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# Ex. 277-US-418

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Stream: Williamson River  
Survey Type: ODFW Stream Habitat  
Access: Canoe  
Reach: 1 (Units 1-8)  
Start: T35S-R07E-S30NE  
Quad: Agency Lake  
Date Surveyed: 3 August 04  
Surveyors: R. Nawa K. Hartzell  
Distance Surveyed: 3,605 m

#### Reach Description

The surveyed portion of reach 1 began at Modoc Point Road (RM 4.6) and ended at Highway 97 bridge.

#### Land Use

The dominant land use is cattle pasture with rural residential concentrated east of Modoc Point Road.

#### Valley and stream channel geometry

The river is in a broad agricultural valley over 1 km wide. The channel is extremely low gradient (0.05%) with moderate sinuosity (1.3). Terraces sloped abruptly to form narrow floodplains adjacent to the 32 m wide river. A homeowner who lives near the beginning of the reach said that the river had never overbanked on to low terraces where homes are located. Apparently the river is fully confined by low terraces, at least in the short term of human memory.

#### Substrate

The streambed was very fine textured with an estimated 62 percent of the streambed in sand and organics. Gravel was 7 percent of the streambed, cobble 19 percent, and bedrock 4 percent. Exposed bedrock suggests that alluvium is a relatively thin layer of substrate that is vulnerable to being lost with scour.

#### Spawning Gravel

Spawning gravel was concentrated in riffles which were 38 percent gravel and 33 percent cobble. Surveyors visually estimated that a total of 3,505 m<sup>2</sup> of gravel/cobble was suitable for Chinook salmon spawning at existing low flows. About 3,400 m<sup>2</sup> of the gravel (97%) was in 2 riffles immediately below the Highway 97 bridge (U4,U5; Photo 30). High amounts of sand/organics in riffles (24%) reduces the quality of gravel for spawning.

#### Riparian Vegetation

Grass dominates the riparian zone. Willows and hardwoods are sparse and an occasional patch of ponderosa pine border the river. Shade averaged only 5 percent. Riparian potential for willows, hardwoods and pine is high in most areas except where streambanks have been rip-rapped. About 450 m of streambank have been rip-rapped where homes have been built on terraces bordering the river (U1). Only 3 percent of streambanks are eroding which suggests that existing grass cover is adequate to stabilize streambanks.

### Wood

Wood debris (1 pieces/100m) is not affecting channel morphology. Wood is not storing sediment or causing local scour.

### Rearing and Adult holding Habitat

Due to very low stream gradient, the reach consists of 4 scour pools or glides up to 1,990 m long, separated by relatively short riffles (22m-130 m). Maximum depths were surprisingly deep (9.4 m) and have the potential to hold large numbers of spring Chinook (Map). Residual depths averaged 3.9 m. A lateral scour pool below Highway 97 (U8) is at least 3 m deep (possibly much deeper) and is strategically located between 2 riffles with large areas of spawning gravel (see map).

### Streamflow

Streamflow was relatively low during the survey. Homes are located on terraces within 100 m of streambanks (U1). Several large pumps along the river have the capacity to withdraw large amounts of water (U1,U3). Adequacy of fish screens was not determined. A large water intake is at U8.

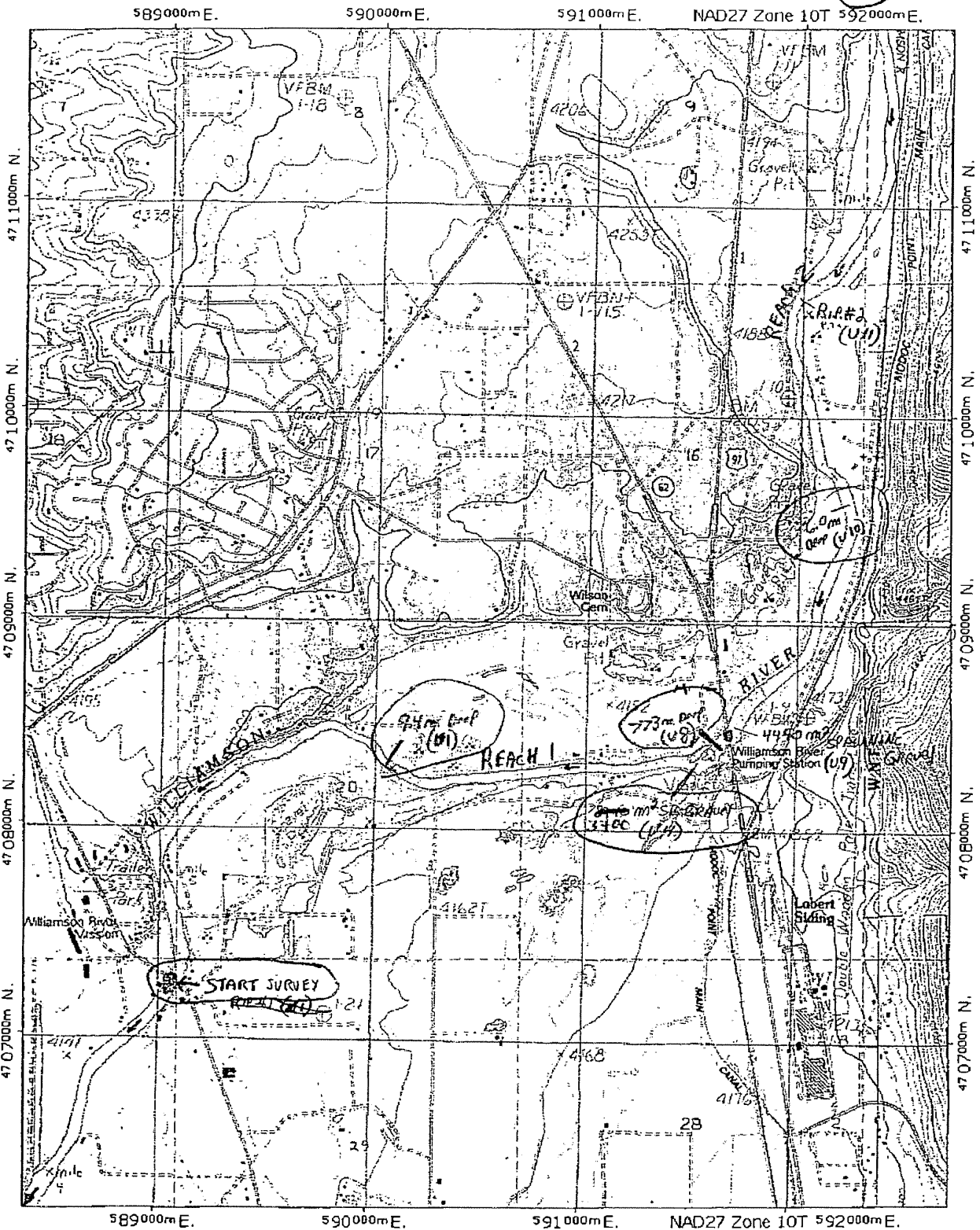
### Stream Temperature

Stream temperature was 16 °C at 1600 pdt. Despite lack of shade, cool summer stream temperatures are typical for this river because of cold water discharge from Spring Creek.

Photo 29 Unit 3  
The reach was dominated  
by long deep pools or glides  
with maximum depths up to  
9.4 m.

Photo 30 Unit 4  
Riffle below Highway  
97 bridge had 3400 m<sup>2</sup>  
of gravel/cobble suitable  
for Chinook salmon  
spawning. The deep  
pool above riffle at water  
intake structure is  
excellent adult holding  
water .

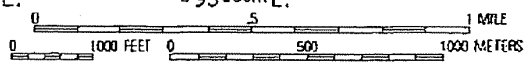
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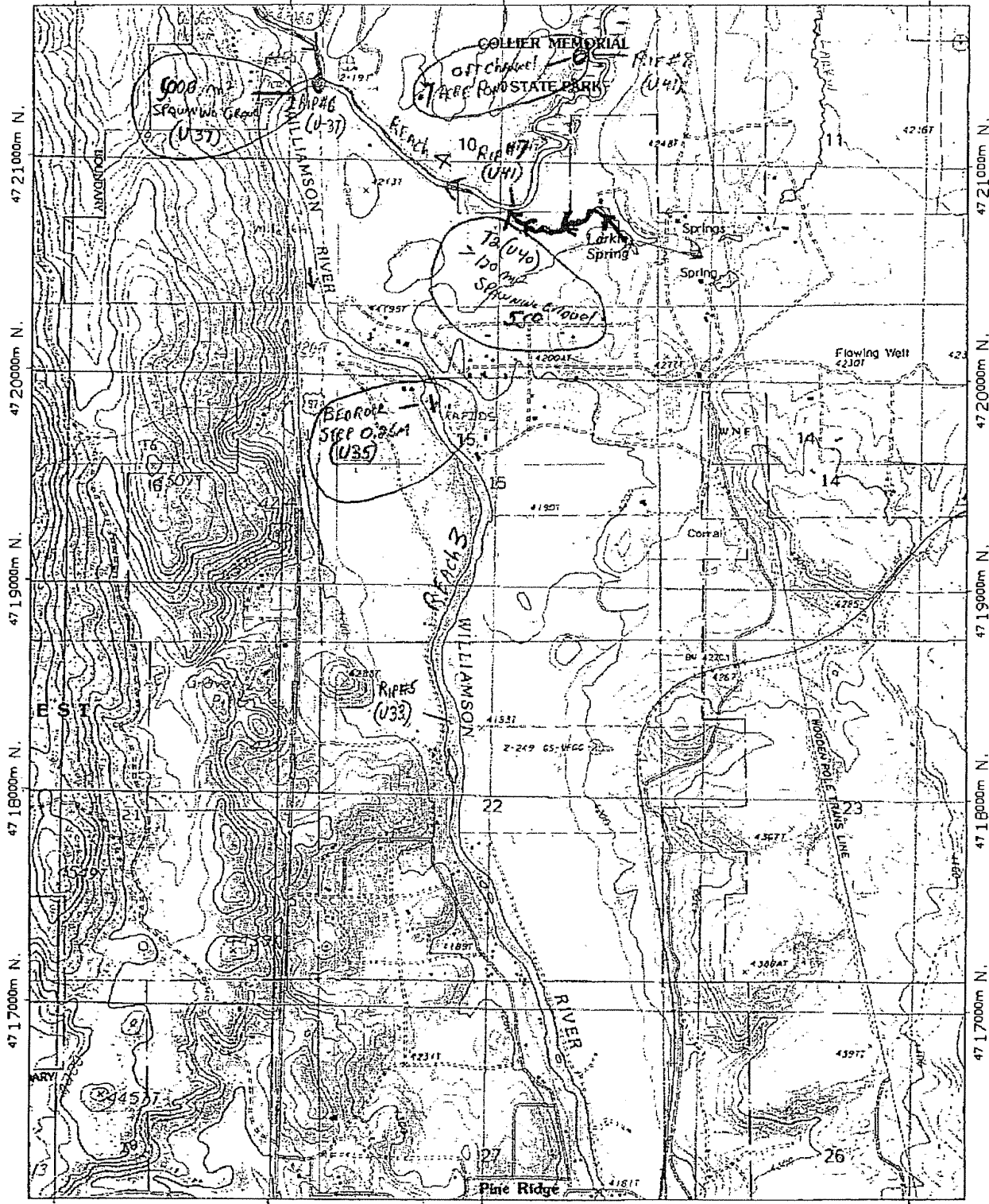


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591000m E. 592000m E. 593000m E. NAD27 Zone 10T 595000m E.



