

Calaveras County

Building Department

(209) 754-6390
(209) 754-6396 fax

Code Compliance

(209) 754-6326
(209) 754-6328 fax

Website: www.co.calaveras.ca.us

RETAINING WALLS – Frequently Asked Questions

When is a permit required for a retaining wall?

2010 CRC §105.2 – Permits shall not be required for retaining walls that are not over 4' in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II, or IIIA liquids. (Fig 1)

What is a surcharge?

A surcharge is ANY load that may be imposed on level, retained soil. Some examples of surcharge include:

1. Retained soil that is sloped steeper than 4:1. The weight of this extra soil is considered surcharge. (Fig 2)
2. A structure footing that is supported by the retained soil surcharges the wall. (Fig 3)
3. A driveway or roadway behind a retaining wall will surcharge the wall. (Fig 4)
4. Tiered retaining wall configurations will usually generate surcharge on the lower walls. (Fig 5A & 5B)
5. Fences located in the retained soil generate surcharge. (Fig 6)
6. Large trees will surcharge a wall. (Fig 7)

When a permit is required, do I need to hire a design professional (licensed civil, geotechnical or structural engineer, or licensed architect) to design my retaining wall?

Yes, if...

1. The height of the retained soil from the top of the footing to the top of the retained soil is 4' or higher, (Fig 8), or if,
2. The wall supports a surcharge, regardless of height, or if,
3. The retaining wall impounds Class I, II or IIIA liquids.

In addition, you may need a geotechnical report prepared for very tall (10' or more) modular block retaining walls (Keystone, for example).

There are some modular concrete block products that have ICC Evaluation Reports that allow their product to be constructed to heights greater than 4', and with 2:1 back-slopes. When in doubt, however, consult a design professional.

What will the architect or engineer provide to me?

The CBC requires the design professional to prepare structural calculations analyzing the proposed wall considering all loads acting on the wall. The design professional will likely need to visit your site to better understand your project. Two copies of these calculations, stamped and wet-signed by the design professional, are to be submitted to the County.

The design professional must also prepare material specification and construction details translating the information derived in the calculations into drawings. You will build the wall from these drawings, and we will inspect your work using these drawings. The specification and detail should be on the same size sheet as the remainder of the drawings. Further, the specifications and details need to be separate from the structural calculations. Two copies of this information stamped and wet-signed by the design professional, are to be submitted to the County.

During construction, the County may require the design professional to observe the work for compliance with the intent of the structural design. [Ref. California Business and Professions Code §6735, et al]

What else do I need to provide when applying for a permit to construct a retaining wall?

A permit submittal for a typical retaining wall project would include 2 copies of construction drawings that include the following items:

1. A plot plan, drawn to scale, showing the location, extents and height of the proposed retaining wall(s). Show the location of the wall(s) with respect to property lines, adjacent structures, trees, recreational facilities such as pools and spas, fences, etc. Clearly define the retained-side of the wall.
2. Material specifications for the retaining wall. Include ICC Evaluation Report Numbers where applicable, and outline any special inspection requirements* that may be required. Material specification shall be included in the drawings, and be stamped and wet-signed by the design professional.
3. Construction details for the wall, stamped and wet-signed by the design professional. Details must be job specific and clearly depict the work proposed. Generic details are not acceptable.
4. Structural calculations substantiating the proposed construction of the wall. These shall be stamped and wet-signed by the design professional.
5. When applicable, also submit 2 copies of your project's geotechnical report.

*The design professional is responsible for developing a special inspection program. Special inspections are done by outside agencies specializing in certain inspections, such as concrete and masonry testing, compaction testing, etc.

