

**Appendix J**

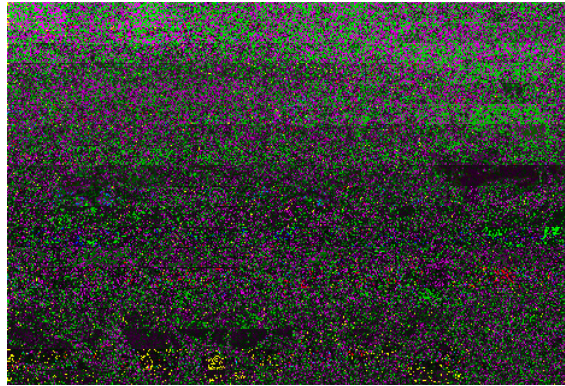
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**Preservation Plan for  
SIHP Site 6032 and Site 23681  
TMKs: 3-7-5-10:085 and 3-7-5-17:006  
Wai‘aha 1<sup>st</sup> Ahupua‘a  
North Kona District, Island of Hawai‘i  
Rechtman Consulting, October 2013**

## Preservation Plan for SIHP Site 6032 and Site 23681

(TMKs: 3-7-5-10:085  
and 3-7-5-17:006)

Wai‘aha 1<sup>st</sup> Ahupua‘a  
North Kona District  
Island of Hawai‘i



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**FINAL VERSION**

PREPARED BY:

Robert B. Rechtman, Ph.D.

PREPARED FOR:

U of N BENCORP  
75-165 Hualalai Road  
Kailua-Kona, HI 96740

October 2013



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(TMKs: 3-7-5-10:085 and 3-7-5-17:006)

Wai‘aha 1<sup>st</sup> Ahupua‘a  
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## INTRODUCTION

At the request of Mr. Jeffrey Dobbins of U of N BENCORP (landowner), Rechtman Consulting, LLC has prepared this Preservation Plan for SIHP Sites 6302 and 23681 located within a roughly 62-acre project area (TMK: 3-7-5-10:085 and 3-7-5-17:006) adjacent to Kuakini Highway in Wai'aha 1<sup>st</sup> Ahupua'a, North Kona District, Island of Hawai'i (Figures 1 and 2). As a result of an earlier Archaeological Inventory Survey (Clark and Rechtman 2003) of the project area, twenty-six sites were recorded (Figure 3), eleven of which warranted no further work, ten (SIHP Sites 23670-23678 and 23686) were subject to data recovery (Rechtman and Loubser 2007), three (SIHP Sites 23683, 23684, and 23685) were preserved under a Burial Treatment Plan (Rechtman 2003), and two (SIHP Sites 6302 and 23681) are to be preserved under this current Preservation Plan. SIHP Site 6302 was determined to be significant under Criteria A, C, and D, and the site has been determined eligible for listing (but is not formally listed) in the National Register of Historic Places. DLNR-SHPD also concurred with the determination that SIHP Site 23681 (interpreted to be an agricultural *heiau*) was significant under Criteria D and E (Clark and Rechtman 2003). The current plan, prepared in accordance with HAR 13§13-277 provides both short-term protection and long-term preservation measures for Site 23681 and the portion of the Site 6302 that exists within the current project area.

## DESCRIPTION OF THE PROJECT AREA AND DEVELOPMENT PLANS

The current project area is located roughly one mile southeast of Kailua-Kona Town, immediately adjacent to Kuakini Highway, within Wai'aha 1<sup>st</sup> Ahupua'a, North Kona District, Island of Hawai'i (see Figure 1). The boundaries of the current project area are defined to the north by the existing University of the Nations campus and a stone wall along the Wai'aha 1st/Pua'a 3<sup>rd</sup> *ahupua'a* boundary, to the east by Hualalai Road, to the south by Kona Hillcrest residential subdivision, and to the west by a stone wall along the *mauka* edge of Kuakini Highway (see Figure 2).

Terrain in the project area is gently undulating and elevation ranges from 40 to 60 feet above sea level. Two soils characterize the project area: Wai'aha extremely stony silt loam and Punalu'u extremely rocky peat (Sato et al. 1973). Both are well-drained, thin organic soils over bedrock. The underlying bedrock is *pāhoehoe* within the western third of the project area switching to 'a'ā bedrock underlying the eastern two-thirds and dating to more than 5,000 years B.P. (Wolfe and Morris 1996).

Despite the seemingly consistent semi-arid condition of this area, seasonality is evident. Throughout the Hawaiian Islands, the warmer and drier summer months, traditionally referenced as *kau*, extend from May to September, and the wetter, cooler months (*ho'oilō*) extend from October to April (Handy and Handy 1972). The temperatures in the Kona area are generally consistent with this seasonal pattern, ranging between 62-80 degrees in winter and 68–86 degrees during the summer months (Schilt 1984). However, the typical rainfall pattern differs considerably from that seen elsewhere; in all elevations along the Kona coast, rainfall during *kau* is typically greater than that during *ho'oilō* (Schilt 1984).

Two historically introduced species—*kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena leucocephala*)—dominate the vegetation within the project area. A variety of grasses, vines, weeds, and shrubs are also present. Prior impacts within the project area can be described as substantial. Bulldozing activity in the project area is evidenced by an old access road (no longer in use) corresponding to a waterline easement that extends *mauka/makai* through the property, terminating roughly 10 meters east of Site 6302; and several grubbed areas along the old access road and in the southern portion of the property (see Figure 3). Modern fence lines intersect across the property, extending north/south near the east edge of Site 23681, and wire fencing at the north and south extents of Site 6302 transformed the wall to form the east boundary of a cattle paddock, which likely occurred during utilization of the project area by the Gomes Ranch (1927-1960s). The landowner plans to expand their campus to the south incorporating the current project area. Their current proposed development plan for the property is shown on Figure 4.



