PLANNING & COMMUNITY DEVELOPMENT
2022 SEP -8 A 9:54
TOWN CLERK'S OFFICE ARLINGTON, MA 02474
2022 SEP -8 AM 10:58
RECEIVED

# TOWN OF ARLINGTON
# REDEVELOPMENT BOARD
## Application for Special Permit In Accordance with Environmental Design Review Procedures (Section 3.4 of the Zoning Bylaw)

Docket No. 3717

1. Property Address 80 Broadway, Arlington
   Name of Record Owner(s) Eighty Broadway LLC Phone 413-387-8464 (cell)
   Address of Owner 201 Broadway (Street), Arlington, MA 02474 (City, State, Zip)

2. Name of Applicant(s) (if different than above) _____
   Address _____ Phone _____
   Status Relative to Property (occupant, purchaser, etc.) _____

3. Location of Property 027.0-0003-0005.0
   Assessor's Block Plan, Block, Lot No.

4. Deed recorded in the Registry of deeds, Book 79844, Page 381;
   -or- registered in Land Registration Office, Cert. No. _____, in Book _____, Page _____.

5. Present Use of Property (include # of dwelling units, if any) Commercial Rental (Liquor Store)

6. Proposed Use of Property (include # of dwelling units, if any) Mixed Use - Commercial and Residential
   Four (4) Residential Units and balance to be commercial space

7. Permit applied for in accordance with the following Zoning Bylaw section(s)

| section(s) | title(s) |
|---|---|
| 3.4 | Environmental Design Review |
| 5.53 | Mixed Use |
| | |
| | |

8. Please attach a statement that describes your project and provide any additional information that may aid the ARB in understanding the permits you request. Include any reasons that you feel you should be granted the requested permission.

Please see attached statement by David Freed, AIA, of Choo & Co., Inc., as well as impact statement by Applicant.

(In the statement below, strike out the words that do not apply)

The applicant states that Eighty Broadway LLC is the owner -or- occupant -or- purchaser under agreement of the property in Arlington located at 80 Broadway which is the subject of this application; and that unfavorable action -or- no unfavorable action has been taken by the Zoning Board of Appeals on a similar application regarding this property within the last two years. The applicant expressly agrees to comply with any and all conditions and qualifications imposed upon this permission, either by the Zoning Bylaw or by the Redevelopment Board, should the permit be granted.

Robert D. Cox 9/8/22

Signature of Applicant(s)

201 Broadway, Arlington, MA 02474 — Address

413-387-8464 (cell) — Phone

Town of Arlington Redevelopment Board
Application for Special Permit in accordance with
Environmental Design Review (Section 3.4)

## Required Submittals Checklist

Two full sets of materials and one electronic copy are required. A model may be requested. Review the ARB's Rules and Regulations, which can be found at arlingtonma.gov/arb, for the full list of required submittals.

- X Dimensional and Parking Information Form (see attached)
- X Site plan of proposal
- ____ Model, if required
- X Drawing of existing conditions
- X Drawing of proposed structure
- X Proposed landscaping. May be incorporated into site plan
- X Photographs
- X Impact statement
- ____ Application and plans for sign permits
- X Stormwater management plan (for stormwater management during construction for projects with new construction

FOR OFFICE USE ONLY

_____ Special Permit Granted Date: _____

_____ Received evidence of filing with Registry of Deeds Date: _____

_____ Notified Building Inspector of Special Permit filing Date: _____

# TOWN OF ARLINGTON
# REDEVELOPMENT BOARD
## Petition for Special Permit under Environmental Design Review (see Section 3.4 of the Arlington Zoning Bylaw for Applicability)

For projects subject to Environmental Design Review, (see Section 3.4), please submit a statement that completely describes your proposal, and addresses each of the following standards.

1. Preservation of Landscape. The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soil removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

2. Relation of Buildings to Environment. Proposed development shall be related harmoniously to the terrain and to the use, scale, and architecture of existing buildings in the vicinity that have functional or visual relationship to the proposed buildings. The Arlington Redevelopment Board may require a modification in massing to reduce the effect of shadows on abutting property in an R0, R1 or R2 district or on public open space.

3. Open Space. All open space (landscaped and usable) shall be so designed as to add to the visual amenities of the vicinity by maximizing its visibility for persons passing the site or overlooking it from nearby properties. The location and configuration of usable open space shall be so designed as to encourage social interaction, maximize its utility, and facilitate maintenance.

4. Circulation. With respect to vehicular, pedestrian and bicycle circulation, including entrances, ramps, walkways, drives, and parking, special attention shall be given to location and number of access points to the public streets (especially in relation to existing traffic controls and mass transit facilities), width of interior drives and access points, general interior circulation, separation of pedestrian and vehicular traffic, access to community facilities, and arrangement of vehicle parking and bicycle parking areas, including bicycle parking spaces required by Section 8.13 that are safe and convenient and, insofar as practicable, do not detract from the use and enjoyment of proposed buildings and structures and the neighboring properties.

5. Surface Water Drainage. Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties or the public storm drainage system. Available Best Management Practices for the site should be employed, and include site planning to minimize impervious surface and reduce clearing and re-grading. Best Management Practices may include erosion control and storm water treatment by means of swales, filters, plantings, roof gardens, native vegetation, and leaching catch basins. Storm water should be treated at least minimally on the development site; that which cannot be handled on site shall be removed from all roofs, canopies, paved and pooling areas and carried away in an underground drainage system. Surface water in all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic, and will not create puddles in the paved areas.

   In accordance with Section 3.3.4, the Board may require from any applicant, after consultation with the Director of Public Works, security satisfactory to the Board to insure the maintenance of all storm water facilities such as catch basins, leaching catch basins, detention basins, swales, etc. within the site. The Board may use funds provided by such security to conduct maintenance that the applicant fails to do. The Board may adjust in its sole discretion the amount and type of financial security such that it is satisfied that the amount is sufficient to provide for the future maintenance needs.

6. Utility Service. Electric, telephone, cable TV and other such lines and equipment shall be underground. The proposed method of sanitary sewage disposal and solid waste disposal from all buildings shall be indicated.

7. Advertising Features. The size, location, design, color, texture, lighting and materials of all permanent signs and outdoor advertising structures or features shall not detract from the use and enjoyment of proposed buildings and structures and the surrounding properties. Advertising features are subject to the provisions of Section 6.2 of the Zoning Bylaw.

8. Special Features. Exposed storage areas, exposed machinery installations, service areas, truck loading areas, utility buildings and structures, and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall reasonably be required to prevent their being incongruous with the existing or contemplated environment and the surrounding properties.

9. Safety. With respect to personal safety, all open and enclosed spaces shall be designed to facilitate building evacuation and maximize accessibility by fire, police, and other emergency personnel and equipment. Insofar as practicable, all exterior spaces and interior public and semi-public spaces shall be so designed as to minimize the fear and probability of personal harm or injury by increasing the potential surveillance by neighboring residents and passersby of any accident or attempted criminal act.

10. Heritage. With respect to Arlington's heritage, removal or disruption of historic, traditional or significant uses, structures, or architectural elements shall be minimized insofar as practicable, whether these exist on the site or on adjacent properties.

11. Microclimate. With respect to the localized climatic characteristics of a given area, any development which proposes new structures, new hard-surface ground coverage, or the installation of machinery which emits heat, vapor, or fumes, shall endeavor to minimize, insofar as practicable, any adverse impact on light, air, and water resources, or on noise and temperature levels of the immediate environment.

12. Sustainable Building and Site Design. Projects are encouraged to incorporate best practices related to sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. Applicants must submit a current Green Building Council Leadership in Energy and Environmental Design (LEED) checklist, appropriate to the type of development, annotated with narrative description that indicates how the LEED performance objectives will be incorporated into the project. [LEED checklists can be found at http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220b ]

## In addition, projects subject to Environmental Design Review must address and meet the following Special Permit Criteria (see Section 3.3.3 of the Zoning Bylaw):

1. The use requested is listed as a special permit in the use regulations for the applicable district or is so designated elsewhere in this Bylaw.

2. The requested use is essential or desirable to the public convenience or welfare.

3. The requested use will not create undue traffic congestion or unduly impair pedestrian safety.

4. The requested use will not overload any public water, drainage or sewer system or any other municipal system to such an extent that the requested use or any developed use in the immediate area or in any other area of the Town will be unduly subjected to hazards affecting health, safety or the general welfare.

5. Any special regulations for the use as may be provided in this Bylaw are fulfilled.

6. The requested use will not impair the integrity or character of the district or adjoining districts, nor be detrimental to the health, morals, or welfare.

7. The requested use will not, by its addition to a neighborhood, cause an excess of the particular use that could be detrimental to the character of said neighborhood.

TOWN OF ARLINGTON
Dimensional and Parking Information
for Application to
The Arlington Redevelopment Board

Docket No. 3717

Property Location 80 Broadway

Zoning District B4

Owner: Eighty Broadway LLC

Address: 201 Broadway, Arlington, MA 02474

Present Use/Occupancy: No. of Dwelling Units:
Commercial - Zero Dwelling Units

Uses and their gross square feet:
Liquor Store (1,358 sq. feet)

Proposed Use/Occupancy: No. of Dwelling Units:
Mixed Use (Commercial and 4 Dwelling Units)

Uses and their gross square feet:
Mixed Use (10,155 sq. feet)

| | Present Conditions | Proposed Conditions | Min. or Max. Required by Zoning for Proposed Use |
|---|---|---|---|
| Lot Size | 6,770 +- | 6,770+- | min. N/A |
| Frontage | 174.59' | 174.59' | min. 50' |
| Floor Area Ratio | .21 | 1.5 | max. 1.5 |
| Lot Coverage (%), where applicable | 21.1% | 35.8% | max. N/A |
| Lot Area per Dwelling Unit (square feet) | N/A | 1,354 SF/DU | min. N/A |
| Front Yard Depth (feet) | 27.2' | 0' | min. 0' |
| Side Yard Width (feet) right side | 7.3' | 14.1' | min. 0' |
| left side | 35.4' | 2.0' | min. 0' |
| Rear Yard Depth (feet) | 2.0' | 15.3' | min. 14.3' |
| Height | | | min. |
| Stories | 1 | 4 | stories 5 |
| Feet | 12' | 44.5' | feet 60' |
| Open Space (% of G.F.A.) | 8.8% | 20.6% | min. 16.0% |
| Landscaped (square feet) | 596 sq. ft | 1,396 sq. ft. | (s.f.) 541 sq. ft |
| Usable (square feet) | 0 sq. ft. | 987 sq. ft. | (s.f.) 541 sq. ft. |
| Parking Spaces (No.) | 8 | 7 | min. 5 |
| Parking Area Setbacks (feet), where applicable | 5.3' | 8.0' | min. 5.0' |
| Loading Spaces (No.) | 0 | 0 | min. 1 |
| Type of Construction | 5A | | |
| Distance to Nearest Building | 4.9' | 18.7' | min. |

COMMONWEALTH OF MASSACHUSETTS

ARLNGTON REDEVELOPMENT BOARD

DOCKET NO. 3717

**********

In Re:

80 BROADWAY
ARLINGTON, MASSACHUSETTS

**********

**IMPACT STATEMENT OF EIGHTY BROADWAY LLC**

I. INTRODUCTION

In accordance with the Town of Arlington Zoning Bylaw, Eighty Broadway LLC of 201 Broadway, Arlington, Massachusetts submits its impact statement and statement as to the satisfaction of the special permit criteria in connection with its request for the issuance of a special permit for the mixed-use project proposed for 80 Broadway, Arlington, MA (hereinafter referred to as the "Bylaw").

The project proposed by the Eighty Broadway LLC for this 6,770 square foot site consists of one building, housing four (4) new residential units and 3,295 square feet of retail / commercial space. The Property is presently the site of Menotomy Beer & Wine.

The Property is in a B-4 zoning district, the vehicular-oriented business district. Mixed-Use is permitted by special permit in the B-4 Zoning District, subject to environmental design review. The parcel is located on the corner of Broadway and Winter Street and is bordered by vehicular / industrial-type uses and residential uses.

Eighty Broadway LLC seeks relief for the following purposes:

1. To construct: (a) four (4) residential units and (b) retail / commercial space for offices.

## II. SPECIAL PERMIT CRITERIA

### 1. Use Requested

The uses requested, multi-family and retail / commercial use, are listed in the table of Use Regulations by special permit in a B-4 zoning district. See Article 5, Section 5.5.1 paragraph E, where it is noted that "the Town ***has encouraged conversion*** of the property to other retail, service, office or residential use, ***particularly as part of mixed-use development***" (emphasis supplied).

### 2. Public Convenience or Welfare

The mixed-use proposed is a use deemed desirable to the public convenience and welfare.

### 3. Pedestrian Safety and Traffic

The proposed use will not create undue traffic congestion or unduly impair pedestrian safety.

### 4. Municipal Systems

The proposed project will not overload any public water, drainage or sewer system or any other municipal system to such an extent that the requested use or any developed use in the immediate area or in any other area of the Town will be unduly subjected to hazards affecting health, safety or the general welfare.

5. Article 3, section 3.4. Environmental Design Review

The proposed project is subject to environmental design review.

a, Preservation of Landscape

As depicted in the photographs of the existing conditions submitted by Eighty Broadway LLC, there is little to no landscape to preserve on the Property. Notwithstanding the current status, the Bylaws require landscaping of residential projects in B4 Zones pursuant to section 5.3.21D and it is incorporated into the proposal.

b. Relation of Proposed Residential Buildings to Neighborhood Environment

The building proposed will be a three and one-half story mixed-use building with an elevator. The fourth floor be substantially set back. The retail / commercial space will be housed on the first and second floors and entry, in the case of the first floor, will be off of Broadway and off of Winter Street for the second floor which will be a common entrance for the residences on the third and fourth floors. There will be three (3) one-bedroom units, and one (1) two-bedroom unit. The residential units will utilize the setback as outdoor/open space as permitted by Article 5, Section 5.3.17 of the Bylaw.

The proposed mixed-use development is in harmony with the neighborhood, which includes numerous commercial and industrial-type uses, homes and apartment-style buildings.

c. Site Circulation

The Property will, as detailed on the plans submitted, have seven (7) parking spaces accessed from Broadway.

The project is transit-oriented with three bus lines along Broadway. Massachusetts Avenue is two blocks away with three additional bus lines.

d. Surface Water Drainage

Site surface waters will drain onsite into catch basins and an underground drainage system and will not adversely affect neighboring properties or the public storm drainage system. The onsite drainage system will be designed to collect runoff at intervals such that water runoff will neither obstruct the flow of vehicles or pedestrian traffic nor create puddles in paved areas.

e. Utility Service

All utility services, including electric, telephone and cable television shall be installed underground.

f. Signage

The Property will include signage identifying the residential development and wayfaring signage in the parking area.

g. Safety

The project has been designed to facilitate building evacuation as required by the Massachusetts Building Code and maximum accessibility by fire, police and other emergency personnel and equipment.

h. Heritage

The proposed project is in keeping with Arlington's heritage and ensures the construction of an attractive and appropriate mixed-use development of affordable housing and retail uses.

i. Microclimate

The materials and mechanical equipment to be installed will be of the quality that minimize noise.

j. Sustainable Building and Site Design

The Project will be HERS Rater verified as per the Commonwealth of Massachusetts Building Code. The Property is located in a B-4 zoning district. The project is a "mixed-use" project so-called. Indeed, this "mixed-use" type project is precisely the sort of project the Town seeks to encourage in a B-4 District. The Bylaw specifically states:

"Arlington has an overabundance of automotive and automotive accessory sales and service establishments; thus when one of these businesses closes, the conversion of the property to other retail, service, office or residential use is encouraged, ***particularly as part of mixed-use development, which is allowed in this district"*** (emphasis supplied).

As stated above, apartment use and retail are permitted by special permit in a B-4 District.

The applicable dimensional and density/regulations are set out in Article 5, Sections 5.5.2 et seq. of the Bylaw.

The frontage required for a lot less than 20,000 square feet is 50 feet. The frontage for this Property is 174.59 feet. The project as proposed is less than the permitted number of stories and height permitted in a B-4 District for mixed use. The Property will contain the landscaped and usable area required by the Arlington Zoning Bylaw.

The project is in keeping with the aims of the Arlington Zoning Bylaw. The project will promote the public health, safety and welfare of our Town by expanding the affordable residential inventory by four (4) and adding much needed retail / commercial uses for the neighborhood.

6. The requested use will not impair the integrity or character of the district or adjoining districts, nor be detrimental to the health, morals, or welfare. Indeed, the project will be a substantial improvement.

7. The requested use will not, by its addition to the neighborhood, cause an excess of that particular use that could be detrimental to the character of said neighborhood. The immediate neighborhood consists of vehicular and industrial uses and a mix of single and two families and apartment-style developments. The project will not, by its addition to the neighborhood, cause an excess of residential use that would be detrimental to the character of the neighborhood.

Respectfully Submitted,

Eighty Broadway LLC
By: Robert D. Costello, Manager / Member

# PROPOSED MIXED-USE BUILDING

## 80 BROADWAY ARLINGTON, MA 02474

### ZONING SUMMARY: ZONE B4

| | LOT AREA MINIMUM | LOT AREA PER ADD'L UNIT | MIN. LOT FRONTAGE | FRONT YARD MIN. DEPTH | SIDE YARD MIN. DEPTH | REAR YARD MIN. DEPTH | LANDSCAPED OPEN SPACE | USABLE OPEN SPACE | MAX. LOT COVERAGE | MAX HEIGHT/ # STORIES | F.A.R. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ZONING SUB-DISTRICT | NONE | NONE | 50' | 0' | 0' | 14.3' | 0' | YARD: 541 SF<br>ROOF DECK: 541 SF | NONE | 60' /<br>5 STORIES | 6,770 SF X 1.5= 10,155 SF<br>1.5 |
| EXISTING | 6,770SF | N/A | 174.59' | 27.2' | 7.3'/ 35.4' | 2.0' | 596 SF/ 6,770 SF<br>8.8% | 0' | 1,430 SF/ 6,770 SF<br>21.1% | 12' /<br>1 STORIES | .21 |
| PROPOSED | 6,770SF | N/A | 174.59' | 0' | 14.1'/ 2' | 15.3' | 1,396 SF/ 6,770 SF<br>20.6% | YARD: 0 SF<br>ROOF DECK: 997 SF | 2,426 SF/ 6,770 SF<br>35.8% | 44.5' /<br>4 STORIES | 1.5 |

* NOTE:

VIOLATION

5.3.8 CORNER LOTS- FRONT YARD SETBACK MATCHES ADJOINING LOTS, R2 @ 20'
5.3.17 4TH FLOOR SETBACK ARE X> 7.5' OK
5.3.21D LANDSCAPE OPEN SPACE .1X 5,406 SF RES= 541 SF REQ'D
USEABLE OPEN SPACE .2X 5,406 SF RES= 1,081 SF( 541 SF OPENSPACE CAN BE DECK)
6.1.4 OFF-STREET PARKING
REQUIRED RES-USE: 1.15 P.S. x (3) 1 BEDROOM D.U + 1.5 P.S. x (1) 2 BEDROOM D.U. = 4.95 P.S. - 5 P.S. REQUIRED
PROPOSED RES USE: 5 P.S.

6.1.10C REQUIRED NON-RESIDENTIAL: (3,295 SF - 3,000 SF (EXEMPTION )) x 1 P.S. / 300 SF = 5 P.S. REQUIRED
PROPOSED NON-RES USE: 2 PS
6.1.6 OFF- STREET LOADING
REQUIRED: 1 LOADING SPACE
PROPOSED: 0 LOADING SPACE
6.1.12 BICYCLE PARKING
**APARTMENT BUILDING**
REQUIRED LONG TERM: 1.5 SPACE X 4 DU= 6 SPACES
PROPOSED LONGTERM =7
REQUIRED SHORT TERM: .15X 4 DU= .4-- 1 SPACE
PROPOSED SHORT TERM: 4 SPACES
**BUSINESS/ PROFESIONAL (2ND FLOOR)**
REQUIRED LONG TERM : .3 SPACES/ 1,000 SF X 3,054= .9-- 1 SPACE
PROPOSED LONG TERM: 1 SPACE
REQUIRED SHORT TERM : .5 SPACE/ 1,000 SF X 3,054 SF=1.5 -- 2 PACES
PROPOSED SHORT TERM: 2 SPACES
**RETAIL**
REQUIRED LONG TERM: .15/ 1,000 SF X 1,371 SF= .14 -- 1 SPACE
PROPOSED LONG TERM: 1 SPACE
REQUIRED SHORT TERM: .6 SPACE / 1,000 SF X 1371 SF = .82 -- 1 SPACE
PROPOSED SHORT TERM: 1 SPACE

### CODE SUMMARY

EXISTING TYPE 5B CONSTRUCTION
PROPOSED TYPE 5A CONSTRUCTION
EXISTING M USE
PROPOSED B, R-2, S-2 USES
EXISTING 1 STORY & BASEMENT
PROPOSED 4 STORIES
EXISTING NON-SPRINKLERED & ALARMED
PROPOSED SPRINKLERED & ALARMED
ZONE: B4

GROSS AREA (FAR)

| Level | Area |
|---|---|
| 1ST FLOOR | 2173 SF |
| 2ND FLOOR | 3054 SF |
| 3RD FLOOR | 3054 SF |
| 4TH FLOOR | 1524 SF |
| Total | 9804 SF |

### DRAWING LIST

**ARCHITECTURAL**

| | |
|---|---|
| A-0 | COVER SHEET |
| G-1.0 | SITE GIS AND MAP |
| G-1.1 | SITE PHOTOS |
| A-1.0 | PROPOSED SITE PLAN |
| A-1.1 | PROPOSED FIRST FLOOR PLAN |
| A-1.2 | PROPOSED SECOND & THIRD FLOOR PLANS |
| A-1.3 | PROPOSED FOURTH & ROOF FLOOR PLANS |
| A-2.1 | PROPOSED ELEVATIONS |
| A-2.2 | PROPOSED ELEVATIONS |
| A-2.3 | PROPOSED 3D RENDDERING |
| A-2.4 | PROPOSED 3D |
| A-2.5 | PROPOSED 3D |
| A-2.6 | PROPOSED 3D |
| A-2.7 | PROPOSED SIGNAGE |
| A-2.8 | SUMMER SOLSTICE |
| A-2.9 | WINTER SOLSTICE |
| A-2.10 | FALL EQUINOX |
| A-2.11 | SPRING EQUINOX |
| A-3.1 | BUILDING SECTIONS |

**SURVEY**

| | |
|---|---|
| | EXISTING CONDITIONS |
| | PROPOSED PLOT PLAN |

**CIVIL**

| | |
|---|---|
| C-1 | COMPOSITE CIVIL SITE PLAN |
| C-2 | LAYOUT & UTILITY PLAN |
| C-3 | DRAINAGE & GRADING PLAN |
| C-4 | STANDARD DETAIL SHEET |
| C-5 | STANDARD DETAIL SHEET |

