Environmental Impact Statement

789 Hamilton Street
Tax Lots 6-15, Block 225
Township of Franklin
Somerset County, NJ

August 7, 2020

AWZ Project No. 20-0203

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1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Introduction

This Environmental Impact Statement (EIS) has been prepared by AWZ Engineering, Inc. (AWZ) for the proposed development project located at 789 Hamilton Street, Block 225, and Lots 6-15, located within the Franklin Township, Somerset County, New Jersey. This EIS has been prepared in conformance with the requirements set forth by the Franklin Township Zoning Ordinance.

Refer to Appendix A for Site Location Maps for a visual description of the project area.

1.2 Existing Site Conditions

The site is located in the northeast section of the Township. The site is a corner lot with access through Martin Street, Shevchenko Avenue, and Hamilton Street. The parcel is situated on Block 225, Lots 6-15 as shown on the Township Tax Map. The total property area is approximately 0.57-acres. The current zoning of the site is HBD (Hamilton Street Business District) zone.

The existing site includes of two 1 1/2-story frame dwellings, a frame garage, a shed, paved driveways, and concrete walks. Currently, 17.48% of the lot consists of impervious surfaces. The site is surrounded by residential and commercial uses.

1.3 Proposed Project Description

The proposed improvements at the site include demolition of the existing structures and construction of a 3-story mixed used building with ground floor parking. A total of 48 parking spaces including two (2) handicap spaces are proposed for the project. Traffic circulation, lighting, landscaping and drainage improvements are also part of the development. The proposed impervious area of the site will be about 94.78% (23,694.39 sf).

New utility connections for the proposed building are proposed, including sewer, gas and water.

An underground detention basin will provide the required detention of the peak flows for the design storm events. Also, in addition to NJDEP approved Storm filters, the detention time of the design flood will address the water quality requirements for the removal of total suspended solids.

1.4 Approvals, Permits and Certifications Required

The following permits may be required or have been obtained for the project:

- Franklin Township Planning Board Approval;
- Somerset County Planning Board Approval;
- Somerset-Union Soil Conservation District, Erosion and Sediment Control Permit; and
- Local Construction Permits.
- Delaware and Raritan Canal Commission

2.0 DESCRIPTION OF THE ENVIRONMENT

The site is located in the northeast section of the Franklin Township. The site is a cornet lot with access through Martin Street, Shevchenko Avenue, and Hamilton Street. The total property area is approximately 0.57-acres.

Refer to Appendix A for Site Location Maps which graphically depicts the site location.

2.1 Natural Resources

This section provides a general description of the existing natural environment that potentially would be affected by implementation of the proposed project.

2.1.1 Land Resources

2.1.1.1 Soils

As per National Resources Conservation Service (NRCS) Soil Survey, the existing soil within the majority of the proposed development is composed of the following:

Map Unit: KkoC – Klinesville Channery Loam, 2 to 6 percent slopes.
The entire site is classified as Klinesville Channery Loam with surface covered by lawn and impervious areas, underlain by undisturbed and natural soil material. The Klinesville series consists of shallow, somewhat excessively drained soils formed in residuum derived from red shale, siltstone, slate, and fine-grained sandstone. They are on dissected uplands. Slopes range from 3 to 80 percent. Saturated hydraulic conductivity is high. The parent material is composed of fine-loamy residuum weathered from shale. The drainage class is somewhat excessively drained. The capacity of the most limiting layer to transmit water is high (2 to 6 in/hr.). The hydrologic soil group is D.

The NRCS soil ratings, description and properties are provided in Appendix B.

2.1.1.2 Areas of High Water Table

As per the NRCS soil survey data, the natural drainage class of the soils is well drained. These soils are not flooded nor ponded and does not meet the hydric criteria. The depth to the water table is more than 80 inches.

2.1.1.3 Site Geology

The area geology is important for several reasons; mainly that the physical and chemical properties of the land determine the quantity and quality of ground water the aquifers yield. They also control how groundwater recharges and moves through the aquifers, how contaminants seep into and move through the soil and groundwater, and where natural hazard likes radon, sinkholes and seismic instability may occur. Finally, these properties establish where geologic resources such as sand, gravel, peat, clay, quarry rock and mineral ores are located. Geologic properties also determine the suitability of an area for the use of septic systems, the management of stormwater and surface runoff, and the stability of foundations for buildings, bridges, tunnels, and other structures. Franklin Township is located within the Piedmont Province.

Piedmont Province - The Piedmont Province is an area of about 1,600 square miles and makes up approximately one-fifth of the state. It occupies all of Essex, Hudson, and Union Counties, most of Bergen Hunterdon and Somerset, and parts of Mercer, Middlesex, Morris and Passaic. It is mainly underlain by slightly folded and faulted sedimentary rocks of Triassic and Jurassic age (240 to 140 million years old) and igneous rocks of Jurassic age. Highly folded and faulted lower Paleozoic sedimentary rocks along the northwestern margin in the Clinton and the Peapack areas, as well as at several smaller areas are included as part of the Piedmont. In the Trenton and Jersey City areas, along the southern margin of the province, there are small bands of highly metamorphosed rocks ranging in age from Middle Proterozoic to Cambrian that are also included.

The Piedmont is chiefly a low rolling plain divided by a series of higher ridges. Its width varies from about 16 miles at the New York border to over 30 miles at the Delaware River. Along the foot of the Highlands, the elevation of the Piedmont generally ranges from 300 to 400 feet above sea level. The highest point in the province, at 914 feet, is Barren Ridge on the northern side of the Hunterdon Plateau. The major linear ridges are underlain by igneous rocks (lava flows and diabase intrusive rocks) and have steep front faces with long back slopes. Of these, the tallest is High Mountain at 885 feet. The most prominent feature in the eastern part of the province is The Palisades, which has a maximum elevation of 547 feet near Closter. The province slopes from the foot of the Highlands towards its southern boundary with the Coastal Plain Province. There its elevation is about 100 feet near Trenton and sea level at Newark Bay.

The boundary with the Coastal Plan Province is placed at the contact between the rock units of the Piedmont and the unconsolidated Cretaceous sediments. It is essentially a line from Carteret through Princeton Junction to Trenton. This boundary line is known as the Fall Line because it is marked by a series of waterfalls and rapids all along the East Coast. The Sand Hills are erosional remnants of Coastal Plain sediments that lie within the Piedmont.

Surficial and Bedrock Geology – Rocks of the Piedmont Province are separated from the rocks of Highlands Province by a series of major faults, including the Ramapo fault. The more resistant gneisses and granites on the upthrown northwest side of the faults make a prominent escarpment, 200 to 800 feet in height, extending from Mahwah through Boonton and Morristown to Gladstone, and from there westward in an irregular line to the Delaware River near Milford.

South and east of this escarpment, interbedded sandstone, shale, conglomerate, basalt, and diabase of the Piedmont Province underlie broad lowland interrupted by long, generally northeast-southwest trending ridges and uplands. The rocks of the Piedmont are of late-Triassic to early-Jurassic Age. They rest on large, elongate crustal block that dropped downward in the initial stages of the opening of the Atlantic Ocean – one of a series of such blocks in eastern North America. These down-dropped blocks formed valleys known as rift basins. Sediment eroded from adjacent uplands was deposited along rivers and lakes within the basins. These sediments become compacted and cemented to form conglomerate, sandstone, siltstone, and shale. They commonly have a distinctive reddish-brown color.

In the course of rifting, the rock layers of the Piedmont become tilted northwestward, gently folded, and cut by several major faults. Volcanic activity was also associated with the rifting, as indicated by the basalt and diabase interlayered with the sandstone and shale. Diabase is a rock formed by cooling of magma at some depth in the crust; basalt is formed by cooling of an identical magma that has been extruded onto the surface as lava. Both basalt and diabase are more resistant to erosion than the enclosing sandstone and shale and therefore they form ridges and uplands. The Palisades, Rocky Hill, Sourland Mountain, and Cushetunk Mountain are underlain by diabase layers. The Watchung Mountain, long Hill, and Hook Mountain are underlain by basalt layers. Valleys and lowlands between these ridges are underlain by shale and sandstone.

The basalt and diabase are extensively quarried for crushed stone. In the past, "brownstone" was widely quarried from sandstone units. Also, minor quantities of copper were extracted from sandstone and shale associated with the diabase and basalt. The basalt and diabase generally are poor aquifers but the sedimentary rocks, in places, capable of yielding large quantities of water.

2.1.1.4 Topography

Based on the field topographic survey performed by KTJ Associates, LLC, the existing site topography is relatively flat with very gentle slopes. A topographic map that depicts the project area is presented in Appendix A.

2.1.2 Water Resources

2.1.2.1 Surface Water Resources

NJDEP's Surface Water Quality Standards (NJAC 7:9B) specifies classification codes and water quality standards for waterways within their jurisdiction. This section identifies those water resources in the project area that fall within the classifications established by NJDEP.

The project area is located in the Lower Raritan, South River, and Lawrence Watershed Management Area (WMA 09). Watershed Management Area (WMA) 09 is located in the state's Piedmont and coastal Plain physiographic provinces. Major water bodies include the main stem of the Raritan River, the south River and Lawrence Brook within Middlesex, Somerset and Monmouth Counties. A New Jersey Watershed Management Area Map that depicts the project area is presented in Appendix A.

