

PETRA NORTH RIDGE PROJECT: THE 2014 SEASON

S. Thomas Parker and Megan A. Perry

Introduction

This preliminary report summarizes results from the second season of renewed work on the Petra North Ridge conducted between 29 June and 2 August 2014, under a permit from the Department of Antiquities.

Personnel

Senior staff included S. Thomas Parker (co-director and ceramicist) and Megan A. Perry (co-director and bioarchaeologist), Carrie Duncan, Jessica Walker and Russell Gentry (area supervisors), Geoffrey Hedges (assistant archaeobotanist), Anna Hendrick (architect), Jonathan Daniel Lowrey (faunal analyst), Susanne Grieve Rawson (conservator), Heidi Rosenwinkel (small finds registrar), Anna Osterholtz (assistant osteologist), Pamela Koulianos and Sarah Wenner (assistant ceramicists), John Rucker (geologist and camp manager) and Firyal Issa (departmental representative). Trench supervisors were Cassandra Brigham, Margaret Eno, Eva Falls, Alex Garcia-Putnam, Ashley Jones, Jordan Karlis, Kelsey Roepe, Carlos Santiago, Nicole Smith, Sophie Tews and Alex Zarley, and their assistants included Laurel Appleton, Courtney Canipe and Kathryn Parker. Students included Heather Beals, Heather Bostic, Helicia Chiang, William (Tyler) Ellis, Amie Goerlich, Emily Greene, Edward Kritikos, Jana Lanier, Kako Lavendier, Katie Keck, Christopher Mansfield, Amy Morse, Lindsey Nolan, Jonathan Parker, Marie Rogers, Anthony Scialabba, Diana Simpson, Mary Skaggs and Mansi Trivedi. Dakhilallah Qublan served as foreman of about twenty local workers.

Project Goals

Despite the extent of prior archaeological research within Petra, surprisingly little is known about the city's ancient inhabitants, especially the non-elite population. The Petra North Ridge Project seeks to address this gap by excavating Nabataean (primarily 1st century AD) tombs and Nabataean, Late Roman and Byzantine (1st - 6th centuries) domestic structures along the North Ridge. The project is examining Petra's population through several avenues of research:

1. The health and quality of life of the Nabataeans during the city's 1st century AD florescence is being explored through analysis of human skeletal material within the tombs.

2. The 1st century AD tombs also contain significant evidence regarding Nabataean mortuary practices, filling in the picture presented by analysis of the monumental tombs within the city.

3. Many structures, some apparently domestic in nature and dating as early as the 1st century AD, are scattered among and in some cases overlie these Nabataean tombs. Excavation of Nabataean, Late Roman and Byzantine domestic structures will broaden our understanding of these periods of Petra, especially the more poorly known later periods.

4. The project is excavating several segments of the city wall to understand its construction and chronology. Petra's city wall appears on site plans from the beginning of the 20th century. However, despite its obvious importance in understanding the history and organic growth of the city, the city wall (variously dated from the Nabataean to Byzantine periods) was undated.

The North Ridge thus contains a skeletal,

architectural and material cultural sample that can address research questions related to Petra's history from the Nabataean to Byzantine periods. The evidence will be interpreted in light of the Petra papyri, offering a rare opportunity to correlate material cultural evidence with documentary evidence from the same sector of the same site. Therefore, this project will combine disparate kinds of evidence (ancient texts, material culture and skeletal evidence) to allow insight into the economic, cultural and social life of Petra's people as well as their connections with other populations.

A key component of this project is to minimize excavation-related landscape impact owing to Petra's role as Jordan's largest tourist attraction and status as a UNESCO World Heritage Site. This includes: (1) completely filling tomb shafts upon completion of excavation to protect their interior and prevent accidents; (2) backfilling excavation trenches to preserve exposed architecture until full-scale conservation and presentation of the site at the end of the project, and (3) setting up a cooperative effort with the Temple of the Winged Lions Cultural Resource Management (TWLCRM) project to utilize our sifted sand for backfilling and filling sand bags.

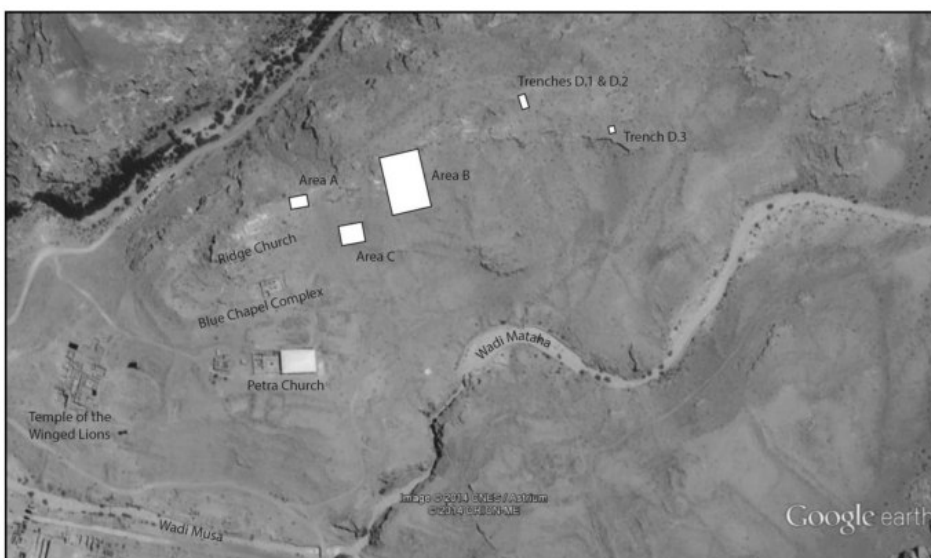
Previous Research

Petra's North Ridge lies just north of the main east - west street extending through the center of

