



**BIGHORN ARCHAEOLOGICAL
CONSULTANTS, LLC**

3790 NICHOLAS DR., SANTA CLARA, UTAH 84769
(435) 686-1647 (435) 632-8290 CELL

Report Number 05-03

**Historic Context and Detailed Documentation of the Main Canyon
Ditch, Town Ditch, Comanche Dam (42WS4376), and Comanche
Ditch (42WS2507), New Harmony, Washington County, Utah**

by

Dale R. Gourley
and
Jon Baxter

for

The Town of New Harmony
and
Bureau of Land Management, St. George Field Office

Utah Project Authorization Number U05-HO-0009b
Federal Antiquities Permit Number 04UT84316

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Abstract

At the request of the Town of New Harmony, Bighorn Archaeological Consultants, LLC (Bighorn), has completed the Historic Context and Detailed Documentation of the Main Canyon Ditch, Town Ditch, Comanche Dam (42WS4376), and Comanche Ditch (42WS2507) in Washington County, Utah. Cross section drawings were completed for each of the ditches, photographs taken, and historic research completed to better understand when and why the ditches were constructed and who constructed them. In the process of locating and documenting these ditches, a new prehistoric site (42WS4691) was discovered along the western edge of the project boundary. The site is considered eligible for the National Register of Historic Places. Bighorn recommends the site be avoided in the plans for the New Harmony Nature Park.

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Introduction

At the request of the Town of New Harmony, Bighorn Archaeological Consultants, LLC (Bighorn), has completed the Historic Context and Detailed Documentation of the Main Canyon Ditch, Town Ditch, Comanche Dam (42WS4376), and Comanche Ditch (42WS2507) in Washington County, Utah. This project was completed under Utah State Project Authorization Number U05-HO-0009b as mitigation for adverse effects that may result from the development of the proposed New Harmony Nature Park. The proposed park is to include non-motorized hiking, equestrian, and mountain biking trails, picnic areas, a group use pavilion, a softball field and archery range, and small community center.

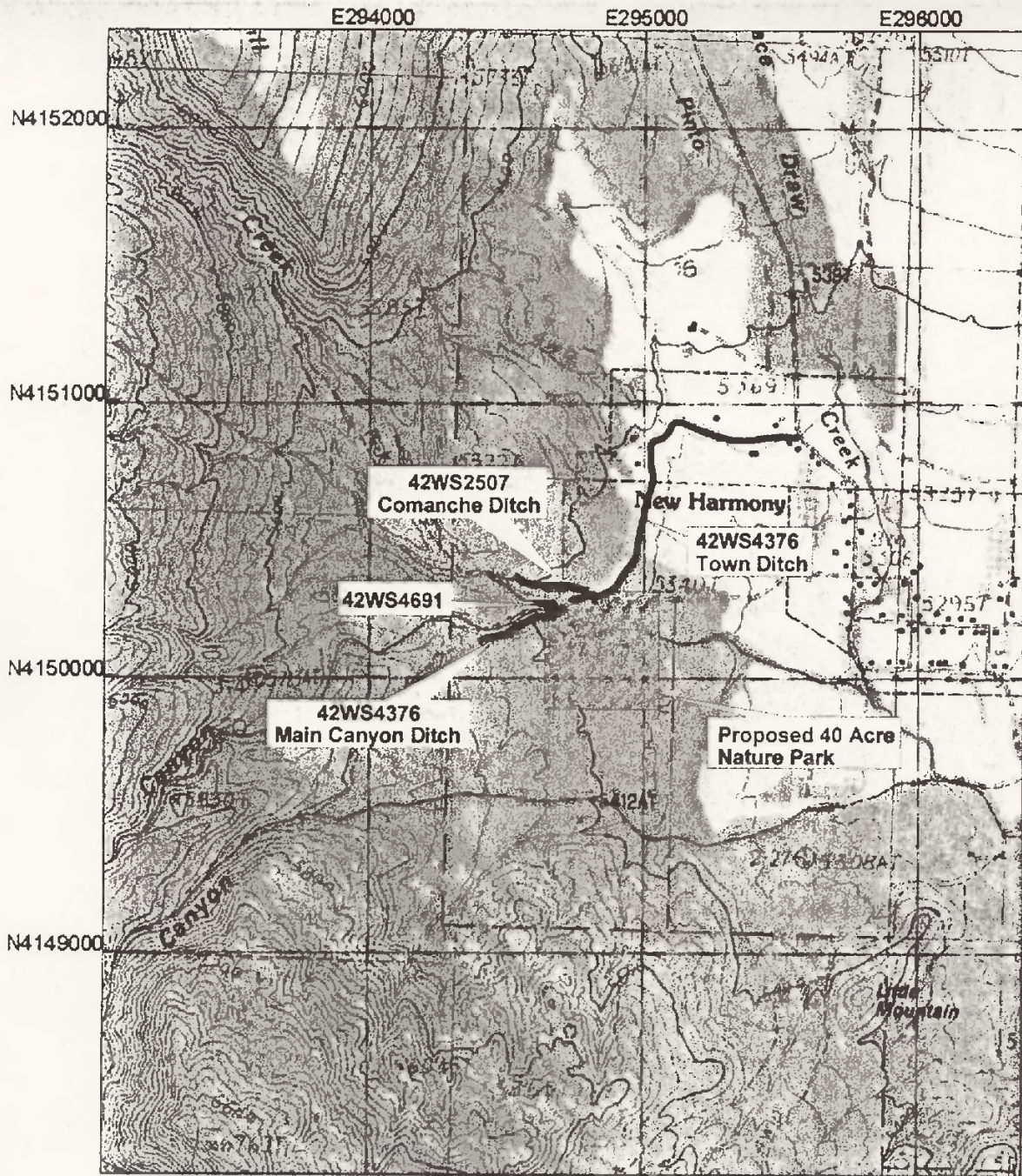
The project area is located on land administered by the Bureau of Land Management (BLM) in Washington County, Utah (Figure 1), and is currently under lease to the Town of New Harmony under the authority of the Recreation and Public Purposes Act of 1934, as amended. The proposed nature park is situated on 40 acres of land within the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 21, T 38S, R 13W. When the town has made substantial progress toward the completion of the proposed Nature Park, the BLM may patent the 40 acre parcel to the Town of New Harmony, thereby releasing this tract from federal control. The special protections afforded by the National Historic Preservation act, as amended, would no longer be in effect, also resulting in an adverse effect to the sites.

In the process of locating and documenting these ditches, a new prehistoric site (42WS4691) was discovered along the western edge of the project boundary. The site is considered eligible for the National Register of Historic Places. Bighorn recommends the site be avoided in the plans for the New Harmony Nature Park.

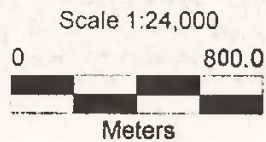
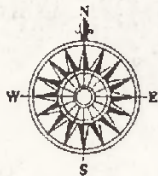
Scope of Work

To lessen the adverse effect, to the extent possible, to sites 42WS2507 and 42WS4376 within the area of potential effect the following plan was developed by the BLM and adhered to for this project. First, an historic context for the ditches was established using available primary site records, archival sources, including published histories, official records of ditches and water rights from the State Engineer's Office, historic maps and photographs, other achieves, and interviews with local informants knowledgeable about this subject.

Second, data collection in the form of locus-specific surveys of the ditches was performed. Photo-recordation, using black-and-white film, digital images, and measured cross-sections of the ditches will augment data contained in the initial Archaeological Survey Report (Dalley and McEwen 2003) and the primary site records (IMACS forms) for these historic features. This material will be submitted to the Utah State Historic Preservation Office, BLM – St. George Field Office, U.S. Forest Service - Dixie National Forest, Special Collections of the Sherratt Library at Southern Utah University, and the Town of New Harmony.

