CHERRY HILLS VILLAGE

Bulk Plane Handout

*Note: This document is not intended to be a comprehensive list of all applicable requirements. It is the applicant's responsibility to comply with all applicable requirements.

Community Development
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Revised: May of 2022

What is the Bulk Plane?

The Bulk Plane is a series of horizontal and vertical planes which, when applied in three-dimensions limit the allowable space a building may occupy.

The entirety of the bulk plan requirements can be found in Section 16-3-30 of the Municipal Code.

General Information:

- Bulk plane drawings are required to be submitted as a part of any permit for a new building, a building addition, or an accessory building.

- In order to evaluate whether or not the bulk plane requirements have been met, **the permit must include USGS Elevation(s) for the natural grade with one (1) foot contours, where the minimum front and side setbacks intersect, where the minimum rear and side setbacks intersect and where the front/rear area depths intersect with the minimum side setbacks.** The natural grade elevation is used to establish the maximum height/top of the bulk plane. **Note: the natural grade is not necessarily the bottom of the bulk plane.** The other elevations are used to determine the grade change of the lot for purposes of the bulk plane (over or under 7%) and where the vertical measurements (21-feet and 12-feet and 6-inches) start.

- All USGS Elevations need to be noted on the plans (the bulk plane starting points of measurement, the vertical 21-foot, 12-feet and 6-inches measurements, and maximum height measurement).

- Bulk plane drawings for all elevations must be provided. Using “cuts” in drawings when distances are exceptionally long are acceptable as long as compliance can still be determined.

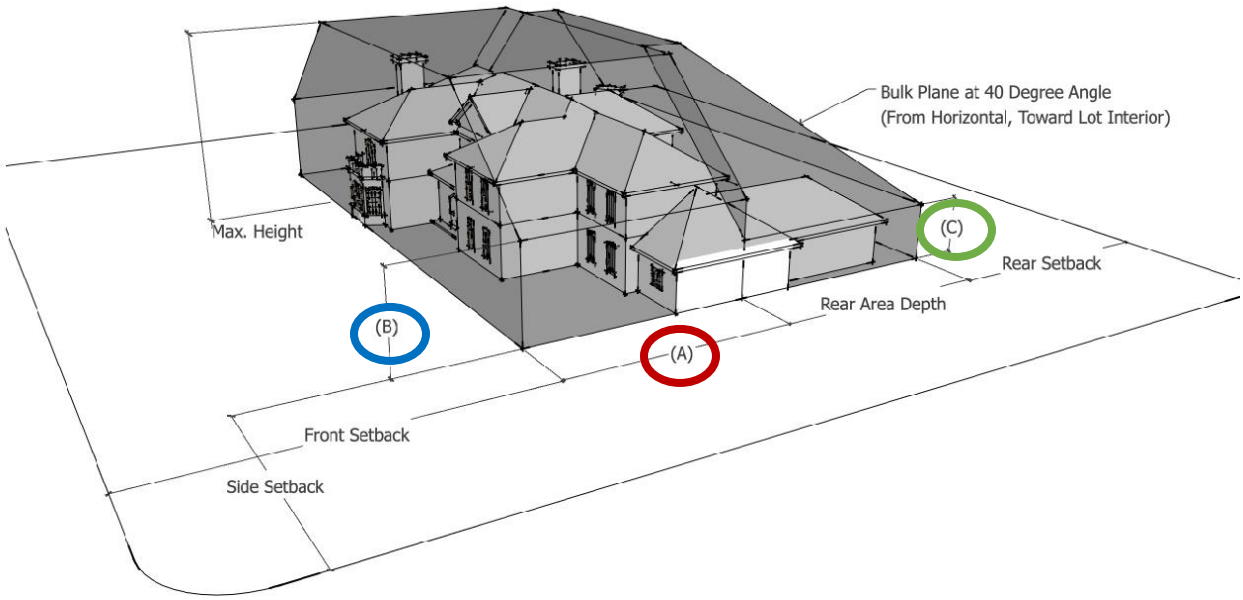
- The bulk plane at the minimum front setback is always a flat plane.

- Staff may require the submittal of a 3-D version of the bulk plane to confirm compliance with the bulk plane standards.

- For lots that are irregularly shaped, please contact the Community Development Department to discuss how the bulk plane will be applied. It is recommended that 3-D models be used for these types of lots.

Specific Information (16-3-30 – Bulk Plane Regulations):

Figure 16-3-30.B.1
Illustrative Bulk Plane Boundaries.



A = Front Area Depth
B = Front Area Starting Height
C = Rear Area Starting Height

Table 16-3-30 Bulk Plane Standards by Zoning District					
Standard	Zoning District				
	R-1 and O-1	R-2	R-3	R-4	R-5
Front Area Depth (A)[1]	50-feet		42-feet		
Starting Height (Front Area (B)[1,2]	21-feet				12-feetand 6-inches
Rear Area Depth[3]	Varies depending on lot configuration.				
Starting Height (Rear Area (c)[1,2]	12-feet and 6-inches				
Angle of Bulk Plane (Front and Rear Areas)	40^0				
Table Notes: [1]See corresponding letter in Figure 16-3-30.B. Illustrative Bulk Plan Boundaries. [2]Starting height is measured as set out in subsection (d) below. [3]Rear area depth is the are between the front area depth and the rear setback line. See Figure 16-3-30.B. Illustrative Bulk Plan Boundaries.					

- **16-3-30(d)(1):** For lots where the average natural grade does not differ by more than 7% along the minimum front, side, or rear setback lines:
  - The starting height shall be measured from the points of measurement at each minimum side setback line that coincide with the minimum front area depth for the bulk plane as shown in Figure 16-3-20.B.2.

- **16-3-30(d)(2):** For lots where the average natural grade differs by more than 7% along the minimum front, side, or rear setback lines:
  - The starting height shall be measured at each of the following points of measurement (as show in Figure 16-3-30.B.3):
    a. The points at each minimum side setback line that coincide with the minim front setback line;
    b. The points at each minimum side setback line that coincide with the minimum front area depth for the bulk plane;
    c. The points at each minimum side setback line that coincide with the minimum rear setback line.