The main stem of the Raritan River extends generally eastward from the confluence of the north and South Branches of the Raritan to the Raritan Bay. For the most part, this drainage area is densely populated mixed urban/suburban landscape characterized primarily by residential and commercial/industrial water usage.

The South River begins at Duhernal Lake in Spotswood and flows to the Raritan River at Sayreville. It is formed by the confluence of the Manalapan and Matchaponix Brooks along with tributaries that include Deep River and Tennants Brook.

2.1.2.2 Groundwater Resources

Sole-source aquifers are defined by the U.S. Environmental Protection Agency (USEPA) under regulations in the Safe Drinking Water Act of 1974 [Section 1424(e)]. Sole-source aquifers are those aquifers which contribute more than 50% of the drinking water to a specific area and the water would be impossible to replace if the aquifer were contaminated. The USEPA defines three different regions as part of its sole-source aquifer program. The three areas are the recharge zone, the stream-flow source zone, and the project review area. The recharge zone is the area through which water recharges the aquifer. The stream-flow source zone is an area upstream of the sole-source aquifer that contributes stream flow to the aquifer. The project review areas are areas in which all the federally funded projects are reviewed by the USEP.

The project area is not located in the New Jersey sole-source aquifers. Therefore, no adverse effect to the groundwater recourses is anticipated.

2.1.2.3 Floodplains

All watercourses in the State of New Jersey are regulated by the NJDEP and are designated as being either delineated or non-delineated. For a stream to be designated as delineated, a 100-year flood discharge and a flood hazard area have been established and officially adopted by the NJDEP Bureau of Floodplain Management. All other streams are considered to be non-delineated. The onsite watercourses would be considered non-delineated streams.

According to the NJDEP GIS Resource Data, no portions of the subject property are located within the USGS documented flood-prone areas. The Federal Emergency Management Agency (FEMA) indicates that both the 100-year and 500-year floodplains are located outside the subject property. See Appendix A for a FEMA Flood Map of the project area. The locations of the noted floodplains are outside the project site and any proposed site development. Therefore, no effect to the floodplains is anticipated.

2.1.2.4 Wetlands

Wetlands are defined under Federal regulations [33 CFR 328.3(b)] as, "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

State open waters are defined as waters of the State, including springs, streams, natural and artificial, within the boundaries of the State of New Jersey.

Wetlands generally include swamps, marshes, bogs, and similar areas. The State regulatory definition, contained in NJAC 7:7A-1.4, is quite similar, identifying wetlands as those areas that are "inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation…." It is important to note that both definitions impart three necessary characteristics for an area to be considered a regulated wetland: hydrophytic vegetation, hydric soils, and wetland hydrology. These three parameters were utilized in identifying wetland resources on maps and in field investigations for the project.

The initial investigation of wetlands in the project area focused on identifying wetland systems utilizing secondary sources of information, such as New Jersey Freshwater Wetlands Quarter Quadrangles and NJDEP GIS information. These information sources do not identify some of the smaller wetland systems (e.g., drainage ditch wetlands too small to be depicted at the scale of the map), and they are not always accurate for identifying wetlands subject to Federal and State regulatory authority. Nevertheless, they are effective tools for focusing field efforts. The NJDEP GIS information did not indicated any presence of wetlands on the property.

An NJDEP NJ-Geo web data query for the project site was performed. Information regarding Category One Waterways, threatened and endangered species and forested and emergent wetlands are available through NJ-Geo web. The result of NJ-Geo web does not indicate the presence of wetlands, transition areas, streams, or threatened and endangered species within or nearby the property boundaries.

2.2 Solid Waste Disposal

Solid waste disposal will be by contracted with a private disposal firm. Enclosed trash collection area will be provided as part of this project. Recyclable materials will be separated and collected in accordance with all applicable governmental requirements.

2.3 Air Quality

The amendments to the Clean Air Act were passed in 1970, and allowed USEPA to delegate responsibility to state and local governing bodies. This allowed each state/local government the opportunity to prevent and control air pollution at the source. The 1970 amendments (Clean Air Act Amendments; CAAA) mandated that the USEPA establish ceilings for certain pollutants based upon the identifiable effects each pollutant may have on public health and welfare. Subsequently, the USEPA promulgated the revised regulations which set National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), sulfur dioxide (SO_2), total suspended particulates (TSP), and inhalable particle matter smaller that 10 micrometers (PM-10). These pollutants are collectively referred to as "criteria pollutants" and are shown in Table below.

U.S. EPA - National Ambient Air Quality Standards

Pollutant	Averaging Period	New Jersey Primary	New Jersey Secondary	National Primary	National Secondary
Carbon Monoxide	8 hour average 1 hour average	9.0 ppm 35.0 ppm	9.0 ppm 35.0 ppm	9.0 ppm 35.0 ppm	9.0 ppm 35.0 ppm
Ozone	Max. Daily 1-hr avg.	0.12 ppm	-	0.12 ppm	-

	1 hour average 8 hour average	- -	0.08 ppm -	- 0.08 ppm	0.12 ppm 0.08 ppm
Nitrogen Dioxide	12-month arith. mean	0.05 ppm	0.05 ppm	0.053 ppm	0.053 ppm
Lead	3 month average Quarterly Mean	1.5 ug/m^3 -	1.5 ug/m^3 -	- 1.5 ug/m^3	- 1.5 ug/m^3
Sulfur Dioxide	12-month arith. mean 24 hour average 3 hour average	0.03 ppm 0.14 ppm -	0.02 ppm 0.10 ppm 0.5 ppm	0.030 ppm 0.14 ppm -	- - 0.5 ppm
Total Suspended Particulates	12-month geom. mean 24 hour average	75 ug/m^3 260 ug/m^3	60 ug/m^3 150 ug/m^3	- -	- -
PM-10	Annual arith. mean 24 hour average	- -	- -	50 ug/m^3 150 ug/m^3	50 ug/m^3 150 ug/m^3
PM 2.5	Annual arith. mean 24 hour average	- -	- -	15 ug/m^3 65 ug/m^3	15 ug/m^3 65 ug/m^3

Source: New Jersey Department of Environmental Protection, 2000

The New Jersey state standards and NAAQS are divided into two types of criterion. The primary standards define air quality levels intended to protect the public health with an adequate margin of safety. The secondary standards define levels of air quality intended to protect the public welfare from any known or anticipated adverse effects of a pollutant (e.g., soiling, vegetation damage, material corrosion).

Section 107 of the 1970 CAAA requires the USEPA and states throughout the country to identify those areas not meeting the NAAQS. An area, which does not meet a standard, is referred to as in "non-attainment." The entire State of New Jersey is in non-attainment for ozone. In recent years, documented ozone levels have been decreasing. In 1997, the USEPA created more stringent ozone standards and therefore New Jersey will most likely violate these standards for many more years.

Although the USEPA has the ultimate responsibility for protecting ambient air quality, state and local governments have primary responsibility for air pollution prevention and control. The CAAA require states to submit a State Implementation Plan (SIP) describing how they will attain and maintain air quality standards in non-attainment areas. The SIP must be approved by USEPA for each non-attainment criteria pollutant. The NJDEP is responsible for implementing New Jersey's SIP. In order for projects to comply with the CAA and CAAA, they must conform to the attainment plans documented in the SIP.

The project does not cause or contribute any new violation of any standard, does not increase the frequency or severity of any existing violation of any standard, and does not delay the timely attainment of any standard or any required interim emission reductions or other milestones. Therefore, the proposed project conforms to the governing SIP and in turn conforms to the Clean Air Act Amendments of 1990. However, demolition/construction-related activities can result in short-term impacts to ambient air quality. These impacts are typically related to fugitive dust emissions in and around the site as a result of demolition/construction operations. Fugitive dust emissions typically occur during building demolition, ground-clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and material transportation. Fugitive dust emissions are greatest during dry periods, during periods of intense construction activity, and under high wind conditions.

Other potential air quality impacts from these activities are usually insignificant when equipment is well maintained and operated in well-ventilated areas. The potential for impacts will be short-term, occurring only while demolition or construction work is in progress, and local conditions are appropriate.

2.4 Noise

Certain critical factors affect noise and the way it is perceived by the human ear. Such factors include the acoustical level (noise), frequency and the length of the exposure period. The sound or noise level is measured in units of decibels (dB). Due to the complex manner in which the human ear functions, measurement of different noise sources does not always correspond to relative loudness or annoyances. Therefore, different scales have been developed to furnish guidance in evaluating the importance of different noise sources. The "A" weighted scale (units expressed as dBA) has been widely accepted for noise to compare well with human reactions.

The dBA descriptor can be applicable for noise levels at one single moment. Since very few noise sources are constant, an alternative way of describing noise over a period of time was needed. One way of describing fluctuating sound is to address it as if the noise occurred at a steady, unchanging level over a specific time period. For this condition, the widely used descriptor accepted to express noise levels has become the L_{Aeq} or an A-weighted equivalent noise level. The L_{Aeq} is the equivalent steady-state sound level, which in a specific period of time contains the same acoustic energy as the time-varying sound level during that same period.

The Noise Abatement Criteria (NAC), shown in Table below, defines noise level guidelines for different land-use activities. Noise sensitive sites within the project limits include the residential dwellings adjacent to the project area. The existing threshold for noise activities associated with similar noise sensitive sites is 55 dBA (L_{Aeq}) with abatement criteria of 67 dBA (L_{Aeq}). Existing exterior noise levels were not monitored as part of the project; however, background noise levels at the site would be consistent with similar suburban settings, which range from 55-60 dBA measured over a 24-hour period (USEPA, 1974).

