

# Public Notice

U.S. Army Corps  
of Engineers

Baltimore District

PN-12-07

In Reply to Application Number

NAB-2008-01401-P13 (Bell Bend Nuclear Power Plant (BBNPP))

Comment Period: January 23, 2012 to February 22, 2012

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**THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.**

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act (33. U.S.C. 1344) as described below:

**APPLICANT:** Pennsylvania Power and Light (PPL) Bell Bend, LLC  
38 Bomboy Lane, Suite 2  
Berwick, PA 18603

**WATERWAY AND LOCATION OF THE PROPOSED WORK:** Waterways include the North Branch Susquehanna River, Lake Took-a-While, unnamed tributary to Lake Took-a-While, North Branch Canal, Walker Run, and Eastern Tributary to Walker Run, plus wetlands located on the project site. The project boundary consists of approximately 2,055 acres in Luzerne County, near the west bank of the North Branch Susquehanna River, approximately five miles northeast of Berwick, Pennsylvania (Enclosure 1). The site is located on lands to the west and southwest of the existing PPL Power Plant, bounded by Beach Grove Road and State Route 11, in Salem Township, Luzerne County, Pennsylvania.

**PROPOSED WORK:** PPL Bell Bend, LLC proposes to construct a new nuclear power plant, at a site adjacent to the existing Susquehanna Steam Electric Station (SSES). Of the 2,055 acres, approximately 687 acres would be altered to support construction and operation of the proposed facility. All work is proposed to be completed in accordance with the enclosed plan(s) (Enclosures 5 - 19).

Additional project plans can be viewed by appointment at the U.S. Army Corps of Engineers, State College Field Office, located at 1631 South Atherton Street, Suite 101, State College, Pennsylvania 16801. If you have any questions concerning this matter or would like to review additional project plans, please contact Mrs. Amy Elliott at 814-235-0573, or at fax number 814-235-0576.

**PURPOSE:** The purpose of the proposed work is to provide 1,600 MWe (megawatts) of additional nuclear baseload electrical power to the northeast portion of the Pennsylvania, New Jersey, and Maryland Regional Transmission Organization grid.

The U.S. Nuclear Regulatory Commission (NRC) is the lead Federal agency in the preparation of an Environmental Impact Statement (EIS) for the proposed project. The U.S. Army Corps of Engineers (Corps) is a cooperating agency on the EIS. As such, the Corps will assist the NRC in

its development of the environmental impact statement. The issuance of a final EIS is proposed to fulfill the Corps requirements under 33 CFR 320 through 332, as well as the requirements under the Clean Water Act 404(b)(1) Guidelines. Department of the Army (DA) authorization will not be issued until the final EIS has been completed.

A second public notice requesting public comment will be issued in cooperation with the NRC when the notice of availability of the draft EIS is published in the Federal Register for comment.

The proposed construction of the BBNPP would have impacts to streams and wetlands. Permanent and temporary impacts to waters and wetlands would be required for construction of the cooling water intake system (including intake and blow down pipelines), grading around the power block, switchyard expansion, bridge supports, and tree cutting associated with transmission line crossings.

Prior to or concurrent with issuance of DA authorization, this office will formally issue a jurisdictional determination verifying which waters of the U.S would be jurisdictional. According to the applicant, construction of the BBNPP facility would result in approximately 13.14 acres of impact to jurisdictional wetlands and approximately 1.25 acres of impact to jurisdictional rivers and streams. A breakdown of these impacts to potentially jurisdictional areas is summarized below (reference Enclosures 2 and 3 for wetland identification numbers and location maps):

**Impacts A through F:** The proposed construction of bridge crossings for vehicle access and/or water and sanitary sewer lines crossings. The bridges would span Walker Run and the Eastern tributary to Walker Run. The bridges would impact portions of Wetlands 10, 12, and 19. The total impact associated with these six (6) bridge crossings would be 5.41 acres of palustrine forested (PFO) wetland / palustrine emergent (PEM) wetland. This 5.41 acre total would consist of 2.18 acres of temporary fill (needed for the construction of stone crane pads) and 3.23 acres of permanent impact. As part of the 3.23 acre impact, 0.23 acres would consist of permanent fill and 3.0 acres would consist of permanent wetland conversion from a PFO wetland to a palustrine scrub-shrub (PSS) wetland as a result of tree-cutting activities.

**Impact G:** The proposed construction of a culvert, for rail access, located over the unnamed tributary to Lake Took-A-While, located east of Confers Lane. The culvert would be necessary to gain rail access to the BBNPP. No wetland impacts would result from the railroad crossing; however 125 linear feet (0.07 acres) of stream would be permanently impacted.

**Impact J:** The proposed expansion of the existing 500 KV switchyard located at the SSES. This expansion would be needed to support the BBNPP and would permanently impact 0.04 acres of Wetland 49B (PEM).

**Impact K:** The proposed construction of an intake structure in the North Branch Susquehanna River with an associated building and access road. The intake structure would be constructed to withdraw water and would be located approximately 300 feet downstream of the existing SSES intake structure along the west bank of the North Branch Susquehanna River. To reduce the

amount of dredging required in the North Branch Susquehanna River, the intake structure is proposed to utilize an existing large pool within the River. Siting options for the intake structure were limited not only by the location of the pool, but by the existing SSES infrastructure adjacent to the North Branch Susquehanna River. The construction of the intake structure and associated access drive and parking lot would permanently impact 0.98 acres of Wetlands 43 and 44 (PFO/PEM) and permanently impact 617 linear feet (0.07 acres) of the North Branch Canal outfall channel.

**Impact M:** The proposed construction of the intake and blowdown pipelines that would carry water to and from the BBNPP for operation and safety related purposes. The two supply lines would be combined into a single trench, along with associated communications and electrical conduits. The pipelines would cross wetlands and the North Branch Canal at the Riverlands

property and would temporarily impact a 0.78 acre area of Wetlands 37, 38, 43, and 44 (PFO/PEM) and temporarily impact 47 linear feet (0.04 acres) of the North Branch Canal.

**Impact N:** The proposed dredging within the North Branch Susquehanna River to create a forebay adjacent to the intake structure where water would be withdrawn from the river. Dredging would involve installation of a circular cofferdam extending 120-linear feet water ward from the existing shoreline and extending 220-linear feet parallel to the shoreline. The area within the cofferdam would be dewatered and dredged by hydraulic or mechanical methods. The dredging would impact 220-linear feet (0.61 acres) of the North Branch Susquehanna River. It is expected that approximately 17,000 to 25,000 cubic yards of bottom substrate would be removed to accommodate the proposed in-water structures. All dredged material would be disposed of on uplands within the BBNPP site at one or more of the laydown areas to the north and southeast of the power block, or on lands at the perimeter of the facility.

**Impact O:** The proposed installation of the blowdown diffuser pipe within the North Branch Susquehanna River. The blowdown pipe would extend approximately 325-feet from the shoreline on a slight downstream angle. The diffuser portion of the pipe would begin 203-feet put into the river as measured perpendicular to the shoreline. The pipe would be anchored to a concrete pad, measuring 116.5-feet long by seven feet wide, set on the river bottom and covered with riprap. A temporary cofferdam, confining an area measuring approximately 50-feet wide by 350-feet long, would be used during installation of the blowdown line to dewater the area and contain the sediment. The installation of the blowdown diffuser pipe would impact 50 linear feet (0.46 acres) of the North Branch Susquehanna River.

**Impacts P, Q, and R:** The proposed permanent wetland conversion of portions of Wetlands 11, 12, and 18 from a PFO system to either/or a PSS or a PEM system. This impact would be associated with tree removal to install the transmission lines and associated right-of-ways. The transmission lines would be needed to convey electric power generated by the BBNPP power block to existing or proposed transmission lines that connect to the regional power grid. Forested areas located in right-of-ways, or within 100 feet of a proposed line with a new right-of-way are proposed to be cleared of trees. Tree removal would require the use of timber mats to cross wetlands; the stumps, however, would remain in place and would not be cleared and grubbed. Tree clearing would impact a 5.93 acres area of Wetlands 11, 12, and 18. These wetlands would be permanently maintained as scrub shrub or emergent vegetation.

**Maintenance Impacts:** DA authorization for the BBNPP would include provisions for the following maintenance activities to occur for a period of up to ten (10) years:

- 1.) Intake Bay Cleaning – The BBNPP intake bay would be constructed with a three bay arrangement, with each bay being approximately 30-feet wide. It is expected that all three bays would need to be cleaned (de-mucked) every 18 to 36 months. Accumulated sediment would be trucked and stockpiled in an appropriate upland location. It is expected that this practice would produce approximately 50-cubic yards of mud/debris during each cleaning event.
- 2.) Maintenance Dredging – Maintenance dredging in the North Branch Susquehanna River would be required every five to ten years, depending on the Susquehanna River flow rates. The location would be within the same footprint as proposed for initial construction. Approximately 250 to 1,000 cubic yards of sediment would be expected to be dredged using the same mechanical dredge method as used during initial dredging.
- 3.) Diffuser Maintenance – The BBNPP blowdown diffuser would be constructed with a flap gate on its end to allow access by divers. Every 18 to 36 months, divers would access the diffuser pipe through a flap gate at its end and loosen accumulated material (silt and stones), which would be allowed to be flushed from the diffuser and from the riverbed area immediately adjacent to the flap gate. Less than 10 cubic yards of material would be expected to be flushed into the Susquehanna River during each cleaning.

According to the applicant, the following impacts are associated with the BBNPP project and potentially involve impacts to non-jurisdictional waters/wetlands:

**Impact H:** The proposed replacement of the culvert that connects Wetland 11 (the teardrop wetland) to the Eastern tributary of Walker Run. The existing 567-foot long, 8-inch PVC pipe and grassed swale that currently conveys the tile drain system underneath the adjacent fallow fields would potentially be a non-jurisdictional feature that connects Wetland 11 to the Eastern tributary of Walker Run. The culvert would be replaced with a 428-foot long, 36-inch diameter concrete pipe. This flow would not be day lighted due to the grading required to site the BBNPP infrastructure.

**Impact I:** The proposed construction of the power block. This work would impact 0.12 acres of Wetland 5 (PEM), a potentially non-jurisdictional wetland.

**Impact J:** The proposed expansion of the existing 500 KV switchyard located at the SSES. In addition to the Impact J identified previously, this switchyard expansion would also impact 0.02 acres of Wetland 49A (PEM), a potentially, non-jurisdictional wetland.

The following wetland impact, identified as part of the BBNPP project application, is proposed and would not require a Department of the Army (DA) authorization because it is associated with work that does not involve a regulated discharge of dredged or fill material:

**Impact L:** The proposed temporary dewatering of Wetlands 11, 12, and the Eastern tributary to Walker Run during construction of the essential service water emergency make-up system pond.



This emergency makeup system pond would be constructed in the uplands and would involve excavation to bedrock, with the placement of structural fill done in a dry condition. Dewatering wells, sumps, and sump pumps would be used during foundation construction, which could extend up to two years. Groundwater flow models have been conducted on adjacent wetlands and have indicated the potential for temporary groundwater drawdown in adjacent wetlands. Dewatering would temporarily impact 5.56 acres of Wetlands 11 and 12 (PFO/PSS/PEM) and would temporarily impact 1,188 linear feet (0.30 acres) of the Eastern Tributary to Walker Run.

While this impact would not require DA authorization (due to the fact that the essential service water emergency make-up system would be constructed in the uplands), the applicant is proposing to provide compensatory mitigation for impacts to Wetlands 11, 12, and the Eastern tributary to Walker Run. To effectively determine mitigation needs, the applicant is proposing to collect baseline monitoring data on the hydrologic conditions within the zone of influence. During construction of the pond, mitigation measures proposed include the introduction of water to the affected wetlands from one or more storage reservoirs constructed on the site to store pumped groundwater. Application of stored water would be completed by a sprinkler irrigation system, and continued monitoring of the wetlands would be completed to allow real-time flow correction to maintain conditions reflecting the baseline. Post construction evaluation of affected wetlands would be completed to determine if any additional restoration activities would be required to offset any unintended impacts. The compensatory mitigation package for BBNPP (described below) would include measures provided to offset any loss of function and services provided by the affected wetlands during the period of impact from groundwater de-watering.