Figure 16-3-20.B.2
Average Lot Grades up to 7% Slope

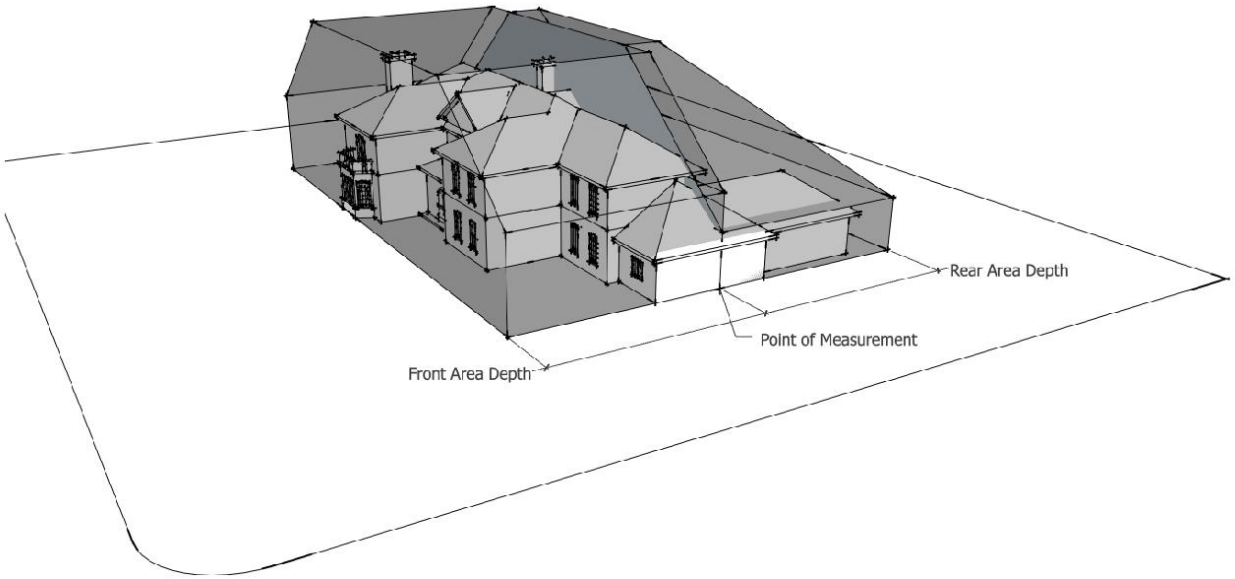
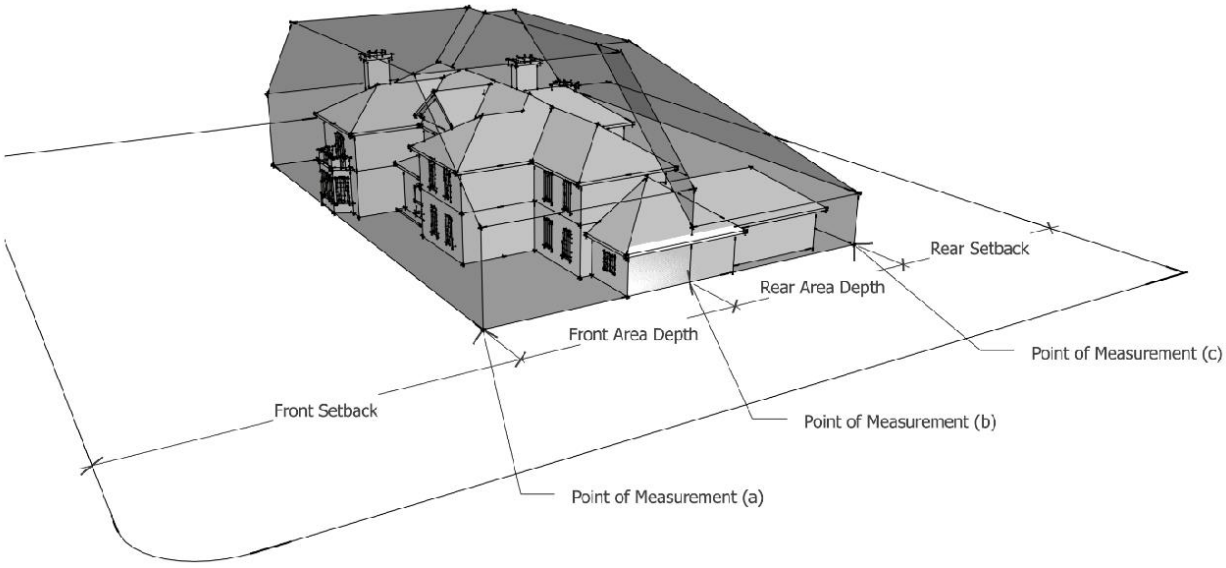


Figure 16-3-30.B.3
Average Lot Grades More than 7% Slope



- **16-3-30(c):** For accessory buildings:
  (1). For zoning districts where the minimum side or rear setback for an accessory building is less than the minimum side or rear setback specified for a primary building, a special accessory building bulk plane shall begin at the starting height of 12.5-feet above the minimum side and rear setback lines for accessory building.
  (2). The special accessory building bulk plane shall rise at a 40^0 angle towards the center of the lot until it reaches the maximum permitted height for the zoning district or intersects with the bulk plane that begins at the minimum side or rear setback for the primary building.

Permitted Encroachments (16-3-30(e)):

(1). Roof overhangs and eaves, provided that they do not extend more than 30-inches horizontally beyond the bulk plane.
(2). Rooftop solar system (photovoltaic or solar water heater) that is flush mounted to the roof or mounted at up to a 150 angle, measured from a horizontal plane, provided that the roof structure supporting the solar system does not extend beyond the bulk plane.
(3). The gable end of a sloping roof form, provided that:
  a. It does not extend more than 11-feet horizontally beyond the bulk plane including any roof overhang.
  b. It does not extend more than 9-feet vertically beyond the bulk plane.
  c. It has a maximum width of 42-feet, including any roof overhang.
(4). Dormers, provided that:
  a. The highest point of any dormer is at or below the height of the primary roof ridge.
  b. The portion of any dormer that extends beyond the bulk plane has a maximum width of 12-feet including any roof overhang.
  c. The dormer does not extend more than 6-feet vertically beyond the bulk plane.
  d. The combined width of all dormers does not exceed 50% of the length of the roof on which they are located.
  e. The space between dormers is not less than 6-feet.
  f. The dormer is inset at least 3-feet from the nearest building wall.
(5). Chimneys, provided that:
  a. The highest point of any chimney does not extend more than 5-feet vertically beyond the bulk plane.
  b. The portion of any chimney that extends beyond the bulk plane has a maximum width of 6-feet including any roof overhang.
(6). Wireless communication facilities provided that they conform to the requirements of Chapter20, Wireless Communication Facilities.
(7). Satellite dishes and antennae (including amateur radio antennae), provided that they conform to the requirements of Section 16-3-150. Satellite Dishes and Antennae.

