

**GENERAL NOTES**

**SOIL CLASSIFICATION: SOIL IS HARD CLAY BASED ON BORE LOG D-15 BY RABA KISTNER DATED 6-3-22.**

1. SHORING DESIGN BASED ON SOIL CLASSIFICATION ABOVE. CONTACT SHORING ENGINEER IF LESS COMPETENT MATERIALS ARE ENCOUNTERED.
2. MANUFACTURER'S TABULATED DATA APPLIES EXCEPT AS NOTED HEREIN.
3. ANCILLARY SYSTEM SUPPORTS AND/OR CONNECTORS INCLUDING, BUT NOT LIMITED TO, HANGING CHAINS, STACKING PINS, SPREADER PINS, ETC., ARE NOT SHOWN ON DRAWINGS. REFER TO MANUFACTURER'S PRODUCT TECHNICAL AND INSTALLATION GUIDES FOR SPECIFICATIONS AND CONNECTION DETAILS.
4. PROVIDE ACCESS AND BARRICADING PER OSHA REQUIREMENTS.
5. SHORING MUST BE PROPERLY INSTALLED PRIOR TO WORKERS ENTERING EXCAVATION. WORKERS SHALL ENTER, EXIT, AND WORK ONLY IN SHORED AREAS.
6. ALL STEEL (INCLUDING MANUFACTURER ASSEMBLIES) SHALL BE IN GOOD CONDITION AND FREE OF ANY DAMAGE, HOLES, OR VISUAL DEFECTS. STRUCTURAL STEEL SHAPES TO BE ASTM A992 OR A572 GR. 50 STEEL, MIN FY = 50 KSI. STEEL PIPE TO BE ASTM A53 GR. B, MIN FY = 35 KSI. HSS TUBE TO HAVE MIN FY = 55 KSI. STEEL PLATE TO BE ASTM A36, MIN FY = 36KSI. UNLESS OTHERWISE NOTED, ALL TIMBER LAGGING TO BE ROUGH-CUT WITH MIN FB = 850 PSI. FOR ALL OTHER MODULAR COMPONENTS, REFER TO MANUFACTURER'S TABULATED DATA OR PRODUCT TECHNICAL INFORMATION.
7. ALL VOIDS BETWEEN THE EXCAVATED SOIL AND THE FACE OF THE SHORING SYSTEM MUST BE BACKFILLED WITH EXCAVATED SOIL OR OTHER APPROVED BACKFILL PRIOR TO WORKERS ENTERING EXCAVATION.
8. CONTRACTOR IS RESPONSIBLE FOR INSTALLING A DEWATERING SYSTEM, IF NECESSARY, AND VERIFYING THAT THE GROUNDWATER LEVEL BEHIND THE SHORING WALLS HAS BEEN LOWERED AT LEAST TO THE MINIMUM LEVEL SHOWN ON THE SECTION VIEW(S). IF CONTRACTOR IS UNABLE TO LOWER THE GROUNDWATER TO THE LEVEL SHOWN, CONTACT THE SHORING ENGINEER TO CHECK IF THE HIGHER LEVELS ARE ACCEPTABLE OR TO REDESIGN THE SHORING SYSTEM, IF NECESSARY.
9. UNITED RENTALS WILL NOT SUPERVISE, DIRECT, CONTROL, OR HAVE AUTHORITY OVER, OR BE RESPONSIBLE FOR CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO, OR FOR ANY FAILURE OF CONTRACTOR TO COMPLY WITH LAWS AND REGULATIONS APPLICABLE TO THE FURNISHING OF PERFORMANCE OF WORK.
10. THE CONTRACTOR SHALL VERIFY THAT REQUIRED CLEARANCES ARE OBTAINED PRIOR TO COMMENCEMENT OF THE WORK.
11. THE PURPOSE OF THE SHORING SYSTEM IS TO TEMPORARILY SUPPORT THE TRENCH OR EXCAVATION FOR WORKER PROTECTION. ALL EXISTING OR PROPOSED INFRASTRUCTURE WITHIN THE SHORING SYSTEM INCLUDING, BUT NOT LIMITED TO, STRUCTURES, TANKS, UTILITY LINES, ETC., ARE SEPARATE FROM THE SHORING SYSTEM AND HAVE BEEN OMITTED FROM THE SHORING DESIGN PLAN. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING THE EXCAVATION.
12. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL DIMENSIONS FOR BOTH EXISTING AND PROPOSED WORK.
13. UNITED RENTALS SHORING SYSTEMS ARE DESIGNED FOR WORKER PROTECTION ONLY. UNITED RENTALS BEARS NO RESPONSIBILITY OR LIABILITY FOR ANY SETTLEMENT, MOVEMENT, OR DAMAGE OF ANY KIND THAT MAY OCCUR TO EXISTING BUILDING STRUCTURES OR UTILITIES DUE TO THE SHORING, INSTALLATION, DEFLECTION, REMOVAL, OR OTHER CONSTRUCTION ACTIVITIES.
14. THIS PLAN IS SPECIFICALLY DESIGNED TO COMPLY WITH OSHA 29 CFR 1926 SUBPART P RULES AND REGULATIONS.
15. THE CONTRACTOR'S COMPETENT PERSON SHALL ENSURE SETBACK DISTANCE COMPLIES WITH SETBACK TABLE (NOTE: AN EXCAVATOR WITH GROUND BEARING PRESSURE OF 1,000 PSF SHALL MATCH THE SETBACK FOR A 30 TON EXCAVATOR; 1,500 PSF SHALL MATCH THE 70 TON EXCAVATOR; AND 2,000 PSF SHALL MATCH THE 90 TON EXCAVATOR). SETBACK DISTANCES REFLECT MINIMUM SETBACKS AND ARE TO BE MEASURED FROM EDGE OF EXCAVATION. IF SPECIFIED SETBACK FALLS WITHIN A SLOPED AREA, SETBACK MUST BE EXTENDED TO A DISTANCE 2' PAST OUTSIDE OF SLOPE.



**SHORING DESIGN PLAN**

**KIEWIT INFRA SOUTH CENTRAL**

**TAYLOR , TX**

**TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP**



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 1 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

