

TRENCH SHIELD TABULATED DATA

Shield Model 6 x 20 x 4" Wall, Serial Number 620.1, Max Pressure = 740 psf

6' High x 20' Long x 15' Max Width Shield

Design/Review Engineer:
Woodcrest Engineering
15790 Rancho Viejo Drive
Riverside, CA 92506
(951) 780-2843

Manufacturer / Owner:
McBratney Company
P.O. Box 1102
Murrieta, CA 92564
Bus: (951) 677-0263

Drawing
No. MB6x20x4"
Date
6/30/2014



GUIDELINES FOR TRENCH SHIELD USAGE

1. This shield and tabulated data shall only be implemented by a competent person as defined by Title 8, Chapter 4, Section 1504(a) of the State of California Safety Orders adopted 9/25/91.

2. This tabulated data has been prepared by a registered professional engineer in accordance with the provisions of Title 8, Chapter 4, Section 1541.1(c)(2) of the State of California Safety Orders adopted 9/25/91 and Federal OSHA Safety and Health Standard 29 CFR Part 1926, Subpart P.

3. This shield shall be used in accordance with the State of California Administrative Code, Title 8, Chapter 4, Section 1541.1(g) at all times.

4. The soil types "A", "B", and "C" are as defined in Appendix A of the OSHA Standard, Section 1541.1 "Soil Classification". Type "C" soils include soils which are saturated, wet, or submerged in water. For soils which are not saturated, wet, or submerged in water but would otherwise be classified as a Type "C" soil, use the soil classification of "C-60" or consult a registered professional engineer.

5. This shield is designed to withstand a uniform horizontal pressure on the side walls as indicated above. This shield tabulated data is for a shield installed in a continuous trench condition only. Lateral pressure loads from end sheeting or steel plates installed against the spreaders is not permitted without further analysis by a licensed professional engineer.

6. The surcharge load included in this tabulated data is a normal traffic and construction surcharge of 72 psf. Spoil piles, large heavy equipment or other factors may produce higher surcharge pressures. Actual pressure surcharges should be investigated prior to use to ensure that the maximum capacity of the shield is not exceeded.

7. Trench shields may not provide stability to adjacent buildings or other structures susceptible to lateral movement of supporting soils.

8. No modifications shall be made to this shield design without written approval of the Design Engineer.

9. The maximum rated pressure for this shield is based upon the shield in structurally sound condition. The shield shall be inspected prior to use for damage or deterioration and repairs made if necessary.

10. When the shield(s) is used as part of a combined sloping and vertical excavation, the shield must extend a minimum of 18" above the toe of the slope (per OSHA regulations).

11. No workman shall be in the trench unless protected within the confines of shields extending the full vertical height of the trench.

12. The shield base unit may be used alone or stacked with other shields and/or extensions. Shields shall be connected using the manufacturer supplied bolts as required to prevent relative movement between shields.

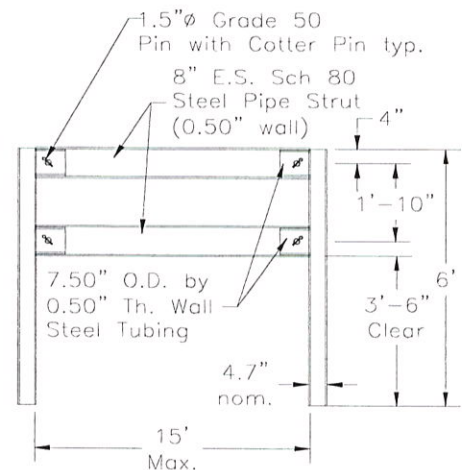
13. Shield design allowable stresses are per the "AISC Manual of Steel Construction" increased 33% for temporary loading. For installations that do not include an increase for temporary loading, the pressure rating shall be taken as 75% of the above value and the depths adjusted accordingly.

Tabulated Data Calculation:

13. Without a site specific shoring plan prepared by a professional engineer, the active pressures given in the OSHA Construction Safety Orders provide a guideline for calculating the shoring pressure at a given depth. The total allowable depth is calculated as:

$H_t = (\text{Capacity} - \text{Surcharge}) / P_a$, For example, with a surcharge of 72 psf and OSHA Type "A" soil with P_a of 25 pcf, the allowable depth is:

$$H_t = (740 \text{ psf} - 72 \text{ psf}) / 25 \text{ pcf} = 26.7 \text{ ft.}$$



SECTION

ALLOWABLE DEPTHS

OSHA Soil Type	P_a pcf	Maximum Depth**
Type "A"	25	26 ft.*
Type "B"	45	14 ft.
Type "C60"	60	11 ft.
Type "C"	80	8 ft.

