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ESTAKHR PROJECT - FIRST PRELIMINARY REPORT
OF THE JOINT MISSION OF THE IRANIAN CENTER
FOR ARCHAEOLOGICAL RESEARCH,
THE PARSA-PASARGADAE RESEARCH FOUNDATION AND
THE SAPIENZA UNIVERSITY OF ROME, ITALY

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Un accordo di collaborazione tra Sapienza e autorità iraniane ha permesso l'avvio di nuove indagini archeologiche a Estakhr (Iran - epoca sasanide e islamica). Durante la prima campagna (primavera 2012) è stata effettuata una ricognizione topografica e archeologica del sito.

Keywords: Estakhr; Iran; Early Islamic; Sasanian archaeology; digital terrain model

1. BRIEF STATE OF RESEARCH

The town of Estakhr [29° 58' 51'' N, 52° 54' 34'' E] is situated in the Fars province, about 60 km north of Shiraz, and about 5 km north of Persepolis, in the narrow valley of the Pulvar River, on the northern edge of the plain of Marvdasht.¹ The so-called gate of Estakhr - a complex of large stone blocks, partially worked crops and an alignment of three different stone columns - more recently interpreted as a part of the hydraulic system for water supply to Persepolis,² marks the point where the road from Persepolis enters the Pulvar valley. The town is enclosed by walls with rounded towers, clearly discernible, today, in the high earthen mound surrounding the archaeological area;³ few remains of a building interpreted as a mosque (including large worked stones, stone columns with bull-shaped capitals) are preserved.⁴

¹ Important surveys of the archaeological remains of the Marvdasht plain have been carried out by Gotch (1968; 1969), Sumner (1972), and, most recently, Hartnell - Asadi (2010); see also Sumner 1986, and Sumner - Whitcomb 1999 (especially devoted to ceramics found in Fars). Kleiss (1994), Bazrgar - Amini (1998-1999, 95-110) and Asadi (2004a; 2004b) review the archaeological evidences of the settlements at Estakhr.

² Kleiss 1994, 164, 169; see also Callieri 2007, 12, and, especially, Malek Zadeh 2008 and Gondet 2011, 328-330.

³ The fortification has never been investigated (with exception of one of the southern towers, see below, and fn. 18), therefore it is difficult to date. Schmidt (1940, 107) attributes the circumvallation to the Sasanian period.

⁴ West to the mosque stands a 19th century square enclosure, with mud walls on a small stone foundation, known as *takht-e tavus* (the peacock throne); see fig. 3.

It is not possible to assume with certainty when the foundation of Estakhr took place. Most probably the settlement is of pre-Sasanian origin,⁵ in any case literary and numismatic sources, and the archaeological evidences, testify of both a Sasanian and an early Islamic phase.

During the Sasanian period, Estakhr was a very important town: the Sasanian emperors themselves came from its region.⁶ The town is considered the Sasanian religious centre, where the royal treasure was housed.⁷

As for the Islamic period, Arabic sources inform us that the governor of Basra, ‘Abd Allah ibn ‘Amir, conquered Estakhr definitively in the year 29/649, and entrusted it to Sharik ibn al-A‘war.⁸ After the Islamic conquest Estakhr became the capital of the province of Fars, a role maintained until the foundation of Shiraz, in 684.

The last mention of Estakhr on a coin dates back to 455/1063,⁹ but the last issue attributed to its mint is dated 282/895-6.¹⁰ The historical sources (among others, Ibn Balkhi, early 12th century)¹¹ tell us that the town was almost completely abandoned in the 11th century.

Eugène Flandin and Pascal Coste, who travelled during the years 1840 and 1841, illustrated the pike-shaped core of the “ruines de Istakhr”.¹² They reproduced also the “plan général du palais”,¹³ i.e. the building later identified as the “first Muslim mosque”.¹⁴

The earliest archaeological researches were carried out by the Chicago Oriental Institute in the 1930s. Ernst Herzfeld first, in 1932 and in 1934,¹⁵ and Erich F. Schmidt after, in 1935 and in 1937,¹⁶ executed some tests on the site. Herzfeld investigated the fortification “with short-curtain walls between, and with five stories of recessed loop-holes”.¹⁷ He excavated one of the rounded towers of the fortification, and two other spots.¹⁸ The investigations brought to light the building identified by Flandin and Coste as the palace,¹⁹ that Herzfeld

⁵ Callieri (2007, 14) convincingly suggests, supported by the study of the written sources, that «Estakhr could have been founded during the power of the local kings of Fars corresponding largely to the Arsacid period». Cfr. also Streck - Miles 1978, 219.

