

MATEO MEADOWS PRE-LOAD PROCESS



In preparation for the start of construction on our townhome and mixed-use community here at Mateo Meadows, we are, per the recommendations of our geotechnical engineers, working to stabilize the subsurface soil beneath the future buildings through a process called pre-loading (surcharging). The aim of this process is to compress alluvial soil deposits near the surface prior to the start of construction, thereby preventing the significant post-construction settling that would otherwise occur by building on top of the soft soil of the Nooksack River Floodplain. These methods will, in addition to protecting our community from future static settling, protect against seismically induced, liquefaction-related settlement.

The Mateo Meadows Project, which will include 2 three-story mixed-use buildings, and 6 two-story townhome buildings, is located within the Nooksack River Floodplain. The site is designated by FEMA as an AE Flood Zone. In keeping with our climate-conscious construction methods, this community is planned to have finished floors that are 2 feet above the base flood elevation of the Nooksack.

Last February, our geotechnical engineers completed subsurface explorations on our project site through a series of excavated test pits and cone penetration tests. These tests gave them a detailed outlook of the soil makeup of our project site. Most of the site consists of stratified layers of alluvial soils—mixtures of sand and silt from floods of years past. This composition is, according to our engineer, suitable for a project of this scale.

Because, however, of the relatively soft texture of much of the soil, the engineer determined that the sizable buildings we plan to construct will place a significant enough load on the soil subsurface to create static post-construction settlement, predicted to be approximately 3 inches in total. This prediction exceeds the acceptable amounts of static settlement, generally understood to be 1 inch or less. Additionally, because we are building in a flood plain in the Pacific Northwest, our site is susceptible to seismically-induced, liquefaction-related settlement.

Per our engineer's recommendations, we plan to induce this static settlement prior to construction through a method called pre-loading (surcharging). The mixed-use building footprints will be pre-loaded with an additional 3 feet of surcharge fill compacted atop the structural fill. In the case of our townhome buildings, the 4.5 feet of structural fill that sits below our foundations will be sufficient to pre-load without the need for additional surcharge fill. These methods will also help protect our community in the case of the aforementioned seismically-induced settlement.

Following our initial excavation of topsoil to native alluvial soils, roughly 4.5 feet of structural fill will be compacted to attain our proposed slab elevations for the sites of both the mixed-use and

townhome buildings. Following this, an additional 3 feet of surcharge fill will be compacted above the structural fill in the mixed-use sites. It will have a compacted dry density of 130 to 140 pounds per cubic foot which replicates the anticipated building load conditions. We anticipate that, once the fill is compacted, the pre-loading process will take 3 months to reach desired settlement.

We plan to monitor the amount and rate of settlement by having surveyors observe changes at settlement markers placed at the site of each future building. Rapid settlement will likely occur in the first two weeks, followed by a gradual decline until the soil stabilizes to a degree acceptable for construction.