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ENVIRONMENTAL ASSESSMENT
STATEMENT
ORANGE LAWN TENNIS CLUB
RE-DEVELOPMENT
&
SITE IMPROVEMENTS PLAN

-- THE VILLAS at ORANGE LAWN --

**TOWNSHIP OF SOUTH ORANGE VILLAGE
ESSEX COUNTY, NEW JERSEY**

305 Ridgewood Road North
Block 1304 – Lot 6

August 2016



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Casey and Keller, Inc. No. 1140108

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ORANGE LAWN TOWN HOMES at SOUTH ORANGE

PROJECT SUMMARY

The applicant is proposing to construct 20 market-rate residential town homes in the northwest portion of the Township of South Orange Village located in the south central part of Essex County. The overall project site currently has tennis courts, parking areas, club buildings, and has long been used as a tennis club. Various parking improvements would take place in the club area.

It is proposed to construct 20 town homes as duplexes (ten buildings) on a portion of the applicant's property that is currently vacant. The homes would be serviced by a new driveway from the existing tennis club driveway that comes off of Ridgewood Road. The project would increase water demand and sanitary sewer flow by a small amount. There are no known Flood Hazard Areas nor are there any wetlands on the subject property. A significant portion of the project would be constructed in an area that is currently a simple lawn. There are various trees and undergrowth, including a number of invasive plants that would be removed for the project. Within the tennis club portion of the property—separate from the proposed townhouse development—minor work would be conducted to provide new overflow parking areas and associated site improvements (curb, walkways, etc.).

I. INTRODUCTION and EXISTING SITE CONDITIONS

PROJECT LOCATION

The project is located at 305 Ridgewood Road North, which is north of the intersection of Ridgewood and South Orange Avenue in the Township of South Orange Village, Essex County, New Jersey. It is also known as Block 1304, Lot 6. The State Plane Coordinates for this project (at the approximate centroid) are E 557 925 and N 699 600.

OWNER

Orange Lawn Tennis Club
305 Ridgewood Road North
South Orange Village, New Jersey 07079
Tel—973-762-0928
[Email—OLTC club@orangelawn.com](mailto:OLTC_club@orangelawn.com)

APPLICANT (Townhouses)

BNE
16 Microlab Road—Suite A
Livingston, New Jersey 07039
Tel-973-992-2443

EXISTING SITE and LOCAL AREA

The townhouse project area lies within the Township of South Orange Village's RT—*Residential Townhouse District* designed for this type of development. The minor work within tennis club area falls within the PR—*Private Recreational District*. The subject property is designated as Lot 6 of Block 1304 on the Township of South Orange Village Tax Maps. The westerly part of the site is substantially developed with about half of the subject property currently developed with tennis courts (hard surface and grass), clubhouse, a banquet facility, swimming pool, parking lots, and support facilities. The easterly end of the subject property is relatively undeveloped and contains a lawn area and a small patch of woods with a range of trees and shrubs—both native and invasive plants. This lawn area is occasionally used as overflow parking for larger events.

There are no water courses or other water bodies on the project site. (The nearest water course is the East Branch of the Rahway River, which is several hundred feet downhill from the project property.) There are also no known wetlands in the project area.

The area of the property is 687,358 square feet in size or 15.78 acres. A small portion of the property fronts on Ridgewood Road (approximately 80 feet), but otherwise is surrounded by developed residential lots. It is serviced with all basic utilities—water, gas, electric, sanitary sewer, and cable—which are provided from underground pipelines and conduits and overhead wires.

As noted above the local surrounding areas are predominantly developed as residential neighborhoods with single family homes. On the easterly side of Ridgewood Road there is Floods Hill and Cameron Park. To the south, approximately 0.55 mile is the downtown area of South Orange along South Orange Avenue.

EXISTING CONDITIONS

SOILS AND GEOLOGY

The project site lies within the Triassic Lowlands portion of the New Jersey Piedmont Province in southwestern Essex County. The predominantly Triassic age rock (formed about 195 to 230 million years age) is sometimes referred to as the "Newark Basin." Formed under what are believed to be semiarid conditions, the specific rock formations are:

Stockton – Arkosic sandstone; yellowish to gray in color.

Lockatong – Argillite, with shale and mudstone; gray, reddish-brown, some black and olive green beds.

Brunswick – Feldspathic mudstone, micaceous siltstone, and shale; reddish-brown.

Basaltic intrusions are found in Essex County and this project is located just to the east of the Watchung Mountains. However, although the western edge of South Orange borders the first Watchung ridge, the basaltic rock is not exposed at the surface within the project site. The most significant factor affecting the surficial geology and the soils of the project area is the impact of the glaciers. While there were several episodes of glaciation, the most recent advance and retreat of the glacier ice—known as the Wisconsin Stage—had the most profound effect. The movement of the glacial ice directly impacted the landscape by scraping, gouging, and pushing surface materials (soils, rocks, vegetation) ahead of it. In other areas the glacial ice rode up and over the surface soils,

compressing them. In still other locations, melt water tunnels within the ice mass itself left depositional structures such as eskers (composed predominantly of sands and gravels). Secondary effects by the “retreating” glacier include erosion and other depositional features such as glacial outwash, characterized by deep deposits of stratified materials—silty sands in particular and sometimes poorly graded sands and gravels. Glacial till, composed of materials pushed down by the glaciers, contains significant amounts of granitic gneiss originating from the Highlands area and the shales, sandstones, and conglomerate rock of the Piedmont from the north. Although much of the material is granular, internal drainage is sometimes restricted due to the subsurface development of a hardpan (usually within several feet of the surface) or clay lenses.

Another notable legacy of the glaciers was the creation of lakes—both “temporary” and “permanent.” Of the several large glacial lakes in northeastern New Jersey, Glacial Lake Hackensack (stretching from Rahway in Union County to Tappan, New York) and Glacial Lake Passaic (between the Highlands Province and the Watchung Mountains) were most dramatic in their affects. As the glaciers continued to retreat northward, debris dams were breached, outlet streams were uncovered, the water inflow was greatly reduced, and subsequently the lakes drained. Remnants, however, remain in the form of the Great Swamp, the Hackensack Meadowlands, Troy Meadows, and a number of smaller swamps, marshes, and wetlands. The sediments associated with the lakes can be complex, ranging from varved clays to gravel terraces and sandy beds to highly organic clays.

The moderately to steeply sloping site is identified as having GM-42pi type soils as per the *Engineering Soil Survey of New Jersey—Report No. 2, Essex County*. This material is described as “ground morainic till,” a heterogeneous non-sorted mixture of clays, silts, sands, and pockets of gravel, cobbles, and occasional boulders. In many areas at a depth of three to four feet the soil tends to a silty-sand composition. Fair to poor internal drainage, high groundwater levels depending on the local terrain and underlying soil conditions, and fair bearing capacity are characteristic of these soils. Shattered and/or competent bedrock would lie below this layer and might be found at shallow depths depending on the terrain, however, in general the depth to the bedrock ranges from 10 to 20 feet or more.

From the National Cooperative Soil Survey of the Natural Resources Conservation Service (NRCS) the site contains one overall soil—the Boonton-Urban Land type (BowrB). This is describes as “...Boonton substratum complex, red sandstone lowland, 0-8 percent slopes.” The NRCS has classified these soils as being in Hydrologic Soil Group “C”. Described as originating from ground moraine, it is not subject to flooding or ponding and the depth to the water table is generally over 80 inches deep. The soils in general being considered a “gravelly sandy loam” with some fine sands, silt, and clay conditions in various areas.

A “Soils and Foundation Investigation” report was prepared by Melick-Tully Associates, P.C. of South Bound Brook. The reader is referred to the report for more information on the subsurface soils.

TOPOGRAPHY

Within the subject property, the area of the tennis courts, pool, and parking facilities is relatively level. The portion of the property where the townhouses would be located slopes moderately down from west to east. The highest elevations are along the service drive near the clubhouse at about

112, with the lowest elevation in the northeast corner at about 72. (Most of the proposed townhouse project would, however, take place between the 80 and 102 contours.

FLORA AND FAUNA

The majority of the area to be developed with town homes is currently “lawn.” The lawn consists of a variety of grasses, various crab grasses, cinquefoil, dandelions, plantain, and miscellaneous low growing weed species. Along the easterly property line is a wooded area that ranges from about 15 feet wide on the northern side to about 130 feet wide on the southern end of said property line. Associated with this wooded area are understory plants and various shrubs.

There are various trees in this area, with the majority being maples and oaks. Other species include:

Ash	Linden	Norway Maple
Plum	Tulip	Hemlock
American Beech	Mulberry	White Pine
Black Locust	Pin Oak	Red Maple
Horse Chestnut	Black Cherry	Tree of Heaven
Sugar Maple	White Oak	London Planetree
Japanese Maple	Dogwood	False Cypress
Copper Beech	Ginkgo	Weeping Cherry
Blue Atlas Cedar	Black Walnut	

The trees range in size from saplings to larger specimens from 15 to 30 inches in diameter. Some of the notable larger trees include a 39-inch black locust, a 47-inch black oak, a 48-inch blue atlas cedar, and a 53-inch white oak. The largest tree in the project area is a 60-inch American beech. A separate tree inventory for trees eight inches and larger are found in a report—*Existing Tree Inventory & Tree Preservation Plan-The Villas at Orange Lawn*—prepared by Arborist Richard S. Wolowicz, CTE and Landscape Architect Brian S. Conway, LLA, P.P. The reader is referred to that report for more information.