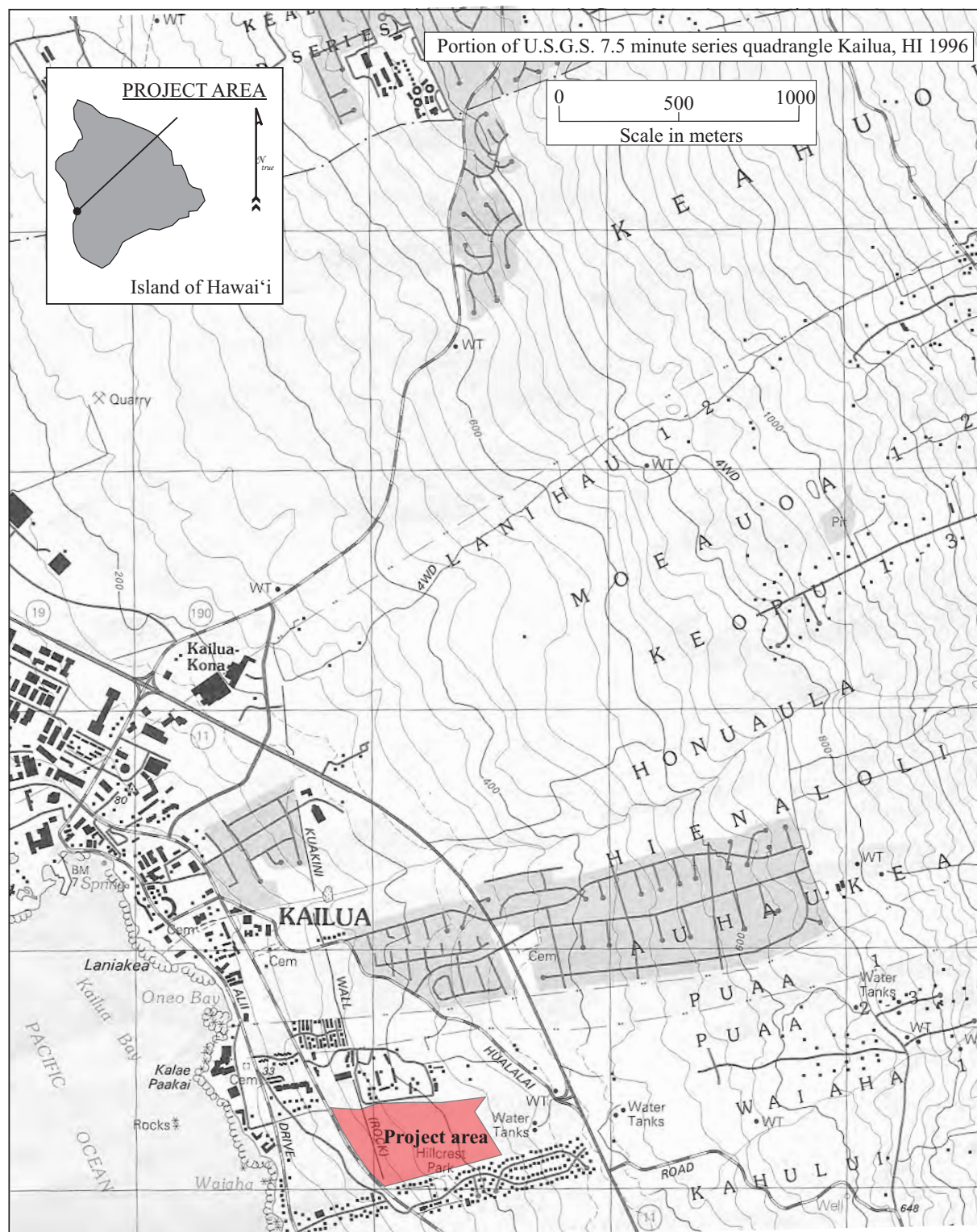


Figure 1. Project area location.

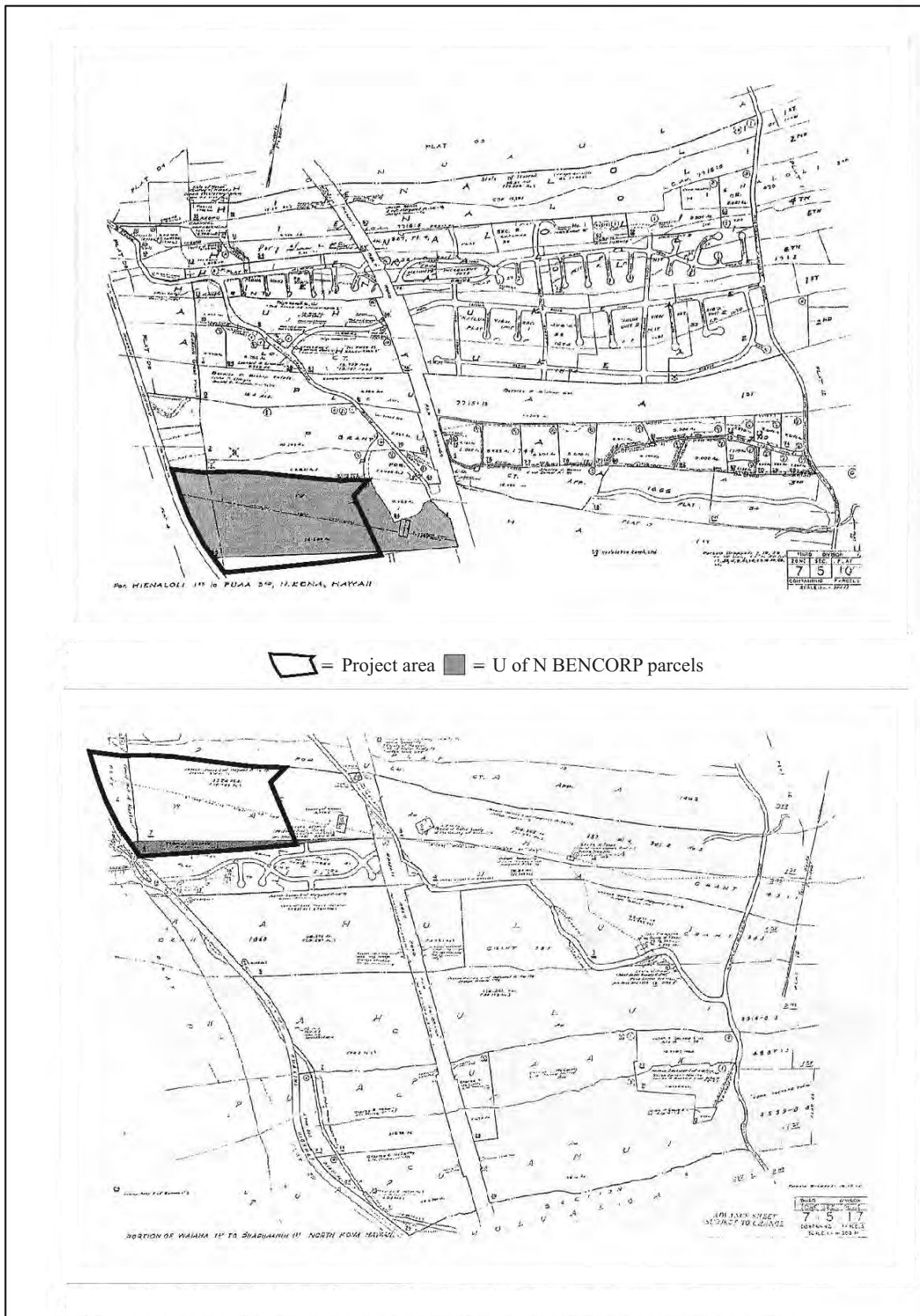
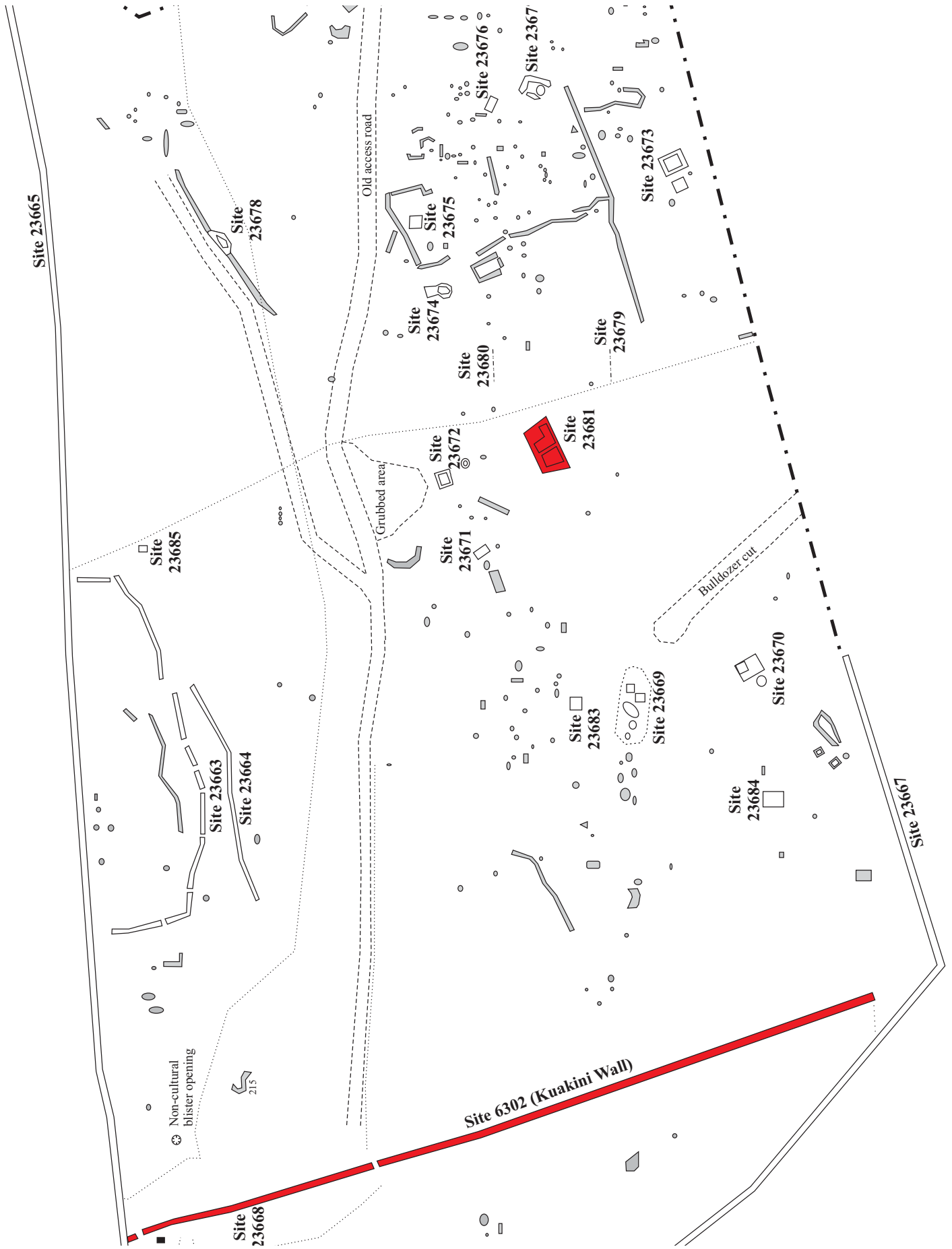


