INTRODUCTION
Where is Allen?
1874-1999
Beginnings - The HT&C Railroad

Map source: holidaymapq.com
Hidden Treasure

1874 Dam inundated by 1912 dam impoundment of Cottonwood Creek

1912 Dam
2000-2002
Hidden Treasure

ca. 2000
Flood of 2001
Early Conservation Efforts

Archaeologist Alan Skinner, PhD, former Parks Director Don Horton looking on

Archaeological dig January 2002, west creek bank
Views of piping system and second generation pump facility ruins. Water was pumped from the reservoir to the water tank to refill tender cars for steam engines.
Archaeologist Alan Skinner conducting an exploratory dig of stonework at west end of 1874 dam, found to extend approximately 40 feet outside creek channel.
Early Conservation Efforts

City "historian" Tom Keener with Allen school kids at 1874 Dam site 2002
Early Conservation Efforts
Early Conservation Efforts
Early Conservation Efforts

The most significant event that led to the formation of Allen was the construction of the Houston & Texas Central Railway (H&T) from Denton on the Red River through Allen to Houston in the mid-1870s. The railroad greatly accelerated the growth of the area by facilitating the transport of people and agricultural products. Steam locomotives needed a steady supply of water at ten mile intervals, which led to the construction of this water station and others along the H&T route.

In 1874 the H&T Railway Company took advantage of the close proximity of Cotonwood Creek by constructing a dam of stone blocks. The resulting impoundment and dam structure remain largely intact today. A "section house" was erected at the site to house immigrant rail workers and a pump house was constructed to transfer water from the creek to an elevated storage tank on stone piers adjacent to the tracks on the other side of the creek. Water was in turn dispersed to the steam locomotives. Except for the section house, the archaeological remains of these structures are still evident today.

In 1912, the railroad determined that a higher dam was needed and constructed a concrete structure downstream of this site near the present location of Exchange Parkway. The enlarged reservoir created by this dam submerged the old 1874 dam, which was subsequently forgotten. Floodwaters eventually breached and eroded the high dam, lowering the impounded water surface and Revealing the stone structure visible today.
Early Conservation Efforts

Privately built trailhead dedicated to City of Allen

Trammel Crow Office Warehouse Development
Early Conservation Efforts

Upstream storm water dissipating basin
2003-2009
Allen’s H & T C Railway
Water Station Site

Prepared
By Kelly McGinnis, GPC
for the
Allen Heritage Guild
November 5, 2008
The Allen Water Station (H&TC Railway Water Station) in Allen is a historic district containing structures and ruins of structures built by the Houston & Texas Central (H&TC) Railway Company beginning in 1874. Typical of 19th century water stations maintained by railroad companies, the Allen Water Station featured a dependable water source, a pump facility, a network of water pipes, and a rail-side water tank. The district today contains the archaeological and architectural remains of all its former facilities and is currently open to the public as a local heritage park that highlights the important role that the H&TC railroad played in late 19th century commerce, transportation and settlement in North Texas. The most visible component today is its 1874 stone dam extended across Cottonwood Creek, which created the water supply critical for operating the station. Other recognizable components in the immediate vicinity are the stone masonry architectural footings of a rail-side water tank and the brick and concrete ruins of a second-generation pumping facility. The site retains a good degree of integrity, despite the loss of some of its wooden structures, because enough archeological components remain to provide information about the site’s original layout and use.
The 1874 stone dam is more accurately called an *overfall dam* or *weir*, as its crest can be completely topped by water because it has no spillway, and tail water washes up against its downstream face (Bligh 1916). A true bulkhead dam would be free of water along its downstream face and would dispose of excess water through a spillway or smaller waste water weir while maintaining a crest that is never overtopped. On maps depicting the 100 year flood plain, the old structure is labeled a “weir.”
The 1874 stone dam probably was the largest structure on the immediate water station premises until the 1912 dam (demolished) was built by Southern Pacific Railway. The central section of the 1874 dam is about 100 feet long and 10 ft.–8 inches wide at its widest part. It forms a large bulkhead made from six courses of large stone blocks currently above the water level of the plunge pool. The courses raise the dam about 8.5 ft above the plunge pool at its flanks and only about 7.8 ft in center, indicating that the broad top of the structure slopes inward toward the middle.
The dam appears to consist of two stages of masonry construction. Most of it is made from large roughly shaped sandstone blocks about 15 inches thick used to construct the bulkhead. There are six courses of these blocks showing above the plunge pool’s waterline. On top of the dam is a single row of large and thicker blocks, called capping stones that were used to raise the height of the dam sometime after it was originally constructed. These blocks form a straight topped crest while the more massive section of the dam was sloped to drain toward the center. One of the capping stones was removed years ago and the water flowing over the dam in these photos is passing through this gap in the capping stones.
The sluice gate is an opening five feet wide and four feet tall toward the bottom center of the dam. The gate works similar to a frame window and is made of wood. It would have been raised to empty the water from the reservoir to clean out the silt and then lowered again. Wooden framework fragments (clear cypress?) are behind the sluice gate on the upstream side of the dam. Each piece of wood has one bolt, nut and washer which are very similar in size, texture and color to other artifacts found downstream. The threaded metal rod extending approximately 6’ above the dam was used to operate the wheel which opened the sluice gate. The nut on the rod is 3.5 inches thick.