Please contact the Building Department with any additional questions or go to our website to obtain more information on building plan submittal and plot plan requirements. <http://www.co.calaveras.ca.us/cc/Departments/BuildingDepartment.aspx>

Figure 1: Permit Required

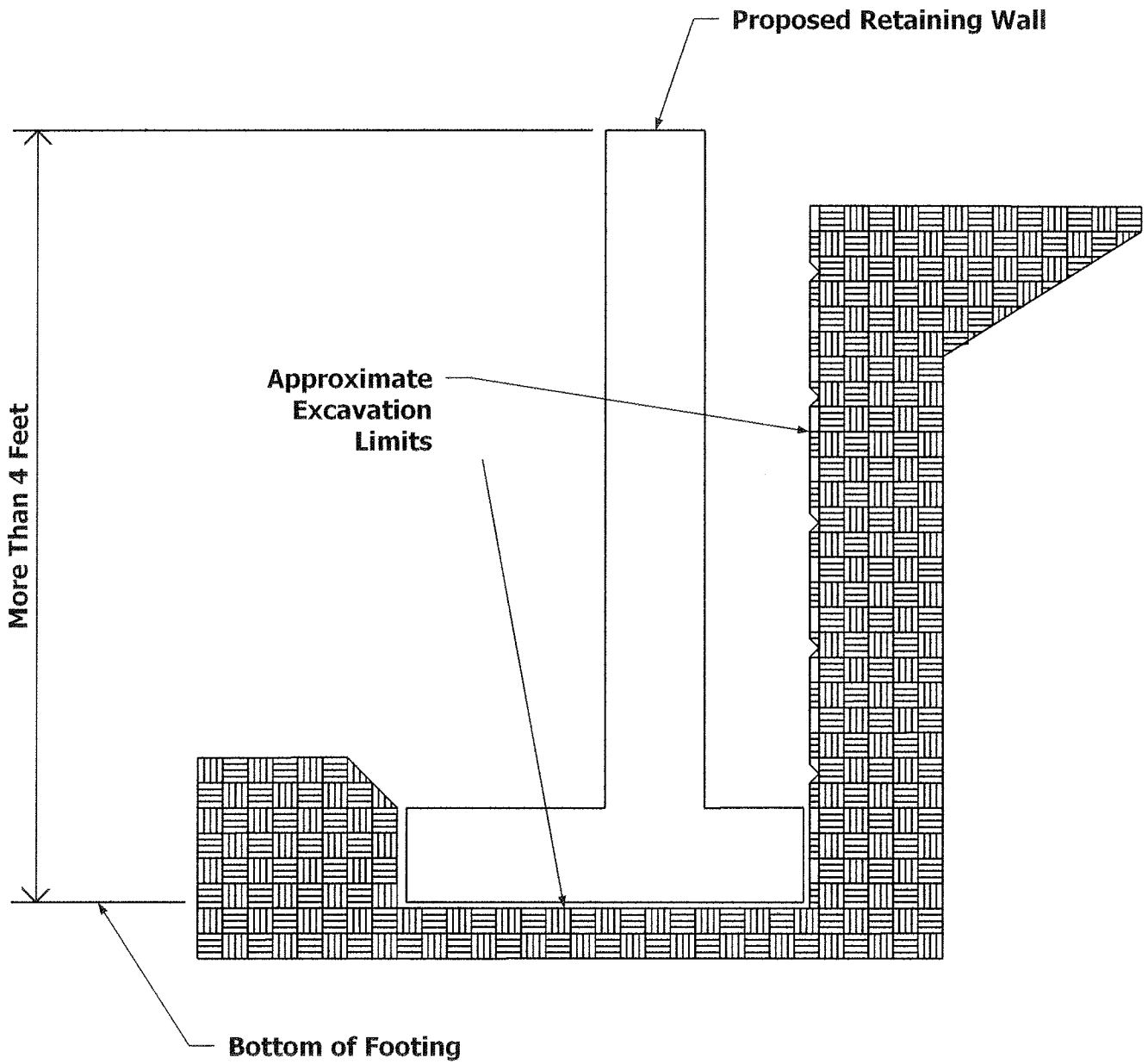


Figure 2: Sloped Backfill

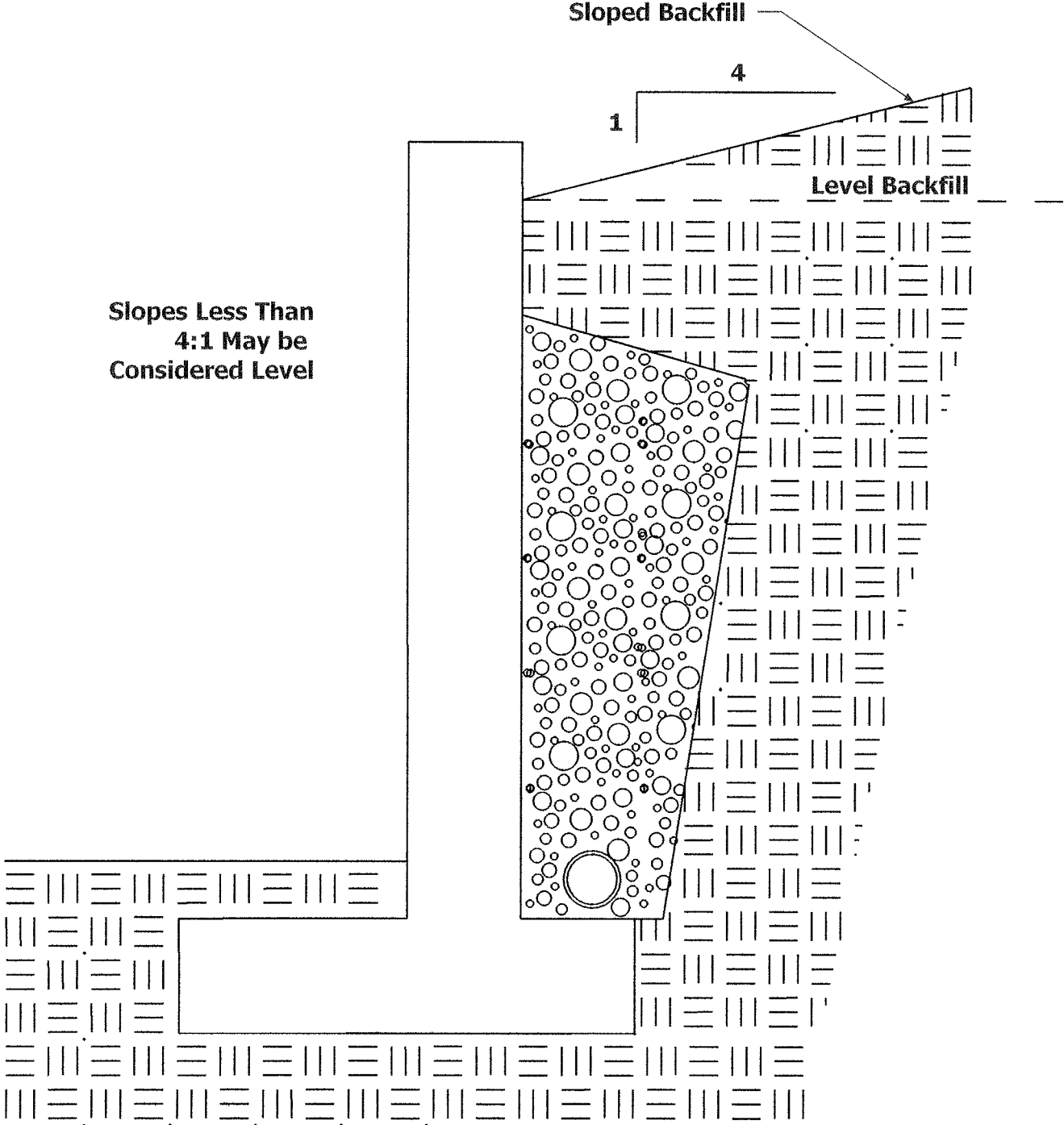


