PIGG RIVER RESTORATION AT POWER DAM

Table of Waters of the United States Within the Project Vicinity

November 18, 2015

Site #	Latitude	Longitude	NWI Cowardin Class	Description	Size	Class of aquatic resource	Rosgen Classification	Impact Type	Offsets
1	79°51’35.41”W	36°59’44.69”N	PSS1P	FW Forested/Scrub under 713 bridge	0.16 acre	section 10 non-tidal	NA	Temporary fill for access	1:1 restore in place
2	79°51’29.46”W	36°59’32.81”N	PFO1A	FW Forested/Scrub	8.95 acres	section 10 non-tidal	NA	Avoided	
3	79°51’27.04”W	36°59’6.542”N	PFO1A	FW Forested/Scrub	2.08 acres	section 10 non-tidal	NA	Avoided	
4	79°51’49.45”W	36°59’3.272”N	PFO1A	FW Forested/Scrub Not connected to river.	2.4 acres	section 10 non-tidal	NA	Avoided	
5	79°51’32.88”W	36°59’34.89”N	PEM1Cx	Not Found		section 10 non-tidal	NA	Avoided	
6 (2a)	79°51’35.02”W	36°59’36.86”N	PUBHx	Open Water FW Pond within Site 2	1.85 acres	section 10 non-tidal	NA	Avoided	
7 (2b)	79°51’26.77”W	36°59’26.68”N	PUBHx	Open Water FW Pond within Site 2	0.08 acres	section 10 non-tidal	NA	Avoided	
8	79°51’34.32”W	36°59’41.52”N	R3AB4h	Riverine, impounded	10,730 LF	section 10 non-tidal	NA-impounded	Permanent Conversion	1:1 riverine in place
9	79°50’26.16”W	36°59’27.97”N	R3AB4	Riverine, downstream of dam	18,480 LF	section 10 non-tidal	B5c – F5	Avoided	
10	79°51’37.45”W	36°58’42.47”N	R4SB3	Riverine/Tributary stream	605 LF	section 10 non-tidal	G4	Avoided	

NARRATIVE DESCRIPTIONS

Summary:
Assessed wetlands are forested/scrub consisting primarily of ash-leaf maple (*Acer negundo*), black willow (*Salix niger*), green ash (*Fraxinus pennsylvanica*), and alder (*Alnus serrulata*) with small areas of surface water observed. Seeps and/or perennial tributaries along the landward edge of wetlands upstream of the dam are the dominant source of hydrology other than intermittent river flooding. An exception was Site 4 where no tributaries, seeps, or surface water was observed. A significant upland levee is present between wetlands and the river which blocks any primary hydrological connection except during major floods. These riparian wetlands are at an elevation above the pool formed by the dam and hydrology is supplied from groundwater seepage at the toe of adjacent uplands and runoff. Where breaks in the levee exist water flows out and down the bank into the pool formed by the dam rather than any backwater effects from the pool. There is strong evidence of beaver (*Castor canadensis*) activity in the river and wetlands, though no lodges or beaver dams were observed. No connection or phenomena was observed that caused the river to retain, stage, or back water into the adjacent wetland during base flow or indicate that these wetlands would be drained or negatively impacted by the project.

Site 1. Forested Scrub wetland 0.16 acres in size located under the Route 713 Bridge below Power Dam. Area will be temporarily impacted by fill placed to provide equipment access to dam. Boundary was flagged with survey tape and wetland determination data forms were completed. Dominant vegetation consists of silktree (*Albizia julibrissin*) and ash-leaf maple (*Acer negundo*). Groundwater hydrology is supplied from adjacent river water level. Surface hydrology is predominately from river overtopping banks during floods. No direct connection by channel to river. Area is impacted by heavy debris flows, bridge, and trimming of vegetation presumably by anglers.

Site 2. Forested Scrub wetland 8.95 acres in size located just upstream of Power Dam. Area will not be impacted by the project. Boundary was flagged with survey tape and wetland determination data forms were completed. Dominant vegetation consists of ash-leaf maple, black willow, and green ash. Site 2 includes 1.85 acres and 0.08 acres of open water in 2 separate areas. Four perennial streams/seeps discharge into Site 2. Water flows out of Site 2 to the Pigg River at 2 locations, neither of which have backwater effects from the adjacent river impoundment. This is due to the wetland invert being perched 1.4 feet above the river channel and a well-developed levee between the wetland and the river.

