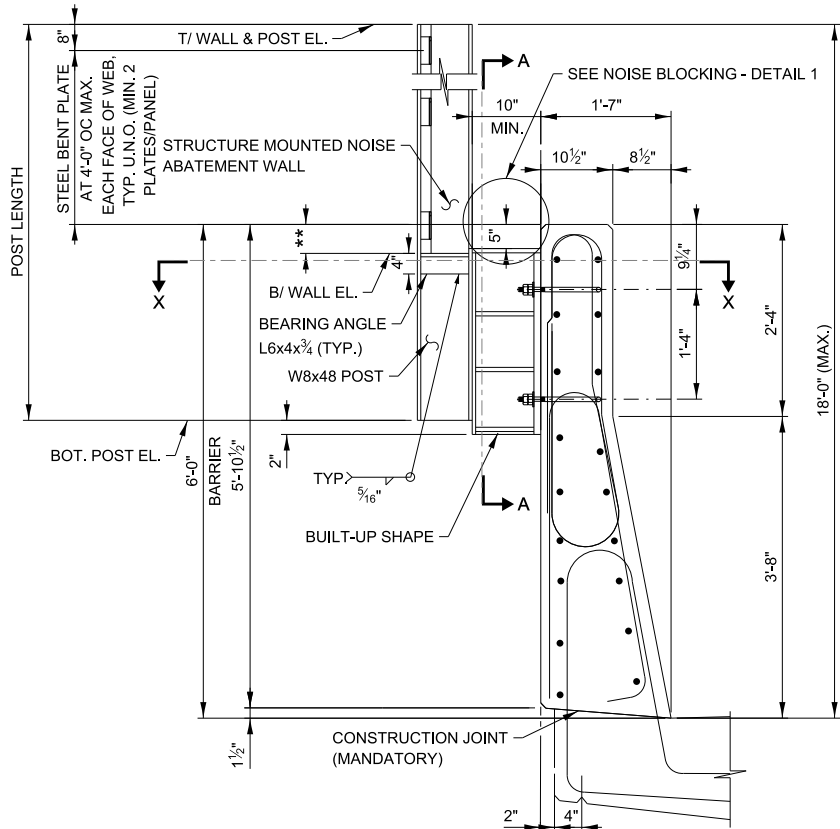


Illinois Tollway Standard Drawing Revisions
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Section G	Structural		
	Standard	Modification Summary	Effective: 03-01-2025
		This set of standard drawings has been converted from v8i to OpenRoads.	
	G12-05	STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS	
	Sheet 1	Updated design specification to AASHTO 9th Edition. Removed Note 3 of Illinois Tollway Constant Slope Barrier - Details.	

 New Sheet

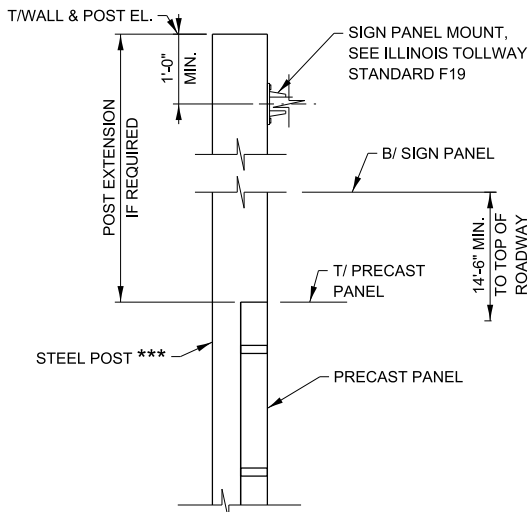
 Retired Standard



ILLINOIS TOLLWAY CONSTANT SLOPE BARRIER - DETAILS

NOTES:

- STEEL POST MAXIMUM SPACING IS 11'-8".
- SLIPFORMING OF THE BARRIER IS NOT PERMITTED.
- ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE SUPPLIED BY THE FABRICATOR OF AN ADVANCE PROCUREMENT CONTRACT FOR THE STRUCTURAL STEEL POSTS. BENT ANCHOR BOLTS SHALL BE INSTALLED WITH ILLINOIS TOLLWAY CONSTANT SLOPE BARRIER. SEE SPECIAL PROVISION FOR FURNISHING NOISE ABATEMENT WALL STRUCTURAL STEEL.
- MINIMUM DISTANCE BETWEEN CENTERLINE OF POST TO CENTERLINE OF LIGHT POLE IS 4'-7" DESIRABLE AND 3'-7" MINIMUM.

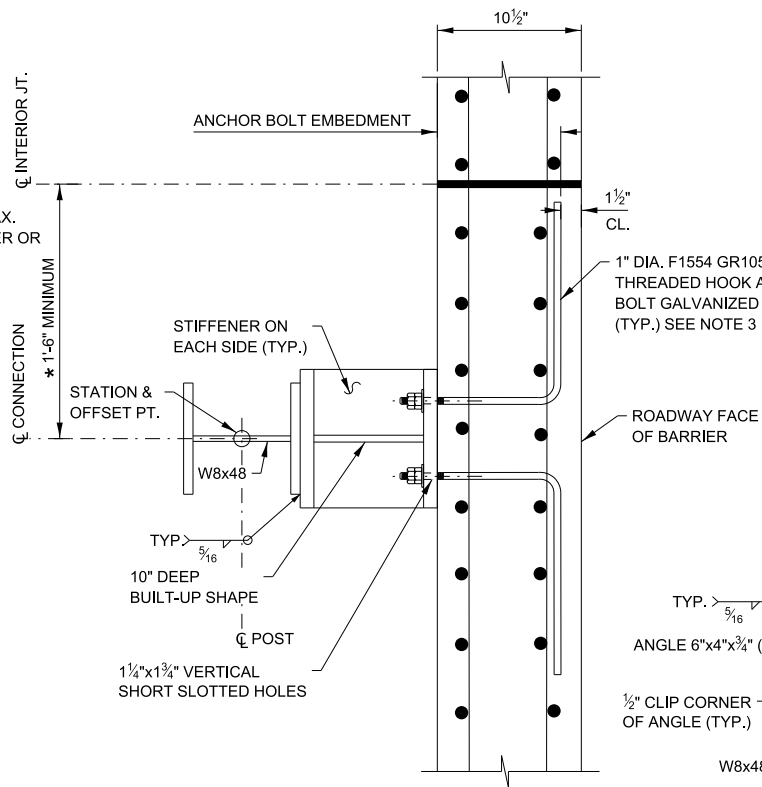


SIGN PANEL MOUNT  
POST EXTENSION DETAIL

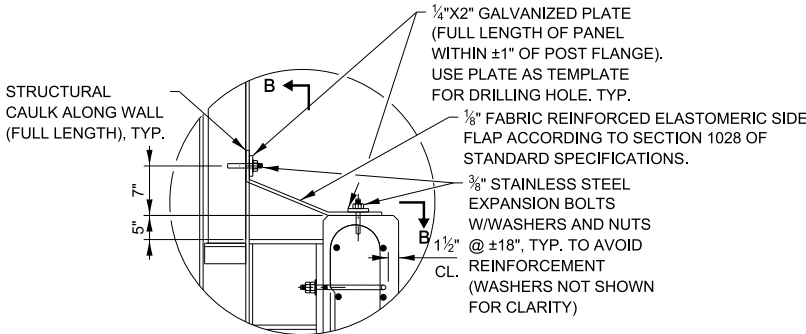
\*\*\* STEEL POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A 17'-3 1/2" POST WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19

\*\* BEARING SEAT IS 6" MAX. BELOW TOP OF BARRIER OR 3" MAX. ABOVE TOP OF BARRIER.

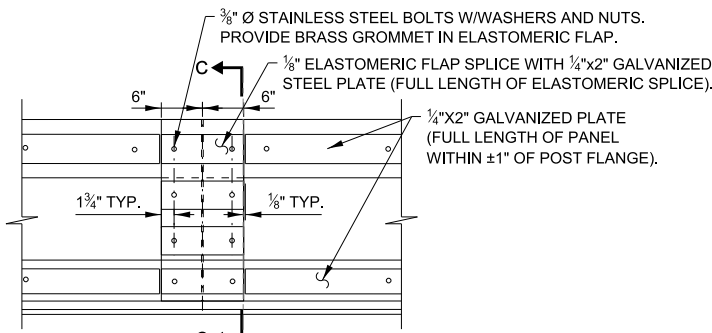
\* USE 4'-10" MINIMUM FROM FULL HEIGHT JOINTS ON BRIDGES. OTHERWISE USE 1'-10" MINIMUM FOR END POSTS AND POSTS LOCATED ON APPROACH SLABS OR MOMENT SLABS.



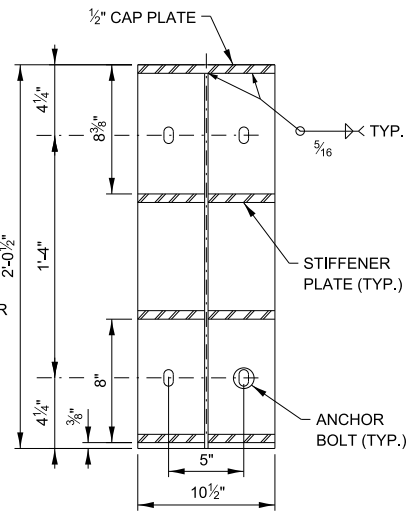
SECTION X-X



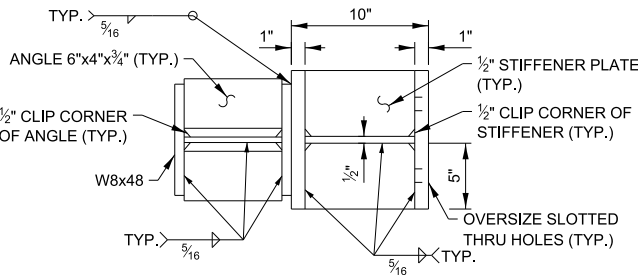
DETAIL 1  
NOISE BLOCKING ASSEMBLY



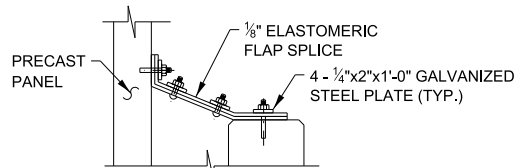
VIEW B-B  
AT ASSEMBLY SPLICE



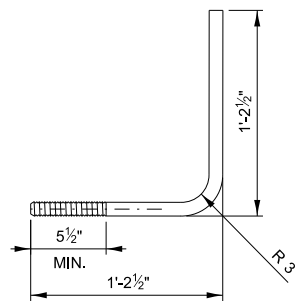
SECTION A-A



BUILT UP SHAPE



SECTION C-C



BENT ANCHOR BOLT

GENERAL NOTES

- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
- REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
- REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
- REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
- REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
- CONSTRUCTION CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.

DESIGN SPECIFICATIONS

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
9TH EDITION, 2020.

DESIGN STRESSES

f<sub>c</sub> = 4,000 PSI (CLASS BS). (BARRIERS)  
f<sub>c</sub> = 5,000 PSI AT 28 DAYS (CLASS PC)  
(PRECAST CONCRETE NAW PANELS)  
f<sub>y</sub> = 60,000 PSI (REINFORCEMENT)

GRADE 50, F<sub>y</sub> = 50,000 PSI, ASTM A709 (AASHTO M270) -  
STRUCTURAL STEEL POST  
GRADE 36, F<sub>y</sub> = 36,000 PSI, ASTM A709 (AASHTO M270) ALL  
OTHER STEEL (UNLESS NOTED OTHERWISE)  
ALL STEEL SHALL BE HOT - DIP GALVANIZED

DESIGN LOADING

CONCRETE = 150 PCF  
STEEL = 490 PCF  
WIND LOADS = 50PSF (STR III)  
= 15PSF (SERV I)  
VEHICLE IMPACT - 4KIPS APPLIED AT THE HIGHEST POINT UP TO  
14FT ABOVE SURFACE OF PAVEMENT IN FRONT OF BARRIER.

PRECAST PANEL MAX. ALLOWABLE DEFLECTION - L/180

STEEL POST MAX. ALLOWABLE DEFLECTION - H/360

MISCELLANEOUS STEEL  
CONNECTION QUANTITY

DESCRIPTION	WEIGHT
BUILT-UP SHAPE	219 LBS.
BEARING ANGLE (2 ANGLES)	28 LBS.
STEEL BENT PLATE ALLOWANCE (8 PLATES)	29 LBS.
ANCHOR BOLT ASSEMBLY (4 BOLTS)	26 LBS.
TOTAL	302 LBS.
NOISE BLOCKING ASSEMBLY BETWEEN POSTS (2 PLATES)	3.4 PLF
NOISE BLOCKING ASSEMBLY SPLICE (4 PLATES)	7 LBS.



