



MEDINA, WASHINGTON

PLANNING COMMISSION SPECIAL MEETING

Virtual/Online

Tuesday, March 29, 2022 – 4:00 PM

AGENDA

COMMISSION CHAIR | Laurel Preston

COMMISSION VICE-CHAIR | Shawn Schubring

COMMISSIONERS | Laura Bustamante, David Langworthy, Mark Nelson, Mike Raskin

PLANNING MANAGER | Stephanie Keyser

Virtual Meeting Participation

With the passage of the City's Proclamation of Local Emergency, City Hall is closed to the public. Planning Commission participation in this meeting will be by teleconference/online only. Members of the public may also participate by phone/online. Individuals wishing to speak live during the Virtual Planning Commission meeting will need to register their request with the Development Services Coordinator at 425.233.6414 or email rbennett@medina-wa.gov and leave a message before 12PM on the day of the March 29 Planning Commission meeting. Please reference Public Comments for March 29 Planning Commission Meeting on your correspondence. The Development Services Coordinator will call on you by name or telephone number when it is your turn to speak. You will be allotted 3 minutes for your comment and will be asked to stop when you reach the 3-minute limit.

Join Zoom Meeting

<https://us06web.zoom.us/j/82081957934?pwd=NzdlSEhrbVpqaCtmOW1YTmNOdmNTdz09>

Meeting ID: 820 8195 7934

Passcode: 210178

One tap mobile +12532158782,,82081957934#,,,,*210178# US (Tacoma)

1. **CALL TO ORDER / ROLL CALL**

2. **APPROVAL OF MEETING AGENDA**

3. **APPROVAL OF MINUTES**

[3.1](#) Planning Commission Minutes of February 22, 2022

Recommendation: Approve Minutes

Staff Contact: Rebecca Bennett, Development Services Coordinator

4. **ANNOUNCEMENTS**

4.1 Staff/Commissioners

5. **AUDIENCE PARTICIPATION**

Individuals wishing to speak live during the Virtual Planning Commission meeting will need to register their request with the Development Services Coordinator, Rebecca Bennett, via email (rbennett@medina-wa.gov) or by leaving a message at 425.233.6414 before 12pm the day of the Planning Commission meeting. Please reference Public Comments for the March 29 Planning Commission meeting on your correspondence. The Development Services Coordinator will call on you by name or telephone number when it is your turn to speak. You will be allotted 3 minutes for your comment and will be asked to stop when you reach the 3-minute limit.

6. **DISCUSSION**

6.1

Alternatives to Original Grade

Recommendation: Discussion

Staff Contact(s): Stephanie Keyser, Planning Manager

Time Estimate: 60 minutes

7. **ADJOURNMENT**

ADDITIONAL INFORMATION

Planning Commission meetings are held on the 4th Tuesday of the month at 4 PM, unless otherwise specified.

In compliance with the Americans with Disabilities Act, if you need a disability-related modification or accommodation, including auxiliary aids or services, to participate in this meeting, please contact the City Clerk's Office at (425) 233-6410 at least 48 hours prior to the meeting.

UPCOMING MEETINGS

Tuesday, April 26, 2022 - Joint PC/CC Meeting at 4:00 PM

Tuesday, May 24, 2022 - Special Meeting at 4:00 PM

Tuesday, June 28, 2022 - Special Meeting at 4:00 PM

Tuesday, July 26, 2022 - Special Meeting at 4:00 PM

Tuesday, August 23, 2022 – No PC Meeting

Tuesday, September 27, 2022 - Special Meeting at 4:00 PM

Tuesday, October 25, 2022 - Special Meeting at 4:00 PM

Tuesday, November 22, 2022 - Regular Meeting Cancelled

November 2022 - ***Special Meeting Date TBD***

Tuesday, December 27, 2022 - Regular Meeting Cancelled

December 2022 - ***Special Meeting Date TBD***



MEDINA, WASHINGTON

PLANNING COMMISSION MEETING

Virtual/Online

Tuesday, February 22, 2022 – 4:00 PM

MINUTES

COMMISSION CHAIR | Laurel Preston

COMMISSION VICE-CHAIR | Shawn Schubring

COMMISSIONERS | Laura Bustamante, David Langworthy, Mark Nelson, Mike Raskin

PLANNING MANAGER | Stephanie Keyser

1. CALL TO ORDER / ROLL CALL

Chair Preston called the meeting to order at 4:01pm

PRESENT

Chair Laurel Preston

Commissioner Laura Bustamante

Commissioner Mark Nelson

Commissioner Mike Raskin

ABSENT

Vice Chair Shawn Schubring

Commissioner David Langworthy

STAFF

Bennett, Burns, Kellerman, Keyser, Miner, Wilcox

2. APPROVAL OF MEETING AGENDA

By consensus, Planning Commission approved the meeting agenda as presented.

3. APPROVAL OF MINUTES

3.1 Planning Commission Minutes of January 25, 2022

Recommendation: Approve Minutes

Staff Contact: Rebecca Bennett, Development Services Coordinator

Action: Motion to approve minutes. (Approved 4-0)

Motion made by Commissioner Nelson, Seconded by Commissioner Raskin.

Voting Yea: Chair Preston, Commissioner Bustamante, Commissioner Nelson,

Commissioner Raskin

4. ANNOUNCEMENTS

4.1 Staff/Commissioners

Commissioner Bustamante inquired about the open position for Planning Commission. Keyser stated that there are three interviews that are being held next week for the role.

5. AUDIENCE PARTICIPATION

None.

6. DISCUSSION

6.1 Added Agenda Item – Supportive and Transitional Housing Update

Recommendation: Discussion

Staff Contact(s): Stephanie Keyser, Planning Manager

Time Estimate: 10 minutes

Commissioners discussed and asked questions

Staff responded.

6.2 Alternatives to Original Grade

Recommendation: Discussion

Staff Contact(s): Stephanie Keyser, Planning Manager

Time Estimate: 60 minutes

Keyser explained Original Grade and alternative options.

Commissioners discussed and asked questions.

Staff responded.

7. ADJOURNMENT

Motion made by Commissioner Nelson, Seconded by Commissioner Bustamante. By consensus meeting adjourned at 5:08pm.



MEDINA, WASHINGTON

AGENDA BILL

Tuesday, March 29, 2022

Subject: Alternatives to Original Grade

Category: Discussion

Staff Contact(s): Stephanie Keyser, Planning Manager

Summary

As the discussion around average grade continues, Planning Commission directed Staff to come back with a draft code for the March meeting. The attachments include a redlined version (Attachment A) and one with all changes accepted (Attachment B). Just as with the tree code, in the redlined version the sections that are *existing text* but have been moved are in **red** while the sections with new text are **red and underlined**.

- Attachment(s)**
- A) Average Grade Draft – Redlined
 - B) Average Grade Draft – All changes accepted

Budget/Fiscal Impact: N/A

Recommendation: Discussion

Proposed Commission Motion: N/A

Time Estimate: 60 minutes

16.12.020. – “A” definitions.

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Average Building Elevation means the weighted average elevation of the topography, prior to any development activity.

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16.23.050 Maximum building and structure height standards.

A. Application of maximum height standards.

- 1. Table 16.23.050(A) establishes the maximum height standards for buildings and structures within each zone and overlay.
- 2. Areas not identified in Table 16.23.050(A) are subject to the height standards specified for the R-20/R-30 zone.
- 3. Where Table 16.23.050(A) specifies eligibility for a height bonus, a property owner may elect to apply the additional height standards ~~in subsection (C) of this section in lieu of the height standards in Table 16.23.050(A)~~; provided, that:
 - a. The total structural coverage on the lot does not exceed 13 percent, excluding the structural coverage bonus set forth in MMC 16.23.040; or
 - b. If the lot area is 16,000 square feet or less, the total structural coverage on the lot does not exceed 17½ percent, excluding the structural coverage bonus set forth in MMC 16.23.040.

~~B. Maximum height is determined by the zone or height overlay where the building or structure is located and the corresponding unit of height specified for original and finished grade prescribed in the tables. Maximum height is measured from the average building elevation to the highest point of a flat roof, or to the ridge of a pitched roof.~~

~~1. The maximum building façade height on a downhill side of a sloping lot shall not exceed the maximum height allowed by Table 16.23.050.~~

~~C. A property owner electing to apply the height bonus allowed pursuant to subsection (A)(3) of this section shall apply the height limits specified in Table 16.23.050(C).~~

~~CD. The methods for measuring the height determining the average building elevation of buildings and structures are set forth in MMC 16.23.060.~~

~~DE. Exemptions from maximum height requirements are set forth in MMC 16.23.070.~~

~~F. Eligibility for the bonus height standard in subsection (A)(3) of this section shall not apply where the total structural coverage on the lot exceeds 13 percent, excluding structural coverage that qualifies for the bonus under MMC 16.23.040.~~

Table 16.23.050(A): Maximum Height Standards

Measurement Points		Zoning/Height Overlay Maximum Height					
		R-16	R-20/R-30	SR-30	N-A	Public	Medina Heights
Original Grade	High Point	25 feet	N/A*	N/A*	None	None	N/A*
	Low Point		25 feet	25 feet			20 feet
Finished Grade	High Point	28 feet	N/A*	N/A*	30 feet	35 feet	N/A*
	Low Point		28 feet	28 feet			23 feet
Eligible for Height Bonus		No	Yes	Yes	No	No	No

Zoning District / Height Overlay	Maximum Height (feet)	Height Bonus (feet)
R-16	25	N/A
R-20/R-30	25	30
SR-30	25	30
N-A (Neighborhood Auto)	30	N/A
Public	35	N/A
Medina Heights Overlay	20	N/A

16.23.060. Measuring building and structure height.

This section establishes methods required for applying height standards and is applied in conjunction with the height standards prescribed in MMC 16.23.050.

A. Where multiple buildings and structures are located on the same lot, and are detached from each other, the height of each building or structure shall be measured independently from the others, except:

1. Excluding trellises, arbors and similar open structures, if the distance between any buildings and/or structures is less than six feet, the buildings and structures that are less than six feet apart shall be considered attached for purposes of measuring height;
2. If buildings are connected by a breezeway or similar above ground types of structures, the buildings shall be considered attached for purposes of measuring height.

BG. The following shall be excluded as part of the outside exterior wall/side of a building or structure for purposes of measuring height:

1. Walls adjoining window wells where the area inside of the window well does not exceed 15 square feet of open surface area;
2. Attached structures (e.g., uncovered decks, porches, steps, etc.), not exceeding 30 inches above original or finished existing grade, whichever is lower;
3. Uncovered decks, porches, and verandas not qualifying for the exemption in subsection (BG)(2) of this section where the space below the structure is not enclosed and not more than 25 percent of the ground surface below the structure is hardscape; and

Attachment A

- 4. Areas under roof eaves including gutters and areas under balconies provided they extend 24 inches or less from the exterior wall. Gutters extending six inches or less from the outer edge of the roof eaves shall be excluded from counting towards the 24-inch limit.

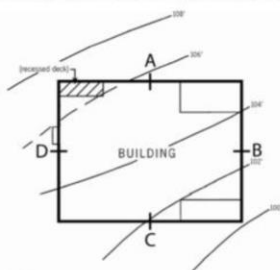
C. Average building elevation is calculated at the discretion of the applicant using one of the following methods:

a. At the midpoint, measured horizontally, of each exterior wall of the structure, as shown in Figure 16.23.060(C)(a), or

b. At the midpoint of each side of the smallest rectangle that can be drawn to enclose the structure, as shown in Figure 16.23.060(C)(b).

