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Director

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**PUBLIC HEARING MEMORANDUM**

**DATE:** July 18, 2024

**TO:** R. Lisle Baker, Chair, Zoning & Planning Committee  
Members of the Zoning & Planning Committee

**FROM:** Barney Heath, Director, Department of Planning and Development  
Jennifer Caira, Deputy Director, Department of Planning and Development  
Zachery LeMel, Chief of Long Range Planning  
Olivia James, Community Engagement Specialist

**RE:** **#76-24(3) Discussion and possible ordinance amendments to change how building height is measured**  
ZONING & PLANNING COMMITTEE requesting discussion and possible amendments to Chapter 30, Zoning to require that building height is measured from original grade instead of finished grade.

**MEETING:** July 22, 2024

**CC:** City Council  
Planning Board  
Anthony Ciccariello, Commissioner of Inspectional Services  
Jonathan Yeo, Chief Operating Officer  
Alissa O. Giuliani, City Solicitor

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This docket item is intended to identify and address concerns regarding the significant altering of the existing grades when new homes are built, specifically in Single- and Multi-Residence Zoning Districts. The Zoning and Planning Committee (ZAP) and the Planning and Development Board held, and closed, a public hearing at the June 10, 2024 meeting, [see report here](#). The item was held, and Councilors requested additional analysis for the upcoming discussion and possible vote.

The attachments provide here are broken down into three categories:

**Attachment A** Staff Analysis (case studies)  
**Attachment B** Possible Amendments to Consider in Parallel  
**Attachment C** Newton Building/Architecture Professional Group Examples\*

\* Note that staff requested case studies from both building groups per ZAP request, but only one provided material

## **Next Steps**

Staff recommend that ZAP and the Planning Board approve the recommended Zoning Ordinance amendments. In addition, staff recommend that Councilors docket the parallel amendments (Attachment B) that will address the other concerns brought up by Councilors, Building Professionals, and the public.

# Measuring Height from Original Grade - Additional Analysis

Docket #76-24(3)

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Zoning and Planning Committee  
July 22, 2024  
Planning & Development



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# Content

## Part I (Attachment A)

- ▶ Work to-date
- ▶ Proposed amendment
- ▶ Additional analysis

## Part II (Attachment B)

- ▶ Parallel amendments



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## Work To-Date

- ▶ Recommendation to measure height of new/re-development from original grade
- ▶ General support from community and City Council, but more analysis requested:
  - Analyze more Newton properties
  - Review earthworks ordinance in other cities/towns
  - Look at interplay with other changes (i.e. retaining walls)
- ▶ Staff recommend:
  - Approval of the proposed amendment
  - Continued support to bring forward additional amendments under parallel docket items (#85-24, #41-24)

# Proposed Amendment

## 1.5.4. Height

E. Original Grade. The grade of the lot before any regrading, demolition, development, or redevelopment begins based on the following standards:~~In cases where the walls of the building are more than five (5) feet from the nearest street line, the grade shall mean the mean elevation of the ground adjoining said wall; and in all other cases, the mean elevation of the nearest sidewalk.~~

1. If a lot,

- a. Has an existing building that is to be demolished or modified, the original grade of the lot shall be the grade that existed prior to any activity that caused a change in position or location of soil, sand, rock, gravel, or similar earth material, which changes the grade of the lot, that occurred after January 1, 2025 and within five (5) years of the date of application for the building permit for such demolition or modification of the existing building; or
- b. Has no existing building on the property, the natural grade of the property, prior to any activity that causes a change in position or location of soil, sand, rock, gravel, or similar earth material, which changes the grade of the lot, shall be considered the original grade; or
- c. Is a new subdivision, notwithstanding anything to the contrary contained in the City of Newton Zoning Ordinance, the original grade shall mean the approved and recorded grade.

2. The original grade shall be certified by a registered Massachusetts licensed professional land surveyor and shown on a certified plot plan to be verified by the Building Inspector prior to commencement of work on the property with all elevations in Newton City base.

Updated effective date to January 1, 2025, responding to the pre-development timeline typical of residential projects

**F. Grade Plane Average.** A horizontal reference plane for a building as a whole representing the average of finished-original or proposed grade, whichever is lower, elevations around the perimeter of a building, as determined by the length-weighted mean formula below. All walls of length six (6) feet or greater~~greater than 6 feet~~ shall be included in segments of consistent grade or slope.

