

The background of the cover is a photograph of a historic stone wall. On the left, a large, rough-hewn stone pillar rises. To the right, a semi-circular archway is constructed from reddish-brown bricks, set into a darker, more textured stone wall. The sky is visible through the arch.

National Park Service
United States Department of the Interior
San Antonio Missions National Historical Park
Texas

Historic Structure Report Mission San José Convento

Final Submission
2019



Center for Cultural
Sustainability

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Chapter 1: Study Summary

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Purpose of Report The purpose of this Historic Structure Report (HSR) is to provide information crucial to maintaining historic fabric, authenticity and integrity of the Mission San José convento. This HSR provides a comprehensive documentation of the convento structure's historical significance, chronological development and physical condition. The following chapters set forth conservation objectives and work requirements, and provide specific guidance on treatments. Viewed as a whole, the research and analysis combine to serve as a comprehensive planning document for the future care and maintenance of the structure.

The research done to produce this Historic Structure Report (HSR) included archival as well as field investigations, plus reading a lot of work by various scholars and conservators over the past 50 years. The HSR team at The University of Texas at San Antonio, Center for Cultural Sustainability (UTSA CCS), benefited greatly from the fine quality of work commissioned by the San Antonio Missions National Historic Park (SAAN). Also benefiting the research are the numerous historic photographs of the convento, testament to the sustained heritage tourism economy of San Antonio and the high photogenic quality of the convento.

Key Discoveries The first major research finding concerns the amount of 1860s modifications that were made under the direction of Benedictines from Pennsylvania who attempted to make the convento into a monastery. Their presence was no secret, but the extent of their intervention was a mild surprise. The Benedictines abandoned the monastery project unfinished in 1867. Subsequent conservation by Harvey P. Smith in the 1930s merely reconstituted some collapsed wall areas. So, the structure surviving today is largely Benedictine-era work which includes the Spanish Colonial fabric they chose to retain, principally the two-story arched facade.

The second major finding concerns the overall soundness of the structure. This finding comes from NPS Vanishing Treasures engineer James Mason, and is supported by review of past reports over the decades, coupled with our field observations. While there is a sizable amount of necessary conservation work, the structural repairs are localized to one area between two window openings in the north wall. Here the wall is out-of-plane and in need of permanent stabilization. All other cracks still require diagnostic monitoring under the direction of a structural engineer with periodic analysis.

Recommendations The historic preservation objective for the convento at Mission San José is relatively straightforward: the "Preservation" treatment as defined in the Secre-

tary of the Interior's *Standards for the Treatment of Historic Properties*. This is elaborated in Chapter 7 of the HSR. The intent is simple, which is to use a light and gentle touch in conservation of the materials. Of course, life safety issues driven by concern for structural stability will call for repair that is more than a “light touch.” Beyond the one area of needed structural improvement, the principal conservation tasks will be at the coping and sills of the stone walls which all require a smooth, well-adhered, weathertight cap (called a cement wash) to prevent entry of rainwater. Another immediate need is non-abrasive cleaning of stones to remove biological growth that is holding moisture and harming many stones. The need for ongoing, periodic cleaning should be evaluated in the future. Other treatments are recommended at isolated areas, all consistent with the preservation objective. Most important among these is proper care of the extant Spanish Colonial plaster. All the treatments are rationalized in Chapter 7, Historic Preservation Objectives, and later described and prioritized in Chapter 9, Work Recommendations and Alternatives.

The current use of the property will, of course, continue. Owned by the Catholic Archdiocese of San Antonio and managed by National Park Service under a cooperative agreement, the convento is a cultural resource in a public park. An accessible route, barrier-free, will need to be maintained through the convento. The primary useful purpose—education—is achieved through interpretive programs provided by SAAN. The major educational focus concerns Spanish Colonial history. For many visitors, the convento is simply enjoyed for its value as a beautiful ruin which provides tangible evidence of past endeavors. The intangible aspect of living heritage plays a large role here, as well, because the convento was built, modified, used, and preserved by the ancestors of present-day people still living in San Antonio, and it thus embodies the cultural heritage of past generations. Today it remains a place for festive celebration, spiritual rejuvenation, and meditative reflection just as much as when it was first built by local people under direction of the Spanish missionaries in the mid-18th century.

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Location of Historic Structure Mission San José y San Miguel de Aguayo is among a series of five 18th-century Spanish Colonial missions located in the City of San Antonio, Bexar County, Texas, United States of America. (NPS, 2014, p. 2).

Ownership of Historic Structure The Catholic Archdiocese of San Antonio owns the mission compound and manages portions of the property still functioning as an active parish. The National Park Services manages the remainder of the property, including the convento structures (NPS, 2014, p. 244).

Landmark Status In 1941, Mission San José became a National Historic Site. Additionally, the mission is part of the San Antonio Missions National Historical Park, which is on the National Register of Historic Places. Other designations include Texas State Antiquities Landmark, Recorded Texas Historic Landmark, and City of San Antonio Local Landmark (NPS, 2014, pp. 258–259). Collectively, San José and the other four San Antonio missions achieved UNESCO World Heritage status in 2015 (UNESCO, 2015, p. 213).

HSR Methodology With the purpose of creating a comprehensive report to provide as much information as possible about the structure, several methods for collecting information have been used. Said methods can be divided into four categories: literature review, archival research, field survey, and heritage documentation.

- 1. Literature review:** Being a World Heritage site, the missions of San Antonio have previously been studied and documented. For an initial understanding of the subject structure and its site, analysis of the literature written about the missions was performed. Books, articles, and reports about the history and development of the site were reviewed to understand the evolution and significance of the building. Moreover, condition assessments and reports of previous interventions were reviewed, analyzed, and summarized to help in the understanding of the current condition of the structure and to determine the deterioration that the structure has undergone over time. The APA citation format is used throughout and all sources are in the list of references of this HSR.
- 2. Archival research:** Archival research was conducted to gain more knowledge about the structure’s history, focusing on the uses, owners, and construction chronology. The archives visited were the NPS SAAN headquarters at 2202 Roosevelt Avenue, the Old Spanish Missions Collection at Our Lady of the Lake University (OLLU), the UTSA John Peace Library (includes all past reports by the Center for Archaeological Research), and

the Daughters of the Republic of Texas (DRT) Library Collection. In addition to the visits to these archives, the Southern Methodist University (SMU) library, the UTSA Institute of Texan Cultures (ITC), the Library of Congress, the San Antonio Conservation Society library, the University of North Texas (UNT) library, the Amon Carter Museum of American Art, the University of Southern California (USC) library, and the Portal to Texas History were also consulted.

3. **Field survey:** Many visits from March 1, 2018, to August 2, 2018, were made to the building site to assess the structure's current condition. For this assessment, recommendations established in the ICOMOS document *Illustrated Glossary on Stone Deterioration Patterns* (2008) were used. Heritage documentation, described below, was accomplished during the visits. Since it is more advisable to have homogeneous lighting in order to achieve high-quality photogrammetry results, most visits were scheduled early in the morning or on cloudy days. Moreover, while the data needed for photogrammetry was being collected, a detailed visual survey was performed.

A bucket-lift affixed to a pick-up truck owned by NPS SAAN was used on three occasions to access generally inaccessible-reach areas of the building. The first time (May 10, 2018), the bucket-lift was placed in the north side of the building with the purpose of making a visual survey of the higher parts of the walls and capping. The second time (May 16, 2018), placed in the same area, the bucket-lift was used to acquire photographic documentation from higher parts of the wall. The third time (July 24, 2018), the bucket-lift was located in the east side of the structure to assess the condition of the capping on kitchen and refectory walls. Also on July 24, ladders were positioned by NPS SAAN staff to give access into the doorless rooms.

In addition to this condition assessment performed by the UTSA CCS team, from July 30, 2018, to August 2, 2018, James Mason, a structural engineer working for the National Park Service and based at Mesa Verde National Park and Santa Fe, NM, visited the structure to perform an assessment of its structural problems. The first visit was on August 1, 2018, when different high-reach equipment was used to allow his access to all the areas of the convento for a complete analysis. Ladders were used again to enter the doorless rooms, a scaffolding was placed in the south corridor to assess the octagonal column, and a vertical lift was positioned in different areas: the courtyard, to look into the coping of the west part as well as the coping of the arcade, and the north side of the convento, where several cracks had

already been identified in previous visits.

The second visit was in the early morning of August 2, 2018, in order to use a thermal camera (Flir MSX Technology C2). This camera was used around the whole convento, focusing on the north wall. The thermal camera was used to find more information about the walls, such as the use of different materials or infills.

- ICOMOS criteria recommended for assessment of masonry is explained in the condition assessment section of this HSR.

- Structural assessment and recommendations report by James Mason is included in this HSR as Appendix A and is utilized in sections on condition assessment and treatment recommendations.

4. **Heritage documentation:** Lidar data acquired in January 2010 was provided by the Oakland, CA-based nonprofit CyArk for use in documentation of the structure, but data was insufficient at the convento for the level of analysis needed to produce this HSR. Consequently, the UTSA CCS determined the best technique was to combine traditional and innovative techniques to create architectural plans with high-quality photo elevations.

Measurements were obtained with a traditional method using tape measures as well as a laser meter (Leica DISTO D330i), clipboards, paper, and pencils to create new plans. The photo elevations were created using photogrammetry, a computerized process that produces spatially accurate and measurable images. In photogrammetry, the input is photographs and the output is a map, drawing, or 3-D model. The process is divided into two main steps: capturing the photos and processing the photos. In order to capture the photos, the equipment needed is a digital camera, a tripod, and scale bars. However, depending on the lighting conditions it might be possible to obtain good results without the tripod, and scales can be added to the model in the software using known measures.

To obtain high-quality results that could be used for the condition assessment of the walls, the recommendations given by San Francisco, CA-based nonprofit organization Cultural Heritage Imaging (CHI) and by photogrammetry software developer Agisoft regarding the overlapping needed for the photos and the camera settings were followed, as well as the camera position to acquire a reliable, measurable model. After having obtained all the pictures needed, they were processed with a photogrammetry software; in this case, Agisoft PhotoScan (professional edition) was used. The program aligns the pictures by determining the camera position and the camera calibration, creating a sparse point cloud that is refined in

subsequent steps creating a scaled 3-D model that can be exported to Revit, Rhinoceros, or AutoCAD softwares.

Photography equipment used for this HSR include a DSLR camera, model Nikon D300, and two different lenses, a Nikon DX AF-S Nikkor 1835 mm 1:3.55.6G ED and a Nikon AF Nikkor 35 mm 1:2 D.

Furthermore, new drawings were used for documentation and condition assessment of the structure. The drawings served as a base for which the deterioration patterns observed are represented graphically following the ICOMOS recommendations.

To be consistent with previous condition assessment reports, the UTSA CCS team continued to use the same nomenclature for the spaces of the convento that had been established by previous consultants, also adding logical names to the areas that had not been previously designated.

Funding	This HSR was supported by the National Park Service Repair and Rehabilitation Fund.
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Chapter 3: Historical Background and Context

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Historical Background/Context Mission San José, along with the four other San Antonio missions, was the physical embodiment of the Spanish Colonial project in New Spain that operated at dual purposes: to evangelize the area's indigenous population, and to secure the frontier through the establishment of secular, self-supporting communities of loyal Spanish subjects (National Park Service [NPS], 2014, p. 30). Founded on February 23, 1720, on the east bank of the San Antonio River, and subsequently moved to its present site between 1724 and 1727, Mission San José y San Miguel de Aguayo originally served about 240 indigenous people and was initially headed by friars Agustín Patrón and Miguel Nuñez de Haro from the Franciscan College of Nuestra Señora de Guadalupe de Zacatecas (Cruz, 2011).

The Franciscan missionaries utilized a five-step process wherein semi-nomadic, hunter-gatherer, indigenous people were trained in and converted to the Roman Catholic faith and acculturated to a new way of farming and ranching (National Park Service [NPS], 2014, p. 113). The form of the mission compounds reflected these goals and typically included churches, conventos, dwellings, granaries, storerooms, workshops, and defenses. Although these facilities were paid for by the Spanish Crown and the programs administered by the missionaries, the entirety of the mission real properties were technically owned by the indigenous neophytes. The missionaries held the properties in trust, and upon the completion of the process, all property was distributed to the community. This process was intended to be complete within 10 years, but due to drought, epidemics, and attacks by indigenous tribes, the San Antonio mission projects lasted a little over 100 years (NPS, 2014, p. 129). In terms of Mission San José, this extended duration resulted in multiple projects to improve and enlarge the mission facilities. While the mission's convento generally adhered to the type (enclosed, two-story arcaded cloister, similar to Mission San Antonio de Valero convento), during the mission era it was built and rebuilt over a number of years to accommodate growth, which Ivey (2018) described at one point to include storerooms, cells (monastic living quarters), a kitchen, stairwell, latrine, workroom, and entry hall (p. 204).

Mission San José's final secularization occurred in 1824, and thereafter the ownership of the conventos was in flux for almost 100 years. The Roman Catholic Church retained ownership of the church (including the sacristy), the portería (the semi-enclosed room immediately outside of the sacristy), and the lower- and upper-level convento rooms immediately attached to the west end walls of sacristy and church (Ivey, 2018, p. 457). The remainder of the convento property was not distributed to indigenous persons who had been converted to be Spanish citizens as had been planned a century earlier when the mission was

established and built. Rather, Juan Martín Veramendi purchased a majority of the structure, which was subsequently partitioned and distributed to his heirs following his death in 1833 (Ivey, 2018, p. 450). Upon Texas' independence in 1836, the republic confiscated the Church mission properties, but otherwise did nothing with them. Mindful of their abandonment and with a plan to return the missions to their original purpose, Father Jean-Marie Odin (later, first Roman Catholic bishop of Galveston) successfully petitioned the Texas Legislature for their return; on January 13, 1841, the legislature approved an act returning the missions and their adjoining lands to the Church (Bremer, 2001, p. 150–151). In an effort to establish a headquarters for Conventual Franciscans, Fray Leopold Moczygamba bought the convento in 1855 from local businessman John Twohig, who had bought the property from Maria Antonia Veramendi de Sierra and her husband Antonio Sierra the year before. This was part of Fr. Odin's effort to recruit religious orders to occupy the missions and serve the community. Fray Moczygamba's efforts fell through in 1859, though, and Fr. Odin subsequently turned to the Benedictines of Latrobe, Pennsylvania. In that same year, both Fr. Odin's and Fray Moczygamba's ownership interests in the convento passed to the Benedictines (Ivey, 2018, p. 457).

The Benedictines initiated a large-scale construction project that sought to transform the convento to serve as a monastery and seminary. During this time the convento's interior walls were reconfigured, as were the fenestrations. Most notably, the Benedictines constructed the distinctive, extant lancet windows. The American Civil War created an untenable situation for the Benedictines, though, and they were recalled to Pennsylvania in 1868 (Habig, 1968a, p. 147). At this point ownership was transferred to the local ordinary, the Bishop of Galveston and then to the Holy Cross Fathers of Notre Dame, Indiana. During their 12-year ownership the mission was nominally cared for by visiting parish priests (Ivey, 2018, p. 460). Unfortunately, the structures fell to ruin during this period of general neglect. The greater part of the church dome collapsed to the floor on December 25, 1874, during celebration of midnight Mass in the sacristy chapel (Habig, 1968a, p. 149).

In 1923, Mission San José, along with Missions Concepción, San Juan, and Espada, were placed under the care of the Redemptorist Fathers. During this time, the Mission San José church suffered another great calamity when in 1928 its bell tower collapsed. The tower was reconstructed, and in 1931 after over a hundred-year absence, the Franciscans returned to Mission San José (Habig, 1968a, p.153).

During the 1930s the mission compound was the subject of a large-scale

restoration performed by the Depression-era Civil Works Administration (CWA) under the direction of architect Harvey P. Smith. Smith had already assisted the San Antonio Conservation Society's effort to restore the granary, which was completed in August 1933 (Thurber et al., 1993, p. 14). A month later, a massive restoration, which included the reconstruction of the indigenous residential quarters and the reconstruction of the church's collapsed north wall and dome, began. When the CWA was dissolved in 1934, the restoration work at San José continued briefly under the Federal Emergency Relief Administration prior to the creation of the Works Progress Administration (WPA), which commenced its work on the restoration in January 1935 (Thurber, et al., 1993, p. 88).

By the late 1930s, ownership of the mission compound was largely held by the Church, Bexar County, and the San Antonio Conservation Society. In 1937, the restoration was completed; it was celebrated by Archbishop Jerome Dros-saerts, with all of the Roman Catholic bishops of Texas in attendance (Habig, 1968a, p. 177). The National Park Service, the Texas State Parks Board and the San Antonio Conservation Society worked together to ensure that the Catholic Church retained rights to the church while the reconstructed mission com-pound became a state park with a National Historical Site designation (Habig, 1968a, p. 185).

Under this unique agreement, the State of Texas operated the mission as a public State Historic Site with the National Park Service in consultation. The Archdiocese continued to operate and maintain the church during this time. The arrangement was difficult though, and in 1978 after years of negotiations, the United States Congress created the San Antonio Missions National Historical Park, which included the four lower missions (the Alamo being owned by the State of Texas), as well as some attached acequias (Thurber et al., 1993, p. 331; Gomez, 2012, p. 157). In 1983 the National Park Service assumed responsibility for management and interpretive programming at the missions, exclusive of the religious sanctuaries and other structures in use by the Archdiocese, and continues to operate the park to this day.

Mission San José, as well as the other San Antonio missions, have had significant and far-reaching impacts on the development of Texas and the United States both politically and culturally. These effects are evident in a wide range of disciplines such as agriculture, commerce, architecture, and art. Further, the mission's historical resources offer opportunities to study topics related to acculturation, culture change, comparative frontier studies, and the mechanics and implementation of the mission system (Ivey & Thurber, 1983). For these

reasons, continued research into the care and preservation of the mission fabric is essential.

Evaluation of Significance

Mission San José convento is significant on all levels recognized by the U.S. National Park Service, Keeper of the National Register of Historic Places, from national to local. The property has national, state, and local designations, and it is also internationally significant. An enormous honor was bestowed upon all five of the San Antonio missions in 2015 with their inscription as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage cultural site. The World Heritage inscription specifically recognizes the Outstanding Universal Value of the unique and enduring culture that formed as a result of cultural interaction through missionary activities (UNESCO, 2015, p. 213). The convento exemplifies intangible cultural heritage in its use of traditional craftsmanship, specifically the enduring work of master builders, stonemasons, carpenters, and sculptors. It represents a multi-generational product of the culture that today retains a high integrity of intangible heritage, according to the criteria established in the 2003 UNESCO *Convention for the Safeguarding of the Intangible Cultural Heritage* (p. 2).

Detailed histories of Mission San José have been written (Habig, 1968a; Habig, 1968b; Ivey, 2018; NPS, 2014; Thurber et al., 1993), and the property is already listed on the National Register of Historic Places as part of a multiple-property National Register Nomination. Although the Nomination Form by Ivey and Thurber (1983) was written almost four decades ago, it remains valid and accurate. The document evaluates areas of significance within appropriate historic contexts, and the periods of significance are properly established. Relevant excerpts of the Nomination Form's Statement of Significance are copied and attached to this HSR as an appendix.

Regarding periods of significance, the primary significance of the convento concerns association with the historic events of Spanish Colonial missionary endeavors in the 18th century. The convento structure's form and materials are authentic, surviving evidence from that time and are crucial components of the historical narrative about the many aspects of life involved with the operation of a mission. Subsequent, post-secularization owners, uses, and modifications of the convento in the mid-19th and 20th centuries have national significance due to the ongoing retention, and ultimately preservation, of the ruins. Substantial changes to the convento's fenestration were made under the direction of Benedictine monks from Pennsylvania in the 1860s, and thus the appearance of the facades dates to that time, while the overall form and massing was retained.

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Chronology Narrative

Founded in 1720, Mission San José's development followed a pattern shaped by the skills and materials available on the Spanish frontier, which typically began with the construction of temporary *jacal* (wattle and daub with thatched roof) structures. More permanent mission facilities were built soon thereafter, initially of adobe and later stone quarried from the mission grounds. Sufficiently skilled at basic, trabeated construction, the Franciscan missionaries were able to supervise the erection of low, flat-roofed *terrado* (earthen-roofed) structures that could serve a variety of purposes while larger vaulted and domed buildings were planned (Ivey, 2018, p. 95). Craftspeople with the skills required to cut, dress, and construct the arched, vaulted, and buttressed stone conventos and churches were requested and brought up to the northern frontier once the missions had achieved a measure of self-sufficiency, which generally took a decade or more.

Over the course of its development, the Mission San José convento has undergone four major phases:

1. The initial terrado compound and jacales, followed by adobe structures from 1724–1755;
2. A series of building campaigns that occurred between 1750–1782, culminating with a large church, sacristy and two-level convento;
3. Mid-19th-century modifications led by Benedictine monks from Pennsylvania looking to convert the convento into a monastery, 1859–ca.1865;
4. Restoration and reconstruction directed by Harvey P. Smith under the Works Progress Administration, which began in 1933.

The San Antonio missions, an adaptation by the Franciscans of monastic facilities used in Europe since the medieval ages, generally included a church with adjoining convento and enclosed patio (Ivey, 2018, p. 85). The convento enclosure was typically formed by a set of inward facing arcaded ground-floor offices with individual cells for the friars on the upper level (Quirarte, 2002). A *portería*, or entry foyer, provided access to the convento.

The Convento in 1744

The first mention of the Mission San José convento occurred in 1744 as a description of the missionaries' dwelling attached to the original stone church. At this point the convento was likely joined to the eastern transept of that earlier church which was terrado construction and presumed by Ivey to have faced south. The convento and *portería* described in a 1749 letter written by Fr. Igna-

cio Ciprian extended from the church forming the core of the main east/west axis of the present-day structure. These rooms were likely built over a period of time. Ciprian's letter did not mention an upper level (Ivey, 2018, p. 203). A second level of construction was uncommon or came later at all missions because it was easier to build on flat ground, plus structural issues and stairs required a level of experience in craftsmanship that was not in great supply.

In 1755 Fr. Dolores y Viana described the convento as a ground-floor cloistered corridor with 13 rooms including two storerooms, a kitchen, and two cells (Ivey, 2018, p. 204). His account also mentioned, for the first time, a single cell on the upper level, with no corridor. A 1757 report addendum mentioned the construction of a balcony complete with roof, floor, and bolted double doors on the upper-level cell (Ivey, 2018, p. 207), presumably accessed by a ladder since none of the records mentioned a stair, though no physical evidence survives to indicate either.

By 1767, the original terrado church had been demolished and construction begun on the present-day stone church. During this construction two of the portería's arches were filled, and the space used as the temporary church (Ivey, 2018, p. 220). The infill presumably refers to the two arches in the immediate vicinity of the present-day sacristy entrance. Ivey speculated that the filled arched doorway visible immediately south of this doorway may have been the passage between the first stone church and the portería (2018, p. 220). He also speculated that owing to difficult-to-explain variations in wall thickness, the stone wall comprising the west end of the present-day convento is likely a remnant of the previous church.

Reconstruction

Prior to the construction of the present-day church, the convento's upper level had not changed much beyond the 1757 description. Beginning in 1770, the convento was reconstructed, and during this period the general form of the present-day upper level was established. A corredor (cloister walk) was constructed above the portería and along the upper-level long axis. At the west end of the long corridor, a doorway was punched into the new church's tribune, an opening to the church for a person to observe Mass from a remote location (Ivey, 2018, p. 224). At this time the open space on the upper level between the church and stairwell was enclosed to form a room (p. 223). Ivey suggested that during this construction project all of the interior walls except for those beneath the original upper-level cell were removed and the rooms reconfigured (p. 226).

In the 1770s, the ground floor was extended to form the kitchen at the convento's east end. A small arch was constructed perpendicular to the kitch-

en's walls and in line with the upper-level arcade. This arch, along with a flying buttress later stacked above, were added in order to restrain the new upper-level arcade (Ivey, 2018, p. 225). In total, this addition consisted of three ground-floor rooms that extended south from the convento's east end. A section of corridor was also constructed west of these rooms (p. 226). Fray Juan Morfi's 1778 account of Mission San José indicated that the structure was two levels with upper- and lower-level corridors. The easternmost upper-level rooms had not yet been constructed, as Morfi stated the upper corridor opened onto the flat roof of the lower-level rooms (p. 226). With the completion of the church in 1782 the convento had attained the form and massing as it now exists, though subsequent alterations of doors, windows, interior walls and stairs ensued in the next century.

An inventory conducted in 1785 by Fray José Maria de Salas and Fr. Josef Agustín Mariano Falcón indicated the convento consisted of nine rooms downstairs and five upstairs. The ground floor included a cooking supply room, an office, the kitchen, a room with a large table (possibly the refectory), the stairwell, latrine, main corridor, and two more rooms (Ivey, 2018, p. 234). Proceeding east from the church wall, the upper level consisted of a guest room, stairwell, and three rooms, one of which was the original balconied cell (p. 234). There were a total of four corridors, two long, nine-arch corridors spanning the upper and lower levels, and two single-arch corridors flanking the lower-level principal arcade.

Secularization

By 1813 the Missionary College of Zacatecas, preparing for the eventual secularization of the missions, reduced the missionary presence in San Antonio and placed the three southernmost missions under the spiritual care of Mission San José (Habig, 1968b, p. 220). The resident missionary at Mission San José occupied the western rooms of the convento, while the eastern rooms began to fall into ruin (Ivey, 2018, p. 400). In an 1823 inspection carried out prior to the secularization, the convento's configuration was described, an arrangement that would be modified 36 years later in the Benedictine construction period. At the time of secularization, the space immediately outside the sacristy, which had previously been enclosed as the temporary church, now served as a shaded porch; the arch directly across from the sacristy entrance having a set of double doors (Ivey, 2018, p. 448). Immediately north of this space, a room had been fashioned by filling in adjacent arches. At the easternmost end of the convento, the three lower-level rooms were described as the refectory, kitchen, and attached corridor. The corner room had already fallen into disrepair (Ivey,

2018, p. 449). On the upper level, the easternmost room no longer had a roof or flooring, and the walls were described to be in poor condition. Some interior partition walls on the ground level were described as adobe construction (Ivey, 2018, p. 449).

Archaeological evidence indicates that a series of structures were constructed on the exterior of the convento's north wall, but details of who built them and exactly when they existed are scant (Fox, 1970, p. 11–13). None of these structures was listed in the appraisals that accompanied the 1824 final secularization, or in any of the colonial-era inventories. Moreover, Ivey referenced a Seth Eastman drawing from November 1848 of the convento's north wall that did not include these structures. Similarly, Edward Everett's 1847 drawing of the same wall also did not indicate any structures attached to the north wall. Given these circumstances, Ivey speculated the structures were built and subsequently demolished before 1848, or more likely, served the Benedictine's purposes during their 1860s modifications (Ivey, 2018, p. 459). Aside from the archaeological evidence, no other record of these structures is known to exist. If built during the Benedictine period, they were removed within a decade, or so, because they do not appear in photographs of the area dating from the 1870s.

The Benedictines

In 1859, Bishop Jean Marie Odin situated in Galveston partnered with St. Vincent's Abbey in Latrobe, Pennsylvania, to establish a Benedictine monastery at Mission San José. The group of Benedictines led by Fr. Alto S. Hoermann began an extensive renovation of the convento (Habig, 1968a, p. 146), which by the 1850s was in great disrepair. The resulting modifications are easily visible in the fenestration. Owing to inconsistencies in the extant walls, such as differences in thickness and the inclusion of stone blocks that exhibit the carving technique of German stonemasons who arrived in the region after 1840, Ivey surmised the Benedictines rebuilt much of the Spanish Colonial-era interior walls and long central wall (p. 458). Based on careful physical observations of wall construction, the authors of this HSR agree with Ivey's assessment. Reconstruction of the entire long, central wall is supported by the intersection of Benedictine-era cross-walls, transverse arches, and bricks built into the central wall in a manner difficult to achieve except as one construction effort up from the foundation stones. Yet overall, the Benedictine effort was highly respectful of their Franciscan forbearers and appears to be an attempt to “modernize” and improve upon the earlier work, not replace it with a new building as they easily might have pursued given the scope of their undertaking. The footprint of the building was accepted without modification; the entire southern arcade was retained intact,

as well as a majority of northern wall except where it had fallen to ruin at the eastern end. The doorless rooms at the northeastern corner are likely the unfinished Benedictine modification of the Spanish Colonial kitchen, wherein they added an oven that isolated the corner room and then departed before their work was finished.

Other work on the convento commissioned by the Benedictines included construction of the new interior walls with new fenestrations and transverse arches. Windows and doors pre-dating the Benedictines were altered and new ones constructed with red brick lancet arches. The long, east-west interior wall with a sandstone column was apparently constructed atop the foundations of the earlier wall. Upper-level interior walls were constructed perpendicular to the north, exterior wall, creating four rooms, as well as transverse arches between the both external walls and the central wall. During this time the flying buttress on the end of the arcade wall on the upper level was also constructed (Ivey, 2018, p. 459). Other work included one completed room with flooring and a roof on the upper level, as well as placement of joists for the upper-level flooring; these joists survived intact until at least the mid-1920s (Thurber et al., 1993, p. 75).

The ambitious Benedictine construction program at Mission San José was ill-fated. Slowed by various complications, it halted altogether by 1867. Father Alto Hoermann, who had accepted the entreaty from Bishop Odin to establish himself at Mission San José and was the leader of work, left San Antonio by 1864 after contracting tuberculosis (Habig, 1968a, p. 147). Contributing to the difficulties of Benedictine operations in Texas, Bishop Odin, who had fomented the Benedictine involvement, was elevated to Archbishop and transferred to New Orleans in 1862. Greatly complicating all efforts by Benedictines in San Antonio, Castroville, and Fredericksburg were the politics of the U.S. Civil War, wherein the local population's capacity to support building projects must have been diminished, and monks from Pennsylvania who did not support slavery were not well-positioned to seek funds. The Benedictines abandoned San José in 1867 having accumulated large debts for the cost of construction (Fellner, 1956, p. 8–9). Their plans for transforming the convento into a monastery and seminary were never realized, but their work survives as a testament to their efforts. Harvey P. Smith would later choose to respect and conserve the Benedictine modifications as he restored the balance of Mission San José to its colonial-era appearance.

The chronology of development includes a substantial topographical alteration that must have occurred between ca. 1855 and ca. 1870. If the two draw-

ings that show views to the interior of the cloister can be trusted, one by Edward Everett dating ca. 1847 (see Figure 4.4 of this HSR) and the other by Louderback Hoffman ca. 1855 (Figure 4.9), the grade inside the cloister was raised several feet after ca. 1855. Multiple photographs from the 1870s clearly show the grade much higher, and that is how conditions were found and documented during the time of Harvey P. Smith's work. There is no record of who did this or why. An intermittent retaining wall located inside each arch of the cloister was built to hold the earth along the line of the arcade. Steps were constructed at several locations to allow one to walk down and inside the arcade. The earth and retaining wall were removed under direction of Smith in the 1930s.

20th-Century Interventions

Unlike the church and sacristy, since the Benedictine project there have been no other attempts to return the convento to regular use. Beginning with efforts such as those by the San Antonio Landmarks Club, who initiated a project to stabilize the arcade arches in the early 20th century, the convento entered into a new era of preservation (Thurber et al., 1993, p. 14). In 1918 Msgr. William Wheeler Hume, looking to return regular services to Mission San José, rehabilitated the church sacristy. Part of this effort included the filling of some of the convento's lower arches (Habig, 1968a, p. 176). Habig did not indicate which two arches, and physical evidence is inconclusive. Archbishop Robert E. Lucey undertook an even larger-scale restoration of the church (1947–1952), which included the reconstruction of two of the convento's arches (Habig, 1968a, p. 180).

In the 1930s the Civil Works Administration, and after its dissolution, the Works Progress Administration, commenced a large-scale restoration of the mission compound under the direction of architect Harvey P. Smith. While Smith restored much of the mission compound and church, work specifically on the convento included lowering the grade at the southern side of the convento structure. This included exposing the bases of the columns to their Spanish Colonial appearance. Other work included building up the north wall in multiple locations, and adding a gate that abuts the east end of the structure. Finally, Smith also added a garden retaining wall to enclose the outdoor area, making a patio that extends to the well.

In 1942, NPS Senior Archeologist Jesse Nusbaum performed an inspection of the mission site and noted the convento's precarious condition. In particular he noted the lack of adequate drainage, and described the inadequacy of the extant single drain leading from the patio and convento through the north wall. Later that same year, the upper level of the portería (the east wall with two



Figure 4.1: This unattributed ca. early 1900s photograph illustrates Mission San José prior to the 1930s Harvey P. Smith reconstruction. (Daughters of the Republic of Texas [DRT] Library).

lancet arches) collapsed following a severe storm. Because the NPS was opposed to the Texas State Parks Board's recommendation to remove the portería's upper level as well as a lack of materials owing to World War II, nothing was done and the rubble was cleared (Thurber et al., 1993, p. 200). A 1946 report issued by NPS Regional Archeologist Erik K. Reed, referring to the collapsed portion of the portería, indicated that an arch (presumably one of the upper-level lancet arches) still had not been reconstructed and since its collapse had developed a severe crack.

Reed also noted that the convento's north wall had developed a severe outward lean and was also in danger of imminent collapse. He suggested the reconstruction of the Benedictine-era dwellings on the north wall's exterior in order to buttress the wall (Thurber et al., 1993, p. 215). In a follow-up report issued in 1948, Reed and NPS regional architect Lyle E Bennet recommended only the lower half of the portería be reconstructed (see Figure 4.2), in order to avoid the question of restoring the upper-level windows to either the Spanish Colonial or Benedictine era (Thurber et al., 1993, p. 221). Documentation regarding the portería's eventual reconstruction is found in the NPS reports of 1949, which described also the reconstruction of the carved door surround at the entrance to the sacristy that same year. The San José Advisory Board's 1949–1950 Annual Report listed as a major accomplishment work performed on the convento.

In 1950, The San Antonio Conservation Society deeded their property to the Texas State Parks Board, which later became Texas Parks & Wildlife. With this, the site's maintenance was consolidated (Thurber et al., 1993, p. 306). Annual inspections by the National Park Service acting in an advisory capacity, which had commenced when the site became a National Historic Site in 1941, continued thereafter. Annual reports indicate that in the mid-1950s, work on the convento was still sound (p. 310). However, in the late 1950s, some of the convento's arches showed cracks (p. 313). By the mid-1960s, Archbishop Lucey was concerned about the cracks even though Church policy focused on places of worship (p. 321). Despite this concern, however, preservation attempts during this time centered on the church rather than the secular areas of the mission.

Conservation and Maintenance Projects ca.1980–present

Under the stewardship of the National Park Service since 1978, work projects at the convento of Mission San José have been mostly been devoted to preservation treatments. Preservation as practiced at San José has focused on retention of the existing building fabric, form, and appearance to the greatest extent possible. The few material changes made at the convento were safety and accessi-



Figure 4.2: This ca. 1983 photograph by John Lowe illustrates the 1948 reconstruction of the portería's lower level (Historic American Buildings Survey [HABS], Library of Congress).

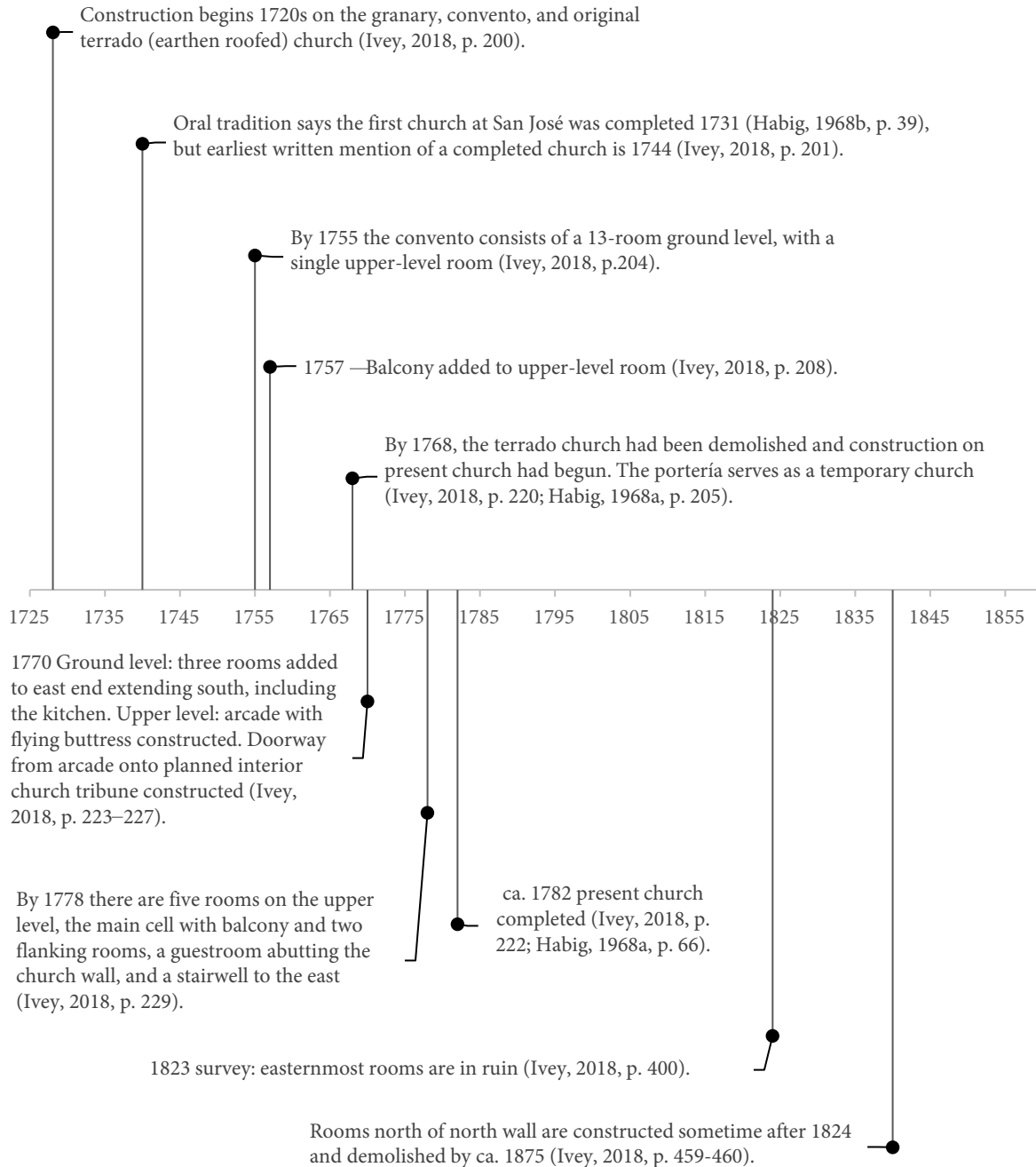
bility needs in the landscape at the grade level, which are inconsequential to conditions of the historic structure. The historic or cultural landscape is outside the scope of this HSR except as it exists within the footprint of the convento building. A full Cultural Landscape Report was completed in 1995, prepared for the NPS by Architects James and Juarez in association with multiple sub-consultants.

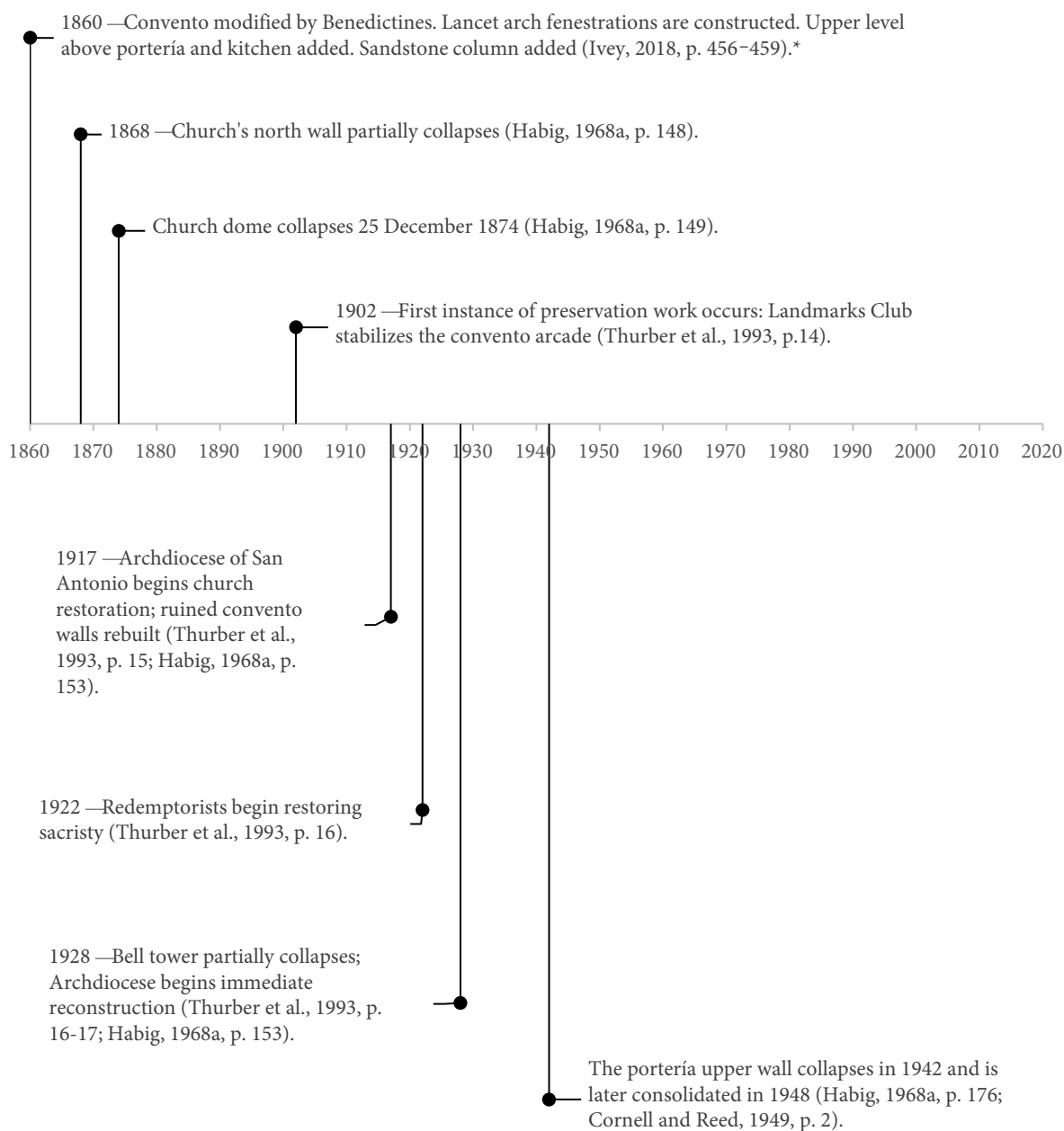
Almost all of the convento work has concerned stone conservation, principally at one column, and mortar repointing, often preceded by gentle cleaning at the application area for better adhesion. The only other notable projects have been related to drainage improvements to convey surface and sub-surface water away from the walls. One of these was a foundation drainage improvement executed by the Archdiocese of San Antonio in 2008 to address concerns with rising damp at the church, and extends to two outer facades of the convento at the portería.

A full list of NPS projects is included in the condition assessment section of this HSR rather than here in the chronology section. The list of projects execut-

ed under NPS stewardship is more logically placed in that section of this report because the projects tend to follow closely after an assessment report, sometimes even in conjunction with the assessment and completed by the same team or individual.

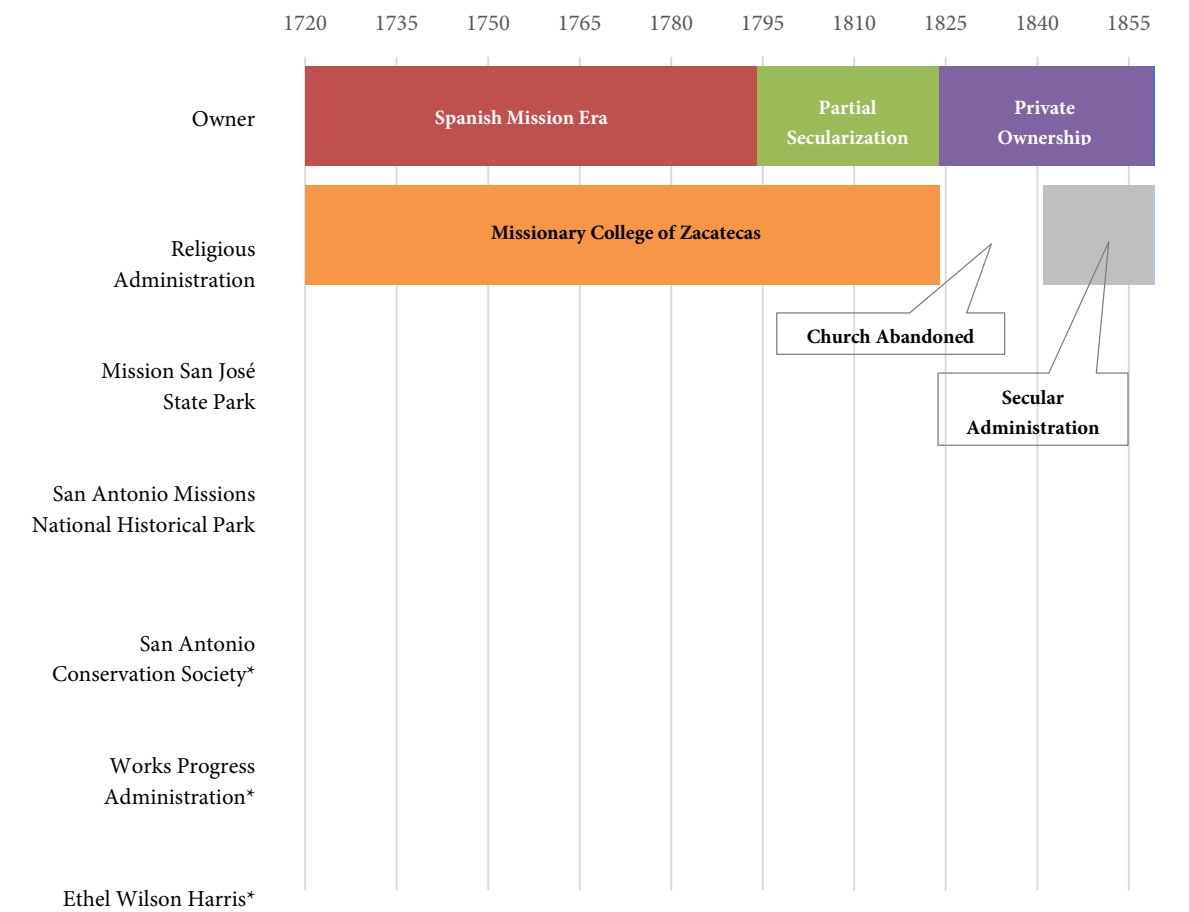
Timeline of Mission San José Convento Development



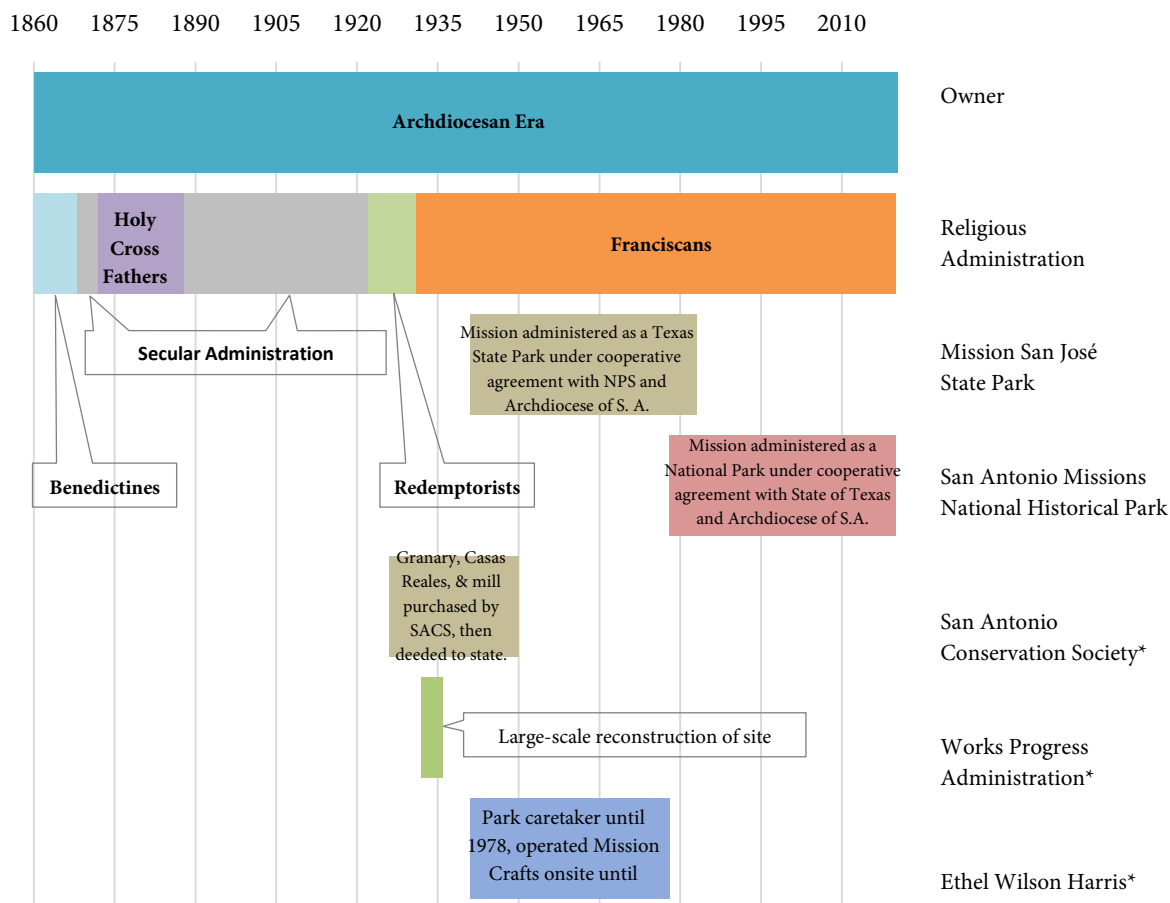


*Benedictine correspondence indicates that the convento did not have a roof in 1861 (Ivey, 2018, p. 458).

Timeline of Owners, Users, and Uses



	Although the missions were financed by the Spanish Crown and administered by the Roman Catholic Church, neither held an ownership interest. The missions belonged to the converts, and all properties were held in trust by the Spanish missionaries until secularization (NPS, 2014, p. 97).
	During partial secularization in 1794, 310 acres of land were apportioned to 30 indigenous families. Secularization was the final step in the conversion process and marked the achievement of the missionary’s primary goal. Upon secularization common property such as the acequias were turned over to civil management, and the labores (farmlands) were surveyed and sold to individual families. Religious properties, such as the church and convento, were turned over to the local diocesan bishop. Mission Valero was the first of the San Antonio missions to be fully secularized in 1793. The remaining missions were secularized over the ensuing three decades, concluding in 1824 (NPS, 2014, p. 137).
	Upon final secularization in 1824, the San José convento was not given over to the converts; all but a small portion of it was sold to Juan Martín Veramendi. In 1854 the Veramendi family sold their portion of the convento to John Twohig, but by 1859 the entire convento had returned to Church ownership (Ivey, 2018, p. 450).
	During this period the mission church and convento remained under the ownership of the Roman Catholic Church, but were not in use. After the 1836 revolution, though, Texas claimed all of the San Antonio mission properties. The four southern missions were returned to the Roman Catholic Church in 1841 by the Texas legislature (Bremer, 2001, p. 149).
	After secularization the San Antonio mission churches were placed under the care of the Bishop of Monterrey. By 1847 the missions had been transferred to the Diocese of Galveston, and in 1874 the Diocese of San Antonio was created from the westernmost portion of Galveston. San Antonio was subsequently elevated to archdiocesan status in 1926 (NPS, 2014).



Secular administration refers to periods of time when the mission churches were placed under the care of diocesan priests (NPS, 2014, p. 97). In the Roman Catholic Church there are predominantly two types of ministries—secular and religious. Secular priests are those whose ministry is contained to a single diocese under the care of a bishop. Religious priests are those who are members of a religious order (p. 322). Religious orders, such as the Benedictines and Franciscans, are typically invited by local bishops to minister within their diocese.

The Benedictine ministry was the result of a proposal in 1858 by Bishop Jean-Marie Odin to Abbot Boniface Wimmer at St. Vincent's Abbey in Latrobe, Pennsylvania, to establish a monastery at Mission San José. During their time at the mission the Benedictines ministered to the German speaking parishes in San Antonio, including St. Mary's parish. Plans to raise the Benedictine community to a full chapter complete with seminary were complicated by the Civil War. Following the death of several priests, the declining community was called back to Pennsylvania and the mission reverted to the diocese (Habig, 1968a, p. 147).

In the years leading up to the establishment of the mission as a state park, the San Antonio Conservation Society had already initiated a program of piecemeal acquisitions. The Conservation Society's first mission-related purchase was the acquisition of the granary in 1930, which they subsequently restored. During the 1930s the Society went on to purchase the Casas Reales, the soldiers' quarters on the north wall, the grist mill, and other fragments in and around the mission compound. Over the course of the program, properties were purchased, restored, and deeded over to the park. (Habig, 1968a, p. 185).

*These parties neither owned nor used the Mission San José church or convento, but made significant contributions to the development of the present site. Any discussion of the site's history would be incomplete without their mention.

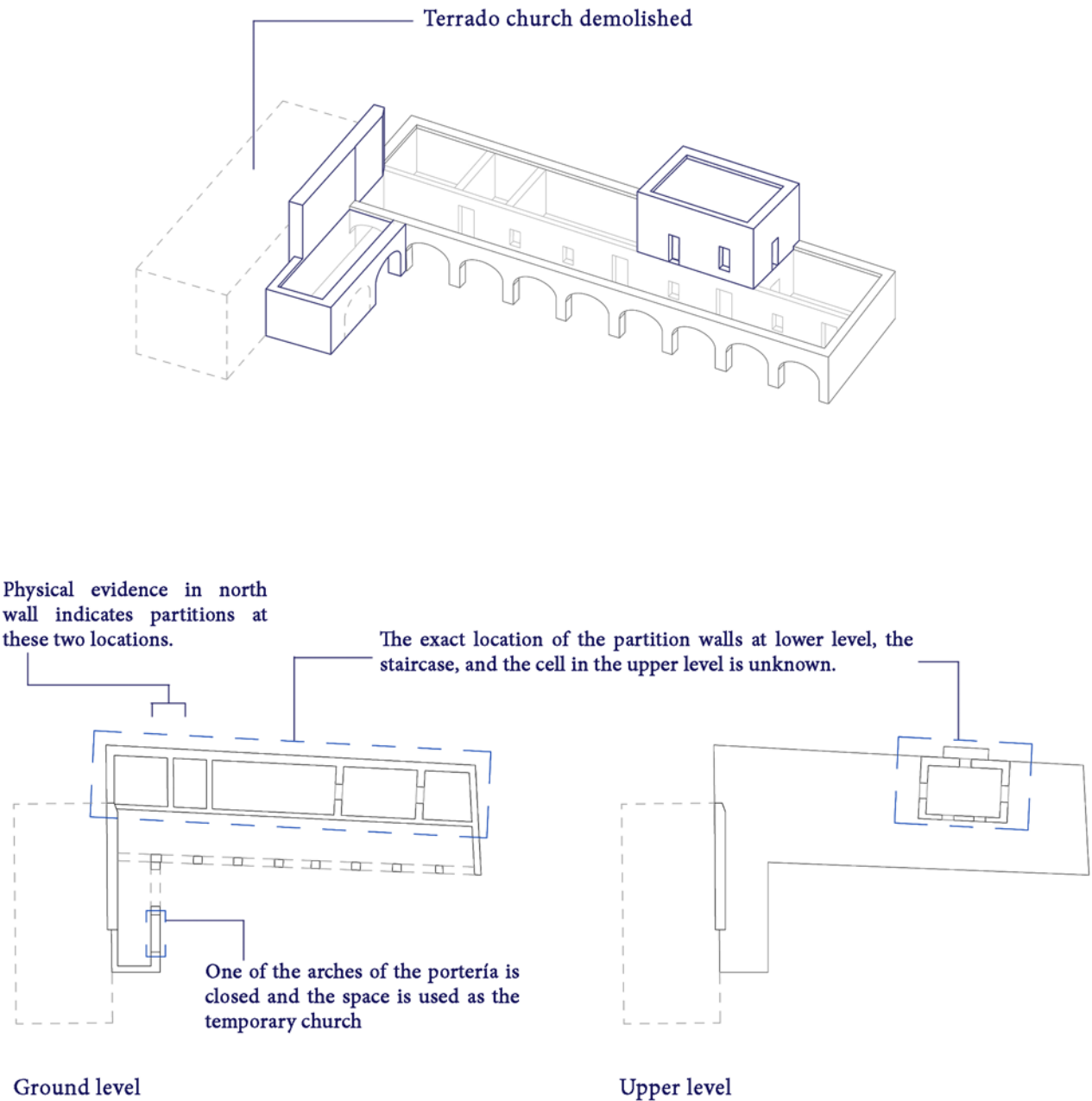
3-D Drawings of Chronological Change

1768

Construction chronology legend

1755

1768



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1700

1720s

Construction begins on the convento's ground floor (Ivey, 2018, p. 200).

The west end abuts the original *terrado* (earth-roofed) church. The area immediately before the entrance to the present day sacristy is the *portería*, the gateway to the convento (Ivey, 2018, p. 203).

1755

The convento consists of a 13-room ground level, with a single upper-level room.

The approximate location of the stairway was on the west end of the convent in the second or third bay (Ivey, 2018, p. 204).