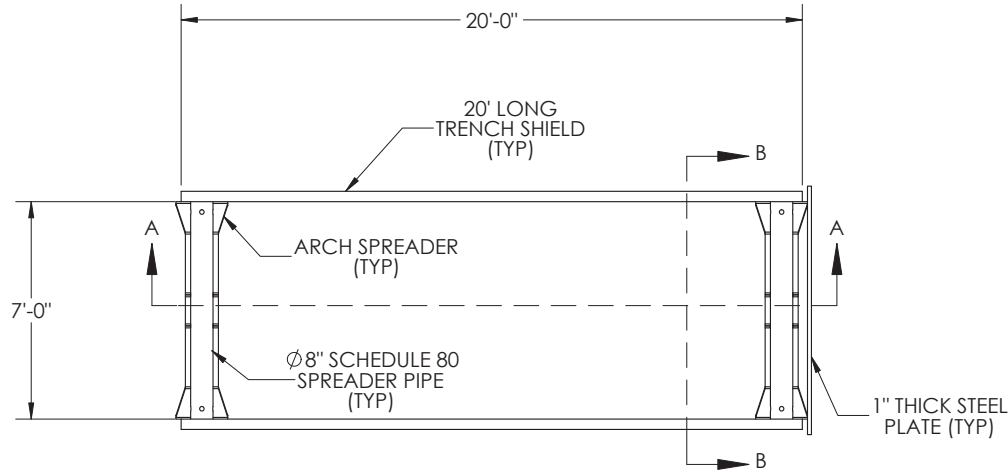
<b>PROJECT LOCATION</b> TAYLOR , TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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DESCRIPTION	DISTANCE
CRANE TO 30 TON MAX	8'
30 TON EXCAVATOR	6'
70 TON EXCAVATOR	10'
90 TON EXCAVATOR	12'
3 CY LOADER	4'
5 CY LOADER	6'
DUMP TRUCK	5'
SPOIL PILE (6' TALL)	4'
CONCRETE TRUCK	10'
RAILROAD TRACK	100'
EXISTING STRUCTURES	50'
HS20-44 VEHICULAR TRAFFIC	50'

SEAL:

2023-06-15  
 UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810



**PLAN VIEW-PHASE A&D**

SCALE: 1/4" = 1'-0" (1:48)

NOTE: ALL SOIL LINES REMOVED FROM PLAN VIEW(S) FOR CLARITY. WHEN APPLICABLE, SLOPING/BENCHING LINES WILL BE SHOWN IN SECTION VIEW(S).



DRAWING NUMBER		REVISION DATE
EGR230954		
DRAWN	CHECKED	
WAT	KH	
SHEET	DATE	
2 of 14	6/15/2023	

TITLE
SHORING DESIGN PLAN
CUSTOMER
KIEWIT INFRA SOUTH CENTRAL

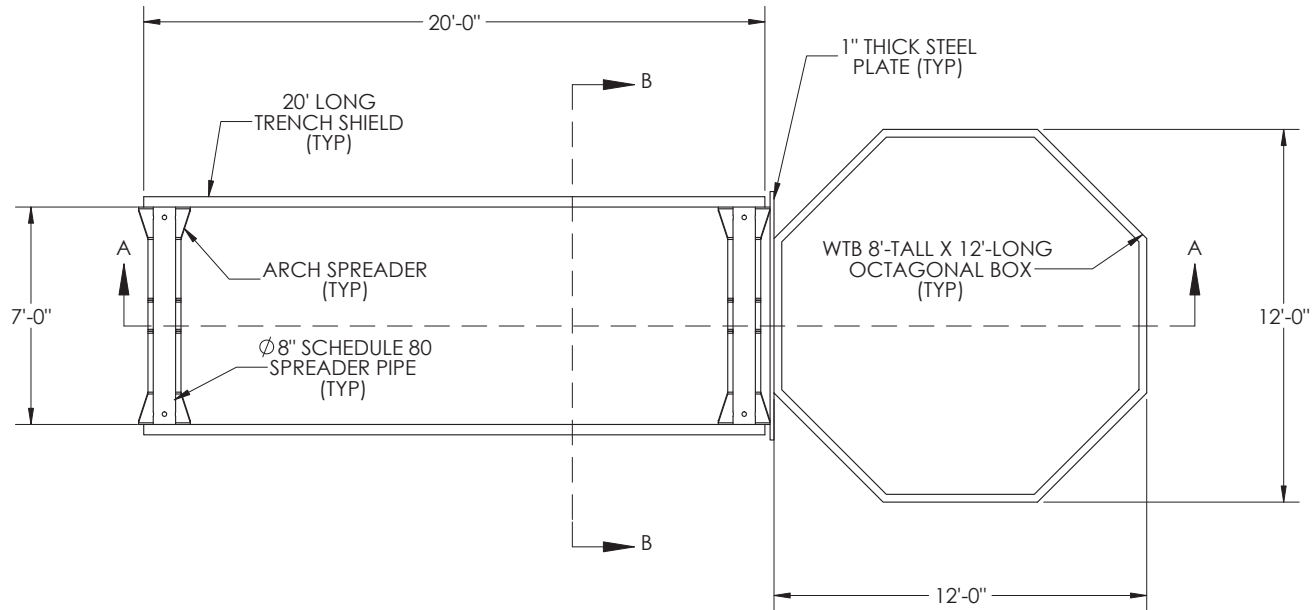
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PROJECT NAME
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2023-06-15  
 UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810



OCTAGONAL BOXES MAY BE HELD 2' ABOVE BASE WITH LEGS. BOTTOM OCTAGONAL BOX IS TO HAVE 6'X6' CUTOUT FOR CROSSING UTILITY. INSTALL OCTAGONAL MANHOLE SHIELD AT PLANNED MANHOLE LOCATIONS

**PLAN VIEW-PHASE B**  
SCALE: 1/4" = 1'-0" (1:48)

NOTE: ALL SOIL LINES REMOVED FROM PLAN VIEW(S) FOR CLARITY. WHEN APPLICABLE, SLOPING/BENCHING LINES WILL BE SHOWN IN SECTION VIEW(S).



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
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<b>SHEET</b> 3 of 14	<b>DATE</b> 6/15/2023	

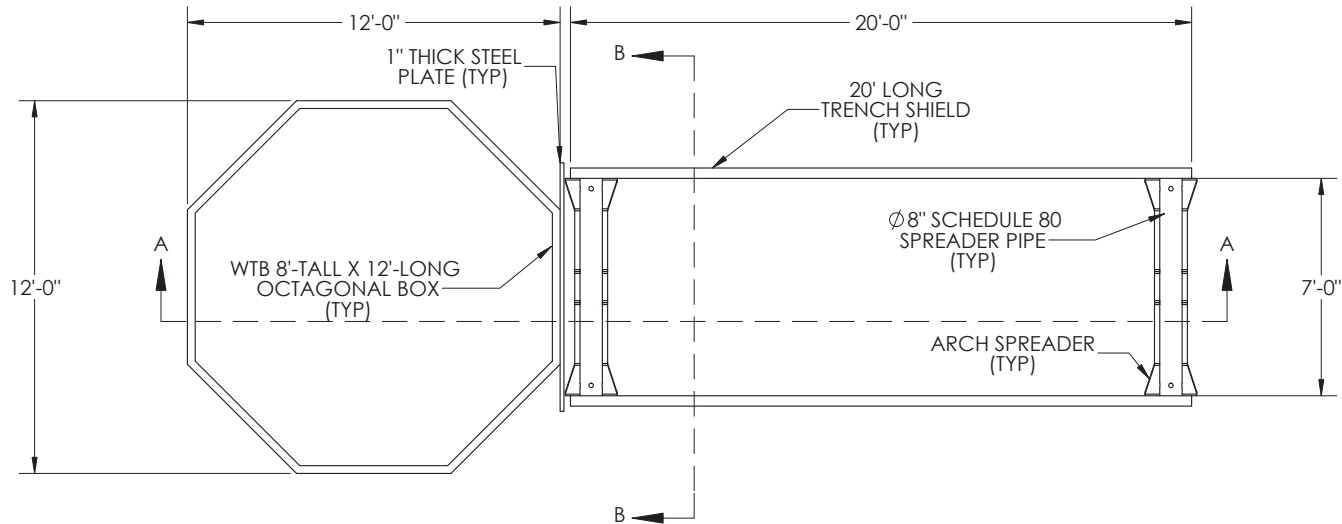
<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