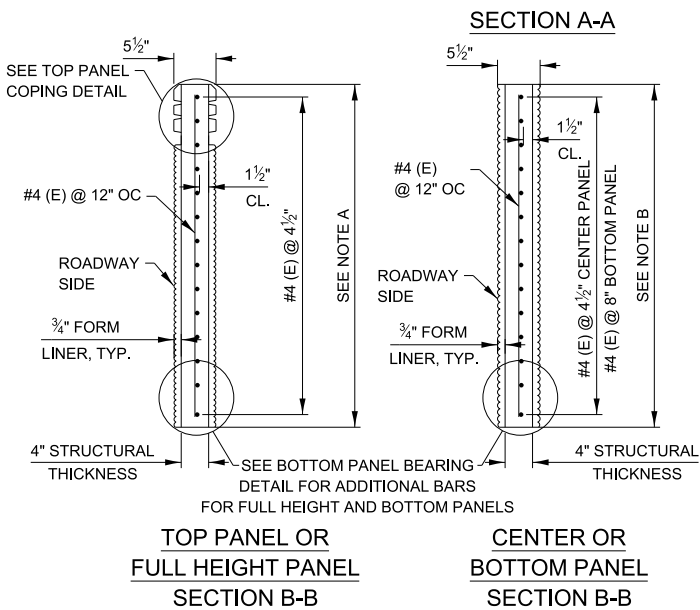
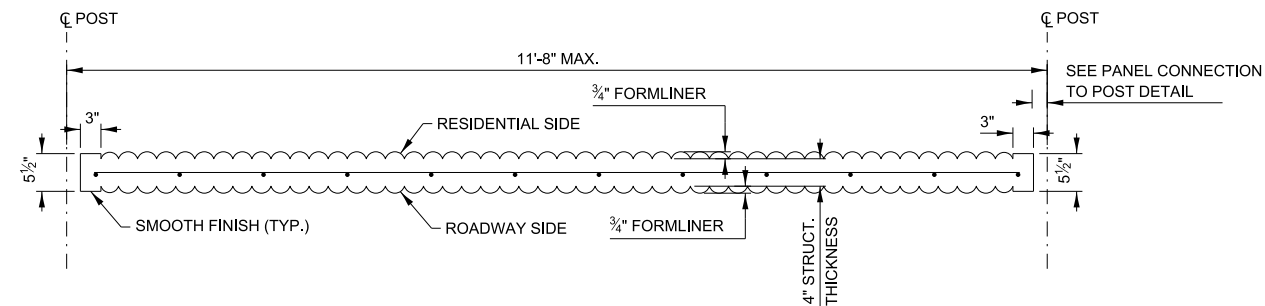
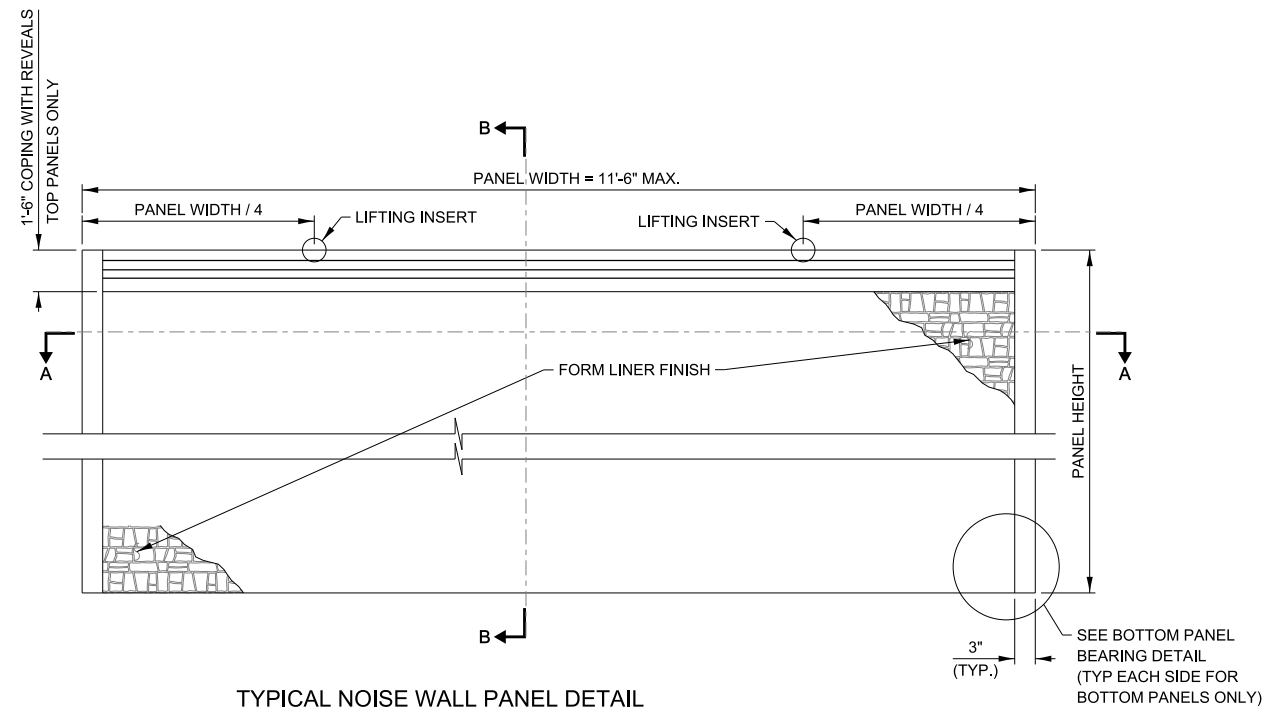
STRUCTURE MOUNTED NOISE  
ABATEMENT WALL DETAILS

REVISIONS	
DATE	DESCRIPTION
03-01-2025	REMOVED BARRIER NOTE 3, UPDATED AASHTO VERSION.
02-23-2023	ADD STEEL PL. SPA. & MIN. NUMBER, REV. BENT PL., STEEL QUANTITIES.
03-01-2022	UPDATE ERECTION ANCHOR CALLOUT CHANGE BENT PLATE TO 1".

VERSION: 2025-03	STANDARD: G12-05	SHEET: 1 OF 2
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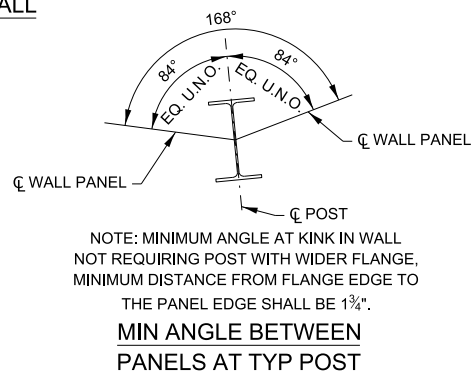
APPROVED BY:  
*Manar Nashif*  
CHIEF ENGINEERING OFFICER

DATE:  
03/01/2025

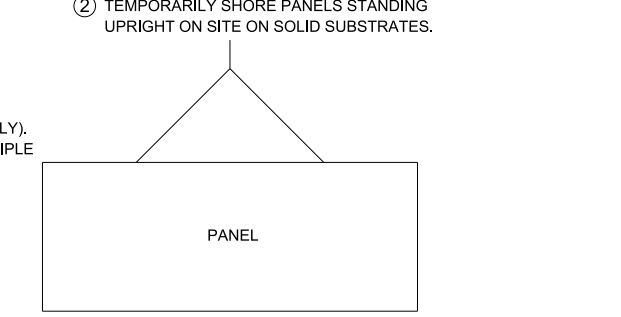
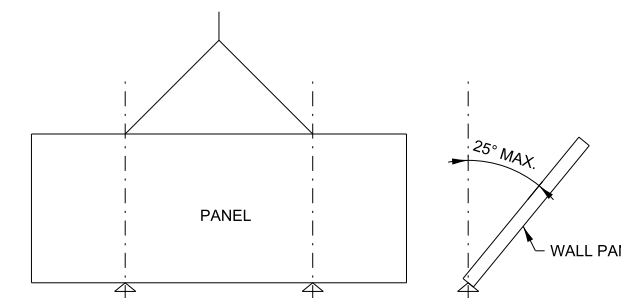
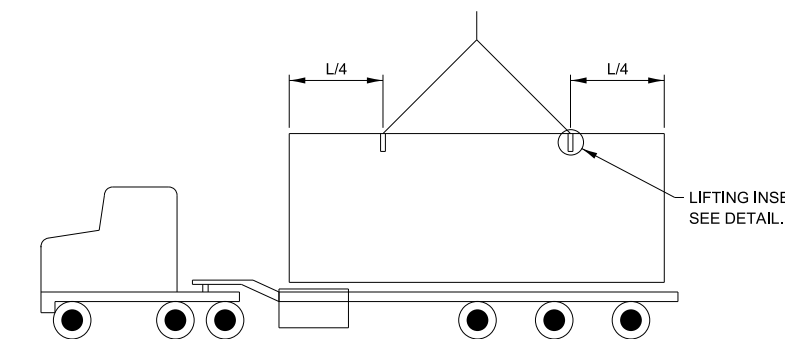
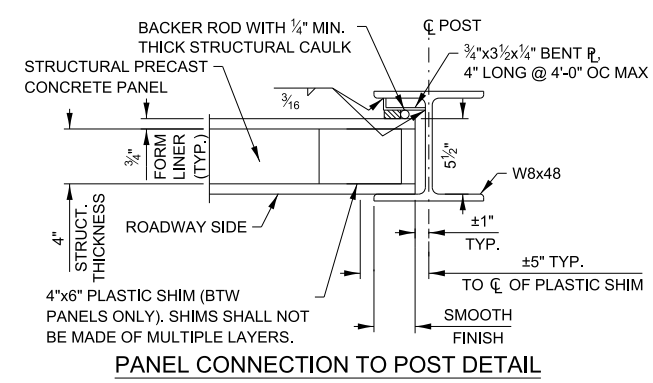
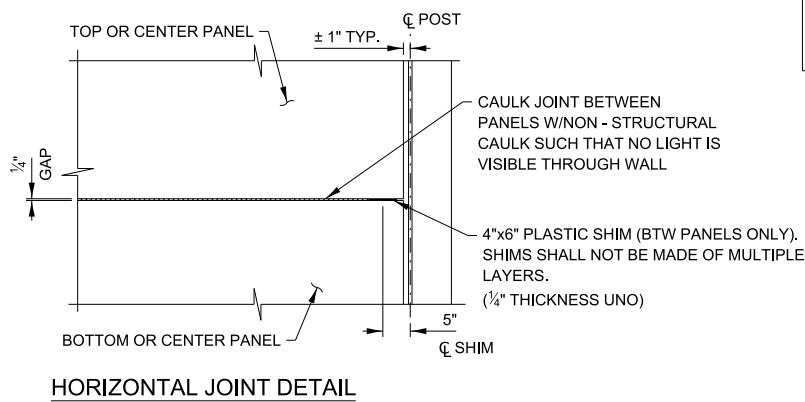
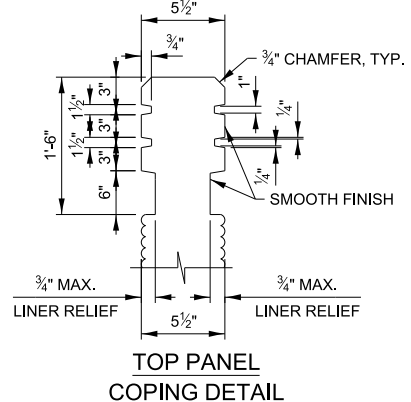
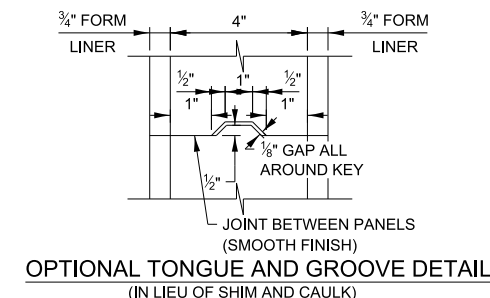
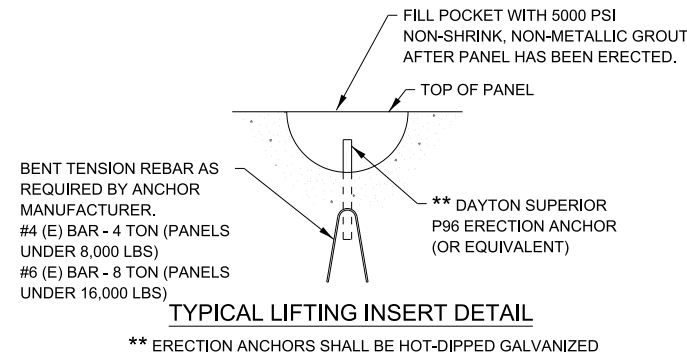
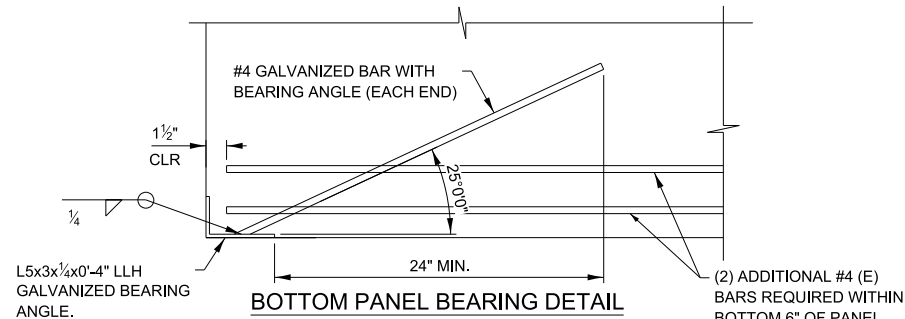


**NOTE A**  
TO ACCOMMODATE VARYING HEIGHT NAW, TOP PANEL HEIGHTS ARE PERMITTED TO BE 4'-0", 5'-0", 6'-0", 7'-0", OR 8'-0". FULL HEIGHT PANELS ARE PERMITTED TO BE 4'-0", 4'-6", 5'-0", 5'-6", 6'-0", 6'-6", 7'-0", 7'-6" OR 8'-0".

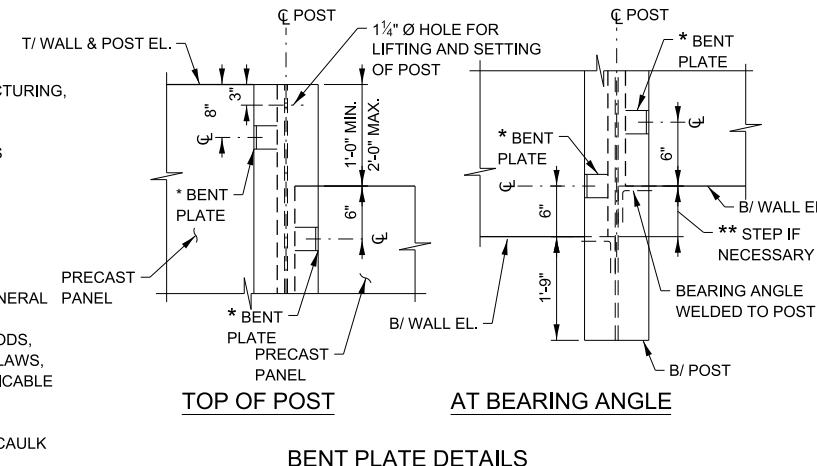
**NOTE B**  
BOTTOM PANEL HEIGHTS ARE PERMITTED TO BE 4'-0" OR 4'-6". CONTRACTOR MAY INCREASE BOTTOM PANEL HEIGHTS AND USE UP TO AN 8FT (NON-STANDARD) MAXIMUM HEIGHT PANEL. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION. CENTER PANEL HEIGHT IS 4'-0".



- NOTES:**
1. STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL-JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS.
  2. BACKER ROD: MILE HIGH FOAM PRODUCT SIZED PER BACKER ROD MANUFACTURING, INC OR EQUIVALENT.
  3. NON - STRUCTURAL CAULK SEALANT: SIKAFLEX 15 LM PER MANUFACTURERS STANDARD OR EQUIVALENT.
  4. SHIMS: VERSA-A-SHIM HIGH IMPACT PLASTIC SHIMS ASTM D792 & ASTM D695
  5. LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1
  6. THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.
  7. THE OPTIONAL TONGUE AND GROOVE DETAIL MAY BE USED IN LIEU OF THE CAULK SHOWN IN THE HORIZONTAL JOINT DETAIL.



