



OFFICE MEMORANDUM

DATE: November 12, 1981

TO: R. C. Mainfort, Supervising Engineer
Soils and Bituminous Systems Research Unit

FROM: J. H. DeFoe

SUBJECT: Final Report, Evaluation of 'Monoslabs' for Paving Ditches and Service Drives. Research Project 74 NM-398, Research Report No. R-1183

Summary

'Monoslabs,' precast concrete paving blocks, were used experimentally as a ditch lining and as a paving for a lagoon service drive in a rest area. Erosion has undercut the Monoslabs in the ditch and after four years service has resulted in severe faulting and collapse of the Monoslabs in the bottom of the ditch.

As a paving material for the service drive the Monoslabs continue to provide a firm driving surface showing no sign of deformation or distress.

Introduction

In August 1976, at the request of the Engineer of Testing and Research, the Research Laboratory initiated this evaluation of Monoslabs. Monoslabs had previously been approved by the New Materials Committee for use as a light riprap for erosion control. This study was performed as an FHWA Category 2 experimental construction in accordance with Experimental Work Plan No. 48.

Monoslabs, a proprietary product of Mono Concrete, Ltd., Croydon, England, are precast concrete slabs approximately 24 by 16 by 5 in. weighing 77 lb and have a waffle-like configuration (Fig. 1).

A progress report* describing the Monoslabs, the construction sites and installation (in 1977) of the Monoslabs was published by the Research Laboratory in 1978.

* Purdy, S. L., "Evaluation of Monoslabs for Paving Ditches and Service Drives," MDOT Research Report No. R-1089, April 1978.

Evaluation Program

Methods involved in the construction of the ditch and service drive and their paving with Monoslabs were observed by Research Laboratory personnel. The initial eroded condition of the ditch was noted and photographed as a basis for comparing future performance.

Performance of the installation was monitored periodically. The ditch was inspected for signs of erosion under and around the Monoslab paving. The service road was observed for signs of excessive deformation due to traffic or frost action.

Photographs, showing the condition of the Monoslab installations, were taken throughout the evaluation period.

Results

Displacement and collapse of the ditch lining due to erosion under the Monoslabs is shown in Figure 2; the as-constructed ditch and its present condition are shown together for comparison.

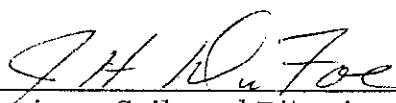
Figure 3 shows the rest area service drive paved with Monoslabs in its present condition. The surface is stable and shows no sign of displacement. Turf is well established within the Monoslab cells and the grass can be readily mowed.

Conclusions

Monoslabs provide a firm durable surface suitable for occasional traffic normal in turfed and landscaped areas.

As a ditch lining the Monoslabs are not recommended because of erosion and undercutting. The ditch grade at Novi was 5.9 percent; Monoslabs may perform well in ditches with lower gradients.