Threshold for Noise Interference And

Noise Abatement Criteria (dBA)

Activity Category	**Threshold of Noise Interference**		**Noise Abatement Criteria**		**Description of Activity Category**
	L_{10}	L_{Aeq}	L_{10}	L_{Aeq}	
A	48	45	60	57	Tracts of land on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	58	55	70	67	Picnic areas, recreation areas, playgrounds, active sports areas, and (exterior) parks which are not included in Category A and residences, motels, public meeting rooms, schools, churches, libraries, and hospitals.
C	63	60	75	72	Developed lands, properties or activities not included in Categories A (exterior) or B above.
D	--	--	--	--	Undeveloped Lands as described in 11a and c of Federal Aid Highway Program Manual Volume 7, Chapter 7, Section 3.

Activity Category	Threshold of Noise Interference		Noise Abatement Criteria		Description of Activity Category
E	43	40	55	52	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums (interior).

Source: Federal Highway Administration

Based on the proposed design for this project, the following conclusions have been made regarding noise impacts associated with the project:

- Temporary noise increases, above background noise, are anticipated during the construction phase;
- The proposed increases in traffic that would result from the proposed project would not increased noise impacts above background noise associated with this area of the Township.
- The proposed use is not anticipated to generate any continuous airborne sound with a sound intensity in excess of 50 dBA with the exception of the heating, ventilation and air conditioning system (HVAC). Typical HVAC systems can generate sound intensities ranging from 50 to 75 decibels at the source.

2.5 Water Supply

The project area is currently developed with municipal water supply service in the area. The proposed project will be tied to the municipal system via a new water connection. The existing public water system has the capacity and can successfully meet the project water demand.

2.6 Sewerage Facilities

The project site is currently being serviced by the municipal sewer system. The proposed project will be tied to the municipal sewer system utilizing a new connection. The existing municipal sewer system has the capacity and will continue to meet the sewer demand from the proposed improvements.

2.7 Stormwater

In accordance with the NJDEP Stormwater Management Rules, N.J.A.C. 7:8, there are new means and methodology required to handle the conveyance, treatment, and discharge of Stormwater. Specifically all major developments (an addition of more than ¼-acre of impervious surface and/or more than 1-acre of land disturbance) must meet four primary design requirements; nonstructural stormwater strategies, groundwater recharge standards, stormwater quality standards (Total Suspended Solid requirements) and peak reduction factors for stormwater quantity control options. Since the project is classified as a major development, the rules from N.J.A.C. apply. Therefore, the storm water management system for the project is designed to minimize the impacts of the developed areas on the downstream discharge points in accordance with the Franklin Township requirements and generally accepted engineering practices.

Refer to the Stormwater Management Report for details pertaining to the proposed drainage system.

2.8 Traffic

Refer to the Traffic Report for details pertaining to the proposed traffic impacts due to the improvements proposed at the site.

3.0 PROBABLE ENVIRONMENTAL IMPACTS

3.1 Land Resources

3.1.1 Soils

Construction of the project would result in soil disturbance. Currently the site comprises of residential structures, grass, pavement and concrete areas. The proposed project will result in demolition, selective site clearing, grading and excavation in order to accommodate the proposed improvements.

3.1.2 Geology

The implementation of this project will not result in adverse impact on the geologic resources of the area. Based on current plans, construction activities associated with the project include demolition, site clearing, grading and excavation to accommodate the proposed improvements. A majority of the disturbance would likely be contained within the upper most layers of surficial material and the bedrock will not likely be encountered and impacted by the proposed project.

3.1.3 Topography

Implementation of the project may result in impact to the onsite topography. Based on current plans, construction activities associated with the project include demolition, site clearing, grading and excavation within the previously disturbed/non-disturbed areas in order to accommodate the proposed improvements. A majority of the excavation would likely be contained within the upper most layers of surficial material. The entire site will be disturbed and the proposed grading of the disturbed areas of the site will be close to existing and will not affect the area topography.

3.2 Water Resources

3.2.1 Surface Water Resources

Aquatic resources are not located on or adjacent to the project area. As such, the proposed project will not impact any aquatic resources.

3.2.2 Ground Water Resources

As previously stated, the proposed project will be connected to the existing water main via a new connection to meet the water demand as a result of this project.

3.2.3 Flood Plains

According to FEMA flood maps, no floodplains are associated or are located on the subject property. As such, the locations of the noted floodplains are outside the proposed site development. Therefore no effect to these floodplains is anticipated.

3.2.4 Wetlands

A NJDEP NJ-Geo web data query for the project site was performed. The result of NJ-Geo web does not indicate the presence of wetlands, streams, or threatened and endangered species within or nearby the property boundaries.

3.3 Terrestrial Resources

3.3.1 Vegetation

As part of the proposed improvements, minor site clearing of the existing vegetated areas is anticipated. In addition, the project encompasses landscaping to provide additional buffer/screening.

3.3.2 Wildlife

Based on NJDEP i-Map, there are no known threatened and endangered species within the project area. The construction activities could result in the temporary and permanent loss of habitat and possible mortality of less mobile, burrowing, and/or denning species of common wildlife such as small rodents and snakes. During the construction period, resident species and transient wildlife may seek refuge in adjacent habitats until the project is completed. Following construction, wildlife species are expected to resume their normal patterns of habitation consistent with post-construction habitat availability in and around the area.

3.4 Solid Waste Disposal

As previously stated, solid waste disposal will be by contracted with a private disposal firm. Trash collection area has been provided for the facility. Recyclable materials will be separated and collected in accordance with all applicable governmental requirements. As such, solid waste disposal should not have a detrimental affect on the project site or surrounding area.

3.5 Air Quality

Impacts to air quality as the result of construction of proposed project will consist of temporary impacts. Temporary impacts are those that occur during construction and would be limited to increased particulates (dust). Permanent impacts include increases of particulates and emissions generated from daily operations of a proposed project. During construction of the proposed project, an increase of dust may result; however, any increase would be temporary and dust levels would recede to normal upon completion of construction.

Because the proposed project consists of religious facility, no production processes (manufacturing of goods, food preparation) will be undertaken. Therefore, the generation of emissions associated with production activities will not result. Operational impacts to air quality generated by the proposed project would be limited to emissions generated by vehicular traffic associated with the normal facility operations. As such, long-term impacts to air-quality at the project site or within the region are not anticipated from implementation of the proposed improvements.

3.6 Noise

As stated above, the proposed use is not anticipated to generate any continuous airborne sound with a sound intensity in excess of 50 dBA with the exception of the heating, ventilation and air conditioning system (HVAC). Typical HVAC systems can generate sound intensities ranging from 50 to 75 dBA at the source. The distance from the HVAC source to the property line will abate the sound intensity below 50 dBA. Sound intensity decreases inversely with the square of the distance from the source. For example, if the distance from the source is doubled, then the intensity is quartered. After converting decibels to watts per square meter and performing the inverse square law calculations, each doubling of distance reduces the intensity in decibels by 6 dBA.

The area adjacent to project site will experience a temporary increase in noise levels during the construction phase. Specific projects such as demolition, clearing, grading, paving and structural enhancements are all activities known to produce high noise levels. Equipment such as bulldozers, scrapers, backhoes, graders, loaders, cranes and trucks will be used in the construction but are subject to construction noise specifications. Construction noise levels for residences and commercial/light industrial establishments can reach 90 to 95 dBA during some phases of construction. Examples of some noise levels from typical construction equipment are shown below. Although there will be temporary noise as a result of this project, construction will be limited to daylight hours and will be kept to a minimum whenever possible.

Noise Level (dBA) at 50 feet From Various Construction Equipment

Equipment	Noise Level (dBA)
Concrete Mixer	85
Concrete Pump	82
Crane	83
Derrick	88
Front Loader	79
Back Hoes	85
Dozers	80
Tractors	80
Scrappers	88
Graders	85
Truck	91
Paver	89
Pumps	76
Generators	78
Compressors	81
Pile Drivers	100
Jackhammers	88
Rock Drills	98
Saw	78
Vibrators	76

3.7 Water Supply

As previously stated, the project area is currently developed with municipal water supply service in the area. The proposed project will be tied to the municipal system via a new water connection. The existing public water system has the capacity and can successfully meet the additional water demand of the proposed project.

3.8 Sewerage Facilities

As previously stated, the project site is currently being serviced by the municipal sewer system. The proposed project will be tied to the municipal sewer system utilizing a new connection. The existing municipal sewer system has the capacity and will continue to meet the sewer demand from the proposed improvements.

3.9 Stormwater

As previously stated, the project is classified as a major development. Therefore, the rules from N.J.A.C. apply. The storm water management system for the project is designed to minimize the impacts of the developed areas on the downstream discharge points in accordance with the Franklin Township requirements and generally accepted engineering practices.

3.10 Historic Sites and Structures

There are no known natural heritage priorities and historic sites and structures present on or adjacent to the property.

3.11 Lighting and Illumination

The proposed project will utilize high efficiency lighting throughout the site in accordance with Illuminating Engineer's Society (I.E.S.) and Franklin Township Standards. No spotlights or other types of artificial lighting are anticipated to create sky reflection, glare or be directed beyond the property lines or exceed the Township lighting ordinance requirements.

