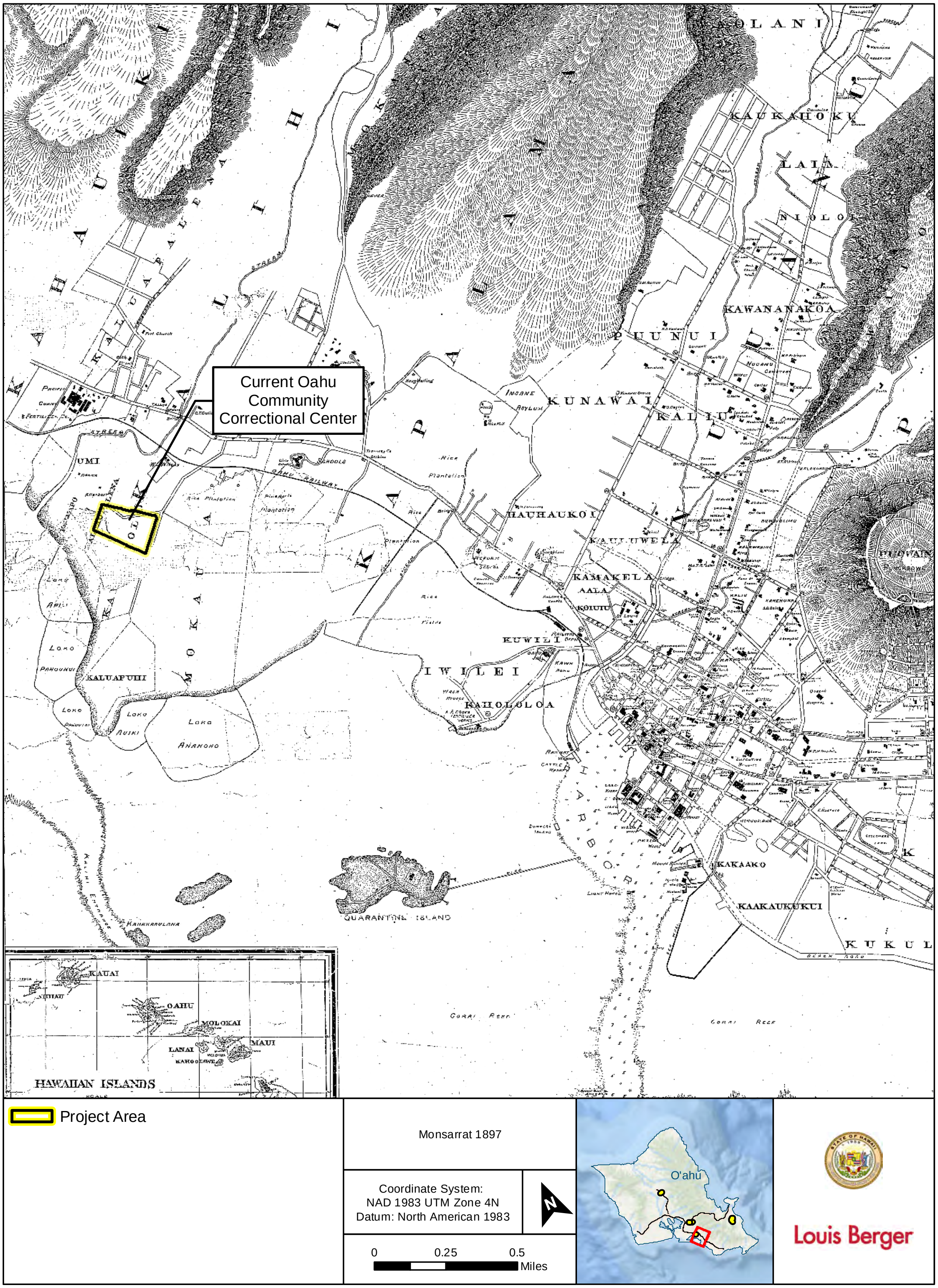


Figure 24: Location of OCCC Project Area in 1897. Note fishpond locations

and house lots (Hammatt and Yucha 2015) (Figure 25). The Oahu Railroad traversed the south portion of Kalihi, increasing the utilization of the valley and coastal land (Figures 26 and 27).

Kalihi Valley during the twentieth century transformed into a thriving suburb of Honolulu (Figure 28); often called Kalihi-Kapalama or Kalihi-Palama, historical maps, documents, and the University of Hawaii Oral History Study of Kalihi-Kapalama describe the residential and commercial development of the people and landscape. Hammatt and Yucha (2015) provide a very detailed account of this period, including important buildings, notable businesses, and community development. The USGS and U.S. War Department map series illustrate the extensive changes throughout the Kalihi Valley during the first half of the twentieth century (Figures 29-33).

2.2.2.4 Kailua Ahupuaa

At the time of the Mahele of 1848, the entire ahupuaa of Kailua was awarded to the Crown. Queen Kalama awarded smaller divisions of land (ili) to high-ranking officials, lesser chiefs, and other members of the royal family (Figures 34 and 35). The current project area was privately controlled by Princess Victoria Kamamalu and recorded as crown land until the incorporation of Hawaii as a state by the American government, when the land became defined as state land (Hammatt et al. 1999). In the ahupuaa of Kailua in general, land claims mention cultivation by commoners of taro, tapa, bananas, sugar cane, awa, sweet potatoes, gourds, coconut, hala, kukui, koa, fruit trees, and one instance of cotton. Rice cultivation was also a major cash crop for the commercial agricultural industry of Kailua until the early part of the twentieth century (Hammatt et al. 1999). Livestock or ranching was not mentioned in the LCA claims, but during the later nineteenth century cattle, sheep, and horses were documented and openly grazed in abandoned agricultural fields with the establishment of the Kaneohe Ranch (Fong et al. 2007; Hammatt et al. 1999). In the 1930s land use was still dominated by pasture lands and open spaces (see Figure 13).

Absent from the agricultural endeavors of the inhabitants of Kailua was the production of sugar cane, as sugar cane was not considered a cash crop in Kailua. The abundant water resources in the ahupuaa were often exploited and used to irrigate sugar cane fields elsewhere. In the 1870s water from Kailua was transported using a series of tunnels and ditches to places such as the Waimanalo Sugar Company in the adjacent ahupuaa of Waimanalo. The Waimanalo Irrigation System later evolved to include pump stations, expansive tunnels and ditches, and pipelines that moved water from Kailua to Waimanalo until the 1950s (Hammatt et al. 1999). The USGS and U.S. War Department map series clearly illustrate the evolution and importance of this series of ditches and irrigation works. They also depict the lack of change to the landscape during the first half of the twentieth century (Figures 36-42).

3.0 ARCHAEOLOGICAL DOCUMENTARY RESEARCH

The literature review included published archaeological and historical studies; unpublished cultural resource management reports; and a review of the eighteenth-, nineteenth-, and twentieth-century maps featured in earlier archaeological inventory surveys and archaeological management plans for previous studies in the proposed project areas. ArcGIS was used to perform an archaeological desktop reconnaissance, which helped to assess the archaeological sensitivity of the five proposed project areas. Previously recorded archaeological sites and surveys within a 1.6-kilometer (1-mile) radius of each project area were identified and are reviewed below.

