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In re Klamath River (Klamath Tribe)

Hedden-Nicely

8-6-2004

Ex. 277-US-428

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Stream: Williamson River
Tributary To: Lower Klamath Lake
Survey Type: ODFW Stream Habitat
Reach: 3 (Units 27-38)
Access: Canoe
Start: T35S-R07E-S03NW
Quad: Chiloquin, Soloman Butte, Fort Klamath
Date Surveyed: 5-6 August 04
Surveyors: R. Nawa, K. Hartzell
Report: R. Nawa, C. Huntington
Distance Surveyed: 8.9 km

Reach Description

Reach 3 was Sprague River to Spring Creek (map).

Land Use

Land use is urbanized through the town of Chiloquin. Cattle pasture dominates upstream of Chiloquin with some interspersed rural residential.

Valley and Stream Channel Geometry

The 0.02 percent gradient river was in a broad valley over 1 km wide. Sinuosity was low (1.2). Low terraces sloped abruptly to form narrow floodplains adjacent to the 44 m wide river. The wetted width abruptly widened from 35 m at unit 30 to 73 m at unit 31 where eroding streambanks have been heavily grazed.

Substrate

The streambed was very fine textured. An estimated 90 percent of the streambed was in sand and organics, one percent gravel, two percent cobble, and five percent bedrock. Exposed bedrock suggests that alluvium forms a relatively thin layer of substrate that is vulnerable to being lost with scour. Natural bedrock sills or dikes were common in areas above Chiloquin bridge. One sill formed a 0.25 m high falls or step (U33, map).

Spawning Gravel

Surveyors visually estimated about 5,000 m² of gravel/cobble in an expansive glide below Spring Creek suitable for Chinook salmon and steelhead spawning (map). The glide contained an estimated 10-15 old rainbow trout redds. Scattered mid-channel bars in the pool above Chiloquin bridge provided small patches of suitable gravel that may have been used by spawning rainbow trout and would also be suitable for steelhead.

Due to very low stream gradient, only 2 percent of the channel area was in riffle habitat. Lack of riffles greatly limited the potential for suitable spawning gravel. A bedrock step at unit 35 could be enhanced for spawning with the artificial addition of suitable sized spawning gravel. Spawning gravel area could be increased by 1,300 m² at this location.

Riparian Vegetation

Patches of willows and scattered hardwoods border the river, but grass dominates the

riparian zone. Shade, which averaged 13 percent, is not a factor in cooling the river. Apparently existing grass and willow cover is adequate to stabilize most streambanks because only 2 percent of the streambanks were eroding. Heavy livestock grazing resulted in eroding streambanks on the west bank at unit 31. The river is shallow enough here to permit livestock to cross the river and graze the east bank, thus rendering the east bank riparian fence ineffectual.

Wood

Wood debris (6 pieces/100m) was mostly sunken saw logs. These logs are presumably an artifact from temporary log storage to supply former saw mills. Concentrations of saw logs in pools and glides are not affecting channel morphology (i.e. wood is not storing sediment or causing local scour). Very few (if any) trees from the riparian zone are falling into the channel.

Rearing and Adult Holding Habitat

A complex of boulder cascades and riffles (U27, U28, U30) at the beginning of reach 3 form a hydraulic control for a huge 5.9 km long pool that extends through and upstream of Chiloquin. The maximum depth of this pool was 3.2 m in Chiloquin. This pool has the potential to hold large numbers of Chinook salmon but nearby spawning gravel is lacking.

