

Bureau of Engineering  
**Special Order**

February 16, 2000

Special Order No. 003-0201

To All: Deputy City Engineers  
Division/District Engineers  
Division Heads

Subject: **REQUIREMENTS FOR DEEP EXCAVATION CONSTRUCTION AND  
INSTALLATION OF TIEBACKS ON SITES IN OR ADJACENT TO PUBLIC WAYS**

This Special Order supercedes Special Order No. SO09-0686.

Our current requirements as set in Special Order No. SO09-0686 call for the removal of soldier piles and lagging located in the public right-of-way to a depth of 12 feet below gutter grade. The 12 feet cut-off line was established to leave the subsurface area free from any obstruction for the purpose of installing underground utilities and City maintained installations such as sewers and storm drains. Also, it was intended to eliminate any additional financial hardship on the city to remove these piles in case the need arises to use the space they occupy.

Soldier piles are part of the shoring system used in conjunction with the construction of the basement walls of a building. They are normally placed at the face of the wall and within 2 feet of the property line. This subsurface area of the sidewalk is very rarely used by city forces to install underground installations. A shallower cut-off line is acceptable and will not add any hardship on the City. Therefore, effective immediately, the following procedures shall apply to excavation permits.

**A. ENGINEERING**

1. Existing substructures and utilities shall be shown on plans with elevations and sections when closer than 6 feet clear of drilled holes.
2. Provisions shall be made to immediately dispose of all ground and surface runoff water.
3. Dewatering wells within 10 feet of shoring system or within the public way must be approved by the City Engineer prior to installation.
4. Heavy loads shall not be allowed within 10 feet of the top of the excavation except where the shoring design provides for the proposed surcharge.
5. All changes in the drawings and permit specifications must have prior approval of the Bureau of Engineering, phone (213) 977-6037 for procedural requirements.

**B. CONTRACTOR RESPONSIBILITIES**

1. **UNDERGROUND SERVICE ALERT, Inquiry Identification number (USA II No.):** Before commencing any excavation, the contractor shall obtain a USA II Number by calling 1-800-422-4133. Two working days shall be allowed after the USA II

Number is obtained and before the excavation work is started so that utility owners can be notified.

2. PRE-JOB INSPECTION REQUIRED 72 HOURS PRIOR TO THE START OF SHORING CONSTRUCTION WITH THE DEPARTMENT OF PUBLIC WORKS INSPECTOR AND JOB SUPERINTENDENT, PHONE (213) 580-5080.
3. Contractor shall locate all utilities and structures within the proposed excavation and make appropriate arrangements for their relocation, prior to the start of construction.
4. Contractor shall locate and cap off all sewer laterals behind the proposed location soldier beams prior to the installation of soldier beams.
5. Existing underground installations carrying unstable substances shall be "pot-holed" as required by the Los Angeles Municipal Code 62.03.01 (Ordinance No. 150, 478), and City Engineer's Special Order SO06-0279 dated February 27, 1979 (Compliance with Ordinance Requirements for Unstable Substance Installations-Guidelines Implementations).

#### C. CONSTRUCTION PROCEDURES

1. Lagging shall be required unless otherwise noted; lagging shall be 3 inch No. 2, or better, placed and backfilled with sand or slurry, in 5 foot maximum lifts.
2. All backfill between the permanent wall and the public way shall be cohesive material, compacted to a minimum 90 percent relative compaction or a 1½ sack slurry mix, under the continuous inspection and testing by the project's private soil engineer and the Public Works Inspector.
3.
  - a. All soldier beams and lagging placed in the public way either under the sidewalk or in the roadway shall be removed to a minimum of 8 feet below gutter grade.
  - b. All soldier beams and lagging placed in an alley shall be removed to a minimum of 4 feet below grade.
  - c. All tieback anchor rods in the public way including alleys that are located within 20 feet of surface shall be removed. All other tiebacks shall be detensioned and shall be verified by the Public Works Inspector.

#### D. TIE BACK INSTALLATION

1. Lighting shall be provided for visual inspection of drilled holes.
2. Where caving occurs, drilled holes shall be cased and all backfill shall be pressure pumped so that all voids are filled.
3. All drilled holes to be left open more than twelve (12) hours shall be cased.
4. Anchor holes shall be free of loose material and concrete shall be placed immediately after placing anchor in hole.

- 5. Anchors shall be tensioned straight and true. Kinking or sharp curvature in anchors under tension shall be cause for rejection.
- 6. Rods or stranded cables shall remain extended and exposed to permit retensioning throughout the service life of the shoring and detensioning following completion of permanent building structure.

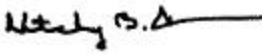
E. TESTING OF TIE BACKS

- 1. Anchor holes shall be logged and certified by the soils engineer.
- 2. Hydraulic rams shall be calibrated and certified by testing laboratory.
- 3. All anchors shall be tested at 150 percent of design load for 15 minutes with less than 0.1 inch yield. 10 percent for anchors at each level, as selected by soils engineer shall be tested at 200 percent of design load. Total yield of 12 inches is acceptable. Total yield of 36 inches is unacceptable. Total yield of 12 to 36 inches shall require soils engineer to assign partial anchors values and install remedial anchors with the approval of the City Engineer.

F. JOB SAFETY

- 1. Contractor shall establish initial control points for the purpose of monitoring the soldier beams prior to the start of any excavation. Shoring piles shall be survey monitored weekly for line and grade by a licensed surveyor. One set of data obtained shall be maintained at the job site for the inspector of Public Works. A second set of this data shall be promptly submitted to the City Engineer, Central Engineering District. Any one inch movement shall be analyzed by the soils engineer and an approved remedial shoring plan prepared. Any movement of 2-inches or more require that remedial shoring installation be made to prevent additional movement prior to further construction. All affected anchor rods shall be retensioned.
- 2. Anchor tie rods shall not be welded nor used for grounding welding equipment

( HMM CWR )

EXE/HMM/RS/gva  S.O. No. 003-0201	Approved By:   Vitaly B. Troyan, P.E., City Engineer
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