



NGSBA Excavation Reports

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Salvage Excavation and Documentation of Sites at Nahal Hava – 2009 Final Report

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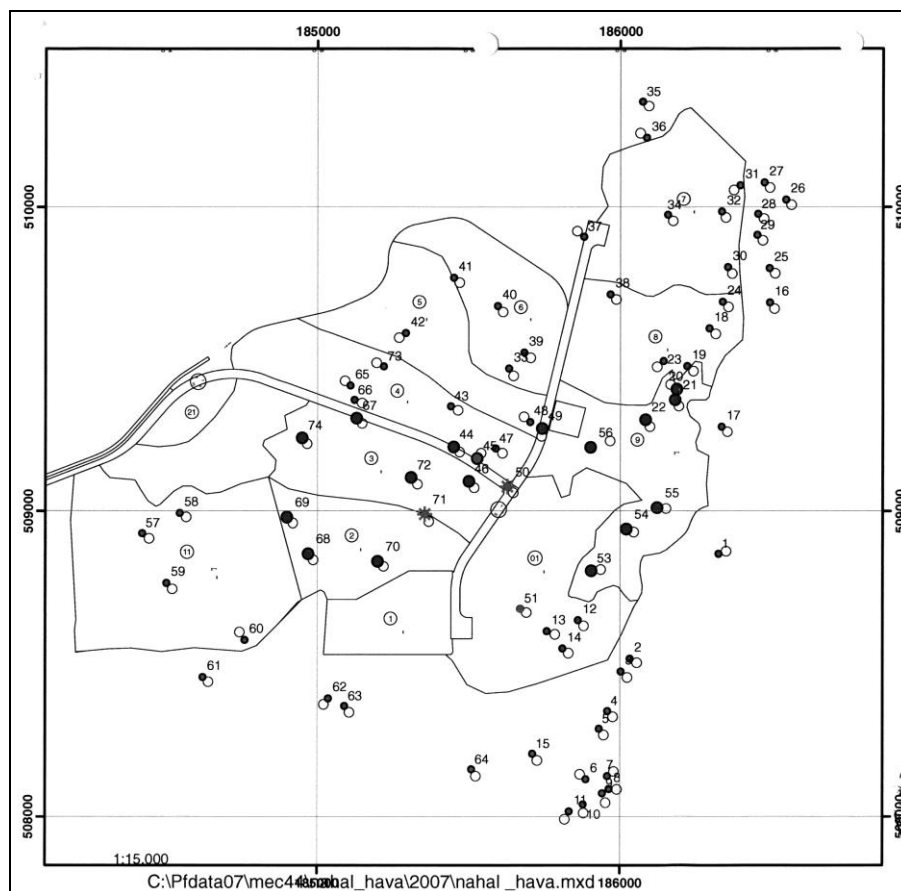


Figure 1: Location map of the Nahal Hava sites investigated by Y.G. Archaeology (30°43'01.67"N / 34°53'30.7"E).

Introduction

The following is a preliminary report of salvage excavations conducted at Nahal Hava (plans no. 59/101/02/20) in the central Negev, carried out in order to protect the cultural heritage whilst accommodating the development of a quarry (Ehud Tayar Company). The site was surveyed for archaeological remains on 1 February 2009, and excavations began on 6 April 2009, after coordination with and approval from the Israel Antiquities Authority, the Israel Nature and Parks Authority, the Israeli Ministry of Defense and the Israel Defense Forces. The excavations were completed on 30 December 2009.

The area is a high region (ca.750m above sea level), on the eastern fringes of the Mishor Haruhot. The area is cut by streams draining into Nahal Hava. The slopes are very steep and dotted with rock shelters. The area's surface is rocky and has little vegetation, which is only in stream beds.

Well-known remains of agricultural terraces are found in the area's wider stream beds. These are most probably from the Byzantine period. By contrast, the sites dealt with in the current project vary in nature and indicate the existence of a nomadic and semi-nomadic population in this area during different periods. The dating of the sites is problematic since in most cases no indicative artifacts were found. Nevertheless the existence of sites from prehistoric periods (Neolithic) to modern times (Bedouin) is clear.

Below is a list of the areas and sites investigated on this Nahal Hava project, along with the IAA-approved course of action taken at each site. Below this list is an account of the project findings, area by area.

1. Plot No 2:

- Site 68 (4) – survey, fencing and signposting
- Site 69 (5) – survey, fencing and signposting
- Site 70 (6) – salvage excavation (52m²)
- Site 71 (7) – salvage excavation (52m²)

2. Plot No 3:

- Site 46 – salvage excavation (8m²)
- Site 47 (67) – salvage excavation (3m²)
- Site 72 (8) – salvage excavation (106m²)
- Site 74 (10) – survey, fencing and signposting

3. Plot No 9:

- Site 20 – survey, fencing and signposting
- Site 21 – survey, fencing and signposting
- Site 22 – survey, fencing and signposting
- Site 53 – survey, fencing and signposting
- Site 54 – salvage excavation (10m²)
- Site 55 – salvage excavation (15m²)
- Site 56 – salvage excavation (2m²)

4. Access road:

- Site 44 – salvage excavation (6m²)
- Site 45 – salvage excavation (1m²)
- Site 49 – salvage excavation (6m²)
- Site 50 – salvage excavation (90m²)

1. Plot No 2

1.1 Site 68 (4): Circular structure

Location: 184970 – 508860

These are the remains of a circular structure, diameter ca.4m and built of large and medium-sized fieldstones (Fig.2). One course of stones was extant, without surviving mortar. No associated finds were recovered. It is possible that this round structure was part of a stopping point for the convoys that in former times passed through this area. In any case the feature is not a tumulus or burial structure.



Figure 2: Site 68 (4), general view.

1.2 Site 69 (5): Piles of rocks and stone lines

Location: 184900 – 508980

This site is scattered over an area of ca.50 x 40m on an exposed slope of moderate gradient. Groups of stone piles (1m²) can be identified (Fig.3). These are made from small and medium-size stones with no signs of actual architecture. No associated finds were recovered either. Also in the area are a number of linear stone features, again constructed from small and medium-sized stones built to a height of one course on a general north-south axis (Fig.4). There was no further data available to aid in interpreting or dating these features.



Figure 3: Site 69 (5) pile of stones.



Figure 4: Line of stones.

