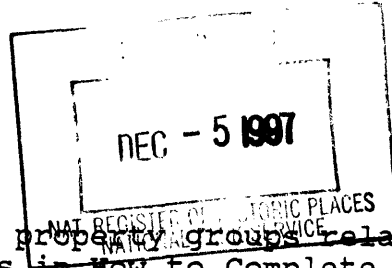


United States Department of the Interior  
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National Register of Historic Places  
Multiple Property Documentation Form



1630  
Hanson

This form is used for documenting multiple property groups relating to one or several historic contexts. See instructions in How to Complete the Multiple Property Documentation Form (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

\_\_\_\_ New Submission      X   Amended Submission

A. Name of Multiple Property Listing

MULTIPLE RESOURCES FOR ZION NATIONAL PARK (LISTED 1987)

B. Associated Historic Contexts

(Name each associated historic context, identifying theme, geographical area, and chronological period for each.)

AGRICULTURE, ARCHAEOLOGY (HISTORIC NON-ABORIGINAL), EXPLORATION/SETTLEMENT,  
AND SOCIAL HISTORY (ALL FOR SOUTHWEST UTAH,  
1880S TO 1960S)

C. Form Prepared by

(MARCH-APRIL 1997)

name/title DR. SUSAN KARDAS & DR. EDWARD LARRABEE/ HISTORIC SITES RESEARCH

street & number 345 N. 1580 W. 368-6

telephone (801) 635-8239

city or town HURRICANE

state UT

zip code 84737

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (\_\_\_\_ See continuation sheet for additional comments.)

*Ronald M. Greenberg*

*11-26-97*

Signature and title of certifying official    Date

National Park Service

State or Federal agency and bureau

**United States Department of the Interior  
National Park Service**

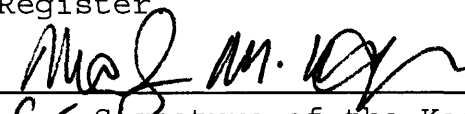
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Flanigan Ditch  
Zion National Park MRA  
Washington County, UTAH

I hereby certify that this property is entered in the National Register

  
\_\_\_\_\_  
for Signature of the Keeper

1/12/98  
Date of Action

In my opinion, the property (x) meets ( ) does not meet the National Register criteria. ( ) See continuation sheet.

*Willis Mark*

*11/6/97*

Signature of Commenting or Other Official

Date

*DSTPC*

State or Federal Agency and Bureau

United States Department of the Interior  
National Park Service

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### 7. DESCRIPTION:

Structure: Irrigation Ditch

Material: Earth

#### Defining limits of Feature

The original Flanigan Ditch was approximately 15,000 feet long. For purposes of this document the up-stream intake or head of the ditch is designated as 0 feet, and distances are indicated downstream (south) along the ditch from that point. The portion being nominated in this amendment runs from about 600 feet to 12,000 feet (measured as 11,838 feet by G.P.S. survey). That part from 0 to 600 feet is excluded because it has been disturbed and is no longer intact. The part from about 12,000 to 15,000 feet is excluded because it is not within Zion National Park. If additional information is developed, or the park boundary is extended further, an amendment may be warranted.

#### Summary Introduction

The subject of this Addendum to the Multiple Resource Nomination for Zion National Park is an earthen irrigation ditch constructed about 1880 by the Flanigan family of Springdale, Utah, who were Mormon Pioneers. Flanigan Ditch was used for agricultural irrigation by descendants of pioneers until after their fields were acquired by Zion National Park in 1960. Its maximum length was 15,000 feet, but only the upper 12,000 feet are now within the Park. At present the upper third of this is intact, except for disturbance near the intake and for some road crossings. Water has not run through this portion for about a decade, but the integrity of the ditch alignment and profile has not been disturbed. From 4,500 feet to 9,000 feet, the ditch is open, intact, and used to carry water for Park campground irrigation. Recent expansion of Zion National Park has added a length of ditch from 9,000 to 11,838 feet. This portion is buried. The presence of minor repairs and post 1960 diversion structures has not compromised the basic appearance, alignment, shape, and function of Flanigan Ditch.

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## Physical Description

Flanigan Ditch begins 1,500 feet south of the Canyon Junction bridge (where Floor of the Valley Road meets the Zion-Mt. Carmel Highway) and originally extended south and southwest for about 15,000 feet (see Item 8, Table 1 for condition of sections). The upper 11,838 feet falls within the current boundaries of Zion National Park. Historical research was conducted on the entire length of the ditch, however only the part which currently falls within the Park is addressed here (approximately 12,000 feet).

This earthen construct typically measures 3 to 4 feet wide at the top. The sides slope inward to a bottom about 1 foot wide. Depth varies between 2 and 3 feet, except near the north end where the ditch follows the steep river bank. Here it is from 5 to 6 feet deep. Elevation at the intake is about 4,000 feet ASL. Elevation at present outflow at the south end of Watchman Campground is about 3,900 feet ASL. Fall is 100 feet in 9,000 feet or about 1:90 (elevations are derived from benchmarks by the gauging station and the Canyon Junction Bridge, and interpolated from USGS contours). The upper approximately 4,000 foot length of the ditch was used only to carry water to the lower portion where fields on the downhill side of the ditch on the river terrace could be irrigated. The major field areas shown on the 1910-12 map are from 5,000 to 9,000 feet from the intake (historically called the Flanigan Field area), from 12,000 to 12,500 feet (Jolley Farm area) and from 13,500 to 15,000 feet (Hepworth Farm area).

The following discussion presents the general character of the ditch starting at its intake. From 0 to 600 feet the ditch has been disturbed by construction. A concrete head wall was built (1956) to protect the intake (see Roll 1, exposure 20a). Subsequently a concrete sediment basin and an outflow pipe were built (1988). From the head wall at the intake point to the sediment basin (about 150 feet) flow is carried in a buried pipe. The massive 50 foot long sediment basin (see Roll 1, exposure 19a) is designed to trap the high sediment load of Virgin River water, and allows irrigation water to flow down the pipeline to Springdale fields, and to that portion of Flanigan Ditch still in use. Periodically the accumulated sediment is flushed out of the basin, and returned to the river through an outfall line which

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empties 400 feet further down stream. Flanigan Ditch is not visible for this length, but a portion of it was observed in 1995 buried below grade at a new trail bridge abutment (see Roll 2, exposures 8 and 10).

