Search and Recovery Report CS23-0144, Ground Loss Site (KH-00220) Associated with REFNO 1998, Preah Sihanouk Province, Koh Tang Region, Kingdom of Cambodia Conducted 23 March through 29 April 2023

Golden West Humanitarian Foundation

26 July 2023

INTRODUCTION

From 23 March through 29 April 2023, during partner activity 23-3KH, DPAA partner Golden West Humanitarian Foundation (GWHF) excavated a ground loss site (KH-00220) associated with REFNO 1998 in the vicinity of Koh Tang Village, Sihanoukville Municipality District, Preah Sihanouk Province, Kingdom of Cambodia (Cambodia). Under the direction of (b)(6) (b)(6) the Lead Archaeologist (LA), the team excavated approximately 1,212 s m to depths ranging from 0 to 104 centimeters below surface (cmbs). A total of 33 evidence bags were recovered containing possible osseous material (POM) and possible material evidence (PME).

On 26 April 2023, the LA turned over the recovered possible evidence via a DPAA chain of custody form to the DPAA DET 1 representative, (b)(6) transported the possible evidentiary material to the U.S. Embassy in Phnom Penh. The evidentiary material was secured at the embassy until eventual retrieval by DPAA personnel, then repatriated via C-17 transport aircraft to Joint Base Pearl Harbor-Hickam. On 29 April 2023, the LA suspended recovery operations due to the end of the specified mission timeline.

On 3 June 2023, the DPAA Laboratory received the POM and PME and assigned it accession number 2023-061.

BACKGROUND

The SEA 1998-R (also known as REFNO 1998) incident involves the 15 May 1975 loss of a three-man machine gun team that was part of the U.S. Marine Corps' (U.S.M.C.) assault on Koh Tang following the capture of the cargo ship SS *Mayaguez* and her crew by Khmer Rouge (KR) forces. Operating under the mistaken belief that the *Mayaguez*'s crew were being held on Koh Tang, the U.S.M.C. launched a helicopter-borne insertion and rescue mission but met stiff resistance from KR forces entrenched on the island, resulting in heavy U.S. casualties (see also REFNOs 2002, 2003 [resolved], and 2038). In the early evening of 15 May, the Marines were ordered to withdraw to Koh Tang's West Beach and establish a defensive perimeter while awaiting extraction via helicopter. The three unaccounted-for REFNO 1998 individuals were reportedly last seen manning a machine gun post at the far southern edge of West Beach and

were not observed to have been wounded or killed in the fighting. They are Private First Class (PFC) Gary Hall, Lance Corporal (LCpl) Joseph Hargrove, and Private (PVT) Danny Marshall.

In March 2019, Stony Beach investigators interviewed a new witness, (b)(6) During 19-1KH IT, (b)(6) indicated two locations on the west beach where he was directly involved in the deaths of American soldiers. One of the indicated locations was designated KH-00207.

The REFNO 1998 incident has been investigated, surveyed, and excavated numerous times since the early 1990s. In 2019, during the 19-1KH Joint Field Activity (JFA), a DPAA investigation team (IT) conducted a visual inspection of witness-indicated loci designated sites KH-00219 and KH-00220 (b)(5); (b)(6) (b)(5); (b)(6) In 2021, a University of Illinois at Chicago (UIC) partner team excavated site KH-00219 during the 21-2KHb JFA (b)(5) . In 2022, an Ohio Valley Archaeology, Inc. (OVAI) partner team excavated site KH-00207, (b)(5); (b)(6) (b)(5); (b)(6) KH-00219 and KH-00220. No evidentiary material was recovered (ASSR KH-00219 and KH-00220; SAR KH-00207; SAR KH-00219).

RECOVERY SCENE LOCATION

Site KH-00220 is located on Koh Tang Island, Preah Sihanouk Province in the country of Cambodia (Figures 1 through 3). The island is located approximately 50 km south of mainland Cambodia. Golden West placed a site datum a (b)(5); (b)(6) (b)(5); (b)(6) The datum was set at an elevation of 6.7 m above sea level and was permanently placed within a crack on a boulder with a metal rebar. Acrylic spray paint was also used to delineate the datum location. The area in which it was placed was the first witness location and is the last protruding boulder before reaching the sea in the southwest portion of the excavation block. The coordinates were determined using a Garmin GPS Map 66i receiver with -3 m accuracy using the DPAA standard WGS84 coordinate system.

(b)(5) ; (b)(6)

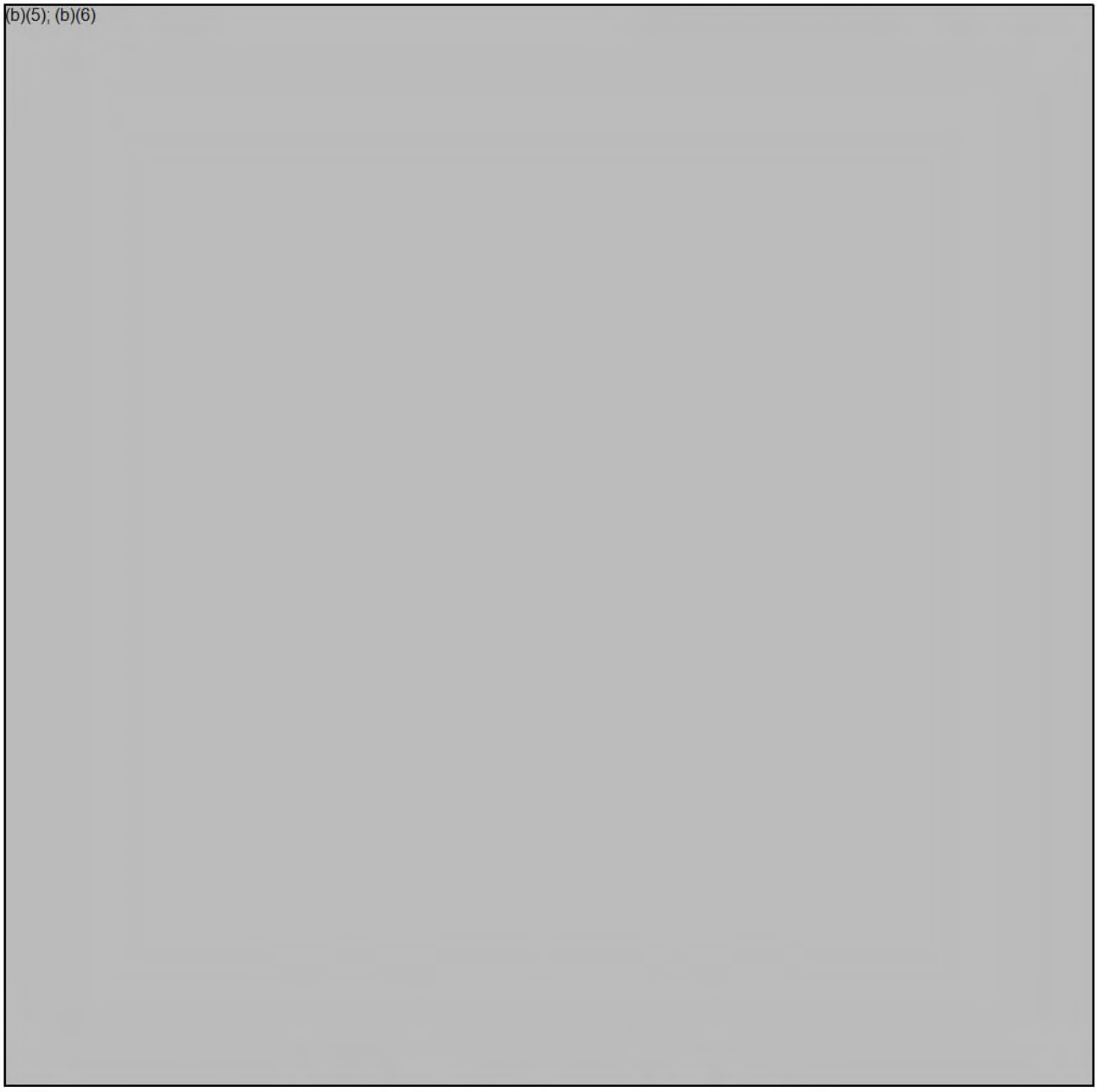


Figure 3. Topographic map of Koh Tang.

DESCRIPTION OF RECOVERY SCENE

line which is an indicator that the deposition primarily occurs during major storm surges. The tidal movement and storm surges result in an environment which abrades and degrades organic matter rapidly.

Site KH-00220 is mostly clear of vegetation except for a few trees. Beyond the shoreline, a dense tropical rain forest dominates the island. The island has no permanent civilian residents and is controlled by the Royal Cambodian Armed Forces (RCAF). The area around the island is home to a diverse coral reef and a large array of aquatic species. This diversity draws fishing vessels, which in turn results in a variety of discarded trash that washes up on the shores.

The perimeter of Site KH-00220 was determined by two factors: (1) the areas in which the eyewitnesses last saw the missing soldiers' body; and (2) taphonomic processes. The latter factor is an assessment of what happens to a decomposing body in the specific environment and how it deposits. We consider not only how it deposits at the time of death but also how the site formation processes would affect the deposits over time. Observing the prevailing winds and tidal movements, the LA determined where deposits would most likely settle. The excavation block was laid out over these areas to encompass the entire area where PME would most likely be encountered.

Figure 4. Bedrock outcrop containing the last seen location of the missing subject, photo facing south. (IMG_1052.jpeg; north arrow 25 cm)

FIELD METHODS

The 23-3KH RT-P field team consisted of one Golden West Humanitarian Foundation Lead Archaeologist (LA), one DPAA IP who was used for language support and photography, four additional Golden West personnel for logistical support (including drivers), language support, explosive ordnance (EOD) specialists, medical support, and labor. Twenty host-nation laborers and six guards supported the fieldwork. One guard was stationed at base camp for the duration of the field work and boat patrols were observed occasionally. All host nation personnel are enlisted RCAF members. The island is controlled by RCAF and access is limited, so no additional security measures were taken besides the standard DPAA protocol for evidence.

The LA applied a methodology based on standard archaeological practices adapted to the semi aquatic and terrestrial environment of the recovery area. It required a great deal of innovation to adapt to the tidal environment. Much of the site is composed of bedrock so grid layout was a combination of rebar or spray-painted corner points. The grid was laid out as a 44-x-35-m area. Most of this area falls north and east of the site datum (48 P TS 91374 48884; elevation 6.7 m). Excavation proceeded in standard 4-x-4-m units. Some non-standard units were excavated when deemed necessary; these were either 2-x-4-m, 1-x-4-m, or 2-x-2-m units. The non-standard units were used when approaching deep water or towards the last days of excavation to help facilitate finishing the units prior to terminating operations. Most excavation units had minimal soil deposition within cracks, crevices, basins, and fissures (Figure 5). Some units contained no sediment deposition at all, all units were systematically accounted for within the excavation block. All sediments extracted from units were screened using a wet screening protocol through 0.25 inch mesh. The LA visually inspected all screens before screened material was discarded. All man-made materials were collected from the screened material and photographed at the end of the mission to document the types of materials being encountered.

