Appendix 2.8
Natural Resources and Water Resources

2.8-1.1 SAMPLE ALLOCATION

For each of the four stream segments (see Figures 2.8-1 and 2.8-2 in Section 2.8, "Natural Resources and Water Resources), two areas were sampled for fish and benthic macroinvertebrates in single sampling events conducted in spring, summer, and early fall using a random sampling design. Prior to each seasonal field event, the length of the stream segments was measured from headwater to terminus. For each stream segment, two points corresponding to a particular stream location were randomly selected using random numbers (obtained from www.random.org) to derive sampling points as a function of percent of segment length. As the proposed study occurred on privately owned lands, access to full stream segments from landowners was not possible in all instances. Stream areas for which sampling was not possible due to access restrictions or physical impediments (e.g., culverts) were either excluded from the random selection process a priori or were reallocated in the field, as appropriate.

Electrofishing was used to sample fish approximately 9 meters up- and downstream from each selected point, depending on conditions. To sample benthic macro invertebrates, a 0.5-meter kick net was deployed at three locations up- and downstream from each selected point. All sampling was conducted during typical stream flow conditions (i.e., approximately 1 to 2 days before or after rainfall event of 0.5 inches or greater). In addition to the randomly selected points, opportunistic sampling was conducted in wetlands with hydrology or habitat suitable to support benthic macroinvertebrate populations and in stream areas with unique conditions that may support benthic macroinvertebrates with specialized habitat requirements.

During late fall, electrofishing was used to sample fish in the lower sections of segments 3 and 4 (see Figures 2.8-1 and 2.8-2 in Section 2.8, "Natural Resources and Water Resources) to investigate fish community composition at the time of year when natural water temperatures are likely to be more similar to those of the aqueduct expressions than they are during the warmer seasons. For the purposes of this rapid assessment, only one of the previously selected points in each stream segment was targeted for sampling. Water quality and benthic macroinvertebrates were not sampled.

2.8-1.2 WATER QUALITY

At each sampling location, monitoring of conductivity/dissolved salt concentration and temperature was conducted to determine suitable conditions for electrofishing and adjust electrofisher output voltage accordingly. In addition, dissolved oxygen and pH were measured opportunistically based on field conditions. All water quality measurements were collected with a calibrated YSI Model 556MPS or Hanna Instruments HI 98129 pH/Conductivity/TDS Testers. Water quality parameters were recorded on field data sheets associated with fish sampling.

2.8-1.3 BENTHIC MACROINVERTEBRATE SAMPLING

Benthic macroinvertebrate sampling was conducted using a 0.5-meter kick net, following the Environmental Protection Agency's (EPA's) Rapid Bioassessment Protocols for use in Streams and Wadeable Rivers[1]. Kick net sampling (three replicates) was conducted at each sampling point in representative habitat types (e.g., areas of emergent vegetation, creek banks, etc.). Samples were washed in the field through a fine-mesh sieve (no. 35 or smaller) to remove fine sediment. Course debris, including rocks and sticks, was removed from the sample after washing to prevent damage to preserved organisms in transit. Samples were then preserved in 95 percent ethanol with Rose Bengal stain solution and transported to the following laboratory for processing (i.e., sorting and taxonomic identification):

Environmental Consulting Services, Inc.
P.O. Box 138, 100 South Cass Street
Middletown, DE 19709
Tel: 302-378-9893, E-mail: Info@ecsi-del.com
Appropriate chain-of-custody records were maintained for each sample.

In the laboratory, invertebrate specimens were separated from remaining debris (e.g., leaves, sticks, pebbles, etc.), identified to the lowest practicable taxonomic level (typically genus), and enumerated. The entire contents of each sample were processed—no volumetric sub-sampling was necessary.

After processing, completed laboratory data sheets were submitted to AKRF and the data entered into an electronic spreadsheet. Where appropriate or available, the EPA's functional feeding group information and/or regional tolerance values were assigned to each taxon identified[2].

[1] http://water.epa.gov/scitech/monitoring/rsl/bioassessment/index.cfm Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

[2] http://water.epa.gov/scitech/monitoring/rsl/bioassessment/app_b-2.cfm.

2.8-1.4 FISH SAMPLING

Information on temperature, conductivity, depth, and proximity to in-water structures was gathered prior to sampling to determine suitable output voltage for electrofishing based on the manufacturer's specifications. A Smith-Root™ L-24 backpack electrofisher was employed, with two 0.25-meter diameter probe tips being used to apply current to the stream. The operation of the electrofisher was in pulsed DC mode from 100 – 120 pulses per second and an output of 8 – 12 amps, depending on local conditions. Sampling was conducted from downstream to upstream in each segment to avoid contaminating subsequent sample sites with sediment and previously stunned fish.

Measures of fishing effort included fishing time and length of stream segment sampled. Stunned fish were collected via a dip net and held in a shore-based holding tank.

All fish collected were identified to the lowest practicable taxon (usually species) in the field. A representative subsample of fish lengths (to the nearest millimeter, or the nearest 10 millimeters in the case of American eels) was obtained for each species and sampling location. All fish captured were released alive at the sampling location following identification and documentation as described above.

Table 1
Relative Commonness of Bird Species Occurring in the Lower Hudson Valley

Common name	Scientific name	Spring	Summer	Fall	Winter
Snow Goose	*Chen caerulescens*	U		U	O
Brant	*Branta bernicla*	U	R	U	O
Canada Goose	*Branta canadensis*	C	C	C	C
Mute Swan	*Cygnus olor*	C	C	C	C
Wood Duck	*Aix sponsa*	C	C	C	U
Gadwall	*Anas strepera*	U	R	U	U
American Wigeon	*Anas americana*	C	R	C	C
American Black Duck	*Anas rubripes*	C	C	C	C
Mallard	*Anas platyrhynchos*	C	C	C	C
Blue-winged Teal	*Anas discors*	C	U	C	R
Northern Shoveler	*Anas clypeata*	U	R	U	O
Northern Pintail	*Anas acuta*	U		U	O
Green-winged Teal	*Anas crecca*	C	O	C	O
Canvasback	*Aythya valisineria*	C	R	U	C
Redhead	*Aythya americana*	O		U	O
Ring-necked Duck	*Aythya collaris*	U		O	U
Greater Scaup	*Aythya marila*	C	R	C	C
Lesser Scaup	*Aythya affinis*	C	R	C	U
Surf Scoter	*Melanitta perspicillata*	O		O	O
White-winged Scoter	*Melanitta fusca*	U	R	U	O
Black Scoter	*Melanitta americana*	O		O	O
Long-tailed Duck	*Clangula hyemalis*	C	R	U	C
Bufflehead	*Bucephala albeola*	C	R	C	C
Common Goldeneye	*Bucephala clangula*	C	R	U	C
Hooded Merganser	*Lophodytes cucullatus*	C		C	C
Common Merganser	*Mergus merganser*	C	R	C	C
Red-breasted Merganser	*Mergus serrator*	C	R	C	C
Ruddy Duck	*Oxyura jamaicensis*	C	R	C	C
Northern Bobwhite	*Colinus virginianus*	R	R	R	R
Ring-necked Pheasant	*Phasianus colchicus*	R	R	R	R
Ruffed Grouse	*Bonasa umbellus*	U	U	U	U
Wild Turkey	*Meleagris gallopavo*	C	C	C	C
Red-throated Loon	*Gavia stellata*	O		C	U
Common Loon	*Gavia immer*	U	R	C	U
Pied-billed Grebe	*Podilymbus podiceps*	U	R	C	U
Horned Grebe	*Podiceps auritus*	U		U	C
Red-necked Grebe	*Podiceps grisegena*	O		R	O
Double-crested Cormorant	*Phalacrocorax auritus*	C	C	C	O
Great Cormorant	*Phalacrocorax carbo*	C	R	C	C
American Bittern	*Botaurus lentiginosus*	O		O	R
Least Bittern	*Ixobrychus exilis*	O	O	R	

Table 1

Relative Commonness of Bird Species Occurring in the Lower Hudson Valley

Common name	Scientific name	Spring	Summer	Fall	Winter
Great Blue Heron	*Ardea herodias*	C	U	C	C
Great Egret	*Ardea alba*	C	C	C	R
Snowy Egret	*Egretta thula*	U	R	U	
Little Blue Heron	*Egretta caerulea*	O	U	O	
Green Heron	*Butorides virescens*	C	C	C	
Black-crowned Night-Heron	*Nycticorax nycticorax*	C	C	C	U
Yellow-crowned Night-Heron	*Nyctanassa violacea*	O	O	O	
Glossy Ibis	*Plegadis falcinellus*	U	U	O	
Black Vulture	*Coragyps atratus*	U	U	U	U
Turkey Vulture	*Cathartes aura*	C	C	C	U
Osprey	*Pandion haliaetus*	U	U	C	
Bald Eagle	*Haliaeetus leucocephalus*	O	R	U	C
Northern Harrier	*Circus cyaneus*	C	O	C	O
Sharp-shinned Hawk	*Accipiter striatus*	C	O	C	U
Cooper's Hawk	*Accipiter cooperii*	U	O	C	U
Northern Goshawk	*Accipiter gentilis*	O	R	O	O
Red-shouldered Hawk	*Buteo lineatus*	U	R	U	O
Broad-winged Hawk	*Buteo platypterus*	C	O	C	
Red-tailed Hawk	*Buteo jamaicensis*	C	C	C	C
Rough-legged Hawk	*Buteo lagopus*	R		O	O
Golden Eagle	*Aquila chrysaetos*	R		O	R
American Kestrel	*Falco sparverius*	C	U	C	O
Merlin	*Falco columbarius*	O	R	U	R
Peregrine Falcon	*Falco peregrinus*	O	O	U	O
Clapper Rail	*Rallus longirostris*	C	C	C	U
Virginia Rail	*Rallus limicola*	C	U	C	U
Sora	*Porzana carolina*	U	R	U	R
Common Moorhen	*Gallinula chloropus*	O		O	
American Coot	*Fulica americana*	U		C	C
Killdeer	*Charadrius vociferus*	C	U	C	U
Greater Yellowlegs	*Tringa melanoleuca*	R		R	
Lesser Yellowlegs	*Tringa flavipes*	U	C	C	
Solitary Sandpiper	*Tringa solitaria*	R		R	
Spotted Sandpiper	*Actitis macularius*	C	C	C	
Semipalmated Sandpiper	*Calidris pusilla*	R		R	
Least Sandpiper	*Calidris minutilla*	C	R	U	
Purple Sandpiper	*Calidris maritima*	C		U	C
Dunlin	*Calidris alpina*	R			
Wilson's Snipe	*Gallinago delicata*	U	R	U	R
American Woodcock	*Scolopax minor*	C	U	U	O
Bonaparte's Gull	*Chroicocephalus philadelphia*	R	R	R	R
Ring-billed Gull	*Larus delawarensis*	C	C	C	C
Herring Gull	*Larus argentatus*	C	C	C	C
Great Black-backed Gull	*Larus marinus*	C	C	C	C
Rock Pigeon	*Columbia livia*	C	C	C	C
Mourning Dove	*Zenaida macroura*	C	C	C	C
Yellow-billed Cuckoo	*Coccyzus americanus*	U	U	U	
Black-billed Cuckoo	*Coccyzus erythropthalmus*	U	U	U	
Barn Owl	*Tyto alba*	R	R	R	R
Eastern Screech-Owl	*Megascops asio*	C	C	C	C
Great Horned Owl	*Bubo virginianus*	C	C	C	C
Snowy Owl	*Bubo scandiacus*			R	R
Barred Owl	*Strix varia*	U	U	U	U
Long-eared Owl	*Asio otus*	R		R	U