Site 2 is being negatively impacted by a large logjam in the adjacent river channel formed by the presence of Power Dam that raises the base flow elevation in the river 1.5 feet above the dam. The debris diverts flood flows into Site 2 which serves as a by-pass or secondary channel during floods resulting in heavy sediment deposition, scour, erosion, vegetation loss, and head cutting. The magnitude of these flows exceed Site 2's function as flood attenuation and is resulting in continued degradation and loss of wetlands.

The degradation presents as major deposition (2-6 inches) of sediment that has recently occurred as flows overtopped the banks and flowed through riparian forests of ash-leaf maple and green ash, then black willow, and finally the open water portion of the wetland. While sediment filled the forested portion of the wetland, scour prevented any meaningful establishment of emergent vegetation in the open water portion. Furthermore, a headcut has formed as these flows exit the wetland at the dam which will ultimately result in draining of the wetland or connecting it to the river as a backwater area (there is a 1.4 foot head difference in water surface between the wetland and the pool formed by the dam).

Subsurface connections through the levee between the river and wetlands were assessed and none found. The water elevation in soil pits was 0.1 feet above the wetland water surface on the landward side and 0.1 feet lower on the river side. However, water in soil pits was 1.65 feet below the wetland at the levee indicating an aquiclude present between the river and the wetlands (see Figure 1 attached).

Site 3. Forested Scrub wetland 2.08 acres in size. Area will not be impacted by the project. Boundary was flagged with survey tape and wetland determination data forms were completed. Dominant vegetation consists of ash-leaf maple and southern spicebush (*Lindera benzoin*). A small channel thorough the levee extended into the wetland 100 feet or more and provided a connection to the river. The first 70 linear feet of this channel was backflooded by the river where it passed through the levee and was contained entirely within the channel. Flow from a small tributary and seepages entered from the adjacent slope into the wetland prior to discharging into the backwatered portion of the channel. The portion of this site moving upslope through a break in the adjacent slope was included in the delineation just beyond the flood elevation of the river.

Site 4. Identified from National Wetland Inventory maps, site inspection revealed this wetland to be perched over 5 feet above the water surface of the Pigg River. Site is not connected to the river and will not be impacted by the project. Boundary flagging and wetland determination data forms were not completed for this site.

Site 5. Identified from National Wetland Inventory maps, no wetlands were identified in this location during field assessments on November 17, 2015.

Site 6. This site is an open water ponded area within Site 2 that is 1.85 acres in size. Area will not be impacted by the project. Maintained by several tributaries and runoff, depth and flood scour is preventing establishment of wetland vegetation.

