DESIGN MEMORANDUM NO. 5-95

TO:	Chief District Engineers Design Engineers Active Consultants
FROM:	John B. Sacksteder, Director Division of Highway Design R.K. Sutherland P.E., Director Division of Bridges
DATE:	June 13, 1995
SUBJECT:	Bridge Scour Calculations

The determination of the anticipated scour in the vicinity of a proposed bridge is based upon the procedures shown in H. E. C. =18 and =20. One of the parameters of this procedure is the average size of the BED MATERIAL. Prior to the bridge soundings, an average particle size (D_{50}) must be determined by reviewing the available soils information for the general area

The general and local scour are calculated based upon this and other assumptions.

The drainage engineer selects a span arrangement which will minimize the scour based upon hydraulic and geometric criteria. This span arrangement is reviewed by the bridge office. If this arrangement is acceptable, the bridge information is forwarded to Geotech and the bridge is sounded. The soils information from this sounding may be vastly different than the information assumed. If the weighted D_{50} for the soil in the vicinity of the abutments or piers is <0.7 or >1.4 times the D_{50} assumed in the preliminary scour calculations, the sounding information shall be sent to the designer who will recalculate the bridge scour. This scour shall then be reviewed by the drainage engineer, and resubmitted to the bridge designer.

Any changes in the span arrangement should be reviewed by the drainage engineer (District or Consultant(, bridge designer (Central Office or Consultant, Central Office Drainage Engineer, and Geotech Engineer (Central Office or Consultant). Any major change in the bridge length or span arrangement should have approval from the Assistant District Engineer for Preconstruction.

Any questions generated by the application of this memorandum should be addressed to Gary S. Poole, Chief Drainage Engineer, Division of Highway Design or Charles So, Division of Bridge Design. This memorandum shall become void when superseded or its contents are placed in the appropriate design manual.