← Proposal will not change how height is measured for projects lowering the grade

1. In cases where the walls of the building are more than five (5) feet from the nearest street line, the grade shall refer to the mean elevation of the ground adjoining said wall; and in all other cases, the mean elevation of the nearest sidewalk.

$$\Sigma = \frac{(e1 + e2) / 2 \times L}{P}$$

← Corrected formula, which was not correctly transcribed in previous presentation

Where:

- $\Sigma$  sums the weighted average grades of all segments;
- Segments less than 6 feet in length are not included as separate segments;
- e1 and e2 are the elevations of the finished-original ground level at the respective ends of each segment, determined as the lowest point at each end of the segment within 6 feet of the foundation or the lot line, whichever is closer;
- L is the corresponding horizontal length of the segment; and
- P is total horizontal length of all segments

← Update that elevations are taken from original grade



### 1.5.5. Floor Area

D. **Mass Below First Story.** For the purposes of calculating gross floor area, any cellar, crawl space, basement, or other enclosed area lying directly below a first story in a residential structure.

1. **Standards.** The lesser of 50 percent of the floor area of mass below first story OR:  
((X/Y) floor area of mass below first story)

Where:

- X = Sum of the width of those sections of exposed walls below the first story having an exterior height  $\geq 4$  feet as measured from ~~existing-original~~ or proposed grade, whichever is lower, to the top of the subfloor of the first story.
- Y = Perimeter of exterior walls below first story

# Additional Analysis

# Recent Newton Projects

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- ▶ Site that slopes up from the street
- ▶ Flat site
- ▶ Site the slopes down from the street

# 67-69 Ripley Street (site slopes up from street)

Before



After



— — — - Roof eave on proposed project is lower than original home, making home feel less imposing

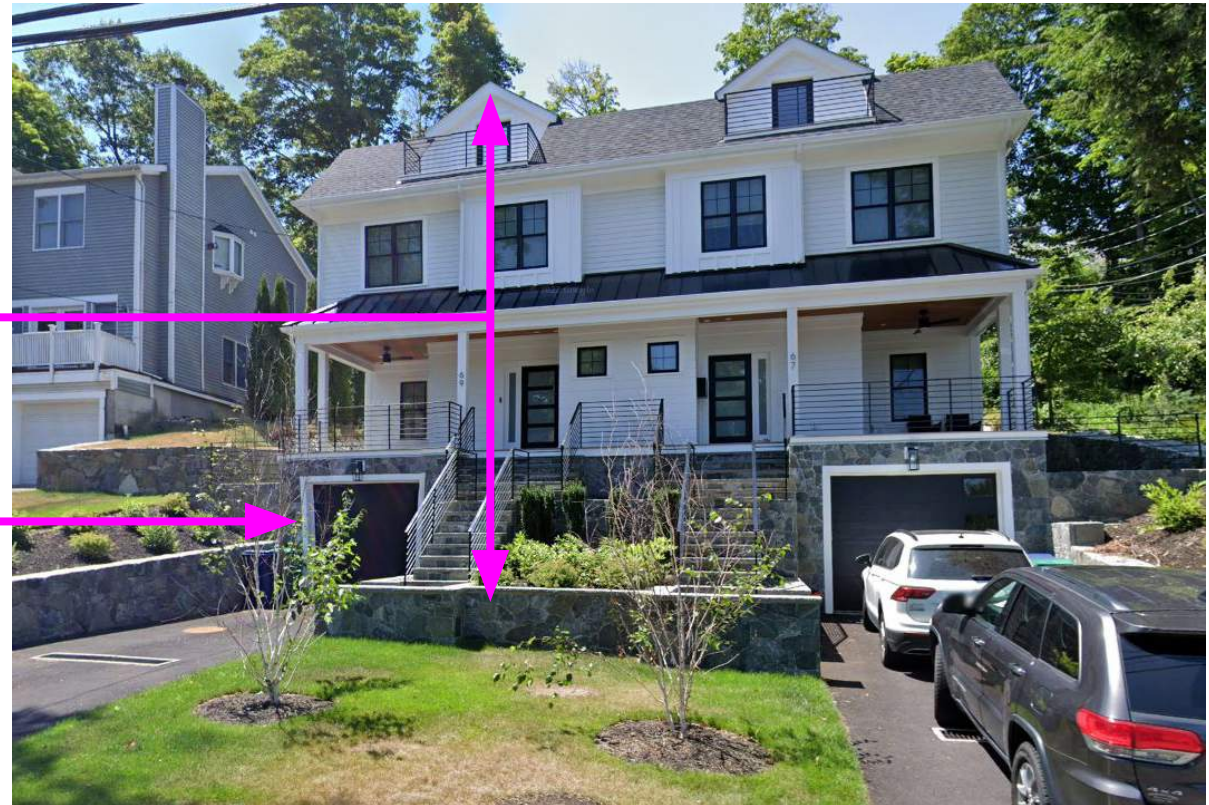
# 67-69 Ripley Street (site slopes up from street)

**This project lowered the overall grade of the site.**  
The proposal measures height from proposed grade when it is lower than the original.

