

This estimate is prepared for use in the District only and is not for distribution to the Contractor.

*/s/ THEODORE WYMAN, Jr.,
Theodore Wynnan, Jr.,
Lt. Col., Corps of Engineers,
District Engineer.*

ARMY PEARL HARBOR BOARD EXHIBIT No. 4A

Summary

WAR DEPARTMENT

UNITED STATES ENGINEER OFFICE

Honolulu, T. H.

Contract W414-eng-602

Kokee (Kauai, T. H.)

Job Order #23.0 April 28, 1941 (revised) Sept. 3, 1941.

Construct a 12 foot road approximately 11,500 feet long (AWS Service Rd., Kokee).

Est. Cost: \$79,030.00.

Est. Cost (Rev.): \$69,363.00.

Commencement date: May 1, 1941.

Est. date for completion: Jul 15, 1941.

Revised date for completion: Sept. 25, 1941.

Supervision by Area Engr. 4th Field Area.

Job Order #23.1 June 18, 1941 (revised) Dec. 17, 1941.

Construct—complete structures at Base Camp and Station X with utilities and fence National Palikona Forest Reserve.

Est. Cos: \$82,800.00.

Est. Cost (rev.): \$87,124.15.

Commencement date: June 23, 1941.

Est. date for completion: Sept. 23, 1941.

Revised date for completion: Dec. 1, 1941.

Supervision by Area Engr. 4th Field Area.

Addendum #1 June 2, 1941 \$300.00 shed.

Addendum #2 Oct. 10, 1941 Construct Radio Shelter and Garage \$14,081.57.

Addendum #3 Feb. 5, 1942 Construct Bombproof Shelter for Radio Communications.

WAR DEPARTMENT,

UNITED STATES ENGINEER OFFICE,

Honolulu, T. H., September 3, 1941.

JOB ORDER NO. 23.0 (Revised)

Contract No. W-414-602.

To: Hawaiian Constructors, Honolulu, T. H.

You are hereby directed to proceed with the following work:

1. PROJECT TITLE: Aircraft Warning Service Road, Kauai, T. H.
2. LOCATION: Na Palikona Forest Reserve, Kauai, T. H.
3. OFFICE FILE REFERENCE: 2014.
4. WORK TO BE DONE: Construct a twelve foot road approximately 11,500 feet long complete with penetration macadam paving and all necessary drainage facilities.
5. WORK REQUESTED BY: Commanding General, Hawaiian Department.
6. DRAWINGS AND REFERENCES: As enumerated in Specifications, "Access Road to Kokee, Job Order No. 23.0".
7. APPROPRIATION CHARGEABLE: S. S. A. 1940-41 SC1450 P23-A0605-01.
8. ESTIMATED COST: \$55,050.00.
9. COMMENCEMENT DATE: May 1, 1941.
10. ESTIMATED DATE FOR COMPLETION: September 25, 1941.

- 11. ESTIMATED LABOR AT SITE: Detailed Estimate Attached.
- 12. PLANT REQUIRED: " " "
- 13. MATERIALS: " " "
- 14. SUPERVISION BY: The Area Engineer, Fourth Field Area,
/s/ Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

Approved:

WARREN T. HANNUM,
Colonel, Corps of Engineers,
Division Engineer.

ESTIMATE OF COST

To Accompany Job Order No. 23.0 (Revised)

Contract No. W-414-eng-602

WORK TO BE DONE: Construct a 12 foot road approximately 11,500 feet long, complete with penetration macadam paving and all necessary drainage facilities.

DISTRICT: Honolulu District, Honolulu, T. H.

The work to be done, as provided for herein, is located on the Na Palikoma Forest Reserve, on the Island of Kauai, T. H., and is limited to the following specific items:

1. Furnish all necessary labor and equipment, and perform all work necessary to construct a twelve foot road approximately 11,500 feet long, complete with penetration macadam paving and all necessary drainage facilities.

All of the work to be done shall be in accordance with the Specifications, "Access Road to Kokee, Job Order No. 23.0", and the details on the drawings enumerated in the Specifications.