The following pages are intended to illustrate how to draw the bulk plane in 2D in order to demonstrate compliance with this Section.

City of Cherry Hills Village
Community Development Department
2450 E. Quincy Avenue
Cherry Hills Village, CO 80113

303.783.2721 (Phone)
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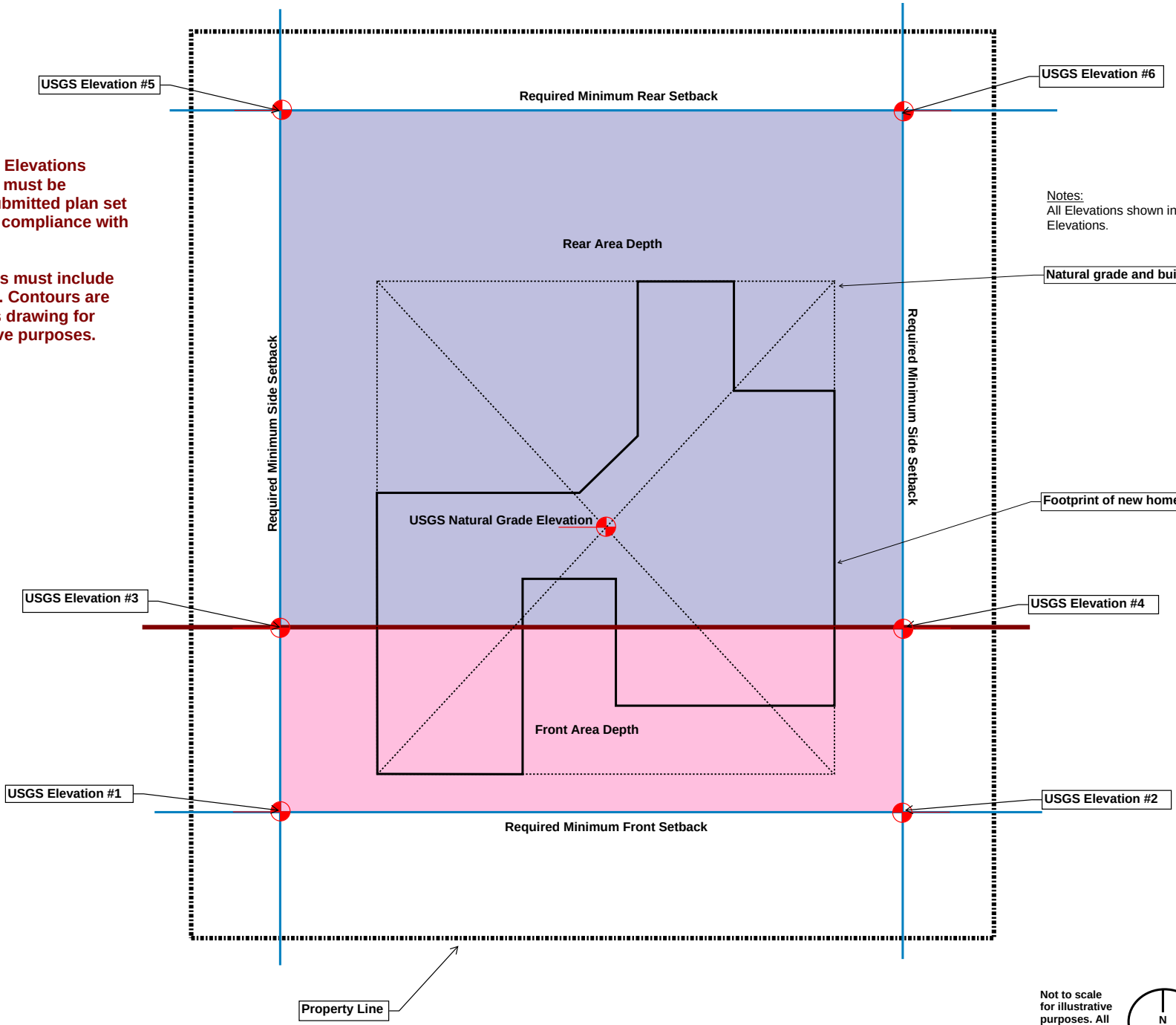
Illustrative Bulk Plane Drawings for Primary Buildings

***All seven (7) USGS Elevations shown on this page must be represented on a submitted plan set for staff to evaluate compliance with the bulk plane.**

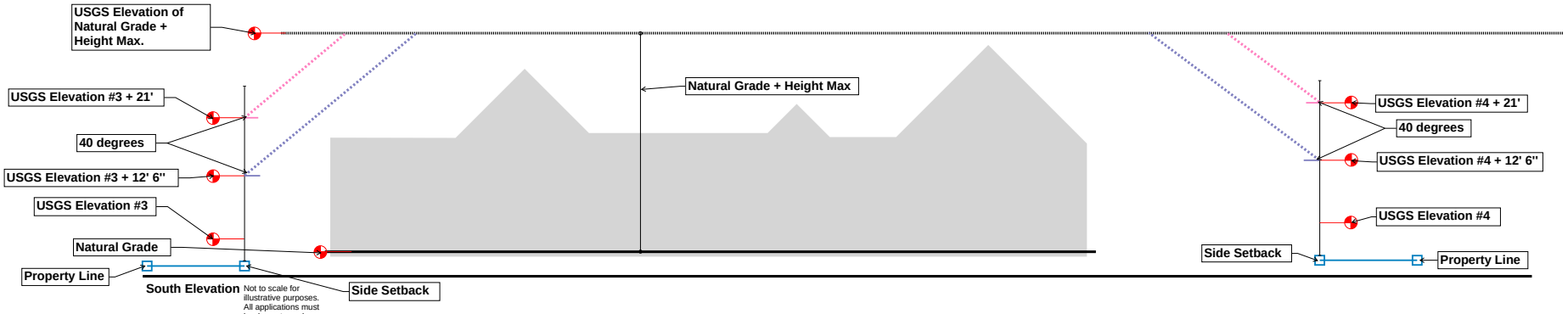
***Submitted drawings must include 1-foot contour lines. Contours are not included on this drawing for bulk plane illustrative purposes.**