1.3 Site No 70 (6): Cluster of *shiniyot*

Location (center): 185200 – 508835

This is a cluster of about six piles of medium-sized stones, found along a small stream close to a dirt road. This cluster was most likely a set of *shiniyot* (rock pile navigation aids), marking the ancient road that passed along this ravine. Between each pile of stones there was an irregular gap of a few meters and the entire length of the site was 60m. Excavation squares were opened (3 x 4m) around four of the western piles (the eastern piles were destroyed due to their proximity to the dirt road). The excavation reached subsoil at a depth of ca.0.3m. The clusters were usually built to a height of 0.4m and were preserved to a height of approximately 0.4m, in 2-3 courses without mortar. On the surface were collected pottery sherds from the Roman Period, as well as other small sherds of finely-decorated Nabataean bowls.



Figure 5: Westernmost pile of stones before excavation.



Figure 6: After excavation.



Figure 7: Second-westernmost pile of stones before excavation.



Figure 8: After excavation.

1.4 Site 71 (7): Open water reservoirs

Location (center): 185355 – 508990 (structure and terraces)

Site 71 (7) was first reported in the IAA's survey as agricultural terraces in a stream. In the salvage excavation that was subsequently required for this area of 50m², we found a unique system for storing water. This was based on networks of stone and clayish soil dams which stored run-off from the wide upstream area. The IAA's decision following this discovery was to excavate an additional 150m² of this system, with the objectives of obtaining a full architectural plan, its date and a better understanding of how this system worked. During December 2009 a number of excavation outings were conducted. In these excavations archaeology students and

volunteers participated. The area was surveyed by a team under Dov Porotsky. The renewed excavation focused on the exposure of the dams' walls by digging sections down to bedrock. The site included a system of two open reservoirs that were built in the center of a shallow stream (71.2-3), as well as a pool for siphoning alluvium (71.1). Three further constructions associated with this water-collecting system were also identified.

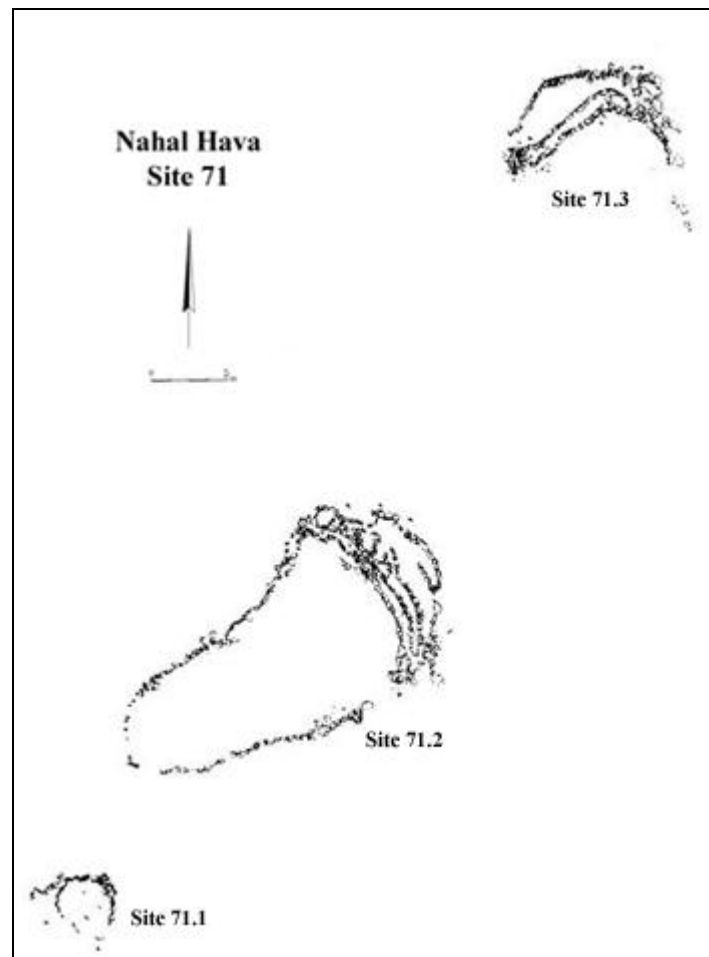


Figure 9: General plan of Site 71, with 71.1-3 marked.

Site 71.1: Alluvium-siphoning pool (Figs.10-12)

This circle of stones was found at the western extremity of Site 71. Altogether 10m² were excavated here, encompassing the entire feature. It was founded on bedrock, with a diameter of ca.3m. The purpose of this feature was most probably to direct run-off, collecting it over an impermeable rock surface whilst also stopping alluvium and dirt from flowing into the adjacent open reservoir (71.2). The water was hemmed in by natural slabs of medium- and small-sized stones set on their edges. These were supported externally by smaller stones (Fig.11). The eastern side of the pool collapsed and was probably carried away by the nearby stream.



Figure 10: General view of the dammed stream, with the alluvium-siphoning pool in the foreground (Site 71.1).



Figure 11: Site 71.1 (photographed from north).

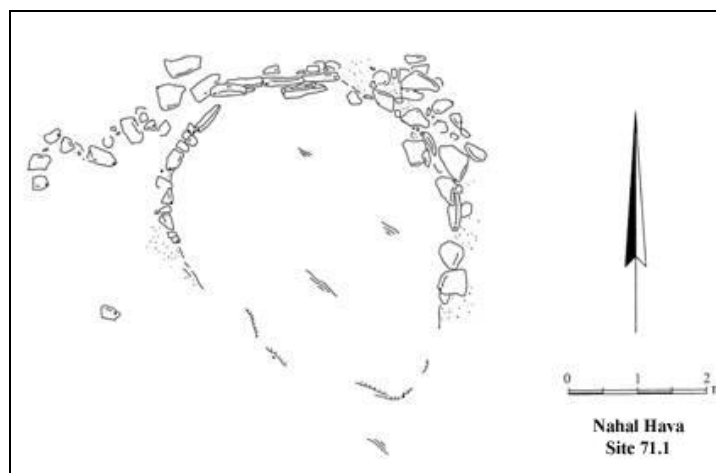


Figure 12: Plan of Site 71.1.

Site 71.2: Central reservoir (Figs.13-22)

Ca.10m east and downstream of the Site 71.1 alluvium-siphoning installation was built an elliptical water storage pool or open reservoir. This measured 25m in length and ca.10m in width. Over the two excavation phases an area of 135m² was dug here, out of a total of 250m². The pool was bordered by large upright fieldstones set on bedrock and stabilized by small stone wedges (Figs.19, 20).

