



May 8, 2004

James E. Stanton
Sr. Water Resource Agent
Idaho Department of Water Resources
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Department of Water Resources
Southern Region

Subject: Blaine County School District No. 61; Application for Permit/Woodside Elementary School (37-2177)

Dear Mr. Stanton:

Speck and Aanestad, PC (Ketchum, Idaho) submitted an *Application for Permit* to appropriate water at the Woodside Elementary School on behalf of the Blaine County School District No. 61 (37-2177). Terry Scanlan (formerly Scanlan Engineering, currently SPF Water Engineering, LLC) prepared the application and associated supporting information. The application requested an irrigation flow rate of 0.14 cfs from a ground water source, to be mitigated using a portion of Big Wood River water right 37-21114. Your letter from November 25, 2003 requested more information regarding the hydrologic relationship between the mitigation water in the Big Wood River (from water right 37-21114) and the extraction proposed by application 37-21177. At Terry Scanlan's request, I am providing the following information regarding the hydraulic relationship between ground water at the Woodside School site and the Big Wood River.

The Woodside School site (T2N, R18E, Section 23, SW¼ NE¼) is located in the Big Wood River valley between Hailey and Bellevue, Idaho (Figure 1). Aquifers in this vicinity are found in the unconsolidated fluvio-glacial, alluvial, and colluvial sediments that comprise the valley bottom. These sediments, characterized by their "coarse-grained, highly permeable nature" (Castelin and Winner, 1975), consist of silt, sand, and pebble to cobble-sized gravel (Castelin and Chapman, 1972; Castelin and Winner, 1975; Smith, 1924). Frenzel (1989) estimated hydraulic conductivity values for this area in the range of 150 ft/day to 300 ft/day; Moreland (1977) reported transmissivity estimates in the range of 30,000 to 70,000 ft²/day near Bellevue based on specific capacity data, or 200 to 470 ft/day (Frenzel, 1989).

In this portion of the valley (between Hailey and Bellevue) the aquifers are unconfined (Castelin and Chapman, 1972; Frenzel, 1989). Ground water flow is from a north to south direction along the axis of the valley (Castelin and Chapman, 1972).

The aquifer is hydraulically connected to the Big Wood River in the reach between Hailey and Bellevue. Ground water levels rise in the spring in response

to snowmelt, flood flows in the Big Wood River, and early-season irrigation, and decline again beginning in July (Moreland, 1977). During the rest of the season the Big Wood River is a gaining stream in this area (Castelin and Chapman, 1972). Castelin and Chapman (1972) indicate that many of the tributary streams in this area reach the Big Wood River as underflow (except during the peak runoff season) through coarse grained aquifer sediments. The water table elevation in this area appears to be controlled by the Big Wood River.

From these general characteristics – a highly permeable, coarse grained aquifer, direct connection between ground and surface water, and a relatively short distance between the Woodside School and the Big Wood River (less than 1 mile) - we recognize that ground water withdrawals from a shallow zone (less than 100 feet depth) at the Woodside School site would reduce the amount of subsurface flow into the Big Wood River. However, proposed mitigation (consisting of 0.18 cfs from Snake River Basin Adjudication Claim 37-21114 that would remain undiverted in the Big Wood River) would effectively compensate for the loss of subsurface discharge to the Big Wood River caused by irrigation withdrawals from Woodside School site.

SNAKE RIVER BASIN ADJUDICATION CLAIM 37-21114 has a priority date of March 24, 1883. Based on watermaster records, the claim has been cut only 11 times between 1955 and 2002, and has experienced a 100% cut 4 times (Figure 2). The full amount of water was delivered for over 60% of the irrigation season in all but one year (Figure 3). The Blaine County School District recognizes that this water may be cut again in the future, and proposes to limit irrigation at the Woodside School using well water to those times that water is available to fill Snake River Basin Adjudication Claim 37-21114.

In summary, the Woodside School is located in a relatively narrow valley overlying a shallow, unconfined aquifer present in highly-permeable, coarse-grained sediments. The aquifer is hydraulically connected to the Big Wood River, and discharges to the Big Wood River in the reach between Hailey and Bellevue (Castelin and Chapman, 1972). We believe that mitigation consisting of leaving 0.18 cfs from Snake River Basin Adjudication Claim 37-21114 undiverted in the Big Wood River will compensate for hydrologic impacts incurred by withdrawals at the Woodside School.

