

J.M. TURNER ENGINEERING, INC.

CONSULTING ENGINEERS

CIVIL ENGINEERING
STRUCTURAL ENGINEERING
CONSTRUCTION ENGINEERING

JIM-N-I RENTALS
380 Sutton Place
PO Box 4740
Santa Rosa, CA. 95402

Date: June 11, 2014

Re: Manufacturer's Tabulated Data
- California P.E. Stamp

Our office has reviewed the following Tabulated Data Sheets:

1. Shore-Tec, Inc. High Clearance Shores

J.M. Turner Engineering has concluded that all of the information within the tabulated data sheet is in accordance with OSHA requirements. We approve the above referenced shoring system to be used in the states of California.

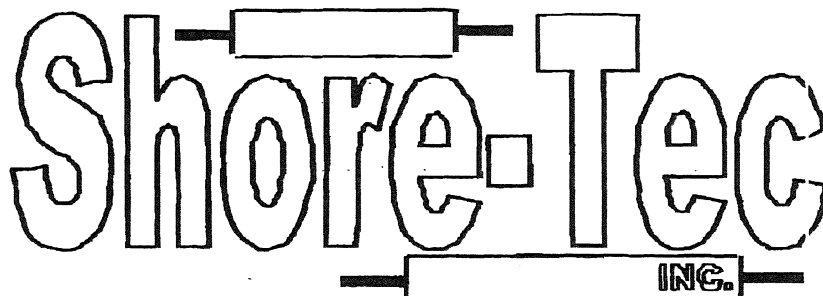
The shoring system shall be used in accordance with the Tabulated Data sheet. Where the installed shoring system does not comply with the tabulated data a licensed civil engineer shall provide a site specific shoring design.

Sincerely,

Adrianus J. Vermeulen, PE

J.M. Turner Engineering Inc.





Tabulated Data

High Clearance Shores

March 1, 2004

*Copyright, U.S.A., Griswold Machine & Eng., Inc.,
2004*

*594 West Highway M-60, Union City, MI 49094
(800) 248-2054 Fax: (517) 741-7483*

**JIM-N-I RENTALS
360 SUTTON PL
SANTA ROSA CA, 95407
PHONE: 707-569-1600
FAX: 707-569-1700**

CAUTION

EXCAVATION PROCEDURES MAY CAUSE INJURY OR DEATH!

A COMPETENT PERSON WHO SATISFIES THE DEFINITION AND INTENT OF THE 1926 CONSTRUCTION STANDARD SUBPART P EXCAVATIONS SHALL ENSURE THAT ALL EMPLOYEES ARE WORKING IN SAFE CONDITIONS AND THAT ALL EMPLOYEES HAVE BEEN TRAINED IN CORRECT EXCAVATION PROCEDURES AND THE PROPER USE OF THE PROTECTIVE EQUIPMENT CHOSEN.

EXCAVATIONS AND PROTECTIVE EQUIPMENT SHALL BE INSPECTED A MINIMUM OF ONCE EACH WORKING DAY AND WHENEVER THERE IS A CHANGE IN THE SOIL CONDITIONS AND/OR OTHER CHANGES SUCH AS AN INCREASE OR DECREASE IN WATER OR VIBRATIONS.

EMPLOYEES SHALL NOT BE ALLOWED TO ENTER AN EXCAVATION THAT IS NOT PROPERLY SHORED, SHIELDED, OR SLOPED.

EMPLOYEES SHALL ALWAYS ENTER, WORK, AND EXIT WITHIN THE SHORED, SHIELDED, OR SLOPED AREAS OF THE EXCAVATION AND/OR TRENCH.

ALL LIFTING AND PULLING EQUIPMENT, INCLUDING CABLES, SLINGS, CHAINS, SHACKLES AND SAFETY HOOKS SHALL BE INSPECTED FOR DAMAGE OR DEFECTS PRIOR TO USE AND SHALL BE EVALUATED FOR SUITABILITY AND CAPACITY.

THIS SHORE - TEC TABULATED DATA PROVIDES A GENERAL SET OF GUIDELINES TO ASSIST THE COMPETENT PERSON IN THE SELECTION OF A PROTECTIVE SYSTEM FOR EMPLOYEE SAFETY. THE RESPONSIBILITY FOR JOB SITE SAFETY AND THE PROPER SELECTION, INSTALLATION AND REMOVAL OF THE SHORING EQUIPMENT BELONGS TO THE COMPETENT PERSON DESIGNATED FOR THAT JOBSITE. THIS TABULATED DATA IS NOT INTENDED TO BE USED AS A JOB SPECIFIC EXCAVATION/TRENCHING SAFETY PLAN, BUT SHALL BE USED BY THE COMPETENT PERSON. TABULATED DATA IS INTENDED AS A SUPPLEMENT TO HIS/HER TRAINING, EXPERIENCE AND KNOWLEDGE OF SAFE PROCEDURES, JOB SITE CONDITIONS AND SOIL TYPES. TABULATED DATA IS INTENDED TO ASSIST HIM IN THE SELECTION OF AN APPROPRIATE PROTECTIVE SYSTEM FOR EMPLOYEE SAFETY.

