Guardrail

Guardrail may be used to protect against critical slopes and/or fixed objects. Guardrail is in and of itself a fixed object, so it should be placed with consideration. Guardrail should meet crashworthy standards in all placements. Guardrail should be considered on slopes steeper than 3:1 with a fill height over 10 feet. To give vehicles sufficient opportunity to recover without impacting an obstacle, guardrail should be placed as far away from the traveled way as is practical. Additional guidance on guardrail should be sought from the AASHTO Roadside Design Guide.

Barrier Installation

To protect against rollover crashes, guardrail should be 31" (±1") above the road surface and should have a minimum of 2' soil backing at a slope of 10:1 or flatter. If placing 2' of fill material behind the barrier is not practical, longer post lengths may be used.

Barrier End Treatments

If the end of the barrier system/guardrail is located within the clear zone, it must be anchored and shielded with end treatments. Guardrail end treatments are frequently used to minimize the severity of impacts with fixed objects by gradually decelerating an impacting vehicle to a stop or redirecting it around the object of concern. Barrier end treatments should comply with MASH guidelines.

The preferred end treatment for guardrail sections is to anchor the guardrail in a backslope terminal, known as a Type 3 end treatment, at appropriate height. If the guardrail can be anchored out of the clear zone, an anchored end treatment Type 2A may be used, which installs a terminal Section No. 1. When these types of end treatments are not feasible, a Type 1 (Energy Absorbing Straight-Line Terminal) is preferred.

A Type 7, commonly known as a turn down end treatment, does not meet MASH crash guidelines and is only permitted on low speed / low volume roadways. These should be used only when adequate recovery zones are unavailable for other preferred end treatment types.