⁶ Cfr. Streck - Miles 1978, 219.

⁷ Boyce 1998.

⁸ Streck - Miles 1978, 220.

⁹ Bivar 1998, 643.

¹⁰ von Zambaur 1968, 49.

¹¹ Translation by Le Strange (1912, 28).

¹² According to them, «à l'intérieur de cette enceinte, traversée par le *Sivend-Roud* [cfr. Streck - Miles 1978, 219, and Malek Zadeh 2008] et par un petit bras détourné de cette rivière, des monticules rapprochés les unes des autres, et des décombres qui apparaissent de tous côtés, attestent bien l'existence et la dévastation reculées d'une ville» (Flandin - Coste 1851, 69-70).

¹³ Flandin - Coste 1851, pl. 58, lower.

¹⁴ Herzfeld 1935, 48.

¹⁵ Herzfeld 1935, 45-50; 1941, 276-281, figs. 375-377, pls. XC-XCIII.

¹⁶ Schmidt 1939, 105-121, fig. 74; 1940, 12-16.

¹⁷ Herzfeld 1941, 276.

¹⁸ Cfr. Schmidt 1939, 107.

¹⁹ See above, and fns. 13-14.

identified as the mosque, with a square hypostyle plan.²⁰ Schmidt investigated areas both east of the mosque and in the western half of the site, where he found a Sasanian settlement and an Abbasid building.²¹ He dedicated some pages to illustrating some Islamic pottery and other finds uncovered during the excavations.²² Unfortunately, none of the two archaeologists published a complete report of the excavations. In the same years, Schmidt also carried out a first and important series of aerial photographs of the site.²³

Studies on the documentation of the Chicago Oriental Institute have been undertaken in the 1970s by Donald Whitcomb, who also investigated the site.²⁴ Re-examining one of Schmidt's aerial photographs taken in 1936,²⁵ he was able to recognize, east of the Sasanian city, the limits of the Islamic city, with an approximately square plan (side of about 400 m) sharing the same orientation of the mosque; a walled enclosure with half-circular towers run along the south side. The town was subdivided into four quadrants by orthogonal streets; of these quarters, three were identified as residential areas, while the southwest quadrant as containing "the mosque, bazaar, and palace".²⁶

Whitcomb suggested that the mosque is entirely an Islamic building "since the columns were placed upon foundation plinths made of stone and *soruj*, a construction practice which is uncommon for the Achaemenians".²⁷ He hypothesizes that it is the mosque built by Ziyad Ibn Abihi during his governorship in 659-662 (before Basra and Kufa),²⁸ the oldest among the standing Iranian mosques.²⁹ The excavations did not allow the identification of the semi-circular towers, that Flandin and Coste illustrated "on the western wall of the mosque in their plan".³⁰ The *mihrab* «was a stepped niche decorated with painted meanders, lozenges and floral motifs, and with floral stucco elements very similar to those of the Abbasid mosque at Nayin». ³¹

²⁰ Herzfeld (1941, 276; cfr. also 1935, 49) reports that «A few fluted columns without bases and some up-right *antae* mark the site of the first mosque, which was erected on the spot of an older fire-temple that was incorporated into it».

²¹ Schmidt 1939, 107-111, figs. 74-77; 1940, pls. 8-9, showing the locations of all the trenches.

²² Schmidt 1939, 111-121, figs. 78-87.

²³ Schmidt 1939, 133-136, fig. 96; 1940, 12-14, pls. 8-10.

²⁴ Whitcomb 1979a; 1979b.

²⁵ AE 20471, Schmidt 1940, pl. 10; cfr. Whitcomb 1979a, 155.

²⁶ Whitcomb 1979a, 155. As regards the "palace", Whitcomb suggests that it could be the 7th century *dar al-imara*, and that it would be interesting to investigate (cfr. also Whitcomb 1979b, 366 and ill. at p. 367).

²⁷ Whitcomb 1979b, 364; cfr. 1979a, 157, and, lastly, Whitcomb 2008.