1768

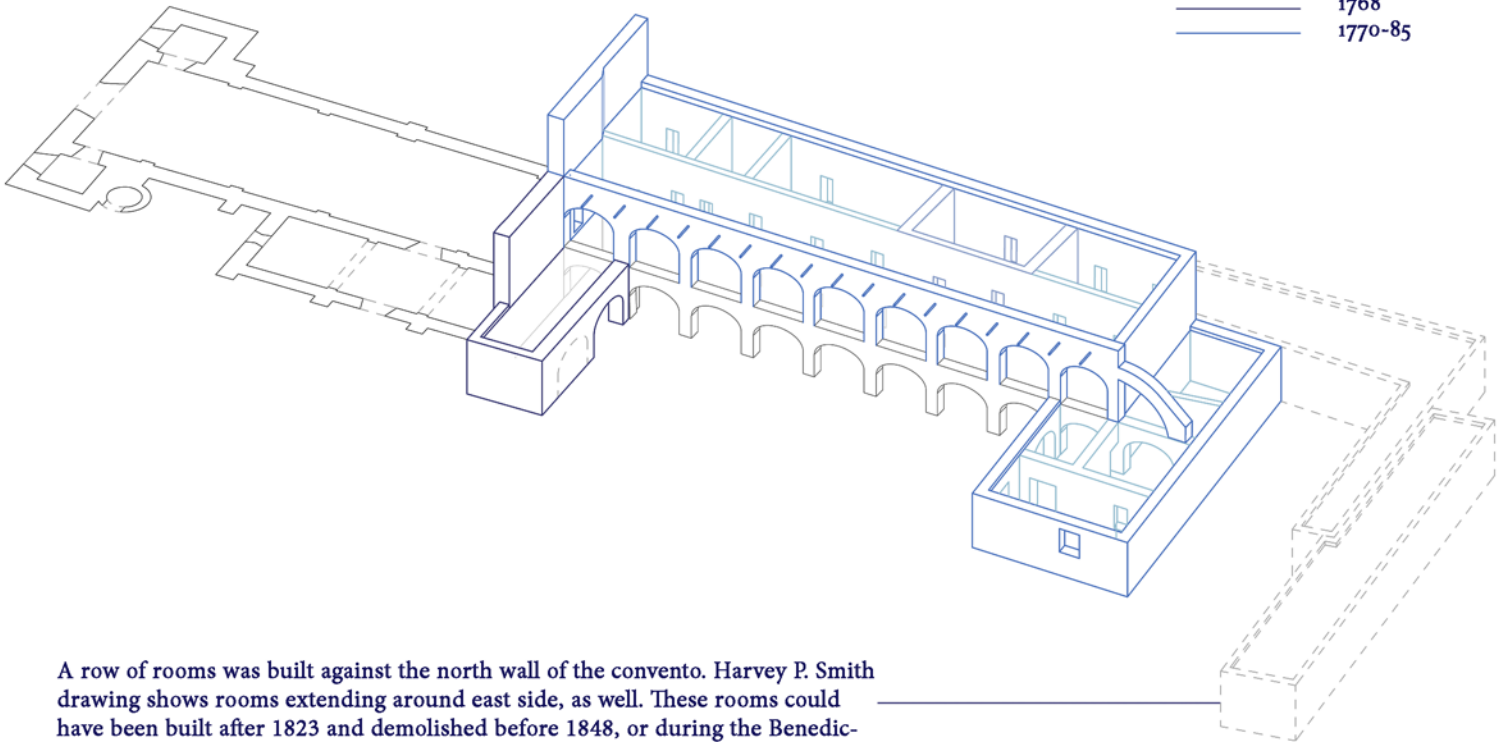
The *terrado* church had been demolished before 1768 and construction on present church had begun.

The *portería* is used at this time as the temporary church. One of the *portería* arches is filled at this point (Ivey, 2018, p. 220; Habig, 1968a, p. 55).

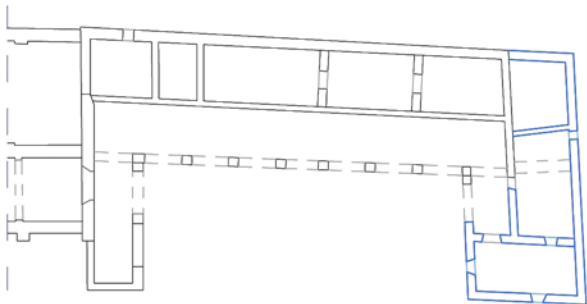
1770-1785

Construction chronology legend

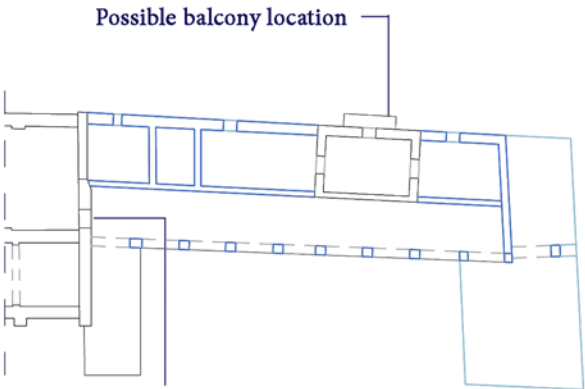
—	1755
—	1768
—	1770-85



A row of rooms was built against the north wall of the convento. Harvey P. Smith drawing shows rooms extending around east side, as well. These rooms could have been built after 1823 and demolished before 1848, or during the Benedictine modifications in the 1860s. (Ivey, 2018, 459-460)



Ground level



Possible balcony location

Doorway from arcade onto planned interior church tribune constructed.

Upper level

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1770

Lower level: three rooms added to east end extending south, including the kitchen. Upper level: arcade with flying buttress constructed. Tribune from upper arcade onto planned interior church sanctuary constructed (Ivey, 2018, p. 223-27).

1778

There are 5 rooms in the upper level, the main cell with balcony with two flanking rooms, a guestroom abutting the church wall, and a stairwell to the east (Ivey, 2018, p. 227).

1782

Present church completed (Ivey, 2018, p. 222 & Habig, 1968a, p. 66).

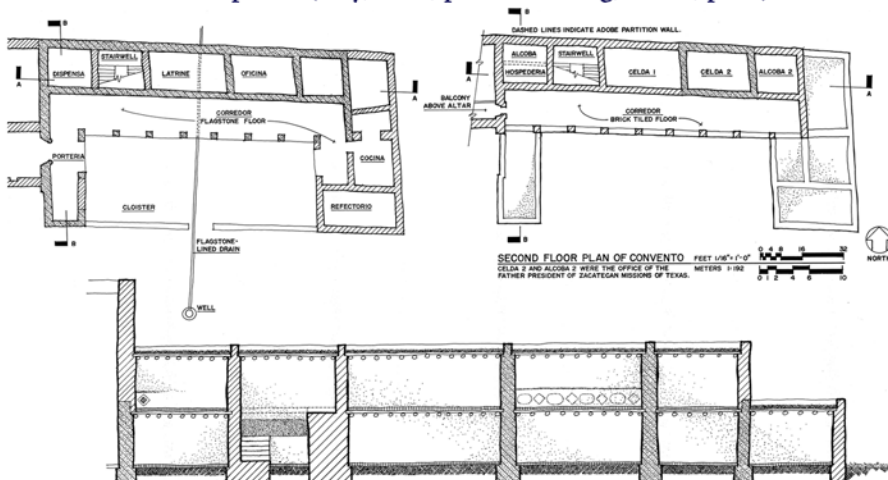


Figure 4.3: Convento in 1824 (HABS drawings 1986, Library of Congress, James N. Ferguson). Arrangement of uses/rooms, as well as the materials identified, is attributed to Ivey and Thurber on the preceding HABS sheet. Their findings are based on reports of 1777 and 1823, as well as observations of physical evidence surviving. (HABS No. TX-333 prepared by John C. Garner, Jr. 1969; and HABS Survey No. TX-333 sheet 16 of 18 drawn by James N. Ferguson, 1986).

1800

1820s

The easternmost rooms and the kitchen area are in ruins (Ivey, 2018, p. 400). A row of rooms was built against the north wall of the convento (Ivey, 2018, p. 460). These rooms could have been built after 1823 and demolished before 1848, or during the Benedictine restoration in the 1860s.



Figure 4.4: Drawing by Edward Everett, ca. 1847 (Amon Carter Museum).

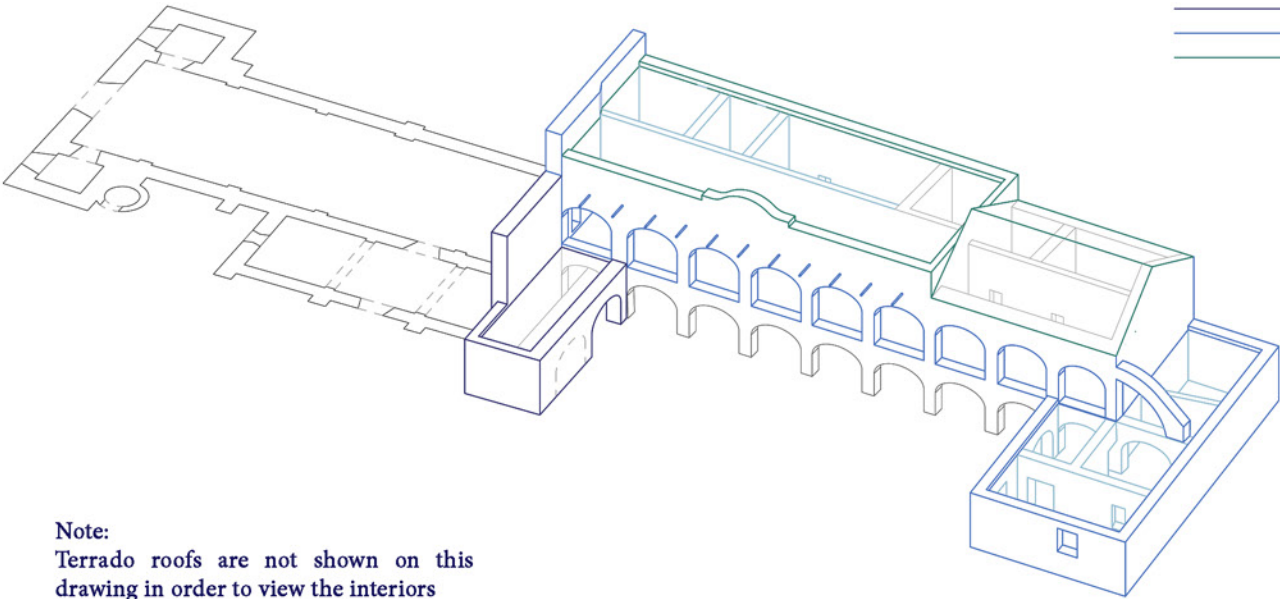


Figure 4.5: Drawing by Edward Everett, 1847 (Amon Carter Museum).

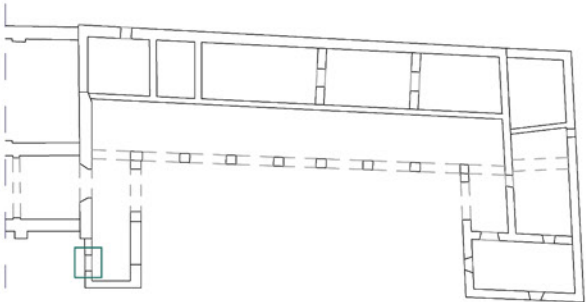
1850

Construction chronology legend

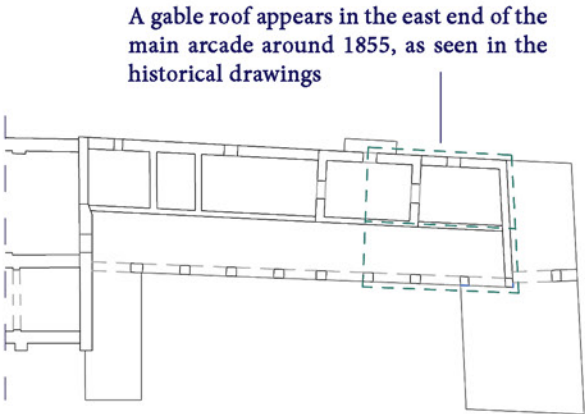
—	1755
—	1768
—	1770-85
—	1857



Note:
Terrado roofs are not shown on this
drawing in order to view the interiors



Ground level



A gable roof appears in the east end of the
main arcade around 1855, as seen in the
historical drawings

Upper level

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1850



Figure 4.6: Drawing by James Gilchrist Benton, ca. 1849-1857 (Amon Carter Museum).



Figure 4.7: Unattributed photograph, 1854 (Daughters of the Republic of Texas [DRT] Library).

1854



Figure 4.8: Drawing by Hermann Lungwitz, 1854 (Raba Collection, San Antonio Conservation Society [SACS]).

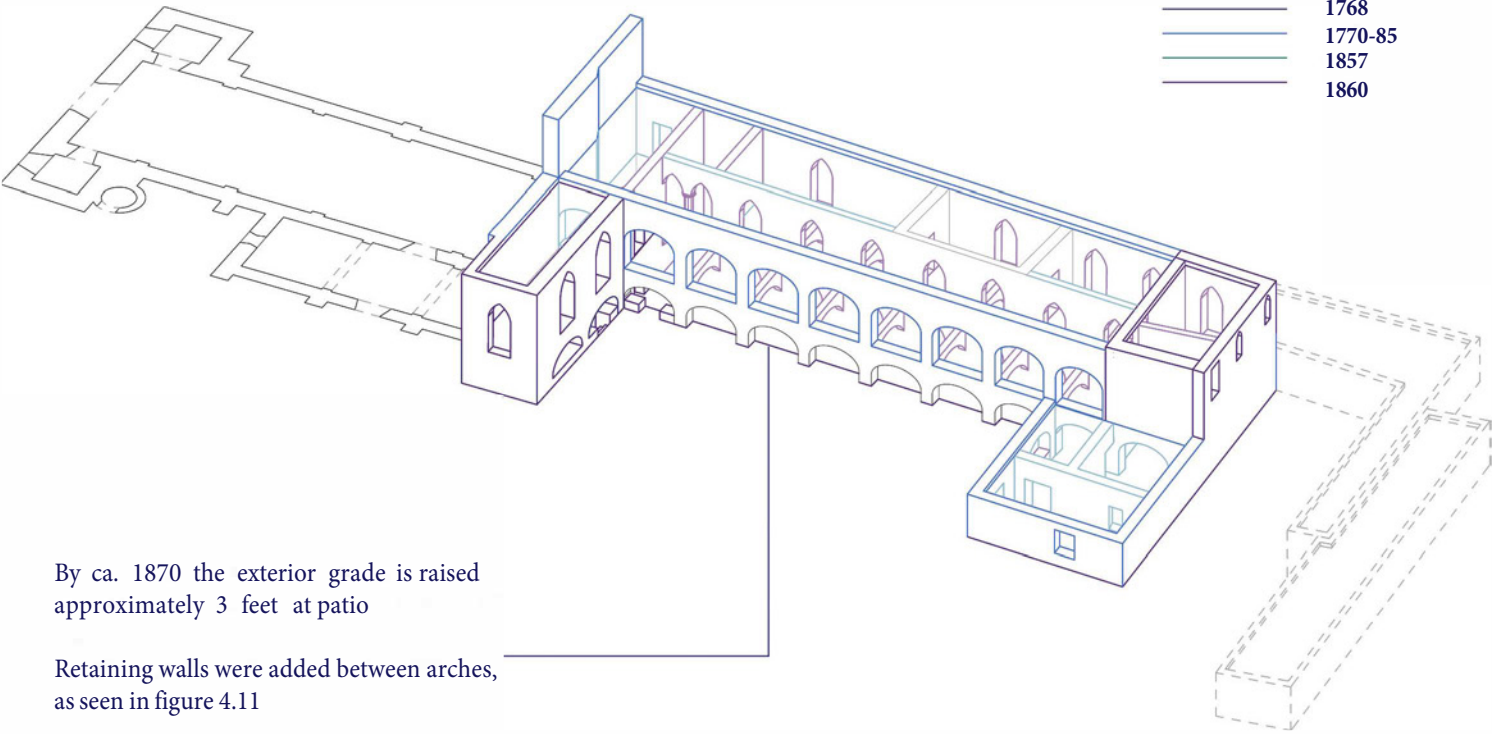


Figure 4.9: Engraving after a Louderbeck Hoffman drawing, ca 1855 (Institute of Texan Cultures [ITC]).

1860

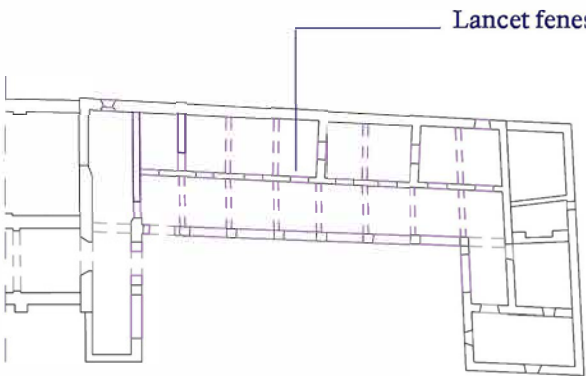
Construction chronology legend

	1755
	1768
	1770-85
	1857
	1860

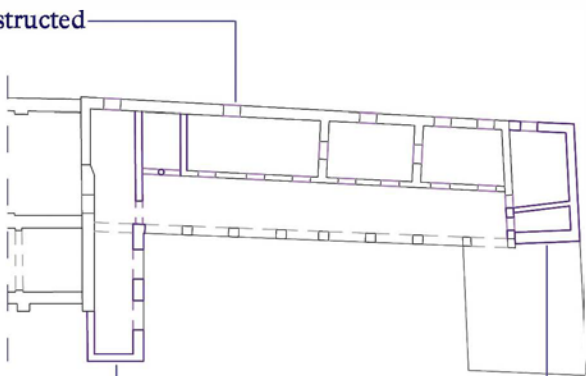


By ca. 1870 the exterior grade is raised approximately 3 feet at patio

Retaining walls were added between arches, as seen in figure 4.11



Ground level



Upper level

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1860

Convento reconstructed by Benedictines:

- Lancet fenestrations are constructed.
- Transversal arches are constructed.
- Upper level above portería and kitchen added.
- Sandstone column added. Benedictine correspondence indicates that the convento did not have a roof in 1861 (Ivey, 2018, p.456-59).

Rooms north of north wall were constructed sometime between 1823 and 1860. A row of rooms was built against the north wall of the convento (Ivey, 2018, p. 459-460). These rooms could have been built after 1823 and demolished before 1848, or during the Benedictines restoration in the 1860s.

Grade level possibly raised; see Figure 4.11.



Figure 4.10: Photograph by A. F. Dignowity, ca. 1869-1872
(Southern Methodist University Library).

1868

Church's north wall partially collapses (Habig, 1968a, p. 148).

1874

The dome falls while midnight Mass is being celebrated in the sacristy on December 25, 1874 (Habig, 1968a, p.149).



Figure 4.12: Photograph by H. A. Doerr, ca. 1860-1885 (SMU Library).



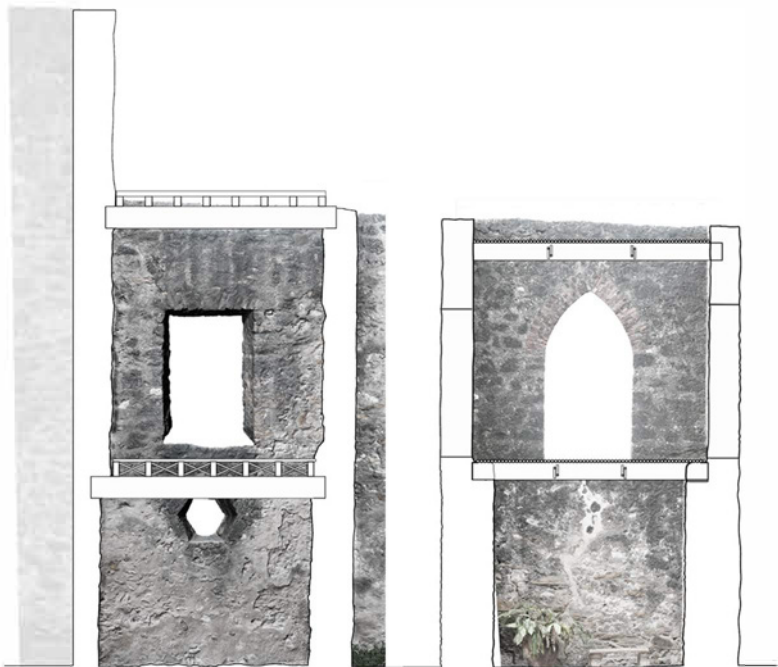
Figure 4.11: Unattributed photograph, ca. 1875 (ITC).

1860 -1937

Roof beams, floor joists, flooring and roof are shown here based on photographs from 1870s and remaining physical evidence in walls.

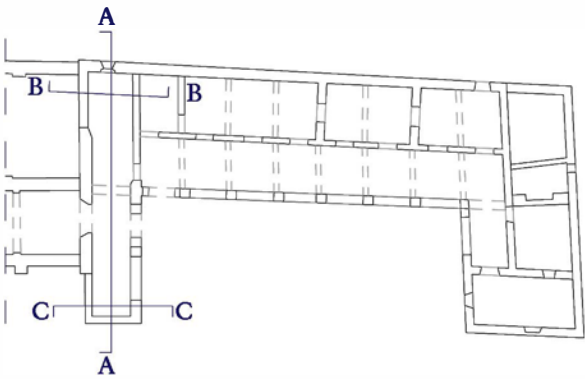


Section A



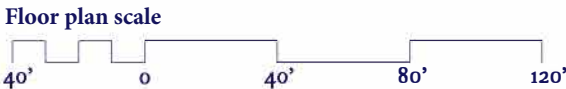
Section B

Section C



Ground level

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1860 -1937

Post-Benedictine photographs show incomplete construction. Floor and roof structural systems are exposed. Images this page show partial collapse of north wall, likely dating from 1869 according to Habig (1968a, p. 148).



Figure 4.13: Photograph by H. A. Doerr, ca. 1880s (SMU Library).



Figure 4.14: Photograph by H. A. Doerr, ca. 1870s (SMU Library).



Figure 4.15: Unattributed photograph, ca. 1885 (Personal collection of Lewis Fisher).

1900



Figure 4.16: Photograph by Albert Schaal, ca. 1927-1931 (ITC).



Figure 4.17: Photograph by Albert Schaal, ca. 1927-1931 (ITC).

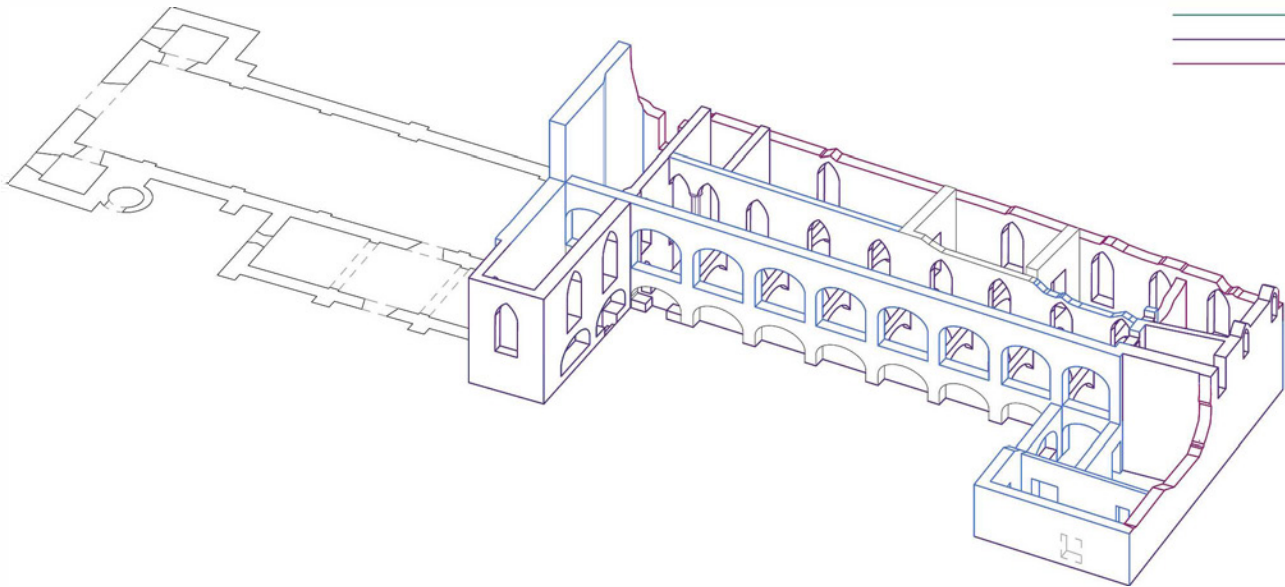


Figure 4.18: Unattributed photograph, 1927 (ITC).

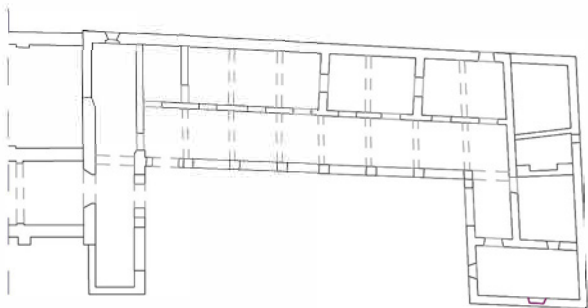
1934

Construction chronology legend

—	1755
—	1768
—	1770-85
—	1857
—	1860
—	1934

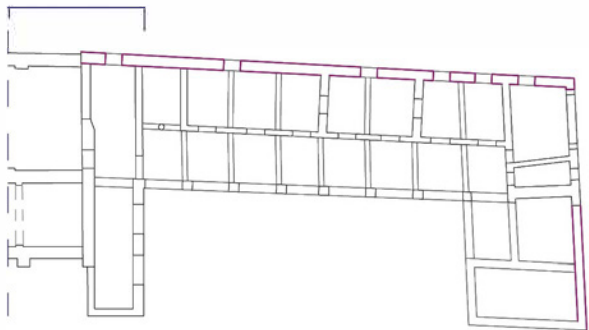


The north wall of the church that collapsed is rebuilt per Harvey P. Smith drawings



Window filled
before 1917

Ground level



Upper level

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for Cultural Sustainability



~ 1902

First instance of preservation work occurs, the Landmarks Club stabilizes the convento arcade (Thurber et al., 1993, p. 14).

-1917

The external window in the south wall of the refectory was filled somewhere after 1893 and before 1917.



Figure 4.19: Unattributed photograph, ca. 1885
(Personal collection of Lewis Fisher).



Figure 4.20: Photograph by E. S. Quillan, 1917 (ITC).

~ 1917

Archdiocese of San Antonio begins church restoration (Thurber et al., 1993, p. 15 & Habig, 1968a, p. 153).

~ 1922

Redemptorists begin restoring the sacristy (Thurber et al., 1993, p. 16).

-1928

Bell tower partially collapses, archdiocese begins immediate reconstruction (Thurber et al., 1993, p. 16-17 & Habig, 1968a, p. 153).

1934

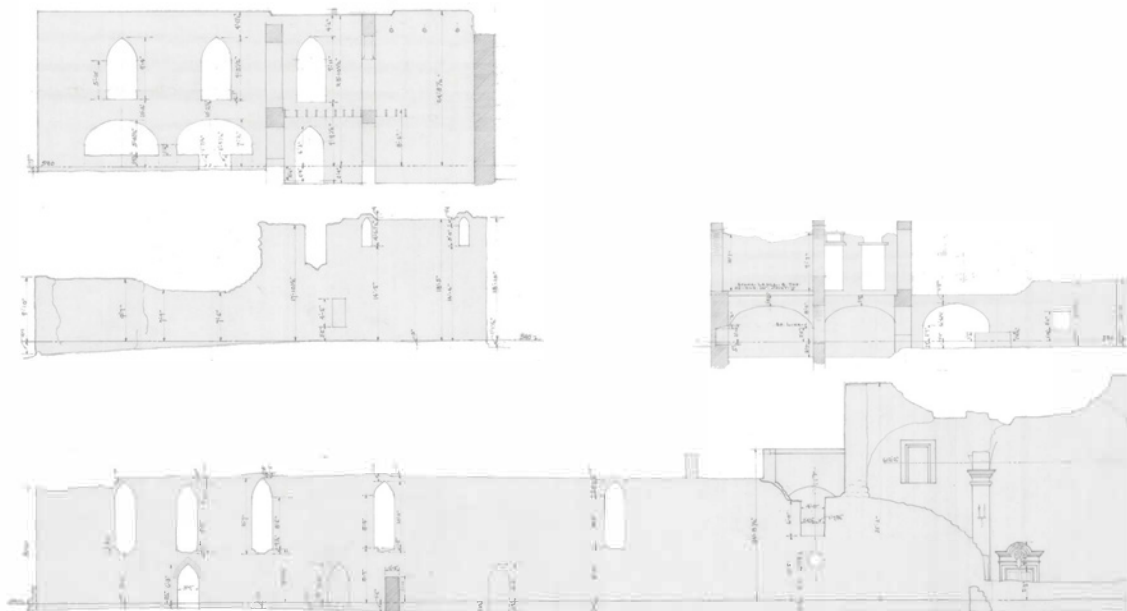
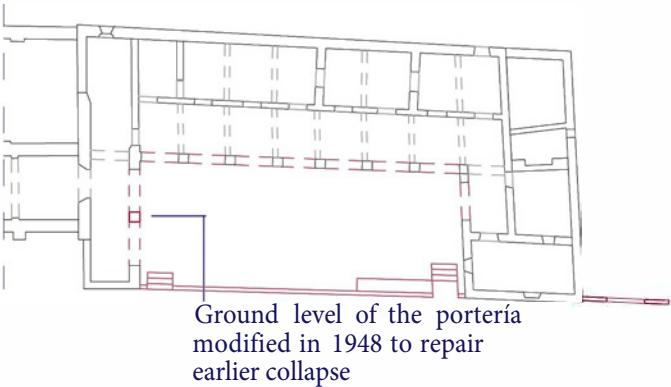
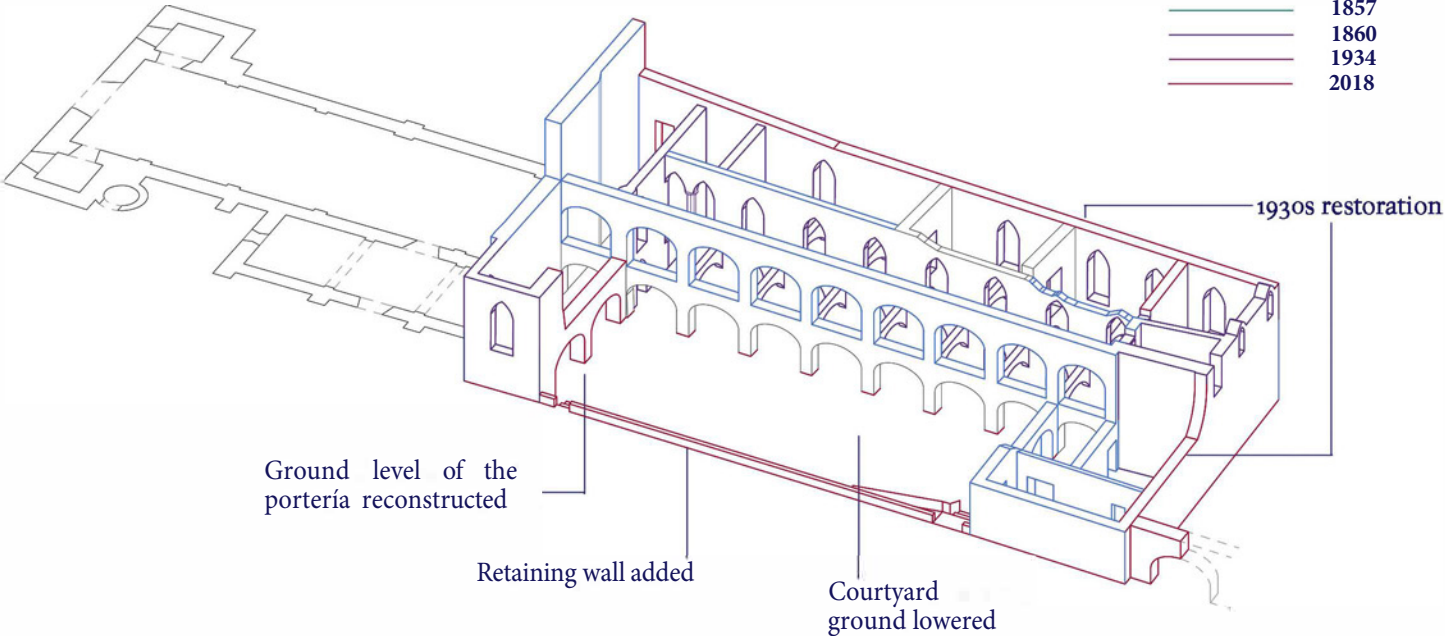


Figure 4.21: Harvey P. Smith survey drawings, 1934 (Library of Congress).

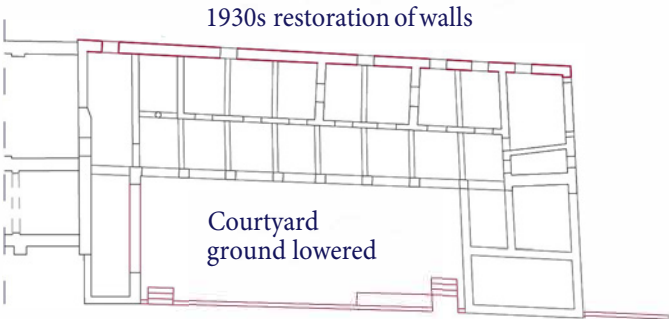
1948 to present

Construction chronology legend

- 1755
- 1768
- 1770-85
- 1857
- 1860
- 1934
- 2018



Ground level



Upper level

Drawings this page by UTSA Center for Cultural Sustainability



~ 1937

Restoration is largely complete, church is rededicated on April 18, 1937. Habig indicates this was a momentous occasion, celebrated by Archbishop Jerome Drossaerts, with all of the Roman Catholic bishops of Texas in attendance (Habig, 1968a, p. 177).

Harvey P. Smith alterations:

- Grade lowered
- North wall built up at multiple locations
- Gate added abutting east end
- Courtyard retaining wall



Figure 4.22: Photoelevations by Sara Rodríguez Jimeno, 2018 (UTSA).

~ 1942

East wall of the portería (southwest portion of the convento) collapses. Habig's discussion of the 1947-52 facade and portal restorations mentions that two arches of the convento were reconstructed in 1948 (Habig, 1968a, p. 180).

NPS reports provide details on the collapse and subsequent decision to restore the lower-level arches but not upper-level Benedictine.

~ 1948

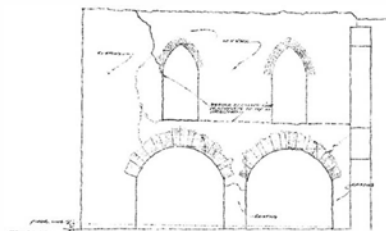


Figure 4.23: Restoration project drawing by Harvey P. Smith, 1948 (NPS Archive).



Figure 4.24: Photoelevations by Sara Rodríguez Jimeno, 2018 (UTSA).

Archival Drawings & Photographs in Sequence

1790s-1840s



Figure 4.25: View of the North wall of the convento. Rectangular windows are seen in the upper level of the convento, 1790s (Fisher, 1998, p.12; Ernst Schuchard, DRT _ Drawing).



Figure 4.26: West view, showing the canales and the flying buttress in the upper level at the end of the south arcade, 1840s (Guerra, 1982, p.7; Artist unknown, DRT_ Drawing).



Figure 4.27: Northwest view, showing facade of the church and north wall of the convento in perspective. A rectangular door is seen in the lower level, and several rectangular windows—one of them with a balcony—are seen in the upper level. No trace is seen of the hexagonal window. Drawing by Edward Everett, ca. 1847 (Amon Carter Museum).



Figure 4.28: Southwest view, showing the canales and flying buttress in the upper level at the end of the south arcade. In addition, a window can be seen in the south wall of the east part. Drawing by Edward Everett, ca. 1847 (Amon Carter Museum).

1850s



Figure 4.29: Date unknown (Star of the Republic Museum UNT Libraries, Artist unknown).



Figure 4.30: View from the west, showing the same features of the previous drawings with the addition of a gable roof in the southern end of the upper level, ca. 1850 (ITC, Rau & Son lithographers, from a drawing by Hermann Lungkwitz).



Figure 4.31: View from the West, 1850-53 (Chabot, Pictorial sketch of Mission San Jose de San Miguel de Aguayo on the San Antonio River, from Jon Russell Bartlett narrative).



Figure 4.32: 1854 Hermann Lungkwitz drawing shows both the flying buttress and the gable roof in the same position as they were in the 1850 ITC drawing (SACS, Raba Collection).

1850s



Figure 4.33: In this 1854 photograph, the flying buttress can be seen at the south end of the south arcade (Fisher, 1998, p. 59).



Figure 4.34: South view, the southern arch of the porteria is closed, ca. 1855 (ITC UTSA, Copied from US Dept. of the Int. Report on the US and Mexican boundary survey Washington, C.Wendell, printer, Louderback Hoffman, drawing).

1860s



Figure 4.35: Ca. 1855 (Chabot; Pictorial sketch of mission San Jose de San Miguel de Aguayo on the San Antonio River, Frontis-piece History of Texas, Yoakum, Henderson, 1856, Artist unknown).



Figure 4.36: View from the upper level of the south corridor looking toward the west. Evidence of the Benedictine restoration—lancet-arched openings and the upper level of the porteria—can be seen. The ca. 1867 Doerr & Jacobson photograph also shows the timber structure of the floor of the upper level (SMU Library).



Figure 4.37: West view, showing the upper level of the porteria. In this ca. 1868 photograph, the flying buttress in the south end of the south arcade has become part of a wall (SACS, Raba Collection).



Figure 4.38: Southwest view, showing an elevated courtyard floor. Photograph by A.F. Dignowity, ca. 1869-72 (SMU Library).



1870s

Figure 4.39: View from the lower level of the south corridor, looking to the west. Image shows the timber structure of the floor, and the elevation of the ground of the courtyard, ca. 1875 (ITC UTSA).



Figure 4.40: Northeast view, showing the collapse of part of the north wall of the church and the convento. The shadows of the timber beams of the roof of the convento can be seen in this ca. 1877 photograph (ITC UTSA).



Figure 4.41: North view, H.A. Doerr photograph, 1860s-85, (SMU Library).

1880s



Figure 4.42: South view, A.V. Latourette photograph, ca. 1880s (SMU Library).



Figure 4.43: View from the upper level of the south corridor looking toward the west. H.A. Doerr photograph, ca. 1880s, (SMU Library).



Figure 4.44: South view, E.K. Sturdevant photograph, ca. 1885 (SMU Library).



Figure 4.45: South view, from which a window in the south wall of the east part is clearly visible. Unattributed photograph, ca. 1885 (Personal collection of Lewis Fisher).



Figure 4.46: View from the upper level of the west part facing north. The timber structure of the roof and floor, as well as the fallen part of the north wall, are visible. Unattributed photograph, ca. 1885 (Personal collection of Lewis Fisher).

1890s



Figure 4.47: South view. Unattributed photograph, 1887 (NPS Archive).



Figure 4.48: Northeast view. C.C. Pierce photograph, ca. 1898 (USC Library).



Figure 4.49: Southeast view. C.C. Pierce photograph, ca. 1898 (USC Library).



Figure 4.50: West view from the courtyard. C.C. Pierce photograph, ca. 1898 (USC Library).

1900s



Figure 4.51: View from the ground floor of the south corridor facing east. Charles C. Pierce photograph, ca. 1900 (USC Library).



Figure 4.52: Southeast view, demonstrating that the window in the south wall of the east part has been closed. Moreover, a crack in the east wall of the refectory is visible. Unattributed photograph, ca. 1900s, (Nelson, 1998, p. 75).



Figure 4.53: South view. Several cracks are visible in the south and east walls of the portería. Stereo-Ti:avel Co. photograph, 1909 (SMU Library).



Figure 4.54: Southwest view, clearly demonstrating that the window in the south wall of the east part is closed. E.S. Quillin photograph, 1917 (ITC UTSA).

1920s



Figure 4.55: View from the south arcade facing west (left image). South view of the courtyard (right image). Unattributed photographs, 1920 (NPS Archive).



Figure 4.56: Southwest view. Unattributed photograph, 1927 (ITC UTSA).



Figure 4.57: View of the ground floor of the porteria toward the northeast, showing the timber roof of this area, as well as the arch's painted decoration. Unattributed photograph, 1927 (ITC UTSA).



Figure 4.58: View of the courtyard from inside the porteria. The level of the ground of the courtyard was higher. Unattributed photograph, 1927 (ITC UTSA).



Figure 4.59: View of the convento from the northeast, from the bell tower of the church. The upper part of the porteria hasn't collapsed yet, and the timber structure of its roof can be partially seen. Albert Schaal photograph, 1927-31 (ITC UTSA).



Figure 4.60: East view of the courtyard. Albert Schaal photograph, 1927-31 (ITC UTSA).



Figure 4.61: View from the porteria toward the southwest, showing the remains of the timber floor and roof. Albert Schaal photograph, 1927-31 (ITC UTSA).



Figure 4.62: View of the right arch of the porteria, prior to 1930s (Noonan Guerra, The Missions of San Antonio, p. 11, DRT Library).

1930s



Figure 4.63: View from the door of the church to the east. The north wall has already been partially reconstructed. Unattributed photograph, ca. 1934, (Fisher, p.23).



Figure 4.64: West view of the courtyard. The level of the courtyard has been lowered. Unattributed photograph, 1935 (ITC UTSA).



Figure 4.65: View of the door that leads to the sacristy. Some timber beams are still in place. Arthur W. Stewart photograph, 1936 (HABS, Library of Congress).



Figure 4.66: View of the northeast wall of the kitchen. In the picture is revealed an arch embedded in the wall. Arthur W. Stewart photograph, 1936 (HABS, Library of Congress).



Figure 4.67: Southeast view. A new wall has been added in the southeast corner of the convento. Arthur W. Stewart photograph, 1936 (HABS, Library of Congress).



Figure 4.68: Northeast view, restoration work by Harvey P. Smith is visible in the north wall. Arthur W. Stewart photograph, 1936 (HABS, Library of Congress).



Figure 4.69: View from the upper level of the south arcade toward the west. Arthur W. Stewart photograph, 1936 (HABS, Library of Congress).



Figure 4.70: Southeast view of the courtyard. The porteria has already been restored to its current state. John Lowe photograph, 1983 (HABS, Library of Congress).

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Chapter 5: Physical Description

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**Location
and Setting**

The convento is part of the Mission San José y San Miguel de Aguayo, which also includes a church, a granary, perimeter walls, indigenous living quarters, a gristmill, and part of the acequia. Within the mission compound, the convento is placed in the north part of the area bounded by the living quarters attached to the perimeter walls. The building is surrounded to the north by ruins of former living quarters, to the east by a 20th-century rectory building and parking area, to the south by the enclosed compound of the mission, and to the west by the church, to which it is attached, sharing the convento's western wall.

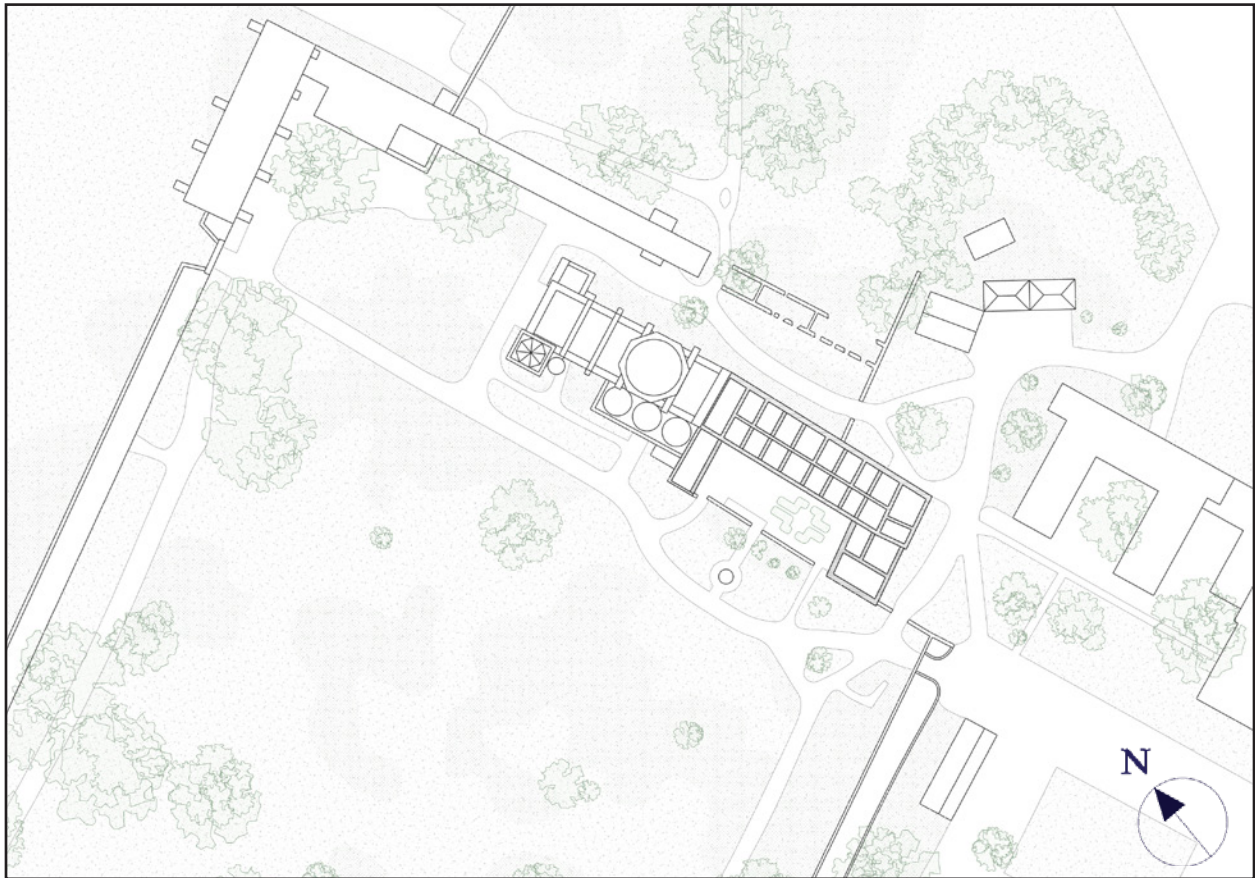


Figure 5.1: Site plan of Mission San José convento (UTSA CCS).

Style

The style of the convento is Spanish Colonial architecture in heavy stone construction, subsequently modified in the mid-19th century by Benedictine efforts adding gothic-style arched windows and doors. The structure is two stories high; however, the roof, the floor of the upper level, and the stairs connecting both levels no longer exist. Remaining are the walls of the building, now stabilized ruins.

The overall dimensions of the structure are 136 ft. long (41.5 m) and 70

ft. wide (21.3 m). It has a U-shape forming three sides of a rectangle around a courtyard (also called patio) which opens to the compound of the mission. The solar exposure is southwestern.

The convento has individual cells (rooms) inside, along the north and east sides. The exterior cloister is framed by a double-height, arcaded wall with 11 bays functioning as a transition to interior spaces.

The structure has eight interior spaces on the ground level and a corridor, all accessible through the arcaded wall that frames the cloister. Only one of the interior spaces of the north part has a direct opening outward to the north. There is evidence of old doors in the north wall that connected the cells with the outside (or to additional cell rooms now demolished), but all of these are now sealed.

The western wall of the convento is shared with the church and sacristy. There is one entry at the ground level into the sacristy from the convento. The area immediately before the entrance to the sacristy is called the *portería*, the gateway or entry foyer space to the convento.

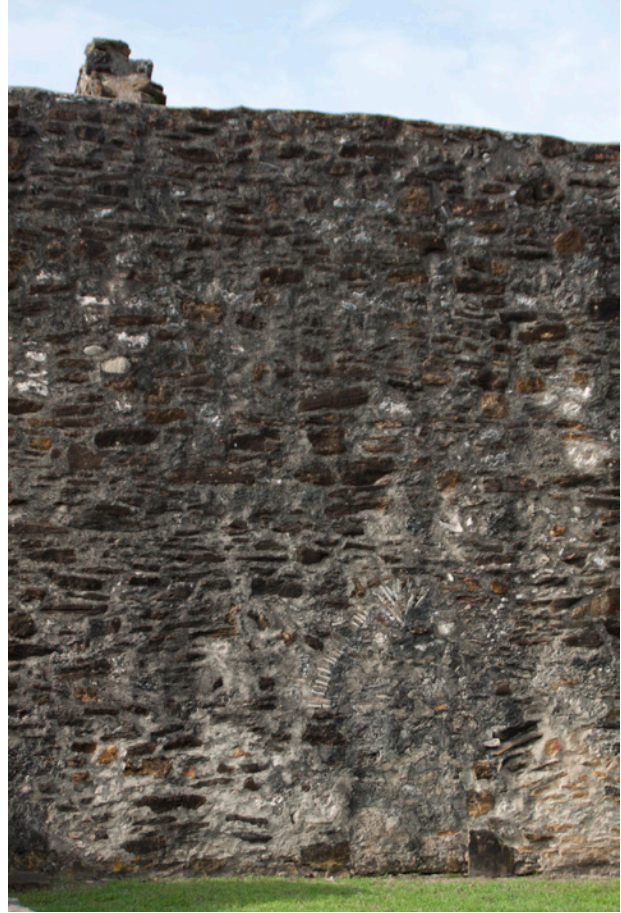
Materials

The building is constructed mainly with rubble limestone and sandstone, and originally was assembled with lime-based mortar. Today, however, due to the evolution of the building and the different reconstructions and restorations, multiple types of mortars are present in different areas of the building, including a cement-based mortar from 20th-century work.

Apart from the rubble stone, there are lancet arches built with bricks. Two main types of bricks have been utilized, mostly within windows and door openings:

1. Long, flat, tan-colored fired brick, with an average height of 1¼”, denominated by some authors as “Roman brick,” probably reused by Benedictines, presumably dating back to the Spanish Colonial period and appearing in several isolated locations in the convento. These locations include two former door openings in the north wall, D01 and D02; on the top of two interior doors in the upper level at the eastern end of the upper corridor, D17 and D18; and also at the upper level opening, called a tribune, into the church sanctuary, D25.
2. Rectangular red-fired brick, with an average height of 2”, mostly used to create pointed arched opening of doors and windows. This brick type dates back to the Benedictine era.

The fenestration drawing sheet attached as a separate document shows all these door openings and identifies each type of brick.



Figures 5.2–5.4 (clockwise from top left) demonstrate the two different types of brick found throughout the mission's convento.

The floors at the ground level are compacted gravel with some flagstone remnants at a few door thresholds. There is one uniquely shaped type of limestone on the top of two rectangular door openings, D17 and D18, at the eastern end of the corridor, shown in Figure 5.4.

Structure The structure of the building includes a system of load-bearing walls (from 3 to 5 ft. wide), arches, and transverse arches. Both the roof of the structure and the floor of the upper level do not exist.

External Walls

North Wall

Placed in the north part of the building and facing the magnetic northeast, the north wall is connected to the church in the convento's western corner, where it

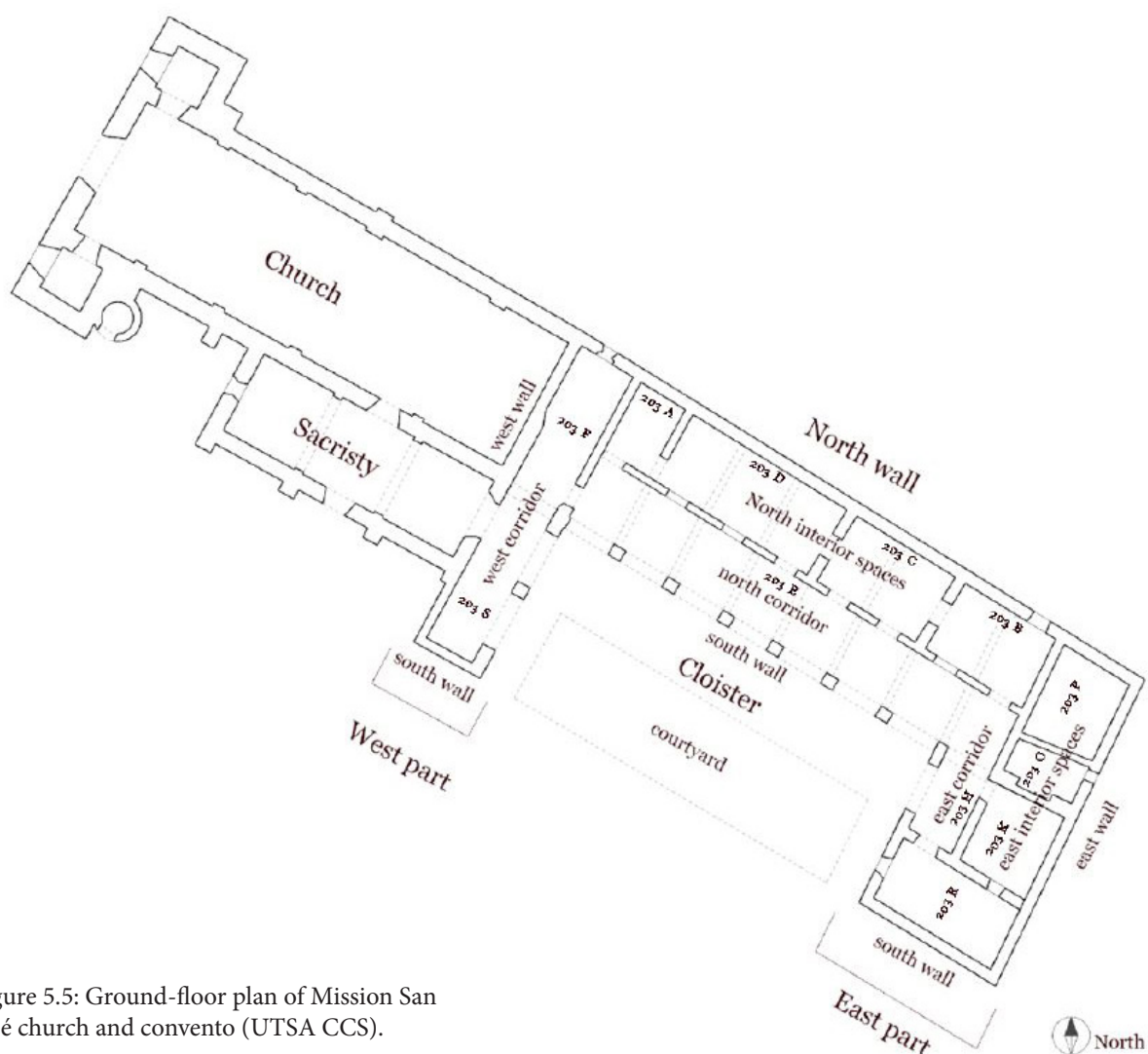


Figure 5.5: Ground-floor plan of Mission San José church and convento (UTSA CCS).

continues following a southeast direction with a slightly different angle than the church's wall.

The wall has two stories and is approximately 136 ft. long (41.5 m). Its height increases progressively in its west part, close to its connection to the church.

The wall is characterized to be mainly massive, with few openings (eight total), which are mostly placed in the upper level of the wall (six openings). Six of the openings are lancet-shaped arches and the other two include one flat-arched window opening (W08 on fenestration sheet) and one small hexagonal opening (W01 on fenestration sheet). All of the openings are windows, except for one door, placed in the east part of the ground level of the north wall, D03, which connects the interior north spaces with the outside. It is the only remaining functional door in the north exterior wall. However, remains of two doors, D01 and D02, now filled with masonry, can be seen in the wall.

The wall is built with rubble limestone and sandstone, with more regular courses at the eastern end. There is an obvious line of construction change halfway up the wall which is evidence of the height of the convento at the time when it was first built as a one-story, terrado-style construction. Bricks are observed in the lancet arch of the door and in the sealed doors embedded in the wall.

East Part

The east part of the convento has two external walls: the east wall and the south wall.

East Wall

The east wall is located in the east part of the building and facing the southeast. The northern part of this wall is two stories high, whereas the southern part is only one story high. Its total length is approximately 70 ft. (21.3 m) long.

It is a massive wall with only three openings on the upper level. Two small openings are shaped as lancet arches, W14 and W15; the other, W16, is a square opening whose upper side is unclosed. There is also a square, sealed window with a stone lintel, W02, on the ground level.

The wall is built with rubble limestone and sandstone, with more regular courses in the corner with the north wall and surrounding the windows. At least two different types of mortars can be observed in this wall.

South Wall

Placed in the east part of the building and facing magnetic southwest, the south wall is the ending wall of the short part of the U-shape.

The south wall is a one-story wall without openings, approximately 31.2 ft. (9.5 m) long. It is built with rubble limestone and sandstone, and, like the east wall, at least two types of mortar are visible.

Cloister

The cloister is composed of three arcaded walls surrounding a courtyard (or patio), forming three sides of a rectangle. The main wall faces toward the southwest, another toward the southeast, and the last one toward the northwest.

East Part, West Wall of Structure

This wall is placed in the east part of the convento structure. It is connected in its south corner to the south wall of the east part and faces the courtyard to the

northwest.

It is a one-story wall whose height increases toward the southern part of the wall, and it has an approximate dimension of 32.8 ft. (10 m).

The northern part of the wall and the southern part differ substantially. The north part is defined by the presence of a 3 m (9.84 ft.) span arch, which is part of the cloister. The south part is a massive wall with only one small rectangular opening in the middle, which is part of the interior spaces of the east side.

The wall is built with rubble limestone and sandstone and, as with the previous walls, at least two types of different mortars can be identified.

Main Cloister Wall, South Wall of Structure

Placed in the north part of the building and facing the courtyard to the southwest solar exposure, the main cloister wall is connected to the other two side walls of the convento. This wall is the main façade of the cloister; it is a two-story arcaded wall with a length of approximately 108.6 ft. (33.12 m).

The wall comprises 18 arches (9.84 ft., 3 m span and 3.3 ft., 1 m rise up from the spring point) in the lower and upper levels. The western end of the cloister wall is connected perpendicularly to the west wall of the entire convento. The convento shares this west wall with the church.

It is built with rubble limestone and sandstone, although the sandstone is mainly seen in the pillars of the arches on the ground level and under the upper-level arches, although its use is scarce in the upper level. Remains of original colonial plasters are found at the intrados of the arches.

West Part, East Wall of Structure

Placed in the west part of the courtyard and solar-oriented to the southeast exposure, the wall is connected to the main wall of the arcade in its northern point.

The wall shows evidence of former two-storey construction, but today only the southern part is two stories high. It is approximately 33.4 ft. (10.2 m) long. It comprises two arches (11.15 ft., 3.4 m span and 3.3 ft., 1 m rise—only one-story high), and in its southern corner it becomes two stories high.

It is built with rubble limestone and sandstone, and it is evident the arches are built with a more regular stone masonry than the southern corner.

West Part

The west part of the building includes a south wall and a west wall, the latter of which is connected to the church.

South Wall

Located in the south end of the convento's west part, the south wall is the end point of the western, shorter side of the U-shape, and is connected perpendicularly to the wall of the cloister.

The south wall is a two-story wall with a dimension of approximately 14.7 ft. (4.5 m). It has only one opening in the middle of the upper level, a large, lancet-arched window. The upper-level part of the wall is thinner than the ground level, stepping back at the former upper-level floor.

Built with rubble limestone and sandstone, it has a more regular disposition in the upper level. The lancet arch opening is formed with brick.