HIGH CLEARNACE SHORES TABULATED DATA

GENERAL:

1. This data has been prepared by a Registered Professional Engineer as required by the OSHA standard 29 CRF, Part 1926, Subpart P, Excavations.
 2. This data is to be used by the "competent person" for the proper use and pacement of HIGH CLEARNACE SHORES.
 3. "Competent person" is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
 4. When there is a discrepancy concerning the use of protective systems between this tabulated data and the OSHA standard, this data shall take precedence. Any topic not covered by this data shall be governed by the OSHA standard.
 5. SHORE - TEC shall not be liable for damage or injury resulting from improper use of the HIGH CLEARNACE SHORES. Improper use of or modifications to the HIGH CLEARNACE SHORES, or use of components not specifically authorized by SHORE - TEC without the written consent of SHORE - TEC shall void this data and all manufacturers warranty.
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SPECIFICATIONS FOR USE OF HIGH CLEARNACE SHORES

1. All personnel involved with the use of HIGH CLEARNACE SHORES shall be trained in the proper use and installation procedures and other applicable safety requirements.
2. HIGH CLEARNACE SHORES shall be used only in soil conditions indicated in this data.
3. Refer to the installation procedures on for typical installation figures.
4. The sides or faces of the excavation must be near vertical to allow proper installation of the HIGH CLEARNACE SHORES. The sides of the HIGH CLEARNACE SHORES shall bear continuously and firmly against the soil or approved sheeting. The sheeting shall bear against the soil or a solid and stable filler in order to adequately distribute the loads to and from the cylinder struts. **DO NOT** butt rails back to back to spar a wider excavation.

5. HIGH CLEARNACE SHORES may be used in a **vertical** plane only
6. If a HIGH CLEARNACE SHORE is positioned on a joint between two pieces of sheeting, the shore shall split the seam equally.
7. The hydraulic cylinders shall be pumped to a minimum of 750 psi when a HIGH CLEARNACE SHORE is used. If the pressure drops below the initial pressure, check for leaks, repair any found, and re - pressurize the system. If the initial pressure still can't be maintained because the soil is too soft, another protective system will be required.
8. An approved shoring system shall consist of a minimum of two HIGH CLEARNACE SHORE, spaced in accordance with this data, and the safe working area shall be between two consecutive shores.
9. HIGH CLEARNACE SHORES may be used in a stacked configuration, provided the values in the **HIGH CLEARANCE SHORE DEPTH TABLES** are not exceeded.
10. The following materials are or an approved equal, shall be used for sheeting with the HIGH CLEARNACE SHORES:
 1. Two sheets of 3/4" thick CDX Plywood placed back to back
 2. 1 1/8" thick CDX Plywood
 3. 3/4" thick 14 Ply Arctic White Birch (Finland Form)
 4. 3/4" thick HDO - American Plywood Association, high density overlay exterior
 5. 3/4" thick Plyform - American Plywood Association B-B Class I Exterior
 6. 3/4" thick Combi Exterior Plywood
 7. 3/4" Omni Form
 8. Steel Plate 1/2" minimum thickness
11. When HIGH CLEARNACE SHORES are used in conjunction with Water Systems or Hydraulic Shields, the maximum horizontal spacing between the ends of each unit shall be twenty four inches.

SOIL CLASSIFICATION

1. See the OSHA regulations for descriptions of Type A and B soils.
 2. Type C-60 soil is a soft cohesive or moist granular soil that is not flowing or submerged. This soil can be cut vertically and will stand long enough to safely install the protective system.
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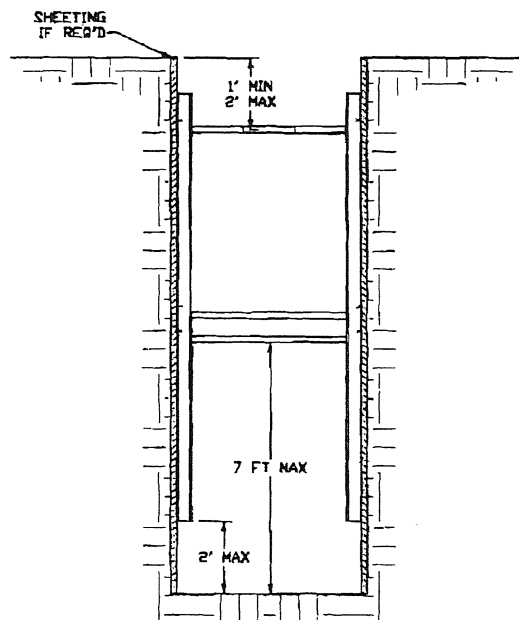
DESIGN CRITERIA AND LIMITATIONS