The cost of the work to be done shall not exceed \$55,050.00.

2. Job Order No. 23.0 is revised on the basis of a detailed cost estimate.

/s/ Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

KOKEE ACCESS ROAD

1. Material.

Item	Quantity	Unit	Unit Cost	Total Amount
1. Cement (201 cu. yds.)	305	bbl.	\$2.93	\$893.65
2. Fine Aggregate	100	cu. yds.	5.50	550.00
3. Coarse Aggregate	180	"	5.50	990.00
4. 1/2" Ø Reinforcing Steel	4,800	lbs.	0.0293	140.64
5. 3/8" Ø " "	10,700	"	0.0293	313.51
6. 3/4" Ø " "	12,600	"	0.0293	369.18
7. #14 Ga. Black Wire	200	"	0.08	16.00
8. 1' x 6" T. & G. Sheeting	4,200	MBM	66.00	277.20
9. 2' x 4" #1 Comm. Lbr.	4,200	"	66.00	277.20
10. 4" x 4" #1 " "	2,100	"	66.00	138.60
11. Nails 6s-8s-10s and 20d.	6	Kegs	6.60	39.60
12. 2 x 4-12'-16' #1 Comm.	15,400	MBM	66.00	1,016.40
13. 1 1/2' x 2" x 18" Stakes (Wood)	4,650	Ea.	0.08	372.00
14. Form Oil	25	Gal.	0.21	5.25
15. 24" Diam. R. C. Pipe	264	lin. ft.	2.70	712.80
16. 18" " " "	372	"	2.02	751.44
17. Emulsified Asphalt	27,250	Gal.	0.125	3,406.25
18. #2 Crushed Rock	971	cu. yds.	5.50	5,340.50
19. #3/4 Crushed Rock	324	"	5.50	1,782.00
20. #4 Standard Crushed Rock	220	"	5.50	1,210.00
21. 50# Rubble Rock	15	"	5.50	82.50
22. Dynamite-60%	4,000	lbs.	0.105	420.00
23. Electric Detonating Caps	1,060	ea.	0.10	106.00
24. #10 Galv. Iron Wire	200	lbs.	0.09	18.00
25. Boat Freight & Stevedoring	200	Tons	7.01	1,402.00
26. Miscellaneous Supplies	Lump sum			225.28
Total Cost of Material				20,850.00

2. Labor:

(a) <i>Clearing and Grubbing:</i>			
60 man hours	----- @	\$1.50	\$90.00
80 man hours	----- @	1.25	100.00
160 man hours	----- @	1.00	160.00
1,700 man hours	----- @	.50	850.00
			<hr/>
			\$1,200.00
(b) <i>Handling and Hauling:</i>			
40 man hours	----- @	\$1.50	60.00
60 man hours	----- @	1.25	60.00
120 man hours	----- @	1.00	120.00
1,560 man hours	----- @	.50	780.00
			<hr/>
			1,020.00
(c) <i>Roadway Excavation.</i>			
360 man hours	----- @	\$1.50	540.00
440 man hours	-----	1.25	550.00
720 man hours	-----	1.00	720.00
240 man hours	-----	.75	180.00
960 man hours	-----	.50	480.00
			<hr/>
			2,470.00
(d) <i>Drilling and Blasting.</i>			
120 man hours	----- @	\$1.50	180.00
240 man hours	-----	1.25	300.00
1,000 man hours	-----	.50	500.00
			<hr/>
			980.00
(e) <i>Structure Excavation:</i>			
40 man hours	----- @	\$1.50	60.00
60 man hours	-----	1.25	75.00
100 man hours	-----	1.00	100.00
1,600 man hours	-----	.50	800.00
			<hr/>
			1,035.00
(f) <i>Rolling & Compacting Backfill:</i>			
60 man hours	----- @	\$1.50	90.00
80 man hours	-----	1.25	100.00
320 man hours	-----	1.00	320.00
660 man hours	-----	.50	330.00
			<hr/>
			840.00
(g) <i>Placing Drain Pipe:</i>			
24 man hours	----- @	1.50	36.00
32 man hours	-----	1.25	40.00
400 man hours	-----	.50	200.00
			<hr/>
			276.00
(h) <i>Assembling & Placing Concrete Forms:</i>			
40 man hours	----- @	\$1.50	60.00
300 man hours	-----	1.30	390.00
380 man hours	-----	.50	190.00
			<hr/>
			640.00
(i) <i>Placing Reinforcing Steel:</i>			
20 man hours	----- @	\$1.50	30.00
40 man hours	-----	1.25	50.00
360 man hours	-----	1.00	360.00
			<hr/>
			440.00
(j) <i>Mixing, Placing & Curing Concrete:</i>			
40 man hours	----- @	\$1.50	60.00
80 man hours	-----	1.25	100.00
120 man hours	-----	1.00	120.00
3,600 man hours	-----	.50	1,800.00
			<hr/>
			2,080.00
(k) <i>Placing Rock Masonry RipRap:</i>			
10 man hours	----- @	\$1.50	15.00
10 man hours	-----	1.25	12.50
60 man hours	-----	1.00	60.00
41 man hours	-----	.50	20.50
			<hr/>
			108.00