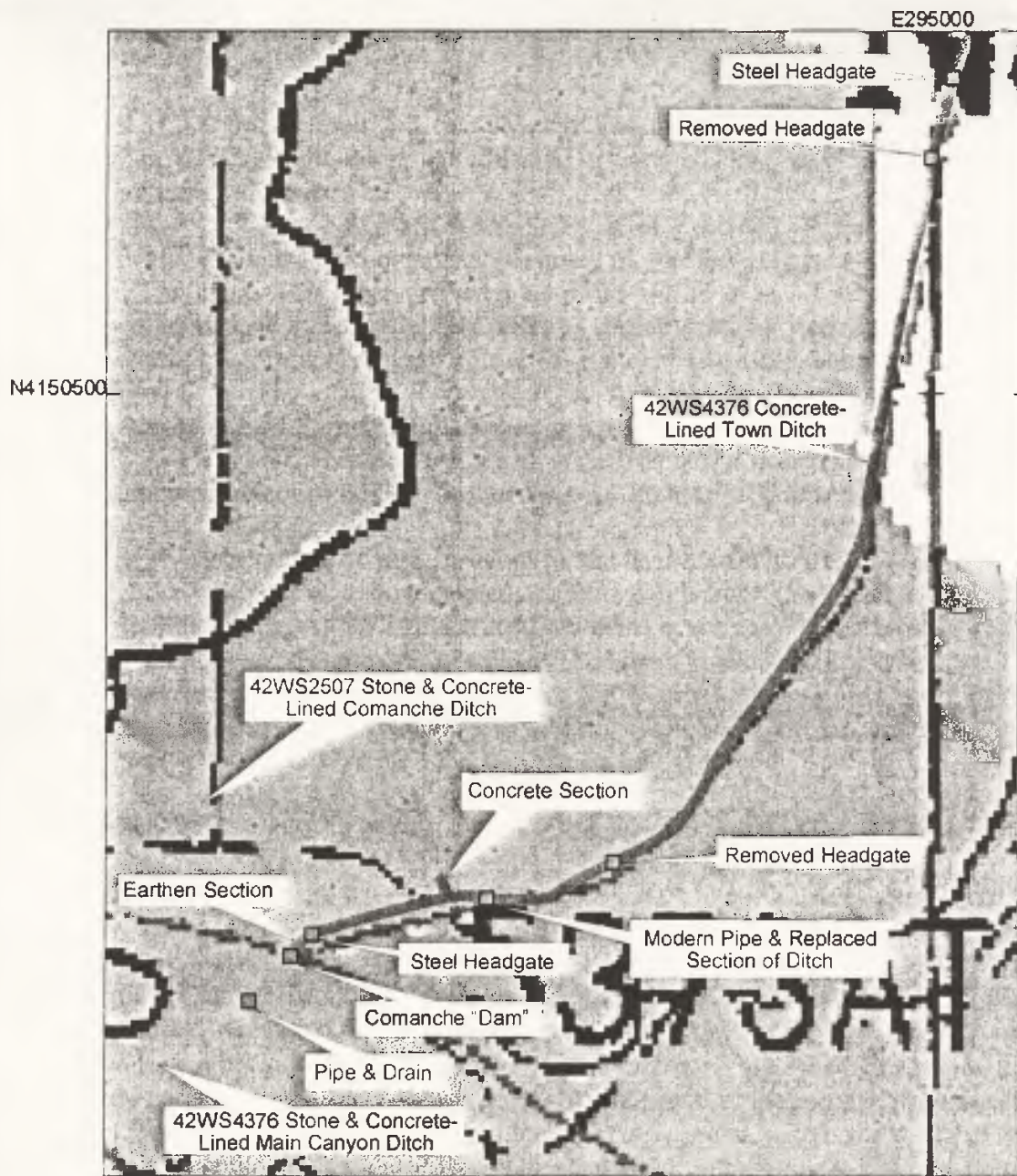


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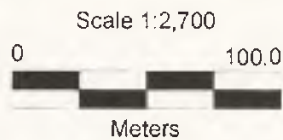


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**Figure 1. Project & Site Location Map. USGS 7.5' Series
Quadrangle: New Harmony, Utah 1986, T 38S, R 13W**



UTM
12 North
NAD 1987 (Western US)



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Figure 2. Map of Ditch Features. USGS 7.5' Series Quadrangles:
New Harmony, Utah 1986, T 38S, R 13W, Section 21

Previous Inventories

Files at the BLM, St. George Field Office indicate three cultural resource inventories have been conducted within or adjacent to the proposed New Harmony Nature Park. These projects and their results are briefly described below.

In 1981, the Dixie National Forest completed a survey of the New Harmony-Comanche Trail Easement and Trailhead. This project covered 1.4 miles of trail and a 3.5 acre area for the trailhead. Two prehistoric lithic scatters, 42WS1513 and 42WS1514, were documented and considered not eligible for the National Register of Historic Places (Snedeker 1981).

In 1989, the Dixie National Forest inventoried an irrigation waterline from Comanche Spring to the Town of New Harmony. One new historic site, the Comanche Ditch (42WS2507), was documented and recommended eligible for the National Register of Historic Places (Pack 1989).

In 2003, the BLM surveyed the 40 acre parcel of public land for the proposed New Harmony Nature Park. Four new sites were documented, including an historic trash scatter (42WS4372), two prehistoric lithic scatters (42WS4273 and 42WS4274), and three segments of an historic ditch system and earthen/rock dam (42WS4376). The historic trash scatter and two prehistoric lithic scatters were determined to be not eligible for the National Register of Historic Places. The historic ditch system, site 42WS4376, was determined eligible for the National Register (Dalley and McEwen 2003) and is the subject of the current report.

Historic Research

Research on the history of New Harmony and its irrigation systems was conducted at the Harold B. Lee Library at Brigham Young University, Gerald R. Sherratt Library at Southern Utah University, and St. George Branch of the Washington County Library. Records at the Cedar City Engineers Office, Utah Division of Water Rights, Washington County Records Office, and Government Land Office (GLO) maps were also checked. Results of the research indicate that most of the historical accounts and descriptions of New Harmony and its irrigation systems stem from anecdotal accounts and memories of the area by long-term residents of the community. Very little information was available from written records on the history of the ditches. No ditches or canals were indicated on the GLO maps, and no information was retrieved from the Engineers Office in Cedar City or the Washington County Records Office. However, records with the Utah Division of Water Rights did provide some useful information and personal interviews with two of New Harmony's long-term residents concerning their knowledge about the irrigation systems in the town were extremely helpful. These individuals were Sheldon Grant and Gordon Pace. Sheldon Grant is an ex-"Water Master" for the town and Gordon Pace is the current "Water Master." Gordon also provided a video taped interview he conducted in 1994 with Marion Pace, another former resident of the town, prior to his death, concerning the town ditches.

Two field visits were made to the project area, one on 23 June 2005 and a second on 7 July 2005. During these visits, cross section drawings of the ditches were made and sections photographed and documented with a Trimble GeoXT global positioning system. A total length recorded for the ditches at this time are 1,350 m for the Town Ditch, 340 m for the Main Canyon Ditch, and 302 m for the Comanche Ditch (Figures 1 & 2).

