United Rentals®

Tabulated Data

What it is, and why it is important

Protective System Options

OSHA Charts

- Sloping and Benching
- Timber Shoring
- Aluminum Hydraulic Shoring

Designs by a Registered P.E.

- **Manufactured Systems** **Trench Shields**
- Site Specific Designs

All options were produced by professional engineers. OSHA maintains an Office of Engineering Services. Other designs are produced by the private sector. All data are presented in tabular form, sets of tables consisting of rows and columns.

Requirements of the selected system

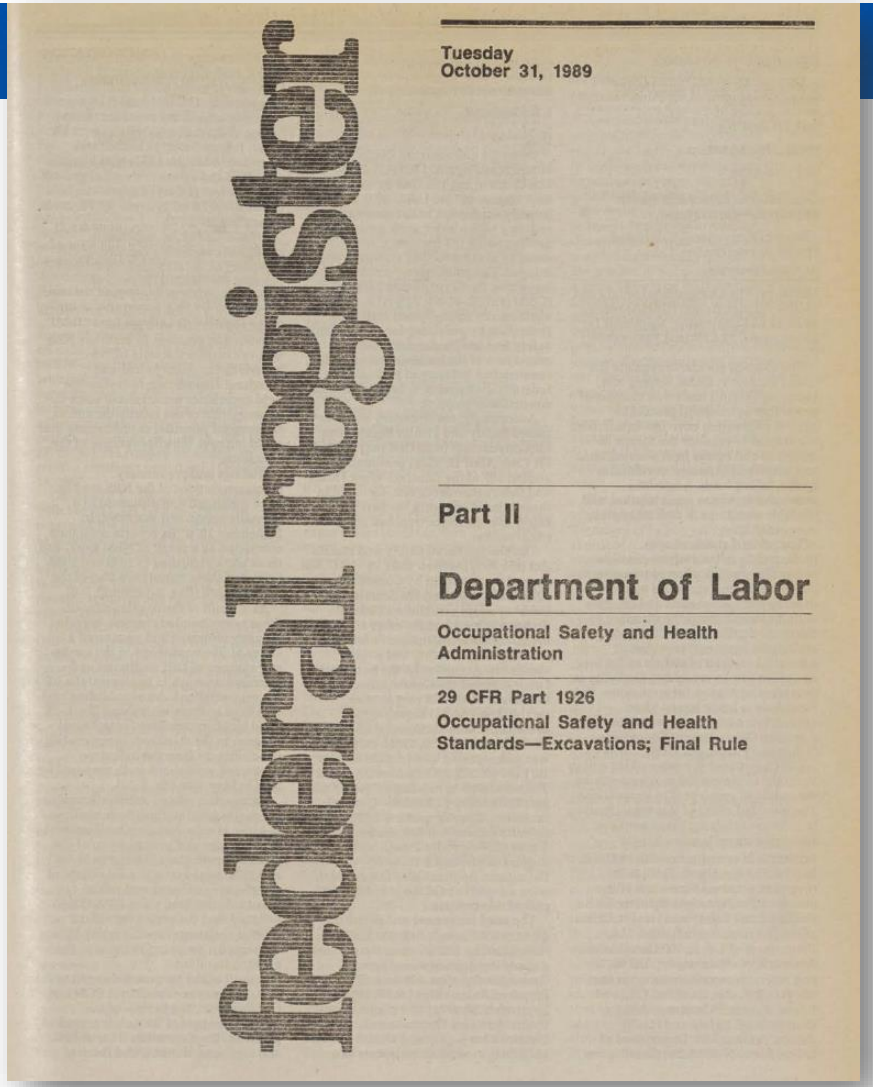
From OSHA Subpart P

UNITED STATES
DEPARTMENT OF LABOR

Shield (Shield system) means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure.

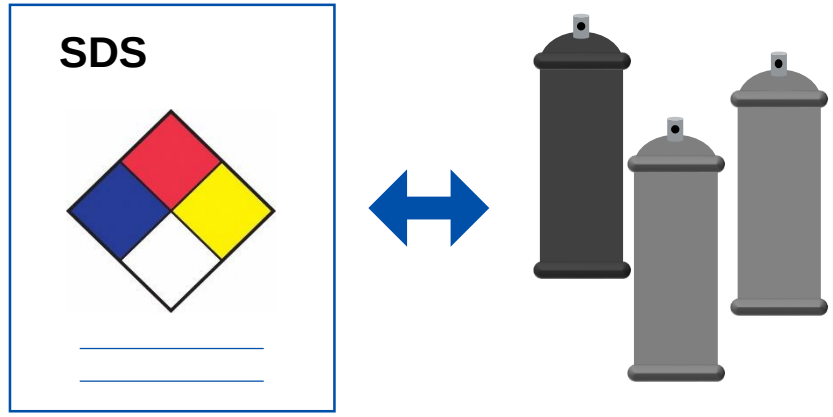
(2) Protective systems will have the capacity to resist without failure all loads that are intended or could be reasonably be expected to be applied or transmitted to the system.

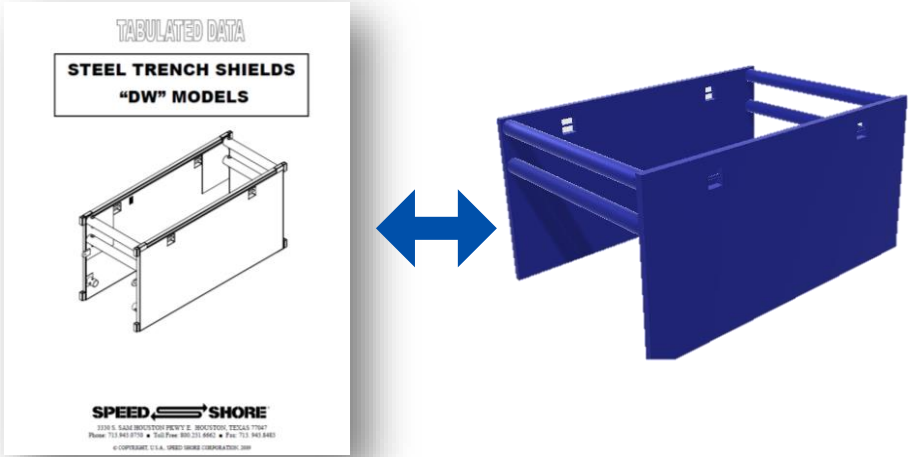
(i) Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.



Manufacturer’s Tabulated Data

The user’s guide for
proper and safe use
of the equipment





OSHA’s Definition

Tabulated data means tables and charts approved by a registered professional engineer and used to design and construct a protective system

Tabulated Data

Definition

"…used to design and *construct* a protective system…"

Construct means to place, position, or reposition, not assemble

Shall be in written form on the jobsite during *construction* of the protective system

SPEED SHORE®

PIONEERING TRENCH SAFETY

TABULATED DATA AND TRENCH SHIELD CERTIFICATION

SERIAL NUMBER: 11-2384		MODEL: TS- 10 20 DW 6
HEIGHT = 10 feet	LENGTH = 20 feet	THICKNESS= 6 inches
MAXIMUM LATERAL EARTH PRESSURE =	1,049 Pounds per square foot	

MAXIMUM DEPTH OF EXCAVATION		
O.S.H.A. Soil Type	Equivalent Weight Effect *(p.c.f.)*	Depth "H" *(feet)*
A	25	44
B	35	33
B	45	27
C	60	21
C	80	13
Spreader Size = 8 inch Schedule 80 Pipe / Maximum Spreader Length = 20 feet		

This shield is manufactured to meet the requirements of O.S.H.A. CFR 29, Part 1926, Subpart P. This shield must be used in a manner consistent with safe working procedures, Federal, State and local regulation and manufacturer's instructions. Contact manufacturer for any non-standard use of this trench shield.

GENERAL NOTES AND INSTRUCTIONS:

1. Contractors must assign a ***"competent person"***, knowledgeable and capable of complying with all federal regulations, state and local laws and ordinances. **NOTE:** For copies of applicable federal or state laws contact: Dept. of Labor, Occupational Safety and Health Division
2. A ***"competent person"***, trained and experienced in the proper use of trench shields, safe excavation practices and soil classification methods must direct and control the use of this trench shield.
3. This Tabulated Data applies to standard products manufactured exclusively by SPEED SHORE CORPORATION. This data complies with the requirements of federal O.S.H.A. CFR 29, Part 1926, Subpart P-Excavations. Information not found in this data shall be referenced by obtaining copies of the applicable Federal or State laws governing excavation
4. Modifications of this product shall be approved by the manufacturer in writing and shall accompany this Tabulated Data sheet. Any modification not specifically allowed by SPEED SHORE CORPORATION voids this data. **Refer to Speed Shore "DW" Manufacturer's tabulated data for use guidelines.**

11.24.00 Page 1 of 1

SPEED SHORE CORPORATION
3330 S. Sam Houston Pkwy. East
Houston, Texas 77047
Phone (713) 943-0750 Fax (713) 943-8483

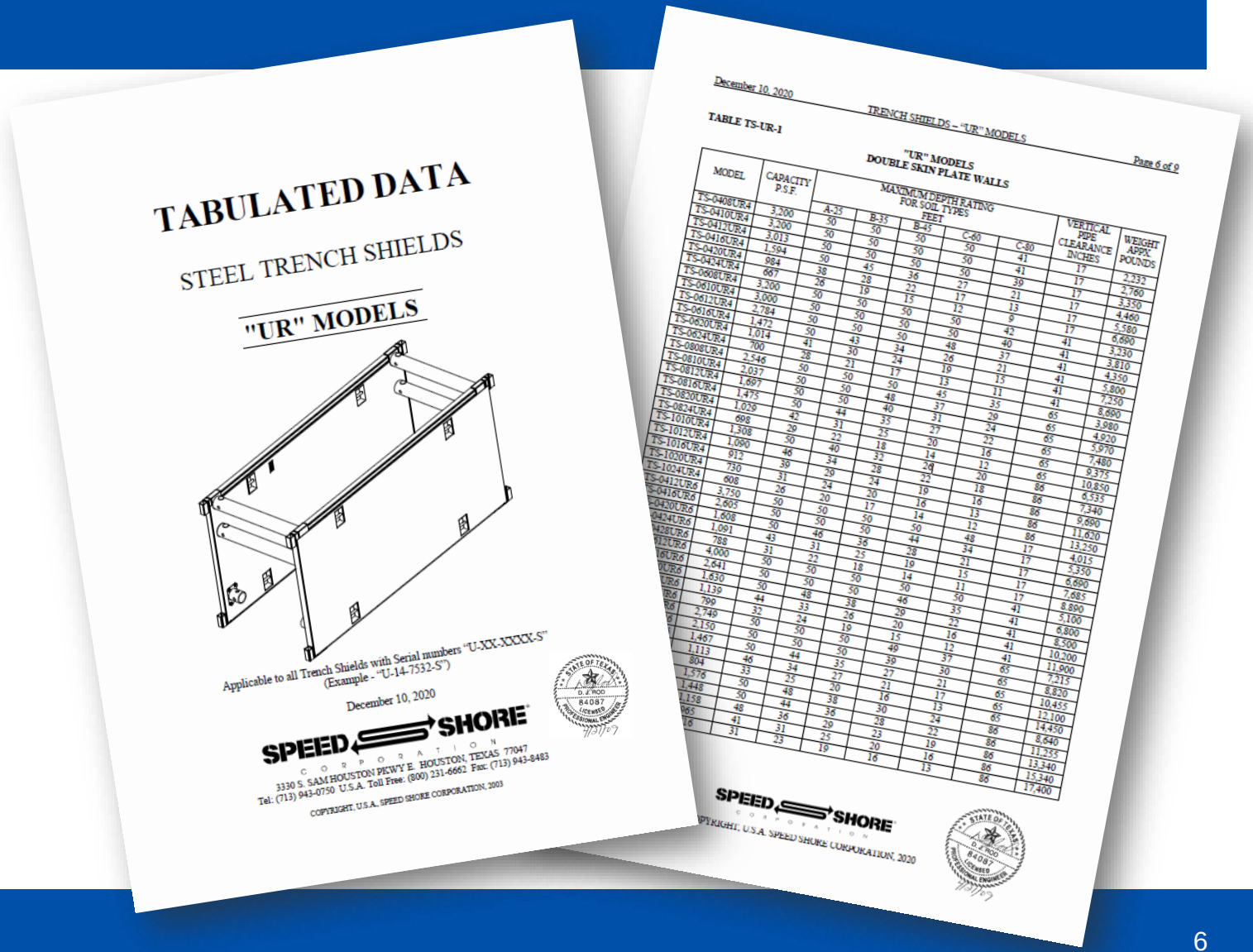
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. NEDELTCHEV # 31609
01. 18. 2016.

