

### *Sec. 7.01* **Introduction**

One of the most significant input parameters for any design activity is the survey data. The importance of complete information cannot be over emphasized. It is the responsibility of the District Survey Manager to insure that the data is complete and accurate when the initial survey data is sent into the Central Office or transmitted to the District Structure & Bridge Engineer.

The amount and detail of survey data to be collected should be commensurate with the complexity of the hydraulics of the site, stream stability and the importance and/or classification of the highway facility. The individual directing the field hydraulic survey should have a general knowledge of the design activity that will use the data. Surveys for unusual or complex situations and flood plain surveys for major structures shall be coordinated with the hydraulics designer.

For the purpose of this chapter, all facilities employed to convey or retain water will be classified as "hydraulic and drainage structures, or bridges". Culverts with a diameter less than three feet (**3 ft**) or clear span and ditches with a top width less than ten feet (**10 ft**) shall be considered "small drainage structures". Culverts with a diameter or clear span of three feet (**3 ft**) to twenty feet (**20 ft**) and channels with a top width equal to or greater than ten feet (**10 ft**) shall be considered "large drainage structures". Structures with a clear span or diameter greater than twenty feet (**20 ft**) shall be considered major drainage structures.

### *Sec. 7.02* **General**

Sufficient data shall be obtained to accurately determine the drainage requirements. Any existing structure if not built in accordance with a standard plan or for which there are no bridge plans on file, shall be carefully measured with details shown by sketches. Existing fee right-of-way, property line data and prescriptive easements will be shown on all hydraulic and drainage structures, or bridges surveys. <sup>◇</sup>

Where a structure in place is not functioning properly and/or is to be replaced, all data required for new sites shall be obtained.

Where the location parallels an existing road, as in the case of a survey for a dual lane road, locate all pipes and culverts under the existing road. Give accurate invert elevations at the inlet and outlet ends. Extend the profile of the streambed up and downstream beyond each respective lane a sufficient distance to determine the profile of the stream. This is most important as the pipes and culverts under the new lane must be designed to function with the existing structure. DTM readings should be extended a minimum of 50 feet beyond the construction limits of the existing road, at each existing culvert, to accurately define the terrain near the culvert.

At times survey data is secured only on one side of an existing road where a parallel lane is to be constructed. In these cases, it is necessary to secure complete drainage data on both sides of the existing lane.

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<sup>◇</sup> March 3, 2014