<b>PROJECT LOCATION</b> TAYLOR , TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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EXISTING STRUCTURES	50'
HS20-44 VEHICULAR TRAFFIC	50'

SEAL:



MAX 2' OF EXPOSED SOIL ALLOWED. IF SLOUGHING OR RAVELING OCCURS, 1" THICK STEEL PLATES ARE TO BE USED TO SHORE EXPOSED SOIL.  
 INSTALL OCTAGONAL MANHOLE SHIELD AT PLANNED MANHOLE LOCATIONS

**PLAN VIEW-PHASE C**  
 SCALE: 1/4" = 1'-0" (1:48)

NOTE: ALL SOIL LINES REMOVED FROM PLAN VIEW(S) FOR CLARITY. WHEN APPLICABLE, SLOPING/BENCHING LINES WILL BE SHOWN IN SECTION VIEW(S).

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SEAL:

2023-06-15  
 UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810

**United Rentals**  
 ENGINEERING DEPARTMENT  
 7B OAK BRANCH DRIVE  
 GREENSBORO, NC 27407  
 PHONE: 336-398-5060

DRAWING NUMBER		REVISION DATE
EGR230954		
DRAWN	CHECKED	
WAT	KH	
SHEET	DATE	
4 of 14	6/15/2023	

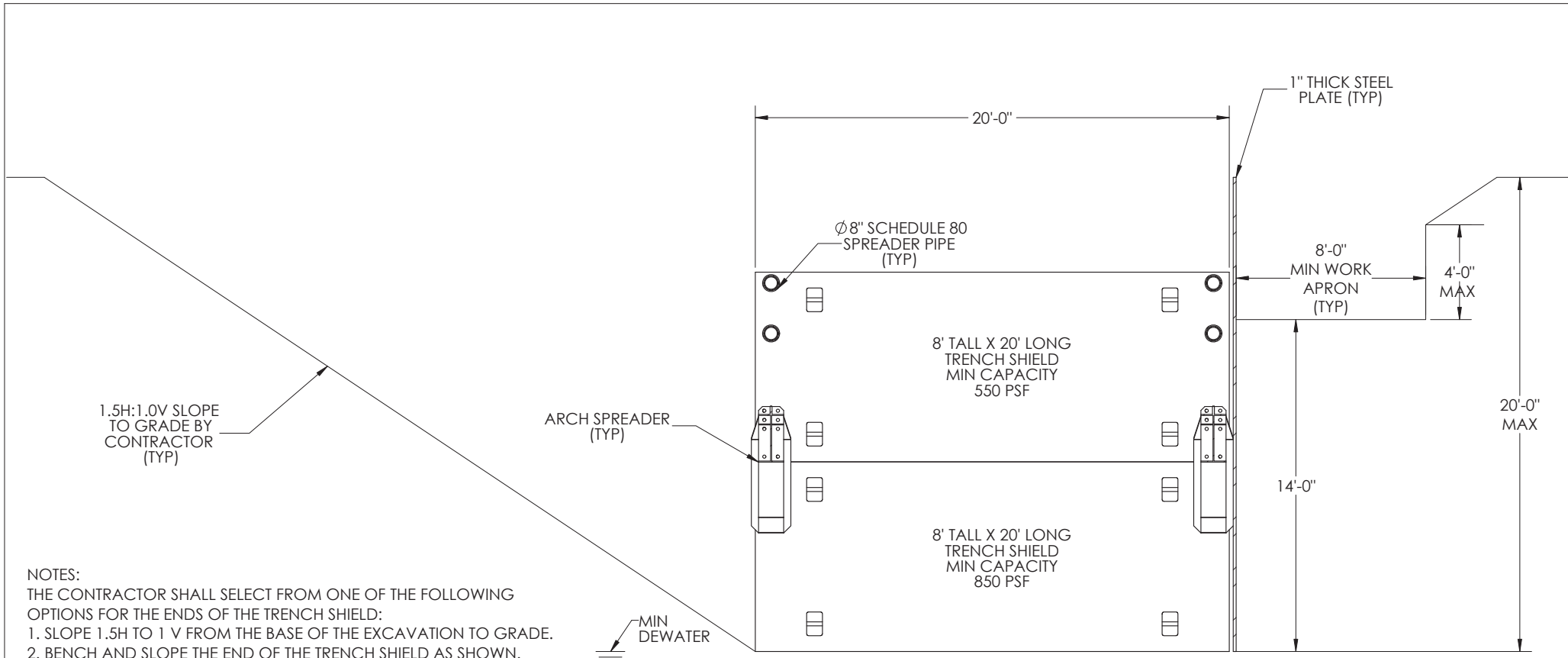
**TITLE**  
 SHORING DESIGN PLAN

**CUSTOMER**  
 KIEWIT INFRA SOUTH CENTRAL

**PROJECT LOCATION**  
 TAYLOR, TX

**PROJECT NAME**  
 TAYLOR SEMICONDUCTOR CHIP  
 MANUFACTURING PLANT EXP

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NOTES:  
 THE CONTRACTOR SHALL SELECT FROM ONE OF THE FOLLOWING OPTIONS FOR THE ENDS OF THE TRENCH SHIELD:  
 1. SLOPE 1.5H TO 1 V FROM THE BASE OF THE EXCAVATION TO GRADE.  
 2. BENCH AND SLOPE THE END OF THE TRENCH SHIELD AS SHOWN.  
 3. CLOSE THE END OF THE TRENCH SHIELD WITH A 1" THICK PLATE. THE PLATE MAY EXTEND A MAXIMUM HEIGHT OF 4.5' ABOVE THE TOP OF THE TRENCH SHIELD TO THE ADJACENT SOILS.  
 WHEN TOP OF SHORING IS AT THE SAME ELEVATION AS THE ADJACENT BENCH, THE CONTRACTOR SHALL PROVIDE ROLLOFF PROTECTION OR OTHER MEANS TO ENSURE EQUIPMENT OR MATERIALS DO NOT ROLL INTO TRENCH

**SECTION A-A VIEW-PHASE A&D**  
 SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 5 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

<b>PROJECT LOCATION</b> TAYLOR , TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