Stream Temperature

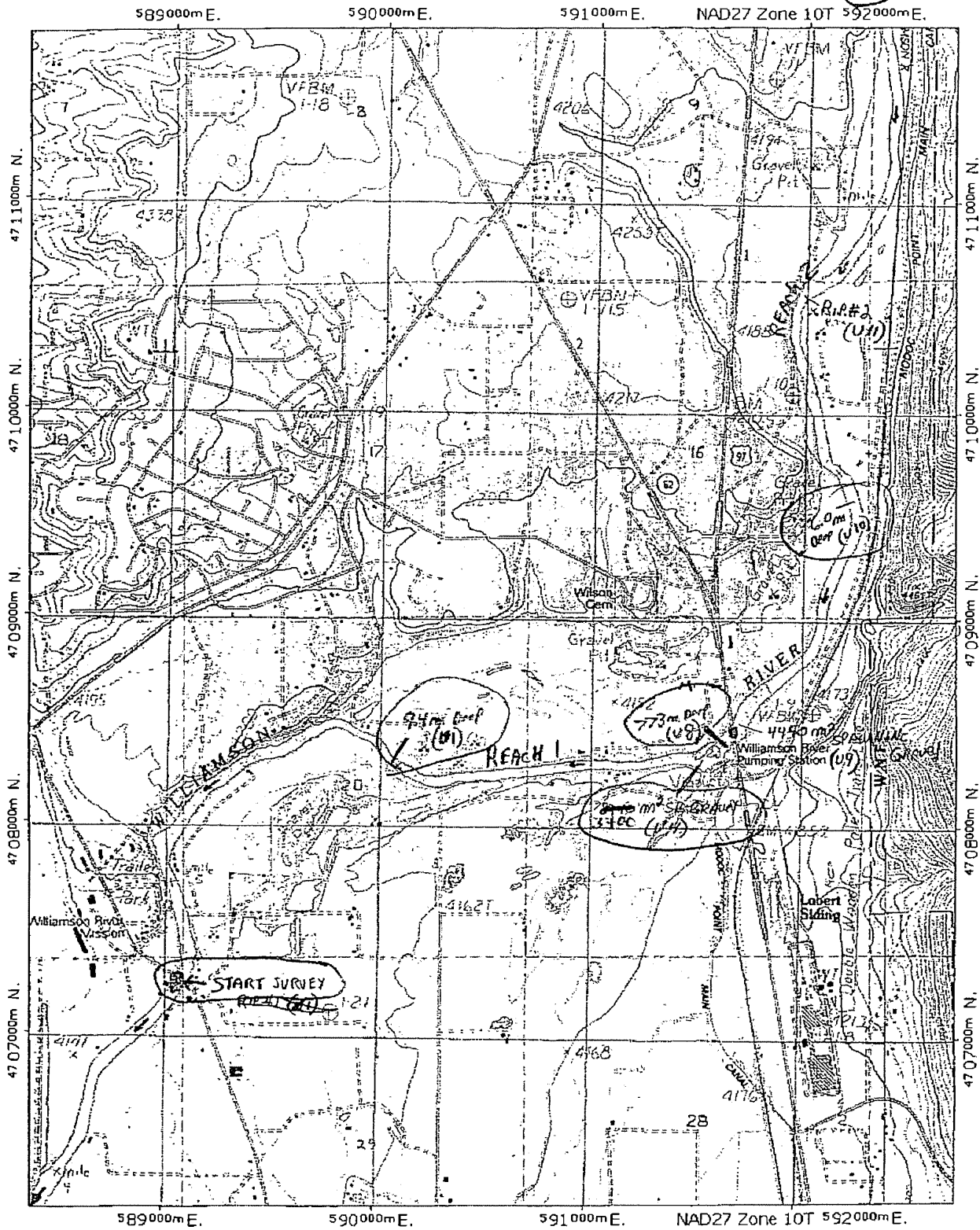
Flow from the Spring Creek (8.5 C) decreased the temperature of the Williamson River from 17.6 C above Spring Creek to 9.0 C below Spring Creek (1530 pdt).

Photo 36 Unit 27
Boulder rapids formed a
distinct hydraulic control
at the beginning of reach
3.

Photo 37 Unit 31
Portion of 5.4 km pool
that dominated reach
3. Maximum depth
was 3.2 m in the town
of Chiloquin.

Photo 41 Unit 35
A 0.25 m high
bedrock step spans the
width of the river. The
bedrock step could be
enhanced with the
artificial addition of
spawning gravel.