Figure 3: Footing Surcharge

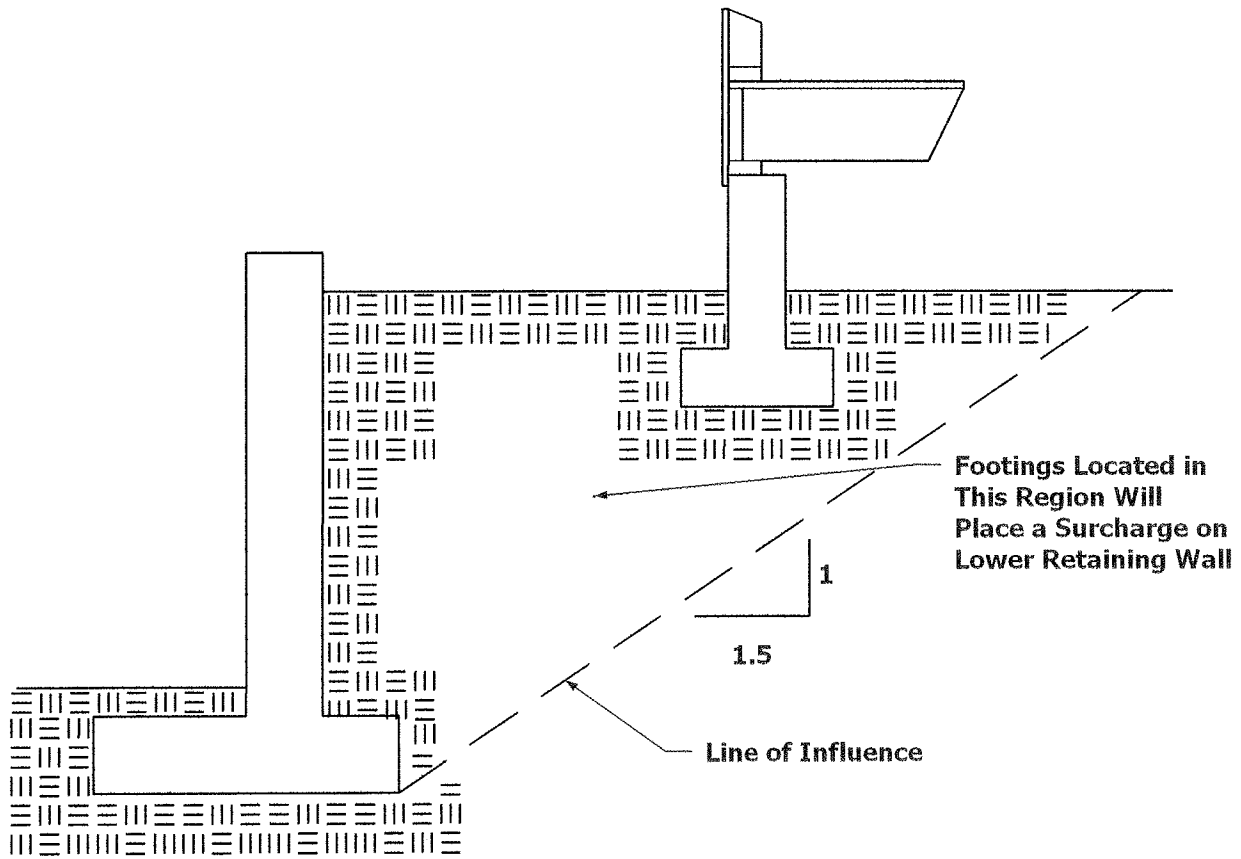


Figure 4: Vehicle Surcharge

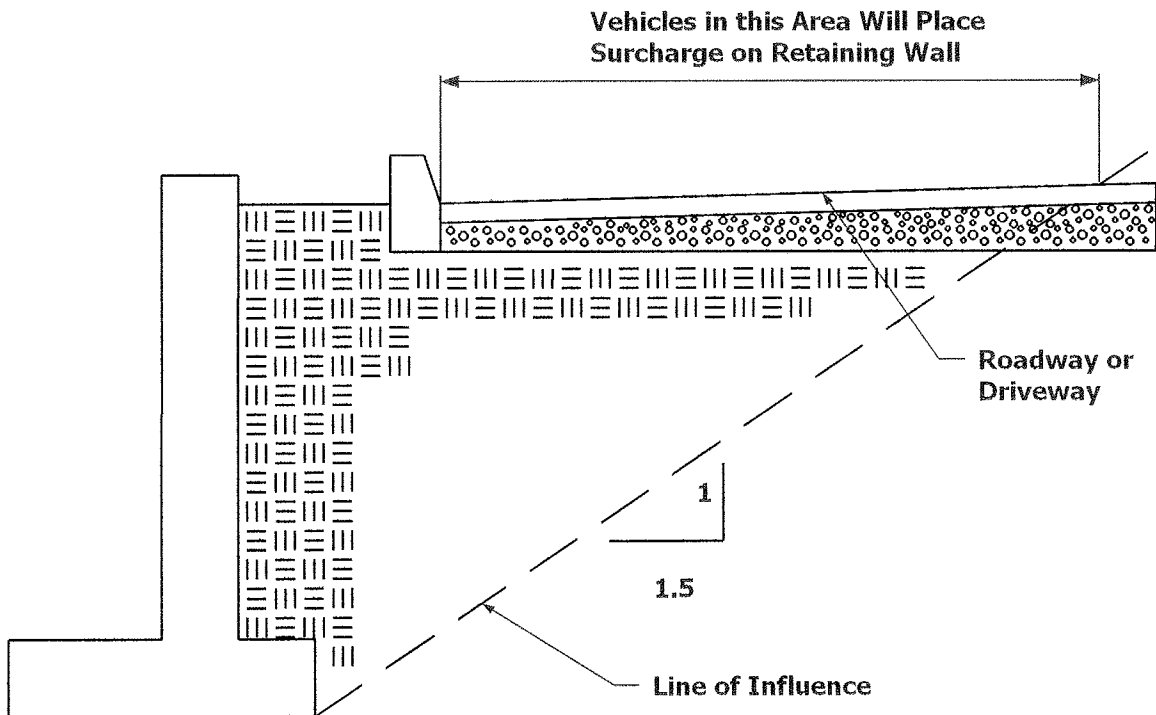


