TOWNSHIP OF VERONA
BOARD OF ADJUSTMENT APPLICATION

DATE APPLICATION 10/15/19 CASE # 2019-14

PROPERTY ADDRESS 21 & 25 Grove Avenue, Verona, NJ 07044

BLOCK 1702 LOT 22 ZONE C-2

APPLICANT'S NAME 21 & 25 Grove Associates, LLC

PHONE # (201) 883-1010 - attorney CELL PHONE #

EMAIL jason@primelaw.com - attorney

PROPERTY OWNER'S NAME Grove Real Estate, L.L.C.

PROPERTY OWNER'S ADDRESS 21 Grove Avenue, Verona, NJ 07044

PROPERTY OWNER'S PHONE # CELL #

PROPERTY OWNER'S EMAIL

RELATIONSHIP OF APPLICANT TO OWNER Purchaser under contract

REQUEST IS HEREBY MADE FOR PERMISSION TO DO THE FOLLOWING:

Construct 4-story residential building consisting of 40 residential dwelling units and 52 parking spaces, as well as related site improvements.

CONTRARY TO THE FOLLOWING:

See attached Rider.

LOT SIZE: EXISTING 31,197.1 sq.ft. PROPOSED No change TOTAL 31,197.1 sq.ft.

HIEGHT: EXISTING 2 stories PROPOSED 4 stories / 37.5 ft.

PERCENTAGE OF BUILDING COVERAGE: EXISTING 10.6% PROPOSED 50.8%

PERCENTAGE OF IMPROVED LOT COVERAGE: EXISTING 70.2% PROPOSED 81.0%

PRESENT USE Vacant commercial offices PROPOSED USE Residential

SET BACKS OF BUILDING:	REQUIRED	EXISTING	PROPOSED
FRONT YARD	20 ft.	30.1 ft.	20 ft.
REAR YARD	50 ft.	102.7 ft.	15 ft.
SIDE YARD (1)	15 ft.	12.8 ft.	15 ft.
Combined SIDE YARD (2)	35 ft.	62.4 ft.	40 ft.

DATE PROPERTY WAS ACQUIRED N/A

TYPE OF CONSTRUCTION PROPOSED:

Construct 4-story residential building consisting of 40 residential dwelling units and 51 parking spaces, as well as related site improvements.

SIGN INFORMATION (if applicable): supply details on location, dimensions, height and illumination

N/A

AREA PER FLOOR (square feet):	EXISTING	PROPOSED	TOTAL
BASEMENT		13,915 sq.ft.	13,915 sq.ft.
FIRST FLOOR		12,492 sq.ft.	12,492 sq.ft.
SECOND FLOOR		15,898 sq.ft.	15,898 sq.ft.
~~ATTIC~~ THIRD FLOOR		15,931 sq.ft.	15,931 sq.ft.
FOURTH FLOOR		12,563 sq.ft.	12,563 sq.ft.

NUMBER OF DWELLING UNITS: EXISTING 0 PROPOSED 40

NUMBER OF PARKING SPACES: EXISTING 18 PROPOSED 52

History of any previous appeals to the Board of Adjustments and the Planning Board

See attached OPRA results.

What are the exceptional conditions that warrant relief from compliance with the Zoning Ordinance?

Planning testimony to be provided. In addition, see attached Rider.

Supply a statement of facts showing how relief can be granted without substantial detriment to the public good and without substantially impairing the intent and purpose of the Zone Plan and the Zoning Ordinance

Planning testimony to be provided. In addition, see attached Rider.

History of any deed restrictions:

N/A

A legible plot plan or survey to scale (not less than 1"=100') of the property indicating the existing and/or proposed structure and scale drawings of the existing and/or proposed structure must be provided.

A copy of any conditional contract relating to this application must be filed with this application.

If the applicant is a corporation or partnership, the names, addresses and phone numbers of those owning a 10% or greater interest in the corporation shall be provided.

Name Jaime Weiss Address Unit 503N, 1400 South Ocean Blvd, Boca Raton, FL 33432 Phone # (201) 883-1010 (attorney)

Name Matthew Weiss Address 211 North End Ave, Apt. 4N, New York, NY 10282 Phone # (201) 883-1010 (attorney)

Name Jonathan Goldstein Address 250 Moonachie Road, Suite 302, Moonachie, NJ 07074 Phone # (201) 883-1010 (attorney)

Name _____ Address _____ Phone # _____

Expert witness(es) that will present evidence on behalf of this application:

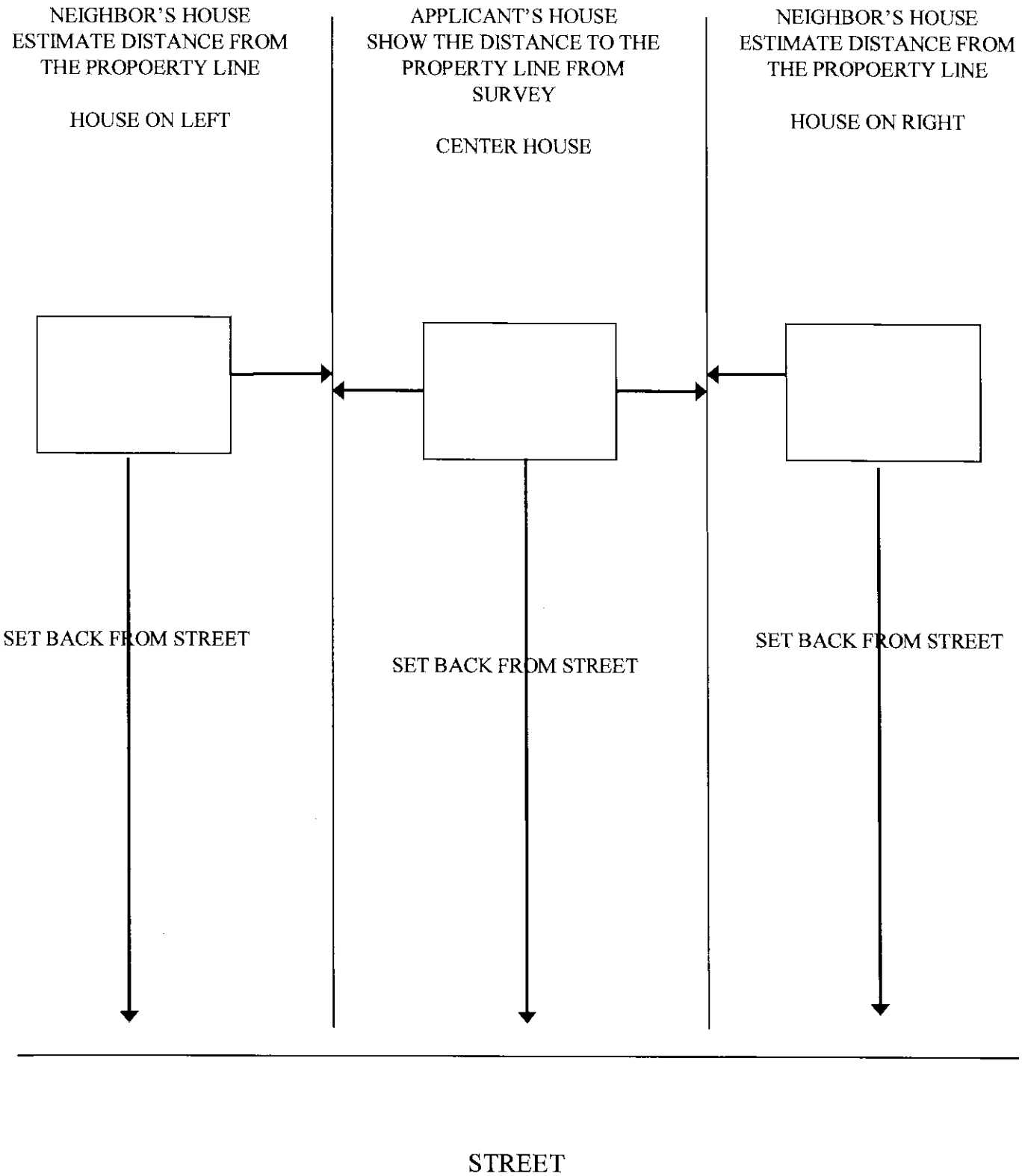
Attorney:
Name Jason R. Tuvel, Esq. - Prime & Tuvel
Address 2 University Plaza Dr., Suite 109, Hackensack, NJ 07601
Phone # (201) 883-1010
Fax # (856) 273-8383
Email jason@primelaw.com

Architect/~~Engineer~~:
Name Bilow Garrett Group
Address 161 Main Street, Ridgefield Park, NJ 07660
Phone # (201) 807-0407
Fax # (201) 807-0513
Email agarrett@bilowgarrett.com

Planner:
& Engineer
Name Stonefield Engineering & Design
Address 92 Park Avenue, Rutherford, NJ 07070
Phone # (201) 340-4468
Fax # (201) 340-4472
mseckler@stonefieldeng.com

BOARD OF ADJUSTMENT APPLICATION SITE PLAN

O INDICATES SHRUBS OR TREES
X INDICATES FENCES



Rider

"D" Variances

Variances are being sought pursuant to N.J.S.A. 40:55D-70(d) of the Municipal Land Use Law (the "MLUL"), as follows:

1. Use not permitted
    a. The Applicant is proposing to construct a residential building where same is not permitted in the C-2 Zone.

Use of the site in this manner promotes the general welfare of the public, provides adequate light, air and open space and establishes good civic design and efficient use of space. Moreover, use of the site in this manner promotes the establishment of an appropriate population density that contributes to the wellbeing of the neighborhood. Therefore, the application satisfies Purposes (a), (c), (e) and (i) of the Municipal Land Use Law.

2. 150-17.11(D)(12) – Floor Area Ratio ("FAR")
    a. The proposed FAR is 102.1% where a maximum permitted FAR is 50%.

Use of the site in this manner promotes the general welfare of the public, provides adequate light, air and open space and establishes good civic design and efficient use of space. Moreover, use of the site in this manner promotes the establishment of an appropriate population density that contributes to the wellbeing of the neighborhood. Therefore, the application satisfies Purposes (a), (c), (e) and (i) of the Municipal Land Use Law.

"C" Variances

The following bulk variances are being sought pursuant to MLUL N.J.S.A. 40:55D-70(c):

1. 150-17.11(D)(12) – Rear yard setback less than required (50 ft. required; 15 ft. proposed);

2. 150-17.11(D)(8) – Building height greater than permitted (2.5 stories / 35 ft. permitted; 4 stories / 37.5 ft. proposed);

3. 150-17.11(D)(10) – Lot coverage greater than permitted (30% permitted; 50.8% proposed);

4. 150-17.11(D)(11) – Improved lot coverage greater than permitted (65% permitted; 81% proposed);

5. Minimum landscaping buffer along residential zone less than required (15 ft. required in rear yard; 12 ft. proposed in rear yard);

6. 150-12.1(B)(2) – Parking requirements may not be satisfied by parking spaces located within or underneath principal building; all parking spaces are located within and underneath principal building;

7. 150-12.2(A) – Size of parking spaces less than required (9 ft. x 20 ft. required; 8.5 ft. x 18.5 ft. proposed);

8. 150-12.4(B)(5) – Location of parking spaces prohibited (0 parking spaces permitted in any required minimum front or side yards; 3 parking spaces proposed in required side yard);

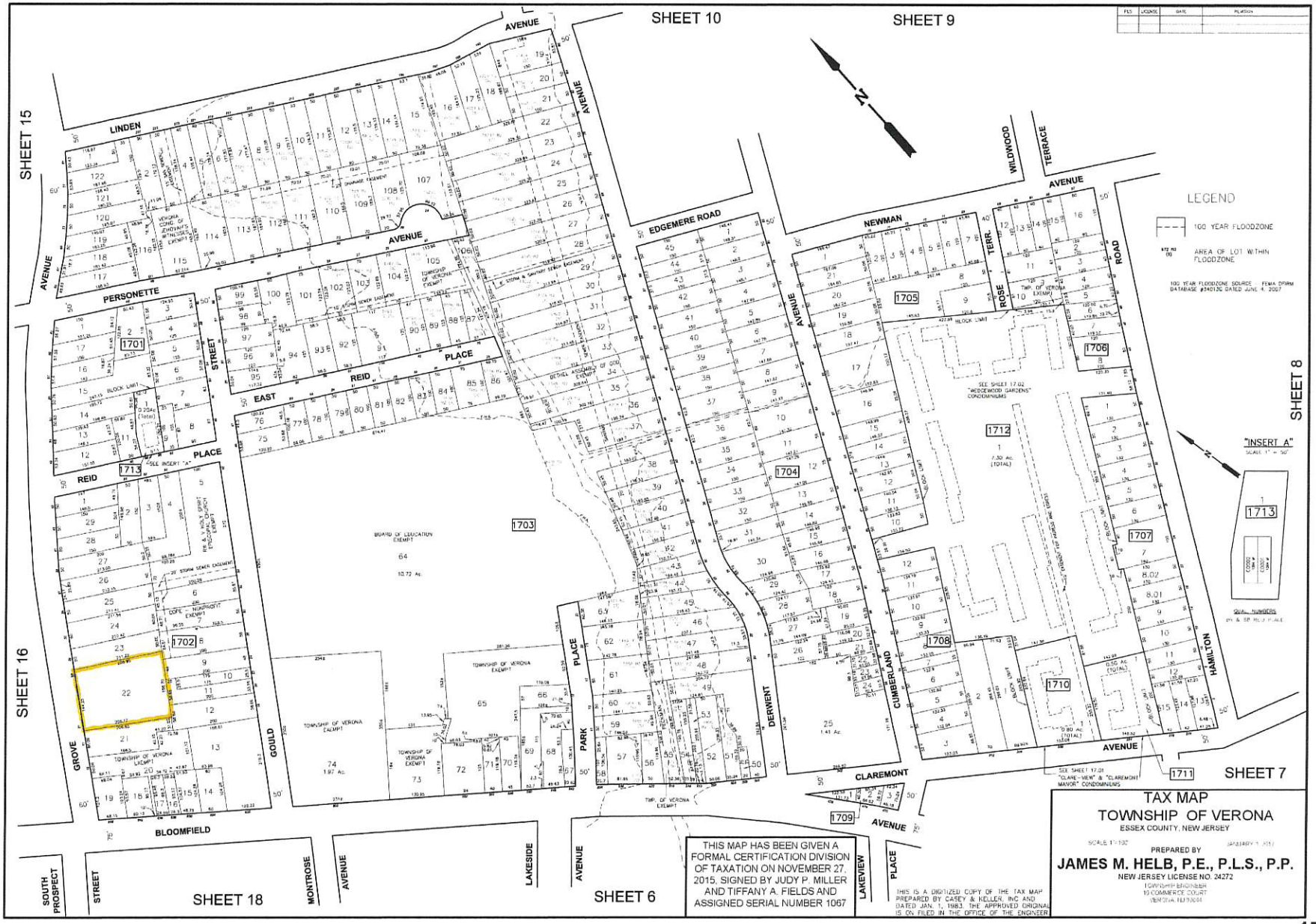
9. 150-12.1(B)(1) – Number of parking spaces less than required (78 residential parking spaces required per RSIS; 52 parking spaces proposed);

10. 150-5.3(F) – Paving of side and rear yard proposed where same is not permitted; and

11. 150-7.12(A) – Height of retaining wall not located within minimum front yard setback greater than permitted (6 ft. permitted; 11.85 ft. proposed).

Use of the site in this manner promotes the general welfare of the public, provides adequate light, air and open space and establishes good civic design and efficient use of space. Moreover, use of the site in this manner promotes the establishment of an appropriate population density that contributes to the wellbeing of the neighborhood. Therefore, the application satisfies Purposes (a), (c), (e) and (i) of the Municipal Land Use Law.

Further planning testimony as to the positive and negative criteria under the MLUL will be provided at the scheduled public hearing(s).


SHEET 10
SHEET 9
SHEET 15
SHEET 16
SHEET 8
SHEET 7
SHEET 18
SHEET 6
LINDEN AVENUE
PERSONETTE STREET
REID PLACE
EAST REID PLACE
EDGEMERE ROAD
NEWMAN TERR.
WILDWOOD TERRACE
ROSE ROAD
GROVE AVENUE
GOULD PLACE
PARK AVENUE
DERWENT AVENUE
CUMBERLAND AVENUE
HAMILTON AVENUE
CLAREMONT AVENUE
BLOOMFIELD AVENUE
SOUTH PROSPECT STREET
MONTROSE AVENUE
LAKESIDE AVENUE
LAKEVIEW PLACE
1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
LEGEND
100 YEAR FLOODZONE
AREA OF LOT WITHIN FLOODZONE
"INSERT A"
THIS MAP HAS BEEN GIVEN A FORMAL CERTIFICATION DIVISION OF TAXATION ON NOVEMBER 27, 2015, SIGNED BY JUDY P. MILLER AND TIFFANY A. FIELDS AND ASSIGNED SERIAL NUMBER 1067
THIS IS A DIGITIZED COPY OF THE TAX MAP PREPARED BY CASEY & KELLER, INC AND DATED JAN. 1, 1983. THE APPROVED ORIGINAL IS ON FILED IN THE OFFICE OF THE ENGINEER
TAX MAP
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY
PREPARED BY
JAMES M. HELB, P.E., P.L.S., P.P.
NEW JERSEY LICENSE NO. 24272
TOWNSHIP ENGINEER
10 COMMERCE COURT
VERONA, NJ 07044

TOWNSHIP OF VERONA
ZONING DEPARTMENT
10 COMMERCE COURT
VERONA, NJ 07044
973-857-4804

OFFICE USE ONLY

ZONING PERMIT APP # 27 **ZONING PERMIT #** None - Denied

DATE RECEIVED N/A **DATE APPROVED** N/A **DATE ISSUED** N/A

PERMIT FEE $ _____ PAID CASH / CHECK # _____ COLLECTED BY _____

- Zoning Permits are required for signs, fences, sheds, driveways and parking areas, standby generators, uses and structures.
- The Zoning Permit Application should be submitted to the Engineering Department. Please provide a correctly copy of the property survey with the application and show the proposed work drawn to scale including setbacks, height, dimensions, etc.
- All zoning permits expire within 1 year of issuance.

Property Information:

Site Address 21 & 25 Grove Avenue

Block 1702 Lot 22 Qualifier _____ Current Zone C-2

Current Use of Property Professional Offices

Proposed Use of Property Mixed Residential & Professional Offices

Property Owner Information:

Name(s) Grove Real Estate, L.L.C.

Owner Address 21 Grove Avenue, Verona, NJ 07044

Owner Phone Number(s) _____ Owner Email _____

Applicant Information:

Applicant Name Weiss Realty

Applicant Company Name (if applicable) _____

Applicant Address 2 University Plaza Dr, Suite 109, Hackensack, NJ 07601 (attorney)

Applicant Phone Number(s) (201) 883-1010 (attorney) Applicant Email jason@primelaw.com (attorney)

Proposed Work Description: details of proposed use or work including length, width, height, location, size of space, description of business to be run, times, days, living space or units, etc.

3.5 story structure consisting of 54 residential units and a common area, along with 3,000 sq.ft. of commercial space and 52 parking spaces.

Proposed Cost of Work $ TBD

Applicant Signature Jason R. Tunell - Attorney for Applicant **Date** 4-2-19

OFFICE USE ONLY:

REVIEWS:

DENIAL DATE 4/17/19 INITIALS MB REASON See letter of Denial

DENIAL DATE _____ INITIALS _____ REASON _____

APPROVAL DATE _____ INITIALS _____ SPECIAL CONDITIONS _____

INSPECTIONS:

DATE	INITIALS	PASS / FAIL	COMMENTS

FINAL APPROVAL DATE _____ INITIALS _____

TOWNSHIP OF VERONA
COUNTY OF ESSEX, NEW JERSEY

VERONA COMMUNITY CENTER
880 BLOOMFIELD AVENUE
VERONA, NEW JERSEY 07044

MUNICIPAL BUILDING
600 BLOOMFIELD AVENUE
VERONA, NEW JERSEY 07044
(973) 239-3220
WWW.VERONANJ.ORG

DEPARTMENT OF PUBLIC WORKS
10 COMMERCE COURT
VERONA, NEW JERSEY 07044

April 16, 2019

Township of Verona Zoning Dept.
Re: Zoning Permit Application #27

Applicant: Weiss Realty
2 University Plaza Drive, Suite 109
Hackensack, N.J. 07601
Owner: Grove Avenue Realty, LLC
21 Grove Avenue
Verona, N.J. 07044
Property: 21-25 Grove Avenue
Lot 22 Block 1702
Zone: **C-2 (Professional Office and Business) §150-17.11**

This office is in receipt of the following drawings which were submitted by the applicant.

- Boundary Survey of the property prepared by McCumsey-Petry PC dated 11/27/97 certified to Grove Real Estate, LLC.
- Plans entitled "Proposed Mixed Use Development for: 21-25 Grove Avenue" Prepared by Bilow Garrett Group Architects and Planners, PC. Sheets A-001, A-100 and A-101.

Existing Conditions:
The site currently consists of 2 principal structures, No. 21 Grove Avenue is a 3 story frame structure while No. 25 is a 3½ story frame structure. There is also a single story frame accessory structure on the property which is used as a garage. The buildings are serviced by a single common driveway accessed from Grove Avenue (Essex County Route 639) which leads to bituminous parking behind the structures. The existing lot coverage is shown to be 10.8% (provided) and the improved lot coverage is approximately 50% (scaled)

Proposed Conditions:
The applicant proposes to demolish all of the existing site improvements including but not limited to all of the existing structures, parking and walks contained within the property and seeks approval to construct a new 3½ story mixed use building consisting of 54 residential apartments and 3,000 square feet of "Commercial" space. The applicant has not indicated as to whether the commercial space will be an office or retail use. The preliminary and/or final plans which are to be submitted to the Verona Board of Adjustment should clearly show how this commercial area is to be utilized. The applicant is seeking approval to allow for parking under the structure to count towards the requirements for off-street parking.

Zoning Review:
We have reviewed the Townships current zoning ordinance known as Chapter 150, dated August 15, 2011 as well as the current zoning map which is dated July 11, 2011 and have found the following. The property commonly known as 21-25 Grove Avenue also being shown on the Official Tax Maps of the Township of Verona as Tax Lot 22 Block 1702 is situate in the Townships "C-2" Zone, (Professional Office and Business). The property adjoins the Townships R-50B Zone (Residential Medium – High Density) along its Northerly boundary, R-50 Zone (Residential High Density) to its West and the Township P (Public) Zone to its South.

Based upon our review of the submitted drawings and documents as indicated and described above in regard to the above-referenced project, we herby deny the request for a construction permit, due to violations of the following sections of the Zoning Ordinance for the Township of Verona.

The Variances Required: Relief is being sought from the following sections of the Township of Verona Zoning Ordinance.

D-Variances

1. The proposed mixed Residential and Commercial (non-medical) use is listed a Conditional Use under §150-17.11 C. 2 subject to the conditions set forth in section §150-8.3. The applicant is seeking to use the first (ground) floor as a residential use and therefore does not meet the conditions as set forth under §150-8.3 A.2, §150-8.3 B.1 and §150-8.3 B.5

This then constitutes a **"D-3"** Variance in accordance with §40:55D-70 of the NJ Municipal Land Administration. (Deviation from a specification or standard pursuant to section 54 of P.L. 1975, c. 291 (C.40:55-67) pertaining solely to a conditional use.)

Variance required §150-8.3 A.2, §150-8.3 B.1 and §150-8.3 B.5

- Residential units not permitted on first floor (Mixed Use)
- Mixed uses shall have an even distribution of between principal uses within each building.
- In the C-2 Zone site access must be from Bloomfield or Pompton Avenue.

2. The plans submitted and reviewed indicate that the applicant is seeking to utilize a Floor Area Ratio (FAR) of 102.1% when the maximum FAR permitted is 50%.

This then constitutes a **"D-4"** Variance in accordance with §40:55D-70 of the NJ Municipal Land Administration. (An increase in the permitted floor area ratio as defined in section 3.1 of P.L. 1975, c.291 (C.40-55D-4)

Variance required: §150-17.11 D.12

- Maximum floor area ratio permitted is 50%

C-Variances (Bulk)

3. The proposed rear yard is shown to be 15 feet, where 50 feet is the required minimum.

Variance required: §150-17.11 D.7

4. The proposed building is indicted as having height of 3½ stories and 38 feet. Where 2½ stories and 35 feet are the maximum permitted.

Variance required: §150-17.11 D.8

- The applicant should be aware that an increase beyond the maximum permitted height of 10 feet or 10% would constitutes a D-4 variance under §40:55D-70 and as such building height calculations shall be required to be submitted as part of any application which is presented to the Board of Adjustment.

5. The proposed lot coverage is indicated as being 51.1% where 30% is the maximum permitted.

Variance required: §150-17.11 D.10

6. The proposed improved lot coverage is indicated as being 73.5% where 65% is the maximum permitted.

Variance required: §150-17.11 D.11

C-Variances (Off-Street Parking, Loading, Performance Standards & Design Criteria

7. The site data chart which includes the parking calculations show the required number of parking spaces per N.J.A.C. 5:21-1.1 RSIS (Residential Site Improvement Standards) for the residential portion of the application as well as the required number for the commercial portion as taken from The Township of Verona Chapter 150-12.6 C. The calculated total combined amount of parking spaces required is indicated as being 113 spaces. The applicant is seeking approval for a total of 52 spaces.

Variance required: §150-12.1 B.1

8. The total combined parking for both the residential and commercial uses are shown as being underneath the principal building. Except in residential zoning districts, the minimum number of required parking spaces may not be met or satisfied by parking spaces located within of underneath a principal building.

Variance required: §150-12.1 B.2

9. The plans do not provide or designate an area to be utilized for loading for the commercial use. All nonresidential uses shall provide for off-street loading and unloading.

Variance required: §150-12.5 A

The variances listed are those which are evident upon complete review of the plans which were submitted to this office for consideration. Additional "Use, Bulk, Parking, Performance Standard or Design Criteria" variances may be required once a formal submittal is made to the Board of Adjustment.

Comments: The following is a list of comments provided for consideration:

- As per ordinance, waste and recycling and other loading and unloading activities shall occur on the premises and shall not interfere with normal municipal sidewalk and street operations. Dumpster and Recycling locations.
- Applicant should provide details on proposed fencing if it considered.
- Provide information on any proposed building or ground signage.
- Provide information on any proposed rooftop HVAC or ground equipment.
- Accessible on-site parking and accessible routes to entrances.
- A traffic study prepared by a licensed professional shall be required.
- All signage must comply with the Township of Verona's Sign Ordinance.
- The applicants design professionals must consult with the Township of Verona's Fire Department to ensure that proposed site conditions meet the satisfaction of the Office of Emergency Management.
- The applicants design professional must consult with the Township of Verona's Rescue Squad to obtain the minimum size requirements of elevator cars to accommodate stretchers.
- Since Grove Avenue is a County of Essex roadway the applicant will be required to obtain approval from the Essex County Planning Board.
- The applicant must comply with the requirements as set forth under Affordable Housing Set Aside Ordinance #2018-25 (copy attached)
- The applicant may be required to obtain permits from but not limited to the Township of Verona, County of Essex, Hudson Essex Passaic Soil Conservation District and the NJDEP.

Note:
Appeals to the zoning board of adjustment from the decision of an administrative officer must be taken within 20 days by filing a notice of appeal with the officer from whom the appeal is taken specifying the grounds of such appeal. N.J.S. 40:55D-72a. Failure to adhere to the time for appeal will result in the zoning board not having jurisdiction to consider the appeal.

Please feel free to contact this office should you have any other questions,

Respectfully Submitted,

Michael C. DeCarlo
Engineering Manager
Zoning Officer

TOWNSHIP OF VERONA
ESSEX COUNTY, STATE OF NEW JERSEY

ORDINANCE No. 2018-25

AN ORDINANCE TO CREATE A MANDATORY SET-ASIDE FOR AFFORDABLE HOUSING WITHIN THE CODE THE TOWNSHIP OF VERONA, COUNTY OF ESSEX AND AMENDING AND SUPPLEMENTING CHAPTER 150 (ZONING) OF THE TOWNSHIP OF VERONA

WHEREAS, the Township of Verona has been engaged in certain litigation regarding the Township's obligation to provide for affordable housing; and

WHEREAS, The Township desires, among other things to adopt certain amendments to its Municipal Land Use Ordinances;

NOW THEREFORE BE IT ORDAINED by the Township of Verona in the County of Essex and State of New Jersey, the code is supplemented and amended as follows:

Mandatory Affordable Housing Set Aside Ordinance

1. Any property in the Township of Verona that is currently zoned for nonresidential uses and subsequently receives a zoning change or use variance to permit multi-family residential development, or that is currently zoned for residential uses and receives a zoning change or density variance to permit higher density multi-family residential development provided the number of dwelling units is five (5) or more than the number of units previously permitted, shall be required to include an affordable housing set-aside on all such additional units beginning at five (5) or more over the number of units previously permitted of 15%, if the affordable units will be for rent, and 20% if the affordable units will be for sale. No property shall be subdivided so as to avoid compliance with this requirement. Moreover, this provision governs municipal actions and shall not entitle any property owner or developer to such action by the Township. All affordable units created pursuant to this paragraph shall be governed by the provisions of the Township's Court-approved Affordable Housing Ordinance.

2. Any property in the Township of Verona that is currently zoned for nonresidential uses and subsequently receives approval of a redevelopment plan to permit multi-family residential development, or that is currently zoned for residential uses and receives an approval of a redevelopment plan to permit higher density multi-family residential development provided the number of dwelling units is five (5) or more than the number of units previously permitted, shall be required to include a 20% affordable housing set-aside. No property shall be subdivided so as to avoid compliance with this requirement. Moreover, this provision governs municipal actions and shall not entitle any property owner or developer to such action by the Township. All affordable units created pursuant to this paragraph shall be governed by the provisions of the Township's Court-approved Affordable Housing Ordinance.

3. The foregoing set-aside requirements do not apply to inclusionary development zones and sites that are already included in the Township's Court-approved Housing Element and Fair Share Plan, which zones and sites shall be governed by the set-aside requirements for the applicable zones or redevelopment areas.

SEVERABILITY. All provisions of this Ordinance are severable. If for any reason, any provision of this Ordinance is held to be invalid, the validity of the remainder of the Ordinance shall not be affected.

INCONSISTENCY. All Ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

EFFECTIVE DATE. This Ordinance shall become effective upon final approval and publication, pursuant to law.

ATTEST:

Jennifer Kiernan

JENNIFER KIERNAN
MUNICIPAL CLERK

NOTICE

I HEREBY CERTIFY THAT THE AFOREMENTIONED ORDINANCE WAS PUBLISHED IN THE VERONA-CEDAR GROVE TIMES, A NEWSPAPER PUBLISHED IN THE COUNTY OF ESSEX AND CIRCULATED IN THE TOWNSHIP OF VERONA, IN THE ISSUE OF SEPTEMBER 20, 2018 AND OCTOBER 18, 2018.

JENNIFER KIERNAN
MUNICIPAL CLERK

INTRODUCTION:	September 17, 2018
ADOPTION:	October 15, 2018
EFFECTIVE DATE:	November 4, 2018

AERIAL MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: GOOGLE EARTH PRO, RETRIEVED 07/31/2019

WEISS REALTY
PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

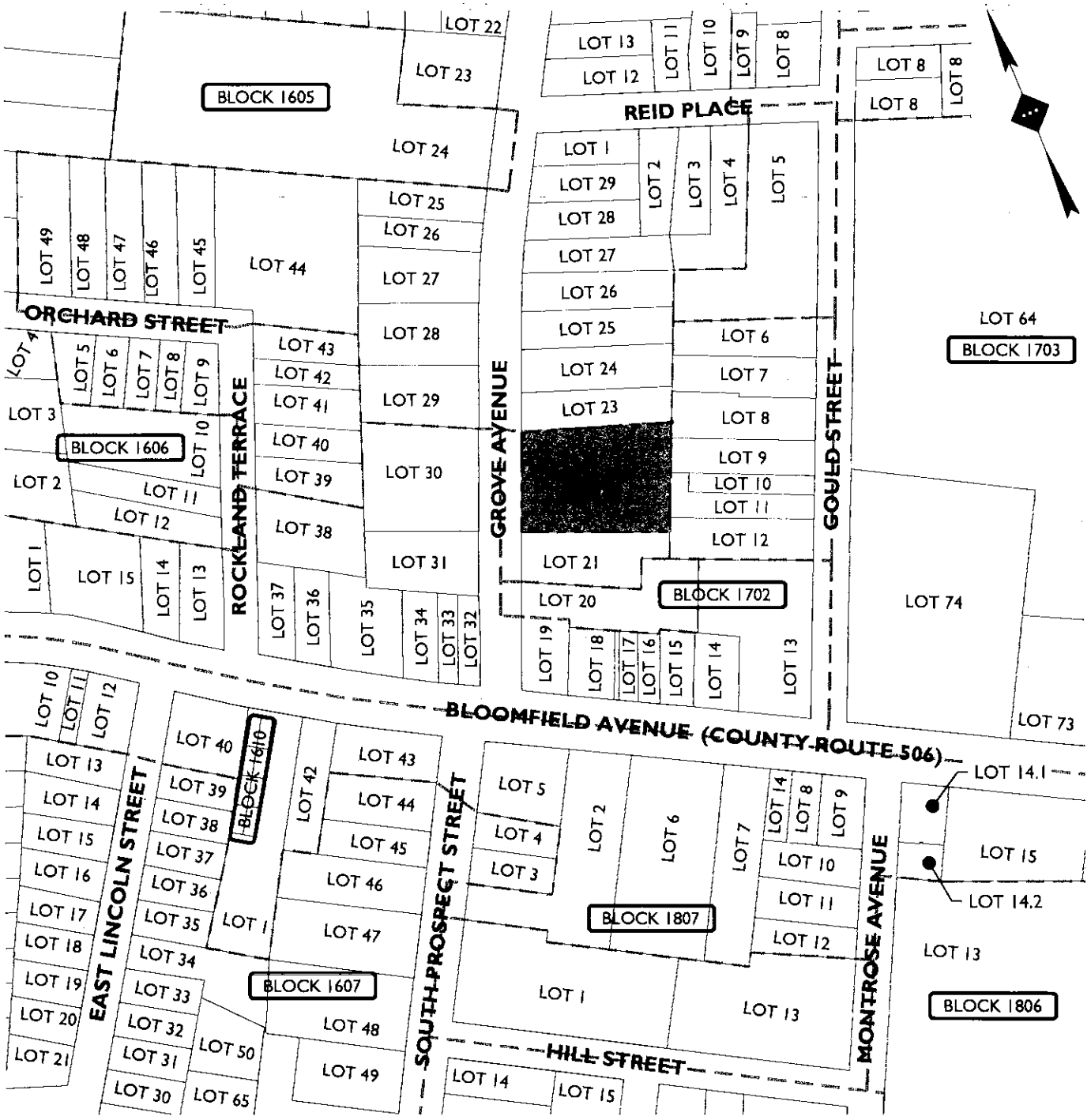
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 200'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg



TAX AND ZONING MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: TOWNSHIP OF VERONA TAX MAP, SHEETS 6, 16, 17 & 18. TOWNSHIP OF VERONA ZONING MAP, DATED 11/27/2015.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

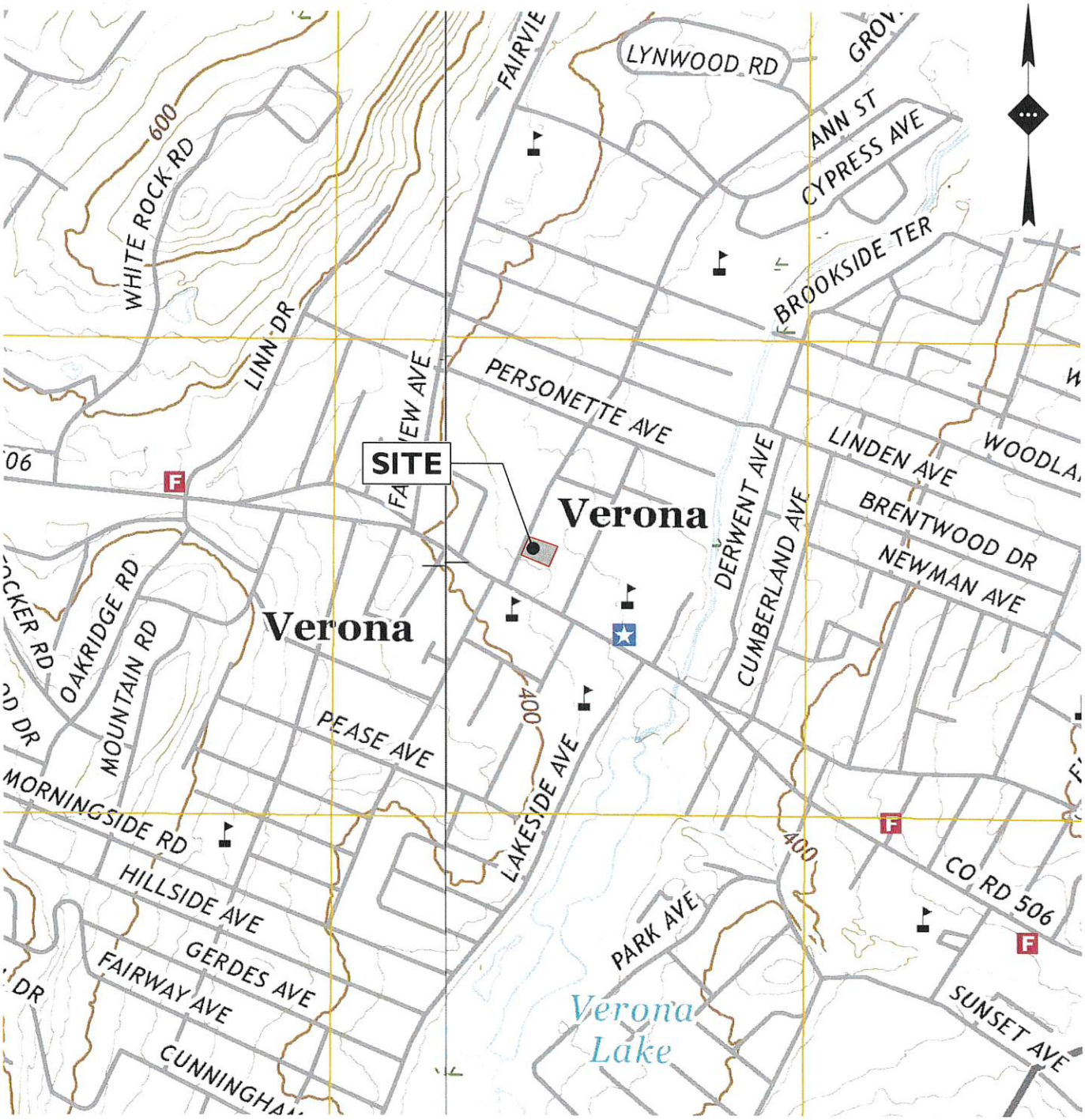
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 200'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CAD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg



USGS QUADRANGLE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: UNITED STATES GEOLOGICAL SURVEY QUADRANGLE MAPS, VERONA, NEW JERSEY, 7.5 MINUTE SERIES, 2016.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

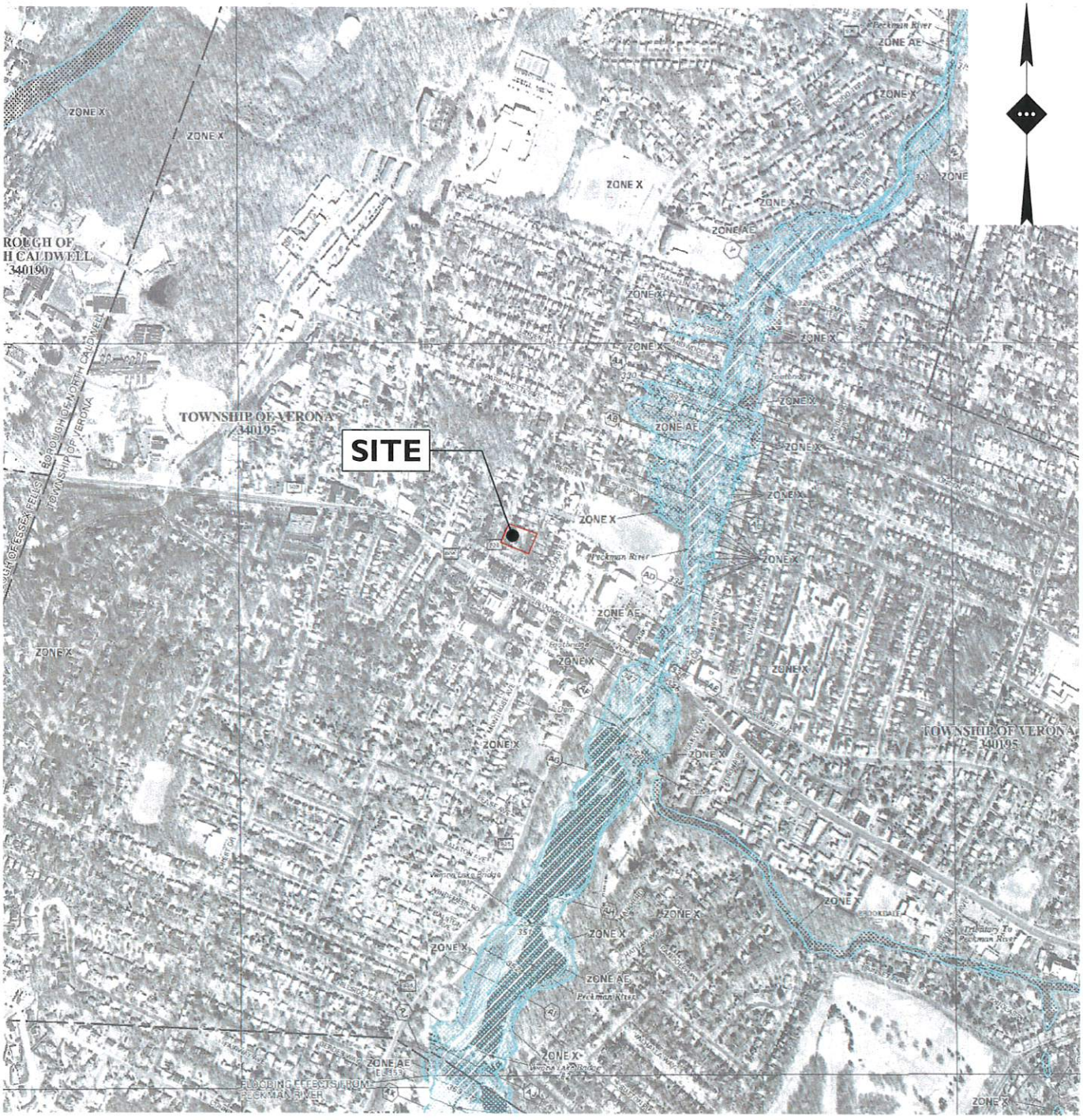
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 1000'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31 Project Maps.dwg



EFFECTIVE FEMA FLOOD INSURANCE RATE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1" = 1000'

SOURCE: FLOOD INSURANCE RATE MAP, ESSEX COUNTY, NEW JERSEY, MAP NUMBERS 34013C0084F & 34013C0103F, DATED JUNE 4, 2007.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

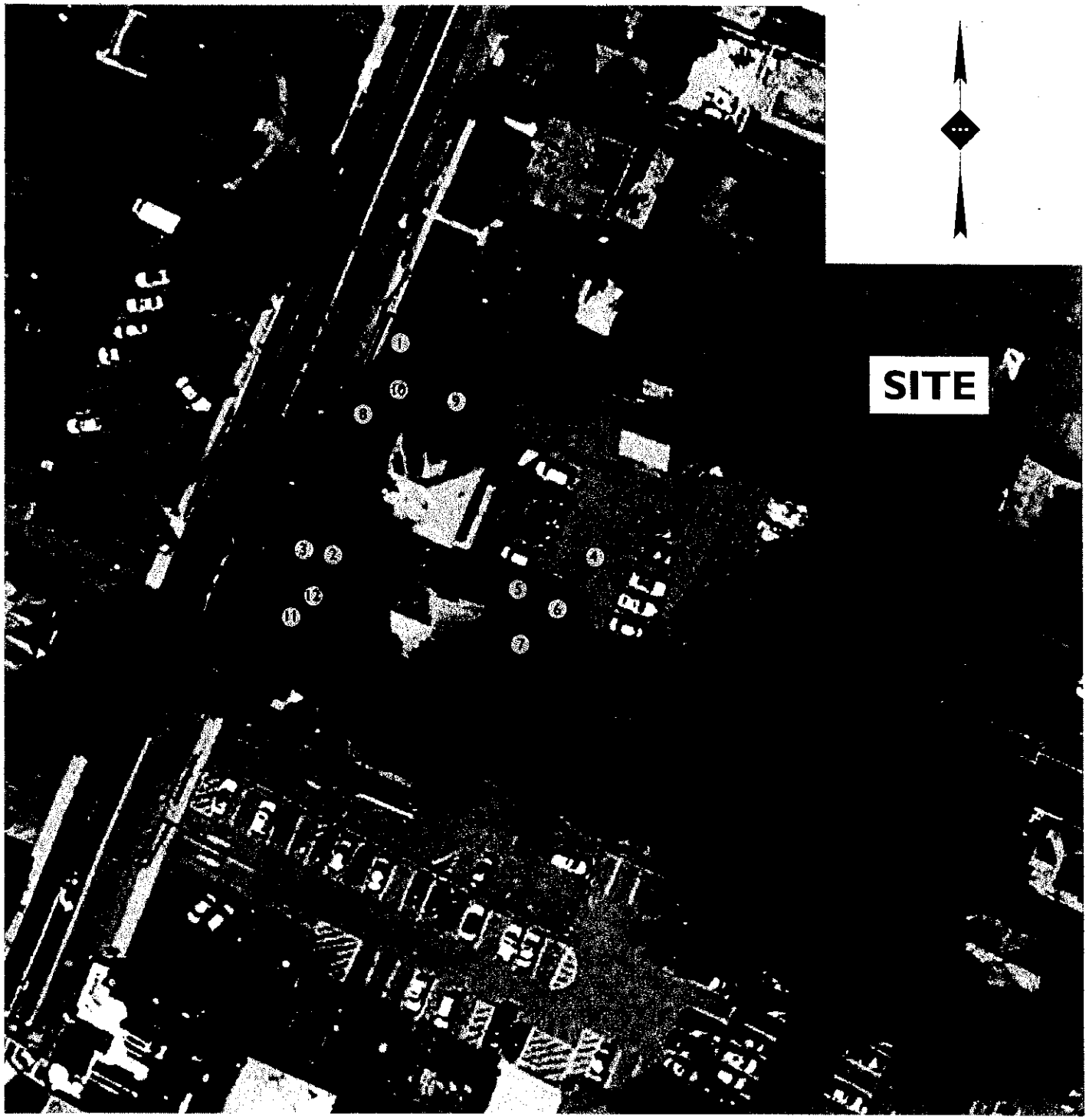
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 1000'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31 Project Maps.dwg



SITE PHOTOGRAPH LOCATION MAP

60' 0' 60' 120'

GRAPHIC SCALE IN FEET

1" = 60'

SOURCE: GOOGLE EARTH PRO, RETRIEVED 07/17/2019

21 & 25 GROVE ASSOCIATE, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2019
SCALE:	1"=60'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Photo Exhibit\Photos Exhibit.dwg

PHOTOGRAPH 1

PHOTOGRAPH 2

SITE PHOTOGRAPHS

SOURCE: SITE VISIT CONDUCTED ON MARCH 6, 2019

21 & 25 GROVE ASSOCIATES, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

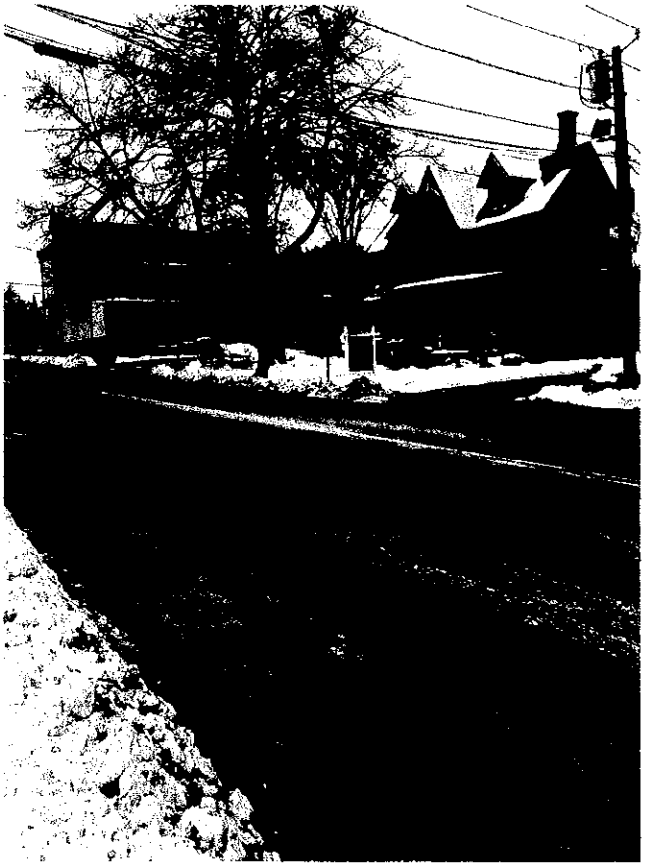
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2018
SCALE:	N.T.S.
PROJECT ID:	T-19059

STONEFIELD engineering & design

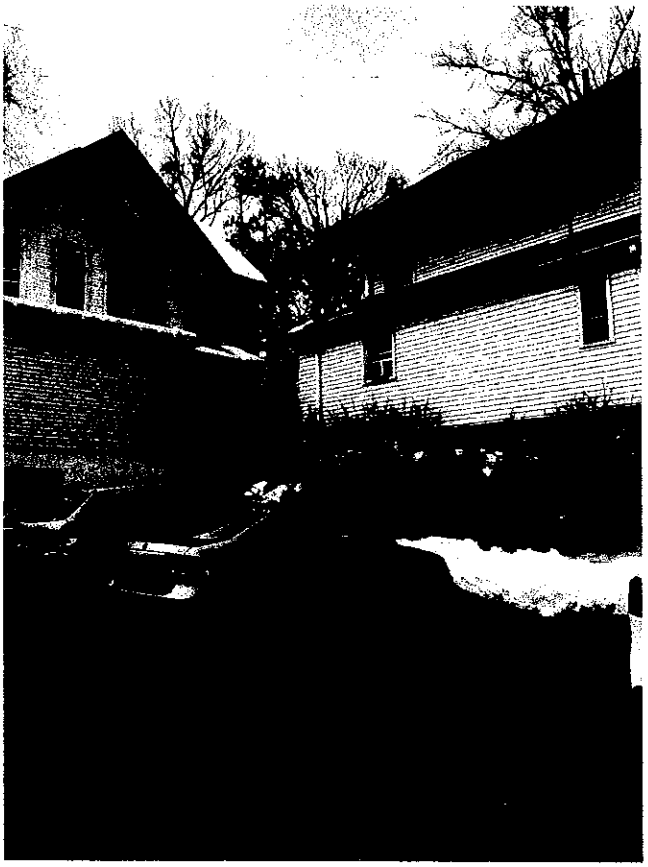
Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Photo Exhibit\Photos Exhibit.dwg



PHOTOGRAPH 3



PHOTOGRAPH 4

SITE PHOTOGRAPHS

SOURCE: SITE VISIT CONDUCTED ON MARCH 6, 2019

21 & 25 GROVE ASSOCIATES, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2018
SCALE:	N.T.S.
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CAD\Exhibits\Photo Exhibit\Photos Exhibit.dwg

PHOTOGRAPH 5

PHOTOGRAPH 6

SITE PHOTOGRAPHS

SOURCE: SITE VISIT CONDUCTED ON MARCH 6, 2019

21 & 25 GROVE ASSOCIATES, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

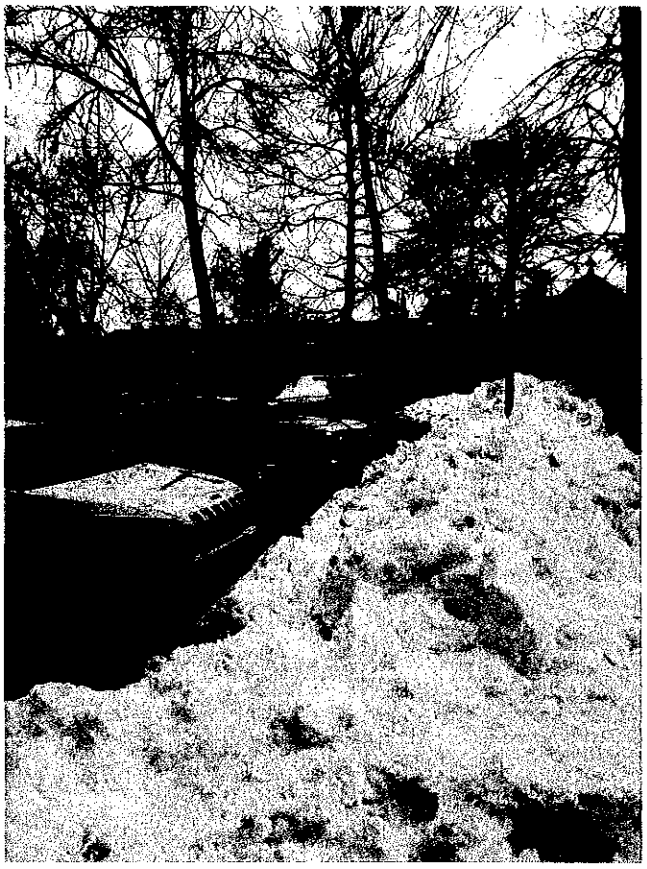
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2018
SCALE:	N.T.S.
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Photo Exhibit\Photos Exhibit.dwg



PHOTOGRAPH 7

PHOTOGRAPH 8

SITE PHOTOGRAPHS

SOURCE: SITE VISIT CONDUCTED ON MARCH 6, 2019

21 & 25 GROVE ASSOCIATES, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2018
SCALE:	N.T.S.
PROJECT ID:	T-19059

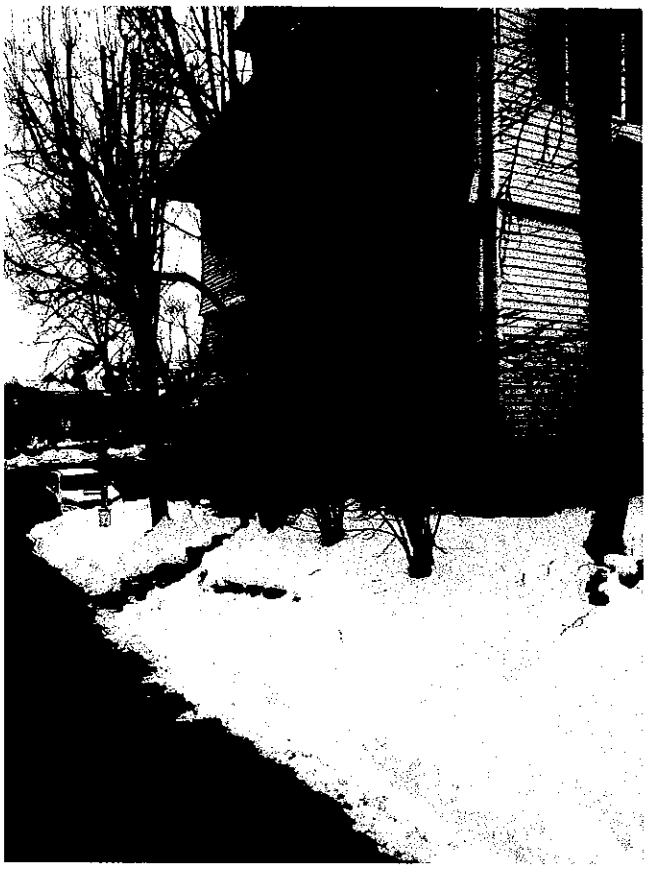
STONEFIELD engineering & design

Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Photo Exhibit\Photos Exhibit.dwg

PHOTOGRAPH 9



PHOTOGRAPH 10

SITE PHOTOGRAPHS

SOURCE: SITE VISIT CONDUCTED ON MARCH 6, 2019

21 & 25 GROVE ASSOCIATES, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2018
SCALE:	N.T.S.
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Photo Exhibit\Photo Exhibit.dwg

PHOTOGRAPH 11

PHOTOGRAPH 12

SITE PHOTOGRAPHS

SOURCE: SITE VISIT CONDUCTED ON MARCH 6, 2019

21 & 25 GROVE ASSOCIATES, LLC.

