

Section J
Environmental Assessment

Enclosure A1

Bell Bend Nuclear Power Plant
Third Preliminary Jurisdictional Determination

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October 25, 2011

Ms. Amy Elliott
U.S. Army Corps of Engineers- Baltimore District
State College Field Office
1631 South Atherton Street, Suite 102
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**BELL BEND NUCLEAR POWER PLANT
ADDITIONAL WETLANDS WITHIN
REVISED PROJECT BOUNDARY
BNP-2011-179 Docket No. 52-039**

This letter provides materials in support of a potential additional wetlands determination by the U.S. Army Corps of Engineers (USACE) with regard to a revised project boundary for the Bell Bend Nuclear Power Plant (BBNPP) project in Berwick, Pennsylvania. A project boundary change has occurred to accommodate the on-site disposal of all earthwork materials resulting from the Plot Plan Change. New wetlands have been identified within this revised project boundary; however, no impact to these wetlands is anticipated.

Enclosed please find the following materials for your consideration:

- "Revised Table 1. Summary of U. S. Army Corps of Engineers regulated areas for the Bell Bend Site Third Preliminary Jurisdictional Determination," dated October 10, 2011.
- Revised "Wetlands Index Map", two (2) pages, dated October 07, 2011, that is cross-referenced to the above table.
- A set of twenty plan sheets, dated October 07, 2011, showing the boundaries of USACE jurisdictional wetlands and waterway features, and provided in both 11" x 17" format as well as full size (22" x 34") for your use.

We appreciate your continued assistance with this process. Please do not hesitate to contact me or Brad Wise [610-774-6508 or bawise@pplweb.com] with any additional needs or questions.

Respectfully,

Terry L Harpster

TLH/kw

Enclosures: As stated

cc: (w/ Enclosures minus full size drawings)

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J. Mullen	Pennoni Assoc.
D. Lutchenkov	UniStar Nuclear
J. Snooks	Areva

Enclosure 1

"Revised Table 1. Summary of U.S. Army Corps of Engineers regulated areas for the Bell Bend Site Third Preliminary Jurisdictional Determination," dated October 10, 2011.

Table 1. Summary of U.S. Army Corps of Engineers regulated areas for the Bell Bend NPP Project Boundary Third Preliminary Jurisdictional Determination.

Map Number	Cowardin Classification ¹	HGM Classification	Type	Size ³		Stream Length ³		Center Point		Local Waterway ^{4,5}
				Acres	Hectares	Feet	Meters	Latitude ³	Longitude ³	
1	PFO1/PSS1/PEM	Slope	Delineation	1.38	0.56	NA	NA	41.09347	-76.170841	Walker Run
2	PFO1	Slope	Delineation	0.06	0.03	NA	NA	41.09370	-76.167041	Walker Run ⁶
3	PFO1	Slope	Delineation	0.18	0.07	NA	NA	41.09038	-76.171454	Walker Run ⁶
4	PFO1/PEM1	Slope	Delineation	3.16	1.28	NA	NA	41.09132	-76.170176	Walker Run
5	PEM1	Slope	Delineation	0.12	0.05	NA	NA	41.09043	-76.168316	Walker Run ⁷
6	PFO1	Slope	Delineation	0.70	0.28	NA	NA	41.08928	-76.169451	Walker Run
6A	PEM1	Slope	Delineation	0.07	0.03	NA	NA	41.08890	-76.169434	Walker Run
7	PFO1	Slope	Delineation	0.90	0.37	NA	NA	41.09509	-76.168672	Walker Run
8	R3UB	NA	Delineation ²	NA	NA	5,571	1,698	41.08820	-76.168283	Susquehanna River
8A	R3UB	NA	Delineation ²	NA	NA	481	147	41.09509	-76.172145	Susquehanna River
8B ⁸	R3UB	NA	Delineation ²	NA	NA	1,451	442	41.08404	-76.170430	Susquehanna River
9	R3UB	NA	Delineation ²	NA	NA	7,410	2,259	41.08663	-76.156114	Walker Run
9A ⁸	R3UB	NA	Delineation ²	NA	NA	874	266	41.09512	-76.159842	Walker Run
10	PFO1/PEM1	Slope	Delineation	40.95	16.57	NA	NA	41.08431	-76.165771	Walker Run
10A	POW	Slope	Delineation	0.47	0.19	NA	NA	41.08558	-76.166614	Walker Run
11	PFO1	Slope	Delineation	3.63	1.47	NA	NA	41.08931	-76.161803	Eastern Trib. to Walker Run
12	PFO1/PSS1/PEM1	Slope	Delineation	34.66	14.03	NA	NA	41.08730	-76.155276	Eastern Trib. to Walker Run
12A	POW	Slope	Delineation	2.03	0.82	NA	NA	41.09271	-76.159918	Eastern Trib. to Walker Run
12B	POW	Slope	Delineation	0.68	0.28	NA	NA	41.09045	-76.155954	Eastern Trib. to Walker Run
12C	POW	Slope	Delineation	0.01	0.004	NA	NA	41.09010	-76.156335	Eastern Trib. to Walker Run
13	PEM1	Depressional	Delineation	0.16	0.06	NA	NA	41.09328	-76.154936	Eastern Trib. to Walker Run ⁶
14	PEM1	Depressional	Delineation	0.58	0.23	NA	NA	41.08914	-76.155365	Eastern Trib. to Walker Run
15	PEM1	Slope	Delineation	0.25	0.10	NA	NA	41.08888	-76.153749	Eastern Trib. to Walker Run

Map Number	Cowardin Classification ¹	HGM Classification	Type	Size		Stream Length		Center Point		Local Waterway ^{4,5}
				Acres	Hectares	Feet	Meters	Latitude ³	Longitude ³	
16	PFO1/PSS1	Slope	Delineation	3.51	1.42	NA	NA	41.08781	-76.152153	UNT to Lake Took-A-While ⁹
17	PFO1/PSS1	Depressional	Delineation	1.41	0.57	NA	NA	41.08646	-76.152195	UNT to Lake Took-A-While ¹⁰
17A	POW	Depressional	Delineation	0.17	0.07	NA	NA	41.08640	-76.152711	UNT to Lake Took-A-While ¹⁰
18	PFO1/PSS1/PEM1	Depressional	Delineation	5.32	2.15	NA	NA	41.08426	-76.151564	UNT to Lake Took-A-While ¹⁰
18A	POW	Depressional	Delineation	1.00	0.41	NA	NA	41.08465	-76.151622	UNT to Lake Took-A-While ¹⁰
19	PFO1	Slope	Delineation	6.13	2.48	NA	NA	41.08331	-76.155829	Susquehanna River
20	PFO1	Slope	Delineation	10.76	4.35	NA	NA	41.08052	-76.152383	Susquehanna River
21	PEM1	Slope	Delineation	0.16	0.07	NA	NA	41.07979	-76.151859	Susquehanna River ⁶
22	PSS1	Depressional	Delineation	0.11	0.04	NA	NA	41.08137	-76.149586	Susquehanna River ⁶
23	PEM1	Depressional	Delineation	0.02	0.01	NA	NA	41.08059	-76.148944	Susquehanna River ⁶
24	PSS1	Depressional	Delineation	0.52	0.21	NA	NA	41.07944	-76.149478	Susquehanna River ⁶
25	PEM1	Slope	Delineation	3.75	1.52	NA	NA	41.08411	-76.146490	Susquehanna River
26 ⁸	R3UB	NA	Delineation ²	NA	NA	631	192	41.08305	-76.144296	Susquehanna River
27	PEM1	Slope	Delineation	0.52	0.21	NA	NA	41.08608	-76.141295	Susquehanna River ⁶
28	PEM1	Slope	Delineation	1.22	0.49	NA	NA	41.08522	-76.141230	Susquehanna River ⁶
29 ¹¹	PFO1	Slope	Delineation	0.15	0.06	NA	NA	41.08416	-76.139725	Susquehanna River
29A	R3UB	NA	Delineation ²	NA	NA	271	83	41.08416	-76.139725	Susquehanna River
30	R3UB	NA	Delineation ²	NA	NA	4,228	1,289	41.08992	-76.140516	Lake Took-A-While
31	PEM1	Slope	Delineation	0.15	0.06	NA	NA	41.08798	-76.143555	UNT to Lake Took-A-While
32	PFO1/PSS1	Slope	Delineation	3.57	1.44	NA	NA	41.08872	-76.141860	UNT to Lake Took-A-While
32A	PFO1/PSS1	Slope	Delineation	0.06	0.02	NA	NA	41.09059	-76.140221	UNT to Lake Took-A-While
33	PEM1	Slope	Delineation	0.16	0.06	NA	NA	41.08943	-76.137498	UNT to Lake Took-A-While ⁶
34	PEM1	Slope	Delineation	0.05	0.02	NA	NA	41.08995	-76.135935	Lake Took-A-While
35	PEM/PSS1	Lacustrine Fringe	Delineation	0.74	0.30	NA	NA	41.09013	-76.135368	Lake Took-A-While
35A	R3UB	NA	Delineation ²	NA	NA	102	31	41.09011	-76.135787	Lake Took-A-While