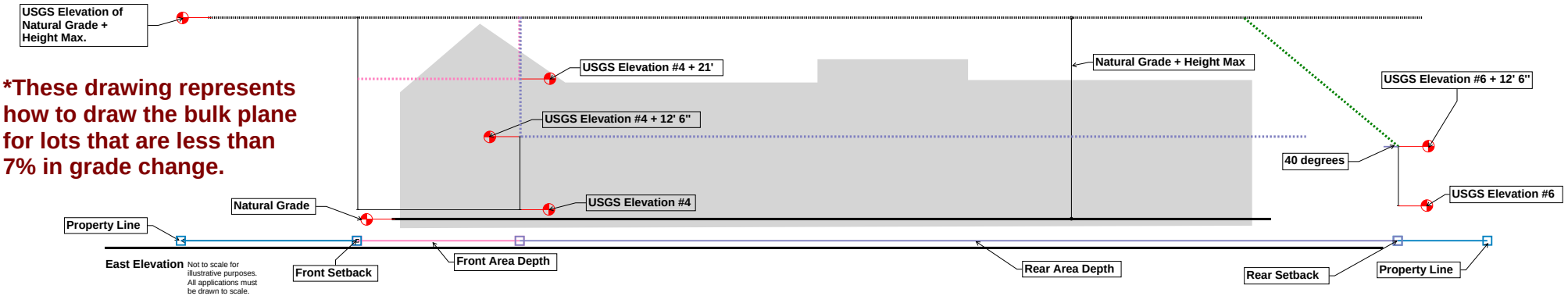


Notes:
All Elevations shown in this plan set are USGS Elevations.

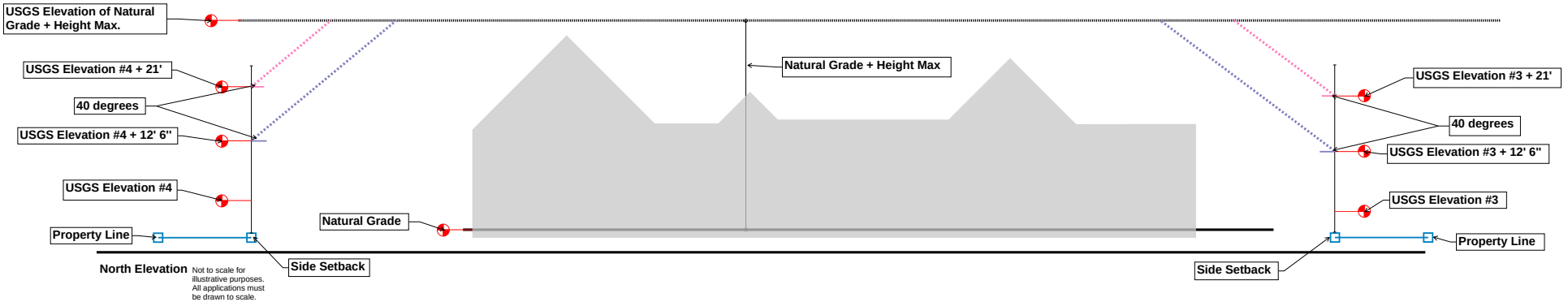
Not to scale for illustrative purposes. All applications must be drawn to scale.

