

CHAPTER 11 SOILS AND FOUNDATIONS

SICC-1101 GENERAL

SICC-1101.1 Scope. The requirements of this chapter and NCSBC-1704.7, NCSBC-1704.8, and NCSBC-1704.9 shall apply when construction includes soil-related conditions or foundation systems as listed in SICC-302.7.

SICC-1101.2 Soils report. The soils report as required by NCSBC-1802.2 and NCSBC-1802.6 shall be prepared, signed and sealed by the **GER** and shall be submitted to the **CCBSD** for review and approval with the construction documents. The **GER** approved soils report shall be used by the **SIER** to conduct special inspections during construction.

SICC-1102 FABRICATION AND ERECTION DOCUMENTS

SICC-1102.1 Review and approval. The soils and foundations fabrication and erection documents shall be submitted to the **GER, SER** for review and approval prior to construction, as appropriate. The **GC** shall provide **GER/SER**-approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1102.2 Preparation of fabrication and erection documents. A **RDP** with experience in the design of deep foundation elements shall prepare, sign and seal fabrication and erection documents for pile and pier foundations. The fabrication and erection documents for cast-in-place concrete shallow foundations shall be prepared as required in SICC-2007 Chapter 7.

SICC-1103 SOILS-RELATED DEVIATIONS AND REVISIONS

SICC-1103.1 Review and approval. Three sets of revisions to the County approved soils report and/or the County approved construction documents that bear the seal and signature of the appropriate **RDPs** and shall be submitted to the **CCBSD**, as appropriate, for review and approval prior. The **CCBSD** shall determine if the construction can proceed pending approvals.

SICC-1103.2 Preparation of revisions. The **GER** shall prepare, sign and seal revisions to the County approved soils report if on-site soil and/or ground water conditions vary materially from those presumed to exist based on the initial subsurface exploration and as indicated in the approved soils report. The **GER** shall coordinate revisions to the County approved construction documents with the **SER** responsible for structural design of foundations and the **RDP** responsible for deep foundations, if applicable. The **SER** and/or the **RDP** responsible for deep foundations, if applicable, shall prepare, sign and seal revisions to the County approved construction documents. The **GC** shall provide **GER/SER**-approved revisions to the fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1104 SPECIAL INSPECTIONS

SICC-1104.1 Soils. Special inspections as specified in the County approved Statement of Special Inspections shall be conducted to determine compliance with the **GER** approved soils report and the approved construction documents. The **SIER or GER** shall perform special inspections of soils in accordance with NCSBC-1704.7 and NCSBC-1803. Special inspections shall include:

- a. **Subgrade.** Subgrade for compatibility of bearing material and ground water conditions with the County approved soils report, prior to construction of footings and slabs.
- b. **Fill material.** Fill material for compliance with County approved structural fill specifications, prior to, during, and following its placement in each lift, for structural fill 12 inches (305 mm) or greater in total depth.
- c. **Compaction.** Compaction process to determine that materials' quality and in-place density tests comply with the County approved specifications and geotechnical notes.

NCSBC-1704.7 Soils. The special inspections for existing site soil conditions, fill placement and load-bearing requirements shall follow Sections 1704.7.1 through 1704.7.3. The approved soils report, required by Section 1802.2, shall be used to determine compliance.

Exception: Special inspections not required during placement of fill less than 12 inches (305 mm) deep.

NCSBC-1704.7.1 Site preparation. Prior to placement of the prepared fill, the special inspector shall determine that the site has been prepared in accordance with the approved soils report.

NCSBC-1704.7.2 During fill placement. During placement and compaction of the fill material, the special inspector shall determine that the material being used and the maximum lift thickness comply with the approved report, as specified in Section 1803.4.

NCSBC-1704.7.3 Evaluation of in-place density. The special inspector shall determine, at the approved frequency, that the in-place dry density of the compacted fill complies with the approved report.

SICC-1104.2 Deep foundations. The **SIER or GER** shall perform special inspections of deep foundations to determine their in-place loadbearing capacity.

NCSBC-1704.8 Pile foundations. A special inspector shall be present when pile foundations are being installed and during tests. The special inspector shall make and submit to the building official records of the installation of each pile and results of load tests. Records shall include the cutoff and tip elevation of each pile relative to a permanent reference.

NCSBC-1704.9 Pier foundations. Special inspection is required for pier foundations for buildings assigned to Seismic Design Category C, D, E or F in accordance with Section 1616.3.

Special inspections shall include:

- a. **Piling.** Special inspections as required by NCSBC-1704.8 and NCSBC-1808, NCSBC-1809, NCSBC-1810, or NCSBC-1811 as appropriate, and shall include inspection of piles before, during, and after driving. Inspection reports shall contain an evaluation of the pile capacity based on driving resistance, and dynamic or static pile testing. Pile driving records shall be submitted to **CCBSD** prior to placement of pile caps.
- b. **Piers.** Special inspections as required by NCSBC-1704.9 and NCSBC-1808 or NCSBC-1812 as appropriate, and shall include concrete strength, steel reinforcement, orientation and shape of caissons, and bearing capacity at the base of the caisson. Inspection reports shall be submitted to **CCBSD** prior to the placement of grade beams.

SICC-1104.3 Shallow footings and foundations. The **SIER** or **GER** shall perform structural inspections of footings and foundation systems, including shallow foundations, foundation walls, mats, slabs, etc., as specified in the County approved Statement of Special Inspections. Special inspections of cast-in-place concrete shall be performed in accordance with SICC-2007 Chapter 7, to include monitoring the placement of concrete, concrete reinforcement, and the dimensions, shapes and locations of footings, slabs, and foundation walls.

SICC-1104.4 Revisions and deviations. In the event that field conditions vary materially from the County approved soils report and the County approved construction documents, the **SIER** or **GER** shall notify the **GC** and the requirements of SICC-1103 shall apply.

SICC-1105 COMPLETION OF SOILS AND FOUNDATIONS CONSTRUCTION

SICC-1105.1 Soils. Upon completion of soil-related special inspections, the **SIER** or **GER** as applicable shall submit a completion letter to **CCBSD**. The **SIER** shall also indicate the date of completion on the final report of special inspections of soils.

SICC-1105.2 Deep foundations. Upon completion of all piling and caisson deep foundations, the **SIER** or **GER** as applicable shall submit a completion letter to **CCBSD**. The **SIER** shall also indicate the date of completion on the final report of special inspections for deep foundations.

SICC-1105.3 Shallow footings and foundations. Upon completion of structural special inspections of footings and foundations, the **SIER** or **GER** as applicable shall submit a completion letter to **CCBSD**. The **SIER** shall also indicate the date of completion on the final report of special inspections for footings & foundations.