Figure 2. Tax Map Keys: 3-7-5-10 and 17 showing current project area, parcels 85 and 10 (shaded).





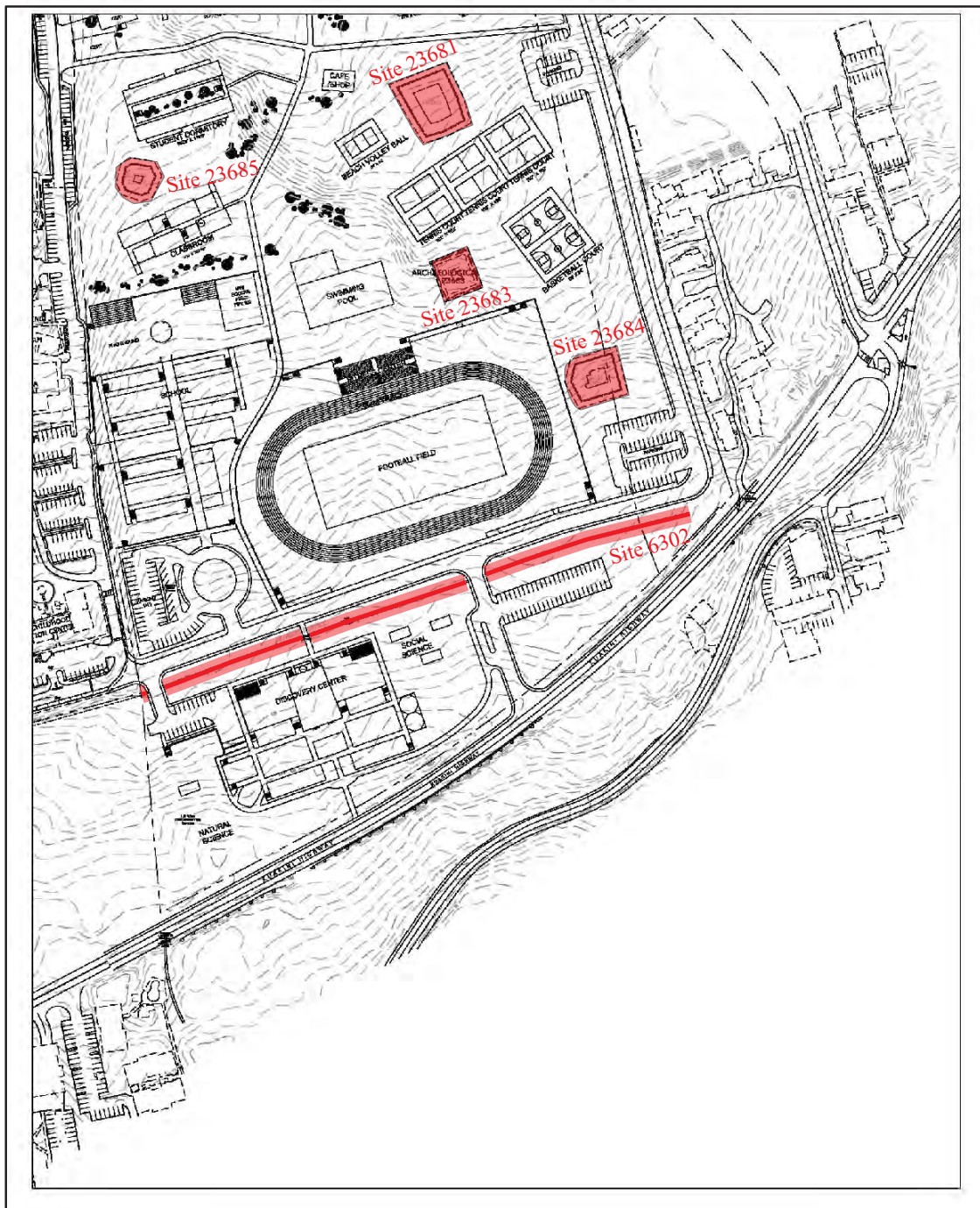


Figure 4. Proposed development showing archaeological and burial preserves.

## DESCRIPTION OF THE PRESERVATION SITES

### SIHP SITE 6302

Site 6302 is the Statewide Inventory of Historic Places (SIHP) designation for the Kuakini Wall, which extends through the western portion of the current project area. It is generally cited in the archaeological literature (e.g., O'Hare and Wolforth 1998) that the construction of the Great Wall of Kuakini began in the early 1800s as a response to the growing number of feral animals (e.g. cattle, goats, and pigs) running rampant in Kona. Although no record exists of Governor Kuakini having ordered the wall built, its final configuration is attributed to him. John Adams Kuakini was governor of Hawai'i Island between 1820 and 1844. According to Kelly (1983), prior to 1855 this wall was simply known as the Great Wall or the Great Stone Wall. It is perhaps a result of the Reverend Albert Baker's 1915 account of the wall that it has commonly become known as the Kuakini Wall:

Just a little above [the stone church at Kahalu'u], and continuing all the way to Kailua, is a huge stone wall built in Kuakini's time to keep pigs from the cultivated lands above.  
(Baker 1915:83)

Other early references to this wall are contained in *Māhele* records for *kuleana* parcels awarded bordering the wall. Typical of these is a *ca.* 1850 map (Figure 5) that accompanied the Land Commission Award to the ABCFM. The wall is documented in the vicinity of the current project area on a *ca.* 1880 map of Kailua town (Figure 6) prepared by J. S. Emerson and S. M. Kanakanui.

