# Archaeological Monitoring Report for the Construction of a Graded Site Pad for the Thirty Meter Telescope (TMT) Groundbreaking Ceremony

**TMK: (3) 4-4-15:009**

Ka'ohe Ahupua'a
Hāmākua District
Island of Hawai'i

FINAL VERSION

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September 2014

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ASM Project Number 22990.01

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# MANAGEMENT SUMMARY

At the request of TMT Observatory Corporation, ASM Affiliates, Inc. conducted archaeological monitoring of ground-altering activities associated with the construction of a graded site pad for the groundbreaking ceremony for the Thirty Meter Telescope (TMT) within the astronomy precinct of the Mauna Kea Science Reserve (MKSR). As identified in the monitoring plan, archaeological resources are known to exist in the general project vicinity, thus the necessity for archaeological monitoring The archaeological monitoring adhered to procedures outlined in Hawai'i Administrative Rules 13§13-279 *Rules Governing Minimal Standards for Archaeological Monitoring Studies and Reports*. This report details the procedures that were followed during monitoring as well as presents the results of the monitoring fieldwork. There were no previously identified archaeological sites impacted by the development activity nor were there any new archaeological resources encountered during monitoring.

# CHAPTERS



# FIGURES



# TABLE

# 1. INTRODUCTION

At the request of TMT Observatory Corporation, ASM Affiliates, Inc. (ASM) has prepared this archaeological monitoring report, which details the procedures that were followed during the ground-disturbing activities associated with the construction of a graded site pad for the groundbreaking ceremony of the proposed Thirty Meter Telescope (TMT) within the Astronomy Precinct on Mauna Kea. The proposed TMT development area is located in Area E of the Astronomy Precinct within the Mauna Kea Science Reserve (MKSR), in TMK: (3) 4-4-015:009, in Ka'ohe Ahupua'a, Hāmākua District, Hawai'i Island (Figures 1 and 2). Pacific Consulting Services, Inc. prepared a monitoring plan (Collins et al. 2013), which was submitted to and approved by DLNR-SHPD. An earlier archaeological monitoring project had been completed by Rechtman Consulting, LLC (Glennon and Rechtman 2013) for ground disturbing work associated with the Geotechnical Boring phase of the TMT development project. During that project no historic properties were impacted or identified when the existing access road surrounding the current groundbreaking pad site and a new extension loop were improved and newly graded, respectively. The current project area was subject to intensive archaeological survey (McCoy et al. 2005) and while there were no archeological sites recorded within the TMT development area, a few features interpreted to be of modern origin were observed. One of these features, identified as Find Spot 2005.08, although interpreted as modern in origin by all of the archaeologists who have investigated it, is currently under investigation by DLNR-SHPD with respect to its origin and significance.

Prior to the commencement of the ground-disturbing work and in compliance with a DLNR-SHPD request (DOC NO.: 1406SN23), ASM installed interim protection measures for Find Spot 2005.08. At a distance of 15 feet around Find Spot 2005.08 a highly visible rope and flagging tape barrier was created and cautionary signs placed (Figure 3). This barrier remained in place until all ground-disturbing activity associated with the current monitoring project ceased and the machinery was removed.

The current archaeological monitoring effort adhered to procedures outlined in the archaeological monitoring plan (Collins et al. 2013) and was conducted in accordance with Hawai'i Administrative Rules 13§13-279 *Rules Governing Minimal Standards for Archaeological Monitoring Studies and Reports*.

