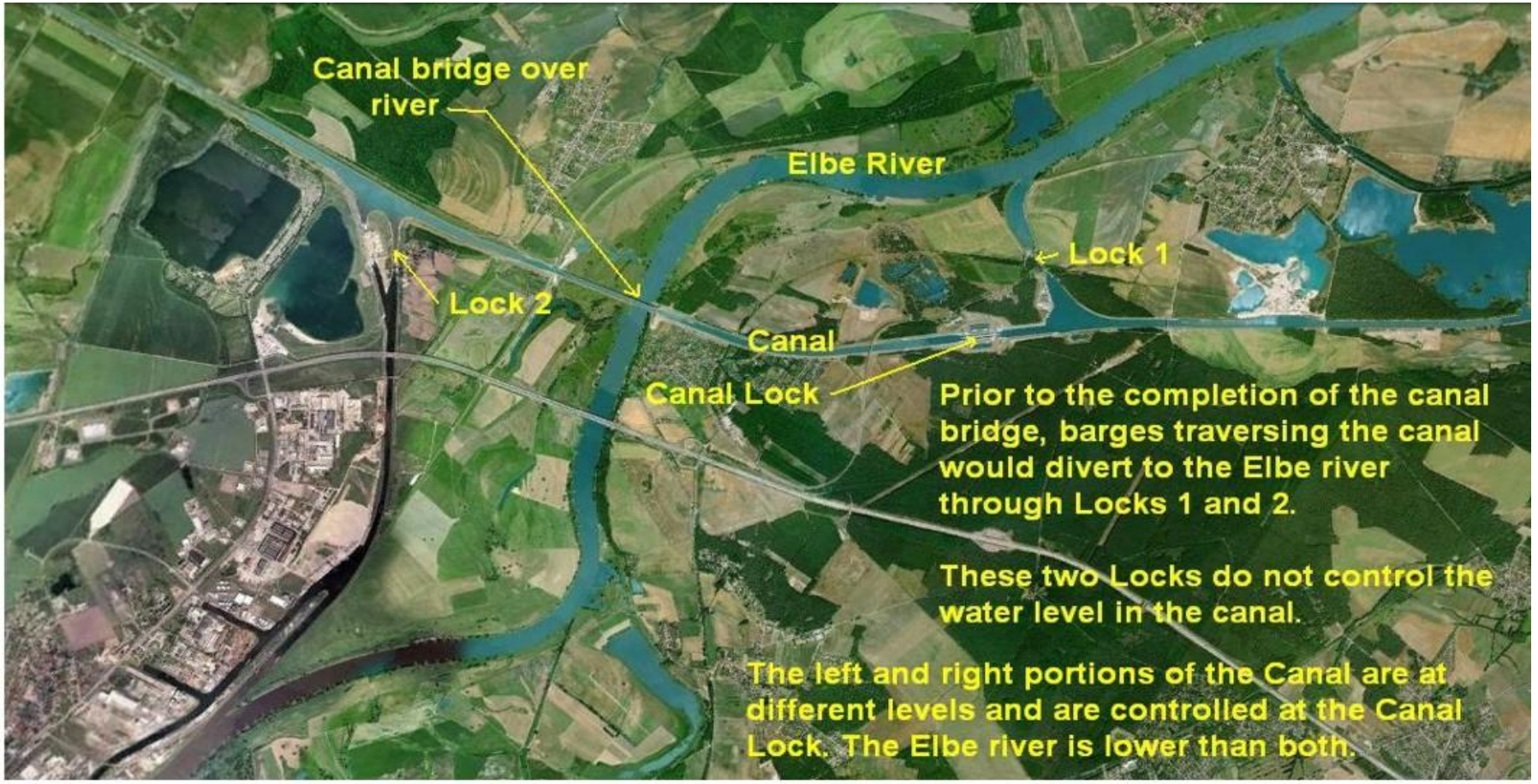
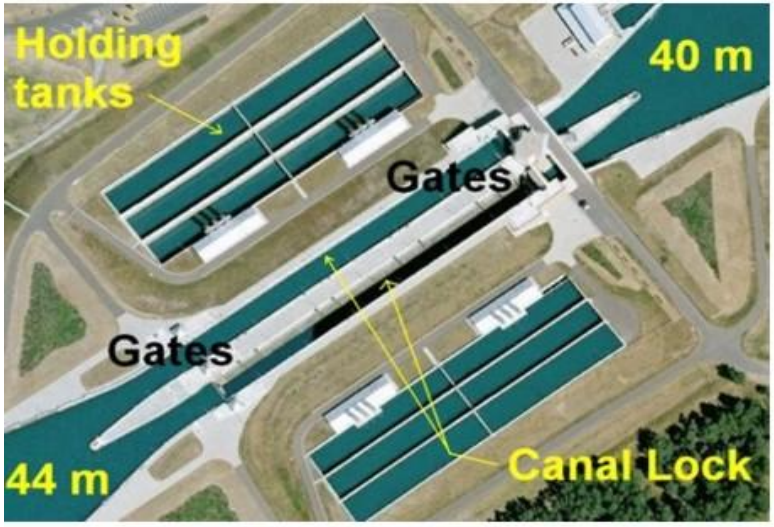
THE MAGDEBURG CANAL BRIDGE OVER THE ELBE RIVER





Above are Google-Earth photos of the vicinity. The two lower ones are blowups of areas from the above photo, identified correspondingly. The surface elevations (in meters) of the river, and left and right portions of the Canal are approximated average readings from the elevation data displayed by Google.

Without any further research and just based on what I see, herein in is a system analysis based on logic.

1. Vessels traveling the canal from left to right will enter one of the two Canal Locks, gate closes behind, front gate opens slowly (from under), and water flows from 44 meter level to 40 meter level. Once levels are equal, front gate fully opens, and vessel proceeds onward.
2. In similar manner, vessels traveling on the canal from right to left enter either of the Canal Locks. The gate behind closes, and then water from the holdings tanks (which are at least at 44 m level, or perhaps higher as may be stored by pumps), is allowed to flow into the 40 m level lock, which then quickly fills up to 44 m level. Front gate opens and vessel proceeds onward.
3. If any vessel has to go from the river to the canal, or vice versa, they use either Lock 1 or Lock 2, in a similar operation.

To counter the recent arguments that the canal-bridge has to be structurally designed for both weight of water and weight of ship, the fact remains that there never can be "an instantaneous" load of a ship appearing in the canal, such that the water it displaces does not have the time to disperse. The vessel has serenely plied it's way either up and down the canal before it gets to cross the bridge. And the water surface level is almost the same throughout, save for swells and waves made by the vessel.

Now, if the area experiences storms and rains like our Marikina river, yes, the entire length of the canal may fill up, but it will not reach a flood stage because it will overflow at the bridge.

Presumably, the engineers designed the bridge to carry this load.

Whether there is a ship floating on the overflowing bridge or not will be of no consequence, since the total weight the bridge is carrying will be either all water, or ship plus remaining water not displaced by the ship.

Danny Gil, 9/29/11

PHOTOS FROM THE ORIGINAL POSTING