

Exhibit 1:

Letters of Authorization

City and County of Honolulu
Department of Planning & Permitting
650 South King Street
Honolulu, Hawai'i 96813

Re:

To Whom It May Concern:

The undersigned, being the manager for Kaukonahua Ranch, LLC and K View, LLC, I hereby authorize Tom Schnell and PBR Hawaii & Associates, Inc. to act as their authorized agent with respect to the Application for Minor Modifications to 2019/CUP-18 submitted herein.

Dated: 11/7, 2024.

Very truly yours,



Joey Houssian, Manager for K View, LLC and
Kaukonahua Ranch, LLC

City and County of Honolulu
Department of Planning & Permitting
650 South King Street
Honolulu, Hawai'i 96813

**SUBJECT: LETTER OF AUTHORIZATION for 2019/CUP-18 and
TMK NO.: 6-5-001:050-0001**

To Whom It May Concern,

Tax Map Key parcel: 6-5-001:05:0001 (the "Parcel") is owned by myself, and I hereby authorize Kaukonahua Ranch, LLC and K View, LLC to include with all its plans and applications for 2019/CUP-18, the approximately 6.392 acres of my Parcel.

Should you have any questions or want to discuss this authorization, please do not hesitate to contact me.

Dated: Oct. 25, 2024.

Very truly yours,


Sean Cunniff

Exhibit 2:

Tax Map Key

LEGEND

 Project Site

 Tax Map Keys

*corrected by Land Court Map
(Application 1297 Amended, Map 1)

Exhibit 2: Tax Map Key Map KAMANANUI

12/12/2024

NORTH



LINEAR SCALE (FEET)



ISLAND OF O'AHU

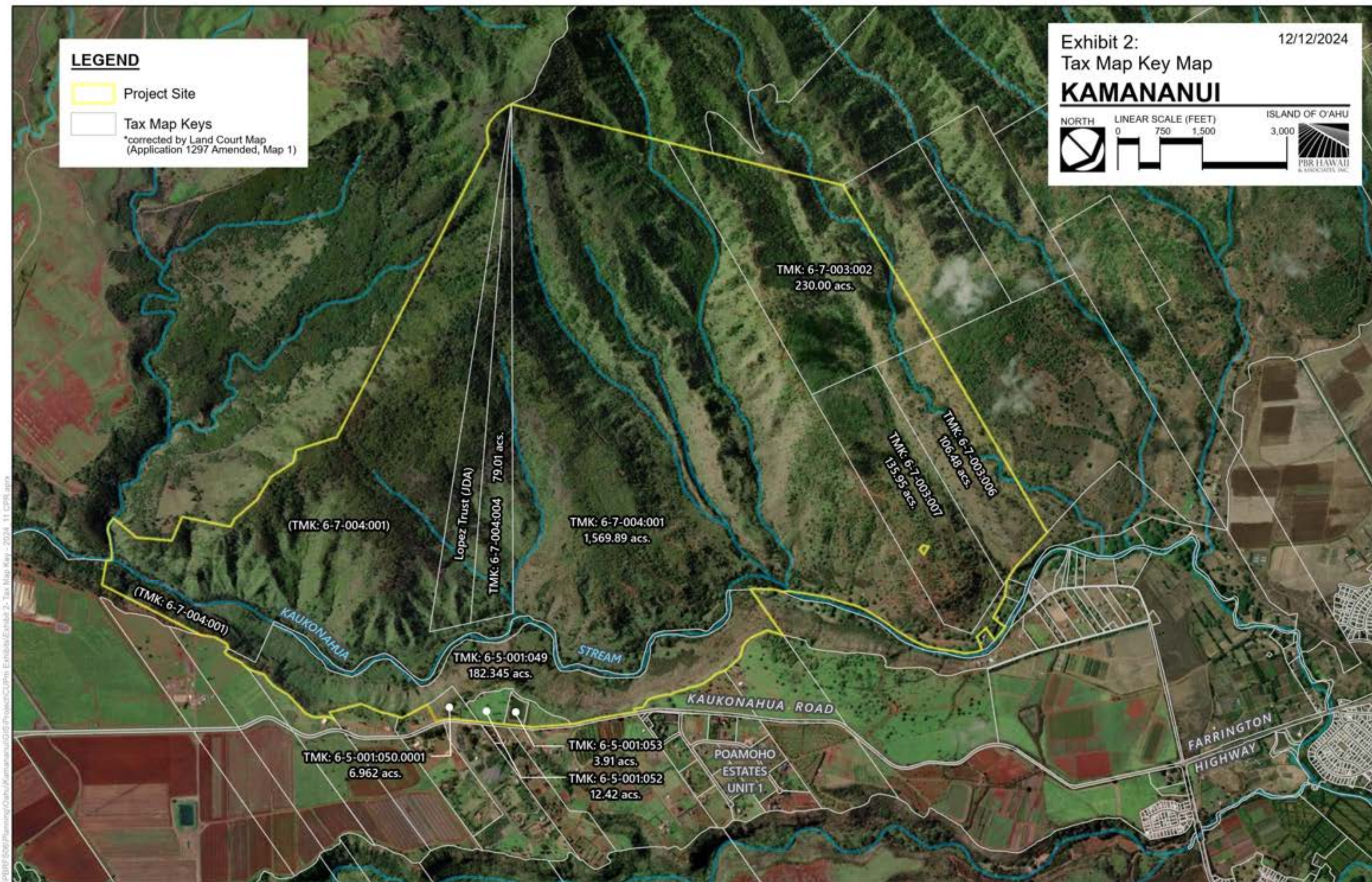
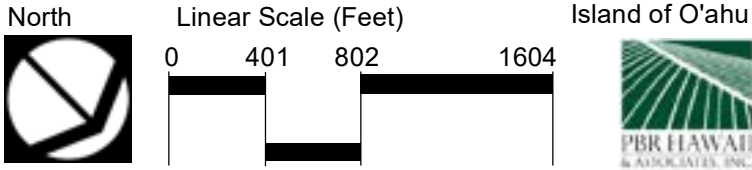


Exhibit 3:

Tax Map Key Numbering Comparison

Exhibit 3:
TMK Numbering Comparison
KAMANANUI

DATE: 12/12/2024



Based on May 2019 TMK

6-5-001:019
3.18 ac.

6-5-001:043
198.97 ac.

6-5-001:034
12.42 ac.

6-5-001:038
3.91 ac.

Based on December 2024 TMK

6-5-001:050.0001
6.962 ac.

6-5-001:052
12.42 ac.

6-5-001:049
182.345 ac.

6-5-001:053
3.91 ac.

Exhibit 4:

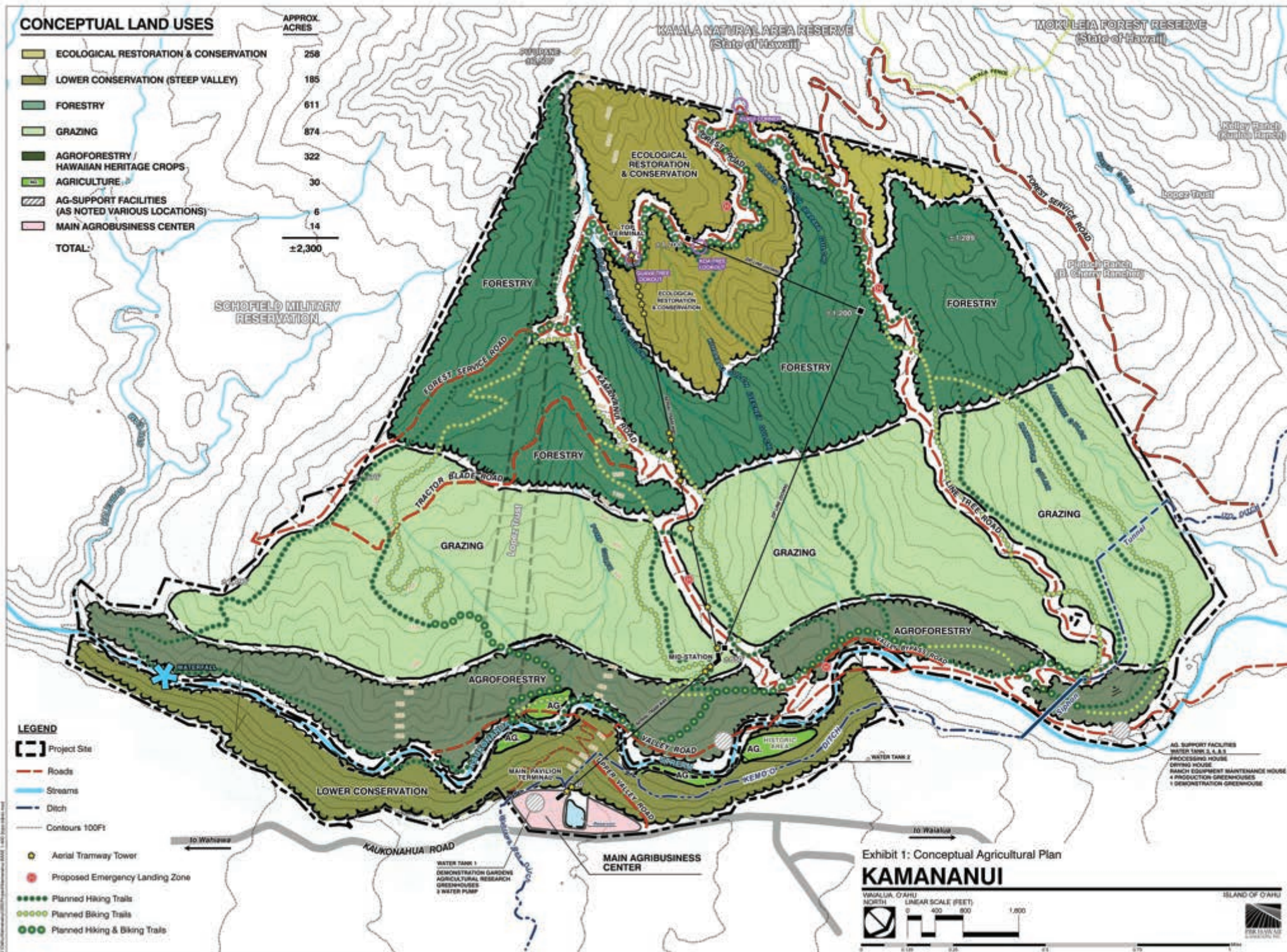
Approved Conceptual Land Use Plan
(CUP Exhibit C)

CONCEPTUAL LAND USES

- ECOLOGICAL RESTORATION & CONSERVATION
- LOWER CONSERVATION (STEEP VALLEY)
- FORESTRY
- GRAZING
- AGROFORESTRY / HAWAIIAN HERITAGE CROPS
- AGRICULTURE
- AG-SUPPORT FACILITIES (AS NOTED VARIOUS LOCATIONS)
- MAIN AGRIBUSINESS CENTER

APPROX. ACRES

256
185
611
874
322
30
6
14
TOTAL: ±2,300



LEGEND

- Project Site
- Roads
- Streams
- Ditch
- Contours 100Ft
- Aerial Tramway Tower
- Proposed Emergency Landing Zone
- Planned Hiking Trails
- Planned Biking Trails
- Planned Hiking & Biking Trails

Exhibit 1: Conceptual Agricultural Plan

KAMANANUI

WAILUA, OAHU

NORTH

LINEAR SCALE (FEET)

0 400 800 1,000

0 0.25 0.5 0.75 1

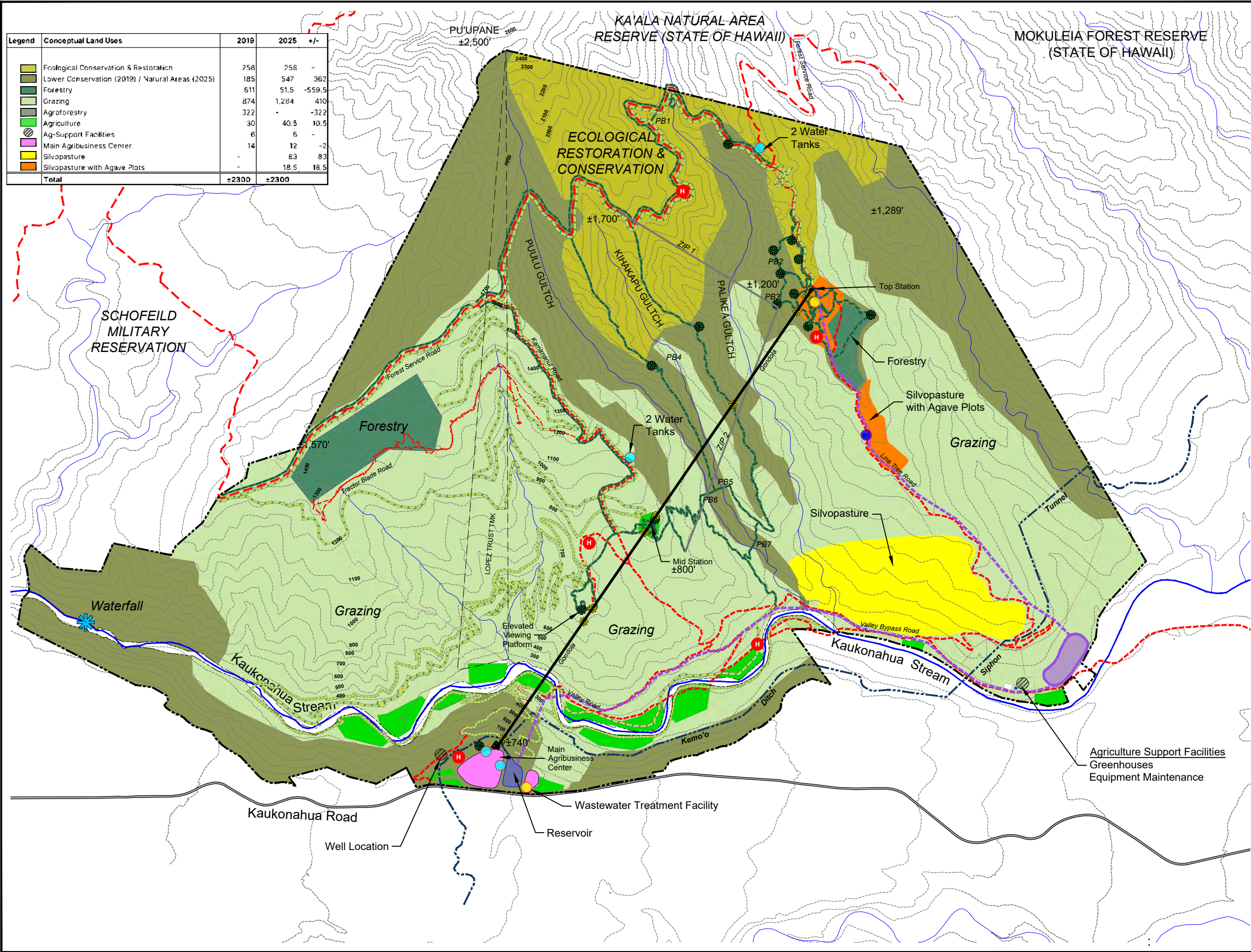
ISLAND OF OAHU

PER U.S. GEO. SURVEY

Exhibit 5:

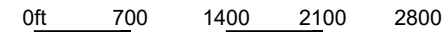
Modified Conceptual Land Use Plan
(Modified CUP Exhibit C)

Legend	Conceptual Land Uses	2019	2025	+/-
	Ecological Conservation & Restoration	258	258	-
	Lower Conservation (2019) / Natural Areas (2025)	185	547	362
	Forestry	611	51.5	-559.5
	Grazing	874	1,284	410
	Agroforestry	322	-	-322
	Agriculture	30	40.5	10.5
	Ag-Support Facilities	6	6	-
	Main Agribusiness Center	14	12	-2
	Silvopasture	-	8.3	8.3
	Silvopasture with Agave Plots	-	18.5	18.5
Total		±2300	±2300	



KAMANANUI

Date:10/2025
 Contours: 100ft
 1"=1400' at 11X17 Print



- LEGEND
- Project Site

Roads

Streams

Ditch

Contours - 100ft

Gondola Tower

Proposed Emergency Landing Zone

Planned Hiking Trails

Planned Biking Trails

Planned Zip Line

Planned Pedestrian Bridges

Planned Viewing Platforms

Water Tank Locations

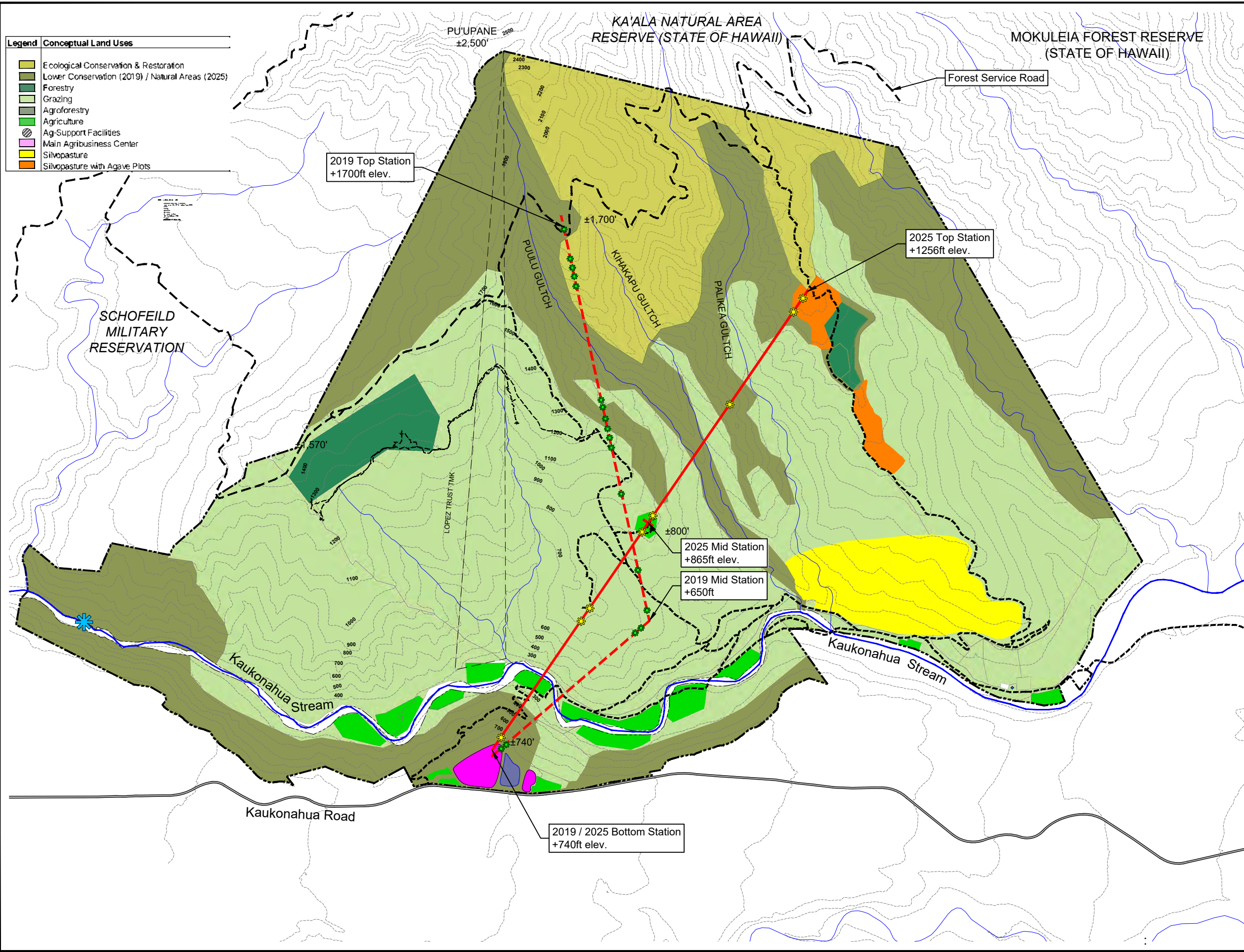
Dip Tank Location

Wastewater Treatment Facility

ET Field

Proposed Wastewater Pipe

Legend	Conceptual Land Uses
	Ecological Conservation & Restoration
	Lower Conservation (2019) / Natural Areas (2025)
	Forestry
	Grazing
	Agroforestry
	Agriculture
	Ag-Support Facilities
	Main Agribusiness Center
	Silvopasture
	Silvopasture with Agave Plots



KAMANANUI

Date:10/2025
Contours: 100ft
1"=1400' at 11X17 Print



0ft 700 1400 2100 2800

LEGEND

Property Line	
Roads	
Streams	
Contours - 100ft	
2019 Gondola Alignment	
2025 Modified Gondola Alignment Phase 1	
2019 Gondola Tower	
2025 Gondola Tower	

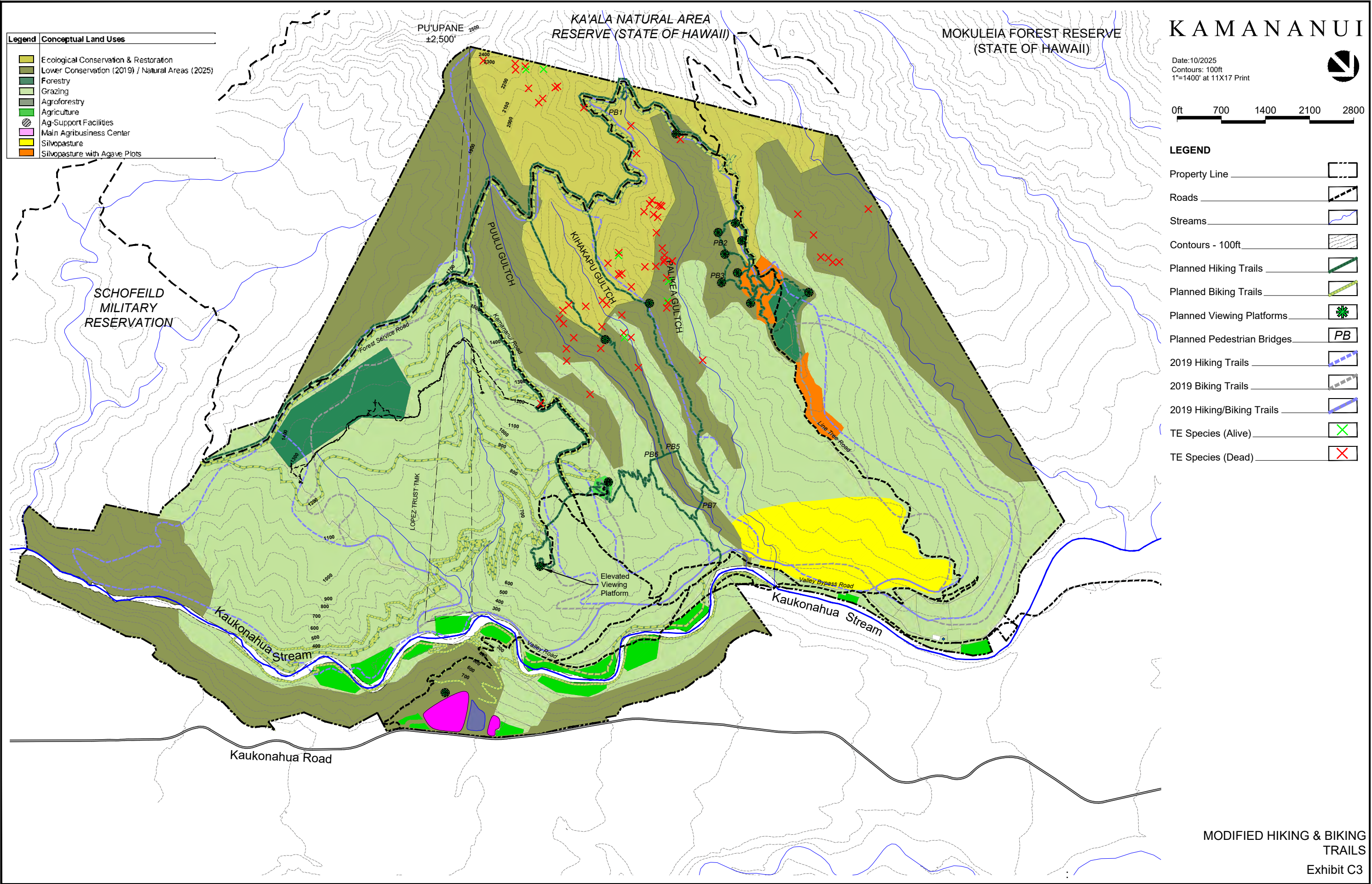
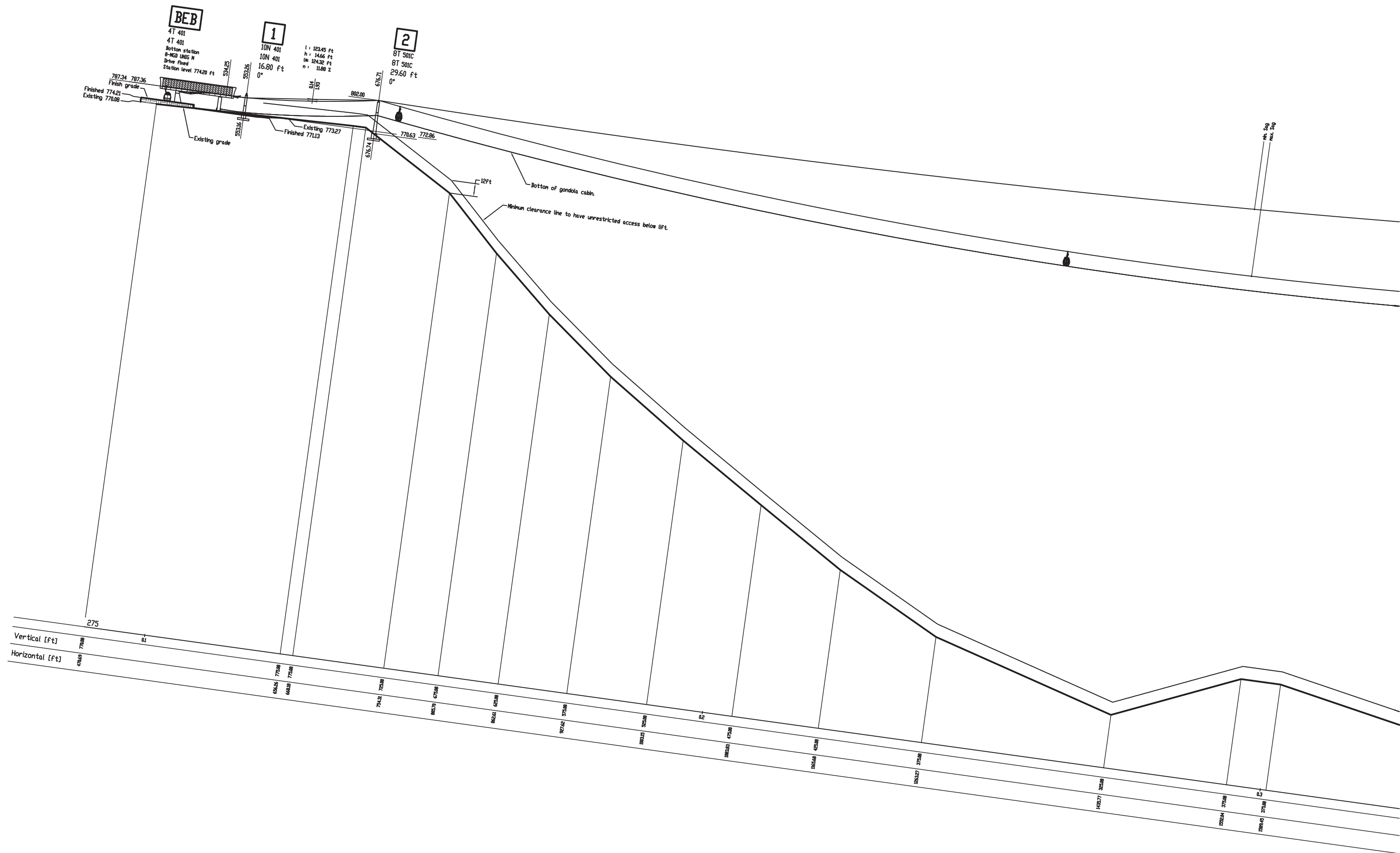