²⁸ Ibn al-Athir (d. 1233) maintains that in the year 31/651-2 Sharik ibn al-A'war raises the *masjed jom'ie* (Ibn al-Āthir 1851-1876, III, 164); Balādhurī (d. 892 ca) states that Ziyad ibn Abihi, governor of the town, enlarges the mosque between 659 and 662: «For the remembrance of Allah, Ziyad raised a monument of stone, and no longer of simple bricks» (Balādhurī 1866, 347, also quoted in Whitcomb 1979b, 365).

²⁹ Whitcomb 1979b, 364; cfr. 1979a, 159. But see the very interesting case of the *masjed-e rasul* of Bam (Fontana 2011, 86-87).

³⁰ Whitcomb 1979b, 366; cfr. also above, and fn. 13.

³¹ Whitcomb 1979b, 366; cfr. also Whitcomb 1979a, 159, quoting Herzfeld's object register [1932], nrs. 47-89. Furthermore, Whitcomb provides a detailed description of the German excavations of Estakhr relating to the "bazaar", especially an open space north of the mosque, with "shops" and "merchants' residences" (Whitcomb 1979a, 162-165, figs. 31-32. As for the mosque and the bazaar see also Whitcomb 2003-2004, 92).

Albeit here only outlined, the history of the researches carried out at Estakhr is enough to demonstrate why the perspective of reopening the archaeological investigations on the site can arouse much interest. Estakhr is one of the few and still poorly explored places in the Iranian territories where the remains from the Sasanian to the Islamic period are preserved.

Thanks to the willingness of the Iranian Cultural Heritage, Handicraft and Tourism Organization (ICHHTO), in November 2011 the Sapienza University of Rome established an Agreement for an Iranian-Italian Cooperation for Estakhr.³²

After a preliminary survey at the site carried on by Martina Rugiadi and Luca Colliva in November 2011, the first season of archaeological activities of the joint Iranian-Italian Archaeological Mission in Estakhr has been carried out by members of the Iranian Centre for Archaeological Research (ICAR), of the Parsa-Pasargadae Research Foundation (PPRF) and of the Sapienza University of Rome (Sapienza) under the joint direction of Dr Seyyed Mahmoud Mireskandari (Director of the Iranian Centre for Archaeological Research) and Prof. Maria Vittoria Fontana (Islamic Archaeology, Sapienza) from April 25th to May 17th 2012.

The research team was composed by: Dr Ali Asadi, field director, archaeologist (PPRF), Dr Martina Rugiadi, field director, archaeologist (Sapienza), Dr Alessandro Blanco, topographer and archaeologist (Sapienza), Dr Luca Colliva, archaeologist (Sapienza), Prof. Alessandro Maria Jaia, topographer and archaeologist (Sapienza). Two university students joined the research team: Mehrdad Daneshmandi, Mohammad Hossein Taheri.

Maria Vittoria Fontana - Seyyed Mahmoud Mireskandari

2. ON FIELD ACTIVITIES, SPRING 2012

Our aims for the first season were the execution of surveys functional for the planning of the archaeological excavation, that is scheduled starting from the second season of the project (Autumn 2012). The activities included topographic (fig. 1) and archaeological surveys (figs. 2-4). The responsibility for the topographic work was handed over to Alessandro M. Jaia and to Alessandro Blanco, who provided the report on this aspect, that for the archaeological survey to Ali Asadi, Martina Rugiadi and Luca Colliva, who provided the relative report.

³² On behalf of the Iranian Cultural Heritage, Handicraft and Tourism Organization (ICHHTO), the agreement was signed by the Director of the Iranian Centre for Archaeological Research (ICAR), Dr Mohammad Reza Bazrgar, and the Director of the Parsa-Pasargadae Research Foundation (PPRF), Dr Mohammad Hasan Talebian. On behalf of the Sapienza University of Rome (Sapienza), the agreement was signed by the Rector of the Sapienza, Prof. Luigi Frati, and the then Director of the Department of *Scienze dell'Antichità* (DSA), Prof. Gianluca Gregori. For the achievement of this agreement, much was done by the Italian Embassy to Tehran, especially by the Cultural Counselor, Prof. Carlo Giovanni Cereti (Professor of Ancient Iranian History and Philology at the Sapienza University, also a member of the Iranian-Italian team at Estakhr), whom we would like to express our gratitude.