Water intake from the North Branch Susquehanna River would be necessary for plant operation and safety purposes. It is estimated that the BBNPP circulating water system (CWS) and the raw water supply system (RWSS) would withdraw 25,729 gallons per minute (gpm) on average from the North Branch Susquehanna River. The CWS would provide water to the cooling towers and the RWSS would provide treated water to the power plant and the essential service water system. The impacts caused by the consumptive use of the North Branch Susquehanna River are regulated by the Susquehanna River Basin Commission. Any approval by the Susquehanna River Basin Commission, as well as Water Quality Certification, by the Pennsylvania Department of Environmental Protection will address the affects of this impact, including water quantity and stream flow, water quality, aquatic habitat, and provisions for low flow conditions and consumptive use mitigation.

Transmission line construction would be limited to the onsite construction area; no offsite transmission lines or corridors would be needed. The Bell Bend Nuclear Power Plant (BBNPP) switchyard would be electrically interconnected to the 500kV transmission system via two independent circuits. One circuit would connect the BBNPP plant switchyard to the existing Susquehanna 500 kV switchyard and a separate circuit would connect to a new substation associated with the proposed Susquehanna-Roseland 500 kV Line, an independent project.

#### **Off-site Alternatives:**

To satisfy the Corps requirements under the Clean Water Act 404(b)(1) Guidelines and 33 CFR 320 through 332, the final EIS will address the full range of off-site alternatives that exist within

the applicant's region of interest (ROI) (Enclosure 4). This includes the no action alternative, alternative energy sources (i.e. wind, hydropower, solar), and alternative sites for a nuclear power plant. The applicant has stated that no other energy source, other than nuclear power, will fulfill the project purpose because only nuclear power can provide the required baseload capacity.

Through NRC's site selection criteria, the applicant initiated reviewing sites within their ROI. Through implementation of certain exclusionary criteria (near population centers, access to transmission and water) and through de-selection of sites that did not have the required land availability (420 acres or greater), the applicant identified nine (9) candidate sites. These nine (9) sites went through an extensive scoring and ranking process, by which only the top ranking sites were identified as the alternative sites. This scoring process identified five (5) alternative sites (including the BBNPP) that would need to be evaluated. These five (5) alternative sites, with BBNPP being chosen as the applicant's preferred site, will be addressed in the final EIS to determine the least environmentally damaging practicable alternative.

#### **On-site Alternatives:**

Site layout for the proposed project was based upon extensive study to determine a layout that would most practicably avoid and minimize impacts to waters and wetlands. Efforts were made to avoid, to the extent possible, the long and short-term adverse impacts to waters and wetlands whenever there was a practicable alternative. The proposed impacts were further reduced through relocation or reconfiguration of facility components.

In accordance with 33 CFR 325.1(d)(7), the applicant has provided the following mitigation statement:

“Since the initiation of the planning and design of the BBNPP, PPL has advanced numerous iterations of the layout and design of BBNPP with the goal of avoiding wetland and stream features. Initial BBNPP layouts included possible impacts to wetlands and streams totaling over 100 acres. In subsequent design iterations direct impacts were reduced to approximately 60 acres in 2008 and then to approximately 30 acres in 2009. In late 2009, a decision was made to move BBNPP substantially north (approximately 900 feet) to an area with fewer wetlands. This major design change resulted in a site footprint with less than 10.0 acres of temporary and permanent wetland impact”. This does not include the regulated indirect impacts: Impacts L, P, Q and R. “While wetland impacts were substantially reduced, they could not be avoided entirely due to topography and siting requirements of plant components. Following the major shift in the project location, additional adjustments were then made to decrease the size of the required temporary and permanent facilities, and to maximize the amount of undisturbed vegetation. These additional efforts resulted in the reduction of permanent impacts to less than 2.0 acres of wetlands, the majority of which is associated with the cooling water intake system.”

The applicant has developed compensatory mitigation measures for the impacts described above. The proposed compensatory mitigation plans for the BBNPP project would include the following:

- 1.) **Walker Run Stream and Floodplain Restoration** – The applicant would create 7.87 acres of PFO wetland and enhance an additional 5.52 acres through invasive species removal and the planting of native herbaceous vegetation, shrubs, and trees. The planting plan would be designed with the goal of establishing PFO wetlands to mitigate for losses of forested wetland habitat resulting from permanent impacts (including permanent wetland conversion), as well as from indirect impacts. The applicant would also create and enhance a total of 2,213 linear feet of the Walker Run stream channel. The existing straightened and channelized stream would be realigned, creating and enhancing a total of 2,213 linear feet (1,360 linear feet of stream creation and 853 linear feet of stream enhancement). Stream enhancements would include bank grading and planting of native vegetation. This overall mitigation element would replace functions and services lost as a result of the BBNPP project and would include creating a forested canopy cover, enhanced fish habitat, stream stabilization, groundwater recharge, sediment reduction, floodflow alteration, and water quality improvements. This mitigation element would also re-establish the connection between Walker Run and its floodplain to improve hydrology. The implementation of this mitigation element would require permanent wetland and stream impacts, however these impacts would be small compared to the overall benefit.
- 2.) **Riverlands – North Branch Canal Restoration** – The applicant would enhance 1.24 acres of wetlands near the proposed intake structure and would re-connect the North Branch Canal to its historical alignment. The planned enhancement would include removing invasive species and planting native herbaceous species, shrubs, and trees to compensate for PFO impacts. The reconnection of the North Branch Canal has been identified as the preferred mitigation measure to address the proposed filling of the existing manmade North Branch outfall channel in conjunction with the intake structure construction (Impact K). The reconnection would also include plans for a walking trail along the old tow path for the length of the restored canal.
- 3.) **Confers Lane Removal / Wetland Creation** – The applicant would create 0.36 acres of PFO wetland, enhance 0.04 acres of existing wetlands and remove the existing road bed of Confers Lane. Confers Lane currently hydrologically separates existing wetlands on either side of Confers Lane; the abandonment of Confers Lane would present an opportunity to re-establish a connection of a wetland identified by the Pennsylvania Department of Environmental Protection as exceptional value (EV), and also to create 0.36 acres of additional PFO habitat. Wetlands enhancement would include planting native herbaceous plants, shrubs, and trees.

#### **TOTAL MITIGATION**

	Wetland Enhanced (acres)	Wetlands Created (acres)	Net Stream Channel Created (linear feet)	Stream Channel Enhanced (linear feet)
Walker Run	5.52	7.87	1,360	853
Riverlands	1.24	0	0	0
Confers Lane	0.04	0.36	0	0
Total	6.80	8.23	1,360	853

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonable may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economic, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, and consideration of property ownership and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments will be used in the preparation of a draft Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments provided will become part of the public record for this action. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

**ESSENTIAL FISH HABITAT:** The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 04-267), requires all Federal agencies to consult with the National Marine Fisheries Service (NMFS) on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). The Corps has determined this project will not affect any EFH.

**WATER QUALITY CERTIFICATION:** The applicant is required to obtain a water quality certification in accordance with Section 401 of the Clean Water Act from the **Pennsylvania Department of Environmental Protection**. The Section 401 certifying agency has a statutory limit of one year from the date of this public notice to make its decision.

**COASTAL ZONE MANAGEMENT PROGRAMS:** Where applicable, the applicant has certified in this application that the proposed activity complies with and will be conducted in a manner consistent with the approved Coastal Zone Management (CZM) Program. By this public notice, we are requesting the State concurrence or objection to the applicant's consistency statement. It should be noted that the CZM Program has a statutory limit of 6 months to make its consistency determination.

The applicant must obtain any State or local government permits which may be required.

A preliminary review of this application indicates that the proposed work may affect Federal listed threatened or endangered species or their critical habitat, pursuant to Section 7 of the Endangered Species Act, as amended. A July 10, 2009 scoping letter from the U.S. Fish & Wildlife Service (USFWS) indicated that the BBNPP site is located within the range of the federally-listed, endangered Indiana bat (*Myotis sodalis*). Consequently, pursuant to Section 7 of the Endangered Species, the lead Federal agency, NRC, will prepare a Biological Assessment for the Indiana bat. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The applicant has completed Phase I cultural resource investigations for the project site and supplemental Phase I and Phase II studies as requested by the Pennsylvania Historic and Museum Commission (PHMC). The PHMC, in a letter dated August 23, 2011, has indicated that one area is eligible for inclusion in the National Register of Historic Places. The PHMC has strongly recommended that this area, which is currently located in a designated laydown area, be avoided by construction activities either by fencing off the area as a restricted location or by the use of geotextile and fill as a protective measure. As currently planned, the applicant would protect the laydown area with geotextile as requested by the PHMC. While cultural resource studies have been performed, there may be other unknown archeological, scientific, prehistoric, or historical data may be lost or destroyed by the work to be accomplished under the request permit. The applicant is required to comply with the National Historic Preservation Act in consultation with the lead Federal agency, NRC, and the PHMC.

The evaluation of the impact of this project on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 of the Clean Water Act.

Any person who has an interest which may be adversely affected by the issuance of this permit may request a public hearing. The request, which must be in writing, must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, Attn: Mrs. Amy Elliott, State College Field Office, 1631 South Atherton Street, Suite 101, State College, Pennsylvania 16801 within the comment period as specified above to receive consideration. Also it must clearly set forth the interest which may be adversely affected by this activity and the manner in which the interest may be adversely affected.

It is requested that you communicate this information concerning the proposed work to any persons know by you to be interested and not being known to this office, who did not receive a copy of this notice.

Written comments concerning the work described above related to the factors listed above or other pertinent factors must be received within the comment period as specified above to receive consideration. Please submit written comments to:

Mrs. Amy Elliott  
U.S. Army Corps of Engineers  
State College Field Office  
1631 South Atherton Street, Suite 101  
State College, Pennsylvania 16801

Wade B. Chandler  
Chief, Pennsylvania Section

Enclosures







Enclosure D3

4/29/2011

BBNPP Wetland and Watercourse Impacts and Mitigation  
ACOE Impacts and Mitigation