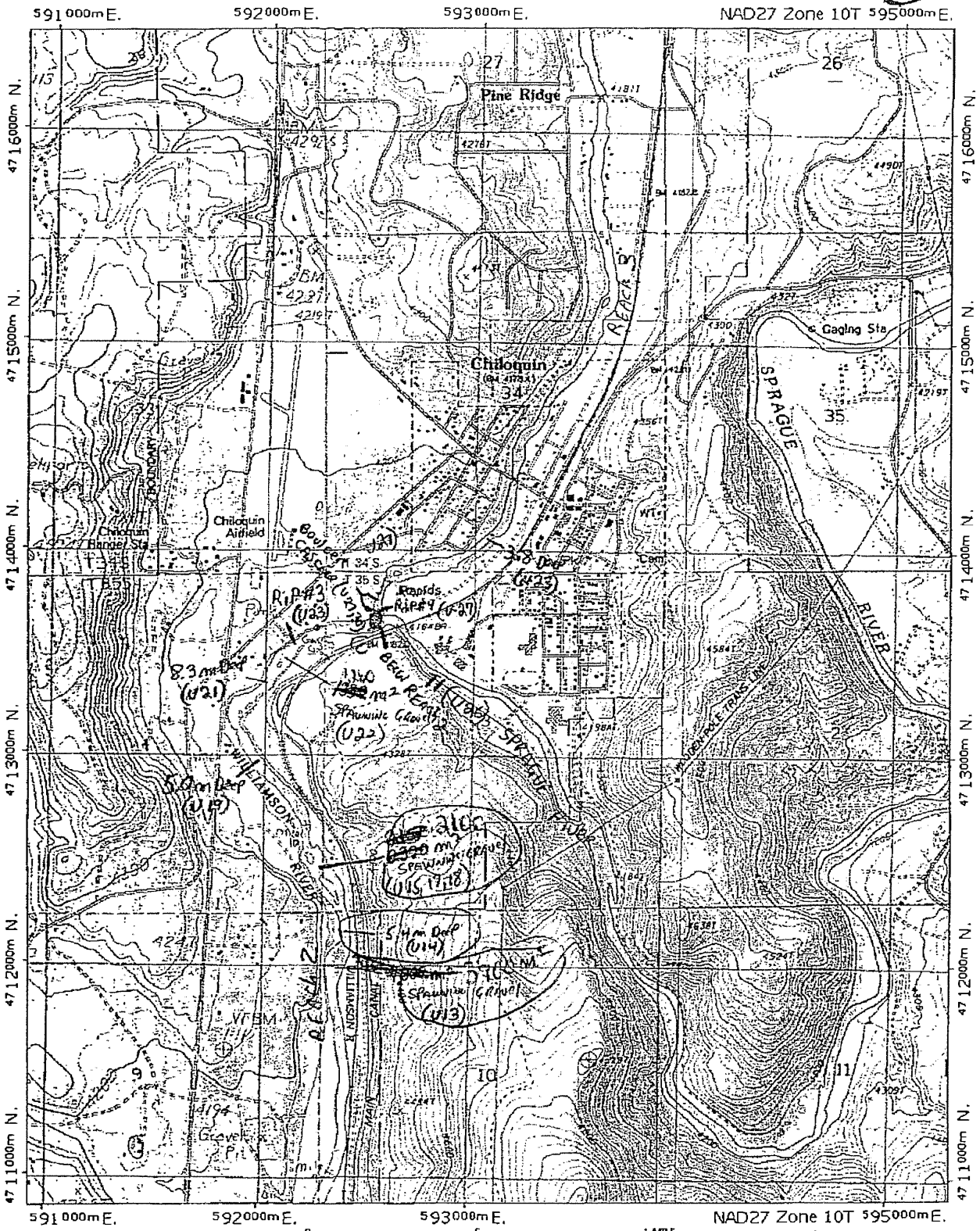
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0 5 1 MILE
 0 1000 FEET 0 500 1000 METERS
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Williamson R.