Figure 5. Unit N520 E500 before (left) and after (right) excavation; view facing north. (b)(6) (b)(6) indicated last seen location; IMG_1056.JPG & IMG_1139.JPG; scale 1 m, north arrow 25 cm)

Standard arbitrary levels were judgmentally implemented on this recovery effort due to the nature of the excavation. The only intact sediments with any stratigraphy existed in the northeast area of the excavation block. Once it was determined that a stratigraphic soil layer was present,

30 cm levels were then implemented only in that area. The remaining portion of the block was shallow bedrock with very minimal sediment deposition. These areas with minimal sediments were cleared of sediments and the entire unit was deemed excavated once all sediments were extracted and screened. Once the unit was cleared the entire area was calculated into the total square meters excavated for daily reporting. Using this method helped maintain a systematic record of excavated units.

The team constructed coffer dams to keep rising sea water at bay and to help facilitate excavation within tidal pools (Figures 6 and 7). Three major coffer dams were executed with varying degrees of success. In an ideal scenario, the bottom of the coffer dam would rest on a flat surface into which rebar could be set deep into the ground to establish a base. In the case of site KH-00220, the entire bottom is uneven bedrock, so securing a base and preventing water returning was impossible. The abundance of cracks, fissures, stacked bedrock, and undulating surfaces did not allow the coffer dam to work as intended. The team ran multiple trash pumps to attempt to mitigate the water return with minimal success. The LA found that adapting to the tidal conditions was a better approach with labor focusing on the excavation of units. This translated to working areas that are inundated with water at low tide and shoreline areas at high tide. Every day consisted of adapting to the changing seas conditions.

Figure 6. Coffer dam construction photo facing south. (IMG_1132.JPG)

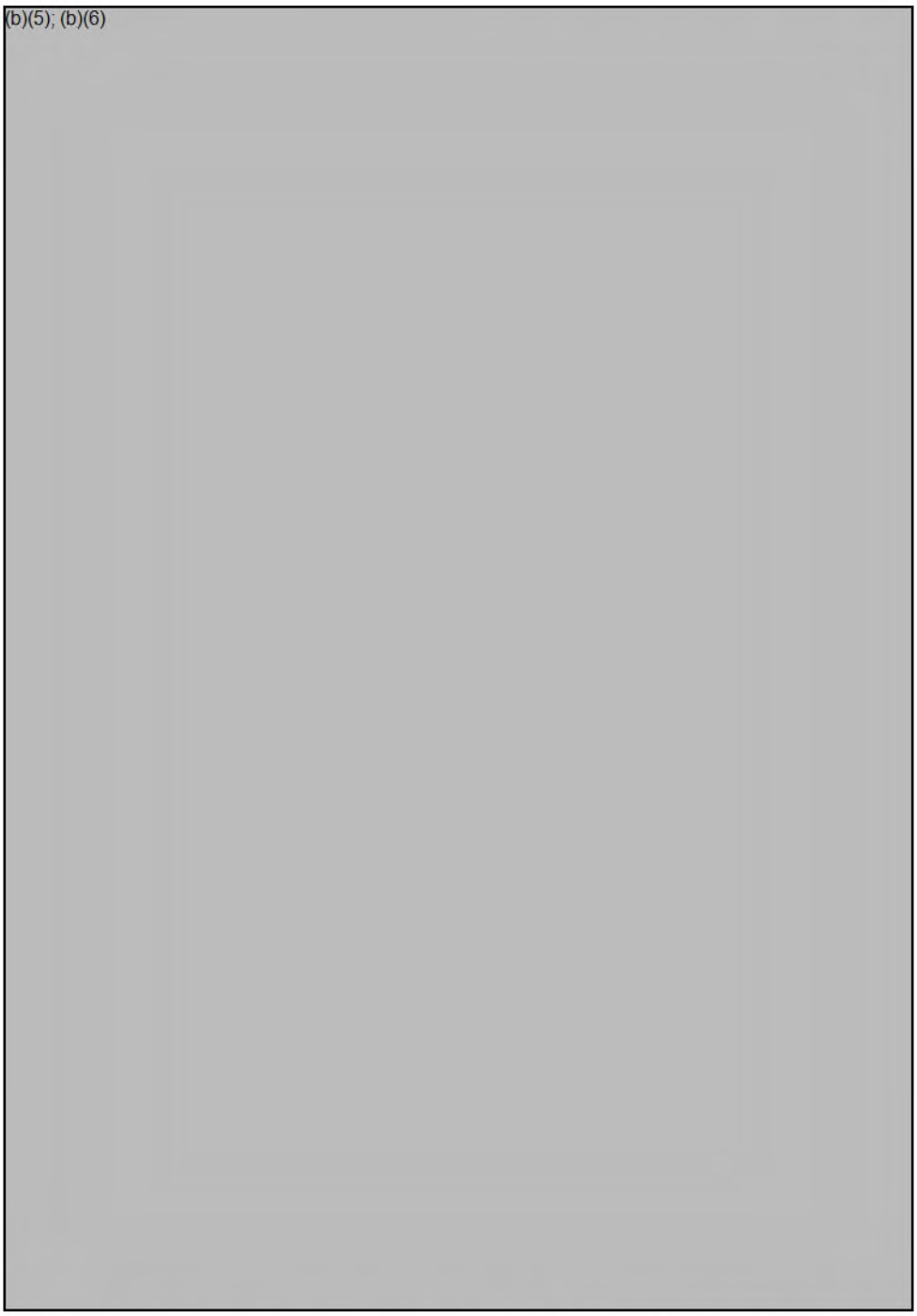


Figure 7. Coffer dam construction photo facing southwest. (IMG_1237.JPG)

All archaeological activities were supervised by the LA and the GWHF team to ensure quality and accountability of the recovery effort. Photography was primarily conducted by Hunter Boyett (DPAA-IP) under the supervision of the LA. High resolution aerial imagery was collected by (b)(6) using a Mavic Zoom drone with Drone Deploy software. All data was processed and analyzed by the LA to produce orthomosaic imagery, high resolution aerial maps (Figure 8), and 3D modeling.

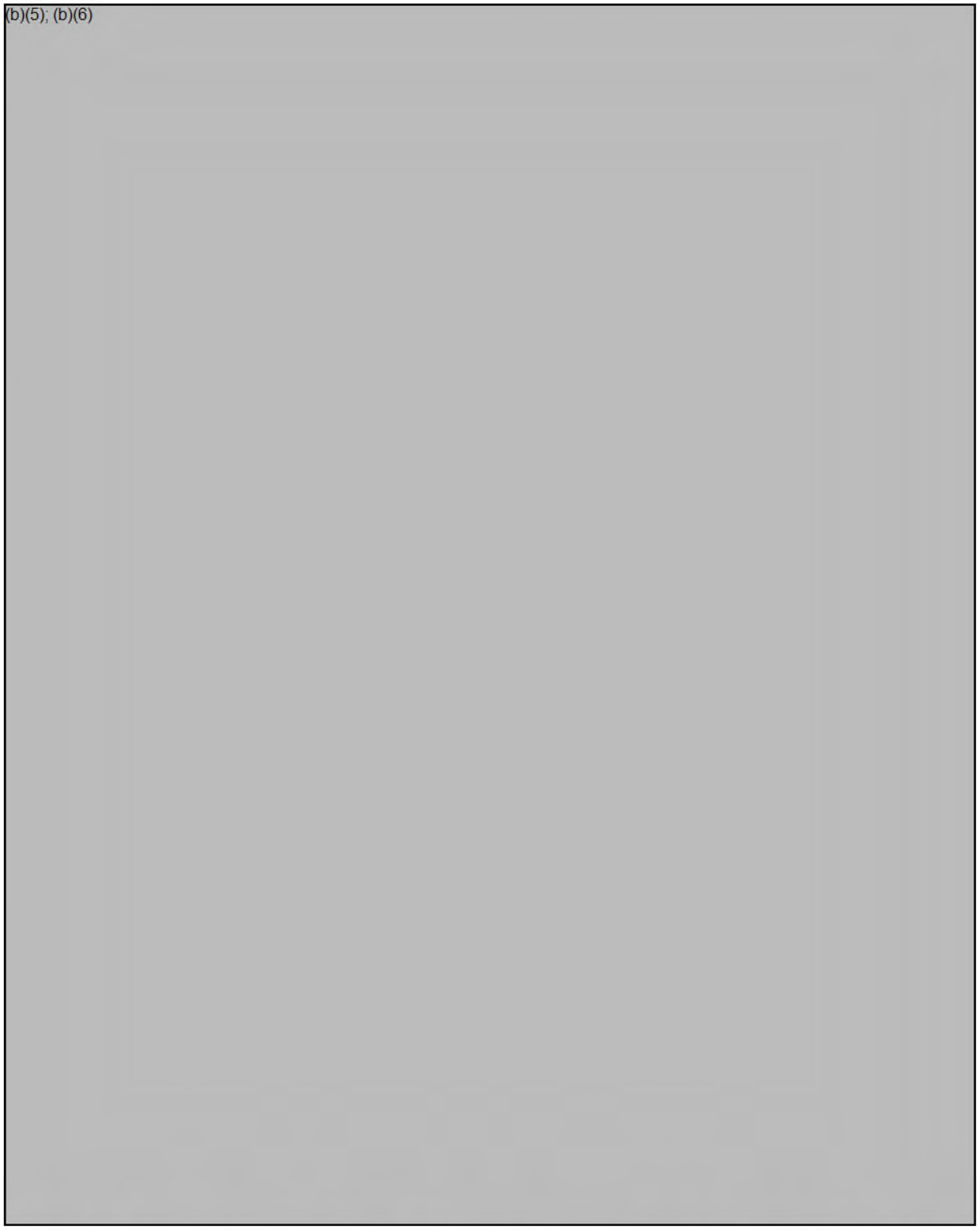


Figure 8. Orthomosaic imagery with the grid overlay, green squares indicate negative excavated units, red indicates positive for POM or PME, and the black border indicates extent of excavation block.

ARCHAEOLOGICAL FINDINGS

Site KH-00220 yielded a total of 33 evidence bags containing POM and PME. A total of 83 units were excavated, totaling 1,212 sq m. There were seventy (70) 4-x-4-m units, ten (10) 2-x-4-m units, one (1) 2-x-2-m unit, and two (2) 1-x-4-m units. A total of 24 units, or 300 sq m contained POM and PME (Table 1). Units containing possible evidentiary material were concentrated by the shoreline in the northeast portion of the excavation block (Figures 8 and 9).

Twenty-five units within the excavation block were on bedrock uplifts, which were well above sea level; these units yielded little to no sediments. The sediments that were extracted were screened but no evidence was encountered. The bedrock units on the northern portion of the site were located at minimum of 1 m above sea level, which was not conducive for trapping sediments. The team removed any debris or moveable rock from crevices and screened the material. These 25 units yielded no evidence.

Two soil profiles were evaluated and sketched due to the variation of sediments from aquatic environment to terrestrial (Figures 10 through 13). The first profile was sketched based on the east wall profile of Unit N524 E512 (see Figures 10 and 13). This profile was a 50 cm section within the tidal pool, the fill was a homogenous sand with small pebble inclusions. The homogenous sand is the result of the breakdown of coral and shell in the turbulent tidal environment. Bedrock was reached within 30–42 cmbs. The second profile was sketched based on the east wall profile of Unit N516-520 E528-530 (see Figures 11 and 12). This soil section was 60–70 cm in depth and contained two distinct strata. The first stratum (Level 1) was between 0–28 cmbs and was a shell/coral mix with a color of 10YR 6/2 (light brownish gray). The second stratum (Level 2) was between 28–70 cmbs and had fewer occurrences of coral/shell and was 7.5YR 5/6 (strong brown) in color.

