

1/6/15

Ravalli County Commissioners,

Regarding: Towards an appropriate floodplain model!

(1.) Submitting the **cutbank erosion situation at The Lee Metcalf Wildlife Refuge, as typical, as basic, for modeling.**

(2.) Submitting also, a possibly typical, basic to understand, and to make use of, and to protect from, **example of a main stream re-direct, representative of main stem meandering from Woodside Crossing to opposite Bear Creek road.**

(3.) Submitting also some lines of reasoning and action.

From Hamilton to past the Florence Bridge, excepting choke points of bridges, and emergency 310 riverbank protections, the Bitterroot River flood season involves cut banks of sandy aggregate, eroding away, to fast moving bedloads often to make very large deposits upon old gravel bars.

Want to see for yourself how cutbank erosion works? Go to maps of the Bitterroot River, along the Lee Metcalf National Wildlife Refuge. Maps from 2013, 2012, 2010. Go also to Google Earth. Zoom in

on some local features you know well, to determine what year was *imaged* on Google Earth, with 2013 datestamp.

Then plan to go see for yourself the long cleancut cutaway arc in the wide pathway along the river at the Lee Metcalf Wildlife Refuge.

PLEASE take a flyover courtesy of Google Imagery. Go to Wildfowl Lane and the white parking lot with eight parked vehicles, the little bridge, then the obvious long whitish pathway South West to long arc of river. On West side of river is white looking gravel bar three times as long as the parking lot.

The pathway is nine feet wide, and kinda grey when you zoom in.

Notice where grey pathway shows up as whitish, next to small white sandy patch between river and pathway.

Figure out many feet of land from West edge of pathway, to river.

View pathway through trees then look ahead to small white rectangle of concrete sidewalk, on west side of shed roof hut, with shadow on left.

Part of that slab now hangs 8' above the river where perhaps 15' of cutbank washed out. This flood season, some 20'-30' of cut bank washed away, out from under a 210' clear cut arc right through the asphalt pathway. Middle portion of pathway now fallen down onto cutbank, and into river.

Go there and see for yourself, and foto and help others view ho

w sandy cutbanks erode away. Take an afternoon aerial foto from the West, and help thousands better understand cutbank erosion by the Bitterroot River. Let photographs stand as evidence of a characteristic erosion pattern of this river cutting into sandy gravel cutbanks, that could and should be part of a reality based floodplain plan.

The FEMA schema superimposed on old maps, may be workable for FEMA, but in no way represents, or has predictive value for, reality along the floodplains of the stems of The Bitterroot River.

Where will next year's flood season cutbank washout bedflows, most likely be deposited ?

Is a question to ignore no more!

A stitch in time would have saved nine thousands!

Take Google Earth to Woodside Crossing, Victor MT.

Before zooming in, observe the three pit ponds. To the right of the river, observe the gravel bar, somewhat in the shape of a mask of a face. Might have been an island. River stem to left and right of island might have turned North for many, many decades.

Early, already experienced irrigators may helped decide where to divert water out of the river. Irrigators could have diverted up stream directly from a wide bend in the river mainstem, but knew that would be foolish, because of the annual flood season, with months of fast moving water ? four to five to six to more feet higher than normal.

A sidewater river stem to the East looked reliable enough for families to divert river water into an irrigation ditch. Good choice, later still a good place so rebuild. Later yet, in 1898 and 1899, reliable eno

ugh side stem location, to form a Capital association, owned by share holders, who would receive irrigation waters, made reliable by operations and maintenance of point of diversion, new headgate, and canal to two different groups making appropriate agricultural use of river water.

Later yet, pay upfront money to help finance over a hundred cubic yards of concrete apron and weir on a sidestream safe from flood water washouts, because of the safety of most bedflow went straight North into the then deeper, long and wide gravel wash channel. Volume is water plus gravel in bedflow.

IMO, cutbank washout bedflow deposited year by year by year until the long wide gravel wash to the North finally started damming up normal river flow forcing it to the East, around the bend to the Supply Ditch cross channel, well placed diagonal weir, funneling deep water to the East, and optionally into the Supply Ditch.