From 600 to approximately 3,400 feet the ditch is intact, but no longer carries water, which has been diverted into a pipeline (see Roll 2, exposures 5 and 7). The pipeline runs parallel to the ditch and has not destroyed its fabric.

From 3,400 to about 4,000 feet, the ditch runs through the Watchman Staff Residence Area. This dry portion remains intact except for three modern road crossings. At approximately 4,200 feet from the intake there is a concrete flow diversion structure built as part of the 1956 construction (see Roll 2, exposure 4). This structure stands in the middle of the original ditch, and diverted 2/3 of the water to Springdale, and 1/3 to the remaining length of Flanigan Ditch (see Section 8, page 24). A short distance south of this structure, Flanigan Ditch crosses a natural wash on a flume see (Roll 2, exposure 2). A recently built vault (dated 5/92 in the concrete, Betenson 1995: ZHR No. 331) now separates Springdale from Flanigan Ditch water at roughly 4,300 feet from the intake. From here water for the ditch runs in a pipe and at about 4,500 feet, the flow runs through a culvert which carries the water under a major park road.

From 4,500 to 8,000 feet the ditch is open, intact, and carries water for irrigating the trees growing in Watchman Campground (see Roll 1, exposures 6a, 7a, 8a). Within this length, there are five diversion structures. The ditch follows about the 3,950 foot contour on a promontory between about 5,500 to 6,500 linear feet. In this length it has been reinforced in several short (20 to 40 foot) sections. At one of these it is revetted with stone on the downhill side (see Roll 1, exposure 1a). As the ditch curves around the hill, a concrete lining has been applied, and beyond that, a ribbed plastic pipe laid in the bed (both post 1960, see Roll 1, exposures 2a and 3a). These short sections have not changed profile or alignment of the ditch, as indicated by mature trees, and have not compromised its integrity.

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The diversion structures consist of concrete boxes with iron or steel lift gates (see Roll 1, exposures 5a and 8a). They were constructed after 1961 and are not eligible. At 8,300 feet an outflow from an adjacent wash has eroded the bed of the ditch from 2 to 3 feet deep to as much as 5 feet deep. This erosion extends about 300 feet to a point 8,600 feet from the intake (see Roll 1, exposure 9a).

From 8,600 to 9,000 feet the ditch is intact without erosion (see Roll 1, exposure 10a). At 9,000 feet it flows into the Virgin River. The remaining 6,000 feet of the original 15,000 foot long ditch has not been maintained since it was abandoned between 1923 and 1960. The bed has filled with sediment from upper bank erosion and river flooding, however, the alignment is still visible and is marked by large cottonwood trees.

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The existing Multiple Resources Nomination for Zion National Park (Jurale and Witherall 1984, Listed 1987) describes the "Crawford/Gifford Canal" and "Pine Creek Canal" as contributing under Pioneer Mormon Settlement (Item 7, pages 3 & 4) and the "Oak Creek Canal" as contributing under landscape architecture (Item 7, page 9). The respective references under Significance were (Item 8, pages 1&2), and (Item 8, page 8). Boundary Descriptions are under (Item 10, pages 8 & 9). At the time that nomination was prepared, approximately the upper half of the length of Flanigan Ditch within Zion NP carried water for Springdale (about two thirds) and for NPS irrigation of Watchman Campground (one-third). Possibly its active use as a municipal irrigation supply resulted in its omission from that nomination. Subsequently (1988) a buried pipeline was placed to carry that water, so there is now no municipal use of the bed of Flanigan Ditch.

This Amendment requires the following changes to the original MRA.

1. Addition of Flanigan Ditch<sup>1</sup> to the list of eligible structures (Item 7).

2. Extension of the period of significance to 1960, which marks the final use of Flanigan Ditch for agriculture by descendants of Mormon Pioneers, and is the start of development of the newly acquired Flanigan field area, to become a Zion National Park campground.

No other changes to the MRA are required. Maps, photographs and supporting documentation are provided with this addendum.

1. NOTE: Throughout the historic period and in all NPS documents and reports concerning this feature through 1995 it is referred to as "Flanigan Ditch". This historic terminology has been retained.



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## 8. STATEMENT OF SIGNIFICANCE

### Criteria:

Eligible under Criterion A for preserved portions and Criterion D for buried or obscured portions (see Table 1). Its significance is local.

### Area of Significance:

Agriculture, Archaeology (Historic, Non-Aboriginal), Exploration/Settlement, and Social History.

### Period:

1880s to 1960s.

### Cultural Affiliation:

Euro-American, Mormon Pioneer Settlement.

### Architect/Builder:

Thomas E. Flanigan (1843-1918) and sons.

## INTRODUCTORY SUMMARY

Flanigan Ditch is historically significant for its association with pioneer Mormon agriculture in the Zion National Park area. Constructed about 1880, it was the major supplier of irrigation on the east side of the North Fork of the Virgin River, and was used for the irrigation of farm fields until the early 1960s when Zion National Park expanded south into the former Flanigan field area (now Watchman Campground).

The southwest corner of Utah was historically an isolated area, with no railroads and, until 1930 no through highway. This isolation was particularly marked in Springdale on the upper Virgin River. After the Zion Tunnel was completed in 1930, tourist travel to the park increased, but the affect of this on local farmers was indirect. The use of isolated fields on the far side of the Virgin River changed slowly. Consequently the land irrigated by Flanigan Ditch was farmed by descendants of original settlers in the Mormon Pioneer Agricultural pattern until 1960, when the land was acquired by Zion National Park.

