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ARCHAEOLOGICAL MONITORING OF THE DEMOLITION OF A HISTORIC CISTERN UNASSOCIATED WITH THE STEGMAN BUILDING, BROWNSVILLE, CAMERON COUNTY, TEXAS

FINAL LETTER REPORT (Redacted)

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Texas Antiquities Committee Permit Number 7649

ASF16-077-00

May 10, 2018

Project Location & Background

Raba Kistner Environmental, Inc. (**RKEI**) was contracted by Muñoz & Company (CLIENT) to conduct archaeological monitoring association with the proposed partial demolition of a historic cistern located within the footprint but under the floor of the historic Stegman Building, in Brownsville's Historic Downtown District, Cameron County, Texas.

The monitoring was requested by the Texas Historical Commission (THC) and was initiated by the fact that the age of the cistern feature and its association with the Stegman Building was not clearly known. The Stegman Building, the Area of Potential Effect (APE), is located at the intersection of East 11th Street and East Washington Streets, in downtown Brownsville. **Figure 1** depicts the APE on the East Brownsville (2597-433) USGS 7.5 Minute Quadrangle Map.

The Stegman Building was erected in 1912 and is named for Baldwin G. Stegman, who came to Brownsville in 1905 and was an investor in the city's first streetcar line. Plans call for the School of Music of the University Of Texas Rio Grande Valley to move its music academy into the renovated building.

The cistern was uncovered during on-going rehabilitation of the building and while it was suspected that the feature was not functionally related to the Stegman Building this was not established with certainly prior to the need to partially demolish the feature. Since the Stegman Building is a historic property, therefore, the archaeological monitoring and related services were requested by the THC to document the construction methods and morphology of the feature and collect temporally diagnostic artifacts that may document the age of the feature. In addition, archival research was to also be carried out to compile additional information related to the approximate year of construction of the cistern and its relationship to homesteads that stood nearby.

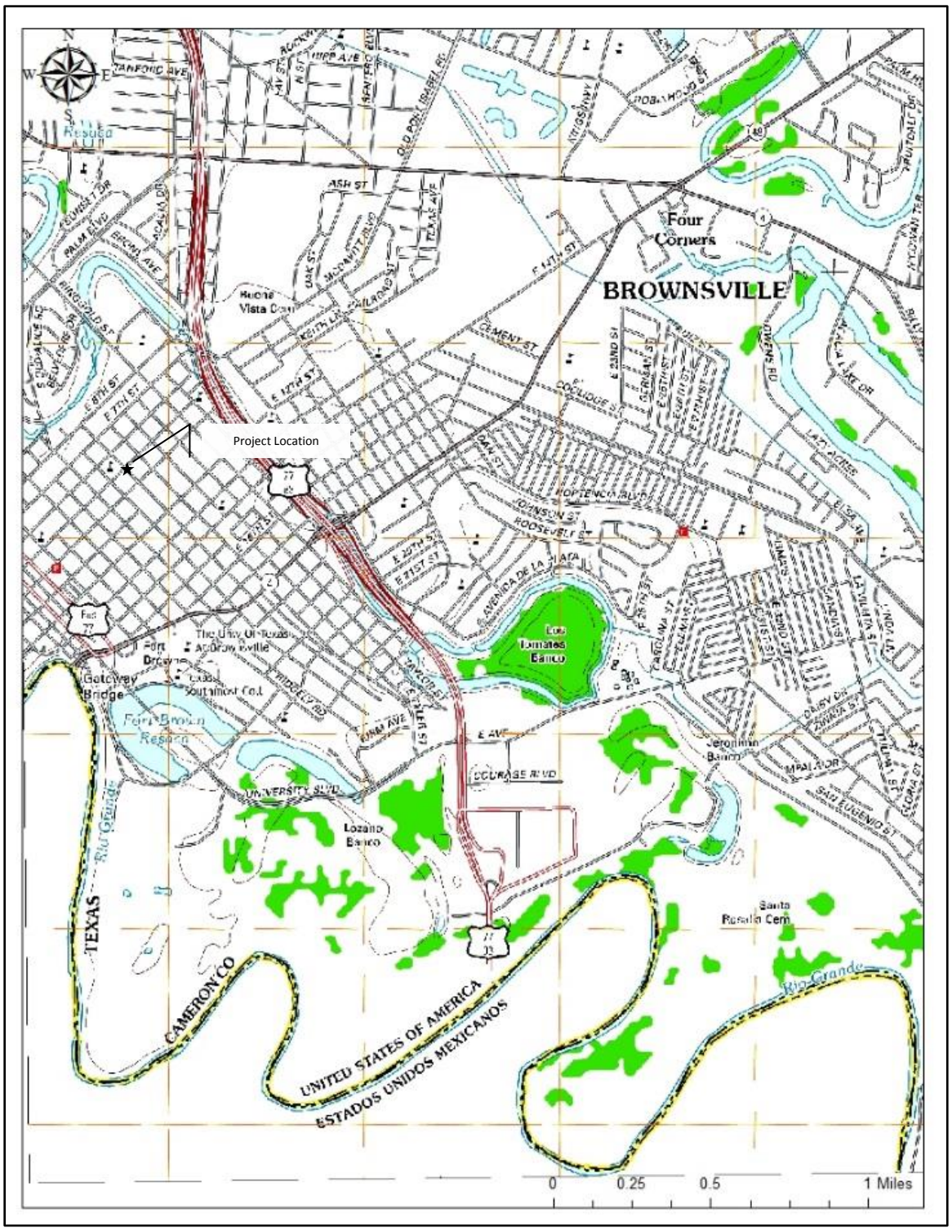

Figure 1. The Project Location on the *East Brownsville* (2597-433) USGS 7.5-Minute Quadrangle Map.