And that's the problem. Main stem moved into the sidestem.

Now that would make for a most helpful set of aerial photographs, in 2015 flood season.

North of Woodside Crossing is a long unique zone of a very gravelly section of the Bitterroot River way North to Bear Creek Road. Consider a Google Earth flyover study of the gravel bars, between bends of the river. Type in **Woodside Drive MT**. Notice the three turquoise colored pit ponds. Look without zooming, to East of the small turquoise colored pond, to what might have been an island, now having the look of a mask with two black eye sockets, no nose, but a kind of a jawline and part of a mouth line.

Perhaps stems of the river used to go through that gravel b

ar, turn and go due north, through the wide and long North-South gravel wash field finally giving way to the obvious island with many trees, then meander some 10 to 20 degrees to the East, rejoining an East channel stem, in an area West of "S" curve in East Side Highway.

Follow the single stem of the river on Google Earth, above and past the mask shaped gravel bar, around the bend and zoom in on the dozen jets of white water to the Northwest, just below the straightline diversion, with couple of tree trunks and a rootball hung up on the concrete in fast moving deep water, near the headgate to the Supply Ditch

Please consider merits of a community based plan for that section of the River

So how about approve FEMA model/map for FEMA purposes. Keep existing floodplain building regs. Look this winter at where ice jam and ice flow problems occur. Look at past and 2015 aerial photographs where floodwaters really are. (1.) Then follow through on rethinking what happens after "Improvement" of the cross stream diversion. (2.) **ALSO CONSEQUENCES** of the stated plans of the Lee Metcalf Wildlife Refuge to avoid riverbank stabilization(=? downstream.), (3.) how to mitigate erosion below our bridges over the Bitterroot River.

Consider that cutbanks erode to become someone else's gravel bar.

Consider good evidential reasons Ravalli County has reserved the right also ability to require floodplain regulation appropriate also suitable for the nature of the Bitterroot Valley.

Consider the Bitterroot River main stem locations now compared to few years ago at Looking Glass. Dawn's Hill. Poker Joe. The Supply Ditch cross stream diversion.

Consider damages past and present and future, from certain bridge locations.

Consider first in time, first in right to protect riverfront cutbank.

The FEMA model works ONLY for hard edged river banks, of accreted materials and rocks. Our riverbanks offer only soft resistance to turbulent floodwaters. The river will always meander through sloping fields of gravel. Will always erode sandy gravel cutbanks into bedflow to be deposited downstream. Deposits sometimes blunting main stem flood waters to cut a new mainstem channel, some of those to last for decades.

FEMA forces an inappropriate flood erosion model upon an out of date map, *not map series*, to determine eligibility for often required Federal Flood Insurance, based on light detected radar elevations, with more expensive premiums for locations inches closer to artificial river of floodplain model.

That's an attempt to be equitable. How about equitable floodplains regulations for Ravalli County!

While working on that, urge Missoula County to do their part. Maybe finally remove those rusted carboodies from the river. Load some of them onto railroad cars, then pull up the soon to be abandoned railroad tracks.

Maybe flyover this winter and take aerial fotos and share them with the Public! Let the Public see where railroad tracks go South and North from the railroad bridge above Poker Joe fishing access. Good places to consider for Public pathways.

On Google can see the trestle just fine, but not the rail line. IMO

we citizens of Ravalli County deserve and would benefit from imagery of where and when those tracks will be removed. Maybe some good sections for walking paths, some for pathways.

Perhaps the Washington Corporation would take aerial fotos of the railroad with ballast rock bed. Perhaps the Washington Foundation would kindly pay to take aerial fotos of Supply Ditch diversion, and context! Maybe the cutbank washout at 'The Refuge.'

Perhaps The Washington Foundation would help provide stadium views helping residents of both Counties participate in the information age!

After all, reportedly, the Railroad placed the now brown rusted carbodies and strung cables and anchored them. And now there is a dangerous taut anchor cable that has to be removed.

Sincerely,

Bob Williams

Stevensville

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