Archival research helps shed some light on the timing of the construction of the Great Wall (Rechtman et al. 2005). In Lucy Thurston's writings (Thurston 1882), she states that a stone wall was built in 1825 that completely surrounded the 5-acre property that was given to them; presumably the Great Wall had not yet been built. It was also recorded that the portion of the Great Wall extended north from the northeast corner of the Thurston's property was constructed against the pre-existing Thurston residential compound wall. These facts indicate that the Kuakini Wall was not built as a single construction but rather likely incorporated many preexisting property boundary walls along its course. It is clear from historical records that construction of the wall did not begin until after 1825 and that significant portions of the wall were completed by 1850. It is also interesting to note that the wall's originally cited function—to protect the cultivated fields *mauka* of the wall from feral animals—has been inverted over the years with the purpose becoming the protection of the coastal settlement areas *makai* of the wall. Perhaps the function of the wall changed through time.

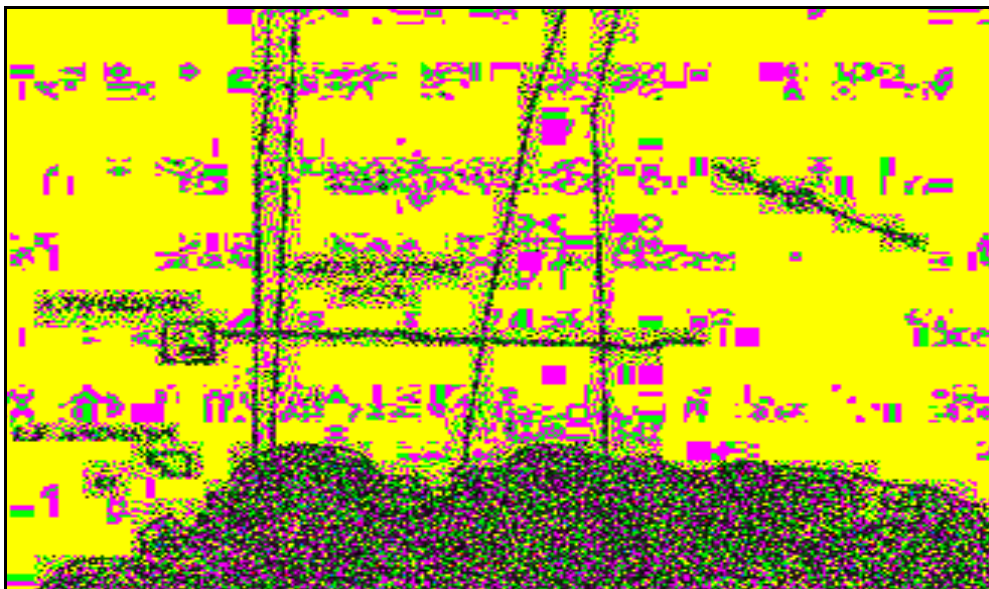


Figure 5. Portion of 1850 map that accompanied LCAw. 387 (from Kelly 1983:41).

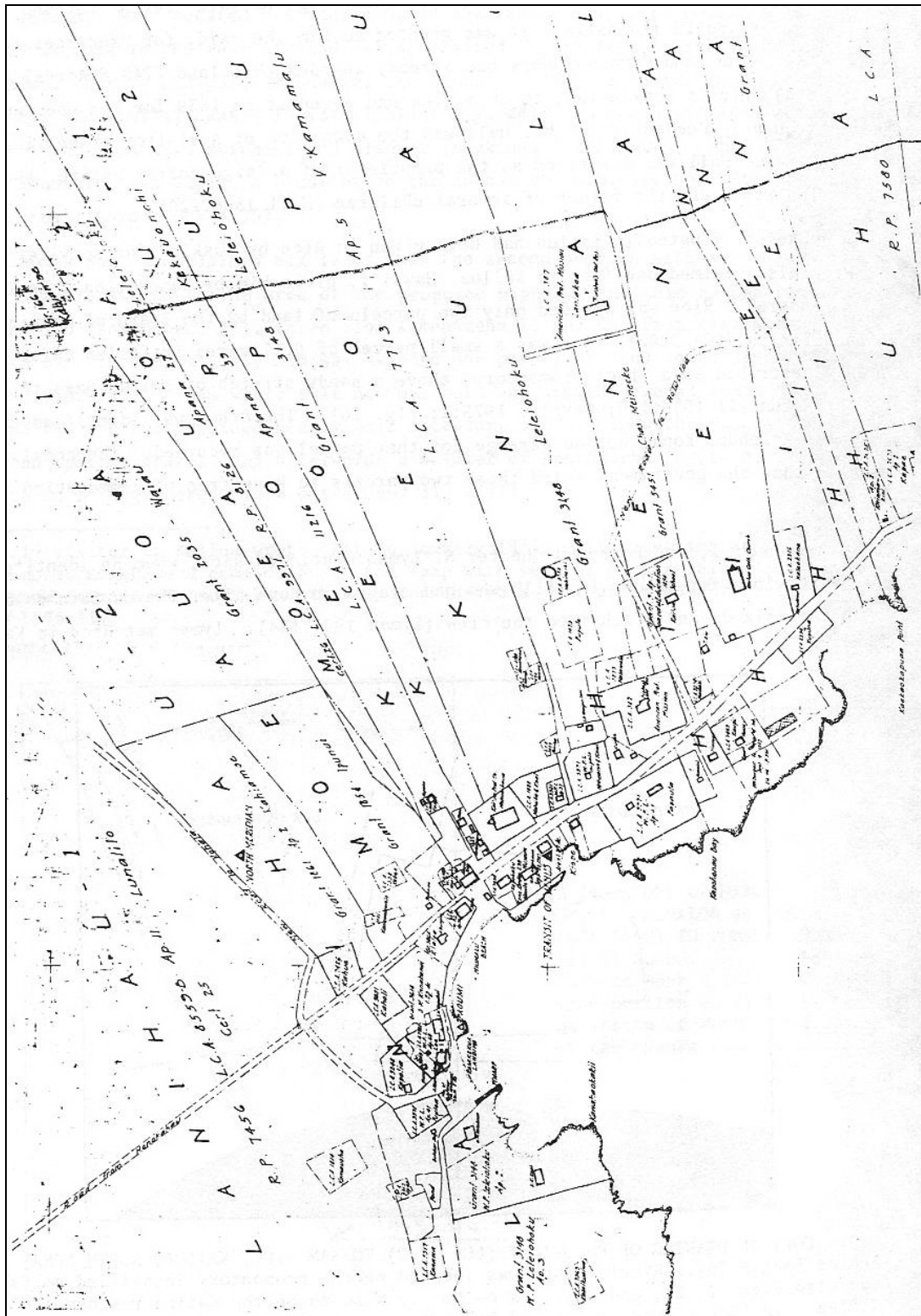


Figure 6. Portion of a *ca.*1880 map of Kailua town and vicinity.