Map Number	Cowardin Classification ¹	HGM Classification	Type	Size		Stream Length		Center Point		Local Waterway ^{4,5}
				Acres	Hectares	Feet	Meters	Latitude ³	Longitude ³	
35B	PEM/PSS1	Lacustrine Fringe	Delineation	0.18	0.07	NA	NA	41.09030	-76.135263	Lake Took-A-While
35C	POW	Depressional	Delineation	1.73	0.70	NA	NA	41.09055	-76.134801	North Branch Canal/Outfall
36	PFO1/PEM1	Depressional	Delineation	0.70	0.28	NA	NA	41.08976	-76.134403	North Branch Canal
36A	POW	Depressional	Delineation	0.15	0.06	NA	NA	41.08962	-76.134313	North Branch Canal
37	PEM1	Depressional	Delineation	0.31	0.13	NA	NA	41.08909	-76.134414	North Branch Canal
38	PFO1	Slope	Delineation	0.91	0.37	NA	NA	41.08891	-76.134460	North Branch Canal
38A	PFO1	Slope	Delineation	0.34	0.14	NA	NA	41.08850	-76.134297	North Branch Canal
39	R3UB	NA	Delineation ²	NA	NA	1,115	340	41.08865	-76.133899	Susquehanna River
39A	R3UB	NA	Delineation ²	NA	NA	615	187	41.08721	-76.132607	Susquehanna River
39B	R3UB	NA	Delineation ²	NA	NA	319	97	41.09028	-76.134052	Susquehanna River
39C	R3UB	NA	Delineation ²	NA	NA	839	256	41.08631	-76.133745	Susquehanna River
40	PFO1	Riverine/Slope	Delineation	0.36	0.15	NA	NA	41.08952	-76.133681	Susquehanna River
40A	PFO1/PEM1	Riverine/Slope	Delineation	3.20	1.29	NA	NA	41.09002	-76.133243	Susquehanna River
41	PFO1/PEM1	Riverine/Slope	Delineation	0.62	0.25	NA	NA	41.08903	-76.133374	Susquehanna River
42	PFO1/PSS1	Riverine/Slope	Delineation	1.00	0.41	NA	NA	41.08878	-76.132617	Susquehanna River
42A	PFO1/PSS1	Riverine/Slope	Delineation	0.43	0.17	NA	NA	41.08871	-76.131753	Susquehanna River
43	PFO1/PEM1	Riverine/Slope	Delineation	3.30	1.34	NA	NA	41.08715	-76.133299	North Branch Canal/Outfall
43A	POW	Riverine/Slope	Delineation	0.12	0.05	NA	NA	41.08819	-76.133584	North Branch Canal/Outfall
44 ¹²	PFO1/PEM1	Riverine/Slope	Delineation	3.70	1.50	NA	NA	41.08619	-76.133349	North Branch Canal/Outfall
44A	POW	Riverine/Slope	Delineation	0.26	0.11	NA	NA	41.08538	-76.133132	North Branch Canal/Outfall
44B	PFO1	Riverine/Slope	Delineation	2.50	1.01	NA	NA	41.08627	-76.134003	North Branch Canal
45 ⁸	PFO1	Riverine/Slope	Delineation	0.56	0.23	NA	NA	41.10466	-76.134144	Susquehanna River
46 ⁸	PFO1	Riverine/Slope	Delineation	0.35	0.14	NA	NA	41.10470	-76.132921	Susquehanna River

Map Number	Cowardin Classification ¹	HGM Classification	Type	Size		Stream Length		Center Point		Local Waterway ^{4,5}
				Acres	Hectares	Feet	Meters	Latitude ³	Longitude ³	
47	PFO1	Riverine/Slope	Delineation	0.26	0.11	NA	NA	41.10250	-76.131459	Susquehanna River
47A	PFO1	Riverine/Slope	Delineation	0.07	0.03	NA	NA	41.10228	-76.131258	Susquehanna River
48	PFO1	Riverine/Slope	Delineation	0.96	0.39	NA	NA	41.10295	-76.134989	North Branch Canal
49A	PEM1	Depressional	Delineation	0.02	0.01	NA	NA	41.08856	-76.14882	UNT to Lake Took-A-While ¹⁰
49B	PEM1	Slope	Delineation	0.04	0.02	NA	NA	41.08856	-76.14834	UNT to Lake Took-A-While
49C	PEM1	Depressional	Delineation	0.02	0.01	NA	NA	41.08868	-76.14796	UNT to Lake Took-A-While
50 ⁸	PFO1	Slope	Delineation	0.46	0.19	NA	NA	41.09516	-76.172319	Walker Run
51	PEM	Depressional	Delineation	0.03	0.01	NA	NA	41.08869	-76.169708	Walker Run ⁶
52	PEM	Depressional	Delineation	0.04	0.02	NA	NA	41.08856	-76.169353	Walker Run ⁶
53 ⁸	PFO1	Slope	Delineation	2.65	1.07	NA	NA	41.08418	-76.171710	Walker Run
54	PSS1	Slope	Delineation	0.05	0.02	NA	NA	41.08276	-76.171677	Walker Run
55	PEM	Slope	Delineation	0.04	0.02	NA	NA	41.08238	-76.170585	Walker Run ⁶
56	PEM1	Slope	Delineation	0.82	0.33	NA	NA	41.08430	-76.170271	Walker Run
57	PEM1	Slope	Delineation	0.01	0.004	NA	NA	41.08395	-76.170555	Walker Run
58	PEM1	Slope	Delineation	0.04	0.01	NA	NA	41.08398	-76.170147	Walker Run
59	PEM1	Slope	Delineation	0.22	0.09	NA	NA	41.08408	-76.169744	Walker Run
60	PEM1	Slope	Delineation	0.35	0.14	NA	NA	41.08422	-76.169165	Walker Run
61	PFO1	Slope	Delineation	0.20	0.08	NA	NA	41.08351	-76.169404	Walker Run
62	PSS1	Slope	Delineation	0.04	0.02	NA	NA	41.09515	-76.165260	Walker Run ⁶
63 ⁸	PSS1	Slope	Delineation	0.060	0.024	NA	NA	41.09606	-76.160072	Eastern Trib. to Walker Run
64	PEM1	Depressional	Delineation	0.01	0.003	NA	NA	41.09406	-76.154350	Eastern Trib. to Walker Run ⁶
65	PEM1	Depressional	Delineation	0.02	0.01	NA	NA	41.09399	-76.154153	Eastern Trib. to Walker Run ⁶
66	PEM	Depressional	Delineation	0.34	0.14	NA	NA	41.09026	-76.132539	Susquehanna River ⁶
67	PEM	Depressional	Delineation	0.03	0.01	NA	NA	41.08982	-76.132277	Susquehanna River ⁶
68	PFO1	Riverine/Slope	Delineation	6.16	2.49	NA	NA	41.08665	-76.134724	North Branch Canal

Map Number	Cowardin Classification ¹	HGM Classification	Type	Size		Stream Length		Center Point Latitude ³	Center Point Longitude ³	Local Waterway ^{4,5}
				Acres	Hectares	Feet	Meters			
69	PEM	Riverine/Depressional	Delineation	0.002	0.001	NA	NA	41.10189	-76.13371	Susquehanna River
70	PFO1/PEM1	Slope	Delineation	0.5	0.20	NA	NA	41.07042	-76.14570	Susquehanna River
70A	R3UB	NA	Delineation ²	NA	NA	107	33	41.07023	-76.14571	Susquehanna River
71	PFO	Slope	Delineation	0.15	0.06	NA	NA	41.09066	-76.17241	Walker Run ⁶
72 ¹³	PEM	Riverine/Depressional	Aerial Photo Interpretation	1.87	0.76	NA	NA	41.08316	-76.13447	North Branch Canal