At the eastern edge of the pool (i.e. facing the current), five stone walls were uncovered. These were built at intervals of 1-2m, the gaps between them filled with artifactually-sterile clayish soil (perhaps sediment from Site 71.1). This series of walls formed a composite dam, a reinforcing design founded on bedrock in order to minimize reservoir leaking and erosion by the adjacent stream. A section dug to bedrock on the west side of this dam revealed that its west wall was preserved to a height of ca.1.2m above bedrock (Fig.14). This was built from large and medium-sized stones placed one on top of the other without mortar. Most of the stones were set on their edges, except for the first course which were placed flat on the bedrock. The dam walls were lower towards the east, in accordance with the area's topography. The eastern walls were also built with larger, more rectangular stones stood upright.

In the northeastern corner of the reservoir the sloping bedrock floor on top of which the walls of the dam were built was uncovered. Approximately 5m of the walls were excavated. Here the dam is comprised of two parallel walls built directly on bedrock. The gap between the walls is ca.0.5m, widening gradually towards the center of the dam (Fig.18).

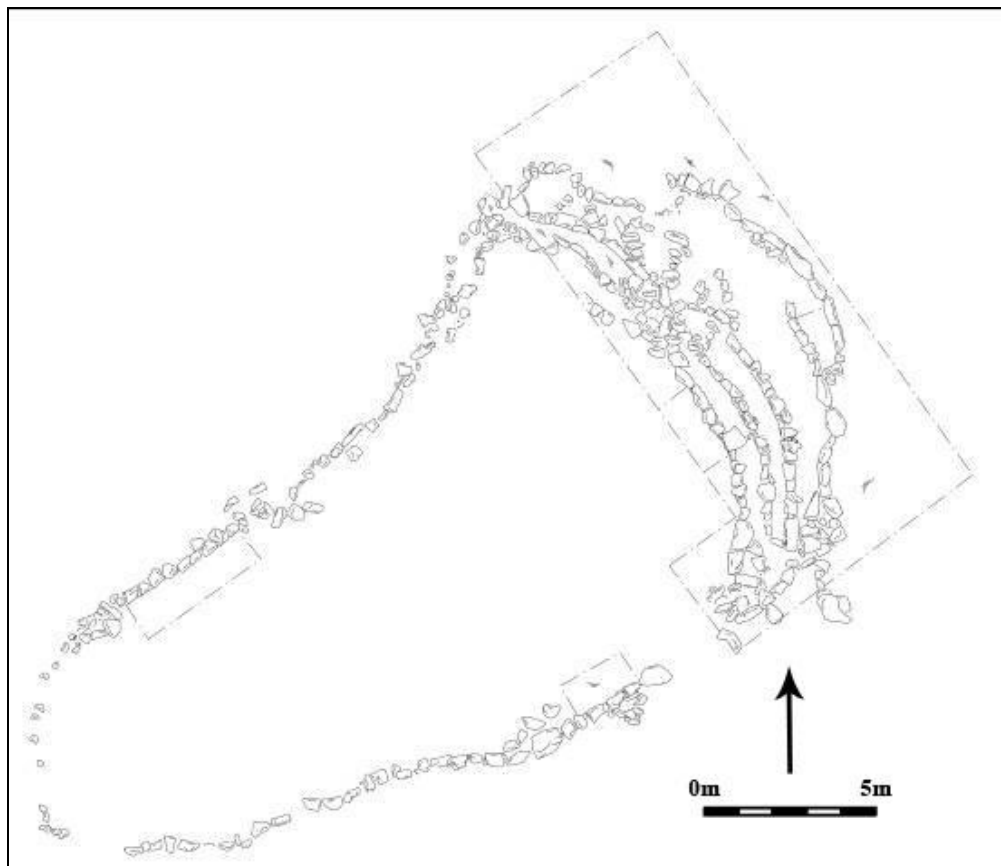


Figure 13: General plan of the Site 71.2 central reservoir after excavation.



Figure 14: The west side of the Site 71.2 dam's west wall, preserved to a height of 1.2m above bedrock.



Figure 15: The dam's western wall holding water.



Figure 16: The south end of the dam's west wall (test section filled with run-off).



Figure 17: The dam's eastern courses resting on bedrock.



Figure 18: The north end of the dam.



Figure 19: The southern end of the dam wall, a single course of large stones.



Figure 20: Test section at the dam's south end, filled with run-off.



Figure 21: Site 71.2 reservoir's north wall resting on bedrock.



Figure 22: Section against 71.2's north wall, filled with run-off.

Site 71.3: Eastern reservoir (Figs.23-29)

An additional water storage pool was found downstream and northeast of the 71.2 central reservoir, the overflow from which this second pool served to catch. Like 71.2, it was also built directly on the hard, seamless limestone rock which constitutes the stream's floor. In this eastern reservoir a total of 80m² were opened. The dam of this pool was built of three supporting walls, the gaps between which were filled with a clayish alluvial soil (Figs.24, 28-29). Two of the walls were parallel (Fig.26) and found 1m apart, and the third was a further 3m to the east. On the east side of the dam, the wall was preserved to a height of 1.2m above bedrock. As with the other Site 71 features, this reservoir's walls were built of large upright stones standing on the bedrock. The upper courses were laid with stones set horizontally.

On the west side of the dam was situated a 1 x 1m compartment filled with a number of large stones standing upright (Figs.25-27). This compartment does not have any functional need and may therefore be of a symbolic or ritual nature, with the upright stones tentatively thought of as stelae of a sort.

