

3.3 Water Resources

3.3.1 Regional Setting

3.3.1.1 Introduction

This section characterizes water resources located in the Study Area. For the discussions on surface water herein, the Study Area is defined as the sub-watersheds of the Oneida Lake Watershed on which Nation lands are found. For the discussions on ground water herein, the Study Area is defined as the southern portion of the Oneida Lake Watershed that is located in Madison and Oneida Counties. For the discussions on wetlands herein, the Study Area is defined as the southwestern portion of Oneida County and the northern portion of Madison County.

Important water resources issues include drinking water supply; the use of water for commercial, recreational, and domestic purposes; wastewater treatment and disposal; and existing water quality. This section describes the sub-watersheds in the Study Area, and water supply and usage to provide a context for the detailed discussions of the surface water and ground water issues in Section 3.3.2 Surface Water and Section 3.3.3 Ground Water, respectively. This section also describes the major water features located in the Study Area and regional factors that affect water resources and wetlands. Nation lands are also described in the context of the presence and use of water resources.

3.3.1.2 Major Water Bodies

The main water feature located in the Study Area is Oneida Lake. Oneida Lake is one of the largest water bodies in New York State, with a watershed area of 1,364 square miles. The Oswego River Drainage Basin is comprised of the Oneida Lake Watershed, which is situated in the eastern portion of the basin, and the watersheds of the Finger Lakes, which are located in the western portion of the basin. As a result, water exits the Oneida Lake Watershed at the western end of Oneida Lake via the Oneida River and is carried to Lake Ontario and then through the St. Lawrence River to the Atlantic Ocean (Central New York Regional Planning Development Board, 2003). Six parcels of Nation lands are located on the shore of Oneida Lake; five parcels are Group 2 lands that are part of the Marion Manor Marina and are used for boating and recreation while the other parcel is one of the Group 3 lands and is vacant. Figure 3.3-1 shows the major water bodies located in the Study Area and on Nation lands.

The New York State Canal System cuts across the Study Area, flowing from east to west through the Oneida Lake Watershed (Central New York Regional Planning and Development Board, 2003). The modern day Erie Canal, which is part of the New York State Canal System, and sections of the historic Erie Canal that are not part of the present barge canal (Old Erie Canal) are important locally as recreational assets. No longer a significant commercial entity, the canals are now operated primarily for tourism and recreational purposes and thus, are important to the local economies of the municipalities

that they flow through. The canals are a significant water use in the Study Area. Five parcels of Nation lands are located on harbors off of the Erie Canal. Two of these parcels are Group 2 lands that are associated with either Mariner's Landing Marina or Snug Harbor Marina. Two parcels of Group 2 lands are located along the Old Erie Canal.

The Study Area contains four main tributaries to Oneida Lake. Listed from north to south these tributaries include Wood Creek, Oneida Creek, Cowaselon Creek, and Chittenango Creek. Numerous Nation lands are located along these tributaries or along other minor streams located in the Study Area; streams run through or are adjacent to approximately one third of these lands.

3.3.1.3 Watersheds

The Study Area is located within the Eastern, Southern Uplands, and Southern Shore Regions of the Oneida Lake Watershed in Madison and Oneida Counties. The sub-watersheds of the Oneida Lake Watershed that are located within the Study Area include Chittenango Creek (Upper and Lower), Cowaselon Creek, Oneida Creek (Upper and Lower), and Wood Creek (North and South). These sub-watersheds have a total area of 548 square miles and represent 40 percent of the Oneida Lake Watershed (United States Department of Agriculture, 2003).

Figure 3.3-2 shows portions of the Oneida Lake Watershed and the sub-watersheds that are located in the Study Area. This figure also shows the location of Nation lands within the Study Area and delineates the sub-watersheds where these lands are located. As identified in this figure, the vast majority of Nation lands are located within the Oneida Creek (Upper and Lower), Cowaselon Creek, and Wood Creek (South) sub-watersheds.

Table 3.3-1 provides the approximate number of individual parcels, acreage of Nation lands, and the percentage of each sub-watershed (by land area) that Nation lands comprise. The 17,370 acres of Nation lands comprise only about seven percent of the 251,539 acres (or 393 square miles) of land located in the Oneida Creek, Cowaselon Creek, and Wood Creek sub-watersheds that are located in the Study Area (Central New York Regional Planning Development Board, 2003). Because the majority of Nation lands are located in these three sub-watersheds, the discussion in this section focuses on these areas and the discussion of the Chittenango Creek sub-watershed is limited. A small number of Nation lands are also located in the Lower Fish Creek sub-watershed, just east of Oneida Lake; only the portion of the Lower Fish Creek sub-watershed where Nation lands are located is discussed in this section.

**Table 3.3-1
Distribution of Nation Lands by Sub-Watershed**

Sub-Watershed	Land Area in Sub-Watershed ¹ (acres)	Number of Nation Parcels ²	Area of Nation Lands located in Sub-Watershed (acres)	Percent of Sub-Watershed
Fish Creek	268,676	1	7	< .01
Chittenango Creek	99,249	1	8	0.01
Cowaselon Creek	69,940	36	1,789	3
Oneida Creek	100,782	175	9,473	9
Wood Creek	80,817	151	6,093	8
Total	619,464	364	17,370	N/A

Notes: ¹ Sub-watershed land areas from Oneida Lake State of the Lake and Watershed Report (Central New York Regional Planning Development Board, 2003).

² Number of parcels that are completely or partially located within the sub-watershed. Total number is larger than the total number of parcels due to some parcels located in more than one sub-watershed.

Sources: Central New York Regional Planning Development Board, 2003; CUGIR, 2005; Nation, 2005.

Table 3.3-2 shows the distribution of Nation lands by sub-watershed. More than 80 percent of Group 1 lands are located in the Woods Creek sub-watershed, with the remaining Group 1 lands located in the Oneida Creek sub-watershed. Both Group 2 and Group 3 lands are located mostly in the Oneida Creek sub-watershed.

**Table 3.3-2
Distribution of Nation Lands by the Groupings in each Sub-Watershed**

Sub-Watershed	Percent of Area		
	Group 1	Group 2	Group 3
Chittenango Creek	0	1	0
Cowaselon Creek	0	15	10
Oneida Creek	19	56	69
Woods Creek	81	27	21
Fish Creek	0	1	0

Sources: CUGIR, 2005; Nation, 2005.

3.3.1.4 Precipitation

The Study Area is generally characterized by abundant natural water resources with precipitation averaging approximately 45.3 inches per year, which is the City of Utica's long-term average (see Section 3.4.1.2 Climate). Precipitation in the Study Area is relatively evenly distributed through the seasons, however, as further discussed in Section 3.5.1.4 Climate precipitation is not evenly distributed spatially with greater precipitation observed in the northern regions of the Oneida Lake Watershed. Approximately 56 percent of the precipitation in the Oneida Lake Watershed reaches Oneida Lake as surface water inflow, while the remaining 44 percent is lost through evapotranspiration or becomes groundwater recharge (Central New York Regional Planning Development Board, 2003).

Oneida Lake receives water from the sub-watersheds of ten creeks within five central New York counties. Annual discharge from Oneida Lake to the Oneida River is estimated at 75.2 billion cubic feet per year (Central New York Regional Planning Development Board,

2003). While the Oneida Creek, Cowaselon Creek, and Wood Creek sub-watersheds comprise 29 percent of the 872,722-acre Oneida Lake Watershed on a drainage area basis, these sub-watersheds only account for 18 percent of the surface water inflow to Oneida Lake. The difference between land area relative to discharge results from the greater inflow to Oneida Lake from areas located to the north such as the Fish Creek sub-watershed and North Shore sub-watershed that are located outside of the Study Area, which results from greater annual precipitation (winter snow, in particular) in those areas. In total, Nation lands represent two percent of the land area of the Oneida Lake Watershed. Based on the land area to stream discharge ratio, one percent of the lake's inflow originates from precipitation falling upon Nation lands.

3.3.1.5 Water Supply and Drinking Water Quality

Both surface water and groundwater are utilized as potable water sources in the Study Area. Municipal water systems utilize surface water sources from outside the specific sub-watersheds where the municipalities are located. For example, the Onondaga County Water Authority (OCWA) supplies customers in the Madison County Town of Lenox and Village of Canastota, as well as the Oneida County Town of Verona and Village of Sylvan Beach with water from Lake Ontario. The OCWA supplies approximately 10 million gallons per day (MGD) of potable water to its service area on average. The City of Oneida Public Water System (COPWS) supplies approximately 3 MGD of potable water through seven water districts from the 320 million gallon Glenmore Reservoir located on Florence Creek, a tributary to Fish Creek.

Other public water suppliers in the Study Area include Cazenovia Village, Cobblefield Estates Water District, Mount Pleasant, New Woodstock Water District, O-WE-RA Point Water Supply, Sleepy Hollow Subdivision, and Stockbridge Water District. The majority of these public water suppliers primarily rely on groundwater except for the Stockbridge Water District that primarily relies on surface water. Groundwater makes up less than 1 MGD of demand from these public water suppliers on average (Central New York Regional Planning Development Board, 2003).

In 1995, the Nation installed a seven million dollar potable water line from the City of Oneida to the Town of Verona and a water tower to provide the Turning Stone Resort & Casino and the residents of the Town of Verona including Vernon-Verona-Sherrill Senior High School with a reliable source of potable water. Both the water line and tower were gifted to the Town of Verona by the Nation. The Nation currently pays a majority of the operating costs for the Town of Verona's potable water distribution system.

