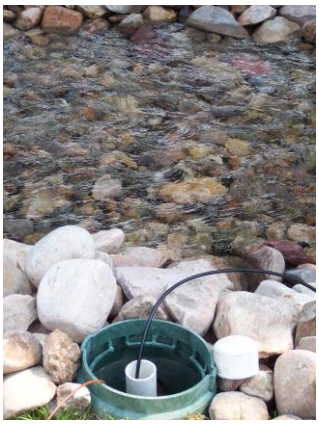
PROJECT: REMOTE FLOW MONITORING
CLIENT: BRIGHAM YOUNG UNIVERSITY
LOCATION: PROVO, UTAH
YEAR: 2007

Application Notes:

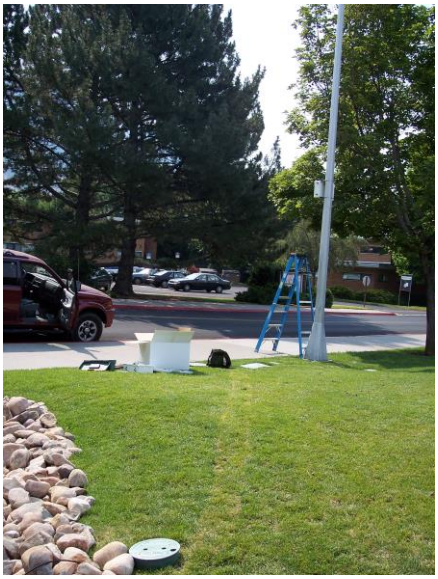
A graduate student with the Civil Engineering Department at Brigham Young University was assigned the task of monitoring flow in an on-campus open channel. The channel contains water that is re-circulated to feed a waterfall and small pool. BYU wanted to have the ability to view and collect the water flow and level data remotely. They also wanted to put the data on the Internet for viewing current and historical flows.



System Design:

The needs of the system required that a channel stage survey be performed to create a flow table listing the velocity of the water at a given level of water. We then took the data from the flow table and created an equation that converts the water level in the channel to a cfs flow. The instrumentation used in this system includes CR206 wireless data logger, RF401 Spread Spectrum Radio, NL100 Network Link and an SDI-12 pressure transducer from AC Data.

Water level is measured in a small stilling will that was installed to the side of the channel. The stilling well is a 2" PVC pipe mounted vertically inside of a 10" round sprinkler box. There is a ¾" PVC conduit running to the center of the channel. BYU required that the system be as invisible as possible since this channel runs right along a busy area of the campus.



We placed the pressure sensor into the stilling well and connected it to the data logger through and underground conduit.

The wireless CR206 data logger is mounted on a streetlamp pole at 15 feet above the ground for security purposes.

The data logger is powered using the local sprinkler system power, which is a 24 VAC power. We converted the 24 VAC to 12 VDC for the data logger. The data logger measures the level sensor and records the depth, and then the data logger calculates the flow rate using our equation. The data is transmitted into a nearby dorm laundry room using the 900 MHz radio in the data logger. Inside of the dorm laundry room we have mounted a fiberglass enclosure to the wall on the interior of the building. The system is powered through and AC outlet. Within the enclosure are a RF401 radio and an NL100 network link module. BYU provided an Ethernet connection and a static IP address. Now BYU can use any computer on their internal network to connect to the station through the NL100 to RF401 connection. Using Logger Net, they are then able to collect data, view real-time data, and calibrate the system.

View of Dorm Building

For Information on this project or these products please contact:

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