Table 1

Relative Commonness of Bird Species Occurring in the Lower Hudson Valley

Common name	Scientific name	Spring	Summer	Fall	Winter
Short-eared Owl	*Asio flammeus*				R
Northern Saw-whet Owl	*Aegolius acadicus*	O		U	U
Common Nighthawk	*Chordeiles minor*	U	U	U	
Eastern Whip-poor-will	*Caprimulgus vociferus*	O	O	O	
Chimney Swift	*Chaetura pelagica*	C	C	U	
Ruby-throated Hummingbird	*Archilochus colubris*	C	C	C	
Belted Kingfisher	*Megaceryle alcyon*	C	C	C	C
Red-headed Woodpecker	*Melanerpes erythrocephalus*	R	R	R	R
Red-bellied Woodpecker	*Melanerpes carolinus*	C	C	C	C
Yellow-bellied Sapsucker	*Sphyrapicus varius*	U	U	U	U
Downy Woodpecker	*Picoides pubescens*	C	C	C	C
Hairy Woodpecker	*Picoides villosus*	C	C	C	C
Northern Flicker	*Colaptes auratus*	C	C	C	U
Pileated Woodpecker	*Dryocopus pileatus*	U	U	U	U
Olive-sided Flycatcher	*Contopus cooperi*	U		U	
Eastern Wood-Pewee	*Contopus virens*	C	C	C	
Yellow-bellied Flycatcher	*Empidonax flaviventris*	U		U	
Acadian Flycatcher	*Empidonax virescens*	U	U	U	
Alder Flycatcher	*Empidonax alnorum*	U	U		
Willow Flycatcher	*Empidonax traillii*	U	C	U	
Least Flycatcher	*Empidonax minimus*	C	U	R	
Eastern Phoebe	*Sayornis phoebe*	C	C	C	R
Great Crested Flycatcher	*Myiarchus crinitus*	C	C	U	
Eastern Kingbird	*Tyrannus tyrannus*	C	C	C	
Northern Shrike	*Lanius excubitor*			R	R
White-eyed Vireo	*Vireo griseus*	C	C	U	
Yellow-throated Vireo	*Vireo flavifrons*	C	C	U	
Blue-headed Vireo	*Vireo solitarius*	C	C	C	
Warbling Vireo	*Vireo gilvus*	C	C	C	
Philadelphia Vireo	*Vireo philadelphicus*	R		R	
Red-eyed Vireo	*Vireo olivaceus*	C	C	C	
Blue Jay	*Cyanocitta cristata*	C	C	C	C
American Crow	*Corvus brachyrhynchos*	C	C	C	C
Fish Crow	*Corvus ossifragus*	U	U	U	U
Common Raven	*Corvus corax*	U	U	U	U
Horned Lark	*Eremophila alpestris*	O	R	U	C
Purple Martin	*Progne subis*	U	U	U	
Tree Swallow	*Tachycineta bicolor*	C	C	C	
N. Rough-winged Swallow	*Stelgidopteryx serripennis*	U	U	U	
Bank Swallow	*Riparia riparia*	U	U	U	
Cliff Swallow	*Petrochelidon pyrrhonota*	U	U	U	
Barn Swallow	*Hirundo rustica*	C	C	C	
Black-capped Chickadee	*Poecile atricapillus*	C	C	C	C
Tufted Titmouse	*Baeolophus bicolor*	C	C	C	C
Red-breasted Nuthatch	*Sitta canadensis*	U	O	U	U
White-breasted Nuthatch	*Sitta carolinensis*	C	C	C	C
Brown Creeper	*Certhia americana*	C	C	C	C
Carolina Wren	*Thryothorus ludovicianus*	C	C	C	C
House Wren	*Troglodytes aedon*	C	C	C	
Winter Wren	*Troglodytes hiemalis*	U	U	U	R
Marsh Wren	*Cistothorus palustris*	U	O	O	
Blue-gray Gnatcatcher	*Polioptila caerulea*	C	U	U	
Golden-crowned Kinglet	*Regulus satrapa*	C	O	C	U
Ruby-crowned Kinglet	*Regulus calendula*	C		C	O

Table 1

Relative Commonness of Bird Species Occurring in the Lower Hudson Valley

Common name	Scientific name	Spring	Summer	Fall	Winter
Eastern Bluebird	*Sialia sialis*	C	C	C	C
Veery	*Catharus fuscescens*	C	C	C	
Gray-cheeked Thrush	*Catharus minimus*	U		U	
Bicknell's Thrush	*Catharus bicknelli*	R		R	
Swainson's Thrush	*Catharus ustulatus*	C		C	
Hermit Thrush	*Catharus guttatus*	C	U	C	U
Wood Thrush	*Hylocichla mustelina*	C	C	C	
American Robin	*Turdus migratorius*	C	C	C	U
Gray Catbird	*Dumetella carolinensis*	C	C	C	O
Northern Mockingbird	*Mimus polyglottos*	C	C	C	C
Brown Thrasher	*Toxostoma rufum*	C	C	C	O
European Starling	*Sturnus vulgaris*	C	C	C	C
American Pipit	*Anthus rubescens*	R		C	R
Cedar Waxwing	*Bombycilla cedrorum*	C	C	C	C
Snow Bunting	*Plectrophenax nivalis*	R		C	O
Blue-winged Warbler	*Vermivora pinus*	C	C	C	
Golden-winged Warbler	*Vermivora chrysoptera*	O		O	
Tennessee Warbler	*Oreothlypis peregrina*	C		C	
Orange-crowned Warbler	*Oreothlypis celata*	R		R	
Nashville Warbler	*Oreothlypis ruficapilla*	U		U	
Northern Parula	*Parula americana*	C		C	
Yellow Warbler	*Dendroica petechia*	C	C	U	
Chestnut-sided Warbler	*Dendroica pensylvanica*	C	C	C	
Magnolia Warbler	*Dendroica magnolia*	C		C	
Cape May Warbler	*Dendroica tigrina*	U		U	
Black-throated Blue Warbler	*Dendroica caerulescens*	C	O	C	
Yellow-rumped Warbler	*Dendroica coronata*	C	O	C	U
Black-throated Green Warbler	*Dendroica virens*	C	U	C	
Blackburnian Warbler	*Dendroica fusca*	U	U	U	
Pine Warbler	*Dendroica pinus*	U	U	U	
Prairie Warbler	*Dendroica discolor*	C	C	U	
Palm Warbler	*Dendroica palmarum*	U		U	
Bay-breasted Warbler	*Dendroica castanea*	U		R	
Blackpoll Warbler	*Dendroica striata*	C		C	
Cerulean Warbler	*Dendroica cerulea*	O	O		
Black-and-white Warbler	*Mniotilta varia*	C	C	C	
American Redstart	*Setophaga ruticilla*	C	C	C	
Prothonotary Warbler	*Protonotaria citrea*	R			
Worm-eating Warbler	*Helmitheros vermivorum*	U	U	U	
Ovenbird	*Seiurus aurocapilla*	C	C	C	
Northern Waterthrush	*Parkesia noveboracensis*	C	O	U	
Louisiana Waterthrush	*Parkesia motacilla*	C	U	U	
Mourning Warbler	*Oporornis philadelphia*	U		O	
Common Yellowthroat	*Geothlypis trichas*	C	C	C	
Hooded Warbler	*Wilsonia citrina*	U	U	O	
Wilson's Warbler	*Wilsonia pusilla*	R		R	
Canada Warbler	*Wilsonia canadensis*	C	O	O	
Eastern Towhee	*Pipilo erythrophthalmus*	C	C	C	O
American Tree Sparrow	*Spizella arborea*			U	C
Chipping Sparrow	*Spizella passerina*	C	C	C	
Field Sparrow	*Spizella pusilla*	C	C	C	U
Vesper Sparrow	*Pooecetes gramineus*	O	O	U	R
Savannah Sparrow	*Passerculus sandwichensis*	C	U	C	O
Grasshopper Sparrow	*Ammodramus savannarum*	O	O		

Table 1

Relative Commonness of Bird Species Occurring in the Lower Hudson Valley

Common name	Scientific name	Spring	Summer	Fall	Winter
Fox Sparrow	*Passerella iliaca*	U		U	O
Song Sparrow	*Melospiza melodia*	C	C	C	C
Lincoln's Sparrow	*Melospizia lincolnii*	O		U	
Swamp Sparrow	*Melospizia georgiana*	C	C	C	U
White-throated Sparrow	*Zonotrichia albicollis*	C		C	C
White-crowned Sparrow	*Zonotrichia leucophyrs*	O		U	O
Dark-eyed Junco	*Junco hyemalis*	C	U	C	C
Scarlet Tanager	*Piranga olivacea*	C	C	C	
Northern Cardinal	*Cardinalis cardinalis*	C	C	C	C
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	C	C	C	
Indigo Bunting	*Passerina cyanea*	C	C	U	
Bobolink	*Dolichonyx oryzivorus*	C	C	C	
Red-winged Blackbird	*Agelaius phoeniceus*	C	C	C	U
Eastern Meadowlark	*Sturnella magna*	U	U	U	O
Rusty Blackbird	*Euphagus carolinus*	U		U	O
Common Grackle	*Quiscalus quiscula*	C	C	C	U
Brown-headed Cowbird	*Molothrus ater*	C	C	C	U
Orchard Oriole	*Icterus spurius*	U	U		
Baltimore Oriole	*Icterus galbula*	C	C	C	R
Pine Grosbeak	*Pinicola enucleator*			R	R
Purple Finch	*Carpodacus purpureus*	U	U	U	U
House Finch	*Carpodacus mexicanus*	C	C	C	C
White-winged Crossbill	*Loxia leucoptera*	R		R	R
Common Redpoll	*Acanthis flammea*	R		R	R
Pine Siskin	*Spinus pinus*	O		U	U
American Goldfinch	*Spinus tristis*	C	C	C	C
Evening Grosbeak	*Coccothraustes vespertinus*	U		U	R
House Sparrow	*Passer domesticus*	C	C	C	C

Notes:
C=common, U=uncommon, O=occasional, R=rare
(sources: DeOrsey and Butler 2006, Bochnick 2011)

Table 2

Bird Species with the Potential to Occur the Study Area at Different Times of Year, Based on Regional Commonness and Habitat Preferences

Common name	West Connection Site	East Connection Site	Roseton Stream Study Site	Hudson River
Canada Goose	Sp, S*, F, W†**	Sp†, S†*, F†, W**		Sp, S*, F, W**
Mute Swan				Sp, S*, F, W**
American Black Duck[1]				F, W†**
Mallard				Sp, S†*, F†, W†**
Canvasback				W
Ring-necked Duck				F, W**
Bufflehead				Sp
Common Goldeneye[1]				F, W
Hooded Merganser				F, W†**
Common Merganser				F, W†**
Red-breasted Merganser				W
Wild Turkey	Sp†, S†*, F, W**	Sp, F, W**	Sp, S†*, F, W**	
Common Loon[1, 2]				F, W
Pied-billed Grebe[1, 3]				Sp, W

Table 2

Bird Species with the Potential to Occur the Study Area at Different Times of Year, Based on Regional Commonness and Habitat Preferences

Common name	West Connection Site	East Connection Site	Roseton Stream Study Site	Hudson River
Double-crested Cormorant				Sp, F†
Great Blue Heron			Sp, S†*, F, W**	
Black-crowned Night-Heron[1]				Sp, S*, F
Turkey Vulture	Sp†, S†*, F, W**	Sp, S*, F, W**	Sp, S*, F, W**	
Osprey				Sp†, S†, F
Bald Eagle[1,3, 4]				W†**
Sharp-shinned Hawk[1, 2]	Sp, S*, F, W**	Sp, S*, F, W**	Sp, S*, F, W**	
Cooper's Hawk [1, 2]	Sp, S*, F, W**	Sp, S*, F, W**	Sp, S*, F, W**	
Red-shouldered Hawk [1, 2]	Sp, F	Sp, F	Sp, F	
Broad-winged Hawk	Sp, F	Sp, F	Sp, F	
Red-tailed Hawk	Sp†, S†*, F, W**	Sp†, S†*, F, W†**	Sp, S†*, F, W**	
American Kestrel	Sp, S, F	Sp, F	Sp, S, F	
Merlin	F	F	F	
Peregrine Falcon	Sp, F, W	Sp, F, W**	Sp, F, W**	Sp, F, W†**
Killdeer	Sp, S*, F	Sp, S*, F†	Sp, S*, F	
Spotted Sandpiper			Sp, S†, F	Sp, S†, F
American Woodcock[1]		S, F†		
Ring-billed Gull				Sp†, S†*, F†, W†**
Herring Gull				Sp, S†, F†, W**
Great Black-backed Gull				Sp, S, F, W†**
Rock Pigeon	Sp, S*, F, W**	Sp, S†*, F†, W**	Sp, S†*, F, W**	
Mourning Dove	Sp†, S†*, F, W**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Yellow-billed Cuckoo	Sp, F	Sp, F	Sp, F	
Black-billed Cuckoo [1]	Sp, F	Sp, F	Sp, F	
Eastern Screech-Owl	Sp, S, F, W		Sp, S, F, W	
Great Horned Owl	Sp, S*, F, W**		Sp, S*, F, W**	
Common Nighthawk[1, 2]	Sp, S, F	Sp, S, F	Sp, S, F	
Chimney Swift	Sp, S*, F	Sp, S†*, F†	Sp, S*, F	
Ruby-throated Hummingbird	Sp†, S†*, F	Sp, S*, F	Sp, S*, F	
Belted Kingfisher				Sp†, S†*, F, W**
Red-bellied Woodpecker	Sp†, S†*, F, W†**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Yellow-bellied Sapsucker	Sp, F	Sp, F	Sp, F	
Downy Woodpecker	Sp, S†*, F, W†**	Sp†, S†*, F†, W**	Sp, S†*, F, W**	
Hairy Woodpecker	Sp, S*, F, W**	Sp, S†*, F†, W**	Sp, S*, F, W**	
Northern Flicker	Sp†, S†*, F, W**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Pileated Woodpecker	Sp, S*, F, W**	Sp†, S*, F†, W**	Sp, S*, F, W**	
Olive-sided Flycatcher[1]	Sp, F	Sp, F	Sp, F	
Eastern Wood-Pewee	Sp†, S†*, F	Sp, S†*, F†	Sp, S†*, F	
Yellow-bellied Flycatcher	Sp, F	Sp, F	Sp, F	
Acadian Flycatcher	Sp, F	Sp, F	Sp, F	
Alder Flycatcher	Sp, F	Sp, F	Sp, F	
Willow Flycatcher[1]	Sp, F	Sp, F	Sp, F	
Least Flycatcher	Sp, S*, F	Sp, F	Sp, S*, F	
Eastern Phoebe	Sp, S†*, F	Sp†, S†*, F†	Sp, S*, F	
Great Crested Flycatcher	Sp, S†*, F	Sp, S*, F	Sp, S†*, F	
Eastern Kingbird	Sp, S*, F	Sp†, S†*, F	Sp, S†*, F	
White-eyed Vireo	Sp, S*, F	Sp, F	Sp, S*, F	
Yellow-throated Vireo	Sp, F	Sp, F	Sp, F	
Blue-headed Vireo	Sp, F	Sp, F	Sp, F	
Warbling Vireo	Sp†, S, F	Sp†, F	Sp, S†*,F	
Red-eyed Vireo	Sp†, S†, F	Sp, S*, F	Sp, S*, F	