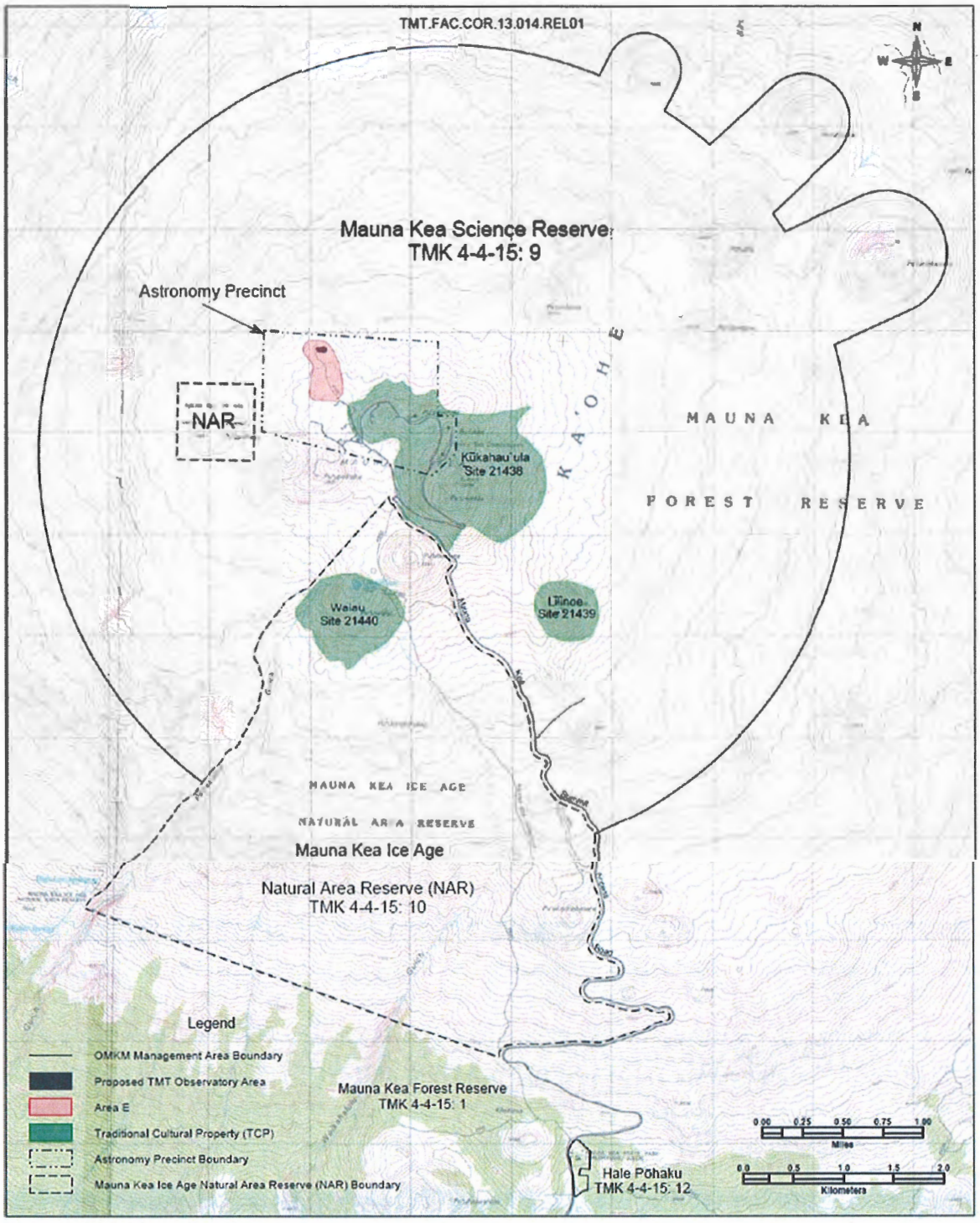


Figure 1. Project area location.