(1) *Grading & Rolling Sub Grade:*

25 man hours-----	@ \$1.50	\$36.00
24 man hours-----	1.25	30.00
160 man hours-----	1.00	160.00
160 man hours-----	.50	80.00

\$306.00

(m) *Setting Header Boards:*

80 man hours-----	@ \$1.50	100.00
160 man hours-----	1.25	100.00
320 man hours-----	1.00	320.00
320 man hours-----	.50	160.00

780.00

(n) *Placing and Rolling Emulsified Asphalt Pavement:*

69 man hours-----	@ \$1.50	90.00
80 man hours-----	1.25	100.00
320 man hours-----	1.00	320.00
640 man hours-----	.50	320.00

\$30.00

(o) *Maintenance and Repairs:*

100 man hours-----	@ \$1.50	150.00
120 man hours-----	1.25	150.00
320 man hours-----	1.00	320.00
320 man hours-----	.75	240.00
320 man hours-----	.50	160.00

1,020.00

Total Cost of Labor----- 14,025.00

3. *Plant Operation:*

	Time required	Rental	Total amount
(a) Rental of Equipment:			
1 1/4 Cu. Yd. Power Shovel-----	1 Mo-----	\$1,174.00	\$1,174.00
3 5 Cu. Yd. Dump Truck-----	2 "-----	407.00	2,442.00
1 Caterpillar Dozer-----	1 1/2 "-----	869.00	1,303.50
1 Road Patrol Grader-----	1 1/2 "-----	513.00	769.50
1 12-Ton Roller-----	2 "-----	513.00	1,026.00
1 8-Ton Tandem Roller-----	2 "-----	412.00	824.00
1 Power Broom-----	1 "-----	130.00	130.00
1 Water Wagon-----	2 "-----	412.00	824.00
1 3/4 Ton Pick-Up-----	2 "-----	132.00	264.00
1 10-Ton Flat Rack Truck-----	2 "-----	407.00	814.00
1 Service Truck-----	2 "-----	407.00	814.00
1 Sedan-----	2 "-----	132.00	264.00
1 Asphalt Spreader Tank & Truck-----	1 "-----	869.00	869.00
1 405 C. F. Air Compressor-----	1/2 "-----	132.00	66.00
3 Jackhammers-----	1/2 "-----	100.00	50.00
Hand Brooms, Shovels, Small Tools, Etc-----	Lump Sum-----		234.00
1 1/4 Cu. Yd. Concrete Mixer-----	1 Mo-----	132.00	132.00
(b) Gas, Diesel Oil, Grease, Lub. Oil, Etc-----	Lump Sum-----		1,750.00
Total Cost of Plant Operation-----			13,750.00

4. *Total Plant Operation Cost of Job:*

Total Cost of Material-----	\$20,850.00
Total Cost of Labor-----	14,025.00
Total Cost of Plant-----	13,750.00
Contractors Field & Off. Overhead-----	1,675.00
Mobilization & Demobilization-----	4,750.00

Total Plant Operation Cost of Job to Contractor----- 55,050.00

[s] Theodore Wyman, Jr.,
 THEODORE WYMAN, JR.,
 Lt. Col., Corps of Engineers,
 District Engineer.

*Recapitulation of estimated cost*1. *Total Cost of Work:*(a) *Direct Cost:*

Total Cost to the Contractor-----	\$55,050.00
Contingencies—10% -----	5,505.00

Total Direct Cost-----	60,555.00
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(b) *Indirect Cost:*

Survey, Inspection, Engineering-----	\$4,404.00
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Total Indirect Cost-----	4,404.00
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Total Field Cost-----	64,959.00
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General Office Overhead-----	4,404.00
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Estimated Total Cost to the Government-----	69,363.00
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[s] Theodore Wyman, Jr.,
THEODORE WYMAN, Jr.,
Lt. Col., Corps of Engineers,
District Engineer.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Honolulu, T. H., April 28, 1941.

JOB ORDER No. 23.0.

Contract No. W-414-eng-602

To: Hawaiian Constructors, Honolulu, T. H.

You are hereby directed to proceed with the following work:

1. PROJECT TITLE: Aircraft Warning Service Road, Kauai, T. H.
2. LOCATION: Na Palikona Forest Reserve, Kauai, T. H.
3. OFFICE FILE REFERENCE: 2014
4. WORK TO BE DONE: Construct a twelve foot road approximately 11,000 feet long complete with 2" asphaltic concrete paving and all necessary drainage facilities.
5. WORK REQUESTED BY: Commanding General, Hawaiian Department.
6. DRAWINGS AND REFERENCES: To be furnished later.
7. APPROPRIATION CHARGEABLE: S. S. A. 1940-41 SC1450 P23-A0605-01.
8. ESTIMATED COST: \$79,030.00.
9. COMMENCEMENT DATE: May 1, 1941.
10. ESTIMATED DATE OF COMPLETION: July 15, 1941.
11. ESTIMATED LABOR AT SITE: To be furnished later on a detailed estimate.
12. PLANT REQUIRED: To be furnished later on a detailed estimate.
13. MATERIALS: To be furnished later on a detailed estimate.
14. SUPERVISION BY: Area Engineer, Fourth Field Area.

THEODORE WYMAN, Jr.,
Lt. Col., Corps of Engineers,
District Engineer.

Approved:

WARREN T. HANNUM,
Colonel, Corps of Engineers,
Division Engineer.

Distribution:

JUNE 2, 1941.

ADDENDUM NO. 1.

To Accompany Job Order No. 23.0

Contract No. W-414-eng-602

WORK TO BE DONE: Construct and Complete a Wood frame Tool Shed and Store Room.

DISTRICT: Honolulu District, Honolulu, T. H.

The work to be done, and provided for herein, is located at Kokee Road on the Island of Kauai, T. H., and is limited to the following Specific Item:

1. Furnish all labor and equipment and perform all work necessary to Construct and Complete a Wood frame Tool Shed and Store Room Building. The work to be done shall be as directed by the Area Engineer, Fourth Field Area.

The total Cost of the Work to be done shall not exceed \$300.00.

(Signed) Theodore Wyman, Jr.,
THEODORE WYMAN, Jr.,
Lt. Col., Corps of Engineers,
District Engineer

Recapitulation of Estimated Cost

1. Total Cost of the Work To Be Done:

(a) Direct Cost:

Total Cost to the Contractor----- \$300.00
Contingencies—10% ----- 30.00

Total Direct Cost----- 330.00

(b) Indirect Cost:

Survey, Inspection, Engineering----- \$24.00
Total Indirect Cost----- 24.00

Total Field Cost of Job----- 354.00

General Office Overhead----- 24.00

Grand Total Cost to the Government----- 378.00

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(Signed) Theodore Wyman, Jr.,
THEODORE WYMAN, Jr.,
Lt. Col., Corps of Engineers,
District Engineer.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Honolulu, T. H., December 17, 1941,

JOB ORDER NO. 23.1 (Revised)

Contract No. W-414-eng-602

To: Hawaiian Constructors, Honolulu, T. H.