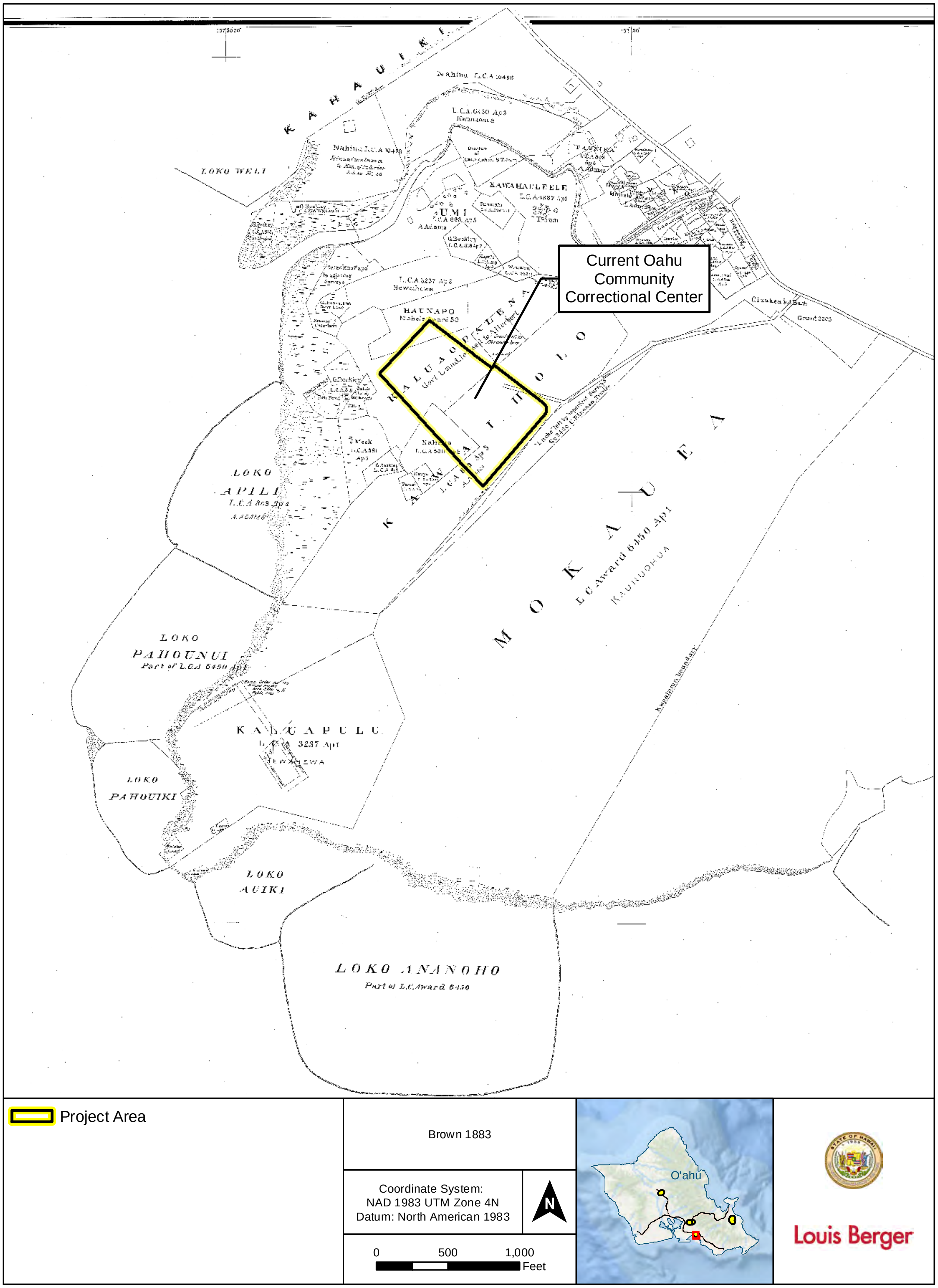


Figure 25: Location of OCCC Project Area in 1883. Note historic LCA parcels

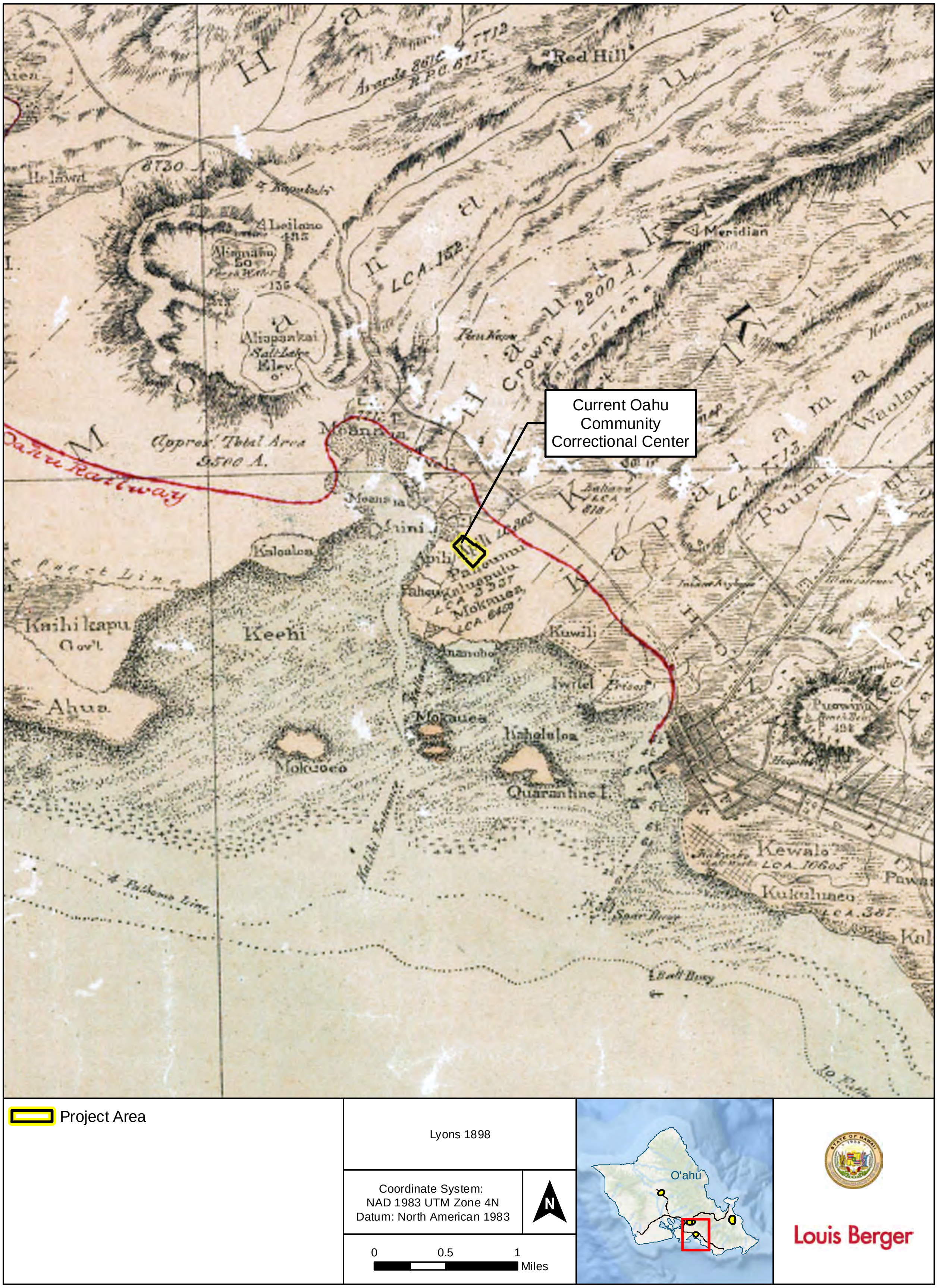


Figure 26: Location of OCCC Project Area in 1898

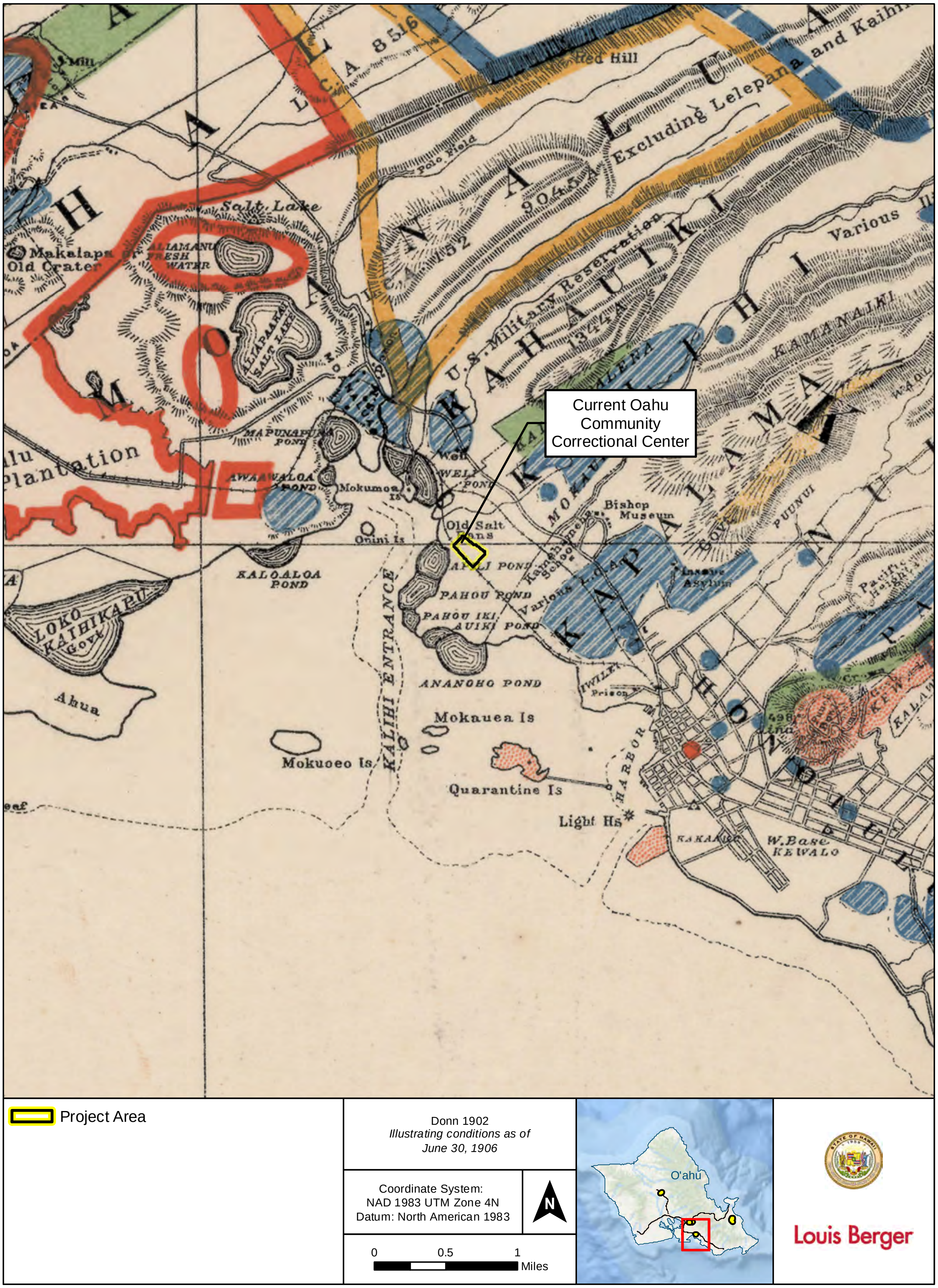


Figure 27: Location of OCCC Project Area in 1906, Land Use Conditions

Figure 28: Location of OCCC Project Area in 1914

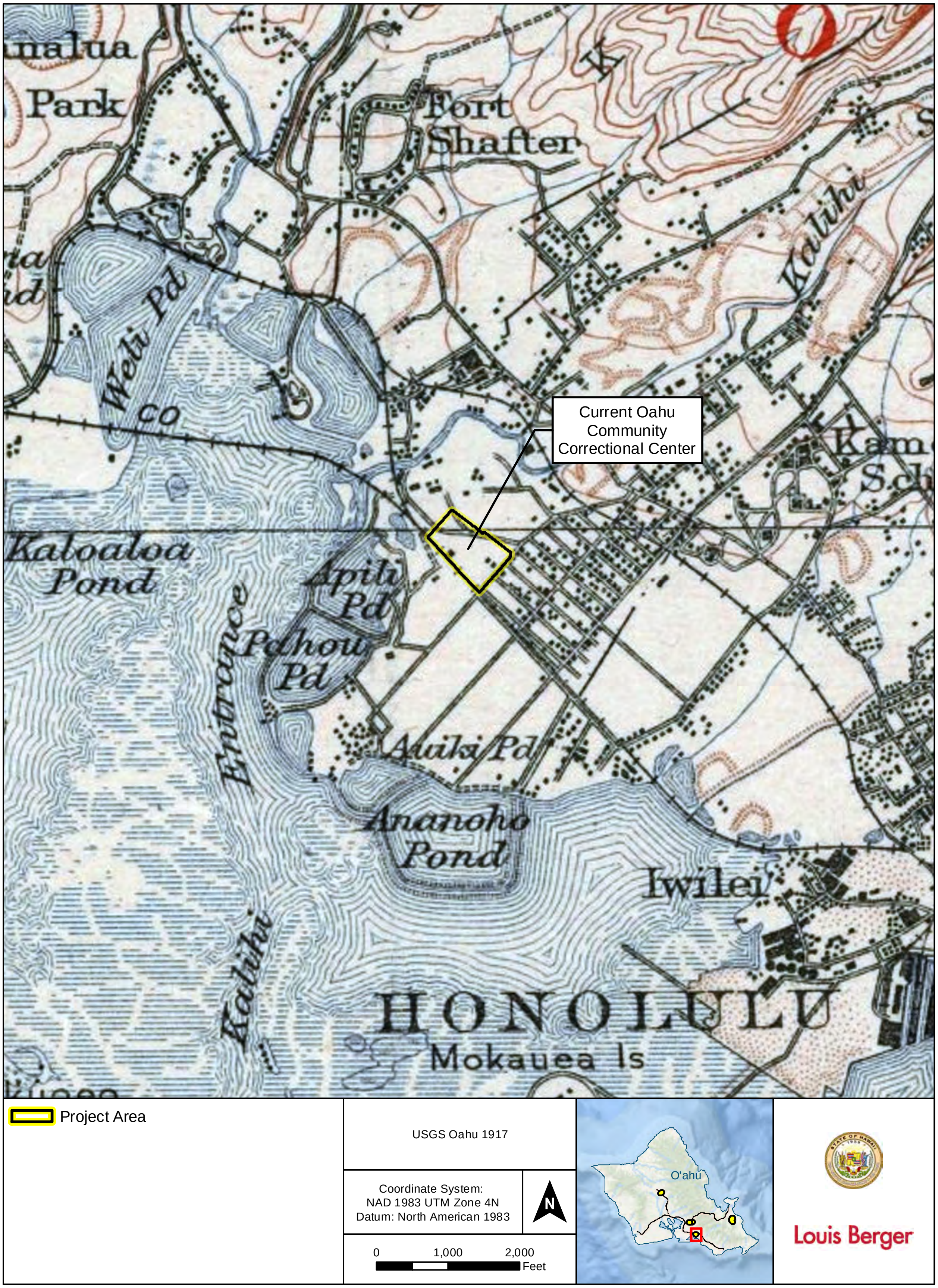


Figure 29: Location of OCCC Project Area in 1917

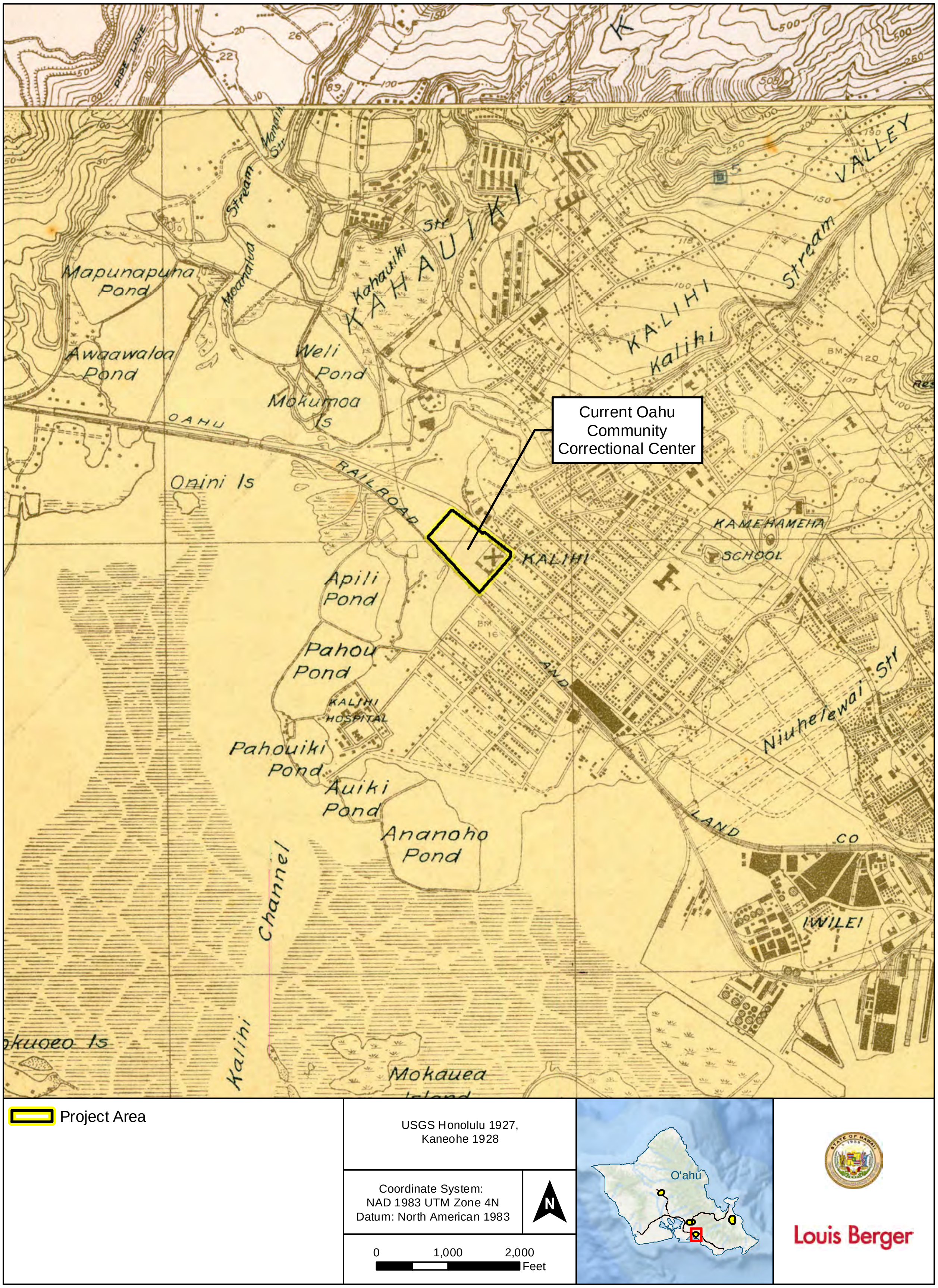


Figure 30: Location of OCCC Project Area in 1927

Figure 31: Location of OCCC Project Area in 1933

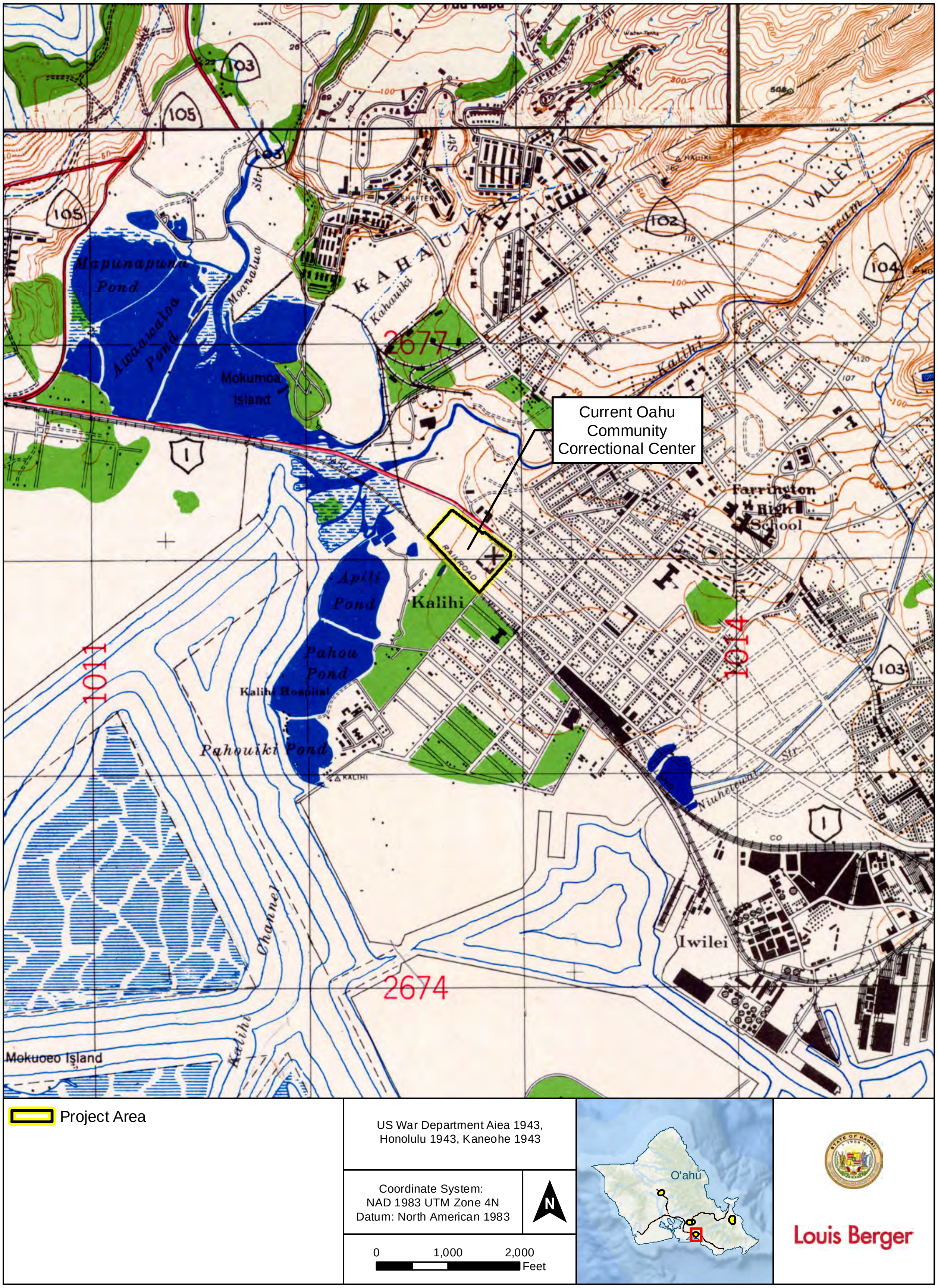


Figure 32: Location of OCCC Project Area in 1943

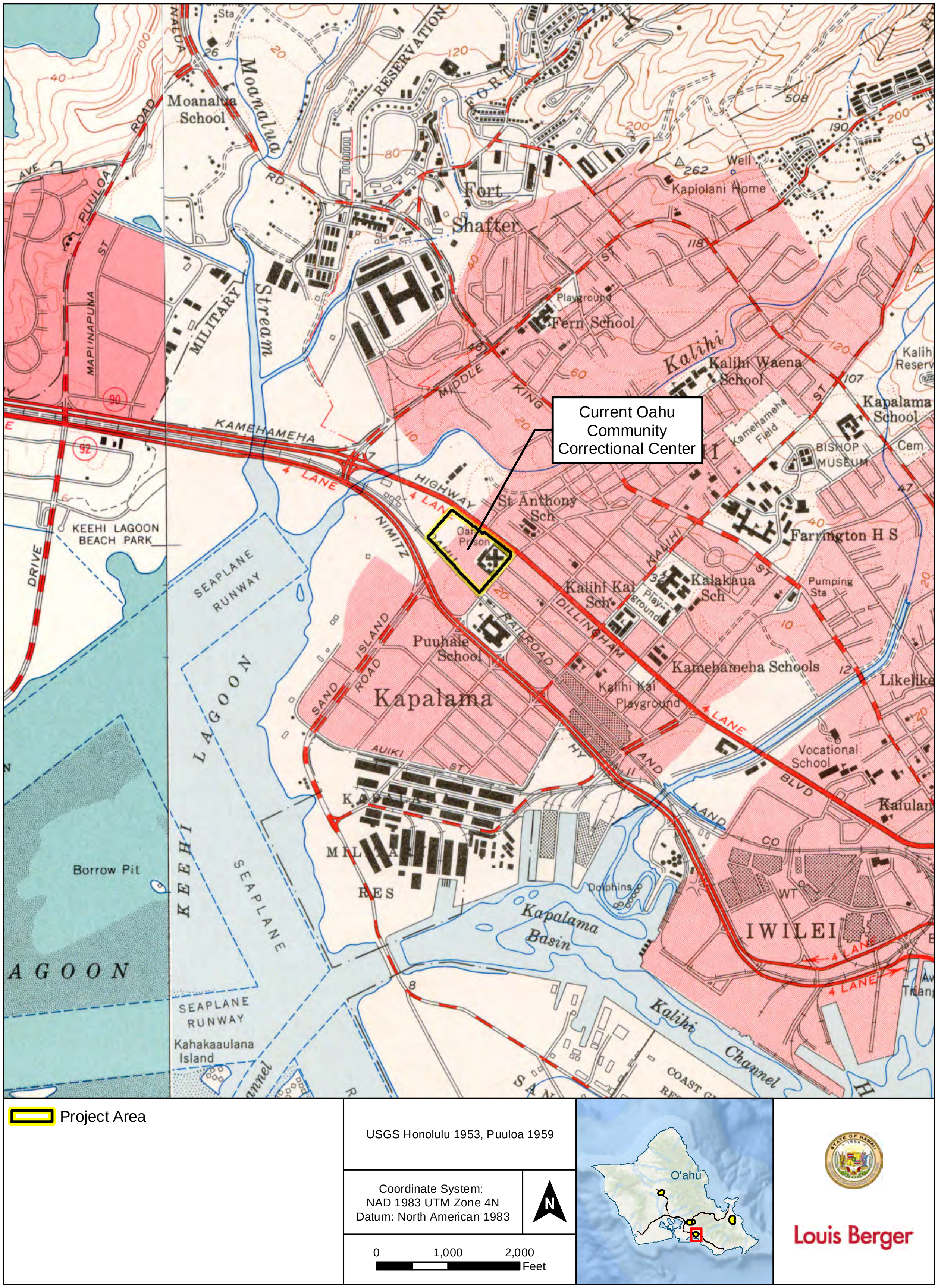


Figure 33: Location of OCCC Project Area in 1953

Figure 34: Location of WCCC Project Area in 1881

Figure 35: Location of WCCC Project Area in 1898

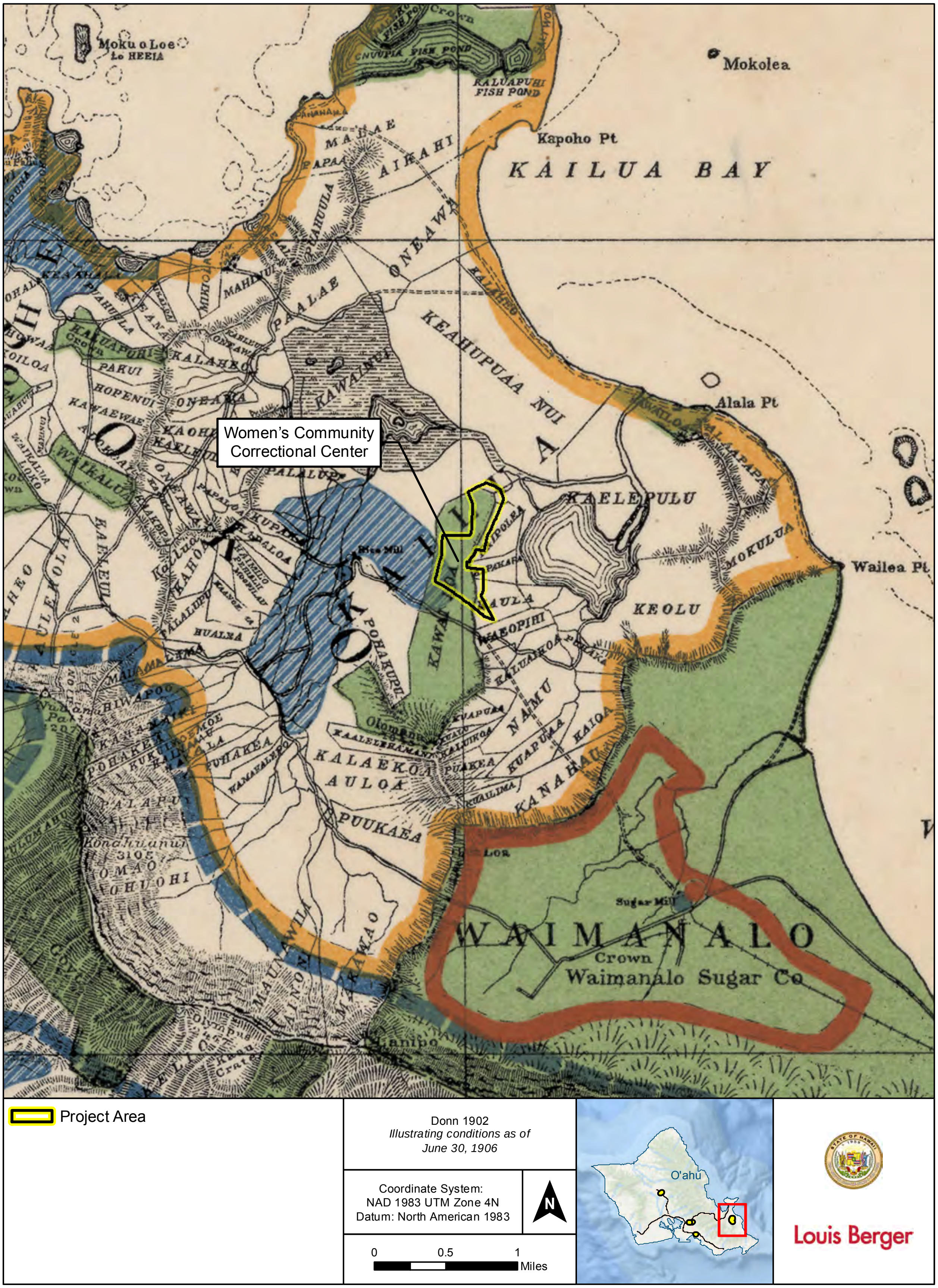


Figure 36: Location of WCCC Project Area in 1906, Land Use Conditions

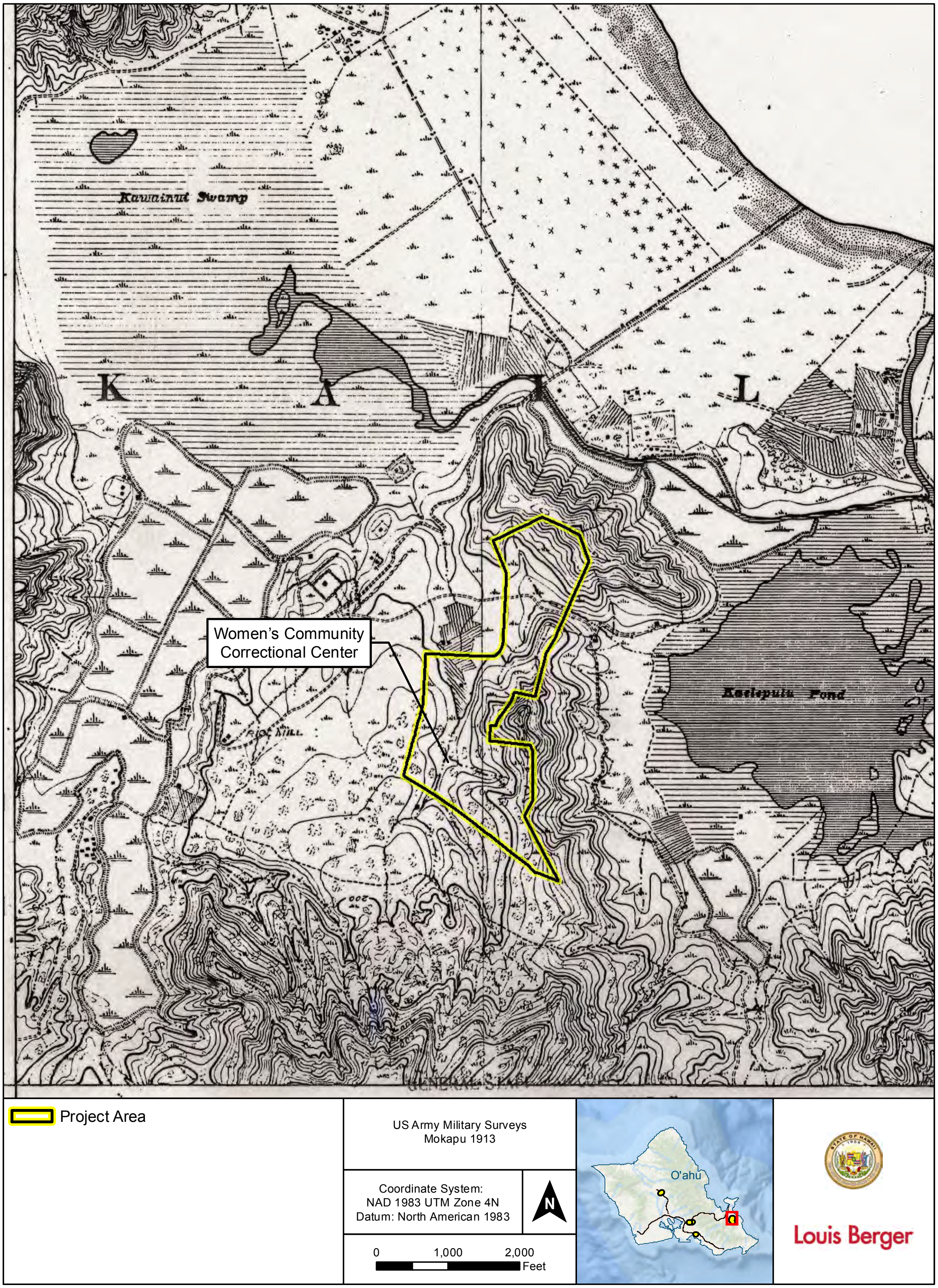


Figure 37: Location of WCCC Project Area in 1913

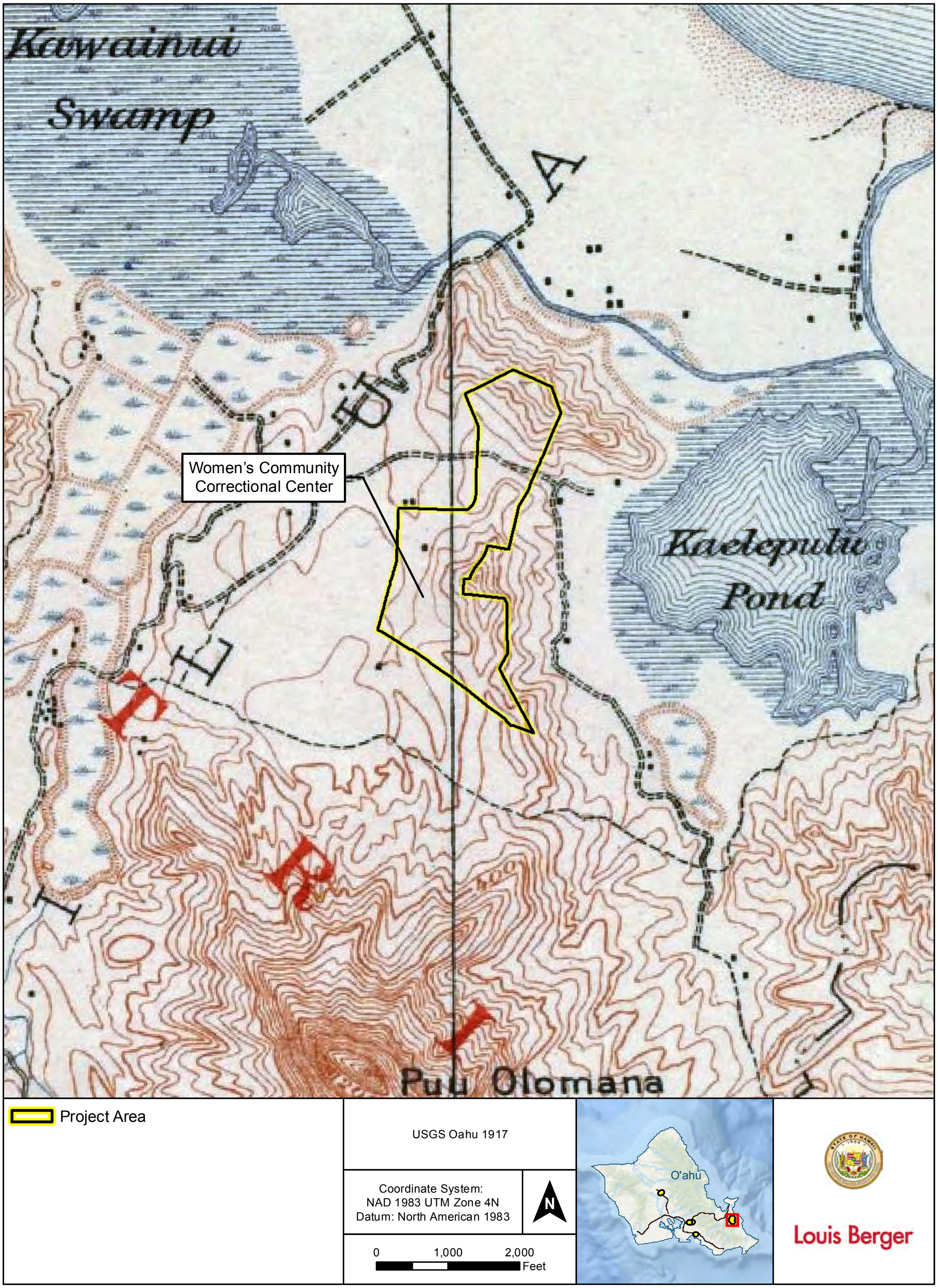


Figure 38: Location of WCCC Project Area in 1917

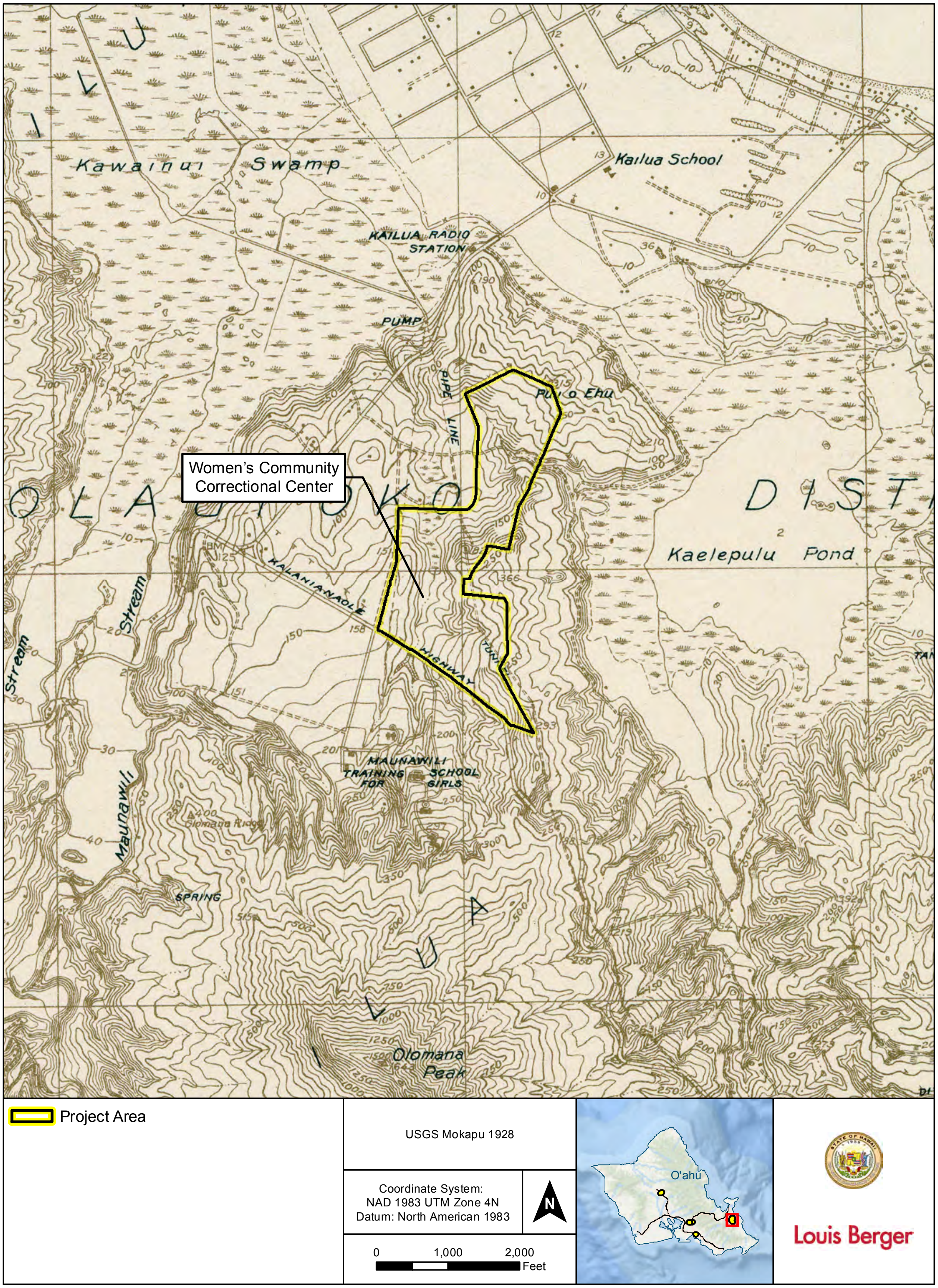


Figure 39: Location of WCCC Project Area in 1928

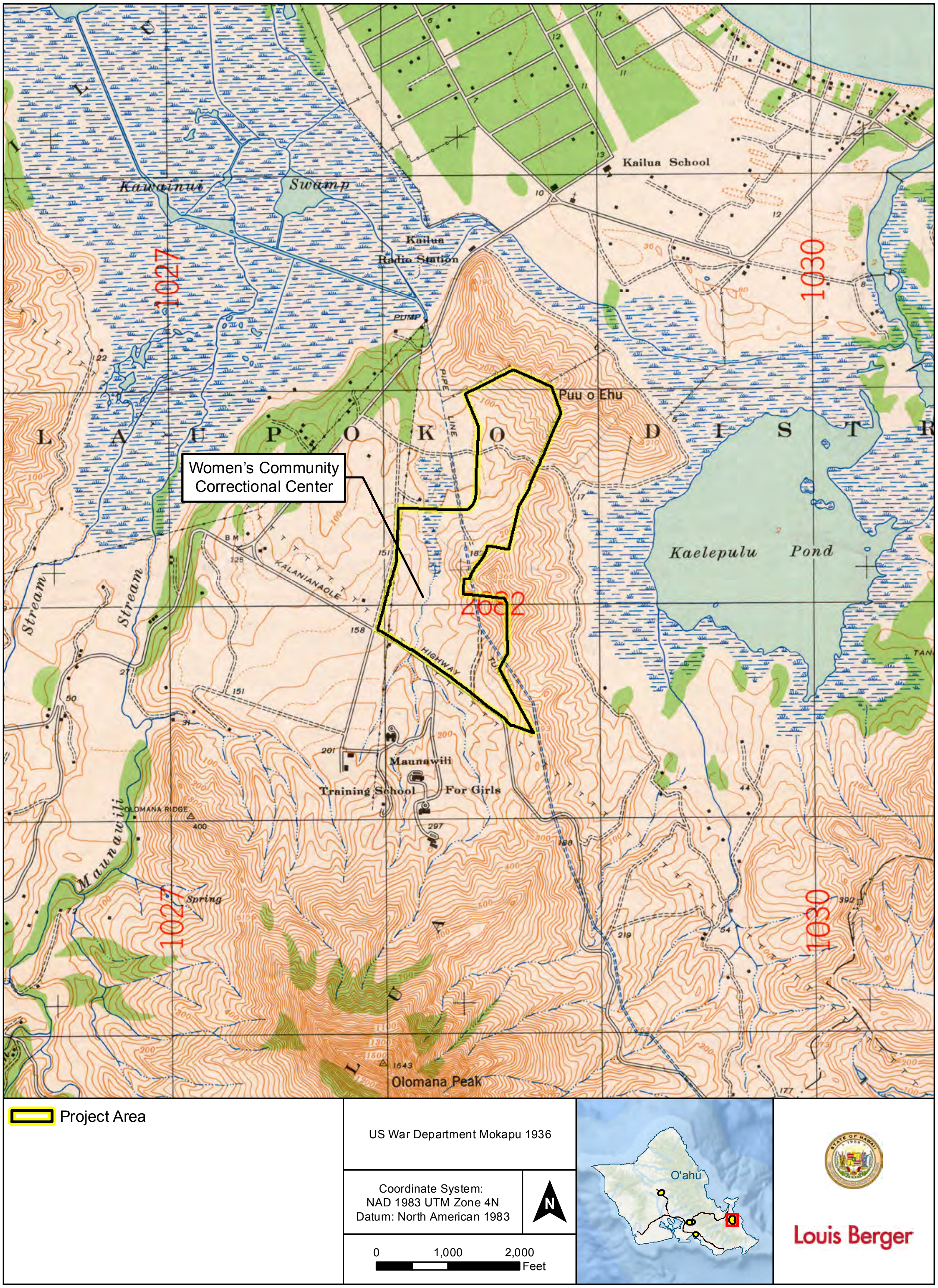
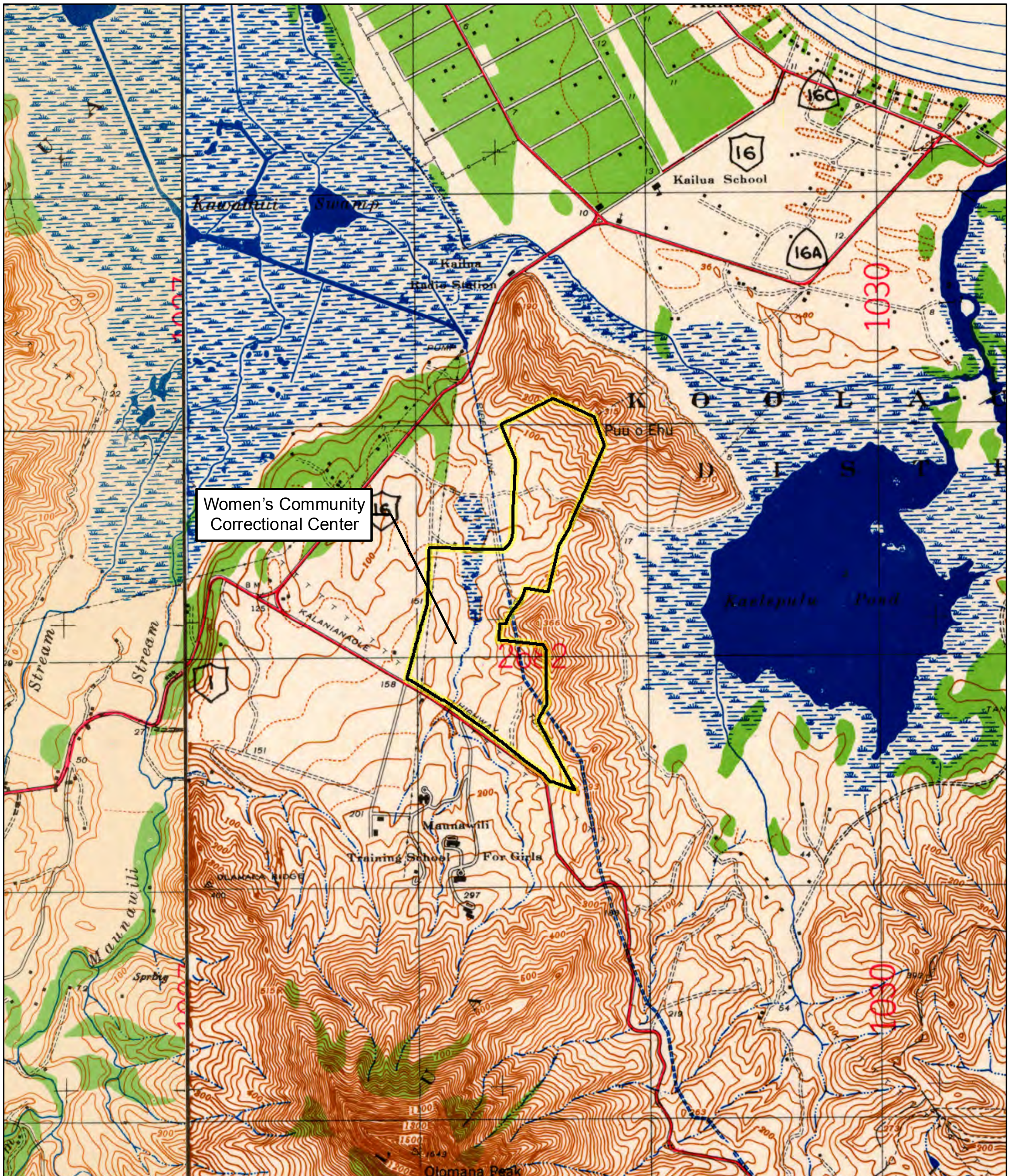


Figure 40: Location of WCCC Project Area in 1936



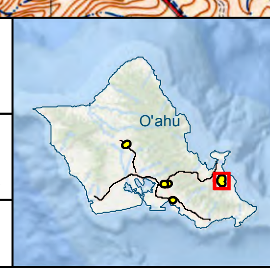
Project Area

US War Department Kailua 1943, Kaneohe 1943

Coordinate System: NAD 1983 UTM Zone 4N Datum: North American 1983

N

0 1,000 2,000 Feet



Louis Berger

Figure 41: Location of WCCC Project Area in 1943

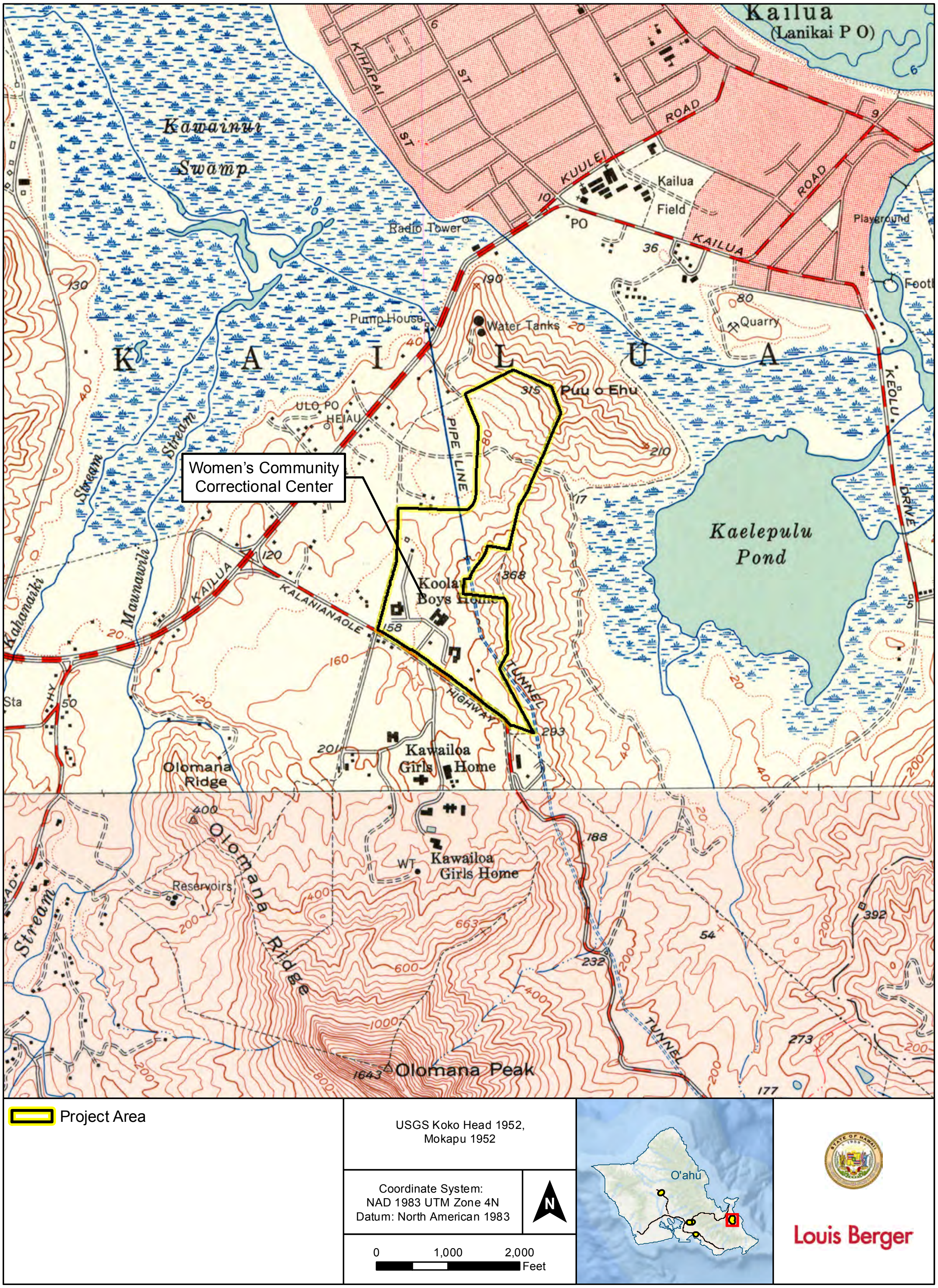


Figure 42: Location of WCCC Project Area in 1952

3.1 Animal Quarantine Station

3.1.1 Previous Archaeological Research

Previous archaeological research near this proposed project area includes the early 1930s work completed by J. Gilbert McAllister (1933), who recorded sites during a systematic island-wide archaeological survey of Oahu. McAllister documented three sites near the current Animal Quarantine Station: Site 105, Waikahi Heiau; Site 106, Waipao Heiau; and Site 107, Keaiwa Heiau. "Waikahi heiau, of pookanaka (human sacrifice) class, was located on a flat area where the two gulches of Halawa meet. Waipao Heiau, formerly located on a narrow flat at the entrance of a small ravine running in gulch, was surrounded by burial caves" (Hammatt 2013:34) (Plate 3). Site 107, Keaiwa Heiau is a small, rectangular, single-terraced structure with low perimeter walls located northeast of Aiea, exact location unknown (Hammatt et al. 2009). There is also a sacred pool, Napeha Pond, and several traditional trails cut through the project area. Napeha Pond is mentioned on the ca. 1810 "Map of Trails in 'Ewa" by Paul Rockwood. It is described as a large pond that was used for diving and an important resting place located between Site 106 and Site 105 (Hammatt et al. 2009; Klieger 1995). These cultural resources were noted by McAllister (1933) as partially destroyed by sugar cane cultivation (Klieger 1995); however, Klieger (1995) notes that the foundations of Site 106 were still visible in 1995.

Two recent surveys, the Aiea Intermediate School literature review and field inspection report (Hammatt et al. 2009) and the Archaeological Inventory Survey (AIS) for the Halawa Valley Transmission Line Relocation (Hammatt et al. 2013), were conducted near the Animal Quarantine Station (Figure 43). Although the Aiea Intermediate School project area is removed from the Animal Quarantine Station and no historic properties or cultural deposits were identified in that APE, the general project area is located less than 1 mile from the Animal Quarantine Station and the report provides a detailed assessment of the traditional land uses that dominated the Halawa ahupuaa.

The Aiea Intermediate School project area was located in the resource-rich Aiea ahupuaa, but traditional land use was dominated largely by undeveloped, agricultural pursuits. The area was sparsely populated prior to Western contact. Any evidence of pre-contact cultural deposits was likely destroyed by commercial agriculture and ranching activities, as well as modern residential development.

The Halawa Valley Transmission Line Relocation project was proposed in advance of the relocation of Hawaiian Electric (HECO) 138kV and 46kV lines to accommodate quarry operations (Hammatt et al. 2013). The 8.70-hectare (21.49-acre) discontinuous project area was located in the Halawa Valley, around the edges and through the Hawaiian Cement Co. Halawa Quarry, and along the Halawa Substation Access Road until it terminated near the Hawaiian Electric Company, Inc. (HECO) substation. Surveyed areas partially border the Animal Quarantine Station site to the west. Because previously documented sites are abundant in and around this project area, especially the east portion, the project necessitated a review of the cultural resources in the APE; however, this archaeological study only addressed cultural resources affected by the relocating of the HECO lines and did not constitute a survey assessing the potential cultural deposits affected by a future expansion of the quarry boundaries. Therefore other previously recorded sites were noted in the background section of this report but not addressed as part of the final results. Documented sites and cultural resources in the surveyed areas include previously identified agricultural terraces, caves, house platforms and structures, and burials (Hammatt et al. 2013).

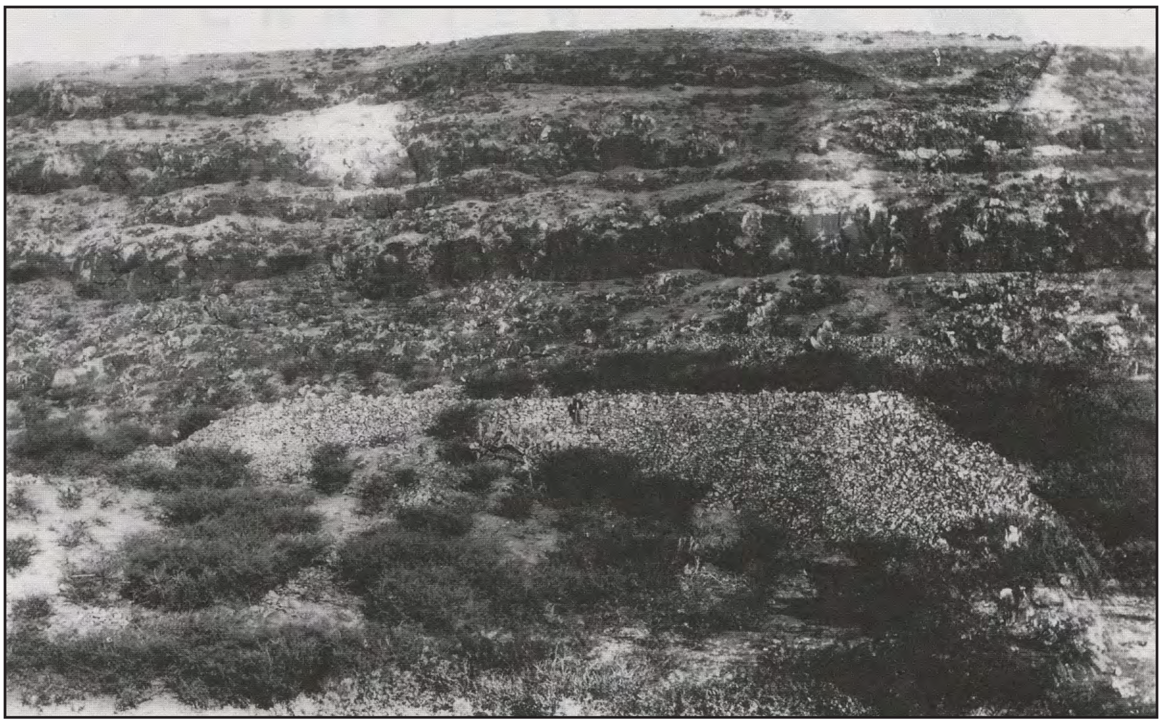


Plate 3: Waipao Heiau, (McAllister Site 106), 1884 (Klieger 1995)

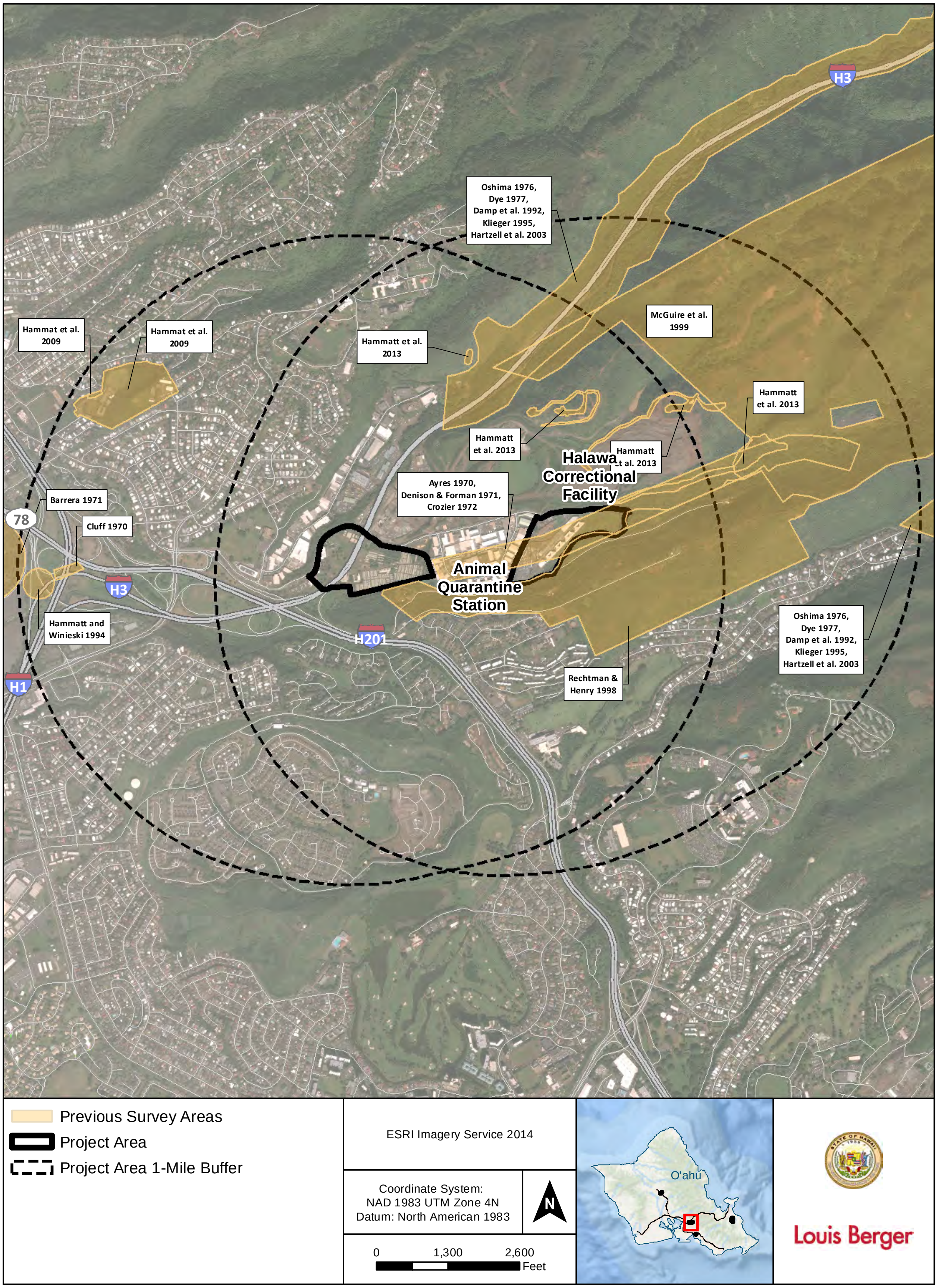


Figure 43: Previous Archaeological Studies in Halawa near the Animal Quarantine Station and Halawa Correctional Facility Project Areas

During the fieldwork for the transmission line relocation project, no cultural resources were located at pole locations and no new resources were identified. The majority of the access road had been previously disturbed, and modern debris was common. The locations of 12 previously documented archaeological resources were re-identified during the survey: seven in the current project area (including terrace complexes, an agricultural terrace, a mound, a heiau, and a cave used for habitation/burial), and five near the current project area (including a historic feature, agricultural terraces, a heiau, and another cave containing a burial). Preservation and study of such sites may yield important information in understanding the spatial relationship among agriculture, habitation, and ceremonial features across the island of Oahu.

3.1.2 Archaeological Desktop Reconnaissance

The previously surveyed areas partially border the Animal Quarantine Station site. Review of these surveys indicates that cultural resource potential is moderate. Potential for intact pre-contact archaeological sites is moderate and subject to an assessment of on-site ground disturbance. Agricultural and associated settlement feature identification potential is higher; historic-period plantation or ranching sites and features could also be present. No recent archaeological field survey has been conducted within the proposed project boundaries. The landscape appears to be significantly disturbed by historic agricultural pursuits and other landscape alterations, however, particularly by H-3 construction activities. Tables 6 and 7 summarize the recorded archaeological sites and the previous archaeological surveys in the vicinity of the proposed project area.

