

**“A Project of Interest”: The Civilian Conservation Corps’
Washington Fields Project, 1937-1938**
By Michael Lyle Shamo

Buried deep in the December 2, 1937 edition of the *Washington County News* was an article about projects planned for Company 585 of the Civilian Conservation Corps stationed in Leeds. Among “three projects of interest” was one that would protect the 12,000-acre watershed area around the Washington Fields “from erosion of valuable range and farm lands.” The structures these young men built demonstrate the beginnings of a more scientific method of managing ecosystems. The project’s primary purpose was to protect the region’s most important resource, the irrigation water feeding the agricultural fields and towns. When members of the Church of Jesus Christ of Latter-day Saints first established settlements in the mid-nineteenth century, residents constantly struggled to build and repair irrigation systems. Flooding from the Virgin River sent high volumes of water, mud, and debris downstream that destroyed dams and silted up ditches, leaving a path of destruction in their wake. With the help from the newly established federal Soil Conservation Service (SCS), residents looked at how to solve the broader problems associated with flood erosion. Rather than protecting just the channels from which the water in the Washington Fields Canal flowed, the SCS brought new conservation technologies that spread flooding over the landscape and decreased the amount of erosion debris that reached the canal. The Civilian Conservation Corps (CCC) constructed SCS-designed diversion features which resulted in more reliable water flow through the dam and canal.¹

Since the completion of that project in 1938, the CCC-constructed earthen and rock structures in the hills overlooking the now sprawling communities of Washington and St. George

¹ “Leeds Camp to Promote Three Projects,” *Washington County News*, 2 December 1937, p. 3.

garnered little notice until the recent construction of the Southern Parkway, which bypasses several of these inconspicuous features. Due to the removal of some features in the construction of the Southern Parkway, Horrocks Engineering, Utah’s Department of Transportation (UDOT) and the Utah State Historic Preservation Office (UTSHPO) collaborated to document the history and purpose behind the CCC’s Washington Fields Project. As stipulated in Section 106 of the National Historical Preservation Act, any project that involves federal funding must take into account how the action will affect cultural resources and historic sites. As part of the proposed road’s compliance with federal environmental regulations, archaeologists documented and assessed the Depression-era structures between 2010 and 2012. The most recent report issued by the archeological and historical preservation firm William Self Associates documented nearly a hundred features. Because these features represent a significant chapter in American and Utah history, UDOT decided, like the *Washington County News* article from seventy-seven years ago, that this was a true “a project of interest.”²

Ecology and Early History of the Washington Fields

Understanding the Washington Fields project requires context about the local ecological history. The Washington Fields Canal diverts its water from the Virgin River, one of the nation’s swiftest-flowing rivers. The river runs 160 miles from the Markagunt Plateau, 9,500 feet above sea level, through slot canyons and desert plains before reaching Lake Mead, which now drowns its confluence with the Colorado River at about 1,700 feet above sea level, dropping at an average rate of 48 feet per mile. However, it is the river’s unpredictable flow that made it a

² IMACS Site Form 42Ws5360 (2010), Utah Department of Transportation, Hurricane, Utah; IMACS Site Form 42Ws5360 (2012), Utah Department of Transportation, Hurricane, Utah; Interview Notes from Eric Hanson, interviewed by Mike Shamo, 4 August 2014, in possession of author; “National Historic Preservation Act of 1966: As amended through 2006 [With annotations],” Section 106, <http://www.achp.gov/docs/nhpa%202008-final.pdf> (Accessed 25 September 2014).

difficult water source to tap. In the Washington Fields region, the river's flow is an average of 183 cubic feet per second but can fluctuate between the extremes of 15,000 cubic feet per second at flood stage and no flow whatsoever during severe drought. Small pockets of creosote, rabbitbrush, cholla, brittlebush, sagebrush, and other wild grasses only occasionally break up the lifeless desert landscape of red sand and stone. The narrow canyons, loose alkali soil, and sparse vegetation do little to hold back the walls of water and debris during frequent flash floods.³