Exhibit 6:

Modified Conceptual Gondola Technical Plans



Horizontal Length l : 2083.19 ft
Vertical Rise h : 133.10 ft
Inclined Length m : 2087.25 ft
Average Grade n : 6.25 %

45.07 ft ab. cut
107.52 ft max. sup

ZEB1

4T 401
4T 401
Intermediate station
Station level 920.00 ft

3

Sheaves Up 6T 501C
Sheaves Down 6T 501C
Tube length 51.70 ft
Tube Angle 6°

932.10 932.95 932.95

4

6T 401
6T 401
50.00 ft
0°

2773.15

2773.15

933.16

Finished 920.01

881.50 879.11

2765.53

2773.15

600

879.18

2754.57

2830.02

882.08

2830.02

400

475.08

2092.13

2164.66

2222.95

2296.69

2364.73

2471.25

2599.07

2644.11

2754.57

2830.02

2905.47

300

375.08

2016.96

2089.49

2164.66

2222.95

2296.69

2364.73

2471.25

2599.07

2644.11

2754.57

200

275.08

1941.92

2016.96

2089.49

2164.66

2222.95

2296.69

2364.73

2471.25

2599.07

2644.11

100

175.08

1766.84

1941.92

2016.96

2089.49

2164.66

2222.95

2296.69

2364.73

2471.25

2599.07

0

75.08

1591.68

1766.84

1941.92

2016.96

2089.49

2164.66

2222.95

2296.69

2364.73

2471.25

-100

-75.08

1416.60

1591.68

1766.84

1941.92

2016.96

2089.49

2164.66

2222.95

2296.69

2364.73

-200

-175.08

1241.52

1416.60

1591.68

1766.84

1941.92

2016.96

2089.49

2164.66

2222.95

2296.69

-300

-275.08

866.44

1041.52

1216.60

1391.68

1566.76

1741.84

1916.92

2092.00

2267.08

2442.16

-400

-375.08

391.36

566.44

741.52

916.60

1091.68

1266.76

1441.84

1616.92

1792.00

1967.08

-500

-475.08

166.00

341.08

516.16

691.24

866.32

1041.40

1216.48

1391.56

1566.64

1741.72

-600

-575.08

-268.80

-44.72

180.36

355.44

530.52

705.60

880.68

1055.76

1230.84

1405.92

-700

-675.08

-578.40

-683.28

-788.16

-893.04

-997.92

-1102.80

-1207.68

-1312.56

-1417.44

-1522.32

-800

-775.08

-888.00

-992.88

-1097.76

-1202.64

-1307.52

-1412.40

-1517.28

-1622.16

-1727.04

-1831.92

-900

-875.08

-1008.00

-1112.88

-1217.76

-1322.64

-1427.52

-1532.40

-1637.28

-1742.16

-1847.04

-1951.92

-1000

-975.08

-1128.00

-1232.88

-1337.76

-1442.64

-1547.52

-1652.40

-1757.28

-1862.16

-1967.04

-2071.92

-1100

-1075.08

-1248.00

-1352.88

-1457.76

-1562.64

-1667.52

-1772.40

-1877.28

-1982.16

-2087.04

-2191.92

-1200

-1175.08

-1368.00

-1472.88

-1577.76

-1682.64

-1787.52

-1892.40

-1997.28

-2102.16

-2207.04

-2311.92

-1300

-1275.08

-1488.00

-1592.88

-1697.76

-1802.64

-1907.52

-2012.40

-2117.28

-2222.16

-2327.04

-2431.92

-1400

-1375.08

-1608.00

-1712.88

-1817.76

-1922.64

-2027.52

-2132.40

-2237.28

-2342.16

-2447.04

-2551.92

-1500

-1475.08

-1728.00

-1832.88

-1937.76

-2042.64

-2147.52

-2252.40

-2357.28

-2462.16

-2567.04

-2671.92

-1600

-1575.08

-1848.00

-1952.88

-2057.76

-2162.64

-2267.52

-2372.40

-2477.28

-2582.16

-2687.04

-2791.92

-1700

-1675.08

-1968.00

-2072.88

-2177.76

-2282.64

-2387.52

-2492.40

-2597.28

-2702.16

-2807.04

-2911.92

-1800

-1775.08

-2088.00

-2192.88

-2297.76

-2402.64

-2507.52

-2612.40

-2717.28

-2822.16

-2927.04

-3031.92

-1900

-1875.08

-2208.00

-2312.88

-2417.76

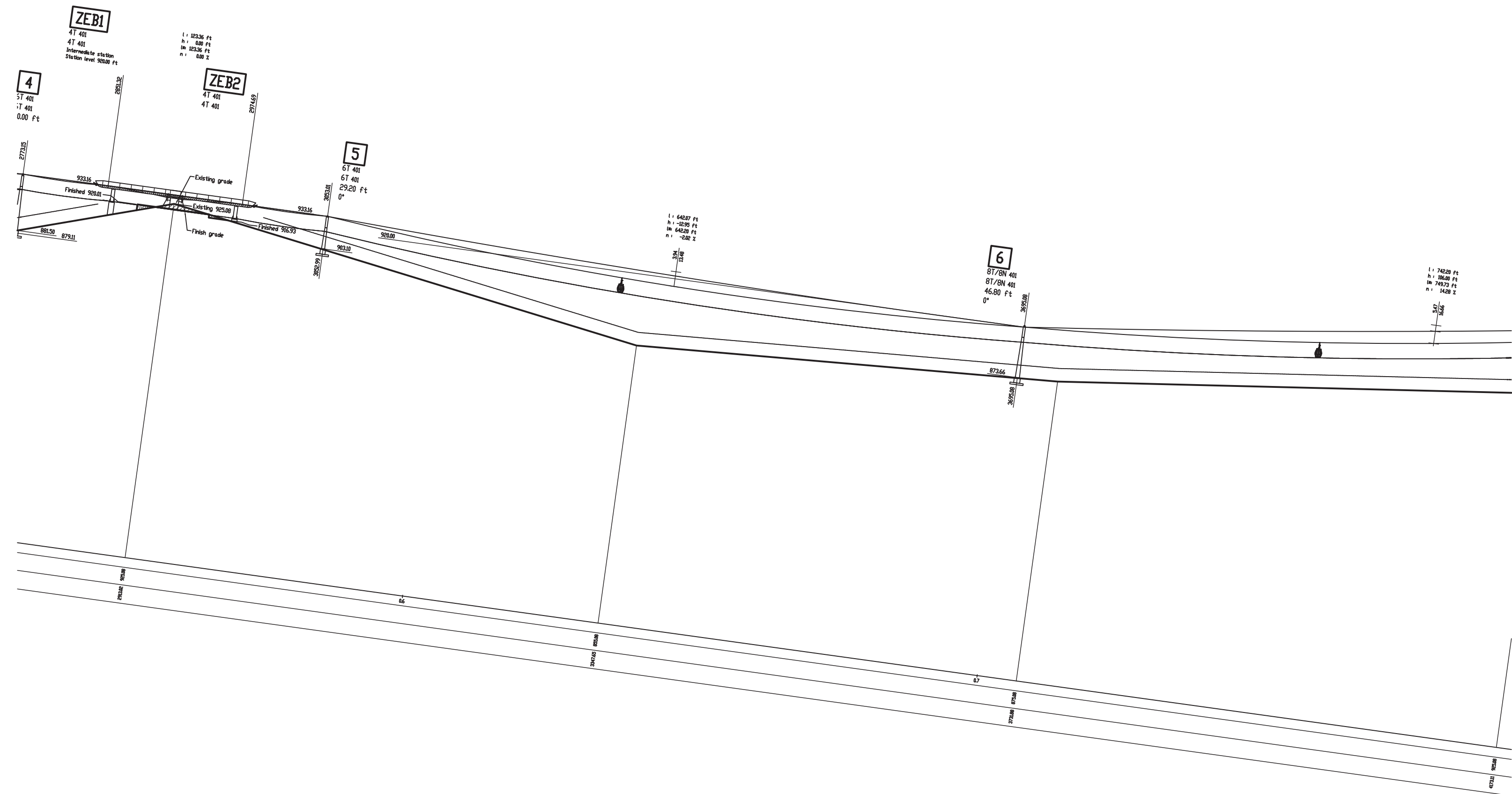
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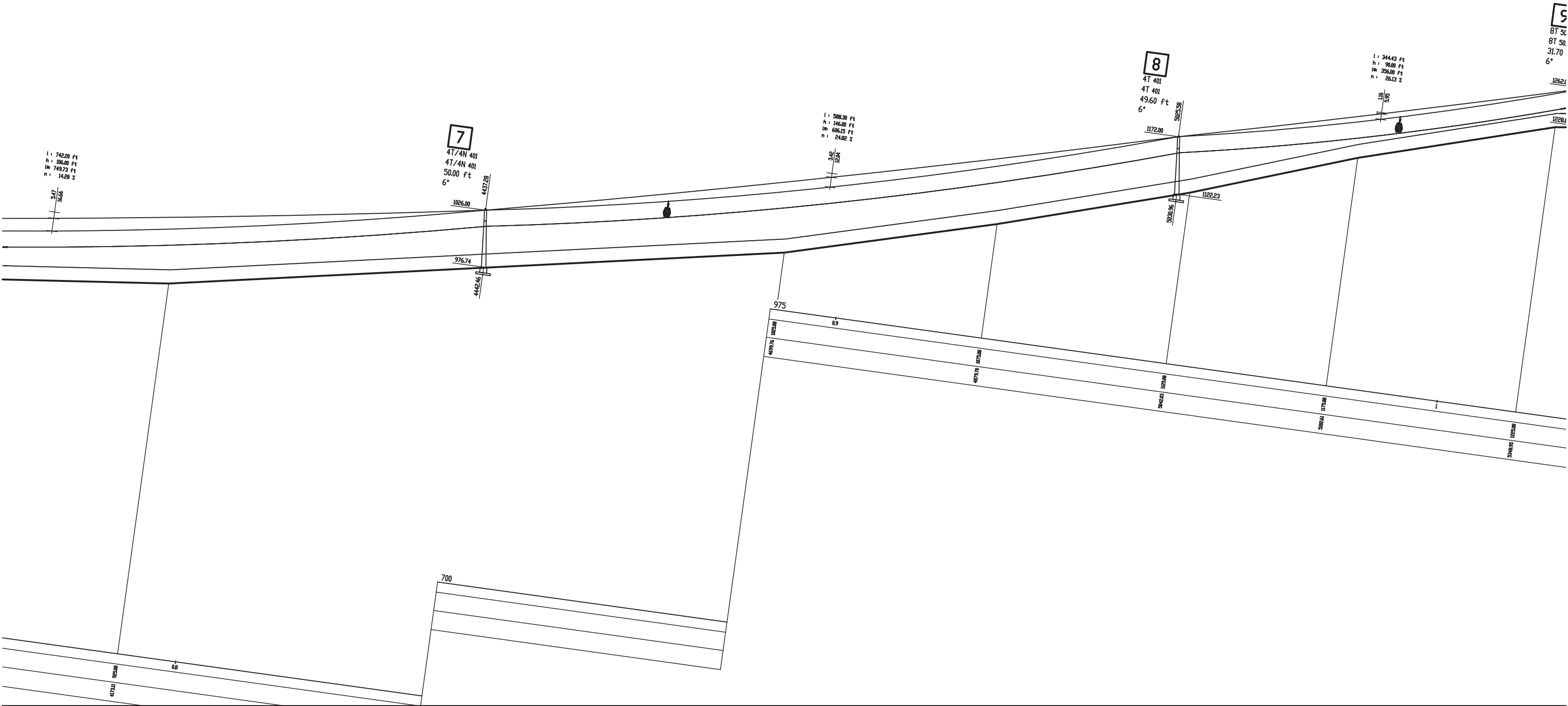
-2627.52

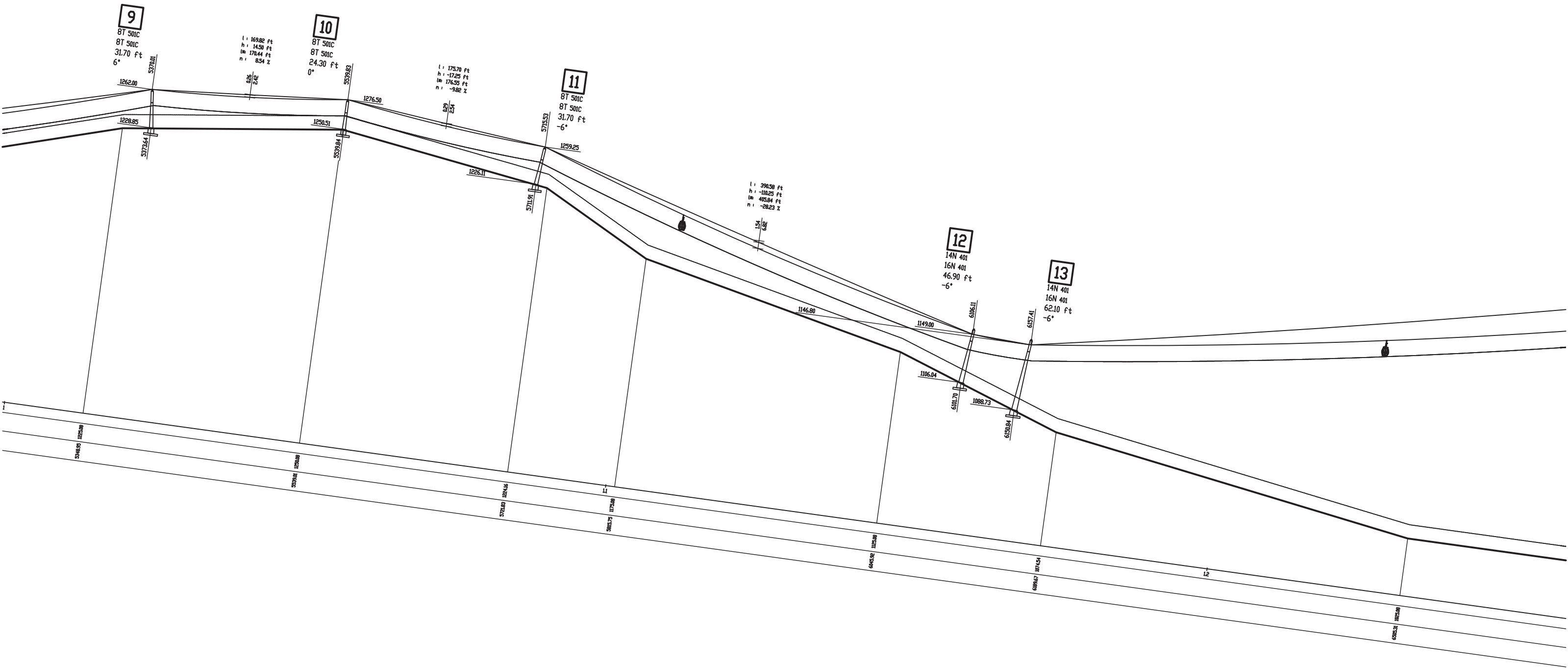
-2732.40

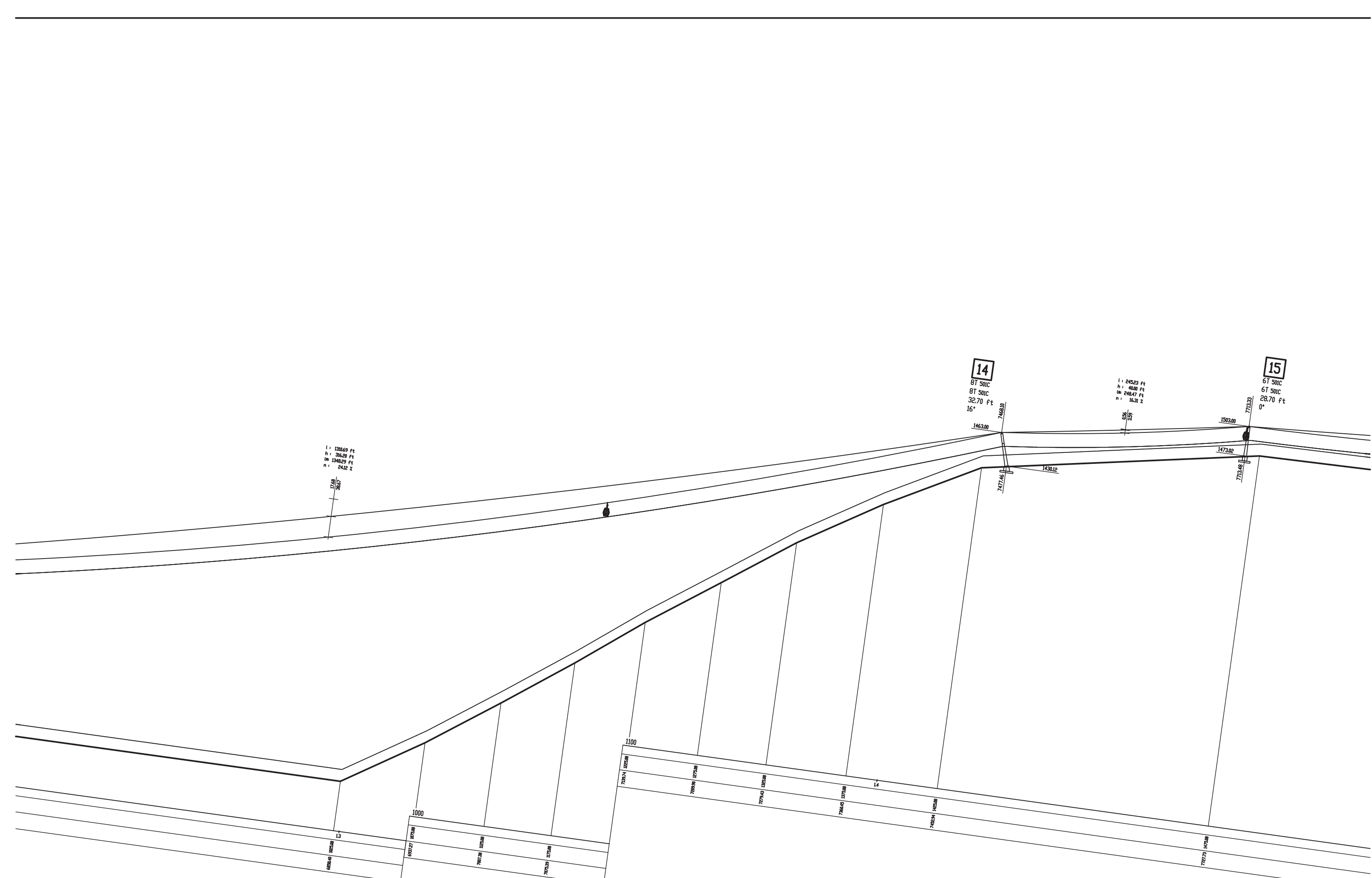
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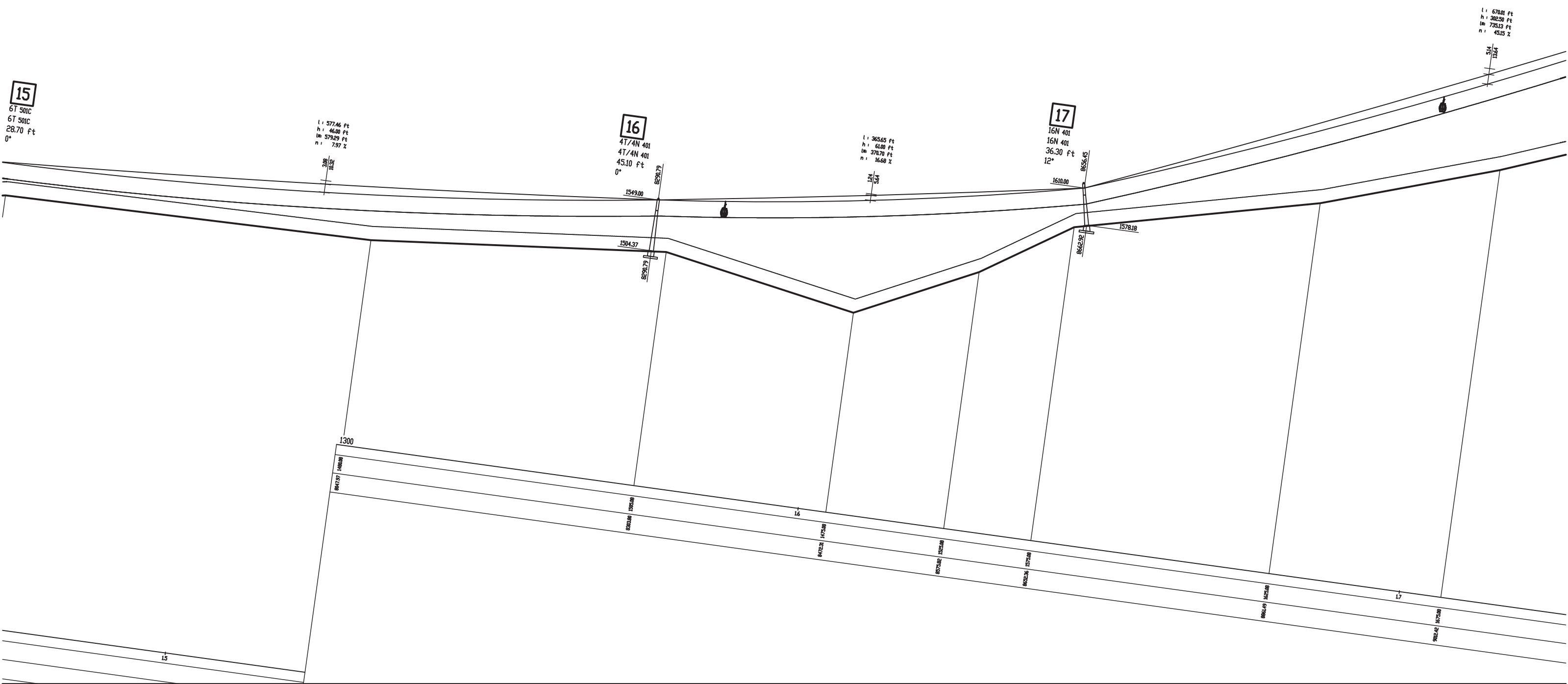
-2942.16</











15
6T 501C
6T 501C
28.70 ft
0°

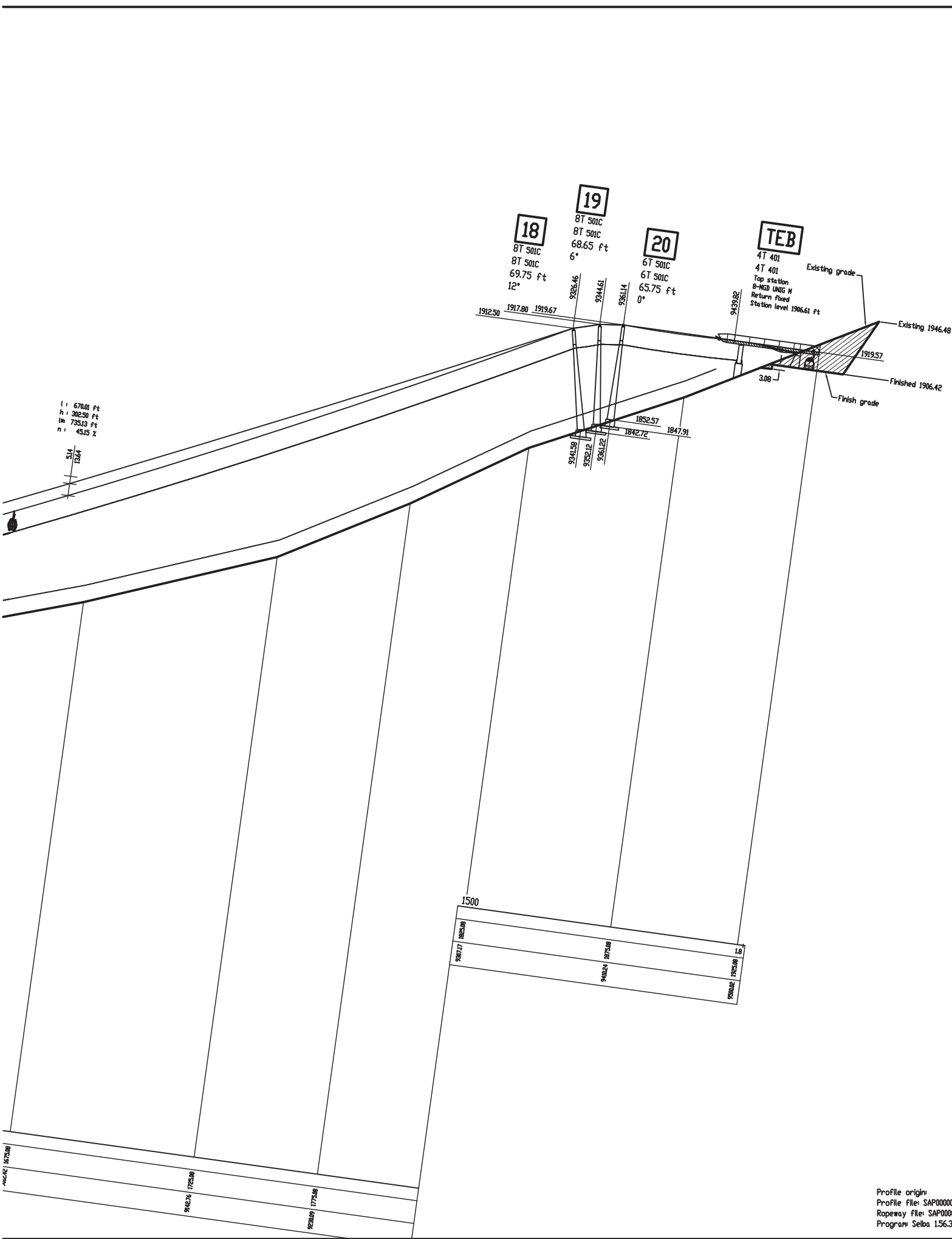
l : 577.46 ft
h : 46.00 ft
w : 575.29 ft
n : 7.97 %

16
4T/4N 401
4T/4N 401
45.10 ft
0°

l : 365.65 ft
h : 61.00 ft
w : 370.70 ft
n : 16.60 %

17
16N 401
16N 401
36.30 ft
12°

l : 670.01 ft
h : 302.50 ft
w : 735.13 ft
n : 45.15 %



Profile origin:
Profile File: SAP0000018-r00 Kaukonahua Ranch Kamananui Gondola.gel
Ropeway File: SAP0000018-r00 Kaukonahua Ranch Kamananui Gondola.ngd
Program: Selba 1.56.3 CIN1513641748



Profile 8-MGD Kamananui Gondola

Customer: Kaukonahua Ranch LLC
Location: Oahu, HI

Technical Data:			
Uphill Side	Left	Ø Haul Rope	1.77 in
Drive Station	Botton	Minimum Breaking Strength	347330 lb
Tension Station	Botton	Ø Drive Bullwheel	20.01 ft
Return Station	Top	Ø Return Bullwheel	18.04 ft
Horizontal Length	8905.55 ft	Rope Gauge on Line	20.01 ft
Vertical Rise	1132.21 ft	Drive Output Continuous	502 HP
Average Grade	12.71 %	Drive Output Starting	0 HP
Max. Rope Inclination	54.05 %	Elevation of Drive Station	787 ft
Inclined Length	9078.12 ft	Uphill Transportation	100 %
Spliced Rope Length	18423.77 ft	Downhill Transportation	100 %

	Initial	Final
Drive Speed	1000 fpm	1000 fpm
Capacity	500 pph	750 pph
Number of Carriers	22	33
Carrier Spacing	960.00 ft	640.00 ft
Carrier Interval	57.60 s	38.40 s
Trip Time	11.04 min	11.04 min

Index / Revision

Doppelmayr®

3160 West 500 South
Salt Lake City, Utah 84104

Scale
1"=40'

Project No.
SAP0000018

Drawing No.
SAP0000018-PR01F

Index

Date
2017-12-16

Name
CBB

This drawing is the intellectual property of Doppelmayr USA, Inc.
It must not be copied nor utilized in whole or in part without permission and is subject to return upon request.