Figure 16.23.060(C)(a) Calculating Average Building Elevation, Option 1

A, B, C, D... Existing Ground Elevation at Midpoint of Rectangle Segment*
 a, b, c, d... Length of Rectangle Segment*
 *Rectangle includes the perimeter of a deck or porch, unless the deck or porch has no walls at or below the deck level and no roof above the deck or porch, as well as cantilevered portions of a building which enclose interior space.



Midpoint Elevation	Rectangle Segment Length
A = 105.6	a = 47'
B = 102.5	b = 40'
C = 101.9	c = 47'
D = 105.2	d = 40'

Site Plan
 Not to scale

FORMULA:

$$\frac{(A \times a) + (B \times b) + (C \times c) + (D \times d)}{a + b + c + d} = \text{Average Building Elevation (ABE)}$$

EXAMPLE:

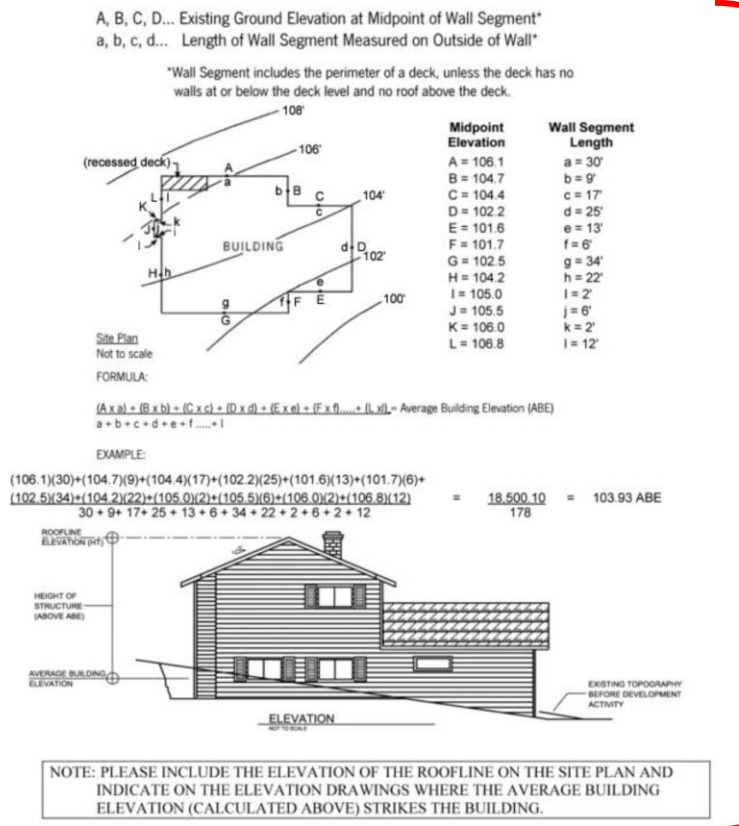
$$\frac{(105.6)(47) + (102.5)(40) + (101.9)(47) + (105.2)(40)}{47 + 40 + 47 + 40} = \frac{18,060.5}{174} = 103.80 \text{ ABE}$$



NOTE: PLEASE INCLUDE THE ELEVATION OF THE ROOFLINE ON THE SITE PLAN AND INDICATE ON THE ELEVATION DRAWINGS WHERE THE AVERAGE BUILDING ELEVATION (CALCULATED ABOVE) STRIKES THE BUILDING.

Example from Kirkland – Temp placeholder for our own example

Figure 16.23.060(C)(b) Calculating Average Building Elevation, Option 2



Example from Kirkland – Temp placeholder for our own example

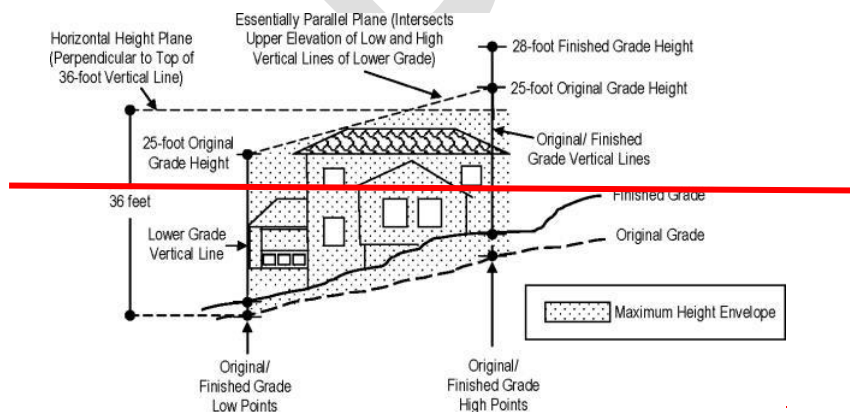
- B. In the R-16 zone, height shall be measured as shown in Figure 16.23.060(B) and as set forth in the following procedures:
1. The original grade shall be established as set forth in MMC 16.23.080;
 2. The base for measuring height shall be established as follows:
 - a. Base elevations shall be taken at four points where the outside of the exterior walls/sides of the building or structure intersect the following:
 - i. The lowest point of the original grade;
 - ii. The highest point of the original grade;
 - iii. The lowest point of finished grade; and
 - iv. The highest point of finished grade;
 - b. The lower grade between original and finished grade shall be used for measuring height, which is determined as follows:

Attachment A

- ~~i. Starting at the two highest original and finished grade elevations determined under subsection (B)(2)(a)(ii) and (iv) of this section, a vertical line shall be extended by the applicable maximum height prescribed in Table 16.23.050(A);~~
 - ~~ii. The grade (original or finished) whose vertical line has the lower upper elevation (measured from a zero-elevation surface) shall be designated the "lower grade" to be used for measuring height;~~
- ~~3. Maximum height shall be measured by extending a vertical line from the lowest and highest base elevations established in subsection (B)(2)(a) of this section of the lower grade by the distance of the applicable maximum height prescribed in Table 16.23.050(A);~~
 - ~~4. Maximum height shall be a plane essentially parallel to the lower grade drawn by a line intersecting the upper elevation of the two vertical lines extending from the lower grade;~~
 - ~~5. An additional height limitation shall apply to buildings and structures on sloping grades established as follows:

 - ~~a. A vertical line shall be extended a distance of 36 feet from the lowest point of original grade ascertained in subsection (B)(2)(a)(i) of this section;~~
 - ~~b. A horizontal plane shall be extended perpendicular from the top of the 36-foot vertical line;~~~~
 - ~~6. The maximum height envelope shall be the area between the lower grade and the two height planes established in this section and shown in Figure 16.23.060(B);~~
 - ~~7. No part of the building or structure, including roof lines, shall protrude above the maximum height envelope, except as allowed otherwise by law;~~
 - ~~8. See subsection (E) of this section for establishing height plane parameters, subsection (F) of this section for establishing the orientation of the height plane, and subsection (G) of this section for height calculation exemptions.~~

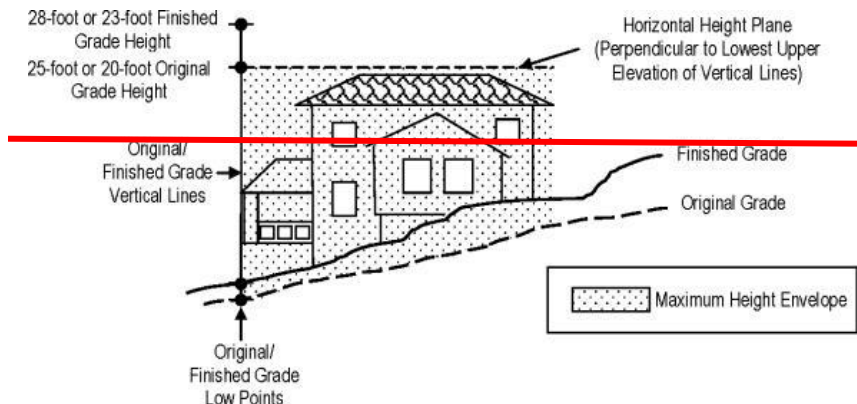
Figure 16.23.060(B): R-16 Height Measurements



Average Grade Draft Code 3.25.22

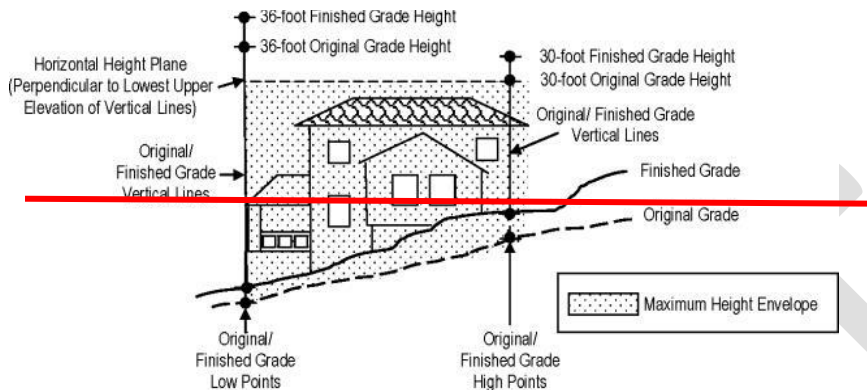
- ~~C. In the R-20, R-30, and SR-30 zones (except where the bonus height standards in Table 16.23.050(C) are used) and in the Medina Heights overlay, height shall be measured as shown in Figure 16.23.060(C) and as set forth in the following procedures:~~
- ~~1. The original grade shall be established as set forth in MMC 16.23.080;~~
 - ~~2. The base elevation for measuring height shall be taken at two points where the outside of the exterior walls/sides of the building or structure intersect the following:
 - ~~a. The lowest point of original grade;~~
 - ~~b. The lowest point of finished grade;~~~~
 - ~~3. Starting at the two base elevation points ascertained under subsection (C)(2) of this section, a vertical line shall be extended by the distance of the applicable maximum height prescribed in Table 16.23.050(A);~~
 - ~~4. The grade (original or finished) and corresponding vertical line established under subsection (C)(3) of this section that has the lower upper elevation (measured from a zero elevation surface) shall be used to measure maximum height;~~
 - ~~5. Maximum height shall be a horizontal plane intersecting the upper elevation of the vertical line established in subsection (C)(4) of this section for measuring maximum height and shall be perpendicular to the same vertical line as shown in Figure 16.23.060(C);~~
 - ~~6. The maximum height envelope shall be the area between the applicable grade (original or finished) and the horizontal height plane established in this section and shown in Figure 16.23.060(C);~~
 - ~~7. No part of the building or structure, including roof lines, shall protrude above the maximum height envelope, except as allowed otherwise by law;~~
 - ~~8. See subsection (E) of this section for establishing the height plane parameter and subsection (G) of this section for height calculation exemptions.~~