Table 6: Recorded Archaeological Sites in South Halawa Valley within Approximately 1.6 Kilometers (1 Mile) of Animal Quarantine Station Project Area

Site Number/Name	Site Type	Reported by
Site 105, Waikahi Heiau	Family shrine	McAllister 1933
Site 106, Waipao Heiau	Family shrine	McAllister 1933
Site 107, Keaiwa Heiau	Family shrine	McAllister 1933
50-Oa-B1-21	Wall	Ayres 1970
50-Oa-B1-22	Terrace	Ayres 1970
50-Oa-B1-23	House platform	Ayres 1970; Denison and Forman 1971
50-Oa-B1-24	Terrace	Ayres 1970; Denison and Forman 1971
50-Oa-B1-25	Historic site— paved road	Ayres 1970
50-Oa-B1-26	House platform	Ayres 1970
50-Oa-B1-27	Terrace	Ayres 1970; Denison and Forman 1971
50-Oa-B1-28	Clearing	Ayres 1970; Denison and Forman 1971
50-Oa-B1-29	House platform	Ayres 1970; Denison and Forman 1971
50-Oa-B1-30	Walled complex	Ayres 1970; Crozier 1972; Denison and Forman 1971
50-Oa-B1-31	Residence (Historic)	Ayres 1970
50-Oa-B1-32	Animal pens (Historic)	Ayres 1970

Table 6 (continued)

Site Number/Name	Site Type	Reported by
50-80-10-657	Heiau or family shrine	Ayres 1970; Crozier 1972; Denison and Forman 1971; Hammatt et al. 2013
50-80-10-658	Terrace	Ayres 1970; Hammatt et al. 2013
50-80-10-659	House platform	Ayres 1970; Hammatt et al. 2013
50-80-10-667	Terrace	Ayres 1970; Hammatt et al. 2013
50-80-10-671	Cave shelter	Ayres 1970; Denison and Forman 1971
50-Oa-B1-36	Terrace	Ayres 1970; Denison and Forman 1971
50-Oa-B1-37	Mound	Ayres 1970; Denison and Forman 1971
50-Oa-B1-38	C-shaped structure	Ayres 1970
50-Oa-B1-39	Mound	Ayres 1970
50-Oa-B1-40	House platform	Ayres 1970; Denison and Forman 1971
50-Oa-B1-41	Terrace	Ayres 1970
50-Oa-B1-42	Terrace	Ayres 1970
50-Oa-B1-43	Terrace (historic)	Ayres 1970
50-Oa-B1-45	Terrace	Ayres 1970
50-Oa-B1-46	House platform	Ayres 1970; Denison and Forman 1971
50-Oa-B1-47	Clearings	Ayres 1970; Denison and Forman 1971
50-Oa-B1-48	Stream diversion wall	Ayres 1970
50-Oa-B1-49	Wall	Ayres 1970; Denison and Forman 1971
50-Oa-B1-50	Terrace	Ayres 1970
50-Oa-B1-52	L-shaped wall	Ayres 1970
50-Oa-B1-53	Walled enclosure	Ayres 1970
50-Oa-B1-54	Burial cave	Ayres 1970
50-80-10-674	Cave shelter	Ayres 1970; Denison and Forman 1971; Hammatt et al. 2013
50-80-10-699	Pavement (historic)	Ayres 1970; Hammatt et al. 2013
50-80-10-679	Agricultural terrace	Ayres 1970; Hammatt et al. 2013
50-80-10-680	Mound	Ayres 1970; Hammatt et al. 2013
50-80-10-681	Terrace complex	Ayres 1970; Denison and Forman 1971; Hammatt et al. 2013
50-80-10-682	Terrace complex	Ayres 1970; Denison and Forman 1971; Hammatt et al. 2013

Table 6 (continued)

Site Number/Name	Site Type	Reported by
50-80-10-683	Terrace complex	Ayres 1970; Hammatt et al. 2013
50-Oa-B1-62	Wall (historic)	Ayres 1970
50-80-10-684	Cave/shelter	Ayres 1970; Hammatt et al. 2013
50-80-10-2505	Wall (historic)	Ayres 1970; Hammatt et al. 2013
50-80-10-2506	Well (historic)	Ayres 1970; Hammatt et al. 2013
50-80-10-685	Heiau of family shrine	Ayres 1970; Crozier 1972; Denison and Forman 1971; Hammatt et al. 2013
50-80-10-686	Platform complex (McGuire et al. 1999 notes completely destroyed)	Ayres 1970; Crozier 1972; Denison and Forman 1971; McGuire et al. 1999; Hammatt et al. 2013
50-Oa-B1-68	Terrace	Ayres 1970
50-80-10-2309	Platform	Denison and Forman 1971; Hammatt et al. 2013
50-80-13-5737	Burial cave	McGuire et al. 1999
50-80-13-5738	Terrace complex	McGuire et al. 1999
50-80-13-5739	C-shaped enclosure/inhabitation	McGuire et al. 1999
50-80-13-5740	Rectangular enclosure/ agricultural	McGuire et al. 1999
50-80-13-5741	Habitation and agricultural complex	McGuire et al. 1999
50-80-13-5742	Circular enclosure	McGuire et al. 1999

Table 7: Previous Archaeological Surveys in General Halawa Valley within Approximately 1.6 Kilometers (1 Mile) of Animal Quarantine Station Project Area

Source	Distance from Project Area	Type of Survey	Findings
McAllister 1933	In project area	Pedestrian survey/ island-wide	Several sites located throughout the island; two sites located in or adjacent to project area
Cluff 1970	0.8 miles west	Surface survey	Prior to construction of the H-1 interchange, narrow strip of land (42 meters wide and 344 meters long) identified eight features; house platform, grave structures, and possible heiau
Ayers 1970	Borders project area to east	Phase I survey and excavation	48 sites in the South Halawa Valley survey area
Denison and Forman 1971	Borders project area to east	Phase II survey and excavation	20 sites identified by Ayers (1970) mapped and excavated
Barrera 1971	1 mile west	Letter report	Addresses the marked and unmarked graves located near Aloha Stadium
Crozier 1972	Borders project area to east	Phase II survey and preliminary report	Four sites identified by Ayers (1970) and excavated by Denison and Forman (1971) intensively surveyed and restored
Oshima 1976	0.47 miles north and east	Reconnaissance survey	H-3 survey study of north Halawa Valley identified seven sites and determined that area was used for agricultural pursuits during the pre-contact and early post-contact era
Dye 1977	0.47 miles north and east	Phase I survey and excavation	Investigation of Oshima sites; no pre-Contact features located; H-3 study
Damp et al. 1992	0.47 miles north and east	Preliminary report	Report describing SIHP #50-80-10-2137 and SIHP #50-80-10-2010 in North Halawa Valley; H-3 study
Hammatt and Winieski 1994	0.9 miles west	Reconnaissance survey	All pre-contact Hawaiian resources destroyed as result of 19th-century sugar cultivation
Klieger 1995	0.47 miles north and east	General history	Bishop Museum H-3 archaeology summary study
Rechtman and Henry 1998	Borders project area to south	Resources survey	No pre-contact resources identified; 6 historic/modern features identified

Table 7 (continued)

Source	Distance from Project Area	Type of Survey	Findings
McGuire et al. 1999	0.75 miles northeast	Archaeological assessment	Reconnaissance and survey of previously identified sites; no testing or data recovery as part of survey. Six newly recorded sites identified.
Hartzell et al. 2003	0.47 miles north and east	Archaeological inventory survey	Review of 70 sites in North Halawa Valley; H-3 study
Hammatt et al. 2009	0.75 miles northwest	Literature review and field inspection	No historic properties or cultural deposits identified; stream bank heavily eroded
Hammatt et al. 2013	0.65 miles northeast	Archaeological inventory survey	Assess cultural resources affected by the relocating of the HECO lines

3.2 Halawa Correctional Facility

3.2.1 Previous Archaeological Research

The Halawa Correctional Facility is also located in the Halawa ahupuaa, less than a mile from the Animal Quarantine Station. Therefore the same previous survey reports for the Animal Quarantine Station background research apply to the literature review for the proposed Halawa Correctional Facility site, with a few exceptions. Of particular importance is the previously mentioned AIS report produced for the Halawa Valley Transmission Line Relocation (Hammatt et al. 2013), which discusses other surveys, such as Ayres (1970), Denison and Forman (1971), Crozier (1972), and Rechtman and Henry (1998). These reports directly impact the Halawa Correctional Facility proposed project area because they were conducted at least partially within the proposed facility boundaries (see Figure 43). The AIS also mentions several other surveys recorded within a 1.6-kilometer (1-mile) radius of the proposed Halawa Correctional Facility project area and are discussed below.

Ayers (1970) conducted a Phase I archaeological survey of the South Halawa Valley in advance of the proposed H-3 freeway, to assist with route planning. His survey documented sites located within the surveyed 500-foot-wide strip of land along the lower Halawa Valley floor. Ayers recorded 48 sites in the survey area: "16 sites of agricultural function, including at least 28 terraces; seven house platforms; two walled house structures; four caves (three caves used as shelters and one as a burial cave); two small agricultural clearings; three walls; three mounds; one C-shaped structure; nine historic sites (i.e., paved road with stone curbing, animals pens, a well); and one stream diversion feature" (Hammatt et al. 2013:34). Several of these sites were excavated by Ayers (1970). Only a few of the sites are located close to the current project area and subsequent survey area of Hammatt et al. (2013), as the majority of the sites were identified as located east of the quarry.

Based on the Ayers (1970) report, 20 of the original 48 sites were recommended for mapping and excavation. Denison and Foreman (1971) conducted part I of the Phase II survey for these 20 sites. Following Denison and Foreman (1971), Crozier (1972) completed part 2 of the Phase II survey and restoration for four sites in need of further intensive investigation. Restoration and stabilization work included work at two heiau (SIHP #50-80-10-657 and SIHP #50-80-10-685) and excavations at a residential/agricultural platform site (SIHP #50-80-10-686) and a large walled residential enclosure (SIHP #50-80-10-695). The large walled residential settlement was considered very significant because it contained several features common in other Polynesian groups but not previously identified in Hawaiian pre-contact sites. These include rounded house structures with an outside pavement, stone-lined storage pits, and a large paved area located within a boundary wall and associated with the dwelling structures (Crozier 1972). Crozier concluded that the site occupation lasted from approximately AD 1468 to 1679.

Sinoto (1976) completed a reconnaissance survey for an alternate route proposed for the H-3 freeway through portions of the South Halawa valley. The study concluded that in the 3-mile surveyed portion of the valley, the majority of both pre-contact and historic sites identified during the survey occur primarily near the floodplain or along the valley bottom. Several pre-contact sites were recorded, including a house platform, walled enclosures, and agricultural terraces (Sinoto 1976; Hammatt 2013). Rechtman and Henry (1998) found no pre-contact archaeological resources during their Phase I reconnaissance survey for the South Halawa Valley Red Hill Storage Area owing to the amount of ground disturbance and area development; however, they did identify several historic features, including three concrete slabs, a concrete wall and box feature, a depression, and an earthen mound. These features were determined to possess limited archaeological integrity and were identified as historic or modern remains associated with World War II (or later) Red Hill facility activities (Rechtman and Henry 1998). McGuire et al. (1999) conducted the largest reconnaissance and archaeological survey of the South Halawa Valley in advance of the proposed public access to the 699 hectares (1,728 acres) owned by the Queen Emma Foundation. The survey explored the less steep portions of the South Halawa Stream drainages and the lowland areas most likely to be impacted by visitor activities. This survey did not include any subsurface testing; only previously located sites were re-identified and mapped.

Other surveys were conducted in advance of the proposed H-3 realignment. Oshima (1976) conducted a Phase I survey within the freeway corridor; seven sites were identified and historic land use of the area was determined to be primarily for agricultural purposes. Dye (1977) continued to investigate the sites identified by Oshima (1976) in the North Halawa Valley and concluded that all sites identified during the survey were relatively late in date and not pre-contact. Damp et al. (1992) investigated two sites that had been previously interpreted as a heiau luakini and a Hale o Papa; however, the investigation found no supporting evidence for this assumption and determined that the sites were for habitation or agricultural purposes. Klieger (1995) compiled historical background research for the H-3 freeway project archaeology of the North Halawa Valley. "This study follows the chronological developments within the ahupuaa and makes the point that the study of Halawa is valuable due to the area's generally representative trends that parallel the broader pre-Contact history of the Island of Oahu, and the post-Contact development of the entire archipelago" (Hammatt 2013:43-44).

The Bishop Museum conducted much of the archaeological work for the Hawaii Department of Transportation and Federal Highway Administration during the late 1980s and early 1990s. Hartzell et al. (2003) synthesized these findings in their archaeological inventory survey report. They reviewed 70 sites and created a timeline of occupation for the North and South Halawa Valley. Hartzell et al. (2003) concluded that resource exploitation, agriculture, and habitation near the coastal region was well under way by AD 1200s/1300s (Hammatt 2013:44); the North Halawa Valley was not extensively utilized until much later, about AD 1500, and was used primarily for agriculture. The Halawa Valley was virtually abandoned by the mid-1800s when habitation by the coastal region was again more desirable.

3.2.2 Archaeological Desktop Reconnaissance

Table 8 summarizes the previous archaeological surveys in the vicinity of the proposed Halawa Correctional Facility project area (Hammatt et al. 2013); see Table 6 for recorded archaeological sites in the South Halawa Valley near the Halawa Correctional Facility project area. Review of the previous surveys indicates that cultural resource potential is high, especially around the proposed project location boundaries on the east and south portions of the project. The potential for pre-contact archaeological sites is moderate and subject to an assessment of on-site ground disturbance. Agricultural and associated settlement cultural resource potential is higher; historic-period plantation or ranching sites and features could also be present.

Table 8: Previous Archaeological Surveys in General Halawa Valley Within Approximately 1.6 Kilometers (1 Mile) of Halawa Correctional Facility Project Area

Source	Distance from Project Area	Type of Survey	Findings
McAllister 1933	–	Pedestrian survey/island-wide	Several sites located throughout the island; two sites located in or adjacent to project area
Ayers 1970	Borders APE to west	Phase I survey and excavation	48 sites in the South Halawa Valley survey area
Denison and Forman 1971	Borders APE to west	Phase II survey and excavation	20 sites identified by Ayers (1970) mapped and excavated
Crozier 1972	Borders APE to west	Phase II survey and preliminary report	Four sites identified by Ayers (1970) and excavated by Denison and Forman (1971) intensively surveyed and restored
Oshima 1976	0.47 mile north and east	Reconnaissance survey	H-3 survey study of north Halawa Valley identified seven sites and determined that area was used for agricultural pursuits during the pre-contact and early post-contact era
Dye 1977	0.47 mile north and east	Phase I survey and excavation	Investigation of Oshima sites; no pre-contact features located
Damp et al. 1992	0.47 mile north and east	Preliminary report	Report describing SIHP #50-80-10-2137 and SIHP #50-80-10-2010 in North Halawa Valley
Klieger 1995	0.47 mile north and east	General history	Bishop Museum H-3 archaeology summary study
Rechtman and Henry 1998	Borders APE to south	Resources survey	No pre-contact resources identified; six historic/modern features identified
McGuire et al. 1999	0.75 mile northeast	Archaeological assessment	Reconnaissance and survey of previously identified sites; no testing or data recovery as part of survey. Six newly recorded sites identified.

Table 8 (continued)

Source	Distance from Project Area	Type of Survey	Findings
Hartzell et al. 2003	0.47 mile north and east	Archaeological inventory survey	Review of 70 sites in North Halawa Valley
Hammatt et al. 2013	0.65 mile north and east	Archaeological inventory survey	Assess cultural resources affected by the relocation of HECO lines

3.3 Current Oahu Community Correctional Center Site

3.3.1 Previous Archaeological Research

Approximately 30 archaeological studies have been conducted within 1.6 kilometers (1 mile) of the current site of the OCCC in Kalihi. Three recent surveys, for the Kalihi Water Systems Improvement Project (Hammatt and Yucha 2015), the Kapalama Container Terminal Wharf and Dredging Project (Hammatt et al. 2014), and the proposed Middle Street Transit Center (Hammatt and Shideler 2002), were reviewed based on their proximity to the current OCCC site (Figure 44).

The archaeological monitoring plan (AMP) for the Kalihi Water System improvements was created for the City and County of Honolulu and Okahara and Associates, Inc., in preparation for improvements made to the Kalihi Water Systems. The project area included open trenching in a 0.248-hectare (0.612-acre) corridor within the city right-of-way. As the project area was historically used for agricultural purposes, pre- and/or post-contact intact deposits indicating land use were of interest prior to subsurface ground disturbance. No cultural resources have been identified in the current project area. The report concluded that although little is known archaeologically about the pre-contact history of Kalihi, it is only because few projects have identified pre-contact habitation sites or significant historic properties, and recent archaeological studies in the area have been limited to reconnaissance-level investigations (Hammatt and Yucha 2015). The earliest archaeological studies identified the remnants of coastal fishponds, and later surveys documented pre- and/or post-contact burials and other later historic-period cultural deposits in and around the improvements project area.

The background research concluded that three types of anticipated subsurface cultural resources may be located in the project area: traditional Hawaiian habitation and agricultural sites, traditional Hawaiian or historic burial sites, or post-contact deposits. LCA lots are also located in and adjacent to the project area; LCA presence may have mitigated the amount of subsurface disturbance present in the project area. "Given the extensive amount of ground disturbance associated with the modern development in the middle Kalihi area, it is difficult to predict which areas are more likely to contain significant subsurface cultural deposits and remains than others" (Hammatt 2015:79).

Figure 44: Previous Archaeological Studies in Kalihi near the OCCC Project Area

The AMP for the Kapalama Container Terminal Wharf and Dredging Project included detailed management plans for the proposed building of a pier and berthing area near the Kalihi Kai shoreline. Much of the shoreline had been modified by historic-period fishpond construction, and subsequent infilling by natural sediment accumulation and purposeful filling for reclamation and expansion projects for the Honolulu Harbor formed the modern shoreline. Several archaeological projects have been completed in Kalihi and Kapalama near the Terminal Wharf area. Most of the studies cited by Hammatt et al. (2014) have explored the fishponds and their significance within the overall landscape. Burials and skeletal remains have also been prevalent throughout the Kalihi Kai region, but few projects have encountered archaeological features related to pre-contact habitation or identified significant historic properties. Hammatt (2013) conducted the only survey that identified multiple sites, including previously mentioned Site 50-80-14-07425, a subsurface fire pit feature; Site 50-80-14-07426, a subsurface wetland deposit; and Site 50-80-14-07506, incinerated trash deposit near Kuwili Fishpond. The resources at the north end of the wharf construction and dredging project area are the only location where possible *in situ* historic properties could be discovered. Evidence of the pond fill episodes and early twentieth-century harbor construction activities were also recorded as potentially encountered resources. The fishponds were likely still intact until the 1920s, when improvements for the Honolulu Harbor filled in the features. The ponds were completely filled in by the 1940s.

The archaeological assessment for a 4.19-hectare (10.35-acre) parcel evaluated the cultural resource potential and provided an archaeological inventory for the Middle Street Transportation Center in Kalihi Ahupuaa (Hammatt and Shideler 2002). Research indicated that traditional land use for this area was primarily irrigated agriculture, with additional features such as fishponds, salt works, and habitation lots. These traditions continued after the LCAs were awarded in the mid-1850s; however, private ownership of the parcels transferred to important Hawaiian and non-Hawaiian officials. By the late nineteenth century and into the twentieth century, many of the parcels surrounding the project area were devoted to light industrial, residential, and commercial activities. Preparation for these activities often included grading and large-scale landscape alterations that drastically impact the potential for intact subsurface cultural deposits (Hammatt and Shideler 2002).

Despite the extensive documentary evidence of Hawaiian activities around the OCCC project area, the field survey was unable to document evidence of habitation loci or associated agricultural pursuits (Hammatt and Shideler 2002). Field investigations recorded evidence of an LCA concrete and basalt retaining wall in the project area, but it provided no significant cultural contributions. The authors conclude that based on the documentary research and review of previous archaeological studies, no significant cultural deposits of historic properties were impacted in the current project area. The field inspection confirmed this conclusion, noting that the project area was massively impacted by historic-period light industrial and commercial activities (Hammatt and Shideler 2002).

3.3.2 Archaeological Desktop Reconnaissance

The area surrounding the current OCCC site has been extensively surveyed and documented, as demonstrated by the available literature and associated digital mapping efforts; however, few significant cultural resources have been identified and many of the resources that have been identified are located farther inland, away from the project area. Historic burials were located northeast of the current project area, but these burials were tightly defined and there is very little potential for the current project to impact these cultural deposits. Research investigating the paleo-environment of the fishponds has provided detailed evidence of early environmental impacts associated with the presence of the fishponds; however, no direct archaeological evidence has been recovered from the fishpond locations (Hammatt and Shideler 2002).

Two sites of interest for the OCCC project area are Site 50-80-14-07425, a pre-contact subsurface fire feature identified during an archaeological inventory survey completed for the Honolulu High-capacity Transit Corridor project, and Site 50-80-12-09714, a remnant of the 1889 OR&L right-of-way that borders the west edge of the jail. The OCCC project area is bordered by McAllister's Site 74 (SIHP #50-80-14-74), the Apili Fishpond. Therefore at least part of this project area may be situated near fill land layered over this fishpond (Hammatt et al. 2014).

Hammatt and Yucha (2015:62) describe the early Oahu jail, located on the current OCCC site:

> The Oahu Jail was built in Honolulu in 1857, and a new structure was built in Kalihi between 1916 and 1918…. This area is now occupied by the O'ahu Community Correctional Center. A visitor in 1921 was impressed with its "library with more than 1,000 books, a cheery visitors' room and well-kept cells and dormitories…. Indeed, one of the most vivid impressions one gets is that of brightness, airiness and spotless cleanliness: how different from the noisome, dank penal institutions of a generation or so back."

Hammatt and Yucha (2015) are citing an article featuring the jail in the Honolulu Magazine; the article was published with the photograph in Plate 4.

Table 9 lists previously recorded archaeological sites in the vicinity of the OCCC project area. Previous surveys are listed in Table 10.