A computer-generated lighting analysis will be prepared and presented on the lighting plan that will accompany the site plan application. The lighting plan will provide the results of the analysis in the form of a grid, with each point in foot-candles.

3.12 Vibration

The proposed use is not anticipated to cause any vibration at or beyond the lot boundaries. During construction, temporary vibration is expected. Vibration is expected during compaction of soil. This type of vibration would be generated for any type of development at the site. Exceedance of the vibration permitted by the Bernards Township Ordinance is not anticipated for this project.

3.13 Traffic

Refer to the Traffic Report for details pertaining to the proposed traffic impacts due to the improvements proposed at the site.

4.0 MITIGATION OF ADVERSE ENVIRONMENTAL IMPACTS

4.1 Land Resources

4.1.1 Soils

Best Management Practices (BMPs) will be utilized. During construction, the practice of minimizing the time period during which ground surfaces are exposed will reduce construction-related erosion. Also, implementation of the Soil Erosion and Sediment Control Plan will reduce impacts to onsite soils, adjacent properties and water courses. This would include installation of silt fencing and/or staked hay-bales around the limits of construction, inlet protection and stabilize construction pad. Potential contamination of groundwater could possibly occur as a result of leaking construction equipment and/or accidental spills. Proper maintenance procedures on the construction site would avoid most leaks and mishaps. Any spills (oil, gasoline, brake fluid, transmission fluid, etc.) would be contained immediately and disposed of properly, off-site, in accordance with State (NJDEP) and Federal (USEPA) protocol.

4.1.2 Geology and Topography

Impacts to geologic resources are not anticipated to occur within the project study area; therefore, no mitigation measures are required.

4.1.3 Wetlands

Based on the NJDEP NJ-Geo web data query for the project site that was performed, there are no indications of the presence of wetlands, transition areas, streams, or threatened and endangered species within or nearby the property boundaries.

4.2 Terrestrial Resources

4.2.1 Vegetation

As previously stated, as part of the proposed improvements, site clearing of the existing vegetated areas is anticipated. Also, any vegetation loss will be compensated in accordance with the Township requirements. Extensive landscaping is proposed for the project to provide additional buffer/screening.

4.2.2 Wildlife

It is expected that during construction, the majority of wildlife species utilizing the areas of the site to be disturbed will be displaced. Upon completion of construction, some may return to the undisturbed areas. It is likely that the remainder will relocate to the remaining undeveloped areas located off-site.

4.3 Air Quality

Temporary impacts to air quality during construction would be mitigated through the application of various control measures to minimize the amount of construction dust generated. These measures would include applying water or other suitable moisture-retaining agents on areas of exposed soils, covering haul trucks carrying loose material, or treating materials likely to become airborne and that would contribute to air pollution if left untreated. Also, maintenance and protection of traffic patterns would be implemented during construction to limit disruption of traffic and to ensure that adequate roadway capacity is available to general traffic during peak periods.

4.4 Noise

There would be no significant long-term effects on noise within the project area; therefore, no mitigation would be required. Methods to control the temporary increase in ambient noise generated during construction would include ensuring that construction equipment and motor vehicles meet specified noise emissions standards, limiting construction activities to times permitted by Township ordinance and handling/transporting construction material in such a manner as to not create unnecessary noise. Equipment such as bulldozers, scrapers, backhoes, graders, loaders, cranes and trucks will be used during construction but are subject to construction noise specifications.

4.5 Traffic

To avoid unnecessary construction-related traffic within the project area, construction vehicles would be limited to designated routes and would be kept in the designated staging area.

4.6 Project Alternatives

Since the proposed development is predicted to have a positive impact in the municipality, the alternative of "no project" or the No-Build alternative is undesirable. Another option would be to keep the existing structures and improve the parking area and circulation around the site. However, the proposed improvements can be accomplished without substantial detriment to the public good and will not substantially impair the intent and purpose of the Zoning Plan and Ordinance

5.0 CONCLUSIONS

As per the performance standards in the Franklin Township ordinance, the development of the subject property, as proposed, is not predicted to have any detrimental impacts to surrounding areas or the general public. The proposed development will create a more aesthetically pleasing use at the site and will continue to provide a convenient service to the residents of the Township.

Unavoidable temporary impacts associated with project construction could include diminished air quality, increased noise levels, increases in traffic, and possible soil erosion. Unavoidable permanent adverse environmental impacts associated with project could include introduction of additional impervious surfaces (proposed building, asphalt parking areas) on a site that presently contains mostly pervious surfaces. Mitigation measures for these unavoidable impacts are implemented to ensure impacts are not significant.

The proposed project represents the most appropriate utilization of the project site given the current zoning and surrounding land uses. The project was designed to minimize significant impacts to environmentally sensitive areas on the project site. This environmental impact statement concludes that the majority of the impacts associated with the proposed project are minor in their nature and that the adverse environmental impacts that do exist, are minimal and are being handled in the most appropriate manner.

6.0 REFERENCES

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The State of New Jersey Department of Environmental Protection: New Jersey Water Supply Plan. 2017-2022.

Topographic Survey, Lots 6-15, Block 225, prepared by KTJ Associates, LLC.

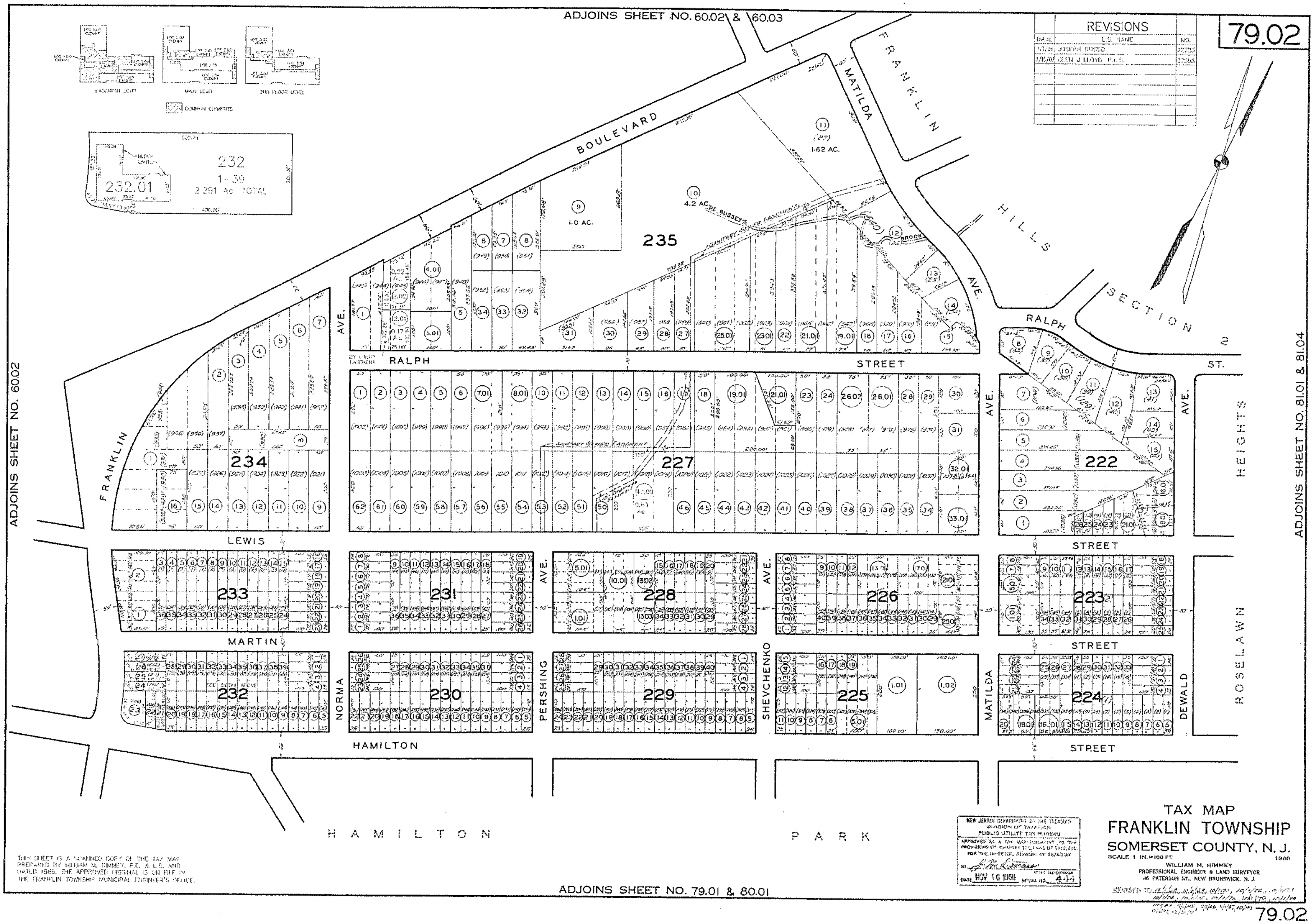
United States Geologic Survey (USGS), 1995, 7.5 Minute Topographic Map of Franklin, New Jersey.

United States Department of Agriculture, Soil Conservation Service, Web Soil Survey of Franklin, Somerset County, New Jersey.

United States Department of Agriculture Soil Conservation Service in Cooperation with New Jersey Agricultural Experiment Station Cook College, Rutgers, the State University and the New Jersey Department of Agriculture State Soil Conservation Committee: Soil Survey of Somerset County, New Jersey.