						ACOE Jurisdictional Wetland Impacts					ACOE Stream Impacts				ACOE	Fxn. / Values Lost	PFO Loss	
Impact ID	Impact Description	Latitude	Longitude	EV Wetland?	Water Dependent?	Temporary	Permanent	PFO	PSS	PEM	Permanent		Temporary		Indirect Impacts			
						(ac.)	(ac.)	(ac.)	(ac.)	(ac.)	(LF)	(ac.)	(LF)	(ac.)	(ac.)			
A	Bridge #4 over Walker Run	41°05'10"N	76°10'03"W	N/A	YES	---	---	---	---	---	---	---	---	---	---	None	---	
B	Bridge #3 over UNT to Walker Run, Wetland 10 & 12	41°05'08"N	76°09'46"W	YES	YES	0.22	0.02	---	---	0.02	---	---	---	---	0.09	PFO wildlife habitat	0.09	
C	Pipe Bridge #7 over UNT to Walker Run, Wetland 12	41°05'11"N	76°09'40"W	YES	YES	0.20	0.01	0.01	---	---	---	---	---	---	0.41	PFO wildlife habitat	0.42	
D	Bridge #2 and pipe Bridge #6 over UNT to Walker Run, Wetland 12	41°05'09"N	76°09'27"W	YES	YES	0.60	0.08	0.08	---	---	---	---	---	---	0.92	PFO wildlife habitat	1.00	
E	RR Bridge #5 over UNT to Walker Run, Wetland 12	41°05'09"N	76°09'25"W	YES	YES	0.37	0.03	0.03	---	---	---	---	---	---	0.60	PFO wildlife habitat	0.63	
F	Bridge #1 over Wetland 19	41°04'53"N	76°09'21"W	NO	YES	0.79	0.09	0.09	---	---	---	---	---	---	0.98	PFO wildlife habitat	1.07	
G	Railroad culvert over Trib to Susquehanna	41°05'15"N	76°08'37"W	NO	YES	---	---	---	---	---	125	0.07	---	---	---	---	---	
H	Culvert replacement for Teardrop Wetland flow	41°05'15"N	76°09'41"W	YES	YES	---	---	---	---	---	---	---	---	---	---	---	---	
I	Power Block Fill	41°05'23"N	76°10'05"W	NO	NO	---	---	---	---	---	---	---	---	---	---	---	---	
J	SSES Switchyard Expansion, Wetland 49 A and B	41°05'18"N	76°08'55"W	NO	NO	---	0.04	---	---	0.04	---	---	---	---	---	None	---	
K	Intake Structure Access Road and Structure, Wetland 43 &44	41°05'13"N	76°07'58"W	NO	YES	---	0.98	0.30	---	0.68	617	0.07	---	---	---	PFO wildlife habitat, fish habitat, floodflow alteration, all 4 values	0.30	
L	Dewatering Drawdown for Excavation, Wetland 11 &12	41°05'17"N	76°09'36"W	YES	YES	5.56	---	---	---	---	---	---	1188	0.30	---	Groundwater discharge	---	
M	Intake/ Blowdown lines through Wetland 37, 38, 43, 44 and North Branch Canal	41°05'18"N	76°08'00"W	NO	YES	0.78	---	---	---	---	---	---	47	0.04	0.07	Temporary PFO wildlife habitat	0.07	
N	Intake Line River Dredging	41°05'14"N	76°07'52"W	NO	YES	---	---	---	---	---	---	---	220	0.61	---	---	---	
O	Blowdown Line River Dredging	41°05'6"N	76°07'51"W	NO	YES	---	---	---	---	---	---	---	50	0.46	---	---	---	
P	Transmission Line Crossing Over Wetland 11 (Teardrop)	41°05'21"N	76°09'42"W	YES	NO	---	---	---	---	---	---	---	---	---	3.46	PFO wildlife habitat	3.46	
Q	Transmission Line Crossing Over Wetland 12	41°05'21"N	76°09'21"W	YES	NO	---	---	---	---	---	---	---	---	---	1.72	PFO wildlife habitat	1.72	
R	Transmission Line Crossing Over Wetland 18	41°05'03"N	76°08'59"W	NO	NO	---	---	---	---	---	---	---	---	---	0.75	PFO wildlife habitat	0.75	
S	Intake Structure River Withdrawal	41°05'13"N	76°07'54"W	N/A	YES	---	---	---	---	---	---	---	---	---	---	---	---	
T	Blowdown Line River Discharge	41°05'12"N	76°07'52"W	NO	YES	---	---	---	---	---	---	---	---	---	---	---	---	
U	Stormwater Discharges	---	---	YES/NO	YES	---	---	---	---	---	---	---	---	---	---	None	---	
Minimum Wetland Replacement Acreage  ACOE (2:1 PFO, 1.5:1 PSS, 1:1 PEM)  1.76 ac.						Subtotals	8.52	1.25	0.51	0.00	0.74	742	0.14	1505	1.41	9.00		9.51
						EV Totals	6.95	0.14	0.12	0.00	0.02	0.00	0.00	1188	0.30	7.20		7.32
						Total Impacts Requiring Mitigation	8.52	1.25	0.51	0.00	0.74	742.00	0.14	0	0.00	9.00		9.51

Mitigation Sites	Wetland Creation				Wetland Enhancement				Stream Restoration			Description of Primary Functions and Values Created/ Enhanced	PFO created/ converted (acres)
	Total (ac.)	PFO (ac.)	PSS (ac.)	PEM (ac.)	Total (ac.)	PFO (ac.)	PSS (ac.)	PEM (ac.)	Total (LF)	Creation (LF)	Enhancement (LF)		
Walker Run, Site A and B	7.87	8.12	0	-0.25	5.52	5.52	0.00	0.00	2213	1360	853	PFO wildlife habitat, fish habitat, stream stabilization, groundwater recharge, sediment reductions, flood flow alteration	13.72
Riverlands- North Branch Canal Restoration	0.00	0.00	0.00	0.00	1.24	1.24	0.00	0.00	0	0	0	Uniqueness/heritage, recreation, educational/scientific value, flood flow alteration, PFO wildlife habitat	0.48
Confers Lane Removal	0.36	0.36	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	PFO wildlife habitat	0.40
Total Mitigation Sites	8.23	8.48	0.00	-0.25	6.80	6.80	0.00	0.00	2213.00	1360.00	853.00		14.60

\* Impacts associated with the relocation of the Walker Run Stream Channel are reported as negative values. See Mitigation narrative for more details.

Replacement Ratios Provided (Recommended Sites)	Total (ac.)	PFO (ac.)	PSS (ac.)	PEM (ac.)
Replacement Ratio (ACOE)	12.07	29.96	N/A	-0.34

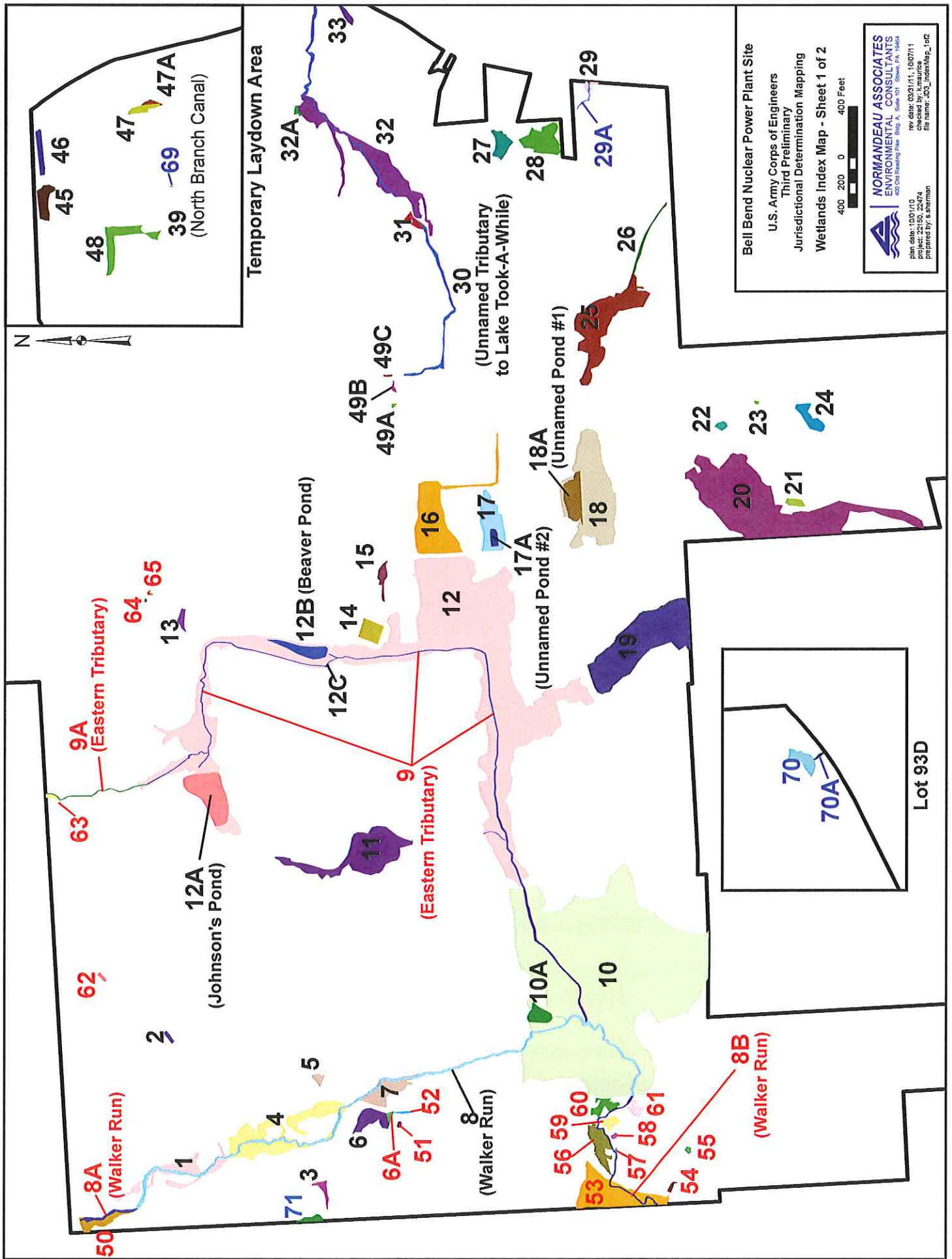
Note: Replacement Ratios based on impacts from project, excluding mitigation impacts



Revisions		
No.	Date	Description
0	10/14/11	-

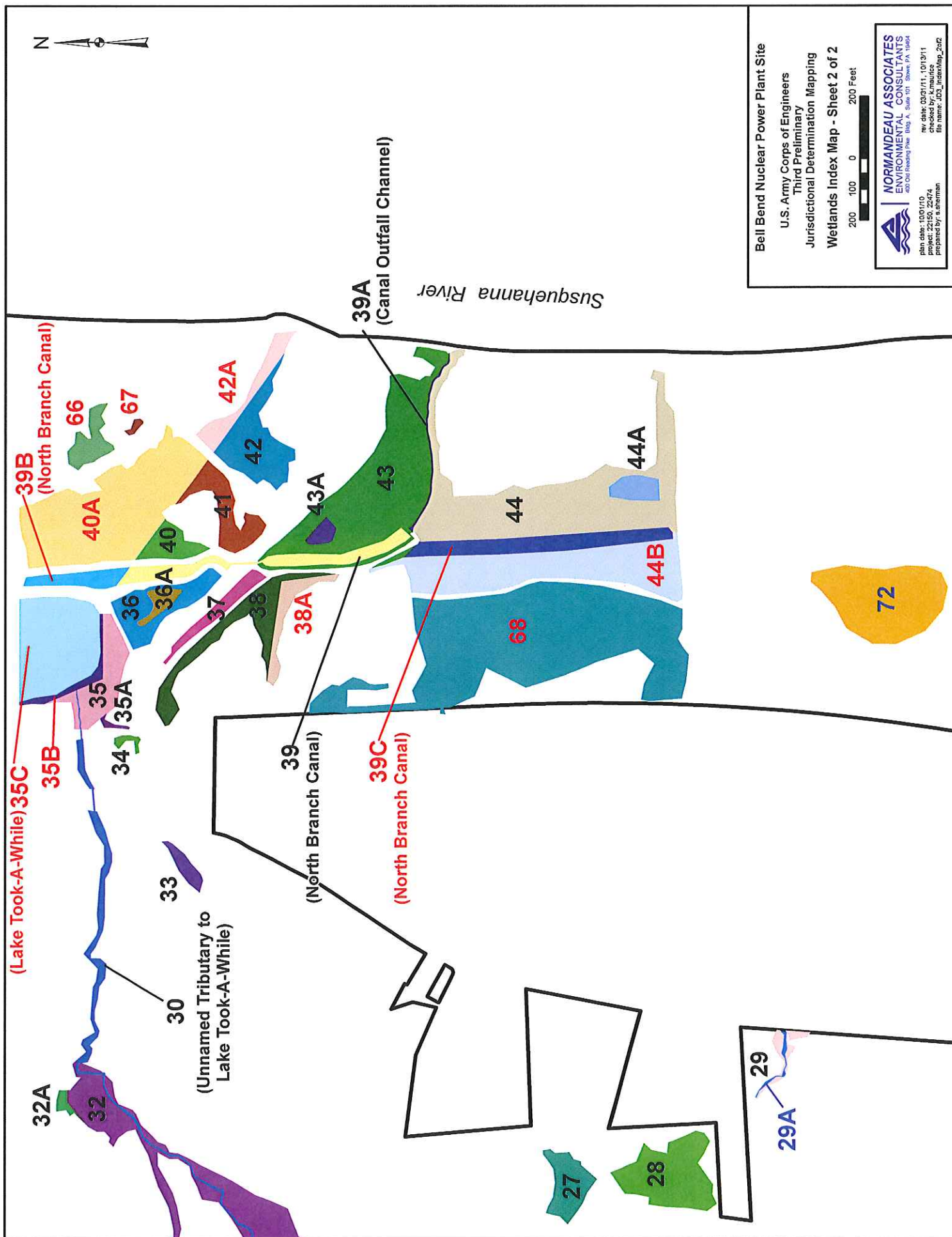
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Drawn By:	JS
Checked By:	BE
Date:	October 14, 2011
Scale:	NA
Drawing Number:	WI-COE-002
Sheet Number:	