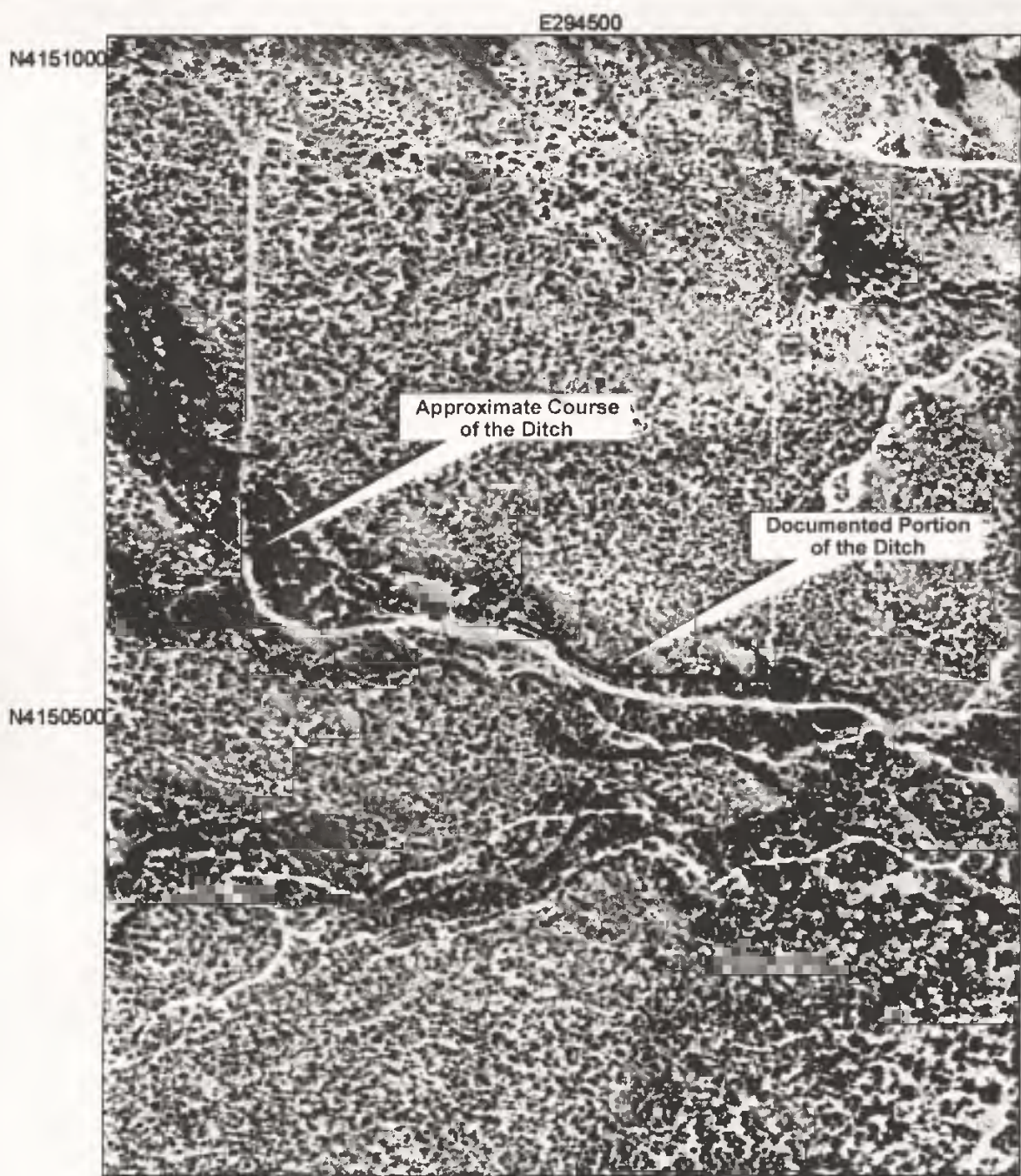
Descriptions of the Ditches and Comanche Dam

Comanche Ditch (42WS2507)

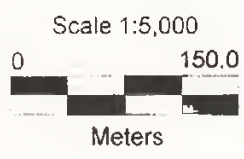
The Work Projects Administration (WPA) constructed the Comanche Ditch most likely in 1935 / 1936 to bring water from Comanche Spring, located along the eastern foothills of the Pine Valley Mountains, to the Town of New Harmony. The ditch originates at Comanche Spring within T 38S, R 13W, Section 17 on land administered by the U.S. Forest Service – Dixie National Forest at an elevation of approximately 5790 ft. From this point the ditch proceeds southeast onto the proposed project area within T 38S, R 13W, Section 21 to an elevation of about 5379 ft. where it joins the Town Ditch. A total length for the ditch is roughly 2350 m (1.46 mile). The ditch is not depicted on the New Harmony 7.5' topographic quadrangle map dated 1986 and was not indicated on GLO maps of the area, however it is visible on aerial photos (Figure 4).



Figure 3. Comanche Ditch (42WS2507)



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**Figure 4. Aerial Photograph of the Comanche Ditch (42WS2507). USGS
7.5' Digital Orthophoto Quadrangle: New Harmony, Utah 5/10/1997**

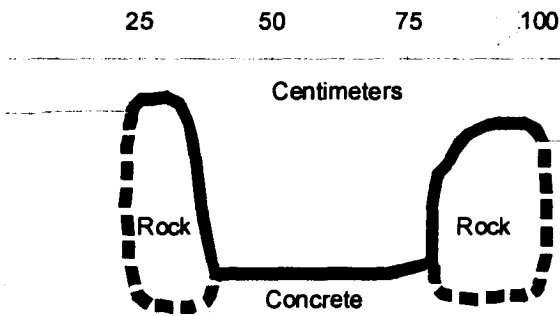


Figure 5. Cross-section of the Comanche Ditch (42WS2507)

Examination of this ditch included 302 m (991 ft.) from its junction with the Town Ditch and extended west (Figures 1 & 2). The ditch near its junction with the Town Ditch is concrete lined with a “V” or “U” shaped profile (Figure 6, Appendix A). This section is about 11.75 m (38.55 ft.) long. Beyond this, to the west, the ditch has a flat concrete bottom with shaped stone sides that have been cemented together (Figures 3 & d 5; Appendix A). Most of the ditch, approximately 1800 m (1.12 mile), lies within the Dixie National Forest and has been documented and reported by Marion Jacklin and Gina Pack (1989). They indicate the presence of several metal culvert features. The ditch is in fairly good condition and continues to transport water into the Town Ditch, although a diversion has been installed not

far from Comanche Spring, placing most of the water within modern pipe. The original special use permit issued by the U.S. Forest Service for this ditch was granted in 1935.

Main Canyon Ditch

The Main Canyon ditch was also constructed by the WPA around 1935 / 1936. This ditch was constructed prior to the Comanche Ditch, as indicated by personal interviews with local informants (see below), to bring water from the Pine Valley Mountains to the Town of New Harmony. An origination point for the ditch is up Main Canyon, however its exact origin is not known and it is not depicted on topographic / GLO maps of the area. The ditch is visible on aerial photographs of the area and is indicated in Figure 9.