Location

PROPOSED -MIXED-USE
BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
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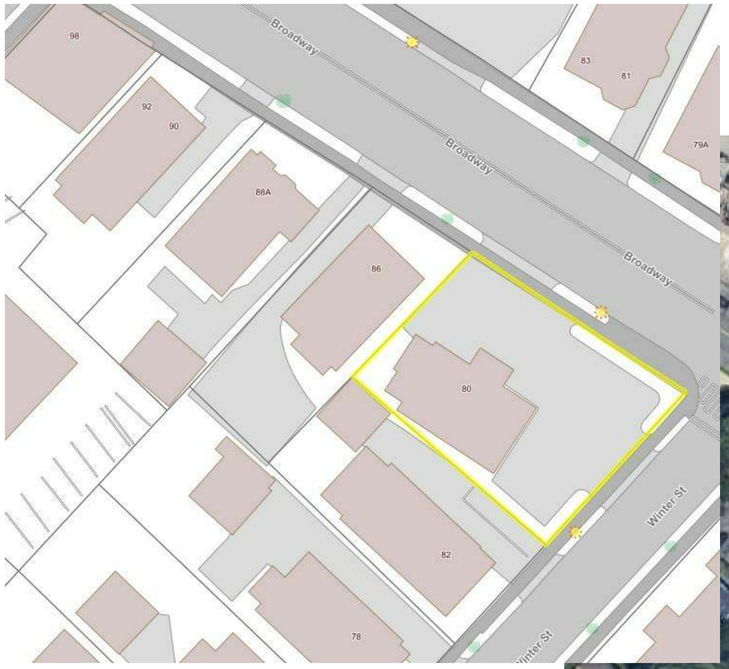
Project No: 2022038
Scale: 1/8" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

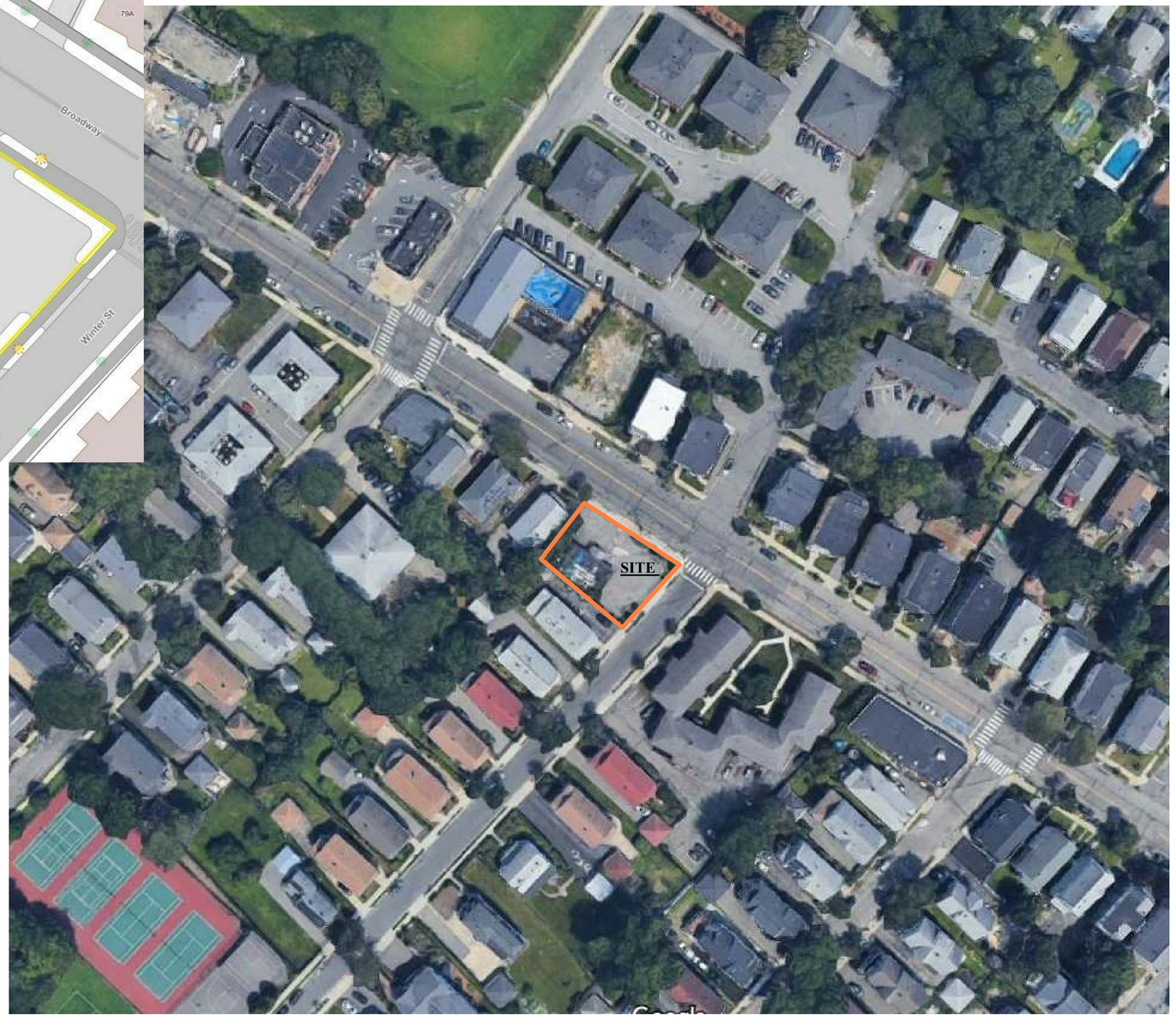
COVER SHEET

Sheet No.

A-0




**ARLINGTON GIS MAP**




**AERIAL MAP (FROM GOOGLE MAPS**

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
| | | |

Project No: 2022038

Scale:

Date: 09-06-2022

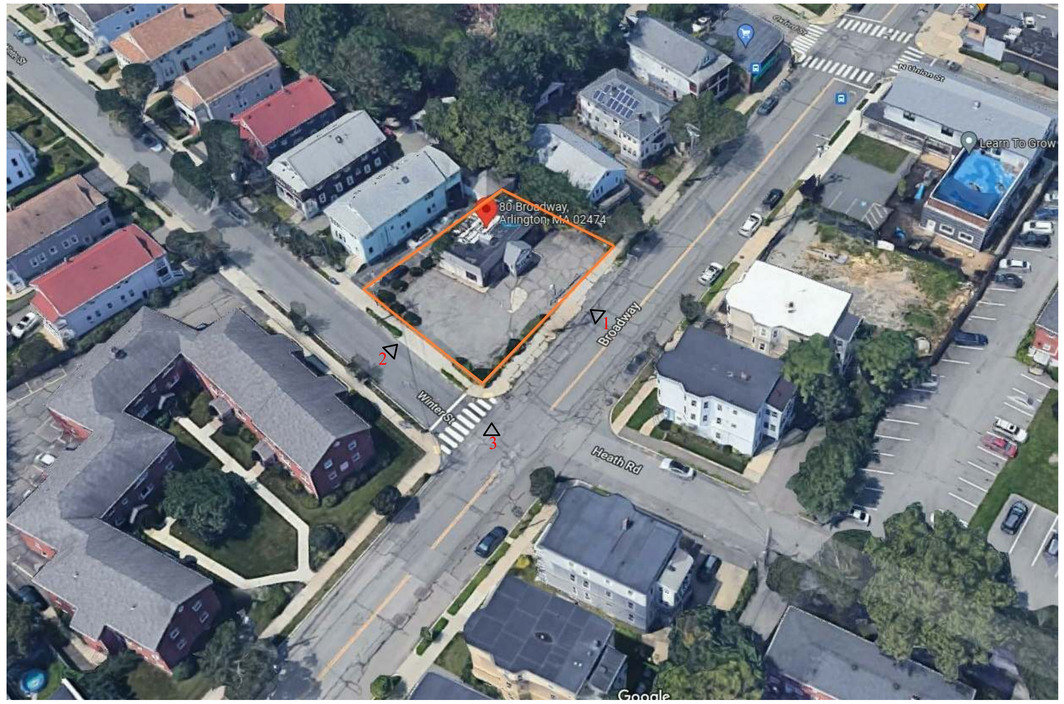
Drawn By: DF/ MA

Drawing Name

SITE GIS AND MAP

Sheet No.

G-1.0




**BIRDSEYE VIEW**

**1. BROADWAY VIEW**

**2. WINTER STREET VIEW**


**3. CORNER OF WINTER STREET AND BROADWAY VIEW**

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
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Project No: 2022038
Scale:
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

SITE PHOTOS

Sheet No.

G-1.1

1. COLUMNAR GINKGO TREE

2. SARGENT CRABAPPLE TREE

3. HYDRANGEA

4. AMERICAN HOLLY

5. RHODODENDRON BUSH

6. INKBERRY

7. VIRGINA ROSE

**PLANTING SCHEDULE**

| TYPE | QUANTITY |
|---|---|
| COLUMNAR GINKGO TREE | 5 |
| SARGENT CRABAPPLE TREE | 3 |
| HYDRANGE | 5 |
| AMERICAN HOLLY | 10 |
| RHODODENDRON BUSH | 2 |
| INKBERRY | 2 |
| VIRGINA ROSE | 2 |


1 ARCHITECTURAL SITE PLAN
1/8" = 1'-0"

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474


Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715


| No. | Description | Date |
|---|---|---|
| | | |

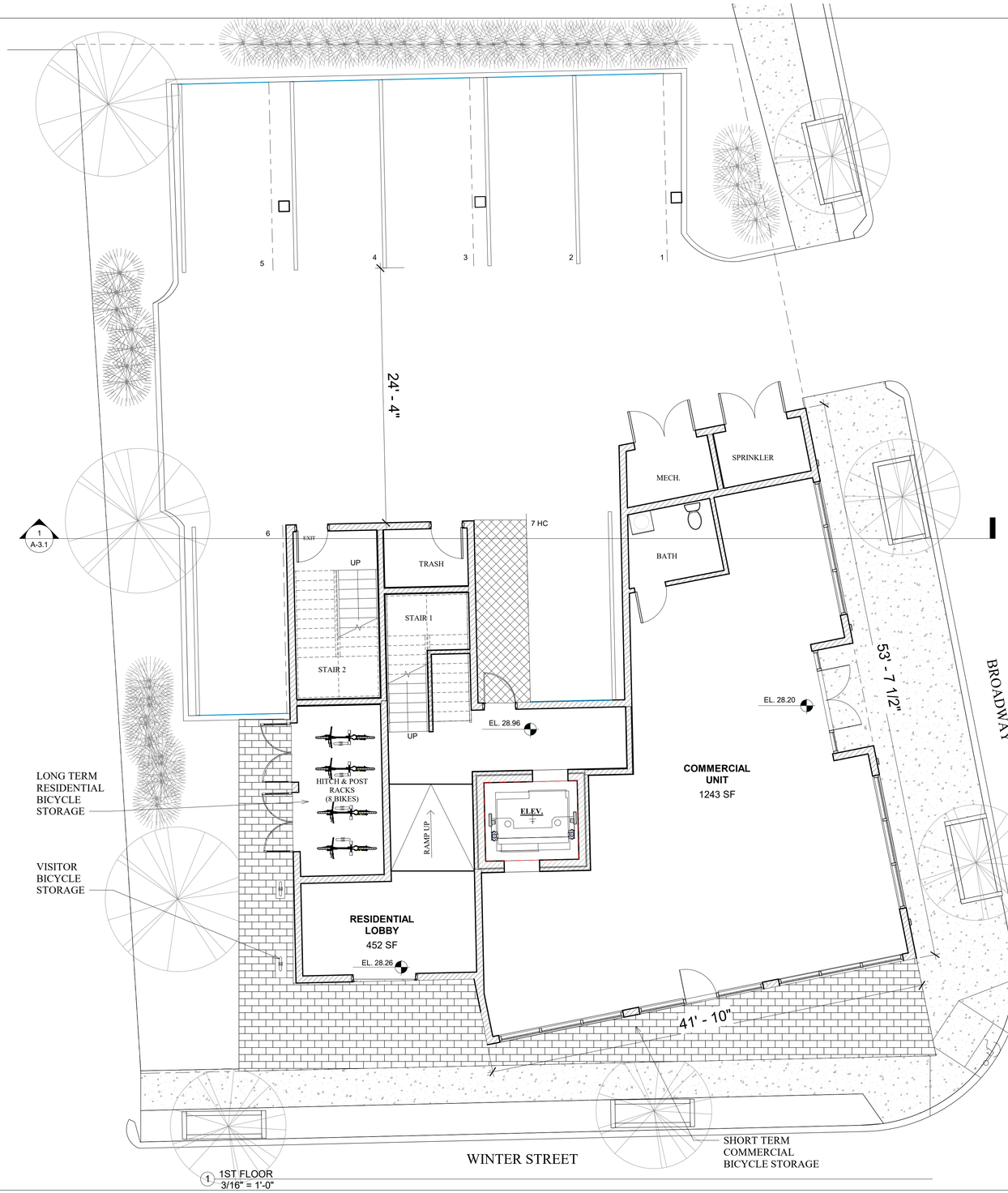
Project No: 2022038
Scale: 1/8" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED SITE PLAN

Sheet No.

A-1.0




1 1ST FLOOR
3/16" = 1'-0"

| UNIT | AREA |
|---|---|
| COMMERCIAL SPACE | 1271 SQFT |
| COMMON SPACE | 445 SQFT |
| GROSS AREA | 2199 SQFT |

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474


Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715


| No. | Description | Date |
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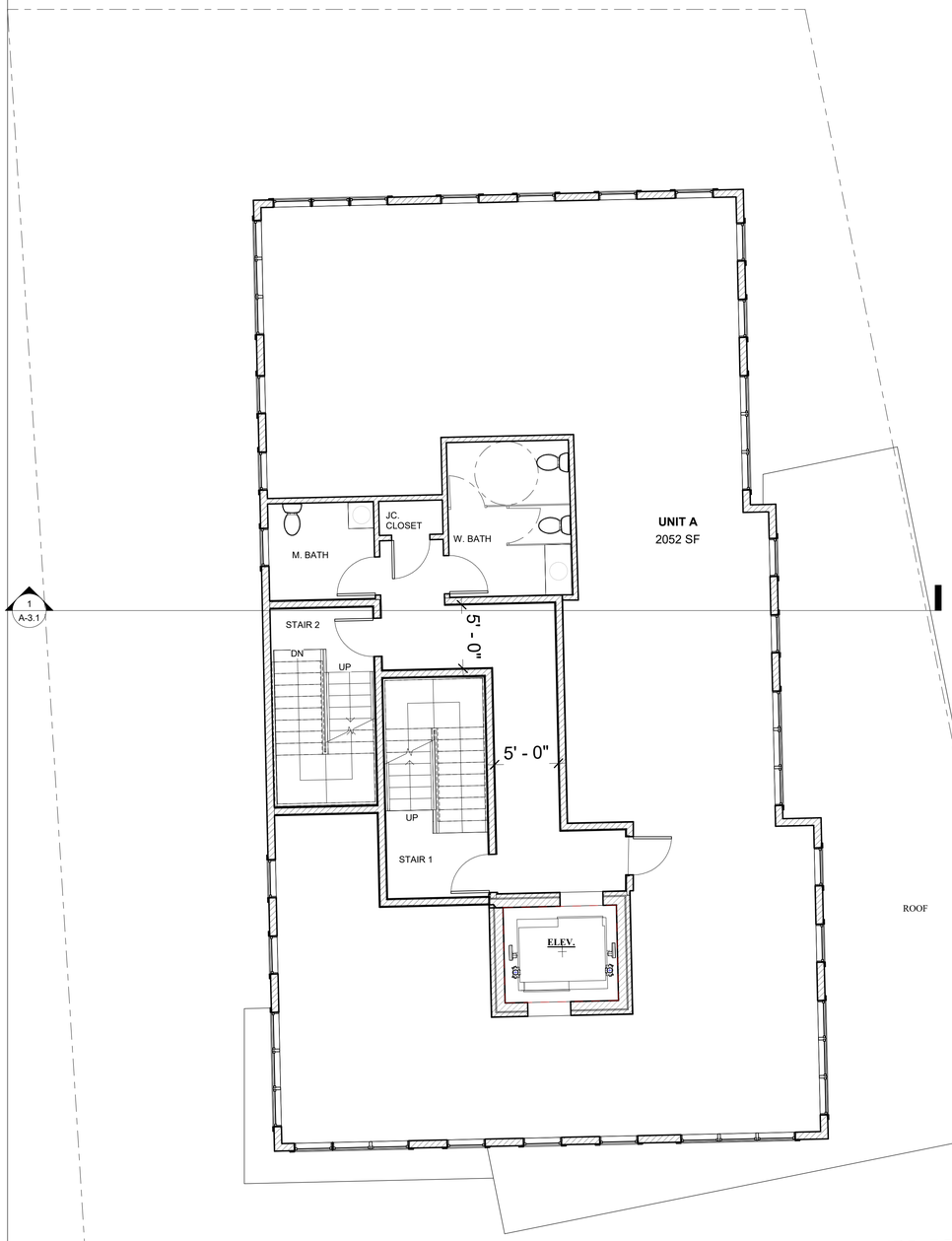
Project No: 2022038
Scale: 3/16" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED FIRST FLOOR PLANS

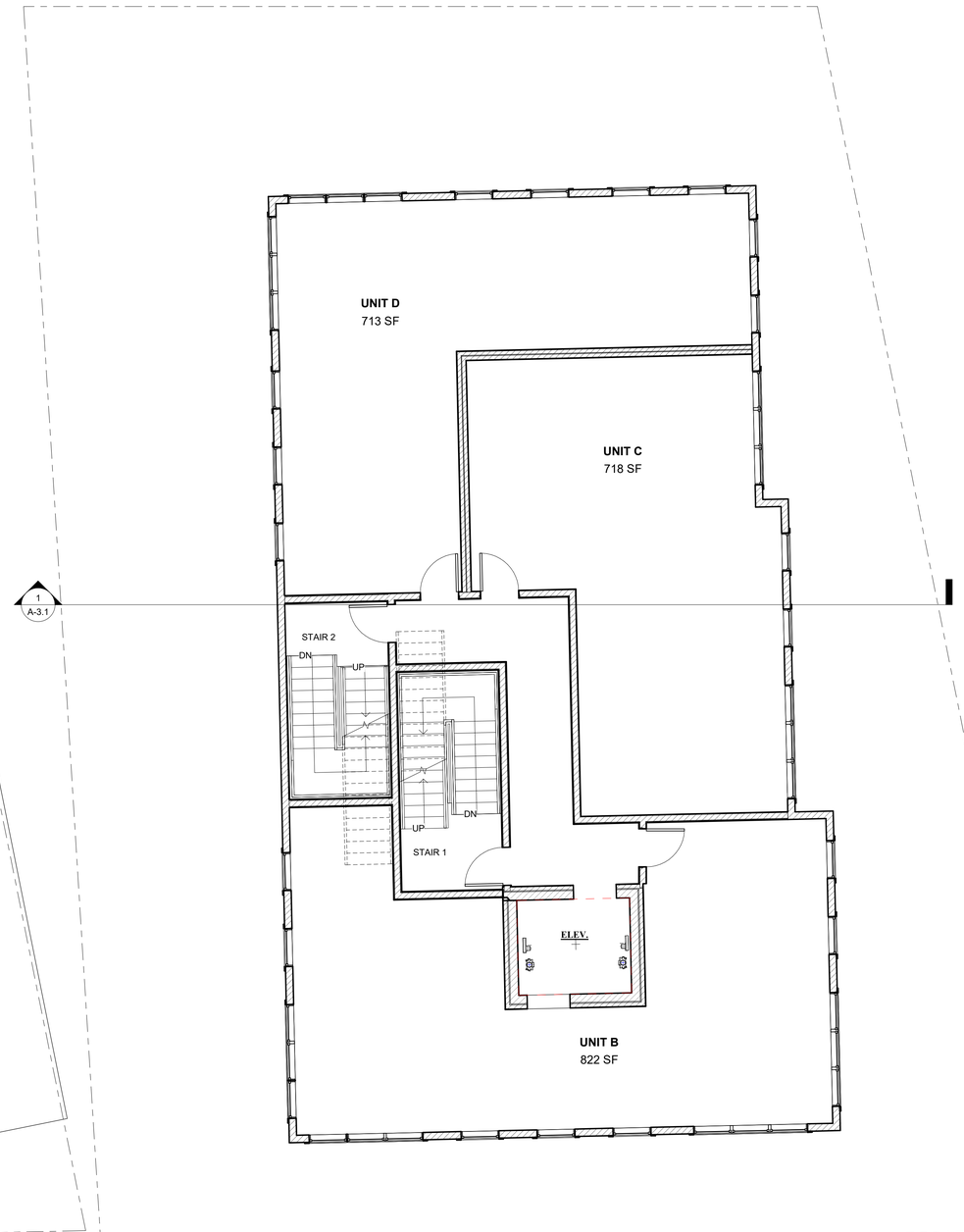
Sheet No.

A-1.1




1 2ND FLOOR
3/16" = 1'-0"

| UNIT | AREA |
|---|---|
| UNIT A | 2073 SQFT |
| COMMON SPACE | 849 SQFT |
| GROSS AREA | 3054 SQFT |




2 3RD FLOOR
3/16" = 1'-0"

| UNIT | AREA |
|---|---|
| UNIT B | 813 SQFT |
| UNIT C | 721 SQFT |
| UNIT D | 719 SQFT |
| COMMON SPACE | 635 SQFT |
| GROSS AREA | 3054 SQFT |

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
| | | |

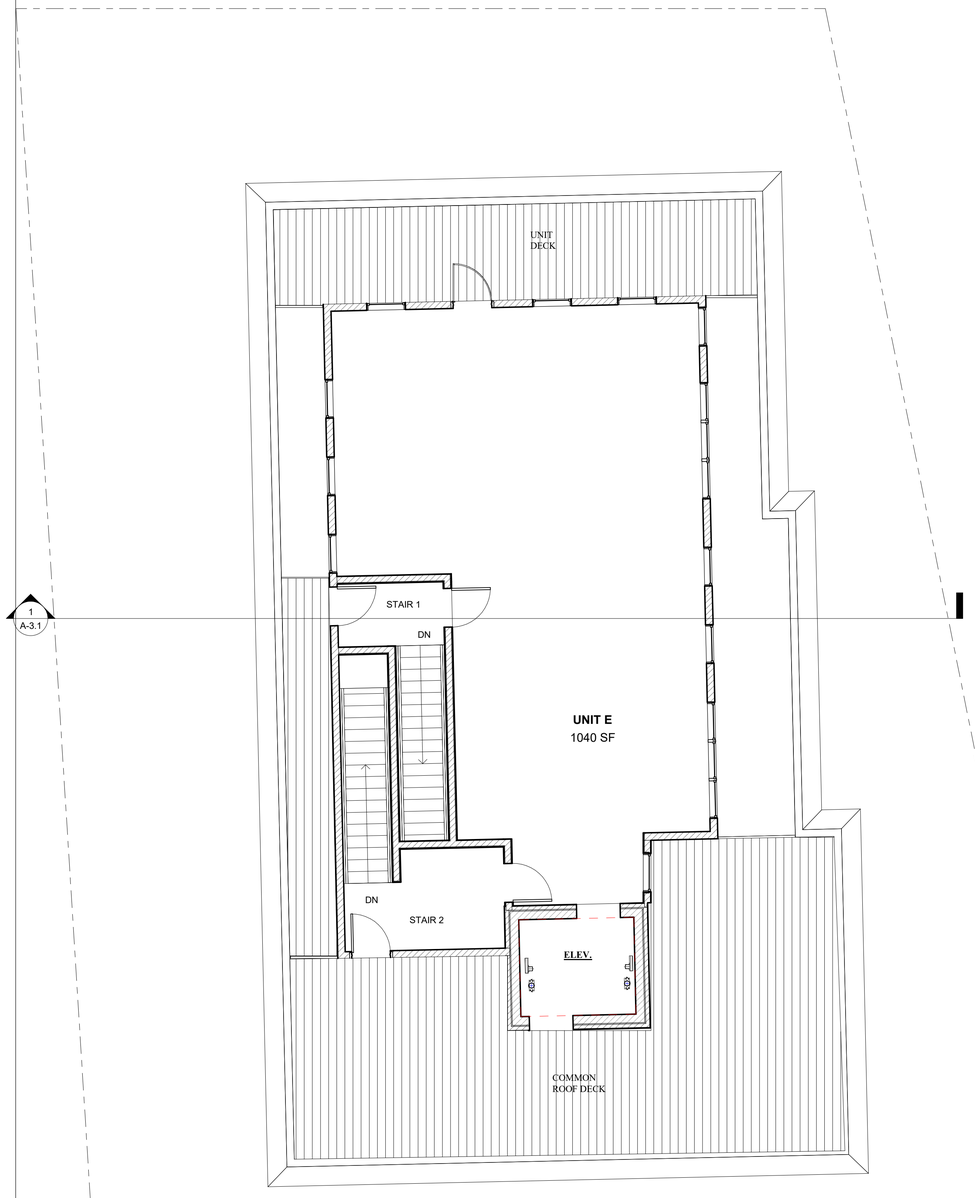
Project No: 2022038
Scale: 3/16" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED SECOND AND THIRD FLOOR PLANS

Sheet No.