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	10/01/2018
SCALE:	N.T.S.
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · Princeton, NJ · Long Island City, NY · Royal Oak, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Photo Exhibit\Photos Exhibit.dwg

STONEFIELD
engineering & design

ENVIRONMENTAL IMPACT STATEMENT

PROPOSED RESIDENTIAL DEVELOPMENT
BLOCK 1702, LOT 22
21 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

PREPARED FOR:

21 & 25 GROVE ASSOCIATES, LLC

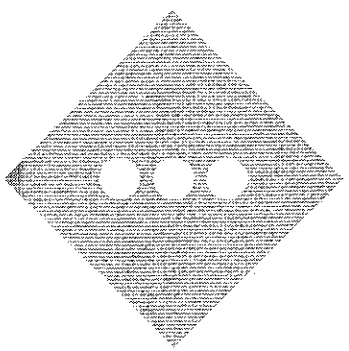
PREPARED BY:

STONEFIELD ENGINEERING & DESIGN, LLC
OCTOBER 11, 2019
T-19059

MATTHEW J. SECKLER PE
NEW JERSEY PROFESSIONAL ENGINEER LICENSE # 48731

REPORT CONTENTS

APPENDICIES



1.0 SITE DESCRIPTION

21 & 25 Grove Associates, LLC is proposing the construction of a residential development with 40 dwelling units. The subject property is designated Block 1702, Lot 22 commonly known as 21 Grove Avenue. The subject property is located within the Township of Verona Professional Office and Business (C-2) Zone and is bounded by residential uses to the north and East, and commercial uses to the west and south. The total project area is 31,197 SF (0.72 acres) the extent of land disturbance is 32,562 square feet (including areas within the public right-of-way). Project Figures can be found in Appendix A of this Report.

Under existing conditions, the project site is composed of two buildings and one shed. The majority of the site is covered with impervious surfaces, including building and asphalt. The proposed development includes the construction of a 15,838 SF residential development with 40 units and supporting improvements inclusive of parking facilities, landscape, utilities, site lighting, and stormwater management facilities.

This Environmental Impact Statement has been prepared per the Township of Verona requirements to investigate the existing conditions of the property, evaluate the potential impacts of the proposed redevelopment, and discuss the measures to mitigate environmental impacts, if any.

2.0 INVENTORY OF EXISTING ENVIRONMENTAL CONDITIONS

2.1 SOILS

The site is underlain by the following soil classifications, based upon the County Soil Survey (Appendix B), the Geotechnical Report, and the site survey:

TABLE 1: ON-SITE SOIL GROUPS

Soil Description	Hydrologic Soil Group	Permeability Rate (in/hr)	Approximate Project Coverage
Urban Land, Peckmantown Substratum Complex	C	0.06 to 0.20	100%

The entire site is classified as Peckmantown Substratum Complex. Peckmantown Substratum Complex has a low permeability rate with a depth to water table of 20 to 40 inches. The hydrologic soil group is C due to the soil being classified as urban land.

2.2 *TOPOGRAPHY*

Under existing conditions, the topography of the site generally slopes from East to West, towards the rear yard. The front yard of the site, adjacent to Grove Avenue, the topography is predominantly flat with slopes of 2%-3% and gradually increases to 5%-6% in the western most corner of the lot.

2.3 *GEOLOGY*

Per NJDEP Geoweb, the surficial geology onsite and in the surrounding region is the Late Wisconsinan Glacial Delta Deposits. It consists mainly of sand, pebble-to-cobble gravel, and minor silt. The bedrock geology onsite is Feltville Formation which consists of sandstone, siltstone, silty mudstone, calcareous siltstone and mudstone, and carbonaceous limestone.

2.4 *VEGETATION*

Under existing conditions, vegetation on-site is limited to the grass along Grove Avenue and trees along the southerly property line.

2.5 *WILDLIFE OR THREATENED & ENDANGERED SPECIES*

Per the NJDEP's Natural Heritage Database (NHD), there are endangered or threatened fauna, flora, and habitats on-site. The species recorded within the immediate vicinity of the project site are summarized in the following table:

TABLE II: RARE WILDLIFE SPECIES OR WILDLIFE HABITAT WITHIN THE IMMEDIATE VICINITY OF THE PROJECT SITE

Scientific Name	*Common Name*	*Federal Protection*	*State Protection*	*Global Rank*	*State Rank*
Ardea herodias	Great Blue Heron	NA	Special Concern	G5	S3B,S4N
Pandion haliaetus	Osprey	NA	State Threatened	G5	S2B,S4N
Glyptemys insculpta	Wood Turtle	NA	State Threatened	G3	S2

A search for species within a one mile radius of the site detected ecological records as summarized in the following table:

TABLE III: RARE WILDLIFE SPECIES OR WILDLIFE HABITAT WITHIN A ONE MILE RADIUS OF THE SITE

Scientific Name	*Common Name*	*Federal Protection*	*State Protection*	*Global Rank*	*State Rank*
Strix varia	Barred Owl	NA	State Threatened	G5	S2B,S2N
Ardea herodias	Great Blue Heron	NA	Special Concern	G5	S3B,S4N
Pandion haliaetus	Osprey	NA	State Threatened	G5	S2B,S4N
Buteo lineatus	Red-shouldered Hawk	NA	Special Concern	G5	S1B,S3N
Glyptemys insculpta	Wood Turtle	NA	State Threatened	G3	S2

2.6 SCENIC OR HISTORIC FEATURES

Under existing conditions, the site is currently developed with two commercial building. There are no portions of the site which would be considered to have unique, scenic and/or historic qualities.

2.7 FLOODING AND/OR FLOOD PLAINS

Per FEMA flood mapping, the site does not lie within a flood plain.

2.8 WETLANDS

Per NJDEP Geoweb Mapping, no wetlands are located on site.

3.0 ENVIRONMENTAL IMPACT ASSESSMENT

3.1 SOILS

Soils on-site will be unaffected by the proposed development, and existing soil conditions have been considered when designing the stormwater management practices to be utilized.

3.2 TOPOGRAPHY

The proposed topography of the project site will mimic the existing topography with the site sloping at a 5%-6% slope toward the westerly corner of the site. Slopes will increase to a 10% slope along the driveway and a retaining wall will be placed around the driveway and parking.

3.3 GEOLOGY

The geology on-site is to remain unchanged by the proposed development.

3.4 VEGETATION

A landscaping plan has been designed for the proposed development inclusive of Native Tress and Shrub plantings. The Northerly and Easterly portion of the site are landscaped to comply with the 15-foot landscaping buffer.

3.5 WILDLIFE OR THREATENED & ENDANGERED SPECIES

As no threatened or endangered species are located on-site per NJDEP Geoweb, the proposed development will have no negative influence on threatened or endangered species. Development impacts do not extend off-site and will therefore not affect nearby threatened or endangered species.

3.6 SCENIC OR HISTORIC FEATURES

There are no portions of the site which would be considered to have unique, scenic and/or historic qualities.

3.7 FLOODING AND/OR FLOOD PLAINS

There are no flood plains located on-site.

3.8 WETLANDS

There are no wetlands located on-site.

4.0 LICENSES, PERMITS, AND APPROVALS REQUIRED

The following licenses, permits, and approvals are anticipated in conjunction with this application:

- Township of Verona
  - Preliminary & Final Major Site Plan Approval
  - Building Permit
- Essex County
  - Site Plan Approval
- Hudson-Essex-Passaic Soil Conservation District

- Soil Erosion and Sediment Control Plan Certification

At the time of this Statement, all approvals are still pending.

5.0 STEPS TO MINIMIZE ENVIRONMENTAL IMPACTS

The development of the project and site plan design enhances the property and minimizes environmental damage by completing the following:

- Development is limited to existing impervious surfaces
- Striping is proposed to organize parking areas
- Additional use generates greater taxable revenue for Township and Applicant
- Vegetation enhances site aesthetics and screens industrial uses

STONEFIELD

October 10, 2019

Township of Verona Board of Adjustment
Verona Community Center
880 Bloomfield Avenue
Verona, NJ 07044

RE: Traffic & Parking Assessment Letter Report
Proposed Multifamily Residential Development
21-25 Grove Avenue
Block 1702, Lot 22
Township of Verona, Essex County, New Jersey
SE&D Job No. S-19037

Dear Board Members:

Stonefield Engineering and Design, LLC ("Stonefield") has prepared this analysis to examine the potential traffic and parking impacts of the proposed multifamily residential development on the adjacent roadway network. The subject property is located along Grove Avenue in the Township of Verona, Essex County, New Jersey. The subject property is designated as Block 1702, Lot 22 as depicted on the Township of Verona Tax Map. The site has approximately 145 feet of frontage along Grove Avenue. The existing site contains the Salon Grove nail salon and the Too Chic clothing store. The existing access is provided via one (1) full-movement driveway along Grove Avenue. Under the proposed development program, the existing structures would be razed and a four (4)-story, 40-unit multifamily residential building would be constructed. Access is proposed via one (1) full-movement driveway along Grove Avenue.

Existing Conditions

The subject property is located along Grove Avenue in the Township of Verona, Essex County, New Jersey. The subject property is designated as Block 1702, Lot 22 as depicted on the Township of Verona Tax Map. The site has approximately 145 feet of frontage along Grove Avenue. Land uses in the area are a mix of commercial and residential.

Grove Avenue (a.k.a. CR 639) is classified as an Urban Major Collector with a general north-south orientation and is under the jurisdiction of Essex County. Along the site frontage, the roadway provides one (1) lane of travel in each direction and has a posted speed limit of 25 mph. Curb and sidewalk are provided along both sides of the roadway, shoulders are provided along both sides of the roadway, and two (2)-hour daytime and overnight on-street parking is permitted along both sides of the roadway. Grove Avenue provides north-south mobility in the Township of Verona from Bloomfield Avenue at its southern terminus to Route 23 at its northern terminus for access to a mix of commercial and residential uses along its length.

The proposed development is located within 300 feet (one (1)-minute walk) from bus stops that service NJ Transit Bus Route 29, with the nearest stops located at the intersection of Grove Avenue, Bloomfield Avenue, and South Prospect Street. NJ Transit Bus Route 29 provides service to Parsippany–Troy Hills, Montclair, Newark Penn Station, and various points of interest throughout Essex and Morris Counties. Newark Penn Station serves NJ Transit's Northeast Corridor, North Jersey Coast Line, and Raritan Valley Line with direct service to Secaucus Junction and New York Penn stations and the Port Authority Trans-Hudson (PATH) trains with direct service to Hoboken Terminal and World Trade Center stations.

Trip Generation

Trip generation projections for the proposed four (4)-story, 40-unit multifamily residential building were prepared utilizing the ITE Trip Generation Manual, 10th Edition. Trip generation rates associated with Land Use 221 "Multifamily Housing (Mid-Rise)" were cited for the 40-unit multifamily residential building. **Table1** provides the weekday morning, weekday evening, and Saturday midday trip generation volumes associated with the proposed development.

TABLE 1 – PROPOSED TRIP GENERATION

	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
40-Unit Multifamily Housing (Mid-Rise) *ITE Land Use 221*	4	10	14	11	7	18	9	9	18

The proposed development is expected to generate 14 new trips during the weekday morning peak hours, 18 new trips during the weekday evening peak hour, and 18 new trips during the Saturday midday peak hour. Based on Transportation Impact Analysis for Site Development published by ITE, a trip increase of less than 100 vehicle trips would likely not change the level of service of the adjacent roadway system or appreciably increase the volume-to-capacity ratio of an intersection approach. As such, the proposed development is not anticipated to significantly impact the operations of the adjacent roadway network.

It is noted that the existing commercial uses currently generated or previously generated trips to and from the adjacent roadway network. No trip credit was taken into account for these trips that would no longer access the adjacent roadway network. Further, no trip credit was taken to account for residents that would utilize public transit to provide for a conservative analysis.

The proposed development is located within the Professional Offices and Business (C-2) Zone which permits professional office and day care center developments. As compared to the proposed residential development, a professional office would generate a comparable number of trips during each of the peak hours studied and a day care center would generate at least 93 more trips during the weekday peak hours. **Table 2** below compares the trip generation associated with the permitted uses and the proposed development.

TABLE 1 – PERMITTED USE TRIP GENERATION COMPARISON

	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
15,000 SF General Office Building *ITE Land Use 710*	15	2	17	3	14	17	4	4	8
Proposed Development	4	10	14	11	7	18	9	9	18
Difference	**+11**	**-8**	**+3**	**-8**	**+7**	**-1**	**-5**	**-5**	**-10**
10,000 SF Day Care *ITE Land Use 221*	58	52	110	52	59	111	11	6	17
Proposed Development	4	10	14	11	7	18	9	9	18
Difference	**+54**	**+42**	**+96**	**+41**	**+52**	**+93**	**+2**	**-3**	**-1**

Site Circulation/Parking Supply

A review was conducted of the proposed multifamily residential building using the Site Plan prepared by Stonefield Engineering & Design, dated October 10, 2019. In completing this review, particular attention was focused on the site access, circulation, and parking supply.

Under the proposed development program, the existing structures would be razed and a four (4)-story, 40-unit multifamily residential building would be constructed. Access is proposed via one (1) full-movement driveway along Grove Avenue. Two-way vehicular circulation throughout the site would be provided via a minimum of 22-foot-wide drive aisles with 24-foot-wide two-way drive aisles provided in the vicinity of the right-angle surface and garage parking spaces.

Regarding the parking requirements for the proposed development, the New Jersey Administrative Code Residential Site Improvements Standards (RSIS) (NJAC 5:21) requires 1.8 parking spaces per one (1)-bedroom dwelling unit, two (2) parking spaces per two (2)-bedroom dwelling unit, and 2.1 parking spaces per three (3)-bedroom dwelling unit. For the proposed development consisting of 10 one (1)-bedroom units, 29 two (2)-bedroom units, and one (1) three (3)-bedroom unit, this equates to 78 required spaces. The site would provide 52 total parking spaces, inclusive of three (3) ADA accessible parking spaces.

Additionally, Section 5:21-4.14(c) of the RSIS intends for there to be flexibility in the parking requirements. Specifically:

"Alternative standards to those shown in Table 4.4 shall be accepted if the applicant demonstrates these standards better reflect local conditions. Factors affecting minimum number of parking spaces include household characteristics, availability of mass transit, urban versus suburban location, and available off-site parking."

Based on American Community Survey data provided by the U.S. Census Bureau, approximately 15% of Township of Verona residents use public transportation, walk, or use means other than single-passenger vehicles to commute to work. The location of the proposed development is particularly suited to provide transit options for its occupants as it is located within a one (1)-minute walk from bus stops serving NJ Transit Bus Route 29.

Additionally, Stonefield has conducted parking utilization counts to evaluate the parking demand rates at various residential developments within New Jersey that share similar characteristics with the proposed development in that the properties are located in close proximity to NJ Transit bus lines. Based on the results of this data collection effort, residential developments in areas similar to the proposed development were found to have an average parking demand ratio of approximately 0.94 spaces per occupied dwelling unit and 0.63 spaces per bedroom. As the proposed development would provide 1.30 parking spaces per unit and 0.73 parking spaces per bedroom, the proposed parking supply is anticipated to be sufficient to support the proposed development.

Based on nearby transit options for the site's residents and existing parking utilization counts, the proposed parking supply of 52 spaces would be sufficient to support the expected parking demand of the proposed development.

Conclusions

This report was prepared to examine the potential traffic impact of the proposed four (4)-story, 40-unit multifamily residential building. The analysis findings, which have been based on industry standard guidelines, indicate that the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network. The site driveways and on-site layout have been designed to provide for effective access to and from the subject property. Based on characteristics of the development project, adjacent transit options, and characteristics of similar developments in the area, the parking supply would be sufficient to support this project.

Please do not hesitate to contact our office if there are any questions.

Best regards,

Matthew J. Seckler, PE, PP, PTOE
Stonefield Engineering and Design, LLC

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\Calculations & Reports\Traffic\Reports\2019-10 TAR\2019-10 TAR.docx

APPENDIX A
PROJECT FIGURES

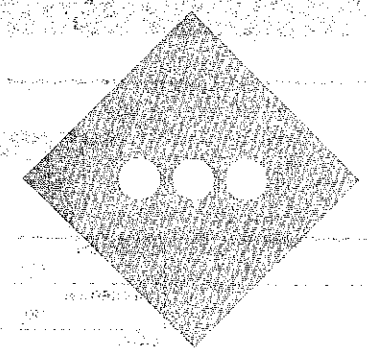
INVENTORY

AERIAL MAP

TAX AND ZONING MAP

USGS LOCATION MAP

FEMA MAP



AERIAL MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: GOOGLE EARTH PRO, RETRIEVED 07/31/2019

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 200'
PROJECT ID:	T-19059

STONEFIELD engineering & design
Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg

TAX AND ZONING MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: TOWNSHIP OF VERONA TAX MAP, SHEETS 6, 16, 17 & 18. TOWNSHIP OF VERONA ZONING MAP, DATED 11/27/2015.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

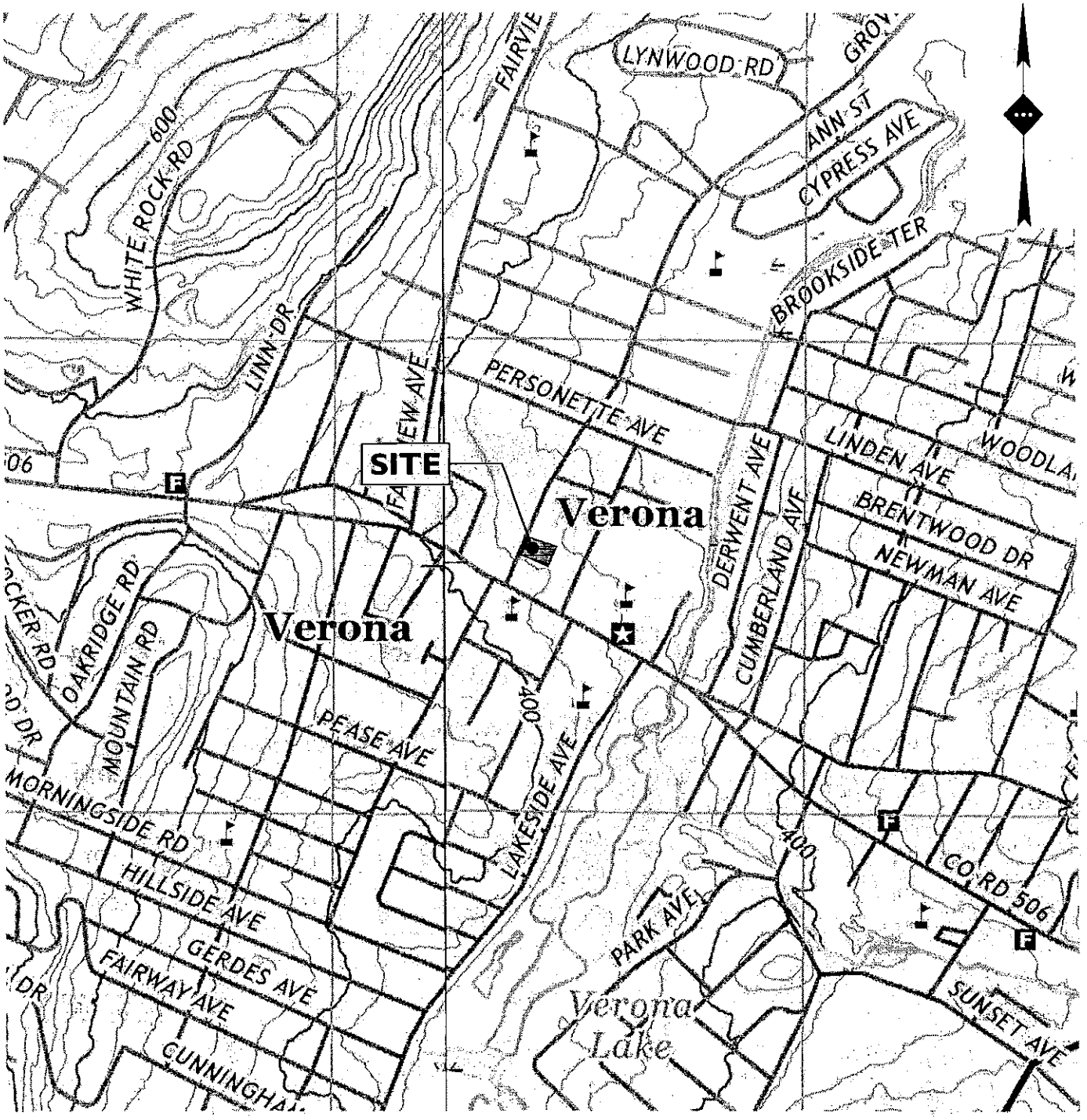
DRAWN BY:	CRP
CHECKED BY:	MBM
DATE:	07/31/2019
SCALE:	1" = 200'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CAD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg



USGS QUADRANGLE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: UNITED STATES GEOLOGICAL SURVEY QUADRANGLE MAPS, VERONA, NEW JERSEY, 7.5 MINUTE SERIES, 2016.

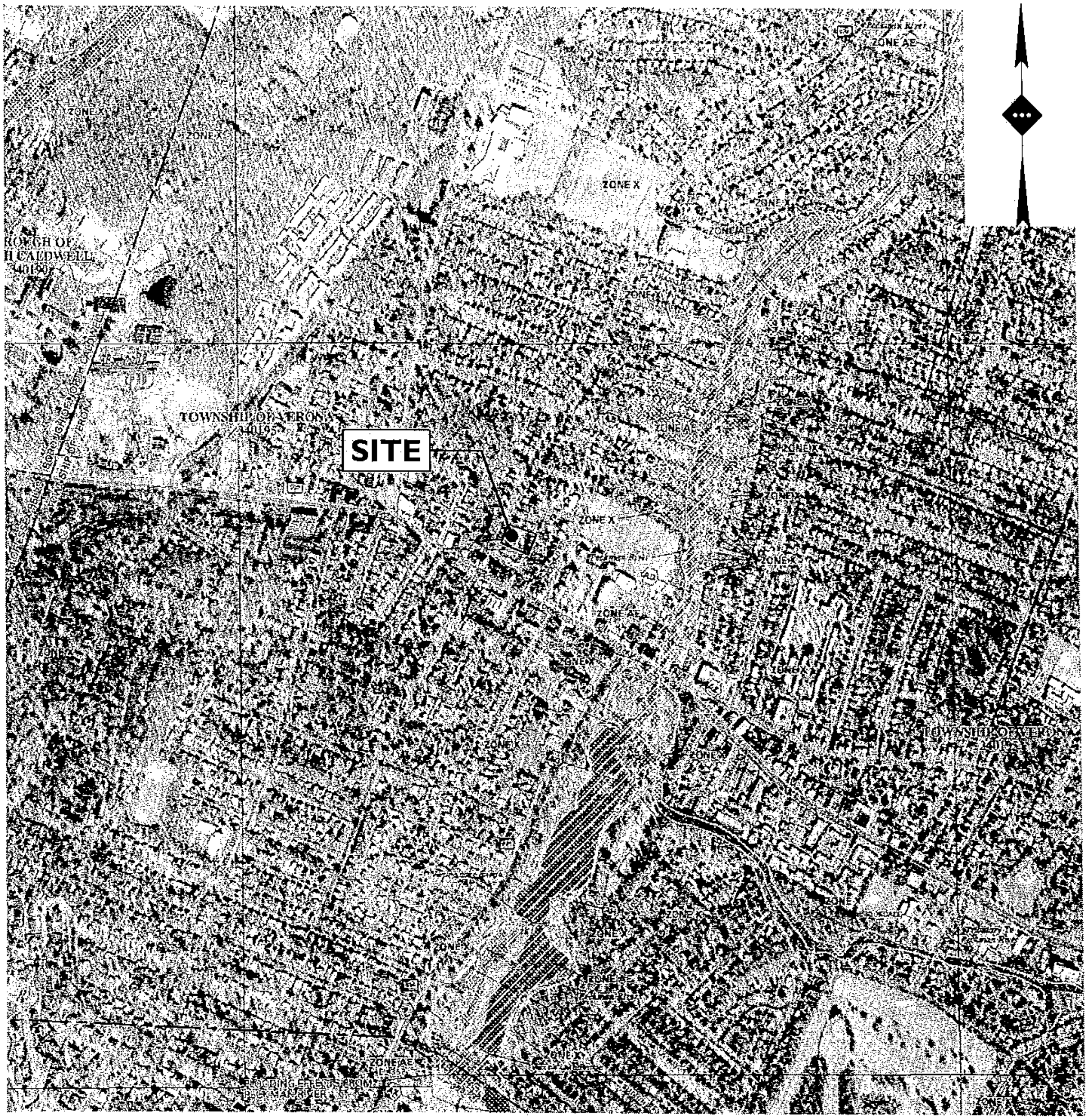
WEISS REALTY
PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1"= 1000'
PROJECT ID:	T-19059

STONEFIELD engineering & design
Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\19059-21 and 25 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps1.dwg



1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1" = 1000'

EFFECTIVE FEMA FLOOD INSURANCE RATE MAP

SOURCE: FLOOD INSURANCE RATE MAP, ESSEX COUNTY, NEW JERSEY, MAP NUMBERS 34013C0084F & 34013C0103F, DATED JUNE 4, 2007.