The cistern is located near the northwest corner of the building, 9 feet 9 inches south of the northern exterior wall, and 5 feet east of the existing steel column (**Figure 2**). Monitoring was requested to document the construction details of the feature and collect temporally diagnostic artifacts. Archival research also was recommended to aid in determining the construction date of the cistern.

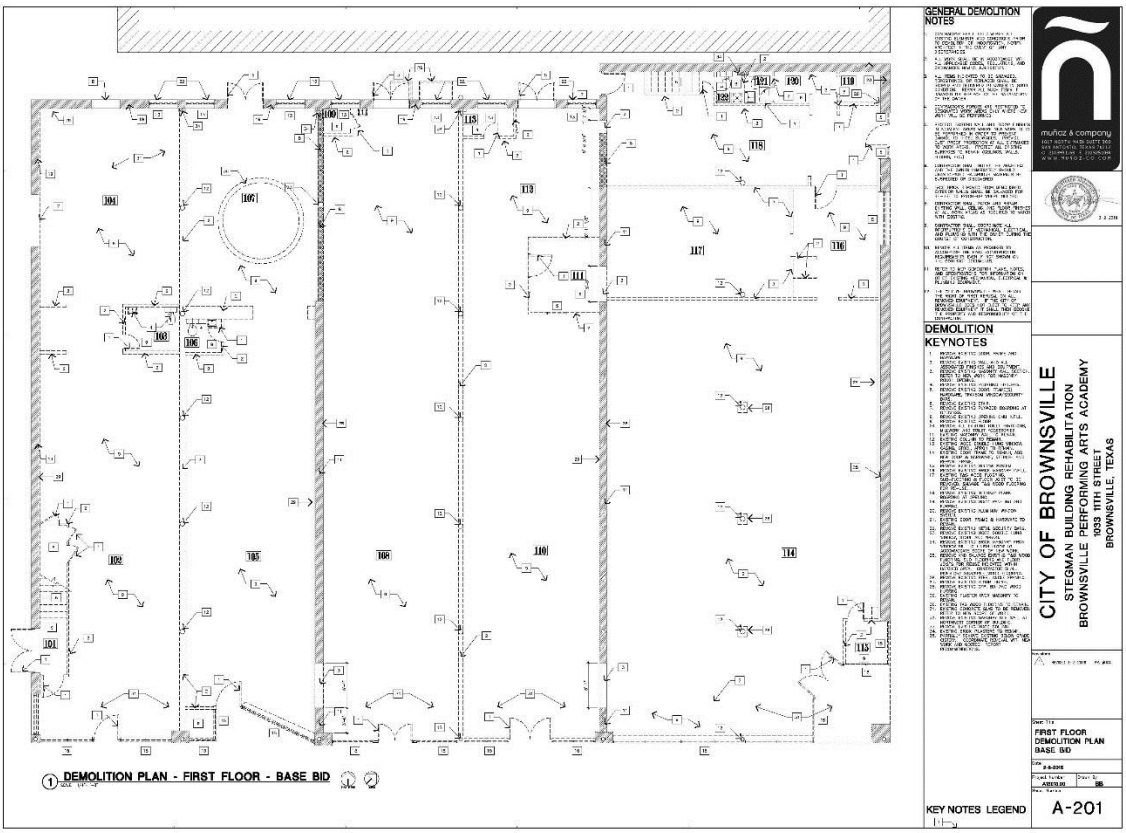

Figure 2. Location of the cistern (circular feature) near the northwest corner of the structure.

Archaeological monitoring of the partial demolition of the feature took place over a two day period, May 9th and 10th, 2016. During the monitoring, the project archaeologist documented the removal of matrix from inside the cistern, observed the demolition of the upper two feet of brick from the walls of the cistern, collected a sample of temporally diagnostic artifacts; and documented the dimensions and construction technique of the cistern. In addition, following the field monitoring, archival research was conducted to determine, the cistern's construction date, and the relationship of the feature to nearby homesteads. The monitoring was carried out under Texas Antiquities Committee Permit Number 7649. Steve Tomka served as the Principal Investigator and Mark Luzmoor carried out the archaeological monitoring. The artifacts collected during the monitoring were temporarily curated at the Raba Kistner

Archaeology Laboratory, with final curation taking place at the Center for Archaeological Research at the University of Texas at San Antonio.

In summary, the morphology of the cistern suggests affinities to the Beveled-Shouldered and Bell Cistern types and supports a construction date sometime during the early 1870s. Given the date range of the temporally diagnostic artifacts collected from the feature, it is likely that the cistern was closed by 1911, just prior to the construction of the Stegman Building. The cistern was constructed to service the single family home that stood at the location since possibly as early as the middle of the 19th century. When it was built, it may have been located behind the kitchen in an extra-mural area.

As a result of the archaeological investigations, the cistern was issued the trinomial 41CF230. The site is not considered eligible for listing on the National Register of Historic Places or as a State Antiquities Landmark due to the disturbance resulting from the construction of the Stegman Building and the current improvements project which impacted the cistern's integrity.

