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## **'Insubstantial' Residential Structures at Teotihuacán, Mexico**



**Research Year:** 2001

**Culture:** Teotihuacán

**Chronology:** Classic

**Location:** Estado de México, México

**Site:** Teotihuacán

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## **Abstract**

In the summer of 2006, field investigations were carried out at Teotihuacán with the aim of recovering new archaeological information on 'insubstantial structures,' a little known architectural type inferred from surface survey data collected in the 1960s by the Teotihuacán Mapping Project (TMP). Various kinds of field activities, including several forms of geophysical remote sensing (electrical resistivity, magnetometry, and ground penetrating radar) and excavation, were employed at several sites interpreted by the TMP as insubstantial structures. Architectural remains associated with one such site, 15:N1E6, were documented near the eastern edge of the ancient city.

## **Resumen**

En el verano de 2006, se llevaron a cabo investigaciones de campo en Teotihuacán con el fin de generar nuevos datos arqueológicos sobre las "estructuras rudimentarias" o chozas, un tipo de estructura arquitectónica poco conocida, e inferida a partir de los datos obtenidos por el Teotihuacán Mapping Project en la década de los sesentas a través de sus recorridos de superficie. En varios sitios interpretados por el TMP como "estructuras rudimentarias", se llevaron a cabo varias actividades de campo, incluyendo técnicas geofísicas de detección remota (resistividad eléctrica, gradiente magnético y radar de penetración terrestre) y excavaciones. Como resultado de estos trabajos, se registraron restos arquitectónicos de una estructura rudimentaria asociados con el sitio 15:N1E6, ubicado cerca del límite este de la ciudad antigua.

## **Introduction**

Residential and domestic lifeways in the ancient Central Mexican city of Teotihuacán have largely been modeled around a multi-family residential structure known as the apartment compound. Although numerically dominant for much of Teotihuacán's history, apartment compounds are actually only one of several kinds of residence that were used in the city; notably absent from most considerations of Teotihuacán society is a smaller and presumably less elaborate residential type known as the 'insubstantial structure.' Funding from FAMSI was used in the summer of 2006 to support a field project aimed at generating the first detailed information about insubstantial structures. A combination of remote sensing and excavation resulted in the identification within urban Teotihuacán of architectural features associated with an insubstantial structure.

## Background

### *The Teotihuacán Mapping Project and 'insubstantial structures'*

Teotihuacán is one of the earliest big cities to have been built in the New World. Founded in the first century BCE in the northeastern part of the Basin of Mexico, Teotihuacán grew rapidly into a sprawling metropolis that at its height may have housed a population as large as 100,000 individuals. The city was the seat of a powerful polity that controlled significant parts of Central Mexico for centuries, likely until sometime in the 6<sup>th</sup> century CE, when the urban settlement shows significant disruption and many residents left. The city was never abandoned, however, and it continued to be a large and important settlement in the Basin of Mexico well into the Epiclassic and Postclassic periods (Cowgill 1992, 1997).

Thanks to a project directed by René Millon in the 1960s, this ancient Mesoamerican city is one of the best sources of information available on pre-industrial urbanism. The Teotihuacán Mapping Project (TMP) defined the boundaries of the urban settlement and, based largely on systematic recording of surface evidence, created a highly detailed map and inventory of the archaeological remains within it (Altschul 1997; Millon 1964, 1973; Millon et al. 1973). This inventory and the accompanying artifact collections were organized in terms of 'sites,' tracts of land that in most of the city, above all in areas near the ceremonial core, correspond to discrete architectural remains visible from the surface. Following this usage, the terms 'site' and 'collection tract' are used interchangeably in this report to refer to these units of spatial provenience defined by the TMP.

The TMP survey showed that, after adoption in the Tlamimilolpa phase (ca. CE 200-350), the main residence type at Teotihuacán was a structurally impressive, multifamily dwelling known as the 'apartment compound.' Approximately 2200 apartment compounds were recorded by the TMP and most of the city's residents are thought to have lived in them. Between about 20 and 30 apartment compounds have also been explored to varying degrees by archaeological excavation. Because of this, and because of their dominance within most residential districts, these highly distinctive structures have naturally provided the main framework for conceptualizing and modeling domestic life in the city (Manzanilla 1996; Monzón 1989; Pasztory 1997; Storey 1991; Widmer and Storey 1993).

The apartment compound was not the only kind of housing structure in Tlamimilolpa and later phases, however. Also recorded by the TMP, but attracting a good deal less attention, was a type of site that came to be known as the 'insubstantial structure' (Cowgill et al. 1984; Millon 1973:23-24). The archaeological signature of an insubstantial structure was a usually small, surface scatter of artifacts lacking evidence for the large quantities of building stone, plaster, and other materials typically employed in the construction of larger and more durable buildings such as apartment compounds.

Over 800 sites interpreted as containing one or more insubstantial structures were identified and recorded by TMP field workers. While some of these sites may be refuse