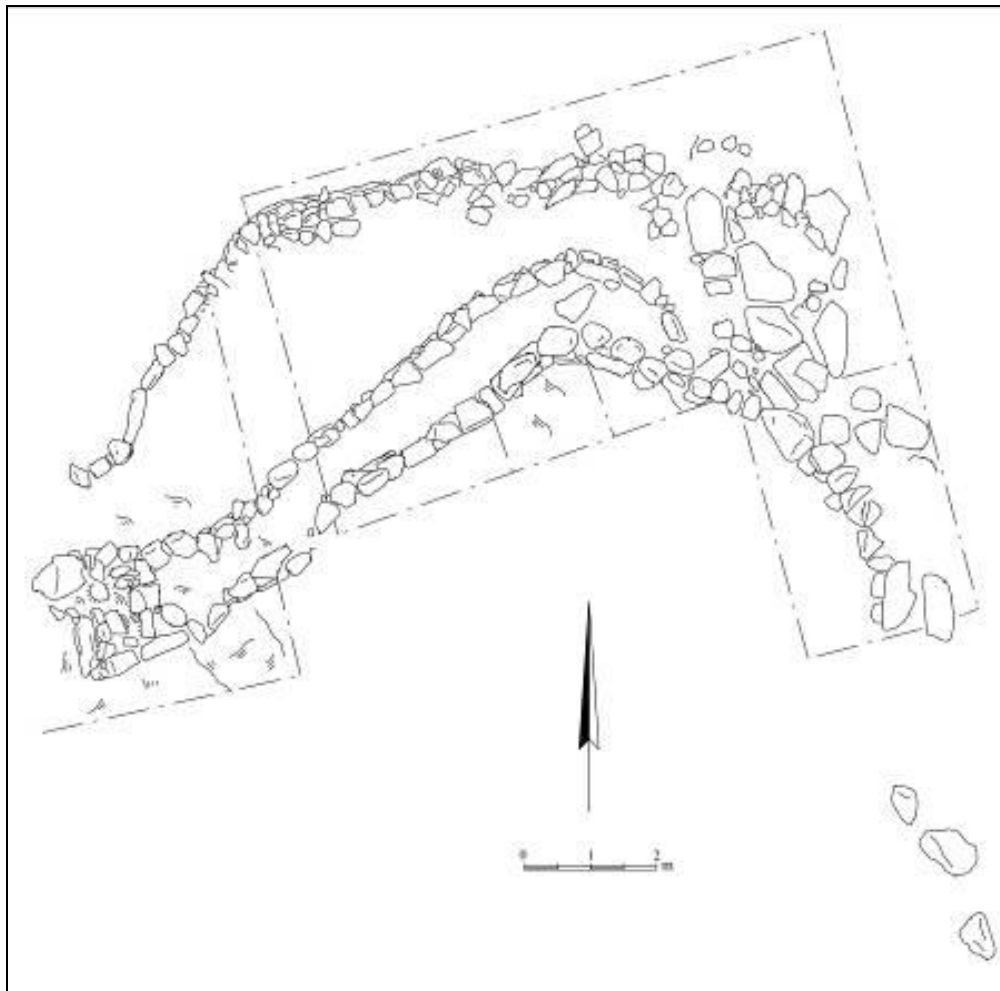


Figure 23: Plan of the dam wall system of the Site 71.3 eastern reservoir, with the compartment of upright stones on the west side.



Figure 24: General view of the three supporting walls of the Site 71.3 dam. In the right foreground is the possible ritual compartment.



Figure 25: Possible ritual compartment with stelae at the west end of the 71.3 dam.



Figure 26: General view of the 71.3 dam's parallel walls (from north).



Figure 27: View of the 71.3 dam's compartment (from north).



Figure 28: General view of the 71.3 reservoir's dam walls after the flow of run-off in the stream. In the foreground is the stelae compartment at the end of the dam walls.



Figure 29: General view of the wall system of Site 71.3's dam (from northeast).

Site 71: Summary and conclusions

Altogether 215m² of the Site 71 features were excavated, mainly in the areas of the dams. A number of sections were dug down to bedrock against the pool and dam walls. This system of reservoirs at Nahal Hava is unknown to date from any other site, its uniqueness being in architectural features based on two elementary components designed to capture and retain run-off water. The builders of this system identified the hard quality of the limestone rock over which ran the stream. This seamless surface allowed the construction of the water storage pools, which concentrated the weak and diffuse flow of the stream. These pools were reinforced by sturdy and wide dams.

These dams were built by a particular and original method. Large fieldstones were set at intervals of 1-3m, and interlocked by dry-stone walling – i.e. without mortar or any bonding material – of a quality that prevented water seepage through the dam. The final dam sealing was achieved by building parallel series of these walls, and filling the gaps between with a clayish alluvial soil, most likely taken from the pool bottoms. This was a self-reinforcing method: the dam's volume and weight increased to balance the lateral pressure of the pool water, and the alluvial soil swelled from contact with the water, making it more impermeable. Such composite walls probably completely prevented water seepage, all without using any artificial sealing material.

Similarly, the construction of a frame of upright stones and dry-stone walling on bedrock around the pools sealed them, as well as increasing their storage capacity and preventing penetration of foreign matter into the pool.

The capacity of the Site 71.2 pool was approximately 250m³ of water. When this primary pool was filled, surplus water spilled over the dam and was captured in the second, eastern pool (71.3). This pool was capable of holding only 150m³ of water, and therefore its dam did not need to be so strong.

The possible ritual compartment that was discovered close to the west end of the dam would reflect the characteristic beliefs of these water systems' nomadic builders, and the importance they gave to such desert facilities.

Finally, the dating of the Site 71 system is problematic since, except for a number of unidentified flints, there were no finds in these systems or in their surroundings. It can be assumed that these simple but unique water systems were built by nomadic or semi-nomadic populations that existed in the area. With a high probability, in the author's opinion, these pools can be associated with a seasonal site 500m northeast of Site 71, a site which incorporates Early Bronze Age (3500-2300 BCE) and Early Islamic (750-900 CE) phases. This site was not excavated by YG Archaeology, and details of its investigation were not available at the time of writing.

2. Plot No 3

2.1 Site 46: Stone circle

Location: 185501 – 509097

This is a circle of stones, some of which are upright and standing directly on bedrock high on a rocky slope over a stream running through a gorge. The diameter of the stone circle is ca.3m. At the north end of the stone circle is a broad stone (width ca.0.6m, height ca.0.5m) set on edge. On either side of this upright stone were placed two medium-sized stones, also upright. This deliberate configuration of three 'stelae' was supported by additional stones along the perimeter of the circle. On the opposite side of the circle, a number of additional thin and elongated stelae were found fallen backwards. The excavation in this site was carried out down to bedrock, and no finds were recovered.



Figure 30: Site 46 (from north).



Figure 31: Site 46 (from south).