Property History: The Results of the Archival Background Research

The history of the APE can be traced to the early 17th Century, when Spanish explorers visited the area. In 1781, fifty-nine leagues of land, including present-day Brownsville, were granted to José Salvador de la Garza, who established a ranch in the area. Squatters and other settlers were sparsely spread across the area by the time General Zachary Taylor arrived in 1846. After the Mexican War, Fort Brown and the area were incorporated into Texas.

The town of Brownsville was officially surveyed and established in 1848. The Brownsville Town Company was established for the express purpose of selling lots to newcomers. By 1850, the town was composed of a diverse group of residents, including Forty-Niners passing through the area on their way to California and refugees from Matamoros. Brownsville continued to prosper during the Civil War, becoming a key trade route for the Confederate Army (Garza and Long 2010).

Brownsville continued to grow through the turn of the century. The St. Louis, Brownsville and Mexico Railway reached Brownsville in 1904, and a connection between the City and Matamoros was added in 1910. The introduction of the railroad - and an investment in infrastructure, including irrigation, lighting systems, waterworks, and telephone - attracted northern farmers and entrepreneurs into the area (Garza and Long 2010). These improvements to the City were advertised in newspapers across Texas.

The *San Antonio Express News* heralded improvements with the byline "Brownsville Expanding, City is in the Midst of One of the Greatest Seasons of Business Activity" (1912: A 11). The article cites the new railroad as a catalyst for attracting new businesses, and discusses new building endeavors in the city. This included the investment of $250,000.00 in a new city hall building and the construction of two new banks for $90,000.00 each.

However, two construction projects headed by Baldwin Gustav Stegman held the region's attention during this time period. The first was the construction of a "three-story" building on Levee Street. The *San Antonio Express News* wrote that this "Important Building Project" was to start as a one-story warehouse on Levee Street, between 10th and 11th Streets. The project would tear down the Caffarelli Brother's warehouse, displacing their operations until the warehouse was completed (1911: A 5). By 1912, Stegman announced that the building would have two additional stories, including a telephone switch-board on the second floor (1912: A 11). The first story, already completed, was constructed from locally made, face-pressed, buff colored brick.

The first mention of the Stegman Building dates to December 10th, 1911 and appears in the *San Antonio Express News*. The newspaper announced that Stegman had commenced construction activities of a "new business block." The first phase of the project was the dismantling and removal of his "handsome" home on the property (B 27).

Cisterns were a popular way for people to gather safe drinking water in the 19th century. Underground, masonry cisterns captured rainwater and provided residents with a reliable, sanitary water source (Denton 2011:3-4). As with other Texas cities, Brownsville residents used both nearby water sources – the Rio Grande – and cisterns. Previous archaeological studies in the area have revealed several nearby cisterns. In addition, several cisterns are depicted on the 1877 Sanborn Fire Insurance Map. A cistern, dating to 1885, is located to the southeast of the APE, and was found during renovations of Market Square (THC 2016). A second is located at the Stillman House, and dates to 1850, making it one of the earliest cisterns in the city (41CF94) (THC 2016). Given that multiple cisterns were located on a given city block, they were noteworthy features on early Sanborn Fire Insurance Maps. A review of these maps provides information not only on the history of the property, but a history of cisterns in Brownsville.

The earliest account of a structure being present within the APE is from the Sanborn Fire Insurance Map published in 1877 (**Figure 4**). Sanborn Fire Insurance Maps provide a wealth of information on structures

in a given location, including building materials, number of stories and windows, and associated out buildings. The outline of the current APE and cistern has been overlaid on the Sanborn Fire Insurance maps to facilitate comparisons. The 1877 map reflects thirty years of growth after the city's founding. As seen on the map, the house in the project location was two-stories tall and constructed of brick. A one-story, wooden addition is seen to the rear of the house. The small, open circle seen in this addition indicates that there is a small, metal chimney in this location. It is possible that the addition is a kitchen. Therefore, the overlay indicates that the cistern should have been located just north of the one-story structure's (kitchen) wall. It was not unusual for cisterns, including bell-shaped cisterns (c. 1880-1900), to be constructed in kitchen floors (Denton 2011:6-7). Unfortunately, there is no indication on the map that a cistern was on the property in 1877. Blue circles, representing cisterns - and in some cases, information on their capacity - appear on other blocks. The cisterns depicted on the 1877 Sanborn Fire Insurance Map are all located outside of standing structures. Those located under kitchen or homes are not depicted. A review of health policy reports from the late 1800's reveals that if they could afford it, Brownsville residents would purchase and construct cisterns to capture rainwater. Otherwise, residents used water and ice from the Rio Grande (Pope 1879:456).