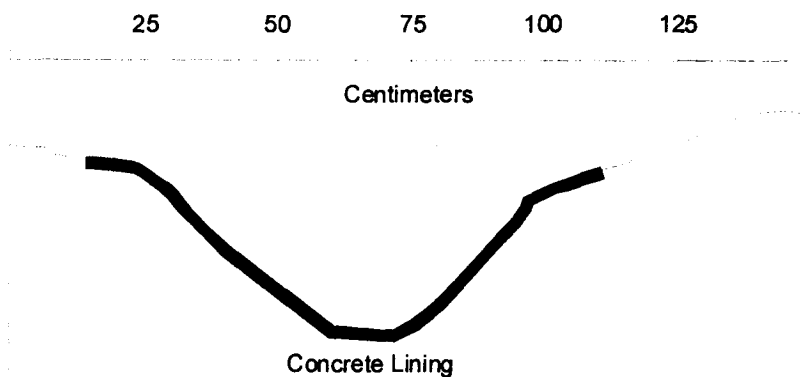


Figure 6. Cross-section of the Comanche Ditch (42WS2507) near its joining with the Town Ditch (42WS4376)



Figure 7. Main Canyon Ditch (42WS4376) with large rocks along its sides

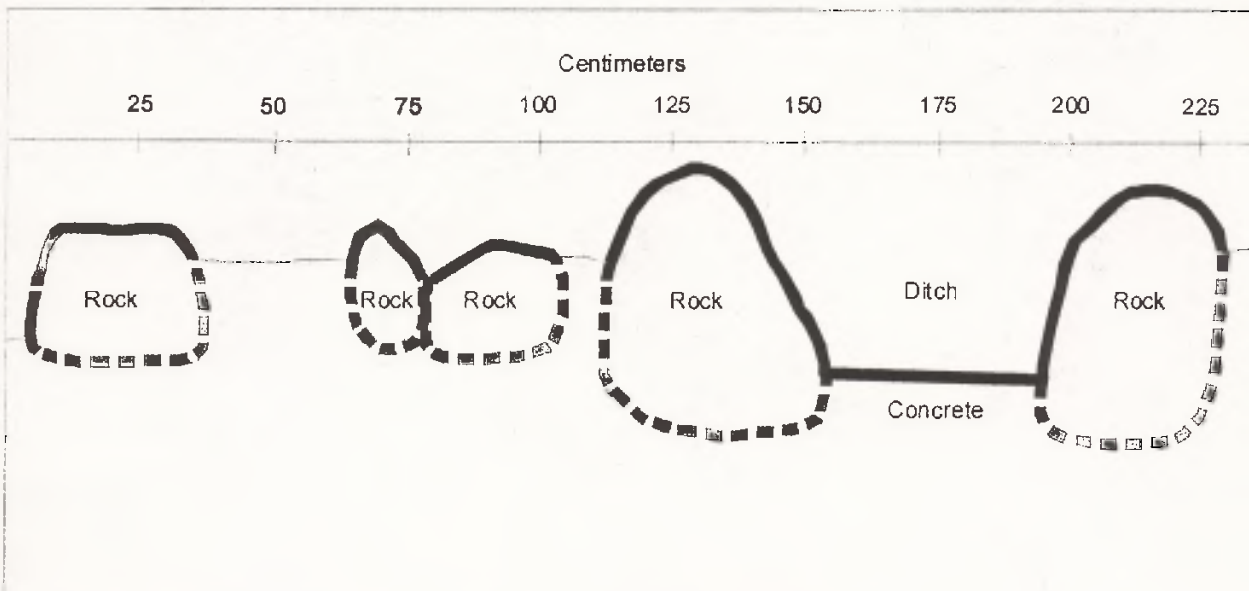
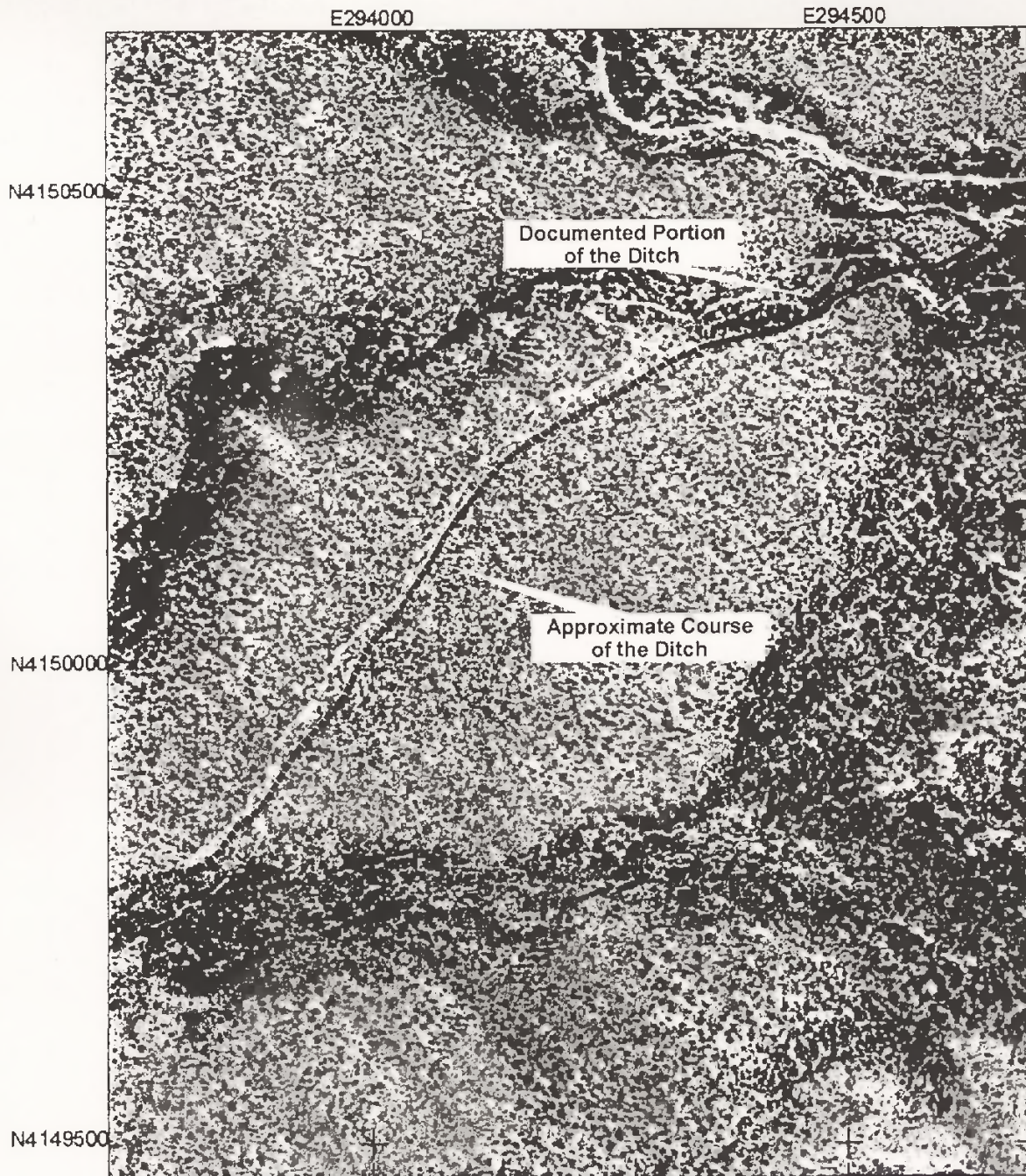
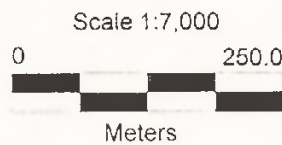
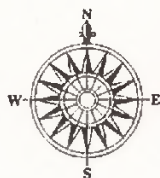


Figure 8. Cross-section of the Main Canyon Ditch (42WS4376)



UTM
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NAD 1983 (Conus)



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Figure 9. Aerial Photograph of the Main Canyon Ditch (42WS4376).
USGS 7.5' Digital Orthophoto Quadrangle: New Harmony, Utah 5/10/1997

Documentation of this ditch included 340 m (1,115 ft.) within T 38S, Range 13W, Section 21 (Figures 1 & 2) from a drain on its east end where it feeds into the Town Ditch and extended west. The drain on the east end of the ditch consists of a raised concrete box with a metal grated covering. The drain empties into the Town ditch via a buried corrugated metal pipe just west of the large metal headgate near the Comanche Dam. The ditch feeds into the drain via another corrugated metal pipe that extends off the ditch and over a steep slope. To the west of this pipe, the ditch consists of a flat concrete bottomed feature with large rocks cemented into place along its sides (Figures 7 & 8; Appendix A). Most of the ditch is located within the Dixie National Forest and has not been recorded. The ditch is in fairly good condition, however several areas appear to have been breached and no water was flowing through it during either field visit. According to Gordon Pace (personal communication 2005), current "Water Master" for the Town of New Harmony, the ditch is in need of repair further up slope and the drain/pipe feeding into the Town Ditch is full of sediment and needs to be cleaned out. That portion of the ditch documented at this time is located at elevations between 5451 ft. and 5385 ft.