Table 2

Bird Species with the Potential to Occur the Study Area at Different Times of Year, Based on Regional Commonness and Habitat Preferences

Common name	West Connection Site	East Connection Site	Roseton Stream Study Site	Hudson River
Blue Jay	Sp†, S†*, F, W†**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
American Crow	Sp†, S†*, F, W†**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Fish Crow	Sp, F, W**	Sp†, F†, W**	Sp, S†, F, W**	
Common Raven	W**	W**	W**	
Horned Lark[1, 2]	W**	W**	W**	
Tree Swallow	Sp, S*, F	Sp, S†*, F†	Sp, S*, F	
Barn Swallow	Sp, S†*, F	Sp†, S†*, F†	Sp, S†*, F	
Black-capped Chickadee	Sp, S†*, F, W†**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Tufted Titmouse	Sp, S†**, F, W**	Sp†, S†*, F†, W†**	Sp, S*, F, W**	
Red-breasted Nuthatch	W**	W**	W**	
White-breasted Nuthatch	Sp, S*, F, W**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Brown Creeper	W**	W**	W**	
Carolina Wren	Sp, S*, F, W**	Sp, S†*, F†, W†**	Sp, S†*, F, W**	
House Wren	Sp†, S*, F	Sp, S*, F	Sp, S†*,F	
Winter Wren	Sp, F	Sp, F	Sp, F	
Blue-gray Gnatcatcher	Sp, F	Sp, F	Sp, F	
Golden-crowned Kinglet	Sp, F, W**	Sp, F, W**	Sp, F, W**	
Ruby-crowned Kinglet	Sp, F, W**	Sp, F, W**	Sp, F, W**	
Eastern Bluebird	Sp, S*, F, W**	Sp, S*, F, W**	Sp, S†*, F, W**	
Veery	Sp, F	Sp, F	Sp, S†*,F	
Gray-cheeked Thrush	Sp, F	Sp, F	Sp, F	
Bicknell's Thrush[1, 2]	Sp, F	Sp, F	Sp, F	
Swainson's Thrush	Sp, F	Sp, F†	Sp, F	
Hermit Thrush	Sp, F	Sp, F†	Sp, F	
Wood Thrush[1]	Sp†, S†*, F	Sp†,S†*, F†	Sp, S†*, F	
American Robin	Sp†, S†*, F	Sp†,S†*, F†	Sp, S†*, F	
Gray Catbird	Sp†, S†*, F	Sp†,S†*, F†	Sp, S†*,F	
Northern Mockingbird	Sp†, S*, F, W**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Brown Thrasher[1]	Sp†, S*, F	Sp, S*, F	Sp, S*, F	
European Starling	Sp, S†*, F, W**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Cedar Waxwing	Sp†, S†*, F, W**	Sp†,S†*, F†, W**	Sp, S†*, F, W**	
Snow Bunting	W**		W**	
Blue-winged Warbler[1]	Sp†, S†*, F	Sp†, S†*, F	Sp, S†*,F	
Tennessee Warbler[1]	Sp, F	Sp, F	Sp, F	
Nashville Warbler	Sp, F	Sp, F	Sp, F	
Northern Parula	Sp, F	Sp, F	Sp, F	
Yellow Warbler	Sp†, S†*, F	Sp†, S†*, F	Sp, S†*, F	
Chestnut-sided Warbler	Sp, S, F	Sp, S†, F	Sp, S, F	
Magnolia Warbler	Sp, F	Sp, F	Sp, F	
Cape May Warbler[1]	Sp, F	Sp, F	Sp, F	
Black-throated Blue Warbler[1]	Sp, F	Sp, F	Sp, F	
Yellow-rumped Warbler	Sp, F	Sp, F†	Sp, F	
Black-throated Green Warbler	Sp, F	Sp, F	Sp, F	
Blackburnian Warbler	Sp, F	Sp, F	Sp, F	
Pine Warbler	Sp, F	Sp, F	Sp, F	
Prairie Warbler[1]	Sp, S†, F	Sp, F	Sp, F	
Palm Warbler	Sp, F	Sp, F	Sp, F	
Bay-breasted Warbler[1]	Sp, F	Sp, F	Sp, F	
Blackpoll Warbler	Sp, F	Sp, F	Sp, F	
Cerulean Warbler[1, 2]	Sp, F	Sp, F	Sp, F	
Black-and-white Warbler	Sp, S*, F	Sp, F	Sp, S, F	

Table 2

Bird Species with the Potential to Occur the Study Area at Different Times of Year, Based on Regional Commonness and Habitat Preferences

Common name	West Connection Site	East Connection Site	Roseton Stream Study Site	Hudson River
American Redstart	Sp, S*, F	Sp, S†*, F	Sp, S†*, F	
Worm-eating Warbler[1]	Sp, F	Sp, F	Sp, F	
Ovenbird	Sp, S*, F	Sp, F	Sp, S*, F	
Northern Waterthrush	Sp, F	Sp, F	Sp, F	
Louisiana Waterthrush[1]	Sp, F	Sp, F	Sp, F	
Mourning Warbler	Sp, F	Sp, F	Sp, F	
Common Yellowthroat	Sp†, S*, F	Sp†, S*, F†	Sp, S†*, F	
Hooded Warbler	Sp, F	Sp, F	Sp, F	
Wilson's Warbler	Sp, F	Sp, F	Sp, F	
Canada Warbler[1]	Sp, F	Sp, F	Sp, F	
Eastern Towhee	Sp†, S†*, F	Sp, S†*, F†	Sp, S†*, F	
American Tree Sparrow	W**	W**	W**	
Chipping Sparrow	Sp, S†*, F	Sp, S†*, F	Sp, S†*, F	
Field Sparrow	Sp, S, F, W**	Sp, S†, F, W**	Sp, S, F, W**	
Fox Sparrow	Sp, F, W**		Sp, F, W**	
Song Sparrow	Sp, S†*, F, W**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
White-throated Sparrow	Sp, F, W**	Sp, F†, W†**	Sp, F, W**	
White-crowned Sparrow	F	F	F	
Dark-eyed Junco	Sp, F, W**	Sp, F, W†**	Sp, F, W**	
Scarlet Tanager[1]	Sp†, S†*, F		Sp, S†*, F	
Northern Cardinal	Sp, S†*, F, W†**	Sp†, S†*, F†, W†**	Sp, S†*, F, W**	
Rose-breasted Grosbeak	Sp, S†*, F	Sp, F	Sp, S†*, F	
Indigo Bunting	Sp†, S†*, F	Sp, S†*, F	Sp, S†*, F	
Red-winged Blackbird	Sp, F	Sp†, S†*, F	Sp, S†*, F	
Common Grackle	Sp†, S*, F	Sp†, S†*, F†	Sp, S†*, F	
Brown-headed Cowbird	Sp†, S†*, F	Sp†, S†*, F	Sp, S†*, F	
Orchard Oriole	Sp, S†, F			
Baltimore Oriole	Sp†, S†*, F	Sp†, S†*, F	Sp, S†*, F	
Purple Finch	W**	W**	W**	
House Finch	Sp†, S*, F, W**	Sp†, S†*, F†, W**	Sp, S†*, F, W**	
American Goldfinch	Sp†, S†*, F, W**	Sp, S†*, F†, W**	Sp, S†*, F, W**	
House Sparrow	Sp, S†*, F, W**	Sp†, S†*, F†, W**	Sp, S*, F, W**	

Notes:

[1]NYS species of greatest conservation need, [2]NYS special concern, [3]NYS threatened, [4]US threatened

Sp=Spring, S=Summer, F=Fall, W=Winter

*Documented in 2000-2005 Breeding Bird Atlas block; **documented on 2010 Audubon Society Christmas Bird Count; †observed during AKRF field surveys

(sources: DeOrsey and Butler 2006, Bochnick 2011, and species accounts from the American Ornithologists' Union Birds of North America series)

Table 3

Reptiles and Amphibians with the Potential to Occur the Study Area, Based on Range within NY and Habitat Preferences

Common name	Scientific name	West Connection Site	East Connection Site	Roseton Stream Study Site
Marbled salamander[1, 2]	*Ambystoma opacum*	X		X
Jefferson salamander[1, 2]	*Ambystoma jeffersonianum*	X*		X*
Spotted salamander	*Ambystoma maculatum*			X*
Eastern newt	*Notophthalmus viridescens*			X†*
Northern dusky salamander	*Desmognathus fuscus*	X*		X*
Allegheney dusky salamander	*Desmognathus ochrophaeus*	X*		X*
Northern redback salamander	*Plethodon cinereus*	X†*	X†*	X†*
Four-toed salamander[2]	*Hemidactylium scutatum*			X
Northern two-lined salamander	*Eurycea bislineata*	X†*		X†*
Eastern American toad	*Bufo americanus*	X†*	X*	X*
Fowler's toad[2]	*Bufo fowleri*	X	X	X
Gray treefrog	*Hyla versicolor*	X*		X*
Northern spring peeper	*Pseudacris crucifer*	X†*	X†*	X*
Bullfrog	*Rana catesbeiana*	X†*		X†*
Green frog	*Rana clamitans*	X†*		X†*
Wood frog	*Rana sylvatica*	X†*		X*
Northern leopard frog	*Rana pipiens*	X*		X*
Five-lined skink[2]	*Eumeces fasciatus*	X*		X*
Northern watersnake	*Nerodia sipedon*			X*
Northern brown snake	*Storeria dekayi*	X*	X*	X*
Common garter snake	*Thamnophis sirtalis*	X†*	X*	X†*
Eastern ribbon snake[2]	*Thamnophis sauritus*	X†		X
Black racer[2]	*Coluber constrictor*	X*	X*	X*
Smooth greensnake[2]	*Liochlorophis vernalis*	X	X	X
Black ratsnake[2]	*Elaphe alleghaniensis*	X†*	X*	X*
Milksnake	*Lampropeltis triangulum*	X*	X*	X*
Copperhead[2]	*Agkistrodon contortrix*	X*	X*	X*
Common snapping turtle[2]	*Chelydra serpentina*			X*
Spotted turtle[1, 2]	*Clemmys guttata*			X
Wood turtle[1, 2]	*Glyptemys insculpta*	X*		X*
Eastern box turtle[1, 2]	*Terrapene carolina*	X†	X*	X
Red-eared slider	*Trachemys scripta*			X*
Painted turtle	*Chrysemys picta*			X*

Notes:
[1]NYS species of special concern, [2]NYS species of greatest conservation need
*Documented in NYNHP Herp Atlas block; †observed during AKRF field surveys (sources: Mitchell et al. 2006, Gibbs et al. 2007).