All units were excavated until bedrock was reached or incident-sterile soil. The areas that had soil deposition were saturated with sea water so all collected evidence was bagged with sea water to help preserve integrity and to comply with lab protocol for marine excavations. All evidence bags were then sealed with evidence tape according to the protocol in SOP 9.0 and secured in a locked pelican case for the duration of the project. On 26 April 2023, the LA turned over the recovered possible evidence via a DPAA chain of custody form to (b)(6) (DPAA Det 1). Non-evidentiary material was photographed and discarded south of the screening area in a location where other beach trash had accumulated.

(b)(5)

(b)(5)

(b)(5)

(b)(5) ; (b)(6)

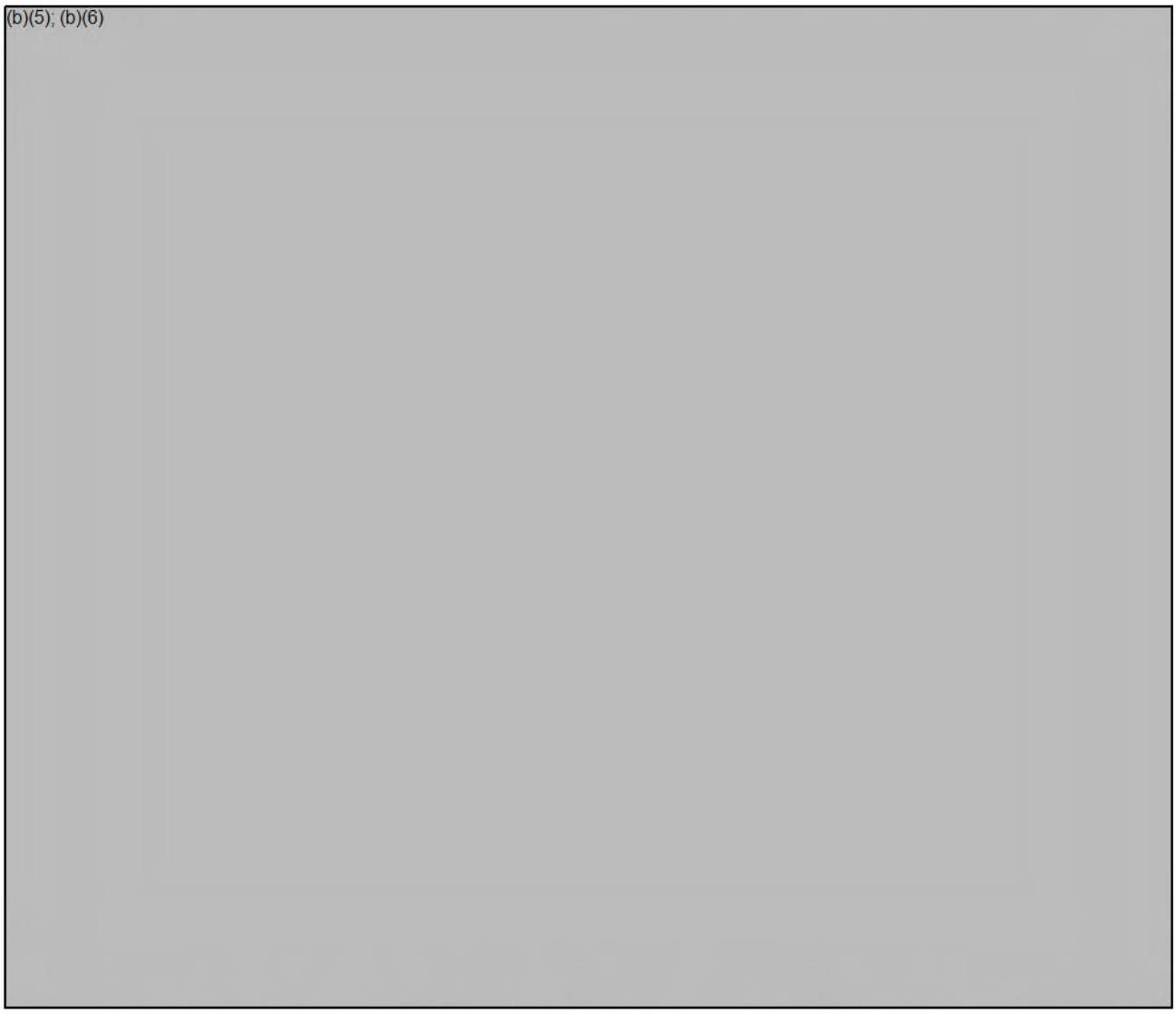


Figure 10. East wall profile of unit within tidal pool N524 E512.

Figure 11. Soil profile from east wall of Unit N516-520 E528-530. (IMG_1704.jpeg; scale 1 m and north arrow 25 cm)

Figure 12. Soil profile from east wall of Unit N516-520 E528-530.

Figure 13. East wall profile of unit within tidal pool N524 E512. (IMG_1200.jpg; scale 1 m vertical scale and north arrow 25 cm)

CONCLUSIONS AND RECOMMENDATIONS

During partner activity 23-3KH, DPAA partner GWHF excavated the ground loss site (KH-00220) associated with REFNO 1998 in the vicinity of Koh Tang Village, Sihanoukville Municipality District, Preah Sihanouk Province, Cambodia. Under the direction of (b)(6) the LA, the team excavated approximately 1,212 sq m to depths ranging from 0 to 104 cmbs. A total of 33 evidence bags were recovered and retained containing POM and PME. The team photographed but did not retain other non-incident-related material encountered during excavation.

On 26 April 2023, the LA turned over the recovered possible evidence via a DPAA chain of custody form to (b)(6) (IP DPAA). On 29 April 2023, the LA suspended recovery operations due to the end of the specified mission timeline.

The area that could contain additional evidence is located east of units N520-524 E530-531, N516-520 E530-531, and south and east of unit N512-514 E528-530, which all contained POM. Based on the presence of POM, additional excavation would be recommended but likelihood of encountering additional evidence would be low based on the diminishing returns on the

bordering units. This recommendation is conditional pending DPAA-Laboratory assessment of the submitted POM and PME.

(b)(6)

Lead Archaeologist
Golden West Humanitarian Foundation

REFERENCES

Archaeological Site Survey Report (ASSR) CS19-0947, Mission 19-1KH, Associated with REFNO 1988, Sites KH-00219 and KH-00220, Preah Sihanouk Province, Koh Tang Region, Kingdom of Cambodia, Documentum [enterprise content management system], DPAA internal files.

Search and Recovery Report (SAR) CIL 2022-0023, Site KH-0027 Associated with REFNO 1998, Preah Sihanouk Province, Koh Tang Region, Kingdom of Cambodia, Documentum [enterprise content management system], DPAA internal files.

Search and Recovery Report (SAR) CIL 2021-0103, Site KH-0219 Associated with REFNO 1998, Preah Sihanouk Province, Koh Tang Region, Kingdom of Cambodia, Documentum [enterprise content management system], DPAA internal files.

Search and Recovery Report CS21-0130, a Ground Loss Site (KH-00219) Associated with REFNO 1998, Koh Tang District, Koh Tang Province, Kingdom of Cambodia, 5 through 25 April 2021

University of Illinois Chicago

9 September 2021

INTRODUCTION

From 5 April through 25 April 2021, during the 21-2KHb RT-P (henceforth 21-2KHb) field activity in the Kingdom of Cambodia, a University of Illinois Chicago (UIC) Recovery Team (RT) excavated a ground loss site (KH-00219) associated with REFNO 1998 on Koh Tang, Koh Tang District, Koh Tang Province. Under the supervision and scientific direction of the Lead Archaeologist (LA), standard archaeological techniques were used to excavate a total surface area of approximately 284 m² to depths ranging from 10 to 75 cm below ground surface (cmbgl). Possible material evidence was recovered. On 25 April 2021, the LA suspended recovery operations because the excavation had reached its scientific limits and had exhausted its archaeological potential to recover additional evidence. The possible material evidence was retained and subsequently turned over on 30 April 2021 via Chain-of-Custody (CoC) form to (b)(6) of Stoney Beach. For tracking purposes, this field activity was assigned number CS21-0130 in StarLIMS. The evidence will be assigned a CIL tracking number once items are accessioned into the DPAA-Lab.

BACKGROUND

The REFNO 1998 incident is related to the 15 May 1975 loss of a three-man machine gun team during a rescue mission associated with the United States Marine Corps (USMC) assault on Koh Tang. The mission was in response to the capture of the SS *Mayaguez* by the Khmer Rouge (KR) and the mistaken belief that the ship's crew were being held hostage on the island. The helicopter-born insertion met heavy resistance resulting in casualties (see REFNOs 2002, 2003[resolved], and 2038). By the evening, the order to retreat to the island's western beach had been given. The three men manning the beach's southern end, Private First Class (PFC) Gary Hall, Lance Corporal (LCpl) Joseph Hargrove, and Private (Pvt) Danny Marshall, were last seen uninjured at their position. According to recent interviews with KR veterans, the three men were killed one by one at different locations over the next 72 hours. Site KH-00219 is the general location where one KR veteran, (b)(6) recounted leaving the body of an American in a crevasse just north of the western beach.

REFNO 1998 has been the subject of numerous investigations beginning in the 1990s. Investigators have also interviewed witnesses/informants regarding other related losses on Koh Tang (REFNO 2003 and 2038). REFNO 2003 involves the 15 May 1975 shootdown of a CH-53

helicopter on Koh Tang's east beach; all individuals missing from REFNO 2003 have been accounted for. REFNO 2038 involves the loss of LCpl Ashton Loney, who was killed during the ensuing battle on Koh Tang, and whose body was last seen in a body bag or poncho on the west beach.

The following is the executive summary of the above-mentioned work. The section is taken form the 19-1KH Archaeological Site Survey Form (REF: ASSR_CS19-0947_19-1KH_KH-00219_KH-00220_REFNO_1998).

- In November 1995, during 96-1CB, JTF-FA excavated a 20-x-24-m area in a witness-reported burial location in the vicinity of (b)(5); (b)(6). No evidentiary material was recovered. (REF: MSG CDR JTFFA 051800Z JUN 96, SUBJ: Detailed Search and Recovery Report case 1998).

- During the late 1990s and early 2000s, JTF-FA Investigation Elements (IM) and Recovery Elements (RE) pursued leads indicating that REFNO 1998 casualties had been captured, moved to the mainland, and subsequently executed by KR forces. After a series of excavations, these reports were eventually dismissed as false, recovery efforts regarding REFNO 1998 then returned to a focus on Koh Tang Island (see Detailed Reports of Investigation dtd April 1997 and January 1998 and Detailed Report of Excavations dtd March 1998, May 1999, and December 2001).

- In the late 1990s and early 2000s, JFT-FA/JPAC and Stoney Beach investigators interviewed several key witnesses who claimed to have participated in the battle as KR veterans. These purported witnesses directed much of JPAC's subsequent field activity. These witnesses include (b)(6) (see Additional Information Report 1 of 2 dtd May 1999; and Detailed Report of Investigation dtd April 2000, January 2001, and April 2001). With regards to this report for site KH-00219, the most pertinent witness testimonies are as follows:

  - (b)(6) recounted encountering a body wrapped in a poncho on the west beach (possibly REFNO 2038) and the nearby floating body of an American (possible REFNO 1998). (b)(6) accompanied JTF-FA Investigation Element to Koh Tang. He indicated the location of the body in a poncho in the vicinity of (MGRS 48P TS 96235 40604, India-Thailand datum) (see DRI dtd January 2001).