Figure 5A: Tiered Retaining Wall

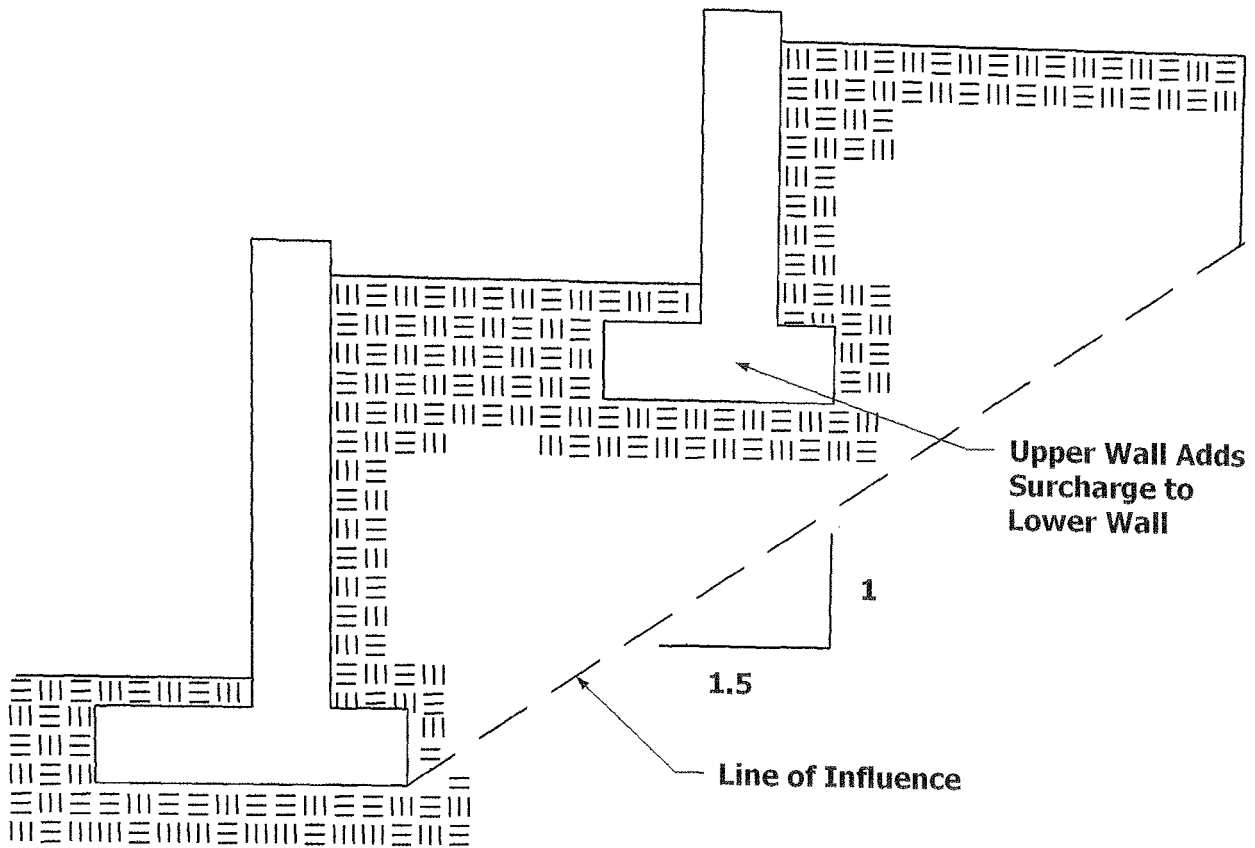


Figure 5B: Tiered Retaining Wall