Town Ditch

The Town Ditch, as it appears today, seems to have been constructed between 1946 and 1948 (BLM 2004), although an earlier earthen ditch completed in 1865 may have existed in this location and was simply upgraded to include the concrete lining (WPA n.d.). The ditch is concrete lined ditch with a "V" shaped profile (Figures 10 & 12; Appendix A). Its origin is at the Comanche Dam (discussed below) within T 38S, R 13W, Section 21 at an elevation of about

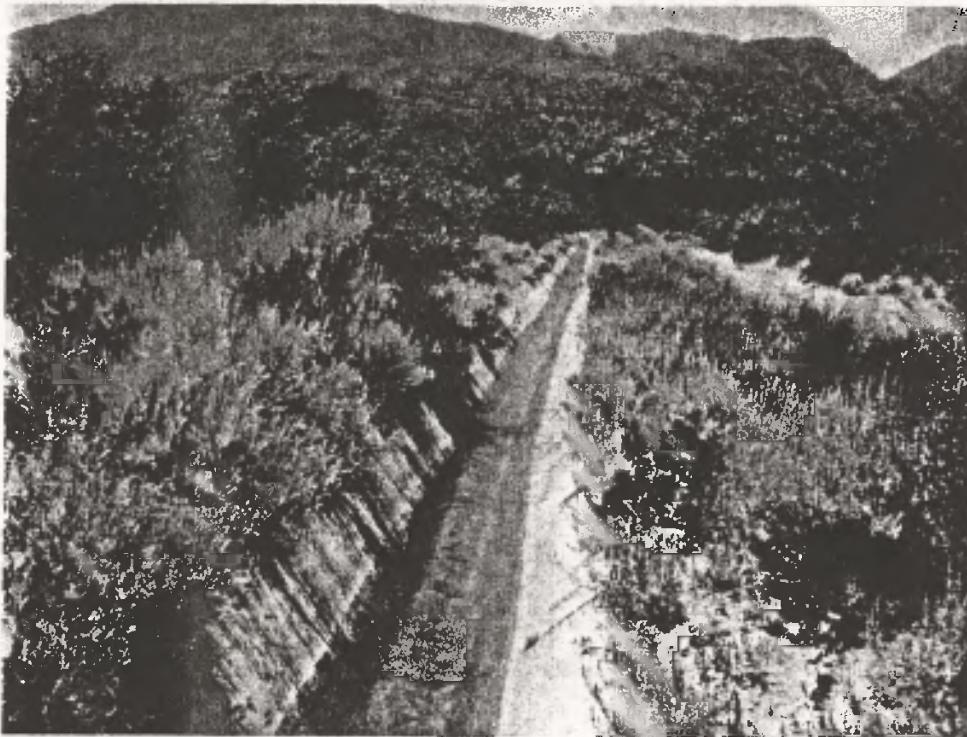
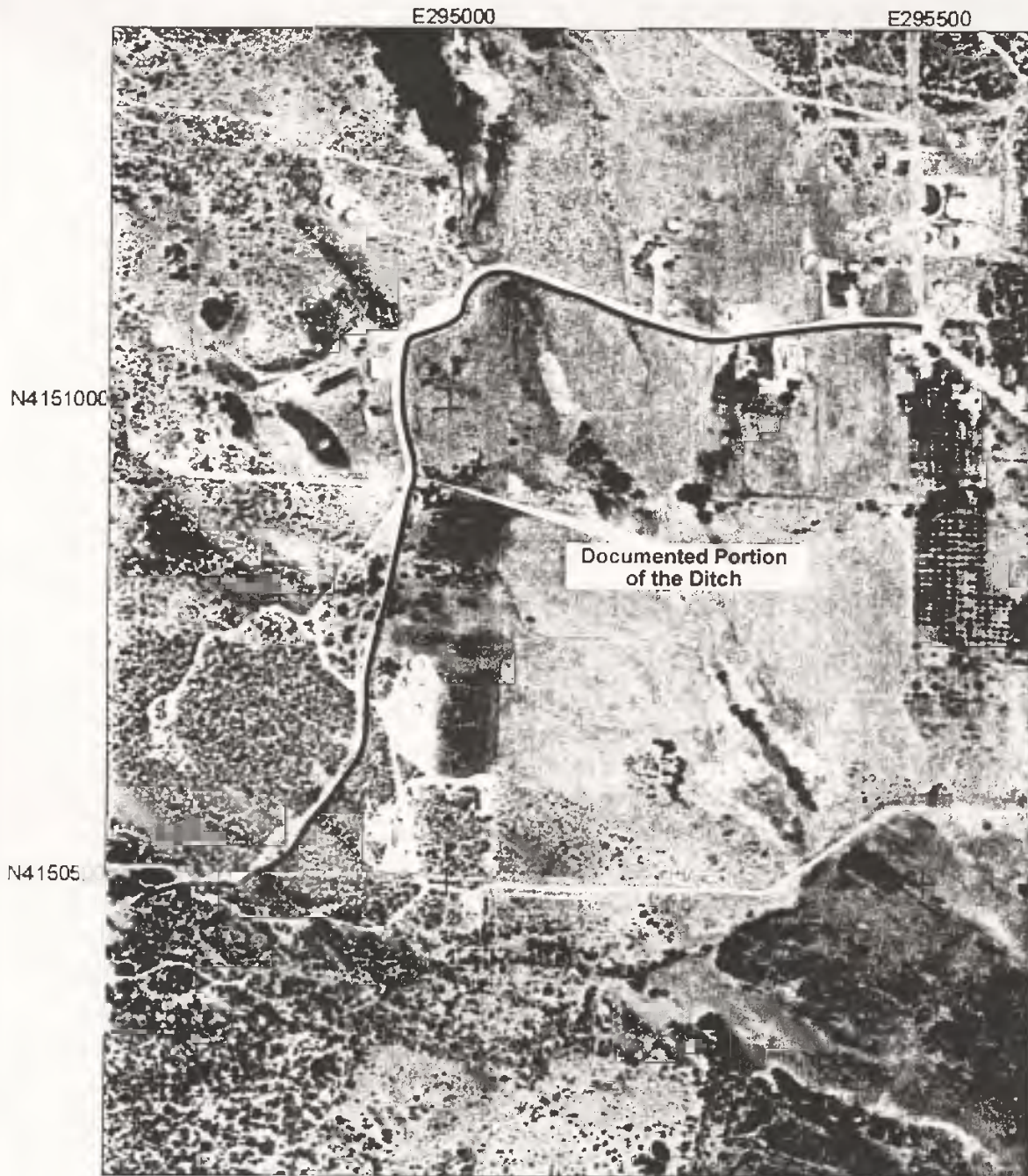
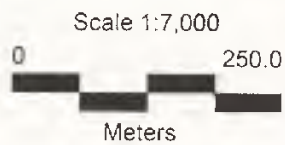
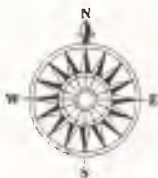


Figure 10. Concrete lined Town Ditch (42WS4376)

Figure 11. Aerial photograph of the Town Ditch (42WS4376) showing the concrete lining and the V-shaped profile of the ditch. The ditch runs from the foreground towards the background, following the contours of the terrain. The surrounding area is densely forested, and the hills in the background are also covered in trees.



