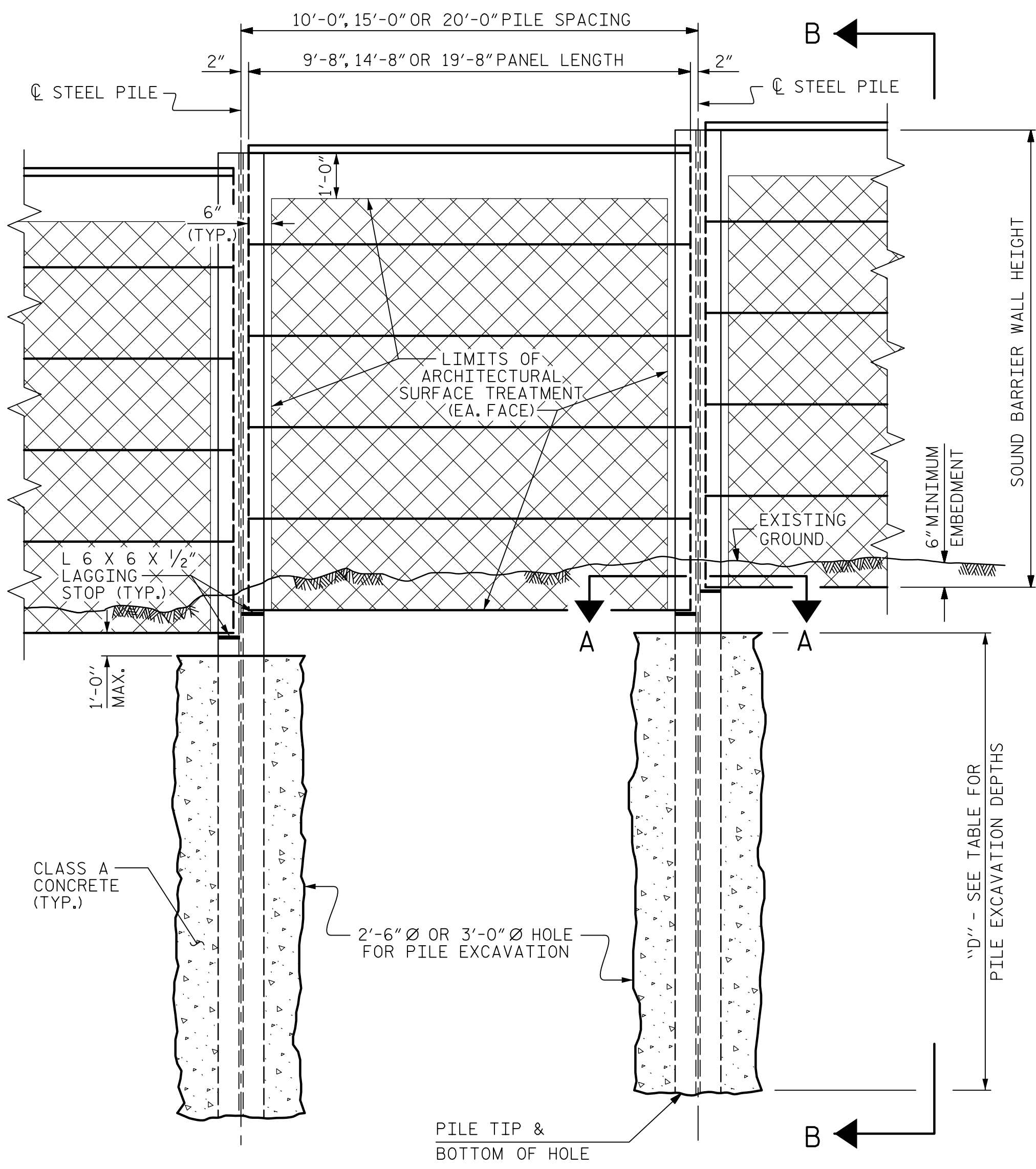