Size		Stream Length	
Acres	Hectares	Feet	Meters

First Preliminary Jurisdictional Determination^{14, 15}

Wetlands Total Area (acres/hectares) = 138.08 55.88

Waterbodies Total Area (acres/hectares) = 4.90 1.98

Watercourses Total Length (feet/meters)¹⁴ = 19,672 5,996

Second Preliminary Jurisdictional Determination¹⁴

Wetlands Total Area (acres/hectares) = 18.40 7.45

Waterbodies Total Area (acres/hectares) = 1.73 0.70

Watercourses Total Length (feet/meters) = 3,964 1,208

Third Preliminary Jurisdictional Determination¹⁴

Wetlands Total Area (acres/hectares) = 2.52 1.02

Waterbodies Total Area (acres/hectares) = 0 0

Watercourses Total Length (feet/meters) = 378 115

Combined First, Second and Third Preliminary Jurisdictional Determinations

Wetlands Total Area (acres/hectares) = 159.00 64.35

Waterbodies Total Area (acres/hectares) = 6.62 2.68

Watercourses Total Length (feet/meters) = 24,014 7,320

¹ Palustrine forested broad-leaved deciduous (PFO1); palustrine scrub/shrub broad-leaved deciduous (PSS1); Palustrine emergent (PEM); Palustrine emergent persistent (PEM1); palustrine open water (POW); Riverine upper perennial unconsolidated bottom (R3UB).

² Stream mapping was prepared using data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

³ Wetland size was rounded to the nearest hundredth of an acre and hectare. Stream length was rounded to the nearest foot and meter. Center point coordinates are in decimal degrees.

⁴ Watercourse to which the wetland drains and/or local watershed.

⁵ UNT - unnamed tributary.

⁶ May qualify as isolated under current USACOE guidance but was not evaluated for this classification in the field by the regulatory agencies.

⁷ Classified as isolated by the U.S. Environmental Protection Agency (USEPA).

⁸ Increased in area or length after the map panels were revised for the third Preliminary Jurisdictional Determination to reflect a survey of the Bell Bend NPP Project Boundary by Pennoni Associates Inc.

⁹ Classified as isolated by the U.S. Army Corps of Engineers (USACOE).

¹⁰ Classified as isolated by both the U.S. Army Corps of Engineers and Pennsylvania Department of Environmental Protection (PADEP).

¹¹ The wetland area identified by Map Number 29 decreased slightly as a result of the delineation of a small internal stream (29A) for the third Preliminary Jurisdictional Determination.

¹² The wetland area identified by Map Number 44 was adjusted slightly for the second Preliminary Jurisdictional Determination as the result of revisions to the location of the Bell Bend NPP Site Boundary.

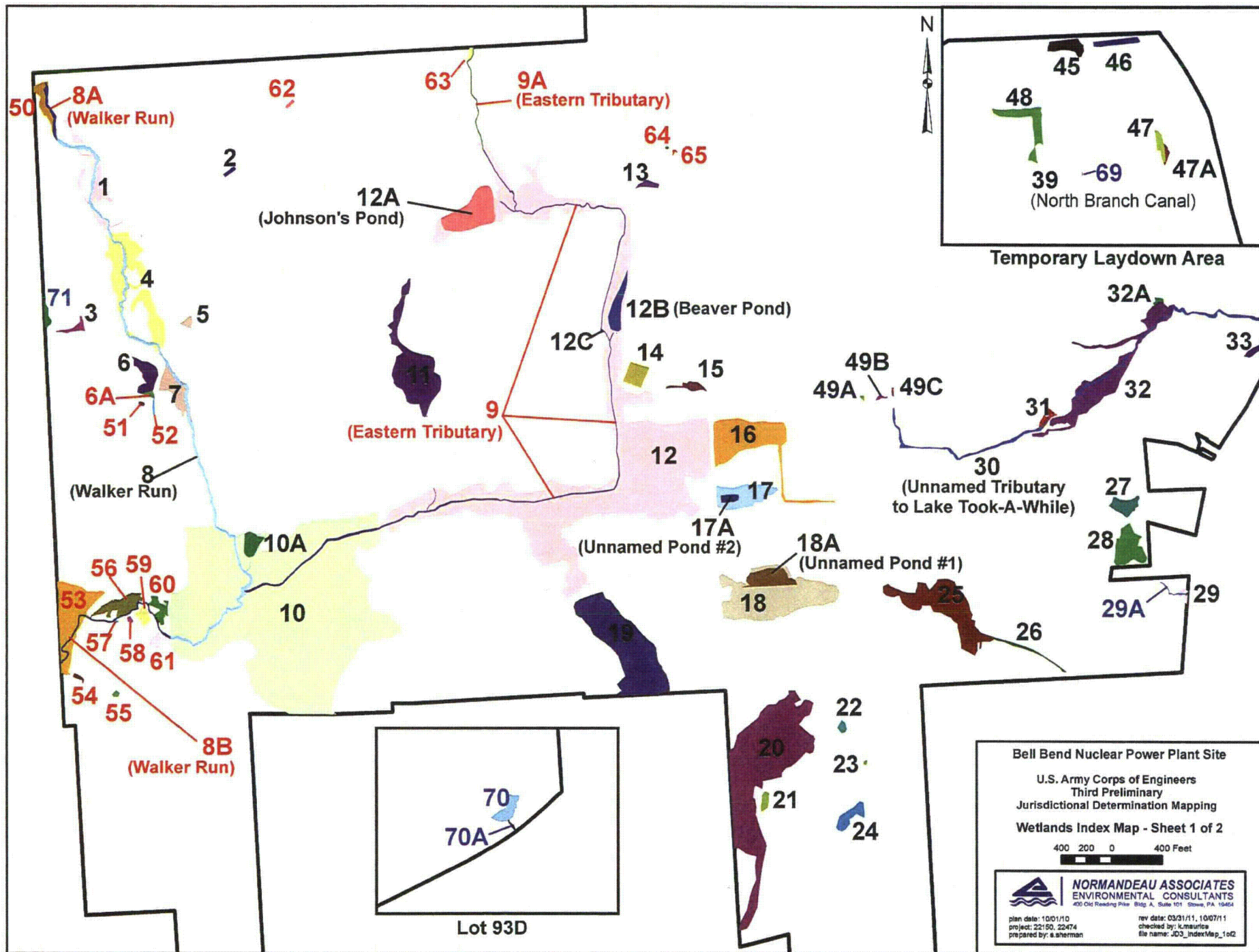
¹³ This is a National Wetlands Inventory (NWI) mapped wetland that is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the project. This wetland was added from the USFWS Geospatial Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