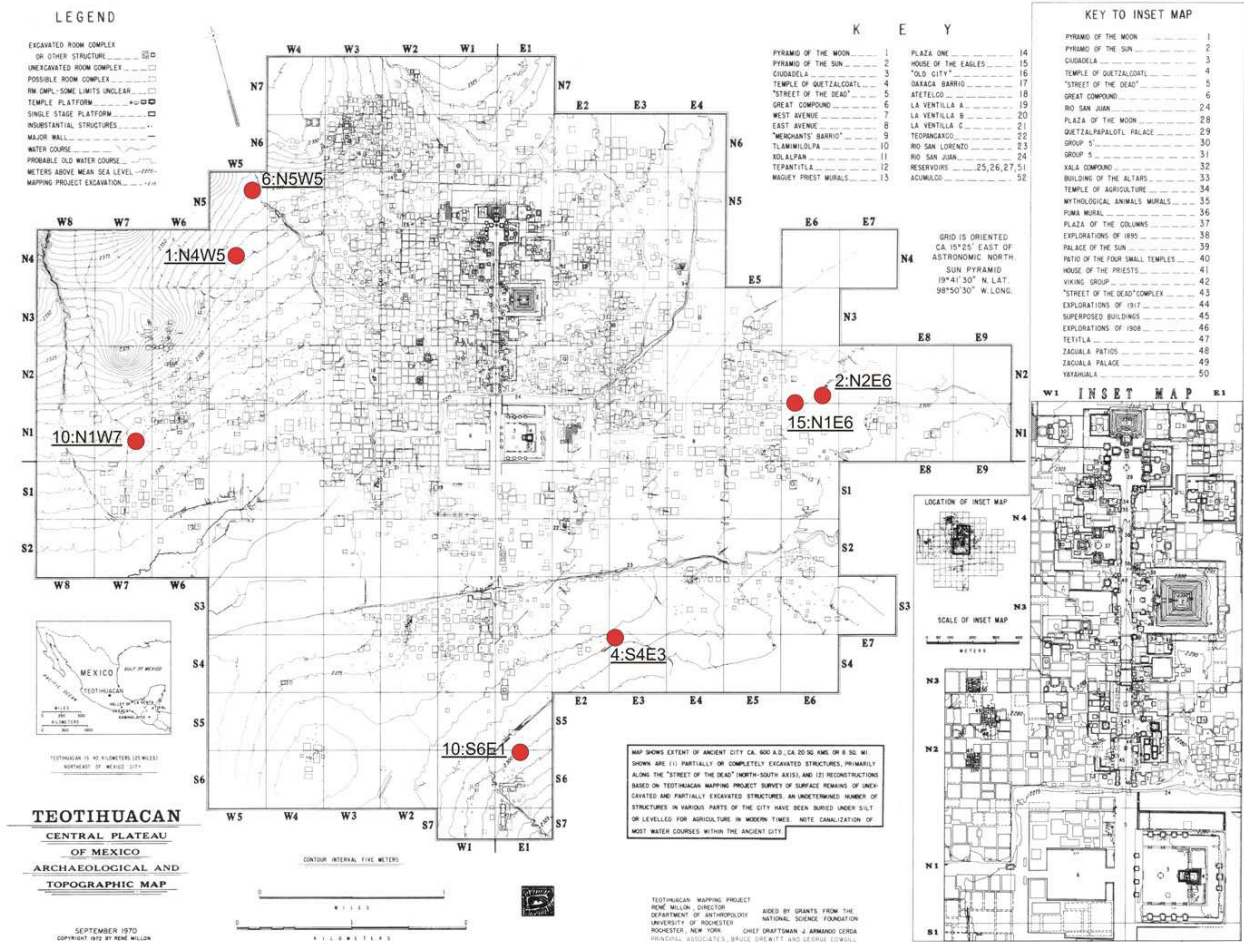
dumps, the majority are probably the remains of small, relatively simple buildings with superstructures made of non-durable materials such as adobe or wattle-and-daub. Sites identified as insubstantial structures are most numerous near the urban periphery. Those located near the city core may often be outbuildings used for special-purpose functions by people living in the apartment compounds that dominate such areas. Insubstantial structures found in neighborhoods closer to the outer edge of the city are often some distance from apartment compounds and therefore more likely to be the principal habitations (Cowgill et al. 1984) of smaller residential groups—for much of Teotihuacán's history, perhaps, families that existed apart from the social units housed by apartment compounds.

While insubstantial structures have figured in a handful of analyses based on TMP data (e.g. Altschul 1987; Cowgill et al. 1984; Robertson 1999, 2001, 2005; Smith 1975), their existence as an architectural type has remained essentially hypothetical—an inference based on surface artifact concentrations associated with limited or no evidence for associated building materials or architectural remains. Prior to this study, I am unaware of any examples having been positively identified through the exposure of clear architectural remains. (One possible exception may lie in a passing reference by Millon (1973:27) to a structure made entirely of adobe located in the “Merchants’ Barrio” area of Teotihuacán. The feature was discovered by TMP test excavations but has not been published.)

With the goal of building a stronger empirical basis for the investigation of insubstantial structures, this project proposed to systematically relocate a sample of sites interpreted as such by the TMP and subject them to more detailed archaeological study. Successful in identifying buried architectural remains at one of these sites, the project is regarded as the pilot phase of a longer study that aims to recover more detailed information from a larger number of such structures.

### ***The 2005 field reconnaissance***

As preparation for this project, and backed by a research grant from the Center for Latin American Studies at Stanford University, I spent two months in the summer of 2005 attempting to relocate and examine a small subset of the ca. 800 insubstantial structure sites originally identified by the TMP.



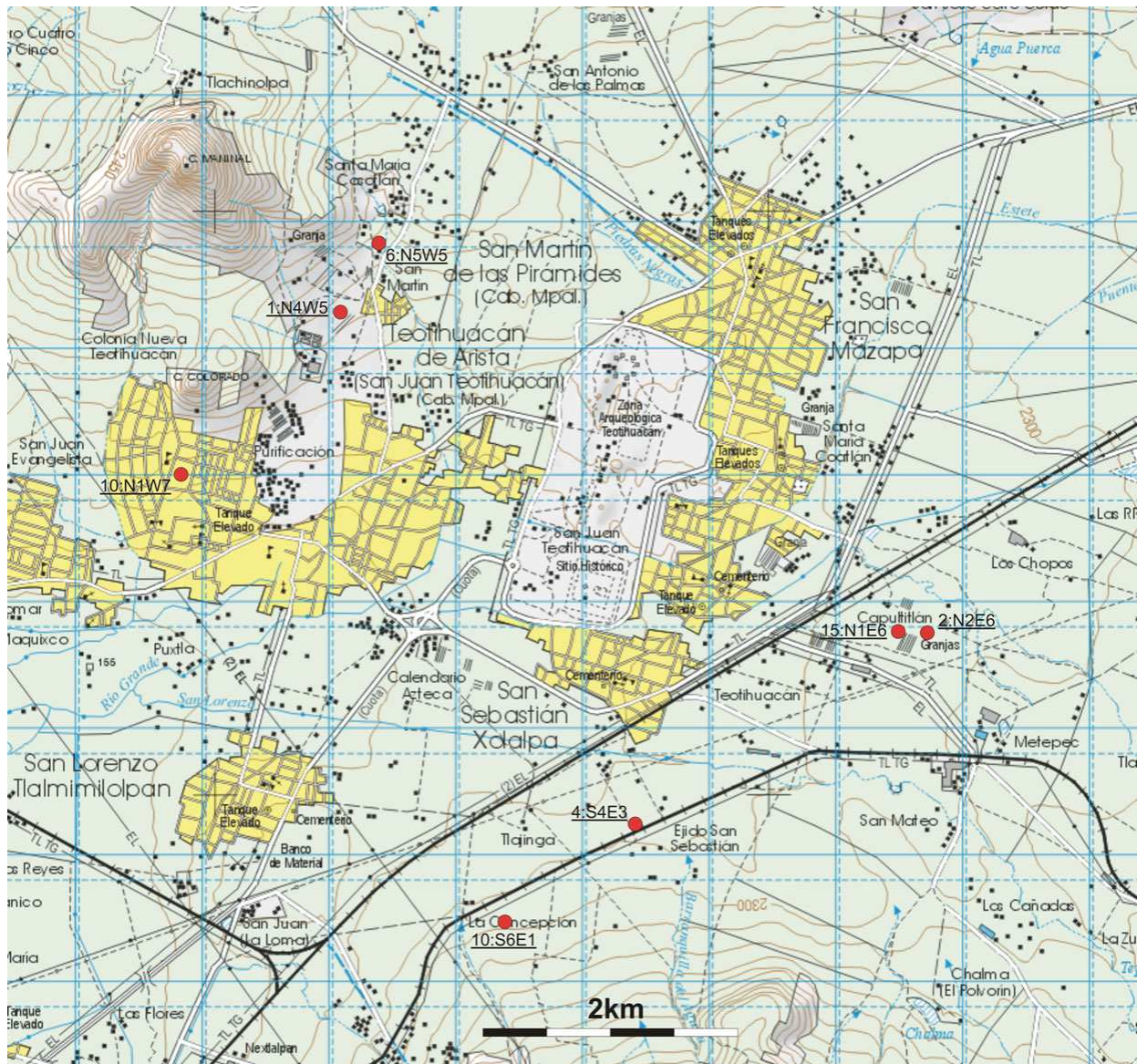
**Figure 1: Teotihuacan Mapping Project map showing the locations of sites included in this study. Based on the 1:40,000 scale map published in Millon 1973 (Map 1).**