APPENDIX A

SITE MAPS



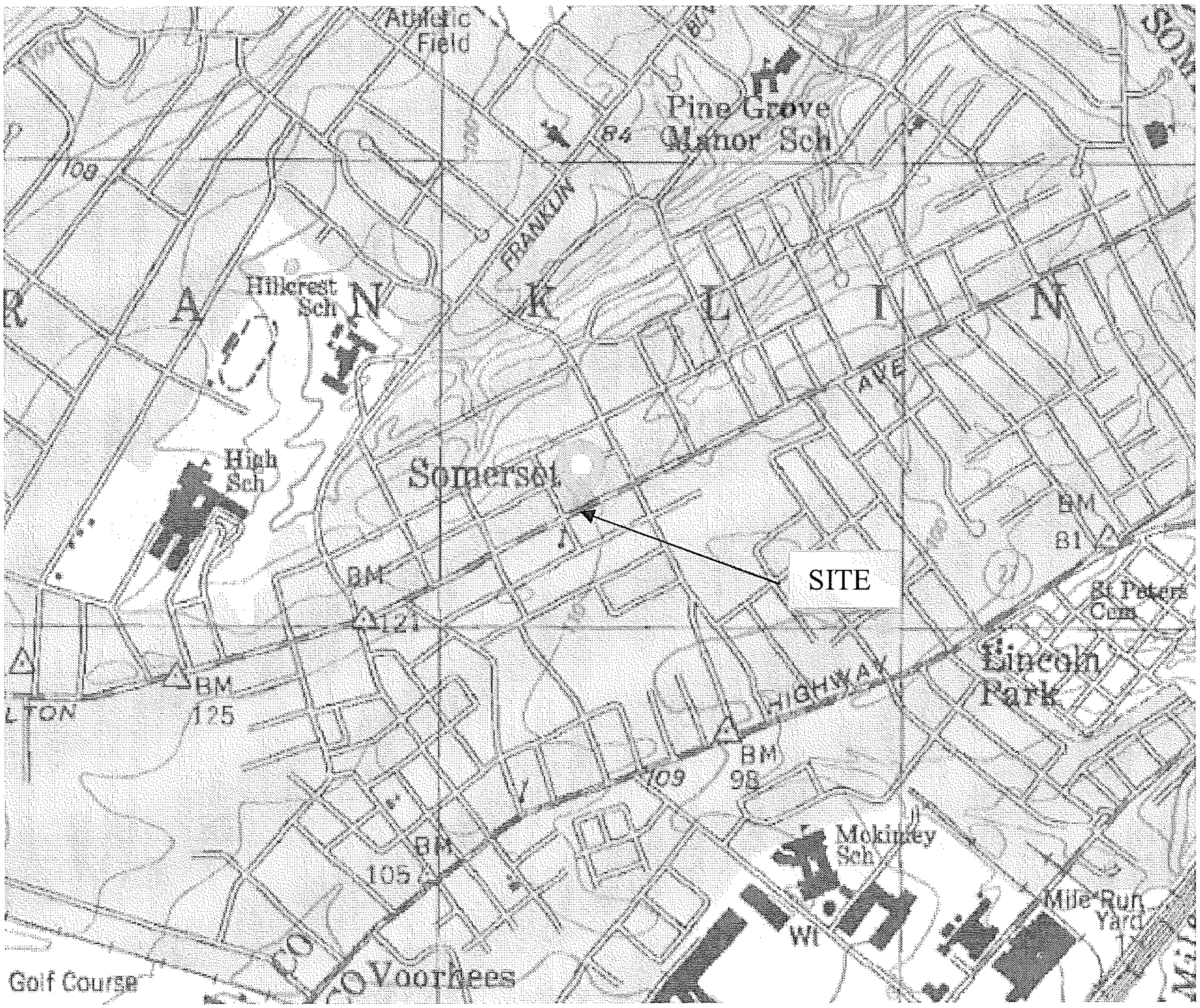
79.02
ADJOINS SHEET NO. 60.02 & 60.03
ADJOINS SHEET NO. 60.02
ADJOINS SHEET NO. 81.01 & 81.04
ADJOINS SHEET NO. 79.01 & 80.01
REVISIONS
BOULEVARD
FRANKLIN
MATILDA
HILLS
SECTION 2
RALPH
ST.
AVE.
RALPH STREET
LEWIS
MARTIN
HAMILTON
NORMA
PERSHING
SHEVCHENKO
MATILDA
DEWALD
STREET
HEIGHTS
ROSELAWN
HAMILTON PARK
235
234
227
222
233
231
228
226
223
232
230
229
225
224
232
1-39
2.291 Ac TOTAL
232.01
1.62 AC.
4.2 AC
1.0 AC.
TAX MAP
FRANKLIN TOWNSHIP
SOMERSET COUNTY, N. J.
SCALE 1 IN.=100 FT.
1966
WILLIAM M. HIMMEY
PROFESSIONAL ENGINEER & LAND SURVEYOR
46 PATERSON ST., NEW BRUNSWICK, N. J.
NOV 16 1966
79.02

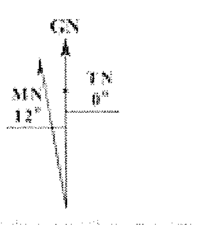
AREA MAP


Ralph St
Lewis St
Township Pharmacy
Eunice's African Market
Matilda Ave
Martin St
Dewald Ave
Lewis St
Shevchenko Ave
Martin St
Rite Aid
Drug store
514
Punta cana grill
Takeout • Delivery
Alpha 88 Laundromat
789 Hamilton Street
Pershing Ave
Martin St
BP
Matilda Ave
Victor St
Somerset Baptist Church
PRO Beauty &
Barber Supplies
Beauty supply store
Mark St
Hamilton Barbecue And
Takeout • Delivery
Ayton's Best
Full Gospel
Temple of Praise
Skylight Logistics
Pershing Ave
Victor St
Naaman
Williams Park
Scarlet Knight
Liquor Sales
Liquor store
Mark St
Victor St
Ray St
Franklin Housing
Authority

USGS TOPOGRAPHIC MAP

New Brunswick Quad





Zoning Map

Franklin Township (Somerset Co.)

Department of Planning & Zoning

Mark Healey, PP/AICP
Director/ Township Planner

Zoning Districts

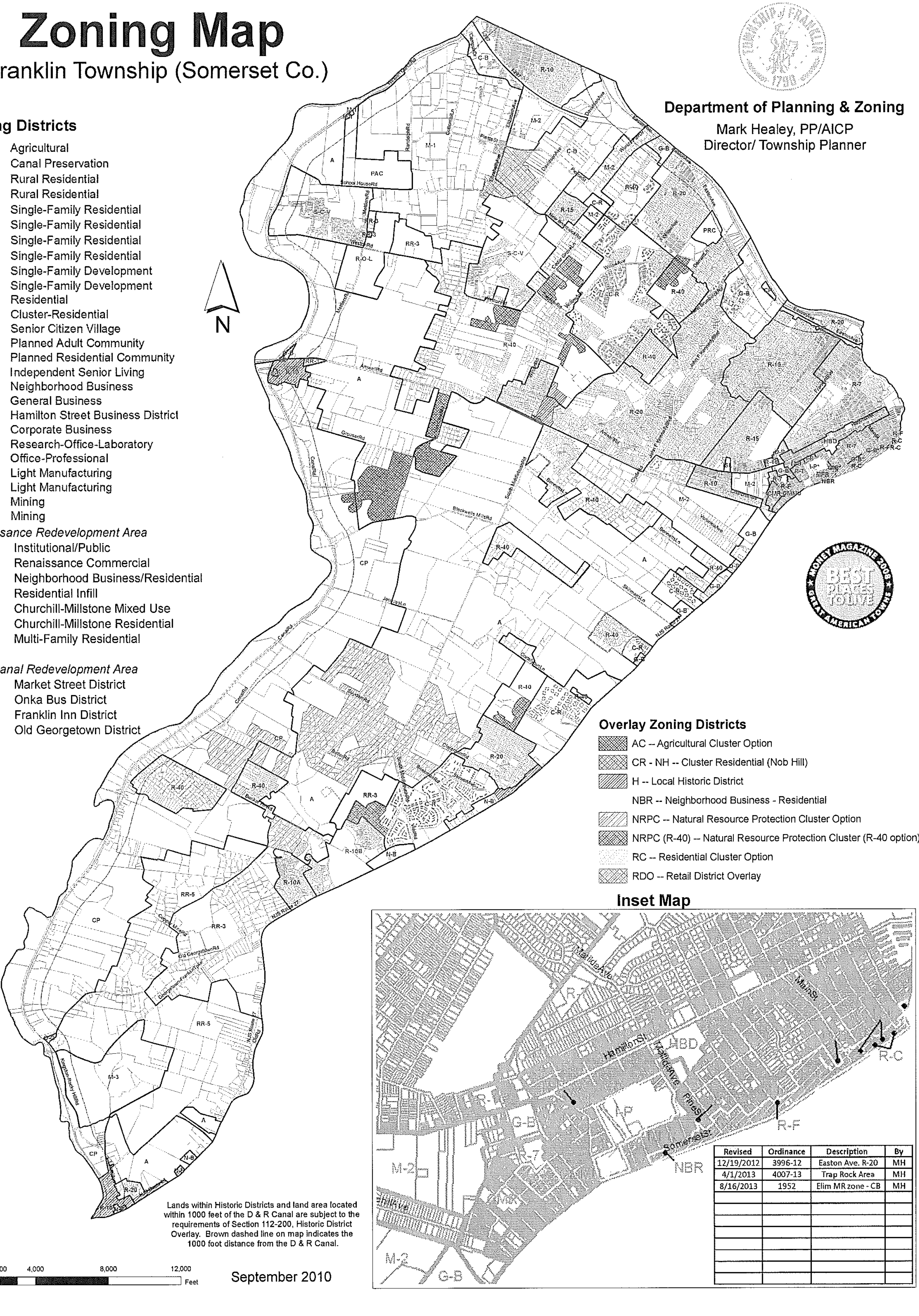
A	Agricultural
CP	Canal Preservation
RR3	Rural Residential
RR5	Rural Residential
R-40	Single-Family Residential
R-20	Single-Family Residential
R-15	Single-Family Residential
R-10	Single-Family Residential
R-10A	Single-Family Development
R-10B	Single-Family Development
R-7	Residential
C-R	Cluster-Residential
S-C-V	Senior Citizen Village
PAC	Planned Adult Community
PRC	Planned Residential Community
ISL	Independent Senior Living
N-B	Neighborhood Business
G-B	General Business
HBD	Hamilton Street Business District
C-B	Corporate Business
R-O-L	Research-Office-Laboratory
O-P	Office-Professional
M-1	Light Manufacturing
M-2	Light Manufacturing
M-3	Mining
M-3	Mining

