Office of the Planning Board

Incorporated December 15, 1727

NEWMARKET PLANNING BOARD
TUESDAY, SEPTEMBER 14, 2021
TOWN COUNCIL CHAMBERS
7:00 PM

AGENDA

1. **Pledge of Allegiance**
2. **Public Comments**
3. **Review and Approval of Minutes**
   - **a.** 08/10/21
4. **Regular Business**
   - **a.** Walter Cheney Jr/Cheney Property Management Corp (CPMC)- Continuation ot a public hearing for an application for a Site Plan and Special Use Permit for a Mixed Use Development. The proposal is to amend the site plan for the previously approved site plan. The owner has purchased an additional adjacent lot and is proposing to add 17 residential units to the project, for a total of 28 units. The project involves the construction of two buildings. One building is a three (3) story mixed use structure with a 13,388 square footprint with commercial uses on the first floor and residential units on the second and third floors. The second building is a two story building with four (4) residential units with garages on the ground floor. The lot is located at 50-56 Exeter Rd, Tax Map U4, Lots 11 and 15, M2A Zone. The Board will vote on a request by the applicant to continue to 09/14/21.
5. **New/Old Business**
6. **Chairman's Report**
7. **Committee Reports**
8. **Planner's Report**
9. **Adjourn**

Town Hall
186 Main Street
Newmarket, NH 03857

Tel: (603) 659-3617
Fax: (603) 659-8508

Founded December 15, 1727
Chartered January 1, 1991

TOWN OF NEWMARKET, NEW HAMPSHIRE

ATTACHMENTS:

Description	Upload Date	Type
08/10/21	8/23/2021	Backup Material

NEWMARKET PLANNING BOARD
TUESDAY, AUGUST 10, 2021
TOWN COUNCIL CHAMBERS
7:00 PM

Members Present: Eric Botterman (Chair), Val Shelton (Vice Chair), Diane Hardy (Town Planner), Bill Doucet, Jane Ford, Jeff Goldknopf, Michal Zahorik (Alternate), and Scott Blackstone (Town Council ex officio.)
Member Absent: Timothy Rossignol

Chair Botterman opened the meeting at 7.03 PM. With Timothy Rossignol absent, Michal Zahorik was appointed as a voting member this evening.

1. Pledge of Allegiance

2. Public Comments
There were no public comments this evening. Public comments closed at 7:05 PM.

3. Review and Approval of Minutes
a. July 13, 2021

Motion: Valerie Shelton made a motion to approve the draft minutes of July 13, 2021.

Second: Jane Ford

Discussion: None

Vote: Unanimously Approved (Jeff Goldknopf abstained)

4. Regular Business

a. Walter Cheney Jr/Cheney Property Management Corp (CPMC)- Continuation of a public hearing for an application for a Site Plan and Special Use Permit for a Mixed Use Development. The proposal is to amend the site plan for the previously approved site plan. The owner has purchased an additional adjacent lot and is proposing to add 17 residential units to the project, for a total of 28 units. The project involves the construction of two buildings. One building is a three (3) story mixed use structure with a 13,388 square footprint with commercial uses on the first floor and residential units on the second and third floors. The second building is a two story building with four (4) residential units with garages on the ground floor. The lot is located at 50-56 Exeter Rd, Tax Map U4, Lots 11 and 15, M2A Zone.

The Chair received a letter dated August 9 from Horizons Engineering on behalf of the applicant to request a continuation until the next meeting of the Planning Board on September 14, 2021 in order to respond to the review of engineering comments.

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1. **Motion:** **Valerie Shelton made a motion to continue the Public Hearing on the Application for Site Plan and Special Use Permit for a Mixed Use Development by Walter Cheney Jr/Cheney Property Management Corp to the next Planning Board meeting on September 14, 2021.**

Second: **Michal Zahorik**

Discussion: **None**

Vote: **Unanimously Approved**

5. New/Old Business

a. Discussion – Master Plan Update

The Town Planner sent members some information sheets to begin discussions on the updating of the Master Plan of August 2001. The Master Plan was amended on October 2002, September 2009, August 2011, April 2013, September 2015, November 10, 2015, and July 12, 2016. Through the CIP process for the last seven years or so, the Town Planner has requested $10,000 per year to be put aside for the cost of a total overhaul of the Plan. There is currently $70,461 in the fund to help with the cost. The Chair polled the members for their thoughts. Jane Ford asked Diane if we should be working with any other groups in preparation of this project. Diane noted that a visioning component with all the stake holders in the Town is very important in determining what direction the Master Plan should take. There are many ways to gather this information. Valerie Shelton discussed the visioning process that was held in November 2015 which looked toward 2025. The plan was to update the following chapters identified by the visioning: natural resources, combination of existing and future land use, housing and demographics, economic development, transportation, community facilities, and a combination of cultural resources, and recreation. She mentioned the discussions over the years that some of those chapters may not pertain any longer to what a community visioning might be in 2025. Diane mentioned that $1.5 million dollars will be coming to New Hampshire to study affordable housing need with funding going to the 10 regional planning commission. A plan is being considered to build 13,500 units statewide. New 2020 census and housing data will be available shortly to help in the planning for future housing needs. Jane Ford mentioned that we need changes to our infrastructure (internet especially) to accommodate the needs of younger people who are increasingly deciding to work from home. Valerie Shelton said that the Master Plan is supposed to drive the planning- then the vision drives the chapters and the chapters drive the zoning changes. Right now we are not really doing this. For example, where should we be increasing density to address future housing needs. The Chair would really like to evaluate current zoning, particularly the B3 zone (all along Rt. 152). Valerie Shelton mentioned that this

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zone has been looked at by the Economic Development Committee and some of the land owners so we have some additional information available to begin the discussion. The Chair suggested that the Planning Board begin with a discussion of the B3 zone and move on to all the zones especially in the areas of town that already have infrastructure in place to support future development. Other Board members thought they needed more time to look at the existing Chapters that are on-line, to get a better idea of how to go forward.

6. Chairman's Report – None.

7. Committee Reports – None.

8. Planner's Report

Susan Jordan sent an email with information about a virtual meeting by the NHMA on Sept.18 from 9:00-3:00 p.m. It will be a Municipal Land Use Virtual Law Conference covering many topics which were just discussed. There is a cost, but the Town will cover the registration for members. For more information: https://www.nhmunicipal.org/event/registration-open-2021-municipal-land-use-law-virtual-conference.

Diane does not have a further update on the construction of the Route 108 bridge at the Newfield's town line. She has reached out to the Transportation Planner at the Strafford Regional Planning Commission. He is waiting to hear back from his NH DOT contact at the State.

The Town held a special ribbon cutting ceremony celebrating the completion of the Macallen Dam.

Valerie Shelton would like to get an update on the places in Town where we have made infrastructure upgrades to sewer, water, and drainage so discussion of their impact on the possibility of additional density can be explored.

9. Adjourn

Motion: Jane Ford made a motion to adjourn 8:06 p.m.

Second: Valerie Shelton

Discussion: None.

Vote: Unanimously Approved

Respectfully submitted,

Sue Frick
Recording Secretary

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TOWN OF NEWMARKET, NEW HAMPSHIRE

ATTACHMENTS:

Description	Upload Date	Type
Legal Notice	5/19/2021	Backup Material
Application	5/19/2021	Backup Material
05/23/21 Letter of Intent MJS	5/20/2021	Backup Material
Drainage Report	5/19/2021	Backup Material
Sheets & Views PRE	5/19/2021	Backup Material
Sheets & Views POST	5/19/2021	Backup Material
05/03/21 Fiscal Impact Analysis	5/19/2021	Backup Material
05/03/21 Market Analysis	5/19/2021	Backup Material
05/22/21 Pernaw Letter - Traffic	5/19/2021	Backup Material
Waiver Requests	5/19/2021	Backup Material
03/23/21 Plan Set & Progress Prints w/ Elevations & Floor Plans	5/19/2021	Backup Material
Mixed Use Development Criteria Worksheet	6/7/2021	Backup Material
09/08/21 Floor plans/elevations	9/8/2021	Backup Material
09/07/21 Underwood comments	9/8/2021	Backup Material

FOUNDED DECEMBER 15, 1727 CHARTERED JANUARY 1, 1991

TOWN OF NEWMARKET, NEW HAMPSHIRE
PLANNING OFFICE

LEGAL NOTICE

NEWMARKET PLANNING BOARD

TUESDAY, JUNE 8, 2021
7:00 P.M.

TOWN HALL AUDITORIUM

There will be a public hearing for an application for a Site Plan and Special Use Permit for a Mixed Use Development requested by Walter Cheney Jr/Cheney Property Management Corp (CPMC). The proposal is to amend the site plan for the previously approved site plan. The owner has purchased an additional adjacent lot and is proposing to add 17 residential units to the project, for a total of 28 units. The project involves the construction of two buildings. One building is a three (3) story mixed use structure with a 13,388 square footprint with commercial uses on the first floor and residential units on the second and third floors. The second building is a two story building with four (4) residential units with garages on the ground floor. The lot is located at 50-56 Exeter Rd, Tax Map U4, Lots 11 and 15, M2A Zone.

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PB 47d

Planning Board Comprehensive Application Form

RECEIVED
MAR 23 2021
TOWN OF NEWMARKET
MANAGERS OFFICE

TO: Applicants

FROM: Newmarket Planning Board

SUBJECT: Guidelines for Processing Applications

The Newmarket Planning Board wants to process applications as speedily as possible. We understand that the Zoning Ordinance and our Regulations are complex and often confusing. These requirements are designed to deal with different situations from single-issue waivers and permits to large-scale residential developments and commercial site plans. Therefore, not all requirements may be applicable to your application.

Although it is not required, it is recommended that before you file your application if you have any questions or concerns, you should discuss your proposal informally with the Town Planner. The Town Planner will review your project conformance with the Town's Ordinances and Regulations and can advise you on procedures for obtaining approval as well as other governmental permits that may be required. Call (603) 659-8501 ext 1315 for an appointment or email: dhardy@newmarketnh.gov. Town of Newmarket Regulations and Ordinances are available online at www.newmarketnh.gov.

The key to receiving a prompt decision is to have all the necessary information in the Planning Department before the Planning Board meeting. All applications **MUST** be submitted to the Planning's office **TWENTY ONE DAYS** Prior to the Planning Board meeting at which it will formally be reviewed. The Town Planner will schedule you for a Public Meeting. In order to be scheduled, your application must be substantially complete.

Type and Description of Project (this description will be used for notification purposes):

Application Type:	√	**Description of project or application**:
Subdivision:		This submission is for an amended site plan and special cond. Use permit. The proposal is to amend the site plan design for a previously approved site plan and CUP at the subject parcel shown as Unit 4. The owner has purchased an additional adjacent lot and is proposing to add 17 residential units. The original main building will have the ground floor commercial, with 12 residential units on both the second and 3rd floors. The total numbers of units is 28.
Site Plan:	X	
Impact Fee Waiver:		
Special (Conditional) Use Permit:	X	
Other:		

TOWN OF NEWMARKET
COMPREHENSIVE APPLICATION

Note: This form and all required information must be filed at least **21 days** before the date of the meeting at which it is to be submitted to the Board. Revised plans of any type must be in the office **7 days** prior to the hearing date. Filing is to be done at the **Planning Department, Newmarket Town Hall, 186 Main Street, Newmarket, NH 03857**.

** Note regarding information requested: Name, mailing & email addresses and telephone contacts must be supplied for an application to be scheduled for a hearing. Email addresses will be used to transfer electronic copies of notices, memoranda, and/or other documents.

1. Name, mailing address, email and telephone number of **owner of record**.

Cheney Property Management Corp.
74 Exeter Road, Suite A-1
Newmarket, NH 03857

walter@cheneyne.com
603-817-7123

2. Name, mailing address, telephone numbers (voice and fax) and email of **agent**. The agent is the entity with the legal authority to bring the application to the board on behalf of the landowner. If the owner is not the applicant, the 'Authorization to Act as Agent' section must be filed with the Board.

Michael J. Sievert, P.E.
Horizons Engineering, Inc. (formerly MJS Engineering, PC)
5 Railroad Street
Newmarket, NH 03857
603-659-4979 phone 603-659-4627 fax
msievert@horizonsengineering.com

3. Name, mailing address, email, and telephone numbers (voice and fax) of **applicant**. An applicant is the entity with authority to represent an agent and/or landowner before the Board and will be responsible for dissemination of all information to the landowner and/or agent. An applicant is often (but not necessarily) a surveyor, engineer, attorney, or real estate professional.

Walter Cheney, Jr.
Cheney Property Management Corp.
74 Exeter Road, Suite A-1
Newmarket, NH 03857

walter@cheneyne.com

603-817-7123

4. Street Location of Subject Parcel: 60 Exeter Road Unit 4

5. Tax Map U3&U4 Lot 11,15,138-1 in correct that was merged in boundary adjustment in February 2020 with Lot 15. DFH 5/18/2021

6. Zoning district property is located in M2A

7. Overlay Districts or other regulations affecting Subject Property:

State Highway Permit:	X
Wetlands Overlay:	
Shoreland Protection:	
Aquifer Protection:	
Scenic Roadway:	
State Subdivision:	
Current Use Tax:	
Others (specify)	

8. Special (Conditional) Use Permit:

SPECIAL (CONDITIONAL) USE PERMITS. Pursuant to RSA 674:21,I(i), a provision which permits flexible and discretionary zoning among other innovative land use controls, the Town offers certain discretionary authority to the Planning Board in limited cases where generally stated standards appear inappropriate.

(A) Special (Conditional) Use Permits are provided in the following sections: § 1.05 (A)(3) for expansions of non-conforming uses; § 2.01(B)(2) for optional uses in the mills; § 2.04(B)(2)(a) for self-storage facilities within existing buildings in the mills; § 2.04(B)(2) for optional uses related to the golf course or outdoor recreation; § 2.07 (C) for flexible use development within the B-3 District; 5.01 (C)(7)(a) for excavations in the Aquifer Protection District; § 5.03 for impacts in the Wetland Overlay District; § 5.07(B)(3) for siting telecommunications facilities; § 7.01(B)(3) for permitting large home-based businesses; and § 7.05 Affordable Elderly Housing.

a. Section of Zoning Ordinance authorizing permit:

_____32-46A M-2A District (2) b._____.

b. Information submitted must be sufficient for the Board to rule on the criteria found within the relevant section of ordinance authorizing the permit.

9. Name, mailing & email address, and telephone numbers (voice and fax) of additional professionals who are authorized to submit additional materials on behalf of the application. Additional professionals may include, but are not limited to: NH Certified Soil Scientist, Wetlands Scientist, Surveyor, Engineer, Attorney, or other Real Estate Professional. etc.

LAND SURVEYOR: Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857

bill@doucetsurvey.com
603-659-6560 phone/659-4118 fax

LANDSCAPE ARCHITECT:

Woodburn & Co. Landscape Architecture, LLC
103 Kent Place
Newmarket, NH 03857

robbi@woodburnandcompany.com

603-659-5949 phone/659-5939 fax

ARCHITECT: THA Architects, LLC
105 Willow Brook Ave.

Stratham, NH 03885

10. Abutters: SEE ATTACHED

The Application must include a completed and executed copy of Town of Newmarket – Abutter Notification Form. Include Map and Lot numbers of all abutters adjacent to the property. The legal definition for an abutter can be found at NH RSA 672:3, as amended; for purposes of notification, all parties in RSA 6764(I)(d), as amended.

APPLICATION FEES

In accordance with RSA 676:4,I(g), the applicant shall pay the following fees to compensate the Town for its expenses in processing, noticing and reviewing each application, one or more may apply, however, only one notice fee is required:

SUBDIVISION OF LAND

(A) Administration:

(1) Lot Line Adjustment: $70

(2) Subdivision: $500.00 plus $175/lot

(3) Minor Subdivision: $250.00 plus $75/lot

(B) Public Notice:

(1) $75.00 per notice; plus

(2) $7.00 per abutter or other party notified.

(C) $26.00 per sheet. Recording: Payment for first sheet due with application. **Please pay with a separate check payable to Rockingham County Registry of Deeds.** Additional sheets must be paid upon presentation of Mylars to the Planning Office. *No sheets will be recorded until this and all other fees are paid.*

(D) Other costs incurred by the Board in reviewing the application (such as engineering, legal, and planner review), as limited in RSA 676:4 and the Newmarket Subdivision Regulations, shall be passed through to the applicant by the Board unless specifically waived.

Each Lot/Parcel or Dwelling Unit _____

Public Notice Fee _____

Abutter Notification [__(# of abutters) x $7] _____

Total **$** _____

SITE PLAN REVIEW

(A) Administration:

(1) Minor Review: $125.00

(2) Major Review, one or more of the following shall apply:

(a)	Residential Base Fee	*$250*
	Per Unit	*$125*
(b)	Commercial Base Fee	*$250*
	Plus per square foot of floor space-	
	0-1,000	*$0.12 per sq. ft.*
	1,001-5,000	*$0.10 per sq. ft.*
	5,001-10,000	*$0.08 per sq. ft.*
	10,001+	*$0.05 per sq. ft.*
(c)	Industrial Base Fee	*$250*
	Plus per square foot of floor space-	
	0-1,000	*$0.06 per sq. ft.*
	1,001-5,000	*$0.05 per sq. ft.*
	5,001-10,000	*$0.04 per sq. ft.*
	10,001+	*$0.03 per sq. ft.*

(B) Public Notice:

(1) $75.00 per notice; plus

(2) $7.00 per abutter or other party notified.

(C) $26.00 per sheet. Recording: Payment for first sheet due with application. **Please pay with a separate check payable to Rockingham County Registry of Deeds.** Additional sheets must be paid upon presentation of Mylars to the Planning Office. *No sheets will be recorded until this and all other fees are paid.*

(D) Other costs incurred by the Board in reviewing the application (such as engineering, legal, and planner review), as limited in RSA 676:4 and the Newmarket Subdivision Regulations, shall be passed through to the applicant by the Board unless specifically waived.

Administration Fee 2 units x $125/unit	250.00
Public Notice Fee	75.00
Abutter Notification [_21___(# of abutters) x $7]	147.00
Total	**$ 472.00**

IMPACT FEE WAIVER or SPECIAL USE PERMIT or OTHER

(A) Public Notice:

(1) $75.00 per notice; plus

(2) $7.00 per abutter or other party notified.

(B) $26.00 per sheet. Recording: Payment for first sheet due with application. **Please pay with a separate check payable to Rockingham County Registry of Deeds.** Additional sheets must be paid upon presentation of Mylars to the Planning Office. *No sheets will be recorded until this and all other fees are paid.*

(C) Other costs incurred by the Board in reviewing the application (such as engineering, legal, and planner review), as limited in RSA 676:4 and the Newmarket Subdivision Regulations, shall be passed through to the applicant by the Board unless specifically waived.

Public Notice Fee _____

Abutter Notification [____(# of abutters) x $7] _____

Total $ _____

Verification & Signature Pages

1. The applicant and/or owner and/or agent, certifies that this application is correctly completed with all required attachments and requirements and that any additional reasonable costs for engineering or professional services incurred by the Planning Board or the Town of Newmarket in the final subdivision process of this property shall be borne by the following party:

   Applicant _____ Owner _____ Agent_____

   ** Failure to indicate a responsible party for fees and associated costs will result in the denial of the application without a public hearing in accordance with RSA 676:4.

2. The owner/agent hereby authorizes the Newmarket Planning Board and its agents to access the subject land for the purpose of reviewing this subdivision plan, performing road inspections and any other inspections deemed necessary by the Board or its agents, to insure conformance of the on-site improvements with the approved plan and all Town of Newmarket ordinances and regulations.

3. The undersigned owner/agent hereby submits to the Newmarket Planning Board a Completed Application Package and respectfully requests its approval of said plat. In considerations for approval and the privileges occurring thereto, the owner hereby agrees, as applicable:

   - To carry out the improvements agreed upon and as shown and intended by said plat, including any work made necessary by unforeseen conditions which become apparent during construction.

   - To provide and install standard street signs as approved by the Town for all street intersections.

   - To give the Town on demand, proper deeds for land or rights of ways reserved on the plat for streets, drainage or other purposes as agreed upon.

   - To save the Town harmless from any obligation it may incur, or repairs it may make, because of my failure to carry out any of the foregoing provisions.

   - To make no changes whatsoever in the Final Plat as approved by the Board unless a revised plan or a plat or new application is submitted and approved by the Board.

- To construct improvements or post the Planning Board's Performance Guarantee to insure completion of the improvements shown on the plat and related drawings.

- There are no known violations of the Town of Newmarket Zoning Ordinance or Newmarket Planning Board Regulations present on the property that have not been disclosed as part of this application.

- To insure proper boundary monumentation at the project's completion in accordance with the Town of Newmarket Subdivision Regulations.

Authorization to Act as Agent

Mr./~~Ms.~~ Michael J. Sievert of Horizons Engineering, Inc.

is hereby designated as the person whom is authorized to act as my agent in securing any and all permits necessary from the Newmarket Planning Board for the development of my property, all communications to the owner may be addressed to the agent or applicant on the agent's behalf.

Signed: _____

Dated: 3-23-21

Witness: _____

Owner Address: Cheney Property Management Corp.
74 Exeter Road, Suite A-1
Newmarket, NH 03857

By _____
Owner/President or Treasurer if a Corporation

TOWN OF NEWMARKET
ABUTTER NOTIFICATION FORM

Instructions:

1. List the map, parcel, name and mailing address of **the <u>property owner and all abutters</u>** as shown in Town records not more than 5 days prior to submittal, per RSA 676:4,I(b). This may be typed on a separate sheet. If using another sheet or multiple sheets, please indicate the date of preparation and sign your name on each sheet.

2. As applicable, list the name, mailing address, daytime phone number and fax number of: the Applicant's Authorized Agent; and any surveyor, engineer, architect or soil scientist whose stamp and signature appear in the application materials. Other required abutters are detailed in RSA 676:4(I)(b).

3. **Please attach three adhesive mailing labels for each entry on the list. Label size must not exceed 1" tall by 2.75" long. Labels must be legibly filled out with names & mailing addresses of all parties on abutters list.**

4. **<u>The determination of abutters is the responsibility of the applicant, this list will not be reviewed for compliance with statutory requirements.</u>**

Map	Parcel	Owner	Mailing Address
			SEE ATTACHED

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Date of preparation: _____

I hereby certify that all information presented on this form is, to the best of my knowledge, correct.

Signature of preparer:

_____

LIST OF OWNERS OF ABUTTING PROPERTY

(This includes property directly across the street or streams from the land under consideration. **List must also include any and all preparers of plans, studies, etc…)**

PLEASE PROVIDE NAME & MAILING ADDRESS

PROPERTY OWNER: 60-2 Exeter Road #200 MAP U4/LOTS 11-2,15, U3/138-1 0 Railroad R/W 50 Exeter Road CHENEY PROPERTY MANAGEMENT CORP. 74 EXETER ROAD SUITE 1 NEWMARKET, NH 03857	**AGENT/APPLICANT:** HORIZONS ENGINEERING, INC. 5 RAILROAD STREET NEWMARKET, NH 03857
MAP U4/LOT 11 56A Exeter Road ASSOCIATION NBP NEWMARKET BUSINESS PARK 56 EXETER ROAD NEWMARKET, NH 03857	**LAND SURVEYOR:** DOUCET SURVEY, INC. 102 KENT PLACE NEWMARKET, NH 03857
MAP U3/LOTS 126 0 RAILROAD R/W BOSTON & MAINE RAILROAD C/O GUILFORD TRANS INDUST IRON HORSE PARK HIGH STREET NO. BILLERICA, MA 01862-1698	**LANDSCAPE ARCHITECT:** WOODBURN & CO. LANDSCAPE ARCHITECTURE, LLC 103 KENT PLACE NEWMARKET, NH 03857
MAP U3/LOT 127 53 Exeter Road MARIE K. McKENNEY 53 EXETER ROAD NEWMARKET, NH 03857-1907	**ARCHITECT:** THOMAS A. HOUSE THA ARCHITECTS, LLC 105 WILLOWBROOK AVENUE STRATHAM, NH 03885-2247
MAP U3/LOT 128 55 Exeter Road PHILLIP A. & MARIE T. WIGHTMAN 55 EXETER ROAD NEWMARKET, NH 03857-1907	MAP U3/LOT 130 59 Exeter Road JESSE COBB MAURA R. MacDONALD 59 EXETER ROAD NEWMARKET, NH 03857-1907
MAP U3/LOT 129 57 Exeter Road BOREN ENTERPRISES, LLC 41 STAYSAIL WAY PORTSMOUTH, NH 03841	MAP U4/LOT 20 1 Moonlight Drive ASSOCIATION MOONLIGHT 1 MOONLIGHT DRIVE NEWMARKET, NH 03857-1824
MAP U3/LOT 125 51 Exeter Road LISA SACK PARKER MATTHEW R. PARKER PARKER FAMILY REVOC TRUST 1/21/15 28 ACADEMY AVE. HAMPTON, NH 03842-2200	MAP U3/LOT 124 49 Exeter Road NANCY E. LEAHY 49 EXETER ROAD NEWMARKET, NH 03857-1907

Date of Preparation: 03/23/21

I hereby certify that all information presented on this form is, to the best of my knowledge, correct.



Signature of preparer:_____

LIST OF OWNERS OF ABUTTING PROPERTY

(This includes property directly across the street or streams from the land under consideration. **List must also include any and all preparers of plans, studies, etc...)**

PLEASE PROVIDE NAME & MAILING ADDRESS

MAP U4/LOT 10 62 Exeter Road GREGORY DAVIS 62 EXETER ROAD NEWMARKET, NH 03857	U3/LOT 132 67 Exeter Road LORRAINE WILSON 67 EXETER ROAD NEWMARKET, NH 03857-1907
U4/LOT 33-12 21 Maple Street WILLIAM JAMES, JR. & MARCIA LANCASTER 21 MAPLE STREET NEWMARKET, NH 03857	U4/LOT 20-1 1 Moonlight Drive PREMIUM MANAGEMENT CORPORATION 76 EXETER ROAD NEWMARKET, NH 03857
U4/LOT 33-13 19 Maple Street DAVID C. & JODI L. GOODMAN 19 MAPLE STREET NEWMARKET, NH 03857-1823	U4/11-1 60-1 Exeter Road #100 WRIGHT OFFICE MANAGEMENT, LLC 5 MOODY POINT DRIVE NEWMARKET, NH 03857
U4/LOT 8 66 Exeter Road NEWMARKET HOUSING AUTHORITY GREAT HILL TERRACE NEWMARKET, NH 03857	U4/11-3 60-3 Exeter Road #300 WENTWORTH DOUGLASS HOSPITAL P.O. BOX 9127 CHARLESTOWN, MA 02129
U4/LOT 9 64 Exeter Road JOHN & CONSTANCE HOYT 64 EXETER ROAD NEWMARKET, NH 03857-1906	
U3/LOT 131 63 Exeter Road JUDY ARCHAMBEAULT, TRUSTEE JUDY ARCHAMBEAULT LIVING REVOC TR 242 DURHAM POINT ROAD DURHAM, NH 03824-3418	

Date of Preparation: 03/23/21

I hereby certify that all information presented on this form is, to the best of my knowledge, correct.

Signature of preparer:_____

horizons Engineering

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL

5 Railroad Street, Newmarket, NH 03857 • Ph 603-659-4979 • Fax 603-659-4627 • www.horizonsengineering.com

Letter of Intent – Site Plan Review and Special (Conditional) Use Application
For
Cheney Property Management Corp.
Mixed use development
Tax Map U3 &U4 / Lots 11-2,15 & 138-1

March 23, 2021

The Subject Property

The subject property consists of three parcels one of which has frontage on Route 108 (11-2) Lots 15 & 138-1, do not have frontage on Route 108. This proposal includes a lot line consolidation between lots 11-2 &15. Lots 15 and 138-1 have already been merged. The total area of all the combined parcels which make up the Newmarket Business Park is 4.85 acres. The overall parcel has approximately 398' of frontage on Route 108, however the access will be via the Newmarket Business Park access road. The current driveways to Route 108 will be abandon with this proposal. The property is serviced by municipal water, sewer and a closed drainage system within the Route 108 right of way. Overhead utilities are also currently provided to the site from Route 108.

The parcel slopes from west to east at approximately a 10% slope. The lots have a significant amount of ledge and this development will require ledge removal for construction of the site.

The Site Development Proposal

The proposal is to construct a mixed use building with a 13,885 SF footprint. The building will be three stories. The first floor will be commercial and the second and third floors will be residential. One additional 4 unit residential building is also being proposed. This building does not have residential units on the first floor. Per section 32-46A of the M-2A district, multi-family residential use with not commercial use with the building, shall be limited to no greater than four residential units. Access to the facility will be via the existing business park road. The site development will include parking, sidewalks, landscaping, and new utility connections for the proposed buildings. The project includes a stormwater collection and treatment system that includes LID technologies. There is a rain garden on the southerly corner which will provide some infiltration of stormwater and a stormwater pond on the northerly portion of the property. The outlet for the southerly system will connect to the closed drainage system within the Route 108 right of way and the outlet from the stormwater pond on the northerly end will discharge into Moonlight Brook.

The residential part of the proposal includes the construction of 24 apartments on the second and third floors of the main building and one additional 4-unit building. The number of the residential units is calculated based on the overall area of the total condominium lot with the three new lots included as "additional land" as defined in the

original condominium site plan. The total area of the parcel is 4.85 acres. In the M2A zone the residential density is 6 units/acre as shown in the dimensions table in Section 3.0 of the Zoning Ordinance, therefore, the total number of residential units allowed for this development is 28.8 and 28 are proposed.

Approvals Being Requested from the Planning Board

The Site Plan Review Regulations (S.P.R.R.) will require the following approvals based on the current proposed development scope of work.

1. Planning Board Approvals:
    a. Amended Site Plan Approval per Site Plan Review Regulations pursuant to Section 1.05 C and RSA 674:43.
    b. Amended Special Use Permits per the Zoning Ordinance pursuant to Section 1.09 and §2.03(B) (2) (a) & (b).

Department Approvals

    a. Public Works & Water and Wastewater Department relative to water and sewer connections, drainage, and other design considerations.
    b. Fire & Police Departments relative to safety, fire protection, and other design considerations.
    c. Building department relative to building codes and ADA requirements.

A. *Request for Site Plan Approval*

In accordance with the site plan review regulations, this submission package includes the site plan application and supporting documentation, site plan Review regulations checklist for major review, and the following plans:

1. Cover Sheet
2. Existing Conditions Plan
3. Amended Condominium Plan
4. Lot Consolidation Plan
5. Site Plan
6. Demolition and Erosion Control Plan
7. Grading, Drainage & Utilities Plan
8. Lighting Plan
9. Construction Details
10. Site Landscape Plan
11. Architectural Plans

horizons Engineering

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If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely;

Michael J. Sievert PE
VP Structural Engineering

DRAINAGE REPORT

Prepared for:

Cheney Property Management Corporation

60 Exeter Road – Unit 4

Newmarket, New Hampshire

Tax Map U4, Lots 11 & 15

Prepared on:

23. Feb 2021

Prepared by:

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Appendix Number	Date	Description
A	2/23/21	Pre-Development Drainage Analysis and Plan
B	2/23/21	Post-Development Drainage Analysis and Plan
C	9/24/15	NRCS Soil Report

Project Background / Purpose

The subject property, shown as Tax Map U4, Lots 11 and 15, is located at 60 Exeter Road in Newmarket, New Hampshire. The site consists of two lots that will be merged to expand the Newmarket Business Park Condominium. The existing residential structures have been previously removed. Two of the three condo units on lot 11 are developed with commercial buildings and the associated parking and yard areas which are consistent with the uses. The existing newly consolidated lots have a combined area 211,045 square feet (4.85 Ac). The proposal is to amend the previous, conditionally approved site plan at unit 4 and construct a three-story mixed use building with a 13,800 square foot footprint and parking, access ways, and utilities. Access will be provided off the Newmarket Business Park (NBP) access drive.

The proposed redevelopment includes the construction of best management practices to treat and detain the runoff from the redeveloped site. An infiltration basin located at southwest corner and an infiltration trench on the southeast side of the property are proposed to capture and treat runoff coming from unpaved areas and the proposed building. A closed-drainage system is used to collect runoff from the paved parking areas and discharged to a proposed bioretention basin for treatment prior to leaving the site. These systems combine to collect, detain, and infiltrate runoff on site.

Soil Mapping

The soils have been identified in accordance with the NRCS web soil survey for Rockingham County. The following table lists the soil types that are within the modeled drainage area. The NRCS Web Soil Survey Report is included in Appendix C.

Soil Types

Label	Description	HSG:
26B	Windsor loamy sand (3-8% slopes)	A
140C	Chatfield-Hollis-Canton Complex fine sandy loams (8-15% slopes)	D
799	Urban land-Canton Complex (3-15% slopes)	A

Chatfield-Hollis-Canton Complex is most similar to a Hollis soil type. Urban land-Canton Complex is most similar to a Canton soil type.

Drainage Analysis

Drainage conditions have been analyzed based on the runoff characteristics for two points of analysis (POA).

This analysis utilizes HydroCAD modeling software. This program models the runoff based on the SCS TR-20 method and the time of concentration based on the SCS TR-55 method. This analysis compares the runoff rates for the 2, 10, 25, 50, and 100-year USDA/SCS Type III 24-hour storm events. The rainfall data used in the model is for the Town of Newmarket.

Pre-Development Conditions

The parcels identified as Lots 11 and 15 have a total area of 211,045 square feet (4.85 Ac). The Lot 11 is partially developed and Lot 15 was previously developed with a single family home that has since been removed. Lot 11 has typical site amenities including parking areas, landscaping, and walkways. Access is provided for each lot directly off Exeter Road. The Existing Conditions Plan depicts the existing development on the property.

The enclosed Pre-Development Drainage Plan (Appendix A) depicts the contributing runoff areas that are generated from this property and from off-site areas that discharge stormwater runoff across this property. The watershed areas have been determined via inspection by our office as well as a topographical survey.

Pre-Development Drainage conditions have been analyzed based on the runoff characteristics at three points of analysis (POA). POA 1 collects the portion of the site that drains to the east where the grade drops off to Exeter Road and its associated closed drainage system. POA 2 collects the southwestern portion of the property that drains to the south toward Exeter road. POA 3 collects the stormwater that drains to the south east of the property. The two segments of closed drainage in Exeter road direct the flow in opposite directions from the site.

The cover types located on the lot are typical for the use and include pavement, gravel, woods, and grass. The wooded and grass areas are considered to be in good condition. The hydrologic analysis of the existing runoff conditions are provided in Appendix A.

Post-Development Conditions

The proposed site development is depicted on the Post-Development Drainage Plan. (Appendix B)

In the Post-Development the project area has been divided into twelve subcatchments. The cover types are consistent with the Pre-Development areas. The stormwater management design includes a closed drainage system, an infiltration basin, infiltration trench, and a bioretention basin with internal storage reservoir and a sediment forebay. These best management practices combine to detain, treat, and infiltrate runoff from the site.

This design assumes infiltration rates of 3 in/hr and 1 in/hr in the soils present in the infiltration basin and infiltration trench, respectively. This value was obtained from SSSNNE Special Publication No. 5, September 2009 for the C Horizon of the native soil and the test pits logged on the site. A 50% safety factor has been applied to the expected infiltration rates of 6 in/hr and 2 in/hr, respectively.

The hydrologic analysis of the proposed runoff conditions are provided in Appendix B.

Comparison of Pre- vs. Post-Conditions

The following tables quantify the peak rate of discharge and volume of runoff leaving the parcel at each POA as shown on the Pre- and Post-Development Drainage Plans.

Table 1: Peak Rate of Runoff Comparison Table (cubic feet per second)

	2 Year Storm	10 Year Storm	25 Year Storm	50 Year Storm	100 Year Storm
POA 1					
PRE	0.47	1.02	1.45	1.69	2.04
POST	0.28	0.71	1.26	1.57	1.94
POA 2					
PRE	0.94	2.19	3.18	3.75	4.58
POST	0.26	0.58	0.83	0.99	1.21
POA 3					
PRE	0.35	1.29	2.11	2.60	3.33
POST	0.33	1.23	2.11	2.48	3.85

Table 2: Volume of Runoff Comparison Table (cubic feet)

	2 Year Storm	10 Year Storm	25 Year Storm	50 Year Storm	100 Year Storm
POA 1					
PRE	1581	3220	4497	5240	6313
POST	1095	2622	3895	4633	5695
POA 2					
PRE	3620	7633	10 807	12 669	15 368
POST	886	1867	2649	3109	3778
POA 3					
PRE	2254	5811	8847	10 684	13 404
POST	15 655	25 874	33 258	37 433	43 344

There is a decrease in the peak rate of runoff for all storm events at each POA expect POA 3 during a 100-year storm. The decreases are attributed to the infiltration basin, infiltration trench and bioretention systems. There is a decrease in volume at POA 1 and a small increase at POA 2. There is an increase in volume at POA 3.

Erosion & Sediment Control

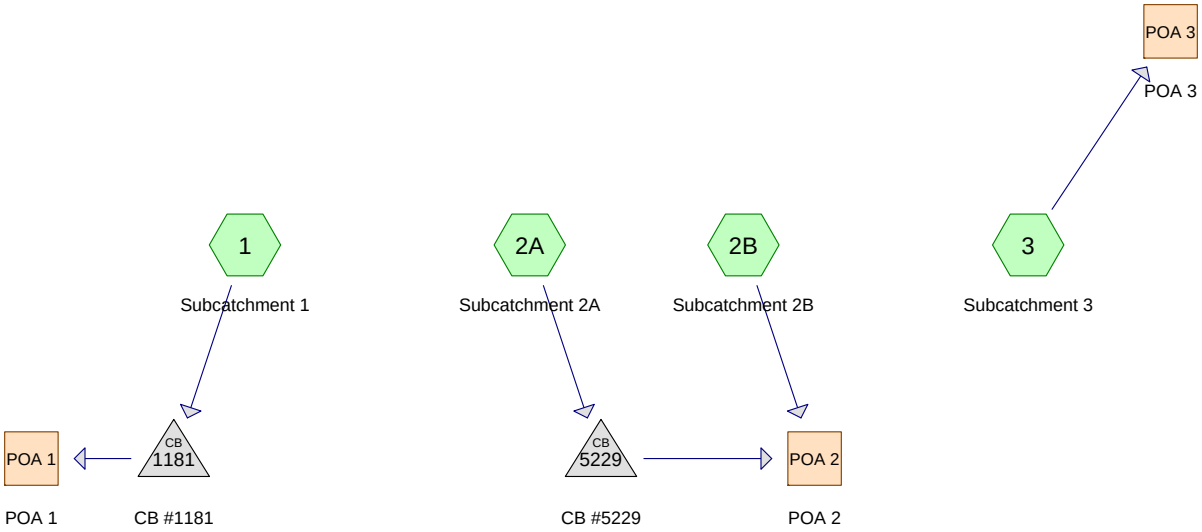
Temporary and permanent practices are used to prevent and minimize erosion and sedimentation on site. The installation of Silt Soxx™ at the perimeter of construction areas will provide sediment retention during the construction phase of the development. Geosynthetic Sediment Traps (Silt Sacks™) will be installed in all catch basins accepting runoff from the redevelopment of the lot. Rip rap is proposed in pipe inlet areas to prevent erosion.

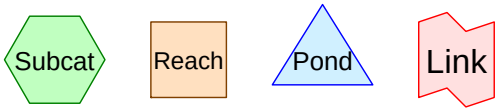
Stormwater pre-treatment will be provided by a sediment forebay to capture coarse sediment and debris. A stabilized construction entrance and daily sweeping of the NBP access drive will minimize the transport of sediment from the site. A maintenance plan has been developed for the permanent erosion control structures and stormwater treatment systems.

Conclusion

The enclosed comparative hydrologic model provides sufficient evidence that the proposed infiltration basin, closed drainage system, and bioretention basin will mitigate the typical increase in peak rate of discharge resulting from the increased impervious coverage. The proposed infiltration basin will provide infiltration of runoff to partially mitigate the volume of stormwater runoff leaving the site. The proposed bioretention system will provide detention and treatment to mitigate the stormwater leaving the site. The use of erosion and sediment controls and proper construction n practices will minimize the impact of this project on downstream waters.

