

The Water System at Historic Mission San Antonio de Padua

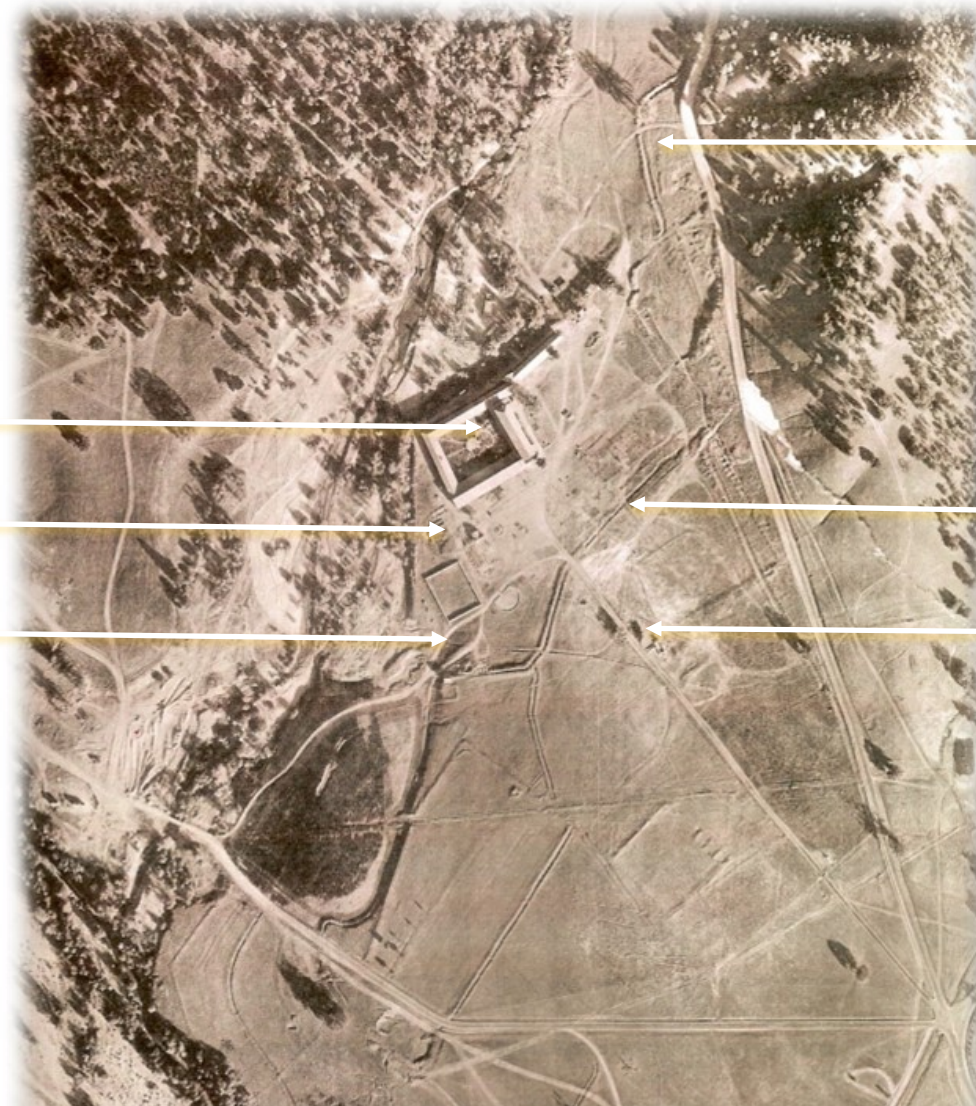


Photograph of the original water wheel at the Noria Well

Mission San Antonio has the first Spanish Colonial water system established in California, and it is more complete than any other Spanish Colonial Mission site in North America. The water system embodies the distinctive characteristics of a type and method of Mission period construction and still possesses artistic value.

The water system provides important information in the history about the Hispanic settlement patterns and the lifestyle in early California. Through the ability to store water, grow food and grind grain, the water system allowed the Mission to prosper economically and expand in population and greatly contributed to the cultural development of this region. The irrigation techniques were later used in other California Missions, yet no other Mission has the entire area surrounding its aqueducts left relatively undeveloped.

This brochure highlights a few facts about the water system at Mission San Antonio. For more information and additional facts on this important historical place, please visit:
www.missionsanantonio.net.