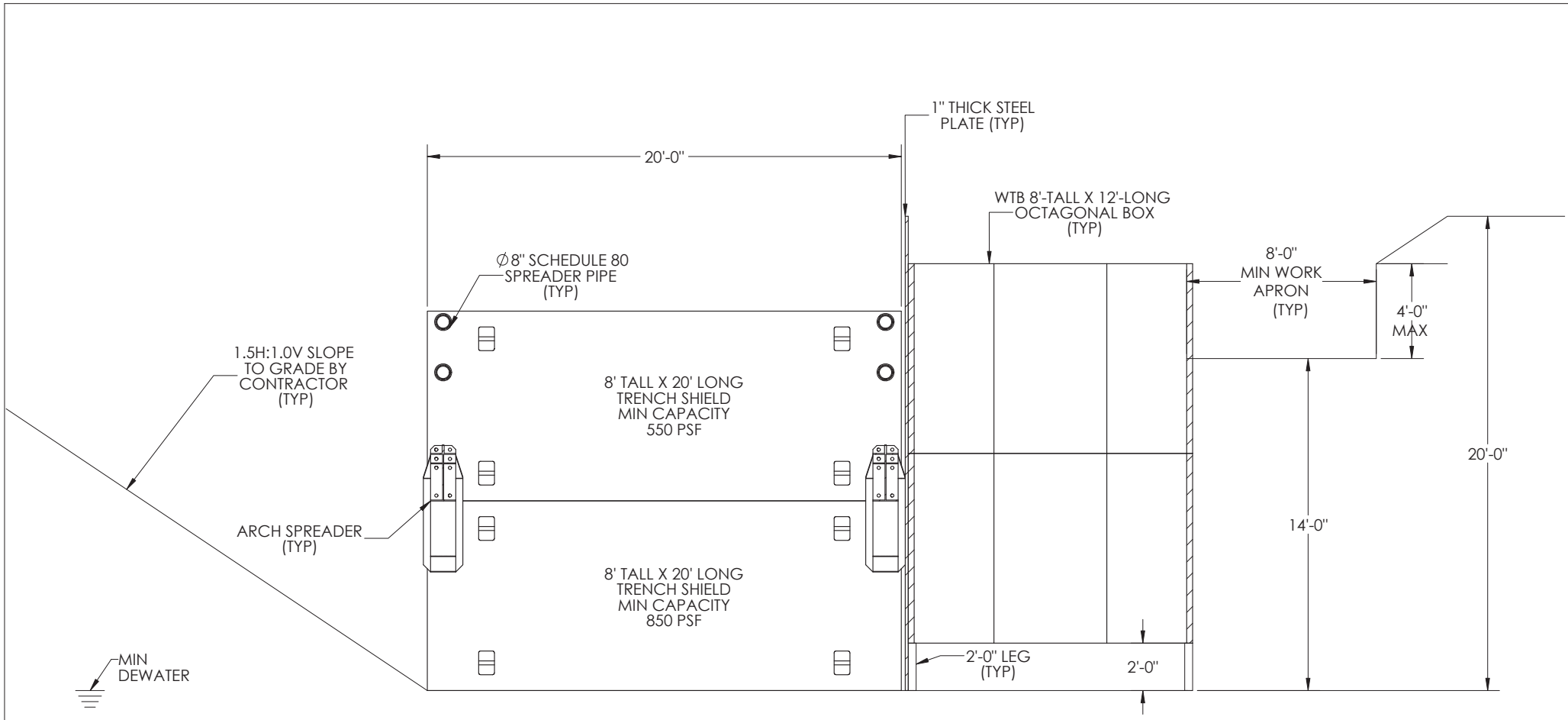
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**SECTION A-A VIEW-PHASE B**  
 SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 6 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

<b>PROJECT LOCATION</b> TAYLOR, TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

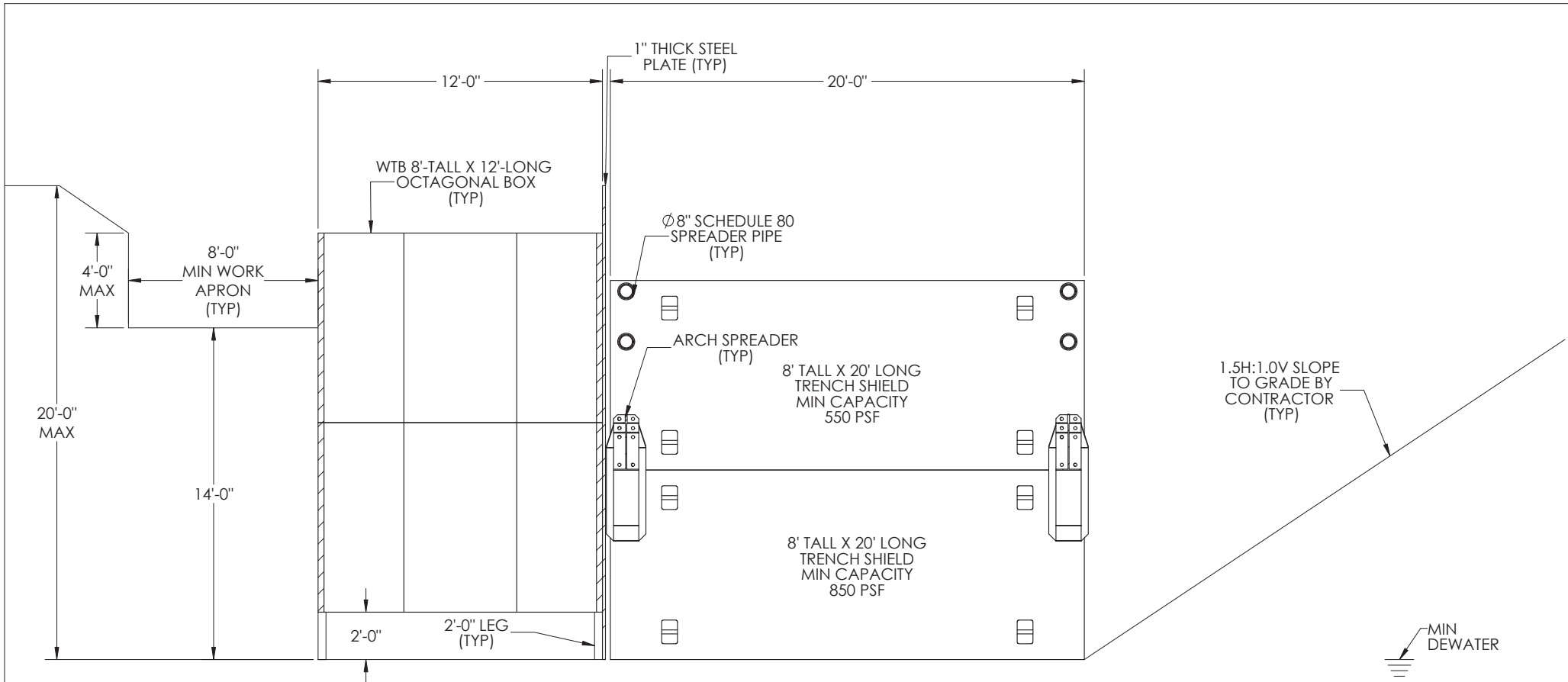
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HS20-44 VEHICULAR TRAFFIC	50'

SEAL:

2023-06-15  
 UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810



**SECTION A-A VIEW-PHASE C**  
 SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 7 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