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According to J.L. Crawford, who was born and raised in Zion prior to Park establishment, Flanigan Ditch was well designed and provided a dependable supply of water year-round. It "had the best head of any ditch on the Virgin River - it just worked well naturally" (J.L. Crawford, personal communication 1997). Flanigan Ditch throughout its length in Zion National Park is essentially intact, with only minor alterations. That portion of the ditch running through Watchman Campground is still used by the Park to provide water to mature trees there.

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TABLE 1  
CONDITION AND ELIGIBILITY OF SEGMENTS OF FLANIGAN DITCH  
IDENTIFIED BY DISTANCE DOWNSTREAM FROM INTAKE (see note a)  
Portion Nominated is between dashed lines.

<u>SEGMENT</u>	<u>CONDITION</u>	<u>ELIGIBILITY</u>
0-600 ft.	Destroyed by 1956 Headwall Construction and 1988 Pipe & Sediment Basin	Not Elig
-----		
600-3,400 ft.	Ditch intact, dry	A
3,400-5,000 ft.	Ditch intact except where crossed by roads in Watchman Residence area	A
@ 4,200 ft.	1956 Concrete Flow Diversion	A
@ 4,500 ft.	Ditch carried under road in culvert	Not Contrib.
4500 - 8000 ft.	Ditch intact, used for irrigation (b)	A
8,300- 8,600 ft.	Ditch present, bed cut down by outflow from wash	A
8,600 - 9,000 ft.	Ditch intact to outflow at Virgin River	A
9,000 - 12,000 ft.	Ditch present, filled or buried (c)	D
-----		
12,000 -12,500 ft.	Ditch present, filled or buried (d) (former Jolly Farm abandoned ca. 1960)	Outside Park
12,500 - 13,500 ft.	Ditch present, filled or buried abandoned ca. 1923	Outside Park
13,500 - 15,000 ft.	Ditch present, filled or buried (former Thornton Hepworth farm abandoned ca. 1923)	Outside Park

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### NOTES FOR TABLE 1

(a). Distances measured by tape for the north end (600 ft.). Remainder scaled from USGS map.

(b) None of the concrete diversion boxes with iron or steel plate headgates in the portion between about 5,000 feet and 8,300 feet are historic. They date from NPS operation and maintenance of the ditch after about 1960. Also not eligible are several short sections of concrete lining and a piece of plastic pipe. None of these items are historic, and do not contribute to the significance of Flanigan Ditch.

(c). Filled portion of the ditch was walked to between 1,500 and 2,000 feet south of outfall (as of March 1997). South of that a line of large cottonwood trees is visible on the ground and on aerial photographs, which implies that the condition of the extreme downstream portion is similar to that in the portion walked.

(d). The NPS boundary was extended south during 1997, to a point 12,838 feet south of the Flanigan Ditch intake, as measured by G.P.S. It ends several hundred feet north of the former Jolley Farm.

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TABLE 2  
SIGNIFICANT DATES FOR FLANIGAN DITCH

1858-1868	Founding of Pioneer Communities along the Upper Virgin River including Springdale. Thomas Flanigan present in the area.
1880-1882	Thomas Flanigan applies for water rights to use at Springdale.
1909	MUKUNTUWEAP NAT. MON. created. Name changed to Zion Nat. Park in 1918. Upper 1700 feet of Flanigan Ditch included within boundary of Nat. Mon./Nat. Park, but irrigation use of Flanigan Field area continued with no change.
1910	Flood destroys crops of William Flanigan (3rd son), who moves his family to Cedar City.
1910-1920	Other Flanigan family members leave Springdale.
1910-1912	Map prepared showing Flanigan Ditch 15,000 feet long. Historic fields are shown below 4,000 feet.
1919	Oscar DeMille sells part of Flanigan Field to John Dennet and John Ruesch.
1923	Flood destroys crops of Thornton Hepworth, at extreme south end of Flanigan Ditch. Hepworth farm abandoned. Maintained part of the ditch reduced to about 11,000 feet to the Jolly Farm.
1925	Virgin River Decree Award No. 67 gives 1.65 CFS to Flanigan Ditch Co. (FDC).
1930	Zion National Park expands to the south, encompassing from 1,700 to 5,000 feet from intake of ditch. FDC continues to maintain and use ditch for irrigation.

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- 1955-1962 Ardell DeMille constructs new diversion point for .27 CFS of water allocated under Award No. 67. When this change was complete, the Jolley farm was abandoned. Flanigan Ditch was no longer maintained below Flanigan Field area. Its total operating length was now about 9,000 feet as at present.
- 1956 Springdale Consolidated Irrigation Co. (SCIC) abandoned their former intake on the west bank of the river, and combined with FDC. Upper end of the ditch now carried combined flow which was split 2/3 to SCIC and 1/3 to FDC by concrete divider built near modern Watchman staff housing, A concrete head wall was built at the intake.
- 1960 Zion NP expanded to the south again, and now encompassed the entire 9,000 feet of Flanigan Ditch still maintained.
- 1961-1962 Farming by descendants of Mormon pioneers ceased in the Flanigan field area, Zion National Park took over maintenance of the ditch, using 1/3 of the flow allocated to FDC to continue irrigation of trees in newly developed Watchman campground.
- 1983 SCIC constructs a pipeline from the intake to Watchman Staff Housing area. This runs parallel to the ditch, and about 4,600 feet at the upper end no longer carries water. the lower 4,400 foot section continues in use as an open ditch for campground irrigation. Upper 600 feet of ditch disturbed by construction.
- 1995 IMACs form prepared for Flanigan Ditch, notes profile of ditch buried under Pa'Rus trail bridge abutment about 400 feet downstream from the intake.
- 1997 Zion National Park expands to the southwest, encompassing a portion of Flanigan Ditch abandoned between 1955 and 1962, and now a buried feature. This will extend NPS length of Flanigan Ditch from 9,000 to about 11,838 feet.