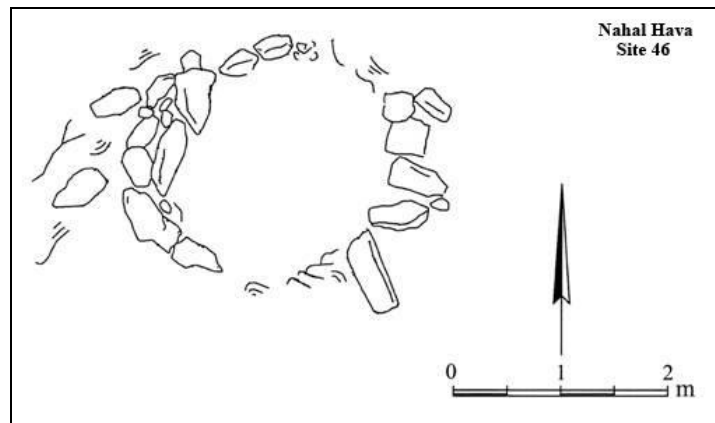


Figure 32: Plan of the Site 46 stone circle ('stelae').

2.2 Site 67 (3): Two adjacent granaries

Location: 185130 – 509305 (rounded structure)

Here two large flat rock surfaces were found, each one with a diameter of ca.10m. These surfaces had been cleared of stones, which were transferred to the edges. These surfaces were most probably used as granaries for threshing crops. However, they cannot be dated due to the likelihood of their use of very long periods, as well as the lack of any datable finds. On the eastern side of the granaries were found two piles of stones with no defined architecture.



Figure 33: Site 67 (3) north granary (from south).



Figure 34: South granary (from south).

2.3 Site 72 (8)

Location: 185310 – 509110 (structures and piles of stones)

A concentration of about ten structures was found here, in a wide wadi bed close to the dirt road. We excavated five of the features that looked like piles of stones with no relative order.

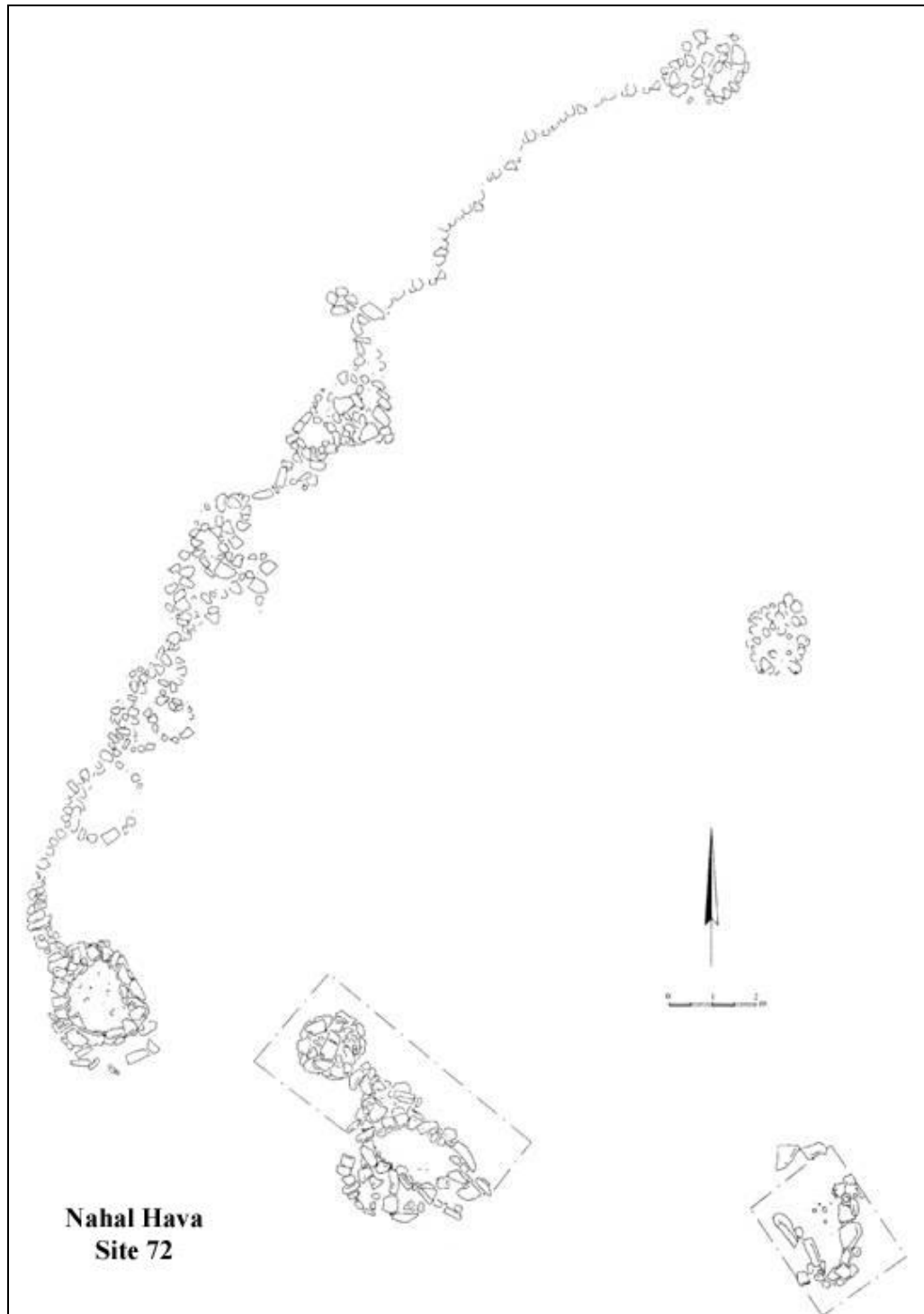


Figure 35: General plan of Site 72. In the centre is 72.1, on the left 72.2, and on the right 72.3.