In March 2008, the threaded metal rod was reported as missing. It may be in the reservoir and possibly be recovered for preservation.
The larger reservoir created by the 1912 concrete dam submerged the 1874 stone dam and created a recreational swimming hole for local youth. The 1912 concrete dam was breached in the 1960’s and demolished in the mid-1990’s.
Upstream or back side of the 1874 stone dam (view from northwest to southeast). Archaeological boring tests indicate that sediment (foreground) from the 1912 dam buried approximately 30 feet of the west side of the 1874 stone dam, which remains buried today.
ABOVE: Allen Water Tank (photo courtesy of Allen Heritage Guild). Right: Remains of three rows of twelve stone piers from the 1874 rail side water tank with rail tracks in background. The base required two center rows of four piers each flanked on both east and west sides by a row of two piers each. Piers closest to the track are now partially covered by Southern Pacific Railway’s newer rail embankment.

1880’s water tank common to warmer climates showing internal workings of the gooseneck delivery spout and interior levered lid-valve for letting water flow down the spout (Berg 1893:119)
Late 19th century photograph of railroad laborers in foreground and Section House in background provided by a local descendent of Hawk Peters, Section Foreman (shown in foreground, third from left, died 1890). U.S. Census records indicate railroad laborers originating from Ireland, Germany, Switzerland, and the United States lived in the railroad camp in 1880 and 1900. The camp was occupied by railroad personnel until diesel engines replaced steam engines in the late 1940’s, although one attendant remained until 1950.
According to the SPHS Archivist, the rail was produced in June, 1918 by the Tennessee Coal, Iron and Railroad Company in Birmingham, Alabama.
Set back from the edge of the wall are large wood timbers and wooden blocks used to seat the south end of the iron bridge carrying the tracks. Three courses of specially stacked timbers distribute the weight of passing trains. The older sandstone retaining wall shows some major fractures that can be traced through five courses where the east side of the bridge would have distributed its load when the bridge sat on top of the wall. Today the bridge is set back from the top of the wall about 4 to 6 feet and its weight is redistributed over the concrete surface well back from the stone abutment.
Front and back cover of a Houston and Texas Central Railway train schedule pamphlet dated November 7, 1879, courtesy the Texas State Library and Archives Commission. On the back cover, the map depicts the significance of Allen’s Water Station Site. Destinations in the East, West and South can be reached by passing through Allen’s H&TC Water Station Site.
Saturday, September 20, 2008. Nomination of Allen’s water station site to the National Register of Historic Places. Gregory Smith, National Register Coordinator with the Texas Historical Commission, presented our nomination to members of the State Board of Review. The Board made special note of our detailed information and voted unanimously to nominate Allen’s Water Station Site to the National Register. The site was listed on the National Register on December 3, 2009.
Goals for Construction