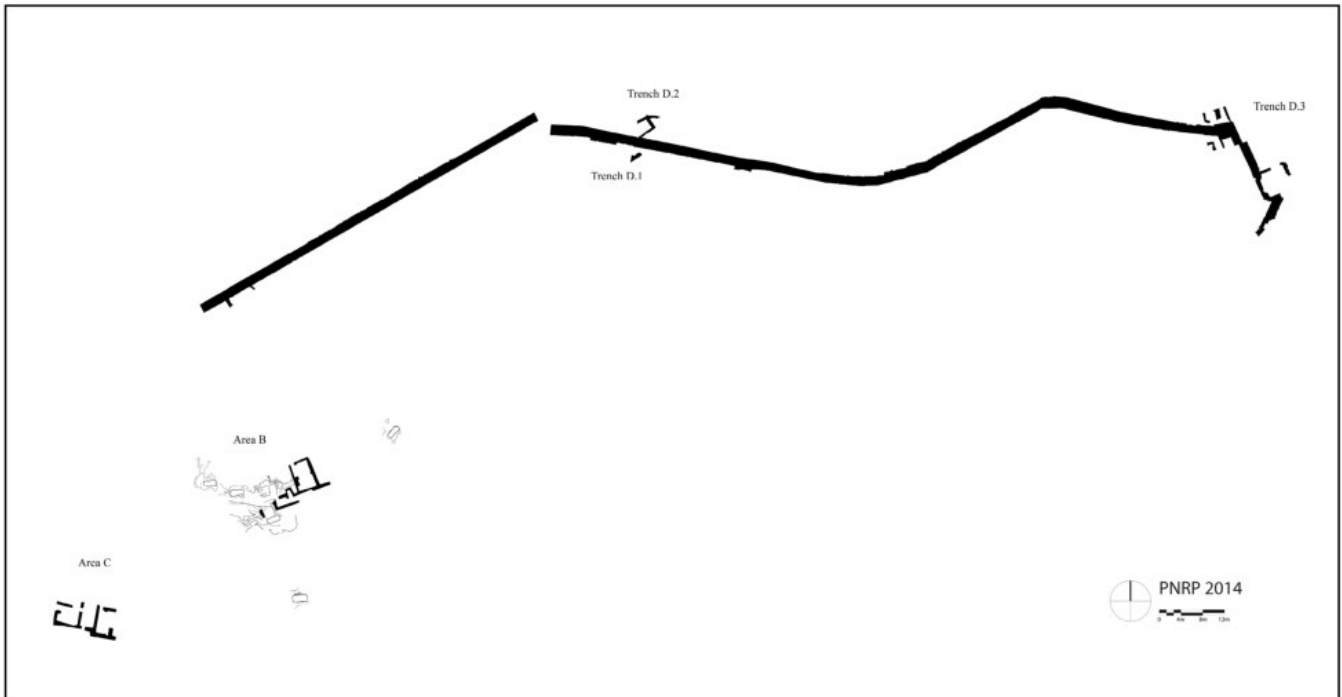
the city (**Figs. 1 and 2**). Previous archaeological projects on the North Ridge focused nearly entirely on monumental structures, such as the Temple of the Winged Lions and several churches (for a brief summary of prior work, see Parker and Perry 2013). However, the ridge is covered by dozens of rock-cut shaft tombs and wall lines suggesting the presence of many other structures, including a portion of Petra's city wall (**Fig. 1**). These tombs and other surface features, such as ancient walls, were documented through a GIS project, which recorded 51 recently robbed tombs and other structures within a *ca* 6 km² area, confirming that the North Ridge contains a large cemetery apparently dating to the Nabataean period (Perry 2006). Renewed excavation commenced in 2012 (Parker and Perry 2013, 2014).

In 2012, three 1st century AD tombs (B.4; B.5; B.6) were excavated, revealing artifactual and human skeletal evidence of mortuary practices during Petra's urban florescence. The skeletal remains document the lives of about 36 non-elite residents of Petra, which are being explored through paleopathology and isotopic study. The North Ridge thus contains a large skeletal and mortuary material cultural sample to address research questions related to the Nabataeans.

In addition, in 2012 the project also explored two domestic complexes on the North Ridge which yielded valuable data on domestic life



1. Google Earth image showing location of excavations in 2012 and 2014.



2. Plan of 2012 and 2014 trenches with city wall.

in Petra's more enigmatic Late Roman and Byzantine periods, of which we have little archaeological evidence apart from the three churches excavated on the ridge. In Area A, four trenches (A.1; A.2; A.3; A.4) were opened along the southern face of the northern city wall to explore the function of these structures and their stratigraphic relationship to the city wall. It is clear from ceramic evidence that the structures were initially occupied in the 1st century AD and ended with construction of the city wall, which cut through and / or was built over the earlier domestic structures. Evidence from the city wall's foundations suggests construction in the early 2nd century AD, contrasting with some previous descriptions of the wall as 'Byzantine'.

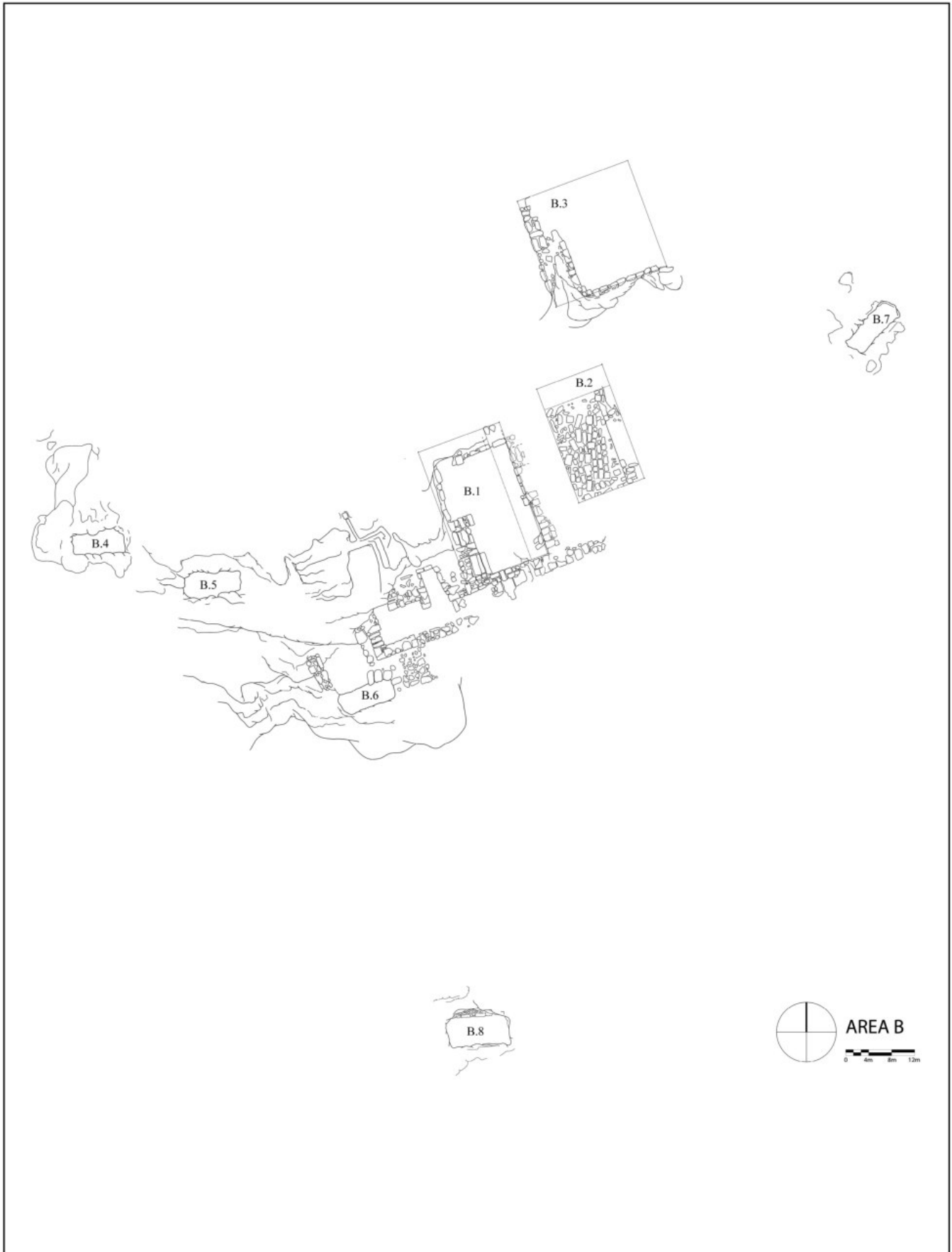
Excavation of domestic structures in three trenches in Area B (B.1; B.2; B.3) revealed a slightly later sequence of occupation than Area A, beginning in the 2nd century AD (perhaps contemporary with or shortly after construction of the city wall) and ending in the 4th century with collapse of the walls, likely as a result of the 363 earthquake. Domestic occupation in Area B thus apparently began only after the disuse of the area as a cemetery.

Results From the 2014 Season

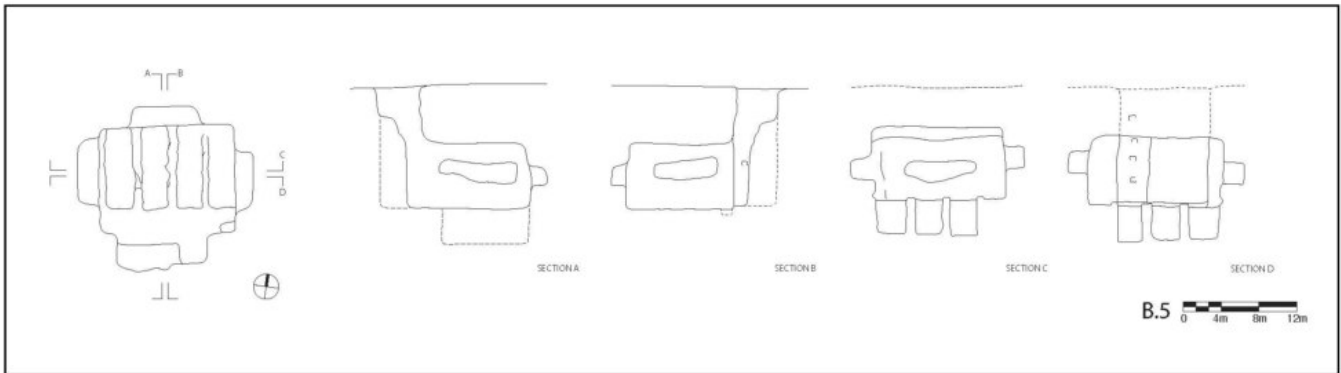
Area B

In 2014, excavation in the domestic complex continued only in Trench B.1 while we continued excavation of two tombs not completed in 2012: B.5 and B.6. Two additional shaft chamber tombs, B.7 and B.8, were also selected for excavation. Both of the latter tombs showed the usual signs of recent disturbance, although it was not extensive. The tombs were carved into a bedrock outcrop on the uppermost reaches of the North Ridge (**Fig. 3**). We sieved a sample (10 % to 20 %) of the naturally deposited tomb fill largely devoid of artifacts, but sieved 100 % of tomb fill associated with the lower levels of the chambers and floor shafts.

Tomb B.5 consists of a shaft measuring 2.4 m x 0.7 m which drops 3.1 m below the surface bedrock and opens into a chamber (3.54 m x 2.80 m; **Fig. 4**). The chamber contains three wall niches, two of which contained human burials, and four rectangular shafts cut into the floor, one of which was unfinished (**Fig. 5**). In 2014 we excavated the two remaining westernmost floor shafts and completed clearance of this tomb. Unfortunately, despite our efforts to secure the



3. Plan of Area B showing the domestic complex (B.1 - 3) and excavated tombs (B.4 - 8).



4. Plan and elevations of Tomb B.5.



5. Floor shaft graves in tomb B.5.

tomb, the floor shaft second from the west (Locus 10) had been looted during the offseason. Upon clearing and sieving the looted fill we recovered human skeletal material of at least 10 individuals and artifacts. The final floor shaft grave was almost completely full of disarticulated or semi-articulated human bone, with few artifacts. There were at least 38 individuals in this shaft, suggesting that it was an ossuary for burials removed from other receptacles post-decomposition.

We also continued excavation of Tomb B.6, which consists of a 2.70 m deep shaft measuring 3.10 m x 0.80 m, a larger 2.27 m x 3.10 m chamber to the north of the shaft, and a smaller 0.85 m x 2.75 m floor shaft south of the tomb shaft. Two or perhaps three libation receptacles were carved into the bedrock east of the tomb opening. The tomb had been excavated in 2012 down to the tops of four rectangular floor shaft graves. Another possible *loculus*, blocked by unstable bedrock that extends to the east of the chamber near the shaft, was left unexcavated owing to the

instability of the bedrock. A smaller chamber to the south contains a deep floor shaft grave. During the offseason, minor looting occurred at the western edge of the floor shaft. A minimum number of 24 individuals were interred in this tomb between the 1st century BC and 1st century AD. The southern shaft contained successive layers of disarticulated articulated remains until *ca* 0.5 m below the top of the shaft. At that point we discovered three mostly articulated skeletons, one above the other (**Fig. 6**). No other skeletal material was found under the articulated skeletons and the only associated artifact was a partially intact *unguentarium* in the soil layer below the articulated burials.

The center of Tomb B.6 contained two narrow rectangular shaft graves (**Fig. 7**). Both floor shafts had commingled skeletal material and artifacts, likely as a result of looting in antiquity, but the one adjacent to the entrance shaft had an articulated skeleton within the remains of a wooden coffin decorated with copper alloy 'studs' (**Fig. 8**). A complete 1st century BC *unguentarium* was found near the head of this individual. Capstones likely associated with these two shaft graves were found scattered within the chamber. The northern and eastern sides of the chamber had large, shallow basins that also contained commingled skeletal material. It appears that disturbance within this tomb was due to looting in antiquity, although active use of the tombs extends from the 1st century BC to the 1st century AD.

Tomb B.7 lies east of B.5, almost directly south of the Area B domestic structures excavated



6. One of the articulated skeletons in the southern shaft of Tomb B.6.



8. Articulated skeleton with coffin remains, copper coffin decorations and unguentarium in Tomb B.6.



9. Tomb B.7 at the end of excavation.



7. The eastern (locus 15) and northern (locus 16) side chambers in Tomb B.6 along with two central floor shaft graves (loci 18 and 19).

in 2012. This tomb contained two capstones remaining *in situ*. The narrow shaft (0.75 m x 2.10 m) opens into a rather small chamber measuring 2.75 m north - south x 4.10 m east - west. The tomb was completely filled with primarily naturally deposited sediments, the lowest of

which (postdating use of the tomb) dates to the late 1st to early 2nd centuries AD based on ceramic evidence. The chamber itself contains five narrow rectangular floor shaft graves, all of which contained the skeletal remains of approximately 15 individuals (**Fig. 9**). In addition, the eastern side of the tomb was joined with a neighboring (as yet unexcavated) chamber tomb via a window and a door cut into the bedrock. It is not clear if this was due to an accidental misjudgment of the space between the two tombs or was a purposeful connection. We will excavate the adjoining tomb in the 2016 season.

The burial deposits in all floor shafts in Tomb B.7 were disturbed in antiquity, resulting in significant comingling of the human remains. In addition, two of the shaft graves contained undisturbed single, primary burials at the bottom. In both cases, the skulls were not found articulated with the rest of the skeleton, which

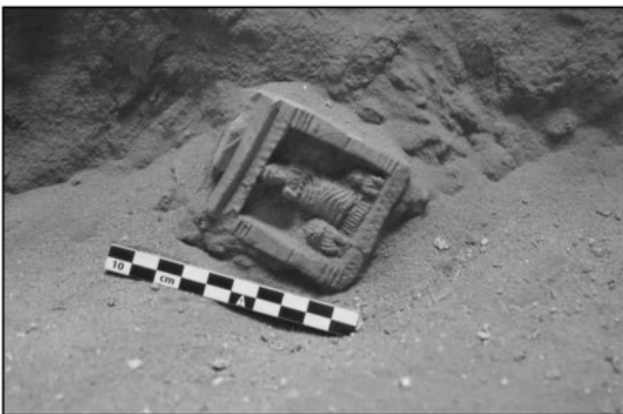
may attest to the level of disturbance in these tombs. The bodies were interred in a supine position with arms alongside their bodies. The burial at the bottom of shaft grave locus 29 was interred along with two artifacts, a stylized small stone bas relief depicting Cybele (?) flanked by two lions (**Fig. 10**), and a bone spindle whorl. In addition, a miniature limestone altar was associated this burial along with 21 worked sheep / goat astragali. Other interesting finds within the Tomb B.7 floor shaft graves include the remains of at least three dogs, wood and nails from coffins, and numerous ceramics from the 2nd - 1st centuries BC to the late 1st - early 2nd centuries AD, indicating the period of use of the tomb.

Tomb B.8 lies mid-slope along the southern face of the North Ridge, just below Tomb B.6 and east of the domestic complexes in Area C. This initially seemed like a typical Nabataean rock-cut chamber tomb (3.40 m north - south x 5.0 m east - west) entered through a shaft measuring 1.5 m x 3 m. While the shaft was a bit wider than B.4, B.5, B.6 or B.7, no other differences were noted until the discovery of a large stone masonry wall separating the chamber from the shaft (**Fig. 11**). The chamber apparently was constructed initially for use as a tomb, indicated by three possibly unfinished floor shafts (loci 14 and 15) within the chamber. Locus 14 was only 0.46 m deep with a finished floor and contained notches along the top for the

placement of capstones. Locus 15 on the other hand was obviously unfinished at 0.03 m deep. The third floor shaft in the western side of the tomb was left unexcavated as the tomb ceiling appeared unstable, which ended the excavation for reasons of safety.

It is not clear whether or not Tomb B.8 was actually used as a tomb, for no diagnostic pre-2nd century artifacts or human skeletal remains were recovered from the earliest deposits. At some point, likely in the Late Roman or Early Byzantine period, the masonry wall was constructed, sealing off part of the entrance, and the interior of the tomb was modified, possibly for domestic purposes. A large stone was placed within the chamber (visible in upper right of **Fig. 11**) and a column drum and base were set up near the entrance, possibly serving as a chair and table (**Fig. 12**). Little occupational debris was found within the chamber itself, which eventually was filled with naturally deposited soil. The shaft, on the other hand, contained a significant corpus of 3rd to 5th century AD artifacts, our only evidence of post-363 occupation so far recovered in this phase of the North Ridge excavations. While the tomb shaft likely served as a refuse dump during this period, it does indicate that the North Ridge witnessed some occupation during the Early Byzantine period.

The B.1 - 3 structures exposed in 2012 formed portions of a domestic complex dating from



10. Bas-relief votive of Cybele (?) from Tomb B.7.



11. Inside of Tomb B.8 showing enclosure wall (on left) and unfinished floor shaft grave (above lower meter stick). Note unexcavated deposits at the far end.



12. Reuse of small column drum and base in Tomb B.8.



13. The blocked doorway in the east wall of trench B.1 that once connected the room in B.1 with the room in B.2; view to east.

the Late Roman period (2nd / 3rd centuries) and apparently destroyed in the earthquake of 363. There appeared to be no later occupation in this area. In 2014 excavation continued only in Trench B.1 in order to remove its eastern balk and to look for a doorway through the common wall between the room in B.1 and that in B.2 to the east. Excavation revealed a clear blockage of a previously existing doorway connecting the two rooms near the northern end of the common wall (**Fig. 13**). This wall also incorporates a projecting pier opposite another pier on the west wall discovered in 2012. These piers supported an east - west arch that once spanned the room. A drain at the base of the eastern wall of B.1 permitted water to flow from the B.2 room, through the wall, down into a channel in the bedrock and out the front door of the B.1 room.

Area C

The success in Area B in 2012 in investigating non-elite residential structures led to the decision to explore more of the neighborhood in 2014. The ultimate goal for excavation in Area C is to expose the entire horizontal layout of a single, non-elite domestic structure, and, in so doing, contribute to the limited knowledge of Petra's non-elite population as well as domestic architecture in Nabataea generally and Petra specifically. To this end, an area with visible wall lines south-west of Area B was selected for excavation. Three trenches (C.1 - 3) were laid out side-by-side with the goal of exposing an

entire domestic unit (**Fig. 2**). The westernmost trench, C.1, extended 4.25 m east of a visible west wall line and 5 m north of the shared southern wall. A 1.25 m balk was left on the east side of this trench to preserve a stratigraphic record of excavation. Immediately east was trench C.2, again stretching 5 m north of the shared southern wall and 3.5 m east of the edge of trench C.1. The east - west extent of C.2 was chosen so as to catch the visible north - south walls on either side at the edges of the trench to expose a full vertical profile of each. A 1 m balk was left on the west side of the trench to preserve a stratigraphic record of excavation, with the intention of removing it after recording. Just east of C.2 was trench C.3, again extending 5 m north of the shared southern wall line and 3.5 m east of trench C.2, with a similar aim of catching an apparent north - south wall line emerging at the south-east corner. A 1 m balk was left between C.2 and C.3 to preserve a record of the latter's stratigraphy. Trenches C.2 and C.3 were extended an additional 1.5 m to the south once it was realized that the southern wall in these trenches was offset from that initially seen at ground level and upon which the trench layouts were based, allowing for the inclusion of this more southern wall line within the parameters of these trenches. Two weeks into the season, an additional trench (C.4) was laid out north of C.3, extending 2.5 m north of C.3's north balk and 4 m west of the eastern edge shared by trenches C.3 and C.4. The aim of Trench C.4 was to catch

the northern extensions of the north - south wall lines that seemed to emerge from C.3 and C.2. However, C.4 was closed fairly soon because of needs elsewhere on site.

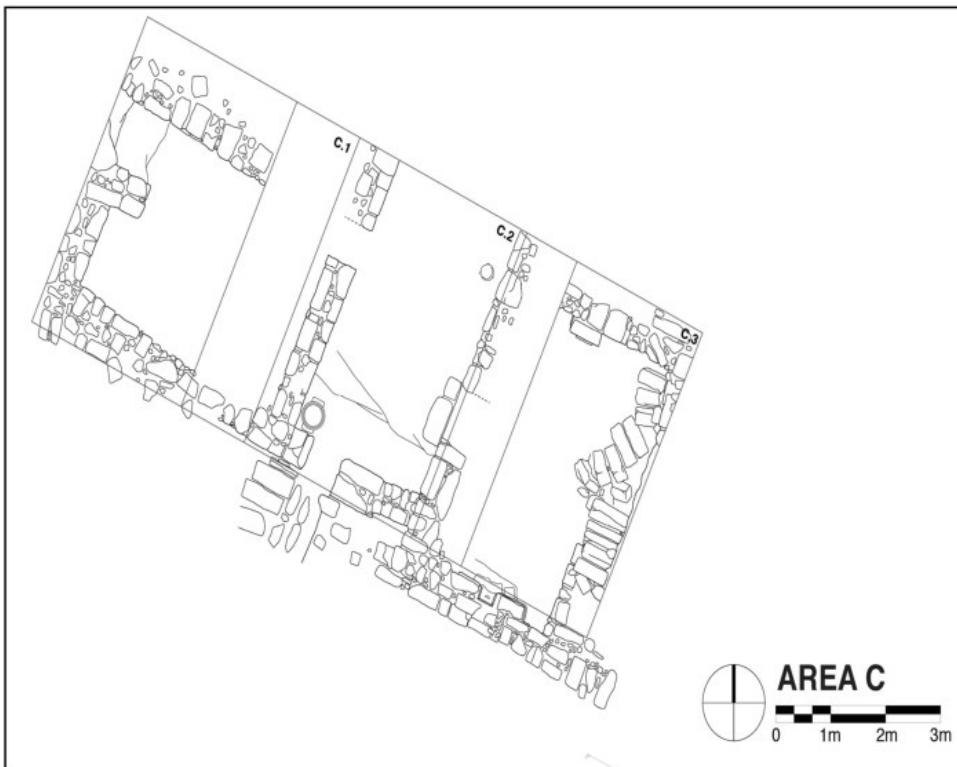
Excavation of the Area C structure revealed Early Roman / Nabataean remains in two of the three completely excavated trenches, suggesting that at least some, if not all, of the Area C domestic complex was initially constructed in the Early Roman / Nabataean period and was subsequently remodeled during a Late Roman reoccupation of the structure. The complex went out of use after suffering significant damage, presumably in the 363 earthquake. Subsequent collapse and abandonment debris filled the rooms of the complex to modern ground level.