Bell Bend Nuclear Power Plant Site  
 U.S. Army Corps of Engineers  
 Third Preliminary  
 Jurisdictional Determination Mapping  
 Wetlands Index Map - Sheet 1 of 2

**NORMANDEAU ASSOCIATES**  
 ENVIRONMENTAL CONSULTANTS  
 400 Old Meeting Lane, Suite 101, Salem, PA 15686  
 plan date: 10/01/10  
 project: 2100, 22474  
 prepared by: a. sherman  
 rev date: 03/31/11, 10/07/11  
 rev by: a. sherman  
 file name: 403\_indexMap\_1.pdf



Bell Bend Nuclear Power Plant Site

U.S. Army Corps of Engineers

Third Preliminary

Jurisdictional Determination Mapping

Wetlands Index Map - Sheet 2 of 2

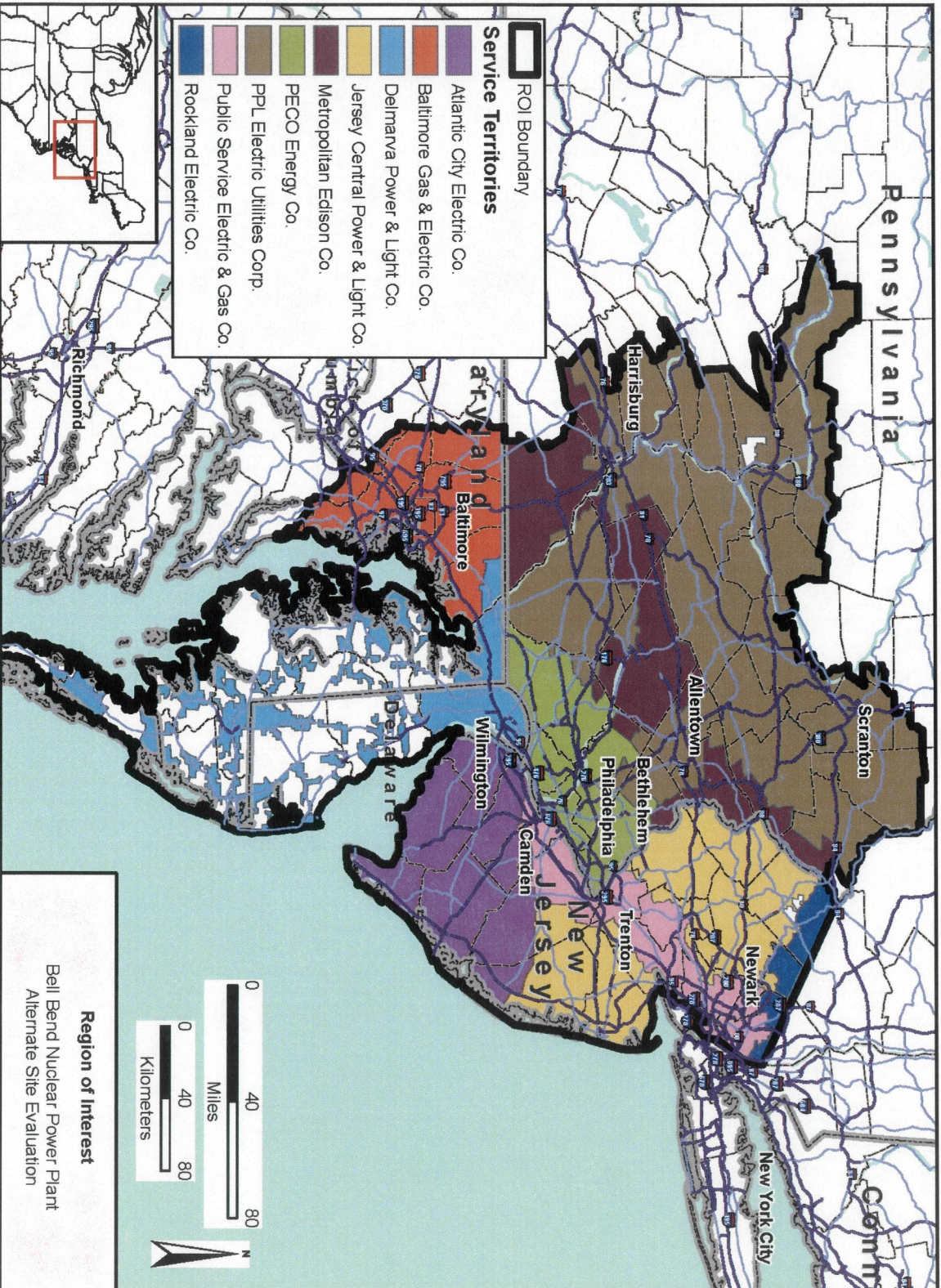
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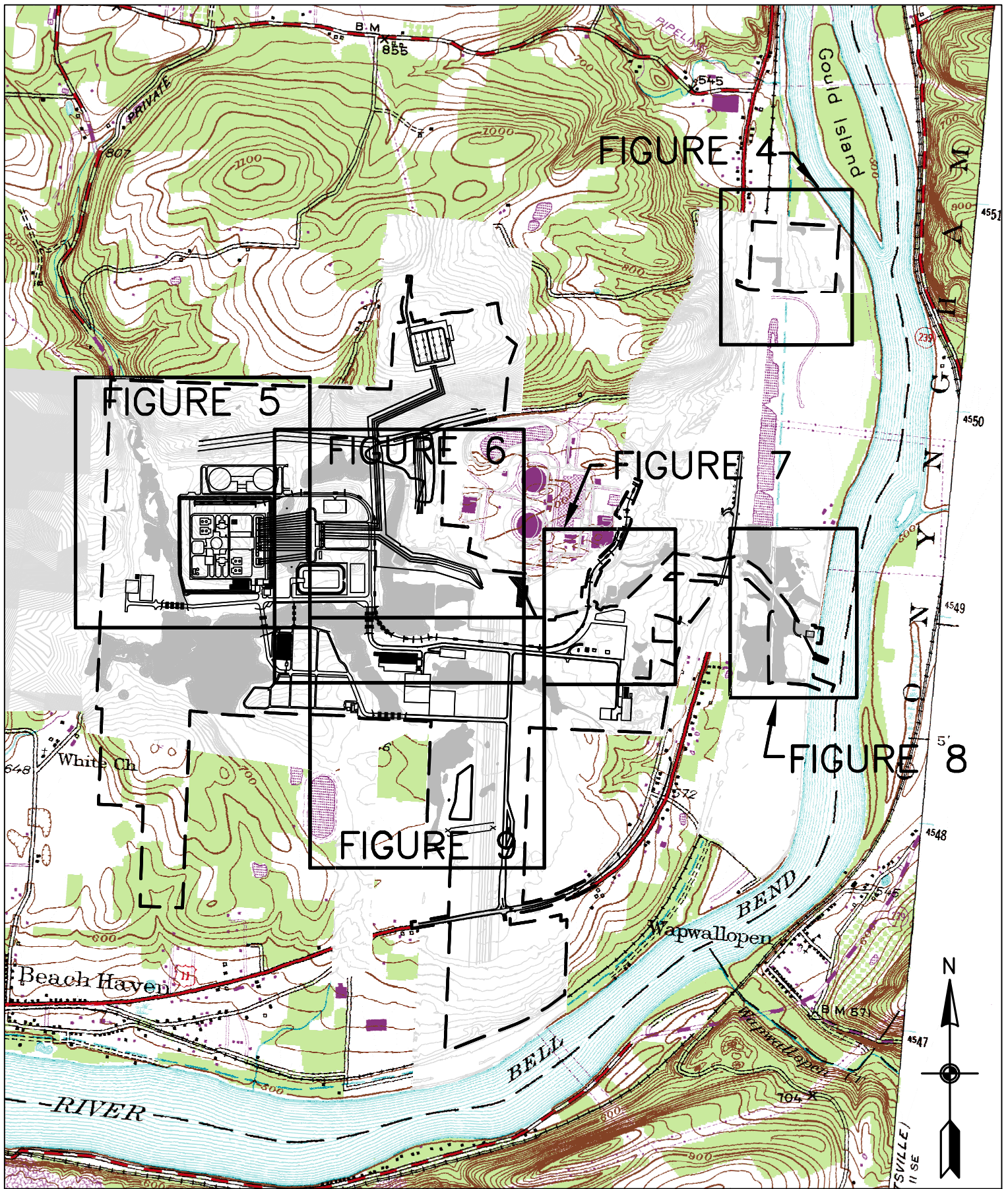
**NORMANDEAU ASSOCIATES**  
 ENVIRONMENTAL CONSULTANTS  
 400 Old Reading Road, Suite 101, Shrewsbury, PA 17364  
 plan date: 10/01/10  
 project: 22150\_22474  
 prepared by: J. A. Maurice  
 checked by: J. A. Maurice  
 file name: J00\_indexMap\_2a2



**Region of Interest**

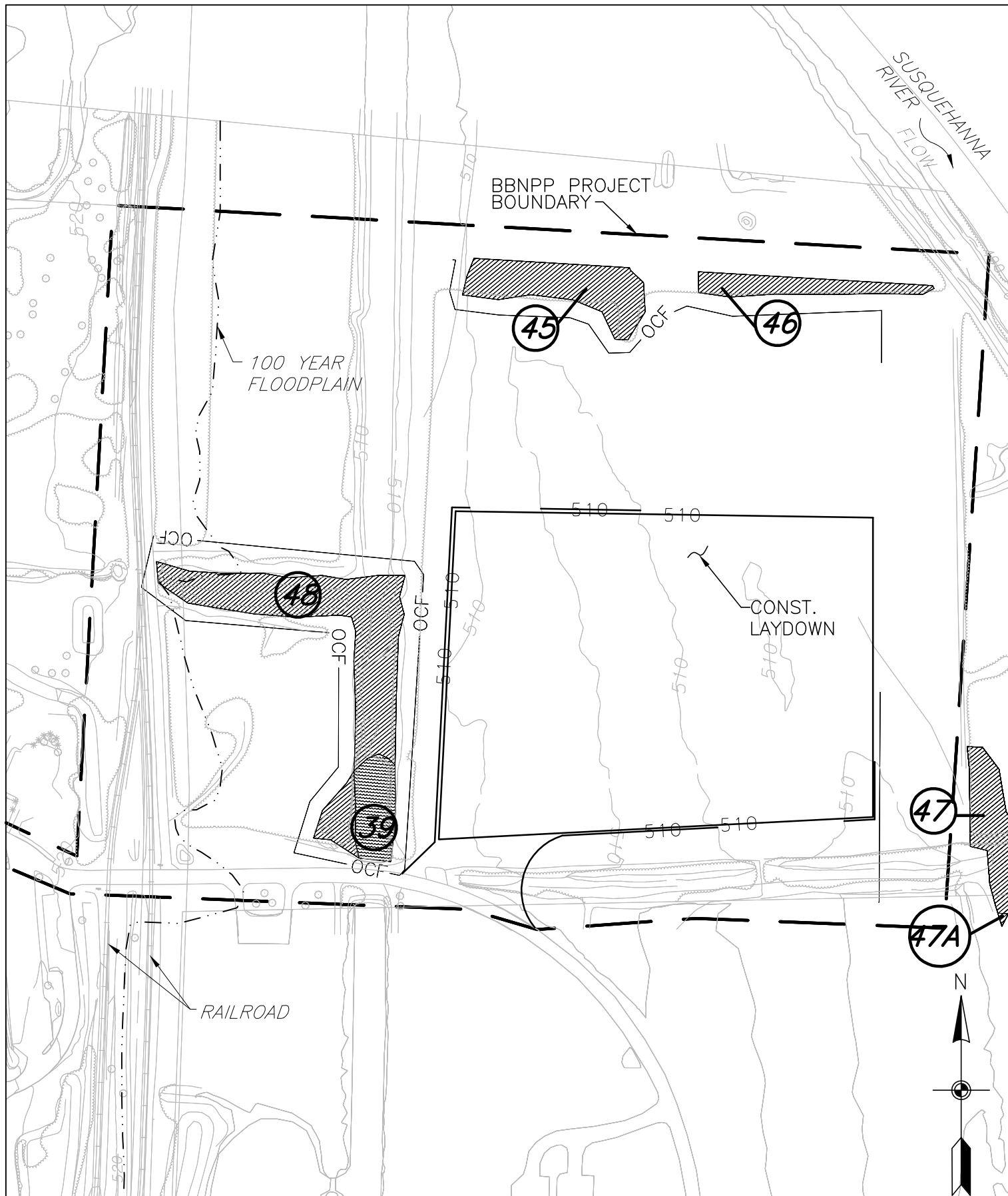






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			CHECKED BY: LGB	JPA PERMIT SUBMITTAL	
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FIGURE 3 – KEY PLAN




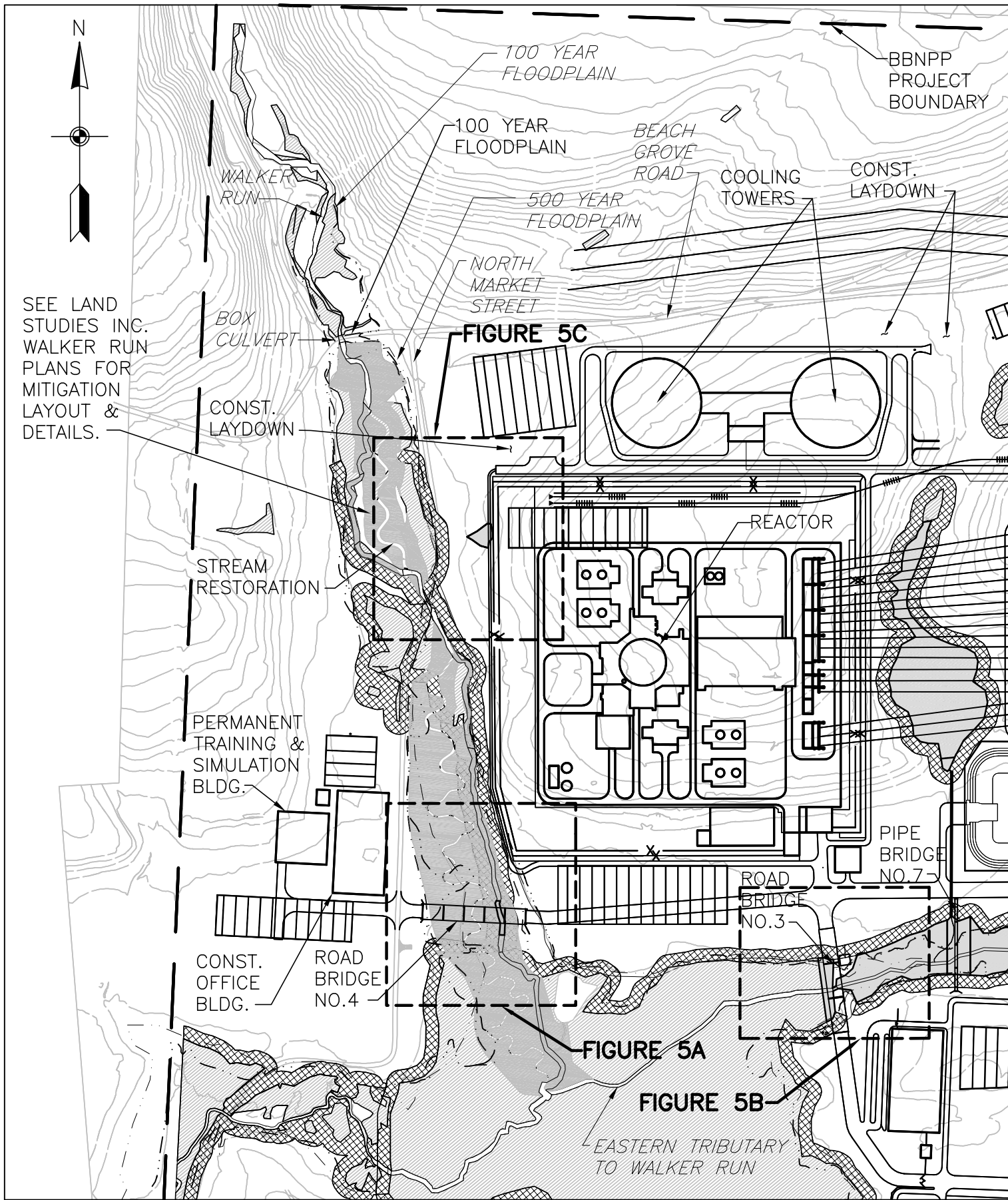
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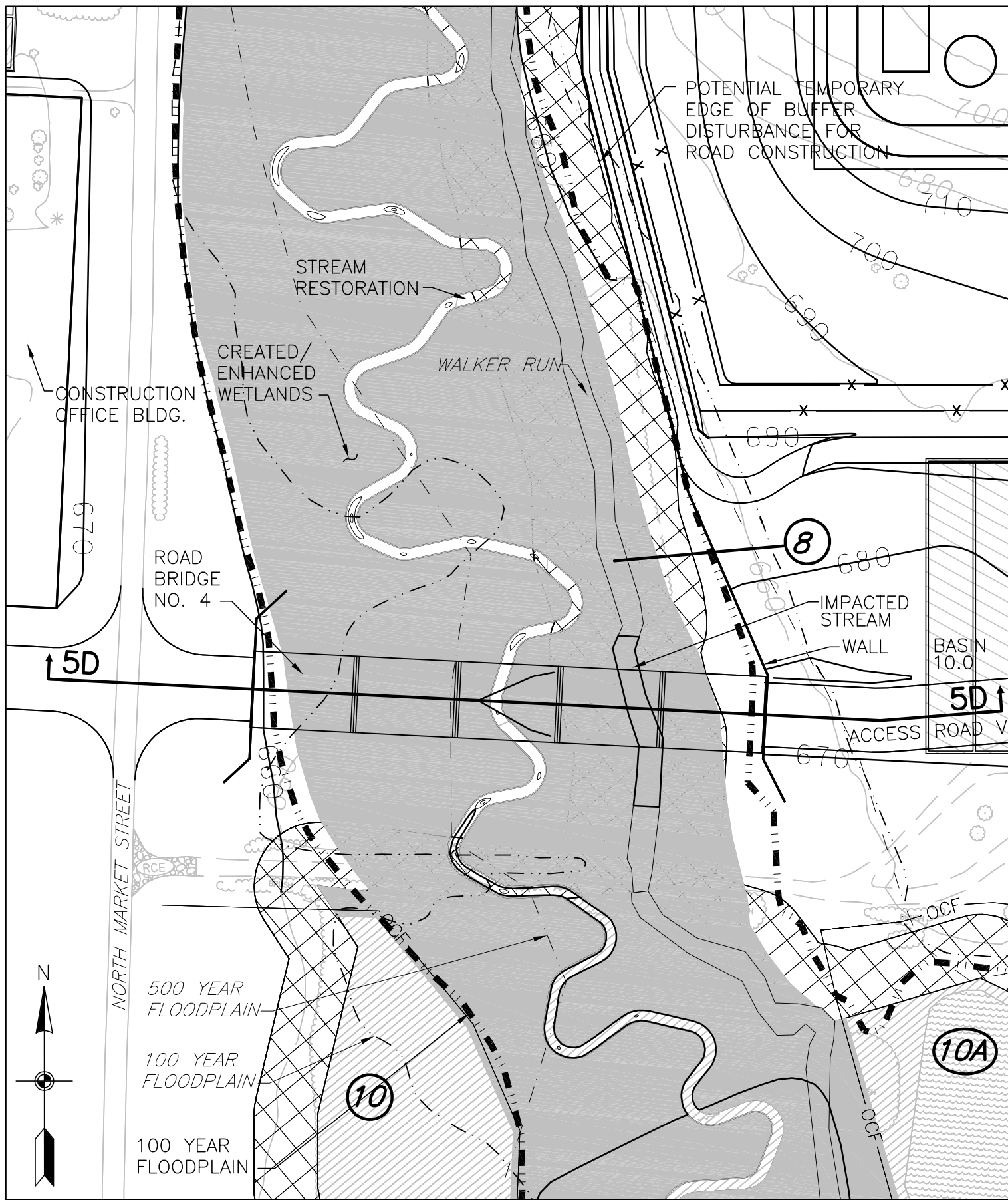
FIGURE 4 – SITE LAYOUT





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FIGURE 5 – SITE LAYOUT



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VERT. N/A

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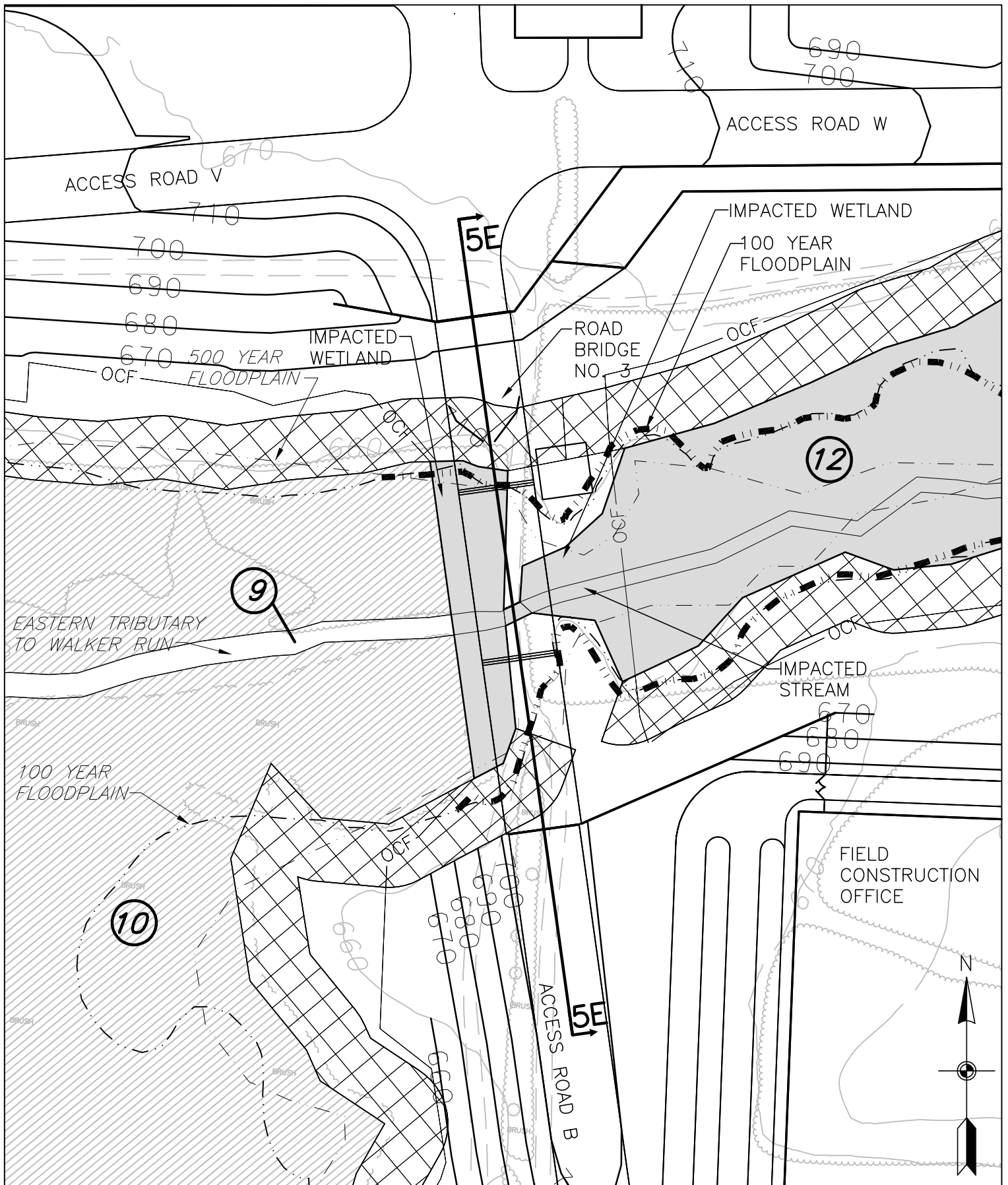
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FIGURE 5A – SITE LAYOUT