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NAD 1983 (Conus)



Scale 1:7,000



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**Figure 11. Aerial Photograph of the Town Ditch (42WS4376). USGS
7.5' Digital Orthophoto Quadrangle: New Harmony, Utah 5/10/1997**

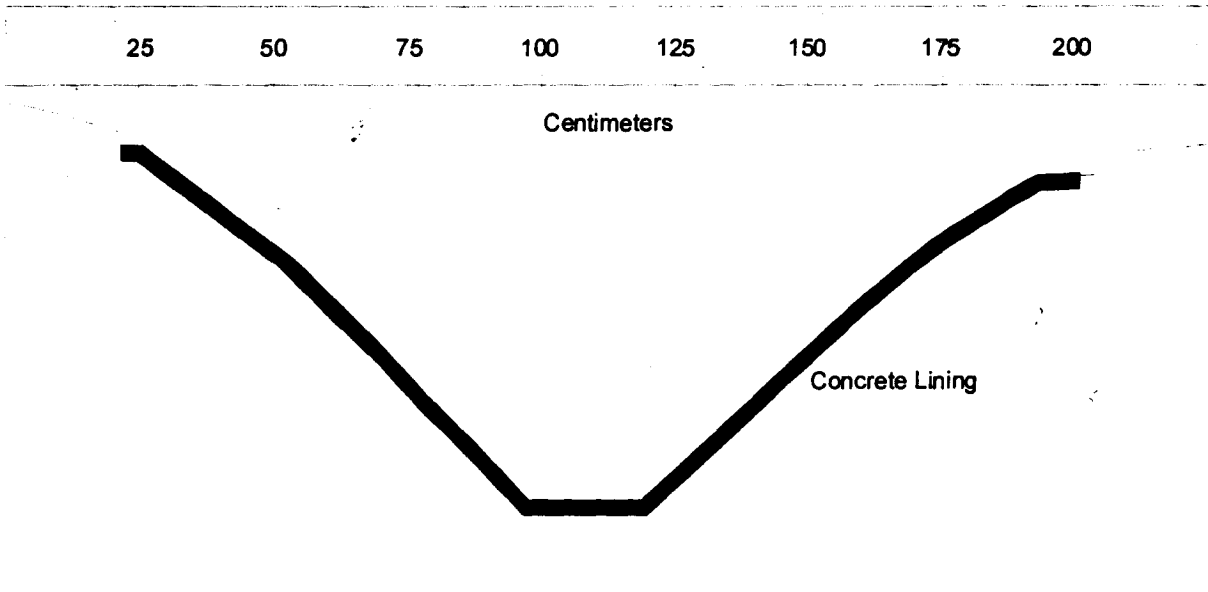


Figure 12. Cross-section of the concrete lined Town Ditch (42WS4376)

5380 ft. From this point water enters the ditch via a short earthen segment 19 m (62 ft.) long and roughly 6 ft. wide, which then joins the concrete lined ditch through a large steel headgate. Several additional headgates, some of which are now removed, are also present along its recorded course (Figures 1 & 2) which totals 1,350 m (0.84 mile), terminating within T 38S, R 13W, Section 16 where it enters the Town of New Harmony. Much of the ditch is indicated on topographic maps of the area and it is visible on aerial photos (Figure 11).

The Town Ditch appears to be owned and maintained by the New Harmony Reservoir and Irrigation Company. According to the records of the Utah Division of Water Rights, the company has a priority dating from 1860. Points of diversion for the ditch are recorded as being surface water from Comanche Spring, Main Canyon Creek, and Comanche Creek, with a flow of 2.05 cubic feet / second. Total land watered by the company is registered as being 195.1 acres.

Comanche Dam

The Comanche Dam is a rock structure with concrete cap that was constructed at the confluence of Straight Canyon and Comanche Creeks within T 38S, R 13W, Section 21 at an elevation of 5380 ft. (Figure 2). The feature appears to have been built as a crossing point over the creeks and as a catchment area for the ditch system. A large corrugated metal pipe is present near the base of the feature to allow some of the water from Comanche Creek to pass through. The dam is about 10 ft. tall and 15-20 ft. wide and constructed of broken rock (Figure 13; Appendix A).



Figure 13. Comanche Dam (42WS4376)

History of New Harmony and its Ditches

The original town of Harmony was established around "Fort Harmony" which was constructed in 1852 along Ash Creek. The walls of the fort were 300 feet square and the houses were constructed against its outer walls. Those houses along the east side of the fort were one story with walls 10 feet high and along the west side they were two stories with walls 16 feet high. The fort and town were abandoned after most of the adobe walls were washed away during twenty-eight days of heavy rain in January and February of 1862. Irrigation water for the fort and town was supplied by Kanarra and Harmony creeks (Van Cott 1990).

After the flooding, two new areas were settled, one to the west called New Harmony, where John D. Lee built a rock fort, and one to the east on Kanarra Creek (Redd 1973, Van Cott 1990, WPA n.d.). Both Harmony and New Harmony were named after Harmony, Pennsylvania, where the Mormon Prophet Joseph Smith translated the Book of Mormon. The local settlers also appreciated the name because it indicated the harmony and united action the pioneers showed during their periods of trial and hardship (Van Cott 1990).

The following account provides some additional insight into the establishment of New Harmony as related by the Redds family:

The Redds took with them all they could hold or drive and went south (leaving Spanish Fork). They had been over this road before, going to and coming from Las Vegas. It was not so far though only about 300 miles and about four weeks of trouble. They knew what to take and how to arrange it. Of course, they took everything with them they had made and collected for twelve years. Probably the only things they didn't take were the empty house and land. By that time they had for small children: Lemuel 6, Jane 4, John 2, and William a tiny baby. Grandmother held William on her lap the entire distance. It is as Aunt Alice said of her mother "she was twice a pioneer."

Grandfather had two sisters, besides his brother, Benjamin, had also received a call to go south. There they all went and found a place to settle into harmony. By 1860 that the people of Fort Harmony decided it would be best to move closer to the headwaters of Kanarra and Ash Creeks. The new settlements were called New Harmony and Kanarra settled in 1860 and 1861. In the fall and winter of 1861 and 1862, the walls of the old Fort Harmony disintegrated with the heavy rain, and the inhabitants sought other places, one west and one east. One and Alice says: "When they decided on two places, New Harmony and Kanarra, the settlers here in Fort Harmony cast lots by drawing from a hat the name of the place they would be assigned to go. This proved satisfactory all around, and through the years the two small towns have mingled into most friendly relationship."

Then came the Redds, Paces, and Sevys, the next spring, 1862. The Sevys and Paces got on their way before the Redds and got the choice land along Ash Creek. John D. Lee's claim was at the head of the creek, and the Paces were below him. The Paces and the Sevy's were there early enough to help them move. On January 18, 1862, John D. Lee, with the help of William and Harvey A. Pace and George W. Sevy, three wagons, with eight yoke of cattle to each wagon, and move all the families from the Fort to New Harmony except Caroline, Lee's wife. She wanted to finish weaving some cloth she had in a loom. The walls fell in and killed ~~to~~ of her children, a five-year-old girl and a seven-year-old boy. These children were buried on Lee's farm in New Harmony.

The road was so muddy that winter that the axles dragged on the ground, but they finally all got over to New Harmony. New Harmony, then in Kane County, was situated about twenty miles northwest of the black ridge on the headwaters of Ash Creek. The record of New Harmony says: "The new settlers were not much inclined to attend meetings. They said they had too much to do. On Sunday the 24th of May 1862, the Paces and Sevy's were requested to come to meeting and no work on the Sabbath."