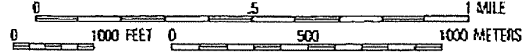
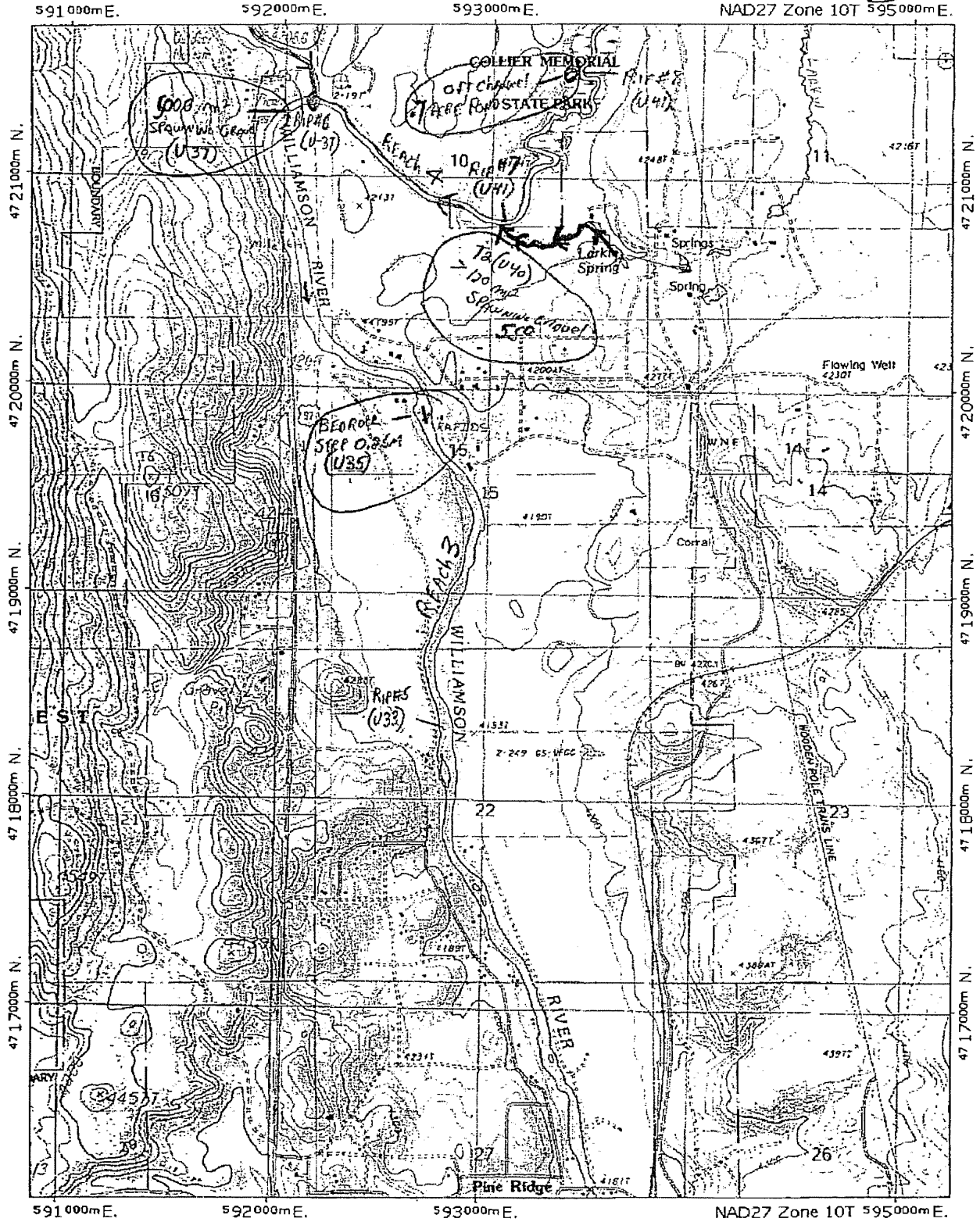
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