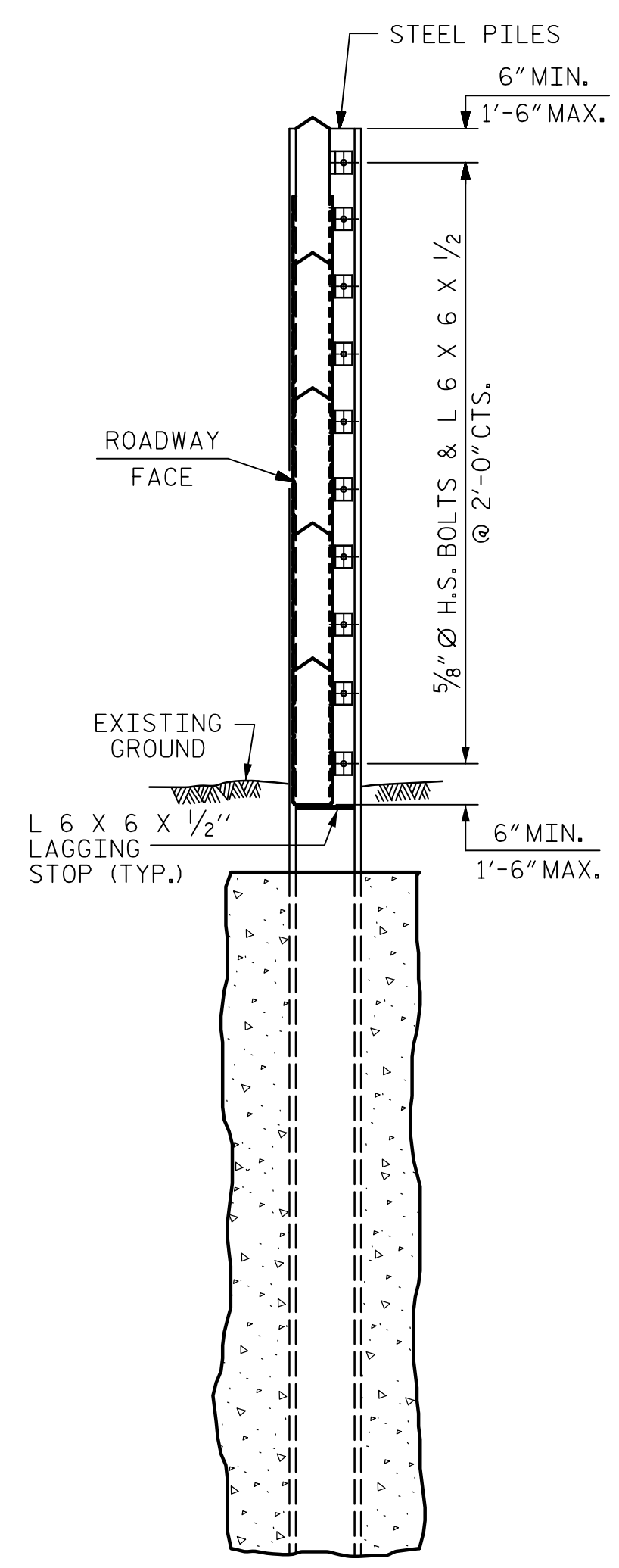