In December, 1889, they had the big flood in New Harmony. It came from the west of the farm down the canyon from Pine Valley Mountain. Some think it was caused by water being held in the canyon by debris which had accumulated for

years until there was a big pond or lake. So much water had collected that the debris gave way and let the waters come, making a great roar. People in town saw an immense wall of water, twenty or more feet high, coming down to Redd's farm, headed for the house. Everyone who saw it was terrified about what the results might be. Certainly, there was no place for the family to go to escape the waters destruction, and no time to go, anyway. It was right on them when they heard it and saw it. Fortunately, the natural terrain divided the waters above the house so that the big portion rushed down the creek and the rest – down north of the house through the meadow part of the farm. When the waters divided, their powers lessened, and they left their burdens – rocks, timbers, brush, etc. – scattered all over the area. It took years to remove and dispose of all rubbish (Redds 1973)

Another early pioneer account of the history of New Harmony relates the following:

2, The little village had a modest but colorful history dating from 1852 when a group of settlers from the southern part of Utah, under the leadership of John D. Lee, moved over the “rim of the basin,” halted their oxen and wagons on the sage flats about three miles east of the present site of New Harmony, dug a well, and built a mud-walled fort.

They built their homes in the fort, using the walls as one side of their houses. Their water source came from Ash and Kanarra creeks. During the summer a heavy rain collapsed the walls of the fort, killing two of Lee's little sons. As children we never failed to gather spring wildflowers to decorate the two small graves with sandstone markers that were on the property our father had bought from John D. Lee.

It was about this time (post 1854) that Lee's fort began having problems with the well they dug for culinary water. This water supply proved inadequate. In addition it was difficult to bring irrigation water from North Ash Creek for the farms on the east and South Ash Creek for farming to the west. The settlers decided to establish two settlements – Kannaraville to the east and New Harmony to the west. John D. Lee named his fort New Harmony after the town of Harmony in Pennsylvania.

It was December of 1889 that we experienced the most serious flood anyone in our town could remember. It was on Sunday, and I had been with my brother William's family, helping my sister-in-law Verena who had just had a new baby. There had been heavy rains periodically for six weeks. I came home, and in the afternoon we heard a distant rumbling noise that seemed to come from beneath the earth and shake the very ground we stood on. Mother was pale with fear and nervous as the noise grew louder and clearer. Finally our brother William came riding from town on a horse. “Mother, it's a flood, and it's upon us!”

From the town, somewhat lower than our farm, could be seen a great wall of water, carrying trees and boulders, sweeping everything before it and rushing toward our home! Father was not at home, and our brothers bridled six horses, hoping to cross Ash Creek and escape before the flood reached us. But before we mounted and left, a strange and wonderful thing happened. The flood waters **separated into two channels, one passing on one side of our house and the other on the opposite side, leaving our home and family safe** (Adams 1981).

It is evident from these accounts that controlling the water sources originating from the nearby canyons was essential. Obtaining water for the irrigation of the western fields was also a problem. Thus the need for an irrigation and water control system for the Town of New Harmony. The first canal for the settlement appears to have been constructed in 1865 and is recounted in the following pioneer account:

A canal, six miles long, six feet wide and three feet deep, was dug in 1865 to carry the waters of Ash, Kanab, and Springs Creeks and Big Spring onto the community and farm lands (Hatch 1964).

A statistical report to Wilford Woodruff, president of the Deseret Agricultural and Manufacturing Society, on 29 August 1865 also states that the canal was about six miles long, six feet wide, and three feet deep, and was constructed at a cost of \$3,000. The canal was to supply water to the Southern Division of the Utah Militia who was camped within Harmony Flats during the falls of 1866 and 1867 while training for the Black Hawk War (WPA n.d.).

Sheldon Grant (1992: 41-43) also relates information regarding the canals and ditches of the town:

Floods underscored the necessity of controlling the water sources. The headwaters of Ash Creek are in Main Canyon, Comanche Canyon, Pinto Creek, Pace's Canyon, Joe Lee Creek, and Lawson Creek. Lawson Spring drains down Lawson Creek, which is also fed by water from Main Canyon. Joe Lee Creek is fed from Pinto Creek, Pace's Canyon, Comanche Canyon, Comanche Spring, and the Upper Joe Lee. At the lowest point where these streams meet Lawson Creek is where the dam was built to divert water to Fort Harmony.

Water from Pinto Creek and Pace's Canyon on the north usually is plentiful in the spring and early summer months. On the north side of the present town of New Harmony, another ditch was made to take water to Fort Harmony. The Main Canyon and Comanche Canyon water could be diverted into this upper ditch, which was about ten feet south of the present dry-field ditch. It is uncertain exactly where the ditch site was, but it too was the highest place water from Main and Comanche Canyons could be taken to Fort Harmony.

The upper ditch was used only in the early spring until the 1st of June or July, when there was plenty of water. All the permanent water was taken to the Fort by the lower ditch.

When the lower ditch was built, a road had to be constructed and maintained from Fort Harmony along its route. This road was the main way to get to the dam where the lower water was taken to the Fort. The dam site is a beautiful spot with cattails and other reed-like plants. It is located in a meadow with relatively low banks, which made it an ideal place for the women to wash clothes and spread them to dry. The women could stand in water about knee-deep if they so desired.

This road was just south of the present New Harmony town, and was probably the road used when the settlers first moved to New Harmony. It was just south of the lower street where people settled first. All of the permanent water as well as meadows to graze livestock and easily accessed water for gardens and crops was located there. It was several years later before any homes were built north of the lower street.

Later, when the Comanche ditch was being built, Archie Bell Hollow was considered as a site for a holding pond for Comanche Spring. Funds from the Works Project Administration (WPA) were allocated for the building of a dam along with the ditch. In a good year enough water runs down Joe Lee Creek to water the valley for seven years. The problem is where it should be stored. That dam never has been built.

At the time the cement-lined ditch was built, a small ditch was also built part way up Archie Bell Hollow so its stream of water could run into the Comanche ditch.

The town irrigation ditch came from the dry field ditch on the north, ran through George Prince's lot on the west side of the house, and then south to furnish irrigation water to the residents who lived west of the big wash that ran through town. A branch of the ditch also went east, north of the granary, to take irrigation water to those on the east side of the street and on south, primarily to the Kelseys.

In the early spring, about 1952, the Main Canyon cement ditch needed rebuilding. A little work here and there was no longer sufficient, and a new bottom was needed the entire length of the ditch.

When the ditch was first built, cement was mixed by hand in a large wooden box and then shoveled into the ditch. It took two summers to complete the job. It would now take 250-300 yards of gravel to replace the bottom. The problem was to get that much gravel close to the ditch over the bad road. The road would have to be repaired. Ether Wood agreed to provide his 4-ton International truck with a

4-yard dump bed for the Water Board's use if the road were widened and the rocks removed or covered by dirt so all four of the rear wheels and tires could carry the load. The road was repaired.

Haven Paxman, a cement finisher from Washington City, was hired to do the ditch bed and the work started. The bottom of the ditch was broken out using 10-pound sledgehammer, filled in where needed by tamping dirt into the bottom, and a three-inch thick layer of cement up the ditch. Gravel from the mouth of the Bumble Bee wash was loaded by hand and then hauled and dumped at the designated spots by two men. The two men worked weeks hauling gravel before the project started and then worked as needed thereafter.

Further construction detail on the ditches is provided by Marion Prince (video taped interview by Gordon Pace on 18 November 1994). He related that both the Main Canyon and Comanche Ditches were constructed as projects supported by the WPA. None of the workers involved in the construction process had any experience in ditch building and thus the first ditch taught them many lessons to be used later.

The construction methods employed in building the Main Canyon and Comanche Ditches were very similar. The ditches were dug by hand using shovels and picks. Large rocks were occasionally blasted out of the way by drilling a hole within them and placing a stick of dynamite in the hole. The ditch width and depth were determined by specifications provided by engineers from the WPA. The width had to accommodate the rocks along the sides and the depth had to include the concrete bottom. There were no roads along the lengths of the ditches, only to certain lower points, thus horse teams were used to haul the rocks and cement had to be mixed by hand and hauled by wheelbarrow to the ditches. Workers rotated duties and each day cuts were drawn determining who would mix and haul cement, dig the ditches, and shape the rocks.