Figure 16.23.060(C): R-20, R-30, SR-30, and Medina Heights, Height Measurements



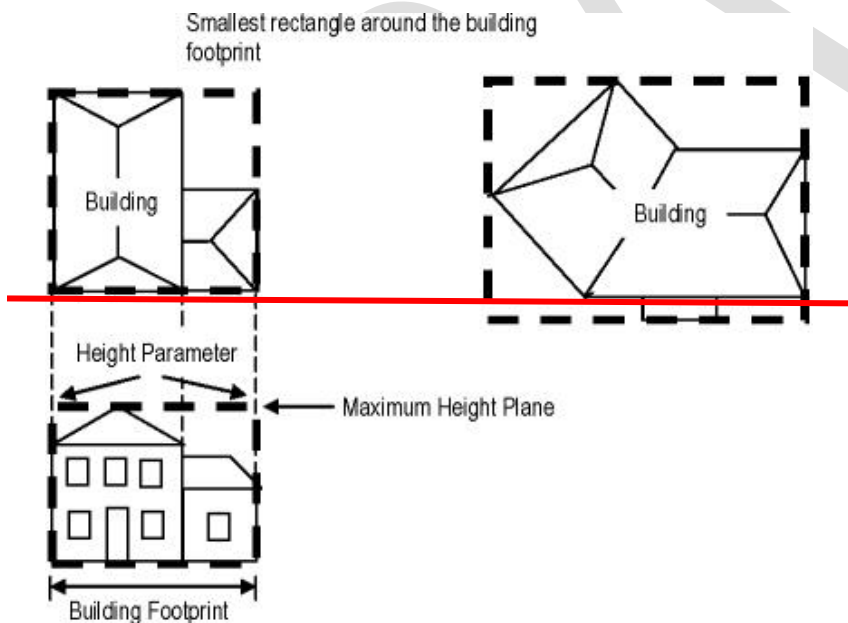
- D.—Where the bonus height standards in Table 16.23.050(C) are used, height shall be measured as shown in Figure 16.23.060(D) and as set forth in the following procedures:
- 1.—The original grade shall be established as set forth in MMC 16.23.080;
 - 2.—The base elevation for measuring height shall be taken at four points where the outside of the exterior walls/sides of the building or structure intersect the following:
 - a.—The lowest point of the original grade;
 - b.—The highest point of the original grade;
 - c.—The lowest point of finished grade; and
 - d.—The highest point of finished grade;
 - 3.—Starting at the four base elevation points ascertained under subsection (D)(2) of this section, a vertical line shall be extended by the distance of the applicable maximum height prescribed in Table 16.23.050(C);
 - 4.—The grade (original or finished) and corresponding vertical line established under subsection (D)(3) of this section that has the lower upper elevation (measured from a zero-elevation surface) shall be used to measure maximum height;
 - 5.—Maximum height shall be a horizontal plane intersecting the upper elevation of the vertical line established in subsection (D)(4) of this section for measuring maximum height and shall be perpendicular to the same vertical line as shown in Figure 16.23.060(D);
 - 6.—The maximum height envelope shall be the area between the applicable grade (original or finished) and the horizontal height plane established in this section and shown in Figure 16.23.060(C);
 - 7.—No part of the building or structure, including roof lines, shall protrude above the maximum height envelope, except as allowed otherwise by law;
 - 8.—See subsection (E) of this section for establishing the height plane parameter and subsection (G) of this section for height calculation exemptions.

Figure 16.23.060(D): Bonus Height Measurements



E.— The parameters of a maximum height plane shall be parallel to a parameter created by the smallest rectangle that can be drawn around the footprint of the building or structure. See Figure 16.23.060(E).

Figure 16.23.060(E): Height Plane Parameters



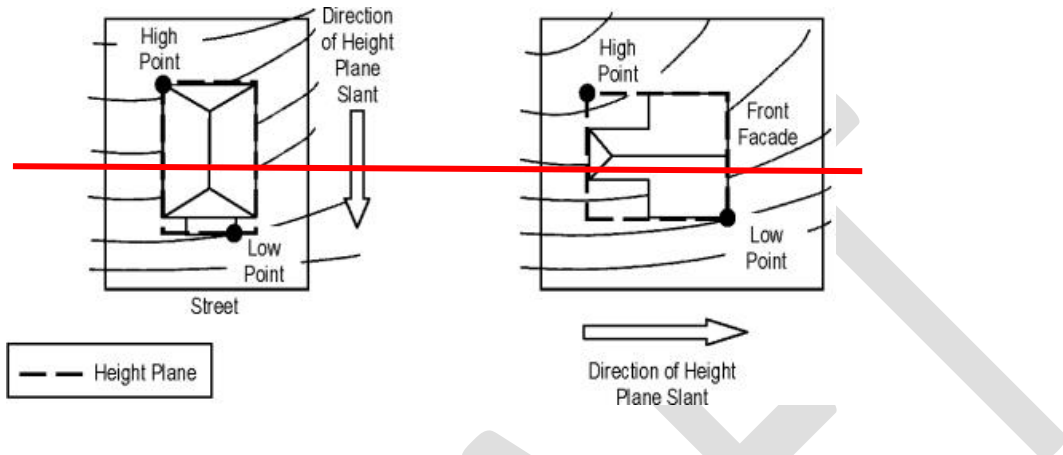
F.— Where a building or structure is placed within the R-16 zone on a slope, the property owner may elect for the slant of the essentially parallel height plane to be in the direction of either:

- 1.— The front facade of the building where the primary entrance of the building is located; or
- 2.— The building facade facing a public street or private lane.

Attachment A

- 3. ~~Figure 16.23.060(F) provides further direction on determining the orientation of the height plane slant.~~

Figure 16.23.060(F)- Direction of Slant for Essentially Parallel Height Plane

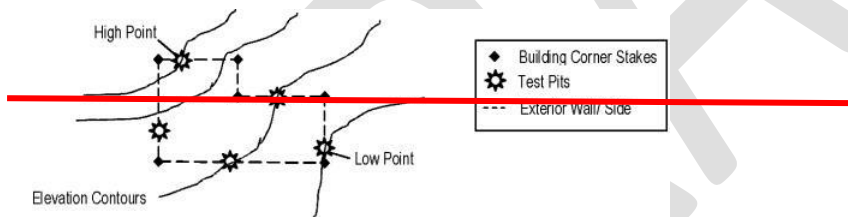


16.23.080. Determining original grade. Repealed

The following outlines the general procedures to establish the original grade on a lot. These procedures may be administratively modified by the director pursuant to subsection (F) of this section on a case-by-case basis to fit unique circumstances.

- A. The placement of proposed exterior walls/sides of the building/structure on the lot is identified first and these locations are marked on the property. It is preferred, but not required, that a surveyor stake the proposed exterior wall corners of the building or structure.
- B. A geotechnical engineer shall conduct an investigation of the soils along the parameters of the proposed exterior walls/sides to determine the elevations of the original grade:
 - 1. The investigation should include exploring and testing a reasonable number of test pits to substantiate the findings of the geotechnical engineer; and
 - 2. Based on the findings of the soil investigation, the geotechnical engineer shall determine the original grade underneath the entire building or structure.
- C. A surveyor shall set the vertical elevations of the applicable low and high base points required to measure height using the determination of original grade by the geotechnical engineer.

Figure 16.23.080: Confirmation of Original Grade



- D. A written report of the determination of original grade shall be prepared by the geotechnical engineer for submission to the city. The content of the report shall at a minimum include the following:
 - 1. The applicant's and property owner's name and contact information;
 - 2. Project location (include parcel number);
 - 3. Written narrative regarding the scope of work for which the original grade determination is being made;
 - 4. The name and qualification of the persons preparing the report;
 - 5. Written narrative of the investigation and findings;
 - 6. A site plan showing:
 - a. An outline of the footprint of the building or structure on the lot;
 - b. The locations of the test pits where the soil exploration was performed;
 - c. The location and vertical elevation of the assumed high and low base points of the original grade, as applicable, for measuring height;

Attachment A

- ~~d. Reserved;~~
- ~~e. Topographical information including contour intervals of five feet or less, as appropriate; and~~
- ~~7. Other pertinent information determined to be necessary by the director in supporting an original grade determination.~~
- ~~E. The applicant must obtain approval from the city for an original grade determination. An approved determination of original grade report shall be used in determining plan review compliance with height standards prior to issuing construction permits.~~
- ~~F. The director may approve modifications to these procedures if:
 - ~~1. The modification is evaluated and applied on a case-by-case basis;~~
 - ~~2. The modification is to address a unique circumstance on the property such as an inability to conduct site investigation due to existing buildings and structures;~~
 - ~~3. Modifications are based on accepted methods and/or practices found within the geotechnical engineer's profession;~~
 - ~~4. The applicant requests the modification in writing to the director and provides justification for the modification; and~~
 - ~~5. The modification is processed as a Type 1 decision pursuant to the review procedures in Chapter 16.80 MMC.~~~~

16.12.020. – “A” definitions.

...

Average Building Elevation means the weighted average elevation of the topography, prior to any development activity.

...

16.23.050 Maximum building and structure height standards.

- A. Application of maximum height standards.
 - 1. Table 16.23.050 establishes the maximum height standards for buildings and structures within each zone and overlay.
 - 2. Areas not identified in Table 16.23.050 are subject to the height standards specified for the R-20/R-30 zone.
 - 3. Where Table 16.23.050 specifies eligibility for a height bonus, a property owner may elect to apply the additional height standards provided, that:
 - a. The total structural coverage on the lot does not exceed 13 percent, excluding the structural coverage bonus set forth in MMC 16.23.040; or
 - b. If the lot area is 16,000 square feet or less, the total structural coverage on the lot does not exceed 17½ percent, excluding the structural coverage bonus set forth in MMC 16.23.040.
- B. Maximum height is measured from the average building elevation to the highest point of a flat roof, or to the ridge of a pitched roof.
 - 1. The maximum building façade height on a downhill side of a sloping lot shall not exceed the maximum height allowed by Table 16.23.050.
- C. The methods for determining the average building elevation of buildings and structures are set forth in MMC 16.23.060.
- D. Exemptions from maximum height requirements are set forth in MMC 16.23.070.

Table 16.23.050: Maximum Height Standards

Zoning District / Height Overlay	Maximum Height (feet)	Height Bonus (feet)
R-16	25	N/A
R-20/R-30	25	30
SR-30	25	30
N-A (Neighborhood Auto)	30	N/A
Public	35	N/A
Medina Heights Overlay	20	N/A

16.23.060. Measuring building and structure height.

This section establishes methods required for applying height standards and is applied in conjunction with the height standards prescribed in MMC 16.23.050.

- A. Where multiple buildings and structures are located on the same lot, and are detached from each other, the height of each building or structure shall be measured independently from the others, except:
 - 1. Excluding trellises, arbors and similar open structures, if the distance between any buildings and/or structures is less than six feet, the buildings and structures that are less than six feet apart shall be considered attached for purposes of measuring height;
 - 2. If buildings are connected by a breezeway or similar above ground types of structures, the buildings shall be considered attached for purposes of measuring height.