- Repair existing gabions
- Protect banks immediately downstream of existing gabions
- Anchor gabions to provide improved stability
- Widen constrictive area
- Match existing gabions
Project Timeline & Cost

- Contract $350,003.68
- Construction Start Date: July 11, 2014
- Substantial Completion: Winter 2014
Gabion Construction Overview

Excavating banks for proposed gabions.

Pumping water from upstream and demolition.

Constructing rows of gabion baskets.

Embedding gabion baskets into creek bed.
Flood of 2015
Rolling Stones In Cottonwood Creek
Rolling Stones In Cottonwood Creek
Rolling Stones In Cottonwood Creek
Rolling Stones In Cottonwood Creek
Historic Dam Repairs

Includes:

• Permitting through Texas Historical Commission
• Plan and specification generation
• Retrieval of stones
• Cleaning and preparing stones for reinstallation
• Stone identification
• Mortar testing and identification
• Documentation of construction activities
• Final completion report to THC
Historic Dam Repairs

CONTRACTOR MEANS & METHODS FOR STONE RECOVERY & PLACEMENT:

1. CONTRACTOR TO MOBILIZE ONE TRUCK. UPON MOBILIZATION THEY WILL SURE THE SITE AND SET UP A PUMP SYSTEM TO DRAW WATER DOWN THROUGH THE UPPER AND LOWER POOLS. THE PUMP WILL THEN BE DELIVERED TO THE LOWER POOL. THE WATER WILL THEN BE PUMPED TO THE UPPER POOL AND USED TO ECM STONES IN THE DAM.

2. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.

3. THE STONES WILL THEN BE SECURED AND AN ARMORED BARRIER WILL BE PLACED AROUND THE STONE.

4. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.

5. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.

6. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.

7. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.

8. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.

9. THE STONES WILL THEN BE MOVED TO THE STAGING AREA AND PLACED IN PLACE.
Historic Dam Repairs

A. Historic Dam Prior to 2015 Flood Damage

B. Stone at Lower Pool Weir Wall
   (After Damage, notice continual migration of stone between pictures due to additional floods in 2015)

C. Stones at Upper Pool Weir Wall
   (After Damage, with sediment buildup)

D. Stones at Base of Dam
   (After Damage)

STONE LEGEND

SCALE: NOT TO SCALE
2016
Includes:

- New trailhead
- Existing trailhead improvements
- Pedestrian bridge w/ overlook
- Raised observation boardwalk
- Pedestrian plazas for educational opportunities
- Interpretive signage
- Soft surface trail
- Trail replacement & repairs
- Train themed site furnishings
- Historic Dam repairs
## Grants

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<tr>
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<td><em>(Collin County Parks and Open Space Program)</em></td>
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<td>$2,500 <em>(Collin County Historical Commission)</em></td>
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<td>CDC trail funds</td>
<td>$1,043,132</td>
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<td>Total Budget</td>
<td>$1,358,314</td>
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* Bridge and concrete trail

** Protective fencing at ruins of elevated tank
Historic Dam Site Improvements

- Pedestrian Bridge
- New Trailhead
- Boardwalk
Other Site Elements

Pedestrian Plazas & Interpretive Signage
Other Site Elements

Soft Surface Trail

Train Themed
Site Furnishings
Other Site Elements
The Houston & Texas Central Railway was originally christened Galveston and Red River Railroad Company in 1843, when Ebenezer Allen was granted a charter by the State of Texas; the name was later changed to Houston & Texas Central Railway Company in the 1850’s. Construction on a rail line from south to north Texas began in 1853 with the groundbreaking at Houston, and progressed slowly over the next few years before the first track was laid. The constructed railroad reached Millican by 1861, almost 30 miles northeast of Houston, but was quickly halted by the start of the American Civil War. Following the War, the HT&C Railway was the first railroad company to resume construction on new lines trekking across the state.

By 1873, construction of the railroad reached from Houston to the Red River at Denison where the rail lines would transition to another railroad company, the Missouri, Kansas, and Texas Railway (M&K&T). This route formed the central spine of the HT&C Railway, and a collaborative effort with the M&K&T to provide service extending north throughout the mid-west and to the eastern United States.

The HT&C Railway was purchased by Charles Morgan in 1877 and acquired by Southern Pacific in 1893. The HT&C Railway was under the control of Southern Pacific, but continued to operate under the name HT&C Railroad Company and added more tracks. The company reported significant earnings from freight and passenger traffic. Success of the railroad and access to Texas oil led to HT&C making technological strides when they transitioned from a steam/coal burning engine to an oil burning engine. The HT&C lines spread out across Texas from Bremond to Hoss (near Waco), Austin to Kempner, Garrett to Fort Worth, and Austin to Marble Falls and Llano. When HT&C was leased by Texas and New Orleans Railway (T&NO) in 1927, the railroad had grown to include 872 miles of track. By the mid-1930’s, the nature of the industry and organizational structure had changed to significantly that the HT&C had been largely disbanded as a result of Southern Pacific abandoning or selling off portions of track with the largest portion being absorbed by T&NO. Some of the tracks laid by HT&C Railway are still in use. Many lines are still owned and operated by a more modern Southern Pacific, and some local lines are in use by DART.
The 1874 Dam

Written Deeds for Old Stone Dam - 1874

Deeds Vol. X, p. 262
State of Texas
County of Collin

I, J.W. Franklin, have this day signed and given my consent and permission that the Houston and Texas Central Railway may build and erect a dam across Branch known as Cockramood Creek. This consent relates to my right to said Creek and my land running to the bed of said Creek. Said Dam to be built below the crossing of said creek north of James W. Franklin's house.

Respectfully,
J.W. Franklin
State of Texas
County of Collin

Before me J.W. Franklin, a justice of the peace of Collin County, personally appeared J.W. Franklin at the place where he has previously signed as witness of the foregoing instrument of writing for the purpose of signing the same.

Witness my hand and official seal and signature at office in Potosi this 26th day of September 1874.

J.W. Franklin, Justice of the Peace

File for record & recorded Dec. 31st at 12 o'clock AM 1874
J.O. Stearns, Clerk
By W.K. Taylor Dep.
The Water Station

Water Tower

The Allen Water Station, built in 1874, is located approximately 200 feet west of the Old Stone Dam and served as a “Water Stop” for trains running on the H&TC Railway. The Town of Allen would eventually become a true station in 1876 two years after the water stop was built. Allen Water Station's water tank photo (above) was taken in the early 20th century and acquired by the Allen Heritage Guild from a local resident (copy courtesy Allen Heritage Guild). The photograph shows Allen's circular wooden water tank with slightly conical sides rather than a true cylinder making the tank's base wider than its top. The tank sits on an octagonal wooden platform that is supported by the 13 large wooden posts that have cross braces to strengthen them. The tank has at least 10 wrought iron hoops holding its wooden slats together. They are spaced more closely together at the bottom to handle the additional weight. Documentory information of the Allen Water Station tank construction has not been located but by cross referencing historical photos, as seen above, with Hoog's Buildings and Structures of American Railroads: A Reference Book, 1883 and historically approved reference, the tank's design, construction and features can be understood. The Allen Water Tank was designed much like many of the ones depicted in late nineteenth century. According to Beres, water tanks commonly incorporated octagonal shapes to make floors and roofs. Iron hoops were used to join the wooden slats and provide structural support. A goose-neck delivery spout disensed water from the tank into tender cars, which were large storage vessels on the trains. The Allen photograph does not show enough of the top of the water tank to determine the roof pitch but the use of an octagonal floor, iron hoops, and a goose-neck spout are clearly visible. All that remains today are the twelve stone piers that once supported the water tank. The stone piers are about 20 inches square and covered by 20 inch square capping stones seated on top. The piers vary from 6 inches to more than 1 feet above the gravel slope of the raised embankment.