The portion of Site 6302 within the current project area consists of a 340-meter section of wall that extends in a north/south direction in the western portion of the property, terminating to the south near the boundary between the two Tax Map parcels that comprise the project area (see Figure 3). This section of the Kuakini Wall stands up to 1.2 meters high with a maximum width of 1 meter, and is constructed in a core-filled method. Three gaps are present along this section of the wall (see Figure 3). The first gap occurs along its northern end and is 3 meters wide; and the second gap occurs 110 meters south of the northern end and is also 3 meters wide. These gaps were most likely created by the Gomes Ranch (1927-1960s) to help funnel cattle west towards Site 23662, and pasture areas, respectively. At the northern most gap there is a metal water trough located just to the west of the gap and a wire fence parallels Site 23665 all the way to Site 23662. At the second gap there are stub walls and a set of gates. The third gap occurs at the wall's south end 20 meters from the southern boundary of the project area. This section of wall was most likely removed to construct Sites 23666 and 23667. A wire fence connects the southern end of the Kuakini Wall segment to Site 23666 creating a large paddock between the two walls (Clark and Rechtman 2003).

## SIHP Site 23681

Site 23681 is interpreted as an agricultural *heiau*, or shrine, located within the south central portion of the project area (see Figure 3). It was originally recorded during fieldwork conducted by Clark and Rechtman (2003). The following description is reproduced here from the Archaeological Inventory Survey report prepared as a result of that fieldwork.

The site consists of a platform (Feature A) constructed within the northeast corner of a double enclosure (Feature B) [Figure 7]. The platform and enclosure walls are constructed of 'a'ā cobbles and boulders, while the floor of the enclosure area consists of thin soil covered by dense vegetation. Site 23681 resembles in size and shape other sites described in North Kona as *heiau* (Stokes and Dye 1991).

Feature A is a large rectangular platform (9.1 meters long by 5.3 meters wide) located in the northeast corner of Site 23681. The platform is constructed with large 'a'ā cobbles and boulders stacked along its outside edges and a surface of small cobbles paving top [see Figure 7]. The platform rises up to 0.7 meters above the surrounding ground surface and is mostly intact with the exception of some collapse in the southwest corner and along the north edge. The enclosure walls (Feature B) run in a perpendicular direction from the platform's edge starting at its southeast and northwest corners. The walls are not of continuous construction and may have been built subsequent to the completion of the platform. A single piece of water rounded coral and a water work cobble were found on the surface of the Feature A.

A 1 X 1 meter test unit (TU-14) was excavated in the northeast corner of Feature A [see Figure 7]. Excavation of TU-14 revealed a three-layer stratigraphic soil profile resting on bedrock. Cultural material collected from TU-14 included volcanic glass, fire cracked rock, marine shell, urchin, *kukui*, and mammal bone.

Feature B consists of a double enclosure located to the south and west of Feature A [see Figure 7]. The enclosure measures 19 meters long by 15 meters wide. A partially terraced central dividing wall creates two enclosure areas within Feature B; the interior of the western area measures 12 meters by 5 meters, and the interior of the eastern area measures 12 meters by 10 meters. The eastern enclosure area is slightly terraced (0.5 meters high) above its western counterpart. The enclosure walls are constructed of 'a'ā cobbles and boulders, they were formerly stacked, but are now mostly collapsed. Intact sections of wall stand up to 0.5 meters above the ground surface and measure 1.0 meter wide. Ground surface within Feature B consists of thin soil covered by dense vegetation. (Clark and Rechtman 2003:52-54).



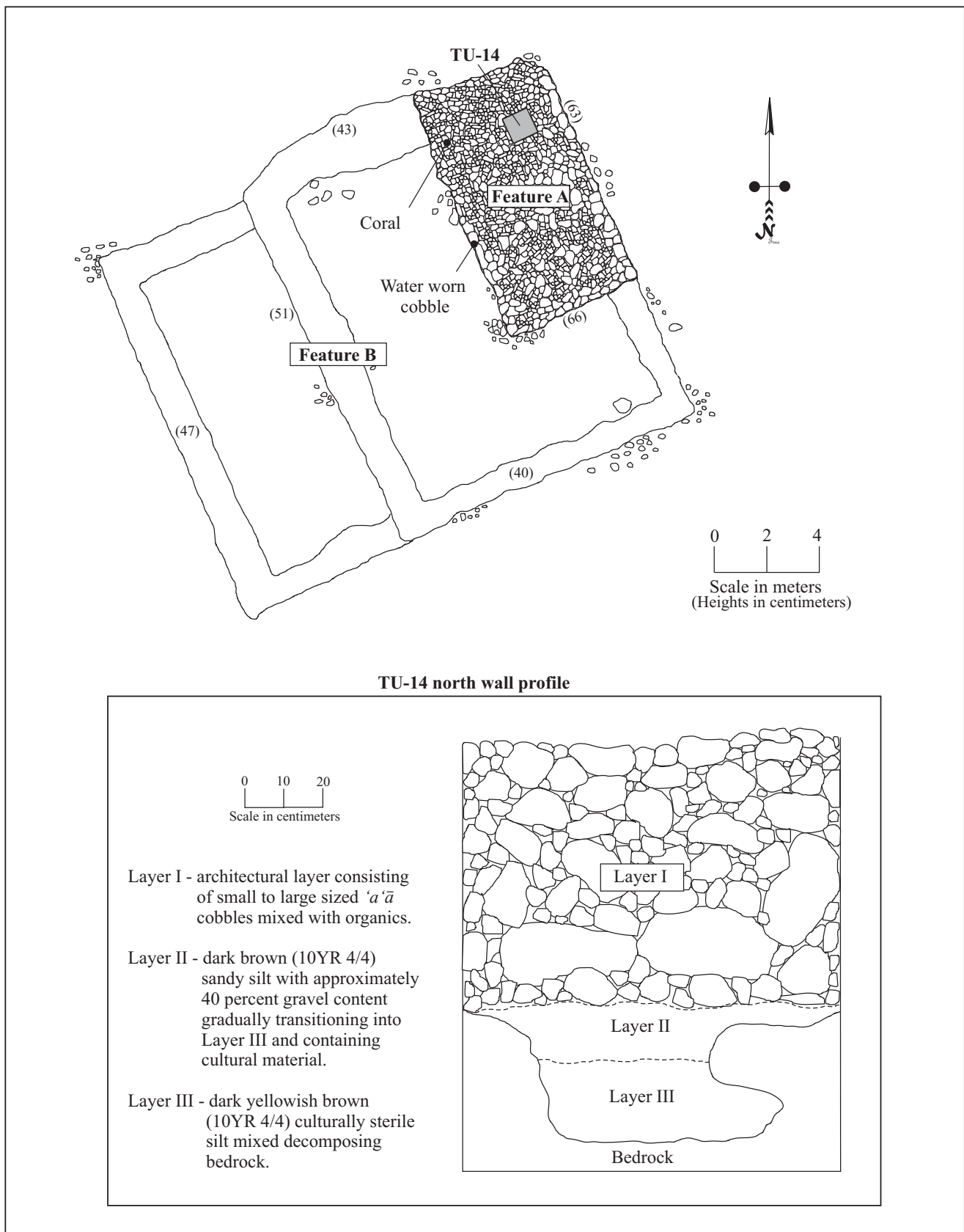


Figure 7. SIHP Site 23681 plan view and TU-14 profile (Clark and Rechtman 2003:53).



# PROPOSED PRESERVATION TREATMENTS

## SIHP Site 6302

A multi-modal preservation approach is the treatment proposed for the portion of Kuakini Wall within the current project area (Figure 8). The stable intact portions of the wall will be conserved through avoidance and protection, collapsed portions of the wall will be restored and stabilized, the missing southern portion of the wall will be reconstructed to the extent possible given availability of appropriate stones, and the site will be interpreted for the public. An allowance for widening one of the three existing breaches and the creation of a new 40 foot wide breach is also proposed. The overall preservation will be achieved through the establishment of a defined preservation easement, which is described below. No construction, land modification, or other unauthorized activities would be permitted to occur within the preservation easement.