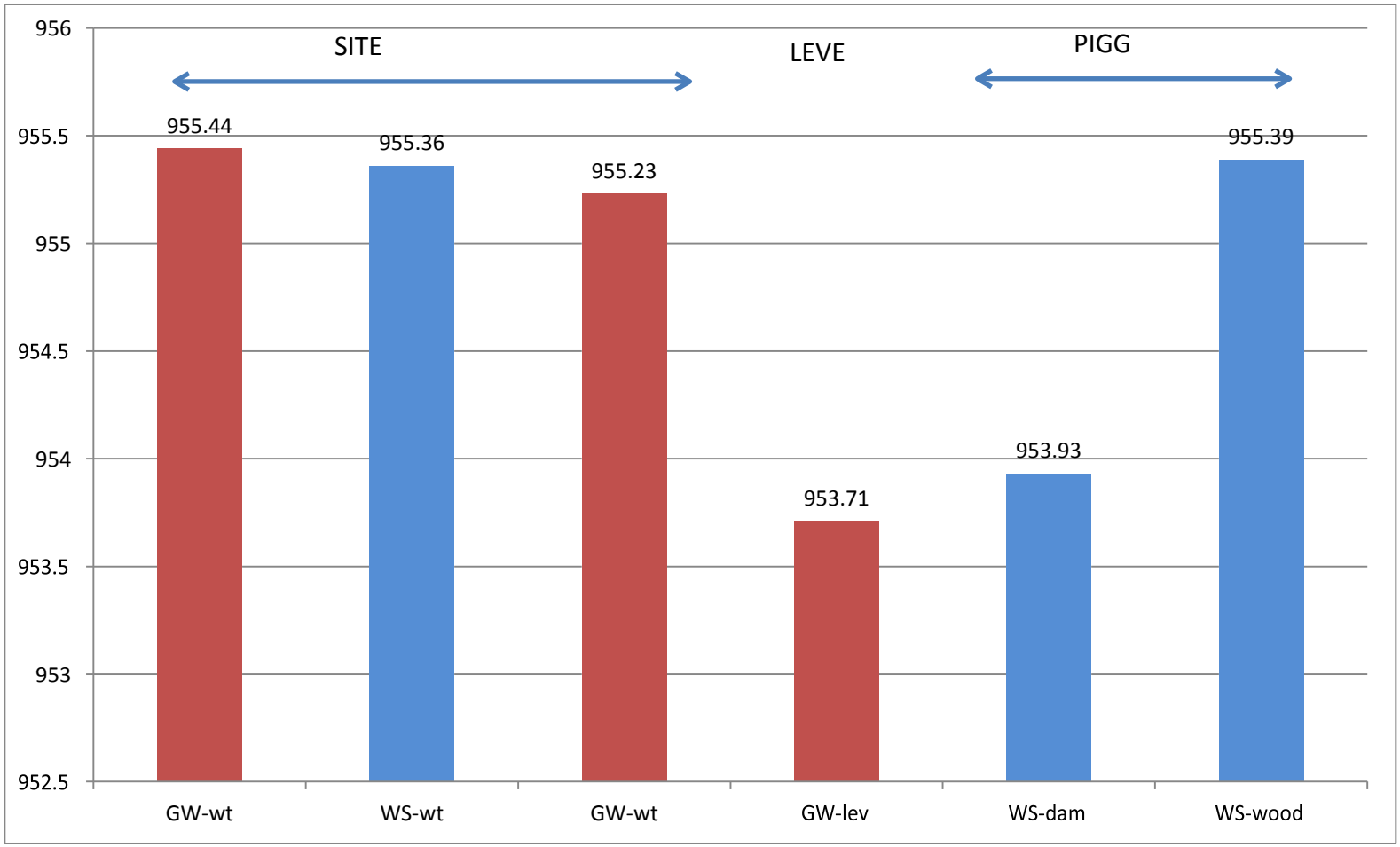
Site 7. This site is an open water ponded area within Site 2 that is 0.08 acres in size. Area will not be impacted by the project. See Site 2 discussion for rationale.

Site 8. The portion of the Pigg River impounded behind and upstream of Power Dam. Consists of 10,730 linear feet or 25 acres of open water. Site will be permanently converted by the project to a Rosgen B5 free flowing channel type with vegetated banks.

Site 9. The portion of the Pigg River downstream of Power Dam. Consists of 18,480 linear feet of Rosgen B5c-F5 channel type. Site will be temporarily affected by sediment after the project is completed. Long term positive effects involve improved sediment transport competency, aquatic habitat, vegetated bars and benches, and reduced bank erosion (see Power Dam Sediment Capacity and Fate Modelling report, Kris Bass Engineering, 2015, submitted to the Friends Of The Rivers Of Virginia, Roanoke, Virginia).

Site 10. Rosgen G5 perennial stream located upstream of Power Dam. Area will not be impacted by the project. 605 linear feet of the boundary was flagged with survey tape and wetland determination data forms were not completed. No backwater effects were observed the entire length of the stream to the Pigg River during base flow.

. Figure 1. Water surface gradient from west to east across Site 2 between an inflowing tributary and the Pigg River upstream of Power Dam in Franklin County, VA. Measured on November 18, 2015. GW=subsurface groundwater, WS=water surface above ground.



Key to Bar Labels

GW-wt: water surface in soil pit within Site 2 sampling plot, west side, near inflowing tributary.
WS-wt: surface water elevation of Site 2.
GW-wt: water surface in soil pit within wetland sampling plot at Site 2, east side, near Pigg River.
GW-lev: water surface in soil pit within levee between Site 2 and Pigg River.
WS-dam: water surface elevation of Pigg River upstream of Power Dam.
WS-wood: water surface elevation of Pigg River upstream of logjam above Power Dam.