Table 9: Recorded Archaeological Sites in General Kalihi Valley Within Approximately1.6 Kilometers (1 Mile) of OCCC Project Area

Site Number/Name	Site Type	Reported by
SIHP #50-80-14-00073/ McAllister Site 73	Fishponds – Auiki and Ananoho	McAllister 1933
SIHP #50-80-14-00074/McAllister Site 74	Fishponds – Apili, Pahounui, and Pahouiki	McAllister 1933
SIHP #50-80-14-01346	Kalihi Fire Station	
SIHP #50-80-14-04525	Post-contact cultural layer and burials	Folk et al. 1993
SIHP #50-80-14-04735	Burials	Hammatt 1993
SIHP #50-80-14-05581	Post-contact burial	Moore 1997
SIHP #50-80-14-07425	Subsurface fire feature	Hammatt 2013
SIHP #50-80-14-07426	Subsurface wetland deposit	Hammatt 2013; Pammer and McDermott 2014
SIHP #50-80-14-07506	Subsurface incinerated trash deposit	Hammatt 2013; Pammer and McDermott 2014
SIHP #50-80-14-07515	Bridge	

Table 9 (continued)

Site Number/Name	Site Type	Reported by
SIHP #50-80-14-09714	OR&L right-of-way	
SIHP #50-80-14-09768	Wallace Rider Farrington High School	

Table 10: Previous Archaeological Surveys in General Kalihi Valley Within Approximately 1.6 Kilometers (1 Mile) of OCCC Project Area

Source	Distance from Project Area	Type of Survey	Findings
Thurm 1906, 1908	–	Pedestrian survey/ island-wide	Several sites located throughout the island
McAllister 1933	–	Pedestrian survey/ island-wide	Identified Site 72, Kalihi Valley; Site 73, Ananoho and Auiki Fishponds; and Site 74, Pahouiki, Pahounui, and Apili Fishponds near study area
Hammatt 1986	0.54 mile southwest	Archaeological reconnaissance	No sites or features identified; dredged fill deposits for reclaimed land (20th century)
Landrum and Klieger 1991	0.25 mile north	Literature review	No sites or features near project area
Hammatt and Folk 1992	0.25 mile north	Burial treatment plan	See findings by Folk et al. 1993
Folk et al. 1993	0.25 mile north	Survey and backhoe testing	SIHP #50-80-14-4525; three burials and cultural layer identified
Folk and Hammatt 1993	0.25 mile north	Mitigation plan	Further addressed significance of SIHP #50-80-14-4525
Hammatt 1993	0.70 mile northeast	Literature review	SIHP #50-80-14-4735; two burials historic research
Borthwick et al. 1995	0.45 mile east	Archaeological inventory survey	No sites or features identified during backhoe trenching
Chiogioji and Hammatt 1995	0.80 mile southeast	Archaeological assessment	Background research; area identified as dredged fill deposits for reclaimed land (20th century)
Moore 1997; Moore and Kennedy 1999	0.57 mile southeast	Burial	Post-contact burial identified during construction, SIHP #50-80-14-5581; reinterment in subsequent report
Athens and Ward 2002	0.50 mile south	Paleoenvironmental study	Auiki and Ananoho fishponds sediment core analysis; results inconclusive because of reclamation activities

Table 10 (continued)

Source	Distance from Project Area	Type of Survey	Findings
Hammatt and Shideler 2002	0.25 mile northwest	Archaeological assessment	Located on historic site (concrete and rock wall); no SIHP # assigned
Moore et al. 2004	0.25 mile southwest	Archaeological inventory survey	Apili and Pahouiki fishpond core analysis; no evidence of fishponds present
Dega and Davis 2005	0.25 mile northwest	Archaeological inventory survey	Excavated in stream and fishpond deposits
Athens and Ward 2007	0.67 mile south	Paleoenvironmental study	Ananoho fishpond core samples; evidence of fishpond destroyed due to reclamation activities
Hammatt and Shideler 2007	0.98 mile southwest	Archaeological assessment	No sites or features near project area
O'Hare et al. 2007	0.97 mile east	Literature review and field inspection	Identified site types that could be encountered in Kalihi-Kapalama area
Dey and Hammatt 2009	0.35 mile north	Archaeological monitoring	No sites, features, or undisturbed natural sediments identified
O'Hare et al. 2010	0.40 mile east	Literature review and field inspection	Field inspection concluded that cultural landscape features present in banks of Kapalama Canal
Pammer and Monahan 2011	0.65 mile southeast	Literature review and field inspection	No sites or features in project area
Hunkin et al. 2012	Borders APE to northeast	Archaeological monitoring	Human bone recovered from fill
Hammatt 2013	Borders APE to northeast	Archaeological inventory survey	Identified SIHP #50-80-14-7425 (pre-Contact fire pit feature), -7426 (wetland deposit), -7506 (incinerated trash), and -5368 (Kuwili Fishpond).
Medina et al. 2013	0.87 mile southeast	Archaeological monitoring	No additional sites, features, or undisturbed natural sediments identified
Medina and Hammatt 2013	0.60 mile southeast	Archaeological monitoring	No sites, features, or undisturbed natural sediments identified
Tulchin and Hammatt 2013	0.32 mile southeast	Archaeological inventory survey plan	No sites or features near project area
Pammer and McDermott 2014	0.92 mile southeast	Backhoe excavation	Re-identified SIHP #50-80-14-7426 and -7506

Table 10 (continued)

Source	Distance from Project Area	Type of Survey	Findings
Hammatt et al. 2014	0.50 mile south	Archaeological monitoring plan	Background research and literature review in preparation for Kapalama Container Terminal Wharf and Dredging Project
Stine et al. 2015	0.58 mile east	Archaeological monitoring	SIHP #50-80-14-7555, Bishop Memorial Chapel partially destroyed during construction project
Hammatt and Yucha 2015	Borders project area to northeast	Archaeological monitoring plan	Background research and literature review in preparation for the Kalihi Water Systems Improvements

3.4 Mililani Technology Park, Lot 17

3.4.1 Previous Archaeological Research

Previous archaeological surveys have been conducted near the proposed Mililani Technology Park, Lot 17 site, including its immediate vicinity and along its geographic landform (Figure 45). This landform, as bordered by the Waikakalaua and Kipapa gulches, is an area of pre-contact settlement and taro farming. According to traditional histories, it was also the site of a major battle between ancient Hawaiian groups. Post-contact, the area was widely used for sugar and pineapple cultivation. These large-scale agricultural efforts heavily damaged or destroyed some of the pre-contact sites in the area. Similar to much of the archaeological research in Oahu, the 1930s work of McAllister forms the foundation of the subsequent surveys in the area.

McAllister (1933) identified the pre-contact sites Moaula Heiau (Site 130) and Heiau o Umi (Site 131); however, these sites were documented as destroyed by sugar cane production. One additional site identified by McAllister that continues to be mentioned in subsequent reports is Site 204, commonly referred to as the Oahunui (Oahu-nui) Stone. Regarded as sacred in traditional histories, it has been reported as either missing or destroyed in subsequent surveys (Hammatt et al. 1983; Hommon and Ahlo, Jr. 1983; Hommon et al. 2012; Moore and Kennedy 1994). The stone, commonly thought to resemble the shape of Oahu, carries a significant amount of traditional cultural relevance and its relocation would certainly be an important find for native Hawaiians.

The 1983 survey work of Hommon and Ahlo, Jr. encompasses the entire proposed project area. The ARS report summarizes the findings for the development of the proposed Hawaii High Technology Park, Ewa. The survey recorded Site 3401, a post-contact terrace of stacked basalt stones that crossed a barbed wire fence. It was determined not to warrant further investigation. The research conducted indicated that this area had been used pre-contact for taro production and post-contact as large-scale plantation works (Hommon and Ahlo, Jr. 1983).

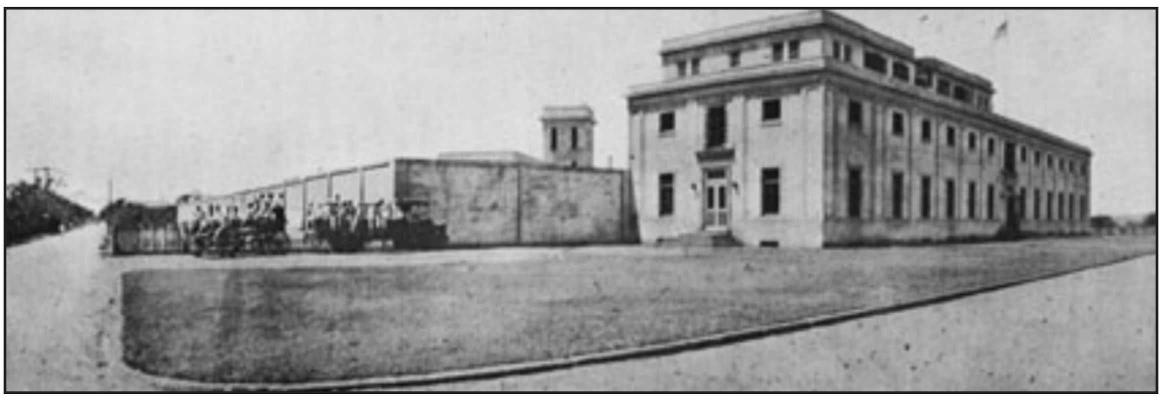


Plate 4: Oahu Jail in Kalihi, ca. 1921 (Hammatt and Yucha 2015)

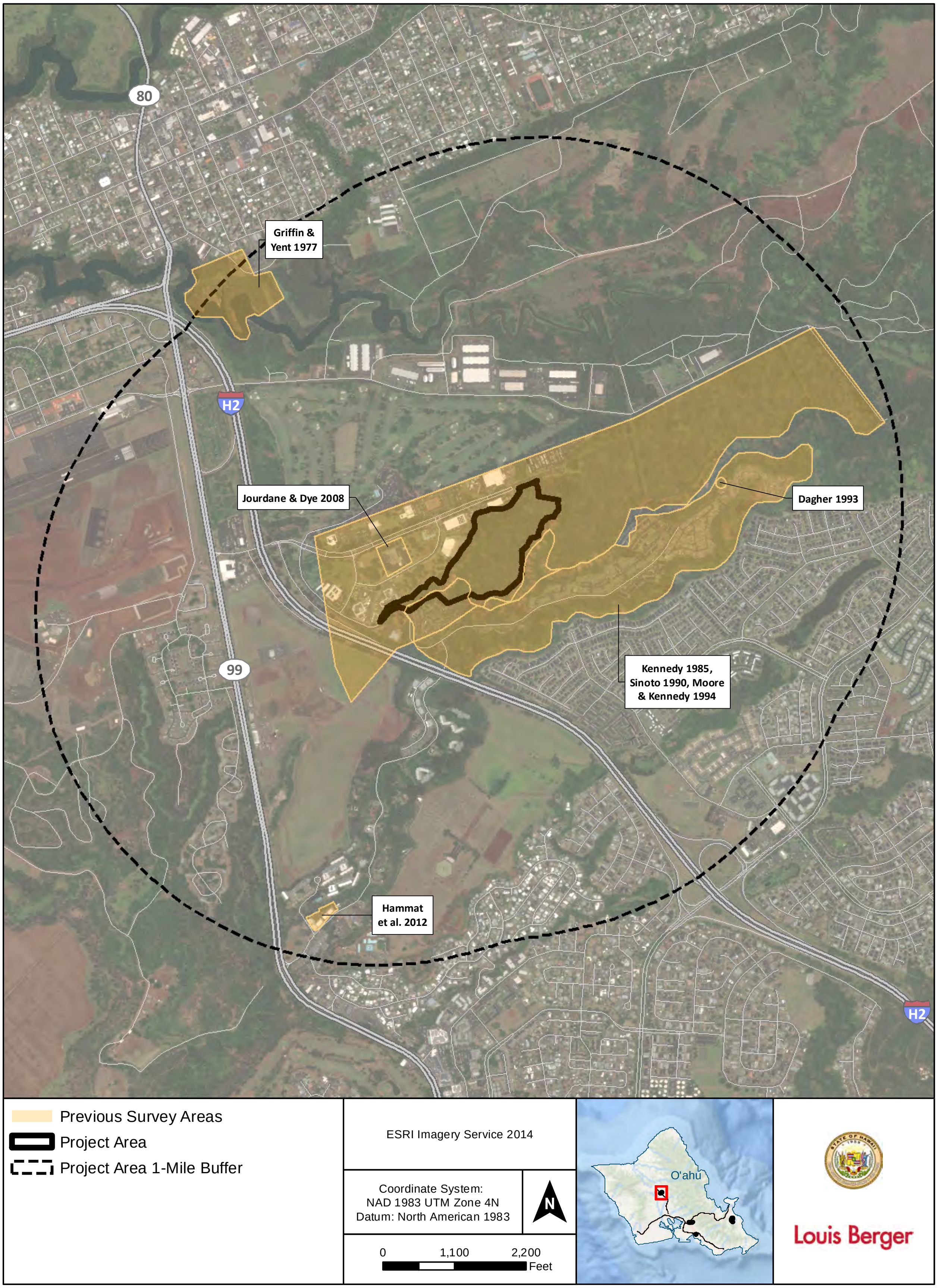


Figure 45: Previous Archaeological Studies in Waikele near the Mililani Technology Park Project Area

The area for the survey conducted in 1994 for the Launani Valley Townhouse Development (Moore and Kennedy 1994) borders the project area to the south and east. Moore identified and recorded Sites 4812 and 4813. Site 4812 was described as important to local oral tradition and consisting of mound features associated with various agricultural pursuits. Site 4813 was determined to be part of a 1960s floral nursery and consisted of collapsed structures and other architectural features related to the nursery. Cultural significance was determined low for these sites (Moore and Kennedy 1994).

Other sites of archaeological importance near the proposed project area include Site 4843, a low agricultural terrace reported by Kennedy (1985) and described as a sweet potato and taro dry land cultivation site; Site 4662, post-contact habitation platforms and water catchment (Sinoto 1990); Site 4663, recorded by Sinoto (1990) as railroad beds and retaining walls; and an excavated cave in the immediate vicinity identified by Dagher (1993). The approximate location of burial SIHP #4730 borders the current project area (Hammatt et al. 2012). Several additional surveys have been completed within 1.6 kilometers (1 mile) of the project area. Previously identified sites and surveys are outlined in Tables 11 and 12.

3.4.2 Archaeological Desktop Reconnaissance

The area surrounding the Mililani Technology Park, Lot 17 site has been extensively surveyed and documented, as demonstrated by the available literature and associated digital mapping efforts. The background research and desktop reconnaissance indicate that Mililani and the central Oahu area in general were used by native Hawaiians and post-contact populations for habitation, religious, and agricultural purposes. Several cultural resources have been identified near the proposed project area, although none in the project area (see Figure 45).

Table 11: Recorded Archaeological Sites near Mililani in Central Oahu Within Approximately 1.6 Kilometers (1 Mile) of Mililani Technology Park, Lot 17 Project Area

Site Number/Name	Site Type	Reported by
McAllister Site 130	Family shrine (located more than 1 mile from project area)	McAllister 1933
McAllister Site 131	Family shrine (located more than 1 mile from project area)	McAllister 1933
50-80-09-3401	Post-contact terrace	Hommon and Ahlo, Jr. 1983
50-80-09-4662	Post-contact habitation	Sinto 1990
50-80-09-4663	Railroad beds and retaining wall	Sinto 1990; Dagher 1993
50-80-09-4730	Burial	Kennedy 1993
50-80-09-4812	19 mounds associated with growing and other agricultural features; detailed feature map provided in Moore and Kennedy 1994	Moore and Kennedy 1994
50-80-09-4813	Historic nursery structures including walls, pavements, terraces, and cisterns	Moore and Kennedy 1994
50-80-09-4843	Agricultural terrace for sweet potato and taro cultivation	Kennedy 1985

Table 11 (continued)

Site Number/Name	Site Type	Reported by
Oahu-nui Stone	Traditional Hawaiian site	McAllister 1933; Moore and Kennedy 1994
None	Terraces and rock alignment	Griffin and Yent 1977
None	Roadbed for railroad tracks	Griffin and Yent 1977

Table 12: Previous Archaeological Surveys near Mililani in Central Oahu within Approximately 1.6 Kilometers (1 Mile) of Mililani Technology Park, Lot 17 Project Area

Source	Distance from Project Area	Type of Survey	Findings
McAllister 1933	More than 1 mile	Pedestrian survey/ island wide	The location of 2 Heiau and mention of the Oahunui Stone
Griffin and Yent 1977	0.9 mile northwest	Archaeological reconnaissance survey	Identified roadbed for railroad tracks and terraces with a rock alignment; no SIHP # assigned to resources
Hommon and Ahlo, Jr. 1983	In project area	Archaeological reconnaissance survey	Post-Contact terrace and stacked stone wall; noted as less than 50 years old at time of survey based on associated historic artifact scatter
Kennedy 1985	Borders project area to south	Archaeological reconnaissance survey	Recorded agricultural terrace for sweet potato and taro cultivation; unirrigated
Sinoto 1990	Borders project area to east	Archaeological reassessment	Post-Contact habitation structures and railroad beds
Dagher 1993	Borders APE to east	Additional archaeological finding to Sinto 1990	Excavated cave discovered near SIHP #50-80-09-4663
Kennedy 1993	Southwest of project area	Inadvertent burial report	Documented an inadvertent discovery (burial) at “Launani Valley” job site (Hammatt et al. 2012); location approximate
Moore and Kennedy 1994	Borders project area to south	Archaeological investigation	Investigated agricultural features and remains of historic nursery complex

Table 12 (continued)

Source	Distance from Project Area	Type of Survey	Findings
Jourdane and Dye 2008	0.20 mile west	Historic properties assessment	No historic properties identified, no subsurface deposits likely; research indicates extensive disturbance from past land alteration
Hammatt et al. 2012	1 mile southwest	Archaeological inventory survey	No surface historic properties or subsurface cultural resources located

3.5 Women's Community Correctional Center

3.5.1 Previous Archaeological Research

The site of the WCCC in Kailua has been partially surveyed and tested for archaeological deposits. Several previous archaeological surveys have been conducted in Kailua (Figure 46), identifying agricultural terraces, house platforms, heiau, and (with greatest frequency) burials. Hammatt et al. (1999) and Monahan and Morawski (2009) identified several sites within the current proposed project boundaries. Background research conducted by Hammatt et al. (1999) indicated that a single historic property had been identified in previous survey work. Referred to as "tunnel 10," it is associated with SIHP #50-80-15-4042, the Waimanalo Irrigation System, constructed ca. 1923. It operated until the 1950s, but at the time of survey, it was completely non-operational and its eligibility had not yet been determined.

Monahan and Morawski (2009) conducted a pedestrian survey to determine the presence/absence of archaeological sites in the 25-acre APE for the proposed new access road to Kailua High School. This area covers roughly half of the current project area. They identified two previously undocumented sites: Site 50-80-11-6816, a pre-contact lithic scatter/ridge camp located on the ground surface along the southeast portion of the project area; and Site 50-80-11-6817, a historic water-flow structure associated with the larger Waimanalo Ditch System complex (Site 50-80-15-4042), located in the north half of the project area. "Site 50-80-11-6817 consists of two main features: a rectangular construction of large, hand-shaped, basalt blocks, stacked with mortar/concrete (Feature 1), and a concrete-encased valve/pumping station (Feature 2), adjacent to the main structure. The site appears to date from the plantation era, when water from the Kawainui Marsh was diverted to the Waimanalo and Kaneohe areas for commercial agriculture" (Monahan and Morawski 2009:1-2). The ruined horse stables and parallel rows of ti (ki) plants were also documented but are not historically significant.

Additional surveys recorded in the vicinity of the proposed WCCC project area include archaeological monitoring for a sewer project (Fong et al. 2007), an Archaeological Inventory Survey for the Dey Family Subdivision (Hammermeister et al. 2008), and an Archaeological Inventory Survey work plan in support of the Kailua Intermediate School Building project (Filomehala 2013). In many cases monitoring was suggested based on previously recorded burials in the Kailua area, especially in the Jaucus sands that underlie portions of the project areas along the lowland sandy beach berm. Burials and pre-contact historic deposits are often found in association with Jaucus sands (Fong et al. 2007). However, much of the probable habitation evidence in these lowland areas was destroyed during early historic-era development, and Jaucus sands are not known to be present within the current proposed correctional facility boundaries.

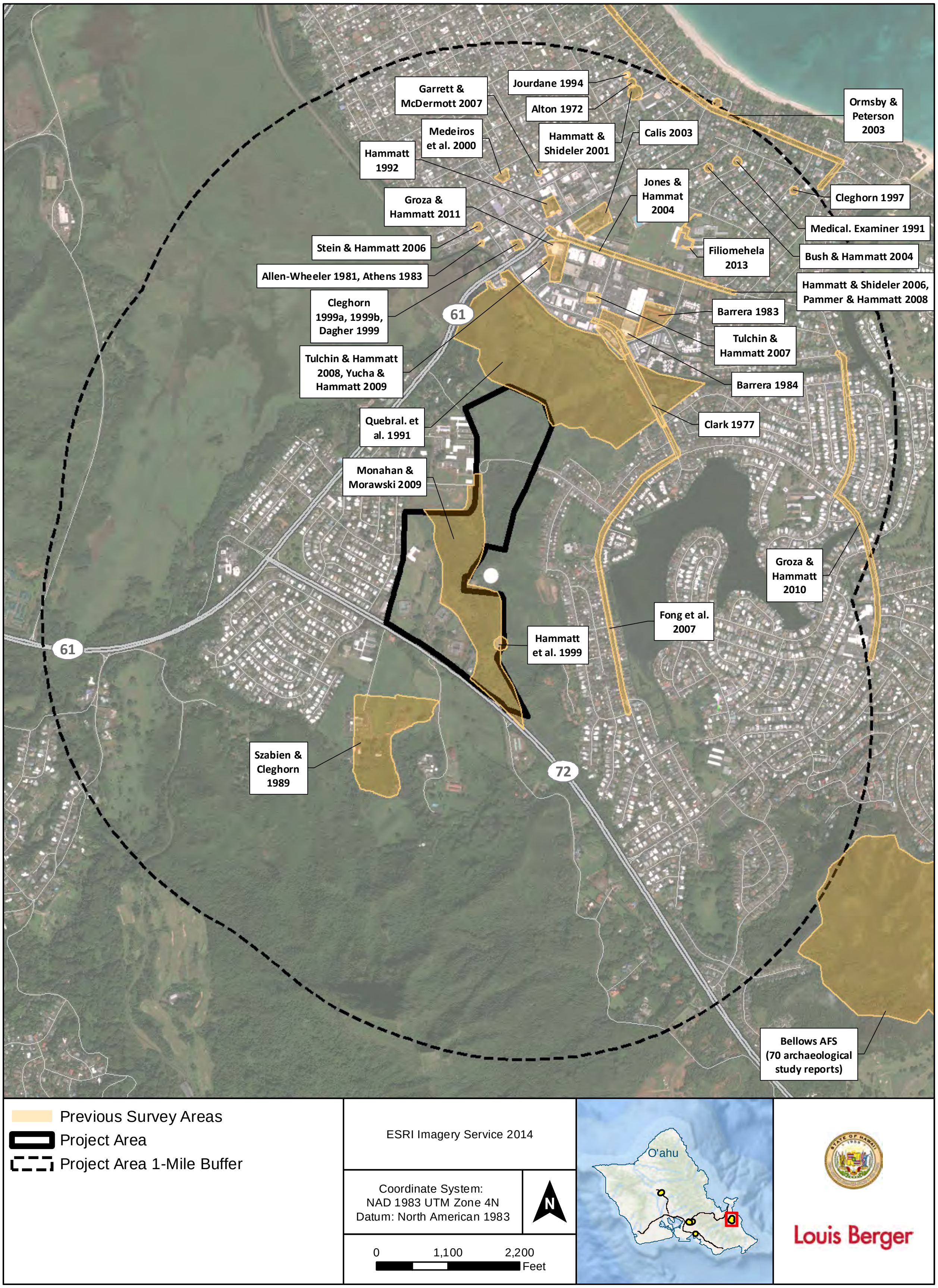


Figure 46: Previous Archaeological Studies in Kailua near the WCCC Project Area

3.5.2 Archaeological Desktop Reconnaissance

Approximately 50 percent of the proposed project area has been subjected to previous archaeological survey efforts. At least five cultural resource properties are present within the boundaries of the project area. Several additional cultural resources are located within 1.6 kilometers (1 mile) of the project area (Tables 13 and 14).

