

Preliminary Survey and Alignment – Work Package

Urban Stream Restoration Project

Nick Martens, Jesse Wiebe

University of British Columbia

CIVL VOL

May 4, 2010

Disclaimer: "UBC SEEDS provides students with the opportunity to share the findings of their studies, as well as their opinions, conclusions and recommendations with the UBC community. The reader should bear in mind that this is a student project/report and is not an official document of UBC. Furthermore readers should bear in mind that these reports may not reflect the current status of activities at UBC. We urge you to contact the research persons mentioned in a report or the SEEDS Coordinator about the current status of the subject matter of a project/report".

PRELIMINARY SURVEY AND ALIGNMENT – WORK PACKAGE

**URBAN STREAM RESTORATION PROJECT
SUBMITTED BY: NICK MARTENS & JESSE WIEBE**



Submitted to the UBC SEEDS Program

Campus Sustainability and Campus & Community Planning
The University of British Columbia
04 May 2010

EXECUTIVE SUMMARY

This work package serves as a guide for future use of the data collected and interpreted in the Urban Stream Restoration (USR) project. The collected data has been analyzed in plan and profile views along a proposed alignment, and indicates that the stream is feasible with approximate dimensions of: bank full depth 0.5m, width of 2m, 3:1 taper to natural ground, and slopes of 1 to 6 percent along the length.

This Exploration of the USR project was carried out by surveying the proposed stream area, creating detailed survey maps, and identifying a potential stream alignment. The proposed stream area survey spans from the South property line of the Westbrook Village development (intersection of Binning Road & Birney Avenue), along the West side of Pacific Spirit Park, and terminating at BC Survey Monument 5,395 adjacent to South West Marine Drive.

The collected data encompasses all points of interest over a width of approximately 10-30m along the stream length (varying with terrain). These points of interest include: property lines, tree lines, changes of elevation, infrastructure at ground surface (e.g. storm sewer, sanitary sewer, culverts, and electrical), landmarks, roads, streams and ponds. The field data was captured using a UBC supplied total station, and transferred into AutoCAD Civil 3D 2010 software for analysis.

The grand vision of this project is to create a fish bearing stream ecosystem which will enrich the area's natural environment, and create opportunities for the community to enjoy, explore and learn from the habitat created.

WORK PACKAGE CONTENTS

Compact Disc:

- AutoCAD file, USR Project
- PDF map L001 – Main Plan View
- PDF map PP001 – Plan/Profile View 1
- PDF map PP002 - Plan/Profile View 2

Hard Copy:

- PDF map L001 – Main Plan View
- PDF map PP001 – Plan/Profile View 1
- PDF map PP002 - Plan/Profile View 2

ITEMIZED DESCRIPTION OF WORK PACKAGE CONTENTS

AutoCAD file, USR Project

The AutoCAD file is the source file of all of the stream plan and profile layouts. This file can be used to adjust alignments, view survey point data, view topography, overlay potential plans on orthophotos, and check feasibility on a local or global stream scale.

The GIS map data imported into the model space was supplied by Jeff Burton of the UBC Plant Operations department. The orthophotos are circa 2008. It should be noted that there is active development in the proposed stream area, and some adjacent areas may now have new construction.

The specific land development program used was AutoCAD Civil 3D 2010. This program can be downloaded for free as a student trial version from <http://students.autodesk.com/>

PDF map L001 – Main Plan View

This is a plan view of the potential stream path. Local adjustments of the stream path may be necessary as the project progresses. This drawing was completed as of May 2010. The identical workable drawing layout can be found in the AutoCAD file under the *L001* tab.

PDF map PP001 – Plan/Profile View 1

This is a plan and profile view of the potential stream path from station 0+000 to station 0+720. The profile depth and slope data is a result of the Triangulated Irregular Network (TIN) surface created by AutoCAD from the uploaded field survey data. Adjustments made to the plan view stream alignment in AutoCAD will be reflected in the corresponding profile view. This drawing was completed as of May 2010. The identical workable drawing layout can be found in the AutoCAD file under the *PP001* tab.

PDF map PP002 - Plan/Profile View 2

This is a plan and profile view of the potential stream path from station 0+720 to station 1+330. This drawing is a continuation of drawing *PP001*. The identical workable drawing layout can be found in the AutoCAD file under the *PP002* tab.

NOTES FOR FUTURE ADVANCEMENT

For future advancement of the Urban Stream Restoration project the following items should be taken into consideration:

- Data contained herein is current as of 2009
- There is ongoing development adjacent to the surveyed area
- Land survey was not closed, therefore its precision cannot be quantified. The overlay of orthophotos and landmarks have verified the survey's relative accuracy
- GIS map data (supplied by UBC Plant Operations) is used for large scale area referencing only – accuracy similar to 1m
- Orthophotos overlaid into AutoCAD were taken in 2008
- AutoCAD file should be used as a basis for future adjustments and planning

Using this site data in combination with the report produced by Kosta Sianis as a basis, the project can be advanced to its next stages of realization.

Two items of importance for the future stream development are: determination of the stream water sources and quantification of their relative flow contributions; and determination and survey of a stream path Southwest of SW Marine Drive.

CONTACTS

Jesse Wiebe



Nick Martins