Both surface water and groundwater are utilized as potable water supplies for residents of Nation lands. Figure 3.3-3 shows the location of the water districts for the COPWS, OCWA, and Town of Verona/COPWS. Approximately 181 parcels of Nation lands are located within or partly within one of these water districts, with the majority of those parcels (144) located within or partially within the COPWS. Thirty-eight parcels are

located within or partially within the OCWA water districts. Areas not served by public water suppliers are served by private wells. According to the information provided by the Nation in Appendix B, Group 1 lands contain eight parcels listed as utilizing public water, 21 parcels listed as utilizing wells, and 55 parcels listed as not utilizing any public or private water supply. All of the Group 1 parcels using public water use the COPWS as water supplier with an estimated average of 266,000 gallons per day being used. Group 2 lands contain 58 parcels listed as utilizing public water, 44 parcels listed as utilizing wells, and 79 parcels listed as not using any public or private water supply. Forty-two of the 59 Group 2 parcels using public water use the COPWS as water supplier (estimated average of 12,000 gallons per day) and 17 use the OCWA (estimated average of 19,000 gallons per day). Group 3 lands contain nine parcels listed as utilizing public water, 115 parcels listed as utilizing wells, and 43 parcels listed as not utilizing any public or private water supply. Five of the nine parcels using public water use the COPWS as water supplier (estimated average of 800 gallons per day) and three use the Stockbridge system (estimated average of 1,600 gallons per day). The one Group 3 parcel connected to the OCWA system is vacant.

The largest water demand from the Nation is from Group 1 lands including the Turning Stone Resort & Casino. Nation water use records for the 2004-2005 fiscal year indicate that daily water use for the Turning Stone Resort & Casino averaged 0.26 MGD in 2005, and ranged from 0.1 MGD during February 2005 to 0.4 MGD during May 2005 or one percent of the water used in Oneida and Madison Counties. The Nation has instituted water conservation efforts to reduce water consumption at the Turning Stone Resort & Casino and installed a state-of-the-art, on-line water treatment system on the cogeneration facility's cooling towers, a practice that saves approximately 40,000 gallons of water per day. In addition, the installation of a water treatment system at the Village of White Pines RV Park has resulted in an approximately 15,000 gallon per day reduction in water use during the camping season. Group 2 lands served by public water suppliers are used for commercial, residential, and agricultural purposes. Very few Group 3 lands are served by public water suppliers because most of these properties are undeveloped, vacant or used for agriculture.

The New York State Department of Health (NYSDOH) in conjunction with the county health departments monitors the water quality of public water systems including municipal, business, and private systems that serve a minimum of five residences or 25 individuals. New York State is responsible for enforcing the drinking water regulations promulgated by the U.S. Environmental Protection Agency (USEPA) under the Federal Safe Drinking Water Act. The Source Water Assessment Program (SWAP), a Federally-mandated program under the Safe Drinking Water Act designed to protect surface and groundwater sources used for public drinking water, requires public water suppliers to report annually on the state of their water supply. In New York State, the SWAP is conducted by the NYSDOH and individual county health departments. The 2004 reports

from the OCWA and the COPWS regarding the state of the water that was supplied to Nation lands indicated that there were no violations of regulatory limits for specific contaminants for either source (surface or groundwater), although both were judged to be moderately susceptible to one or more types of contamination associated with surface water sources (i.e., protozoa and storm-generated turbidity). The USEPA conducts the SWAP for public water systems on Indian lands if the water is not provided by non-tribal municipal sources.

In a letter from Oneida County Department of Law to Malcolm Pirnie dated August 15, 2006, information on water resources was provided. In general, any building, facility, on-site or community septic system or community water supply located in Oneida County requires a permit/authorization issued by either the county or municipality. In regards to Oneida County, the Department of Health has inspection responsibilities over pools, campsites, water, food services, the New York State Clean Indoor Air Act, as well as other public health related services. Additionally, Oneida County has instituted a Sanitary Code, which governs health hazards and nuisances.

3.3.1.6 Water Supply Diversions

The amount of water available in the Study Area consists of the amount of rainfall that becomes surface water and the amount of water available from groundwater. However, water supply diversions into and out of the Study Area may affect the amount of water available in the watershed. Water diverted from other watersheds will increase the available water in the Study Area and any water diverted away would decrease the amount of available water in this area.

The New York State Canal Corporation uses water from the Hinckley Reservoir to maintain water levels in their canals. This activity diverts water from the Mohawk River watershed, which discharges to the Hudson River, into the Oneida Lake watershed, which eventually discharges to Lake Ontario. This use may be significant locally with respect to water supply allocations that could be used for other purposes in the area. Hinckley Reservoir also supplies 20 MGD to the Mohawk Valley Water Authority, which serves approximately 126,000 customers in Oneida and Herkimer Counties. In the past several years, projects that would augment local potable water supplies with water from the Hinckley Reservoir have been proposed. Those plans have been opposed by the New York State Canal Corporation, which claims that Hinckley Reservoir's water supply may not be adequate to support both current uses and those additional withdrawals. During this same time period, the New York State Canal Corporation has abandoned the use of their Chub Lake and Twin Lakes Reservoirs in Herkimer County, which previously had been used as water supplies for the canals.

Other diversions of potable water in the Study Area include the water supplied by the OCWA that is diverted from Lake Ontario and the water supplied by the City of Oneida that is diverted from the Fish Creek watershed. Of the approximately 10 million gallons

per day that the OCWA delivers from Lake Ontario, approximately 19,000 gallons per day (approximately 0.2 percent) is used by the Nation. Of the approximately three million gallons per day delivered by the City of Oneida water system, approximately 280,000 gallons per day (approximately 9.3 percent) is used by the Nation. While these diversions are local, the water does eventually return to Lake Oneida and then eventually to Lake Ontario. However, because of these diversions, the availability of water in the Study Area is dependent not only on rainfall in the Study Area, but also on the storage of water in Lake Ontario and additional sub-watersheds such as Fish Creek.

The entire diversion from the Fish Creek sub-watershed into the Oneida Creek sub-watershed (3 MGD) is equivalent to approximately 4.6 cubic feet per second (cfs). The average flow for Oneida Creek at Oneida, New York is approximately 170 cfs (United States Geological Survey, 2006). Therefore, on average, the diversion constitutes approximately 2.7 percent of the stream flow. The monthly minimum stream flow for Oneida Creek of 58.3 cfs occurs in August; at that time, the 3 MGD diversion could comprise 7.9 percent of the stream flow. During this time, the Nation's use of up to 1.5 MGD of reclaimed wastewater from the City of Oneida Sewage Treatment Plant would reduce the impact of the diversion (although none has been noted) by re-diverting approximately two thirds of the reclaimed water to the Wood Creek South sub-watershed. Potential impacts to either of the receiving sub-watersheds (again, none have been identified) would likely be ameliorated by the manner in which most of the reclaimed wastewater is used (golf course irrigation), which would maximize evaporation, transpiration, nutrient assimilation, and groundwater recharge, while minimizing surface run-off.

3.3.1.7 Major Water Uses

Based on U.S. Geological Survey (USGS) national water-use estimates, water use for Madison and Oneida Counties totals approximately 40 MGD. Public water supply is the main use, with 27 MGD utilized in Oneida County and 2 MGD utilized in Madison County. Other domestic water uses comprise a total of 5 MGD while industrial water use comprises 6 MGD (United States Geological Survey, 2006). Water demand on Nation lands constitutes a small fraction of the overall water use in the Study Area.

Water use on Nation lands includes supplying potable water for residential and commercial purposes for the following facilities: the Turning Stone Resort & Casino, campgrounds, marinas, gas stations, warehouses, government services, and other small commercial business. Although the COPWS design capacity of 4 MGD is sufficient to meet the Nation's needs, the current water use by this system, including the water used by the Nation, has averaged approximately 3 MGD in recent years; COPWS estimates a projected water demand of 4.2 MGD by the year 2020 (Personal communication, Arthur Smolinsky, August 18, 2006). Water formerly used by Oneida Ltd. via the Sherrill-Kenwood Water District, which is one of the seven water districts of the COPWS, has not

been fully utilized by this company since it severely curtailed its local enterprise in recent years. The coincidental replacement of Oneida Ltd.'s water demand by that of the Nation has resulted in the water system maintaining its rate of water delivery.

The Nation has participated in and funded planning studies and negotiations to augment its potable water supply. The alternatives that have been considered include extending the OCWA's water lines from Sylvan Beach, securing an alternative water supply from the Hinckley Reservoir (City of Utica's water source), and developing groundwater sources. Each of these feasible alternatives as well as the determination of whether an allocation of existing City of Oneida water can be committed for use by the Nation, involve the consideration of issues that have not been resolved. The Nation is presently considering all of the alternative water supply scenarios.

Surface water and groundwater use by the Nation's agricultural operations are minimal. Rainfall during the growing season is typically sufficient for major crop production without irrigation. Minimal irrigation may be used for the Nation's traditional crops (ceremonial white corn, beans, squash, and tobacco), which are grown on less than seven acres. Groundwater use for the Nation's Angus beef and dairy operations, while not metered, draws no more than five thousand gallons per day, i.e., typically 10 gallons per head of cattle per day (Ministry of Agriculture and Lands, 2006) or less than four gallons per minute from the wells.

3.3.1.8 Wetlands

Wetlands are commonly found throughout Oneida and Madison Counties and provide many important functions in an ecosystem such as providing habitat for plants and animals, helping to control flooding near rivers and streams, and protecting water quality in surface waters and groundwater. The wetlands located within the Study Area, defined as the southwestern portion of Oneida County and the northern portion of Madison County for the wetlands discussion below and in Section 3.3.4 Jurisdictional Wetlands and Waters of the U.S., are predominantly located in the broad region of flat and low-lying plains that surround Oneida Lake in the Towns of Sullivan, Lenox, Verona, and Vernon. These plains are part of the Erie/Ontario Lake Plains physiographic region and are relicts of the lake bed of Lake Iroquois, a glacial lake that existed 12,000 years ago in the Study Area (Central New York Regional Planning Development Board, 2003).

The Erie/Ontario Lake Plains physiographic region also contains nearly all of the muck soils located within the Study Area. Muck soils are hydric, meaning that they are sufficiently saturated or flooded with water during the growing season to develop anaerobic conditions in the upper soils, and are always associated with wetlands. Wetlands located within the Erie/Ontario Lake Plains may be found adjacent to the many lakes found in the low-lying plains or may be associated with the slow-moving and meandering streams that transverse the plains to drain into Oneida Lake. In contrast with the Erie/Ontario Lake Plains physiographic region, wetlands are less common in the

southern portion of the Study Area in the Towns of Stockbridge and Smithfield. This portion of the Study Area is part of the Southern New York Section of the Appalachian Highlands physiographic region and is higher in elevation than the Erie/Ontario Lake Plains physiographic region, features rolling slopes and valleys, and is not dominated by non-hydric silt loam soils. Wetlands in this region are likely to be found adjacent to small hillside streams or near the larger streams located in the valleys.