West Wall

This wall connects the convento and the church. It is located at the western end of the convento and has a dimension of approximately 68.9 ft. (21 m).

The wall is divided in three parts with different thicknesses. The southern part, the thinnest, is evidently the latest to be built. It goes from the end of the sacristy to the south corner (13.1 ft. long, 4 m). It is a two-story wall with the same height as the rest of the convento, with only one opening in the upper level, a large, lancet-arched window, which is designated as W22 on the fenestration sheet supplemental to this HSR. Remains of a former opening, D12, now filled with masonry, can be observed in the bottom part. The thickness of this part of the wall also varies from the lower part to the upper part, as happens in the south wall of the same area. It was built with rubble limestone and sandstone, and bricks form the lancet-arched opening.

The second part of the wall is the thickest, and it measures approximately 39.3 ft. (12 m) in length. It is the middle part of the wall, and it is considered to be the only remaining wall from the terrado (earthen, in this case referring to the roof) church that was demolished ca. 1767 in order to build the extant church. This part of the wall has two different heights. The lowest is the same height as the upper level of the rest of the convento, and the highest is the height of the church. Therefore, the height changes when the present church structure is constructed after 1767.

This area has two openings. Located in the ground level is D11, a door that connects the convento with the sacristy. The door is finished with carved limestone. The other opening is a wood plank door, D25, in the upper level that communicates with the sanctuary/altar of the church. The upper-level door provided access to a small tribunal platform, no longer existing, that was inside the church. Today this door is inaccessible due to the lack of floor in the upper

level of the convento.

The third part of the wall is the northern part, which was added when the new church was built and has no openings. This part measures 16.9 ft. (5.15 m) in length. There is a difference in thickness and mortar type used between the lower part and the upper part of this section.

Interior spaces

The interior spaces can be divided into the interior corridors of the cloister, the north interior spaces, and the east interior spaces.

Cloister

The cloister has three parts: west, east, and north. The west part is a 10.2 ft. (3.1 m) corridor divided in two spaces by the main arcade, and it serves as a transitional space and entrance to the sacristy. The east part is a 9.5 ft. (2.9 m) wide corridor that has only one arch and one bay, and it is one-story high. It serves as a distributor and transitional space to the east interior spaces. The north part is a 13.1 ft. (4 m) corridor which has two stories and eight bays, divided by the transverse arches that connect the interior north wall with the arcade of the cloister. It has the same purpose as the east part, but serves the north interior spaces.

North Interior Spaces, Labelled 203 A, 203 B, 203 C, and 203 D on the Plan (see Figure 5.5):

The north interior spaces are accessible through the cloister, and some of them are also connected between each other.

There are four interior spaces in the north part, divided from the cloister by a long two-story wall 96.8 ft. long (29.5 m).

This wall has 17 openings, which are placed in between the transversal arches that connect this wall with the external arcade. All the openings have a lancet arch shape. Of the nine in the upper level, five are door openings. Four of the eight openings on the ground level are door openings.

All the arches of the openings of the ground level are built with bricks, while the ones in the upper level are built with limestone. In the western part of the wall, in the upper level, there is an octagonal sandstone masonry column between two openings, D22 and D23 on the fenestration sheet. It is the only column of this kind in the whole building.

The four interior spaces have different dimensions, being modulated with the width between transverse arches. The first space (203 A) is only as wide as

the distance between the transverse arches. The second space (203 D) is the biggest, being the width of three transverse arches. In fact, it is trisected by two transverse arches.

The first space is connected to the second by a lancet-arched door opening, D16, in the southern part of the dividing wall. The construction of door D16 is integral (all of one build) with the perpendicular wall that its arch intersects. The second space is connected to the first space by the already mentioned opening and to the third space (203 C) by another lancet arch door opening, D15, in the center of the partition wall. It also has two more openings in the upper level, one rectangular opening over the lancet arch door, D27, connecting the spaces 203 D and 203 C and one lancet arch opening, W09, above the western transverse arch in the wall facing south (north wall of the convento structure). This north wall of the interior space 203 D also has remains of the colonial plaster, and a masonry-filled opening in the ground floor in the east part of the wall. The third space (203 C) is connected to the second (203 D) as explained above, and to the fourth (203 B) with another lancet arch door opening, D14, in the middle of the partition wall. Above D14 is a rectangular opening between 203 C and 203 B.

Additionally, there is one opening in the north wall, window W10, just above the transverse arch. The north wall of 203 C has also two niches in its western part, N01 on the ground level and N06 in the upper, as well as remains of colonial plaster and a masonry-filled window in the ground level of its eastern part. The fourth space (203 B) is connected to the third (203 C) by door D14 and to the exterior through door D03 in the north wall of the structure, but it is not connected to the east interior space (203 P), the “doorless” room in the northeast corner of the convento. Space 203 B has two more openings in the upper level, W11 and W12—both lancet arches shaped and placed in between the transverse arch and the interior dividing walls. In the western part of the wall, below the opening, there is niche N02, similar to the niches in 203 C.

East Interior Spaces, Labelled 203 P, 203 O, 203 K, and 203 R on the Plan:

There are four interior spaces in the east part. Two of these, the ones to the northeast (203 P and 203 O on the plan) lack entrances and are completely inaccessible from the ground level. A rationale for how this occurred is offered in the chronological development section of this HSR. The other two spaces, 203 K and 203 R, are accessible from the corridor of the east part.

Space 203 K is bounded by three one-story walls and one two-story wall. The west wall divides the cloister from the interior of space 203 K and commu-

nicates via a rectangular opening, door D05, in the northwest corner. The south wall divides spaces 203 K and 203 R, which are only connected by a rectangular window D13. The two-story wall dividing spaces 203 K and 203 O is a continuation of the main arcade. Although it is not visible since it was covered by the addition of an oven/chimney made with bricks, on the ground level the wall embeds the 10th arch of the main arcade. In the upper level, it embeds the flying buttress. Space 203 O is inaccessible to foot traffic.

The southern space, 203 R, is connected to the east part of the cloister through a rectangular opening, door D04, and to space 203 K through the window D13 mentioned above. Space 203 R has an interior niche, N05, located in the south wall of the structure.

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Chapter 6: Condition Assessment

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Summary of Previous Assessments and Projects

Introduction The condition assessment of the Mission San José convento is based on field observations. All assessment in this HSR is based on visual inspection only, carefully compared to the numerous past reports. Diagnostic or laboratory testing of materials was beyond the scope of the commissioned report. Addenda may be added to include future lab tests. Refer to the methodology section of Chapter 2 for descriptions of techniques used in preparation of this report.

Study of Previous Condition Assessment Reports on the Mission San José Convento In the 1970s a comprehensive conservation effort was launched by NPS together with ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property), when David Battle from NPS and Giorgio Torracca from ICCROM visited Mission San José and advised in situ conservation of architectural and decorative features of the site.

Commencing with Torracca's recommendations, the NPS embarked on a preservation program that would include monitoring and maintenance, historic research and building materials analysis, and special projects on the four San Antonio missions (Bass and Rivera, 1994).

Before 1993, efforts at San José can be listed as follows:

1. Installation of crack and moisture monitoring devices in the convento (Todd Rutenbeck, 1981);
2. Soil and foundation study (Raba and Associates, 1976);
3. Groundwater infiltration study (Meyers and Brown, 1976);
4. Stone masonry rehabilitation project (1984);
5. Park-managed program on masonry repointing and vegetation removal;
6. The door and window rehabilitation project (Barrow, 1988);

The NPS archives host an extensive collection of unpublished reports describing past condition assessments and conservation efforts carried out on Mission San José structures.

Beginning next page is a list of the available unpublished reports identified and consulted for the present study. Reports not completed by the NPS may be held in private files, such as in offices of consultants who completed the work, and it is possible some unknown quantity of these were not discovered. The list includes also the major conservation projects pursued at San José going back to the 1970s. Any item on the list concerning the convento is blocked in gray tone. The conservation work projects at the convento are further "tagged" with an asterisk for easy identification.

Table 6.A.1:
Previous Reports of
Condition Assessment
and Conservation
Treatments

Year	Author	Title	Location
2016	Angelyn Bass and Douglas Porter	<i>Letter report on condition assessment and conservation treatment planning for the historic stucco on the façades and exterior elevations of Mission San Jose and Mission Espada in San Antonio, Texas.</i>	Church
2016	Maintenance Staff	Replace Existing Accessibility Ramp	*Convento
2015	Clinton M.M. McKenzie, CAR, UTSA, PI: R. P. Mauldin	<i>Monitoring and Sandstone Stair Removal at the San Jose Grist Mill, San Antonio, Bexar County, Texas</i>	Grist Mill
2015	Ivan Myjer and Anna Nau	<i>Sacristy Window, Mission San José y San Miguel de Aguayo, Phase II Treatment Report.</i>	Sacristy
2015	Maintenance Staff	Repairs to ruin oven; replacement bricks added in dome; packed with sand; protective plaster applied	*Convento
2014 December	Maintenance Staff	Repointing (nearly 100%) inside two “doorless” rooms; parapet wall cap; geofabric on ground with 6” decomposed granite added	*Convento
2013	Harbinger Consulting Group	<i>Potential Economic Impact of the World Heritage Site Designation for the San Antonio Missions Technical Report</i>	
2013	Ivan Myjer and Anna Nau	<i>Sacristy Window, Mission San José y San Miguel de Aguayo, Phase I Treatment Report</i>	Sacristy
2013	Ivan Myjer and Anna Nau	<i>Sacristy Window, Mission San José y San Miguel de Aguayo, Condition Assessment & Treatment Recommendations</i>	Sacristy
2012	Ivan Myjer	<i>Completion Report for Phases II and III of the Conservation of the Carved Stone on the West Front of Mission San Jose</i>	Church

* Completed maintenance project or conservation treatment

**Table 6.A.1 (cont.):
Previous Reports of
Condition Assessment
and Conservation
Treatments**

2012 October	Pugh Constructors (Architects: Ford Powell & Carson)	<i>Closing Documents and Operation and Maintenance Manuals. Owner's Manual Mission San Jose Exterior Drainage and Maintenance</i>	Mission San José Exterior Drainage and Maintenance
2012 May	Kalen McNabb Project Director: Frank Matero, Uni- versity of Pennsyl- vania	<i>Evaluation of Proposed Consolidation Treatments for the San Jose Convento Column, San Antonio Missions National Historic Park, San Antonio, Texas</i>	Column Project, Convento
2011 June	Natalie Karas Project Director: Frank Matero	<i>Evaluation of the 1993 Conservation Treatment of the San Jose Convento Column, San Antonio Missions National Historic Park Service, Draft</i>	Column Project Convento:
2011 May	Leetex Construction	<i>San Antonio Missions Visitor Center Theater Renovation</i>	
2010	Ivan Myjer	<i>Mission San José y Miguel de Aguayo, West Front, Conditions Assessment Report</i>	Church
2010	John Walsh	<i>Mortar Analysis Report, Mission San Jose y San Miguel de Aguayo</i>	
2009	John Walsh	<i>Mortar Analysis Report, Mission San Jose y San Miguel de Aguayo</i>	
2006 June	Jennifer Correia Project director: Frank Matero	<i>Conservation of the Sacristy Window, San Jose y Miguel de Aguayo</i>	Sacristy Window
2005 January	Maintenance Staff	<i>Installation of Walkway Drains</i>	Park
2003 December	Jake Barrow Robert Harzler Pietro Mangarella (Santa Fe National Park Service)	<i>San Antonio Missions NPS Conservation of Interior Fin- ishes at the Granary, Mission San Jose</i>	Granary
2003 July	Shannon-Monk Inc.	<i>Operation and Maintenance Manual. San Jose Grist Mill (Grist Mill Water Recirculating Equipment)</i>	Grist Mill

* Completed maintenance project or conservation treatment

**Table 6.A.1 (cont.):
Previous Reports of
Condition Assessment
and Conservation
Treatments**

2003	Garland Company Inc.	<i>San Jose Indian Quarters Inspection Report</i>	Metal Roof in the Indian Quarters
2003 March	Ford Powell & Carson	<i>San Antonio Missions: Condition Assessment and Preservation Analysis. Vol. II: Mission San Jose and Miguel de Aguayo</i>	Church building
2002 September-December	Restoration Associates Lim., LLC Mary Canales Jary—Pamela Jary Rosser—Elisa Jary	<i>Mission San Jose and Miguel de Aguayo. Inventory and Condition Assessment Survey. Documentation Report of Spanish Colonial Plasters and Mortars</i>	Cloister and Convento
2001, January	Brett Carre', Mark Chavez	<i>San Antonio Missions National Historic Park. Resources Management Plan</i>	Cultural and Natural Resources
1999 June		Indian Quarters Ramada Projects	Indian Quarters
1997 June	James and Juarez Architects	<i>Mission San Jose Cultural Landscape Inventory</i>	General
1997	K. A. McDowell	<i>Characterization and Condition Assessment of the Sacristy Window. Mission San Jose y Miguel de Aguayo, San Antonio, Texas. A Thesis in Historic Preservation. University of Pennsylvania Master of Science</i>	Sacristy Window, Summary of Recommendations
1997 April	NPS Denver Service Center (Anthony Crosby acknowledgement)	<i>San Antonio Missions National Historic Park 1988 Conservation Project Completion Report at Mission Concepcion Convento and Mission San Jose Convento</i>	Convento (and Concepción Library)
1997 1999		San Jose Indian Quarters Roofing Job (folder)	Indian Quarters Construction for Structural Stabilization
No date	Greystone Industries	<i>Injury Preservation Plan Preservation of the Indian Quarters Mission San José Contract 14431-B-7350-97-005</i>	Preservation of the Indian Quarters
1996		Maintenance and Recommendations Inspection	Convento

* Completed maintenance project or conservation treatment

**Table 6.A.1 (cont.):
Previous Reports of
Condition Assessment
and Conservation
Treatments**

1996 February	Angelyn Bass, Robert Rivera and Jake Barrow	<i>Mission San Jose y Miguel de Aguayo. Plaster and Paint Conservation Project Conservation Treatment Report</i>	*Convento— Stabilization Fragments of Historic Lime Plaster
1995 November	James and Juarez Architects	<i>Mission San Jose Cultural Landscape Report</i>	General
1995 August	SyPlast Roof	Specifications	Visitor Center
1995 March	D and D air Conditioning	<i>Mission San Jose Visitor Center (Air Conditioning)</i>	Visitor Center
1994 December	Angelyn Bass and Robert Rivera	<i>Mission San Jose y Miguel de Aguayo. Plaster and Paint Conservation Project. Conservation Treatment Report</i>	*Convento— Stabilization of Historic Lime Plaster
1994 August	HIS Geotech & CMT, Inc.	Geotechnical investigation Visitor Center, Mission San Jose, San Antonio, Texas Report No. G142	Visitor Center Geotechnical Investigation for Design & Foundation
1994 August	Astex Environmental Service	Final Air Monitoring Report. Abestos Abatement Activities. Mission San Jose Convento Ruins	*Convento Ruins
1994 August		<i>Project Manual Mission San Jose Visitor Center and Parking Areas. SAAN 150A-S Volume I of 2</i>	Construction of Visitor Center
1994 June	Astex Environmental Service	<i>Asbestos Abatement Bid. Specifications for Mission San Jose Convento Ruin. Specifications</i>	*Convento Ruins
1994 April		Folder Statement of work	Re-roof Granary
1993 May	Anne Brackin Architectural Con- servation Lab University of Penn- sylvania	<i>Mission San Jose y Miguel de Aguayo Convento Column Pretreatment Testing Program and Conservation Treatment Final Report</i>	Column Project
1992 September		<i>Geotechnical investigation. Visitor Center. Mission San Jose Report</i>	Visitor Center
1992 February	Lloyd Walker Jary & Associates	<i>Renovation to: Spanish Residence—Gift Shop. Mission San Jose y Miguel de Aguayo. Los Compadres & National Park Service</i>	Gift Shop

* Completed maintenance project or conservation treatment

**Table 6.A.1 (cont.):
Previous Reports of
Condition Assessment
and Conservation
Treatments**

1992 December	Park Staff, San Antonio Missions	<i>Harris House: A Preliminary Historical Report. Harris House Evaluation</i>	Harris House
1990 February		<i>San Antonio Missions National Historic Park. A Report on a Study of its Boundaries</i>	Landscape
1990		Mission San Jose Spanish Colonial Bookstore HVAC	Bookstore—Roof, Windows, HVAC
No date	Alvin H. Meyer, Kirk W. Brown Texas A & M University	<i>Determination of the Causes of Deterioration at Mission San Jose Mission National Historic Site</i>	Church
1987	De Lara Almond Architects (5-year project completed in 1988—project supervisor Jake Barrow)	<i>Emergency Masonry Stabilization Mission San Jose—1987. Preservation Plan for Wooden Elements and Features at the Indian Quarters. Missions San Jose, San Antonio, Texas</i>	Indian Quarters—Repointing Southwest Bastion Dome. Correction of drainage
1987 February	De Lara Almond Architects	<i>Preservation Plan for Wood Elements and Features at the Indian Quarters Mission San Jose, San Antonio, Texas</i>	Grape Arbor Excavation and Stabilization
1984	United States Department of Interior	List of Classified Structures [superseded; now obsolete]	Current LCS Listing
1982 January	Diane E. Traylor, James T. Escobedo and James E. Bradford	<i>Archaeological Testing at the Grape Arbor. Mission San Jose, Bexar County, Texas</i>	Grape Arbor
1982–1981	David Battle John T. Mortar (Santa Fe Southwest Cultural Resources Center)	Stabilization of the Grape Arbor Mission San Jose San Antonio Missions National Park	Grape Arbor
1980 July		Termite Treatment. San Jose Mission State Historic Park Invitation to bid	Park
1980 January		<i>Repairs to Gates, Old Mill and Granary. Mission San Jose State Historic Park</i>	Gates, Old Mill Granary
1973 November	Giorgio Torraca	<i>Visit to the Old Spanish Missions, San Antonio, Texas</i>	Mentioned Mural Painting in Convento

* Completed maintenance project or conservation treatment

2012 Evaluation of Proposed Consolidation Treatments for the San José Convento Column	The 2012 evaluation is a master's thesis discussing current consolidation methods for argillaceous limestones and related testing programs of the San José Convento column, which had been previously consolidated in 1993 to stabilize active flaking and decohesion of the stone surface. Re-treatments of previously consolidated stone have become an increasingly common occurrence in architectural conservation. The work focuses on the investigation of modified ethyl silicate consolidants, with anti-swelling inhibitors to be used as re-treatments. A detailed description of the 1993 stabilization project is included in the work. The author carries out laboratory analysis on samples with similar petrographic characteristics, which includes: 1. Testing program, quantification of soluble salts, color changes, capillary absorption, drying index, water vapor permeability; 2. SEM Analysis and X-Ray Diffraction. The laboratory cannot easily replicate the damage observed in the column, and clay expansion has not been identified as the main deterioration mechanism in the column.
1993 San José y San Miguel De Aguayo Convento Column Pretreatment Testing Program and Conservation Treatment	In this report the condition of the column prior to conservation work and column treatment is extensively described. The column condition is also described with detailed mapping drafted by hand. The column treatment is subdivided in four phases: 1. Preconsolidation 2. Consolidation 3. Patching 4. Application of Water Repellent All products are specified in details if not locally available.
<i>Kalen McNabb, Project Director: Frank Matero</i>	
<i>Final Report Anne Brackin</i>	

2012 Evaluation of Proposed Consolidation Treatments for the San José Convento Column



Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 6.

Figure 6.A.1: The octagonal column is constructed out of nine locally impure fine-grained limestone drums and laid with a gypsum-lime bedding mortar. Intended to be an interior element, the column has been exposed to the outdoor conditions since its construction by the Benedictines. The 2012 study by McNabb identifies causes of deterioration of the convento column.



Figure 6.A.2: The column: microcracking observed during the 2011 assessment attributed to the swelling of clays inherent within the stone. The resulting 2012 thesis investigates also the effects of an elastified ethyl silicate consolidant with a swelling inhibitor.

Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 2.

2012 Evaluation of Proposed Consolidation Treatments for the San José Convento Column



Figure 6.A.3
Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 13.



Figure 6.A.4
Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 14.

“Comparisons between the 1993 [Figure 6.A.3] and 2011 [Figure 6.A.4] photographic conditions assessments of the column in combination with field examination and SEM micrography indicates that the original consolidation was successful in restoring grain to grain cohesion of the disaggregated and flaking stone. Extensive cracking has formed and expanded on various sides of several of the drums. This deterioration is believed to be due to the stone’s inherent expansive clays which swell when exposed to water, generating stress and increasing the rate of cracking.” (McNabb, 2012, p. 35)

1993 San José Convento Column Pretreatment Testing Program and Conservation Treatment



Figure 6.A.5: The southeast elevation of the column prior to the 1993 treatment.

Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 8.

COLUMN TREATMENT

REMOVAL

Removal of bedding mortar as far as back possible

PRECONSOLIDATION

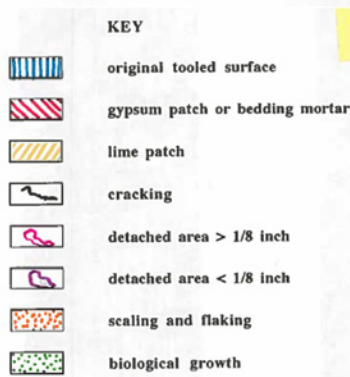
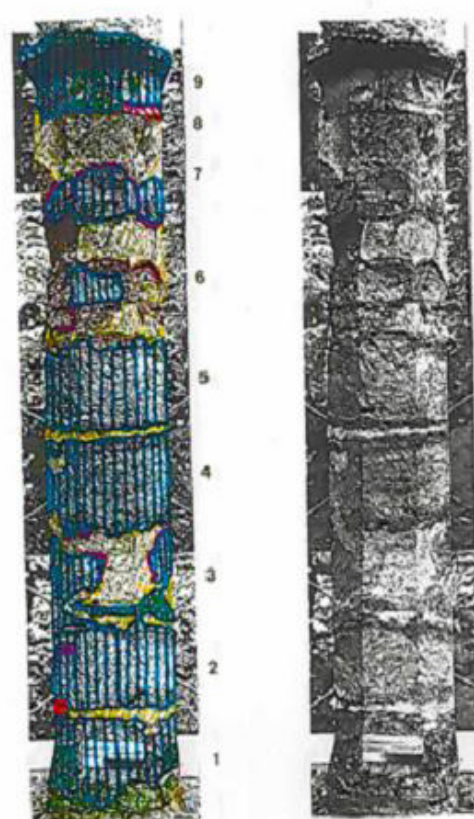
- A 7.5-15% solution of Acryloid B-72 was applied in a 1:1 mixture of xylenes and toluene with a Japanese tissue paper.
- Injection of 15% solution of B-72 in fine cracks.
- Injection of a grout of a moderate hydraulic lime, microballoons, fine silica sand and water into the blind voids resulting from the removal of previous repairs.
- Removal of residual gypsum salts with three separated poultices consisting of a mixture of ½ rag stuff paper pulp and 3% glycerin.

The column before the 1993 treatment showed bedding and repair mortar characterized by a high amount of gypsum (calcium sulphate dehydrate).

Since gypsum is water soluble, weathering produced its dissolution, with subsequent infiltration and recrystallization into the stone.

The recrystallization of gypsum produced pressure into the stone pore walls, causing cracking and delamination.

In addition, the swelling of inherent clay within the limestone created further pressure within the stone pores.



Figures 6.A.6a, 6.A.6b

Reprinted from *Mission San José y San Miguel de Aguayo Convento Column: Pretreatment Testing Program and Conservation Treatment*, by Anne Brackin, 1993, pp. 9-10.

1993 San José Convento Column Pretreatment Testing Program and Conservation Treatment



Figure 6.A.7: Application of facings to protect fragile areas during removal of lime and gypsum patches.

Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 10.



Figure 6.A.8: The column after the removal of patches.

Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 11.

1993 Treatments by Kalen McNabb

CONSOLIDATION

- Application with low-pressure sprayer of ethyl silicate (ProSoCo Conservare Stone Strengtheners OH100);
- Application with sprayer of methyl ethyl ketone (ProSoCO Stone Strengtheners Solvent) to remove surface accumulation of ethyl silicate consolidant.

PATCHING AND PROTECTION

- Injection of a 15% B-72 solution behind flakes and into cracks to achieve reattachment.
- For larger cracks, injections of a 1:1 mixture of 15% B-72 and micro-balloons.

PROTECTION

Application of a water repellent after one month curing, as follows:

- Dilute color wash of Liquitex permanent acrylic watercolor was spattered and dabbed over the surface of the patches.
- A full strength solution of methyltrimethoxysilane (Dow-Corning Z-6070) was brushed over the column surface to impart water repellency.

PREVENTIVE MAINTENANCE

Monitoring of the water repellent coat, with periodical replacement of a methyltrimethoxysilane product.



Figure 6.A.9: The Column after treatment.

Reprinted from *Evaluation of Proposed Consolidation Treatments for the San José Convento Column*, by Kalen McNabb, 2012, p. 13.

**2002 Mission San
José y San Miguel de
Aguayo—
Inventory and
Condition
Assessment
Survey and
Documentation
Report of Spanish
Colonial Plasters and
Mortars

Restoration
Associates
Limited,
LLC**

The project consisted of the documentation of the Spanish Colonial stucco and plaster finished in the convento (in the document defined as cloister) of Mission San José and was carried out starting from October 1, 2002.

Documentation and Assessment Methodology: Creation of a grid for each wall surveyed, subdivision of the area to be assessed by rooms; location of the remnants of Spanish Colonial plaster/stucco; location and documentation of blind voids by percussive tapping on the surface; location and documentation of losses of historic mortar; location and documentation of decay and deterioration of the stucco and stones, including biological growth, features induced by material loss and detachments.

Special emphasis is given to the plaster condition assessment and stone deterioration. Detailed mapping of the cloister arcades, for each arcade the existing condition is described, wall by wall.

The team identified structural cracks in the walls of the kitchen, the uppermost section of the small opening of the refectory, a side of the brick fireplace, the window opening of the southern wall (room 203 R), and the opening between the kitchen and the refectory. Also the refectory showed, beyond loss of masonry material, large cracks: in the western wall above the window opening and on the eastern wall from its uppermost section down to its base. For this section, however, there is a lack of photo documentation.

In the conclusions, the authors stated the condition assessment revealed that plaster, mortars and numerous limestone, sandstone, and caliche stones were in active states of deterioration, with multiple blind voids in the coarse rough sand coat. Drainage in HS 203 and in the refectory was deemed inadequate. Masonry capping was assessed to be effective in the uppermost sections of the wall, however additional capping work was recommended.

The 2002 team provided recommendations which can be broken down as follows:

1. Cleaning: Removal of vegetation/plants along the northern wall, mechanically or chemically; Removal of trees and plants from the prison walls, kitchen, refectory; Removal of microorganism, lichens, and algae from arriccio.
2. Consolidation: Infill of large cracks and losses with lime/sand mortar to match historic formula; Stabilization of historic plaster on the arches and windows; Stabilization and consolidation of all friable arriccio; plaster edges stabilization.
3. Consolidation/Patching: Application of injectable hydraulic lime grout

to fill large blind voids in and around areas of finish plaster.

4. Masonry Consolidation: Stabilization and consolidation of deteriorating limestone, sandstone, and caliche stone.
5. Protection: Application of water repellent chemicals to the surface of all finish plaster.
6. Emergency treatments of the column located in the southern wall of room HS 203 A, with period yearly monitoring.
7. Structural analysis to be conducted on the walls and arches of the cloister.

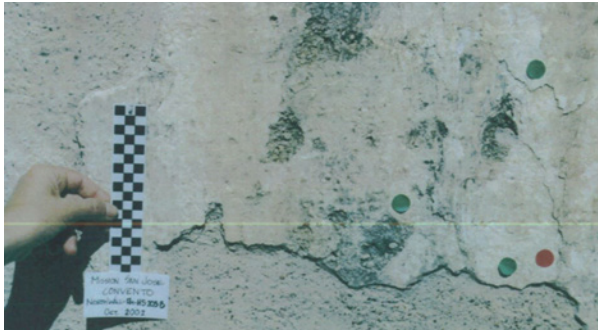


Figure 6.A.10: Room HS 203 B—North wall. Detachment of plaster edges. Presence of biological growth. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 47.



Figure 6.A.11: Room HS 203 C—North wall. Detail of Spanish Colonial plaster with heavy biological growth. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 65.

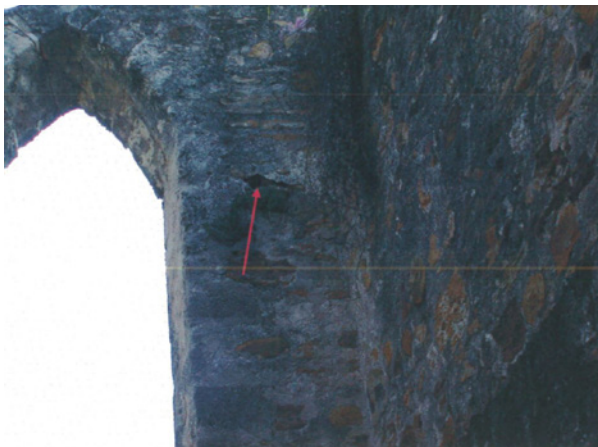


Figure 6.A.13: Room HS 203 D—North wall. Mortar loss. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 82.



Figure 6.A.12: Room HS 203 C—North wall. Detail of decorated Spanish Colonial plaster with biological growth. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 66.

2002 Mission San
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Aguayo—
Inventory
& Condition
Assessment
Survey and
Documentation
Report of Spanish
Colonial Plasters and
Mortars

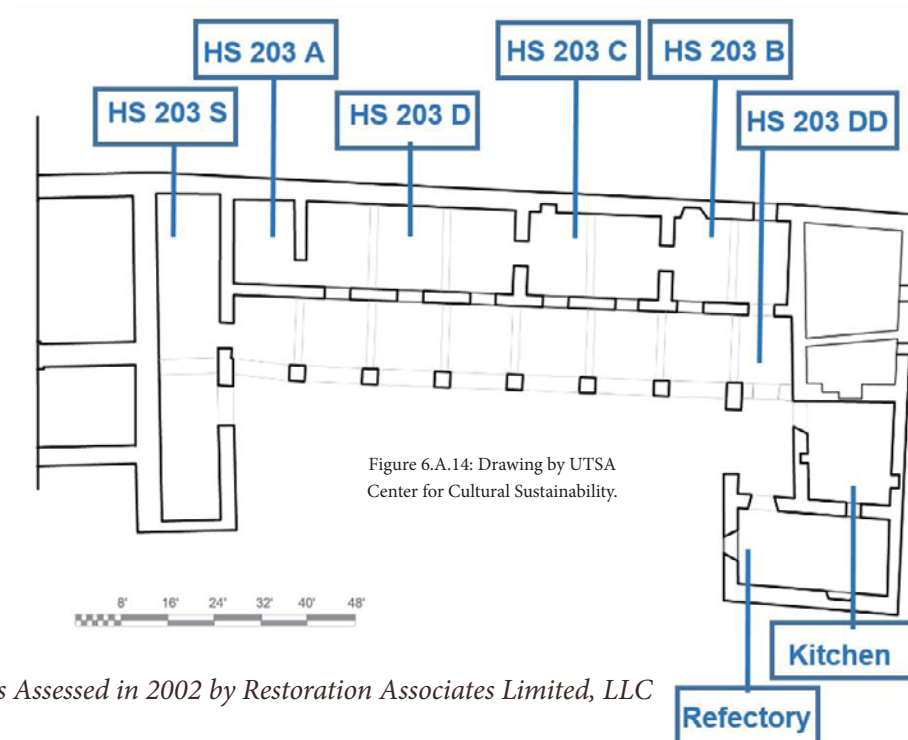


Figure 6.A.14: Drawing by UTSA
Center for Cultural Sustainability.

Conditions Assessed in 2002 by Restoration Associates Limited, LLC

- HS 203 S** North wall upper level: FRAGILE.
South wall: FRAGILE but GOOD.
East wall: FRAGILE and with presence of carved graffiti. Biological growth, stone deterioration, and diagonal cracks. Connecting arches are stable with presence of lichens. Material loss at the base of the arches.
- HS 203 A** North wall: GOOD. Presence of Spanish Colonial finishes.
West wall: GOOD/FRAGILE with presence of cracks.
South wall: The Octagonal Benedictine column is in good condition. Lower section of the wall is in fragile condition.
- HS 203 B** North wall shows large losses filled with lime sand mortar formula 1:4. Existing Spanish Colonial intonaco with previous edge stabilization. Cracks on the intrados of pointed arch window.
West wall: FRAGILE.
East wall: FAIR/GOOD to FRAGILE.
South wall: FAIR but STABLE. Remnants of historic and 1930s mortars.
- HS 203 C** North wall upper level is in FAIR CONDITION with biological growth.
Lower section of north wall is FRAGILE. Deteriorating limestone shows large losses.
West wall: FAIR/GOOD.
South wall: FRAGILE but STABLE.
East wall: GOOD.
- HS 203 D** North wall: GOOD/FAIR. Lower section: FRAGILE, with blind voids and efflorescence.
West wall: FAIR.
South wall: FRAGILE.
East wall: FAIR/GOOD.

2002 Mission San
José y San Miguel de
Aguayo—
Inventory
& Condition
Assessment
Survey and
Documentation
Report of Spanish
Colonial Plasters and
Mortars



Figure 6.A.15: Kitchen—Eastern Wall in 2002. Crack in the upper section of the opening toward the refectory. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 102.

*Conditions Assessed in 2002 by Restoration Associates
Limited, LLC*

**KITCHEN
AND REFECTORY** The walls were described as stable but fragile. Cracks were identified and shown in photos. Spanish Colonial plaster fragments were observed in multiple areas. Emergency stabilization of masonry mortars was recommended.



Figures 6.A.16, 6.A.17: Kitchen—Northern Wall in 2002. Large crack from the uttermost section of the wall extending down to the oven height. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, pp. 96–97.

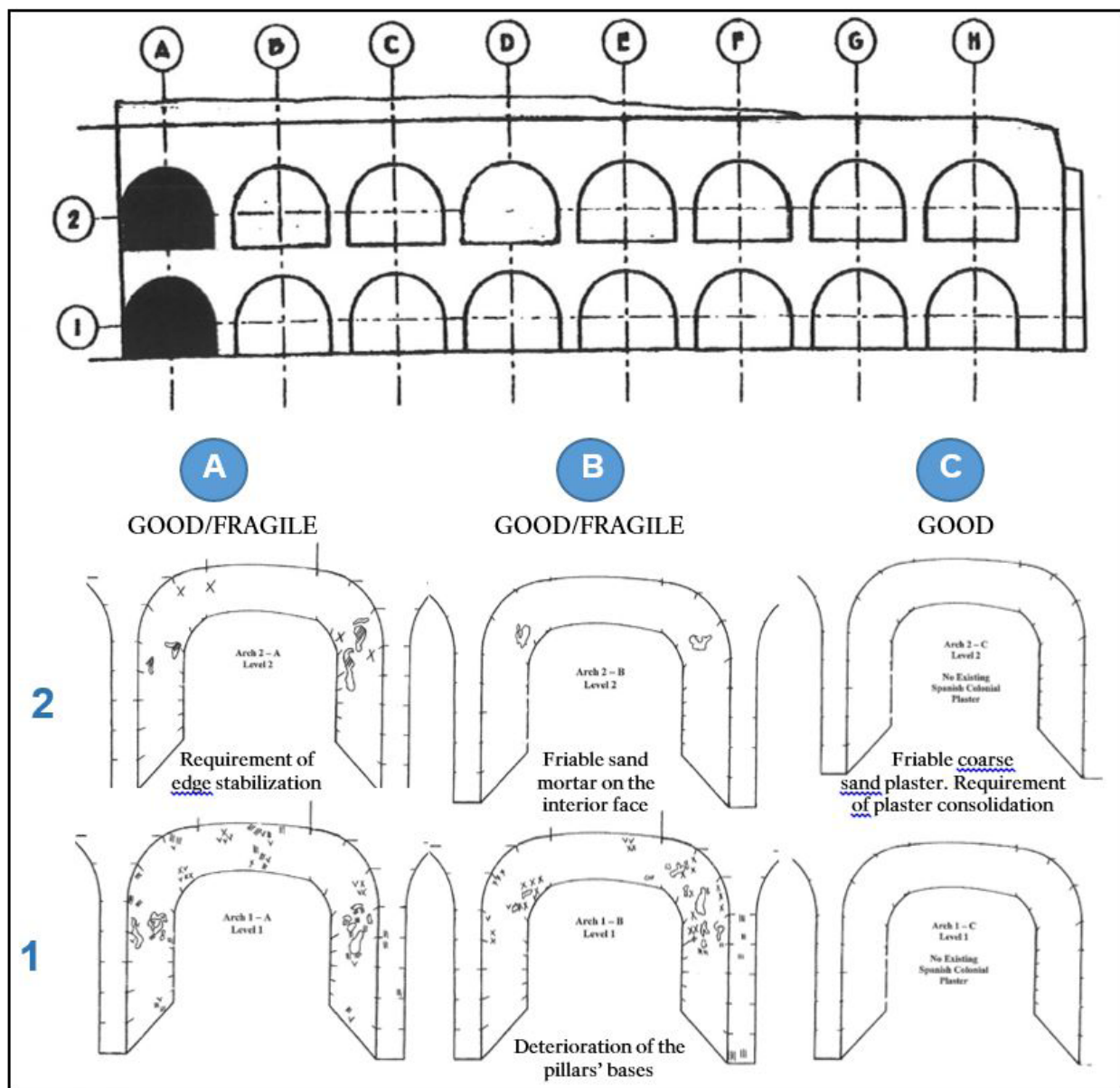


Figure 6.A.18 Adapted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, pp. 116–118, 125–126, 135–136.



Figure 6.A.19: Arch 2 A—Detail of existing condition of remnants of Spanish Colonial mortar. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 121.

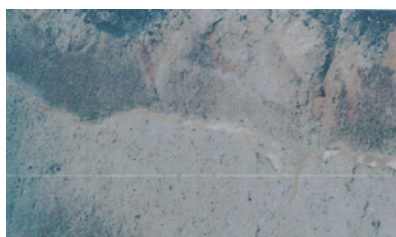


Figure 6.A.20: Arch 1 B—Detail of previous conservation treatments involving edge stabilization carried out with a slightly pinkish mortar. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 127.

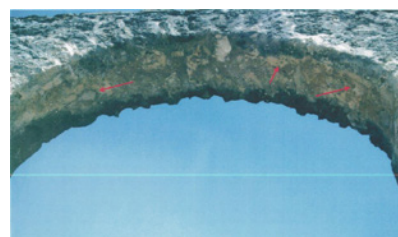


Figure 6.A.21: Arch 2 C—Detail of existing condition of remnants of Spanish Colonial mortar requiring consolidation. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 139.

2002 Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey
and Documentation Report of Spanish Colonial Plasters and Mortars

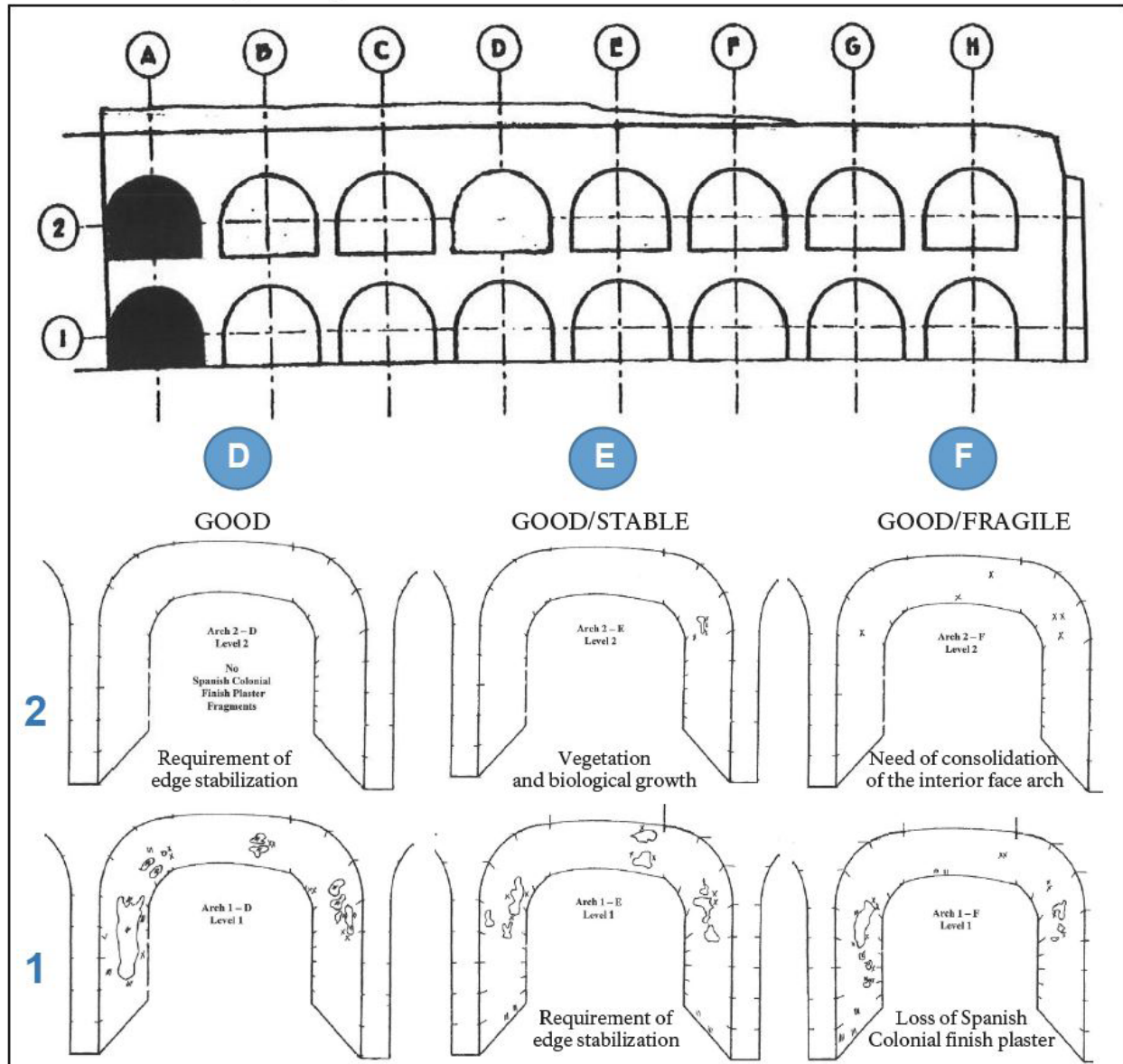


Figure 6.A.22 Adapted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, pp. 116, 143–144, 154–155, 164–165.

Figures 6.A.23–6.A.25 reprinted and/or adapted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, pp. 145, 157, 168.

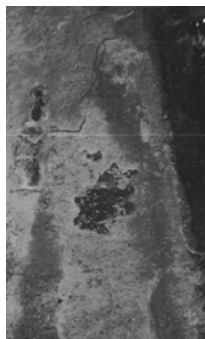


Figure 6.A.23 (left): Arch 1 D—Requirement of plaster stabilization.



Figure 6.A.24 (above): Arch 1 E—Detail illustrating recent loss of material.



Figure 6.A.25 (left): Arch 1 F—Spanish Colonial finish plaster, areas of detachment.

2002 Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey
and Documentation Report of Spanish Colonial Plasters and Mortars

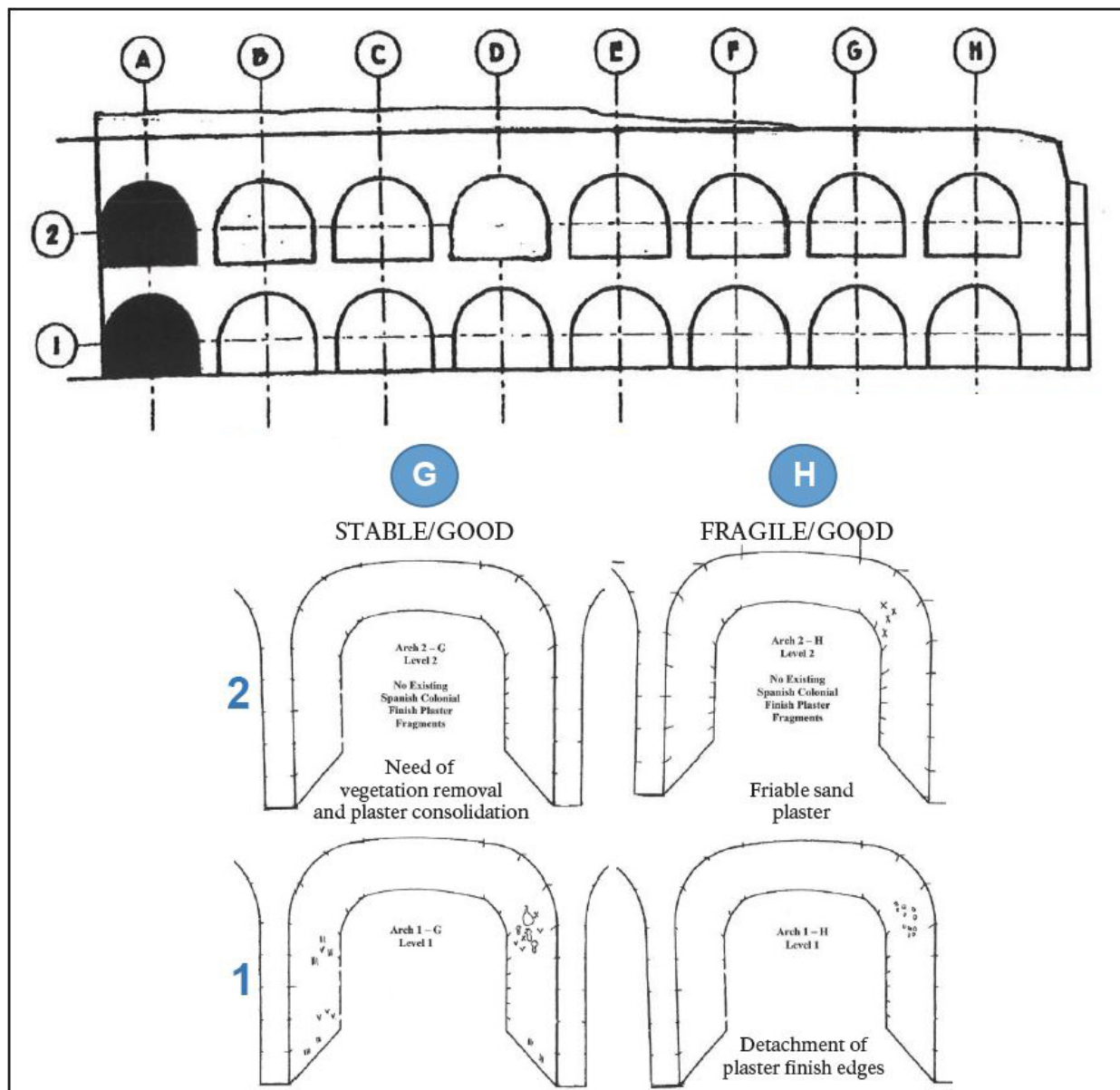


Figure 6.A.26 Adapted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, pp. 116, 176–178, 184–186.



The 2002 report assessed the transverse arches as stable. The report cited biological growth, lichens, losses of pointing mortars, and capping with modern mortar.

Figure 6.A.27: Room HS 203—Typical condition of transverse arches. Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 191.

2002 Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars

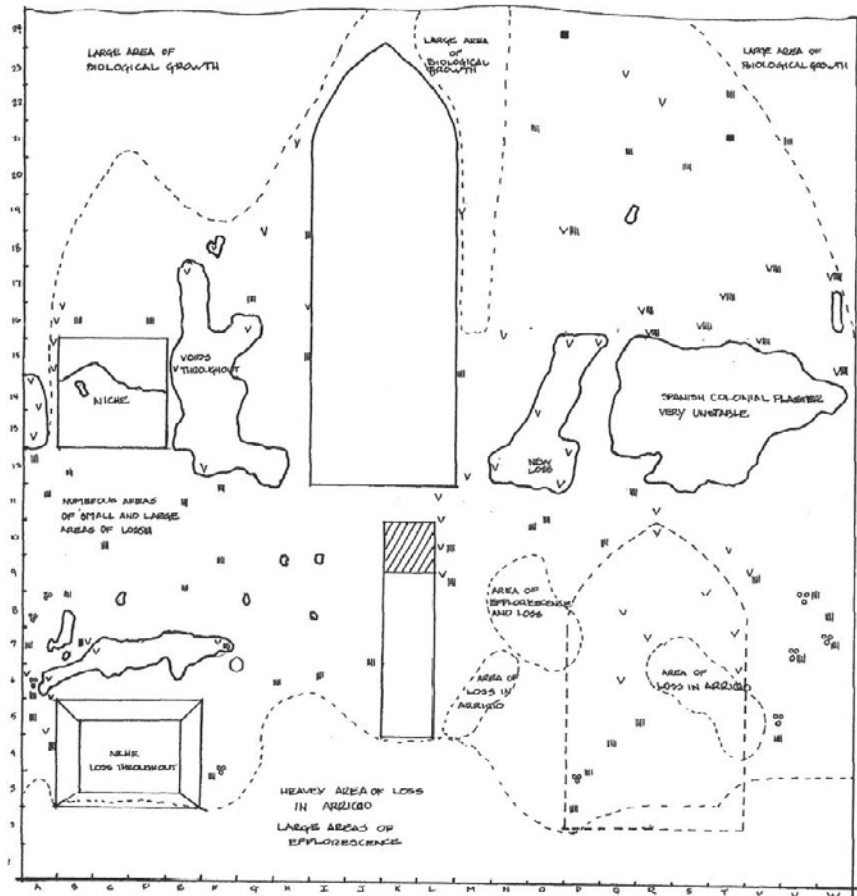
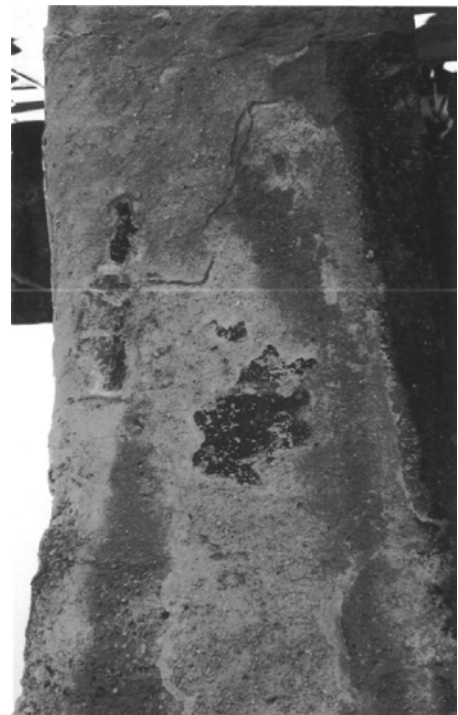


Figure 6.A.28: Room HS 203 C, Interior Elevation—Existing condition in September–December 2002.

Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, p. 199.



Figures 6.A.29, 6.A.30: Arch 1 D level 1 Detail of Spanish Colonial Plaster fragments.



Reprinted from *Mission San José y San Miguel de Aguayo—Inventory & Condition Assessment Survey and Documentation Report of Spanish Colonial Plasters and Mortars*, by Restoration Associates Limited, LLC, 2002, pp. 147, 149.

**1994 Paint and
Plaster
Conservation
Project, Mission
San José**

*Angelyn Bass
and Robert Rivera*

The 1994 project was a collaborative undertaking by the Southwest Cultural Resources Center of NPS, Department of the Interior, and the Architectural Conservation Laboratory at the University of Pennsylvania to document, clean and stabilize fragments of historic painted plaster in the convento of Mission San José; it was part of a comprehensive multiyear conservation project.

Twenty-seven plaster fragments were identified in the convento and sacristy areas, 17 of them were fully documented. The fragments that received conservation treatments were the ones located on the interior northern wall of the convento and were in very fragile condition. The other fragments located in the cloister arcades had been previously treated in 1988 and were still in good condition.

The report includes a site history, textual and photographic documentation of the applied conservation treatments, maps and drawings of the convento, and recommendations on future treatments.

For the convento, the following program was undertaken: Investigation and Assessment; Pretreatment Analysis; Pretreatment Testing; Treatment Options and Actual Procedures.

Layer Stratigraphy

In the pretreatment analysis, numerous plaster samples were characterized, and microscopic examinations indicated that the plaster samples had 6–7 layer stratigraphy, with a 2-inch lime/sand mix scratch coat, followed by 3–6 layers of fine coats interspersed with paint layers.

Paint Characterization

Red and blue paint fragments were characterized, the blue color can be described as a “fresco secco” rather than a true fresco. Binders were not identified.

Testing Program

A testing program involving facsimile 18th-century plasters was carried out in order to identify best cleaning techniques.

Cleaning Options

A combination of direct and indirect approaches was chosen to clean the convento plaster.

Direct methods included: mechanical removal of lichen thalli and chemical bleaching of the stains.

Indirect methods included water redirection by altering the slope of the capping, protection of surfaces with consolidants, and water repellents.

Table 6.A.2:
Cleaning
Recommendations
by Bass and
Rivera, 1994

Summarized
from pp. 39–58

Decay	Procedure	Procedure Description	Results
Biological growth in form of lichens (mostly crustose lichens), bryophytes and algae	Mechanical	Dry cleaning with brushes and small scraping tools such as scalpels, spatula or dental picks.	Removed the surface thalli of lichens.
	Water Cleaning	A. Brushing with water alone. B. Brushing with water and non-ionic soap (0.5%, 1% and .5% acidic acid in water).	Ineffective
	Chemical	Brushing and poulticing with various oxidizing bleaching agents—such as Solution of Triton X100, acidic acid in water or solution of hydrogen peroxide in water. The most effective was the calcium hypochlorite in water.	Mostly ineffective, but the calcium hypochlorite brushed on the surfaces did soften and bleach the lichens' thalli. Not appropriate for painted finishes.
	Herbicide	Spraying of an ortho-phenyl-phenol solution in ethyl alcohol (0.1 % solution).	Ineffective: no immediate effect on loosening or killing the lichens.
	Indirect	A. Redirect water run-off: rebuilding the tar capping. Channelling water away from the plasters. B. Protecting the surface with a consolidant or water repellent.	Require monitoring

Table 6.A.3:
Treatment
Recommendations by
Bass and
Rivera, 1994

*Summarized
from pp. 39–58*

Cleaning Unpainted Plaster	Mechanical Removal	Removal of lichens with small brushes, scalpels, and picks.
	Chemical Cleaning	Brushing 1% of calcium hypochloride in water.
Cleaning Painted Plaster	Preconsolidation Treatment	Two coats of a 5% Acryloid B-72 in toluene.
	Mechanical Removal	Removed with small stencil brushes and scalpels.
Removal of Previous Repairs	Mechanical Removal	Removed with chisel and small hand tools.
Paint Consolidation and Finished Stabiliza- tion	Chemical	1–2 coats of 5% solution of Acryloid B-72 (acrylic resin) in xylenes. 2 coats of 3% solution of Acryloid B-72 in toluene applied with a bristle brush.
Reattachment of the Plaster to the Sub- strate and Reattach- ment of Interstitial Layers	Grouting	Hydraulic lime grout, made of 4 parts sieved Riverton Hydrated Hydraulic Lime, 1 part of fine silica banding sand, 3.8 parts of Z-lite spheres, 4.4 parts of 10% aqueous solution El Rey Superior 200.
Edge Delamination Reattachment		Injection of 40% solution of El Rey Superior 200 with an 18-gauge cannula deep syringe.
Edging and Compensation		Adoption of Riverton Hydrated Hydraulic Lime. For fine fill a mixture 3:1 sand/ lime proportion was utilized; For edging 4:1 sand/lime proportion was adopted.
Protective Coating		15% solution of silanes applied with a natural bristle brush.

Documentation

For each room described in the 1994 report there is graphic documentation to support the project as well as a detailed list describing the conservation procedures.

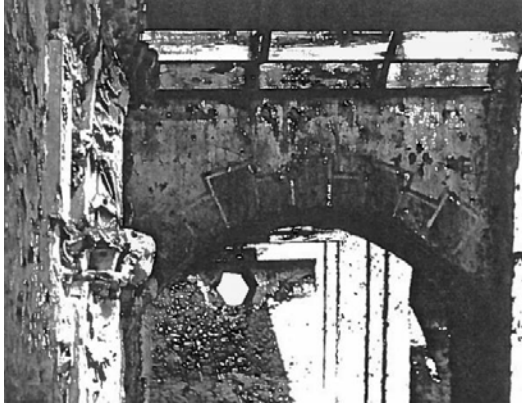


Figure 6.A.31: Arch perpendicular to sacristy — before 1938.

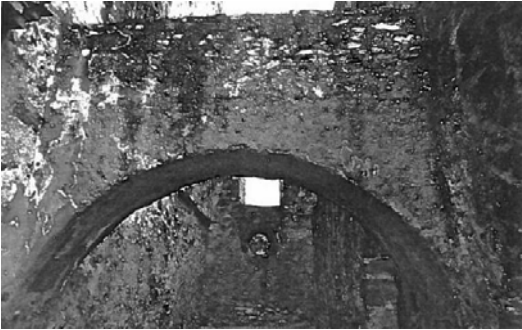


Figure 6.A.32: Arch perpendicular to sacristy — 1994.



Figure 6.A.33: HS 203C — Dry brush cleaning of painted plaster.



1994 Paint and Plaster Conservation Project, Mission San José

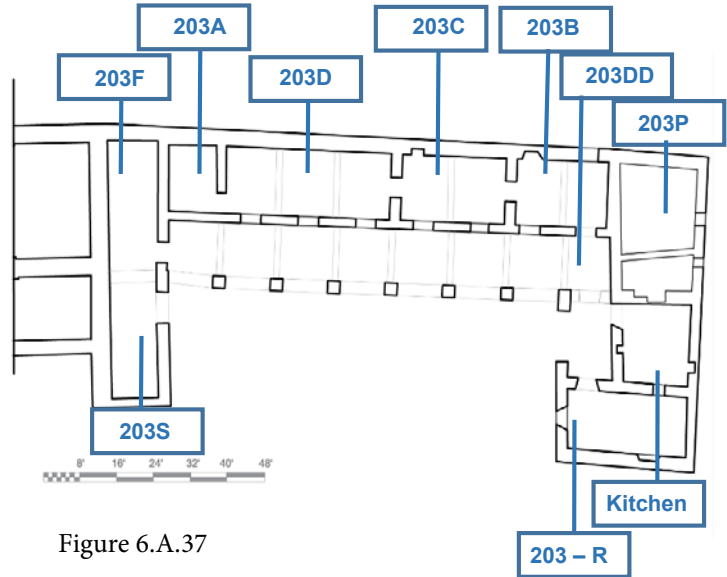


Figure 6.A.37



Figure 6.A.36:
Documentation of
painted design.



Figure 6.A.35:
HS 203 A —
Fragment 3
after
treatment.

Figures 6.A.31–6.A.36 reprinted from *Mission San José y Miguel de Aguayo. Plaster and Paint Conservation Project. Conservation Treatment Report*, by

1994 Paint and Plaster Conservation Project, Mission San José



Figure 6.A.38: HS 203 C
Before treatment.



Figure 6.A.39: HS 203 C
After treatment.



Figure 6.A.40: HS 203 C
After treatment.

Figures 6.A.38
6.A.43 reprinted and/
or adapted from
*Mission San José y
Miguel de Aguayo.
Plaster and Paint
Conservation Project.
Conservation
Treatment Report*, by
Angelyn Bass and
Robert Rivera, 1994.

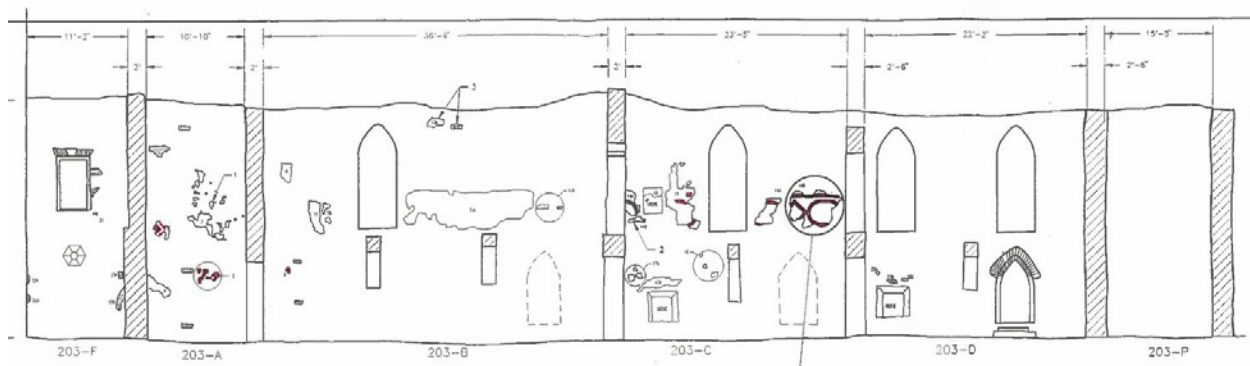
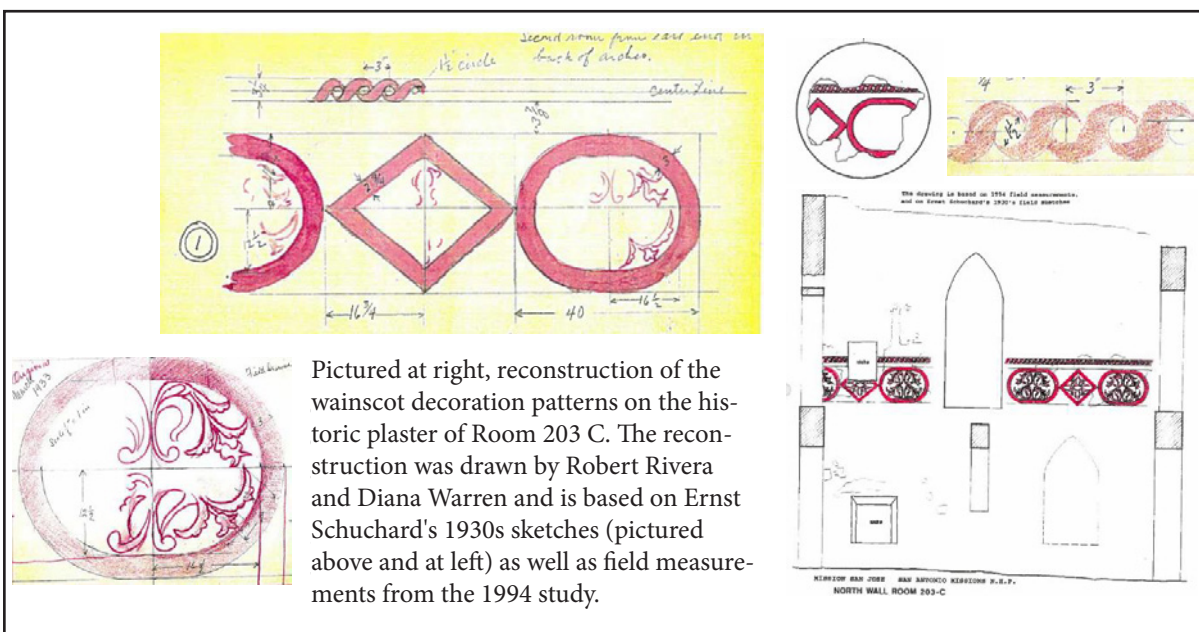


Figure 6.A.42: Building Section—Convento plaster/paint remnants after treatments.



Pictured at right, reconstruction of the wainscot decoration patterns on the historic plaster of Room 203 C. The reconstruction was drawn by Robert Rivera and Diana Warren and is based on Ernst Schuchard's 1930s sketches (pictured above and at left) as well as field measurements from the 1994 study.

Figure 6.A.43

Assessment of Current Conditions

Description of the Wall Masonry Surface The San José convento structures are made of stone walls. The stone used for their construction are platy sandstones from the Wilcox Group and a variety of Quaternary carbonate-rich rock blocks, both rubble or dressed. The carbonate-rich rocks (limestones) derived from the terraces of the San Antonio River (Ewing, 2008, p. 45).

The red/brownish sandstone is extremely compact, characterized by well-developed cross-bedding. The sandstone is utilized as rubble stone within the walls, in the pilasters of the arcades—sometimes mixed with other limestones in rubble blocks. They are also utilized as dressed stone blocks used in window and door openings, dating to the Benedictine-era reconstruction (1860–1867).

Not all scholars agree on the characterization of this stone as a sandstone. A study on the octagonal column—located on the first floor of one of the convento's room, HS 203 A—provides a description of the characterization of the red/brownish stone of the column drums, which were petrographically analyzed in 1993 for Anne Brackin, to determine the chemical composition of the blocks: “the golden-brown stone was determined to be an impure limestone with angular quartz in a cryptocrystalline calcite matrix with lesser amounts of iron oxide minerals including goethite and clays” (McNabb, 2012, p. 8).

Three types of limestones have been identified in the surveyed convento's walls:

1. Compact, fine-grained, friable limestone, characterized by a whitish color and usually denominated as “caliche” or Austin limestone.
2. Coarse, macro-porous, carbonate “tufa.” The stone has a sedimentary origin (usually tufa describes extrusive igneous rocks), locally quarried not far from Mission Concepción. It is characterized by numerous large pores (up to 3–4 cm diameter) lined with a fine calcite, with a flowstone appearance. Small (5–10 mm diameter) vermicular tubes and cavities are numerous within the rock (Ewing, 2008). The tufa, for its high workability, was used widely as dressed stone in many window and door posts built into the Benedictine construction.
3. Limestone of a whitish color and characterized by large round aggregates (3–10 mm) of river origin, lined with fine calcite, denominated as pisolithic limestone (Ewing, 2008).

Both the interior and exterior walls are built with irregular rubble and lime mortar. Limestone and sandstone are randomly mixed in the wall masonry, cre-



Figures 6.B.1a, 6.B.1b, 6.B.1c, 6.B.1d: These photos illustrate the types of stone found in the walls of Mission San José convento. They are (clockwise from top left) Wilcox sandstone, white limestone, pisolithic limestone, and the so-called "tufa," which is a macro-porous limestone.

ating an irregular courses and texture of the walls. The exterior walls also show numerous infills of previous openings, mostly with made of rubble. The exterior north wall, as well as the east wall, were topped by rubble tufa with a distinctive appearance, dated to the ca. 1934 Harvey Smith intervention. Most of the interior walls not covered by historic plaster are usually “feathered” with a restoration mortar. The mortar feathered over the stones appears to be harder than the surrounding stones. This mortar probably has some cement content and is characterized by fine aggregate mixed with 2–4 mm diameter river gravel, which can presumably be related to the 1930s interventions. Numerous generations of patching characterize the interior and the exterior walls of the convento. As a result, walls have a high amount of discontinuity and irregularity in texture. The rooms HS 203 K (kitchen) and HS 203 R (refectory) exhibit a brownish, hard, “feathered” mortar.

The convento walls also feature two types of brick, produced in different periods.

1. A dark-red clay, 2-inch thick brick, composing the voussoirs of the lance-arched openings.
2. A yellowish clay, approximately $1\frac{1}{4}$ -inch thick brick, located sporadically. Some are found in window frames, others in what where intended to be transoms, and still more in the lancet arches of walled openings on the convento's north facade. These bricks appear to be reused.

**Description
of Wall Decay
Patterns**

Walls and arches, especially the ones facing north, are covered by abundant biological growth—mostly algae and lichens—which gives the surfaces a dark color. Previous reports, among them Restoration Associates Limited (2002), considered such biological growth harmful.

Removal of biological growth has been done in areas of mortar repointing over the past several decades because the masonry was cleaned to receive the

new mortar. Wholesale cleaning to remove surface growth across all walls has never been done.

Plant vegetation grows along the base of the walls and on the surface of the walls. Plant roots may be harmful—creating fractures into the wall, increasing water ingress. Plants retain water and humidity, too, exposing walls to higher moisture content.

Numerous limestone, sandstone, and caliche stones are in states of decay characterized by delamination and disintegration, especially in areas where “differential erosion” of the masonry has been identified. See explanation of the differential erosion provided in the table beginning next page. To complete wall-decay description and assessment for this HSR, the assessment team:

- A. Locates and documents all historic plaster remnants still retaining traces of finishing layers, even in extremely limited areas. Remaining evidence of Spanish Colonial scratch coat with no finishing layer is not accurately identified.
- B. Locates and documents all existing cracks. Only open cracks are included—cracks that were filled during numerous repair campaigns over time are not mapped in this HSR.
- C. Describes room-by-room documentation of the wall-decay patterns, with conditions mapped in photo elevation.

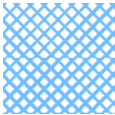
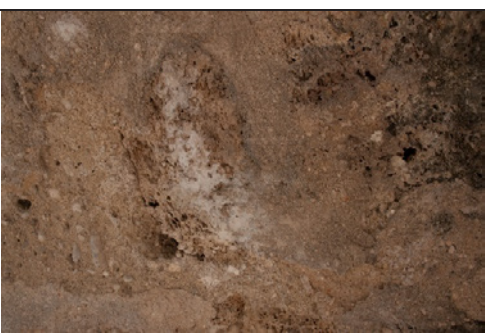
Glossary of Deterioration

Stone decay takes many different forms. One of the problems inherent in discussing stone decay is finding a common language. A significant advancement in this area is the publication of a stone decay glossary by the ICOMOS Stone Committee under the editorship of Veronique Verges-Belmin (2008), which is adopted in this report. The ICOMOS-ISCS *Illustrated Glossary on Stone Deterioration Patterns* helps define and clarify usage across languages (French and English).

Deterioration patterns identified in this HSR have been classified using the 2008 ICOMOS *Glossary* as a baseline. They were also organized by type of substrate where the decay was identified, such as stone masonry, brick, finished plaster, and other elements. The condition assessment presented in this study is the result of a visual assessment, integrated with a precise photogrammetric survey. Photogrammetry allowed the assessment team to identify irregularities on stone masonry surfaces, cracks, and textures on the wall surfaces. Data collected through the visual assessments were mapped on the wall photo elevations, using the results of the photogrammetric survey and are specifically described in this study.

Table 6.B.1: Deterioration Patterns Identified on Surfaces of San José Convento

A. GENERAL DECAY PATTERN					
A.1. Biological Colonization					
A.1.a BIOLOGICAL GROWTH Colonization of stone materials by plants and micro - organisms such as bacteria, cyano- bacteria, algae, fungi, and lichens. It is widely spread all over the convento's structure. 					
					
					
A.2. Discoloration and Deposits					
A.2.a DISCOLORATION Change in stone color in one to three of color parameters: hue, value and chroma. Present as mostly bleaching, gain value due to chemical weathering. 					

A.2.b ENCrustATION Compact, hard, mineral layer adhering to the stone. Surface morphology and color are usually different from that of the stone.  
A.2.c EFFLORESCENCE Whitish, powdery, and whisker-like crystals on the surface, they mostly are poorly cohesive and commonly made of soluble salt crystals.  
A.2.d DEPOSIT Accumulation of exogenic material of variable thickness, characterized by a lack of adhesion to the stone surface.  
A.2.e BIRD DROPPING Specific type of deposit, bird droppings are made of excrement and feces (guano) with high soluble salt content, potentially corrosive.  

A.2.f	GRAFFITI	Engraving, scratching, cutting, or application of paint, ink, or similar matter on the stone surface. Here, some graffiti may be considered historic.	
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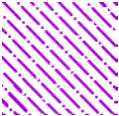


PLASTER FINISHES/ARRICCIO

B.3. Detachment			
B.3.a	DETACHMENT OF EDGES	Loss of cohesion of the plaster with the wall substrate, located on the edges of plaster fragments. It may lead to water infiltration and accelerated decay.	
B.3.b	DETACHMENT	Loss of cohesion between the plaster and wall substrate, mostly not visible, but assessed through tapping.	
B.3.c	DISINTEGRATION CRUMBLING	Detachment of aggregates of grains from the plaster substrate, generally limited in size (less than 2 centimeters).	

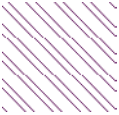
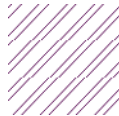
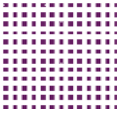


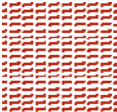
B.3.d	BLISTERING	Separated, air filled, raised hemispherical elevations on the face of the plaster surface, resulting from the detachment of the outer layer.	
B.3.e	POWDERING	Disintegration of aggregates made of fine grains.	
B.4. Features Induced by Material Loss			
B.4.a	EROSION	Loss of original surface, leading to smoothed shapes and due to a variety of reasons related with chemical, physical and/or biological processes.	
B.4.b	DIFFERENTIAL EROSION	Irregular loss of original surface, with formation of irregularity on the plaster surface, due to the presence of harder and larger aggregates.	

	B.4.c	MICROKARST	Network of small interconnected depressions due to partial and/or selective dissolution of calcareous surface exposed to water run-off.	
	B.4.e.1	MISSING PARTS/GAPS (small non-structural):	Empty spaces, obviously located in the place of previously existing plaster/mortar parts, also denominated as “lacuna.” Gaps are hollow place, holes.	
	B.4.f	PITTING	Point-like millimetric or submillimetric shallow cavities, usually cylindrical or conical shapes, not interconnected. Mostly biogenically or chemically induced.	
B.5. Crack and Deformation				
	B.5.a.1	HAIR CRACK	Minor individual fissure, visible by the naked eye, with width dimension smaller than 1 millimeter.	

STONE MASONRY

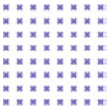
C.3 Detachment			
C.3.f	FLAKING	Detachment in thin flat or curved scales of submillimetric to millimetric thickness, looks like fish scales.	
			
C.3.h.1	FRAGMENTATION	The complete or partial breaking up of a stone, into portions of variable dimensions, irregular in form, thickness and volume.	
			
C.3.g	DELAMINATION	Detachment process affecting laminated stones, corresponding to a physical separation into several layers following the stone laminae.	
			
C.3.c	DISINTEGRATION OF THE CAPPING	Detachment of aggregates of grains, leading to a loss of continuity of the waterproof surface, allowing water infiltration.	
			

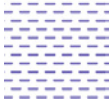
C.4. Features Induced by Material Loss			
C.4.a.1	EROSION OF THE STONE BLOCKS	Loss of original surface on the stone block, leading to smoothed shapes, due to chemical, physical and/or biological processes.	
			
C.4.a.2	EROSION OF THE MASONRY WALL	Loss of original surface on the masonry wall, leading to smoothed shapes, due to chemical, physical and/or biological processes.	
			
C.4.b	DIFFERENTIAL EROSION OF THE STONE BLOCKS	Irregular loss of original surface, with formation of irregularity on the stone surface, found in heterogeneous stones containing harder zones.	
			
C.4.d.1	LOSS OF JOINT MORTAR	Loss of the mortar located in the joints between stone rubble.	
			

C.4.e.2	MISSING PARTS/GAPS (small non-structural): 	Empty spaces, obviously located in the place of previously existing stone and joint mortar, not impacting the structural stability. Gaps are hollow place, holes.	
BRICKS			
D.3. Detachment			
D.3.f	POWDERING 	Disintegration of aggregates made of fine grains.	
D.3.h.2	FRAGMENTATION 	The complete or partial breaking up of a brick, into portions of variable dimensions, irregular in form, thickness and volume.	
D.3.g	DELAMINATION	Detachment process affecting bricks corresponding to a physical separation into several layers.	

D.5.a.2	HAIR CRACK	Minor individual fissure, visible by the naked eye, with width dimension smaller than 1 millimeter.	
			

STRUCTURAL DECAY OF MASONRY

E.5. Crack and Deformation			
E.5.a.3	HAIR CRACK	Minor individual fissure, visible by the naked eye, with width dimension smaller than 1 millimeter.	
			
E.5.b	FRACTURES	Individual severe crack, visible by the naked eye and crossing the whole wall thickness.	
			
E.4. Features Induced by Material Loss			
E.4.d.2	LOSS OF MORTAR AND STONE DECREASING WALL SECTION	Advanced loss of original surface, leading to smoothed shapes and reduced wall section, mostly at the base of walls, with no evident holes/gaps.	
			

E.4.e.3 	MISSING PARTS/GAPS (STRUCTURAL)	Empty spaces, located in the place of previously existing stones creating structural discontinuity, reduced wall section and hollow places, holes.	
E.4.g.1 	MORTAR PATCHING	Area filled with repair mortar, characterized by a brown visually color, contrasting with the surrounding masonry wall.	
E.4.g.2 	CONCRETE MORTAR PATCHING	Area filled with repair mortar, with a cement component, featuring higher hardness and low porosity.	

It is extremely complex to measure stone deterioration and to establish an effective numeric scale. Numerous techniques must be integrated to obtain reliable results.

**Causes of
Deterioration**

The development of different decay patterns on stone facades is mainly affected by stone location and climate, orientation and exposure to sunlight, rainwash and wind, as well as other environmental factors, such as pollution, etc.

An understanding of causes and mechanisms of decay is critical to the evaluation and selection of appropriate treatment methods for stones—including chemical consolidation.

The deterioration—and conservation challenges—encountered in the walls of Mission San José's convento derive from three principal agents acting either independently or in conjunction with one another:

- A. Moisture
- B. Atmospheric elements
- C. Humans

The causes of deterioration related to moisture without question form the largest and most significant group and are likewise the most difficult to thwart. Moisture affecting the wall comes from: (1) water infiltration through the top of the wall (a.k.a. coping or cap) and horizontal surfaces; (2) rising dampness from moisture in the soil; (3) rainwater accumulations near base of walls (a source of moisture in the soil); (4) condensation related to the temperature differential between the wall surface and its microclimate, and within interior cavities of the wall.

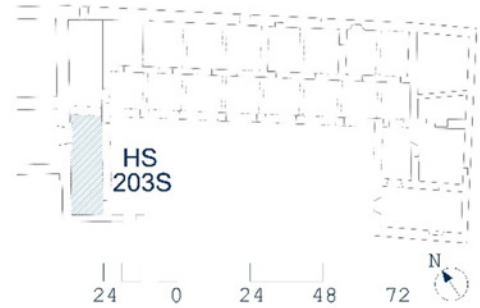
Room-by-room Analysis of Decay Patterns

Room HS 203 S

Overall
condition:
fair/good

North Elevation— Connecting Arches

At the ground level, the wall area above the arch is characterized by large remnants of Spanish Colonial painted plasters, whose colors were still visible in the 1930s. These plaster remnants are located on the arch west section and on the right end of the central keystone. They still have mortar edges in place, but they are detached from the substrate. The whole plaster surface is in a state of erosion. Additionally, the arch intrados of the ground floor still preserve remnants of Spanish Colonial finished plaster with color pigments. These surfaces have a high level of decohesion, powdering and detachment of edges. The overall condition of the wall is fair/good.



The wall surface is characterized by thick layer of biological growth, with the highest concentration under the sill of the ground-floor arch. The ground-floor surface, above the arch, shows evidence of erosion of mortar feathering and, on the east section, erosion of the masonry wall, with missing joint mortar. The ground-floor arch has a light crack, separating two voussoirs on the east section. Few stones, spread along the wall, show evidence of delamination and fragmentation.

Overall
condition:
good/fair

East Wall

With connecting arch. The one-story arcaded wall was reconstructed with rubble tufa stones mixed with some sandstone in the 1940s; therefore, it does not show evidence of plaster. The overall condition of the wall is good, and fair at the base of the pilasters. The wall is characterized by presence of biological growth spread all over the surface, with a higher concentration on the southern corner, in the connection between the ground floor and the upper level. The upper section, south side—built by the Benedictines—has evidence of delamination of few stones and differential erosion. The bases of the arches have evidence of erosion, with loss of mortar and loss of stone material.

South Wall

This wall has no remnants of Spanish Colonial plaster. The lower level can be

Overall
condition:
good

dated to the Benedictine renovation (1860–1867). The wall is in good condition; however, it reveals some areas with potential structural fragility. Such areas are located on the upper level above the brick lancet-arched window. The wall is characterized by a thick layer of biological growth, with presence of lichen colonies mostly concentrated on the west section. There is evidence of a filled crack located at the center of the ground-floor wall, starting from the ground-floor window sill and ending 2½ ft. above the ground. The brick lancet-arched window has evidence of efflorescence in the intrados area, with associated brick fragmentation and missing parts.

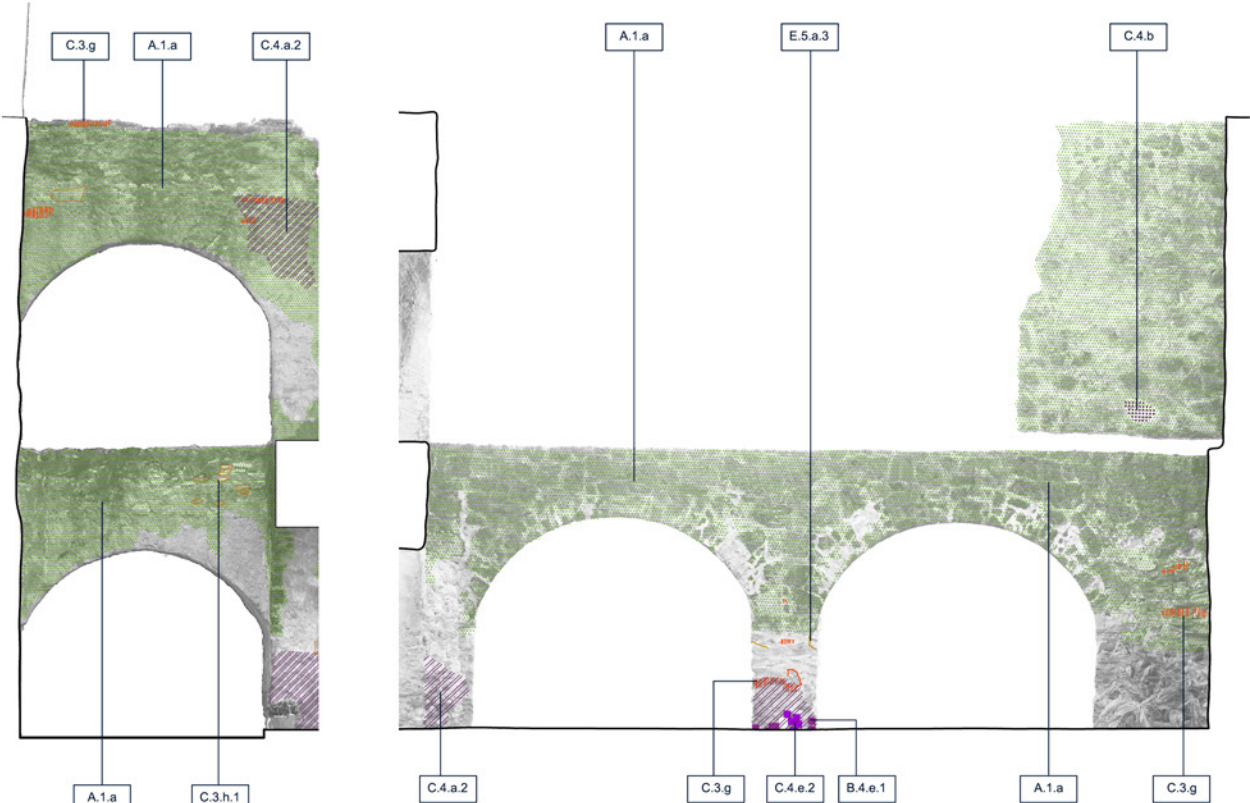
Overall
condition:
fragile

West Wall—Sacristy Wall

This wall has no remnant of historic plaster. The overall condition of the wall is fragile, because of the presence of numerous cracks on the ground floor and the complex texture characterizing the ground floor. Biological growth is spread on the whole wall surface, with a more intense pattern located on the tufa rubble stone, above the sacristy door. Other areas with a higher concentration of biological growth are the north corner and the surface below the window, due to higher rainwater absorption. The southern section of the ground floor shows traces of a walled arch, with cracks, one running diagonally above the stone voussoirs and, another, with a vertical pattern, in the arch infill. The whole ground-floor wall shows numerous voids, advanced erosion, with associated stone delamination, in the wall lower section up to approximately 3½ ft. above the ground, next to the sacristy door.

The ground floor is characterized by numerous cracks: starting from the southern corner, fractures are located above the arched-lancet windows, on its southern section, with a sub-vertical direction, extended until the capping, with cracks visible from the top. Another vertical deep crack is located on the ground floor where there is a change in the thickness of the wall section. Above the sacristy entrance door, there is evidence of filled cracks starting from the capping and separating in two cracks, shaping the form of a natural arch above the sacristy door.

203 S

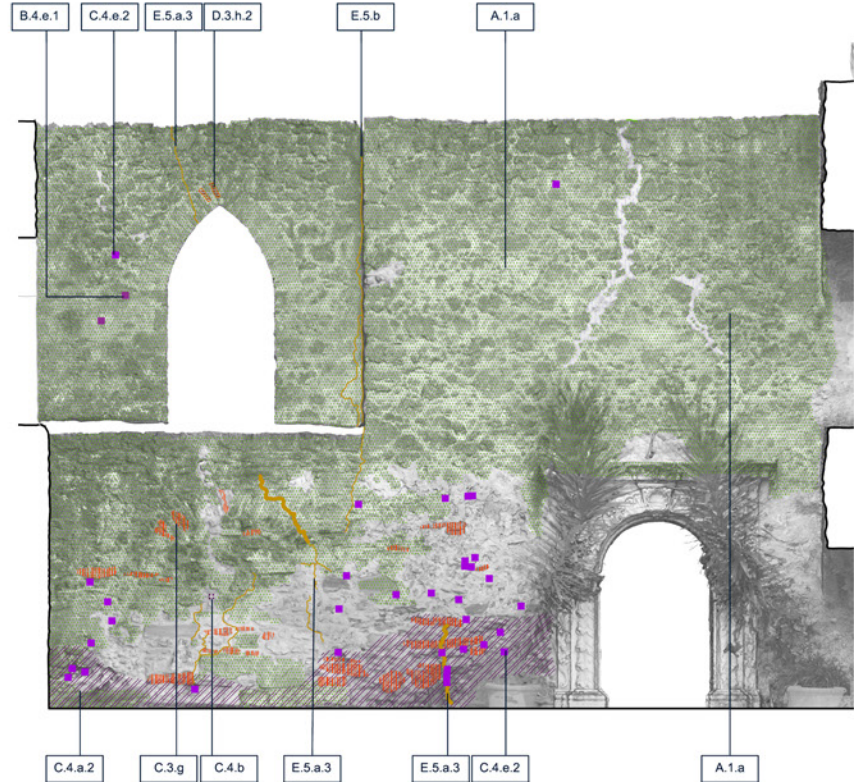


203 S_North wall



203 S_South wall

203 S_East wall



203 S_West wall

Room HS 203 S



Figure 6.B.2: Room HS 203 S—North wall, upper-level arch showing the remnants of historic painted plaster in its intrados.



Figure 6.B.5: Room HS 203 S—North wall, lower-level arch. Detail of the left corner of the arch which features remnants of historic plaster.



Figure 6.B.3: Room HS 203 S—North wall, upper-level arch. Detail of the painted plaster showing detachment of edges.



Figure 6.B.4: Room HS 203 S—North wall, upper-level arch. Upper right corner of the arch exhibiting erosion of the masonry wall.

Room HS 203 S



Figure 6.B.6: Room HS 203 S—East wall. Filled crack on the arcade north section.



Figure 6.B.7: Room HS 203 S—East wall. The southeast corner has a thick layer of biological growth.



Figure 6.B.8: Room HS 203 S—South wall, south corner. Diagonal crack is located on the east corner of the south wall.



Figure 6.B.9: Room HS 203 S—South wall, upper-level lancet arch. Fragmentation of the bricks composing the arch.

Room HS 203 S



Figure 6.B.10: Room HS 203 S—South wall lower level. General view exhibiting a big crack that has been filled and a thick layer of vegetation growth.



Figure 6.B.11: Room HS 203 S—West wall, south corner general view.



Figure 6.B.12: Room HS 203 S—West wall. Detail showing a crack in the corner where the wall's thickness changes.



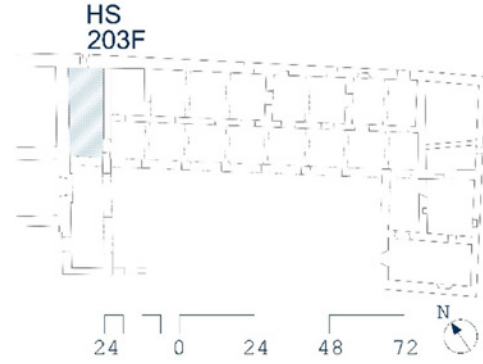
Figure 6.B.13: Room HS 203 S—West wall, south corner. Cracks are visible above the sandstone arch line. Biological growth is more developed in the upper corner.

Room HS 203 F

Overall
condition:
fair/fragile

North Wall

The wall has evidence of plaster scratch coat located on its east side, which continues under the adjacent wall section where a finished painted layer is still in situ. The octagonal window has evidence of remnant of historic mortar, with a high level of decohesion and powdering. The over-



all wall surface condition is fair/fragile, with detachment of the existing mortar from the substrate. Presence of biological growth is visible on the lower level, and it is also concentrated under the rectangular window. The lower level eastern section of the wall shows evidence of erosion, with a few missing parts; in the wall lower section, the surface is characterized by spread voids. In the lower 3 ft. of the wall, there is visible detachment of restoration mortars from the wall substrate, with associated detachment of edges. Mortar powdering is occurring in the plaster scratch coat located on the wall eastern section. A visible crack extends diagonally across the wall to the window starting from the upper west end of the north wall—at 1½ feet below the capping.

Overall
condition:
fair/fragile

East Wall

The wall has no evidence of historic plaster finish. The overall condition of the wall is fair/fragile. The wall shows a high accumulation of biological growth all over the surface, until the lower section of the wall, which shows evidence of erosion of the masonry, with loss of joint mortar. Various limestones as well as sandstones are in states of fragmentation or delamination in various sections of the wall. The erosion of the lower part of the wall is advanced, until approximately 3 ft. from the grade level, with associated loss of mortar joints and few voids. On the lower level, there is also evidence of carved graffiti on the red bricks in the wall's southern section. The red bricks lining the two superimposed lancet-arched doorways are characterized by loss of material, cracks, fragmentation of bricks, efflorescence, and powdering. This wall is characterized by the presence of three cracks. One large crack is located on the northern corner, where this wall encounters the north wall. These two walls are connected only through two flagstones, showing clearly that the east wall was built in a later phase (this is also confirmed by the presence of finished colored plaster in the northern wall in the area underneath the east wall thickness). The crack

is due to a lack of connection and to an outward movement of the north facade that happened sometime after the 1860s Benedictine construction. A fine crack crosses all the wall height, from the bottom to the top, and is located almost at the center of the wall, ideally aligned with the longitudinal wall separating the arcaded porticos from the convento's rooms. The third crack is located on the southern corner, at the intersection of the connecting arch.

*Overall
condition:
good*

South Wall—Connecting Arches

The wall is characterized by the presence of two arches, one atop the other. The ground-level surface of the arch does not show evidence of Spanish Colonial plaster. Both intrados include remnants of color, visible as well as on the upper arch's vertical wall. The whole wall is in good condition, mostly affected by biological growth. The tufa stone arched walls have a thick layer of biological growth, darkening the wall surface to a dark gray color. There is evidence of material loss at the base of the arches. Evidence of structural movement can be seen on the upper-level arcade, where a 2-ft.-long hair crack is located on the west face of the arch keystone.

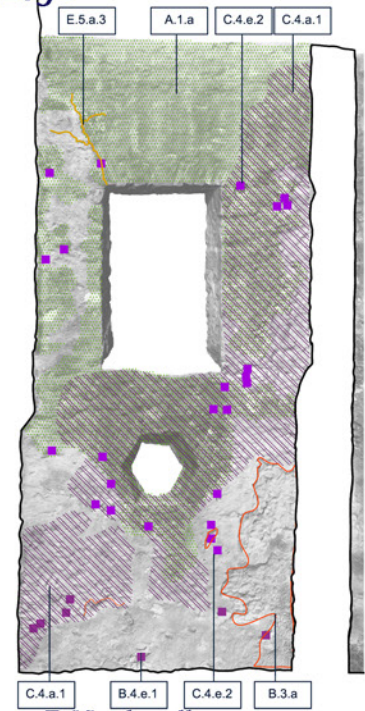
*Overall
condition:
fair/fragile*

West Wall—Church Wall

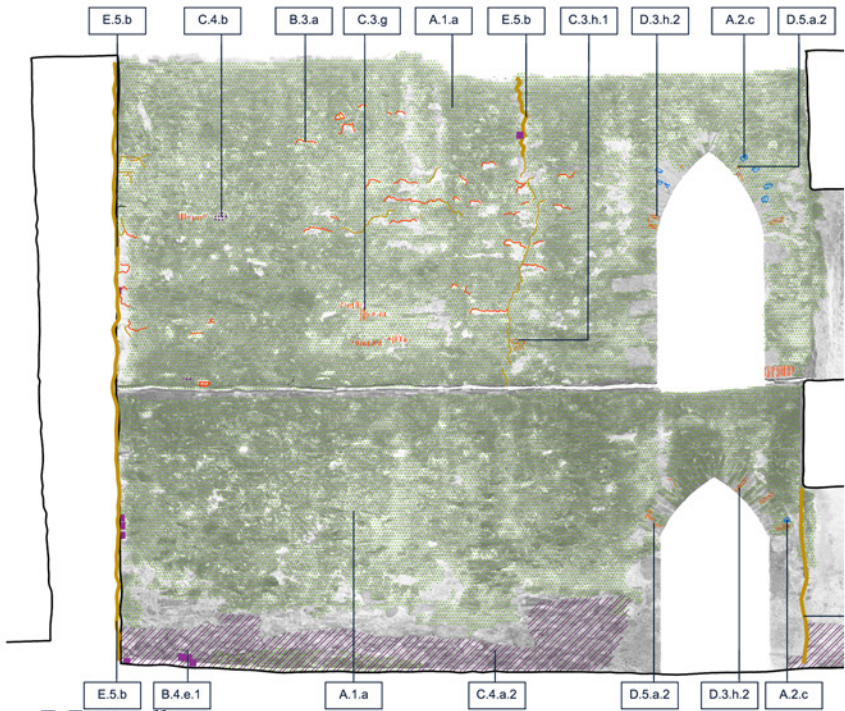
This wall has no evidence of Spanish Colonial plaster finishes. The wall is composed of various parts, reconstructed over time, resulting in an irregular surface with different plane levels, and made of different stone. The overall condition of the wall is fair, fragile in some areas. One such area is the lower section of the wall close to the grade level—where a high level of erosion is visible until approximately 5 ft. above the ground level. The biological growth is spread all over the wall surface, with higher concentration at the height of the ground level, where the door leading to the church is located. The door frame (masonry jambs and head) has a thick layer of biological colonization on the tufa stones.

The wall is characterized by numerous mortar patchings as well as crack in-fills. Numerous sandstone blocks have evidence of delamination and fragmentation. The tufa rubble stones, however, do not show any visible features induced by material loss.

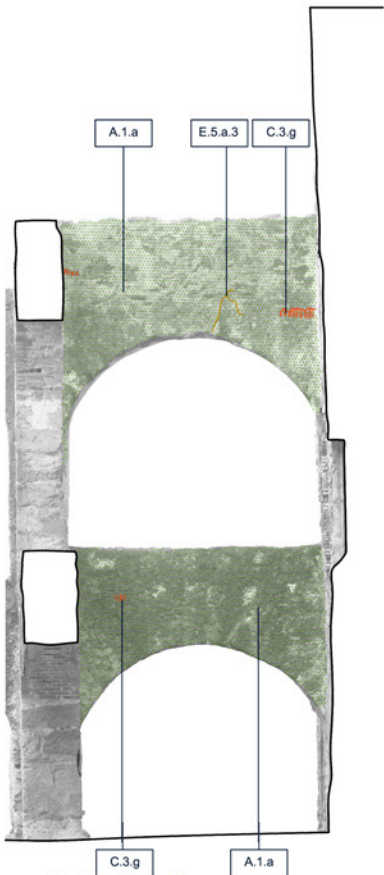
203 F



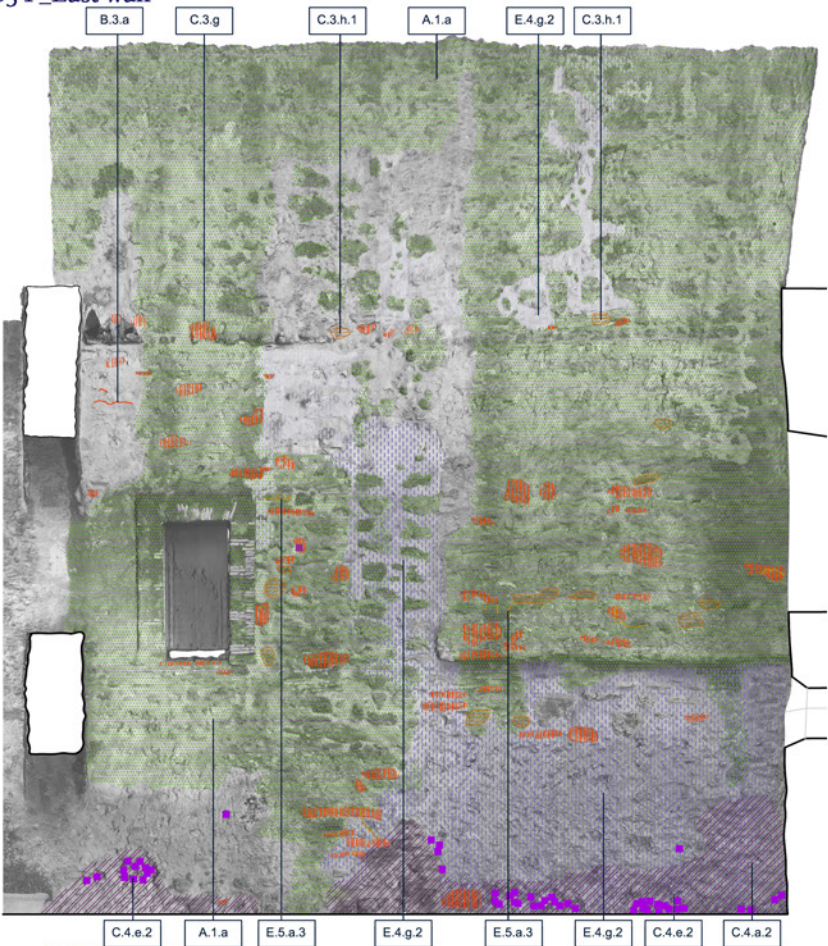
203 F_North wall



203 F_East wall



203 F_South wall



203 F_West wall



Room HS 203 F



Figure 6.B.14: Room HS 203 F—North wall.

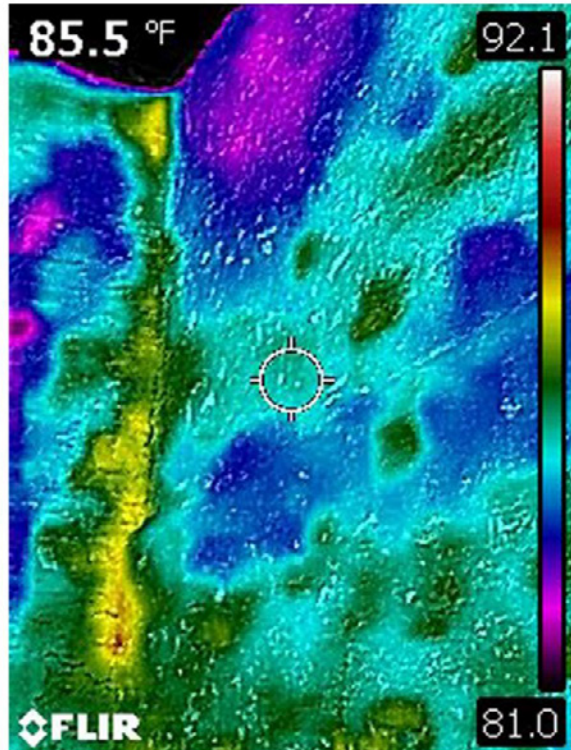


Figures 6.B.16 and 6.B.17: Room HS 203 F—East wall. Separation of 18th-century north wall from 19th-century perpendicular wall at the northern corner shows a stratigraphic sequence in the construction phases.



Figure 6.B.15: Room HS 203 F—North wall. The wall features detachment of edges and erosion.

Room HS 203 F



Figures 6.B.18 and 6.B.19: Room HS 203 F—East wall. Same view of the northeast corner. Left photo indicates the difference in temperature across the wall surface.



Figure 6.B.20: Room HS 203 F—East wall. Erosion and loss of mortar joint in the bottom part of the wall.



Figure 6.B.21: Room HS 203 F—East wall. Hair crack that becomes a fracture in the higher part of the wall. Corresponds to the location of the perpendicular wall of the adjacent room.

Room HS 203 F



Figure 6.B.23:
Room HS 203
F—East wall.
General view of
the wall.



Figure 6.B.22: Room HS 203 F—East wall. Detail of the bottom part of the wall. Unlike the rest of the wall, it does not feature vegetation growth, but it exhibits erosion and loss of the mortar joints.



Figure 6.B.24: Room HS 203 F—East wall. Lancet arch in the southern end of the wall, which features a thick layer of vegetation growth in the area above the arch.



Figure 6.B.25: Room HS 203 F—East wall. The wall features a deep fracture at the corner with the south arcade.

Room HS 203 F



Figures 6.B.28, 6.B.29, and 6.B.30: Room HS 203 F—South wall. Figure 6.B.29 is a detailed photo of the intrados of the upper-level arch, showing the remnants of painted plaster (red color).

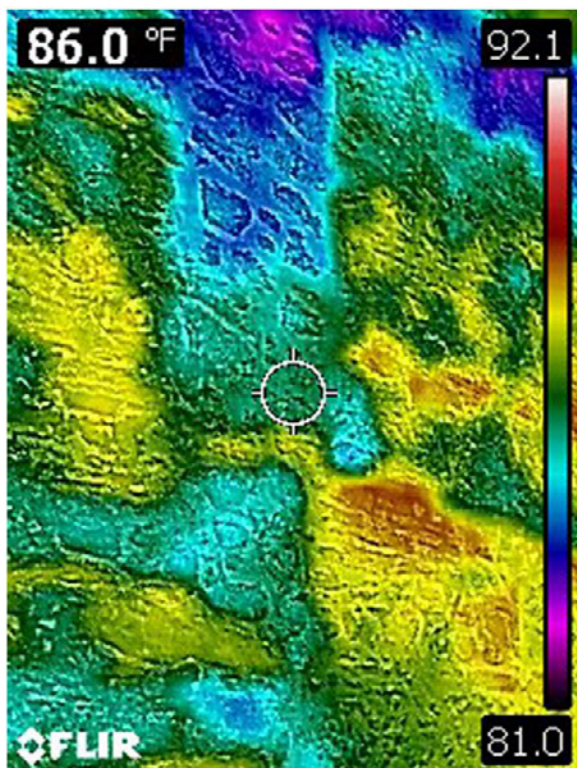


Figure 6.B.26: Room HS 203 F—West wall. General view.



Figure 6.B.27: Room HS 203 F—West wall. Note the painted finish plaster under the arch and the biological growth on and around the door.

Room HS 203 F



Figures 6.B.31 and 6.B.32: Room HS 203 F—West wall. Same portion of wall is shown in both photos. Left photo shows temperature differences in the wall, indicating different materials exhibit different temperatures. Areas with sandstones tend to be warmer, and 20th-century additions with cement-based mortars tend to be cooler.



Figure 6.B.33: Room HS 203 F—West wall. Detail of the bottom part of the wall, which exhibits erosion and loss of the mortar joints.

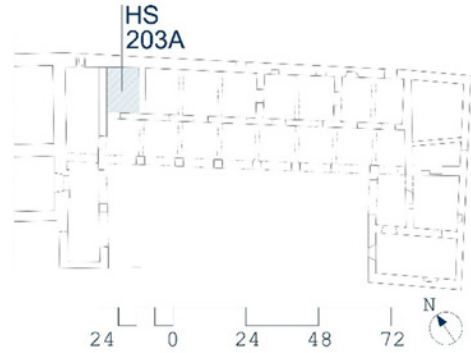
Figure 6.B.34: Room HS 203 F—West wall, which features vegetation growth in the upper part, erosion in the bottom part, and brown mortar patching.

Room HS 203 A

Overall
condition:
good

North Wall

This wall exhibits fragments of historic finished plaster dating to the Spanish Colonial period, probably around 1770s (Bass, 1994). A small area of red pigment is still visible in the lower section. Plaster fragments show evidence of previous consolidation and edge stabilization. Plaster finishes, although characterized by biological growth, appear to be in fairly good condition, with no large-scale detachment from the substrate. The edges appear to be detached in some areas. On the west upper section, fragments of historic scratch coat (arriccio) remain in situ starting from 9.3 feet circa—showing detachment, missing parts, and detachment of edges. The overall condition of the wall is good.



The whole wall is characterized by presence of biological growth, slightly darkening the surface original color.

The top of the wall is crowned by three layers of rubble tufa stone (built in 1930s by Harvey Smith), with a characteristic porosity—mapped as pitting. In the upper level, there is also evidence of delamination of several sandstones. Remnant of historic scratch coat is still visible on the western section of the wall, and continues behind the west wall. Scratch coat has evidence of erosion and powdering. Powdering is also visible on the wall eastern section.

The northwest corner—where the west wall abuts the north wall—has a fracture, which begins at approximately 20-ft. high and continues until the ground level, with the widest opening in the lower section.

The lower section of the wall is mostly covered by modern, well- executed patching mortar, which has evidence of erosion in the lower 3–4 ft. of the wall, with numerous voids. Such decay is evidence of rising damp with associated presence of sub-efflorescence.

Overall
condition:
fair/good

East Wall

This wall does not show any remnant of Spanish Colonial plaster, further proof that it is 1860s construction. The overall condition of the wall is fair/good, with the exception of the lower 6 ft. of the wall, until the connection to the ground. Biological growth darkens the wall surface, in areas affected by rainwater run-off. The heaviest accumulation of biological growth is visible in the southeast corner, where rainwater runs, as well as on the higher part of ground floor. The lowest part of the ground floor has missing joint mortar, with a high level of

erosion, and a few voids.

The brick lancet arch of the only opening of the wall has evidence of efflorescence, as well as fragmentation and powdering. It is also characterized by some graffiti located on the north side of the arch.

The northern corner—where the east wall abuts the north wall—has a deep fracture, which extends from approximately 2 ft. below the capping down to 6 ft. above the grade level, with the widest opening in the upper section.

*Overall
condition:
fair/fragile*

South Wall—Octagonal Column with Pointed Arches in the Upper Level

This wall cannot have remnants of Spanish Colonial plaster since it was constructed during the Benedictine era (1860–1867). The overall condition of the wall is fair/fragile, with recent hair cracks located at the keystone of both tufa stone, pointed-arched openings of the upper level. A thick layer of biological growth characterizes the whole wall surface, both in the upper level and on the ground level under the opening sills. The area of the so-called octagonal column, which was consolidated in early 1990s (see pp. 79–80), shows high level of fragmentation and detachment of the sandstone block surface. The stone blocks also have numerous missing parts. The mortar for the shaft of the column appears to be stable with areas of detachment. The lower section of the south wall is in fragile condition, patched with recent mortar, and shows a high level of erosion until approximately 5 ft. above the ground, with numerous voids, sometimes even 5 inches wide.

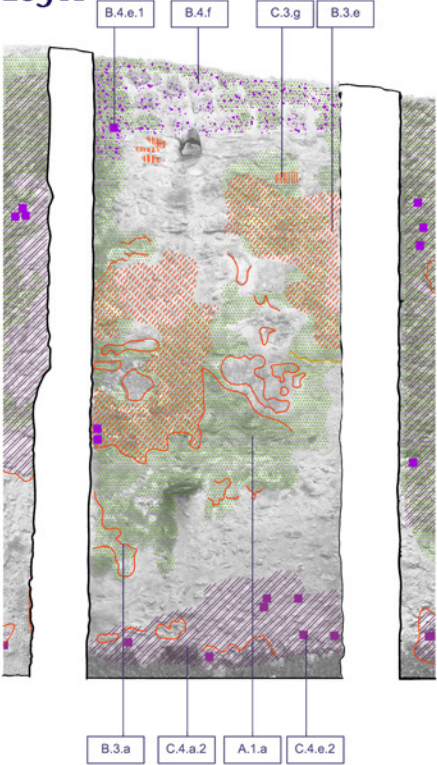
The brick pointed-arch opening of the ground floor shows presence of efflorescence. In the wall, loss of mortar between the bricks is visible together with numerous fragmented bricks.

*Overall
condition:
good*

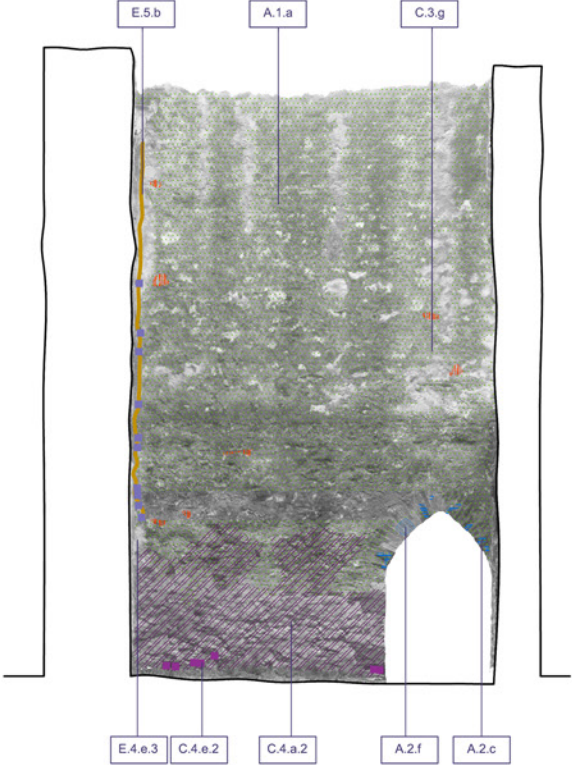
West Wall

This wall cannot have remnants of Spanish Colonial plaster since it was constructed during the Benedictine era (1860–1867). The overall condition of this wall is good, with the exception of its lower section, which is highly eroded. The wall is characterized by a differential erosion of the masonry wall, where the feathering mortar is more intact than the adjacent stones. Here sandstones have a highly developed delamination pattern. Such stones have losses that create recesses into the wall surface up to $\frac{3}{4}$ inch. The recesses are facilitating rainwater ingress into the wall. The lower section of the wall has evidence of a high level of erosion of the recent patching mortar, resulting in missing mortar joints and delamination of numerous sandstones. The northern corner—where the west wall joins the north wall—has a deep fracture, which begins at the capping and continues until the grade level, with the largest gap at 4 ft. above the grade level.

203 A



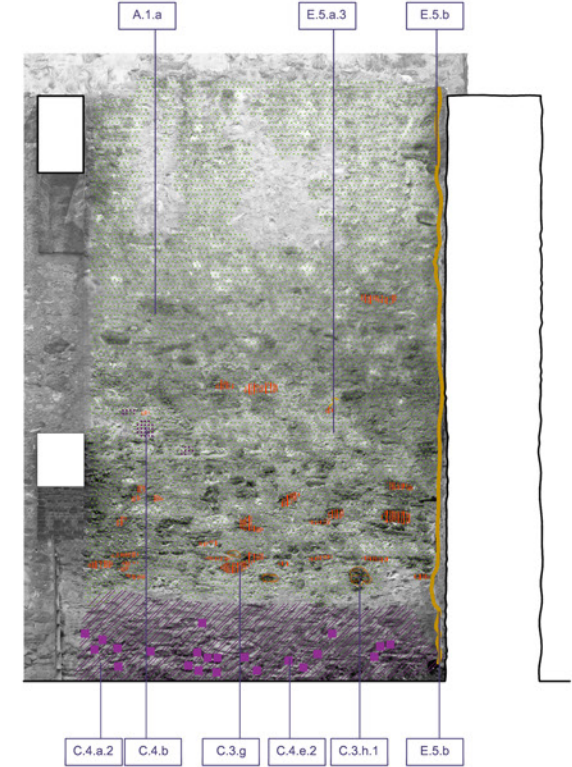
203 A_North wall



203 A_East wall



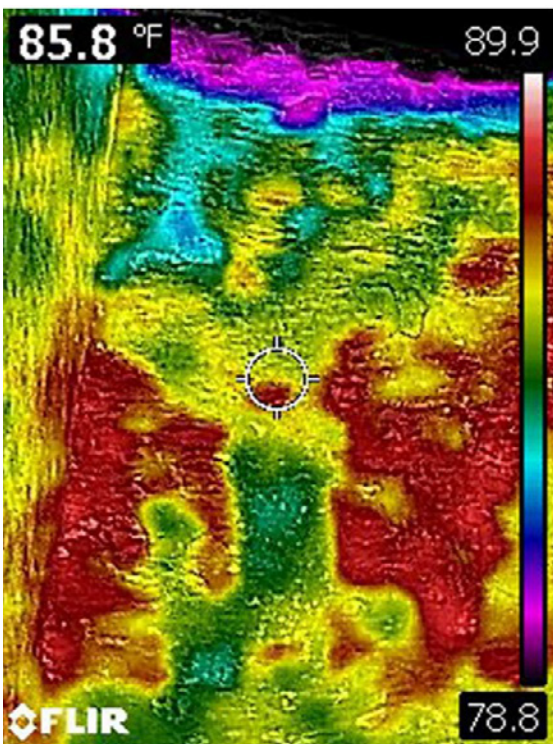
203 A_South wall



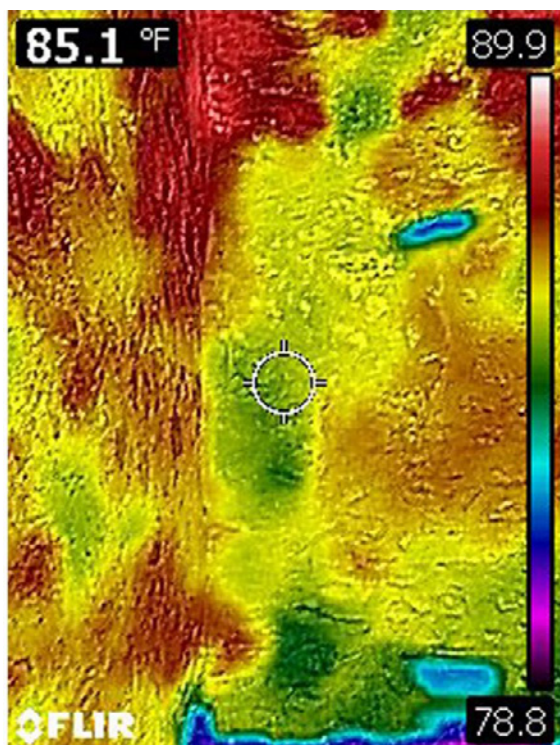
203 A_West wall



Room HS 203 A



Figures 6.B.35 and 6.B.36: Room HS 203 A—North wall. Same portion of wall is shown in both photos. Left photo shows temperature differences in the wall, indicating different materials exhibit different temperatures. Considering that the wall has areas of old plaster and mortar patching, the difference of temperature can also be due to the detachment of these surfaces.



Figures 6.B.37 and 6.B.38: Room HS 203 A—North wall. Same portion of the wall—the left corner detail—is shown in both photos. Left photo shows temperature differences in the wall.

Room HS 203 A



Figure 6.B.43: Room HS 203 A—North wall. The northwest corner is characterized by a vertical fracture/separation extending for the entire wall height. Remnants of historic plaster are visible on the north wall inside the fracture, indicating the west wall was added in a latter phase of construction.



Figure 6.B.39: Room HS 203 A—North wall, detail of the middle part of the wall. Features remnants of historic plaster. Exhibits erosion and vegetation growth.



Figure 6.B.40: Room HS 203 A—North wall, detail of the bottom part of the wall showing erosion of the masonry wall and detachment of edges of the mortar patching.



Figure 6.B.42: Room HS 203 A—East wall, which features erosion and loss of mortar joints in the bottom part and vegetation growth in the upper part.



Figure 6.B.41: Room HS 203 A—East wall. Detail of the brick lancet arch, which features vegetation growth above and efflorescence in the intrados.

Room HS 203 A



Figure 6.B.44: Room HS 203 A—South wall. Upper level. The thick layer of biological growth alters substantially the color of the tufa and sandstone. The octagonal column exhibits fragmentation and missing parts in its upper portion.



Figure 6.B.45: Room HS 203 A—South wall. Detail of the lancet arch that leads to HS 203 E features fragmentation of the bricks in the intrados.



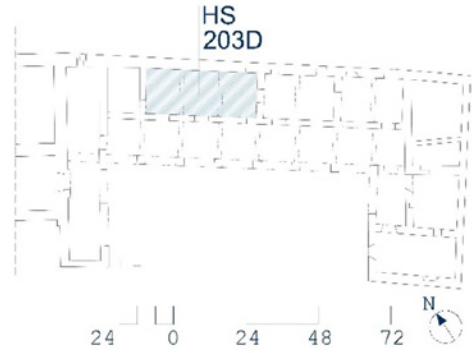
Figures 6.B.46 and 6.B.47: Room HS 203 A—West wall. Patching mortar at the base of the wall has been eroded.

Room HS 203 D

Overall
condition:
fair/fragile

North Wall

As is the case in the north walls of Rooms HS 203 C and A, the north wall of HS 203 D exhibits, on its ground floor, fragments of historic finished plaster dating to the Spanish Colonial period and most recently treated in 1994. The fragment, approximately 15 ft. long and 3½ ft. wide, is located to the east



of the lancet-arched window. Another small fragment is located to the west of the same window, with a maximum length of 1½ ft., and with an average width of 3 ft. A third fragment, 2 ft. long and approximately 2½ ft. wide, is located on the upper part of the wall, on the east side of the arched window. The fragments have a white color and have evidence of biological growth, mostly concentrated where the paint finish is still in place. The overall condition of the wall is fair/fragile, with evidence of cracks in the pointed arches.

Biological growth is mostly concentrated on the west and east corners of the upper-level wall and around the west transverse arch located on the ground floor. Biological growth is also visible in the infill under the ground-floor brick lancet arch, located on the east side of the room. Numerous plants are also visible on the top part of the wall.

The wall surface of the ground floor is characterized by erosion of the feathering mortar, with numerous voids. A few fragmented sandstones are visible on the eastern section of the wall. The arch of the window has a large crack and a large loss in the mortar and stone, measuring 4 inches by 2 inches, creating a discontinuity in the wall section.

Both of the window jambs have fired tan bricks, measuring approximately 5 inches by 9½ inches by 1 inch thick, probably dating from the Spanish Colonial period. Bricks here were used as *spolia* (reused material) for the construction of the Benedictine period opening. The lower section of the north wall has evidence of masonry erosion, with missing joint mortar and numerous voids. At circa 2¼ ft. from the ground, there is evidence of detachment of edges of the patching mortar.

East Wall

This wall does not have remnants of Spanish Colonial plaster, logically because it was constructed during the Benedictine era (1860–1867). The overall

Overall
condition:
good/fair

condition of the wall is good/fair. A thick layer of biological growth darkens the whole surface of the wall, with a higher concentration along the southern corner. Numerous sandstones located all over the wall surface show evidence of delamination and fragmentation, although the feathering mortar is in stable condition. Some cracks interrupt the continuity of the masonry wall: on the ground-floor brick lancet-arched opening, two cracks run above the brick arches, following its profile with one continuing higher until the upper level window sill; on the northern corner, the northern edge of the wall has evidence of another vertical crack running from a height of 8 ft. until 4 ft. above the ground. The lower section of the wall masonry has a high level of erosion, with missing mortar between the joints and some missing parts. This decay pattern, which is evidence of rising damp, is visible up to approximately 3 ft. above the ground.

Overall
condition:
fair/stable

South Wall

The south wall does not have remnants of Spanish Colonial plaster. The overall condition of the wall is fair/stable, with few hair cracks spread along the wall surface. A layer of biological growth characterizes the entire wall surface, mostly concentrated in the upper level, under the pointed arch openings and on the brick arches of the ground floor.

Numerous sandstones have evidence of delamination and fragmentation, with the surrounding mortar in stable condition. In particular, on the right side of the west transverse arch, a higher level of erosion of the masonry exists, with delaminated sandstone blocks. In the same area, feathering mortar shows detachment of edges, facilitating water ingress. The lower section of the wall appears to have replaced sandstones, with evident erosion of the surrounding patching mortar and numerous voids. This area is extended up to 2 ft. above the ground. On the ground level east lancet arched window, constructed with tufa ashlar stones, a crack runs diagonally toward the capping.

Overall
condition:
fair/stable

West Wall

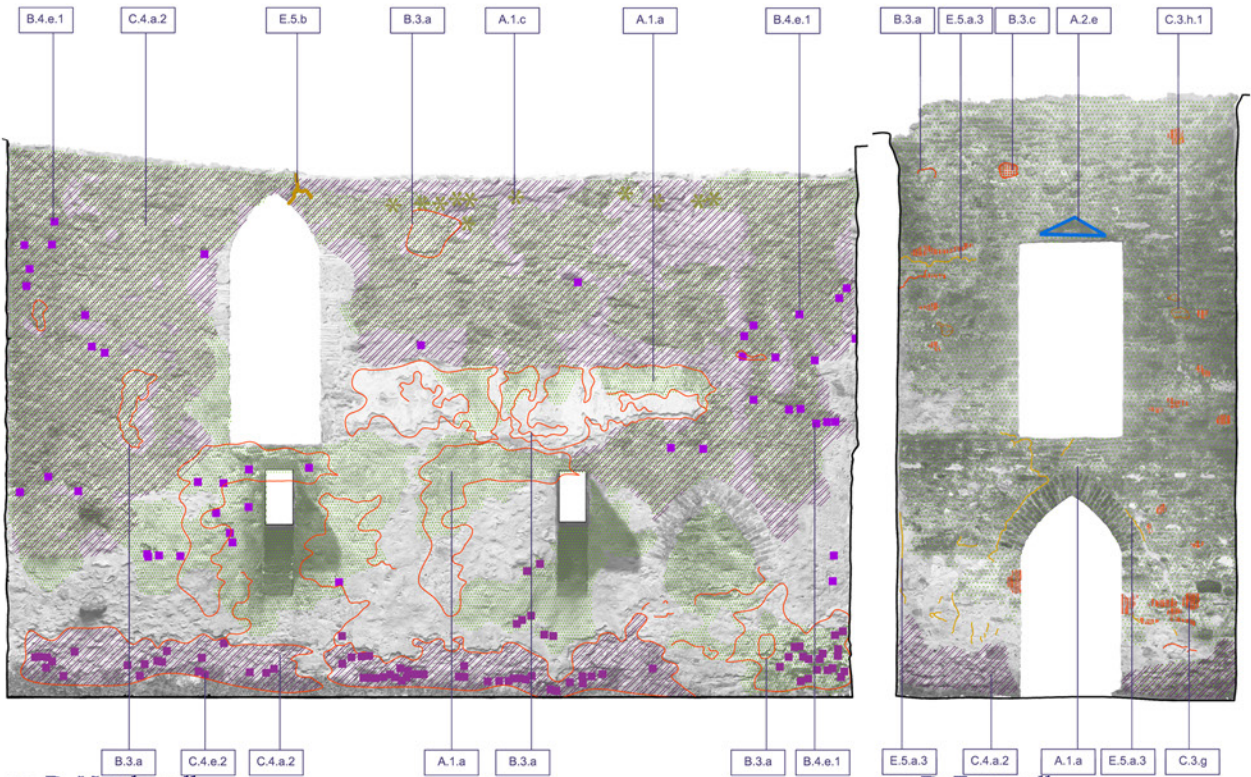
This wall does not show remnants of Spanish Colonial plaster. The overall condition of the wall is fair/stable, showing deterioration patterns only in the lower section of the wall.

Biological growth is mostly concentrated on the top of the wall, showing evidence of higher level of moisture in this area. The wall south corner is also covered by a thicker layer of bio growth, showing evidence of higher moisture

content in this area. Feathering mortar on the top of the first floor show evidence of some erosion, with presence of gaps/small voids in the wall surface. The lower section has a higher level of deterioration, the wall has numerous missing parts, lack of mortar joints, and irregular areas of patching which do not provide the necessary structural continuity of the wall base. The wall has a long, deep, vertical separation/fracture on the north section running from 2 ft. below the capping until the grade level. This separation is clear evidence of lack of construction joint between the north wall and west wall, which was added later.

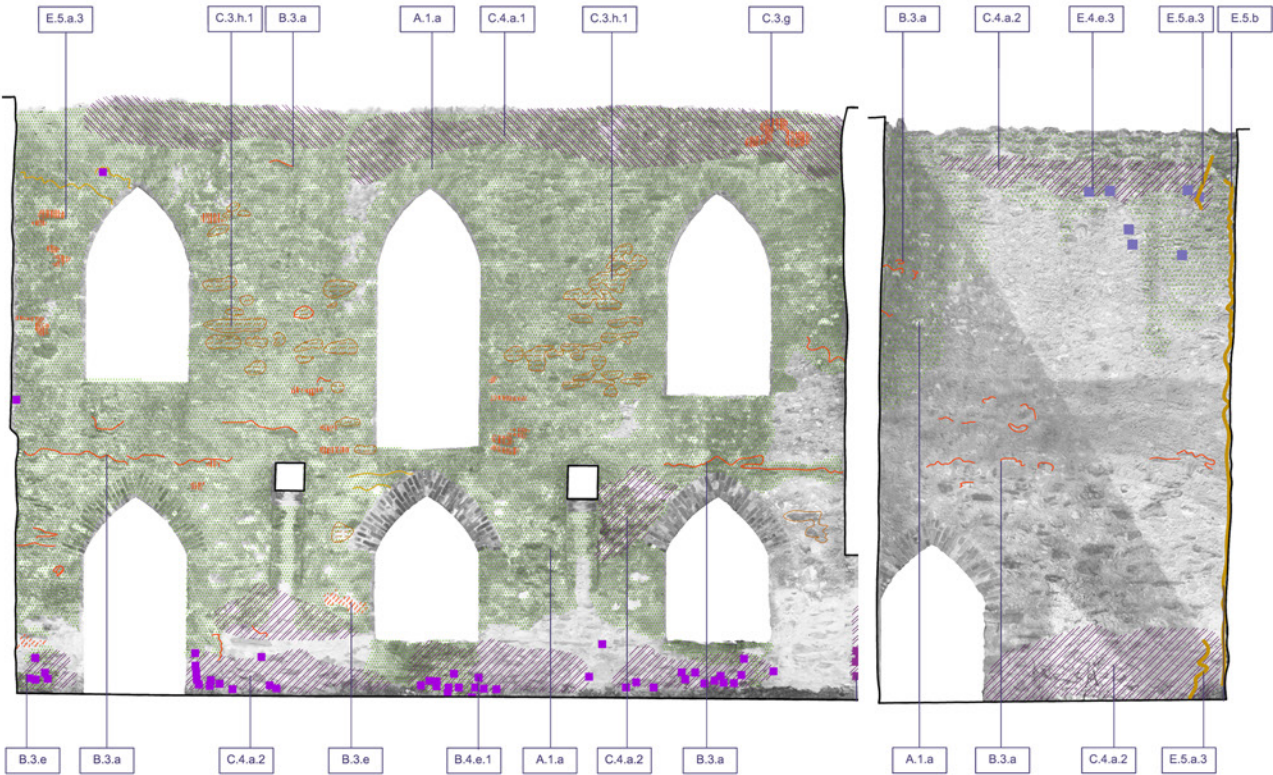
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203 D



203 D_North wall

203 D_East wall



203 D_South wall

203 D_West wall



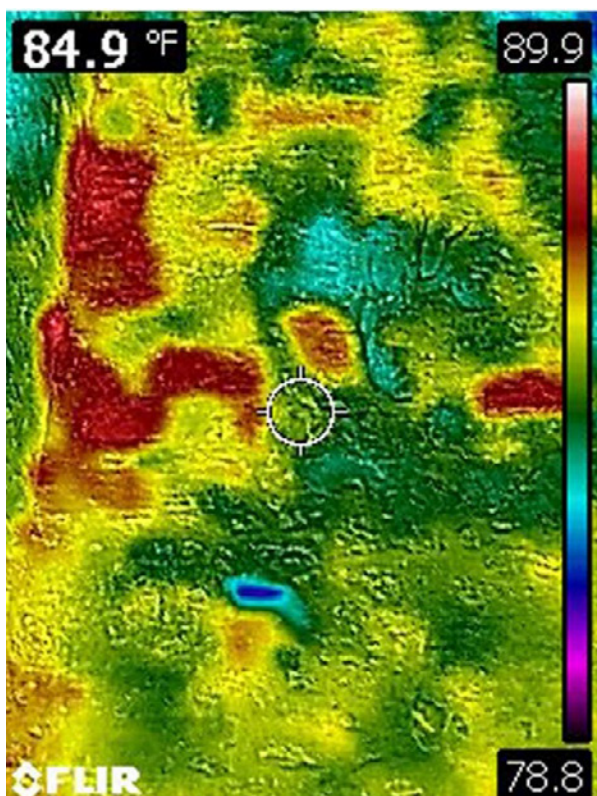
Room HS 203 D



Figure 6.B.48: Room HS 203 D—North wall, left area. General view.



Figure 6.B.49: Room HS 203 D—North wall, right area. General view.



Figures 6.B.50 and 6.B.51: Room HS 203 D—North wall. Same portion of wall—its left area—is shown in both photos. Left photo shows temperature differences in the wall.

Room HS 203 D



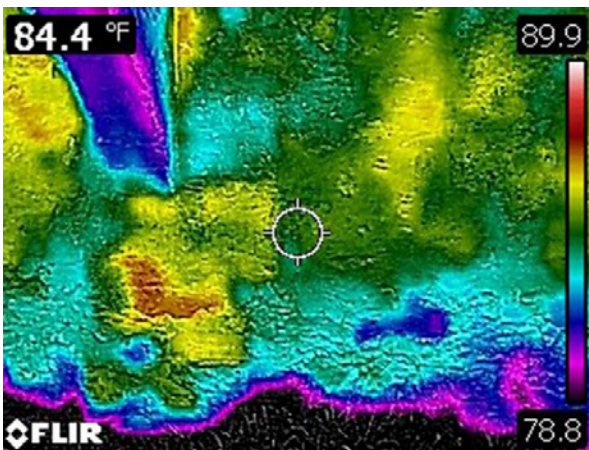
Figure 6.B.52: Room HS 203 D—North wall. Bottom left corner features erosion and missing parts.



Figure 6.B.53: Room HS 203 D—North wall. Bottom right area exhibits erosion of the bottom part of the wall due to rising damp and detachment of edges of the arriccio.



Figure 6.B.54: Room HS 203 D—North wall. Detail of the historic plaster remains just to the right of the window. The historic plaster features vegetation growth and detachment of edges.

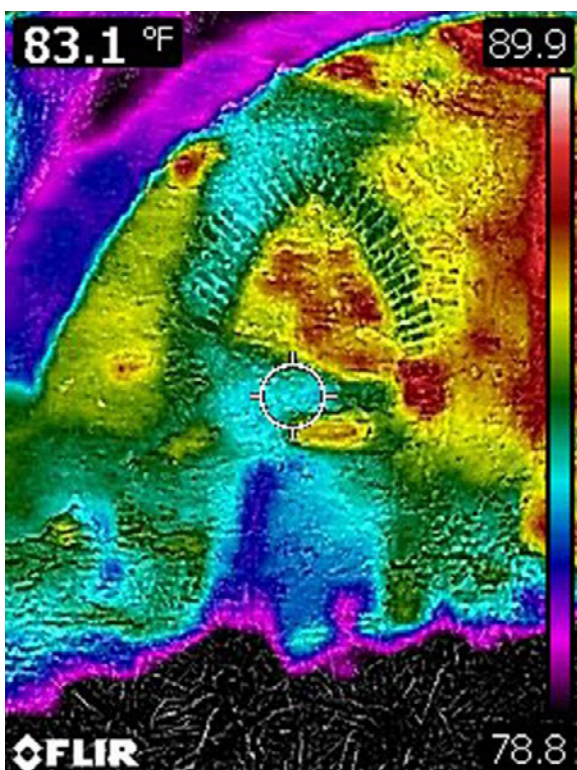


Figures 6.B.55 and 6.B.56: Room HS 203 D—North wall. Same portion of wall—a detail of the right area—is shown in both photos. Left photo shows temperature differences in the wall. The light blue part corresponds to the eroded area of the wall due to rising damp and to the area near the transverse arch where there is an accumulation of vegetation growth. The darker blue area surrounded by light blue could be caused by the detachment of the *arriccio* (plaster scratch coat) at that point.

Room HS 203 D



Figure 6.B.57: Room HS 203 D—North wall. Detail of the upper part of the window. A structural crack can be seen at the right of the keystone, and also additions of bricks in the construction or reparation of the window.



Figures 6.B.58 and 6.B.59: Room HS 203 D—North wall. Same portion of wall—a detail of the right area—is shown in both photos. Left photo shows temperature differences in the wall. The difference in the temperature seems to be caused both by the difference of materials used in construction (brick, limestone, sandstone, mortar) and the level of humidity—the bottom part, which shows erosion due to rising damp, is the colder area.

Room HS 203 D



Figure 6.B.60: Room HS 203 D—East wall, upper part features a thick layer of biological growth that is less intense in the upper left area.



Figure 6.B.61: Room HS 203 D—East wall, bottom part features a crack to the left of the lancet brick arch, erosion in the bottom part of the wall and vegetation growth in the higher part.



Figure 6.B.62: Room HS 203 D—South wall. Detail under the left transverse arch features vegetation growth in the higher parts and detachment of the mortar repointing edges.



Figure 6.B.63: Room HS 203 D—South wall. Detail above the right bottom lancet arch features vegetation growth and erosion.

Room HS 203 D



Figure 6.B.64: Room HS 203 D—South wall. Detail of the right bottom lancet arch features vegetation growth, efflorescence, and fragmentation of the brick in the intrados of the arch.



Figure 6.B.65: Room HS 203 D—West wall exhibits vegetation growth and a fracture in its right corner.



Figure 6.B.66: Room HS 203 D—Southwest corner detail.



Figure 6.B.67: Room HS 203 D—West wall, bottom area exhibits erosion of the masonry due to rising damp and loss of mortar joints. In the northwest corner there is a fracture that goes all the way to the top of the wall and causes discontinuity in the structure.

Room HS 203 C North Wall

Overall
condition:

This wall exhibits fragments of historic finished plaster dating to the Spanish Colonial period—probably around 1770s—restored in the 1994 painted plaster campaign (Bass, 1994). The large fragment is approximately 7–8 ft. long, with gaps in between, and has a width of approximately 3 ft. The plaster fin-



ishes have evidence of three decorative painting campaigns, appearing to be the wainscot area of the wall. There are still remnants of the colors composing the decorative painting—red and black on a white background. Six to eight layers of limewash on the fragments were identified in a previous condition assessment (Restoration Associates Limited [RAL], 2002). The plaster fragments are characterized by the presence of biological growth, probably including endolithic lichens. There are multiple missing parts in and around the Spanish Colonial plaster, which is also characterized by pitting, and detachment of edges in some portion. The accumulation of biological growth on the wall surface is mostly located in the uppermost section, the highest concentration is located under the arched window and below the transverse arch.

In the areas not covered by the historic plaster finishing, there is evidence of disintegration of the feathering mortar. Areas with plaster scratch coat (*arriccio*), located on the west section of the wall, above the ground-floor niche, have evidence of erosion.

The niche at the ground floor is surmounted by a fragment of Spanish Colonial plaster, with detachment of edges and some blind voids. The niche is plastered, showing evidence of erosion. The lower part of the wall, up to approximately 6 ft. from the ground, has a high level of erosion with loss of joint mortar and numerous missing parts. The pointed arch of the upper-level window, located above the room transverse arch, is made of tufa stone blocks laid with a fine mortar, and is in fair/good condition. Another pointed brick arch is located on the east section of the ground floor. The opening is presently walled with stone blocks and protected by feathering mortar. A hair crack runs diagonally on the top of the left side of the brick arch.

East Wall

The wall is in good/fair condition and has no Spanish Colonial finishes. The

Overall
condition:
good/fair

wall has evidence of biological growth, a higher concentration of which is located below the upper-level rectangular window.

Numerous limestone, caliche, and sandstones appear to have delamination and fragmentation. In addition, on the northern section of the upper level, patching mortar shows detachment of edges. The condition of the lower part of the wall is fragile/stable, with evidently strong erosion of the feathering patching mortar, due to rising damp and to the presence of vegetation growth on the ground, enhancing humidity retention.

The bricks composing the pointed arch of the ground floor door have also evidence of biological growth, but mostly are deteriorated by presence of salts, superficially visible in form of efflorescence. Some of the bricks are fragmenting.

Overall
condition:
good/fair

South Wall

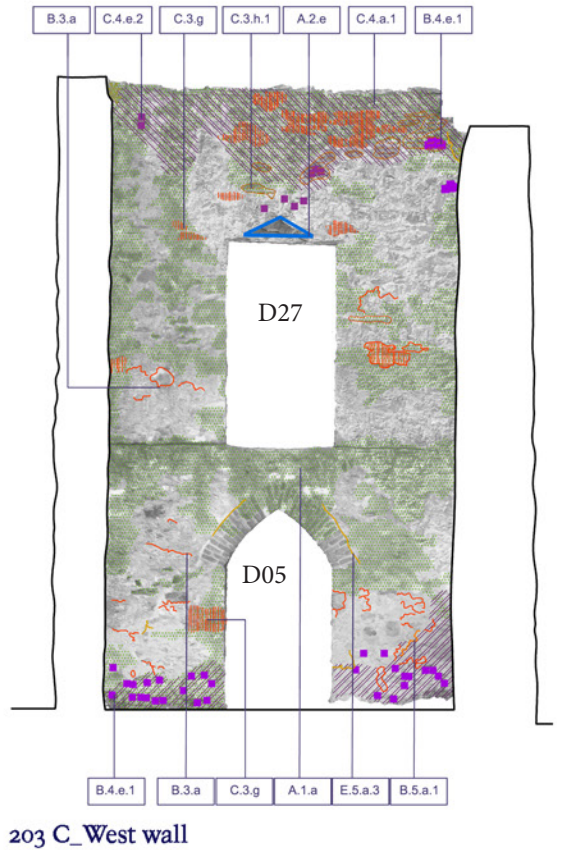
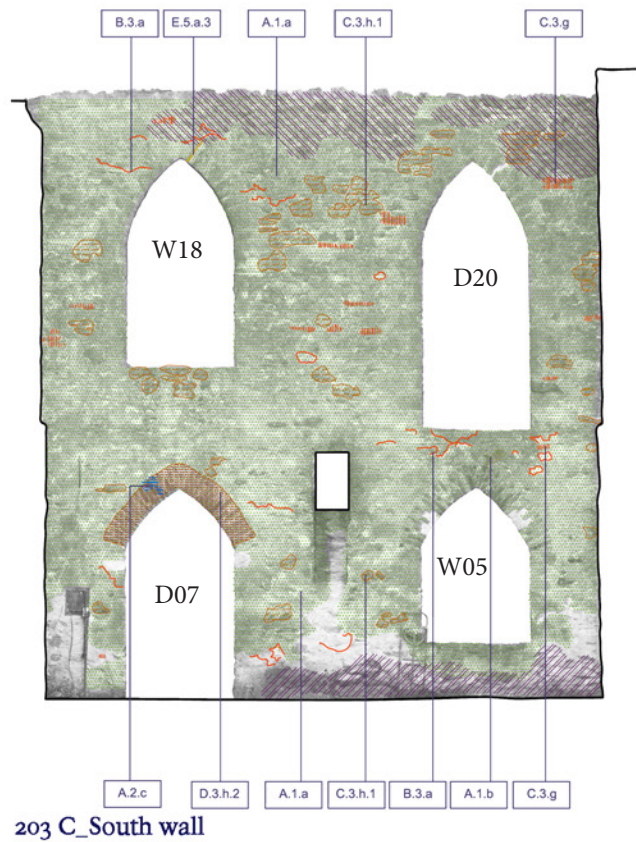
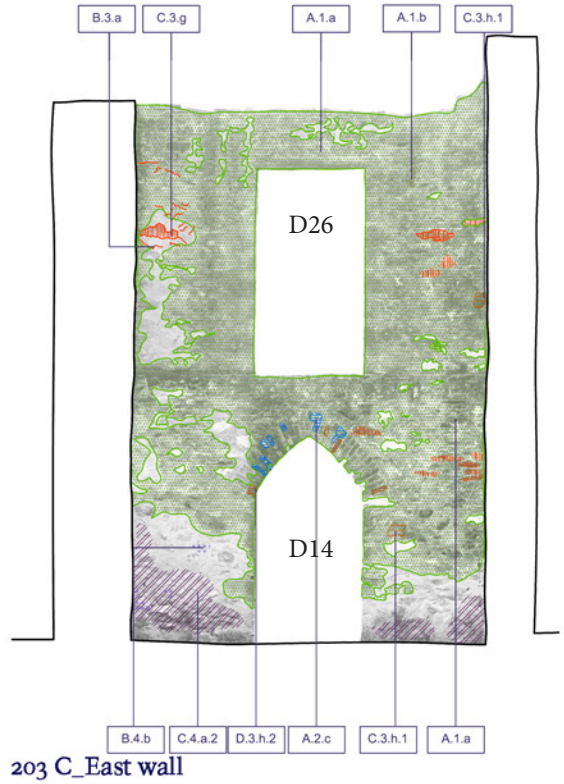
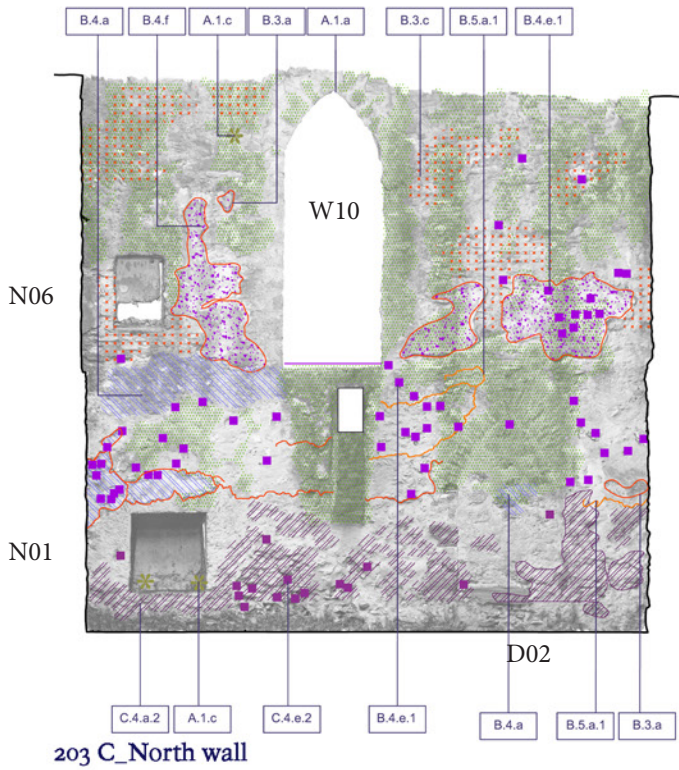
The wall is in good/fair condition and has no Spanish Colonial finishes. The wall has evidence of compact and consistent biological growth, covering homogeneously the entire wall, with the only exception being a small area under the transverse arch. The upper section of the wall has numerous sandstones with delamination and fragmentation. The room has two pointed-arch openings on the upper level. The arches are made of tufa stone blocks in fair good condition: a hair crack has been identified on the right side of the keystone of the eastern window. The upper-level pointed arch openings are lined with red bricks, with evidence of efflorescence, fragmentation and some missing parts. The lower wall section has multiple losses of mortar.

Overall
condition:
good/fair

West Wall

The condition of this wall is good/fair. There are no remnants of historic Spanish Colonial plaster finishing. The wall has spread biological growth, which is slightly darkening the wall surface. The area most affected by biological growth is the southern uppermost corner and below the upper-level trabeated door. The wall is characterized by numerous limestone, sandstones, and caliche stones in states of fragmentation and delamination, located mostly on the top of the wall. The trabeated door opening on the upper level appears to be in good condition, with some loss of mortar; the ground-floor lancet-arched door is lined with red bricks, above them two diagonal hair cracks are visible. Few superficial hair cracks, detachment of pointing mortar edges and missing parts are visible on both sides of the doorway, up to 2½ ft. from the ground level. Mortar loss and erosion in this section of the wall is most probably caused by rising damp and presence of salts within the masonry.

203 C



Room HS 203 C



Figures 6.B.68 and 6.B.69: Room HS 203 C—North wall. General views.



Figure 6.B.70: Room HS 203 C—North wall, upper level. Niche N06 with a fragment of Spanish Colonial plaster finish. Surrounding the niche are historic remains of painted plaster with a visible red color.



Figure 6.B.71: Room HS 203 C—North wall, lower level. Niche N01 with a fragment of Spanish Colonial plaster finish.

Room HS 203 C

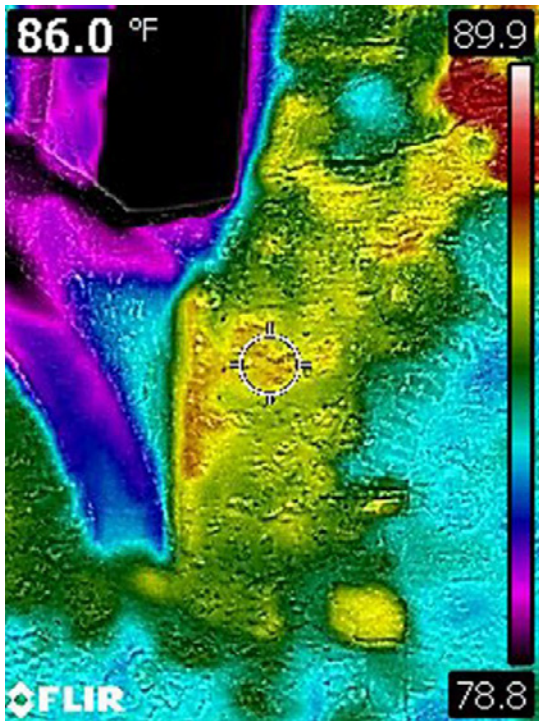


Figure 6.B.72 and 6.B.73: Room HS 203 C—North wall. Both images show the same view of the north wall area to the right of the transverse arch. Left photo shows temperature differences in the wall. Temperature changes in the bottom part appear to be due to rising damp, and those in the right part due to the presence of the former door opening D02, now closed in with masonry infill.

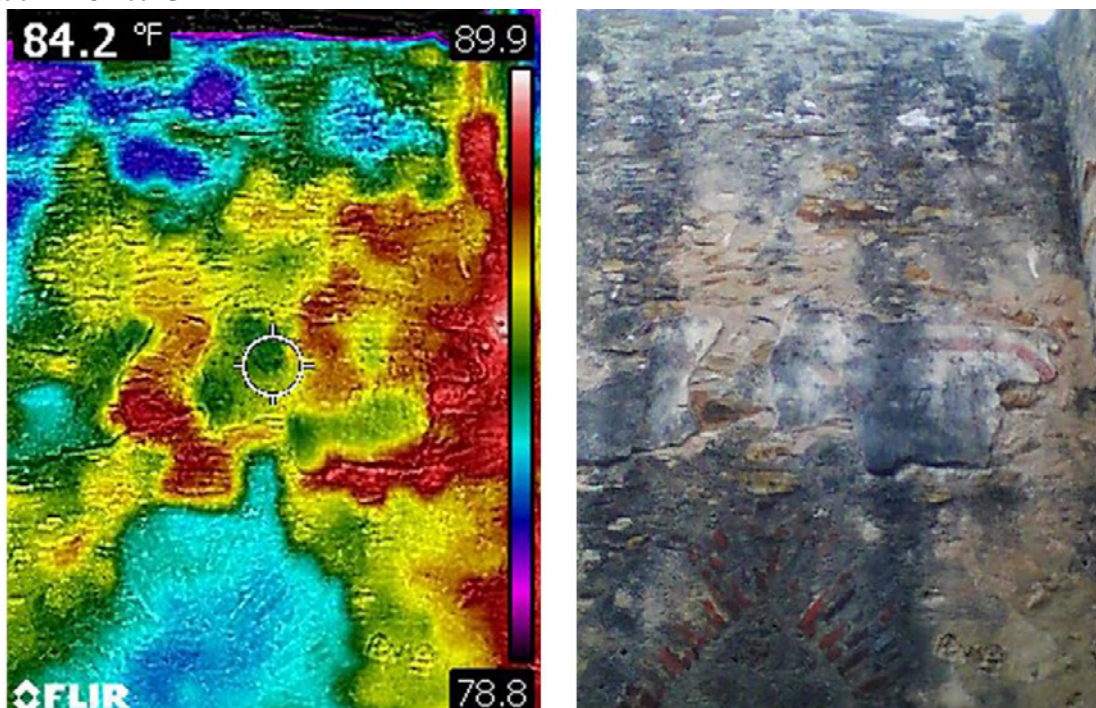


Figure 6.B.74: Room HS 203 C—North wall. Detail of the area below the transverse arch. It features erosion and missing parts.



Figure 6.B.75: Room HS 203 C—North wall. Detail of the closed door in the right part of the wall, which features vegetation growth and detachment of edges of the repointing mortar.

Room HS 203 C



Figures 6.B.76 and 6.B.77: Room HS 203 C—North wall. Both images show the same area of the wall. The differences in temperature are caused by the different construction materials and the presence of humidity. In the historic plaster area, the difference of temperature could be caused by the detachment of certain parts of the plaster.



Figure 6.B.78: Room HS 203 C—East wall. Detail of the upper-level door D26, which features a thick homogeneous layer of biological growth and delamination in the flagstone.



Figure 6.B.79: Room HS 203 C—East wall. Detail of the lower-level door D14, which features delamination of stones and fragmentation and efflorescence in the bricks.

Room HS 203 C



Figure 6.B.80: Room HS 203 C—East wall. General view of the upper level.



Figure 6.B.81: Room HS 203 C —East wall. General view of the lower level, which exhibits a layer of vegetation growth except in the bottom part where erosion of the masonry wall is occurring.



Figure 6.B.82: Room HS 203 C—South wall. Detail of the right bottom lancet arch W05, which features fragmentation and efflorescence in the intrados of the arch.



Figure 6.B.83: Room HS 203 C—South wall. Detail of the southwest corner, which exhibits a thick black layer of biological growth and erosion.

Room HS 203 C

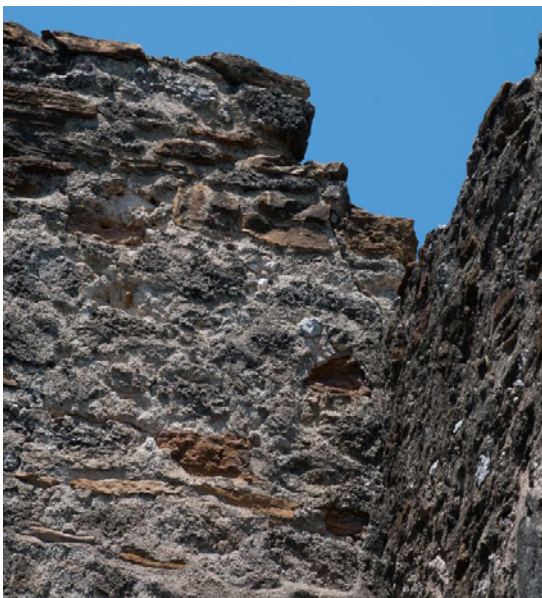


Figure 6.B.84: Room HS 203 C—West wall. Detail of the northwest corner, showing a crack that starts in the coping of the wall.



Figure 6.B.85: Room HS 203 C—West wall. Upper level exhibits erosion and delamination of stones in its upper right corner.



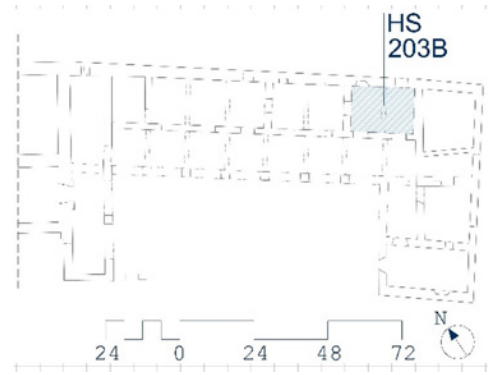
Figure 6.B.86: Room HS 203 C—West wall. Bottom right corner features biological growth, inconsistency in type of mortar used for repointing, erosion of the bottom part, and loss of mortar joints.

Room 203 B North Wall

This wall has no evidence of Spanish Colonial finish plaster. The condition of the wall is fragile/fair, because of the windows' structural fractures—located on the top of the wall—as well as the strong erosion at the base of the wall.

Overall
condition:
fragile/fair

The entire wall has evidence of biological growth, located on the uppermost area of the upper level and, mostly, on the ground floor, below the two lancet-arched windows and around the transverse arch. The biological growth located on the ground floor is made of a thicker layer, with a characteristic dark/black color, probably due to the higher level of moisture within the wall resulting from water ingress through the windows' sills. Numerous sandstones composing the upper-level wall texture have evidence of fragmentation and delamination. The typical restoration mortar feathering the surface has several patches, recognizable by a yellow/brownish color and lower hardness. The upper level has several areas with localized missing parts. Missing mortar and deep fractures can be seen on the upper section of both the lancet-arched windows of the upper level made of tufa stone blocks. The ground floor surface is characterized by numerous missing parts. The niche, located on the west section of the wall, is plastered and has evidence of disintegration and powdering. The lower part of the wall, between the niche and the ground, has a high level of erosion and numerous missing parts. The lancet-arched brick door of the ground floor is in stable condition, however the areas around the brick arches have multiple losses of materials.



East Wall

This wall has no evidence of Spanish Colonial finish plaster. The wall surface is continuous, with no opening. In general, the condition of the wall is fair, characterized by a high level of stone deterioration in comparison with the good condition of the feathered mortar, showing a decay pattern that in this study is denominated as differential erosion of the wall masonry. The wall is covered on the upper level and part of the ground floor by an homogeneous layer of biological growth, giving the surface a darker color. On the upper level, a high number of sandstone rubble stones have evidence of delamination.

Overall
condition:
fair

The ground floor shows areas where hard gray mortar patching, probably

with a cement component, was applied. The mortar is located on the northern section of the wall at approximately 4 ft. from the ground level, and at approximately 3–3½ ft. from the ground, on the southern section of the same wall. At the same height can be seen numerous holes laid in sequence. Below the patching, from the ground level up to 3 ft. high, the lower part of the wall is veneered with elongated sandstone blocks—most likely a replacement of the original stone blocks. In this area, in the center, a hair crack runs almost vertically.

South Wall

This wall has no evidence of Spanish Colonial finish plaster. It is covered by heavy accumulation of biological growth, giving the wall surface an almost homogeneous dark gray color, more intense around the transverse arch. Numerous deteriorating sandstones are visible on the wall surface, with delamination and fragmentation. The upper level has two tufa stone blocks arched openings—the opening on the eastern section has the proportion of a door, and the opening on the western section has the shape of a window. The total height of the wall leaves the arched windows' voussoirs exposed to weathering.

The lower level has two brick lancet-arched openings, a door on the eastern section, a window on the west section. The latter has numerous missing stones in the window sills. The brick is in fair condition, with some elements in states of fragmentation.

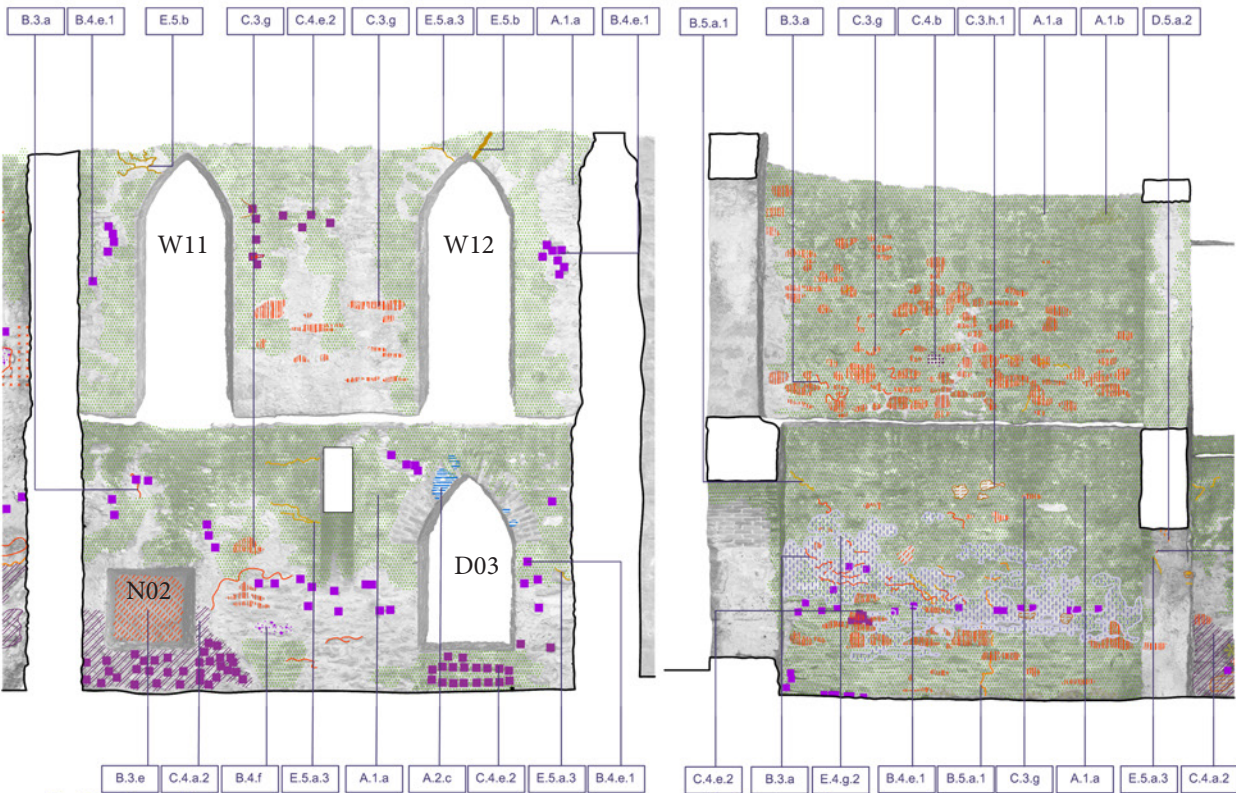
The lower section, from the ground up to 2¼ ft. has a high level of erosion, with some voids/missing parts under the windows.

Overall
condition:
fair

West Wall

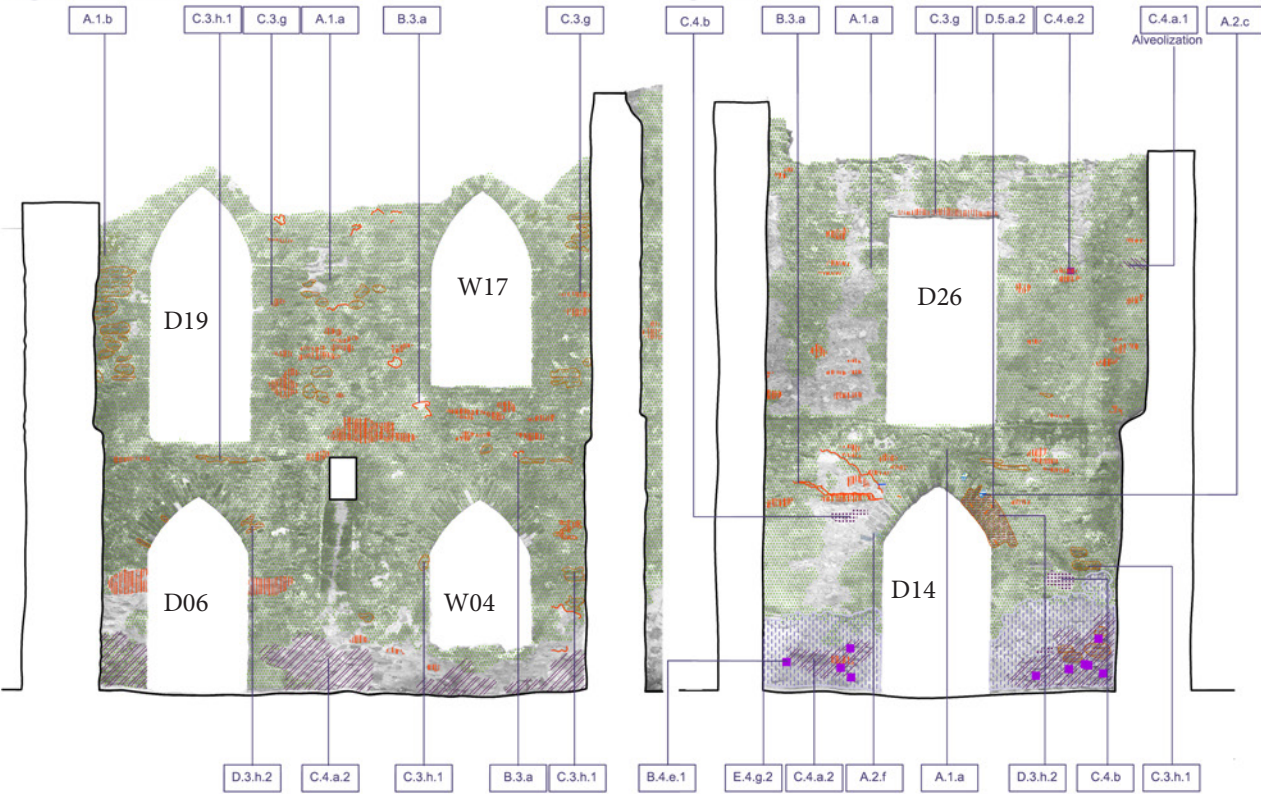
There is no evidence of historic Spanish Colonial finish plaster. In general, the wall is in fair condition. Biological growth covers the entire wall from the uppermost section down to 3-ft. grade level, with a higher concentration of biological growth at the top of the ground level. Numerous sandstones and also limestones have evidence of delamination and fragmentation, with a differential erosion of the mortar, which appears to be compact and adhesive to the substrate. The base of the wall has evidence of patching mortar, with a yellowish color, however such mortar shows a high level of erosion up to 2 ft. above the ground level, with numerous missing parts/voids. The ground-floor brick lancet arch of the door, beyond the presence of biological growth already mentioned, has evidence of efflorescence and bricks with fragmented parts and graffiti.

203 B



203 B_North wall

203 B_East wall



203 B_South wall

203 B_West wall

Room HS 203 B



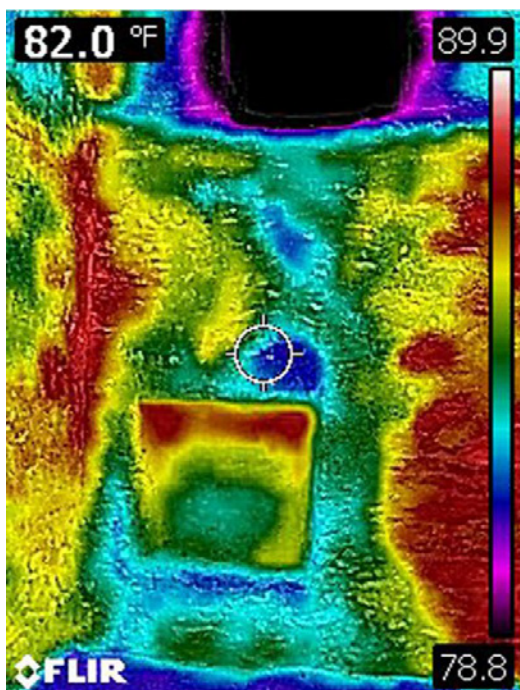
Figure 6.B.87: Room HS 203 B—North wall. General view.



Figure 6.B.88: Room HS 203 B—North wall. Left upper window W11 showing a fracture near the keystone of the lancet arch.



Figure 6.B.89: Room HS 203 B—North wall. Right upper window W12 also showing a fracture near the keystone of the lancet arch.



Figures 6.B.90 and 6.B.91: Room HS 203 B—North wall. Both images show the bottom left area of the wall. The differences in temperature are caused by the different construction materials and the presence of humidity.

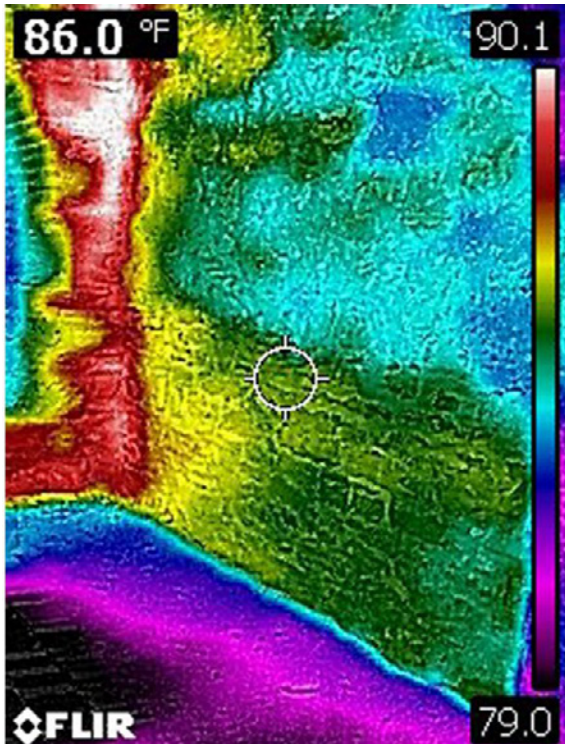
Room HS 203 B



Figure 6.B.92: Room HS 203 B—North wall. Upper right corner features numerous holes and fragmentation of the stones.



Figure 6.B.93: Room HS 203 B—North wall. Detail of the brick lancet door D03 in the right part of the wall, which features several holes in the masonry wall, and efflorescence and powdering of the bricks.



Figures 6.B.94 and 6.B.95: Room HS 203 B—East wall. Both images show the bottom area of the wall. Left photo shows temperature differences in the wall. The colder area of the wall corresponds to the area with a higher level of vegetation growth. The photo on the right also features several delaminated sandstones in the bottom part of the wall and numerous holes.

Room HS 203 B



Figure 6.B.96: Room HS 203 B—East wall. Upper part of the east wall, which exhibits a thick black layer of vegetation growth in its bottom part and delamination of the stones in its upper part.



Figure 6.B.97: Room HS 203 B—East wall. Detail of the bottom part of the wall, which features vegetation growth and differential erosion of the stone blocks.



Figure 6.B.100: Room HS 203 B—South wall. General view. Vegetation growth and erosion in the lower part of the wall.



Figure 6.B.98: Room HS 203 B—South wall. Detail of a sandstone in the jamb of door D06, which exhibits marks from a chisel and graffiti.



Figure 6.B.99: Room HS 203 B—South wall. Detail of the upper right window W12, which features a small crack and cement-based mortar repointing in the intrados of the arch.

Room HS 203 B



Figure 6.B.101: Room HS 203 B—Transverse arch. Detail featuring moss in its southern end.



Figure 6.B.102: Room HS 203 B—South wall. Detail of the lower left arch (door D06), which features biological growth and fragmentation of the bricks.



Figure 6.B.103: Room HS 203 B—West wall. Upper level general view, which exhibits a homogeneous layer of biological growth.



Figure 6.B.104: Room HS 203 B—West wall. Lower level general view, which exhibits biological growth in the upper part and erosion and missing parts in the lower part.

Room HS 203 B

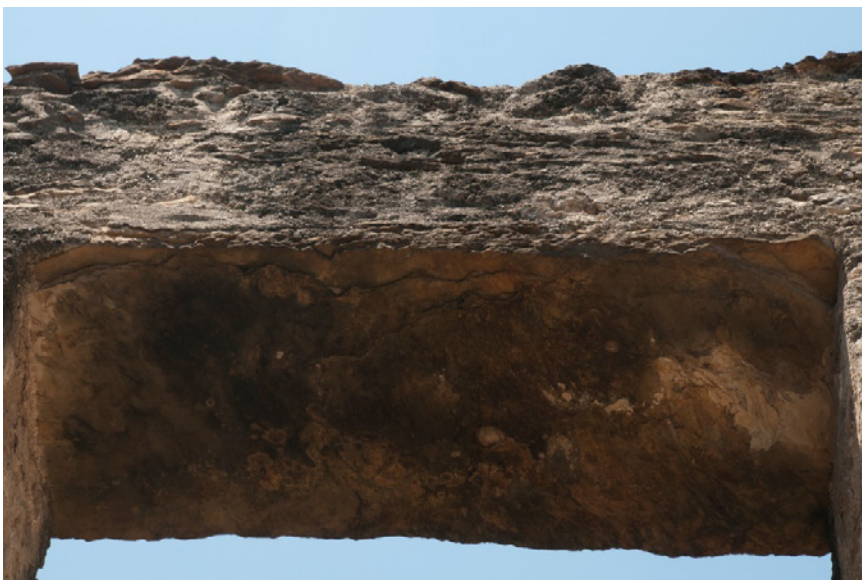


Figure 6.B.105: Room HS 203 B—West wall. Detail of the upper-level door D26 architrave, featuring delamination of the flagstone.



Figure 6.B.106: Room HS 203 B—West wall. Detail of the lower-level door D14, which features biological growth, fragmentation, and efflorescence.



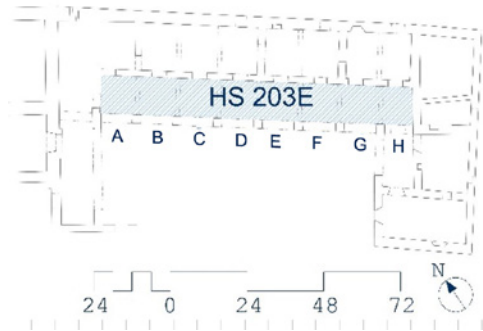
Figure 6.B.107: Room HS 203 B—West wall. Detail of the area left of the lower-level door D14, which exhibits numerous holes and loss of mortar joints.

Room 203 E The spaces of the east cloister arcades do not show evidence of Spanish Colonial plaster except at intrados of roman arches.

Overall
condition:
good

North Wall

The overall condition of this wall is good—with the exception of the wall lower section which is in fair condition, featuring erosion of the masonry and loss of joint mortar. Biological growth slightly darkens the wall surface, and the highest level of biological colonization appears under each opening of the upper level. Another area with a higher density of biological growth is the extreme west corner, on the uppermost area located above the sandstone lancet-arched window.



The whole façade is protected by feathering mortar, which has adequate adhesion, however numerous sandstones blocks have evidence of delamination and fragmentation. The top part of the wall, starting from the second west arcade (B) to the sixth arcade (F), has evidence of differential erosion, with higher deterioration of the rubble stone than the mortar. The sandstone drums of the octagonal column, located on the upper level in the first arcade (A), have evidence of fragmentation, delamination and cracks. Below the octagonal columns, a hair crack interrupts the continuity of the ground-floor wall. Other hair cracks are located above the brick lancet-arched windows of the arcades denominated as E and F.

The upper-level lancet-arched windows, of the last two eastern arcades, have evidence of cracks on one side of their keystone.

Overall
condition:
fair

East Wall

The wall does not reveal any Spanish Colonial finishes. The upper level appears to have been built during the Benedictine era (1860–1867). The overall condition of the wall is fair, featuring an excess of biological growth and a high level of erosion in the lower section. The wall has abundant biological growth on the upper level as well as on the upper part of the ground floor, with the highest concentration under the upper-level door sills, showing evidence of a higher moisture content. The south section of the upper level is patched with a mortar containing a cementitious component. The lower section of the wall appears to have some of its stone replaced—with the adoption of sandstone rubble block. Evidence of erosion is present, with loss of joint mortar and some stone delami-

nation and fragmentation.

*Overall
condition:
good/fair*

South Wall- Superimposed Arcade

The two-story arcade retains fragments of Spanish Colonial plaster finishes on the intrados of numerous arches.

The overall condition of the two-story arcade is good/fair, mostly characterized by a thick layer of biological growth, which gives the surface a dark gray/black color. Numerous plants grow at the top of the upper-level arcade, where walls retain a higher moisture content.

The base of the pilasters features decay that includes material loss—with high level of erosion of the stone masonry, including loss of joint mortar, fragmentation of sandstone blocks, and differential erosion of pisolithic stones. A few more sandstones on the arcade wall show evidence of fragmentation. The second story arcade features numerous hair cracks separating the voussoirs, specifically on the arcade B, F, G, and H.

*Overall
condition:
good*

West Wall

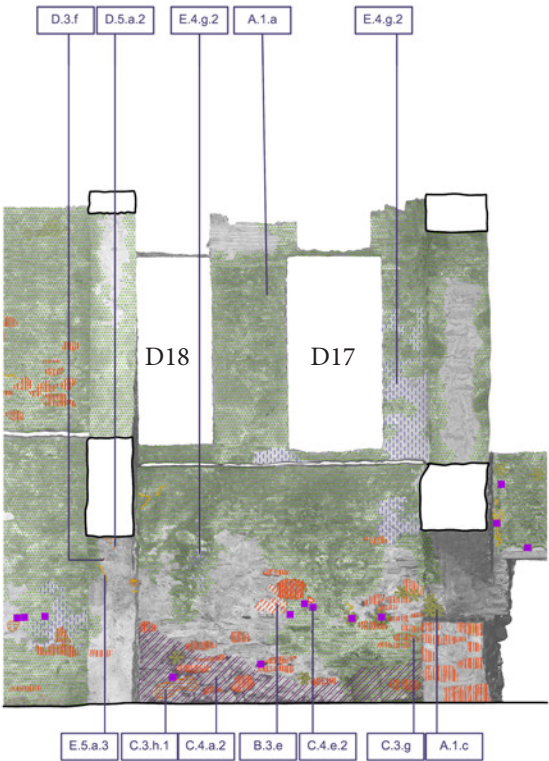
The wall does not reveal any historic finish fragment, the upper level appears to be built during the Benedictine era (1860–1867).

The overall condition of the wall is good, featuring a vertical fracture at the connection with the lancet arches of Room H 203 A and some erosion in the lower wall section with voids.

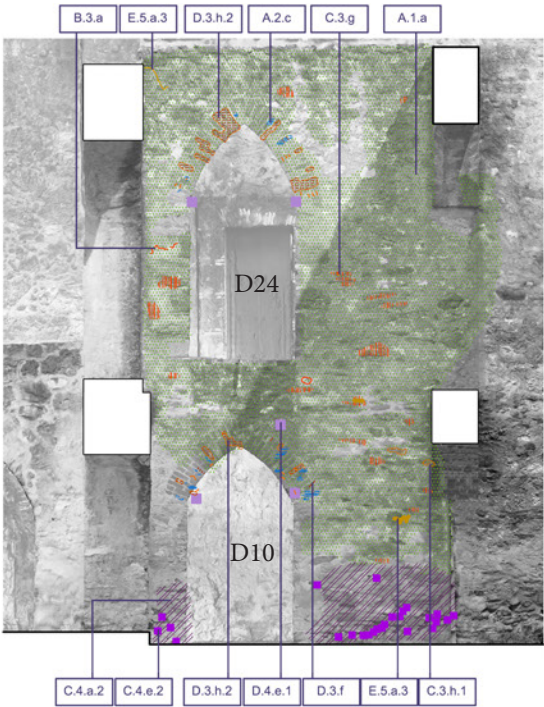
The brick lanced arches, both at the ground and upper levels, reveal bricks in states of fragmentation (with some powdering, too) and efflorescence. Few sandstones, part of the masonry, are fragmented and delaminated.

One larger stone block, as part of one of the posts of the upper-level door, is cracked. A crack is also located on the top of the southern section of the wall, at the arcade level.

203 E



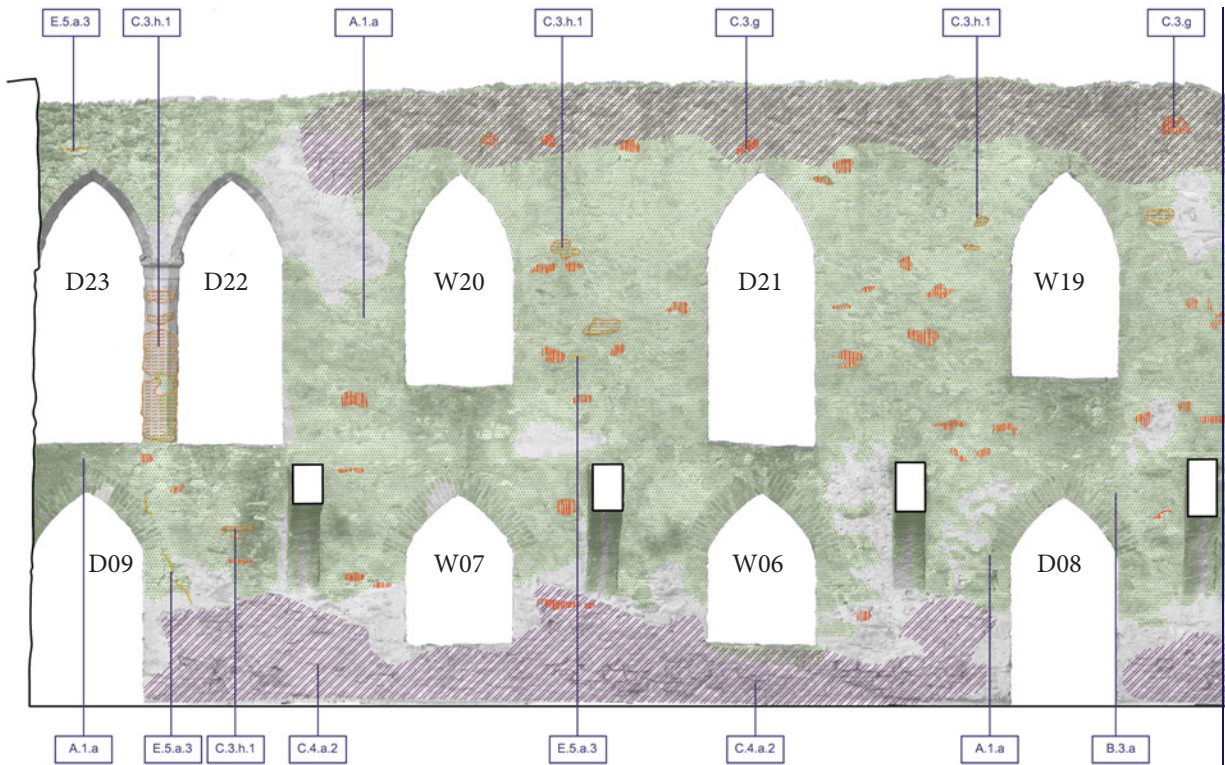
203 E_East wall



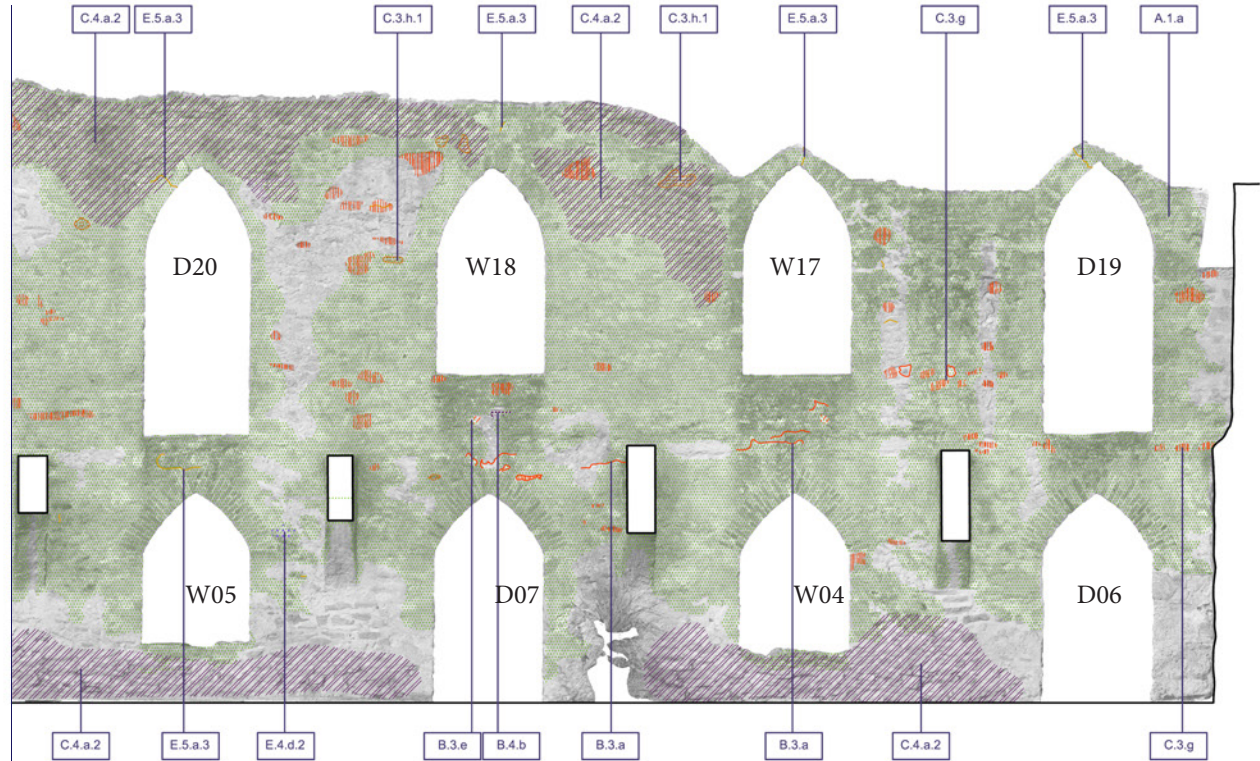
203 E_West wall



203 E



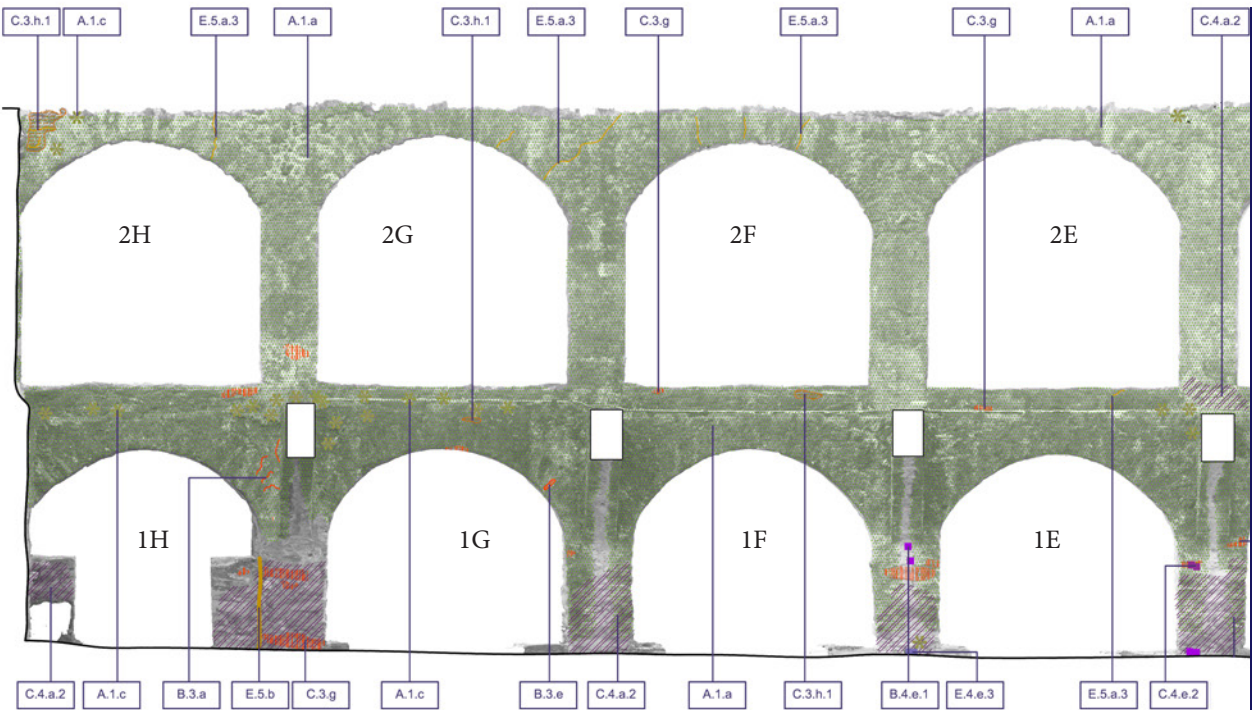
203 E_North wall left part



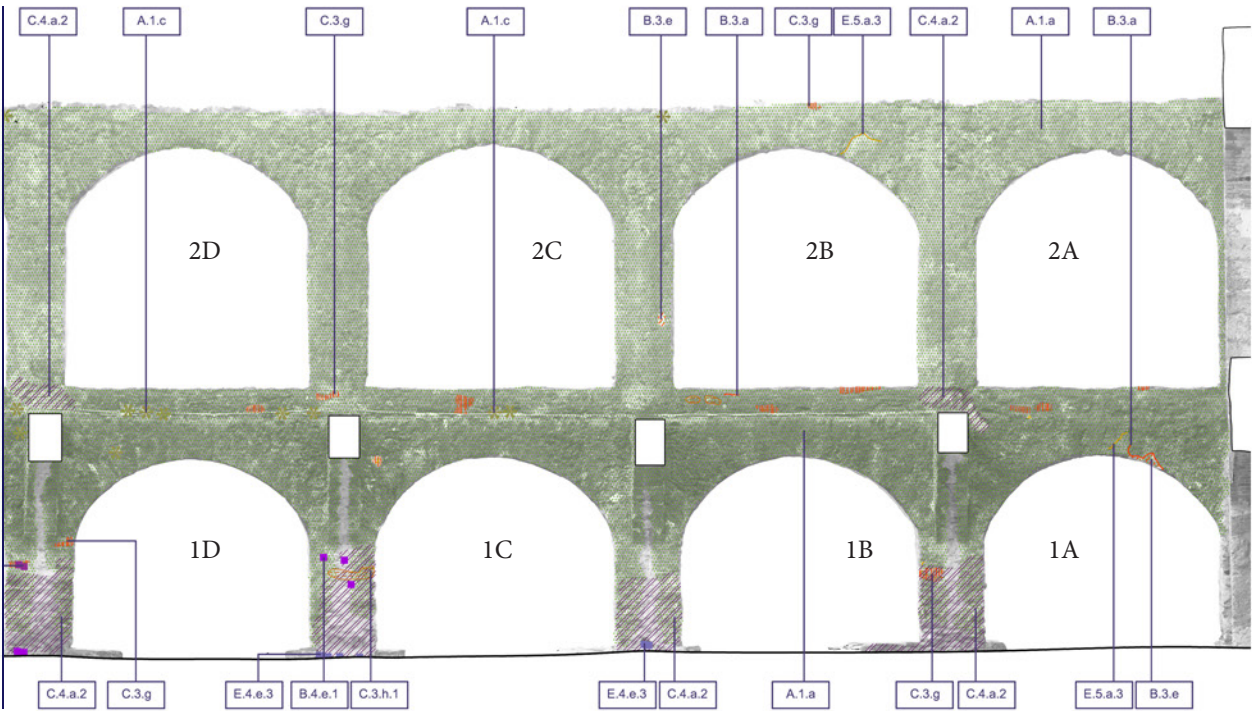
203 E_North wall right part



203 E



203 E_South wall left part



203 E_South wall right part



Room HS 203 E



Figure 6.B.108: Room HS 203 E—North wall. Left part general view.



Figure 6.B.109: Room HS 203 E—North wall. General view.



Figure 6.B.110: Room HS 203 E—North wall. Area under the octagonal column, which features several cracks and erosion in the bottom part of the wall.



Figure 6.B.111: Room HS 203 E—North wall. Octagonal column, which features fragmentation of the sandstones.

Room HS 203 E



Figure 6.B.112: Room HS 203 E—North wall. Note biological growth and filled crack on the transverse arch. Erosion of the lower wall section.



Figure 6.B.114: Room HS 203 E—North wall deterioration pattern.

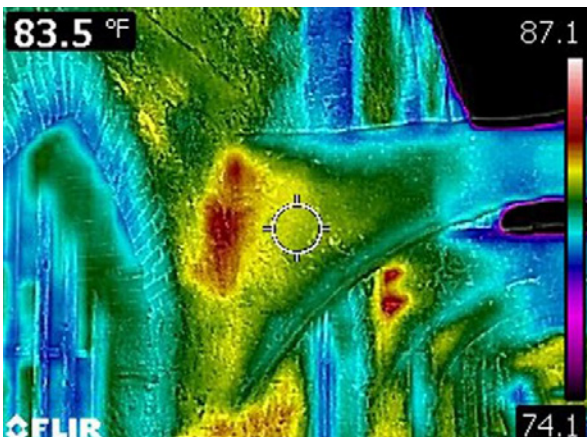


Figure 6.B.113: Room HS 203 E—North wall. Erosion of the masonry. Detail showing loss of joint mortar.



Figure 6.B.115: Room HS 203 E—North wall. Fracture at the ground floor, located left of the second door (D08) staring from the west. Erosion is also occurring at the bottom part of the wall.

Room HS 203 E



Figures 6.B.116 and 6.B.117: Room HS 203 E—North wall, transverse arches. Both images show the same view of the wall's bottom area. Left photo shows temperature differences in the wall.

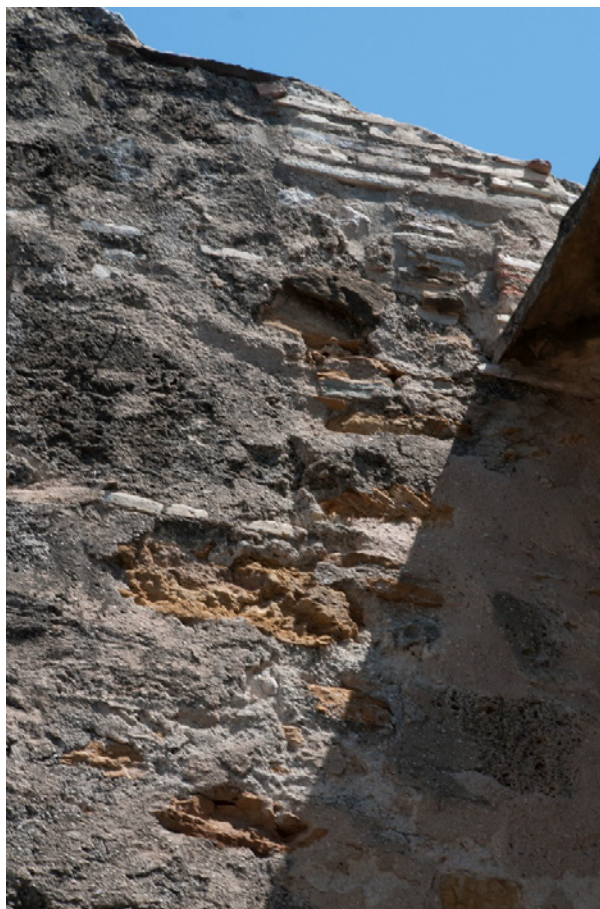
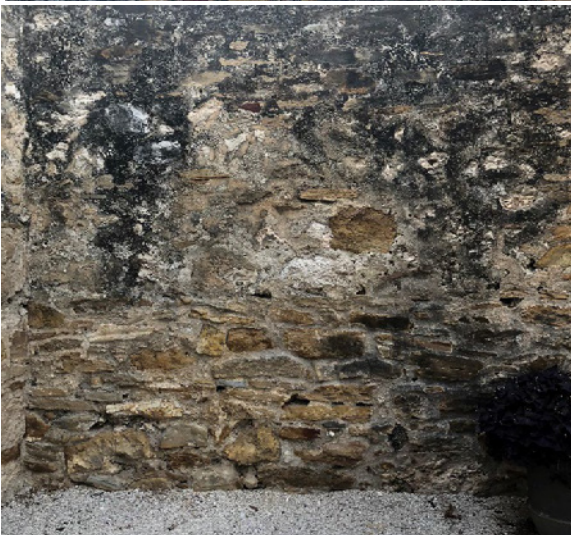


Figure 6.B.120: Room HS 203 E—Northeast corner, which features fragmentation of the stones (mainly the sandstones) and addition of bricks in the upper right corner.



Figures 6.B.118 and 6.B.119: Room HS 203 E—East wall. Biological growth, erosion of the masonry, delamination of stones and numerous holes.

Room HS 203 E



Figures 6.B.121 and 6.B.122:
Room HS 203 E—South wall.
General views, features a thick
black layer of biological
growth and erosion of the
lower parts of the pillars.



Figure 6.B.123: Room HS 203 E—South
wall. View of the lower east end.



Figure 6.B.124: Room HS 203 E—South wall. Detail of the thick
black layer of biological growth.

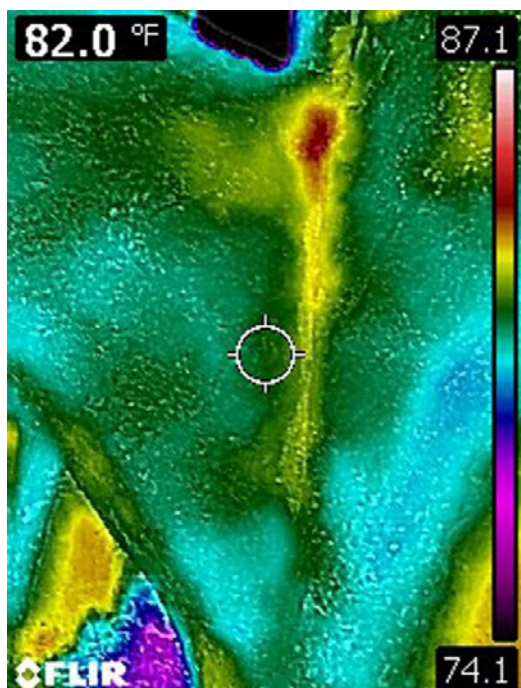
Room HS 203 E



Figure 6.B.125: Room HS 203 E—Southeast corner, features a fracture in the connection of the south arcade and the east wall.



Figure 6.B.125: Room HS 203 E—South wall. Detail of the fracture in the connection of the south arcade and the parapet.



Figures 6.B.127 and 6.B.128: Room HS 203 E—South wall, transverse arch detail. Both images show the same view of the bottom area of the wall. Left photo shows temperature differences in the wall. The cement-based mortar used for filling the crack in the connection of the transverse with the south wall appears hotter than the materials used elsewhere in the wall.

Room HS 203 E



Figure 6.B.129: Room HS 203 E—South wall. Detail of one pillar, which features erosion of the masonry wall and encrustations in the stones.



Figure 6.B.130: Room HS 203 E—Southwest corner, which features a thick layer of biological growth.



Figure 6.B.131: Room HS 203 E—Southwest corner, which features erosion and loss of mortar joints in the lower part.

Room HS 203 E



Figures 6.B.132 and 6.B.133: Room HS 203 E—West wall. Biological growth, concentrated under the door D24, associated with efflorescence under the arch. Erosion and loss of mortar joints in the lower part of the wall.



Figure 6.B.135: Room HS 203 E—West wall. Detail of arch at door D24 (upper-level) which features efflorescence, fragmentation, and powdering in the intrado.

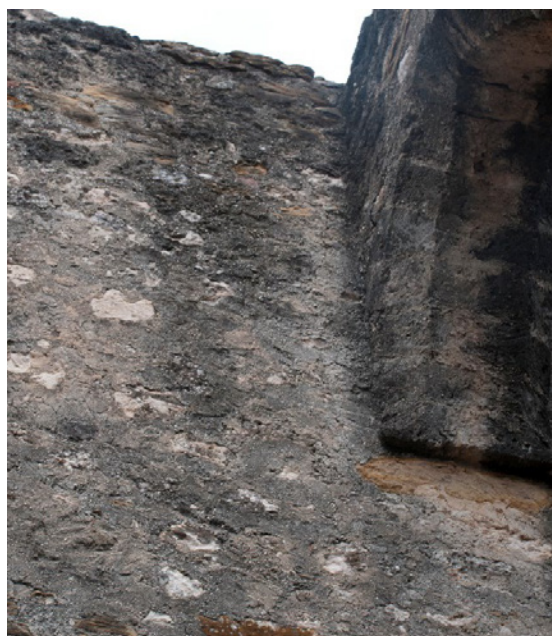
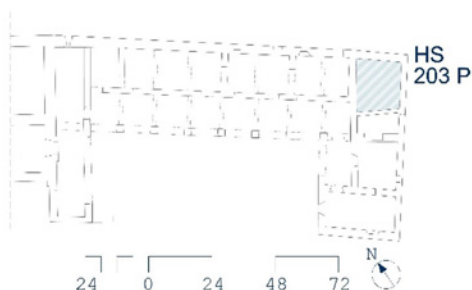


Figure 6.B.134: Room HS 203 E—West wall. Detail of the upper-level connection with the north wall. Features a hair crack slightly left of the corner.

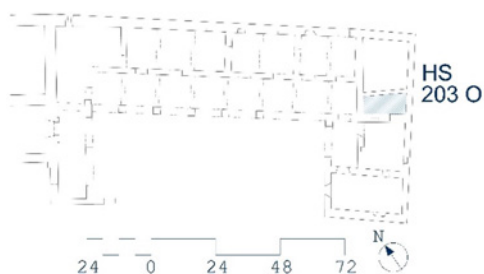


Figure 6.B.136: Room HS 203 E—West wall. Detail of the lower right area of the wall, which features erosion of the masonry wall and loss of mortar joints.

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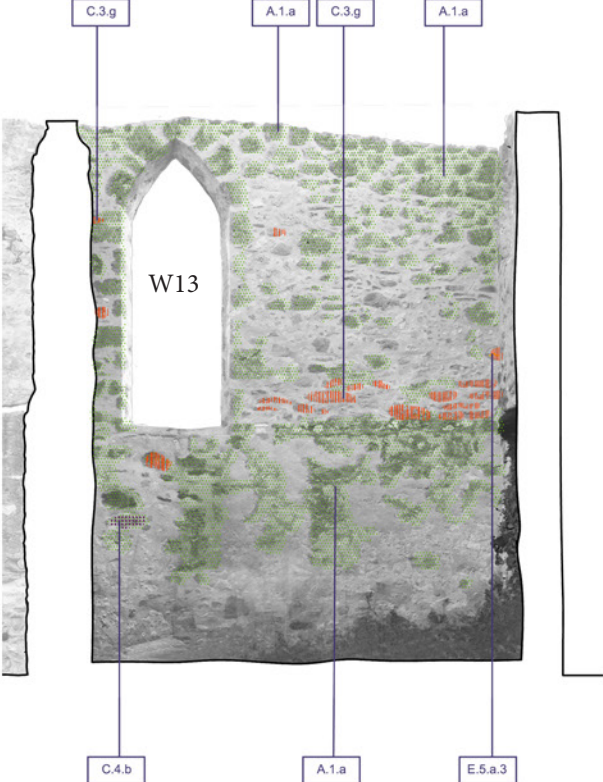
Room 203 P

The surface of the walls have been recently treated with new grouting mortar. Grouting mortar was prepared by NPS personnel. Numerous sandstones have evidence of delamination and fragmentation, due to the hardness of the mortar previously in place. The west wall lower section has evidence of rising damp.

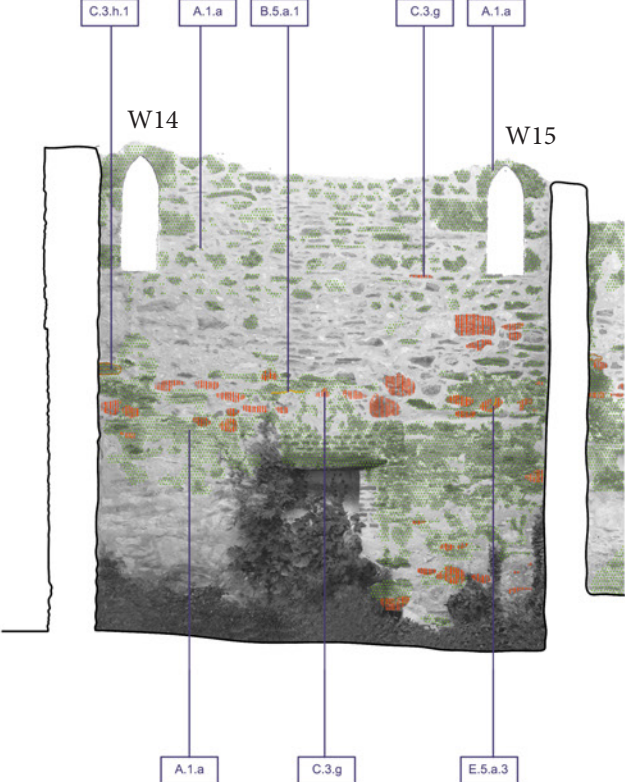
Room 203 O

The surface of the walls have been recently treated with application of a new grouting mortar. Grouting mortar was prepared by NPS personnel. Only a few sandstones have evidence of delamination and fragmentation. One crack is visible on the west wall at the capping of the access door located on the upper level.

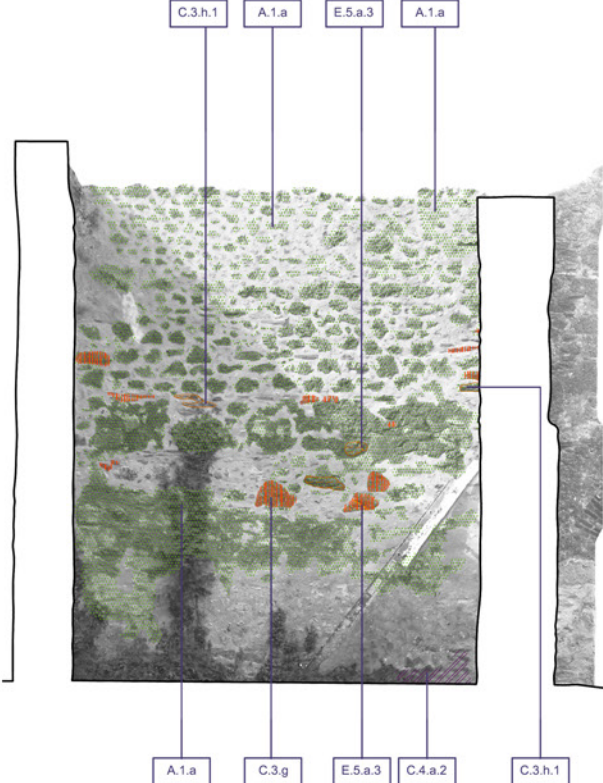
203 P



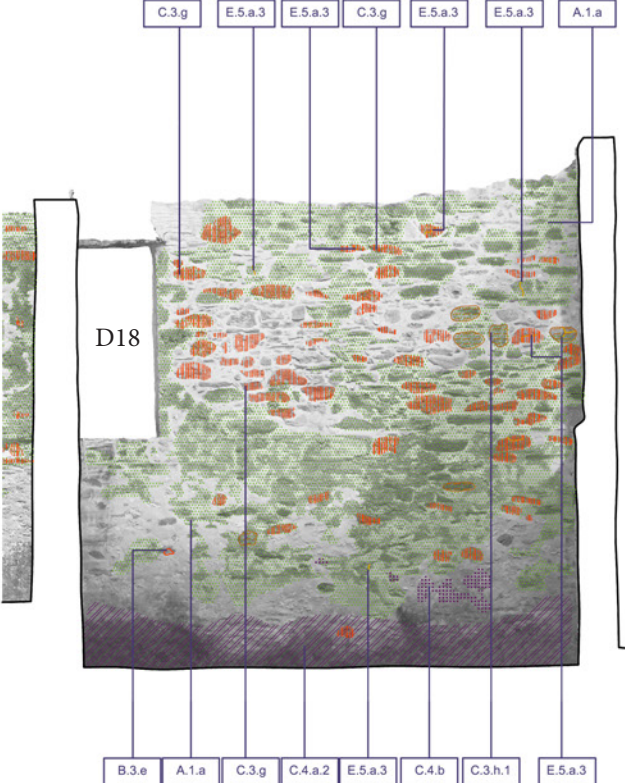
203 P_North wall



203 P_East wall



203 P_South wall



203 P_West wall



Room HS 203 P



Figure 6.B.137: Room HS 203 P—North wall. The wall has been repointed recently. The limestones show a layer of biological growth.



Figure 6.B.138: Room HS 203 P—East wall. The wall has been repointed recently and features several fragmented sandstones.

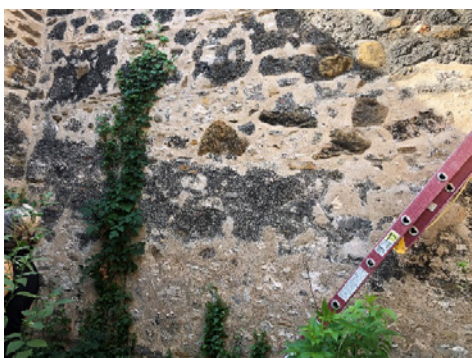


Figure 6.B.139: Room HS 203 P—South wall.



Figure 6.B.140: Room HS 203 P—West wall.

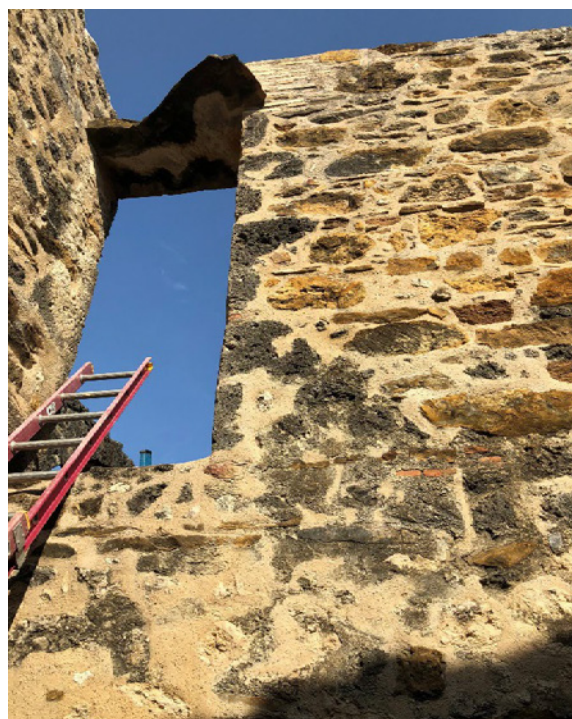
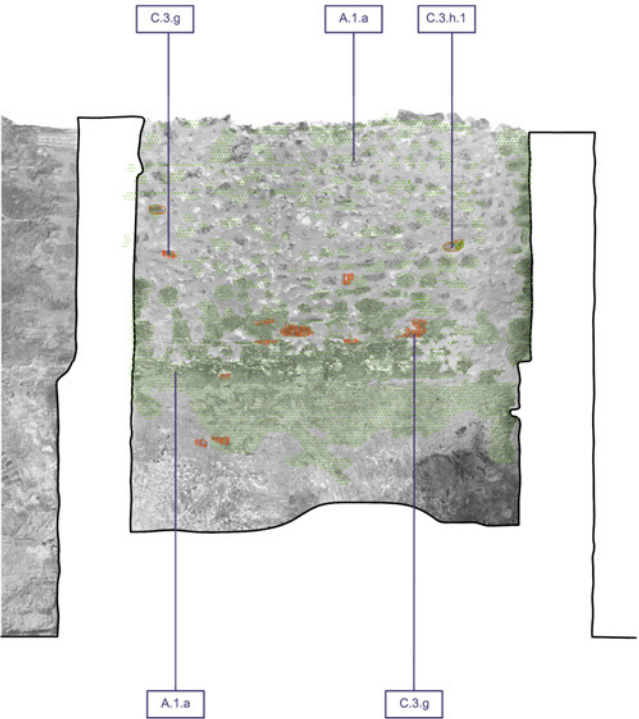


Figure 6.B.141: Room HS 203 P—West wall, which features biological growth and fragmentation in the sandstones.

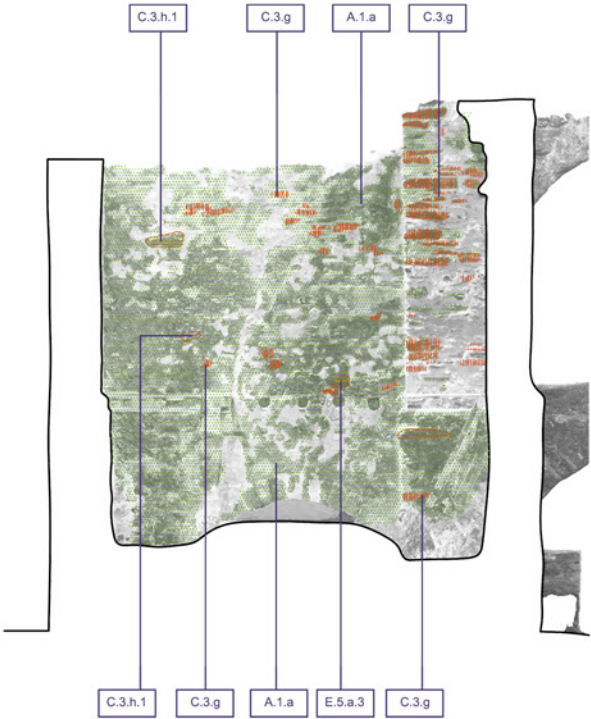
203 O



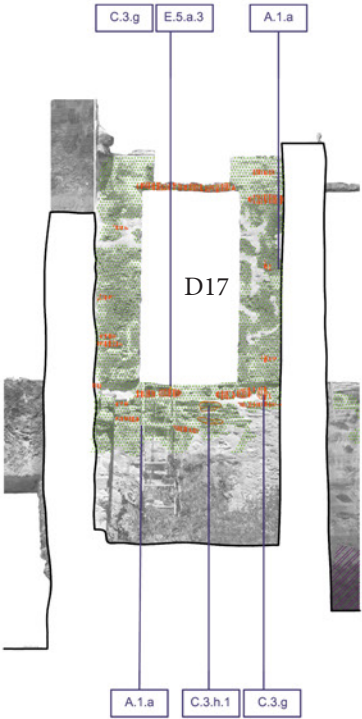
203 O_North wall



203 O_East wall



203 O_South wall



203 O_West wall



Room HS 203 O



Figure 6.B.142: Room HS 203 O—North wall. The walls in this room have been recently repointed. Biological growth is present.



Figure 6.B.143: Room HS 203 O—East wall, which features biological growth and some fragmentation in the sandstones.



Figure 6.B.144: Room HS 203 O—South wall, which features biological growth and regular holes that might have been the location of wooden beams.



Figure 6.B.145: Room HS 203 O—West wall, which exhibits biological growth and fragmentation in some sandstones.

Room 203 H

Overall
condition:
good/fair

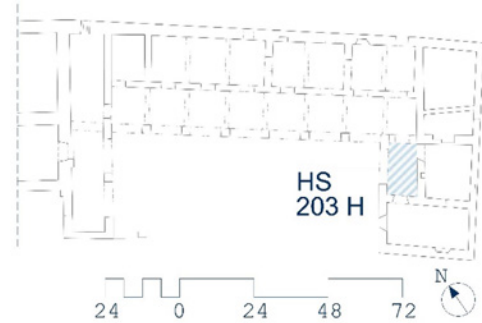
North Wall—Connecting Superimposed Arches

This wall has no evidence of Spanish Colonial finish plaster, however fragments of historic scratch coat may be visible on the east section.

The overall condition is good/fair.

The ground-floor arch has presence of a plant growing from the east

section of the wall. The two superimposed arches are characterized by presence of biological growth, which slightly darkens the surface. The wall surfaces are characterized by several patching repairs which blend effectively with the stone surface. Only few stones show evidence of delamination and fragmentation. The most damaged areas are the short walls located at the base of the ground-floor arch—here the stone masonry reveals to have a high/medium level of erosion, with loss of joint mortar.



Overall
condition:
fragile/
fragmented

East Wall

This wall does not have evidence of historic Spanish Colonial plaster, although it can be dated to the Spanish Colonial period, built after the construction of the arcades. The condition of this wall is fragile, fragmented. Plants grow within the wall close to the grade level and on the northern upper section. Biological growth is located on the top half wall, characterized by a gray feathering mortar. The lower part of the wall is characterized by presence of significant mortar and concrete patching—including a characteristic hard brown mortar feathering, showing detachment of edges, detachment from the substrate, and erosion.

One filled deep fracture is located in the center of the stone wall architrave of the door, which also features a historical reinforcement made of a wood architrave. The space between the two architraves is roughly filled, showing hair cracks and voids. The southern post of the door is the result of a repair effort, made of infill materials and featuring a deep diagonal crack surrounded by several hair cracks. The surface in this area includes significant mortar and concrete patching, and the few rubble stones have evidence of delamination and fragmentation. Above this area, another crack is visible at the termination, reaching the wall capping. For this wall, as well, conservation treatments should focus on an effective aesthetic presentation to emphasize the historical value of the surfaces and the whole space, which has been considered marginal in the overall interpretation of the convento's structures.

*Overall
condition:
fragile/
fragmented*

South Wall

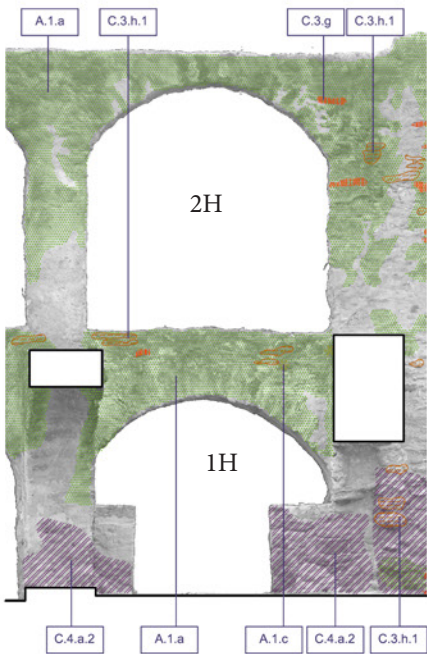
This wall does not have evidence of historic Spanish Colonial plaster. The condition of this wall is fragile and fragmented, featuring numerous fractures above the door architrave and hair cracks on the east side of the trabeated door. Plants grow within the wall close to the grade level and on the uppermost section, close to the capping. Biological growth darkens homogeneously the whole surface until 3 ft. above the ground, where erosion of the patching is visible. The door posts are the result of repair efforts, made of infill materials and restoration mortars, and feature an unusual shape for a door opening. Conservation treatments will focus on an effective aesthetic presentation to emphasize the historical value of the surfaces and the whole space.

*Overall
condition:
good*

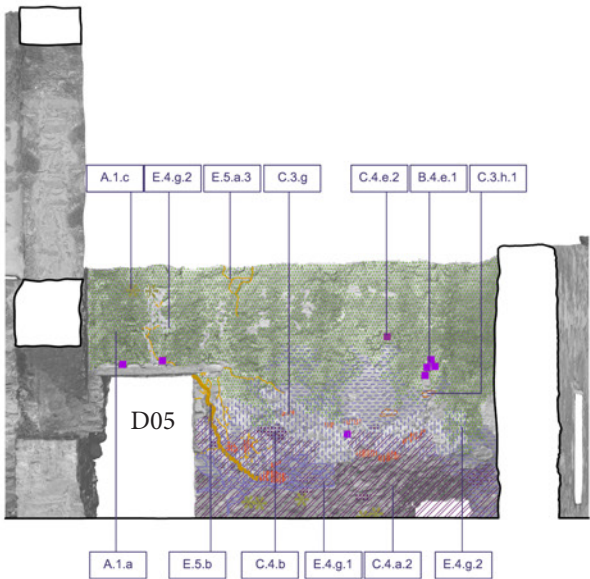
West Wall—Connecting Arch

This wall does not have evidence of historic Spanish Colonial plaster. The condition of this wall is good. Presence of moss is visible on the higher south section of the wall, biological growth darkens the surface of the entire arcade to the lower section of the wall, which shows evidence of recent concrete patching on the southern part and erosion with numerous missing parts on the north side.

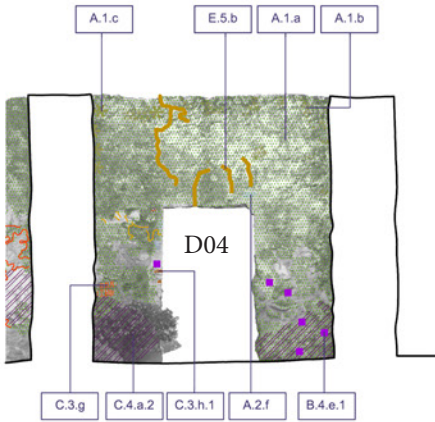
203 H



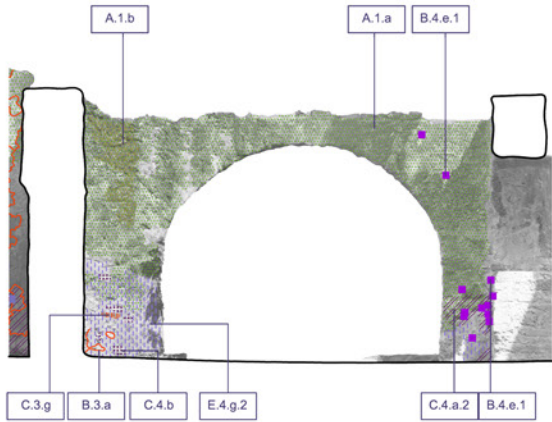
203 H_North wall



203 H_East wall



203 H_South wall



203 H_West wall



Room HS 203 H



Figures 6.B.146 and 6.B.147: Room HS 203 H—North wall upper-level arch, which features fragmentation and delamination of stones in its right side.

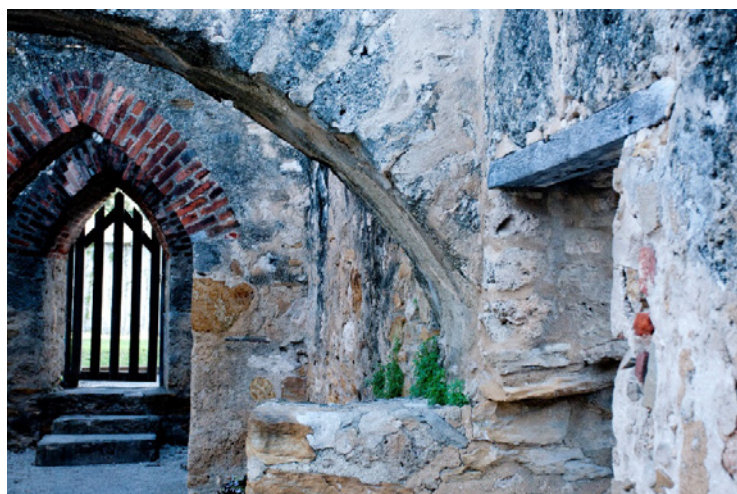
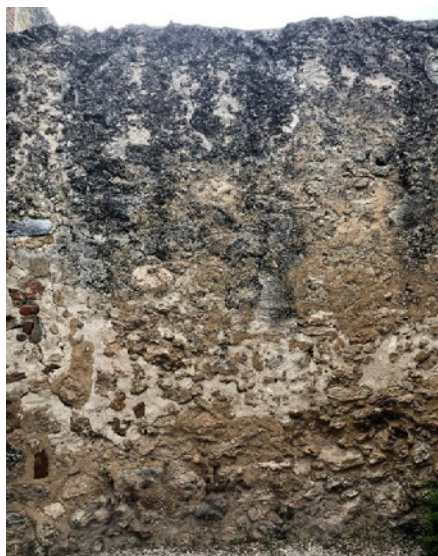


Figure 6.B.148: Room HS 203 H—North wall. Lower level arch 1H, right corner. Features a crack between the parapet and the east wall.



Figures 6.B.149, 6.B.150, and 6.B.151: Room HS 203 H—East wall. General view. Features vegetation growth in the upper part of the wall and erosion in the lower part.

Room HS 203 H



Figure 6.B.152: Room HS 203 H—East wall. Detail above the door D05. Features erosion of the masonry wall and a crack starting in the middle of the wooden architrave that has been filled with mortar.



Figure 6.B.153



Figure 6.B.154

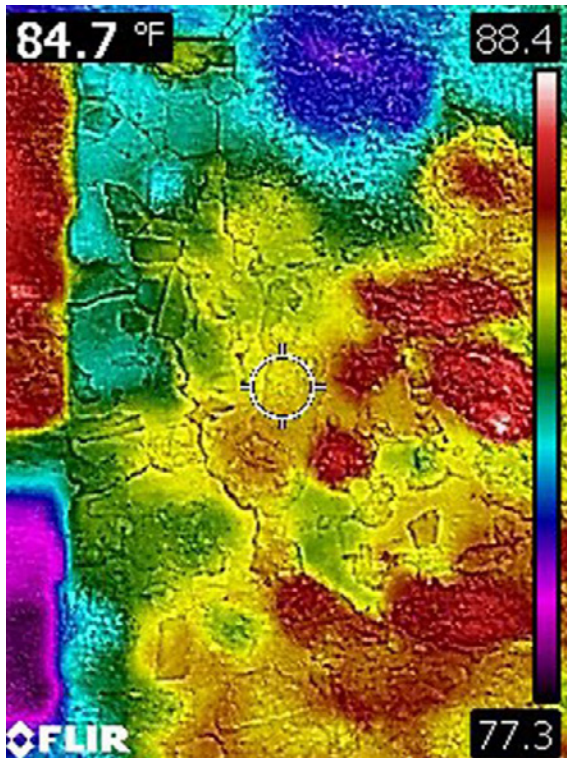


Figure 6.B.155: Room HS 203 H—East wall. Same view of the a detail of the right jamb of door D05 and nearby wall. The differences in temperature are caused by the different construction materials and the presence of humidity. Features a fracture that starts in the upper right corner of the door and develops diagonally downward.



Room HS 203 H



Figure 6.B.156: Room HS 203 H—South wall. General view. Features vegetation growth in the upper part of the wall and erosion in the lower part.



Figure 6.B.157: Room HS 203 H—South wall. Detail of the architrave of the door D04. Features two cracks in the middle and middle right of the architrave, mortar patching with graffiti and detachment of the mortar below the door.



Figure 6.B.158: Room HS 203 H—South wall. Detail of the bottom left corner of the wall. Exhibits visually contrasting mortar patchings, erosion of the stone blocks and missing mortar joints.



Figure 6.B.159: Room HS 203 H—South wall. Detail of the right jamb of the door D04. Features vegetation growth, different types of visually contrasting mortar patchings and erosion of the wall.

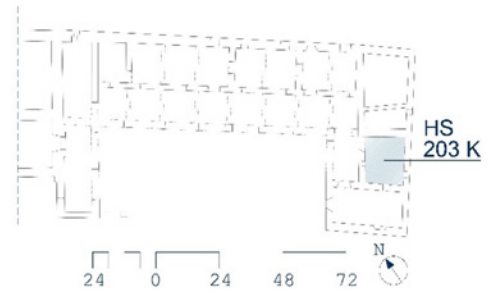
Room 203 K

Overall
condition:
fair/stable

North Wall

This wall does not have evidence of Spanish Colonial plaster, and the historical investigation carried out in this study dates this wall to the Benedictine era (1860–1867). The kitchen north wall is in fair/stable condition, the wall surface is presently made of

several layers of mortar and mortar patching. The center of the wall is occupied by a brick fireplace, with the chimney running to the top of the wall. The bricks have evidence of deposits and efflorescence. Graffiti on the middle section of the chimney dates to 1898. Behind the bricks, at approximately 6 ft. above the ground, an arch of regularly cut tufa voussoirs appears. The brick fireplace is in good condition—large cracks were recently filled and stabilized. The walls surrounding the chimney have multiple missing parts, detachment of mortar, and modern cementitious plaster patches with detachment of edges. The lower western section of the wall has evidence of high erosion, due probably to rising damp, with associated fragmentation of sandstones. The upper east section is affected by differential erosion of the wall surface.



Overall
condition:
fair/
fragile/
fragmented

East Wall

This wall does not have evidence of historic Spanish Colonial plaster. The overall condition of this wall is fair/fragile and fragmented. The wall has evidence of numerous patching campaigns, with patching mortars/feathering mortars of varying color and hardness. The presence of a dark layer of biological growth is mostly concentrated in the upper area, characterized by a gray feathering mortar. The lower part of the wall is instead characterized by the presence of a brown patching, showing detachment of edges, detachment from the substrate, and erosion. The scratch coat surface inside the niche has missing parts in the bottom and large/medium voids. The top rubble stone layers—constructed by Harvey Smith in the '30s—appear to be eroded. The lower section, up to approximately 3 ft. above the ground, has evidence of a high level of erosion, with loss of joint mortar. The surfaces of this wall are in fragile condition, however the main issue to be tackled for this wall is an effective aesthetic presentation to emphasize the historical value of the surfaces and the whole space.

Overall
condition:
fragile/
fragmented

South Wall

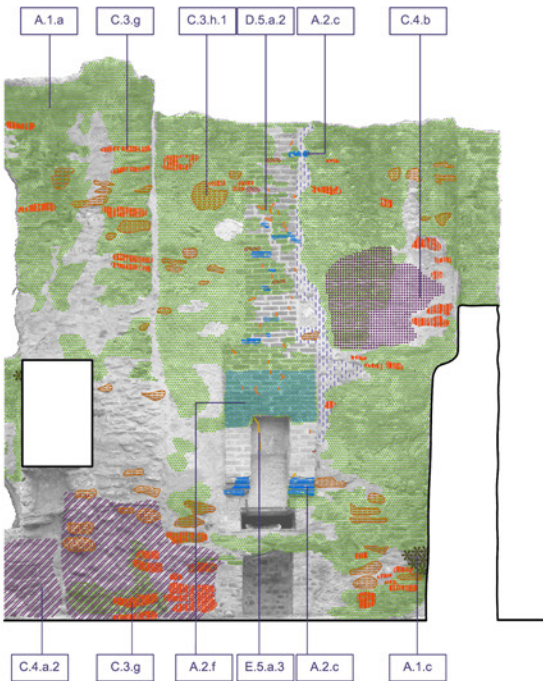
This wall does not have evidence of historic Spanish Colonial plaster. The condition of this wall is fragile and fragmented. Presence of plants can be seen on the northern section of the wall structure. Biological growth is mostly concentrated in the upper area, characterized by a gray feathering mortar, similar to what is occurring on the east wall. The lower part of the wall is instead characterized by the presence of a brown patching, showing detachment of edges, detachment from the substrate, and erosion. There are two deep fractures in the uppermost section of the small door opening connecting this room with the refectory—one located at the center of the ashlar stone architrave, the other on the west corner of the windows and reaching the wall capping. The latter is visible on both sides of the wall. The lower section, up to approximately 4 ½ ft. above the ground in the western section, has evidence of high level of erosion, with loss of joint mortar. For this wall, the main issue to be tackled is an effective aesthetic presentation to emphasize the historical value of the surfaces and the whole space, which has been considered marginal in the overall interpretation of the convento's structures.

Overall
condition:
fragile/
fragmented

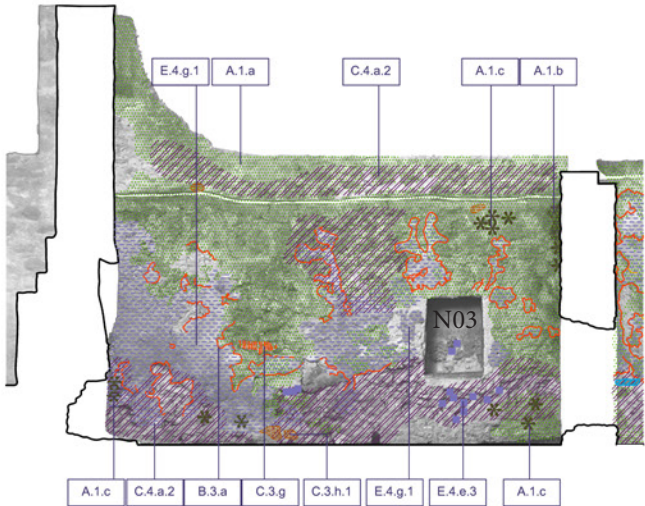
West Wall

This wall does not have evidence of historic Spanish Colonial plaster. The condition of this wall is fragile and fragmented. Biological growth is mostly concentrated in the upper area, characterized by a gray feathering mortar, similar to what is occurring on the east and south walls. Plants grow within the wall structure. A thick layer of biological growth is mostly concentrated in the upper section, associated with vegetation growth. Underneath, a continuous brown patching covers the wall surface and the niche walls. This patching has evidence of detachment of edges and detachment from the substrate. Below this patching is visible another layer of restoration mortar, which has a gray color and presence of quicklime, plus a high level of execution. The lower part of the wall is characterized by some erosion, which does not involve the area directly above the grade level. The south corner of the only door has been restored with various generations of mortar infill. A deep crack, passing through the wall, is located at the center of the ashlar stone architrave, reaching the top of the capping. Evidence of roughly executed repair mortars, as well as voids, exists on the door intrados. For this wall as well, the main issue to be tackled is to propose an effective aesthetic presentation in order emphasize the historical value and the materials of the surfaces and the whole space, which has been considered marginal in the overall interpretation of the convento's structures.

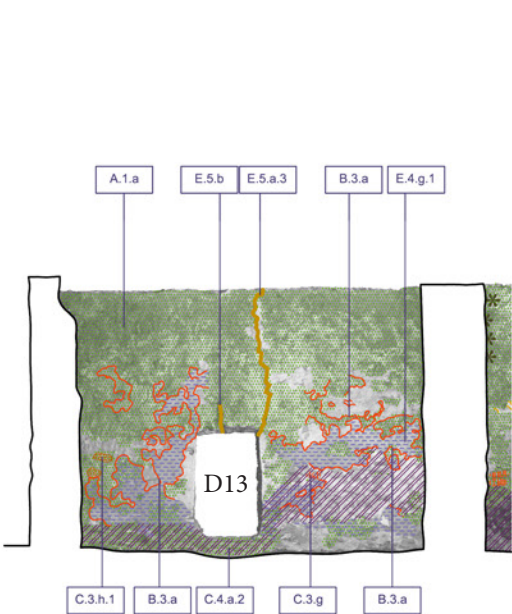
203 K



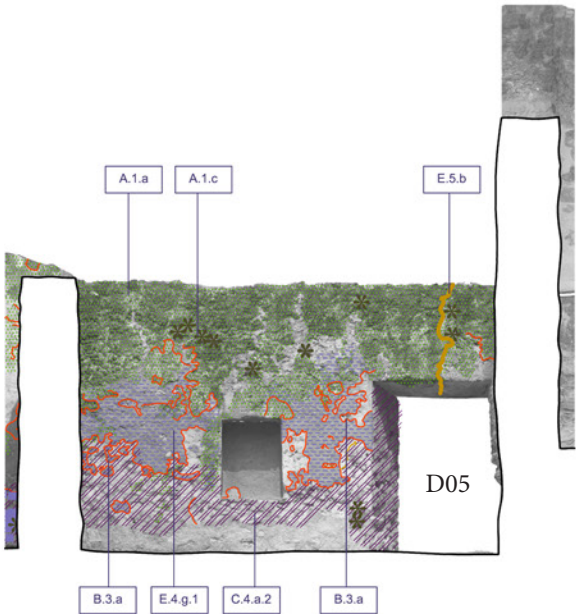
203 K_North wall



203 K_East wall



203 K_South wall



203 K_West wall



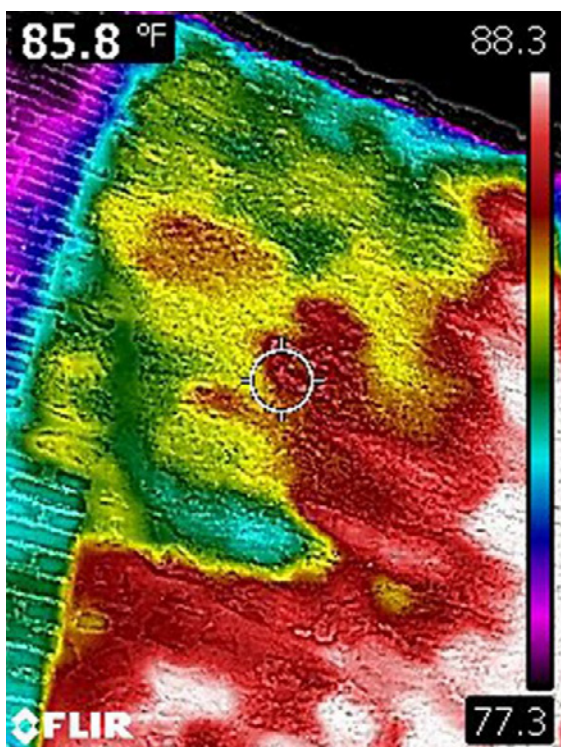
Room HS 203 K



Figure 6.B.160: Room HS 203 K—North wall. General view. Features two filled cracks, one between the south arcade and the wall (left of the photo) and another in the right side of the chimney.



Figure 6.B.161: Room HS 203 K—North wall. Detail of the left corner of the wall. Features a crack in the middle of the door D05, erosion of the wall and fragmentation of stones.



Figures 6.B.162 and 6.B.163: Room HS 203 H—North wall. Same view of the right part of the wall. The differences in temperature are caused by the different construction materials, the presence of humidity and the presence of the flue inside the chimney.

Room HS 203 K



Figure 6.B.164: Room HS 203 K—North wall. Detail of the higher part of the chimney. Features cracks, efflorescence and fragmentation of the bricks.



Figure 6.B.165: Room HS 203 K—North wall. Detail of the lower right corner of the wall. Features a crack in the connection of north and east walls and numerous holes.



Figure 6.B.166: Room HS 203 K—East wall. General view. Exhibits erosion both in the higher and lower areas of the wall, numerous holes and visually disturbing mortar patchings.



Figure 6.B.167: Room HS 203 K—East wall. Detail of the lower north corner. Features erosion, missing parts and detachment of the mortar patching.



Figure 6.B.168: Room HS 203 K—East wall. Detail of the right corner. Exhibits erosion and several holes in its lower part, and visually contrasting brown mortar patchings.

Room HS 203 K



Figure 6.B.169: Room HS 203 K—South wall. General view. Feature biogrowth in the upper part, erosion in the bottom area and visually disturbing mortar patchings.



Figure 6.B.170: Room HS 203 K—South wall. Detail of the door D13 featuring a fracture starting in its upper right corner.



Figure 6.B.171: Room HS 203 K—West wall. General view.



Figure 6.B.172: Room HS 203 K—West wall. Left jamb of the door D05. Features a diagonal fracture that starts under the wooden architrave.



Figure 6.B.173: Room HS 203 K—West wall. Area left of the niche. Features erosion and detachment of edges of the mortar patching.

Room 203 R
(refectory)

North Wall

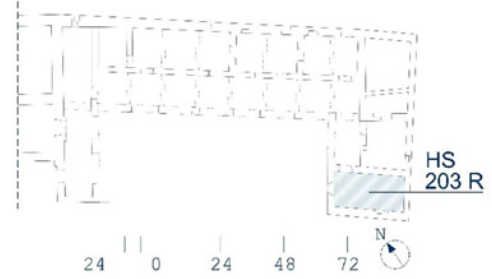
This wall retains fragments of Spanish Colonial finish plaster, characterized by a white paint finish. Fragments are visible on the extreme east section of the wall, as well as on the extreme west section, where there also remains in situ a larger area

*Overall
condition:
fragile/
fragmented*

of historic scratch coat (arriccio). The overall condition of the wall is fragile/fragmented, with the presence of a deep fracture above the little opening on the wall's east side. The surface finishes—patches—are definitively in fragile condition.

There is presence of biological growth, especially located on the uppermost part of the wall. The wall has evidence of numerous patching campaigns, with patching mortars/feathering mortars of various color and hardness as well as a brownish roughly executed plaster finish, which has evidence of detachment of edges and detachment from the substrate and large areas with loss of mortar. The deteriorated feathering layer may have a cement component. Historic photos indicate it was likely applied on the surface after 1917 and prior to the 1930s. The lower section of the wall shows a high level of erosion of the masonry, with rising damp and a high number of voids.

The wall has evidence of structural decay: The small opening/door located on the east section of the wall features one deep fracture on its west corner, reaching the wall capping. The architrave of this opening is made of a wooden lintel and appears to be added in a later phase. The large door located on the wall's west section features a deep fracture separating in the center of the masonry architrave.



*Overall
condition:
fragile*

East Wall

This wall has no evidence of Spanish Colonial plaster finishes. The overall condition of the wall is fragile, due to the presence of structural discontinuities, such as large fractures.

The entire wall surface has evidence of biological growth, mostly concentrated on the higher section and creating the effect of a dark stain on the northern section. The wall is characterized by numerous voids, and a high level of erosion in its lower section. The wall has evidence of numerous patching campaigns (three main ones), with patching mortars/feathering mortars of various brown tones and different hardness. This scratch coat has evidence of

detachment of edges and detachment from the substrate and large areas with loss of mortar. A large fracture, running from the top to the bottom of the wall, is located on the wall southern section and is most probably not active. In fact, a 1930s Harvey Smith historic survey indicated the presence of this crack, which was also later described in 2002 by Restoration Associates.

Overall
condition:
fair

South Wall

This wall has no evidence of Spanish Colonial finish plaster. The overall condition is fair with surface finishes—patches most likely made of cement-based plasters—in fragile condition. Numerous small plants grow on the wall surface, located mostly on the east edge and on the west section of the wall. There is presence of biological growth, especially on the uppermost part of the wall and with a higher concentration on the east corner. The niche is feathered by a brown mortar finish, dated after 1917, which adheres adequately to the wall substrate. Similar finishes are found in other areas of the wall and are characterized by detachment of edges and detachment from the wall substrate.

The area under the niche has evidence of fragmentation and erosion of the surface. The lower section of the wall shows evidence of masonry erosion, due to rising damp and high moisture content in the masonry. One large fracture is located on the west section of the wall, running from the grade level up to approximately 5 ft., where it appears to have wider opening. The crack, filled with gray mortar, continues with a sub-vertical layout, to encounter the corner of the wall.

Overall
condition:
fair

West Wall

This wall has no evidence of Spanish colonial plaster finish, however some areas still retains fragments of historic scratch coat. The overall condition of the wall is fair, featuring some structural issues. The wall has had numerous mortar repairs—the most evident is a scratch coat layer with a brownish color, which shows detachment of edges.

The window architrave is characterized by three cracks:

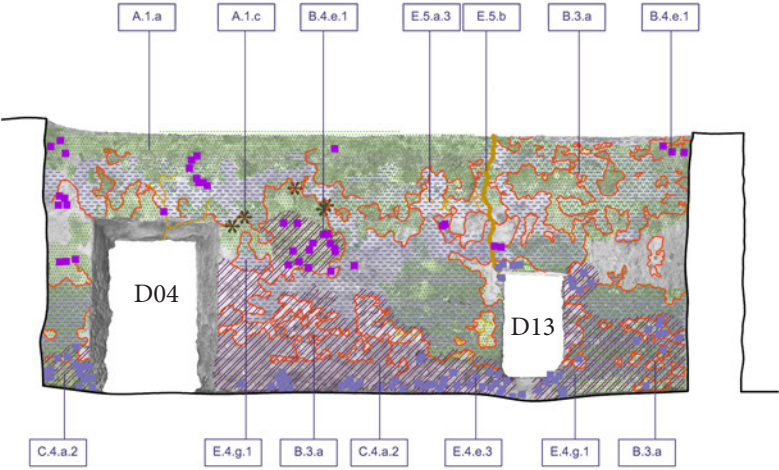
1. A large deep fracture is located at the center the window.
2. A second fracture is located approximately 1 ft. higher, toward the north wall.
3. The third crack starts on the southern upper edge of the window and features a diagonal pattern. The crack reaches the capping, which is also fractured.

The lower section, close to the grade level, has a high level of erosion and

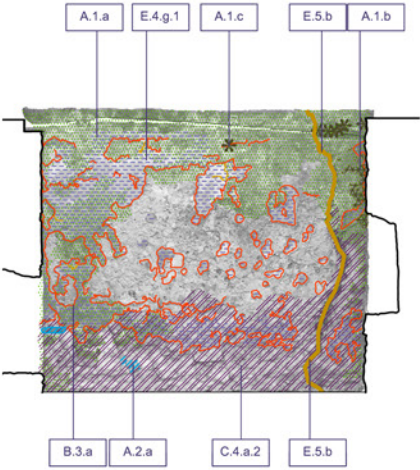
a high concentration of voids, up to 3 ft. above the ground, with a reduction of the wall thickness in the area located under the window.

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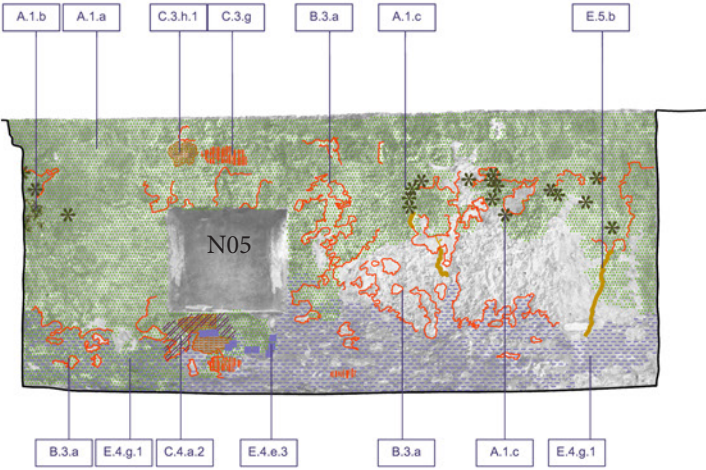
203 R



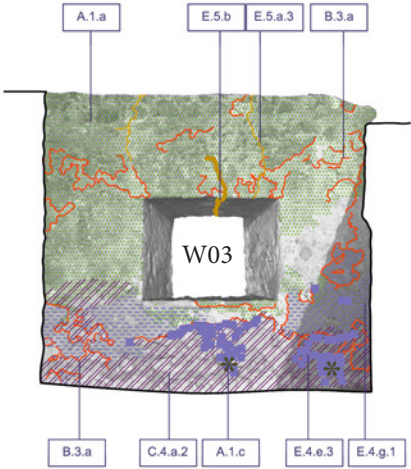
203 R_North wall



203 R_East wall



203 R_South wall



203 R_West wall



Room HS 203 R



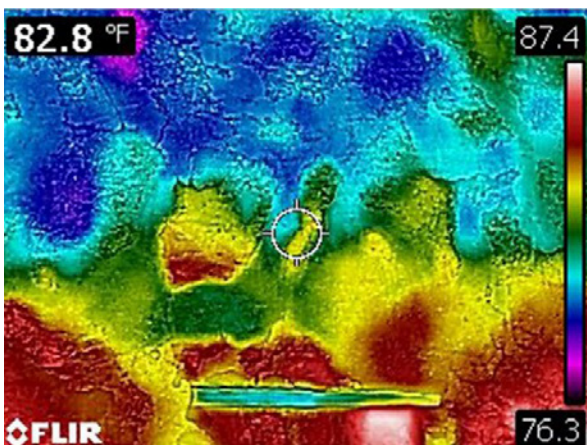
Figure 6.B.174: Room HS 203 R—North wall. General view. Features roughly executed patching.



Figure 6.B.175: Room HS 203 R—North wall. Detail of the left door D13. Features a crack in the middle of the architrave.



Figure 6.B.176: Room HS 203 R—North wall. Detail of the bottom part of the wall. Features erosion, missing parts and detachment of the patching.



Figures 6.B.177 and 6.B.178: Room HS 203 R—North wall. Same view of the area above the right door. The differences in temperature are caused by the different construction materials, the presence of humidity and the detachment of the patching.

Room HS 203 R



Figure 6.B.179: Room HS 203 R—East wall. General view. Exhibits a big fracture, biological growth in the upper part, erosion and roughly executed patching.



Figure 6.B.180: Room HS 203 R—East wall. Detail of the fracture in the southern end of the wall.



Figure 6.B.181: Room HS 203 R—East wall. Detail showing the biological growth and the detachment of the patching.



Figure 6.B.182: Room HS 203 R—East wall. Detail of the bottom part of the wall. Exhibits a high level of erosion of the wall and detachment of the patching.

Room HS 203 R



Figure 6.B.183: Room HS 203 R—South wall. General view. Feature biological growth in its upper part and visually contrasting patching in the lower area.



Figure 6.B.184: Room HS 203 R—South wall. Detail of the niche N05. Features biological growth surrounding it and erosion of the masonry wall, numerous holes and detachment of the patching in the area below the niche.



Figure 6.B.185: Room HS 203 R—South wall. Detail of the crack in the right part of the wall. Features different types of patching and erosion in the lower area of the wall.

Room HS 203 R



Figure 6.B.186: Room HS 203 R—South wall. Detail of the right jamb of the niche. Features biological growth and detachment of mortar patching.



Figure 6.B.187: Room HS 203 R—South wall. Detail of the middle part of the wall. Exhibits cracks, biological growth, dry plants, erosion and different visually disturbing patching that show detachment of edges.



Figure 6.188: Room HS 203 R—West wall. General view. Features severe erosion below the window W03, biological growth in the upper part of the wall and cracks in the architrave of the window.

Exterior Walls None of the exterior walls show evidence of stucco finishes—they are made of several types of rubble stones, which have differences in dimension and stone type. (For further details see physical description.)

*Overall
condition:
good/lo-
calized fragile
areas*

North elevation

The overall condition of the wall is good with localized fragile areas. The entire wall is covered by a homogeneous layer of biological growth, with the exception of some localized areas in the wall lower section.

Numerous stones—mostly sandstones—have evidence of delamination and fragmentation, few limestones feature differential erosion.

In the east upper corner, there is an area featuring differential erosion, with some stone in state of fragmentation and delamination.

The lower section of the wall is characterized by infills of previous openings and also replacement of original stone masonry. The northeast section features erosion of the lower section of the wall, with evidence of differential erosion of the masonry. Here the feathering mortar layers are intact with evident stone loss, mostly on sandstone. (These areas are not mapped in this HSR because it is hard to identify the exact extension of the decay).

The wall exhibits several hair cracks and fractures. Hair cracks are located at the bottom of the second window from the east corner and spread in the western part. Fragile areas are some of the lancet arches of the window openings, with fractures located in W11, W12, and W09. (See the nomenclature in the fenestration section supplemental to this report.)

*Overall
condition:
good*

Exterior East Elevation

The overall condition of the wall is good with only one localized structural issue, on the extreme south corner.

The entire wall features a light layer biological growth, with higher concentration on the southern upper-level corner of the two-story elevation continuing under the adjacent rectangular window. This concentration of biological growth is due to the higher moisture content under the window sill.

Several stones—mostly sandstones—have evidence of delamination and fragmentation in a masonry that overall is in good condition, characterized by many generations of mortar patching and feathering (including the one usually associated with masonry differential erosion). One rubble limestone features differential erosion.

The lower section of the whole is slightly eroded, up to a maximum of approximately 2 ft. from the ground.

In the extreme south section, the wall features a sub-vertical fracture, which is also visible on the other side of the wall.

*Overall
condition:
fair*

Cloister East Elevation

Overall condition of the facade is fair, characterized by numerous generations of patching, some of which feature a brownish color.

The biological growth is mostly located on the top parts of the wall, denser above the arch than on the exterior refectory (HS 203 R) wall.

A red-brown mortar patching is located on the wall lower section until a height of approximately 11 ft., featuring detachment of edges (and associated detachment from the substrate), especially in the areas located around the window.

Very few stones exhibit delamination. The base of the arch has evidence of erosion of the masonry with associated loss of joint mortar.

The wall has evidence of numerous cracks located mostly above the southern window with the exception of one diagonal crack located at the spring line of the arch, on the northern side.

Above the window, one larger fracture is located in the center south side.

*Overall
condition:
fair*

South Elevation—Exterior HS 203 R

The overall condition of the wall is fair. The biological growth is mostly located on the top parts of the wall, growing on tufa rubble stones. It is definitively more developed in the west side of the wall. A red-brown mortar patching is located on the wall lower section until a height of approximately 5–6 ft. and extends the entire length of the façade, featuring edges that are highly detached (and associated detachment from the substrate). The wall lower section is characterized by erosion of the masonry with associated loss of mortar and stone delamination.

The façade has evidence of numerous cracks, mostly concentrated on to extreme east side areas. One sub-vertical crack is located on the east side.

Overall
condition:
good

Cloister South Elevation

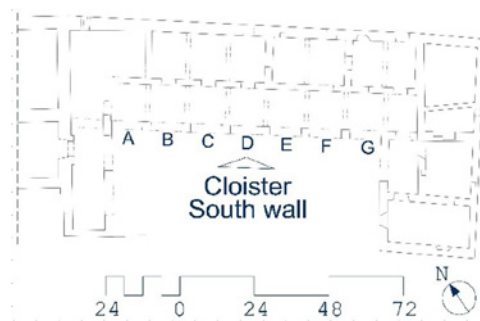
The overall condition of the two-story arcade façade is good, with some localized cracks.

The arcaded wall is covered by a layer of biological growth, with darker areas above the ground-level arcades, on the top of the arches, due to the higher moisture content of the walls in these areas. The upper-level arcaded wall also has evidence of biological growth mostly concentrated in the upper part.

Various stones—mostly sandstones—have evidence of delamination and fragmentation. They are mostly located on the top of the ground level as well as on the upper level.

Localized areas featuring erosion of the masonry are visible above the upper-level pilaster between Arches A and B, and at the same level, on the west section of Arch A. The pilaster between C and D features a large area with patching.

The lower section of the pilasters features advanced erosion, limited to approximately 1 ft. in the west side of the arcaded façade, in the pilasters between Arches A and B and C and D, and higher, up to approximately 5 ft. in the pilasters between Arches D and E, E and F, F and G.



Intrados of the Arches

Ground Floor

All ground-floor arches have evidence in the intrados of biological growth on their exterior edges. Biological growth is more developed on the northern part of the arch.

Arch A

Fragile Condition

The entire surface of the intrados features presence of scratch coat and evidence of painted finish, with larger fragments on the west side and a small fragment on the east. Biological growth is visible on the exterior edges with larger areas on the north side, presence of localized blistering, powdering of the scratch coat (arriccio), and evidence of detachment of edges.

Arch B

Fragile Condition

The surface is characterized by arriccio, with evidence of painted finish fragments in the east side of the intrados (only one small fragment is visible on the west side). Biological growth is present on the exterior edges, as is detachment of edges and powdering.

Arch C

The arriccio covering the arch intrados features only two small fragments of painted finish. Arriccio is in fragile condition. Biogrowth is present on the exterior edges—the affected areas are larger than the ones in Arch B. There is detachment of edges. This arch shows a more advanced powdering decay pattern.

Arch D

Fragile Condition

The intrados of this arch features the largest area of paint finish found in all arch intrados—located more on the west side of the arch, with a few fragments of the east side. Biological growth is present on the exterior edges and more expanded on the northern side. Detachment of edges in the central portion and missing parts are visible on the north west side as well as south east portion.

Arch E

Fragile Condition

The arriccio covering the arch intrados features only two areas with fragments of painted finish—one larger one in the west portion of the arch, few punctual ones in the east portion.

Biological growth is present on the exterior edges. Blistering and powdering

are present as well.

Arch F

Fragile Condition

The arriccio covering the arch intrados features only some areas with fragments of painted finish—one larger one in the west portion of the arch, and smaller ones on the east portion. Biological growth is present on the exterior edges and more expanded in the north. Blistering, powdering, and detachments of edges are present as well.

Arch G

Fragile Condition

The arriccio covering the arch intrados exhibits on the west portion an elongated, although fragmented, painted finish area. Also present are biological growth on the exterior edges, detachment of edges, powdering, and missing parts in the scratch coat.

*Overall
condition:
fair/good*

South Elevation—Exterior HS 203 S

It is important to note that the ground floor wall shows different deterioration patterns than the upper floor because the masonry features stones with different dimensions and layout. The ground floor features smaller rubble stone, irregularly laid, the top floor larger stones, with clear horizontal layers. These differences, due to different construction phases, influence as well the decay pattern distribution.

Biological growth is mostly concentrated on the top of the wall, decreasing in density from the capping toward the arched window, with traces of water runoff.

Another area affected by biological growth is the one under the window sill, with possible infiltration of water through the window sill into the masonry. The bottom part, at ground level, reveals as well some biological growth, in light form.

The wall features erosion in the lower section until a height of approximately 5.5 ft. from the ground, as well as well in a large area under the window sill expanding toward the west section. In the bottom part, a few stones feature delamination. Also, the corners of the wall on both sides are reshaped by patches, the one on the east corner probably made with cement.

On the top portion of the wall, on the west section, numerous holes/gaps can be seen.

The brick pointed arch features powdering in numerous bricks and presence of efflorescence. Few bricks are also fragmented, on the east arch a gap/

missing part can be observed.

A major filled crack runs down from the center of the window sill. Above the lancet window, both on the east and west section, two filled cracks continue the pattern.

*Overall
condition:
fair*

West Elevation—Exterior HS 203 S

Biological growth covers most of the uppermost part of the wall and a large area under the window sill, reaching the level of the ground. A small pilaster on the extreme north edge of the elevation is also covered with dense biological growth.

The lower section of the wall, up to 3½ ft. from the ground, features erosion of masonry. In general the entire wall appears to have erosion of joint mortar.

Bricks arches of the window located in the upper level have elements showing fragmentation of bricks and presence of efflorescence. The uppermost section of the wall features numerous cracks, below the capping and in continuation with it.

Cracks continue on the wall at the lower level, located on the southern section, adjacent to the stone voussoirs of a walled arch opening.

*Overall
condition:
good*

West Elevation—Cloister

The overall condition of the wall is good. One portion of the wall is one-story high, including the two arches that were reconstructed in 1948. These arches are characterized by cementitious mortar.

A higher concentration of biological growth is present under the coping, above the arches. Few stones of this arcaded wall have evidence of delamination and fragmentation.

The pilasters of these arches, mostly made of sandstone irregular blocks, have their surfaces highly eroded, with presence of concrete mortar patching and loss of mortar in some areas at the bottom.

The two-story southern section features on the top portion some biological growth, a lot less dense than the arcaded portion. The whole wall is characterized by some detachment of mortar edges.

The top part of the wall has evidence of missing parts and numerous hair cracks.

Coping

The wall is protected overall by a concrete coping, built during different campaigns. The capping features different levels of deterioration, as well as recent recapping in some areas. In many areas, a bitumen-based waterproofing layer can be seen under the concrete layer. Flagstones are located in a few areas, such as the north corner of the wall separating room HS 203 A from HS 203 D.

The coping has evidence of biological growth including colonization of lichens. Disintegration of the concrete capping, patching, fractures, and cracks were identified in numerous locations.

The areas in worse condition are:

- *HS 203 S*
West wall indicates loss of concrete capping with the waterproof layers, as well as cracks (at least four cracks identified). The sacristy door upper cornice has evidence of disintegration of the waterproofing layer (this area shall be inspected by the Archdiocese).
- *Wall Separating HS 203 A and HS 203 D*
The wall termination of the northern part features a large flagstone. Under the stone a large vertical crack separates the wall surface. Another crack is also evident on the adjacent wall.

The areas to be considered at higher level of risk are the ones with fractures and cracks, which facilitate the water ingress throughout the wall section.

The areas with evidence of fractures, which involve the underneath wall, are:

- *HS 203 S—West wall*
With associated cracks on the exterior side of the wall.
- *H 203 S—South wall—West side of the window sill.*
The vertical interior wall has evidence of a filled fracture, which is not aligned, but is part the same mechanism.
- *Wall Separating HS 203 A and HS 203 D*
The connection between the flagstone and the concrete coping has evidence of a crack.
- *HS 203 D—North wall*
Fracture located above the upper-level lancet-arched window (made of tufa stone voussoirs).
- *Wall Separating HS 203 D and HS 203 C at the Corner with the North wall*
This wall is 1½ ft. higher than the north wall. A diagonal crack runs

from one stone layer below the coping until the top of the north wall. The crack continues below. The coping of this wall is made of some flagstones, covered by a thin layer of bitumen and concrete. This layer is highly disintegrated and irregularly shaped, with some edges detached and one crack (not extended to the wall section below) located almost in the middle.

- *HS 203 B—North wall*

Fractures located above two the upper-level lancet-arched windows (made of tufa stone voussoirs).

- *Wall Separating HS 203 K and HS 203 R*

Fracture located above the little door opening (which was probably originally a niche in the kitchen, changed into a opening in a later phase).

- *HS 203 R—East wall*

Southern corner, where the fracture running through the wall section is located

- *HS 203 R—South wall*

Coping and wall fracture, located in the area where the interior niche is located.

- *HS 203 R—West wall*

Two fractures are located above the window opening

Areas with higher level of disintegration of wall coping:

- *H 203 E—Transverse arches*

All arches are in similar condition, featuring a high level of disintegration of the thin coping. The coping has evidence of fragments of bitumen, applied on the top of the cementitious layer (transverse arches from TA 01 to TA 07).

- **NOTE:** *H 203 E—South wall— Top of the ground floor.*

This area of approximately 5 inches, located where there is a reduction of the wall section thickness, has no evidence of waterproofing, with presence of moss and thick layer of biological growth.

Areas featuring irregularity in shape and sloping:

- *Wall Separating HS 203 B from HS 203 E*

Featuring two slopes, one slope created by the extrados of the lancet-arched windows and the other slope due to the adjacent wall profile. The concavity existing between these two slopes has evidence of moss, revealing a higher level of moisture in this area.

Some areas were recently re-coped, such as:

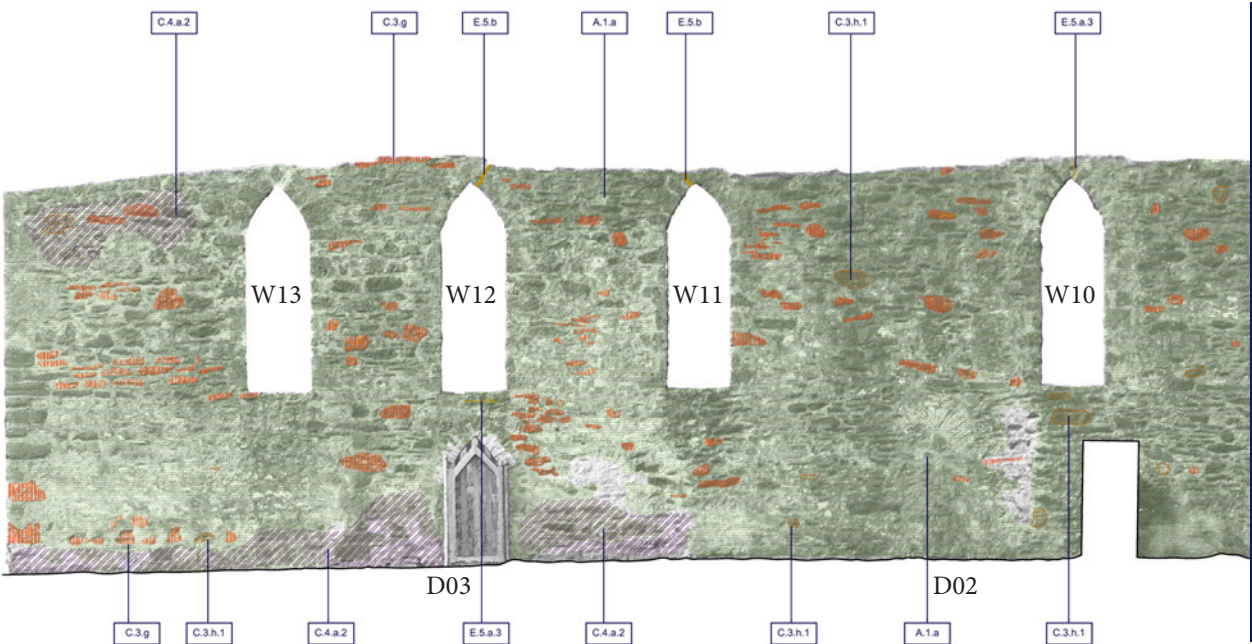
- *Wall Separating HS 203 P from HS 203 O*

This area is irregularly shaped, therefore it may produce improper water runoff.

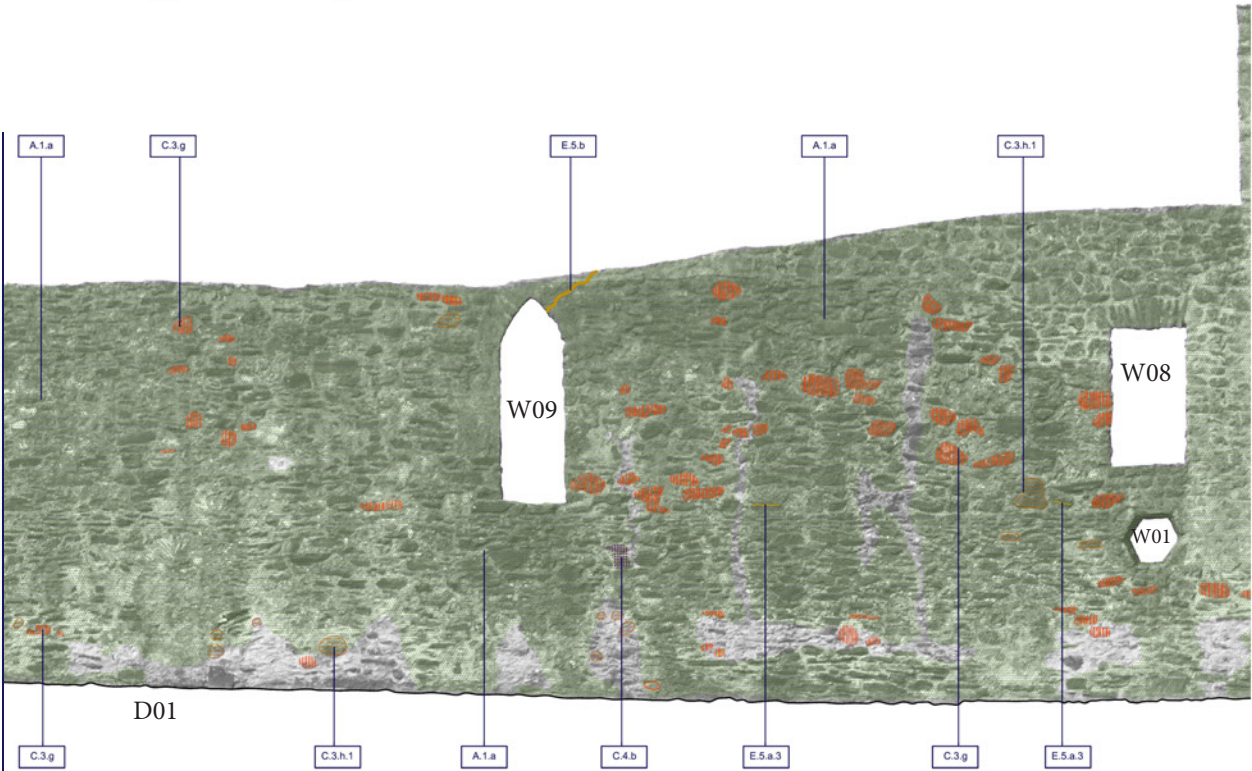
- *Wall Separating HS 203 O from HS 203 K*

Surrounding the chimney (not all the wall surface was involved in the re-coping).

Exterior walls



Exterior walls_North wall left part



Exterior walls_North wall right part



Exterior walls: North wall



Figure 6.B.189: Exterior walls—North wall. General view of the right (west) part of the wall.

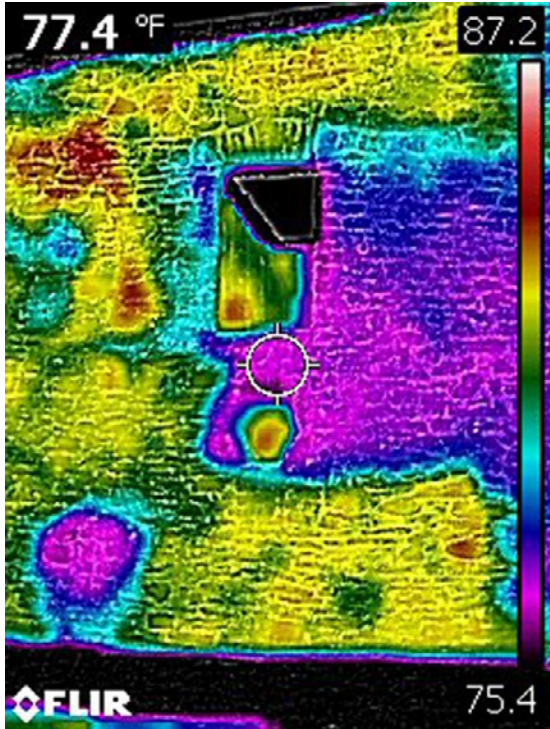


Figure 6.B.190: Exterior walls—North wall. General view of the middle part of the wall.

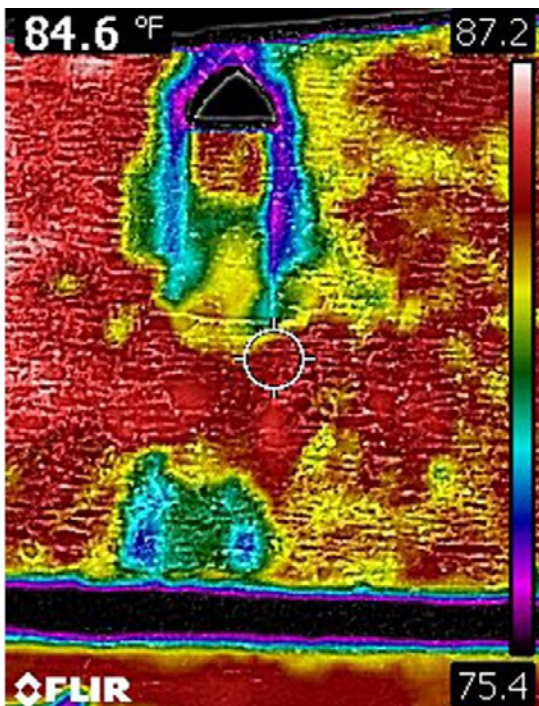


Figure 6.B.191: Exterior walls—North wall. General view of the left (east) part of the wall.

Exterior walls: North wall



Figures 6.B.192 and 6.B.193: Exterior walls—North wall. Same view of the western end of the wall. The differences in temperature are caused by the different construction materials corresponding to different construction and reconstruction campaigns. The pink circle shape in the bottom left part of the photo features an infill.



Figures 6.B. 194 and 6.B.195: Exterior walls—North wall. Area corresponding to the 203 D room. The differences in temperature are caused by the different construction materials and moisture content of the wall. It seems that in the bottom part of the wall below the window, there is an area that has been filled.

Exterior walls: North wall



Figure 6.B.196: Exterior walls—North wall. Detail of the window W09 leading to room 203 D. It shows that the crack visible from the inside is not passing through the whole thickness of the wall.



Figure 6.B.197: Exterior walls—North wall. Detail of the window W09 leading to room 203 D. Features additions of different types of bricks, probably used for repairs.

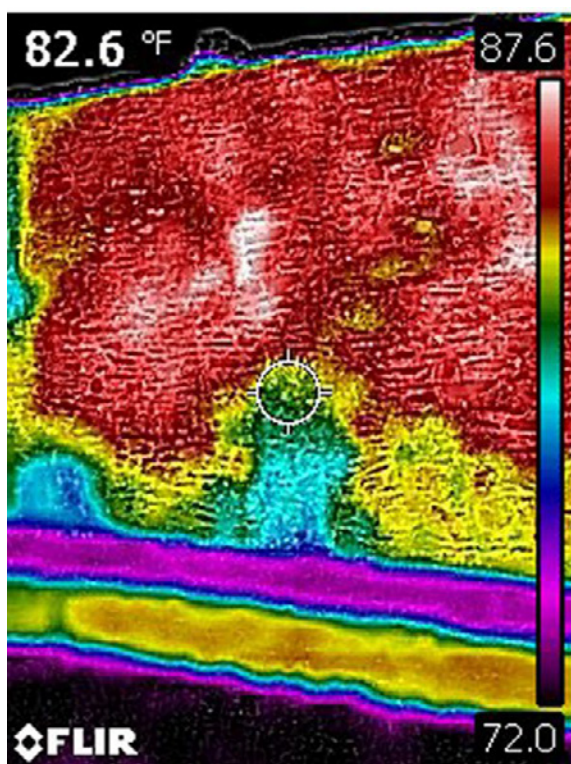
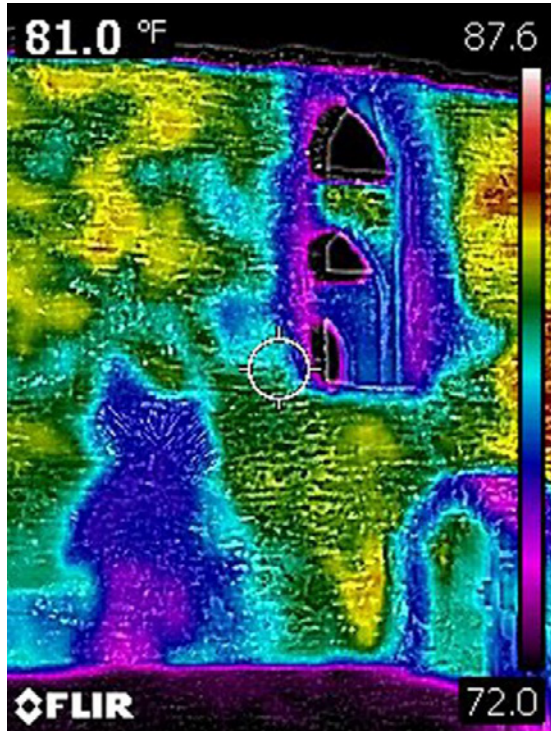


Figure 6.B.198 and 6.B.199: Exterior walls—North wall. Area corresponding to the 203 D room. The differences in temperature are caused by the different construction materials and moisture content of the wall. The right light blue area correspond with a filled door D01 and the left light blue area could be due to the presence of a niche N01 in the other side of the wall.

Exterior walls: North wall



Figures 6.B.200 and 6.B.201 : Exterior walls – North wall. Area corresponding to the 203 C room. The differences in temperature are caused by the different construction materials and moisture content. The left dark blue area correspond with a filled door D02.

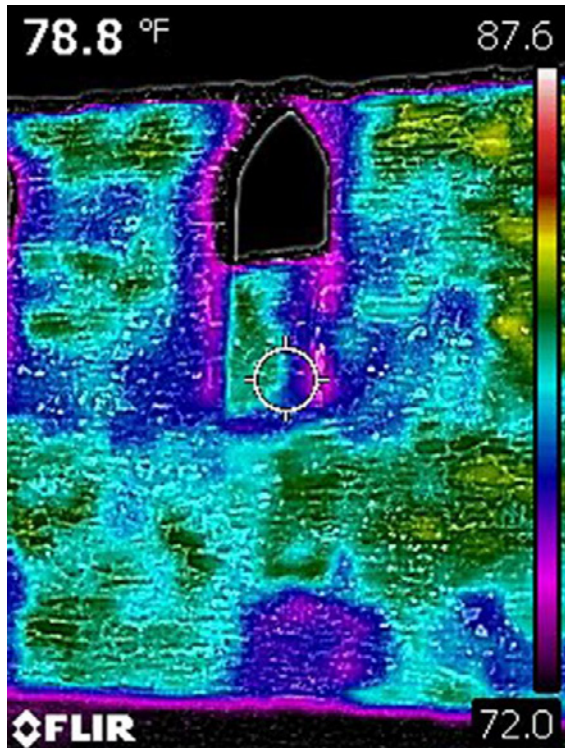


Figure 6.B.202 and 6.B.203: Exterior walls – North wall. Area corresponding to the 203 C room. The differences in temperature are caused by the different construction materials and moisture content. The left dark blue area could be caused by the presence of a niche N02 in the other side of the wall.

Exterior walls: North wall



Figure 6.B.204: Exterior walls—North wall. Eastern end of the wall. Features erosion in the bottom part of the wall and multiple fragmented stones caused by the use of a repointing mortar stronger than the stone.



Figure 6.B.205: Exterior walls—North wall. Part corresponding to room 203 B. Features erosion in the bottom area, fragmentation of stones and fractures in the windows W12 and W11.

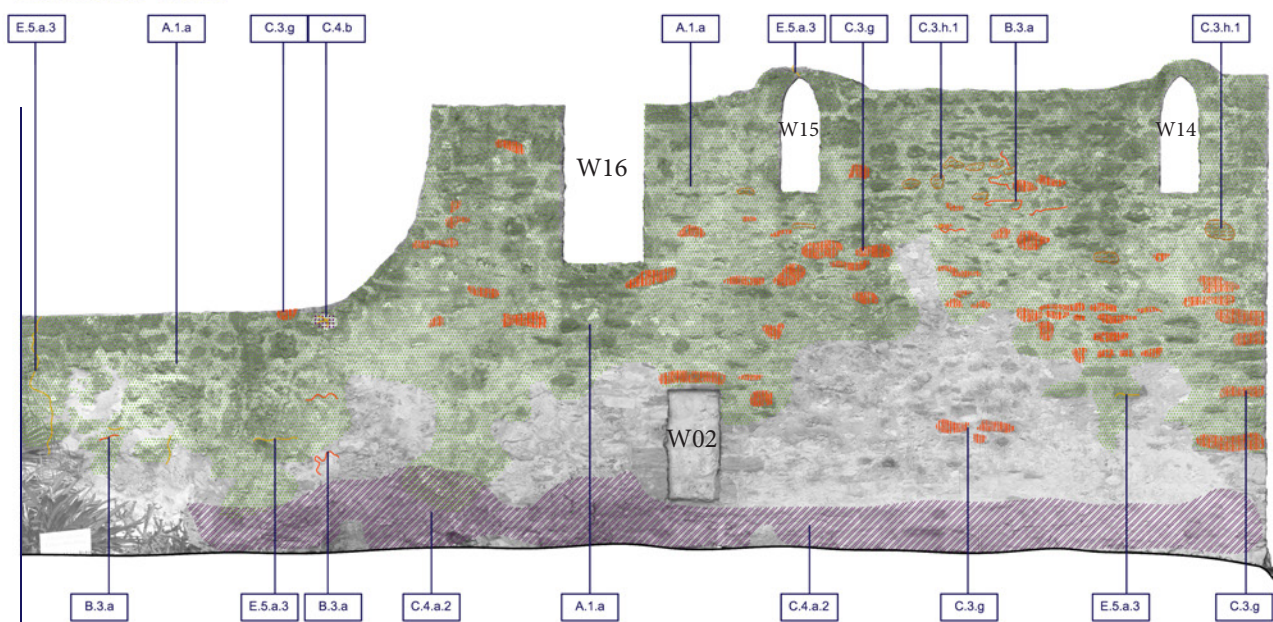


Figure 6.B.206: Exterior walls—North wall. Part corresponding to room 203 B. Right window (W11). Features the crack near the keystone that passes through all the thickness of the wall.

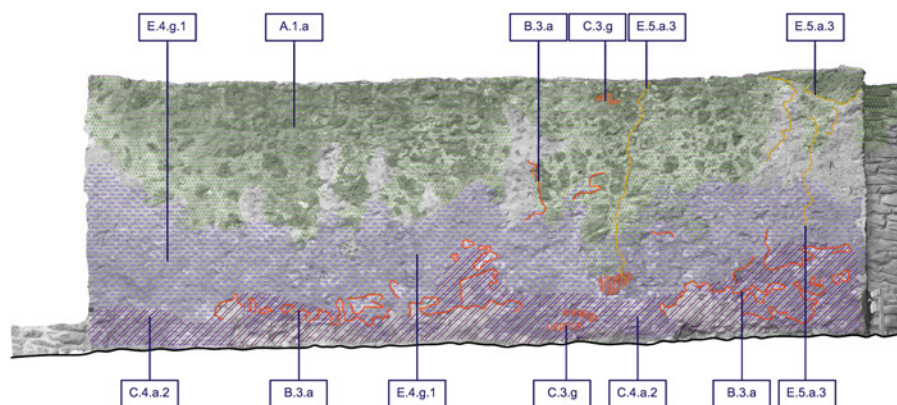


Figure 6.B.207: Exterior walls—North wall. Part corresponding to room 203 B. Left window (W12). Features the crack near the keystone that passes through all the thickness of the wall.

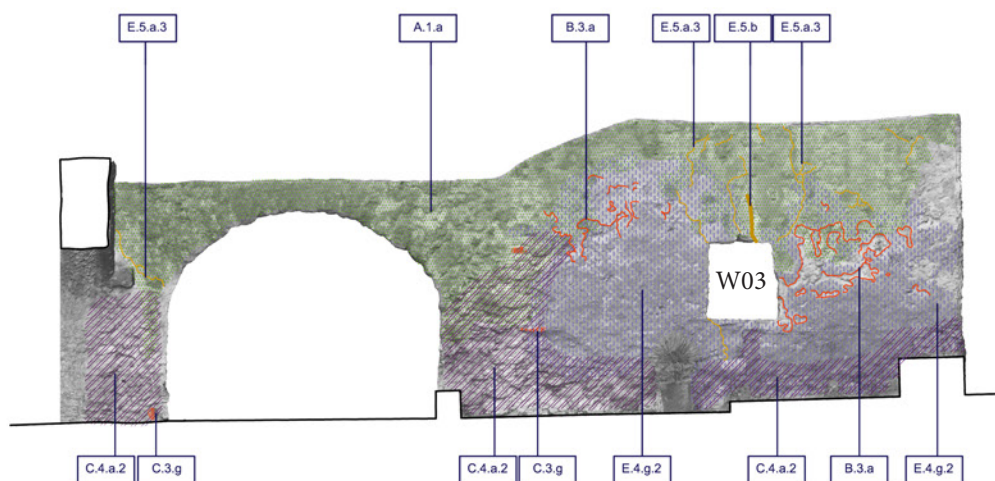
Exterior walls



Exterior walls_East wall



Exterior walls_East part_South wall



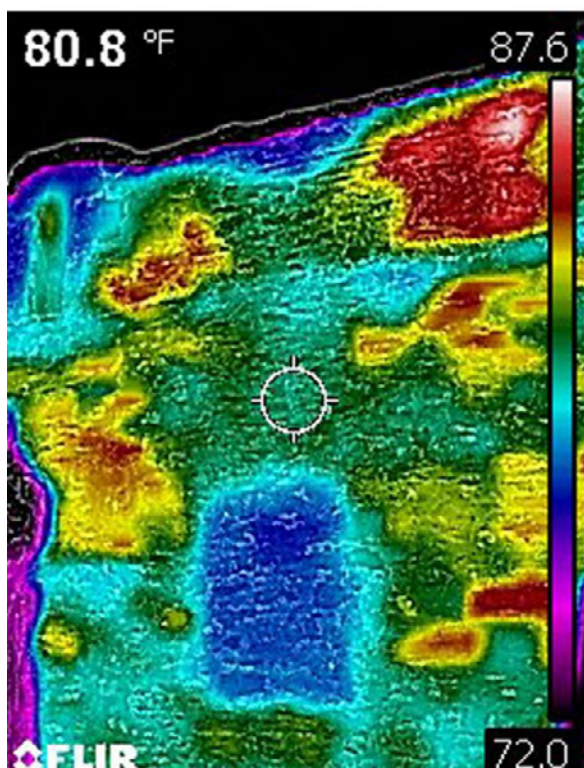
Exterior walls_East part_Courtyard east wall



Exterior walls: East part

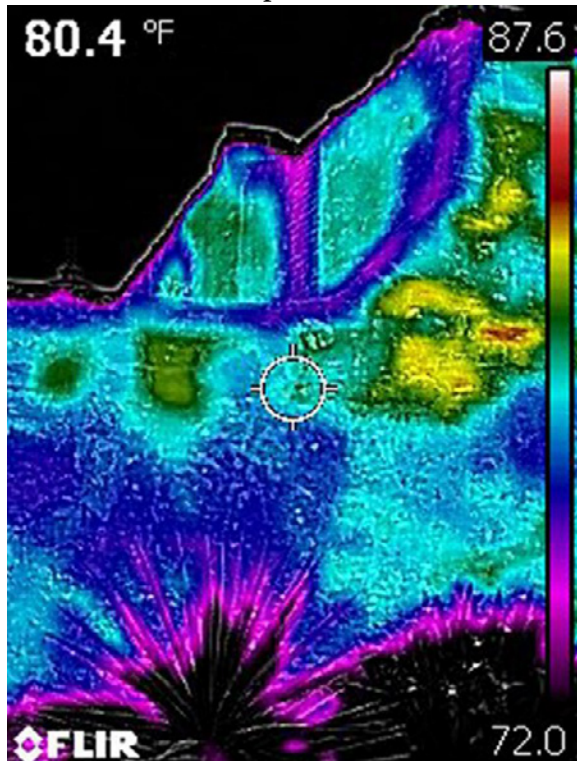


Figure 6.B.208: Exterior walls—East wall. Norther end of the wall. General view. Features vegetation growth in its upper part, erosion in the bottom and delamination in the stones.



Figures 6.B.209 and 6.B.210: Exterior walls—East wall. Area corresponding to the 203 P room. The differences in temperature are caused by the different construction materials and moisture content. The dark blue area in the middle of the picture is due to the presence of the oven in the other side of the wall.

Exterior walls: East part



Figures 6.B.211 and 6.B.212: Exterior walls—East wall. Area corresponding to the 203 K room. The differences in temperature are caused by the different construction materials and moisture content.



Figure 6.B.213: Exterior walls—East wall. South corner. Detail of the deep fracture, also visible from the inside.



Figure 6.B.214: Exterior walls—East wall. South corner. Detail of the capping, featuring the fracture also visible on the vertical walls.

Exterior walls: East part

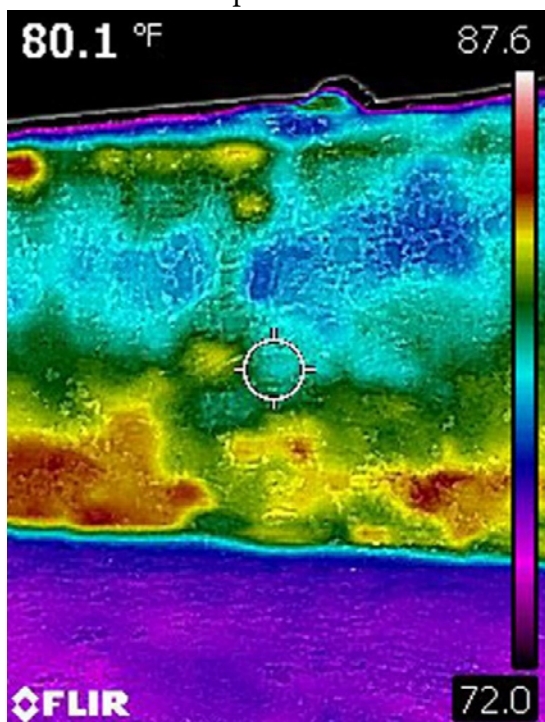


Figure 6.B.215 and 6.B.216: Exterior walls—South wall. Area corresponding to the 203 R room. The differences in temperature are caused by the different construction materials and moisture content.



Figure 6.B.217: Exterior walls—South wall. Detail of the mid bottom part of the wall. Features delamination in the stones and erosion of the masonry wall.



Figure 6.B.218: Exterior walls—South wall. East corner. Features several cracks, vegetation growth in the upper part, erosion in the bottom and multiple visually contrasting patching, which exhibit detachment of edges.



Figure 6.B.219: Exterior walls—South wall. Detail of the west bottom end of the wall. Exhibits erosion of the masonry wall and detachment of the visually intrusive patching.

Exterior walls: East part



Figure 6..B.224: Exterior walls—West wall. Area corresponding to room 203 R. General view. Features vegetation growth in the upper part, multiple cracks near the window and detachment of edges of the visually contrasting patching.



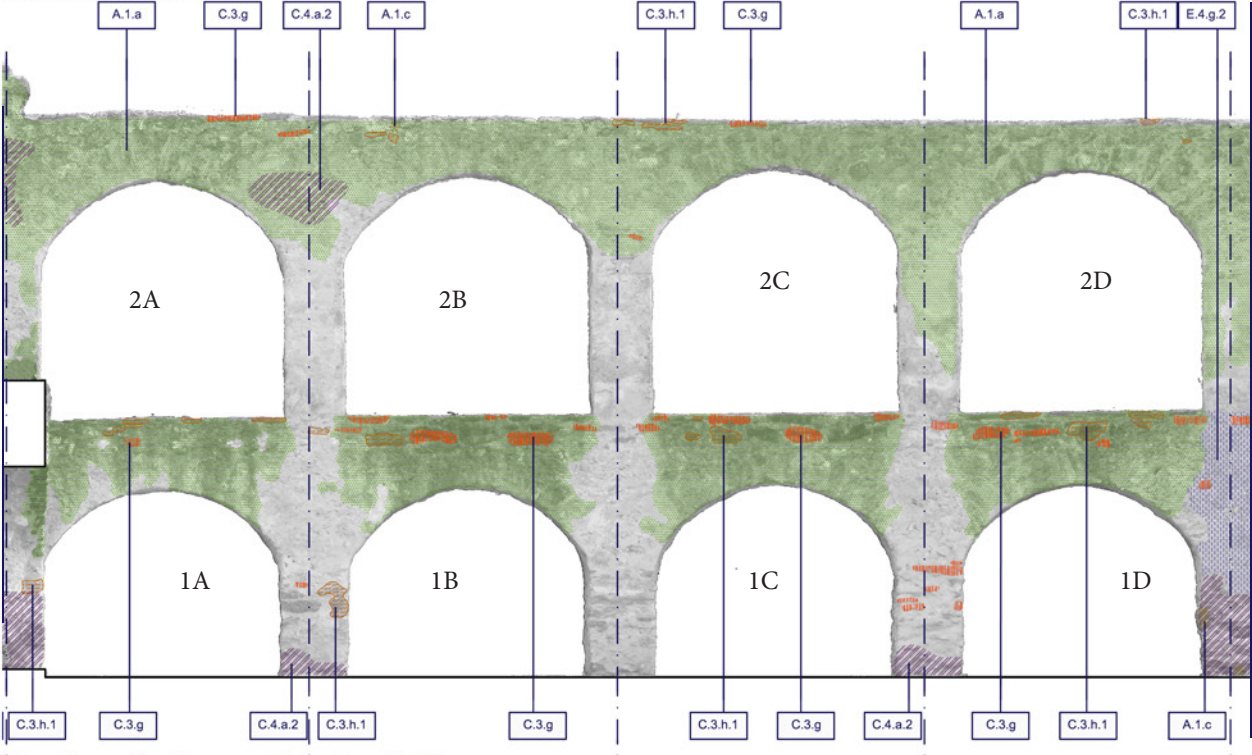
Figures 6.B.225 and 6.B.226: Exterior walls—West wall. Area corresponding to room 203 H. Exhibits vegetation growth in the arch and a high level of erosion.



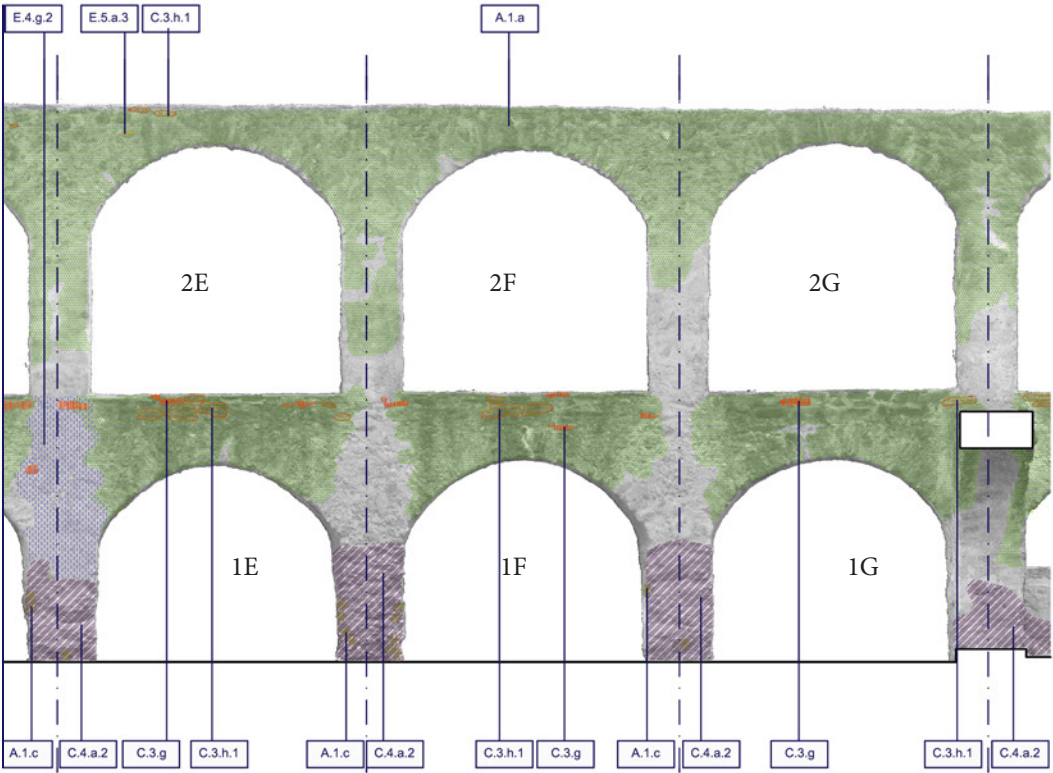
Figure 6.B.227: Exterior walls —West wall. Detail of the area above the window W03, featuring multiple cracks and detachment of the visually contrasting patching.

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Exterior walls



Exterior walls_Courtyard south wall right part



Exterior walls_Courtyard south wall left part



Exterior walls: Cloister South wall



Figure 6.B.228: Exterior walls—Cloister south wall. General view. Features vegetation growth concentrated in the higher part of the wall and under the upper level arches. It also exhibits a high level of erosion in the bottom part of the pillars.

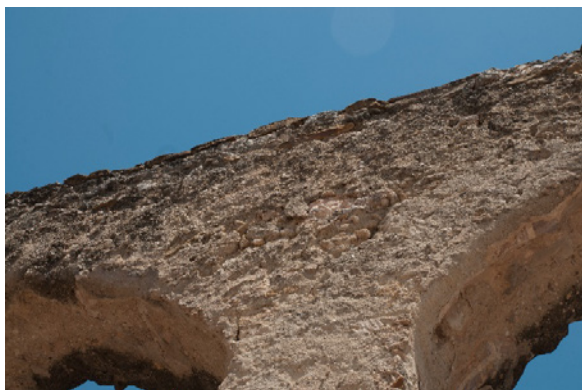


Figure 6.B.229: Exterior walls—Cloister south wall. Detail of the upper level, featuring erosion and detachment of the historic painted plaster in the intrados of the arch.



Figure 6.B.230: Exterior walls—Cloister south wall. Detail of the higher part of the lower level showing fragmentation in the stones.

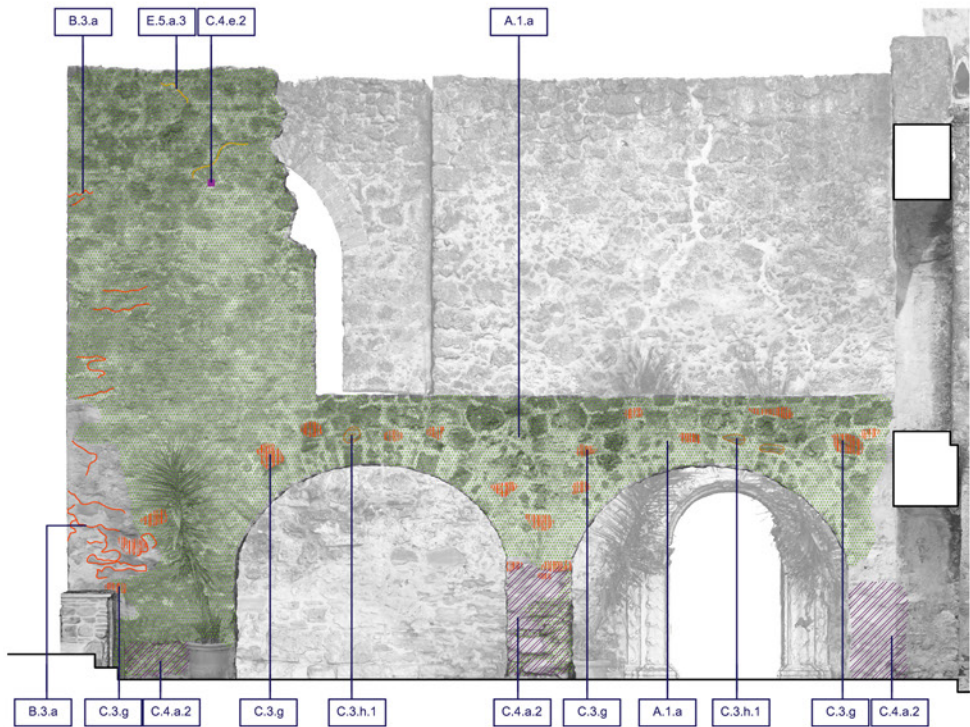


Figure 6.B.231: Exterior walls—Cloister south wall. Detail of the intrados of a lower level arch. Features detachment of the painted plaster remains.