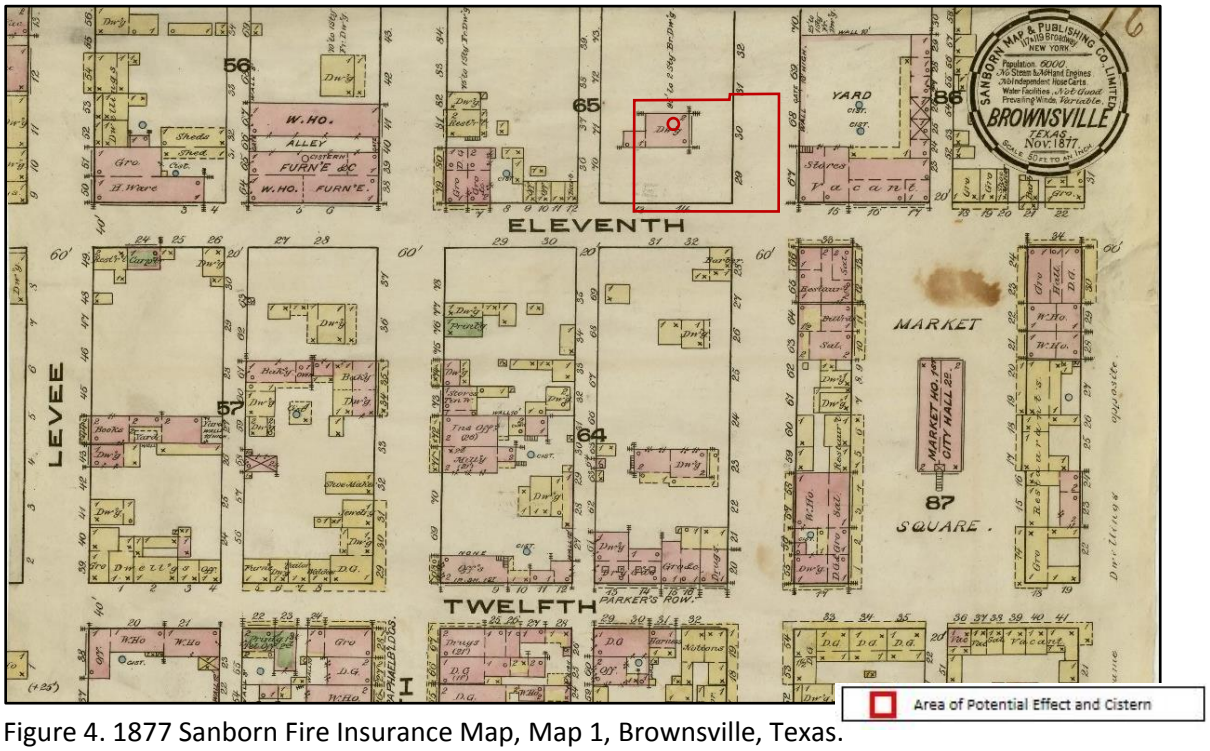

Figure 4. 1877 Sanborn Fire Insurance Map, Map 1, Brownsville, Texas.

Although there are a few changes to Brownsville in the 1885 map, there are no apparent changes to the APE (**Figure 5**). Cisterns appear throughout the map, including a covered cistern located on Elizabeth Street, mid-block between 12th and 11th Streets. The cistern is enclosed in a building behind dwellings and two bakeries.

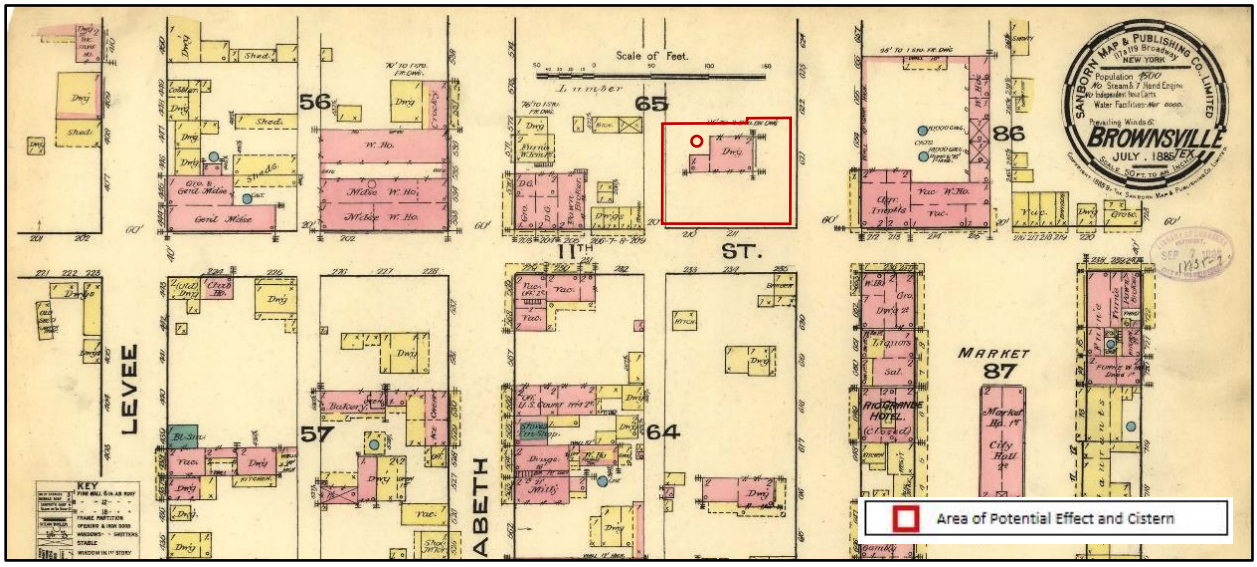

Figure 5. 1885 Sanborn Fire Insurance Map, Map 1, Brownsville, Texas.