  - (b)(6) confirmed the story of a floating body near a rocky outcropping south of the west beach (possibly REFNO 1998) and confirmed that he heard stories about another set of remains but admitted that he had not seen the second set for himself (see DRI dtd January 2001).

  - (b)(6) led investigators to the location where he observed an American wrapped in a poncho on the (b)(5); (b)(6) India Thailand datum) (see DRI dtd April 2000).

- In January 2001, during 01-1CB, a JFA-FA RE excavated two locations on the east beach (REFNO 2038). The RE recovered no evidentiary material (REF: MSG CDR JTF-FA 251918Z APR 01, SUBJ: Detailed Report of Excavation of Priority Case 1998 [Site 1998/2003F]).

- On September 26, during 6-3CB, a JPAC IT interviewed additional individuals. Two informants reported a burial in a natural well on the west beach.

- In January and February of 2008, during 08-2CB, a JPAC Recovery Team (RT) excavated three alleged burial sites, all thought to be related to REFNO 1998. Site CB-00185 is the reported location associated with a well on the west beach. Site CB-00140 is the alleged location of a burial along the west beach, and CB-00196 is a location indicated along the east beach. The RT found evidence of a trash midden associated with CB-00185 but no evidentiary material (see Search and Recovery Report: CIL 2008-018).

- In October 2011, Stoney Beach and JPAC investigators interviewed (b)(6). He related that one American was killed in the vicinity of a food storage building near the east beach and another American was killed by a hand grenade on the southeastern beach. (b)(6) (b)(6) indicated that the bodies were left unburied on the rocky shoreline.

- In 2013, during 13-1CB, a JPAC IT surveyed two sites based on interviews with (b)(6) and (b)(6). Site CB-00205 is a 30-x-30-m area southwest of the 08-2CB excavation. Site CB-00206 is a small cave on the rocky shore on the east beach where (b)(6) allegedly killed an American soldier three months after the battle and left the body. Excavations at these sites yielded no evidentiary material (See JPAC Site Survey Forms for Sites CB-00205 and CB-00206, 13-1CB, dtd November 2013 and June 2014).

- In January and February 2015, during 15-1CB, a DPAA RT conducted recovery operations at CB-00205. Excavations occurred in two areas at the site. In area one, no evidentiary materials were recovered. In area two, a burial feature was found. Excavation of the burial feature yielded a pair of shorts, a pair of boots and socks, and a wallet containing ID media correlated with PFC Hall. No human remains were recovered from the burial feature at CB-00205.

- In March 2019, Stony Beach investigators interviewed a new witness, (b)(6). During 19-1KH IT, Mr. Sok indicated two locations on the west beach where he was directly involved in the deaths of American soldiers, the northern most location was later designated KH-00219.

RECOVERY SCENE LOCATION

Site KH-00219 is on Koh Tang, Koh Tang Provence, Koh Tang District, in the Kingdom of Cambodia. The island is 53 km south of Sihanoukville on the Cambodian mainland, and is 2–4 hour travel time by fishing boat. From the island's port, the site is approximately 2 km northwest, on the western beach (Figure 1). A site datum was previously established during 15-1CB, at (b)(5); (b)(6). Elevation at the site is 0 m above mean sea level, with

portions of the site occurring in the tidal zone. During 21-2KHb, a new site datum was emplaced on a tree at (b)(5); (b)(6) using a Garmin GPS Map 64s.

The island can be seen on the following topographic map. Map Name: Kampot; Sheet: NC 48-5; Series: 1501 Air; Edition: 5; Scale: 1:250,000; Horizontal Mapping Datum: WGS-84; Publication date: 2000 (Figure 2).

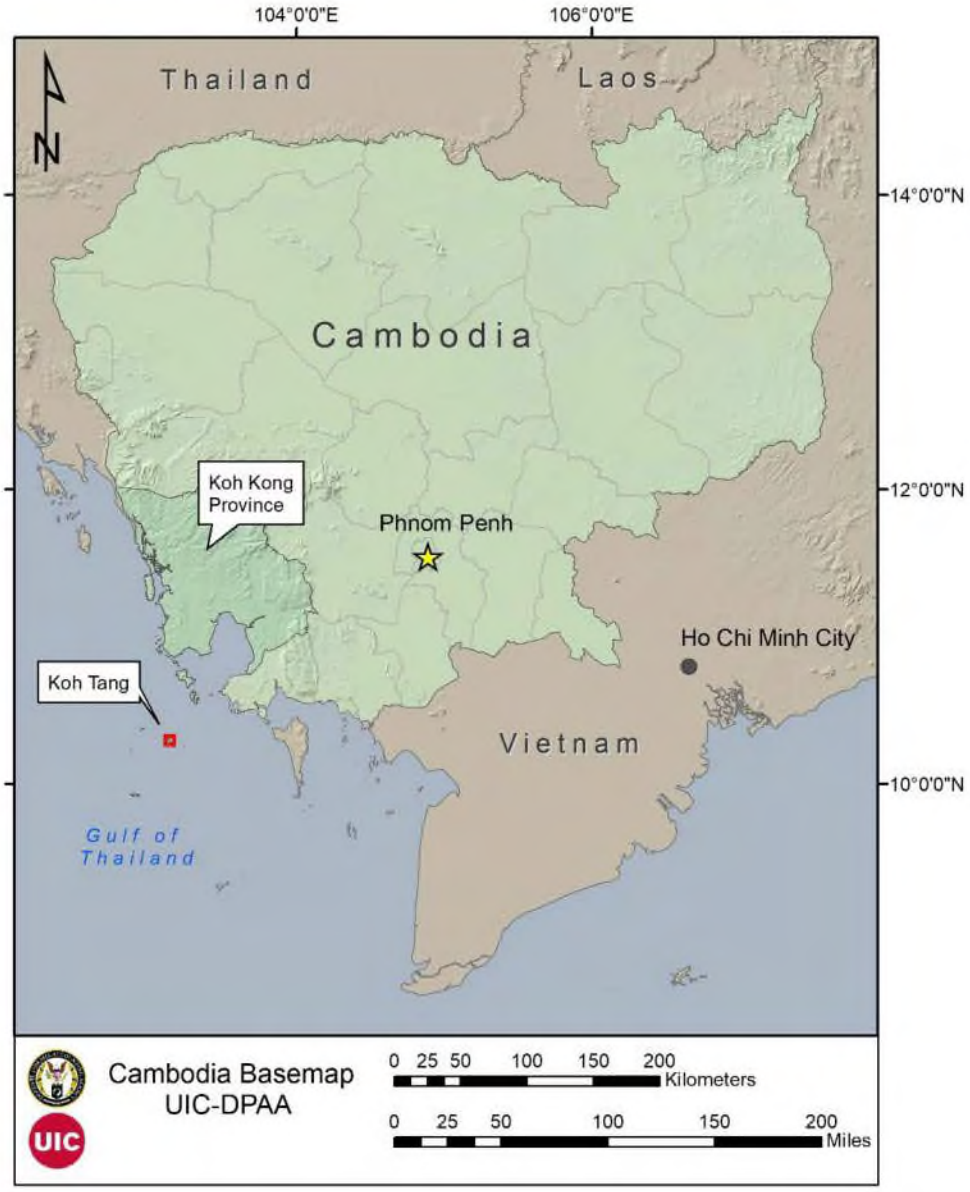


Figure 1. Political Map of Cambodia. The red square indicates general location of Koh Tang.

(b)(5) ; (b)(6)

directly over bedrock. This sand is wedged between a cracked and broken bedrock surface. To the east, the site ends abruptly at a large bedrock outcropping with thick forest and spiny shrubs growing on top of the boulders and bedrock outcrop. The Gulf of Thailand is to the west. The southern portion of the site is defined by a large coral rubble outcropping above the tidal zone. Several trees grow in this portion of the site. This outcropping is also flanked by steep inclined hills and forest to the east. A possible feature of interest, designated Feature 1, is in this southern portion of the site (Figure 7). Feature 1 is a stone circle that appeared from the surface to be a possible machine gun nest or a collapsed kern. It is situated on a high point just inside the forest and out of the tide zone looking out over the southern beach. Relevant fauna include several tidal zone species such as crabs, bivalves, and rodents.

At the onset of 21-2KHb recovery operations, the tidal zone section of the site was covered by occasional deposits of tidal washed beach trash, including fish nets, Styrofoam, and other modern wastes. Waste is deposited in a thick layer just west of the southern coral outcropping.

FIELD METHODS

Standard archeological procedures were used in excavations at KH-00219. The original site datum emplaced during the 15-1CB was not found. Locals suggested that the datum tree might have washed out to sea during a storm. The 21-2KHb LA emplaced a new site datum on a tree southeast of the target area at (b)(5); (b)(6) using a Garmin GPS Map 64s. After placing this unit, the LA and the Explosive Ordinance Disposal (EOD) technician swept the site with a metal detector. Metal detection was deemed ineffective because much of the target area was exposed bedrock, and because numerous false positives resulted from common forms of beach trash. A pedestrian survey determined that the limits of the site were defined by the quick rising terrain on the landside, and the low tide level on the oceanside, a large bedrock outcrop marked the northern terminus of the site.

The LA then established a grid of 4-x-4-m units. Unit names were designated by their southwest corner, the new datum was designated N500/E500. The excavation units were measured and marked using spray paint on bedrock. Above these marks sandbags were placed with flags for visibility. Some units were measured as 2-x-4-m or 4-x-2-m to keep all units within the target area and outside of the bedrock outcroppings that defined the site's edges. Finally, one 2-x-2-m test unit was placed in Feature 1 (Figure 3).

Before excavation could begin, a tidal wall was constructed by placing sandbags around the site at the edges of the low tide line (Figure 5). This barrier served two functions: 1) it acted as a breaker to ensure that the inundated site remained relatively placid during high tide, and 2) it created a catchment area to prevent the loss of loose materials. Once the barrier had been erected, excavation commenced. Operations were limited to low tide, when sediments could be removed and screened without water collapsing units.

Excavations focused on clearing the low-lying sandy areas where the witness indicated leaving the body. The area was within the tidal zone and subject to frequent disturbance as a result. However, the cracked and broken bedrock provided ideal catchment areas where materials

could settle and remain relatively undisturbed. Excavations in the tidal zone focused on removing the disturbed sediment patches above bedrock and clearing out the cracks (Figure 4).

The archaeological methodology was modified for units that were primarily bedrock. In these units, the unit designation means all available sediment in the stone cracks within a 4-x-4-m unit. A detailed depiction of where sediment could be removed within each unit can be seen in Figure 6. Due to the tight nature of available space, excavations were conducted with hand tools, trowels, brushes, and rock picks. The one exception to this is the 2-x-2-m test unit in Feature 1, where the matrix was thick enough to use shovels.

All excavated sediments were dry screened using 1/4-inch mesh. Generally, the matrix was sand and screened easily regardless of its moisture content. Recovery team members examined the contents of screens and retained all potentially relevant material for the LA to evaluate. The site map was created using a tape and compass as well as a Garmin GPS Map 64s.