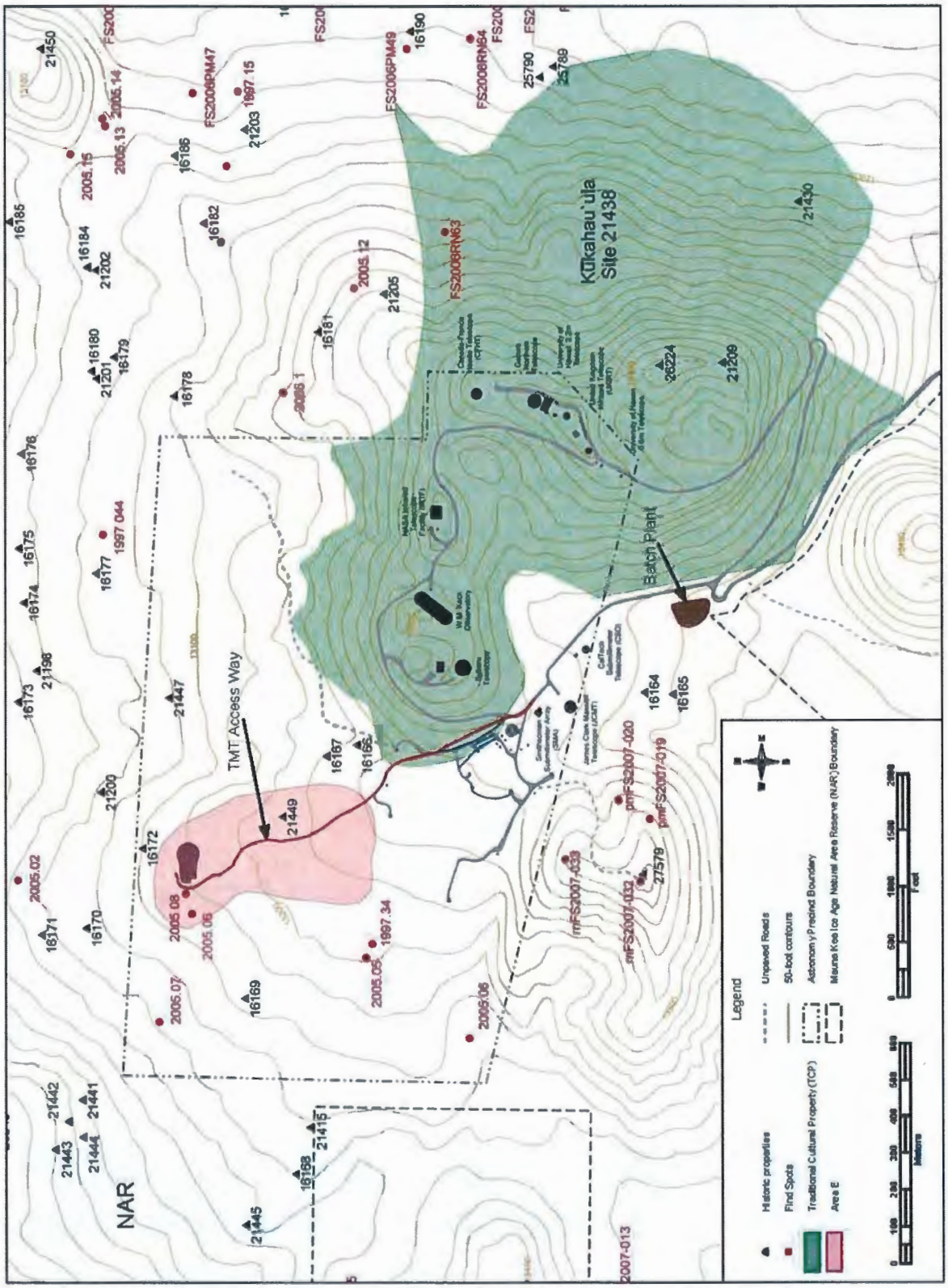


Figure 2. Historic properties in the Astronomy Precinct and vicinity of the proposed TMT Location.

Figure 3. Find Spot 2005-08 protection barrier.