Enclosure 8




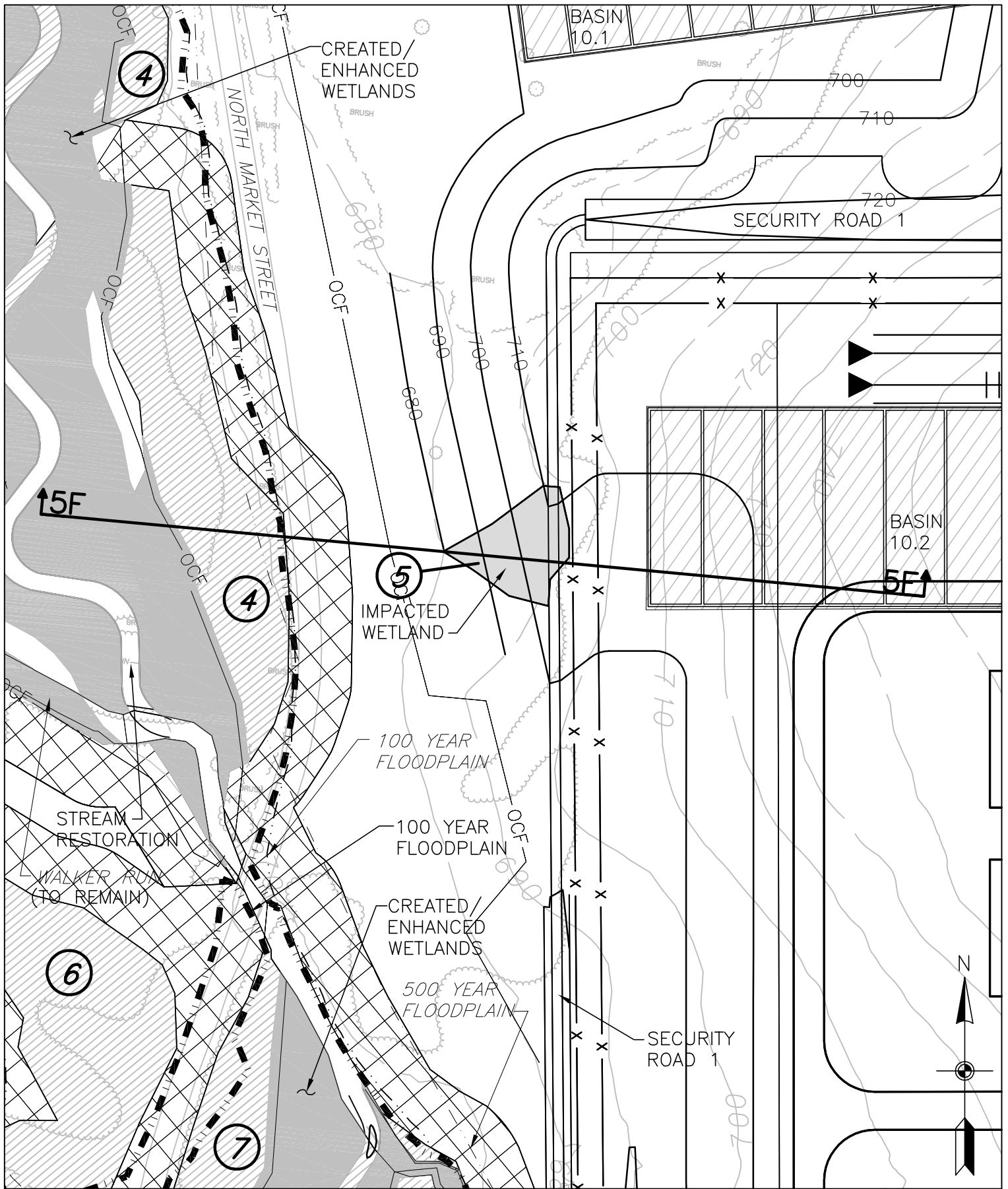
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		<p>CHECKED BY: LGB</p>	<p>JPA PERMIT SUBMITTAL</p> <p>BELL BEND NUCLEAR POWER PLANT LUZERNE COUNTY, PENNSYLVANIA</p> <p>APPLICATION BY: PPL NUCLEAR DEVELOPMENT, LLC</p>	
		<p>JOB No. PPLS 0902</p>		

FIGURE 5B – SITE LAYOUT





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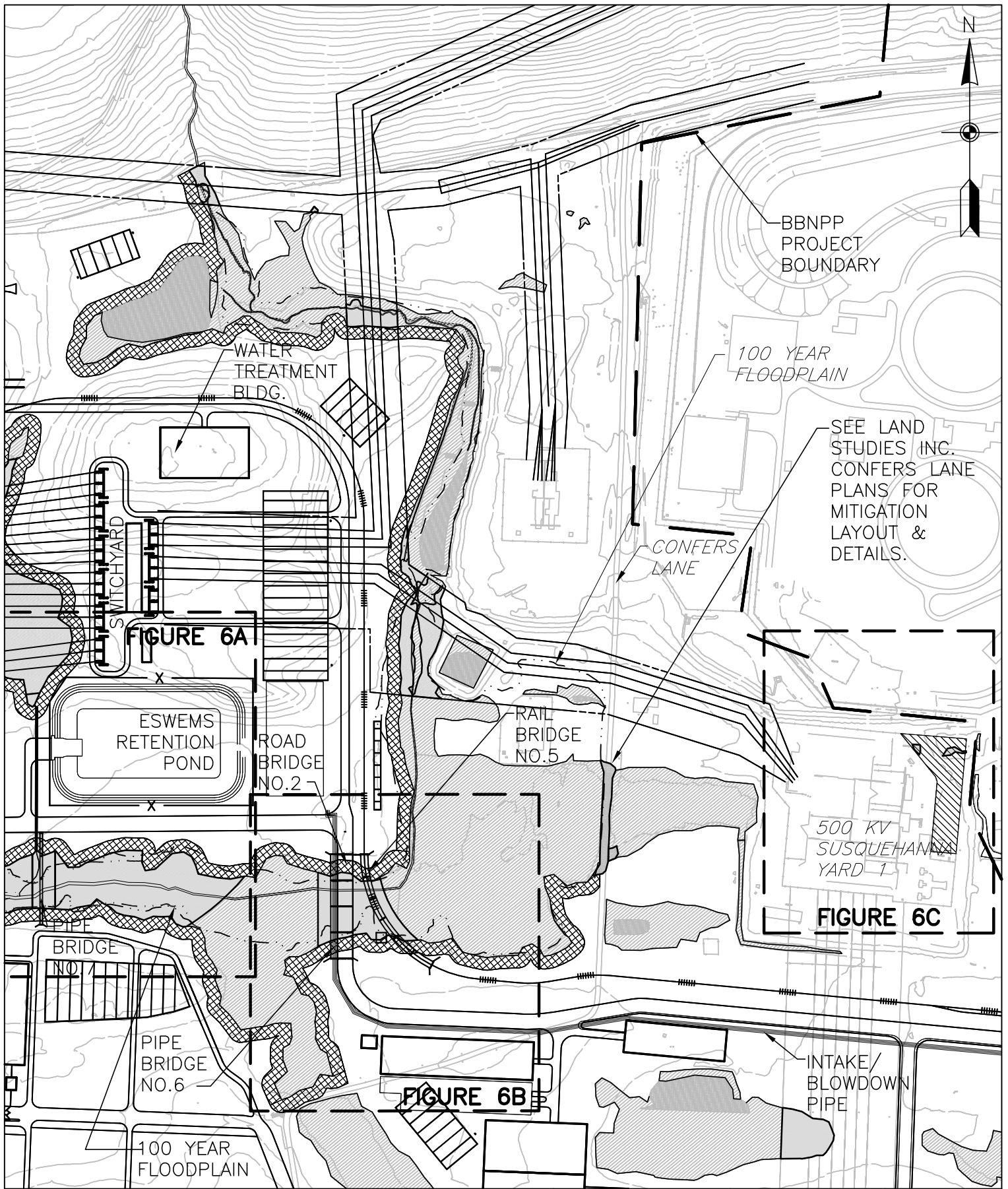
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FIGURE 5C – SITE LAYOUT

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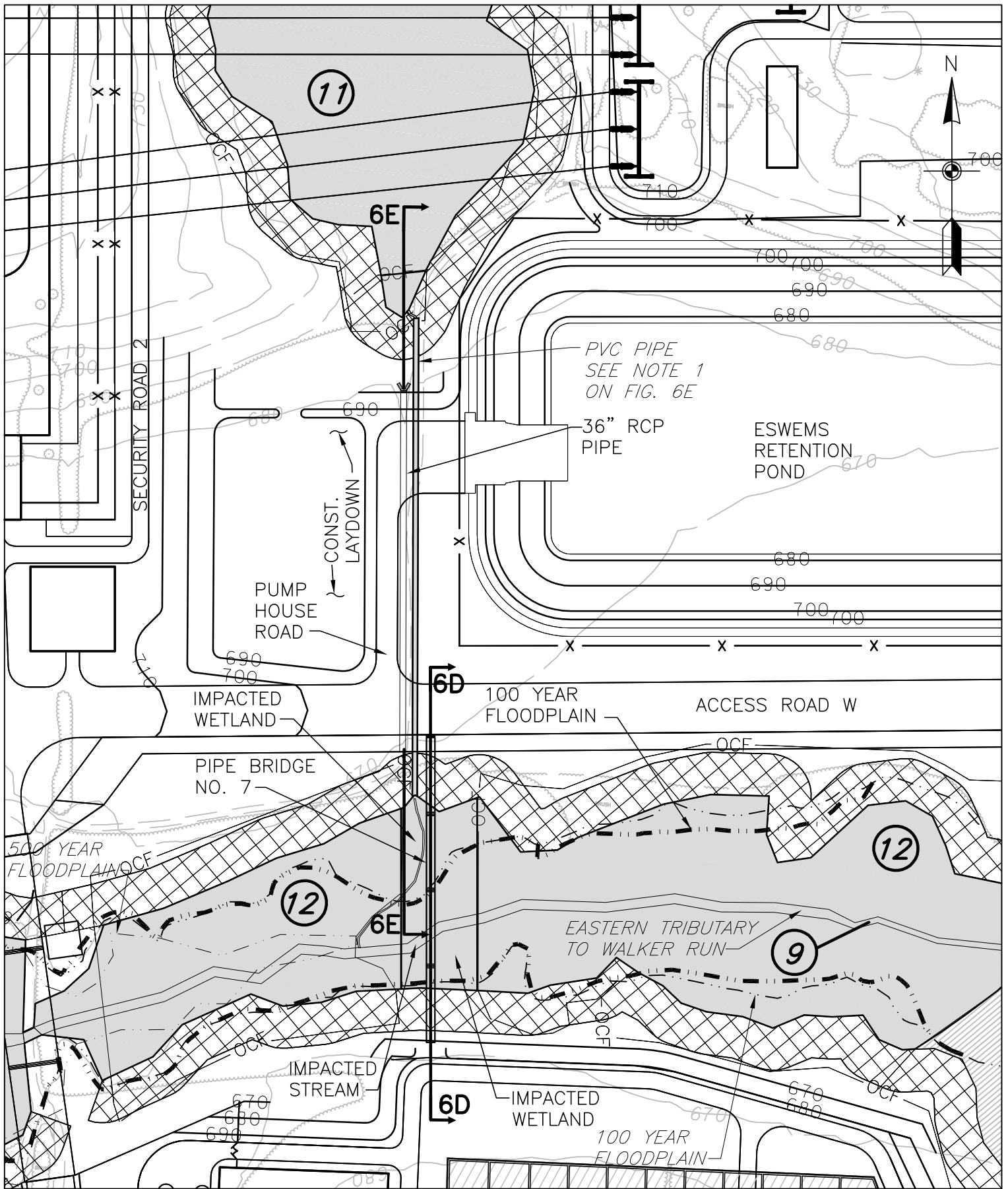
BELL BEND NUCLEAR POWER PLANT  
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FIGURE 6 – SITE LAYOUT