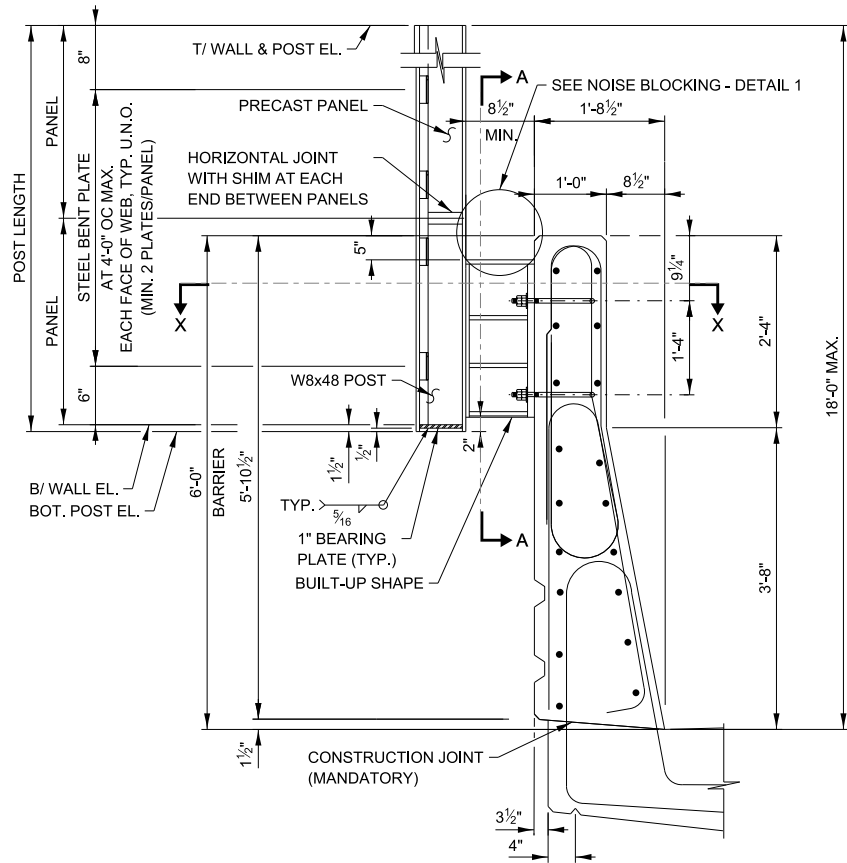
**SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE**



**\* STEEL BENT PLATE AT 4'-0" OC MAX. EACH FACE OF WEB, TYP. U.N.O. (MIN. 2 PLATES/PANEL)**

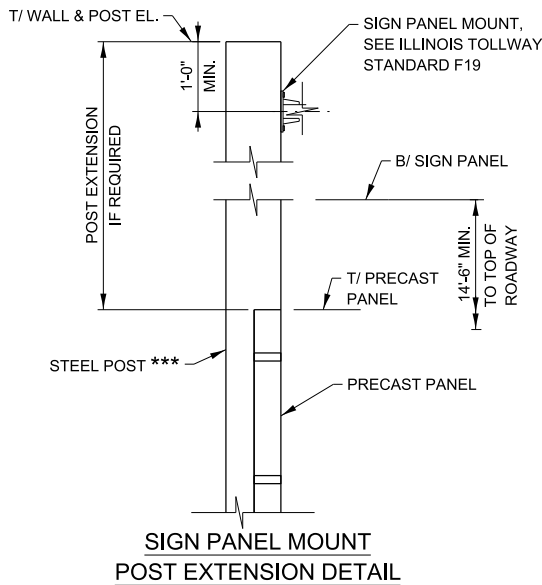
**\*\* MAXIMUM DIMENSION OF BEARING ANGLE BELOW BARRIER IS 6" AND 3" ABOVE THE TOP OF THE BARRIER.**

APPROVED BY: *Manar Nashif* DATE: 03/01/2025  
CHIEF ENGINEERING OFFICER

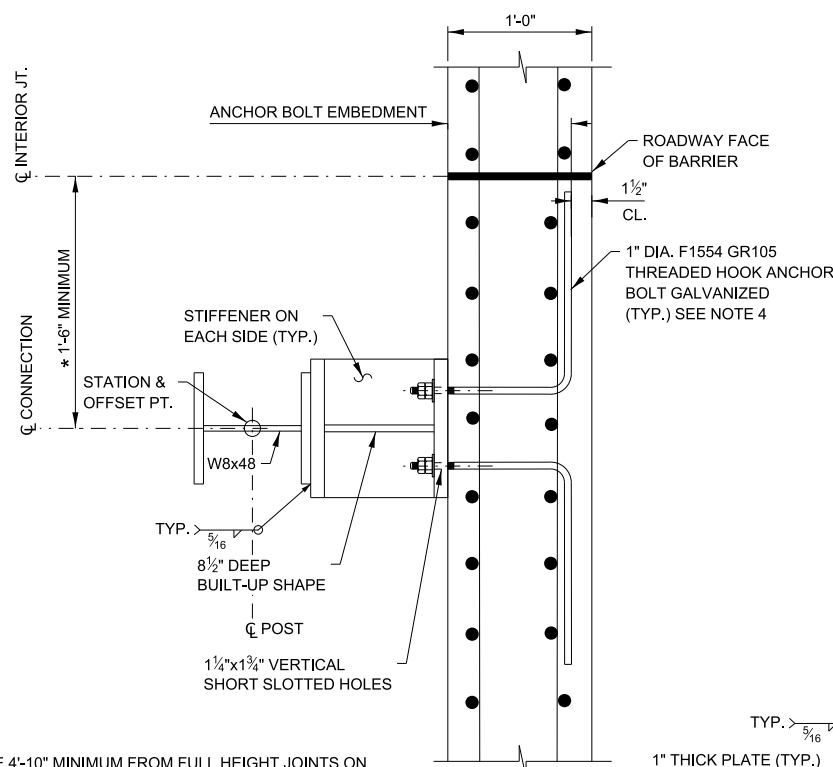


### ILLINOIS TOLLWAY CONSTANT SLOPE BARRIER - DETAILS

- NOTES:**
- STEEL POST MAXIMUM SPACING IS 11'-8".
  - SLIPFORMING OF THE BARRIER IS NOT PERMITTED.
  - REFER TO ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL FOR DECK REINFORCEMENT, JOINT DETAILS AND OTHER MISCELLANEOUS DETAILS NOT DETAILED IN THIS STANDARD.
  - ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE SUPPLIED BY THE FABRICATOR OF AN ADVANCE PROCUREMENT CONTRACT FOR THE STRUCTURAL STEEL POSTS. BENT ANCHOR BOLTS SHALL BE INSTALLED WITH ILLINOIS TOLLWAY CONSTANT SLOPE BARRIER. SEE SPECIAL PROVISION FOR FURNISHING NOISE ABATEMENT WALL STRUCTURAL STEEL.
  - MINIMUM DISTANCE BETWEEN CENTERLINE OF POST AND CENTERLINE OF LIGHT POLE IS 4'-7" DESIRABLE AND 3'-7" MINIMUM.

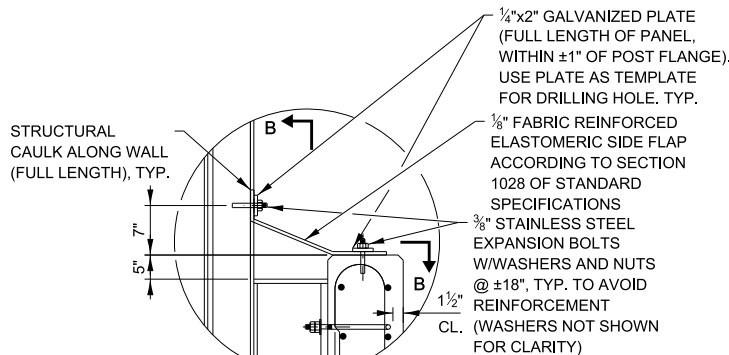


\*\*\* STEEL POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A 17'-7 1/2" POST WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19

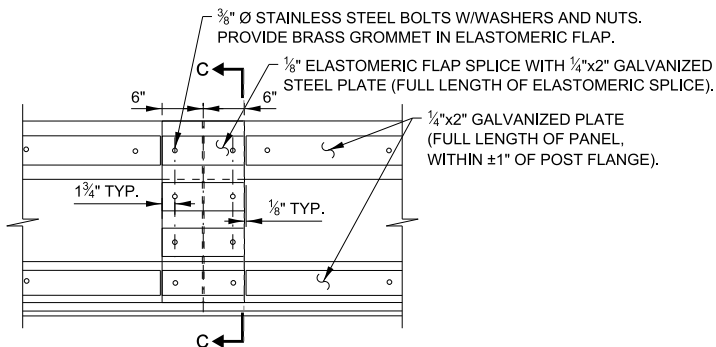


- \* USE 4'-10" MINIMUM FROM FULL HEIGHT JOINTS ON BRIDGES, OTHERWISE USE 1'-10" MINIMUM FOR END POSTS AND POSTS LOCATED ON APPROACH SLABS OR MOMENT SLABS.

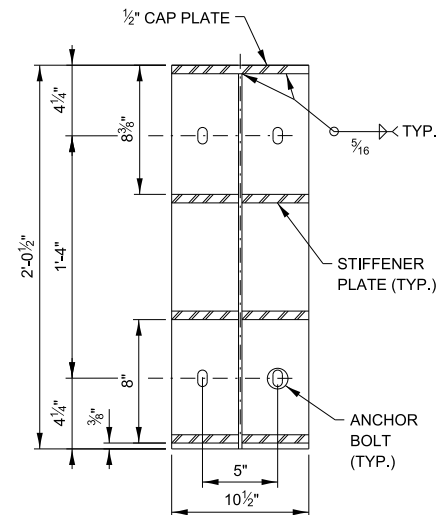
### SECTION X-X



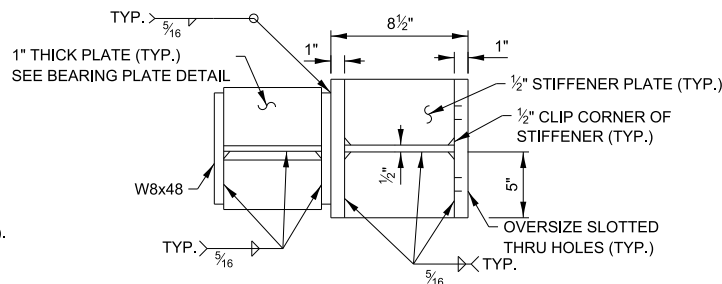
### DETAIL 1 NOISE BLOCKING ASSEMBLY



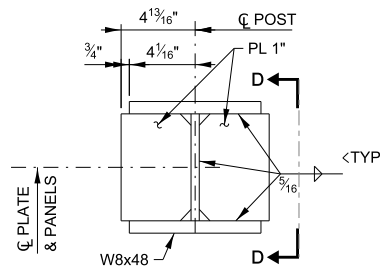
### VIEW B-B AT ASSEMBLY SPLICE



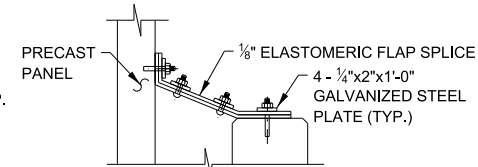
### SECTION A-A



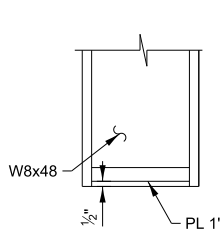
### BUILT UP SHAPE



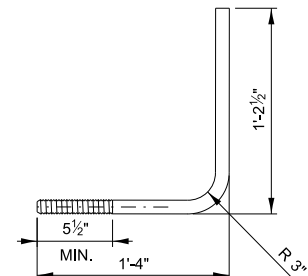
### BEARING PLATE DETAIL



### SECTION C-C



### VIEW D-D



### BENT ANCHOR BOLT

### GENERAL NOTES

- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
- REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
- REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
- REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
- REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
- CONSTRUCTION CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.

### DESIGN SPECIFICATIONS

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION DATED SEPTEMBER 2017.

### DESIGN STRESSES

$f_c = 4,000$  PSI (CLASS BS). (BARRIERS)

$f_c = 5,000$  PSI AT 28 DAYS (CLASS PC)

(PRECAST CONCRETE NAW PANELS)

$f_y = 60,000$  PSI (REINFORCEMENT)

GRADE 50,  $F_y = 50,000$  PSI, ASTM A709 (AASHTO M270) - STRUCTURAL STEEL POST

GRADE 36,  $F_y = 36,000$  PSI, ASTM A709 (AASHTO M270) ALL OTHER STEEL (UNLESS NOTED OTHERWISE)

ALL STEEL SHALL BE HOT - DIP GALVANIZED

### DESIGN LOADING

CONCRETE = 150 PCF

STEEL = 490 PCF

WIND LOADS = 50PSF (STR III)

= 15PSF (SERV I)

VEHICLE IMPACT - 4KIPS APPLIED AT THE HIGHEST POINT UP TO 14FT ABOVE SURFACE OF PAVEMENT IN FRONT OF BARRIER.

PRECAST PANEL MAX. ALLOWABLE DEFLECTION - L/180

STEEL POST MAX. ALLOWABLE DEFLECTION - H/360

### MISCELLANEOUS STEEL CONNECTION QUANTITY

DESCRIPTION	WEIGHT
BUILT-UP SHAPE	205 LBS.
BEARING PLATE (2 PIECES)	19 LBS.
STEEL BENT PLATE ALLOWANCE (8 PIECES)	29 LBS.
ANCHOR BOLT ASSEMBLY (4 BOLTS)	27 LBS.
TOTAL	280 LBS.
NOISE BLOCKING ASSEMBLY BETWEEN POSTS (2 PLATES)	3.4 PLF
NOISE BLOCKING ASSEMBLY SPLICE (4 PLATES)	7 LBS.