* Note: Depths over 20 feet require a site specific design by a registered professional engineer.

** Note: Maximum depth is total depth including adjacent slopes above, if any.



NAXSA

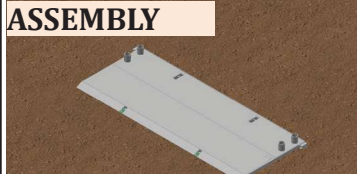
North American
Excavation Shoring Association

STEEL TRENCH SHIELD ASSEMBLY & USAGE

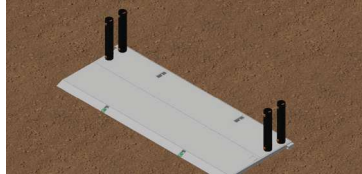
A guide to key steps for steel trench shield assembly and usage.

1. ANY USE OF A TRENCH SHIELD WITHOUT MANUFACTURER'S SPREADERS AND PINS OR EQUAL WILL VOID THE TABULATED DATA AND WARRANTY.
2. TRENCH SHIELDS ARE DESIGNED TO BE USED WITHOUT PLATES EXTENDING BELOW, ABOVE, OR NEXT TO IT. ANY USE OF SUCH PLATES OR PANELS MAY VOID THE TABULATED DATA AND MAY REQUIRE SITE SPECIFIC ENGINEERING.
3. TRENCH SHIELDS ARE DESIGNED TO BE PUSHED TO GRADE IF NECESSARY. AS NOTED BELOW, ANY UNNECESSARY ABUSE BY THE EXCAVATOR AND OR OPERATOR (SUCH AS POUNDING WITH THE BUCKET) WILL VOID THE TABULATED DATA AS WELL AS THE WARRANTY.
4. CONDITION OF SHIELD, SPREADER PIPES, AND SPREADER PINS MUST BE CHECKED/ INSPECTED FOR SERVICEABILITY BY THE COMPETENT PERSON PRIOR TO EACH USE. PSF RATING IS NOT VALID IF THERE IS ANY VISIBLE DAMAGE TO, OR REPAIRS MADE TO THE SHIELD THAT HAS NOT BEEN DOCUMENTED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
5. A MINIMUM OF 4 SPREADERS OR A MANUFACTURER-APPROVED ALTERNATIVE, MUST BE INSTALLED ON THE TRENCH SHIELD PRIOR TO USE.
6. WARNING: LIFTING EYES ARE DESIGNED AND INTENDED FOR ASSEMBLY/DISASSEMBLY AND LIFTING ONLY. DO NOT PULL OR LIFT BY EYES WHEN SHIELD IS STUCK OR HAS PRESSURE AGAINST IT. LOOSEN SHIELD BY PULLING ON PULLING EYES OR DIGGING ALONG SIDES.

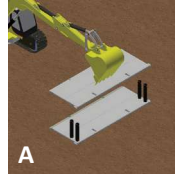
ASSEMBLY



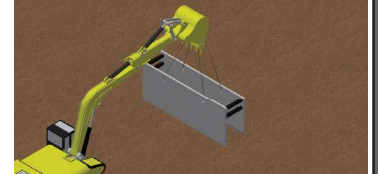
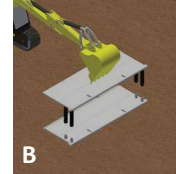
1) REMOVE FROM TRUCK BY LIFTING PANELS WITH 4 POINT LIFT LUGS. ALWAYS USE OSHA APPROVED SLINGS. PLACE ONE SIDEWALL FLAT ON THE GROUND WITH COLLARS FACING UP.



2) PLACE SPREADER PIPE ON TO COLLARS OR BRACKETS AND PIN IN PLACE. SECURE PINS WITH KEEPERS.

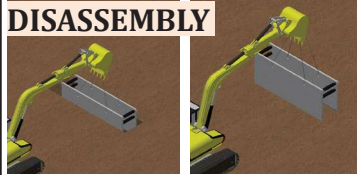


3A) LOWER SECOND SIDEWALL ONTO SPREADERS AND PIN IN PLACE.
3B) FOR SPREADERS LONGER THAN 72" LIFT SIDEWALL WITH SPREADERS OVER MATCHING SIDEWALL PRIOR TO PINNING IN PLACE.

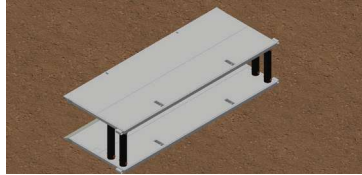


4) PLACE SLING IN TOP 4 LIFT LUGS. STAND SHIELD IN UPRIGHT POSITION AND PREPARE FOR INSTALLATION.