**# of stories based on grade**  
Original grade: 2.5  
Proposed grade: 2.5

**Retaining Walls**  
Need to be redesigned to  
be a by-right development

**After**



# 67-69 Ripley Street (site slopes up from street)

## Key Measurements (7,200 sq ft lot - MR1)

	Before	After
Avg. Grade	N/A	216.44'
Basement Floor	215.63'	209.53'
1st Floor	224.90'	219.33'
Ridge El.	249.87'	250.50'

The basement and 1st floor height are significantly lower than original home

## Key Findings

- ▶ New development lowered the grade of the property and exposed more of the basement
- ▶ Under new zoning, home would be allowed\* and basement still considered a basement

\*Retaining walls would need to be modified for by-right development to meet recently approved updates

# 184 Spiers Road (flat site)

Before



After



# 184 Spiers Road (flat site)

**FAR Based on Grade**  
Original grade: ~ 3,700 sq ft  
Proposed grade: 2,874 sq ft

**# of stories/height based on grade**  
Original grade: 3.5/36.59'  
Proposed grade: 2.5/35.10'

**Basement height above grade**  
Original grade: 5.0'  
Proposed grade: 3.73'

**~1.5' retaining walls used to raise the grade**

**After**





# 184 Spiers Road (flat site)

## Key Measurements (7,000 sq ft lot - SR3)

	Before	After
Avg. Grade	113.66'	114.94'
Basement Floor	N/A	110.67'
1st Floor	114.0'	119.67'
Ridge El.	129.48'	150.25'

Midpoint of proposed basement is 114.67', which is above the original grade, not meeting the definition of basement in the ordinance

## Key Findings

- ▶ New development raised the grade of the property and added a full height basement
- ▶ Under proposal, home would not be allowed by-right and basement would be considered the 1st floor

# 161 Beethoven (site slopes down from street)

Before



After





# Next Steps

# Planning Recommendation

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- ▶ ZAP recommendation to City Council on proposed amendment
- ▶ Consideration to docket some or all parallel amendments

Thank you

# Parallel Amendments

# Earth Moving Ordinances

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- Wayland
- Concord \*Updated in 2021

# Overarching concept

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- ▶ Earth moving bylaws regulate the amount of earth that can be removed or filled into a site based on specific parameters:
  - Amount of earth being moved
  - Reason for the earth being moved
  - Size of the lot/lot allowance of the parcel



# Wayland, MA

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## Regulation: General Regulations

- ▶ Lots in district that require under 40,000 sf. -> No earth over 500 cubic yards **may be moved**
- ▶ Lots in district that require over 40,000 sf. -> No earth over 1,500 cubic yards may be moved (without a special permit)

## Exemptions

- ▶ Earth movement required for farms/nurseries protected under MGL 40A
- ▶ The amount of earth to be moved is the volume of the **foundation and basement** of the principal building or structure, or **installation of septic systems, driveways, and walkways** - certified by a registered professional engineer or land surveyor.
- ▶ The movement is on Town-owned land or to be transferred between or among Town-owned parcels

# Concord

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## Regulation: In zoning bylaw

- ▶ Require approval from policy chief and building inspector for the removal of or filling up to 1,000 cubic yards
- ▶ The **removal or filling** of earth over 1,000 cubic yards requires Board approval and a public hearing given the board finds:
  - The volume proposed for removal or filling does not exceed the minimum practical removal or filling required to accomplish the construction, development, or improvement in accordance with the plans and plans/specifications prepared by a registered professional engineer or registered land surveyor to meet specific requirements outlined in the zoning bylaw

## Exemptions

- ▶ No earth removal or filling permit shall be required for moving earth within the limits of a lot or contiguous lots in the same ownership, provided that no such moving shall take place across or within a street.