# 2. ANTICIPATED REMAINS

As noted in the Archaeological Monitoring Plan (Collins et al. 2013), six previously recorded historic sites were located within the boundaries of the Astronomy Precinct, as well as seven "find spots" (modern features), and two Traditional Cultural Properties (TCP). Of the six archaeological sites within the precinct, three are situated relatively close to the access road and the TMT development area (see Figure 2). These include: SIHP Site 50-50-10-16166, eight (possibly nine) uprights arranged in two groups (Figure 4); SIHP Site 50-50-10-16167, an upright set in a crack (Figure 5); and SIHP Site 50-50-10-16172, a single upright (Figure 6). None of these sites were in danger of disturbance during the construction of the TMT groundbreaking ceremonial site pad. The two traditional cultural properties include the summit cinder cones collectively known as Kukahau'ula (SIHP Site 50-50-10-21438) and Pu'u Līlīnoe (SIHP Site 50-50-10-21439) (see Figure 1). The current access way to the TMT development area intersects with the northwestern edge of Site 21438. A bore hole (B-9) was augured to a depth of 10 feet along this portion of the road during the previous monitoring effort associated with the geotechnical boring phase of the project (Glennon and Rechtman 2013).

Mauna Kea and its summit cinder cones, to this day, continue to play an important role in religious and cultural practices to many native Hawaiians and non-native Hawaiians alike. Family shrines (consisting mainly of upright boulders set on end) and rock piles are still constructed in and around the summit area, and these more modern features have been labeled as "find-spots." In light of this, there is a possibility that new find spots may be located within the project area. The possibility also exists for the discovery of isolated subsurface artifacts, particularly adzes, flakes, or worked stone, and, although less likely, the discovery of subsurface human remains.