As a primary access to the proposed development area, a roadway will be established extending *mauka* from Kuakini Highway in the south-central portion of the property (see Figure 4). This roadway will require the creation of a new 40 foot wide gap in Site 6302 to accommodate a roadway wide enough for emergency vehicles, curb and gutter, sidewalks, and landscaping. Also, at the northern end of the Kuakini Wall within the proposed development area an existing gap in the wall will be used for the placement of a sewer line and driveway (see Figure 4). It will be necessary to widen this existing gap to facilitate the placement of the infrastructure. Such widening in this area will be limited to no more than 15 feet (roughly 5 meters) of the wall. A third, centrally located gap will be used for pedestrian ingress and egress across the property; the wall terminations at this breach have been previously stabilized during Gomes Ranch use of the land.

All rocks taken from the existing gaps and during the creation of the new breach will be removed by hand and used to repair existing collapsed sections of the wall within the project area, and to restore the missing portion of the wall beginning at its current southern termination and extending southward. The dismantling process will be monitored by an archaeologist and cross-section profile drawings will be prepared and photographs will be taken documenting the walls construction techniques. The new wall terminations will be stabilized consistent with the recent treatment of this site in the vicinity of Palani Road (Rechtman and Nelson 2012). All sections of the wall that will require stabilization/restoration will be documented prior to any such work. A dismantling/restoration plan will be submitted to DLNR-SHPD for approval prior to the implementation of any of the above proposed work. This plan will describe the locations of all dismantling/stabilization/restoration work and contain plan view maps and photographs. The plan will also discuss the provision for preparing a documentation report to be submitted to DLNR-SHPD upon completion of the dismantling/stabilization/restoration work.

The below described preservation measures are consistent with approved preservation plans for this same site on other similar Kailua-Kona properties (e.g., Rechtman 2005; Tulchin and McDermott 2009).

### Long-Term/Permanent Preservation Measures

Long-term preservation will be achieved through the establishment of a permanent preservation easement that will be recorded with the Bureau of Conveyances and will be attached to the property deed. The buffer zone will be delineated by a vegetation transition.

#### *Buffer*

A twenty-foot buffer zone on either side of the wall, measured from the *mauka* and *makai* faces of the wall, will be established. No construction will be allowed within this buffer zone.

#### *Landscaping and Stabilization*

Invasive vegetation will be removed by hand from within the preservation buffer and collapsed portions of the wall will be restacked using immediately available stones (those from the collapses) and any stones removed from the potential gap widening areas. If any vegetation is introduced into the buffer zone it will consist of shallow rooted native and Polynesian-introduced species.

#### *Interpretation*

Several small interpretive/cautionary signs will be established along the preservation buffer zone boundary. The proposed language for the signs reads as follows:

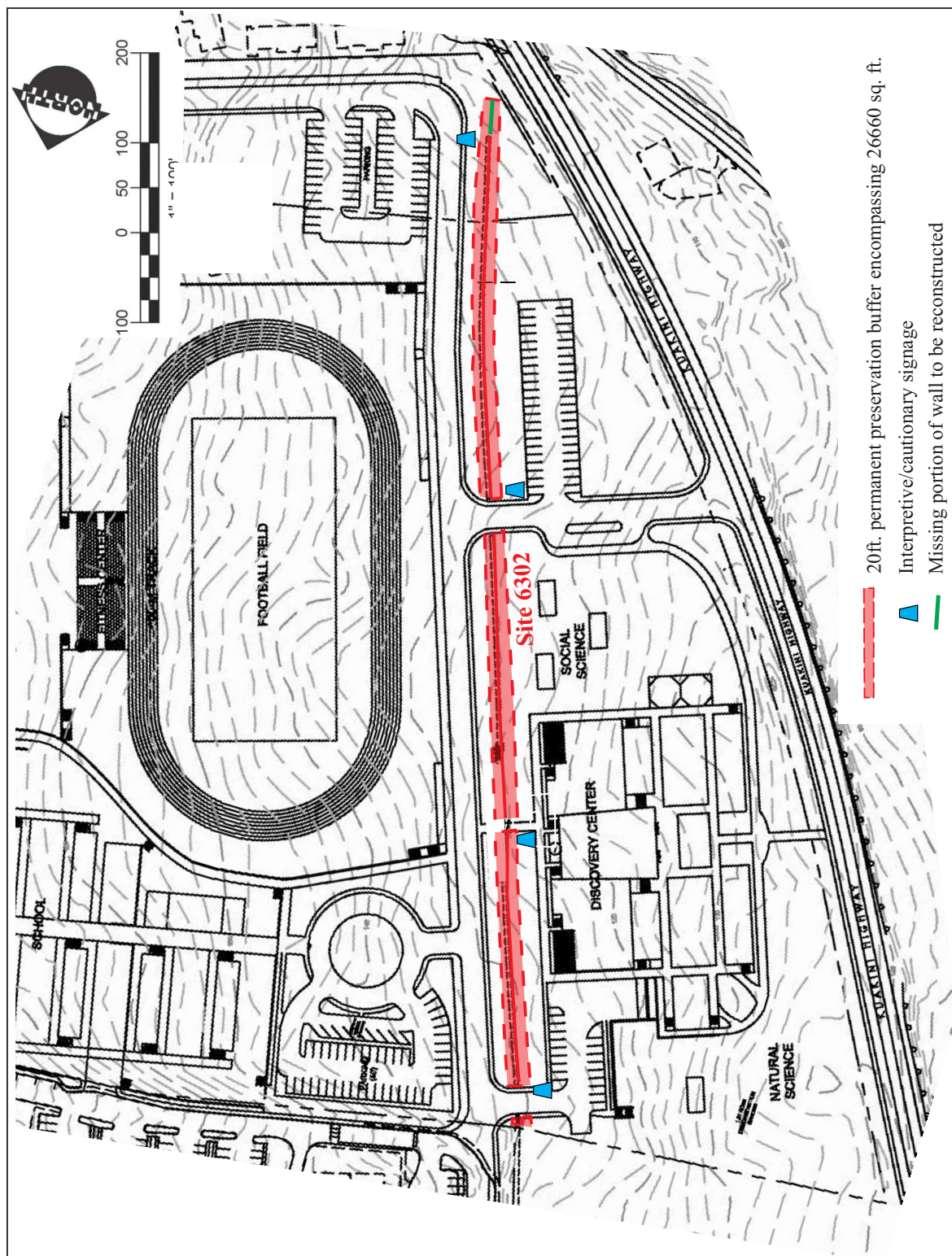


Figure 8. SIHP Site 6302 preservation treatment.

***Kuakini Wall***  
***(SIHP Site 6302)***  
***Wai'aha Ahupua'a***  
***North Kona District***

Known also as the Great Wall and *Pā Pipi* (the cattle wall), construction of this wall began sometime after 1825. The building of the wall is attributed to Kuakini (John Adams), the Governor of Hawai'i Island from 1820 to 1844. It is said that the wall was built to control feral animals, which during the nineteenth century were becoming an increasing nuisance in the upland gardens as well as in the coastal settlement area. This significant site has been determined eligible for listing in the Hawai'i Register of Historic Places as well as the National Register of Historic Places.

This is a culturally and historically significant site;  
 please show your respect by not removing rocks from this area.