<b>PROJECT LOCATION</b> TAYLOR, TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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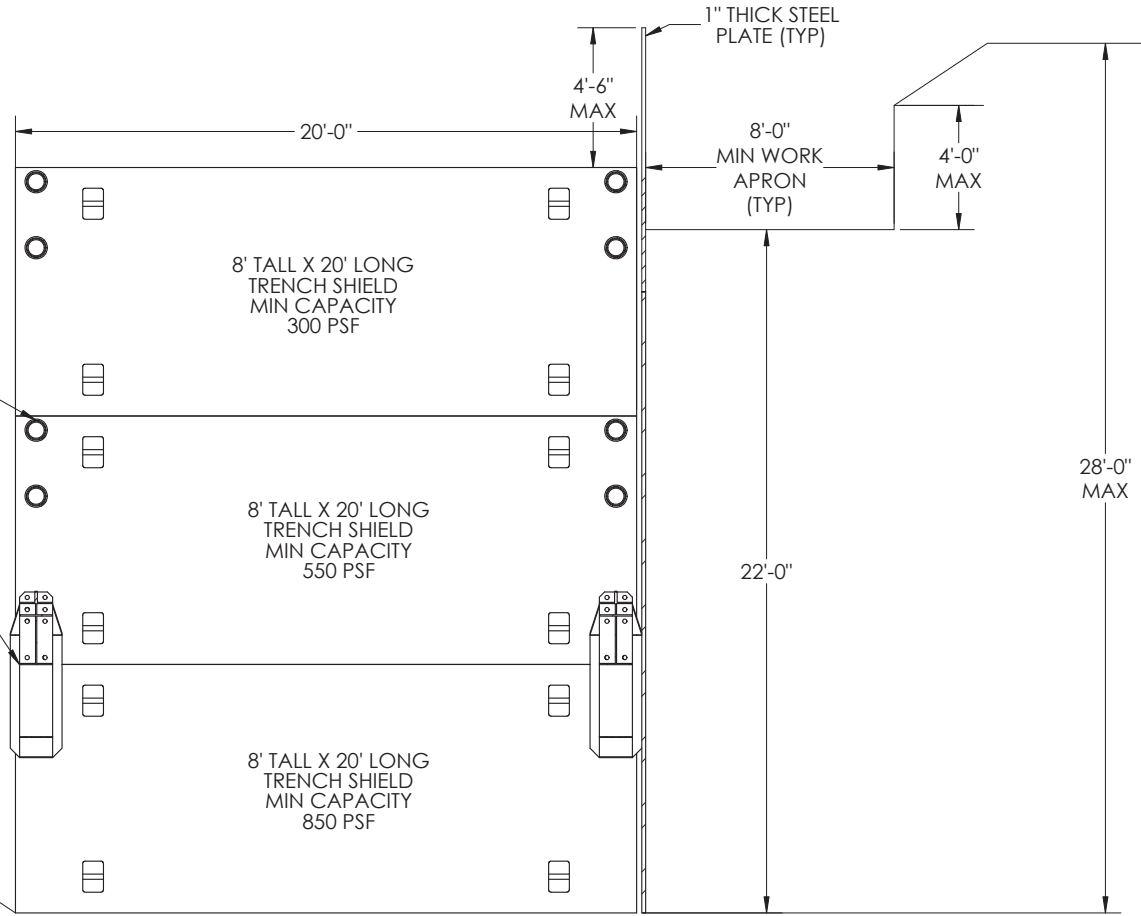
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 3. CLOSE THE END OF THE TRENCH SHIELD WITH A 1" THICK PLATE. THE PLATE  
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 WHEN TOP OF SHORING IS AT THE SAME ELEVATION AS THE ADJACENT  
 BENCH, THE CONTRACTOR SHALL PROVIDE ROLLOFF PROTECTION OR  
 OTHER MEANS TO ENSURE EQUIPMENT OR MATERIALS DO NOT ROLL INTO  
 TRENCH

1.5H:1.0V SLOPE  
 TO GRADE BY  
 CONTRACTOR  
 (TYP)

Ø8" SCHEDULE 80  
 SPREADER PIPE  
 (TYP)

ARCH SPREADER  
 (TYP)

MIN  
 DEWATER



**SECTION A-A VIEW-PHASE A&D**

SCALE: 1/4" = 1'-0" (1:48)



DRAWING NUMBER EGR230954		REVISION DATE
DRAWN WAT	CHECKED KH	
SHEET 8 of 14	DATE 6/15/2023	

TITLE SHORING DESIGN PLAN
CUSTOMER KIEWIT INFRA SOUTH CENTRAL

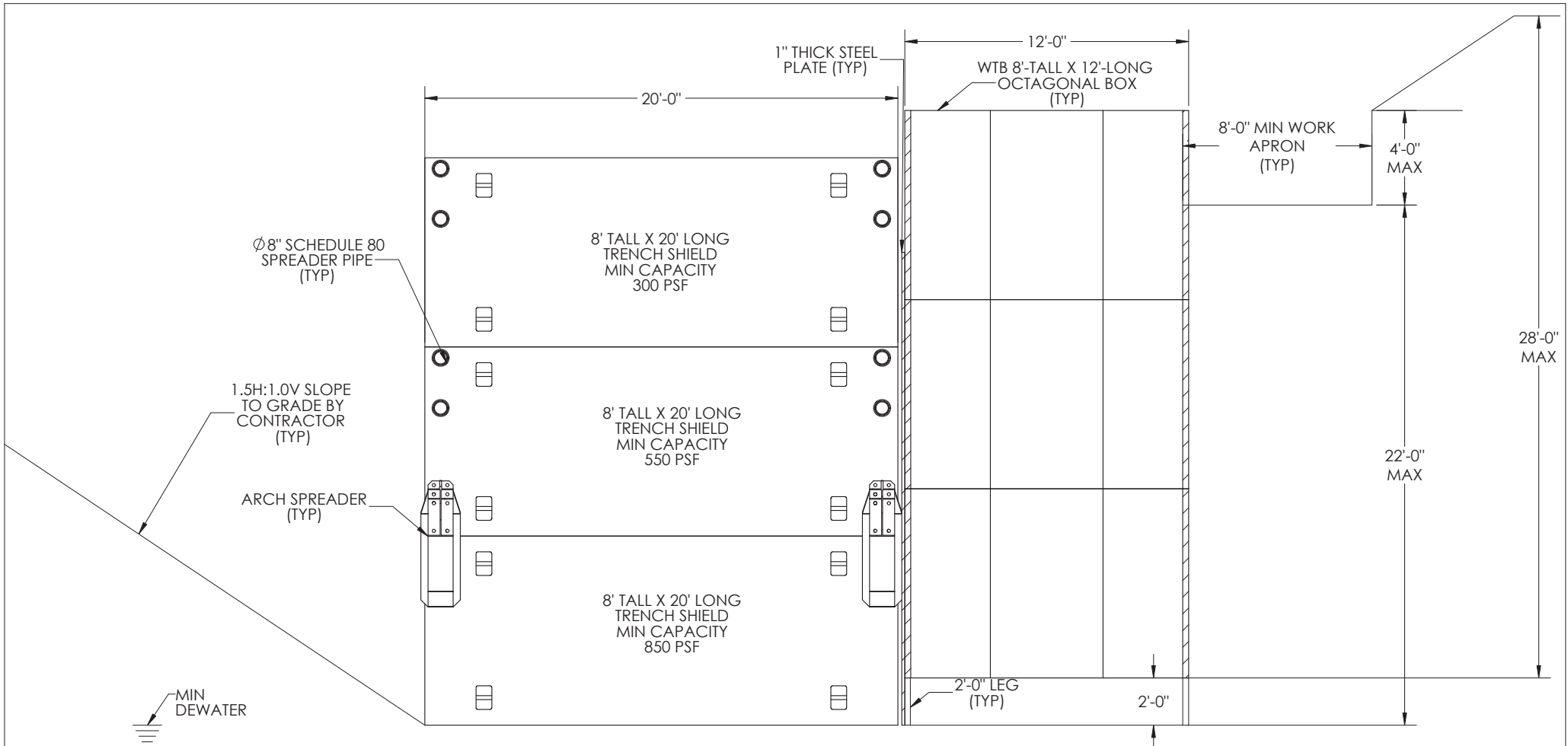
PROJECT LOCATION TAYLOR, TX
PROJECT NAME TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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RAILROAD TRACK	100'
EXISTING STRUCTURES	50'
HS20-44 VEHICULAR TRAFFIC	50'

