SHORING REVIEW

Department of Public Works, Development Services
200 East Santa Clara Street, San Jose, CA 95113
http://www.sanjoseca.gov/pwdev
(408) 535-3555

Applicability

Any excavating or grading project within the City of San Jose that requires construction shoring must obtain shoring approval, in addition to the standard Grading Permit, with the City of San Jose.

If the proposed shoring component does not encroach into the public right-of-way, shoring review by the Public Works Structural Section will be included as part of the Grading Permit.

If the proposed shoring component (i.e. tiebacks) encroaches into the public right-of-way, a separate Revocable Encroachment Permit is required and will be processed concurrently with the Grading Permit. The Revocable Encroachment Permit will require approval from both Building Division and Public Works Department. Tie-backs are the only shoring encroachment allowed within the Public right-of-way. If any shoring components encroaches into private property all applicable agreement, security and insurance must be secured and provided to the Public Works Project Engineer prior to grading permit issuance.

The Grading Permit and Revocable Encroachment Permit for shoring are usually the final development steps prior to starting building construction. Therefore, all Planning Department permits and Environmental Clearance must be secured prior to the issuance of these permits.

Project Review Procedure

Schedule an Appointment with Staff

An appointment is required to submit an application for Shoring Review. Generally, most projects proposing grading have been through the Planning Permit process, at which time a Public Works Project Engineer was assigned to the Project. The Public Works Project Engineer will be your single point of contact for all Public Works permits related to this project. If you already know the name of the Public Works Project Engineer, please contact him/her directly to schedule an appointment for plan submittal. If you are unsure of the Public Works Project Engineer assigned to your project, please contact staff at (408) 535-7802 with your Planning Permit number, and staff will look up the name of the Project Engineer assigned to your project.

Submittal Instructions

For any Shoring Review the following documents need to be submitted (review cannot begin until a submittal is deemed complete):

1) **Application Form:** Completely fill out applicable section of the Grading Permit Application form. Please indicate that a shoring review is necessary. If a Revocable Encroachment Permit is required, as identified above, please see Revocable Encroachment process and submit application. Refer to the Grading Permit Instructions and Revocable Permit Instructions for submittal requirements.

2) **Shoring Plan & Submittal:** Must be in compliance with the "Requirements for Preparation of Plans & Specifications" (See Attachment A). Any variation from these requirements must be noted on the plan and supported by evidence that the variation will not pose any hazards to public health and safety.

   - PDF of Shoring Plans drawn at 24” x 36”.
   - PDF of soils report used for the Shoring Design.
   - PDF of structural calculations.
   - PDF copy of design references as needed by reviewer
   - Plans to show all adjacent buildings and underground utility lines.

Note: A shoring system that is part of the permanent structural foundation for the building shall be permitted by the Building Division as a Foundation Permit. In this situation, all inspections and testing procedures applicable to buildings shall be followed. Underpinning of an adjacent building shall be separately permitted as a new foundation for that adjacent building.

3) **City Fees:** Fees are required at the initial submittal stage. See the current "Public Works Permit Fees" fee schedule for applicable Grading and Revocable Encroachment Permits fees. Additionally, an initial Public Works shoring review fee in the amount of $2,040.00 is required at the time of submittal. Additional fees may be required on a Time and Materials basis for the shoring review by Public Works structural staff.

4) **Security Deposit:** If the proposed shoring component encroaches into the public right-of-way, a security deposit in the amount of $100,000 will be required and held for the duration of the shoring work to guarantee repair and/or replacement of any public improvements damaged during work initiated by this permit. The surety will need to be submitted prior to issuance of the permit. The security deposit will be in the form of a Certificate of Deposit or Letter of Credit.

Other Requirements

Grading Permit

Anyone excavating or grading within the City of San Jose is required to obtain a Grading Permit from the City of San Jose, Department of Public Works.

Discharge Permit

A Discharge Permit may be required by the Environmental Services Department (ESD) for dewatering purposes whether via the storm or sanitary sewer system. For more information, call (408) 945-3000.

Discharge into the storm system first requires approval from the Regional Water Quality Control Board. Approval from the RWQCB should be obtained prior to contacting ESD.

If storm discharge is not allowed, discharge into the sanitary sewer will require a Discharge Permit. Visit the Industrial Wastewater Discharge Permits page for more information.

Field Operation

Construction must be in compliance with the "Standard Field Operations" instruction for shoring activities (see Attachment B). Appropriate shoring, monitoring, and dewatering notes may be required on the Grading and Revocable Encroachment Plans.

Permit Extension

The term of a valid Grading Permit and Revocable Encroachment Permit for shoring purposes can be extended at the discretion of the Public Works Development Services Project Engineer (see the current “Public Works Permit Fees” Fee Schedule).

The renewal of an expired Grading Permit and Revocable Encroachment Permit for shoring purposes can be allowed at the discretion of the Public Works Development Services Project Engineer (see the current “Public Works Permit Fees” Fee Schedule).

Outside Agency Permit

Applicant shall provide proof of an approved excavation or "open-cut" permit from the State of California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH), prior to issuance of a Grading and Revocable Encroachment Permit for shoring purposes.

For any further questions or inquiries, contact the Counter Staff at (408) 535-7802.

REQUIREMENTS FOR PREPARATION OF PLANS & SPECIFICATIONS

Plans should....

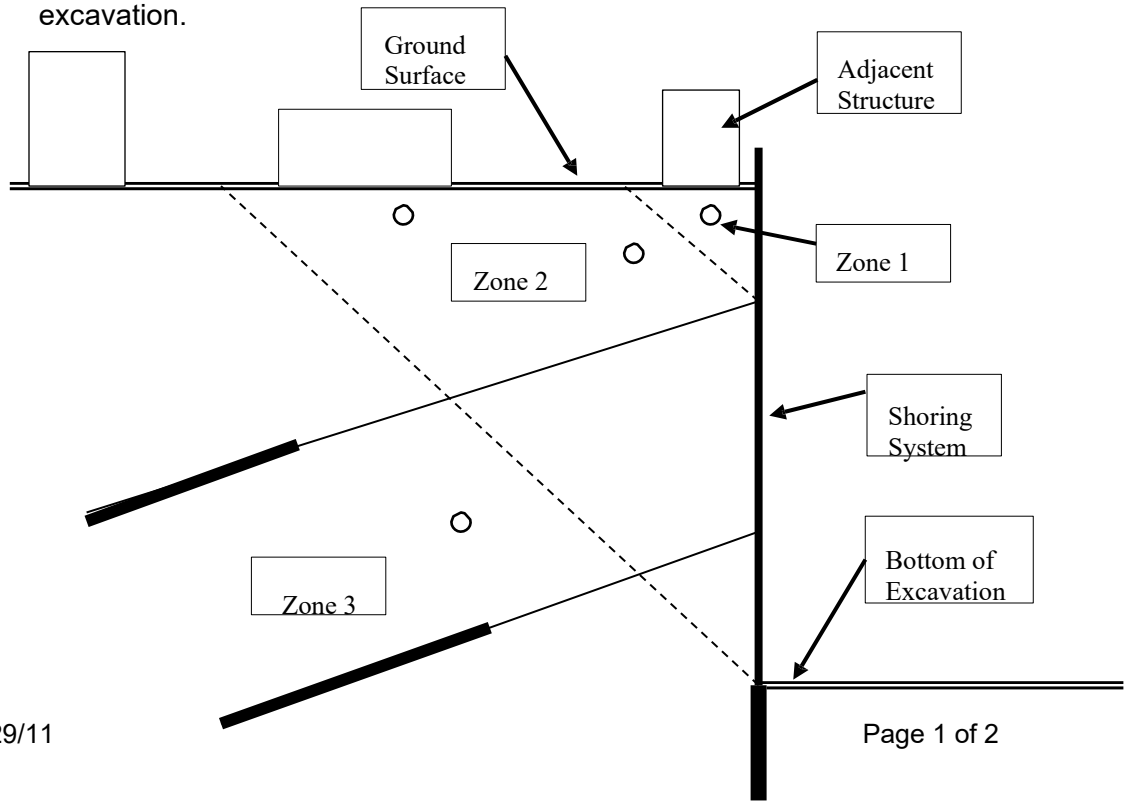
1) Be drawn to scale and must be of sufficient clarity to indicate the nature and extent of the work proposed.

2) Be prepared under the direction of a Registered Civil Engineer or Structural Engineer and signed by the engineer with his/her registration number, date of expiration, and seal.

3) Include the following information:
   - Vicinity map, north arrow, legend, and scale;
   - All applicable general shoring notes (CSJ Standards Field Operation notes as identified in Attachment B as well as shoring designers notes), procedures for installation of soldier piles/tiebacks, monitoring program, special inspection items, materials, etc.;
   - All applicable details for tieback, anchorage, railing, lagging, soldier piles, etc.;
   - Location of any existing buildings, structures, wells, street improvements or utilities (storm, sewer, gas, water, etc.) on the property and within the public right-of-way or adjacent property(s) that can be potentially impacted by the shoring operation;

4) Conform to the following design specifications. For this section, the following areas shall be defined as follows:

   ZONE 1: The triangular area from the top most point of lateral support of the shoring, projecting upward at a 45 degree angle.
   ZONE 2: The area above Zone 3 and below Zone 1.
   ZONE 3: The area below the soil failure plane projecting upward from the bottom of the excavation.



REQUIREMENTS FOR PREPARATION OF PLANS & SPECIFICATIONS

- Where structures or utilities are located within Zone 1, the shoring shall be limited to a deflection of 1/8" for primary framing elements (i.e.: soldier piles) and ¼" for secondary elements (i.e.: lagging) unless it can be demonstrated that the adjacent buildings can tolerate larger deflections.

- For structures or utilities in Zone 2, the maximum calculated deflection shall be ½" for primary members and 1" for secondary members.

- Where there are no buildings or utilities in Zone 1 or 2, then shoring may not be needed. If deemed necessary by the public works engineer, larger deflections may be allowed on a case-by-case basis.

- Deflection calculations shall be based both on maximum loading and most probable actual loading.

- Dewatering shall be designed by a licensed engineer and shall be reviewed and approved by the soil engineer and Public Works Project Engineer.

STANDARD FIELD OPERATIONS

Note: This drawing is approved subject to the following standard field operation requirements:

(Construction notes to be included on Shoring Plans)

1) Soils Engineer Observation for Shoring
   - The soil engineer shall observe the slopes and may require that additional shoring or flatter temporary cut slopes be provided.
   - The soil engineer will be the owner's representative to observe the installation of shoring system and earthwork activities associated with its construction. The soil engineer will make visits to the site to familiarize him/her with the progress and quality of work. The soil engineer will make field observations to enable him/her to form an opinion regarding the adequacy of the shoring system.
   - Changes to the work shown on these drawings are not allowed without the approval of the shoring engineer. Proposed changes and any information regarding installation of the shoring system other than as shown or specified on the shoring drawings and notes shall be reviewed by the shoring engineer prior to construction.
   - A final report shall be provided to the Public Works Project Engineer once the building foundation is complete.

2) Monitoring
   - Recordation of relative initial positions of adjacent buildings, sidewalks, buildings, and utility lines shall be taken prior to excavation or dewatering. On-going surveys of these positions are required during the entire excavation period.
   - Before and after videotapes of the storm and sanitary sewer systems are required. Contractor shall provide a summary report of the findings indicating whether or not any obstructions were observed within the mains (i.e. tiebacks, concrete, etc.).
   - A report of movement of adjacent buildings, utilities, and shoring shall be given to the Public Works Project Engineer on a monthly basis. The report shall be prepared by a structural or soil engineer with monitoring data provided by a licensed surveyor or civil engineer. The report shall summarize the data, provide an update of the shoring system, and include recommendation, if necessary, to move forward.
   - During construction, the City shall be notified if deflections exceed ½ the calculated values or any unexpected movements occur.
   - A final report shall be provided to the Public Works Project Engineer. The report shall address the impact to buildings and utilities due to the measured deflections. The report shall be prepared by a licensed surveyor or civil engineer.
   - Prior to shoring work at the site, a visual survey shall be made and photographs taken (by owner or general contractor) of improvements, including interiors of adjacent buildings, near the planned shoring to establish existing conditions.
   - Shoring and adjacent buildings shall be monitored (surveyed) by an independent licensed land surveyor or qualified civil engineer (provided by owner or general

STANDARD FIELD OPERATIONS

contractor) at the following minimum locations:
  - Top of soldier piles 20-foot on center.
  - City streets 20-feet and 40-feet back from excavation 20-foot on center align with soldier pile monitoring.
  - Building along the north and east sides of the project property line.

- Monitoring points shall remain open and accessible for survey and inspection throughout construction until released by the Public Works Project Engineer.

- Monitoring points shall be surveyed and for horizontal and vertical movement at the following intervals:
  - Prior to dewatering.
  - Prior to construction.
  - After installation of soldier piles.
  - After installation of soil-cement walls, if applicable.
  - Weekly during excavation. Daily during excavation, if shoring depth is more than 15 feet and there are structures adjacent to the proposed shoring.
  - After installation of each row of tiebacks.
  - After excavation reaches the bottom of the excavation.
  - Weekly until new building construction reaches original grade.

- Survey monitoring results shall be submitted to the shoring engineer within 2-days of field survey measurements.

- Additional survey measurements during or after construction shall be made if requested by the shoring engineer or shoring contractor.

- Slope monitoring devices (i.e. inclinometers, etc.) shall be installed and monitored (by soil engineer) behind the shoring. Location and reading intervals shall be as determined by the soil engineer. These devices should be between soldier beams to avoid tieback conflicts.

- During shoring and new construction the general contractor shall visually monitor the shoring system and nearby improvements on a daily basis for indications of movement. The general contractor shall stop excavation operations if deflection or distress observed and shall immediately notify the shoring engineer. Notify the City Public Works Project Engineer if deflection exceeds the design deflection or unexpected soil movement is observed.

- Provide a soil movement survey report to the Public Works Project Engineer on a monthly basis. A final report shall be given to Public Works summarizing the measured deflections and impacts on existing buildings infrastructure.

3) Dewatering
   - Prior to dewatering, the contractor shall contact the Department of Environmental Services at 408-793-5300 or http://www.sanjoseca.gov/?navid=436 in order to obtain a discharge permit for discharging into the City storm or sanitary sewer system.

   - The contractor shall provide for dewatering of the project site, if necessary, to accomplish a lowering of the ground water level at least 3 feet below the bottom of excavations or as

STANDARD FIELD OPERATIONS

directed by the soil engineer.

- Design of the contractor's dewatering system shall be prepared by a registered civil engineer in the state of California or the dewatering contractor and shall be reviewed by the soil engineer prior to installation.

- Pumping to reduce ground water levels shall be accomplished in a manner non- disruptive to surrounding existing improvements and shall not remove fines from below grade. Filters shall be provided to prevent such pumping of fines.

4) Performance Testing
   - Certain systems, such as tiebacks, shall be performance tested. The schedule shall be outlined on the plans. As such, special inspection for placement of tendons, grout strength, and associated welding is not necessary.

   - Driven piles used to underpin an adjacent building shall be certified to have the required capacity by methods acceptable to the City of San Jose.

5) Special Inspection
   - In general, special inspection by an independent testing agency is not required for temporary shoring structures unless required by the private development project engineer or unusual conditions exist.

   - Special inspection for welding may be waived for non-critical connections or where performance tested.

   - Special inspection is required for tendon stressing operations and can be observed by the engineer of record.

6) Structural Observation
   - Structural observation by the project design engineer may be required. When required, a final report shall be provided to the Public Works Project Engineer by the Civil or structural engineer.

7) Shoring Removal Encroaching in City Right-of-Way
   - All shoring systems including soldier piles shall be removed to a depth of 5 feet below sidewalk.