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Water System Components

- 1** Mill Pond & Dam
1806
- 2** Mill Race
1806
- 3** Grist Mill & Tanning Vats
1806
- 4** Well in Quadrangle
1823
- 5** Washing Pool
1826
- 6** "Noria" Well & Reservoir
1824

Refer to map in center and see back page for more information

Water Purification Methods

The Mission used covered channels and ceramic pipelines with filter houses and settling basins to slow the water flow and allow the heavier sediments and impurities to sink to the bottom. The filter houses contained tanks that were filled with layers of charcoal and sand which would further purify the drinking water. The settling basins and filter houses would be cleaned out regularly to remove accumulated sediment.



Photograph of the clay pipes used for the water system. They are about 12 inches in length and larger on one end to slip into each other easily. They were laid with great care with layers of tile and rock to prevent pipes from caving in.

Survival Within An Arid Region

The San Antonio River is the only river in the valley, and it becomes dry each summer. In order to settle in this arid climate the Mission was carefully situated near the confluence of the San Antonio River and Mission Creek, and an elaborate gravity-operated water delivery and storage system was developed to allow them to remain in this arid region.

Amazing earthen aqueducts and dams were built for miles using minimal tools and sometimes excavating deep trenches in steep sandstone cliffs and through dense oak tree roots. The Missionaries developed incredible engineering devices which allowed them to use water to do work for them and it supported multiple domestic agricultural and industrial uses.

You are welcome to visit all the water system components, plus other artwork and artifacts in the church and museum, and on the walking tour of the grounds of Mission San Antonio.

1 Mill Pond & Dam

The Mill Pond is a reservoir constructed of masonry and lined with mortared stream cobbles and encapsulated by a wall made of rock and mortar on the southwest side. The Mill Pond is about 1.5 acres in size and had approximately 6-acre feet of water storage capacity to hold water until it was needed.

The Mill Pond was restored in 1913 to supply the owner of Milpitas Rancho with water for cattle and irrigation. The restoration included a wooden flood gate (sluice) in the southern wall that was opened when water was needed. The restored system was still in use in 1927, and according to oral history was used by the Hearst Ranch in the 1930's.



The water system at Mission San Antonio is still a valuable link to understanding Mission lifestyle, rich history of the elaborate engineering methods that providing much needed irrigation and drinking water. The water system gives visitors a glimpse at past Mission life, and its amazing water system continues to provide an understanding of the engineering marvels that allowed the Mission to prosper in an arid region in a pre-industrial age.



2 Mill Race

The stone mill race is an elevated masonry aqueduct which carried water from the Mill Pond to the lower parts of the Mission. Water could be released and channeled to the Grist Mill and Tanning Vats when needed, and excess water was used to irrigate the fields, vineyard, and orchards below.



3 Grist Mill & Tanning Vats

The Grist Mill is a two-story structure made of adobe bricks. The upper story contains the grinding stone and storage, and the lower floor contains the water wheel. Water from the mill race could be released through a gate to the grist mill when grain needed grinding, and excess water which flowed from the grist mill was used to irrigate the wheat fields nearby. The remaining water was carried south to the vineyard and orchard in the south-west portion of the property.

The Grist Mill is the fourth water-powered mill ever built in California and the best remaining example of a water-powered mill in the state.



Mission San Antonio had an extensive tannery complex which reflected the importance of the hide and tallow industry in the early 19th century.



The Tanning Vats were located along the lower course of the northwest side of the Grist Mill. The tannery consisted of three open tanks, and were divided into smaller tanks. The vats were covered with tiles and a roof, but there were not any walls, and there was once a building for drying and storing grain and leather.

4 Well in Quadrangle

The well in the central quadrangle is located in the northeast corner of the quadrangle and is lined with masonry, but the walls are plastered with cement which is thought to have been added in the 1950's reconstruction.



5 Washing Pool



The washing pool or "lavandería" is built of stone and tile as part of the drainage system around the Mission. The water was carefully used. First it was used for drinking water, then for washing, and when done the surplus water was used to irrigate the fields below.

Learning from the water recycling methods that allowed Mission San Antonio to thrive in an extremely dry climate can teach us valuable lessons about water conservation and storage.



6 Noria Well & Reservoir

The Noria Well & Reservoir were built of stone cobbles and bricks mortared in lime. Historically, the well had a water wheel which was turned to lift water from the well into the reservoir and a protective shed covering the water wheel. The type of wheel used to raise water from the well to fill the reservoir was a "noria" or endless bucket chain and the design of the wheel was likely derived from Vitruvius, the famous Roman author on architecture.



Photographs of the Noria Well (top), Noria Reservoir (bottom) and metal grate at the reservoir used to keep debris out of the pipes (middle). The reservoir had a storage capacity of 15,000 gallons and used clay pipes to irrigate the vineyard and orchard located approximately 400 feet away.