PROFESSIONAL ENGINEER ALEX NEDELTCHEV ALBERTA
01. 18. 2016.

PROFESSIONAL ENGINEER A.V. NEDELTCHEV MEMBER 14762 SASKATCHEWAN
16.01.18. YR, MN, DAY

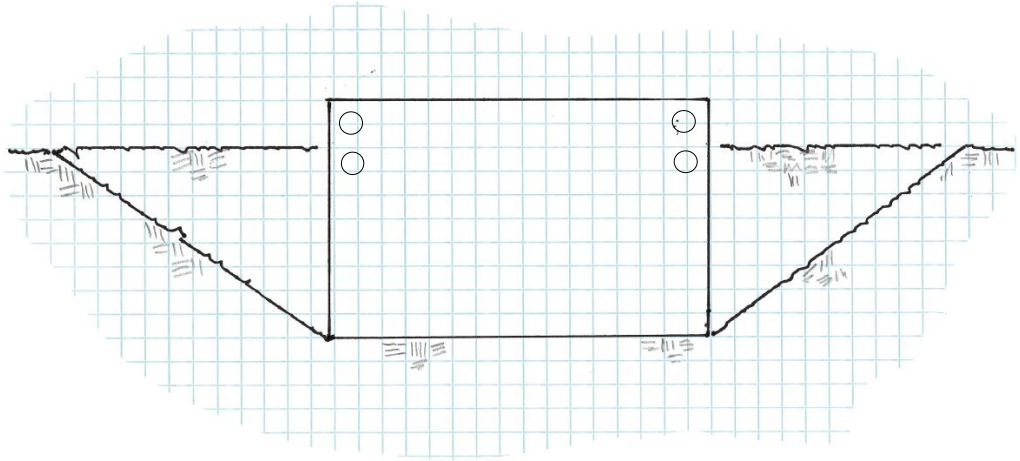
Components of Manufacturer's Tabulated Data

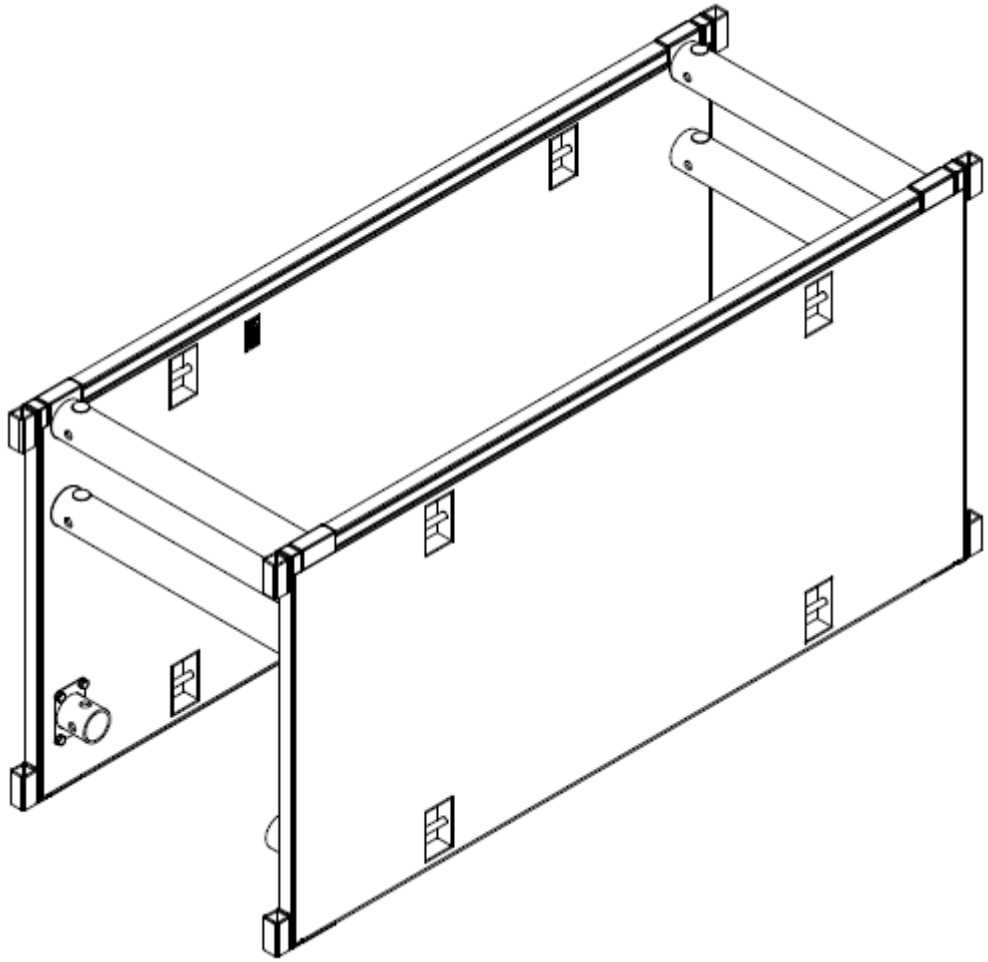
- Identity and contact info of manufacturer
- Soil classification
- Assembly and inspection instructions
- Capacity of the shield
- Safety recommendations
- Maximum working depths



Management of the Soil at the End of a Shield

- Shields are designed for linear trench application
- Ends of shields were intended to be open, with no vertical wall of soil
- Soils at end were intended to be no more steep than 1 ½ : 1





Common Practices that Conflict with Tabulated Data

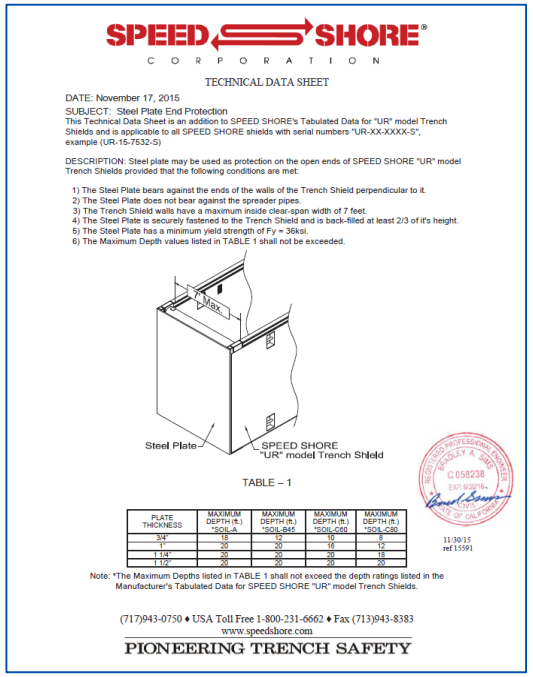
- End loading
- Side loading
- Inappropriate spreader usage and placement
- Failure to comply with surcharge limitations
- Active vehicular traffic loads
- Lack of groundwater extraction
- Using manufactured goods that have no tabulated data
- Box positioning and movement

ANY deviation requires P.E. approval

Radial Load on Spreaders

- Typical steel trench shields use 8” Schedule 80 pipe spreaders
- Pipe strength is through axis
- Axial loads combined with radial loads were not part of the design calculation for working depth
- The lowermost spreader (under compression) is susceptible to failure with added radial load

Technical Data Sheet for Proper End Loading



SPEED SHORE CORPORATION

TECHNICAL DATA SHEET

DATE: November 17, 2015

SUBJECT: Steel Plate End Protection

This Technical Data Sheet is an addition to SPEED SHORE's Tabulated Data for "UR" model Trench Shields and is applicable to all SPEED SHORE shields with serial numbers "UR-XX-XXXX-S", example (UR-15-7532-S)

DESCRIPTION: Steel plate may be used as protection on the open ends of SPEED SHORE "UR" model Trench Shields provided that the following conditions are met:

1) The Steel Plate bears against the ends of the walls of the Trench Shield perpendicular to it.
2) The Steel Plate does not bear against the spreader pipes.
3) The Trench Shield walls have a maximum inside clear-span width of 7 feet.
4) The Steel Plate is securely fastened to the Trench Shield and is back-filled at least 2/3 of it's height.
5) The Steel Plate has a minimum yield strength of Fy = 36ksi.
6) The Maximum Depth values listed in TABLE 1 shall not be exceeded.

Steel Plate — SPEED SHORE "UR" model Trench Shield

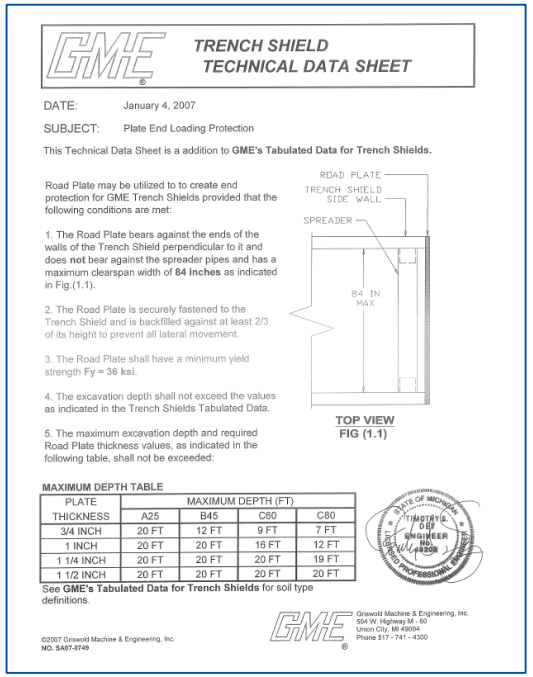
TABLE – 1

PLATE THICKNESS	MAXIMUM DEPTH (ft.) "SOIL-A	MAXIMUM DEPTH (ft.) "SOIL-B45	MAXIMUM DEPTH (ft.) "SOIL-C60	MAXIMUM DEPTH (ft.) "SOIL-C80
3/4"	18	12	10	8
1"	20	20	16	12
1 1/4"	20	20	20	18
1 1/2"	20	20	20	20

Note: *The Maximum Depths listed in TABLE 1 shall not exceed the depth ratings listed in the Manufacturer's Tabulated Data for SPEED SHORE "UR" model Trench Shields.

11/30/15 ref 15591

(717)943-0750 ♦ USA Toll Free 1-800-231-6662 ♦ Fax (713)943-8383
www.speedshore.com
PIONEERING TRENCH SAFETY



GME TRENCH SHIELD TECHNICAL DATA SHEET

DATE: January 4, 2007

SUBJECT: Plate End Loading Protection

This Technical Data Sheet is a addition to **GME's Tabulated Data for Trench Shields.**

Road Plate may be utilized to to create end protection for GME Trench Shields provided that the following conditions are met:

1. The Road Plate bears against the ends of the walls of the Trench Shield perpendicular to it and does **not** bear against the spreader pipes and has a maximum clearspan width of **84 inches** as indicated in Fig.(1.1).

2. The Road Plate is securely fastened to the Trench Shield and is backfilled against at least 2/3 of its height to prevent all lateral movement.

3. The Road Plate shall have a minimum yield strength Fy = 36 ksi.

4. The excavation depth shall not exceed the values as indicated in the Trench Shields Tabulated Data.

5. The maximum excavation depth and required Road Plate thickness values, as indicated in the following table, shall not be exceeded:

ROAD PLATE
TRENCH SHIELD SIDE WALL
SPREADER
84 IN MAX
TOP VIEW
FIG (1.1)

MAXIMUM DEPTH TABLE

PLATE THICKNESS	MAXIMUM DEPTH (FT)			
	A25	B45	C60	C80
3/4 INCH	20 FT	12 FT	9 FT	7 FT
1 INCH	20 FT	20 FT	16 FT	12 FT
1 1/4 INCH	20 FT	20 FT	20 FT	19 FT
1 1/2 INCH	20 FT	20 FT	20 FT	20 FT

See **GME's Tabulated Data for Trench Shields** for soil type definitions.