The growth of Brownsville north of the APE is seen in the Sanborn map from 1894 (**Figure 6**). This includes new houses, churches, and businesses between 10th and 11th streets. Many of the city's cisterns are covered by new development. However, there is a cistern south of the U.S. Customs Building and Post Office appears to be covered by a one-story structure.

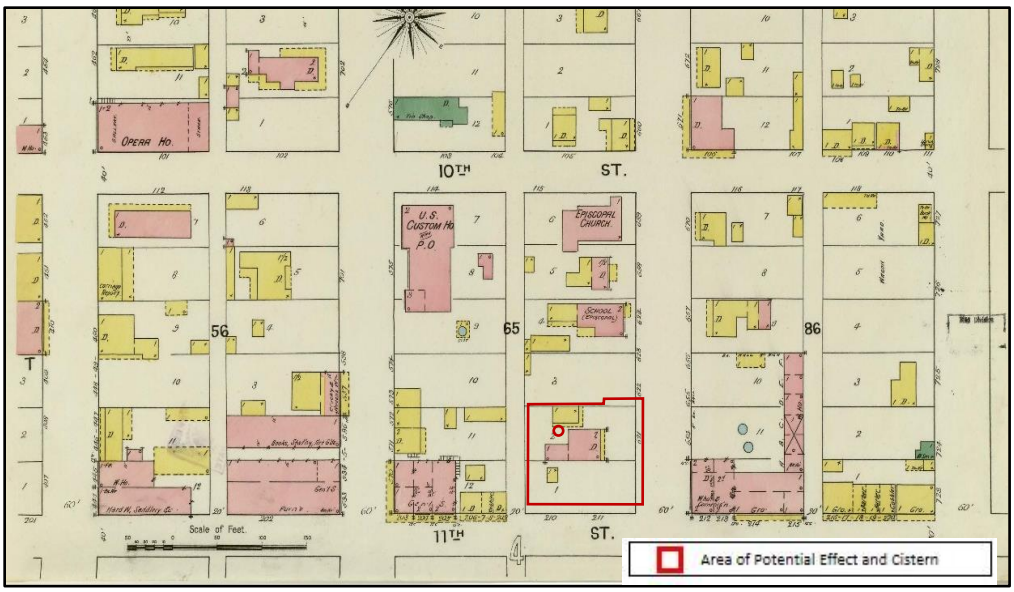

Figure 6. 1894 Sanborn Fire Insurance Map, Map 3, Brownsville, Texas.

The last Sanborn Map to include the house was published in 1906 (**Figure 7**). The blocks surrounding the house continue to show change, as dwellings are torn down for new commercial structures. In addition, this map no longer indicates the presence of cisterns within the city.

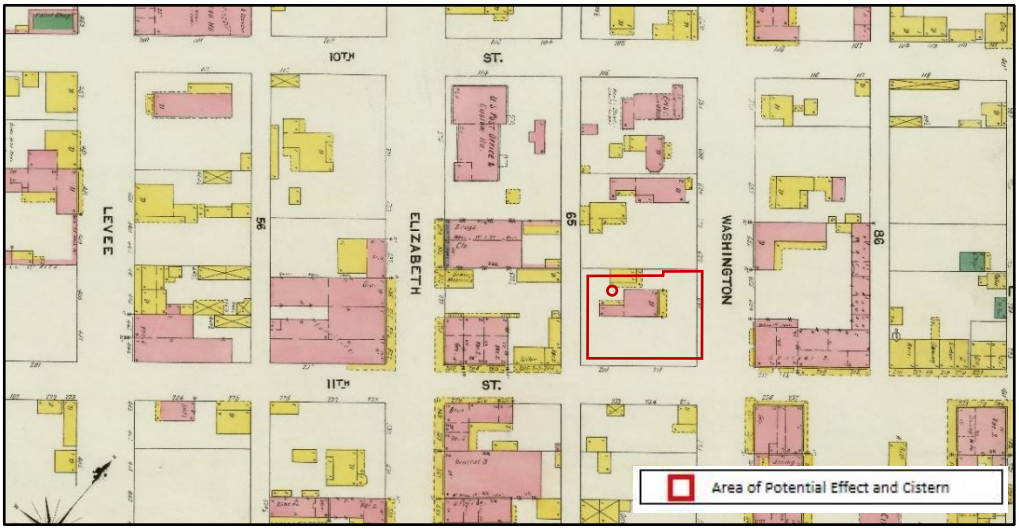

Figure 7. 1906 Sanborn Fire Insurance Map, Map 3, Brownsville, Texas.

The property exchanged hands several times before it was purchased by Stegman. In 1904, the *Brownsville Daily Herald* advertised Lots 1 and 2 of Block 65 (the property on Washington and 11th Streets) for sale as a part of the Ceferino Montejano estate (1904: 1). Don Ceferino Montejano died at the age of 77 in 1903. His obituary noted that he immigrated to the area from Spain and was one of

Brownsville's earliest residents. Montejano most likely rented out the house on the property, as the paper noted his main residence was on Madison Street (1903).

Miguel Fernandez, one of the directors of the Merchant's Bank in Brownsville, purchased the property next. Fernandez most likely lived in the house with his family. Fernandez then sells the property in 1907 to Alexander and E.K. Brokaw. According to the account from the *Brownsville Daily Herald*, Brokaw profited greatly from the California gold rush. He had decided to invest his funds in Texas, hoping to profit from sugar production. Brokaw paid $6,000.00 for the property and would be moving his family to Brownsville (1907:1).