REVISIONS	
DATE	DESCRIPTION
02-23-2023	REV. DIM. TO BENT PL., BENT PL. SIZE, CONN. QUANTITIES & UPDATE LIFTING INSERT DETAIL NOTES
03-01-2022	UPDATE ERECTION ANCHOR CALLOUT CHANGE BENT PLATE TO 1" AND CLARIFY NOISE BLOCKING PL. LENGTH

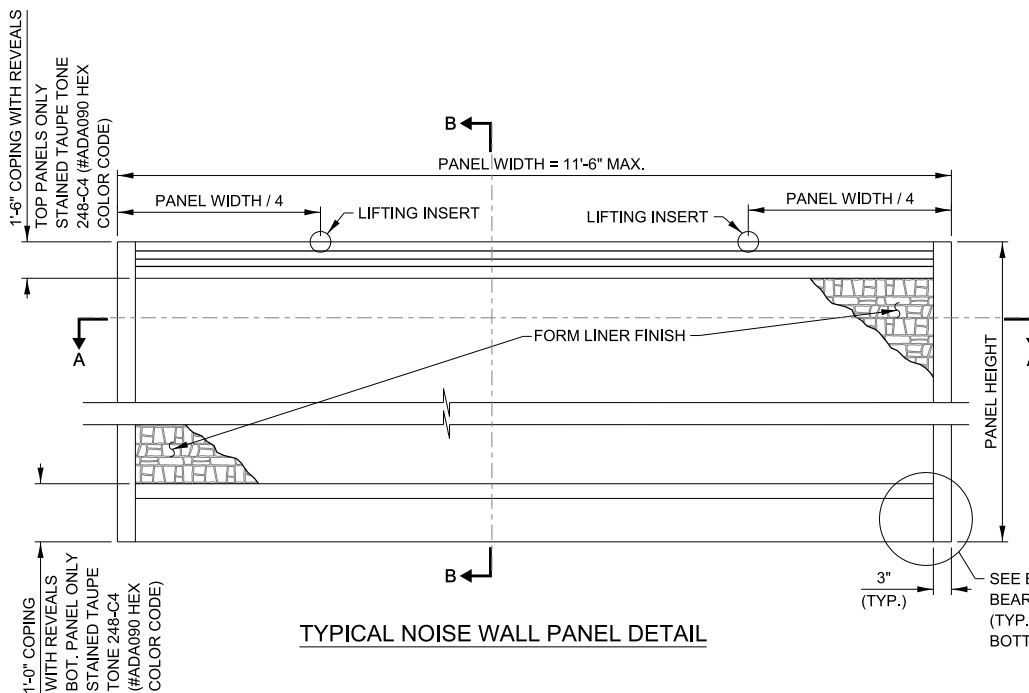


**CENTRAL TRI-STATE  
STRUCTURE MOUNTED NOISE  
ABATEMENT WALL DETAILS**

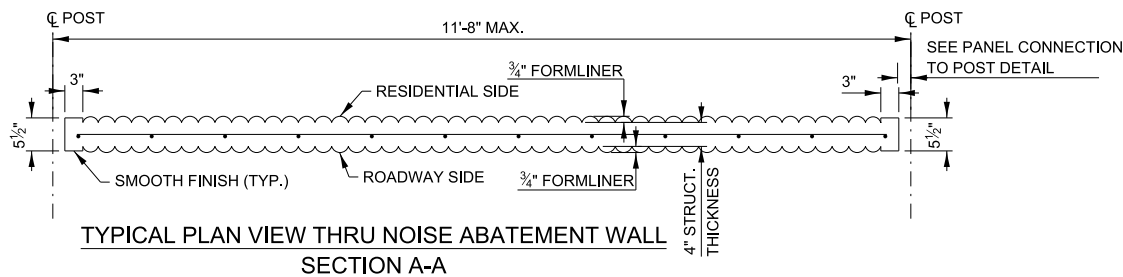
VERSION: 2023-03	STANDARD: G13-04	SHEET: 1 OF 2
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APPROVED BY: *Manar Nashif*  
CHIEF ENGINEERING OFFICER  
DATE: 02/23/2023

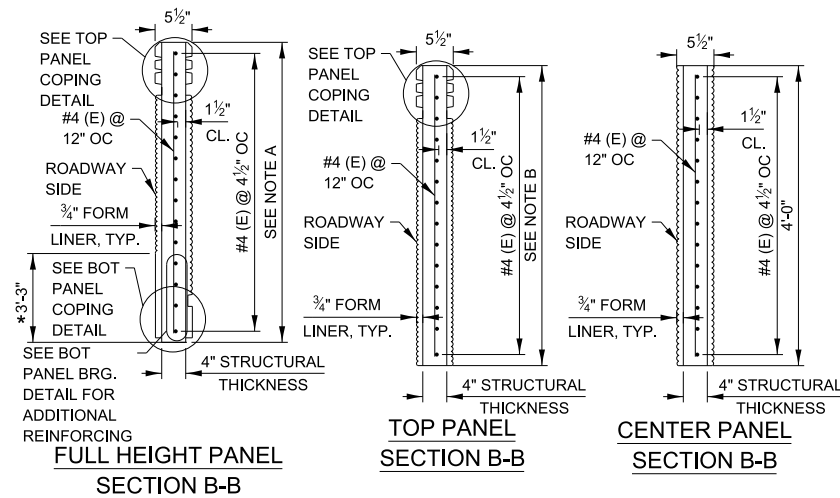




TYPICAL NOISE WALL PANEL DETAIL



SECTION A-A



TOP PANEL SECTION B-B

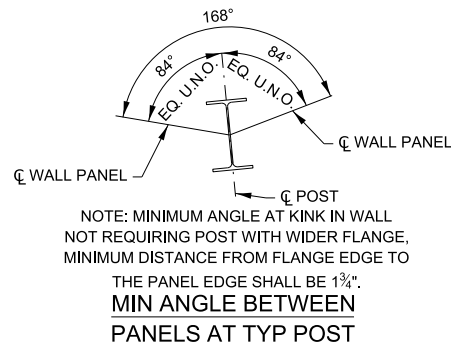
CENTER PANEL SECTION B-B

BOTTOM PANEL SECTION B-B

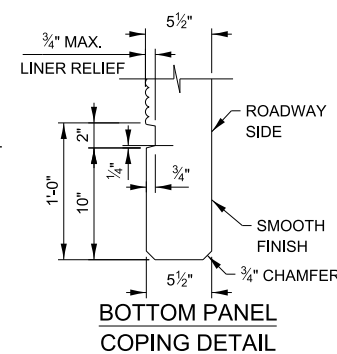
NOTE A  
TO ACCOMMODATE VARYING HEIGHT NAW WITHIN ONE PANEL WITH TOP AND BOTTOM COPING, FULL HEIGHT PANEL IS PERMITTED TO BE 4'-0", 4'-6", 5'-0", 5'-6", 6'-0", 6'-6", 7'-0", 7'-6", OR 8'-0" TALL

NOTE B  
TO ACCOMMODATE VARYING HEIGHT NAW, TOP PANEL WITH ONLY TOP COPING IS PERMITTED TO BE 4'-0", 5'-0", 6'-0", 7'-0" OR 8'-0" TALL

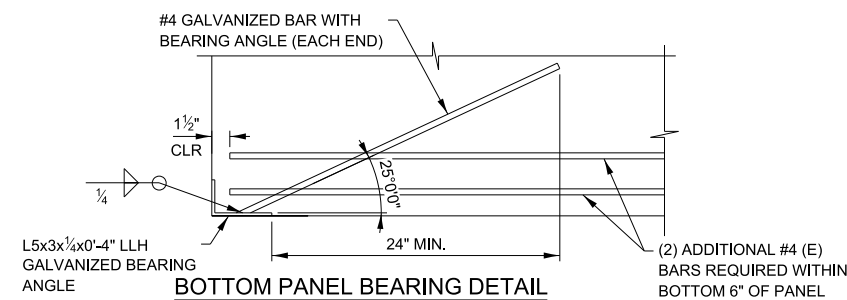
NOTE C  
TO ACCOMMODATE BOTTOM STEPS IN PANEL, BOTTOM PANEL IS PERMITTED TO BE 4'-0" OR 4'-6" TALL. CONTRACTOR MAY INCREASE BOTTOM PANEL HEIGHTS AND USE UP TO AN 8FT (NON-STANDARD) MAXIMUM HEIGHT PANEL. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.



NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE, MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1 3/4".  
MIN ANGLE BETWEEN PANELS AT TYP POST



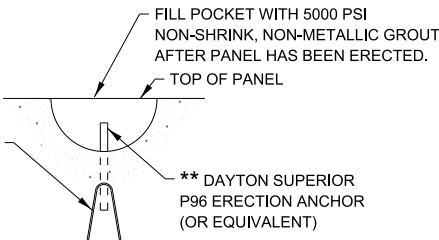
BOTTOM PANEL COPING DETAIL



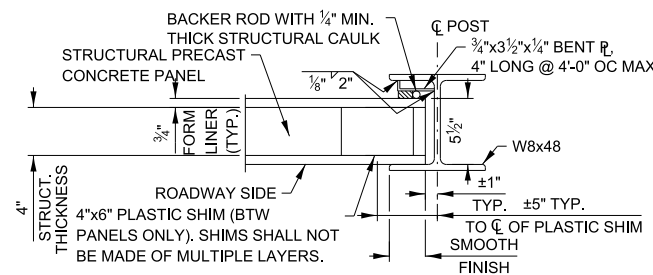
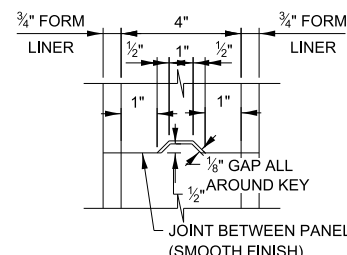
BOTTOM PANEL BEARING DETAIL

BENT TENSION REBAR AS REQUIRED BY ANCHOR MANUFACTURER.  
#4 (E) BAR - 4 TON (PANELS UNDER 8,000 LBS)  
#6 (E) BAR - 8 TON (PANELS UNDER 16,000 LBS)

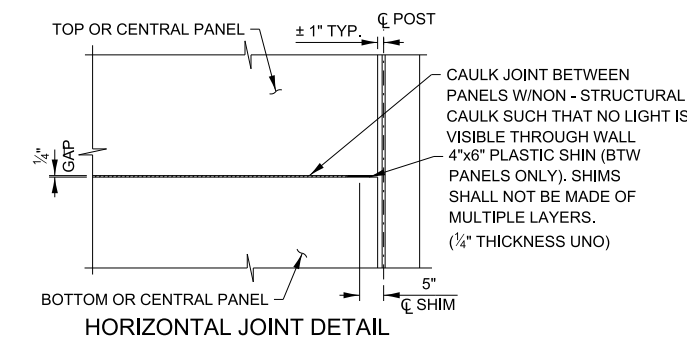
TYPICAL LIFTING INSERT DETAIL  
\*\* ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED



OPTIONAL TONGUE AND GROOVE DETAIL  
(IN LIEU OF SHIM AND CAULK)

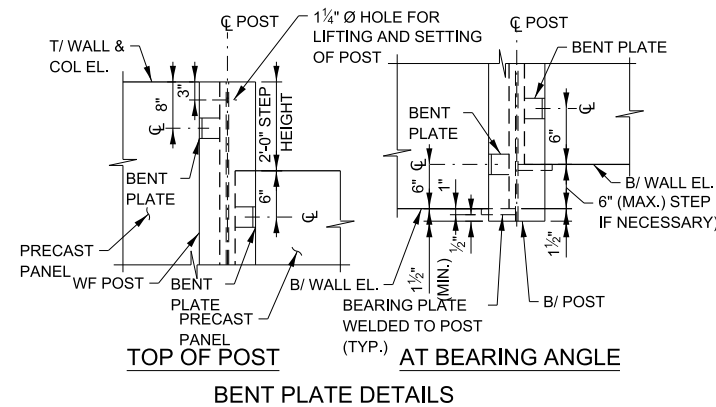


PANEL CONNECTION TO POST DETAIL

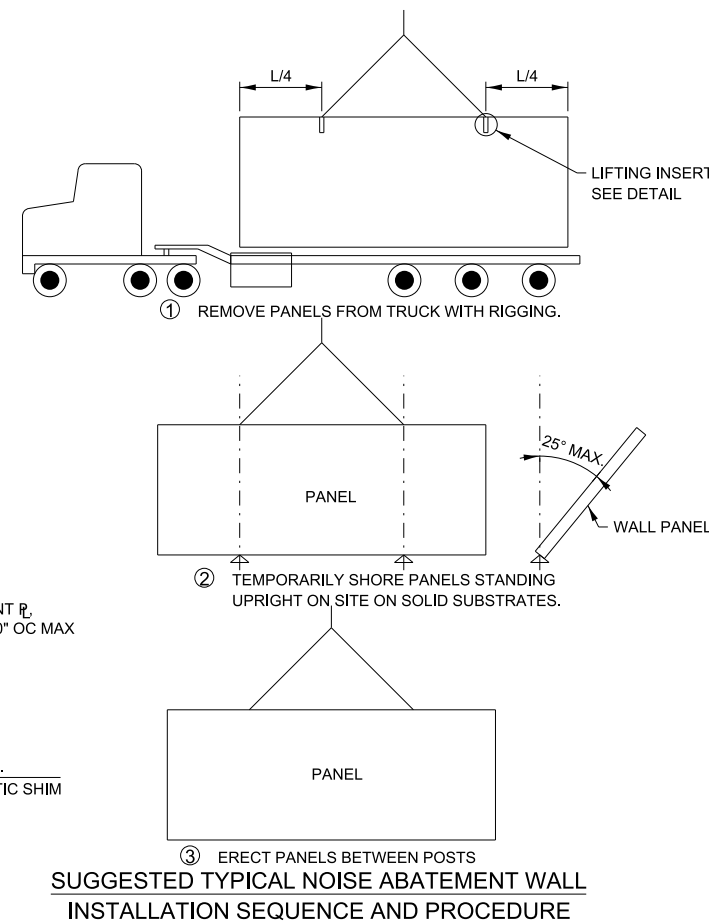


HORIZONTAL JOINT DETAIL

- NOTES:
- STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS.
  - BACKER ROD: MILE HIGH FOAM PRODUCT SIZED PER BACKER ROD MANUFACTURING, INC OR EQUIVALENT.
  - NON - STRUCTURAL CAULK SEALANT: SIKAFLEX 15 LM PER MANUFACTURER'S STANDARD OR EQUIVALENT.
  - SHIMS: VERSA-A-SHIM HIGH IMPACT PLASTIC SHIMS ASTM D792 & ASTM D695
  - LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1
  - THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.
  - THE OPTIONAL TONGUE AND GROOVE DETAIL MAY BE USED IN LIEU OF THE CAULK SHOWN IN THE HORIZONTAL JOINT DETAIL.



BENT PLATE DETAILS



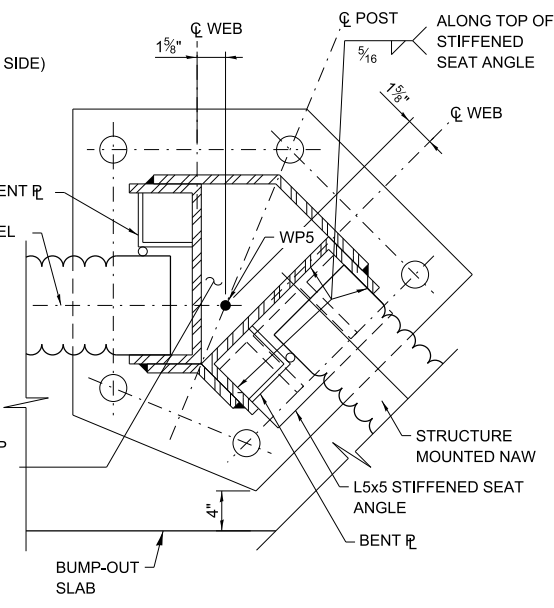
SUGGESTED TYPICAL NOISE ABATEMENT WALL  
INSTALLATION SEQUENCE AND PROCEDURE

APPROVED BY: *Manar Nashif* DATE: 02/23/2023  
CHIEF ENGINEERING OFFICER



\* TYPICAL POST SHOWN, OTHERS SIMILAR

Diagram illustrating the stiffened seat angle construction. The diagram shows a cross-section of the angle with dimensions: 4" (width of the stiffener), 2" (width of the seat angle), and 4" (width of the stiffener). The stiffener is labeled "PAIR 3/8\" x 3\" x 3\" STIFFENER PL'S". The seat angle is labeled "L5x5x3/4 STIFFENED SEAT ANGLE". The stiffener is attached to the seat angle with a 1/4" gap.

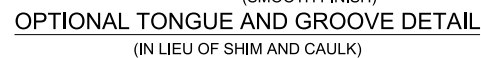


VERSION: 2023-03	STANDARD: G14-04	SHEET: 1 OF 2
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DATE: 03/01/2023



1. LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1
2. THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION FOR THE NAW FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.



MISCELLANEOUS STEEL QUANTITY			
W POST		BUILT-UP POST	
DESCRIPTION	WEIGHT	DESCRIPTION	WEIGHT
BASE PLATE	71 LBS.	BASE PLATE	95 LBS.
BENT PLATE ALLOWANCE (16 PIECES)	44 LBS.	TOP CAP PLATE	7 LBS.
ANCHOR BOLT ASSEMBLY (4 EACH)	32 LBS.	BENT PLATE ALLOWANCE (16 PIECES)	44 LBS.
		ANCHOR BOLT ASSEMBLY (5 EACH)	39 LBS.
		STRUCTURE MOUNTED CONNECTION	21 LBS.
TOTAL	147 LBS.	TOTAL	206 LBS.



### CENTRAL TRI-STATE BUMP- OUT MOUNTED NOISE ABATEMENT WALL DETAILS

VERSION:	STANDARD:	SHEET:
2023-03	G14-04	2 OF 2

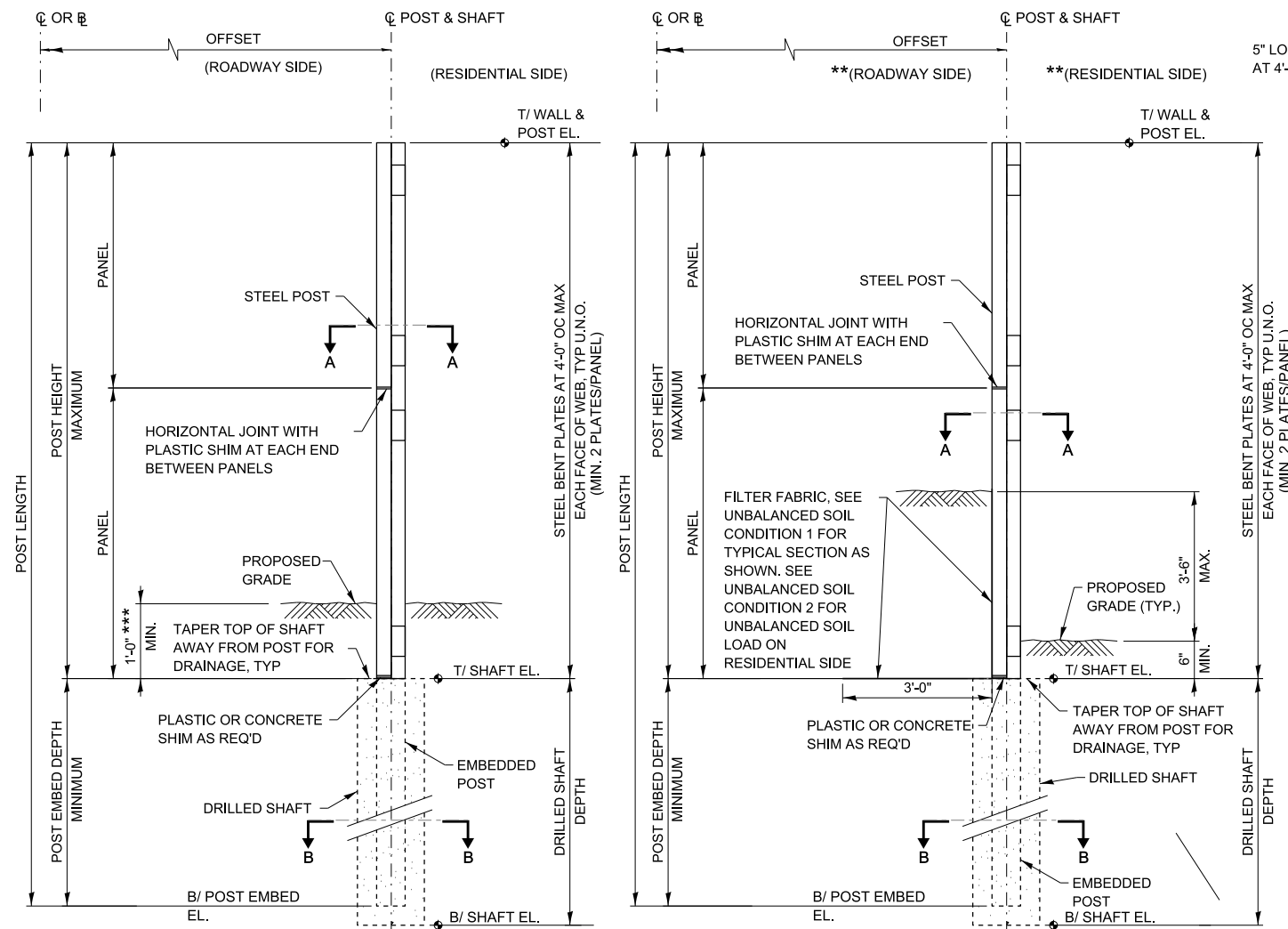
APPROVED BY:

*Mamun Rashid*

CHIEF ENGINEERING OFFICER

03/01/2023





TYPICAL CROSS SECTION

(BALANCED SOIL LOAD)

\*\*\* BALANCED SOIL CONDITION CAN ACCOMMODATE UP TO A 9" UNBALANCED SOIL LOAD

\* UNBALANCED SOIL LOAD VARIES 9" (MIN.) AND 3'-6" (MAX.) WHEN NAW IS PLACED OUTSIDE CLEAR ZONE. FOR NAW'S WITHIN CLEAR ZONE ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL AND TRAFFIC BARRIER GUIDELINES FOR TEST LEVEL AND DROP OFF REQUIREMENTS SHALL APPLY.

POST & DRILLED SHAFT DESIGN FOR COHESIVE SOILS

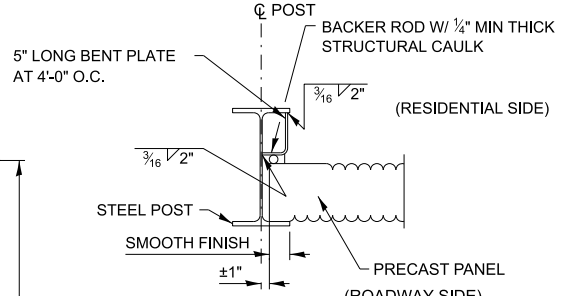
NAW TYPE	MAX POST HEIGHT	MIN POST EMBED DEPTH	MAX DRILLED SHAFT SPACING	DRILLED SHAFT DEPTH	STEEL POST SIZE	Y	BENT PLATE M x N1 x THICK.	N2	Z	DIA	A	B
NON-CRASHWORTHY GROUND MOUNTED I	15'-0"	10'-0"	20'-0"	12'-0"	W18X35 ^	3 15/16"	7"x2 5/8"x3/8"	3 1/2"	5 5/8"	2'-6"	90°00'00"	180°00'00"
NON-CRASHWORTHY GROUND MOUNTED II	20'-0"	13'-0"	20'-0"	16'-0"	W21X50 ^	5 3/8"	10"x2 3/4"x3/8"	3 3/8"	4 1/8"	2'-6"	86°01'13"	172°02'26"
NON-CRASHWORTHY GROUND MOUNTED III	25'-0"	12'-6"	20'-0"	15'-0"	W21X68	5 3/8"	10"x3 1/2"x3/8"	3 1/2"	6 5/8"	3'-0"	86°25'00"	172°50'00"
NON-CRASHWORTHY GROUND MOUNTED IV	28'-0"	13'-6"	20'-0"	15'-6"	W21X83	5 3/8"	10"x3 1/2"x3/8"	3 1/2"	9 1/2"	3'-6"	86°49'09"	173°38'18"

^ USE W18x65 FOR NON-CRASHWORTHY GROUND MOUNTED I AND W21X68 FOR NON-CRASHWORTHY GROUND MOUNTED II WHEN SIGN PANEL MOUNT POST EXTENSION IS USED TO ACCOMMODATE A SIGN PANEL ATTACHED TO POST

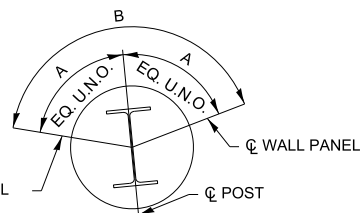
POST & DRILLED SHAFT DESIGN FOR COHESIONLESS SOILS

NAW TYPE	MAX POST HEIGHT	MIN POST EMBED DEPTH			MAX DRILLED SHAFT SPACING	DRILLED SHAFT DEPTH			STEEL POST SIZE	Y	BENT PLATE M x N1 x THICK.	N2	Z	DIA	A	B
		PHI=30°-34°	PHI=35°-39°	PHI=40°+		PHI=30°-34°	PHI=35°-39°	PHI=40°+								
NON-CRASHWORTHY GROUND MOUNTED I	15'-0"	12'-6"	11'-6"	10'-0"	20'-0"	14'-6"	12'-6"	11'-6"	W21X44^A	5 3/8"	10"x2 3/8"x3/8"	3 1/8"	4 1/8"	2'-6"	90°00'00"	180°00'00"
NON-CRASHWORTHY GROUND MOUNTED II	20'-0"	13'-6"	12'-0"	11'-0"	20'-0"	16'-0"	14'-0"	12'-6"	W24X55^A	6 13/16"	12 3/4"x2 7/8"x3/8"	3 3/8"	2 11/16"	2'-6"	86°12'14"	172°24'28"
NON-CRASHWORTHY GROUND MOUNTED III	25'-0"	14'-0"	12'-6"	11'-6"	20'-0"	17'-6"	15'-0"	13'-6"	W27X84	8 13/16"	15 1/2"x4 3/8"x3/8"	4 3/8"	3 3/4"	3'-0"	86°37'46"	173°15'22"
NON-CRASHWORTHY GROUND MOUNTED IV	28'-0"	14'-0"	12'-6"	11'-6"	20'-0"	17'-0"	15'-0"	13'-6"	W30X90	9 3/8"	18 1/2"x4 5/8"x3/8"	4 5/8"	5 3/8"	3'-6"	85°33'22"	171°06'44"

^A USE W21x68 FOR NON-CRASHWORTHY GROUND MOUNTED I AND W24X76 FOR NON-CRASHWORTHY GROUND MOUNTED II WHEN SIGN PANEL MOUNT POST EXTENSION IS USED TO ACCOMMODATE A SIGN PANEL ATTACHED TO POST

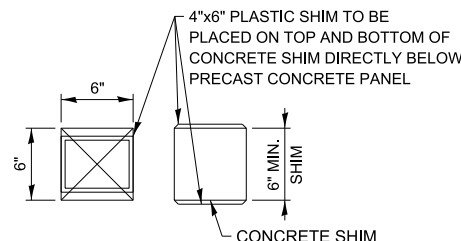


PANEL TO POST CONNECTION DETAIL



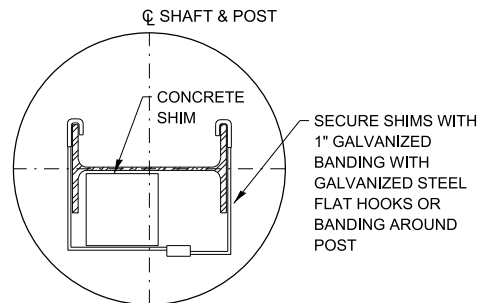
NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE, MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1 1/4".

MIN ANGLE BETWEEN PANELS AT TYP POST

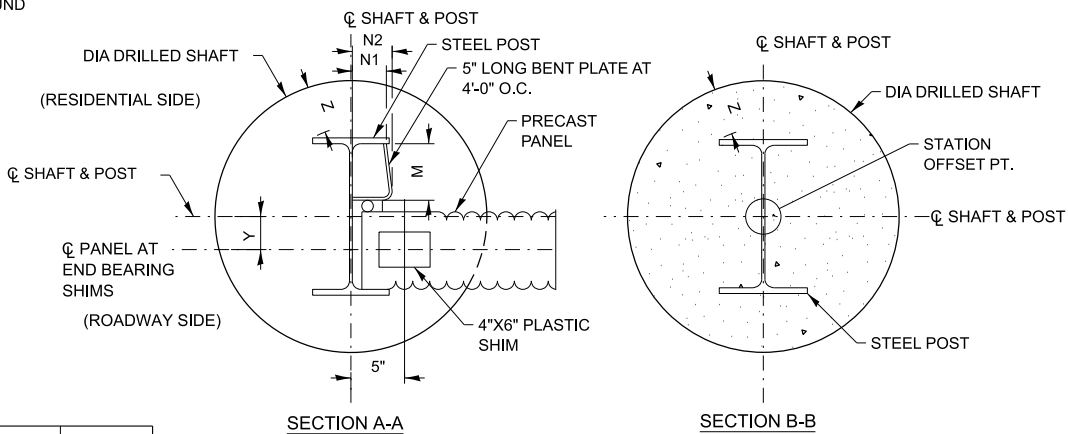


CONCRETE SHIM DETAIL 1

SHIMS TO BE SECURED TO THE POST, SEE DETAIL 2.



SHIM TO POST CONNECTION DETAIL 2



GENERAL NOTES:

- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/8" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
- REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
- REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
- REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
- REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
- CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
- END POSTS SHALL HAVE NO BENT PLATES ON EXPOSED SIDE.
- THE FOUNDATION DETAILS SHOWN ARE SOIL DEPENDENT. THE FOUNDATION DETAILS FOR COHESIVE SOILS ARE BASED ON THE PRESENCE OF MOSTLY COMMON COHESIVE SOIL CONDITIONS (SILTY OR SANDY CLAY), WITH AN AVERAGE UNCONFINED COMPRESSIVE STRENGTH (QU) > 1.25 TONS/SQ. FT. WHICH SHALL BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE JOB SITE. THE FOUNDATION DETAILS FOR COHESIONLESS SOILS ARE BASED ON THE PRESENCE OF MOSTLY COHESIONLESS CLEAN SANDS, WITH FINES CONTENT LESS THAN 12% AND AN AVERAGE FRICTION ANGLE (PHI) GREATER THAN 30 DEGREES, WHICH SHALL BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE JOBSITE. THE IDOT GEOTECHNICAL MANUAL SHALL BE USED TO CORRELATE AVERAGE STANDARD PENETRATION RESISTANCE "N - VALUES"(BLOW COUNTS PER FOOT) TO FRICTION ANGLES (PHI), TAKING INTO ACCOUNT FIELD CORRECTIONS. IF CONDITIONS ENCOUNTERED IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE IF THE FOUNDATION DIMENSIONS NEED TO BE MODIFIED.