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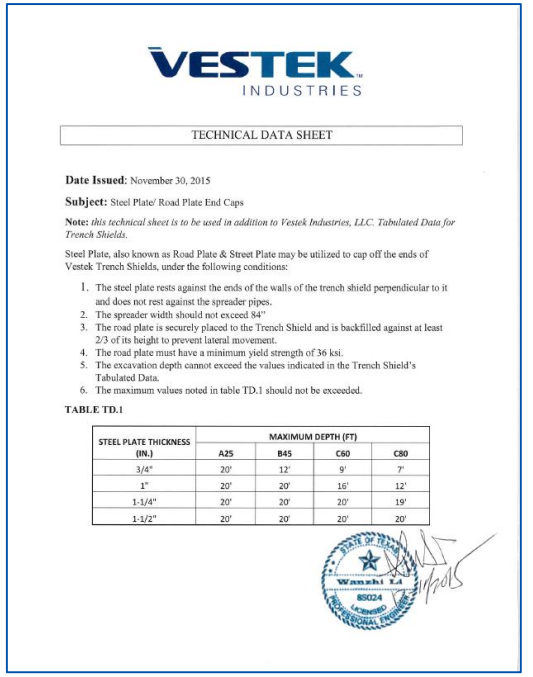
NO. SA07-0749

Griswold Machine & Engineering, Inc.
594 W. Highway M - 60
Union City, MI 49094
Phone 517 - 741 - 4200



VESTEK INDUSTRIES

TECHNICAL DATA SHEET

Date Issued: November 30, 2015

Subject: Steel Plate/ Road Plate End Caps

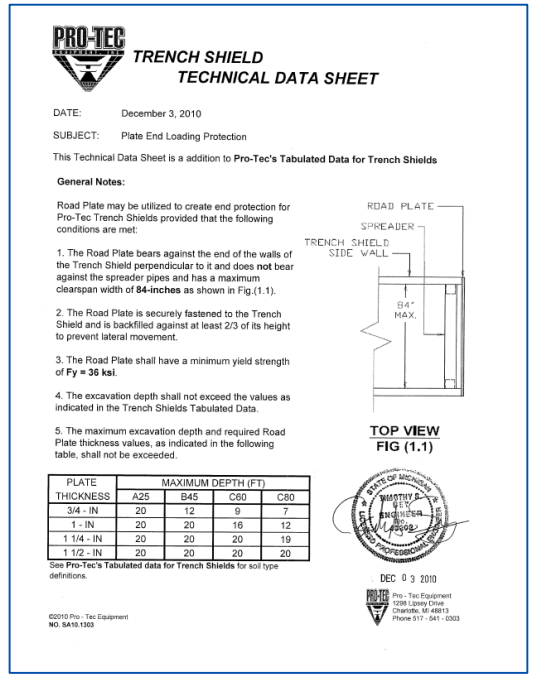
Note: *this technical sheet is to be used in addition to Vestek Industries, LLC. Tabulated Data for Trench Shields.*

Steel Plate, also known as Road Plate & Street Plate may be utilized to cap off the ends of Vestek Trench Shields, under the following conditions:

1. The steel plate rests against the ends of the walls of the trench shield perpendicular to it and does not rest against the spreader pipes.
2. The spreader width should not exceed 84"
3. The road plate is securely placed to the Trench Shield and is backfilled against at least 2/3 of its height to prevent lateral movement.
4. The road plate must have a minimum yield strength of 36 ksi.
5. The excavation depth cannot exceed the values indicated in the Trench Shield's Tabulated Data.
6. The maximum values noted in table TD.1 should not be exceeded.

TABLE TD.1

STEEL PLATE THICKNESS (IN.)	MAXIMUM DEPTH (FT)			
	A25	B45	C60	C80
3/4"	20'	12'	9'	7'
1"	20'	20'	16'	12'
1-1/4"	20'	20'	20'	19'
1-1/2"	20'	20'	20'	20'



PRO-TEC TRENCH SHIELD TECHNICAL DATA SHEET

DATE: December 3, 2010

SUBJECT: Plate End Loading Protection

This Technical Data Sheet is a addition to **Pro-Tec's Tabulated Data for Trench Shields**

General Notes:

Road Plate may be utilized to create end protection for Pro-Tec Trench Shields provided that the following conditions are met:

1. The Road Plate bears against the end of the walls of the Trench Shield perpendicular to it and does **not** bear against the spreader pipes and has a maximum clearspan width of **84-inches** as shown in Fig.(1.1).

2. The Road Plate is securely fastened to the Trench Shield and is backfilled against at least 2/3 of its height to prevent lateral movement.

3. The Road Plate shall have a minimum yield strength of **Fy = 36 ksi.**

4. The excavation depth shall not exceed the values as indicated in the Trench Shields Tabulated Data.

5. The maximum excavation depth and required Road Plate thickness values, as indicated in the following table, shall not be exceeded.

ROAD PLATE
SPREADER
TRENCH SHIELD SIDE WALL
84" MAX.
TOP VIEW
FIG (1.1)

PLATE THICKNESS	MAXIMUM DEPTH (FT)			
	A25	B45	C60	C80
3/4 - IN	20	12	9	7
1 - IN	20	20	16	12
1 1/4 - IN	20	20	20	19
1 1/2 - IN	20	20	20	20

See **Pro-Tec's Tabulated data for Trench Shields** for soil type definitions.

DEC 0 3 2010

©2010 Pro - Tec Equipment
NO. SA10.1303

Pro - Tec Equipment
1298 Lipsey Drive
Charlotte, MI 48813
Phone 517 - 541 - 0303

Maximum width allowed by the industry for end-capping a trench shield with steel plate is 7’

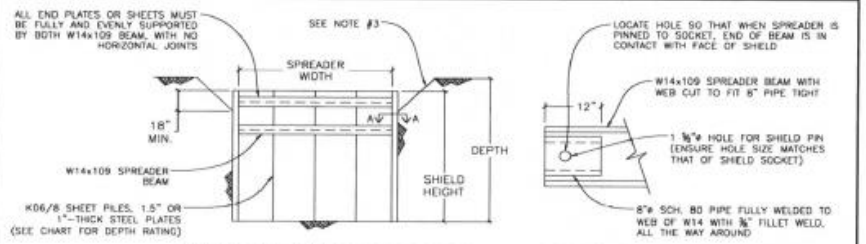
Please contact United Rentals for the appropriate technical data sheet for your needs.

End-loading shields wider than 7’

United Rentals

Trench Shield With W14x109 Waler - Tabulated Data

Shield Height (ft)	Max Shield Length (ft)	Max Spreader Length (ft)	Spreader Type	End Plating Type	Depth Rating (ft)			
					A	B	C-60	C-80
8	24	16	W14x109	KD6/8 Sheet Piles	20.0	20.0	16.0	13.0
				Single 1.5"-Thick Steel Plate	20.0	18.0	14.0	12.0
				Double 1"-Thick Steel Plate	20.0	16.0	13.0	11.0
				Single 1"-Thick Steel Plate	13.0	9.0	8.0	7.0
10	24	16	W14x109	KD6/8 Sheet Piles	20.0	15.0	12.0	10.0
				Single 1.5"-Thick Steel Plate	18.0	12.0	10.0	9.0
				Double 1"-Thick Steel Plate	14.0	10.0	9.0	8.0



W14 WALER & END SHEET/PLATING CONFIGURATION

SECTION A-A (W14 END SOCKET MODIFICATION)

GENERAL NOTES & LIMITATIONS:

1.) THIS APPROVAL IS LIMITED FOR USE BY UNITED RENTALS TRENCH SAFETY ONLY, WITH W14X109 WALER BEAMS IN ALL FOUR SOCKETS OF TRENCH SHIELD.
2.) LOWER SPREADER SOCKET SHALL BE 5'-9" FROM BOTTOM OF SHIELD FOR ALL 8'-TALL SHIELDS, AND 7'-9" FROM BOTTOM OF SHIELD FOR ALL 10'-TALL SHIELDS, WHILE TOP SOCKETS SHALL BE 5" FROM TOP OF SHIELDS FOR BOTH 8' AND 10'-TALL SHIELDS, OTHERWISE TABULATED DATA IS INVALID.
3.) SLOPE IN ACCORDANCE WITH OSHA GUIDELINES.
4.) COMPETENT PERSON MUST CLASSIFY SOILS IN ACCORDANCE WITH OSHA GUIDELINES. OVERALL LIMITING DEPTH RATING SHALL BE THE LESSOR OF VALUE SELECED FROM THE CHART ABOVE AND THE PE STAMPED TRENCH SHIELD TAB DATA.
5.) SOIL TYPE MUST BE CLASSIFIED BY A COMPETENT PERSON IN ACCORDANCE WITH OSHA GUIDELINES.
6.) W14x109 SPREADER BEAMS AND KD6/8 SHEET PILES MUST BE GRADE 50 STEEL, MIN Fy = 50 KSI.
7.) 1"-THICK OR 1.5"-THICK END PLATING MAY BE A36 STEEL, MIN Fy = 36 KSI.
8.) MANUFACTURER MUST BE CONTACTED AND APPROVAL PROVIDED IN WRITING PRIOR TO ANY ALTERATION TO PANELS, SHIELDS OR SPREADERS, OTHERWISE TABULATED DATA IS VOID.
9.) ALL ASSEMBLIES MUST BE IN GOOD CONDITION AND FREE OF ANY DAMAGE OR VISUAL DEFECTS.
10.) COMPETENT PERSON TO ENSURE SHORING SAFE FOR WORKER ACCESS, AND THAT END PLATE/SHEETS ARE STABLE, FULLY SUPPOTED BY BEAMS AND CANNOT KICK IN AT THE BASE OF THE EXCAVATION.

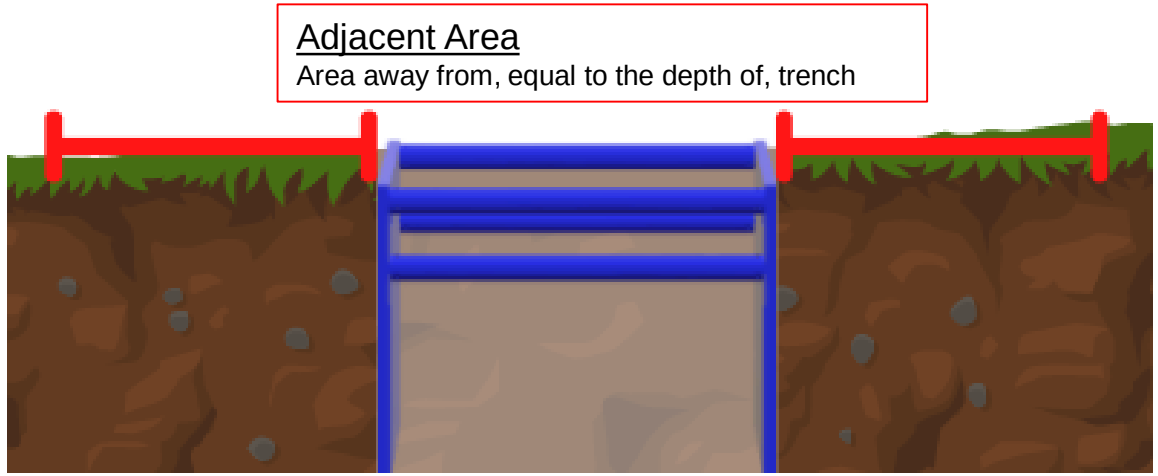
THIS DATA IS A GENERAL SET OF GUIDELINES AND CHARTS TO ASSIST THE COMPETENT PERSON TO SELECT AN OVERALL SAFETY SYSTEM THAT IS SAFE AND APPLICABLE FOR THE SITE CONDITIONS. THE COMPETENT PERSON HAS SOLE RESPONSIBILITY FOR JOB SITE SAFETY AND THE PROPER SELECTION, INSTALLATION, USE AND REMOVAL OF THE SHORING EQUIPOMENT. THIS TABULATED DATA IS NOT INTENDED TO BE USED AS A JOB SPECIFIC EXCAVATION PLAN, BUT TO BE USED BY A COMPETENT PERSON TO SUPPLEMENT THEIR TRAINING, KNOWLEDGE AND EXPERINCE OF JOB SITE AND SOIL CONDITIONS.