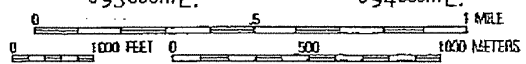
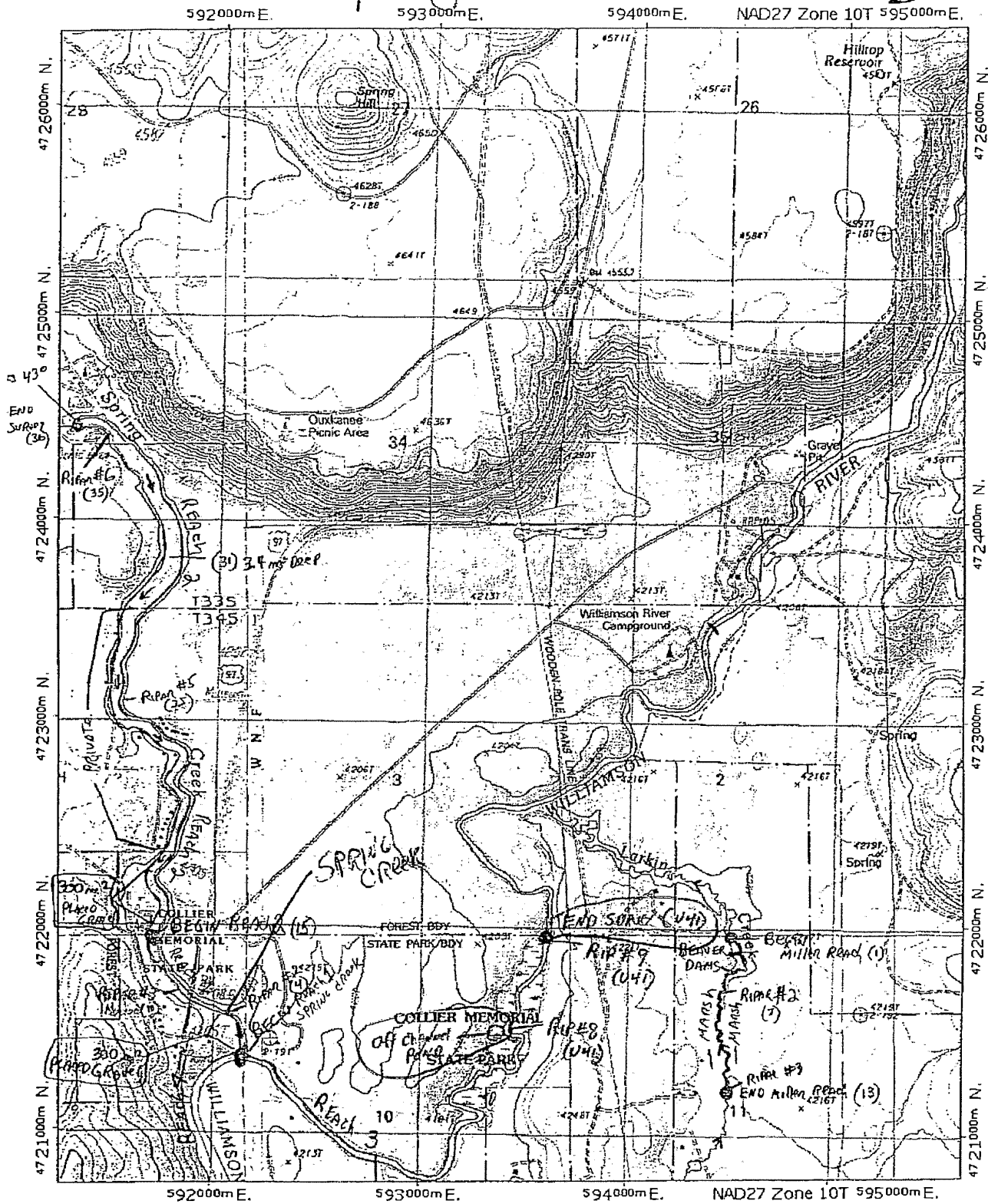
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Spring Creek