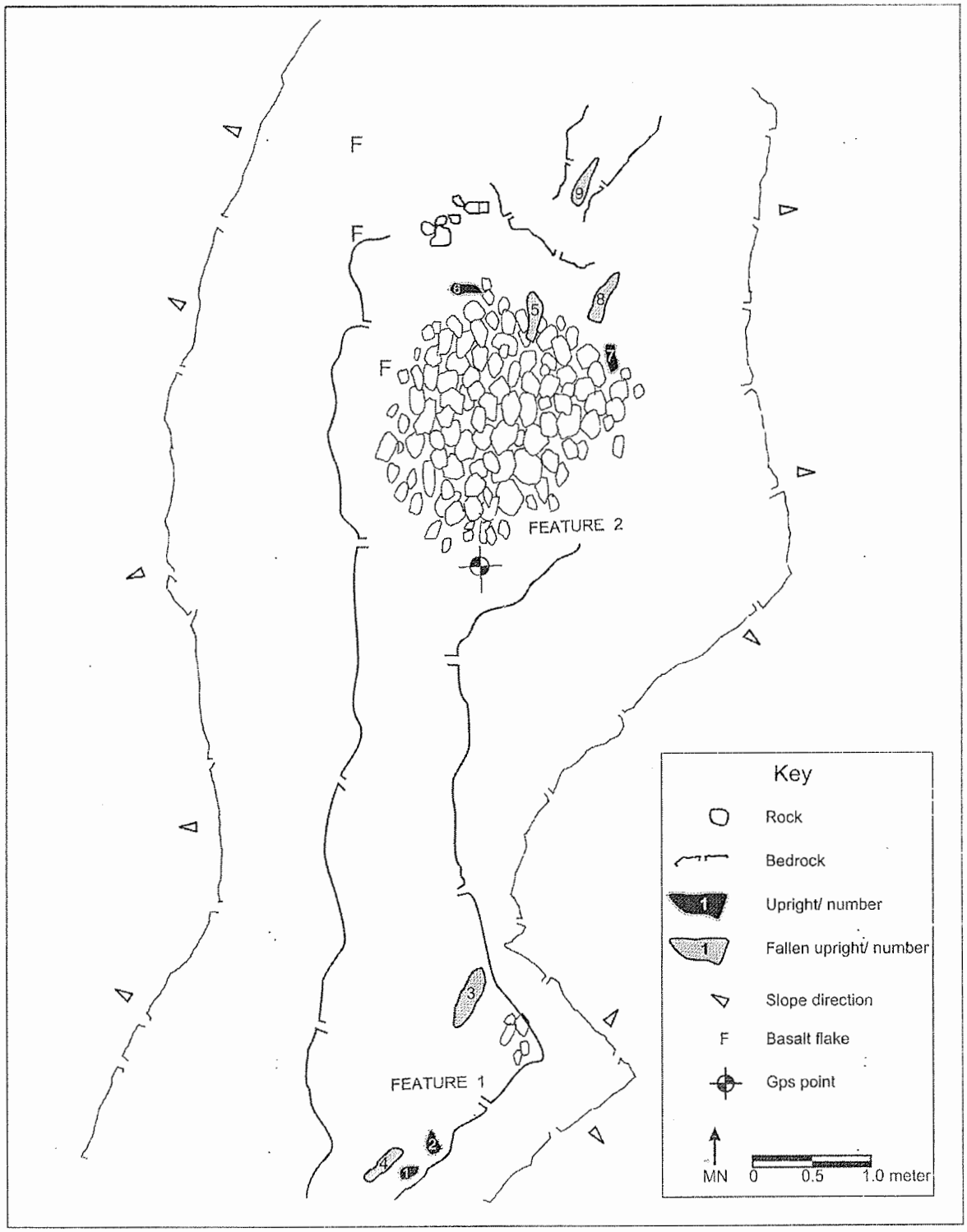


Figure 4. Site 16166 plan view (from McCoy et. al 2010).