Using a GIS system incorporating TMP location and field-description data, 44 insubstantial structure sites were selected for examination. The criteria used to rank sites by priority for relocation were distance from known apartment compounds and ceramic sample-size. The former was intended to maximize the probability that any structures identified would be domestic or residential in nature. Most sites targeted for relocation were in districts that also contained at least some apartment compounds; none, however, were so close as to make it likely that they were compound outbuildings or artifact dumps generated by compound refuse disposal. Sites that were selected also yielded relatively large artifact collections during the TMP survey in the 1960s, thus indicating levels of occupational activity likely to repay detailed field investigations.

In spite of major land use changes in the area since the fieldwork of the TMP, it was possible to relocate 32 of these 44 insubstantial structure sites using published TMP maps (Millon et al. 1973), satellite images accessed through Google Earth®, and a GPS receiver. Twelve sites were located within lands now controlled by military forces based

in San Juan Teotihuacán and therefore inaccessible. The degree of preservation of sites that could be directly examined was found to be highly variable. Some had been badly damaged by deep-plowing and/or erosion and several were completely obliterated by post-TMP construction projects. A number of sites, however, appeared to be in relatively good condition and promising candidates for further work.

Of the 32 insubstantial structure sites examined in 2005, seven were selected for more detailed study; following the Millon (1973) grid and site numbering system, these sites were: 6:N5W5; 1:N4W5; 10:N1W7; 2:N2E6; 15:N1E6; 4:S4E3; and 10:S6E1. These sites were selected because they were judged to be relatively accessible (i.e., not yet buried by urban construction and unlikely to be under cultivation in the summer of 2006) and with some likelihood of preserved subsurface architectural features. While all of these sites are located within relatively peripheral areas, they were dispersed enough with respect to one another to potentially sample several different districts of the city ([Figures 1](#) and [2](#)).



**Figure 2:** Site locations superimposed on the INEGI 1:50,000 map for Texcoco (E14B21). There have been important landuse changes in this area since this map was prepared, ca.1998. Notably absent is a new highway to Tulancingo; it now passes through this area roughly from southwest to northeast, running quite close to the four sites located to the south and east of the Archaeological Zone at Teotihuacán.

### Field activities in 2006

In July 2006, a research permit was obtained from the Instituto Nacional de Antropología e Historia of Mexico (INAH) to carry out more intensive field investigations of the seven 'insubstantial structures' selected in 2005. The plan was to use mapping, surface artifact collection and remote sensing activities to guide subsequent excavation.

A grant from FAMSI was used to cover major costs of most of these activities except remote sensing.

Local misgivings about archaeological research are pervasive among landholders in the Teotihuacán area, and obtaining permission to do the planned field work was difficult, time-consuming, and only partly successful. Ultimately, three of the relevant landholders refused to allow any kind of work. One gave permission for surface investigations, but in spite of lengthy negotiations, permission for excavation was never clearly granted. Only three of the relevant land owners eventually granted permission for all stages of research proposed by the study.

Although not funded by FAMSI, survey using geophysical methods of remote sensing was an important part of the 2006 field program and these activities will be briefly summarized at relevant parts of this report. The main goal of this work was to assess the visibility of insubstantial residential structures using methods of geophysical prospecting—in other words, to see if it would be possible, prior to excavation, to identify both the presence and probable locations of preserved archaeological features and architectural remains associated with such sites.

Magnetometry, ground-penetrating radar and electrical resistivity were employed at four sites: 6:N5W5; 10:N1W7; 10:S6E1; and 15:N1E6. This work was scheduled for the third week of August and was carried out in collaboration with Dr. Luis Barba, director of the Laboratorio de Prospección Arqueológica of the Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México (UNAM). Barba directed remote sensing activities in consultation with Ian Robertson, and with the assistance of Agustín Ortiz and Jorge Blancas. Barba and his UNAM team are responsible for most interpretive work, summarized in a report (Barba et al. 2006) on file with Ian Robertson.

Excavation activities occurred mostly between mid-August and mid-September, 2006.

### **Site 6:N5W5**

The site delimited by the TMP as 6:N5W5 is located near the northwestern edge of the ancient city, approximately 200m northwest of a group of apartment compounds clustered around Barranca Cosotlán (Millon et al. 1973: Map 14). The modern landholding containing this site is close to the main road leading northward from the town of Cozotlán ([Figures 2](#) and [3](#)) and has been slated for subdivision into residential housing units. Since initial re-inspection in 2005, the site had been partially impacted by the construction of a subsurface sewage and drainage system and general surface disturbance provoked by the movement of heavy machinery. Nevertheless, both the owner of the land and the architect in charge of the development were interested in the research project and generously granted short-term access to do both surface and subsurface field work.





**Figure 3: Site 6:N5W5, superimposed on an image derived from Google Earth®. The irregular shape is the TMP collection tract for this site; the “L”-shaped polygon within it is the remote sensing grid. Two test excavation units are visible near one edge of the remote sensing grid.**