The understory contains a combination of native and non-native invasive species. These include:

Wineberry	Wild Lettuce	Burdock
Ground Ivy	Poison Ivy	Japanese Knotweed
Virginia Creeper	Honeysuckle	Multi-flora Rose
Mugwort	Clover	Garlic Mustard
Pokeweed	Curled Dock	

Animal life includes species that are rather typical of urban-suburban environments such as gray squirrels, rabbits, and chipmunks. During a site visit a white-tailed deer was observed on one of the adjacent neighboring properties. The deer likely pass through the wooded areas on this easterly side of the project area. Similarly, bird species would include common types such as robins, blue jays, sparrows, blackbirds, and so forth. Because the project area is predominately maintained lawn area with a strip of woods that has been extensively disturbed in the past (secondary growth, debris deposited in the woods, etc.) there are no known endangered or threatened species in the proposed construction area.

Within the tennis club area there are several lawn areas and a scattering of trees. As this area is in the central developed area of the club there is no understory or scrub growth as in the vacant part of the property where the townhouses are to be built. This club area has been extensively disturbed in the past for the development of the original tennis club, pool, and clubhouse. The variety of both plants and animals is very limited in these small areas.

A *Natural Heritage Data Request* from the N. J. Department of Environmental Protection was requested for this site. No threatened or endangered plant or animal species are known to occur at the project site. In the “vicinity” and within a mile of the project area three avian species are listed as being of “special concern” that are possibly in the area. These are:

Glossy Ibis (*Plegadis falcinellus*)
Great Blue Heron (*Ardea Herodias*)
Snowy Egret (*Egretta thula*)

All three species, however, are “waders” in that they use aquatic areas—wetlands, streams, ponds, etc.—for foraging. As there are no water courses, wetlands, or other water bodies on the project area it is extremely unlikely that they would be found in said area. Their occurrence is probably related to the East Branch of the Rahway River and other water bodies found in local parks within a mile of the project site.

FLOOD HAZARD AREA CONSIDERATIONS

As indicated above, there are no water bodies or water courses on or near the project site. Thus there are no issues with flood hazard areas.

WETLANDS

There are no known wetlands on the project site. The U.S. Fish and Wildlife Service’s National Wetlands Inventory map for the Caldwell Quadrangle in New Jersey did not indicate that there were any wetlands on or adjacent to the project area. A review of various South Orange planning documents does not indicate any wetlands in the area.

HYDROLOGY AND CLIMATE

The north central New Jersey area generally has a temperate climate with a wide, though not extreme range of conditions. The average summer temperature is about 73°F with maximum average highs of about 83°F. Winter temperatures average about 33°F overall with an average daily minimum of about 25°F. Temperature extremes, however, can range from below 0°F to over 100°F.

Precipitation averages about 45 inches per year and is relatively evenly dispersed throughout the year. Specific storm events (thunderstorms, nor’easters, hurricanes) can produce higher than average rainfall amounts in local areas. Annual snowfall accumulation is about 17 inches although

this can vary greatly from year to year. Unusual, but not extremely rare individual storms can deposit snow in excess of 20 inches.

TRANSPORTATION/TRAFFIC

As noted above, the project area is serviced by an existing driveway from Ridgewood Road. Ridgewood Road, a minor collector street, connects to South Orange Avenue, which in turn connects to several other collector streets such as Wyoming Avenue and Scotland Road. These roads connect to Route 10 (Mt. Pleasant Avenue) and I-280 and subsequently other highways. Ridgewood also provides direct access to downtown South Orange at its intersection with South Orange Avenue.

The Township is serviced by rail via the New Jersey Transit Morristown Line with service west as far as Hackettstown and east to Newark's Broad Street Station, Secaucus Transfer Station, New York's Penn Station, and connecting service to Hoboken. There are two train stations servicing the town—South Village Station and the Mountain Station. Two New Jersey Transit bus lines pass through the Township as well.

In general traffic to the existing tennis club and pool is weather dependent except for special events held inside the main facility. Play on the tennis courts and use of the swimming pool would see ingress and egress traffic spread out through the day with some "bunching" at times when group lessons are being offered. Catered affairs, such as wedding receptions, see the most traffic flow. (Note: For large events generally only one event at a time is held at the main facility; the Clubhouse can host up to a maximum of about 350 guests, however the Grand Ballroom, the preferred venue has a maximum of 220 guests.) A separate traffic study has been prepared by Hamal Associates of West Orange and the reader is referred to the same.

HISTORICAL

The Orange Lawn Tennis Club is the second oldest tennis club in New Jersey having been founded in 1880. During its long history it has hosted several prominent tennis tournaments as well as number of tennis luminaries. The area of the Club lies within South Orange's *North Ridgewood Road Historic District*, however, none of the existing buildings on the property are on any register of historic places.

II. DESCRIPTION OF THE PROPOSED PROJECT

PROPOSED PROJECT

This application proposes to construct 20 market-rate three-bedroom townhouses in the undeveloped portion of the Orange Lawn Tennis Club property. The project would include an

access drive from the Club's main drive, sidewalk, and all utilities. Most of the project would be built on the lawn area, though there would be some intrusion into the easterly wooded area. A secondary work area—shown on a separate site plan—would be to provide regular and overflow parking in various lawn and existing paved areas within the tennis club area. Several trees would likely be removed to facilitate this work. Select areas would be paved or graded and curbing and other minor work performed to direct club and event traffic to the appropriate areas.

Utilities would all be underground. Parking would be provided for the potential townhouse residents with garages and driveways. Several additional parking spaces would be provided for guests. Because the site has a steady slope from west to east, several small retaining walls would be used to account for the grade differential. A small detention basin would be used for stormwater management.

Townhouse type developments are usually set up in building blocks of four to eight dwelling units per building. However, at the request of neighboring properties owners, the town directed the applicant to put the dwelling units in groups of two to simulate "single-family" homes, creating "duplexes" as opposed to the four to eight unit groupings. The project has been designed to meet the various requirements of the local zoning code, the *Residential Site Improvement Standards*, and other applicable rules and regulations. At the same time, care has been taken to minimize the footprint of the buildings, roadways, and other site improvements. Although a number of "poor" and "moderate" value trees would be removed, new landscaping in the form of groundcover, flower beds, shrubs, and trees would be added throughout the site.

The portion of the property containing the townhouse development would be subdivided off of the overall Orange Lawn property—that is, 4.78 acres for the townhouses, leaving 11.0 acres for the club. The 4.78 acre section—currently mostly lawn, some woods, and a portion of the existing entrance drive—would essentially go from 4% to 39.93% impervious cover (the allowable in the RT Zone is 40%). The remainder of the property—the 11.0 acre portion—would remain in the Private Recreational District (PR). On the 11.0 acre club facility lot, the project would require the reconfiguration of the Club's overflow parking, which is currently the lawn area. A separate site plan has been developed for this work.

The change in impervious cover in the new lot would be significant and would affect stormwater runoff volumes. The analysis of the affect on stormwater by the change in land use and impervious cover is found in the separate *The Villas at Orange Lawn Stormwater Management Report*.

POPULATION CHANGES

It is proposed to construct 20 market-rate townhouse type dwelling units. The population change is expected to be minimal compared to the South Orange estimated 2015 population of 16,380. The *Urban Land Institute* and the *Center for Urban Policy Research* have conducted a number of studies concerning the number of persons living in dwelling units. In general the analyzers concluded that the number of residents in dwelling units of all types has decreased. For example, the researchers determined that the number of persons living in a townhouse (combined two- and three-bedroom units) has decreased from 2.755 to 2.437 (from 1980 to 1987). At that time the statisticians

projected the numbers for 2001 to be “2.804 persons” per three-bedroom townhouse. More recent studies have indicated that the actual number is even smaller. One means of estimating is to use **Table 5.1** in the *Residential Site Improvement Standards—Water Demand/Generation by Type/Size of Housing*. This table lists an “average number of residents” for each type of housing unit. From these figures (based on the “Townhouse” criteria) the total number of potential residents at the Orange Lawn project could be:

$$\begin{array}{lcl} \text{3-Bedroom Unit} & 20 \text{ units @ } 2.83 \text{ persons/unit} = & \underline{56.6 \text{ residents}} \\ & \text{Equivalent:} & \underline{57 \text{ residents}} \end{array}$$

The actual number depends on the types of buyers for the units. It could be expected that the major categories of buyers would be “empty nesters,” young professionals, commuters, and young families. The first category would be current residents who no longer want the burden of maintaining a large single-family house, but who still want to remain in South Orange. The other categories would likely be singles or couples in the early part of their careers, seeking to “establish” themselves before making their first large real estate investment. This is a rather small increase in the population considering the overall population base of over 16,380 residents.

The Center for Policy Research at Rutgers University has done a number of demographic studies based on housing types at existing housing developments and neighborhoods of all sizes. In their *Who Lives in New Jersey Housing?—A Quick Guide to New Jersey Residential Demographic Multipliers* publication, there are tables with various housing types, different bedroom counts, pricing (above or below the median) with a breakdown by age and the expected number of school age children. (The school age children are further broken down by the percentage expected to be attending public school.) For this project:

$$\begin{array}{lcl} \text{3-Bedroom Unit} & 20 \text{ units @ } 2.66 \text{ persons*/unit} = & \underline{53.2 \text{ residents}} \\ & \text{Equivalent:} & \underline{53 \text{ residents}} \end{array}$$

$$\begin{array}{lcl} \text{3-Bedroom Unit—School Age Children Multiplier is: } 0.44 & & \\ & 20 \text{ units} \times 0.44 = 8.8 \text{ or equivalent of } & \underline{9 \text{ children}} \end{array}$$

$$\begin{array}{lcl} \text{3-Bedroom Unit—School Age Children Attending Public School Multiplier: } 0.38 & & \\ & 20 \text{ units} \times 0.38 = 7.6 \text{ or equivalent of } & \underline{8 \text{ public school students}} \end{array}$$

**The Rutgers study uses more recent demographic information than does the RSIS document.*

ZONING

The total area of the project property is 687,358 square feet in size or 15.78 acres. The site is zoned *R-T Residential Townhouse District*. This classification specifically permits the residential type housing being proposed. It is noted that in recent years the Township has realized the importance of providing a variety of housing options and that project would be a component of a balanced community. Interestingly, in a 2007 redevelopment report for South Orange, the entire property was designated as a “PRC B” District—Planned Residential Cluster B Zone, perhaps anticipating the

desirability of promoting residential development in this area. Zoning information is found on the *Site Plans* for the RT and PR districts and in the appendices of this report.