WEISS REALTY

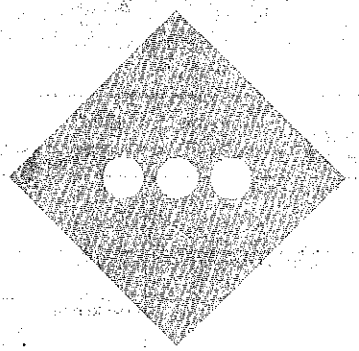
PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 1000'
PROJECT ID:	T-19059

STONEFIELD
engineering & design
Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

APPENDIX B
NRCS COUNTY SOIL SURVEY



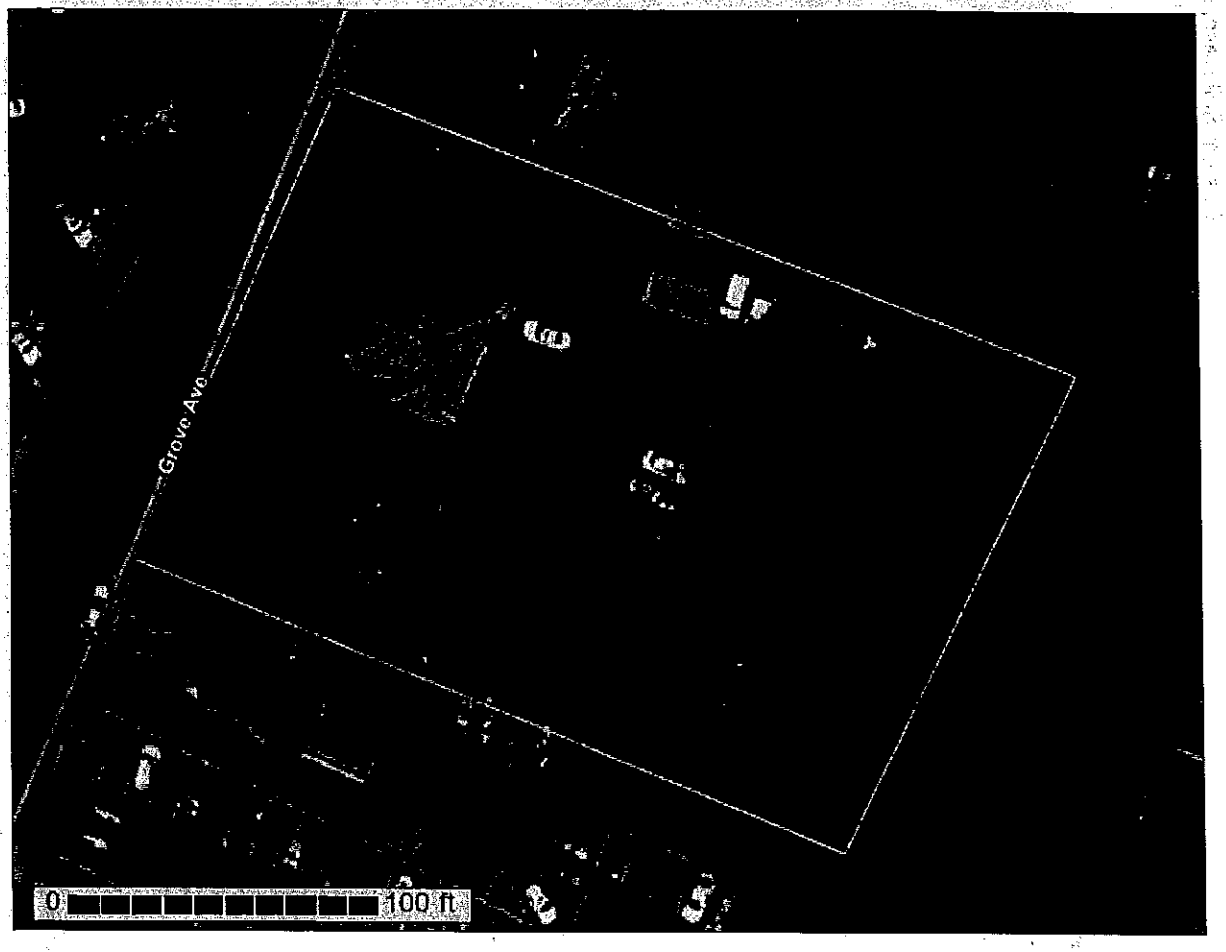
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

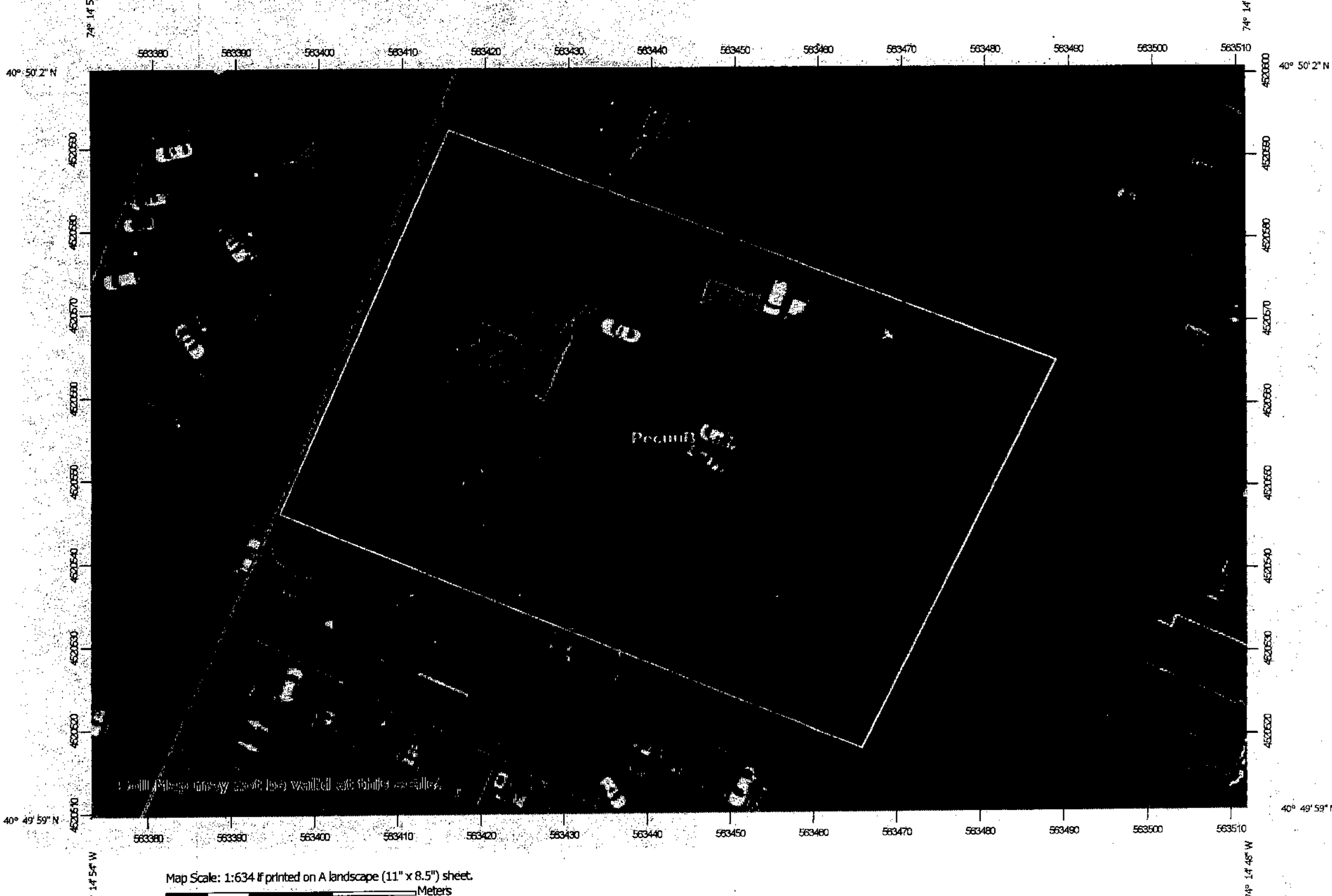
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Essex County, New Jersey



July 25, 2019

Soil Map



Map Scale: 1:634 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 5, 10, 20, 30

Feet: 0, 30, 60, 120, 180

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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:
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 14, Sep 13, 2018

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PecuuB	Peckmantown - Urban land, Peckmantown substratum complex, 0 to 8 percent slopes	1.0	100.0%
Totals for Area of Interest		**1.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series.* Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Essex County, New Jersey

PecuuB—Peckmantown - Urban land, Peckmantown substratum complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w8qf
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

Peckmantown and similar soils: 55 percent
Urban land, peckmantown substratum: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peckmantown

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits derived from basalt

Typical profile

A - 0 to 2 inches: silt loam
Ap - 2 to 8 inches: loam
BAt - 8 to 14 inches: loam
Bt - 14 to 27 inches: silt loam
Btx1 - 27 to 37 inches: loam
Btx2 - 37 to 40 inches: silt loam
BCtx - 40 to 59 inches: silt loam
2C1 - 59 to 63 inches: gravelly loamy coarse sand
2C2 - 63 to 74 inches: coarse sand
2C3 - 74 to 88 inches: coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 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 4.7 inches)

Interpretive groups

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

Hydric soil rating: No

Description of Urban Land, Peckmantown Substratum

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
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 59 inches: silt loam
2C1 - 59 to 63 inches: gravelly loamy coarse sand
2C2 - 63 to 74 inches: coarse sand
2C3 - 74 to 88 inches: coarse sand

Interpretive groups

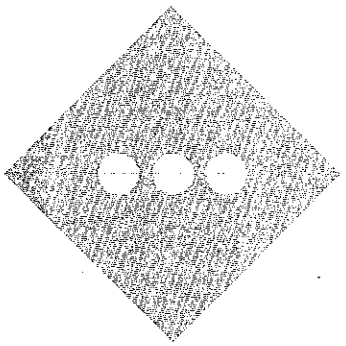
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents, peckmantown substratum

Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

APPENDIX C
NATURAL HERITAGE DATABASE REPORT



State of New Jersey
MAIL CODE 501-04
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF PARKS & FORESTRY
NEW JERSEY FOREST SERVICE
OFFICE OF NATURAL LANDS MANAGEMENT
P.O. BOX 420
TRENTON, NJ 08625-0420
Tel. (609) 984-1339 Fax (609) 984-0427

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

August 12, 2019

Victoria Lotorto
Stonefield Engineering & Design, LLC
92 Park Avenue
Rutherford, NJ 07070

Re: 21 Grove Avenue
Block(s) - 1702 (91), Lot(s) - 22
Verona Township, Essex County

Dear Ms. Lotorto:

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 3.3) 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.

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.

For requests submitted in order to make a riparian zone width determination 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.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

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. 19-4007472-17267

Mail Code 501-04
Department of Environmental Protection
New Jersey Forest Service
Office of Natural Lands Management
P.O. Box 420 Trenton, New Jersey 08625-0420
Tel. (609) 984-1339 Fax. (609) 984-1427

Invoice

Date	Invoice #
8/12/2019	17267

Bill to:
Stonefield Engineering & Design, LLC
92 Park Avenue
Rutherford, NJ 07070

Make check payable to:
DEP - Office of Natural Lands Management
And forward with a copy of this statement to:
Mail Code 501-04
Office of Natural Lands Management
P.O. Box 420 Trenton, New Jersey 08625-0420

Quantity (hrs.)	Description	Rate (per hr.)	Amount
1	Natural Heritage Database search for locational information of rare species and ecological communities. Project: 19-4007472-17267	$ 70.00	$ 70.00
Victoria Lotorto Project Name: 21 Grove Avenue		**Total**	$ 70.00

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

Report Name	Included	Number of Pages
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 3.3 Species Based Patches	No	0 pages included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 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)

Report Name	Included	Number of Pages
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 3.3 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 3.3	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 3.3 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 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
Reptilia								
	Wood Turtle	Glyptemys insculpta	Occupied Habitat	3	NA	State Threatened	G3	S2

Table 3: Within 1 Mile for Riparian Zone Width Determination
(6 possible reports)

Report Name	Included	Number of Pages
1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Appplication) - Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species for Riparian Zone Width Determination - 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 for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Red-shouldered Hawk	Buteo lineatus	Non-breeding Sighting	2	NA	Special Concern	G5	S1B,S3N
Reptilia								
	Wood Turtle	Glyptemys insculpta	Occupied Habitat	3	NA	State Threatened	G3	S2

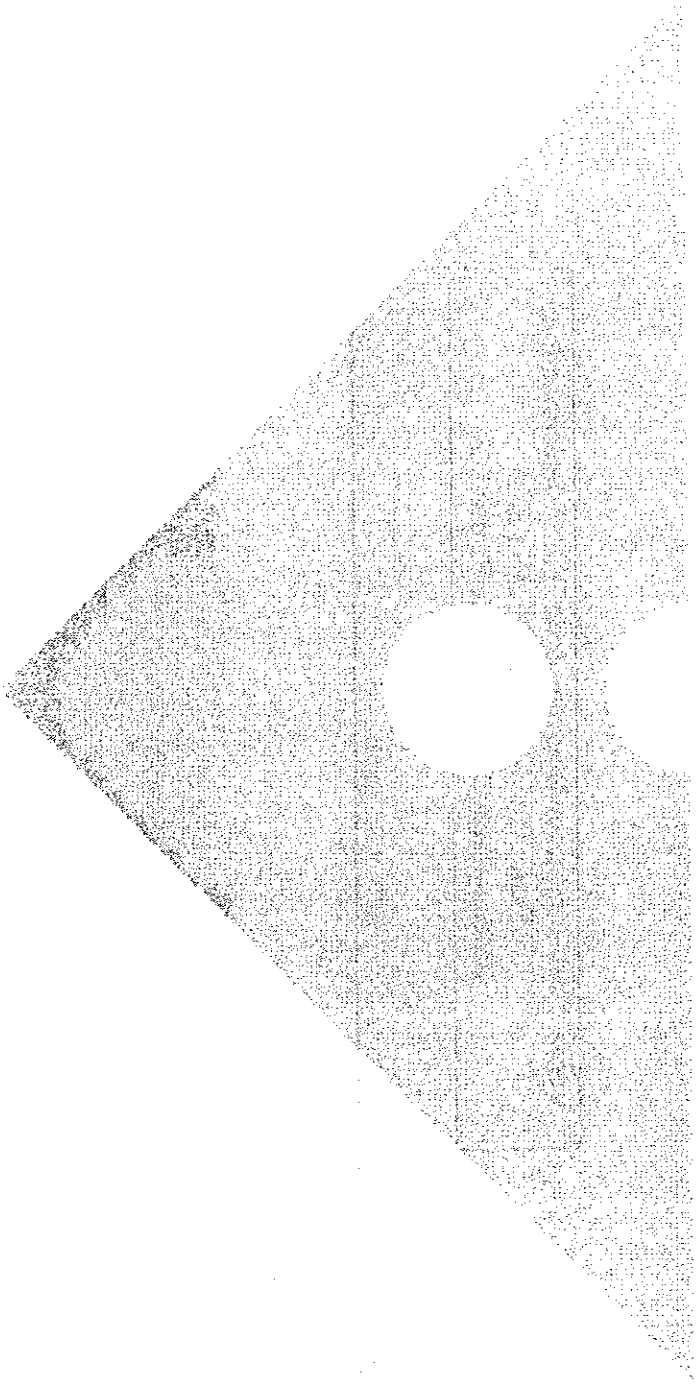
Vernal Pool Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Potential vernal habitat area	2055

Total number of records: 1

Monday, August 12, 2019

NHP File No.: 19-4007472-17267



STONEFIELD

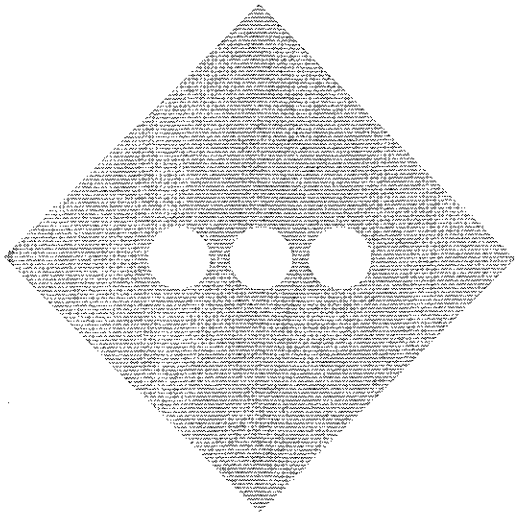
STORMWATER MANAGEMENT REPORT
21 & 25 GROVE AVENUE

PROPOSED RESIDENTIAL DEVELOPMENT
BLOCK 1702, LOT 22
TOWNSHIP OF VERONA
MIDDLESEX COUNTY, NEW JERSEY

PREPARED FOR:
21 & 25 GROVE ASSOCIATES, LLC

PREPARED BY:
STONEFIELD ENGINEERING & DESIGN, LLC
92 PARK AVENUE
RUTHERFORD, NEW JERSEY

REPORT DATE:
OCTOBER 11, 2019



MATTHEW J. SECKLER, PE, PTOE
NJ PE LICENSE # 48731

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.

STONEFIELDENG.COM
201.340.4468 T. 201.340.4472 F.

REPORT CONTENTS

APPENDICES

1.0 PROJECT DESCRIPTION

21 & 25 Grove Associates, LLC is proposing to redevelop Block 1702, Lot 22 (herein referred to as the "project site") to accommodate one multi-family residential building (40 units total). Additional improvements include pedestrian plazas at the project site entrances, an off-street parking lot, lighting, and landscaping.

Refer to **APPENDIX A** for project maps of the subject site.

The project site is 31,197 square feet, the extent of land disturbance is 32,561 square feet (including areas within the public right-of-way), and 3,336 square feet of new impervious surfaces will be created by the project.

This Report has been prepared to analyze the potential stormwater runoff impacts of the proposed project site and outline proposed measures to conform to the stormwater management regulations set forth by the Township of Verona, Hudson-Essex-Passaic Soil Conservation District, and the New Jersey Department of Environmental Protection.

2.0 EXISTING CONDITIONS

EXISTING SITE DEVELOPMENT

The project site fronts on one roadway, Grove Avenue to the west. The project site is currently developed with two (2) two-story commercial buildings which are occupied, a one-story garage, and off-street parking. The existing developments on site will be removed entirely as part of the proposed redevelopment. An Aerial Map depicting the existing site conditions can be found in **APPENDIX A**.

EXISTING TOPOGRAPHY

The high point of the project site is at the northwest corner of the property. Grove Avenue drains to the north, ultimately to be collected by the municipal conveyance system. On-site topography slopes northeast towards the stormwater inlets located in the northeast portion of the rear-yard parking lot. Grades on site generally range from 2%-3% and gradually increases to 5%-6% in the western most corner of the lot.

PROJECT SITE SOILS

Soil mapping was obtained from the National Resource Conservation Service (NRCS) for the project site and immediate area. Generally, the project site is underlain with one major soil group: urban land. Overall, the soils drain well, and runoff flows overland and is collected by the stormwater inlets located in the northeast portion of the rear-yard parking lot. The table below provide a summary of soils for the project site:

TABLE 1: NRCS SOIL MAPPING RESULTS

Soil Unit Code	Soil Description	Approximate Project Coverage	Drainage Class	Hydrologic Soil Group
PecuuB	Peckmantown - Urban land, Peckmantown substratum complex, 0% to 8% slopes	100.0%	Well drained	C

Additional information regarding the NRCS soil mapping can be found in **APPENDIX B**.

EXISTING ENVIRONMENTAL INVENTORY

The proposed redevelopment will not disturb land within environmentally regulated areas (flood hazard area, riparian zone, freshwater wetland ditch, and freshwater wetland transition area). As such, permits and approvals will not be sought from the NJDEP to perform work within these areas.

3.0 PROPOSED CONDITIONS

PROPOSED SITE DEVELOPMENT

The proposed redevelopment will consist of one multi-family residential building (40 units total). Additional improvements include pedestrian plazas at the project site entrances, off-street parking lot, lighting, and landscaping. Access to the site will be provided via one full movement driveway on Grove Avenue. Refer to **APPENDIX A** for a half-size Overall Site Plan depicting the proposed project improvements.

PROPOSED TOPOGRAPHY

Project site topography and drainage patterns will generally remain similar to existing conditions; however, due to the need for more commercially friendly, ADA compliant grades (1.5% to 3%) various retaining walls, ramps, and split-level building entrances will be implemented through the project to make up for the change in grades. Additionally, slopes will increase to a 10% slope along the driveway and a retaining wall will be placed around the driveway and parking.

ANTICIPATED ENVIRONMENTAL INVENTORY IMPACTS

The proposed redevelopment will not disturb land within environmentally regulated areas (flood hazard area, riparian zone, freshwater wetland ditch, and freshwater wetland transition area). As such, permits and approvals will not be sought from the NJDEP to perform work within these areas.

4.0 STORMWATER MANAGEMENT METHODOLOGY & PARAMETERS

HYDROLOGIC METHODOLOGY

The analysis program "HydroCAD" Version 10.0 by HydroCAD Software Solutions was utilized to calculate and plot the runoff hydrographs. The program incorporates the time of concentration, C values, rainfall data, and project drainage areas to calculate the runoff characteristics. The existing and proposed drainage areas have been analyzed utilizing Intensity-Duration-Frequency data was obtained from NOAA for the project area; specifics of the rainfall distribution can be found in Appendix C. Additional key variables utilized in the analysis include:

TABLE 2: HYDROCAD DESIGN VARIABLES

Variable	Input	Variable	Input
Runoff Calculation Method	SCS TR-20	NRCS Rainfall Frequency Data Set	Essex
Pervious/Impervious CN Calculations	Separate	Storm Intervals (Year Events)	2, 10, 25, 100
Stage-Storage Relationship	Dynamic	Storm Duration	24 Hours
Minimum time of concentration	10 minutes	Storm Curve	NOAA D

Additional information regarding the hydrologic calculations can be found in **APPENIDX C**.

5.0 STORMWATER ANALYSIS

EXISTING DRAINAGE AREAS

Under current conditions, the project site is subdivided into two drainage areas with one ultimate point of interest (POI) which is taken as the municipal conveyance system. This POI was chosen as Grove Avenues and the project site drain to the municipal conveyance system. Essentially, there is one drainage area delineating what is tributary to the public roadway and one drainage area for the remainder of the project site. See below for a short summary of each area:

TABLE 4: SUMMARY OF EXISTING DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
E-1A	Existing Drainage to On Site Conveyance	26,374 SF	20,360 SF	10.0 Minutes*
E-1B	Existing Undetained Drainage Area	4,823 SF	1,548 SF	10.0 Minutes*
POI (E-1)	Ultimate Point of Interest: Municipal Conveyance System	31,197 SF	21,908 SF	N/A

***The minimum time of concentration was utilized due to the high level of impervious coverage and proximity to the existing stormwater pipe conveyance system on site.**

All existing drainage areas were delineated based on field surveying data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX D.**

PROPOSED DRAINAGE AREAS

Under proposed conditions, the general drainage patterns and ultimate point of interest will be maintained. The intent behind the proposed delineations is to reduce the amount of direct runoff to the roadway and the municipal conveyance system. The diverted land from these drainage areas is proposed to be sent to various stormwater management features (in P-1A) to mitigate runoff volume and flow rates as outlined in the next Report section. See below for a short summary of each area:

TABLE 5: SUMMARY OF PROPOSED DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
P-1A	Proposed Drainage to On Site Conveyance	28,818 SF	18,301 SF	10.0 Minutes*
P-1B	Proposed Undetained Drainage Area	2,379 SF	518 SF	10.0 Minutes*
POI (P-1)	Ultimate Point of Interest: Municipal Conveyance System	31,197 SF	18,819 SF	N/A

***The minimum time of concentration was utilized for all drainage areas due to the high level of impervious coverage / land disturbance and proximity to existing and proposed stormwater pipe conveyance system. Additionally, perimeter drainage areas such as P-1B while not highly impervious essentially consist of the open space areas immediately adjacent to the roadway.**

All proposed drainage areas were delineated based on the proposed grading design overlain on field survey data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX D.**

STORMWATER MANAGEMENT DESIGN PARAMETERS

The extent of redevelopment does not propose to disturb more than one acre of land or add more than one-quarter acre of new impervious surfaces; as such, it is considered a Minor Development as defined in the Township Ordinances and NJAC 7:8-1.2. A Minor Development and is not subject to stormwater runoff quantity, quality, or groundwater recharge requirements. See below for a summary of each design parameter and compliance requirements:

TABLE 6: STORMWATER MANAGEMENT DESIGN TARGET SUMMARY

Design Parameter	Design Target for Compliance
Stormwater Runoff Quantity	Design stormwater management measures so that the post-construction peak runoff rates are either less or match pre-construction peak runoff rates.
Groundwater Recharge	The project is **exempt** from groundwater recharge requirements as the project site is located within State Planning Area PA-1 (Metropolitan).