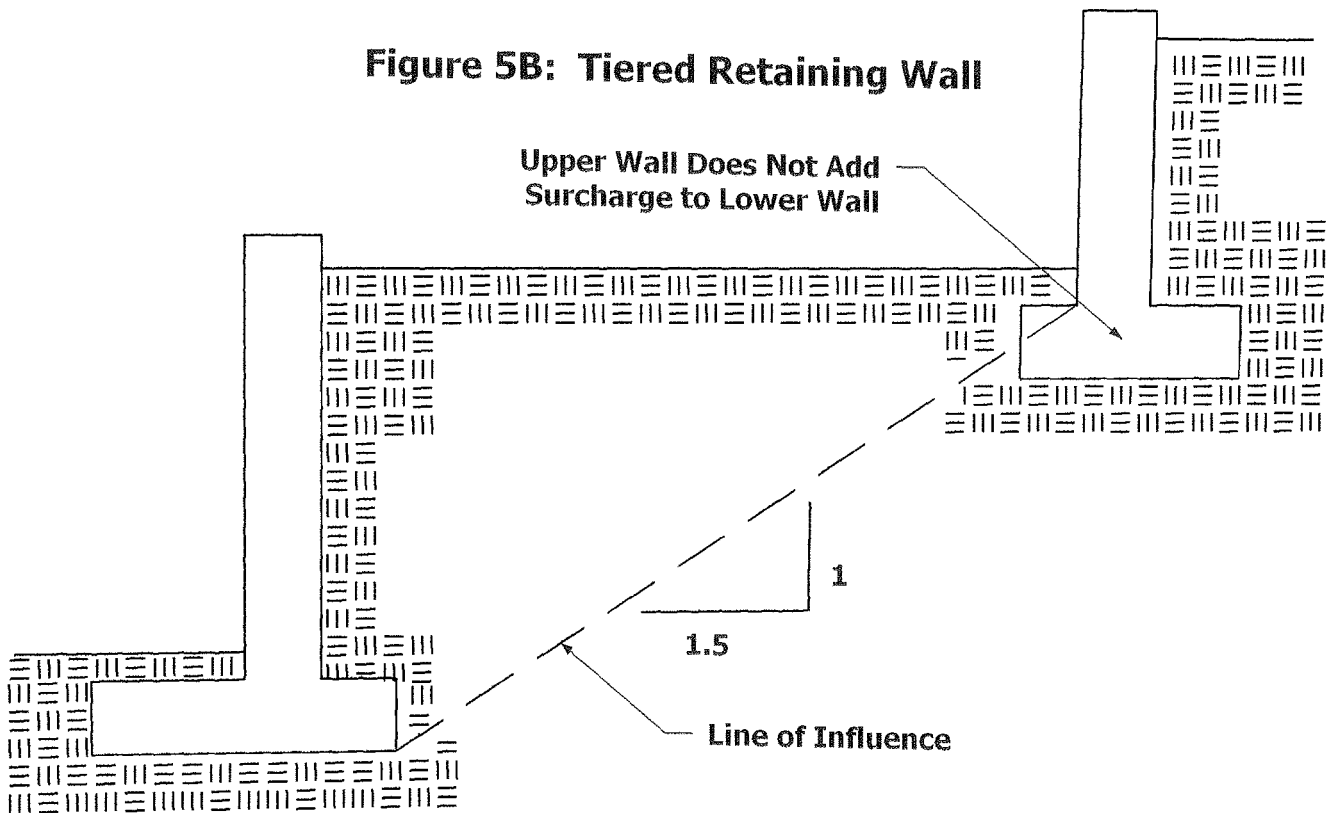


Figure 6: Surcharge Imposed by a Fence

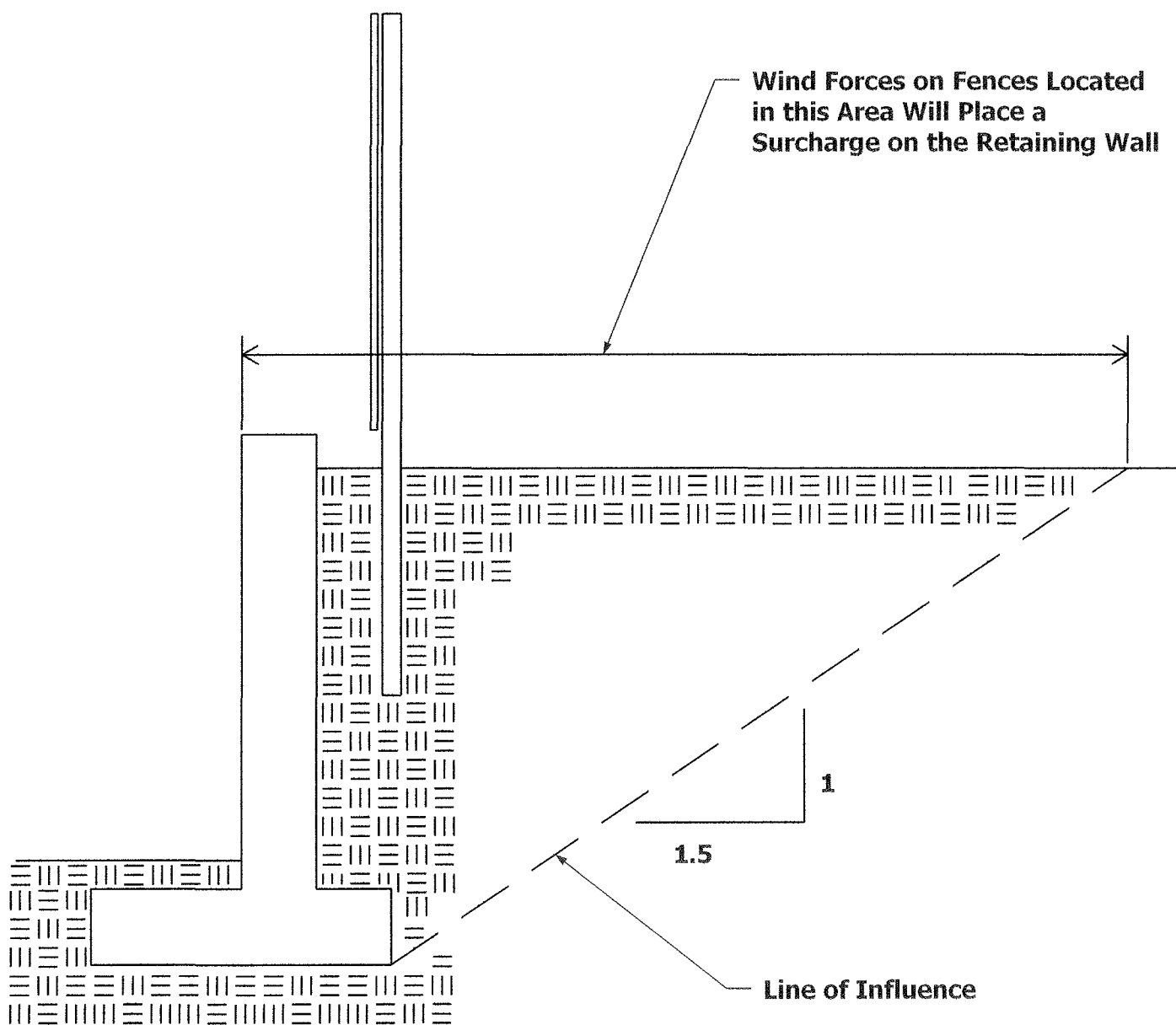