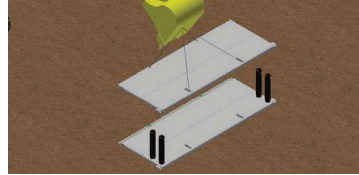
DISASSEMBLY



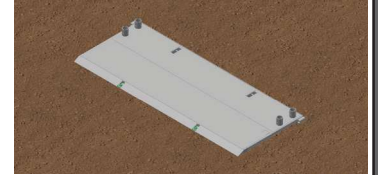
1) PLACE OSHA APPROVED SLING IN TOP 4 LIFT LUGS. STAND SHIELD IN UPRIGHT POSITION AND LIFT BOX FROM EXCAVATION. WARNING: LIFT LUGS ARE INTENDED FOR LIFTING ONLY.



2) PLACE SHIELD ON EITHER SIDEWALL.

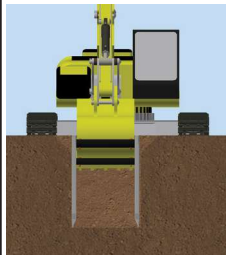


3) CONNECT SLING TO 4 LIFTING EYES OF TOP SIDEWALL. REMOVE SPREADER PINS FROM THE UPPER PORTION OF THE SPREADERS. LIFT THE TOP SIDEWALL FROM THE SPREADERS.

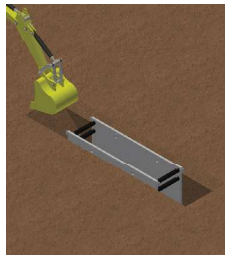


4) UNPIN SPREADERS FROM THE LOWER SIDEWALL AND REMOVE SPREADERS.

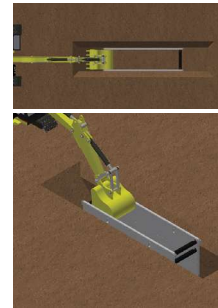
USING A TRENCH SHIELD IN STABLE SOIL



1) EXCAVATED TO GRADE JUST SLIGHTLY WIDER THAN THE TRENCH SHIELD. DIG WALLS VERTICAL TO MINIMUM OF 18" BELOW THE TOP OF THE SHIELD. SLOPE SOILS ABOVE SHIELD ACCORDING TO MANUFACTURER'S TABULATED DATA. INSTALL SHIELD IN TRENCH.

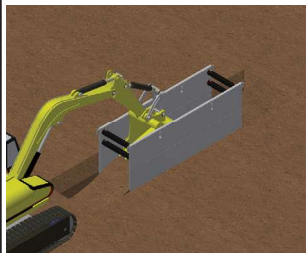


2) PERFORM DESIRED WORK, THEN EXCAVATE IN FRONT OF THE TRENCH SHIELD.

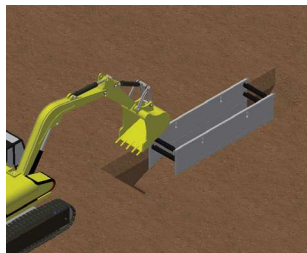


3) PULL SHIELD FORWARD BY FRONT TOP SPREADER PIPE OR PULLING EYES. PULLING EYES SHALL BE USED WITH SPREADERS WIDER THAN 72" OR WHEN SOIL PRESSURE IS SEVERE ENOUGH TO CAUSE SPREADER TO DEFLECT. CONTINUE EXCAVATING AND PULL SHIELD FORWARD, BACKFILL AS WORK PROGRESSES.

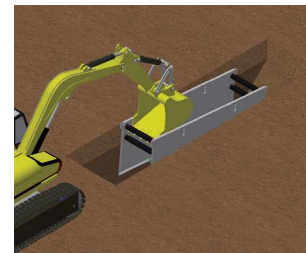
USING A TRENCH SHIELD IN UNSTABLE SOIL



1) EXCAVATE UNTIL SOIL BEGINS TO CRUMBLE BEYOND DESIRED TRENCH WIDTH. PLACE SHIELD IN LINE OF EXCAVATION AND EXCAVATE FROM WITHIN.



2) CONTINUE EXCAVATING WITHIN SHIELD WHILE PUSHING DOWN ON SHIELD CORNERS UNTIL PROPER GRADE IS REACHED.



3) PERFORM DESIRED WORK, THEN PULL SHIELD FORWARD AND UP AT APPROPRIATE ANGLE AND REPEAT PREVIOUS STEPS AS NECESSARY.

WARNING: ANY USE OF THIS PRODUCT NOT SPECIFICALLY DESCRIBED ON THIS CERTIFICATE COULD CAUSE CAVE-IN, COLLAPSE, OR STRUCTURAL FAILURE, AND MAY RESULT IN INJURY OR DEATH