Trenches C.1 - 3 were laid out on the hypothesis of a shared southern wall from which a series of north - south walls stretched to the north, resulting in the excavation of three adjacent rooms in separate trenches that were all part of the same complex (**Fig. 14**). This hypothesis was proven in C.1, where the south wall, visible at ground level, abutted the room's west wall, forming the south-west corner of the room. This



15. The west wall of room in Trench C.1, with its central pier (in the middle of the photo). Note the masonry built against bedrock to the south (left of the pier) and bedrock alone to the north (right of the pier). View to west.

west wall incorporates bedrock rising upslope to the north and thus reducing the number of stones in each course as the bedrock rises towards the north (**Fig. 15**). This west wall is bonded with a pier, after which it gives way entirely to bedrock to the north. The north-west corner of the room is formed by its north wall abutting the bedrock extension of the west wall. The east wall of C.1's room is visible only in trench C.2, where its top and eastern face are exposed, as is the



14. Plan of Area C.



16. The Knife, lamp and articulated fish skeleton found near the cooking installation in C.1.

doorway giving access to the room. Presumably, a pier abutting the west face of this east wall corresponding to that projecting from the west wall is currently obscured by C.1's east balk. The overall dimensions of the room are *ca* 4 m east - west x 3 m north - south. Some walls in C.1 preserved plaster along portions of their faces.

Trench C.1 contained the most evidence for occupation in the complex and forms the basis upon which construction of the entire domestic structure is dated to the Early Roman / Nabataean period. Just above bedrock was a beaten earth floor that appears patchily across the room, particularly in areas where the bedrock is uneven or dips. An unusual assemblage, consisting of a wooden-handled knife, an oil lamp and an articulated fish skeleton, was found lying on this floor in the northern portion of the room adjacent to a cooking installation (Fig. 16). This surface also preserved a re-constructible bowl, which accords with late Early Roman / Nabataean use of this floor in the 1st century AD. Also associated with the initial use of the room is a tannur or oven on the southern face of the north wall. This was composed of a flat piece of limestone as its base, two unhewn boulders to brace the exterior edges and several ceramic tiles to form an open space above the flat stone base. The exterior was packed with mud mortar and broken sherds and the entire installation was plastered in place against the north wall.

The area enclosed within Trench C.2 appears



17. The doorway connecting the courtyard in Trench C.2 with the room in Trench C.3 (view to east).

to be either a shared courtyard giving access to rooms on either side, or an alleyway between separate dwellings with doorways giving access to both adjacent rooms in C.1 and C.3 (Fig. 17). The main entrance to the domestic complex was apparently located at the southern end of C.2. The northern extent of the C.2 courtyard was not determined in 2014, but must lie north of the current trench parameters.

Although evidence for Early Roman / Nabataean occupation in C.2 was not as extensive as in C.1, a few small pockets of pure Early Roman / Nabataean remains were found at the lowest levels overlying bedrock.

There is evidence to suggest that the Late Roman period saw modifications to the Early Roman / Nabataean complex, followed by a period of occupation lasting as long as 200 years before a major collapse effectively destroyed

the building. In Trench C.1, the Early Roman / Nabataean occupation level was covered by *ca* 0.20 m of leveling fill below *ca* 0.20 m of Late Roman occupation horizon. Both fill loci contained material dating to the Late Roman period, but locus 15 was characterized as a leveling fill based on its relative sterility compared to locus 12. The cooking installation possibly continued to function during this phase.

Trench C.2 exhibits extensive remodeling and occupation levels in the Late Roman period. Most significantly, the complex entrance appears to have been modified, with the addition of a wall abutting the east wall to create a doorway in the south. Because of the higher bedrock in the north of the trench, the Late Roman occupation horizon in this sector is less extensive than the Late Roman occupation layers in the southern end of the trench. Nonetheless, numerous diagnostic Late Roman sherds were found in this northern sector. A locus in the southern part of the trench exhibited similar ceramics, plus a few Early Byzantine sherds. In the south-east corner of the trench was a fire installation enclosed by a stone semi-circle; faunal remains suggest household-level butchery and consumption of animals, primarily sheep and goat.

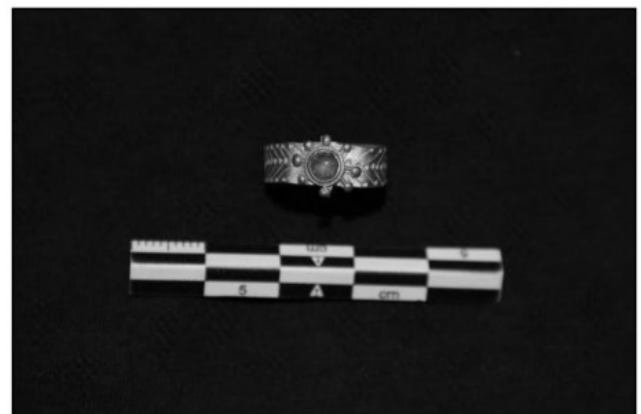
Trench C.3 contained no clear Early Roman / Nabataean occupation but rather Late Roman artifacts at its lowest levels. Nevertheless, some of its architectural features appear secondary to original construction and have

thus been phased to the Late Roman period on account of the long period of use of this room. Construction of a plastered niche in the south wall is tentatively assigned to the Late Roman phase, although it should be noted that there is no conclusive evidence tying the construction of this installation to either the Early Roman / Nabataean or Late Roman phases of the room. A niche, apparently a cupboard, extends west from the plastered pier (**Fig. 18**). The cupboard includes ceramic tiles plastered into the sides as shelves. A lower shelf remains *in situ*, while another tile could very well have been dislodged from the upper portion, where a slot for another shelf is clearly visible. While the construction date of the cupboard cannot be ascertained, it was clearly used right up until the destruction of the room, based on the presence of a 4th century cooking pot found nearby which had apparently fallen from one of the shelves in the final destruction.