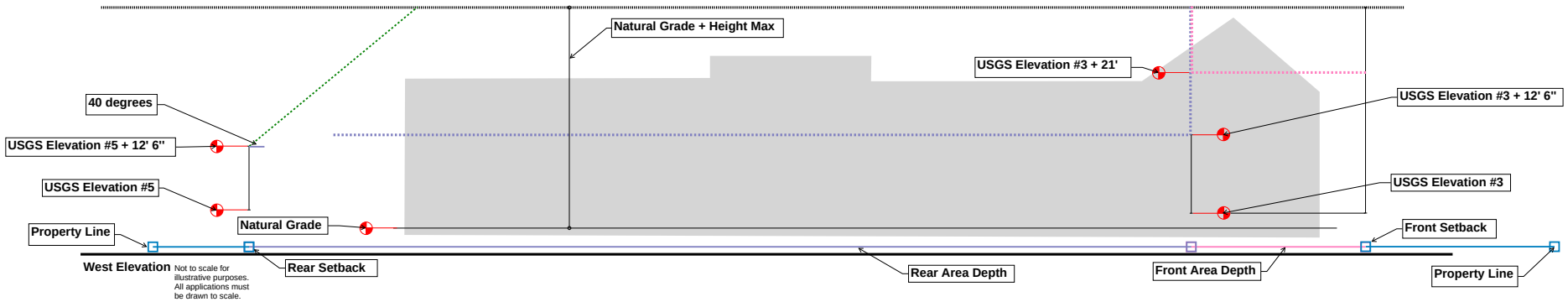
N

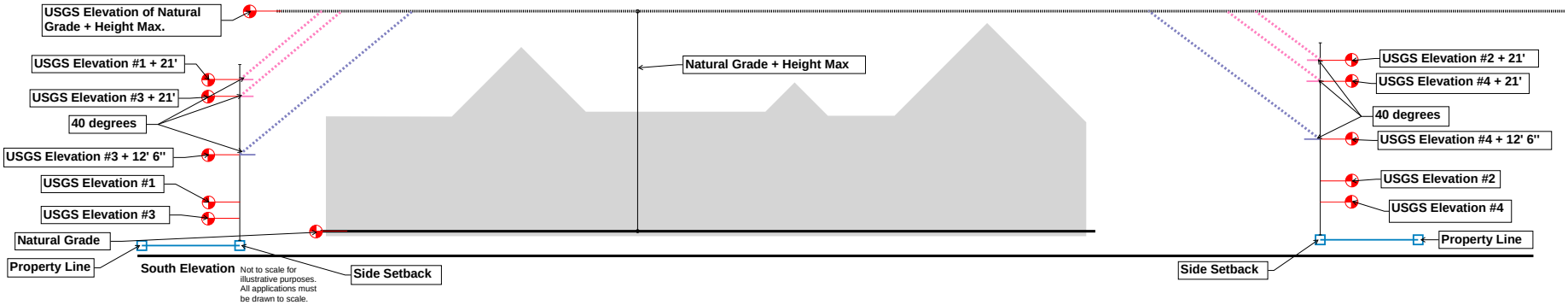


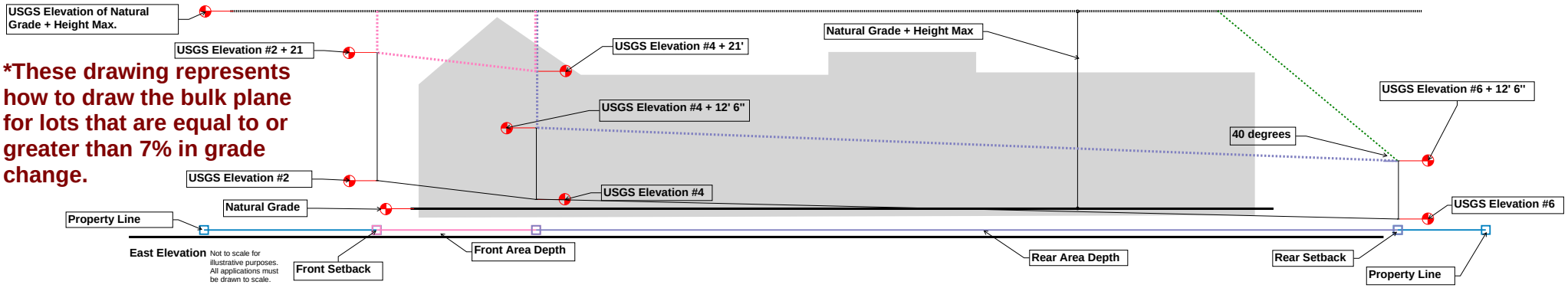


***These drawing represents how to draw the bulk plane for lots that are less than 7% in grade change.**

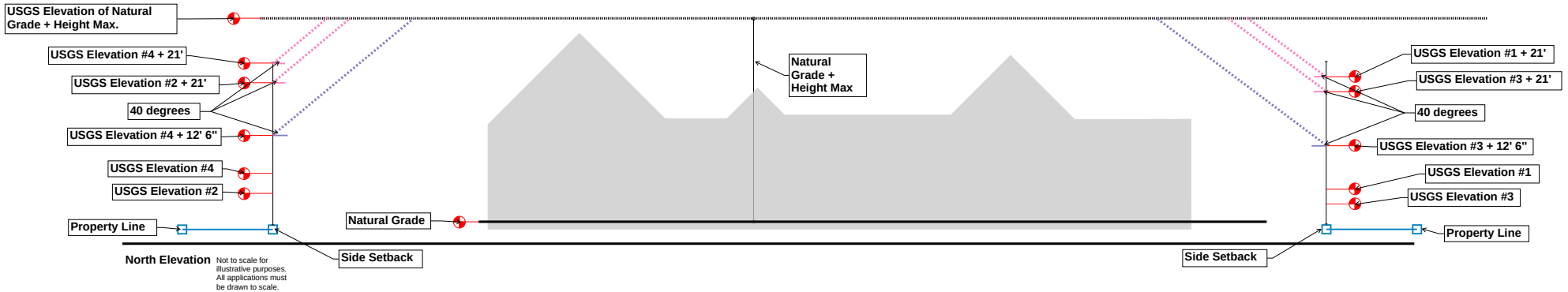


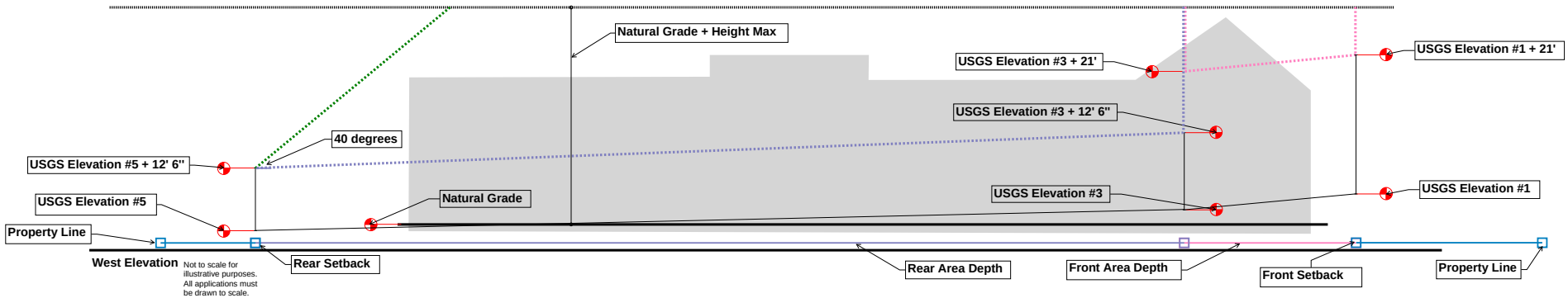






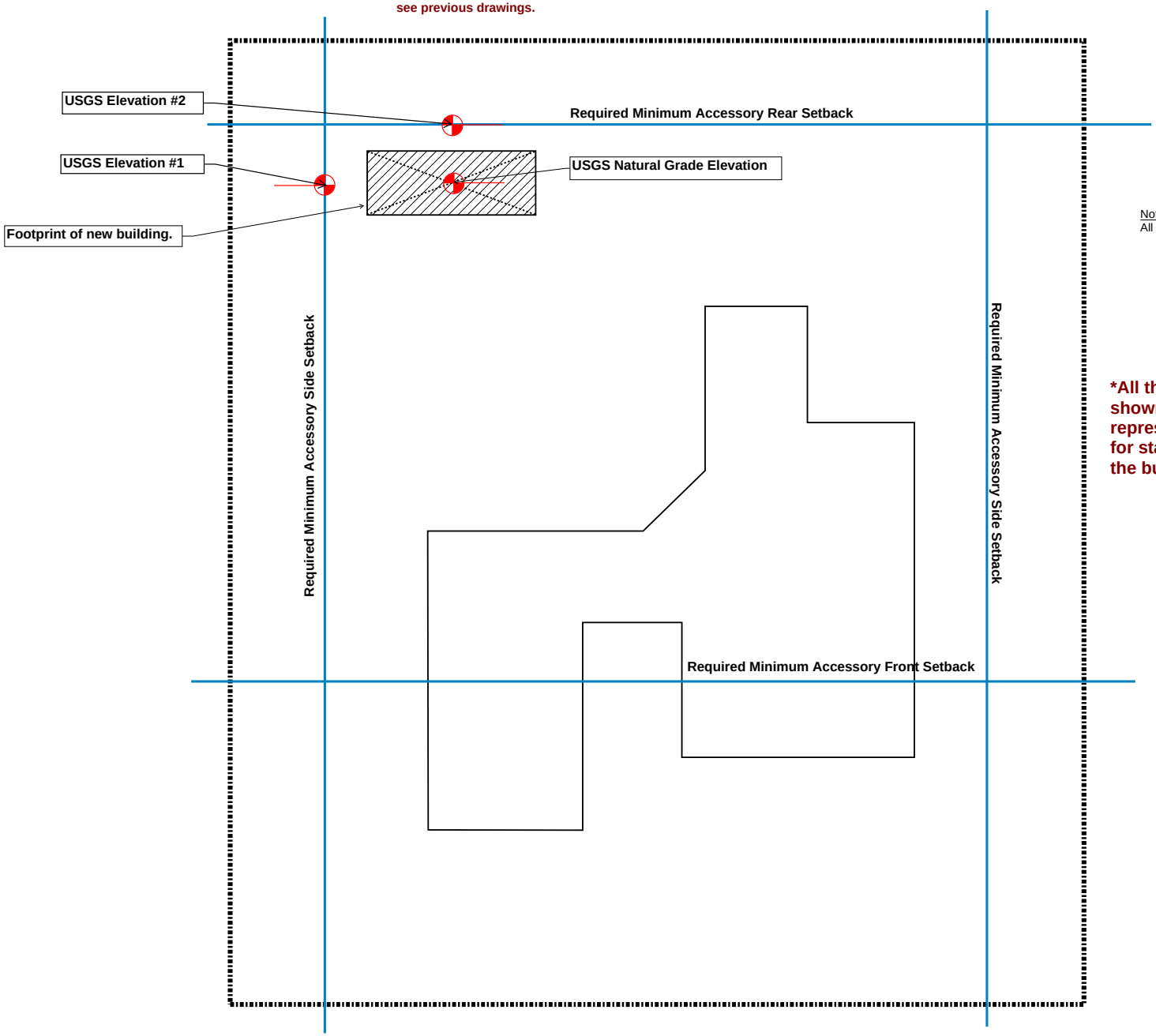
***These drawing represents how to draw the bulk plane for lots that are equal to or greater than 7% in grade change.**