Historic sites are protected under state law. Violation could result in a \$10,000 fine.  
 (Chapter 6E-11, Hawai'i Revised Statutes)  
 DLNR-SHPD (808) 692-0015

#### **Short-Term/Interim Protection Measures**

Interim protection of the site will be achieved through the placement of orange construction fencing along the permanent preservation boundary. Proper placement of the fence will be checked by a qualified archaeologist and verified in writing to SHPD. Absolutely no construction activity will be allowed within the preservation easement. The location of the preservation site relative to the construction zone will be plotted on the appropriate construction plans. Prior to any construction activities, a qualified archaeologist will meet on-site with construction supervisors to point out the site and construction zone, and to review all preservation requirements needed to assure the protection of the site. Once the construction is complete, the protective fencing will be removed and the preservation buffer will be treated as per the above-described permanent preservation measures.

#### **SIHP Site 23681**

Preservation as a stabilized ruin and interpretation is the treatment proposed for Site 23681 (Figure 9). Preservation will be achieved through the establishment of a defined preservation easement, which is described below. No construction, land modification, or other unauthorized activities would be permitted to occur within the preservation easement.

#### **Long-Term/Permanent Preservation Measures**

Long-term preservation will be achieved through the establishment of a permanent preservation easement for the *heiau*. This easement will be recorded with the Bureau of Conveyances and will be attached to the property deed.

##### *Buffer*

A twenty-foot buffer zone surrounding Site 23681 will be established. No construction will be allowed within this buffer zone. The boundaries of the buffer zone will be defined by a stone wall constructed of local basalt boulders and cobbles. The wall would be built so as to be typically traditional Hawaiian in appearance. The wall will have a dry stacked appearance with a hidden concrete core for stability. Wall height will be a minimum of three feet and width will be approximately 2 feet. An inconspicuously situated narrow gated opening will be left through the enclosing wall to allow access for appropriate visitation and for maintenance purposes.

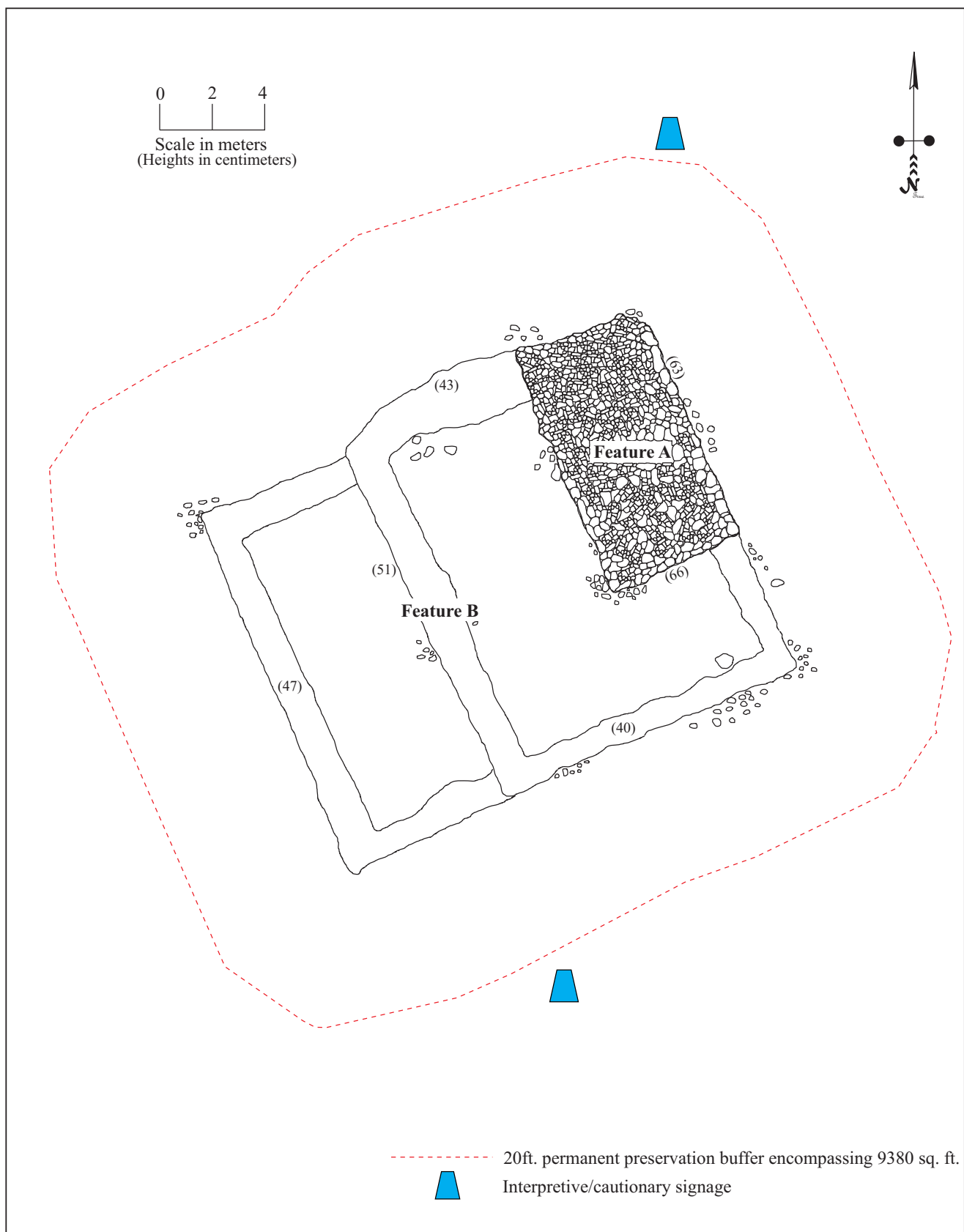


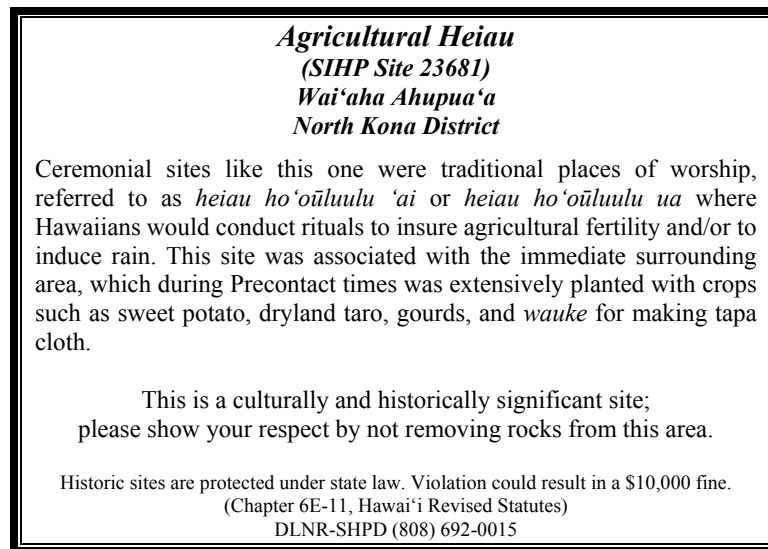
Figure 9. SIHP Site 23681 preservation treatment.

### *Landscaping and Stabilization*

Invasive vegetation will be removed by hand from within the preservation buffer and collapsed portions of Site 23681 will be restacked. If any vegetation is introduced into the buffer zone it will consist of shallow rooted native and Polynesian-introduced species.