3.3.2 Surface Water

3.3.2.1 Introduction

This section describes the surface water resources located in the Study Area; which is the sub-watersheds of the Oneida Lake Watershed on which Nation lands are primarily found. Surface water resources in the Study Area provide the majority of water supply to the area, as well as serving as an important recreational commodity. This section describes the water quality of the major water bodies located in the Study Area, discusses the wastewater treatment plants located in the Study Area, and identifies areas that are located in the 100-year floodplains of these water bodies. Surface water resources located on Nation lands and the use of those resources by the Nation are described in detail in this section. Efforts taken by the Nation to maintain surface water quality in the Study Area are also described.

3.3.2.2 Water Quality

Surface water quality goals are set by the Federal Clean Water Act (CWA). These goals include maintaining waters safe for fishing and swimming, eliminating harmful discharges of pollution, and protecting wetlands. Pursuant to the USEPA’s guidance under the CWA, New York State established designated uses and set surface water quality standards. The New York State Department of Environmental Conservation (NYSDEC) designated uses for fresh surface waters are identified by the following water quality classifications: Class AA, Class A, Class B, Class C, and Class D. Some of the uses of each of these surface water classifications are provided in Table 3.3-3.

**Table 3.3-3
New York State Surface Water Classifications**

Class	Best Usage
AA	Drinking water
A	Drinking water
B	Primary contact recreation (swimming, etc.) Secondary contact recreation (fishing, etc.)
C	Fishing
D	Fishing (does not support fish propagation)

Source: New York State Department of Environmental Conservation, 1991.

All surface waters with the classifications identified in Table 3.3-3 except for Class D are managed to support fish propagation. Oneida Lake is designated by the NYSDEC as a Class B water body. All of the streams located in the Study Area are Class C water bodies, with some trout streams present. Table 3.3-4 provides information on the principal

surface water bodies located in the Study Area highlighting those water bodies adjacent to or flowing through Nation lands. Named tributaries to these water bodies are also listed in Table 3.3-4.

**Table 3.3-4
NYSDEC Water Quality Classifications for Surface Water Bodies
Located in the Study Area**

Surface Water Body	NYSDEC Class ¹	Flow Range	NYSDEC Preliminary Field Assessment (2002) ¹	Named Tributaries Draining Nation Lands
Water Bodies Adjacent to or Flowing through Nation Lands				
Oneida Creek (note: NYSDEC considers Lower Oneida Creek to be a navigable waterway)	Class C (lower Oneida Creek) Class C(T) ² (portions of the upper Creek)	20 – 150 cfs	Slightly Impacted	Black Creek Bradley Brook Taylor Creek Mud Creek Blue Creek
Sconondoa Creek (tributary to Oneida Creek)	Class C(T)	< 20 cfs	Moderately Impacted	Beaver Meadow Creek
Cowaselon Creek	Class C	< 20 cfs	Not listed	Owlville Creek Canastota Creek Dutch Settlement Creek Clockville Creek
Canaseraga Creek	Class C	< 20 cfs	Not listed	None
Wood Creek (downstream of City of Rome)	Class C, C(T)	< 20 cfs	Moderately Impacted	Stony Creek Mud Creek Brandy Brook
Stephens Creek	Class C	Not Available	Not listed	None
New York State Barge Canal (Erie Canal)	Class C	Not Available	Not listed	None
Old Erie Canal	Class C	Not Available	Not listed	Drum Creek
Oneida Lake	Class B	Not Applicable	Not listed	All of the above
Other Study Area Water Bodies				
Chittenango Creek	Class C (lower Chittenango Creek and its tributaries) Class C(T) (portions of the upper Chittenango Creek and its tributaries)	20-150 cfs for lower Creek (in Onondaga County) < 20 cfs (upper Chittenango Creek)	Slightly Impacted	None
Cazenovia Lake	Class A	Not Applicable	Not listed	None

Notes: ¹Oneida Lake State of the Lake and Watershed Report (Central New York Regional Planning Development Board, 2003).

²(T) designation identifies that the water body supports trout.

Source: Central New York Regional Planning Development Board, 2003.

In the Oneida Lake Watershed, biological monitoring is currently conducted by the NYSDEC's Rotating Intensive Basin Studies Program. The preliminary results of a stream sampling study conducted in the summer of 2001 under this program are identified in

Table 3.3-4. This study identified that Oneida Creek and Chittenango Creek are slightly impacted, Sconondoa Creek and Wood Creek are moderately impacted, and the remaining water bodies identified in the table are not listed in this study because they were not sampled (Central New York Regional Planning Development Board, 2003).

3.3.2.3 NYSDEC Priority Water Bodies List

In association with the water quality classifications, the NYSDEC also developed a list of priority surface water bodies or surface water bodies that do not fully support their designated uses. Water resource issues affecting these surface water bodies were identified in the Priority Water Bodies List (PWL) developed by the NYSDEC Division of Water and was last updated in 2005 (New York State Department of Environmental Conservation, 2005). The PWL describes the severity of the water quality problem in the water body and indicates the level of documentation supporting that designation. Table 3.3-5 shows the relationship between the severity and level of documentation of the PWL and the reporting requirements of Section 305(b) of the CWA.

**Table 3.3-5
Relationship between PWL and CWA Section 305(B) Use Attainment Categories**

PWL		CWA Section 305(B)
Severity of Problem	Level of Documentation	Water Use Attainment Categories
Precluded	Known	Impaired/Threatened for Water Quality Standards ¹
Impaired	Known, Suspected	
Stressed	Known, Suspected	Attaining All/Some Water Quality Standards ²
	Possible	Insufficient Data to Determine Standards Attainment
Threatened	Known	Impaired/Threatened for Water Quality Standards ¹
	Suspected	Insufficient Data to Determine Standards Attainment
	Possible	Attaining All/Some Water Quality Standards ²
No Known Impact/Impairment		Attaining All/Some Water Quality Standards ²
Un-assessed Waters		Insufficient Data to Determine Standards Attainment

Notes: ¹Determination as to whether a total maximum daily load is required will be made on a case by case basis.

²Determination as to whether all or some standards are attained will be made on a case by case basis

Source: New York State Department of Environmental Conservation, 2003.

The findings of the 2005 PWL as they relate to specific lake and stream sections located in the vicinity of Nation lands are identified below:

- Oneida Lake - The primary pollutants in this lake were nutrients attributed to agricultural sources. Public bathing was suspected of being impaired, with aesthetics (color and odor) possibly stressed.
- Sconondoa Creek - The primary pollutant indicator in Sconondoa Creek was oxygen demand. The previous PWL developed in 1996 identified pathogens, silt, and thermal changes as pollutants of concern (Central New York Regional Planning Development Board, 2003). Aquatic life in Sconondoa Creek was suspected of being stressed with the main source attributed to municipal wastewater treatment plants. Aesthetics were also identified as stressed.

- Cowaselon Creek and Canaseraga Creek - The primary pollutant indicator identified was oxygen demand. In the 1996 PWL, pathogens, pesticides, nutrients, and thermal changes were identified as pollutants of concern. Aquatic life in Cowaselon and Canaseraga Creeks was suspected of being stressed with the main source attributed to agricultural sources. A municipal wastewater treatment plant in the Village of Canastota may also contribute to water quality concerns (Central New York Regional Planning Development Board, 2003).
- Chittenango Creek (Lower) - The primary pollutant was identified as nutrients attributed to agricultural sources. Aquatic life was suspected of being impaired.

3.3.2.4 Nutrient and Sediment Losses

A study of nutrient and sediment losses from the south shore Oneida Lake tributaries provided analyses of common organic and inorganic parameters during base flow and event flow periods in both the Oneida Creek and Cowaselon Creek sub-watersheds (Makarewicz and Lewis, 2000). Relevant conclusions of this study, which are presented in Appendix F of the Oneida Lake State of the Lake and Watershed Report, are identified below (Central New York Regional Planning Development Board, 2003):

- Both phosphorus and Total Kjeldahl Nitrogen (TKN) loadings in Oneida and Cowaselon Creeks were highly correlated with Total Suspended Solids (TSS) loadings, suggesting that these nutrients were present in their particulate forms such as animal manure or stream bank erosion.
- Stream bank erosion was concluded to be the major source of TSS loadings during storm events in both Oneida and Cowaselon Creeks.
- A high loading of chlorides at one Cowaselon Creek sampling station was determined to likely be associated with de-icing road salt used in the Village of Canastota.

The information above indicates that the primary source of impacts within the Oneida Creek and Cowaselon Creek sub-watersheds is agriculture and the primary pollutants are silt (sediment) and constituents of road runoff (i.e., metals, petroleum aromatic hydrocarbons compounds, and petroleum hydrocarbons).

3.3.2.5 Wastewater

In many ways, wastewater is an important part of water resources in the Study Area. Since water supply can come from other sub-watersheds, when wastewater is discharged it represents a reallocation of water from the other sub-watersheds of Oneida Lake or from the Lake Ontario Watershed into the Study Area. Wastewater may also be a source of pollutants; therefore, the capacity of wastewater treatment plants located in the Study Area and their ability to handle the wastewater flow and pollutant load generated is important to maintain water quality standards (public health and aquatic toxicity) in the receiving streams.

The City of Oneida Sewage Treatment Plant and the Village of Canastota Water Pollution Control Plant serve several areas in Madison and Oneida Counties where Nation lands are located. In Oneida County, Sylvan Beach’s East Oneida Lake Water Pollution Control Plant and the City of Sherrill and Village of Vernon Sewage Treatment Plants also serve some Nation lands. Outside of the areas serviced by the wastewater treatment plants, municipalities and residences utilize on-site (i.e., septic) systems for wastewater disposal. Table 3.3-6 summarizes the capacity and compliance history of the wastewater treatment plants that receive flow from Nation lands.