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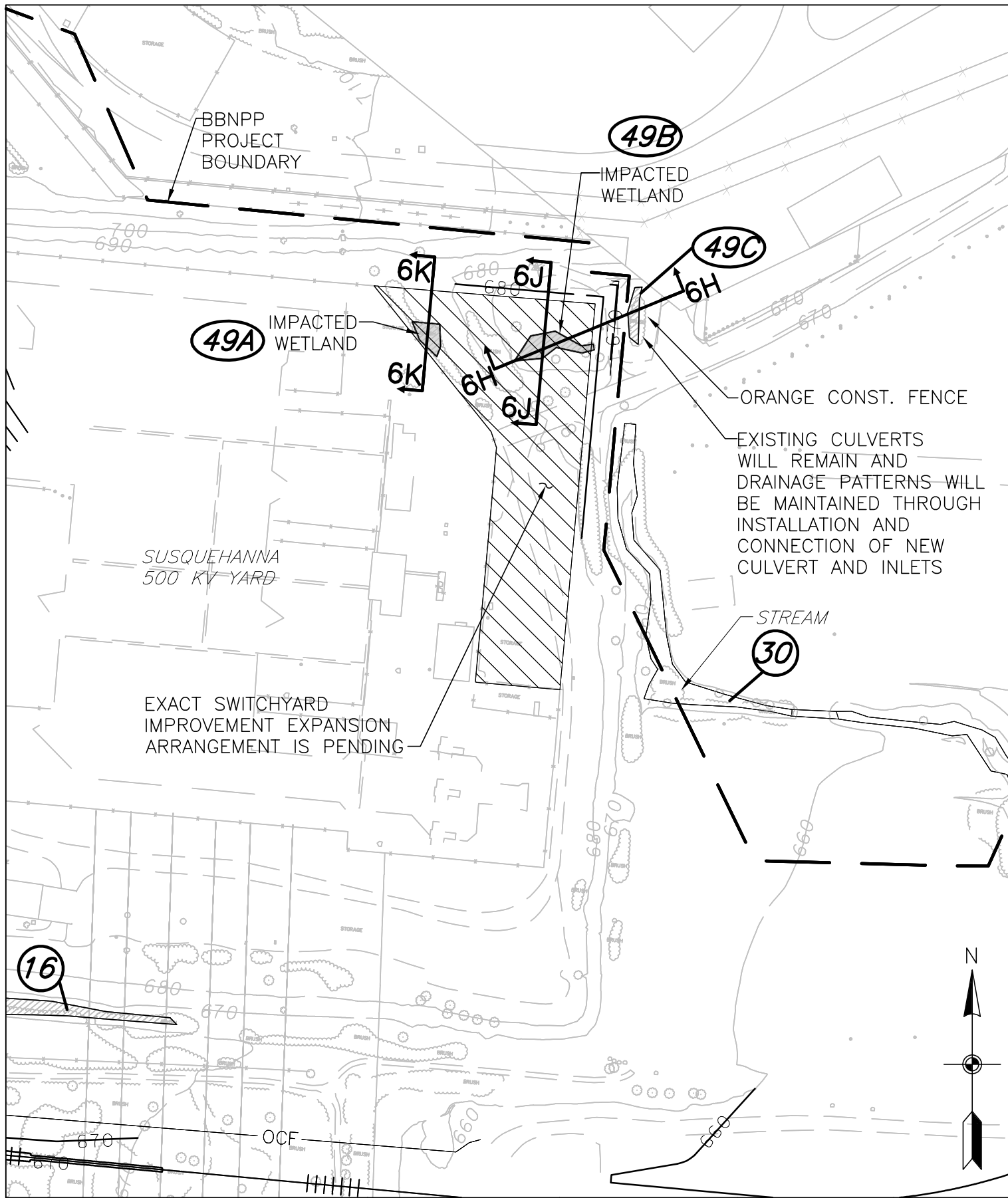
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FIGURE 6A – SITE LAYOUT

Enclosure 12





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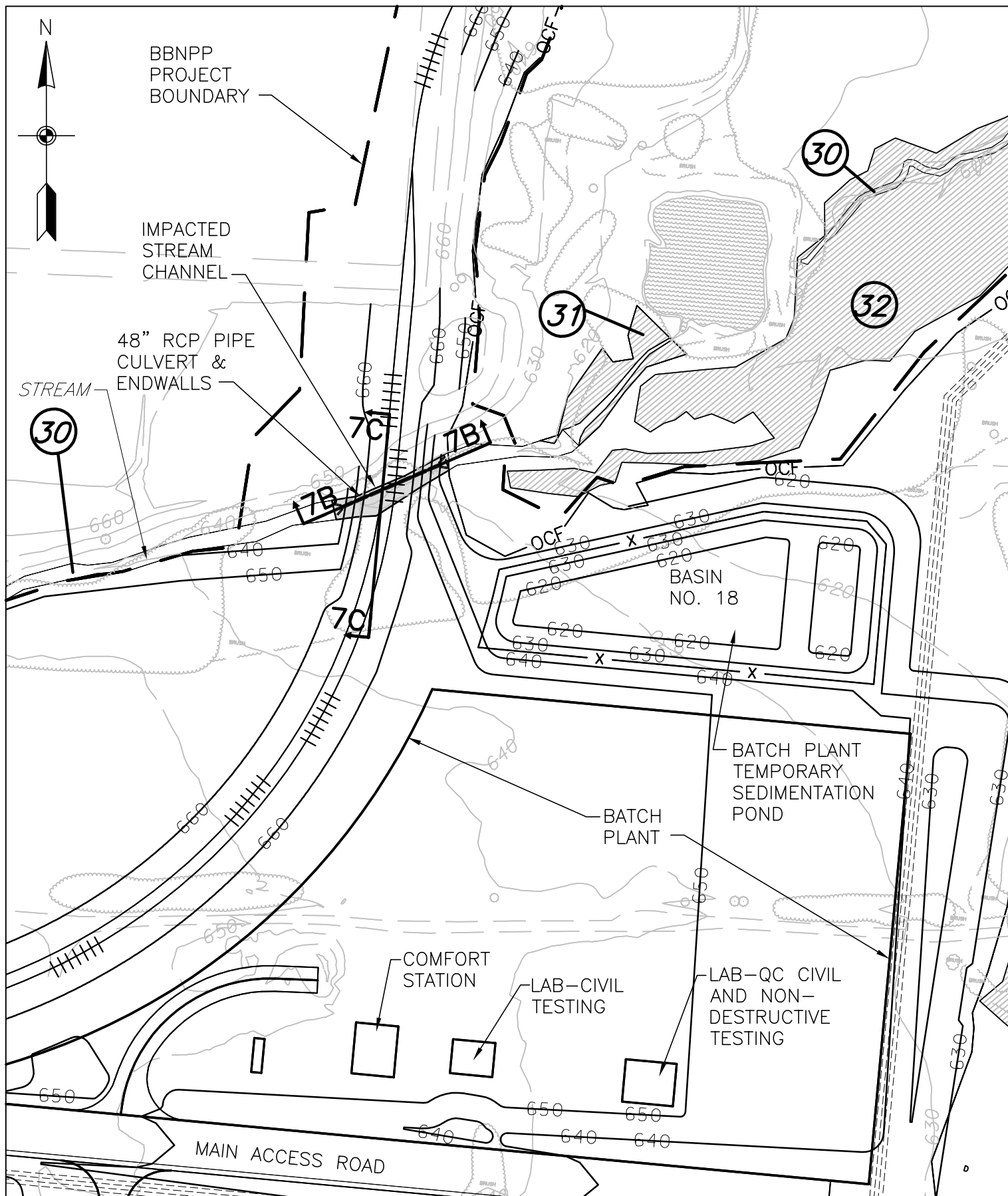
BELL BEND NUCLEAR POWER PLANT  
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FIGURE 6C – SITE LAYOUT

Enclosure 14



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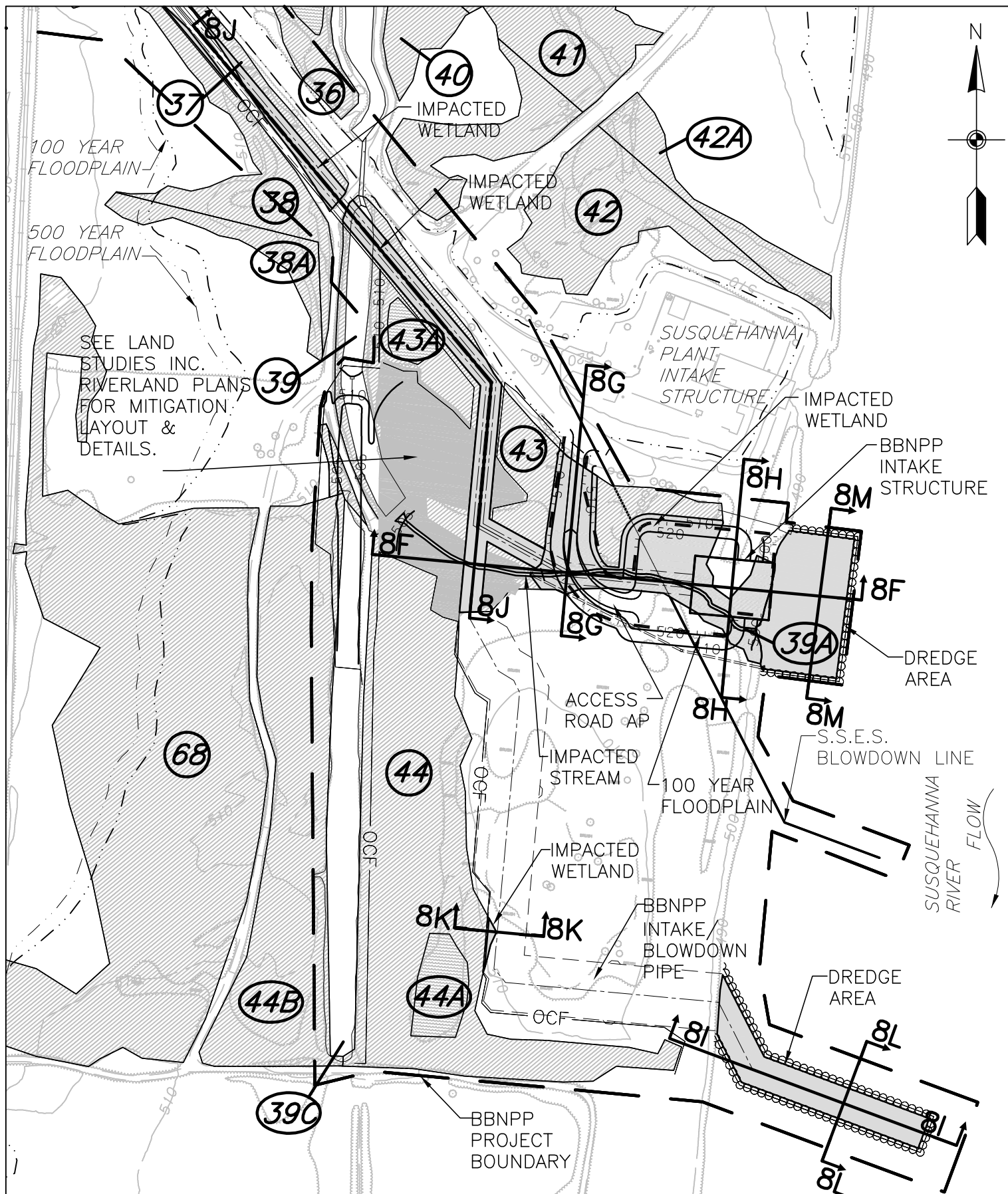
BELL BEND NUCLEAR POWER PLANT  
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FIGURE 7A - SITE LAYOUT