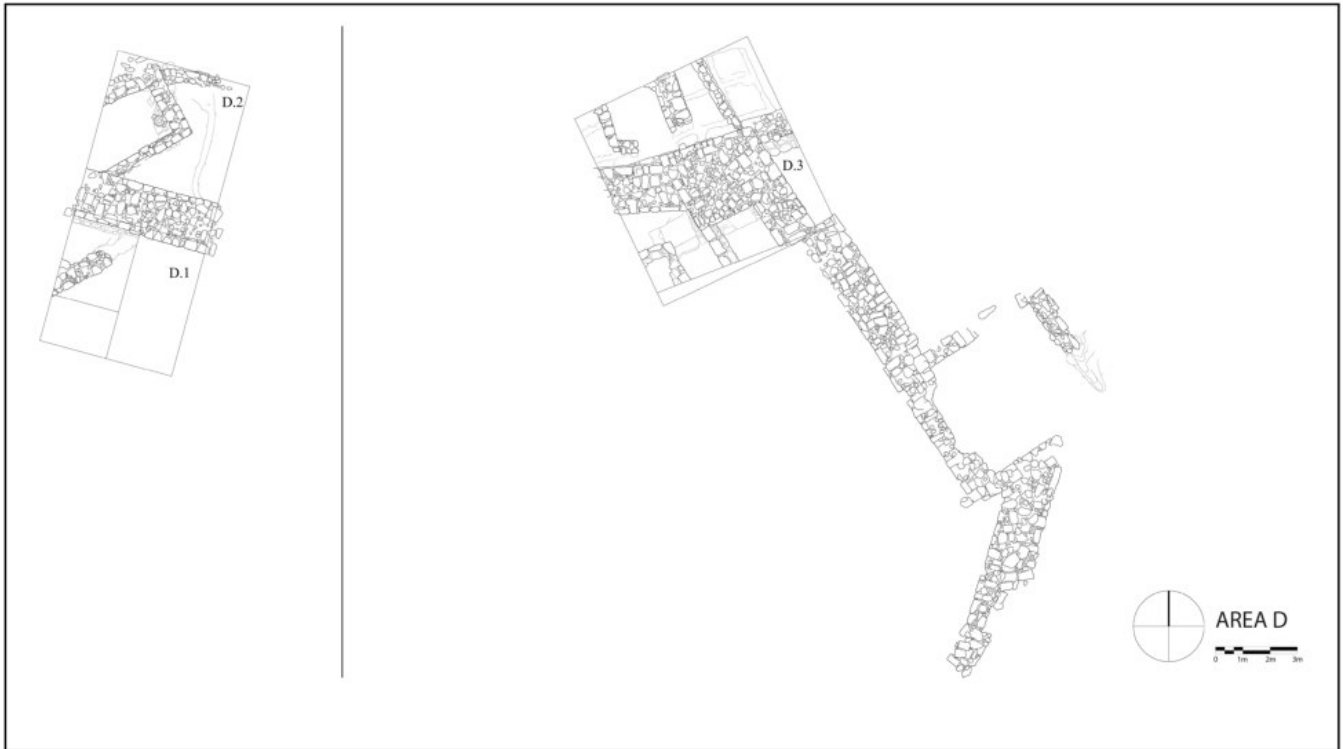
Although it appears likely that the Area C domestic complex was built in the Early Roman / Nabataean period, its most extensive use was in the Late Roman period, beginning perhaps in the 2nd century and extending, at least in some sectors, into the 4th century. Immediately below the final tumble layer, all trenches exhibited a layer of apparent abandonment accumulation, although the depth and character of this phase varied from trench to trench. One surprising find from this context was a gold ring with an



18. Cupboard in south wall of room in Trench C.3. The lowest horizontal shelf is still *in situ*. To the left of the cupboard is the plastered pier (arch springer). View to south.



19. Gold ring with garnet inlay from under tumble layer in Trench C.2.



20. Plans of Area D: Trenches D.1 and D.2 (earlier structures cut by city wall) and trench D.3 (north-east corner of Petra's city wall).

inset garnet stone encircled with decorative granulation and with an incised pattern around the band (**Fig. 19**). It is regrettable that this find derived from an abandonment context rather than an occupation layer, but there is no doubt of its context.

An area-wide deposit of dense architectural collapse debris suggests that, like the domestic structure excavated in Area B in 2012, the complex in Area C was destroyed in an earthquake, likely the well-documented seismic event of 363. The balk stratigraphy in trenches C.1, C.2 and C.3 indicates that the massive amount of tumble encountered in Area C trenches is likely the result of two discrete collapse phenomena. In most trenches, this initial level of tumble contained a combination of cut architectural blocks and semi-hewn and unhewn boulders of both sandstone and limestone. Unlike the primary collapse phenomenon described above, some or most of the stone tumble excavated in these later loci likely came from structures and bedrock collapse upslope from Area C itself, in addition to the continued collapse of whatever standing architecture had remained in the Area

C complex after the initial collapse.