# Retaining Walls

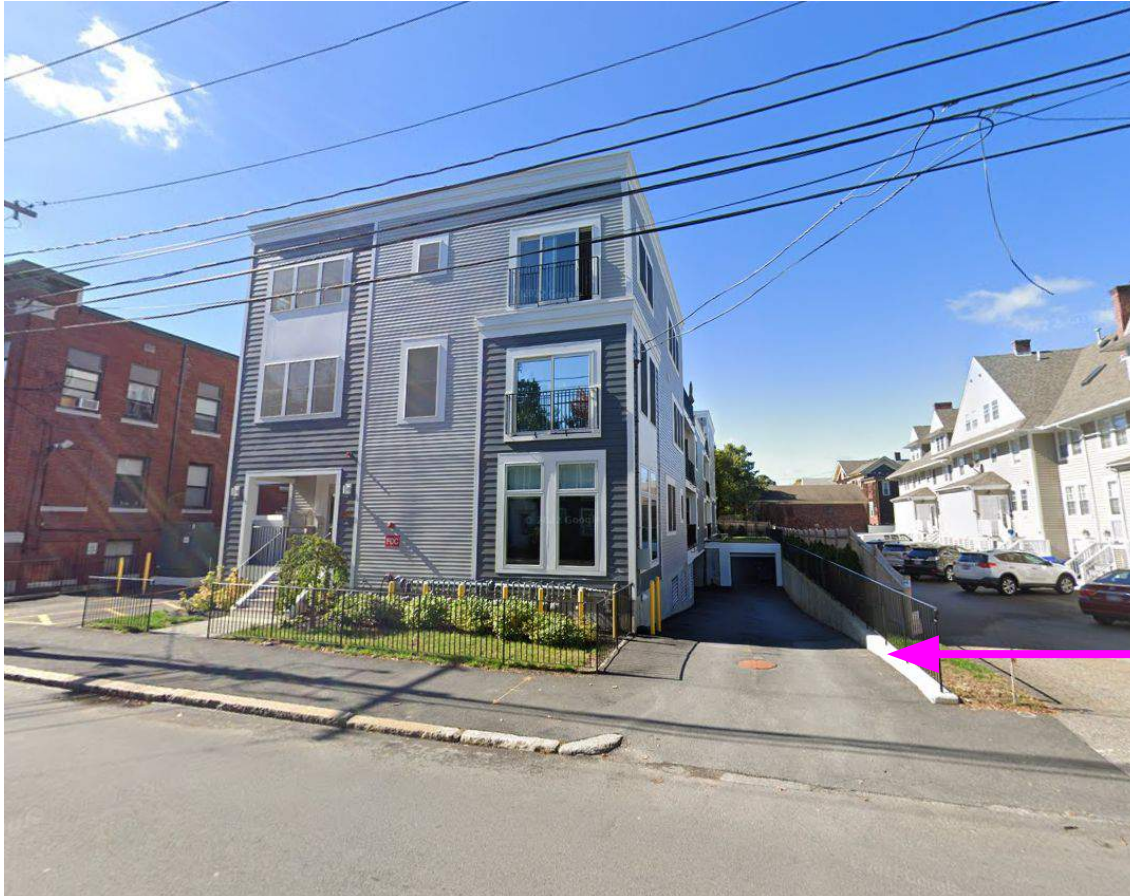
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- ▶ All retaining walls greater than 4' require a special permit (April 2024)
- ▶ Explore exemptions for higher walls fully below natural grade (i.e. not visible) for multi-family