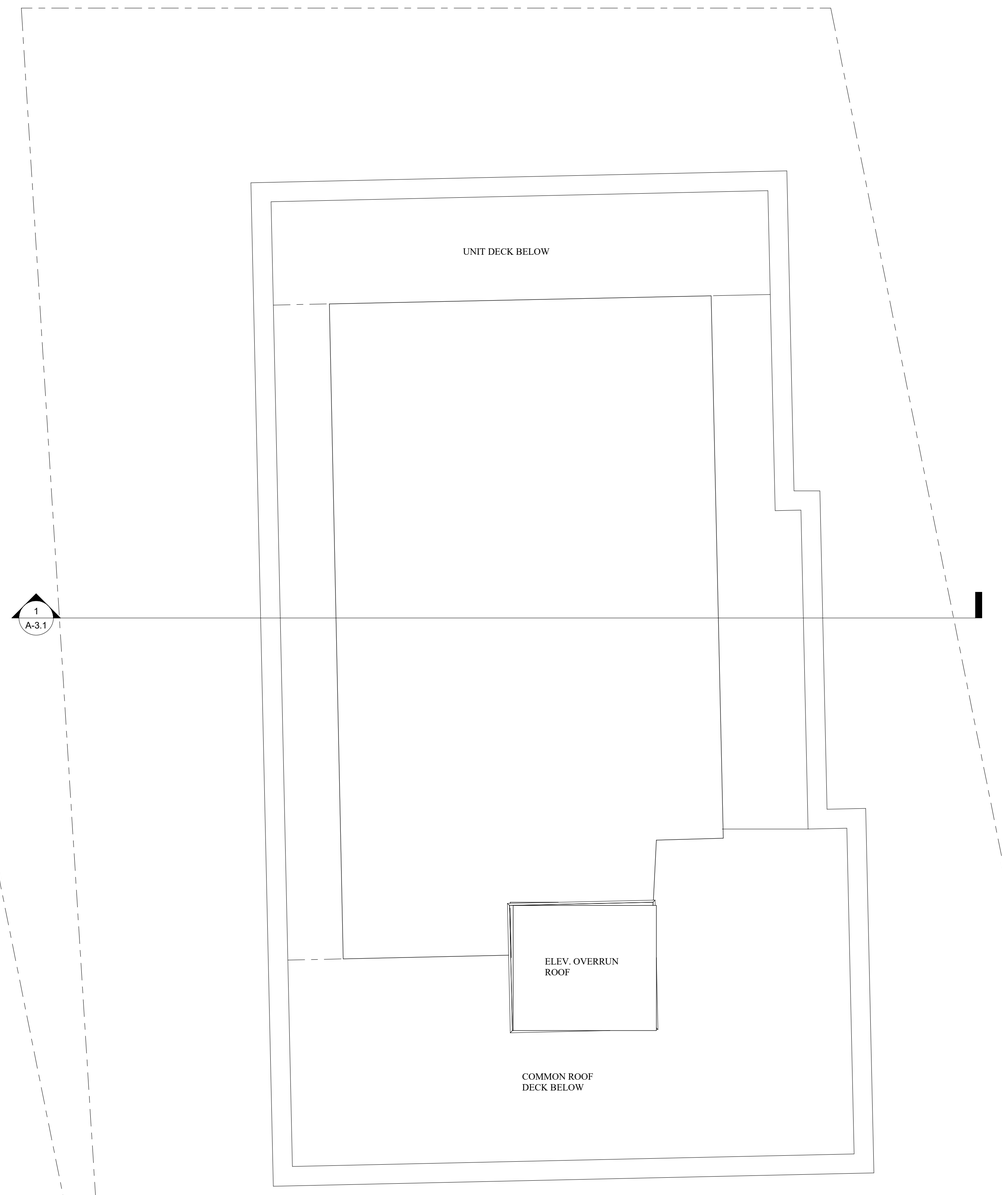
A-1.2




1 A-3.1

1 4TH FLOOR
3/16" = 1'-0"

| UNIT | AREA |
|---|---|
| UNIT E | 1111 SQFT |
| COMMON SPACE | 422 SQFT |
| ROOF DECK | 986 SQFT |
| GROSS AREA | 1524 SQFT |




1 A-3.1

2 ROOF LEVEL
3/16" = 1'-0"

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
| | | |

Project No: 2022038
Scale: 3/16" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

## PROPOSED FOURTH AND ROOF PLANS

Sheet No.

A-1.3


1 PROPOSED BROADWAY ELEVATION
3/16" = 1'-0"


2 PROPOSED WINTER STREET ELEVATION
3/16" = 1'-0"

**CHART**

**A**- FIBER CEMENT- COLOR 1
**B**- STOREFRONT
**C**-FIBER CEMENT LAP SIDING
**D**-FIBER CEMENT PANEL-COLOR 2
**E**- FIBREX WINDOWS
**F**- FLAT LOK METAL WALL PANEL
**G**- HORIZONTAL WOOD SIDING

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
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Project No: 2022038
Scale: 3/16" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED BROADWAY AND WINTER STREET ELEVATIONS

Sheet No.

A-2.1


1 PROPOSED SIDE ELEVATION
3/16" = 1'-0"


2 PROPOSED REAR ELEVATION
3/16" = 1'-0"

**CHART**

**A**- FIBER CEMENT- COLOR 1
**B**- STOREFRONT
**C**-FIBER CEMENT LAP SIDING
**D**-FIBER CEMENT PANEL-COLOR 2
**E**- FIBREX WINDOWS
**F**- FLAT LOK METAL WALL PANEL
**G**- HORIZONTAL WOOD SIDING

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
| | | |

Project No: 2022038
Scale: 3/16" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED SIDE AND REAR ELEVATIONS

Sheet No.

A-2.2


Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

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Project No: 2022038

Scale:

Date: 09-06-2022

Drawn By: DF/ MA

Drawing Name

PROPOSED 3D RENDERING

Sheet No.

A-2.3

1 WINTER STREE RENDERED VIEW

Location

# PROPOSED -MIXED-USE BUILDING
# 80 BROADWAY ARLINGTON, MA 02474


Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715


| No. | Description | Date |
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Project No: 2022038

Scale:

Date: 09-06-2022

Drawn By: DF/ MA

Drawing Name

PROPOSED 3D

Sheet No.

A-2.4

1 BROADWAY RENDERED VIEW

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo &Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
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Project No: 2022038
Scale:
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED
3D

Sheet No.

A-2.5


1 WINTER STREET AND BROADWAY
CORNER VIEW

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
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Project No: 2022038

Scale:

Date: 09-06-2022

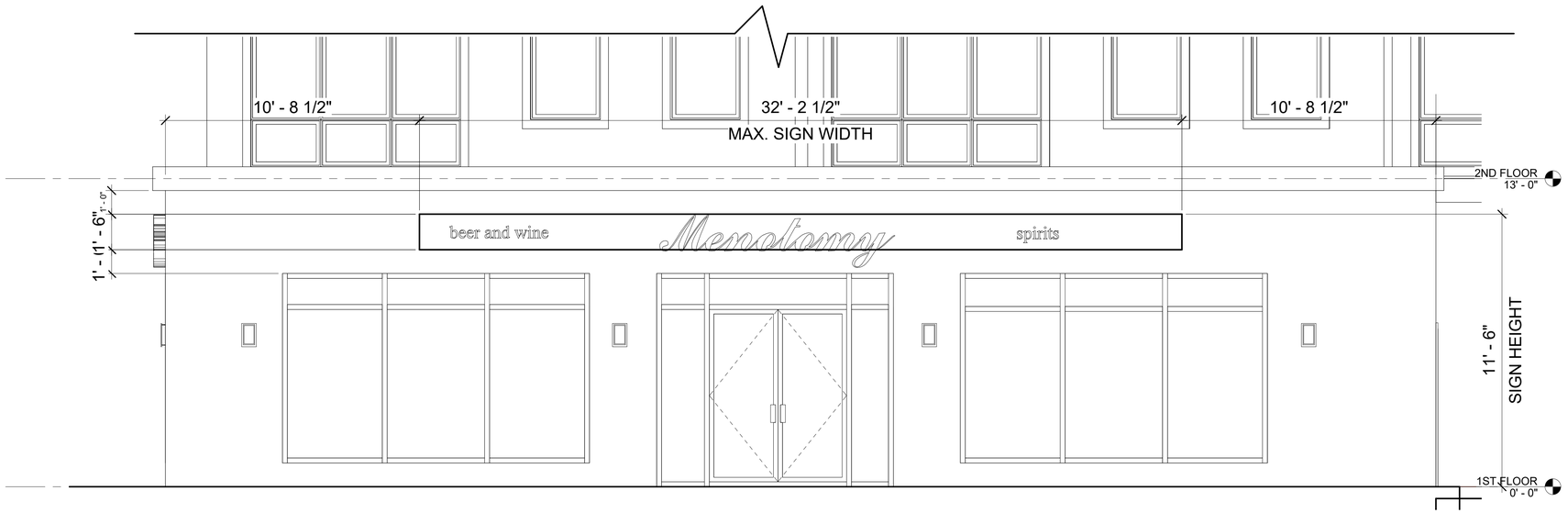
Drawn By: DF/ MA

Drawing Name

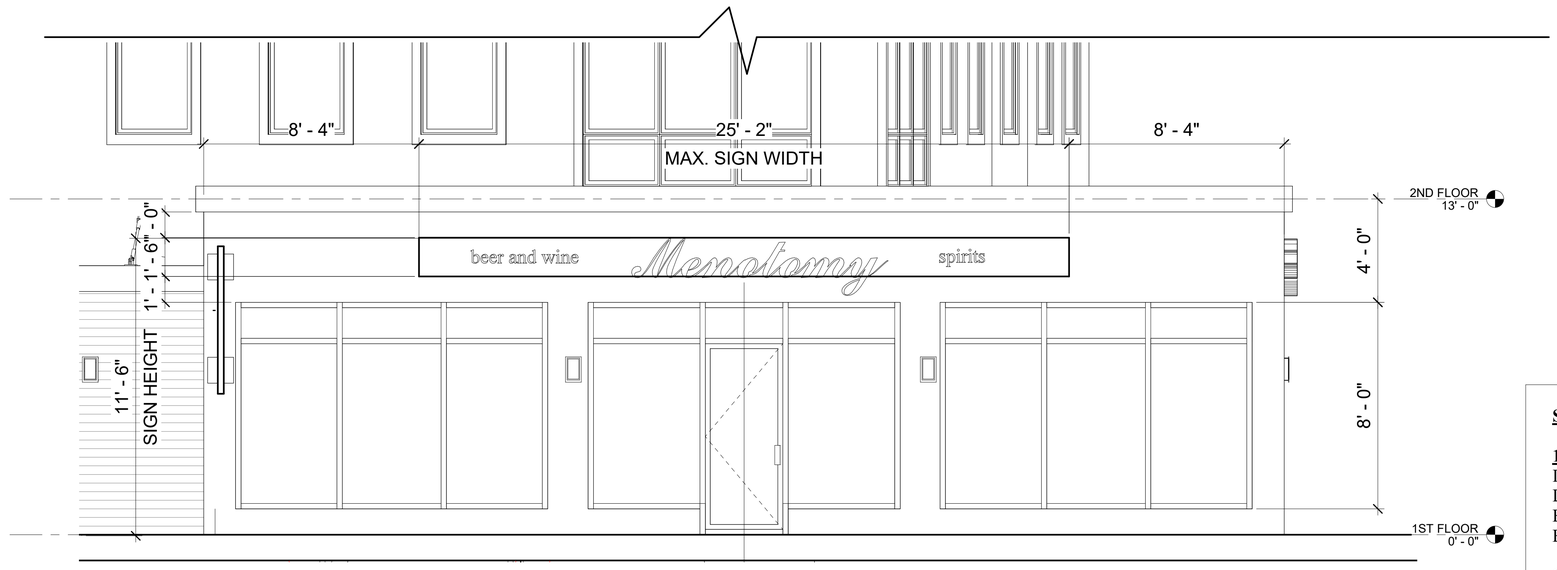
PROPOSED
3D

Sheet No.

A-2.6




1 SIGNAGE BROADWAY
3/8" = 1'-0"




2 SIGNAGE WINTER STREET
3/8" = 1'-0"

**SIGN STANDARDS:**

**1.** NON- ILLUMINATED OR HALO ILLUMINATED INDIVIDUAL LETTERS MOUNTED DIRECTLY TO BUILDING FACE OR SIGN BACKGROUND.

**2.** PROVIDE CONCEALED MOUNTING AND POWER.

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
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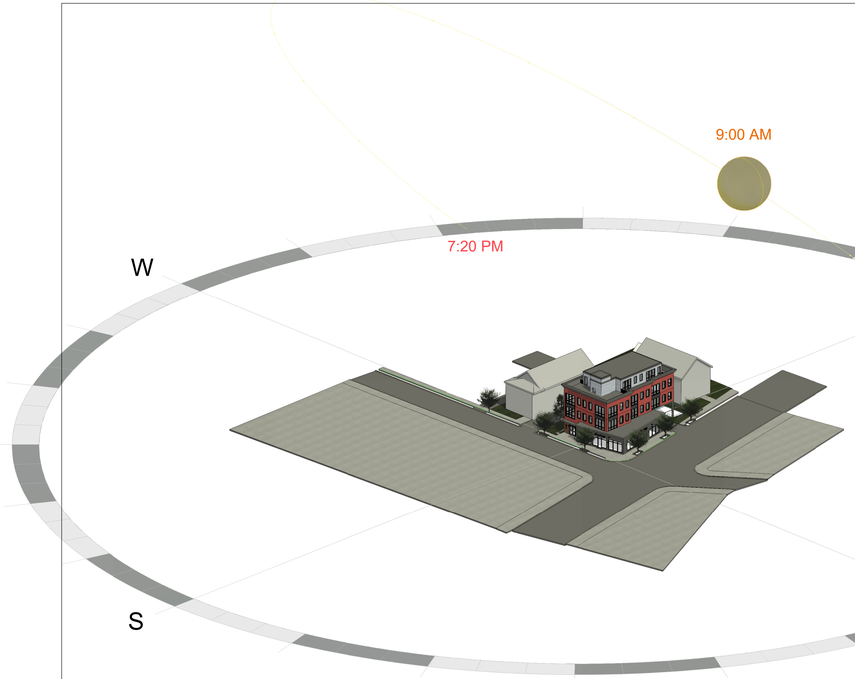
Project No: 2022038
Scale: 3/8" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

PROPOSED SIGNAGE

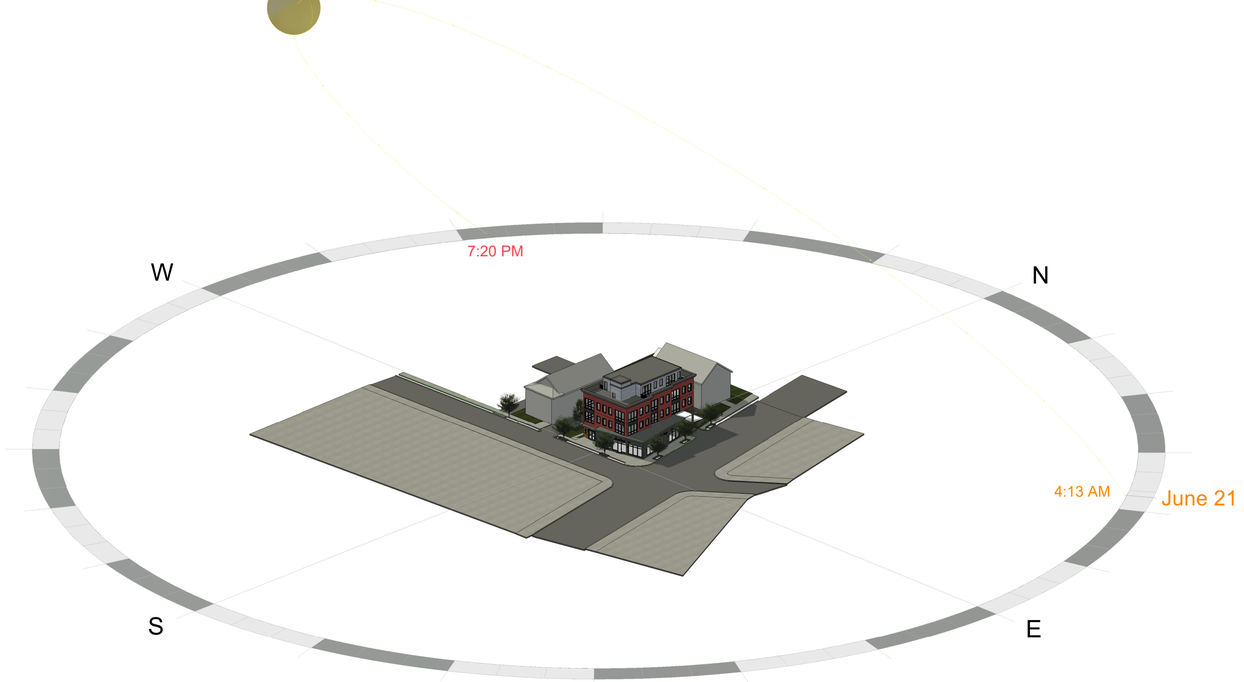
Sheet No.

A-2.7




1 SUMMER 9AM


2 SUMMER 12PM




3 SUMMER 3PM

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
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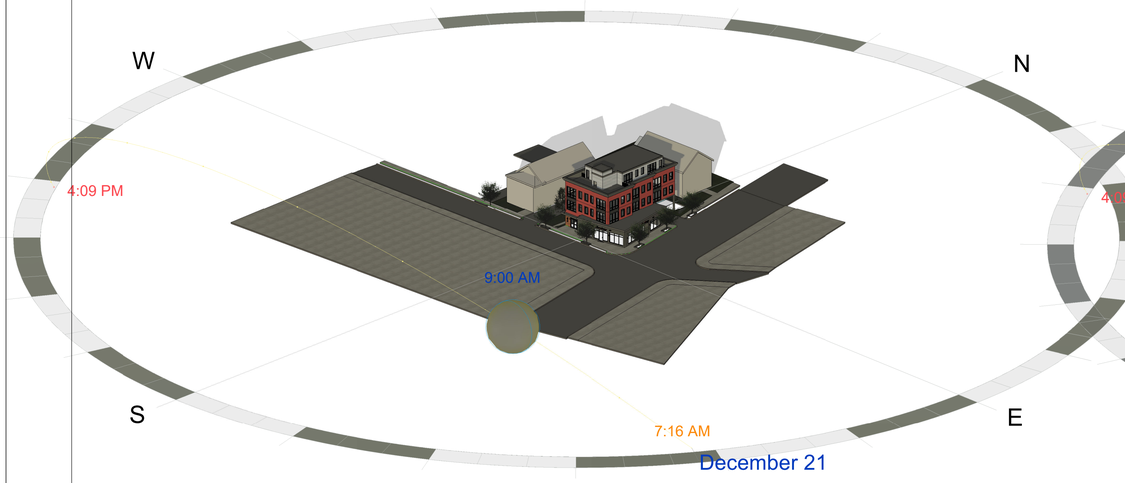
Project No: 2022038
Scale:
Date: 9-06-2022
Drawn By: MA/ DF

Drawing Name

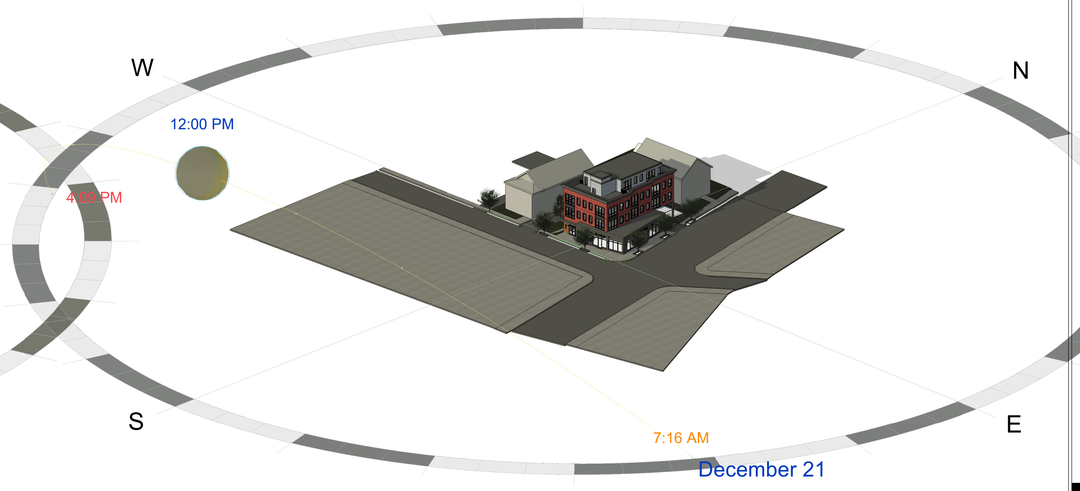
SUMMER SOLSTICE

Sheet No.