DEPTH RATINGS ACCOUNT FOR A MAX 72 PSF LATERAL SURCHARGE. COMPETENT PERSON MUST ENSURE THIS LIMIT IS NOT EXCEEDED OTHERWISE CONTACT PROFESSIONAL ENGINEER FOR WRITTEN DIRECTION

DEPTH RATINGS ACCOUNT FOR A 33% OVERSTRESS FOR SHORT-TERM LOADING CONDITIONS

Adjacent Structures and Surcharge Allowances

- Managed differently than Surface Encumbrances
- Considered to be items not easily removed and reinstated
- Adjacent structures may include
  - Railways
  - Roadways
  - Foundations
  - Buildings



Allowable surcharge range – 0 to 72 psf max

22. No surcharge load is considered in the tabulated
occur due to heavy equipment, vibrations, or soil
distance equal to the depth of the

4.2 Tables SG-H-1 and SG-H-2 are not considered adequate when loads imposed by structures or by stored material adjacent to the trench produce a lateral surcharge greater than 72 P.S.F.. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

3. CONTRACTOR IS RESPONSIBLE FOR ENSURING CONSTRUCTION MATERIALS AND EQUIPMENT SURCHARGE DOES NOT EXCEED 72 PSF ON SHORING SHIELDS, OTHERWISE CERTIFIED DEPTHS ARE INVALID.

Surcharge Pressure Included in Max Depth Ratings*	72 psf

-UR-1 and TS-UR-2 are not considered adequate when loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by 3 feet of soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

9. No surcharge load is considered in the tabulated maximum panel capacity and depth rating. Surcharge loads occur due to heavy equipment, vibrations, or spoil piles adjacent to the trench where adjacent is defined as within a distance equal to the depth of the trench. State and Local Regulations and Previsions shall be followed for surcharge loading application.

6) Surcharge loads have not been included in the above depth ratings. The allowable working depth of the shield must be reduced to account for any surcharge loading which occurs within the influence line of the shield.

Maximum depth in the tabulated data is measured from the surface to the bottom
Surcharge loads are not considered in the depth chart and can be created by nearby equipment, soil piles, and any ground load within a distance equal to the depth of the trench. Surcharge loads increase panel pressure and may reduce the maximum working depth.

When Deviation From Tabulated Data Is Required

Technical Data Sheet

- A registered P.E. engineer must approve
- The approval must be in written form prior to changes being made
- Document must be treated the same as tabulated data
- In the form of a Tech Data Sheet, Approval Letter, or Site Specific Plan
- Limits of deviation are to be specific

Trench Box Assembly

Manufacturer's safe handling and recommendations

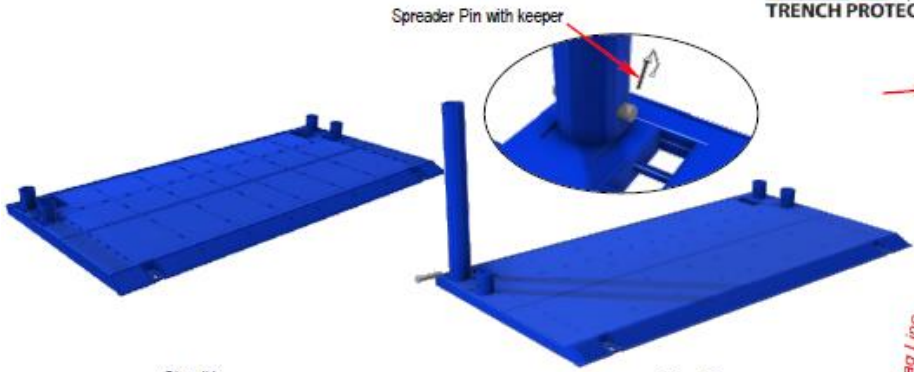
- Longer Spreaders (≥ 7’ length)
- Arch Spreader w/ Long Extensions

Guidance for Safe Works: Assembly of GME Trench shield

Spreader lengths greater than 6ft in length

GME® TRENCH PROTECTION SPECIALIST

ARCOSA SHORING PRODUCTS



Step #1

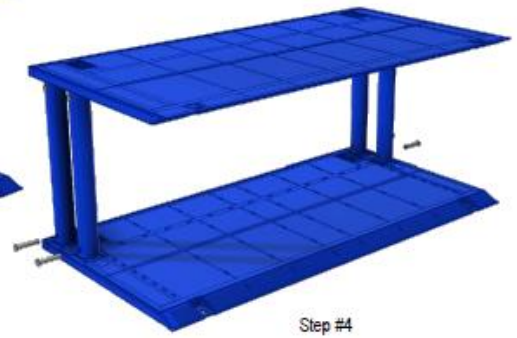
Identify all components and ensure adequate lifting equipment is available for the task (refer to the GME reference manual for weights). Use only designated lifting or handling points for rigging attachments. Place one side wall on firm level ground with collars facing upwards..

Step #2

Using GME spreader pins, secure the spreaders onto each of the collars. (4 Req.d)

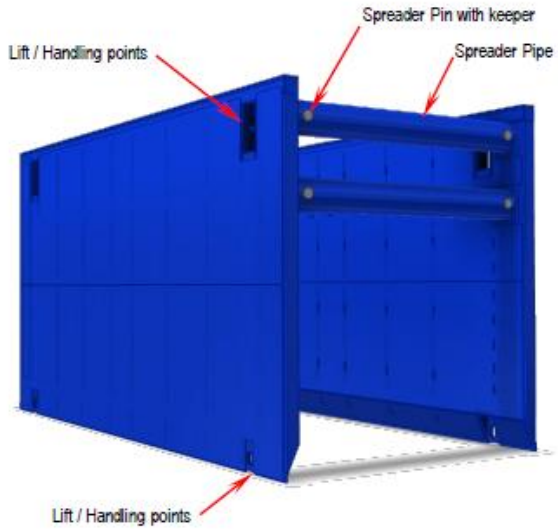
Step #3

With the spreader now safely secured to the sidewall/collars with the appropriate sized spreader pin and keeper, take care to properly attach rigging to the 4 point lift options on each sidewall and beginning to invert the sidewall with spreaders assembled. To ensure the handling of the suspended over head load, the use of tag line and or all other safe practices for safe and proper handling shall occur. This will allow the safe pinning of spreader pipe longer than 6ft by allowing the work of installing spreader pins and keepers at the ground level.



Step #4

Using a 4-leged sling. Attach appropriate rigging to lifting eyes located on top of shield, carefully lift the box upright.



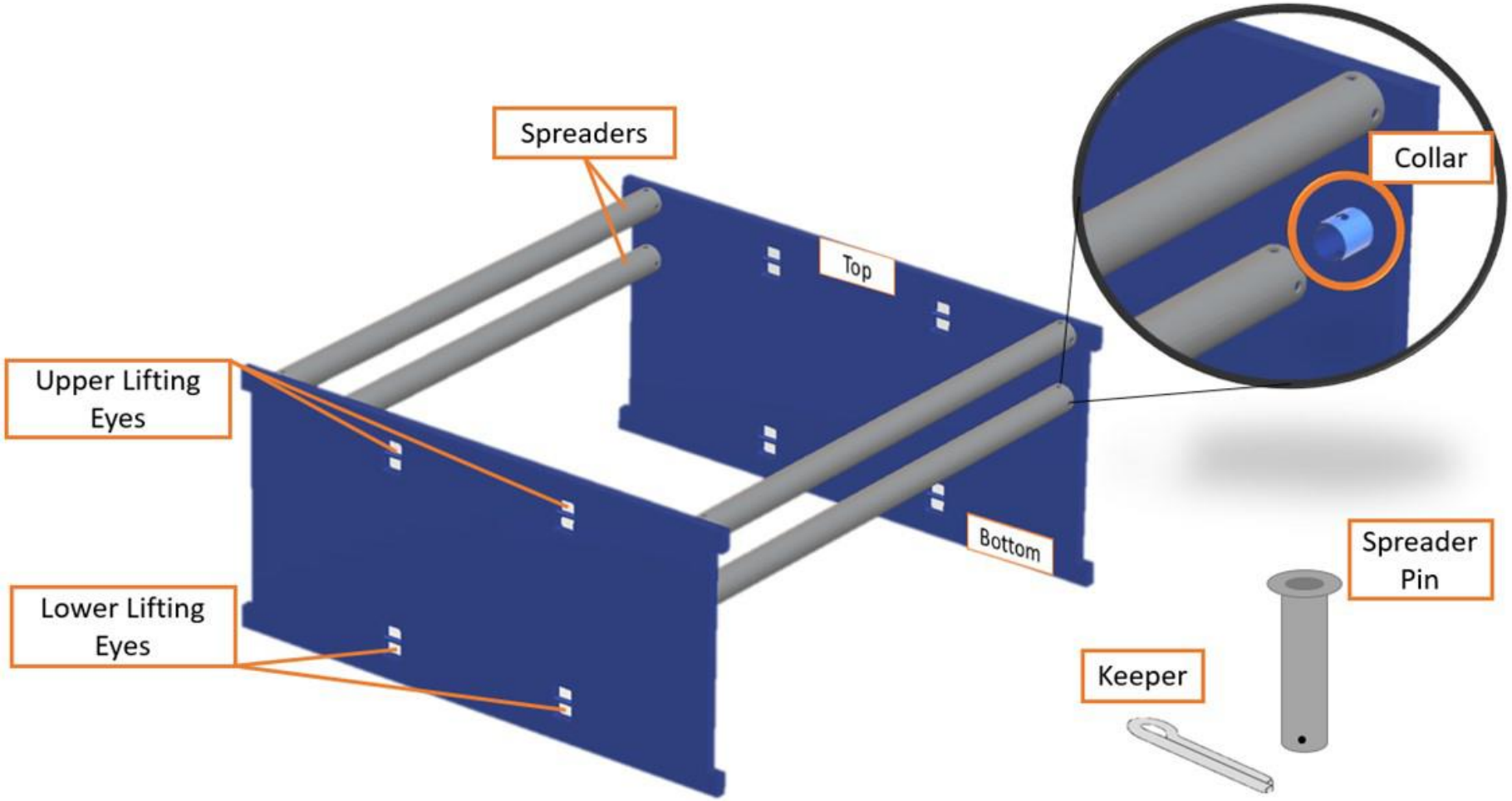
Do's and Don'ts

Do:	Do Not:
• Inspect all component's at start of every work shift.	• Exit the box into an unsupported area
• Assess all weights correctly and use adequate and appropriately certified lifting equipment.	• Push side wall down by more than 1 foot at a time.
• Ensure rigging engages fully into lifting points prior to lifting.	• Climb on the struts-always a secured ladder
• Ensure all pins and keepers are correctly installed.	• Hang/store material on the strut
• Use only lifting or handling points for rigging attachments	• Excessively force the box into the ground
• Provide support over the full height of the dig.	• Permit personnel in the box during installation
• Locate underground service before excavating.	
• Lay box flat before dismantling	
• Store assembled boxes on firm, level ground only or lay flat on their sides	

Safety Tips

1. Always inspect lifting points prior to every lifting operation and ensure all personnel are well clear of operation.
2. Only access the box via a suitable secured ladder placed within the box. Never enter via the ends faces of an unsupported excavation.
3. Always ensure all factory supplied pins and retaining clips are correctly fitted prior to use.
4. Do not allow personnel to enter the box while excavator is moving box.
5. Always ensure the box is evenly supported by the ground on opposite faces to avoid boxes becoming unstable.
6. Always work from a position of safety. Avoid working above on an unsupported edge, and unprotected edge or under a suspended load.
7. Very heavy equipment to be installed by competent groundwork contractors only.
8. Take care to avoid accidently striking struts or using struts for lifting/moving the box.