IMPORTANT: CHECK
CLEARANCE OF SECURING
EYE AND STEPS IN THE
STATION AND IN THE
PARKING AREA

Technical drawing of a cable car cabin and its suspension system. The drawing includes a side elevation of the cabin (bottom) and a top-down view of the suspension (top).

Dimensions (mm):

- Cabin width: 1800
- Cabin height: 2100
- Track width: 1878
- Suspension width: 1380
- Suspension height: 1920
- Distance from cabin top to suspension: 1090
- Distance from suspension to track: 42
- Distance from track to ground: 39

Labels and Annotations:

- CL rope
- 42
- DIRECTION OF TRAVEL
- CL TR
- MTT=25MM
- DIRECTION OF TRAVEL
- CLW RIGHT
- 24-27
- 27-29
- A
- 1090
- 1380
- 1800
- 1878
- 39
- 39

The tie rods are fixed to the cabin's roof with an antitwist protection. When fixing the item 5 by a locknut, the item 7 must be held up with a pin-type face spanner.

Achtung: Einstiegsmaass einhalten!
Gegebenenfalls Mass "X" vergrössern

supply share of
cabin manufacturer

CWA OMEGA IV-LWI
see cabin specification

SPRING ON TOWER
SIDE, COLOUR: GRE

SPRING ON DOOR SIDE,
COLOUR: BLACK

DOORS

INTERNAL REMOTE CONTROL

Course and guidance of the Meflex cable

Direction of travel ccw - right

Direction of travel cw - left

Item no. analogue in both representations.

Ernis	WAA0002661		
Filas de Mariche 2	WAA0002001		
Filas de Mariche 1	WAA0001999		
Vakchos	WAA0002660	Injohs	WAA0002662
Afroditi	WAA0002659	Plaza Quijote - San Jose	WAA0002547
Senderbahn-Gastein f+2	AAA0002553+54	Stubnerkogelbahn f+1f	AAA0002670+71
C C W - R I G H T		C W - L E F T	

		Zoo Roweway Dohuk Roweway
TPA	MAA0003344	Langrood
Cerro Del Santisimo	MAA0003282	Divisadero 2
Mariche - Tramo Express	MAA0001998	San Agustín 1
Grafenberg 2	MAA0002816	Rio Chana
Prati Di Tivo-La Madonnina	MAA0004111	San Agustín 2
#7 Chondola	SAA0001693	Children's Gondola
	CCW - RIGHT	CW - LEFT



C	New representation for W/fin class	2012-10-24	Storia Patris				
	Note: Publication/Item 30, 31 new						
B	Dimensioning of the access level adj. (item 14 supply share of cabin/mal)	2010-11-30	Storia F.		without item, 24-29		106441105
A	Changed: buffer	2006-05-05	Zig Herent		complete		106441104
Item	Access	Date	W/fin class	Configuration	State	State	Notes
1	 Doppelmayr	Storia Patris (and Storia F.) A-600 BELFUS/NEUSIA	SB		Stable Factor: 1,000 1/10	Stable 2008-04-01	Storia Patris
2					Factor: 1,000 1/10	Stable 2010-07-01	Zig Herent
3	Initiation				emp kg	2015-04-28	
4	Order			Place			
5	CARRIER RMGO	2005					
6	CABIN CMA OMEGA IV-LWT						
7	A106C/A106-97, SUSPENSION: GCS						
8							
9							
10	This drawing is intellectual property of SUPPLEMENT DELIBERATION (SDEL) and is transferred to SIMONA PATRIS (SP) as of 30.06.2015						

Exhibit 7:

Letter from Manufacturer on
Gondola Machinery

Mark "Skip" Taylor
General Manager
Kamananui
Kaukonahua Ranch LLC
c. 503.568.2566

Doppelmayr USA, Inc.

3160 West 500 South
Salt Lake City, UT 84104
T: 801-973-7977

September 16, 2025

Dear Skip,

We hope this letter provides technical clarity and support for designers and others working on incorporating important operating considerations into the proposed Kamananui gondola system. Although there is precedent to incorporate gondola terminal machinery into indoor structures or venues, Doppelmayr's recommendations are to separate the two at the Kamananui project based on the following reasons.

Top station and agribusiness center

Though the gondola equipment can be integrated into a larger building structure, it is Doppelmayr's strong recommendation that the gondola terminal machinery be kept standalone and separate from any other structures.

For health and safety reasons, the offloading of agricultural materials (plant stock, ag equipment, livestock) should be kept separate from visitor areas.

From a technical perspective, every gondola system in USA, including terminals and towers, are classified as ropeway machinery by the American National Standard for Passenger Ropeways, ANSI B77.1-2022, and must conform to these standards which apply to terminal machinery. Such machinery elements are not considered building structures for permitting purposes.

Per these standards, the gondola terminal machinery foundations are subject to high load bearing forces, wind and machinery vibrations that should be contained and kept out of adjacent structures. The unloading platform of the gondola must have its own dedicated foundation and keeping these foundations separate and distinct from any adjacent agribusiness structures is in alignment with gondola engineering best practices.

Considering the specific mechanical requirements and the operating concepts for the Kamananui gondola, Doppelmayr recommends that the agribusiness structures be structurally and foundationally separated from any gondola machinery foundations.

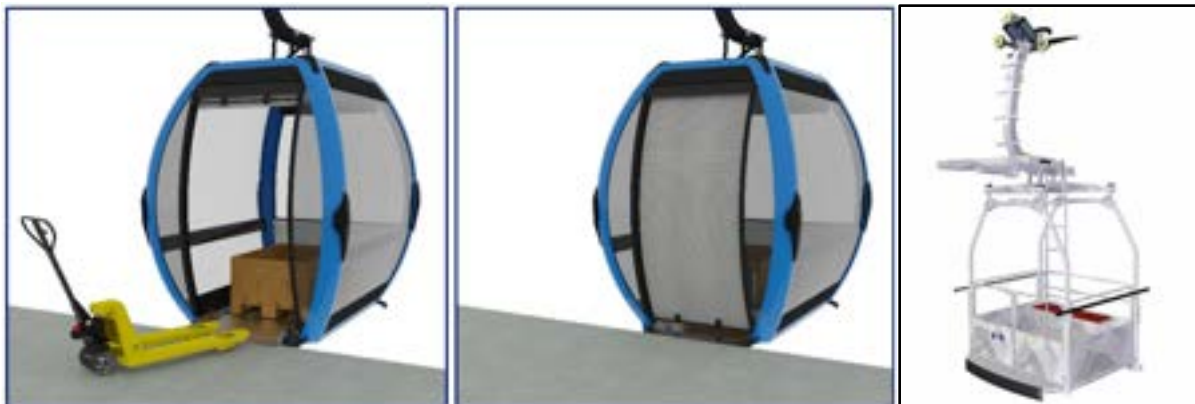
The following aspects of the gondola operations and maintenance will be improved by keeping the gondola machinery terminals foundationally separate and constructed independent of any other agribusiness structures:

- Passenger comfort and safety
- Structural isolation for sound and vibrational containment
- Constructability and access during assembly and subsequent maintenance.
- Enhanced flexibility between agricultural and agribusiness uses.

Background on Ropeways supporting agriculture

Regarding agricultural uses for the Kamananui Gondola, there are a number of ropeway systems around the world where the ropeway provides safe and reliable transport not only for people, but also for agricultural resources. Indeed, ropeway systems often serve multiple needs and are frequently used to carry payloads of varying types such as freight, equipment, or livestock.

Specialized cabins and carriers can be supplied to optimize the transport needs. Freight cabins can mimic the aesthetic of passenger cabins, or they can be simple open-air style.



Doppelmayr works with ropeway operators to tailor their ropeway to the specifications of the application, including application of dedicated freight cabins or maintenance carriers, which are commonly used around the world. To help provide some context, here is a short list of reference projects where ropeways are used to transport livestock and other agricultural products and equipment:

- Dursey Island Cable Car, Ireland
- Obertsafel Alpe Cable Car, Switzerland

- Isenfluh-Sulwald Cable Car, Switzerland
- Val Casies Cable Car, Italy

We look forward to continuing to work with the Kamananui gondola project to design and build a world class gondola that will best serve all the agricultural and agribusiness goals articulated for your ranch and your project.

Sincerely,



Shawn Marquardt
Senior Sales Director

Exhibit 8:

Agricultural and Agribusiness Structures Comparison Table

Comparison of Agricultural and Agribusiness Structures - Main Agribusiness Center Site					
Structure	Approved CUP Building Area (2019)	Minor Modification Building Area (2025)	Comparison of Approved CUP vs Modification Building Area (2019 to 2025)	Comparison of Uses (2019 to 2025)	
	Main Agribusiness Center Area (sf)	Main Agribusiness Center Area (sf)	Comparison Main Agribusiness Center Area (sf)	Approved CUP Uses (2019)	Minor Modification Uses (2025)
Greenhouses & Agricultural Storage	3,552	8,808	5,256	Greenhouses	More Agricultural Facilities/Sheds and Agricultural Storage Added
Agribusiness Pavilions	9,990	9,625	(365)	Arrival Pavilion, Cultural Pavilion, Main Pavilion, Educational Exhibits, Indoor Seating & Lanai	Uses remain same. Decreased size for seating areas & rest area (4,950 sf to 4,305 sf = -645 sf).
Retail Areas	500	500	-	Retail	No change
Kitchen & Agricultural Processing	672	2,625	1,953	Kitchen	Kitchen facilities updated to incorporate Agricultural Production and Processing Facilities
Agricultural and Agribusiness Support Facilities (Restrooms, First Aid, Storage & MEP)	1,056	5,985	4,929	Restrooms, Storage & MEP	First Aid areas added and additional secured storage needed. Support facilities will also be used by agricultural staff/operations.
Offices (Agribusiness and Ranch Operations)	1,344	4,160	2,816	Office Space	Agribusiness Office Space Consolidated with Ranch Operations to Meet Need for Expanded Agricultural Uses
Total Area (Agricultural Only)	3,552	8,808	5,256		
Total Area (Agribusiness Only)	10,490	10,125	(365)		
Total Area (Shared Use)	3,072	12,770	9,698		
Total Number of Agricultural Structures	2	20	18		
Total Number of Agribusiness and Shared Use Structures	18	4	-14		
Aggricultural Lands (Interior and Exterior)	Main Agribusiness Center Area (sf)	Main Agribusiness Center Area (sf)	Comparison Main Agribusiness Center Area (sf)		
Cultural Garden	500	550	50		
Demonstration Crop Trellises	700	-	-700		
Demonstration Crop Area (Outdoor)	5700	8000	2300		
Orchard Area	5300	5500	200		
Demonstration Forestry Area	2600	3500	900		
Demonstration Pasture Area	-	3600	3600		
Total Area (All Agricultural Lands)	14,800	21,150	6,350		

Comparison of Agricultural and Agribusiness Structures - Mid Station Site					
Structure	Approved CUP Building Area (2019)	Minor Modification Building Area (2025)	Comparison of Approved CUP vs Modification Building Area (2019 to 2025)	Comparison of Uses (2019 to 2025)	
	Mid Station Area (sf)	Mid Station Area (sf)	Comparison Mid Station Area (sf)	Approved CUP Uses (2019)	Minor Modification Uses (2025)
Agribusiness Support Facilities	-	1,600	1,600	N/A	First Aid, Information/Rest Area and Ag Storage Added
Gondola Storage Facilities*	2,058	-	(2,058)	Gondola Equipment Storage	Gondola machinery storage facilities relocated to Main Agribusiness Center Area
Compostable Restroom Facilities	150	150	-	Compostable restrooms	No change in use or size of facilities
Total Area (All Structures)	2,208	1,750	(458)		
Total Number of Structures	1	3	2		
*Note that gondola storage facilities are also identified in "Gondola Machinery Structures" Table. Included here for reference to illustrate how previous square footage approved for gondola machinery storage in Mid Station Area was repurposed for first aid, rest area and ag storage.					

Comparison of Agricultural and Agribusiness Structures - Top Station Site					
Structure	Approved CUP Building Area (2019)	Minor Modification Building Area (2025)	Comparison of Approved CUP vs Modification Building Area (2019 to 2025)	Comparison of Uses (2019 to 2025)	
	Top Station Area (sf)	Top Station Area (sf)	Comparison Top Station Area (sf)	Approved CUP Uses (2019)	Minor Modification Uses (2025)
Agribusiness Commonspace*	3,800	3,460	(340)	Agribusiness tours and seating	No change
Agribusiness Support Facilities (Restrooms, F&B, First Aid, Storage & MEP)	1,200	1,400	200	Restrooms, Kitchen & MEP	First Aid Areas and Additional Storage Added. Restrooms converted to traditional facilities.
Total Area (All Structures)	5,000	4,860	(140)		
Total Number of Structures	1	1	0		
*Note: there is an additional 2,300 sf of space on Level 2 not reflected in the comparative table. As confirmed by discussions with DPP staff and the DPP clarification letter dated March 12, 2024 (Reference # 2024/ELOG-201(JS)), building area, as defined under Chapter 21 of the LUO, is the determining criteria for compliance with CUP condition regarding the square footage of the top station structures based on the footprint of the structures (not floor area).					

Comparison of Agricultural and Agribusiness Structures - Agricultural Transportation System (Gondola Machinery)															
Agricultural Transportation System	Approved CUP Building Area (2019)					Minor Modification Building Area (2025)					Comparison of Approved CUP vs Modification Building Area (2019 to 2025)				
	Main Agribusiness Center Area (sf)	Mid Station Area (sf)	Top Station Area (sf)	Towers (sf)	Total Project Area (sf)	Main Agribusiness Center Area (sf)	Mid Station Area (sf)	Top Station Area (sf)	Towers (sf)	Total Project Area (sf)	Comparison Main Agribusiness Center Area (sf)	Comparison Mid Station Area (sf)	Comparison Top Station Area (sf)	Comparison Towers (sf)	Comparison Total Project Area
Gondola Machinery (Pavilions)	3,888	4,960	2,600	-	11,448	1,780	1,600	2,500	-	5,880	(2,108)	(3,360)	(100)	-	(5,568)
Control Room, Towers & Gondola Storage	-	2,058	-	1,800	3,858	4,455	280	140	800	5,675	4,455	(1,778)	140	(1,000)	1,817
Total Area (All Structures)	3,888	7,018	2,600	1,800	15,306	6,235	1,880	2,640	800	11,555	2,347	(5,138)	40	(1,000)	(3,751)
Total Number of Structures	1	2	1	18	22	3	4	2	8	17	2	2	1	-10	(5)

Comparison of Agricultural and Agribusiness Structures - Kaukonahua Stream Valley Site					
Structure	Approved CUP Building Area (2019)	Minor Modification Building Area (2025)	Comparison of Approved CUP vs Modification Building Area (2019 to 2025)	Comparison of Uses (2019 to 2025)	
	Kaukonahua Stream Valley (sf)	Kaukonahua Stream Valley (sf)	Comparison Kaukonahua Stream Valley (sf)	Approved CUP Uses (2019)	Minor Modification Uses (2025)
Greenhouses	12,928	1,600	(11,328)	Greenhouses	Some ag production requiring greenhouses will be achieving utilizing facilities at HARC facilities
Processing and Livestock Facilities	6,912	2,400	(4,512)	Agricultural Production and Processing	Some agricultural production and processing has been relocated to the main agribusiness center
Agricultural Support Facilities (Restrooms, & Agricultural Equipment Storage/Sheds)	2,880	1,280	(1,600)	Restrooms, Storage & MEP	No change in uses. Compost restrooms remain same size. Some agricultural storage space moved to mid-station and main agribusiness center sites
Offices	2,880	720	(2,160)	Ranch Operations Offices	Some Ranch operations offices consolidated with agribusiness office space for closer access to expanded ag uses at main agribusiness center site and ag transportation system (gondola) to reach top station ag projects
Total Area (All Agricultural Structures)	25,600	6,000	(19,600)		
Total Number of Structures	8	7	-1		

Comparison of Agricultural and Agribusiness Structures - TOTAL COMPARISON				
Structure	Approved CUP Building Area (2019)	Minor Modification Building Area (2025)	Comparison of Approved CUP vs Modification Building Area (2019 to 2025)	
	Kaukonahua Stream Valley (sf)	Kaukonahua Stream Valley (sf)	Comparison Kaukonahua Stream Valley (sf)	
Main Agribusiness Center Site	17,114	31,703		14,589
Mid Station Site	2,208	1,750		(458)
Top Station Site	5,000	4,860		(140)
Valley Site	25,600	6,000		(19,600)
Total Area (All Structures)	49,922	44,313		(5,609)
Total Number of Agricultural Structures	10	27		17
Total Number of Agribusiness Structures	20	8		-12
Total Number of All Structures*	30	35		5
Gondola Machinery	15,306	11,555		(3,751)
*Note: Does not include gondola machinery structures/towers				

Exhibit 9:

Approved Site Plans and Building Plans
(CUP Exhibit E – Exhibit P)

CUP Exhibit E1 Proposed Site Plans and Building Plans Kamananui



SITE PLAN



0 12.5 50 100FT

KAMANANUI

kamananui, waialua, o'ahu, hawai'i

12 March 2019

CUP Exhibit E2
Proposed Site Plans and
Building Plans
Kamananui



ENLARGED SITEPLAN,
AGRIBUSINESS FACILITIES

0 15 30 60FT

KAMANANUI

kamananui, waialua, o'ahu, hawaii

12 March 2019

CUP Exhibit E3

Proposed Site Plans and Building Plans

Kamananui

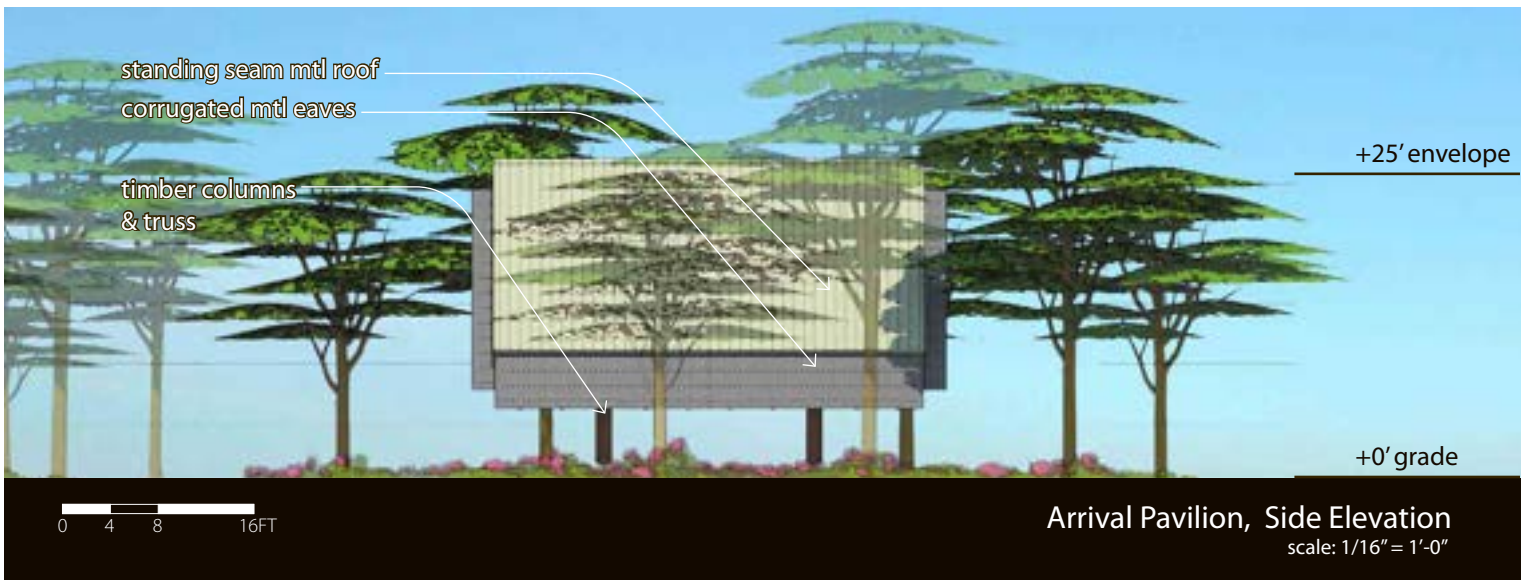


KAMANANUI

kamananui, waialua, o'ahu, hawaii

12 March 2019

CUP Exhibit F
Proposed Site Plans and
Building Plans
Kamananui



CUP Exhibit G
Proposed Site Plans and
Building Plans
Kamananui

wood louvers

timber columns & truss

+25' envelope

+0' grade

0 2 4 8 FT

Main Pavilion, North Elevation
scale: 1/8" = 1'-0"

operable skylight /
solar panels

standing seam or
corrugated mtl roof

metal scaffolding for
lashing thatch roofing
(natural or synthetic)

sliding glass walls and
operable louvers
pōhaku walls

+25' envelope

+0' grade

0 2 4 8 FT

Main Pavilion, North Elevation
scale: 1/8" = 1'-0"

CENTRAL
COURTYARD

26'

native landscape edge
and agricultural dem-
onstration parcels

RESERVOIR

1096 sf

42'

Main Pavilion, Plan
scale: 1/16" = 1'-0"



0 4 8 16 FT

KAMANANUI

kamananui, waialua, o'ahu, hawai'i

28 September 2018

CUP Exhibit H
Proposed Site Plans and
Building Plans
Kamananui



Main Pavilion, Plan
scale: 1/16" = 1'-0"

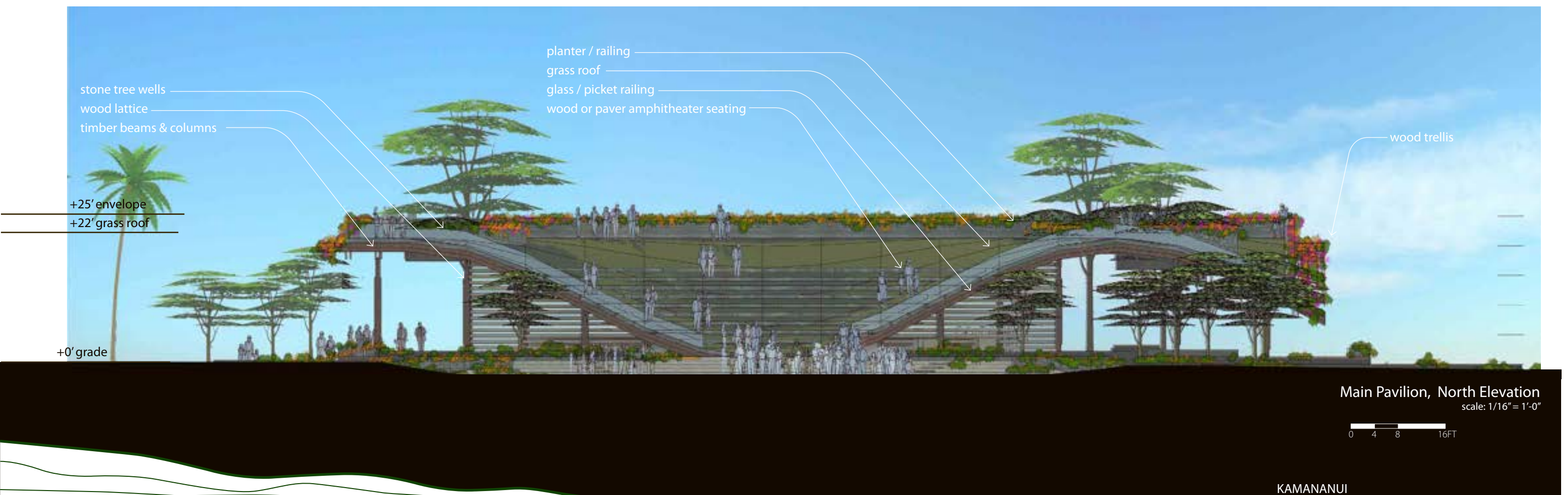
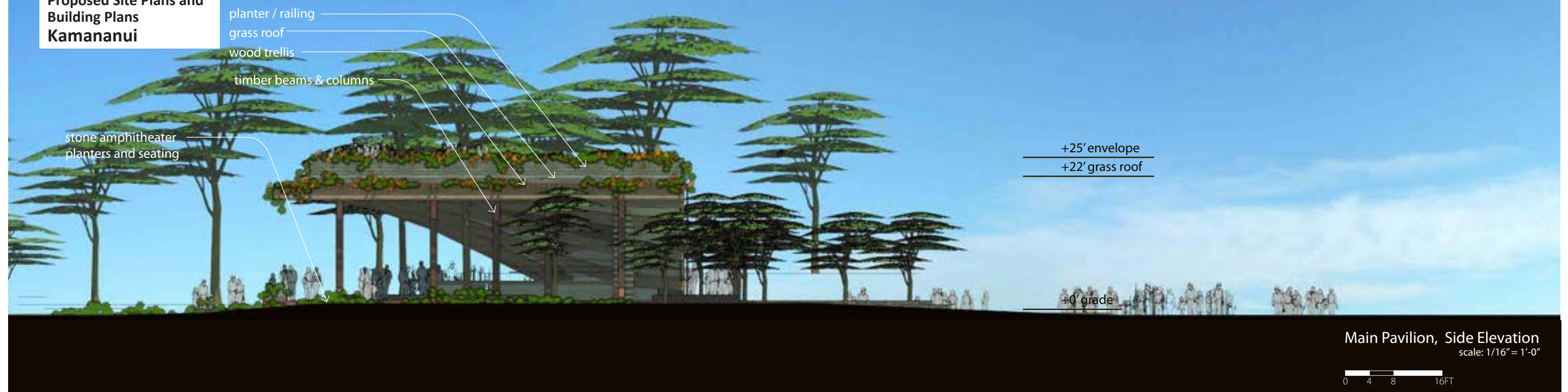