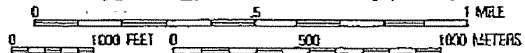
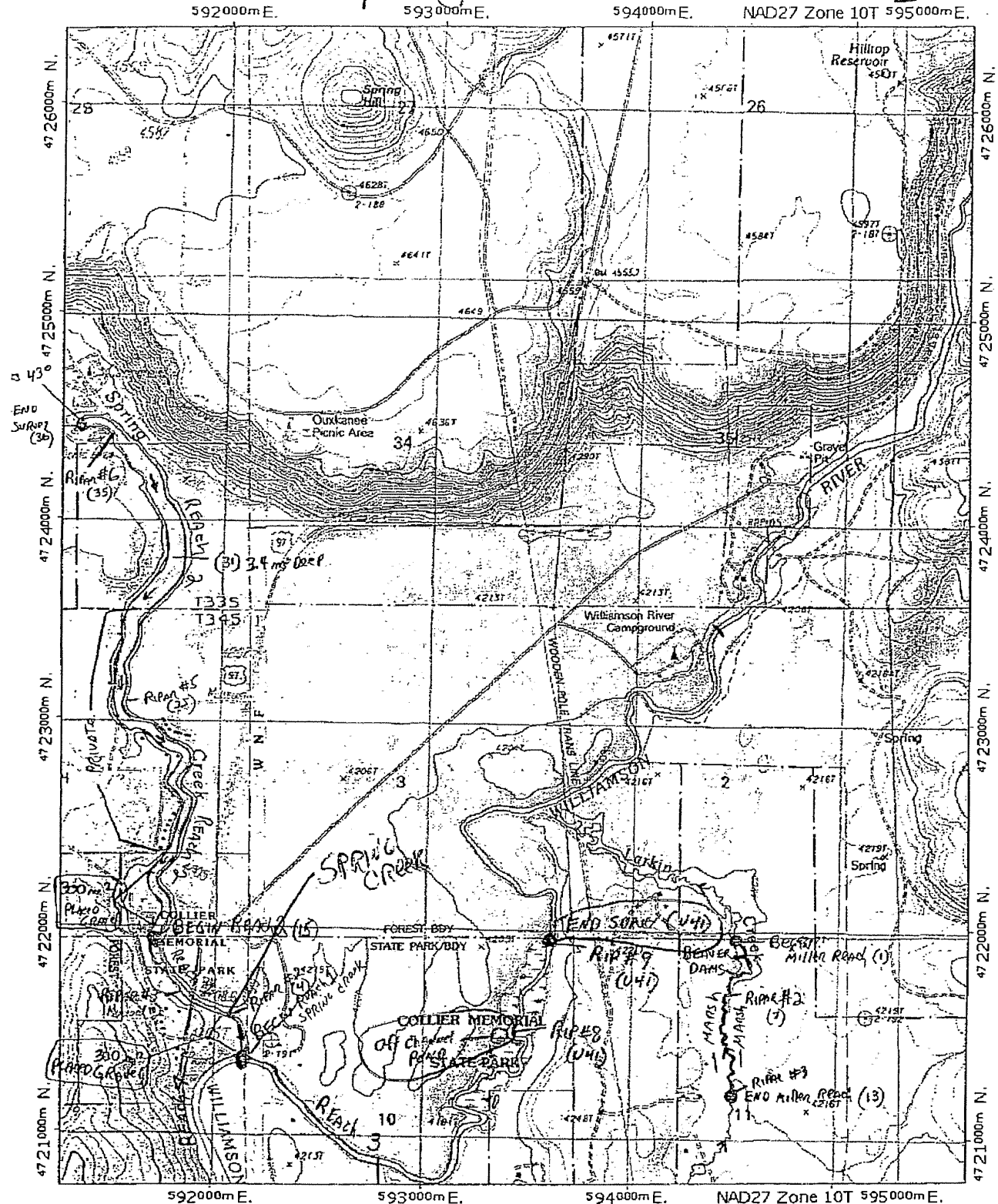
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# Spring Creek