Table 4
Threatened or Endangered Species and Species of Special Concern with the Potential to Occur Within the Study Area

Common Name	Scientific Name	Status
Atlantic sturgeon	*Acipenser oxyrinchus oxyrinchus*	Federal Proposed listing
Shortnose sturgeon	*Acipenser brevirostrum*	Federal and New York State Endangered
Dwarf wedgemussel	*Alasmidonta heterodon*	Federal and New York State Endangered
Bog turtle	*Clemmys* [*Glyptemys*] *muhlenbergii*	Federal Threatened and New York State Endangered
Indiana bat	*Myotis sodalist*	Federal and New York State Endangered
Bald eagle	*Haliaeetus leucocephalus*	Federal and New York State Threatened
Small whorled pogonia	*Isotria medeoloides*	Federal Threatened and New York State Endangered
Jefferson salamander	*Ambystoma jeffersonianum*	New York State Special Concern
Wood turtle	*Glyptemys insculpta*	New York State Special Concern
Spotted turtle	*Clemmy guttata*	New York State Special Concern
Marbled salamander	*Ambystoma opacum*	New York State Special Concern
Peregrine falcon	*Falco peregrines*	New York State Endangered
Sharp-shinned hawk	*Accipiter striatus*	New York State Special Concern
Cooper's hawk	*Accipiter cooperii*	New York State Special Concern
Red-shouldered hawk	*Buteo lineatus*	New York State Special Concern
Northern harrier	*Circus cyaneus*	New York State Threatened
Horned lark	*Eremophila alpestris*	New York State Special Concern

Table 5
Results of Macroinvertebrate Sampling by Stream Segment in Spring 2011

Order	Genera/Species	USEPA Functional Feeding Group	Regional Tolerance Value (0 = sensitive, 10 = tolerant)	Segment							
				1		2		3		4	
				A	B	A	B	A	B	A	B
Amphipoda	Gammarus mucronatus	Omnivore (OM)	6				21		1		
	Gammarus oceanieus	Omnivore (OM)	6								15
Coleoptera	Hydraetus sp.	Not Listed	Not Listed						5		
	Hydrophilidae	Predator (PR)	Not Listed						2		
	Oreodytes sp.	Predator (PR)	Not Listed				1		1		
Diptera	Anopheles sp.	Filter/Collector (FC)	6	1							
	Asheum sp.	Gatherer/Collector (GC)	Not Listed				1				
	Brillia sp.	Shredder (SH) & Gatherer/Collector (GC)	5						1		
	Bryophaenocladius sp.	Not Listed	Not Listed				1				
	Chironomidae	Gatherer/Collector (GC)	Not Listed				2				
	Cladopelma sp.	Gatherer/Collector (GC)	7				4				
	Cnephia sp.	Not Listed	Not Listed						9		
	Corynoneura sp.	Gatherer/Collector (GC)	7						4		
	Cricotopus sp.	Shredder (SH)	Not Listed				1				
	Cryptochironomus sp.	Predator (PR)	8	2			9				
	Diachlorus sp.	Not Listed	Not Listed						1		
	Diamesa sp.	Gatherer/Collector (GC)	Not Listed			1					
	Empididae	Predator (PR)	Not Listed		1						5
	Ephydra sp.	Not Listed	Not Listed						12		
	Eukiefferiella sp.	Gatherer/Collector (GC)	Not Listed						77		7
	Georthocladius sp.	Not Listed	Not Listed						2		
	Glyptotendipes sp.	Filter/Collector (FC)	10				18				
	Haematopota sp.	Not Listed	Not Listed					1			
	Hydrobeanus sp.	Not Listed	Not Listed							1	
	Limnophora sp.	Predator (PR)	Not Listed						9		
	Meropelopia sp.	Not Listed	7						6		
	Oliveridea sp.	Not Listed	Not Listed						15		44
	Orthocladiinae	Gatherer/Collector (GC)	Not Listed		3	3	3	1			
	Orthocladiius sp.	Gatherer/Collector (GC)	Not Listed						1		
	Orthocladius sp.	Gatherer/Collector (GC)	Not Listed								1
	Parachironomous sp.	Not Listed	Not Listed				3				
	Parakeifferiella sp.	Not Listed	Not Listed						27		
	Paratendipes sp.	Gatherer/Collector (GC)	8				2				
	Polypedilum sp.	Shredder (SH)	6		1		34				
	Procladius sp.	Predator (PR)/Gatherer/Collector (GC)	9					1			
	Prodiamesa sp.	Gatherer/Collector (GC)	Not Listed					1			
	Rheotanytarsus sp.	Filter/Collector (FC)	6						3		
	Setacera sp.	Not Listed	Not Listed		3				1		
	Simulidae	Filter/Collector (FC)	Not Listed		1						
	Synendotendipes sp.	Not Listed	Not Listed				5				
	Tanypodinae sp.	Predator (PR)	Not Listed				1				
	Tanytarsini sp.	Filter/Collector (FC)	Not Listed				3				
	Tanytarsus sp.	Filter/Collector (FC)/Gatherer/Collector (GC)	6				2				
	Thienemannimyia	Predator (PR)	6	1							
	Tipulidae	Shredder (SH)	Not Listed								1
	Tribelos sp.	Gatherer/Collector (GC)	5					1			
	Tvetenia sp.	Gatherer/Collector (GC)	5				2		3		
Ephemeroptera	Baetis sp.	Gatherer/Collector (GC)	6			3			4		
	Caenis sp.	Gatherer/Collector (GC)	7				2				
	Ephemerella sp.	Gatherer/Collector (GC)	Not Listed			10		7			30
Gastropoda	Gyraulus sp.	Scraper (SC)	Not Listed				1				
	Physa sp.	Scraper (SC)	Not Listed				3				
Hemiptera	Belostoma sp.	Predator (PR)	Not Listed					1			
	Veliidae	Not Listed	Not Listed							2	
Hirudinae	Unidentifed	Not Listed	Not Listed				2				
	Unidentifiable	Not Listed	Not Listed				1				

Table 5

Results of Macroinvertebrate Sampling by Stream Segment in Spring 2011

Order	Genera/Species	USEPA Functional Feeding Group	Regional Tolerance Value (0 = sensitive, 10 = tolerant)	Segment							
				1		2		3		4	
				A	B	A	B	A	B	A	B
Isopoda	Asellus sp.	Gatherer/Collector (GC)	Not Listed	1	2		10	1	7		5
Lepidoptera	Acentria sp.	Shredder (SH)	Not Listed	1	1						
Megaloptera	Chauliodes sp.	Predator (PR)	Not Listed	1							
	Sialis sp.	Predator (PR)	4						1		
Odonata	Somatochlora sp.	Predator (PR)	1					1			
Oligochaeta	Lumbriculidae	Gatherer/Collector (GC)	Not Listed			2					
	Tubificidae	Gatherer/Collector (GC)	10				74	1			
	Unidentifiable	Not Listed	Not Listed			1					1
Trichoptera	Diplectrona sp.	Filter/Collector (FC)	Not Listed			2			1		
	Frenesia sp.	Not Listed	Not Listed		2						
	Hydropsyche sp.	Filter/Collector (FC)	4			6	38	1	8		38
	Lepidostoma sp.	Shredder (SH)	1					3	8		4
	Oligostomis sp.	Not Listed	Not Listed						1		
	Rhyacophila sp.	Predator (PR)	Not Listed								1
Turbellaria	Unidentifiable	Not Listed	Not Listed				1				
	Unidentified	Not Listed	Not Listed				2				

NYC Environmental Protection

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December 22, 2010

Mr. Nicholas Conrad, Information Resources Coordinator
NYSDEC-DFWMR
NY Natural Heritage Program-Information Services
625 Broadway, 5th Floor
Albany, NY 12233-4757

Re: Threatened and Endangered Species Information Request
Rondout-West Branch Bypass Tunnel Project

Dear Mr. Conrad:

The New York City Department of Environmental Protection (DEP) is requesting information on state-listed threatened, endangered species, and special concern species, as well as significant habitats in preparation for a scheduled repair of the Delaware Aqueduct.

Project Description

The DEP proposes to construct an approximately 3-mile long bypass tunnel as part of the plan to repair leaks in the 85-mile-long Delaware Aqueduct. The bypass tunnel would be built around a portion of the aqueduct that is leaking in Roseton in Orange County. The bypass tunnel would extend from a newly constructed shaft (Shaft 5 CPR) in Town of Newburgh, Orange County, on the west side of the Hudson River, to the new shaft constructed on the existing Shaft 6 site in the Town of Wappinger, Dutchess County, on the east side of the Hudson River (see Figure 1). A geotechnical investigation would be conducted in the Hudson River in the vicinity of the baseline bypass alignment indicated in Figure 1 that would include marine borings.

In addition, new shafts (approximately 700 to 900 feet deep and 15 to 20 feet in diameter) would be required to provide access points for construction of the bypass tunnel and to connect the bypass to the existing tunnel. Construction of the new shafts within the Shaft 6 property and within the new Shaft 5 CPR property would require vegetation clearing, grading, and excavation. Figure 1 indicates the possible Shaft 5 CPR site, the existing DEP Shaft 6 property, and additional area with the potential to be added to the Shaft 6 property. Shaft construction is anticipated to begin in 2013 and would be completed in 2016.

The DEP is considering constructing a wharf on the east bank of the Hudson River at the Shaft 6 property as part of the water transportation alternative for removing excavated material from the project site (see Figure 1).

Construction of the bypass tunnel, located approximately 150 feet away from the existing tunnel alignment, is expected to begin in 2015 and be completed in 2019. A tunnel boring machine will be used to drill the 22-foot diameter bypass tunnel. When the new bypass tunnel is nearly complete, the existing tunnel will be taken out of service and excavation will begin to connect the new bypass section to the existing tunnel. About 8 to 12 months are anticipated to complete the bypass connection.

Request for Information

In support of the environmental assessment effort for the proposed Rondout-West Branch Bypass Tunnel Project, the DEP is requesting information on state-listed threatened, endangered species, and special concern species, as well as significant habitats on and within one-half mile of the following areas noted in Figure 1:

- existing Shaft 6 property;
- possible Shaft 5 CPR site;
- within the Hudson River in the vicinity of the baseline bypass alignment;
- possible location of the wharf being considered as part of the water transportation alternative; and
- stream proposed for study as part of the environmental assessment of the proposed project, specifically with respect to the elimination of leaks.

We would request that the database search provided in response to this inquiry contain separate reports for the three project areas (Shaft 5 CPR, Shaft 6, proposed wharf, bypass alignment within the Hudson River, and stream study area). This will allow the environmental review to assess the potential for impacts for each project area.

The information provided by NHP will be used for environmental evaluation of the project. Specific information on the location of sensitive species or habitats provided by the NHP will not be published in any document unless permission is granted by the State.

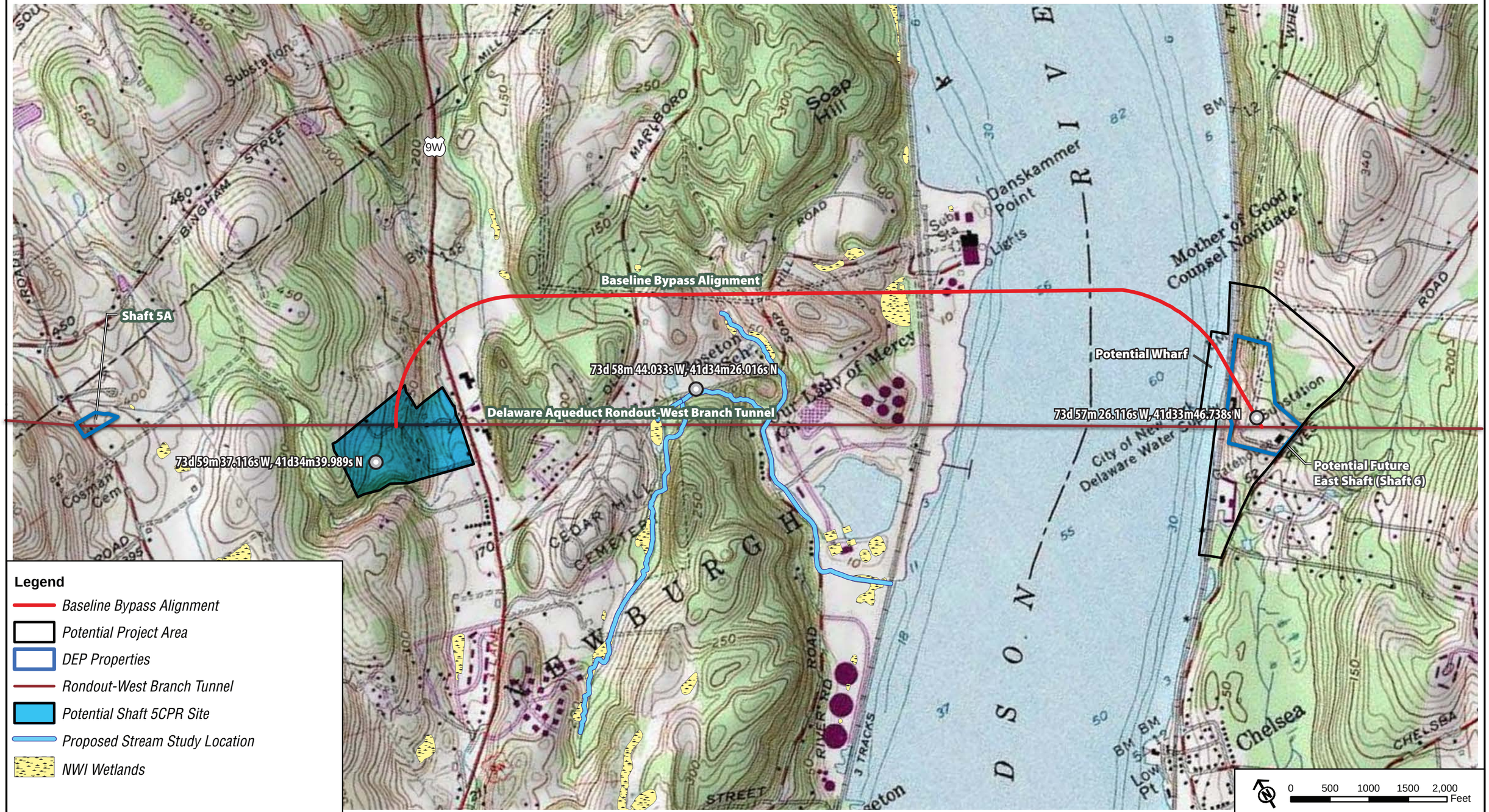
Please send the requested information to me at the address indicated above. Feel free to contact me at (718) 595-3287 or via email at jfarmwald@dep.nyc.gov should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

Jennifer Farmwald
Project Manager

Enclosure

c: Michael Borsykowsky, New York City Department of Environmental Protection
Wendy Sperduto, New York City Department of Environmental Protection
James Canale, New York City Department of Environmental Protection
Michael Usai, New York City Department of Environmental Protection
Todd West, New York City Department of Environmental Protection
Mark Page, New York City Department of Environmental Protection
Ted Dowey, New York City Department of Environmental Protection
Louis Huang, New York City Department of Environmental Protection



HMM a joint venture PIRNIE in association with AKRF

NYC Environmental Protection

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Rondout-West Branch Bypass Tunnel

Proposed RWB Bypass Tunnel Project Areas

DRAFT & CONFIDENTIAL

December 2010

FIGURE 1

NYC Environmental Protection

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December 22, 2010

Ms. Diane Rusanowsky, Fisheries Biologist
NOAA National Marine Fisheries Service
Milford Laboratory
212 Rogers Avenue
Milford, CT 06460

Re: Essential Fish Habitat and Fish and Wildlife Coordination Act Species Information Request, Rondout-West Branch Bypass Tunnel Project

Dear Ms. Rusanowsky:

The New York City Department of Environmental Protection (DEP) is requesting information on all federally managed fish species under the Magnuson Act, designated Essential Fish Habitat (EFH) and other National Oceanic and Atmospheric Administration (NOAA)-trust resources in and within one-half mile of the proposed wharf location noted in Figure 1.