**Table 3.3-6
Capacity Compliance History of Wastewater Treatment Plants
Serving Nation Lands**

Wastewater Treatment Plant	Capacity (MGD)	Receiving Water Body	Recent History of Capacity Compliance
Sherrill	0.95	Oneida Creek	Exceeded capacity five times since October 2003 (maximum of 1.14 MGD)
Vernon	0.5	Sconondoa Creek	No listed capacity data
East Oneida Lake (Sylvan Beach)	2.0	Fish Creek	No exceedances in 2005 or 2006
Canastota	1.73	Cowaselon Creek	Exceeded capacity five times since October 2003 (maximum of 1.99 MGD)
Oneida	3.0	Oneida Creek	Exceeded capacity 22 times since June 2003 (maximum of 3.75 MGD)

Sources: United States Environmental Protection Agency website; Personal communication, Daniel Ramer August 17, 2006.

Overall, less than one third of Nation lands discharge wastewater to treatment plants. Wastewater generated from some Group 1 lands is conveyed to the City of Oneida Sewage Treatment Plant where it is screened, de-gritted, settled, and biologically-treated via enhanced activated sludge technology. The secondary effluent is then chlorinated and dechlorinated prior to discharge. Solids are further processed via anaerobic digestion to remove pathogens and generate useable bio-gas, after which they are dewatered and composted.

Organic loading, i.e. the excessive input of nutrients into a water body often associated with wastewater inflows, can result in the accelerated growth (bloom) of nuisance algal species; such blooms can have negative impacts both in terms of aesthetics (affecting the appearance of a water body, as well as the odor and taste of its water) and ecology: as the algal species die and sink to the bottom, bacterial degradation of the dead vegetation can result in the decline of dissolved oxygen levels to the point where the water body can no longer support aquatic life (United States Geological Survey, 1996). Occasionally, the excessive growth of certain blue-green algal species can result in elevated concentrations of substances that can be toxic to aquatic life (Central New York Regional Planning and Development Board, 2003).

In order to reduce organic loading in local water bodies, the Nation has taken steps to reclaim and reuse wastewater. To accommodate wastewater from the Nation's gaming and resort facilities and to provide enhanced wastewater treatment at the City of Oneida Sewage Treatment Plant, the Nation provided funding for plant enhancements and has also constructed a filtration/pumping system for 1.75 MGD (58 percent of the plant's design flow) of the plant's treated effluent. A series of agreements between the City of Oneida Sewage Treatment Plant, the Town of Verona, and the Nation provide the basis and payment structure for the plant to accept and treat the Nation's wastewater. Copies of the Wastewater Service Agreements entered into between the Town of Verona and the Nation, and between the City of Oneida and the Town of Verona that document needed infrastructure improvements and funding provided by the Nation are found in Appendix B. This appendix also provides the 1995 agreement between the Nation and the Town of Verona by which the Route 365 Water and Sewer District was formed and the 1998 Reclaimed Water Agreement between the City of Oneida and the Nation by which reclaimed wastewater from the City of Oneida Sewage Treatment Plant is utilized by the Nation for irrigation at the Sandstone Hollow Golf Course. This extensive use of the City of Oneida's effluent has diverted much of the wastewater and associated organic loading that would have been discharged into Oneida Creek, thereby decreasing organic loading and improving the quality of water flowing into Oneida Lake. This arrangement has been successful as the Nation now uses 95 percent of the City of Oneida's wastewater.

The majority of Group 2 lands that discharge to wastewater treatment plants support commercial and residential land use including the Nation's marinas located in the Village of Sylvan Beach. These public recreational facilities are operated on a seasonal basis. Very few Group 3 lands discharge to wastewater treatment plants. Properties that do not discharge to wastewater treatment plants use on-site treatment systems (septic systems) if wastewater treatment is necessary.

The Property Utility Table provided by the Nation in Appendix B identifies the Group 1, 2, and 3 lands that are connected to sewer lines for discharge to wastewater treatment plants, the lands that use on-site septic systems for wastewater disposal, and the lands that do not require wastewater disposal. For Group 1 lands, four parcels are listed as connected to sewers, 25 parcels are listed as utilizing septic systems, and 55 parcels are listed as not requiring wastewater disposal. For Group 2 lands, 58 parcels are listed as connected to sewers, 55 parcels are listed as utilizing septic systems, and 79 parcels are listed as not requiring wastewater disposal. For Group 3 lands, four parcels are listed as connected to sewers, 19 parcels are listed as utilizing septic systems, and 43 parcels are listed as not requiring wastewater disposal.

3.3.2.6 Floodplains

Figure 3.3-4 illustrates the location of the 100-year and 500-year floodplains of the water bodies located in the Study Area, which is based on Geographical Information System

(GIS) datasets (Federal Emergency Management Agency, 1996). The most significant floodplains in the Study Area are located in the low-lying area in the northern part of the Town of Sullivan, the western part of the Town of Lenox, and the area around Fish Creek north of the Erie Canal. Other regions in the Study Area that have significant floodplains are located along the main branch of Oneida Creek from the City of Oneida upstream to the Town of Stockbridge (Upper Oneida Creek), Cowaselon Creek south of I-90, Chittenango Creek along the Chittenango Gorge north and south of Chittenango Village, Stony Creek in the Town of Verona, and Taylor Creek in the City of Sherrill. Approximately seven percent (29,816 acres) of Madison County's 419,840 acres and ten percent (75,862 acres) of Oneida County's 776,320 acres are located in the 100-year floodplains of the water bodies located in the Study Area.

GIS data identifies that 53 Nation parcels have portions of their property located within the 100-year floodplains of water bodies located in the Study Area and that a total of 1,007 acres of Nation lands are located within these floodplains. This represents approximately six percent of the Nation's land area and is comparable to the percentage of land area in Madison and Oneida Counties (seven percent and 10 percent, respectively) that is located within 100-year floodplains.

Nation lands with significant area located within the 100-year floodplains of local water bodies are found in the following general areas:

- Town of Lenox located along Canastota Creek;
- Town of Stockbridge located along Upper Oneida Creek;
- Town of Lenox located along Cowaselon Creek; and
- Town of Verona located along Stony Creek.

Group 1 lands are not located within the 100-year floodplains of local water bodies. Approximately 42 percent of Nation lands located within the 100-year floodplains of local water bodies are Group 2 lands, while the remaining 58 percent are Group 3 lands.

A discussion of issues of concern in the Oneida Lake State of the Lake and Watershed Report identifies flooding within the lake plain and water courses of the region as a concern (Central New York Regional Planning Development Board, 2003). Within the area of Nation lands, Lower Oneida Creek is identified as an area of special concern with regard to flooding. All townships located in Madison and Oneida Counties have flood prevention statutes. Construction within the 100-year floodplains of local water bodies is generally restricted and insurance for structures in flood risk areas is available only through the Federal Flood Hazard Insurance Program.

3.3.2.7 Drainage and Storm Water Management

The pattern of water drainage in the Study Area is dominated by the land elevations and natural streams in the area. Installed storm water drains and ditches also influence

drainage patterns. Storm water management information was not collected for the entire Study Area; available information on storm water and drainage focuses only on Nation lands.

Group 1 lands are utilized for gaming venues, event facilities, hotels, restaurants, golf courses, parking areas, as well as several commercial and historical parcels. These lands are also utilized for residential, agricultural, and vacant or buffer areas in the vicinity of the Turning Stone Resort & Casino. Group 1 lands are located primarily within the Wood Creek sub-watershed and are drained by Stony Creek and Mud Creek northward to Wood Creek. The creeks that drain Group 1 lands generally flow to the north and west.

The Nation has made significant efforts to manage storm water issues associated with its resort and gaming properties. The Nation's gaming and resort properties contain structural development and paving for which engineered drainage has been installed and maintained that might have altered surface water flow regimes with respect to pre-development conditions. Facility infrastructures designed and constructed to mitigate potential impacts are: catch basins, retention ponds, buffer zones, and constructed wetlands. The following Storm Water Control Measures were utilized during construction of the Turning Stone Resort & Casino: silt fences, straw bales, mulch, buffer zones, and vegetated swales.

The golf courses located on Group 1 lands were built using the Storm Water Control Measures identified above. Several additional Storm Water Control Measures were utilized so that the approximately 1,300 acres of golf courses and associated properties would exert minimal impacts on the Study Area's water resources. These additional Storm Water Control Measures include the following:

- Using reclaimed wastewater for irrigation - Irrigation water utilized for the golf courses is reclaimed wastewater from the City of Oneida Sewage Treatment Plant. Use of this water for irrigation reduces both nutrient loadings to Oneida Creek and fertilizer use on the golf courses, an environmental benefit to both the golf courses and Oneida Creek. Furthermore, the Nation's irrigation system uses state of the art, low-flow technology that optimizes the efficiency of water use. Use of reclaimed wastewater for irrigation also precludes pumping of groundwater and reduces pumping of limited surface water available at the golf courses, which offer a measure of protection to groundwater users in the area by reducing water table drawdown during peak summer irrigation periods. Use of reclaimed wastewater is just one example of the Nation's stewardship of their lands and the surrounding environment.
- Balancing engineered drainage with mitigation banking - When engineered drainage was needed on the golf courses to avoid ponding and wet conditions, mitigation areas including retention ponds, buffer areas, native vegetation, and wetlands were constructed resulting in drainage characteristics similar to mixed unimproved property, but incorporating features to reduce sediment loads to downstream areas during precipitation events.

- Periodic monitoring and review - For some of the Nation's golf courses the performance of storm water mitigation measures is monitored, reviewed annually, and certified under the Audubon International Signature Program; it should be noted that while all of the Nation golf courses have been certified by the Audubon Society, only two of the (Sandstone Hollow and Shenandoah) have been certified under the Audubon International Signature Program. Obtainment of certification by the Audubon International Signature Program signifies that a golf course incorporates the design and maintenance features that reduce pesticide and water use, and creates vital habitats for plants, wildlife, and people. Audubon International Signature Program status has not been achieved by any other golf course in New York State and again signifies the Nation's attitude toward protecting the environment for future generations.
- Wetlands mitigation banking - In addition to the on-site (casino resort facilities) mitigation efforts, a 75-acre off-site wetland mitigation bank has been established on Nation lands located within the Oneida Creek sub-watershed. Wetland and associated surface water impacts that could not be fully mitigated on-site have been accounted for on a two-for-one basis by the mitigation bank. In short, the Nation places a priority on construction and development practices that minimize impacts to water resources with the stated goal of meeting or exceeding Federal environmental standards. The Nation's wetlands mitigation banking site is located on Group 2 lands (Parcel 37).