Renaissance Redevelopment Area

I-P	Institutional/Public
R-C	Renaissance Commercial
NBR	Neighborhood Business/Residential
R-F	Residential Infill
CMMU	Churchill-Millstone Mixed Use
CMR	Churchill-Millstone Residential
MFR	Multi-Family Residential

D&R Canal Redevelopment Area

M-S	Market Street District
O-B	Onka Bus District
F-I	Franklin Inn District
O-G	Old Georgetown District



Overlay Zoning Districts

- AC -- Agricultural Cluster Option
- CR - NH -- Cluster Residential (Nob Hill)
- H -- Local Historic District
- NBR -- Neighborhood Business - Residential
- NRPC -- Natural Resource Protection Cluster Option
- NRPC (R-40) -- Natural Resource Protection Cluster (R-40 option)
- RC -- Residential Cluster Option
- RDO -- Retail District Overlay

Lands within Historic Districts and land area located within 1000 feet of the D & R Canal are subject to the requirements of Section 112-200, Historic District Overlay. Brown dashed line on map indicates the 1000 foot distance from the D & R Canal.

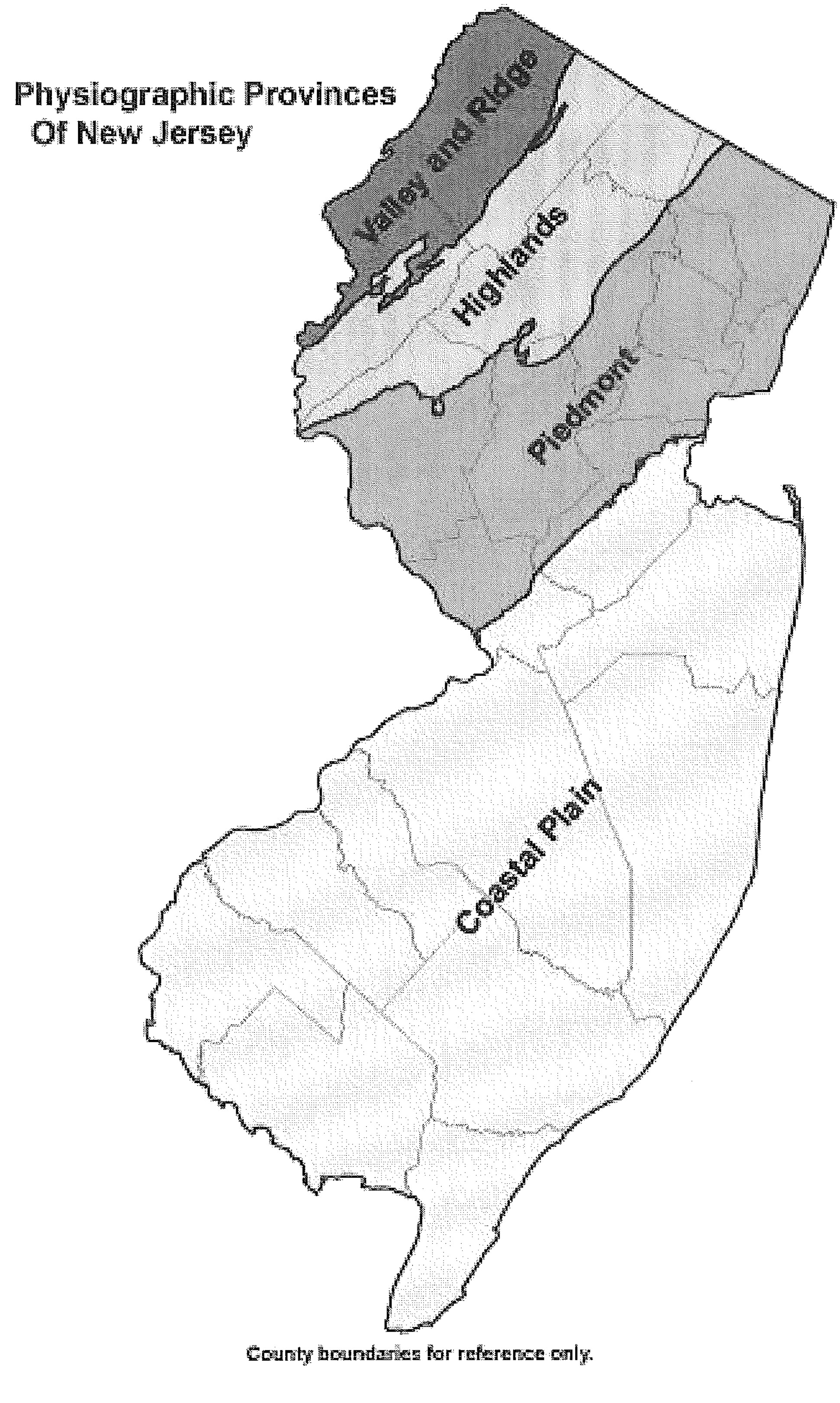
0 2,000 4,000 8,000 12,000 Feet

September 2010

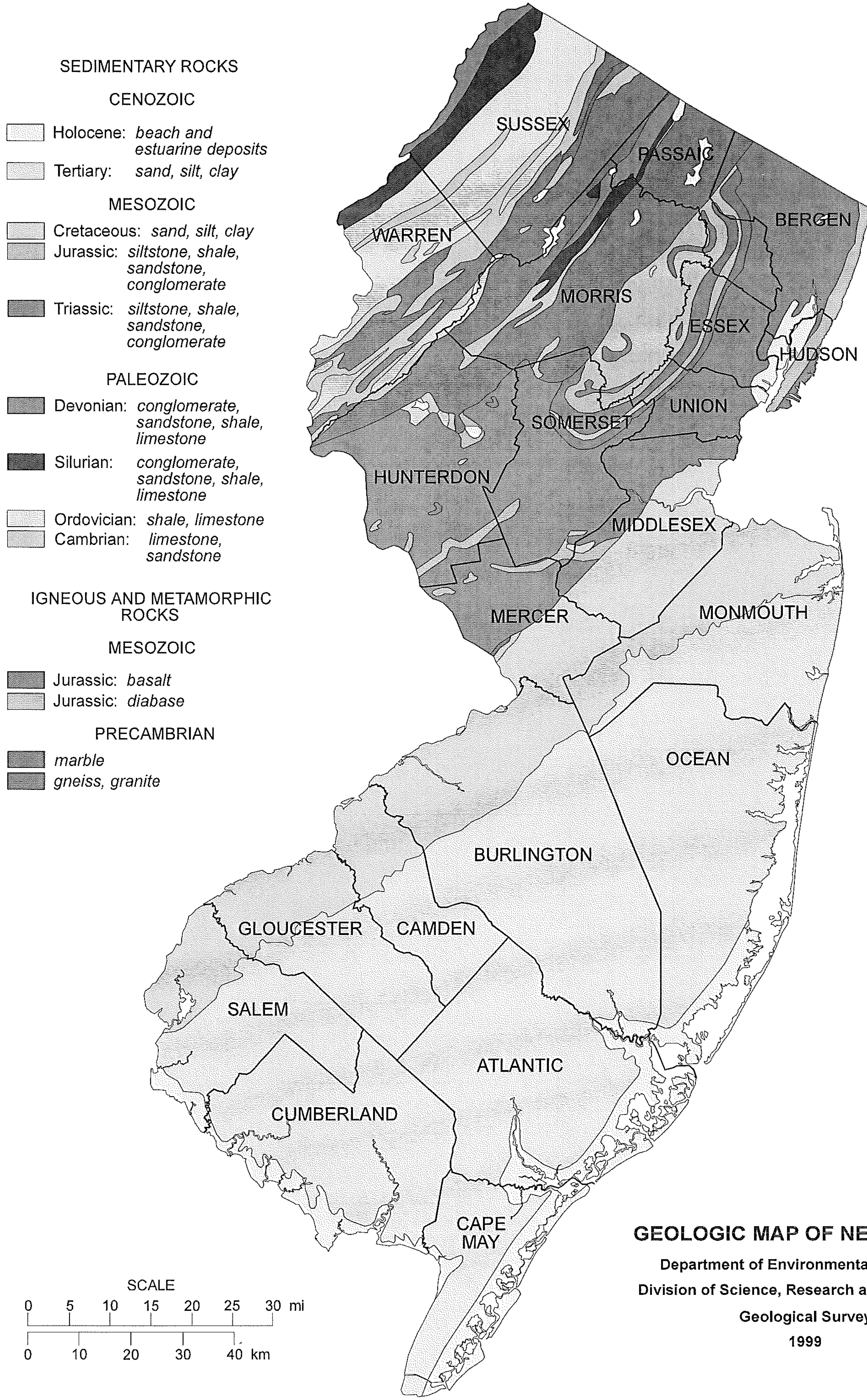
Inset Map

Revised	Ordinance	Description	By
12/19/2012	3996-12	Easton Ave. R-20	MH
4/1/2013	4007-13	Trap Rock Area	MH
8/16/2013	1952	Elim MR zone - CB	MH

NJ PHYSIOGRAPHIC PROVINCES MAP



County boundaries for reference only.