# Retaining Walls

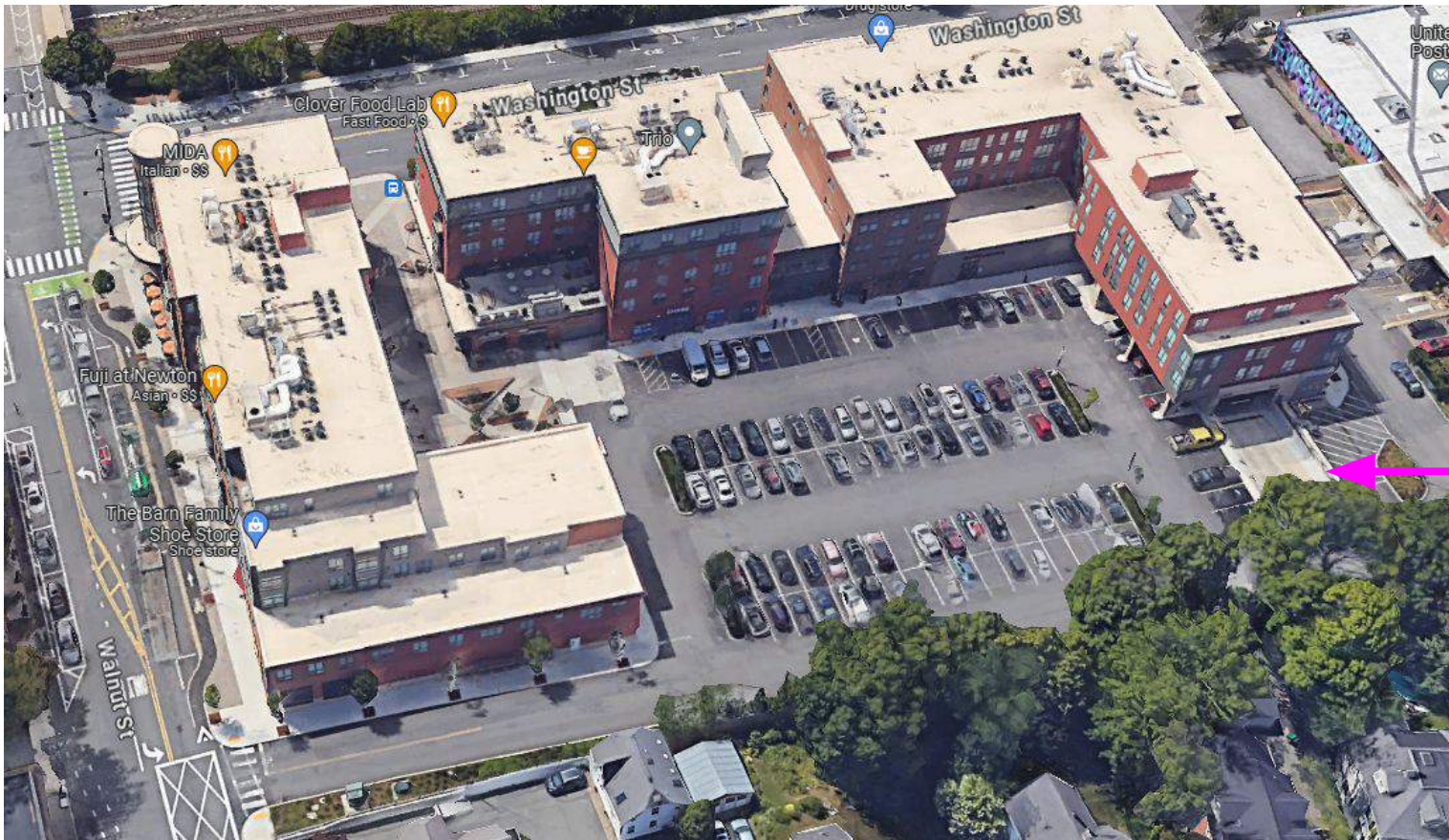
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**429 Cherry Street**