2.1. *Topographic survey of the site*

The topographic work carried out in Estakhr was aimed at different objectives, some of which logistic, necessary for the organization of future campaigns, other necessary for the documentation of the visible evidences.

The organization of the topographic work on a territorial scale has been greatly facilitated by the presence of concrete topographic bases, placed in altimetrically elevated spots and listed in the general plan of the site with the relevant coordinates. Unfortunately, the existing planimetry is inadequate for representing the geographical and archaeological details of the area, having been built for other purposes.³³ In order to create a new map of the urban area of Estakhr, two contiguous aerial strips of excellent quality (taken in 2002), have been acquired in digital form.³⁴

At the same time, the survey on the ground of all the measurements necessary to produce a new photogrammetric map, aimed at the photo interpretation and at the archaeological investigation, has been realized (scale 1:500, equidistant 50 cm).³⁵ The aerial photographs represent also the ultimate comparison with the extraordinary aerial footage of Erich F. Schmidt, which was already employed by Whitcomb and which we hope to consult and acquire soon, in order to realize a new and thorough analysis of the archaeological traces.

The irregular surface of the plateau of Estakhr, clearly affected by unearthed archaeological presences as well as by the trenches excavated in the 1930s (still far from precisely restoring the town's urban planning in the different stages of occupation), makes the draft of a new map of the site a major priority. The map shall represent the elevation of the site to a more detailed scale, in order to foster a better and easier reading of the archaeological evidences. The new altimetric map will be a starting point for the realization of an updated archaeological map of the site.

In the meantime, we tested the efficacy of recently developed software that make possible the elaboration of the terrain modeling. This will be achieved starting from a series of photographs with wide margins of overlap, preferably including benchmarks with known coordinates. They will allow the calculation and the almost automatic processing of the morphology of the soil, represented with tolerable margins of error if observed to a great scale denominator.

The first steps in processing the archaeological map of the site, in which all visible evidences will be represented, has been the main purpose of this first campaign (§ 2.2.). The documentation of the visible traces is a means both of knowledge, for the elaboration of hypothesis based on actual data, and of organization, supporting decisions as where to plan future excavations in order to verify which hypotheses.

³³ Mapping of the Persepolis area is currently available in numeric form, scale 1:2,000. This mapping is not without errors and is not geo-referenced to the geographic system of the Iranian official map 1:25,000.

³⁴ It comes to 12 frames (6 stereoscopic pairs) produced with camera lenses Wild 303,41 mm, for approximately scale of 1:3,000.

³⁵ To achieve this, several points of the plateau and of the surrounding valley (such as wells, corners of buildings, electric poles), whose position is particularly evident in aerial photographs, have been hooked to the network of existing benchmarks, by means of the total station.

The precise location of the evidences found during this first campaign was acquired preferably using handheld GPS or the total station; in other cases, a temporary placement was simply shown on the aerial photographs.

The work on a territorial scale was followed by a work of documentation to detail scale. At present many of the trenches excavated on the plateau in the 1930s don't have an appropriate published graphic documentation, and many elements need a new updated interpretation with recent methodologies.

In order to plan future excavation, a detailed model of the terrain (DTM) was developed for a sample area of 165×40 m between the mosque and the modern fort, where Whitcomb suggested the presence of a large building (see above and fn. 26). The latter is partially overlaid by the fort (fig. 4), the *takht-e tavus* (dating back most probably to the 19th century but with internal buildings still visible in aerial photos of the early 20th century),³⁶ which has altered the morphology of the area and of its immediate surroundings.

The detailed digital terrain model was achieved acquiring with the total station a grid of points (spaced either 1 or 2 meters one from the other), for a total of 1870 points, from which a planimetric map with equidistant level curves (spaced 10 cm) has been traced (fig. 1). The model allows both to check the correspondence between trace and actual data, and helps placing the first exploratory trench.