APPENDIX A





Routing Diagram for 20-025 PRE_C
Prepared by MJS Engineering, PC, Printed 2021-02-23
HydroCAD® 10.00-25 s/n 08064 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
29,155	39	>75% Grass cover, Good, HSG A (1, 2A, 2B, 3)
30,703	80	>75% Grass cover, Good, HSG D (1, 2A, 2B, 3)
18,493	98	Paved parking & roofs, HSG A (1, 2A, 2B)
1,805	98	Paved parking & roofs, HSG D (1, 2B)
17,809	30	Woods, Good, HSG A (2A, 2B, 3)
49,674	77	Woods, Good, HSG D (1, 2A, 2B, 3)
147,639	**67**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
65,457	HSG A	1, 2A, 2B, 3
0	HSG B	
0	HSG C	
82,182	HSG D	1, 2A, 2B, 3
0	Other	
147,639		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
29,155	0	0	30,703	0	59,858	>75% Grass cover, Good	
18,493	0	0	1,805	0	20,298	Paved parking & roofs	
17,809	0	0	49,674	0	67,483	Woods, Good	
65,457	**0**	**0**	**82,182**	**0**	**147,639**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Subcatchment1 Runoff Area=22,130 sf 23.31% Impervious Runoff Depth=0.86"
Tc=6.0 min CN=73 Runoff=0.47 cfs 1,581 cf

Subcatchment2A: Subcatchment2A Runoff Area=40,886 sf 30.25% Impervious Runoff Depth=0.67"
Tc=6.0 min CN=69 Runoff=0.63 cfs 2,282 cf

Subcatchment2B: Subcatchment2B Runoff Area=16,715 sf 16.59% Impervious Runoff Depth=0.96"
Flow Length=259' Tc=10.4 min CN=75 Runoff=0.35 cfs 1,338 cf

Subcatchment3: Subcatchment3 Runoff Area=67,908 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=542' Tc=13.0 min CN=62 Runoff=0.35 cfs 2,254 cf

Reach POA 1: POA 1 Inflow=0.47 cfs 1,581 cf
Outflow=0.47 cfs 1,581 cf

Reach POA 2: POA 2 Inflow=0.94 cfs 3,620 cf
Outflow=0.94 cfs 3,620 cf

Reach POA 3: POA 3 Inflow=0.35 cfs 2,254 cf
Outflow=0.35 cfs 2,254 cf

Pond 1181: CB #1181 Peak Elev=46.44' Inflow=0.47 cfs 1,581 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=0.47 cfs 1,581 cf

Pond 5229: CB #5229 Peak Elev=39.61' Inflow=0.63 cfs 2,282 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=0.63 cfs 2,282 cf

Total Runoff Area = 147,639 sf Runoff Volume = 7,455 cf Average Runoff Depth = 0.61"
86.25% Pervious = 127,341 sf 13.75% Impervious = 20,298 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Subcatchment1 Runoff Area=22,130 sf 23.31% Impervious Runoff Depth=2.44"
Tc=6.0 min CN=73 Runoff=1.45 cfs 4,497 cf

Subcatchment2A: Subcatchment2A Runoff Area=40,886 sf 30.25% Impervious Runoff Depth=2.10"
Tc=6.0 min CN=69 Runoff=2.27 cfs 7,168 cf

Subcatchment2B: Subcatchment2B Runoff Area=16,715 sf 16.59% Impervious Runoff Depth=2.61"
Flow Length=259' Tc=10.4 min CN=75 Runoff=1.01 cfs 3,639 cf

Subcatchment3: Subcatchment3 Runoff Area=67,908 sf 0.00% Impervious Runoff Depth=1.56"
Flow Length=542' Tc=13.0 min CN=62 Runoff=2.11 cfs 8,847 cf

Reach POA 1: POA 1 Inflow=1.45 cfs 4,497 cf
Outflow=1.45 cfs 4,497 cf

Reach POA 2: POA 2 Inflow=3.18 cfs 10,807 cf
Outflow=3.18 cfs 10,807 cf

Reach POA 3: POA 3 Inflow=2.11 cfs 8,847 cf
Outflow=2.11 cfs 8,847 cf

Pond 1181: CB #1181 Peak Elev=46.74' Inflow=1.45 cfs 4,497 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=1.45 cfs 4,497 cf

Pond 5229: CB #5229 Peak Elev=40.16' Inflow=2.27 cfs 7,168 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=2.27 cfs 7,168 cf

Total Runoff Area = 147,639 sf Runoff Volume = 24,151 cf Average Runoff Depth = 1.96"
86.25% Pervious = 127,341 sf 13.75% Impervious = 20,298 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Subcatchment1 Runoff Area=22,130 sf 23.31% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=73 Runoff=1.69 cfs 5,240 cf

Subcatchment2A: Subcatchment2A Runoff Area=40,886 sf 30.25% Impervious Runoff Depth=2.48"
Tc=6.0 min CN=69 Runoff=2.70 cfs 8,451 cf

Subcatchment2B: Subcatchment2B Runoff Area=16,715 sf 16.59% Impervious Runoff Depth=3.03"
Flow Length=259' Tc=10.4 min CN=75 Runoff=1.17 cfs 4,218 cf

Subcatchment3: Subcatchment3 Runoff Area=67,908 sf 0.00% Impervious Runoff Depth=1.89"
Flow Length=542' Tc=13.0 min CN=62 Runoff=2.60 cfs 10,684 cf

Reach POA 1: POA 1 Inflow=1.69 cfs 5,240 cf
Outflow=1.69 cfs 5,240 cf

Reach POA 2: POA 2 Inflow=3.75 cfs 12,669 cf
Outflow=3.75 cfs 12,669 cf

Reach POA 3: POA 3 Inflow=2.60 cfs 10,684 cf
Outflow=2.60 cfs 10,684 cf

Pond 1181: CB #1181 Peak Elev=46.80' Inflow=1.69 cfs 5,240 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=1.69 cfs 5,240 cf

Pond 5229: CB #5229 Peak Elev=40.31' Inflow=2.70 cfs 8,451 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=2.70 cfs 8,451 cf

Total Runoff Area = 147,639 sf Runoff Volume = 28,593 cf Average Runoff Depth = 2.32"
86.25% Pervious = 127,341 sf 13.75% Impervious = 20,298 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Subcatchment1 Runoff Area=22,130 sf 23.31% Impervious Runoff Depth=3.42"
Tc=6.0 min CN=73 Runoff=2.04 cfs 6,313 cf

Subcatchment2A: Subcatchment2A Runoff Area=40,886 sf 30.25% Impervious Runoff Depth=3.03"
Tc=6.0 min CN=69 Runoff=3.32 cfs 10,318 cf

Subcatchment2B: Subcatchment2B Runoff Area=16,715 sf 16.59% Impervious Runoff Depth=3.63"
Flow Length=259' Tc=10.4 min CN=75 Runoff=1.41 cfs 5,050 cf

Subcatchment3: Subcatchment3 Runoff Area=67,908 sf 0.00% Impervious Runoff Depth=2.37"
Flow Length=542' Tc=13.0 min CN=62 Runoff=3.33 cfs 13,404 cf

Reach POA 1: POA 1 Inflow=2.04 cfs 6,313 cf
Outflow=2.04 cfs 6,313 cf

Reach POA 2: POA 2 Inflow=4.58 cfs 15,368 cf
Outflow=4.58 cfs 15,368 cf

Reach POA 3: POA 3 Inflow=3.33 cfs 13,404 cf
Outflow=3.33 cfs 13,404 cf

Pond 1181: CB #1181 Peak Elev=46.90' Inflow=2.04 cfs 6,313 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=2.04 cfs 6,313 cf

Pond 5229: CB #5229 Peak Elev=40.64' Inflow=3.32 cfs 10,318 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=3.32 cfs 10,318 cf

Total Runoff Area = 147,639 sf Runoff Volume = 35,085 cf Average Runoff Depth = 2.85"
86.25% Pervious = 127,341 sf 13.75% Impervious = 20,298 sf

Summary for Subcatchment 1: Subcatchment 1

Runoff = 1.02 cfs @ 12.09 hrs, Volume= 3,220 cf, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
5,933	39	>75% Grass cover, Good, HSG A
9,873	80	>75% Grass cover, Good, HSG D
3,526	98	Paved parking & roofs, HSG A
1,632	98	Paved parking & roofs, HSG D
1,166	77	Woods, Good, HSG D
22,130	73	Weighted Average
16,972		76.69% Pervious Area
5,158		23.31% Impervious Area

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

Summary for Subcatchment 2A: Subcatchment 2A

Runoff = 1.54 cfs @ 12.09 hrs, Volume= 4,994 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
13,343	39	>75% Grass cover, Good, HSG A
4,892	80	>75% Grass cover, Good, HSG D
12,367	98	Paved parking & roofs, HSG A
1,708	30	Woods, Good, HSG A
8,576	77	Woods, Good, HSG D
40,886	69	Weighted Average
28,519		69.75% Pervious Area
12,367		30.25% Impervious Area

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

Summary for Subcatchment 2B: Subcatchment 2B

Runoff = 0.73 cfs @ 12.15 hrs, Volume= 2,639 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
2,376	39	>75% Grass cover, Good, HSG A
5,009	80	>75% Grass cover, Good, HSG D
2,600	98	Paved parking & roofs, HSG A
173	98	Paved parking & roofs, HSG D
325	30	Woods, Good, HSG A
6,232	77	Woods, Good, HSG D
16,715	75	Weighted Average
13,942		83.41% Pervious Area
2,773		16.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	35	0.0330	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
1.7	15	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	100	0.1460	2.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	109	0.0770	5.63		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	259	Total			

Summary for Subcatchment 3: Subcatchment 3

Runoff = 1.29 cfs @ 12.20 hrs, Volume= 5,811 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
7,503	39	>75% Grass cover, Good, HSG A
10,929	80	>75% Grass cover, Good, HSG D
15,776	30	Woods, Good, HSG A
33,700	77	Woods, Good, HSG D
67,908	62	Weighted Average
67,908		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0500	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.2	78	0.0415	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.7	70	0.0536	1.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	97	0.2470	2.48		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	166	0.0060	3.75	29.98	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=1.00' Z= 5.0 '/' Top.W=13.00' n= 0.022 Earth, clean & straight
0.1	109	0.1370	15.43	61.74	**Trap/Vee/Rect Channel Flow,** Bot.W=0.00' D=1.00' Z= 4.0 '/' Top.W=8.00' n= 0.022 Earth, clean & straight
13.0	542	Total			

Summary for Reach POA 1: POA 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 22,130 sf, 23.31% Impervious, Inflow Depth = 1.75" for 10 Year event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 3,220 cf
Outflow = 1.02 cfs @ 12.09 hrs, Volume= 3,220 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach POA 2: POA 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 57,601 sf, 26.28% Impervious, Inflow Depth = 1.59" for 10 Year event
Inflow = 2.19 cfs @ 12.11 hrs, Volume= 7,633 cf
Outflow = 2.19 cfs @ 12.11 hrs, Volume= 7,633 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach POA 3: POA 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 67,908 sf, 0.00% Impervious, Inflow Depth = 1.03" for 10 Year event
Inflow = 1.29 cfs @ 12.20 hrs, Volume= 5,811 cf
Outflow = 1.29 cfs @ 12.20 hrs, Volume= 5,811 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 1181: CB #1181

Inflow Area = 22,130 sf, 23.31% Impervious, Inflow Depth = 1.75" for 10 Year event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 3,220 cf
Outflow = 1.02 cfs @ 12.09 hrs, Volume= 3,220 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.02 cfs @ 12.09 hrs, Volume= 3,220 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 46.62' @ 12.09 hrs
Flood Elev= 49.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.10'	**12.0" Round Culvert** L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.10' / 45.70' S= 0.0133 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.02 cfs @ 12.09 hrs HW=46.62' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.02 cfs @ 2.46 fps)

Summary for Pond 5229: CB #5229

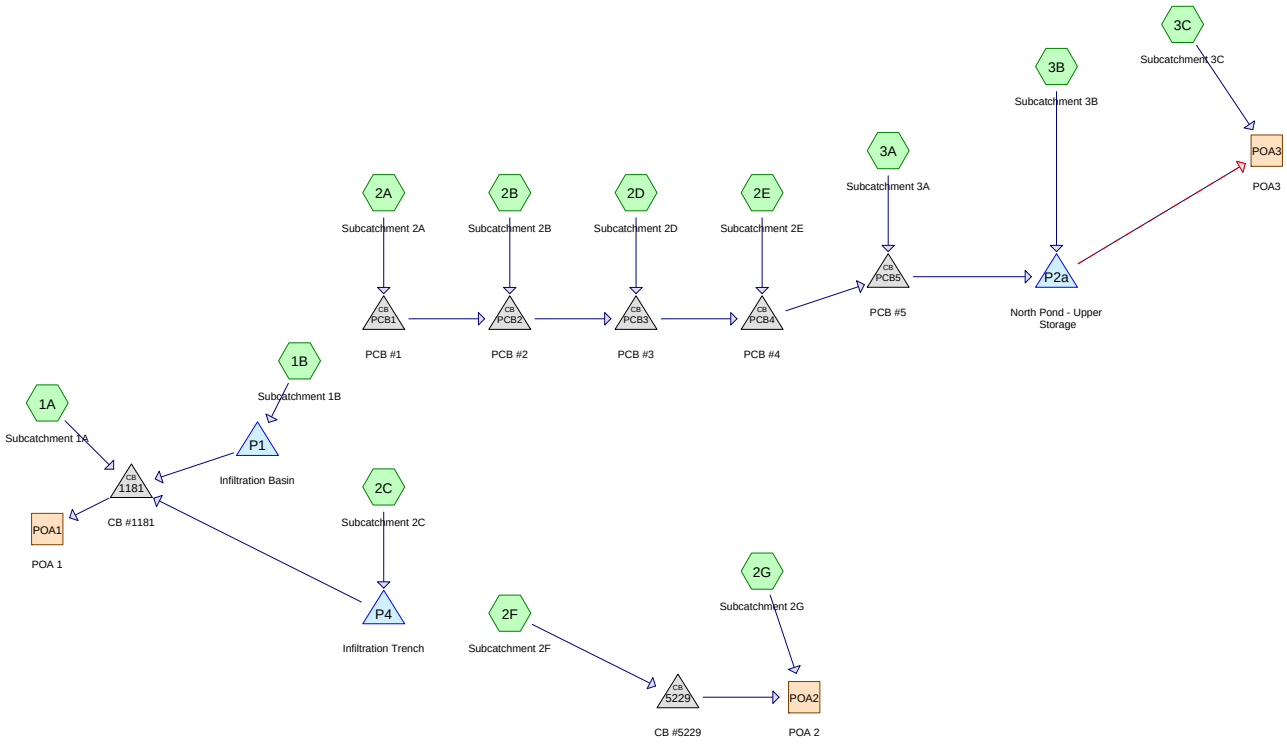
Inflow Area = 40,886 sf, 30.25% Impervious, Inflow Depth = 1.47" for 10 Year event
Inflow = 1.54 cfs @ 12.09 hrs, Volume= 4,994 cf
Outflow = 1.54 cfs @ 12.09 hrs, Volume= 4,994 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.54 cfs @ 12.09 hrs, Volume= 4,994 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 39.93' @ 12.09 hrs
Flood Elev= 44.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	39.13'	**12.0" Round Culvert** L= 53.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 39.13' / 39.00' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.54 cfs @ 12.09 hrs HW=39.93' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.54 cfs @ 3.15 fps)

APPENDIX B



Subcat Reach Pond Link

Routing Diagram for 20-025 POST_C
Prepared by MJS Engineering, PC, Printed 2021-02-23
HydroCAD® 10.00-25 s/n 08064 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
16,247	39	>75% Grass cover, Good, HSG A (1A, 1B, 2A, 2F, 2G, 3B, 3C)
25,140	80	>75% Grass cover, Good, HSG D (2A, 2B, 2D, 2E, 3A, 3B, 3C)
49,206	98	Paved parking & roofs, HSG A (1A, 1B, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 3A, 3B, 3C)
33,730	98	Paved parking & roofs, HSG D (1A, 1B, 2A, 2B, 2C, 2D, 2E, 3A, 3B)
23,301	77	Woods, Good, HSG D (2B, 2D, 2E, 3A, 3B, 3C)
147,624	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
65,453	HSG A	1A, 1B, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 3A, 3B, 3C
0	HSG B	
0	HSG C	
82,171	HSG D	1A, 1B, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 3C
0	Other	
147,624		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
16,247	0	0	25,140	0	41,387	>75% Grass cover, Good	
49,206	0	0	33,730	0	82,936	Paved parking & roofs	
0	0	0	23,301	0	23,301	Woods, Good	
65,453	**0**	**0**	**82,171**	**0**	**147,624**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A: Subcatchment1A Runoff Area=4,841 sf 89.67% Impervious Runoff Depth=2.16"
Tc=6.0 min CN=92 Runoff=0.28 cfs 872 cf

Subcatchment1B: Subcatchment1B Runoff Area=10,549 sf 84.53% Impervious Runoff Depth=1.90"
Tc=6.0 min CN=89 Runoff=0.54 cfs 1,670 cf

Subcatchment2A: Subcatchment2A Runoff Area=13,335 sf 54.57% Impervious Runoff Depth=1.98"
Tc=6.0 min CN=90 Runoff=0.71 cfs 2,205 cf

Subcatchment2B: Subcatchment2B Runoff Area=12,940 sf 56.41% Impervious Runoff Depth=1.90"
Flow Length=105' Tc=9.9 min CN=89 Runoff=0.58 cfs 2,049 cf

Subcatchment2C: Subcatchment2C Runoff Area=8,623 sf 100.00% Impervious Runoff Depth=2.77"
Tc=6.0 min CN=98 Runoff=0.58 cfs 1,989 cf

Subcatchment2D: Subcatchment2D Runoff Area=8,187 sf 59.57% Impervious Runoff Depth=1.98"
Tc=6.0 min CN=90 Runoff=0.43 cfs 1,354 cf

Subcatchment2E: Subcatchment2E Runoff Area=13,660 sf 83.16% Impervious Runoff Depth=2.45"
Tc=6.0 min CN=95 Runoff=0.86 cfs 2,788 cf

Subcatchment2F: Subcatchment2F Runoff Area=13,025 sf 55.75% Impervious Runoff Depth=0.81"
Tc=6.0 min CN=72 Runoff=0.26 cfs 877 cf

Subcatchment2G: Subcatchment2G Runoff Area=1,721 sf 16.04% Impervious Runoff Depth=0.06"
Tc=6.0 min CN=48 Runoff=0.00 cfs 9 cf

Subcatchment3A: Subcatchment3A Runoff Area=5,424 sf 91.63% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=96 Runoff=0.35 cfs 1,154 cf

Subcatchment3B: Subcatchment3B Runoff Area=36,118 sf 48.32% Impervious Runoff Depth=1.74"
Flow Length=288' Tc=11.8 min CN=87 Runoff=1.40 cfs 5,234 cf

Subcatchment3C: Subcatchment3C Runoff Area=19,201 sf 1.47% Impervious Runoff Depth=0.54"
Flow Length=233' Tc=8.9 min CN=66 Runoff=0.19 cfs 872 cf

Reach POA1: POA 1 Inflow=0.28 cfs 1,095 cf
Outflow=0.28 cfs 1,095 cf

Reach POA2: POA 2 Inflow=0.26 cfs 886 cf
Outflow=0.26 cfs 886 cf

Reach POA3: POA3 Inflow=0.37 cfs 15,655 cf
Outflow=0.37 cfs 15,655 cf

Pond 1181: CB #1181 Peak Elev=46.36' Inflow=0.28 cfs 1,095 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=0.28 cfs 1,095 cf

Pond 5229: CB #5229 Peak Elev=39.44' Inflow=0.26 cfs 877 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=0.26 cfs 877 cf

Pond P1: Infiltration Basin Peak Elev=50.65' Storage=668 cf Inflow=0.54 cfs 1,670 cf
Discarded=0.05 cfs 1,670 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,670 cf

Pond P2a: North Pond - Upper Storage Peak Elev=43.18' Storage=7,788 cf Inflow=4.05 cfs 14,783 cf
Primary=0.33 cfs 14,784 cf Secondary=0.00 cfs 0 cf Outflow=0.33 cfs 14,784 cf

Pond P4: Infiltration Trench Peak Elev=50.07' Storage=655 cf Inflow=0.58 cfs 1,989 cf
Discarded=0.05 cfs 1,766 cf Primary=0.11 cfs 223 cf Outflow=0.16 cfs 1,989 cf

Pond PCB1: PCB #1 Peak Elev=48.60' Inflow=0.71 cfs 2,205 cf
15.0" Round Culvert n=0.013 L=85.0' S=0.0049 '/' Outflow=0.71 cfs 2,205 cf

Pond PCB2: PCB #2 Peak Elev=48.24' Inflow=1.24 cfs 4,254 cf
15.0" Round Culvert n=0.013 L=115.0' S=0.0050 '/' Outflow=1.24 cfs 4,254 cf

Pond PCB3: PCB #3 Peak Elev=47.68' Inflow=1.66 cfs 5,607 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0051 '/' Outflow=1.66 cfs 5,607 cf

Pond PCB4: PCB #4 Peak Elev=47.30' Inflow=2.51 cfs 8,395 cf
18.0" Round Culvert n=0.013 L=44.0' S=0.0052 '/' Outflow=2.51 cfs 8,395 cf

Pond PCB5: PCB #5 Peak Elev=46.94' Inflow=2.86 cfs 9,549 cf
18.0" Round Culvert n=0.013 L=152.0' S=0.0051 '/' Outflow=2.86 cfs 9,549 cf

Total Runoff Area = 147,624 sf Runoff Volume = 21,072 cf Average Runoff Depth = 1.71"
43.82% Pervious = 64,688 sf 56.18% Impervious = 82,936 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A: Subcatchment1A Runoff Area=4,841 sf 89.67% Impervious Runoff Depth=4.28"
Tc=6.0 min CN=92 Runoff=0.53 cfs 1,729 cf

Subcatchment1B: Subcatchment1B Runoff Area=10,549 sf 84.53% Impervious Runoff Depth=3.96"
Tc=6.0 min CN=89 Runoff=1.09 cfs 3,484 cf

Subcatchment2A: Subcatchment2A Runoff Area=13,335 sf 54.57% Impervious Runoff Depth=4.07"
Tc=6.0 min CN=90 Runoff=1.41 cfs 4,522 cf

Subcatchment2B: Subcatchment2B Runoff Area=12,940 sf 56.41% Impervious Runoff Depth=3.96"
Flow Length=105' Tc=9.9 min CN=89 Runoff=1.18 cfs 4,274 cf

Subcatchment2C: Subcatchment2C Runoff Area=8,623 sf 100.00% Impervious Runoff Depth=4.96"
Tc=6.0 min CN=98 Runoff=1.01 cfs 3,566 cf

Subcatchment2D: Subcatchment2D Runoff Area=8,187 sf 59.57% Impervious Runoff Depth=4.07"
Tc=6.0 min CN=90 Runoff=0.86 cfs 2,776 cf

Subcatchment2E: Subcatchment2E Runoff Area=13,660 sf 83.16% Impervious Runoff Depth=4.62"
Tc=6.0 min CN=95 Runoff=1.56 cfs 5,256 cf

Subcatchment2F: Subcatchment2F Runoff Area=13,025 sf 55.75% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=72 Runoff=0.82 cfs 2,554 cf

Subcatchment2G: Subcatchment2G Runoff Area=1,721 sf 16.04% Impervious Runoff Depth=0.66"
Tc=6.0 min CN=48 Runoff=0.02 cfs 95 cf

Subcatchment3A: Subcatchment3A Runoff Area=5,424 sf 91.63% Impervious Runoff Depth=4.73"
Tc=6.0 min CN=96 Runoff=0.62 cfs 2,139 cf

Subcatchment3B: Subcatchment3B Runoff Area=36,118 sf 48.32% Impervious Runoff Depth=3.76"
Flow Length=288' Tc=11.8 min CN=87 Runoff=2.97 cfs 11,305 cf

Subcatchment3C: Subcatchment3C Runoff Area=19,201 sf 1.47% Impervious Runoff Depth=1.87"
Flow Length=233' Tc=8.9 min CN=66 Runoff=0.84 cfs 2,985 cf

Reach POA1: POA 1 Inflow=1.26 cfs 3,895 cf
Outflow=1.26 cfs 3,895 cf

Reach POA2: POA 2 Inflow=0.83 cfs 2,649 cf
Outflow=0.83 cfs 2,649 cf

Reach POA3: POA3 Inflow=2.43 cfs 33,258 cf
Outflow=2.43 cfs 33,258 cf

Pond 1181: CB #1181 Peak Elev=46.69' Inflow=1.26 cfs 3,895 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=1.26 cfs 3,895 cf

Pond 5229: CB #5229 Peak Elev=39.69' Inflow=0.82 cfs 2,554 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=0.82 cfs 2,554 cf

Pond P1: Infiltration Basin Peak Elev=51.21' Storage=1,097 cf Inflow=1.09 cfs 3,484 cf
Discarded=0.06 cfs 2,513 cf Primary=0.42 cfs 971 cf Outflow=0.48 cfs 3,484 cf

Pond P2a: North Pond - Upper Storage Peak Elev=44.68' Storage=13,955 cf Inflow=8.08 cfs 30,273 cf
Primary=2.11 cfs 30,274 cf Secondary=0.00 cfs 0 cf Outflow=2.11 cfs 30,274 cf

Pond P4: Infiltration Trench Peak Elev=50.48' Storage=910 cf Inflow=1.01 cfs 3,566 cf
Discarded=0.05 cfs 2,371 cf Primary=0.57 cfs 1,195 cf Outflow=0.62 cfs 3,566 cf

Pond PCB1: PCB #1 Peak Elev=48.93' Inflow=1.41 cfs 4,522 cf
15.0" Round Culvert n=0.013 L=85.0' S=0.0049 '/' Outflow=1.41 cfs 4,522 cf

Pond PCB2: PCB #2 Peak Elev=48.67' Inflow=2.49 cfs 8,796 cf
15.0" Round Culvert n=0.013 L=115.0' S=0.0050 '/' Outflow=2.49 cfs 8,796 cf

Pond PCB3: PCB #3 Peak Elev=48.17' Inflow=3.34 cfs 11,573 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0051 '/' Outflow=3.34 cfs 11,573 cf

Pond PCB4: PCB #4 Peak Elev=47.82' Inflow=4.88 cfs 16,829 cf
18.0" Round Culvert n=0.013 L=44.0' S=0.0052 '/' Outflow=4.88 cfs 16,829 cf

Pond PCB5: PCB #5 Peak Elev=47.39' Inflow=5.50 cfs 18,968 cf
18.0" Round Culvert n=0.013 L=152.0' S=0.0051 '/' Outflow=5.50 cfs 18,968 cf

Total Runoff Area = 147,624 sf Runoff Volume = 44,686 cf Average Runoff Depth = 3.63"
43.82% Pervious = 64,688 sf 56.18% Impervious = 82,936 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A: Subcatchment1A Runoff Area=4,841 sf 89.67% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=92 Runoff=0.59 cfs 1,926 cf

Subcatchment1B: Subcatchment1B Runoff Area=10,549 sf 84.53% Impervious Runoff Depth=4.45"
Tc=6.0 min CN=89 Runoff=1.22 cfs 3,908 cf

Subcatchment2A: Subcatchment2A Runoff Area=13,335 sf 54.57% Impervious Runoff Depth=4.55"
Tc=6.0 min CN=90 Runoff=1.56 cfs 5,061 cf

Subcatchment2B: Subcatchment2B Runoff Area=12,940 sf 56.41% Impervious Runoff Depth=4.45"
Flow Length=105' Tc=9.9 min CN=89 Runoff=1.31 cfs 4,793 cf

Subcatchment2C: Subcatchment2C Runoff Area=8,623 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=1.11 cfs 3,925 cf

Subcatchment2D: Subcatchment2D Runoff Area=8,187 sf 59.57% Impervious Runoff Depth=4.55"
Tc=6.0 min CN=90 Runoff=0.96 cfs 3,107 cf

Subcatchment2E: Subcatchment2E Runoff Area=13,660 sf 83.16% Impervious Runoff Depth=5.11"
Tc=6.0 min CN=95 Runoff=1.71 cfs 5,821 cf

Subcatchment2F: Subcatchment2F Runoff Area=13,025 sf 55.75% Impervious Runoff Depth=2.75"
Tc=6.0 min CN=72 Runoff=0.96 cfs 2,985 cf

Subcatchment2G: Subcatchment2G Runoff Area=1,721 sf 16.04% Impervious Runoff Depth=0.87"
Tc=6.0 min CN=48 Runoff=0.03 cfs 125 cf

Subcatchment3A: Subcatchment3A Runoff Area=5,424 sf 91.63% Impervious Runoff Depth=5.23"
Tc=6.0 min CN=96 Runoff=0.69 cfs 2,363 cf

Subcatchment3B: Subcatchment3B Runoff Area=36,118 sf 48.32% Impervious Runoff Depth=4.23"
Flow Length=288' Tc=11.8 min CN=87 Runoff=3.33 cfs 12,734 cf

Subcatchment3C: Subcatchment3C Runoff Area=19,201 sf 1.47% Impervious Runoff Depth=2.22"
Flow Length=233' Tc=8.9 min CN=66 Runoff=1.01 cfs 3,553 cf

Reach POA1: POA 1 Inflow=1.57 cfs 4,633 cf
Outflow=1.57 cfs 4,633 cf

Reach POA2: POA 2 Inflow=0.99 cfs 3,109 cf
Outflow=0.99 cfs 3,109 cf

Reach POA3: POA3 Inflow=2.89 cfs 37,433 cf
Outflow=2.89 cfs 37,433 cf

Pond 1181: CB #1181 Peak Elev=46.77' Inflow=1.57 cfs 4,633 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=1.57 cfs 4,633 cf

Pond 5229: CB #5229 Peak Elev=39.74' Inflow=0.96 cfs 2,985 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=0.96 cfs 2,985 cf

Pond P1: Infiltration Basin Peak Elev=51.30' Storage=1,172 cf Inflow=1.22 cfs 3,908 cf
Discarded=0.06 cfs 2,642 cf Primary=0.56 cfs 1,266 cf Outflow=0.62 cfs 3,908 cf

Pond P2a: North Pond - Upper Storage Peak Elev=44.99' Storage=15,379 cf Inflow=8.99 cfs 33,879 cf
Primary=2.48 cfs 33,880 cf Secondary=0.00 cfs 0 cf Outflow=2.48 cfs 33,880 cf

Pond P4: Infiltration Trench Peak Elev=50.59' Storage=967 cf Inflow=1.11 cfs 3,925 cf
Discarded=0.05 cfs 2,484 cf Primary=0.64 cfs 1,442 cf Outflow=0.70 cfs 3,925 cf

Pond PCB1: PCB #1 Peak Elev=49.01' Inflow=1.56 cfs 5,061 cf
15.0" Round Culvert n=0.013 L=85.0' S=0.0049 '/' Outflow=1.56 cfs 5,061 cf

Pond PCB2: PCB #2 Peak Elev=48.77' Inflow=2.77 cfs 9,854 cf
15.0" Round Culvert n=0.013 L=115.0' S=0.0050 '/' Outflow=2.77 cfs 9,854 cf

Pond PCB3: PCB #3 Peak Elev=48.29' Inflow=3.72 cfs 12,961 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0051 '/' Outflow=3.72 cfs 12,961 cf

Pond PCB4: PCB #4 Peak Elev=47.94' Inflow=5.42 cfs 18,782 cf
18.0" Round Culvert n=0.013 L=44.0' S=0.0052 '/' Outflow=5.42 cfs 18,782 cf

Pond PCB5: PCB #5 Peak Elev=47.49' Inflow=6.10 cfs 21,146 cf
18.0" Round Culvert n=0.013 L=152.0' S=0.0051 '/' Outflow=6.10 cfs 21,146 cf

Total Runoff Area = 147,624 sf Runoff Volume = 50,300 cf Average Runoff Depth = 4.09"
43.82% Pervious = 64,688 sf 56.18% Impervious = 82,936 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A: Subcatchment1A Runoff Area=4,841 sf 89.67% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=92 Runoff=0.66 cfs 2,204 cf

Subcatchment1B: Subcatchment1B Runoff Area=10,549 sf 84.53% Impervious Runoff Depth=5.12"
Tc=6.0 min CN=89 Runoff=1.39 cfs 4,504 cf

Subcatchment2A: Subcatchment2A Runoff Area=13,335 sf 54.57% Impervious Runoff Depth=5.24"
Tc=6.0 min CN=90 Runoff=1.78 cfs 5,819 cf

Subcatchment2B: Subcatchment2B Runoff Area=12,940 sf 56.41% Impervious Runoff Depth=5.12"
Flow Length=105' Tc=9.9 min CN=89 Runoff=1.50 cfs 5,525 cf

Subcatchment2C: Subcatchment2C Runoff Area=8,623 sf 100.00% Impervious Runoff Depth=6.16"
Tc=6.0 min CN=98 Runoff=1.24 cfs 4,428 cf

Subcatchment2D: Subcatchment2D Runoff Area=8,187 sf 59.57% Impervious Runoff Depth=5.24"
Tc=6.0 min CN=90 Runoff=1.09 cfs 3,572 cf

Subcatchment2E: Subcatchment2E Runoff Area=13,660 sf 83.16% Impervious Runoff Depth=5.81"
Tc=6.0 min CN=95 Runoff=1.93 cfs 6,613 cf

Subcatchment2F: Subcatchment2F Runoff Area=13,025 sf 55.75% Impervious Runoff Depth=3.32"
Tc=6.0 min CN=72 Runoff=1.16 cfs 3,607 cf

Subcatchment2G: Subcatchment2G Runoff Area=1,721 sf 16.04% Impervious Runoff Depth=1.19"
Tc=6.0 min CN=48 Runoff=0.04 cfs 171 cf

Subcatchment3A: Subcatchment3A Runoff Area=5,424 sf 91.63% Impervious Runoff Depth=5.93"
Tc=6.0 min CN=96 Runoff=0.77 cfs 2,678 cf

Subcatchment3B: Subcatchment3B Runoff Area=36,118 sf 48.32% Impervious Runoff Depth=4.90"
Flow Length=288' Tc=11.8 min CN=87 Runoff=3.83 cfs 14,751 cf

Subcatchment3C: Subcatchment3C Runoff Area=19,201 sf 1.47% Impervious Runoff Depth=2.74"
Flow Length=233' Tc=8.9 min CN=66 Runoff=1.26 cfs 4,385 cf

Reach POA1: POA 1 Inflow=1.94 cfs 5,695 cf
Outflow=1.94 cfs 5,695 cf

Reach POA2: POA 2 Inflow=1.21 cfs 3,778 cf
Outflow=1.21 cfs 3,778 cf

Reach POA3: POA3 Inflow=4.39 cfs 43,344 cf
Outflow=4.39 cfs 43,344 cf

Pond 1181: CB #1181 Peak Elev=46.87' Inflow=1.94 cfs 5,695 cf
12.0" Round Culvert n=0.011 L=30.0' S=0.0133 '/' Outflow=1.94 cfs 5,695 cf

Pond 5229: CB #5229 Peak Elev=39.81' Inflow=1.16 cfs 3,607 cf
12.0" Round Culvert n=0.011 L=53.0' S=0.0025 '/' Outflow=1.16 cfs 3,607 cf

Pond P1: Infiltration Basin Peak Elev=51.42' Storage=1,278 cf Inflow=1.39 cfs 4,504 cf
Discarded=0.07 cfs 2,809 cf Primary=0.78 cfs 1,695 cf Outflow=0.85 cfs 4,504 cf

Pond P2a: North Pond - Upper Storage Peak Elev=45.30' Storage=16,829 cf Inflow=10.27 cfs 38,958 cf
Primary=3.70 cfs 38,905 cf Secondary=0.15 cfs 54 cf Outflow=3.85 cfs 38,959 cf

Pond P4: Infiltration Trench Peak Elev=50.72' Storage=1,043 cf Inflow=1.24 cfs 4,428 cf
Discarded=0.06 cfs 2,632 cf Primary=0.73 cfs 1,796 cf Outflow=0.79 cfs 4,428 cf

Pond PCB1: PCB #1 Peak Elev=49.16' Inflow=1.78 cfs 5,819 cf
15.0" Round Culvert n=0.013 L=85.0' S=0.0049 '/' Outflow=1.78 cfs 5,819 cf

Pond PCB2: PCB #2 Peak Elev=48.96' Inflow=3.17 cfs 11,343 cf
15.0" Round Culvert n=0.013 L=115.0' S=0.0050 '/' Outflow=3.17 cfs 11,344 cf

Pond PCB3: PCB #3 Peak Elev=48.50' Inflow=4.25 cfs 14,916 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0051 '/' Outflow=4.25 cfs 14,916 cf

Pond PCB4: PCB #4 Peak Elev=48.17' Inflow=6.17 cfs 21,528 cf
18.0" Round Culvert n=0.013 L=44.0' S=0.0052 '/' Outflow=6.17 cfs 21,528 cf

Pond PCB5: PCB #5 Peak Elev=47.65' Inflow=6.93 cfs 24,207 cf
18.0" Round Culvert n=0.013 L=152.0' S=0.0051 '/' Outflow=6.93 cfs 24,207 cf

Total Runoff Area = 147,624 sf Runoff Volume = 58,256 cf Average Runoff Depth = 4.74"
43.82% Pervious = 64,688 sf 56.18% Impervious = 82,936 sf

Summary for Subcatchment 1A: Subcatchment 1A

Runoff = 0.43 cfs @ 12.08 hrs, Volume= 1,375 cf, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
500	39	>75% Grass cover, Good, HSG A
2,994	98	Paved parking & roofs, HSG A
1,347	98	Paved parking & roofs, HSG D
4,841	92	Weighted Average
500		10.33% Pervious Area
4,341		89.67% Impervious Area

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

Summary for Subcatchment 1B: Subcatchment 1B

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 2,730 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
1,632	39	>75% Grass cover, Good, HSG A
8,881	98	Paved parking & roofs, HSG A
36	98	Paved parking & roofs, HSG D
10,549	89	Weighted Average
1,632		15.47% Pervious Area
8,917		84.53% Impervious Area

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

Summary for Subcatchment 2A: Subcatchment 2A

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 3,561 cf, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
91	39	>75% Grass cover, Good, HSG A
5,967	80	>75% Grass cover, Good, HSG D
863	98	Paved parking & roofs, HSG A
6,414	98	Paved parking & roofs, HSG D
13,335	90	Weighted Average
6,058		45.43% Pervious Area
7,277		54.57% Impervious Area

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

Summary for Subcatchment 2B: Subcatchment 2B

Runoff = 0.93 cfs @ 12.13 hrs, Volume= 3,349 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
1,935	80	>75% Grass cover, Good, HSG D
295	98	Paved parking & roofs, HSG A
7,004	98	Paved parking & roofs, HSG D
3,706	77	Woods, Good, HSG D
12,940	89	Weighted Average
5,641		43.59% Pervious Area
7,299		56.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.0	7	1.0000	20.30		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.0	5	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	43	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.9	105	Total			

Summary for Subcatchment 2C: Subcatchment 2C

Runoff = 0.83 cfs @ 12.08 hrs, Volume= 2,921 cf, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
8,554	98	Paved parking & roofs, HSG A
69	98	Paved parking & roofs, HSG D
8,623	98	Weighted Average
8,623		100.00% Impervious Area

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

Summary for Subcatchment 2D: Subcatchment 2D

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 2,186 cf, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
950	80	>75% Grass cover, Good, HSG D
847	98	Paved parking & roofs, HSG A
4,030	98	Paved parking & roofs, HSG D
2,360	77	Woods, Good, HSG D
8,187	90	Weighted Average
3,310		40.43% Pervious Area
4,877		59.57% Impervious Area

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

Summary for Subcatchment 2E: Subcatchment 2E

Runoff = 1.27 cfs @ 12.08 hrs, Volume= 4,243 cf, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
737	80	>75% Grass cover, Good, HSG D
6,127	98	Paved parking & roofs, HSG A
5,232	98	Paved parking & roofs, HSG D
1,564	77	Woods, Good, HSG D
13,660	95	Weighted Average
2,301		16.84% Pervious Area
11,359		83.16% Impervious Area

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

Summary for Subcatchment 2F: Subcatchment 2F

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 1,817 cf, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
5,763	39	>75% Grass cover, Good, HSG A
7,262	98	Paved parking & roofs, HSG A
13,025	72	Weighted Average
5,763		44.25% Pervious Area
7,262		55.75% Impervious Area

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

Summary for Subcatchment 2G: Subcatchment 2G

Runoff = 0.01 cfs @ 12.32 hrs, Volume= 50 cf, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
1,445	39	>75% Grass cover, Good, HSG A
276	98	Paved parking & roofs, HSG A
1,721	48	Weighted Average
1,445		83.96% Pervious Area
276		16.04% Impervious Area

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

Summary for Subcatchment 3A: Subcatchment 3A

Runoff = 0.51 cfs @ 12.08 hrs, Volume= 1,735 cf, Depth= 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
173	80	>75% Grass cover, Good, HSG D
4,008	98	Paved parking & roofs, HSG A
962	98	Paved parking & roofs, HSG D
281	77	Woods, Good, HSG D
5,424	96	Weighted Average
454		8.37% Pervious Area
4,970		91.63% Impervious Area

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

Summary for Subcatchment 3B: Subcatchment 3B

Runoff = 2.32 cfs @ 12.16 hrs, Volume= 8,768 cf, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
704	39	>75% Grass cover, Good, HSG A
10,275	80	>75% Grass cover, Good, HSG D
8,817	98	Paved parking & roofs, HSG A
8,636	98	Paved parking & roofs, HSG D
7,686	77	Woods, Good, HSG D
36,118	87	Weighted Average
18,665		51.68% Pervious Area
17,453		48.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0500	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.2	78	0.0415	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.7	70	0.0536	1.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	20	0.1730	2.08		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	4	0.1730	2.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	6	1.0000	20.30		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	88	0.0570	10.46	20.92	**Trap/Vee/Rect Channel Flow,** Bot.W=1.00' D=1.00' Z= 1.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
11.8	288	Total			

Summary for Subcatchment 3C: Subcatchment 3C

Runoff = 0.55 cfs @ 12.14 hrs, Volume= 2,031 cf, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=4.30"

Area (sf)	CN	Description
6,112	39	>75% Grass cover, Good, HSG A
5,103	80	>75% Grass cover, Good, HSG D
282	98	Paved parking & roofs, HSG A
7,704	77	Woods, Good, HSG D
19,201	66	Weighted Average
18,919		98.53% Pervious Area
282		1.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	52	0.1550	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
5.1	48	0.1860	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	133	0.1350	1.84		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.9	233	Total			

Summary for Reach POA1: POA 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 24,013 sf, 91.12% Impervious, Inflow Depth = 1.31" for 10 Year event
Inflow = 0.71 cfs @ 12.26 hrs, Volume= 2,622 cf
Outflow = 0.71 cfs @ 12.26 hrs, Volume= 2,622 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach POA2: POA 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14,746 sf, 51.12% Impervious, Inflow Depth = 1.52" for 10 Year event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 1,867 cf
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 1,867 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach POA3: POA3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 108,865 sf, 49.16% Impervious, Inflow Depth = 2.85" for 10 Year event
Inflow = 1.43 cfs @ 12.45 hrs, Volume= 25,874 cf
Outflow = 1.43 cfs @ 12.45 hrs, Volume= 25,874 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 1181: CB #1181

Inflow Area = 24,013 sf, 91.12% Impervious, Inflow Depth = 1.31" for 10 Year event
Inflow = 0.71 cfs @ 12.26 hrs, Volume= 2,622 cf
Outflow = 0.71 cfs @ 12.26 hrs, Volume= 2,622 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.26 hrs, Volume= 2,622 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 46.53' @ 12.26 hrs
Flood Elev= 49.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.10'	**12.0" Round Culvert** L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.10' / 45.70' S= 0.0133 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.26 hrs HW=46.53' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.71 cfs @ 2.22 fps)

Summary for Pond 5229: CB #5229

Inflow Area = 13,025 sf, 55.75% Impervious, Inflow Depth = 1.67" for 10 Year event
Inflow = 0.57 cfs @ 12.09 hrs, Volume= 1,817 cf
Outflow = 0.57 cfs @ 12.09 hrs, Volume= 1,817 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.09 hrs, Volume= 1,817 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 39.59' @ 12.09 hrs
Flood Elev= 44.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	39.13'	**12.0" Round Culvert** L= 53.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 39.13' / 39.00' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=39.59' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.57 cfs @ 2.38 fps)

Summary for Pond P1: Infiltration Basin

Inflow Area = 10,549 sf, 84.53% Impervious, Inflow Depth = 3.11" for 10 Year event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 2,730 cf
Outflow = 0.26 cfs @ 12.41 hrs, Volume= 2,730 cf, Atten= 70%, Lag= 19.5 min
Discarded = 0.06 cfs @ 12.41 hrs, Volume= 2,255 cf
Primary = 0.20 cfs @ 12.41 hrs, Volume= 475 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 51.05' @ 12.41 hrs Surf.Area= 799 sf Storage= 970 cf

Plug-Flow detention time= 123.5 min calculated for 2,730 cf (100% of inflow)
Center-of-Mass det. time= 123.5 min (923.3 - 799.8)

Volume	Invert	Avail.Storage	Storage Description
#1	49.50'	2,111 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
49.50	460	102.0	0	0	460
50.00	565	108.0	256	256	573
52.25	1,115	136.0	1,855	2,111	1,182

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	**12.0" Round Culvert** L= 36.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 46.50' / 46.10' S= 0.0111 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	50.80'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	51.40'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	49.50'	**3.000 in/hr Exfiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.41 hrs HW=51.05' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.20 cfs @ 12.41 hrs HW=51.05' TW=46.49' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.20 cfs of 9.07 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.61 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond P2a: North Pond - Upper Storage

[44] Hint: Outlet device #7 is below defined storage

Inflow Area = 89,664 sf, 59.37% Impervious, Inflow Depth = 3.19" for 10 Year event
Inflow = 6.43 cfs @ 12.11 hrs, Volume= 23,842 cf
Outflow = 1.23 cfs @ 12.62 hrs, Volume= 23,843 cf, Atten= 81%, Lag= 30.6 min
Primary = 1.23 cfs @ 12.62 hrs, Volume= 23,843 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 44.09' @ 12.62 hrs Surf.Area= 4,173 sf Storage= 11,394 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 331.0 min (1,127.6 - 796.6)

Volume	Invert	Avail.Storage	Storage Description
#1	40.75'	20,285 cf	**Pond Storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
40.75	2,692	222.0	0	0	2,692
42.00	3,224	237.0	3,693	3,693	3,310
44.00	4,131	260.0	7,336	11,029	4,347
46.00	5,144	290.0	9,257	20,285	5,771

Device	Routing	Invert	Outlet Devices
#1	Secondary	45.27'	**10.0' long x 7.6' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.42 2.53 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.67 2.69 2.71 2.76
#2	Primary	39.00'	**8.0" Round 8" OCS Outlet Pipe** L= 40.0' Ke= 0.100 Inlet / Outlet Invert= 39.00' / 38.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 2	42.30'	**3.0" Vert. 3" Oriface** C= 0.600
#4	Device 2	43.10'	**6.0" Vert. 6" Oriface** C= 0.600
#5	Device 2	44.10'	**6.0" Vert. 6" Oriface** C= 0.600
#6	Device 2	45.00'	**8.0" Horiz. 8" Beehive grate** C= 0.600 Limited to weir flow at low heads
#7	Device 2	37.75'	**1.4" Vert. Underdrain cap w 1.5" oriface** C= 0.600

Primary OutFlow Max=1.23 cfs @ 12.62 hrs HW=44.09' TW=0.00' (Dynamic Tailwater)
└─**2=8" OCS Outlet Pipe** (Passes 1.23 cfs of 3.44 cfs potential flow)
  ├─**3=3" Oriface** (Orifice Controls 0.30 cfs @ 6.21 fps)
  ├─**4=6" Oriface** (Orifice Controls 0.81 cfs @ 4.14 fps)
  ├─**5=6" Oriface** (Controls 0.00 cfs)
  ├─**6=8" Beehive grate** (Controls 0.00 cfs)
  └─**7=Underdrain cap w 1.5" oriface** (Orifice Controls 0.12 cfs @ 10.86 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=40.75' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P4: Infiltration Trench

Inflow Area = 8,623 sf,100.00% Impervious, Inflow Depth = 4.06" for 10 Year event
Inflow = 0.83 cfs @ 12.08 hrs, Volume= 2,921 cf
Outflow = 0.44 cfs @ 12.21 hrs, Volume= 2,921 cf, Atten= 47%, Lag= 7.6 min
Discarded = 0.05 cfs @ 12.21 hrs, Volume= 2,149 cf
Primary = 0.39 cfs @ 12.21 hrs, Volume= 772 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 50.29' @ 12.21 hrs Surf.Area= 1,405 sf Storage= 801 cf

Plug-Flow detention time= 78.6 min calculated for 2,920 cf (100% of inflow)
Center-of-Mass det. time= 78.6 min (829.2 - 750.6)

Volume	Invert	Avail.Storage	Storage Description
#1	48.95'	1,356 cf	**5.00'W x 281.00'L x 2.50'H Prismatoid** 3,513 cf Overall - 124 cf Embedded = 3,389 cf x 40.0% Voids
#2	49.70'	98 cf	**8.0" Round Pipe Storage** Inside #1 L= 280.0' 124 cf Overall - 0.5" Wall Thickness = 98 cf
		1,453 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.95'	**1.000 in/hr Exfiltration over Wetted area** Phase-In= 0.01'
#2	Primary	49.87'	**6.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.87' / 47.00' S= 0.1104 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.05 cfs @ 12.21 hrs HW=50.29' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.39 cfs @ 12.21 hrs HW=50.29' TW=46.52' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.39 cfs @ 2.21 fps)

Summary for Pond PCB1: PCB #1

Inflow Area = 13,335 sf, 54.57% Impervious, Inflow Depth = 3.20" for 10 Year event
Inflow = 1.12 cfs @ 12.09 hrs, Volume= 3,561 cf
Outflow = 1.12 cfs @ 12.09 hrs, Volume= 3,561 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.12 cfs @ 12.09 hrs, Volume= 3,561 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 48.79' @ 12.10 hrs
Flood Elev= 52.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.10'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.10' / 47.68' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.08 cfs @ 12.09 hrs HW=48.78' TW=48.47' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.08 cfs @ 2.29 fps)

Summary for Pond PCB2: PCB #2

Inflow Area = 26,275 sf, 55.47% Impervious, Inflow Depth = 3.16" for 10 Year event
Inflow = 1.98 cfs @ 12.10 hrs, Volume= 6,910 cf
Outflow = 1.98 cfs @ 12.10 hrs, Volume= 6,910 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.98 cfs @ 12.10 hrs, Volume= 6,910 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 48.49' @ 12.11 hrs
Flood Elev= 52.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.58'	**15.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.58' / 47.01' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.97 cfs @ 12.10 hrs HW=48.49' TW=47.97' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.97 cfs @ 2.89 fps)

Summary for Pond PCB3: PCB #3

Inflow Area = 34,462 sf, 56.45% Impervious, Inflow Depth = 3.17" for 10 Year event
Inflow = 2.66 cfs @ 12.10 hrs, Volume= 9,096 cf
Outflow = 2.66 cfs @ 12.10 hrs, Volume= 9,096 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.66 cfs @ 12.10 hrs, Volume= 9,096 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 47.97' @ 12.10 hrs
Flood Elev= 52.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.91'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.91' / 46.48' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.63 cfs @ 12.10 hrs HW=47.97' TW=47.61' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.63 cfs @ 2.78 fps)

Summary for Pond PCB4: PCB #4

Inflow Area = 48,122 sf, 64.03% Impervious, Inflow Depth = 3.33" for 10 Year event
Inflow = 3.92 cfs @ 12.09 hrs, Volume= 13,339 cf
Outflow = 3.92 cfs @ 12.09 hrs, Volume= 13,339 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.92 cfs @ 12.09 hrs, Volume= 13,339 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 47.61' @ 12.10 hrs
Flood Elev= 52.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.38'	**18.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.38' / 46.15' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.89 cfs @ 12.09 hrs HW=47.61' TW=47.21' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 3.89 cfs @ 3.42 fps)

Summary for Pond PCB5: PCB #5

Inflow Area = 53,546 sf, 66.82% Impervious, Inflow Depth = 3.38" for 10 Year event
Inflow = 4.42 cfs @ 12.09 hrs, Volume= 15,074 cf
Outflow = 4.42 cfs @ 12.09 hrs, Volume= 15,074 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.42 cfs @ 12.09 hrs, Volume= 15,074 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 47.21' @ 12.09 hrs
Flood Elev= 52.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.05'	**18.0" Round Culvert** L= 152.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.05' / 45.27' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.42 cfs @ 12.09 hrs HW=47.21' TW=42.89' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 4.42 cfs @ 4.16 fps)

APPENDIX C

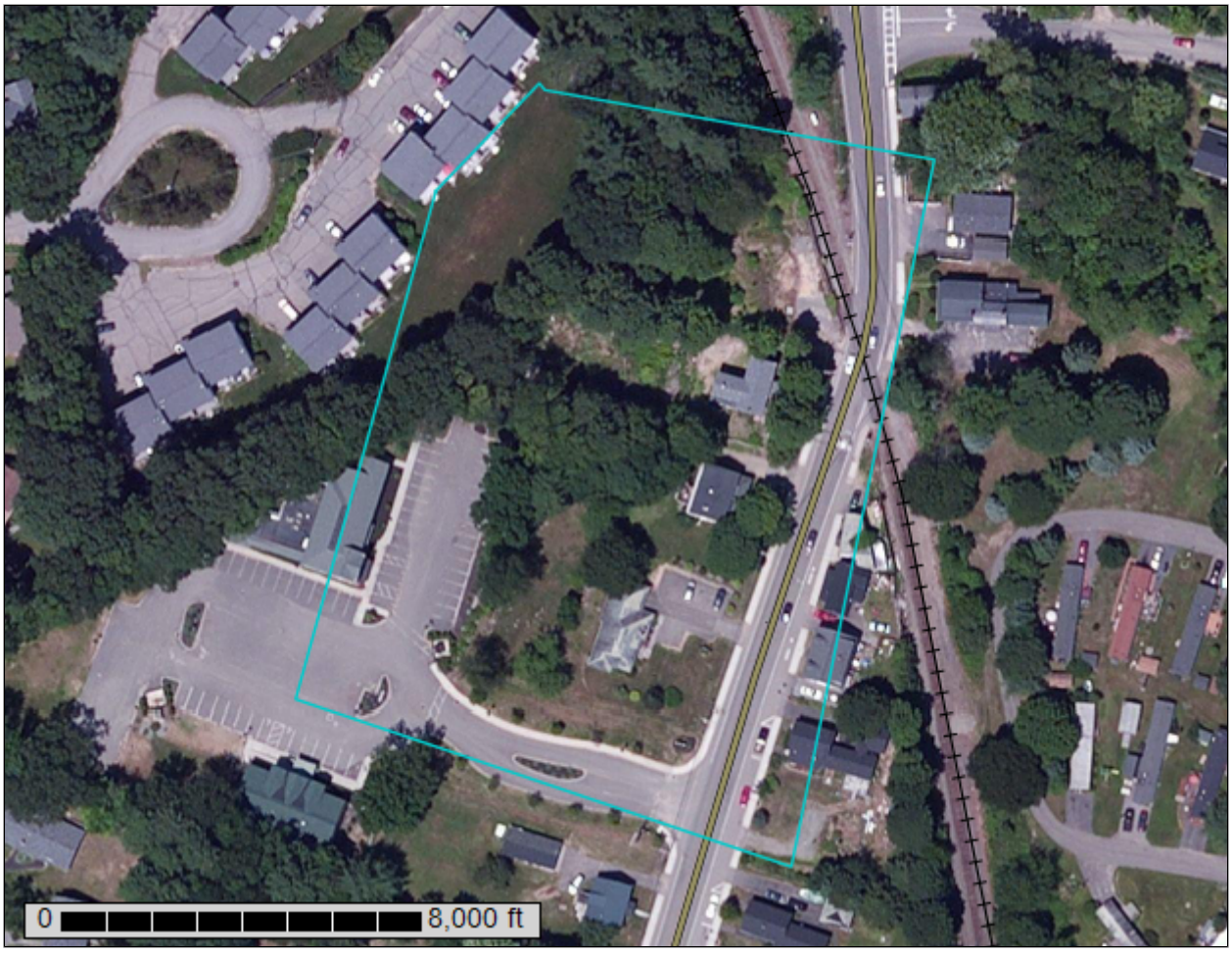
United States Department of Agriculture

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 Rockingham County, New Hampshire



September 24, 2015

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 16, Sep 12, 2014

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

Date(s) aerial images were photographed: Jun 20, 2010—Jul 18, 2010

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

Rockingham County, New Hampshire (NH015)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
26B	Windsor loamy sand, 3 to 8 percent slopes	0.1	3.0%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, very stony	2.1	51.8%
799	Urban land-Canton complex, 3 to 15 percent slopes	1.8	45.2%
Totals for Area of Interest		**4.1**	**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.