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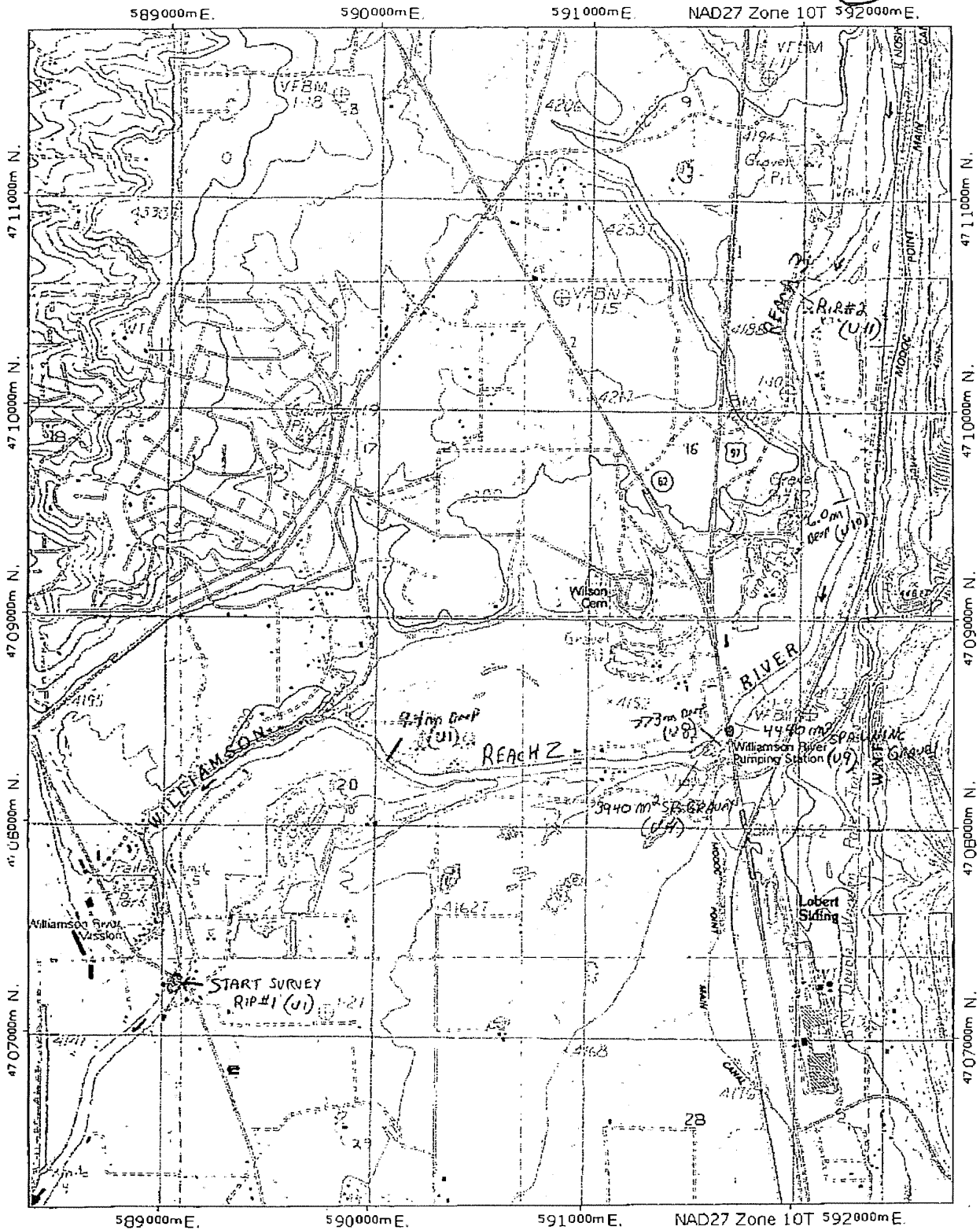