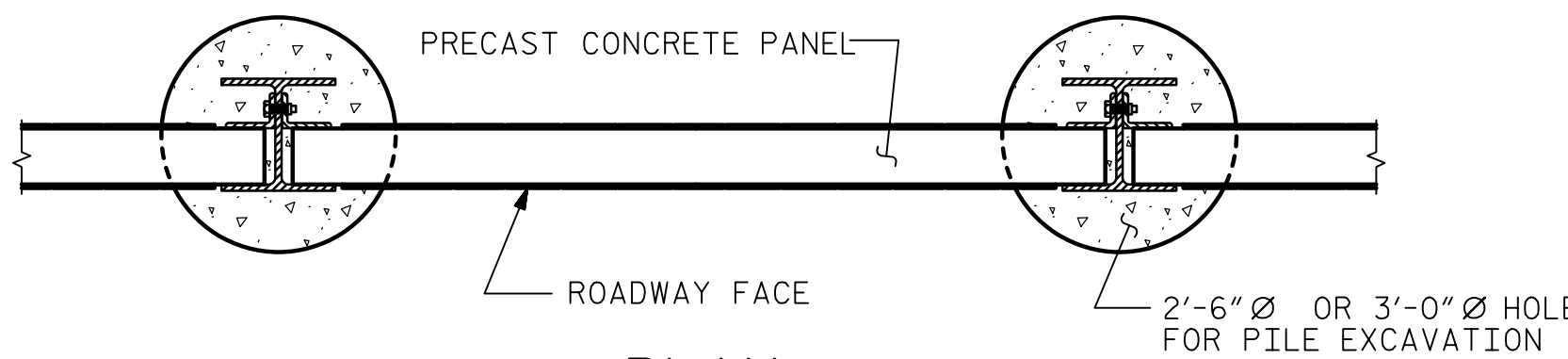
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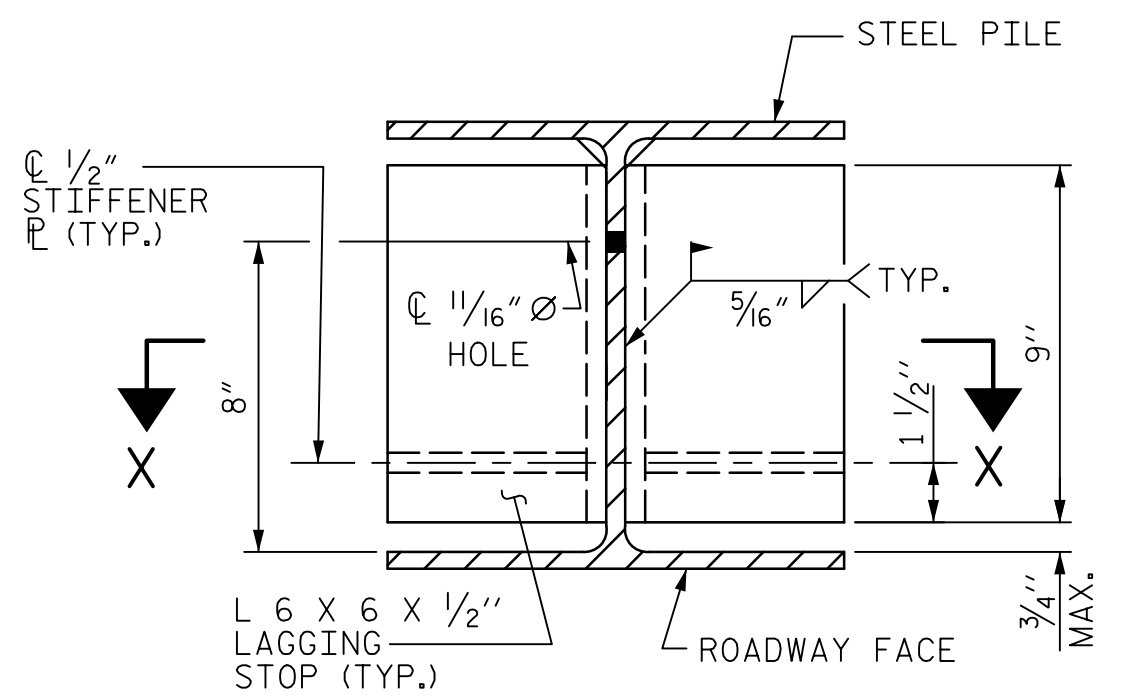
ELEVATION