Rockingham County, New Hampshire

26B—Windsor loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svkf
Elevation: 0 to 1,040 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

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

Description of Windsor, Loamy Sand

Setting

Landform: Outwash plains, outwash terraces, dunes, deltas
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A

Minor Components

Hinckley, loamy sand

Percent of map unit: 10 percent

Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex

Deerfield, loamy sand
Percent of map unit: 5 percent
Landform: Terraces, deltas, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear

140C—Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, very stony

Map Unit Setting
National map unit symbol: 9cmj
Elevation: 0 to 2,100 feet
Mean annual precipitation: 28 to 46 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 60 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition
Chatfield and similar soils: 35 percent
Hollis and similar soils: 20 percent
Canton and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield

Setting
Parent material: Till

Typical profile
H1 - 0 to 20 inches: fine sandy loam
H2 - 20 to 31 inches: cobbly fine sandy loam
R - 31 to 35 inches: unweathered bedrock

Properties and qualities
Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

Description of Hollis

Setting

Parent material: Till

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 13 inches: cobbly fine sandy loam
R - 13 to 17 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water storage in profile: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Minor Components

Not named

Percent of map unit: 7 percent

Ossipee and greenwood

Percent of map unit: 5 percent
Landform: Bogs

Newfields

Percent of map unit: 5 percent

Scarboro

Percent of map unit: 3 percent
Landform: Depressions

Walpole

Percent of map unit: 3 percent
Landform: Depressions

Rock outcrop

Percent of map unit: 2 percent

799—Urban land-Canton complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9cq0
Elevation: 0 to 1,000 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Canton and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

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

Minor Components

Udorthents

Percent of map unit: 5 percent

Walpole

Percent of map unit: 4 percent
Landform: Depressions

Scituate and newfields

Percent of map unit: 4 percent

Chatfield

Percent of map unit: 4 percent

Squamscott and scitico

Percent of map unit: 4 percent
Landform: Marine terraces

Boxford and eldridge

Percent of map unit: 4 percent

References

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Tue, 23 Feb 2021 - 12:22pm

LEGEND

SUBCATCHMENT

SUBCATCHMENT BOUNDARY

POA# POINT OF ANALYSIS

POND, BASIN, OR BMP

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

POA1

POA2

POA3

1

2A

2B

3

COMMERCIAL BUILDING

COMMERCIAL BUILDING

SMH #1310
RIM ELEV.=63.8'
(A) 6" PVC INV.=52.6'
(B) BLOCKED?
(#1257) 6" PVC INV.=52.5'

CB #1311
RIM ELEV.=62.2'
(#1224) 12" HDPE INV.=59.5'

CB #1224
RIM ELEV.=62.2'
(#1311) 12" HDPE INV.=58.9'
(A) 15" HDPE INV.=58.8'

DMH #1316

GARAGE

HOUSE

4/17-1R

PSNH5/18

PSNH5/17

PSNH5/15

NO PARKING/
TERRACE DRIVE/BENNET WAY

EXISTING SIGN AND
LANDSCAPED AREA

EMERGENCY VEHICLES/NO PARKING

CB #1366
RIM ELEV.=49.4'
(#1181) 12" RCP INV.=45.7'
(A) 6" HDPE INV.=46.2'
(B) 12" RCP INV.=45.1'

CB #1181
RIM ELEV.=49.1'
(A) 12" RCP INV.=46.1'
(#1366) 12" RCP INV.=46.1'

70" MAPLE

30 MPH
PSNH# 5/14/4
W/ CONDUIT

NAD83/2011

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

UTILITIES NOTE
ALL ELECTRIC, GAS, TELEPHONE, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATION FOR INFORMATION REGARDING SUCH.
CALL DIG-SAFE: 1-888-DIG-SAFE (1-888-344-7233)

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS

SEAL

DATE: 2/23/21
SCALE: 1"=30'
DESIGNED BY: MJS
DRAWN BY: AJA/JLG
APPROVED BY: MJS
DWG FILE: 20025B.dwg

PRE-DEVELOPMENT
DRAINAGE PLAN
prepared for
CHENEY PROPERTY
MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11 & 15
52-56 EXETER ROAD NEWMARKET, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. Box 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 20-025

PRE

Drawing Name: P:\20pro\20-025\Internal\Drawing Files\20025D-drainage.dwg
Tue, 23 Mar 2021 - 12:20pm

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

_____

_____

_____

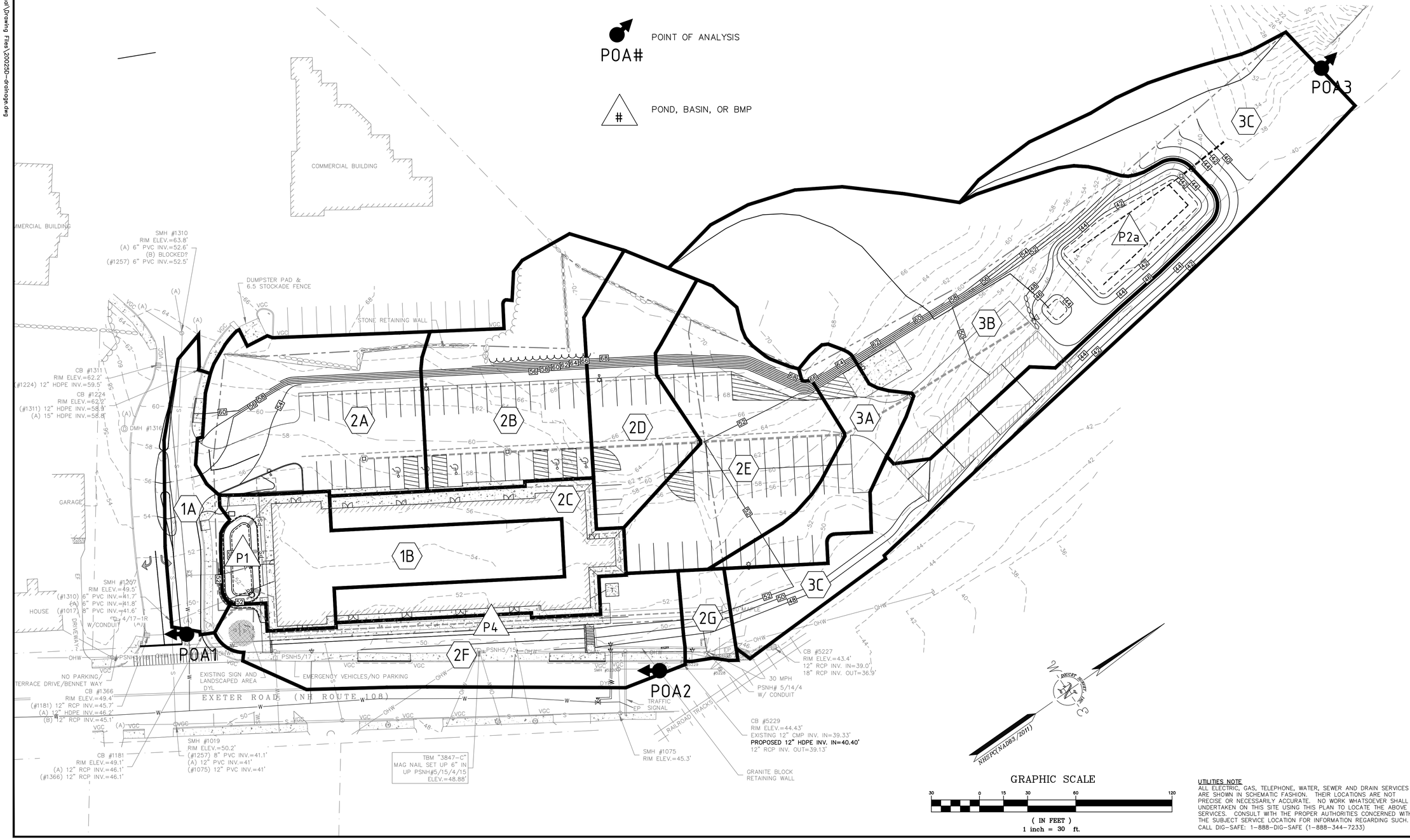
LEGEND

SUBCATCHMENT

SUBCATCHMENT BOUNDARY

POA# POINT OF ANALYSIS

POND, BASIN, OR BMP



UTILITIES NOTE
ALL ELECTRIC, GAS, TELEPHONE, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATION FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE: 1-888-DIG-SAFE (1-888-344-7233)

NO.	REVISIONS	DATE	INT.
1.	REVISED SITE LAYOUT	3/23/21	MJS
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS

SEAL

DATE: 2/23/21
SCALE: 1"=30'
DESIGNED BY: MJS
DRAWN BY: AJA/JLG
APPROVED BY: MJS
DWG FILE: 20025D-drainage.dwg

POST-DEVELOPMENT DRAINAGE PLAN
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11 & 15
52-56 EXETER ROAD NEWMARKET, NH

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JOB: 20-025

POST

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FISCAL IMPACT ANALYSIS – UPDATE
Newmarket Business Park

May 3, 2021

Introduction

This analysis updates the December 21, 2015 Fiscal Impact Analysis relative to the potential financial ramifications to the community from a proposal to construct a mixed use project on Exeter Road. The project will now consist of a three story building with 13,885 square feet of retail (formally 13,700) on the first floor and 24 two bedroom apartments on the second and third floors (formally 11 units). In addition, a standalone four unit (two bedroom) residential building is proposed, bringing the site to a total of 28 apartment units. The 4.85 acre site will have 86 parking spaces. The project is replacing a property that once contained an office (former home), a single family home and a duplex; all of which have been torn down recently. All onsite drives and trash pickup will be privately maintained; public water and sewer will service the site with user fees covering all costs. To gain a full understanding of the financial ramifications to the community, this report will provide a fiscal analysis of the proposed residential project.

This fiscal analysis is required under a provision in the Newmarket Zoning Ordinance, Section 7.02 Mixed Use Development, (C) "*Existing commercial properties in M-2A zone shall not add 3 residential units or more unless it can be shown by completion of a Fiscal Impact Study and a Market Analysis that the entire development will have a positive fiscal impact compared to current tax revenues.*"

Local Trends

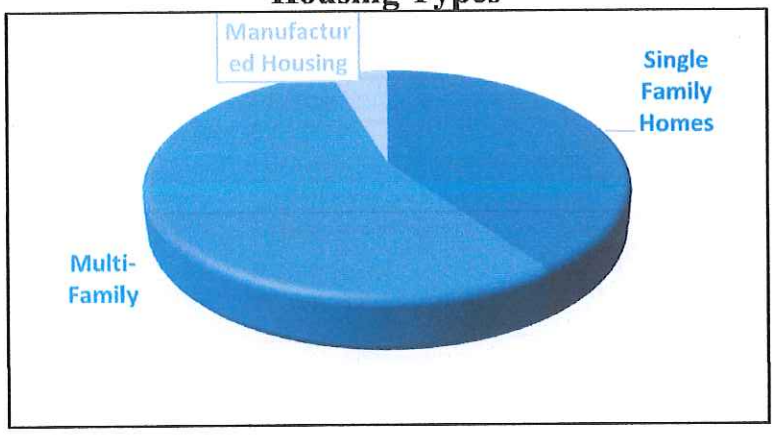
Census figures report that from 2010 to 2019 Newmarket's population increased from 8,936 to 9,460, showing a 5.86% growth rate over the 9 year period. This growth rate is in the middle range compared to area communities, with Durham have the highest growth rate in the region.

Table 1
Region Census 2010 – 2019

	2010	2019	% change 2010 - 2019
Newmarket	**8,936**	**9,460**	**5.86%**
Durham	14,638	16,085	9.89%
Epping	6,411	7,031	9.67%
Exeter	14,306	15,382	7.52%
Lee	4,330	4,483	3.53%
Newfields	1,680	1,723	2.56%
Stratham	7,225	7,559	4.62%

A majority of Newmarket's housing stock consists of multi-family housing units, with the most recent data from the New Hampshire Office of Energy and Planning (OEP) reporting that out of a total housing stock of 4,280 units, 2,382 are multi-family. (Figure 1) A majority of these multi-family units are rental, with Census and OEP data estimating that there are approximately 2,444 multi-family housing units in Newmarket.

Figure 1
Housing Types



Since 2010, single family home construction has been moderate, with only 113 homes constructed over the last seven years. Multi-family construction spiked in 2016 with the addition of 36 apartment units. (Figure 2).

A. Per Capita Methodology Approach

There are a number of methodologies that are used to estimate fiscal impacts of proposed development projects. The Per Capita Multiplier Method[1] is the most often used to determine municipal cost allocation. This method is the classic "average" costing method for projecting the impact of population growth on local spending patterns and is used to establish the costs of existing services for the new development. The basic premise of this method is that current revenue/cost ratios per person and per unit is a potential indicator of future revenue/cost impacts occasioned by growth. New capital expenditures required for provision of services to a development are not added to current costs; instead, the present debt service for previous improvements is included to represent ongoing capital projects. The advantage of this approach is its simplicity of implementation and its wide acceptance by both consultants and local officials. The downside of the approach is that the methodology calculates the "average" cost as being the expected cost, which is often not the case and costs are exaggerated; in some cases significantly. (If one student is added to a school system, limited costs impacts will occur; however based on an "average" cost to educate one student the cost may be noted as $10,000/year which includes such costs as existing debt, building maintenance, administrative and other costs, all of which will be minimally impacted by the addition of one student. The "true cost" could be significantly less, especially in those communities with declining enrollment.

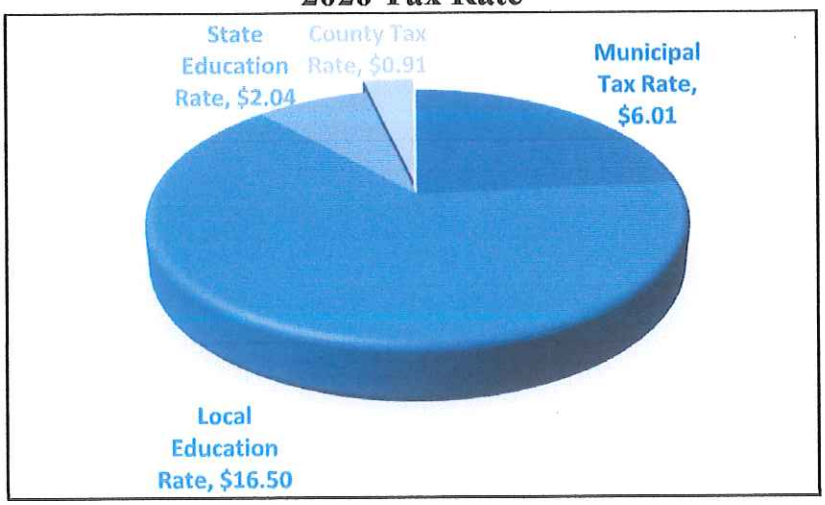
Local Revenues from Development

A) Property Taxes

Local property taxes provide the bulk of municipal revenues for New Hampshire communities. The 2020 Tax Rate for Newmarket is $25.46. Figure 3 outlines the breakdown of the tax rate between town, school and county. For this analysis we will be using the local tax rate of $24.55, excluding the County Tax rate.

[1] The New Practitioner's Guide to Fiscal Impact Analysis, Burchell-Listokin-Dolphin

Figure 3
2020 Tax Rate



Analyzing existing mixed use properties in the area, as detailed in Table Three, demonstrates an average value of $115.89 per square foot. Applying this value to the proposed development program generates a value of $5,279,212 and local property tax revenue of $129,605.

Table Three
Estimated Property Taxes

	Use	Assessment	Area	Assess./Sq. Ft.
72 Main Street	Mix	$521,400	5,210	$100.08
96 Main Street	Mix	$402,900	3,264	$123.44
98 Main Street	Mix	$277,100	1,752	$158.16
141-143 Main Street	Mix	$551,500	4,900	$112.55
Average		$1,752,900	15,126	**$115.89**
Business Park	Mix	**$5,279,212**	45,555	
Estimated Taxes	**$129,605**			

B) Miscellaneous Yearly Revenues

Another major revenue source for the community is from motor vehicle permit fees. In fiscal year 2020 the Town of Newmarket received a total of $1,647,698[2] from this revenue source. Table 4 outlines the projected revenue stream of $6,174 for the proposed project.

[2] 2020 Town Report, including total vehicle registrations, page 49.

Table 4
Motor Vehicle Permit Fees

$1,647,698/ 11,204 vehicles	-
$147 x 42 vehicles[3] =	$6,174

C) Total Project Revenues

The proposed development is expected to generate $135,779 in gross tax revenue from both property tax and automotive permit fees. (Table 5)

Table 5
Projected Gross Revenue

	Tax Revenue
Estimated Tax Revenue	$129,605
Estimated Automotive Permit Fees	$6,174
Estimated Project Tax Revenue	$135,779

B. Fiscal Analysis

Municipal Service Costs

The cost approach is a realistic methodology that can be used to estimate developmental impacts, which attempts to reasonably estimate potential actual costs that may occur in the community. At this time, a "level of service" exists in Newmarket to serve the community. This existing service level, for the most part, addresses the needs of the community through existing tax collections. As new development occurs, pressures are placed on some departments to address increased demands, while other departments see little if any impacts. In reviewing the potential impacts to town departments specifically, a truer picture of anticipated costs impacts can be determined.

Given the nature of the proposed development project, as will be seen by the analysis below, few significant impacts will be felt by Town Departments. Any required off site road improvements will be addressed during the Planning Board approval process. Solid waste generated by the project will be removed by a private hauler. Any sewer and water expenses will be offset through user fees. All of the proposed access drives will be

[3] Assuming 1.5 vehicles per unit.

private and all maintenance expenses will be paid for by the project owner. In addition, impact fees will be collected for school, recreation, wastewater and water supply which will offset municipal capital costs that have been expended for these facilities. This is not to infer that no costs will occur as a result of this project. Some degree of measurable impacts will certainly be felt by a few Town departments, in particular the Police and Fire Departments.

Police & Fire

For the most part, increased demands on public safety departments can be measured by reviewing call data. To gain a firm understanding of degree of impact this proposed project could have on these services, actual call data from similar land uses was reviewed. Fougere Planning have undertaken extensive research over the last few years collecting emergency call data from a host of land uses. For this analysis call data from over 2,400 apartment units and 320,000 square feet of retail space was used to generate estimated yearly emergency call volumes from the proposed land uses. This call data is reflected in ratios of calls per housing unit or calls per square foot of retail space. Table 6 outlines the findings from this analysis.

Table 6
Average Calls: Police-Fire-Ambulance

Project	Town	Units	Total Police Calls 3 Years	Avg. Call Per Year	Avg. Call Per Unit	Projected Calls	Total Calls
Heritage on the Merrimack Apartments	Bedford	240	237	79	0.33		
Hampshire Green	Bedford	204	212	71	0.35		
Bowers Landing	Merrimack	104	352	117	1.13		
Bay Ridge	Nashua	412	387	129	0.31		
Royal Crest	Nashua	902	1,165	388	0.43		
Boulder Park	Nashua	482	187	62	0.13		
Tara Meadows	Somersworth	270	316	105	0.39		
Mead Hill Road	**Newmarket**	**96**	**89**	**30**	**0.31**		
Totals		**2,710**		**982**	**0.36**		
Proposed Apt.		**28**			**0.36**	**10**	
Retail Database		320,000 sq. ft.			0.00330		
Proposed Retail		**13,885**				**46**	**56**

Project	Town	Units	Total Fire Calls 3 Years	Avg. Call Per Year	Avg. Call Per Unit	Projected Calls	
Heritage on the Merrimack Apartments	Bedford	240	9	3.00	0.013		
Hampshire Green	Bedford	204	25	8.33	0.041		
Bowers Landing Apts.	Merrimack	104	7	2.33	0.022		
Bay Ridge Apts.	Nashua	412	95	31.67	0.077		
Royal Crest Apts.	Nashua	902	197	65.67	0.073		
Boulder Park Apts.	Nashua	482	19	6.33	0.013		
Tara Meadows	Somersworth	270	18	6.00	0.022		
Mead Hill Road	**Newmarket**	**96**	**9**	**3.00**	**0.031**		
Totals		**2,710**		**126**	**0.047**		
Proposed Apt.		**28**			0.048	**1**	
Retail Database		320,000 sq. ft.			0.0001		
Proposed Retail		**13,885**				**1**	**2**

Project	Town	Units	Total Amb. Calls 3 Years	Avg. Call Per Year	Avg. Call Per Unit	Projected Calls	
Heritage on the Merrimack	Bedford	240	46	15.33	0.064		
Hampshire Green	Bedford	204	50	16.67	0.082		
Bowers Landing	Merrimack	104	20	6.67	0.064		
Bay Ridge	Nashua	412	71	23.67	0.057		
Royal Crest	Nashua	902	140	46.67	0.052		
Boulder Park	Nashua	482	40	13.33	0.028		
Mead Hill Road	**Newmarket**	**96**	**20**	**6.67**	**0.069**		
Totals		**2,440**		**129.00**	**0.05**		
Proposed Apt.		**28**			**0.05**	**1**	
Retail Database		320,000 sq. ft.			**0.000049**		
Proposed Retail		**13,885**				**1**	**2**

Police Department

Not surprisingly the Police Department will see the largest increase in yearly call volume with 56 calls projected. To put the call volume into perspective, the Department received 19,841[4] calls in 2020 (382 per week). The proposed mixed use project will add approximately 1 Police call per week; a .002% increase over current levels.

[4] 2020 Town Report

To account for some form of impact on the community a per call analysis was undertaken. Based upon a review of Newmarket's budget, the Police Department's portion of the total budget is $1,764,146 and 2020 police calls totaled 19,841. Dividing these calls into the budget translates into a cost per call of $89 and a total Police Department cost of **$4,984** based upon the projection of 56 calls per year.

Fire Department

A much more modest projected call volume is anticipated for the Fire Department, with 2 fire calls and 2 ambulance calls. Both of these call volume projections represent less than a 1% increase in overall calls. In 2020 the Department responded to a total of 903 calls, with the ambulance responding to 626 calls and the Fire Department responded to 277 calls.

As with the Police Department, a proportional demand cost can be assigned to the proposed development based upon its projected calls to the Fire Department. The Fire Department's 2020 budget was $503,432 which, when divided by the most recent data of 903 calls, equates to a cost of $558 per call. Based upon the estimate of 4 calls a year from the proposed development, the projected yearly gross cost to the community will be $2,232.

It should also be pointed out the ambulance calls are a source of revenue to the community, which generated $127,681 [5] in 2019/20 or an average of $203 per call. Calls for ambulance service to the proposed development will generate approximately $406 in yearly revenue for the Department, creating a net cost impact of **$1,826.**

Other Departments

By using similar analysis that was undertaken for the Public Safety Departments, cost estimates can be determined for costs to the General Government portion of the Budget; Table 7. This analysis outlines an impact of **$24,225** and is a very conservative estimate as few increased demand for services are anticipated.

[5] Finance Department, fiscal year ending June/2020

Table 7
General Government Impact

2021 Town Budget Gen. Gov.	$4,021,589
Town Population	9,460
Per Capita Cost	$425
Apartment Projected Occupancy[6]	57 people
Projected Impact	$24,225

B) School Costs

As noted above, 71.5% of taxes collected are allocated to schools. This high ratio is typical in most communities and demonstrates that a majority of local taxes go towards supporting the school system.

As previously noted, the complex will have 28 two bedroom units. To gain an understanding of the projects potential fiscal impact, anticipated school children that may be generated by the proposed project needs to be analyzed.

In 2011, Applied Economic Research completed an updated report on Demographics and School Enrollment Trends. The Reports findings, which analyzed statewide data, reported that for buildings containing five or more units an enrollment of .17 school age children (SAC) per unit was found. Applying this ratio to the proposed development translates into an impact of 5 (4.76) school age children (SAC) from this proposed development. To further validate this figure, local apartment complexes were reviewed. Table 8 outlines findings from the School Department which tracked school age children in select apartment complexes in the community. This analysis shows a local per units SAC ratio of .181 child per apartment. Using either ration results in a projection of 5 school children.

[6] Based upon US Census data, 2.02 per unit occupancy for rental occupied units.

Table 8
Local School Enrollment

Project Name	Total Units	Total SAC	Avg. SAC Per Unit
Cherry Hill	278	42	0.151
Mead Hill	96	23	0.240
River Street	72	8	0.111
Piscassic Street	36	16	0.444
Pulaski Drive	32	3	0.094
Salmon Street	56	11	0.196
	570	103	**0.181**

It should be also pointed out that the proposed development project removed a four bedroom single family home and a duplex with six bedrooms from the site; these units could generate two school children if they had remained. As a result, the net increase is 3 school age children. Even if the former units are discounted, only five additional school children are estimated for this property. In addition, given the mixed use nature of the apartment complex, the likelihood of many school age children will reside on the property is small. Also, as outlined below in Table 9, elementary school enrollment has declined 10.8% since 2014 and it is anticipated that if students do reside on the subject site, they will be of elementary age creating limited impacts to the school system. To be conservative we will carry the cost of 3 school age children costing **$49,260[7].**

School Enrollment

Overall enrollments have increased just under 4.7% for all grade levels over the last six years, but vary by grade groupings as can be seen in Table 9. Kindergarten, middle and high school enrollments have increased, while the elementary has decreased.

[7] FY22 School Budget, cost per student $16,420.

Table 9
Enrollment History 2014 - 2019[8]

Enrollment	Pre-School	Kinder.	Elem.	Middle	High	Total
2014	37	75	462	217	241	1,032
2015	35	80	418	245	258	1,036
2016	33	79	434	246	245	1,037
2017	33	83	434	246	245	1,041
2018	34	85	414	233	286	1,052
2019	38	86	412	255	290	1,081
Percent Change	2.7%	14.7%	-10.8%	17.5%	20.3%	4.7%

One-time Fees

Building permit fees will be paid for this project. In addition impacts fees will be charged. School Impact fees will total $20,804. Recreation fees: $7,728. Wastewater fees: $22,148 and Water Supply fee $13,300. Non-residential impact fees will pay $6.70 per gallon for wastewater flow & $4.03 per gallon for water supply.

[8] Because of the impact of the Covid epidemic, 2020/21 enrollment is not reported here.

SUMMARY

Table 11
Fiscal Summary

	Town
Gross Tax Revenue, Auto Registrations	**$135,799**
Municipal Gov. Costs	
Police	-$4,984
Fire	-$1,826
Town	-$24,225
School	-$49,260
Total Costs	-$80,295
Net Positive Fiscal Impact	**+$55,504**

Based upon the report's findings, gross yearly revenues generated by the proposed project will total $135,799. The anticipated yearly fiscal impact to the Town of Newmarket is estimated to be $80,295 resulting with a positive fiscal impact of approximately $55,504 a year. Key findings supporting this conclusion include:

- One time impact fee revenue from the proposed 28 apartments will be $63,980 to offset school, recreation, wastewater and water supply impacts. In addition, the non-residential portion of the development will pay waste water charges of $6.70 a gallon and a water supply fee of $4.03 a gallon.
- The proposed project will include private roads and trash collection.
- Calls to the Police Department are projected in increase by 56, with a total of 19,841 calla received by the Department in 2020.
- Calls to the Fire Department will be marginal (4 new calls), with the Department generating income from ambulance calls averaging $203 per call.
- School impacts are estimated to be minimal, with a potential of 5 school age children residing on the site, given the declining enrollment seen in the elementary school. School costs for three children have been accounted for
- The additional residents in the downtown area will have a positive impact on the local economy.

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Newmarket Business Park
Market Analysis

May 3, 2021

Introduction

Cheney Property Management Corp is proposing a mixed use development that will involve the construction of a three story building containing 13,885 square feet of retail space and 24 two bedroom apartment units. In addition, a separate four unit 2 bedroom building will be constructed. The total parcel size is 4.85 acres. Fougere Planning and Development has been engaged by Cheney Property Management Corp to undertake this Market Analysis to review the Newmarket housing market relative to the proposal to expand the subject site by adding 28 apartment units.

The requirements of a Market Analysis our outlined in the Zoning Ordinance, Section 32-46, M-2-District (b) Permitted Uses, (2) 2. ***Preparation and acceptance by the zoning board of adjustment of a market analysis which demonstrates the feasibility of added multifamily housing in a community which already has an overabundance of multifamily housing, sufficient to ensure reasonable expectation of ongoing occupancy of units to support maintenance and upkeep of the property.*** Relative to the proposed project's impact on the town's multi-family housing market, I offer the following:

RECEIVED

MAY 4 2021

NEWMARKET, NH
PLANNING BOARD

Local Trends

Census figures report that from 2010 to 2019 Newmarket's population increased from 8,936 to 9,460, showing a 5.86% growth rate over the 9 year period. This growth rate is in the middle range compared to area communities, with Durham have the highest growth rate in the region as detailed in Table 1.

Table 1
Region Census 2010 – 2019

	2010	2019	% change 2010 - 2019
Newmarket	**8,936**	**9,460**	**5.86%**
Durham	14,638	16,085	9.88%
Epping	6,411	7,031	9.67%
Exeter	14,306	15,382	7.52%
Lee	4,330	4,483	3.53%
Newfields	1,680	1,723	2.5%
Stratham	7,225	7,559	4.62%

The Covid pandemic over the last year has created economic uncertainties for many sectors of the economy. Restaurants and tourist related industries have been hit particularly hard. Other sectors of the economy have remained strong, including the real estate market. Although the New Hampshire economy experienced a major downturn at the start of the pandemic, it quickly recovered and continues to experience positive growth trends. With the vaccine deployment fully engaged, it is anticipated that a majority of the population will be fully vaccinated by the third quarter this year, allowing a return to normalcy and greater positive impacts in all aspects of the economy.

Newmarket, located in the seacoast area, has been able to withstand these recent headwinds and benefits from a diversified local economy including UNH and Pease. The unemployment rate for New Hampshire remains low at 3.0%[1] for the month of March; this is a decrease from 3.3% in February further reflecting positive trends. The local unemployment rate is equally strong with Dover reporting a 3.0% rate, Durham reporting 1.7% and the Portsmouth at 2.8%. The Nation's unemployment rate is 6% (down from 6.2% in Feb.) which highlights the strength of not only New Hampshire's but the local economy as well. (See Table 2)

[1] New Hampshire Employment Securities

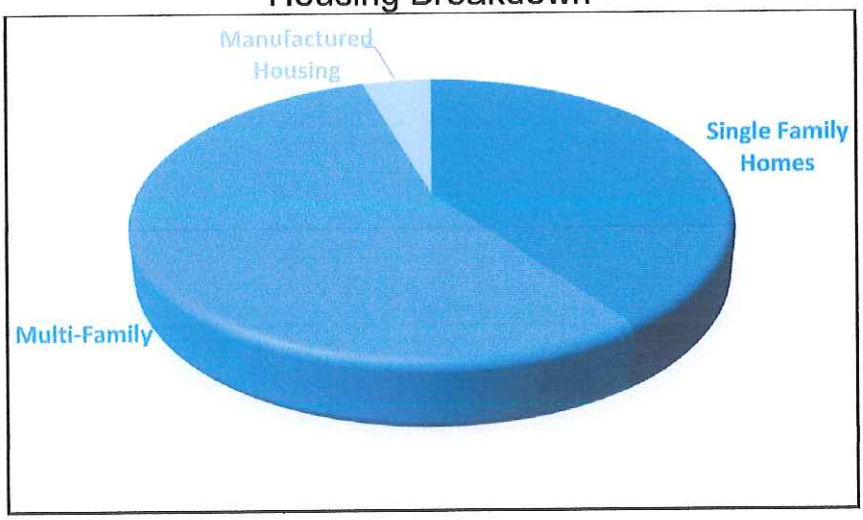
Table 2
Unemployment Rate

Unemployment Rate	March 2021
U.S.	6.0%
New Hampshire	3.0%
Dover	3.0%
Durham	1.7%
Portsmouth	2.8%

Local Housing Market

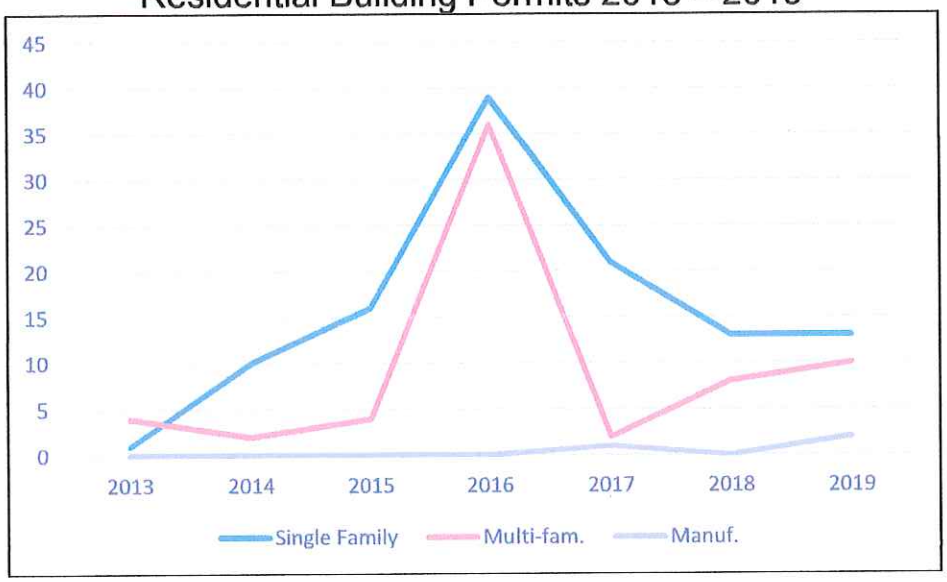
A majority of Newmarket's housing stock consists of multi-family housing units, with the most recent data from the New Hampshire Office of Energy and Planning (OEP) reporting that out of a total housing stock of 4,446 units, 2,444 are multi-family. (Figure 1)

Figure 1
Housing Breakdown



Since 2013, single family home construction has been modest, with 113 homes constructed over the last seven years. Recent multi-family construction peaked in 2012 with the addition of 36 apartment units (Figure 2).

Figure 2
Residential Building Permits 2013 – 2019



Newmarket's multi-family market consists both large complexes and smaller projects including large old homes with 3 -4 units. A majority of the larger apartment complexes were constructed in the 70's and 80's. The Newmarket Mills is one of the newest apartment complex in the community and consists of a wide range of unit types located in the old downtown mill.

The New Hampshire Housing Finance Authority (NHHFA) tracks apartment rental rates in larger markets throughout the State. Attached is the Median Gross Rental Cost[2] since 2000 for Newmarket. The 2020 median rent for all units is $1,550. In addition, NHHFA data reports that current vacancy rates are 0% for all units, indicating that the local rental housing market remains robust.

It has been well reported that New Hampshire is presently experiencing a housing shortage for both owner occupied and rental housing units. The pandemic of the last year has not dampened this demand and a significant increase in out of state residents moving to New Hampshire was been seen. Newmarket's location in the strong seacoast economic region of the state will continue to make it an attractive community in which to live.

[2] Rent cost includes a provision for utilities.

Conclusion:

- The local economy is strong, with low unemployment rates both locally and regionally. The subject site's location in the seacoast area and its numerous amenities creates a high quality of life.

- The community's population has been increasing since 2010.

- The local apartment vacancy rate is well under 1%, with limited turnover and waiting lists occurring at some complexes.

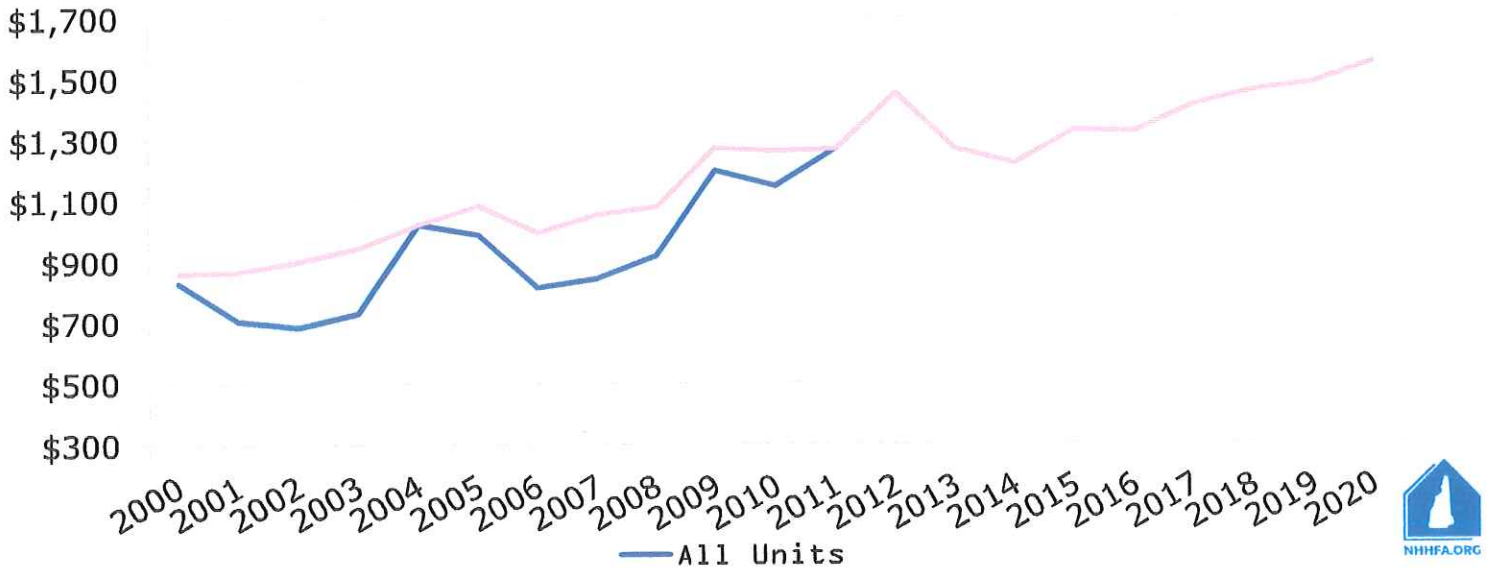
- The proposed project will increase the rental housing supply fractionally (.011%).

- The proposed new housing units will enhance site value and strengthen the economic conditions of the property, as well as provide additional positive influences on the community and region.

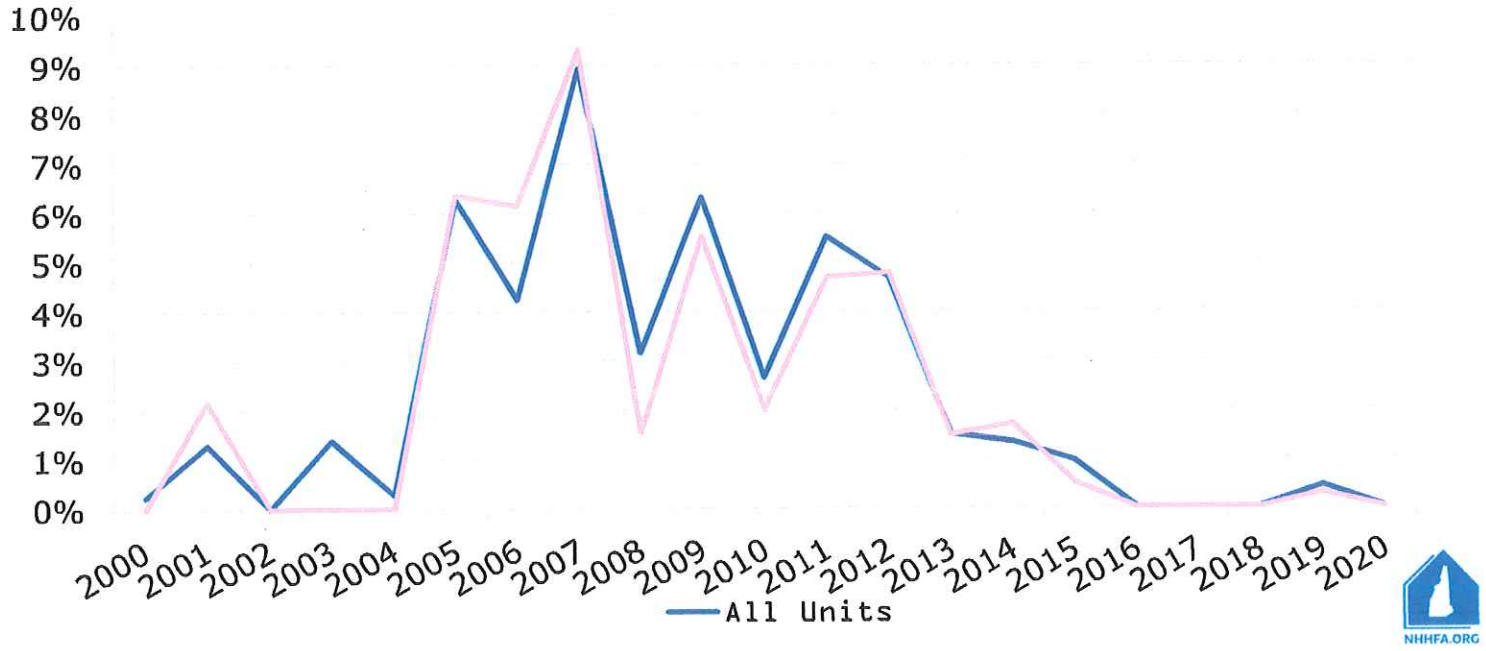
- Home values in the region have increased over the past year.