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### SUPPORTING HISTORY

The earliest recorded Euro-American exploration of what is now Zion Canyon and the upper Virgin River region began in 1858, shortly after the establishment of Toquerville, as part of the planned expansion of Mormon farming to support the Cotton Colony in Dixie. Several settlements were started in the next few years, beginning with Virgin (1858), Grafton (1859), Adventure (below Rockville, 1861), Rockville, (1861), Northrup (at the confluence of the North and East Forks of the Virgin River, 1861) and Shunesburg (1861). Destruction by floodwater in 1862 led to the abandonment of Northrup and later Adventure with resettlement occurring in 1862 at Rockville and Springdale. A few years later during the Blackhawk War of 1866, Springdale and several other villages were temporarily abandoned, but reoccupied by 1868. Of the original families of 1862, only one returned, but others from Shunesburg and Adventure now moved to Springdale (Alder & Brooks 1996: 31-35). Movement from one settlement to another within an area such as the Upper Virgin River Basin is typical of the early period in Utah's Dixie (Alder & Brooks 1996: 80-82).

In the Zion Park region, settlement was almost wholly restricted to villages surrounded by large areas without settlement (Gregory 1950:42). Typically the farmer lived on a town lot which constituted his garden/orchard, and traveled to his fields of dry land or irrigated tracts. In the vicinity of Zion Park, irrigated lands comprised only the narrow strips of alluvial soils in the larger valleys and a few isolated spots on benchlands and low mesas. According to Herbert Gregory, the estimated area under ditch in 1937 was 6,470 acres. He noted that the irrigated areas were substantially the same as those of 50 years earlier *when water during the growing season was brought to all lands within practicable reach*. Increasing the acreage would have required construction of dams at costs disproportional to the value of the land (1950:43). It is within this overall picture of early Mormon agriculture in the Upper Virgin River basin, that the importance of Flanigan Ditch should be understood.

Among the first group to occupy Rockville was a Tom Flanigan, who sold out a month later to William L, Draper (Woodbury 1950: 153, n.52). Thomas Ernest Flanigan was born in Massachusetts in June 1843 of parents also born in Massachusetts (U.S.

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Census 1900, Springdale Precinct, Enumeration District 174, Sheet 4, Dwelling No. 60, see also U.S. Census 1910). He died on 23 August 1918 in Virgin, Utah (personal communication Ellsworth Flanigan 1997). In 1870 he married Ida Johnson (born in Utah of parents born in Connecticut, and died in Virgin, Utah on 7 October 1936). By 1880 they were living in Springdale, and by 1910 she had borne a total of 13 children, 11 of whom were still alive at that time (U.S. Census 1910). Two sons had died as infants in 1879 and 1883. The children of Thomas and Ida Flanigan as of 1900 were David (born June 1871), Aaron (born 27 October 1874), William (born February 1877), Effie (born 2 February 1881, married to John Ruesch before 1900 and living with her husband), Lorenzo (born January 1885), Harriet (born January 1887), Ida LaPreel (born April 1889) and Dottie (born March 1891).

As of 1900 the three eldest sons were married and residing in Springdale, with listings in the census as separate from their father's household. All three sons give their occupation as "farm laborer." Lorenzo, still listed in Thomas' household, is also listed as a farm laborer. Only Thomas Flanigan is shown with a farm.

From this brief sketch it is apparent that the Flanigan family was living in Springdale during the time period that the Flanigan Ditch was established to water crops on Flanigan field within the present day Watchman Campground, and that at least four sons were available to help their father with this farm until about 1910. After this date, various members of the family left Springdale. Aaron Flanigan was the last to farm in the vicinity of Springdale. He and his family moved to Virgin in 1919/20 (personal communication, Elva Twitchell 1997). His parents and his brother David had already moved to Virgin. William moved to Cedar City after a flood in 1910 destroyed his crops.

A comprehensive survey of irrigation in the Virgin River basin at the turn of the century provides insights into the situation at the time the Flanigan family was farming (Adams 1904). In the upper settlements of the Virgin (Virgin City, Grafton, Rockville and Springdale) water was so abundant in pioneer times as to have no cash value, but land was so scarce as to be in demand (Adams 1904:226). Springdale was the settlement highest on the stream in the central division of the Virgin River. Eight ditches served this settlement in 1902. Flanigan



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ditch is recorded as the second of these, watering approximately 127 acres (Adams 1904:228). In 1902, when this survey was made, there were 35 ditches watering a total of 4,531 acres along the upper Virgin River. Not one of these had been decreed a right to the water it diverted, nor were any titles certain (Adams 1904:229). Many ditches had been awarded the use of certain amounts of water by the County Selectmen, as was legal until 1895, but this did not create a legal title to the water (Adams 1904:230). It was to rectify this chaotic situation that the Virgin River Decree of 1925 was issued.

The earliest record date for establishment of the Flanigan Ditch appears in the Virgin River Decree issued by Judge Thos. H. Burton, Fifth District Court, Washington County, Utah, on 12 December 1925 (Court Record Entry No. 190411), which established water claims for use of the river within Washington County. Award No. 67 of this Decree provided that 1.65 cubic feet per second (cfs) of water could be diverted from 1 January through 31 December of each year to irrigate 90.6 acres of land watered by the Flanigan Ditch Company. That Decree gives a date of 1880 (either for the ditch or for the mutual association), names Samuel K. Crawford of Springdale as President, and lists ten individual farmers and the respective acreages to be watered.<sup>1</sup>

No other source is known for the date of 1880. On 21 December 1882, Certificate No. 345 was recorded in the Kane County Clerk's Record Book by Lemuel Redd and George Spilsbury, Selectmen and Ex-officio Water Commissioners (at this time, from 1866 to 1884, the upper Virgin River was in Kane County, and the County Seat in 1882 was in Toquerville). This Certificate states that Thomas E. Flanigan of Springdale came to the Commissioners on 10 March 1882, and grants him rights to 40 acres or 40 shares of water from the North Fork of the Virgin River, under an Act of

1. a recent NPS report interprets this document to mean that the company was formed in 1880 with S.K. Crawford as president (Garrison 1989:1). However, S.K. Crawford was only six years old in 1880, and several of the other men listed were not yet born according to J.L. Crawford (personal communication 1997). It appears that the Decree lists the president of the company and irrigation users as of 1925, when S.K. Crawford was 49 years old.