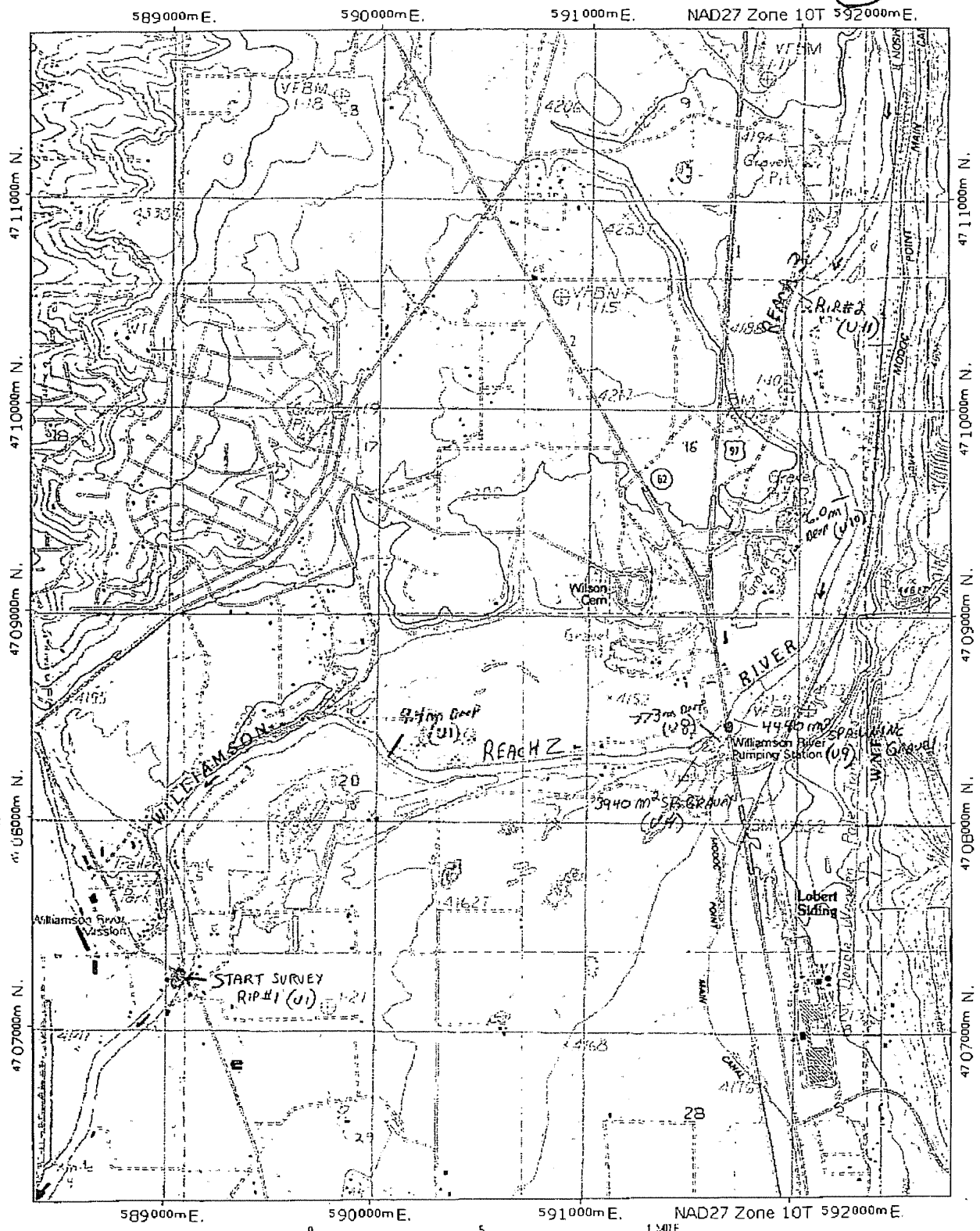
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Williamson River