1. The tables include the effect of a three foot high spoil pile within a horizontal distance from the face of the excavation equal to the excavation's depth. HIGH CLEARNACE SHORES are not designed to support heavier surcharge loads, such as those imposed by building foundations. If HIGH CLEARNACE SHORES are used near building foundations, those foundations may need to be underpinned to prevent excessive settlement.
2. HIGH CLEARNACE SHORES are not designed to support vertical loads and shall not be used to provide access or egress to the trench.
3. This data is valid for HIGH CLEARNACE SHORES in structurally sound condition. Any significant damage will void this data, and all manufacturers warranty. The damaged HIGH CLEARNACE SHORES shall not be used.
4. The competent person shall monitor the excavation and adjacent areas daily, after every rainstorm, and after every event that might threaten the stability of the excavation.
5. The excavation must be kept free of water while using the HIGH CLEARNACE SHORES. Surface water shall be diverted away from the excavation, and water must be pumped out of the excavation bottom. The competent person shall monitor the excavation in these conditions to prevent the water from generating excessive lateral pressure on the HIGH CLEARNACE SHORES and to check for decreased soil stability.

NOTES FOR TABULATED DATA

1. The top strut of the HIGH CLEARANCE SHORES shall be no less than twelve inches and no more than twenty four inches below the top of the trench.
2. HIGH CLEARANCE SHORES shall be orientated as shown in Fig.(1-1). The lowest strut of a HIGH CLEARANCE SHORE shall be no more than seven feet above the bottom of the excavation. The rail of the HIGH CLEARANCE SHORE shall be no more than two feet from the bottom as shown.
3. If sheeting is required, the sheeting shall extend from the top of the excavation to a maximum of two feet off the bottom of the excavation and the maximum horizontal gap between sheeting members shall be two feet. Some soils may require that the sheeting be extended to the full depth of the excavation.
4. When an Oversleeve is required, the Oversleeve shall be a structural tube (TS 3 ½ x 3 ½ x 3/16) and shall extend the full collapsed length of the cylinder.

NOTE: In some applications, sheeting may not be required, but it may be desired to prevent random sloughing or raveling of the soil.



HIGH CLEARANCE SHORE - SECTION VIEW
NO SCALE

Fig.(1 - 1)

HIGH CLEARANCE SHORE DEPTH TABLES

High Clearance Shores - Type "A" Soils

| Depth of Excavation | Maximum Horizontal Spacing of Struts | Excavation Width | Oversleeve Required | Sheeting Required |
|---------------------|--------------------------------------|------------------|---------------------|-------------------|
| 0 ft - 12 ft | 8 ft | 0 ft - 8 ft | No | No |
| | | 8 ft - 12 ft | No | |
| | | 12 ft - 15 ft | Yes | |
| 12 ft - 16 ft | 8 ft | 0 ft - 8 ft* | No | No |
| | | 8 ft - 12 ft | No | |
| | | 12 ft - 15 ft | Yes | |
| 16 ft - 20 ft | 8 ft | 0 ft - 8 ft | No | No |
| | | 8 ft - 12 ft | Yes | |
| | | 12 ft - 15 ft | Yes | |

High Clearance Shores - Type "B" Soils

| Depth of Excavation | Maximum Horizontal Spacing of Struts | Excavation Width | Oversleeve Required | Sheeting Required |
|---------------------|--------------------------------------|------------------|---------------------|-------------------|
| 0 ft - 12 ft | 8 ft | 0 ft - 8 ft | No | No |
| | | 8 ft - 12 ft | Yes | |
| | | 12 ft - 15 ft | Yes | |
| 12 ft - 16 ft | 6 ft | 0 ft - 8 ft* | No | No |
| | | 8 ft - 12 ft | Yes | |
| | | 12 ft - 15 ft | Yes | |
| 16 ft - 20 ft | 4 ft | 0 ft - 8 ft* | No | No |
| | | 8 ft - 12 ft | Yes | |
| | | 12 ft - 15 ft | Yes | |

High Clearance Shores - Type "C60" Soils

| Depth of Excavation | Maximum Horizontal Spacing of Struts | Excavation Width | Oversleeve Required | Sheeting Required |
|---------------------|--------------------------------------|------------------|---------------------|-------------------|
| 0 ft - 12 ft | 6 ft | 0 ft - 8 ft* | No | Yes |
| | | 8 ft - 12 ft | Yes | |
| | | 12 ft - 15 ft | Yes | |
| 12 ft - 18 ft | 4 ft | 0 ft - 8 ft | No | Yes |
| | | 8 ft - 12 ft | Yes | |
| | | 12 ft - 15 ft | Yes | |