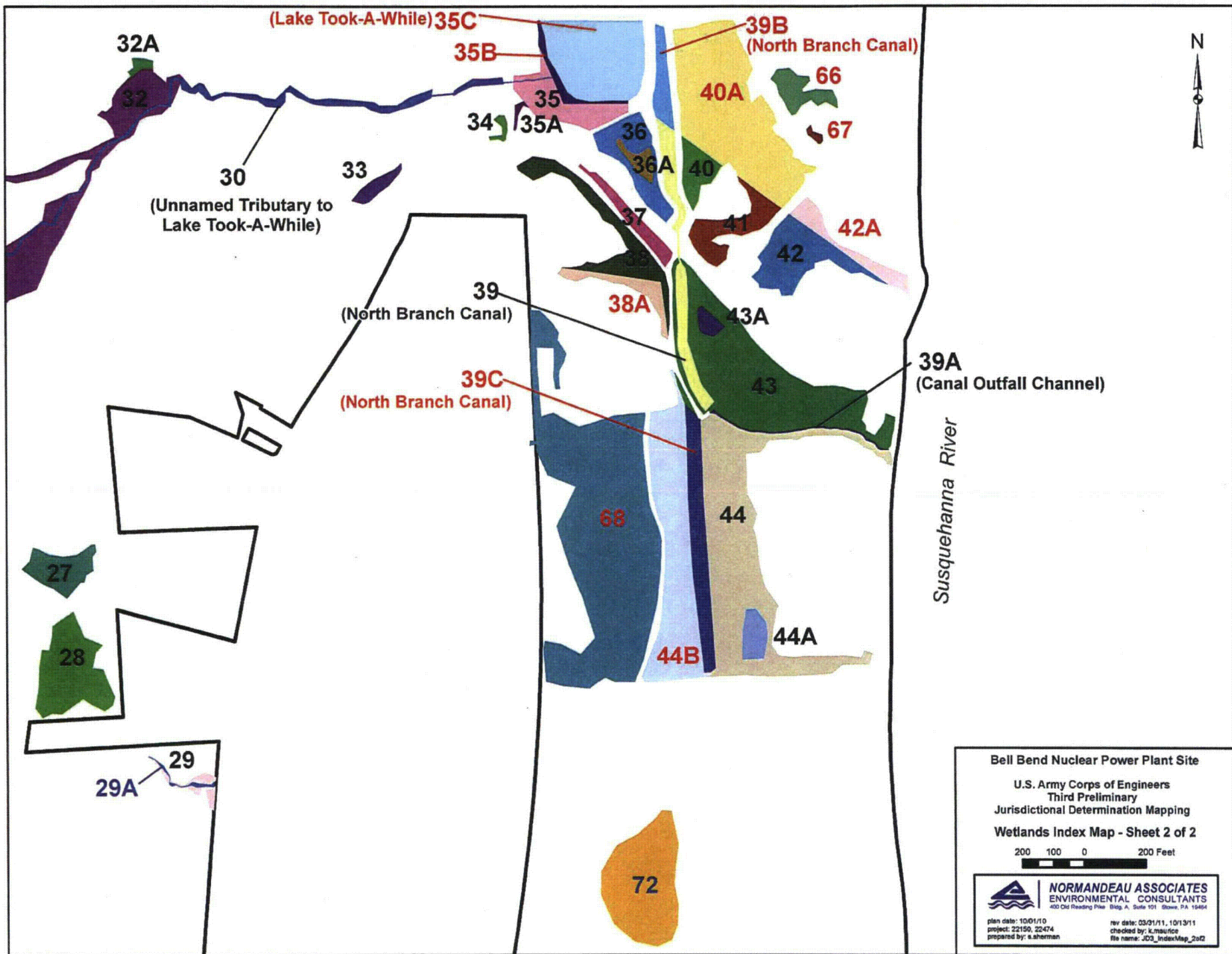
¹⁴ The first Preliminary Jurisdictional Determination inspection was conducted on selected dates during September through November 2009 and the second Preliminary Jurisdictional Determination inspection was conducted on September 21, 2010. The USACOE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project. Summary data for the 2009, 2010 and 2011 Preliminary Jurisdictional Determinations are shown in black, red and green, respectively. Total areas of wetlands and totals lengths of watercourses for the first and second Preliminary Jurisdictional Determinations reflect changes to certain wetlands and watercourses, identified by footnote 8, resulting from the survey of the Bell Bend NPP Project Boundary by Pennoni Associates, Inc.

¹⁵ Stream center point and width measurements from the first Preliminary Jurisdictional Determination in 2009 were revised for the second Preliminary Jurisdictional Determination in 2010 based on surveys completed with sub-meter GPS which resulted in changes to stream lengths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Took-A-While and changes to wetland areas adjacent to these streams. Wetland area and stream length information gathered during the first Preliminary Jurisdictional Determination was reviewed for accuracy and adjusted as necessary.

Enclosure 2

Revised "Wetlands Index Map", two (2) pages, dated October 07, 2011,
that is cross-referenced to the above table.





Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers
Third Preliminary
Jurisdictional Determination Mapping
Wetlands Index Map - Sheet 2 of 2

200 100 0 200 Feet



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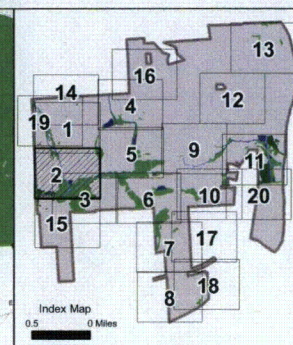
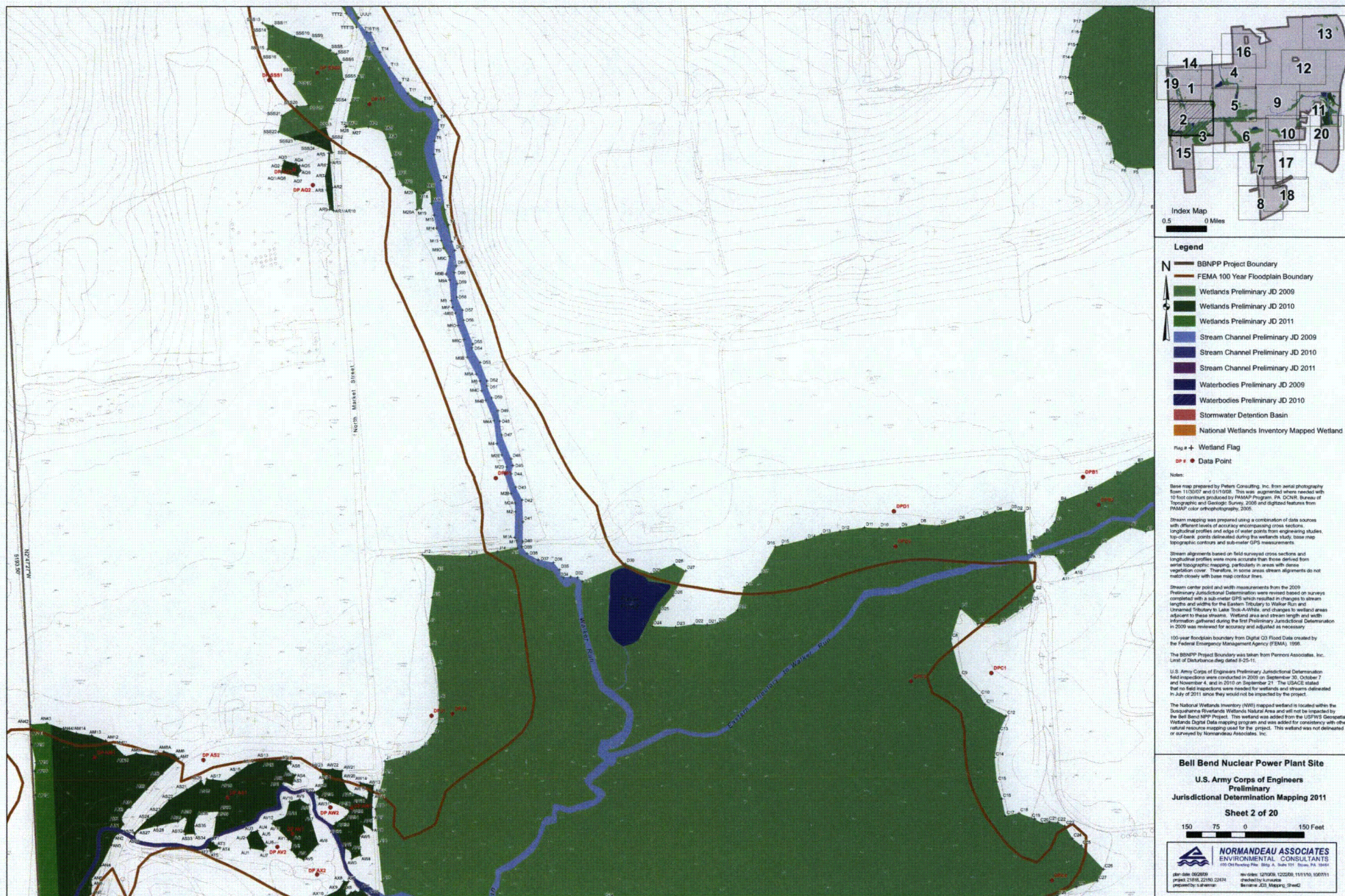
plan date: 10/01/10
project: 22150, 22474
prepared by: s.sherman

rev date: 03/01/11, 10/13/11
checked by: k.maurice
file name: J03_indexMap_2of2

Enclosure 3

A set of twenty plan sheets, dated October 07, 2011,
showing the boundaries of USACE jurisdictional wetlands and waterway features,
and provided in both 11" x 17" format as well as full size (22" x 34") for your use.