- Given these factors it is my professional opinion that that the proposed apartment rental project Will Not have a negative impact on the town's housing market.

Median Gross Rental Cost



Vacancy Rate of Rental Housing Units



Stephen G. Pernaw & Company, Inc.

P.O. Box 1721 • Concord, NH 03302
tel: (603) 731-8500 • fax: (866) 929-6094 • sgp@ pernaw.com

Transportation: Engineering • Planning • Design

MEMORANDUM

Ref: 2056A

To: Walter Cheney
Cheney Property Management Corporation

From: Stephen G. Pernaw, P.E., PTOE

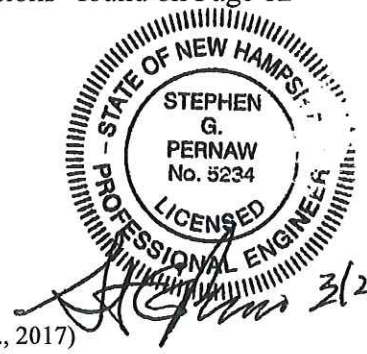
Subject: Proposed Mixed-Use Building
Newmarket, New Hampshire

Date: March 22, 2021

On February 15, 2016 our office prepared an "auxiliary turn lane warrants analysis" memorandum for the existing NH108/Newmarket Business Park Driveway intersection in Newmarket, New Hampshire. Since publication of that memorandum, the development proposal has changed (see Attachment 1), as shown below:

	Previous Development Proposal	Current Development Proposal
Office	6,752 sf	6,942 sf
Retail	6,752 sf	6,943 sf
Apartments	11 Units	28 Units

Since publication of our 2016 memorandum, the Institute of Transportation Engineers[1] (ITE) *"Trip Generation Manual"* has also been updated, and the 10th Edition is now in use. Table 1 on Page 2 summarizes the results of the updated trip generation analysis for the subject site utilizing the 10th Edition trip rates/equations and the new development mix (see Attachment 2). This table shows that the trips generated during the weekday peak hours are increased by +2 trips (AM) and +6 trips (PM). Single-digit increases over a one-hour period are deminimus in terms of traffic operations and capacity. Based on these results, the "Findings & Conclusions" found on Page 12 of the original report memorandum remain valid (see Attachment 3).



cc: Michael J. Sievert, P.E., MJS Engineering, P.C.

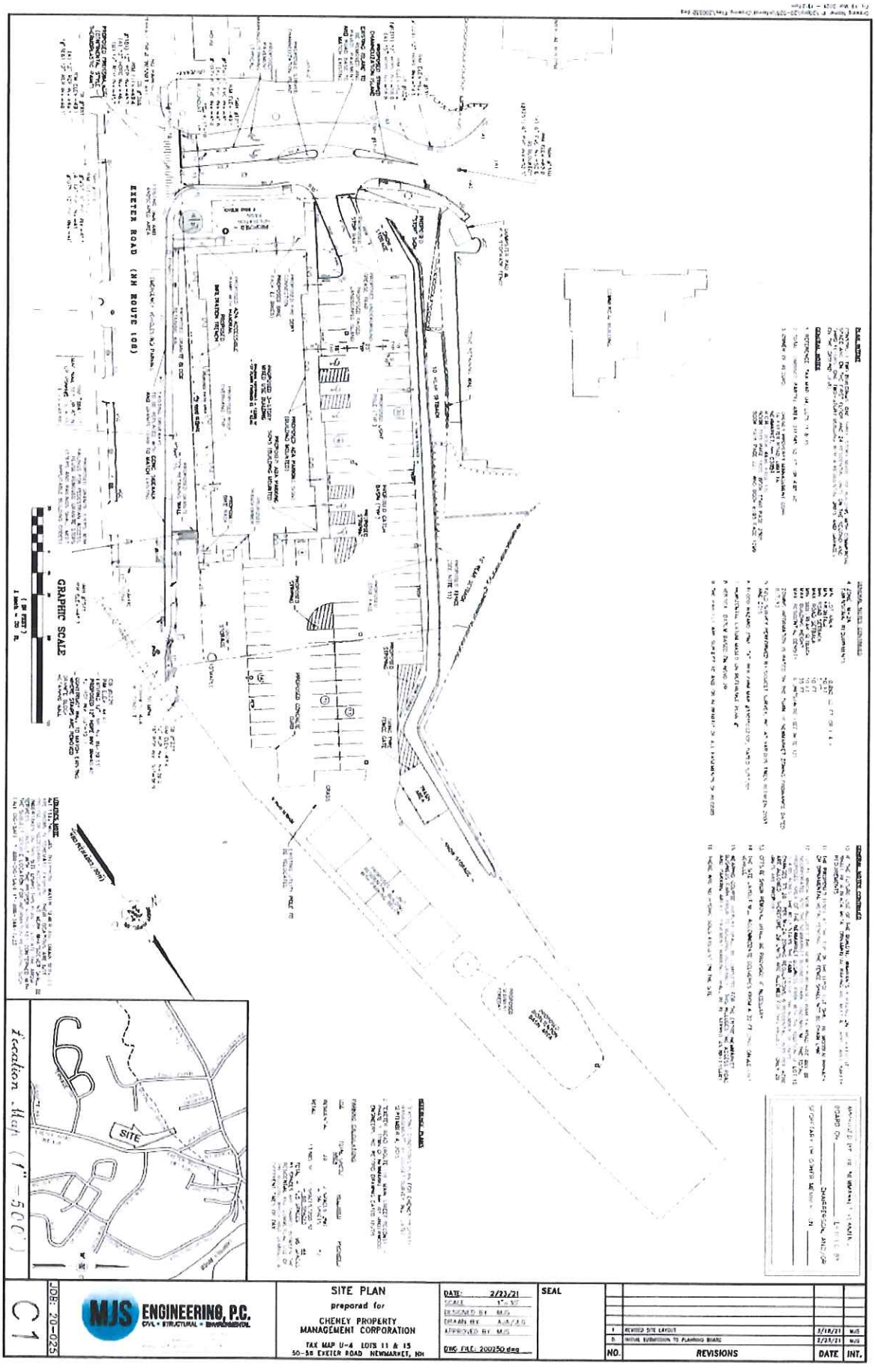
[1] Institute of Transportation Engineers, *Trip Generation*, 10th Edition (Washington, D.C., 2017)

Table 1 — Trip Generation Summary

		First Floor Office [1]	First Floor Retail [2]	Apartments [3]	Total	Previous Estimate [4]	Net Change
Weekday Total							
	Entering	40 veh	131 veh	76 veh	247 veh	218 veh	29 veh
	Exiting	40 veh	131 veh	76 veh	247 veh	218 veh	29 veh
	Total	80 trips	262 trips	152 trips	494 trips	436 trips	58 trips
Weekday AM Peak Hour							
	Entering	7 veh	4 veh	3 veh	14 veh	15 veh	-1 veh
	Exiting	1 veh	3 veh	7 veh	11 veh	8 veh	3 veh
	Total	8 trips	7 trips	10 trips	25 trips	23 trips	2 trips
Weekday PM Peak Hour							
	Entering	1 veh	12 veh	8 veh	21 veh	19 veh	2 veh
	Exiting	8 veh	14 veh	5 veh	27 veh	23 veh	4 veh
	Total	9 trips	26 trips	13 trips	48 trips	42 trips	6 trips

[1] ITE Land Use Code 710 - General Office Building (6,942 sf)
[2] ITE Land Use Code 820 - Shopping Center (6,942 sf)
[3] ITE Land Use Code 221 - Multifamily Housing (Mid-Rise) - 28 units
[4] SGP Memo dated 2/15/16

ATTACHMENTS


EXETER ROAD (NH ROUTE 108)
GRAPHIC SCALE
Location Map (1"=500')
SITE
SITE PLAN
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11 & 15
50-56 EXETER ROAD NEWMARKET, NH
MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
DATE: 2/23/21
SCALE: 1"=30'
DESIGNED BY: MJS
DRAWN BY: A.M./J.G.
APPROVED BY: MJS
DWG. FILE: 200250.dwg
SEAL
JOB: 20-025
C1
NO. REVISIONS DATE INT.
1 REVISED SITE LAYOUT 3/10/21 MJS
0 INITIAL SUBMISSION TO PLANNING BOARD 2/23/21 MJS

Trip Generation Summary

Alternative: Alternative 1
Phase:
Project: 2056A Gen

Open Date: 3/22/2021
Analysis Date: 3/22/2021

ITE	Land Use		Weekday Average Daily Trips *	Enter	Exit	Total	Weekday AM Peak Hour of Adjacent Street Traffic *	Enter	Exit	Total	Weekday PM Peak Hour of Adjacent Street Traffic *	Enter	Exit	Total
221	MID-RISE 1			76	75	151		3	7	10		8	5	13
	28	Dwelling Units												
710	OFFICEGENERAL 1			40	40	80		7	1	8		1	8	9
	6.94	1000 Sq. Ft. GFA												
820	CENTERSHOPPING 1			131	131	262		4	3	7		12	14	26
	6.94	1000 Sq. Ft. GLA												
Unadjusted Volume				247	246	493		14	11	25		21	27	48
Internal Capture Trips				0	0	0		0	0	0		6	6	12
Pass-By Trips				0	0	0		0	0	0		3	3	6
Volume Added to Adjacent Streets				247	246	493		14	11	25		12	18	30

Total Weekday Average Daily Trips Internal Capture = 0 Percent
Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 25 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition
TRIP GENERATION 10, TRAFFICWARE, LLC

Attachment 2

Findings & Conclusions

1. The recent traffic count conducted at the NH108 / Newmarket Business Park Driveway intersection in February 2016 revealed that NH108 carried a heavy volume of traffic during the weekday PM peak hour period (4:30 to 5:30 PM) with 1,678 vehicles observed traveling past the site frontage. As an aside, the Newmarket Business Park Driveway accommodated only 16 vehicles during this peak hour period.

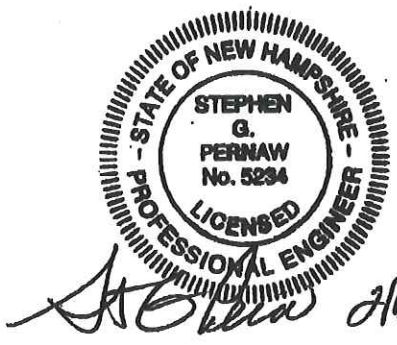
2. The trip generation analysis indicates that the proposed mixed-use building will generate approximately 23 (AM) and 42 (PM) vehicle-trips during the weekday commuter peak periods.

3. The 2017 Build traffic volumes satisfy the NCHRP guidelines for left-turn treatment on NH108 during the PM peak hour only. While a northbound "bypass lane" could be provided by eliminating several on-street parallel parking stalls along the east side of the highway, this is not recommended since the left-turn volume is only 7 vehicles during the peak hour periods. These parking stalls were recently provided in conjunction with a recent corridor improvement project. Bicycle shoulders are currently being designed for this section of NH108 (NHDOT Project 13878).

4. The 2017 Build traffic volumes satisfy the NCHRP guidelines for right-turn treatment on NH108. The 2027 No-Build traffic volumes also satisfy these guidelines; which means that treatment will be warranted in the future, regardless of the development project. The existing 4'+/- paved shoulder is currently available for southbound vehicles turning right onto the existing driveway. It should be noted that a total of only 23 southbound right-turns are expected to occur during the AM peak hour when the proposed building is fully occupied.

5. The 2027 Build traffic volumes do not satisfy the NCHRP guidelines for providing dual approach lanes on the existing driveway approach to NH108. Nevertheless, the proposed site plan shows an exclusive left-turn lane and an exclusive right-turn lane will be provided as a means to reduce delays for exiting drivers.

This section of NH108 is under the jurisdiction of NHDOT–District Six. The additional vehicle-trips that will be generated by the proposed building constitutes a "change of use" with respect to the existing Newmarket Business Park driveway; therefore the Driveway Permit should be updated accordingly.



Attachments

CC: Michael J. Sievert, P.E.

horizons Engineering

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL

5 Railroad Street, Newmarket, NH 03857 • Ph 603-659-4979 • Fax 603-659-4627 • www.horizonsengineering.com

March 23, 2021

Town of Newmarket
Planning Board
186 Main Street
Newmarket, NH 03857

Re: Waiver request to Support Special Use Permit Application
Pursuant to Zoning Ordinance Regulation 2.03(C) for Road Setback
Cheney Property Management 60 Exeter Road
Map U3&U4, Lots,11-2,15,138-1

Dear Chair and Members of the Board:

On behalf of our client, Cheney Property Management, Horizons Engineering formally requests a waiver from Section 2.03(C) of the Zoning Ordinance to support the Special Use permit application. This section allows for a reduction in the road setback requirements for the proposed building. The regulation requires the building to be setback a minimum of 5 feet and a maximum of 10 feet from the front property line. Horizons requests that the board allow a maximum of 13 feet.

There are three reasons this is beneficial to the project and meets the intent of the regulation.

1. The intent of the design is to keep the finished floor of the proposed building as low as possible to accommodate and appeal to pedestrians walking along Exeter Road. The site slopes up from Exeter Road and the proposed vehicle access to the site is at a higher elevation off of the Newmarket Business Park access drive to the building. The proposed location of the building allows for a balance between the access to the building from the parking lot side and access from the Exeter Road sidewalk.

2. The building design incorporates a patio and/or outdoor display area at the front of the building. This area will appeal to pedestrians walking along Exeter Road to visit the businesses located within the building. There is a roof overhang that extends 6 feet beyond the building. This will give the appearance that the building is closer to the road and provide a minimum setback of 6.1 feet and a maximum setback of 9.1 feet which falls within the regulation requirement.

3. This project will replace three buildings with one building. The closest building to the north is the Evans Mart beyond the railroad tracks. The immediately adjacent building to the south is 13 feet off the property line which is in line with the proposed building.

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Thank you for your review. If you require additional information or have any questions or comments please call (603) 659-4979 x1000.

Sincerely,

Michael J. Sievert, PE
VP Structural Engineering

Cc: Walter Cheney

horizons Engineering

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL

5 Railroad Street, Newmarket, NH 03857 • Ph 603-659-4979 • Fax 603-659-4627 • www.horizonsengineering.com

March 23, 2021

Town of Newmarket
Planning Board
186 Main Street
Newmarket, NH 03857

Re: Waiver request from Site Plan regulations
Cheney Property Management - 56 Newmarket Road
Map U3 &U4, Lots,11,15, 138-1

Dear Chair and Members of the Board:

On behalf of our client, Cheney Property Management, Horizons Engineering formally requests a waiver from the Newmarket Site Plan Review Regulations Section 3.02(A) requiring a defined number of parking spaces based on the intended commercial uses. We request that the board waive the requirement to provide minimum of 125 parking spaces based on the regulations and approve the proposal to provide a total of 96 spaces.

The reason for the decrease in parking is two-fold. First, during the design review process for the proposed development, the Planning Board requested that the on-site parking be minimized, but still provide adequate parking to minimize any negative effect on adjacent roadways. Secondly, we believe that the parking demand for the uses will be less than the site plan requirements based on the types of uses and the differing times of the peak parking demands of each use.

Horizons Engineering believes that granting this waiver will meet the following:

a) Shall not be detrimental to the public health, safety or general welfare because providing 61 additional spaces will be adequate for the intended use and will not cause negative impacts to the existing roadways.
b) Shall not be injurious to other parties. The parking is available on-site and the lot access is adequate for the intended use. Given the location of the site and the layout of the parking, there will not be parking on the public streets. If parking does not exist, then patrons will not use the site.
c) Shall be consistent with the purpose and intent of this regulation. The purpose is to provide adequate and safe parking for the intended uses, but not provide an excessive amount of parking to deter from the aesthetic qualities of the neighborhood. This site development meets these goals by providing 96 total spaces with most screened behind the building and set into the ground due to the steep topography.

horizons Engineering

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Thank you for your review. If you require additional information or have any questions or comments please call (603) 659-4979 x1000.

Sincerely,

Michael J. Sievert, PE
VP Structural Engineering

Cc: Walter Cheney

PROPOSED SITE PLAN

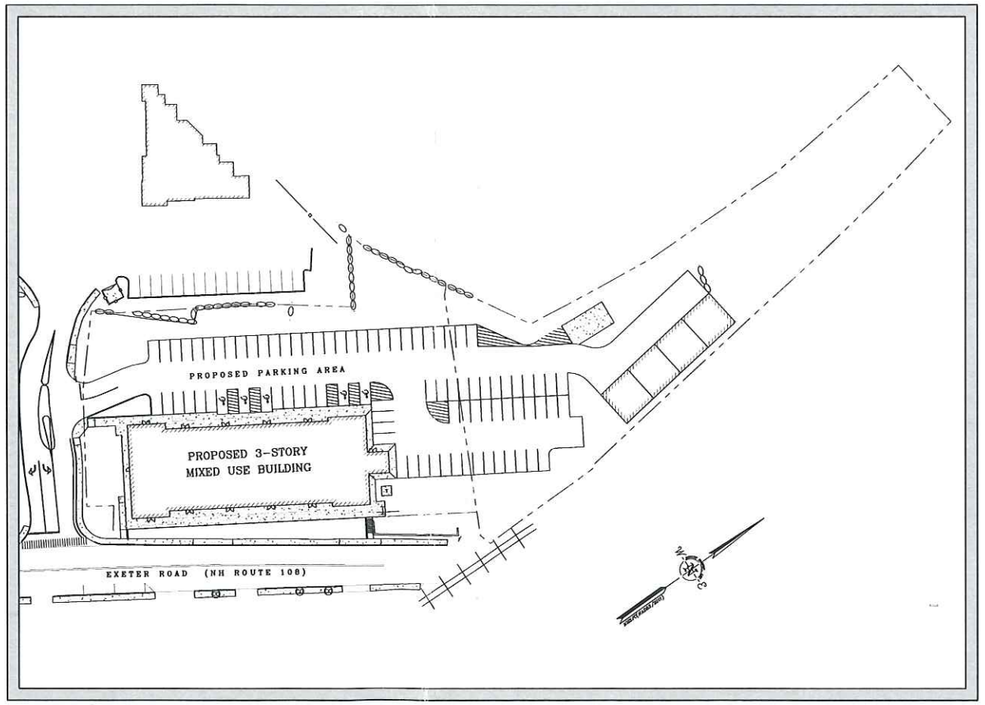
for

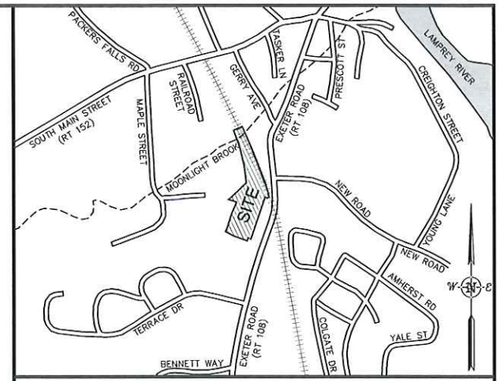
NEWMARKET BUSINESS PARK

TAX MAP U-4, LOTS 11 & 15
60 EXETER ROAD
NEWMARKET, NH

RECEIVED
MAR 23 2021
NEWMARKET, NH
PLANNING BOARD

March 23rd, 2021





Location Map (1"=500')

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- SETBACK LINE
- EXISTING STONE WALL
- T.B.R. STONE WALL
- EXISTING POST & RAIL FENCE
- EXISTING CHAIN LINK FENCE
- T.B.R. LATTICE FENCE
- PROPOSED FENCE/GUARD
- OHW — EXISTING OVERHEAD WIRES
- OHW — T.B.R. OVERHEAD WIRES
- OHW — PROPOSED OVERHEAD WIRES
- UGU — PROPOSED UNDERGROUND UTILITIES
- S — EXISTING SEWER LINE
- PS — PROPOSED SEWER LINE
- D — EXISTING DRAIN LINE
- PROPOSED DRAIN LINE
- 6" LD — PROPOSED PERFORATED UNDERDRAIN
- G — EXISTING GAS LINE
- W — EXISTING WATER LINE
- PW — PROPOSED WATER LINE
- 100 — EXISTING MAJOR CONTOUR LINE
- 98 — EXISTING MINOR CONTOUR LINE
- 100 — PROPOSED CONTOUR LINE
- x 0.95 — PROPOSED SPOT GRADE
- EXISTING TREE LINE
- T.B.R. TREE LINE
- PROPOSED TREE LINE
- T.B.R. SHRUB
- EXISTING BUILDING
- T.B.R. BUILDING
- PROPOSED BUILDING
- PROPOSED ROOF OVERHANG
- S/S — PROPOSED SILT SOCK
- PROPOSED PAVEMENT SAWCUT
- SOIL TYPE BOUNDARY
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE & GUY WIRE
- EXISTING UTILITY POLE W/ LIGHT
- EXISTING LIGHT POLE (ONE ARM)
- PROPOSED LIGHT POLE
- PROPOSED BUILDING MOUNTED LIGHT
- EXISTING SIGN
- PROPOSED SIGN
- DRILL HOLE FOUND
- EXISTING IRON PIPE/ROD FOUND
- EXISTING POST
- EXISTING FIRE HYDRANT
- EXISTING WATER GATE VALVE
- EXISTING WATER SHUTOFF VALVE
- EXISTING CATCH BASIN
- PROPOSED DRAIN MANHOLE
- EXISTING DRAIN MANHOLE
- PROPOSED DRAIN MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING CLEANOUT
- EXISTING TREE STUMP
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- T.B.R. TREE
- EXISTING CONCRETE
- PROPOSED CONCRETE
- EXISTING RIP RAP
- PROPOSED RIP RAP
- EXISTING LANDSCAPED AREA
- T.B.R. LANDSCAPED AREA
- EXISTING SAND/GRAVEL AREA
- EXISTING BRICK
- SURFACE LEDGE
- PROPOSED LEDGE FACE
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED SNOW STORAGE AREA
- PROPOSED RETAINING WALL
- EXISTING ADA PARKING SPACE
- PROPOSED ADA PARKING SPACE

T.B.R.	TO BE REMOVED
TYP.	TYPICAL
D.H.F.	DRILL HOLE FOUND
FF	FINISHED FLOOR
EP	EXISTING EDGE OF PAVEMENT
PEOP	PROPOSED EDGE OF PAVEMENT
SWL	EXISTING SINGLE WHITE LINE
DYL	EXISTING DOUBLE YELLOW LINE
VGC	EXISTING VERTICAL GRANITE CURB
PVGC	PROPOSED VERTICAL GRANITE CURB
SGC	EXISTING SLOPED GRANITE CURB
RS'	PROPOSED PAVEMENT RADIUS
MATCH	MATCH EXISTING GRADE
TC	TOP OF CURB
BC	BOTTOM OF CURB
LP	LOW POINT
HP	HIGH POINT

- (18) — PROPOSED PARKING SPACES
- T — PROPOSED TRANSFORMER

TABLE OF CONTENTS

TITLE	SHEET
EXISTING CONDITIONS PLAN	SHEET 1
LOT CONSOLIDATION & AMENDED CONDO SITE & FLOOR PLAN	SHEETS 1&2
SITE PLAN	C1
DEMOLITION & EROSION CONTROL PLAN	C2
GRADING, DRAINAGE, & UTILITIES PLAN	C3
LIGHTING PLAN	C4
CONSTRUCTION DETAILS	D1–D5
LANDSCAPE PLAN	L1
ARCHITECTURAL PLANS	5 SHEETS

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

OWNER

CHENEY PROPERTY
MANAGEMENT CORP.
74 EXETER ROAD, UNIT 1A
NEWMARKET, NH 03857

CIVIL ENGINEER

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Railroad St., P.O. Box 359
Newmarket, NH 03857
Phone: (603) 659-4979, Fax: (603) 659-4627
E-mail: mjs@mjs-engineering.com

SURVEYOR

DOUCET SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857
Voice (603) 659-6560, Data (603) 659-4118

LANDSCAPE ARCHITECT

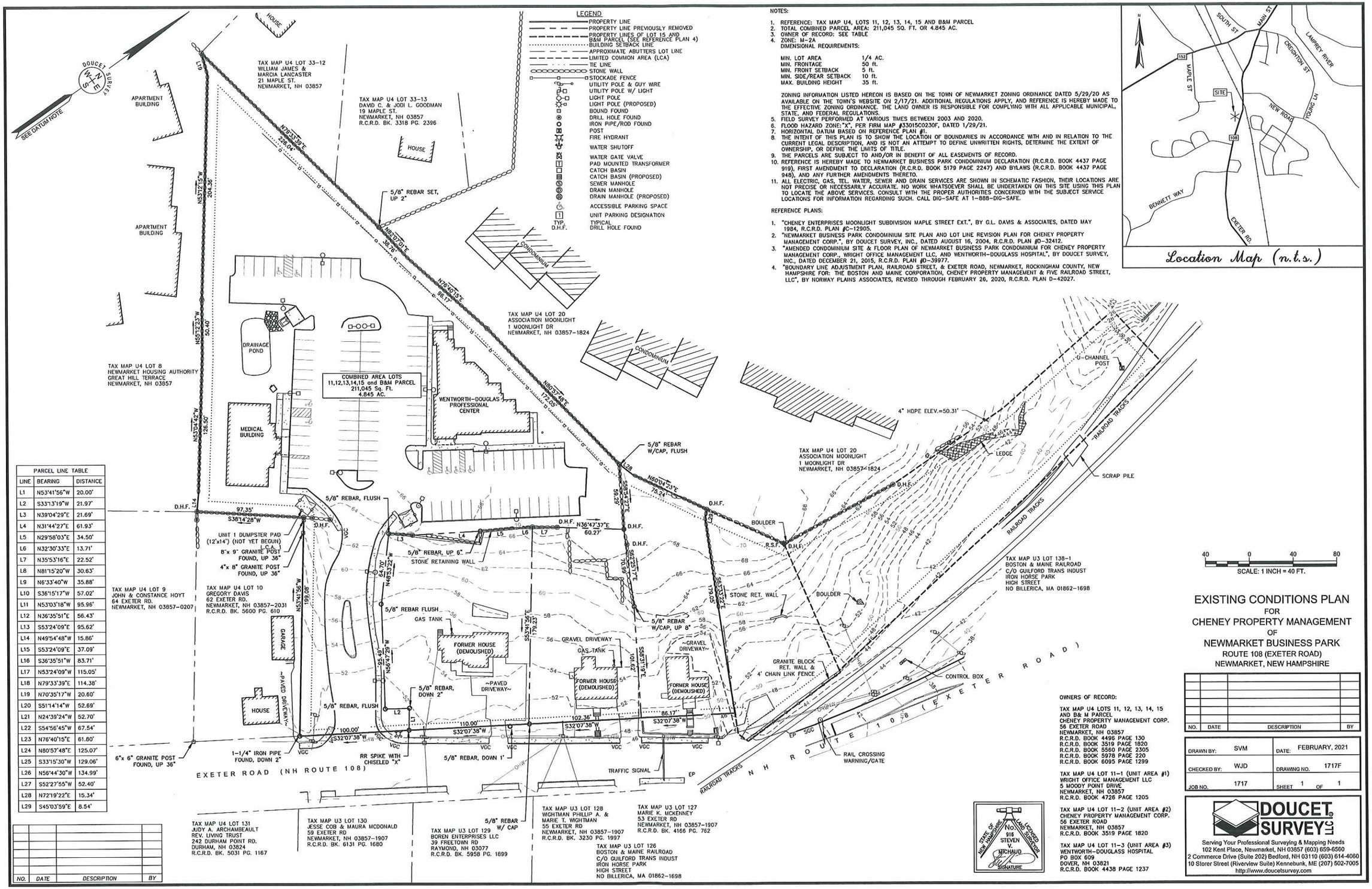
WOODBURN & COMPANY
Landscape Architecture, LLC
103 Kent Place
Newmarket, NH 03857
Tel 603.659.5949
Fax: 603.659.5939

ARCHITECT

THA ARCHITECTS, LLC
ARCHITECTURE • PLANNING • CONSULTING • INTERIOR DESIGN
109 WILLOW BROOK AVENUE • STRATHAM, NH 03885
Tel: (603) 770-2481 • Fax: (603) 773-0238 • WWW.THAARCS.COM

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NO.	REVISIONS	DATE	INT.
1.	REVISED SITE LAYOUT	3/23/21	MJS
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS



NOTES:

1. REFERENCE: TAX MAP U4, LOTS 11, 12, 13, 14, 15 AND B&M PARCEL
2. TOTAL COMBINED PARCEL AREA: 211,045 SQ. FT. OR 4.845 AC.
3. OWNER OF RECORD: SEE TABLE
4. ZONE: M-2A
   DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	1/4 AC.
MIN. FRONTAGE	50 ft.
MIN. FRONT SETBACK	5 ft.
MIN. SIDE/REAR SETBACK	10 ft.
MAX. BUILDING HEIGHT	35 ft.

   ZONING INFORMATION LISTED HEREON IS BASED ON THE TOWN OF NEWMARKET ZONING ORDINANCE DATED 5/29/20 AS AVAILABLE ON THE TOWN'S WEBSITE ON 2/17/21. ADDITIONAL REGULATIONS APPLY, AND REFERENCE IS HEREBY MADE TO THE EFFECTIVE ZONING ORDINANCE. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE, AND FEDERAL REGULATIONS.
5. FIELD SURVEY PERFORMED AT VARIOUS TIMES BETWEEN 2003 AND 2020.
6. FLOOD HAZARD ZONE:"X", PER FIRM MAP #33015C0230F, DATED 1/29/21.
7. HORIZONTAL DATUM BASED ON REFERENCE PLAN #1.
8. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
9. THE PARCELS ARE SUBJECT TO AND/OR IN BENEFIT OF ALL EASEMENTS OF RECORD.
10. REFERENCE IS HEREBY MADE TO NEWMARKET BUSINESS PARK CONDOMINIUM DECLARATION (R.C.R.D. BOOK 4437 PAGE 919), FIRST AMENDMENT TO DECLARATION (R.C.R.D. BOOK 5179 PAGE 2247) AND BYLAWS (R.C.R.D. BOOK 4437 PAGE 948), AND ANY FURTHER AMENDMENTS THERETO.
11. ALL ELECTRIC, GAS, TEL, WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

REFERENCE PLANS:

1. "CHENEY ENTERPRISES MOONLIGHT SUBDIVISION MAPLE STREET EXT.", BY G.L. DAVIS & ASSOCIATES, DATED MAY 1984, R.C.R.D. PLAN #C-12905.
2. "NEWMARKET BUSINESS PARK CONDOMINIUM SITE PLAN AND LOT LINE REVISION PLAN FOR CHENEY PROPERTY MANAGEMENT CORP.", BY DOUCET SURVEY, INC., DATED AUGUST 16, 2004, R.C.R.D. PLAN #D-32412.
3. "AMENDED CONDOMINIUM SITE & FLOOR PLAN OF NEWMARKET BUSINESS PARK CONDOMINIUM FOR CHENEY PROPERTY MANAGEMENT CORP., WRIGHT OFFICE MANAGEMENT LLC, AND WENTWORTH-DOUGLASS HOSPITAL", BY DOUCET SURVEY, INC., DATED DECEMBER 21, 2015, R.C.R.D. PLAN #D-39977.
4. "BOUNDARY LINE ADJUSTMENT PLAN, RAILROAD STREET, & EXETER ROAD, NEWMARKET, ROCKINGHAM COUNTY, NEW HAMPSHIRE FOR: THE BOSTON AND MAINE CORPORATION, CHENEY PROPERTY MANAGEMENT & FIVE RAILROAD STREET, LLC", BY NORWAY PLAINS ASSOCIATES, REVISED THROUGH FEBRUARY 26, 2020, R.C.R.D. PLAN D-42027.

PARCEL LINE TABLE		
LINE	BEARING	DISTANCE
L1	N53°41'56"W	20.00'
L2	S33°13'19"W	21.97'
L3	N39°04'29"E	21.69'
L4	N31°44'27"E	61.93'
L5	N29°58'03"E	34.50'
L6	N32°30'33"E	13.71'
L7	N35°53'16"E	22.52'
L8	N81°15'20"W	30.63'
L9	N6°33'40"W	35.88'
L10	S36°15'17"W	57.02'
L11	N53°03'18"W	95.96'
L12	N36°35'51"E	56.43'
L13	S53°24'09"E	95.62'
L14	N49°54'48"W	15.86'
L15	S53°24'09"E	37.09'
L16	S36°35'51"W	83.71'
L17	N53°24'09"W	115.05'
L18	N79°33'39"E	114.38'
L19	N70°35'17"W	20.60'
L20	S51°14'14"W	52.69'
L21	N24°39'24"W	52.70'
L22	S54°56'45"W	67.54'
L23	N76°40'15"E	61.80'
L24	N80°57'48"E	125.07'
L25	S33°15'30"W	129.06'
L26	N56°44'30"W	134.99'
L27	S52°27'55"W	52.40'
L28	N72°19'22"E	15.34'
L29	S45°03'59"E	8.54'

NO.	DATE	DESCRIPTION	BY

OWNERS OF RECORD:

TAX MAP U4 LOTS 11, 12, 13, 14, 15 AND B& M PARCEL
CHENEY PROPERTY MANAGEMENT CORP.
56 EXETER ROAD
NEWMARKET, NH 03857
R.C.R.D. BOOK 4496 PAGE 130
R.C.R.D. BOOK 3519 PAGE 1820
R.C.R.D. BOOK 5560 PAGE 2305
R.C.R.D. BOOK 5978 PAGE 220
R.C.R.D. BOOK 6095 PAGE 1299

TAX MAP U4 LOT 11-1 (UNIT AREA #1)
WRIGHT OFFICE MANAGEMENT LLC
5 MOODY POINT DRIVE
NEWMARKET, NH 03857
R.C.R.D. BOOK 4726 PAGE 1205

TAX MAP U4 LOT 11-2 (UNIT AREA #2)
CHENEY PROPERTY MANAGEMENT CORP.
56 EXETER ROAD
NEWMARKET, NH 03857
R.C.R.D. BOOK 3519 PAGE 1820

TAX MAP U4 LOT 11-3 (UNIT AREA #3)
WENTWORTH-DOUGLASS HOSPITAL
PO BOX 609
DOVER, NH 03821
R.C.R.D. BOOK 4438 PAGE 1237

STATE OF NEW HAMPSHIRE — No. 918 — STEVEN V. MICHAUD — LICENSED LAND SURVEYOR — SIGNATURE

EXISTING CONDITIONS PLAN
FOR
CHENEY PROPERTY MANAGEMENT
OF
NEWMARKET BUSINESS PARK
ROUTE 108 (EXETER ROAD)
NEWMARKET, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	SVM	DATE:	FEBRUARY, 2021
CHECKED BY:	WJD	DRAWING NO.	1717F
JOB NO.	1717	SHEET	1 OF 1

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

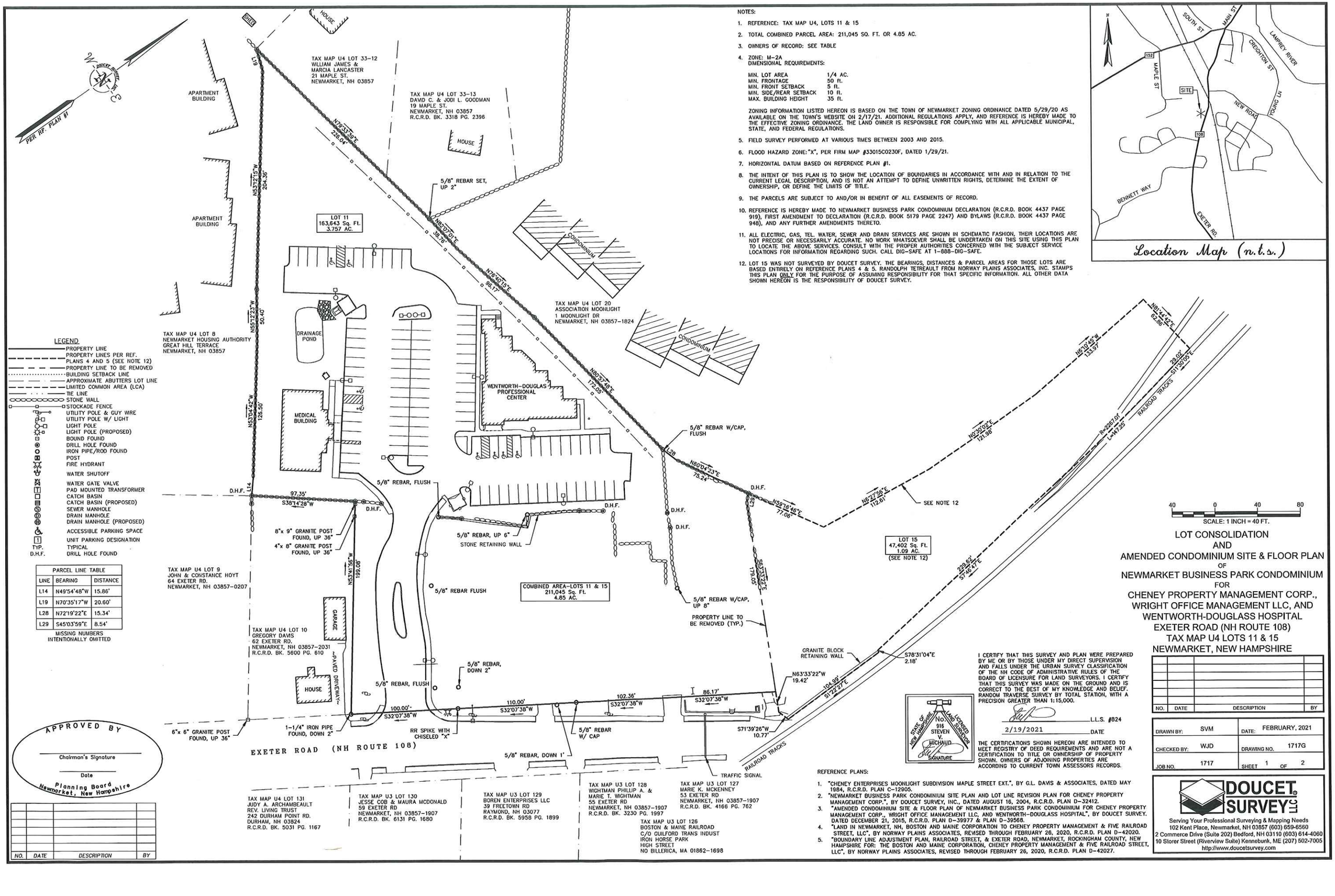
NOTES:

1. REFERENCE: TAX MAP U4, LOTS 11 & 15
2. TOTAL COMBINED PARCEL AREA: 211,045 SQ. FT. OR 4.85 AC.
3. OWNERS OF RECORD: SEE TABLE
4. ZONE: M-2A
   DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	1/4 AC.
MIN. FRONTAGE	50 ft.
MIN. FRONT SETBACK	5 ft.
MIN. SIDE/REAR SETBACK	10 ft.
MAX. BUILDING HEIGHT	35 ft.

   ZONING INFORMATION LISTED HEREON IS BASED ON THE TOWN OF NEWMARKET ZONING ORDINANCE DATED 5/29/20 AS AVAILABLE ON THE TOWN'S WEBSITE ON 2/17/21. ADDITIONAL REGULATIONS APPLY, AND REFERENCE IS HEREBY MADE TO THE EFFECTIVE ZONING ORDINANCE. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE, AND FEDERAL REGULATIONS.
5. FIELD SURVEY PERFORMED AT VARIOUS TIMES BETWEEN 2003 AND 2015.
6. FLOOD HAZARD ZONE: "X", PER FIRM MAP #33015C0230F, DATED 1/29/21.
7. HORIZONTAL DATUM BASED ON REFERENCE PLAN #1.
8. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.
9. THE PARCELS ARE SUBJECT TO AND/OR IN BENEFIT OF ALL EASEMENTS OF RECORD.
10. REFERENCE IS HEREBY MADE TO NEWMARKET BUSINESS PARK CONDOMINIUM DECLARATION (R.C.R.D. BOOK 4437 PAGE 919), FIRST AMENDMENT TO DECLARATION (R.C.R.D. BOOK 5179 PAGE 2247) AND BYLAWS (R.C.R.D. BOOK 4437 PAGE 948), AND ANY FURTHER AMENDMENTS THERETO.
11. ALL ELECTRIC, GAS, TEL. WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.
12. LOT 15 WAS NOT SURVEYED BY DOUCET SURVEY. THE BEARINGS, DISTANCES & PARCEL AREAS FOR THOSE LOTS ARE BASED ENTIRELY ON REFERENCE PLANS 4 & 5. RANDOLPH TETREAULT FROM NORWAY PLAINS ASSOCIATES, INC. STAMPS THIS PLAN ONLY FOR THE PURPOSE OF ASSUMING RESPONSIBILITY FOR THAT SPECIFIC INFORMATION. ALL OTHER DATA SHOWN HEREON IS THE RESPONSIBILITY OF DOUCET SURVEY.

Location Map (n.t.s.)



LEGEND

- PROPERTY LINE
- PROPERTY LINES PER REF. PLANS 4 AND 5 (SEE NOTE 12)
- PROPERTY LINE TO BE REMOVED
- BUILDING SETBACK LINE
- APPROXIMATE ABUTTERS LOT LINE
- LIMITED COMMON AREA (LCA)
- TIE LINE
- STONE WALL
- STOCKADE FENCE
- UTILITY POLE & GUY WIRE
- UTILITY POLE W/ LIGHT
- LIGHT POLE
- LIGHT POLE (PROPOSED)
- BOUND FOUND
- DRILL HOLE FOUND
- IRON PIPE/ROD FOUND
- POST
- FIRE HYDRANT
- WATER SHUTOFF
- WATER GATE VALVE
- PAD MOUNTED TRANSFORMER
- CATCH BASIN
- CATCH BASIN (PROPOSED)
- SEWER MANHOLE
- DRAIN MANHOLE
- DRAIN MANHOLE (PROPOSED)
- ACCESSIBLE PARKING SPACE
- UNIT PARKING DESIGNATION
- TYP. TYPICAL
- D.H.F. DRILL HOLE FOUND

PARCEL LINE TABLE		
LINE	BEARING	DISTANCE
L14	N49°54'48"W	15.86'
L19	N70°35'17"W	20.60'
L28	N72°19'22"E	15.34'
L29	S45°03'59"E	8.54'

MISSING NUMBERS INTENTIONALLY OMITTED

APPROVED BY

Chairman's Signature

Date

Planning Board
Newmarket, New Hampshire

NO.	DATE	DESCRIPTION	BY

REFERENCE PLANS:

1. "CHENEY ENTERPRISES MOONLIGHT SUBDIVISION MAPLE STREET EXT.", BY G.L. DAWS & ASSOCIATES, DATED MAY 1984, R.C.R.D. PLAN C-12905.
2. "NEWMARKET BUSINESS PARK CONDOMINIUM SITE PLAN AND LOT LINE REVISION PLAN FOR CHENEY PROPERTY MANAGEMENT CORP.", BY DOUCET SURVEY, INC., DATED AUGUST 16, 2004, R.C.R.D. PLAN D-32412.
3. "AMENDED CONDOMINIUM SITE & FLOOR PLAN OF NEWMARKET BUSINESS PARK CONDOMINIUM FOR CHENEY PROPERTY MANAGEMENT CORP., WRIGHT OFFICE MANAGEMENT LLC, AND WENTWORTH-DOUGLASS HOSPITAL", BY DOUCET SURVEY. DATED DECEMBER 21, 2015, R.C.R.D. PLAN D-39977 & PLAN D-39568.
4. "LAND IN NEWMARKET, NH, BOSTON AND MAINE CORPORATION TO CHENEY PROPERTY MANAGEMENT & FIVE RAILROAD STREET, LLC", BY NORWAY PLAINS ASSOCIATES, REVISED THROUGH FEBRUARY 26, 2020, R.C.R.D. PLAN D-42020.
5. "BOUNDARY LINE ADJUSTMENT PLAN, RAILROAD STREET, & EXETER ROAD, NEWMARKET, ROCKINGHAM COUNTY, NEW HAMPSHIRE FOR: THE BOSTON AND MAINE CORPORATION, CHENEY PROPERTY MANAGEMENT & FIVE RAILROAD STREET, LLC", BY NORWAY PLAINS ASSOCIATES, REVISED THROUGH FEBRUARY 26, 2020, R.C.R.D. PLAN D-42027.

STATE OF NEW HAMPSHIRE — NO. 916 — STEVEN V. MICHAUD — LICENSED LAND SURVEYOR — SIGNATURE

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

L.L.S. #824

2/19/2021 DATE

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

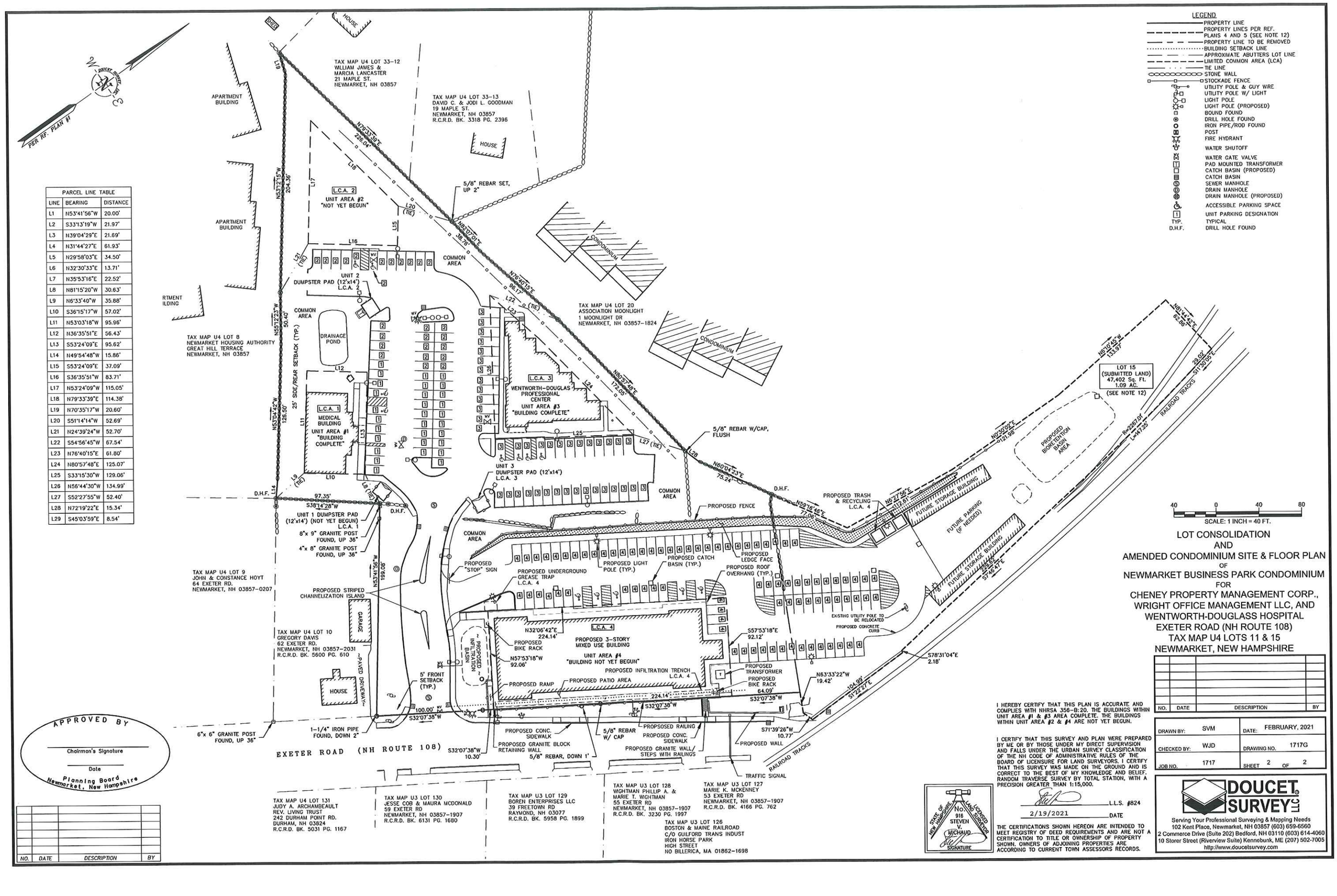
40 0 40 80
SCALE: 1 INCH = 40 FT.

LOT CONSOLIDATION AND AMENDED CONDOMINIUM SITE & FLOOR PLAN OF NEWMARKET BUSINESS PARK CONDOMINIUM FOR CHENEY PROPERTY MANAGEMENT CORP., WRIGHT OFFICE MANAGEMENT LLC, AND WENTWORTH-DOUGLASS HOSPITAL EXETER ROAD (NH ROUTE 108) TAX MAP U4 LOTS 11 & 15 NEWMARKET, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	SVM	DATE:	FEBRUARY, 2021
CHECKED BY:	WJD	DRAWING NO.	1717G
JOB NO.	1717	SHEET	1 OF 2

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com


PER RF. PLAN #1
PARCEL LINE TABLE
LINE | BEARING | DISTANCE
L1 | N53°41'56"W | 20.00'
L2 | S33°13'19"W | 21.97'
L3 | N39°04'29"E | 21.69'
L4 | N31°44'27"E | 61.93'
L5 | N29°58'03"E | 34.50'
L6 | N32°30'33"E | 13.71'
L7 | N35°53'16"E | 22.52'
L8 | N81°15'20"W | 30.63'
L9 | N6°33'40"W | 35.88'
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L22 | S54°56'45"W | 67.54'
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L24 | N80°57'48"E | 125.07'
L25 | S33°15'30"W | 129.06'
L26 | N56°44'30"W | 134.99'
L27 | S52°27'55"W | 52.40'
L28 | N72°19'22"E | 15.34'
L29 | S45°03'59"E | 8.54'
TAX MAP U4 LOT 33-12
WILLIAM JAMES &
MARCIA LANCASTER
21 MAPLE ST.
NEWMARKET, NH 03857
TAX MAP U4 LOT 33-13
DAVID C. & JODI L. GOODMAN
19 MAPLE ST.
NEWMARKET, NH 03857
R.C.R.D. BK. 3318 PG. 2396
APARTMENT BUILDING
HOUSE
L.C.A. 2
UNIT AREA #2
"NOT YET BEGUN"
5/8" REBAR SET, UP 2"
COMMON AREA
UNIT 2
DUMPSTER PAD (12'x14')
L.C.A. 2
CONDOMINIUM
TAX MAP U4 LOT 20
ASSOCIATION MOONLIGHT
1 MOONLIGHT DR
NEWMARKET, NH 03857-1824
TAX MAP U4 LOT 8
NEWMARKET HOUSING AUTHORITY
GREAT HILL TERRACE
NEWMARKET, NH 03857
DRAINAGE POND
L.C.A. 1
MEDICAL BUILDING
UNIT AREA #1
"BUILDING COMPLETE"
L.C.A. 3
WENTWORTH-DOUGLAS PROFESSIONAL CENTER
UNIT AREA #3
"BUILDING COMPLETE"
5/8" REBAR W/CAP, FLUSH
UNIT 3
DUMPSTER PAD (12'x14')
L.C.A. 3
UNIT 1 DUMPSTER PAD
(12'x14') (NOT YET BEGUN)
L.C.A. 1
8"x 9" GRANITE POST FOUND, UP 36"
4"x 6" GRANITE POST FOUND, UP 36"
25' SIDE/REAR SETBACK (TYP.)
TAX MAP U4 LOT 9
JOHN & CONSTANCE HOYT
64 EXETER RD.
NEWMARKET, NH 03857-0207
TAX MAP U4 LOT 10
GREGORY DAVIS
62 EXETER RD.
NEWMARKET, NH 03857-2031
R.C.R.D. BK. 5600 PG. 610
GARAGE
HOUSE
PAVED DRIVEWAY
PROPOSED STRIPED CHANNELIZATION ISLAND
PROPOSED "STOP" SIGN
PROPOSED UNDERGROUND GREASE TRAP L.C.A. 4
PROPOSED LIGHT POLE (TYP.)
PROPOSED CATCH BASIN (TYP.)
PROPOSED LEDGE FACE
PROPOSED ROOF OVERHANG (TYP.)
PROPOSED INFILTRATION BASIN
5' FRONT SETBACK (TYP.)
L.C.A. 4
PROPOSED 3-STORY MIXED USE BUILDING
UNIT AREA #4
"BUILDING NOT YET BEGUN"
PROPOSED BIKE RACK
PROPOSED INFILTRATION TRENCH L.C.A. 4
PROPOSED TRANSFORMER
PROPOSED RAMP
PROPOSED PATIO AREA
PROPOSED CONC. SIDEWALK
PROPOSED GRANITE BLOCK RETAINING WALL
5/8" REBAR, DOWN 1'
PROPOSED RAILING
PROPOSED GRANITE WALL/ STEPS WITH RAILINGS
PROPOSED WALL
1-1/4" IRON PIPE FOUND, DOWN 2"
6"x 6" GRANITE POST FOUND, UP 36"
EXETER ROAD (NH ROUTE 108)
TRAFFIC SIGNAL
RAILROAD TRACKS
PROPOSED FENCE
PROPOSED TRASH & RECYCLING L.C.A. 4
EXISTING UTILITY POLE TO BE RELOCATED
PROPOSED CONCRETE CURB
FUTURE STORAGE BUILDING
FUTURE PARKING (IF NEEDED)
LOT 15
(SUBMITTED LAND)
47,402 Sq. Ft.
1.09 AC.
(SEE NOTE 12)
PROPOSED BIORETENTION BASIN AREA
TAX MAP U4 LOT 131
JUDY A. ARCHAMBEAULT
REV. LIVING TRUST
242 DURHAM POINT RD.
DURHAM, NH 03824
R.C.R.D. BK. 5031 PG. 1167
TAX MAP U3 LOT 130
JESSE COB & MAURA MCDONALD
59 EXETER RD
NEWMARKET, NH 03857-1907
R.C.R.D. BK. 6131 PG. 1680
TAX MAP U3 LOT 129
BOREN ENTERPRISES LLC
39 FREETOWN RD
RAYMOND, NH 03077
R.C.R.D. BK. 5958 PG. 1899
TAX MAP U3 LOT 128
WIGHTMAN PHILLIP A. &
MARIE T. WIGHTMAN
55 EXETER RD
NEWMARKET, NH 03857-1907
R.C.R.D. BK. 3230 PG. 1997
TAX MAP U3 LOT 127
MARIE K. MCKENNEY
53 EXETER RD
NEWMARKET, NH 03857-1907
R.C.R.D. BK. 4166 PG. 762
TAX MAP U3 LOT 126
BOSTON & MAINE RAILROAD
C/O GUILFORD TRANS INDUST
IRON HORSE PARK
HIGH STREET
NO BILLERICA, MA 01862-1698
LEGEND
PROPERTY LINE
PROPERTY LINES PER REF. PLANS 4 AND 5 (SEE NOTE 12)
PROPERTY LINE TO BE REMOVED
BUILDING SETBACK LINE
APPROXIMATE ABUTTERS LOT LINE
LIMITED COMMON AREA (LCA)
TIE LINE
STONE WALL
STOCKADE FENCE
UTILITY POLE & GUY WIRE
UTILITY POLE W/ LIGHT
LIGHT POLE
LIGHT POLE (PROPOSED)
BOUND FOUND
DRILL HOLE FOUND
IRON PIPE/ROD FOUND
POST
FIRE HYDRANT
WATER SHUTOFF
WATER GATE VALVE
PAD MOUNTED TRANSFORMER
CATCH BASIN (PROPOSED)
CATCH BASIN
SEWER MANHOLE
DRAIN MANHOLE
DRAIN MANHOLE (PROPOSED)
ACCESSIBLE PARKING SPACE
UNIT PARKING DESIGNATION
TYP. TYPICAL
D.H.F. DRILL HOLE FOUND
SCALE: 1 INCH = 40 FT.
APPROVED BY
Chairman's Signature
Date
Planning Board
Newmarket, New Hampshire
NO. DATE DESCRIPTION BY
I HEREBY CERTIFY THAT THIS PLAN IS ACCURATE AND COMPLIES WITH NHRSA 356-B:20. THE BUILDINGS WITHIN UNIT AREA #1 & #3 AREA COMPLETE. THE BUILDINGS WITHIN UNIT AREA #2 & #4 ARE NOT YET BEGUN.
I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.
L.L.S. #824
2/19/2021 DATE
THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.
STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 916
STEVEN V. MICHAUD
SIGNATURE
NO. DATE DESCRIPTION BY
LOT CONSOLIDATION
AND
AMENDED CONDOMINIUM SITE & FLOOR PLAN
OF
NEWMARKET BUSINESS PARK CONDOMINIUM
FOR
CHENEY PROPERTY MANAGEMENT CORP., WRIGHT OFFICE MANAGEMENT LLC, AND WENTWORTH-DOUGLASS HOSPITAL
EXETER ROAD (NH ROUTE 108)
TAX MAP U4 LOTS 11 & 15
NEWMARKET, NEW HAMPSHIRE
DRAWN BY: SVM
DATE: FEBRUARY, 2021
CHECKED BY: WJD
DRAWING NO. 1717G
JOB NO. 1717
SHEET 2 OF 2
DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
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2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

Drawing Name: P:\2025\20-025\Internal Drawing Files\200250.dwg
Tue, 23 Mar 2021 - 12:04pm

PLAN INTENT

CONSTRUCT TWO BUILDINGS. ONE THREE-STORY MIXED USE BUILDING WITH COMMERCIAL SPACE AND ON THE FIRST FLOOR AND 24 RESIDENTIAL UNITS ON THE SECOND AND THIRD FLOORS. ONE TWO-STORY BUILDING WITH 4 RESIDENTIAL UNITS AND GARAGES ON THE GROUND LEVEL.

GENERAL NOTES

1. REFERENCE: TAX MAP U4, LOTS 11 & 15
2. TOTAL COMBINED PARCEL AREA: 211,045 SQ. FT. OR 4.85 AC.
3. OWNER OF RECORD: CHENEY PROPERTY MANAGEMENT CORP.
   74 EXETER ROAD, UNIT 1A
   NEWMARKET, NH 03857
   R.C.R.D. BOOK 4496 PAGE 130,
   BOOK 3519 PAGE 1820, BOOK 5560 PAGE 2305,
   BOOK 5978 PAGE 220, AND BOOK 6095 PAGE 1299

GENERAL NOTES CONTINUED

4. ZONE: M-2A
   DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	10,890 SQ. FT. OR 1/4 AC.
MIN. FRONTAGE	50 FT.
MIN. ROAD SETBACK	5 FT.
MAX. ROAD SETBACK	10 FT.
MIN. SIDE/REAR SETBACK	10 FT.
MAX. BUILDING HEIGHT	35 FT.
MAX. RESIDENTIAL DENSITY	6 UNITS/ACRE (SEE NOTE 12)

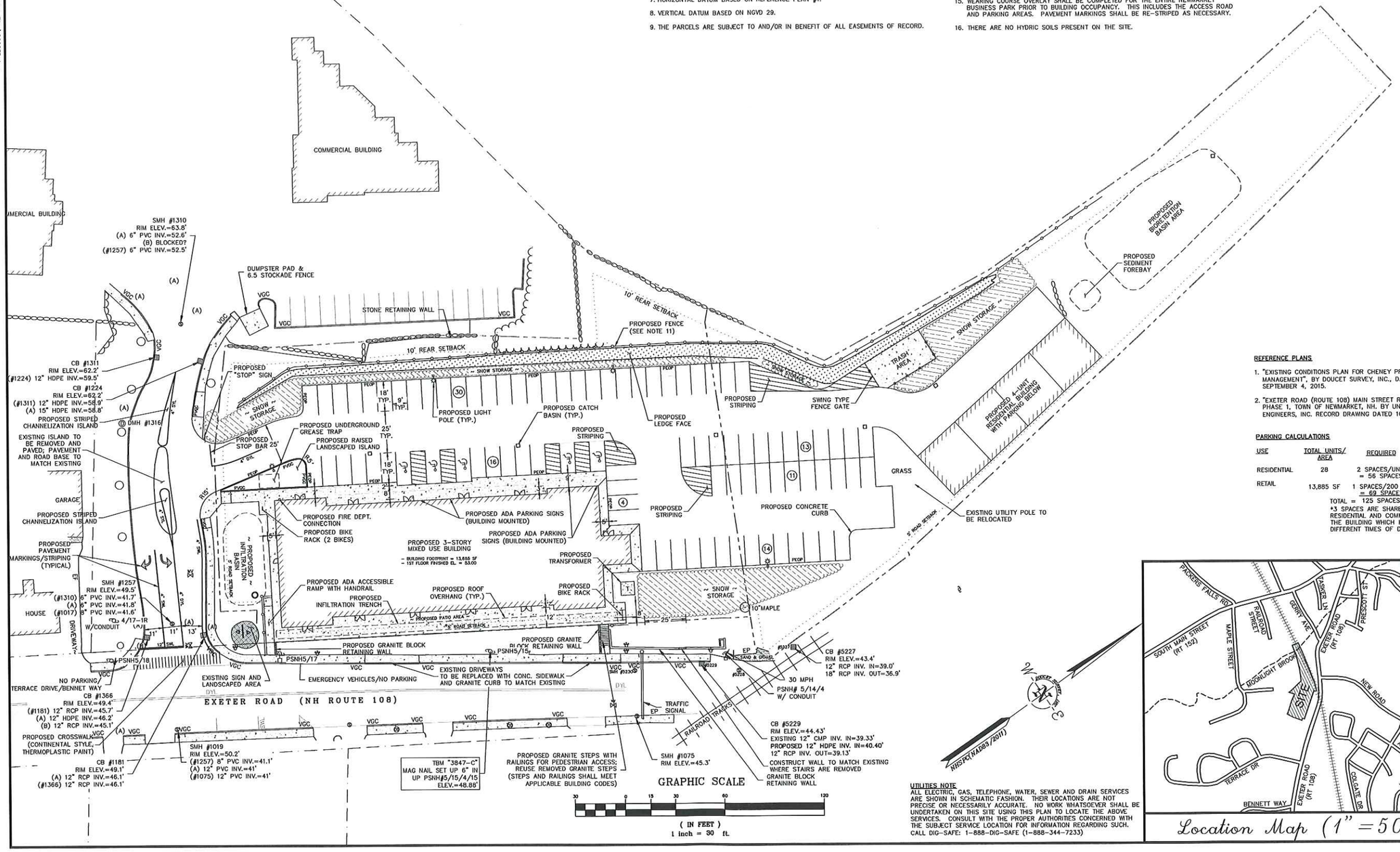
   ZONING INFORMATION IS BASED ON THE TOWN OF NEWMARKET ZONING ORDINANCE DATED 8/7/13.

5. FIELD SURVEY PERFORMED BY DOUCET SURVEY, INC. AT VARIOUS TIMES BETWEEN 2003 AND 2015.
6. FLOOD HAZARD ZONE: "X". PER FIRM MAP #33015C0230E, DATED 5/17/05.
7. HORIZONTAL DATUM BASED ON REFERENCE PLAN #1.
8. VERTICAL DATUM BASED ON NGVD 29.
9. THE PARCELS ARE SUBJECT TO AND/OR IN BENEFIT OF ALL EASEMENTS OF RECORD.

GENERAL NOTES CONTINUED

10. IF THE FUTURE USE OF THE BUILDING WARRANTS A RAILING ON THE PATIO, IT SHALL BE A BLACK METAL ORNAMENTAL RAILING AND MEET ALL APPLICABLE SAFETY REQUIREMENTS.
11. THE PROPOSED FENCE AT THE TOP OF THE LEDGE CUT SHALL BE WOODEN PRIVACY OR ORNAMENTAL METAL FENCING. THE FENCE SHALL NOT BE CHAIN LINK.
12. LOT 15 WHICH NOW INCLUDES THE NEWLY PURCHASED B&M RAILROAD LOT WILL BE INCORPORATED INTO THE NEWMARKET BUSINESS PARK CONDOMINIUM. THE TOTAL PROPOSED AREA OF THE NEWMARKET BUSINESS PARK WITH THE ADDITION OF LOT 15 IS 4.85 ACRES. THE REST STAYS THE SAME EXCEPT THE NUMBER OF UNITS CHANGES TO 28. PER M-2A ZONING REGULATIONS, 6 RESIDENTIAL UNITS PER ACRE ARE ALLOWED. THEREFORE, 29 UNITS ARE ALLOWED FOR THIS PROJECT. ONLY 28 UNITS ARE PROPOSED.
13. OFFSITE SNOW REMOVAL SHALL BE PROVIDED, IF NECESSARY.
14. THE SITE LAYOUT WILL ACCOMMODATE DELIVERIES FROM A 32 FT LONG SINGLE UNIT VEHICLE.
15. WEARING COURSE OVERLAY SHALL BE COMPLETED FOR THE ENTIRE NEWMARKET BUSINESS PARK PRIOR TO BUILDING OCCUPANCY. THIS INCLUDES THE ACCESS ROAD AND PARKING AREAS. PAVEMENT MARKINGS SHALL BE RE-STRIPED AS NECESSARY.
16. THERE ARE NO HYDRIC SOILS PRESENT ON THE SITE.

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.



REFERENCE PLANS

1. "EXISTING CONDITIONS PLAN FOR CHENEY PROPERTY MANAGEMENT", BY DOUCET SURVEY, INC., DATED SEPTEMBER 4, 2015.
2. "EXETER ROAD (ROUTE 108) MAIN STREET RECONST. - PHASE 1, TOWN OF NEWMARKET, NH. BY UNDERWOOD ENGINEERS, INC. RECORD DRAWING DATED 10/05.

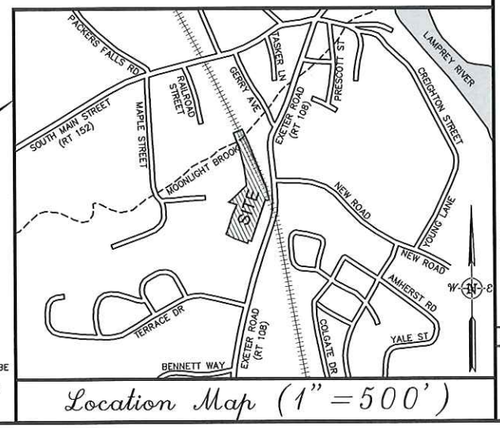
PARKING CALCULATIONS

USE	TOTAL UNITS/ AREA	REQUIRED	PROVIDED
RESIDENTIAL	28	2 SPACES/UNIT = 56 SPACES	52
RETAIL	13,885 SF	1 SPACES/200 SF = 69 SPACES	44
		TOTAL = 125 SPACES	96 SPACES

+3 SPACES ARE SHARED BETWEEN THE RESIDENTIAL AND COMMERCIAL USE OF THE BUILDING WHICH HAVE DEMANDS AT DIFFERENT TIMES OF DAY.

UTILITIES NOTE

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Location Map (1" = 500')

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS
1.	REVISED SITE LAYOUT	3/23/21	MJS

SEAL

DATE: 2/23/21
SCALE: 1"=30'
DESIGNED BY: MJS
DRAWN BY: AJA/JLG
APPROVED BY: MJS
DWG FILE: 200250.dwg

SITE PLAN
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11 & 15
50-56 EXETER ROAD NEWMARKET, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4927
E-MAIL: MJSPRINCIPAL@ENGINEERING.COM

JOB: 20-025

C1

Drawing Name: P:\20pro\20-025\Internal\Drawing Files\20025C.dwg
Tue, 23 Feb 2021 - 1:39pm

DEMOLITION NOTES

1. LOCATIONS OF UTILITIES ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE SITE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES. CONTRACTOR SHALL CALL DIGSAFE AT 1-888-DIG-SAFE (1-888-344-7233) PRIOR TO COMMENCING WITH ANY DEMOLITION WORK.

2. CONSTRUCTION SEQUENCING SHALL MEET THE REQUIREMENTS OF THE CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES FOUND ON SHEET D1. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONDUCTING EARTHWORK ACTIVITIES.

3. ALL DEMOLITION MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS SPECIFICALLY INDICATED OTHERWISE ON THIS PLAN. MATERIALS SHALL BE REMOVED FROM THE SITE AS SOON AS POSSIBLE TO PREVENT UNDUE BURDEN ON THE BUILDING CONTRACTOR OF WORKING AROUND STOCKPILED MATERIALS.

4. ALL DEMOLITION MATERIALS SHALL BE PROPERLY DISPOSED OF OFF SITE PER CURRENT LOCAL, STATE, AND FEDERAL REGULATIONS. ALL STUMPS SHALL BE REMOVED FROM THE SITE.

5. THE INTENT OF THIS PLAN IS TO SHOW THE DEMOLITION REQUIREMENTS. THE DEMOLITION OR REMOVAL OF ADDITIONAL ITEMS MAY BE REQUIRED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A SITE VISIT TO VERIFY ALL DEMOLITION REQUIREMENTS FOR THE PROJECT.

6. PROPERTY BOUNDARY MONUMENTS SHALL BE SET AS SHOWN. EXISTING MONUMENTATION THAT IS DISTURBED DURING CONSTRUCTION SHALL BE RESET BY A NH LICENSED LAND SURVEYOR OR PERSONS UNDER THE DIRECT SUPERVISION OF A NH LLS. DOUCET SURVEY, INC. (659-6560) IS THE SURVEYOR OF RECORD FOR THIS PROPERTY. COSTS FOR THIS WORK SHALL BE PAID FOR BY THE SITE CONTRACTOR.

7. THE SITE CONTRACTOR SHALL PROVIDE DAILY MAINTENANCE AS NECESSARY, INCLUDING SWEEPING THE EXISTING ROADS AND SIDEWALKS, TO REMOVE DEPOSITED MATERIALS, SPILLS, ETC. ASSOCIATED WITH THE SITE AND BUILDING CONSTRUCTION ACTIVITIES.

8. ALL WORK SHALL BE CONDUCTED IN A MANNER TO PROTECT EXISTING FEATURES TO REMAIN AS SHOWN. THIS INCLUDES ONSITE FEATURES AND THOSE FEATURES WITHIN THE PUBLIC R.O.W. DAMAGE TO THESE FEATURES SHALL BE REPAIRED/REPLACED IN KIND BY THE SITE CONTRACTOR.

9. IN THE LOCATIONS INDICATED, REMOVE DRIVEWAY PAVEMENT AND SAWCUT PER DETAIL (TYP. OF 2 DRIVEWAYS). REMOVE CONCRETE SIDEWALK AT TIP-DOWNS AND REMOVE/RELOCATE GRANITE CURB TO MAINTAIN UNIFORM CURB HEIGHT (TO MATCH EXISTING).

10. ALL WATER AND SEWER WORK SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE TOWN OF NEWMARKET DEPARTMENT OF PUBLIC WORKS WATER & WASTEWATER DIVISION. CONSULT WITH THIS DEPARTMENT PRIOR TO STARTING WORK.

11. ON THE NORTHERNMOST PART OF THE COMBINED PARCEL ALL RAILROAD TRACKS, TIES, DEBRIS, ETC. SHALL BE REMOVED AND PROPERLY DISPOSED OFFSITE.

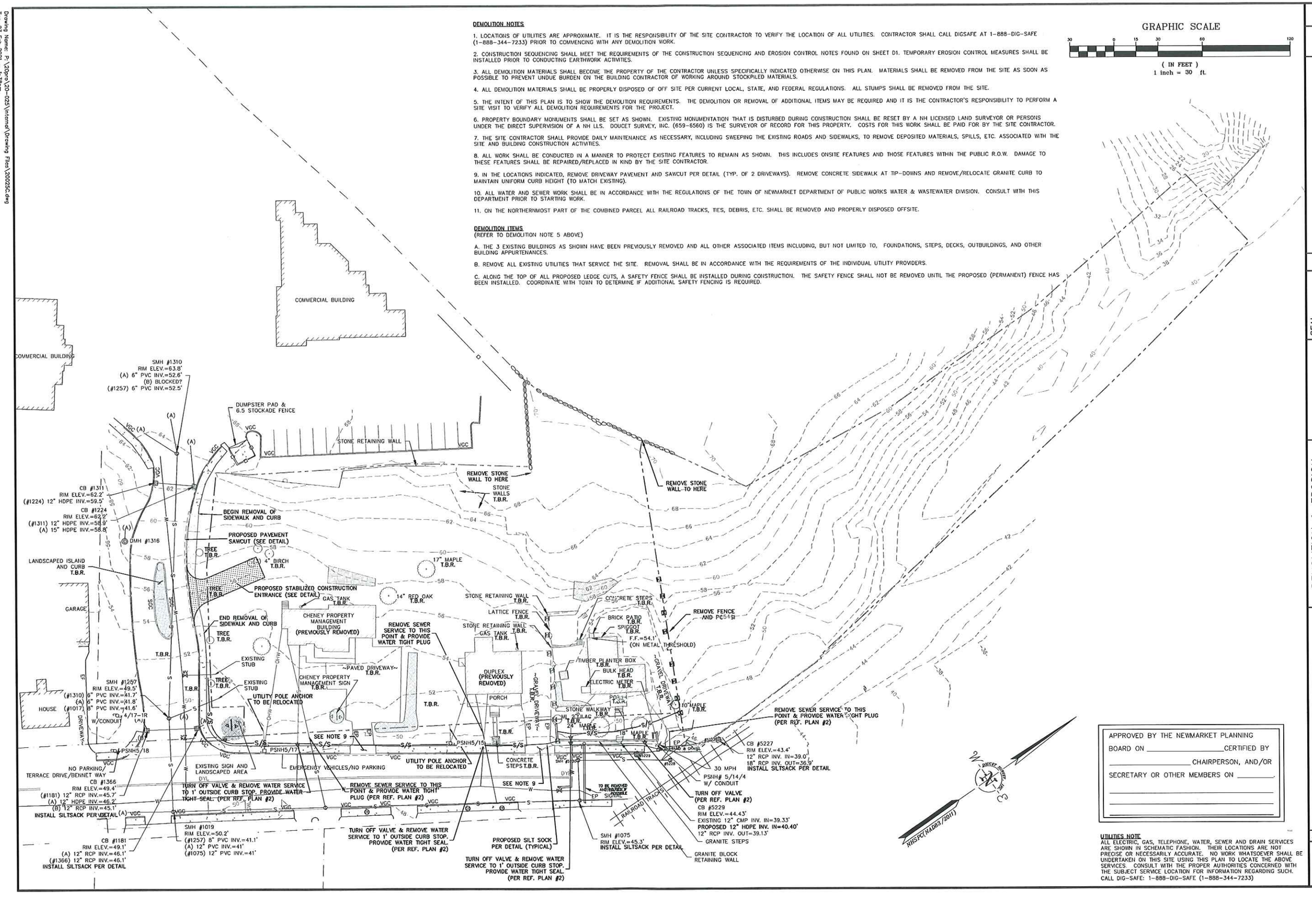
DEMOLITION ITEMS
(REFER TO DEMOLITION NOTE 5 ABOVE)

A. THE 3 EXISTING BUILDINGS AS SHOWN HAVE BEEN PREVIOUSLY REMOVED AND ALL OTHER ASSOCIATED ITEMS INCLUDING, BUT NOT LIMITED TO, FOUNDATIONS, STEPS, DECKS, OUTBUILDINGS, AND OTHER BUILDING APPURTENANCES.

B. REMOVE ALL EXISTING UTILITIES THAT SERVICE THE SITE. REMOVAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE INDIVIDUAL UTILITY PROVIDERS.

C. ALONG THE TOP OF ALL PROPOSED LEDGE CUTS, A SAFETY FENCE SHALL BE INSTALLED DURING CONSTRUCTION. THE SAFETY FENCE SHALL NOT BE REMOVED UNTIL THE PROPOSED (PERMANENT) FENCE HAS BEEN INSTALLED. COORDINATE WITH TOWN TO DETERMINE IF ADDITIONAL SAFETY FENCING IS REQUIRED.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.



APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

UTILITIES NOTE
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NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS

SEAL

DATE: 2/23/21
SCALE: 1"=30'
DESIGNED BY: MJS
DRAWN BY: AJA/JLG
APPROVED BY: MJS
DWG. FILE: 20025C.dwg

DEMOLITION & EROSION CONTROL PLAN

prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11 & 15
52-56 EXETER ROAD NEWMARKET, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWFIELDS, NH 03856
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJSENGINEERING.COM

JOB: 20-025

C2

Drawing Name: P:\20pro\20-025\Internal\Drawing Files\200250.dwg
Tue, 23 Mar 2021 - 12:22pm

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

_____

_____

_____

NOTES:

1. THE HATCHED AREA DEPICTS THE PORTION OF THE ROOF RUNOFF THAT IS COLLECTED AND TRANSPORTED TO THE INFILTRATION BASIN. THE RUNOFF FROM THE REMAINING ROOF AREA SHALL BE COLLECTED AND TRANSPORTED TO THE UNDERGROUND INFILTRATION TRENCH BELOW THE FRONT PATIO OF THE BUILDING.

COMMERCIAL BUILDING

COMMERCIAL BUILDING

SMH #1310
RIM ELEV.=63.8'
(A) 6" PVC INV.=52.6'
(B) BLOCKED?
(#1257) 6" PVC INV.=52.5'

DUMPSTER PAD & 6.5 STOCKADE FENCE

PROPOSED 6" PERFORATED UNDERDRAIN INV.=50.16 (SEE DETAIL)

ANTICIPATED LEDGE CUT; USE SEGMENTAL BLOCK RETAINING WALL IF LEDGE NOT ENCOUNTERED (TYP.)

STONE RETAINING WALL

PROPOSED CB 4
RIM= 51.32
INV. IN (18" STORM DRAIN)=46.48
INV. IN (6" UNDERDRAIN)= 46.53
INV. OUT = 46.38

PROPOSED CB 3
RIM= 52.06
INV. IN= 47.01
INV. OUT= 46.91

CB #1311
RIM ELEV.=62.2'
(#1224) 12" HDPE INV.=59.5'

CB #1224
RIM ELEV.=62.2'
(#1311) 12" HDPE INV.=58.9'
(A) 15" HDPE INV.=58.8'

DMH #1316

PROPOSED UNDERGROUND GREASE TRAP

PROPOSED 6" PERFORATED UNDERDRAIN INV.=49.73 (SEE DETAIL)

6" PVC ROOF DRAIN COLLECTOR INV. OUT =50.96'

PROPOSED CB 1
RIM= 52.35
INV. OUT= 48.10

PROPOSED 15" STORM DRAIN

PROPOSED CB 2
RIM= 52.35
INV. IN= 47.68
INV. OUT= 47.58

ROOF RUNOFF TO BE COLLECTED BY ROOF GUTTER, DOWNSPOUT AND COLLECTION SYSTEM (SEE NOTE #1)

PROPOSED 18" STORM DRAIN

PROPOSED 18" STORM DRAIN

EXISTING ISLAND TO BE REMOVED AND PAVED; PAVEMENT AND ROAD BASE TO MATCH EXISTING

PROPOSED INFILTRATION BASIN BOTTOM ELEV.=49.50 BERM ELEV. = 52.25

GARAGE

TIE WATER SERVICE INTO EXISTING 8" STUB

PROP. FDC

6" PVC ROOF LEADER INV. OUT=51.35'

PROPOSED 2'W x 5'L RIPRAP APRON, TYP. (d50=4")

6" PVC ROOF LEADER INV. OUT=51.35' (FROM FLAT ROOF SECTION, COORD. W/ ARCH.)

PROPOSED 2" COPPER WATER LINE (DOMESTIC)

PROPOSED 6" DI WATER LINE (FIRE SERVICE)

PROPOSED 3-STORY MIXED USE BUILDING
-BUILDING FOOTPRINT = 13,885 SF
-1ST FLOOR FINISHED EL. = 53.00

6" ROOF DRAIN & GUTTER SYSTEM COLLECTION PIPE. COORDINATE GUTTER DOWNSPOUT LOCATIONS WITH ARCH. PLANS

TIE SEWER SERVICE INTO EXISTING 6" SDR35 STUB (CONFIRM INVERT IN FIELD)

PROPOSED 6" SDR 35 PVC SEWER INV.=49.50

PROPOSED 6" SEWER SERVICE CHIMNEY WITH CLEANOUT (SEE DETAIL) INV. IN BEFORE BEND=49.49

INV. OUT=43.20

6" PVC ROOF DRAIN COLLECTOR INV. OUT =50.47

PROPOSED TRANSFORMER

SMH #1257
RIM ELEV.=49.5'
(#1310) 6" PVC INV.=41.7'
(A) 6" PVC INV.=41.8'
HOUSE (#1017) 8" PVC INV.=41.6'

4/17-1R W/CONDUIT

10" MAPLE

8x8x6 TEE, TYP.

OBS. WELL

8x8x6 TEE, TYP.

PSNH5/18

PSNH5/17

PSNH5/15

NO PARKING/ TERRACE DRIVE/BENNET WAY

EXISTING SHUT AND LANDSCAPED AREA

EMERGENCY VEHICLES/NO PARKING

EXETER ROAD (NH ROUTE 108)

CB #1366
RIM ELEV.=49.4'
(#1181) 12" RCP INV.=45.7'
(A) 12" HDPE INV.=46.2'
(B) 12" RCP INV.=45.1'

CB #1181
RIM ELEV.=49.1'
(A) 12" RCP INV.=46.1'
(#1366) 12" RCP INV.=46.1'

SMH #1019
RIM ELEV.=50.2'
(#1257) 8" PVC INV.=41.1'
(A) 12" PVC INV.=41'
(#1075) 12" PVC INV.=41'

PROPOSED OCS #1 RIM ELEV.=51.40'
6"Hx6"W ORIFICE=50.80'
6" PVC INV. IN=47.00'
12" RCP INV. OUT=46.50'
L=36' (EXISTING & PROPOSED) S=0.011

CONNECT 6" SOLID PVC TO 8" SLOTTED PVC
6" PVC INV. OUT = 49.87

TBM "384" AIL SET UP ON PSNH#5/15, ELEV.=49.87

PROPOSED 5'W INFILTRATION TRENCH BOTTOM ELEV.=48.85
8" SLOTTED PVC PIPE ELEV.=49.70
6" PVC PIPE INV. OUT=49.87
(SEE DETAIL, D5)

PROPOSED GRANITE BLOCK WALL; TOP OF WALL ELEVATION TO MATCH HIGH SIDE GRADE PLUS 0.5'

PROPOSED GRANITE STEPS, RAILING & RETAINING WALL; TOP OF WALL ELEVATION TO MATCH HIGH SIDE GRADE PLUS 0.5'. (5'W, 1' DEEP TREAD, 0.53' RISE) STEPS AND RAILINGS SHALL MEET APPLICABLE BUILDING CODES

SMH #1075
RIM ELEV.=45.3'

GRANITE BLOCK RETAINING WALL

TRAFFIC SIGNAL

RAILROAD TRACKS

CB #5229
RIM ELEV.=44.43'
EXISTING 12" CMP INV. IN=39.33'
PROPOSED 12" HDPE INV. IN=40.40'
12" RCP INV. OUT=39.13'

CB #5227
RIM ELEV.=43.4'
12" RCP INV. IN=39.0'
18" RCP INV. OUT=36.9'

30 MPH
PSNH# 5/14/4
W/ CONDUIT

PROPOSED EMERGENCY SPILLWAY

PROPOSED 8" CPP OCS #2
BEEHIVE GRATE RIM ELEV. = 45.00
UNDERDRAIN INV. IN=37.75
3" DIAM. ORIFICE AT INV.=42.30
6" DIAM. ORIFICE AT INV.=43.10
6" DIAM. ORIFICE AT INV.=44.10
6" INV. OUT=39.00

PROPOSED RIPRAP OUTLET #1 SEE DETAIL

PROPOSED BIORETENTION BASIN

1' STONE WALL

SNOW STORAGE

TRASF & RECYCLING PAD

PROP. SEDIMENT FOREBAY
TOP OF CHECK DAM=45.27
BOTTOM=43.00

PROPOSED 4-UNIT RESIDENTIAL BUILDING WITH PARKING BELOW

PROPOSED CB 5
RIM: 50.82
INV.IN (18" STORM DRAIN)= 46.15
INV. IN (6" UNDERDRAIN) = 46.20
INV. OUT= 46.05'

PROPOSED 18" STORM DRAIN

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

UTILITIES NOTE
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NO.	DATE	INT.
REVISIONS		
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1.	REVISED SITE LAYOUT	3/23/21	MJS

SEAL

DATE: 2/23/21
SCALE: 1"=30'
DESIGNED BY: MJS
DRAWN BY: AJA/AG
APPROVED BY: MJS
DWG. FILE: 200250.dwg

GRADING, DRAINAGE, & UTILITIES PLAN
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11 & 15
52-56 EXETER ROAD NEWMARKET, NH

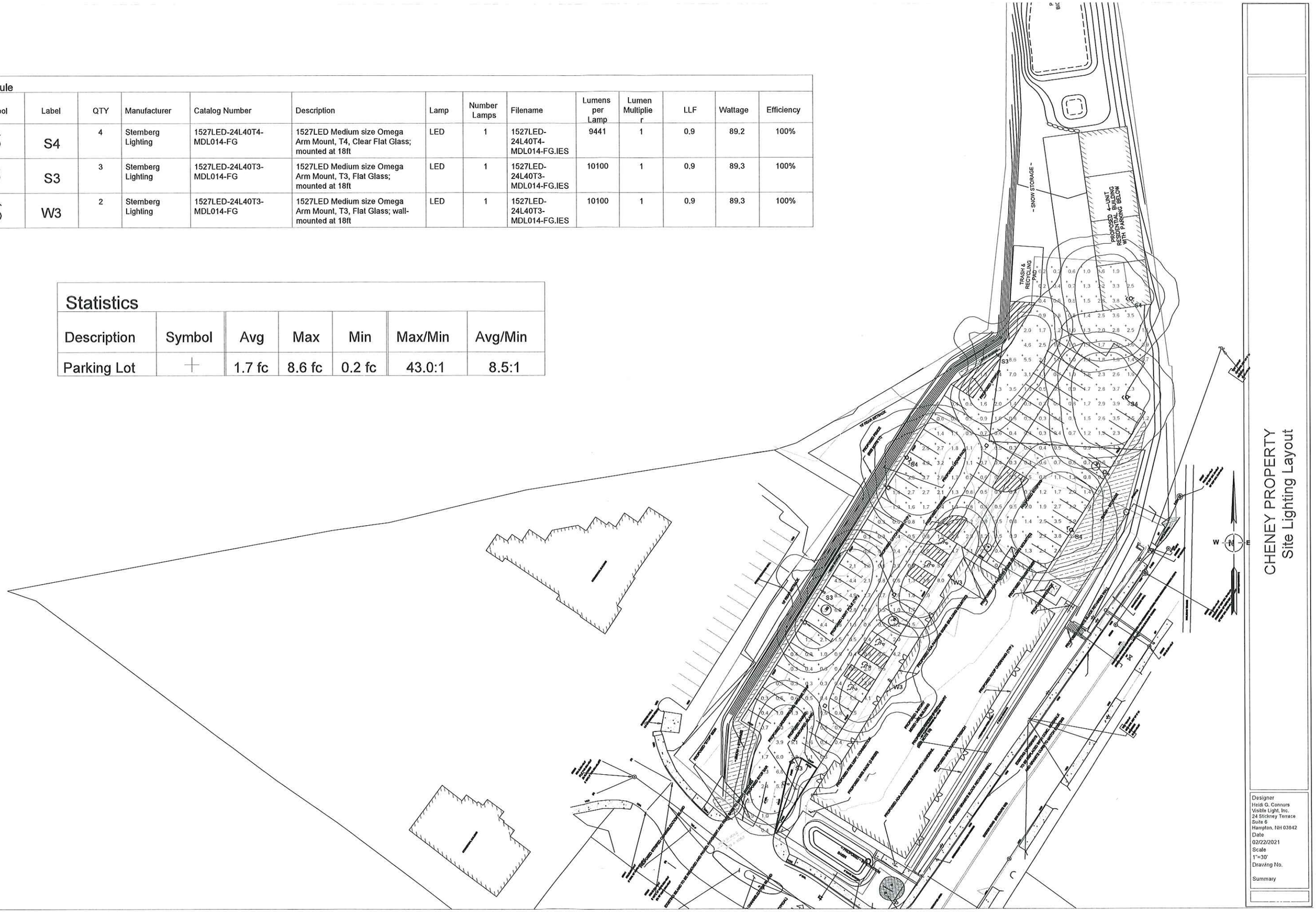
MJS ENGINEERING, P.C.
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PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJSENGINEERING.COM

JOB: 20-025

C3

Schedule												
Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	Lumen Multiplier	LLF	Wattage	Efficiency
	S4	4	Stemberg Lighting	1527LED-24L40T4-MDL014-FG	1527LED Medium size Omega Arm Mount, T4, Clear Flat Glass; mounted at 18ft	LED	1	1527LED-24L40T4-MDL014-FG.IES	9441	1	0.9	89.2	100%
	S3	3	Stemberg Lighting	1527LED-24L40T3-MDL014-FG	1527LED Medium size Omega Arm Mount, T3, Flat Glass; mounted at 18ft	LED	1	1527LED-24L40T3-MDL014-FG.IES	10100	1	0.9	89.3	100%
	W3	2	Stemberg Lighting	1527LED-24L40T3-MDL014-FG	1527LED Medium size Omega Arm Mount, T3, Flat Glass; wall-mounted at 18ft	LED	1	1527LED-24L40T3-MDL014-FG.IES	10100	1	0.9	89.3	100%

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	1.7 fc	8.6 fc	0.2 fc	43.0:1	8.5:1



CHENEY PROPERTY
Site Lighting Layout

Designer
Heidi G. Connors
Visible Light, Inc.
24 Stickney Terrace
Suite 6
Hampton, NH 03842

Date
02/22/2021

Scale
1"=30'

Drawing No.

Summary

Drawing Name: P:\20pro\20-025\Internal\Drawing Files\20025_DETAILS.dwg
Tue, 23 Feb 2021 - 2:39pm

AREA OF DISTURBANCE/STABILIZATION
A. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL THE AREA OF UNSTABILIZED SOIL EXCEED 5 ACRES AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.
B. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
B.1. IN AREAS TO BE PAVED, BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2006, ITEM NO. 304.1 OR 304.2 HAVE BEEN INSTALLED;
B.2. IN AREAS NOT TO BE PAVED
B.2.1. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
B.2.2. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
B.2.3. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.03.
C. ALL DISTURBED AREAS SHALL BE TEMPORARILY STABILIZED WITHIN 45 DAYS AND PERMANENTLY STABILIZED NO LATER THAN 3 DAYS AFTER FINAL GRADING.

EROSION CONTROL PRACTICES
A. INSTALLATION
A.1. INSTALL ALL EROSION CONTROLS AS SHOWN ON THE GRADING PLAN, TYPICAL DETAILS, AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE. MANUFACTURER'S SPECIFICATIONS SHALL BE FOLLOWED.
B. INSPECTION
B.1. INSPECT ALL EROSION CONTROLS WEEKLY AND AFTER EVERY RAIN EVENT OF 0.25 INCHES OR GREATER UNLESS OTHERWISE NOTED.
B.2. TEMPORARY STABILIZATION PRACTICES SHALL BE INSPECTED ONCE PER WEEK DURING CONSTRUCTION UNTIL EXPOSED SURFACES ARE STABILIZED.
B.3. ANY SIGNS OF RILL OR GULLY EROSION SHALL BE IMMEDIATELY REPAIRED.
C. MAINTENANCE
C.1. MAINTAIN EROSION CONTROLS PER THE TYPICAL DETAILS AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE.
D. REMOVAL
D.1. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE 85% VEGETATIVE COVER HAS BEEN ESTABLISHED.
D.2. AFTER REMOVAL, ALL DISTURBED AREAS SHALL BE REGRADED, FERTILIZED, AND RESEEDED. MONITOR TO ENSURE VEGETATIVE GROWTH IS ESTABLISHED AND REPAIR AS NEEDED UNTIL MINIMUM OF 85% VEGETATIVE COVER IS ESTABLISHED.

COLD WEATHER SITE STABILIZATION
A. SHALL BE UTILIZED BETWEEN NOVEMBER 30TH AND MAY 1ST. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE LIMITED TO 1 ACRE AND SHALL BE PROTECTED AGAINST EROSION BY THE FOLLOWING METHODS PRIOR TO ANY THAW OR SPRING MELT EVENT.
B. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 30TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 30TH, SHALL BE SEEDED AND COVERED WITH 3-4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING OR TACKIFIER, OR 2 INCHES OF EROSION CONTROL MIX MEETING THE FOLLOWING CRITERIA;
B.1. THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 25% AND 65%, DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS;
B.2. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS THE ORGANIC MATERIAL;
B.3. THE MIX SHALL NOT CONTAIN SILTS, CLAYS, OR FINE SANDS;
B.4. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 100% PASSING A 3-INCH SCREEN, 90% TO 100% PASSING A 1-INCH SCREEN, 70% TO 100% PASSING A 0.75-INCH SCREEN, AND 30% TO 75% PASSING A 0.25 INCH SCREEN;
B.5. THE MIX pH SHALL BE BETWEEN 5.0 AND 8.0;
C. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 30TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 30TH, SHALL BE SEEDED AND COVERED WITH A PROPERLY INSTALLED AND ANCHORED EROSION CONTROL BLANKET OR WITH A MINIMUM 4 INCH THICK NESS OF EROSION CONTROL MIX MEETING THE CRITERIA SPECIFIED ABOVE IN (B)(1-5);
D. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX, MEETING THE CRITERIA SPECIFIED IN (B)(1-5) SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1-INCH IN DEPTH.
E. INSTALLATION OF EROSION CONTROL BLANKETS SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH OR ON FROZEN GROUND.
F. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (A) OR (B) SHALL BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
G. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 30TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 30TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
H. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3-INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2006, ITEM NO. 304.1 OR 304.2.

TEMPORARY VEGETATION
A. SITE PREPARATION
A.1. INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED ABOVE.
A.2. ENSURE RUNOFF IS DIVERTED FROM SEEDED AREA.
A.3. ON SLOPES OF 4:1 OR STEEPER, CREATE HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.
B. SEED BED PREPARATION
B.1. REMOVE STONES AND TRASH FROM AREA TO BE SEEDED.
B.2. COMPACTED SOIL SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME, AND SEED.
B.3. LOW PHOSPHATE, SLOW RELEASE NITROGEN OR LIMESTONE SHALL BE USED. APPLY 10-0-10 LOW PHOSPHATE FERTILIZER AT A RATE OF 600 LBS PER ACRE. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.
C. SEEDING
C.1. SEED PER THE FOLLOWING RECOMMENDATIONS

SEASON	APPLICATION DATE	MIXTURE TYPE	QUANTITY (lb./Ac.)
EARLY SPRING	NO LATER THAN 5/15	OATS	80
LATE SPRING/ FALL	4/1 TO 6/1 & 8/15 TO 9/15	PERENNIAL RYE	30
EARLY SPRING/ FALL	4/1 TO 5/15 & 8/15 TO 9/15	ANNUAL RYE	40
FALL	8/15 TO 9/15	WINTER RYE	112

C.2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.
C.3. TEMPORARY SEEDING SHOULD TYPICALLY OCCUR PRIOR TO SEPTEMBER 15TH.
C.4. AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHOULD BE COVERED WITH HAY OR STRAW MULCH. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.
D. MAINTENANCE
D.1. TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AND AFTER ANY RAINFALL EXCEEDING ½ INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD ALSO BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
D.2. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS. IF IT IS TOO LATE IN THE PLANTING SEASON TO APPLY ADDITIONAL SEED, THEN OTHER TEMPORARY STABILIZATION MEASURES SHOULD BE IMPLEMENTED.
D.3. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
D.4. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (E.G., MULCH) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

PERMANENT VEGETATION
A. SITE PREPARATION
A.1. REFER TO SITE PREPARATION FOR TEMPORARY SEEDING.
B. SEED BED PREPARATION
B.1. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
B.2. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
B.3. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
B.4. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
B.5. LOW PHOSPHATE, SLOW RELEASE NITROGEN OR LIMESTONE SHALL BE USED. APPLY 10-0-10 LOW PHOSPHATE FERTILIZER AT A RATE OF 600 LBS PER ACRE. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.
C. SEEDING
C.3. UNLESS OTHERWISE NOTED, GRASS SEED MIXTURE 'C' SHALL BE APPLIED AT THE SPECIFIED RATE AS NOTED IN THE 'SEED MIXTURES FOR PERMANENT VEGETATION' TABLE.
C.4. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR.
C.5. WHERE FEASIBLE, EXCEPT WHERE EITHER A CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
C.6. WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
C.7. SLOPES MUST BE NO STEEPER THAN 2 TO 1.
C.8. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
C.9. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.

D. MAINTENANCE
D.1. PERMANENTLY SEEDED AREAS SHOULD BE INSPECTED MONTHLY.
D.2. MOW SEEDED AREAS AS NECESSARY.
D.3. BASED ON INSPECTION, AREAS SHOULD BE REPAIRED AND/OR RESEEDED TO ENSURE 85% OF THE SOIL SURFACE IS COVERED BY VEGETATION.

MULCHING & EROSION CONTROL MATTING
A. GENERAL
A.1. APPLY PRIOR TO A STORM EVENT. CLOSELY MONITOR THE WEATHER TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
A.2. MULCHING WITHIN A SPECIFIED TIME PERIOD FROM ORIGINAL SOIL EXPOSURE
A.2.1. WITHIN 100 FEET OF WETLANDS THE TIME PERIOD SHOULD BE NO GREATER THAN 7 DAYS.
A.2.2. IN OTHER AREAS IT SHALL BE NO GREATER THAN 14 DAYS.
B. TEMPORARY MULCHING
B.1. HAY OR STRAW MULCHES
B.1.1. ORGANIC MULCHES INCLUDING HAY AND STRAW SHALL BE AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS.
B.1.2. APPLICATION RATE SHALL BE 2 BALES/1,000 SF (70-90 POUNDS) OR 1.5-2.0 TONS/ACRE TO COVER 75-90% OF THE GROUND.
B.1.3. ANCHORING
B.1.3.1. NETTING: NETTING SHALL BE JUTE, WOOD FIBER, OR BIODEGRADABLE PLASTIC NETTING INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
B.1.3.2. TACKIFIER: APPLY POLYMER OR ORGANIC TACKIFIER TO ANCHOR HAY OR STRAW MULCH. APPLY PER MANUFACTURER'S SPECIFICATIONS. TYPICAL APPLICATION RATES ARE 40-60 LBS/ACRE FOR POLYMER MATERIAL AND 80-120 LBS/ACRE FOR ORGANIC LIQUID.
B.1.4. WINTER APPLICATION: APPLY TO A DEPTH OF 4 INCHES OR DOUBLE THE ABOVE LISTED APPLICATION RATE. NOTE THAT IF SEEDING IS NECESSARY, MULCH WILL NEED TO BE REMOVED AND THE AREA SEEDED AND MULCHED IN THE SPRING.
B.1.5. MAINTENANCE
B.1.5.1. INSPECT PERIODICALLY AND AFTER RAIN STORMS FOR RILLS OR DISPLACEMENT OF MULCH. REPAIR AS NECESSARY. CONTINUE INSPECTIONS UNTIL 85% VEGETATIVE COVER IS ESTABLISHED.
B.2. EROSION CONTROL BLANKET OR MATTING
B.2.1. REFER TO PLANS FOR TYPICAL EROSION CONTROL MATTING DETAIL. INSTALL PER MANUFACTURERS SPECIFICATIONS.
B.2.2. APPLICATION AND TIMING
B.2.2.1. DURING THE GROWING SEASON (APRIL 15 - SEPTEMBER 15) USE ON THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER), ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS, AND WETLANDS.
B.2.2.2. DURING THE LATE FALL AND WINTER (SEPTEMBER 15 - APRIL 15) IN ADDITION TO THOSE LISTED ABOVE USE ON SIDE SLOPES OF GRASSED WATERWAYS AND MODERATE SLOPES (GREATER THAN 8%).
B.2.3. MAINTENANCE
B.2.3.1. INSPECT PERIODICALLY AND BEFORE AND AFTER STORM EVENTS TO ENSURE CONTACT WITH THE SOIL UNTIL 85% VEGETATIVE COVER IS ESTABLISHED. REPAIR AND RESTAPLE AS NECESSARY.
C. PERMANENT MULCHING
C.1. WOOD CHIPS OR GROUND BARK
C.1.1. APPLY TO A THICKNESS OF 2 TO 6 INCHES. TYPICAL APPLICATION RATES ARE 10-20 TONS/ACRE OR 460-920 POUNDS/1,000 SF. REFER TO LANDSCAPE PLAN.
C.1.2. MAINTENANCE:
C.1.2.1. INSPECT ANNUALLY AND AFTER RAIN EVENTS OF 2.5 INCHES OR MORE IN A 24 HOUR PERIOD. REPAIR/REPLACE AS NECESSARY.
C.2. EROSION CONTROL MIX
C.2.1. COMPOSITION OF THE MIX SHALL BE AS FOLLOWS:
C.2.1.1. ORGANIC MATTER CONTENT SHALL BE BETWEEN 25-65% DRY WEIGHT BASIS.
C.2.1.2. PARTICLE SIZE BY WEIGHT SHOULD BE 100% PASSING THE 3" SCREEN, 90-100% PASSING THE 1" SCREEN, 70-100% PASSING THE 0.75 INCH SCREEN, AND 30-75% PASSING THE 0.25 INCH SCREEN.
C.2.1.3. THE ORGANIC PORTION SHALL BE ELONGATED AND FIBROUS. IT SHALL NOT CONTAIN WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS.
C.2.1.4. THE MIX SHALL NOT CONTAIN SILTS, CLAYS, OR FINE SANDS.
C.2.1.5. SOLUBLE SALTS CONTENT SHALL BE < 4.0MMHOS/CM AND A pH OF 5.0-8.0.
C.2.2. PLACEMENT OF BERM
C.2.2.1. PLACE BERM ALONG A LEVEL CONTOUR. BERM MUST BE A MINIMUM OF 12" HIGH ON THE UPHILL SIDE AND 2 FEET WIDE.
C.2.3. MAINTENANCE
C.2.3.1. INSPECT PERIODICALLY AND AUGMENT AS NEEDED TO MAINTAIN INITIAL THICKNESS. REPLACE IF NO LONGER FUNCTIONING AS INTENDED.

SOIL STOCKPILES
A. GENERAL
A.1. PLACE IN THE LOCATIONS SHOWN ON THE PLAN. ADDITIONAL STOCKPILES MUST BE LOCATED 50 FEET FROM DITCHES AND CULVERT INLETS.
B. PROTECTION OF STOCKPILES
B.1. PROTECT SOIL AND AGGREGATE STOCKPILES WITH TEMPORARY PERIMETER SEDIMENT BARRIER SUCH AS SILT FENCE OR SILT SOCK.
B.2. COVER ACTIVE STOCKPILES WITH ANCHORED PROTECTIVE COVERING PRIOR TO EXPECTED STORM EVENTS.
B.3. INACTIVE STOCKPILES SHALL BE COVERED WITH ANCHORED TARPS OR TEMPORARILY SEEDED AND MULCHED PER THE TEMPORARY VEGETATION AND MULCHING NOTES ON THIS PAGE.
B.4. STOCKPILES THAT ARE A SOURCE OF DUST SHALL BE COVERED.

DUST CONTROL
A. DUST SHALL BE CONTROLLED ON SITE DURING CONSTRUCTION BY IMPLEMENTING THE FOLLOWING DUST CONTROL MEASURES
A.1. MULCHING AND VEGETATIVE COVER TO REDUCE DUST.
A.2. MECHANICAL SWEEPERS AND FINE WATER SPRAYS.
A.3. COVER SURFACES WITH CRUSHED STONE OR COARSE GRAVEL.

SEED MIXTURE SELECTION BASED ON SOIL TYPE

USE	SOIL DRAINAGE: SEEDING MIXTURE	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD
	B	POOR	GOOD	FAIR
	C	POOR	GOOD	EXCELLENT
	D	FAIR	EXCELLENT	EXCELLENT
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD
	C	GOOD	EXCELLENT	EXCELLENT
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD
	B	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT
	F	FAIR	EXCELLENT	EXCELLENT

NOTE: POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREAS AND ATHLETIC FIELDS.

SEED MIXTURES FOR PERMANENT VEGETATION

MIXTURE	SPECIES	POUNDS PER ACRE	POUNDS PER 1,000 SF
A	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	REDTOP	2	0.05
	TOTAL	42	0.95
B	TALL FESCUE	15	0.35
	CREEPING RED FESCUE	10	0.25
	CROWN VETCH	15	0.35
	OR	-	-
	FLATPEA	30	0.75
	TOTAL	40 OR 55	0.95 OR 1.35
C	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	BIRDSFOOT TREFOIL	8	0.20
	TOTAL	48	1.10
D	TALL FESCUE	20	0.45
	FLATPEA	30	0.75
	TOTAL	50	1.20
E	CREPPING RED FESCUE	50	1.15
	KENTUCKY BLUEGRASS	50	1.15
	TOTAL	100	2.30
F	TALL FESCUE	150	3.60

CONSTRUCTION SEQUENCING:

1. CONTACT DIG-SAFE, INDIVIDUAL UTILITIES, AND TOWN DEPARTMENTS TO GET ALL UTILITIES DISCONNECTED PRIOR TO START OF CONSTRUCTION. PROPERLY DISCONTINUE SERVICES OR TEMPORARILY CAP SERVICES IN ACCORDANCE WITH TOWN REQUIREMENTS.
2. CONTACT BUILDING DEMOLITION CONTRACTOR AND HAVE BUILDINGS CERTIFIED FROM ENVIRONMENTAL CONCERNS PRIOR TO DEMOLITION.
3. SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
4. INSTALL TEMPORARY CONSTRUCTION SAFETY FENCE ALONG PROPERTY LINE OR AT LIMITS OF WORK.
5. COMPLETE DEMOLITION OF BUILDINGS AND DISPOSE OF ALL DEMOLITION MATERIAL AT OFFSITE APPROVED DEMOLITION FACILITY. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH THE DEMOLITION PLAN.
6. INSTALL TEMPORARY SEDIMENT BASINS DOWN GRADIENT OF THE SITE CONSTRUCTION TO TRAP SEDIMENT LADEN RUNOFF. SWALES SHALL BE INSTALLED PRIOR TO ROUGH GRADING THE SITE. SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM. DO NOT DISCHARGE SEDIMENT LADEN RUNOFF TO THE LOCATION OF THE BIORETENTION SYSTEM.
7. CLEAR/GRUB ONLY WITHIN THE LIMITS OF GRADING AS SHOWN ON THE PLANS. REMOVE ORGANICS ONLY FROM THOSE AREAS THAT CAN BE WORKED AND STABILIZED WITHIN 45 DAYS OF REMOVAL.
8. STUMPS SHALL BE DISPOSED OFF SITE IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
9. STOCKPILES
A. STOCKPILE LOAM IN ACCORDANCE WITH THE EROSION CONTROL NOTES FOR RE-USE AS NEEDED
10. GRADE ONLY WITHIN THE LIMITS SHOWN ON THE PLANS. REFER TO VEGETATION AND EROSION CONTROL NOTES ON THIS PLAN DURING CONSTRUCTION.
11. BEGIN GRADING SITE IN ACCORDANCE WITH THE GRADING, DRAINAGE, AND UTILITY PLAN.
12. EXCAVATE FOR BUILDING FOUNDATION AND UTILITIES. BLASTING OF LEDGE WILL BE REQUIRED. REFER TO BEST MANAGEMENT PRACTICES FOR BLASTING ON THIS SHEET. CONSTRUCT IN ACCORDANCE WITH SITE PLANS AND STRUCTURAL PLANS. COMPLETE ALL INSPECTIONS AND TESTING AS REQUIRED PRIOR TO BACKFILLING.
13. INSTALL DRAINAGE AND UTILITY STRUCTURES AND STABILIZE PRIOR TO RECEIVING RUNOFF IN ACCORDANCE WITH THE PLANS.
14. ACCESS DRIVE, SIDEWALKS AND PARKING AREA CONSTRUCTION:
A. SAW CUT AND REMOVE PAVEMENT TO THE LIMITS SHOWN ON THE PLAN.
B. PLACE SELECT FILLS IN LOCATIONS AND TO GRADES SHOWN ON PLANS PER THE APPLICABLE DETAILS AND THE FOLLOWING:
1. PLACE MAXIMUM 12" LIFTS AND COMPACT TO 95% MAXIMUM DRY DENSITY.
2. ALL MATERIAL SHALL BE FREE OF DELETERIOUS MATERIALS SUCH AS LOAM, STUMPS, BRUSH, AND ROCKS LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING PLACED.
3. LOAM AND SEED SLOPES WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
C. BASE MATERIALS:
1. BANK RUN AND CRUSHED GRAVEL SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO 95% MAXIMUM DRY DENSITY TO THE DEPTHS SPECIFIED IN THE TYPICAL CROSS-SECTION DETAILS.
D. PAVEMENT
1. PLACE AS SOON AS POSSIBLE AFTER THE SELECT MATERIALS ARE INSTALLED AND ACCEPTED TO ELIMINATE SOIL EROSION.
2. STABILIZE ALL ROADWAYS, PARKING AREAS, AND DRIVES WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
15. COMPLETE GRADING AND INSTALL PERMANENT SEEDING AND PLANTINGS.
16. INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES AS STATED IN THE STABILIZATION AND EROSION CONTROL NOTES ON THIS SHEET.
17. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER A MINIMUM OF 85% VEGETATIVE GROWTH HAS BEEN ESTABLISHED AND RESEED ANY AREAS DISTURBED BY REMOVAL.
18. ALL DRAINAGE STRUCTURES AND PIPES SHALL BE PUMPED FREE OF SEDIMENT AFTER STABILIZATION IS COMPLETE.

ADDITIONAL NOTES:
1. NO FUEL SHALL BE STORED ON SITE DURING CONSTRUCTION.
2. DURING CONSTRUCTION DUST SHALL BE PREVENTED FROM BECOMING A SAFETY OR HEALTH HAZARD BY THE IMPLEMENTATION OF ACCEPTED CONTROL METHODS SUCH AS WATERING.
3. ALL CONSTRUCTION MATERIALS THAT ARE SPILLED OR DEPOSITED ON THE PUBLIC ROADWAYS SHALL BE REMOVED BY THE CONTRACTOR.
4. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

BEST MANAGEMENT PRACTICES FOR BLASTING:
1. PRE-BLAST CONDITION SURVEY:

A MINIMUM OF 30 DAYS PRIOR TO CONDUCTING ANY BLASTING, THE APPLICANT SHALL PREPARE A PRE-BLAST CONDITION SURVEY PLAN AND SUBMIT IT TO THE FIRE DEPARTMENT FOR REVIEW AND APPROVAL. THE APPROVED PLAN SHALL BE IMPLEMENTED ACCORDINGLY. THE PLAN SHALL INCLUDE PRE-BLAST STRUCTURAL CONDITION INSPECTIONS OF ALL EXISTING STRUCTURES AND CONDITIONS ON THE SITE, ADJACENT TO THE SITE OR IN THE VICINITY OF THE SITE. THE PLAN SHALL EXTEND TO SUCH STRUCTURES OR CONDITIONS AS MAY BE AFFECTED BY THE APPLICANT'S CONSTRUCTION OPERATIONS AND THE INSPECTIONS SHALL BE PERFORMED ON ALL STRUCTURES, INCLUDING HOMES, FOUNDATIONS, DRIVEWAYS, ROAD BEDS, SWIMMING POOLS, WELLS AND MOBILE HOMES, WITHIN A RADIUS OF 250 FEET OF THE SUBJECT LOT. THE BLASTING CONTRACTOR AND THE OWNER OF THE PROPERTY BEING INSPECTED SHALL SIGN SUCH INSPECTIONS ONCE COMPLETED. IF AN OWNER REFUSES TO ALLOW FOR THE CONDUCTING OF A PRE-BLAST CONDITION INSPECTION OR SIGN A PRE-BLAST CONDITIONS INSPECTION FORM FOR WHATEVER REASONS THE APPLICANT SHALL NOTE THIS ON THE FORM. THE BLASTING CONTRACTOR SHALL MAKE AT LEAST THREE ATTEMPTS TO NOTIFY THE OWNER OF THE NEED FOR INSPECTIONS, THE LAST SUCH ATTEMPT SHALL INCLUDE A WRITTEN NOTIFICATION BY CERTIFIED MAIL AND INDIVIDUAL TO CONTACT.

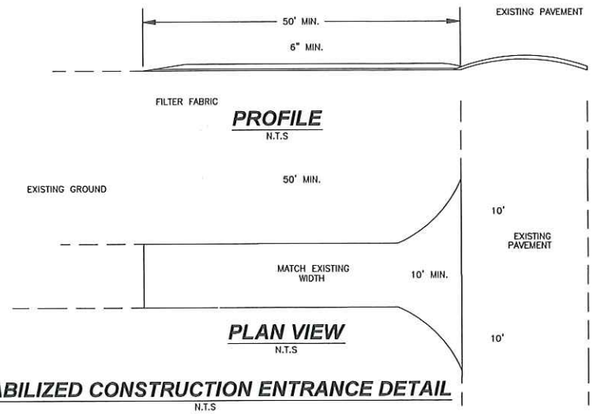
A. THE PRE-BLAST STRUCTURAL CONDITION INSPECTION SHALL BE PERFORMED IN THE PRESENCE OF THE PROPERTY OWNER OR AN OWNER'S REPRESENTATIVE AND SHALL CONSIST OF PHOTOGRAPHS AND A WRITTEN DESCRIPTION OF THE INTERIOR AND EXTERIOR OF EACH OF THE STRUCTURES EXAMINED. DESCRIPTIONS SHALL LOCATE ANY EXISTING CRACKS, DAMAGE, OR OTHER DEFECTS, AND SHALL INCLUDE SUCH INFORMATION SO AS TO MAKE IT POSSIBLE TO DETERMINE THE EFFECT, IF ANY, OF THE CONSTRUCTION OPERATIONS ON THE DEFECT. A GOOD QUALITY VIDEOTAPE SURVEY WITH APPROPRIATE AUDIO DESCRIPTION OF LOCATIONS, CONDITIONS, AND DEFECTS CAN BE USED IN LIEU OF A WRITTEN FORM. COPIES OF ALL INSPECTION FORMS AND PHOTOGRAPHS SHALL BE SUBMITTED TO THE FIRE DEPARTMENT.

B. THE INDIVIDUAL PERSON CONDUCTING THE INSPECTIONS SHALL GIVE WRITTEN NOTICE, NOT LESS THAN 10 DAYS IN ADVANCE, TO THE OWNER OF THE PROPERTY CONCERNED AND TENANTS OF THE PROPERTY. THE NOTICE SHALL STATE THE DATES ON WHICH THE INSPECTIONS ARE TO BE MADE.

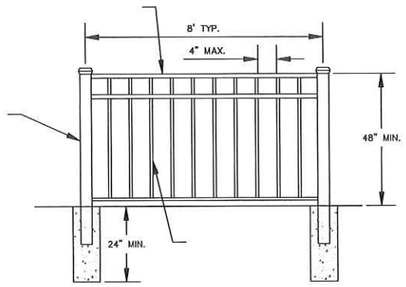
C. A BLASTING PERMIT SHALL ONLY BE ISSUED AFTER ALL PRE-BLAST STRUCTURAL INSPECTIONS HAVE BEEN PERFORMED.

D. UPON COMPLETING OF ALL EARTH/ROCK EXCAVATION AND BLASTING WORK, THE APPLICANT SHALL CONDUCT A POST-BLAST CONDITION INSPECTION OF ANY PROPERTIES, STRUCTURES AND CONDITIONS FOR WHICH COMPLAINTS OF DAMAGE HAVE BEEN RECEIVED OR DAMAGE CLAIMS HAVE BEEN FILED. NOTICE SHALL BE GIVEN TO ALL INTERESTED PARTIES SO THEY MAY BE PRESENT DURING THE FINAL INSPECTION. RECORDS OF THE FINAL INSPECTION SHALL BE DISTRIBUTED IN THE SAME MANNER AS THE ORIGINAL PRE-BLAST STRUCTURAL CONDITION INSPECTION.

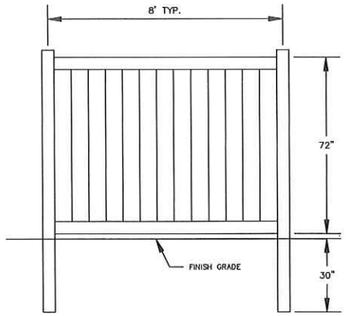
2. ALL ACTIVITIES RELATED TO BLASTING SHALL BE PERFORMED IN ACCORDANCE WITH THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES BLASTING BEST MANAGEMENT PRACTICES (BMP'S) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDLING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.


50' MIN.
EXISTING PAVEMENT
6" MIN.
FILTER FABRIC
PROFILE
N.T.S
EXISTING

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Tue, 23 Feb 2021 - 2:36pm



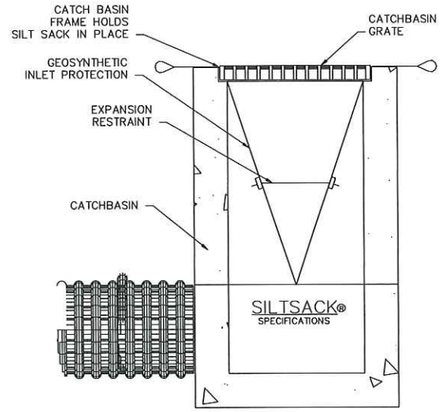
TYPICAL ORNAMENTAL METAL FENCE DETAIL



TYPICAL WOODEN PRIVACY FENCE DETAIL

FENCE DETAILS
N.T.S

NOTES:
1. THE FENCE AT THE TOP OF THE LEDGE CUT SHALL BE EITHER WOODEN PRIVACY FENCE OR METAL ORNAMENTAL FENCE.



REGULAR FLOW SILTSACK®

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

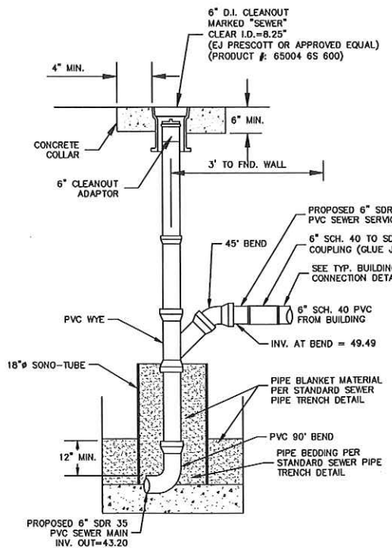
NOTES:

1. GEOSYNTHETIC SEDIMENT FILTER TRAP SHALL BE 'REGULAR FLOW SILTSACKS' OR APPROVED EQUAL. SPECIFICATIONS FOR SILTSACK® ARE DETAILED.

2. FILTER TRAPS SHALL BE INSPECTED AFTER EVERY RAIN EVENT OF 0.25" OR GREATER AND SEDIMENTS SHALL BE REMOVED FROM TRAP WHEN SEDIMENT HAS REACHED TWO THIRDS OF THE DEPTH OF THE TRAP, OR IF PONDING OF WATER AT SURFACE BEGINS TO OCCUR. DO NOT PUNCTURE FILTER TRAP TO MITIGATE PONDING.

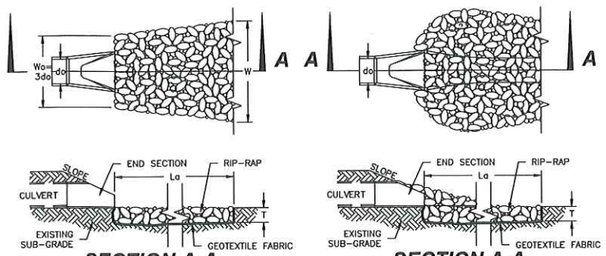
CATCH BASIN GEOSYNTHETIC SEDIMENT TRAP
N.T.S.

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.



SERVICE CHIMNEY FOR PVC PIPE
N.T.S

NOTES:
1. REFER TO STANDARD SEWER TRENCH DETAIL.



SECTION A-A
(PIPE OUTLET TO FLAT AREA NO WELL DEFINED CHANNEL)

SECTION A-A
(PIPE OUTLET TO WELL DEFINED CHANNEL)

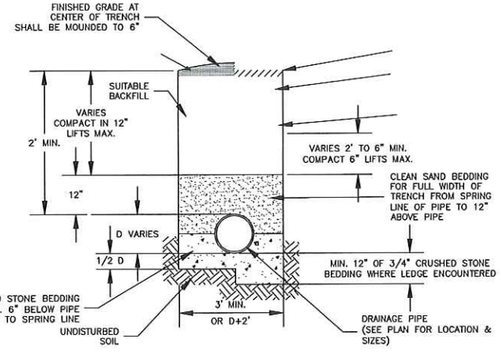
RIP-RAP GRADATION

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)		
100	6	TO	8
85	5.2	TO	7.2
50	4	TO	6
15	1.2	TO	2

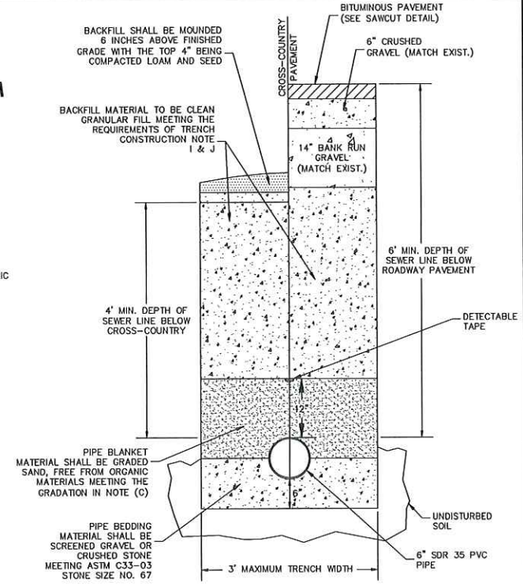
CONSTRUCTION SPECIFICATIONS:
1. PREPARE THE SUB-GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP TO THE GRADES SHOWN ON THE PLANS.
2. MINIMUM 6" SAND/GRAVEL BEDDING OR GEOTEXTILE FABRIC REQUIRED UNDER ALL ROCK RIP-RAP.
3. THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF ROCK RIP-RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO (2) PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
5. STONE FOR THE RIP-RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
6. RIP-RAP SIZE CHOSEN FOR THE WORST CASE OF ALL OUTLETS. ALL RIP-RAP USED FOR PIPE OUTLET PROTECTION WILL HAVE THE SAME GRADATION AND THICKNESS.

MAINTENANCE NOTES:
1. OUTLETS SHALL BE INSPECTED AND CLEANED ANNUALLY AND AFTER ANY MAJOR STORM EVENT. ANY EROSION OR DAMAGE TO THE RIP-RAP SHALL BE REPAIRED IMMEDIATELY.
2. THE CHANNEL IMMEDIATELY DOWNSTREAM FROM THE OUTLET SHOULD BE CHECKED TO SEE THAT NO EROSION IS OCCURRING.
3. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

PIPE OUTLET PROTECTION DETAIL
N.T.S.



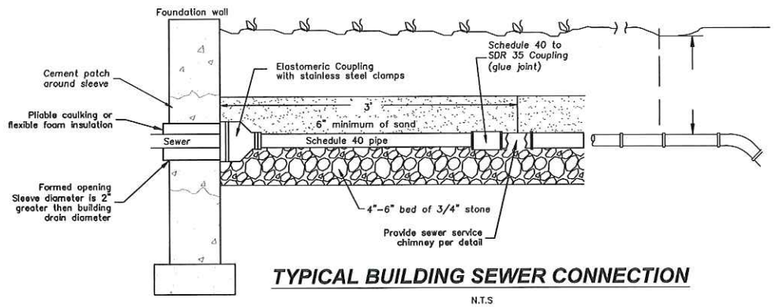
STANDARD DRAINAGE PIPE TRENCH
N.T.S



STANDARD SEWER TRENCH
N.T.S

TRENCH CONSTRUCTION (PER Env-Wq 704.09 NUMERATION)

(A) TRENCH DIMENSIONS SHALL BE AS FOLLOWS:
  (1) FOR SEWER PIPE LESS THAN 15" IN DIAMETER, THE ALLOWABLE TRENCH WIDTH AT A PLANE 12 INCHES ABOVE THE PIPE SHALL BE NO MORE THAN 36".
(B) PIPE TRENCH BEDDING MATERIAL AND FILL MATERIAL FOR EXCAVATION BELOW GRADE SHALL BE SCREENED GRAVEL OR CRUSHED STONE TO ASTM C33-03 STONE SIZE NO. 67.
(C) THE PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES THROUGH A 1/2 INCH SIEVE AND A MAXIMUM OF 15% PASSES THROUGH A #200 SIEVE.
(E) PIPE BEDDING MATERIAL SHALL EXTEND FROM A HORIZONTAL PLANE THROUGH THE PIPE AXIS TO 6 INCHES BELOW THE BOTTOM OF THE OUTSIDE SURFACE OF THE PIPE.
(F) PIPE SAND MATERIAL SHALL COVER THE PIPE A MINIMUM OF 12 INCHES ABOVE THE CROWN OF THE OUTSIDE SURFACE.
(G) COMPACTION SHALL BE IN 12 INCH LAYERS FOR BEDDING AND BLANKET MATERIALS.
(H) BACKFILL MATERIALS SHALL BE COMPACTED IN 3-FOOT LAYERS TO THE GROUND SURFACE EXCEPT FOR ROAD CONSTRUCTION (OR OTHER PAVED AREAS) WHERE THE FINAL 3 FEET SHALL BE COMPACTED IN 12-INCH LAYERS TO THE ROAD BASE SURFACE.
(I) TRENCH BACKFILL MATERIAL IN ROADWAY LOCATIONS SHALL BE NATURAL MATERIALS EXCAVATED FROM THE TRENCH DURING CONSTRUCTION, EXCLUDING: DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
(J) TRENCH BACKFILL AT CROSS-COUNTRY LOCATIONS SHALL BE AS DESCRIBED IN (I) ABOVE, EXCEPT THAT TOP SOIL, LOAM, MUCK OR PEAT, MAY BE USED PROVIDED THE COMPLETED CONSTRUCTION WILL BE STABLE, AND PROVIDED THAT ACCESS TO THE SEWER FOR MAINTENANCE AND RECONSTRUCTION IS PRESERVED.
(K) BACKFILL SHALL BE MOUNDED 6 INCHES ABOVE ORIGINAL GROUND AT CROSS-COUNTRY LOCATIONS.
(L) BASE COURSE FOR TRENCH REPAIR SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NH DOT.
(O) PRECAUTIONS SHALL BE TAKEN TO AVOID GROUNDWATER POOLING AT THE SURFACE BY PROVIDING DRAINAGE TO A SUITABLE OUTLET AT CATCH BASINS OR RUNOFF SWALES.



TYPICAL BUILDING SEWER CONNECTION
N.T.S

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS

DATE: 02/23/2021
SCALE: AS NOTED
DESIGNED BY: MJS
DRAWN BY: AJA
APPROVED BY: MJS
DWG. FILE: 20025_DETAILS.dwg

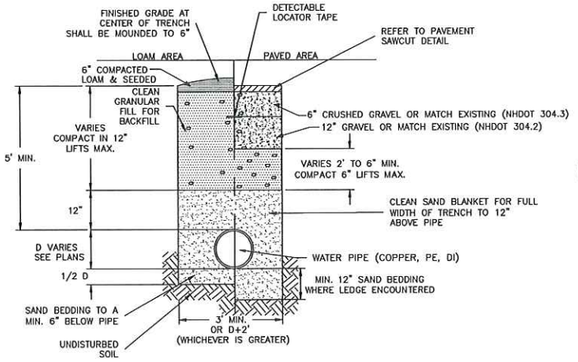
CONSTRUCTION DETAILS
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11, & 15
NEWMARKET BUSINESS PARK

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 259
NEWFIELDS, NH 03856
PHONE: (603) 659-4079, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 20-025

D2

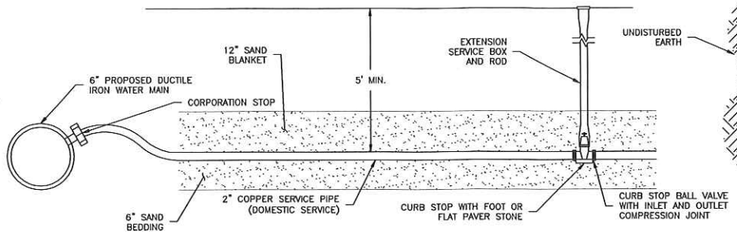
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STANDARD WATER MAIN TRENCH

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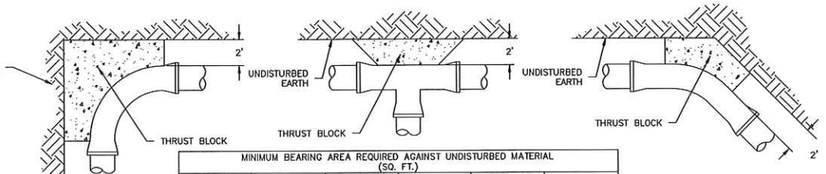
NOTES:
1. THERE SHALL BE A MINIMUM OF 5' OF COVER OVER THE WATER MAIN AND ALL SERVICE PIPES.



TYPICAL WATER SERVICE CONNECTION

N.T.S

NOTES:
1. COORDINATE ALL WORK WITH TOWN OF NEWMARKET.
2. ALL WORK TO BE IN ACCORDANCE WITH TOWN OF NEWMARKET SPECIFICATIONS.
3. ALL TAPS SHALL BE MADE AT 2 AND 10 O'CLOCK (APPROX.).
4. NO COUPLINGS SHALL BE ALLOWED IN ROADWAY WITHOUT PRIOR APPROVAL BY ENGINEER.



MINIMUM BEARING AREA REQUIRED AGAINST UNDISTURBED MATERIAL (SQ. FT.)

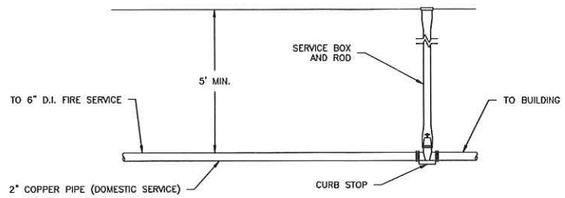
PIPE DIAMETER	90° BEND	TEE	PLUG	45° BEND	22.5° BEND OR LESS
4-6"	6	6	6	6	6
8"	12	8	12	8	6
10"	18	12	18	10	7
12"	24	18	24	14	8

NOTE:
THE MINIMUM BEARING AREAS ARE BASED ON THE FOLLOWING:
SYSTEM PRESSURE: 70 PSI
SOIL BEARING CAPACITY: 1,000 PSI

TYPICAL THRUST BLOCK DETAILS

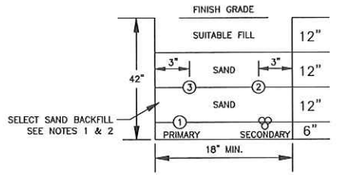
N.T.S.

NOTES:
1. ALL THRUST BLOCKS SHALL BE CAST-IN-PLACE CONCRETE AND ARE REQUIRED AT ALL FITTINGS. ALL BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL.
2. THE SIZE OF THE THRUST BLOCK MAY BE INCREASED BY THE ENGINEER TO MEET SOIL CONDITIONS FOUND DURING THE CONSTRUCTION OF THE PIPING.
3. THRUST BLOCKS SHALL BE PLACED ALONG THE FULL LENGTH OF THE FITTING TO MAXIMIZE BEARING AREA.
4. THRUST BLOCKS SHALL BE PLACED SUCH THAT THE LENGTH IS TWICE AS LONG AS THE DEPTH.
5. PLACE 2 LAYERS OF POLYETHYLENE OR ROOFING PAPER AROUND FITTINGS BEFORE PLACEMENT OF CONCRETE TO CREATE A BOND BREAK AND TO PROTECT THE BOLTS.
6. USE OF THRUST BLOCKS DOES NOT ELIMINATE THE REQUIREMENT OF RETAINER GLANDS.



TYPICAL WATER SHUTOFF CONNECTION

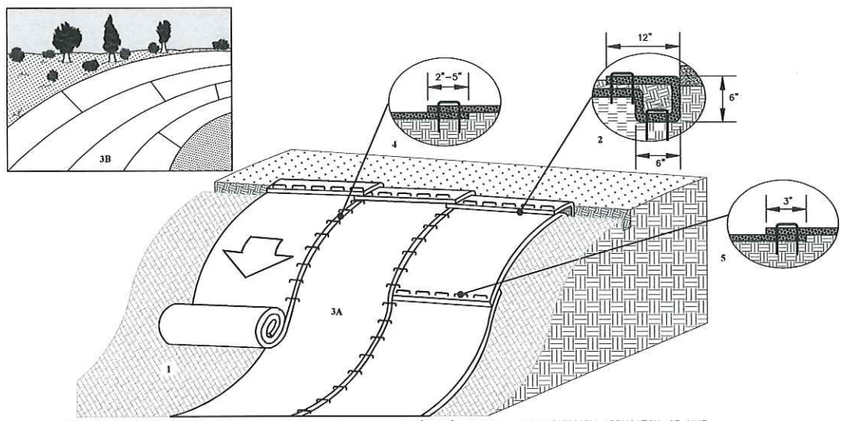
N.T.S



NOTES:
1. A-SELECT SAND BACKFILL SHALL CONSIST OF A FINE GRANULAR MATERIAL OF WHICH 100% SHALL PASS THROUGH A 1/4" SIEVE.
   B-EXCEPTION: NATURALLY OCCURING SMOOTH ROUND PEBBLES NO GREATER THAN 3/8" IN DIAMETER ARE PERMITTED AS LONG AS THEIR TOTAL VOLUME PER CUBIC FOOT OF SAND DOES NOT EXCEED 1%.
   C-THE SAND SHALL BE COMPLETELY FREE OF FROZEN LUMPS, ROCKS, STONES, DEBRIS AND RUBBISH.
2. WHEN CONDUIT IS USED, THE SAME DEPTH IS REQUIRED. BACKFILL SHALL BE FREE OF FROZEN LUMPS, ROCKS, STONES, DEBRIS AND RUBBISH.
3. VOLTAGES OF 300V OR LESS TO GROUND DO NOT REQUIRE SEPARATION PROVIDED ALL PARTIES INVOLVED ARE IN AGREEMENT.
4. VOLTAGES OF 300V TO GROUND REQUIRE A 12" MINIMUM SEPARATION WHEN INSTALLED IN CONDUIT OR DIRECT BURIAL.
5. THESE ARE MINIMUM STANDARDS, THE LOCAL GOVERNING AUTHORITIES REGULATIONS SHALL GOVERN.

TELEPHONE, CABLE, & ELECTRIC TRENCH

N.T.S

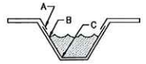


1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6"(15CM) DEEP X 6"(15CM) WDE TRENCH WITH APPROXIMATELY 12" (30CM) OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12"(30CM) PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12"(30CM) APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5-12.5CM) OVERLAP DEPENDING ON THE RECPS TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3"(7.5CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12"(30CM) APART ACROSS ENTIRE RECPS WIDTH.

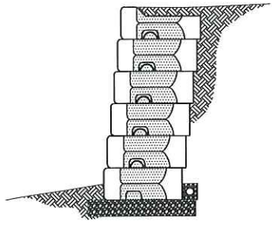
TYPICAL TURF REINFORCEMENT MATTING DETAIL

N.T.S

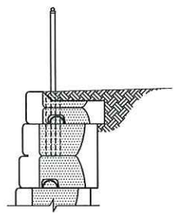
NOTES:
1. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6"(15CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.
2. ALL SWALES AND 2:1 SLOPES OR GREATER TO BE LINED WITH TENSAR NORTH AMERICAN GREEN SC150BN EROSION CONTROL BLANKET OR APPROVED EQUAL.
3. FOR SALES CONTACT:
   EJ PRESCOTT, INC.
   210 SHEEP DAVIS RD.
   CONCORD, NH
   603-224-9545



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES



GRAVITY RETAINING WALL CROSS SECTION

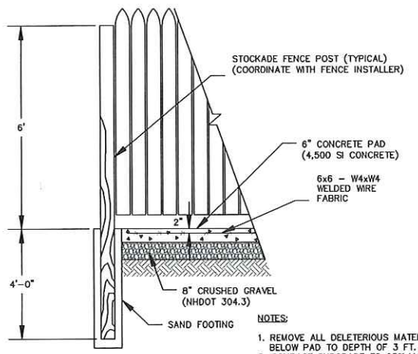


FENCE SLEEVE

GRAVITY RETAINING WALL CROSS SECTION

N.T.S

NOTES:
1. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
2. FINAL RETAINING WALL DESIGN TO BE APPROVED BY DESIGN ENGINEER.



NOTES:
1. REMOVE ALL DELETERIOUS MATERIALS BELOW PAD TO DEPTH OF 3 FT.
2. COMPACT SUBGRADE TO 95% MAX. DRY DENSITY.
3. COMPACT GRAVEL TO 95% MAX. DRY DENSITY.

ELEVATION VIEW

DUMPSTER PAD

SCALE: NTS

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	M/S

DATE: 02/23/2021
SCALE: AS NOTED
DESIGNED BY: M/S
DRAWN BY: AJA
APPROVED BY: M/S
DWG FILE: 20025_DETAILS.dwg

CONSTRUCTION DETAILS

prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION

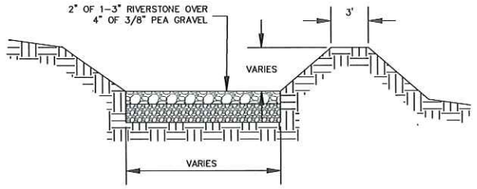
TAX MAP U-4 LOTS 11, & 15
NEWMARKET BUSINESS PARK

M|S ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 GLADSTAR ST., P.O. BOX 259
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: M.SPINNEY@MSENGINEERING.COM

JOB: 20-025

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Drawing Name: P:\20pro\20-025\Internal\Drawing Files\20025_DETAILS.dwg
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TYPICAL INFILTRATION BASIN CROSS SECTION
N.T.S

CONSTRUCTION NOTES:

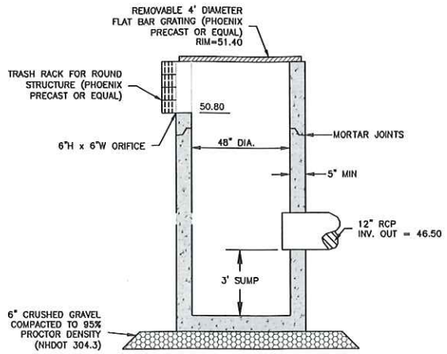
1. DO NOT PLACE INFILTRATION BASIN INTO SERVICE UNTIL THE BMP HAS BEEN SEEDED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE INFILTRATION BASIN DURING ANY STAGE OF CONSTRUCTION.
3. CLEAR AND GRUB THE AREA WHERE THE INFILTRATION BASIN IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE LATER.
4. THE FOUNDATION AREA SHALL BE SCARIFIED PRIOR TO PLACING FILL. ALL UNSUITABLE MATERIAL UNDER THE BERM SHALL BE REMOVED AND REPLACED WITH SUITABLE FOUNDATION MATERIAL.
5. THE BERM SHALL BE CONSTRUCTED BEGINNING FROM THE LOWEST POINT UNIFORMLY ALONG ITS ENTIRE LENGTH. PLACE MATERIALS IN MAXIMUM 12" LOOSE LIFTS COMPACTED TO 95% MAXIMUM DRY DENSITY. EMBANKMENT SOIL SHALL HAVE NO ORGANIC MATTER OR FROZEN MATERIAL AND NO STONES LARGER THAN 2/3 OF THE MAXIMUM LOOSE LIFT THICKNESS. EMBANKMENT FILL MATERIAL SHALL HAVE THE FOLLOWING GRADATION:

SIEVE SIZE:	% PASSING:
#4	80-90
#40	50-80
#100	30-45
#200	15-30

6. THE INFILTRATION BASIN SHALL BE PLANTED IN ACCORDANCE WITH THE LANDSCAPE PLAN.
7. ALL DISTURBED AREAS NOT OTHERWISE PLANTED SHALL RECEIVE FOUR INCHES OF LOAM AND SEEDED PER THE CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES ON SHEET D1.

INFILTRATION BASIN MAINTENANCE:

1. LAWN AND LANDSCAPE AREAS LOCATED ON THE BOTTOM, SIDE SLOPES AND CREST SHALL BE MOWED AND THE VEGETATION MAINTAINED IN A HEALTHY CONDITION.
2. EMBANKMENTS SHOULD BE INSPECTED ANNUALLY BY A QUALIFIED PROFESSIONAL FOR SETTLEMENT, EROSION, SEEPAGE, ANIMAL BURROWS, AND WOODY VEGETATION. REPAIR AS NECESSARY.
3. A QUALIFIED PROFESSIONAL SHALL INSPECT THE OUTLET CONTROL STRUCTURE ANNUALLY. REPAIR AS NECESSARY.
4. TRASH AND DEBRIS SHALL BE REMOVED FROM THE BASIN AND PIPE INLETS AND OUTLETS WHENEVER PRESENT.
5. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH EXCEEDS 4 INCHES.

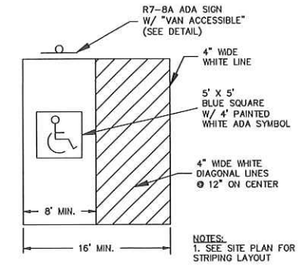


OUTLET CONTROL STRUCTURE #1
N.T.S

OUTLET CONTROL STRUCTURE NOTES:

1. DRAINAGE STRUCTURE MATERIALS SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, DIVISION 600, SECTION 604.
2. CONCRETE TO BE 4,000 PSI CONCRETE.
3. PIPE OPENINGS SHALL BE FULLY MORTARED ON OUTSIDE PRIOR TO BACK FILLING. INSIDE OF PIPE OPENINGS SHALL BE MORTARED AND ALLOWED TO CURE PER MANUFACTURERS REQUIREMENTS PRIOR TO RECEIVING RUNOFF.
4. JOINTS BETWEEN ADJACENT RISERS SHALL BE FULLY SEALED WITH ELASTOMERIC SEALANT PER MANUFACTURERS REQUIREMENTS.
5. CONCRETE STRUCTURE AND TRASH RACK AVAILABLE FROM:

PHOENIX PRECAST PRODUCTS
77 REGIONAL DRIVE
CONCORD, NH
PHONE: (800) 639-2199

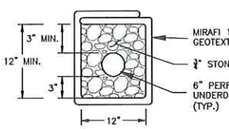


ADA STRIPING AND SIGN DETAIL
N.T.S

PAVEMENT MARKING NOTES:

1. STRIPE PARKING AREAS AND DRIVES AS SHOWN, INCLUDING PARKING SPACES, HANDICAP SYMBOLS, AND PAINTED ISLANDS. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) AND AASHTO M248 TYPE "F". MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGN AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
3. PAINTED ISLANDS SHALL BE 4 INCH WIDE DIAGONAL LINES SPACED AT 3 FT. O.C. BORDERED BY 4 INCH WIDE LINES.
4. THE CROSSWALK SHALL BE THE CONTINENTAL STYLE TO MATCH THE TOWN OF NEWMARKET STANDARD AND SHALL BE PAINTED WITH THERMOPLASTIC PAINT.

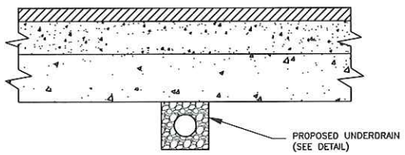
PAVEMENT MARKING NOTES



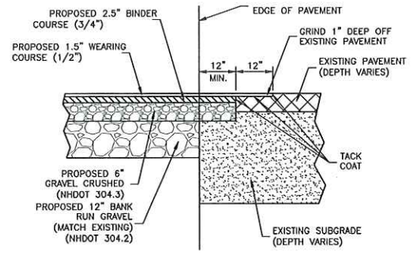
UNDERDRAIN DETAIL
N.T.S

UNDERDRAIN NOTES:

1. THIS DETAIL SHALL BE CONSTRUCTED AT THE LOCATIONS AND INVERTS SHOWN ON THE PLANS.



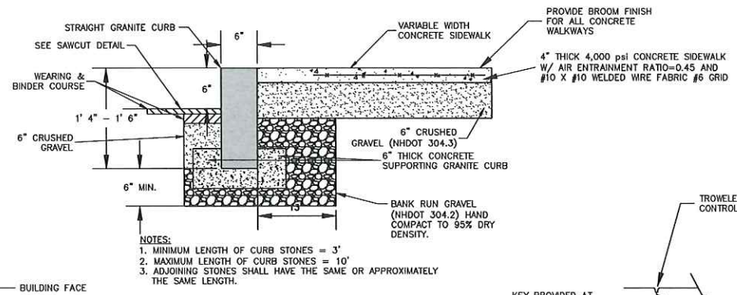
TYPICAL PAVED PARKING LOT CROSS SECTION
N.T.S



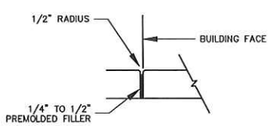
TYPICAL PAVEMENT SAWCUT DETAIL
SCALE: N.T.S.

PAVEMENT SAWCUT NOTES:

1. SAWCUT THROUGH DEPTH OF PAVEMENT AT LEAST 1 FT. FROM EDGE OR GREATER IF REQUIRED BY NHDOT.
2. INSTALL AND COMPACT CRUSHED GRAVEL TO GRADE.
3. PLACE BINDER COURSE.
4. GRIND EXISTING PAVEMENT 1 FT. WIDE TO A DEPTH NECESSARY TO PROPERLY MATCH NEW WEARING COURSE PAVEMENT.
5. TACK COAT ALL EXISTING PAVEMENT SURFACES WITH EMULSIFIED ASPHALT (MS-1) PRIOR TO PLACING NEW PAVEMENT.

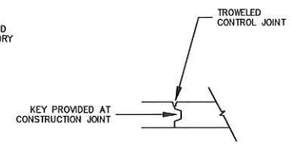


TYPICAL SECTION
N.T.S



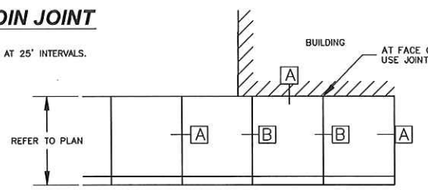
SECTION A: EXPANSIOIN JOINT
N.T.S

1. EXPANSION JOINTS SHALL BE LOCATED AT 25' INTERVALS.



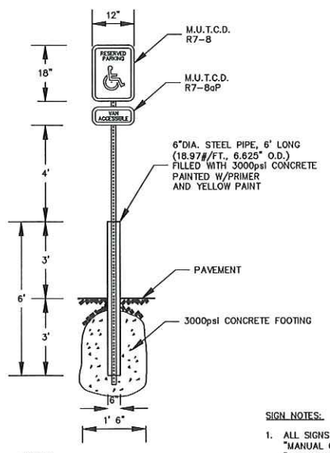
SECTION B: CONSTRUCTION CONTROL JOINT
N.T.S

1. CONTROL JOINTS SHALL BE SPACED AT 5' INTERVALS.

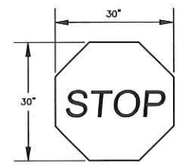


PLAN
N.T.S

CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB
N.T.S



NOTES:
1. SEE PLANS FOR SIGN PLACEMENT.



R1-1 "STOP" SIGN DETAIL
N.T.S

SIGN NOTES:

1. ALL SIGNS SHALL CONFORM TO THE LATEST EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGN AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.

TYPICAL SIGN DETAIL

SIGN SCHEDULE

MUTCD NUMBER	SIGN	SIGN DIMENSIONS (WxH)	MOUNT HEIGHT
R1-1	STOP	30" X 30"	7'-0"
R7-8		12" X 24"	7'-0"
R7-8A	VAN ACCESSIBLE	12" X 6"	5'-0"
R7-6	NO PARKING LOADING ZONE	18" X 12"	7'-0"

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

NO.	REVISIONS	DATE	INT.
G.	INITIAL SUBMISSION TO PLANNING BOARD	2/23/21	MJS

DATE: 02/23/2021
SCALE: AS NOTED
DESIGNED BY: MJS
DRAWN BY: AJA
APPROVED BY: MJS
DWG. FILE: 20025_DETAILS.dwg

CONSTRUCTION DETAILS
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 11, & 15
NEWMARKET BUSINESS PARK

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., PO BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-6979, FAX: (603) 659-4627
E-MAIL: ADMIN@MJSENGINEERING.COM

JOB: 20-025

D4

Drawing Name: P:\20pro\20-025\Internal\Drawing Files\20025_DETAILS.dwg
Tue, 23 Feb 2021 - 2:38pm

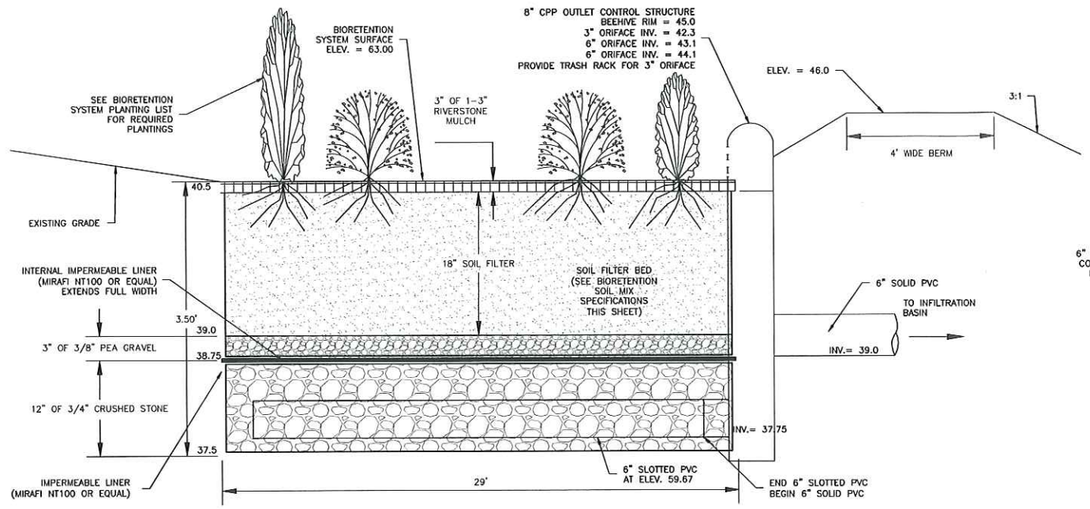


1527LED OMEGA SERIES

EPA	7 YEAR WARRANTY	LUMEN RANGE	LIFE SPAN	UL LISTED	CLICK FOR FAQ's	RATED
.93 (ft²) WEIGHT 38 LBS	7	5,605 to 17,990	L70 MINIMUM 100,000 HOURS	UL	FAQ	IP65

GENERAL SPECIFICATIONS:
1. REFER TO LIGHTING PLAN FOR LUMINAIRE SCHEDULE AND LOCATION.

WALL MOUNTED LIGHTING SPECIFICATIONS:
1. ALL SITEWORK SHALL CONFORM TO TOWN OF NEWMARKET STANDARDS AND LOCAL AUTHORITIES HAVING JURISDICTION.
2. ALL MATERIAL WORKMANSHIP SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING STANDARDS, NEW HAMPSHIRE ELECTRIC CODE, FIRE PROTECTION ASSOCIATION, NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION.
3. ALL EXTERIOR CONDUITS FOR LIGHTING SHALL BE 1 1/2" DIAMETER PVC SCHEDULE 40. ALL ELBOWS SHALL BE GALVANIZED RIGID STEEL. ALL CONDUITS UNDER ROADWAYS AND PARKING AREAS SHALL HAVE MINIMUM COVER OF THREE (3) FEET.
4. ALL UNDERGROUND CONDUITS WILL HAVE NYLON PULL ROPE TO FACILITATE PULLING IN CABLES.
5. ALL EXTERIOR CONDUITS SHALL BE PROVIDED WITH 6" WIDE, METALIZED CONTINUOUS WARNING TAPE.



BIORETENTION SYSTEM CROSS SECTION

N.T.S

CONSTRUCTION NOTES:

1. CLEAR AND GRUB THE AREA WHERE THE BIORETENTION SYSTEM IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE LATER.
2. PRIOR TO STARTING CONSTRUCTION THE DESIGN ENGINEER SHALL BE PRESENT TO OBSERVE CONSTRUCTION OF THE BERM. THE DESIGN ENGINEER WILL PROVIDE A STATEMENT TO THE TOWN ACCEPTING THE CONSTRUCTION AS COMPLETED PER HIS DESIGN.
3. THE FOUNDATION AREA SHALL BE COMPACTED PRIOR TO PLACING FILL. ALL UNSUITABLE MATERIAL UNDER THE BERM SHALL BE REMOVED AND REPLACED WITH SUITABLE FOUNDATION MATERIAL.
4. THE BERM SHALL BE CONSTRUCTED BEGINNING FROM THE LOWEST POINT UNIFORMLY ALONG ITS ENTIRE LENGTH. PLACE MATERIALS IN MAXIMUM 12" LOOSE LIFTS COMPACTED TO 95% MAXIMUM DRY DENSITY. EMBANKMENT SOIL SHALL HAVE NO ORGANIC MATTER OR FROZEN MATERIAL AND NO STONES LARGER THAN 2/3 OF THE MAXIMUM LOOSE LIFT THICKNESS. STONES AROUND ANY STRUCTURES AND/OR CONDUITS SHALL NOT EXCEED 3 INCHES. EMBANKMENT FILL MATERIAL SHALL HAVE THE FOLLOWING GRADATION:

SIEVE SIZE:	% PASSING:
#4	80-90
#40	50-80
#100	30-45
#200	15-30

5. ALL PIPE TO PIPE CONNECTIONS SHALL BE WATER-TIGHT.
6. ALL DISTURBED AREAS NOT OTHERWISE LANDSCAPED SHALL RECEIVE FOUR INCHES OF LOAM AND SEED.

BIORETENTION SYSTEM PLANT LIST			
COMMON NAME	BOTANICAL NAME	QUANTITY	SIZE
CINNAMON FERN	Osmunda cinnamomea	100	1 GAL.
BLUE FLAG IRIS	Iris versicolor	140	1 GAL.
GRASSY LEAVED SWEET FLAG	Grass Acorus gramineus 'Ogon'	650	1 GAL.

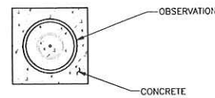
GENERAL MAINTENANCE:
1. SYSTEMS SHOULD BE INSPECTED FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
3. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
4. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

BIORETENTION SYSTEM GENERAL NOTES:

1. BIORETENTION SYSTEM FILTER SOIL MIX SHALL MEET THE FOLLOWING REQUIREMENTS.

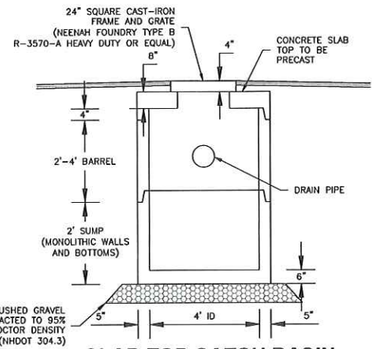
BIORETENTION SYSTEM SOIL MIX SPECIFICATIONS			
		GRADATION OF MATERIAL	
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	SIEVE NO.	% BY WEIGHT PASSING STANDARD SIEVE
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15

2. LINER SYSTEM NOTES:
   A. MULTIPLE FABRIC AND LINER MATERIALS ARE REQUIRED FOR THE INSTALLATION OF THE BIORETENTION SYSTEM.
      1. 8-OUNCE MIRAFI 180N
      2. 30-MIL PVC THERMOPLASTIC LINER WITH SOLVENT WELDED SEAMS, PATCHES, AND PIPE BOOTS. (MIRAFI NT100 OR EQUAL)
   B. THE 8-OUNCE MIRAFI 180N SHALL BE PLACED ABOVE AND BELOW THE PVC THERMOPLASTIC LINER TO ACT AS A BARRIER AGAINST TEARING FROM THE SURROUNDING MATERIALS.



OBSERVATION WELL

N.T.S



SLAB TOP CATCH BASIN

N.T.S.

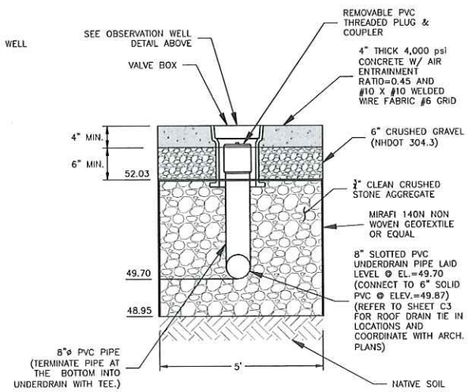
NOTES:
1. CATCH BASIN #1, #2 AND #3 ARE SLAB TOP CATCH BASINS.

DRAINAGE STRUCTURE NOTES:
1. REFER TO SHEET C3 FOR INVERTS AND PIPE SIZES.
2. DRAIN MANHOLE COVERS SHALL HAVE THE WORD "DRAIN" IN 3-INCH LETTERS CAST INTO THE TOP SURFACE.
3. DRAINAGE STRUCTURE MATERIALS AND INSTALLATION SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, DIVISION 600, SECTION 604.
4. SITE CONTRACTOR SHALL BACK FILL AROUND DRAINAGE STRUCTURES IN 6 TO 8 INCH LIFTS, ATTAINING 95% MAXIMUM DRY DENSITY FOR EACH LIFT.
5. PIPE OPENINGS SHALL BE FULLY MORTARED ON OUTSIDE PRIOR TO BACK FILLING. INSIDE OF PIPE OPENINGS SHALL BE MORTARED AND ALLOWED TO CURE PER MANUFACTURERS RECOMMENDATIONS PRIOR TO RECEIVING RUNOFF.
6. JOINTS BETWEEN ADJACENT RISERS SHALL BE FULLY SEALED WITH ELASTOMERIC SEALANT PER MANUFACTURERS REQUIREMENTS.
7. WHEN FRAME/GRATE ARE LOCATED IN PAVED AREA, THEY SHALL BE BROUGHT TO FINISHED GRADE AFTER BINDER COURSE PAVEMENT IS PLACED. THE EXCAVATION REQUIRED AROUND THE GRATE AND FRAME SHALL BE BACKFILLED FLUSH WITH THE TOP OF BINDER COURSE WITH NHDOT CLASS B CONCRETE.
8. FRAME AND GRATE:

DRAIN MANHOLES: NEENAH FOUNDRY R-1743, HEAVY DUTY OR EQUAL.

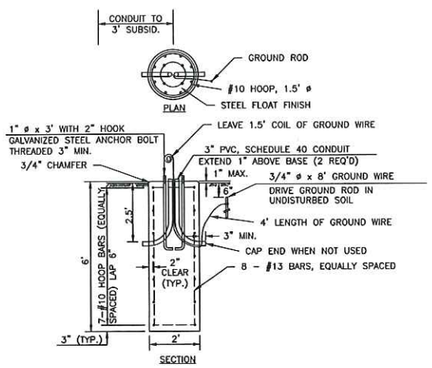
CATCH BASINS: NHDOT TYPE B BY NEENAH FOUNDRY R-3570-A (4" FLANGE) HEAVY DUTY OR EQUAL

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.



INFILTRATION TRENCH DETAIL

N.T.S

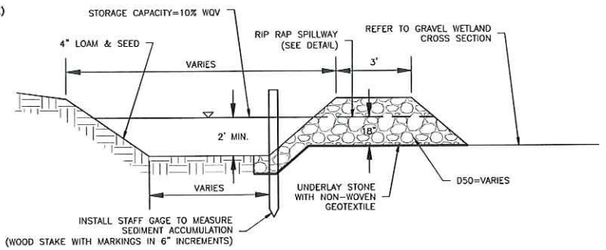


CONCRETE LIGHT POLE BASE

N.T.S

NOTES:
1. ALL DMH'S HAVE SLAB TOPS. DMH #1 SHALL HAVE A 4' DEEP SUMP.
2. DMH #2 & DMH #3 (OCS #2) HAVE WEIR PLATES. SEE DETAILS THIS SHEET. STRUCTURES ARE AVAILABLE FROM:

PHOENIX PRECAST PRODUCTS
77 REGIONAL DRIVE
CONCORD, NH
PHONE: (800) 639-2199



SEDIMENT FOREBAY TYPICAL CROSS SECTION DETAIL

N.T.S.

NOTES:
1. REFER TO BERM CONSTRUCTION NOTES IN GRAVEL WETLAND DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. REFER TO RIPRAP SPILLWAY CROSS SECTION DETAIL FOR SPILLWAY CONSTRUCTION REQUIREMENTS.
3. UNLESS RIP RAP IS IN PLACE, THE SEDIMENT FOREBAY SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCROACHMENT OF WEEDS AND WOODY VEGETATION.
4. INSTALL STAFF GAGE TO MEASURE SEDIMENT ACCUMULATION. SEDIMENT SHALL BE REMOVED AFTER SEDIMENT ACCUMULATES TO A DEPTH OF 1 FOOT.

NO.	DATE	INT.
0.	2/23/21	MJS

INITIAL SUBMISSION TO PLANNING BOARD

REVISIONS

DATE: 02/23/2021
SCALE: AS NOTED
DESIGNED BY: MS
DRAWN BY: AJA
APPROVED BY: MJS
DWG FILE: 20025_DETAILS.dwg

CONSTRUCTION DETAILS

prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION

TAX MAP U-4 LOTS 11, & 15
NEWMARKET BUSINESS PARK

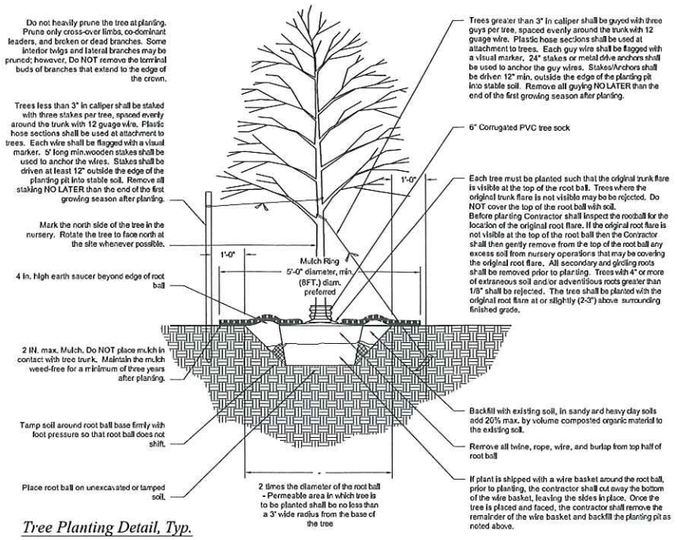
MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 459
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJSENGINEERING.COM

JOB: 20-025

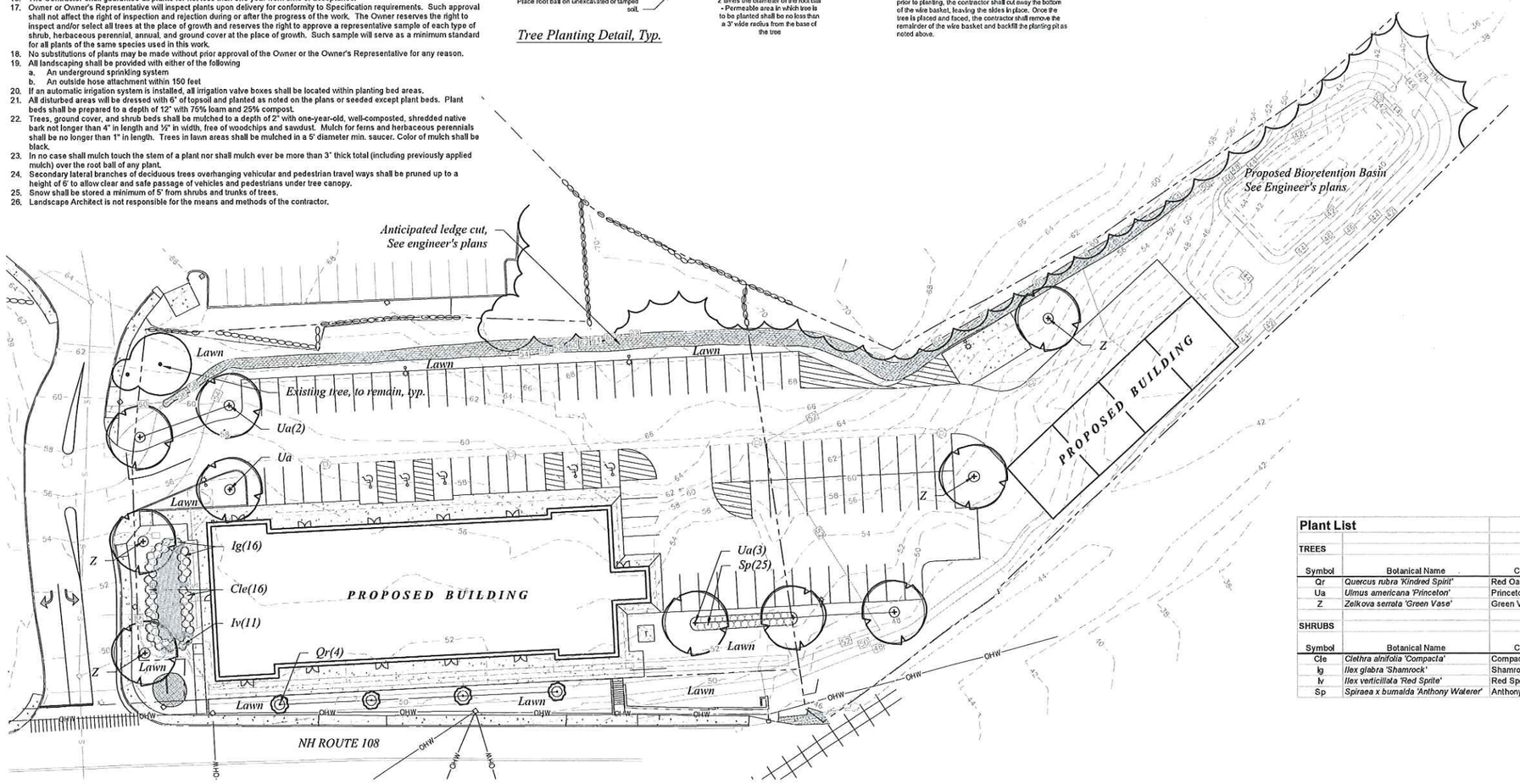
D5

Landscape Notes

1. Design is based on drawings by MJS Engineering dated 3/22/2021 and may require adjustment due to actual field conditions.
2. The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
3. Erosion Control shall be in place prior to construction.
4. Erosion Control to consist of Hay Bales and Erosion Control Fabric shall be staked in place between the work and Water bodies, Wetlands and/or drainage ways prior to any construction.
5. The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
6. It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
7. Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
8. Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
9. The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
10. The Contractor shall procure any required permits prior to construction.
11. Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
12. Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
13. The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
14. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
15. All plants shall be legibly tagged with proper botanical name.
16. The Contractor shall guarantee all plants for not less than one year from time of acceptance.
17. Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
18. No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
19. All landscaping shall be provided with either of the following
    a. An underground sprinkling system
    b. An outside hose attachment within 150 feet
20. If an automatic irrigation system is installed, all irrigation valve boxes shall be located within planting bed areas.
21. All disturbed areas will be dressed with 6" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
22. Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and ½" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
23. In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
24. Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 6' to allow clear and safe passage of vehicles and pedestrians under tree canopy.
25. Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
26. Landscape Architect is not responsible for the means and methods of the contractor.



Tree Planting Detail, Typ.



Plant List

TREES					
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Qr	*Quercus rubra 'Kindred Spirit'*	Red Oak	4	3-3.5" Cal	B&B
Ua	*Ulmus americana 'Princeton'*	Princeton American Elm	6	3-3.5" Cal	B&B
Z	*Zelkova serrata 'Green Vase'*	Green Vase Zelkova	4	3-3.5" Cal	B&B
SHRUBS					
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Cle	*Clethra alnifolia 'Compacta'*	Compact Summersweet	16	5 gal	
Ig	*Ilex glabra 'Shamrock'*	Shamrock Inkberry	16	5 gal	Full to ground
Iv	*Ilex verticillata 'Red Sprite'*	Red Sprite Winterberry	11	5 gal	
Sp	*Spiraea x bumalda 'Anthony Waterer'*	Anthony Waterer Spirea	25	5 gal	

0 10 15 30 60

APPROVED BY THE NEWMARKET PLANNING BOARD ON _____ CERTIFIED BY _____ CHAIRPERSON, AND/OR SECRETARY OR OTHER MEMBERS ON _____.

woodburn & company
LANDSCAPE ARCHITECTURE
103 Kent Place Newmarket, New Hampshire Phone: 603.659.5949

NO.	REVISIONS	DATE	INT.
3.	PER REVISED SITE PLAN	3/23/21	VM
2.	PER REVISED SITE PLAN	2/25/21	VM
1.	PER REVISED SITE PLAN	1/8/16	VM
0.	INITIAL SUBMISSION TO PLANNING BOARD	9/28/15	VM

SEAL

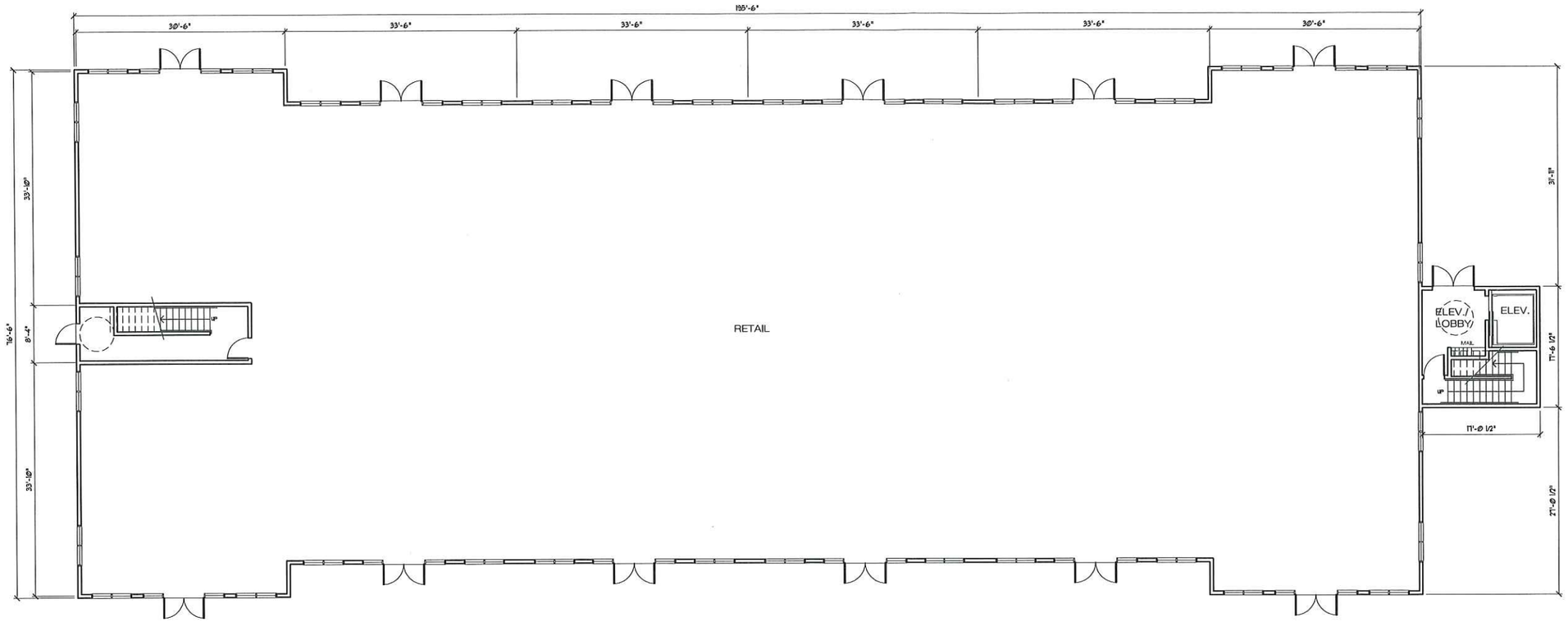
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DRAWN BY: VM
APPROVED BY: RW
DWG. FILE:

LANDSCAPE PLAN
prepared for
CHENEY PROPERTY MANAGEMENT CORPORATION
TAX MAP U-4 LOTS 12, 13, & 14
52-56 EXETER ROAD NEWMARKET, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWFIELDS, NH 03856
PHONE: (603) 659-4979, FAX: (603) 659-4637
E-MAIL: MJS@MJSENGINEERING.COM

JOB: 20-025

L1



1 First Floor Plan
1/8"=1'-0"

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Progress Set
March 22, 2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

First Floor Plan Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

SCALE:

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A-1.1

1 Second Floor Plan
1/8"=1'-0"

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March 22, 2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

Second Floor Plan Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

SCALE:

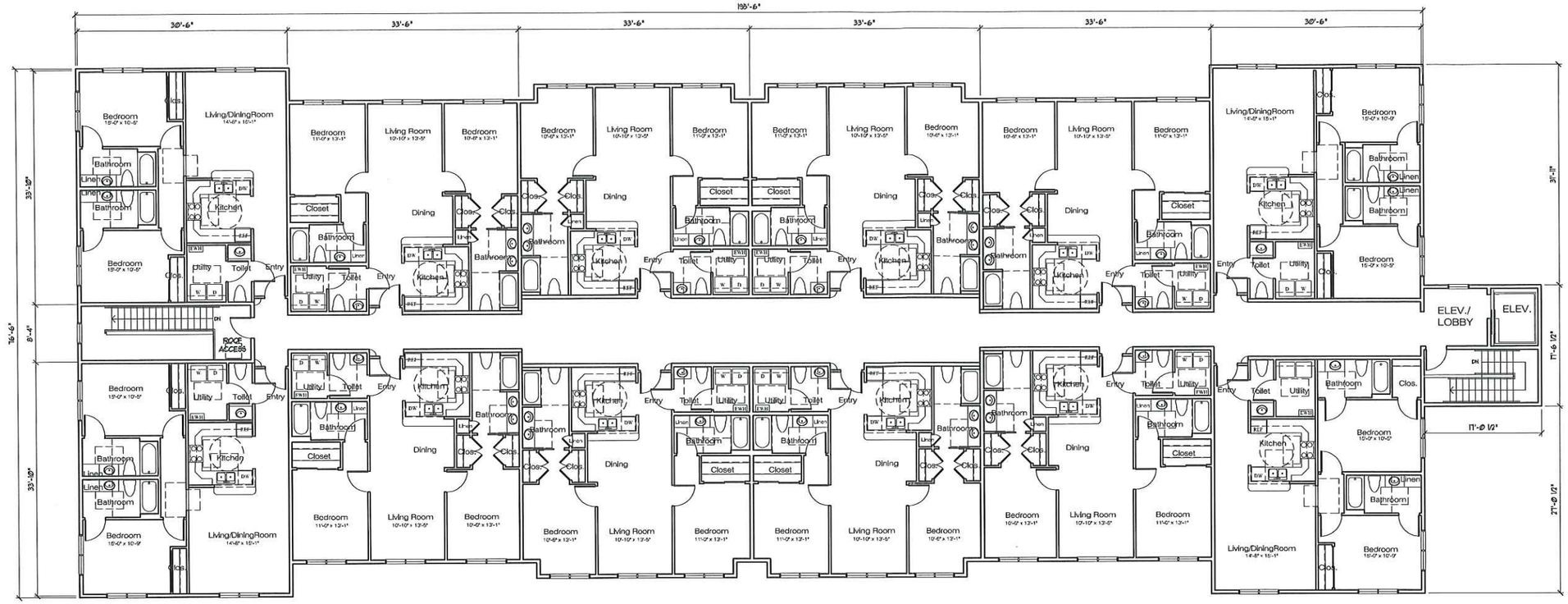
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1 Third Floor Plan
1/8"=1'-0"

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March 22,2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

Third Floor Plan Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

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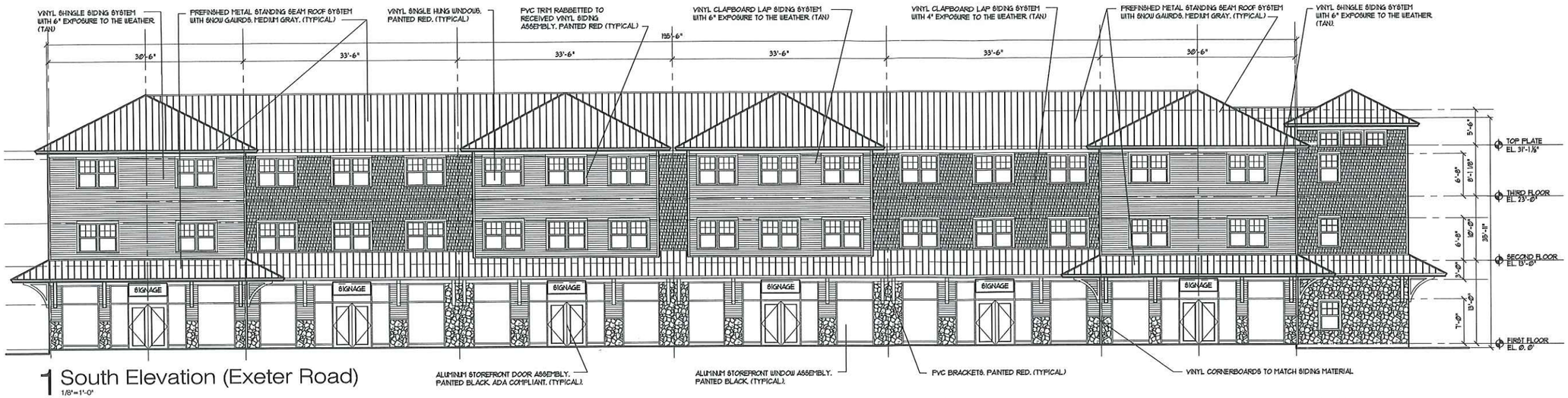
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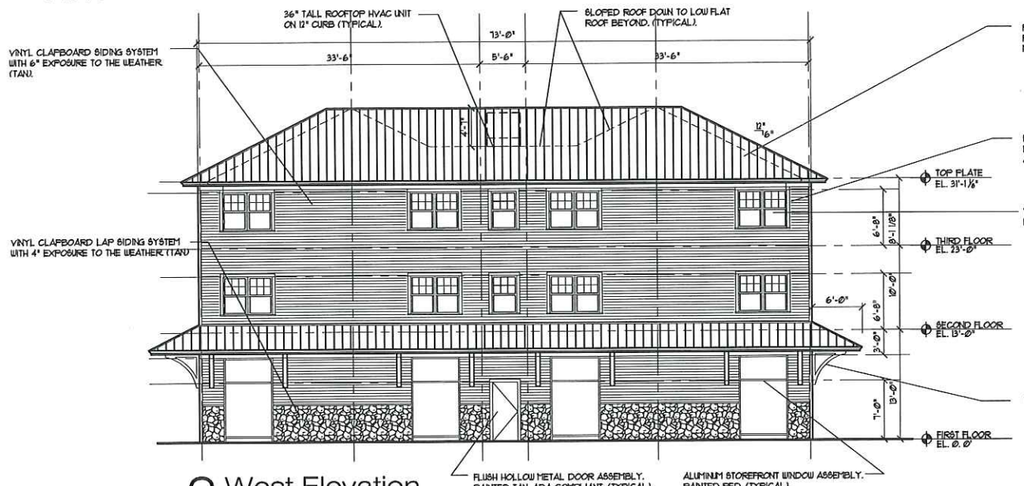
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JOB NO: 14014

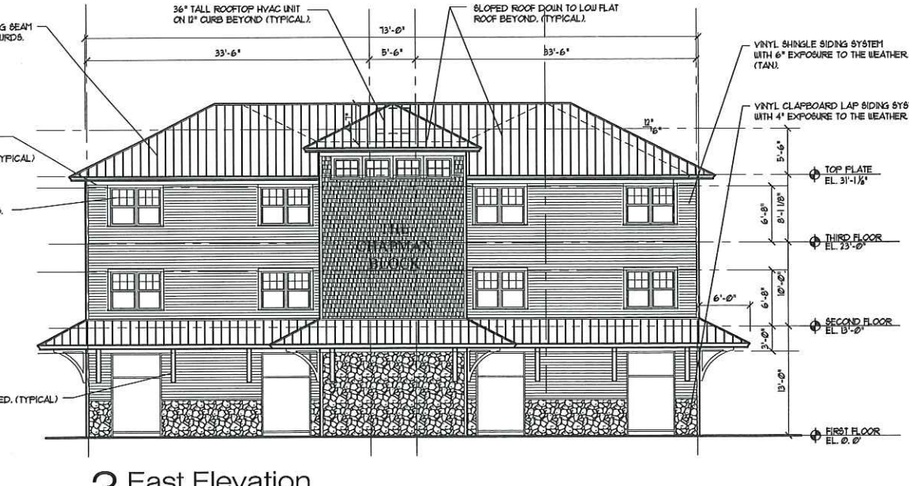
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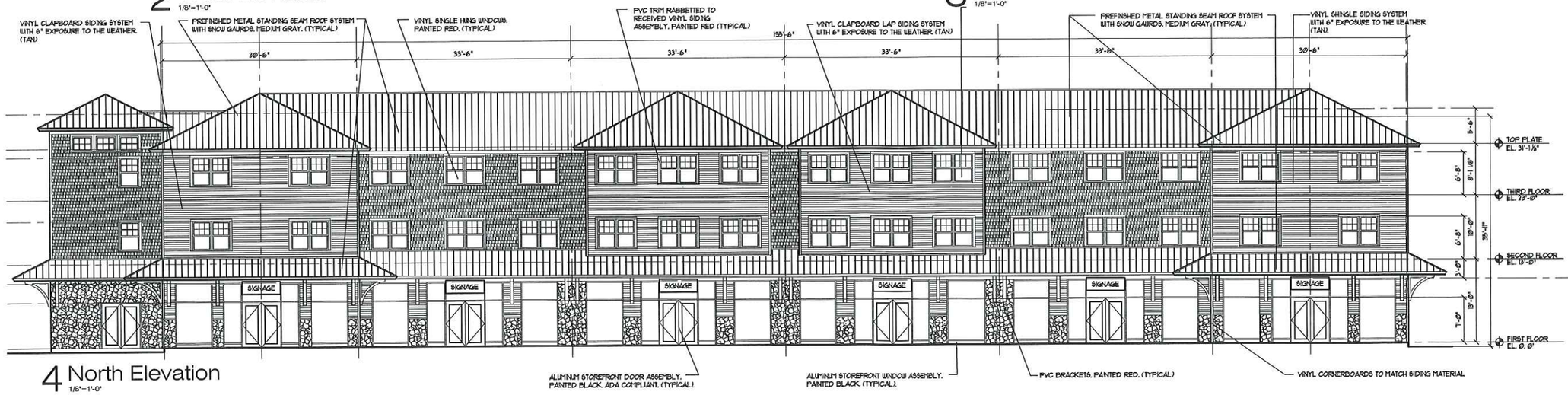
1 South Elevation (Exeter Road)
1/8"=1'-0"