Trench Shield Identification

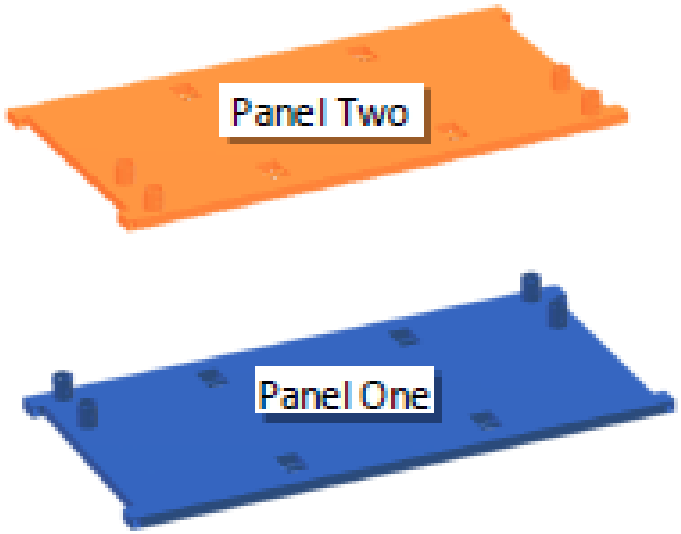


Preparation

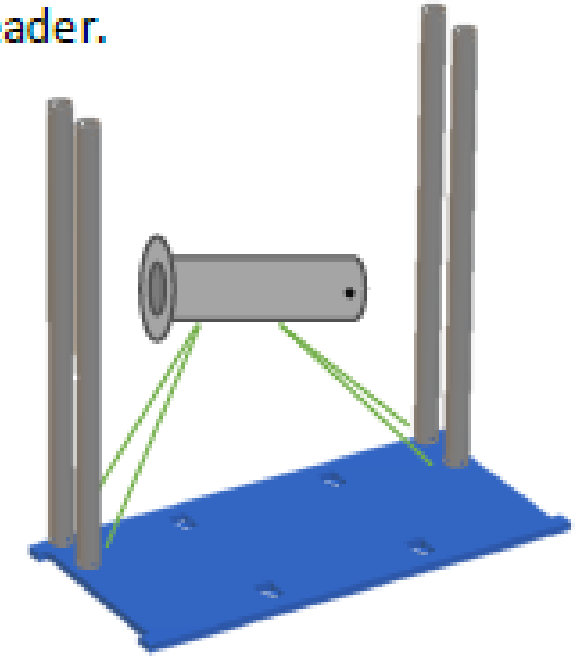
1. Shields shall be inspected by a competent person/worker before and after assembly.
2. All damage shall be evaluated and repairs made under the direction of a registered professional engineer. All missing or damaged components shall be replaced with original equipment manufacturer’s parts.
3. All rigging shall be evaluated for rated lifting capacity, and inspected for damage or defects, prior to use, by a qualified person and shall meet safe lifting requirements.
4. Use only the designated lifting points on a shield.
5. Tag lines or other approved safety devices shall be utilized to keep employees away from pinch points and overhead loads.
6. All spreaders, pins and keepers shall be installed in accordance with manufacturer’s specifications. Refer to Tabulated Data for specification, quantity, and position.

Assembly of Shield

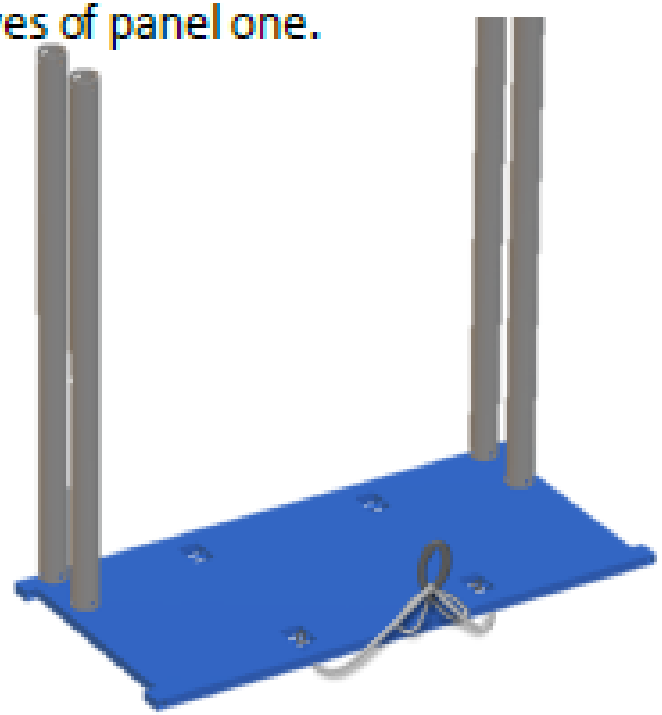
1. Place each trench shield panel on-to dunnage, with collars facing up-wards.



2. On panel one, place spreaders over the collars, and secure with pins and keepers. Repeat for each spreader.

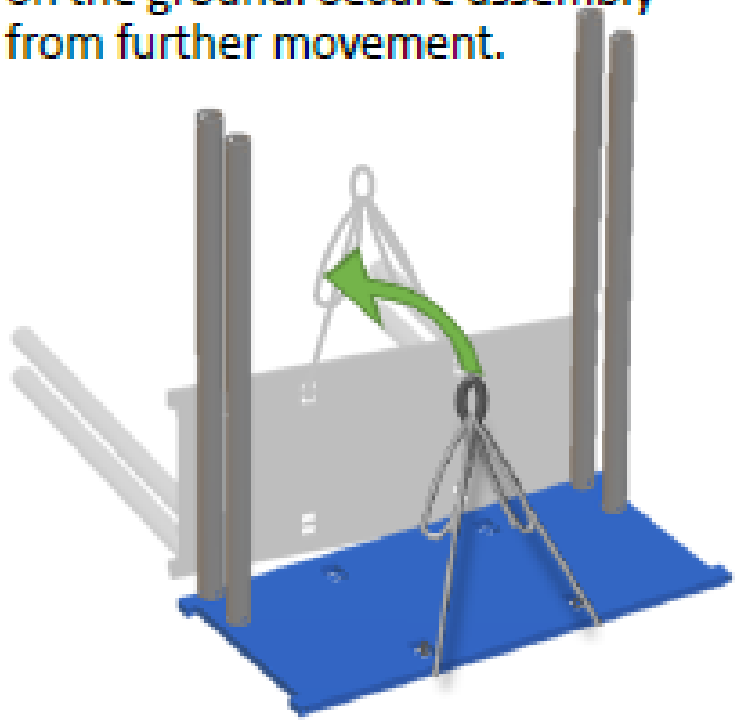


3. Attach two legs of a four-legged sling to the outside, bottom lifting eyes of panel one.

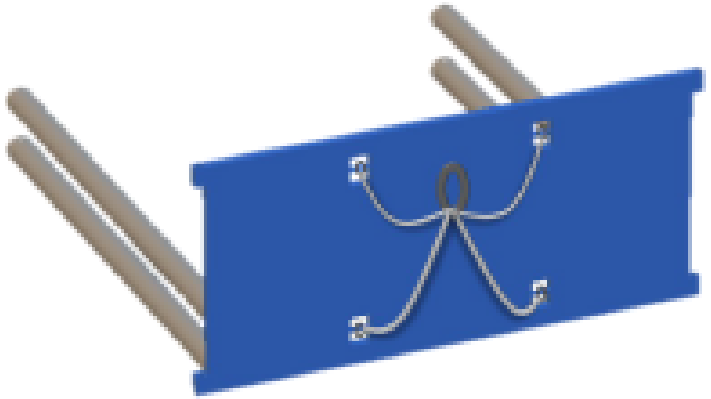


Assembly of Shield (continued)

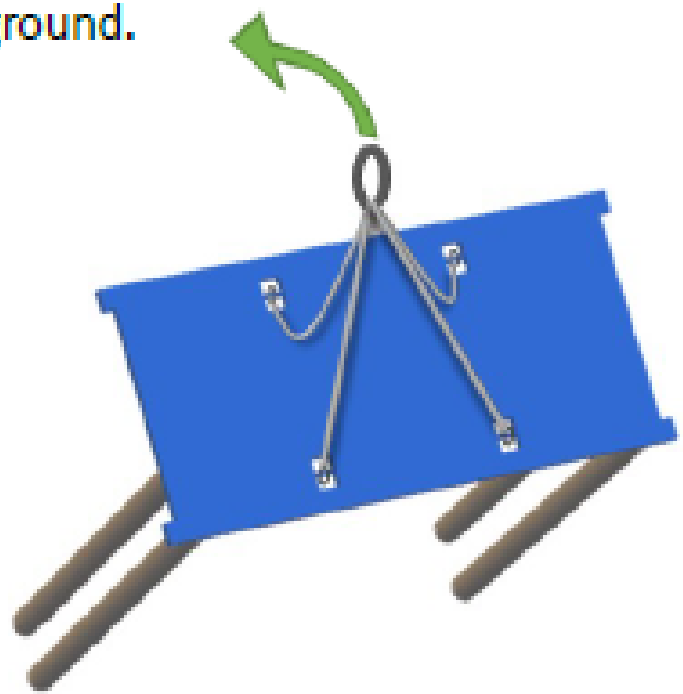
4. Slowly lift the bottom of panel one until the spreaders are resting on the ground. Secure assembly from further movement.



5. Once the assembly is made stable on it's edge, attach the remaining two legs of the four-legged sling to the two available lifting eyes.

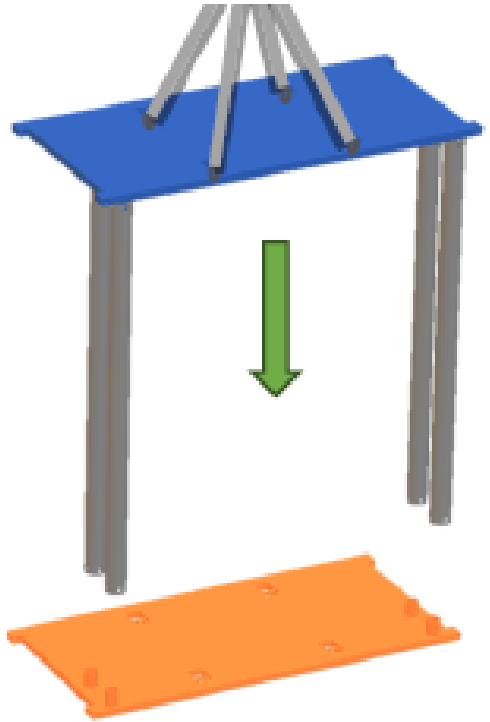


6. Attach tag lines as necessary and slowly lift panel one until the four spreaders are perpendicular to the ground.



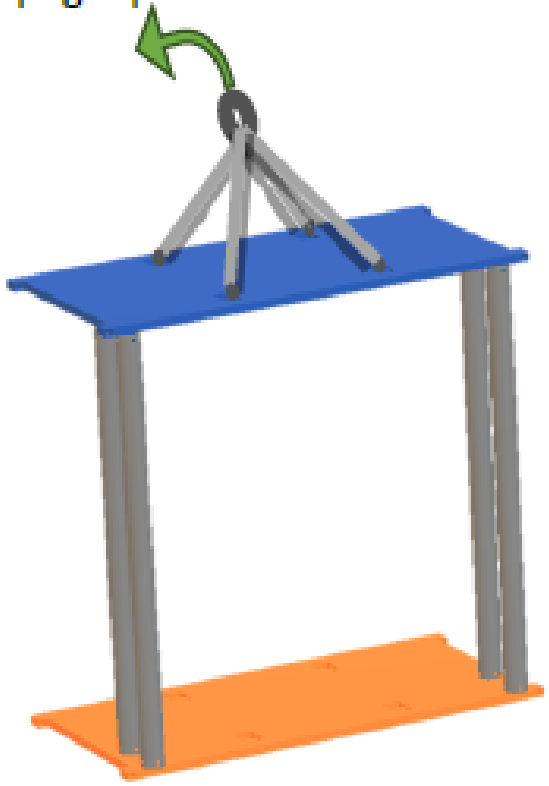
Assembly of Shield (continued)

7. Position panel one over panel two, aligning spreaders with spreader collars and slowly lower panel one using tag lines or similar equipment to guide spreaders onto collars.