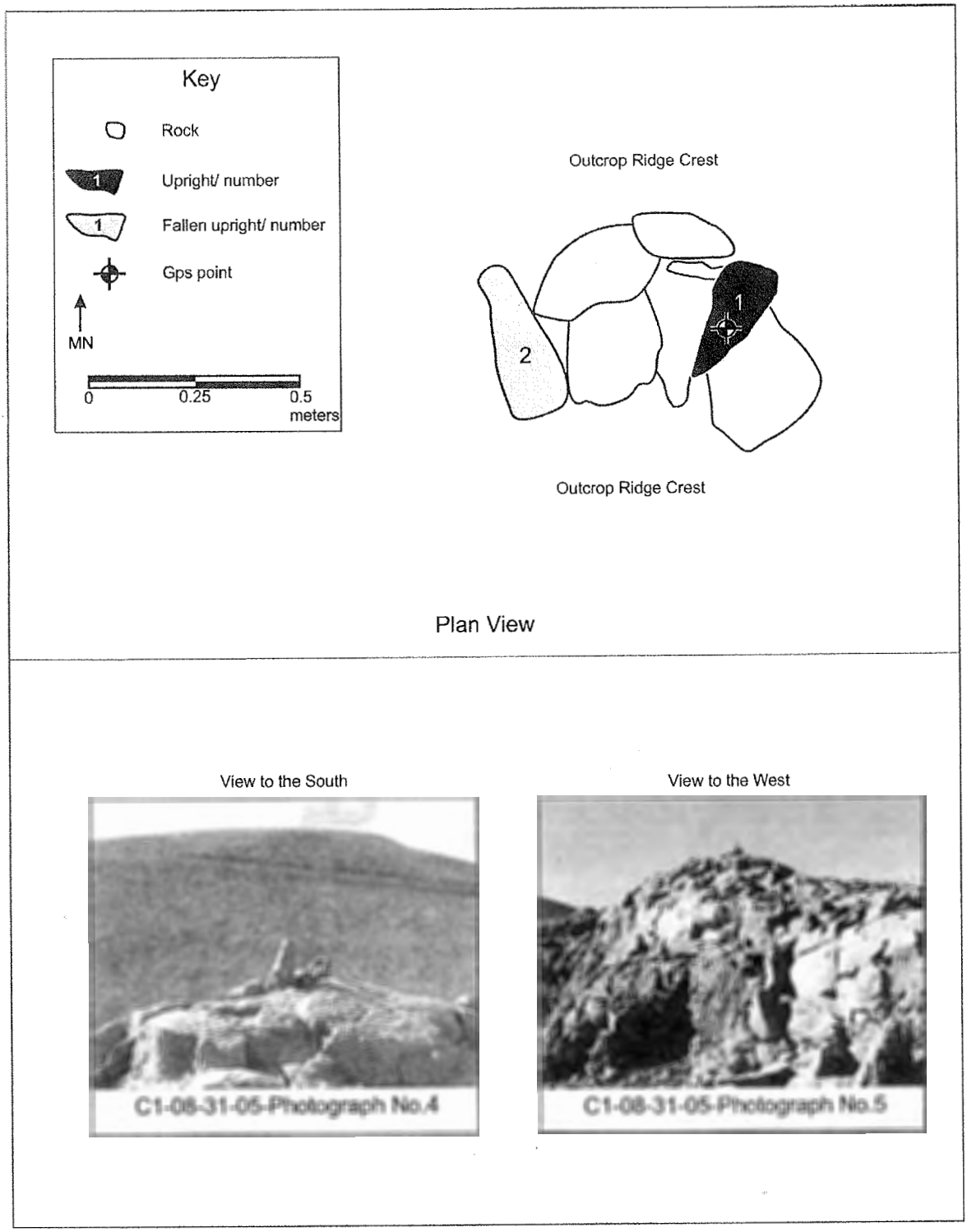


Figure 5. Site 16167 plan view and photos (McCoy et al. 2010).

Figure 6. Site 16172, view to the north.

# 3. THE MONITORING EFFORT

On September 16, 2014, Robert Rechtman, Ph.D. (Principal Investigator), and Kamuela Plunkett (primary monitor) attended a pre-construction conference, held at the Hale Pōhaku facility; in attendance were representatives from the general contractor Goodfellow Bros., Inc. (GBI), Mauna Kea Observatory Support Services (MKSS), the Big Island Invasive Species Committee (BIISC), as well as the project coordinator for TMT; also present at this conference was Wally Ishibashi, the cultural monitor working on behalf of the OMKM (Table 1). The purpose of this meeting was to acquaint the representatives of key organizations working on the project with each other, and to explain each person's role. Various environmental, cultural, political, and safety issues pertaining to Mauna Kea and the construction of the TMT were addressed and presented to the attendees by the OMKM.

At this pre-construction conference, Dr. Rechtman provided an archaeological orientation, explaining the nature of potential cultural resources that might be encountered. It was also explained that the monitoring archaeologist has the authority to halt construction activities in the event that any such resources are encountered. The procedures to be followed in case of an inadvertent discovery of human skeletal remains were also outlined.

**Table 1. Preconstruction meeting key attendees.**

| Organization | Representative | Role |
|---|---|---|
| TMT | Paul Gillet | Project Coordinator |
| OMKM | Wally Ishibashi | Construction and Cultural Monitor |
| GBI | Clifford Cox | Construction Foreman |
| GBI | Don Weisgerber | Project Manager |
| MKSS | Stewart Hunter | MKSS Manager |
| BIISC | Springer Kaye | Biological Monitoring |
| ASM | Robert Rechtman | Archaeological Monitoring |
| ASM | Kamuela Plunkett | Archaeological Monitoring |

# 4. FIELD METHODS AND FINDINGS

Archaeological monitoring for the current project commenced on September 17, 2014 and was completed on September 19, 2014. Robert B. Rechtman, Ph.D. served as Principal Investigator and Kamuela Plunkett, B.A. was the primary archaeological monitor. All of the field records generated during this project are archived with ASM Affiliates, Inc.