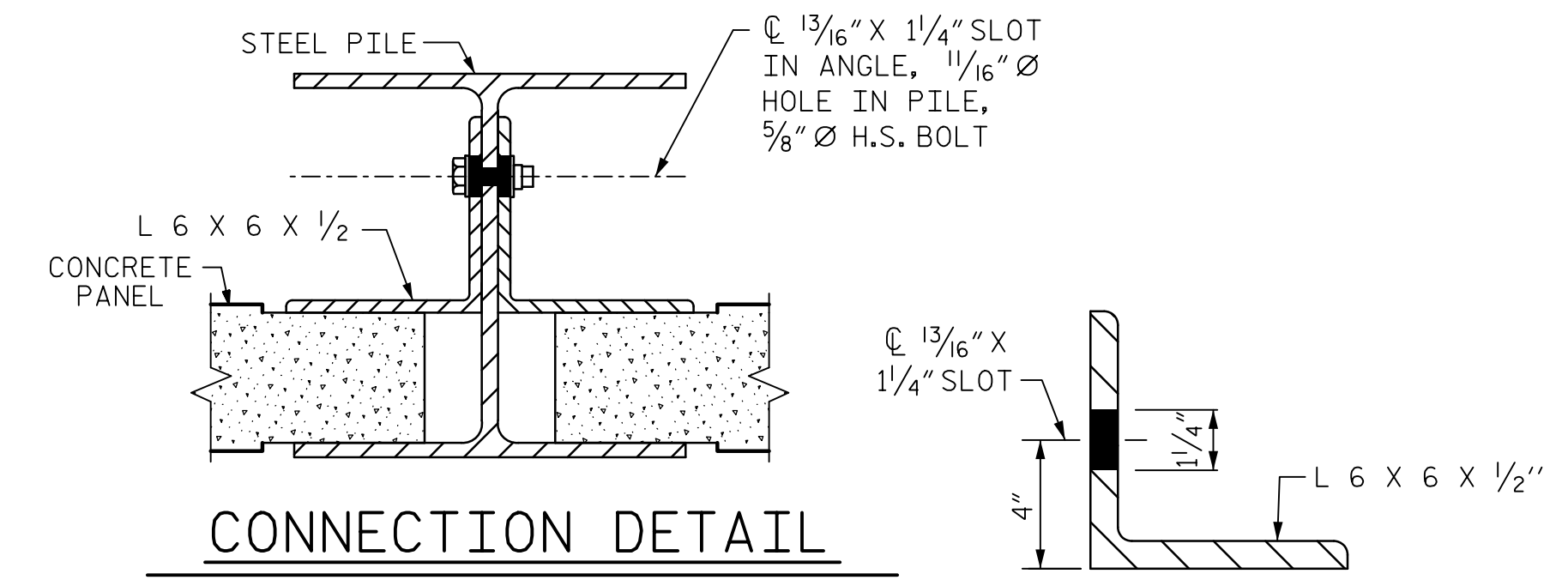
SECTION B-B



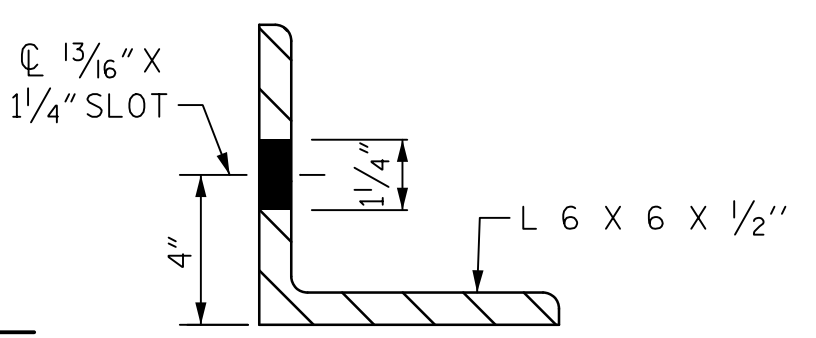
PLAN



SECTION A-A



CONNECTION DETAIL



ANGLE DETAIL

PILE EXCAVATION DEPTH "D"				
WALL #NW4	FROM : STA. 10+00.00 TO	: STA. 23+65.00		
WALL #NW6	FROM : STA. 10+00.00 TO	: STA. 13+00.00		
WALL #NW7	FROM : STA. 10+00.00 TO	: STA. 23+50.00		
3'-0" Ø HOLE	WALL HEIGHT			
	PILE SPACING	H ≤ 15'	15' < H ≤ 20'	20' < H ≤ 25'
	10'-0"	10'-0"	12'-0"	13'-0"
	15'-0"	11'-0"	13'-0"	16'-0"
20'-0"	12'-0"	15'-0"	18'-0"	