All American team members participated in the excavation. All archaeological activities were directed and supervised by the LA, who maintained scientific control and decision-making authority at all times. Security on the island was provided by the local Cambodian military. This security took the form of both on-duty officers who observed the excavations, as well as an armed patrol boat that would make regular passes of the beach to keep fishing vessels clear of the site. The remote nature of the site and the fact that the island's only population is a military garrison meant these were sufficient measures. The LA created maps, stratigraphic profiles, evaluated materials for possible osseous remains and material evidence, maintained field documentation and daily excavation notes, completed the photographic documentation, as well as compiled the artifact catalog.

All units were excavated in their entirety to incident-sterile soil. The LA and EOD technician conducted a metal detector survey of all units to ensure further that the bottom of the incident horizon had been reached. Possible evidentiary items were retained and placed in secure containers, sealed with evidence tape, and documented with provenience information. Ammunition was disposed of in a designated pit. All evidence, as well as the recovery site, were secured at all times.

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

ARCHAEOLOGICAL FINDINGS

Approximately 296 m² was excavated during the 21-2KHb field activities with depths ranging from 0–75 cmbgl. Possible material evidence was retained. A list of the possible material evidence is provided in Table 1.

No features consistent with a ground loss or human burial were encountered during the 21-2KHb excavation. A plan map of the excavated units is depicted in Figure 7 (see also Figure 6). Units that contained evidentiary material are marked as such. Also noteworthy is the recovery of several .50 caliber machine gun munitions, as well as several examples of small arms. Unfortunately, this material was deemed non-probative for the following reasons: 1) according to the Stony Beach interviews, the American soldier was reported to be unarmed at the time of his death, and 2) several of the .50 caliber munitions are stamped with the date "77", which is indicates manufacture two years after the REFNO 1998 incident.

The site stratigraphy varied with proximity to the tide zone. In the areas above the tide zone, the stratigraphy generally consisted of three layers. Layer 1a is a 5–10 cm thick layer of coral rubble. Beneath this, Layer 2a is a 10 YR 3/2 sandy loam layer with some coral inclusions. The deepest matrix excavated, Layer 3a is a 10 YR 4/4 sandy loam layer that is incident sterile (Figure 8). Minimal roots were occasionally present in all three layers.

The portions of the site within the tidal zone are generally less complex and consist of only two layers. Layer 1b is a mixture of coral and 10 YR 8/1 white sand. In areas where the cracks are particularly deep, this first matrix is followed by Layer 2b a 10 YR 4/1 incident sterile sand layer. This sterile layer is often directly over bedrock. No roots are present in these layers, but evidence of clam or crab burrows are present, indicated by circles of white sand extending into the darker matrix below.

The most complicated stratigraphy was observed in Feature 1. One 2-x-2-m test unit was placed in the feature's northwest corner bisecting its western wall. The first stratum in this formation was Layer 1c, a 10 YR 3/2 humus layer covering the area both inside and outside the feature. This layer contains a significant amount of coral rubble in addition to the soil matrix. Outside of the stone circle, Layer 2c-A is a dense coral stratum with a 10 YR 5/2 sandy loam matrix. However, inside the stone circle, Layer 2c-B is a lens of 10 YR 7/2 sand. The final Layer 3c is a sterile coral rubble and 10 YR 4/2 sandy loam layer (Figure 9).

Feature 1 stratigraphy suggests that the inside of the stone circle was once dug out and then at a later date filled in with beach sand rather than the adjacent matrix. Roots and small animal burrows are abundant throughout the Feature 1 stratigraphy. Materials found in this feature include some small munitions. There is no evidence to suggest that Feature 1 has been used as a burial. Overall, the material and stratigraphy suggest the feature was a stone-ringed foxhole. When the position was eventually abandoned, sand was used to fill it in. It is unlikely the feature filled in naturally because the fox hole is well above the high tide line and the nearest source for a similar sand matrix is on the beach, downhill 1 m and south 8 m of Feature 1.

Final excavations covered the entirety of the tidal zone around the area of interest. As seen in Figure 10, the area excavated during 21-2KHb is marked with white tape. Not seen in this photograph is the test pit in Feature 1 (Figure 11).

Non-probative, non-retained material were buried at two times during the excavations. The first time was on 18 April, due to concerns that we might be asked to leave the island after a COVID-19 exposure had been confirmed among the Island's Cambodian Leadership (Figure 12). Because we were permitted to continue work with a reduced crew, non-probative, non-retained materials collected after 18 April were buried when excavations ended on 25 April (Figure 12).

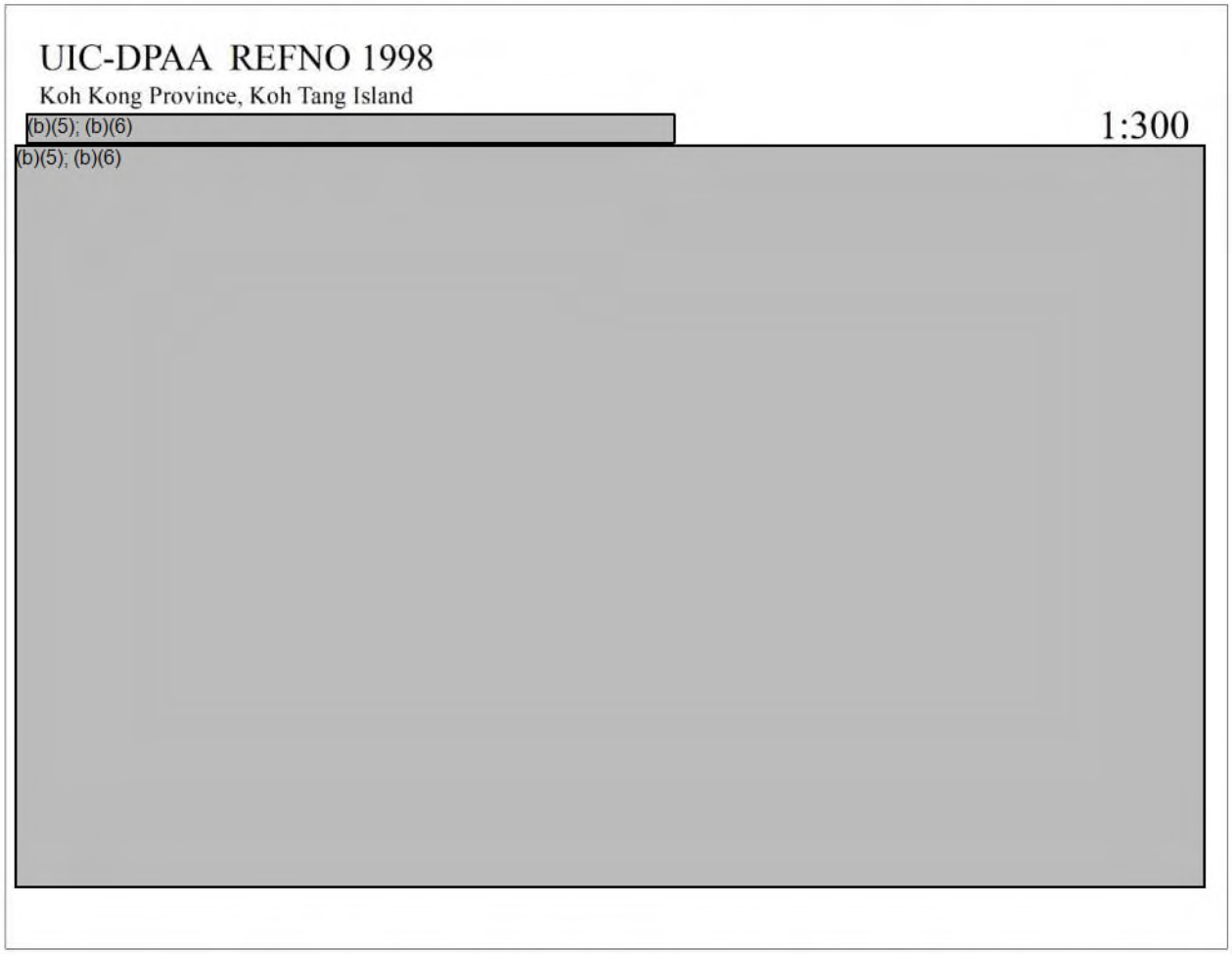


Figure 7. Plan map of KH-00219 indicating excavated units.