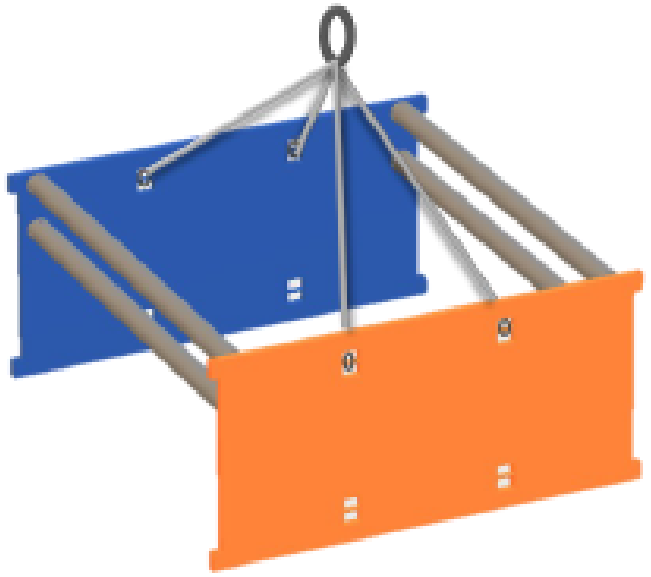


8. Secure each spreader with spreader pins and keepers.

9. Slowly tilt the assembled shield to an upright position.

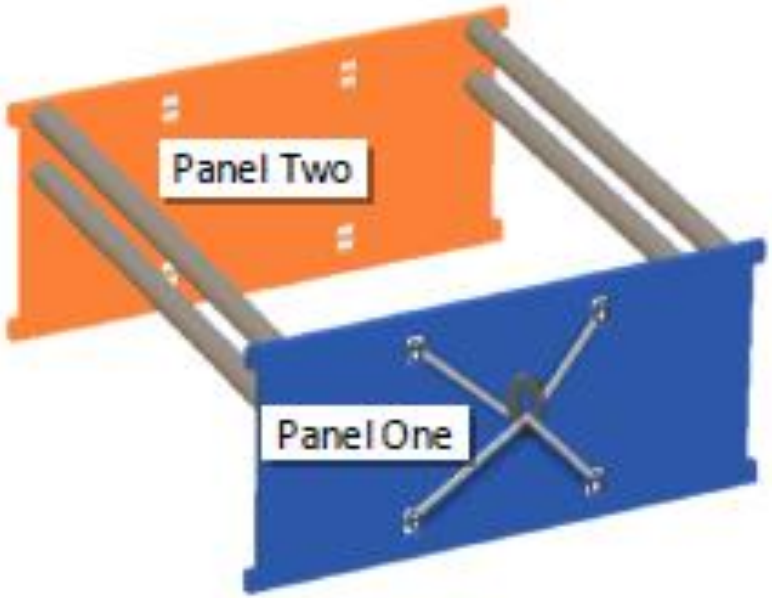


10. Remove four-legged sling from panel one and reposition to inside, upper lifting eyes of each panel.

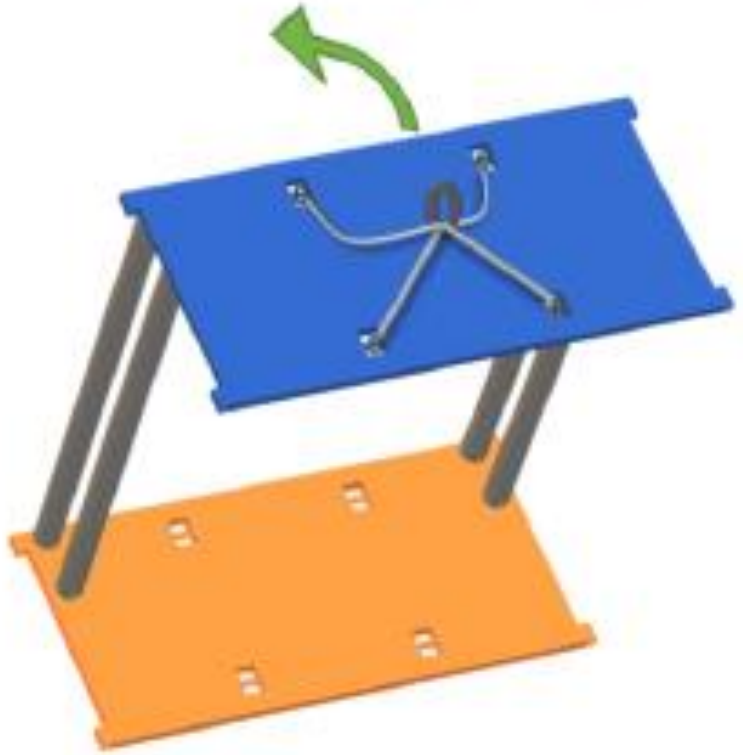


Disassembly of Shield

1. Attach each leg of a four-legged sling to each lifting eye on the out-side of panel one.



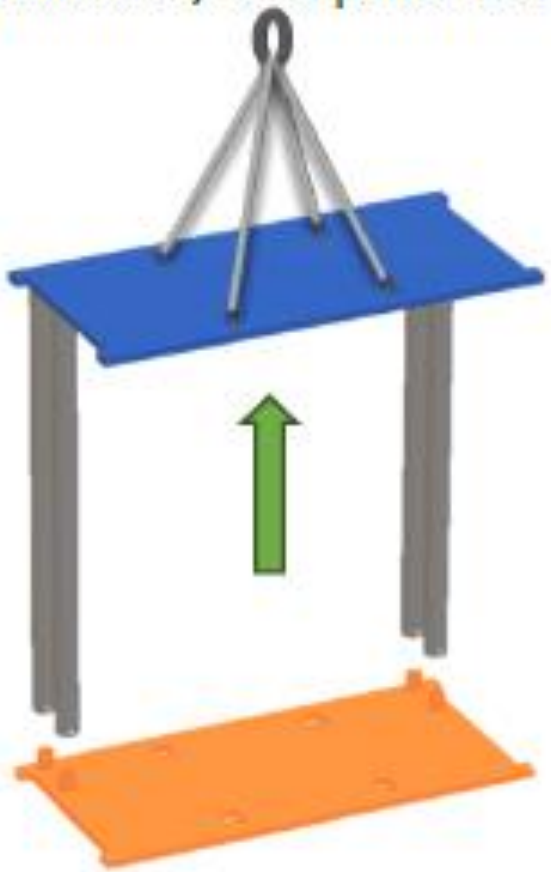
2. Slowly rotate and lower assembled box onto opposing side.



3. Slightly lift panel one simply to align holes in spreaders and collars. Remove pins and keepers from the spreader connected to the panel (panel two) on the ground.

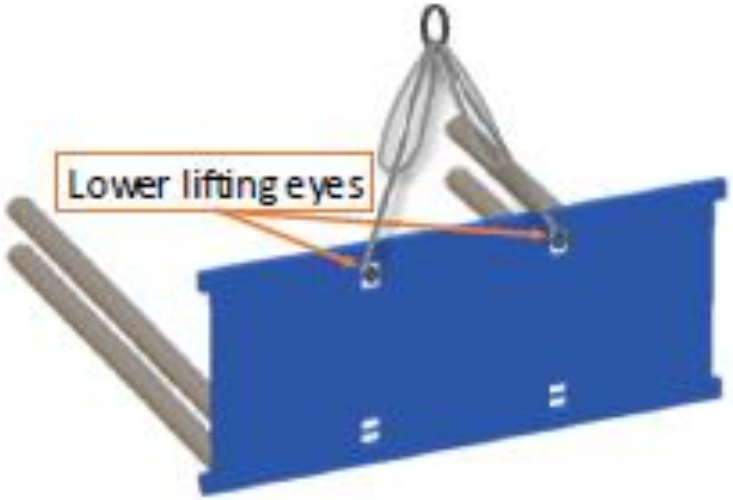
Disassembly of Shield (continued)

4. Lift panel one, with spreaders still attached, off of panel two.



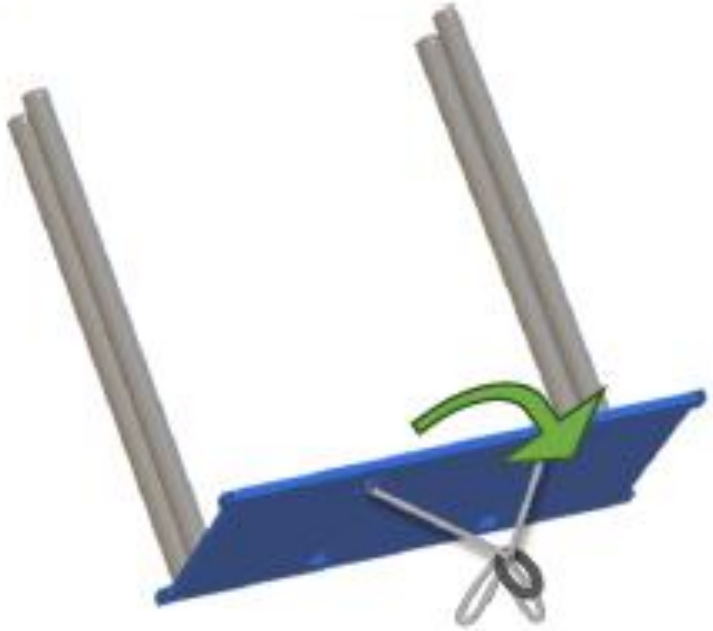
5. Allow ends of spreaders to touch the ground, assisting in bringing the shield to rest on the top edge, with spreaders parallel to the ground.

6. Once assembly is stable, remove two legs of the sling from the upper lifting eyes near the top edge, leaving the other two legs connected to the lower lifting eyes.

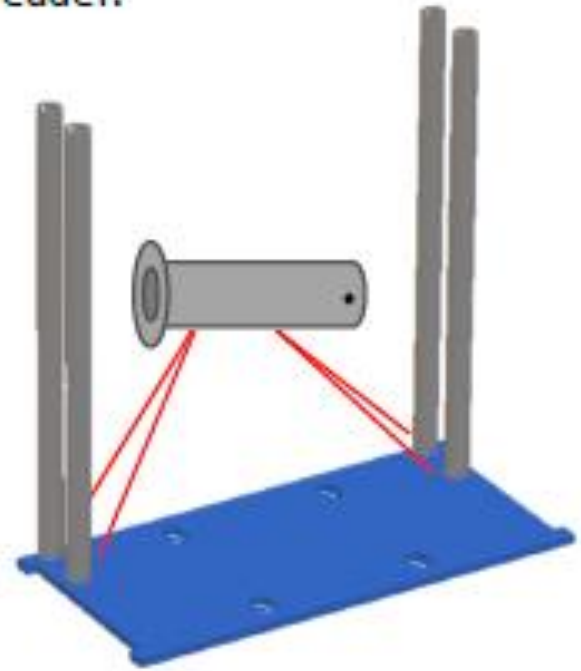


Disassembly of Shield (continued)

7. Slowly lower (rotate) panel one onto dunnage, until spreaders are perpendicular to the ground.



8. Remove pin, keeper and spreader from each collar. Repeat for each spreader.



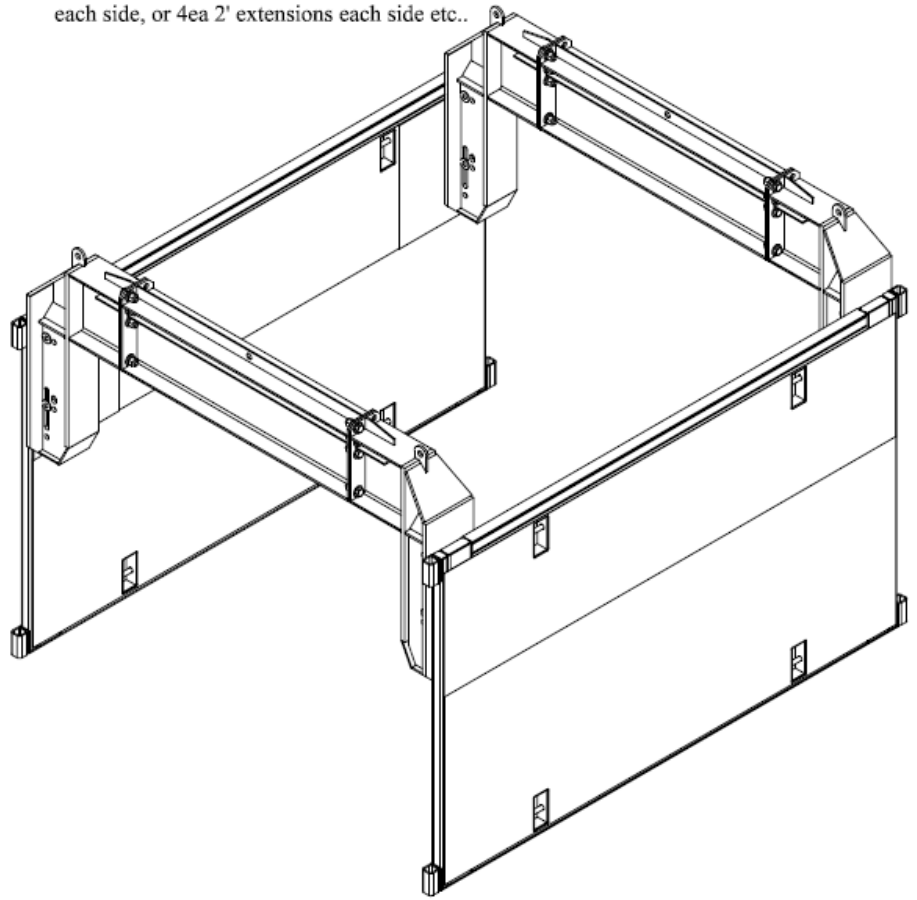
SPEED SHORE
ARCH SPREADER ASSEMBLY

NOTES: (for long Arch Extensions)

1) A Competent Person on the job site shall review and oversee all aspects of the following assembly procedures.