You are hereby directed to proceed with the following work:

1. PROJECT TITLE: A. W. S. Base Camp and Field Station.
2. LOCATION: Kokee Road, Na Palikona Forest Reserve, Kauai, T. H.
3. OFFICE FILE REFERENCE: ND 676.3 Kokee.
4. WORK TO BE DONE: Construct and complete structures at Base Camp and Station "X", together with the installation of necessary utilities and manproof wire fence.
5. WORK REQUESTED BY: Commanding General, Hawaiian Department.
6. DRAWINGS AND REFERENCES: Drawings enumerated in the Specifications to Accompany Job Order No. 23.1.
7. APPROPRIATION CHARGEABLE: SC 1450 (\$77,333.10) Eng. (\$9,791.05)

8. ESTIMATED COST: \$87,124.15.
 9. COMMENCEMENT DATE: June 23, 1941.
 10. ESTIMATED DATE FOR COMPLETION: December 1, 1941.
 11. ESTIMATED LABOR AT SITE: See detailed estimate attached.
 12. PLANT REQUIRED: See detailed estimate attached.
 13. MATERIALS. See detailed estimate attached.
 14. SUPERVISION BY: The Area Engineer—Fourth Field Area.

/s/ THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers.
District Engineers

SEPTEMBER 27, 1941.

ADDENDUM NO. 1

To Accompany Job Order No. 23.1 (Rev.)

Contract W-414-eng-602

WORK TO BE DONE: Construct and Complete One Utility Truck Shelter And One Garage Building.

DISTRICT: Honolulu District, Honolulu, T. H.

The work to be done as provided for herein, is located at A. W. S. Camp, on the Island of Kauai, T. H., and is limited to the following specific items:

1. Furnish all labor and equipment, and perform all work necessary to construct and complete one (1) Utility Truck Shelter. All of the work to be done in accordance with the details shown on Drawings, "Fixed Station Kauai and Maui, Utility Truck Shelter", Sheets No. 1 and No. 2, File Numbers, F-24/58, F-24/59.

2. Furnish all labor and equipment, and perform all work necessary to construct and complete one Garage Building No. 1.

Total cost of the work to be done shall not exceed \$14,081.57.

Addendum No. 1 to Job Order Order No. 23.1 is additional work and does not alter Job Order No. 23.1.

/s/ Theodore Wyman, Jr.,
 THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

COST TO CONTRACTOR

1. *One Utility Truck Shelter:*

Labor-----	\$1,829.36
Material-----	1,875.83
Plant Rental-----	75.00
Mobil. & Demobilization-----	378.02
Contractors Field & Office Overhead-----	132.31

Total ----- \$4,290.52

2. *One Garage Building No. 1:*

Labor-----	\$3,777.78
Materials-----	4,698.69
Plant Rental-----	150.00
Mobil. & Demobilization-----	862.65
Contractors Field & Office Overhead-----	301.93

Total ----- 9,791.05

Total Cost to Contractor----- 14,081.57

/s/ Theodore Wyman, Jr.,
 THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers.
District Engineer.

Recapitulation of estimated cost

1. *Total Cost of Work:*

(a) *Direct Cost:*

Total Cost to the Contractor-----	\$14,081.57
Contingencies—10%-----	1,408.16

Total Direct Cost-----	15,489.73
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(b) *Indirect Cost:*

Survey, Inspection, Engineering-----	\$1,126.53	
Total Indirect Cost-----		1,126.53

Total Field Cost-----	16,616.26
General Office Overhead-----	1,126.53

Estimated Total Cost to the Government-----	17,742.79
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(s) Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

Oct. 10, 1941.

ADDENDUM NO. 2

To Accompany Job Order No. 23.1 (Rev.)

Contract W-414-eng-602

WORK TO BE DONE: Construct One (1) Utility Truck Shelter, and One (1) Radio Shelter Building.

DISTRICT: Honolulu District, Honolulu, T. H.

The work to be done, as provided for herein, is located at A. W. S. Camp, on the Island of Kauai, T. H., and is limited to the following specific items:

1. Furnish all labor and equipment and perform all work necessary to construct and complete one (1) Utility Truck Shelter. All of the work to be done shall be in accordance with the details shown on the Drawing, "Fixed Station Kauai and Maui, Utility Truck Shelter", Sheets No. 1 and No. 2, File Numbers, F-24/58, and F-24/59.

2. Furnish all labor and equipment, and perform all work necessary to construct and complete one (1) Radio Shelter Building.

Total cost of the work to be done shall not exceed \$14,081.57.

Addendum No. 2 to Job Order No. 23.1 supplants Addendum No. 1.

Charge \$4290.52 to SC 1450. Charge \$9791.05 to Eng. 993.

(Sgd.) Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

COST TO CONTRACTOR

1. *One Utility Truck Shelter:*

Labor-----	\$1,829.36
Material-----	1,875.83
Plant Rental-----	75.00
Mobil. & Demobilization-----	378.02
Contractors Field & Office Overhead-----	132.31

Total-----	\$4,290.52
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2. *One Radio Shelter Building:*

Labor	\$3,777.78
Material	4,068.69
Plant Rental.....	150.00
Mobil. & Demobilization.....	862.65
Contractors Field & Office Overhead.....	301.93
Total.....	\$9,791.05
Total cost to contractor.....	14,081.57

(Sgd.) Theodore Wyman, Jr.
THEODORE WYMAN, JR.
Lt. Col., Corps of Engineers,
District Engineer.

Recapitulation of Estimated Cost

1. *Total Cost of work:*(a) *Direct Cost:*

Total Cost to the Contractor.....	\$14,081.57
Contingencies—10%	1,408.16
Total Direct Cost.....	\$15,489.73

(b) *Indirect Cost:*

Survey, Inspection, Engineering.....	\$1,126.53
Total Indirect Cost.....	1,126.53
Total Field Cost.....	16,616.26
General Office Overhead.....	1,126.53

Estimated total cost to the government.....	17,742.79
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(Sgd.) Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

FEBRUARY 5, 1942.

ADDENDUM NO. 3

To Accompany Job Order No. 23.1 (Revised)

Contract W-414-eng-602.

DISTRICT: Honolulu District, Honolulu, T. H.

Addendum No. 3 to Job Order No. 23.1 (Revised), (A. W. S. Camp—Utilities & Fence), authorizes the construction of a bombproof shelter for Radio Communications with necessary appurtenances, in connection with A. W. S. Station, Kokee, Kauai Base Camp, Kauai, T. H.

All work is to be done in accordance with plans and instructions furnished the Area Engineer.

/s/ Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Colonel, Corps of Engineers,
District Engineer.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Honolulu, T. H., June 18, 1941.

JOB ORDER NO. 23.1.

Contract W-414-eng-602.

To: Hawaiian Constructors, Honolulu, T. H.

You are hereby directed to proceed with the following work:

1. PROJECT TITLE: A. W. S. Camps, Utilities, and Fence, Kokee Road.
2. LOCATION: Kokee Road, Na Palikona Forest Reserve, Kauai, T. H.
3. OFFICE FILE REFERENCE: 2014.
4. WORK TO BE DONE: Construct and Complete Structures at Base Camp and at Station X, together with the installation of Necessary Utilities and Manproof wire fence.
5. WORK REQUESTED BY: Commanding General—Hawaiian Department.
6. DRAWINGS AND REFERENCES: Drawings, "Base Camp, Kokee Road," File No. F-4/85, and F-4/87 to F-4/90 inclusive. And additional drawings to be furnished.
7. APPROPRIATION CHARGEABLE: S. S. A. 1940-41 SC1450-P23-AO 605-01.
8. ESTIMATED COST: \$82,800.00.
9. COMMENCEMENT DATE: June 23, 1941.
10. ESTIMATED DATE FOR COMPLETION: September 23, 1941.
11. ESTIMATED LABOR AT SITE: Detailed estimate to be furnished later.
12. PLANT REQUIRED: Detailed estimate to be furnished later.
13. MATERIALS: Detailed estimate to be furnished later.
14. SUPERVISION BY: The Area Engineer, Fourth Field Area.