Illustrative Bulk Plane Drawings for Accessory Buildings

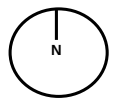
Note: This applies when the minimum side or rear setback for an accessory building is less than the minimum side or rear setback specified for a primary building. If not, see previous drawings.

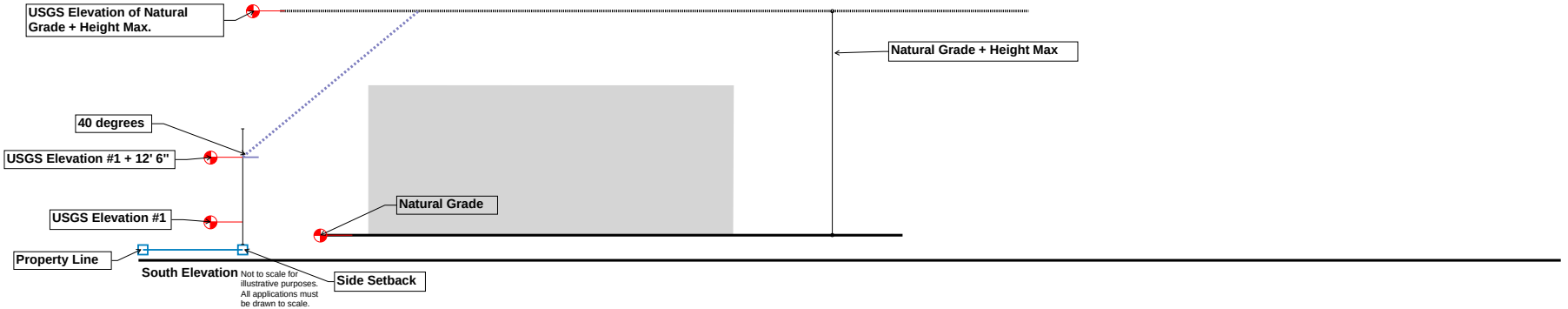


Notes:
All Elevations shown in this plan set are USGS Elevations.

***All three (3) USGS Elevations shown on this page must represented on a submitted plan set for staff to evaluate compliance with the bulk plane.**

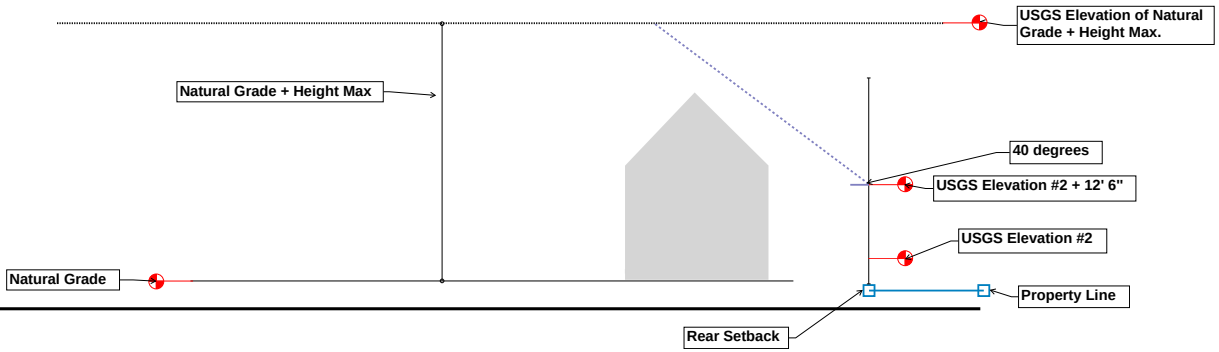
Not to scale for illustrative purposes. All applications must be drawn to scale.





South Elevation

Not to scale for illustrative purposes. All applications must be drawn to scale.



East Elevation

Not to scale for illustrative purposes. All applications must be drawn to scale.

The following pages show examples of 3D bulk plane drawings to demonstrate compliance with this Section.
While 3D drawings are not required, they are encouraged as they help provide proof of code compliance.