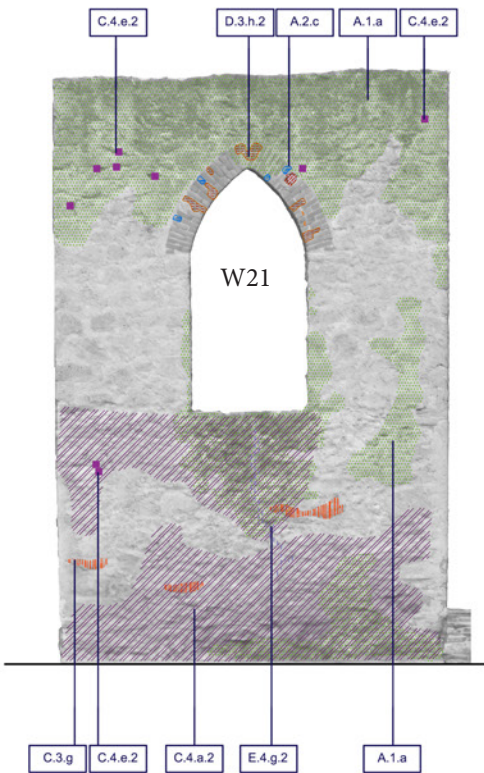


Figure 6.B.232: Exterior walls—Cloister south wall. Detail of the erosion and loss of mortar in the lower part of the pillars.

Exterior walls



Exterior walls_Courtyard west wall



Exterior walls_West part_South wall



Exterior walls_West part_West wall



Exterior walls: West part



Figure 6.B.233: Exterior walls—Cloister west wall. General view. Features vegetation growth and erosion in the lower part of the pillars.



Figure 6.B.234: Exterior walls—Cloister west wall. Detail of the right arch. Masonry changes between the bottom of the pillar and the arch due to the collapse in 1940s and its later reconstruction.



Figure 6.B.235: Exterior walls—Cloister west wall. Detail of erosion and loss of mortar in the middle pillar.

Exterior walls: West part

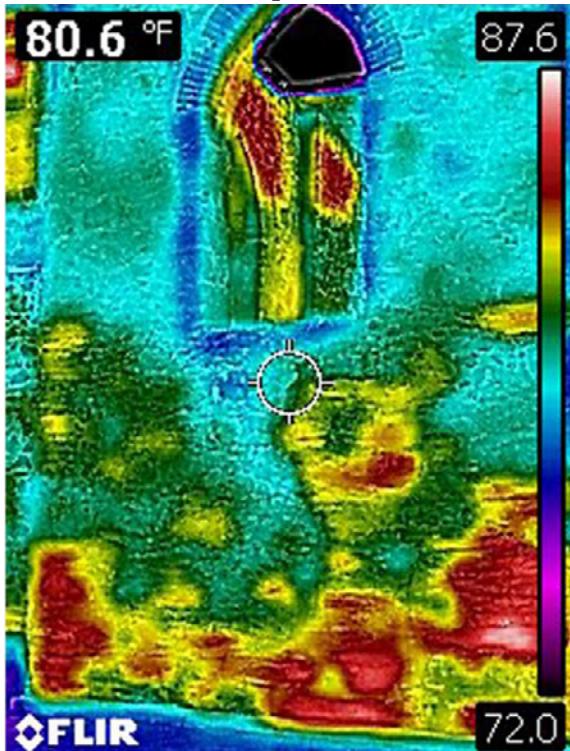


Figure 6.B.236 and 6.B.237: Exterior walls—South wall. Area corresponding to the 203 S room. The differences in temperature are caused by the different construction materials and moisture content.



Figure 6.B.238: Exterior walls—South wall. Detail of the brick lancet arch of window W21. Features several missing parts, fragmentation of the bricks and efflorescence.

Figure 6.B.239: Exterior walls—South wall. Detail of the area below the window. Feature several cracks that have been filled and erosion of the masonry wall

Exterior walls: West part



Figure 6.B.244: Exterior walls—West wall. General view. Features an accumulation of vegetation growth in the upper part and in the area below the window.



Figure 6.B.243: Exterior walls—West wall. Features a crack starting in the connection with the sacristy and going until the coping of the wall.



Figure 6.B.240: Exterior walls—West wall. The top of the wall features numerous hair cracks and disintegration of the wall capping.



Figure 6.B.241: Exterior walls—West wall. Crack from the brick arch going until the coping of the wall.



Figure 6.B.242: Exterior walls—West wall. Note the crack above the sandstone voussoirs shaping the arch line of former door D12.



Figure 6.B.245: 203 S—West wall, disintegrating capping, with loss of material on the edges. Fragmented waterproof layer. This photo shows four cracks.



Figure 6.B.246: Wall between 203 A and 203 D—Disintegrating capping with detachment of the edges.



Figure 6.B.247: 203 S—West wall, exterior façade. Disintegrating edges, with associated detachment, and three cracks extended to the vertical wall.



Figure 6.B.249: 203 S—South wall, featuring several cracks. There is evidence of a large filled area.



Figure 6.B.248: 203 S—South wall. Detail of the crack in the sill of window W21.

Figure 6.B.250: Wall between 203 A and 203 D—Under the large flagstone, which has evidence of lichens and fragments of waterproofing, there is a sub vertical crack.



Figures 6.B.251–6.B.253: Wall between 203 D and 203 C—Views of the wall connection, exhibiting a diagonal fracture.

Figure 6.B.254: 203 D—Window 12. Fracture, with associated loss of restoration joint mortar



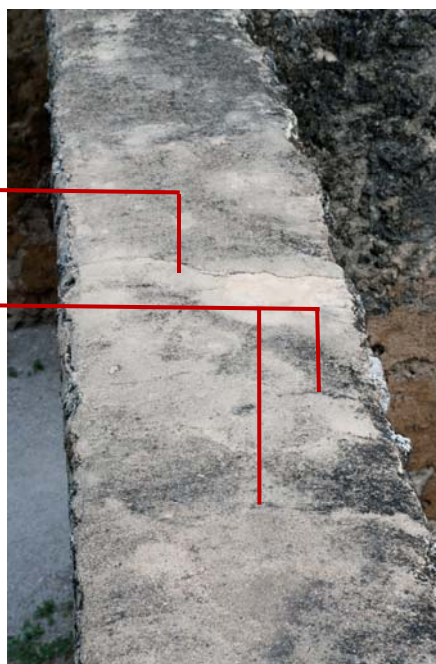
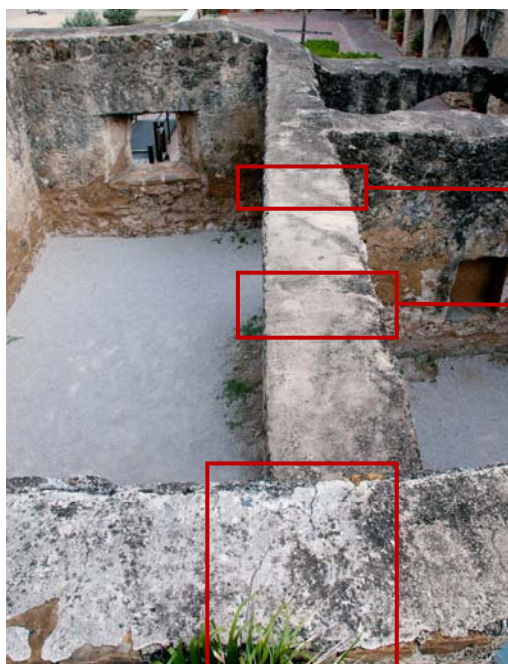
Figure 6.B.256: 203 B—North wall, Window 12. Fracture, with associated loss of restoration joint mortar.



Figure 6.B.255: 203 B—North wall, Window 11. Fracture. View of the coping.



Figure 6.B.257: 203 B—North wall, Window 11. Fracture. View of the intrados of the arch.



Figures 6.B.258a, 6.B.258b: Walls between 203 R and 203 K. Views of the cracks on the coping.



Figure 6.B.260: 203 R—East wall. View of the exterior side of the west wall. Close to the corner, the coping exhibits two cracks, continuing on the exterior wall as a sub-vertical crack.



Figure 6.B.259: 203 R—East wall. Detail of the coping with the two cracks highlighted.



Figure 6.B.261: 203 R—South wall. Coping and wall fracture, located in the area where the interior niche is located.



Figure 6.B.262: Room 203 E— Transverse arches. View from toward the east wing. The transverse arches feature an area with higher level of disintegration of the thin coping.



Chapter 7: Historic Preservation Objectives

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**A Description and
Rationale for the
Recommended
Treatment and How
It Meets the Project
Goals for Use of the
Building**

Historic preservation is a process of design to manage change with respect for a specific cultural heritage context. At the Mission San José convento, we are faced with design choices we call “treatments,” and these must logically follow a consistent philosophical approach. In the field of historic preservation the approach is based on principles established over the past 100 years and codified in documents promulgated by the U.S. Department of the Interior, National Park Service, per authority of the 1966 National Historic Preservation Act. Principles include: minimal intervention (do no harm), legibility (honesty and distinguishability), matching historic techniques and materials, reversibility, meticulous documentation, and sustainability. Additionally, principles call for rigorous academic methodology in all research, investigation, and findings. In the past two decades of practice, principles have evolved to include consideration of intangible values: the living heritage of a place due to its historical connections with the cultural systems of human activity.

The mission of the National Park Service is well achieved at the San Antonio Missions National Historical Park, where the natural and cultural resources provide ample enjoyment, education, and inspiration to visitors. The park, which comprises four colonial missions scattered along several miles of the San Antonio River, “preserves rare examples of internationally important 18th-century structures” (NPS, 2016, p. 3). The international significance was cemented into place when the four missions, together with Mission San Antonio de Valero (the Alamo), were inscribed as a UNESCO World Heritage cultural site in 2015.

San Antonio’s international recognition for cultural heritage owes a debt to the efforts of many residents, current and past, who worked since the early part of the 20th century to preserve its history. Much of that effort was focused on the San Antonio missions, and thus we have today high degrees of authenticity and integrity in the tangible remains. The story of early historic preservation endeavors at the park is significant, but it is not a major theme for interpretive programs. The many visitors to the park gain a deeper understanding of life on the northern frontier of New Spain in the 18th and 19th centuries and the interactions with indigenous groups that led to a “new society, neither wholly indigenous nor wholly Spanish,” which has “become the predominant culture of South Texas” (NPS, 2016, p. 13). The park is fortunate to have a living heritage of people who continue to use the missions for religious purposes in the historic churches as well as recreation.

**Preservation
Treatment at San
Antonio Missions
National Historical
Park**

The overarching approach to care and maintenance of the missions by the park is best characterized by “Preservation” treatment as defined by the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. <https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf> (Grimmer, 2017, p. 27)

The *Standards* go on to provide advice on when to proceed with the “preservation” treatment approach:

Preservation is the appropriate treatment when the objective of the project is to retain the building as it currently exists. This means that not only the original historic materials and features will be preserved, but also later changes and additions to the original building. The expressed goal of the Standards for Preservation and Guidelines for Preserving Historic Buildings is retention of the building’s existing form, features, and materials. This may be as simple as maintaining existing materials and features or may involve more extensive repair. Protection, maintenance, and repair are emphasized while replacement is minimized. (Grimmer, 2017, p. 29)

**Preservation
Treatment at Mission
San José Convento**

Within the boundaries of a preservation treatment approach in compliance with the Secretary of the Interior’s (SOI’s) *Standards*, there is latitude for some variation, and so it is often necessary to clarify the approach for each structure. Applying the preservation treatment to the Mission San José compound means the extensive reconstructions and restorations pursued in the 1930s under the leadership of Harvey P. Smith are to be conserved with the same degree of respect granted to earlier periods of construction. However, there are subtle allowances for modifications to the 1930s work when it is deemed harmful to surviving fabric from the Spanish Colonial era. Portland cement mortar, for example, is a distinctive characteristic of the work that is not replicated. Similarly, the 1930s work is generally treated with a little less reverence than the colonial

materials because the older materials are held in higher esteem. Thus, necessary infrastructure insertions will avoid the older fabric and sacrifice the newer work instead, when there is a choice. But overall, the 1930s work is here to stay, and the appearance of the buildings and grounds is preserved as partial ruins lacking their historic finishes.

In the case of the San José convento the preservation treatment approach gives us a ruin. The structure of the convento best remains purposely unfinished as a ruin in perpetuity—no roof, no doors, no plaster save for what currently exists. The appearance shall be always ca. 1950, which in this instance is 1860s Benedictine inserted within an earlier Spanish Colonial framework as rebuilt in federal undertakings of the 1930s, last altered in the 1940s. The structure thus displays all surviving evidence of pre-1950 work unaltered in form, though certainly deteriorated in individual materials.

In theory, a treatment could be considered to restore the convento to a 19th or even 18th-century appearance, but this would destroy significant fabric from later periods that have acquired significance and would offer little in return for the loss of that fabric plus great expense of the restoration. Also in theory, a large roof could be considered to stabilize and extend the life of surviving materials, as is frequently done at major archaeological ruins all over the world, but it would interfere horribly and inappropriately with the visual continuity of the whole mission compound. The convento is not the only story of significance at Mission San José, where the greatest significance as well as educational value is weighted to the Spanish Colonial periods. The convento adds value to the whole in many ways, but must remain quietly in its context, not placed on a metaphorical pedestal.

The convento structure at Mission San José is unique among structures in the park because it has dramatically obvious post-colonial features that Harvey P. Smith chose to respect and retain—the multiple lancet-arched openings and other modifications from the Benedictine period, 1859–1868, when there was a plan to establish a monastery. These features are part of the history of the structure, and while not of the colonial time, do represent a period of significance. Interestingly, when there was a small collapse of two lancet-arched openings at the portería in the mid-1940s, they were not restored when repairs were executed. The philosophical approach at that time called for rebuilding the failed Spanish Colonial arch only, and leveling the construction at one story in that area, creating what would now be called a false sense of historical development. Today, that choice made in the 1940s, and all that came before, are sustained per the preservation treatment approach.

The false sense of historical development that was not an issue for people in 1949 would now be considered a violation of the SOI's *Standards*. Any treatment to partially restore an earlier period would be outside the definition of a "preservation" treatment and run the risk of violating Rehabilitation Standard No. 3, "Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken" (Grimmer, 2017, p. 76). However, in small and few instances it is allowable per the SOI's *Standards* to reveal or accentuate older materials for the edification of visitors. At Mission San José convento specifically this could mean some special attention to the Spanish Colonial materials surviving at the kitchen and refectory rooms. If pursued within the context of a preservation treatment, the restorative treatments must be limited to tightly circumscribed locations under pre-approved conditions.

**Integrity
of Surviving
Spanish Colonial
Material**

In conducting research and investigations for this HSR, the CCS team discovered that there is less colonial fabric than had been originally thought by most people. Our findings are in line with the decades of study performed by James Ivey evident in his publication, *Of Various Magnificence* (2018). All the many details of the construction chronology will never be fully known because we lack sufficient written, drawn, and photographic evidence. Therefore, some findings on who built what, and when it was done, are inconclusive. This is typical of most historic structures.

Certain to be surviving from the Spanish Colonial period we have

- Arches with painted plaster still attached
- The entire two-story arcade facing southwest, which is a large and certainly character-defining feature;
- Walls with painted plaster on the upper level, which means a good portion of the north wall
- The refectory and kitchen rooms

All else, which is quite a lot of the convento, appears to be from the Benedictine period. Changes made in the 20th century, including the work led by Harvey P. Smith, are "light" with one exception—the 1940s partial reconstruction at the portería described above. The overall finding of high Benedictine content is remarkable because it means the convento is very much a structure from the 1860s which retained a certain amount of distinctive colonial features built before the 1780s. If one considers the Benedictine effort in the context of the mid-19th-century, they may be applauded for the respect shown to earlier periods of work. Notably, they retained all the massing and basic layout of the

earlier convento. They deferentially bettered the structure with lancet-arched windows appropriate to their intended rehabilitation of the convento into a monastery.

This HSR recommends continuity of the legacy of respect with which the San José convento has been treated. The Benedictines retained the original footprint of the convento and its main arcaded cloister element, and then Harvey P. Smith's light touch at the convento respected both the colonial and Benedictine periods. Therefore, the CCS recommends respecting all previous periods while working on improving technical aspects of the structure, with the most attention focused on Spanish Colonial and Benedictine periods of significance. This approach also protects against a false sense of historical development that might come from selectively reestablishing earlier periods of work that did not coexist with the current arrangement.

Specific treatment recommendations for the Mission San José convento fit within the historic preservation objectives described above. All objectives and treatments are compliance with the SOI's *Standards for Preservation*. Rationales for individual recommendations are provided below for each type of work recommended by this HSR.

Foundations

- Generally sound and so not in need of treatment.
- More aggressive treatment of stones may eventually be needed over time. Stones should be left in service for as long as possible, without chemical consolidation, then replaced in-kind per Preservation Standard No. 6. A few candidates are visible near the passageway through the north façade.
- Treatment by poultice or chemical consolidation is not warranted by any condition. The risk of incomplete treatment moving deleterious minerals haphazardly within the stones is great and heightened by the possibility livestock were quartered in or adjacent to foundation stones during some historic periods.

**Rationale
for Individual
Recommendations**

Accessibility for Disabled Persons

- Work is needed to level grades in the arcades and from room to room in order to accommodate visitors with disabilities. Accessibility into the south-east rooms is recommended because they offer value for interpretation of colonial fabric surviving adjacent to Benedictine modifications. The accessible route needs to flow all the way through the arcade to the sacristy.
- Stones between each arched opening appear to be remnants of the time

when the grade was higher that were left in place when grade was lowered back to the colonial-era level under Smith's direction. Their provenance is thus not precisely known, and it would be unwise to disturb them.

Structural Improvements

- A preliminary finding by structural engineer James Mason indicates one section of wall that is a trouble spot in need of improvement. Structural pinning or “knitting” will be needed at this location.
- General cracks, now stable, need only to be grouted.

Drainage

- Except for minor puddles that collect in areas where visitors stop to look around, drainage of surface rainwater does not appear to be problematic for the walls. Because the structure is a ruin, the walls are open to the air on both sides and able to evaporate moisture uniformly. The convento walls, except where attached to the church, are not subject to artificial changes in temperature and humidity found in air-conditioned structures. The party wall with the church does have a structural crack judged by the NPS engineer to be stable.
- Analysis by the structural engineer may reveal the need for drainage improvement, but any treatment could impact archaeological remains and would require advance consultation with THC Archaeology Division. An update of the Cultural Landscape Report, including recommendations for archaeological investigation, would likely be necessary prior to approval of a drainage improvement design proposal.

Wall Surfaces

- **Plaster, Spanish Colonial:** Delamination of plaster should be assessed and corrected by a plaster specialist. CCS recommends the SAAN Park execute a contract with one plaster conservator who can assess, issue a detailed plan for treatment, wait for approval by all relevant parties, and then execute the approved conservation work. Infill painting could be pursued as a “preservation” treatment if it restores only what has been lost over the past century. Adherence of historic plaster is essential, but restoration beyond the ca. 1940s appearance would not be appropriate.
- **Stones:** Many variables must be considered when embarking on a treatment campaign, including the type of stone and the composition of the mortar. Several types of deterioration require different approaches to treatment.

Products used for conservation should have the fewest side effects. In this case, the recommendations of this HSR do not include any efforts to block moisture from moving up or out through the stones as it has done since the times when the walls were built. The exception is atop wall copings and fenestration sills where we can unobtrusively and without fear of harm to historic materials prevent bulk moisture (rainfall) from entering down through the walls. This approach means no chemical consolidation of stones is recommended. Per the preservation objectives, gentlest means possible to arrest the problem and care for the stones are recommended. In the future, some stones may become so badly deteriorated that they will need to be replaced in-kind. Replacement of stones is aggressive and should only be pursued when conditions of the existing stone compromise or threaten integrity of surrounding stones. When pursued, NPS SAAN staff must document the work so that quality remains consistent over future decades of work.

- **Bricks:** Findings by NPS Vanishing Treasures structural engineer James Mason are positive in terms of structural performance, though some bricks are very deteriorated and mostly clay powder currently. The structural loads apparently have found resolution via new paths around these weak spots. Though not required for structural reasons, and thus a lower priority, the deteriorated bricks are candidates for in-kind replacement for aesthetic reasons. The arches appear poorly maintained, a ruinous appearance greater than appropriate for the “preservation” treatment approach. Replacement will be a somewhat invasive process and may lead to additional, unforeseen problems. The work should be pursued with caution, first on an area least visible to the public eye, and then monitored after completion to observe for any negative consequences. This approach will allow a protocol to be established for subsequent replacements. All new brick must match the adjacent historic. Waiting patiently to get the appropriate matching bricks is paramount. In the meantime, and because there is no structural concern, showing decayed bricks is acceptable.
- **Mortar:** Generally, mortar should have the same texture and color as extant, historic mortar. In this case, the convento had multiple periods of historic mortar, and some of the 20th century historic periods used a mix with high content of Portland cement that has proven to be harmful to surrounding stones. The properties of adhesion, porosity, and strength must be appropriate for the historic stones and structural service. Given these circumstances, the proposed mix for future mortar pointing treatments

needs thoughtful evaluation based on past performance of mortar pointing by SAAN staff. Aggregate of the current mix appears to be too bright and once weathered produces a reddish tone that may not be appropriate for the convento.

- **General Cleaning (except not at plasters):** Non-abrasive cleaning is recommended to remove biological growth, which elevates moisture and is generally damaging to the stones. The goal of cleaning is to prevent damage to the stones caused by biological growth. The proposed, gentle cleaning treatment will not produce a surface totally free of discoloration or biological growth. Cleaning is necessary for proper mortar adhesion, allowing for durable repointing or good application of new mortar around replacement stones or bricks. Also, cleaning will allow for a more uniform appearance of the walls, appropriate for aesthetic unity, and may lead to better understanding of walls in terms of condition. Finally, cleaning can help determine whether or not biological growth is algae or lichens; algae is easier to remove. In all cases of cleaning, contractors should create and retain an approved “mock-up area” on the wall as a quality control to maintain consistency of approved treatments while the work is executed. Cleaning is further discussed in Chapter 9, including more information on the concerns related to lichen and algae growth. Note: any concerns that cleaning may accelerate damage are assuaged by review of areas cleaned by NPS staff for past mortar repointing.

Coping

- There are different approaches to capping the walls at the coping, but it appears the best approach will be to simply reestablish integrity of the existing cement wash. A mastic coating over the top of the cement wash, comparable to that which is performing well at Mission Concepción church, may improve durability and lengthen the maintenance cycle.
- Zinc affixed or inserted at the coping might be an option to continually inhibit future biological growth—though practical execution of this option, especially considering the maintenance over time, makes it unfeasible and thus not recommended.
- Some stones may need to be added in some areas to make a smooth surface for cement wash at coping, and at areas of structural repair.
- New cement wash should be installed with a slope that mitigates water running down wall surfaces that contain surviving plaster on the stones.
- Additional details on the specific treatments are provided in a Chapter 9, as

well as multiple drawing sheets appended.

Recommendations for Future Study or Analysis

According to NPS Preservation Brief 43, *The Preparation and Use of Historic Structure Reports*:

An important goal of the historic structure report process is to maintain the report as an active and working document, both to facilitate the use of information compiled in the report and to permit the report to readily accommodate new information as it becomes available. (p. 14)

Completion Reports

A very important future work item mentioned in NPS Brief 43 is the post-project record of all work performed. Following completion of this HSR, the SAAN staff will pursue conservation treatments accordingly, or contract the work to be done by others. The work needs to be documented in completion reports, as is standard practice at a national park, and should have corresponding supplemental text added to the HSR. The HSR supplement will be analysis of the work performed in the context of the established objectives including information on efficacy of treatments and lessons learned in the process.

Inspection/Monitoring

Future work must continue to include periodic and cyclical inspection of major conditions related to structural movement and high moisture content in walls. Ideally, a diagnostic monitoring program can be installed and managed for areas of high concern identified in the structural engineer's report.

The analysis of the wall decay may be further investigated with various techniques, which go “below the surface.” Such ultrasonic measurements as thermography and magnetic resonance imaging (MRI) are designed to probe below the surface.

Chapter 8: Requirements for Work

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Overview Requirements for the work need to be understood in the context of property ownership and the agreements among owners regarding the Mission San José convento. The land is within the City of San Antonio and owned by the Catholic Archdiocese of San Antonio, yet Mission San José is managed by the National Park Service under a 1983 cooperative agreement with the Archdiocese. The Archdiocese controls and manages the church and sacristy, while the NPS takes care of all the rest. NPS has a separate cooperative agreement with the State of Texas, also dated 1983, to maintain and interpret Mission San José compound, which includes the convento. This means that both the Texas Historical Commission and Catholic Archdiocese will review the recommended work. Neither of these two entities has any authority to comment on building regulations or codes, however, as such matters are not within their purview or expertise.

Policy set by the federal General Services Administration calls for building projects to adhere to the technical requirements of publications from the International Code Council, which includes the International Building Code. Because the land is owned by a private entity, the Catholic Archdiocese of San Antonio, the applicable building codes might be those defined by the City of San Antonio, which uses the same International Building Code. In this case, the convento is managed by the federal government, and so the city lacks outright jurisdiction. However, the federal government endeavors to follow state and local building codes to the maximum extent practicable. The same building code applies to the work either way.

Because the convento is an open space, not an enclosed building, from the perspective of building and life safety codes it is like an arboretum or public garden. In this context there are concerns for life safety—the walls must be kept structurally sound, or the public must be kept away from any dangerous areas. The recommended work will address all known structural issues to improve the structure as necessary for appropriate level of soundness. A licensed structural engineer will be required to design and specify the modifications. Any and all modifications must meet additional criteria relevant to the historic designation of the structure, as further explained below.

Beyond structural soundness, the only other area of concern for this section of the HSR to consider is barrier-free accessibility for visitors. In addition to the International Building Code, there is relevance to the Architectural Barriers Texas Accessibility Standards (TAS, promulgated by the Texas Department of Licensing and Regulation), plus the U.S. Department of Justice regarding the Americans with Disabilities Act. A barrier-free route for visitors to the convento is necessary, and it must comply with technical requirements. Once again,

the historic significance of the structure must be considered and appropriately respected when any changes are made.

The National Historic Preservation Act of 1966 establishes the National Register of Historic Places and the criteria for historic significance. The San Antonio Missions National Historical Park was listed in 1978. Additionally, Mission San José was established as a City of San Antonio local landmark in 1973. The National Historic Preservation Act of 1966 also gave authority for the Department of the Interior to subsequently issue the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (rev. 1995), which provide standards and guidelines for any type of intervention on a historic property. Once designated and listed on the National Register, or even declared eligible for designation, the historic significance of a property must be appropriately considered in all undertakings, plus interventions must be done in compliance with the *Standards for Treatment*. City of San Antonio ordinances reference the same *Standards for the Treatment of Historic Properties* to be utilized by the Historic and Design Review Commission in deliberations for a certificate of appropriateness regarding alterations to historic properties.

All treatment recommendations in this HSR document are written to be in compliance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (rev. 1995), specifically the standards defined for "Preservation." Refer to the HSR section on treatment philosophy for additional information on the Preservation Standard.

Regarding barrier-free accessibility, the NPS issued a Preservation Brief in 1993 which is still valid. The heart of the matter for accessibility at Mission San José Convento is that the necessary alterations must not threaten or destroy the historic significance for which the property was nominated to the National Register of Historic Places. TAS references the same terms, "threaten or destroy," as the standard for consideration of accessibility improvements of historic resources in Texas.

Recognizing the national interest in preserving historic properties, Congress established alternative requirements for properties that cannot be made accessible without "threatening or destroying" their significance. Although not commonly undertaken in Texas, a consultation process is outlined in the ADA's Accessibility Guidelines for owners of historic properties who believe that making specific accessibility modifications would "threaten or destroy" the significance of their property. The consultation may involve disability organizations. The State Historic Preservation Officer (SHPO) determines if the special accessibility provisions for historic properties may be used.

Further, if it is determined in consultation with the SHPO that compliance with the minimum requirements would also “threaten or destroy” the significance of the property, alternative methods of access, such as home delivery and audio-visual programs, may be used. (Jester & Park, 1993, p. 13)

Design details of the accessible route will need to conform with International Code Council ANSI 117.1 and the Texas Accessibility Standards. The specific, technical aspects of the accessible route will need to be resolved by a licensed professional, but a good route appears to be readily achievable. However, as with all interventions to the site or structure, new work must not threaten or destroy the historic significance. If it does, then the historic significance may be argued to be the primary interest, allowing alternate solutions to be pursued. For accessibility at Mission San José convento, this means giving priority and due consideration to surviving materials and assemblies from the 18th and 19th centuries, including Spanish Colonial work as well as the subsequent modifications executed by the Catholic Church under Benedictine management in the 1860s. The features surviving from these periods of historic significance must not be threatened or destroyed by the modifications to attain an accessible route through the convento.

The relevant aspects of the International Building Code are described and analyzed in Table 8.1, for the record, but have no impact upon treatment recommendations, except where life safety may be an issue due to structural deficiencies, due to the nature of the convento and its context.

**Security of Rooms
203 A, 203 C,
and 203 D**

The rooms along the northern wall of the convento are currently closed to the public. Wood-grille inserts are in place at all the lower windows and wood-grille doors at two openings are padlocked. All of these are recent additions and they do not match the aesthetic qualities of the preserved ruin. The wood doors and window inserts may be removed to enhance visitor experience, but only if security issues do not counsel against the additional access. If the window and door security must remain in place, then a new design is warranted. The new design must strike a balance between old and new, obviously functional, not historic, and not historicizing. Stainless steel and safety glass could be appropriate material choices. The design would require advance consultation and approval from the THC, perhaps after an update of the Cultural Landscape Report, if deemed necessary.

Table 8.1: Sections, Names, and Analyses of Pertinent Codes From the ICC International Building Codes (2012).

Section	Name	Analysis and Justification
§105.2.2	Applicability of review	Regarding permits pertaining to maintenance, the ICC specifies: “Application or notice to the building official is not required for ordinary repairs to structures,” but only if, “such repairs shall not include the cutting away of any wall, partition, or portion thereof, the removal or cutting of any structural beam or load-bearing support . . .” (ICC, 2012, p. 4).
§312.0	Use and occupancy group	The convento is an open-air structure in a public park-like setting best matching “utility and miscellaneous,” Group U, which includes retaining walls and livestock shelters (p. 50–51).
§602.3	Type of construction	The convento matches construction classification Type II-B, wherein building elements are non-combustible (p. 107).
§1003.1- §1029.5.2	Means of egress	The convento is on grade and lacks interior spaces; as there are no doors along the southern edge of the structure, multiple egress routes available (p. 239–279).
§3404.1	Alterations	When considering alterations to the convento, ICC states: “Alterations shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building was prior to the alteration . . .”(p. 570).
§3409.1	Historic buildings	Historic buildings bear special consideration: “The provisions of this code related to construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety hazard” (p. 573).

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Work Recommendations and Alternatives

The treatment recommendations were developed based on the research and field investigation completed. They adhere to the objectives and design principles established and described in Chapter 7 of this HSR.

General Cleaning of the Masonry Walls (deposit and biological growth)

The cleaning of the structure of the San José convento will conserve the stones and allow for a more uniform appearance of the walls. Cleaning will extend the life of the stones as well as engender more accurate future recommendations and keener insights on chronological development.

From a purely conservative standpoint, reasons for cleaning architectural surfaces of artistic or historic value are the following:

1. To remove potentially dangerous material deposited by previous decay processes (e.g., soluble salts or gypsum-rich crusts).
2. To remove extraneous material adhering loosely to the surface (e.g., dust or remains of earlier treatments) that would impair the adhesion of conservation materials to be applied.

Some masonry units at the convento show evidence of fragile material at risk of detachment. In these instances, consolidation treatment may be necessary prior to the cleaning, called preconsolidation. If pursued, preconsolidation should be carried out “in such a way as to interfere as little as possible with later cleaning operations” (Torraca, 2009). An alternate approach, recommended here, is to attempt a cleaning method that does require any contact with the fragile materials—spray applications only.

The biological growth removal can help determine whether or not biological growth is algae, cyanobacteria, lichens, or other microorganisms. Lichens are not as easy to remove—usually difficult both via chemical and mechanical means. In some cases, lichen removal is not advisable at all, such as in presence of “endolithic” lichens, with thalli impossible to eradicate under the historic material’s surface.

A non-abrasive cleaning is recommended, calibrated to the extent that it helps with mortar adhesion, allowing for durable repointing or in the course of stone or brick replacement. No extreme or aggressive cleaning should be allowed.

Prior to the cleaning campaign, a mock-up area on a discreet section of the convento’s walls shall be established by NPS SAAN, with consultants and contractors involved in treatment. This is to calibrate and set the standard for the “level of cleaning” to adopt. The mock-up area must be retained as a quality

control in approving new work as it is executed. Preferably, the mock-up area will be one facing north where the higher level of biological growth is located, and include the denser growth on tufa stones (tufa's large pores allow a higher absorption of water and thus denser growth, which then retains a higher level of moisture supporting more growth).

Structural Repairs

Refer to the structural assessment and recommendations supplied by the National Park Service Vanishing Treasures engineer, James Mason.

Stone Consolidation by Impregnation

In present conservation technology, consolidation by impregnation is not as important as it was in the past. Stone consolidation is more effective in cases of decay in which the material tends to separate into very minute grains. It is better practice to opt for micro-filling, grouting, or the use of an adhesive, when loss of fragments exceed a few millimeters in size, or when the cracks are wider than $\frac{1}{10}$ of a millimeter.

Stone consolidation carried out in the past has shown to be ineffective on some type of stones, such as sandstones, especially in case of presence of humidity (.....2017). In such cases, water repellents can also create exponential damages, not allowing the natural evaporation of water captured in the pores.

Consolidation of stone is not recommended for the Mission San José convento, however pretesting of ethyl silicate is advised, but only on the limestone.

Possible Use of Ethyl Silicate on Sandstone

Ethyl silicate is an alcoxylanes and is a suitable product for consolidation by impregnation of a porous hydrophilic solid, such as sandstone. Ethyl silicate appears as a low-viscosity liquid, it can penetrate deep into pores and fissures forming silicic acid if water is present.

Since the hydrolysis of an ester is a slow reaction, a limited risk exists that a consolidated crust will be formed on the surface, inhibiting further penetration of the treatment. The secondary product of the reaction, ethyl alcohol, evaporates, disappearing without causing problems. Consolidation with ethyl silicate may have other constraints, since this consolidant is rather volatile, and in case the hydrolysis is too slow, it may evaporate before reacting and no consolidation is achieved. Adding a catalyst to the ester is advisable under certain conditions to accelerate hydrolysis.

Plastic Repairs:
Adopting “Lime-
based Technology”

Limes		
Technical name	Chemical name	Chemical formula
quicklime	calcium oxide	CaO
hydrated lime	calcium hydroxide	Ca(OH) ₂
lime paste	calcium hydroxide + water	Ca(OH) ₂ + H ₂ O
natural hydraulic lime*	di-calcium silicate + calcium hydroxide and/or calcium oxide	C ₂ S* + CH* some C* and a little C ₃ S*
hydrated hydraulic lime* or hydraulic lime*	tri-calcium silicate + di-calcium silicate + calcium aluminates + inert fillers	C ₃ S* + C ₂ S* and others

Reprinted from *Lectures on Materials Science for Architectural Conservation* by Giorgio Torraca, 2009, p. 50.

Figure 9.1: The above listed nomenclature will be used in the treatment recommendations.

Technical, structural, and aesthetic factors apply to the selection process for repair mortars (e.g. repointing mortar, grouting, finishes). The word “plastic” intends to describe the plasticity of the fresh mortar. Plastic repair using a restoration mortar is one common method used for the treatment of a number of different building elements. Lime and cement, alone or in combination, are used typically as binders for restoration mortars. Historic mortars, pre-20th century, at the convento do not contain cement. Significant damage to historic masonry may result from using inappropriate mortar, perhaps most common in cases of repair using Portland cement-based materials. However, damage can also be caused by any characteristics of a mortar mix resulting in low permeability or excessive bonding strength.

The use of lime-based mortars and grouting is recommended for ‘plastic repair’ of the San José convento’s walls: The high vapor permeability (i.e. the material’s ability to facilitate movement of moisture in the vapor phase) of lime and its transport characteristics of liquid water places this material much higher up in compatibility ranking versus cementitious materials (i.e. eminently hydraulic). Other factors, such as porosity, water absorption, response to repetitive wetting and drying cycles are considered key “second order” factors in the understanding of a plastic repair material’s compatibility and performance.

Consideration of broader issues are also essential such as: aesthetic, technical, and structural factors. These need to be applied to the selection process for repair mortars (e.g. repointing mortar, renders, plasters). Performance advantages of lime are widely recognized, the practical use of the material requires expert craftsmanship and trained personnel.

International guidelines (see European specifications UNE EN 459-1:2010,

Building Lime—Part 1: Definitions, Specifications and Conformity Criteria) introduce a distinction between three categories of hydraulic lime:

- NHL: “Natural hydraulic” limes, which are made from marliaceous limestone only;
- NHL-Z: If other hydraulic materials (i.e., cement) or pozzolanic ones are added, up to a maximum of 20% to a natural hydraulic lime;
- HL: “Hydraulic limes,” which are made up starting from “appropriate materials.”

(from Torraca, 2009)

The Coping

There are different approaches to capping the walls, but it appears necessary at Mission San José convento to reestablish integrity of the “cement wash,” which is on top of the wall. A mastic coating over the top of a cement wash, comparable to that which is performing well as Mission Concepción, may improve durability and lengthen the maintenance cycle. Some stones may need to be added in some areas to make a smooth surface for cement wash at the coping. The cement wash must be installed with a slope that mitigates water running down wall surfaces with surviving plaster on the stones.

Synopsis of Masonry Treatments for Mission San José Convento, Immediate Priorities 2019

Project Objectives

The overall objective is preservation of a ruined appearance to its pre-1950 form, including the last major alterations in the 1940s. The masonry walls consist of late 18th century and mid-19th century construction. The historic mortar from these time periods is the same, and must be matched exactly in all future preservation efforts.

Reference Guide

The standard of care for masonry repointing treatments is set by *National Park Service Preservation Brief 2, Repointing Mortar Joints in Historic Masonry Buildings*, as revised and updated in 1980.

Quality control

Best practices for a cultural resource of this magnitude dictate that all work must be preceded by laboratory mortar analysis, product submittals, mock-ups maintained on site, and sample work demonstrations for all steps in the cleaning and repointing process. Authorities with jurisdiction for review and the site managers must approve each item before any of the work commences. Mortar repointing methods and mix are to be guided by lab analysis, and approved in advance.

Prior Reports and Lab Analysis

“The mortar used to construct the sacristy is the same mortar used throughout the original portions of the church. It is a soft lime mortar that contains large round limestone aggregates as well as limestone sand obtained from the locally available caliche. A similar mortar appears to have been used for restoration and stabilization of the masonry in the 19th century.” (Myjer, 2013a, p.38)

Historic mortar: “The mortar is identified as a non-hydraulic lime mortar with a coarse-grained carbonate natural sand.” “The binder is somewhat sparse, soft and porous.” (Walsh, 2009, p.1) “No hydraulic cements, pozzolans, or pigments are identified in the older mortar.” (Walsh, 2009, p.4) “...the texture [of the lime binder] is indicative of a non-hydraulic lime and no microscopic inclusions suggestive of even feeble hydraulicity are found. As all local limestone sources are high calcian rather than dolomitic, it is almost certain that the lime used would have been a fast-slaking fat lime.” (Walsh, 2009, p.4)

“...lime binders were mixed with aggregates of varying size based on stratigraphic position and unit masonry type....” (Bass and Porter, 2016, p.4)

Stone Walls, Immediate Treatment Needs

Chemical consolidation, replacement and/or repair of stones in the masonry walls is not recommended as a priority at this time. The surviving Spanish Colonial plasters must be protected before and during all masonry preservation work. The preservation of plasters is a separate treatment not described in this masonry treatment synopsis. Removal of Portland cement-based mortar is not recommended at all areas. Many repairs completed in the 1930s and 1940s are sound and do not need repointing as an immediate priority. The condition assessment drawings attached to this HSR provide further information.

Cleaning: Gentle cleaning is recommended for 100% of the masonry walls prior to repointing. The Spanish Colonial plasters will need to be treated in full coordination with surrounding masonry treatments.

Procedures: If water alone does not suffice, then gentle spray pump application of an appropriate cleaner such as D/2 or Prosoco Biowash, possibly followed by light scrubbing with a soft natural-fiber bristle brush, if necessary. Application method, dilution strength, dwell time, scrubbing method, and rinsing procedures are to be approved in advance per quality control procedures described above.

Repointing mortar: Lime mortars still sound are to be left in place. Friable lime mortars not on the surface may be consolidated with “Type S bagged lime mixed to a creamy consistency with water” prior to repointing that will cover the friable mortars (Myjer, 2013b, p.13).

Backpointing to fill deep voids: Approved mix, based on lab analysis, is likely to be NHL 2, ASTM C144 sand, crushed limestone up to 3/8” diameter, fine caliche aggregate, and potable water. Hold back 2” from stone face (Myjer, 2013b, p.16). Chinking will be necessary in backpointing to fill large voids. Use local limestone and washed round caliche.

Surface Pointing: Approved mix, based on lab analysis, is likely to be NHL 2, ASTM C144 white sand, washed caliche aggregate less than 1/2” diameter, fine caliche aggregate unwashed, and potable water (Myjer, 2013b, p.16).

Slightly recess/depress pointing mortar, do not ‘feather’ over edges of adjacent stones

Grout

Large cracks or gaps: After flushing with water, insert grout by hand or under very low pressure. Approved mix is likely to be NHL 2, fine silica sand, and potable water.

Parapet coping, window sills and other horizontal surfaces open to the sky: Where the existing cement wash is cracked or broken, clean and then repair with new mortar. Approved mix is likely to include NHL 5.

Apply clear mastic roofing product to surfaces not readily accessible for routine maintenance and not visible to public. Generally, these will be greater than 10 feet (3 meters) above grade.

Treatment of Bricks Selective and careful disassembly of lancet-pointed arches will eventually be necessary for appropriate conservation of brick voussoirs. In order to perform the brick arch disassembly, as described in the preservation objectives chapter above, an arch shall be selected for testing techniques and establishing a complete treatment protocol sequence. Prior to any disassembling, matching bricks shall be procured in sufficient quantities.

Treatment protocol may involve the following conservation techniques: documentation, procurement of matching bricks, erection of supporting false-work designed by an engineer, gentle disassembly, selection of mortar material samples for analysis, assessment of percentage of bricks to be replaced, repair of existing bricks by use of adhesive/pinning, individual brick cleaning, pretesting of mortar, and reassembly. The described works shall be performed by a qualified mason.

Below is a table of recommended treatment organized by the type of problem to be addressed at Mission San José convento. When applicable, the number corresponding to the assessment of conditions shown on the drawing sheets is provided (e.g., E.5.b. is large cracks).

Table 9.1:
Treatment
Recommendations

BUILDING ELEMENT: Foundations/Grade		
TYPE of PROBLEM	RECOMMENDED or PROBABLE TREATMENT	PRIORITY LEVEL
Bulk Moisture/Rising Damp	The problem is systemic to the construction typology, though it is not severe, and therefore no immediate treatment is recommended. Other treatments must not inhibit moisture evaporation out of the walls. Weaker stone units more susceptible to decay will need to be replaced in future decades, as has been the practice continuing forward from historical periods.	Low
Public Access	Establish an accessible route to include Spanish Colonial kitchen and refectory rooms, the arcaded corridor, and portería. Existing “crusher-run” white gravel is performing well and may be sufficiently firm to support wheelchair access, but is not ideal for all types of disabilities. Flagstone was a material used during historic periods and could be added to establish the route.	Medium

Table 9.1:
Treatment
Recommendations

BUILDING ELEMENT: Structure		
TYPE of PROBLEM	RECOMMENDED or PROBABLE TREATMENT	PRIORITY LEVEL
STRUCTURAL DECAY OF THE MASONRY		
[E.5.b] Large Cracks, yet Stable Condition	Injection of a consolidating mixture made of hydrated lime and ventilated pozzolana (to be evaluated by conservator), anti-bleeding agent and water reducer (solution 10% of gluconate of sodium); after injection, the surface will be treated with the same pointing mortar as recommended for all areas. Superficial final finish: The surface will be treated with the same plaster finish mortar specifically recommended for mortar mix. Color and texture matching will be required. NOTE: The injection of the grouting mixture shall be preceded by the injection of a liquid meant to “clean” the internal voids by removing dust and fine debris. Dusts and fine debris may hinder the adhesion of the grouting. In the case of hydraulic grouting, the injected liquid is just water. The preliminary injections are also useful to determine the points from which the grout might escape from the cracks and flow on the surface. Large cracks may require the insertion of similar calcareous stone to re-establish the continuity of the structure. See report by NPS engineer James Mason. In keeping with the overall preservation treatment approach, the new stones used in large cracks should not be seen at the wall surface, and the crack should remain discernible. Grout mixture should be held back from the surface approximately 3/4 inch.	High

Table 9.1:
Treatment
Recommendations

[B.5.a.3] Hairline Cracks	Hairline cracks will be repaired by means of injection of grouting, a consolidating mixture made of hydrated lime and ventilated pozzolana (to be evaluated), anti-bleeding agent and water reducer. Superficial final finish: the surface will be treated with the same mortar mix specifically recommended. Color and texture matching will be required. NOTE: The injection of the grouting mixture shall be preceded by the injection of a liquid meant to “clean” the internal voids by removing dust and fine debris. Dusts and fine debris may hinder the adhesion of the grouting. In the case of hydraulic grouting, the injected liquid is just water. The preliminary injections are also useful to determine the points from which the grout might escape from the cracks and flow on the surface.	High
[E.4.e.3] Missing Parts/Gaps (Structural) & [E.4.d.2] Loss of Mortar and Stone Decreasing Wall Section	Filling to be carried out with a lime-paste mortar—in the case of medium-to-large cavities, most of the void is filled first with pieces of an aggregate of suitable size (chinking of brick or stone) mixed with a hydraulic mortar (e.g., lime paste/pozzolana). Final layer of a lime paste mixed with crushed stone. Colored stone powders are added to the filling mortar to adjust the color to match the approved mix to be used (use of pigments should be avoided).	High

Table 9.1:
Treatment
Recommendations

BUILDING ELEMENT: Wall Surfaces		
TYPE of PROBLEM	RECOMMENDED or PROBABLE TREATMENT	PRIORITY LEVEL
A. GENERAL DECAY		
[A.1.a] Biological Growth: Lichens (Mostly Crustose Lichens), Bryophytes and Algae & [A.2.b] Encrustation	Preliminary tasks: PRE-TREATMENT PROTECTION OF <u>PLASTER</u> REMNANTS or DETACHED SURFACES: Plaster remnants—or detached surfaces to be preserved—are treated differently than the masonry and must be fully protected and possibly preconsolidated prior to any work that may cause harm. For details see section below: Protection/Preconsolidation of Plaster CHEMICAL, recommended: Spray application of D/2 (by D/2 Biological Solution, Inc., or identical product) on dry surface; repeat on heavily stained areas after drying. CHEMICAL (alternate options in preferred order): a.) calcium hypochlorite solution, gentle use of natural-fiber bristle brushes; b.) hydrogen peroxide solution, gentle use of natural-fiber bristle brushes; or c.) poultice method using various oxidizing bleaching agents. <i>As poultice</i> can utilize special clays (such as sepiolite), or cellulose fibers. <i>As cleaning agent</i>: Solution of Triton X-100, acetic acid in water. The packs shall be left on the surface the time necessary to remove the crusts, based on samples created in the testing program. DRY MECHANICAL for removal of lichen/thallus: Dry cleaning with brushes and small scraping tools such as scalpels, spatula, or dental picks.	HIGH

Table 9.1:
Treatment
Recommendations

[A.1.b] Moss	CHEMICAL, recommended: Spray application of D/2 (by D/2 Biological Solution, Inc., or identical product) on dry surface; repeat on heavily stained areas after drying. DRY MECHANICAL for removal: Dry cleaning with brushes and small scraping tools such as scalpels, spatula	Low
[A.1.c] Vegetation Growth	MECHANICAL and CHEMICAL: Mechanical removal after treatment with biocide—based on glyphosate—used at 3–5% solution. The application should be repeated, two or three times at 5–6 day intervals. Mechanical removal will have to be carried out by means of water flushing at low pressure.	High
[A.2.c] Efflorescence	DRY MECHANICAL	
[A.2.e] Bird Dropping	MECHANICAL and CHEMICAL: Clean manually and spray anti-bacterial solution. Mechanical cleaning soft brushes.	Medium
[A.2.f] Graffiti	Some graffiti are historic. A documentation campaign shall be carried out by trained personnel.	Low
C. STONE MASONRY		
Note: Treatment of limestone and sandstone blocks may vary, due to the different geological composition of each stone type		
[C.3.g] Stone Delamination & [C.3.f] Stone Flaking [C.4.a.1] [C.4.a.2] Erosion of Stone Block	No chemical consolidation treatments are proposed for rubble stone and ashlar blocks consolidation. Pre-testing treatments shall be carried out by conservators, for limestones (caliche) and pisolithic stone. Sandstone: No chemical consolidation is suggested. If the erosion of the stone is advanced, with a loss of material higher than 30%, replacement with similar stone is proposed. Tufa stone: No chemical consolidation is proposed, due to the “macroporosity” (presence of large pores) of the stone.	

Table 9.1:
Treatment
Recommendations

	For Limestone and pisolithic limestone: Pre-testing: After cleaning and salt removal, application of 10% solution of ethyl silicate in spray. Apply several times until refusal.	
[C.4.e.2] Mortar, Missing/Gaps (Small, Not Structural)	Pointing: Rake out joint until sound mortar is reached. Flush with water and then add fine mortar made of water lime putty, mixed with fine calcareous stone sand.	High
[C.4.d.1] Loss of Joint Mortar	Color and texture matching will be required; pre-treatment mock-ups are needed for matching.	
	Mortar adhesion, longevity, porosity and strength will be additional factors in determination of recipe.	
B. PLASTER FINISHES/ARRICCIO		
Plaster Finish/ Arriccio [B.5.a.1] Hairline Cracks	Hairline cracks will be repaired by means of injection of grouting, a consolidating mixture made of hydrated lime and ventilated pozzolana (to be evaluated), anti-bleeding agent and water reducer.	High
	Superficial final finish: The surface will be treated with the same as plaster finish mortar specifically recommended for arriccio and/or finished plaster. Color and texture matching will be required.	
	NOTE: The injection of the grouting mixture shall be preceded by the injection of a liquid meant to “clean” the internal voids by removing dust and fine debris. Dusts and fine debris may hinder the adhesion of the grouting. In the case of hydraulic grouting, the injected liquid is just water. The preliminary injections are also useful to determine the points from which the grout might escape from the cracks and flow on the surface.	

Table 9.1:
Treatment
Recommendations

[E.4.g.1] Mortar—Concrete Patching, Hard Portland Cement	REMOVAL: Mechanical removal by hand, with the support of a chisel and small hand tool. Care must be taken not to apply any percussive forces into stone to avoid detachment and damage of fragile materials. Remove debris from open voids down to sound mortar. NEW Bedding and Pointing Mortar: Follow the same mortar repointing procedures as recommended for all areas. NOTE: It is advised to use brown patching mortars in refectory and kitchen.	Low
C. BRICK		
Brick Arches, Severely Damaged	Brick replacement is proposed where bricks are beyond 30% missing or have lost integrity (no ceramic glaze remaining and primarily clay dust). This will require arch disassembly. Refer to text elsewhere in Chapter 7 for more information. Broken bricks should be repaired with appropriate adhesive and perhaps pins, as well, whenever possible.	Medium
[D.3.h.2] [D.3.f] [D.4.e.1] Brick Fragmentation, and Powdering, Missing Parts	No chemical consolidation of brick is proposed. In cases where fragmentation or powdering is so advanced to produce a loss of more than 30% of the entire brick, then brick replacement is needed.	Low
D. PLASTER FINISHES (Painted and Unpainted)/ARRICCIO (Scratch Coat)		
Plaster, All	A conservator with specialized knowledge and experience in colonial plaster conservation is needed to provide detailed specifications for treatment, pause for approval by stakeholders, and then proceed with authorized treatments. This study is providing general guidelines on plaster conservation treatments.	High

Table 9.1:
Treatment
Recommendations

Plaster, General	A plaster conservation treatment will follow a sequence of phases as follows: a) Pre-treatment protection/pre-consolidation b) Removal of previous repair c) Cleaning d) Reattachement to the substrate e) Reattachement of edges f) Protection, Aesthetic presentation/Integration	High
a) (for unpainted plaster – considered historic/to be preserved)	PRE-TREATMENT PROTECTION: Plaster must be protected/pre-consolidation from other conservation treatments nearby or higher up on the wall, such as masonry cleaning: PRE-CONSOLIDATION: Pre-treatment protection/pre-consolidation shall be carried out with application of 5% solution of ethyl silicate, applied using a low pressure spray on a Japanese tissue paper, to be removed after the cleaning is completed.	High
a) (for painted plaster)	PRE-TREATMENT PROTECTION: Plaster must be protected from other conservation treatments nearby or higher up on the wall, such as masonry cleaning: PRE-CONSOLIDATION: Protection/pre-consolidation may be carried out with application of 5% solution of ethyl silicate, applied using a low pressure spray on a Japanese tissue paper, to be removed after the cleaning is completed.	High
b)	REMOVAL OF PREVIOUS REPAIR— PATCHING: In case of lack of chemical and mechanical compatibility (such as concrete patching), fragile condition or impacting the overall aesthetic presentation. MECHANICAL: Removal with chisel and small hand tools.	High

Table 9.1:
Treatment
Recommendations

c)	Cleaning: See Section Above	
d) [B.3.b]	REATTACHMENT OF INTERSTITIAL LAYERS/ REATTACHMENT TO THE MASONRY SUBSTRATE d.1.) A preliminary assessment of delamination condition, to identify interlayer condition and narrowness of interstitial spaces between layers is need. d.2.) Injection of grouting—made of a viscose hydraulic lime mix, via cannula tipped syringe. After injection, localized pressure for several minutes, to compact the strata and to restore cohesive strength. GROUTING MIXTURE OPTION: Hydraulic lime grout, made of: 4 parts of hydrated hydraulic lime, 1 part of fine silica banding sand, 3.8 parts of Z-lite spheres, 4.4 parts of 10% aqueous solution. For fine fill a mixture 3:1 sand/lime proportion can be tested. NOTE: The injection of the grouting mixture shall be preceded by the injection of a liquid meant to “clean” the internal voids by removing dust and fine debris. Dusts and fine debris may hinder the adhesion of the grouting. In the case of hydraulic grouting, the injected liquid is just water. The preliminary injections are also useful to determine the points from which the grout might escape from the cracks and flow on the surface. In cases of plaster extremely detached from the substrate, with large interior voids, titanium, stainless steel or ceramic pins may be used for a more effective reattachment.	

Table 9.1:
Treatment
Recommendations

e) [B.3.a] (Edge Delamination/ Detachment of Edges)	Reattachment of edges, via : INJECTION of 40% solution of Hydraulic lime grout. Via s 18 gauge cannula deep syringe. NOTE: see the note above. EDGING COMPENSATION: Adoption of Hydrated Hydraulic Lime. For edging 4:1 sand/lime proportion. Edging mortar pretesting is advised.	
[B.3.e] Disintegration/ Crumbling, [B.3.e] Powdering	CHEMICAL: Plaster finishes stabilization: Through spraying 1–2 applications of 10% solution of ethyl silicate.	High
f) Painted Plaster, Only	PROTECTIVE COATING: Not recommended AESTHETIC PRESENTATION Based on conservation objective, in case of painted patterns still extant—although discolored—an integration with additional natural pigment will be carried out by a conservation specialist. The objective is to mildly rejuvenate the early 20th century appearance to facilitate interpretation. In the 4½ decades since the 1970s when conservators first proposed treatments for plaster at the convento, the colors intended to be preserved (not restored) have lost some luster. The mild rejuvenation of color will be consistent with the preservation treatment approach as has been the intention at the convento since the 1970s. Inpainting should be recessive and not appear new. Further, it should be restricted to areas where paint exists, not connecting across gaps in the color scheme.	Low

Table 9.1:
Treatment
Recommendations

BUILDING ELEMENT: Wall Copping/Capping		
TYPE of PROBLEM	RECOMMENDED or PROBABLE TREATMENT	PRIORITY LEVEL
Bulk Moisture Entry	Removal of the existing deteriorated mortar ‘wash’ capping, where necessary, to reach sound structure of the walls. Step 1: Irregularly-shaped areas with complex contours need to be rebuilt with a new mortar wash in convex shape to encourage smooth flow of water off the top of the wall; a minimal number of new stones (must match existing) may need to be added at a few locations. Step 2: Walls above surviving colonial plaster need to have coping that slopes to direct all water to the exterior as much as possible; existing mortar wash at these areas may need to be reset accordingly. Step 3: All existing cracks need to be cut out and repaired with hard mortar that includes Portland cement blended with lime and aggregate. Step 4: A mastic coating similar to that in service at Mission Concepción church should be added across the top of all sky-facing surfaces atop walls. Special Note: See structural treatment for certain wall locations requiring specialized repair that may include superimposed layers of geotextile (geosynthetic) and cement mortar to be laid atop walls. ALTERNATIVE TREATMENTS: (for step 4): A.1: Capping made of Hydraulic mortar. New capping added made of mixture of hydraulic mortar. 3:1 treated pozzolana and slaked lime with stone added to bring the top of the wall at a smooth level. Final layer of mortar made of 3:1 crushed marble and river sand with slaked lime chosen to match the color.	High

Table 9.1:
Treatment
Recommendations

	A.2: Capping made of Cocciopesto mortar. New coping made of “cocciopesto.” 3:1 fired brick powder and slaked lime with stone added to bring the top of the wall at a smooth level. Final layer of mortar made of 3:1 crushed marble and river sand with slaked lime chosen to match the color.	
Long-term Biological Growth Protection	Zinc metal added into mortar wash could function as a biocide for wall surfaces, but this treatment is not recommended. Zinc bars would inhibit water evacuation off the mortar wash, and insert locations would later become areas for water to dwell as the zinc naturally erodes over time. A zinc-rich mastic coating, if such a product is actually available and proven durable, may be appropriate, though unknown impact to Spanish Colonial plaster remnants raises concerns.	None



Chapter 10: References

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