Table 13: Recorded Archaeological Sites in General Kailua Valley Within Approximately1.6 Kilometers (1 Mile) of WCCC Project Area

Site Number/Name	Site Type	Reported by
McAllister Site 377	Kaelepulu fishpond	McAllister 1933
McAllister Site 379	Kanahau Heiau	McAllister 1933
McAllister Site 372	Kukuipilau Heiau	McAllister 1933
SIHP #50-80-11-2030	Pre-contact cultural features	Allen-Wheeler 1981; Athens 1983
SIHP #50-80-15-4042	"Tunnel 10" associated with the Waimanalo Irrigation System/Waimanalo Ditch System	Hammatt et al. 1999; Hammermeister et al 2008; Stride et al. 1993
SIHP #50-80-15-4699	Habitation site (possible house)	Clark 1977
SIHP #50-80-15-4700	Unnamed Heiau	Clark 1977
SIHP #50-80-11-4864	Burial	Jourdane 1994
SIHP #50-80-11-5530	Burial	Cleghorn 1997
SIHP #50-80-11-5731	Burial with associated grave goods	Cleghorn 1999a, 1999b
SIHP #50-80-11-5769	Burial	Medeiros et al. 2000
SIHP #50-80-11-5771	Burials	Hammatt and Shideler 2001
SIHP #50-80-11-6524	Burial	Calis 2003
SIHP #50-80-11-6657	Cultural stratum identified	Jones and Hammatt 2004
SIHP #50-80-11-6694	Burials	Bush and Hammatt 2004
SIHP #50-80-11-6816	Pre-contact lithic scatter	Monahan and Morawski 2009
SIHP #50-80-11-6817	Features associated with Waimanalo Ditch System complex	Monahan and Morawski 2009
SIHP #50-80-11-6859	Burial	Garrett and McDermott 2007
SIHP #50-80-11-6916	Burial	Tulchin and Hammatt 2007
SIHP #50-80-11-6960	Burial with cultural deposits/pit features	Tulchin and Hammatt 2008; Yucha and Hammatt 2009
SIHP #50-80-11-7192	Burials	Groza and Hammatt 2011
No Site Number	Avenue of Ki Historic Property	Monahan and Morawski 2009

Table 14: Previous Archaeological Surveys in General Kailua Valley Within Approximately 1.6 Kilometers (1 Mile) of WCCC Project Area

Source	Distance from Project Area	Type of Survey	Findings
Clark 1977	0.60 mile northeast	Archaeological inventory survey	SIHP #50-80-11-4699 and -4700; also recorded stone alignments and possible wall alignment with mound
Allen-Wheeler 1981	0.70 mile north	Reconnaissance survey	SIHP #50-80-11-2030
Alton 1972	0.97 mile north	Inadvertent discovery	Burial uncovered during pool construction
Athens 1983	0.70 mile north	Excavation	Further information about SIHP #50-80-11-2030
Barrera 1983	0.65 mile northeast	Reconnaissance survey	No sites or features identified
Barrera 1984	0.60 mile northeast	Reconnaissance survey	No sites or features identified
Szabian and Cleghorn 1989	In project area	Archaeological reconnaissance survey	Remap Site 50-80-11-372 (McAllister Site 372)
Quebral et al. 1991	0.30 mile north	Archaeological inventory survey	SIHP #50-80-11-4428, -4429, and -4431
Medical Examiner 1991	0.91 mile northeast	Inadvertent discovery	Burial
Hammatt 1992	0.83 mile north	Archaeological testing	Burial
Stride et al. 1993	> 1 mile southeast	Archaeological reconnaissance survey	SIHP #50-80-11-4524 and extension of SIHP #50-80-11-4042
Jourdane 1994	0.97 mile north	Inadvertent discovery	Burial (SIHP #50-80-11-4864)
Cleghorn 1997	0.96 mile northeast	Letter report	Burial (SIHP #50-80-11-5530)
Cleghorn 1999a, 1999b	0.70 mile north	Archaeological monitoring	SIHP #50-80-11-5731
Dagher 1999	0.70 mile north	Inadvertent discovery	Burials (SIHP #50-80-11-5731)
Hammatt et al. 1999	In project area	Archaeological inventory survey	"Tunnel 10" associated with the Waimanalo Irrigation System
Mederios et al. 2000	0.90 mile north	Archaeological monitoring	SIHP #50-80-11-5769 (Burials)
Hammatt and Shideler 2001	0.94 mile north	Burial	SIHP #50-80-11-5771
Calis 2003	0.80 mile northeast	Archaeological monitoring	SIHP #50-80-11-6524 (Burials)

Table 14 (continued)

Source	Distance from Project Area	Type of Survey	Findings
Ormsby and Peterson 2003	1 mile northeast	Archaeological monitoring	No sites or features identified
Bush and Hammatt 2004	0.85 mile northeast	Inadvertent discovery	Burials (SIHP #50-80-11-6694)
Jones and Hammatt 2004	0.80 mile north	Archaeological monitoring	SIHP #50-80-11-6657
Stine and Hammatt 2006	0.75 mile north	Archaeological monitoring	No sites or features identified
Hammatt and Shideler 2006	0.50 mile north	Archaeological monitoring plan	No sites or features identified
Fong et al. 2007	0.30 mile east and north	Archaeological monitoring	No sites or features identified
Garrett and McDermott 2007	0.95 mile north		Burial
Tulchin and Hammatt 2007	0.60 mile north	Archaeological inventory survey	SIHP #50-80-11-6916
Fong et al. 2008	1 mile northeast	Archaeological monitoring	No sites or features identified
Hammermeister et al. 2008	> 1 mile southeast	Archaeological inventory survey	4 historic properties identified within project area; review of approx. 70 Bellows AFS archaeological field study reports
Tulchin and Hammatt 2008	0.65 mile north	Archaeological inventory survey	SIHP #50-80-11-6960
Pammer and Hammatt 2008	0.90 mile northeast	Archaeological monitoring	No sites or features identified
Yucha and Hammatt 2009	0.65 mile north	Archaeological monitoring	SIHP #50-80-11-6960
Morawski and Monahan 2009	In project area	Archaeological inventory survey	SIHP #50-80-11-6816 and -6817; horse stables and Avenue of Ki
Groza and Hammatt 2010	0.94 mile east	Archaeology monitoring	No sites or features identified
Groza and Hammatt 2011	0.65 mile north	Archaeological monitoring	SIHP #50-80-11-7192
Filimoehala 2013	1 mile northeast	Archaeological inventory survey	No sites or features identified

4.0 RESULTS OF THE SURVEYS

Louis Berger conducted the fieldwork for both the archaeological and architectural surveys simultaneously from July 24 to July 28, 2017, at the five proposed project locations.

4.1 Archaeological Pedestrian Reconnaissance

At each proposed alternative the pedestrian reconnaissance served to investigate and record field conditions, assess the degree of previous ground disturbance, and record the locations of any identified archaeological sites, structural elements, and cultural features. Each site was visually inspected and recorded with digital photographs and field notes. The reconnaissance attempted to view all exposed ground surfaces at each of the proposed project sites to document terrain, vegetation, areas of disturbance, and previously recorded sites. Systematic survey transects were not employed at this stage of the investigations. No subsurface testing was conducted, as agreed with the SHPD. Systematic inventory-level survey, including subsurface investigations, will only be undertaken at the selected project site, if warranted.

4.1.1 Animal Quarantine Station

The Animal Quarantine Station project area occupies 16 hectares (39.5 acres) of land in Halawa ahupuaa and is roughly bisected by the H-3 (see Figure 43). The facility is surrounded by commercial and industrial development, including the Hawaiian Cement Co. Halawa Quarry to the north. The facility itself is largely covered by concrete block structures dating to the second half of the twentieth century, including over 12 acres of kennels, pens, and other animal housing east of the H-3 overpass. Ground surface visibility in the small patches of grass between the kennels and pens varied between 40 to 50 percent in active areas south of the main administration building where grass was kept short (Plate 5). Areas of kennels and pens north of the administration building that are not in use had 0 to 15 percent ground visibility (Plate 6).

West of the H-3 overpass is a large pasture for livestock and large animal veterinary medicine holding and testing facilities. The construction of the H-3 overpass through the center of the facility has apparently resulted in the grading and disturbance of most of the pasture, which constitutes the only appreciable area of open ground with no structures to inhibit archaeological survey. The pasture area under and west of the H-3 overpass had ground surface visibility between 30 and 50 percent (Plate 7).

Inspection of the ground surface in the open areas of the Animal Quarantine Station did not result in the identification of any new archaeological sites. Systematic pedestrian survey was not employed given the highly developed and disturbed nature of the area.

Previously recorded Sites 105, Waikahi Heiau, and 106, Waipao Heiau, documented by McAlister (1933) in the early twentieth century, do not appear to fall within the current project area. Both sites were noted by Klieger (1995) as likely destroyed by sugar cane cultivation, although he asserted that the foundations of Site 106 could be seen near the former Frito-Lay distribution center approximately 250 meters (820 feet) north of the project area on Iwaena Street.

Louis Berger attempted to revisit the approximate location of Site 105, which would have been just outside the southwest end of the project area (see Figure 43). That vicinity is now the location of a pumping station as well as active facilities of the Department of Transportation and the Sanitation Branch of the Public Health

Plate 5: Field Conditions at Animal Quarantine Station South of Administration Building

Plate 6: Field Conditions at Animal Quarantine Station North of Administration Building

Plate 7: View of Pasture West of H-3 Overpass at Animal Quarantine Station

Plate 8: Approximate Location of Waikahi Heiau, McAllister's Site 105, at AQS Wastewater Facility

Department. This area has been heavily disturbed by the construction of these facilities and the adjacent H-3 freeway (Plate 8).

Interviews conducted by Robert Rechtman as part of the Cultural Impact Assessment for this project indicated that approximately 1,500 World War II burials were thought to have been present on the facility's grounds. Further research by Dr. Rechtman revealed that number to be correct; however, the location of the burials, interred in the aftermath of the Pearl Harbor attack, was just outside the project area to the south and west, and the U.S. Navy disinterred those burials for reburial after the war. Additionally, staff at the facility informed Dr. Rechtman of a concrete pillar stored in the maintenance area that was reportedly moved from the site of a Shinto shrine formerly located on King Street in Honolulu (Plate 9). The pillar's original location and purpose have not been determined.

4.1.2 Halawa Correctional Facility

The Halawa Correctional Facility project area is also located in the Halawa ahupuaa, less than a mile east of the Animal Quarantine Station. Phase I archaeological survey of the South Halawa Valley in advance of the proposed H-3 freeway was conducted in the early 1970s and surveyed a 500-foot-wide strip of land along the lower Halawa Valley floor that cuts across the center of the Halawa Correctional Facility from west to east. No sites were documented in the current project area.

The entire facility sits on approximately 13 hectares (32 acres) of which 8.5 hectares (21.5 acres) are occupied by the present prison facilities. The remaining space in the east portion of the property is open recreation space. The broad open field is approximately 150 meters (492 feet) long, east-west, by 80 meters (262 feet) wide, north-south (Plate 10). The open recreation field is covered with tall grass, approximately 1 to 2 feet high, resulting in very low ground surface visibility, approximately 0 to 10 percent. Several temporary structures have been staged in the west end of the recreation yard, and the ground has been graded level and covered with gravel (Plate 11).

Several push piles were observed at the northeast and southeast corners of the exterior perimeter road (Plate 12). These almost certainly resulted from grading associated with the construction of the perimeter road. A large concrete drainage flue is present outside the perimeter road along the southwest portion of the facility (Plate 13). No new sites were observed during Louis Berger's field reconnaissance, and evidence of disturbances that were documented throughout the entire property suggest that all the open ground was graded and/or filled for the construction of the current facility.

Background research revealed a complex of sites identified approximately 1 kilometer (0.6 mile) east of the Halawa Correctional Facility (see Figure 43), and prison staff also informed the cultural impact survey team of active investigations and maintenance activities at the site of a heiau about 0.8 kilometer (0.5 mile) up the valley along the Hawaiian Electric access road. Louis Berger personnel visited the area and found that the heiau was Site B1-33, SIHP-657, and was indeed being restored by a community group. The site consists of numerous rock alignments, mounds, and walls (Plate 14).

Site B1-33 is far removed from the Halawa Correctional Facility property, approximately 650 meters (0.4 mile) to the north and east, and certainly would not be directly impacted by the proposed project should the Halawa Correctional Facility site be selected for development. No indications of similar sites have been found in previous

Plate 9: Concrete Pillar Reportedly Moved from a Shinto Shrine to Animal Quarantine Station (origin and significance never determined)

Plate 10: Field Conditions in the Recreation Yard at Halawa Correctional Facility

Plate 11: Temporary Structures and Graveled Surface at West End of Recreation Yard, Halawa Correctional Facility

Plate 12: Push Piles Outside the Northeast Corner of the Perimeter Road at Halawa Correctional Facility

Plate 13: Concrete Drainage Flue Along Southern Perimeter of Halawa Correctional Facility

Plate 14: SIHP #50-80-10-657, Northeast of Halawa Correctional Facility

surveys farther down the valley closer to the prison. However, depending on the final design and local topography, the proposed project could potentially be seen from the Site B1-33 and other nearby sites, which could constitute a visual impact on the integrity of the sites. The Halawa Correctional Facility is not currently visible from Site B1-33, largely because of distance, topography, and dense vegetation.

4.1.3 Current Oahu Community Correctional Center

The existing OCCC in Kalihi occupies approximately 6.5 hectares (16 acres) of land in a densely developed urban environment. A jail has been present on the location since the early twentieth century, and the property has been developed and redeveloped over many years. These activities have substantially altered pre-existing topographic conditions, land forms, and soils. No previous archaeological studies have been conducted within the property, although archaeological investigations have taken place connected with several urban development projects on surrounding streets, including sewer rehabilitation and high-capacity transit studies. The area of the 1889 OR&L right-of-way that borders the project area's west edge is now a remnant of the railway and now forms part of the paved and fenced perimeter on that side of the facility (Plate 15).

Most of the outdoor spaces in the secure areas exhibited evidence of landscaping and disturbance, including storm drains, manhole covers, and sprinkler heads. One exception is the small recreation yards west of Annex I and II Buildings 1 and 2 in the southwest corner of the facility. These yards are largely grass-covered, with small areas worn from foot traffic; ground surface visibility ranged between 5 and 20 percent (Plate 16). No indications of artifacts or features were observed on the ground surface in these areas. The ground surface is hard-packed and contains considerable amounts of gravel, suggesting the presence of fill materials.

Portions of the main outdoor recreation area are grass-covered, but the central portion (approximately 50 percent) of the yard is worn to bare dirt (Plate 17). The ground surface is highly compacted, clearly graded to level. Sprinkler heads and sewer manholes were clearly visible and provide further evidence of subsurface disturbance in the area. Fine gravel and pebbles are present across the exposed ground surface and several very small fragments of glass and twentieth-century ironstone/white granite ceramic fragments were also observed, almost certainly originating from contemporary prison refuse.

No new sites were identified during the reconnaissance survey, and as a whole the majority of the current OCCC has been highly impacted by the built environment of the jail.

4.1.4 Mililani Technology Park, Lot 17

The Mililani Technology Park, Lot 17 project area is approximately 21 kilometers (13 miles) northwest of downtown Honolulu in Waikele, just 0.4 kilometer (0.25 mile) east of the H-2 freeway in a largely suburban mixed-use residential and light industrial neighborhood. The project area covers approximately 16 hectares (40 acres), although only about 8 hectares (20 acres) lie on a developable peninsula of level terrace between two deep ravines on the north side of Waikakalaua gulch.

The site was surveyed in the early 1980s, as was much of the surrounding landscape. Several cultural resources have been identified near the project area, although none of the identified resources is located within the current boundaries. Sites located very near the south and east boundaries of the project area at Mililani include hillside terraces and mounds for taro and sweet potato cultivation (SIHP #50-80-09-4812, 50-80-09-4843, and 50-80-09-3401).

Plate 15: View of Location of Former OR&L Railroad Along Southwest Perimeter of OCCC

Plate 16: Field Conditions in Yard Outside Annex II at OCCC

Plate 17: Field Conditions in the Main Recreation Yard at OCCC

The entire project area is undeveloped and was formerly a pineapple field, documented through aerial photography in 1962 (Figure 47), and remained in use as such until as recently as the mid-1980s, when surveyed by Hommon and Ahlo (1983). Louis Berger personnel observed extremely dense vegetation 6 to 7 feet high covering all but the edges of the developable terrace, resulting in no ground surface visibility. Around the northeast edge of the property, near the neighboring warehouse, the ground had been recently cleared and graded, and there were numerous fragments of concrete and black plastic sheeting fragments (Plate 18). The plastic sheeting is a remnant of the pineapple fields, where it was often used to control weed growth.

Given the fruitless nature of attempting to survey through such thick and tall vegetation, Louis Berger personnel walked a circuit around the edge of the landform to view the ground surface as well as profiles along the steeply eroded hillsides on the southeast edge of the landform (Plate 19). No artifacts or evidence of buried soil horizons was observed in this area. Elsewhere around the perimeter of the terrace landform, occasional modern refuse was observed. These objects were clearly of recent origin and included heavily corroded iron machine and appliance parts and small dumps of building materials, including concrete blocks and carpeting (Plate 20). These modern objects were not recorded as archaeological sites.

Near the southern tip of the property, a rough line of basalt boulders was observed in association with a barbed-wire fence with wooden posts (Plate 21). The barbed-wire fence had been noted previously running roughly along the contour of the hillside at the property boundary. GPS positioning with sub-meter accuracy confirmed that a fence post was just inside the mapped property boundary by about 1.5 meters (5 feet) (Figure 48). These boulders and fence are near the north edge of SIHP #50-80-09-4812, about 18 meters (59 feet) north of the multi-feature site of agricultural mounds and terraces (Moore and Kennedy 1994). However, the large stones recorded by Louis Berger do not appear to retain any terraced soils and are not similar to the ahu, or growing mounds, documented at Site 4812. Rather, they appear to be haphazardly arranged, most likely cleared from the pineapple fields above and tossed downhill. The fence and boulders observed by Louis Berger are therefore not considered to be an archaeological site.

4.1.5 Women's Community Correctional Center

The WCCC project area is located in Kailua on approximately 38 hectares (94 acres) of land north of the Kalanianaole Highway and south of Kailua High School. The project area lies within the current grounds of the WCCC and extends along a ridgeline to the east. Roughly half of the project area has been previously surveyed (see Figure 46), although this area occupies the east portion of the property, including a heavily vegetated slope. Louis Berger located previously identified archaeological sites, including a prehistoric lithic scatter (SIHP #50-80-11-6816) and remnants of a historic-period irrigation system (SIHP #50-80-11-4042). Both were recommended as eligible for State and National Registers of Historic Places; however, the locations of these sites are not currently slated for any activities for the current proposed project. Much of the relatively level west portion of the project area where the existing facilities are located has not been previously surveyed and includes a complex of housing structures, administration buildings, and paved parking areas concentrated in the south half of the property along Kalanianaole Highway.

Louis Berger personnel conducted a reconnaissance survey of the entire west half of the facility that had not been previously surveyed. Most of the landscape around and between the present facilities was apparently disturbed by the construction of the four main housing cottages, three of which were built in the 1950s and the fourth in the 1990s. Ground surface visibility was less than 5 percent in most of the maintained grassy areas, although slopes

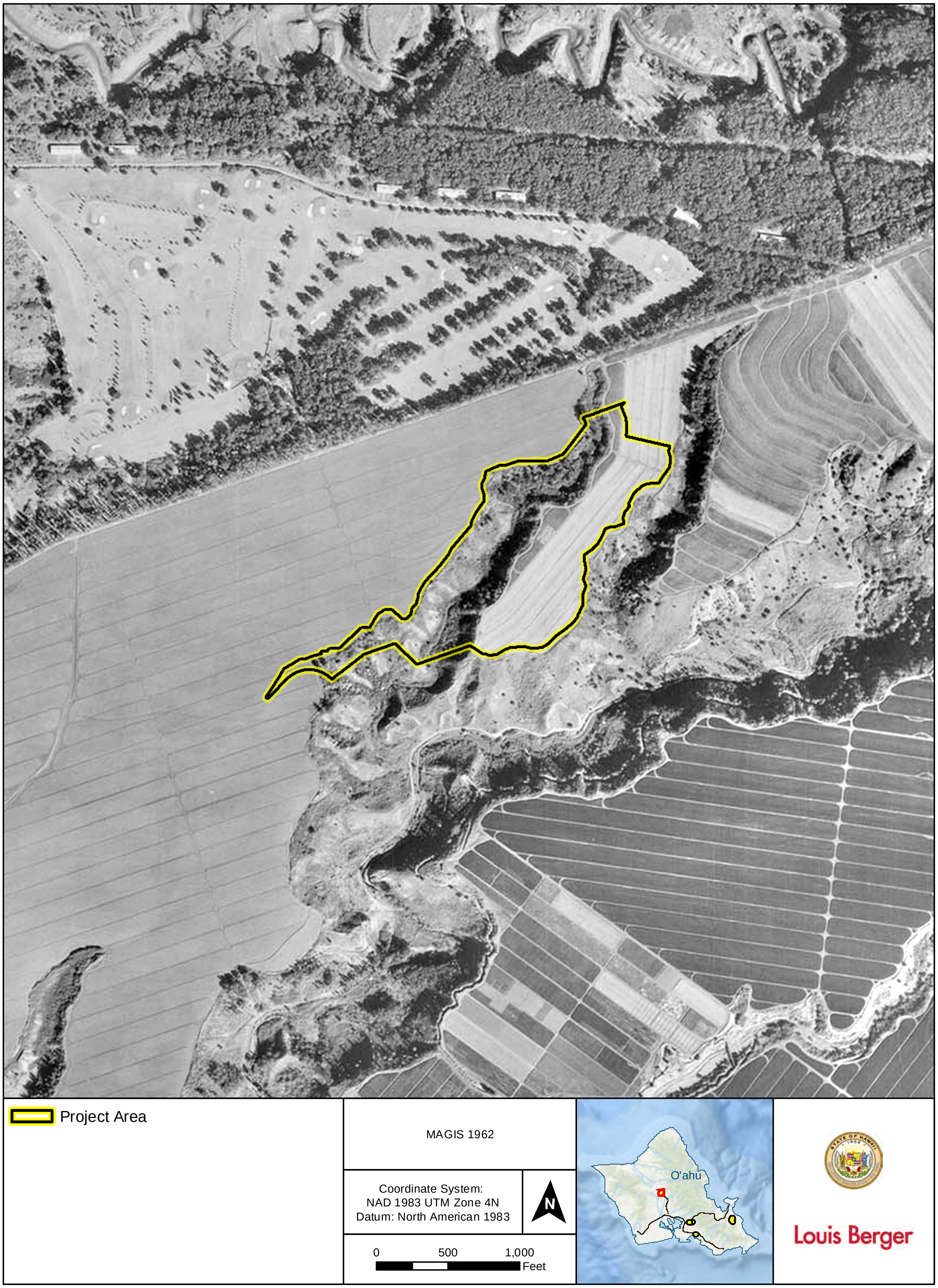


Figure 47: 1962 Aerial Photograph Showing Mililani Technology Park Lot 17 as Pineapple Field

Plate 18: Field Conditions in the Northeast Corner of Mililani Technology Park Lot 17

Plate 19: View of Exposed Southeast Edge of Landform at Mililani Technology Park Lot 17

Plate 20: Modern Refuse Along West Edge of Landform at Mililani Technology Park Lot 17

Plate 21: Basalt Boulders and Fence Post near Southern Tip of Landform at Mililani Technology Park Lot 17

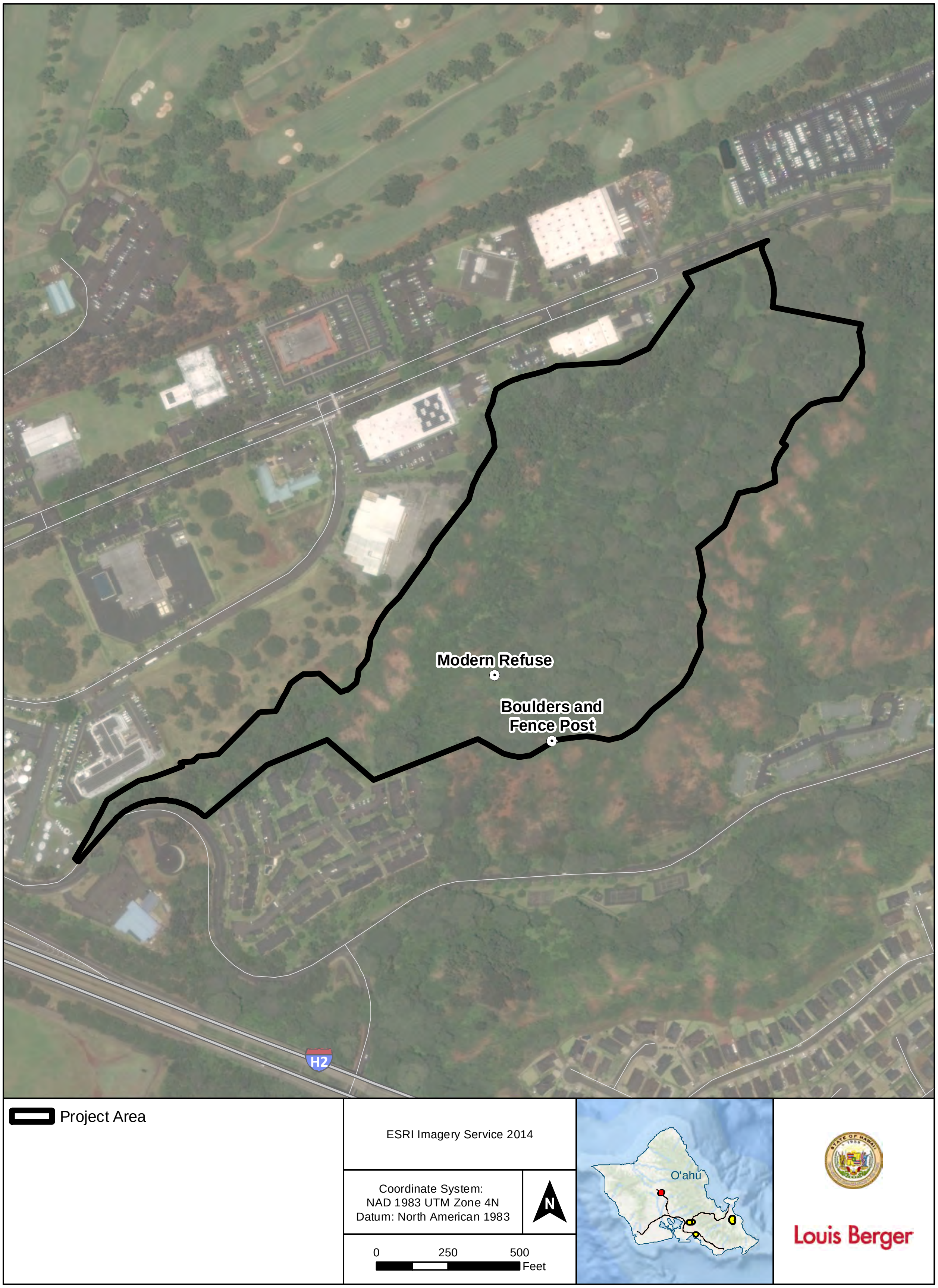


Figure 48: Location of Field Clearing Boulders and Modern Refuse at Mililani Technology Park Lot 17

on the east side of the housing cottages are bare and were visually inspected (Plate 22). These slopes appear to have been cut by the installation of the housing units and surrounding roads as well as subject to erosion. No artifacts or buried soil horizons were observed.