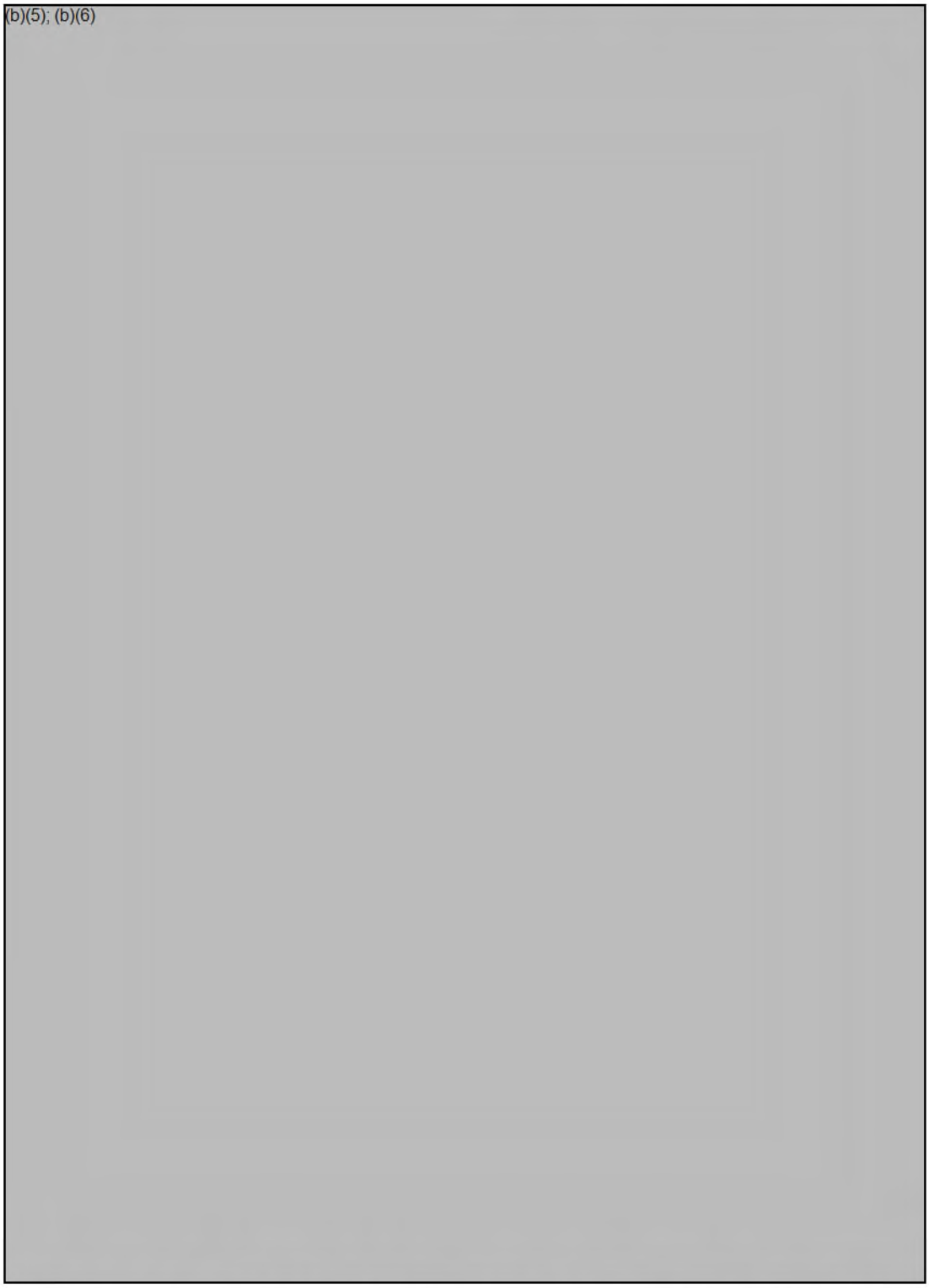
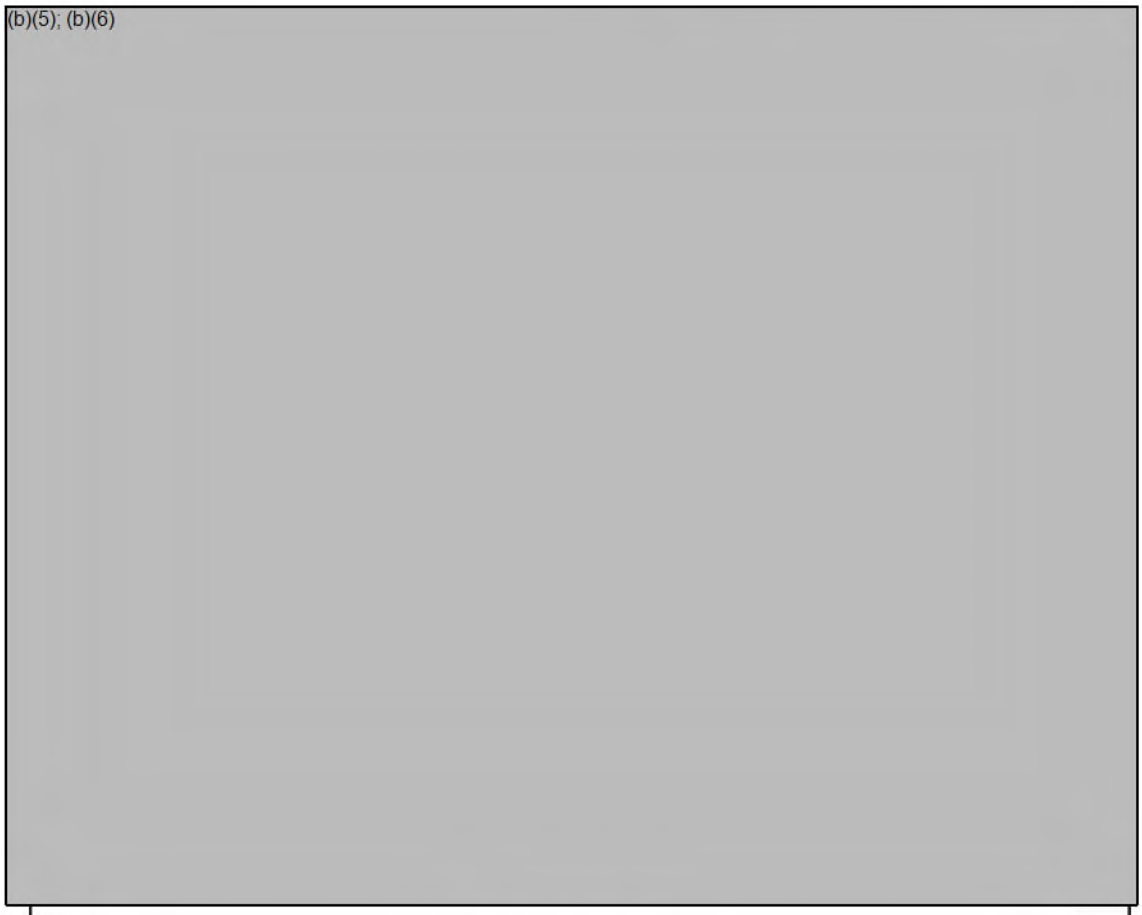


Figure 8. Cross-section profile of soil stratigraphy. Profile along N504/E500-N500/E500. View is of the east wall. Note, actual location of point N504/E500 on the left is not pictured, it would be well inside of the bedrock.

Table 1. Possible Evidentiary Items Recovered from KH-00219 During 21-2KHb			
Item*	Field Activity	Provenience	Depth (cmbgl)
Cloth, Textile	21-2KHb	N500/E496	0-25
Coins	21-2KHb	N500/E492	0-15
Tarp	21-2KHb	N496/E488	0-25
Insole and Marbles	21-2KHb	N496/E492	0-20
Spoon	21-2KHb	N492/E492	0-20

Table 1: *Note that all tentative identifications are pending DPAA analysis. The results presented here are not to be considered definitive.



Layer Descriptions

Layer 1c-
Depth: 0 - 10 cmbgl, Texture: Humus, Inclusions: Coral, Inclusion Density: Heavy
Biological Inclusions: Roots and Rodent Holes, Color: 10 YR 3/2

Layer 2c-A-
Depth: 10 - 20 cmbgl, Texture: Sandy Loam, Inclusions: Coral, Inclusion Density: Heavy
Biological Inclusions: Roots and Rodent Holes, Color: 10 YR 5/2

Layer 2c-B-
Depth: 10 - 25 cmbgl, Texture: Sand, Inclusions: Coral, Inclusion Density: Light
Biological Inclusions: None, Color: 10 YR 7/2

Layer 3c-
Depth: 15 - 50 cmbgl, Texture: Sandy Loam, Inclusions: Coral and Rubble,
Inclusion Density: Heavy, Biological Inclusions: Roots and Rodent Holes, Color: 10 YR 4/2

Figure 9. Cross-section profile of Feature 1 ,N480/E506-N480/E504. View is of the south wall.

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

CONCLUSIONS AND RECOMMENDATIONS

During the 21-2KHb mission from 5 to 25 April, the UIC RT excavated site KH-00219 associated with REFNO 1998. Scientific archaeological techniques were used to excavate a total area of approximately 284 m² to depths ranging from 10 to 75 cmbgl. Archeological site boundaries were established and the entire tidal zone surrounding the reported location of the ground loss was fully excavated until incident sterile strata was reached. Additionally, one feature of interest (Feature 1) was investigated and determined to be non-incident related. Possible material evidence was retained for DPAA analysis. On 25 April 2021, the LA suspended recovery operations because the excavation had reached its scientific limits and had exhausted its archaeological potential to recover additional evidence. The LA recommends no further excavations be conducted at KH-00219, pending DPAA review.

(b)(6)

University of Illinois Chicago
Lead Archaeologist and
Principal Investigator

Search and Recovery Report CS21-0134, a Ground Loss Site (KH-00207) Associated with REFNO 1998, Koh Tang District, Koh Tang Province, Kingdom of Cambodia, 5 through 18 April 2021

University of Illinois Chicago

9 September 2021

INTRODUCTION

From 5 through 18 April 2021, during the 21-2KHb RT-P (henceforth 21-2KHb) field activity in the Kingdom of Cambodia, a University of Illinois Chicago (UIC) Recovery Team (RT) excavated a ground loss site (KH-00207) associated with incident REFNO 1998 on Koh Tang, Koh Tang District, Koh Tang Province. Under the supervision and direction of the Lead Archaeologist (LA), standard archaeological techniques were used to excavate a total surface area of approximately 80 m² to depths ranging from 25 to 50 cm below ground level (cmbgl). Possible material evidence was recovered. The LA suspended recovery operations at the site on 18 April 2021 due to a possible COVID-19 exposure on the island, which resulted in laborers being ordered to stay at home by the Cambodian Ministry of Health. The possible material evidence from site KH-00207 was retained and subsequently turned over on 30 April 2021 via a Chain-of-Custody (CoC) form to (b)(6) of Stoney Beach. For DPAA tracking purposes, this field activity was assigned number CS21-0134 in StarLIMS. The evidence will be assigned a CIL tracking number once items are accessioned into the DPAA-Lab.

BACKGROUND

The REFNO 1998 incident is related to the 15 May 1975 loss of a three-person machine gun team during a rescue mission associated with the United States Marine Corps (USMC) assault on Koh Tang. The mission was in response to the capture of the SS *Mayaguez* by the Khmer Rouge (KR) and the mistaken belief that the ship's crew were being held hostage on the island. The helicopter-born insertion met heavy resistance resulting in casualties (see REFNOs 2002, 2003[resolved], and 2038). By the evening, the order to retreat to the island's western beach had been given. The three men manning the beach's southern end, Private First Class (PFC) Gary Hall, Lance Corporal (LCpl) Joseph Hargrove, and Private (Pvt) Danny Marshall, were last seen uninjured at their position. According to recent interviews with KR veterans, the three men were killed one by one at different locations over the next 72 hours. Site KH-00207 is the general location near this incident where KR veterans have since recounted being ordered to bury an American soldier by their superior officers.

REFNO 1998 has been the subject of numerous investigations, beginning in the 1990s. Investigators have also interviewed witnesses/informants regarding other related losses on Koh Tang (REFNOs 2003 and 2038). REFNO 2003 involves the 15 May 1975 shootdown of a CH-53 helicopter on Koh Tang's east beach; all individuals missing from REFNO 2003 have been accounted for. REFNO 2038 involves the loss of LCpl Ashton Loney, who was killed during the ensuing battle on Koh Tang, and whose body was last seen in a body bag or poncho on the west beach. Based on prior investigations, site KH-00207 could possibly be related to either REFNO 1998 or 2038.

The following is the executive summary of the above-mentioned work. The section abridges information taken from the 19-1KH Archaeological Site Survey Form (REF: ASSR_CS19-0947_19-1KH_KH-00219_KH-00220_REFNO_1998).

- In November 1995, during 96-1CB, JTF-FA excavated a 20-x-24-m area in a witness-reported burial location in the vicinity of (b)(5); (b)(6) . No evidentiary material was recovered. (REF MSG CDR JTFFA 051800Z JUN 96, SUBJ: Detailed Search and Recovery Report case 1998).

- In the late 1990s and early 2000s, JFT-FA/JPAC and Stoney Beach investigators interviewed several key witnesses who claimed to have participated in the battle as KR veterans. These purported witnesses directed much of JPAC's subsequent field activity. These witnesses include (b)(6) (see Additional Information Report 1 of 2 dtd May 1999; and Detailed Report of Investigation dtd April 2000, January 2001, and April 2001). With regards to this report for site KH-00207, the most pertinent witness testimonies are as follows:

  - (b)(6) recounted encountering a body wrapped in a poncho on the west beach (possibly REFNO 2038) and the nearby floating body of an American (possible REFNO 1998); Mr. Chay accompanied JTF-FA IE to Koh Tang and indicated the location of the body in a poncho in the vicinity of (MRGS GCs 48P TS 96235 40604, India-Thailand datum) (see DRI dtd January 2001).

  - (b)(6) confirmed the story of a floating body near a rocky outcropping south of the west beach (possibly REFNO 1998). They confirmed that he heard stories about another set of remains but admitted that he had not seen the second set for himself (see DRI dtd January 2001).

  - (b)(6) led investigators to the location where he observed an American wrapped in a poncho on the west beach ((b)(5); (b)(6) , India Thailand datum) (see DRI dtd April 2000).