Brokaw, and his wife Dollie, are identified in the census from 1910. Unfortunately, census records from this time period did not note house numbers as associated with individuals on the census. The census from 1910 is unique, in that the census taker divided his entries by blocks. The section showing the residents of Washington Street between 10th and 11th Streets reflects the diverse population that was attracted to Brownsville during this period of growth. The street contained salesmen, an architect, managers of nearby businesses, and an Episcopal pastor and his family. The Brokaw residence included two borders, who were real estate brokers, and Sarah Gordon, a servant.

B.G. Stegman first appears in the *Brownsville Daily Herald* in 1904, after his arrival from Amarillo. Later that year, he joined Judge Wells to head a new corporation designed to bring telephones to Brownsville. Stegman purchased Lots 1 and 2 from Brokaw in January of 1910 (*The Houston Post* 1910:4). The brick home on the property was then dismantled in 1911 to make way for the construction of the building. The completed building appears in the Sanborn Map dated to 1914 (**Figure 8**). This cistern does not appear on the 1914 map. In addition, the cistern was not present on the later Sanborn Fire Insurance Maps dating from 1919 to 1930.

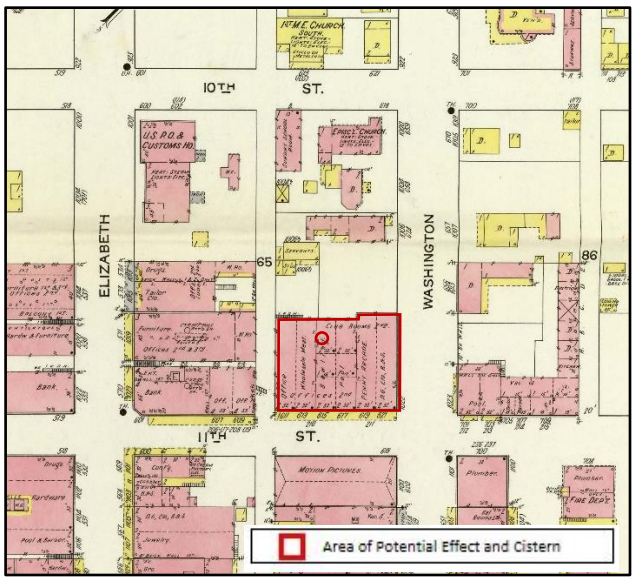

Figure 8. 1914 Sanborn Fire Insurance Map, Map 9, Brownsville, Texas.

Field Methodology and Monitoring Results

In 1911 during the construction of the Stegman Building, the top portion of the cistern (41CF230) was removed to aid the construction. On May 9th, prior to the arrival of the project archaeologist, an additional two-foot segment of the upper lip of the cistern was demolished and the content of the cistern was removed and subsequently refilled. It is our understanding that the removal of matrix was done in order to find the bottom of the feature. **Figure 9** shows the feature as it was encountered when the Project Archaeologist arrived on site.


Figure 9. The cistern located at the Stegman Building.

Actual monitoring of the construction activities began on May 9th shortly after the aforementioned partial modification of the cistern remnant and continued through May 10th, 2016. RKEI monitored the

removal of matrix from the cistern. During the removal of matrix from the feature, the RKEI archaeologist collected a small number of temporally diagnostic artifacts, documented construction techniques and dimensions, and photo-documented construction work as it was performed.

On May 9th, the top of the cistern remnant was observed in relation to the existing foundation of the Stegman Building. The missing portion of the cistern indicates that the top course was removed in order to accommodate the new building's foundation (**Figure 10**). This is not unusual, as many cisterns were leveled as new structures were built over them. A mini-excavator was used to remove matrix from the cistern. At 1.4 meters below the existing foundation, water was observed seeping into the bottom of the feature. At 2.1 meters below the foundation, the amount of water prevented further excavation within the feature.

Figure 10. The cistern with top two feet removed, showing current building foundation.

On May 10th, the mini-excavator cleared matrix from the eastern side of the cistern (**Figure 11**). The mini-excavator could not reach the bottom of the cistern, however, the manager noted that the bottom of the feature was brick and located approximately 1.85 meters below the current surface. The excavator was able to remove fill to a depth of 1.6 meters (**Figure 12**). The inner diameter of the feature was 4.2 meters wide, while the outer diameter was 4.8 meters wide (**Figure 13**). The cistern wall thickness was approximately 30 cm and exhibited no slope.

Figure 11. Mini-Excavator removing matrix from the feature.

Figure 12. Eastern wall of the feature at 1.6 meters below the surface

Figure 13. Top of the eastern wall of the cistern, indicating width of brick and mortar.

Since the top of the cistern was removed in the 1910s, it is difficult to determine the type of cistern on the property. The remnant of the cistern that RKEI observed exhibited straight walls with no slope. The cistern has an outer diameter of 4.8 meters (13 feet) and a depth of 1.85 meters (6 feet). The cistern is constructed of local, buff-colored brick, and its walls are least three courses thick (**Figure 14**). The brick is held together with thick mortar and the inside of the feature is mortar-coated.

Figure 14. A portion of the removed brick and mortar, 75 cm in length.

The masonry body structure, shoulder, neck, mouth (access point), plaster or mortar lining, water intake line, and water outtake line are the major components used to date and classify a cistern (Denton 2011:4). Unfortunately, the upper components, including the shoulder, neck, mouth, and water intake and outtake lines were destroyed in order to construct the Stegman Building. This is not unusual, as most urban cisterns have been similarly demolished in the early 1900's. Although these components are missing, the Beveled-Shoulder and Bell style cisterns have similar features to the Stegman Building feature. The Beveled-Shoulder cistern dates to the 1860's to the 1870's. The construction of the cistern may be single- or double-coursed brick. Outtake lines for these cisterns often fed directly into houses, however, by the late 1870's, these cisterns were being placed directly under houses. The Bell Cistern (c. 1880 – 1900) were constructed from two course of brick and thickly applied mortar. These cisterns were often placed in kitchen floors (Denton 2011:6-7).

Cisterns were kept free of debris and refuse while they were in use, to maintain sanitary conditions. Therefore and typically, the matrix and artifacts encountered in a cistern are related to the post-abandonment of the feature. Nonetheless, a small collection of temporally diagnostic items were recovered during monitoring (**Figure 15 and Figure 16**).

Figure 15. Bottle recovered from fill matrix.

Figure 16. Artifacts recovered from the cistern. Top Row: Olive glass; nail (unknown type); Bottom Row:

Machine cut bone; white earthenware; hand-painted and sponge decorated earthenwares. Glass artifacts, either through the color of the glass or evidence of manufacture, can serve as temporally diagnostic artifacts. The single bottle recovered from the feature is brown in color and has seams from manufacture (**Figure 15**). The seams, which run from the neck of the bottle through the base, indicate that the bottle was manufactured from a mouth-blown, cup- bottom mold (Toulouse 1969). These bottles were manufactured between the mid- to late 1880s to around 1910. The neck of the bottle shows evidence of a tooled finish, and ends with a crown cap. Tooled finishes on bottles were added to bottles, including beer bottles, began between 1885 and 1890 (Lindsey 2010). Machine manufactured beer and soda bottles were first produced in 1905, but were not popular until 1915. Therefore, the bottle most likely dates from the mid-to late-1880s to 1905-1910.

Olive- amber to dark olive green glass was popular during the 19th and early 20th centuries (Figure 16, top row). Its popularity dropped-off after 1900, except for alcohol bottling (SHA 2016). White earthenwares are high-fired, refined clay ceramics, and primarily date to the 19th century (Figure 16, top row left). White earthenware and stoneware were difficult to procure until the arrival of the railroad increased their availability across the state (Fox et al. 1997). There were a few producers in Texas as

early as the mid-19th century. Hand-painted and sponge decorated white earthenwares were recovered from the matrix within the cistern (Figure 16, bottom row right). Hand-painted wares, including the red and green floral motif found at the site, arrived in South Texas by 1830 (Shelton 2015). Spongewares were popular between 1850 and 1890, however, they were produced until the early 1900s. The distinctive pattern seen on these wares (Figure 16, bottom row right) was produced by dabbing paint onto the vessel using a sponge or cloth (Shelton 2016).

Butchering marks on animal bone provide additional insights into the feature's date. The machine saw-cut bone (Figure 16, bottom row left) from a domestic animal (cow) dates to the early 20th Century (Brown and De La O 1997; Christenson 1996).

The yellow and buff colored, lime based bricks used to construct the features may date to the 1870s. The earliest brick in Brownsville was most likely imported from Matamoros, or locations just north of the river. Matamoros bricks were often yellow in color due to the calcium in local clay deposits (Arreola and Curtis 1993:160-161). Buff colored bricks were popular, locally made bricks. These durable bricks are noted as the preferred construction material of B.G. Stegman for his buildings on Levee Street and Washington Street (*Brownsville Daily Herald* 1911: 10). By 1870, there were four local brick manufacturers in Brownsville, producing 690,000 bricks per year. However, by 1880, the only manufacturer in town was Louis Kowalski (Cook 1998).

Status of the Feature

As a result of the investigation of the cistern at the Stegman Building, the feature was designated as Site 41CF230. The remaining portion of the cistern has been left *in situ* and filled with flowable fill. The upper two feet of brick were removed and the matrix had been disturbed within the cistern before the archaeologist arrived on site. The matrix was leveled in certain locations in order to accommodate new plumbing lines.

Summary and Recommendations

The history of the property, based on newspaper accounts from the time period, indicates that the house demolished by Stegman in 1911 was most likely constructed in the early 1870s. The use of yellow and buff colored bricks indicates that the construction materials originated from both Matamoros and

Brownsville, which may have been occurring during the early part of the decade. In addition, the earliest depiction of the house is on the 1877 Sanborn Fire Insurance Map. Although the cistern does not appear on this map, there are two styles of cisterns that were constructed under the floors of houses, including kitchens. If the cistern was actually constructed under the kitchen to provide water for the household, this would account for its lack of presence on the Sanborn Fire Insurance Map. Despite missing the upper components that aid in determining style and dates of cisterns, the Beveled-Shoulder and the Bell Cistern have components that match the feature at the Stegman Building. The typical dates associated with these cistern types further substantiate a construction date of the early 1870s. The newspaper accounts indicate that the property exchanged hands frequently, until it was purchased by B.G. Stegman. Given the date range of the artifacts located in the matrix, and the location of the foundation over the feature, it is likely that the cistern was closed in 1911, just prior to the construction of the Stegman Building.