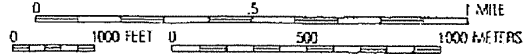
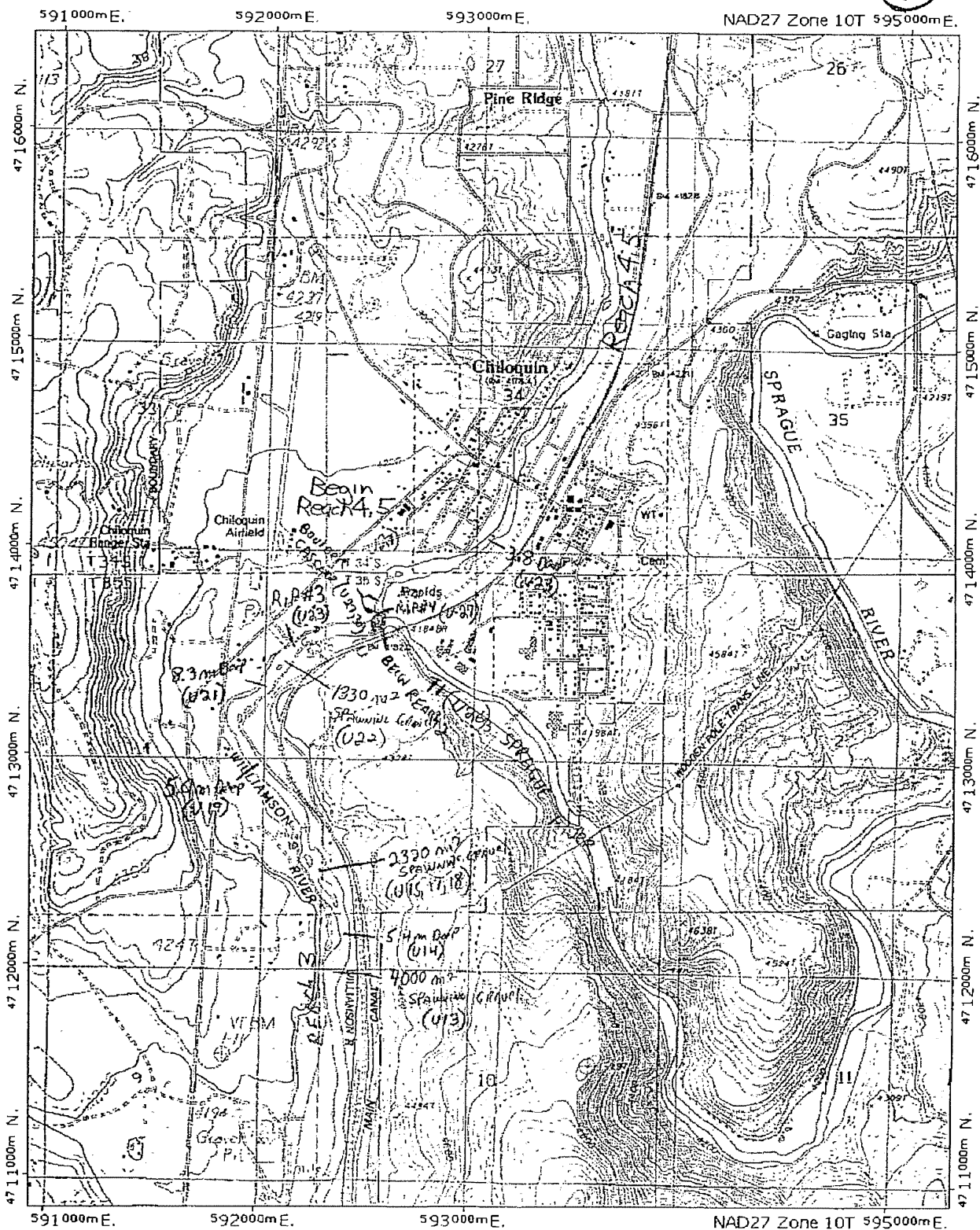
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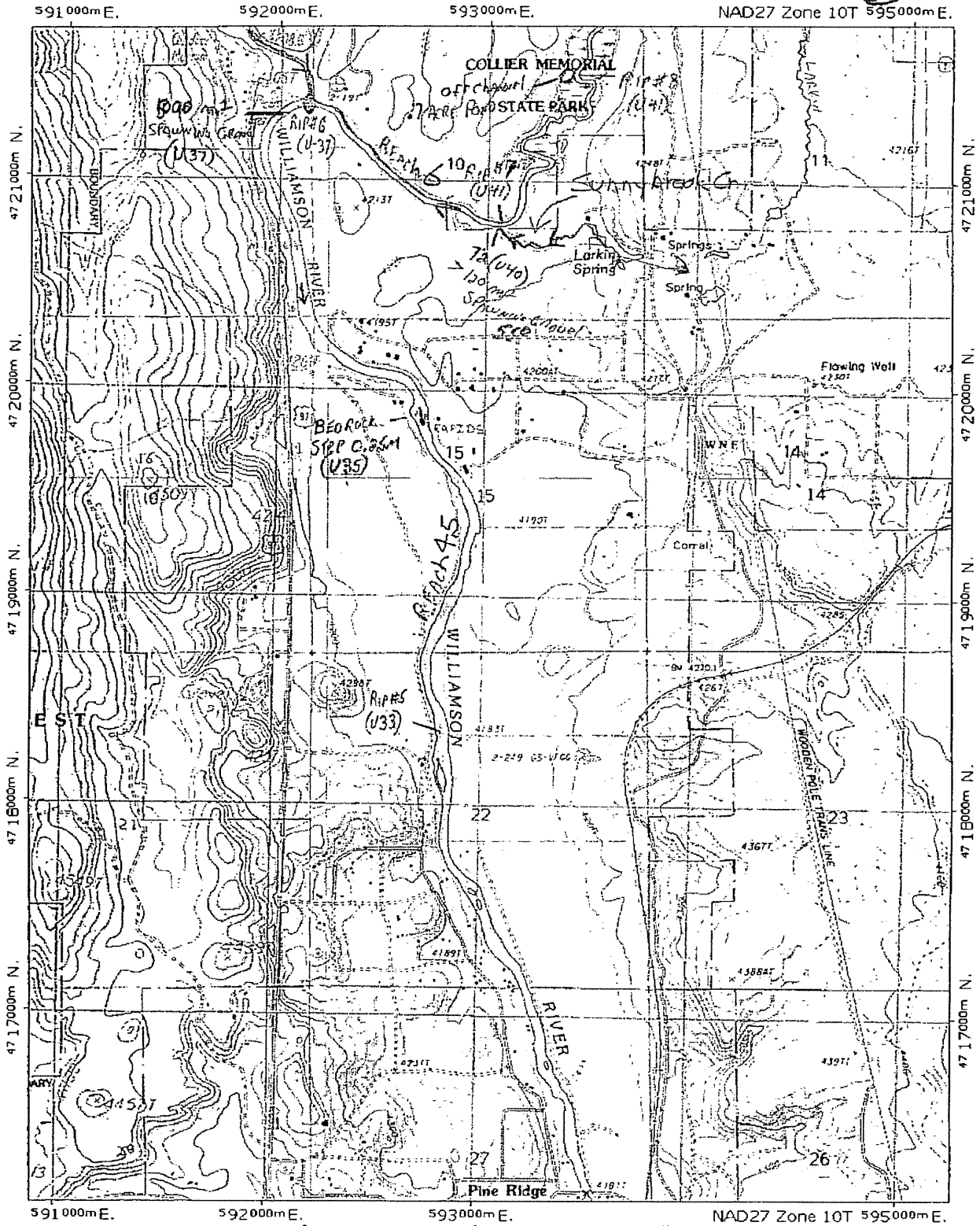
