

MEMORANDUM
00-06

July 31, 2002

To: District Directors
District Construction Engineers
District Materials and Tests Engineers
District Area Engineers
Project Engineers/Supervisors
Toll Road Manager

From: Timothy D. Bertram, Chief
Contracts and Construction Division

Subject: Conclusions of the Report on Embankment Widening
(JHRP -99/4)

In the recent past, INDOT has had some projects that have involved embankment widening and/or steepening of embankment slopes to keep within existing right-of way lines. There have been some recent failures on interstate acceleration and deceleration lanes and ramp widening projects. A Joint Transportation Research Program study (JTRP-99/4) was initiated by INDOT's Materials and Tests Division, Geotechnical Section and Purdue University to investigate the causes of these failures and successes of other projects. They also evaluated INDOT's Standard Specifications to help reduce the potential for failure and eventually avoid future similar failures. This investigation has been completed and the following information is the results of that study.

A primary cause of the failures is the lack of applying good construction practices by the construction contractors and INDOT personnel. It appears that very little quality control testing was performed on the compacted soils in the embankment material on some projects. In some cases, the research study team found that the existing vegetation was never stripped prior to the widening material being placed. They also found that benching that was required by the plans and specification was either not being performed or was constructed but not to the required widths. The slope failures investigated may not have occurred if INDOT Standard Specifications were followed.

The conclusions of the study are that several factors contributed to the failures. These include: 1) Sub-standard compaction of the embankment fills, 2) Inadequate benching into the original embankment and 3) Infiltration of surface runoff into the embankment soils possibly saturating and softening the soils. (Control of surface water reduces surficial erosion and sloughing.)

INDOT engineers/supervisors and technicians throughout the state need to be aware of how important and critical it is to insure that contractors construct the embankment widening areas according to the plans and specifications. The potential for failures when our specifications are not followed is almost certain. Please review with your contractor, prior to performing the work, specifications 203.21, 203.22 and any other special provisions that pertain to your contract when widening existing embankments.

NZ/DAK