- Legend**
- BSNPP Project Boundary
 - FEMA 100 Year Floodplain Boundary
 - Wetlands Preliminary JD 2009
 - Wetlands Preliminary JD 2010
 - Wetlands Preliminary JD 2011
 - Stream Channel Preliminary JD 2009
 - Stream Channel Preliminary JD 2010
 - Stream Channel Preliminary JD 2011
 - Waterbodies Preliminary JD 2009
 - Waterbodies Preliminary JD 2010
 - Stormwater Detention Basin
 - National Wetlands Inventory Mapped Wetland
 - Flag + Wetland Flag
 - DP + Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was augmented where needed with 10 foot contours produced by PAMAP Program, Inc. DCHS, Bureau of Topographic and Geologic Survey, 2008 and digitized features from PAMAP color aerial photography, 2008.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Trout-A-Whore, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the First Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital 03 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BSNPP Project Boundary was taken from Pennors Associates, Inc. List of Disturbance dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 28, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna River Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Geospatial Wetlands Digital Data mapping program and was added for consistency with other cultural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
U.S. Army Corps of Engineers
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150 75 0 150 Feet

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 Website: www.normandeau.com



Index Map
0.5 Miles

Legend

- N
- BSNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
- Wetlands Preliminary JD 2010
- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland
- Flag + Wetland Flag
- DP + Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/10/08. This was augmented where needed with 30 foot contours provided by NADAP Program, PA, OCRI, Bureau of Topographic and Geographic Survey, 2008 and digitized features from NADAP vector orthophotography, 2008.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tox-A-White, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1006.

The BSNPP Project Boundary was taken from Pennon Associates, Inc. Limit of Disturbance Map dated 8-20-11.

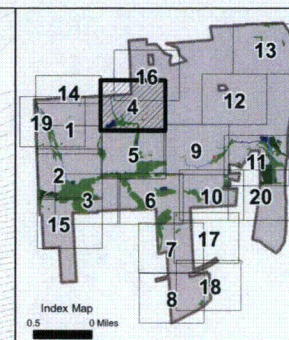
U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no S&D inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands National Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Coastal Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
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150 75 0 150 Feet

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- Legend**
- BBNPP Project Boundary
 - FEMA 100 Year Floodplain Boundary
 - Wetlands Preliminary JD 2009
 - Wetlands Preliminary JD 2010
 - Wetlands Preliminary JD 2011
 - Stream Channel Preliminary JD 2009
 - Stream Channel Preliminary JD 2010
 - Stream Channel Preliminary JD 2011
 - Waterbodies Preliminary JD 2009
 - Waterbodies Preliminary JD 2010
 - Waterbodies Preliminary JD 2011
 - Stormwater Detention Basin
 - National Wetlands Inventory Mapped Wetland
 - Reg # + Wetland Flag
 - DP • Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2002 and 01/2009. This was augmented where needed with 10 foot contours produced by PMAP Program, PA. DCHR, Bureau of Topographic and Geographic Survey, 2008 and digital features from PMAP color orthorectification, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and slope of water points from engineering studies. Field data points collected during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tox-A-Win, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year Floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Parsons Associates, Inc. Limit of Disturbance (deg dated 8-25-11).

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 28, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be inspected for the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna River Wetlands Natural Area and will not be impacted by the Bell Bend Hydro Project. This wetland was added from the USFWS Designated Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
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150 75 0 150 Feet

NORMANDEAU ASSOCIATES
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 100 Old Frying Pan, Suite A, Suite 101, Suite, PA 15064
 phone: 909-289
 project: 2105, 2210, 2404
 prepared by: a. sherman

rev: 04/12/10, 12/20/10, 1/10/10, 05/01/11
 prepared by: a. sherman
 by: m. j. j. Mapping, Sheet



Index Map
0.5 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
- Wetlands Preliminary JD 2010
- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland
- Wetland Flag
- Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was segmented where needed with 10 foot contours produced by PAMAP Program, PA. DCMR, Bureau of Topographic and Geographic Survey, 2008 and digital features from PAMAP color orthophotography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top of bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tuck-A-Whoo, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100 year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1998.

The BBNPP Project Boundary was taken from Parsons Associates, Inc. Limit of Disturbance map dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 28, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Chesapeake Bay Watershed National Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Geospatial Wetlands Digital Data Mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
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150 75 0 150 Feet

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proj. no. 120209
 project 120209, 120210, 120211
 prepared by s.sherman

rev. date 12/06/11 12/06/11 11/06/11 10/06/11
 by normandeau associates
 by normandeau associates





Index Map
0.5 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
- Wetlands Preliminary JD 2010
- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Waterbodies Preliminary JD 2011
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland
- Wetland Flag
- Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/1008. This was augmented where needed with 10 foot contours produced by RMAAP Program, PA, DCHS, Bureau of Topographic and Geologic Survey, 2006 and digital features from RMAAP color orthorectification, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tox-A-White and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Perennio Associates, Inc. Limit of Disturbance map dated 6-20-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Coastal Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

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150 75 0 150 Feet

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 101 Old Foundry Place, Suite 101, Brown, PA 15009
 phone: 412-281-1200
 project: 2011-01-01, 2011-01-01
 prepared by: J. Shuman
 reviewed by: J. Shuman
 date: 12/10/11, 12/10/11, 12/10/11
 checked by: J. Shuman
 name: J. Shuman, 12/10/11



Index Map
0.5 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
- Wetlands Preliminary JD 2010
- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland

Flag = Wetland Flag

OP = Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was augmented where needed with 10 foot contours produced by PAMAP Program, PA. DCHR, Bureau of Geographic and Geologic Survey, 2008 and digital features from PAMAP color orthophotography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edges of water points from engineering studies, topographic maps, points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Trout-A-Whore, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Parsons Associates, Inc. Limit of Disturbance (dsg dated 8-25-11).

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 28, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and stream delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Decadal Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers

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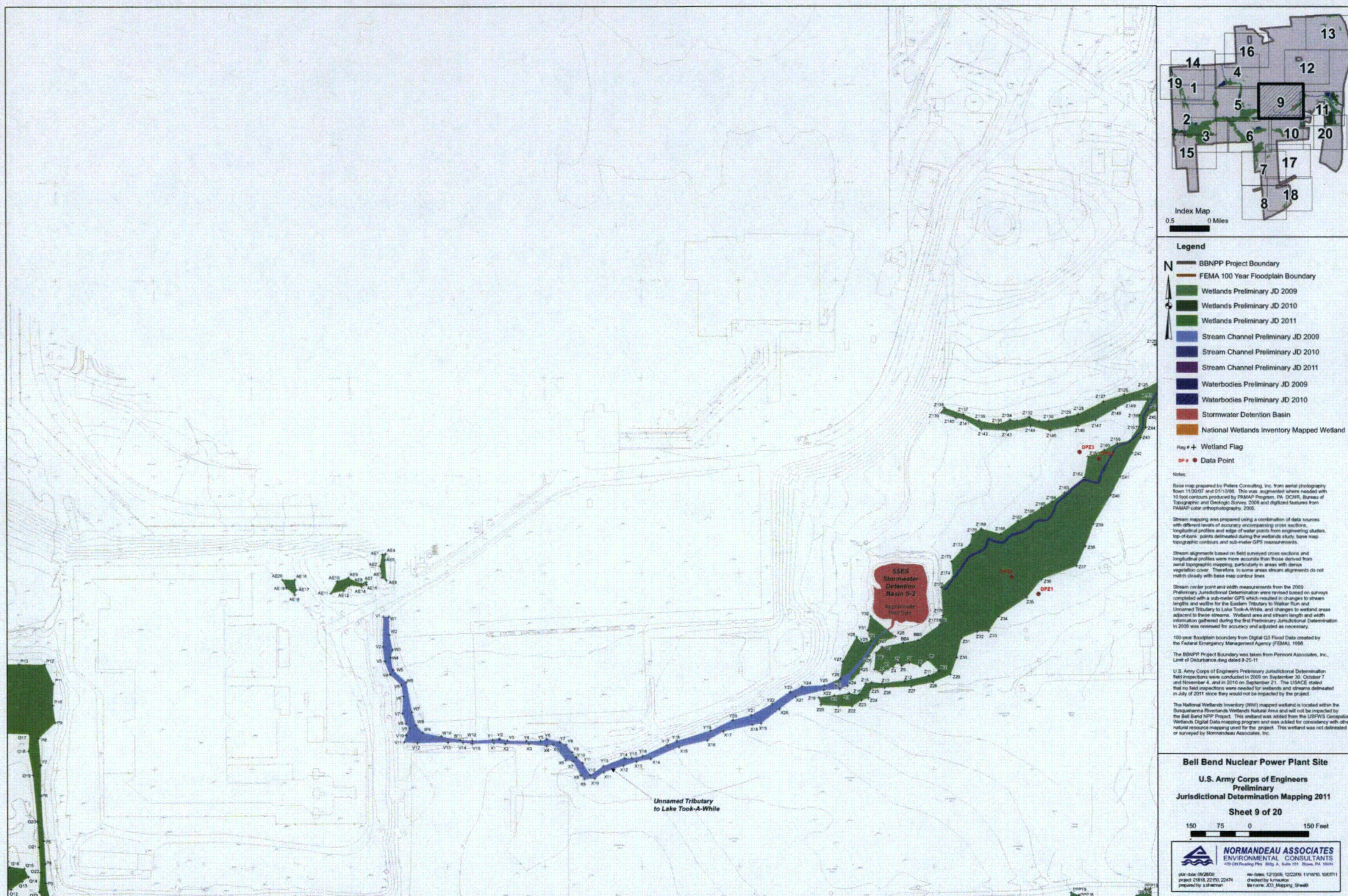
Sheet 8 of 20

