

Van Dyke, Nick

From: Case, Morgan
Sent: Tuesday, April 14, 2009 8:59 AM
To: Van Dyke, Nick
Cc: 'Bob Loucks'
Subject: Little Timber Ditch seepage loss

Nick,

I've worked with Bob Loucks to collect the data needed to estimate seepage loss in Karl Tyler's Little Timber ditch.

According to the SURGO soils data on the IDWR website, the entire length of the Little Timber ditch lies on gravelly loam soil (i value = 0.75-1.0).

The ditch is 5 miles long, with a portion piped in the lower end. On the conservative side, the ditch holds the full amount of open water for 4.5 miles.

Bob Loucks measured the wetted width on the ditch in 4 places. It measured 12.5 ft, 11.0 ft, 8.3 ft, and 7.0 ft.

Using the more conservative values, we estimate the ditch loss per mile (S) to be:

$$S = 0.667 \times i \times \text{Wetted width}$$

$$0.4669 = 0.667 \times 1.0 \times 7 \text{ ft}$$

At a length of 4.5 miles, total ditch loss is estimated at **2.1 cfs**.

Please let me know if you need any more information to proceed with the transfer.

Morgan

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① RIGHT AS NOW EXISTING: $3.84 \text{ cfs} / 365.4 \text{ acres} = 0.01 \text{ "/acre}$

② ON NEW 139 ACRE POB,
W/O CONVEYANCE: $3.84 \text{ cfs} / 139 \text{ acres} = 0.03 \text{ "/acre}$

③ ON NEW 139 ACRE POB,
W/ CONVEYANCE: 3.84 cfs
 $- 2.1 \text{ conv.}$
 $1.74 \text{ cfs} / 139 \text{ acres} = 0.01 \text{ "/acre}$