STORMWATER RUNOFF QUANTITY

In addition to an on-site stormwater conveyance system in the northeast corner of the project site, a 5,000 square-foot green roof has been proposed as a part of the building to reduce or match peak pre-construction stormwater runoff rates. The tables below summarize the various drainage areas in relation to flow rates and runoff volume during regulatory storm events:

TABLE 7: SUMMARY OF EXISTING DRAINAGE AREA FLOW RATES & VOLUMES

Drainage Area	2-Year Flow Rate	10-Year Flow Rate	100-Year Flow Rate
E-1A	1.49 CFS	2.38 CFS	4.13 CFS
E-1B	0.19 CFS	0.35 CFS	0.67 CFS
POI (E-1)	1.67 CFS	2.72 CFS	4.80 CFS

TABLE 8: SUMMARY OF PROPOSED DRAINAGE AREA FLOW RATES & VOLUMES

Drainage Area	2-Year Flow Rate	10-Year Flow Rate	100-Year Flow Rate
P-1A	1.55 CFS	2.53 CFS	4.46 CFS
P-1B	0.08 CFS	0.16 CFS	0.32 CFS
POI (P-1)	1.63 CFS	2.69 CFS	4.78 CFS

Under post-development conditions, the runoff flow rates and volumes are reduced to the undetained drainage areas (E-1B / P-1B). The diverted runoff from this area (E-1A/P-1A) is collected in the on-site stormwater conveyance system for runoff attenuation along with the implementation of the proposed 5,000 square-foot green roof. The table below outlines the regulatory compliance parameters for runoff quantity on the project site:

TABLE 9: STORMWATER RUNOFF QUANTITY COMPLIANCE SUMMARY AT POINT OF INTEREST (E-1 / P-1)

Rainfall Event	Existing Flow Rate	Required % Reduction	Required Flow Rate	Proposed Flow Rate	Proposed % Reduction
2-Year Storm	1.67 CFS	N/A	N/A	1.63 CFS	2.40%
10-Year Storm	2.72 CFS	N/A	N/A	2.69 CFS	1.10%
100-Year Storm	4.80 CFS	N/A	N/A	4.78 CFS	0.42%

The proposed green roof and on on-site conveyance system provides sufficient flow rate attenuation so as to ensure that no adverse impacts are anticipated downstream of the project site. Detailed hydrologic calculations for each drainage area can be found in **APPENDIX C**.

GROUNDWATER RECHARGE

As indicated in the Township Ordinances and NJAC 7:8-5.4, the project site is exempt from groundwater recharge requirements as the site is located within the Metropolitan Planning Area (PA-1) per the State Plan Policy Map and thus qualifies as an Urban Redevelopment Area (which is exempt from groundwater recharge requirements).

6.0 STORMWATER FACILITY OPERATIONS & MAINTENANCE

A Stormwater Operations & Maintenance Manual will be submitted for review to the Township and will be forwarded to the relevant jurisdictional agencies prior to obtaining final land use approvals and permits. Any necessary easements or covenants associated with the stormwater improvements will be recorded prior to the start of construction.

7.0 EROSION & SEDIMENT CONTROL

A Soil Erosion & Sediment Control Plan has been prepared in accordance with the latest edition of the Standards for Soil Erosion and Sediment Control in New Jersey. This plan can be found within the Preliminary & Final Major Site Plans prepared by Stonefield in conjunction with this Report. Proposed temporary measures during construction include diversion swales, sediment basin, silt fencing, stabilized construction entrances, inlet filters, hay bales, street sweeping, and temporary seeding for soil stabilization. No land disturbance will occur until certification and permits have been obtained from the Hudson Essex Passaic Soil Conservation District.

8.0 CONCLUSIONS

As demonstrated in this Report, the increase in runoff flow rate and volume generated by the proposed redevelopment will be satisfactorily mitigated by the introduction of a 5,000 square-foot green roof and on-site stormwater conveyance system.

The proposed project complies with all applicable stormwater management regulations and standards. As such, the project is not anticipated to have any adverse drainage impacts on neighboring properties, downstream watercourses, or adjoining conveyance systems.

9.0 REFERENCES

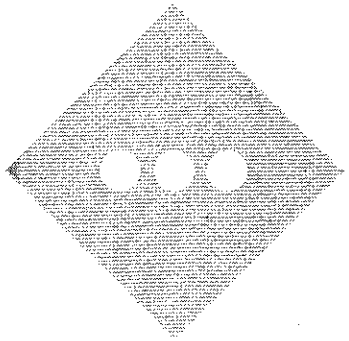
1. New Jersey Administrative Code Title 7, Chapter 8 Stormwater Management, last amended June 20, 2016
   https://www.nj.gov/dep/rules/rules/njac7_8.pdf
2. New Jersey Stormwater Best Management Practices Manual, last revised November 2018
   https://www.njstormwater.org/bmp_manual2.htm
3. Township of Verona Zoning Ordinance, last amended August 15, 2011
   https://ecode360.com/12271174

APPENDIX D
DRAINAGE AREA MAPS

INVENTORY

SHEET 1 OF 2: EXISTING DRAINAGE AREA MAP

SHEET 2 OF 2: PROPOSED DRAINAGE AREA MAP



APPENDIX A
PROJECT FIGURES

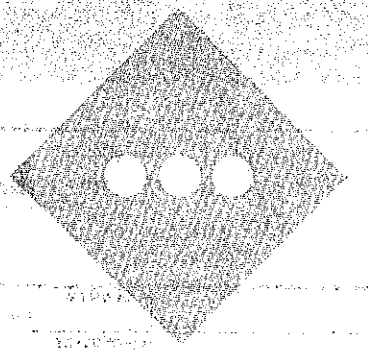
INVENTORY

FIGURE 1: USGS LOCATION MAP

FIGURE 2: AERIAL MAP

FIGURE 3: TAX & ZONING MAP

FIGURE 4: FEMA MAP



AERIAL MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: GOOGLE EARTH PRO, RETRIEVED 07/31/2019

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

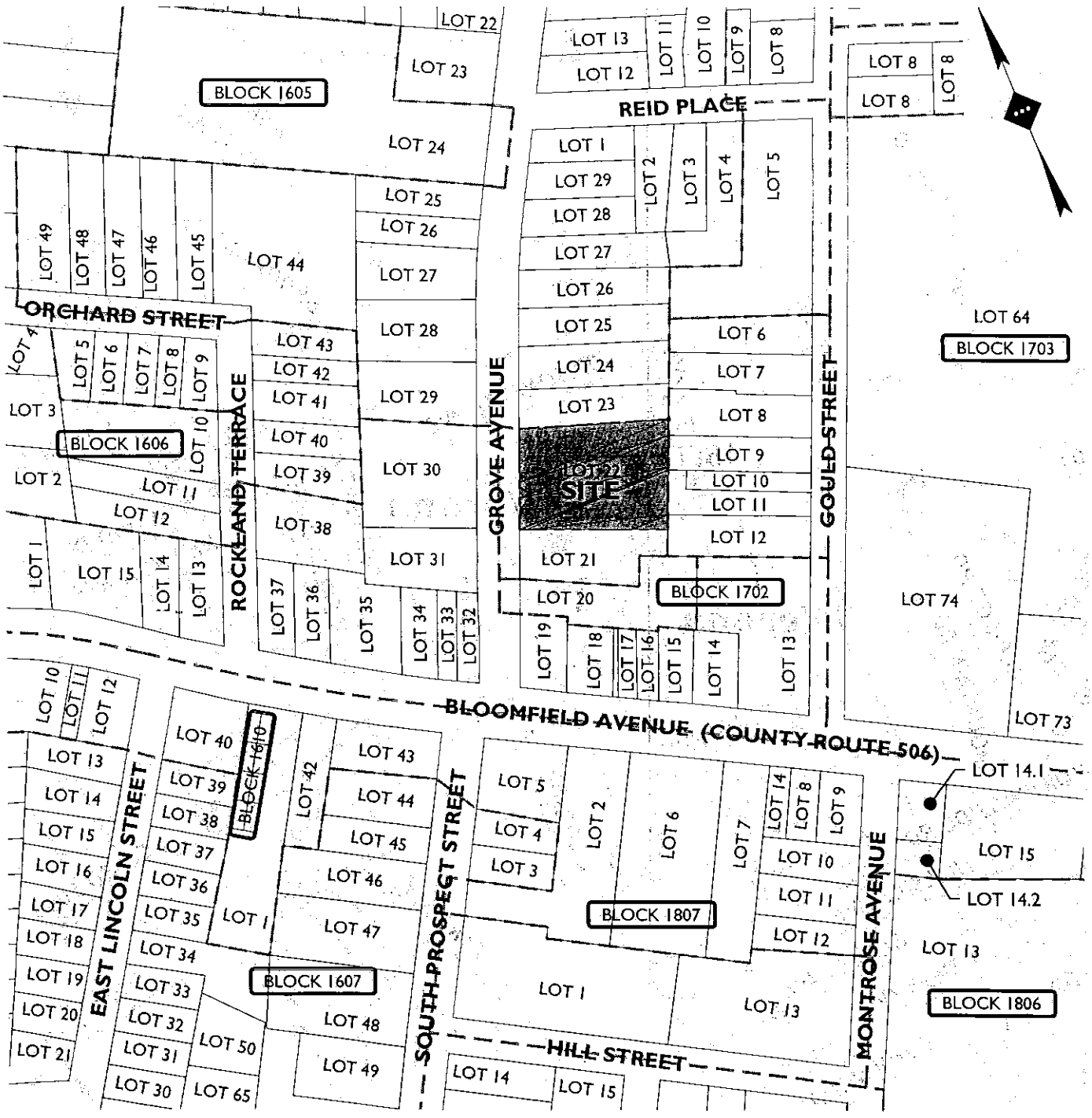
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 200'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg



TAX AND ZONING MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: TOWNSHIP OF VERONA TAX MAP, SHEETS 6, 16, 17 & 18. TOWNSHIP OF VERONA ZONING MAP, DATED 11/27/2015.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

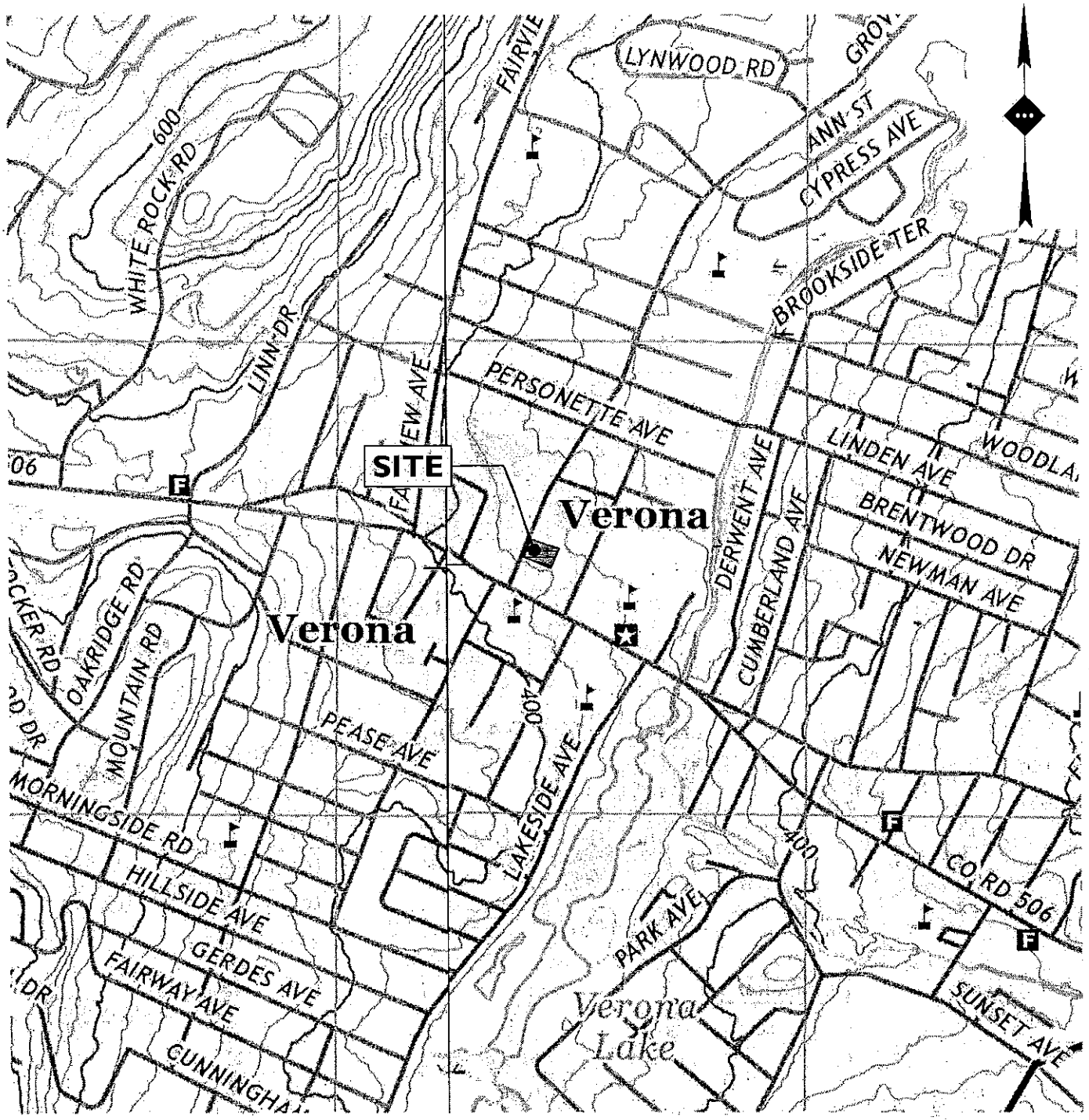
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 200'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 23 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg



USGS QUADRANGLE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: UNITED STATES GEOLOGICAL SURVEY QUADRANGLE MAPS, VERONA, NEW JERSEY, 7.5 MINUTE SERIES, 2016.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

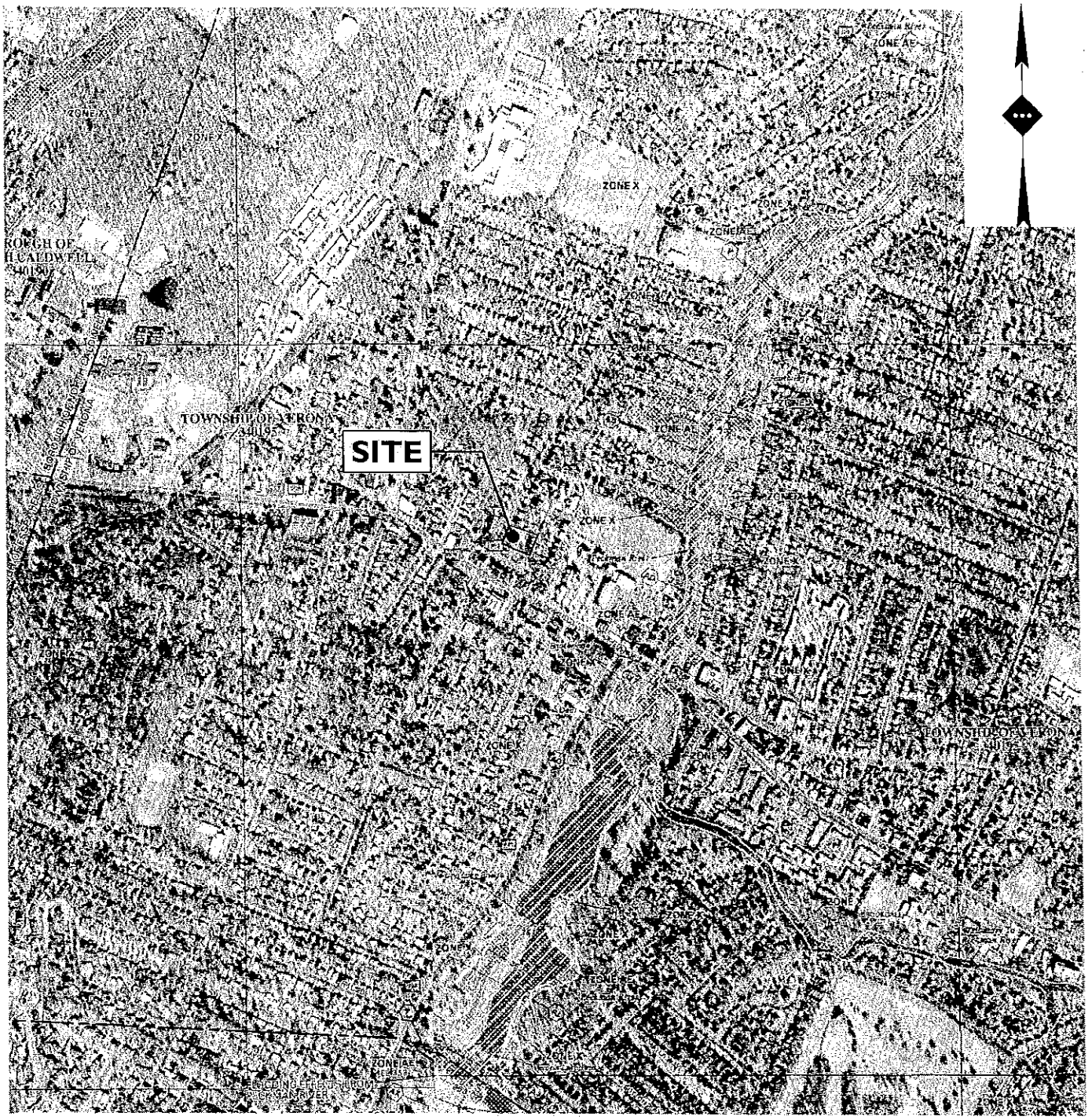
DRAWN BY:	CRP
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 1000'
PROJECT ID:	T-19059

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg



EFFECTIVE FEMA FLOOD INSURANCE RATE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1" = 1000'

SOURCE: FLOOD INSURANCE RATE MAP, ESSEX COUNTY, NEW JERSEY, MAP NUMBERS 34013C0084F & 34013C0103F, DATED JUNE 4, 2007.

WEISS REALTY

PROPOSED MIXED-USE DEVELOPMENT

BLOCK 1702, LOT 22
21-25 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

DRAWN BY:	CRF
CHECKED BY:	MEM
DATE:	07/31/2019
SCALE:	1" = 1000'
PROJECT ID:	T-19059

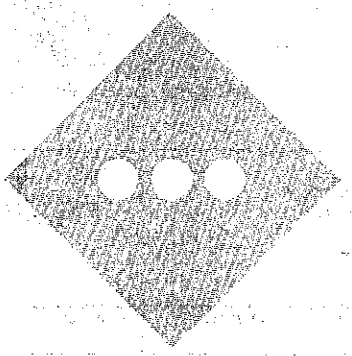
STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

T:\2019\T-19059 21 and 25 Grove Associates LLC - 21 Grove Avenue, Verona, NJ\CADD\Exhibits\Project Maps\2019-07-31_Project Maps.dwg

APPENDIX B
NRCS SOILS REPORT



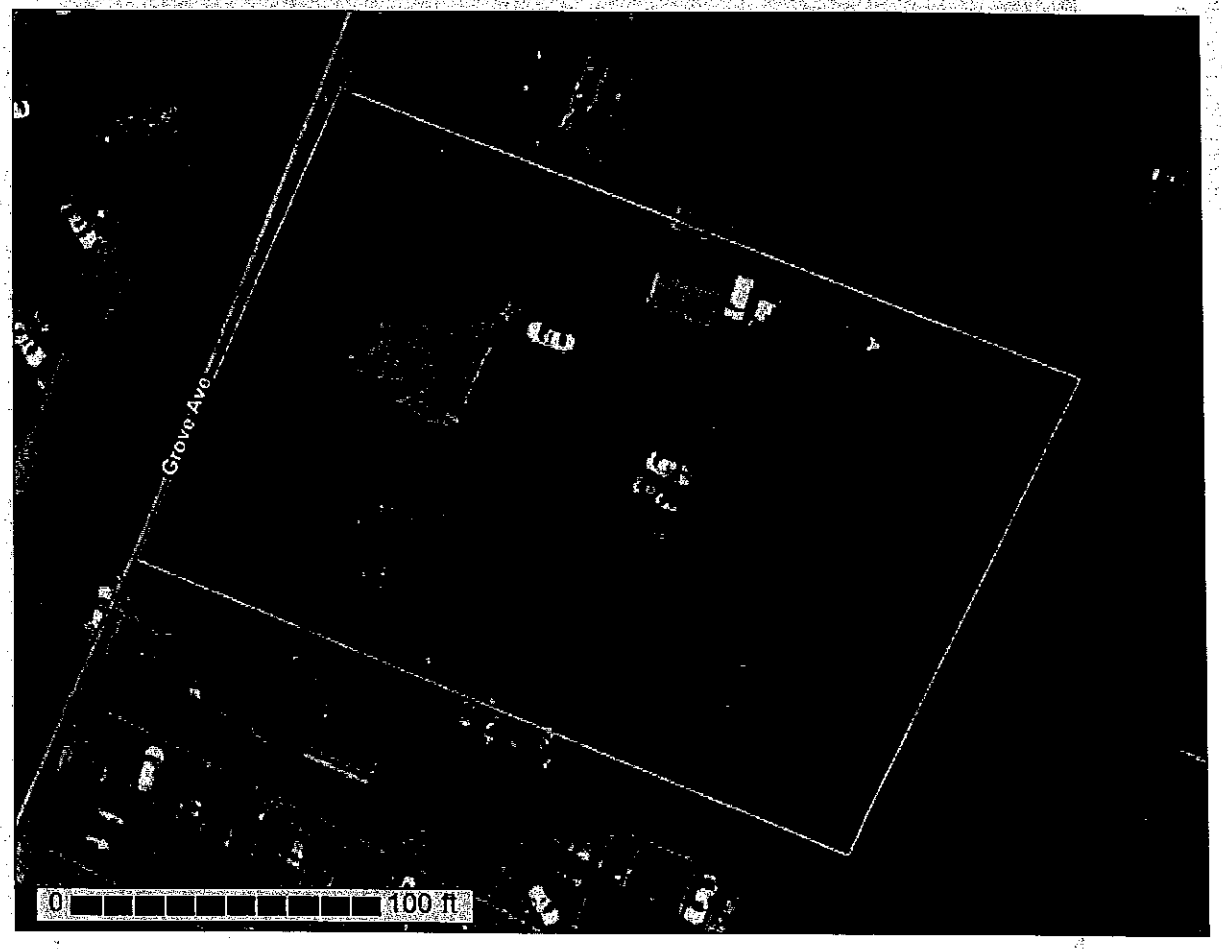
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

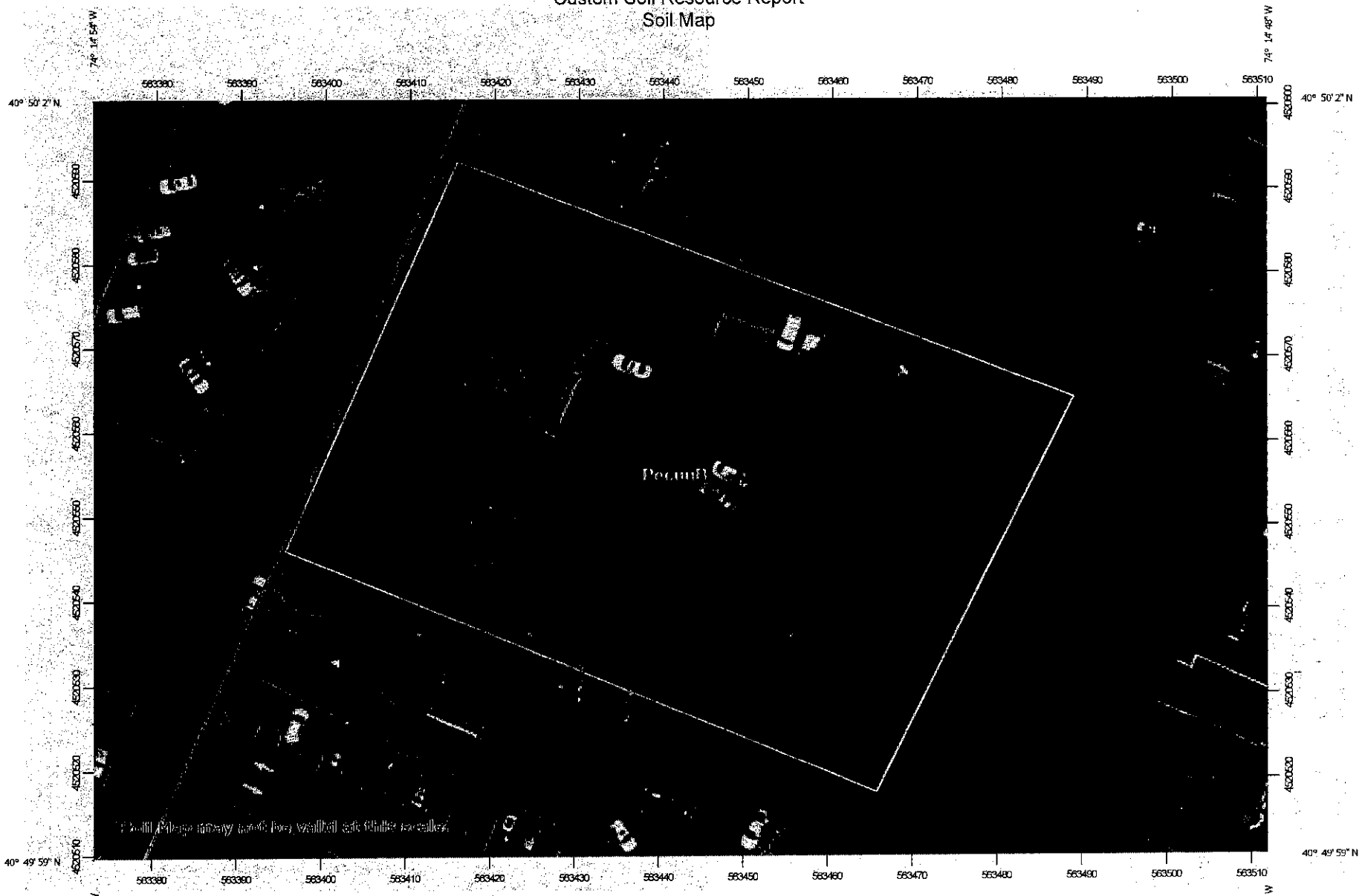
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Essex County, New Jersey



July 25, 2019

Soil Map


74° 14' 54" W
74° 14' 48" W
40° 50' 2" N
40° 49' 59" N
563380
563390
563400
563410
563420
563430
563440
563450
563460
563470
563480
563490
563500
563510
4520690
4520680
4520670
4520660
4520650
4520640
4520630
4520620
4520610
Soil Map may not be valid at this scale.
Map Scale: 1:634 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 5 10 20 30
Feet
0 30 60 120 180
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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:
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 14, Sep 13, 2018

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PecuuB	Peckmantown - Urban land, Peckmantown substratum complex, 0 to 8 percent slopes	1.0	100.0%
Totals for Area of Interest		**1.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series.* Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Essex County, New Jersey

PecuuB—Peckmantown - Urban land, Peckmantown substratum complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w8qf
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

Peckmantown and similar soils: 55 percent
Urban land, peckmantown substratum: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peckmantown

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits derived from basalt

Typical profile

A - 0 to 2 inches: silt loam
Ap - 2 to 8 inches: loam
BAt - 8 to 14 inches: loam
Bt - 14 to 27 inches: silt loam
Btx1 - 27 to 37 inches: loam
Btx2 - 37 to 40 inches: silt loam
BCtx - 40 to 59 inches: silt loam
2C1 - 59 to 63 inches: gravelly loamy coarse sand
2C2 - 63 to 74 inches: coarse sand
2C3 - 74 to 88 inches: coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 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 4.7 inches)