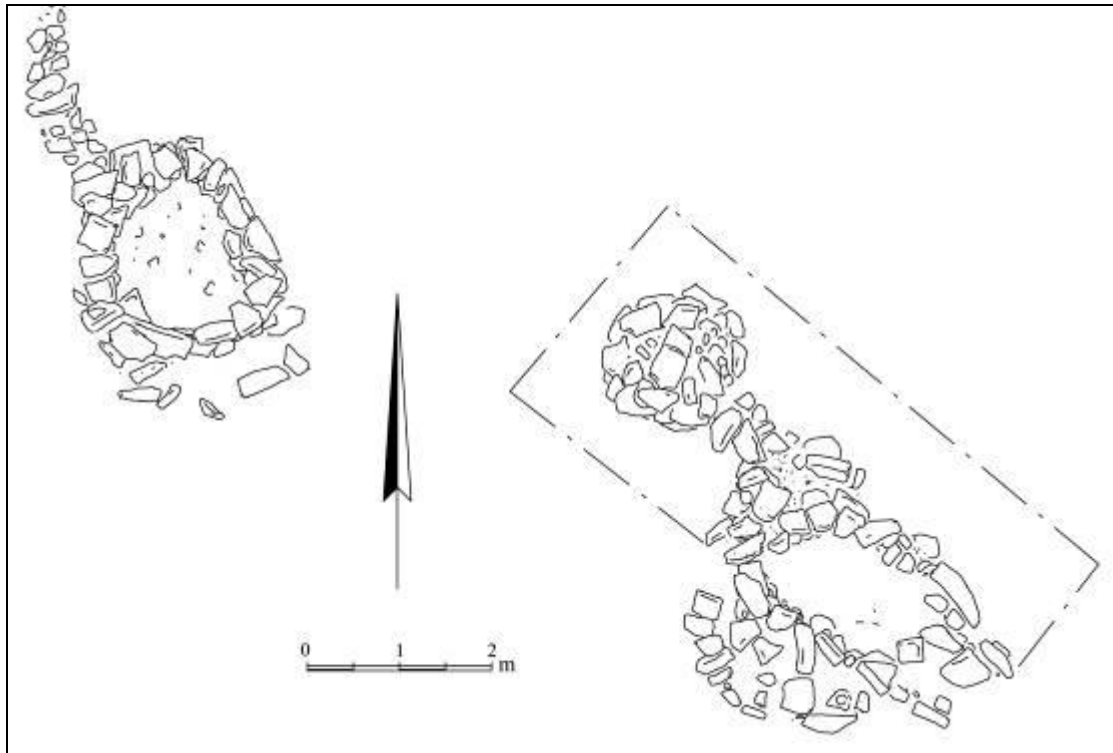


Figure 36: General plan of Site 72.1 (right) and 72.2 (left).

Site 72.1: Elliptical structure

This cluster of stones measured ca.3m across. From it three large upright stones protruded. An elliptical structure was uncovered beneath the cluster. This was built of flat fieldstone slabs placed one on top of the other without any bonding material (Figs. 36, 37). The upright stones ('stelae') were placed on a long side of the elliptical structure's perimeter (west side). Opposite the upright stelae was a small opening in the perimeter, of which the threshold survived. The excavation of the structure's interior revealed many fieldstones but no finds. The structure was preserved to a height of 0.5m and was comprised of 3-4 courses. The height of preservation of the larger stela was 0.8m. A few meters north of this structure were excavated a number of additional piles of stones but no such clear architecture was found in them.



Figure 37: General view of Site 72.1 (from east).



Figure 38: General view of the excavated features north of Site 72.1.

Site 72.2: Elliptical structure

A concentration of stones was found about 20m north of 72.1. When excavated, this was also revealed to be an elliptical structure (2.2 x 1.5m), the stone courses of which were laid without bonding material. Slabs of medium-sized stones were preferred, and laid flat. The walls survived to a height of preservation up to 0.6m, in 4-5 courses. As with 72.1, upon clearing the structure's interior of stone collapse no finds were retrieved, which precludes any dating of the feature. No opening in the structure was found.



Figure 39: General view of Site 72.2.

72.3: Stone slab rows

A number of large upright stones were found standing on a slope at the south end of the Site 72 area. Here a 3 x 4m square was excavated to a maximum depth of ca.0.2m. No finds were retrieved. The feature was comprised of two rows of large stone slabs, three of which were found standing erect. The central stela in the eastern row of stones stood to a height of 0.7m (Fig.40). Site 72.3 has a V-shaped form, its apex pointing south. It is possible that this feature was used as an open ritual facility.



Figure 40: Site 72.3 (from east).



Figure 41: Site 72.3 (from south).

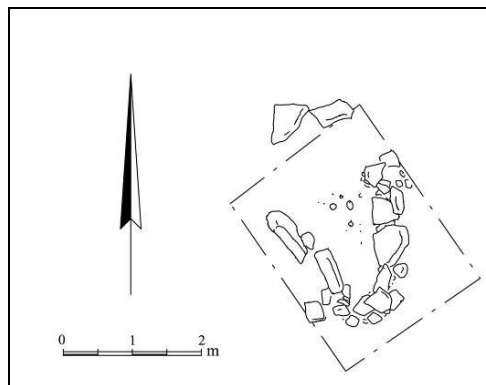


Figure 42: General plan of Site 72.3.

2.4 Site 74 (10): Enclosure and stone clusters

Location: 184950 – 509240

This was a campsite found in a stream bed, incorporating a circular enclosure and a number of stone clusters. The main structure, the circular enclosure, is a rounded enclosure built from small stones piled one on top of the other. The enclosure's south side is open, probably due to erosion from the adjacent stream. Further west along this stream a number of additional round built features were identified. To the east of the enclosure were two graves. Nearby, on the south side of the stream a small ritual compound was found, in which was situated an upright, south-facing stela. In a survey of Site 74's surface a number of potsherds were found, not clearly indicative but probably from the Byzantine Period (330-638 CE).



Figure 43: Site 74: the remains of the enclosure (from east).



Figure 44: Site 74: the remains of a rounded structure west of the enclosure.

3. Plot No 9

3.1 Site 20: Modern cache

Location: 186187 - 509401

This site was a modern cache in a gorge rock shelter beside a stream. The cache's opening was blocked with a number of flat stones in order to hide and seal the cache. Close to the opening of the cache were remains of modern equipment belonging to the Bedouins who stashed their belongings there. The cache's inner space was natural and not large. It was not in use.



Figure 45: General view of the Site 20 cache.

3.2 Site 21: Modern cache

Location: 186181 – 509366

This site is a cache in a cave with a double opening. The interior of the cave is divided by a wall built from large stones. Dressed stones – found at an entrance, having presumably collapsed – were probably used as a closing wall for the northeastern opening. In front of the cache's opening is a rock step and built terrace. The cache was probably used for storing the belongings of modern nomads.



Figure 46: Site 21 cache, general view.

3.3 Site 22: Modern cache

Location: 186084 – 509300

This site is a modern cache in a rock shelter on the north slope of a stream-cut gorge. The cache screening wall was built to a height of 1m, from floor to ceiling at the shelter's mouth. The wall was built of undressed local stone slabs bonded with mud mixed with lime. At some point a small opening was breached in the eastern side of the wall. It is possible that the cache was used for storing nomadic equipment from season to season.