An intermittent drainage runs north to south through the facility between the Olomana and Kaala housing cottages. The drainage is deeply set in a channel in a small valley between the two facilities, and the more gentle west slope has been terraced (Plate 23). The four terraces are still maintained and function as gardens for WCCC inmates. The terraces are visible on aerial photography that dates to 1968 (Figure 49). Galvanized steel spigots and a manhole for a sewer line the bottom of the terraces along a lane lined with mango trees. A more recent road leads down the slope from the Olomana cottage through the terraces and connects to the mango-lined track that leads north to the greenhouse and garden shed (Plate 24). The terraces and mango-lined lane likely date to the historical beginnings of the site as the Koolau Boys Home in the 1950s.

Ground surface visibility was generally poor in the open spaces along the west and northwest portions of the project area, varying from 10 to 15 percent in maintained yards to 0 percent in higher grass and wooded areas (Plate 25). Although already identified by Morawski and Monahan (2009) and noted as not historic, Louis Berger personnel revisited the site of ruined stable structures near the northeast corner of the property to confirm their presence and recent age. The wood structures remain in a ruined state (Plate 26) but appear to date no earlier than perhaps the 1970s and may have remained in use for a short time, perhaps only until the 1990s. These structures therefore do not constitute an archaeological site.

No new archaeological sites were identified during the reconnaissance survey of the WCCC facility. A small concrete foundation (Plate 27), likely for a water control feature or gauge, was observed immediately west of a marshy area at the north edge of the WCCC project area (Figure 50). This feature is not likely associated with SIHP #50-80-11-4042, the Waimanalo irrigation system that has been recommended as eligible for the National Register (Hammatt et al. 1999; Morawski and Monahan 2009). The irrigation system north of the pumping feature identified by Morawski and Monahan is composed of underground tunnels, including Tunnel 10 (Hammatt et al. 1999) and pipes farther east (see Figures 39-42) The feature identified by Louis Berger is therefore most likely an abandoned water control feature related to the drainage running through the WCCC facility and does not likely pre-date the construction of the Koolau Boys Home in the 1950s. The feature is not considered a portion of SIHP #50-80-11-4042.

4.2 Architectural Inventory

4.2.1 Animal Quarantine Station

Hawaii is the only state that is rabies-free, and since 1912 there has been an active program to prevent the introduction of rabies into the state. The program began as a 120-day quarantine of animals brought to the state and was shortened to 30-day quarantine in 1997. In 2003 the 30-day program was abolished and a Five-Day-or-Less program was instituted. In the 1960s the state of Hawaii developed a new animal quarantine facility, which continues in use today.

The earliest plan drawings for the Animal Quarantine Station site date to 1965 and show a proposed layout for kennels and associated facilities. It is unclear if this plan was ever used, as multiple later plans (1967 and 1968) seem to have been constructed instead. The 1967 and 1968 plans call for the construction of kennels in the

Plate 22: Field Conditions East of Maunawili Cottage at WCCC

Plate 23: View of Terraces East of Olomana Cottage at WCCC

Figure 49: 1968 Aerial Photograph Showing Terraces in WCCC Project Area

Plate 24: View of Mango-lined Track (left) Leading from Terraces to Garden Sheds at WCCC

Plate 25: Field Conditions in Northwest Portion of WCCC Project Area

Plate 26: Ruined Stable Structures in Northeast Corner of WCCC Project Area

Plate 27: Concrete Block Feature at WCCC

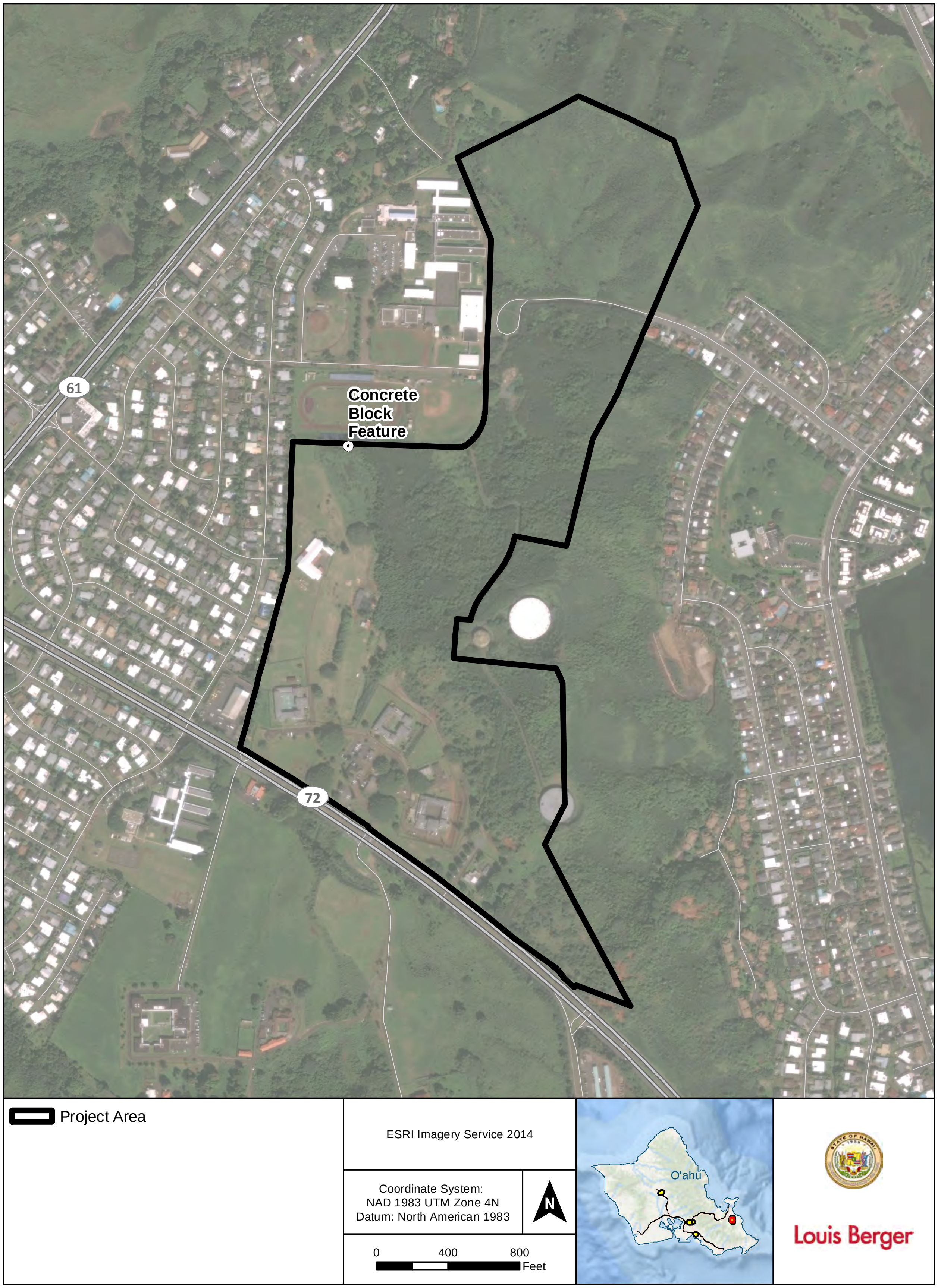


Figure 50: Location of Concrete Block Feature Observed at WCCC

central part of the parcel in an area that is now mostly underneath the John A. Burns Freeway (H-3). Support facilities were planned for the south end of the kennels and north of what is now the main road through the facility. The 1968 plans indicate that some existing kennels were present in the area that is now the livestock facilities and pastures. It is unclear from the 1960s plans what exactly was constructed, but it is clear that kennels were present in the north part of the parcel along Halawa Valley Street.

In 1975 plans for a new laboratory office building with testing buildings and a necropsy lab were drafted. The laboratory and necropsy facilities were constructed shortly after and remain in use. The areas proposed for other facilities in the 1975 plans were instead used as parking for the office and necropsy buildings. Additional laboratory and testing buildings were constructed north of the office building in the 1980s and 1990s. A large animal facility and pasture were in place east of the H-3 by 2004.

Over time the early kennels were removed and/or relocated as the west part of the parcel (west of the H-3) was developed into the current configuration of kennels. The relocation of some of these facilities apparently began in 1969. In the late 1990s additional kennels were added to the east part of the parcel, north of the main road through the facility and at the far east end of the parcel. It is likely that the Animal Quarantine Station Office and Maintenance buildings were constructed during the 1990s as part of one of these expansion phases. By 2004 the current configuration of kennels and buildings were in place. The current layout includes a series of kennels north of the Animal Quarantine Station Office building that are currently inactive, kennels located immediately east of the H-3 that are used by the U.S. Army Garrison Hawaii under an agreement with the Hawaii Department of Agriculture, and kennels located south of the main road that are used by the USDA and U.S. Customs under similar government agreements (Figure 51).

The current Animal Quarantine Station consists of an extensive complex of kennels for dogs and cats (Table 15). There are two types of dog kennels. Individual kennels consist of a chain-link enclosure with a corrugated metal structure at one end to provide shelter, both of which are topped with corrugated sheet metal (Style 1; Plate 28). This type of kennel is present in a variety of sizes, likely to fit different sizes of dogs. The second type is a long, corrugated-metal shed with multiple chain-link enclosures extending from one side (Style 2; Plate 29). The shed is covered with corrugated-metal roofing, and the chain-link enclosure is secured on the top by additional chain link. Both kennel types are erected on a concrete slab. The cat kennels are corrugated metal buildings constructed on a taller concrete foundation, with smaller pens on the outside for the animals (Plate 30).

Two buildings are located in the east half of the facility, the Animal Quarantine Station Office building (Plates 31 and 32) and the Maintenance Building. The maintenance bay is a combination of sheds and bays (Plate 33). Within the Maintenance Building is the concrete pillar formerly located on King Street (see Plate 9; Plate 34).

An Animal Industry Administration office and Veterinary Laboratory building (the Kanahoahoa Building), additional laboratory and testing facilities, a necropsy building, and livestock pens and pasture are located west of the H-3 (Plates 35-37).

The Animal Quarantine Station is located in a moderately developed area within Honolulu. To the east and west of the facility are industrial areas characterized by large warehouses and manufacturing with some commercial use. Beyond these to the east there are residential neighborhoods. To the west of the industrial area is the Halawa Correctional Facility. The area immediately south of the facility is a drainage that remains largely undeveloped, and to the north is a quarry.

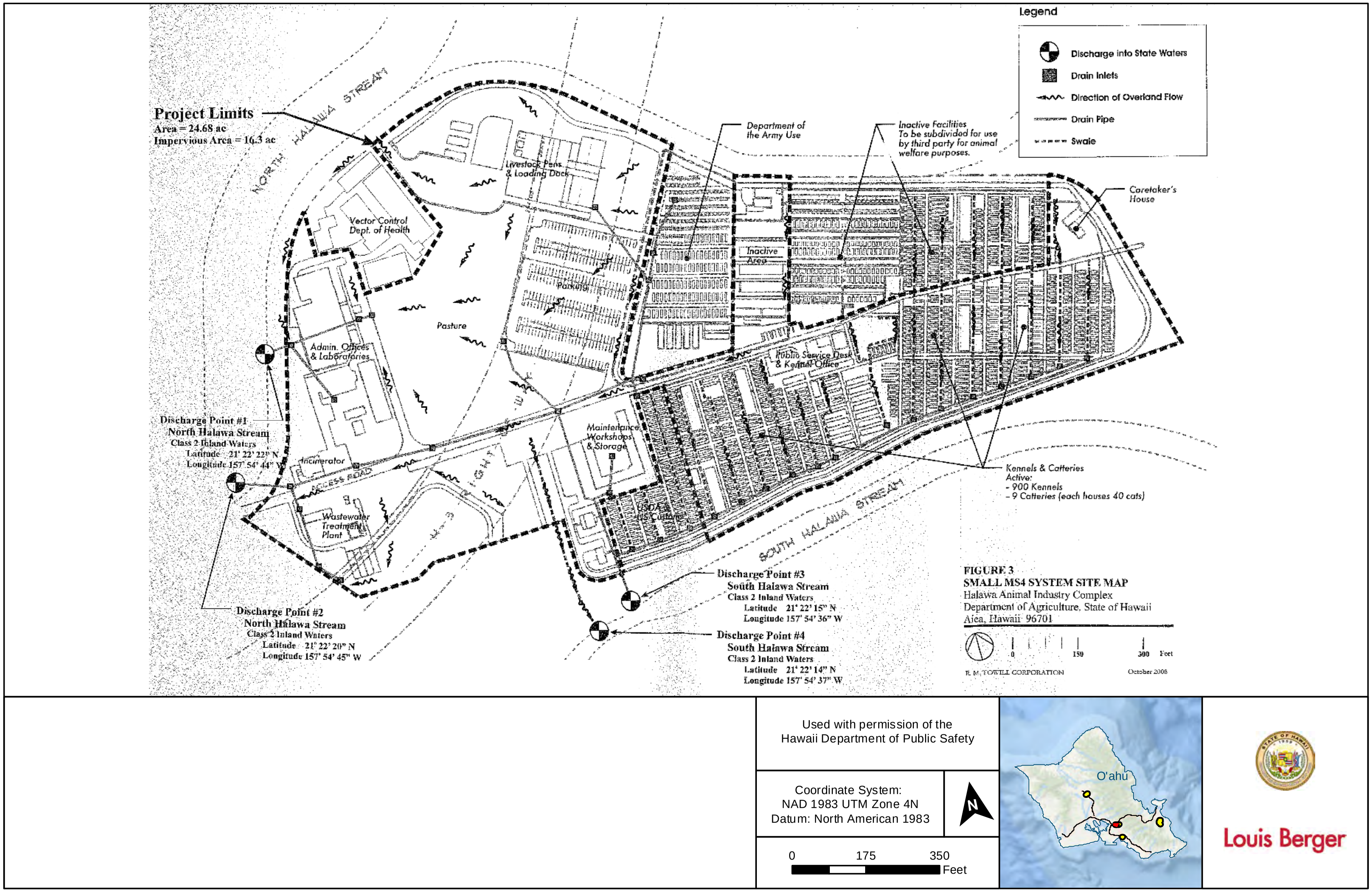


Figure 51: Plan Map of the Current Animal Quarantine Station

Table 15: Animal Quarantine Station Structures

Building Name	Year	Architect	Description
Animal Quarantine Station Office and Kennel Office	circa 1995	Unknown	1-story irregularly shaped concrete structure with hipped roof
Maintenance Workshops and Storage	circa 1995	Unknown	U-shaped concrete block sheds and work bays with corrugated metal siding and roofing
Laboratory Office Building	circa 1975	Stone, Marraccini and Paterson	1-story concrete and wood structure with flat-topped mansard roof with shingles.
Laboratory and Testing Buildings	1990-2005	Unknown	6 modern buildings of various sizes, constructed of concrete with metal gabled roofs
Necropsy/Incinerator	circa 1975	Stone, Marraccini and Paterson	1-story industrial concrete structure with a flat roof and single-pane windows located high on the west and east faces
Livestock Pens and Loading Dock	Unknown	Unknown	There are 9 sheds, consisting of a fenced area (of various dimensions) with a corrugated metal roof. These sheds are located to the north of a pasture area.
Kennels, Style 1	1970-2000S	Unknown	Chain-link enclosure with a wood or corrugated-metal structure at one end that serves as a shelter. Both shelter and chain-link enclosure are covered with corrugated-metal roofing. There are hundreds of these kennels of varying sizes.
Kennels, Style 2	1970s-2000s	Unknown	Long corrugated-metal shed with chain–link enclosures extending from the open side of the shed, covered with a corrugated metal roofing. There are 7 of this style in use and another 5 that appear inactive.
Cat Kennels	1970s-2000s	Unknown	Corrugated metal building on a concrete foundation with small external pens on both sides. There are approximately 12.
Inactive Kennels	1970-2000s	Unknown	Many of these appear similar to the Style 1 kennels but some are different. The vegetation coverage makes it difficult to determine their exact construction.

Plate 28: Standard Kennel, Style 1, Animal Quarantine Station

Plate 29: Standard Kennel, Style 2, Animal Quarantine Station

Plate 30: Cat Kennels, Animal Quarantine Station

Plate 31: Public Service Desk Building, Animal Quarantine Station, Facing North

Plate 32: Public Service Desk Building, Animal Quarantine Station, Facing East

Plate 33: Maintenance Building

Plate 34: Concrete Crossroad Marker or Shrine (origin and significance unknown)

Plate 35: Animal Industry Administration Office and Veterinary Laboratory Building, Animal Quarantine Station

Plate 36: Necropsy Building, Animal Quarantine Station

Plate 37: Department of Health, Sanitation and Vector Control Branches and Administration Office Buildings (DOH property)

The vast majority of the buildings at this facility are of modern construction. It is possible that some of the kennels, particularly in the area that is now inactive, date to earlier periods of use of the facility. Given the history of Hawaii as a rabies-free state and the efforts to maintain that status, additional research on this facility is recommended to place the facilities within the appropriate historical context.

4.2.2 Halawa Correctional Facility

The Halawa Correctional Facility is composed of two units, the Special Needs Facility and the Medium Security Facility (Table 16). The Special Needs Facility was constructed in 1962 and transferred to the state of Hawaii in 1977 (Plate 38). The facility was renovated by Wong, Sueda, & Associated in 1976. The Medium Security Facility was constructed in 1987 and is the largest and most recent prison facility in the state (Plates 39 and 40). Two outbuildings are associated with this facility: one appears to be related to water or other utilities and the other is an abandoned maintenance building (Plates 41 and 42).

Table 16: Halawa Correctional Facility Structures

Building Name	Year	Architect	Description
Special Needs Facility	1962	Wong, Sueda & Associates	3 stories, Concrete and stucco with projecting eaves and metal fascia; paired windows with dark spandrels on upper two floors
Medium Security Facility	1987	Architects Hawaii, Ltd. with Integrus Architects	4 stories, Brutalist-style concrete-frame structures with recessed window openings; pitched and flat roofs.

The Halawa Correctional Facility (including the Special Needs Facility) is in the west end of Halawa Valley. To the west is an industrial area consisting of warehouses and manufacturing facilities with the occasional commercial use, and to the north is a large rock quarry. The areas to the east and south are mountainous and remain largely undeveloped.

The Halawa Medium Security Facility is of recent construction and is a typical style for a corrections facility. The Special Needs Facility is older but has been renovated and is of a common design. Given the age and style of these buildings, no additional architectural work is recommended at this location.

4.2.3 Current Oahu Community Correctional Center

The OCCC site is currently intensely developed with inmate house, administration and program support buildings, maintenance buildings, and storage and utilities structures (Figure 52 and Table 17). There is little history on the development of the location; however, the growth and expansion of the facility is evidenced in the architecture of the buildings. The Holding Unit (or High Custody Housing; OCCC-10; Plates 43 and 44) was constructed around 1912 as a minimalist three-story white concrete structure. The interior of the building remains largely similar to the original construction, and its age is evidenced by a still functioning Otis elevator that dates to the time of construction.

Plate 38: Special Needs Facility, Halawa

Plate 39: Medium Security Facility, Near Administration, Halawa

Plate 40: Medium Security Facility Cell Block, Halawa

Plate 41: Utility Building, Halawa

Plate 42: Abandoned Maintenance Shed, Halawa

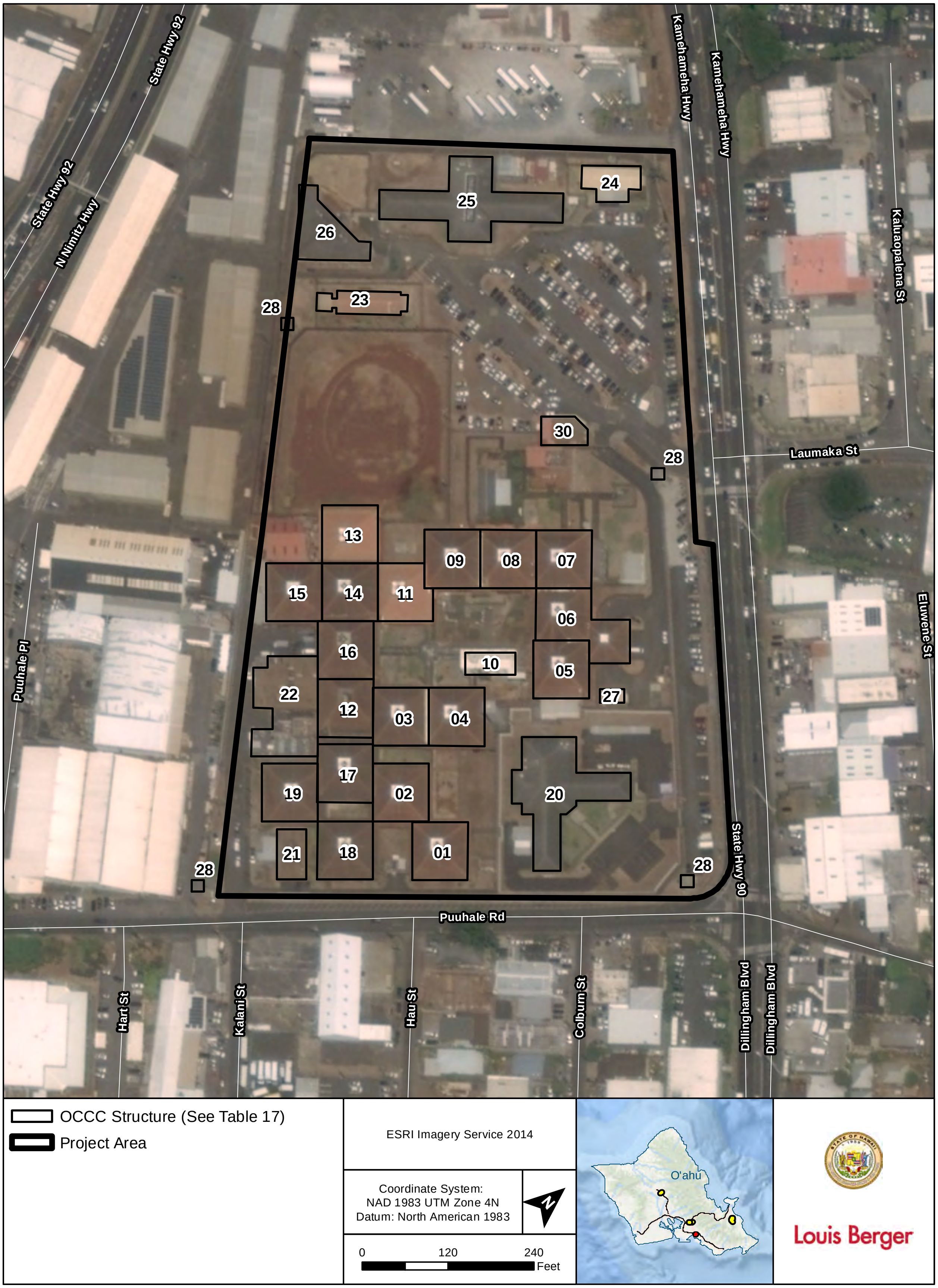


Figure 52: Map of Buildings at OCCC

Table 17: OCCC Structures

Building Number	Building Name	Purpose	Year	Architect	Description
OCCC-01	Modules 1–4	Housing	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-05	Module 5: Support Services	Administration and Support	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-06	Module 6: Support Services	Administration and support	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-07	Module 7: Support Service	Administration and support	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-08	Module 8: Support Services	Administration and support	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-09	Module 9: Visiting	Visiting	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-10	Holding Unit	High custody housing	1912	Anbe, Aruge, & Ishizu Architects	Utilitarian concrete with a false mansard roof
OCCC-11	Modules 11 & 13	Housing	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-12	Module 12	Food service and dining	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-14	Module 14	Housing	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-15	Modules 15, 18, & 19	Housing	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-16	Module 16	Food service	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs
OCCC-17	Module 17	Housing	1979	Anbe, Aruge, & Ishizu Architects	Hawaiian Modern with swooping roofs