The proposed townhouse project conforms to the requirements of the RT Zone. The existing developed portion of the site (tennis courts, pool, clubhouse, etc.) and the minor improvements being proposed would meet the requirements of the PR Zone.

III. ENVIRONMENTAL IMPACTS, CONCERNS, AND REMEDIATION

Construction of this facility would have a number of impacts and concerns, both temporary and long-term. These include:

1. Noise would be generated during the construction of this project. The facility's operation would also generate noise from resident activities, vehicular traffic, and landscaping machinery.
2. Stormwater runoff volume would be increased because of the increase in impervious cover.
3. Although some existing vegetation would be removed, new landscaping in the form of gardens, shrubs, and trees would be added.
4. Plant and animal habitat would be slightly changed, some trees and scrub growth would be removed.
5. There is the potential for soil erosion and siltation.

NOISE

The additional noise from this development would be relatively small considering that generated by surrounding activity. The site is surrounded by residential neighborhoods and the noise from this relatively small townhouse project would be readily absorbed into the surrounding mix. The most significant sources of post-construction noise would be that of automobiles entering and leaving the site and the periodic use of landscaping equipment (mowers, hedge clippers, blowers, etc.).

Noise generated by construction activities would be temporary. During the 12 to 18 months of construction activity, the type of noise and intensity will change depending on the activity (e.g., earth moving machinery, hammering and sawing, generators etc.). Otherwise, noise from the site would be typical, if not slightly less, than that of any suburban residential neighborhood. It is anticipated that any "noise" generated by this project would be masked by that from surrounding, compatible uses and traffic on the adjacent roadways. There would also be appreciable amounts of new landscaping throughout the site between driveways and parking areas and any nearby residential areas.

The minor changes being proposed for the existing developed area of the Club would not appreciably affect the noise level in this area. There are already driveways and parking lots in the tennis club area. The only change is moving the overflow parking area from the easterly lawn to lawn areas within the tennis club area. Thus there would be no change to the noise levels currently generated by Club activities of which the neighborhood has grown accustomed over the years.

LAND USE

The Township of South Orange Village is largely developed as a residential community, predominately single-family homes. There is a vibrant downtown commercial district, a variety of other commercial zones, Seton Hall University, multi-family housing, and several open space/park areas. The master plan, zoning ordinance, and redevelopment planning documents, while recognizing the predominance of single-family type housing, have acknowledged the importance of providing a variety of housing choices and for providing clustering options, condominiums, apartments, townhouses, and downtown improvements. The proposed residential project is in accordance with the Township's desire to provide a wide range of opportunities to its residents. The project would be more in keeping with patterns of residential use in the surrounding neighborhoods.

With regard to this specific site, the land use would be altered from its present vacant status to residential. However, much of the overall property—including the “vacant” area—has been disturbed throughout the past century for the construction of the tennis courts, clubhouse, swimming pool, parking, and other site amenities. The lawn area was undoubtedly cleared of trees and graded to its present topography and maintained as a grass area. Also as indicated in the Zoning section above, the property was thought to be suitable for residential development by the municipality and was designated as such. (The lawn area is currently used for overflow parking.)

WETLANDS AND STREAM CORRIDORS

As indicated above, there are no wetlands on the site. Nor are there any stream courses or other water bodies in or around the project area. Because of the proposed conversion of lawn area to residential uses the volume of stormwater runoff would increase. However, this increase would be controlled by a stormwater management system using a small detention area. This aspect of the project is discussed in further detail below and in *The Villas at Orange Lawn Storm Water Management Report*.

FLORA AND FAUNA

Construction of this project would decrease existing lawn area and require the removal of various “poor” and “moderate” trees and scrub growth in the easterly wooded area. The lawn area, habitat for insects and birds and small creatures that might forage on the insects, would be greatly reduced. Some lawn area would remain, but significantly there would be a number of new trees, shrubs, and groundcover planted, increasing the number of individual plants at the project site as well as the variety. Although some of the proposed landscaping is ornamental in nature, the new landscaping would utilize native species and other plantings compatible with this area of New Jersey. A mixture of evergreen, deciduous, and flowering species would be incorporated into the landscaping work. Other disturbed areas would be augmented with topsoil and seeded as per soil erosion and sediment control requirements.

The small size of the existing wooded area limits its suitability of a habitat for most creatures. However, those small mammals, birds, and various other species that do utilize this area would find their habitat altered. Obviously there would be some disturbance to these creatures during construction activities. Some individuals may successfully migrate to adjacent areas while others may be temporarily displaced, but return after the work is finished. The new landscaping would also provide a slightly different and varied habitat and would attract some of the species now inhabiting the area as well as new species. The addition of street and landscaping trees and flowering plants could attract a variety of different avian and lepidopteron species.

The larger and unique specimen trees would largely remain intact and protected from construction activities. Existing trees in “poor” condition and invasive trees and shrubs would largely be removed. Existing trees in “moderate” condition would be removed on a case-by-case basis except when in the direct path of new structures. The planting plan would largely mitigate vegetation removal.

The reader is again referred to the report—*Existing Tree Inventory & Tree Preservation Plan-The Villas at Orange Lawn* by Conway and Wolowicz.

AIR QUALITY

It is likely that a percentage of those people moving into the new residential units would be current South Orange Village residents who would relocate to the new facility and thus there would be a shift, although not necessarily a great increase in motor vehicle use. The housing units themselves would be insignificant producers of air pollution, as they would use modern, high-efficiency heating and cooling equipment. Further, the project’s proximity to major roadways in effect diminishes its “contribution” to air quality. That is, the amount of emissions from this facility with its modern, state-of-the-art equipment would be very small in comparison to the overall contributing area. It is well known that wind-borne pollutants from out-of-state generators compromise New Jersey’s air quality. In a general sense, air quality has improved somewhat and will continue to do so as long as the Federal Clean Air Act is enforced. Construction work will generate some dust, however, soil erosion control measures and spraying can be used to reduce or eliminate this potential pollutant source.

STORM DRAINAGE CONSIDERATIONS

As part of the overall redevelopment project, a new stormwater management system has been designed to account for the change in impervious cover. The system would incorporate a detention and treatment system. It is noted that “roof” runoff does not have to be “treated” as it is considered “clean” water under the state regulations. However, much of this would be directed into the stormwater management system as well. Again, the reader is referred to the separate *The Villas at Orange Lawn Stormwater Management System*.

OTHER ENVIRONMENTAL COMMENTS

Disposal of Soils—Any excess fill material from the foundation excavation, utilities, stormwater system, and the removal of extraneous concrete, bituminous pavement, etc. would be disposed of off the site in accordance with all applicable rules and regulations.

Soil Erosion and Sediment Control—A portion of the site would be disturbed by the removal of existing vegetation and the subsequent construction work. Soil erosion and sediment control certification would be obtained from the Hudson-Essex-Passaic Soil Conservation District. The typical control features as described in the standards would be used here (inlet filters, vehicle tracking pad, filter fence, and so forth). Any soil and other material removed for the construction of footings and the foundation would be loaded onto dump trucks for disposal at an approved site. All applicable Township of South Orange Village soil erosion and sediment control requirements would be followed as well.

Freshwater Wetlands—There are no known wetlands in the project area. The *National Wetlands Inventory Map* was examined and it was concluded that there are no known wetlands within the project site or in the adjacent area.

Threatened and Endangered Species—Although potential suitable habitat for several threatened and endangered species are within a mile of the proposed project, the previous extensive disturbance of the surrounding area and the fact that much of the project site is simple lawn area, the site has limited value as habitat. This is reflected in the Natural Heritage Database letter.

IV. SITE REQUIREMENTS AND UTILITY DEMANDS

LOCAL WATER SYSTEM

The project area is currently serviced by the East Orange Water Company and is supplied by the East Orange Water Commission (EOWC) from wells in Livingston and one South Orange well (“No. 17”) in Grove Park. However, the Township will be switching over its water system to the New Jersey American Water (NJAW) company (**PWS I.D. #0712001**) starting on January 1, 2017.

As per information provided by NJAW, please note the following:

Information relative to specific existing facilities and interconnection information, as well as, PA-05E requested current supply and demand information is supplied by NJAW directly to the Bureau of Water System Engineering (BWSE) for security reasons.

This flow information, which is constantly changing, includes Projected Peak Daily Demand, Total Source Capacity, and Firm Source Capacity. As noted above, the NJAW supplies this information direct to the N.J. DEP.

The NJAW obtains its water from a number of sources. These include a number of wells located throughout central New Jersey as well as the Millstone/Raritan Canal complex, where they also maintain a water treatment facility. Depending where they are located, the wells might tap the porous portions of the water-bearing layers of stratified drift in glacial deposits, interstitial cracks of the top layers of the Passaic Formation (part of the Brunswick Group), or farther south in the sands of the coastal plain. The Millstone facility utilizes surface water. In 2012 NJAW put a new state-of-the-art treatment facility in operation—the 22 million gallon per day Canoe Brook system. The plant treats a combination of surface and well water. While South Orange is also planning on rehabilitating its Well No. 17 and providing a treatment system for it, NJAW will be taking over the supply, maintenance, and testing of a majority of the Township's water.