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the Legislature. The language of the document is unclear regarding a date of 20 February 1880, which seems to refer to approval of use by T. Flanigan, but may refer to the Legislative Act.

These documents show that by 1880 (or 1882) Thomas Flanigan of Springdale was actively securing irrigation rights. It seems likely that the ditch bearing his name was dug at that time, and it certainly was in use before 1900.

Recently an exhaustive search of property records was conducted for the NPS in connection with rights to Flanigan Ditch irrigation water (Garrison 1989). This examined the deeds for thirteen tracts of land acquired by the NPS in two periods (1931, and 1960-64, Tracts No. 01-149 and 04-104, 105, 109, 110, 114, 115, 117, 118, 120, 121, 122 & 123). Research "covered the time period from the December 12, 1925 decree to the date the government acquired title" (Garrison 1989:5). However, in at least two cases records were obtained as far back as 1891 (Tracts No. 04-105 and 110), so earlier transactions were apparently obtained when found.

For some tracts, chain of title was incomplete, and some instruments were not legible. To remedy this, the researcher performed additional study, with assistance from a professional title abstracter and the Washington County Recorder, and finally concluded that "all the recorded information available" had been gathered (Garrison 1989: 5). The land once farmed by Thomas Flanigan, now constituting the central part of Watchman Campground and the approach road area just north of it, was in tracts owned and sold by Oscar and Josephine De Mille in 1919. This date coincides with the time when Aaron Flanigan left Springdale. He was the last of T. Flanigan's sons to do so. The Flanigan family must have sold their land between 1910 (when they were recorded by the census taker in June, and William moved to Cedar City after flood damaged his crops) and 1919 (when Aaron left). It is probable that William Flanigan had no title for the land he abandoned in 1910, according to his son Ellsworth. "Back then they didn't have deeds and such" (Ellsworth and Nellie Flanigan, personal communication 1997).

The land sold on 28 February 1919 was split between Edna C. Dennet and John Dennet Jr. (who took the southern portion) and John Ruesch (the northern part, recorded in Book U-4, pp 163, &

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250, Washington Co. Clerk's Records). As remembered by John and Edna's son Stewart Dennet, "Oscar De Mille offered 12 acres out of the old Flanigan Field, and my dad split it with John Ruesch" (personal communication 1997).

Nomenclature used by older residents of Springdale records the importance of the Flanigan family and their farmland at the turn of the century. The peak now called "The Watchman" was referred to as "Flanigan Peak," a spring on it was "Flanigan Spring" and all or part of the modern Watchman Campground was "Flanigan Field" (J.L. Crawford, P. Hepworth, E. Twitchell, L. Wood, personal communication 1997). These names were lost after Zion National Park expanded south in 1930, and again in 1960, so that now only Flanigan Ditch retains its historic name.

The earliest map showing the presence of Flanigan Ditch is the 1904 Department of Agriculture Bulletin No. 124 which discusses irrigation in Utah. This map covers the entire Virgin River Basin at the scale of 1 inch equals 12.5 miles so major ditches are at very small scale with no detail (Adams 1904:fp 209). A detailed map exists at a scale of 1 inch equals 500 feet. On a xerographic copy of the north part of this map, reproduced in a NPS memorandum in 1989, a handwritten note at the top reads "1910-12 Survey (unofficial)" (Garrison 1989:8). A more complete, but less legible xerographic copy of this map, without a scale or ascribed date, exists in the Office of the Utah State Engineer for the Southern Area in Cedar City, in the file on Flanigan Ditch (Award No. 67, Virgin River Decree of 1925). This map shows Gifford, Crawford, Pine Creek, Flanigan, and Springfield Consolidated Ditches. The original is carefully drafted and labeled. It must have been prepared before 1930, because it shows details of the William R. Crawford farm as it existed before the Park expanded in that year.

This map (copy attached) indicates that Flanigan Ditch was about 15,000 feet (4,600 m) long from its intake at that time to a lower end in a wash at an ox-bow bend in the Virgin River opposite what is now the south end of Springdale. About 6,000 feet (1800 m), measured along the ditch at the lower (southern) end, is downstream of the modern effluent point, now at the south edge of Watchman Campground (formerly Flanigan Field). This lower 6,000 feet watered two small river terraces along the otherwise steep east bank of the Virgin River. One, about 2,000 feet (600

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m) downstream from Watchman Campground, had an indicated area of about 7 acres, and was the Jolley family farm of the early 20th century. A narrower terrace some 5,000 feet (1,500 m) downstream from Watchman Campground held three or four linear fields, totaling perhaps 10 acres. This is believed to be the location of Thornton Hepworth's fields, where a crop of sorghum was destroyed in a flood resulting from a landslide upstream during the summer of 1923.

Following the loss of crop and damage to farmland, that field was abandoned, and Flanigan Ditch was no longer maintained below the Jolley farm. The latter site was occupied and irrigated until at least 1941 or 1942 by Irad De Mille who married Mildred Jolley (Phillip Hepworth, personal communication 1997). Starting in 1955 and completed by 1962, Ardell De Mille constructed a new diversion intake for .27 cfs of water from the North Fork of the Virgin River he was using in the Rockville - Shunesburg area (Proof of Permanent Change of Point of Diversion, Place, and Purpose of Use of Water, Item a-2995, recd. 21 February 1966, in Award No. 67, Virgin River Decree of 1925, Utah State Engineer, Southern Area Office, Cedar City). Previously, Ardell De Mille's water had come through Flanigan Ditch. The new intake was about three miles south of that and detached a small irrigation water right from Flanigan Ditch, while keeping it on the North Fork of the Virgin River. The recording of this new diversion documents abandonment of Flanigan Ditch to the former Jolley farm in the late 1950s. By the early 1960s there was still a cable bridge to this property from the west bank of the river, and an abandoned residence with land no longer farmed around it (James Fraley, personal communication 1997).