SEAL:





**SECTION A-A VIEW-PHASE B**  
 SCALE: 1/4" = 1'-0" (1:48)

**SETBACK TABLE**  
(SEE NOTE 15)

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CRANE TO 30 TON MAX	8'
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 7B OAK BRANCH DRIVE  
 GREENSBORO, NC 27407  
 PHONE: 336-398-5060

DRAWING NUMBER		REVISION DATE
EGR230954		
DRAWN	CHECKED	
WAT	KH	
SHEET	DATE	
9 of 14	6/15/2023	

**TITLE**  
 SHORING DESIGN PLAN

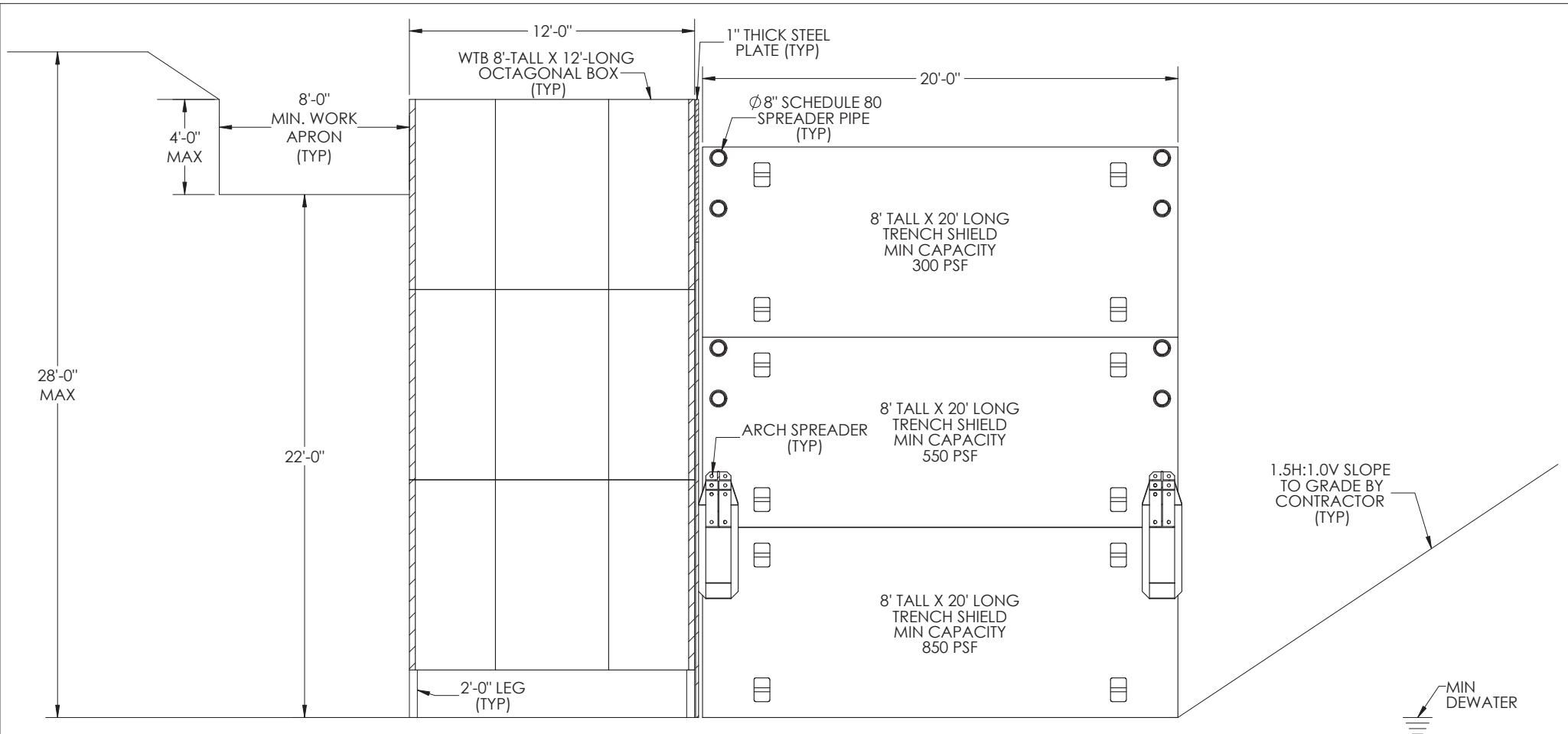
**CUSTOMER**  
 KIEWIT INFRA SOUTH CENTRAL

**PROJECT LOCATION**  
 TAYLOR, TX

**PROJECT NAME**  
 TAYLOR SEMICONDUCTOR CHIP  
 MANUFACTURING PLANT EXP

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**SECTION A-A VIEW-PHASE B**  
 SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 10 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