A-2.8




1 WINTER 9AM




2 WINTER 12PM


3 WINTER 3PM

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
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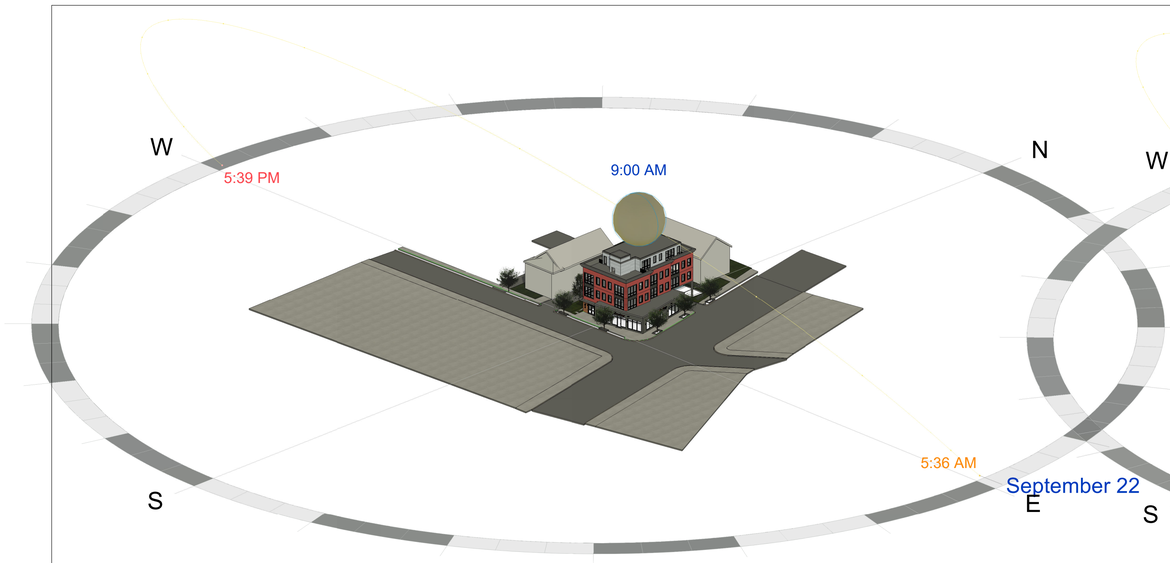
Project No: 2022038
Scale:
Date: 9-06-2022
Drawn By: MA/ DF

Drawing Name

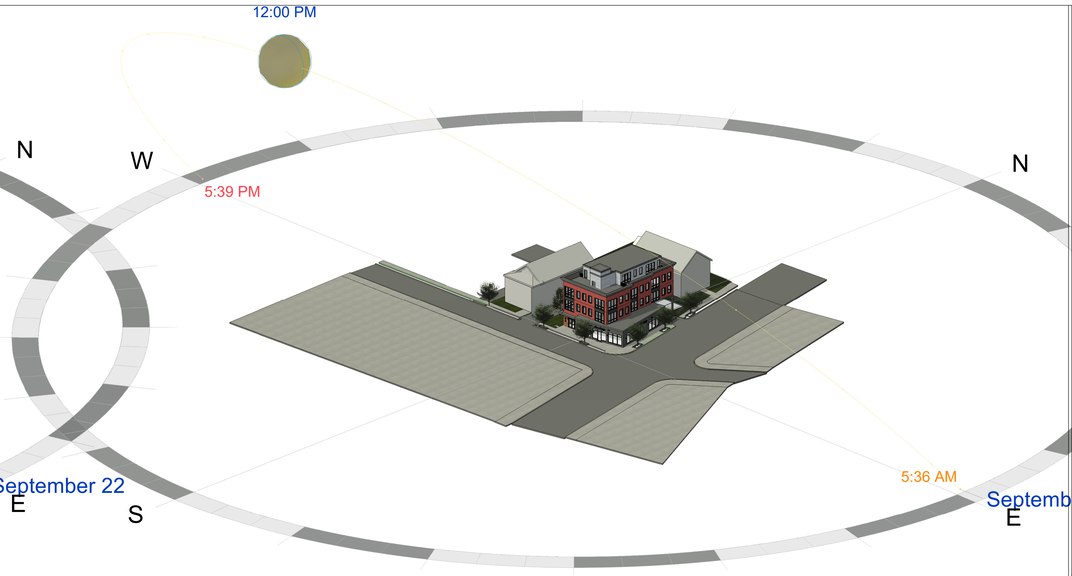
WINTER SOLSTICE

Sheet No.

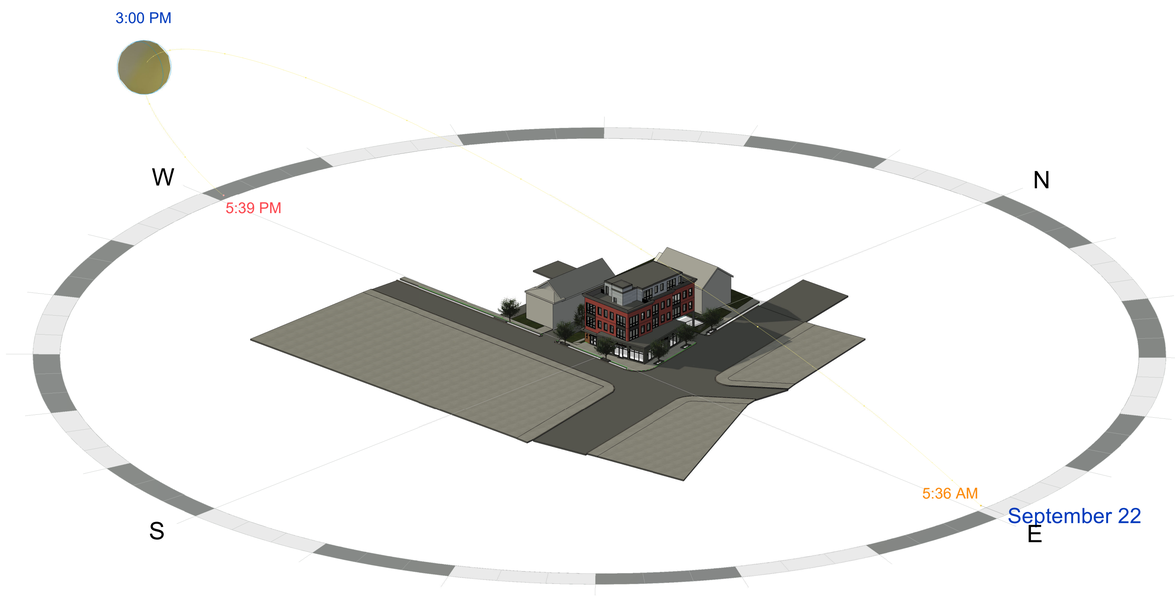
A-2.9




1 FALL 9AM




2 FALL 12PM




3 FALL 3PM

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
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Project No: 2022038

Scale:

Date: 9-06-2022

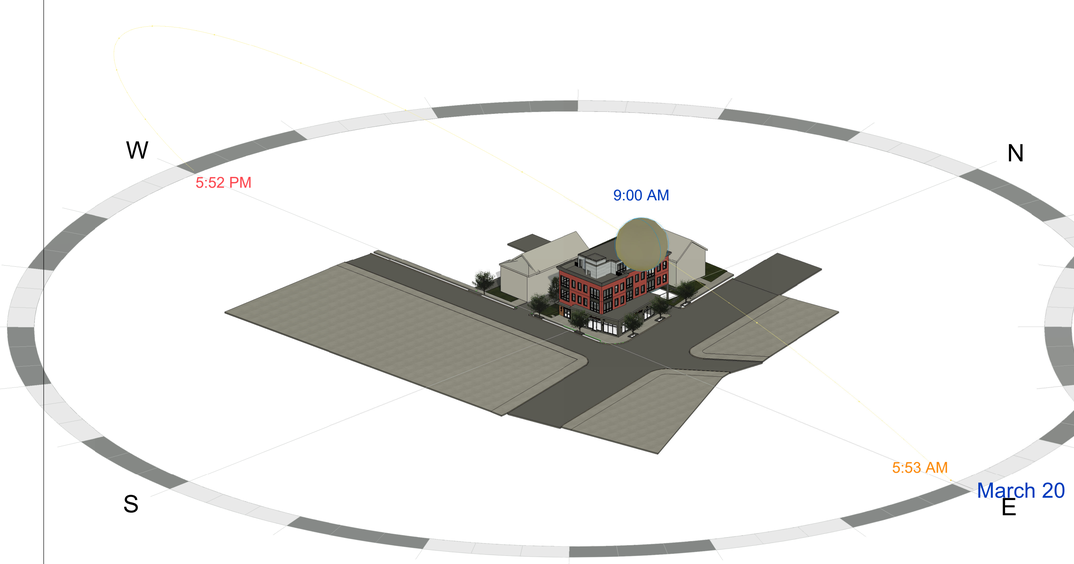
Drawn By: MA/ DF

Drawing Name

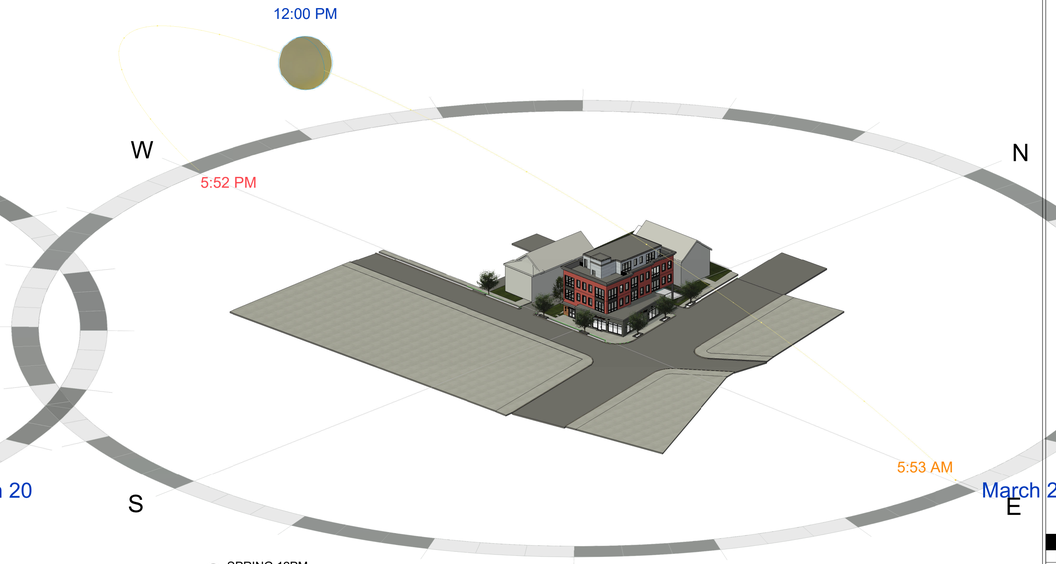
FALL EQUINOX

Sheet No.

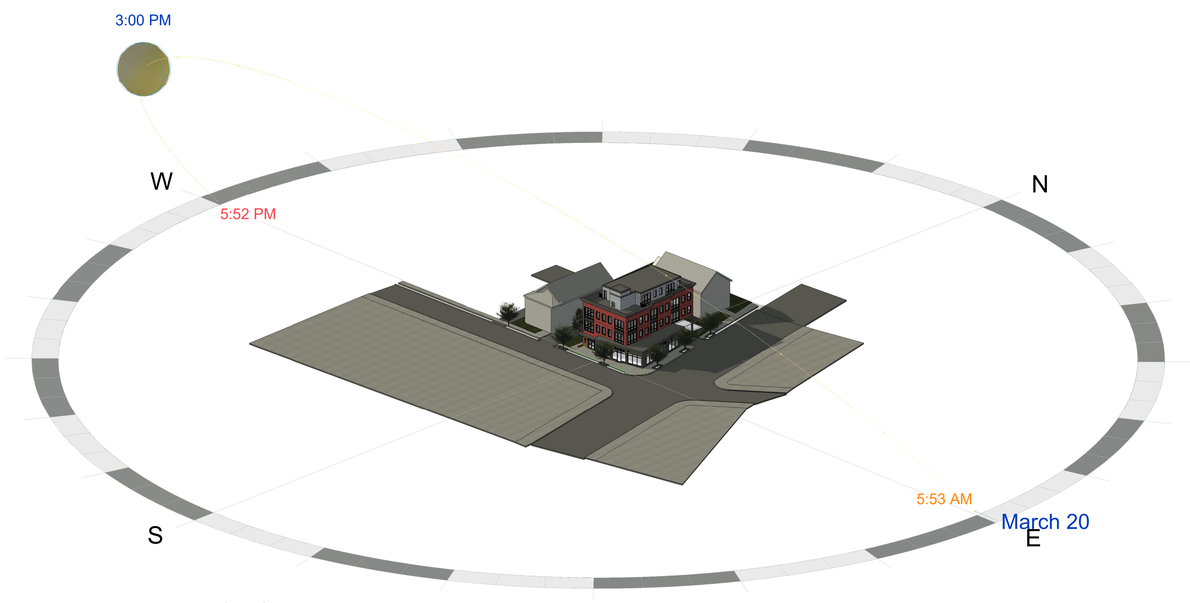
A-2.10




1 SPRING 9AM




2 SPRING 12PM




3 SPRING 3PM

Location

# PROPOSED -MIXED-USE BUILDING
80 BROADWAY
ARLINGTON, MA 02474

Choo & Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
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Project No: 2022038

Scale:

Date: 9-06-2022

Drawn By: MA/ DF

Drawing Name

SPRING EQUINOX

Sheet No.

A-2.11


1 Section
3/16" = 1'-0"

Location

# PROPOSED -MIXED-USE BUILDING 80 BROADWAY ARLINGTON, MA 02474

Choo &Company, Inc.
One Billings Road Quincy, MA 02171
617-786-7727 fax 617-786-7715

| No. | Description | Date |
|---|---|---|
| | | |

Project No: 2022038
Scale: 3/16" = 1'-0"
Date: 09-06-2022
Drawn By: DF/ MA

Drawing Name

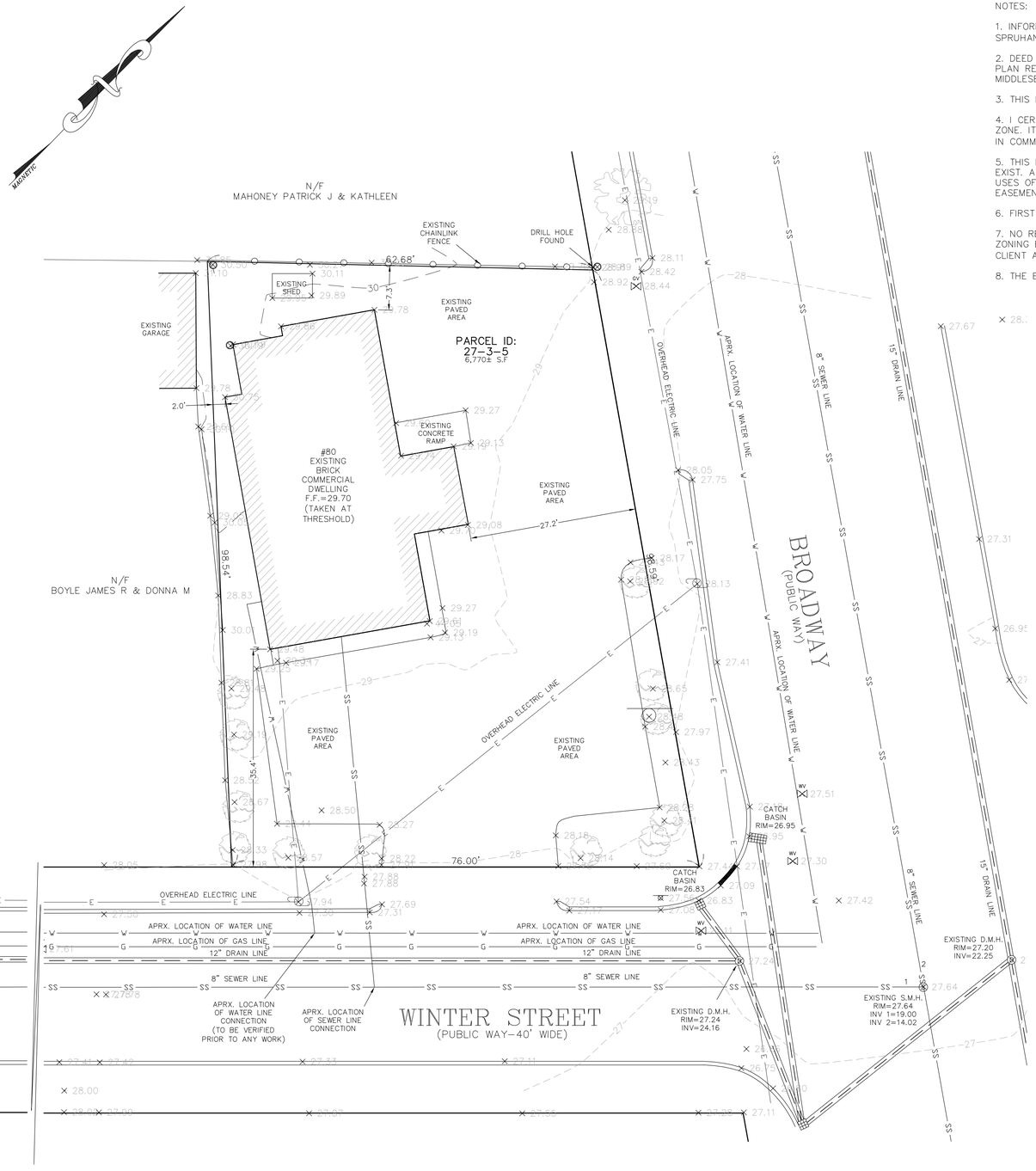
BUILDING SECTION

Sheet No.

A-3.1

## LEGEND

| | |
|---|---|
| ⊡ | BOUND |
| ○ | IRON PIN/PIPE |
| ⊙ | STONE POST |
| | TREE |
| | TREE STUMP |
| | SHRUBS/FLOWERS |
| | SIGN |
| | BOLLARD |
| Ⓢ | SEWER MANHOLE |
| Ⓓ | DRAIN MANHOLE |
| ▦ | CATCH BASIN |
| Ⓦ | WATER MANHOLE |
| WV | WATER VALVE |
| | HYDRANT |
| GV | GAS VALVE |
| Ⓔ | ELECTRIC MANHOLE |
| EH | ELECTRIC HANDHOLE |
| | UTILITY POLE |
| | LIGHT POLE |
| Ⓜ | MANHOLE |
| ×148.00 | SPOT GRADE |
| TW | TOP OF WALL |
| BW | BOTTOM OF WALL |
| | EXISTING BUILDING |
| | RETAINING WALL |
| | STONE WALL |
| | FENCE |
| | TREE LINE |
| S | SEWER LINE |
| D | DRAIN LINE |
| W | WATER LINE |
| G | GAS LINE |
| E | UNDERGROUND ELECTRIC LINE |
| OHW | OVERHEAD WIRES |
| 145 | CONTOUR LINE (MJR) |
| 146 | CONTOUR LINE (MNR) |




GRAPHIC SCALE

10 0 5 10 20 40

( IN FEET )
1 inch = 10 ft.

NOTES:

1. INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY SPRUHAN ENGINEERING, P.C. AS OF 2/16/2022.

2. DEED REFERENCE: BOOK 13911, PAGE 387
PLAN REFERENCE: PLAN BOOK 361, PLAN 41
MIDDLESEX COUNTY SOUTH DISTRICT REGISTRY OF DEEDS

3. THIS PLAN IS NOT INTENDED TO BE RECORDED.

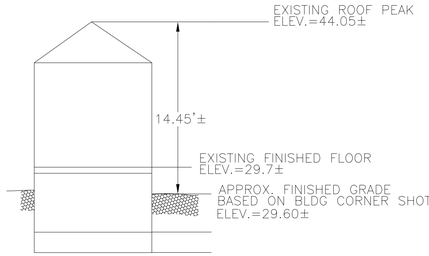
4. I CERTIFY THAT THE DWELLING SHOWN IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25017C0417E, IN COMMUNITY NUMBER: 250177, DATED 6/4/2010.

5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.

6. FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.

7. NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS SPRUHAN ENGINEERING, P.C. ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.

8. THE ELEVATIONS SHOWN ARE BASED ON CITY OF ARLINGTON DATUM.




EXISTING PROFILE
NOT TO SCALE


Spruhan Engineering, P.C.
80 JEWETT ST. (SUITE 2)
NEWTON, MA 02458
Tel: 617-816-0722
Email:edmond@spruhaneng.com


# 80 BROADWAY ARLINGTON MASSACHUSETTS

## SURVEY PLAN

## REVISION BLOCK

| DESCRIPTION | DATE |
|---|---|
| | |



COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER C. CHARLTON
NO. 48649
PROFESSIONAL LAND SURVEYOR

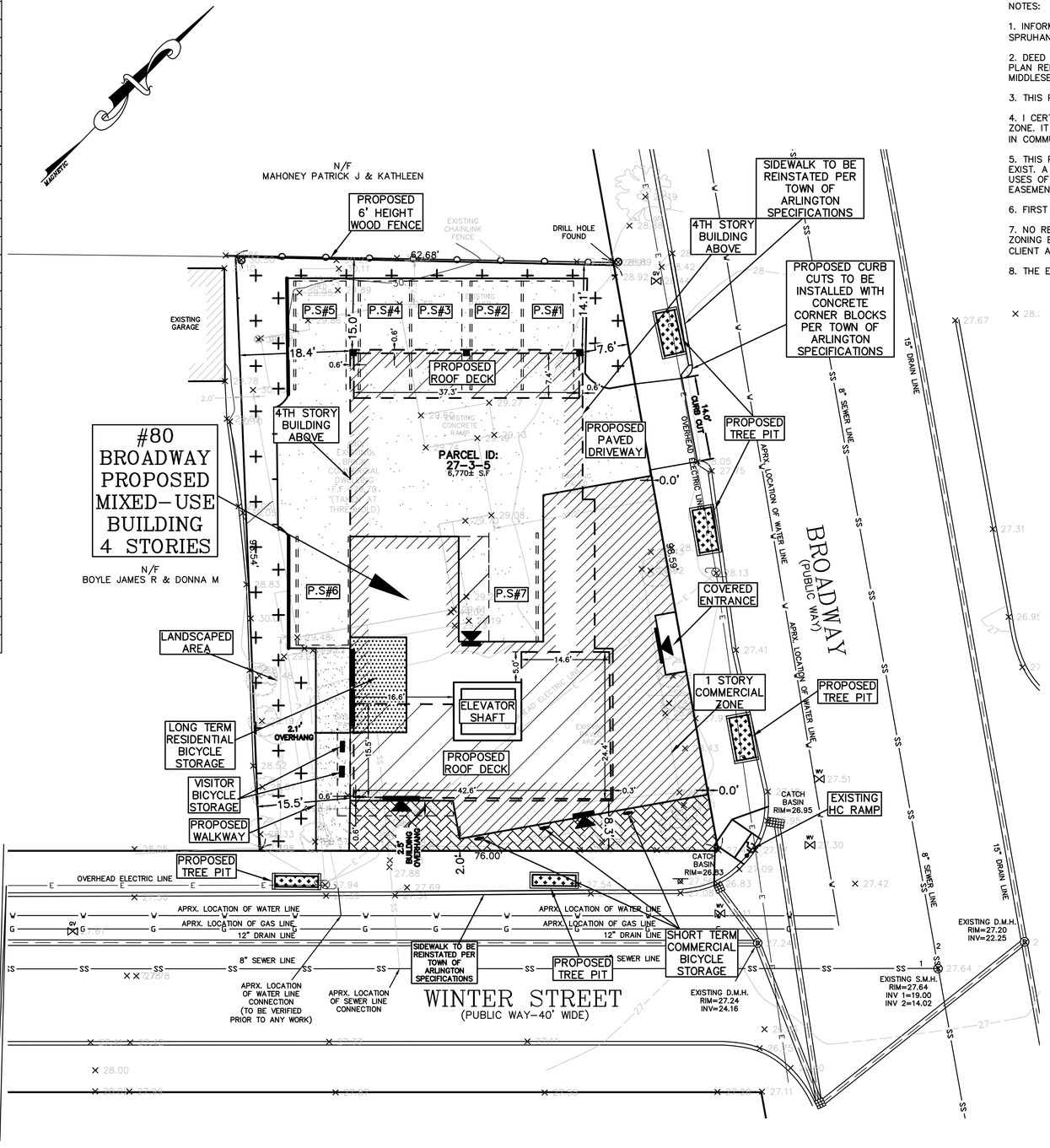
| | |
|---|---|
| DATE: | 3/7/2022 |
| DRAWN BY: | K.K |
| CHECKED BY: | E.S |
| APPROVED BY: | C.C |

## EXISTING CONDITIONS

SHEET 1 OF 1

## LEGEND

| | |
|---|---|
| ⊡ | BOUND |
| ○ | IRON PIN/PIPE |
| ⊙ | STONE POST |
| | TREE |
| | TREE STUMP |
| | SHRUBS/FLOWERS |
| | SIGN |
| | BOLLARD |
| S | SEWER MANHOLE |
| D | DRAIN MANHOLE |
| | CATCH BASIN |
| W | WATER MANHOLE |
| W | WATER VALVE |
| | HYDRANT |
| GV | GAS VALVE |
| E | ELECTRIC MANHOLE |
| EL | ELECTRIC HANDHOLE |
| | UTILITY POLE |
| | LIGHT POLE |
| M | MANHOLE |
| ×148.00 | SPOT GRADE |
| TW | TOP OF WALL |
| BW | BOTTOM OF WALL |
| | EXISTING BUILDING |
| | RETAINING WALL |
| | STONE WALL |
| | FENCE |
| | TREE LINE |
| S | SEWER LINE |
| D | DRAIN LINE |
| W | WATER LINE |
| G | GAS LINE |
| E | UNDERGROUND ELECTRIC LINE |
| OHW | OVERHEAD WIRES |
| 145 | CONTOUR LINE (MJR) |
| 146 | CONTOUR LINE (MNR) |




GRAPHIC SCALE

10 0 5 10 20 40

( IN FEET )
1 inch = 10 ft.

NOTES:

1. INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY SPRUHAN ENGINEERING, P.C. AS OF 2/16/2022.

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PLAN REFERENCE: PLAN BOOK 361, PLAN 41
MIDDLESEX COUNTY SOUTH DISTRICT REGISTRY OF DEEDS

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6. FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.

7. NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS SPRUHAN ENGINEERING, P.C. ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.

8. THE ELEVATIONS SHOWN ARE BASED ON CITY OF ARLINGTON DATUM.


Spruhan Engineering, P.C.
80 JEWETT ST, (SUITE 2)
NEWTON, MA 02458
Tel: 617-816-0722
Email:edmond@spruhaneng.com


# 80 BROADWAY ARLINGTON MASSACHUSETTS

## PROPOSED PLOT PLAN

### REVISION BLOCK

| DESCRIPTION | DATE |
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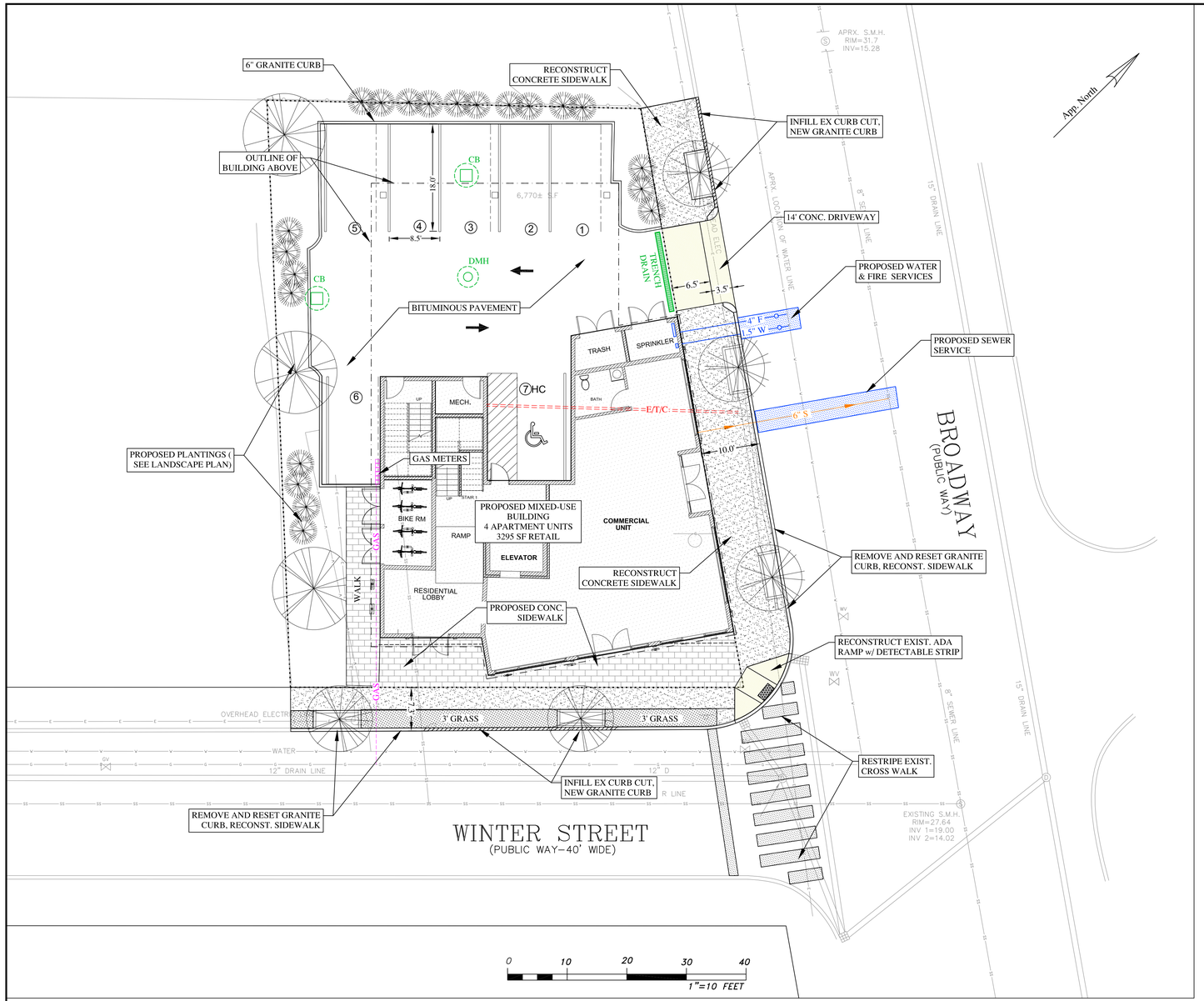
COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER C. CHARLTON
NO. 48649
PROFESSIONAL LAND SURVEYOR

| | |
|---|---|
| DATE: | 9/2/2022 |
| DRAWN BY: | H.M |
| CHECKED BY: | E.S |
| APPROVED BY: | C.C |

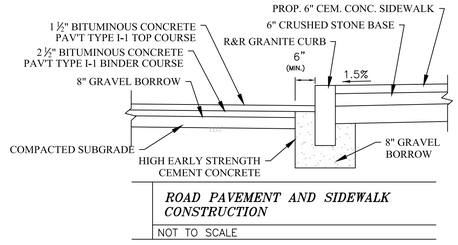
## PROPOSED PLOT PLAN

SHEET 1 OF 1



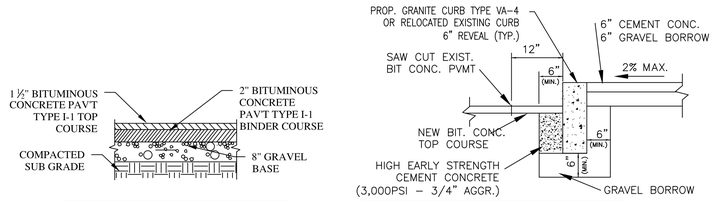

## *GENERAL NOTES*

1. *THIS PLAN IS FOR DEPICTS GENERAL SITE LAYOUT. FOR DETAILED INFORMATION SEE SPECIFIC CIVIL PLANS AND THE ARCHITECTURAL AND LANDSCAPE PLANS.*
2. *THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATION OR SIZE OF EXISTING UTILITIES ON THE SITE OR WITHIN THE STREET. IT IS THE CONTRACTORS RESPONSIBLE FOR VERIFYING AND RECORDING THE LOCATION OF EACH UTILITY.*
3. *THE CONTRACTOR SHALL CONTACT THE CITY OF ARLINGTON FOR THE MARKING OF EXISTING MUNICIPAL UTILITIES, AND SHALL ALSO CONTACT DIG-SAFE AT 1-888-344-7233, FAX 1-800-322-4844. DIG SAFE MUST BE NOTIFIED AT LEAST 72 HOURS PRIOR TO EXCAVATION.*
4. *ALL WORK SHALL CONFORM TO THE CITY OF ARLINGTON STANDARD SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING CONSTRUCTION FOLLOWS STATE AND FEDERAL REGULATIONS.*
5. *THE CONTRACTOR SHALL SUPPLY ALL PIPING, STRUCTURES, MATERIALS, AND APPURTENANCES, NECESSARY TO COMPLETE THE PROPOSED STORM DRAIN AND UTILITY SYSTEM AS INDICATED ON THE PLANS.*
6. *DURING EXCAVATION AND CONSTRUCTION OF PIPES AND STRUCTURES, TRENCHES MUST BE ADEQUATELY BRACED TO PROTECT AGAINST CAVE-IN.*
7. *UTILITIES SHOWN ON THIS PLAN ARE TO THE EXTERIOR OF THE BUILDING FOUNDATION ONLY. UTILITIES THROUGH THE FOUNDATION AND INSIDE THE BUILDING ARE THE RESPONSIBILITY OF THE LICENSED PLUMBER OR MECHANICAL ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND RECORDING THE EXACT LOCATION OF EACH UTILITY CONNECTION.*
8. *THE CONTRACTOR SHALL COORDINATE FINAL ROOF DRAINS WITH ARCHITECTURAL PLANS AND TIE ROOF DRAINS INTO THE INFILTRATION SYSTEM.*
9. *THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE CITY ENGINEER FOR INSPECTION OF THE STORM DRAINAGE & UTILITY SYSTEMS AND MUST RECORD ALL RIM/INVERT AND PIPE LOCATIONS FOR DEVELOPMENT OF AN AS-BUILT PLAN.*
10. *THE CONTRACTOR SHALL TAKE DIGITAL PHOTOGRAPHS AT EACH STAGE OF CONSTRUCTION, AND SHALL PROVIDE AN AS-BUILT DRAWING FOR SUBMISSION TO THE CITY WHICH WILL INCLUDE, ALL DRAINAGE COMPONENTS, CONVEYANCES OR LOCATION OF PIPES, ELEVATIONS, INVERTS, INFILTRATION SYSTEM, AREA DRAINS, CATCH BASINS, CLEANOUTS, SIZES AND MATERIALS, ETC.*
11. *THE CONTRACTOR SHALL SWEEP ANY TRACKED DIRT AND SEDIMENTS FROM CONSTRUCTION VEHICLES THAT WASH ONTO THE STREET AT THE END OF EACH DAY OF CONSTRUCTION.*
12. *ALL WALKWAYS WITHIN THE LIMITS OF THE PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH ADA/AAB REQUIREMENTS.*
13. *REMOVE AND RELOCATE ALL STREET SIGNS FOR THE PROPOSED WORK AS ENQUIRED.*
14. *THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER.*
15. *THE CONTRACTOR SHALL REFER TO THE CITY OF ARLINGTON ENGINEERING DEPARTMENT STANDARD DETAILS AND GENERAL UTILITY PERMITTING REQUIREMENTS*




*ROAD PAVEMENT AND SIDEWALK CONSTRUCTION*

NOT TO SCALE

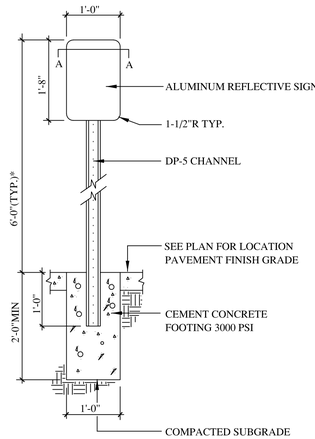


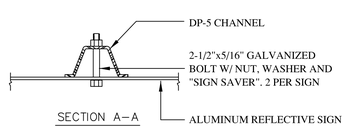

*BIT. CONC. PAVEMENT*

NOT TO SCALE

*TYPICAL GRANITE CURB*

NOT TO SCALE



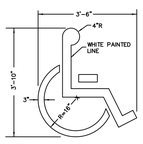





*NOTE: SIGNS IN WALKWAYS SHALL HAVE A MINIMUM 7' CLEARANCE TO THE BOTTOM OF THE SIGN

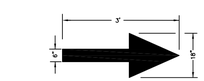
SIGNAGE

NOT TO SCALE




*PAINTED HANDICAP SYMBOL*

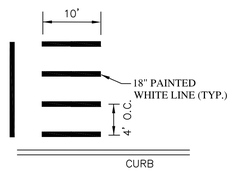
NOT TO SCALE




NOTES:
1. FIELD ENGINEER TO DETERMINE FINAL DIMENSIONS.
2. PAVEMENT ARROW SHALL BE REFLECTORIZED WHITE (THERMOPLASTIC).

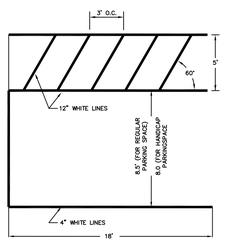
DIRECTION OF TRAVEL PAINTED ARROW STRIPING

NOT TO SCALE




CROSS WALK

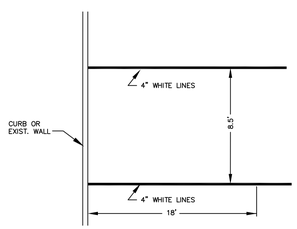
NOT TO SCALE




NOTES:
1. FIELD ENGINEER TO DETERMINE FINAL DIMENSIONS.
2. PAVEMENT MARKINGS SHALL BE WHITE REFLECTORIZED PAINT.

HANDICAP WALK WHITE LINE STRIPING AND PARKING STALL

NOT TO SCALE



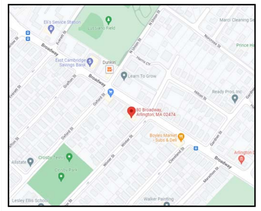

NOTES:
1. PAVEMENT MARKINGS SHALL BE WHITE, REFLECTORIZED PAINT.
2. STALL DIMENSIONS SHALL BE 10'X20' UNLESS NOTED OTHERWISE.

TYPICAL PARKING STALL

NOT TO SCALE

# Composite Civil Site Plan

80 Broadway
Arlington, MA




PARCEL ID: 027.0-0003-0005.0

ANTICIPATED SHEETS:
EXISTING CONDITIONS SURVEY
EXISTING CONDITIONS SURVEY w/ PROP.
C-1 COMPOSITE SITE PLAN
C-2 SITE STAGING
C-3 SITE LAYOUT & MATERIALS
C-4 GRADING AND DRAINAGE
C-5 UTILITY PLAN
DETAILS 1
DETAILS 2
DETAILS 3
LANDSCAPE PLAN
LANDSCAPE DETAILS

*MATERIALS:*
*DRAIN LINES SHALL BE 6" SDR35 w/ 2' MIN. COVER OVER PIPE. 1% SLOPE MIN.*
*WATER: 1.5" COPPER, TYPE K (MINIMUM OF 5 FEET BELOW GRADE)*
*FIRE: 4" DICL (MINIMUM OF 5 FEET BELOW GRADE) ZINC COATED*

REFERENCES:
SURVEY: Spruhan Engineering, P.C.
ARCHITECT: Choo & Company, Inc.

| | Date | Comment |
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14 Upham Avenue
Boston, MA 02125
(T) 617.506.1474 (F) 617.507.7740

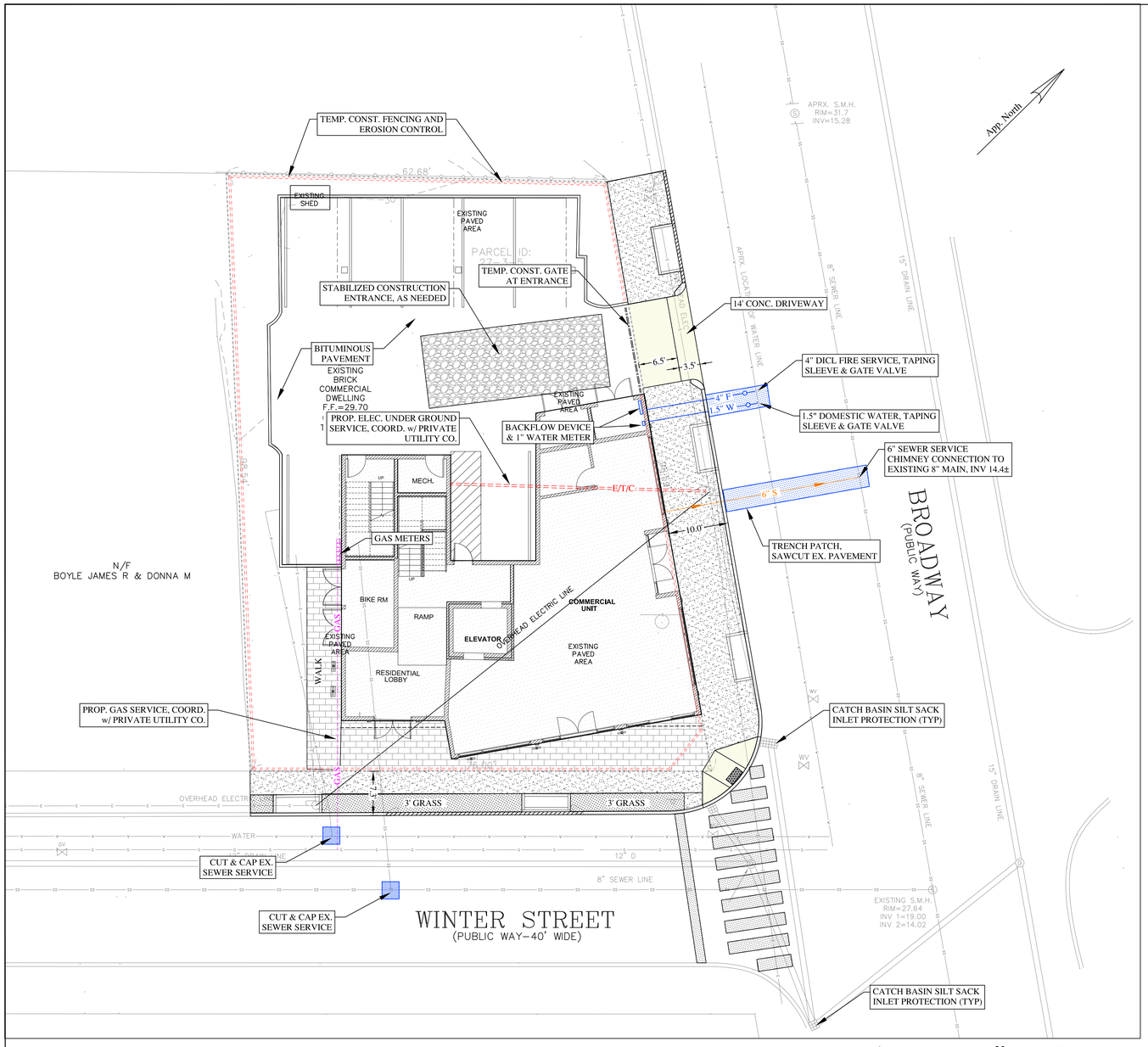
COMPOSITE CIVIL SITE PLAN

| | |
|---|---|
| September 6, 2022 | Scale: 1" = 10' |
| Project No.: 2022-145 | Drawing by: PG |

C-1

Sheet 1 of 5

COMMONWEALTH OF MASSACHUSETTS
PETER GAMMIE
CIVIL
No. 34100
REGISTERED PROFESSIONAL ENGINEER

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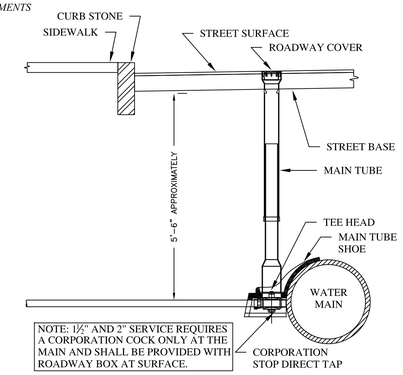
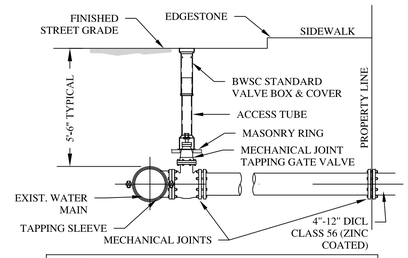



*TYPICAL WATER CONNECTION 1-½" AND 2" SERVICE PIPE*

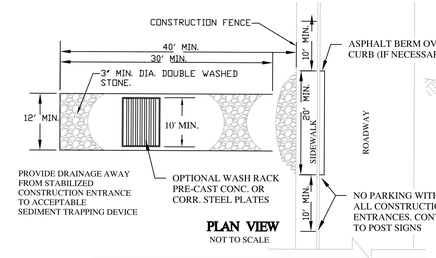
NOT TO SCALE

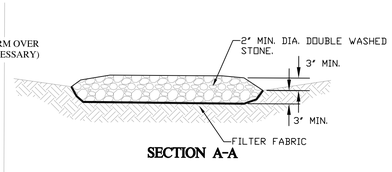



NOTES:
- CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
- USE RESTRAINED JOINT FITTINGS OR TIE RODS WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
- SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR SPECIFIC CONDITIONS.

*TYPICAL WATER PIPE CONNECTION w/ TAPPING SLEEVE & GATE VALVE*

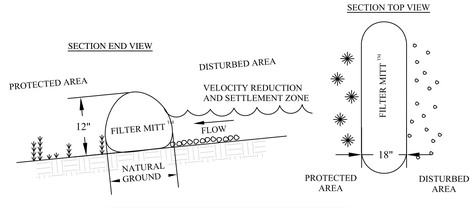
NOT TO SCALE



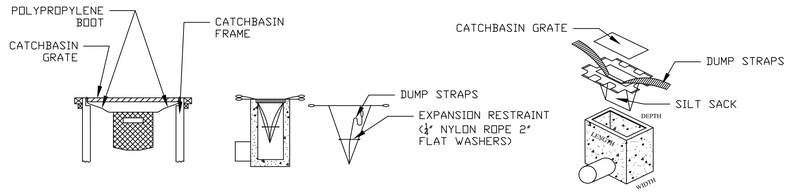

STABILIZED CONST. ENTRANCE

NOT TO SCALE




EROSION CONTROL
(OR APPROVED EQUIVALENT )

NOT TO SCALE




THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS SHEET, OVERLAND AND CONCENTRATED FLOWS (NOT GREATER THAN 1 CFS). THE METHOD CAN DRAIN FLAT AREA TO STEEP SLOPES. INLET CAPACITY WILL DECREASE WITH THIS METHOD AND CONTRACTOR SHALL EXPECT FLOODING TO OCCUR DURING HIGH FLOW EVENTS.

INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT

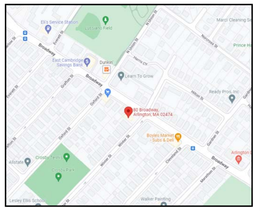
MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT SACKS SHALL BE CLEANED ONCE THE BAG IS FILLED HALF WAY WITH DEBRIS. CONTRACTOR SHALL REMOVE SILT SACK AND PLACE NEW UNIT. DO NOT EMPTY SILT SACK CONTENTS INTO THE CATCHBASIN.

***CATCH BASIN W/ SILT SACK INLET PROTECTION***

NOT TO SCALE

# Layout & Utility Plan

80 Broadway
Arlington, MA



*MATERIALS:*
*DRAIN LINES SHALL BE 6" SDR35 w/ 2' MIN. COVER OVER PIPE. 1% SLOPE MIN.*
*WATER: 1.5" COPPER, TYPE K (MINIMUM OF 5 FEET BELOW GRADE)*
*FIRE: 4" DICL (MINIMUM OF 5 FEET BELOW GRADE) ZINC COATED*

REFERENCES:
SURVEY: Spruhan Engineering, P.C.
ARCHITECT: Choo & Company, Inc.

| | Date | Comment |
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Consulting Engineers
14 Upham Avenue
Boston, MA 02125
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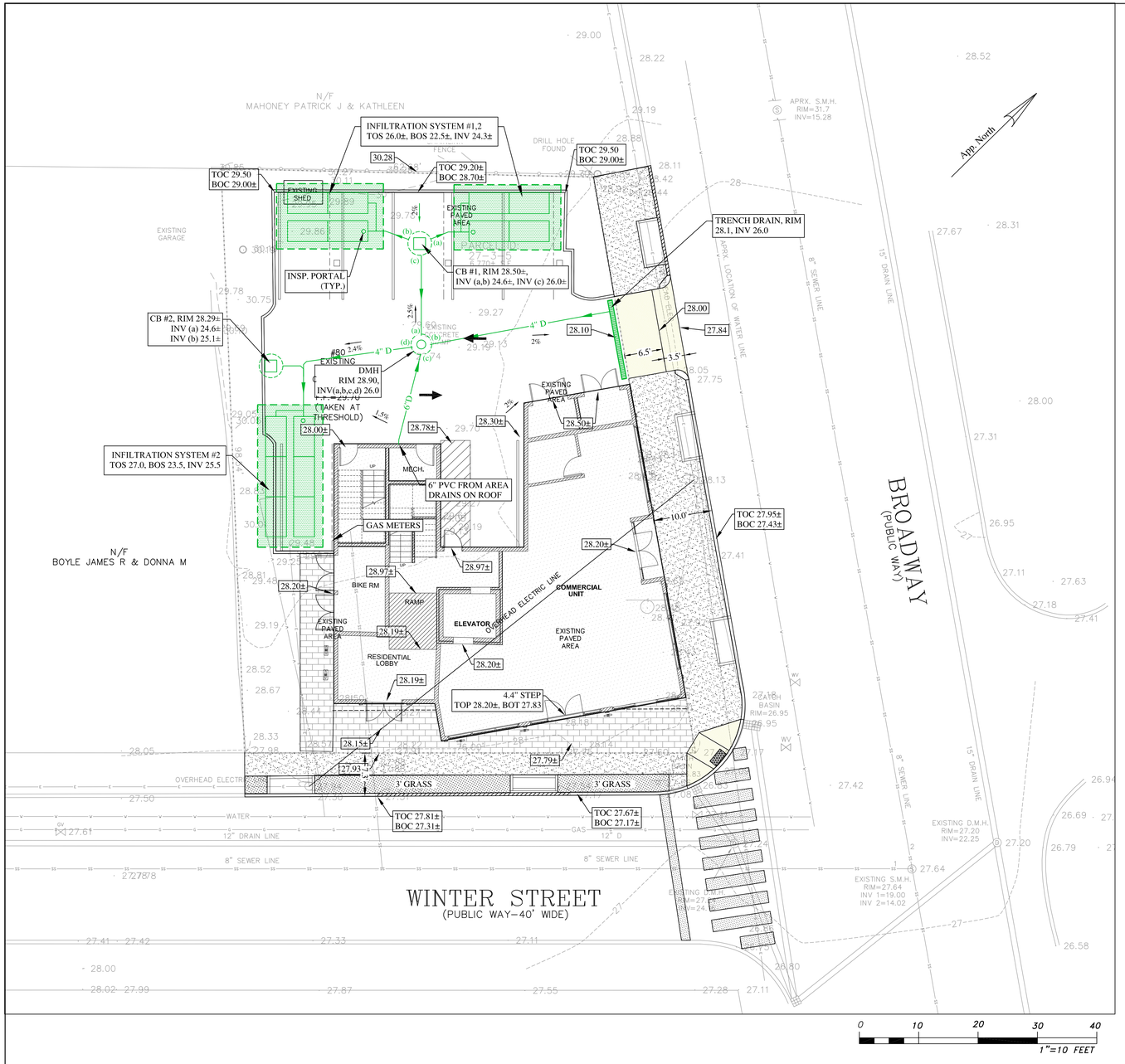
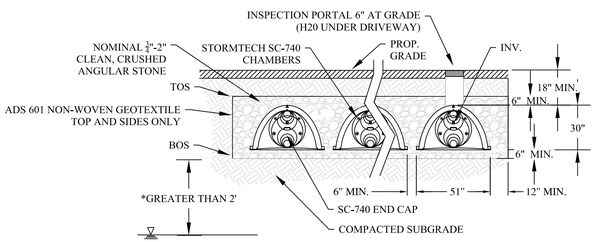
LAYOUT & UTILITY PLAN

| | |
|---|---|
| September 6, 2022 | Scale: 1" = 10' |
| Project No.: 2022-145 | Drawing by: PG |

C-2
Sheet 2 of 5

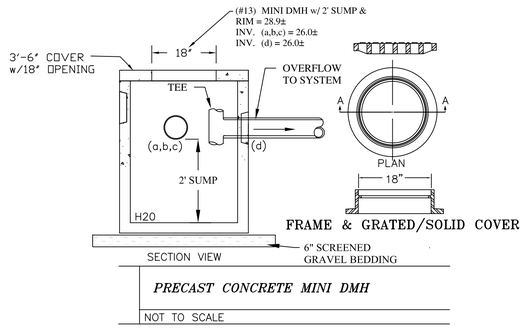
COMMONWEALTH OF MASSACHUSETTS
PETER GAMMIE
CIVIL
No. 34100
REGISTERED PROFESSIONAL ENGINEER




*INFILTRATION SYSTEM STORMTECH SC 740 SECTION*

NOT TO SCALE




FRAME & GRATED/SOLID COVER

*PRECAST CONCRETE MINI DMH*

NOT TO SCALE




NOTES:
1. HEAVY DUTY
2. CLOSED ENDS

STANDARD 4" PVC SDR OUTLET AT END OF DRAIN
NEENAH SERIES OR APPROVED EQUIVALENT

*TRENCH DRAIN w/ GRATED FRAME*

NOT TO SCALE

*INFILTRATION SYSTEM SIZING*

***INFILTRATION SYSTEM #1***
*2 Chambers/Row = 17.86' Base Length*
*2 Rows = 11.00' Base Width*
*Height = 3.50' Field Height*
*4 Chambers x 45.9 cf = 183.8 cf Chamber Stor.*
*687.5 cf Field – 183.8 cf Chambers = 503.7 cf Stone x 40.0% Voids = 201.5 cf Stone Storage*
*Chamber Storage + Stone Storage = 385.2 cf*
*Overall System Size = 17.86' x 11.00' x 3.50'*

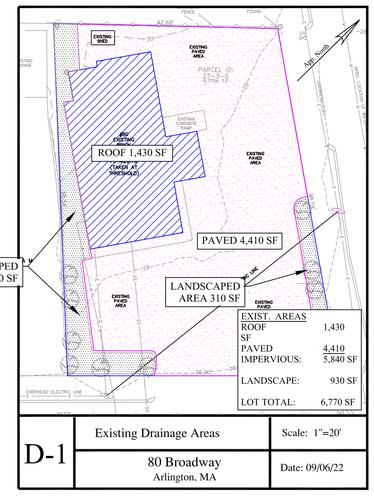
***INFILTRATION SYSTEM #2***
*2 Chambers/Row = 17.86' Base Length*
*2 Rows = 11.00' Base Width*
*Height = 3.50' Field Height*
*4 Chambers x 45.9 cf = 183.8 cf Chamber Stor.*
*687.5 cf Field – 183.8 cf Chambers = 503.7 cf Stone x 40.0% Voids = 201.5 cf Stone Storage*
*Chamber Storage + Stone Storage = 385.2 cf*
*Overall System Size = 17.86' x 11.00' x 3.50'*

***INFILTRATION SYSTEM #3***
*3 Chambers/Row= 24.98' Base Length*
*2 Rows = 11.00' Base Width*
*Height = 3.50' Field Height*
*6 Chambers x 45.9 cf = 275.6 cf Chamber Stor.*
*961.6 cf Field – 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage*
*Chamber Storage + Stone Storage = 550.0 cf*
*Overall System Size = 24.98' x 11.00' x 3.50'*

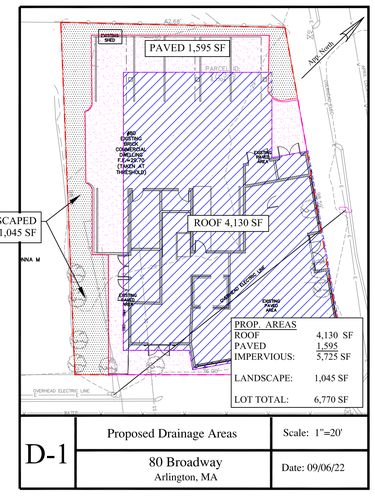
*NOTE:*
*Soils information is obtained from NRCS Soils Survey indicates this area to be 626-B Merrimac-Urban land.*

***Typical profile***
*Ap - 0 to 10 inches: fine sandy loam*
*Bw1 - 10 to 22 inches: fine sandy loam*
*Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand*
*2C - 26 to 65 inches: stratified gravel to very gravelly sand*

*Soil testing will be perform at the start of construction at each infiltration system. For the purpose of this analysis, we have assumed a very conservative hydraulic soil group HSG B, which has an associated Rawls infiltration rate of 1.02 in/hr. It is anticipated the seasonal high ground water will be well below the bottom of the infiltration systems.*



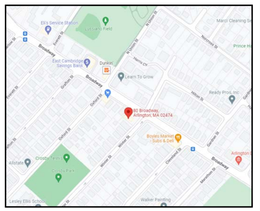

| D-1 | Existing Drainage Areas | Scale: 1"=20' |
|---|---|---|
| | 80 Broadway Arlington, MA | Date: 09/06/22 |




| D-1 | Proposed Drainage Areas | Scale: 1"=20' |
|---|---|---|
| | 80 Broadway Arlington, MA | Date: 09/06/22 |

# Drainage & Grading Plan

80 Broadway
Arlington, MA



*MATERIALS:*
*DRAIN LINES SHALL BE SDR35 w/ 12" MIN. COVER OVER PIPE. 1% SLOPE MIN.*
*SEWER SERVICES SHALL BE 6" PVC SDR35 PIPE*

REFERENCES:
SURVEY: Spruhan Engineering, P.C.
ARCHITECT: Choo & Company, Inc.

| | Date | Comment |
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Boston, MA 02125
(T) 617.506.1474 (F) 617.507.7740

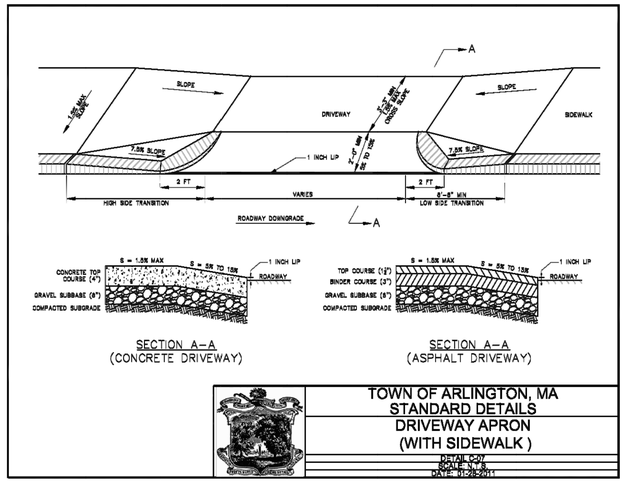
Drainage & Grading Plan

| September 6, 2022 | Scale: 1" = 10' |
|---|---|
| Project No.: 2022-145 | Drawing by: PG |

C-3

Sheet 3 of 5

COMMONWEALTH OF MASSACHUSETTS
PETER GAMMIE
CIVIL
No. 34100
REGISTERED PROFESSIONAL ENGINEER

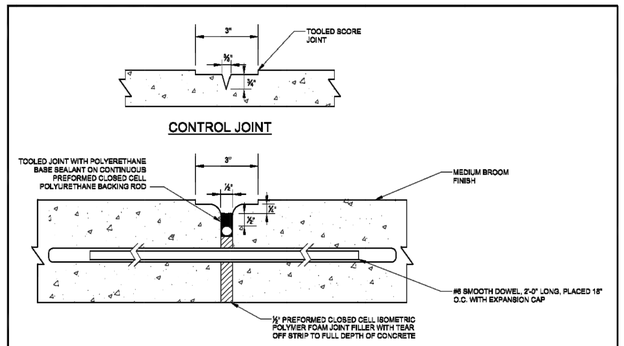



SECTION A–A
(CONCRETE DRIVEWAY)

SECTION A–A
(ASPHALT DRIVEWAY)

TOWN OF ARLINGTON, MA
STANDARD DETAILS
DRIVEWAY APRON
(WITH SIDEWALK )

DETAIL C-07
SCALE: N.T.S.
DATE: 01-26-2011

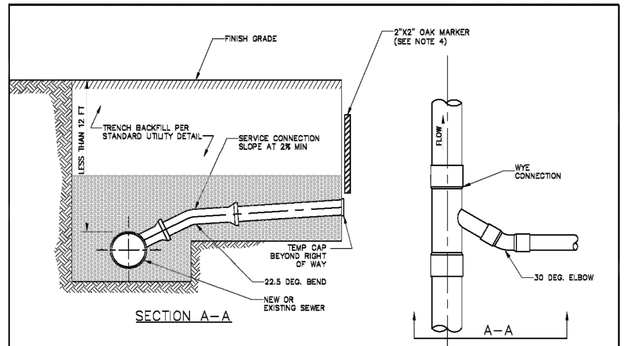



EXPANSION JOINT

NOTE:
1. EXPANSION JOINTS SHALL BE PLACED 20 FT O.C.

TOWN OF ARLINGTON, MA
STANDARD DETAILS
CONCRETE SIDEWALK JOINTS

DETAIL C-15
SCALE: N.T.S.
DATE: 01-26-2011



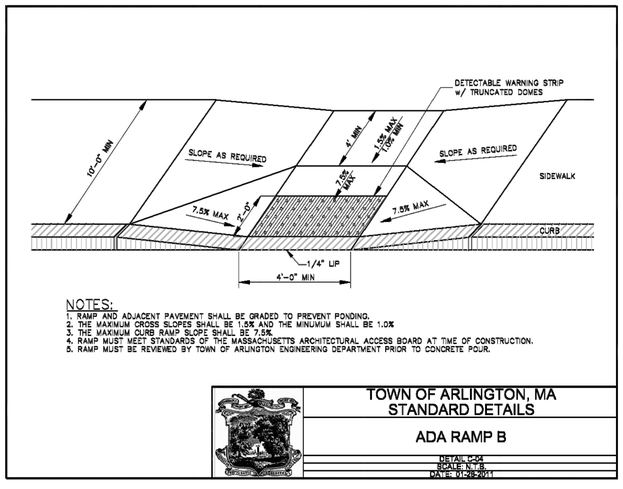

SECTION A–A

PLAN

NOTES:
1. SEE TOWN REGULATIONS FOR MINIMUM CLEARANCE TO OTHER UTILITIES.
2. PIPE BEDDING SHALL BE PER STANDARD UTILITY TRENCH DETAIL.
3. MINIMUM LATERAL SIZES SHALL BE 5" FOR SEWER SERVICE AND 8" FOR DRAIN SERVICE.
4. MARKER REQUIRED FOR FUTURE BUILDING CONNECTIONS ONLY.

TOWN OF ARLINGTON, MA
STANDARD DETAILS
SEWER BUILDING CONNECTION

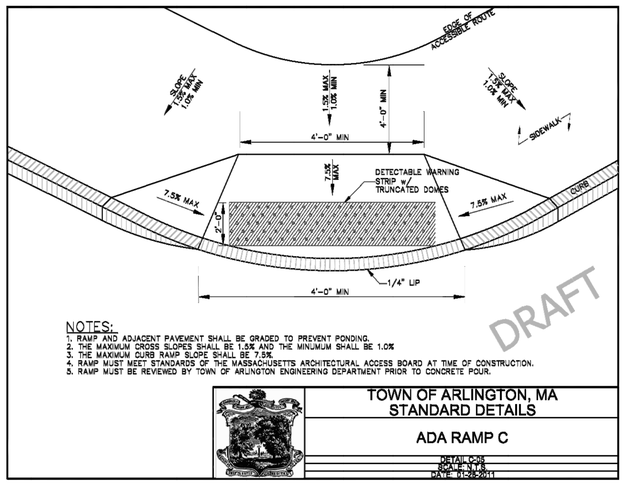
DETAIL C-16
SCALE: N.T.S.
DATE: 01-26-2011




NOTES:
1. RAMP AND ADJACENT PAVEMENT SHALL BE GRADED TO PREVENT PONDING.
2. THE MAXIMUM CROSS SLOPES SHALL BE 1.5% AND THE MINUMUM SHALL BE 1.0%
3. THE MAXIMUM CURB RAMP SLOPE SHALL BE 7.5%.
4. RAMP MUST MEET STANDARDS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AT TIME OF CONSTRUCTION.
5. RAMP MUST BE REVIEWED BY TOWN OF ARLINGTON ENGINEERING DEPARTMENT PRIOR TO CONCRETE POUR.

TOWN OF ARLINGTON, MA
STANDARD DETAILS
ADA RAMP B

DETAIL C-04
SCALE: N.T.S.
DATE: 01-26-2011

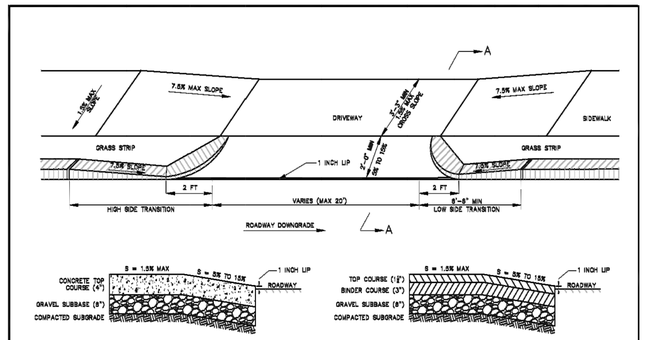



NOTES:
1. RAMP AND ADJACENT PAVEMENT SHALL BE GRADED TO PREVENT PONDING.
2. THE MAXIMUM CROSS SLOPES SHALL BE 1.5% AND THE MINUMUM SHALL BE 1.0%
3. THE MAXIMUM CURB RAMP SLOPE SHALL BE 7.5%.
4. RAMP MUST MEET STANDARDS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AT TIME OF CONSTRUCTION.
5. RAMP MUST BE REVIEWED BY TOWN OF ARLINGTON ENGINEERING DEPARTMENT PRIOR TO CONCRETE POUR.

DRAFT

TOWN OF ARLINGTON, MA
STANDARD DETAILS
ADA RAMP C

DETAIL C-05
SCALE: N.T.S.
DATE: 01-26-2011




SECTION A–A
(CONCRETE DRIVEWAY)

SECTION A–A
(ASPHALT DRIVEWAY)

TOWN OF ARLINGTON, MA
STANDARD DETAILS
DRIVEWAY APRON
(WITH GRASS STRIP)

DETAIL C-06
SCALE: N.T.S.
DATE: 01-26-2011

# Standard Detail Sheet

80 Broadway
Arlington, MA

| | Date | Comment |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

*Columbia Design Group, LLC*
Consulting Engineers

14 Upham Avenue
Boston, MA 02125
(T) 617.506.1474 (F) 617.507.7740

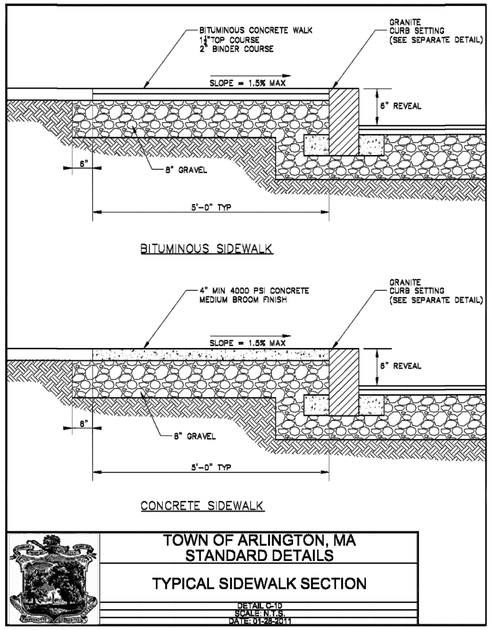
SITE PLAN

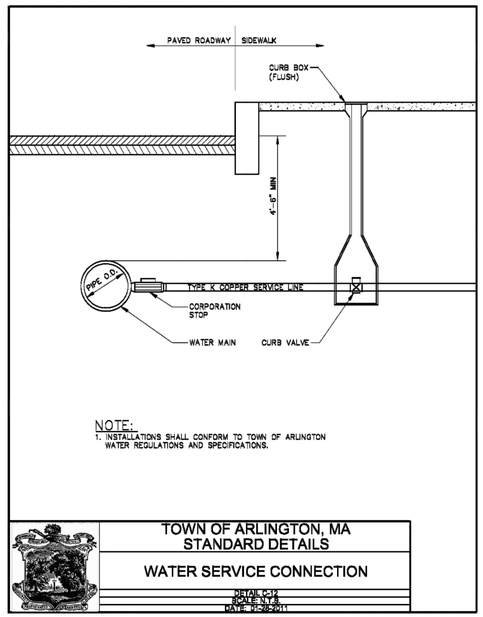
| | |
|---|---|
| September 6, 2022 | Scale: As Noted |
| Project No.: 2022-145 | Drawing by: PG |

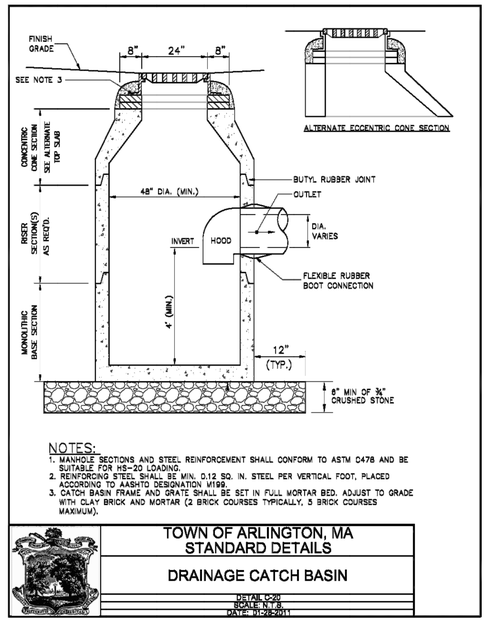
C-4

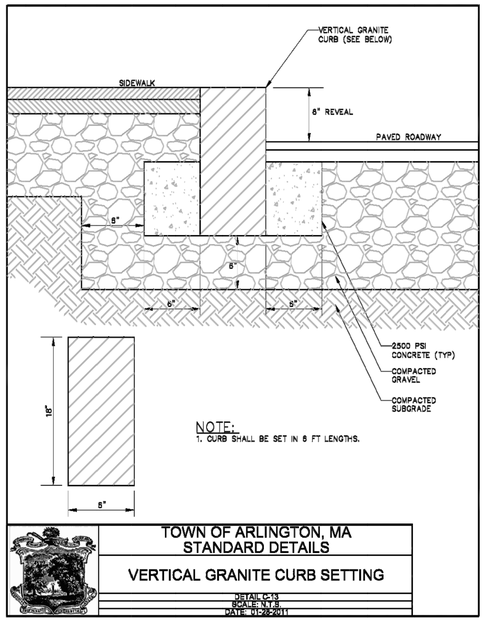
Sheet 4 of 5

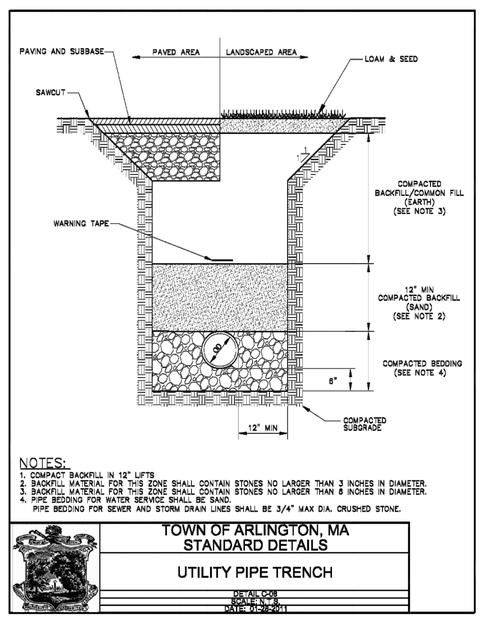
COMMONWEALTH OF MASSACHUSETTS
PETER GAMMIE
CIVIL
No. 34100
REGISTERED PROFESSIONAL ENGINEER

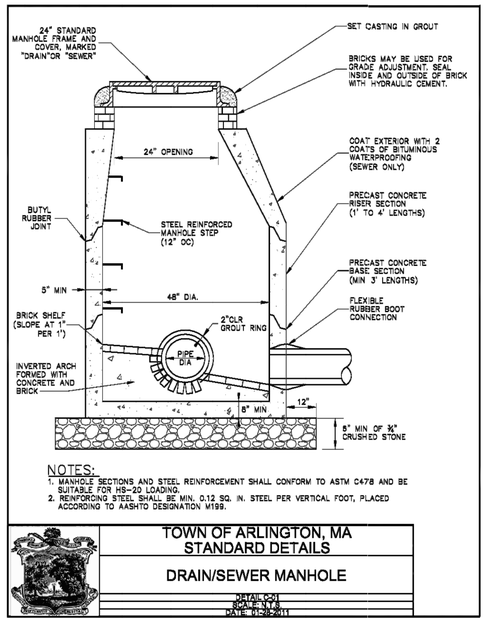



0 10 20 30 40
1"=10 FEET

# Standard Detail Sheet

80 Broadway
Arlington, MA

| | Date | Comment |
|---|---|---|
| | | |

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Consulting Engineers
14 Upham Avenue
Boston, MA 02125
(T) 617.506.1474 (F) 617.507.7740

STANDARD DETAIL SHEET

| | |
|---|---|
| September 6, 2022 | Scale: As Noted |
| Project No.: 2022-145 | Drawing by: PG |

C-5
Sheet 5 of 5

COMMONWEALTH OF MASSACHUSETTS
PETER GAMMIE
No. 34100
REGISTERED PROFESSIONAL ENGINEER

# *Storm Drainage Report*

**For**
*80 Broadway*
Arlington

Date: September 6, 2022

*By: Peter Gammie, P.E.*
*Columbia Design Group, LLC*
*14 Upham Avenue,*
*Boston, MA 02125*

COMMONWEALTH OF MASSACHUSETTS
PETER GAMMIE
CIVIL
No. 34100
REGISTERED PROFESSIONAL ENGINEER

CDG

*14 Upham Avenue*
*Boston, MA 02125*

*W(617)506.1474*
*F(617)507.7740*

## Introduction

This report discusses the stormwater management system and analysis for the redevelopment at 80 Broadway, in Arlington MA.