Project Description

The DEP proposes to construct an approximately 3-mile long bypass tunnel as part of the plan to repair leaks in the 85-mile-long Delaware Aqueduct. The bypass tunnel would be built around a portion of the aqueduct that is leaking in Roseton in Orange County. The bypass tunnel would extend from a newly constructed shaft (Shaft 5 CPR) in Town of Newburgh, Orange County, on the west side of the Hudson River, to the new shaft constructed on the existing Shaft 6 site in the Town of Wappinger, Dutchess County, on the east side of the Hudson River (see Figure 1). A geotechnical investigation would be conducted in the Hudson River in the vicinity of the baseline bypass alignment indicated in Figure 1 that would include marine borings.

In addition, new shafts (approximately 700 to 900 feet deep and 15 to 20 feet in diameter) would be required to provide access points for construction of the bypass tunnel and to connect the bypass to the existing tunnel. Construction of the new shafts within the Shaft 6 property and within the new Shaft 5 CPR property would require vegetation clearing, grading, and excavation. Figure 1 indicates the possible Shaft 5 CPR site, the existing DEP Shaft 6 property, and additional area with the potential to be added to the Shaft 6 property. Shaft construction is anticipated to begin in 2013 and would be completed in 2016.

The DEP is considering constructing a wharf on the east bank of the Hudson River at the Shaft 6 property as part of the water transportation alternative for removing excavated material from the project site (see Figure 1).

Construction of the bypass tunnel, located approximately 150 feet away from the existing tunnel alignment, is expected to begin in 2015 and be completed in 2019. A tunnel boring machine will be used to drill the 22-foot diameter bypass tunnel. When the new bypass tunnel is nearly complete, the existing tunnel will be taken out of service and excavation will begin to connect the new bypass section to the existing tunnel. About 8 to 12 months are anticipated to complete the bypass connection.

Request for Information

In support of the environmental assessment effort for the proposed Rondout-West Branch Bypass Tunnel Project, the DEP is requesting information on all federally managed fish species under the Magnuson Act, designated EFH and other NOAA-trust resources within one-half mile of the proposed wharf location and in the vicinity of the baseline bypass alignment noted in Figure 1.

The information provided by NMFS will be used for environmental evaluation of the project. Specific information on the location of essential fish habitat and other habitat areas of particular concern provided by the NMFS will not be published in any document unless permission is granted by NMFS.

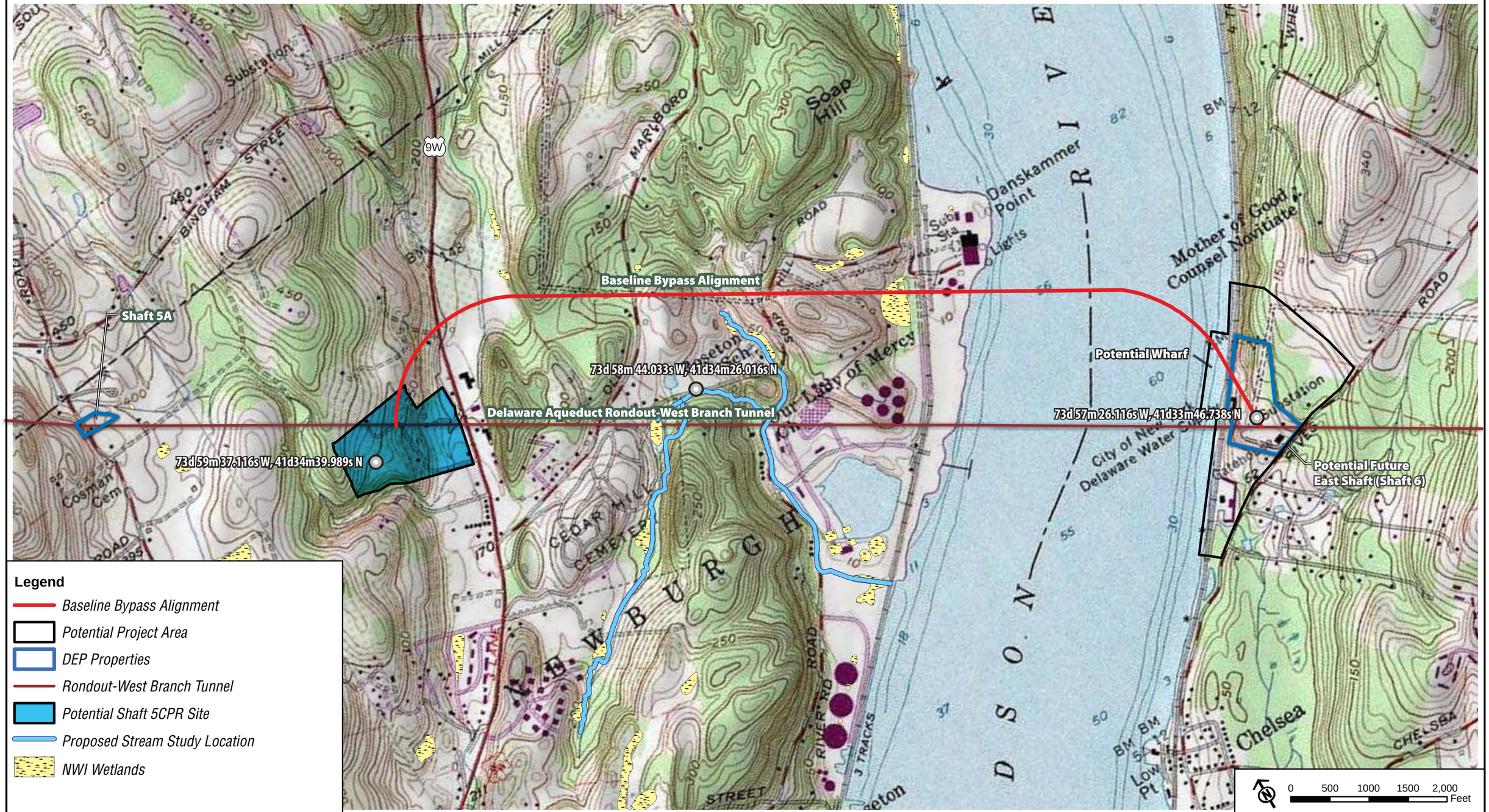
Please send the requested information to me at the address indicated above. Feel free to contact me at (718) 595-3287 or via email at jfarmwald@dep.nyc.gov should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

Jennifer Farmwald
Project Manager

Enclosure

c: Mary Colligan, National Marine Fisheries Service
Michael Borsykowsky, New York City Department of Environmental Protection
Wendy Sperduto, New York City Department of Environmental Protection
James Canale, New York City Department of Environmental Protection
Michael Usai, New York City Department of Environmental Protection
Todd West, New York City Department of Environmental Protection
Mark Page, New York City Department of Environmental Protection
Ted Dowey, New York City Department of Environmental Protection
Louis Huang, New York City Department of Environmental Protection



HMM a joint venture PIRNIE in association with AKRF

NYC Environmental Protection

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Rondout-West Branch Bypass Tunnel

Proposed RWB Bypass Tunnel Project Areas

DRAFT & CONFIDENTIAL

December 2010

FIGURE 1

Environmental Protection

Caswell F. Holloway
Commissioner
cholloway@dep.nyc.go

Angela Licata
Deputy Commissioner
alicata@dep.nyc.gov

59-17 Junction Blvd.
Flushing, New York 11373

Tel. (718) 595-4398
Fax (718) 595-4479

December 22, 2010

Ms. Mary Colligan, Assistant Regional Administrator
NOAA National Marine Fisheries Service
Northeast Regional Office
Protected Resources
55 Great Republic Drive
Gloucester, MA 01930-2276

Re: Threatened and Endangered Species Information Request
Rondout-West Branch Bypass Tunnel Project

Dear Ms. Colligan:

The New York City Department of Environmental Protection (DEP) is requesting information on federal listed threatened or endangered species and species of special concern under the jurisdiction of the National Marine Fisheries Service (NMFS) on and within one-half mile of the potential wharf location indicated in Figure 1.

Project Description

The DEP proposes to construct an approximately 3-mile long bypass tunnel as part of the plan to repair leaks in the 85-mile-long Delaware Aqueduct. The bypass tunnel would be built around a portion of the aqueduct that is leaking in Roseton in Orange County. The bypass tunnel would extend from a newly constructed shaft (Shaft 5 CPR) in Town of Newburgh, Orange County, on the west side of the Hudson River, to the new shaft constructed on the existing Shaft 6 site in the Town of Wappinger, Dutchess County, on the east side of the Hudson River (see Figure 1). A geotechnical investigation would be conducted in the Hudson River in the vicinity of the baseline bypass alignment indicated in Figure 1 that would include marine borings.

In addition, new shafts (approximately 700 to 900 feet deep and 15 to 20 feet in diameter) would be required to provide access points for construction of the bypass tunnel and to connect the bypass to the existing tunnel. Construction of the new shafts within the Shaft 6 property and within the new Shaft 5 CPR property would require vegetation clearing, grading, and excavation. Figure 1 indicates the possible Shaft 5 CPR site, the existing DEP Shaft 6 property, and additional area with the potential to be added to the Shaft 6 property. Shaft construction is anticipated to begin in 2013 and would be completed in 2016.

The DEP is considering constructing a wharf on the east bank of the Hudson River at the Shaft 6 property as part of the water transportation alternative for removing excavated material from the project site (see Figure 1).

Construction of the bypass tunnel, located approximately 150 feet away from the existing tunnel alignment, is expected to begin in 2015 and be completed in 2019. A tunnel boring machine will be used to drill the 22-foot diameter bypass tunnel. When the new bypass tunnel is nearly complete, the existing tunnel will be taken out of service and excavation will begin to connect the new bypass section to the existing tunnel. About 8 to 12 months are anticipated to complete the bypass connection.

Request for Information

In support of the environmental assessment effort for the proposed Rondout-West Branch Bypass Tunnel Project, the DEP is requesting information on federal listed threatened or endangered species and species of special concern under the jurisdiction of the National Marine Fisheries Service (NMFS) on and within one-half mile of the potential wharf location and in the vicinity of the baseline bypass alignment indicated in Figure 1.

The information provided by NMFS on threatened or endangered species will be used for environmental evaluation of the project. Specific information on the location of protected resources provided by the NMFS will not be published in any document unless permission is granted by NMFS.