Figure 47: General view of the Site 22 cache.

3.4 Site 53: Wall in wadi bank

Location: 185905 – 508804

This site consisted of a small enclosure in a stream bed. The structure was built from local fieldstones piled up to form a circular wall to a height of ca.0.4m. The eastern side of the enclosure was washed down the slope. The interior of the enclosure was excavated down to the subsoil but no finds were recovered. In modern times the remains of the enclosure's wall were used for camel recumbence.



Figure 48: Site 53, general view of the enclosure remains.

3.5 Site 54: Piles of stones in wadi

Location: 186021 – 508941

Two piles of stones were found in the center of a stream. In order to investigate these features, an area of ca.4 x 5m was opened. The stone clusters were probably the remains of a circular compound, sections of the northern and southern sides of which had survived. Within the extant 2m section of the north side was incorporated an upright stone supported by smaller stones. This may have been a ritual stela. No datable artifacts were found at this site.



Figure 49: General view of Site 54 (from south).



Figure 50: Site 54: Part of the northern wall with the 'stela' in the centre.

3.6 Site 55: Enclosure

Location: 186122 – 509011

This site is an enclosure on the northern bank of a stream, close to a rock shelter. The enclosure is elliptical in shape and adjacent to an exposed rock cliff, with a diameter of ca.20m and was built from large and medium-sized stones. This enclosure was in use up until recently, as shown by the presence of camel dung and modern objects scattered nearby.



Figure 51: General view of the Site 55 enclosure (from south).

3.7 Site No 56: ‘Stela’ on wadi bank

Location: 185902 – 509209

This upright stone was found on a slope above a seasonal stream bank. This may be a grave, and the upright stone (‘stela’) a grave marker at its north end. No finds were recovered and excavation was deemed inappropriate; if a grave, this was probably a recent Bedouin interment.



Figure 52: The Site 56 possible grave.

4. The Access Road

4.1 Site 44: Possible mortuary structure

Location: 185450 – 509210

These are the remains of a small structure on a ridge. Over this structure were found two piles of elongated stones (probably placed there by the IDF as firing cover). Beneath these, on the north and west sides of the structure a number of building courses of square stones were visible. After clearing the recent piles of stones from the site, the original structure was revealed. The structure was rectangular, measuring 1.5 x 2m and built of large and medium-sized stones. The structure was preserved to a height of 0.6m in 2-3 courses. At the centre of the structure an elongated compartment was found. This was devoid of finds. Our interpretation was that this structure was probably used in antiquity for burial.



Figure 53: General view of the recent piles of stones placed on top of Site 44 (from east).



Figure 54: General view of the Site 44 coursed walls after excavation (from north).

4.2 Site 45: Elliptical structure

Location: 185528 – 509172

This was a small enclosure on an east-facing slope, elliptical in shape and measuring 6 x 3m. The structure was built from large stones set against a nearby cliff. However, due to the steepness of the cliff most of the walls collapsed; only a 2m section of the north wall was preserved, to a height of 0.6m in three courses at most. No indicative finds were retrieved.



Figure 55: General view of the Site 45 enclosure, with its north wall in the foreground.

4.3 Site 49: Circular structure

Location: 185742 – 509271

At this site a concentration of large stones was found (average measurement 1.1 x 0.5m). One (northwest) was found half-fallen from a standing position, originally on end with a number of small wedge stones stabilizing it on the sloping surface. The other stones of the cluster were found close to this 'stela'. They were also large and elongated, and probably originally set standing upright, which would have created a stone circle of ca.2.5m diameter. The stelae on the south side of this circle were erected directly on bedrock, which gave them reduced stability so that eventually they fell backward down the slope. The whole area was cleaned down to bedrock but no finds were recovered.



Figure 56: General view of Site 49 before excavation (from east).

4.4 Site 50: Structures on a slope

Location: 185628 – 509080

This site was comprised of the remains of structures at the center of a sloping, at the stream of Nahal Hava. In the area of the site were found many flint flakes and blades (Fig.57) and also two arrow heads (Fig.58). The finds were collected from a large excavation square (10 x 10 m) which encompassed the site and its fringes. After clearing topsoil, debris and collapse we identified the main structure. This had a rounded shape, measuring 3m across and built from large and medium-sized stones. Some of these stones were set upright in the wall. The structure's entrance faced east, away from the stream. North and south of this central structure were discovered two more built features (L2 and L3, Figs.62-3), also round in shape with diameters of ca.1.2m. They were built of upright stones placed side by side. Within these built features and close to the main structure a large number of flint blades and flakes were found. On the slope going down from the structure to the stream our excavation exposed the remains of about five additional round features. The diameter of these features was similar to the first, averaging 1.35m, and they were also built from upright stones. Approximately fifty meters east of the site, an additional feature was found on the stream bank. This was a concentration of flint flakes and blades close to an exposed rock, which probably covered a blocked or collapsed cave.

This site was most probably from the Pre-Pottery Neolithic Period (ca.8300-5500 BCE). The excavation was not completed. It is necessary to continue, with the cooperation of a specialist team.