DESIGN SPECIFICATIONS

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION DATED APRIL 2020.

ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL, LATEST EDITION

ILLINOIS TOLLWAY GEOTECHNICAL MANUAL, LATEST EDITION

DESIGN LOADS

GROUND MOUNTED  
WIND LOAD =35 PSF (STR. III)  
=15 PSF (SERV I)

RETAINED EARTH:  
SOIL HORIZONTAL LOAD = 120PCF

DEFLECTION:  
PANEL = L/240  
POST = H/360

DESIGN STRESSES

PRECAST CONCRETE (GROUND MOUNTED NAW):

f<sub>c</sub> = 5,000 PSI AT 28 DAYS (CLASS PC)

f<sub>c</sub> = 3,500 PSI AT 5 DAYS (SHIPPING)

DENSITY = 150 PCF

FOUNDATION CONCRETE CLASS SI:

f<sub>c</sub> = 3,500 PSI AT 14 DAYS PER SECTION 1020 OF IDOT STANDARD SPECIFICATIONS.

STEEL POSTS:

ASTM A709 (AASHTO M270)

GRADE 50, f<sub>y</sub> = 50 KSI

ALL STEEL POSTS SHALL BE HOT - DIP GALVANIZED

BENT PLATE AND BEARING ANGLES:

ASTM A709 (AASHTO M270)

GRADE 36, f<sub>y</sub> = 36 KSI U.N.O.

ALL STEEL SHALL BE HOT - DIP GALVANIZED

REINFORCING STEEL:

f<sub>y</sub> = 60,000 PSI (EPOXY COATED)

APPROVED BY:   
CHIEF ENGINEERING OFFICER  
DATE: 02/23/2023

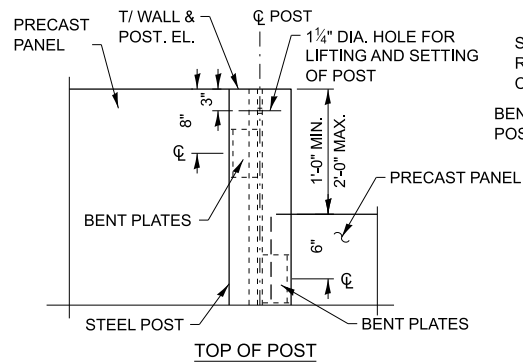
REVISIONS	
DATE	DESCRIPTION
02-23-2023	REV. LIFTING INSERT NOTES, DIM, GAP IN 90 DEG. TURN DETAIL & INC. SMOOTH DIM. ON BACK FACE TO MATCH ALL PANELS
03-01-2022	UPDATE ERECTION ANCHOR CALLOUT



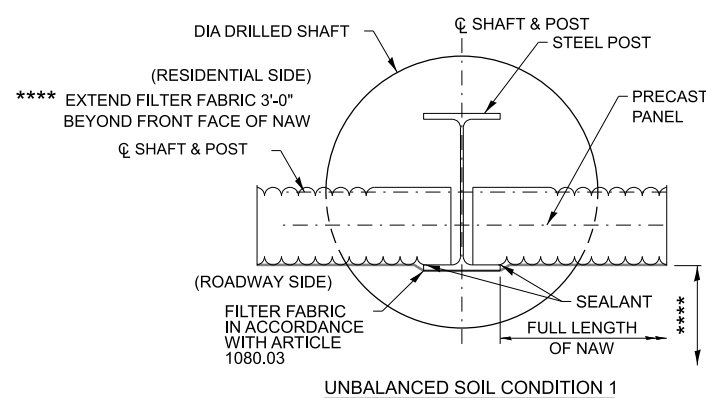
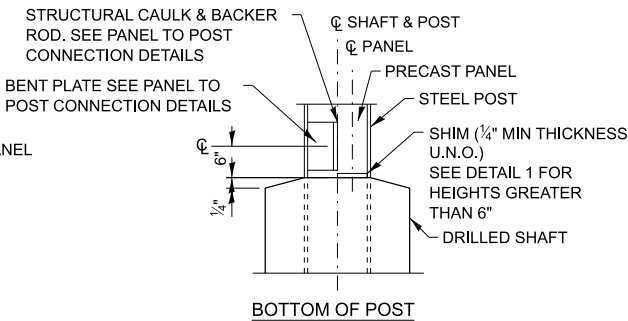
NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

VERSION: 2023-03  
STANDARD: G15-04  
SHEET: 1 OF 3

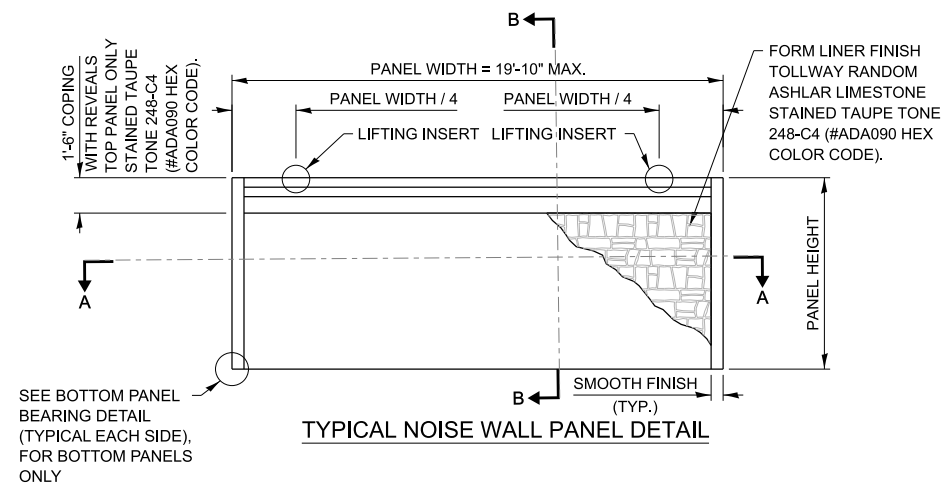
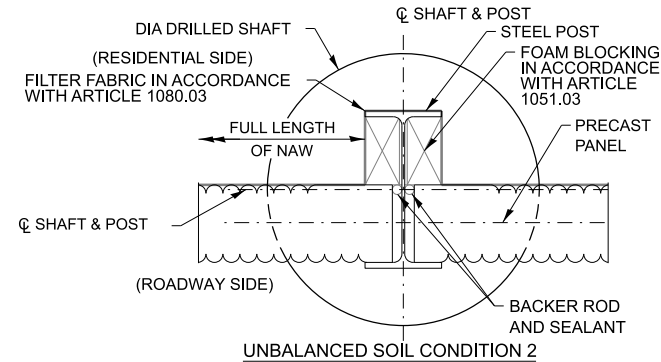




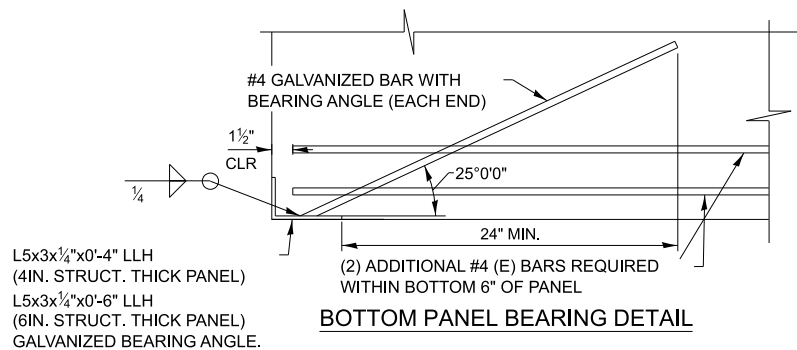
**BENT PLATE DETAILS**



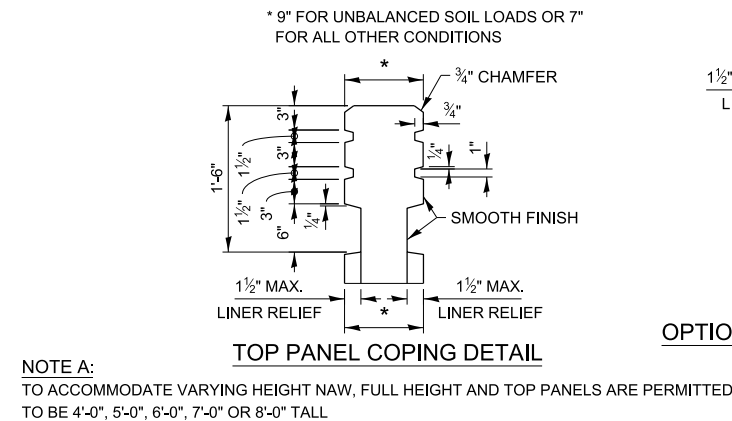
**UNBALANCED SOIL CONDITION 1**



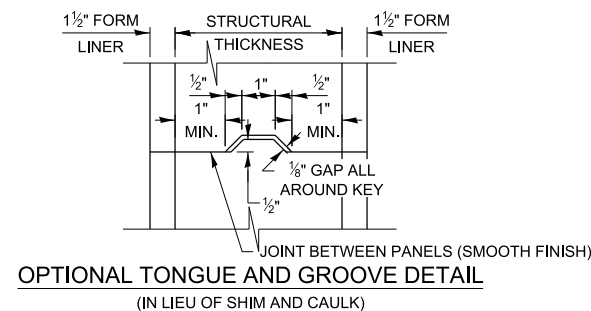
**TYPICAL NOISE WALL PANEL DETAIL**



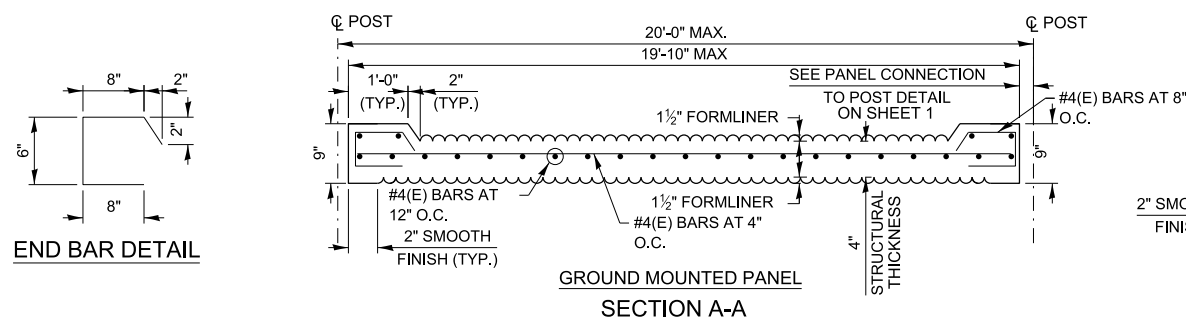
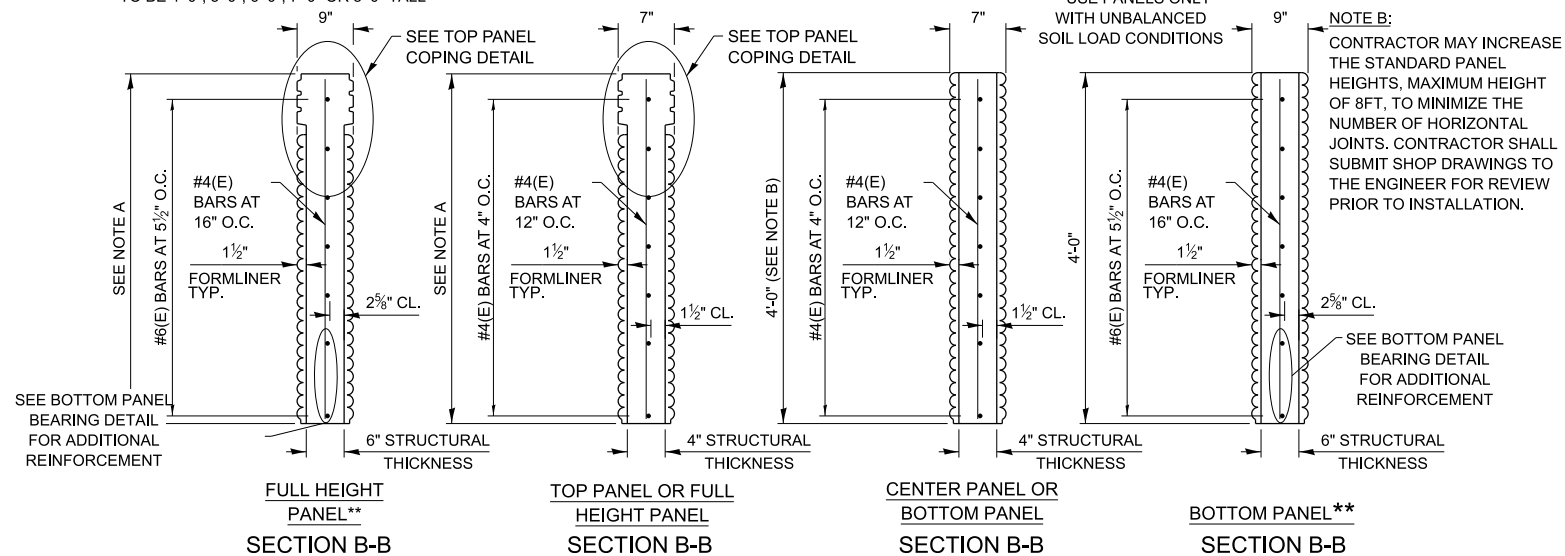
**BOTTOM PANEL BEARING DETAIL**



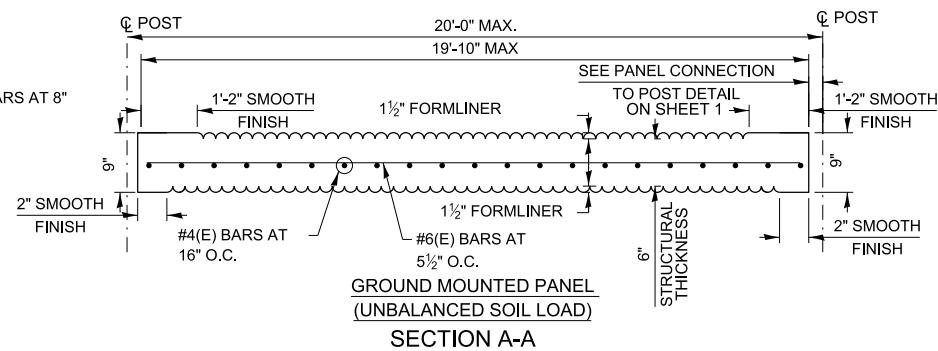
**NOTE A:**  
TO ACCOMMODATE VARYING HEIGHT NAW, FULL HEIGHT AND TOP PANELS ARE PERMITTED TO BE 4'-0", 5'-0", 6'-0", 7'-0" OR 8'-0" TALL