Table 17 (continued)

Building Number	Building Name	Purpose	Year	Architect	Description
OCCC-20	Interim Building	Housing	circa 1990s	Unknown	Vernacular style, wood construction(?), hipped roof
OCCC-21	Laundry	Laundry	Unknown	Unknown	Not documented
OCCC-22	Kitchen and Mechanical Equipment Areas	Kitchen storage and mechanical	1979	–	Hawaiian Modern with swooping roofs
OCCC-23	Makai Dorm	Housing	circa 1950s	Unknown	Mid-century, modular building – possibly a mass produced design
OCCC-24	Mauka Dorm	Housing	circa 1950s	Unknown	Mid-century, modular building – possibly a mass produced design
OCCC-25	Annex I	Housing	circa 1980s	Unknown	Hipped roofs with concrete/stucco walls
OCCC-26	Annex II	Housing	circa 1980s	Unknown	Hipped roofs with concrete/stucco walls
OCCC-27	Spray Paint Booth and Generator Enclosures	Spray paint	Unknown	Unknown	Not documented
OCCC-28	Guard Towers 1–4	Security	Unknown	Unknown	Brutalist concrete

Plate 43: Higher Security Holding Unit, Northeast Face, OCCC

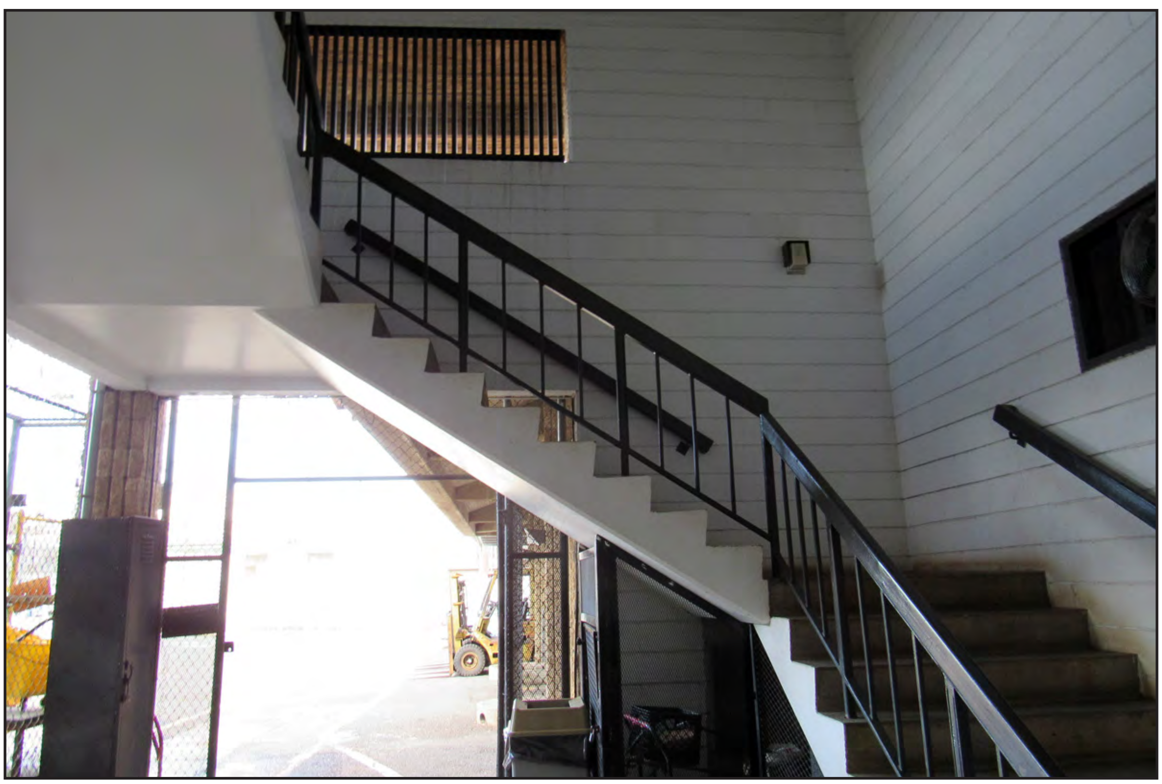


Plate 44: Higher Security Holding Unit, Northwest Face, OCCC

The facility has been expanded since then in the late 1970s and early 1980s. The Modules were added at that time, and plans dated 1979 indicate that they were arranged to allow the addition of more Modules in the future, although this never happened (Plates 45 and 46). Annex I and II were constructed sometime after the Modules (Plates 47 and 48). The most recent addition to the facility appears to be the Interim Housing Building (OCCC-20; Plate 49). There are also two mid-century modular buildings at the facility, the Makai and Mauka Dorms (Plates 50 and 51). Although these buildings may date to the mid-twentieth century, it is unclear when they were added to the facility and/or if they have been moved within the facility over time. Four concrete guard towers are located at the corners of the facility, and one taller, concrete tower is located more centrally near the Modules (Plate 52). Various storage facilities, most temporary, can be found in association with the housing units and support facilities.

The OCCC site is located in a highly developed urban environment. It is surrounded on all sides by industrial and manufacturing facilities with some commercial use. Two heavily traveled four-lane roads run near the facility, one immediately north of the property and one a block south.

The OCCC is an eclectic mix with structures dating from 1912 to 1979. Much of the layout and many of the buildings are utilitarian and were sited in available space rather than following careful planning. The latest designed grouping of buildings appears intended to resemble a Hawaiian village with steep-pitched hipped roofs and arrangements around courtyards. Given the age of some of the buildings, additional research on the architectural history of this facility is recommended to determine its eligibility for the National Register of Historic Places.

4.2.4 Mililani Technology Park, Lot 17

The Mililani Technology Park, Lot 17 site is undeveloped, and a visual inspection of the area indicated that there are no architectural resources within the parcel. An industrial and business area and a golf course are located north of the parcel. The area immediately south of the parcel is mostly multi-family residences and beyond that area single-family homes. The area west of the parcel is largely undeveloped. As there are no architectural resources within this parcel, no additional research is recommended.

4.2.5 Women's Community Correctional Center

The WCCC is the only all-female facility in Hawaii and serves as the primary facility for sentenced felons that do not require high security. The facility is located on the site of the former Hawaii Youth Correctional Facility (also called the Koolau Boy's Home), constructed in 1952, and three of the original housing buildings from that facility remain in use (Kaala, Maunawili, and Olomana Cottages). Minor renovations were made to these facilities between 1992 and 1994, and additional housing structures (Hookipa cottage and Ahiki dormitory) was constructed in 1999.

The WCCC includes four cottages, three of which were originally part of the Hawaii Youth Correctional Facility, that serve as housing and support services (Plates 55-57). Four of these buildings (Kaala, Maunawili, Olomana, and Ahiki) are arranged in a semi-circular fashion around the Administration Building and a pavilion, armory, and guard building that now serves as a gate house. Hookipa Cottage is located a short distance to the southeast behind the Maunawili Cottage (Plate 58). A two-part modular building was added in front of the Ahiki Dormitory and serves as a building for various educational programs (Plate 59). The inmates have used a gully between the Kaala Cottage and the Olomana cottage as a garden. North of the main facility is an older warehouse and greenhouse that are still used but in disrepair (Plates 60 and 61).

Plate 45: Modules 7-9 with Exterior Patio, OCCC

Plate 46: Modules 11, 12, and 16 from Interior Patio, OCCC

Plate 47: Annex I, OCCC

Plate 48: Annex II, OCCC

Plate 49: Interim Housing Building, OCCC

Plate 50: Makai Dorm, OCCC

Plate 51: Mauka Dorm, OCCC

Plate 52: Northwest Corner Guard Tower, OCCC

Plate 53: Overview of the Mililani Park Location

Plate 54: Multi-Family Residences South of Mililani

Plate 55: Kaala Cottage, WCCC

Plate 56: Maunawili Cottage, WCCC

Plate 57: Olamana Cottage, WCCC

Plate 58: Hookipa Cottage, WCCC

Plate 59: Educational Portals, WCCC

Plate 60: Warehouse, WCCC

Plate 61: Greenhouse, WCCC

The three earliest cottages are Modernist in style with flat roofs, external stairs, and windows on the second story. The Modernist style is evident in other structures that were added to the facility more recently, such as the Administration Building (Plate 62). These buildings are constructed of concrete with steel doors and window casings and flat tar roofs. The exceptions to the Modernist style are the modern manufactured buildings (Hookipa Cottage and the Educational Portals) and the Hookipa auxiliary building with its hipped roof, which is commonly found in this area.

WCCC structures are listed in Table 18.

Table 18: WCCC Structures

Building Name	Year	Architect	Description
Kaala Cottage	1952	C.W. Dickey Associates	2-story, Modernist style with flat roofs and open stairs (concrete)
Maunawili Cottage	1952	C.W. Dickey Associates	2-story, Modernist style with flat roofs and open stairs (concrete)
Olomana Cottage	1952	C.W. Dickey Associates	Modernist style with deep roof overhangs (concrete)
Hookipa Cottage	1999	Unknown	Modern manufactured/portable housing
Ahiki Dormitory	1999	Unknown	1-story L-shaped gable-roofed
Administration Building	circa 1990s	Unknown	Modernist style with flat roof
Armory	Unknown	Unknown	Not documented
Guard Building	Unknown	Unknown	Not documented
Pavilion	Unknown	Unknown	Vernacular open-air flat-roofed shelter
Educational Portal 1 & 2	circa 2000	Unknown	Modern portable classroom
Greenhouse	circa 1970s	Unknown	Gable-roofed vernacular structure
Warehouse	circa 1970s	Unknown	Gable-roofed building in poor condition

The WCCC is located in a largely undeveloped area of Maunawili. To the east is a single-family residential neighborhood. To the north and west is the town of Kailua, the outskirts of which are mostly single-family residences. Kailua High School is located north of the facility and the Maunawili Elementary School to the south.

There of the cottages are associated with the work of the firm of Charles W. Dickey and may have come from another prison. Dickey was a well-known architect who has been credited with developing a regional architectural style that incorporated elements of traditional architecture into modern buildings. The firm’s structures at WCCC represent the work of the second generation of architects in the firm, such as Vladimir Ossipoff, who were decidedly Modernists. The one exception is the Hookipa cottage auxiliary building, which has a hipped roof that is reminiscent of Dickey’s personal style (Plate 63). The other buildings examined are portable/ manufactured housing or modern vernacular structures. As some of these buildings may be associated with Charles W. Dickey, additional research is recommended on the historic context of the facility and to determine the eligibility of the structures for the National Register of Historic Places.

Plate 62: Administrative Building, WCCC

Plate 63: Hookipa Cottage Auxiliary Building, WCCC

5.0 CONCLUSIONS AND RECOMMENDATIONS

On behalf of the Hawaii PSD, Louis Berger completed archaeological and architectural surveys for the OCCC replacement project on Oahu. Four sites have been identified as potential locations for the proposed new OCCC: the Animal Quarantine Station site; the Halawa Correctional Facility site; the current OCCC site; and the Mililani Technology Park, Lot 17 site. The project also involves upgrades and expansions to the housing and supporting infrastructure at the WCCC in Kailua to accommodate the relocation of female inmates from the OCCC to that facility, and therefore the WCCC is also the subject of study. The APE for each site is currently not fully delineated, and therefore the surveys examined the largest possible extent of project-related impacts in each project area. The review included background environmental and historical research, review of previous archaeological surveys and sites, architectural inventory survey, an archaeological pedestrian reconnaissance, and recommendations for further work for each of five sites associated with the proposed OCCC development.

Table 19 at the end of this section summarizes recommendations for each alternative site.

5.1 Animal Quarantine Station

The Animal Quarantine Station site is located in Halawa Ahupuaa, Ewa District on 16 hectares (39.5 acres) of land bisected by the H-3, bordered by industrial developments and the Halawa Correctional Facility to the east, the Red Hill Naval Reservation to the south, and the Hawaiian Cement Co. and Halawa Quarry to the north. The soils present in the project area are suggestive of heavily disturbed contexts, consisting of mixed fills and quarry deposits. The built environment consists of modern buildings associated with the Animal Quarantine Station. Historical land use includes predominantly agricultural terracing and modern quarrying activities.

The review of previous surveys in the area indicates that cultural resource potential is moderate. No archaeological field survey has been conducted within the proposed project boundaries. The landscape appears to be significantly disturbed by historic-era agriculture and other landscape alterations. Two ancient sacred heiau sites, Waikahi Heiau (Site 105) and Waipao Heiau (Site 106), were identified in the 1930s just outside the Animal Quarantine Station. These sites were not located in the project area; they were noted as highly disturbed by agricultural activities even at the time of their discovery, and subsequent recent development, quarrying, and the H-3 freeway suggest that the sites are now largely destroyed.

Inspection of the ground surface in the open areas of the Animal Quarantine Station did not result in the identification of any new archaeological sites. Ground surface visibility in the small patches of grass between the kennels and pens varied between 40 to 50 percent in the active south portion of the facility and 0 to 15 percent in the north portion that is no longer used. The construction of the H-3 overpass through the center of the facility also appears to have resulted in the grading and disturbance of most of a large pasture, which constitutes the only appreciable area of open ground without structures to inhibit systematic subsurface archaeological survey.

Given the absence of recorded sites and the low potential for surviving subsurface remains, Louis Berger recommends no further survey if the Animal Quarantine Station is selected as the site for the OCCC facility. However, the larger area of the lower Halawa Valley is culturally significant, containing numerous archaeological sites, and the possibility exists for unanticipated cultural remains to be discovered. This could even include human remains from the nearby World War II temporary cemetery as it is possible that not all the remains were removed by the Navy following the war. Therefore Louis Berger recommends archaeological monitoring during construction if the site is selected and the formulation of an unanticipated discovery plan that includes procedures should human remains be encountered.

5.2 Halawa Correctional Facility

The Halawa Correctional Facility site is located in the Halawa Ahupuaa, Ewa District on 14 hectares (35 acres) of land. The site is situated in a valley between two branches of the South Halawa Stream, and the area is dominated by ridge and valley topography, although it appears to be heavily disturbed as a result of the surrounding built environment and quarrying activities. The soils in the project area include Kawaihapai, Kokokahi, and Kaena soil series with additional areas of rock land in areas disturbed by the neighboring quarry activity. The rock land covers the north section of the proposed project area, bordering the modern quarry activity. Historical land use includes predominantly agriculture and modern quarrying activities.

Intensive survey efforts have taken place over the last 40 years, mainly focused on the upland ridges south and east of the facility. Phase I archaeological survey of the South Halawa Valley in advance of the proposed H-3 freeway was conducted in the early 1970s and surveyed a 500-foot-wide strip of land along the lower Halawa valley floor that cuts across the center of the Halawa Correctional Facility from west to east. No sites were documented in the current project area; however, numerous sites, including stone terraces, house platforms, house structures, caves, agricultural clearings, walls, mounds, historic structures, and water control features, were identified in the vicinity. A recent survey by Hammatt et al. (2013) records that the majority of the sites were identified east of the quarry over 0.6 kilometer (0.4 mile) east of the Halawa Correctional Facility. These previous surveys indicate that cultural resource potential is high, especially around the east edge of the Halawa Correctional Facility.

Louis Berger observed no new sites during field reconnaissance, and documented evidence of disturbances throughout the entire property, suggesting that all the open ground was graded and/or filled for the construction of the current facility. Louis Berger personnel visited the area of a heiau, Site B1-33 (SIHP 50-80-10-657), approximately 650 meters (0.4 mile) north and east of the Halawa Correctional Facility. Although the site would not be directly impacted by the proposed project should the Halawa location be selected, the proposed project could potentially be seen from Site SIHP-50-80-10-657 and other nearby sites, which could constitute a visual impact on the integrity of the sites. No indications of similar sites have been found in previous surveys farther down the valley toward the prison.

Given the disturbed nature of the ground observed in and around the recreation yard, further systematic or subsurface testing is not likely to recover any additional information. Should the Halawa Correctional Facility be selected, Louis Berger recommends archaeological monitoring during construction and a more detailed assessment of the potential visual impacts of the project design on the complex of sites around Site SIHP 50-80-10-657.

5.3 Current Oahu Community Correctional Center

The OCCC site is located in the Kalihi Ahupuaa, Kona District on approximately 6.5 hectares (16 acres) of land. The project area is situated along the coastal plain and appears to be heavily disturbed as a result of the surrounding urban built environment. The soils in the project area include predominantly Ewa series with additional areas of Fill, mixed land. These fill areas are located closer to the lagoon, where the historic-era fishponds have experienced infilling. Approximately 20 percent of the project area is covered by these fill deposits. The built environment in the project area is entirely associated with the structures, parking lots, and small yards and lawns of the current OCCC operational facility.

Approximately 30 archaeological studies have been conducted within 1.6 kilometers (1 mile) of the project area; however, no archaeology survey has taken place within the bounds of the facility. Despite the extensive survey and documentation in the area surrounding the current OCCC site, few significant cultural resources have been identified. Many of the resources that have been identified are located farther inland, away from the project area. Two sites of interest for the OCCC project area are Site 50-80-14-07425, a pre-contact subsurface fire feature identified during an archaeological inventory survey completed for the Honolulu High-capacity Transit Corridor project, and Site 50-80-12-09714, a remnant of the 1889 OR&L right-of-way that borders the west edge of the jail. The Special Housing Unit structure at OCCC dates to 1916, although the intensive and recurring development of the grounds suggests that there is low potential for archaeological materials associated with earliest structures and occupation of the site as a jail during the first quarter of the twentieth century. The potential for other archaeological resources in the OCCC project area is low given the extremely dense nature of the OCCC's built environment.

No new sites were identified during the reconnaissance survey, and as a whole the majority of the current OCCC facility is highly impacted by the built environment of the jail. The majority of the property is covered by housing modules, administration buildings, and paved parking areas. Several small grass lawns are interspersed with the structures. The recreation yard, located in the southwest quarter of the facility, is the only sizable open outdoor space remaining, and it has been disturbed by underground utilities and sprinkler lines. Given the extensive coverage of structures and disturbances across the facility, systematic or subsurface testing is not likely recover any additional information. Should the existing OCCC facility be selected for the proposed project, Louis Berger recommends archaeological monitoring during construction.

5.4 Mililani Technology Park, Lot 17

The Mililani Technology Park, Lot 17 site is located in the Waikele Ahupuaa, Ewa District on approximately 16 hectares (40 acres) of undisturbed land, of which only an area of 7.7 hectares (19 acres) is suitable for OCCC development. The ridge spur landform that the site occupies is bordered by the Waikakalaua and Kipapa gulches, in an area surrounded by a built environment featuring a technology park, religious centers, and suburban housing. Soils in the project area belong entirely to the Leilehua soil series. Historical land uses include primarily pre-contact settlement and taro farming; post-contact the area had been widely used for sugar and pineapple plantations.

The area surrounding the Mililani Technology Park Lot 17 site has been extensively surveyed and documented, indicating that Mililani and the central Oahu area in general were used by native Hawaiians and post-contact populations for habitation, religious, and agricultural purposes. The site was surveyed in the early 1980s, as was much of the surrounding landscape. Several cultural resources have been identified near the proposed project area, although none of the identified resources is located within the current boundaries. Sites located very near the south and east boundaries of the project area at Mililani include terraces and mounds for taro and sweet potato cultivation (SIHP #50-80-09-4812, #50-80-09-4843, and #50-80-09-3401). Despite the proximity of these sites, post-contact farming on the ridge top has likely serious disturbed any archaeological resources in the project area. The potential for intact archaeological resources is low.

Louis Berger's background research confirmed that the entire developable landform of the project area was a pineapple field in the mid-twentieth century. The field reconnaissance found no artifacts or evidence of buried soil horizons around the perimeter of the landform, although field conditions severely limited physical access and ground visibility across the center of the peninsula. Given the low potential for intact archaeological deposits, systematic or subsurface testing is not likely to recover any additional information. Louis Berger recommends archaeological monitoring during construction should the Mililani Technology Park, Lot 17 site be selected for the proposed project. Furthermore, given the presence of SIHP #50-80-09-4812, #50-80-09-4843, and #50-80-09-3401 on slopes immediately below the project area, Louis Berger also recommends that best practices, such as erosion control, be implemented during construction.

5.5 Women's Community Correctional Center

The WCCC site project area is located in the Kailua Ahupuaa, Koolaupoko District on 38 hectares (94 acres) of land north of the Kalanianaole Highway and south of Kailua High School. The project area is situated within the current grounds of WCCC and extends along a ridge line to the west, encompassing the adjacent water storage tanks and access road. Soils in the project area include the Alaeloa, Hanalei, Pohakupu, and Papaa series. Since many of these soils in the project area are considered unsuitable for farmland, historical land use was primarily focused on ranching, with some areas used for agriculture. Part of the built environment includes a small section of the inoperative tunnels, pump houses, and ditches for the historic (ca. 1923) Waimanalo Irrigation System (SIHP #50-80-15-4042).

Approximately 50 percent of the WCCC project area has been previously surveyed, and five cultural resource properties are present within the project area's proposed boundaries. Survey conducted in 2009 for the proposed new access road to Kailua High School identified two sites: Site 50-80-11-6816, a pre-contact lithic scatter/ridge camp located on the ground surface along the southeast portion of the project area; and Site 50-80-11-6817, a historic water-flow structure associated with the larger Waimanalo Ditch System complex (Site 50-80-15-4042), located in the north half of the project area. Potential for subsurface deposits was determined low because of intense agricultural activity in the area; however, the number of surface features identified in previous surveys suggests that potential is moderate for sites in the west portions of the project area that have not yet been surveyed.

Louis Berger's reconnaissance of the entire west half of the facility found that ground surface visibility varied between 0 and 15 percent across most of the project area. No artifacts or buried soil horizons were observed; however, a small concrete housing for a gauge or gate was identified in the north portion of the project area. This feature does not appear to be associated with the Waimanalo Ditch System complex (SIHP #50-80-15-4042), but rather the small intermittent drainage that runs through the WCCC grounds. Active garden terraces were documented that likely date to the beginning of the facility as the Koolau Boys Home in the 1950s, but they do not constitute an archaeological site. The proposed construction at the WCCC includes upgrades to existing facilities and replacing the dilapidated warehouse, all of which are currently proposed to take place within and immediately around the existing facilities. Given the low potential for subsurface remains in the area likely to be impacted by construction, further survey or subsurface testing is not likely to recover any additional information. Louis Berger recommends that any alterations or changes in the proposed project design avoid areas near the Waimanalo Ditch System complex (SIHP #50-80-11-6817) and that an archaeological monitoring program be implemented during construction.

5.6 Summary of Architectural Resources at the Five Sites

Historic architectural resources exist at both the WCCC and OCCC sites. Louis Berger recommends additional research of these facilities to determine the historic context of the facilities as well as their eligibility for the National Register of Historic Places. Additional research is also recommended for the Animal Quarantine Station. Given the history of Hawaii as a rabies-free state and the efforts to maintain that status, additional research on this facility is recommended to place the facilities within the appropriate historic context. The architectural resources present at the Halawa Correctional Facility are of modern construction and no additional research is recommended for that location. No architectural resources exist at the Mililani Technology Park ,Lot 17, site and therefore no further research is recommended.

Table 19: Recommendations for All Site Alternatives

Site Alternative	Recommendations: Archaeological	Recommendations: Architectural
Animal Quarantine Station	• No further survey • Archaeological monitoring during construction • Note possible WWII-era burials; implement Unanticipated Discovery Plan if necessary	• Additional research on historic architectural resources and context of facility
Halawa Correctional Facility	• No further survey • Archaeological monitoring during construction • More detailed assessment of visual impacts to complex of SIHP #50-80-10-657	• No further work
Current OCCC	• No further survey • Archaeological monitoring during construction	• Additional research on historic architectural resources
Mililani Technology Park, Lot 17	• No further survey • Archaeological monitoring during construction • Implement best practices, including erosion control, to protect SIHP #80-09-4812, -4843, and 3401 on slope below project area	• No further work
WCCC	• No further survey • Archaeological monitoring during construction • Any design changes should avoid Waimanalo Ditch System (SIHP #50-80-11-6817)	• Additional research on historic architectural resources

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