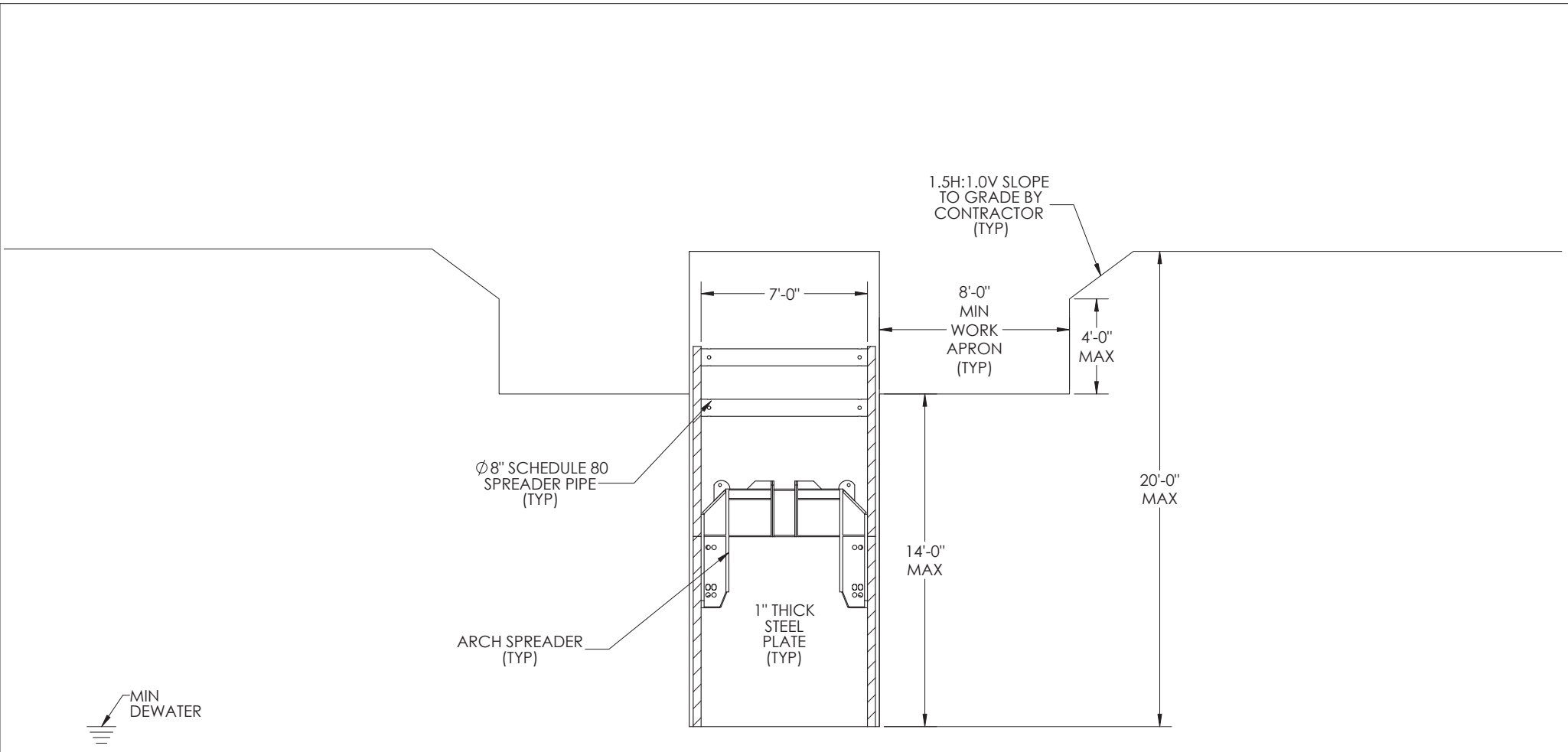
<b>PROJECT LOCATION</b> TAYLOR, TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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HS20-44 VEHICULAR TRAFFIC	50'

SEAL:



**SECTION B-B VIEW-PHASE A&D**  
 SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 11 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

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 UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810

WTB 8'-TALL X 12'-LONG  
OCTAGONAL BOX  
(TYP)

1.5H:1.0V SLOPE  
TO GRADE BY  
CONTRACTOR  
(TYP)

8'-0"  
MIN  
WORK  
APRON  
(TYP)

4'-0"  
MAX

Ø 8" SCHEDULE 80  
SPREADER PIPE  
(TYP)

20'-0"  
MAX

14'-0"  
MAX

ARCH SPREADER  
(TYP)

1" THICK  
STEEL  
PLATE  
(TYP)

2'-0" LEG  
(TYP)

2'-0"



**SECTION B-B VIEW-PHASE B&C**

SCALE: 1/4" = 1'-0" (1:48)



DRAWING NUMBER		REVISION DATE
EGR230954		
DRAWN	CHECKED	
WAT	KH	
SHEET	DATE	
12 of 14	6/15/2023	

TITLE
SHORING DESIGN PLAN
CUSTOMER
KIEWIT INFRA SOUTH CENTRAL

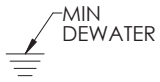
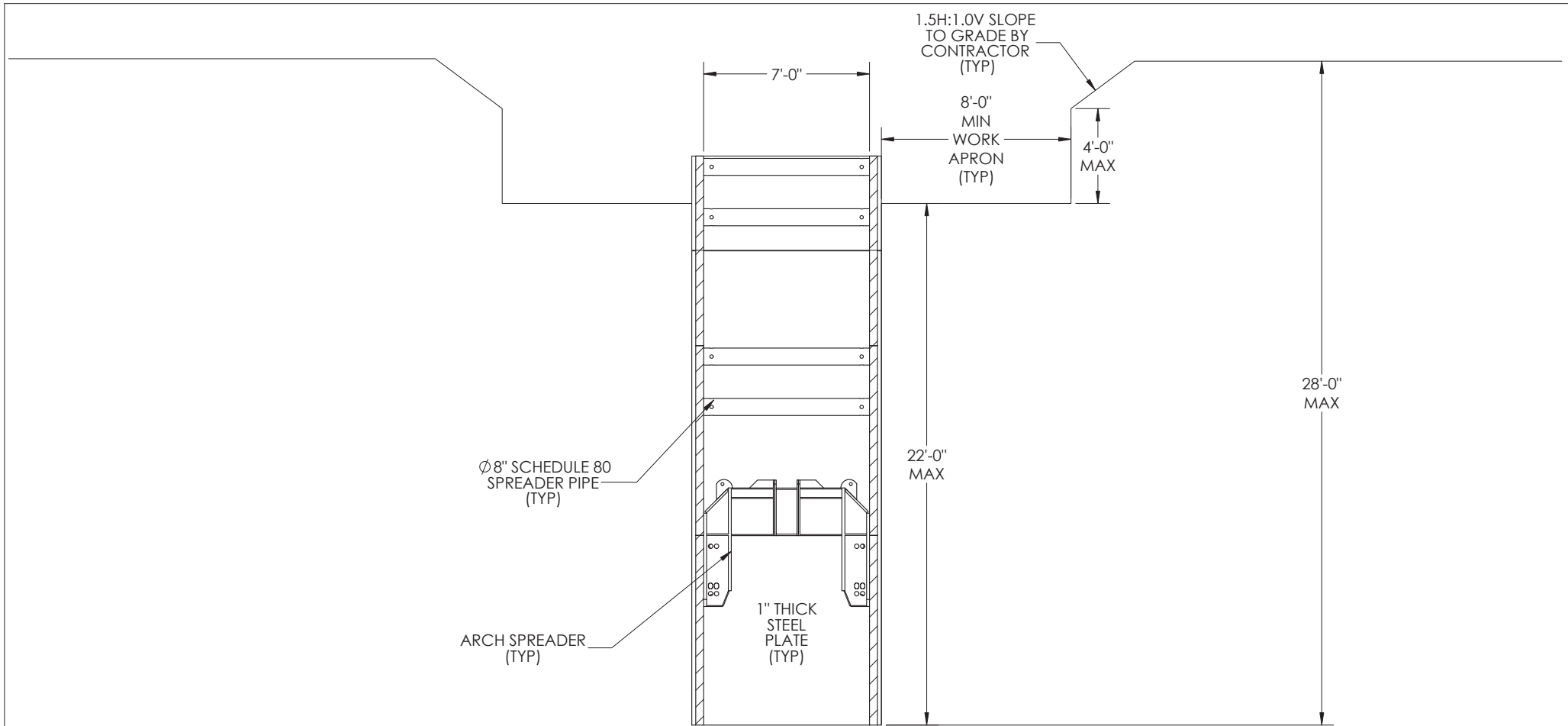
PROJECT LOCATION
TAYLOR, TX
PROJECT NAME
TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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SETBACK TABLE (SEE NOTE 15)	
DESCRIPTION	DISTANCE
CRANE TO 30 TON MAX	8'
30 TON EXCAVATOR	6'
70 TON EXCAVATOR	10'
90 TON EXCAVATOR	12'
3 CY LOADER	4'
5 CY LOADER	6'
DUMP TRUCK	5'
SPOIL PILE (6' TALL)	4'
CONCRETE TRUCK	10'
RAILROAD TRACK ☞	100'
EXISTING STRUCTURES	50'
HS20-44 VEHICULAR TRAFFIC	50'