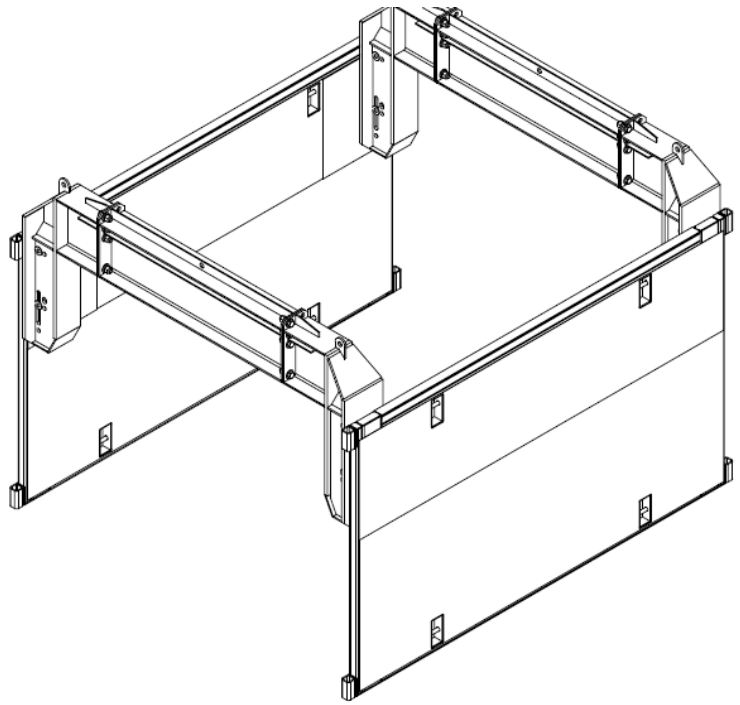
2) During assembly several additional pieces of equipment may be required to stabilize and hold the panels and arch in place to reduce the hazard of flipping over or becoming unstable.

3) The extensions on the arch spreader shall be equal on both sides to help maintain balance while handling, example: 1ea 8' extension on each side, or 2ea 4' extensions each side, or 4ea 2' extensions each side etc..



WARNING: Due to the possibility of unbalanced loads, the Competent Person on the job site shall oversee these procedures and ensure that during assembly all components are stabilized to keep from flipping and injuring someone. A crane and rigging plan may be required

Speed Shore Arch Spreader Assembly (for long arch extensions)



NOTES:

1. A Competent Person on the job site shall review and oversee all aspects of the following assembly procedures.
2. During assembly several additional pieces of equipment may be required to stabilize and hold the panels and arch in place to reduce the hazard of flipping over or becoming unstable.
3. The extensions on the arch spreader shall be equal on both sizes to help maintain balance while handling.

   Example: 1 ea. 8’ extension on each side or 2 ea. 4’ extensions each side, or 4 ea. 2’ extensions on each side, etc.

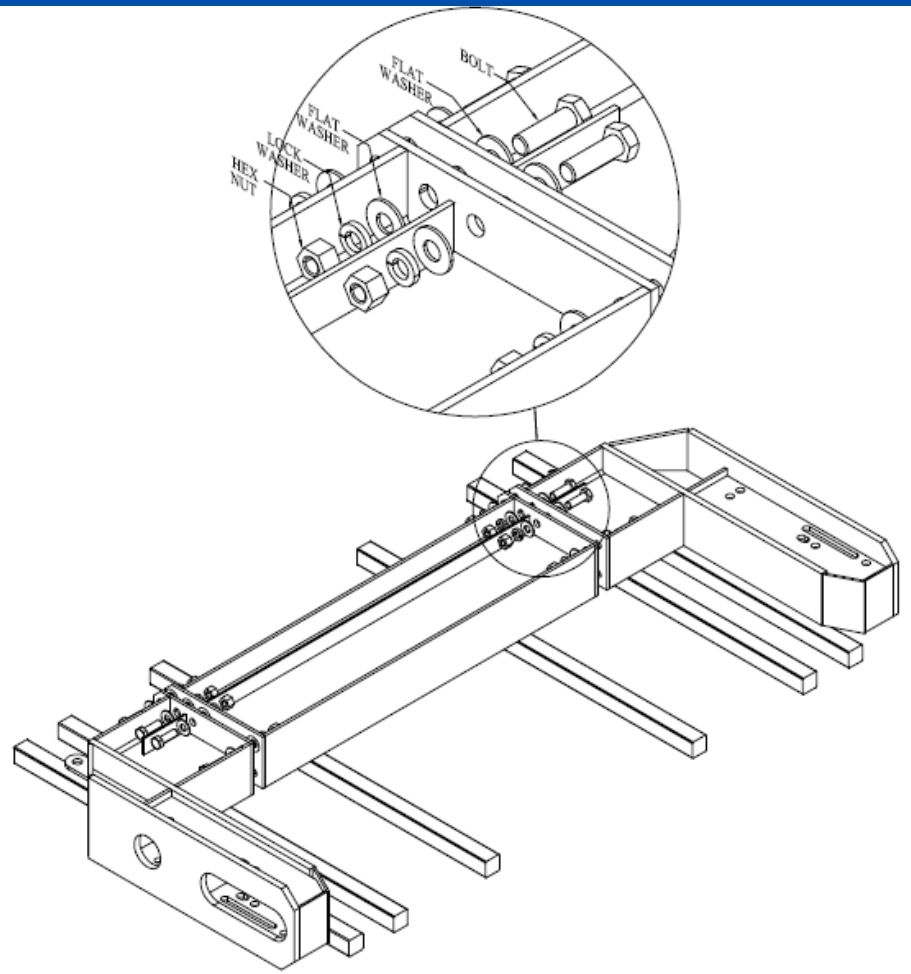
WARNING: Due to the possibility of unbalanced loads, the Competent Person on the job site shall oversee these procedures and ensure that during assembly all components are stabilized to keep from flipping and injuring someone. A crane and rigging plan may be required

PAGE 1 of 7

Speed Shore Arch Spreader Assembly (continued)

STEP 1:

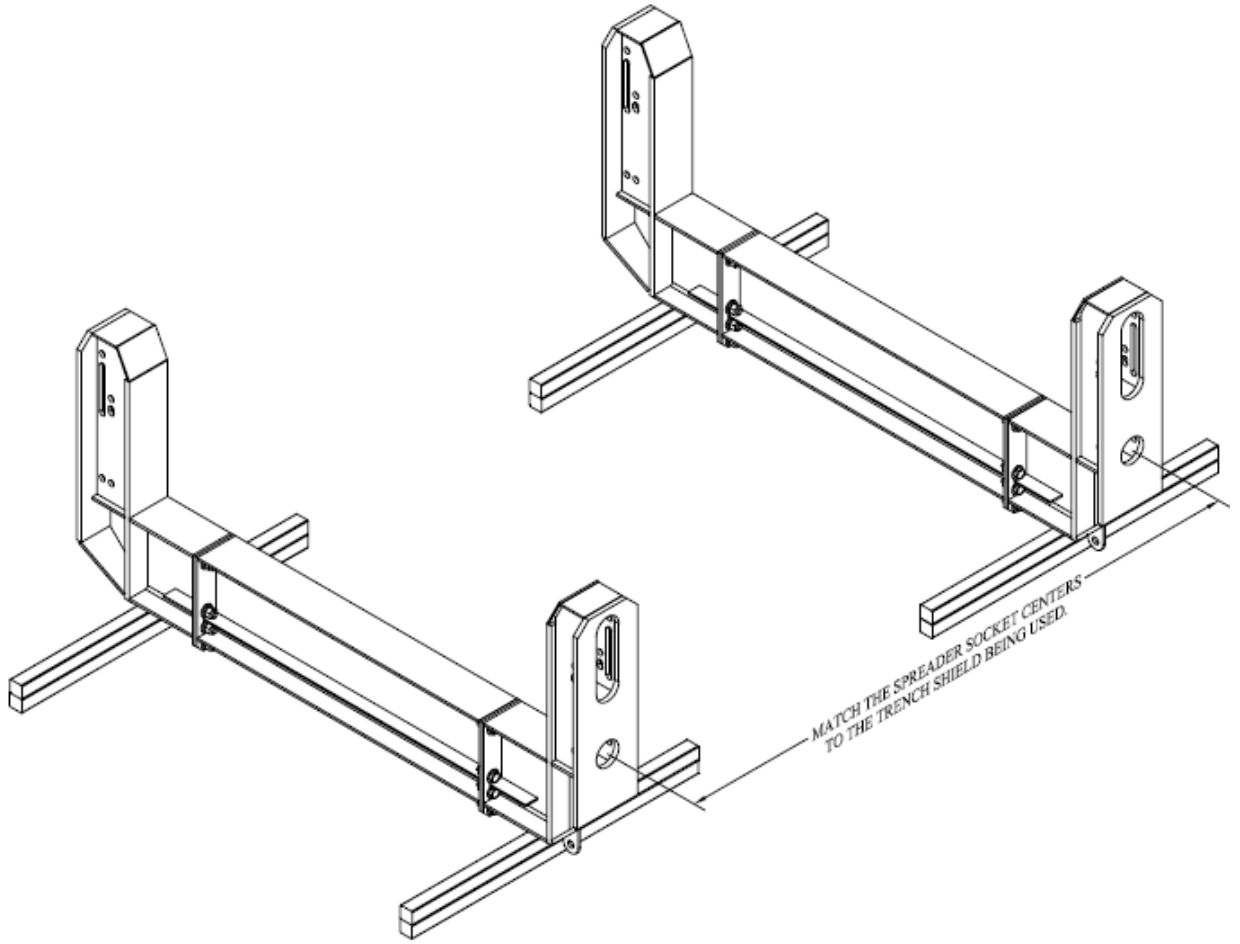
In a level area lay out the two Arch Halves with appropriate extension to the width required on dunnage to elevate off the ground. Insert bold with flat washer through each flange hole, than back it up with another flat washer, lock washer and hex nut. Using a wrench tighten all bolts until the lock washers are flat. Use only bolts, nuts, and washers supplied by SPEED SHORE Corp.



Speed Shore Arch Spreader Assembly (continued)

STEP 2:

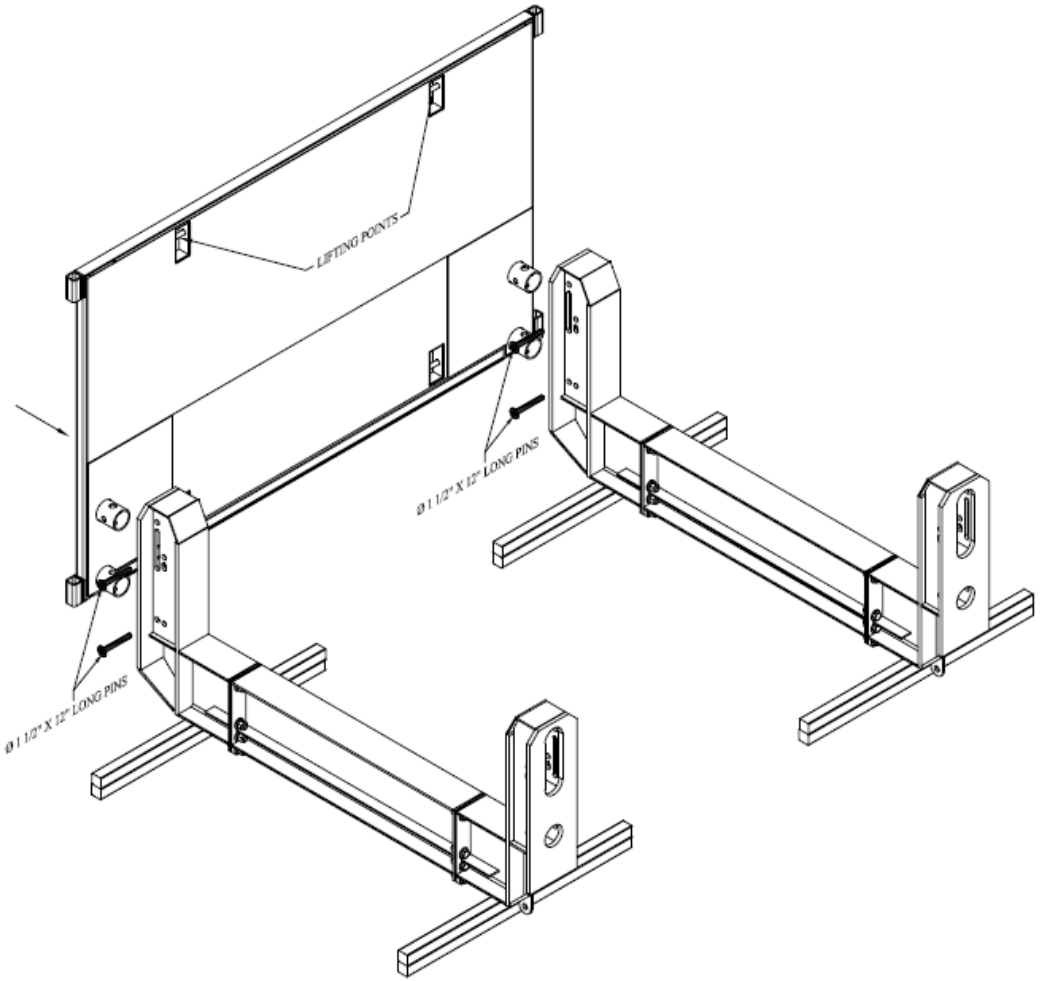
In a level area lay the first panel on the ground with the legs of the Arch Spreader facing upward as shown above. Dunnage should be used between the Arch Spreader and the ground. Measure the distance between the spreader sockets on the Trench Shield that will be used. Space the Arch Spreader legs to match this distance within 1/4 inch or less.