GEOLOGIC MAP OF NEW JERSEY

Department of Environmental Protection

Division of Science, Research and Technology

Geological Survey

1999

THE GEOLOGY OF NEW JERSEY

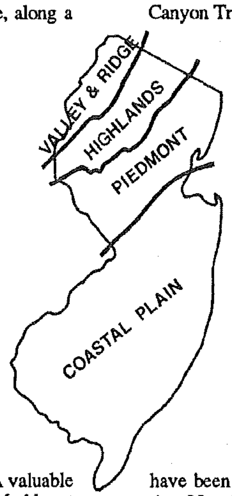
For an area of its size, New Jersey has a uniquely diverse and interesting geology. The state can be divided into four regions, known as physiographic provinces, which have distinctive rocks and landforms.

The **Valley and Ridge** Province is underlain by faulted and folded sedimentary layers of sandstone, shale, and limestone that range in age from Cambrian to Devonian (570 to 345 million years old). These rocks originated as sand, mud, and lime sediment deposited in former seas and floodplains. During Ordovician time (approximately 450 million years ago) and again during Pennsylvanian and Permian time (approximately 300 million years ago) the rocks were deformed by compression into folds and thrust along faults. As a result of the deformation, the originally flat sedimentary layers were tilted and now outcrop as linear belts.

Alternation of belts of erosion-resistant sandstone and easily-eroded shale and limestone creates the long, parallel northeast-southwest trending ridges and valleys characteristic of this province. Resistant sandstone and siltstone layers underlie Kittatinny Mountain and Walpack Ridge; shale and limestone underlie the valley of Flat Brook, the Delaware Valley upstream from the Delaware Water Gap, and the broad valley between Kittatinny Mountain and the Highlands to the east.

The limestone is quarried for construction material and cement aggregate. Some of the limestone units yield large quantities of ground water. The shales and sandstones and some limestone units are generally less productive aquifers.

On the eastern edge of the Valley and Ridge Province, along a line from Franklin through Andover to the Delaware River just north of Phillipsburg, an irregular escarpment averaging 500 feet in height marks the boundary of the **Highlands** Province. The Highlands are underlain predominantly by granite, gneiss, and small amounts of marble of Precambrian age. These rocks, the oldest in New Jersey, were formed between 1.3 billion and 750 million years ago by melting and recrystallization of sedimentary rocks that were deeply buried, subjected to high pressure and temperature, and intensely deformed. The Precambrian rocks are interrupted by several elongate northeast-southwest trending belts of folded Paleozoic sedimentary rocks equivalent to the rocks of the Valley and Ridge Province.



The granites and gneisses are resistant to erosion and create a hilly upland dissected by the deep, steep-sided valleys of major streams. The belts of sedimentary rock form long, parallel ridges and valleys (for example, Bearfort Mountain, Long Valley, and the Musconetcong Valley) that extend through the province.

The Highlands contain magnetite iron ore deposits that formerly supplied an industry of national importance. A valuable and mineralogically unique zinc ore in the Franklin Marble at Ogdensburg was also mined. In places the rocks of the Highlands are quarried for crushed stone. The Precambrian rocks are generally unproductive aquifers except where they are fractured or weathered. The more productive aquifers of the region are the glacial deposits and some of the Paleozoic sedimentary rocks.

Rocks of the **Piedmont** Province are separated from the rocks of the Highlands Province by a series of major faults, including the Ramapo Fault. The more resistant gneisses and granites on the upthrown northwest side of the faults make a prominent escarpment, 200 to 800 feet in height, extending from Mahwah through Boonton and Morristown to Gladstone, and from there westward in an irregular line to the Delaware River near Milford.

South and east of this escarpment, interbedded sandstone, shale, conglomerate, basalt, and diabase of the Piedmont Province underlie a broad lowland interrupted by long, generally northeast-southwest trending ridges and uplands. The rocks of the Piedmont are of Late Triassic and Early Jurassic age (230 to 190 million years old). They rest on a large, elongate crustal block that dropped downward in the initial stages of the opening of the Atlantic Ocean — one of a series of such blocks in eastern North America. These down-dropped blocks formed valleys known as rift basins. Sediment eroded from adjacent uplands was deposited along rivers and in lakes within the basins. These sediments became compacted and cemented to form conglomerate, sandstone, siltstone, and shale. They commonly have a distinctive reddish-brown color.

In the course of rifting, the rock layers of the Piedmont became tilted northwestward, gently folded, and cut by several major faults. Volcanic activity was also associated with the rifting, as indicated by the basalt and diabase interlayered with the sandstone and shale. Diabase is a rock formed by the cooling of magma at some depth in the crust; basalt is formed by cooling of an identical magma that has been extruded onto the surface as lava. Both basalt and diabase are more resistant to erosion than the enclosing sandstone and shale and therefore they form ridges and uplands. The Palisades, Rocky Hill, Sourland Mountain, and Cushetunk Mountain are underlain by diabase layers. The Watchung Mountains, Long Hill, and Hook Mountain are underlain by basalt layers. Valleys and lowlands between these ridges are underlain by shale and sandstone.

The basalt and diabase are extensively quarried for crushed stone. In the past, "brownstone" was widely quarried from sandstone units. Also, minor quantities of copper were extracted from sandstone and shale associated with the diabase and basalt. The basalt and diabase generally are poor aquifers but the sedimentary rocks are, in places, capable of yielding large quantities of water.

Southeast of a line roughly between Carteret and Trenton, unconsolidated sediments of the **Coastal Plain** Province overlap rocks of the Piedmont Province. These sediments, which range in age from Cretaceous to Miocene (135 to 5.3 million years old), dip toward the coast and extend beneath the Atlantic Ocean to the edge of the Continental Shelf. The Coastal Plain sediments thicken southeastward from a featheredge along the northwestern margin of the province to approximately 4,500 feet near Atlantic City to a maximum of more than 40,000 feet in the area of the Baltimore Canyon Trough, 50 miles offshore from Atlantic City. The sediments consist of layers of sand, silt and clay deposited alternately in deltaic and marine environments as sea level fluctuated during Cretaceous and Tertiary time. These layers of sediment outcrop in irregular bands that trend northeast-southwest. Wide areas of the Coastal Plain are covered by a thin veneer of Late Tertiary and Quaternary sand and gravel deposited by rivers.

The topography of the Coastal Plain generally is flat to very gently undulating. However, erosion-resistant gravel or iron-cemented sediment underlie upland areas and isolated hills, such as the Atlantic Highlands, Telegraph Hill, Mount Holly, and Arneys Mount.

Coastal Plain sediments have been mined in the past for bog iron, glass sand, foundry sand, ceramic and brick clay, the mineral glauconite for use in fertilizer, and titanium from the mineral ilmenite in sand deposits. Today the Coastal Plain sediments continue to supply glass sand and are extensively mined for sand and gravel construction material. The sand formations are productive aquifers and important ground water reservoirs.