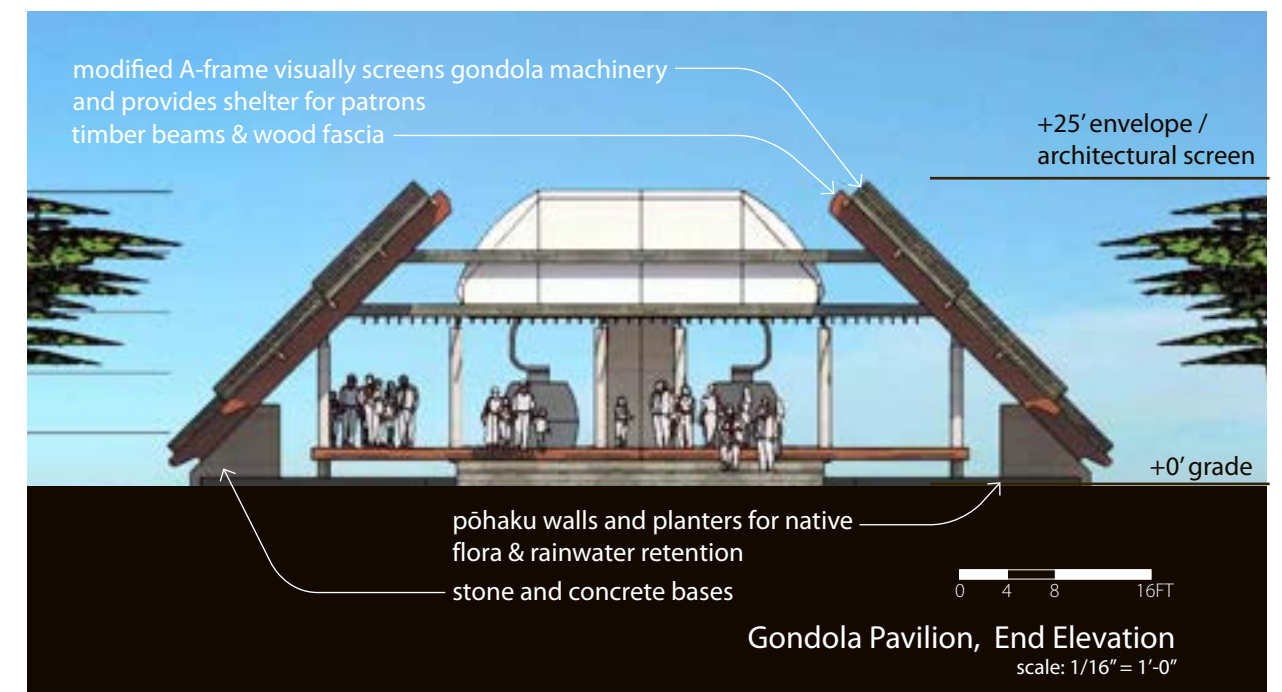
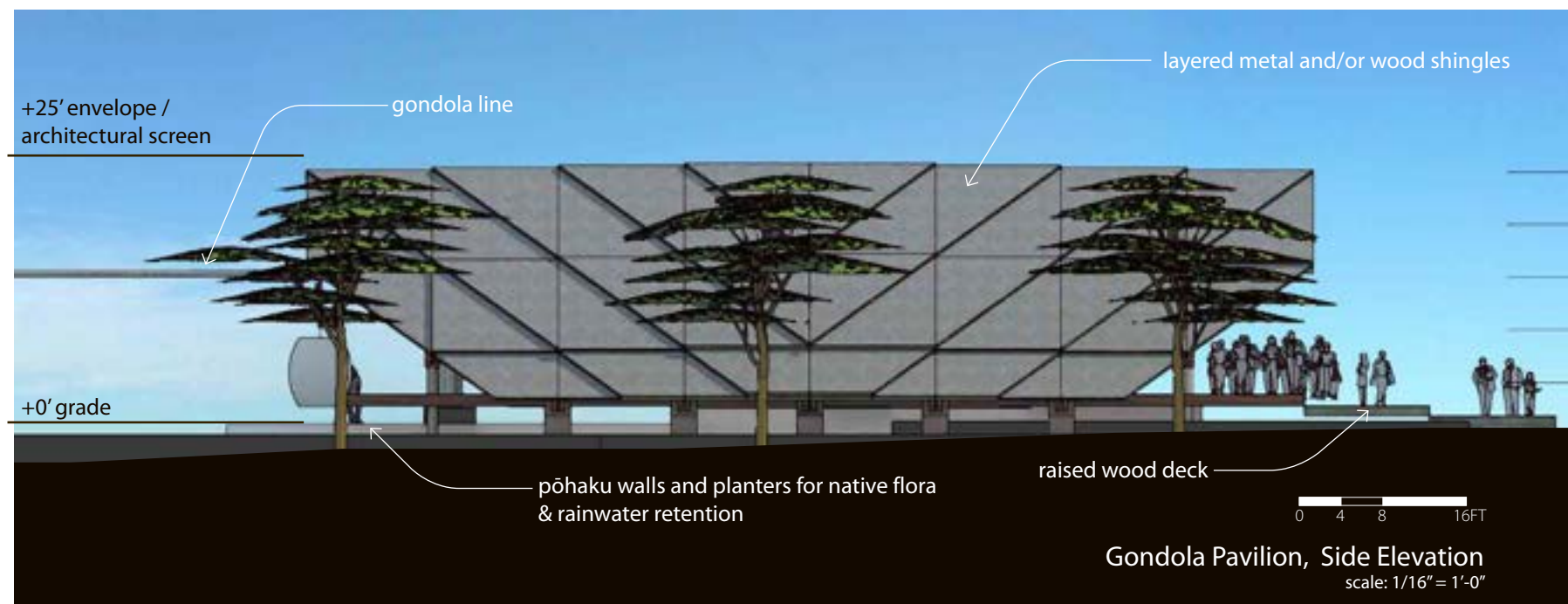
KAMANANUI

kamananui, waialua, o'ahu, hawai'i

28 September 2018

CUP Exhibit I
Proposed Site Plans and
Building Plans
Kamananui





CUP Exhibit J
Proposed Site Plans and
Building Plans
Kamananui

KAMANANUI

kamananui, waialua, o'ahu, hawai'i

28 September 2018

CUP Exhibit K

Proposed Site Plans and Building Plans

Kamananui



Restrooms = 150 sf
Storage = 2,058 sf
(2,208 sf total)

GONDOLA
STORAGE &
RESTROOMS

pōhaku walls and planters
for native flora & rainwater
retention

73'

2060 sf

62'

2900 sf

opportunities for native
landscape and agricultural
exhibit parcels in clearings
and along trails

Gondola Pavilion
(Mid Station), Plan
scale: 1/32" = 1'-0"

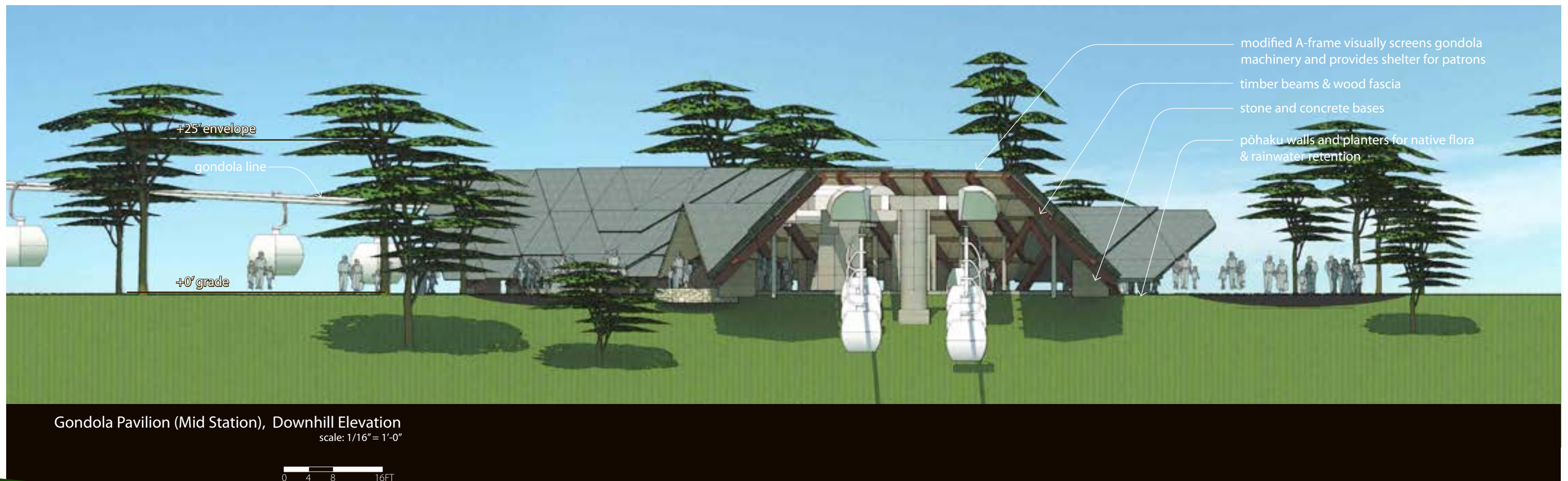
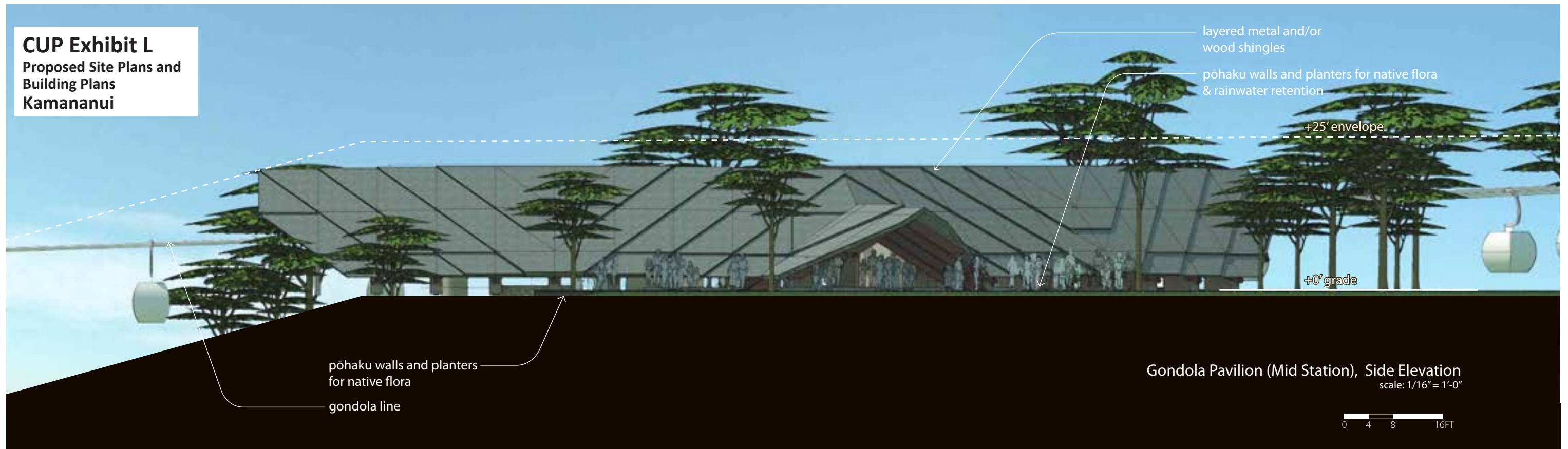


KAMANANUI

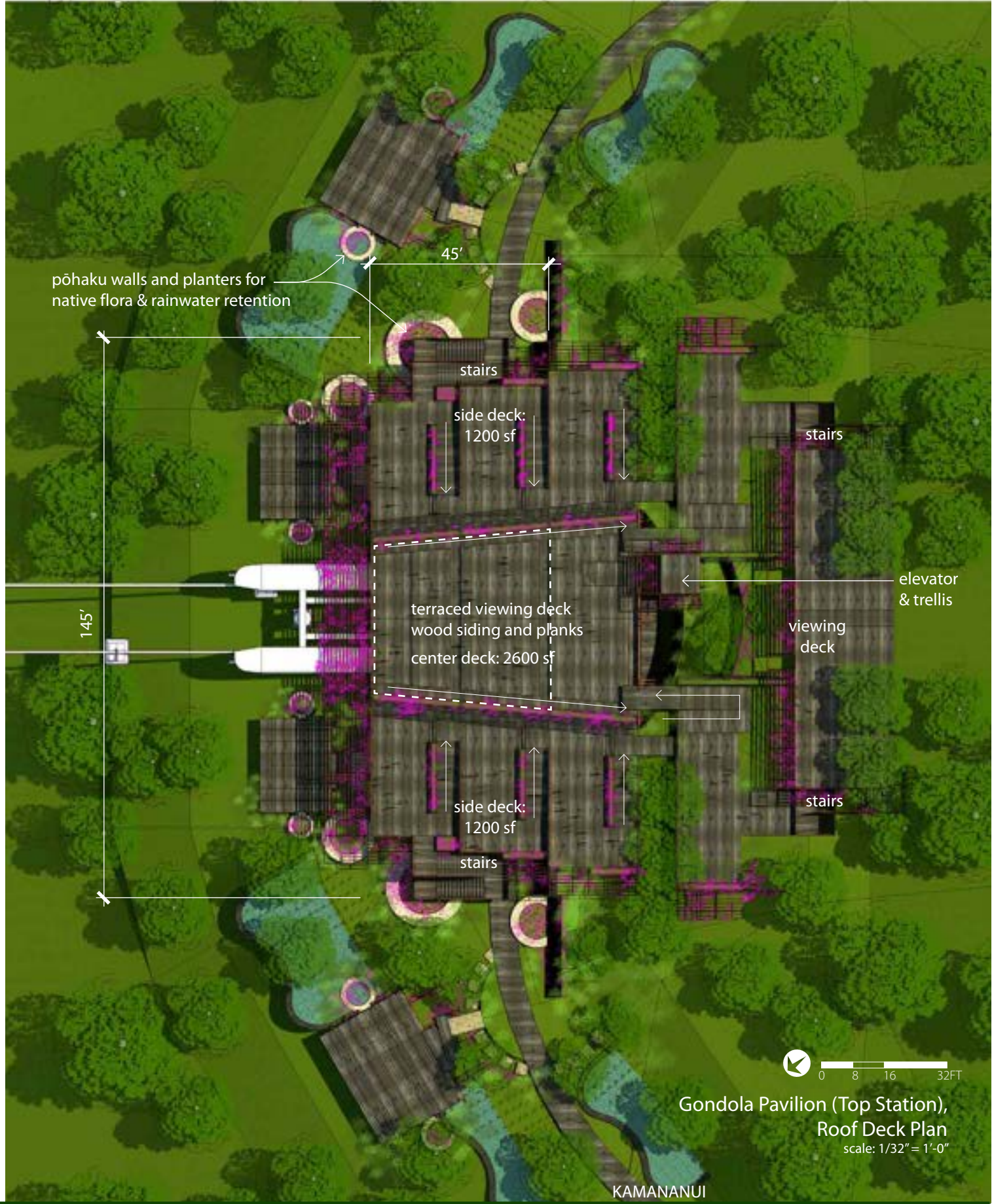
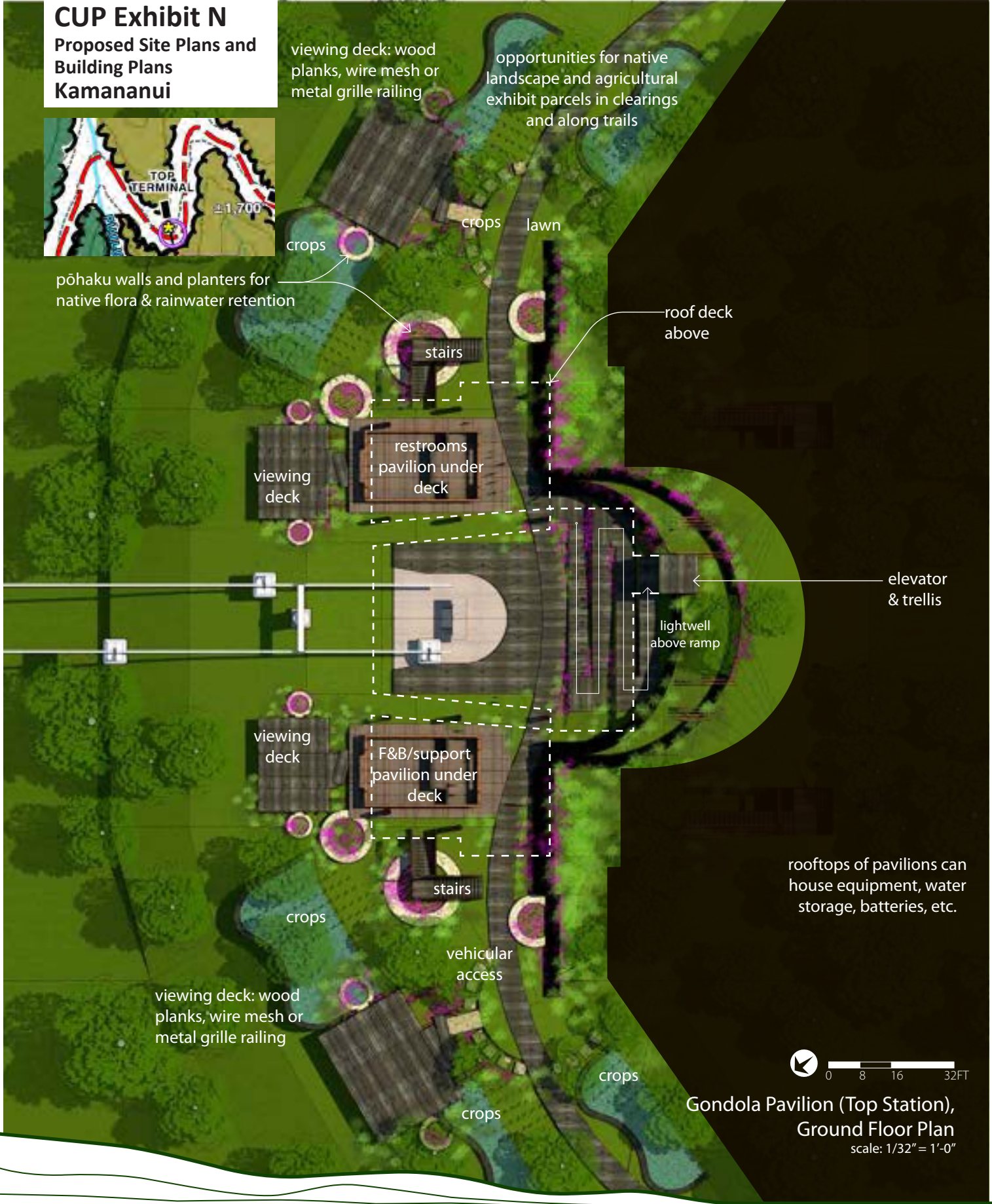
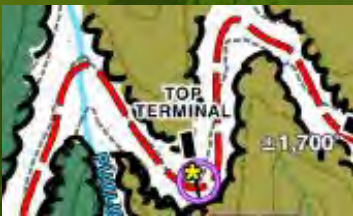
kamananui, waiālua, o'ahu, hawaii

28 September 2018

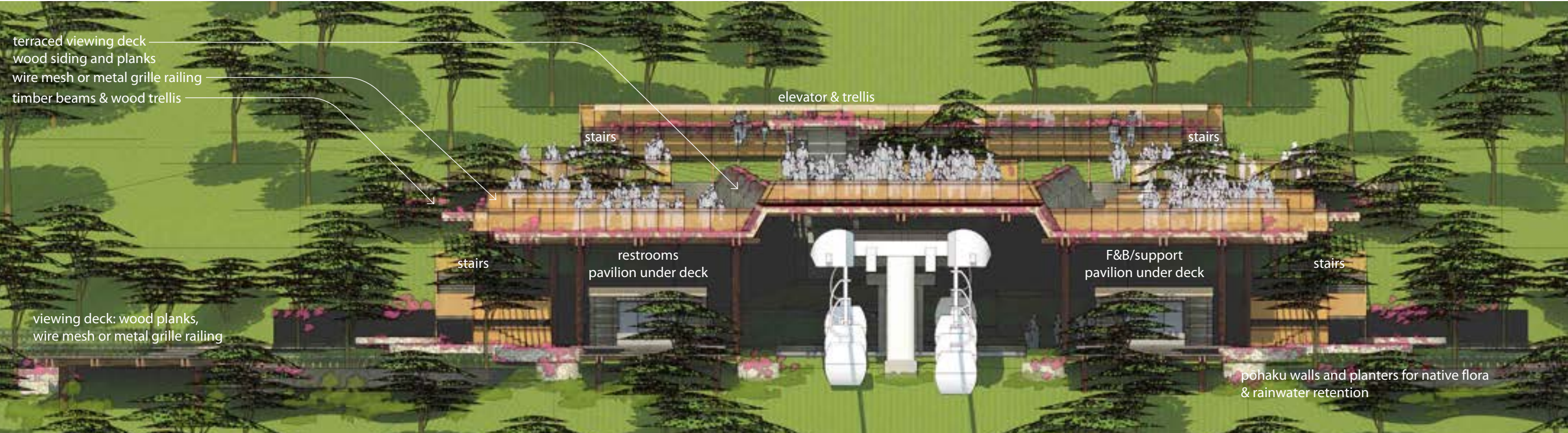
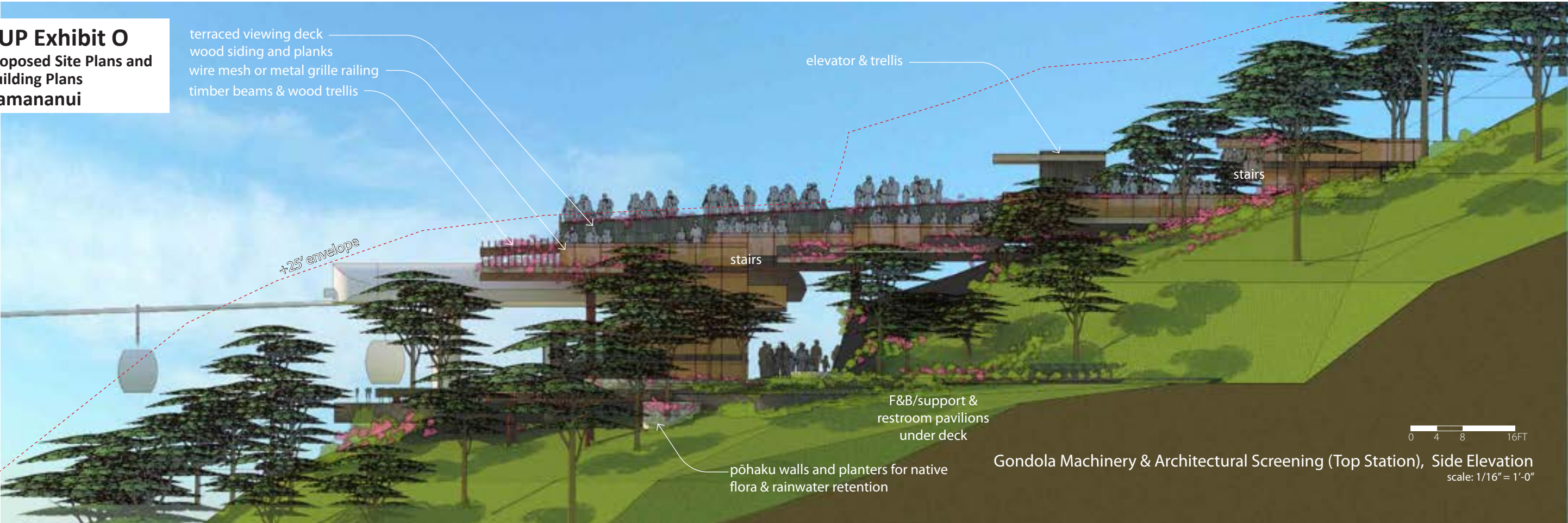
CUP Exhibit L
Proposed Site Plans and
Building Plans
Kamananui



CUP Exhibit N
Proposed Site Plans and
Building Plans
Kamananui

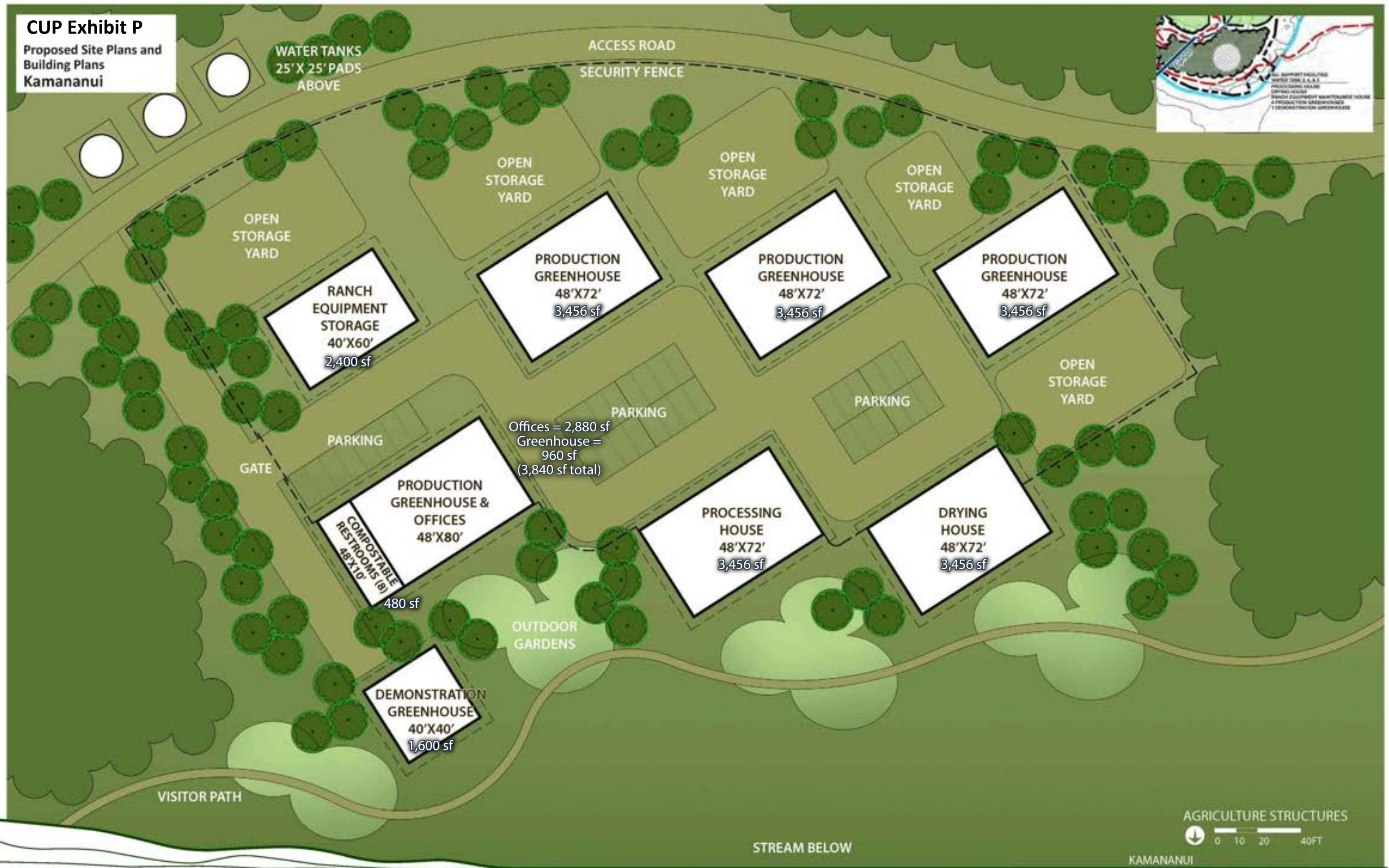


CUP Exhibit O
Proposed Site Plans and
Building Plans
Kamananui

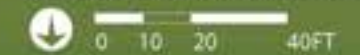


CUP Exhibit P

Proposed Site Plans and
Building Plans
Kamananui



AGRICULTURE STRUCTURES



KAMANANUI

kamananui, waialua, o'ahu, hawaii

28 September 2018

Exhibit 10:

Modified Site Plans and Building Plans
(Modified CUP Exhibits E - P)

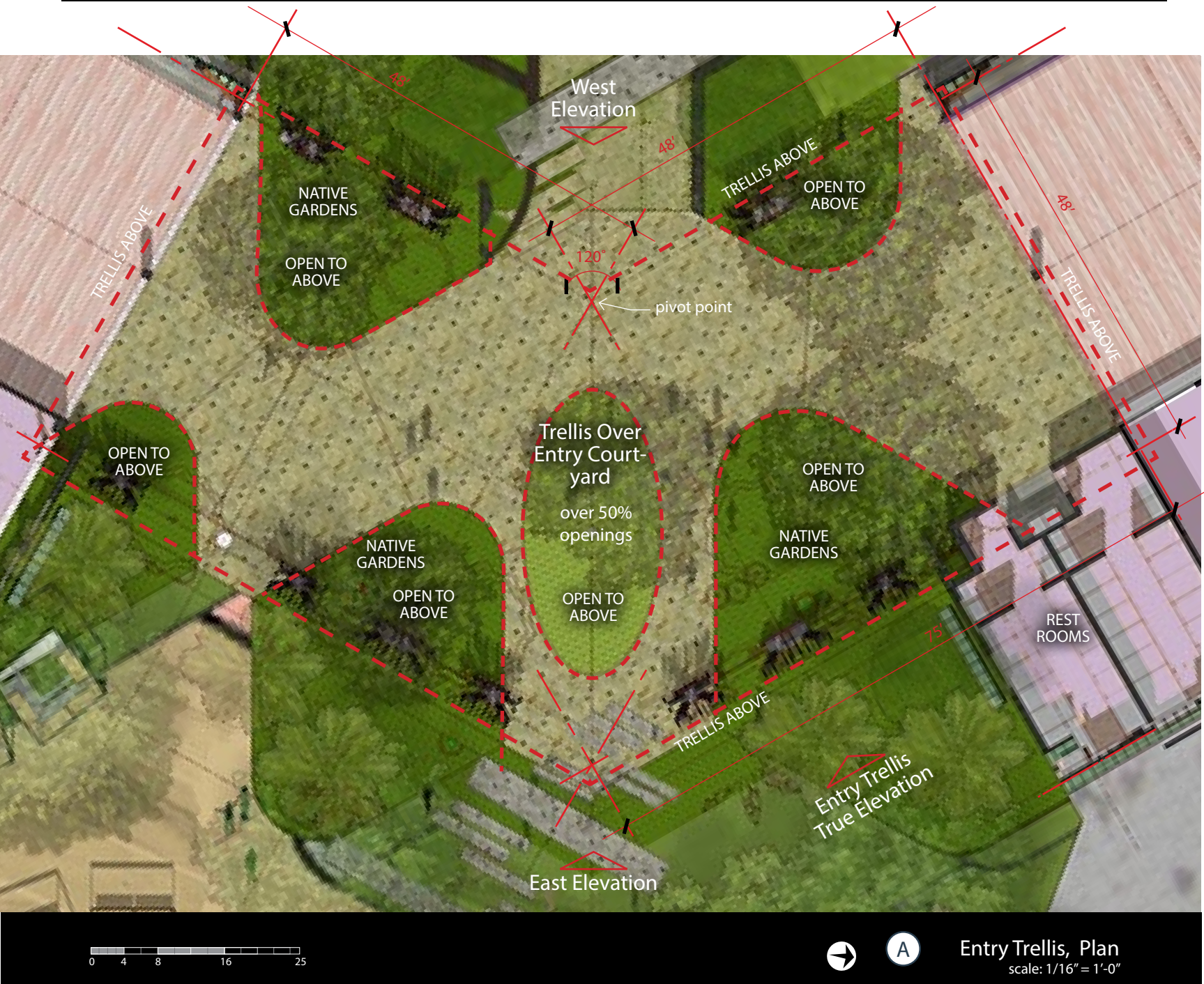
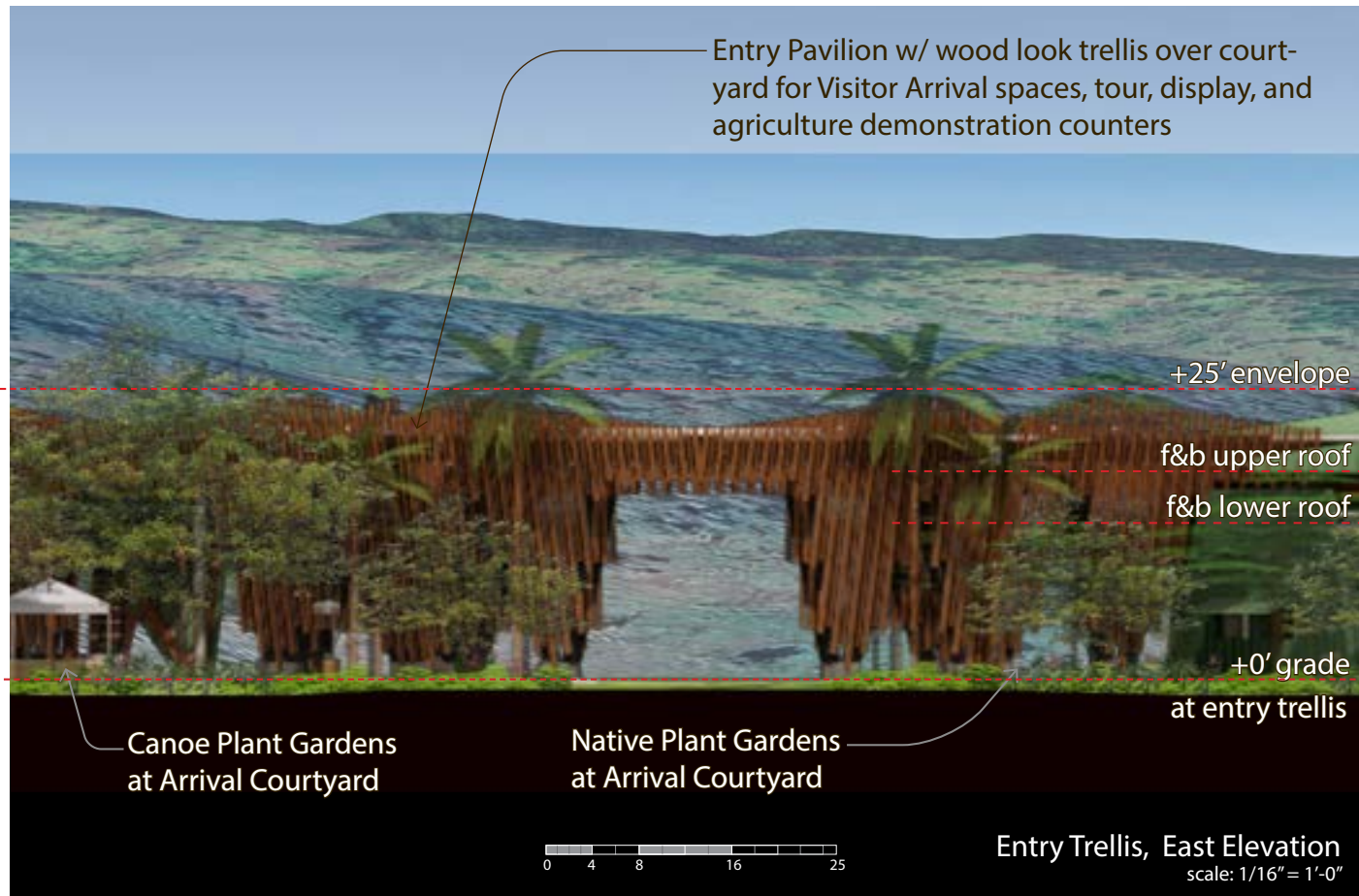
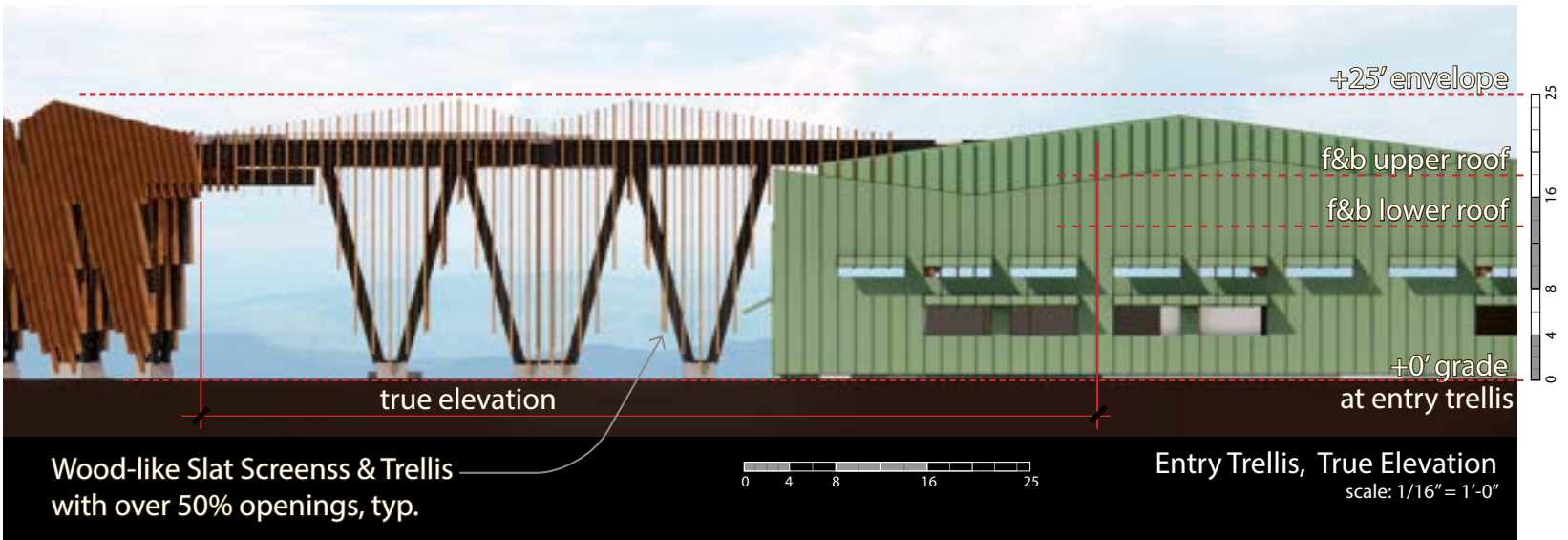
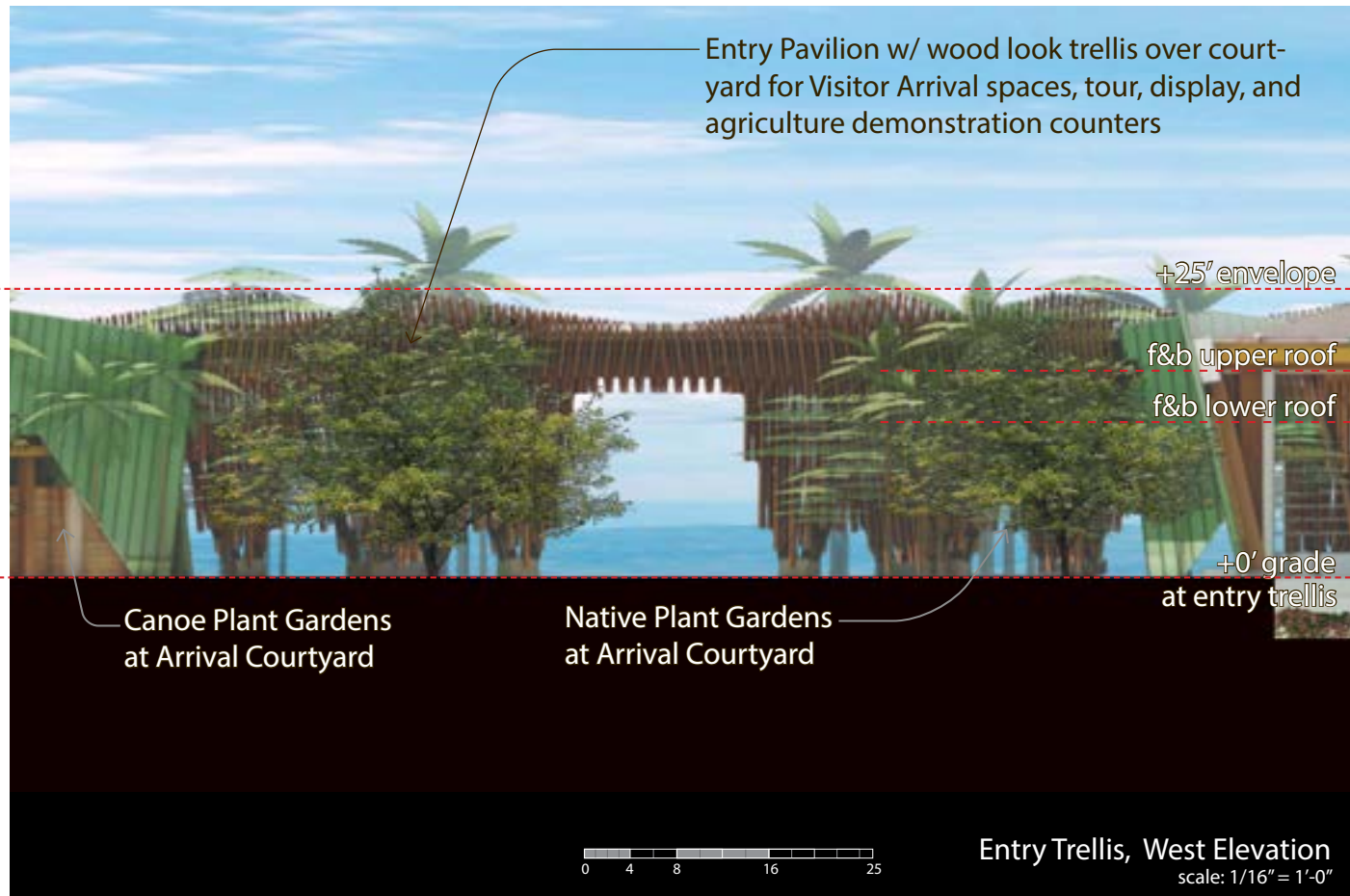


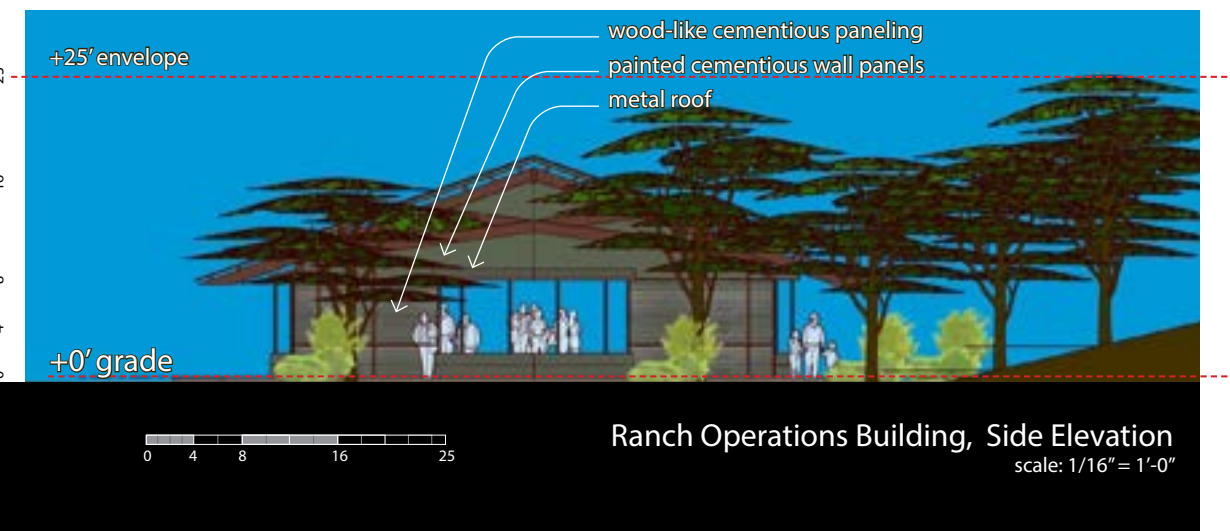
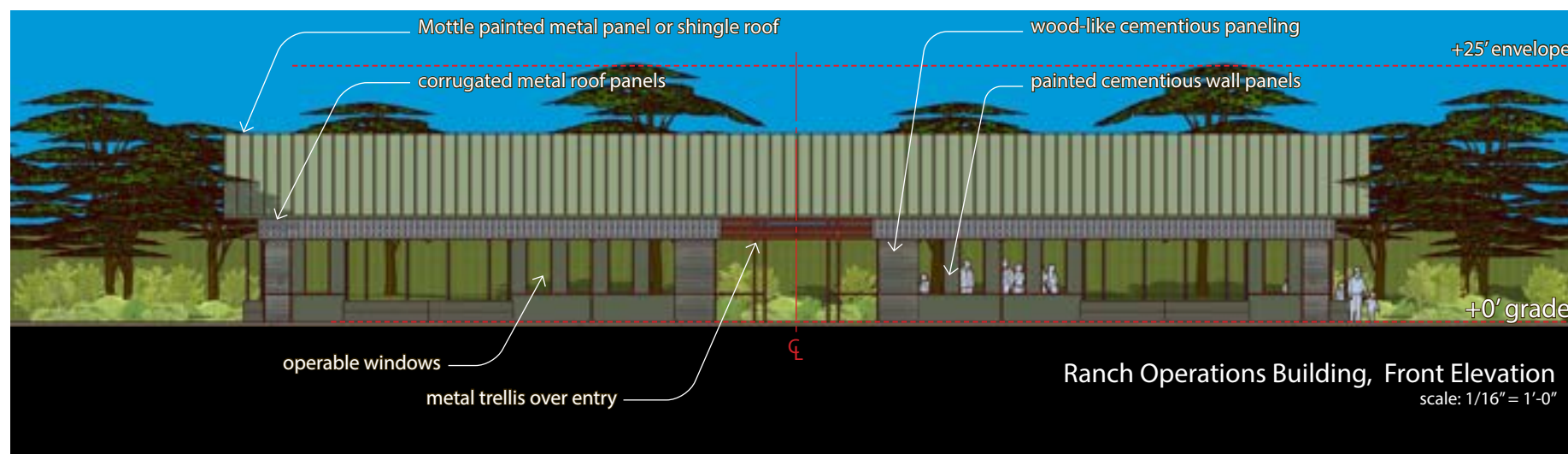
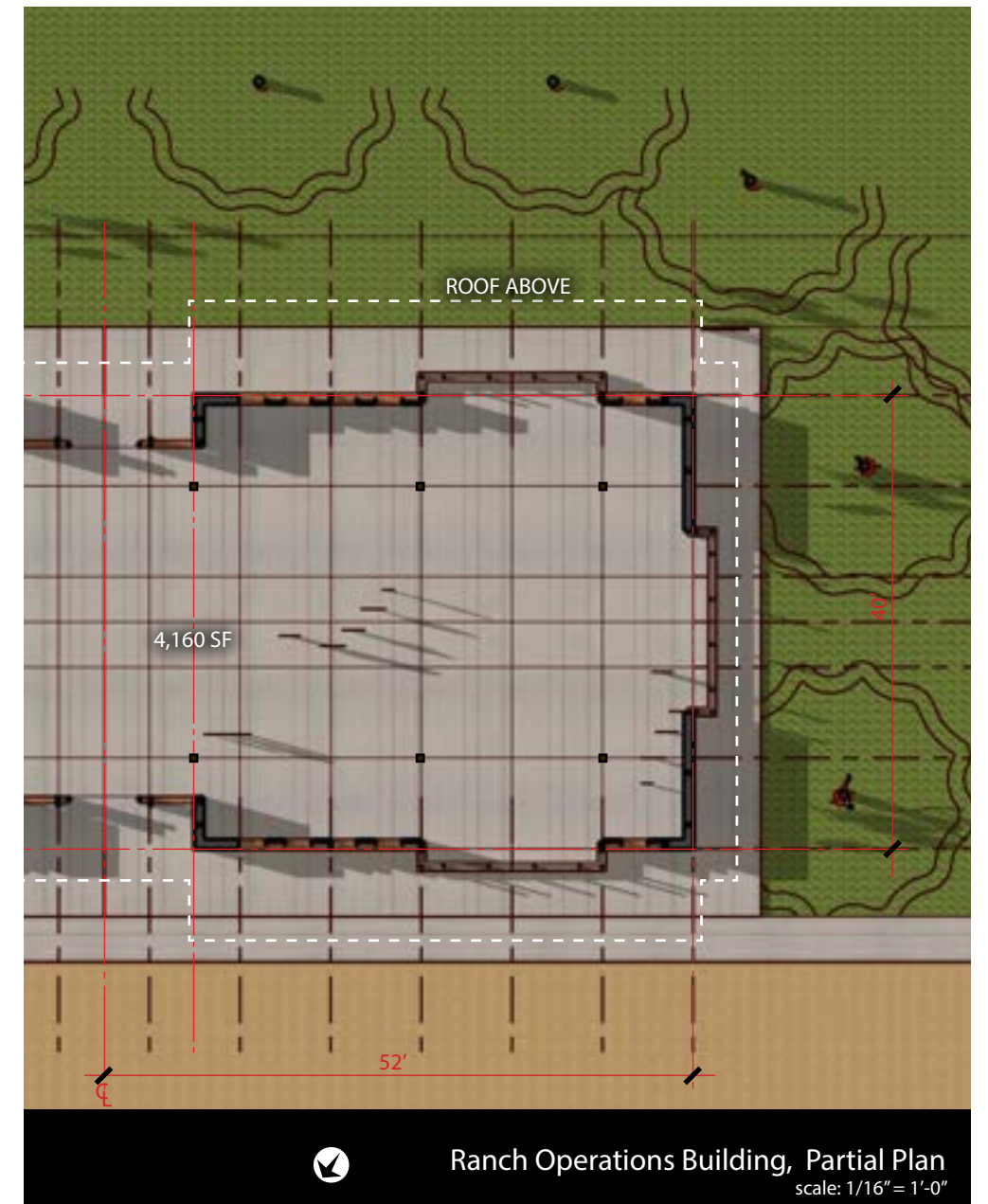


ENLARGED SITE PLAN,
AGRIBUSINESS CENTER, ROOF PLAN
SCALE: 1:100'



ENLARGED SITE PLAN,
AGRIBUSINESS CENTER, FLOOR PLAN
SCALE: 1:100'

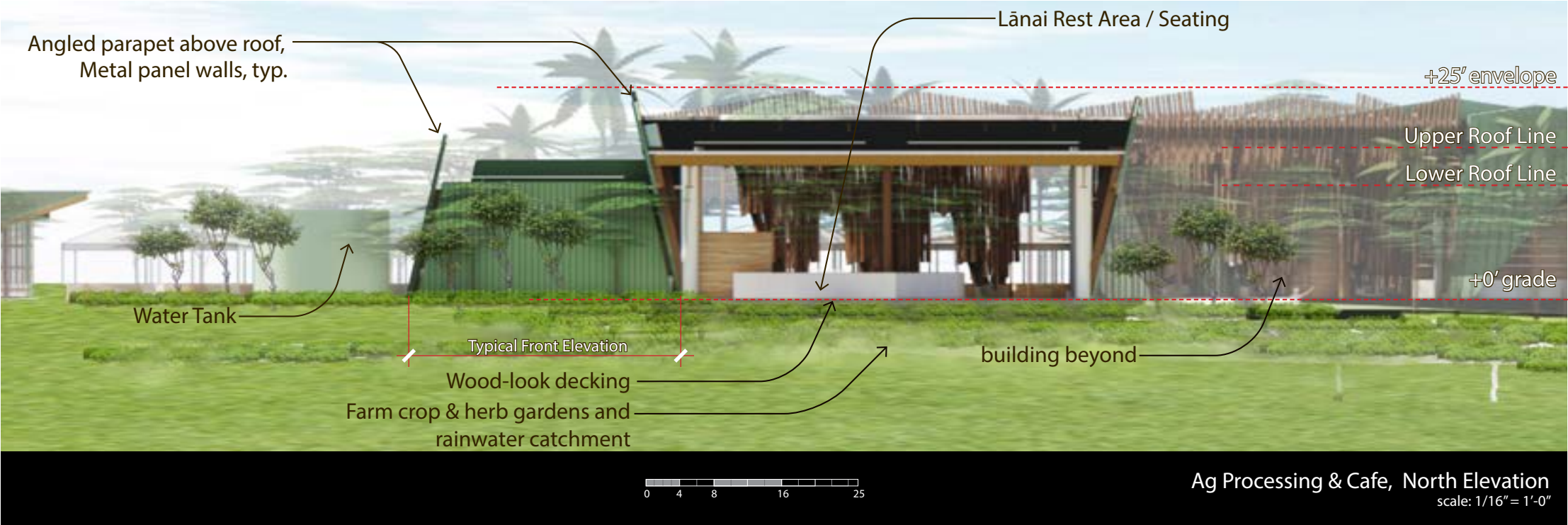
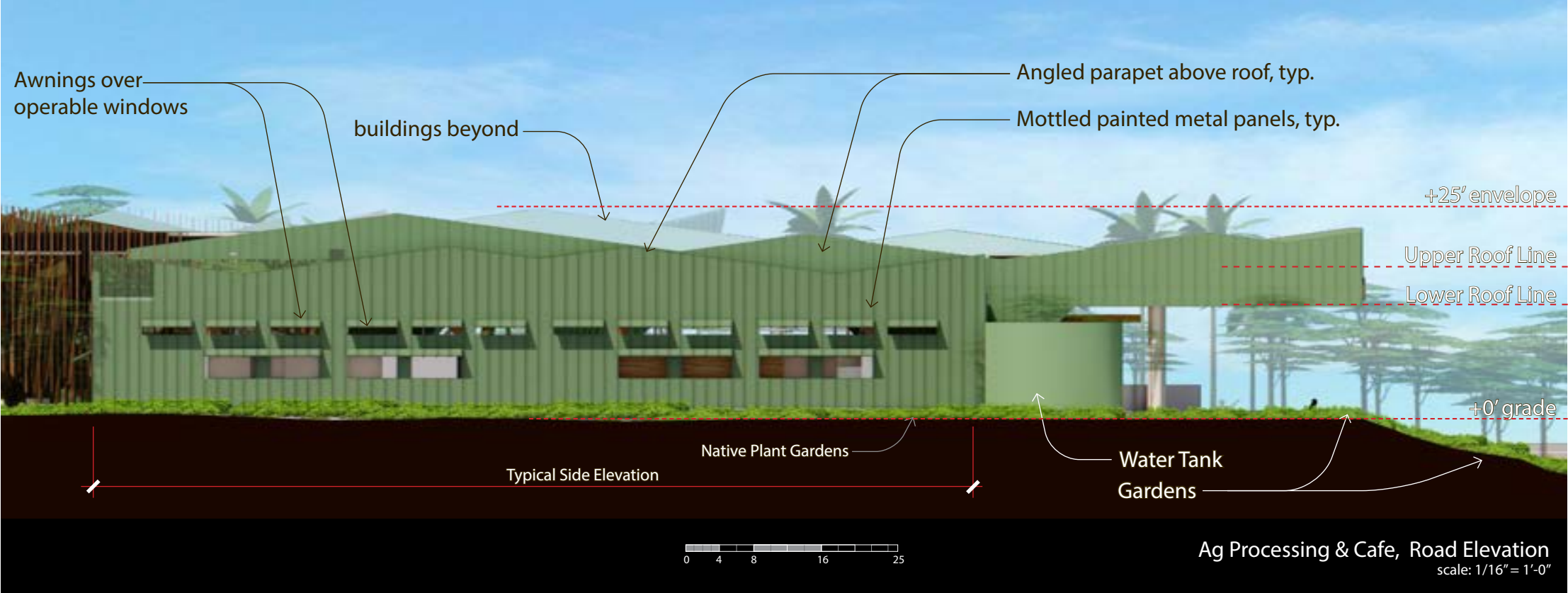


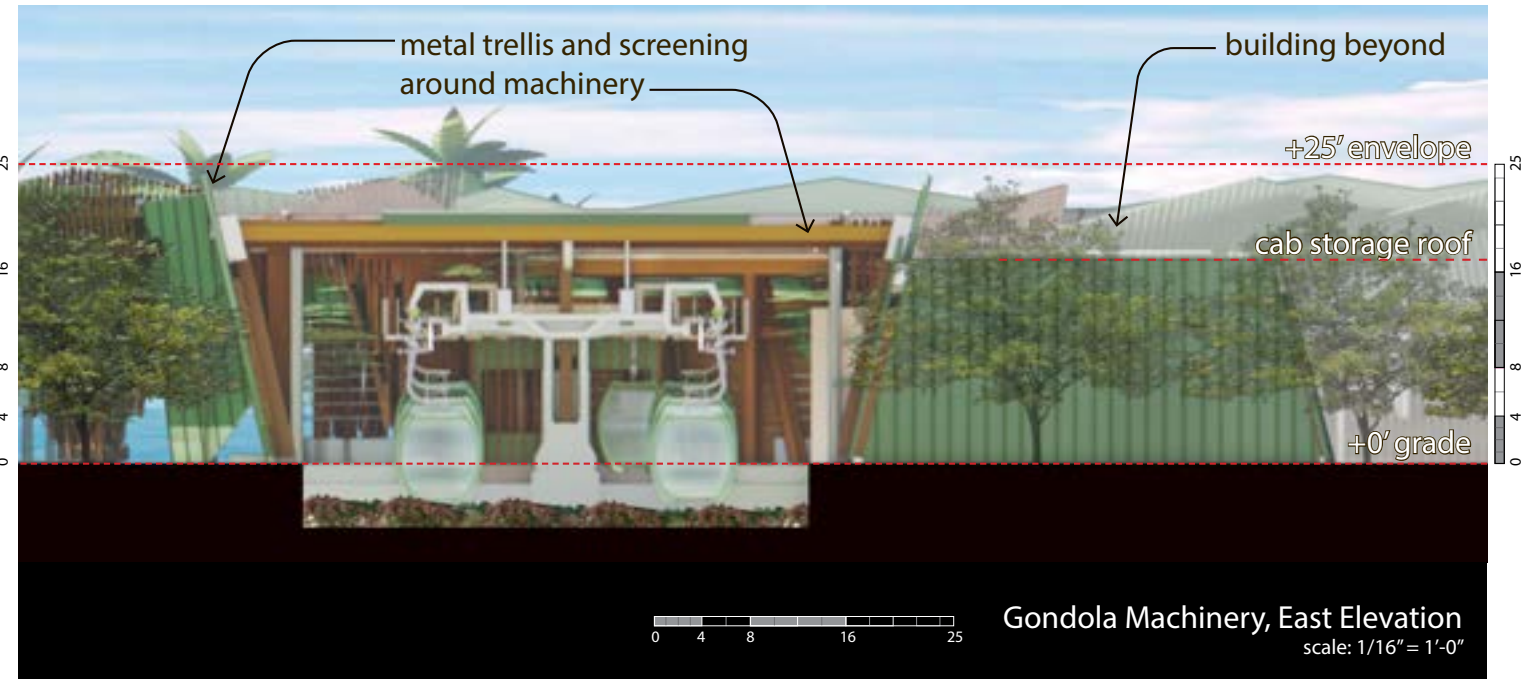
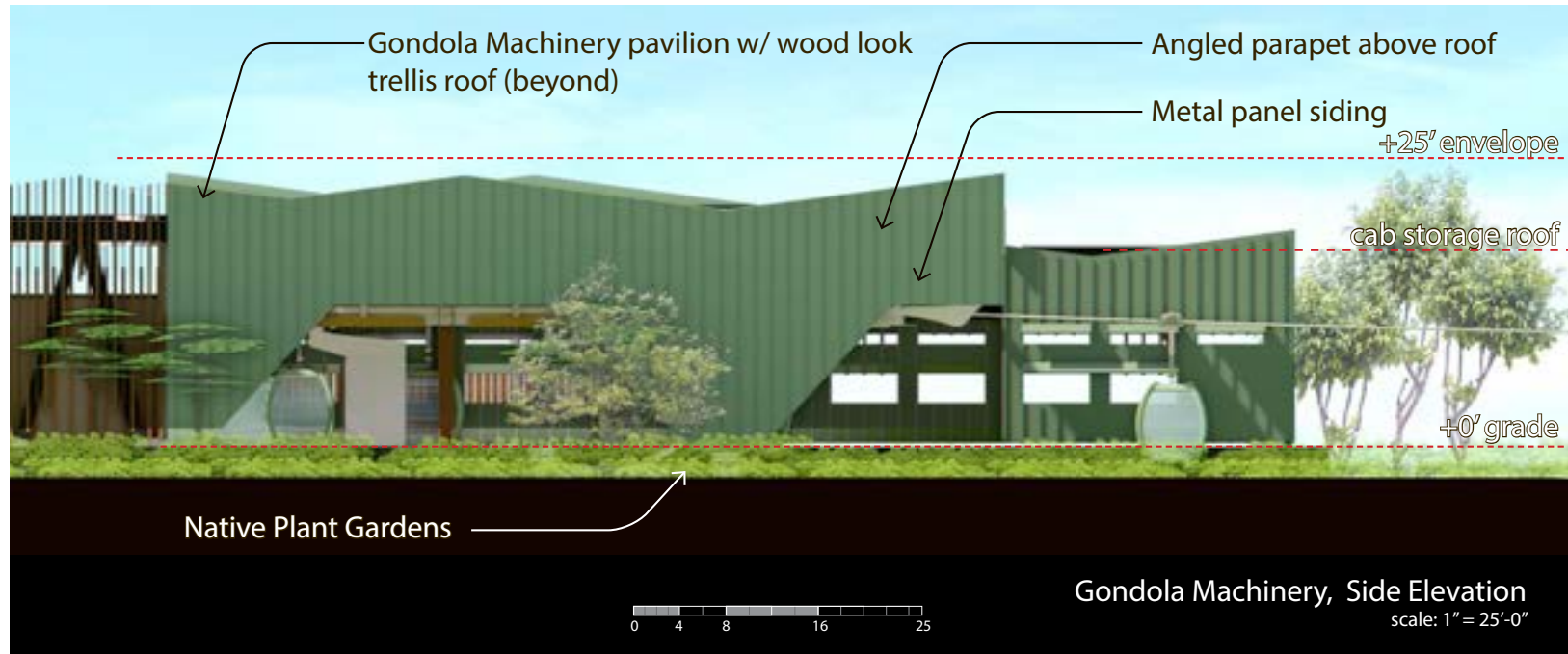


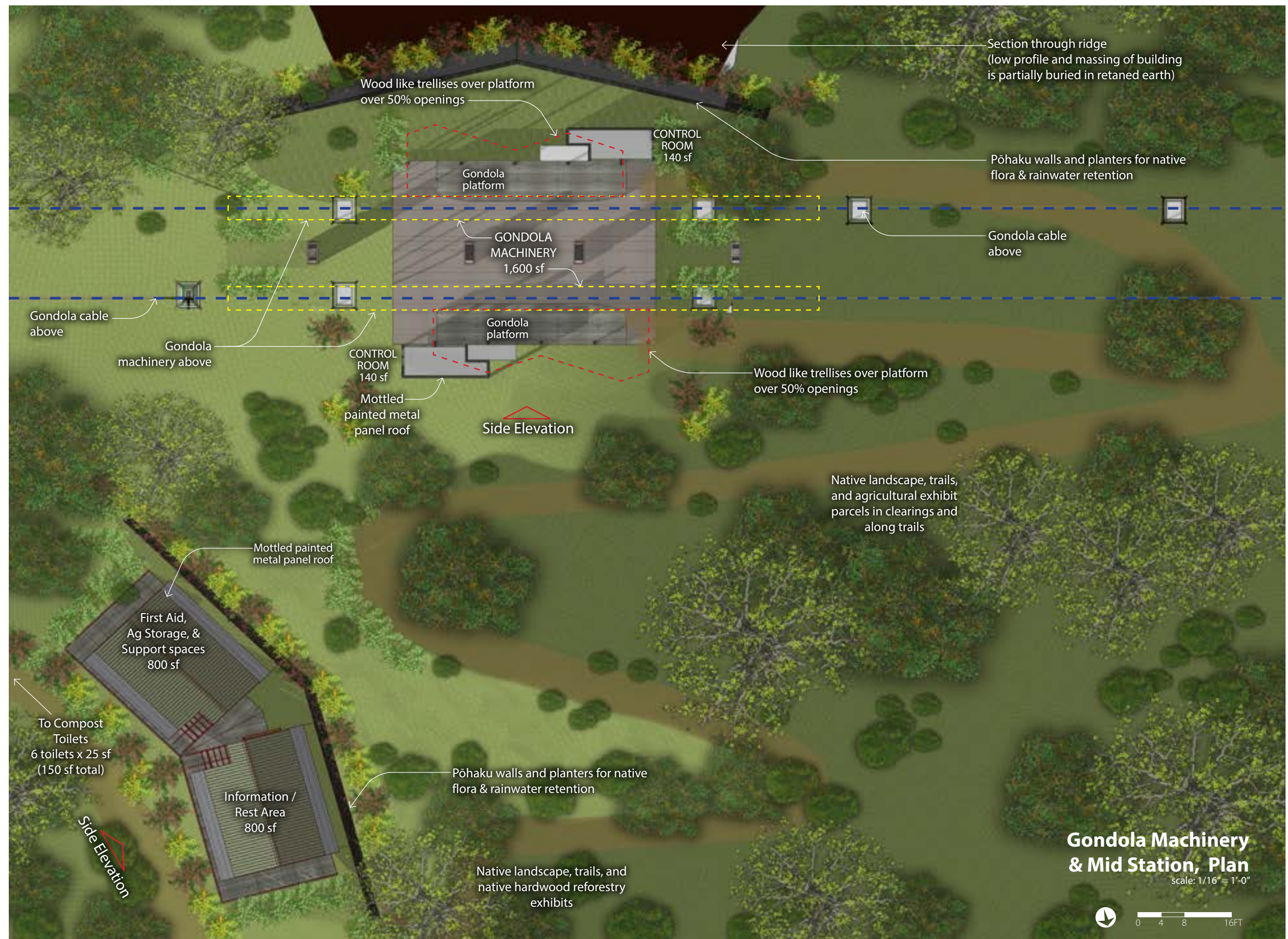


B Agribusiness & Agricultural Spaces, Floor Plan
scale: 1/16" = 1'-0"







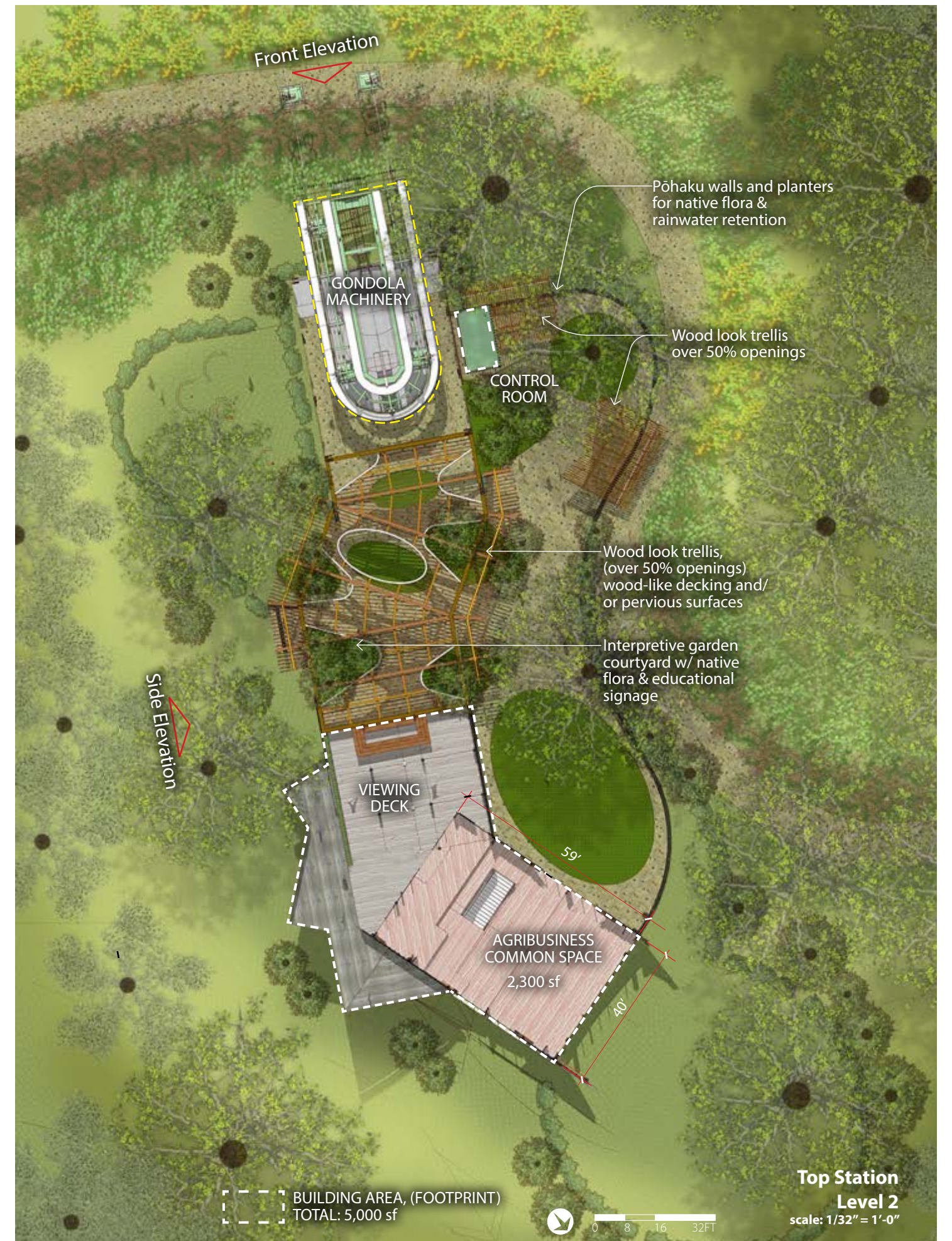
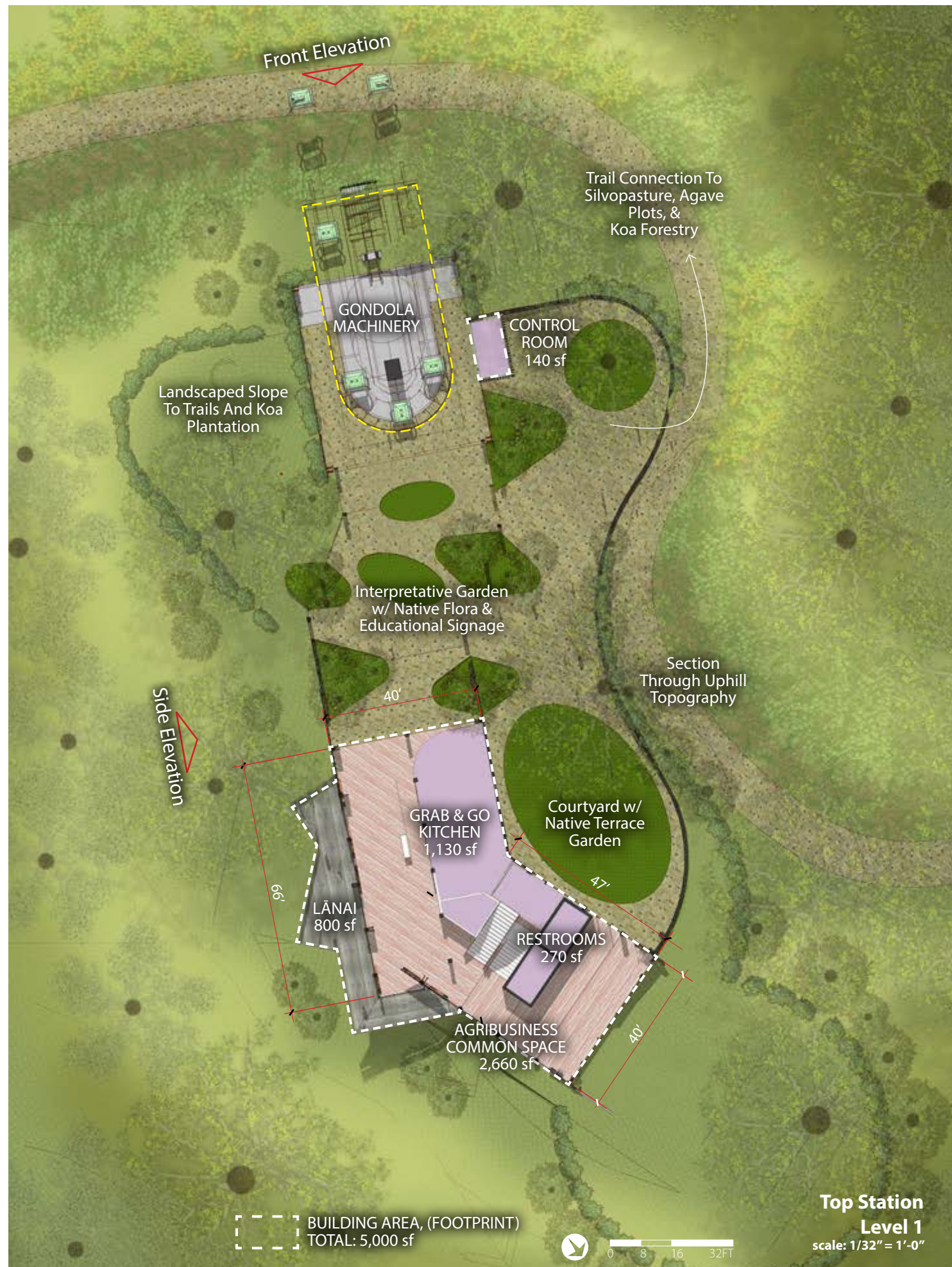


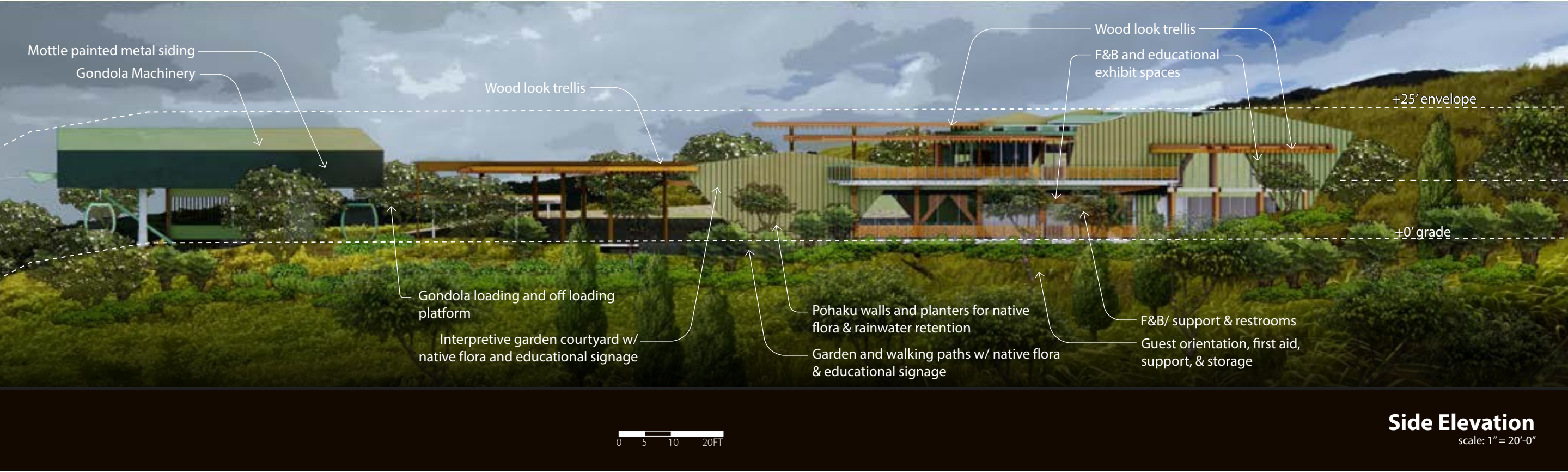
Gondola Machinery & Mid Station, Plan
Scale: 1/16" = 1'-0"



0 4 8 16FT

Gondola Machinery & Mid Station, Side Elevation
scale: 1/16" = 1'-0"







Valley Agriculture Structures

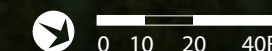


Exhibit 11:

Modified Trail Accessibility Features
Conceptual Plans
(Examples of Conceptual Design and
Specifications)

Kamananui Modified Trail Accessibility Features

Examples of Viewing Platform Conceptual Design and Specifications





ZONE	CODE	Size (sq/ft)
Top Station	VP 1	410
Top Station	VP 2	628
Top Station	VP 3	819
Top Station	VP 4	546
Top Station	VP 5	410
Top Station	VP 6	546
Top Station	VP 7	410
Top Station	VP 8	819
Kukui Forest rd	VP 9	819
AK 1	VP 10	546
AK 2	VP 11	546
MID	VP 12	409
Agribusiness	VP 13	628

PLATFORMS

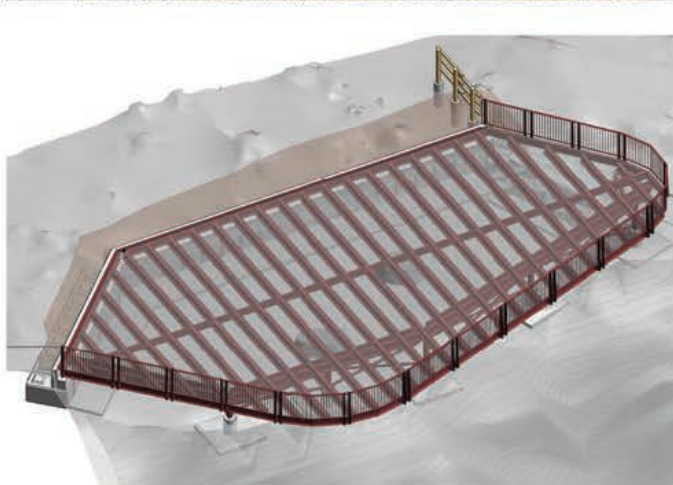
Platform Selection

The bridge used to establish a baseline cost for estimation purposes for this project was carefully selected to its robust engineering to handle unique mountainous environments.



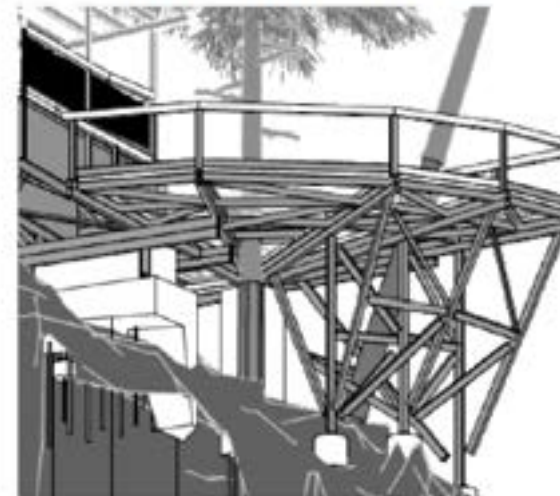
Baseline Assumptions

- Spread footings or Rock anchors if bedrock is present
- Main skeletal structure to be out of galvanized steel members
- Side panel height ~ 3'.8'
- Hand Rail height ~ 3.28'
- Fiberglass grating 4'x8' x1.5" panels
- Limit the number of off angle sides, Dimensional design.



Elevated Viewing Platform

Elevated viewing platforms are an increasingly sought-after architectural solution for showcasing breathtaking landscapes and natural elements to visitors. The 2 structures can offer a unique opportunity to create captivating tourist attractions with relatively minor investments. By thoughtfully integrating the surrounding elements and sensitivity to the surrounding environment, These lookout points will enhance the visitor experience while preserving the natural beauty of their locations.



ZONE	CODE	Size (sq/ft)
------	------	--------------

Mid Station (25')	EVP 1	
-------------------	-------	--

		936
--	--	-----

Kamananui Modified Trail Accessibility Features

Examples of Pedestrian Bridge Conceptual Design and Specifications





810 COVER SHEET & GENERAL NOTES

[illegible]

SELF-TAPPING TIMBER FASTENERS

- [illegible]

1. ALL TOWER SIZES ARE NOMINAL DIMENSIONS OF CROSS SECTION PRIOR TO DRAGGING.
2. VERIFY ALL DIMENSIONS, CONNECTION GEOMETRY AND CONSTRUCTION OF THE TOWER AS BEFORE PROCEEDING WITH DRAGGAGE. REPORT DISCREPANCIES TO THE ENGINEER.
3. ALL CONNECTIONS TO MEET THE REQUIREMENTS OF THE APPLICABLE BUILDING CODE AND CSA-B6-14-01-02-03-04 DESIGN (AS APPLIED).
4. TOWERBASES SUPPORT AND TOWERBASES DESIGN OF THE TOWER BASES IN THE DRAGGAGE AND CONSTRUCTION IS THE RESPONSIBILITY OF THE ENGINEER.

[illegible]

1. THE CONTRACTOR SHALL EXAMINE ALL CONTRACT DOCUMENTS, INCLUDING SPECIFICATIONS AND ANY ADDENDUMS TO THE SPECIFICATIONS, AND SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE CONTRACT DOCUMENTS, INCLUDING THE ACCURACY OF THE CONTRACT DOCUMENTS, INCLUDING THE ACCURACY OF THE CONTRACT DOCUMENTS.
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[illegible][illegible]

THE FOUNDATION WAS BEING REDESIGNED BASED ON THE FOLLOWING ASSUMPTIONS:
SERVICE BEARING CAPACITY (ULTIMATE BEARING CAPACITY) _____ TONS
ULTIMATE BEARING CAPACITY _____ TONS
THE FOUNDATION WAS BEING REDESIGNED AT THE SOUTH END
GENERAL CONTRACTOR TO PROVIDE A GEOTECHNICAL ENGINEER TO VERIFY
ASSUMED VALUES, WHEREAPTO BEARING CAPACITY AND SUFFICIENCY OF THE GROUND
FOR THE PROPOSED FOUNDATION TYPE.

1. TO CONFORM WITH CSA-CAN 086 IS ENGINEERING DESIGN IN WOOD
2. ALL MATERIAL TO BE MEET THE FOLLOWING GRADING RULES
OFF IN 12 OR BETTER SAWN LUMBER

[illegible]

1. FABRICATE TO DRAWING S-4-18
2. PROVIDE STEEL TO CONFORMANCE SPECIFIED IN APPROPRIATE AGREEMENT THE FOLLOWING SHOULD HAVE SHAKES MINIMUM OF
 - STRUCTURAL SHAKES
3. ALL STEEL TO BE HOT DIPPED GALVANIZED, ANY SCOTCHING TO BE FOLLOWED UP USING SANDBLASTING (OR EQUIV) APPROVED BY CONTRACTOR



Abstract The purpose of this study was to determine the effect of a 12-week training program on the physical and psychological health of sedentary, middle-aged women. The program consisted of three sessions per week, each lasting 45 minutes. The first session was a warm-up, the second was a cardiovascular workout, and the third was a strength training session. The results showed that the women who participated in the program experienced significant improvements in their physical and psychological health. The program was found to be effective in reducing body fat, increasing muscle mass, and improving cardiovascular fitness. Additionally, the program was found to be effective in reducing stress, improving mood, and increasing self-esteem. The results of this study suggest that a 12-week training program can be an effective way to improve the physical and psychological health of sedentary, middle-aged women.



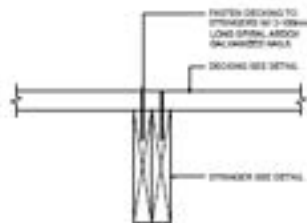
Shawty & Duggan
 4000 Springdale Ave. • Dallas, Texas 75219
 972-343-1111
 www.shawtyandduggan.com

House of Blues • Dallas
 1000 Ross Ave. • Dallas, Texas 75202
 214-761-1111
 www.houseofblues.com

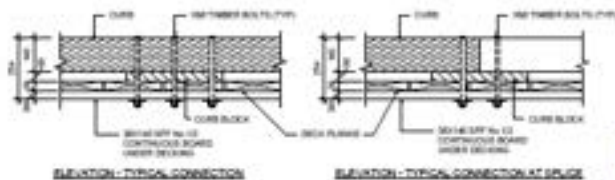
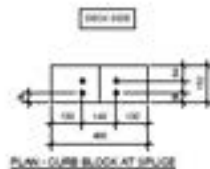
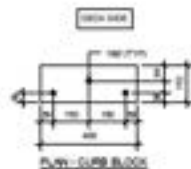
WELLS GREY
VIEWING PLATFORM

COVER SHEET &
GENERAL NOTES

Issue	1 - 1	Revised No.	2
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Owner	URS		
Designer	URS		
Design Checklist	RC	Date	Issue Date
Design Checklist	RC	Date	Issue Date

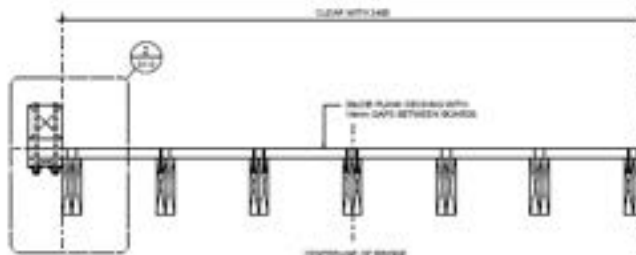


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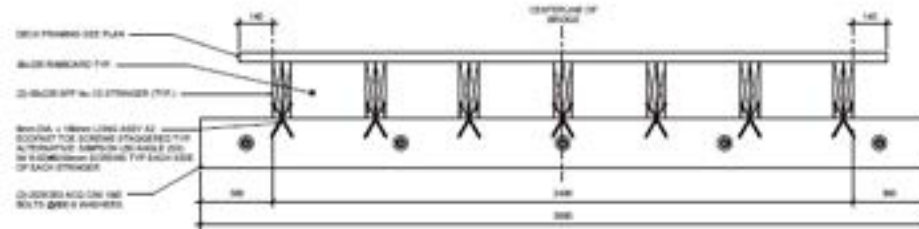
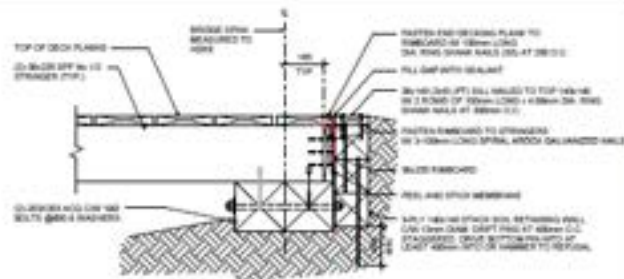


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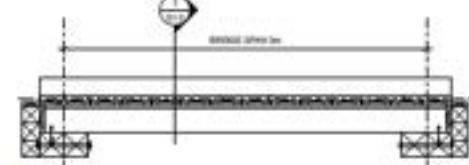
ELEVATION - TYPICAL CONNECTION AT SPICE



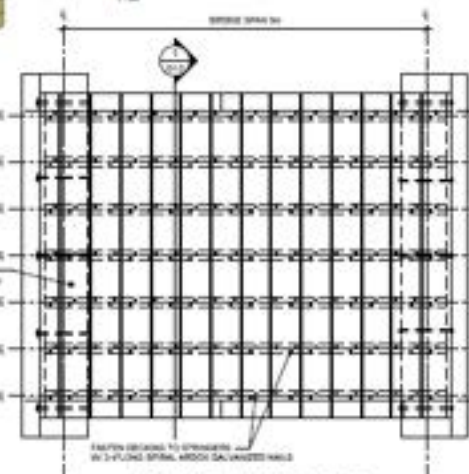
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BRIDGE ELEVATION - SUPERSTRUCTURE
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BRIDGE PLAN - SUPERSTRUCTURE
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BRIDGE PLAN - SUPERSTRUCTURE
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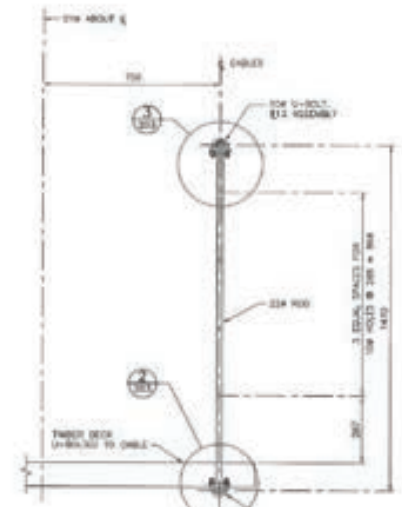
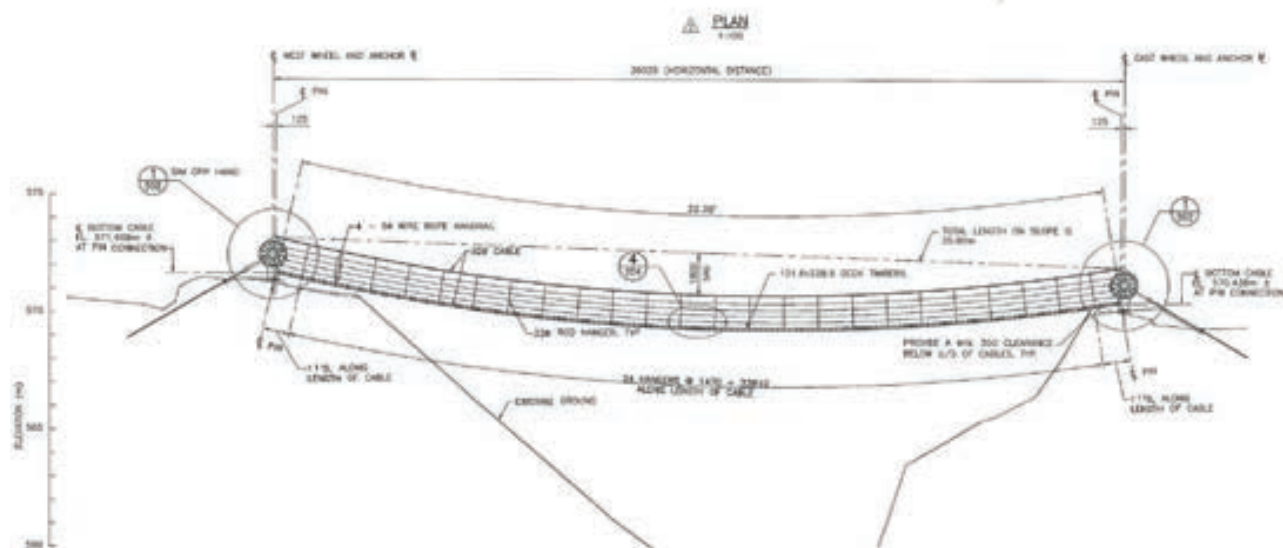
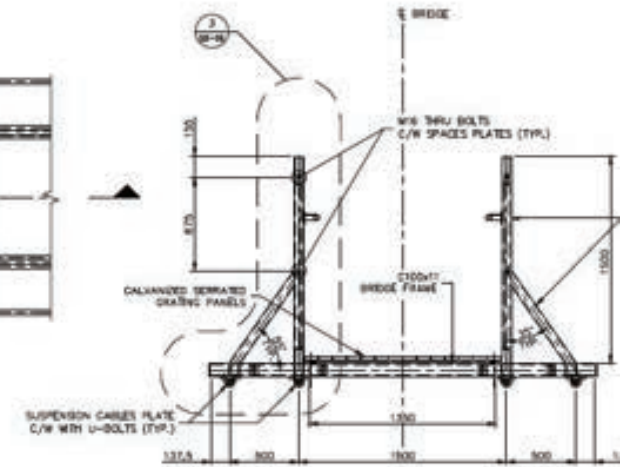
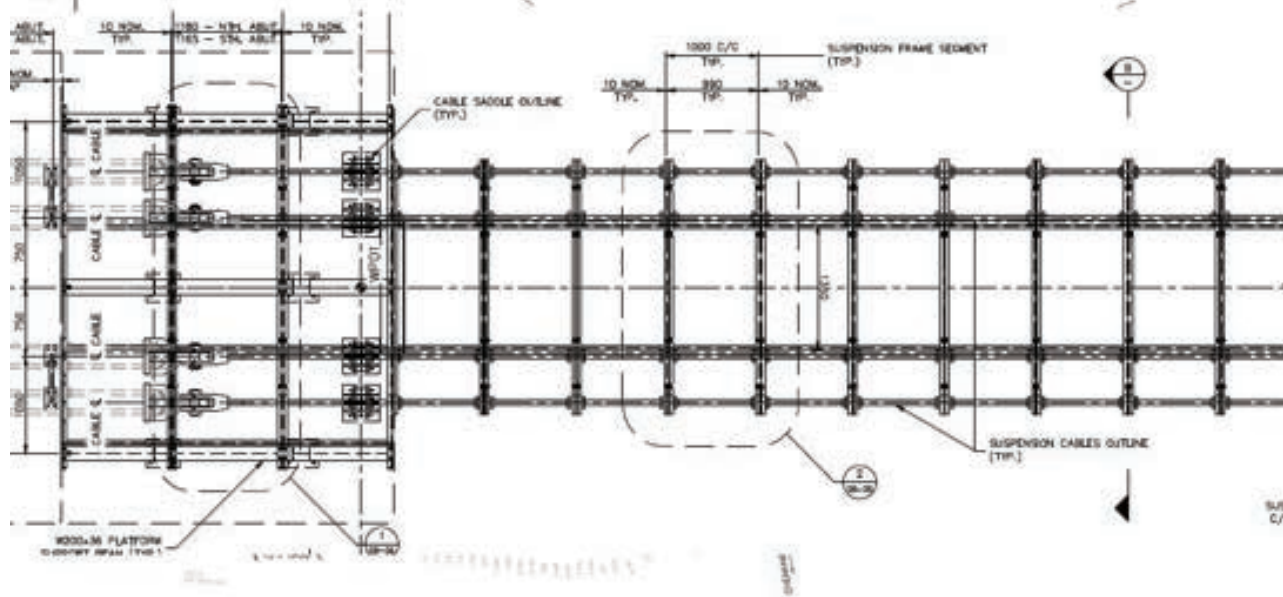
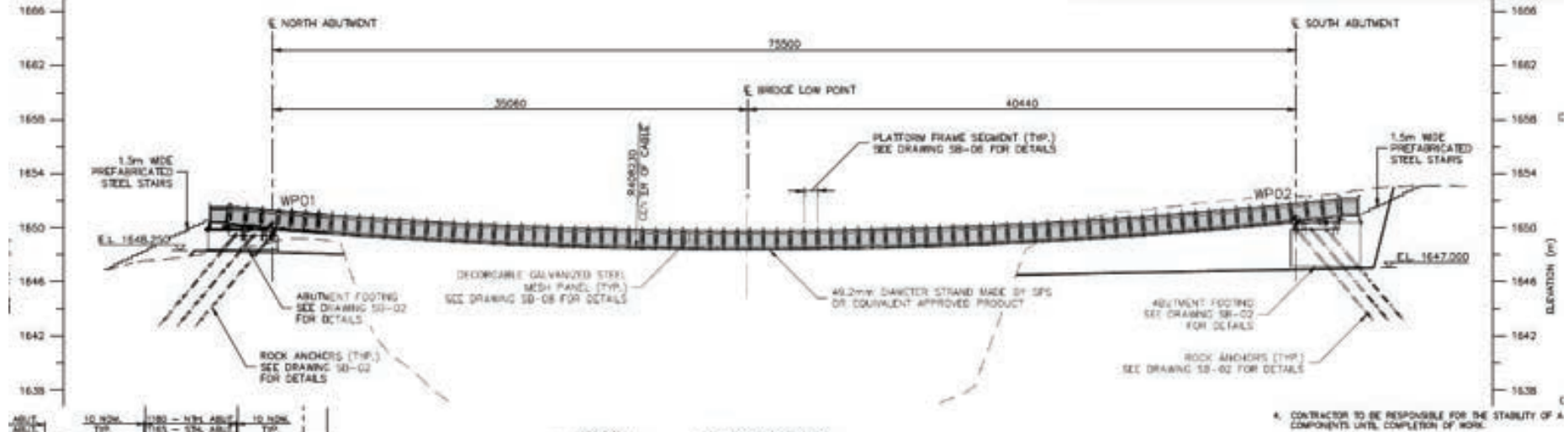


Exhibit 12:

Updated Engineering Reports
(Water and Wastewater Demand)



10403-02
March 18, 2025

David Simpson, Planner
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813

Subject: Kamananui Conditional Use Permit (Minor)
Wastewater Calculations

Dear Mr. Simpson:

Based on projected water demand calculations provided by ITC Water Management, Inc. dated March 13, 2025 the estimated potable water demand for the Kamananui Visitor Center and Top Terminal areas are as follows:

Area	Average Day (gpd)
Visitor Center	10,482
Terminal, Top	780
Total	11,162

The projected wastewater flow for the project at the Visitor and Top Terminal is anticipated to be equivalent to the estimated potable water demand.

Onsite wastewater treatment system(s) (OTWS) will be constructed to treat generated wastewater from the Visitor Center and Top Terminal. The OTWS will treat effluent to an R-1 level where it will be stored and used for onsite irrigation. The OTWS will comply with the State of Hawaii's Department of Health Wastewater Branch (DOH) requirements for use and disposal.

The projected 11,162 gallons per day wastewater flow for the Kamananui project is less than the equivalent flow of 50 single family dwellings using both the standard generation rates from City and County of Honolulu's Department of Planning and Permitting (DPP) and the State of Hawaii Department of Health. Calculations for both are provided below:

DPP Calculation¹

Average Daily Flow (per capita) = 70 gallons per person per day
Density for Residential Occupancy = 4 persons per single family home
Number of Single Family Dwellings = 50

Average Daily Flow or Base Sanitary Flow
 $50 \text{ dwellings} \times 4 \text{ person per dwelling} \times 70 \text{ gallons per person per day} = 14,000 \text{ gallons per day}$

11,162 gal/day is equivalent to 39.9 dwelling units

¹ City & County of Honolulu Wastewater Design Standards, Volume 1 – Chapter 2: Design of Gravity Sewers, dated July 2017; Section 2.2.2 – Quantity of Wastewater, Design Flows for Sewers, Subparagraphs A & B.

DOH Calculation²

Dwelling Average Daily Flow (per person) = 100 gallons per person per day
2 persons per bedroom minimum
Assume 2 bedrooms per dwelling

Average Daily Flow =
 $2 \text{ bedrooms} \times 2 \text{ persons per bedroom} \times 100 \text{ gal/day} \times 50 \text{ dwellings} = 20,000 \text{ gallons per day}$

11,162 gal/day is equivalent to 27.9 dwelling units

² Hawaii Administrative Rules, Title 11; Department of Health, Chapter 62 – Wastewater Systems; Appendix D dated March 21, 2016.

Please feel free to contact myself if you have any questions or would like further clarification.

Sincerely,

Glenn R. Kuwaye, P.E.
Sr. Vice President & Principal



March 13, 2025

Mark "Skip" Taylor
General Manager
Kaukonahua Ranch LLC
c. 503-568-2566
Email: skip@kamananui.com

Subject: Kamananui Water Demands

Dear Mr. Taylor:

In follow up to your recent request, below is our updated table of Water Requirements for the project:

Kamananui Water Requirements					
LNIE #	DEVELOPMENT TYPE	NUMBER OF UNITS	UNIT DESCRIPTION	CONSUMPTION RATE	AVERAGE DAY
1	Potable			(GPD/UNIT)	(GPD)
2	Visitor Center				10,482
5	Terminal, Top				780
	Mid Station				200
6	System Losses			10%	1,126
7	Total Potable				12,588
8					
9	Nonpotable			(GPD/UNIT)	(GPD)
10	Parking Lot Landscaping	1.9	Acres	3800	7,220
11	Kamananui Comm. Lawn	1.9	Acres	3800	7,220
12	Demonstration Crops	6	Acres	3800	22,800
13	Koa Plantation	0.25	Acres	2000	500
14	Picnic Areas	0.05	Acres	5000	250
15	Pond Evaporation (average)	1	LS	5000	5,000
16	AG Operations				
17	Crops (initial)	5	Acres	3,000	15,000
18	Cattle	500	Head	5	2,500
19	Goats	600	Head	2	1,200
20					
21	System Losses			10%	6,169
22	TOTAL Nonpotable				67,859
24	Total All Uses				80,447

Our projection of the quantity of R-1 water that will likely be available for nonpotable reuse is presenting in the following table"

Kamananui Reuse Water (R-1) Availability					
LNIE #	DEVELOPMENT TYPE	AVERAGE DAY	Reuse Coefficient	Available for Reuse	
1	Source			(GPD)	
2	Visitor Center	10,482	0.85	8,910	
5	Terminal, Top	780	0.85	663	
6	Mid Station*	200	0	0	
7	Total R-1			9,573	

*The Midstation will utilize waterless urinals and composting toilets.

Any graywater generated onsite will be used directly for landscape irrigation.

Please keep in mind that the Irrigation Reuse plan will need to be processed through the Hawaii State Department of Health Wastewater Branch, which will require among other things that a recycled water supervisor be identified by name who will be responsible for the operation of the system in compliance with DOH rules and regulations.

Please do not hesitate to let us know if you have any questions.

Regards,



Harold Edwards
 President

Exhibit 13:

Updated Traffic Evaluation

**Updated Traffic Evaluation in Support
of a
CUP Minor Modification
for the
Approved Kamananui Agribusiness Project

Waialua Hawai'i**

December 2024

Prepared for:
Kaukonahua Ranch, LLC

Prepared by:



WSP USA
1001 Bishop Street
ASB Tower, Suite 2400
Honolulu, Hawai'i 96813
Ph. (808) 531-7094

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1.0 INTRODUCTION

Kaukonahua Ranch, LLC proposes to develop agribusiness activities, including a public access project (“PAP”) on existing ranching lands located on the west side of Kaukonahua Road between Wahiawa and Waialua as approved under a Conditional Use Permit (CUP). The proposed PAP will include expanded and intensified agriculture (ranching and crops) and agroforestry with accessory uses including nature walks, hiking and biking trails, ziplines, a gondola, educational facilities and operational facilities.

A traffic evaluation was conducted for the original CUP application and an evaluation write-up was completed in January 2018. This evaluation included traffic counts on Kaukonahua Road conducted by others from December 13 to 18, 2017 on Kaukonahua Road in the vicinity of the proposed PAP site entrance. A review of historic traffic volume data indicated that there has been very little background traffic growth on Kaukonahua Road.

Existing Kaukonahua Road configurations, transit information, and bicycle and pedestrian facility information were documented and known future plans for these facilities were noted. No transit service, bicycle facilities, or pedestrian facilities currently exist or are planned for Kaukonahua Road in the vicinity of the proposed development.

The primary purpose of this updated transportation evaluation is to document proposed changes in the access location shown in the original permit application. The revised Kamananui driveway location is approximately 500 feet south of the originally proposed driveway location and now aligns with the Kaala View Farm Lots driveway on the other side of Kaukonahua Road. As with the original driveway location, this revised location provides appropriate sight distance for both driveways. It is also consistent with a North Shore Neighborhood Board request for consolidation and complementary alignment of driveway locations along Kaukonahua Road.

This updated transportation evaluation also reviews and verifies the existing transportation conditions in the vicinity of Kamananui and the potential transportation issues identified in the original Permit application for the proposed PAP.

2.0 EXISTING CONDITIONS

2.1 Land Use

The proposed development will be located on existing ranching lands located west of Kaukonahua Road between Wahiawā and Waialua.

Existing and proposed access to Kamananui will be via driveways directly onto Kaukonahua Road. Only the proposed driveway access location has changed since the original CUP-minor application.

Figure 1 is a site location map for the Kamananui development.



Figure 1 Site Location Map

2.2 Existing Roadway Configuration

Kaukonahua Road is a minor arterial roadway that connects Wahiawā and Waiāluā, and, for most of its length, runs parallel to Kamehameha Highway.

Figure 2 illustrates the proposed change in driveway location that aligns the Kamananui driveway with the driveway from the Kaala View Farm Lots development.

In the vicinity of Kamananui, Kaukonahua Road is an undivided, two-lane roadway, no change from the configuration evaluated in the original application. Each through lane is approximately 10 feet wide from centerline to lane edge stripe. There are unimproved shoulder areas on both sides of Kaukonahua Road. In the vicinity of potential access driveways for Kamananui, the shoulder area west of Kaukonahua Road has about 10 feet of width.

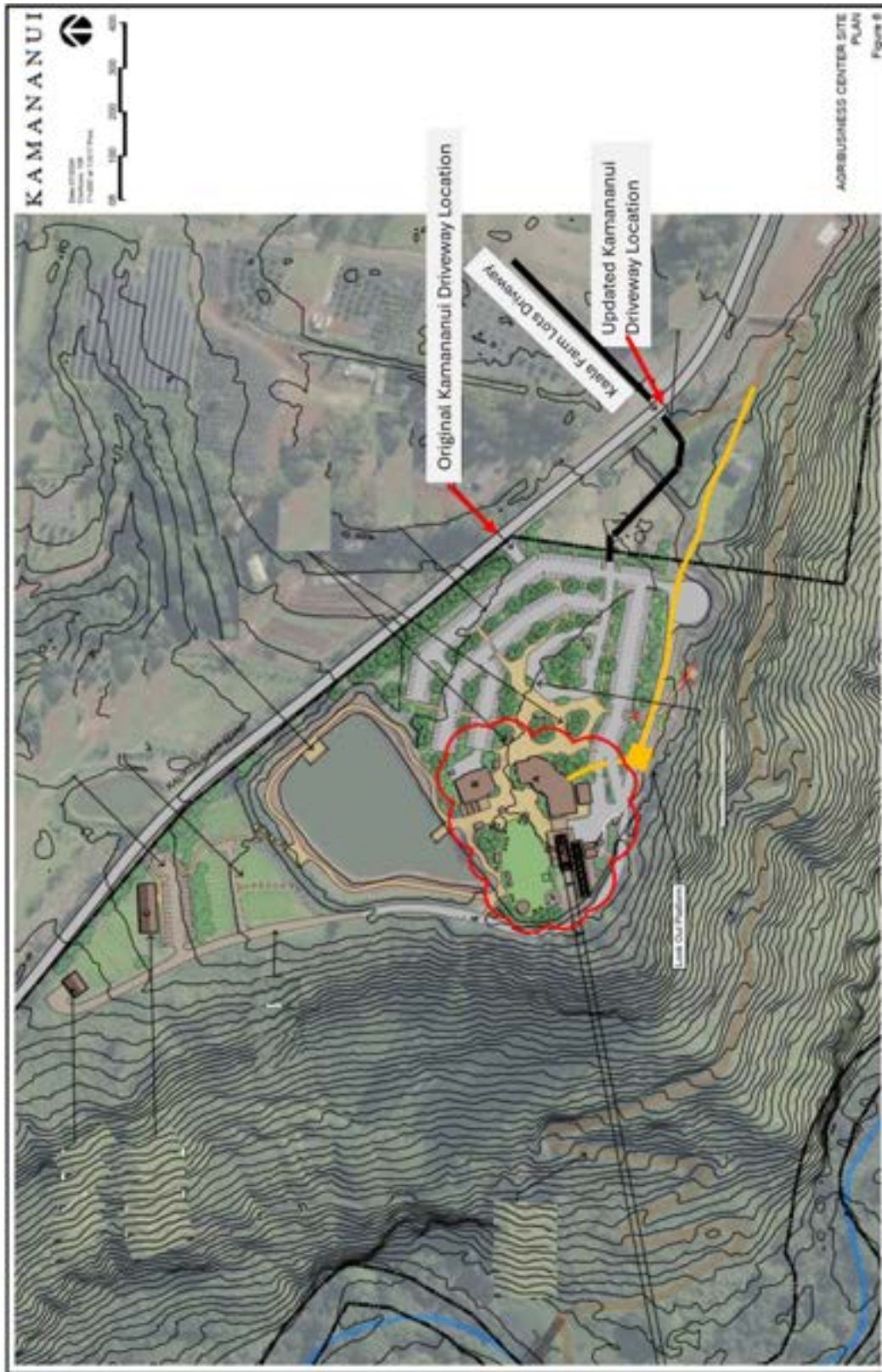


Figure 2 Updated Kamananui Conceptual Site Plan

while the shoulder area east of Kaukonahua Road has about 8 feet of width including an unlined drainage swale.

Trees exist and roadway lighting poles exist on both sides in certain segments of Kaukonahua Road.

2.3 Existing Traffic Volume

Automatic traffic recorder (ATR) traffic volume counts were conducted for the original CUP-minor application by AECOM from Wednesday, December 13, 2017 to Monday, December 18, 2017 on Kaukonahua Road as part of the original traffic evaluation.

Tables 1 summarizes the weekday AM and PM peak hour and 24-hour volumes during the study period. Table 2 summarizes the weekend peak hour and 24-hour volume during the study period.