Area D

This area contains three excavation trenches laid out along the city wall of the North Ridge. In 2012 a segment of the wall in Area A was dated by excavation to the early second century AD. From there, the city wall continues eastwards towards Conway's Tower. A detailed plan was completed of the entire length of the city wall from Area A to the wall's north-east corner. This revealed an apparent gap in the city wall, suggesting a possible gateway at this location (**Fig. 2**). Trenches D.1 and D.2 were laid out along the south and north sides (respectively) of the city wall, roughly midway along the ridge between Area A and Conway's Tower. Further east of Trenches D.1 and D.2, the city wall splits in a Y-shape, one segment continuing north-east towards Conway's Tower and another segment turning south-west, following the crest of the north ridge and thus enclosing a smaller area of the city. This southerly wall continues roughly 75 m along the crest of the ridge before cornering sharply at nearly 90 degrees and continuing

southwards into Wadi Mataha. The city wall is clearly visible as it continues for some distance south of this wadi. Trench D.3 was laid out at the north-east corner, so as to expose both the interior and exterior faces of both the east-west and north-south wall segments. One hypothesis was that this southern wall was a later Byzantine modification to Petra's defensive system, enclosing a smaller area of the city and corresponding to the widely accepted view of a significantly smaller Petra in the Byzantine period.

Trench D.1 contained virtually no discernible architectural features before excavation (**Fig. 20**). It was selected for excavation based on the possibility that the archaeological features comprising the room in D.2 (see below) continued underneath the city wall and represented a phase of occupation prior to the early second century, cut by the construction of the defensive structure (as with the 1st century AD domestic structures of Area A). D.1 was bisected to create a 5 m x 2.5 m excavation area extending 5 m from the southern face of the city wall, in hopes of quickly discerning if this trench would be archaeologically profitable. Excavation exposed an earlier Nabataean wall overlying bedrock but apparently cut by the later city wall (**Fig. 21**).

Trench D.2 measured 6 m north-south x 5 m east-west, encompassing the city wall dividing D.1 and D.2 and extending 5 m north from the



21. Trench D.1: Wall of an earlier Nabataean (domestic?) structure in foreground was cut by construction of the later city wall (behind meter stick). Both walls were founded on bedrock View to north.



22. Trench D.2: Nabataean domestic structure founded on bedrock with basalt grinder *in situ*. The south-west corner of the structure was removed by the builders of the city wall, visible in the upper part of the photo. View to south-east.

wall face, leaving a roughly 5 m x 5 m excavation area north of the city wall. The surface tumble suggested the presence of a possible projecting tower. This hypothesis was quickly disproven when the tumble around the edges of D.2 did not form walls. The main feature of D.2, apart from the city wall itself, was an Early Roman / Nabataean structure, later cut and partially dismantled by the construction of the city wall (**Fig. 22**). In the surviving north-west corner of this earlier structure was a complete basalt millstone still *in situ*. A water channel was cut into bedrock just east of the earlier structure. In addition, three child burials were found in the north-east corner of the trench, possibly dating to the Early Byzantine period.

Trench D.3 was laid out originally as a 7 m x 7.5 m trench in order to encompass the city wall's north-east corner and provide dating evidence for this structure's relationship to the city wall segments excavated in Area A and D.1-2. The trench provided evidence that the city wall in this corner appeared to be a continuation of the early second century city wall, built over and cutting through earlier Early Roman / Nabataean structures with later Roman and Byzantine walls abutting the north and east faces (**Fig. 20**). The city wall builders seem to have incorporated some earlier (Nabataean?) masonry structure as the base of the north-east corner, perhaps serving as a kind of corner tower (**Fig. 23**). There was



23. The north-east corner of the Petra city wall in Trench D.3. The northern segment of the city wall (foreground, under meter stick) abuts an earlier Nabataean structure (under the photo board). The eastern city wall (visible to the right of photo) extends from the earlier Nabataean structure. View to east.

extraordinary preservation of the masonry in this trench, with most walls founded on bedrock. The bedrock sloped dramatically from north to south. The interior or west face of the eastern city wall, for example, survived to some 15 courses and still stands nearly 4 m in height. The latest pottery against the foundations of the city wall and associated structures was Late Roman from the early 2nd century. In other words, this segment of the city wall does not appear to be Byzantine in date, as originally hypothesized. There was some evidence of Early Byzantine occupation north of the city wall, but nothing later.

Historical Conclusions

The 2014 season yielded much more evidence of the Nabataean cemetery on the North Ridge, which seems to have been in use primarily in 1st century AD. It is notable that at least several domestic structures, such as the complexes in Areas A, C and D, were also in use in this period. The cemetery seems to have gone out of use at around the turn of the 2nd century, about the same time as the construction of the city wall. The dating evidence currently available does not permit any closer dating, i.e. whether the city wall

was erected by the Nabataeans just prior to the Roman annexation of AD 106 in a last desperate attempt to defend their capital or was constructed soon afterwards by the Romans themselves. In either case, the city was now under Roman law which typically forbade interment of the dead within the city boundaries. This might explain the abandonment of the cemetery about this time. The domestic complex revealed in Areas B and C continued to flourish through the 2nd and 3rd centuries, and well into the 4th century, until a catastrophic destruction, likely explained by the 363 earthquake. There appears to have been little subsequent occupation of any of these areas in the later Byzantine period, despite the well-documented complex of churches not far to the west on the ridge.

Post-Excavation Conservation / Protection Measures

This project is acutely aware of the need for protection and conservation of Jordan's cultural heritage, particularly the structures and features within the heavily-trafficked site of Petra. To that end, we backfilled completed excavation trenches 50 - 100 % full (B.1, D.1 and D.2) to preserve the structures that they revealed, with the future goal of consolidation of the structures and appropriate signage once enough of the complexes have been excavated to be meaningful to visitors. Tombs B.5, B.6, B.7 and B.8 were completely backfilled using their own soil dumps, removing these features from the site. We left the well-dressed architectural stones arranged near Area B for future study by the project's historical architect. Excavation trenches to see continued exploration in 2016 (C.1, C.2, C.3, C.4 and D.3) were only backfilled 10 - 25 %, enough to secure the walls and balks for the offseason. Dumps associated with these excavation areas will be used for backfilling after the 2016 season.

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