State variables for 1st SYLVIA v1.0 Model Validation within 1 reach segment 🡪

I have WASP just about set up. I have a few clarifying questions. I think it’s mostly just a translation of how WASP sees things versus how you set it up. To make sure I’m following, we’re looking at one river reach of Brier Creek, right?

Flow = 6.75 m3/s, Velocity = 0.35 m/s

Two solids types: Garnet sands (density = 4 g/cm3), Organic Matter (density = 1.22 g/cm3) [I’m unclear why the density is different in layer 2 than 3]

Particle size = 0.025 mm

I’m unclear on a few things. Is the system 4 layers: 1) water column  2) garnet sands sediments 3) organic matter sediments 4) organic matter sediments?

The cross-sectional area of the sediment/water interface is 19.29 m2, yes? And then depths are 2) 7.5 m 3) 15 m and 3)15.1 m? What is the depth of the water layer? Or is there no water layer?

I got the volume of the layer by multiplying depth by area, then I calculated the width as 0.0088 m which is really thin, did I do that right?

So what I need is: what is the construct of the system: what are the physical dimensions of each layer: width, depth, length (and volume)

Where is the flowpath? Does the water come in and pass through all layers? Or just the top layer?

What are the boundary concentrations of each solid type? Or is it clean water flowing with zero garnet or organic particles?

Are all layers water column? Or are there sediment layers? Do you have a single layer that captures all the sediments, and do you have a constant volume for that layer or a constant density? Do you calculate burial rate out the bottom?