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# Williamson River

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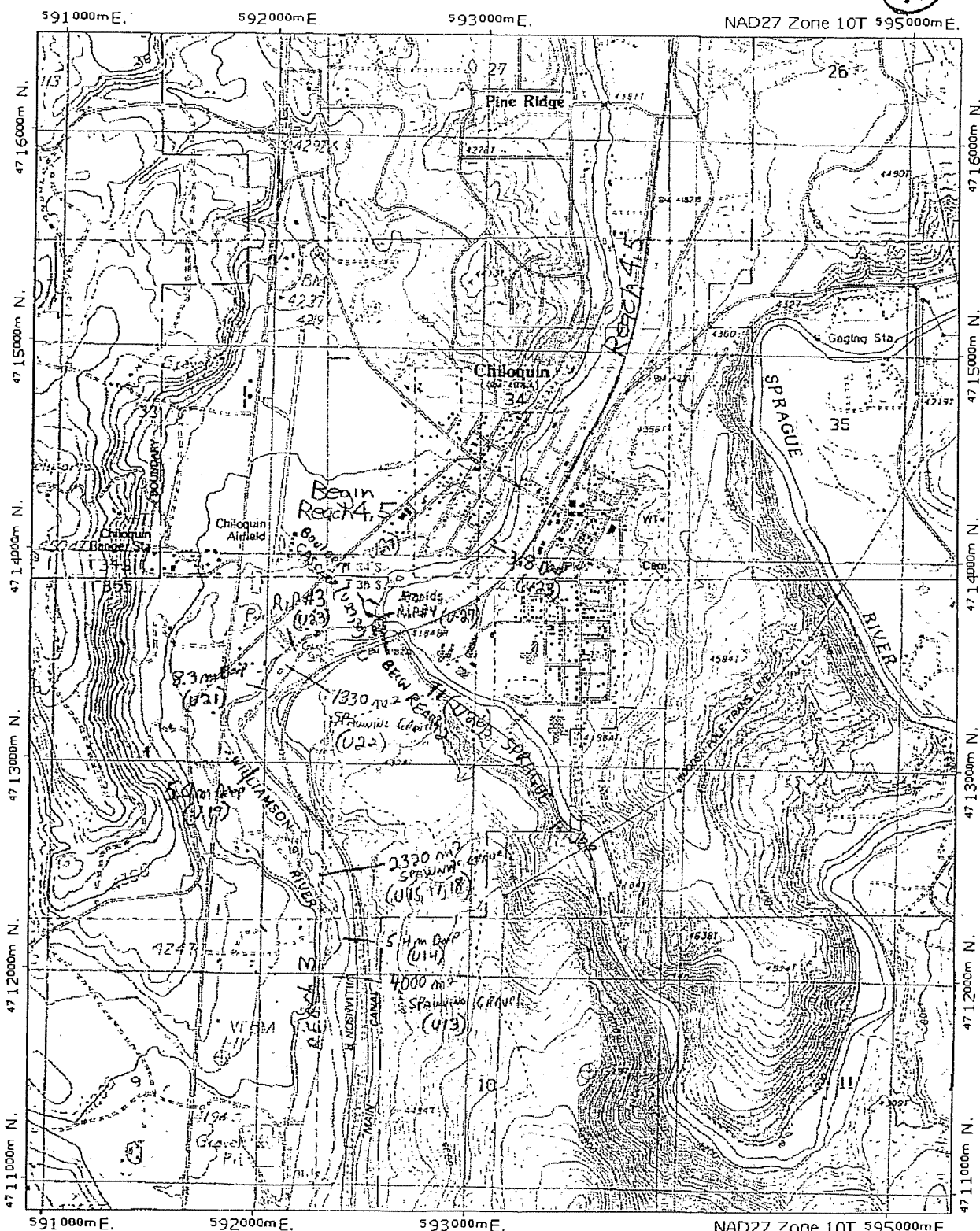