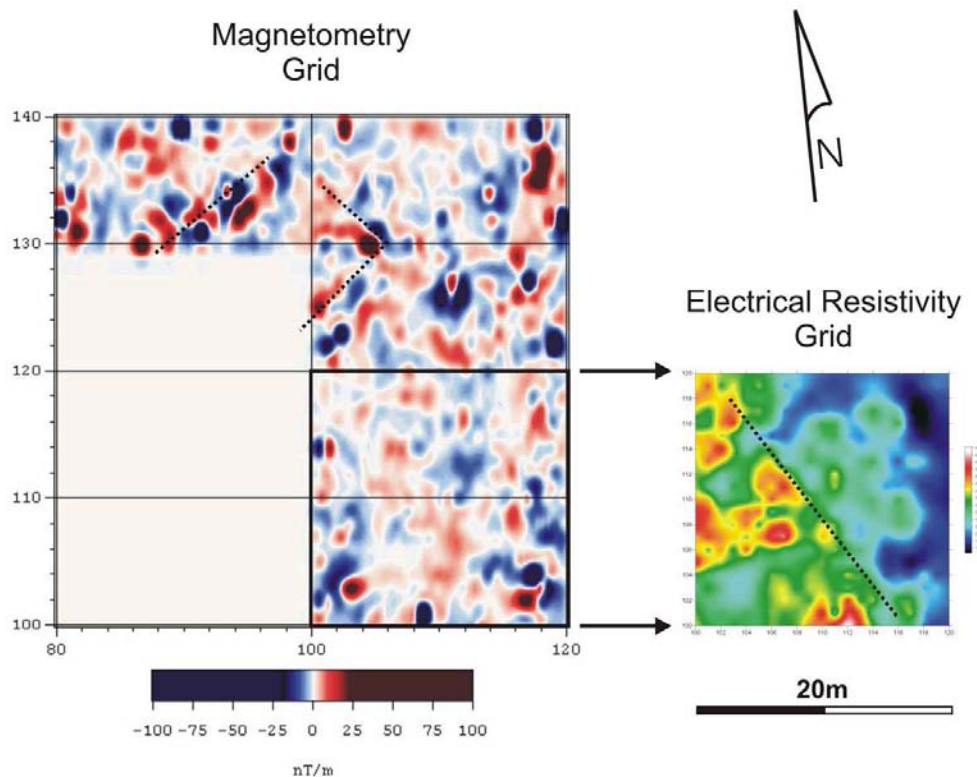
The site is a relatively flat field, approximately 3500 m<sup>2</sup> in size, delimited to the north by a higher terrace banked by a maguey and soil retaining wall. Much of the terrain in the general vicinity of the site is undergoing active erosion, with the local volcanic bedrock (*tepetate*) exposed in a number of areas. Erosion on site 6:N5W5 appears comparatively moderate; in several areas where construction activities made it possible to examine subsurface deposits, tepetate was buried under sediment deposits that were up to 50cm thick, with A and B soil horizons visible in upper portions of the profiles. While the land on the terrace to the north is currently under cultivation, site 6:N5W5 does not appear to have been farmed for a number of years.

A moderately large sample of decorated and rim sherds (n=100) collected from this site when it was recorded by the TMP in 1963 indicate peak Teotihuacán Period occupations during the Patlachique to Miccaotli phases. Interestingly, relatively few

surface sherds were observed in 2005 and fewer still in 2006. A systematic surface collection would not have generated enough information to repay the labor, and fieldwork was initiated by remote sensing.

A grid for magnetometry survey was laid out over a 1200 m<sup>2</sup> area that avoided the modern sewer system and that appeared to retain reasonably deep sediment deposits above the bedrock tepetate layer. A 400 m<sup>2</sup> electrical resistivity grid was also laid out over part of the area surveyed by magnetometry.

Potentially interesting linear anomalies were identified by both methods ([Figure 4](#)). Subsurface testing at one locality, however, failed to identify any structural remains and resulted in the recovery of only very small quantities of artifacts. While the relative lack of subsurface artifacts is consistent with what was observed on the surface in 2005 and 2006, this is somewhat puzzling considering the quantity of materials that were recovered from the surface of this site in 1963. Given the relative paucity of cultural materials identified through excavation, and the short amount of time granted to work at 6:N5W5, excavation was suspended in order to focus on other sites.



**Figure 4: Magnetometry and electrical resistivity results from site 6:N5W5. The resistivity grid was superimposed on a 20 x 20m portion of the magnetometry grid. Dashed lines indicate features interpreted as geophysical anomalies.**

### **Site 1:N4W5**

This site is located less than a kilometer south of 6:N4W5 ([Figure 2](#)) within a large tract of land devoted to large scale, commercial chicken farming. While in 2005 I was able to gain access to the farm in order to inspect the collection tract corresponding to site 1:N4W5, it proved impossible in 2006 to identify a landowner from whom to request permission to reenter the land, or to do fieldwork. It is worth noting that this piece of land may be one of the best preserved areas in this part of ancient Teotihuacán—it does not appear to have been recently farmed, has thick grass cover, and shows no significant signs of erosion. Issues relating to access and ownership aside, this would probably be a strategic place to situate certain kinds of fieldwork in the future, above all investigations focused on relatively early periods of settlement (such as the Patlachique phase) that are so strongly associated with the northwestern part of the city.

### **Site 10:N1W7**

Site 10:N1W7 is located on the western periphery of ancient Teotihuacán, a short distance to the southwest of the district known as the ‘Oaxacan Barrio’ and immediately south of what may have been the western-most extent of the ‘West Avenue’ ([Figures 1 and 5](#)). Although unfortunately slated for high-density residential units, the ca. 3.7 hectare open field containing 10:N1W7 was (in 2006) one of the few large areas in San Juan Evangelista (a barrio of San Juan Teotihuacán) that had not yet been covered by modern construction. It slopes gently toward the southeast, and exhibits moderate to relatively high levels of erosion; although tepetate is exposed in a number of areas, exposed profiles in test excavation units left by INAH’s Departamento de Protección Legal y Técnica de la Zona Arqueológica de Teotihuacán (“Salvamento”) indicate that many parts of the field still contain reasonably deep sediment deposits (i.e. 10-30 cm) above the tepetate. A number of old terrace retaining walls trend across the field from northeast to southwest, at right angles to the dominant slope. Preserved sediments are presumably deepest in areas adjacent to these remnant retaining walls.



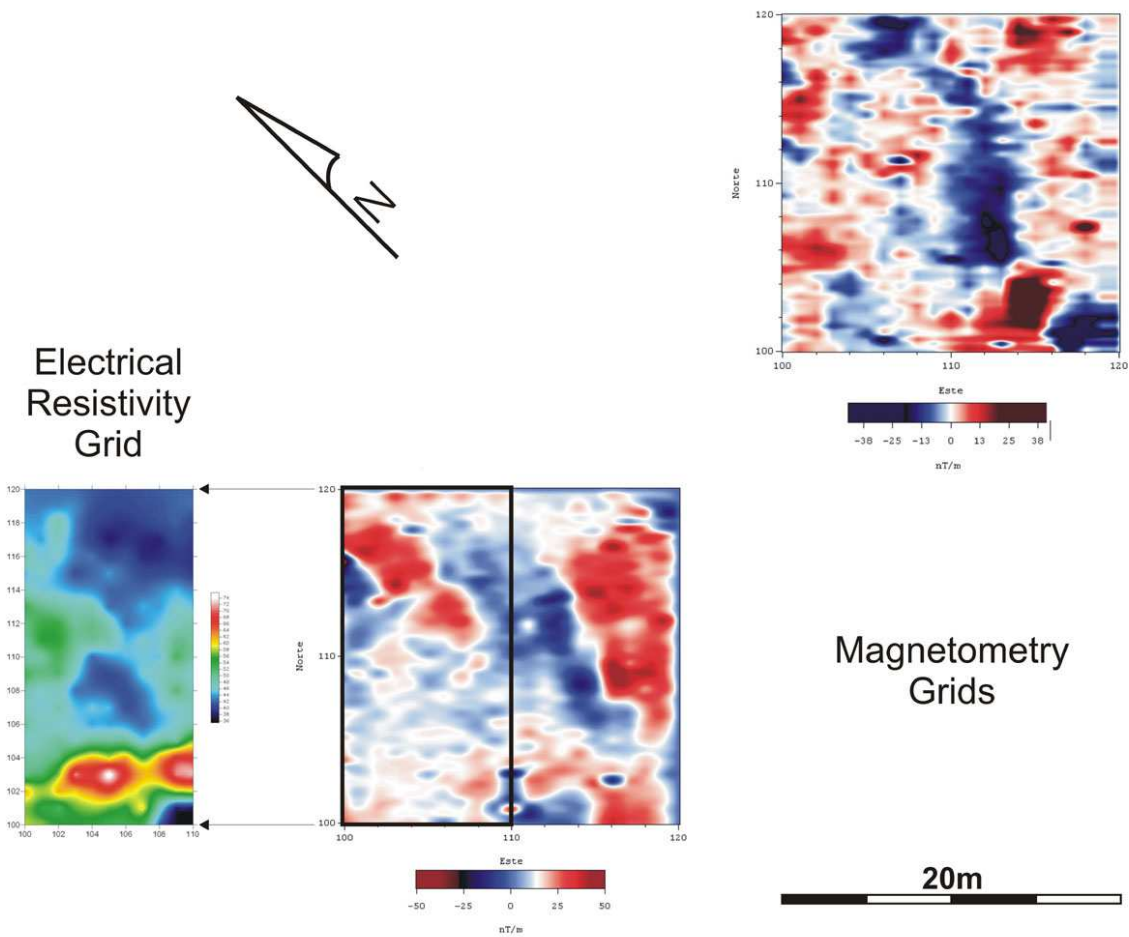
**Figure 5: Site 10:N1W7, superimposed on an image derived from Google Earth®. The largest rectangular polygon is the collection tract for 10:N1W7. The smaller squares are magnetometry and electrical resistivity grids. The linear feature crossing into 10:N1W7 from the southeast is a section of the radar transect.**

The Teotihuacán Mapping Project delimited site 10:N1W7 as a 0.6 hectare collection tract located within the larger field described above and based on surface remains interpreted it as containing two insubstantial structures. The 1966 pottery collections contain materials from all phases between Cuanalan and “Aztec,” with particularly

strong representation of phases spanning Patlachique to Tlamimilolpa. High densities of artifacts are still visible on parts of the modern surface and a controlled collection of surface artifacts from this site would have been informative and desirable. Protracted negotiations with the landowner, however, ultimately failed to produce permission to do either surface collecting or subsurface testing. During negotiations, however, and in anticipation of possible excavation, some remote sensing was carried out with permission of the owner.

A 109m ground-penetrating radar survey transect was initiated from a point well to the southeast of 10:N1W7, extending across the site toward the northwest. This transect, which crossed parts of three terraces, was carried out with the primary aim of gaining information on the depth of tepetate bedrock at various places within the site, including around terrace retaining walls. Magnetometry surveys were carried out in two 20 x 20m grids superimposed over the southern boundary of 10:N1W7, aligned approximately with the remnant terraces. Electrical resistivity transects were carried out over half of the western-most of the magnetometry grids. Two 20m radar transects were superimposed over the resistivity grid ([Figures 5](#) and [6](#)).

Both the radar and magnetometry work revealed patterns that are interpreted as relating primarily to variable sediment accumulation adjacent to and between the terrace retaining walls. An anomaly near the southwestern edge of the resistivity grid ([Figure 6](#)) was thought to have a higher probability of corresponding to cultural remains, conceivably an alignment of tepetate or adobe blocks. As noted above, however, it proved impossible to obtain permission from the landowner to test this anomaly through excavation.



**Figure 6: Magnetometry and electrical resistivity results from site 10:N1W7. The geophysical anomaly interpreted as a possible cultural feature crosses the electrical resistivity grid approximately 2 to 4 meters above its lower (i.e., southwest) edge.**

It is worth noting that the Salvamento testing program that cleared the field containing 10:N1W7 for residential construction did not identify archaeological remains warranting mitigation. The primary aim of such testing, however, was not to identify the small and possibly subtle types of features likely to be associated with insubstantial structures. The opportunity to further test this site or obtain controlled surface artifact collections will disappear when construction on the planned housing project begins.

#### **Site 4:S4E3**

The site designated in 1966 as 4:S4E3 is located near the southeastern periphery of Teotihuacán, immediately to the west of the recently constructed highway to Tulancingo. The original land holding has been subdivided since the time of the survey, and now belongs to several different owners. While reasonably high densities of

Teotihuacán Period artifacts are visible on the surface, recent disturbance for nopal planting made the site unfavorable for remote sensing. Because of this, and because it proved impossible to obtain access permission from all relevant landowners, further work on this site was suspended.

### ***Site 10:S6E1***

Straddling grid squares S6E1 and S5E1, site 10:S6E1 is located at the extreme southern periphery of Teotihuacán, ca. 250m east of the South Avenue and 200m north of an important temple/mound complex. The site now lies a short distance south of the new highway to Tulancingo ([Figure 7](#)). When first described by the TMP, the field that encompasses most of 10:S6E1 was under maize cultivation, but it has since been converted into a nopal fruit orchard. The original TMP pottery collections recovered in 1965 show a clear peak occupation during Tzacualli, with a strong secondary occupation during the Miccaotli phase.



**Figure 7: Site 10:S6E1, superimposed on an image derived from Google Earth®. The irregular shape is the TMP collection tract; the rectangles within it indicate the remote sensing grid with four magnetometry and electrical resistivity transects laid over it. The new highway to Tulancingo is visible to the north.**

Although visibility of the modern surface is quite variable, moderate quantities of ceramic materials were observed on it, and a remote sensing grid was established to sample areas where these materials appeared to be most concentrated. The survey grid was situated so as to allow four magnetometry and four electrical resistivity transects to be defined in open spaces between the northeast trending rows of nopal



plants. Transects were 5m apart and 30m long. At least one potentially interesting anomaly was identified by the resistivity survey, possibly consistent with a buried wall. While permission was eventually obtained to excavate at this site, this was only granted after advancing and increasingly productive work at site 15:N1E6 made it undesirable to shift activities back to 10:S6E1. I hope to be able carry out test excavations at the latter site in the future.

