PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies the administrative and procedural requirements for field engineering, in addition to requirements specified elsewhere in the Contract Documents, requiring the Contractor to employ a registered “Structural Engineer” and/or “Land Surveyor.”

B. Related Sections:

1. Section 01 73 29 “Cutting and Patching”

1.2 QUALITY ASSURANCE

B. Contractor shall employ a registered Structural Engineer (Contractor’s Structural Engineer) experienced in construction techniques and sequences, and temporary structural support systems, who is licensed in the State of Washington.

C. The Contractor shall employ a registered Land Surveyor (Contractor's Surveyor) who is registered in the State of Washington, and acceptable to Owner, to perform survey work of this Section.

C. Submit the name, address, and telephone numbers of the Contractor’s Structural Engineer and Land Surveyor for Owner’s records, prior to their performance of Work.

1.3 CONTRACTOR’S STRUCTURAL ENGINEER

A. The Contractor’s Structural Engineer shall advise the Contractor as to the safety and adequacy of all temporary structural provisions necessary for cranes and hoisting, erection and/or alteration of the building structure and shall assume the responsibilities and duties as it relates to means and methods for these items (e.g., erection sequence, temporary bracing, cutting).

1. Temporary bracing shall be coordinated with other trades to permit continuous operation of construction.

2. Should it be necessary to modify the structural design to accommodate construction means and methods, the Structural Engineer shall advise the Contractor who shall immediately notify the A/E and await his/her direction.

3. Proposed changes or modifications to the structural design shall be submitted to the A/E for approval prior to the Contractor incorporating changes or modifications into the Work.

1.4 OWNER’S PROPERTY SURVEY

A. Owner’s property survey for the Project is included in the Contract Documents.

B. The Owner will provide the services of a public land surveyor to locate the property corners noted on the Contract Documents and establish benchmarks for use by the Contractor.

1.5 PROJECT SURVEY REQUIREMENTS

A. Before proceeding with layout of actual work, the Contractor, working through the Contractor's Surveyor, shall verify the layout information shown on Contract Documents and the Owner's property survey.

B. As work proceeds, the Contractor shall check every major element for line, level and plumb, and shall require the Contractor's Surveyor to maintain a complete and accurate record book log of control of such checks and upon request shall make this log of control available for the Owner's and A/E's reference.

1. Record deviations from required lines and levels and promptly advise the Owner's Representative upon detection of any discrepancies including, but not limited to, conflicts, errors, inconsistencies, or deviations that exceed the Contract specified or indicated or industry recognized tolerances.

2. If discrepancies are found, no work shall be done until the Owner's Representative has been so notified and has provided the Contractor with written direction and/or drawings which correct and clarify the discrepancy.

3. All work which is determined to be incorrectly located will be rejected by the Owner. Any additional corrective work caused by discrepancies that should reasonably have been known to the Contractor and were not called to the attention of the Owner's Representative, shall be borne at the Contractor's expense.

C. Protect Owner's benchmarks and survey control points prior to starting site work and preserve during construction. Do not change or relocate benchmarks or control points without Owner's written approval. Promptly report lost or destroyed benchmarks or control points.

1.6 PROJECT RECORD SURVEY

A. Contractor working through the Contractor's Surveyor shall perform the following:

1. Upon completion of new foundation walls, prepare and submit a certified survey showing that dimensions, elevations, angles, and location of the building are in accordance with the Contract Documents.

2. Upon completion of the below grade site work, certify that the Project Record site survey represents the actual dimensions, elevations, lines, grades, and levels, including invert elevations, constructed in the field for all below grade installations and existing services located during the Work referenced to Owner's benchmarks. This shall include the locations of all below grade site improvements including, but not be limited to, civil, electrical and mechanical services, utility tunnels, duct banks and vaults, and irrigation system.

3. The above documentation shall be submitted to the Owner under provisions of Section 01 77 00 for CAD As-built Shop Drawings.

1.7 PROJECT LAYOUT REQUIREMENTS

A. The Contractor shall be responsible for laying out the Work utilizing recognized engineering survey practices. Establish elevations, grades, lines and levels for:

4. Site improvements, including pavements, walks and retaining walls, stakes for grading, fill and topsoil placement, utility locations including slopes and invert elevations, and irrigation system.

5. Grid and axis of building structures.

6. Building foundations, column locations, ground floor elevations, elevations and levelness for floors and roofs.

7. Other elevations, grades, lines and levels, as needed to properly locate each element of the Project.

B. Calculate and measure required dimensions as shown within recognized tolerances. Do not scale drawings to determine dimensions.

C. Advise entities performing work of marked elevations, grades, lines and levels, provided for their use.

Part 2 - PRODUCTS (Not Used)

Part 3 - EXECUTION (Not Used)

END OF SECTION