The water supply systems, treatment, and distribution facilities will be operated and maintained by NJAW. Information on the supply system's capacities and other characteristics are on file with the BWSE. Other information, including "backup" sources and local interconnections, the type of pipe used in the supply system, total water main length in South Orange, treatment systems, and so forth are also on file with the Bureau of Water System Engineering, Division of Water Supply and Geoscience.

The proposed town home complex is composed of 10 buildings of two townhouse units for a total of 20 dwelling units. The town homes would each contain three bedrooms. There would be no change to the water demand of the tennis club and its associated facilities.

The proposed water main extension would be an 8-inch line branched off an existing main that services the tennis club, which in turn comes off of an existing water main in Ridgewood Avenue. The line would enter the site at the main entrance drive, continue down the drive and through the "hammer-head" parking area, then join a water main in Redmond Road. Hydrants would be placed at the beginning of the entrance drive and one near the hammer-head parking area.

If there are water main/sanitary sewer crossings in which a minimum clearance of 18 inches cannot be maintained, then the sanitary line would be encased in concrete as per N.J.A.C.7:14A-23.6(b)4,i. As an alternative, the sanitary sewer could be constructed of ductile iron pipe. Watertight joints would be placed a minimum of ten feet before and after the point of crossing.

From Table 5.1 in the *Residential Site Improvement Standards* (RSIS), a three-bedroom townhouse has "2.83 residents" generating a 210 gal/day demand. As per Section 5:21-5.2(c) the maximum daily demand is 1.5 times the daily demand or:

$$210 \text{ gal/day} \times 20 \text{ units} = \underline{4,200 \text{ gal/day}}$$

$$\text{Maximum Daily Demand} = 1.5 \times 4,200 \text{ gal/day} = \underline{6,300 \text{ gal/day}}$$

The peak hour flow is determined from RSIS Table 5.2 (prorated):

$$20 \text{ units} \times 4.5 \text{ gal/min} = \underline{90 \text{ gal/min}}$$

The peak daily flow (Section 5:21-5.2(d) of the RSIS) is computed by multiplying the average daily residential flow by three:

$$3.0 \times 210 \text{ gal/day} \times 20 \text{ units} = \underline{12,600 \text{ gal/day}}$$

This translates to about 8.75 gpm or 0.0126 mgd. New Jersey American Water has always been able to demonstrate that it has the service capacity to supply water to its customer base and beyond. Under the various demand scenarios NJAW has sufficient capacity to service the 20 units of the Orange Lawn Townhouse Project. Other information and documents on NJAW's ability to service this project and the local area are on file with the BWSE.

Valves as per the RSIS or as required for proper system operation would be installed in the new water main to isolate the extended water main from the remainder of the water system in the event of any repairs or emergencies. There would be two new hydrants installed with this project as noted above, at both ends of the service road.

The new water line would be installed with a minimum cover of four feet. The design depicts a minimum separation of ten feet horizontally and 18 inches vertically from the sanitary sewer system. As noted above, where this is not possible, a six-inch concrete encasement of the sanitary sewer pipe, ten feet on each side of the crossing, could be provided. Alternatively, the sanitary sewer could be constructed of ductile iron for a distance of at least ten feet on either side of the crossing with watertight joints. This decision would be made in the field. The location of the water mains, valves, hydrants, details, and other appurtenances are shown on the site plan drawings.

SANITARY SEWER EXTENSION

The RT zone permits construction of specific housing stock. Based upon the New Jersey Department of Environmental Protection's "*Projected Flow Criteria*," the sewage flow from these dwelling units are anticipated to be:

20 units of 3-Bedroom Units	× 300 gpd =	6,000 gpd (0.0006 mgd)
TOTAL		<u>6,000 gpd</u> (0.0006 mgd)

Calculated as per N.J.A.C. 7:14A-23.3.

A small extension of the municipal sanitary sewer system would be required to provide service to this small complex. The municipal public works department provides the maintenance on approximately 51 miles of sanitary sewers. South Orange is part of the Joint Meeting of Essex & Union Counties. Sewage from the Township flows from the municipal system into interceptor sewers of the Joint Meeting for eventual conveyance to the Joint Meeting's treatment plant in Elizabeth. There are no known capacity or treatment issues that would affect the sanitary flow from this project. There would be no change to the flows from the existing tennis club complex.

V. OTHER COMMUNITY CONSIDERATIONS

Community issues and impacts are briefly discussed below. This proposed project would not have an impact as intense as other types of development (e.g., an industrial park) and is unlikely to have a significant detrimental impact to the community. Important issues include:

EMPLOYMENT

The housing complex would require a number of workers to construct, both skilled and semiskilled, some of which may be drawn from the Township's employment base. Once the project is up and running there will be a need for property managers, maintenance personnel, landscapers, and so forth. Both full and part-time work is anticipated. Some Township residents may take advantage of the new employment opportunities and local businesses may be contracted to provide these services as well.

LOCAL PRIVATE SERVICES

The increase in number of residents and maintenance workers may be beneficial to local shopkeepers as well. Services for the operation of the housing complex could be contracted to local firms. Other residents and workers would likely take the opportunity to eat, shop, do banking, and otherwise avail themselves to local private services.

UTILITIES

Both municipal agencies and private concessions would provide utility services. Such services include water, sewer, electric, phone, sanitation collection, and cable. All necessary applications and documentation for this project would be completed and filed with all local and state agencies as applicable.

SCHOOLS

As described under the Housing discussion above, the nature of the townhouse project is that it would statistically attract residents having, on average, fewer children than a comparable single-family development. It is likely that the number of owners without children would outnumber those with children, thus balancing or reducing the overall impact on the local school network from this project. On the positive side, the taxes generated by this facility will contribute to the capital and operating revenue of the school district as well as other municipal operations. The potential number of school age children attending public school was calculated to be eight as described above in the "Population Changes" section of this report.

FIRE AND POLICE

It is anticipated that the proposed townhouse project would incorporate modern security and fire/alarm/systems. The parking areas and access drives would make it easy for emergency personnel to patrol and secure the site should there be a need for such services. Again, tax revenues should provide a positive flow to help support these governmental functions.

HISTORICAL

There are only minor changes proposed to the grounds associated with the clubhouse and tennis courts. Thus, there is no anticipated impact on any structure that might have historical significance.

TRANSPORTATION/TRAFFIC

Vehicular movements in and out of the project area are variable—depending on the weather, the inclination of members to use the facilities at any particular time, group lessons, and special events. The traffic generated by the 20 townhouse units would blend into this variable schedule. Some of the residents would work and travel back and forth during the so-called rush hours. Some residents would likely work from home and others might be retired, leaving and returning at different times for shopping, dining, entertainment, and the such. Traffic impacts are more fully described in a separate report prepared by Hamal Associates.

OTHER SERVICES AND IMPACTS

The townhome owners would be responsible for solid waste collection, pick-up, and disposal arrangements. Recycling would be part of the solid waste program and would be handled internally or in conjunction with the municipality. Increased traffic and wear and tear on the area road network can be expected; however, the effect is minimal considering the overall traffic volume. Residents would have easy access to other parts of town via Ridgewood Road, South Orange Avenue, Scotland Avenue, and other roadways.

SUMMARY

The proposed *The Villas at Orange Lawn* and improvements to the existing grounds of the tennis club area would provide new and alternative housing stock for South Orange Township. The most significant impact is that the dwelling units, roadway, and other improvements would occupy what is now mostly vacant land. However, this proposed project is in keeping with the Township's designation as a potential "cluster" type development and would help provide mid-level housing stock for this area of South Orange. Runoff generated by the change in impervious area would be directed to a small detention basin for stormwater management and treatment (that is, removal of suspended solids, trash, and other noxious material). Where vegetation has been removed, new groundcover, shrubs, and trees would be planted. Overall, the proposed project would have no negative impacts on flood hazard areas or the local neighborhood.

The existing developed portion of the overall project site would not be changed as part of the proposed project. The townhouse area and the club facilities would be on separate lots. The project has been modified several times to take into account requests by the Township for site changes as well the desires of the local neighbors. Building sizes and configurations have been changed, roadways and other features have been designed at allowable minimums, and extensive new landscaping would be installed. The overall project is in keeping with the Master Plan and redevelopment plans to the benefit of South Orange Village.

Bibliography

In addition to field observation and discussions with municipal officials, consultants, and the project developers, information for this report used the following source material:

Smart Growth Plan of the Township of South Orange Village; South Orange Village Planning Board & Village Trustees as prepared by Heyer, Gruel & Associates. October 2007.

Chapter 92—Land Development from the General Code of the Township of South Orange Village; Township of South Orange Village Planning Board, Township of South Orange Village, New Jersey. November 1, 1982 (as revised and amended).

Engineering Soil Survey of New Jersey, Report No. 2 Essex County, New Jersey; Rutgers University, College of Engineering, Engineering Research Bulletin No. 16, The Bureau of Engineering; Franklyn C. Rogers et al. New Brunswick, New Jersey. January 1951.

Essex County Soil Survey Progress Report and General Soil Map, Essex and Hudson Counties; U.S. Department of Agriculture, Soil Conservation Service, Cartography and GIS Center; Fort Worth, Texas. 1994.

Soils of New Jersey; J.C.F. Tedrow, Rutgers University, Krieger Publishing Co., Malabar, Florida. 1986.

U.S. Bureau of the Census: Census 2010 Summary File 1, Township of South Orange Village, Essex County, N.J.; New Jersey Department of Labor, Division of Labor Market and Demographic Research, Trenton, New Jersey. 2011.

Who Lives in New Jersey Housing? A Quick Guide to New Jersey Residential Demographic Multipliers; David Listokin et al.; Center for Urban Policy Research, Rutgers University; New Brunswick, New Jersey; November 2006.

Existing Tree Inventory & Tree Preservation Plan; The Villas at Orange Lawn; Brian S. Conway, LLA, P.P. and Richard S. Wolowicz, CTE; Millburn, New Jersey; August 26, 2016.