Please send the requested information to me at the address indicated above. Feel free to contact me at (718) 595-3287 or via email at jfarmwald@dep.nyc.gov should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

Jennifer Farmwald
Project Manager

Enclosure

c: Diane Rusanowsky, National Marine Fisheries Service
Michael Borsykowsky, New York City Department of Environmental Protection
Wendy Sperduto, New York City Department of Environmental Protection
James Canale, New York City Department of Environmental Protection
Michael Usai, New York City Department of Environmental Protection
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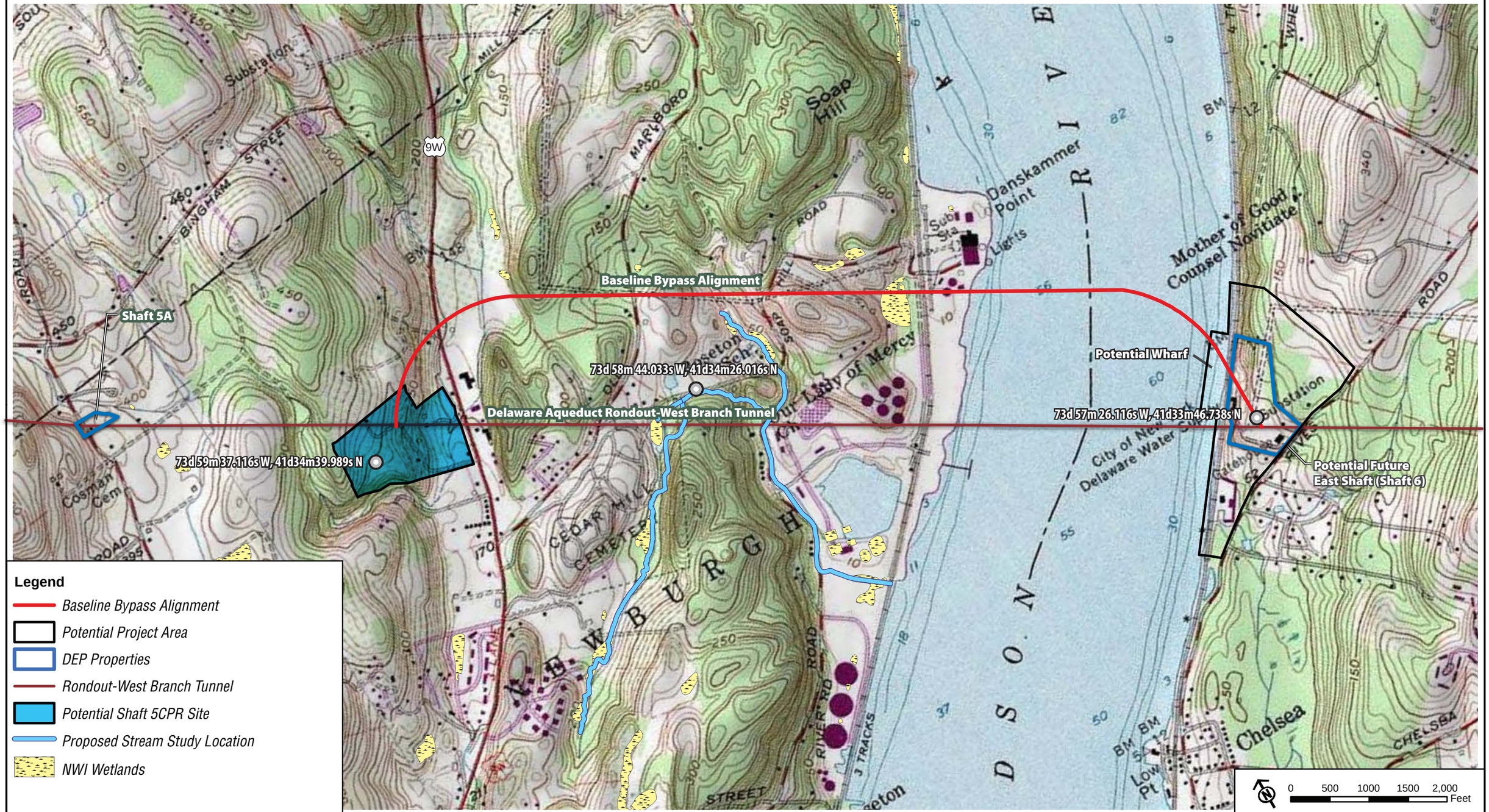
Mark Page, New York City Department of Environmental Protection
Ted Dowey, New York City Department of Environmental Protection
Louis Huang, New York City Department of Environmental Protection



HMM a joint venture PIRNIE in association with AKRF

NYC Environmental Protection

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Rondout-West Branch Bypass Tunnel

Proposed RWB Bypass Tunnel Project Areas

DRAFT & CONFIDENTIAL

December 2010

FIGURE 1

NYC Environmental Protection

Caswell F. Holloway
Commissioner
cholloway@dep.nyc.go

Angela Licata
Deputy Commissioner
alicata@dep.nyc.gov

59-17 Junction Blvd.
Flushing, New York 11373

Tel. (718) 595-4398
Fax (718) 595-4479

December 22, 2010

Ms. Robyn Niver
U.S. Fish and Wildlife Service
New York Field Office
3817 Luker Rd.
Cortland, NY 13045

Re: Threatened and Endangered Species Information Request
Rondout-West Branch Bypass Tunnel Project

Dear Ms. Niver:

The New York City Department of Environmental Protection (DEP) is requesting information on federally listed threatened or endangered species under the jurisdiction of the US Fish and Wildlife Service (USFWS) on and within one-half mile of the following areas noted in Figure 1.

Project Description

The DEP proposes to construct an approximately 3-mile long bypass tunnel as part of the plan to repair leaks in the 85-mile-long Delaware Aqueduct. The bypass tunnel would be built around a portion of the aqueduct that is leaking in Roseton in Orange County. The bypass tunnel would extend from a newly constructed shaft (Shaft 5 CPR) in Town of Newburgh, Orange County, on the west side of the Hudson River, to the new shaft constructed on the existing Shaft 6 site in the Town of Wappinger, Dutchess County, on the east side of the Hudson River (see Figure 1). A geotechnical investigation would be conducted in the Hudson River in the vicinity of the baseline bypass alignment indicated in Figure 1 that would include marine borings.

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The DEP is considering constructing a wharf on the east bank of the Hudson River at the Shaft 6 property as part of the water transportation alternative for removing excavated material from the project site (see Figure 1).

Construction of the bypass tunnel, located approximately 150 feet away from the existing tunnel alignment, is expected to begin in 2015 and be completed in 2019. A tunnel boring machine will be used to drill the 22-foot diameter bypass tunnel. When the new bypass tunnel is nearly complete, the existing tunnel will be taken out of service and excavation will begin to connect the new bypass section to the existing tunnel. About 8 to 12 months are anticipated to complete the bypass connection.

Request for Information

In support of the environmental assessment effort for the proposed Rondout-West Branch Bypass Tunnel Project, the DEP is requesting information on federally listed threatened or endangered species under the jurisdiction of the US Fish and Wildlife Service (USFWS) and within one-half mile of the following areas noted in Figure 1:

- existing Shaft 6 property;
- possible Shaft 5 CPR site;
- within the Hudson River in the vicinity of the baseline bypass alignment;
- possible location of the wharf being considered as part of the water transportation alternative; and
- stream proposed for study as part of the environmental assessment of the proposed project, specifically with respect to the elimination of leaks.

We would request that the database search provided in response to this inquiry contain separate reports for the three project areas (Shaft 5 CPR, Shaft 6, proposed wharf, bypass alignment within the Hudson River and stream study area). This will allow the environmental review to assess the potential for impacts for each project area.

The information provided by USFWS will be used for environmental evaluation of the project. Specific information on the location of threatened and endangered species provided by the USFWS will not be published in any document unless permission is granted by the USFWS.

Please send the requested information to me at the address indicated above. Feel free to contact me at (718) 595-3287 or via email at jfarmwald@dep.nyc.gov should you have any questions regarding this request. Thank you for your time in providing us with the requested information.

Sincerely,

Jennifer Farmwald
Project Manager

Enclosure

c: Michael Borsykowsky, New York City Department of Environmental Protection
Wendy Sperduto, New York City Department of Environmental Protection
James Canale, New York City Department of Environmental Protection
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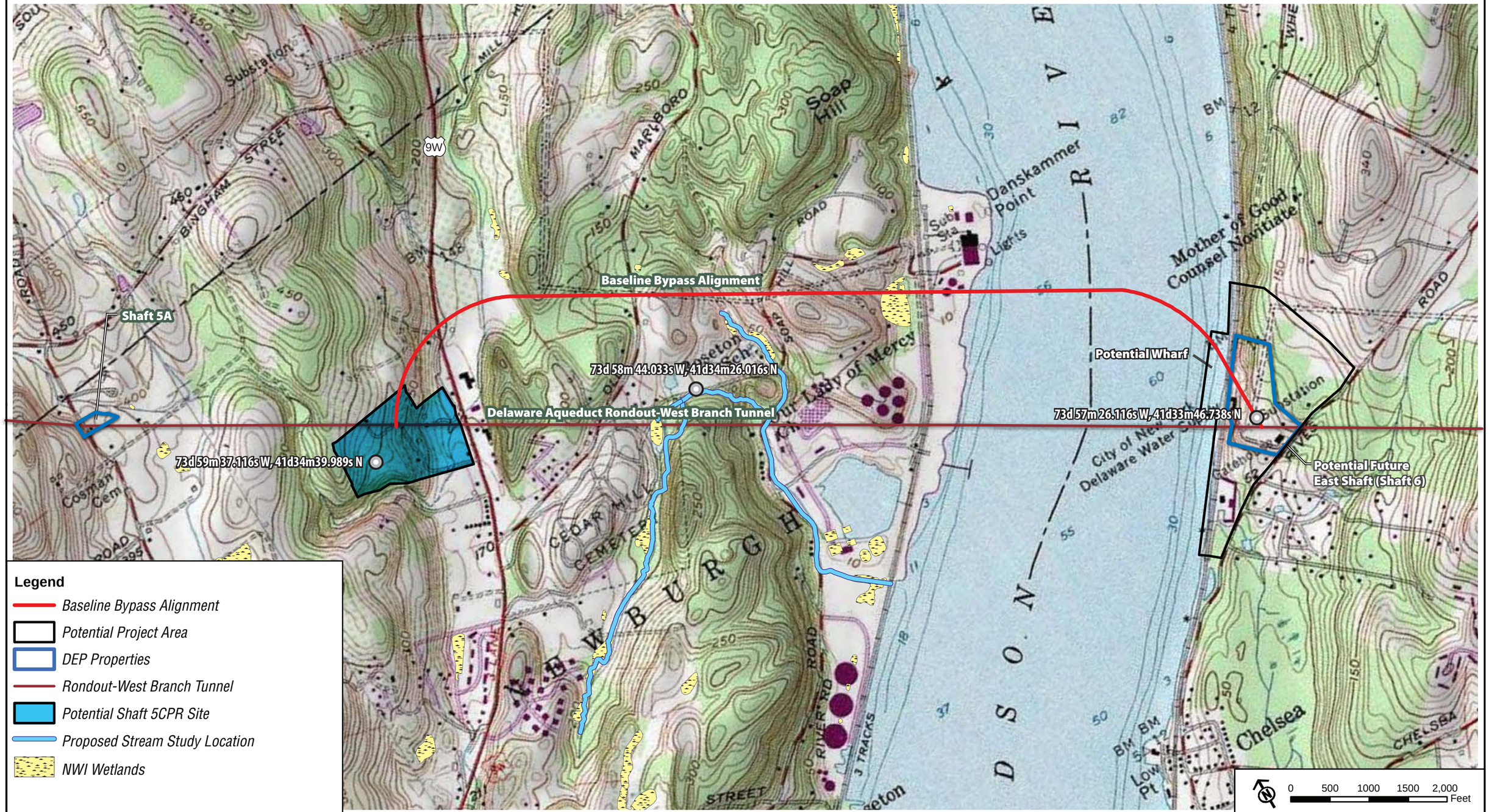

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NYC Environmental Protection

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Rondout-West Branch Bypass Tunnel

Proposed RWB Bypass Tunnel Project Areas

DRAFT & CONFIDENTIAL

December 2010

FIGURE 1

JF

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

JAN 24 2011

Jennifer Farmwald
NYC Department of Environmental Protection
59-17 Junction Boulevard
Flushing, New York 11373

Re: Rondout-West Branch Bypass Tunnel Project

Dear Ms. Farmwald,

This is in response to your letter dated December 22, 2010 regarding the Rondout-West Branch Bypass Tunnel Project. The New York City Department of Environmental Protection (NYC DEP) proposes to construct an approximately 3-mile long bypass tynnel as part of a plan to repair leaks in the 85-mile long Delaware Aqueduct. The bypass tunnel would be built around a portion of the aqueduct that is leaking in Roseton in Orange County and would extend from a newly construction shaft (Shaft 5 CPR) in the Town of Newburgh, on the west side of the Hudson River, to the new shaft to be constructed on the existing Shaft 6 site in the Town of Wappinger, on the east side of the Hudson River. Geotechnical borings would be conducted in the Hudson River in the vicinity of the baseline bypass alignment. The DEP is considering constructing a wharf on the east bank of the Hdson River at the Shaft 6 property. Please find below information on threatened and endangered species listed under the jurisdiction of NOAA's National Marine Fisheries Service (NMFS) that may occur in the project area as well as information on relevant consultation and coordination requirements.

NMFS Listed Species
A population of the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) occurs in the Hudson River. Shortnose sturgeon have been documented in the Hudson River from New York Harbor (rkm -5.6) to the Troy Dam (rkm 243). Based on the best available information, shortnose sturgeon are likely to occur in the project area year round, with the highest numbers of fish present during the summer months.

As you may know, any discretionary federal action, such as the approval or funding of a project by a Federal agency, that may affect a listed species must undergo consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended. If the proposed project has the potential to affect listed species and it is being approved, permitted or funded by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining

whether the proposed action is likely to affect this species. The Federal agency would submit their determination along with justification for their determination and a request for concurrence, to the attention of the ESA Section 7 Coordinator, NMFS Northeast Regional Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930. After reviewing this information, NMFS would then be able to conduct a consultation under section 7 of the ESA.