Sincerely,

A handwritten signature in black ink, appearing to read "Christian R. Petrich". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Christian R. Petrich, Ph.D., P.E.
Principal Engineer/Hydrologist

CC: Jim Speck, Speck & Aanestad, PC

References

- Castelin, P. and Chapman, S., 1972. Water Resources of the Big Wood River - Silver Creek Area, Blaine County, Idaho, Idaho Department of Water Administration, Water Information Bulletin No. 28.
- Castelin, P. and Winner, J.E., 1975. Effects of Urbanization on the Water Resources of the Sun Valley-Ketchum area, Blaine County, Idaho, Idaho Department of Water Resources, Water Information Bulletin No. 40.
- Frenzel, S.A., 1989. Water Resources of the Upper Big Wood River Basin, Idaho, U.S. Geological Survey, Water-Resources Investigations Report 89-4018.
- Moreland, J.A., 1977. Groundwater-Surface Water Relations in the Silver Creek area, Blaine County, Idaho, Idaho Department of Water Resources, Water Information Bulletin 45.
- Smith, R.O., 1924. Ground Water Resources of the Middle Big Wood River - Silver Creek Area, Blaine County, Idaho, U.S. Geological Survey Water Supply Paper 1478.

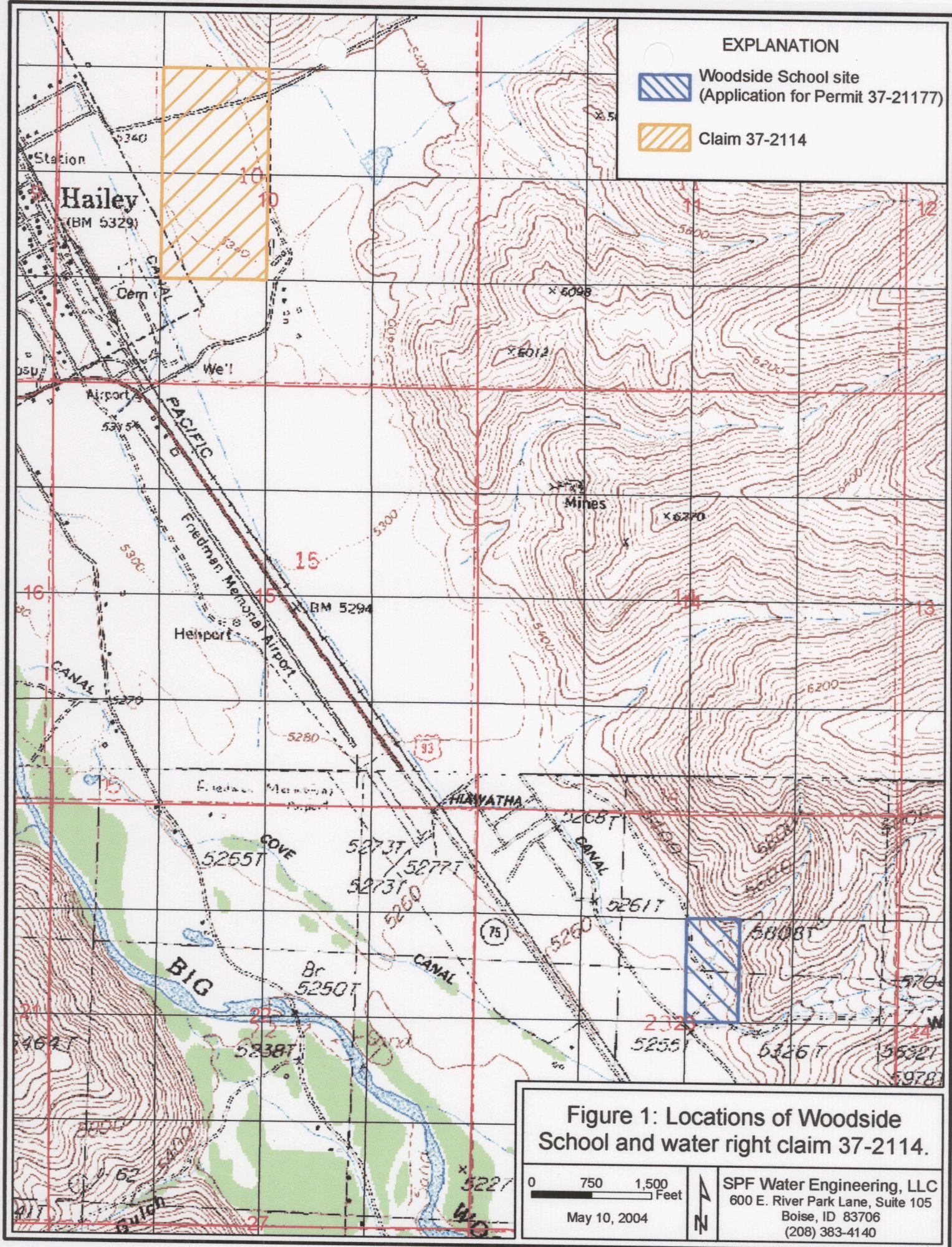


Figure 2: Number of days within the assumed irrigation season (4/1-9/30) for each cut off