The terrain verification shows that the level curves are not linear nor parallel, as the presence of a buried wall would suggest, and delineate curvilinear shapes. At different points, in addition, the level of the terrain is lower than that of the walls ridges of the nearby mosque, and there are no emerging structures on the surface. On the other hand, there is a slight ground elevation of circular shape in the north-east part, very close to the area where Whitcomb suggests the presence of a corner tower.³⁷

Alessandro Maria Jaia - Alessandro Blanco

2.2. *Archaeological survey of the site*

The archaeological survey of the ground included both the area within the city walls and those immediately outside to the east and north-east, and resulted in the elaboration of an archaeological map of the site with the main evidences visible on the terrain (for a total of 217; different evidences have been named together if located in the same spot). Among the recorded evidences are:

- 75 emerging evidences, possibly pinpointing to the presence of not clearly recognizable structures; they might include: worked, squared, and/or un-worked stones, large pebbles, unbaked bricks, baked bricks; sometimes with mortar;
- 58 alignments, most probably related to structures with an identifiable orientation; they might include: squared, and/or un-worked stones, large pebbles, unbaked bricks, baked bricks; sometimes with mortar. Of them, 1 is a standing wall, 7 are identifiable as walls, 2 seems to pertain to a tower;
- 33 pits; some are robbers' holes, others of uncertain origin;

³⁶ Schmidt 1940, pl. 10. See also above and fn. 4.

³⁷ Compare Whitcomb 1979b, fig. at p. 367; fig. 1.

- 25 significant materials; they might include: single worked stones, column shafts, bricks, pottery,³⁸ slags etc. (figs. 2-3);
- 15 small stones deposits and/or tombs: their structure and position suggest in some cases a funerary destination;
- 12 wells; they might be built employing baked bricks (2), or stones (3), or both (2), or with a ceramic pipe (2); others appear undefined and need additional investigation;
- 1 fireplace.

Each evidence has been photographed and positioned either with the GPS or with the total station (those clearly detectable on the aerial photographs, have been positioned directly on them). All the evidences were subsequently positioned on the 3,000 altitude colour aerial photographs (figs. 2a-2b).

Both on the aerial photographs and on the terrain the areas excavated in the 1930s are clearly visible. Several emerging structures and evidences that are visible in these trenches were not taken into account during this first survey of the site, as they would need the relevant documentation - excavation diaries and maps - to be evaluated. Only exception have been the wells, for their relevance for the water supply systems of the town; they have been shown in plan also when present within these trenches.

The survey has made possible a first understanding of the urban area of Estakhr, of its extension, defensive structures and gates, and of its diachronic development.

2.2.1. Diachronic development

Remarks on the pottery evidence. The working team soon realized that the entire area of Estakhr is scattered by a large number of pottery sherds (a circumstance already observed by previous visitors).³⁹ No systematic surface sherding was carried out in this first season,⁴⁰ but the general trend and the significant variation were recorded, which lead to some unexpected first considerations on the continuity of its occupation.

In most areas of the site, the large majority of recognizable fragments can be ascribed to 9th-10th centuries productions (“Samarra horizon” and related Iranian productions, *graffita*, splashed), as well as to other that have continued to be produced possibly in later periods, such as unglazed decorated moulded wares, and few fragments of unglazed painted wares.

Beside these, pottery fragments which might be attributed to later periods (from the 11th to the 20th century) were recorded in some restricted areas only. They included siliceous-wares (with transparent turquoise glaze and incised decoration; with transparent blue glaze; with painted decoration in black under transparent colourless or turquoise glaze), and a fragment of a sphero-conical vessel.

³⁸ Pottery has been reported on the map only if chronologically relevant, i.e. later than the early 11th century (§ 2.2.).

³⁹ On the surface pottery from Estakhr, despite the slightly outdated chronology, see Sumner - Whitcomb 1999, 317-318.

⁴⁰ The present state of knowledge of Sasanian and early Islamic pottery in Fars would not add much information on significant evidence of chronological variation for these periods. Moreover, the agricultural exploitation of the large depression east of the city walls (at the time of the survey covered by a field), and the spontaneous spring vegetation growing on the whole archaeological area, prevented in many spots a clear vision of the surface.

Remarks on other structural evidences and on tombs. In some areas of the town the continuity of its occupation in relatively recent periods is supported also by our preliminary understanding of some of the documented evidences, such as alignments and tombs (indicated by small stones deposits). The presence of the modern fort west of mosque, the *takht-e tavus* (fig. 3), points to a recent military occupation.