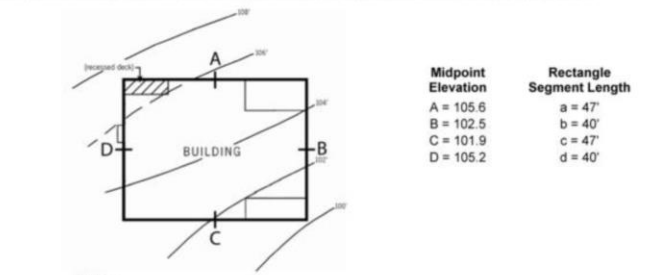
- B. The following shall be excluded as part of the outside exterior wall/side of a building or structure for purposes of measuring height:
 - 1. Walls adjoining window wells where the area inside of the window well does not exceed 15 square feet of open surface area;
 - 2. Attached structures (e.g., uncovered decks, porches, steps, etc.), not exceeding 30 inches above existing grade;
 - 3. Uncovered decks, porches, and verandas not qualifying for the exemption in subsection (2) of this section where the space below the structure is not enclosed and not more than 25 percent of the ground surface below the structure is hardscape; and
 - 4. Areas under roof eaves including gutters and areas under balconies provided they extend 24 inches or less from the exterior wall. Gutters extending six inches or less from the outer edge of the roof eaves shall be excluded from counting towards the 24-inch limit.

- C. Average building elevation is calculated at the discretion of the applicant using one of the following methods:
 - a. At the midpoint, measured horizontally, of each exterior wall of the structure, as shown in Figure 16.23.060(C)(a), or

 - b. At the midpoint of each side of the smallest rectangle that can be drawn to enclose the structure, as shown in Figure 16.23.060(C)(b).

Figure 16.23.060(C)(a) Calculating Average Building Elevation, Option 1

A, B, C, D... Existing Ground Elevation at Midpoint of Rectangle Segment*
 a, b, c, d... Length of Rectangle Segment*
 *Rectangle includes the perimeter of a deck or porch, unless the deck or porch has no walls at or below the deck level and no roof above the deck or porch, as well as cantilevered portions of a building which enclose interior space.



Site Plan
 Not to scale
 FORMULA:

$$\frac{(A \times a) + (B \times b) + (C \times c) + (D \times d)}{a + b + c + d} = \text{Average Building Elevation (ABE)}$$

EXAMPLE:

$$\frac{(105.6)(47) + (102.5)(40) + (101.9)(47) + (105.2)(40)}{47 + 40 + 47 + 40} = \frac{18,060.5}{174} = 103.80 \text{ ABE}$$

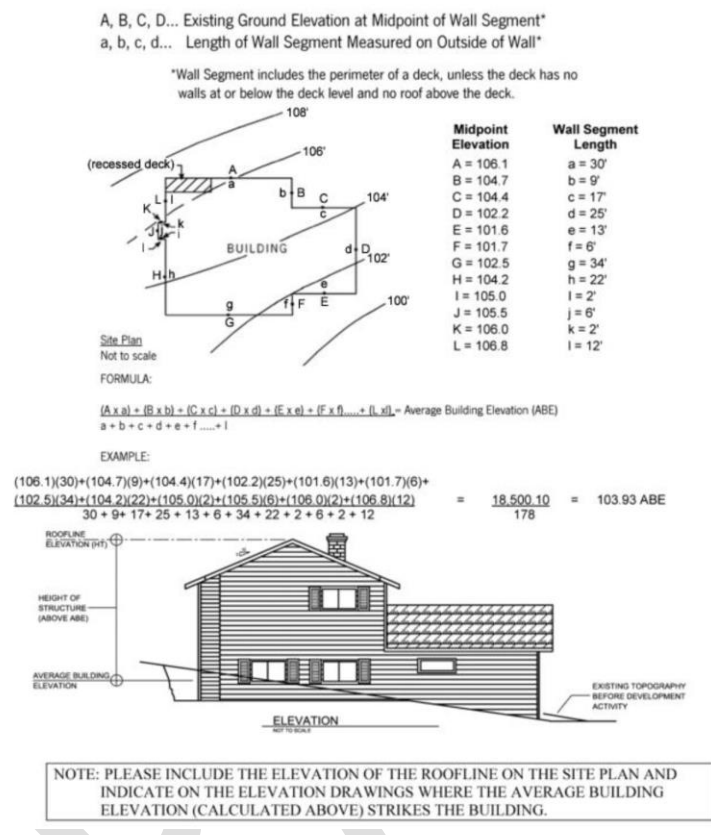


NOTE: PLEASE INCLUDE THE ELEVATION OF THE ROOFLINE ON THE SITE PLAN AND INDICATE ON THE ELEVATION DRAWINGS WHERE THE AVERAGE BUILDING ELEVATION (CALCULATED ABOVE) STRIKES THE BUILDING.

Example from Kirkland – Temp placeholder for our own example

DK

Figure 16.23.060(C)(b) Calculating Average Building Elevation, Option 2



Example from Kirkland – Temp placeholder for our own example

Average Building Elevation Examples 1-4 – March 29, 2022

Examples 1 and 2 are on the same lot in Medina—the plans are for a detached garage with an accessory dwelling unit (Example 1) and a new single-family residence (Example 2). The site is not a steep slope, however there is a slope. When you look at the elevations, you can see that there has been significant fill placed on the lot at some point—you know this because the original grade (pink line) is so much lower than existing grade (green line). The original house was built in 1920 and the only building record the city has is a roofing permit from 1999. This lot is zoned R-20 and in this zoning district the maximum height is 25-feet from the low point of original grade or 28-feet from the low point of finished, with whichever produces the *lower upper elevation* is what is used. For the garage (Example 1), finished grade ends up producing the lower upper elevation, so the maximum height is 28-feet (original grade + 25 = 54.75 + 25 = 79.75; finished grade + 28 = 50.00 + 28 = 78.00 = maximum elevation 78.00). Original grade produces the lower upper elevation for the single-family residence so the maximum height is 25-feet (original grade + 25 = 48.10 + 25 = 73.1; finished + 28 = 50.00 + 28 = 78.00; maximum elevation 73.10).

The average building elevation for the garage is approximately 59.61, for a maximum elevation of 84.61, or an increase of 6.61. The average building elevation for the single-family residence is approximately 53.06, for a maximum elevation of 78.06, or an increase of 4.96. The differences between the average elevations are due to the degree to which the lot slopes at the site where the buildings will be placed, with the main residence in an area that's flatter than the garage.

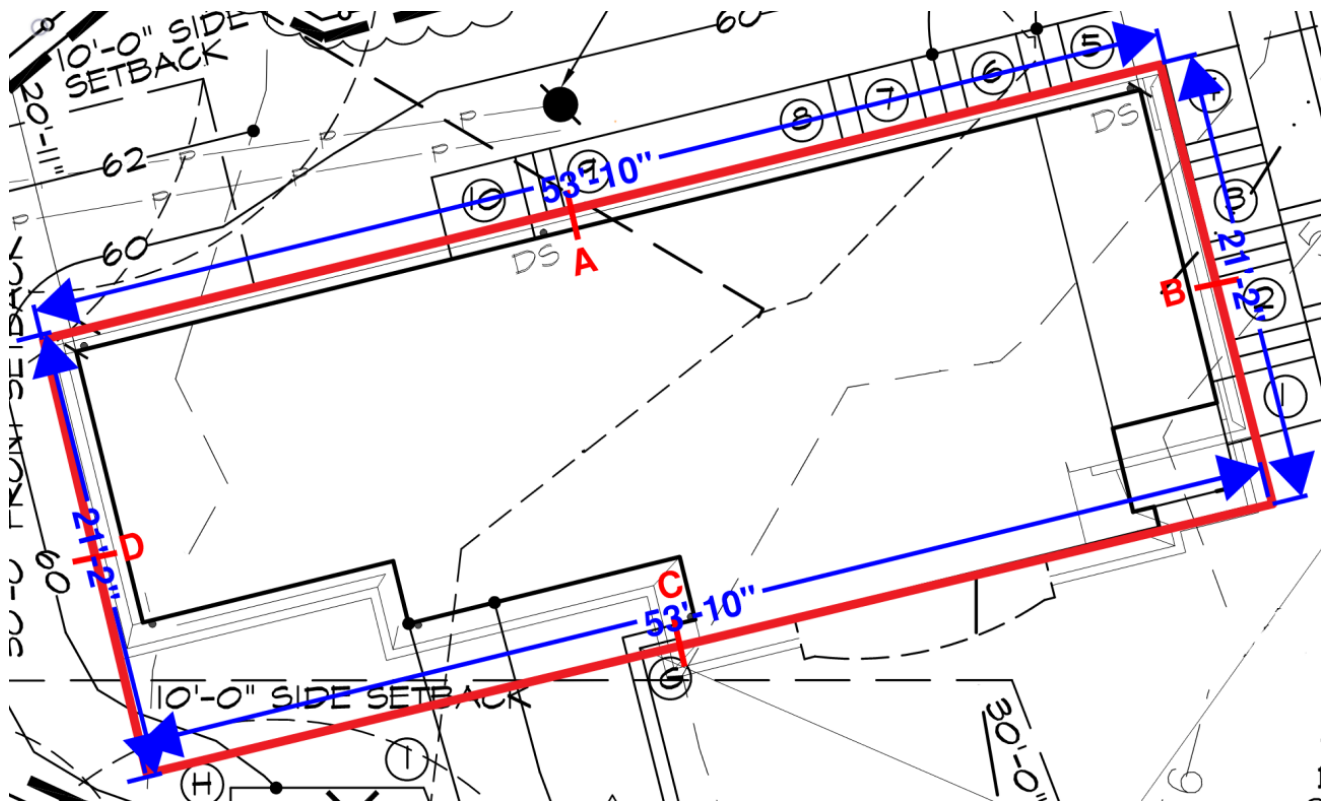
The code in the packet does not differentiate between sloped lots and flat lots. As in previous discussions (e.g., bulk, trees), Medina seems to be a city where a more nuanced code is better suited to meet the needs of the various lot sizes and topographies. Mercer Island calculates average building elevation by averaging the elevation at existing or finished and whichever is lower is what is used (Examples 3 and 4). Although this would be similar to what we currently have, minus the need to get the Geotech report to determine original grade, perhaps including a provision like this would provide better consistency and less *height jumps* under a new code.

Example 3 is from Mercer Island and is on a steep slope. Two pages from the plans are included: the first page shows the table of how average building elevation was calculated and notes that the points are taken from existing grade because final was at the same grade or higher, and the second page shows an elevation section. While Mercer Island has a higher maximum height, we can generalize this example as if it were utilizing the height bonus that's offered for R-20 and R-30 lots. One of the concerns brought up during the February meeting was not allowing buildings to create a massive 50-foot façade on a downhill slope. To address this, the code includes language to limit the façade on a downhill slope to the maximum height otherwise allowed. Mercer Island's code is solely concerned with the façade and only measures to the roof framing, rafters, trusses, etc. (Example 3).

Example 4 is also located in Mercer Island on a steep slope. Two pages from the plans are included: the first page shows the table of how average building elevation was calculated, and the second page shows an elevation section. Again, the maximum height is 30-feet, however this project does not come anywhere near that. We can generalize this example as if it were a sloped lot in R-16, R-20, or R-30. Measuring the downhill façade for this example gives a maximum height of 25-feet (Example 4).

Average Grade Example #1
Maximum Height – 25 ft.