3.3.2.8 Water Quality Management

Agriculture practices have been identified as the major source of impacts to surface water resources in the Oneida Creek, Cowaselon Creek, and Wood Creek sub-watersheds with sediment being the principal contaminant in Oneida and Wood Creeks and high oxygen demand, which is usually an indicator of nutrient enriched conditions within bottom sediments, as the pollutant indicator in Cowaselon Creek. An ongoing Watershed Agricultural Project is being conducted as a five-county Soil and Water Conservation District cooperative venture aimed at reducing non-point source pollution to Oneida Lake and its tributaries from agricultural land.

Four major sources of agricultural impacts to surface water are water use, tillage practices, manure management, and herbicide/pesticide use. The Nation proactively seeks to protect, and where necessary, improve surface water quality in the watershed, and currently undertakes the following water quality management practices on its agricultural lands:

- Tillage – The Nation's tillage practices include strip farming (division of large fields into multiple smaller units with units of tilled land alternating with pasture or hay fields), crop rotation, and cover crops. These practices reduce areas where exposed soils are susceptible to erosion and reduce the time that the soils are exposed. In addition, buffer zones are provided adjacent to drainage ways and cover crops are established prior to leaving land fallow. Steep, highly erodible lands are removed from tillage and allowed to revert to permanent cover.

- Manure management – The Nation uses extensive pasturing during the growing season, at which time the manure is naturally distributed over the pasture areas where it breaks down rapidly to provide nutrients to these areas. During the cold months when animal confinement is necessary, manure is stockpiled for land application and incorporation when the land is tilled. Since one of the goals of sustainable farming methods is to limit the use of synthetic fertilizers, management of animal manure is a crucial element in maintaining soil fertility and providing nutrients for crops. The Nation has proposed an anaerobic digester to biologically process the manure from its open cattle feedlots. The proposed system will promote the decomposition of the manure in the absence of oxygen, producing simple organics and gaseous biogas products. Since anaerobic digestion operates in a closed system, these systems are very effective at controlling air emissions and odors, nearly eliminating them from associated manure storage structures.
- Herbicide/pesticide use - Sustainable farming practice relies on maintaining high levels of fertility and pest resistance through the maintenance of the soil's natural biological systems. One of the goals of organic farming methods as well as the less restrictive method of Integrated Pest Management is to avoid the use of synthetic pesticides and herbicides. Basic organic methods of weed and insect control are implemented that include mechanical cultivation, biological controls (i.e., beneficial insects or birds), use of resistant varieties, cover crops, crop rotations, mating disruption, traps, and barriers. If infestations do occur, botanical and non-synthetic compounds may be selectively applied. Integrated Pest Management requires the limited use of synthetic compounds when a drastic infestation appears inevitable.

The Nation also applies Integrated Pest Management to its golf courses. The types, amounts, and the timing of applications of fertilizer and pesticide on the golf courses are strictly limited to maximize benefits and minimize environmental impacts.

3.3.3 Groundwater

3.3.3.1 Introduction

This section describes the groundwater resources in the Study Area; which is defined as the southern portion of the Oneida Lake watershed that is located in Madison and Oneida Counties. Though surface water is the primary water supply source in the Study Area, groundwater provides additional water supply through private wells and is also a source of water for Oneida Lake. This section describes the available groundwater resources in the Study Area, current groundwater use, and groundwater inflow to Oneida Lake.

3.3.3.2 Groundwater Inflow to Oneida Lake

Research conducted at the Cornell Biological Field Station at Shackelton Point examined groundwater seepage into Oneida Lake and concluded that groundwater seeped into the lake at a rate of several gallons per day per square yard of shoreline surface. This rate was suspected to represent only part of the groundwater recharge to Oneida Lake because higher flow rates were also documented within the lake at sites approximately 300 feet from the shoreline. While seepage rates were higher along the northern and eastern

shores of Oneida Lake, groundwater recharge to the lake was also noted along several miles of shoreline adjacent to where Oneida Creek enters it (Central New York Regional Planning Development Board, 2003).

Nation lands are located largely east and southeast of Oneida Lake. Some of the groundwater underlying Nation lands may enter the surface water system upstream of the lake while some of the groundwater may contribute to Oneida Lake directly as groundwater.

3.3.3.3 Groundwater Resources

Sources of groundwater in the Study Area are from both surficial (overburden) and bedrock. The majority of water supply wells in the Study Area rely on overburden groundwater, which is generally of adequate quality and quantity (United States Department of Agriculture, 1981). Bedrock groundwater is more likely to contain a high mineral content, have taste or odor issues, and is less frequently utilized for water supply purposes.

The location of aquifers in the Study Area is shown in Figure 3.3-5. A confined aquifer yielding from five to 500 gallons per minute underlies 16 Group 2 lands and 12 Group 3 lands. Of these properties, six have wells that provide an estimated 6,200 gallons per day, twelve properties are served by public (surface water) sources, and ten do not require a water supply. An unconfined aquifer yielding from 10 to 100 gallons per minute underlies nine Group 2 lands and one Group 3 lands. Of these properties, one has a well that provides an estimated 400 gallons per day, eight properties are served by public (surface water) sources, and one property uses no groundwater. An unconfined aquifer yielding over 100 gallons per minute underlies three Group 1 lands. Of these properties, one has a well that provides an estimated 400 gallons per day and the other two properties use no groundwater.

Both overburden and bedrock groundwater sources are subject to local variability. Overburden groundwater is generally more sensitive to seasonal water table differences from declining water surface elevations in summer months and inundation from surface flow, with potential for associated compromised water quality during periods of high precipitation or run-off. As described in the Central New York Planning and Development Board “Oneida Lake State of the Lake and Watershed Report” (2003), the Oneida Lake watershed has an extensive system of aquifers and a wealth of groundwater resources throughout much of its area. The shallow overburden aquifer is the most common source of private potable water supply in the Study Area in areas where public supplies are not available. This aquifer exhibits significant seasonal variability and there have been some concerns with the perceived overuse of this groundwater source, which is relied upon by multiple users in this area. The Nation, in an effort to act in an environmentally responsible manner, made a decision to use treated effluent from the City of Oneida

Sewage Treatment Plant rather than potable water to irrigate its golf courses. Use of this treated wastewater has reduced stress on the region's groundwater resources.

Depth-to-groundwater data were not available at several USGS groundwater observation wells located in the Study Area. However, there are available data for groundwater levels from two USGS groundwater observation wells located in the general area of Nation lands (United States Geological Survey, 2003). These two wells are Well # Oe151; which is a 31.1-foot deep domestic well located in Woodgate, Oneida County and Well # M178; which is a 16-foot deep, six-inch diameter drilled observation well located in Valley Mills, Madison County.

Records from the two observation wells indicate that seasonal high water occurs during the April/May period following spring run-off and seasonal lows are experienced in November at Well # Oe151 and in the August through October period at Well # M178. The spring average high water levels are 5.5 inches below ground surface (bgs) and 15 feet bgs at Well # M178 and Well # Oe151, respectively. The average low water levels are 10 feet bgs and 28 feet bgs at Well # M178 and Well # Oe151, respectively. The locations of these wells are provided on Figure 3.3-5.

Depth to groundwater is variable in the Study Area and the direction of shallow groundwater flow follows local topography. Typically groundwater flows towards the lowest topographic point, generally towards the nearest stream. Groundwater contributes to the base flow, which is flow in the streams not derived from precipitation. Groundwater flow through the Study Area and Nation lands is dependent upon local topography.

3.3.3.4 Groundwater Use

As described in Section 3.3.1 Regional Setting, some public water suppliers in the Study Area rely primarily on groundwater as a source. These public water suppliers include Cazenovia Village, Cobblefield Estates Water District, Mount Pleasant, New Woodstock Water District, O-WE-RA Point Water Supply, and Sleepy Hollow Subdivision (Central New York Regional Planning Development Board, 2003). Compared to the amount of public water that is supplied from surface water sources, the percent of public water supplied from groundwater sources in the Study Area is fairly low.

None of the public water suppliers serving Nation lands rely on groundwater as a source. Additional groundwater is withdrawn from private wells located in the Study Area including those located on Nation lands. Almost half of the Nation lands (153 parcels) do not receive public water and, therefore, would need to rely on private wells. The Potable Water and Wastewater Utilities Table in Appendix B, compiled from Nation records and Phase 1 Environmental Site Assessments, indicates that there are 80 active private wells on Nation lands (C&S Engineers, Inc., June, 2006). Group 1 lands have 21 wells from which an estimated 6,600 gallons per day are withdrawn; Group 2 lands have 44 wells from which an estimated 13,700 gallons per day are withdrawn; and Group 3 lands have 15

wells from which an estimated 6,100 gallons per day are withdrawn. This total of 26,400 gallons (estimated) is approximately 10 percent of the total water used by the Nation, with the remainder originating from surface water sources.

The Nation has established measures to protect the quality of local groundwater. The Nation's Director of Construction, Mark Nish, and Environmental Planning Manager, Sara Ames, are charged with the oversight of storm water pollution prevention efforts. Each construction project on Nation lands is required to have a Storm Water Pollution Plan, which must be maintained at the project site. Contractors conducting construction activities for the Nation are required to meet or exceed storm water pollution standards consist with those specified in the NYSDEC State Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Construction Activities.