FIGURES

LOCATION MAPS

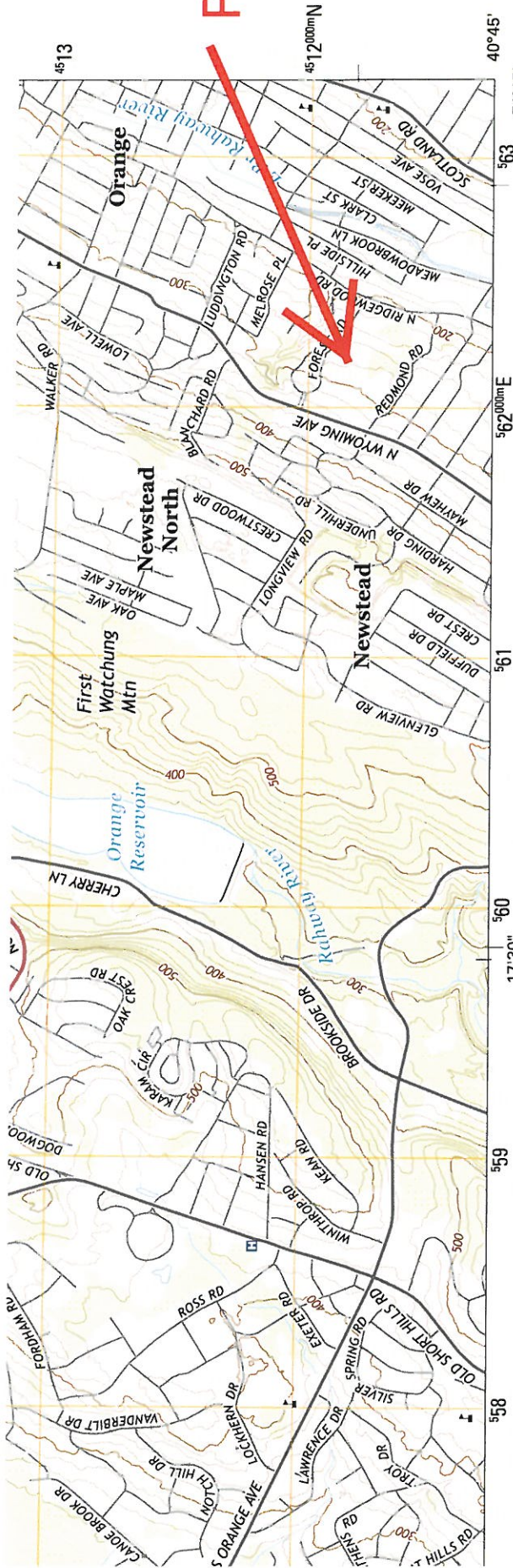
- U.S.G.S. Location Quad
- Tax Map
- Aerial Photo View
- Site Photos
- Various Map Plates from *South Orange Smart Growth Plan*

MISCELLANEOUS DOCUMENTS

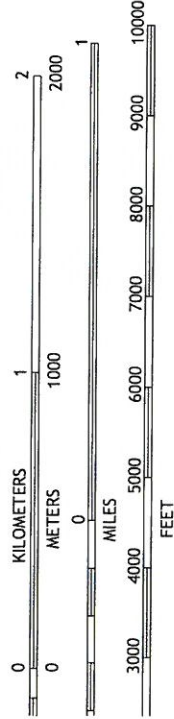
LOCATION MAPS



CALDWELL, NJ
2014



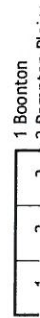
SCALE 1:24 000



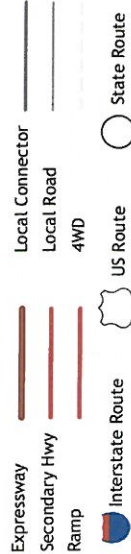
CONTOUR INTERVAL 20 FEET

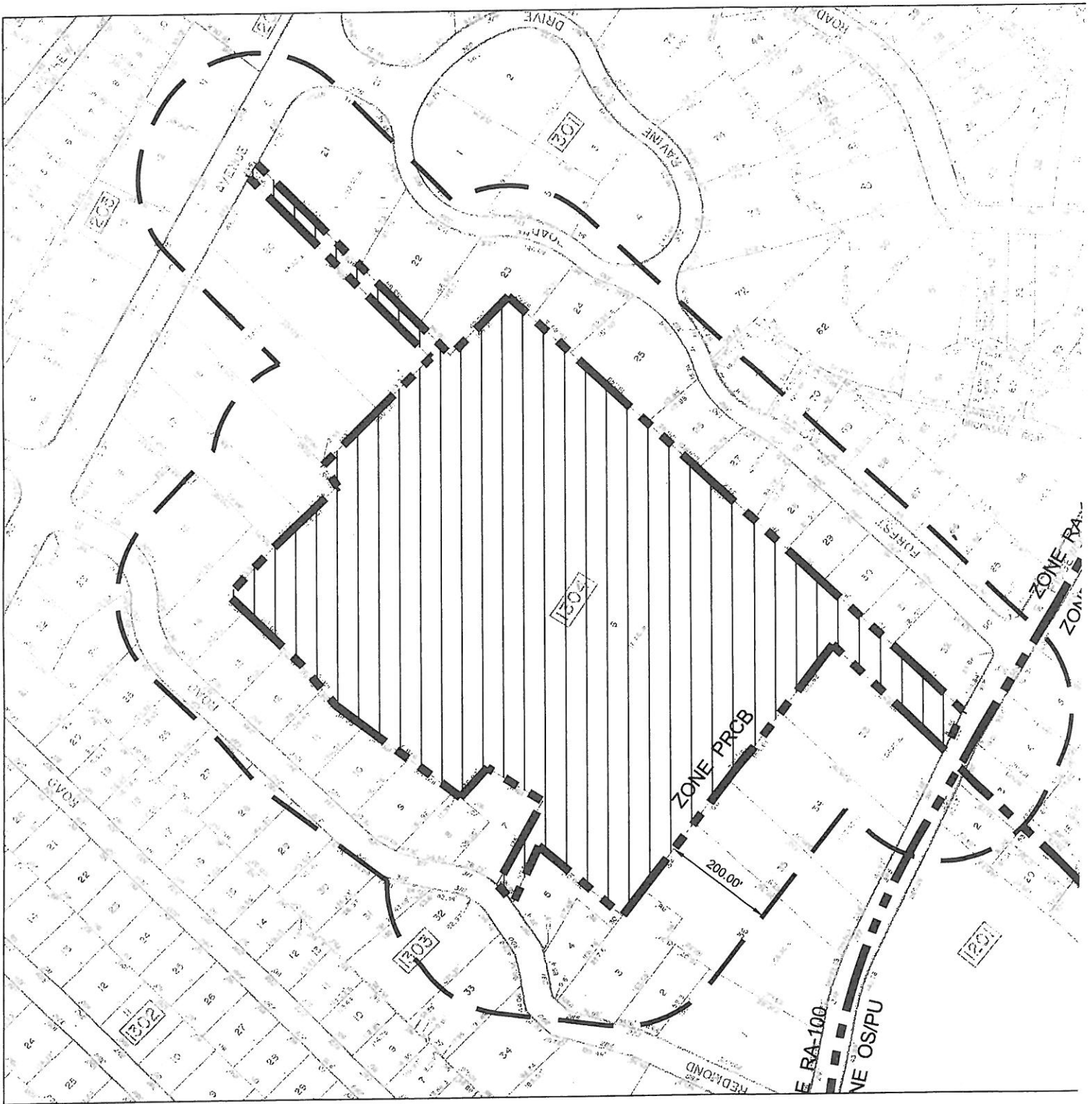


QUADRANGLE LOCATION



ROAD CLASSIFICATION





AREA MAP

TOWNSHIP OF MILLBURN

TAX MAPS

1"=250'