Enclosure 15






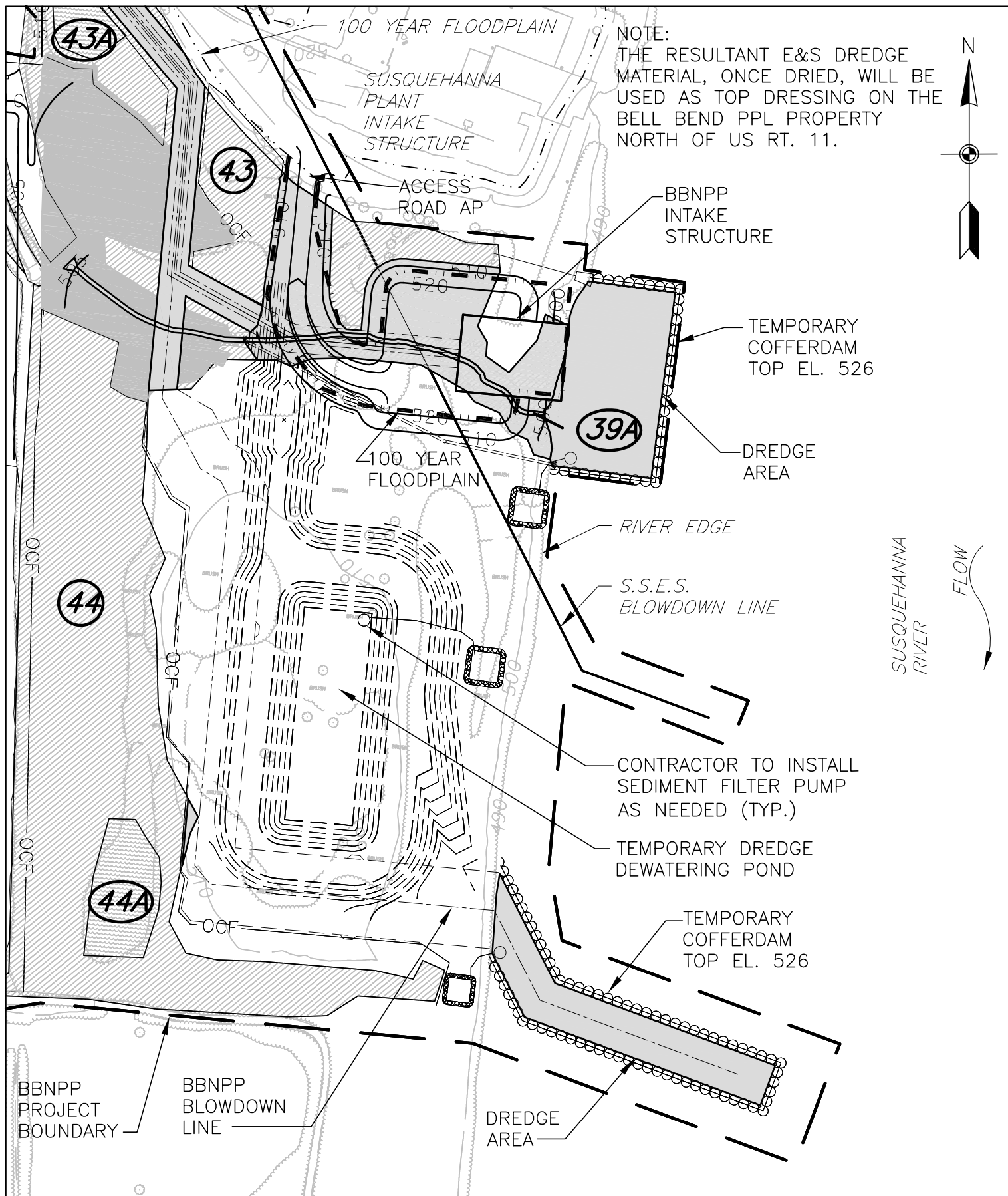
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FIGURE 8A – SITE LAYOUT		Enclosure 16		APPLICATION BY; PPL NUCLEAR DEVELOPMENT, LLC	

FIGURE 8A – SITE LAYOUT



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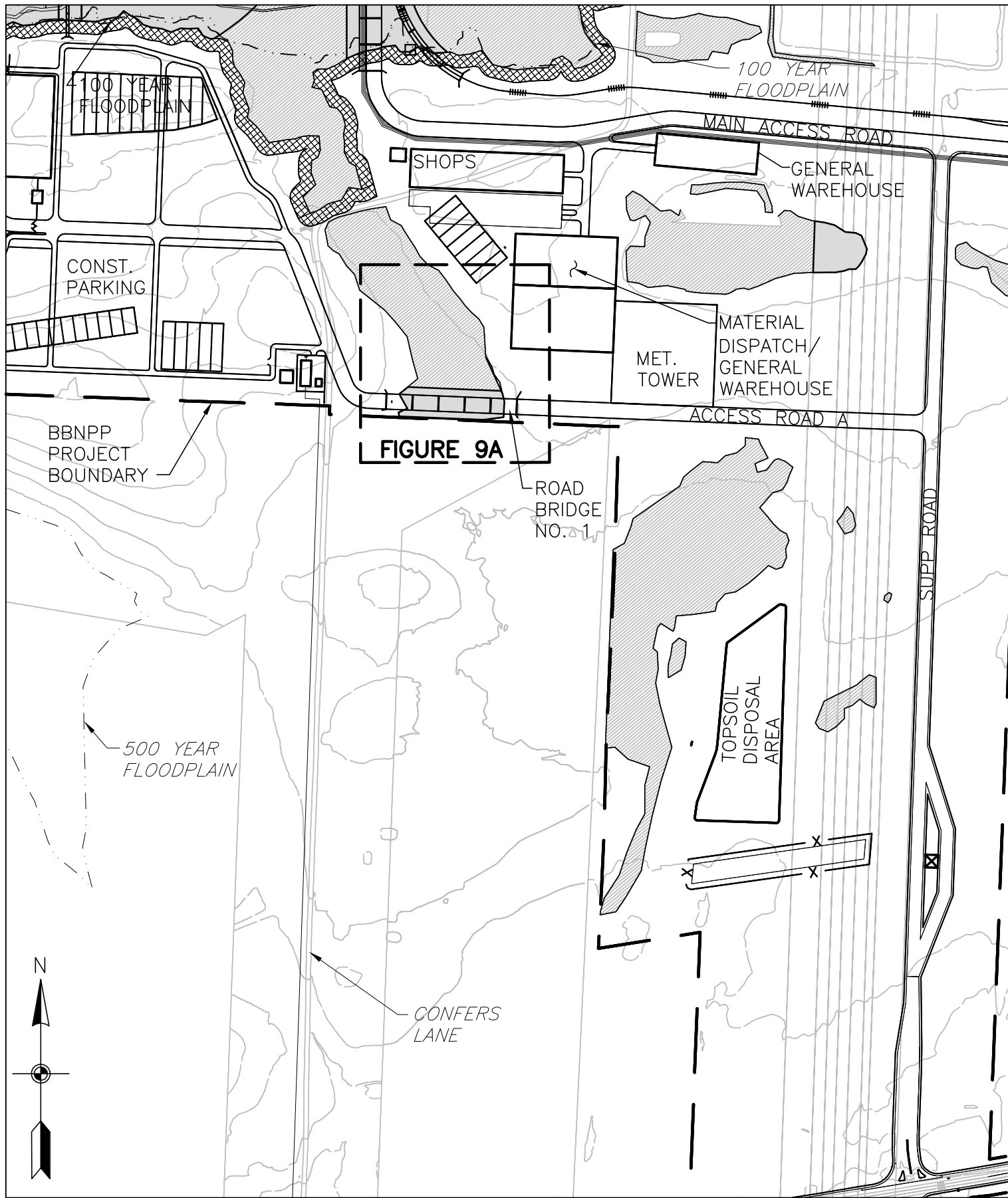
BELL BEND NUCLEAR POWER PLANT  
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APPLICATION BY:  
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FIGURE 8B – COFFERDAM LOCATIONS

Enclosure 17





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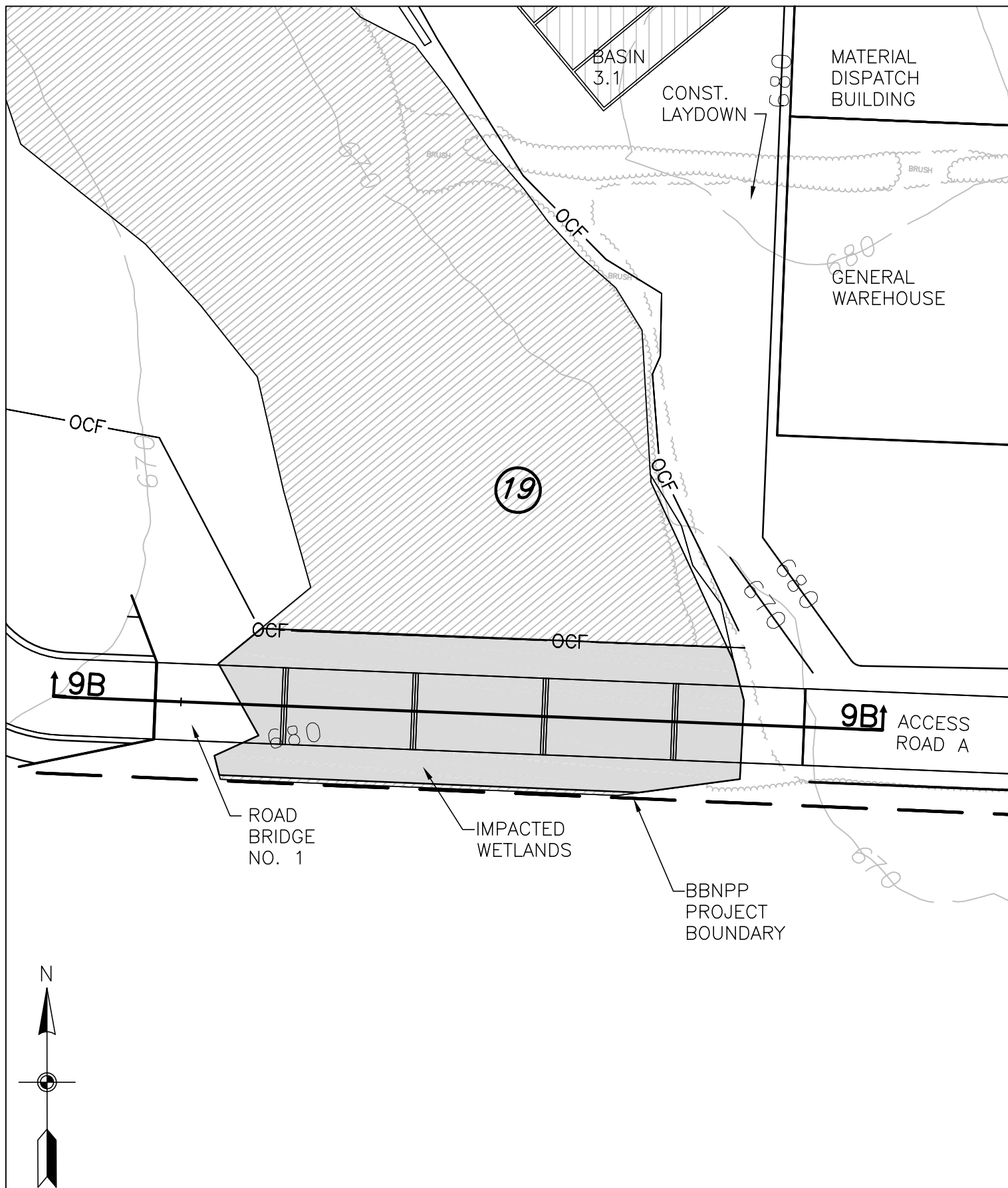
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FIGURE 9 – SITE LAYOUT

Enclosure 18



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		CHECKED BY: LGB	JPA PERMIT SUBMITTAL	
		JOB No. PPLS 0902	BELL BEND NUCLEAR POWER PLANT LUZERNE COUNTY, PENNSYLVANIA	
FIGURE 9A – SITE LAYOUT		Enclosure 19		APPLICATION BY; PPL NUCLEAR DEVELOPMENT, LLC