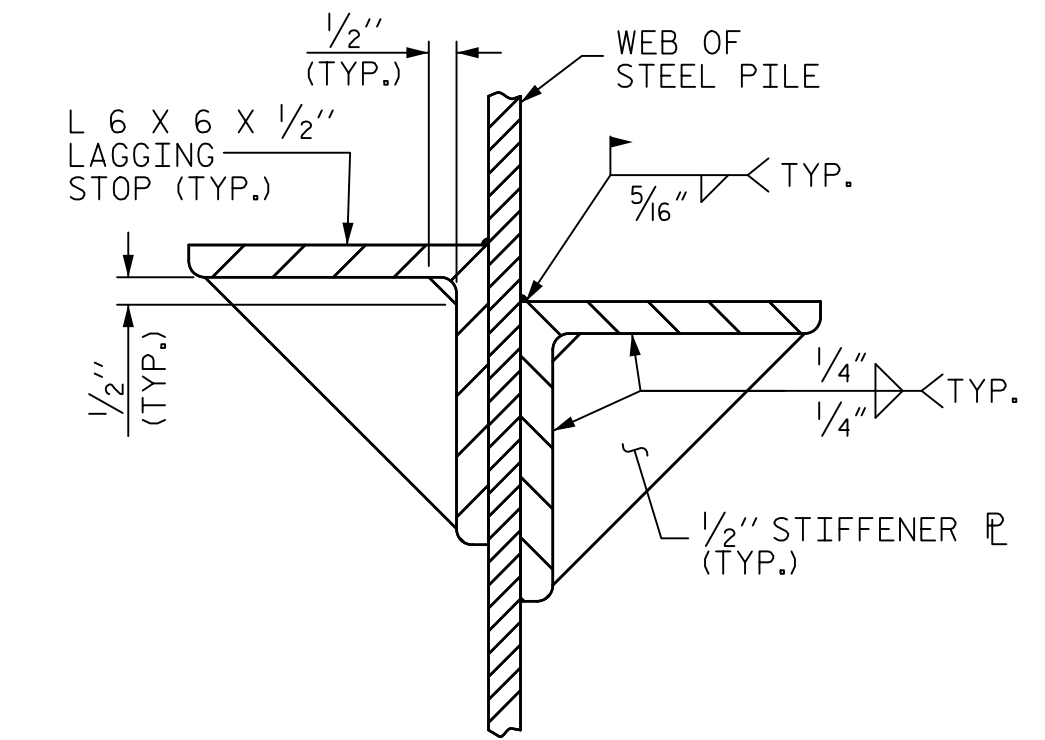
- DESIGN ASSUMPTIONS:
- GROUNDWATER BELOW BOTTOM OF HOLE
 - FRONT SLOPE/FINISHED GRADE 2:1 OR FLATTER
 - FRICTION ANGLE (φ) = 30°, COHESION (c) = 0 PSF, UNIT WEIGHT = 120 PCF
 - PILE SPACING < 20 FT
 - WALL HEIGHT < 25 FT

BILL OF MATERIAL	
SOUND BARRIER WALL #NW4	25,785 S.F.
ARCHITECTURAL SURFACE TREATMENT #NW4	45,382 S.F.
SOUND BARRIER WALL #NW6	4,845 S.F.
ARCHITECTURAL SURFACE TREATMENT #NW6	8,450 S.F.
SOUND BARRIER WALL #NW7	17,625 S.F.
ARCHITECTURAL SURFACE TREATMENT #NW7	30,210 S.F.
QUANTITIES PROVIDED ARE APPROXIMATE AND ARE FOR BID PURPOSES ONLY.	
ARCHITECTURAL SURFACE TREATMENT	
TEXTURE OPTION:	BUSHMILL HAMMER
STAIN OPTION:	GRAY, TO MATCH EXISTING

STEEL PILES DESIGN WIND PRESSURE = 40 PSF			
PILE SPACING	MAXIMUM WALL HEIGHT (H')	MINIMUM W SIZE STEEL PILES	MINIMUM HP SIZE STEEL PILES
10'-0"	H ≤ 15'	W 12 X 40 W 14 X 48	HP 12 X 53 HP 14 X 73
	15' < H ≤ 20'	W 12 X 45 W 14 X 48	HP 12 X 53 HP 14 X 73
	20' < H ≤ 25'	W 12 X 65 W 14 X 61	HP 12 X 53 HP 14 X 73
	25' < H ≤ 29'	W 12 X 87 W 14 X 90	HP 14 X 73
15'-0"	H ≤ 15'	W 12 X 40 W 14 X 48	HP 12 X 53 HP 14 X 73
	15' < H ≤ 20'	W 12 X 53 W 14 X 61	HP 12 X 53 HP 14 X 73
	20' < H ≤ 25'	W 12 X 72 W 14 X 90	HP 12 X 74 HP 14 X 73
	25' < H ≤ 29'	W 12 X 120 W 14 X 90	HP 14 X 89
20'-0"	H ≤ 15'	W 12 X 40 W 14 X 48	HP 12 X 53 HP 14 X 73
	15' < H ≤ 20'	W 12 X 58 W 14 X 61	HP 12 X 63 HP 14 X 73
	20' < H ≤ 25'	W 12 X 96 W 14 X 90	HP 14 X 89
	25' < H ≤ 29'	W 12 X 152 W 14 X 109	HP 14 X 117