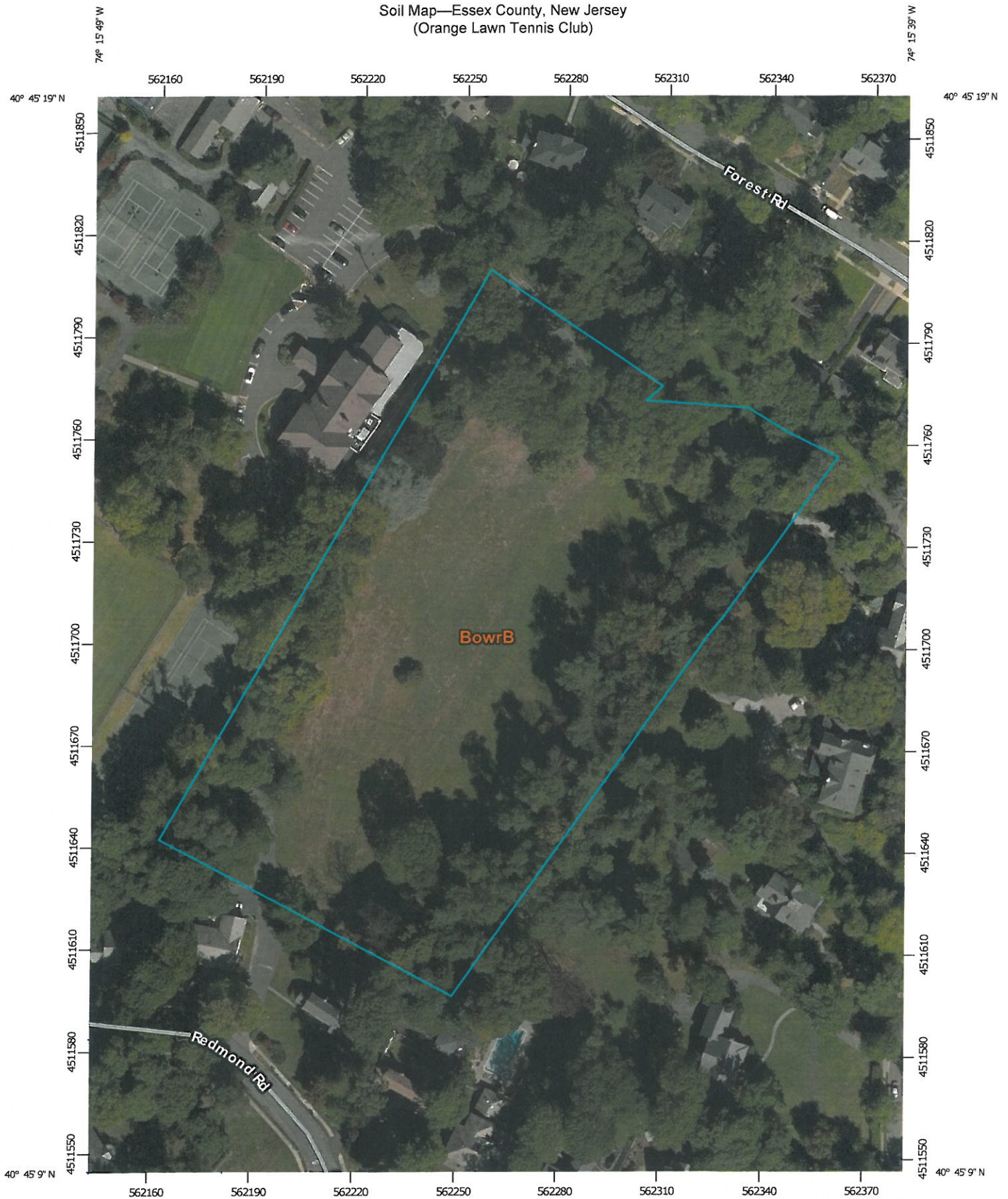
RESIDENTIAL TOWNHOUSE DISTRICT (RT)					
ORDINANCE	DESCRIPTION	REQUIRED	EXISTING	PROPOSED	COMMENTS
	MINIMUMS:				
	TRACT AREA	4.6 AC	N/A	4.780 AC	C
	SETBACKS				
	BUILDING (PROP LINE)	50 FT	N/A	50.17 FT	C
	BUILDING (TO PR DISTRICT)	30 FT	N/A	30.3 FT	C
	BUILDING (STREET)	20 FT	N/A	20.0 FT	C
	BUILDING (SEPARATION)	25 FT	N/A	25 FT	C
	MAXIMUMS:				
	LOT COVERAGE	40%	N/A	39.93% (83,134 SF)	C
	BUILDING HEIGHT	35 FEET & 2 1/2 STORIES	N/A	35 FEET & 2 1/2 STORIES	C
	DENSITY	20 DWELLING UNITS	N/A	20 DWELLING UNITS	C
	UNITS PER BUILDING	2 UNITS	N/A	2 UNITS	C
	PARKING REQUIREMENTS:				
R.S.I.S. STANDARDS	OFF-STREET (TOWNHOUSE)	2.4 SPACES/UNIT 48 SPACES	N/A	81 SPACES	C

C = CONFORMING
 N/A = NOT APPLICABLE
 N/C = NO CHANGE
 ENC = EXISTING NON-CONFORMING
 V = VARIANCE

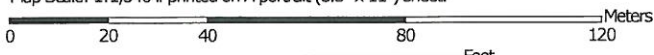
PRIVATE RECREATIONAL DISTRICT (PR)					
ORDINANCE	DESCRIPTION	REQUIRED	EXISTING	PROPOSED	COMMENTS
	MINIMUMS:				
	TRACT AREA	11 AC	15.780 AC	11.0 AC	C
	SETBACKS				
	FRONT		345.4 FT	39.15 FT	C
	SIDE		163.4 FT	N/C	C
	REAR		472.97 FT	N/C	C
	MAXIMUMS:				
	LOT COVERAGE (WITH EXCEPTIONS OF TENNIS COURTS)	40%	23.70 % (162,921 SF)	32.16% (154,060 SF)	C
	BUILDING HEIGHT	35 FEET & 2 1/2 STORIES	A	N/C	C
	PARKING REQUIREMENTS:				
	OFF-STREET			150 SPACES	

C = CONFORMING
 N/A = NOT APPLICABLE
 N/C = NO CHANGE
 ENC = EXISTING NON-CONFORMING
 V = VARIANCE

Soil Map—Essex County, New Jersey
(Orange Lawn Tennis Club)



Map Scale: 1:1,540 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84







































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

8/2/2016
Page 1 of 3

MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
	Soils		Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
	Special Point Features		Water Features
	Blowout		Streams and Canals
	Borrow Pit		Transportation
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Background
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, New Jersey
Survey Area Data: Version 11, Sep 18, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 25, 2014—Sep 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Essex County, New Jersey

BowrB—Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w8p8
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Boonton, red sandstone lowland, and similar soils: 50 percent
Urban land, boonton red sandstone lowland substratum: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonton, Red Sandstone Lowland

Setting

Landform: Ground moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy till derived from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: silt loam
BE - 3 to 10 inches: loam
Bw - 10 to 27 inches: gravelly loam
Bx1 - 27 to 40 inches: gravelly fine sandy loam
Bx2 - 40 to 67 inches: gravelly fine sandy loam
BCx - 67 to 83 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C

Description of Urban Land, Boonton Red Sandstone Lowland Substratum

Setting

Landform: Ground moraines

Landform position (three-dimensional): Lower third of mountain flank

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

H1 - 0 to 12 inches: material

H2 - 12 to 67 inches: gravelly loam

2CB - 67 to 83 inches: gravelly sandy loam

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Minor Components

Udorthents, boonton red sandstone lowland substratum

Percent of map unit: 10 percent

Landform: Ground moraines

Landform position (three-dimensional): Lower third of mountain flank

Down-slope shape: Linear

Across-slope shape: Linear

Data Source Information

Soil Survey Area: Essex County, New Jersey

Survey Area Data: Version 11, Sep 18, 2015

Map Unit Legend

Essex County, New Jersey (NJ013)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	5.0	100.0%
Totals for Area of Interest		5.0	100.0%

SITE PHOTOGRAPHS



Figure 1--Townhouse Area--View from the approximate location of the proposed entrance drive to the townhouse area looking southwesterly.



Figure 2--Townhouse Area--Looking northeasterly from area of proposed entrance drive toward blue atlas cedar and other trees along the existing tennis club service drive--trees to be preserved.



Figure 3--Townhouse Area--Looking northeasterly from the area of the proposed "hammerhead" parking area along the proposed entrance drive.



Figure 4--Townhouse Area--Looking toward the scrub growth and wooded area on the southerly side of the project.



Figure 5--Townhouse Area--Garlic mustard and other invasive plants are found in much of the scrub growth area.



Figure 6--Townhouse Area--Wooded area, scrub growth, debris; would be removed as part of development.



Figure 7--Club Area--Proposed overflow parking area adjacent to existing clubhouse buildings.



Figure 8--Club Area--Four new paved parking spaces to be placed across from the diagonal spaces.



Figure 9--Club Area--Propane tank to be relocated and wall removed to provide eight additional overflow parking spaces. Double door garage-shed to be removed for additional paved parking spaces.



Figure 10--Club Area--Green wall to be removed for overflow parking spaces; paved parking spaces to be placed in front.



Figure 11--Club Area--Looking northerly at area of proposed paved parking spaces and overflow parking.



Figure 12--Club Area--Looking southerly along easterly side of property toward proposed paved parking spaces.