### *Interpretation*

At least one interpretive/cautionary sign will be established along the preservation buffer zone boundary. The proposed language for the signs reads as follows:



### **Short-Term/Interim Protection Measures**

Interim protection of the site will be achieved through the placement of orange construction fencing along the permanent preservation boundary. Proper placement of the fence will be checked by a qualified archaeologist and verified in writing to SHPD. Absolutely no construction activity will be allowed within the preservation easement. The location of the preservation site relative to the construction zone will be plotted on the appropriate construction plans. Prior to any construction activities, a qualified archaeologist will meet on-site with construction supervisors to point out the site and construction zone, and to review all preservation requirements needed to assure the protection of the site. Once the construction is complete, the protective fencing will be removed and the preservation buffer will be treated as per the above-described permanent preservation measures.

## CONSULTATION

On June 27, 2013, an earlier version of this preservation plan was presented at a board meeting of the Kona Hawaiian Civic Club. Among those present, comments on the plan were offered by Maurice Kahawaii, Aka DeMesa, Teresa Nakama, and Chuck Flaherty. The earlier version of this plan indicated that as much as 75 feet of the Kuakini Wall might be impacted during development of the property. This was disturbing to those that commented and as a result, the roadways and other infrastructure have been redesigned to utilize existing gaps in the wall, which will greatly lessen the amount of potential direct impact to Site 6302. Those assembled at the board meeting asked if a site visit be conducted of the area. The landowner consented to such a visit, but attempts to organize such a visit have been unsuccessful as there has no further contact from the Kona Hawaiian Civic Club despite several attempted efforts to make such contact.

As part of the preservation planning (Rechtman 2005) for section of this same site on a portion of TMK:3-7-5-009:054 and TMK: 3-7-009:067 in Heinaloli 6<sup>th</sup> and 'Auhaukea'e 1<sup>st</sup> ahupua'a, to the north of the current project area, two individuals of prominence in the community were consulted (Ruby McDonald [now deceased] and J. Curtis Tyler III). For that proposed development these individual concurred with a buffer zone of 15 feet (5 feet small than that proposed for the current development area) as well as both the short-term and long-term measures that area similar to those proposed in the current plan. Mr. Tyler was contacted with respect to the current preservation effort to share his *mana'o*. He agreed with the proposed treatments as outlined above.

## IMPLEMENTATION OF PRESERVATION PLAN

U of N BENCORP will implement the preservation measures described in this plan, and insure that all requirements and restrictions associated with the perpetual easements are incorporated into the property deed. They will also retain the management responsibilities associated with the perpetual preservation of these sites. The interim protection measures described above will govern the development activities until such time as the permanent preservation measures are implemented.

## REFERENCES CITED

- Baker, A.  
1915      Between the Bays in Kona. In: *Thrum's Hawaiian Annual for the Year 1916*.
- Clark, M., and R. Rechtman  
2003      An Archaeological Inventory Survey of TMKs: 3-7-5-10:85 and 3-7-5-17:06, Wai'aha Ahupua'a, North Kona District, Island of Hawai'i. Rechtman Consulting Report RC-0153. Prepared for U of N BENCORP, Kailua-Kona, Hawai'i.
- Handy, E.S.C., E.G. Handy, with M. Pukui  
1972      *Native Planters in Old Hawaii, Their Life, Lore, and Environment*. B.P. Bishop Museum Bulletin 233. B.P. Bishop Museum Press.
- Kelly, M.  
1983      *Na Mala O Kona: Gardens of Kona. A History of Land Use in Kona, Hawai'i. Departmental Report Series 83-2*. Department of Anthropology, B. P. Bishop Museum, Honolulu. Prepared for the Department of Transportation, State of Hawai'i.
- O'Hare, C., and T. Wolforth  
1998      Archaeological Inventory Survey of the Gomes Property Parcel (TMK:3-7-5-19:5,38,40) Land of Kahului 1st North Kona Island of Hawai'i. Paul H. Rosendahl, Ph.D., Inc., Report 1807-090998, Hilo, Hawaii. Prepared for Towne Development of Hawaii, Inc., Honolulu, Hawai'i.

- Rechtman, R.  
2003 Burial Treatment Plan for Three Sites in the Proposed Hualālai Village Development Area (TMKs: 3-7-5-10:85 and 3-7-5-17:06), Wai‘aha Ahupua‘a, North Kona District, Island of Hawai‘i. Rechtman Consulting Report RC-0175. Prepared for U of N BENCORP, Kailua-Kona, Hawai‘i.
- Rechtman, R.  
2005 Preservation Plan for a Portion of the Kuakini Wall SIHP Site 6302, TMK: 3-7-5-09:67, Heinaloli 6th and ‘Auhaukea‘ē 1<sup>st</sup> ahupua‘a, North Kona District, Island of Hawai‘i. Rechtman Consulting Report RC-0304. Prepared for CSV Hospitality Management LLC, Hilo, Hawai‘i.
- Rechtman R., and J. Loubser  
2007 Archaeological Data Recovery at Ten sites on TMKs: 3-7-5-10:85 and 3-7-5-17:06, Wai‘aha Ahupua‘a, North Kona District, Island of Hawai‘i. Rechtman Consulting Report RC-0223. Prepared for U of N BENCORP, Kailua-Kona, Hawai‘i.
- Rechtman R., and J. Nelson  
2012 Archaeological Monitoring Report for the Ane Keohokālole Highway Project (TMKs: 3-7-3-09: 064; 3-7-4-08: 082, 083; 3-7-4-20:027, 029) Keahuolū, Kealakehe, Honokōhau and Kaloko ahupua‘a, North Kona District, Island of Hawai‘i. Rechtman Consulting Report RC-0671. Prepared for Nan, Inc., Honolulu, Hawai‘i.
- Rechtman, R., M. Clark, and A. Ketner  
2005 An Archaeological Inventory Survey of TMKs: 3-7-5-03:2, 25 and 3-7-5-22:173, Honua‘ula and Heinaloli 1<sup>st</sup> ahupua‘a, North Kona District, Island of Hawai‘i. Rechtman Consulting Report RC-0211. Prepared for The Laniākea Foundation, Honolulu, Hawai‘i.
- Sato, H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr.  
1973 *Soil Survey of the Island of Hawaii, State of Hawaii*. U.S. Department of Agriculture, Soil Conservation Service and University of Hawaii Agricultural Experiment Station. Washington, D.C.: Government Printing Office.
- Schilt, A.  
1984 Subsistence and Conflict in Kona, Hawaii. An Archaeological Study of the Kuakini Highway Realignment Corridor. *Departmental Report Series* 84-1. Department of Anthropology, B.P. Bishop Museum, Honolulu. Prepared for Department of Transportation, State of Hawaii.
- Stokes, J., and T. Dye  
1991 *Heiau of the Island of Hawai‘i: A Historic Survey of Native Hawaiian Temple Sites. Bishop Museum Bulletin in Anthropology* 2. Bishop Museum Press, Honolulu.
- Tulchin, J., and M. McDermott  
2009 Mitigation Plan for SIHP # 50-10-27-6302 (Kuakini Wall), Ane Keohokālole Highway Project, Keahuolū Ahupua‘a, North Kona District, Hawai‘i Island TMK: [3] 7-4-008:063 por. Cultural Surveys Hawai‘i report KEAHUOLU 7. Prepared for Belt Collins Hawaii, Ltd., Honolulu.
- Thurston, L.  
1882 *Life and times, of Mrs. Lucy G. Thurston, wife of Rev. Asa Thurston, pioneer missionary to the Sandwich islands, gathered from letters and journals of extending over a period of more than fifty years. Selected and arranged by herself*. S.C. Andrews: Ann Arbor Michigan.
- Wolfe, E., and J. Morris  
1996 Geologic Map of the Island of Hawai‘i. *Geologic Investigations Series Map* 1-2524-A. U.S. Department of the Interior, U.S. Geological Survey.