Speed Shore Arch Spreader Assembly (continued)

STEP 3:

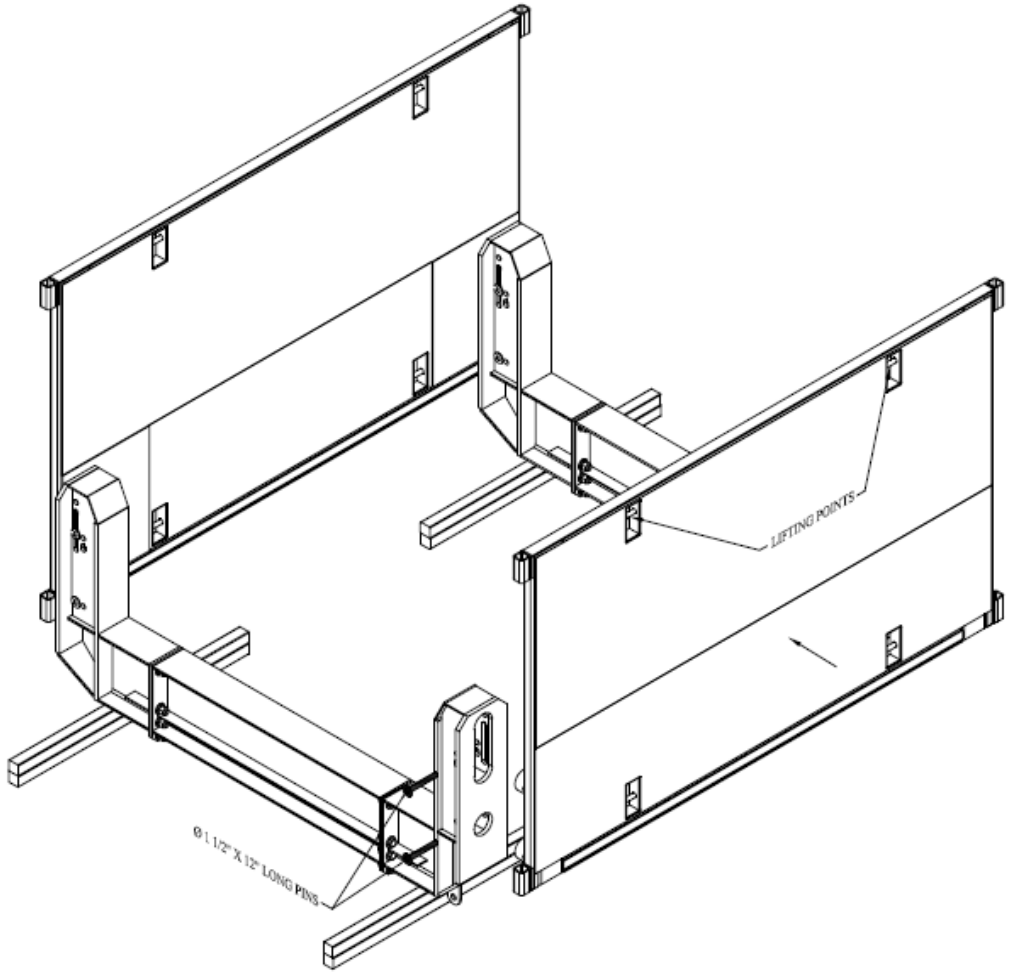
Attach your appropriate rigging slings and lift to install one pane of the Trench Shield. Orient the Trench Shield upside down to its normal position and swing it into place. Pin the panel into place using 1 ½ inch diameter x 12” long pins as manufactured by SPEED SHORE Corp. 2 or 4 pins per end may be required based on trench panel requirements. Please note a Crane and Rigging plan may be required due to the potential of unbalanced loads.



Speed Shore Arch Spreader Assembly (continued)

STEP 4:

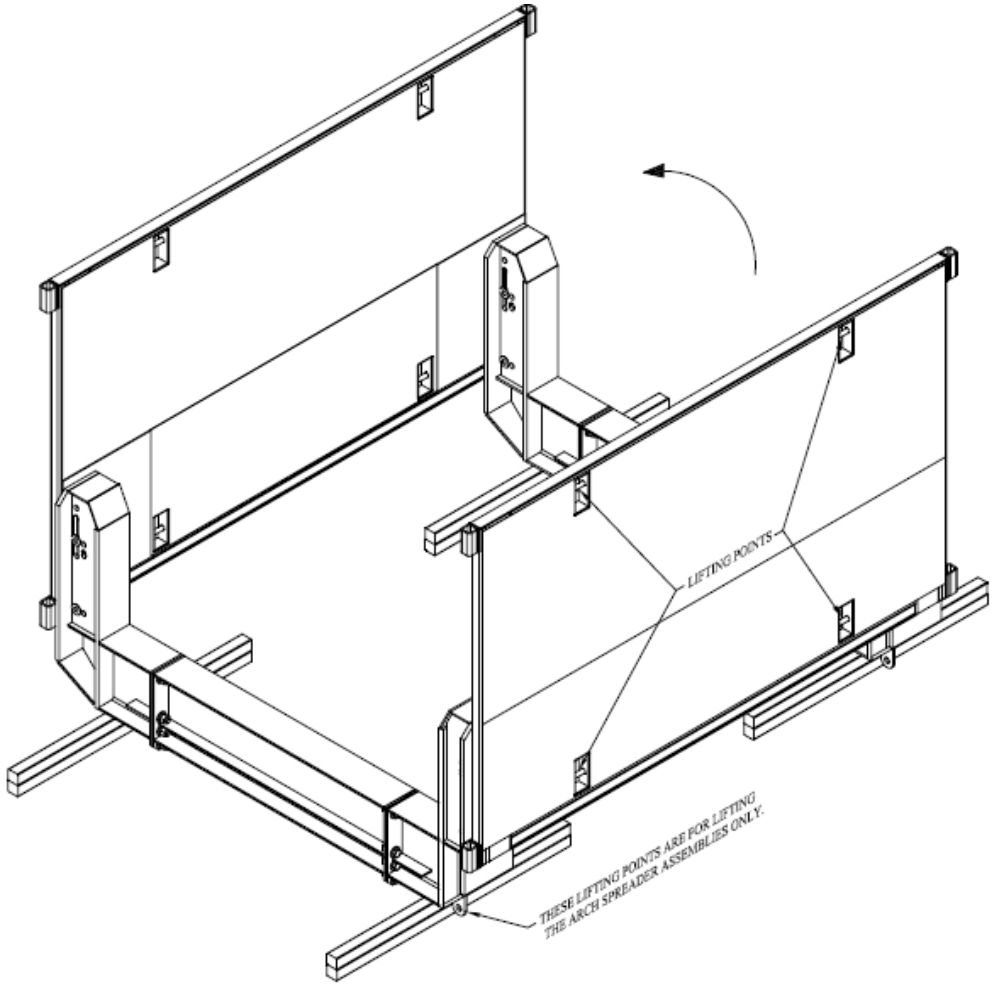
After the installation of the first shield panel is completed, repeat STEP 3 to install the second shield panel. Please note a Crane and Rigging plan may be required due to the potential of unbalanced loads.



Speed Shore Arch Spreader Assembly (continued)

STEP 5:

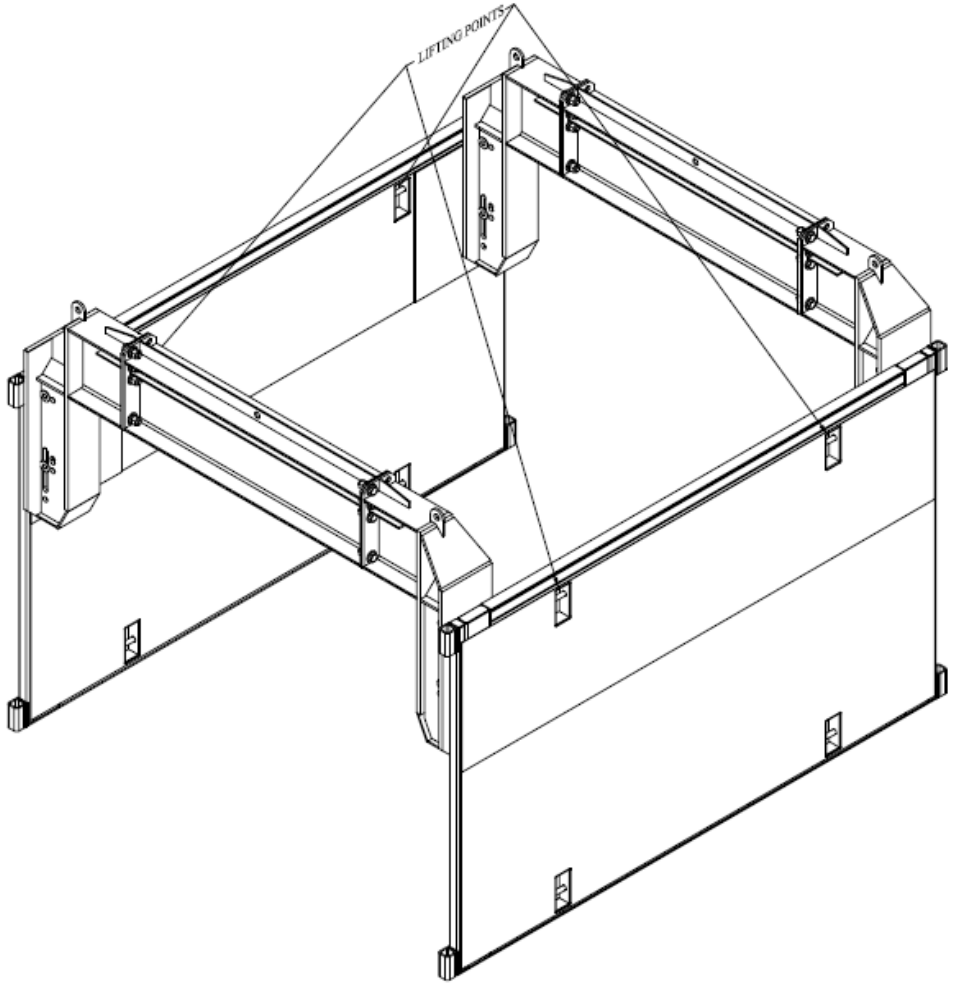
Attach your appropriate rigging and lift the assembly from one side and slowly rotate 180 degrees to it's usable position as shown in STEP 6. Before lifting, the competent person shall ensure that all pins and keepers are installed properly. Please note a Crane and Rigging plan may be required due to the potential of unbalanced loads.



Speed Shore Arch Spreader Assembly (continued)

STEP 6:

Next attach your appropriate rigging and lift both panels and install into the trench properly. The competent person on the site is responsible for ensuring that all components are securely fastened before placing the shield into the trench. All other aspects of the serialized Certification or Manufacturers Tabulated Data shall apply. Please note a Crane and Rigging plan may be required due to the potential of unbalanced loads.



Thank You

Questions?