Table 1 Existing Weekday Traffic Volumes

Date	AM Peak Volume (vph)			PM Peak Volume (vph)			24-HR Volume (vpd)
	NB	SB	Total	NB	SB	Total	
Wednesday, 12/13/2017				642	419	1,061	
Thursday, 12/14/2017	301	532	833	582	446	1,028	12,398
Friday, 12/15/2017	300	499	799	597	438	1,035	12,669
Monday, 12/18/2017	352	502	854				
Notes: vph=vehicles per hour, vpd=vehicles per day, NB=northbound, SB=southbound AM Peak Hour: 7:15 AM – 8:15 AM (3-day average) PM Peak Hour: 3:30 PM – 4:30 PM (3-day average) Data collected on Wednesday, 12/13/17 and Monday, 12/18/17 are partial day counts. Source: AECOM							

Table 2 Existing Weekend Traffic Volumes

Date	Peak Hour Volume (vph)			24-HR Volume (vpd)
	NB	SB	Total	
Saturday, 12/16/2017	485	480	965	12,127
Sunday, 12/17/2017	444	437	881	10,918
Notes: vph=vehicles per hour, vpd=vehicles per day, NB=northbound, SB=southbound Saturday Peak Hour: 11:45 AM – 12:45 PM Sunday Peak Hour: 11:30 AM – 12:30 PM Source: AECOM				

2.4 Existing Public Transit Service

There is currently no public transit service along Kaukonahua Road between Wilikina Drive and Farrington Highway.

2.5 Existing Bicycle Facilities

There are no bicycle facilities along the segment of Kaukonahua Road between Wilikina Drive and Farrington Highway.

Based on the 2019 Updated O'ahu Bike Plan, there are no existing bike routes, lanes, or paths along this segment of Kaukonahua Road.

2.6 Existing Pedestrian Facilities

There are no formal pedestrian facilities along Kaukonahua Road in the vicinity of Kamananui.

3.0 FUTURE CONDITIONS

3.1 Land Use

Kamananui is planning an agribusiness operation that provides public access to the Ranch, with hours of operation from 8:00 am to 8:00 pm with peak activity occurring approximately from 11:00 am to 2:00 pm.

Activities on site include use of a gondola to reach mauka portions of the Ranch to utilize the public access trail system for nature walks, hiking, biking, all-terrain vehicle (ATV) trails, and zip lines.

Visitors to the Kamananui PAP could range between of 1,000 to 1,700 visitors per day.

3.2 Future Roadway Configuration

There are no current plans to improve overall Kaukonahua Road with the exception of potential safety improvements at the S-curve area located south of the Kamananui area. Kaukonahua Road will likely remain a 2-lane, undivided minor arterial roadway in the future.

The location where the Kamananui and Kaala View Farm Lots driveways intersect Kaukonahua Road is proposed to be improved with median left-turn lanes and right-turn lanes for vehicles turning off of Kaukonahua Road. These turn lanes are designed to reduce impacts of turning vehicles on through traffic using Kaukonahua Road.

3.3 Potential Future Traffic Volume

Recent traffic volume trends based on traffic volumes counts by the State of Hawaii Department of Transportation (HDOT) indicate that volumes along Kaukonahua Road are stable.

Regional transportation forecasts indicate very little growth in traffic volumes projected for Kaukonahua Road.

Therefore, future traffic volume increases in the vicinity of Kamananui will probably be project related. The estimated daily visitor count range to Kamananui of 1,000 to 1,700 visitors could potentially translate into 430 to 735 one-way vehicles trips per day. This would be around six percent of the current daily traffic volume. These would access Kaukonahua Road primarily at the consolidated Kamananui/Kaala View Farm Lots driveway location.

3.4 Future Public Transit Service

There are currently no plans to provide public transit service along Kaukonahua Road between Wilikina Drive and Farrington Highway in the future.

3.5 Future Bicycle Facilities

Based on the 2019 Updated O'ahu Bike Plan, the City and County of Honolulu has no plans to provide bike lanes or paths along this segment of Kaukonahua Road.

3.6 Future Pedestrian Facilities

There are no plans to install formal pedestrian facilities along Kaukonahua Road in the vicinity of Kamananui.

4.0 TRANSPORTATION ISSUES TO BE VERIFIED

Based on the initial evaluation of existing roadway configuration and traffic volumes, the proposed Kamananui PAP could be accommodated by Kaukonahua Road, its primary regional access facility.

A more detailed traffic study is being prepared to confirm this preliminary evaluation and to refine the design of future access driveways to Kaukonahua Road:

- Verify the appropriateness of proposed unsignalized traffic control at the consolidated Kamananui/Kaala View Farm Lots driveway location with STOP-sign control on the driveway approaches;
- Confirm the design parameters for the consolidated Kamananui and Kaala View Farm Lots driveway intersection:
 - exclusive median left-turn lanes on Kaukonahua Road at the Kamananui and Kaala View Farm Lot driveways;
 - right-turn lanes for vehicles turning from Kaukonahua Road into the driveways;
 - intersection sight distance for the proposed location of the consolidated Kamananui and Kaala View Farm Lots driveways.

Exhibit 14:

Agricultural Master Plan



HAWAII AGRICULTURE RESEARCH CENTER

94-340 Kunia Rd. Waipahu, HI 96797

Ph: 808-621-1350/ Fax: 808-621-1399

www.harc-hspa.com

Kaukonahua Ranch Land Stewardship & Agricultural Planning Report September 2025

Executive Summary

The Hawai‘i Agriculture Research Center (HARC) has served Kaukonahua Ranch LLC, the Ranch, as a consultant since 2018. Since 2018, the HARC lead the efforts on understanding and analyzing the on the ground feasibility and sustainability of the Ranch conceptual plans for agricultural and forestry operations. Since then, HARC and the Ranch have established a *Hawaiian koa* trial, establish three crop trials, expanded the rotational grazing with over 180 head of cattle, planning forestry and crop production operations across the Ranch, and finalizing a Threatened and Endangered (T&E) Species Survey and the identification of T&E buffer zones to protect the areas from ungulates, grazing, and wildfires.

In general, strategic grazing has been key to efforts in clearing invasive species and allowing access to new areas of the Ranch, reduce wildfire fuel, restore native habitats, and control invasive species—all without the use of chemical herbicides.

More recently, these strategic grazing practices proved effective, particularly during the June 2025, slowing a 500 acres fire spread coming from Schofield Barracks preventing further spread and damage across the landscape. In addition, the Ranch wildfire planning meetings have been strengthening community engagement through formal partnerships with local producers, community leaders, and state agencies. As of Summer 2025, the Ranch has hosted two Kamananui area wildfire mitigation meetings where the Ranch wildfire mitigation plan was discussed, shared and community feedback was considered for updates after the summer 2025 wildfire learning experience.

Additional progress includes mechanical invasive species clearing, manual and mechanical invasive species mitigation, fencing establishment, irrigation installation, cultivation of crop and forestry trials featuring *Hawaiian koa* and ‘Iliahi (sandalwood, *Santalum ellipticum*), crop trials featuring different varieties of breadfruits, papayas, bananas, self-pollinated dragon fruits, and mushrooms.

Looking forward, the Ranch’s agricultural projects and plans emphasize a diversified agricultural continuum, combining crop production, silvopasture, timber forestry, and cultural floriculture, while also supporting local farmers through small lease opportunities and an onsite farm-to-table food model.

A phased financial outlook projects early expansions and increases in agricultural revenues from agricultural leases, crops, cattle ranching, and onsite food service, expanding to orchards and perennials within 15 years, and ultimately including native koa and other timber harvests after 30 years.

Beyond economic growth, the Ranch’s agricultural development models deliver ecosystem benefits such as soil health, carbon sequestration, biodiversity support, wildfire risk reduction and watershed conservation, positioning Kaukonahua Ranch as a long-term leader in regenerative agriculture and sustainable land stewardship in Hawai‘i.

Detailed Kaukonahua Ranch Land Stewardship & Agricultural Plan

The Hawai‘i Agriculture Research Center (HARC) began providing Kaukonahua Ranch, LLC & K View LLC (the “Ranch”) with agricultural, forestry, and ranching consulting services in 2018, which initially led to the initial development of a preliminary conceptual agricultural master plan that the Ranch submitted with its application for the Conditional Use Permit (CUP) that the Hawai‘i Department of Planning and Permitting issued to the Ranch in 2019.

Since that time, the Ranch and the team at HARC, forestry conservation and agronomy experts, the Ranch’s staff and cattle managers, and water resource experts have all studied, tested, and developed feedback on best practices for land management, native species surveys, forestry, crop cultivation and ranching operations at the Ranch. Collaborative, this team has provided us with a deeper understanding of the Ranch’s landscape, resources, facilities, challenges, and opportunities.

In addition to our forestry, agriculture and ranching studies and projects, we have also learned, analyzed and developed recommendations about specific land management needs at the Ranch. Since 2019, the Ranch has:

- a. Experienced three extensive wildfires (Summer 2020, 2021, and 2025). Ranch Staff led the formation of a Kaukonahua area community wildfire mitigation working group, which drafted and enacted a wildfire mitigation plan that was reviewed and approved by the Hawai‘i Wildfire Management Organization.
- b. Conducted invasive plant surveys and invasive tree removal projects.
- c. Completed Threatened & Endangered species surveys.
- d. Significantly increased grazing animal herd sizes and numbers.
- e. Developed expanded grazing acres, patterns and schedules to help accomplish invasive species management and wildfire fuel management goals.
- f. Established fencing in areas critical for grazing and pasture.
- g. Established irrigation systems for crop production and forestry projects.
- h. Established agricultural crop production.
- i. Established forestry plots.
- j. Established a Conservation Plan with Oahu Resource Conservation & Development Council.
- k. Identified specific crop production, agroforestry, community garden, and other agricultural and floricultural project areas in both the lower and upper elevations of the Kaukonahua Valley.

These projects and experiences, as well as the lessons learned from them during this period has resulted in strategic updates to the Ranch’s conceptual Agricultural Master Plan, as described in the revised Agricultural Master Plan submitted to the City and County of Honolulu’s Department of Planning & Permitting.

Key Learnings, Challenges, & Opportunities:

1. High density of invasive species established across portions of the Ranch’s landscape.
2. Difficult terrain for maneuvering heavy agricultural equipment and materials to specific areas planned for specialized ranching, forestry, agroforestry, and crop production projects.
3. The Ranch’s goal to avoid chemical use in its agricultural practices.
4. Need to control aboveground biomass to limit invasive species to better manage and prevent wildfire events.
5. High operational costs for forest establishment due to labor, equipment, terrain, and invasive

species pressure.

6. Enhanced risk for catastrophic losses of high-density forestry operations, due to wildfire history and patterns.

To address these challenges, the team has shifted the make-up of the Ranch's conceptual agricultural plans and projects toward:

- **Demonstration Landscapes** – Creating a working model that transitions from intensive crop production in the valley floor and on the valley slopes to diversified agroforestry, silvopasture, and koa forestry, integrated with management of adjacent threatened and endangered species protection zones.
- **Rotational Grazing for Land Recovery** – Using cattle, goats, and sheep to clear invasive vegetation, manage wildfire fuel loads, and prepare sites for crop, forestry, and agroforestry plantings.
- **Post-Wildfire Land Care** – Stabilizing soils, restoring desirable vegetation, and preventing invasive regrowth.
- **Variety trials** – Currently, the Ranch hosts variety trials within the demonstration plots to help identify the best varieties for the crop production, forestry, and agroforestry establishment given each of the Ranch's various host sites and conditions, including the various elevations and pedogenic (*soil related*) conditions found across the Ranch.

Expanded Pasture Areas, Strategic Grazing, and Wildfire Management:

Currently, 180-200 head of cattle, plus a smaller group of goats, sheep and horses help to control growth of invasive biomass, without relying on chemical herbicides. This is particularly important in steep, hazardous terrain where mechanical removal is impractical. This managed approach also reduces wildfire risk and enhances wildfire containment with strategic firebreak grazing strategies. This strategic placement and expansion of grazing pasture areas helps support native vegetation recovery, enhances habitat, and aligns with the Ranch's no-chemical goals.

In June 2025, a wildfire spread from Schofield Barracks into the Ranch, burning about 500 acres overall. However, managed grazing activities in the Ranch's expanded pasture areas significantly reduced available fuel loads, as planned for, ultimately slowing the fire, aiding containment, and limiting the duration and size of the overall fire damage.

This recent success of the Ranch's expanded pasture areas and strategic grazing practice has strengthened community engagement—a core pillar of the project. The Ranch has formalized partnerships with the U.S. Army Garrison Hawai'i Natural Resources Office and helped spearhead the development of a community wildfire mitigation plan, which is now activated, and created during multiple working sessions with the Kaukonahua Stream valley community and the Hawai'i Wildfire Management Organization.

Invasive Species Management:

Invasive species removal has also been completed in focal areas of the stream valley and upper valley areas, without the need for chemical treatments, and with equipment uses in accordance with the Ranch's Conservation Plan with the O'ahu Resource Conservation and Development Council. Cleared areas now host agroforestry trials (breadfruit, papaya, banana), dragon fruit cultivar trials, and a native tree nursery. Several expanded pasture areas will continue to be used for grazing and/or transition into crop production, agroforestry, and silvopasture plantings starting in Fall 2025 and through Spring 2026.

Integrated Agricultural Continuum Systems include:

- **Crop Production**
 - **Monocropping** – Single-crop plantations (e.g., banana, coffee, agave). Recently, Ranch and HARC teams have identified that areas of proposed agribusiness activity on the upper valley area of “Linetree Road” (800 to 1,250 ft elevation) for agave to be grown, based on successes seen at similar elevations in Hawai‘i with similar conditions. A strong market demand has been identified, and initial plant materials are currently being propagated for testing at the Ranch.
 - **Multi-cropping** – Multiple crops in the same plot to enhance beneficial insects and reduce pests (e.g., combining vegetables, greens, and aromatic plants).
 - **Agroforestry Type 1** – Diverse fruit tree plantings with understory shrubs and soil covers or pastures.
 - **Agroforestry Type 2** – Fruit tree plantings integrated with grazing (e.g., silvopasture, integrating breadfruit and other similar fruiting trees with cattle and other grazing herds).
 - **Floriculture** – The planting of native flowers, canoe crops, and ornamental foliage plantings that serve multiple purposes in various plots within the Ranch. These areas will also enhance the visual appeal of the agricultural continuum and support ecosystem services as shelterbelts, windbreaks, shelter for pollinators, and erosion control. These floriculture plans align with the Ranch's goals to partner with local Hula Halau's and other cultural practitioners to provide them with ease of access to both upland plantings and valley crop areas, helping foster a sustainable source for flowers and plant materials for cultural events and programs across the state. HARC team has developed a list of native, canoe crops and other cut flowers and foliage plants.
- **Grazing** – Rotational grazing with cattle, goats, and sheep across the Ranch's strategically expanded pasture areas is the leading land management tool for reducing invasive species pressure, preparing plots for crops and agroforestry, managing fire fuel loads, and supporting ecosystem resilience. As of now, there are approximately 180-200 grazing animals across the Ranch's valley landscape. In the long term, that Ranch will establish managed fencing and cattle control systems that will allow targeted grazing and rotations within smaller areas across the Ranch's main pastures across the valley. These fencing and cattle management systems will implement planned grazing sequences that will consider and foster pasture growth/management needs, in conformance with rainfall patterns and seasonal changes. These Ranch activities will create a steady source of well- managed pasture and animal feed, allowing significant increases in the production of fresh cattle, goat meats, and derivatives.

The primary cattle breeds at the Ranch are Angus and Brahman (*Zebuine-aurine*). Brahman cattle, known for their exceptional heat tolerance, are predominantly used in KKR's steppe zones, while Angus cattle are more commonly found grazing in the valleys. Brahman cattle thrive in tropical environments, with a lifespan of 15 to 20 years, making them an asset for long-term land

management. Their gentle nature and strong genetics further enhance their suitability for sustainable ranching activities.

- **Forestry** – Density of plantings recommended:
 - **High-Stock Commercial Production**–Koa at 300 trees/acre; the mature Koa forest projects have established that protected forestry areas will yield and sustain densities that are much less given the need for thinning, the inevitability of sapling die off in any plot, soil conditions, and other logistics.
 - **Woodland Tree Configuration**– Native trees stand at 25–200 trees/acre, creating open woodland habitats. This system includes a variety of native species, including *Hawaiian koa* and ‘Iliahi (sandalwood, *Santalum ellipticum*).
 - **Silvopasture** – *Hawaiian koa* and other native plants at 5–25 trees/acre, with livestock grazing integrated as trees are protected and/or mature.

Agricultural Entrepreneurship & Value-Added Products:

The Ranch is working with potential partners such as the GoFarm Hawai’i group and other local organizations to provide 1 to 5 acre leases for emerging and developing farmers. Lessees can grow high-value crops, produce cut flowers, or establish small agroforestry systems, with technical support from HARC. The Ranch anticipates the first leases with emerging farmers will be executed by the end of 2025.

Integration of technology to support sustainable (*environmental, economic, and social*) agricultural operations:

- **Crop Studies:** To date, the collaborative team has been and keeps working on studying the adaptability and production capacity of 4 different ‘ulu (breadfruit, *Artocarpus altilis*) varieties, 6 banana (*Musa sp.*) varieties, 2 papaya (*Carica papaya*) varieties, blue agave (*Agave tequilana*) and 6 dragon fruits (pitahaya, *Selenicereus undatus*) varieties. In the case of native species and canoe crops, the target crops include *Hawaiian koa*, and ‘iliahi (sandalwood, *Santalum ellipticum*).

The initial targeted crops noted above have been considered from the following perspectives:

- **Potential adaptability across the landscape** – the targeted crops are aimed to be suitable for:
 - being cultivated in multiple *elevation ranges* across the Ranch’s valley areas,
 - growing crops with lower irrigation needs to address *irrigation water challenges* across the more arid portions of the Ranch’s valley landscape,
 - resisting heat, drought, and wind stress across the Ranch’s various microecosystems within the valley
- **Local market viability** – the targeted crops were chosen based on their commercial viability in local markets, considering the Ranch’s capacity to help meet local demand for locally grown and sustainably produced vegetables, fruits, and value-added agricultural products.
- **Floriculture plots** – located in various easily accessible areas aim to provide flowers and foliage as a prime material for lei and local cultural activities such as hula halaus and other cultural events.
- **Increasing soil carbon while reducing dependency on external inputs** – local based research trials and literature have demonstrated that the conservation practices will help enhance landscape ecosystems and services by helping maintain continuous soil covers, build

soil organic matter, improve soil water dynamics, support beneficial microbial activity, and optimize nutrient management.

A prime example is the Ranch's silvopasture systems, which will have at least three key components: (1) trees for timber or fruit production (agroforestry), (2) grazing animals, and (3) a beneficial soil cover or pasture. These multilayered agricultural practices create a symbiotic system in which trees, pasture, and livestock mutually benefit each other.

Livestock help manage weed pressure and enrich the soil through manure and urine depositions, improving plant nutrient uptake. In return, trees provide shelter from wind and heat, while their organic matter contributes to soil fertility, helping pastures capture and retain more nutrients. The result is healthier pastures that serve as a reliable, high-quality feed source for the livestock. These unique agroforestry systems offer multiple long-term benefits, including income diversification: the Ranch can generate revenue from livestock while also harvesting fruit or timber from the trees. For context, fruit tree production may begin within 3 to 8 years, while for timber production, such as *Hawaiian koa*, requires longer maturation periods for harvest, generally from 25 to 30 years. As stated above, another additional benefit to implementing silvopasture systems at the Ranch will be the additional control of undesired biomass, in support of the Ranch's wildfire mitigation plans and efforts.

Produce Operations, Production, Scalability and Profit Projections:

Agricultural production across the Ranch will be dedicated to supporting future food production operations and on-site farmers markets as a main channel for distribution of produce and other products grown on the Ranch. The produce production and distribution program will be guided by 5, 15, and 30-year plans to maximize agricultural production across a diversified continuum that includes vegetables, flowers, foliage, fruit trees, forestry, and livestock systems.

The program integrates on-site agricultural and ranching operations into a cohesive model designed to deliver a sustainable food production system, place-based floriculture enterprises, on-site farmers market, and a farm-to-table arrangement based on the Ranch's food production and processing operations.

To align production capacity with long-term growth, a staged profit projection is recommended:

- **5-Year Projection:** Initial return of investment will come from income generated from lease income from local farmers producing crops and cattle ranching, direct sales of Ranch produce generated from crops, short-term perennial systems and food production and processing under the Ranch's Agribusiness operations (once the Conditional Use Permit is enacted).
- **15-Year Projection:** Includes income and/or lease revenue as noted above but would now be seeing the benefits of the maturity and expansion of orchards, perennial systems, and livestock grazing and slaughter operations, reflecting a much more mature and stable agricultural operations and revenue streams at the Ranch.
- **30-Year Projection:** Includes income and/or lease revenue with maximized efficiencies of all agricultural sectors on the property, now including timber products, showcasing the maximum return of investments of the agricultural operations and supporting the Ranches long-term stability for agricultural operations

Operational Infrastructure:

Seasonal harvests, orchard production and rotational grazing cycles are planned to ensure a reliable, year-round supply of fresh, locally grown ingredients for the conceptual on-site café menu, which ranges from premium proteins (quick-seared steaks, burgers, tacos) to fresh beverages (lemonades, smoothies) and wellness products (turmeric, kale, and ginger shots); as HARC team discussed with the Ranch's Food and Beverages consultant. Livestock production emphasizes grass-fed, hormone-free Angus and Brahman cattle. The Ranch agricultural operations will be supported by washing stations, produce processing and production kitchens, refrigeration and freezer capacity, potable water systems, and specialized farm equipment, ensuring efficiency and compliance with food safety standards. Scope and timing of timber harvest and processing operations are yet to be determined as the Ranch assesses on-site and external capacities.

Agricultural Production Capacity and Revenue Outlook:

To quantify production potential, estimates are being developed by HARC based on species, acreage, estimated yield per acre, market cost per pound, and estimated annual profits per acre. The revenue estimates will provide the baseline for the Ranch's agricultural operations actual production income.

Additional Benefits and Considerations:

- **Job Creation:** Agricultural and ranching operations will provide direct employment opportunities.
 - **Entrepreneurship Opportunities:** The Ranch provides opportunities to local farmers to start or expand farming and ranching operations through leasing of one-quarter to five-acre plots of land.
 - **Onsite Farmer Markets:** Regularly scheduled farmers markets are anticipated to be a key source of distribution for produce and other agricultural products grown and/or processed on the Ranch.
 - **Food Products and Agribusiness Operations:** Produce and meat products raised on the Ranch will be utilized to offer farm to table products for those eating at the Ranch's cafe and/or grab-and-go facility.
 - **Ecosystem Services:** Conservation and agroecosystem practices contribute to soil health, biodiversity, and water management.
 - **Byproducts:** Potential revenue streams from byproducts (e.g., compost, secondary food and beverage products) are to be further evaluated by technical experts.
 - **Carbon Credits:** Opportunities exist for monetizing sequestration through forest and agroforestry systems.
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Additional Notes:

- The agricultural continuum strategy targets the long-term control of invasive species, the increase in soil health through building soil organic matter, and general landscape sustainability.
- As an alternative option to grazing, as indicated in the Ranch's revised Conceptual Agricultural Plan, as amended in 2024, largescale expansions of high stock, commercial *Hawaiian koa* production across large portions of the Ranch would have required mechanical and manual clearing of invasive species and created extensive organic waste piles, increasing wildfire fuel loads, and creating ideal habitat for Coconut Rhinoceros Beetle (*Oryctes rhinoceros*) breeding.
- To date, Coconut Rhinoceros Beetle has not been detected at the Ranch. Management practices, especially grazing, minimize organic waste piles, and avoiding mulch buildup that could harbor CRB and threaten future banana production.
- Cattle herd sizes that are currently around 180 - 200 head will vary at different periods of time, based on calving and slaughter rotation associated with ongoing annual cattle management and production practices. It is estimated that at no time will the cattle herd drop below 120 head.

Conclusion

Through the last 7 years of HARC's consultations included numerous field visits, studies and agricultural trials implementation and cultivation. In addition, HARC staff regularly meets with the Ranch management staff, ranchers and other Ranch consultants.

To date, documents developed or established in collaboration with HARC include geographic information systems maps of the planned areas, the Threatened and Endangered species survey, Conservation Plan, Wildfire Mitigation Plan, and the agricultural management plan with its associated infrastructure needs and produce yields.

Kaukonahua Ranch's agricultural plans are evolving into a cutting-edge model of regenerative agriculture systems in Hawai'i, where diversified crops, rotational grazing, wildfire resilience, technology, and community partnerships converge.

The developed integrated plan will help ensure productive, resilient landscapes that support food security, cultural use, ecological conservation, and economic sustainability for decades to come.

Kaukonahua Ranch – Planned Agricultural Mix Examples

Crop Production – Agave, Coffee and Banana

Integrating agave, coffee, and banana into crop production offers a diverse and climate-resilient farming system well-suited for a ranch operation on O‘ahu. Agave thrives in dry, rocky soils and requires minimal water, making it ideal for less productive areas. Bananas and coffee prefer more shaded, moisture-rich zones and can be intercropped under existing tree cover or along riparian areas. This combination allows for efficient land use, supports soil health, and provides multiple income streams through fruit, fiber, and specialty crops, enhancing overall ranch sustainability.



Worker cultivating blue agave at Waikulu Distillery Farm



Blue agave crops at Waikulu Distillery Farm (Maui)

Kaukonahua Ranch – Planned Agricultural Mix Examples

Grazing



Cattle at Kaukonahua Ranch (Above)

Grazing land for cattle and other livestock involves managing pastures to provide consistent, nutritious forage while maintaining soil and ecosystem health. On a ranch in O‘ahu, this can be implemented through rotational grazing systems that move animals between paddocks to prevent overgrazing and allow pasture recovery. Incorporating drought-tolerant grasses and native species can enhance resilience to local climate conditions, while fencing and water access systems improve herd management. This approach supports sustainable meat or dairy production and long-term land productivity.

Cattle grazing on Kaukonahua Ranch pasture lands (Below)



Kaukonahua Ranch – Planned Agricultural Mix Examples

Forestry and Silvopasture



Silvopasture with tree saplings on the slopes of Haleakala on Maui (Above)

Silvopasture is an agroforestry practice that integrates trees, forage, and livestock into a single, sustainable land-management system. On a ranch in O‘ahu, silvopasture could be implemented by strategically planting native or beneficial tree species—such as koa, breadfruit or monkeypod—throughout pastureland to provide shade, improve soil health, and support biodiversity. Livestock like cattle or goats can graze among the trees, benefiting from cooler microclimates and enhanced forage quality, while the trees contribute to long-term carbon sequestration and potential timber or fruit harvests.



Mature tree on silvopasture on Maui ranch (Above)

Farm worker watering tree in silvopasture (Left)

Kaukonahua Ranch – Planned Agricultural Mix Examples

Forestry – Koa and Others

Koa reforestation involves planting and nurturing native koa trees to restore native forests, improve biodiversity, and sequester carbon. On a ranch in O‘ahu, koa reforestation can be implemented by setting aside degraded or steep land for tree planting, integrating koa into silvopasture systems, or creating windbreaks and riparian buffers. These efforts support native ecosystems, provide long-term environmental and potential economic benefits, and align with conservation goals while maintaining overall ranch productivity.



Kaukonahua Ranch koa reforestation plot (Above)



Koa tree on Kaukonahua Ranch



Koa farm with fencing on Kaukonahua Ranch