TERM DESIGN PROJECT: Starting with EXERCISE #6

Objectives:
- To integrate hydrologic and soil concerns into the design of urban landscapes
- To practice sizing and configuring of stormwater conveyance and treatment facilities
- To learn and practice drawing conventions related to soils and hydrology
- To learn and practice proactive guidance for successful soils protocols in specification format

For this project, you will work in pairs to develop and communicate the hydrologic design of one street and the conveyance of stormwater in a landscape feature to the Duwamish Waterway.

Exercise #6: Hydrologic Report and Schematic Design

Due: Tuesday, May 13, 2014

For our Term Design Project we will be working on a current stormwater clean-up project for a neighborhood area in South Park that is being designed by JA Brennan's office with Davido Engineering. The project consists of several streets that will treat stormwater runoff before it is discharged into the Lower Duwamish Waterway (LDW), and is adjacent to a habitat restoration project being designed by the Port of Seattle at Terminal 117 (T117). Because of industrial contamination issues, priority has been placed on treating the urban runoff using special deep filtration materials in addition to biofiltration, primarily in streetside raingardens.

Our class will focus on a part of the project, including 16th Ave. S. to the designated outfall on the Duwamish River. For 16th Ave. and a portion of Dallas Ave. we will be able to use Davido Engineering's Stormwater Design Report and related Appendices such as the Geotechnical Report in Appendix B. Davido has given the bottom area of the required stormwater treatment cells, developed using the MGS Flood model. Bioretention cells B, C, and F have been designated for 16th Ave., and Filterra tree box units have been designated for the relevant portion of Dallas Ave.

While Davido's current plan is to pipe the stormwater across the waterfront to its outfall, you will have the opportunity to improve on the design to propose a landscape solution that can further treat the stormwater and possibly serve as a park or habitat feature. You may use whatever technique you would recommend for this additional treatment/amenity (daylighted channel, subsurface wetland, constructed wetland, etc.).

Submit by May 13:

A. A summary of your Site Hydrological Design Approach (1-2 pp) indicating the drainage area, quantity of water that you intend to treat in your design, and area required for treatment. Include a diagram showing the contributing area and flow paths of conveyance and treatment. Consult the Davido Engineering Report for the volume and bottom area calculations and the Geotechnical report for the soils infiltration capacity. Incorporate recommendations for your soils approach.

B. A color-rendered schematic design in plan and section showing your approach to treating the stormwater on 16th Ave. S. and the relevant portion of Dallas Ave, plus your approach to the outfall portion (that is currently shown as a piped solution). You are encouraged to add your own creative design ideas and address multiple values, e.g. traffic calming, pedestrian quality, habitat, water conservation, and community delight. You may use any water quality treatment mechanisms that you would like. Your drawings can be on trace but should be professionally produced. Suggested schematic scale: 1" = 20'.

TERM DESIGN PROJECT: DESIGN DEVELOPMENT PACKAGE (details to follow)

Draft Design Development Document Due: Thursday, 29 May, 2014
Final DD Document and Soils Specification Due: Tuesday, 3 June, 2014

RESOURCES: see back
RESOURCES:

T-117 folder on Catalyst Share Space: https://catalyst.uw.edu/

- Stormwater Design Report: see pages 1-41, plus Appendix A (construction documents) and Appendix B (geotechnical information).

- Site Base Map (CAD)

T 117 Website: www.t117.com