SOUTH ORANGE VILLAGE
VARIOUS MAP PLATES—
SOUTH ORANGE SMART
GROWTH PLAN

Historic Districts

National and State Register District

Montrose Park Historic District

SHPO Opinion

Prospect Street Historic District

Potential Eligible National Register District

South Ridgewood Road Historic District

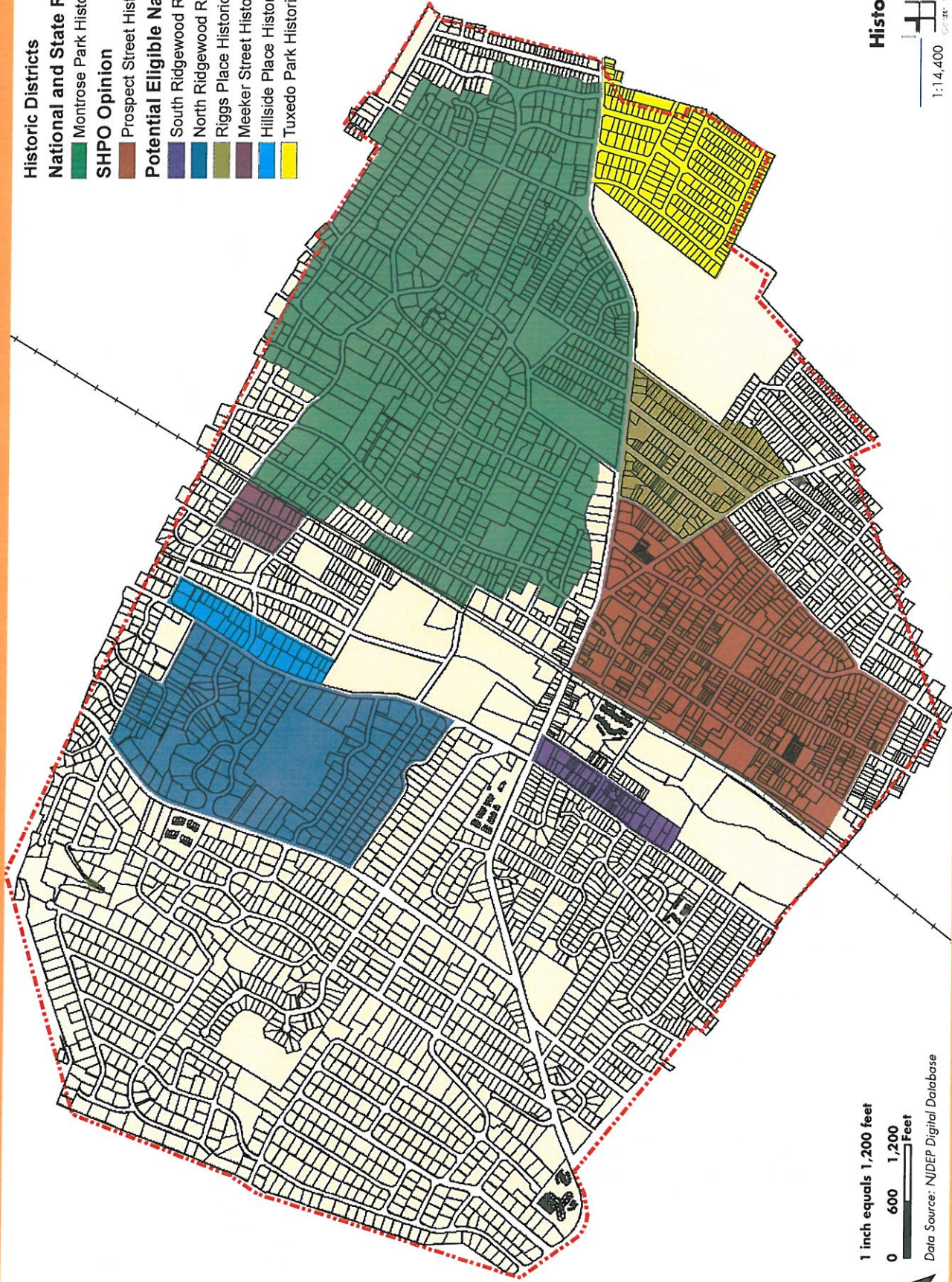
North Ridgewood Road Historic District

Riggs Place Historic District

Meeker Street Historic District

Hillside Place Historic District

Tuxedo Park Historic District



N 1 inch equals 1,200 feet

0 600 1,200 Feet

Data Source: NIDEP Digital Database

Historic Districts Map

J HEYER, GRIEL

& ASSOCIATES

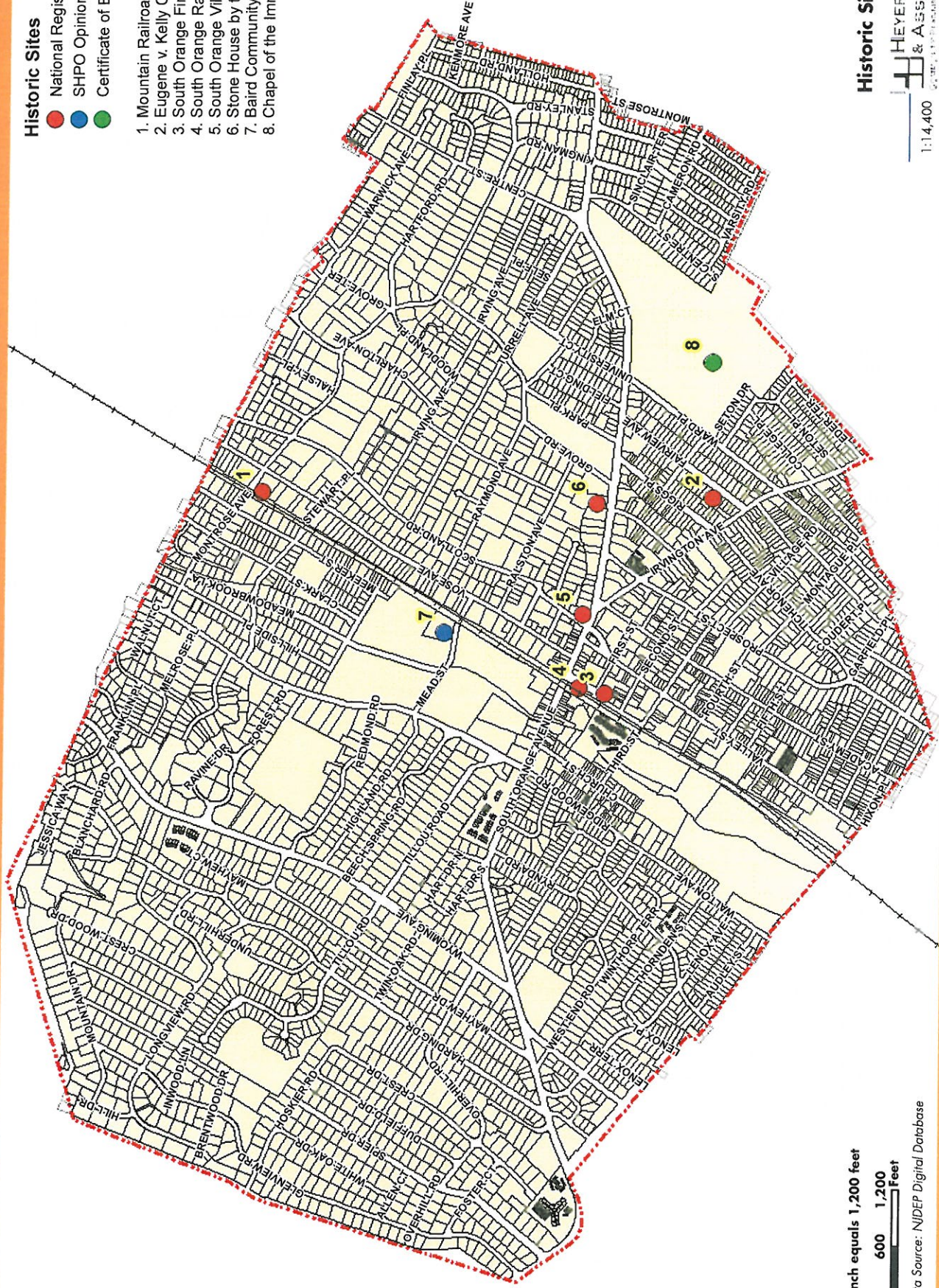
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June 2007

Historic Sites

- National Register / State Register
- SHPO Opinion
- Certificate of Eligibility

1. Mountain Railroad Station
2. Eugene v. Kelly Carriage house
3. South Orange Fire Department
4. South Orange Railroad Station
5. South Orange Village Hall
6. Stone House by the Stone House Brook
7. Baird Community Center
8. Chapel of the Immaculate Conception



N 1 inch equals 1,200 feet

0 600 1,200 Feet

Data Source: NIDEP Digital Database

Historic Sites Map

HEYER, GRUEL
& ASSOCIATES

1:14,400

June 2007

REDEVELOPMENT DISTRICTS

TS Train Station

Church St. Redevelopment Areas District
CS-P/OS Public Open Space District
CS-R22 Church Street - R-22 District
CS-R32 Church Street - R-32 District
CS-R38 Church Street - R-38 District

RA-100 Residential Single-Family
RA-75 Residential Single-Family
RA-60 Residential Single-Family
RA-50 Residential Single-Family
RB Residential Two-Family

PRC A Planned Residential Cluster A
PRC B Planned Residential Cluster B
B-1 Primary Business

OS/PU Open Space/Public Use Zone

■ Redevelopment Area

**THE HEYER, GRIEL
& ASSOCIATES**
ARCHITECTS

June 2007



Data Source: NJDEP Digital Database
Township of South Orange Village

- LEGEND**
- Wetlands
 - Water
 - 100-year Floodplain
 - Forest
- Forested Wetland**
- Suitable (1)
 - Priority Species (2)
 - State Threatened (3)
 - State Endangered (4)
 - Federal T and E (5)
- Forested Wetland**
- Suitable (1)
 - Priority Species (2)
 - State Threatened (3)
 - State Endangered (4)
 - Federal T and E (5)