Interpretive groups

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

Hydric soil rating: No

Description of Urban Land, Peckmantown Substratum

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
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 59 inches: silt loam
2C1 - 59 to 63 inches: gravelly loamy coarse sand
2C2 - 63 to 74 inches: coarse sand
2C3 - 74 to 88 inches: coarse sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents, peckmantown substratum

Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

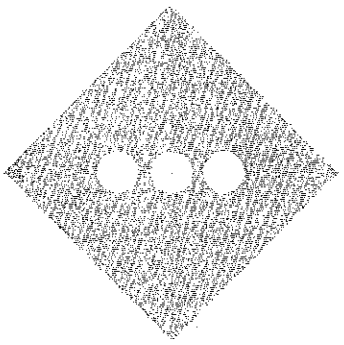
APPENDIX C
HYDROLOGIC & HYDRAULIC CALCULATIONS

INVENTORY

C-1: NRCS 24-HOUR RAINFALL FREQUENCY DATA

C-2: HYDROCAD NODE SCHEMATIC DIAGRAM

C-3: HYDROCAD HYDROLOGIC CALCULATIONS



NEW JERSEY 24 HOUR RAINFALL FREQUENCY DATA

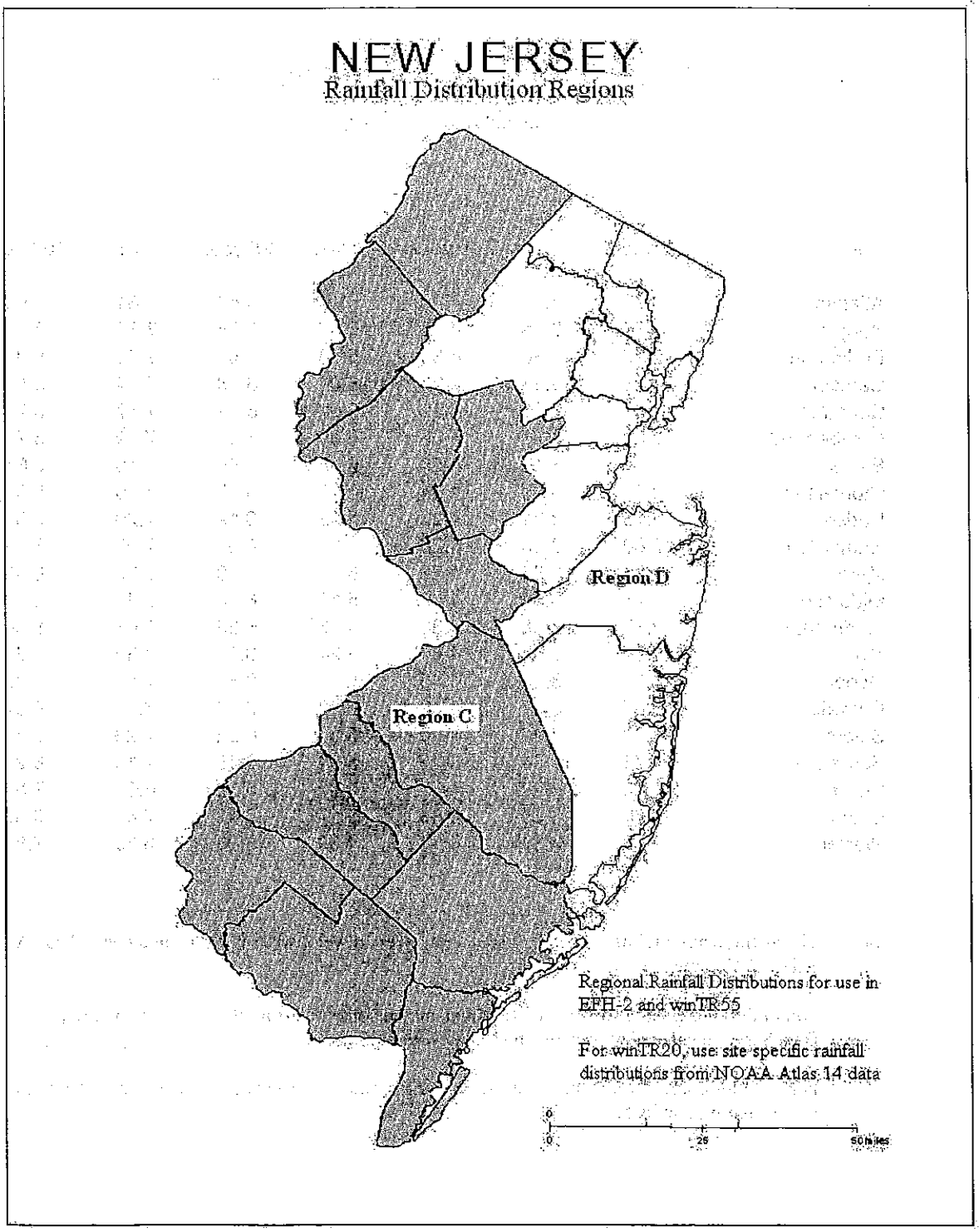
Rainfall amounts in Inches

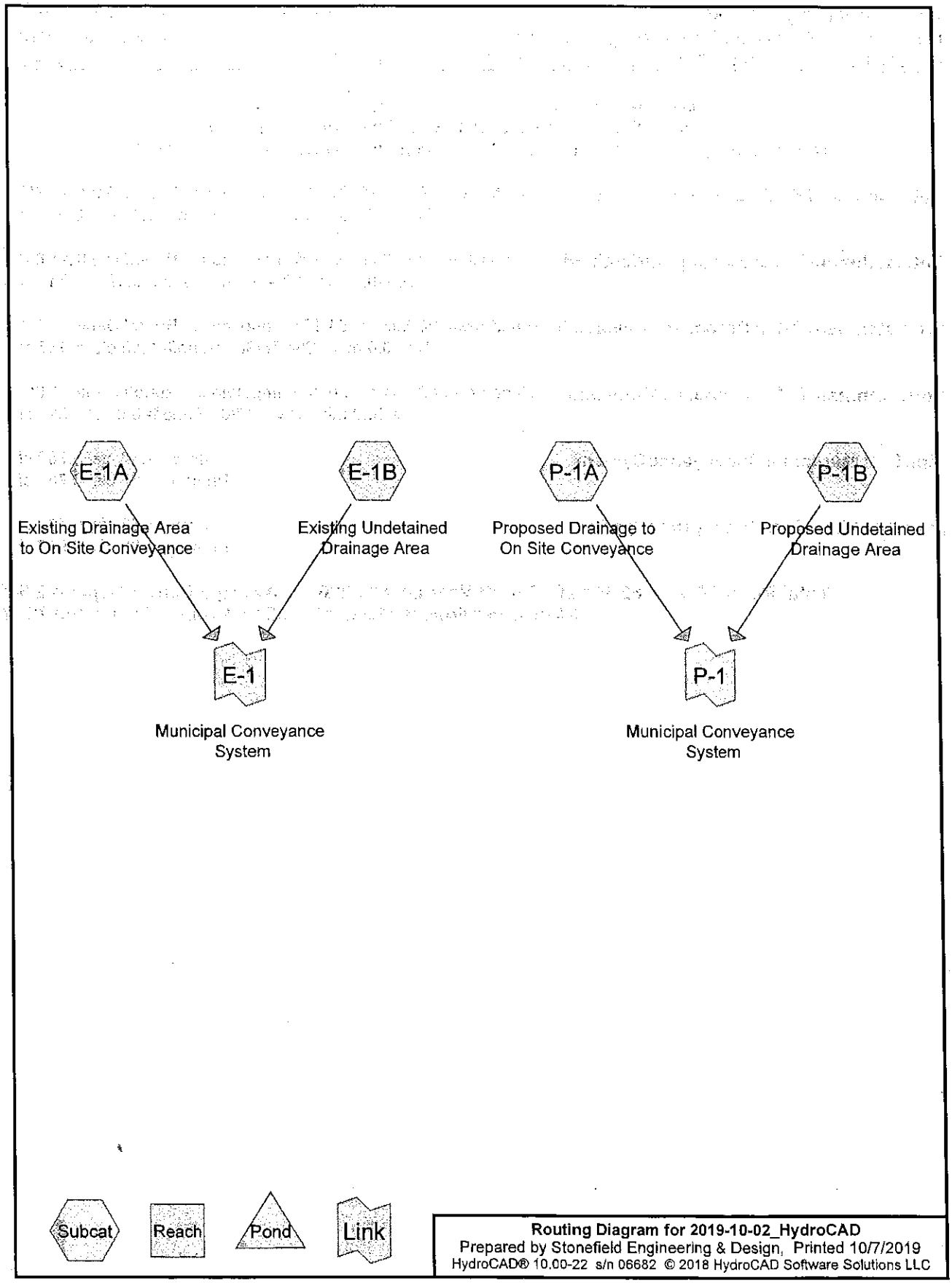
County	1 year	2 year	5 year	10 year	25 year	50 year	100 year
Atlantic	2.72	3.31	4.30	5.16	6.46	7.61	8.90
Bergen	2.75	3.34	4.27	5.07	6.28	7.32	8.47
Burlington	2.77	3.36	4.34	5.18	6.45	7.56	8.81
Camden	2.73	3.31	4.25	5.06	6.28	7.34	8.52
Cape May	2.67	3.25	4.22	5.07	6.34	7.47	8.73
Cumberland	2.69	3.27	4.25	5.09	6.37	7.49	8.76
Essex	2.85	3.44	4.40	5.22	6.44	7.49	8.66
Gloucester	2.71	3.29	4.24	5.05	6.29	7.36	8.55
Hudson	2.73	3.31	4.23	5.02	6.19	7.20	8.31
Hunterdon	2.80	3.38	4.26	5.00	6.09	7.02	8.03
Mercer	2.74	3.31	4.23	5.01	6.19	7.20	8.33
Middlesex	2.76	3.35	4.30	5.12	6.36	7.43	8.63
Monmouth	2.79	3.38	4.38	5.23	6.53	7.66	8.94
Morris	2.94	3.54	4.47	5.24	6.37	7.32	8.35
Ocean	2.81	3.42	4.45	5.33	6.68	7.87	9.20
Passaic	2.87	3.47	4.42	5.23	6.43	7.47	8.62
Salem	2.69	3.26	4.20	5.00	6.22	7.28	8.45
Somerset	2.76	3.34	4.25	5.01	6.15	7.13	8.21
Sussex	2.68	3.22	4.02	4.70	5.72	6.60	7.58
Union	2.80	3.39	4.35	5.17	6.42	7.49	8.69
Warren	2.78	3.34	4.18	4.89	5.93	6.83	7.82

Notes: The average point rainfall amounts listed above were developed from data contained in NOAA Atlas 14 Volume 2.

Point rainfall estimates for specific locations may be obtained from the Precipitation Frequency Data Server located at http://www.nws.noaa.gov/ohd/hdsc/

For most hydrologic design procedures, the rainfall amounts listed above may be rounded to the nearest tenth of an inch.


NEW JERSEY
Rainfall Distribution Regions
Region D
Region C
Regional Rainfall Distributions for use in EFH-2 and winTR55
For winTR20, use site specific rainfall distributions from NOAA Atlas 14 data
0
0
25
50 Miles



Routing Diagram for 2019-10-02_HydroCAD
Prepared by Stonefield Engineering & Design, Printed 10/7/2019

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1A: Existing Drainage Runoff Area=26,374 sf 77.20% Impervious Runoff Depth=2.75"
Tc=10.0 min CN=74/98 Runoff=1.49 cfs 6,041 cf

Subcatchment E-1B: Existing Undetained Runoff Area=4,823 sf 32.10% Impervious Runoff Depth=1.84"
Tc=10.0 min CN=74/98 Runoff=0.19 cfs 741 cf

Subcatchment P-1A: Proposed Drainage to Runoff Area=28,803 sf 64.15% Impervious Runoff Depth=2.58"
Tc=10.0 min CN=78/98 Runoff=1.55 cfs 6,187 cf

Subcatchment P-1B: Proposed Undetained Runoff Area=2,394 sf 20.34% Impervious Runoff Depth=1.61"
Tc=10.0 min CN=74/98 Runoff=0.08 cfs 321 cf

Link E-1: Municipal Conveyance System Inflow=1.67 cfs 6,782 cf
Primary=1.67 cfs 6,782 cf

Link P-1: Municipal Conveyance System Inflow=1.63 cfs 6,507 cf
Primary=1.63 cfs 6,507 cf

Total Runoff Area = 62,394 sf Runoff Volume = 13,290 cf Average Runoff Depth = 2.56"
34.49% Pervious = 21,522 sf 65.51% Impervious = 40,872 sf

Summary for Subcatchment E-1A: Existing Drainage Area to On Site Conveyance

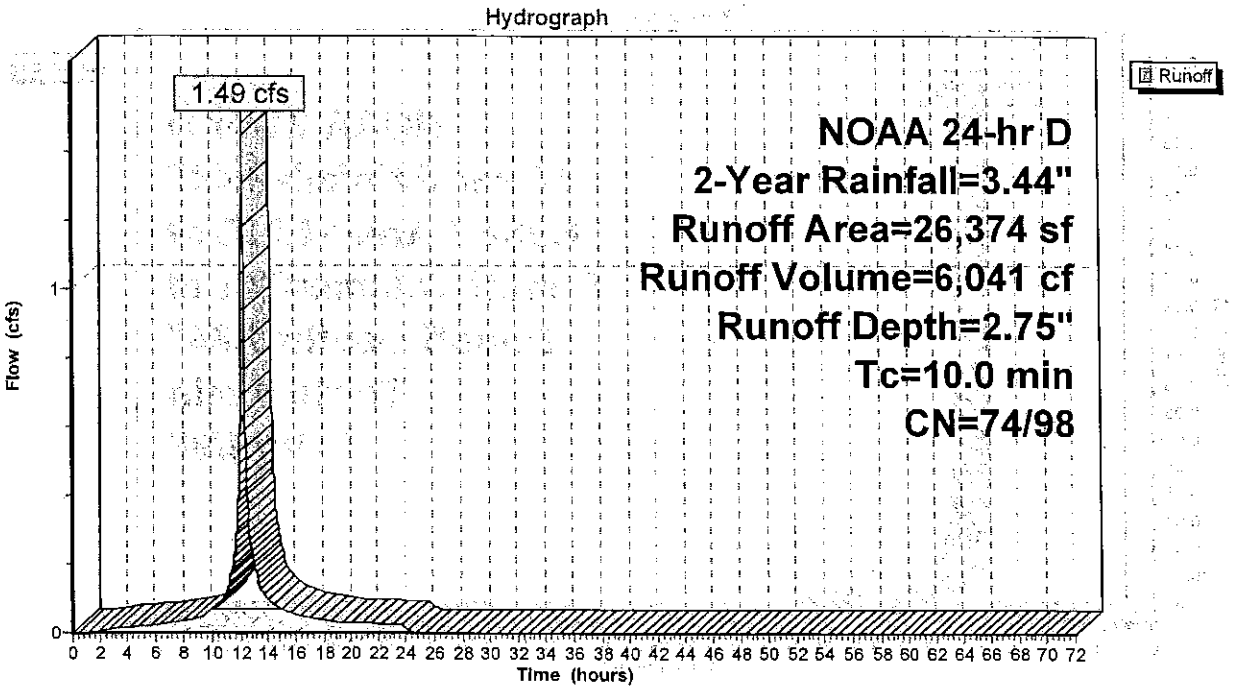
Runoff = 1.49 cfs @ 12.17 hrs, Volume= 6,041 cf, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

	Area (sf)	CN	Description
	6,014	74	>75% Grass cover, Good, HSG C
*	20,360	98	Impervious Coverage
	26,374	93	Weighted Average
	6,014	74	22.80% Pervious Area
	20,360	98	77.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment E-1A: Existing Drainage Area to On Site Conveyance



Summary for Subcatchment E-1B: Existing Undetained Drainage Area

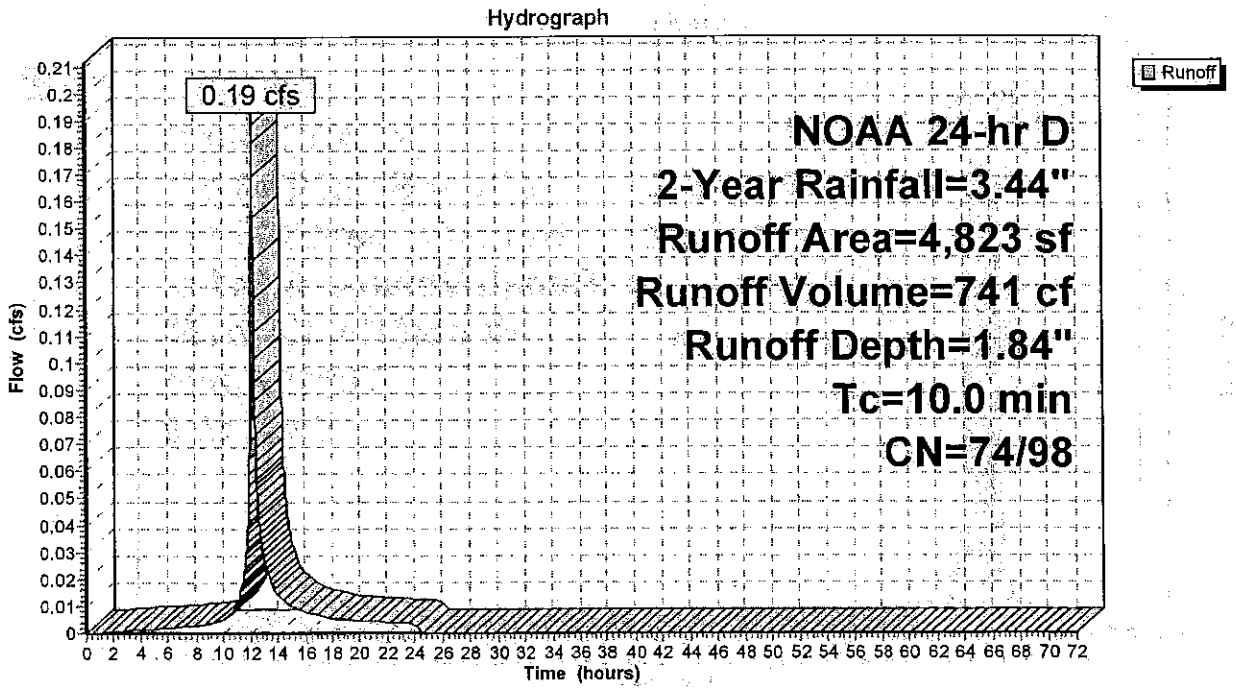
Runoff = 0.19 cfs @ 12.17 hrs, Volume= 741 cf, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

	Area (sf)	CN	Description
	3,275	74	>75% Grass cover, Good, HSG C
*	1,548	98	Impervious Coverage
	4,823	82	Weighted Average
	3,275	74	67.90% Pervious Area
	1,548	98	32.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment E-1B: Existing Undetained Drainage Area



Summary for Subcatchment P-1A: Proposed Drainage to On Site Conveyance

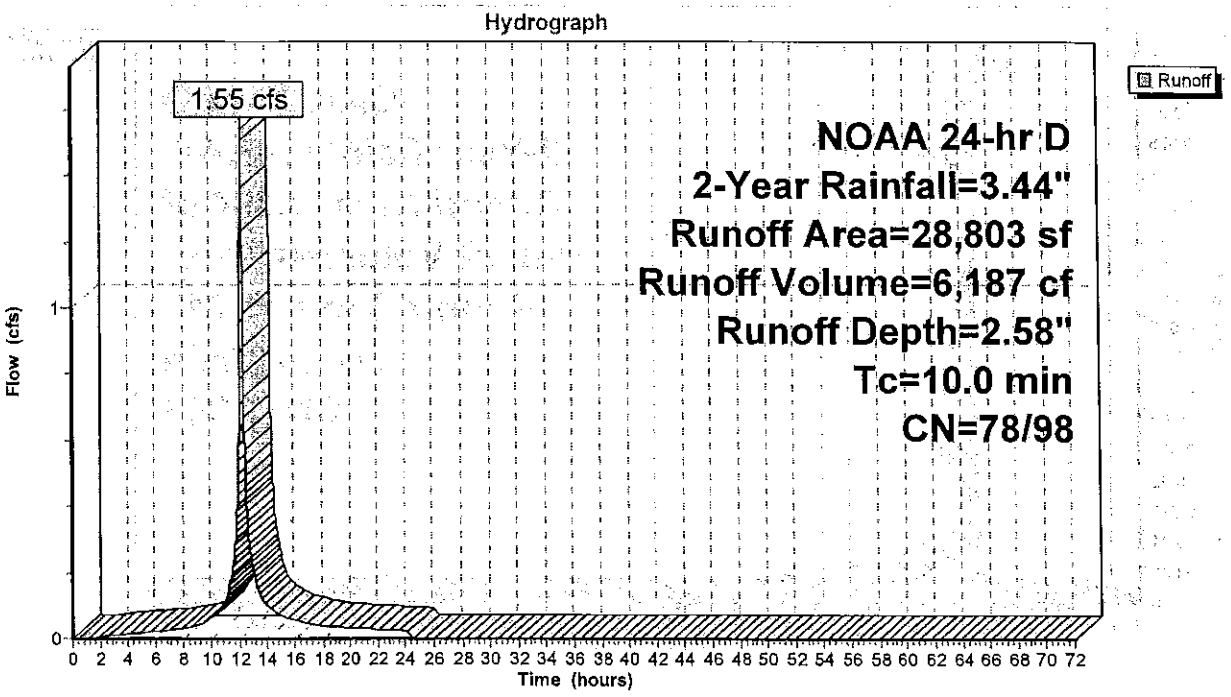
Runoff = 1.55 cfs @ 12.17 hrs, Volume= 6,187 cf, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

	Area (sf)	CN	Description
*	18,477	98	Impervious Coverage
	5,326	74	>75% Grass cover, Good, HSG C
*	5,000	82	Green Roof
	28,803	91	Weighted Average
	10,326	78	35.85% Pervious Area
	18,477	98	64.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment P-1A: Proposed Drainage to On Site Conveyance



Summary for Subcatchment P-1B: Proposed Undetained Drainage Area

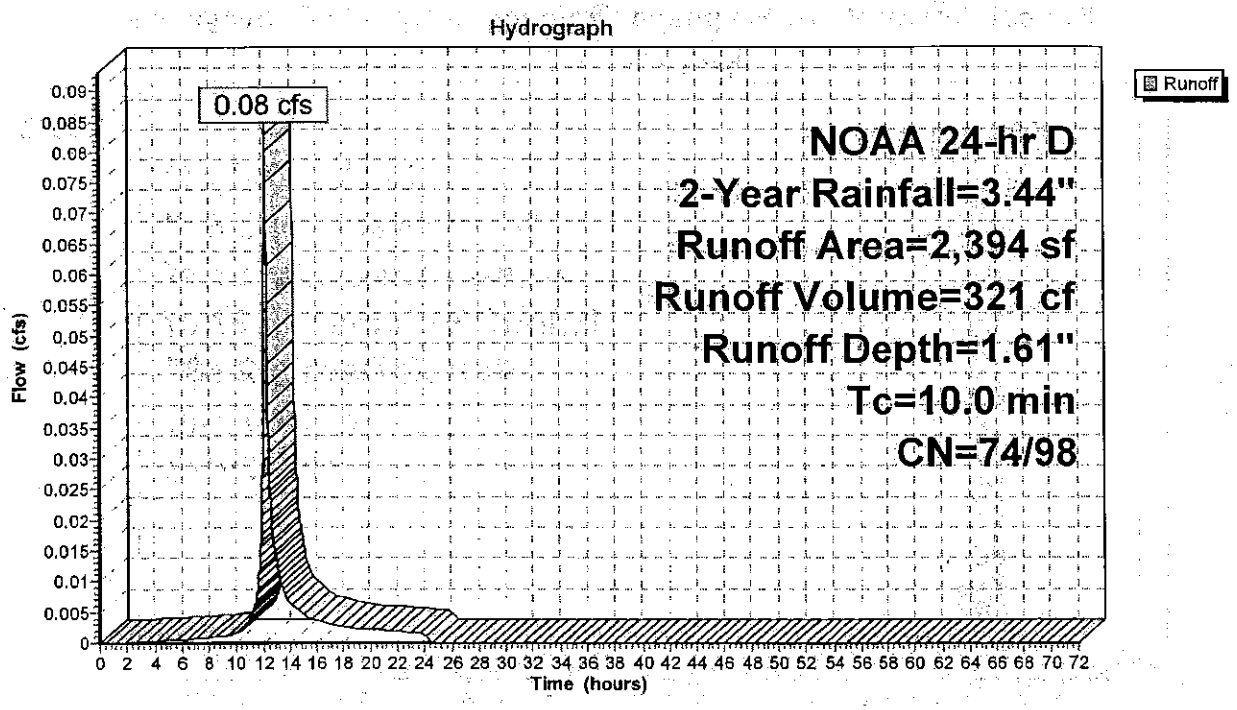
Runoff = 0.08 cfs @ 12.18 hrs, Volume= 321 cf, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

	Area (sf)	CN	Description
*	487	98	Impervious Coverage
	1,907	74	>75% Grass cover, Good, HSG C
	2,394	79	Weighted Average
	1,907	74	79.66% Pervious Area
	487	98	20.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment P-1B: Proposed Undetained Drainage Area

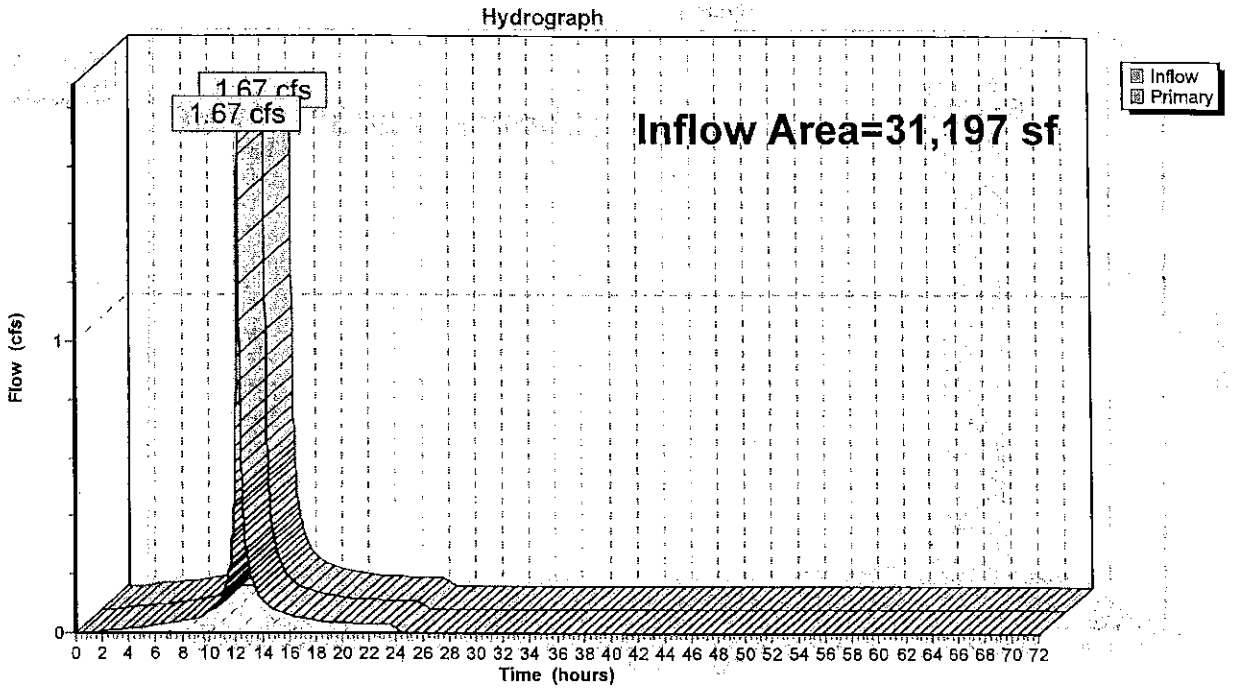


Summary for Link E-1: Municipal Conveyance System

Inflow Area = 31,197 sf, 70.22% Impervious, Inflow Depth = 2.61" for 2-Year event
Inflow = 1.67 cfs @ 12.17 hrs, Volume= 6,782 cf
Primary = 1.67 cfs @ 12.17 hrs, Volume= 6,782 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link E-1: Municipal Conveyance System