TESTING AND RESEARCH DIVISION



Supervisor, Soils and Bituminous
Mixtures Group

JHD:bt

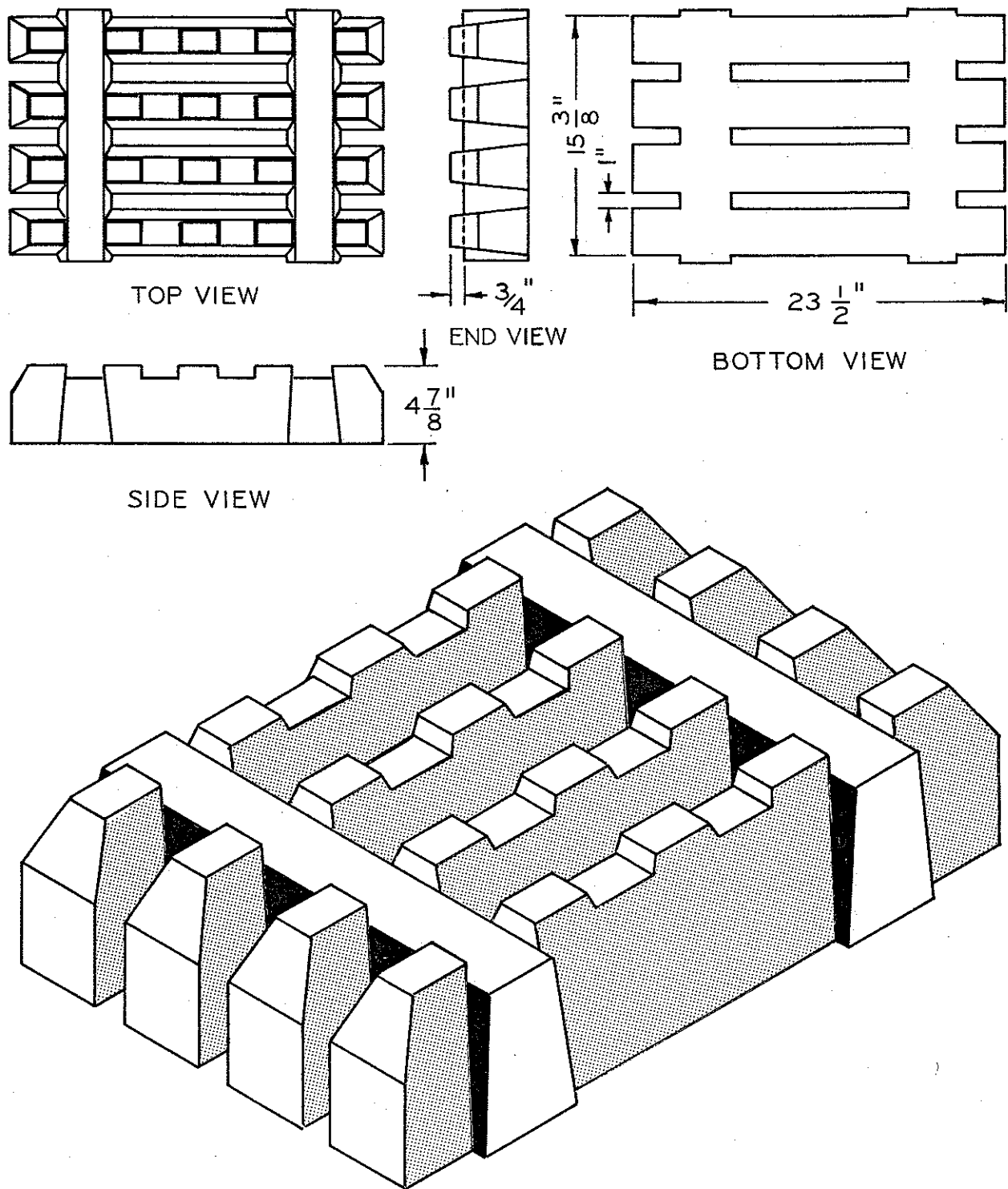
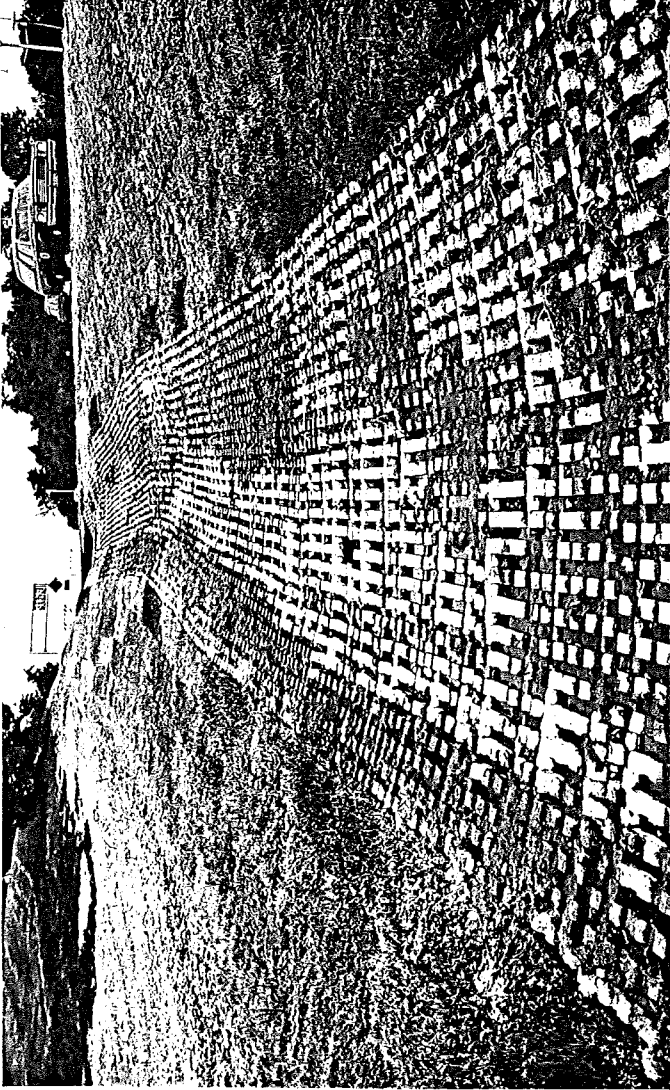
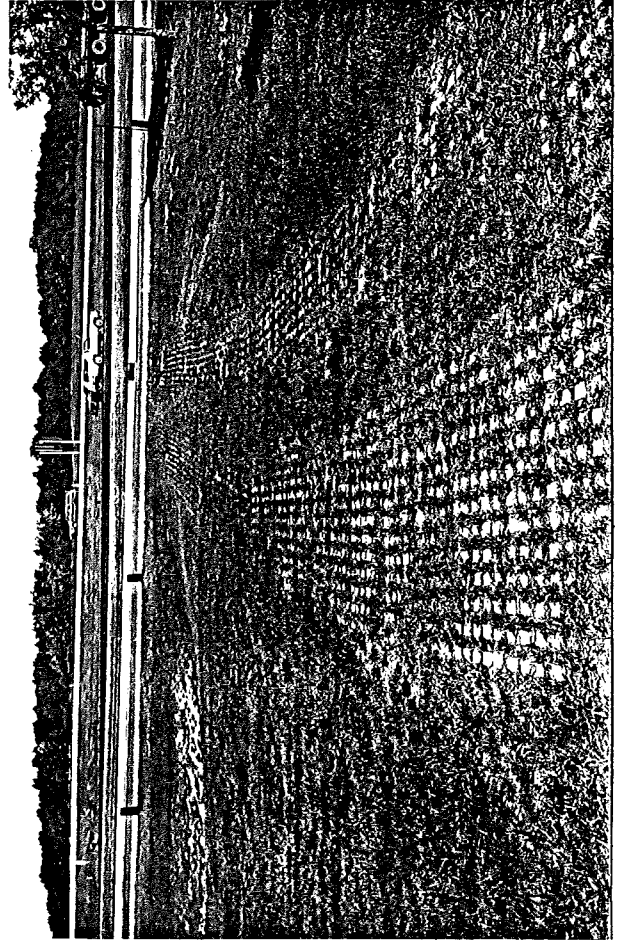