NOTES

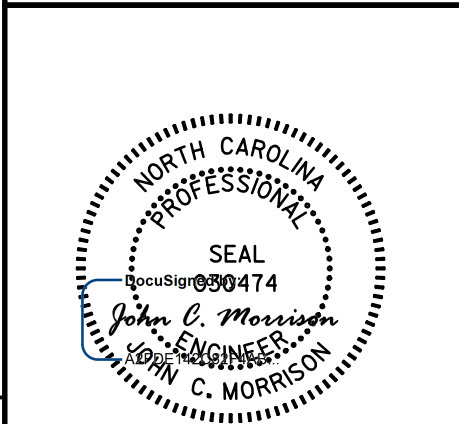
- FOR SOUND BARRIER WALL, SEE SPECIAL PROVISIONS.
- CONSTRUCT SOUND BARRIER WALL TO LINES AND GRADES SHOWN ON THE ROADWAY PLANS.
- PROVIDE PANELS WITH A FLAT BOTTOM.
- USE STEEL PILES, ANGLES, AND LAGGING STOPS MEETING THE REQUIREMENTS OF AASHTO M270, GRADE 50. GALVANIZE ALL STEEL COMPONENTS INCLUDING PILES, ANGLES, LAGGING STOPS, BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. REPAIR ANY DAMAGED GALVANIZATION IN ACCORDANCE WITH ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.
- VERIFY THE LOCATION OF UNDERGROUND UTILITIES BEFORE DRILLING HOLES TO ENSURE SUFFICIENT CLEARANCE IS AVAILABLE.
- AT THE CONTRACTOR'S OPTION, USE AN APPROVED NON-SHRINK NON-METALLIC GROUT BETWEEN THE FLANGES OF THE STEEL PILES TO SUPPORT THE BOTTOM PANEL IN LIEU OF LAGGING STOPS.
- ADJUST PILE EXCAVATION ELEVATIONS TO MAINTAIN 6" MINIMUM EMBEDMENT OF THE BOTTOM PANEL.
- USE CLASS AA FOR PANELS AND CLASS A CONCRETE PILE EXCAVATION BACKFILL, IN ACCORDANCE WITH ARTICLE 1000-4 OF THE STANDARD SPECIFICATIONS.
- PROVIDE PLATES AND ANGLES TO SECURE PANELS 6" LONG AS MEASURED ALONG THE STEEL PILE.
- AT THE CONTRACTOR'S OPTION, USE EITHER 'W' OR 'HP' PILES THAT SATISFY THE MINIMUM PILE SIZE REQUIRED IN THE "STEEL PILES" TABLE. PILES SMALLER THAN W12 OR HP12 ARE NOT PERMITTED. AT TURNS WITH A 3'-0" DIAMETER HOLE FOR PILE EXCAVATION, USE ONLY W12 OR HP12 PILES, AS SHOWN.
- AT THE CONTRACTOR'S OPTION, USE 10'-0", 15'-0", OR 20'-0" PILE SPACINGS. STANDARD PRECAST CONCRETE PANELS MAY BE USED WITH THE 10'-0" AND 15'-0" PILE SPACING. FOR 20'-0" PILE SPACING, PANELS DESIGNED AND MANUFACTURED BY A THIRD PARTY VENDOR SHALL BE USED.
- DO NOT SPLICE STEEL PILES.
- FOR SOUND BARRIER WALL STATIONS, OFFSETS, AND WALL ENVELOPE, SEE ROADWAY PLANS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.



SECTION X-X

PROJECT NO. **U-5748**
WAKE COUNTY
 STATION: **24+88.00 -L-**

SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
SOUND BARRIER WALL
 (STEEL PILES)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SBW-1
1			3			TOTAL SHEETS
2			4			3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

1/16/2023