At least as regards the wells made in baked bricks, a first observation of the type and the thickness of the bricks, on average between 5-6 cm, could indicate an Islamic chronological horizon.⁴¹

2.2.2. Productive activities

Two areas showed evidences of productive activities, connected to various pottery, both glazed and unglazed, and possibly to glass productions (pottery slags, a pottery mould, an earthenware tripod with drop of glaze, over-fired pottery fragments, possibly glass or glaze slags): the area on the east outside the city walls, and an area to the east within the city walls (figs. 2a-2b).

Metal slags are visible in the central-south area of the site. Their finding seems to indicate the presence of some kind of metal working; however, the collected data are not sufficient, at this stage, to identify sites, the type, scale nor the chronological development of this workmanship.

Martina Rugiadi - Luca Colliva - Ali Asadi

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⁴¹ Meneghini 2009, 86, 160, fns. 243, 250, 447-448.

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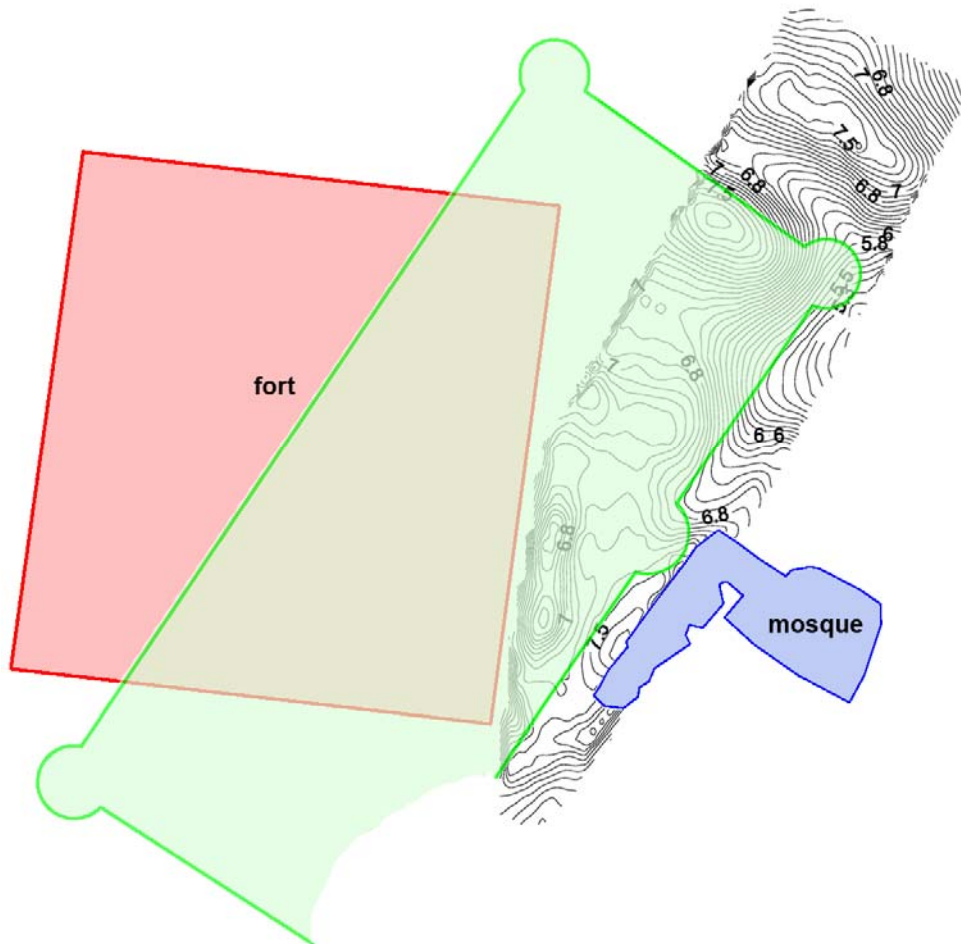


Fig. 1: Preliminary digital terrain model of the area west of the mosque. The palest ground outlines the uncovered rectangular building suggested by Whitcomb (elaboration A. Blanco).



Fig. 2a: Estakhr: map of the evidences (eastern part; elaboration A. Blanco, L. Colliva).



Fig. 2b: Estakhr: map of the evidences (western part; elaboration A. Blanco, L. Colliva).



Fig. 3: Estakhr: access to the modern fort, the *takht-e tavus*, showing a re-employed squared stone (EST EV 46; photo M. Rugiadi).



Fig. 4: Estakhr: worked stone found in the northern area of the site (EST EV 22; photo M. Rugiadi).