Midpoint Elevation	Rectangle Side Length
A: 61.2'	a. 53'-10"
B: 57'	b. 21'-2"
C: 58.1'	c. 53'-10"
D: 62.1'	d. 21'-2"

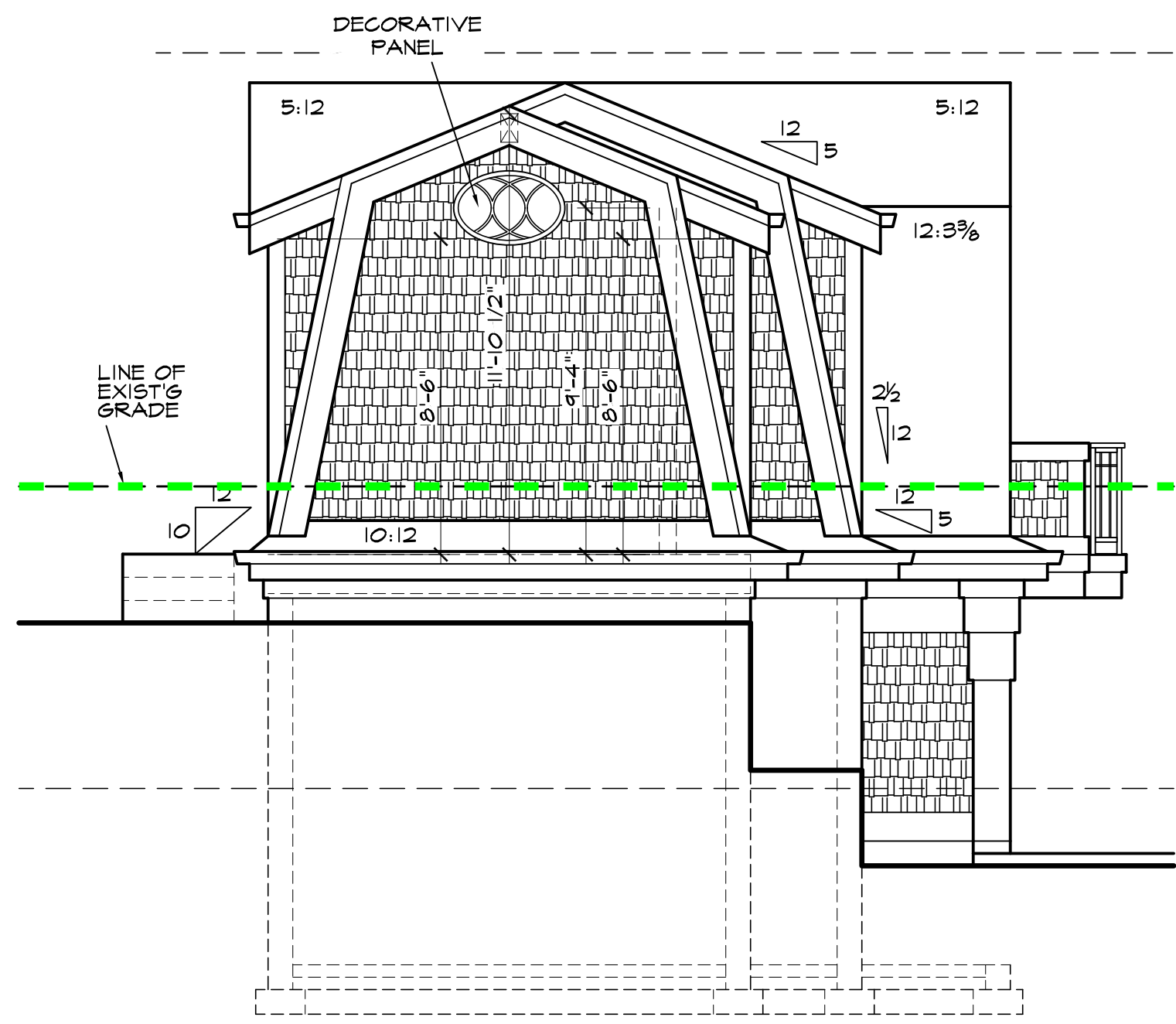


Formula:
$$\frac{(A \times a) + (B \times b) + (C \times c) + (D \times d)}{a + b + c + d}$$

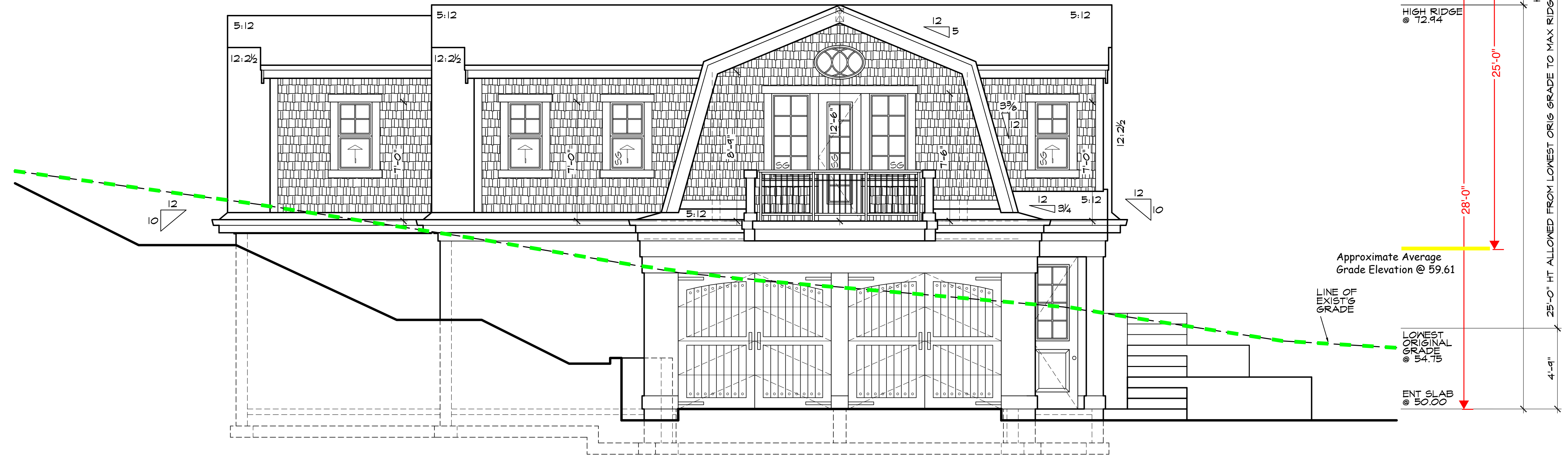
Example:
$$\frac{(61.2 \times 53.1) + (57 \times 21.2) + (58.1 \times 53.1) + (62.1 \times 21.2)}{53.1 + 21.2 + 53.1 + 21.2} =$$

$$\frac{3,249.72 + 1,208.04 + 3,085.11 + 1,316.52}{148.6} = \frac{8,859.39}{148.6} = 59.61 \text{ average grade elevation}$$

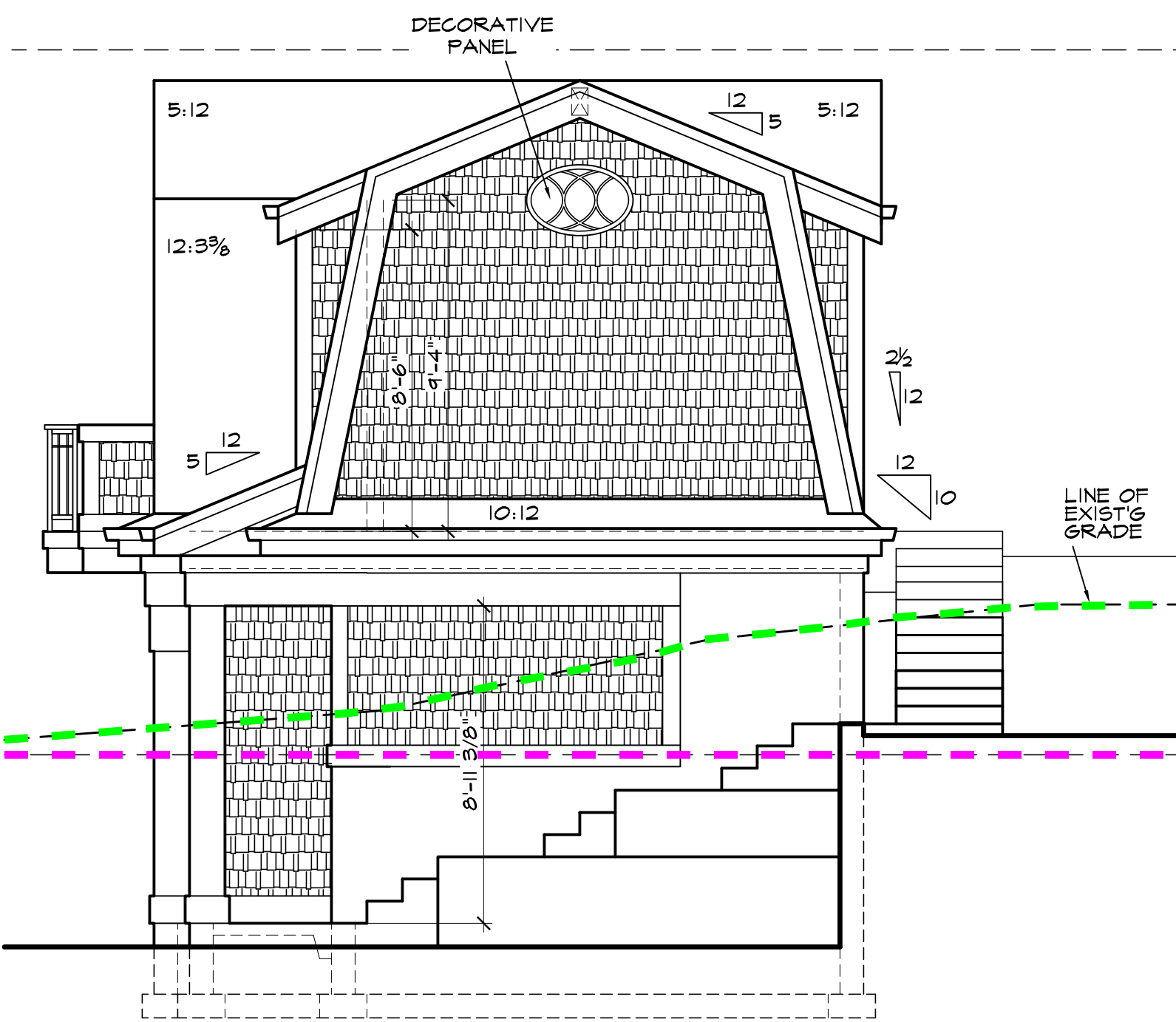
Maximum elevation: 84.62'