When Latter-day Saint settlers arrived in the region during the 1850s, they viewed taming the Virgin River as a challenge that would only temporarily impede their ability to make the desert “blossom as the rose”— an oft-quoted reference to an Old Testament scripture in Isaiah. The first Latter-day Saint explorers saw past the country's barrenness to envision its perceived potential. The company's leader, Parley P. Pratt said that the area had “three or four thousand acres of desirable land” containing “loose, sandy, fertile soil, easily watered.” Other explorations in subsequent years gave similar glowing reports, which said more about their belief in their ability to cultivate the land than actual knowledge about local ecology.⁴

In the spring of 1857, the first permanent Latter-day Saint settlers camped on the Washington Fields and immediately began work constructing irrigation ditches. Most of these initial pioneers were experienced cotton growers from the South, hoping to make that crop a part

³ Desert Research Institute, Western Regional Climate Center, <http://www.wrcc.dri.edu/summary/Climsmut.html>, (Accessed 23 July 2014); US Geological Survey, “Water Data Report, 2010: 09413500 Virgin River Near ST. George, UT,” <http://wdr.water.usgs.gov/wy2010/pdfs/09413500.2010.pdf> (Accessed 23 July 2014); Robert L. Eves, *Water, Rock, & Time: The Geologic Story of Zion National Park* (Springdale, Utah: Zion Natural History Association, 2005), 58-60; IMACS Site Form 42Ws5360 (2010), Utah Department of Transportation, Hurricane, Utah.

⁴ Journal History of the Church of Jesus Christ of Latter-day Saints, 31 January 1850, Church History Library, Church of Jesus Christ of Latter-day Saints, Salt Lake City, Utah (herein after CHL) Also quoted with slight variation in William B. Smart and Donna T. Smart, *Over the Rim: The Parley P. Pratt Exploring Expedition to Southern Utah, 1849-1850* (Logan: Utah State University Press, 1999), 181-182.

of Utah's self-sustaining economy. Latter-day Saint efforts to irrigate the mountain valleys in Northern Utah proved to be at least moderately successful in creating sustainable agriculture. But they had not yet proven the same in a harsh desert climate with a river subject to catastrophic flooding. In the first year alone, Salt Lake City's *Deseret News* reported floods destroying "two or three dams" in the small settlement of Washington, as well as another dam further downstream.⁵ While these first floods initially appeared to be only temporary setbacks, every season thereafter was marked with constant repairs and replacement of damaged dams and ditches. One particular flood in the winter of 1861-62 caused incredible devastation throughout the Virgin River basin sweeping away several fields, buildings, and even settlements. Heberville and Tonaquint, two communities near the confluence of the Virgin and Santa Clara Rivers were a complete loss. An 1865 report on the cost of irrigation systems revealed that these cash-strapped southern Utah communities expended \$167,421.59, which calculates to roughly \$2.5 million today, on irrigation systems in less than a decade. With Washington Fields alone accounting for about \$80,000 of those costs.⁶

Over time, settlers gained more knowledge about the ecological cycles yet remained at a loss on how to protect their irrigation systems. A committee of landowners in St. George issued a report in 1867 explained that the flow was predictable but impossible to master, stating "The Virgin River is usually high in the Spring, and difficult to control and it is generally late in the season before water can be turned into the ditches for irrigation." In addition, monsoonal thunderstorms in the late summer "frequently bring down heavy floods in the Virgin, washing

⁵ Cotton and Its Culture in Utah," *Deseret News*, 20 October 1858.

⁶ "James G. Bleak, "Annals of the Southern Utah Mission, circa 1898-1907," manuscript, 42-43, 113-114, 281, box 1, folder 1, CHL; Calculations for historic inflation computed at <http://www.westegg.com/inflation/> (Accessed 12 February 2015).

away our dams and filling up our ditches, causing us much labor and expense to repair, and leaving us without water sometimes for weeks, causing great injury to our crops in this field, as they are not usually so far advanced in their growth, and the lands being dryer and poorer.”⁷

Joseph W. Young expressed the problem more succinctly:

[C]ontrolling the water in this country, it is a difficult matter to what it is in the settlements north. It has not been uncommon for the brethren to build a dam...that cost four or five thousand dollars, and have it washed away within a few days, and so on ad infinitum.⁸

