Interactive comment on “Experimental
determination of the flood wave transformation
and the sediment resuspension in a small
regulated stream in an agricultural catchment” by
David Zumr et al.

Anonymous Referee #2

Received and published: 7 July 2017

The paper presents an interesting experimental design at the Nučice agricultural catch-
ment in the Czech Republic and represents a significant contribution in the fine sedi-
ment transport in constructed open channel drainages. The article is appropriate for the
journal Hydrology and Earth System Sciences. The scientific methodology is sound,
and methods explained thoroughly. The paper is well written and concise – a few edi-
torial corrections are noted below.

Comments/Edits:

C1

Title: The word “managed” would be a better word than “regulated”.

Abstract is concise and well written.

Introduction: Page 2, line 3, the word “stacked” – not sure what that means – does it
mean “embedded in the channel bed alluvium”?

Introduction: Page 2, lines 22-23, explain “more important” – this is a vague statement.

Introduction: Page 2, line 27: the word “here” can be replaced with “in this paper”

General formatting: ĬČĬ Page 3, line 10, km2 ĬČĬ Page 3, lines 15-16, 30-31: genesis,
species names are italicized (check with journal); also correct throughout manuscript
ĬČĬ Page 3, line 19, artificially- trained ĬČĬ Page 4, line 11, m3 ĬČĬ Page 5, line 15,
Figs. 4-6; line 19, Fig. 4; Page 6, line 4, Fig. 5; line 28, Fig. 6; Page 10, line 12,
Figure 6. ĬČĬ Page 7, line 23, m3 ĬČĬ Page 7, line 31, a space is needed between
“conditions. Both”

Experimental set-up: Page 4, lines 15 & 30: what is the size of the H flume?

Numerical Modelling: Page 6, line 9: Reword as: “The initial pumped water volume
was 85% recovered in the C profile. . . . . . .”

Numerical Modelling: Page 6, line 14: Best to state as :“simple 1D hydraulic model in
HEC-RAS unsteady flow.”

Numerical Modelling: Page 6, line 18: Comment: Indirectly, stem blockage factor and
frictional energy losses are fundamentally the same.

Numerical Modelling: Page 6, line 31-33: Is it possible to report with your use of the
Richards equation, K, ϕ, and ψ or h.

Discussion: Page 7, line 18, the word “convex” is better than “inverse”

Discussion: Page 8, lines 2-3, Comment: Was the HOAL experiment sediment-supply
limited?

C2
Discussion: Page 8, lines 30-33, Comment: It would be interesting to examine a long-term experiment observing a mass balance of fine sediment. I say that because your artificial water input was clear water (zero kg/s), but there was mass export. Just curious how that would change over time (hydrograph events) because it would potentially inform you better on shifts in source contributions over the annual seasons. Page 9, 2-4, was there any particle size distribution (PSD) data? That would also be interesting to observe over time. PSD requires an extensive commitment so I would not expect that that data are available.

Discussion: Page 9, line 23, the word “Reverse” – not sure what that means in the context of vegetation.

Discussion: Page 9, lines 26-28, Comment: Any discussion of the potential for fine sediment contributions from bank erosion?

Discussion: Page 10, lines 1-4, Comment: Others have found that soil moisture greatly affects erodibility of bank soils. You may want to reference this environmental conditions and interpolation of your findings.