By about 1960 the lower 6,000 feet of Flanigan Ditch was no longer used or maintained below its modern outlet point at the south edge of Watchman Campground. Subsequent river erosion has altered the east bank and sediment has washed down the steep hillside; so that there is no longer a continuous open ditch like that which runs through Watchman Campground. Portions of the alignment are still visible as a narrow terrace following the contour of the hillside. Large cottonwood trees stand at irregular intervals along this alignment. Grey fill sediment is exposed where side canyon washes have eroded the bed of the ditch (Laird Naylor, personal communication 1997). At least two cross sections of Flanigan Ditch exist within the first 1,000 feet (300 m) south

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of Watchman Campground, where small washes have made narrow cuts. These traces indicate that Flanigan Ditch exists as an archaeological feature extending downstream from the south end of Watchman Campground. It has been filled with sediment, and in some sections covered with sand, but the bed of the ditch is intact, protected by the overlying recent deposits.

The section of ditch abandoned between 1923 and 1960 represents a unique situation. This resource has been buried for between 75 and 40 years. None of this lower 6,000 feet has been subjected to modern maintenance or improvement. Nearly half of this lower section of ditch (from circa 9,000 feet to 11,838 feet) has recently been acquired by Zion National Park. The buried portion has the potential to yield information regarding early Pioneer Agriculture.

To our knowledge, no agricultural ditch in southern Utah has been studied through archaeology. This resource can reveal information regarding the original profile which may have been altered in the upper 9,000 foot section. The profile and buried structures can yield information regarding 19th and early 20th century engineering and technology which is not recorded in any historical document or engineering text. It can also yield information about ancillary uses of the ditch through the presence of artifacts or residual material (i.e. dishes and utensils, food cooling structures, agricultural tools lost in the ditch, toys, pollen and seeds). It may also have preserved wooden diversion structures, gates, etc. which have all been replaced in the upper 9,000 feet maintained by the Park.

The intake point for Flanigan Ditch given in the Virgin River Decree of 1925, Award No. 67, is at a point 550 feet south and 950 feet east of the Northwest corner of Section 22, Township 41 South, Range 10 West, Salt Lake Baseline and Meridian. This agrees with the map ascribed to "1910-12" and approximates the existing location. In 1956 the Springdale Consolidated Irrigation Co. (SCIC) combined their diversion point (formerly on the west bank of the river just south of the Oak Creek confluence) with that of the Flanigan Ditch Co. (Miller 1964:2). The combined flow used the Flanigan Ditch intake, about 3,300 feet upstream from the former SCIC diversion. Joint use was made of the northern 4,400 feet of Flanigan Ditch to a point just south of the existing NPS staff Watchman residence area east of the South Camp-

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ground. There a "mechanical arrangement... divides the water conveyed by the common ditch". A sketch of this concrete dividing mechanism is on the map accompanying the 1964 memorandum, and resembles the concrete flow divider still visible. The allocation at that time was 3.97 cfs to the SCIC and 1.47 cfs to Flanigan Ditch.

In 1988, with National Park Service approval, the SCIC constructed a pipeline for the "first 3500 +/- feet of the Flanigan Ditch." (Garrison 1989:4). This buried the flow to the point where the SCIC and NPS amounts diverge (now 3.97 and 1.38 cfs. respectively).

This pipeline is 24 inches in diameter as it leaves the sediment catchment structure, also built in 1988, and is reduced to 18 inches diameter probably where the divergence of Flanigan Ditch water occurs at a valve near the 1956 concrete dividing structure. It is buried in a trench that runs parallel to Flanigan Ditch on the uphill (east) side, approximately 15 to 20 feet away. An outlet pipe for sediment flushing extends about 400 feet downstream from the 1988 sediment basin, and empties directly into the Virgin River 275 feet downstream from the third bridge south of canyon junction on Pa'rus Trail (the bike path). Construction of this outlet pipe "re-configured" the river bank, and part of the uppermost end of Flanigan Ditch (James Fraley, personal communication 1997). However, a buried cross-section of the ditch was exposed and recorded when the NPS constructed the bike path in 1994. This occurred at the point where an abutment was placed for the footbridge nearest the Flanigan Ditch/SCIC diversion structure. At least portions of the northernmost 500 feet of Flanigan Ditch still exists as an archaeological feature, buried by the 1988 construction (Betenson 1995:3, item 36).

The only other changes made since historic farming have been placement of hand laid concrete lining in the bed of the Flanigan Ditch at various places, apparently to prevent leaks and wash-outs, and replacement of head gates for diverting irrigation water into lateral ditches. During the historic farming period, the ditch lining was dirt, and diversion was by means of wooden head boards (J.L. Crawford, P. Hepworth, personal communication 1997). The roughly cut iron plate gates now at some diversions apparently date from early Park maintenance, while steel lift gates at other diversions are later NPS replacements.

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That portion of the Flanigan Ditch downstream from the divergence of the SCIC pipeline is periodically maintained because it is used to irrigate the Watchman Campground, so it appears in better condition visually than the upper portion. At the upper end the bed of the ditch has accumulated fallen tree branches, tumble-weed, and other natural debris, because the flow of water is now buried in pipeline adjacent to the ditch. However, the cross-section of the earthwork ditch is approximately the same throughout the roughly 9,200 foot (2800 m) length within Zion National Park to the south end of Watchman Campground. This is 3 to 4 feet wide, at the top, with sides sloping out from a narrow bed which varies from 2 to 3 feet deep. Near the north end there are sections where the depth is greater. This is caused by the local topography, with the ditch running along a slope between a narrow lower terrace and a higher terrace. The upper elevation may have been exaggerated when the pipeline was buried in 1988.

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### 10. BOUNDARY DESCRIPTION.