Proposed Species in the Project Area
On October 6, 2010, NMFS published two proposed rules to list five distinct population segments (DPS) of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). NMFS is proposing to list four DPSs as endangered (New York Bight, Chesapeake Bay, Carolina and South Atlantic) and one DPS of Atlantic sturgeon as threatened (Gulf of Maine DPS). The NYB DPS includes all Atlantic sturgeon whose range occurs in watersheds that drain into coastal waters, including Long Island Sound, the New York Bight, and Delaware Bay, from Chatham, MA to the Delaware-Maryland border on Fenwick Island, as well as wherever these fish occur in coastal bays, estuaries, and the marine environment from the Bay of Fundy, Canada, to the Saint Johns River, FL. Within this range, Atlantic sturgeon have been documented from the Hudson and Delaware rivers as well as at the mouth of the Connecticut and Taunton rivers, and throughout Long Island Sound. The proposed action by the applicant falls within the geographic range of the NYB DPS of Atlantic sturgeon and this species is known to occur in the action area.

Once a species is proposed for listing the conference provisions of the ESA apply (see 50 CFR 402.10). As stated at 50 CFR 402.10, "Federal agencies are required to confer with NMFS on any action which is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat. The conference is designed to assist the Federal agency and any applicant in identifying and resolving potential conflicts at an early stage in the planning process." Based on the information on the proposed project provided to NMFS to date, NMFS encourages NYC DEP to consider effects of the proposed action on Atlantic sturgeon and work with NMFS to determine if a conference is required. As the listing status for this species may change, NMFS recommends that the project proponent obtain updated status information from NMFS prior to the submittal of any applications or requests for consultation.

Should you have any questions regarding these comments, please contact Julie Crocker of my staff at (978)282-8480 or Julie.Crocker@Noaa.gov.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

CC: Rusanowsky, F/NER4
EC: Crocker, F/NER3

File Code: Sec 7 technical assistance – NYCDEP Rondout Creek West Branch Bypass

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

March 3, 2011

Mr. Christopher A. Nadareski
Section Chief, DEP Wildlife Studies
NYC Department of Environmental Protection
71 Smith Street
Kingston, NY 12401

Dear Mr. Nadareski:

This is in response to your February 24, 2011, letter and March 2, 2011, electronic mail regarding the New York City Department of Environmental Protection's (DEP) proposed Rondout-West Branch Bypass Tunnel Project between the Town of Newburgh in Orange County, and the Town of Wappinger in Dutchess County, New York. We understand that the proposed project is currently in the investigation stage and several geotechnical borings are needed in the Newburgh area. We also understand that no Federal permits or funding will be needed for these investigations.

The information provided in the above-referenced correspondence with the U.S. Fish and Wildlife Service (Service) included assessments of the project area for potential habitat for the Federally-listed endangered Indiana bat (*Myotis sodalis*) and threatened bog turtle (*Glyptemys [=Clemmys] muhlenbergii*). You concluded that limited potential Indiana bat habitat exists at the site. We understand that all tree removal (within 0.31 acre of early successional forest and 0.35 acre of old field) associated with the project will occur between October 1 and March 31 to avoid any direct effects to the Indiana bat. Given our understanding of the proposed project, the Service does not anticipate any "take"[1] of the Indiana bat. In addition, it appears that no suitable habitat for the bog turtle was observed and no impacts to wetlands are anticipated from the project. No further coordination with the Service is required pursuant to the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) at this time. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally-listed and proposed endangered and threatened species in New York is available for your information.* Until the proposed project is complete, we recommend that you check our website every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project is current.

[1] Take is defined in Section 3 of the ESA as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

The above comments pertaining to endangered species under our jurisdiction are provided as technical assistance pursuant to the ESA. This response does not preclude additional Service comments under other legislation.

The Indiana bat and bog turtle are also listed by the State of New York. Any changes in project plans or new information regarding the potential for impacts to listed species should be coordinated with both this office and with the New York State Department of Environmental Conservation.

Thank you for your time. If you require additional information please contact Robyn Niver at (607) 753-9334. Future correspondence with us on this project should reference project file 70963.

Sincerely,

David A. Stilwell
Field Supervisor

*Additional information referred to above may be found on our website at: http://www.fws.gov/northeast/nyfo/es/section7.htm

cc: NYSDEC, New Paltz, NY (A. Ciesluk/L. Masi)
NYSDEC, Albany, NY (Endangered Species)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

January 14, 2011

Jennifer Farmwald
NYC Environmental Protection
59-17 Junction Blvd
Flushing, NY 11373

Dear Ms. Farmwald:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment of the proposed 3-Mile By-Pass Tunnell – repairing leaks – Delaware Aquaduct, area as indicated on the map you provided, located in Orange and Dutchess Counties.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site o r in the immediate vicinity of your site. For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.
PLEASE NOTE: No Data listed for SHAFT 5.

The enclosed report may be included in documents that will be available to the public. However, any enclosed maps displaying locations of rare species are considered sensitive information, and are intended only for the internal use of the recipient; they should not be included in any document that will be made available to the public, without permission from the New York Natural Heritage Program.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g. regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

1394

This project location is adjacent to a designated Significant Coastal Fish and Wildlife Habitat. This habitat is part of New York State's Coastal Management Program (CMP), which is administered by the NYS Department of State (DOS). Projects which may impact the habitat are reviewed by DOS for consistency with the CMP. For more information regarding this designated habitat and applicable consistency review requirements, please contact:

Jeff Zappieri - (518) 474-6000P
NYS Department of State
Office Coastal, Local Government and Community Sustainability
1 Commerce Plaza, 99 Washington Avenue,
Albany, NY 12231

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,

Tara Salerno

Tara Salerno, Information Services
New York Natural Heritage Program

Enc.

1394

cc: Reg. 3
Shaun Keeler, Bureau of Fisheries, Albany
John Ozard, Nongame Unit, Albany

Baseline Bypass Alignment

Natural Heritage Report on Rare Species

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

~The information in this report includes only records entered into the NY Natural Heritage databases as of the date of the report. This report is not a definitive statement on the presence or absence of all rare species or significant natural communities at or in the vicinity of this site.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~We do not provide maps for species most vulnerable to disturbance.

Natural Heritage Report on Rare Species and Ecological Communities

MAMMALS

Myotis sodalis
Indiana Bat
Maternity colony

Office Use

NY Legal Status:	Endangered	**NYS Rank:**	S1 - Critically imperiled	11287
Federal Listing:	Endangered	**Global Rank:**	G2 - Imperiled	ESU
County:	Dutchess			USFWS
Town:	Beekman, East Fishkill, Lagrange, Poughkeepsie - Town, Union Vale, Wappinger			
Location:	Documented within 2 miles of project site. Animals can move 2 miles or more from documented locations. For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.			

1 Records Processed.

More detailed information about many of the rare and listed animals in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, and from NYSDEC at http://www.dec.ny.gov/animals/7494.html.

Baseline Bypass Alignment

Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

~The information in this report includes only records entered into the NY Natural Heritage databases as of the date of the report. This report is not a definitive statement on the presence or absence of all rare species or significant natural communities at or in the vicinity of this site.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~Location maps for certain species and communities may not be provided 1) if the species is vulnerable to disturbance, 2) if the location and/or extent is not precisely known, 3) if the location and/or extent is too large to display, and/or 4) if the animal is listed as Endangered or Threatened by New York State.

Natural Heritage Report on Rare Species and Ecological Communities

BIRDS

Haliaeetus leucocephalus

Office Use

Bald Eagle
Nonbreeding

NY Legal Status: Threatened
Federal Listing:
Last Report: **
NYS Rank: S2S3B,S2N - Imperiled
Global Rank: G5 - Secure
EO Rank: **

1432
ESU
S

County: Dutchess, Orange, Ulster
Town: Marlborough, Newburgh - Town, Poughkeepsie - Town, Wappinger
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

Haliaeetus leucocephalus

Office Use

Bald Eagle
Nonbreeding

NY Legal Status: Threatened
Federal Listing:
Last Report: **
NYS Rank: S2S3B,S2N - Imperiled
Global Rank: G5 - Secure
EO Rank: **

4129
ESU
S

County: Orange, Ulster
Town: Marlborough, Newburgh - Town
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

FISH

Acipenser brevirostrum

Office Use

Shortnose Sturgeon

NY Legal Status: Endangered
Federal Listing: Endangered
Last Report: **
NYS Rank: S1 - Critically imperiled
Global Rank: G3 - Vulnerable
EO Rank: **

1091
HRF BOF
USFWS

County: Albany, Bronx, Columbia, Dutchess, Greene, New York, Orange, Putnam, Rensselaer, Rockland,
Town: Albany - City , Athens, Beacon -City, Bethlehem, Catskill, Clarkstown, Clermont, Coeymans, Colonie,
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: Shortnose sturgeon are found in the long tidal portion of Hudson River. The river constitutes the lower part of a 315 mile stream system. It is fed upstream by two large main channel streams, which provide 80% of the freshwater input, and numerous other For more information, including management considerations, please contact the NYS DEC Hudson River Fisheries Unit at 845-256-3071.

OTHER

Baseline Bypass Alignment

Anadromous Fish Concentration Area

Office Use 1331

NY Legal Status:	Unlisted	**NYS Rank:**	S3 - Vulnerable
Federal Listing:		**Global Rank:**	GNR - Not ranked
Last Report:	1986	**EO Rank:**	Extant
County:	Dutchess		S
Town:	Poughkeepsie - Town, Wappinger		
Location:	Wappingers Creek Mouth		
General Quality and Habitat:	2 mi segment of freshwater tributary, perennial, tidal warmwater, 180 square mi drainage, dammed upstream.		

4 Records Processed

More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, from NYSDEC at http://www.dec.ny.gov/animals/7494.html (for animals), and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

More detailed information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org. For descriptions of all community types, go to http://www.dec.ny.gov/animals/29384.html and click on Draft Ecological Communities of New York State.

Proposed Stream Study Location

Natural Heritage Report on Rare Species

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

~The information in this report includes only records entered into the NY Natural Heritage databases as of the date of the report. This report is not a definitive statement on the presence or absence of all rare species or significant natural communities at or in the vicinity of this site.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~We do not provide maps for species most vulnerable to disturbance.

Natural Heritage Report on Rare Species and Ecological Communities

MAMMALS

Myotis sodalis
Indiana Bat
Maternity colony

Office Use

NY Legal Status:	Endangered	**NYS Rank:**	S1 - Critically imperiled	11287
Federal Listing:	Endangered	**Global Rank:**	G2 - Imperiled	ESU
County:	Dutchess			USFWS
Town:	Beekman, East Fishkill, Lagrange, Poughkeepsie - Town, Union Vale, Wappinger			
Location:	Documented within 2 miles of project site. Animals can move 2 miles or more from documented locations. For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.			

1 Records Processed

More detailed information about many of the rare and listed animals in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, and from NYSDEC at http://www.dec.ny.gov/animals/7494.html.

Proposed Stream Study Location

Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

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Natural Heritage Report on Rare Species and Ecological Communities

BIRDS

Haliaeetus leucocephalus

Office Use

Bald Eagle
Nonbreeding

NY Legal Status: Threatened
Federal Listing:
Last Report: **
NYS Rank: S2S3B,S2N - Imperiled
Global Rank: G5 - Secure
EO Rank: **

1432
ESU
S

County: Dutchess, Orange, Ulster
Town: Marlborough, Newburgh - Town, Poughkeepsie - Town, Wappinger
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

Haliaeetus leucocephalus

Office Use

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Nonbreeding

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Federal Listing:
Last Report: **
NYS Rank: S2S3B,S2N - Imperiled
Global Rank: G5 - Secure
EO Rank: **

4129
ESU
S

County: Orange, Ulster
Town: Marlborough, Newburgh - Town
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

FISH

Acipenser brevirostrum

Office Use

Shortnose Sturgeon

NY Legal Status: Endangered
Federal Listing: Endangered
Last Report: **
NYS Rank: S1 - Critically imperiled
Global Rank: G3 - Vulnerable
EO Rank: **

1091
HRF BOF
USFWS

County: Albany, Bronx, Columbia, Dutchess, Greene, New York, Orange, Putnam, Rensselaer, Rockland,
Town: Albany - City , Athens, Beacon -City, Bethlehem, Catskill, Clarkstown, Clermont, Coeymans, Colonie,
Location: At, or in the vicinity of, the project site.
General Quality and Habitat: Shortnose sturgeon are found in the long tidal portion of Hudson River. The river constitutes the lower part of a 315 mile stream system. It is fed upstream by two large main channel streams, which provide 80% of the freshwater input, and numerous other For more information, including management considerations, please contact the NYS DEC Hudson River Fisheries Unit at 845-256-3071.

Proposed Stream Study Location
3 Records Processed

More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, from NYSDEC at http://www.dec.ny.gov/animals/7494.html (for animals), and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

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Wharf

Natural Heritage Report on Rare Species

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~Refer to the User's Guide for explanations of codes, ranks and fields.
~We do not provide maps for species most vulnerable to disturbance.