After another flood destroyed the Washington Fields dam in 1885, after which the cooperative Washington Fields Canal Company tried more costly improvements that would hold back the raging water. The company purchased a pile driver to thrust four rows of tall ponderosa pine logs from nearby Pine Valley into the bedrock of the riverbed. The rows were then filled with rocks to add greater strength and stability. Company leader Charles W. Seegmiller, reflecting on the pile-driven dam’s completion in 1886, remarked “Well, we finished it, looked at it with satisfaction, and then said, ‘Now there is a dam that will be permanent; we have mastered the river at last!’”⁹ The dam held for the next three years, though no floods were reported. The lull ended dramatically in the winter of 1889-90 when two of the largest recorded floods snapped the large logs and left a gaping hole in the dam, making it “comparatively worthless.” Within a few years, nearly half of Washington’s population had given up and moved away.¹⁰

⁷ Bleak, “Annals,” 382-383, box 1, folder 1, CHL.

⁸ Quoted in Andrew Karl Larson, *I Was Called to Dixie: The Virgin River Basin – Unique Experiences in Mormon Pioneering* (Salt Lake City: Deseret News Press, 1961), 362.

⁹ Charles W. Seemiller, interview with Andrew Karl Larson, 8 September 1945, quoted in Larson, *I Was Called to Dixie*, 367.

¹⁰ Bleak, “Annals,” 10-11, box 2, folder 2R, CHL; Records of the Washington Fields Canal Company, 1884-1890, Special Collections, Dixie State University, St. George, Utah; Larson, *I Was Called to Dixie*, 362-368;

Those who remained pressed on undaunted in finding a permanent solution to taming the untamable Virgin River. The Canal Company decided the best option was to construct an all-rock dam. They moved the dam site upriver to where the Virgin Anticline provided a natural geological foundation across the river. In the end, the rock dam proved the most expensive, but the best solution, costing nearly \$60,000. The larger dam along with a holding reservoir and new ditches also increased the amount of arable land. Although the rock dam proved to finally be the solution Washington and St. George residents had hoped for, the dam and canal still required constant maintenance and improvements.¹¹

The residents who tirelessly tried to hold back the tide of devastating flash floods were also simultaneously contributing to their increasing intensity and frequency. Overgrazing of the already delicate landscape appeared to be the biggest culprit. When raising cotton and other crops proved to be impractical and unprofitable, residents turned to stock-raising as an alternative. Demand for cattle dramatically increased during the 1870s and 1880s to feed the growing populations of St. George, Washington, and the mining boom-town of Silver Reef. Alfalfa replaced cotton on the Washington Fields. Any available rangeland became overgrazed. By 1900 about 10,000 cattle ranged in Washington County, and perhaps thousands more using the winter pastures on the Arizona Strip. The Fort Pearce Wash Road became the main thoroughfare for the thousands of livestock moving between the two ranges. The valleys

Washington County Water Conservancy District, "Washington Fields Diversion Canal," <http://www.wcwcd.org/wp-content/uploads/2012/07/Washington-Fields-Diversion.Canal-history.pdf> (Accessed 21 July 2014).

¹¹ Bleak, "Annals," 1-10, box 2, folder 2R, CHL; Larson, *I Was Called to Dixie*, 368-375; Deed of Property transferred from the Washington Fields Canal Company to the St. George and Washington Canal Company, 1 February 1901, St. George and Washington Canal Company Records, Folder 5, Box 2, AC 26, Dixie State University Library Special Collections, St. George, Utah (Herein after DSU SC).

surrounding the road were severely overgrazed and vulnerable to severe erosion and flash flooding.¹²

Finding a National Solution to Soil Erosion

In the opening decades of the twentieth century, overgrazing and soil erosion proved to be a major concern nationally, not just the surrounding the Washington Fields. The entire American West observed scars on the landscape left by grazing and commercialized agriculture. Because the problem was widespread, local communities invited the federal government to step in and fill the need for central planning and contribute the vast resources to administer the land. Government agencies such as the U. S. Forest Service and National Park Service looked to science and technology as a means of conserving the land. The establishment of most Utah National Forests received widespread local support because overgrazing caused severe floods to tear through many Utah towns built along streams flowing out of mountain canyons. The federal government possessed the power of law and vast resources to reduce grazing. In addition, the government invested in several studies to understand the source of flooding to devise solutions to reduce their destructive impact.¹³

During the Great Depression, President Franklin D. Roosevelt made preventing catastrophic soil erosion one of the priorities of the New Deal, forming the Soil Conservation

¹² Douglas D. Alder and Karl F. Brooks, *A History of Washington County: From Isolation to Destination*, 2nd ed. (Springdale, UT: Zion Natural History Association, 2007), 91-92; Larson, *I Was Called to Dixie*, 248, 350-356; Blain M. Yorgason, Richard A. Schmutz and Douglas D. Alder, *All That Was Promised: The St. George Temple and the Unfolding of the Restoration* (Salt Lake City: Deseret Book Company, 2013), 84-85; Don D. Walker, "The Cattle Industry of Utah, 1850-1890: An Historical Profile," *Utah Historical Quarterly* 32 No. 3 (Summer 1964): 191.

¹³ A couple of examples of government studies of controlling flooding in Utah are Robert V. R. Reynolds, *Grazing and Floods: A Study of Conditions in the Manti National Forest, Utah* (Washington: Government Printing Office, 1911) and Reed W. Bailey and A. R. Croft, *Contour-Trenches Control Floods and Erosion on Range Lands* (Washington: Government Printing Office, 1937).

Service and the Civilian Conservation Corps. The Soil Conservation Service (SCS), formed in part as a reaction to the Dust Bowl where violent dust storms were exacerbated through years of mechanized farming stripping the topsoil. The SCS developed several methods to combat catastrophic erosion. One particularly effective strategy the SCS employed was called “upstream engineering.” Rather than trying to minimize the damaging effects of flooding at its point of impact, as early Washington and St. George residents had done, SCS engineers looked at how they could slow down and spread-out floodwaters at their source, preventing soil and debris from washing downstream. These engineers used a variety of academic disciplines to design the most effective technologies to spread out the floodwaters including hydrology, botany, climatology, geology, soil mechanics, and landscape architecture among other possible subjects. Engineers needed to understand exactly how water moved over the landscape and how it reacted to the vegetation, soil, and other ground materials. In devising structures to reduce the impacts of flooding, the engineers wanted to use natural materials that would blend into the environment but are still strong enough to stand the test of time. While many of the structures the SCS designed, such as the ones overlooking the Washington Fields, appear unremarkable, the seemingly random mounds of dirt and piles of rocks required an impressive amount of research and planning.¹⁴

The Civilian Conservation Corps was the government’s conservation labor force during the New Deal. Throughout the country, the CCC worked on a variety of projects to meet national and local needs. Each camp was designated to one government agency such as the US Forest

¹⁴ John T. Phelan and Donald L. Basinger, *Engineering in the Soil Conservation Service* (Washington: United States Department of Agriculture, 1993), 27-34.

Service, National Park Service, or Grazing Service. The SCS sponsored hundreds of CCC camps throughout the country to plant trees, cut terraces, and build flood control features.

In Washington County, the CCC established fifteen camps, more than any other Utah county. These camps built trails and campgrounds, improved roadways and bridges, and built features that prevented wildfires and flash flooding. The Soil Conservation Service also operated companies at various times throughout Washington County, mostly involved in erosion control and irrigation projects, such as the Washington Fields project. Former CCC worker in Washington County, Tony Melessa, recalled that working for the SCS camp required building “dams and cleaned out washes and stuff like that, anything to do with dirt.”¹⁵ While these men engaged in projects that promoted the overall national goal of conservation, most of their projects filled local needs.¹⁶

The Washington Fields Project

The Washington Fields Project is an ideal example of where national and local interests intersected. As leaders of the St. George and Washington Canal Company were preparing for another growing season in early 1937, they contemplated plans on how to improve the dam and canal once again. While the rock dam at the Virgin Anticline remained in place, the company had to be vigilant about repairing any leaks or clogs in the canal itself. Periodic flooding from the surrounding hills remained the largest concern because of their ability to damage canal walls and

¹⁵ Alex Spevak and Tony Melessa, interviewed by Janet Seegmiller, 8 March 2006, Markagunt Plateau Oral History Project, Sherratt Library, Southern Utah University, Cedar City, Utah.

¹⁶ Wayne K. Hinton and Elizabeth A. Green, *With Picks, Shovels and Hope: The CCC and Its Legacy on the Colorado Plateau* (Missoula, Montana: Mountain Press Publishing Co., 2008), 143-147, 177-184; for more information on the CCC’s involvement throughout Utah see Kenneth W. Baldrige, “Nine Years of Achievement: The Civilian Conservation Corps in Utah (Dissertation, Brigham Young University, 1971) and Kenneth W. Baldrige, “Reclamation Work of the Civilian Conservation Corps, 1933-1942,” *Utah Historical Quarterly* 39 No. 3 (Summer 1971): 265-285.

clog water channels with silt and debris. The company's solution was to line the canal walls with concrete to prevent seepage and leaks, but this did nothing to address the ever-increasing gravel and silt deposits. Machinery designed to clear the debris could help but still did not address the problem of preventing erosion on the hillside.¹⁷

At their board meeting on March 14, the company invited a "Mr. Dobbs," an assistant engineer for the Soil Conservation Service to "suggest help in protecting farms from floods in the river and reclaiming depleted soil." Dobbs suggested that the Company petition the SCS District Manager G. S. Quate for assistance in providing the capital and resources to protect the Washington Fields. After this initial meeting, plans to shore up the entire hillside were soon put into place. That summer, the CCC transferred Company 585 from Gunlock, twenty-five miles north of St. George, and re-opened the Leeds Camp which had been vacant since March 1934. At its height, during the winter of 1937-38, the Leeds camp had 280 enrollees, much larger than the 200 average at other Utah CCC camps. While the Company was involved in several projects that winter to prevent the erosion of 330,000 acres throughout Washington County, it appears the Washington Field Project was one of the priority assignments that prompted their transfer to Leeds.¹⁸

As soon as that year's harvest was in and irrigation turned off for the year, Company 585 swarmed the hillsides above the Washington Fields Canal and other waterways throughout the Virgin River Basin. Whenever the CCC worked on private land it was the responsibility of the

¹⁷ Board of Directors Meeting Minutes, 22 February 1937, St. George and Washington Canal Company Minute Book 4, pp. 97-98, Item 1, Box 4, AC 26, St. George and Washington Canal Company Records, DSU SC.

¹⁸ Board of Directors Meeting Minutes, 14 March 1937, St. George and Washington Canal Company Minute Book 4, pp. 99-100, Item 1, Box 4, AC 26, St. George and Washington Canal Company Records, DSU SC; Christopher Harper, Heidi Roberts, Suzanne Eskenazi, and Gregory Seymour, *Battling the Elements: Results of Data Recovery Efforts at Civilian Conservation Corps Site 42WS3118, Washington County, Utah* (Las Vegas: HRA Inc. Conservation Archeology, 2009), 10-14.

landowner to provide many of the supplies and building materials necessary for the project. The canal company, therefore, supplied the CCC with gunpowder for blasting, cement, and gasoline for the machinery. With the CCC's help, the canal company was able to have the improvements they needed to the canal and the surrounding countryside in place before the next growing season.¹⁹

According to canal company records, the steep hills above the Turner and Westover family farms near the head of the canal required the most attention. The CCC-built structures found in Long Valley above the Washington Fields are those UDOT evaluated between 2010 and 2012 during their survey of the Southern Parkway. Within that area, archaeologists documented ninety-two CCC-built features, primarily consisting of rock spreaders, earthen berms, gully plugs, and rock piles. These structures found above the canal were hallmarks of SCS-designed and CCC-built upstream engineering. Similar structures were erected and proven in several other sites throughout the West.²⁰

The SCS planned each feature for a specific function and strategically placed them in the areas where they would be most effective. The overall idea was to spread the floodwaters over a wide area and separate the debris, which would lessen the destructive force behind the floods and prevent any runoff from channeling into washes. The earthen berms typically involved the most labor and equipment and were central to the supervising SCS engineer's plans. Bulldozers or tractors were used to make diversion mounds on slopes to force the water to flow away from washes and channels. U-shaped spreaders placed at the end of berms were used to dissipate the energy from floodwaters and force the spreading of the water over a wider area. The rocks in

¹⁹ Board of Directors Meeting Minutes, 12 November 1937, St. George and Washington Canal Company Minute Book 4, pp. 105-106, Item 1, Box 4, AC 26, St. George and Washington Canal Company Records, DSU SC.

