

53.41 MILLED RUMBLE STRIPS

53.41.1 GENERAL

This specification covers the construction of milled rumble strips on the shoulders of roadways to alert drivers when they leave the travel lanes, on centreline of undivided highways to alert drivers of no-passing zones and across the travel lanes to alert drivers of an upcoming stop condition.

53.41.2 EQUIPMENT

The milling machine shall be equipped to meet or exceed the following requirements:

- ! For milling of shoulder strips, the cutting head shall be capable of producing grooves meeting the requirements as shown on Dwg. No. CB6-3.52M1 or CB6-3.52M2 as applicable.
- ! For milling of rumble strips for stop conditions, the cutting head shall be capable of producing grooves meeting the requirements as shown on Dwg. No. CB6-3.52M3.
- ! For milling of rumble strips on centreline for no-passing zones, the cutting head shall be capable of producing grooves meeting the requirements as shown on Dwg. No. TEM-3.52M4 or TEM-3.52M5 as applicable.
- ! The machine shall either be equipped with an integral sweeping device mounted directly behind the cutter or,

a separate sweeping operation shall be conducted as construction of the rumble strips progresses within the signed construction zone.

The Contractor shall supply a truck mounted sequential arrow board in accordance with Specification 53.38, Supply of Arrowboards for Traffic Control.

53.41.3 PROCEDURE

53.41.3.1 Construction of Milled Rumble Strips

For milling of shoulder strips, the Contractor has the option of choosing either the intermittent typical layout or the continuous typical layout for milled rumble strips. The Contractor shall construct milled rumble strips as shown on either Drawing CB6-3.52M1 - Typical Layout for Continuous Milled Rumble Strips for Shoulders or CB6-3.52M2 - Typical Layout for Intermittent Milled Rumble Strips for Shoulders.

When required, the Contractor shall construct milled rumble strips for stop conditions as shown on Drawing CB6-3.52M3 - Typical Layout for Milled Rumble Strips for Stop Conditions. Due to space constraints, it may not be possible to construct all of the strips at some intersections. In these cases, the Contractor shall construct the number of strips as shown in the Work Order or as directed by the Engineer.

When required, the Contractor shall construct milled rumble strips on centreline to delineate no-passing zones as shown on Drawing TEM-3.52M4 or TEM-3.52M5 as applicable. Centreline rumble strips shall only be constructed in zones where passing is prohibited in both directions.

No grooving will be done across intersections, tapers or accesses nor at any other locations specified by the Engineer.

After milling the grooves, the Contractor shall pickup and dispose of all detritus created from the milling operation.

53.41.3.2 Acceptance Criteria

The completed milled rumble strips shall be constructed in accordance with the plans, shall show careful finished workmanship and when measured shall not show any of the following defects:

- ! Groove length variation of more than 10 mm;
- ! Groove spacing variation more than 40 mm.

Patterns of milled rumble strips constructed outside the tolerances as shown on the plans or exhibiting any of the above defects will be rejected, and the Contractor shall be responsible for repairing the unacceptable work.

53.41.4 TIME TO COMPLETE

The Contractor shall complete the Work within 60 calendar days of the issuance of the Work Order.

53.41.5 MEASUREMENT AND PAYMENT

53.41.5.1 Milled Rumble Strips

Measurement of milled rumble strips will be made parallel to the road centreline, to the nearest 0.001 km of through highway chainage for each side of the road where accepted milled rumble strips have been constructed.

Payment will be made at the unit price bid per kilometre per side for "Milled Rumble Strips." Payment will be the same for either the continuous or intermittent layout pattern. This payment will be full compensation for constructing the milled rumble strips and removing and disposing of all debris.

53.41.5.2 Milled Rumble Strips for Stop Conditions

Milled Rumble strips for stop conditions will be measured by the set as the total of all completed strips at each stop location.

Payment will be made at the unit price bid per set for "Milled Rumble Strips for Stop Conditions". This payment will be full compensation for constructing the milled rumble strips and removing and disposing of all debris.

53.41.5.3 Milled Rumble Strips for No-Passing Zones

Measurement of milled rumble strips for no-passing zones will be made to the nearest 0.001 km of through highway chainage where accepted milled centreline rumble strips have been constructed.

Payment will be made at the unit price bid per kilometre for "Milled Rumble Strips for No-Passing Zones." Payment will be the same for either the continuous or intermittent layout pattern. This payment will be full compensation for constructing the milled rumble strips and removing and disposing of all debris.

53.41.5.4 Traffic Accommodation

Payment for the supply and operation of the truck mounted arrowboard will be made in accordance with Specification 53.38, Supply of Arrowboards for Traffic Control.

53.41.6 WARRANTY

There is no warranty period for this Work.