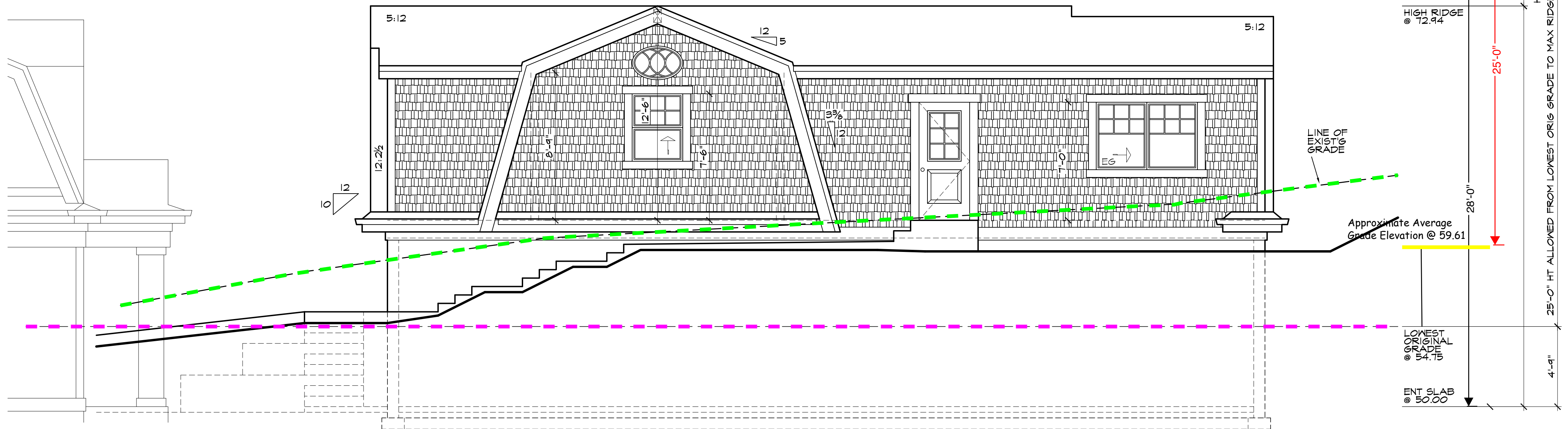
DADU LEFT ELEVATION
SCALE: 1/4" = 1'-0"



DADU FRONT ELEVATION
SCALE: 1/4" = 1'-0"

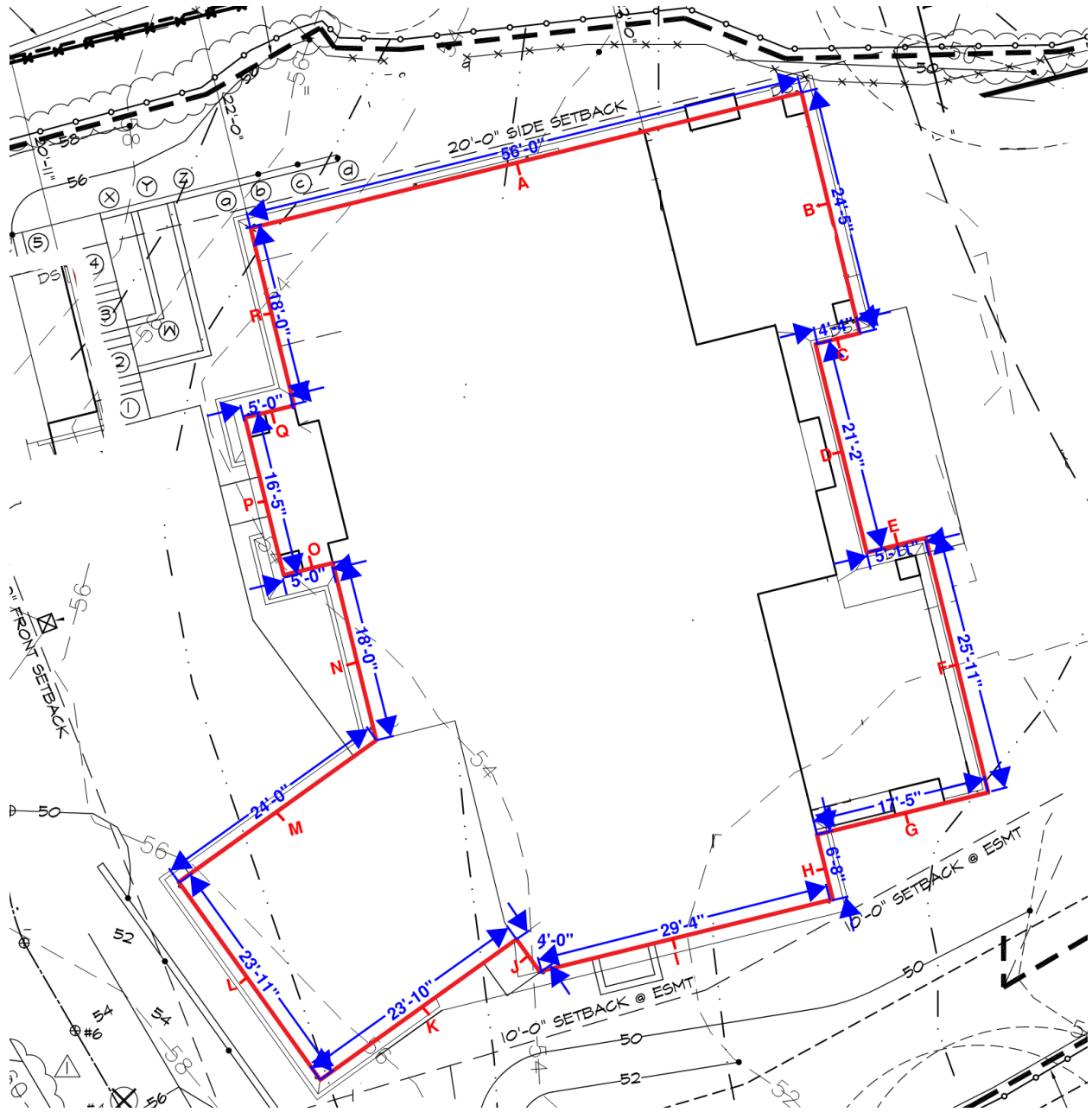


DADU RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



DADU REAR ELEVATION
SCALE: 1/4" = 1'-0"

Average Grade Example #2
Maximum Height – 25 ft.



Midpoint Elevation Rectangle Side Length

A: 52.2'	a. 56'
B: 51.6	b. 24'-5"
C: 51.7	c. 4'-4"
D: 51.9	d. 21'-2"
E: 51.8	e. 5'-11"
F: 52'	f. 25'-11"
G: 51.4	g. 17'-5"
H: 51.7	h. 6'-8"
I: 52.2	i. 29'-4"
J: 54'	j. 4'
K: 55'	k. 23'-10"
L: 55.8	l. 23'-11"
M: 55'	m. 24'
N: 54.1	n. 18'
O: 53.8	o. 5'
P: 53.9	p. 16'-5"
Q: 53.5	q. 5'
R: 53.9	r. 18'

Formula:
$$\frac{(A*a) + (B*b) + (C*c) + (D*d) + (E*e) + (F*f) + (G*g) + (H*h) + (I*i) + (J*j) + (K*k) + (L*l) + (M*m) + (N*n) + (O*o) + (P*p) + (Q*q) + (R*r)}{a + b + c + d + e + f + g + h + i + j + k + l + m + n + o + p + q + r}$$

Example:
$$\frac{(52.2 * 56') + (51.6 * 24'-5'') + (51.7 * 4'-4'') + (51.9 * 21'-2'') + (51.8 * 5'-11'') + (52' * 25'-11'') + (51.4 * 17'-5'') + (51.7 * 6'-8'') + (52.2 * 29'-4'') + (54' * 4') + (55' * 23'-10'') + (55.8 * 23'-11'') + (55' * 24') + (54.1 * 18') + (53.8 * 5') + (53.9 * 16'-5'') + (53.5 * 5') + (53.9 * 18')}{56 + 24.5 + 4.4 + 21.2 + 5.11 + 25.11 + 17.5 + 6.8 + 29.4 + 4 + 23.1 + 23.11 + 24 + 18 + 5 + 16.5 + 5 + 18}$$

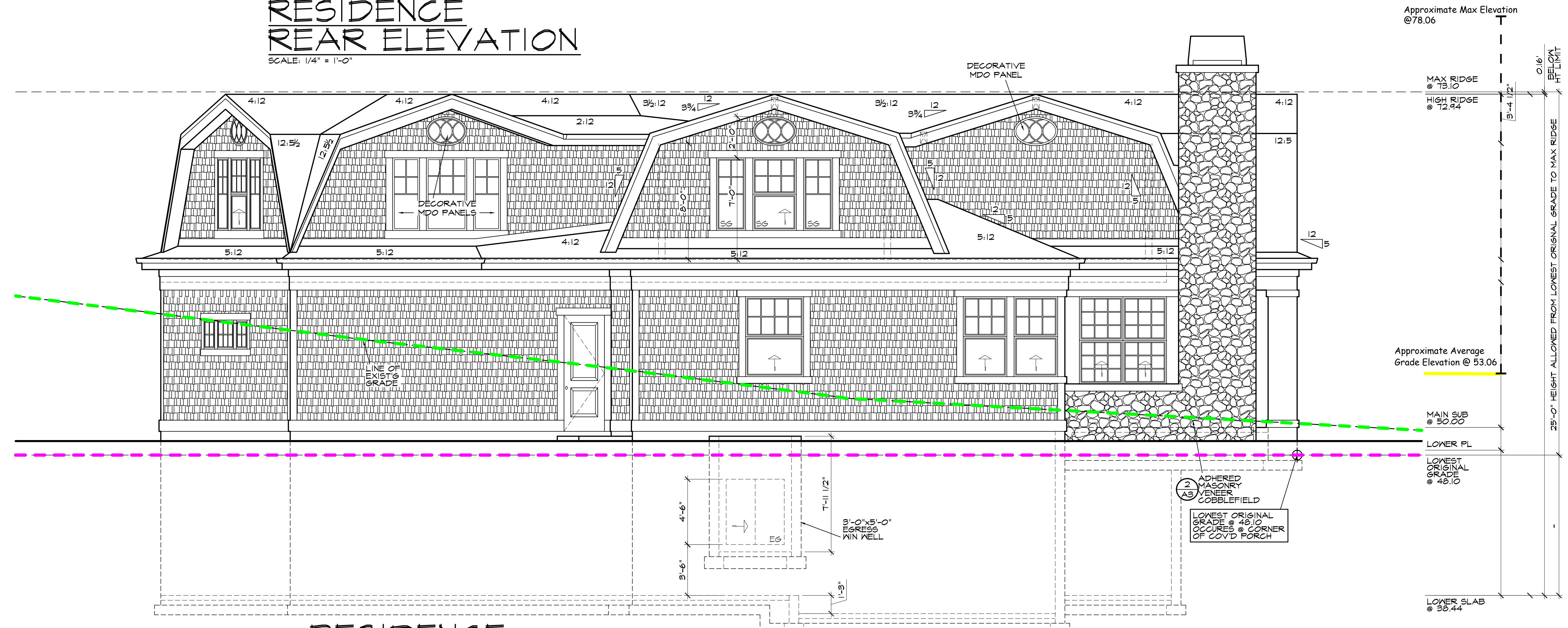
=
$$\frac{17337.21}{326.73} = 53.06'$$
 average grade elevation

Maximum elevation: 78.06' (25 + 53.06 = 78.06)