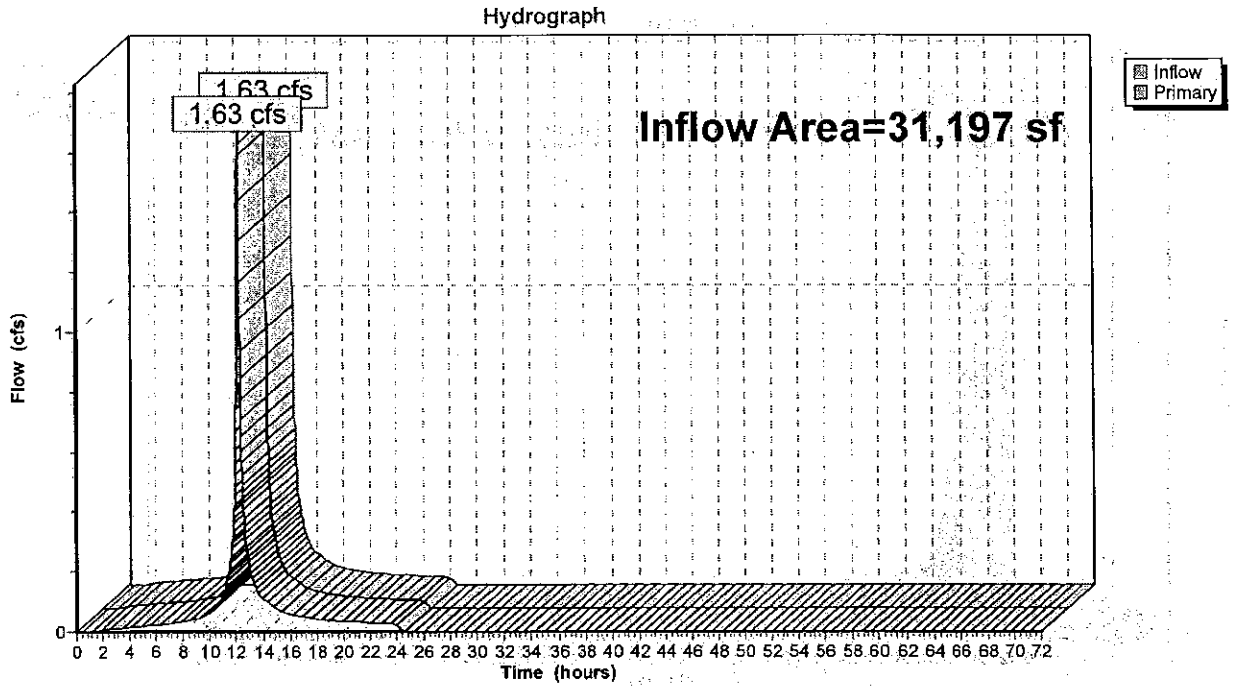


Summary for Link P-1: Municipal Conveyance System

Inflow Area = 31,197 sf, 60.79% Impervious, Inflow Depth = 2.50" for 2-Year event
Inflow = 1.63 cfs @ 12.17 hrs, Volume= 6,507 cf
Primary = 1.63 cfs @ 12.17 hrs, Volume= 6,507 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link P-1: Municipal Conveyance System



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1A: Existing Drainage Runoff Area=26,374 sf 77.20% Impervious Runoff Depth=4.43"
Tc=10.0 min CN=74/98 Runoff=2.38 cfs 9,728 cf

Subcatchment E-1B: Existing Undetained Runoff Area=4,823 sf 32.10% Impervious Runoff Depth=3.32"
Tc=10.0 min CN=74/98 Runoff=0.35 cfs 1,336 cf

Subcatchment P-1A: Proposed Drainage to Runoff Area=28,803 sf 64.15% Impervious Runoff Depth=4.24"
Tc=10.0 min CN=78/98 Runoff=2.53 cfs 10,167 cf

Subcatchment P-1B: Proposed Undetained Runoff Area=2,394 sf 20.34% Impervious Runoff Depth=3.04"
Tc=10.0 min CN=74/98 Runoff=0.16 cfs 606 cf

Link E-1: Municipal Conveyance System Inflow=2.72 cfs 11,064 cf
Primary=2.72 cfs 11,064 cf

Link P-1: Municipal Conveyance System Inflow=2.69 cfs 10,773 cf
Primary=2.69 cfs 10,773 cf

Total Runoff Area = 62,394 sf Runoff Volume = 21,837 cf Average Runoff Depth = 4.20"
34.49% Pervious = 21,522 sf 65.51% Impervious = 40,872 sf

Summary for Subcatchment E-1A: Existing Drainage Area to On Site Conveyance

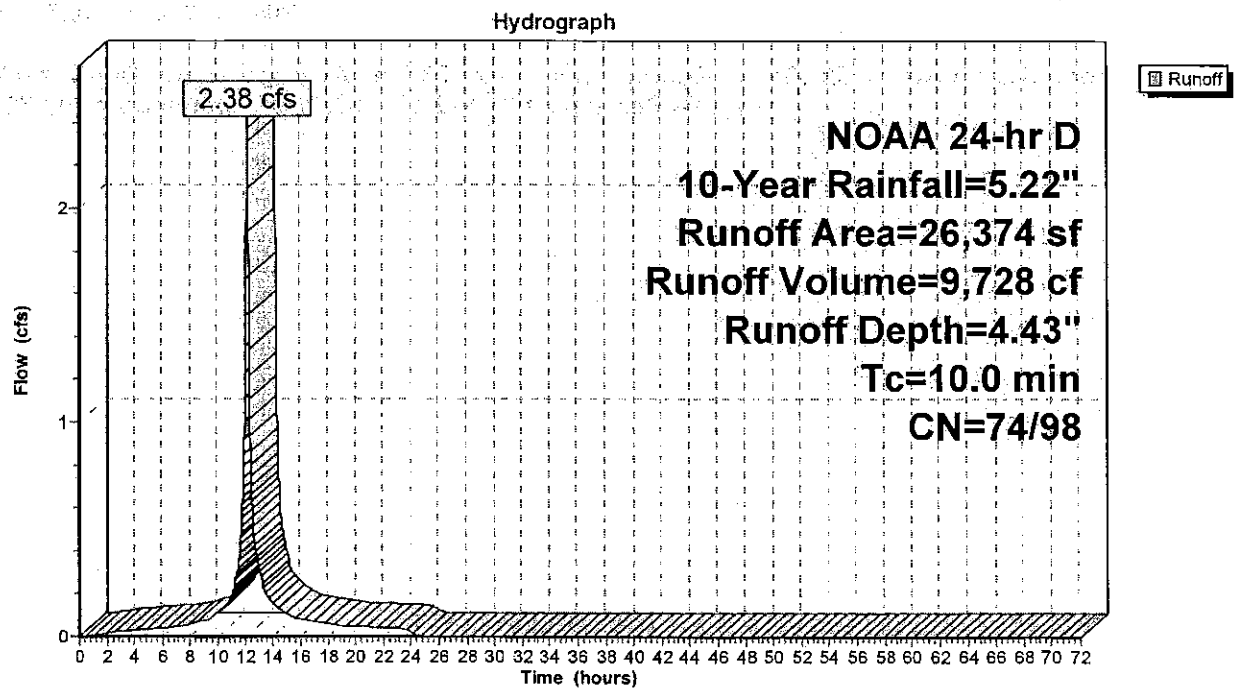
Runoff = 2.38 cfs @ 12.17 hrs, Volume= 9,728 cf, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

	Area (sf)	CN	Description
	6,014	74	>75% Grass cover, Good, HSG C
*	20,360	98	Impervious Coverage
	26,374	93	Weighted Average
	6,014	74	22.80% Pervious Area
	20,360	98	77.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment E-1A: Existing Drainage Area to On Site Conveyance



Summary for Subcatchment E-1B: Existing Undetained Drainage Area

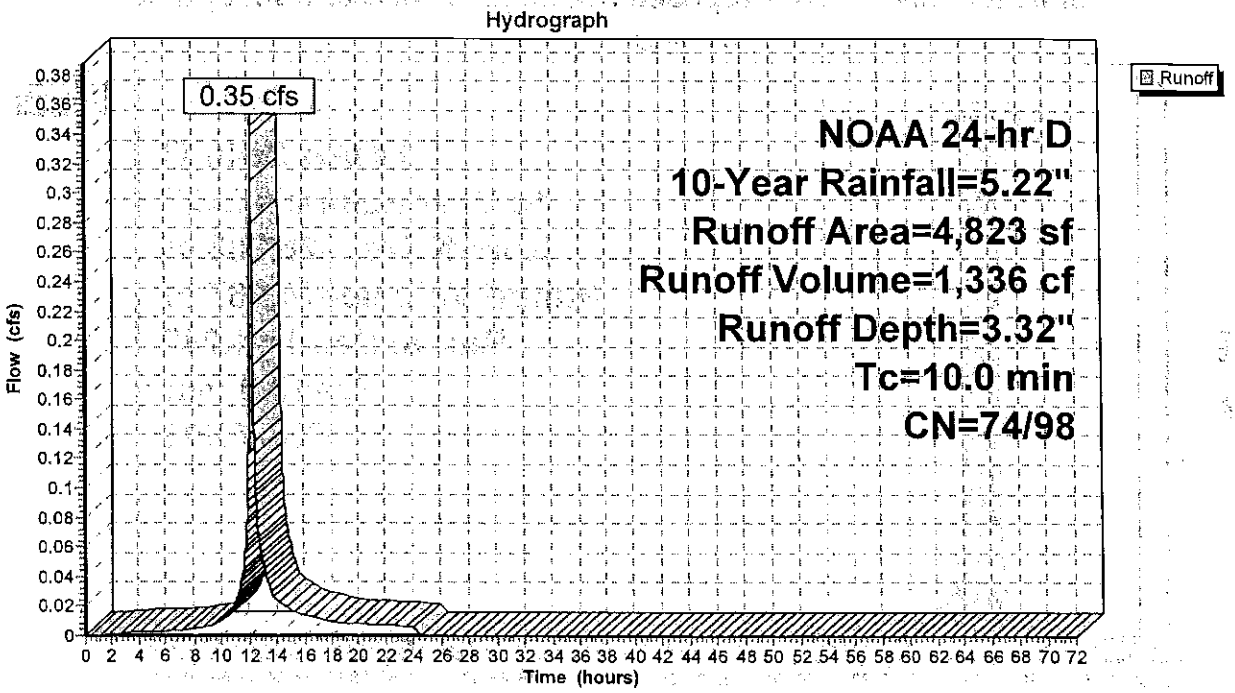
Runoff = 0.35 cfs @ 12.17 hrs, Volume= 1,336 cf, Depth= 3.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

	Area (sf)	CN	Description
	3,275	74	>75% Grass cover, Good, HSG C
*	1,548	98	Impervious Coverage
	4,823	82	Weighted Average
	3,275	74	67.90% Pervious Area
	1,548	98	32.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment E-1B: Existing Undetained Drainage Area



Summary for Subcatchment P-1A: Proposed Drainage to On Site Conveyance

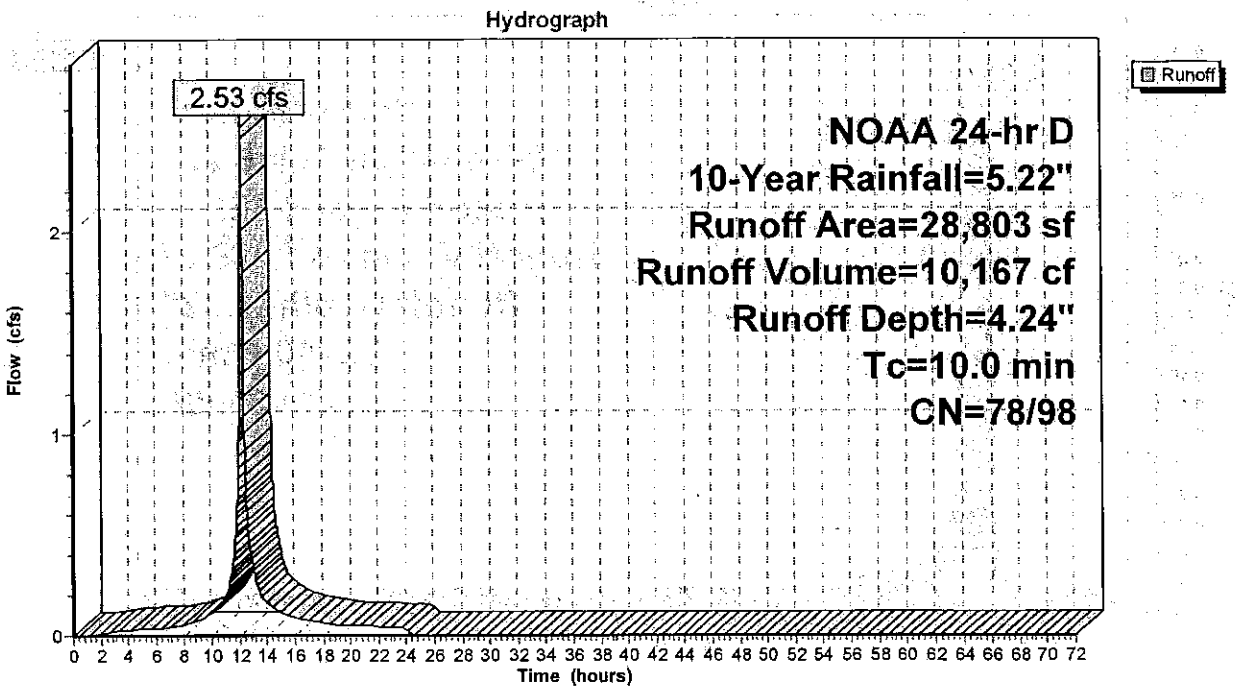
Runoff = 2.53 cfs @ 12.17 hrs, Volume= 10,167 cf, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

	Area (sf)	CN	Description
*	18,477	98	Impervious Coverage
	5,326	74	>75% Grass cover, Good, HSG C
*	5,000	82	Green Roof
	28,803	91	Weighted Average
	10,326	78	35.85% Pervious Area
	18,477	98	64.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment P-1A: Proposed Drainage to On Site Conveyance



Summary for Subcatchment P-1B: Proposed Undetained Drainage Area

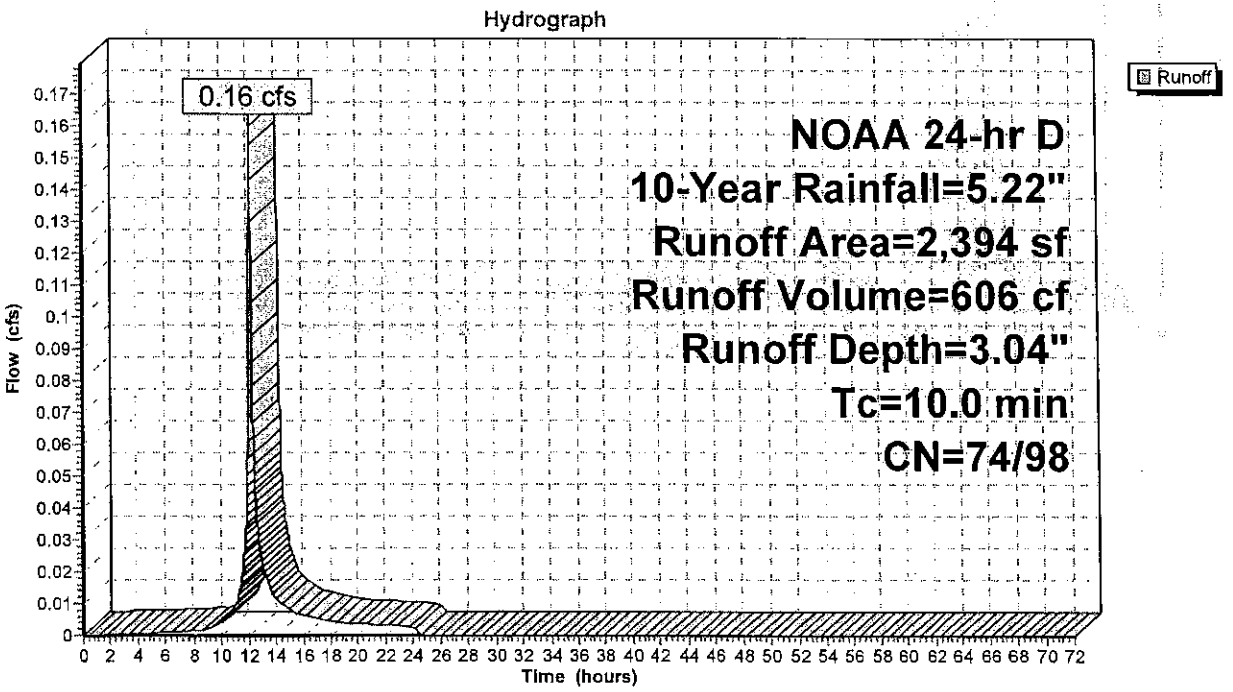
Runoff = 0.16 cfs @ 12.17 hrs, Volume= 606 cf, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

	Area (sf)	CN	Description
*	487	98	Impervious Coverage
	1,907	74	>75% Grass cover, Good, HSG C
	2,394	79	Weighted Average
	1,907	74	79.66% Pervious Area
	487	98	20.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment P-1B: Proposed Undetained Drainage Area

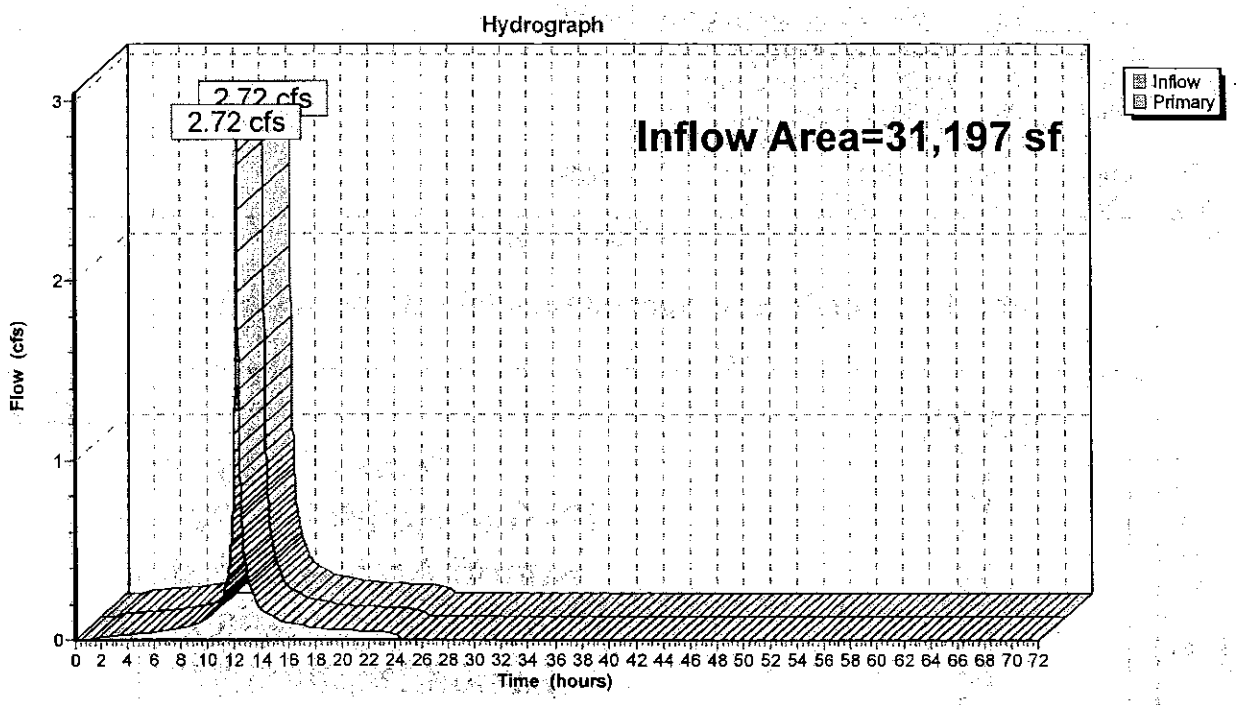


Summary for Link E-1: Municipal Conveyance System

Inflow Area = 31,197 sf, 70.22% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 2.72 cfs @ 12.17 hrs, Volume= 11,064 cf
Primary = 2.72 cfs @ 12.17 hrs, Volume= 11,064 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link E-1: Municipal Conveyance System

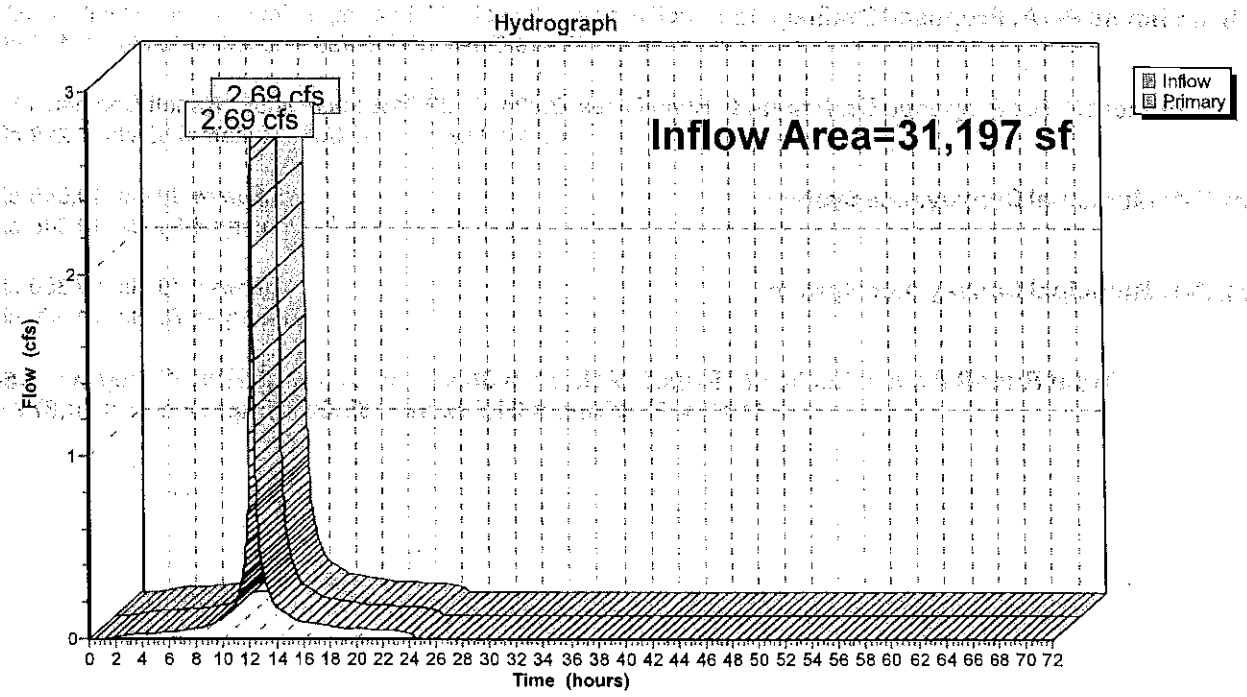


Summary for Link P-1: Municipal Conveyance System

Inflow Area = 31,197 sf, 60.79% Impervious, Inflow Depth = 4.14" for 10-Year event
Inflow = 2.69 cfs @ 12.17 hrs, Volume= 10,773 cf
Primary = 2.69 cfs @ 12.17 hrs, Volume= 10,773 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link P-1: Municipal Conveyance System



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentE-1A: Existing Drainage Runoff Area=26,374 sf 77.20% Impervious Runoff Depth=7.76"
Tc=10.0 min CN=74/98 Runoff=4.13 cfs 17,052 cf

SubcatchmentE-1B: Existing Undetained Runoff Area=4,823 sf 32.10% Impervious Runoff Depth=6.45"
Tc=10.0 min CN=74/98 Runoff=0.67 cfs 2,593 cf

SubcatchmentP-1A: Proposed Drainage to Runoff Area=28,803 sf 64.15% Impervious Runoff Depth=7.55"
Tc=10.0 min CN=78/98 Runoff=4.46 cfs 18,131 cf

SubcatchmentP-1B: Proposed Undetained Runoff Area=2,394 sf 20.34% Impervious Runoff Depth=6.11"
Tc=10.0 min CN=74/98 Runoff=0.32 cfs 1,219 cf

Link E-1: Municipal Conveyance System Inflow=4.80 cfs 19,645 cf
Primary=4.80 cfs 19,645 cf

Link P-1: Municipal Conveyance System Inflow=4.78 cfs 19,350 cf
Primary=4.78 cfs 19,350 cf

Total Runoff Area = 62,394 sf Runoff Volume = 38,995 cf Average Runoff Depth = 7.50"
34.49% Pervious = 21,522 sf 65.51% Impervious = 40,872 sf

Summary for Subcatchment E-1A: Existing Drainage Area to On Site Conveyance

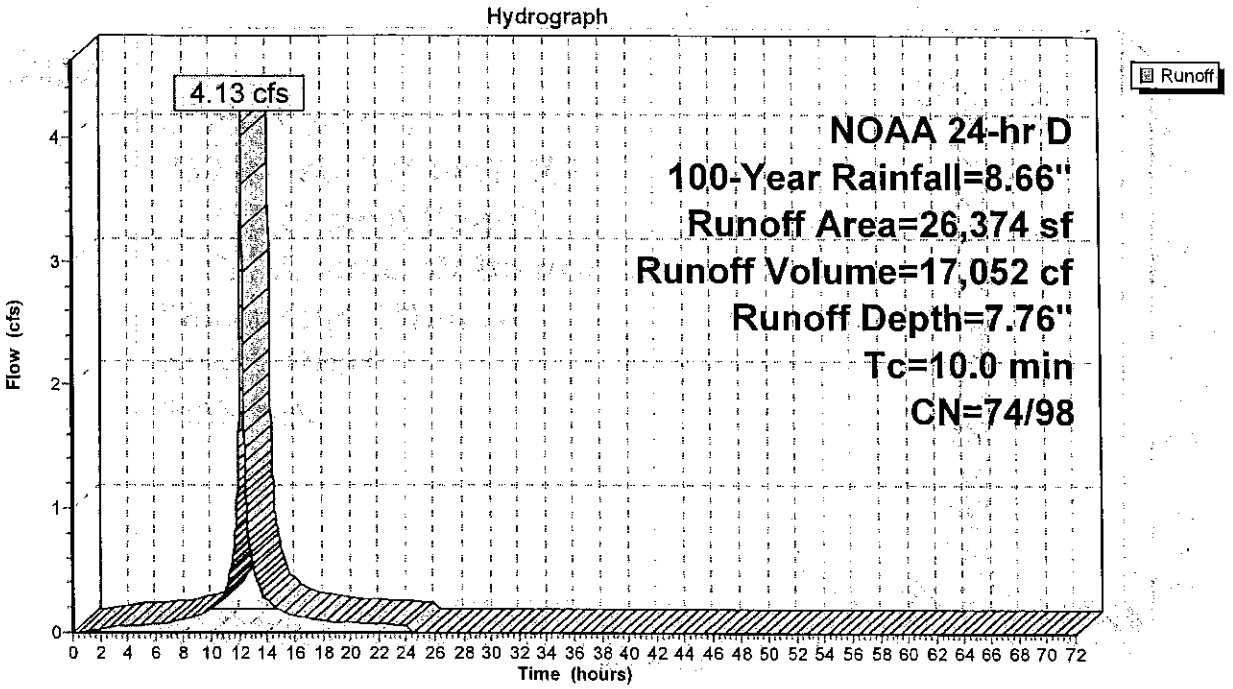
Runoff = 4.13 cfs @ 12.17 hrs, Volume= 17,052 cf, Depth= 7.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

	Area (sf)	CN	Description
	6,014	74	>75% Grass cover, Good, HSG C
*	20,360	98	Impervious Coverage
	26,374	93	Weighted Average
	6,014	74	22.80% Pervious Area
	20,360	98	77.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment E-1A: Existing Drainage Area to On Site Conveyance



Summary for Subcatchment E-1B: Existing Undetained Drainage Area

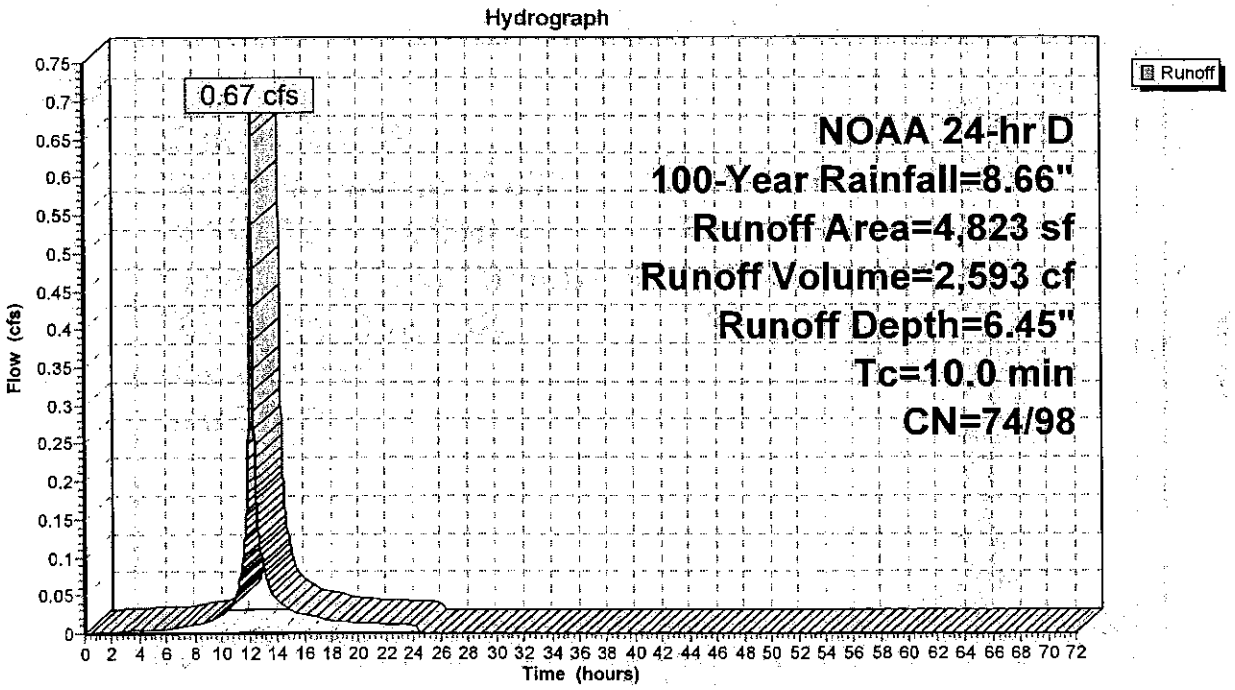
Runoff = 0.67 cfs @ 12.17 hrs, Volume= 2,593 cf, Depth= 6.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

	Area (sf)	CN	Description
	3,275	74	>75% Grass cover, Good, HSG C
*	1,548	98	Impervious Coverage
	4,823	82	Weighted Average
	3,275	74	67.90% Pervious Area
	1,548	98	32.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment E-1B: Existing Undetained Drainage Area



Summary for Subcatchment P-1A: Proposed Drainage to On Site Conveyance

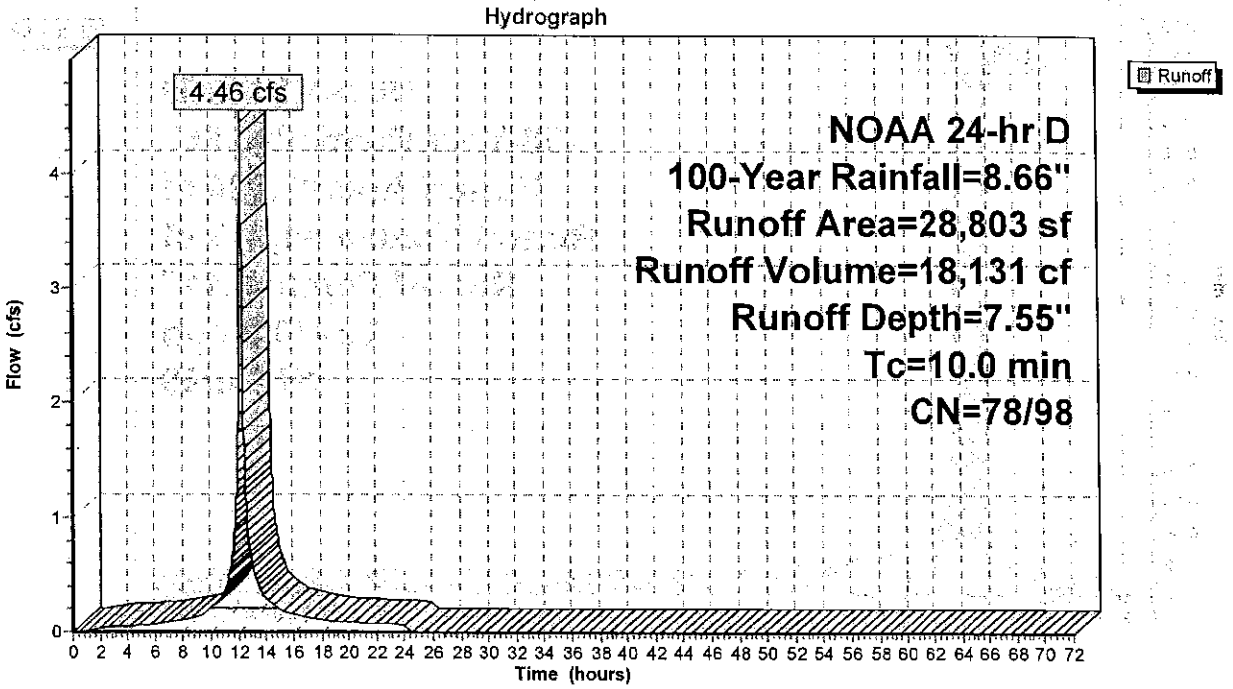
Runoff = 4.46 cfs @ 12.17 hrs, Volume= 18,131 cf, Depth= 7.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

	Area (sf)	CN	Description
*	18,477	98	Impervious Coverage
	5,326	74	>75% Grass cover, Good, HSG C
*	5,000	82	Green Roof
	28,803	91	Weighted Average
	10,326	78	35.85% Pervious Area
	18,477	98	64.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment P-1A: Proposed Drainage to On Site Conveyance



Summary for Subcatchment P-1B: Proposed Undetained Drainage Area

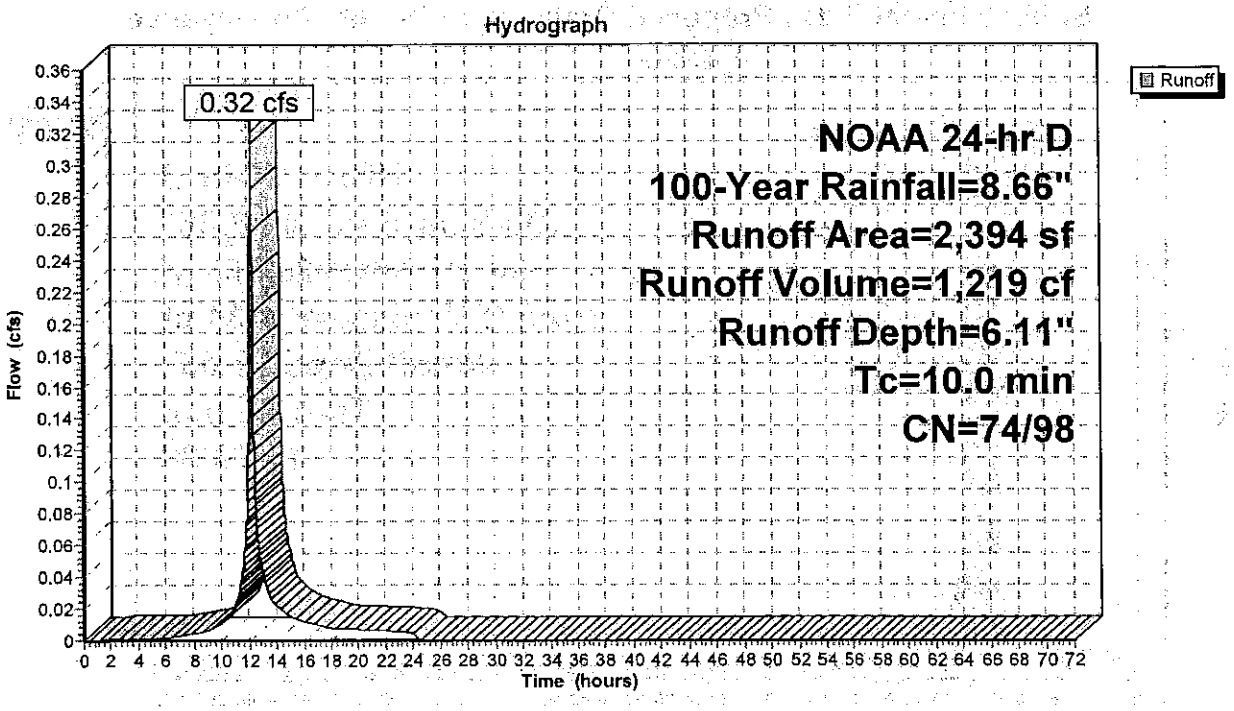
Runoff = 0.32 cfs @ 12.17 hrs, Volume= 1,219 cf, Depth= 6.11"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

	Area (sf)	CN	Description
*	487	98	Impervious Coverage
	1,907	74	>75% Grass cover, Good, HSG C
	2,394	79	Weighted Average
	1,907	74	79.66% Pervious Area
	487	98	20.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment P-1B: Proposed Undetained Drainage Area

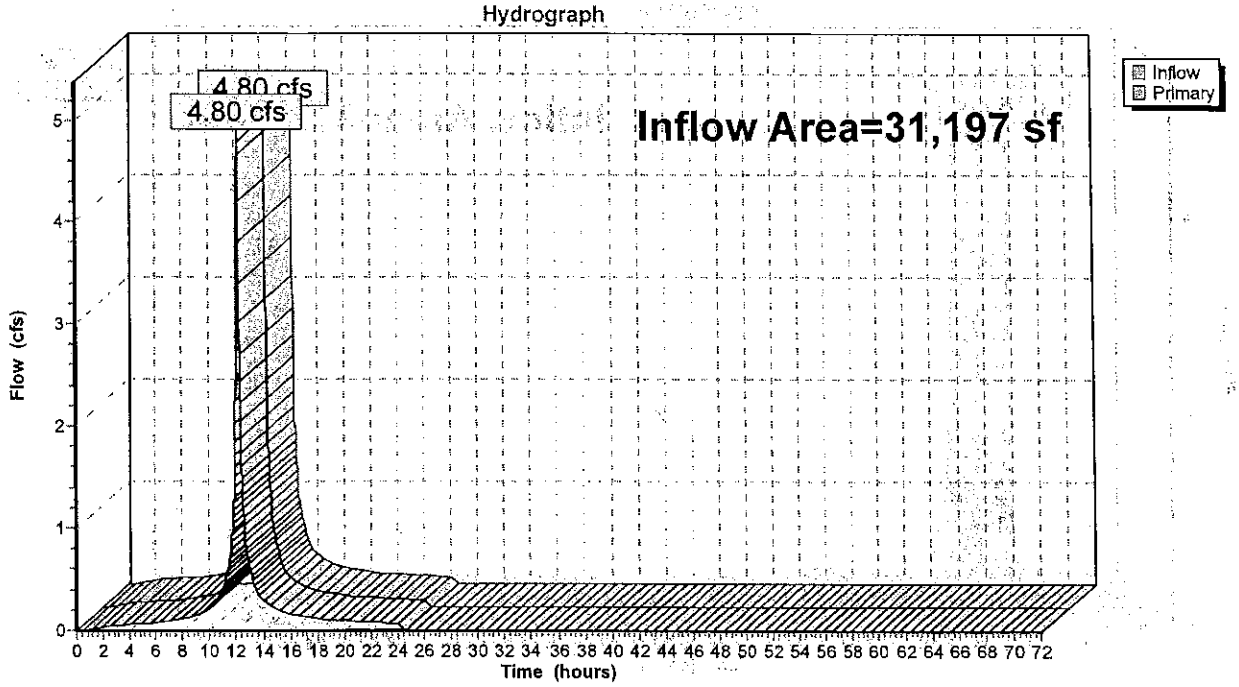


Summary for Link E-1: Municipal Conveyance System

Inflow Area = 31,197 sf, 70.22% Impervious, Inflow Depth = 7.56" for 100-Year event
Inflow = 4.80 cfs @ 12.17 hrs, Volume= 19,645 cf
Primary = 4.80 cfs @ 12.17 hrs, Volume= 19,645 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link E-1: Municipal Conveyance System

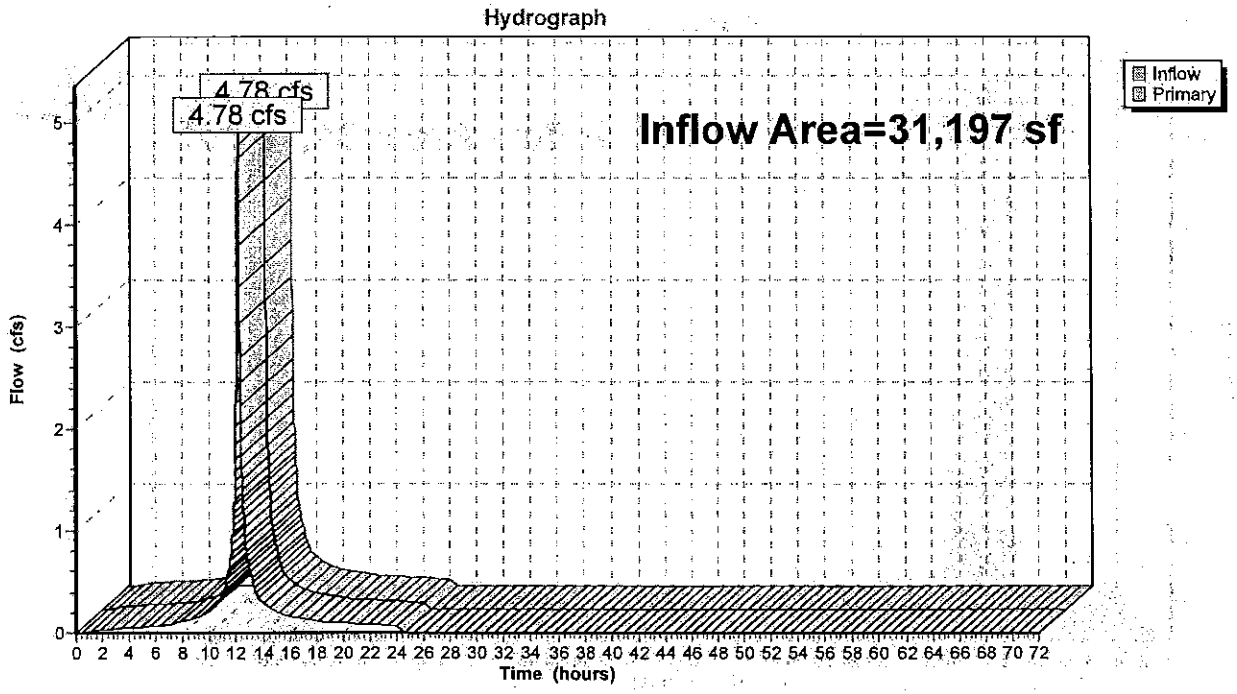


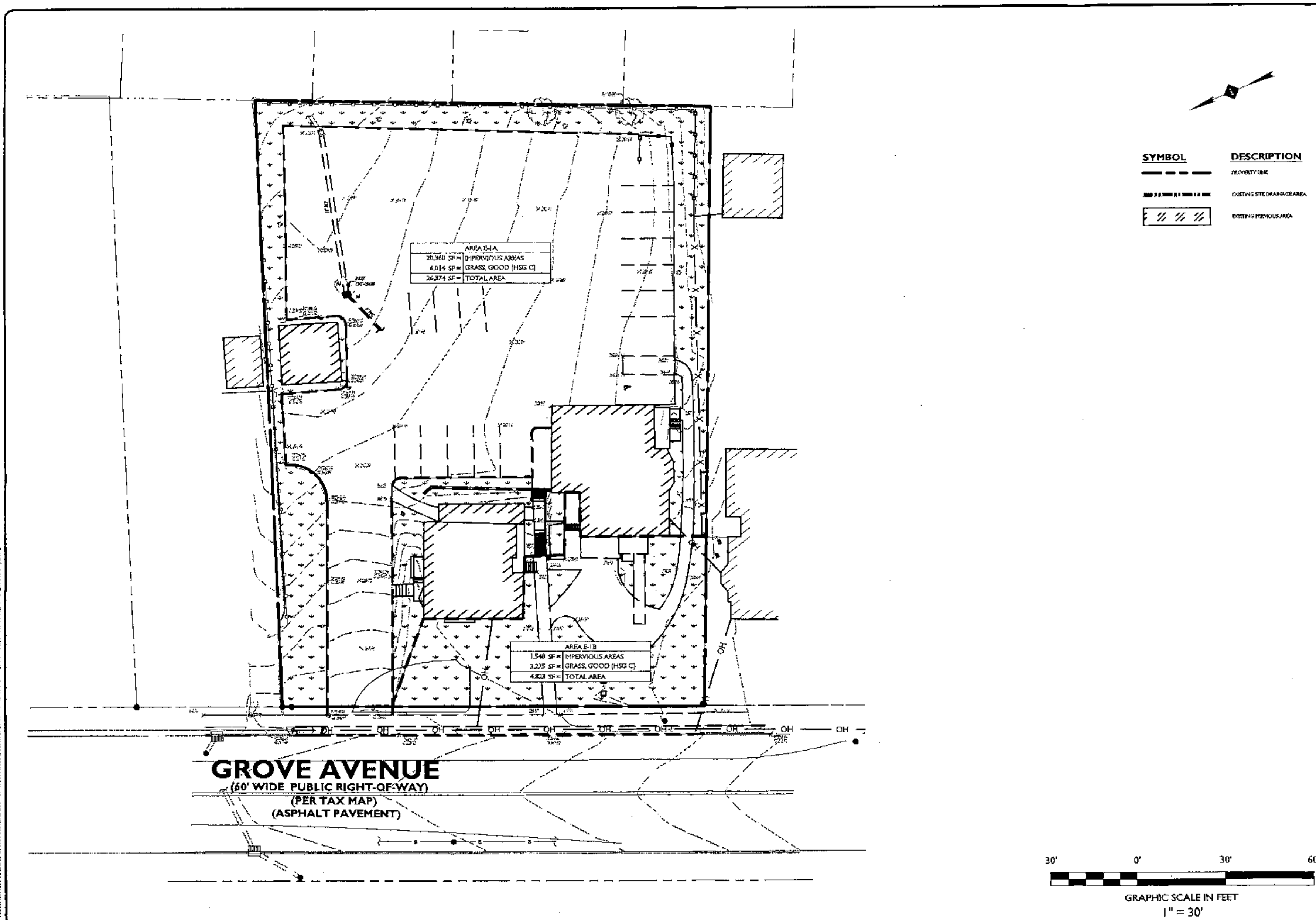
Summary for Link P-1: Municipal Conveyance System

Inflow Area = 31,197 sf, 60.79% Impervious, Inflow Depth = 7.44" for 100-Year event
Inflow = 4.78 cfs @ 12.17 hrs, Volume= 19,350 cf
Primary = 4.78 cfs @ 12.17 hrs, Volume= 19,350 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link P-1: Municipal Conveyance System





ISSUE	DATE	BY	DESCRIPTION
01	10/07/2019	ANY	PLANNING BOARD SUBMISSION

STONEFIELD engineering & design

Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

DRAINAGE AREA MAPS

21 & 25 GROVE ASSOCIATES, LLC

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1702, LOT 12
21 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

MATTHEW J. SECKLER, P.E.

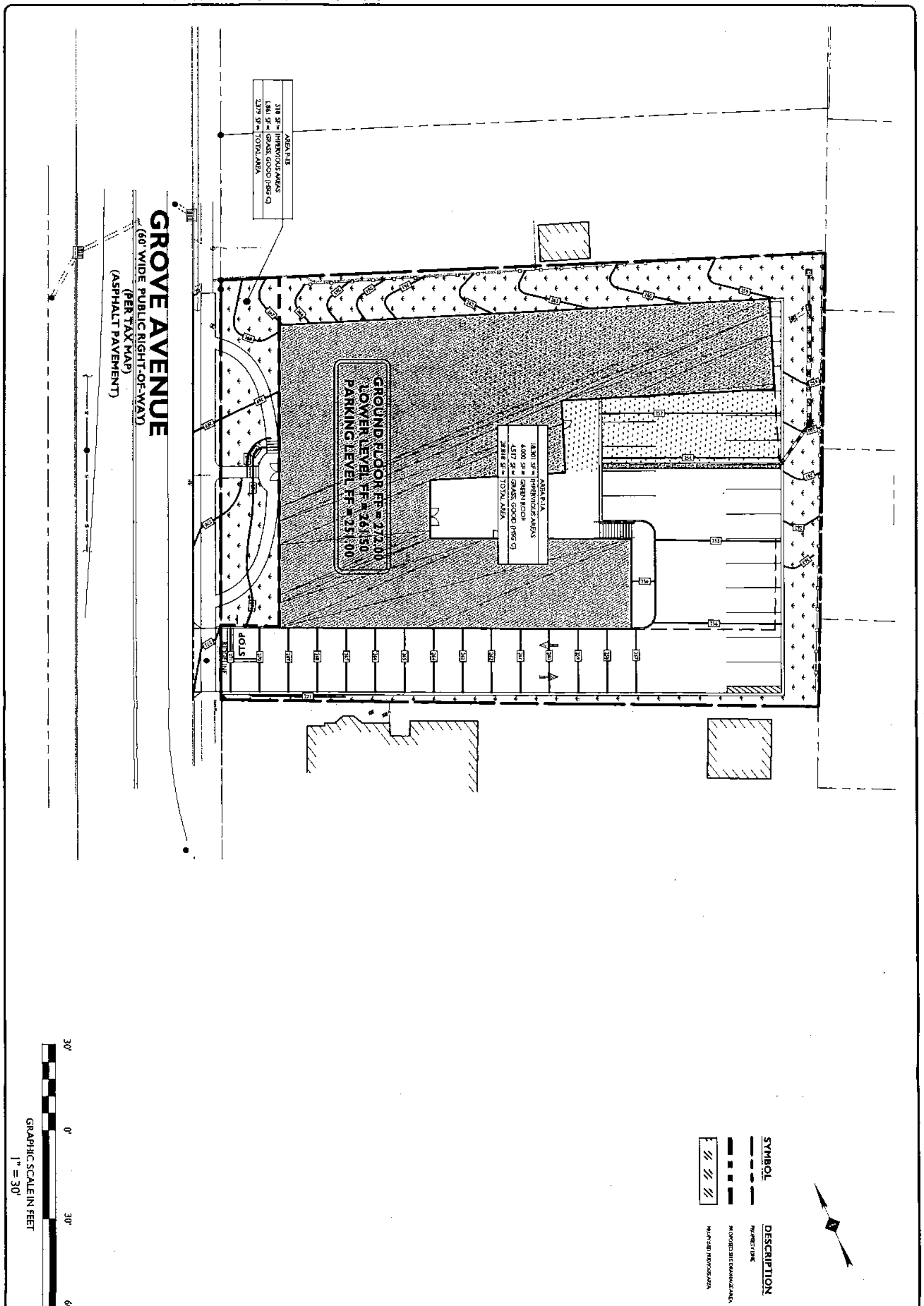
NOT APPROVED FOR CONSTRUCTION

SCALE: (H) 1" = 30'

PROJECT ID: T-19059

TITLE: EXISTING DRAINAGE AREA MAP

SHEET: 1 OF 2



DRAINAGE AREA MAPS

21 & 25 GROVE ASSOCIATES, LLC

PROPOSED RESIDENTIAL DEVELOPMENT

BLOCK 1792, LOT 32
21 GROVE AVENUE
TOWNSHIP OF VERONA
ESSEX COUNTY, NEW JERSEY

STONEFIELD engineering & design
Rutherford, NJ · New York, NY
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

ISSUE	DATE	BY	DESCRIPTION
01	10/07/2019	ANY	PLANNING BOARD SUBMISSION

NOT APPROVED FOR CONSTRUCTION

SCALE: (H) 1" = 30'

PROJECT ID: T-19059

TITLE: PROPOSED DRAINAGE AREA MAP

SHEET: 2 OF 2