The project area is located within the Mauna Kea Science Reserve, in Area E of the Astronomy Precinct (see Figure 2). This phase of the TMT development included construction of a groundbreaking ceremonial pad and improvement to the existing access road surrounding the pad and its previously constructed extended loop road, requiring the cutting, filling, and grading of a naturally occurring rock shelf (Figures 7 and 8). Construction began on this shelf on September 17, 2014 using a Hitachi 470 excavator and a Caterpillar D-6 Dozer for grading. The most intensive ground disturbance occurred on the eastern edge of the ground breaking site pad using the excavator (Figure 9) with its bucket, ripper, and hammer attachments. After excavation, fill and crushed material (excavated boulders) were spread by a D-6 Caterpillar Dozer to a finished grade (Figure 10). No surface or subsurface cultural material was observed during this activity.

Figure 7. Naturally occurring rock shelf to be cut, filled, and graded to create groundbreaking pad. Existing access road in foreground facing east-southeast with observatories in background.

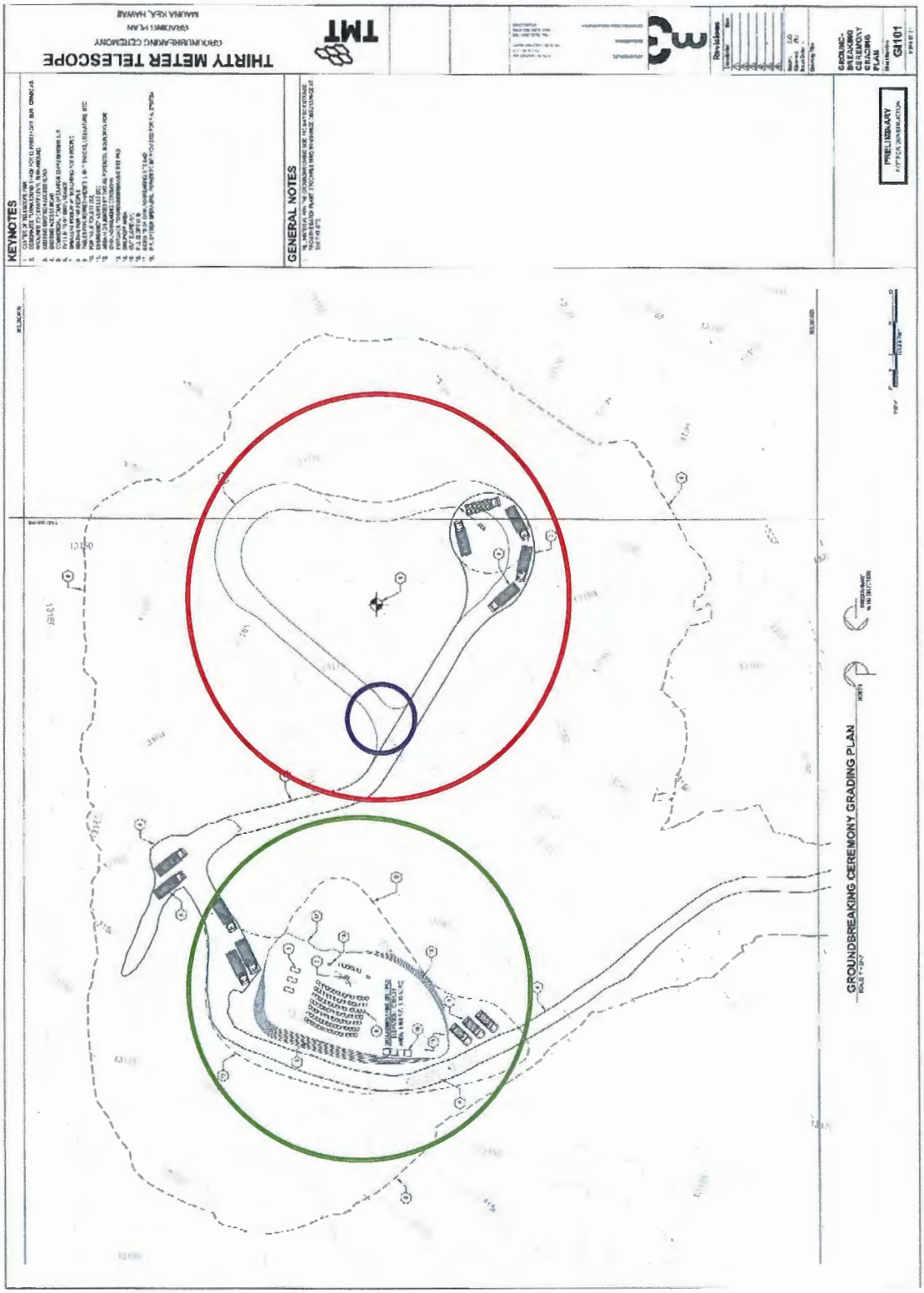


Figure 8. Grading Plan for groundbreaking pad (circled green), and loop road extension (circled red).

Figure 9. Hitachi 470 Excavator cutting eastern slope of groundbreaking ceremonial site pad.


Figure 10. Groundbreaking pad excavated and partially graded.

Road improvements to the existing access road and extended loop road began on September 18, 2014. Only the juncture at which the extension loop road meets itself (circled in purple in Figure 8) required new ground disturbance (excavation) for widening (Figure 11). All other road improvements involved the moving, crushing, and grading of previously excavated rock laying alongside the access and extension loop road (Figure 12).

Figure 11. Juncture where extension loop road connects with itself (circled in purple on Figure 8).

Figure 12. Northern tip of extension loop road.

