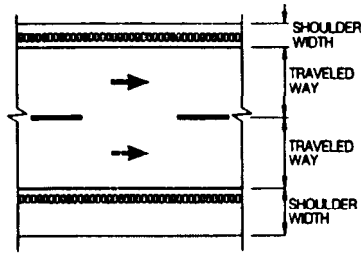
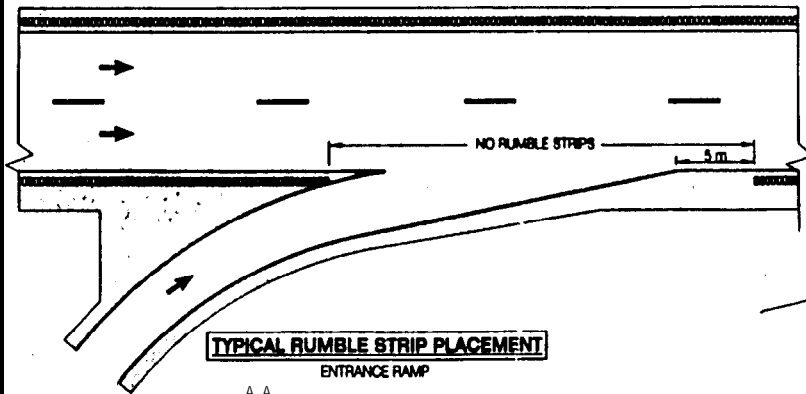


TWO WAY TRAFFIC LAYOUT

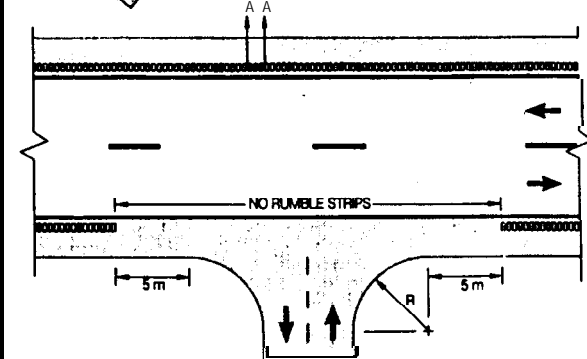


DIVIDED HIGHWAY LAYOUT



TYPICAL RUMBLE STRIP PLACEMENT

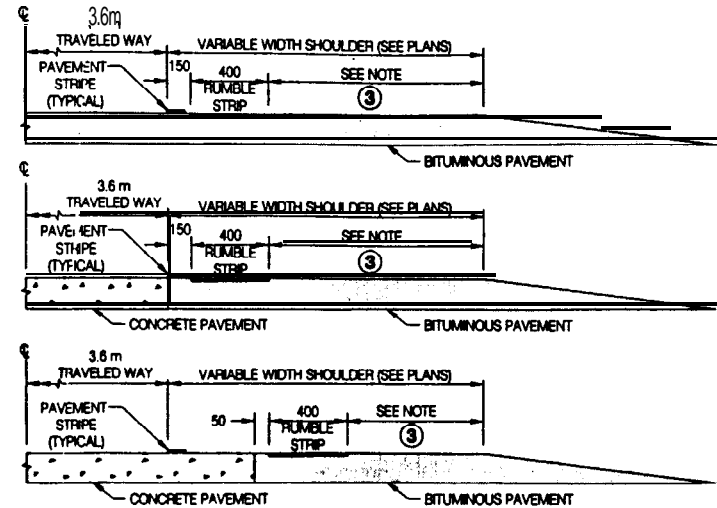
ENTRANCE RAMP



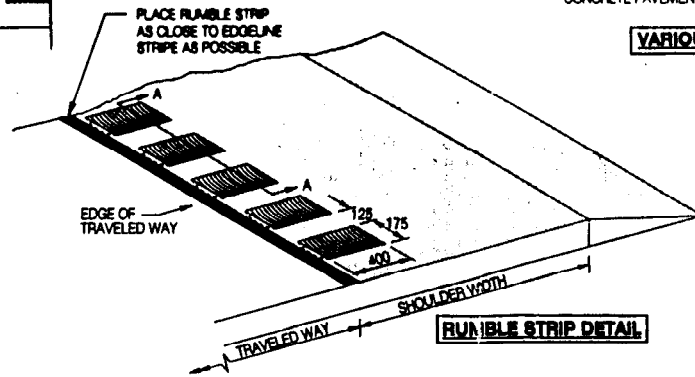
TYPICAL RUMBLE STRIP PLACEMENT

PRINCIPAL INTERSECTION

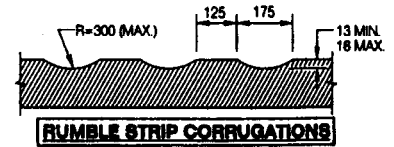
NOTE:
ALL DIMENSIONS GIVEN ARE IN MILLIMETERS (mm)
UNLESS NOTED OTHERWISE.