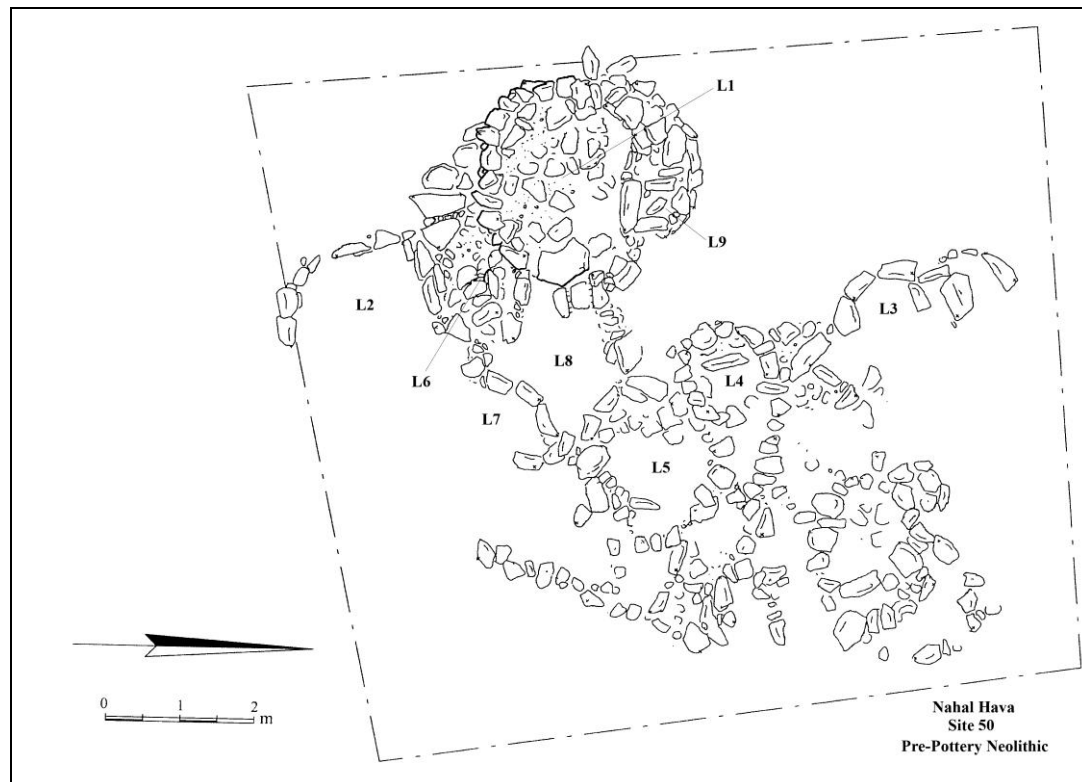


Figure 57: Plan of the Site 50 main structure and excavation area.



Figure 58: Flint blades from Site 50.



Figure 59: Arrow heads from Site 50.



Figure 60: Site 50 before excavation (from east).



Figure 61: Main structure at Site 50 (from west).



Figure 62: Remains of L3 at Site 50.



Figure 63: Remains of L2 at Site 50.



Figure 64: General view of Site 50 after excavation (from west).

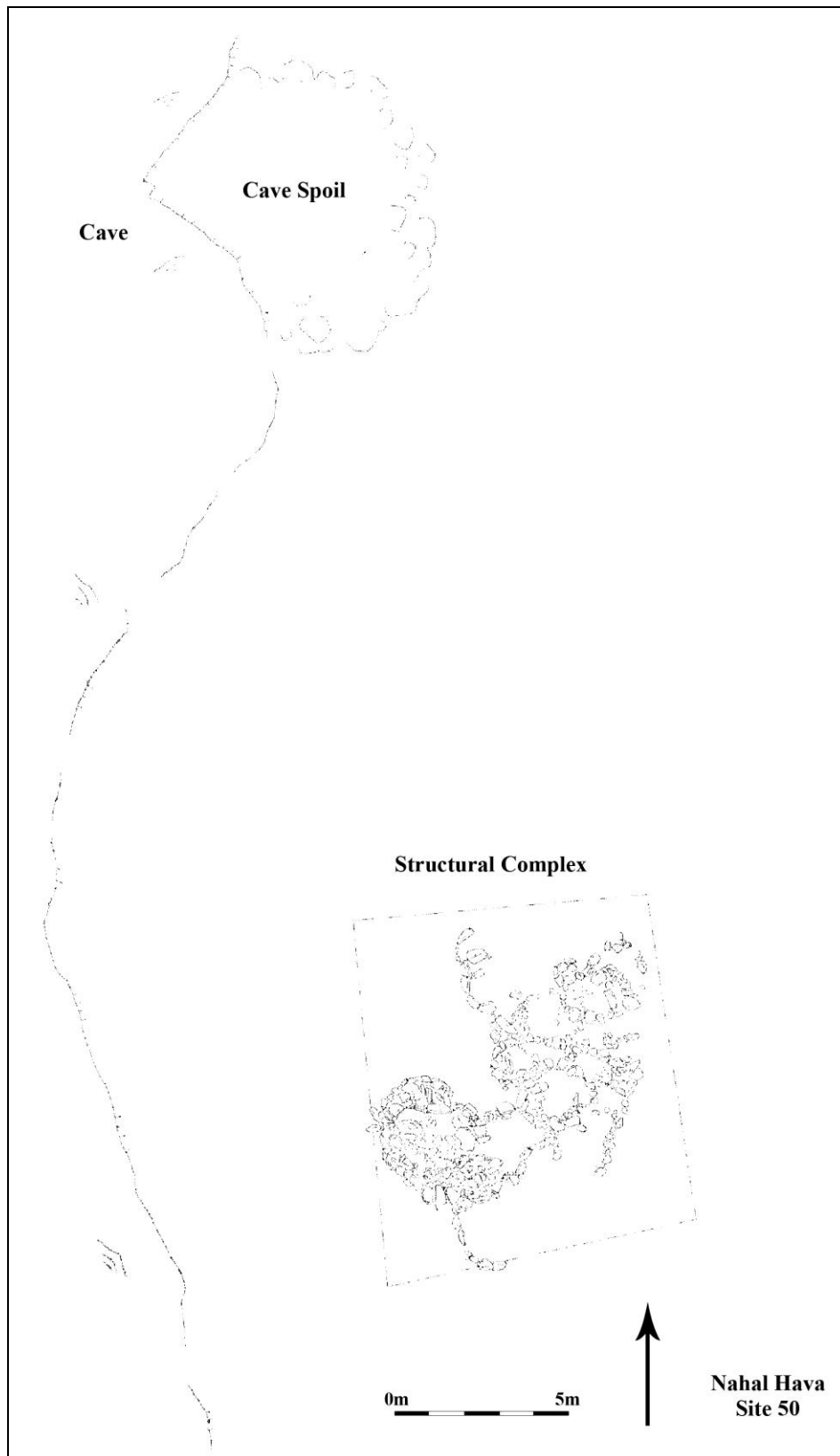


Figure 65: General plan of Site 50.

Summary

Our project allowed for an expansion of knowledge about Nahal Hava's archaeology far beyond the Byzantine agricultural terraces mentioned in the Introduction. We have uncovered cultural remains dating from the Pre-Pottery Neolithic through modern times, including settlements (Sites 50, 74), enclosures (Sites 45, 53, 55), an encampment (Site 72), a very impressive water-cleaning and storage system (Site 71), and possible ritual (46, 49, 54, 72) and specifically mortuary sites (44, 56). A variety of other site types were also found, such as caches (Sites 20-22), granaries (Site 67), stone clusters (Sites 69, 70) and navigation aids/*shiniyot* (navigation aids).

Further Reading

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