### **Site 2:N2E6**

Located about 50m east of 15:N1E6 (see below), much of site 2:N2E6 was destroyed by the recent construction of the new highway to Tulancingo ([Figure 8](#)). Modern landholdings overlapping what remains of the original collection tract consist of nopal fruit orchards and a large commercial chicken farm. An open area within the nopal fields, square and ca. 25 x 25m in size, remains uncultivated and exhibits strong surface concentrations of Teotihuacán Period pottery and lithic materials, coupled with a complete lack of identifiable building materials.

The open patch within the nopal orchard (visible immediately north of the eastern-most chicken sheds shown in [Figure 8](#)) would have been an excellent place to use both remote sensing and excavation in an attempt to identify subsurface structures within the site recorded by the TMP. Unfortunately, the landowner refused to grant permission for any kind of archaeological work.



**Figure 8: Site 15:N1E6 (top-center) and a partial view of site 2:N2E6 (top-right) superimposed on a Google Earth® image. Site 2:N2E6 was partially obliterated by the construction of the highway to Tulancingo, visible toward the right-hand side of the image. The remote sensing grid and two radar transects shown within site 15:N1E6 are situated on an informal road allowance passing between the nopal orchard to the north, and the field to the south.**

### **Site 15:N1E6**

The collection tract designated 15:N1E6 is located near the eastern edge of the city, approximately 2.5 km east of the Street of the Dead and about 300m north of the East Avenue ([Figures 1](#) and [2](#)). Straddling the boundary between grid squares N1E6 and N2E6, most of the site falls within a field that at the time of the TMP survey was used for cultivating seed crops; a small portion to the north is covered by a nopal fruit (tuna) orchard. In 2005 the field overlapping the southern part of the site appeared to have lain fallow for a number of years and it was hoped that it would be possible to conduct remote sensing and excavation there the following summer. Unfortunately, this field was plowed and planted with barley in the spring of 2006. The decision was made to work at 15:N1E6 anyway, fitting a remote sensing grid, and then excavating, in an 8m-wide strip

of land (an informal road allowance) running roughly from east to west between the plowed field and the tuna orchard ([Figure 8](#)). Ultimately, this is where a probable insubstantial structure was uncovered.

Although rutting from large vehicles is clearly visible in parts of the road allowance running across site 15:N1E6, a number of nopal trees are well established within it, and current travel appears to be largely confined to pedestrian and bicycle traffic. Much of this area exhibits significant grass cover. While in 2005 relatively high sherd densities were noted in the field to the south, little artifactual material is visible in most parts of the 8m road allowance and field procedures were accordingly initiated without collecting surface artifacts.

An 8 x 20m grid for magnetometry survey was laid out in an open part of the road allowance. Five east-west radar transects were superimposed on the same grid, and two parallel radar transects were extended 20m further to the east, straddling a group of nopales growing in the center of the road ([Figure 8](#)). Several apparent geophysical anomalies were identified by this work, and seventeen 1 x 1m excavation units were placed in locations appropriate for subsurface examination of them ([Figures 9, 10, 11, and 12](#)). While large quantities of artifacts of a variety of materials, above all ceramics, were recovered from these excavation units, none exposed identifiable architectural features. A clear trend toward higher sherd densities towards the east, however, suggested that the main focus of prehispanic activity at this site lay in that direction. Test units placed immediately to the east of the eastern-most radar transects exposed architectural remains.



**Figure 9: Remote sensing investigations at site 15:N1E6.**

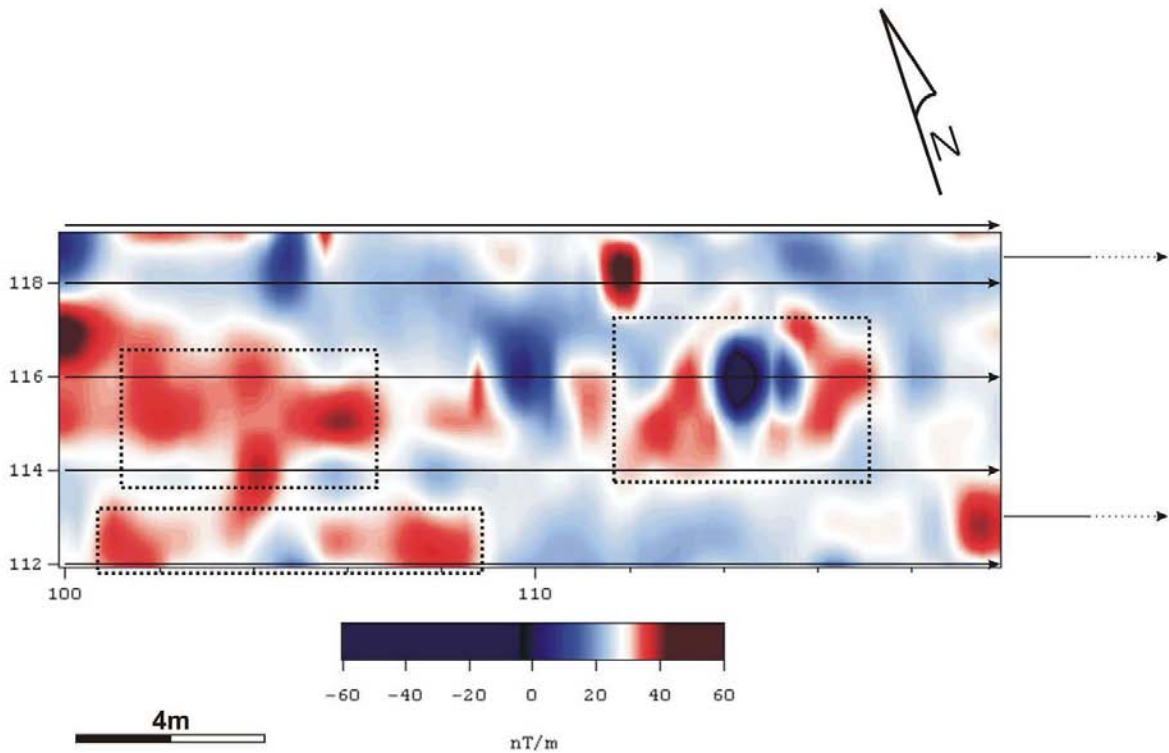


Figure 10: The remote sensing grid for site 15:N1E6. The raster image is based on magnetometry readings; horizontal arrows indicate radar transects. Dashed rectangles indicate some of the areas where possible geophysical anomalies were identified.