150 75 0 75 150 Feet

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS
431 Oakfield Pike, Suite A, Suite 101, Shrew, PA, 15084

plan date: 09/20/09
project: CBRE 2290 1204
prepared by: schmidt

rev: 04/09 12/20/09 11/09/10 09/07/11
checked by: schmidt
drawn by: JOT Mapping, Shrew





Index Map
0.5 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
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- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland

Flag + Wetland Flag

DP • Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was compared where needed with 10 foot contours produced by PAMAP Program, PA. DCHS, Bureau of Topographic and Geologic Survey, 2008 and digital features from PAMAP color orthophotography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top of bank, points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Trout-A-White, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Perspect Associates, Inc. Limit of Disturbance (dtd) dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination. Field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that its field inspections were needed for wetlands and stream delineation in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna River at Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Geospatial Wetlands Digital Data mapping program and was added for consistency with other related resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers

Preliminary

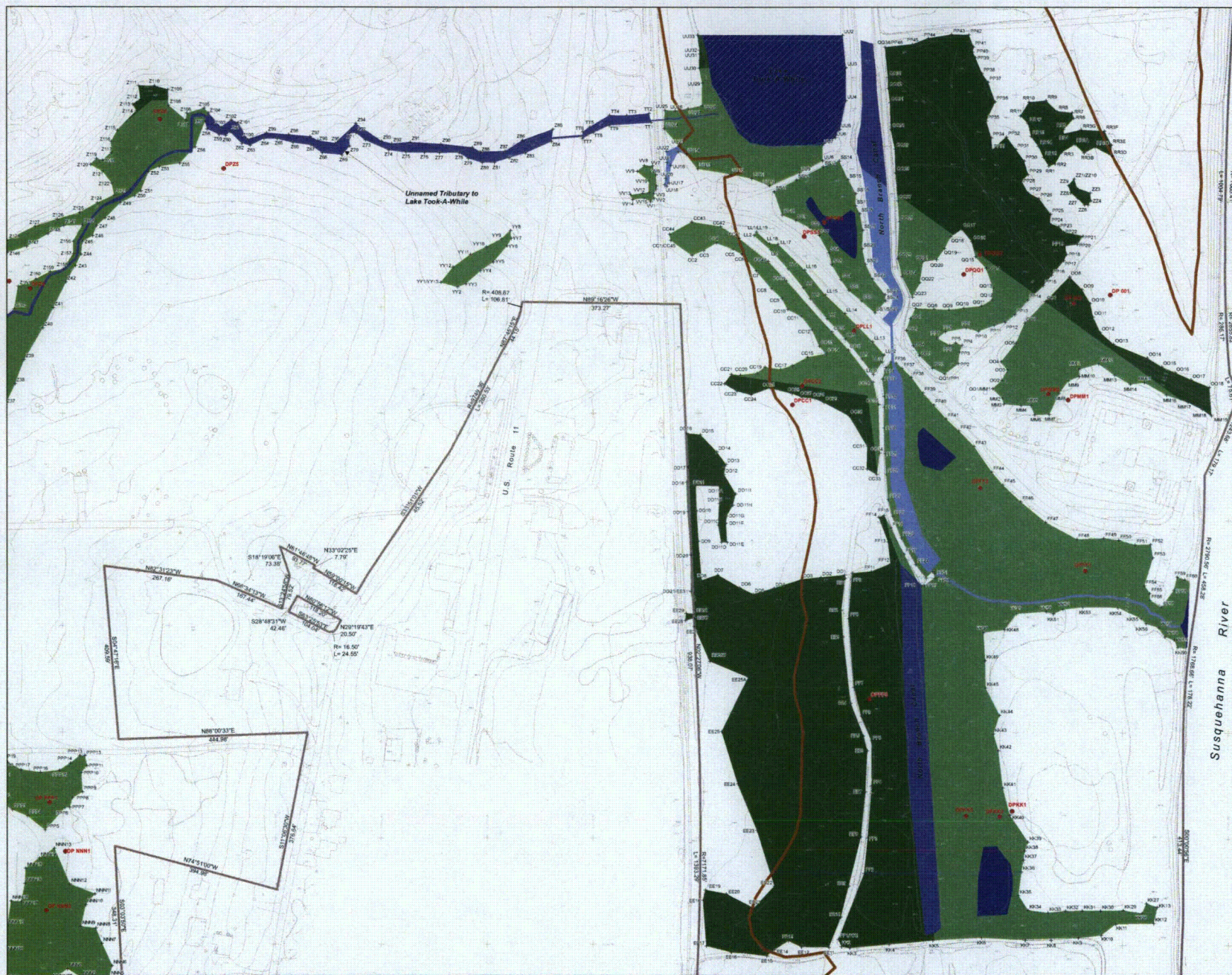
Jurisdictional Determination Mapping 2011

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150 75 0 150 Feet

NORMANDEAU ASSOCIATES
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430 Old Picking Place, Bldg. A, Suite 101, Statesville, NC 28687

plan date: 09/28/09 rev date: 12/06/09, 12/22/09, 11/18/10, 09/07/11
project: 1318, 2210, 2204 checked by: J. A. Mendenhall
prepared by: J. A. Mendenhall file name: JDI_Mapping_Sheet10



Index Map
0 5 10 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
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- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland

Wetland Flag
Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/1008. This was augmented where needed with 30 foot contours produced by FEMA Program, PA, DC&S, Bureau of Topographic and Geographic Survey 2008 and digital features from FEMA color orthophotography 2005.

Stream mapping was prepared using a combination of data volumes with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field survey cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Water Run and Unnamed Tributary to Lake Took-A-White, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Pennon Associates, Inc. Limit of Disturbance along 8-20-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna River National Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Compulsory Wetlands Digital Data mapping program and was added for consistency with other wetland resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
U.S. Army Corps of Engineers
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150 75 0 150 Feet

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 Tel: 717.233.2020 Fax: 717.233.2024
 www.normandeau.com



Index Map
0.5 0 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
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- Wetlands Preliminary JD 2011
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- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland

Flag # + Wetland Flag

• • Data Point

Notes:

Base map prepared by Petrus Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was augmented where needed with 10 foot contours produced by PAMAP Program, PA DCHN, Bureau of Topographic and Geologic Survey, 2006 and digitized features from PAMAP color orthophotography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys conducted with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Took-A-While, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1995.

The BBNPP Project Boundary was taken from Parsons Associates, Inc. Limit of Disturbance (deg dated 8-25-11).