3.3.4 Jurisdictional Wetlands and Waters of the U.S.

3.3.4.1 Introduction

Wetlands are lands that are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water (Cowardin et al., 1979). Differences exist between state and Federal wetlands protection regulations, including the definition of what wetlands are. As a result jurisdictional wetlands, which are wetlands regulated by state and/or Federal agencies, may be different amongst these agencies. This section reviews regulations developed by the U.S. Army Corps of Engineers (USACE) and the NYSDEC governing wetlands protection in New York State and quantifies the amount and type of jurisdictional wetlands located in the Study Area, defined as the southwestern portion of Oneida County and the northern portion of Madison County. Furthermore, this section describes the Nation's protection and management of wetland resources by reviewing the Nation's efforts to assess and map the extent of wetlands on its lands, avoid impacts and disturbance to these wetlands, and offset impacts to wetlands through the implementation of a wetlands mitigation bank.

3.3.4.2 Regulatory Framework for Jurisdictional Wetlands

Federal Wetlands Regulations

Waters of the U.S include wetlands, lakes, rivers, streams, sloughs, ponds, territorial seas, and tidal areas. Recognizing the importance of healthy aquatic ecosystems for economic and recreational activities and to public health, waters of the U.S. are regulated under Section 404 of the CWA by the USACE and the USEPA. Pursuant to the CWA, 40 CFR Part 230 established guidelines for specification of disposal sites for dredged or fill material based on CWA Section 404(b)(1). Parts 320 through 330 of 40 CFR list program definitions and permit exemptions established by the USEPA. These regulations establish policies, practices, and procedures to be followed by the USACE when reviewing applications for permits authorizing the discharge of dredged or fill material into waters of the U.S.

In addition to the requirements of the CWA, navigable waters of the U.S. are also regulated by the USACE. Applicable statutes include Sections 9 and 10 of the Rivers and Harbors Act of 1899. Section 9 regulates construction of any bridge, dam, dike or causeway over navigable waters of the U.S. and Section 10 regulates structures or work in navigable waters of the U.S. such as excavation, fill placement or the construction of a wharf, pier, dolphin, boom, weir, breakwater, bulkhead or jetty. Regulations promulgated by the USACE establish policies, procedures, and practices to be followed when reviewing applications for permits to authorize work in navigable water.

Federal jurisdictional wetlands are identified based on the abundance of hydrophytic vegetation, which is vegetation adapted to growing in saturated or flooded conditions, the presence of hydric soils, and the presence of wetland hydrology. These wetland indicators are described in the USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and subsequent USACE guidance. There are no minimum size and/or acreage requirements in determining Federal jurisdictional authority over any waters of the U.S. including wetlands. The USACE does not regulate adjacent areas and/or buffer zones for waters of the U.S.

New York State Freshwater Wetlands Regulations

In addition to the CWA, the New York State Freshwater Wetlands Act (Article 24 and Title 23 of Article 71 of Environmental Conservation Law) and subsequent regulations in Title 6 of the Codes, Rules, and Regulations of the State of New York (6 NYCRR) aim to prevent the degradation of wetlands in order to maintain the important ecosystem functions and benefits that they provide. According to 6 NYCRR Part 662.1, freshwater wetlands are defined as lands and waters of the State of New York that are at least 12.4 acres in size or smaller but have unusual local importance because they provide important benefits (i.e., pollution control or endangered species habitat). Freshwater wetlands and adjacent areas located within 100 feet of its boundary are regulated by the NYSDEC; the NYSDEC can regulate adjacent areas that are greater than 100 feet if necessary to protect wetlands of unique significance. As such, New York State regulations only apply if activities would occur within or adjacent to areas defined as freshwater wetlands.

3.3.4.3 Nation Management of Wetlands

The Nation codified its commitment to the preservation and stewardship of its natural resources by the adoption of the Oneida Indian Nation Environmental Protection Ordinance in 1998. This ordinance dictates that the Nation's economic and development activities should be consistent with its environmental goals of reduction of pollution, decreased waste production, and the wise use of natural resources, and it establishes and identifies the responsibilities of the Nation's Environmental Protection Department. The production of an annual Environmental Quality Report by the Nation is also prescribed in the ordinance, in which the status and condition of major environmental classes including wetlands must be monitored.

The Oneida Indian Nation Environmental Protection Ordinance does not contain specific wetland management measures; however, the Nation has repeatedly taken actions to assess and inventory the extent of existing wetlands on lands proposed for development, considered multiple project alternatives and selected project designs that minimize impacts to existing wetlands, implemented protocols to reduce wetland impacts during construction, and compensated for unavoidable impacts to existing wetlands through the construction and use of a wetlands mitigation bank on Nation lands. Examples of the Nation's efforts to manage wetland resources on its lands may be observed in the wetland data collection, project design, and wetlands mitigation associated with construction of the Turning Stone Resort & Casino; Shenendoah, Kaluhyat, and Atunyote Golf Courses; and Villages at Turning Stone RV Park. For these projects, the Nation conducted detailed field investigations and natural resource surveys to delineate wetland boundaries and to determine the extent of wetland resources on or near proposed project sites, as well as inventory the ecological communities and floral/faunal species present. Results of these field investigations are reported for the sites of the Turning Stone Resort & Casino, Shenendoah Golf Course, and Villages of Turning Stone RV Park in Turning Stone Master Plan Baseline Wetland and Soil Report and Environmental Assessment: Turning Stone Hotel, Casino Additions and Golf Facilities (Environmental Systems Planning, 1996a and Jason M. Cortell and Associates, 1997); the field investigation results for the sites of the Kaluhyat and Atunyote Golf Courses are identified in Jurisdictional Wetland Determination: Robert Trent Jones Golf Course and Jurisdictional Wetland Determination: Fazio Golf Course (Wetland and Ecological Consultants, 2002a and 2002b).

During the design of the Shenendoah, Kaluhyat, and Atunyote Golf Courses, the Nation considered multiple project alternatives and selected project designs that minimized impacts to existing wetlands. For example, over 60 different designs for the golf courses at the Shenendoah Golf Course were reviewed and during the design process, the Nation purchased additional land adjacent to the golf course to both improve the quality of the golf course and reduce impacts to wetlands (Jason M. Cortell and Associates, 1997). Through this review process and land purchase, the Nation was able to reduce wetlands impacts by nearly 80 percent from approximately 25 acres of wetlands disturbance in initial designs to 5.3 acres in the final design. Similarly, the Nation considered various designs for the golf courses at the Kaluhyat and Atunyote Golf Courses and selected designs that both reduced wetlands impacts and resulted in high quality of golf play (Wetland and Ecological Consultants, 2002c and 2002d). As previously identified in Section 3.3.2.7 Drainage and Storm Water Management, the Shenendoah, Kaluhyat, and Atunyote Golf Courses are also certified members of Audubon International Signature Program indicating that these golf courses have met stringent standards for preparing and implementing an effective natural resource management plan (Audubon International, 2001). It should be noted that while all of the Nation golf courses have been certified by the Audubon Society, only two of them (Sandstone Hollow and Shenandoah) have been

certified under the Audubon International Signature Program. The Nation has also implemented protocols to reduce wetlands impacts during construction projects. For instance, soil erosion and sediment control plans involving the installation, maintenance, and monitoring of erosion control features (silt fencing and hay bales) were implemented during construction of the golf courses at both the Kaluhyat and Atunyote Golf Courses (Wetland and Ecological Consultants, 2002c and 2002d).

A principal component of the Nation's management of wetlands has been to compensate for impacts to existing wetlands incurred during development activities through the construction and use of mitigation wetlands on Nation lands. The Nation has worked with the respective New York State (NYSDEC) and Federal (USACE) agencies during this mitigation process. The mitigation of wetlands that occurred during construction of the Turning Stone Resort & Casino, the Villages at Turning Stone RV Park, and the Kaluhyat and Atunyote Golf Courses is described below.

Construction of the Turning Stone Resort & Casino and the Villages at Turning Stone RV Park resulted in the disturbance of 17.34 acres of freshwater wetlands. Based on a qualitative assessment of the functional value of these wetlands (high or low quality) that was determined by their structure, function, and diversity, mitigation ratios for the impacted wetlands were established at either a 1:1 replacement for low quality wetlands or a 2:1 replacement for high quality wetlands; these ratios are typical replacement amounts required of non-tribal applicants seeking permits from the NYSDEC and/or USACE to authorize the filling of wetlands. This mitigation resulted in the creation of 21.65 acres of wetlands to compensate for the loss of wetlands during the construction of the Turning Stone Resort & Casino complex and the Villages at Turning Stone RV Park. This mitigation occurred at fourteen sites and involved either the creation of wetlands in existing upland sites or in some cases, the restoration of existing wetlands; these fourteen mitigation wetlands largely consisted of open water ponds, emergent wetlands, and wet meadows (Environmental Systems Planning, 1996b). The mitigation efforts designed to compensate for the wetlands impacts resulting from the construction of the Villages at Turning Stone RV Park also included the establishment of nesting boxes for wood duck (*Aix sponsa*) and purple martin (*Progne subis*), salvage of over 3,000 shrubs and trees from areas that were impacted and re-use of these plants, creation of a pond to be stocked with steelhead trout (*Oncorhynchus mykiss*), and establishment of 2.5 miles of walking trails with 2,000 feet of boardwalk to provide passive access to and recreational opportunities within these restored wetland habitats.

In order to compensate for the loss of wetlands resulting from the construction of the golf courses at the Kaluhyat and Atunyote Golf Courses, the Nation initiated construction of a wetlands mitigation bank located to the west of Germany Road in the Town of Verona in October 2002 (Wetland and Ecological Consultants, 2002e). The Germany Road Wetlands Mitigation Bank, which is located on Parcel 37 on Group 2 lands, is a 75-acre

reserve consisting of formerly forested wetlands habitat in which the wetlands hydrology was historically removed through the excavation of a series of drainage ditches and swales that transported water from the wetlands into a channelized creek. This parcel is located within the same hydrological drainage as the wetlands that were disturbed and within three miles of the Turning Stone Resort & Casino. Construction of the wetlands mitigation bank involved the damming of a channelized creek and plugging of drainage ditches to return the original drainage and wetlands hydrology to the site.