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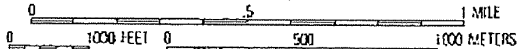
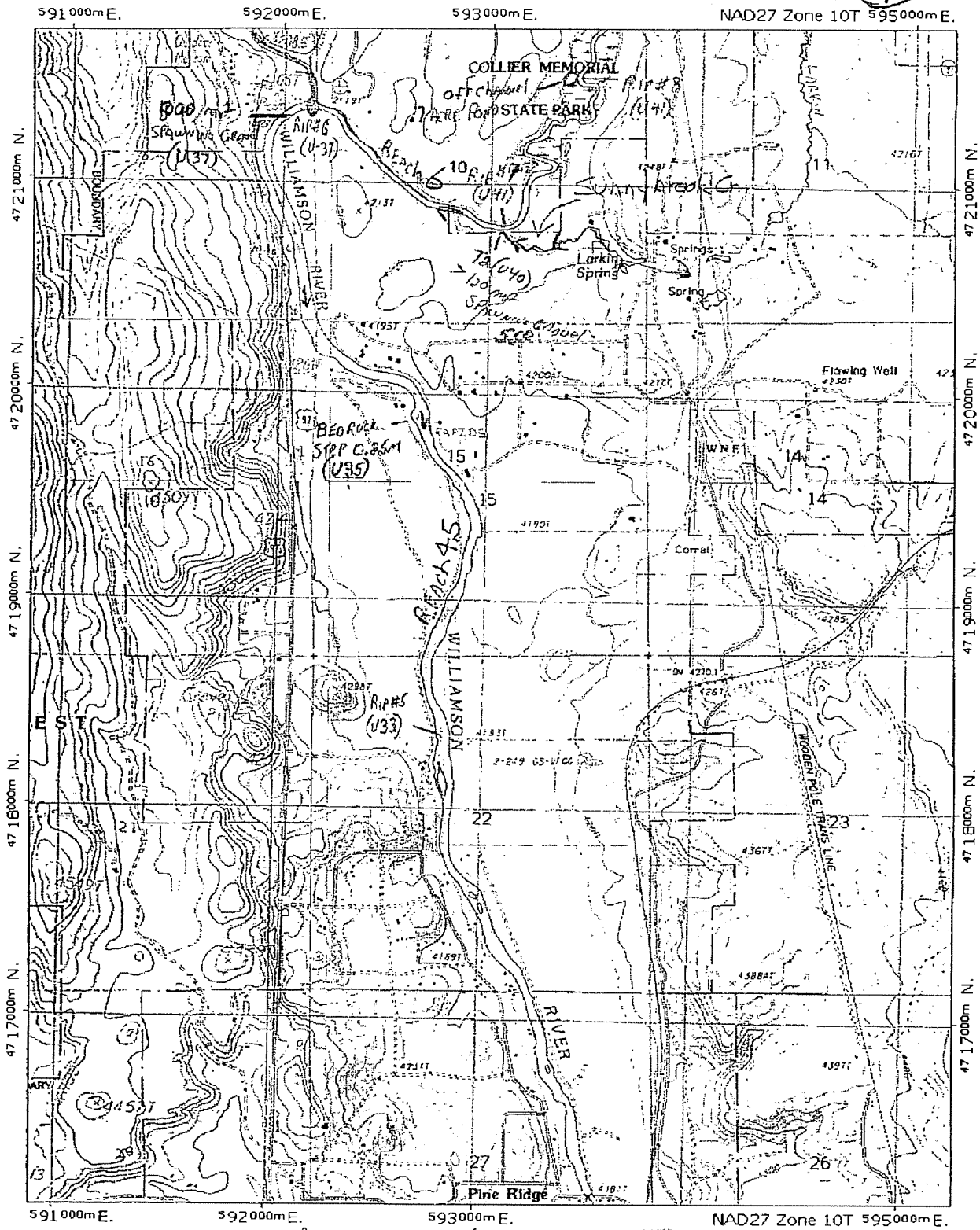