Natural Heritage Report on Rare Species and Ecological Communities

MAMMALS

Myotis sodalis
Indiana Bat
Maternity colony

Office Use

NY Legal Status:	Endangered	**NYS Rank:**	S1 - Critically imperiled	11287
Federal Listing:	Endangered	**Global Rank:**	G2 - Imperiled	ESU
County:	Dutchess			USFWS
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Office Use

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Last Report: **
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General Quality and Habitat: Shortnose sturgeon are found in the long tidal portion of Hudson River. The river constitutes the lower part of a 315 mile stream system. It is fed upstream by two large main channel streams, which provide 80% of the freshwater input, and numerous other For more information, including management considerations, please contact the NYS DEC Hudson River Fisheries Unit at 845-256-3071.

OTHER

Anadromous Fish Concentration Area

Office Use

NY Legal Status: Unlisted
Federal Listing:
Last Report: 1986
NYS Rank: S3 - Vulnerable
Global Rank: GNR - Not ranked
EO Rank: Extant

1331
S

County: Dutchess
Town: Poughkeepsie - Town, Wappinger
Location: Wappingers Creek Mouth
General Quality and Habitat: 2 mi segment of freshwater tributary, perennial, tidal warmwater, 180 square mi drainage, dammed upstream.

Wharf

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More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at http://www.natureserve.org/explorer, from NYSDEC at http://www.dec.ny.gov/animals/7494.html (for animals), and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

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Shaft 6 Property

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DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

APR 3 - 2012

REPLY TO
ATTENTION OF:
Regulatory Branch

SUBJECT: Permit Application Number NAN-2011-01327-WOR
by New York City Department of Environmental Protection

Ms. Kathryn Mallon, P.E.
Deputy Commissioner
New York City Department of
Environmental Protection
Bureau of Engineering Design and Construction
96-05 Horace Harding Expressway, 5th Floor
Corona, New York 11368

Dear Ms. Mallon:

On August 11, 2011, the New York District of the U.S. Army Corps of Engineers received a request for a Department of the Army jurisdictional determination for the area of the proposed Delaware Aqueduct Rondout-West Branch Tunnel bypass project. The area within the project boundary consists of approximately 179 acres, in the Hudson River watershed, in the Town of Newburgh, Orange County, New York and the Town of Wappinger, Dutchess County, New York.

In the letter received on August 11, 2011, your office submitted a proposed delineation of the extent of waters of the United States within the project boundary. A site inspection was conducted by a representative of this office on September 28, 2011, in which it was agreed that changes would be made to the delineation and that the modified delineation would be submitted to this office. On March 5, 2012, this office received the modified delineation.

Based on the material submitted and the observations of the representative of this office during the site visit, this site has been determined to contain jurisdictional waters of the United States based on: the presence of wetlands determined by the occurrence of hydrophytic vegetation, hydric soils and wetland hydrology according to criteria established in the 1987 "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 that are either adjacent to or part of a tributary

system; the presence of a defined water body (e.g. stream channel, lake, pond, river, etc.) which is part of a tributary system; and the fact that the location includes property below the ordinary high water mark, high tide line or mean high water mark of a water body as determined by known gage data or by the presence of physical markings including, but not limited to, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter or debris or other characteristics of the surrounding area.

These jurisdictional waters of the United States are shown on the attached drawing. This drawing indicates that there are eight (8) principal waters of the United States on the project site which are part of a tributary system, and are considered to be waters of the United States.

The first water (Wetland A/Stream D) is located just west of New York State Route 9W in the Town of Newburgh and is approximately 0.368 acres within the project boundary. The second water (Stream E) is an intermittent stream, located at the intersection of Route 9W and Old Post Road and is approximately 0.129 acres within the project boundary. The third, fourth, fifth and sixth waters (Wetlands F, G, H and I) are located along River Road in the Town of Newburgh and are a total of approximately 0.17 acres within the project boundary. The seventh water (Wetland J) is located approximately 1,000 feet south of Wetland I and is approximately 0.04 acres within the project boundary. The eighth water within the project boundary is the Hudson River. The area of the Hudson River outlined on the attached drawing is the area within which the proposed bypass tunnel could possibly be constructed and is approximately 120 acres within the project boundary.

It should be noted that, in light of the U.S. Supreme Court decision (Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178, January 9, 2001), the remainder of the waters shown on the attached drawing (Wetlands B and C) do not meet the current criteria of waters of the United States under Section 404 of the Clean Water Act. The Court ruled that isolated, intrastate waters can no longer be considered waters of the United States, based solely upon their use by migratory birds.

This determination regarding the delineation shall be considered valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date.

This determination was documented using the Approved Jurisdictional Determination Form. A copy of that document is enclosed with this letter, and will be posted on the New York District website at: http://www.nan.usace.army.mil/business/buslinks/regulat/index.php?jurisdet.

This delineation/determination has been conducted to identify the limits of the Corps Clean Water Act jurisdiction for the particular site identified in this request. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed is a combined Notification of Appeal Process (NAP) and Request For Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the North Atlantic Division Office at the following address:

Michael G. Vissichelli, Administrative Appeals Review Officer
North Atlantic Division, U.S. Army Engineer Division
Fort Hamilton Military Community
General Lee Avenue, Building 301
Brooklyn, New York 11252-6700

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Park 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by JUN 4 - 2012. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

It is strongly recommended that the development of the site be carried out in such a manner as to avoid as much as possible the discharge of dredged or fill material into the delineated waters of the United States. If the activities proposed for the site involve such discharges, authorization from this office may be necessary prior to the initiation of the proposed work. The extent of such discharge of fill will determine the level of authorization that would be required.

In order for us to better serve you, please complete our Customer Service Survey located at http://www.nan.usace.army.mil/business/buslinks/regulat/index.php?survey

If any questions should arise concerning this matter, please contact Brian A. Orzel, of my staff, at (917) 790-8413.

Sincerely,

Christopher S. Mallery, Ph.D.
Chief, Western Section

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: New York City Department of Environmental Protection	File Number: NAN-2011-01327-WOR	Date: APR 3 - 2012

Attached is:		See Section Below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_permit.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

•ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the New York District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations (JD) associated with the permit.

•OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the New York District Engineer. Your objections must be received by the New York District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the New York District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the New York District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

•ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the New York District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

•APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the Division Engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the Division Engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

•ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

•APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the New York District Engineer.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Richard L. Tomer U.S. Army Corps of Engineers, New York District Jacob K. Javits Federal Building New York, NY 10278-0090 (917) 790-8510	Michael G. Vissichelli, Administrative Appeals Review Officer North Atlantic Division, U.S. Army Engineer Division Fort Hamilton Military Community General Lee Avenue, Building 301 Brooklyn, NY 11252-6700 (718) 765-7163 E-mail: Michael.G.Vissichelli@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
Signature of appellant or agent.		

Legend

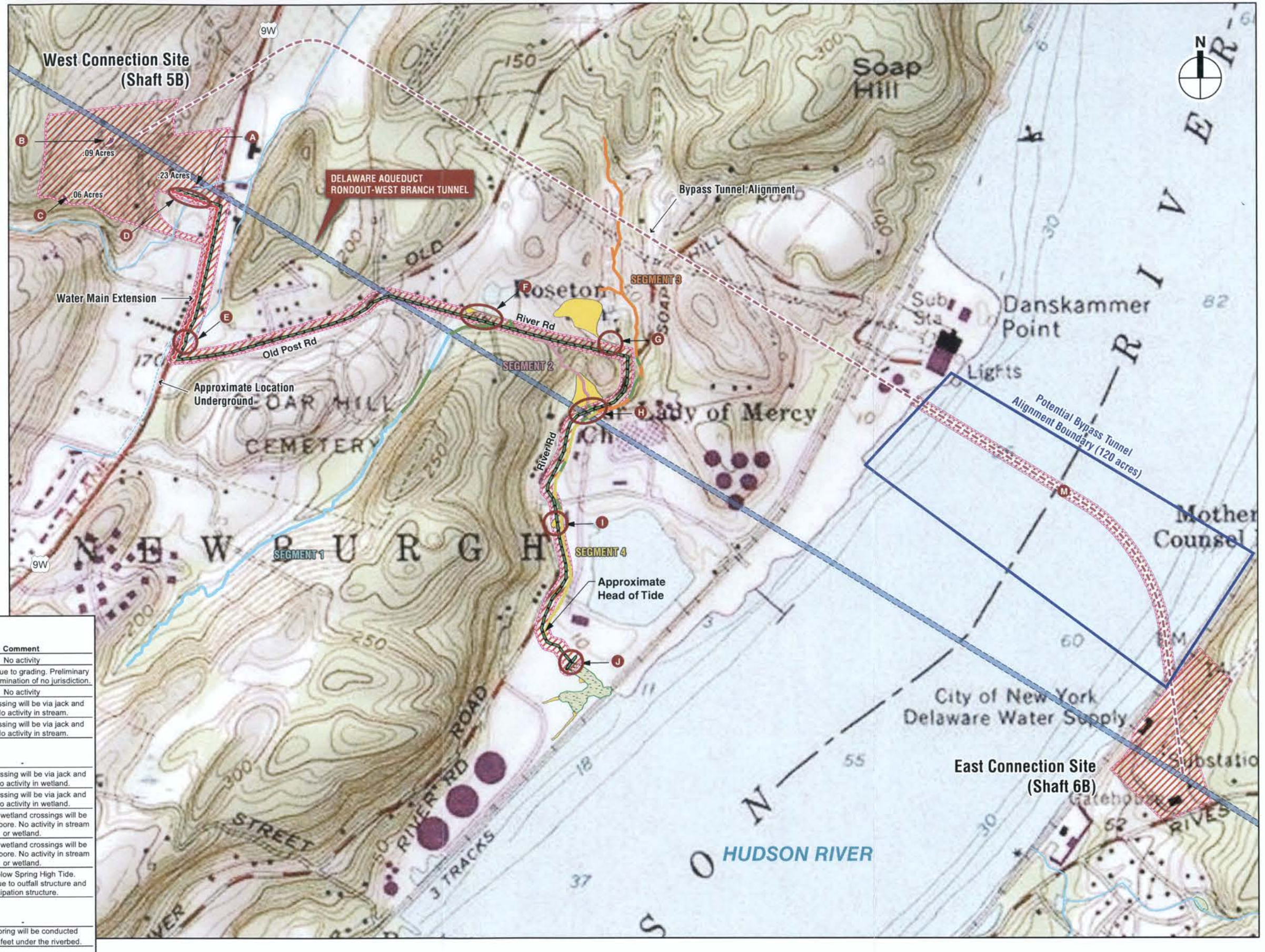
- Project Boundary (59 acres)
- Bypass Tunnel Alignment
- Dewatering Pipeline Option 2
- Water Main Extension
- Potential Impact Areas
- Approximate Drainage Location (.03 acres)
- Delineated Wetlands (.38 acres)
- NWI Wetlands

Roseton Study Area Stream Segments (Class C)

- Segment 1
- Segment 2
- Segment 3
- Segment 4

Additional Map and Water Features

- Delaware Aqueduct
- Piped/Culverted Stream
- Other Streams (Class C)
- Other Streams: Approximate Location Underground
- Approximate Wetland Area Based on Field Reconnaissance and Aerial Photographs



Potential Impact Areas Within the Project Boundary

Potential Impact Areas	Waterbody Type	Linear Feet	Area (ft^2)	Area (acres)	Volume (cy)	Potential Impact Yes	Potential Impact No	Comment
A	Wetland	-	10,019	0.23	-		X	No activity
B	Wetland	-	3,920	0.09	-	X		Elimination due to grading. Preliminary USACE determination of no jurisdiction.
C	Wetland	-	2,614	0.06	-		X	No activity
D	Stream	150	6,000	0.138	-		X	Stream crossing will be via jack and bore. No activity in stream.
E	Stream	140	5,600	0.129	-		X	Stream crossing will be via jack and bore. No activity in stream.
Subtotal 2013 5B, water main and related work	**-**	**290**	**28,153**	**0.647**	**-**	**-**	**-**	**-**
F	Wetland	145	1,450	0.033	-		X	Wetland crossing will be via jack and bore. No activity in wetland.
G	Wetland	200	2,000	0.046	-		X	Wetland crossing will be via jack and bore. No activity in wetland.
H	Wetland and Stream	375	3,750	0.086	-		X	Stream and wetland crossings will be via jack and bore. No activity in stream or wetland.
I	Wetland and Stream	20	200	0.005	-		X	Stream and wetland crossings will be via jack and bore. No activity in stream or wetland.
J	Wetland and Stream	-	1,935	0.04	186	X		Filling below Spring High Tide. Elevation due to outfall structure and dissipation structure.
Subtotal 2015 Forcemain and related work	**-**	**740**	**9,335**	**0.21**	**186**	**-**	**-**	**-**
M	River	4,000	160,000	3.7	-	-	X	Tunnel boring will be conducted about 600 feet under the riverbed.
Subtotal Tunnel 2015-2018	**-**	**4,000**	**160,000**	**3.7**	**-**	**-**	**-**	**-**
Total	**-**	**5,030**	**197,488**	**4.6**	**186**	**-**	**-**	**-**

Figure 1

Wetlands and Other Waters Within the Project Boundary