²⁰ IMACS Site Form 42Ws5360 (2010 and 2012), Utah Department of Transportation, Hurricane, Utah

each of the spreaders were locally excavated and put into place by hand. These features were also called “percolators” because sediment would build up in the gaps between the rocks and only the water was then allowed to slowly seep through. Nutrient-rich soil built up behind spreaders created ideal places for re-vegetation which further enhanced the entire project’s effectiveness. Gully plugs and rock piles were simple dams placed in small washes to keep the water from cutting deeper channels and furthering erosion. Put all together in a system, these structures effectively spread the flow of water and forced it to drop sediment and debris before reaching the Washington Fields Canal below.²¹

The structures located above the Washington Fields dam and canal comprise only a fraction of the infrastructure built by CCC Company 585 and the SCS in Washington County during that same winter. The CCC boys widened and improved the county road that connected the project worksite with the town of Washington (which will now be widened again as part of the Southern Parkway). The *Washington County News* reported on January 13, 1938, that the company built several dams on tributaries that fed into the Virgin River. At Bloomington, three miles south of St. George, the CCC erected a large concrete dam and a smaller earthen one. The company also constructed a more extensive array of erosion control structures, similar to the ones above the Washington Fields with the addition of contour trenching, along the west-facing slopes just southeast of St. George. Another project eighteen miles east of the Leeds another concrete diversion dam was established on North Creek along with sixteen overshot drops, most

²¹ IMACS Site Form 42Ws5360 (2010 and 2012), Utah Department of Transportation, Hurricane, Utah; Harper, et al., *Battling the Elements*, 17-31.

of which were built out of rough-hewn masonry. To accommodate the heavy workload, nearly 100 reinforcements were sent to Company 585 from other camps in Utah.²²

On April 3-4, 1938, the Leeds Camp opened its doors for a celebration commemorating the fifth anniversary of the CCC's founding and the completion of their winter projects. Residents from throughout Washington County attended the festivities that involved a concert from the Dixie College band, an open house to tour the camp facilities, and several presentations and speeches from CCC and community leaders. Two of the speeches were entitled, "What the CCC Has Done for Me" and "What the SCS is Doing for Washington County."²³ The reception from the local communities proved "the citizens of Washington County are interested in what the camp at Leeds is doing" observed the *Washington County News*.²⁴ The celebration was a fitting conclusion to a project that brought together federal agencies and residents to solve a problem that plagued the communities for over three-quarters of a century.

In the years and decades following the Washington Fields project, the Virgin River continues to roll along the desert landscape with its temperamental cycles of drought and flash floods. While some of those floods continue to wreak havoc and destruction on Washington and St. George, the dam and canal remain standing. Combined with more recent upgrades of the irrigation systems, the earthen berms, rock spreaders, and gully plugs continue to operate as they

²² "Plans Made For The Enlargement of CCC Camp," *Washington County News*, 13 January 1938; Ralph W. McBride, Memorandum to J. C. Reddock, Special Investigator, CCC, "Work Project, Leeds Demonstration Area," 29 January 1938, copy of original in Harper, et al., *Battling the Elements*, Appendix A; Board of Directors Meeting Minutes, 2 January 1938, St. George and Washington Canal Company Minute Book 4, p. 107, Item 1, Box 4, AC 26, St. George and Washington Canal Company Records, DSU SC.

²³ "Leeds Camp Announces Plans for Anniversary Program Now Completed," *Washington County News*, 31 March 1938.

²⁴ "Two-Day Celebration at Leeds Camp Put Over Satisfactorily," *Washington County News*, 14 April 1938.

were designed with little notice. Farmers on the Washington Fields are not as worried that the next storm will wash away the dam and canal. In the words of the Leeds Camp Commanding Officer Neil W. Lamb, the rugged and simple technologies the Soil Conservation Service designed and the Civilian Conservation Corps built during the winter of 1937-38 accomplished “something of real value for Washington county.”²⁵

²⁵ Neil W. Lamb, “Leeds Camp Commanding Officer Tells of CCC’s Days Activities,” *Washington County News*, 31 March 1938.