



multiple in-channel bars, advancing bars, or evidence of systemic mass wasting were also noted for field examination.

### 3.2.2 Geomorphic Field Investigation

Geomorphologists collected field data on approximately 16,300 linear feet of channel. The detailed investigation was limited to the main stem of Sugar Creek from River Street to the confluence with Two Mile Creek. A reconnaissance level review of approximately 7,200 feet of Hightower Creek and Brown's Canal preceded the main stem field work. Most of the data collection occurred on January 14 and 15, 2010. To improve the efficiency of data collection and reduce the likelihood of transcription errors, all field data were collected in hand-held computers in ArcPad format. The City supplied base data and projection files. Immediately after field collection, all data were downloaded to ArcView files.

The following 10 themes shown in **Table 3.2.1** represent the collected field data. The themes include 109 data parameters.

**Table 3.2.1. Geomorphic Field Data**

Bed and Bank material type (collected separately) and bed consolidation
Channel bar type and condition
Channel profile
Channel cross section
Erosion and mass wasting
Vegetative bank protection and condition of riparian corridor
Outfalls
Infrastructure crossings
Photographs
Notes

The data organization is a modification of the approach described by Johnson, Gleason, and Hey (1999). Dr. Johnson's team developed an approach of rapid, efficient data collection that is oriented towards assessing stability in streams affected by infrastructure. The paragraphs below detail the data collected and their relevance to channel process.

#### *Material*

The material theme consists of 12 bed and bank material parameters, including bed or bank material type, bed material shape, degree of consolidation or imbrication, and approximates bed material gradation (D90, D60, etc.). These data and their distribution through the project reach inform assessments of present and future resistance to erosion. Particle sizes, such as D90 and D50, are indicators of stream