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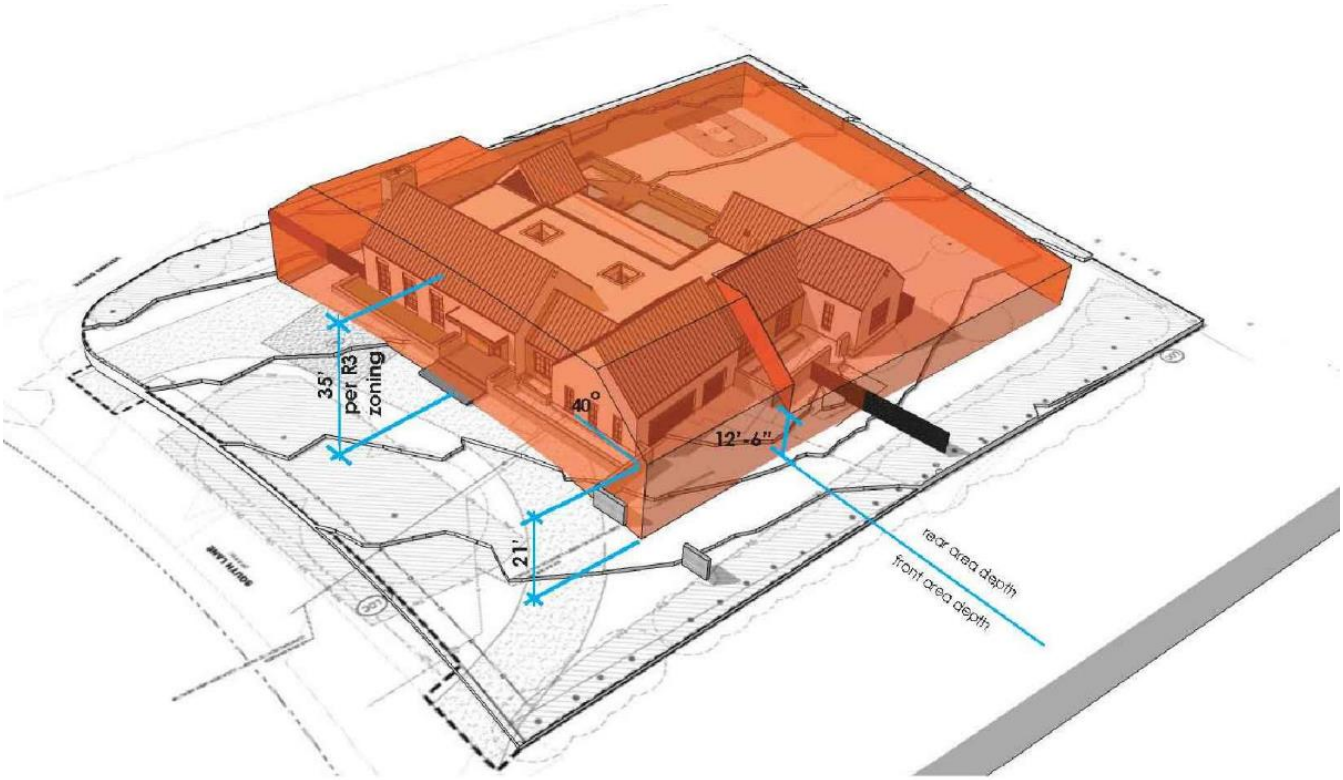
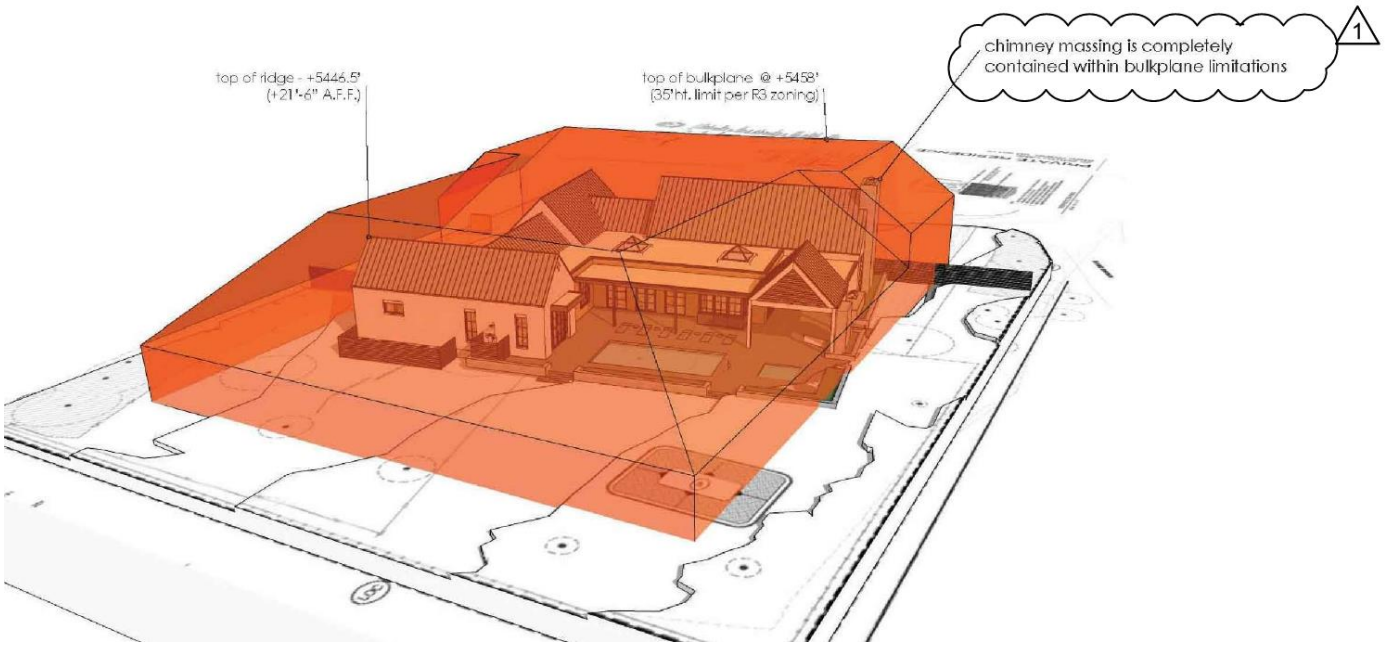
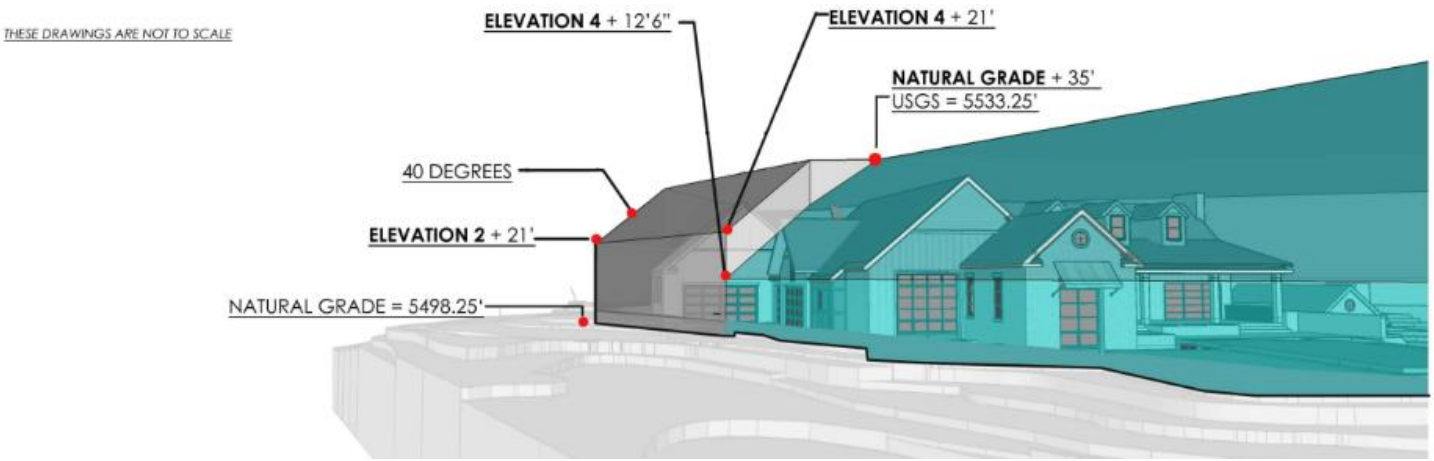
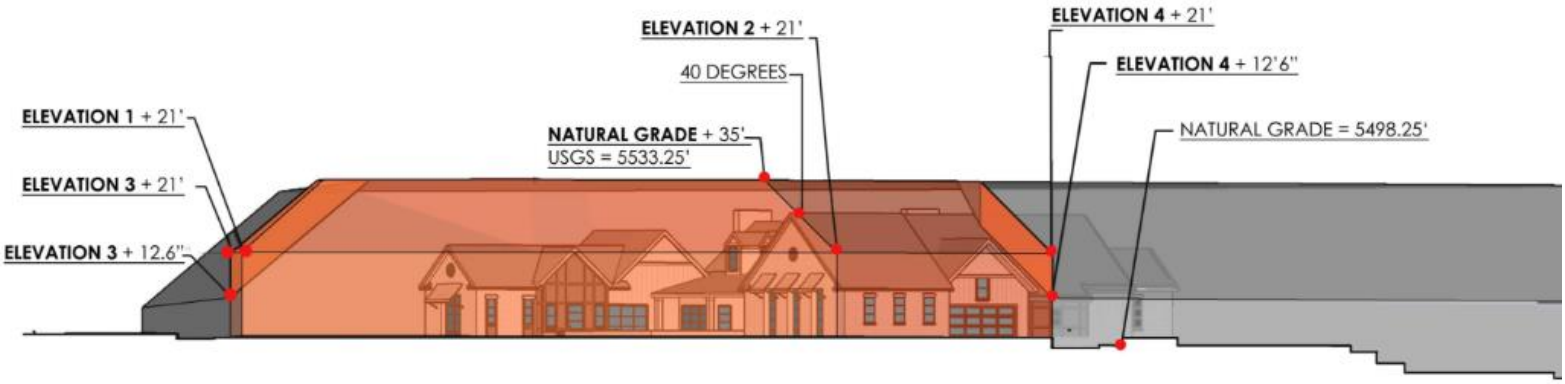
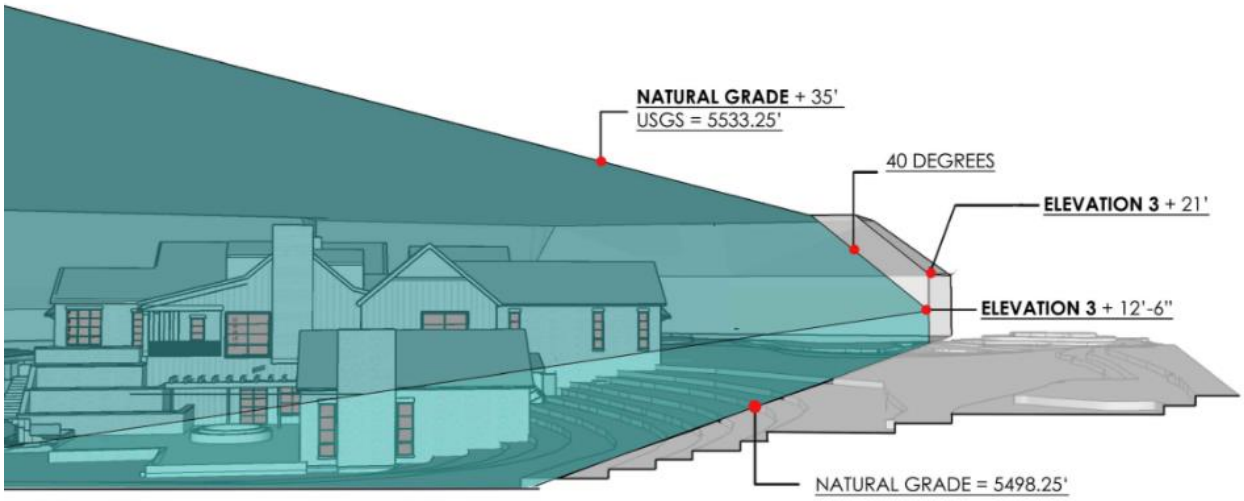