Figure 1. Configuration of a Monoslab section.

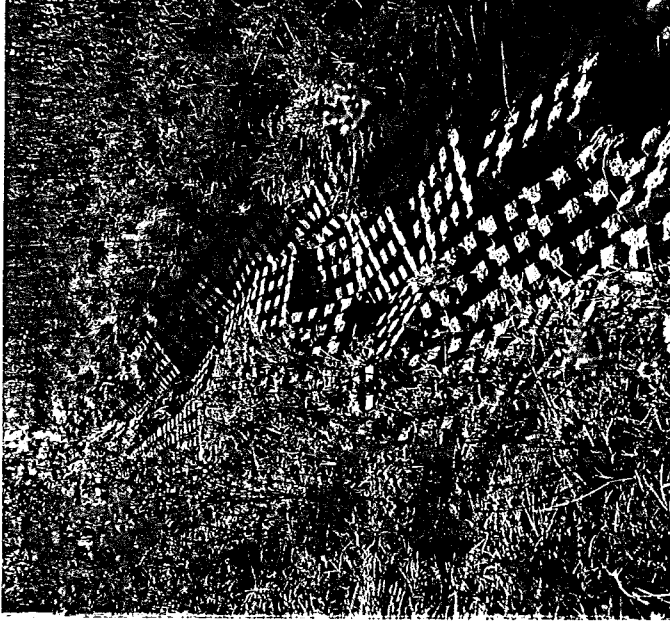


Completed ditch lining immediately after construction.

▲ Figure 2. Monoslab ditch lining at the Novi rest area.



▼ Figure 3. Service drive at Grand Ledge rest area after four years of service.



Ditch lining after four years service.