Almost no portion of the retaining wall is above the natural/original grade

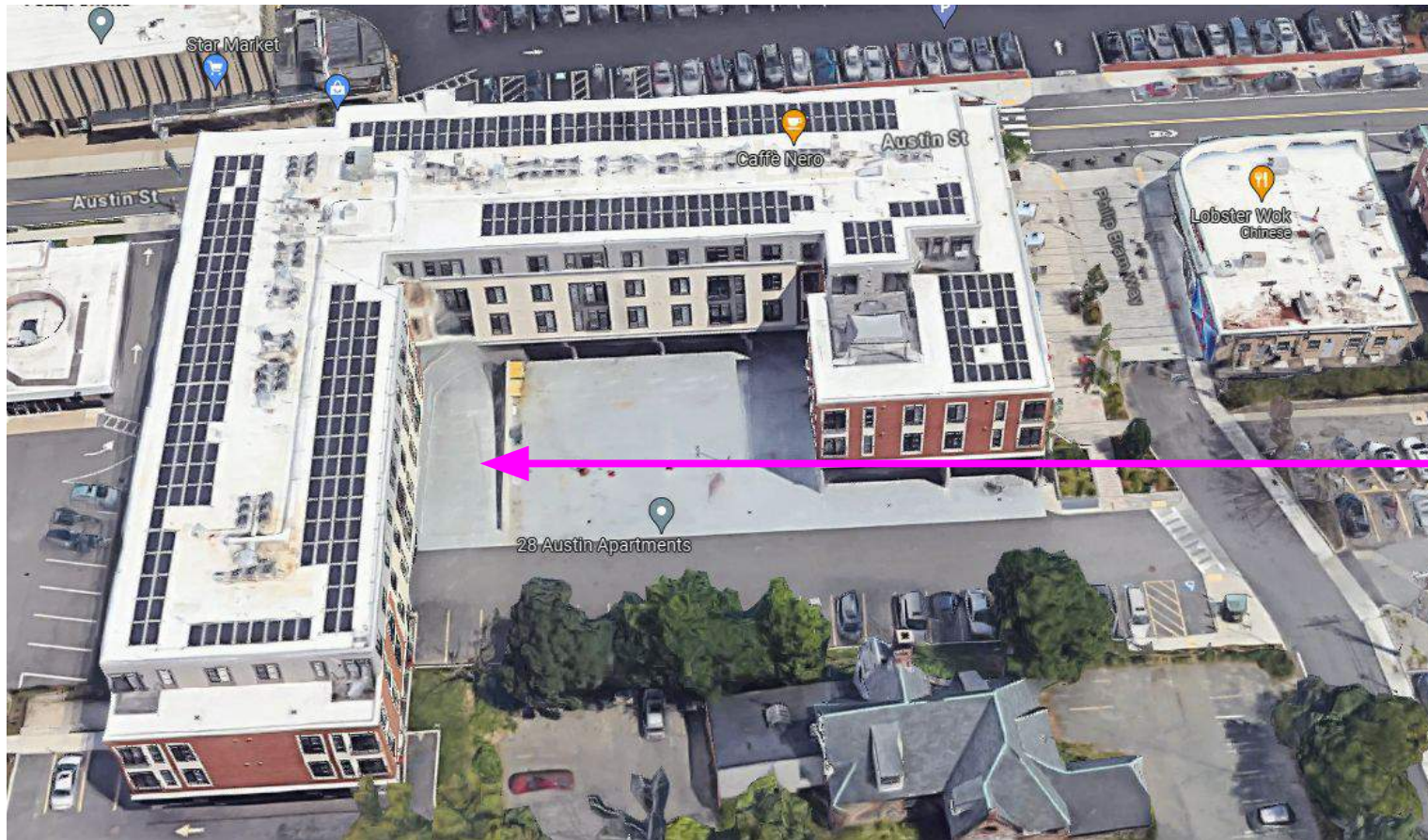
# Retaining Walls



Trio

Walls at lowest point of ramp are higher than 4' before entering the building, but fully below grade and not visible

# Retaining Walls



**28 Austin Street**

Above grade portions of the wall are less than 4'

# Definition of Two-Family, Detached

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- ▶ 2021 Proposed amendments failed to pass at City Council
- ▶ Simplify definition and regulate through dimensional regulations/district standards



Homes pictured above are not permitted under Newton's current definition

# Allow Two Single-Family Buildings in MR Zones

- ▶ MR allows two units by-right currently
- ▶ Allowing two units, one per building, could break up the building mass/overall appearance



Single building with two-units allowed by-right

Two-single unit homes on one lot is not allowed



Date: 6/19/24

To: Newton City Planning Department

From: Building Pros Zoning Redesign Working Group  
Russ Feldman

Re: Proposed change in the definition of Average Grade

The properties and parcels we identify here represent moderately sloped sites that would have their potential redevelopment affected by the proposed rule. Our specific focus is on the property's potential to create an additional unit (rather than an ADU). The proposed rule requires that the building height is to be calculated from the lower of (1) the original grade and (2) the proposed grade. This rule would serve to reduce the proliferation of tall retaining walls, as intended. However, if enacted without modifying how we define building height and building area, this rule may have the unintended consequence of preventing the creation of additional units.

15 Chase Street :

For example, if this rule were in place prior to the ongoing construction at 15 Chase Street, the 12 foot high retaining wall on Braeland Avenue would not have been allowed. However, the nearly twenty-foot difference between the parcel's Chase and Braeland frontages would require the Chase Street façade to have a roof ridge of only 26 feet based on the average grade, with the majority of the Chase Street unit being below ground. This would render the project infeasible. The more desirable solution would be to have a 36-foot ridge limit on Chase and a similar 36-foot limit on Braeland. This requires a revision to the method of calculating building height.

47-49 Chase Street :

Similarly, for 47-49 Chase St, the 16 foot difference between the Chase St frontage and the lower rear lot line to their neighbor at 46-48 Braeland, the existing grade would result in an unacceptably low-slung building on Chase Street, incompatible with the gracious Victorians that line the street.

67-69 Ripley:

I think we also spoke of 67-69 Ripley St, which was just completed this past year. It's an example of an intensely high 2 unit structure built into the hill.