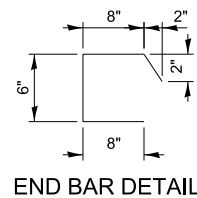
**OPTIONAL TONGUE AND GROOVE DETAIL**  
(IN LIEU OF SHIM AND CAULK)



**SECTION A-A**



**SECTION A-A**



**END BAR DETAIL**

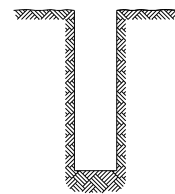
APPROVED BY:  
*Manar Nashif*  
CHIEF ENGINEERING OFFICER

DATE:  
02/23/2023

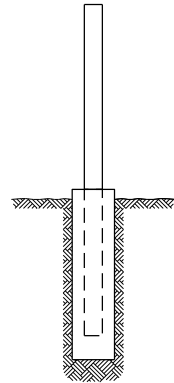


**NON-CRASHWORTHY  
GROUND MOUNTED NOISE  
ABATEMENT WALL DETAILS**

VERSION: 2023-03 STANDARD: G15-04 SHEET: 2 OF 3

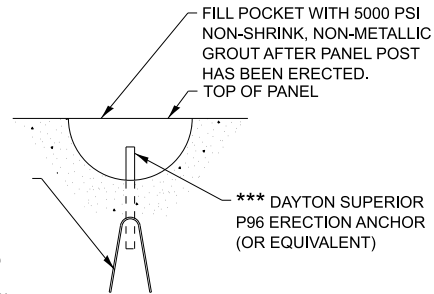


① DRILL SHAFTS



② POUR CONCRETE AND SET EMBEDDED POSTS

BENT TENSION REBAR  
AS REQUIRED BY ANCHOR  
MANUFACTURER.  
#4 (E) BAR - 4 TON  
(PANELS UNDER 8,000 LBS)  
#6 (E) BAR - 8 TON  
(PANELS UNDER 16,000 LBS)

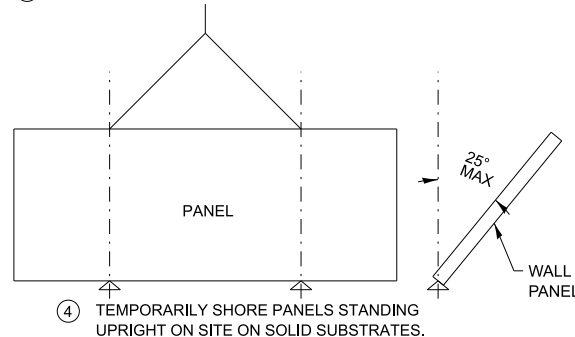
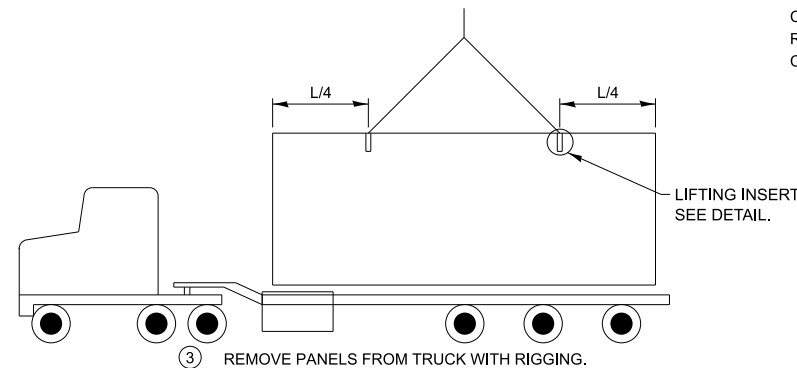


#### TYPICAL LIFTING INSERT DETAIL

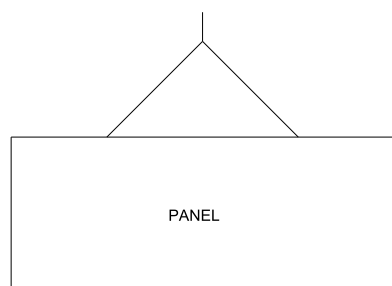
\*\*\* ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

#### NOTES:

- LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1
- THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.

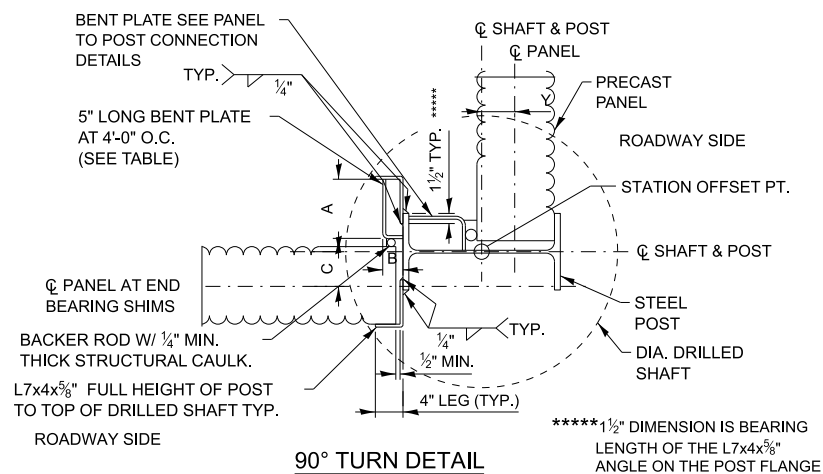


④ TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

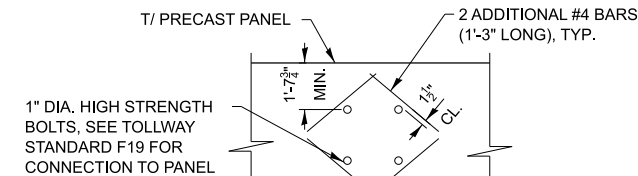


⑤ ERECT PANELS BETWEEN POSTS

#### SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

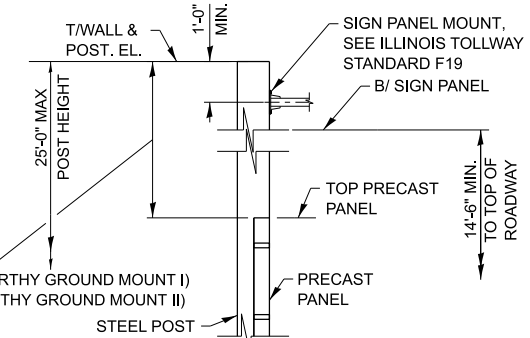


#### 90° TURN DETAIL



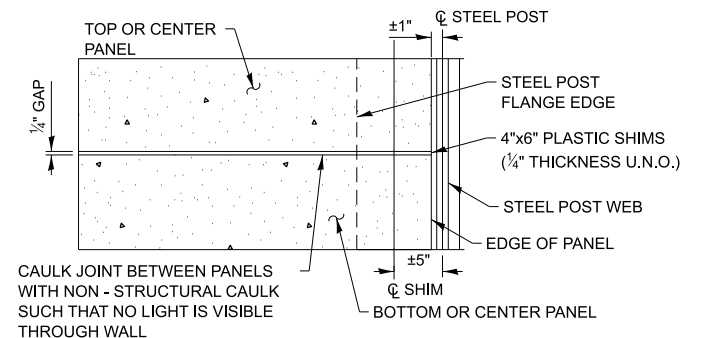
#### SIGN PANEL MOUNT TO PANEL DETAIL

PRECAST PANELS HAVE BEEN DESIGNED TO ACCOMMODATE SIGN PANEL MOUNTED WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19. MIN. PANEL HEIGHT SUPPORTING SIGN SHALL BE 5'-0".



#### SIGN PANEL MOUNT POST EXTENSION DETAIL

STEEL POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A POST EXTENSION WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19 UP TO A MAXIMUM POST HEIGHT OF 25'-0"



#### HORIZONTAL JOINT DETAIL

#### 90° TURN BENT PLATE TABLE FOR COHESIVE SOILS

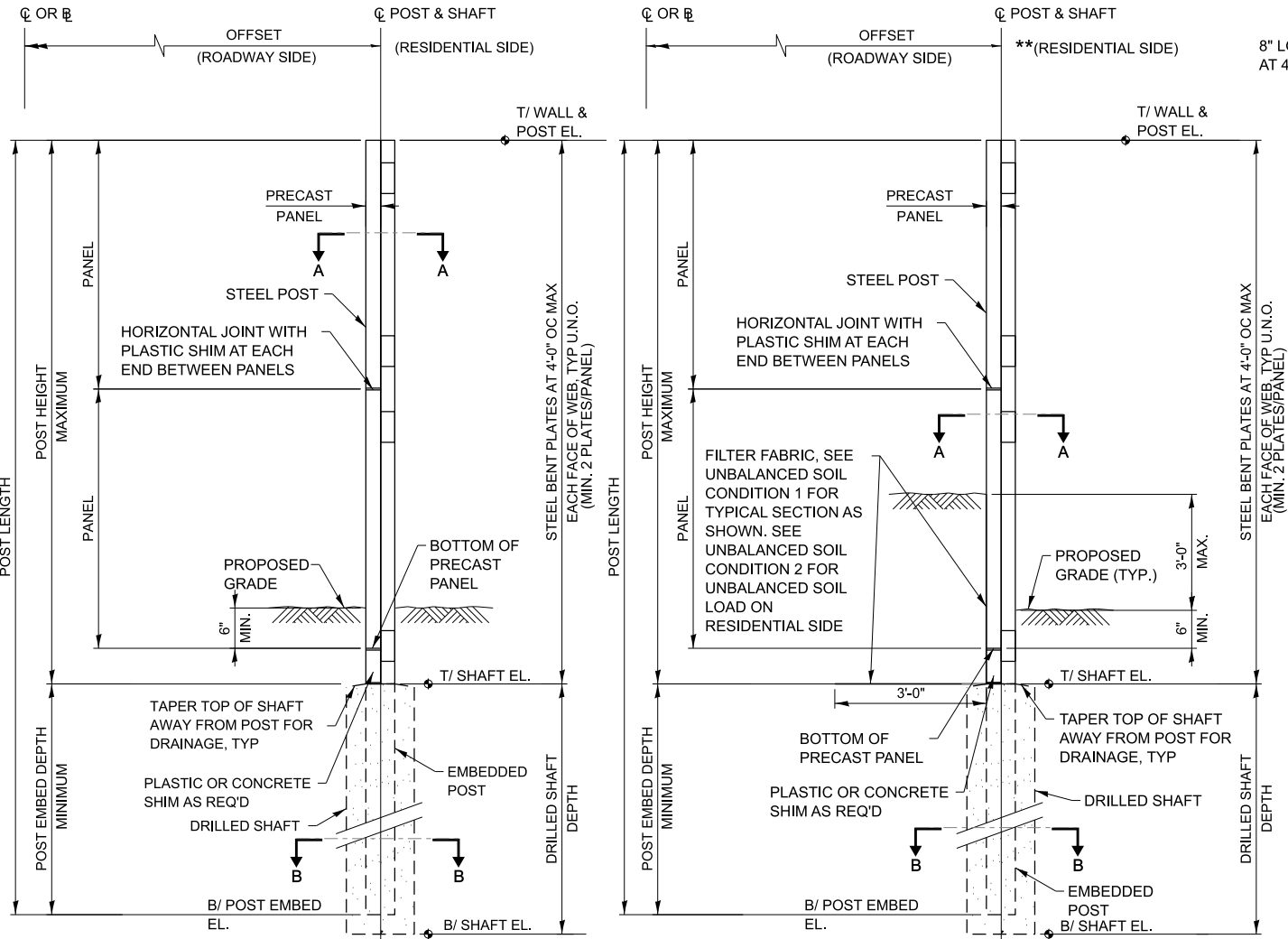
NAW TYPE	BENT PLATE A x B x THICK.	DIM. C
NON-CRASHWORTHY GROUND MOUNTED I	6"x3"x3/8"	3 3/8"
NON-CRASHWORTHY GROUND MOUNTED II	6 1/2"x3"x3/8"	3 5/8"
NON-CRASHWORTHY GROUND MOUNTED III	8 1/2"x3"x3/8"	4 1/2"
NON-CRASHWORTHY GROUND MOUNTED IV	8 1/2"x3"x3/8"	4 9/16"

#### 90° TURN BENT PLATE TABLE FOR COHESIONLESS SOILS

NAW TYPE	BENT PLATE A x B x THICK.	DIM. C
NON-CRASHWORTHY GROUND MOUNTED I	6 1/2"x3"x3/8"	3 5/8"
NON-CRASHWORTHY GROUND MOUNTED II	7"x3"x3/8"	3 7/8"
NON-CRASHWORTHY GROUND MOUNTED III	10"x3"x3/8"	5 3/8"
NON-CRASHWORTHY GROUND MOUNTED IV	10 1/4"x3"x3/8"	5 9/16"



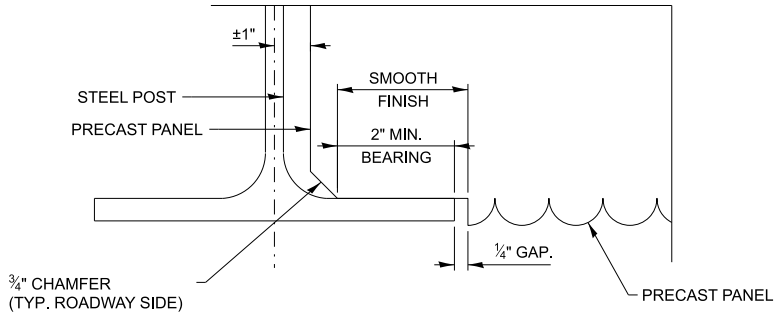
#### NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS



TYPICAL CROSS SECTION  
(BALANCED SOIL LOAD)

TYPICAL CROSS SECTION  
(UNBALANCED SOIL LOAD)

\*\* TYPICAL SECTION SHOWS ROADWAY ON THE HIGH SIDE. DETAILS OF POST FOR ROADWAY ON THE LOW SIDE ARE MIRRORED.



