



**DAVID A. STIRES ASSOCIATES, LLC.**

ENGINEERS • SURVEYORS • PLANNERS • ENVIRONMENTALISTS

David A. Stires, PE, PP, CME

George H. Folk, PE, PP

Gary V. Marmo, PLS

**ENGINEERS REPORT  
RARITAN CROSSING**

For

LOTS 25, 26.01, 27 & 27.01: BLOCK 116.01

LOT 3: BLOCK 112

RARITAN BOROUGH

SOMERSET COUNTY, NEW JERSEY

**February 2023**

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George H. Folk, P.E., P.P.  
N.J. License # 35258

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## **I. PROJECT AND SITE DESCRIPTION**

The project site is situated on the westerly side of US Route 206 South, just south of the Somerset Street intersection. The tract is located in the B2 & B3 Zone which generally incorporates commercial and retail uses. The property consists of a total tract area of 3.45 acres. The site is currently improved land that supports the commercial strip center and the 3-story retail/commercial facility.

The proposed project involves the redevelopment of the existing 3-story commercial/retail structure, by demolishing the structure and in its place building a 4-story residential apartment facility. The redevelopment of the site will be improved with landscaping, site lighting, and stormwater management improvements. The new residential structure will be served by current on site utilities, consisting of sanitary sewer, fire and domestic water, natural gas, electric and cable systems.

The Raritan River is approximately 1,600 linear feet from the subject site. The Flood Insurance Study, Volume 4 of 5, dated November 4, 2016, for this area identify a Flood Hazard Area Design Flood elevation of 51.6', NAVD88 datum. The subject site does not contain any Freshwater wetland areas nor is it within 150 feet of any Freshwater wetland area. The site is also not subject to Riparian Buffers.

The information presented is based on site visits and actual field surveys.

## **II. SITE INFORMATION**

### **Topography and Site Features**

The topography on the existing parcel consists of a variable slope of approximately 1 to 2% from the north towards the south, for the northern portion of the property. And a slope of 3 to 6% for the southern portion of the improved property. There are no natural slopes on the tract that exceed 15% as defined by the land development ordinance of Raritan.

The tract is fully developed and generally consists of improvements to support the commercial/retail strip center and the 3-story retail/commercial facility. These improvements consist of paved parking areas for approximately 194 cars plus additional paved areas for deliveries and ancillary uses. The impervious coverage for the existing condition is approximately 90.2%, while the proposed impervious coverage will be reduced to approximately 82.9% or roughly 11,072 s.f of impervious reduction. See attached existing aerial photo.

Based upon historic aerial photographs the project site has been previously disturbed from the improvements outlined above from at least 1960's and those before the current site layout since at least the 1930's.

The project tract does not contain any Freshwater wetland areas or subject to transitional buffers from offsite properties. The site is also not impacted by the Raritan River Riparian Buffer. The site does not contain any archaeological and/or historical features.

## **Soils**

The Soil Survey of Somerset County indicates that the soils on-site include (BhnB) Birdsboro silt loam 2 to 6 percent slopes in the northern portion of the property, (BoyAt) Bowmansville silt loam 2 to 6 percent slopes in the southern portion of the property. See attached Soils Map.

## **Vegetation**

Most of the site is devoid of trees/vegetation due to the current use. The proposed project includes a substantial landscaping plan to soften the improvements and provide a limited ability to support the local avian habitat.

## **III. Stormwater Management**

The project will require the from NJDEP an Individual Permit for the approval of calculations relating to the requirement for a building reconstruction within the flood hazard area (flood fringe), and zero net fill calculations that are associated with the redevelopment.

The flood hazard area design flood (FHADF) elevation determination was establish using the Department determination (Method 1). The FHADF was determined to be elevation 51.6' NAVD88 datum.

The project is also a major development due to the land disturbance being over 1 acre. The proposed land disturbance is approximately 1.67 acres. The overall proposed project will be reducing the amount of impervious coverage onsite from an existing impervious coverage of 135,695 s.f. to a proposed impervious coverage of 124,623 s.f., a reduction of 11,072 s.f.