Impacts occurred during the current renovations to the building even before the start of the construction monitoring. Specifically, to accommodate a new concrete slab, the height of the cistern wall remnant was again shortened by an additional two feet. The cistern was cleaned out and new, flowable fill was added. In addition, u-shaped notches were cut into the cistern to accommodate plumbing lines.

Overall, the archaeological monitoring and related archival research have established that the cistern feature was not functionally related to the Stegman Building but rather likely predated its construction and was associated with a household that stood in the area as early as the 1870s. The House was demolished and the cistern was shortened in height in 1911 when the construction of the Stegman Building began and was subsequently buried beneath the floor of the building until its recent re-discovery. It is clear that the recent improvements to the Stegman Building did not impact a significant feature associated with the building but rather disturbed and partially demolished an earlier feature that had already been impacted by construction in the early decades of the 20th century (1911).

Due to the impacts that occurred to the cistern (41CF230) during the late 1800s and the early 1900s, as well as the removal of the upper 2 feet of bricks during the current construction project, it is not considered eligible for listing on the National Register of Historic Places or as a State Antiquities Landmark. The remnants of 41CF230 have been preserved and left *in situ*.

All project related documentation produced during monitoring was prepared in accordance with federal regulation 36 CFR Part 79 and with THC requirements for State Held-in-Trust collections. Field notes, photographs, and other documentation were printed on acid-free paper and placed into labeled archival folders, and converted into electronic documents. A copy of this report and all digital materials were saved onto a CD and stored with related documentation. Temporally diagnostic artifacts and project documentation will be curated at the Center for Archaeological Research at the University of Texas at San Antonio.

REFERENCES

Arreola, D.D. and J.R. Curtis
1993 *The Mexican Border Cities: Landscape Anatomy and Place Personality.* The University of Arizona Press: Tucson.

Brown, M.J. and N. De La O
1997 Beneath a Crescent Moon: A Contextual and Architectural Analysis of Privies from the Alamodome Project Area. In *Archaeology at the Alamodome: Investigations of a San Antonio Neighborhood in Transition*. *Volume III: Artifacts and Special Studies*, edited by A.A. Fox, M. Renner, and R.J. Hard, pp. 256-272. Archaeological Survey Report No. 238, Center for Archaeological Research, The University of Texas at San Antonio.

Brownsville Daily Herald, The [Houston, Texas]
1903a Don Cefernio Montejano Dies. 3 December. Brownsville, Texas.
1903b Merchant's National Bank Opens. 5 December:1. Brownsville, Texas.
1904a Local Items, B.G. Stegman. 27 May. Brownsville, Texas.
1904b Phones for Brownsville. 22 June:4. Brownsville, Texas.
1904c Ceferino Montejano Property for Sale. 2 July:1. Brownsville, Texas.
1907 Californian Buys City Property. 18 January:1. Brownsville, Texas.

Christenson, L.E.
1996 Economic Analysis of Bone from Selected Historic Sites. *Proceedings of the Society for California Archaeology* 9:324-329.

Cook, S.
1998 Mexican Brick Culture in the Building of Texas, 1800s-1980s. Texas A&M University Press, College Station.

Denton, M.H.
2011 Cisterns in Texas. *Current Archeology in Texas* 13(1):3-9.

Garza, A. A. and C. Long
2010 BROWNSVILLE, TX, *Handbook of Texas Online,* http://www.tshaonline.org/handbook/online/articles/hdb04, accessed May 16, 2016.

Houston Post, The [Houston, Texas]
1910 Important Real Estate Transactions (Brownsville). 24 January:4. Houston, Texas.

Lindsey, B.
2010 The Finishing Touch. *Historic Glass and Bottle Information and Website*, https://sha.org/bottle/pdffiles/finishingtoucharticle.pdf, accessed May 2016.

Pope, J.H.
1879 J.H. Pope to T.J. Turner, published letter, Supplemental Report. In *Annual Report of the National Board of Health, 1879-1885*, volume 7, pp. 456-458. Government Printing Office, Washington, D.C.

San Antonio Express News, The [San Antonio, Texas]
1911a Important Building Project (Brownsville). 16 April:A 5. San Antonio, Texas.
1911b New three-story building to be constructed at 11th and Levee Streets. (Brownsville). 30 April:10. San Antonio, Texas.
1911c New two-story business building to be constructed (Brownsville). 10 Dec:B 27. San Antonio, Texas.
1912 Brownsville Expanding. 11 May:11. San Antonio, Texas.

Society for Historical Archaeology (SHA)
2016 Olive Greens & Olive Ambers. Bottle/Glass Colors. *Historic Glass and Bottle Information and Website*, https://sha.org/bottle/colors.htm#Olive Greens/Ambers, accessed May 2016.

Texas Historical Commission (THC)
2016 Texas Archeological Sites Atlas, http://nueces.thc.state.tx.us/, accessed May 2016.

Toulouse, J.H.
1969 A Primer on Mold Seams. *The Western Collector,* November/December 1969:526-587. *Historic Glass and Bottle Information and Website*, https://sha.org/bottle/pdffiles/moldseams.pdf, accessed May 2016.

United States Federal Census
1910 Brownsville Ward 3, Cameron, Texas. Roll T624_153:13B. *Heritage Quest Online*, Acestry.com, www.ancestryheritagequest.com, accessed May 2016.