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands stream delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverwide Wetlands National Area and will not be impacted by the Bell Bend BPP Project. This wetland was added from the USFWS Geospatial Wetlands Digital Data mapping program and was added for consistency with other national resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

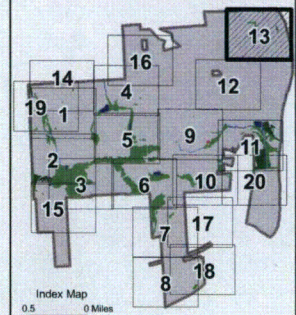
Bell Bend Nuclear Power Plant Site
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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

101 Old Reading Pike, Suite A, July 101, Shrews, PA 17361

per date: 06/20/11
project: CDEB, 12105, 12244
prepared by: csherman

rev date: 12/10/10, 12/20/10, 11/19/10, 06/20/11
checked by: csherman
file name: JDI_Mapping_Sheet12



- Legend**
- BBNPP Project Boundary
 - FEMA 100 Year Floodplain Boundary
 - Wetlands Preliminary JD 2009
 - Wetlands Preliminary JD 2010
 - Wetlands Preliminary JD 2011
 - Stream Channel Preliminary JD 2009
 - Stream Channel Preliminary JD 2010
 - Stream Channel Preliminary JD 2011
 - Waterbodies Preliminary JD 2009
 - Waterbodies Preliminary JD 2010
 - Waterbodies Preliminary JD 2011
 - Stormwater Detention Basin
 - National Wetlands Inventory Mapped Wetland
 - Wetland Flag
 - Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/10/08. This was augmented where needed with 10 foot contours produced by PMAP Program, PA. 02/08, Bureau of Topographic and Geologic Survey, 2006 and digital features from PMAP color infrared photography, 2006.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top of bank points delineated during the wetlands study, base map topographic contours and independent GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Took-A-While, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and updated as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Pennoni Associates, Inc., Limit of Disturbance (LOD) dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS's Generalized Wetlands Digital Data mapping program and was added for consistency with other national resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers

Preliminary

Jurisdictional Determination Mapping 2011

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150 0 150 Feet

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Project: 11-01, 11-02, 11-03, 11-04, 11-05, 11-06, 11-07, 11-08, 11-09, 11-10, 11-11, 11-12, 11-13, 11-14, 11-15, 11-16, 11-17, 11-18, 11-19, 11-20, 11-21, 11-22, 11-23, 11-24, 11-25, 11-26, 11-27, 11-28, 11-29, 11-30, 11-31, 11-32, 11-33, 11-34, 11-35, 11-36, 11-37, 11-38, 11-39, 11-40, 11-41, 11-42, 11-43, 11-44, 11-45, 11-46, 11-47, 11-48, 11-49, 11-50, 11-51, 11-52, 11-53, 11-54, 11-55, 11-56, 11-57, 11-58, 11-59, 11-60, 11-61, 11-62, 11-63, 11-64, 11-65, 11-66, 11-67, 11-68, 11-69, 11-70, 11-71, 11-72, 11-73, 11-74, 11-75, 11-76, 11-77, 11-78, 11-79, 11-80, 11-81, 11-82, 11-83, 11-84, 11-85, 11-86, 11-87, 11-88, 11-89, 11-90, 11-91, 11-92, 11-93, 11-94, 11-95, 11-96, 11-97, 11-98, 11-99, 11-100, 11-101, 11-102, 11-103, 11-104, 11-105, 11-106, 11-107, 11-108, 11-109, 11-110, 11-111, 11-112, 11-113, 11-114, 11-115, 11-116, 11-117, 11-118, 11-119, 11-120, 11-121, 11-122, 11-123, 11-124, 11-125, 11-126, 11-127, 11-128, 11-129, 11-130, 11-131, 11-132, 11-133, 11-134, 11-135, 11-136, 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Index Map
0.5 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
- Wetlands Preliminary JD 2010
- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Waterbodies Preliminary JD 2011
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland

Flag + Wetland Flag

DP Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was augmented where needed with 10 foot contours produced by PAMAP Program, PA. DCHN, Bureau of Topographic and Geologic Survey, 2008 and digitized features from PAMAP color orthophotography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top of bank, points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a real-time GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tox-A-White, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital 03 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Permon Associates, Inc. Limit of Disturbance map dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna River Wetlands National Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Geospatial Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
U.S. Army Corps of Engineers
Preliminary
Jurisdictional Determination Mapping 2011
Sheet 14 of 20

150 75 0 150 Feet

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS
600 Oak Road, Suite 101, Shrew, PA 16084

plot date: 11/15/11 rev date: 10/07/11
project: 22160, 22474 prepared by: s.sherman
prepared by: s.sherman file name: JDI_Mapping_Sheet14



Index Map

0.5 Miles

Legend

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
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- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Waterbodies Preliminary JD 2011
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland
- Wetland Flag
- Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/10/08. This was augmented where needed with 1:1 scale contours produced by PAMAP Program, PA. DCM, Bureau of Topographer and Geographic Survey, 2008 and digital features from PAMAP user orthophotography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2008 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Yellow Run and Unnamed Tributary to Lake Todd-A-White, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital G3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Pennoni Associates, Inc. Limits of Disturbance map dated 8-20-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2008 on September 30, October 7 and November 1, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland was added from the USFWS Coastal Wetlands Digital Data mapping program and was added for consistency with other wetlands mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers

Preliminary

Jurisdictional Determination Mapping 2011

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150 75 0 150 Feet

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

plan date: 11/15/10
project: 22105_22114
prepared by: J. L. Brown

rev date: 05/07/11
checked by: J. L. Brown
rev reason: 22114 Mapping Sheets





0.5 Miles

Legend

N

- BBNPP Project Boundary
- FEMA 100 Year Floodplain Boundary
- Wetlands Preliminary JD 2009
- Wetlands Preliminary JD 2010
- Wetlands Preliminary JD 2011
- Stream Channel Preliminary JD 2009
- Stream Channel Preliminary JD 2010
- Stream Channel Preliminary JD 2011
- Waterbodies Preliminary JD 2009
- Waterbodies Preliminary JD 2010
- Stormwater Detention Basin
- National Wetlands Inventory Mapped Wetland

Flag + Wetland Flag

DP • Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was augmented where needed with 20 foot contours provided by FMAP Program, 2A, DCMR, Bureau of Topographic and Geographic Survey, 2006 and digital features from FMAP color orthorectification, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top of bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2005 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tox-A-White, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2005 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital G3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Perovon Associates, Inc. Limit of Disturbance Map dated 8-20-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011, since they would not be inspected by the project.

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Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers

Preliminary

Jurisdictional Determination Mapping 2011

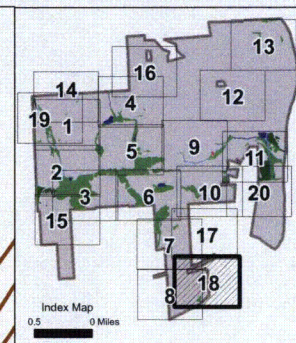
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150 75 0 150 Feet

NORMANDEAU ASSOCIATES
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 400 Oak Pointe Pkwy. 300, A, Suite 101, Stone Mt, GA 30087

plan date: 11/18/10
 project: 2700, 2010A
 prepared by: aaherren

rev date: 10/07/11
 checked by: aaherren
 file name: J03_Mapping_Sheet17



- Legend**
- BBNPP Project Boundary
 - FEMA 100 Year Floodplain Boundary
 - Wetlands Preliminary JD 2009
 - Wetlands Preliminary JD 2010
 - Wetlands Preliminary JD 2011
 - Stream Channel Preliminary JD 2009
 - Stream Channel Preliminary JD 2010
 - Stream Channel Preliminary JD 2011
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 - National Wetlands Inventory Mapped Wetland
 - + + Wetland Flag
 - • Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2009. This was augmented where needed with 10 foot contours produced by PAMAP Program, PA, DCHR, Bureau of Topographic and Geographic Survey, 2008 and digital features from PAMAP color aerial photography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and slope of water points from engineering studies, top-of-bank points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Trout-Artificial, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital G3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.


The BBNPP Project Boundary was taken from Parsons Associates, Inc. Limit of Disturbance map dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2010 on September 28, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverbeds Wetlands Natural Area and will not be impacted by the Bell Bend HPP Project. This wetland was added from the USFWS Decadal Wetlands Digital Data mapping program and was added for consistency with other natural resource mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
U.S. Army Corps of Engineers
Preliminary
Jurisdictional Determination Mapping 2011