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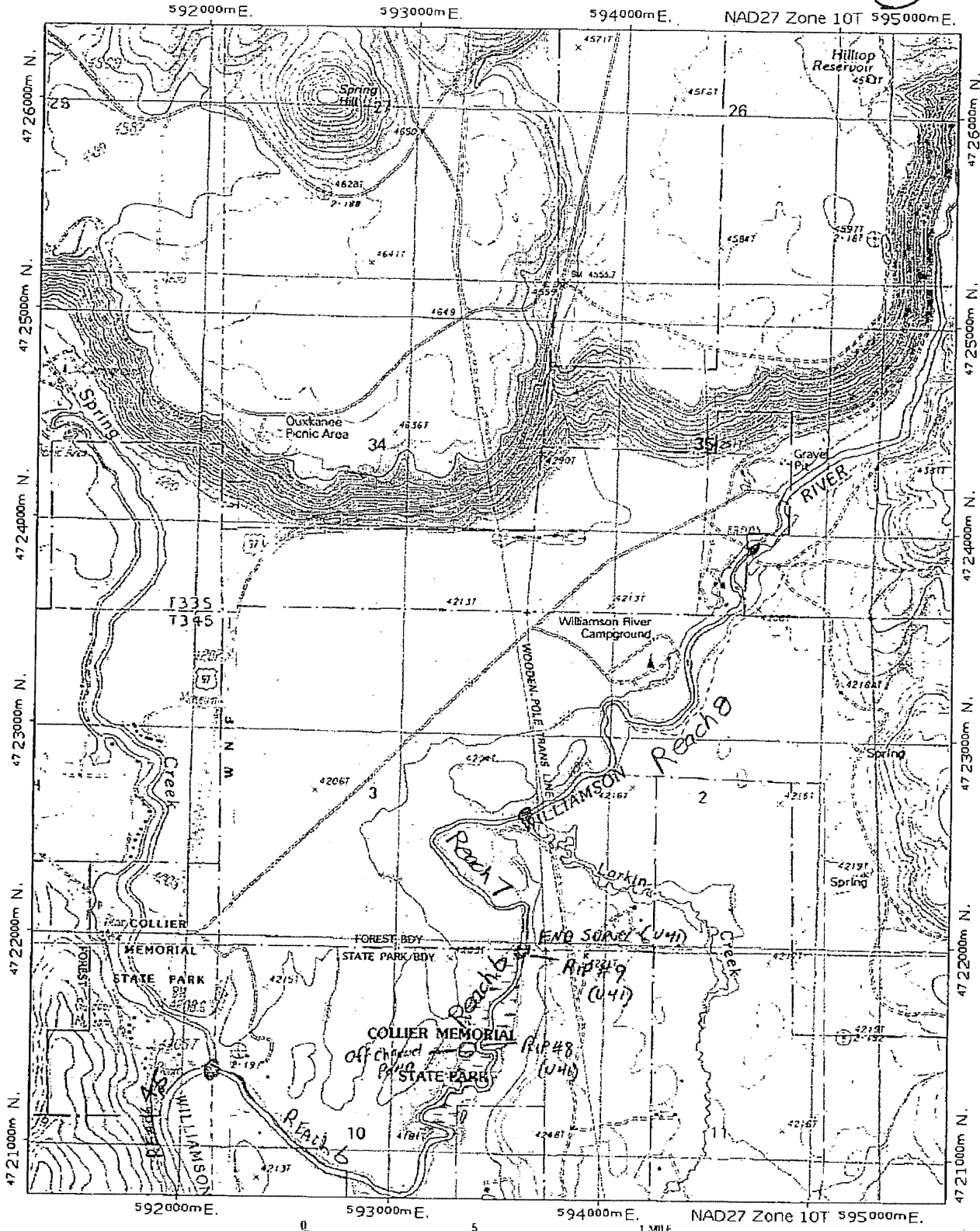
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