The drainage study area for the project where redevelopment is proposed is shown on the Drainage Area Map. This map identifies an area of 116,705 s.f. whereas the total tract area is 150,358 s.f., this partial overall tract area contains the impacts to the existing drainage area. The remainder of the site is to remain unaffected by the proposed development and drains to the north.

The impacts to the study area are summarized as follows. The existing outdoor motor vehicle parking area will be reduced from an existing 64,249 s.f. to a proposed 43,942 s.f. for a reduction of 20,307 s.f. in outside motor vehicle parking area. The roof area for the project will increase from 27,007 s.f. existing area to a proposed area of 37,888 s.f. for an increase of 10,881 s.f. According to NJAC 7:8-5.5(a) of the NJDEP Stormwater Management Rules, stormwater runoff quality standards are only applicable when a major development results in an increase of one-quarter (1/4) or more of regulated motor vehicle surfaces. The project proposes to decrease both the impervious cover and motor vehicle surfaces of the site; therefore, stormwater quality measures are not required and are not proposed for this project.

According to NJAC 7:8-5.4(b)1.i of the NJDEP Stormwater Management Rules, the post-development groundwater recharge shall maintain 100% of the average annual recharge of the pre-development conditions. The proposed improvements will reduce the impervious cover of the post-development site allowing for more annual recharge than in pre-development conditions, meeting the requirement. Also, the location of the project site is within the Metropolitan Planning Area and therefore, groundwater recharge is not required.

The stormwater runoff quantity for the redevelopment project will be reduced by the overall reduction in impervious coverage of the project. The hydrographs for the existing condition and the proposed condition that are attached herein, demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2- year, 10-year, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events.

#### **SITE RUNOFF SUMMARY**

	<u>Existing</u>	<u>Proposed</u>
2 yr. storm	9.15 cfs	8.68 cfs
10 yr. storm	14.38	13.48
100 yr. storm	24.13	22.94

#### **IV. Zero Net Fill**

The project was designed to eliminate the damage to the existing retail facilities by the flooding events of the Raritan River. Currently the retail establishments on the first floor, elevation 49.12', has seen flood waters from TS Ida and TS Sandy. The proposed redevelopment of this building will remove the retail facilities and replace this area with underground parking for the proposed residential use. The underground parking is designed to be inundated by flood waters by having numerous openings for the flood waters in addition to the parking surface to be graded such that the water will naturally regress once the storm water recedes. The underground parking garage will not have any electrical improvements below elevation 54.0', or any improvements that can be damaged by flood waters.

The redevelopment of this site will provide additional flood volume storage as shown through the calculations presented, comporting with the NJDEP requirement for fill within the flood fringe. The average end area method was used to determine the volumes for the compliance with the regulations.

## **V. Low Impact Development**

The NJDEP Stormwater Management Rules, NJAC 7:8, requires a stormwater management plan with stormwater management measures that include green infrastructure and nonstructural stormwater management strategies to be incorporated into the site design of a major development. Nonstructural stormwater management strategies may include one or more of the following practices:

- Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
- Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
- Maximize the protection of natural drainage features and vegetation;
- Minimize the decrease in the “time of concentration” from pre-development to post-development;
- Minimize land disturbance including clearing and grading;
- Minimize soil compaction;
- Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimize the use of lawns, fertilizers, and pesticides;
- Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas; and,

- Provide other source controls to prevent or minimize the use or exposure of pollutants at the site to prevent or minimize the release of those pollutants into stormwater runoff.

The project proposes a stormwater management plan that incorporates green infrastructure and nonstructural stormwater management such as, a green roof for the proposed residential building, a substantial reduction in impervious coverage overall on the site, reduced outside motor vehicle surface area parking, a substantial landscaping plan that provides habitat and a cooling effect for impervious coverage, and an increase of groundwater recharge.

## **VI. Maintenance**

The proposed stormwater management facilities will be maintained by the property owner in accordance with the Stormwater Management Facilities Maintenance Manual.

## **VII. Summary**

As outlined herein, the stormwater management plan for the proposed development meets the NJDEP, RSIS, and the Borough of Raritan stormwater management requirements, demonstrating compliance with soil erosion and sediment control, stormwater quantity control, stormwater quality control, groundwater recharge and stormwater conveyance where required.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.