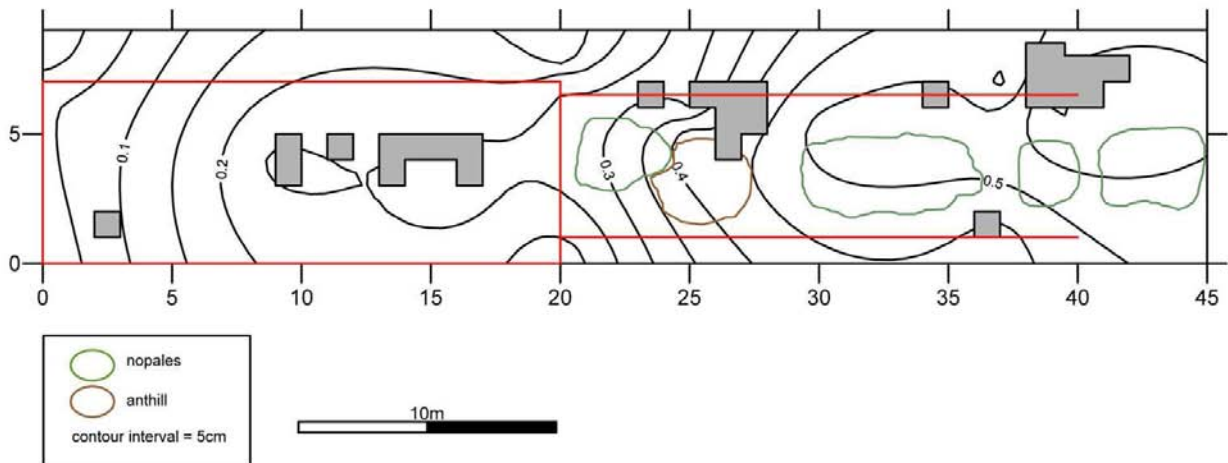


Figure 11: Plan of excavations at 15:N1E6. Red lines indicate the remote sensing grid and two radar transects. Contours are labelled in meters and the contour interval is 5cm. Architectural features were uncovered in the eastern-most cluster of excavation units (grey-shaded polygons).



**Figure 12: Excavation activities at site 15:N1E6. The cobble foundation feature is partially visible in the open excavation unit in the foreground.**

The first feature identified was a rectangular depression, roughly 70cm wide and at least 2m long, excavated directly into the tepetate bedrock to a depth of approximately 20–25cm. Expanding excavation toward the southeast exposed a second feature, a cobblestone pavement that appears to be the foundation of a simple building. The feature is well-preserved and constructed with care; the cobblestones used to construct it are smooth, similar in size, and form a relatively flat surface with clearly delimited and well-aligned edges ([Figure 13](#)).

Preliminary analysis of associated ceramic and other artifacts suggest that both domestic cooking and craft production activities were carried out in the vicinity of these two features. Interestingly, craftwork activities appear to have emphasized the modification of slate. Approximately 75 fragments of slate detritus were recovered from 15:N1E6, about half of these from excavation units immediately adjacent to the architectural features. Likely imported from outside of the Basin of Mexico (Cabrera Cortés 1995; López Juárez 2005), slate was used at Teotihuacán to make painted objects of uncertain use, small figurines, and backing plates for pyrite mirrors. According to a descriptive analysis of the slate carried out by Julieta M. López, most of these fragments were quite small and show signs of cutting and/or grinding. A single ‘*lunate*,’ a ceramic object used in some Teotihuacán pottery workshops for shaping clay vessels (Hopkins 1995:78; Sullivan 2006:32, Figure 5), was also recovered.



**Figure 13: Photo of partially excavated depression feature/impluvium (left foreground) and cobble foundation feature (center background) at site 15:N1E6. The light brown material exposed in the floor of much of the excavation area is *tepetate*, the soft volcanic bedrock found throughout the area.**

Don Zeferino Ortega and Heriberto Sarabia have completed a preliminary tabulation of the sherds recovered from site 15:N1E6. Most of the pottery appears to be domestic cooking and service ware, above all from the Tlamimilolpa phase (ca. CE 200-350) with a strong secondary representation of ceramics from the Xolalpan phase (ca. CE 350-500). These tabulations accord very closely with frequencies of phased pottery in the ceramic collection recovered from the surface of the site in 1963.

The cobblestone foundation at 15:N1E6 was identified late in the field season and is only one corner of a larger feature that probably extends further to the east and possibly further to the south. Expanded excavation is planned in the future to determine its overall size and form, as well as its relationship to the rectangular depression and any other structures, features, and activity areas that might exist around it (Figure 14). While such excavations (and ongoing analysis of artifacts already recovered) may generate new information that modifies current interpretations, I presently regard the cobblestone foundation and the associated depression feature as the physical remains of an insubstantial structure.