- In January and February of 2001, during 01-1CB, a JTF-FA RT excavated at KH-00207 following the reports that a body was seen in the vicinity and buried shortly after the conflict. Excavations focused on a 16-x-20-m block located at the end of the path leading to the beach (*see* Figure 5). No evidentiary materials were recovered.

- In January and February of 2008, during 08-2CB, a JPAC RT excavated three alleged burial sites, all thought to be related to REFNO 1998. Site CB-00185 is the reported location associated with a well on the west beach. Site CB-00140, is the alleged location of a burial along the west beach, and CB-00196 is a location indicated along the east beach. The RT found evidence of a trash midden associated with CB-00185 but no evidentiary material (see Search and Recovery Report: CIL 2008-018).

- In January and February of 2015, during 15-1CB, a DPAA RT conducted block excavations expanding on excavations from 01-1CB. Block excavations covered 752 square meters and encountered two burials that were determined to be local Cambodians unrelated to the incident. Test pit excavations were also conducted near 12 metal detector hits and topographical features (see Figure 5). No evidentiary materials were recovered.

- In March 2019, Stony Beach investigators interviewed a new witness, (b)(6). During 19-1KH IT, (b)(6) indicated two locations on the west beach where he was directly involved in the deaths of American soldiers. One of the indicated locations was designated KH-00207.

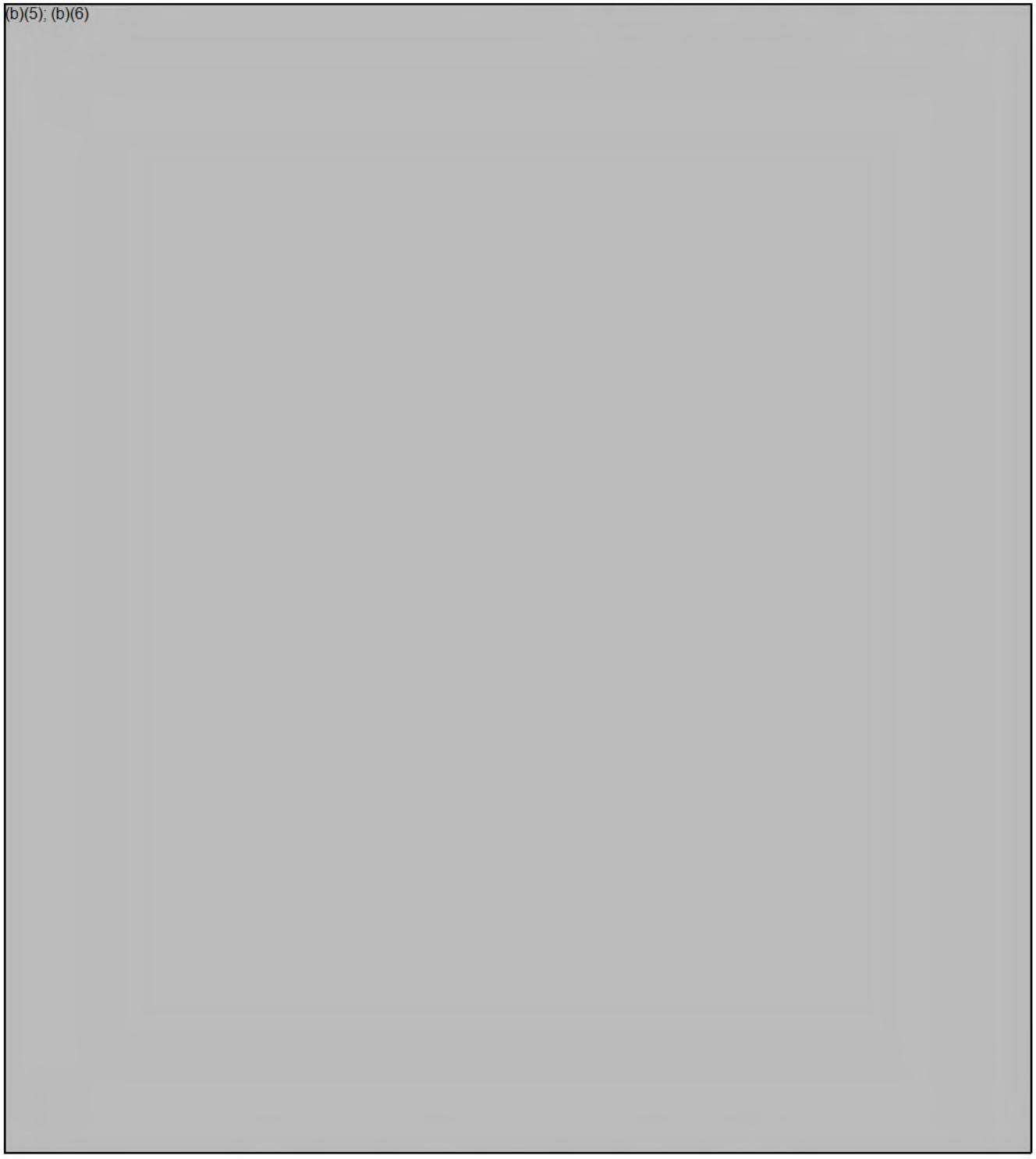
RECOVERY SCENE LOCATION

Site KH-00207 is on Koh Tang, Koh Tang Provence, Koh Tang District, in the Kingdom of Cambodia. (b)(5); (b)(6)

(b)(5); (b)(6)

Figure 1. Political map of Cambodia, red square indicates location of Koh Tang.

(b)(5); (b)(6)



DESCRIPTION OF RECOVERY SCENE

Site KH-00207 is a suspected burial site situated east of the northwestern beach in a low-lying flat. Vegetation on site consists of secondary tropical regrowth resulting from the 15-1CB excavations (Figures 3 and 4). Flora in the area consists of young hardwood trees, spiny palms,

shrubs, and dense grasses. Relevant fauna include snakes, crabs, and the island's semi-feral dog population. Occasionally termite mounds can be seen as small rises in the short grass.

In the time since the 15-1CB activity, ocean washed trash has been deposited along the high tide mark to the east of the excavation area. Occasional beach trash was also present on the site. After clearing with machetes, several holes and depressions could be seen. Before excavation, it was unclear which features were the results of the previous metal detector survey of the site and which were craters, foxholes, or other features.

(b)(5) ; (b)(6)

Figure 2. General view of KH-00207 after clearing brush and grass. View is from the beach looking east. The red circle indicates the back dirt berm associated with 15-1CB excavation, Feature 4 (IMG_0280).

FIELD METHODS

Standard archeological procedures were used during the 21-2KHb excavations at site KH-00207. The excavations were intended to complete the northwest section of the site left unexcavated during 15-1CB. This area of interest is considered the last of the site area requiring excavation. The site datum emplaced during the 15-1CB field activity was used to continue the pre-existing excavation grid aligned 9° west of magnetic north. The grid was divided into 4-x-4-m units named for their southwest corner with the datum at N500/E500. Figure 5 depicts the 21-2KHb excavations in relation to previous recovery activities.

During the reestablishment of the archeological grid, it was discovered that unit N528/E508 had been excavated but had not been indicated on the original 15-1CB sketch map (see Figure 5). However, photography from this mission does show that it had been marked as part of that mission's final photographs. Once the archaeological grid had been reestablished, block excavation proceeded from the 15-1CB excavation boundary toward the east (N528-N536;

E508-E516). The excavation utilized shovels, hand tools, picks, and trowels, and all excavated sediment was dry screened using 1/4-inch mesh (Figure 6). When heavy rains made the matrix too sticky for dry screening, wet screening was used. Recovery team members examined the contents of screens and retained all potentially relevant material for the LA to evaluate. The site map was created using a tape and compass as well as a Garmin GPS Map 64s. The visible corners of the previous excavations were used to orient mapping.

All American team members participated in excavations. All archaeological activities were directed and supervised by the LA, who maintained scientific control and decision-making authority at all times. Security on the island was provided by the local Cambodian military. This security took the form of both on-duty officers who observed the excavations, as well as an armed patrol boat that would make regular passes of the beach to keep fishing vessels clear of the site. The remote nature of the site and the fact that the island's only population is a military garrison meant these were sufficient measures. The LA created maps, stratigraphic profiles, evaluated materials for possible osseous remains and material evidence, maintained field documentation and daily excavation notes, completed the photographic documentation, and compiled the artifact catalog.

All units were excavated in their entirety to incident-sterile soil. The LA and the Explosive Ordinance Disposal (EOD) technician conducted a metal detector survey of all units to ensure that an incident sterile horizon had been reached. Possible evidentiary items were retained and placed in secure containers, sealed with evidence tape, and documented with provenience information. Ammunition was disposed of in a designated pit. All evidence, as well as the recovery site, were secured at all times.

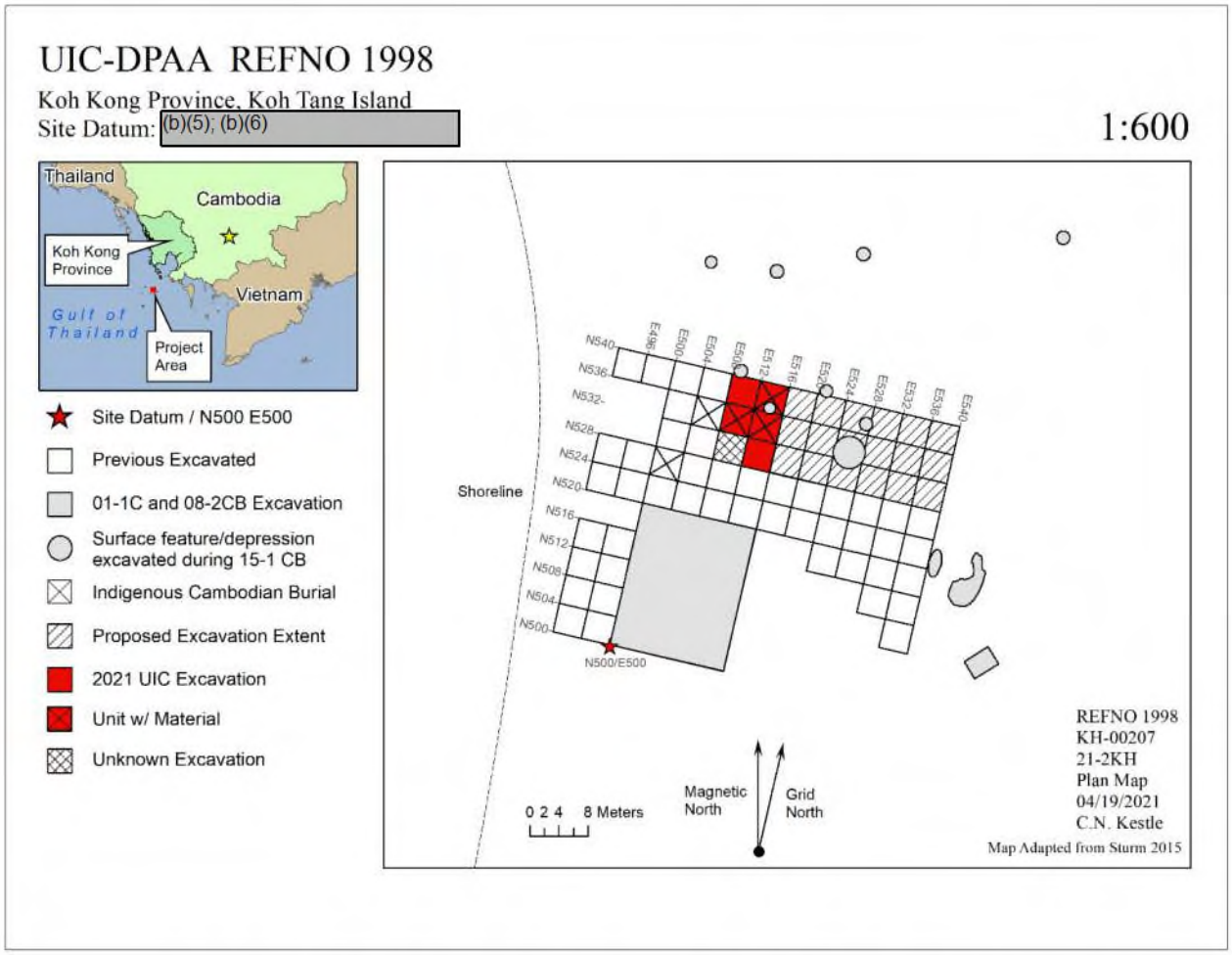


Figure 5. Plan map of KH-00207, 21-2KHb excavations indicated in red. Note, "Unknown Excavation" was likely conducted during 15-1CB, but was not reflected in in their original sketch map.