The Nation consulted with the Buffalo District of the USACE with regards to the design of the wetlands mitigation bank and strategies to minimize the risk of excessive colonization of this site by invasive plant species such as purple loosestrife (*Lythrum salicaria*) and common reed (*Phragmites australis*). Subsequent to construction, four monitoring wells and 0.1 acre vegetation monitoring plots were established to document the reestablishment of wetland hydrology and the recolonization of the site by wetland vegetation. This monitoring was initiated in the fall of 2003 and is scheduled to be conducted for five years. The re-establishment of wetlands hydrology at the Germany Road Wetlands Mitigation Bank has resulted in the creation of approximately 75 acres of wetland credits. At present, the Nation has used only 28.66 acres of the 75 acre bank; thirteen acres of the wetlands mitigation bank were used to compensate for the filling of 6.5 acres of wetlands at the Atunyote Golf Course and 6.8 acres of the wetlands mitigation bank were used to compensate for the filling of 3.4 acres of wetlands at the Kaluhyat Golf Course, in both cases a 2:1 wetlands mitigation ratio was used. In addition, 8.94 acres of the wetlands mitigation bank were used to replace wetlands lost due to the relocation of Casino Loop Road, the construction of an employee parking lot, and the removal of an irrigation lake at the Turning Stone Resort & Casino.

The Nation also consulted with both the USACE and the NYSDEC prior to dredging the southeast corner of Oneida Lake where the Nation owns and operates the Marion Manor Marina; dredging was required at this location because the marina's entrance channel was filled with sediment which made it difficult for recreational boats to pass through it. The preferred alternative selected resulted in the Nation removing the accumulated sediment by dredging the channel in the year 2000. Throughout the dredging process, the Nation consulted with both the USACE and the NYSDEC. The Nation modified the project so as to comply with the USACE's recommendations. Because of the Nation's cooperation, the USACE deemed the dredging project to be in full compliance with the legal requirements of Section 10 of the Rivers and Harbors Act of 1899 and the terms of the USACE's Nationwide Permit No. 35 - Maintenance Dredging of Existing Basins. This dredging project was completed by the Nation in full compliance with Federal law.

3.3.4.4 Review of Federal, New York State, and Nation Wetlands Mapping

Two sets of available mapped wetlands data were reviewed and utilized for the discussions in this section. These data sets include the National Wetlands Inventory (NWI) mapping,

which was created by the U.S. Fish and Wildlife Service (USFWS), and the NYSDEC Regional Freshwater Wetlands mapping. The USGS quadrangles of wetlands mapping that were reviewed are identified on Figure 3.3-6. The specific wetlands mapping reviewed included the Sylvan Beach, Canastota, Oneida, Vernon, Oran, Verona, Jewell, Munnsville, and Morrisville Quadrangles of NWI mapping and the Oneida County, 1995 and Madison County, 1986 NYSDEC Regional Freshwater Wetlands Mapping.

Wetland maps were produced by the Nation prior to the construction of the Turning Stone Resort & Casino, Villages at Turning Stone RV Park, and the Kaluhyat and Atunyote Golf Courses (Environmental Systems Planning, 1996a; Wetland and Ecological Consultants, 2002a and 2002b). These maps, which were produced from field inspections and wetlands delineations, provide the best available data on the historical extent and location of wetlands on Group 1 lands. Wetlands delineations on Nation lands were not performed for this EIS because the Proposed Action does not involve the placement of fill materials in any wetlands or associated buffers and permits from the NYSDEC or USACE are not required in order for the BIA to take Nation lands into trust.

NWI and NYSDEC Regional Freshwater Wetlands maps use separate classification systems to distinguish between different types of mapped wetlands. The NWI classification system is applied on a national level and provides a description of a wetland's physical characteristics such as vegetation and water regime (i.e., permanently flooded, intermittently flooded or saturated). The NYSDEC classification system is applied to wetlands located in New York State only, and it is based on vegetation and water regime as well as functional characteristics such as a wetland's role in protecting a drinking water supply or its ability to provide plant and wildlife habitat. These classification systems are described below.

Federal Wetlands

NWI maps were developed in response to the increasing recognition of important wetland functions and values. The Emergency Wetlands Resources Act of 1986 directs the U.S. Fish and Wildlife Service to map and provide information on wetlands and deep water habitats in the U.S. NWI maps provide useful information about the location of wetlands and their characteristics. However, the limits of wetlands under USACE jurisdiction can only be determined based on site-specific field investigations. For this EIS, the NWI maps were used to help determine the approximate extent and location of wetlands in the Study Area and on Nation lands.

NWI maps classify wetlands using a system that defines different wetland types based on the Classification of Wetlands and Deepwater Habitats (Cowardin et al, 1979). Under this classification system, wetlands are broadly categorized as Palustrine, Riverine, and Lacustrine as identified in Table 3.3-7 under the column titled NWI System. Under each of these broad classifications, wetlands are then categorized by hydrologic, vegetative, and substrate conditions as identified in Table 3.3-7 under the column titled NWI Map Code.

**Table 3.3-7
Federal Wetlands Classifications**

NWI System	NWI Map Code	General Classifications
Riverine	R2, R3 or R4	Riverine - wetlands and deepwater habitat contained within a channel.
Lacustrine	L1 or L2	Lake - greater than 20 acres in size and do not have greater than 30 percent aerial coverage by trees, shrubs or persistent herbaceous vegetation.
Palustrine	PEM	Freshwater Emergent - non-tidal wetlands dominated by herbaceous vegetation.
Palustrine	PFO and/or PSS	Freshwater Forested/Shrub - non-tidal wetlands dominated by trees and/or shrubs.
Palustrine	PUB or PAB	Freshwater Pond – PUB wetlands lack vegetation, are less than 20 acres in size, and are less than two meters deep. PAB wetlands are dominated by vegetation that grows on or below the surface of the water.
Palustrine	Pk or Pf	Artificial/Farmed - either associated with agriculture and/or controlled flooding.

Source: Cowardin et al, 1979.

For this EIS, wetlands under Federal jurisdiction that are located in the Study Area and on Nation lands were grouped by the following general classifications outlined in Table 3.3-7: Riverine, Lake, Freshwater Emergent, Freshwater Forested/Shrub, Freshwater Pond, and Artificial/Farmed Wetlands. The location of Riverine, Lake, Freshwater Emergent, Freshwater Forested/Shrub, Freshwater Pond, and Artificial/Farmed Wetlands in the Study Area and on Nation lands are identified on Figures 3.3-8, 3.3-10, 3.3-12, 3.3-14, 3.3-16, 3.3-18, 3.3-20, 3.3-22, and 3.3-24.

New York State Freshwater Wetlands

The wetlands identified in NYSDEC Regional Freshwater Wetlands maps are under the regulatory jurisdiction of the State of New York. However, these maps do not establish the limits of regulated wetlands so field investigations are required to determine the precise locations of the wetlands boundaries. NYSDEC Regional Freshwater Wetlands maps were used to determine the approximate extent and location of wetlands in the Study Area and on Nation lands.

The NYSDEC categorizes wetlands into four classes (Classes I, II, III, and IV) based on the benefits supplied by them. In order to assign a wetlands class, the NYSDEC evaluates these benefits based on the wetlands vegetative community, ecological association, special features, hydrological and pollution control features, and their distribution and location. According to the NYSDEC classification system, Class I wetlands provide the highest degree of benefits while Category IV wetlands provide the lowest degree of benefits. Figures 3.3-7, 3.3-9, 3.3-11, 3.3-13, 3.3-15, 3.3-17, 3.3-19, 3.3-21, and 3.3-23 identify wetlands located in the Study Area and on Nation lands by class. Regardless of class, all wetlands have value as they play a critical role in maintaining the fabric of the ecosystem for both human and ecological uses.

In the Study Area, there are some wetlands that are under the jurisdiction of both the NYSDEC and the USACE. Comparing the Morrisville, Munnsville, Oneida, Oran, Sylvan Beach, Vernon, and Verona quadrangles of the NYSDEC Regional Freshwater Wetlands mapping with the NWI mapping for these same quadrangles (Figures 3.3-11 through 3.3-24), there are wetlands in several locations that overlap. This overlap occurs because the

NYSDEC Regional Freshwater Wetlands maps contain only those wetlands that are at least 12.4 acres in size and/or with unusual local importance while the NWI maps contain all wetlands regardless of size or importance.

Nation Wetlands

The Nation has a history of proactively working to preserve wetlands and cooperating with Federal, New York State, and local officials on wetlands preservation issues. The Nation has conducted delineations and prepared detailed mapping and inventories of wetlands for many of the Group 1 lands in order to identify existing wetlands and either document or minimize the impacts to these wetlands resulting from the Nation's development activities. The Nation has also consulted with the USACE and the USFWS on numerous occasions on wetlands issues. Between 1993 and 1995, wetlands located on the sites of the Turning Stone Resort & Casino and the Villages at Turning Stone RV Park on Group 1 lands were field delineated and mapped by Environmental Systems Planning, Ltd. Wetland maps were prepared based upon aerial photographs, soil maps from the Oneida County Soil Conservation Service, previous wetland delineations performed by Stearns and Wheeler, and Federal delineation guidelines regarding the abundance of hydrophytic vegetation and presence of wetland hydrology and soils (Stearns and Wheeler, 1992). The wetland maps identify the extent of wetlands that existed on the sites of the Turning Stone Resort & Casino and the Villages at Turning Stone RV Park prior to development by the Nation and are presented and described in Turning Stone Master Plan Baseline Wetland and Soil Report (Environmental Systems Planning, 1996a).

Fourteen wetlands are identified by these maps as being located on the sites of the Turning Stone Resort & Casino and the Villages at Turning Stone RV Park prior to the construction of these facilities. These wetlands; which were classified as forested wetlands and riparian habitats, wet meadows, scrub-shrub wetlands, emergent marshes, and flooded pine plantations; were described and qualitatively rated for functional value (Environmental Systems Planning, 1996a). The prevalence of forested wetlands on these Nation lands is consistent with the abundance of this wetlands type throughout Nation lands (Groups 1, 2, and 3). The Nation has also mapped the locations of 19 areas of disturbance to or filling of these wetlands resulting from construction of the Turning Stone Resort & Casino and the Villages at Turning Stone RV Park (Environmental System Planning, 1996b). Fourteen wetlands were created as mitigation for this disturbance; these mitigation wetlands were mapped and are described in Turning Stone Master Plan Wetland Impact and Mitigation (Environmental Systems Planning, 1996b).