#### 4. Flanigan Ditch Springdale East Quadrangle

UTM References:





12/324800 m E /4120320 m N Diversion Point (headwater)  
/323580 m E /4118000 m N (outfall)\*

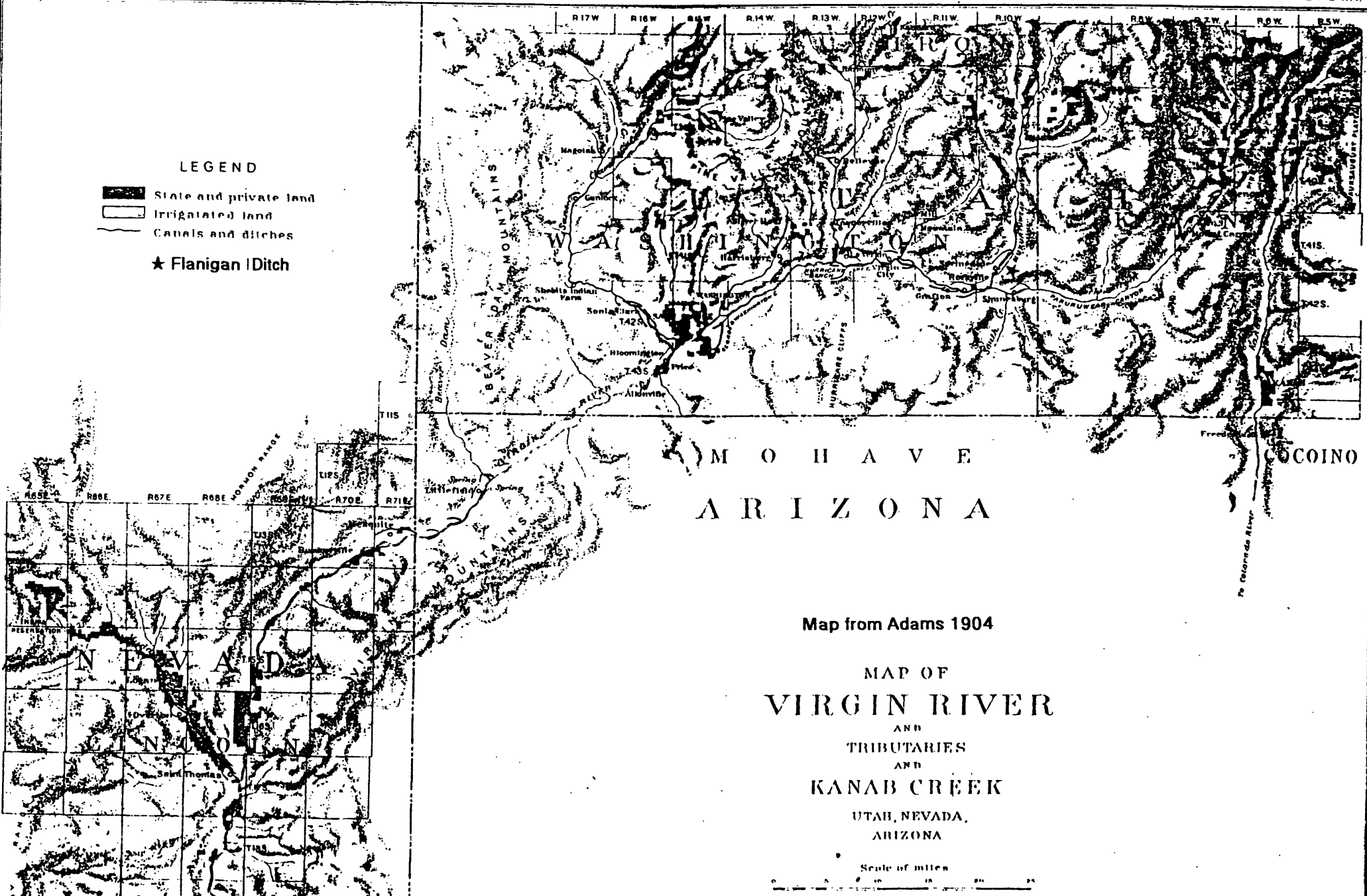
\* This is the existing outfall at the south end of Flanigan Ditch. Prior to 1922 it extended approximately 6,000 feet or 1800 m further downstream, to an estimated point of 12/323000 m E /4116900 m N.

Acreage of nominated property is approximately 4.13 acres. In Sections 22, 21, 28, and unsurveyed areas of 38 of T41S, R10W, SLBL & M.T, the boundaries of the district extend 10 feet (3 m) on either side of the channel, and 5 feet (1.5 m) to each side of the center line of the lateral ditches. The head of Flanigan Ditch is on the east side of the North Fork of the Virgin River approximately 1200 feet (365 m) south of the Virgin River bridge.

Flanigan Ditch was obscured or disturbed within its northernmost 600 feet (180 m) by 1988 construction of a new intake, sediment basin, and outfall line. It is an open ditch running parallel to the east side of the Virgin River from a point 275 feet (83 m) south of the third bridge on the Pa'rus Trail until it reaches the Watchman housing area for NPS staff. Through the housing area it is partially open, but enclosed in culverts for 3 road crossings. South of that it is open at a concrete dividing structure built in 1956 and crosses under the access road in a culvert. From this point on it is utilized for watering the Watchman Campground and runs as an open ditch to an outfall at the south end of the campground. Approximately 9,200 feet (2800 m) runs through Zion NP. Prior to 1922 it extended 6,000 feet (1800 m) further downstream. That portion is partially buried by sand and rock eroding from the hillside.

