This section applies to design standards and procedures involved in the field location and plotting of all natural objects and surface improvements. This section also includes the requirements for submittal of plans and files to the University.

**Surveying**

- All topographic surveys must be stamped by a Professional Surveyor licensed in the State of Washington. Horizontal Datum shall be NAD 83/91.
- Vertical Datum shall be NAVD 88.
- On the survey, note any University control monuments encountered. These monuments are designated by a number as shown on record drawing 915-C-09.
- Physically locate baseline in the field and show on the topographic map. Reference baseline by coordinates and a bearing. Establish baselines parallel to a face or major axis of the proposed or existing building.

**Mapping**

- Preferred mapping scale is 1 inch to 20 feet. Symbol size should be computed based on this scale. Contour interval shall be 1 foot; 2 feet is allowable on steep slopes for clarity of the drawings.
- “Hard” surface (ie. pavement, concrete) spot elevations shall be 0.01’ accuracy. “Soft” surface (ie. grass, dirt) spot elevations shall be 0.1’ accuracy.
- Include all ground floor elevations of existing buildings and slab structures on the survey. Verify and show all storm and sanitary sewer inlet and outlet invert elevations at manholes by field measurement as well as rim elevations. Show all underground utilities.
- Provide a note on the survey which clearly states all assumptions and limitations in the survey.
- Identify all buildings shown wholly or partially on the finished drawings by name and accented by shading or crosshatching. When feasible include at least two points upon the building face as far apart as practical. These points will assist the University in locating and rotating floor plans onto the campus map.
- Field-locate all trees and major vegetation and record location on the map. Identify tree size, type and ID tag numbers on the map. Note the actual canopy of the tree. (Protect existing shrubs, trees and lawn areas during the progress of fieldwork; under no circumstances will their removal be permitted.) Canopies are to be drawn to scale. Do not use one symbol of one size for all trees within the survey unless preapproved by Campus Engineering.
- Locate all tunnels and tunnel manholes. Show floor elevations of tunnels.
- Show coordinates of University of Washington monuments along with monument ID.
- Include a general vicinity map, small scale, on the finished drawings.
- Use abbreviations as shown in City of Seattle standard plan 002.

**Design Evaluation**

- The surveyor may provide an advance copy of the survey to Campus Engineering for comment if they wish. An electronic AutoCAD version of the survey is to be provided to Campus Engineering when completed.

**Construction Submittals**
Provide standard industry submittal requirements.

Product, Materials and Equipment

- Map on paper with Professional Surveyors wet signature. Use a minimum of 20 pound paper. (2) copies.

- If the survey map is generated by Computer Aided Drafting (CAD), provide to the University a copy of each drawing CD. Provide labels completely identifying the contents of each CD. Include the survey in PDF format along with the original survey in AutoCAD form. The surveyor may delete their titleblock and professional seal from the CAD file if they wish. All CAD files are to be purged of unused blocks, layers, linetypes, etc. All externally referenced drawings are to be inserted into the drawing (bond) and any special fonts included on the CD. Under no circumstance should the CAD drawing modify the “standard” styles. All modified styles should have a unique name.

- For CAD files include the exact limits of the survey. Providing the triangulated irregular network (TIN) boundary as a closed polyline will satisfy this requirement. This linework should be turned off and not plotted on the paper copy. This will be used by the University to “cookie cutter” surveys into the campus basemap.

Topographic Map Details

Drafting and layout standards

1) All lettering on drawings shall be 1/8 inch minimum height.
   (a) Major callouts such as building names, street names, elevations, and dimensions require use of single-stroke vertical Gothic lettering.
   (b) All lettering to be clear and uniform in appearance and line density.
   (c) Use leroy or other lettering devices where applicable, but in no instances place lettering, either pencil or ink, over or through any prior notes, callouts, or legends.
   (d) Do not use stick-on letters, lines and shading on drawings.

2) Diazo sepia, sepia mylar, slicks, or sticky back on mylar are not acceptable.

3) Provide a ½ inch border on the top, bottom and right side of the sheet.

4) Provide a 1-inch binding edge on the left side of the sheet.

5) Preferred sheet sizes for the University of Washington Facility Management Office standard sizes. Typical sheet sizes to trim lines are as follows:
   (a) 18” x 24”
   (b) 30” x 42”
   (c) 36” x 48”
   (d) Do not provide sheet size larger than 36” x 48”
   (e) Provide identical size for all sheet sizes for any given survey.
6) Surveyors shall consult with the Architect/Engineer project consultants to ensure that the topographic drawings will be the same size as the design drawings.

State any departures from these standards in writing.

Installation, Fabrication, and Construction

See Monument in Case
See Monument Plug Marker drawing.

END OF DESIGN GUIDE SECTION
NOTES:

1. MONUMENT COVERS ARE REQUIRED IN ALL PAVED "TRAFFIC" AREAS.
2. SET MONUMENT FLUSH WITH GROUND SURFACE IN ALL OTHER AREAS.
   MONUMENT COVER CASE IS NOT REQUIRED IN THESE AREAS.

MONUMENT COVER CASE
OLYMPIC FOUNDRY CO. NO. M 1010

1/4" X 1 1/2" BOLT

PLUG MARKER

1/4" RIVET

3" MIN. SAND

BASE CRUSHED ROCK (4' DEPTH)

ASPHALTIC CONCRETE PAVING

SUB-BASE

3/16" CHAIN 15" LONG

FLARE END ON INST.

UNDISTURBED SUBGRADE OR SAND CUSHION

MONUMENT—CONCRETE CAST IN 4" CONC. TILE 1'-0" LONG

Monument In Case
NOTES:
1. RECESS LETTERS 1/32”.
2. CURVED TOP SURFACE TO BE BUFFED A ROUGH SATIN FINISH.
3. TOLERANCE FOR ALL DIMENSIONS TO BE 1/32” ±.