The proposed development includes the razing of the existing commercial building and constructing a four story mixed use facility. The first and second floors will be commercial (retail) and third and fourth floors to house four residential units. Parking at grade will accommodate seven spaces including one handicap space. The existing curb cut on Broadway will be modified, narrowing it to a single 14' opening. The curb cut on Winter St. will be closed. The total disturbance is less than one acre, therefore the NPDES General Permit is not required. The proposed stormwater system meets all the City's requirements. The proposed storm drainage systems reduce runoff for all events including the 100 year (24 hr) event. New utilities include domestic water, fire, sewer, gas and electric services.

## Oil/Gas Separator

The proposed parking area consists of a total of seven spaces. Only one of them is completely covered by roof area. Two of the spaces lie completely out side the roof area and four are only partially covered. Given this, it is my opinion that an oil/gas separator is not necessary.

## Stormwater Management

The site is approximately 6,770 SF (0.16 acre) and has a very gently sloping topography. There are very few existing trees, however the proposed landscape improvements will significantly increase the number of trees, shrubs and plantings. Where possible existing trees will be preserved.

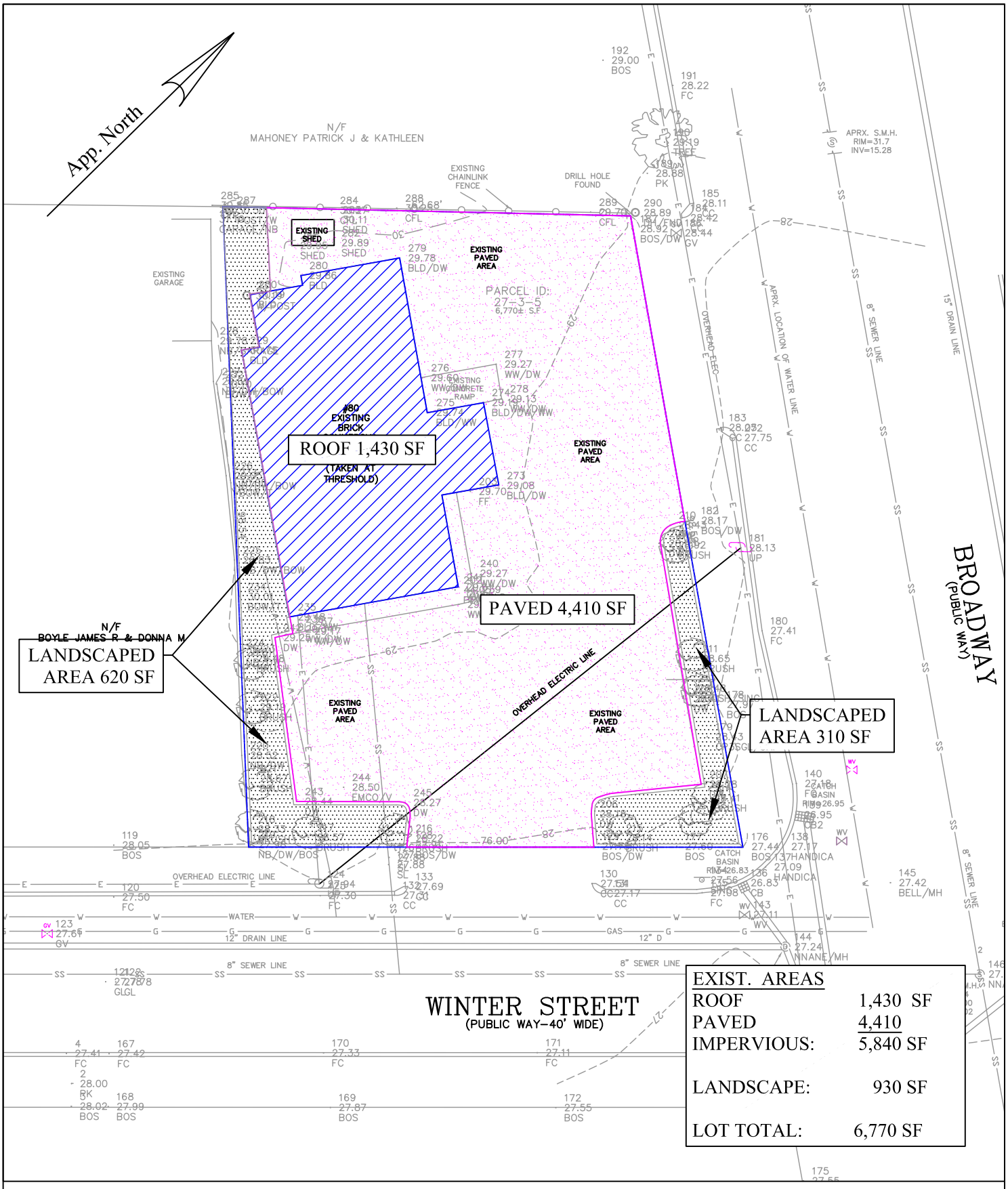
The proposed stormwater management system consists of three systems located under the parking area. Runoff from the roof areas and the parking lot is collected via roof area drains and gutters on the building and catch basins in the parking lot. These systems have been designed to store and infiltrate all of the contributing runoff for storm events up to and including the 100 yr (24 hr) event. With these three systems we have almost completely eliminate off site runoff.

The attached D-1 and D-2 sheets (below) show the existing and proposed surface areas. The proposed work decreases impervious surfaces by 115 sf. The attached HydroCAD report shows that the systems completely contain and infiltrate all storm events up to and including the 100 year (24hr) event.

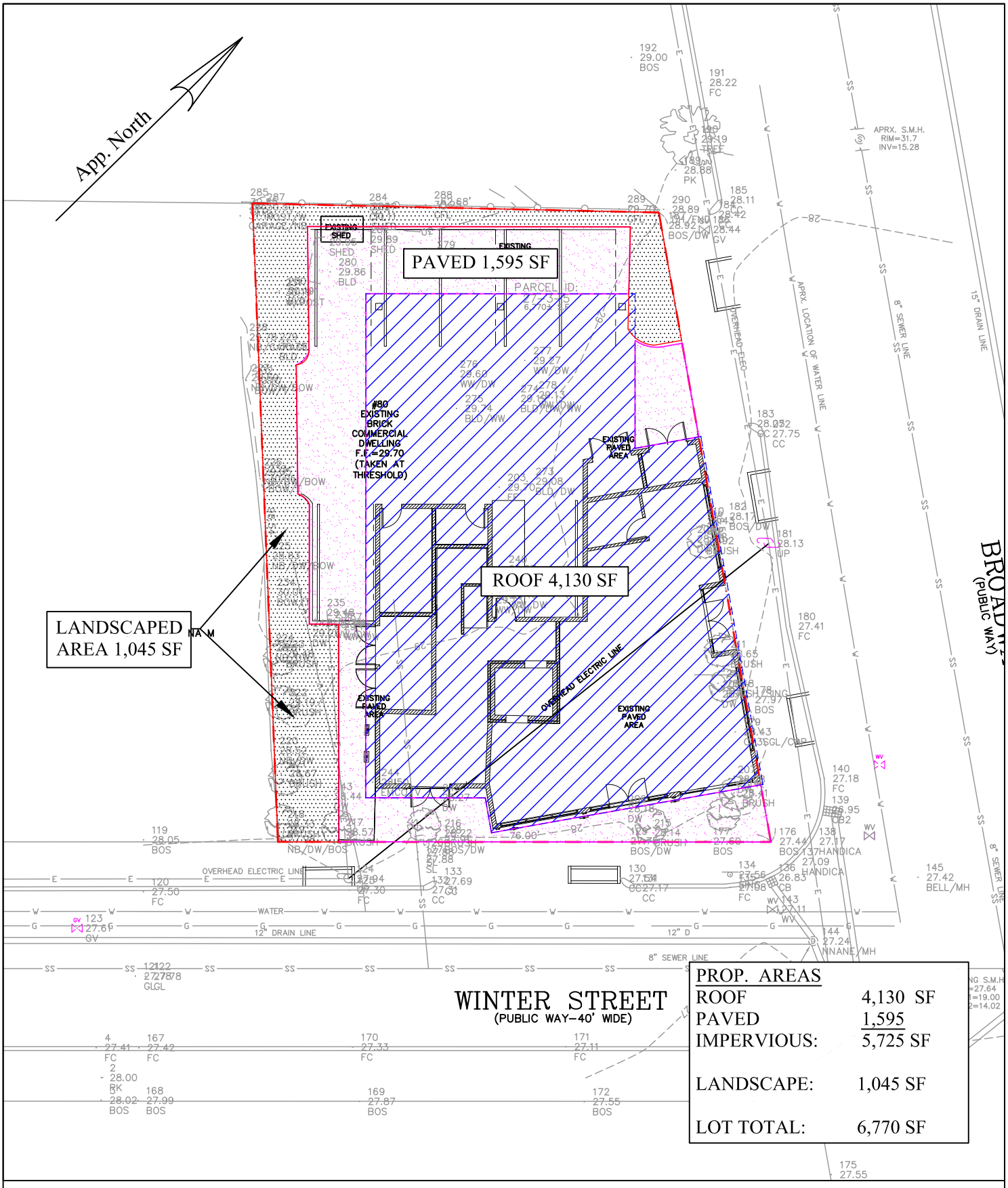
INFILTRATION SYSTEM #1&2 – This system consists of a single bed of crushed stone (17.86' x 11.00' x 3.50') located under the parking area along the northwest side. Embedded in the crushed stone bed are 4 StormTech Sc740 Chambers.

INFILTRATION SYSTEM #3 – This system consists of six StormTech SC740 chambers in crushed stone bed (24.98' x 11.00' x 3.50'). This system is located under the parking area along the west side of the parking area.

All of the roof runoff will be collected via area drains, gutters and downspouts and piped into the infiltration systems. All of the parking area runoff will be collected via catch basins and piped into the infiltration system. There is no outlet from this system, no overflow to the municipal storm drainage system.




| | | | |
|---|---|---|---|
| D-1 | Existing Drainage Areas | Scale: 1"=20' | *COLUMBIA DESIGN GROUP, LLC* |
| | 80 Broadway<br>Arlington, MA | Date: 08/26/22 | 14 Upham Avenue, Boston, MA 02125<br>ph [617] 506 1474 |




| | | | |
|---|---|---|---|
| D-2 | Proposed Drainage Areas | Scale: 1"=20' | *COLUMBIA DESIGN GROUP, LLC* |
| | 80 Broadway<br>Arlington, MA | Date: 08/26/22 | 14 Upham Avenue, Boston, MA 02125<br>ph [617] 506 1474 |

INFILTRATION SYSTEM #1&2
2 Chambers/Row = 17.86' Base Length
2 Rows = 11.00' Base Width
Height = 3.50' Field Height
4 Chambers x 45.9 cf = 183.8 cf Chamber Stor.
687.5 cf Field - 183.8 cf Chambers = 503.7 cf Stone x 40.0% Voids = 201.5 cf Stone Storage
Chamber Storage + Stone Storage = 385.2 cf
Overall System Size = 17.86' x 11.00' x 3.50'

INFILTRATION SYSTEM #3
3 Chambers/Row= 24.98' Base Length
2 Rows = 11.00' Base Width
Height = 3.50' Field Height
6 Chambers x 45.9 cf = 275.6 cf Chamber Stor.
961.6 cf Field - 275.6 cf Chambers = 686.0 cf Stone x 40.0% Voids = 274.4 cf Stone Storage
Chamber Storage + Stone Storage = 550.0 cf
Overall System Size = 24.98' x 11.00' x 3.50'

## Soils & Ground Water

Soils information is obtained from NRCS Web Soils Survey indicates this area to be 626 B-Merrimac Urban land.

**Typical profile**
*Ap - 0 to 10 inches:* fine sandy loam
*Bw1 - 10 to 22 inches:* fine sandy loam
*Bw2 - 22 to 26 inches:* stratified gravel to gravelly loamy sand
*2C - 26 to 65 inches:* stratified gravel to very gravelly sand

Soil test to determine the soil profile and depth to ground water will be performed at each system to confirm site conditions. For the purpose of this analysis we have assumed a very conservative hydraulic soil group HSG A, which has an associated Rawls infiltration rate of 2.41 in/hr. The seasonal high ground water is estimated to be well below the bottom of the two infiltration systems.

***Recharge Target Depth by Hydrologic Soil Group***

| Texture Class | NRCS Hydrologic Soil Group (HSG) | Infiltration Rate Inches/Hour |
|---|---|---|
| Sand | A | 8.27 |
| Loamy Sand | A | 2.41 |
| Sandy Loam | B | 1.02 |
| Loam | B | 0.52 |
| Silt Loam | C | 0.27 |
| Sandy Clay Loam | C | 0.17 |
| Clay Loam | D | 0.09 |
| Silty Clay Loam | D | 0.06 |
| Sandy Clay | D | 0.05 |
| Silty Clay | D | 0.04 |
| Clay | D | 0.02 |

***Rawls Rates***

## Drainage Calculations

Storm drainage design manages runoff and reduces both peak flows and volume for all storm events. The HydroCAD model is setup to evaluate the entire site taking into consideration both pervious and impervious surfaces. The results are summarized below.

**Table 2 Volume of Discharge (cuft)**

| | Design Point 1 | |
|---|---|---|
| **Design Storm** | **Pre-** | **Post-** |
| 2 year | 1356 | 37 |
| 10 year | 2238 | 107 |
| 25 year | 2937 | 176 |
| 100 year | 4383 | 341 |

**Table 3 Peak Rate of Discharge (cfs)**

| | Design Point 1 | |
|---|---|---|
| **Design Storm** | **Pre-** | **Post-** |
| 2 year, 3.16" | 0.40 | 0.01 |
| 10 year, 4.77" | 0.63 | 0.03 |
| 25 year, 6.03" | 0.82 | 0.05 |
| 100 year, 8.62" | 1.19 | 0.10 |

As mentioned, infiltration each system completely store and infiltrate all runoff from the impervious areas being collected, which included all roof and parking areas.

## Conclusion

The proposed development introduces improved landscaping as well as a storm water management system that provides onsite mitigation for the difference between the existing and proposed conditions.


Map Scale: 1:1,880 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

# Middlesex County, Massachusetts

## 626B—Merrimac-Urban land complex, 0 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2tyr9
*Elevation:* 0 to 820 feet
*Mean annual precipitation:* 36 to 71 inches
*Mean annual air temperature:* 39 to 55 degrees F
*Frost-free period:* 140 to 250 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Merrimac and similar soils:* 45 percent
*Urban land:* 40 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Merrimac

#### Setting

*Landform:* Outwash plains, outwash terraces, moraines, eskers, kames
*Landform position (two-dimensional):* Backslope, footslope, summit, shoulder
*Landform position (three-dimensional):* Side slope, crest, riser, tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

#### Typical profile

*Ap - 0 to 10 inches:* fine sandy loam
*Bw1 - 10 to 22 inches:* fine sandy loam
*Bw2 - 22 to 26 inches:* stratified gravel to gravelly loamy sand
*2C - 26 to 65 inches:* stratified gravel to very gravelly sand

#### Properties and qualities

*Slope:* 0 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat excessively drained
*Runoff class:* Very 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
*Calcium carbonate, maximum content:* 2 percent
*Maximum salinity:* Nonsaline (0.0 to 1.4 mmhos/cm)

*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* A
*Ecological site:* F144AY022MA - Dry Outwash
*Hydric soil rating:* No

## Description of Urban Land

**Typical profile**

*M - 0 to 10 inches:* cemented material

**Properties and qualities**

*Slope:* 0 to 8 percent
*Depth to restrictive feature:* 0 inches to manufactured layer
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)
*Available water supply, 0 to 60 inches:* Very low (about 0.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8
*Hydrologic Soil Group:* D
*Hydric soil rating:* Unranked

## Minor Components

**Hinckley**

*Percent of map unit:* 5 percent
*Landform:* Deltas, kames, eskers, outwash plains
*Landform position (two-dimensional):* Summit, shoulder, backslope
*Landform position (three-dimensional):* Nose slope, crest, head slope, side slope, rise
*Down-slope shape:* Convex
*Across-slope shape:* Convex, linear
*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 5 percent
*Landform:* Deltas, terraces, outwash plains
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Tread, dip
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Windsor**

*Percent of map unit:* 5 percent
*Landform:* Outwash terraces, dunes, outwash plains, deltas
*Landform position (three-dimensional):* Tread, riser
*Down-slope shape:* Linear, convex

# ***Appendix 'A'***

*OPERATION AND MAINTENANCE PLAN/*
*Long Term Pollution Prevention Plan*

*for*

***80 Broadway.***
***Arlington, MA***

The proponent/owner is responsible for the operation and maintenance of the proposed stormwater management system as follows:

Stormwater Management System Owners: _____

Party Responsible for the O & M: Home owner

Schedule for Implementation: see O & M Schedule

Plan Showing the location of all Stormwater BMPs: See Site Plan Titled – Grading & Drainage Plan by Peter Gammie

Log Form: See below.

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan will be implemented generally as follows. The Owner may require the site contractor to prepare and submit specific plans if required.

Narrative: Multiple erosion and sedimentation control devices will be implemented to prevent erosion during and after construction. The following erosion and sediment controls will be installed for this project:

- Initially, an erosion control will be installed at the limit of work along the down gradient site borders.
- Construction entrance apron pads will be constructed at the main site access to prevent the tracking of sediment on vehicle tires from transport onto adjacent streets if necessary.
- Check dams and water quality swales will be installed as needed.
- During construction, cut and fill slopes will be stabilized immediately upon completion with loam, hydroseeding and/or erosion control blankets.

Names of Persons or Entity Responsible for Plan Compliance: As part of the Submittal Process, the General Contractor shall submit the names of responsible parties.

Construction Period Pollution Prevention Measures: Erosion control measures as shown on the plan and/or as are standard practice shall be installed accordingly. Best Management Practices

shall be implemented such as the locations for vehicle maintenance and refueling, storage of supplies, and refuse disposal.

Erosion and Sedimentation Control Plan Drawings: Contractor to install per plan and/or standard practice.
Drawings and specifications for erosion control BMPs: Contractor may be requested to submit his plan for proposed sequencing of the work and the associated locations for diversion swales, erosion control dikes and berms, and/or temporary sedimentation basins.
Vegetation Planning: Landscaping to be installed per plan.
Construction Sequencing Plan: Contractor may be required to submit his plan for proposed sequencing of the work and the associated locations for diversion swales, erosion control dikes and berms, and temporary sedimentation basins.
Post construction O & M:
After construction, the site shall be inspected to assure that the landscaping is stabilized. Once stabilized, then the perimeter erosion control devices shall be removed.

Infiltration System:

The proposed stormwater management for this project consists of leaching fields containing StormTech chambers in a crushed stone bed. The system requires little maintenance, however should be checked for proper functioning on an annual basis. If excessive buildup of sediment or prolonged periods of standing water are found, the systems will require maintenance by a company familiar with the long-term maintenance and repair of these types of systems.

The infiltration system will be inspected for debris buildup and cleaned as needed. The inspector shall note the date of the inspection along with the condition of the structures and amount of trash, debris and/or sediment. Based upon the observed condition, the inspector shall make recommendations based on previously approved criteria for the cleaning of the structure.

Roof gutters and down spouts should be cleaned twice per year and more often if necessary. The overflow components of the subsurface stormwater management system will must also be inspected on an annual basis and any sediment or debris removed.

Snow Storage - Proper snow management practices will be implemented to minimize shock and pollutant loading impacts. Plowed snow will be placed in landscaped areas where it can slowly melt. If snow removal is required, a licensed operator shall dispose of snow in accordance with local and state regulations.

Illicit Discharges: Property Management acknowledges that other than driveway lot/landscaping runoff from rain/storm events, no other discharges are permitted to drain to the stormwater system. Yearly inspections will be made to assure no illicit connections exist.

Other site areas, including the overflow outlets, shall be inspected for erosion and repairs implemented as needed and with the frequency shown in the attached schedule.