Example 2



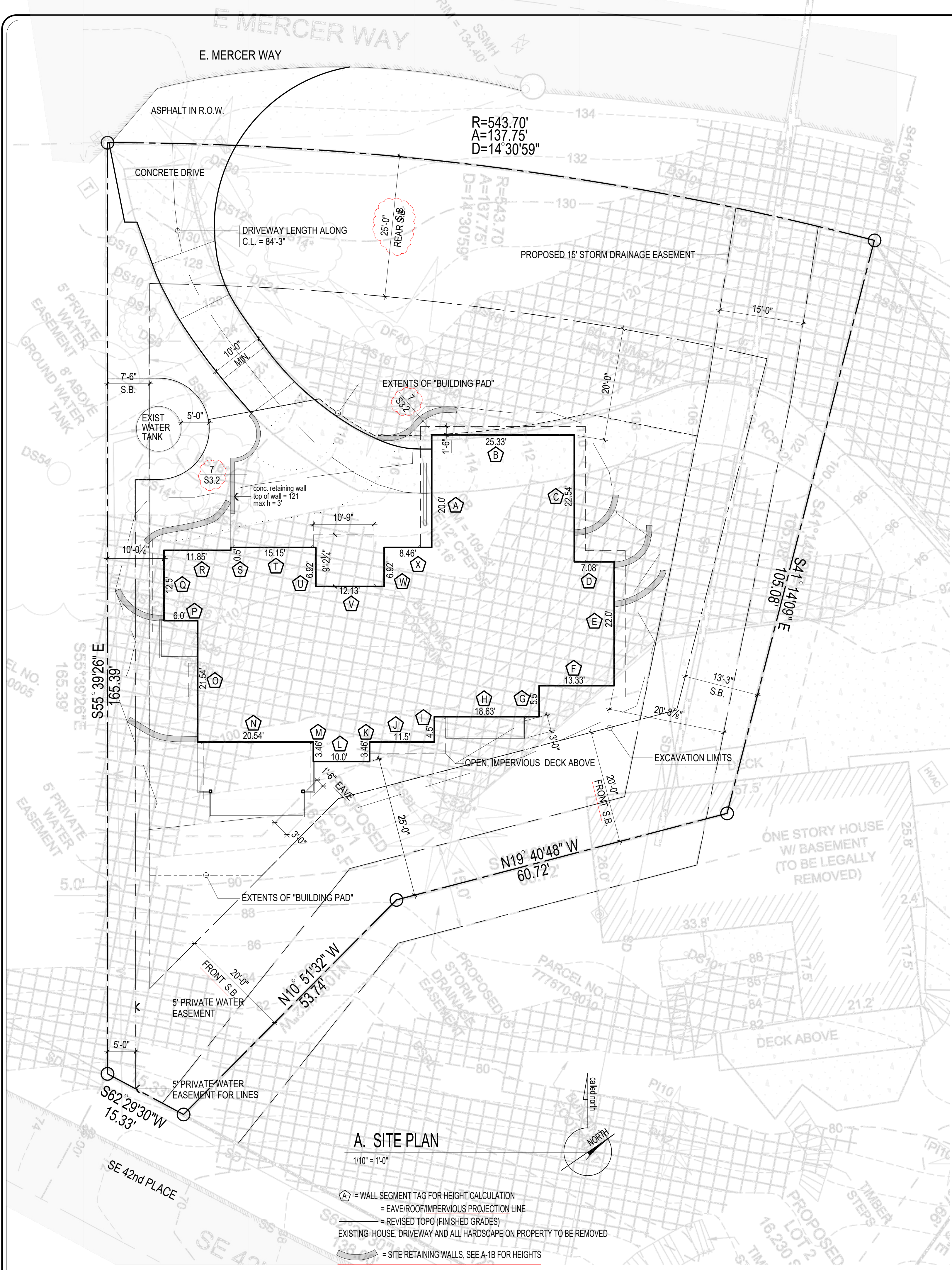
**RESIDENCE
REAR ELEVATION**
SCALE: 1/4" = 1'-0"



**RESIDENCE
RIGHT ELEVATION**
SCALE: 1/4" = 1'-0"

Owner _____

Civil Engineer _____



A. SITE PLAN
 1/10" = 1'-0"
 A = WALL SEGMENT TAG FOR HEIGHT CALCULATION
 - - - = EAVE/ROOF/IMPERVIOUS PROJECTION LINE
 - - - = REVISED TOPO (FINISHED GRADES)
 --- = EXISTING HOUSE, DRIVEWAY AND ALL HARDSCAPE ON PROPERTY TO BE REMOVED
 --- = SITE RETAINING WALLS, SEE A-1B FOR HEIGHTS
 --- = EXISTING TOPOGRAPHY

CONTINUOUS GEOTECHNICAL INSPECTION IS REQUIRED DURING EXCAVATION.

All Japanese knotweed (*Polygonum cuspidatum*) and Regulated Class A, Regulated Class B, and Regulated Class C weeds identified on the King County Noxious Weed list, as amended, shall be removed from the property.

development proposals for a new single-family home shall remove japanese knotweed (*Polygonum cuspidatum*) and regulated class a, regulated class b, and regulated class c weeds identified on the king county noxious weed list, as amended, from required landscaping areas established pursuant to subsection 19.02.020(f)(3)(a). new landscaping associated with new single-family home shall not incorporate any weeds identified on the king county noxious weed list, as amended, provided, that removal shall not be required if the removal will result in increased slope instability or risk of landslide or erosion.

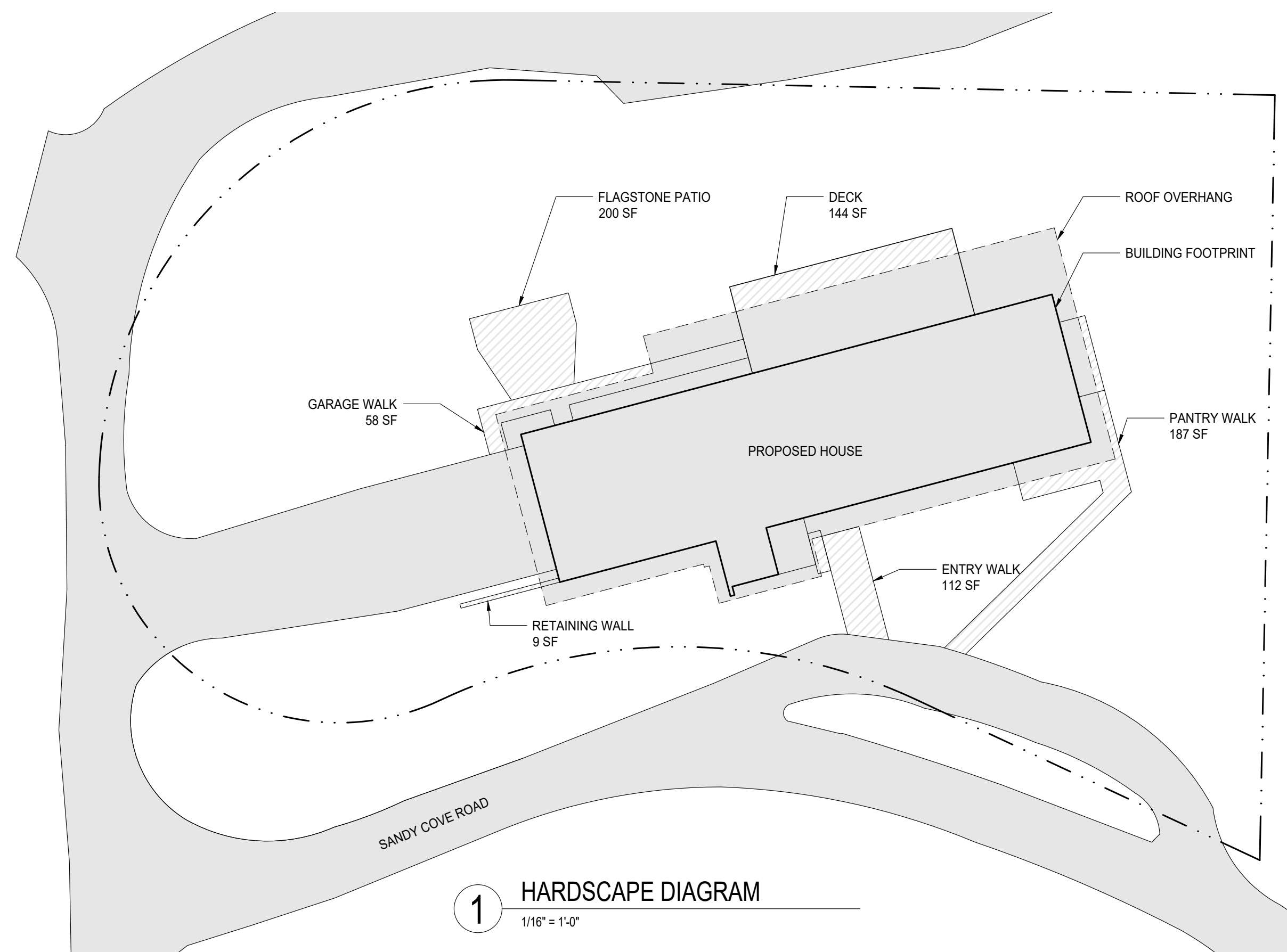
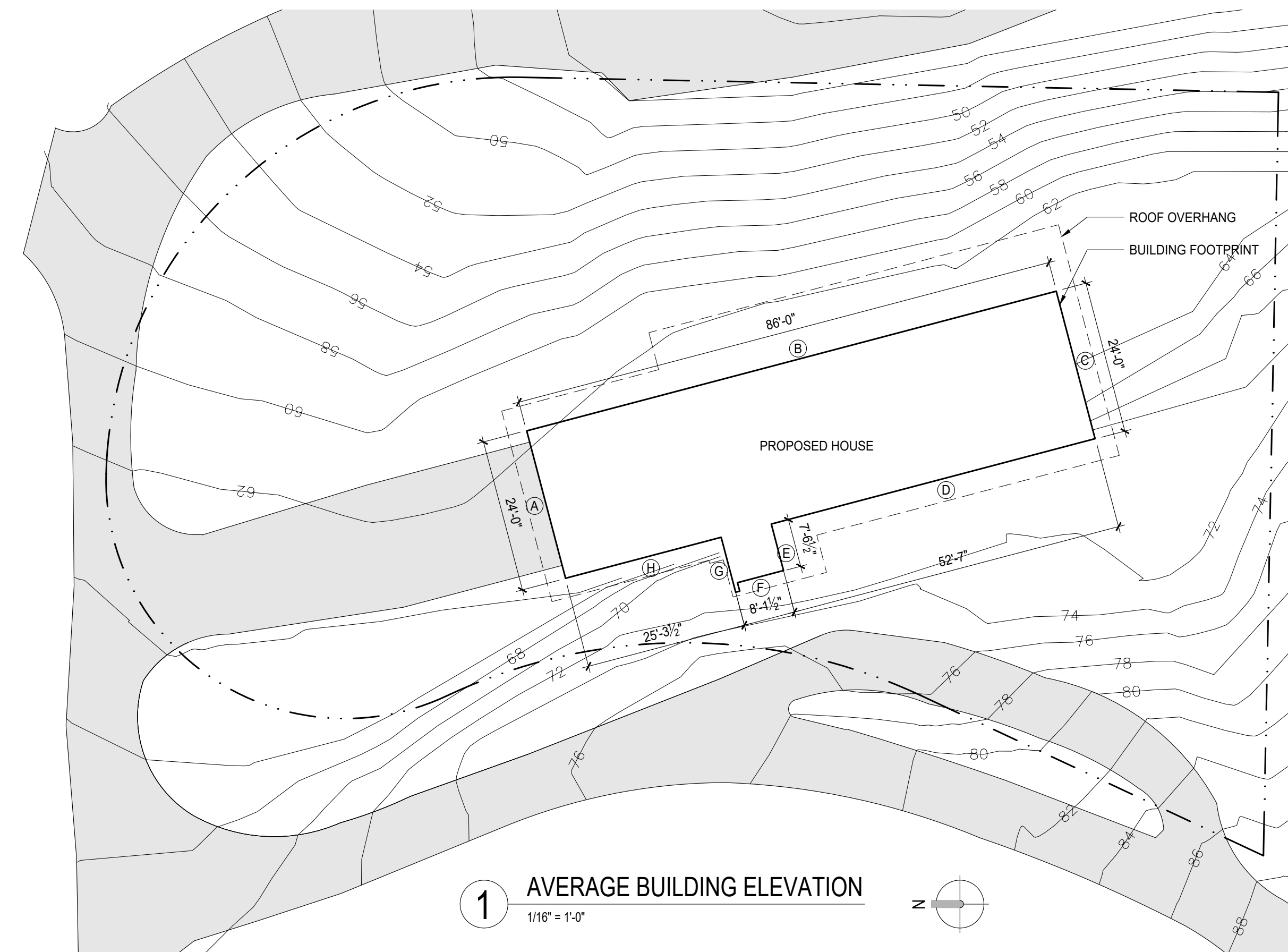
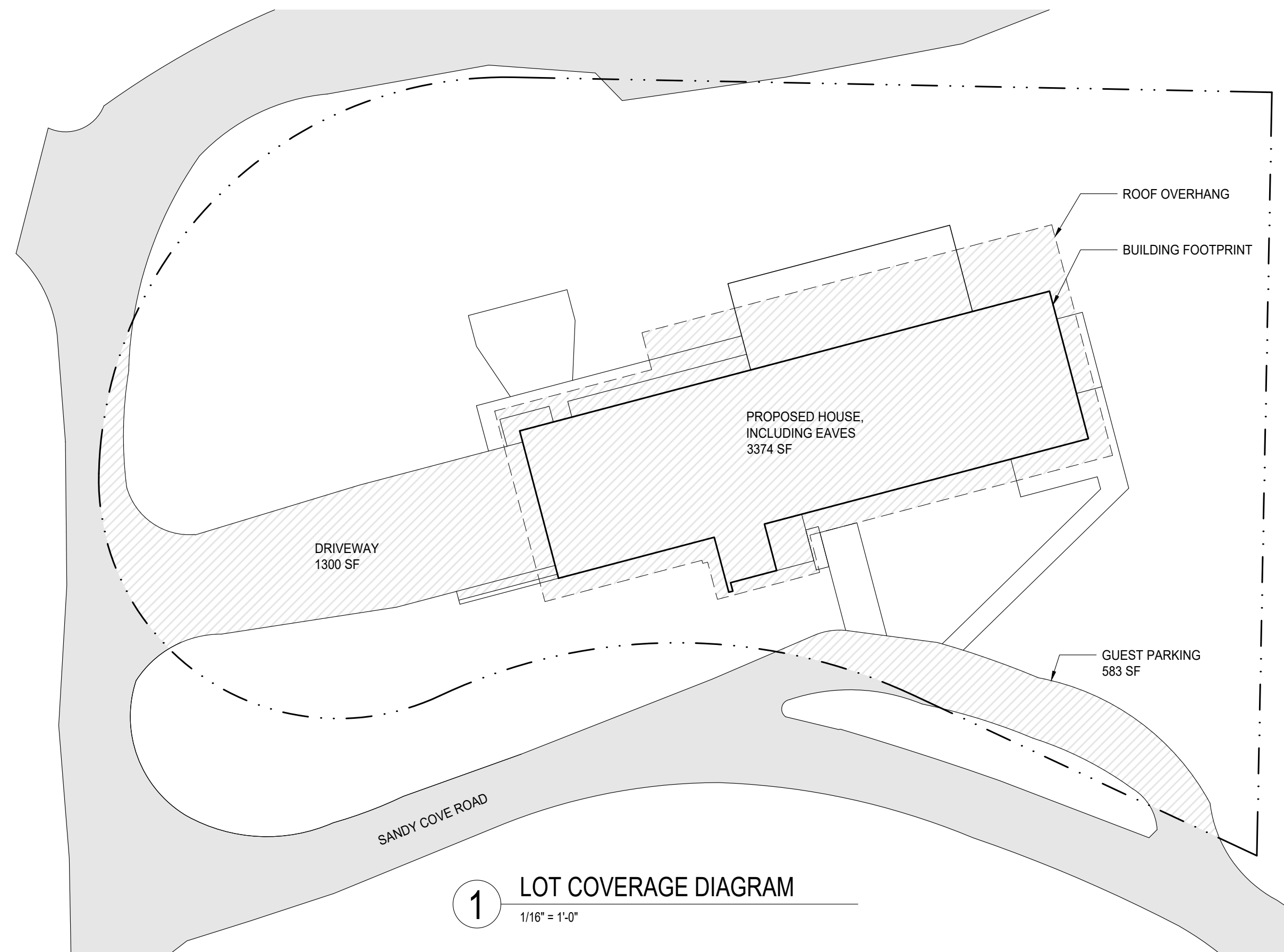
Parcel Number/Legal

ABE CALCULATION

	EL @ MIDPOINT	segment	wtd sgmnt
A	115	20	2300.00
B	113	25.33	2862.29
C	108	22.54	2434.32
D	101.9	7.08	721.45
E	95	22	2090.00
F	92.5	13.33	1233.03
G	94	5.5	517.00
H	97	18.63	1807.11
I	98.1	4.5	441.45
J	97.2	11.5	1117.80
K	96.8	3.46	334.93
L	96.7	10	967.00
M	97.8	3.46	338.39
N	99	20.54	2033.46
O	105	21.54	2261.70
P	110.6	6	663.60
Q	112.7	12.5	1408.75
R	115.4	11.85	1367.49
S	114.8	0.5	57.40
T	114	15.15	1727.10
U	111.9	6.92	774.35
V	110.3	12.13	1337.94
W	112	6.92	775.04
X	113.3	8.46	958.52
Y			
		289.84	30530.11

AVG. EL = **105.3343**
 all midpoints are existing grade
 all final grades same or higher than existing

FAR CALCULATION
 Main Floor = 2280.5 sf
 Lower Floor = 1893.8 sf
 Upper Floor = 414 sf
 Garage = 570 sf
 12'16" clg = 301 sf
 covered decks = 220 sf
 stairs = (-88)
TOTAL = 5591.3 sf
 allowable = 16,549 x .4 = 6619.6 sf



Zoning Calculations

Lot Area 16,878 SF

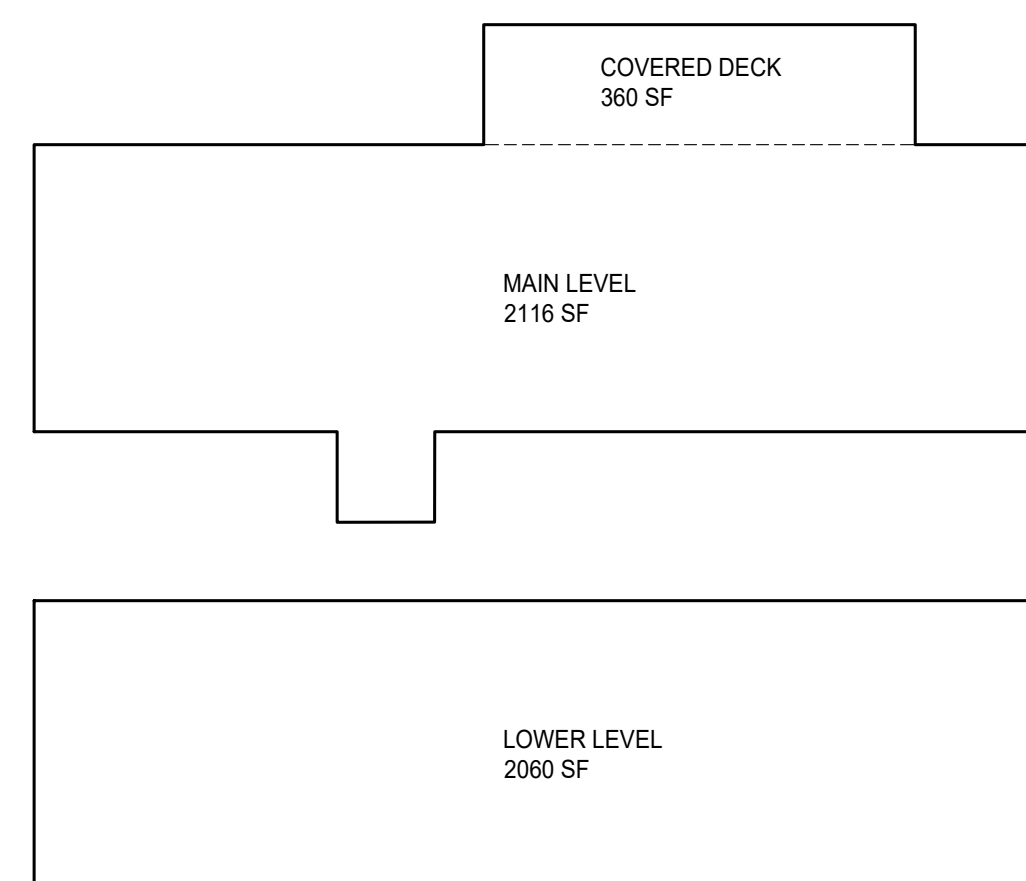
Gross Floor Area	
Main Level Floor Area	2,116.0 SF
Main Level Covered Deck	360.0 SF
Lower Level Floor Area	2,060.0 SF
Proposed Gross Floor Area	4,536.0 SF 26.9%
Allowable Gross Floor Area	6,751.2 SF 40.0%

*Measured from exterior face of building
*Includes attached covered deck floor area

Lot Slope	29.29%
Highest Elevation Point	87.83 feet
Lowest Elevation Point	44.58 feet
Elevation Difference	43.25 feet
Horizontal Difference	147.66 feet
87.83 - 44.58 = 43.25 / 147.66 = 29.29%	

Lot Coverage	
House, including eaves	3,374.0 SF
Driveway	1,300.0 SF
Guest Parking	583.0 SF
Proposed Lot Coverage	5,257.0 SF 31.1%
Allowable Lot Coverage	5,907.3 SF 35.0%

*Includes all buildings measured to the eaves and all driving surfaces



Hardscape	
Entry Walkway	112.0 SF
Pantry Walkway	187.0 SF
Garage Walkway	58.0 SF
Deck	144.0 SF
Flagstone Patio	200.0 SF
Retaining Wall	9.0 SF
Proposed Hardscape	710.0 SF 4.2%
Allowable Hardscape	1,519.0 SF 9.0%

*Includes walkways, decks, patios; Does NOT include driving surfaces or buildings

1 GROSS FLOOR AREA DIAGRAM
1/16" = 1'-0"

Average Building Elevation			
	Midpoint Elevation	Segment Length	Elev x Length
A	63.0	24.0 feet	1512.0
B	62.5	86.0 feet	5375.0
C	64.0	24.0 feet	1536.0
D	70.5	53.0 feet	3736.5
E	71.0	7.5 feet	532.5
F	71.0	8.0 feet	568.0
G	71.0	7.5 feet	532.5
H	64.0	25.3 feet	1619.2
Total	537.0	235.3 feet	15411.7
Average Building Elevation =			65.5 feet
Maximum Building Height =			95.5 feet