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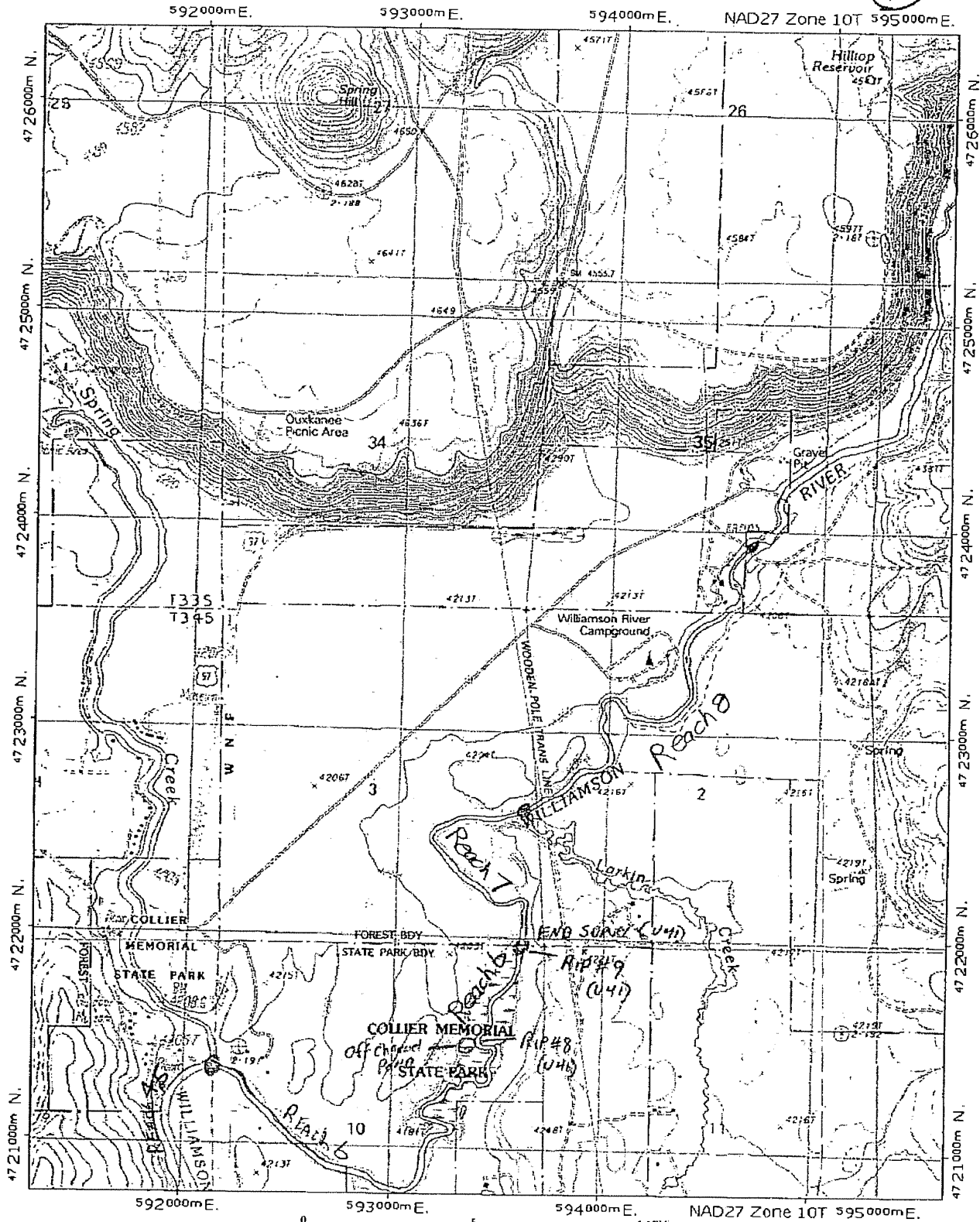
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