The above illustration shows a typical railroad water tank with many characteristics similar to the Allen Station water tank. The image shows how the simple lever system opens an internal valve in the tube to let water flow down the goose-neck spout and into tender cars.

Research of the Railroad valuation records of the Interstate Commerce Commission’s Bureau of Valuation from November 17, 1919 held by the National Archives and Records Administration identify Allen’s water tank to have been 16 feet high and 24 feet diameter, with a 18 Inch Fairbanks Morse tank spout, a 34 foot wooden ladder, and 45 feet of iron piping. The tank was supported on a tower of 12 - 14 feet long posts which were supported on 12 piers of course cut stone. Historians believe that with a 5 foot road, typical of tanks, and the wooden support structure, the entire tower stood about 30 to 35 feet tall with the goose-neck spout about 12 feet above the tracks.
The 1912 Dam

1912 Dam

It is thought that Cottonwood Creek is spring-fed, and provided a reliable source of water needed for steam locomotives. According to local historians, the 1874 stone dam began to fill with sediment causing a reduction in clean water. As the need for clean water for locomotives increased, the H&TC Railroad constructed a large concrete dam in 1912 at the approximate location of today’s Exchange Parkway. The 1912 dam created a larger reservoir which submerged the 1874 stone dam. The reservoir created was a benefit enjoyed by the entire community who used it for boating, fishing and swimming. The installation of the large dam, which significantly increased the water supply, is a testament to the importance of the Allen Water Station to the railroad.

With the 1874 dam being submerged, one local informant, who grew up only 1,000 feet southeast of the 1874 stone dam in the 1930’s and 1940’s, recalled that the 1874 stone dam was forgotten and was never sufficiently exposed to be recognized. Apparently, the 1874 stone dam had been submerged long enough that younger residents did not know it ever existed.

The 1912 dam was eventually breached in the 1960’s, and this breaching lowered the remaining reservoir such that the 1874 stone dam was exposed. Additional down cutting on the west side of the 1912 dam eventually brought Cottonwood Creek’s channel back to its natural elevation. As the larger reservoir declined, the long submerged 1874 stone dam rose from the floodwaters and began to function once again. Water passing over the 1874 stone dam carried away the sediment that had clogged it since the 1912 reservoir was constructed and the creek returned to its original channel sometime in the 1970’s.
The Water Station

Pump House

Located just 113 feet west of the west end of the dam are the ruins of a pump house facility. It consists of concrete slabs and brick and cement footings covering a 10 by 20 feet area. A small depression about 5 by 5 feet is very evident on the eastern side of the ruins. The age of the bricks used in the foundation of one section of the ruins dates from after 1900 and were possibly from the reservoir expansion in 1912. The iron intake pipe noted below was probably installed about the same time that the pump facility was upgraded.

Railroad records of the Interstate Commerce Commission’s Bureau of Valuation from November 17, 1920, held by the National Archives and Records Administration, identify the pump house as being 12’ x 16’ x 12’ high, painted outside and inside, with a splayed roof, one floor, rustic walls, one 6’ x 8’ door, and three 1’10” x 3’ windows with tinged shutters. The records also reflect: 2’ 1/2” x 2’ 4” deep pit all outside of the pump house building, with a splayed roof shed above the 8’ brick walls, dirt floor with a pit extension into the pump house. These records also indicate that water pumped from the creek to the water tank by a 6 horsepower Fairbanks Morse gas engine with a 24” diameter x 36” long galvanized gas tank, and a 950 rpm single stage horizontal pump by American Pipe Works. Piping included 48” of water pipes, 29’ of gas pipes, and 12’ of exhaust pipes.

Water intake Pipe

The iron intake pipe that drew water from the reservoir and carried it to the pump house was visible along the west side of the dam, prior to installation of the erosion control options. The pipe was made of iron and five locators in diameter. It likely originated from the 1912 reservoir facility since it appears to be placed above the dam proper and would be sitting in a very vulnerable place in relation to the 1897 stone dam. The iron intake pipes were removed in the 2003 restoration and are now in storage for future exhibit.
Operating the Allen Water Station

Above is a late 19th century photograph of railroad laborers in foreground provided by a local descendant of Alphonse Keller, Section Foreman (on train in foreground); third from left, died 1940). U.S. Census records indicate railroad laborers originating from Ireland, Germany, Switzerland, and the United States Bund at the Allen water station in 1880 and 1900. The camp was occupied by railroad personnel until diesel engines replaced steam engines in the late 1940s. The photograph clearly depicts the section house and bunk house in the background.

Railroad valuation records of the Interstate Commerce Commission’s Bureau of Valuation from November 17, 1913 held by the National Archives and Records Administration. Directly a Section House, Bunk House and Privy were provided for the men by the railroad. The section house was 10’x 40’ L x 21’ W with porches, 9 windows and 2 screen doors. The section house was occupied by the Section Foreman and his family.

The Bunk House was 15’3” H x 13’ L x 6’ W with 1 door and 1 window. The Bunk house was occupied by the railroad laborers who operated and maintained the water station and provided them water to quench their thirst. The bunk house was used exclusively for the crew.

According to “Destination America” by Charles A. Willy, between 1825 and 1875 some 38 million Europeans arrived in the United States. Immigrants typically began their journey by contacting a shipping company agent within a local city or town, who arranged their passage for departure. Local Allen historians explained that some agents of the White Star Line, the National Line, Anchor Line, Orient Line, Canadian Lake, Atlantic Lloyd, German Lloyd Steamer Company, and Morgan’s Steamship Line not only sold tickets to individuals but to parties and even allowed immigrants to prepay travel arrangements for friends and family traveling from “Great Britain and the Continent” to America.

Although many of us think of New York’s Ellis Island as the premier immigration gateway to America, Texas historians at the Houston Museum of Natural Science state that the Port of Galveston played a major role in immigration. Immigrants, most of whom left their homes voluntarily to work-farthers, land, and a new life, came from Mexico, Central and South America, Europe, Asia, and Africa. Travelers to the United States were often referred to as immigrants.

According to Houston’s Galvestonians, the Port of Galveston was assigned to one of several immigration companies, but those who traveled north on the S.S. to settle throughout the United States. They passed through Allen’s H&G Water Station to settle in the United States.
Open to the Public

Pre-ribbon cutting site detailing
Open to the Public
Open to the Public
Open to the Public
Open to the Public
Open to the Public
Open to the Public
Today
Vandalism

- Security cameras are worth the expense!
- 3 motion sensing post-mounted cameras at Allen Historic Water Station cost about $25,000 (turnkey)
Lessons Learned...so far

- It's never too soon to take action
- Build your “old-timers” network as early as possible...people die
- Hire and direct consultants in archaeology, history at critical times
- Form a heritage guild or citizen advocates group
- Partnerships with private development can be a very good thing
- Celebrate your history to the max with the public!
- Push historic preservation/conservation toward bond elections, grants and other funding sources
- Build a relationship with the Texas Historical Commission
- Ruins and relics don’t get prettier over time
- Identify and build staff interest in your heritage
- Punks do not care about history
- Invest in cameras and monitoring in critical areas
Thanks!

Questions?
2002-2016 and 2017 to date