TERM DESIGN ASSIGNMENT

Hydrologic Report and Schematic Design (Exercise #6) Due: Tuesday, Feb. 19, 2013

Draft Document Due: Tuesday, 5 March, 2013

Final Document Due: Tuesday, 12 March, 2013

For the term design assignment we will be working on a current street-to-park conversion project being designed by Mithun, with the assistance of Mayfly Engineering. This 4-block stretch of 14th Ave. NW is envisioned as a pilot for a future 1-mile linear park that will stretch from 65th NW to the Lake Union Ship Canal. The street is located in a separated stormwater-sewer basin, and therefore polluted stormwater from the street currently runs into a pipe and is discharged untreated into the Ship Canal. The City and neighborhood would like to see the park address this issue while also providing usable neighborhood park amenities and a pleasant street space. For this assignment, you will focus upon the stormwater treatment aspects of the design. Mithun and Mayfly have developed alternatives and a schematic design that you may select from or build upon, and Mayfly has provided a hydrological report with potential sizing parameters for the stormwater facilities. SPU’s soil infiltration study will also inform your thinking and learning about soil testing and design parameters.

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 your project, you will work in pairs to develop the hydrologic design, integrated with the park/street design, to include one block of the park plus an upstream street intersection.

Submit:

1. EXERCISE 6: Hydrologic Approaches to Term Project (DUE FEB. 19)

A. A brief Site Hydrological Design Report (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, treatment, and bypass flows. Draw from Mayfly’s Storm Drainage Memo for the area and volume calculations and SPU’s Infiltration Report. Incorporate recommendations for working with existing soils.

B. A color-rendered schematic design in plan and section showing your approach to treating stormwater, integrated with the overall design of the park and/or street. Your design can focus upon the eastern (park) side or the western (sidewalk/parking strip) side (or both). The design should respond to expressed community concerns and desires but you are also 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, e.g. biofiltration swale, raingardens, subsurface wetlands, filter strip, water quality wetlands, tree pit filters, etc. These drawings can be on trace but should be professionally produced. Suggested schematic scale: 1” = 30’.

2. DRAWINGS, to “Design Development” (DD) Level (DRAFT DRAWINGS DUE TUESDAY, 5 MAR / FINAL DUE 12 MAR):

- Plan and section at 1”= 20’ indicating overall design approaches and detail callouts.
- Grading plan of ground areas with critical spot elevations and subsurface piping.
- Blow up plans of any areas that you are not able to adequately show at 1” = 20’
- Details of:
  - Conveyance features, including curb cuts and/or covered conveyance trenches
  - Wetland, bioretention or other water quality features shown in section.
  - Any other critical details related to the hydrological part of the design
3. SPECIFICATIONS (DUE 12 MAR WITH FINAL DD DRAWINGS):

Soil specifications (in Specification format) for:

- General Landscape soils; and
- Bioretention soils

Soil specifications should address remediation or replacement of existing soils for both infiltration and horticultural success.

PROVIDE March 12 and for Redline Review:

- Design Development (DD) Drawings on one or two 24" x 36" or 11" x 17" sheets, with labels and dimensions on all drawings and details. Be sure to number your details with and reference them with callouts on the plan. Your sheet should be professionally drawn (CAD or Illustrator recommended), with a title block giving the project/site title, address, your name, course name, and instructors.

- Narrative (Hydrological Report) and Soil Specifications on 8.5" x 11" sheets.

- Include schematic drawings with DD drawings.

REQUIREMENTS + DUE DATES RECAP:
(To receive credit, you must complete and turn in ALL elements listed below.)

Part 1: Due 2/19 - (3 elements REQUIRED)
1. Site hydrogeological report (1-2pp)
2. color-rendered schematic plan at 1"=30' (hand-drawn ok)
3. colored schematic section at 1"=30' (hand-drawn ok)

Part 2: First Draft Due 3/5 - (4 components)
1. Draft Plan at 1"=20'-0" (using CAD or Illustrator)
2. Section at 1" = 20'-0"
3. Grading plan
4. Details (min. 4)
5. (Optional) Blow up plans of critical areas

Part 3: Specification & Final Draft Due 3/12 (3 components)
1. Soils specifications
2. Revised DD drawings from Part 2 on one or two sheets (plus schematic drawings)
3. Narrative (finalized hydrogeological report)

RESOURCES (available on the course Catalyst Share space):
https://catalyst.uw.edu/workspace_manage/nrottle/36153

Mayfly Storm Drainage Memo for Schematic Design (April 27, 2012)
14th Ave NW Improvements Infiltration Study and Geotechnical Recommendations, August 2012
CAD Base for 14th Avenue
Mithun Final Schematic Drawings 3-7-2012: With Utilities; Colored Schematic
Mithun Schematic Drawings 4-16-2012: 25 mph Taper
Mithun 3/7/2012 Community Meeting Presentation
Mithun 1/24/2012 Schematic Alternatives
Mithun 1/24/2012 Concept Alternative Boards (4-block area)
Mithun 1/24/2012 Park Concepts
Fehr and Peers Walking Audit Memo
Fehr and Peers Parking Memo