_____

Accepted By: Date:

Stormwater Management Operation and Maintenance Schedule
Property: _____
Date: _____

| BMP | Frequency | Date Performed | Comments | Cleaning/ Repair Needed? Yes/No | Date of Cleaning/ Repair | Performed By |
|---|---|---|---|---|---|---|
| Subsurface Infiltration System<br><br>Inspect for proper functioning | After every major storm during first three months and twice per year thereafter. | | | | | |
| Trench Drains & Catch Basins<br><br>Inspect for debris buildup | Cleaned and maintained as needed, min twice per year | | | | | |
| Roof Drains & Gutters<br><br>Inspect for proper functioning | Cleaned and maintained as needed, min twice per year | | | | | |

*Clear leaves, acorns, and other debris out of gutters (avoid washing or pushing leaves, acorns, twigs, and other small debris into downspout inlet). Repair gutters and downspouts as needed to promote proper drainage into the recharge systems.

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*Boston, MA 02125*
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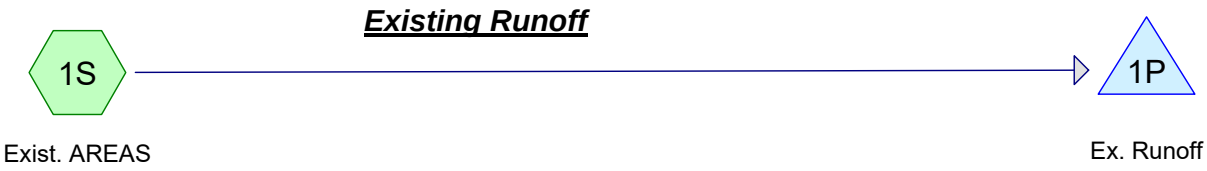
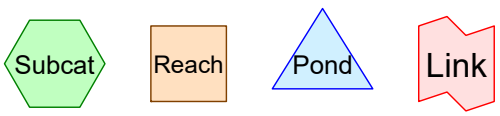
## *Appendix 'B'*

HydroCAD Reports – separate cover

*14 Upham Avenue*
*Boston, MA 02125*

*W(617)506.1474*
*F(617)507.7740*




**Routing Diagram for 80 Broadway - prop and exist II**
Prepared by Columbia Design Group, Printed 9/7/2022

## Area Listing (selected nodes)

| Area (sq-ft) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 930 | 61 | >75% Grass cover, Good, HSG B (1S) |
| 4,410 | 98 | Paved Parking Area (1S) |
| 1,430 | 98 | ROOF (1S) |
| **6,770** | **93** | **TOTAL AREA** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Exist. AREAS** Runoff Area=6,770 sf 86.26% Impervious Runoff Depth>2.41"
Tc=5.0 min CN=93 Runoff=0.40 cfs 1,357 cf

**Pond 1P: Ex. Runoff** Peak Elev=40.00' Storage=1,356 cf Inflow=0.40 cfs 1,357 cf
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 1,357 cf Average Runoff Depth = 2.41"**
**13.74% Pervious = 930 sf 86.26% Impervious = 5,840 sf**

## Summary for Subcatchment 1S: Exist. AREAS

Runoff = 0.40 cfs @ 12.11 hrs, Volume= 1,357 cf, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.16"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,430 | 98 | ROOF |
| * | 4,410 | 98 | Paved Parking Area |
| | 930 | 61 | >75% Grass cover, Good, HSG B |
| | 6,770 | 93 | Weighted Average |
| | 930 | | 13.74% Pervious Area |
| | 5,840 | | 86.26% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1P: Ex. Runoff

Inflow Area = 6,770 sf, 86.26% Impervious, Inflow Depth > 2.41" for 2-Year event
Inflow = 0.40 cfs @ 12.11 hrs, Volume= 1,357 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 1,356 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Exist. AREAS** Runoff Area=6,770 sf 86.26% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=93 Runoff=0.63 cfs 2,239 cf

**Pond 1P: Ex. Runoff** Peak Elev=40.00' Storage=2,238 cf Inflow=0.63 cfs 2,239 cf
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 2,239 cf Average Runoff Depth = 3.97"**
**13.74% Pervious = 930 sf 86.26% Impervious = 5,840 sf**

## Summary for Subcatchment 1S: Exist. AREAS

Runoff = 0.63 cfs @ 12.11 hrs, Volume= 2,239 cf, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,430 | 98 | ROOF |
| * | 4,410 | 98 | Paved Parking Area |
| | 930 | 61 | >75% Grass cover, Good, HSG B |
| | 6,770 | 93 | Weighted Average |
| | 930 | | 13.74% Pervious Area |
| | 5,840 | | 86.26% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1P: Ex. Runoff

Inflow Area = 6,770 sf, 86.26% Impervious, Inflow Depth > 3.97" for 10-Year event
Inflow = 0.63 cfs @ 12.11 hrs, Volume= 2,239 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 2,238 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Exist. AREAS** Runoff Area=6,770 sf 86.26% Impervious Runoff Depth>6.37"
Tc=5.0 min CN=93 Runoff=0.99 cfs 3,596 cf

**Pond 1P: Ex. Runoff** Peak Elev=40.00' Storage=3,594 cf Inflow=0.99 cfs 3,596 cf
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 3,596 cf Average Runoff Depth = 6.37"**
**13.74% Pervious = 930 sf 86.26% Impervious = 5,840 sf**

## Summary for Subcatchment 1S: Exist. AREAS

Runoff = 0.99 cfs @ 12.11 hrs, Volume= 3,596 cf, Depth> 6.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-Year Rainfall=7.21"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,430 | 98 | ROOF |
| * | 4,410 | 98 | Paved Parking Area |
| | 930 | 61 | >75% Grass cover, Good, HSG B |
| | 6,770 | 93 | Weighted Average |
| | 930 | | 13.74% Pervious Area |
| | 5,840 | | 86.26% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1P: Ex. Runoff

Inflow Area = 6,770 sf, 86.26% Impervious, Inflow Depth > 6.37" for 50-Year event
Inflow = 0.99 cfs @ 12.11 hrs, Volume= 3,596 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 3,594 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: Exist. AREAS** Runoff Area=6,770 sf 86.26% Impervious Runoff Depth>7.77"
Tc=5.0 min CN=93 Runoff=1.19 cfs 4,385 cf

**Pond 1P: Ex. Runoff** Peak Elev=40.00' Storage=4,383 cf Inflow=1.19 cfs 4,385 cf
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 4,385 cf Average Runoff Depth = 7.77"**
**13.74% Pervious = 930 sf 86.26% Impervious = 5,840 sf**

## Summary for Subcatchment 1S: Exist. AREAS

Runoff = 1.19 cfs @ 12.11 hrs, Volume= 4,385 cf, Depth> 7.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=8.62"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,430 | 98 | ROOF |
| * | 4,410 | 98 | Paved Parking Area |
| | 930 | 61 | >75% Grass cover, Good, HSG B |
| | 6,770 | 93 | Weighted Average |
| | 930 | | 13.74% Pervious Area |
| | 5,840 | | 86.26% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1P: Ex. Runoff

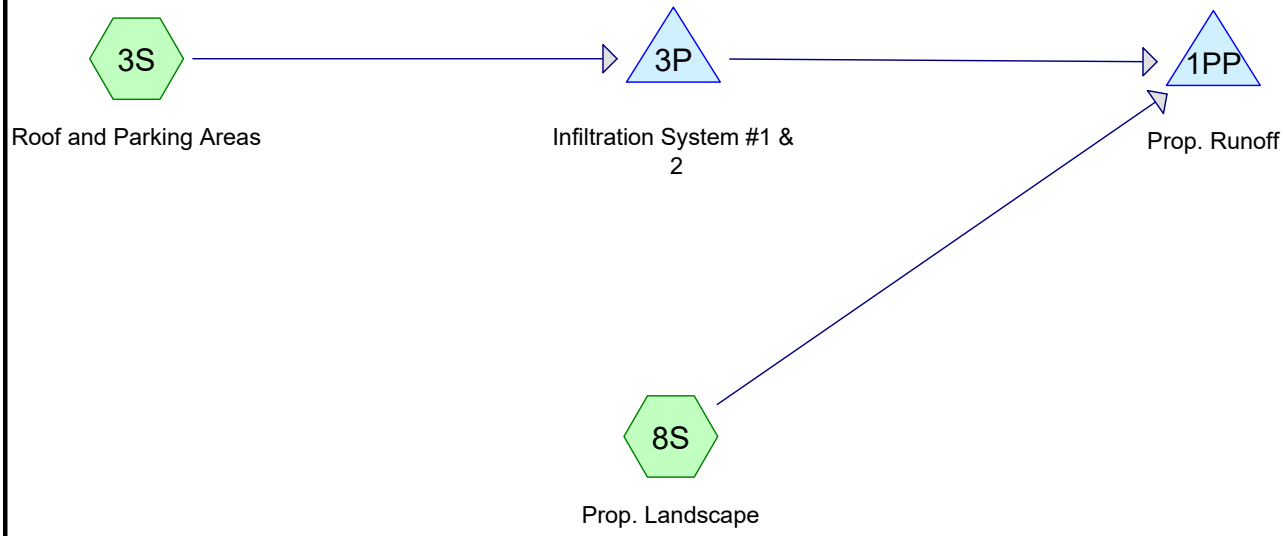
Inflow Area = 6,770 sf, 86.26% Impervious, Inflow Depth > 7.77" for 100-Year event
Inflow = 1.19 cfs @ 12.11 hrs, Volume= 4,385 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 4,383 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

***Proposed Runoff***




Subcat Reach Pond Link

**Routing Diagram for 80 Broadway - prop and exist II**
Prepared by Columbia Design Group, Printed 9/7/2022

## Area Listing (selected nodes)

| Area (sq-ft) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 1,045 | 61 | >75% Grass cover, Good, HSG B (8S) |
| 1,595 | 98 | PARKING (3S) |
| 4,130 | 98 | ROOF AREA (3S) |
| **6,770** | **92** | **TOTAL AREA** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 3S: Roof and Parking Areas** Runoff Area=5,725 sf 100.00% Impervious Runoff Depth>2.93"
Tc=5.0 min CN=98 Runoff=0.37 cfs 1,396 cf

**Subcatchment 8S: Prop. Landscape** Runoff Area=1,045 sf 0.00% Impervious Runoff Depth>0.43"
Tc=5.0 min CN=61 Runoff=0.01 cfs 37 cf

**Pond 1PP: Prop. Runoff** Peak Elev=40.00' Storage=37 cf Inflow=0.01 cfs 37 cf
Outflow=0.00 cfs 0 cf

**Pond 3P: Infiltration System #1 & 2** Peak Elev=40.89' Storage=326 cf Inflow=0.37 cfs 1,396 cf
Discarded=0.06 cfs 1,394 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,394 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 1,433 cf Average Runoff Depth = 2.54"**
**15.44% Pervious = 1,045 sf 84.56% Impervious = 5,725 sf**

## Summary for Subcatchment 3S: Roof and Parking Areas

Runoff = 0.37 cfs @ 12.11 hrs, Volume= 1,396 cf, Depth> 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.16"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,130 | 98 | ROOF AREA |
| * | 1,595 | 98 | PARKING |
| | 5,725 | 98 | Weighted Average |
| | 5,725 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 8S: Prop. Landscape

Runoff = 0.01 cfs @ 12.14 hrs, Volume= 37 cf, Depth> 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.16"

| Area (sf) | CN | Description |
|---|---|---|
| 1,045 | 61 | >75% Grass cover, Good, HSG B |
| 1,045 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1PP: Prop. Runoff

Inflow Area = 6,770 sf, 84.56% Impervious, Inflow Depth > 0.07" for 2-Year event
Inflow = 0.01 cfs @ 12.14 hrs, Volume= 37 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 37 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

## Summary for Pond 3P: Infiltration System #1 & 2

Inflow Area = 5,725 sf,100.00% Impervious, Inflow Depth > 2.93" for 2-Year event
Inflow = 0.37 cfs @ 12.11 hrs, Volume= 1,396 cf
Outflow = 0.06 cfs @ 12.55 hrs, Volume= 1,394 cf, Atten= 84%, Lag= 26.4 min
Discarded = 0.06 cfs @ 12.55 hrs, Volume= 1,394 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 40.89' @ 12.55 hrs Surf.Area= 665 sf Storage= 326 cf

Plug-Flow detention time= 33.8 min calculated for 1,391 cf (100% of inflow)
Center-of-Mass det. time= 33.0 min ( 792.2 - 759.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field A**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #2A | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #3C | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field C**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #4C | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #3<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #5B | 40.00' | 269 cf | **11.00'W x 24.80'L x 3.50'H Field B**<br>955 cf Overall - 281 cf Embedded = 673 cf x 40.0% Voids |
| #6B | 40.50' | 281 cf | **ADS_StormTech SC-740** x 6 Inside #5<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| | | 1,328 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 40.00' | **2.410 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 38.50' |
| #2 | Primary | 43.40' | **6.0" Round Culvert**<br>L= 40.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 43.40' / 40.00' S= 0.0850 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.06 cfs @ 12.55 hrs HW=40.89' (Free Discharge)
**1=Exfiltration** ( Controls 0.06 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=40.00' (Free Discharge)
**2=Culvert** ( Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 3S: Roof and Parking Areas** Runoff Area=5,725 sf 100.00% Impervious Runoff Depth>4.53"
Tc=5.0 min CN=98 Runoff=0.57 cfs 2,161 cf

**Subcatchment 8S: Prop. Landscape** Runoff Area=1,045 sf 0.00% Impervious Runoff Depth>1.23"
Tc=5.0 min CN=61 Runoff=0.03 cfs 107 cf

**Pond 1PP: Prop. Runoff** Peak Elev=40.00' Storage=107 cf Inflow=0.03 cfs 107 cf
Outflow=0.00 cfs 0 cf

**Pond 3P: Infiltration System #1 & 2** Peak Elev=41.45' Storage=592 cf Inflow=0.57 cfs 2,161 cf
Discarded=0.07 cfs 2,159 cf Primary=0.00 cfs 0 cf Outflow=0.07 cfs 2,159 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 2,268 cf Average Runoff Depth = 4.02"**
**15.44% Pervious = 1,045 sf 84.56% Impervious = 5,725 sf**

## Summary for Subcatchment 3S: Roof and Parking Areas

Runoff = 0.57 cfs @ 12.11 hrs, Volume= 2,161 cf, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,130 | 98 | ROOF AREA |
| * | 1,595 | 98 | PARKING |
| | 5,725 | 98 | Weighted Average |
| | 5,725 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 8S: Prop. Landscape

Runoff = 0.03 cfs @ 12.12 hrs, Volume= 107 cf, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

| Area (sf) | CN | Description |
|---|---|---|
| 1,045 | 61 | >75% Grass cover, Good, HSG B |
| 1,045 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1PP: Prop. Runoff

Inflow Area = 6,770 sf, 84.56% Impervious, Inflow Depth > 0.19" for 10-Year event
Inflow = 0.03 cfs @ 12.12 hrs, Volume= 107 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 107 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

## Summary for Pond 3P: Infiltration System #1 & 2

Inflow Area = 5,725 sf,100.00% Impervious, Inflow Depth > 4.53" for 10-Year event
Inflow = 0.57 cfs @ 12.11 hrs, Volume= 2,161 cf
Outflow = 0.07 cfs @ 12.67 hrs, Volume= 2,159 cf, Atten= 87%, Lag= 33.3 min
Discarded = 0.07 cfs @ 12.67 hrs, Volume= 2,159 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 41.45' @ 12.67 hrs Surf.Area= 665 sf Storage= 592 cf

Plug-Flow detention time= 57.2 min calculated for 2,159 cf (100% of inflow)
Center-of-Mass det. time= 56.3 min ( 806.3 - 749.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field A**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #2A | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #3C | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field C**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #4C | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #3<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #5B | 40.00' | 269 cf | **11.00'W x 24.80'L x 3.50'H Field B**<br>955 cf Overall - 281 cf Embedded = 673 cf x 40.0% Voids |
| #6B | 40.50' | 281 cf | **ADS_StormTech SC-740** x 6 Inside #5<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| | | 1,328 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 40.00' | **2.410 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 38.50' |
| #2 | Primary | 43.40' | **6.0" Round Culvert**<br>L= 40.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 43.40' / 40.00' S= 0.0850 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.07 cfs @ 12.67 hrs HW=41.45' (Free Discharge)
**1=Exfiltration** ( Controls 0.07 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=40.00' (Free Discharge)
**2=Culvert** ( Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 3S: Roof and Parking Areas** Runoff Area=5,725 sf 100.00% Impervious Runoff Depth>5.79"
Tc=5.0 min CN=98 Runoff=0.72 cfs 2,761 cf

**Subcatchment 8S: Prop. Landscape** Runoff Area=1,045 sf 0.00% Impervious Runoff Depth>2.02"
Tc=5.0 min CN=61 Runoff=0.05 cfs 176 cf

**Pond 1PP: Prop. Runoff** Peak Elev=40.00' Storage=176 cf Inflow=0.05 cfs 176 cf
Outflow=0.00 cfs 0 cf

**Pond 3P: Infiltration System #1 & 2** Peak Elev=41.95' Storage=815 cf Inflow=0.72 cfs 2,761 cf
Discarded=0.09 cfs 2,758 cf Primary=0.00 cfs 0 cf Outflow=0.09 cfs 2,758 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 2,937 cf Average Runoff Depth = 5.21"**
**15.44% Pervious = 1,045 sf 84.56% Impervious = 5,725 sf**

## Summary for Subcatchment 3S: Roof and Parking Areas

Runoff = 0.72 cfs @ 12.11 hrs, Volume= 2,761 cf, Depth> 5.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.03"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,130 | 98 | ROOF AREA |
| * | 1,595 | 98 | PARKING |
| | 5,725 | 98 | Weighted Average |
| | 5,725 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 8S: Prop. Landscape

Runoff = 0.05 cfs @ 12.12 hrs, Volume= 176 cf, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.03"

| Area (sf) | CN | Description |
|---|---|---|
| 1,045 | 61 | >75% Grass cover, Good, HSG B |
| 1,045 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1PP: Prop. Runoff

Inflow Area = 6,770 sf, 84.56% Impervious, Inflow Depth > 0.31" for 25-Year event
Inflow = 0.05 cfs @ 12.12 hrs, Volume= 176 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 176 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

## Summary for Pond 3P: Infiltration System #1 & 2

Inflow Area = 5,725 sf,100.00% Impervious, Inflow Depth > 5.79" for 25-Year event
Inflow = 0.72 cfs @ 12.11 hrs, Volume= 2,761 cf
Outflow = 0.09 cfs @ 12.76 hrs, Volume= 2,758 cf, Atten= 88%, Lag= 39.1 min
Discarded = 0.09 cfs @ 12.76 hrs, Volume= 2,758 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 41.95' @ 12.76 hrs Surf.Area= 665 sf Storage= 815 cf

Plug-Flow detention time= 73.6 min calculated for 2,752 cf (100% of inflow)
Center-of-Mass det. time= 72.7 min ( 818.3 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field A**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #2A | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #3C | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field C**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #4C | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #3<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #5B | 40.00' | 269 cf | **11.00'W x 24.80'L x 3.50'H Field B**<br>955 cf Overall - 281 cf Embedded = 673 cf x 40.0% Voids |
| #6B | 40.50' | 281 cf | **ADS_StormTech SC-740** x 6 Inside #5<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| | | 1,328 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 40.00' | **2.410 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 38.50' |
| #2 | Primary | 43.40' | **6.0" Round Culvert**<br>L= 40.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 43.40' / 40.00' S= 0.0850 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.09 cfs @ 12.76 hrs HW=41.95' (Free Discharge)
↑**1=Exfiltration** ( Controls 0.09 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=40.00' (Free Discharge)
↑**2=Culvert** ( Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 3S: Roof and Parking Areas** Runoff Area=5,725 sf 100.00% Impervious Runoff Depth>8.37"
Tc=5.0 min CN=98 Runoff=1.03 cfs 3,995 cf

**Subcatchment 8S: Prop. Landscape** Runoff Area=1,045 sf 0.00% Impervious Runoff Depth>3.92"
Tc=5.0 min CN=61 Runoff=0.10 cfs 341 cf

**Pond 1PP: Prop. Runoff** Peak Elev=40.00' Storage=341 cf Inflow=0.10 cfs 341 cf
Outflow=0.00 cfs 0 cf

**Pond 3P: Infiltration System #1 & 2** Peak Elev=43.36' Storage=1,289 cf Inflow=1.03 cfs 3,995 cf
Discarded=0.12 cfs 3,990 cf Primary=0.00 cfs 0 cf Outflow=0.12 cfs 3,990 cf

**Total Runoff Area = 6,770 sf Runoff Volume = 4,336 cf Average Runoff Depth = 7.69"**
**15.44% Pervious = 1,045 sf 84.56% Impervious = 5,725 sf**

## Summary for Subcatchment 3S: Roof and Parking Areas

Runoff = 1.03 cfs @ 12.11 hrs, Volume= 3,995 cf, Depth> 8.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=8.62"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,130 | 98 | ROOF AREA |
| * | 1,595 | 98 | PARKING |
| | 5,725 | 98 | Weighted Average |
| | 5,725 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 8S: Prop. Landscape

Runoff = 0.10 cfs @ 12.12 hrs, Volume= 341 cf, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=8.62"

| Area (sf) | CN | Description |
|---|---|---|
| 1,045 | 61 | >75% Grass cover, Good, HSG B |
| 1,045 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Summary for Pond 1PP: Prop. Runoff

Inflow Area = 6,770 sf, 84.56% Impervious, Inflow Depth > 0.60" for 100-Year event
Inflow = 0.10 cfs @ 12.12 hrs, Volume= 341 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 40.00' @ 24.00 hrs Surf.Area= 1,000,000 sf Storage= 341 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 40.00' | 5,000,000 cf | **1,000.00'W x 1,000.00'L x 5.00'H Roadway Detension - Model** |

## Summary for Pond 3P: Infiltration System #1 & 2

Inflow Area = 5,725 sf,100.00% Impervious, Inflow Depth > 8.37" for 100-Year event
Inflow = 1.03 cfs @ 12.11 hrs, Volume= 3,995 cf
Outflow = 0.12 cfs @ 12.79 hrs, Volume= 3,990 cf, Atten= 88%, Lag= 40.5 min
Discarded = 0.12 cfs @ 12.79 hrs, Volume= 3,990 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 43.36' @ 12.79 hrs Surf.Area= 665 sf Storage= 1,289 cf

Plug-Flow detention time= 99.8 min calculated for 3,982 cf (100% of inflow)
Center-of-Mass det. time= 98.8 min ( 839.0 - 740.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1A | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field A**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #2A | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #1<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #3C | 40.00' | 199 cf | **11.00'W x 17.85'L x 3.50'H Field C**<br>687 cf Overall - 189 cf Embedded = 498 cf x 40.0% Voids |
| #4C | 40.50' | 189 cf | **ADS_StormTech SC-740** x 4 Inside #3<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| #5B | 40.00' | 269 cf | **11.00'W x 24.80'L x 3.50'H Field B**<br>955 cf Overall - 281 cf Embedded = 673 cf x 40.0% Voids |
| #6B | 40.50' | 281 cf | **ADS_StormTech SC-740** x 6 Inside #5<br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>Row Length Adjustment= +0.44' x 6.45 sf x 2 rows |
| | | 1,328 cf | Total Available Storage |

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 40.00' | **2.410 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 38.50' |
| #2 | Primary | 43.40' | **6.0" Round Culvert**<br>L= 40.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 43.40' / 40.00' S= 0.0850 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.12 cfs @ 12.79 hrs HW=43.35' (Free Discharge)
**1=Exfiltration** ( Controls 0.12 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=40.00' (Free Discharge)
**2=Culvert** ( Controls 0.00 cfs)