35'
per R3
zoning
40°
12'-6"
21'
rear area depth
front area depth


top of bulkplane - +5458'
(35'ht. limit per R3 zoning)
top of ridge - +5451'
(+26'-0" A.F.F.)
top of ridge - +5448.5'
(+23'-6" A.F.F.)
1


top of ridge - +5446.5'
(+21'-6" A.F.F.)
top of bulkplane @ +5458'
(35'ht. limit per R3 zoning)
chimney massing is completely
contained within bulkplane limitations
1


THESE DRAWINGS ARE NOT TO SCALE
ELEVATION 4 + 12'6"
ELEVATION 4 + 21'
NATURAL GRADE + 35'
USGS = 5533.25'
40 DEGREES
ELEVATION 2 + 21'
NATURAL GRADE = 5498.25'


ELEVATION 2 + 21'
ELEVATION 4 + 21'
40 DEGREES
ELEVATION 4 + 12'6"
ELEVATION 1 + 21'
NATURAL GRADE + 35'
USGS = 5533.25'
NATURAL GRADE = 5498.25'
ELEVATION 3 + 21'
ELEVATION 3 + 12.6"


NATURAL GRADE + 35'
USGS = 5533.25'
40 DEGREES
ELEVATION 3 + 21'
ELEVATION 3 + 12'-6"
NATURAL GRADE = 5498.25'