LEGEND

-  State and private land
-  Irrigated land
-  Canals and ditches
-  ★ Flanigan Ditch



M O H A V E  
A R I Z O N A

Map from Adams 1904

MAP OF  
VIRGIN RIVER

AND  
TRIBUTARIES  
AND

KANAB CREEK

UTAH, NEVADA,  
ARIZONA

















Scale of miles

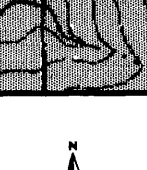
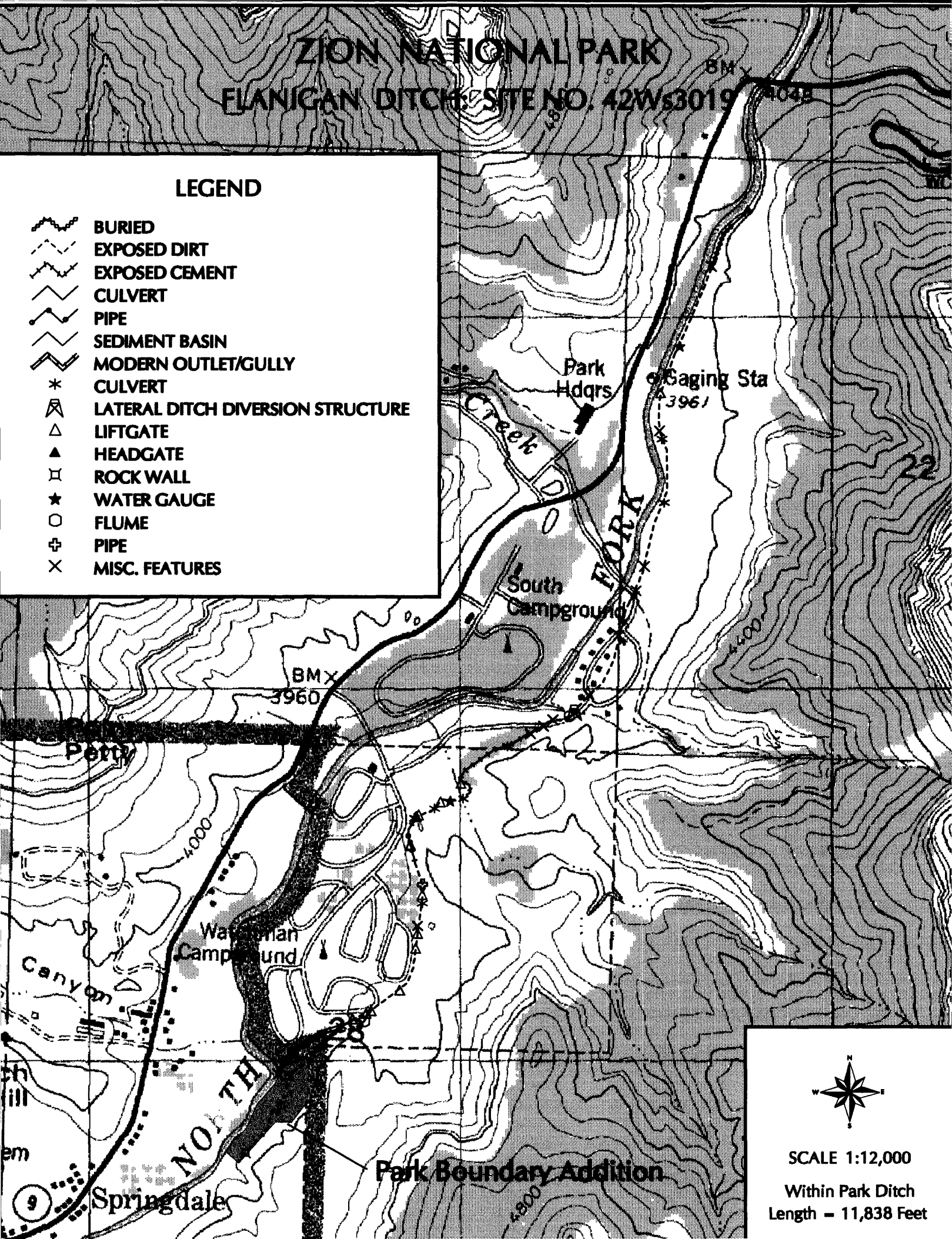


# ZION NATIONAL PARK

## FLANIGAN DITCH SITE NO. 42WS3019

### LEGEND

-  BURIED
-  EXPOSED DIRT
-  EXPOSED CEMENT
-  CULVERT
-  PIPE
-  SEDIMENT BASIN
-  MODERN OUTLET/GULLY
-  CULVERT
-  LATERAL DITCH DIVERSION STRUCTURE
-  LIFTGATE
-  HEADGATE
-  ROCK WALL
-  WATER GAUGE
-  FLUME
-  PIPE
-  MISC. FEATURES



SCALE 1:12,000  
 Within Park Ditch  
 Length = 11,838 Feet

FROM USGS QUAD  
SPRINGDALE EAST, UTAH  
37112-88-TF-024

1980

DMA 3458 III NW-SERIES V897

VIRGIN RIVER  
(CANYON JUNCTION)  
BRIDGE

ZION MT. CARMEL HWY

Water Tank

upper 600'  
of ditch  
disturbance

FLANIGAN  
DITCH INTAKE  
(with 1956 Concrete  
Headweal & 1958  
Pipe & Sediment Basin)

Park  
Hdqrs

Gaging Sta  
1967

DRY  
PART  
OF  
DITCH

FLOOR OF THE VALLEY RD.  
Creek  
FORK

South  
Campground

1956 concrete  
flow divider

WATCHMAN

HOUSING AREA

Point  
Petty

FLANIGAN  
FIELD  
AREA

Watchman  
Campground

concrete  
lining pieces

PART OF DITCH  
IN USE FOR  
IRRIGATION

FLANIGAN  
DITCH  
OUTFALL  
(1997)

★ = PART OF DITCH  
NOMINATED  
(600 FT. TO 11,838 FT.)

UTAH ROUTE 9

Springdale

NEW PARK  
BOUNDARY  
1997

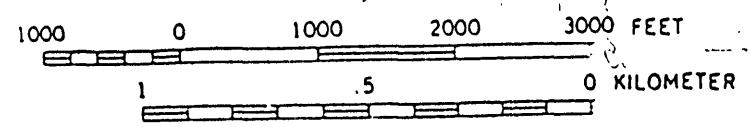
SKETCH MAP  
TO SHOW FEATURES  
OF FLANIGAN DITCH

HEPWORTH  
FARM  
AREA

JOLLEY  
FARM  
AREA

Scale 1:16,000

UNUSED PART OF DITCH



CONTOUR INTERVAL 80 FEET