The Nation has also delineated wetlands and created wetlands maps for the sites of the Kaluhyat and Atunyote Golf Courses on Group 1 lands prior to their design and construction. Between January and May of 2002, wetlands located on the present sites of these golf courses were field delineated and mapped by Wetland and Ecological Consultants. Wetlands maps were prepared based on USGS topographic maps, false

color-infrared aerial photographs, soil maps from the Oneida County Soil Conservation Service, and Federal delineation guidelines regarding the abundance of hydrophytic vegetation and the presence of wetland hydrology and soils. The boundaries of all wetland areas meeting Federal criteria as well as surface waters were surveyed using the Global Positioning System (GPS). These maps represent the extent of wetlands prior to construction by the Nation; these maps are presented and described in Jurisdictional Wetland Determination: Robert Trent Jones Golf Course and Jurisdictional Wetland Determination: Fazio Golf Course (Wetland and Ecological Consultants, 2002a and 2002b). These studies identified that approximately 48 acres and 36 acres of wetlands were located on the sites of the Kaluhyat and Atunyote Golf Courses, respectively, prior to development (Wetland and Ecological Consultants 2002c and 2002d). The wetland types identified on both of these sites included palustrine forested wetlands (both broad-leaved deciduous and needle-leaved evergreen), palustrine scrub-shrub broad-leaved deciduous, and palustrine emergent persistent (Wetland and Ecological Consultants, 2002c and 2002d). Small man-made ponds were also observed on the site of the Atunyote Golf Courses (Wetland and Ecological Consultants, 2002b). The Nation consulted with the USFWS prior to construction, and designs of these golf courses were selected to minimize wetland impacts. For example, during the construction of the Shenandoah Golf Course in 1998, the Nation altered the location of some golf course holes, changed the size and design of the clubhouse, and modified the proposed size and shape of a lake to protect wetlands. Unavoidable wetland impacts were mitigated for through the use of the 75-acre Germany Road Wetlands Mitigation Bank located on Parcel 37 on Group 2 lands in the Town of Verona. Dr. Richard Whiteside and his consulting firm, Wetland & Ecological Consultants, LLC, manage and monitor the wetland bank for the Nation, preparing an annual mitigation banking report to evaluate its status.

3.3.4.5 Existing Federal and New York State Mapped Wetlands

Approximately 3,107 acres of New York State and Federal mapped wetlands exist on 199 parcels located within the 17,370 acres that comprise Nation lands, which corresponds to approximately 18 percent of Nation lands by area. Approximately 2,111 acres of wetlands are located on NWI maps and are under Federal jurisdiction while 2,171 acres of wetlands are depicted on the NYSDEC Regional Freshwater Wetlands maps. As previously discussed in Section 3.3.4.4 Review of Federal, New York State, and Nation Wetlands Mapping, overlap occurs because there are wetlands located on both maps and under both Federal and New York State jurisdiction, therefore, simply adding the number of wetlands located on NWI maps by acreage with the number of wetlands located on NYSDEC Regional Freshwater Wetlands maps by acreage would result in an overestimation of wetlands present on Nation lands. Thus, the resulting 3,107 acres of total wetlands not only represent identical limits of where New York State and Federal mapped wetlands overlap, but the remaining limits of wetlands that are unique to only a New York State or Federal wetlands designation.

While NWI and NYSDEC Regional Freshwater Wetlands maps do not confirm the presence or absence of wetlands on a particular property or its precise limits, the approximate location and extent of wetlands was determined for this EIS using the information provided on these maps. The aerial extent of wetlands was calculated based on the total area they covered on the NWI maps or the NYSDEC Regional Freshwater Wetlands maps. These calculations did not duplicate the area if wetland overlaps occurred. GIS data for wetlands located on NWI maps and NYSDEC Regional Freshwater Wetlands maps were used where available and published maps were digitized where GIS data was not available. Property boundaries were overlaid using GIS software to calculate the area of wetlands located on Nation lands.

Federal Wetlands

There are several types of wetlands located in the Study Area and on Nation lands that are under Federal jurisdiction and are depicted on NWI maps. The wetland types; which include freshwater forested/shrub, emergent, artificial/farmed, freshwater pond, lake, and riverine; are discussed below. The acreage of these types of wetlands on Nation lands is identified in Table 3.3-8.

**Table 3.3-8
Acreage of Federal Wetlands on Nation Lands**

Grouped Federal Classifications	Group 1	Group 2	Group 3	Total
Artificial/Farmed Wetland	0	87	45	132
Freshwater Emergent Wetland	117	143	108	368
Freshwater Forested/Shrub Wetland	306	648	579	1,534
Freshwater Pond	17	29	9	55
Lake	0	3	0	3
Riverine	0	14	5	20
Total	440	925	746	2,111

Source: United States Fish and Wildlife Service, 2005.

The majority of wetlands located on Nation lands that are under Federal jurisdiction are classified as freshwater forested/shrub wetlands; the predominance of forested/shrub wetlands is also representative of the Study Area. As identified in Table 3.3-8, these wetlands comprise approximately 1,534 acres of Nation lands and are found mostly in Groups 2 and 3. Forested wetlands are most common in the eastern U.S. where moisture is relatively abundant, especially along rivers and in the mountains (Cowardin et al, 1979). It is likely that the 75-acre Germany Road Wetlands Mitigation Bank created by the Nation in the Town of Verona (Parcel 37, Group 2) was historically a forested wetland based upon aerial photographs and an examination of adjacent properties (Wetland and Ecological Consultants, 2002c). Based on the NWI mapping, scrub-shrub wetlands are among the most wide-spread wetland types in the U.S. (Shaw and Fredine, 1956). The location of forested/shrub wetlands are depicted on Figures 3.3-8, 3.3-10, 3.3-12, 3.3-14, 3.3-16, 3.3-20, 3.3-22, and 3.3-24.

The second largest type of wetlands found on Nation lands that are under Federal jurisdiction are freshwater emergent wetlands. These wetlands comprise approximately 368 acres of Nation lands and as identified in Table 3.3-8, they are found almost equally among the Groupings. Freshwater emergent wetlands, which are known by many other names such as fen, marsh, and meadow, are sometimes found in agricultural fields. The location of these wetlands on Nation lands are depicted on Figures 3.3-10, 3.3-12, 3.3-14, 3.3-16, 3.3-20, 3.3-22, and 3.3-24.

The remaining wetland types found on Nation lands that are under Federal jurisdiction are artificial/farmed, freshwater ponds, lakes, and riverine wetlands. A farmed wetland that is less than one-acre in size is located on Parcel 172 on Group 3 lands and is shown on Figure 3.3-14. Artificial wetlands were mapped on three parcels as identified on Figures 3.3-8 and 3.3-24; Parcel 28 in Group 3 lands and Parcel 289 in Group 2 lands have small areas that were mapped as artificial wetlands, while approximately 21 acres of artificial wetlands were mapped on Parcel 291 on Group 2 lands. Freshwater ponds comprise approximately 55 acres of Nation lands; the largest ponds in terms of acreage on Nation lands are mapped on Figures 3.3-12, 3.3-16, 3.3-20, and 3.3-22. Lake habitat extends into some Nation lands and several parcels contain rivers. As identified in Table 3.3-8, the types of wetlands that occupy the smallest acreage of Nation lands are lake and riverine wetlands.

New York State Freshwater Wetlands

A variety of wetlands (ecotypes and classes) mapped by New York State are located in the Study Area and on Nation lands. The approximate acreage by NYSDEC wetlands class are located are shown in Table 3.3-9 and discussed below.

**Table 3.3-9
Acreage of New York State Wetlands on Nation Lands**

Wetlands Class	Group 1	Group 2	Group 3	Total
Class I	0	0	45	45
Class II	295	567	28	890
Class III	283	138	58	479
Class IV	142	187	428	757
Total	720	892	559	2,171

Sources: CUGIR, 2005; Nation, 2005.

The majority of wetlands located on Nation lands mapped by New York State are classified as Class II and Class IV. Class II wetlands comprise 890 acres of Nation lands and are found mostly in Group 2 while Class IV wetlands comprise 757 acres and are found mostly in Group 3. Class III wetlands, which comprise 479 acres of Nation lands, are located mostly in Group 1. The only Class I wetlands located on Nation lands is identified on Figure 3.3-11; this Class I wetlands comprises approximately 44.5 acres of Parcel 200, which is located in the Town of Smithfield. The location of Class II, Class III,

and Class IV wetlands on Nation lands and in the Study Area are depicted on Figures 3.3-15, 3.3-19, 3.3-21, and 3.3-23.

The total area of freshwater wetlands on Nation lands that are mapped by New York State exceeds the area of wetlands under Federal mapping (NWI) and jurisdiction by approximately 60 acres, which is primarily due to the large area of wetlands recognized by New York State located immediately east of Oneida Lake. As previously identified in Section 3.3.4.2 Regulatory Framework for Jurisdictional Wetlands, there are no minimum size and/or acreage requirements in determining Federal jurisdictional authority over waters of the U.S. Therefore, any wetlands that are located on NYSDEC Regional Freshwater Wetlands maps and not on NWI maps or any wetlands present on the actual landscape that avoided detection and were not mapped either by New York State or the Federal government would be regulated by the USACE and subject to the regulations promulgated through the CWA. As a result of the CWA regulations, the protection afforded to the limits of wetlands by the New York State Freshwater Wetlands Act (Article 24 and Title 23 of Article 71 of the Environmental Conservation Law) would not be compromised regardless of mapped agency designation.

Unlike the Federal regulations, the NYSDEC also regulates non-wetland areas located within 100 feet of a designated wetland as a buffer. In some cases, the NYSDEC may require a buffer of more than 100 feet to be included in the regulated area. Based on the existing NYSDEC Regional Freshwater Wetlands mapping for the study area, approximately 589 acres of Nation lands are located within 100 feet of wetlands (located within buffer zones) mapped by New York State. Buffer areas to wetlands on Nation lands that would otherwise be regulated by the NYSDEC would not be afforded regulation by the USACE.