Date: 6/19/24

To: Newton City Planning Department

From: Building Pros Zoning Redesign Working Group  
Jay Walter

Re: Proposed change in the definition of Average Grade

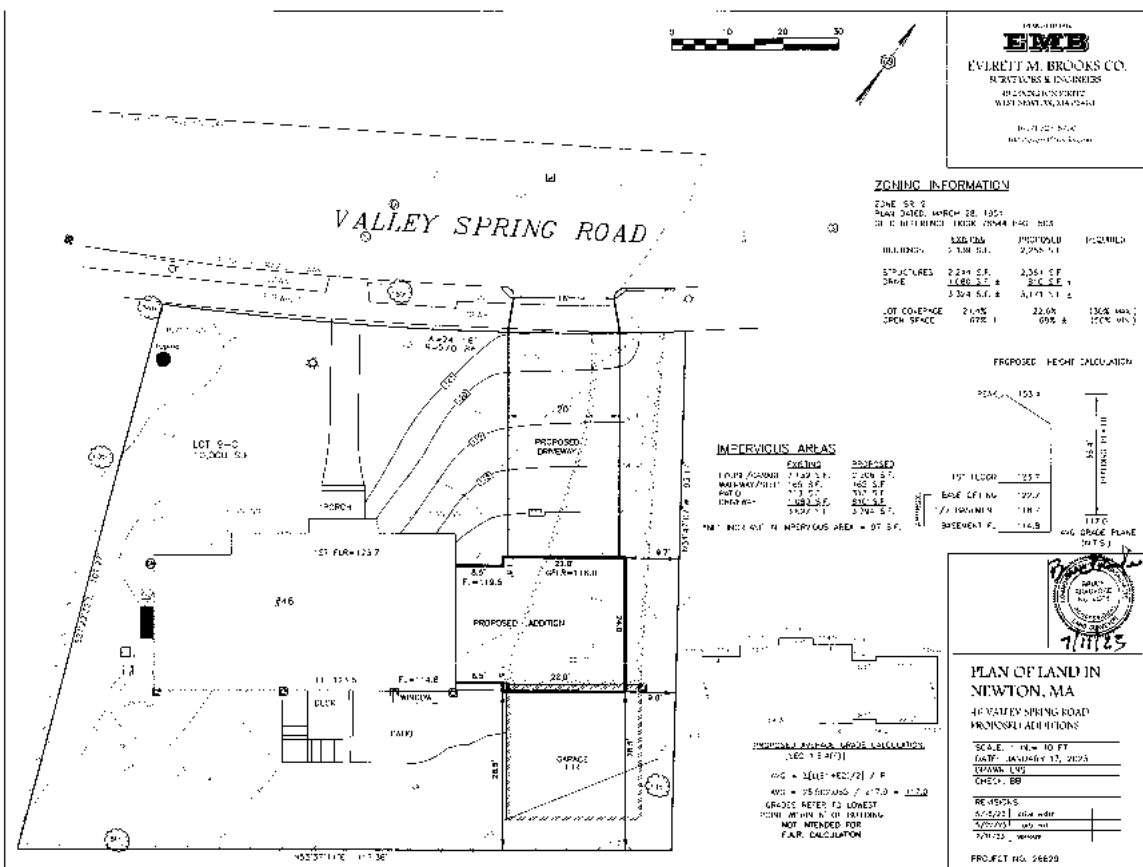
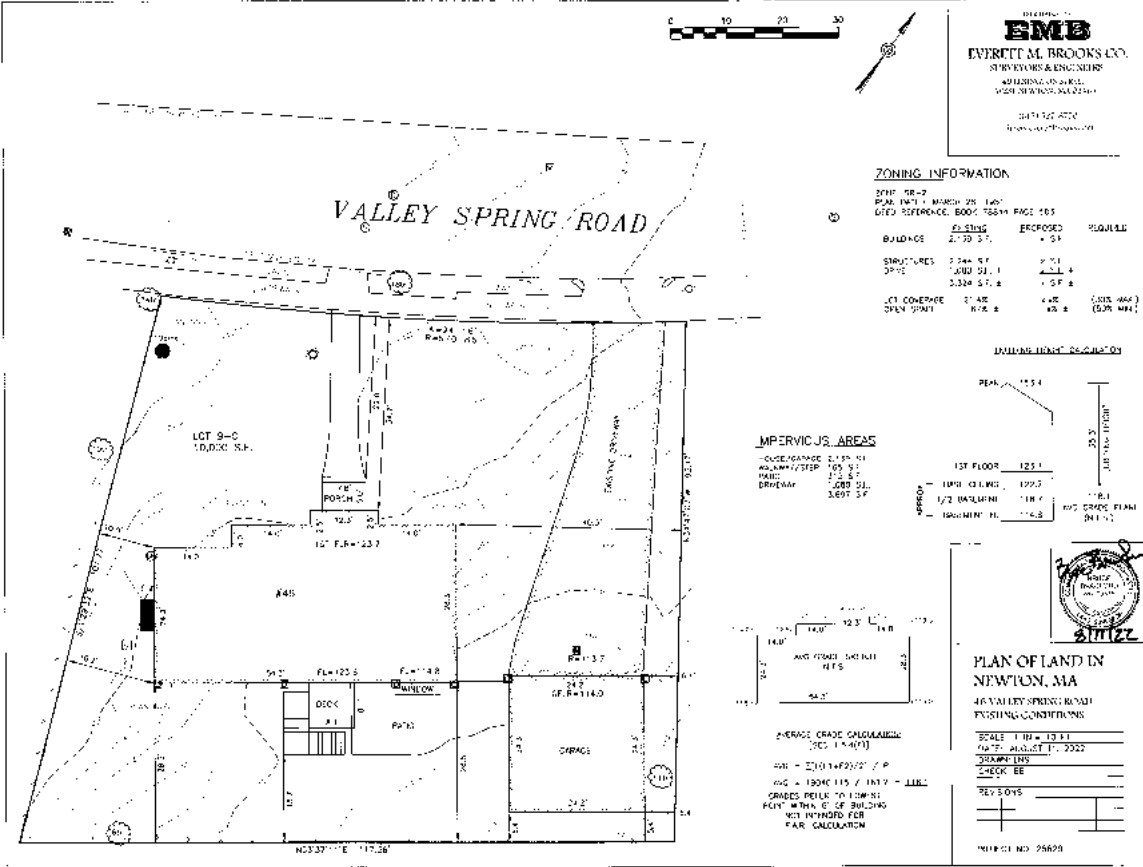
46 Valley Spring Road:

The lot slopes down away from the street. The existing house, which is only about 25 years old, had a detached garage in the lower corner of the lot with a steep driveway. The project was to build an attached garage whose floor elevation was much higher, to flatten the driveway and set the garage only a 1/2 flight of stairs below the first floor, where the detached garage was a full story below the first floor.

Due to the mean grade definition, attaching a 1 1/2 story garage to a 2 1/2 story house actually raised the defined height of the house over the allowable 36', requiring a Variance. Of course physically the building's height had not changed but because the enlarged footprint now included more lower grade elevation in the rear, the average grade went down and the building became taller.

This has nothing to do with the proposal to use existing rather than proposed grades. It has to do with using an average grade to define building height. Buildings that traverse a lot whose grade changes significantly confront the building height and the number of story limits because the rules do not accommodate any kind of stepping to address the grade differences.

I attach an existing site survey and a proposed site survey showing the grades



6/19/24

From: Building Pros Zoning Redesign Working Group  
Dan Powdermaker

**Subject: 16 - 18 Cragmore Road**

Cragmore Rd slopes down from Rte 9. Ea. house built to permitted height will be taller than the one further down the hill. 16 Cragmore Rd, lot slopes left to right by 10 feet, and about the same front to back.

Single Family in MR1, Sold 1/30/20 for 875k



2 family built,  
54049 0004A

Address	16-18 CRAGMORE RD #18
Tax Bill Number	2084470
Land Use	1020
Land Use Description	CONDOMINIUM
Lot Size	9,035 sq ft
Frontage	90 ft
Zoning	MR1
Map ID	116SW
ID	54049 0004A

Perhaps the structure could be shifted on site, although I it is 11.4' off the side lot lines. It is 4 inches off the rear setback and, so little to play with.

<https://newtonma.viewpointcloud.com/records/698316>  
#16 sold for 1.635M 3/18/21  
#18 sold for 1.625M 4/1/21



From: Building Pros Zoning Redesign Working Group  
Dan Powdermaker


**Subject: Algonquin Rd - Road slopes down from the street**

Lots slope down from the street. Some detail on #23 below. I think that a number of other lots would be similarly affected. Since they are narrow lots, it seems that the best conversion from on-family to two family is to have the 2nd unit behind the first one - best aesthetically from the street and best functionally.

#23 could go to FAR .52 + .02 bonus, or 3988 sf FAR + .02. It would need to extend back to

Property SBL	63001 0014
Address	23 ALGONQUIN RD
Tax Bill Number	2072625
Land Use	1010
Land Use	SINGLE FAMILY
Description	
Lot Size	7,670 sq ft
Frontage	60 ft
Zoning	MR1
Map ID	077NE
ID	63001 0014

**Property Image** 2



**Zone: mr1**

**Lot Size: 7670 square feet**

**Maximum FAR: 0.52**

**Maximum Gross Floor Area: 3988 square feet**