(Signed) Theodore Wyman, Jr.,
THEODORE WYMAN, Jr.,
Lt. Col., Corps of Engineers,
District Engineer.

Approved: June 27, 1941.

(Signed) Warren T. Hannum,
WARREN T. HANNUM,
Colonel, Corps of Engineers,
Division Engineer.

ESTIMATE OF COST

To Accompany Job Order No. 23.1

Contract No. W-414-eng-602

WORK TO BE DONE: Construct and Complete Structures at Base Camp and Station X, together with the installation of necessary Utilities and manproof wire fence.

DISTRICT: Honolulu District, Honolulu, T. H.

The work to be done, as provided for herein, is located at Base Camp, and Station X, Kokee Road, on the Na Palikona Forest Reserve, Island of Kauai, T. H., and is limited to furnishing all labor and equipment and performing all work necessary for the following Specific items:

1. Construct and Complete the following Structures at Base Camp.
 - (a) 2 Barracks Buildings.
 - (b) 1 Mess Hall.
 - (c) 1 Officers Quarters.
 - (d) 1 Radio Communications Building.
 - (e) 1 Generator Station Building.
 - (f) 1 Headquarters Supply Building.
2. Construct and Complete the following Structures at Station X.
 - (a) Tower foundation for Station X.
 - (b) 1 Building.
 - (c) 1 Power house for 3 units.
 - (d) Erect 100 ft. Steel Tower. (Tower furnished by Signal Corps).
3. Install Complete, all necessary utilities and equipment, together with installation of manproof wire mesh fence around vital installations at Base Camp and Station X.

All of the work to be done shall be in accordance with "Specifications To Accompany Job Order No. 23.1", and the details shown on the drawings enumerated in the Specifications.

The total Cost of the Work to be done shall not exceed \$82,800.00.

(Signed) Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

Recapitulation of estimated cost

1. Total cost of work:

(a) Direct Cost:

Total Cost to Contractor-----	\$82,800.00
Contingencies—10% -----	8,280.00

Total Direct Cost-----	91,080.00
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(b) Indirect Cost:

Survey, Inspection, Engineering (8% of Total Cost to Contractor)-----	\$6,624.00
Total Indirect Cost-----	6,624.00

Total Field Cost-----	98,704.00
General Office Overhead—8%-----	6,624.00

Estimated Total Cost to the Government-----	105,328.00
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This estimate is prepared for use in the District only, and is not for distribution to the Contractor.

(Signed) Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

ARMY PEARL HARBOR BOARD EXHIBIT No. 48

WAR DEPARTMENT

Exhibits

UNITED STATES ENGINEER OFFICE

HONOLULU, T. H.

Contract W414-cnr-602

Haleakala (Mount, T. H.).

Job Order 2410 June 15, 1941 (Revised) December 11, 1941.

Construct A. W. S. road on Haleakala together with A. W. S. camp and fixed station.

Est. Cost: \$105,000.00—Add #1, 2, 3.

Est. Cost (Rev.): \$121,000.00.

Commencement date: June 25, 1941.

Est. date for completion: Sept. 25, 1941.

Revised date for completion: Nov. 30, 1941.

Supervised by Area Engr. 6th Field Arvd.

Addendum #1 Oct. 30, 1941 Est. cost \$14,081.52.

Construct Radio Shelter bldg. and antenna.

Addendum #2 Feb. 5, 1942 No est. cost given.

Construct bombproof shelter for Radio Communications with necessary appendances.

Addendum #3 Aug. 29, 1942 No est. cost given.

Construct underground telephone line from A. W. S. at Haleakala and base station.