Figure 7: Surcharge Imposed by a Tree

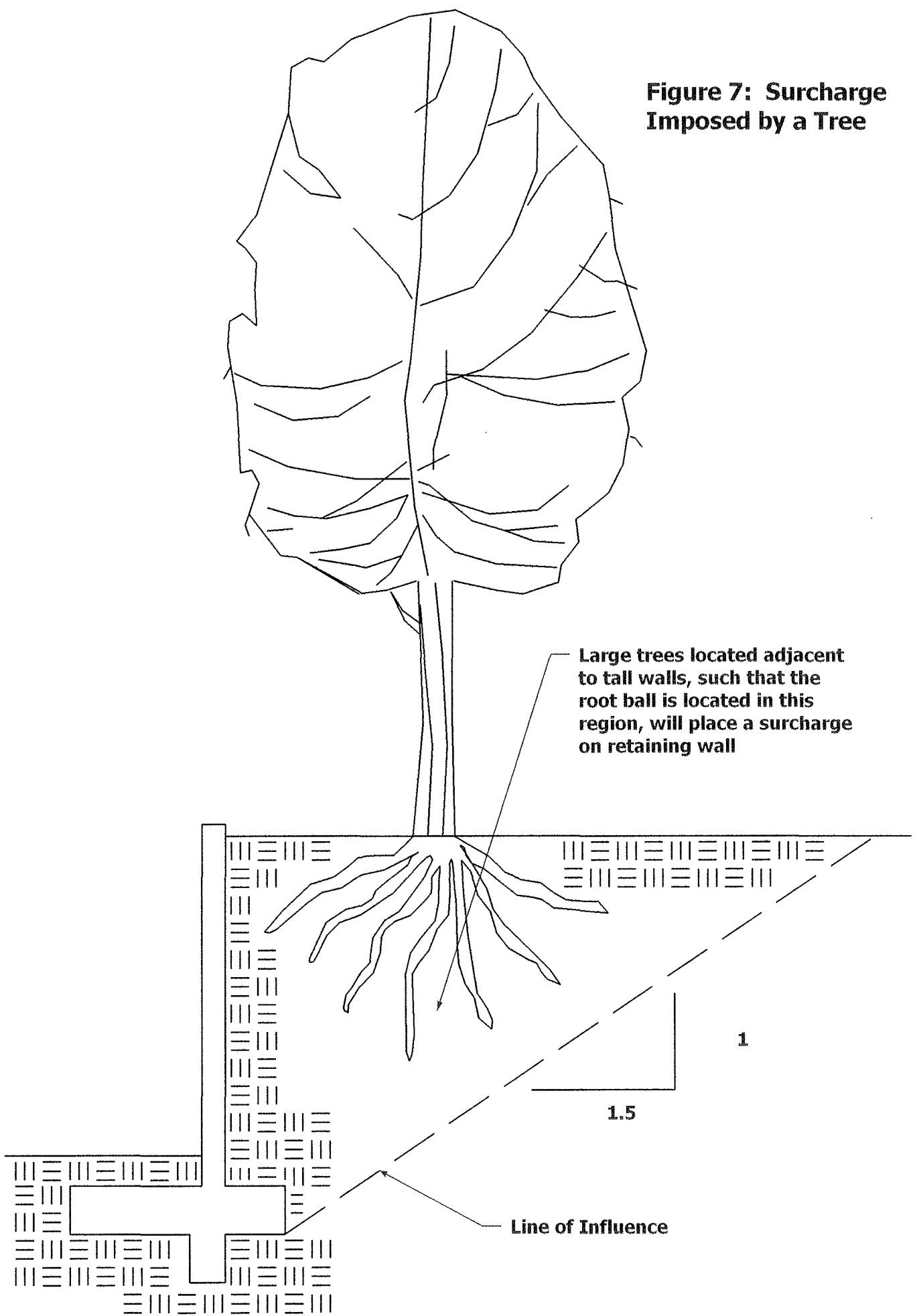


Figure 8: Definition of Retained Height