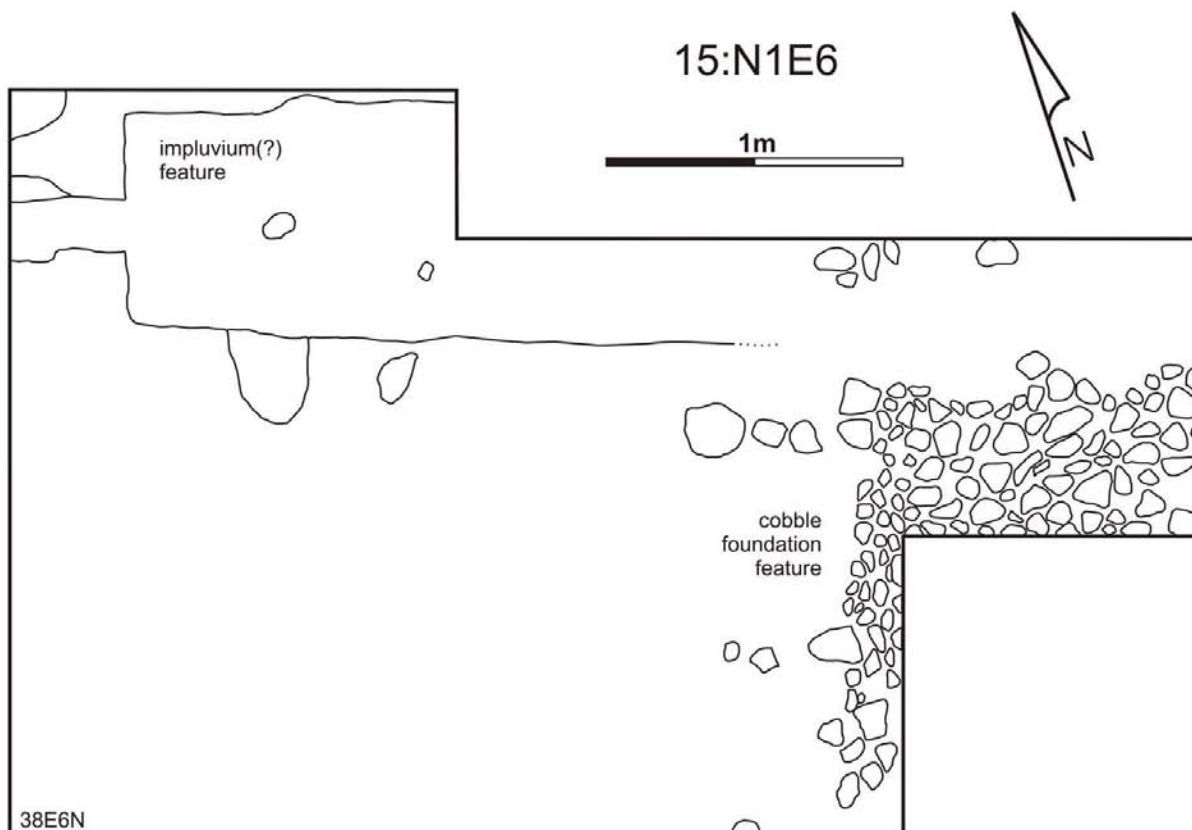


Figure 14: Line drawing of depression and cobble foundation features shown in Figure 13.

More specifically, I suspect that the cobble-stone feature is the floor and foundation of a relatively small building with walls and roof made of perishable materials such as adobe, wood and thatch. The building is most likely residential in nature. This is consistent with the functional interpretation of the artifacts recovered from its excavation; furthermore, given the fact that the nearest apartment compound is around 100m distant, it seems unlikely to have been a compound outbuilding. It is very possible that a building or buildings similar to that exposed by these excavations exist nearby, conceivably at other locations surrounding the rectangular depression feature, and therefore elements of a single patio group.

The depression feature may be analogous to plaster and stone constructed basins commonly used in Teotihuacán apartment compounds to concentrate rain water in unroofed patios, spaces surrounded by covered rooms and other kinds of activity spaces. Known as *impluvia* or 'espejos de agua,' these shallow, rectangular basins frequently include stoppered drain-holes leading into subsurface drainage systems, and may exhibit relatively high degrees of skill and investment in their construction and finish.

The structure exposed in 15:N1E6 is similar in form to an apartment compound impluvium, but more rustic. Shallow channels leading into its upper edge (from the west, and perhaps from the south) suggest that it was probably used to drain rain water from surrounding activity areas, perhaps also serving to hold the water for later use. If the analogy with an impluvium is correct, this feature may mark part of a central space, a focus for a range of domestic activities, and perhaps partially delimited by roofed structures. These ideas will be tested by expanded excavations in the future.

## **Conclusion**

Work by Charlton et al. (2000) in the rural Teotihuacán Valley and by Cabrera Cortés (2006) on the 'semi-rural periphery' outside of Teotihuacán have broadened our understanding of residential types outside of the urban boundaries defined by the Teotihuacán Mapping Project.

Within urban Teotihuacán, the excavations at 15:N1E6 demonstrate that at least some of the surface scatters that were recorded as 'insubstantial structure' sites by the TMP really are, in fact, associated with buried architectural remains. The remains exposed at 15:N1E6 are distinct from those associated with apartment compounds, but probably served as loci for similar kinds of domestic and craft production activities.

Nevertheless, data from more extensive excavations at 15:N1E6, and above all at larger numbers of similar sites, are needed before we can gain an even rudimentary understanding of the range of activities, behaviors, and social conditions that this type of site may represent at Teotihuacán. As mentioned previously, some of these are likely to contain primary residential structures; this is currently the most plausible interpretation



for 15:N1E6. Others, however, may prove to be outbuildings used for special purposes by residents of apartment compounds, while some others may simply be trash dumps.

The adjective 'insubstantial' may ultimately prove to describe quite well the architectural scale of these structures compared to apartment compounds and most other kinds of buildings already documented at Teotihuacán, but it seems unlikely to accord with either their demographic or social importance. Based on calculations involving both architectural and artifactual data, I think that insubstantial structures may have housed surprisingly large numbers of people—conceivably as much as 15% of the total urban population, and perhaps more, depending on the particular phase of occupation. I do not elaborate supporting arguments here, but if future research further supports the contention, it would imply that small residential dwellings, likely housing single families, were a significant component of the urban landscape in some districts.

While published TMP maps (e.g. Millon 1973:Map 1) have long indicated a more complex pattern, I think that many archaeologists visualize Teotihuacán's residential zones as broad districts filled by large, closely-packed apartment compounds. While these sorts of districts exist at Teotihuacán and are a striking expression of urban life in this city, the results of this project suggest that we need to reserve space in our cognitive maps for more dispersed neighborhoods in which apartment compounds are interspersed with smaller, less substantial kinds of buildings—and, quite possibly, with open spaces that may have been important for urban-gardening (see Stark and Ossa (2007) and Stark (2003) for a discussion of this concept, largely in the context of Gulf Coast centers).

Gaining more concrete information about insubstantial structures may also mean revising a societal view in which almost all of the urban population at Teotihuacán was embedded in large, multi-family residential units. Insubstantial structures might have sheltered significant numbers of socially less-connected families and have been important for various reasons, including housing newcomers to the city, but also, conceivably, residential groups that were excluded from, or resisted, incorporation into larger residential units based in apartment compounds. These are just a few possibilities, but they have important implications for our understanding of Teotihuacán society, including that hallmark of Teotihuacán culture, the apartment compound itself.

As fortunate as we are in having surface artifact collections from about 800 collection tracts interpreted as containing insubstantial structures, the lack of detailed descriptive data, above all of architectural remains, limits our ability to document formal and organizational variation in Teotihuacán's neighborhoods, or conceptualize forms of domestic organization that existed outside the walls of apartment compounds. Unfortunately, the time remaining for obtaining such information may be short. Insubstantial structures concentrate in parts of ancient Teotihuacán that lie outside the official Archaeological Zone managed by INAH. Along with other archaeological remains lacking the relatively strong protection of the 'Zone,' they are being destroyed by land use changes (principally urban sprawl and intensive agricultural practices) at a rate that is both alarming and almost certainly increasing.

The relatively low visibility of insubstantial structures at Teotihuacán, both in the archaeological literature and as physical remains on and in the ground, are undoubtedly key factors here. Compared to other types of buildings or features that might be encountered in a landholding facing development, for example, insubstantial structures are difficult to detect. If examples are detected, they may not be regarded as important enough to warrant protection or mitigation, particularly when judged against visually more impressive remains (such as apartment compounds) that may also be facing destruction. This may explain the absence of insubstantial structures in investigations and literature not based directly on TMP collections or data. It is hoped that the research described here leads to heightened awareness among archaeologists, and among the general public who live on and around Teotihuacán, of their importance.

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[Figure 14](#): Line drawing of depression and cobble foundation features shown in Figure 13.

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