VARIOUS SHOULDER CONFIGURATIONS



RUMBLE STRIP DETAIL

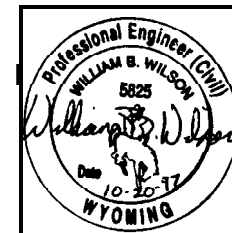


RUMBLE STRIP CORRUGATIONS

SECTION A-A

GENERAL NOTES

- ① Rumble strips shall be placed cm all bituminous shoulders as indicated in this standard plan and in accordance with the project plans. Rumble strips are not normally required on city streets and other urban shoulders adjacent to curb and gutter unless specifically noted in the plans.
- ② Rumble strips may be continuous through all minor approaches and shall be omitted across principal intersecting roadways.
- ③ Maximize clear shoulder width to accommodate bicycle traffic. AASHTO Bicycle Guide recommends a minimum 1.2m width where possible.
- ④ Striping shall be done by State Maintenance Forces unless otherwise shown in the plans.



WYOMING DEPARTMENT OF TRANSPORT/
STANDARD PLAN

**BITUMINOUS SHOULDER
RUMBLE STRIPS-MILLE**

Date Issued	OCTOBER, 1987	STANDARD PLAN
Designed by	WJW	
Drawn by	KJD	
Checked by	WJW	
Revised by	ENCL. SEE	

**M401-0
SHEET 1 C**

Contractor's expense unless the changes are the direct result of changes made in the job mix formula by the Materials Program.

The Engineer will evaluate and report the results of the test strip to the Contractor within 24 hours after construction of the test strip is completed. Once it has been determined by the Engineer that the required density can be achieved, the remaining hot plant mix bituminous pavement shall be placed and compacted in accordance with the provisions of Section 401.

Payment for materials used in the test strip will be made if the average density is greater than 92.0% and the range is less than 8. The 10 samples from the test strip will be divided into two, five sample lots. A pay factor will be calculated for each lot. Each lot will represent one-half of the material placed in the test strip.

401.0396 Rumble Strips. When shown on the plans, rumble strips shall be constructed in the final plant mix surface to the dimensions and shapes detailed in the plans. An acceptable method for producing the rumble strips is to roll the plant mix while it is still hot with a 11 t vibratory roller with segments of 50 mm, outside diameter pipe welded to the drum. The pipe segments shall be welded to the roller drum. The roller shall be equipped with a sighting device which will enable the operator to maintain alignment.

The rumble strip rolling operation shall be completed before the temperature of the plant mix cools to 82°C.

The Contractor may use other methods which produce satisfactory rumble strips such as grinding or sawing, equipment if approved by the Engineer.

During the initial placement of the plant mix, adjustments in the methods of installing the rumble strips shall be tried to determine the method that achieves the best results. The variations shall include using both the static and dynamic modes

on the vibratory roller with various frequencies and amplitudes in the vibratory mode and adjusting the location of *the* roller behind the paving machine. Once the best method is determined, it shall be used during the remaining operations.

4010397 Compaction. Immediately after the bituminous mixture has been placed it shall be thoroughly and uniformly compacted by rolling. Rolling shall be continued while the mixture is in a workable condition until density has been achieved. Density samples will be taken in accordance with AASHTO T 230 (Wyoming Modified), or the density will be determined by the use of nuclear density gauges.

Final rolling of the plant mix pavement shall be completed to the required density prior to the mixture reaching a minimum temperature of 82°C.

The number, weight, and types of rollers furnished shall be sufficient to obtain the required compaction without undue displacement, cracking, or shoving. Pneumatic tires shall be inflated to obtain the contact area pressures as provided in subsection 401.088. The roller shall be operated with the drive wheels or drums nearest the paver.

When the pavement is placed in echelon or abutted against a previously placed lane, rolling shall begin with the longitudinal joint followed by the established rolling procedure. On superelevated curves, the rolling shall begin at the low side and progress to the high side by overlapping of longitudinal passes parallel to the centerline.

Along forma, curbs, headers, walls, and other areas not accessible to the rollers, the mixture shall be thoroughly compacted with hot hand tampers, or mechanical tampers. On depressed areas, a trench roller may be used, or cleated compression strips may be used under the roller to transmit compression to the depressed area.

After completing compaction of the plant mix pavement, density tests will be performed using the following procedures: