

**Condition 80****Pile Driving-Vibration**

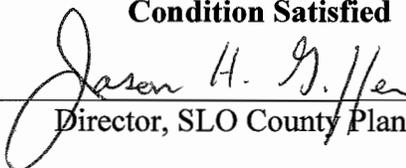
Prior to initiation of construction of the collection system, the contractor/designer shall identify all areas where pile driving, or other construction methods that would result in severe ground vibrations, could occur. Deep pile foundation designs shall favor techniques that can be constructed with minimal vibration effects. Prior to construction, using technology and standards recommended in the Caltrans Transportation and Construction Induced Vibration Manual, the contractor shall calculate the vibration effects of pile driving and other high vibration activities using the Peak Particle Velocity (PPV) metric, and shall ensure that the PPV does not exceed the following thresholds at any affected building: 0.5 at modern industrial/commercial or residential buildings; 0.3 for any building composed of masonry, unreinforced concrete, lath & plaster interiors or of similar construction; and 0.25 for any building identified as particularly sensitive to vibration impacts. Alternative design and/or construction methods shall be used to meet these limits. In addition, the construction contractor shall notify all property owners and tenants adjacent to the proposed pile driving or other vibration inducing activities of the days and hours of operation. Prior to construction activities associated with this type of work, the construction contractor shall inspect all structures within the area predicted to experience vibration in excess of 0.25 PPV to document existing characteristics of the structures. During construction, vibration shall be monitored and recorded and adjustments made to operation or to the radius of concern if the level of vibration differs from estimates. If a post construction survey indicates that damages to structures (e.g., residences, pools) occurred during the work, the property owner shall be fairly compensated for the cost of remediating damages.

**Evidence of compliance:**

The LOWWP plans and specifications do not call for Pile-Driving in the classic sense (driving steel, concrete, or wooden piles into the ground). However, there are provisions in the project specifications (Contract Documents) allowing the contractor to use some shoring methods such as sheet piles for sidewall or trenchless shaft support. If sheet piles are used, the contractor is required to comply with Condition 80 which states that vibration effects due to such methods shall be calculated to ensure vibration effects do not exceed allowable thresholds.

Project specification section 01060-1.04 Y contains Condition 80 in its entirety and section 02311-1.03 B-7 requires submittal of a pile driving report complying with the requirements of Condition 80. For reference, both these sections are attached hereto.

**Condition Satisfied**

  
Director, SLO County Planning

APRIL 19, 2012

Date

**LOS OSOS WASTEWATER PROJECT  
COLLECTION SYSTEM AREAS A & D  
LOS OSOS, CA  
CONTRACT NO. 300448.08.01.AD  
VOLUME 1A**

## TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>
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<u>DIVISION 0 – BIDDING AND CONTRACT REQUIREMENTS</u>	
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00100	Advertisement for Bids
00110	Signatures and Stamps
00200	Instructions to Bidders
00300	Wage Requirements
00410	Bid Form
00420	Non Collusion Affidavit
00430	Bid Bond
00440	Compliance Statement
00450	Certification Regarding Debarment
00460	Certification for Contracts, Grants and Loans
00470	Workers' Compensation Certification
00480	List of Subcontractors
00500	Agreement
00510	Notice of Award
00550	Notice to Proceed
00600	Additional Insured Endorsement
00610	Performance Bond
00615	Payment Bond
00625	Certificate of Substantial Completion
00700	General Conditions
00815	Certificate of Owner's Attorney
00820	Payment Request Form
00830	Change Order Form

### **TECHNICAL SPECIFICATIONS**

<u>DIVISION 1 – GENERAL REQUIREMENTS</u>	
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01010	Summary of Work
01025	Measurement and Payment
01046	Control of Work
01050	Project Controls (Surveying)

01060	Regulatory Agency and Utility Requirements
01101	Safety, Health and Emergency Response
01115	Escrow Bid Documents
01120	Project Partnering
01170	Special Provisions
01210	Allowances
01292	Schedule of Values
01300	Submittals
01311	Construction Schedules
01313	Construction and Schedule Constraints
01322	Web Based Construction Document Management (EADOCS)
01381	Audio and Video Taping
01445	Pipeline Testing and Disinfection
01500	Temporary Facilities
01561	Biological and Cultural Resources Environmental Controls
01562	Dust Control
01566	Public Information Program
01570	Storm Water Pollution Prevention Plan
01571	Traffic Control
01614	Wind Design Criteria
01615	Seismic Design Criteria
01630	Substitutions and Product Options
0165	Television Inspection
01700	Contract Closeout
01710	Cleaning
01720	Project Record Documents
01730	Operation and Maintenance Data
01740	Warranties and Bonds

## **DIVISION 2 – SITE CONSTRUCTION**

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02100	Site Preparation
02140	Dewatering
02151	Jacking
02158	Horizontal Directional Drilling

2. Generally, construction activities shall be limited to between the hours of 7 a.m. to 9 p.m. on any day except Saturday or Sunday or between the hours of 8 a.m. to 5 p.m. on Saturday or Sunday.
3. Construction activities in the vicinity of schools should be scheduled for times when classes are not in session.
4. All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
5. The noise produced by construction activities shall be monitored to insure that the noise produced by construction equipment is compliant with the emission standards listed in the project EIR (Appendix L, page 5.10-4 and in source document, FHWA Construction Noise Model, page 3).
6. Measures to minimize back-up alarm issues shall be established including such techniques as:
  - a. use of self-adjusting ambient sensitive back-up alarms.
  - b. manual adjustable alarms on lower settings.
  - c. use of observers.
  - d. scheduling of activities so that alarm noise is minimized.
  - e. construction site access designed such that deliveries and trucks move through the site in a forward manner without the need to back up.
7. Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest residence, unless safety or technical factors take precedence.
8. Stationary combustion equipment such as pumps or generators operating near any noise sensitive receptor shall, if necessary, be shielded with a noise protection barrier. Leq values at the property line of receiver locations shall not exceed 65 dB.

Y. Condition 80. Pile Driving Vibration. Prior to initiation of construction of the collection system, the CONTRACTOR shall identify all areas where pile driving, or other construction methods that would result in severe ground vibrations, could occur. Deep pile foundation designs shall favor techniques that can be constructed with minimal vibration effects. Prior to construction, using technology and standards recommended in the Caltrans Transportation and Construction Induced Vibration Manual, the CONTRACTOR shall calculate the vibration effects of pile driving and other high vibration activities using the Peak Particle Velocity (PPV) metric, and shall ensure that the PPV does not exceed the following thresholds at any affected building: 0.5 at modern industrial/commercial or residential buildings; 0.3 for any building composed of masonry, unreinforced concrete, lath & plaster interiors or of similar construction; and 0.25 for any building identified as particularly sensitive to vibration impacts. Alternative design and/or construction methods shall be used to meet these limits. In addition, the construction CONTRACTOR shall notify all property owners and tenants adjacent to the proposed pile driving or other vibration inducing activities of the days and hours of operation. Prior to

construction activities associated with this type of work, the construction CONTRACTOR shall inspect all structures within the area predicted to experience vibration in excess of 0.25 PPV to document existing characteristics of the structures. During construction, vibration shall be monitored and recorded and adjustments made to operation or to the radius of concern if the level of vibration differs from estimates. If a post construction survey indicates that damages to structures (e.g., residences, pools) occurred during the work, the property owner shall be fairly compensated for the cost of remediating damages.

- Z. Condition 81, Invasive Plants: The CONTRACTOR is directed to Specification 01561 – Biological and Cultural Resource Environmental Controls.
  - AA. Condition 82, Los Osos Creek Environmental Requirements. The CONTRACTOR is directed to Specification 01561 – Biological and Cultural Resource Environmental Controls.
  - AB. Condition 94, Laterals - Biology. Installation of lateral lines will conform to the mitigation procedures contained in the “Lateral Line Installation – Biological Resources & Mitigation” report date 10-16-02.
  - AC. Coastal Condition 11, Approved Development – Construction. All areas within which construction staging are to take place shall be minimized to the maximum extent feasible in order to minimize impacts on resources (e.g., terrestrial habitat, wetlands, creeks, riparian areas, or other sensitive resource areas, etc.). All measures to be taken to minimize impacts associated with construction staging and related areas shall be identified, including but not limited to screening, fencing (see Part 2 of this Specification), landscaping, signage, and designation of various activity and storage areas on the site. If additional construction staging and related areas are needed following award of the Work, such areas shall be identified in a plan and submitted for Executive Director review and approval. Copies of the signed Coastal Development Permit (CDP) shall be maintained in a conspicuous location at the construction staging area at all times, and that such copies be available for public review on request. All persons involved with the construction shall be briefed on the content and meaning of the CDP, and the public review requirements applicable to them, prior to commencement of construction. A primary construction coordinator shall be designated by the CONTRACTOR for public inquiries regarding the construction, and that their contact information (i.e., address, phone numbers, etc.) including, at a minimum, a telephone number available 24 hours a day for the duration of construction, be conspicuously posted at the construction staging area and at individual construction sites where such contact information is readily visible from public viewing areas, along with indication that the construction coordinator should be contacted in the case of questions regarding the construction (in case of both regular inquiries and emergencies). The construction coordinator shall record the name, phone number, and nature of all complaints received regarding the construction, and shall investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry.
- 1.05 SURFACE MINE AND RECLAMATION ACT
- A. Imported borrow or aggregate material must come from a surface mine permitted under the Surface Mining and Reclamation Act of 1975 (SMARA), Pub Res Code § 2710, et seq., or from an exempt site.

### 1.03 SUBMITTALS

- A. Submit to the ENGINEER in accordance with Section 01300, Shop Drawings and design calculations for the CONTRACTOR-designed excavation support system stamped by a Professional Engineer in the State of California. Submittals shall indicate the following, as a minimum:
- B. Shop Drawings shall include:
1. Provide overall plan layout of the system, indicating clearances, dimensions, material properties, member sizes, locations, spacing and penetrations depth of all members, locations of various types of lateral supports. Indicate existing and proposed utilities, structures or other obstruction, location and type of instrumentation and monitoring points within the area of influence of the excavation.
  2. Provide wall elevations and locations of all bracing.
  3. Show the overall sequence of installation and removal of bracing, indicating levels to which the work will be carried out before bracing is installed or removed.
  4. Method of preloading bracing (if required) and the preload for each member, and the method of locking-off the preload. Include detailed drawings of the connections, jacking supports and method of shimming.
  5. Details, layout, arrangement, equipment requirements, and method of construction of the proposed excavation support system.
  6. Procedures for resolving difficulties arising from misalignment of members exposed during excavation, and criteria for implementing those procedures.
  7. Pile driving report meeting the requirements of Section 01060 – Regulatory Agency and Utility Requirements, Coastal Development Permit Condition 80.

C. Design calculations shall include:

1. Loads on the excavation support system for all stages of excavation, bracing removal, and concrete placement, including material and equipment loads on adjacent ground during construction.
2. Design of wall and all bracing members including all details for all stages of construction.
3. Theoretical deflections of excavation support system and deformation of structures, pipelines, and other improvements located within the area of influence of the excavation.
4. Submit to the ENGINEER for review and acceptance, a plan of action to be implemented in the event any threshold value for deformation, as specified in Section 02445, is reached. The plan of actions shall be positive measures by the CONTRACTOR to limit further movement of the wall including but not limited to trenching for struts and wales, placement of granular earth berms against the wall, installation of additional struts, or combinations thereof. The details of the mitigating measures shall include a schedule of implementation, location and/or availability of materials, structural details for all connections to the wall and