Construction on the Main Canyon Ditch came first and was supervised by a gentleman from Cedar City, possibly named Lewis. Workers involved in its building included five men from Leeds, Utah, most likely from the Civilian Conservation Corps (CCC) camp located there, who traveled to the work site every day. Marion could recall the names of five local men also involved in the project, in addition to himself, Reese Davis, Ashby Pace, Ed Grant, Cleve LaBaron, and Jim Prince. Four of these men, Reese, Ashby, Ed, and Cleve, owned horse teams that pulled large steel skids that were used to haul rocks used in the building of the ditch. Construction of the ditch began up Main Canyon and proceeded down slope toward town. Large rocks were used in the sides of this ditch, particularly up the canyon. Minimal shaping was done on these rocks, consisting of squaring off the ends so that they would fit together.

Construction on the Comanche Ditch began soon after the completion of the Main Canyon Ditch and was completed primarily by local men. Marion stated that this ditch was a better ditch than the Main Canyon Ditch, due to the lessons they had learned during

its construction. The foreman for the project when it started was Heber J. Walton. He supervised construction from Comanche Spring down through the canyon. Marion Prince replaced him and supervised construction past Old Bald Hill to the Town Ditch. Marion stated that reports were required on the construction process and that he had to escort an inspector from Cedar City along the ditches course about every two weeks.

As has been stated, no roads existed along the length of the ditches, however a road did proceed as far up the canyon as Archie Bell Hollow, from which point all supplies used had to be hauled by horse or by hand. Workers involved in the construction of this ditch included Harold Cornelius, Leslie Prince, Joe Adder, and Clarence Engelstead. Stones used along the sides of this ditch were hammered to size and then fitted together, thus no large rocks were used as they were in the construction of the Main Canyon Ditch.

One section of the Comanche Ditch required blasting near Comanche Spring to get past a difficult rock ledge. Marion Prince and Harold Cornelius were responsible for this and received an additional \$0.50 per day for handling the blasting powder. Powder and dynamite for this job was stored within a small 18 inch high cavity in the rock near the spring. This provided a safe and dry storage location.

Marion Prince could only recall one accident that occurred during the construction process on the Comanche Ditch. Reese Davis injured his foot when a large stone slipped while being placed onto one of the skids and fell onto him. He did not leave the job, however, and kept working despite his injury.

The Comanche Dam was also constructed as part of the WPA projects in the area and was supervised by Marion after completion of the Comanche Ditch. This feature entailed breaking up rock that was used to construct an approximately 5 ft. high wall across the existing creek and placing a concrete cap across its top, forming a cap.

Repairs were required to both WPA ditches later, after flooding washed sections of the ditches out. Marion participated in the repair work on both, which entailed replacing about 50 ft. on the Comanche Ditch and an unspecified length on the Main Canyon Ditch. The concrete bottoms in these areas had to be replaced.

Marion also related a story concerning the removal of a large beautiful rock (metate) from up near Old Bald Hill during the construction process. The inspector from Cedar City saw the rock and asked to have the men carry it down the canyon to his car. Marion, Harold, and Leslie took turns carrying the 40-50 lb. rock the distance and received no thanks from the inspector who gladly drove off with his ancient artifact.

The above information indicates that the Main Canyon and Comanche Ditches were constructed by funds provided by the WPA during the mid-late 1930s or early 1940s, prior to World War II, and later repaired in 1952. The ditches were constructed to provide the needed water as dry farming increased significantly in the area during the late

1930s and early 1940s (WPA n.d.). Their construction style with stone sides and concrete bottom is consistent with the methods often seen in CCC / WPA features (Figures 3, 5, 6, 7, & 8; Appendix A). The Comanche Dam also fits this construction method. Sheldon Grant (personal communication 2005) also related that he worked on the construction of the Comanche Ditch while employed in the CCC and that the foreman for the project was a Mr. Merlin Hartman of Leeds. Verification of Sheldon's service in the CCC was provided in his personal history. When asked about the Town Ditch, Sheldon stated that it was constructed sometime earlier and later lined with concrete (Figures 10 & 12; Appendix A). This was also repeated by Marion Prince, and by Gordon Pace (personal communication 2005) who added that he used to clean out the ditches as a young boy. Gordon also pointed out the specifics of the ditches during a field visit on 7 July 2005.

Both Marion Prince and Sheldon Grant report the involvement of individuals from the Leeds CCC camp. The Leeds CCC Camp #555 was located on the old Forest Service Station in Leeds, just north of the main road through town. The camp began enrollment in April 1933 and remained in operation until 1942 with the commencement of World War II. The camp included about "250 boys and officers, mechanics, and special men" and was commanded by Captain McBride (Daughters of Utah Pioneers, n.d.).

The Main Canyon and Comanche Ditches both feed into the Town Ditch, which is owned and maintained by the New Harmony Reservoir and Irrigation Company. Records at the Utah Division of Water Rights indicate that the water rights date back to 1860. They also list its sources of water as Main Canyon Creek, Comanche Creek, and Comanche Spring. Water from the Town Ditch is considered "high" water and passes through New Harmony where it is used primarily to irrigate gardens and orchards and then on to the open fields to the east of town (Gordon Pace; personal communication 2005).

New Cultural Resource Site

42WS4691

Site 42WS4691 is a small aboriginal artifact scatter of Late Pueblo II cultural affiliation. It is located on a narrow spur above Straight Canyon and Comanche Creeks within a 79 by 43 m area (Figures 1 and 14; Appendix A). Soils on the site consist of coarse gray sands with small granite fragments. Some large granite boulders are also present. Vegetation on the site consists of pinyon, juniper, mountain mahogany, Gambel oak, Fremont barberry, sagebrush, cliffrose, cheat grass, Indian ricegrass, and various forbs.

Prehistoric material on the site consists of 150 - 200 chipped stone artifacts of chert, basalt, and obsidian. The debitage is dominated by interior reduction flakes, however all stages of reduction are present. Chert is the most common material on the site, with only a few basalt and obsidian flakes noted. Several lithic tools are present, including two chert biface fragments, two chert



Figure 14. Overview of Site 42WS4691 looking east

drill fragments, and a chert scraper. A single painted redware sherd is also present. A 14 by 8 m concentration of material is located near the center of the site. No features were noted.

Site 42WS4691 maintains integrity and appears to be associated with a Pueblo II cultural affiliation as suggested by the presence of a diagnostic sherd and projectile point. Obsidian artifacts on the site provide the opportunity for hydration dating and sourcing. The site may yield additional important information on lithic tool production and sourcing, subsistence, land use patterning, and more refined dating. The site is recommended eligible for the National Register of Historic Places under criterion (d).

Summary and Project Recommendations

The first irrigation canal constructed in New Harmony was in 1865, possibly the Town Ditch, which was originally earthen. Later, in the late 1930s or early 1940s, the Main Canyon and Comanche Ditches, as well as the Comanche Dam, were constructed by the CCC/WPA, both of which feed into the Town Ditch. The Town Ditch was then modified, probably in the 1950s, to include “V” shaped concrete lining and a small section of the Comanche Ditch replaced with a “V” shaped lining where it joined the Town Ditch.

A previously undocumented prehistoric artifact scatter along the west edge of the project area was also recorded. The site, 42WS4691, is considered potentially eligible for the National Register of Historic Places and should be avoided in plans for the proposed nature park.

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23Jun05:31. 42WS4376 -Main Canyon Ditch looking Southwest



23Jun05:32. 42WS4376 -Main Canyon Ditch looking Southwest