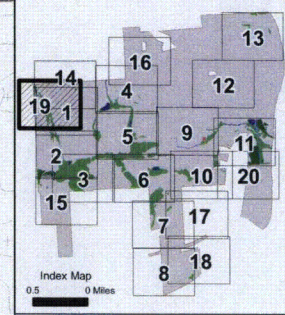
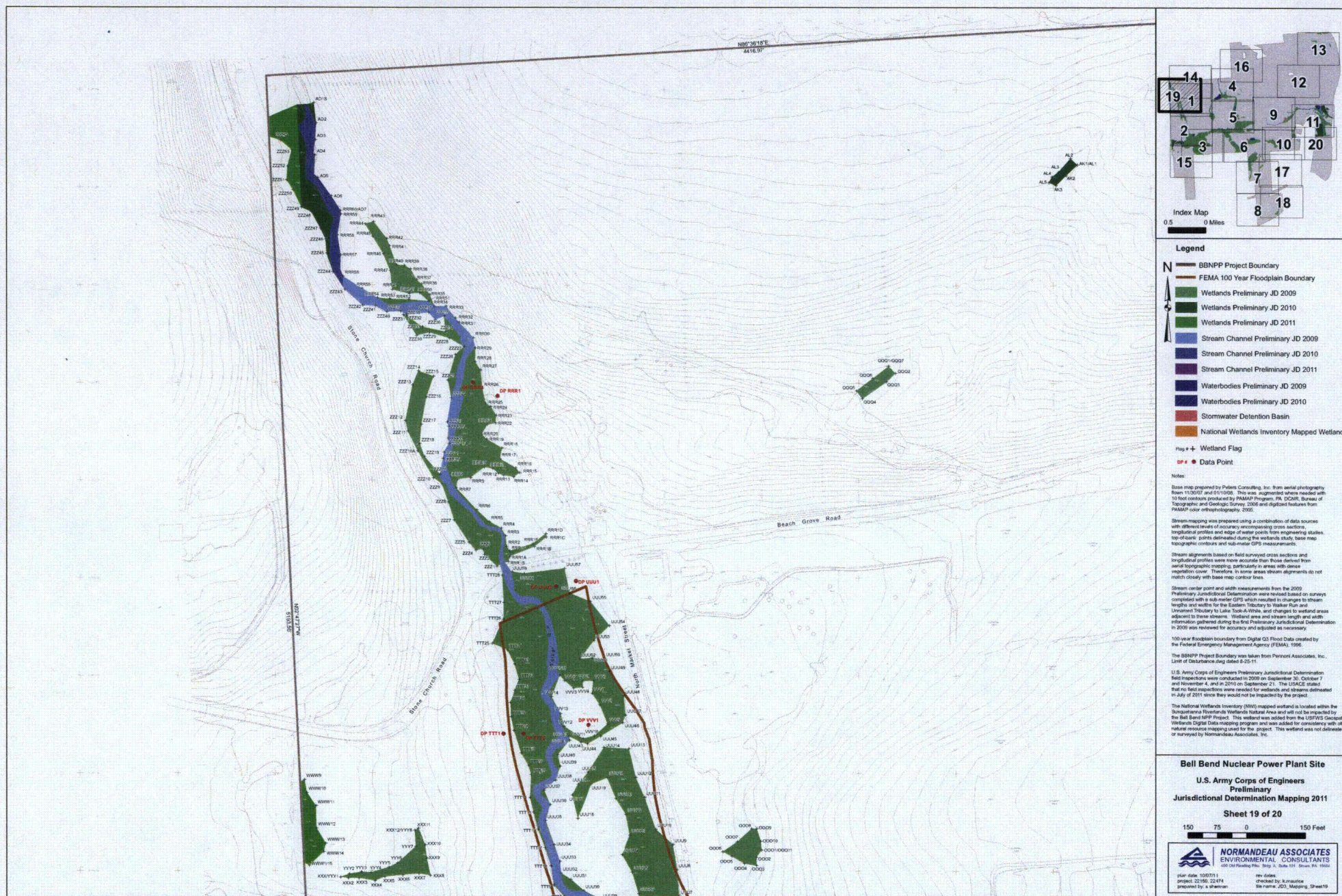
Sheet 18 of 20



NORMANDEAU ASSOCIATES
 ENVIRONMENTAL CONSULTANTS
130 Old Potters Rd. Suite A, Suite 101, Suite 101, Suite 101, Suite 101

plot date: 1/15/10
 project: 22180, 22424
 prepared by: J. Sherman

rev date: 1/07/11
 checked by: J. Sherman
 file name: J03_Mapping_Sheet18



- Legend**
- N BBNPP Project Boundary
 - FEMA 100 Year Floodplain Boundary
 - Wetlands Preliminary JD 2009
 - Wetlands Preliminary JD 2010
 - Wetlands Preliminary JD 2011
 - Stream Channel Preliminary JD 2009
 - Stream Channel Preliminary JD 2010
 - Stream Channel Preliminary JD 2011
 - Waterbodies Preliminary JD 2009
 - Waterbodies Preliminary JD 2010
 - Stormwater Detention Basin
 - National Wetlands Inventory Mapped Wetland
 - Flag + Wetland Flag
 - DP Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2008. This was augmented where needed with 10 foot contours produced by PMAPP Program, PA, DCRI, Bureau of Geographic and Geographic Survey, 2008 and digitized features from PMAPP color orthorectified, 2008.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, topographic points delineated during the wetlands study, base map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS, which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tobackville, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1996.

The BBNPP Project Boundary was taken from Pennoni Associates, Inc. Limit of Disturbance Map dated 8-20-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 30, October 7 and November 4, and in 2010 on September 7. The USACE stated that no field inspections were needed for wetlands and streams delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the Bell Bend BBNPP Project. This wetland was added from the USFWS National Wetlands Digital Data mapping program and was added for consistency with other cultural resources mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

Bell Bend Nuclear Power Plant Site
U.S. Army Corps of Engineers
Preliminary
Jurisdictional Determination Mapping 2011
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150 75 0 150 Feet

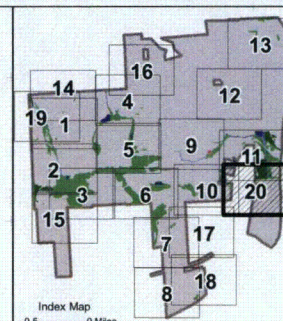
NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS
 600 Oakview Ave., 3rd Fl., Suite 101, York, PA 17403

plan date: 10/07/11
 project: 21186, 22184
 prepared by: a.sherman

rev. dates:
 checked by: a.sherman
 title name: JDI_Mapping_Sheet19



Susquehanna River



- Legend**
- BBNPP Project Boundary
 - FEMA 100 Year Floodplain Boundary
 - Wetlands Preliminary JD 2009
 - Wetlands Preliminary JD 2010
 - Wetlands Preliminary JD 2011
 - Stream Channel Preliminary JD 2009
 - Stream Channel Preliminary JD 2010
 - Stream Channel Preliminary JD 2011
 - Waterbodies Preliminary JD 2009
 - Waterbodies Preliminary JD 2010
 - Stormwater Detention Basin
 - National Wetlands Inventory Mapped Wetland
- Flag + Wetland Flag
- DP + Data Point

Notes:

Base map prepared by Peters Consulting, Inc. from aerial photography from 11/2007 and 01/2009. This was augmented where needed with 10 foot contours produced by PAMAP Program, PA. DCHS, Bureau of Topographic and Geologic Survey, 2008 and digital features from PAMAP color orthorectified photography, 2005.

Stream mapping was prepared using a combination of data sources with different levels of accuracy encompassing cross sections, longitudinal profiles and edge of water points from engineering studies, top-of-bank points delineated during the wetlands study, some map topographic contours and sub-meter GPS measurements.

Stream alignments based on field surveyed cross sections and longitudinal profiles were more accurate than those derived from aerial topographic mapping, particularly in areas with dense vegetation cover. Therefore, in some areas stream alignments do not match closely with base map contour lines.

Stream center point and width measurements from the 2009 Preliminary Jurisdictional Determination were revised based on surveys completed with a sub-meter GPS which resulted in changes to stream lengths and widths for the Eastern Tributary to Walker Run and Unnamed Tributary to Lake Tox-A-Wite, and changes to wetland areas adjacent to these streams. Wetland area and stream length and width information gathered during the first Preliminary Jurisdictional Determination in 2009 was reviewed for accuracy and adjusted as necessary.

100-year floodplain boundary from Digital Q3 Flood Data created by the Federal Emergency Management Agency (FEMA), 1995.

The BBNPP Project Boundary was taken from Pennco Associates, Inc. Limit of Disturbance dated 8-25-11.

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination field inspections were conducted in 2009 on September 28, October 7 and November 4, and in 2010 on September 21. The USACE stated that no field inspections were needed for wetlands and stream delineated in July of 2011 since they would not be impacted by the project.

The National Wetlands Inventory (NWI) mapped wetland is located within the Susquehanna Riverlands Wetlands Natural Area and will not be impacted by the Bell Bend NPP Project. This wetland area added from the USFWS Geospatial Wetlands Digital Data mapping program and was added for consistency with other natural resources mapping used for the project. This wetland was not delineated or surveyed by Normandeau Associates, Inc.

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150 75 0 150 Feet

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plan date: 10/20/11
 project: 22474
 prepared by: s.johnson

rev date:
 checked by: s.johnson
 file name: J20_Mapping_Sheet20