2 West Elevation
1/8"=1'-0"



3 East Elevation
1/8"=1'-0"



4 North Elevation
1/8"=1'-0"

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Progress Print
March 22, 2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

Roof Plan Notes

Structural Engineer
MJS Engineering, PC
Mechanical/Plumbing
McCabe Associates
Fire Protection Engineer
McCabe Associates
Electrical Engineer
McCabe Associates

SCALE:

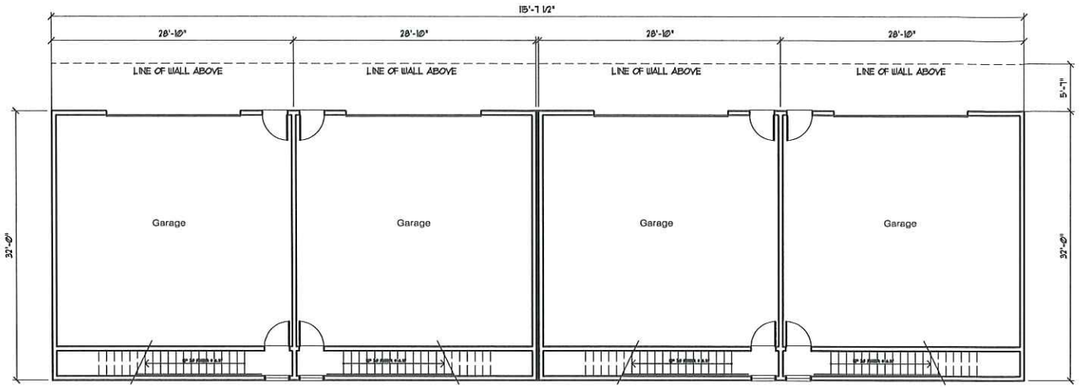
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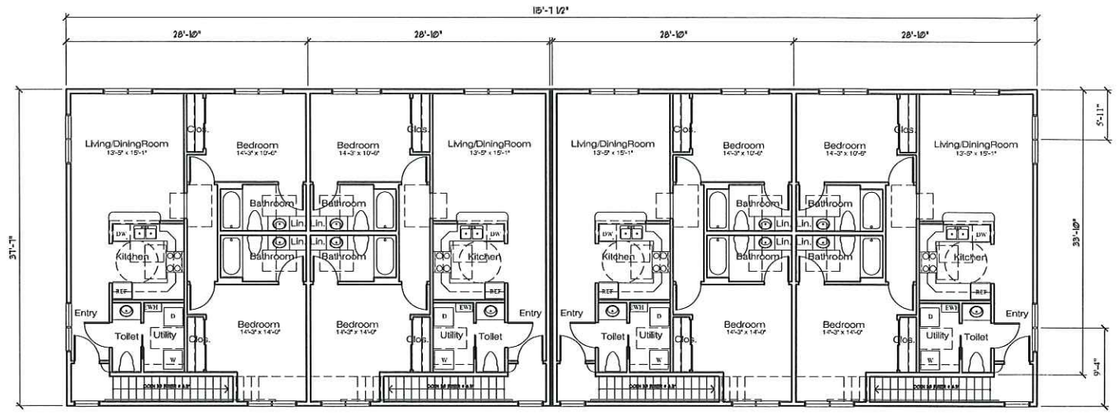
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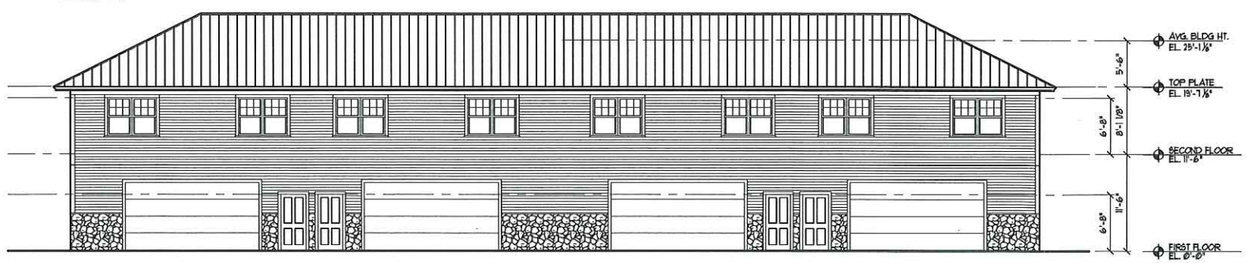
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1 First Floor Plan
1/8"=1'-0"



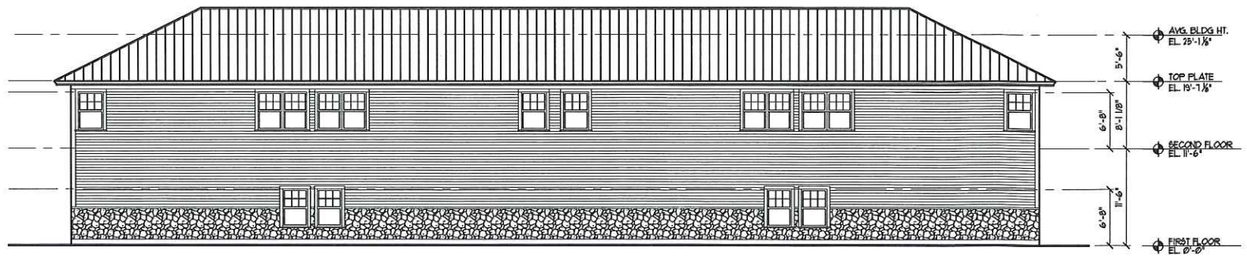
2 Second Floor Plan
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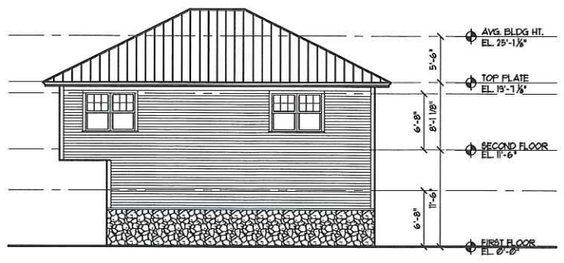
3 Front Elevation
1/8"=1'-0"



4 Left Side Elevation
1/8"=1'-0"



5 Rear Elevation
1/8"=1'-0"



6 Right Side Elevation
1/8"=1'-0"

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Progress Set
March 22, 2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

Quad Bldg.
First Floor Plan
Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

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Special Use Permits

Pursuant to Sec.32-9 of the Town of Newmarket Zoning Ordinance in Section 32 of the Municipal Code, there is a provision for Special Use Permits, which provides a mechanism for the Planning Board to offer flexibility and discretionary zoning where generally stated standards appear inappropriate. These permits are permitted in a number of cases throughout the zoning ordinance for items such as multi-family housing as part of the mixed-use development in the M-1 and M-2-A zones, self-storage facilities. The siting of telecommunications facilities, permitting home-based businesses. As set forth in RSA 676:4, the Planning Board processes such requests using the procedures of the Subdivision Regulations. The role of the Planning Board shall grant the Special Use Permit, if it is consistent with the purposes of the ordinance. Specific criteria is specified in the text of the Ordinance.

Applicable Section of the Zoning Ordinance: _____Section 32-46 A (b)(1)_____

Proposed Use: __Mixed Use development in a M2-A zone with three or greater residential units____

Criteria (1): Site Suitability

(A) Does the site have appropriate utilities (water, sewer, stormwater) available to service the project? __yes, all utilities are available at the property line._____

Will the project have a negative impact to environmental resources (wetlands, flood plains)? _____No_____

(B) Is there adequate off-street parking and loading? ____Yes_____

Is egress/ingress designed so as to cause minimal interference with traffic on abutting streets? _Yes, the project eliminates 4 driveways directly onto Route 108___

Criteria (2): External Impacts

(A) Will the proposed project not have an impact on adjacent properties (traffic, noise, odors, vibrations, lighting, hours of operation)? ___Yes, it will not have a negative impact.

(B) Will the project have an adverse impact on appropriate and orderly development of surrounding properties? __No_____

(C) Will buildings be compatible with the established character of surrounding properties and not cause a significant decline in property values of adjacent properties? _Yes___

(D) Will the project have a negative fiscal or market impact on the Town, as indicated in the Fiscal Impact and Marketing studies that have been completed? _No_____

Criteria in Sec. 32-46 A. M-2A District:

(A) Is this project consistent with the Purpose of the M2A Zoning District as stated below:

> *"to protect, enhance, and expand the commercial, social, civic, and residential functions of the downtown village area. It is recognized that the village is an important place of business and of social interaction. Controls are intended to enhance the village by providing relatively high density, a mix of uses, public access to the Lamprey River, and design compatible with the pedestrian scale and historic nature of the town."*

(B) Is this a suitable location for the project? Yes

(C) Does the Fiscal Impact Study show that the multi-family residential mixed use project will not have a negative impact on the Town? __Yes_____.

(D) Does the Market Analysis demonstrate that the project will not have a negative impact on the Town's housing market. ____Yes_____.

(E) Are there at least two (2) parking spaces per unit? Yes.

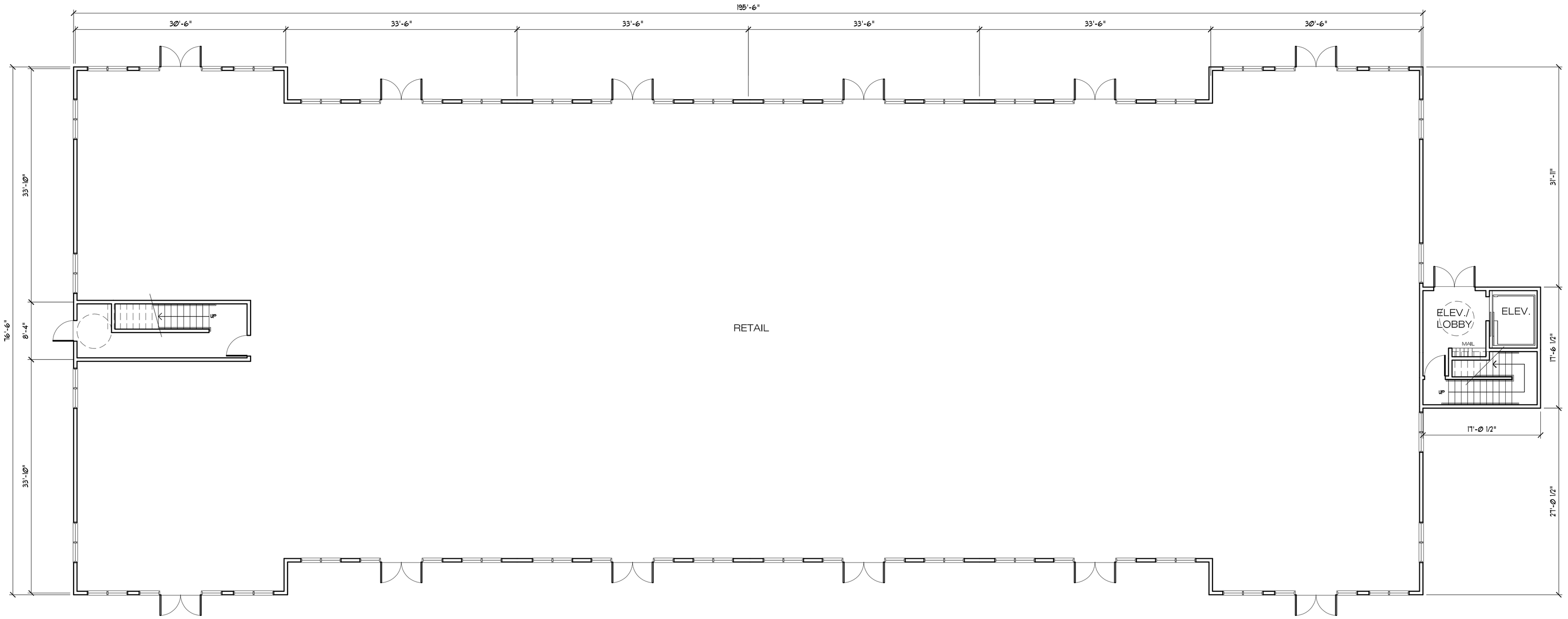
(F) In multi-family buildings with no commercial use are the number of units per building four (4) or fewer? ___Yes_____?

(G) Are there residential units located in the street level space if the building has frontage on Exeter Road____No_____?

(H) Do the apartments within this development exceed 1,000 square feet in size and have more than 2 bedrooms? ____No_____?

Submittals for Application

Progress Set floor Plans dated March 22, 2021
Site Plan, dated March 23, 2021
Application
Letter of *Intent*
Drainage Report
Pre-Drainage
Post-Drainage
Fiscal Analysis
Market Analsyis
Traffic Analysis
Waiver Requests (2)



1 First Floor Plan
1/8"=1'-0"

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Progress Set
July 21, 2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

First Floor Plan Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

SCALE:

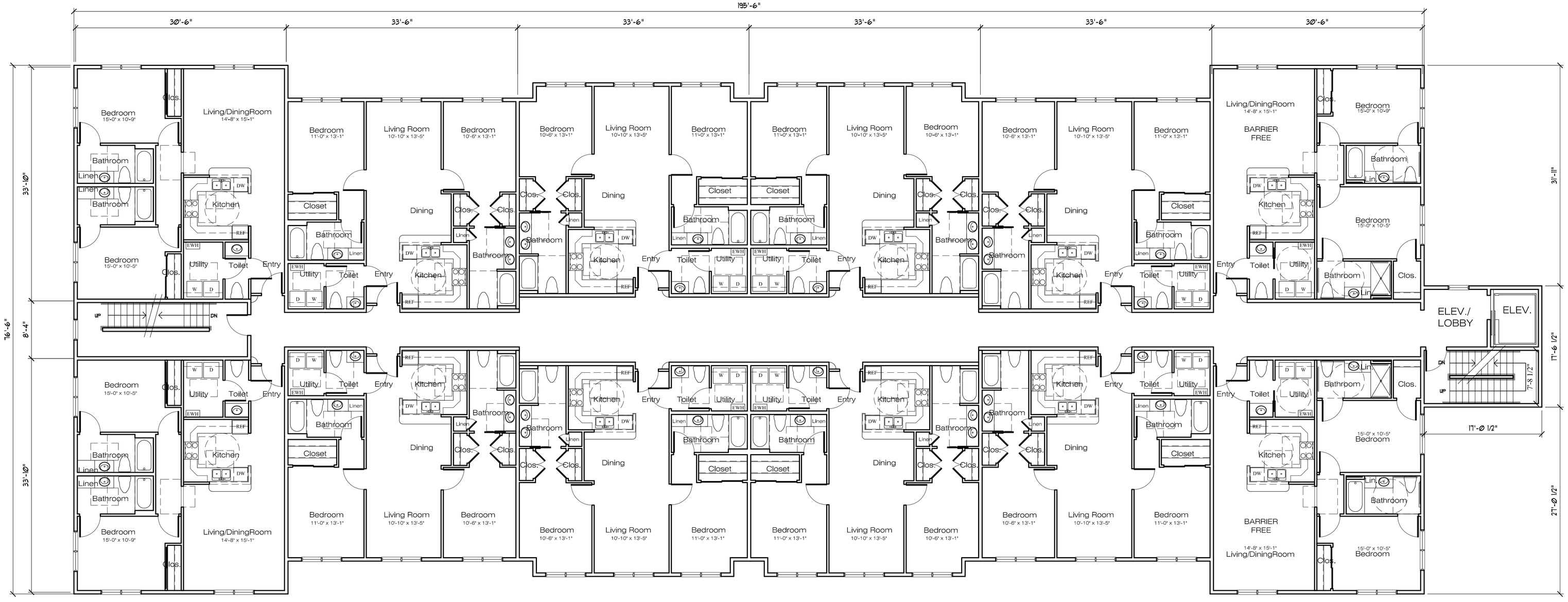
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1 Second Floor Plan
1/8"=1'-0"

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July 21, 2021

Cheney Property Management Corporation Mixed-Use Building

56 Exeter Road
Newmarket, NH

Second Floor Plan Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

SCALE:

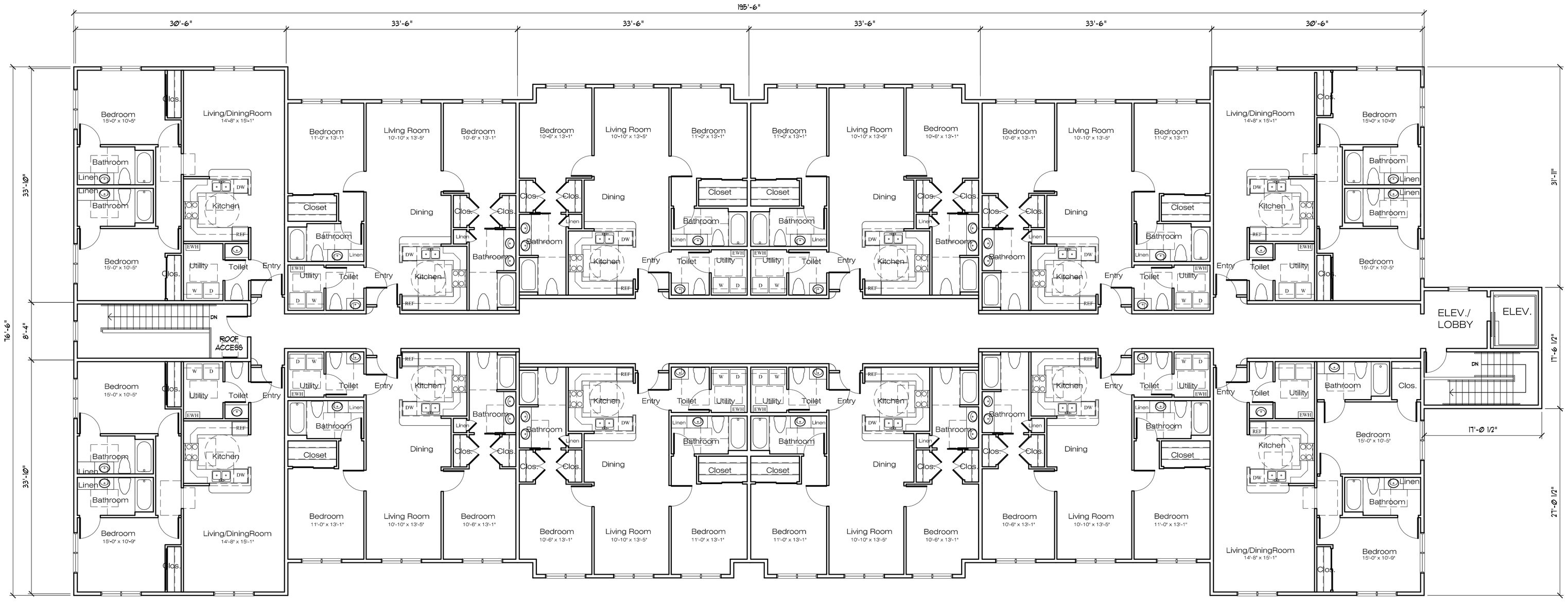
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1 Third Floor Plan
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July 21,2021

Cheney Property Management Corporation Mixed-Use Building

56 Exeter Road
Newmarket, NH

Third Floor Plan Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

SCALE:

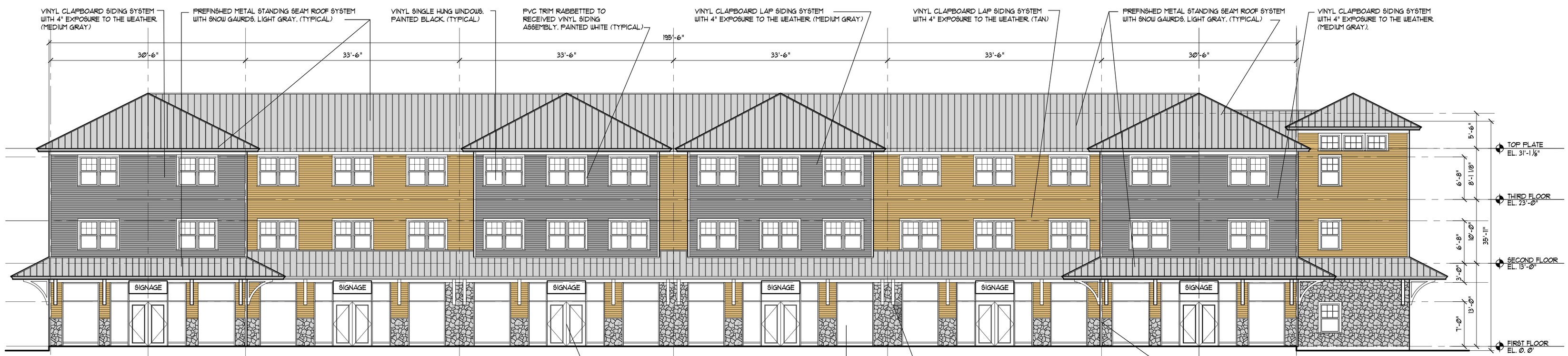
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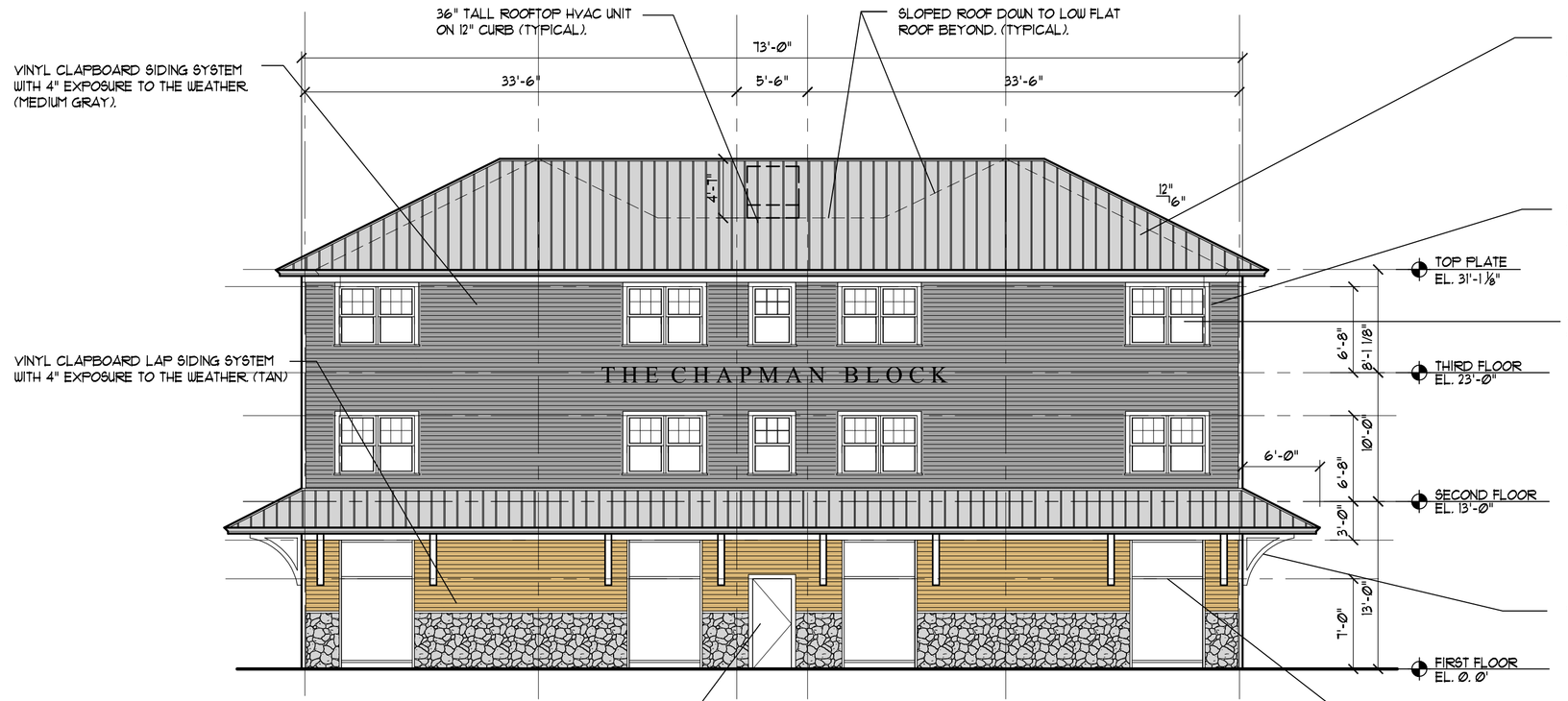
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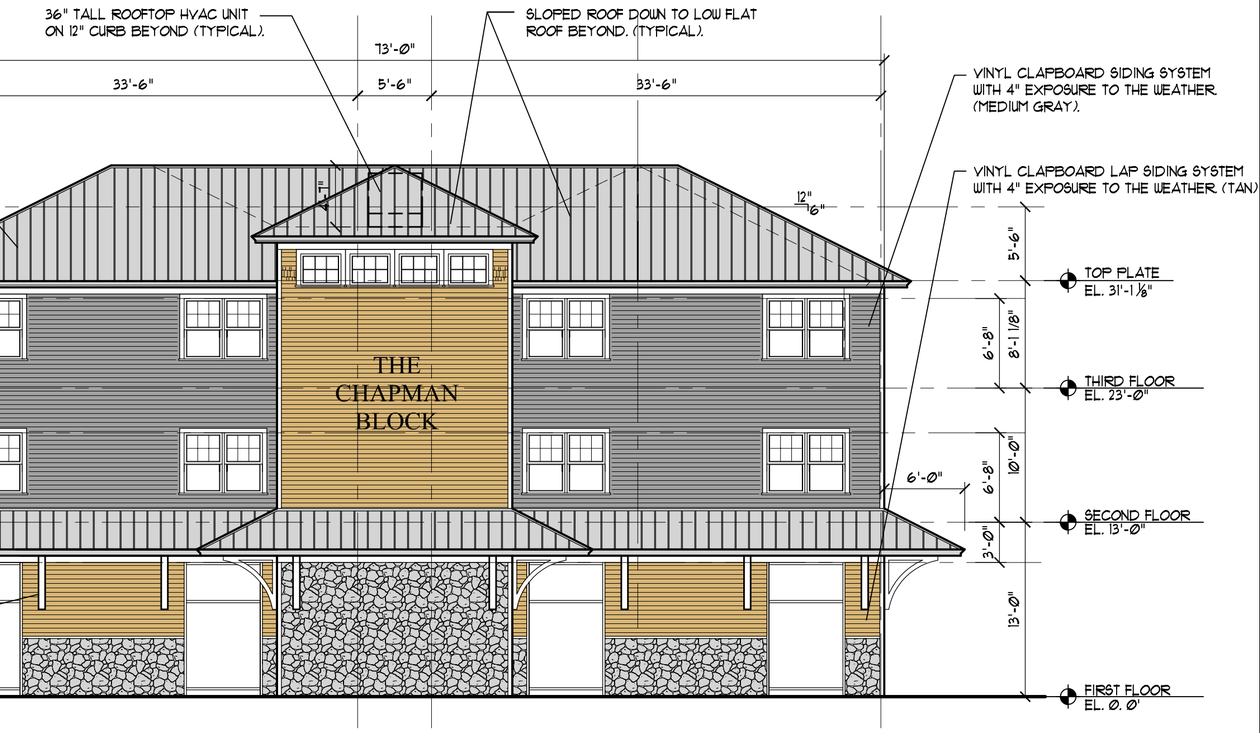
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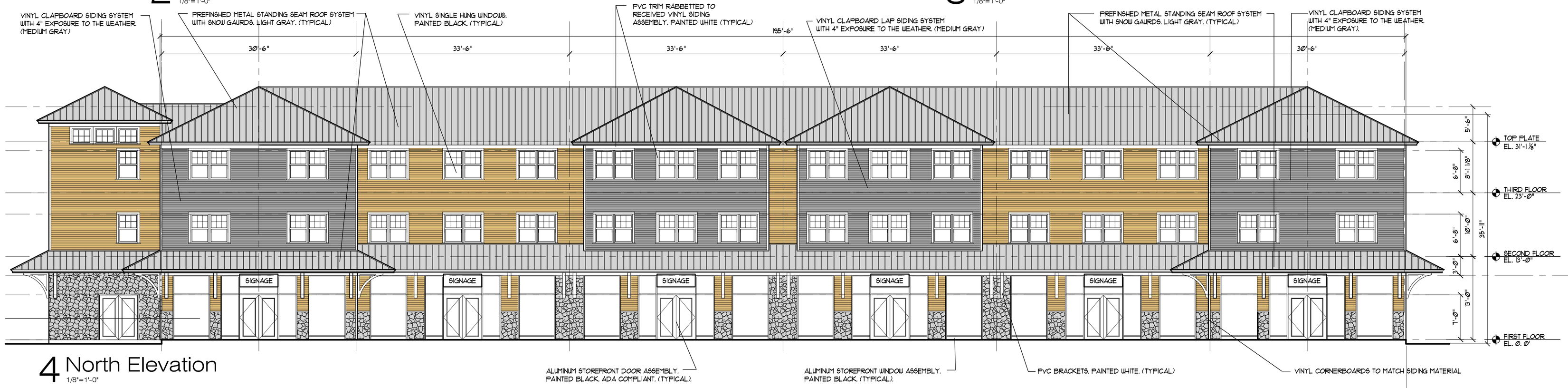
1 South Elevation (Exeter Road)
1/8"=1'-0"



2 West Elevation
1/8"=1'-0"



3 East Elevation
1/8"=1'-0"



4 North Elevation
1/8"=1'-0"

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Progress Print
August 20, 2021

Cheney Property Management Corporation
Mixed-Use Building

56 Exeter Road
Newmarket, NH

Elevations
Option No.4

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

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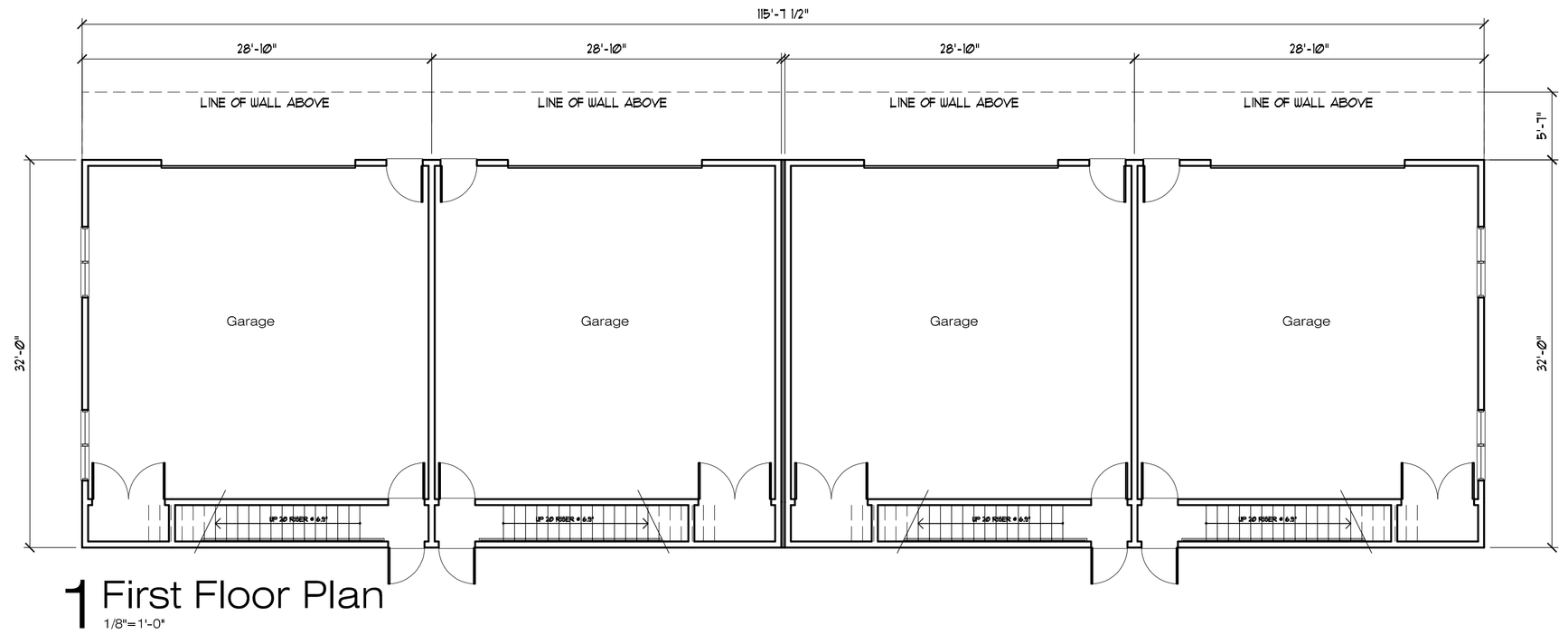
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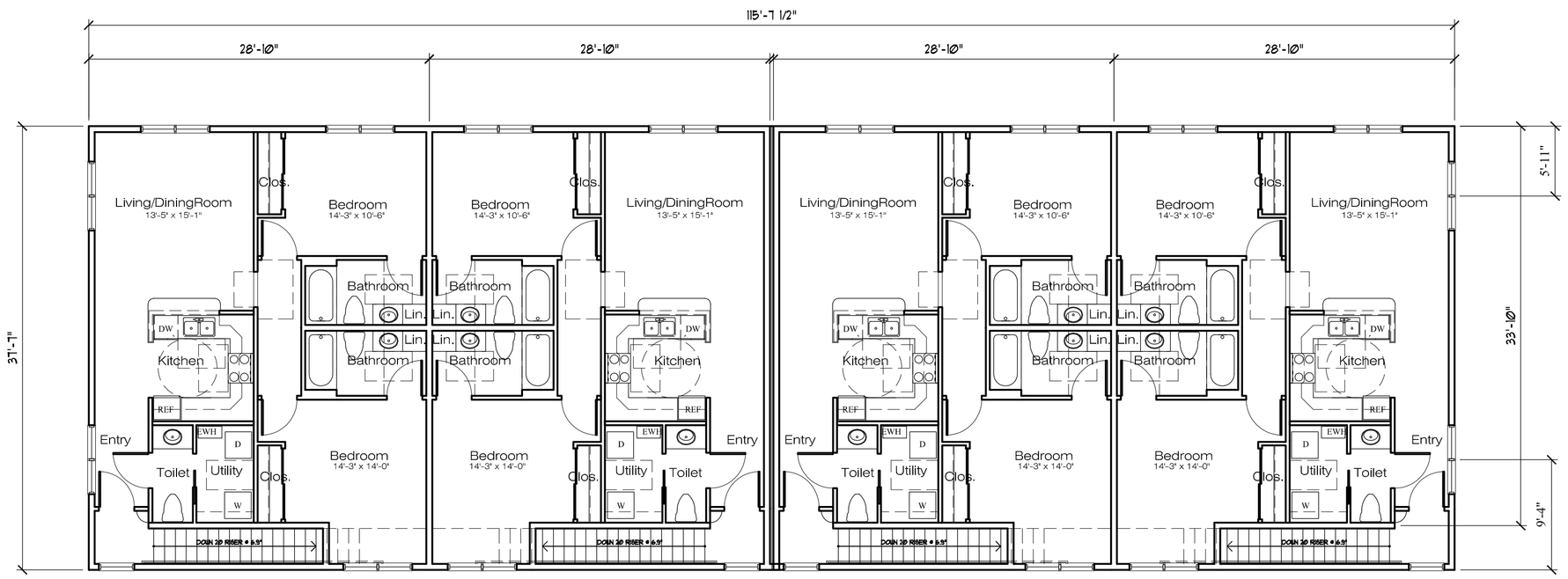
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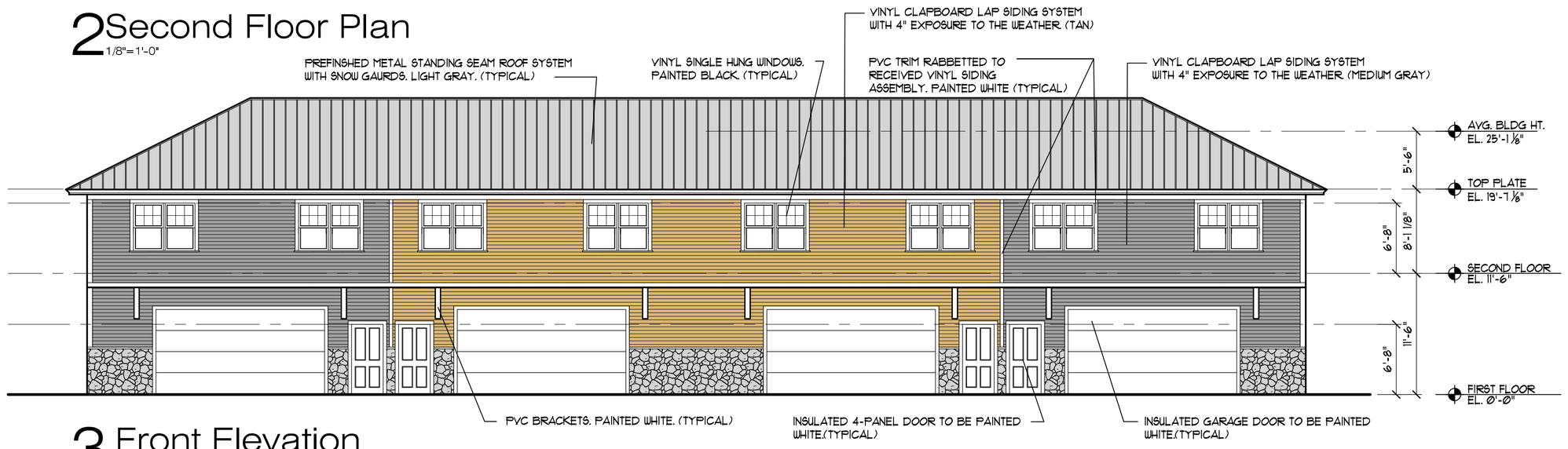
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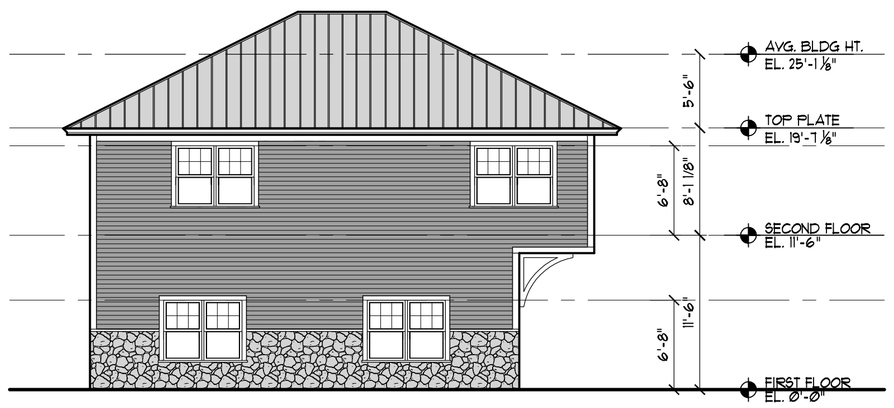
1 First Floor Plan
1/8"=1'-0"



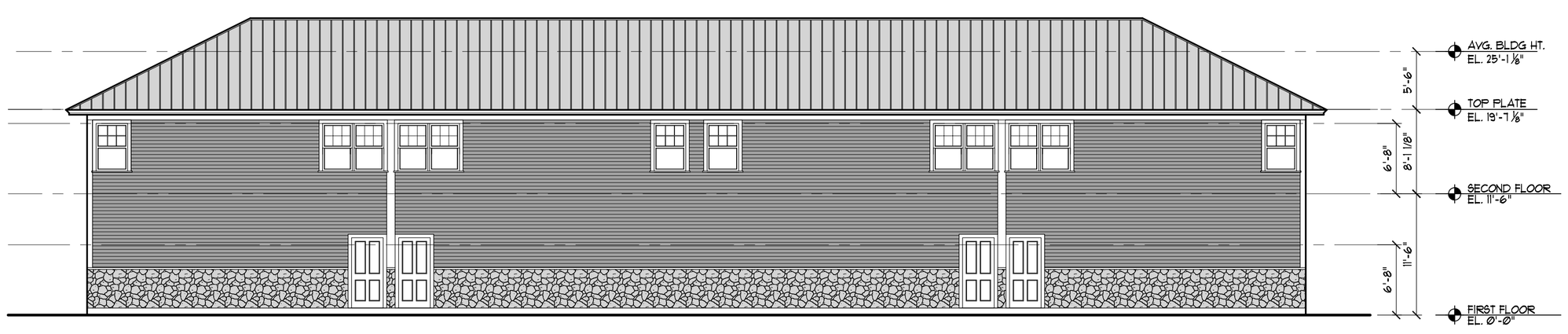
2 Second Floor Plan
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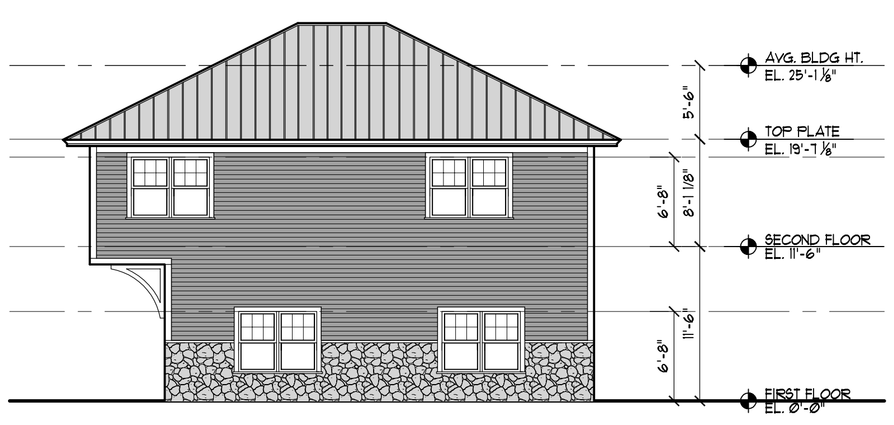
3 Front Elevation
1/8"=1'-0"



4 Left Side Elevation
1/8"=1'-0"



5 Rear Elevation
1/8"=1'-0"



6 Right Side Elevation
1/8"=1'-0"

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Progress Set
August 31, 2021

Cheney Property Management Corporation Residential Building

56 Exeter Road
Newmarket, NH

Quad Bldg. Floor Plans Elevations Notes

Structural Engineer

Mechanical/Plumbing

Fire Protection Engineer

Electrical Engineer

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A-4.1

civil &
environmental
engineering

UNDERWOOD
engineers

2688.00

September 2, 2021

Diane Hardy, Town Planner/Zoning Administrator
Town Hall, Town of Newmarket
186 Main Street
Newmarket, NH 03857

Re: ***Newmarket Business Park Condominium Site Plan Review***
Design Review Engineering Services
Newmarket, New Hampshire

Site Information:

Review No. 2

Tax Map/Lot#:	Map U-4, Lots 11 and 15
Address:	60 Exeter Road
Lot Area:	4.85 Acres
Proposed Use:	Mixed Use - Commercial and Residential
Water:	Town
Sewer:	Town
Zoning District:	M-2A
Applicant:	Cheney Property Management Corp., 74 Exeter Road, Unit 1A Newmarket, NH 03857

Application Materials Received:

- Select revised plans from the Site Plan set (C1 through C3 and D1 through D5) revised August 4, 2021, prepared by MJS Engineering, PC of Newmarket, NH
- Drainage Analysis revised August 4, 2021, prepared by MJS Engineering, PC of Newmarket, NH

Dear Ms. Hardy:

Following Review Letter #1, the applicant's consultant (MJS) prepared a response letter dated July 21, 2021. UEs comments and the response letter were discussed at the July 22nd TRC meeting. Based on the TRC, some elements of the project have changed, either negating or addressing UE's original comment or have rendered MJS' response invalid. The latest submission, issued around August 5th, is not a complete submission nor did it include an updated response to comments. As such, the review process is a little out of sync. Underwood Engineers has attempted to review the July 21st response along with the latest (August 4th design plans and drainage report) and respond/comment accordingly.

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Site Layout

1. **Parking:** No exception taken. Adequacy is deferred to the Planning Board.
2. **Bicycles:** No exception taken.
3. **Reserved Parking/Van Accessible Signs:** No exception taken.
4. **Accessible Space Dimensions:** No exception taken.
5. **Trash and Recycling Pad:** It remains unclear to UE how the dumpster/compactor corral will be used and accessed by retrieval trucks. It appears that the bollards will be access prohibitive and the 10-foot-wide gate (constructed as two 5' gates on a skew in the detail) should be reconsidered relative to vehicular access. It also appears to UE that additional/expanded concrete areas are going to be needed to drop and swap the MSW and recycling containers as pavement will not sustain the impacts. No further comment will be given.
6. **Garages:** No exception taken.
7. **Visitor Parking:** No exception taken.

Lighting Plans

8. **Trash Area:** A revised lighting plan has not been received.

Grading, Drainage, and Utilities Plan

9. **Ledge:** No exception taken to the written response. The plans could benefit from a detail of the seepage collection area for clarity.
10. **Utility Lines**: No exception taken.
11. **Snow Storage:** No exception taken.

Landscaping Plan

12. **Utility Conflicts**: The design appears to have been changed since original comments were made. The new design satisfies UE's previous comments.
13. **Snow Storage**: No exception taken.

Architecture

14. **Garage**: No exception taken.

Drainage Report

15. **POA 3**: Drainage discharges are considerably improved over the initial design. The proposed extended discharge, even at 0.2 CFS, for more than 2 days is concerning when compared to the existing condition that discharges at a comparable 0.2 CFS for

approximately 10 hours. An increased peak, even sustained at 3CFS, early in the discharge curve to avoid the extended discharge would be preferable this low in the watershed.

New Comments

16. Electrical power needs to be extended to the dumpster corral for the compactor and lights.

A written response is required to facilitate future reviews. Please contact us if you have any questions.

Very truly yours,
UNDERWOOD ENGINEERS, INC.

Robert J. Saunders, P.E.
Project Manager

Allison Rees, P.E.
Senior Project Engineer

cc: Rick Malasky, DPW Director/Fire Chief
Michael Sievert, P.E., MJS Engineering