Construction was completed on September 19, 2014, after all excavated and graded surfaces for this project were sprayed with water and compacted with a 20-ton Caterpillar roller (Figure 13). No cultural material was observed while monitoring the construction of the groundbreaking ceremonial site pad, nor during improvements made to the access and extension loop road.

Figure 13. Completed groundbreaking ceremonial site pad.

# 5. SUMMARY

ASM Affiliates, Inc. conducted archaeological monitoring of the construction of a ceremonial groundbreaking site pad associated with the TMT observatory development area within the Astronomy Precinct on Mauna Kea. The current work included cutting, filling, and grading of the groundbreaking ceremonial site pad, as well as grading and widening improvements to the already existing access and extension loop road. During the course of the monitoring, all excavated, graded, and crushed materials were examined for cultural material. No surface archaeological features were observed; nor were there any cultural deposits, artifacts, or human skeletal remains encountered during this project.

# REFERENCES CITED

Collins, S., P. McCoy, and S. Clark
2013 Archaeological Monitoring Plan in Support of Construction of the Thirty Meter Telescope in the Astronomy Precinct on Mauna Kea. Ka'ohe Ahupua'a, Hāmākua District, Hawai'i Island, State of Hawai'i. Pacific Consulting Services, Inc, report. Prepared for TMT Observatory Corporation, Pasadena, CA.

Glennon, G., and R. Rechtman
2013 Archaeological Monitoring Report: Geotechnical Boring for the Proposed Thirty Meter Telescope (TMT) in the Astronomy Precinct of Mauna Kea, TMK: (3) 4-4-15:009, Ka'ohe Ahupua'a, Hāmākua District, Island of Hawai'i. Rechtman Consulting Project Number RC-0869. Prepared for TMT Observatory Corporation, Pasadena, California.

McCoy, P., D. Gosser, R. Nees, and R. Yamasato
2005 Mauna Kea Science Reserve Archaeological Inventory Survey, Ka'ohe, Hāmākua, Island of Hawai'i, Interim Report No. 1. Prepared for the Office of Mauna Kea Management.

McCoy, P., R. Nees, and S. Clark
2010 Archaeological Inventory Survey of the Astronomy Precinct in the Mauna Kea Science Reserve, Ka'ohe Ahupua'a, Hāmākua District, Hawai'i Island, Hawai'i. Pacific Consulting Services, Inc. report. Prepared for Office of Mauna Kea Management, Hilo, HI.