SEAL:

UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810



**SECTION B-B VIEW-PHASE A&D**  
SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 13 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

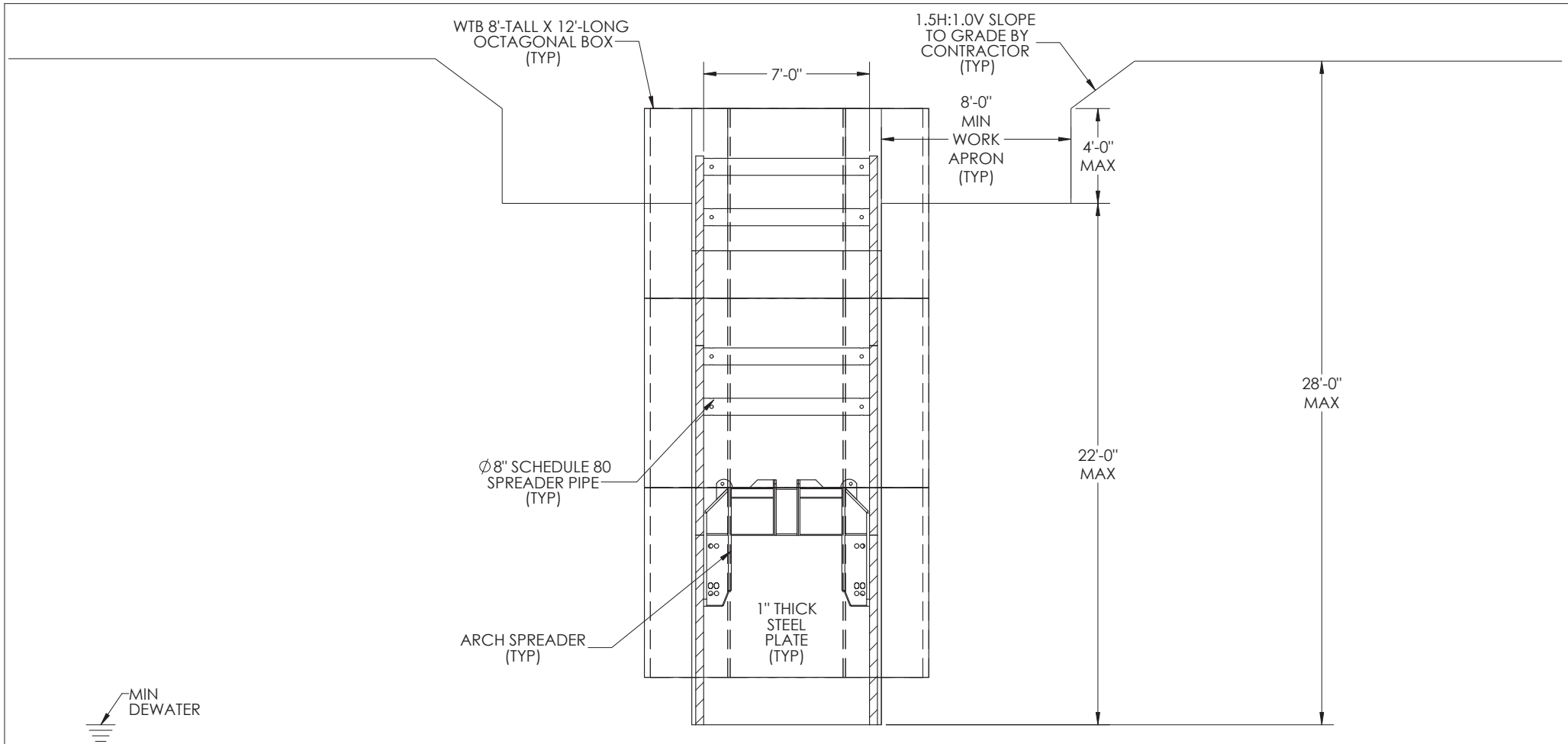
<b>PROJECT LOCATION</b> TAYLOR, TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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<b>SETBACK TABLE</b> (SEE NOTE 15)	
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5 CY LOADER	6'
DUMP TRUCK	5'
SPOIL PILE (6' TALL)	4'
CONCRETE TRUCK	10'
RAILROAD TRACK	100'
EXISTING STRUCTURES	50'
HS20-44 VEHICULAR TRAFFIC	50'

SEAL:

2023-06-15  
UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810



**SECTION B-B VIEW-PHASE B&C**  
 SCALE: 1/4" = 1'-0" (1:48)



<b>DRAWING NUMBER</b> EGR230954		<b>REVISION DATE</b>
<b>DRAWN</b> WAT	<b>CHECKED</b> KH	
<b>SHEET</b> 14 of 14	<b>DATE</b> 6/15/2023	

<b>TITLE</b> SHORING DESIGN PLAN
<b>CUSTOMER</b> KIEWIT INFRA SOUTH CENTRAL

<b>PROJECT LOCATION</b> TAYLOR, TX
<b>PROJECT NAME</b> TAYLOR SEMICONDUCTOR CHIP MANUFACTURING PLANT EXP

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**SETBACK TABLE**  
(SEE NOTE 15)

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CONCRETE TRUCK	10'
RAILROAD TRACK	100'
EXISTING STRUCTURES	50'
HS20-44 VEHICULAR TRAFFIC	50'

SEAL:

STATE OF TEXAS  
 PAUL D. FRENCH  
 136382  
 LICENSED PROFESSIONAL ENGINEER  
 2023-06-15  
 UNITED RENTALS (NORTH AMERICA), INC. COA# F-4810