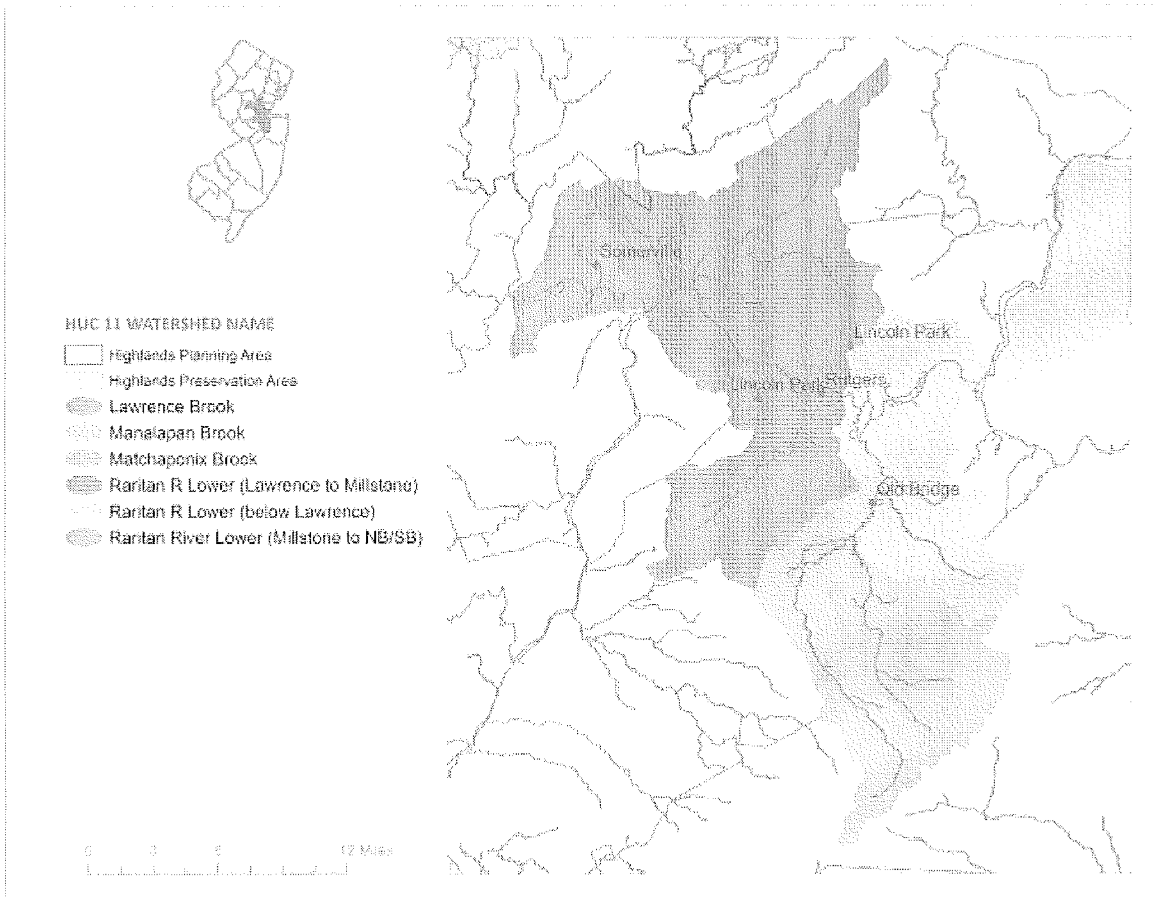
Within each of these physiographic provinces there have been major changes during the past two million years. In this time New Jersey has undergone three glaciations. The last glacier (the late Wisconsinan advance) began to melt back from its maximum extent approximately 20,000 years ago. North of the limit of the last glaciation much of the surface is covered by glacial deposits. Upland areas in this region are thinly draped with till, an unsorted mixture of sand, clay and boulders deposited directly from the glacier. Valleys and lowlands are filled with up to 350 feet of sand and gravel deposited from glacial meltwater and silt and clay that settled in glacial lakes. The sand and gravel deposits are important sources of construction material, and productive aquifers are found where sand and gravel occur in buried or filled valleys. South of the limit of Wisconsinan glaciation, there are discontinuous patches of till from older glaciations. These deposits occur on uplands and are found as far south as the Somerville area.

During each glaciation, sea level dropped as water from the oceans was transferred to ice sheets. Rivers extended and deepened their valleys to conform to the lower sea levels. When the ice sheets melted, sea level rose, flooding the deepened valleys and establishing new shorelines. The present configuration of the coast is the result of the rapid post-glacial rise in sea level, which slowed approximately 6,000 years ago. Many of the estuaries along the coast are the drowned lower reaches of former river valleys. To the east of the mainland, barrier islands were formed, and continue to be shaped, by erosion and deposition of beach sand by waves and currents. Mud and sand transported by rivers and from offshore is gradually filling the bays and estuaries between the mainland and the barrier islands, creating extensive wetlands.

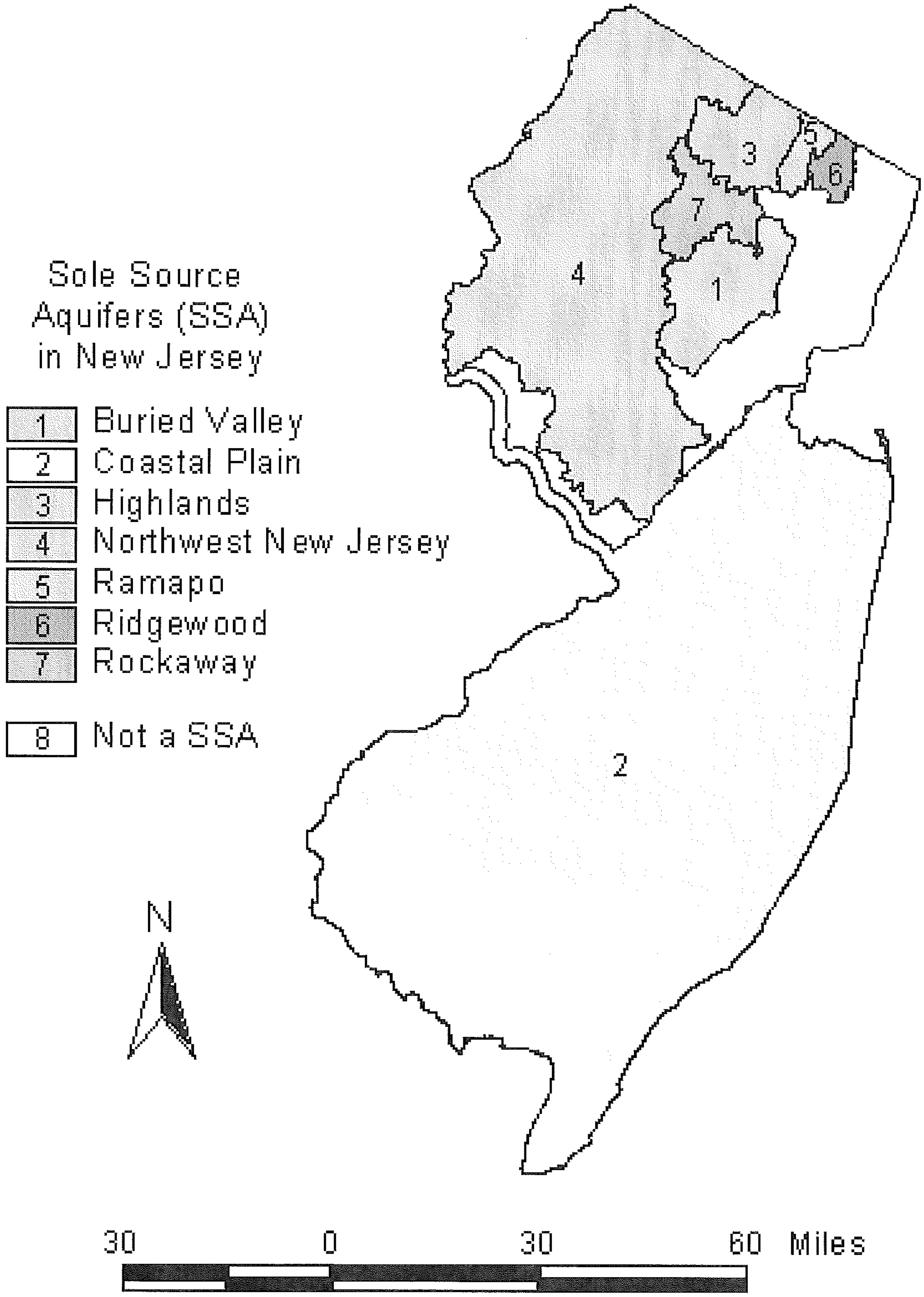
NJ WATERSHED MANAGEMENT AREA MAP

WATERSHED MANAGEMENT AREA 9

LOWER RARITAN, SOUTH AND LAWRENCE



NJ SOLE-SOURCE AQUIFER MAP



National Flood Hazard Layer FIRMette

FEMA

74°28'57"W 40°29'38"N

74°28'20"W 40°29'11"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99* With BFE or Depth *Zone AE, AO, AH, VE, AR* Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Are of 1% annual chance flood with averag depth less than one foot or with draina areas of less than one square mile *Zone* Future Conditions 1% Annual Chance Flood Hazard *Zone X* Area with Reduced Flood Risk due to Levee. See Notes. *Zone X* Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X* Effective LOMRs Area of Undetermined Flood Hazard *Zor*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	(B) 20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation (8) Coastal Transect 513 Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS	Digital Data Available No Digital Data Available Unmapped

N

The pin displayed on the map is an approxima point selected by the user and does not repres an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/8/2020 at 11:03 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX B

NRCS SOIL SURVEY INFORMATION

Map Scale: 1:587 if printed on A landscape (11" x 8.5") sheet.

Meters: 0 5 10 20 30

Feet: 0 25 50 100 150

N

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

Somerset County, New Jersey

KkoC—Klinesville channery loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1jtb9
Elevation: 250 to 1,500 feet
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: Farmland of local importance

Map Unit Composition

Klinesville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Klinesville

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from shale

Typical profile

Ap - 0 to 9 inches: channery loam
C - 9 to 11 inches: very channery loam
R - 11 to 80 inches: weathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Penn, eroded

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Berks, eroded

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Bucks, eroded

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Somerset County, New Jersey
Survey Area Data: Version 18, Jun 1, 2020