**ENVIRONMENTAL
CONSIDERATIONS
MAP**

HEYER, GRIEL
& ASSOCIATES

June 2007

1:14,400

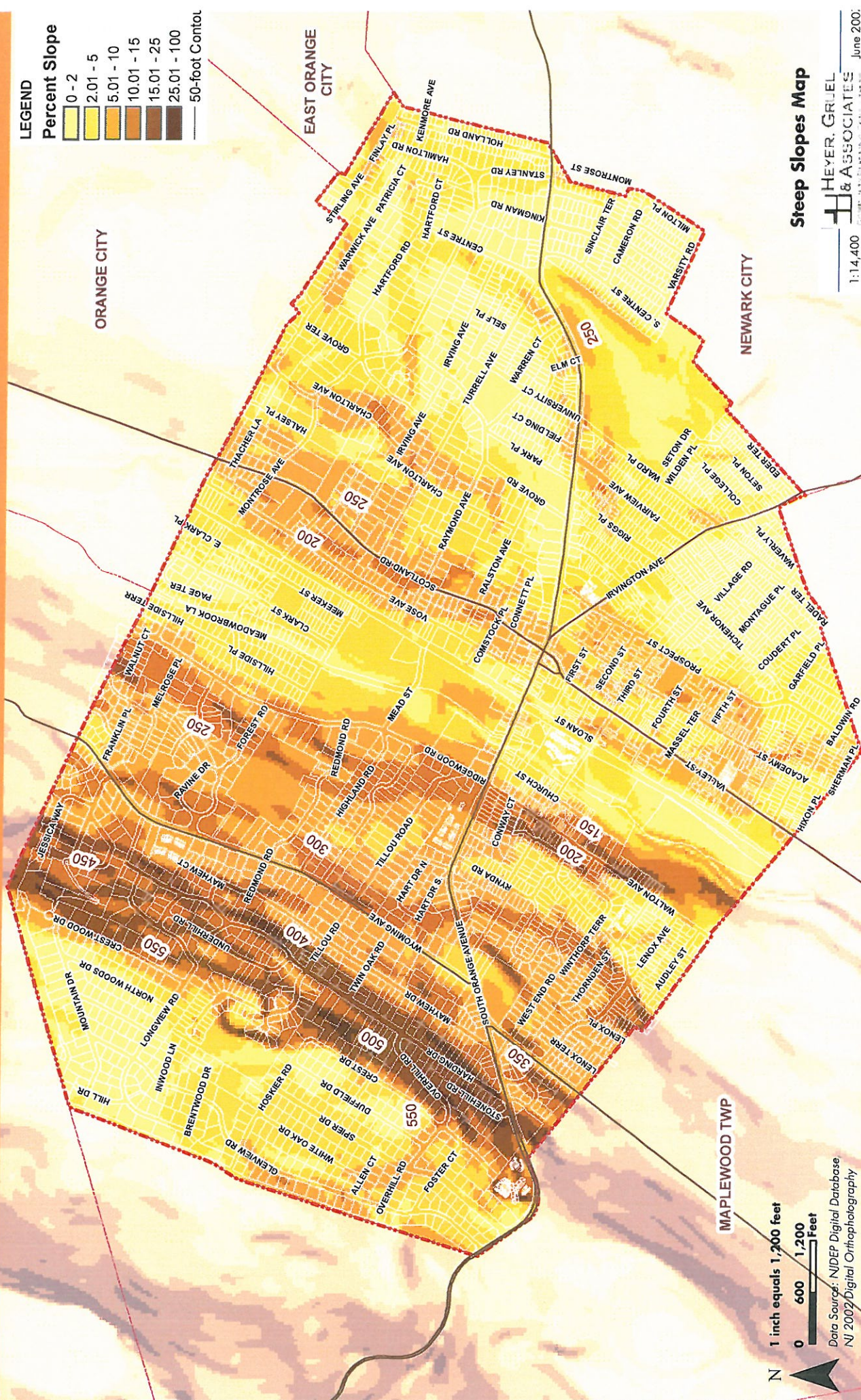
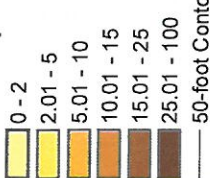
MAPLEWOOD TWP



Data Source: NIDEP Digital Database

LEGEND

Percent Slope



Steep Slopes Map

HEYER, GRUEL
& ASSOCIATES

1:14,400

June 2001

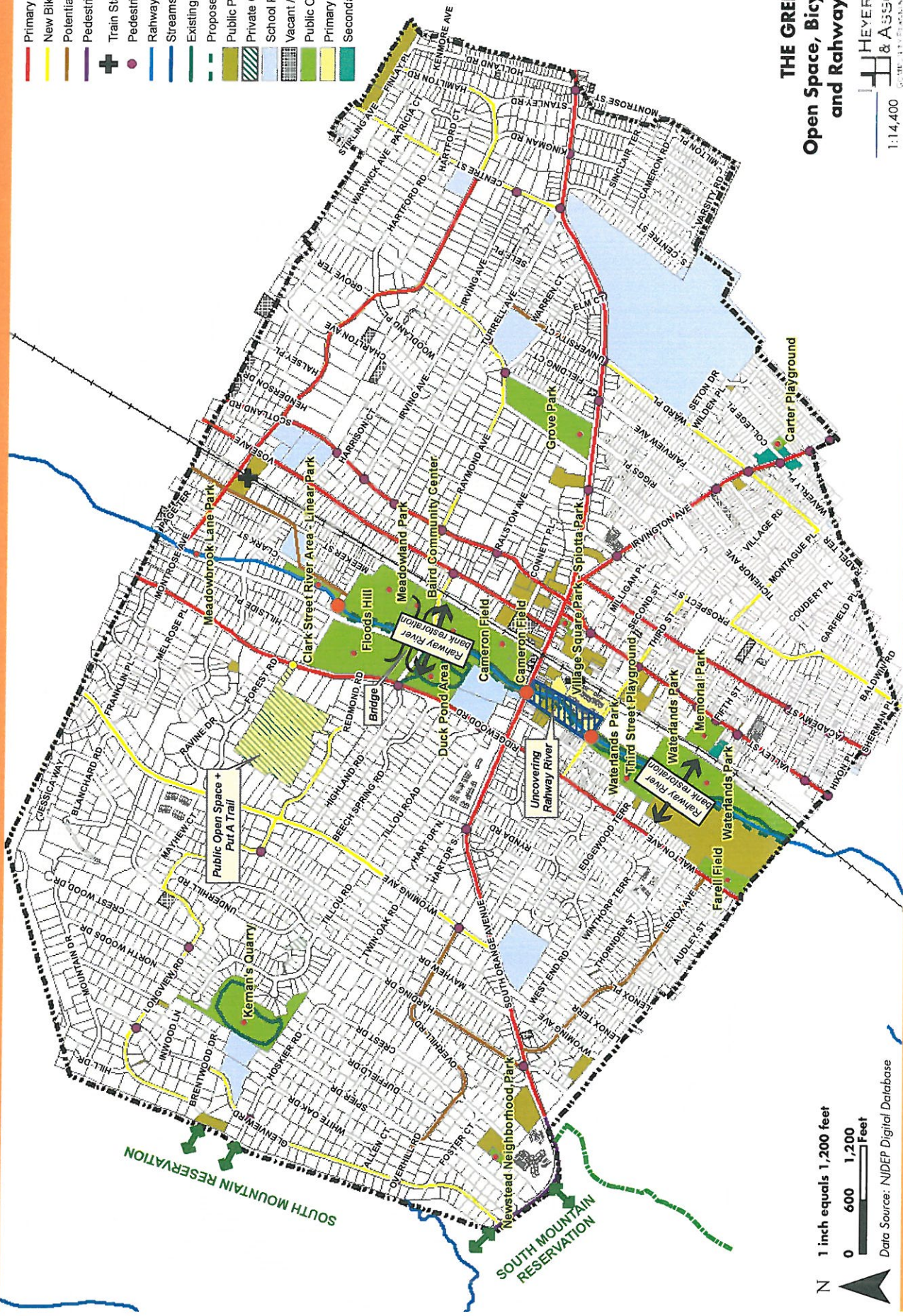
1 inch equals 1,200 feet



Data Source: NJDEP Digital Database
NJ 2002 Digital Orthophotography



- Primary Arteries
- New Bike/Ped Road Connections
- Potential Bike/Ped Connections
- Pedestrian Improvements
- Train Stations
- Pedestrian Improvements
- Railway River
- Streams
- Existing Trails
- Proposed Trails
- Public Property
- Private Open Space and Recreation
- School Property
- Vacant / Undeveloped
- Public Open Space and Recreation
- Primary Open Space Acquisitions
- Secondary Open Space Acquisitions



THE GREEN MAP

Open Space, Bicycle, Pedestrian and Railway River Plans

HEVER, GRUEL & ASSOCIATES
1:14,400
June 2007

N 1 inch equals 1,200 feet
0 600 1,200 Feet

Data Source: NIDEP Digital Database

MISCELLANEOUS DOCUMENTS



State of New Jersey

CHRIS CHRISTIE
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Parks & Forestry

State Forestry Service

Mail Code 501-04

Office of Natural Lands Management – Natural Heritage Program

P.O. Box 420

Trenton, NJ 08625-0420

Tel. (609) 984-1339 Fax. (609) 984-1427

BOB MARTIN
Commissioner

KIM GUADAGNO
Lt. Governor

August 12, 2016

Bart van der Werff
Casey & Keller, Inc.
258 Main Street, P.O. Box 191
Millburn, NJ 07041

Re: Orange Lawn Town Homes
Block(s) - 1304, Lot(s) - 6
South Orange Village Township, Essex County

Dear Mr. van der Werff:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Natural Heritage Data Request Form into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

This report does not include information concerning known Northern Long-eared Bat hibernacula and maternity roost trees protected under the provisions of the U.S. Fish & Wildlife Service's 4(d) Rule. You must contact the U.S. Fish & Wildlife Service, New Jersey Field Office, for additional information concerning the location of these features, or visit their website at: <http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html>.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

NHP File No. 16-4007473-10340

For requests submitted as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species are also covered by the FHACA rules when the records are located within one mile of the project site. One mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html>. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive NJ-GeoWeb website at the following URL, <http://www.state.nj.us/dep/gis/geoweb splash.htm> or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf>.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,



Robert J. Cartica
Administrator

c: NHP File No. 16-4007473-10340

Table 1: On Site Data Request Search Results (6 Possible Reports)

<u>Report Name</u>	<u>Included</u>	<u>Number of Pages</u>
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches	No	0 pages included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Table 2: Vicinity Data Request Search Results (6 possible reports)

<u>Report Name</u>	<u>Included</u>	<u>Number of Pages</u>
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.1	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

**Rare Wildlife Species or Wildlife Habitat Within the
Immediate Vicinity of the Project Site Based on Search of
Landscape Project 3.1 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
<i>Aves</i>								
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N

Table 3: Within 1 Mile for FHACA Searches (6 possible reports)

<u>Report Name</u>	<u>Included</u>	<u>Number of Pages</u>
1. Rare Plant Species Occurrences Covered by the Flood Hazard Area Control Act Rule Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within 1 mile	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.1	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File	No	0 pages included
6. Other Animal Species Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

**Rare Wildlife Species or Wildlife Habitat Within
One Mile of the Project Site Based on Search of
Landscape Project 3.1 Species Based Patches**

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
<i>Aves</i>	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N