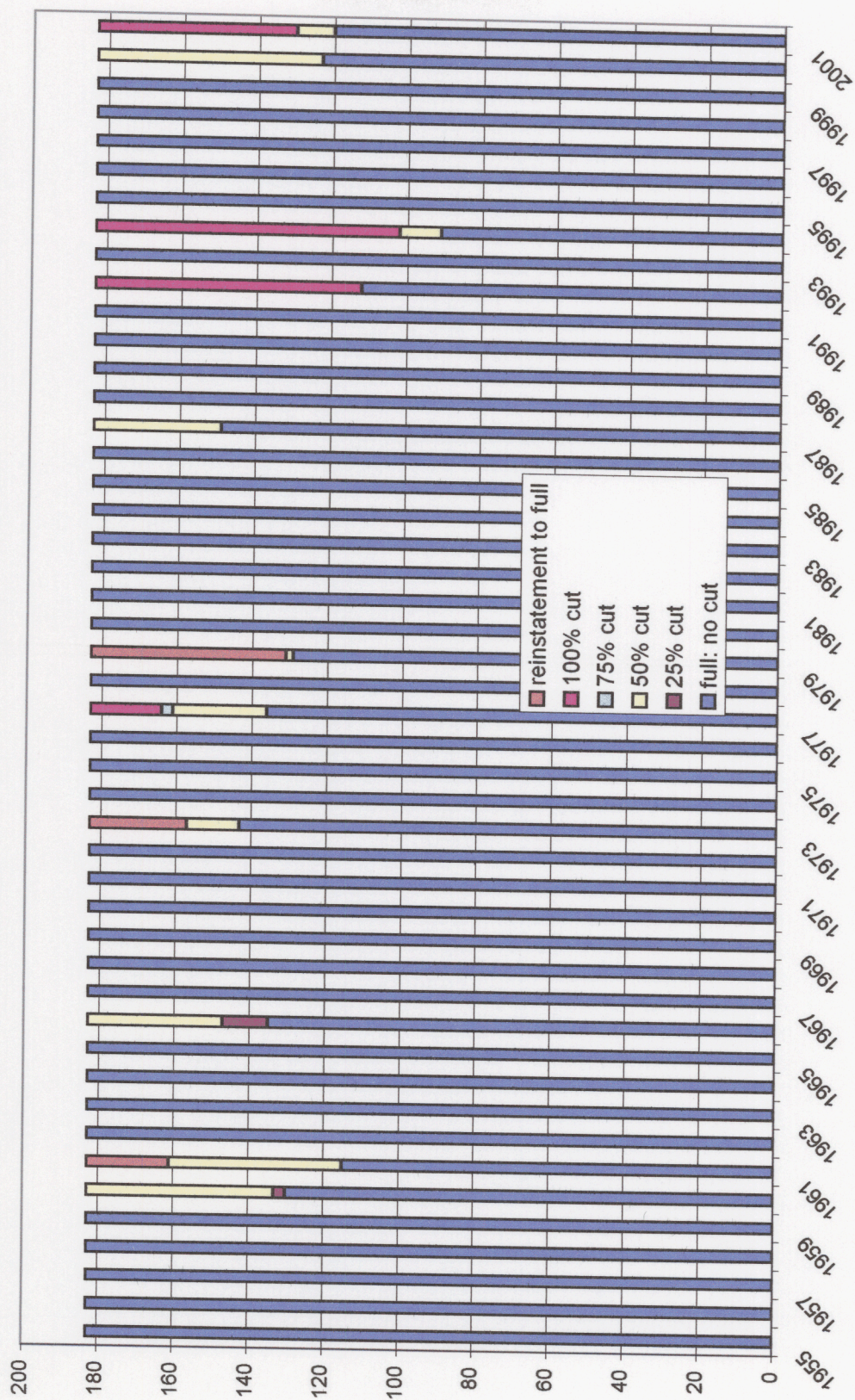


Figure 3: Percent of the assumed irrigation season (4/1-9/30) at each cut off