(b)(5) ; (b)(6)

(b)(5)

The stratigraphy of site KH-00207 is straightforward. The site contains two strata: Layer 1 is a 10 YR 3/2 humus layer that is 10 cm deep. Layer 2 consists of a 5 YR 4/3 sandy loam. Minimal roots are present in both layers (Figure 7). Possible material evidence was found at shallow depths, generally within the first 30 cmbgl.

Two possible features, originally identified during 15-1CB, were excavated during the 21-2KHb activity. Feature 7 is an observable round depression about 1.5 m in diameter and 50 cm in depth with large rocks at its bottom. This feature is located between N536/E512 and N532/E512. After excavating it to a depth of 50 cmbgl, the bottom of the feature was found to be in the freshwater drainage table and contained several large rocks (Figure 8). Burned beach trash was found in the back dirt associated with this feature. It seems likely that Feature 7 represents the remnants of a fresh water pit later used as a burn pit.

Feature 8 is an irregular shaped depression about 80 cm in diameter and 50 cm deep. It was excavated in unit N536/E508 to a depth of 50 cmbgl (Figure 9). The feature appears to have been a burn pit due based on the recovery of burned trash during screening of feature soils.

Due to a possible COVID-19 exposure on the island during the 21-2KHb excavations, only a portion of the area of interest could be excavated. The area excavated is indicated in Figure 10 by the white tape. All non-collected materials from the excavation are shown in Figure 11. Non-evidentiary materials were disposed of in an 80 cm deep pit after being spray painted to mark them as already recorded.

Table 1. Possible Evidentiary Items Recovered from KH-00207 During 21-2KHb

Item*	Field Activity	Provenience	Depth (cmbgl)
Shoe Insert	21-2KHb	N532/E512	0-25
Leather and Cloth	21-2KHb	N532/E512	0-25
Billfold	21-2KHb	N532/E508	0-25
Card	21-2KHb	N536/E512	0-25

Table 1: *Note that all tentative identifications are pending DPAA analysis, the results presented here are not to be considered definitive.

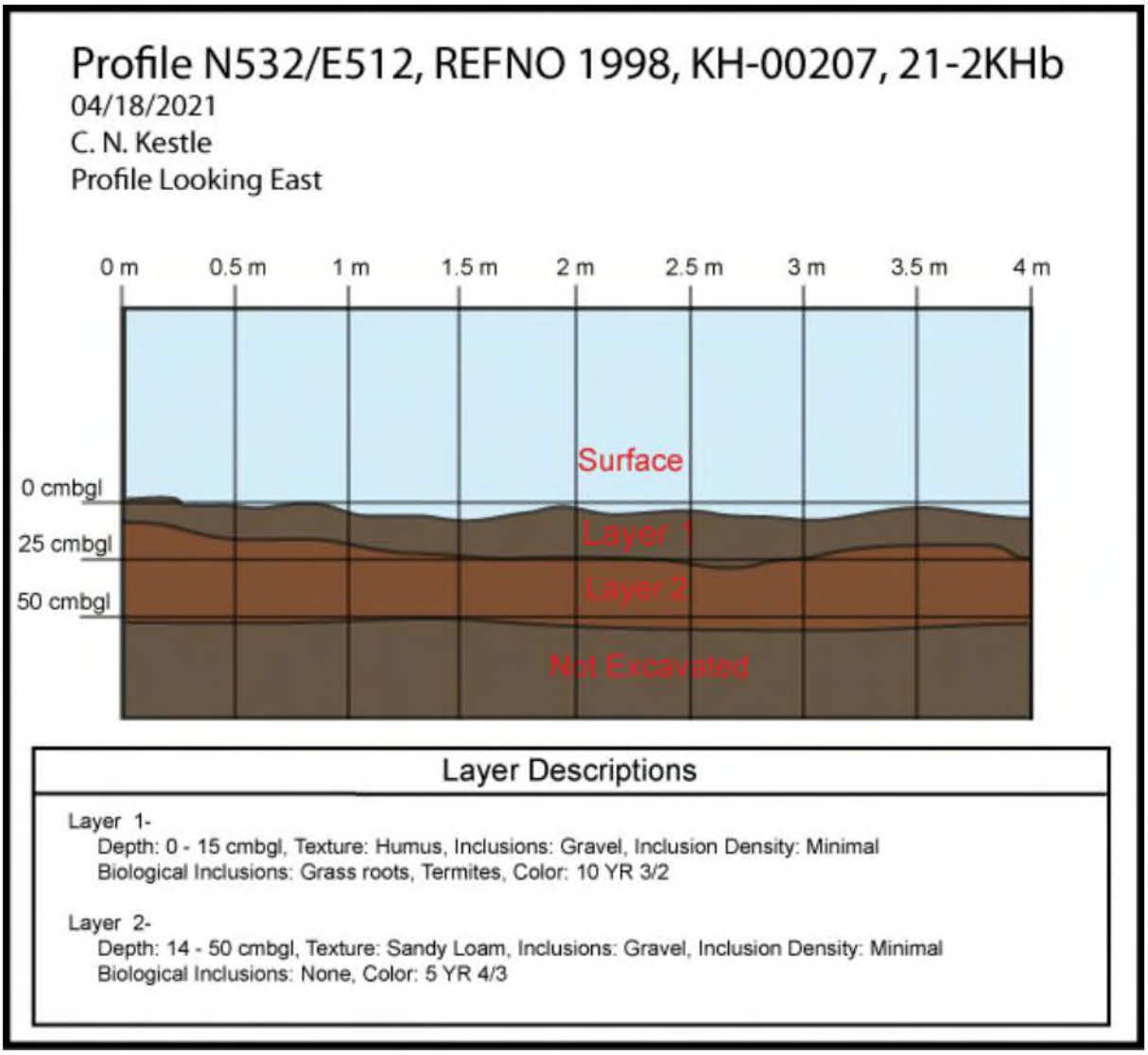


Figure 7. Cross-section profile indicating stratigraphy at KH-00207. Profile is of east wall of unit N532/E512.

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

(b)(5) ; (b)(6)

CONCLUSIONS AND RECOMMENDATIONS

On the 21-2KHb mission, from 5-18 April, the UIC RT excavated site KH-00207 associated with REFNO 1998. Scientific archaeological techniques were used to excavate a total area of approximately 80 m² to depths ranging from 25 to 50 cmbgl. (b)(5) (b)(5) On 18 April 2021, the LA suspended recovery operations due to a possible COVID-19 exposure on the island. In the abridged time 21-2KHb did not complete the originally proposed excavation area that the DPAA estimated to be the reasonable site limits for KH-00207. The 21-2KHb LA recommends that the site be excavated to the boundaries originally proposed in the excavation proposal, and further suggests possible use of geophysical survey on the adjacent unexcavated beach. The 21-2KHb LA recommends additional excavation at site KH-00207.

(b)(6)

University of Illinois Chicago
Lead Archaeologist and
Principal Investigator

Excavation Summary Report (ESR) of Site KH-00219 (LKA REFNO 1998)
Conducted 18 March through 3 May 2021, Kingdom of Cambodia

Comments in this report are not intended to provide final analytical conclusions.
This report contains results from the University of Illinois at Chicago.

1. **Case Overview:** Last Known Alive (LKA) REFNO 1998 involves the 15 May 1975 loss of a U.S. Marine Corps (USMC) three-man machine gun team during the assault on Koh (Khmer word for island) Tang, Kingdom of Cambodia. This team was sent to Koh Tang to rescue the crew of the cargo ship SS *Mayaguez* from Khmer Rouge (KR) forces that had captured the vessel. The USMC's helicopter-borne insertion and rescue mission meet unexpectedly stiff resistance from entrenched KR forces resulting in heavy casualties (see REFNO 2002, 2003 [resolved], and 2038). On the morning of 15 May, the USMC forces were ordered to retreat to Koh Tang's west beach. The LKA REFNO 1998 crew was ordered to create a perimeter for the evacuation at the far south end of the beach. They did not board the helicopter and were last seen manning their post. U.S. Forces did not see them killed or wounded. Stoney Beach interviews with surviving KR veterans indicated that the three men died one by one over a three-day period. All three men's remains were last seen at various points in the vicinity of the west beach.

2. **Site Data and Coordinates:**
   a. Site number: KH-00219
   b. (b)(5); (b)(6)
   c. Site elevation: less than 1 m above mean sea level
   d. Date site approved for excavation as indicated by the Master Excavation List and/or DPAA Excavation Proposal: 25 February 2021
   e. Lab Tracking: CS2021-0130

3. **Executive Mission Summary:** From 5 through 25 April 2021, during partner activity 21-2KHb, DPAA partner University of Illinois at Chicago excavated the REFNO 1998 ground loss site (KH-00219) in the vicinity of Tang Island, Koh Tang District, Koh Kong Province, Kingdom of Cambodia. Under the supervision and scientific direction of (b)(6), the Lead Archaeologist, the team excavated approximately 276 square meters to depths ranging from 25 to 75 centimeters below surface. On 25 April 2021, the SRE terminated recovery operations because the excavation had reached its scientific limits and largely exhausted its archaeological potential to recover additional evidence. On 30 April 2021, the SRE turned over the recovered possible evidence to (b)(6) (DIA/Stoney Beach) via a DPAA chain of custody form for future handover to the DPAA.

4. **Evidence Observed/Recovered:**
   a. 21-2KHb recovered and retained the following possible identification media: None.
   b. 21-2KHb recovered and retained: (b)(5)
   c. 21-2KHb recovered and photographed but did not retain: Munitions with armory dates.
   d. Field analysis of aircraft wreckage and life support items cannot fully support the association of this site to LKA REFNO 1998. Field analysis cannot, as of yet, securely correlate any possible material evidence to LKA REFNO 1998, laboratory analysis pending.

5. **Recommendations:** Pending agency review, site KH-00219 has been excavated to its fullest reasonable extent and the SRE recommends no further excavation.

6. **Site Status:** Recommend Closed-Artifacts pending agency review.

7. **Report writer:** (b)(6) University of Illinois at Chicago, Lead Archaeologist.