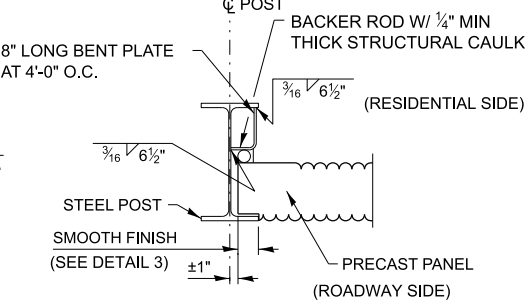
DETAIL 3

POST & DRILLED SHAFT DESIGN FOR COHESIVE SOILS

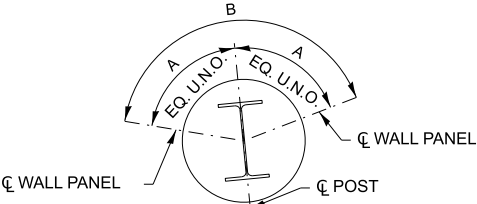
NAW TYPE	MAX POST HEIGHT	MIN POST EMBED DEPTH	MAX DRILLED SHAFT SPACING	DRILLED SHAFT DEPTH	STEEL POST SIZE	Y	BENT PLATE M x N x THICK.	Z	DIA	A	B
CRASHWORTHY GROUND MOUNTED	28'-0"	16'-6"	15'-0"	19'-0"	W21x68	5 1/16"	8 1/2"x3 1/2"x1 1/2"	6 5/8"	3'-0"	86°25'00"	172°50'00"

POST & DRILLED SHAFT DESIGN FOR COHESIONLESS SOILS

NAW TYPE	MAX POST HEIGHT	MIN POST EMBED DEPTH			MAX DRILLED SHAFT SPACING	DRILLED SHAFT DEPTH			STEEL POST SIZE	Y	BENT PLATE M x N x THICK.	Z	DIA	A	B
		PHI=30°-34°	PHI=35°-39°	PHI=40°+		PHI=30°-34°	PHI=35°-39°	PHI=40°+							
CRASHWORTHY GROUND MOUNTED	28'-0"	17'-0"	14'-6"	13'-0"	15'-0"	21'-0"	18'-0"	15'-0"	W27X84	7 15/16"	14 1/4"x4 3/8"x1 1/2"	3 3/4"	3'-0"	86°25'25"	172°50'50"

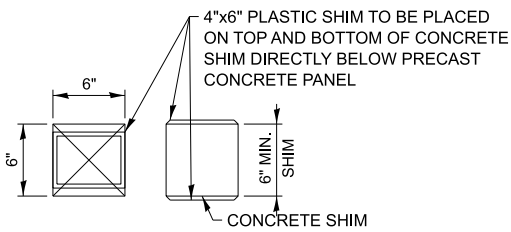


PANEL TO POST CONNECTION DETAIL



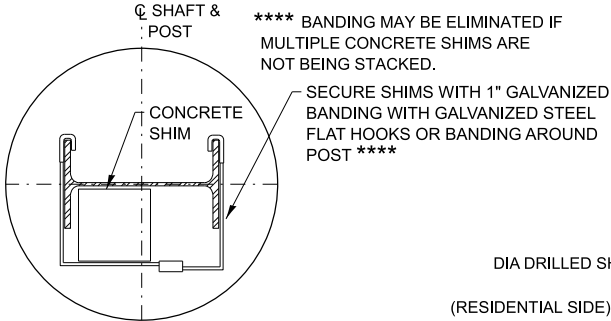
NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE, MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1 1/4".

MIN ANGLE BETWEEN PANELS AT TYP POST



CONCRETE SHIM DETAIL 1

SHIMS TO BE SECURED TO THE POST SEE DETAIL 2



SHIM TO POST CONNECTION DETAIL 2

GENERAL NOTES:

- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
- REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
- REINFORCEMENT BARS DESIGNATED "E" SHALL BE EPOXY COATED.
- REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
- REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
- CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
- END POSTS SHALL HAVE NO BENT PLATES ON EXPOSED SIDE.
- THE FOUNDATION DETAILS SHOWN ARE SOIL DEPENDENT. THE FOUNDATION DETAILS FOR COHESIVE SOILS ARE BASED ON THE PRESENCE OF MOSTLY COMMON COHESIVE SOIL CONDITIONS (SILTY OR SANDY CLAY), WITH AN AVERAGE UNCONFINED COMPRESSIVE STRENGTH (QU) > 1.25 TONS/SQ. FT. WHICH SHALL BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE JOB SITE. THE FOUNDATION DETAILS FOR COHESIONLESS SOILS ARE BASED ON THE PRESENCE OF MOSTLY COHESIONLESS CLEAN SANDS, WITH FINES CONTENT LESS THAN 12% AND AN AVERAGE FRICTION ANGLE (PHI) GREATER THAN 30 DEGREES, WHICH SHALL BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE JOBSITE. THE IDOT GEOTECHNICAL MANUAL SHALL BE USED TO CORRELATE AVERAGE STANDARD PENETRATION RESISTANCE "N - VALUES"(BLOW COUNTS PER FOOT) TO FRICTION ANGLES (PHI), TAKING INTO ACCOUNT FIELD CORRECTIONS. IF CONDITIONS ENCOUNTERED IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE IF THE FOUNDATION DIMENSIONS NEED TO BE MODIFIED.

DESIGN LOADS

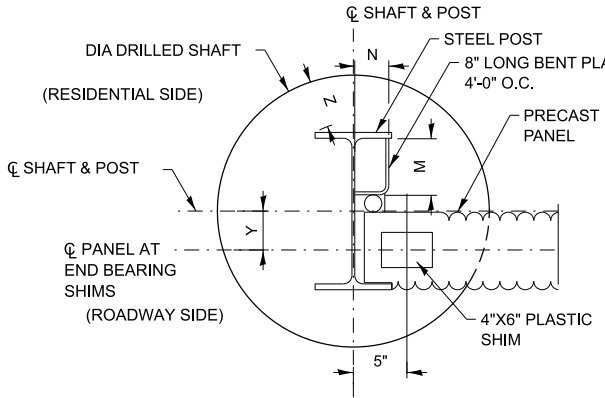
CRASHWORTHY GROUND MOUNTED  
WIND LOAD = 35 PSF (STR. III)  
= 15 PSF (SERV I)  
RETAINED EARTH:  
HORIZONTAL SOIL LOAD = 120 PCF  
LIVE LOAD SURCHARGE = 2FT  
TL-4 VEHICLE COLLISION LOADING:  
54 KIP APPLIED AT 6'-0"  
ABOVE ROADWAY PAVEMENT  
SECONDARY IMPACT (NO TL-4 IMPACT):  
4 KIP APPLIED AT THE HIGHEST  
POINT UP TO 14FT ABOVE SURFACE  
OF PAVEMENT IN FRONT OF NAW  
DEFLECTION:  
PANEL = L/240  
POST = H/360

DESIGN STRESSES

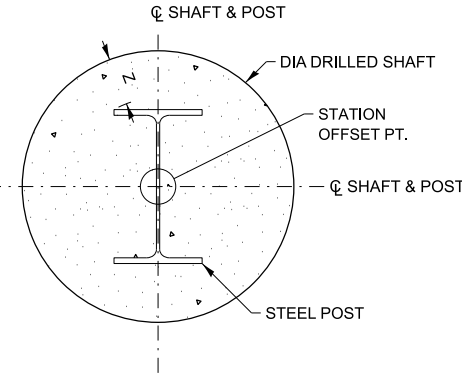
PRECAST CONCRETE (GROUND MOUNTED NAW):  
f<sub>c</sub> = 5,000 PSI AT 28 DAYS (CLASS PC)  
f<sub>c</sub> = 3,500 PSI AT 5 DAYS (SHIPPING)  
DENSITY = 150 PCF  
FOUNDATION CONCRETE CLASS SI:  
f<sub>c</sub> = 3,500 PSI AT 14 DAYS PER SECTION 1020  
OF IDOT STANDARD SPECIFICATIONS.  
STEEL POSTS:  
ASTM A709 (AASHTO M270)  
GRADE 50, f<sub>y</sub> = 50 KSI  
ALL STEEL POSTS SHALL BE HOT - DIP GALVANIZED  
BENT PLATE AND BEARING ANGLES:  
ASTM A709 (AASHTO M270)  
GRADE 36, f<sub>y</sub> = 36 KSI U.N.O.  
ALL STEEL SHALL BE HOT - DIP GALVANIZED  
REINFORCING STEEL:  
f<sub>y</sub> = 60,000 PSI (EPOXY COATED)

DESIGN SPECIFICATIONS

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION DATED APRIL 2020.  
ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL, LATEST EDITION  
ILLINOIS TOLLWAY GEOTECHNICAL MANUAL, LATEST EDITION



SECTION A-A



SECTION B-B

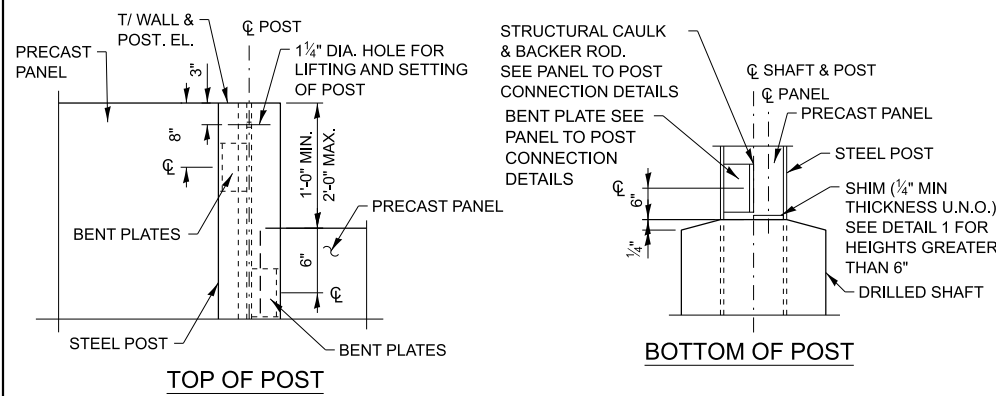
REVISIONS	
DATE	DESCRIPTION
03-01-2024	UPDATED POST SIZE NAW DETAIL ADDED DETAIL 3 SMOOTH FINISH
02-23-2023	REM. 1 FT MIN. DIM. TO GROUND, ADD 6" MIN. DIM. TO PANEL, INC. COHESIONLESS PL. TO 1/2". REV. LIFT, INSERT NOTE, DIM.

CRASHWORTHY GROUND  
MOUNTED NOISE ABATEMENT  
WALL DETAILS

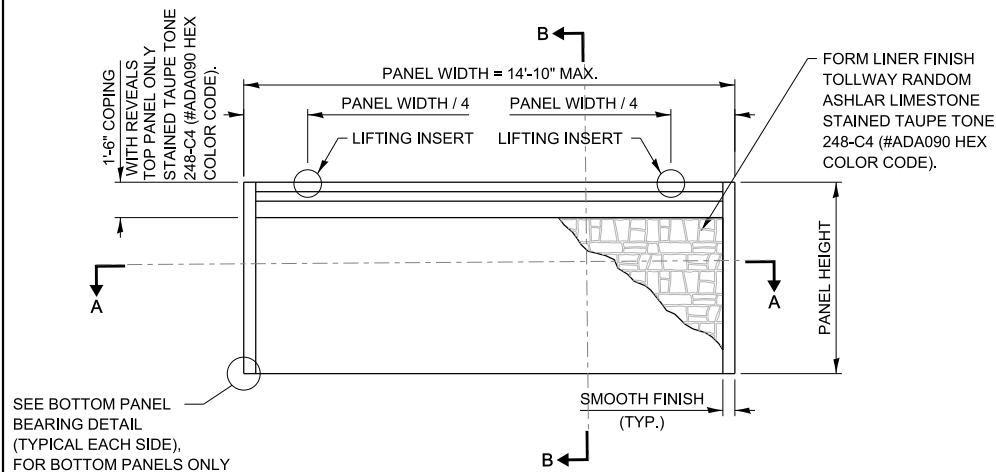
VERSION: 2024-03  
STANDARD: G16-05  
SHEET: 1 OF 3

APPROVED BY: *Manar Nashif*  
CHIEF ENGINEERING OFFICER  
DATE: 03/01/2024

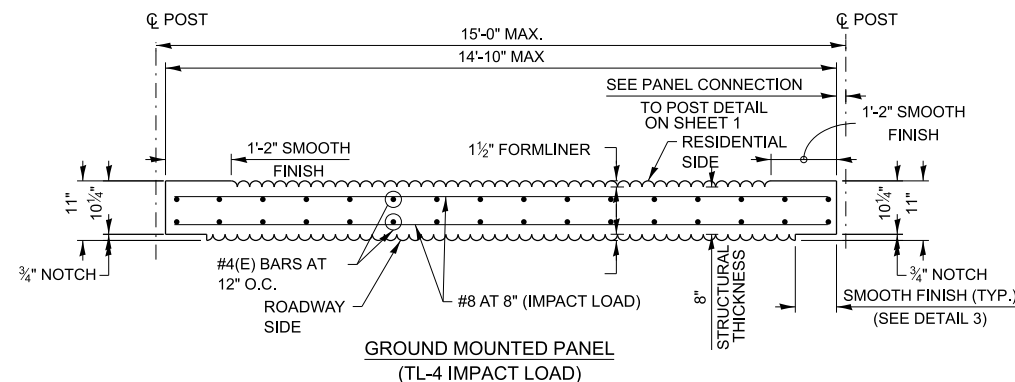




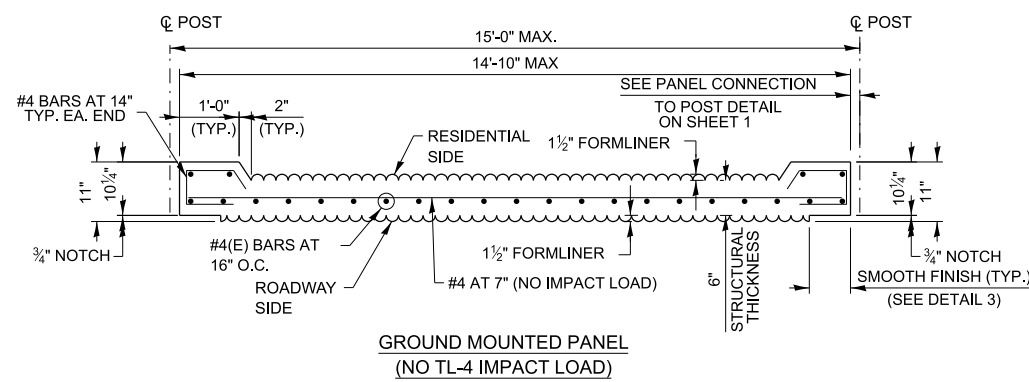
**BENT PLATE DETAILS**



**TYPICAL NOISE WALL PANEL DETAIL**



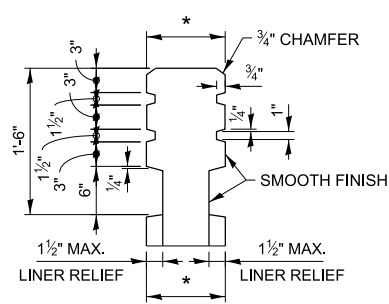
**GROUND MOUNTED PANEL  
(TL-4 IMPACT LOAD)**



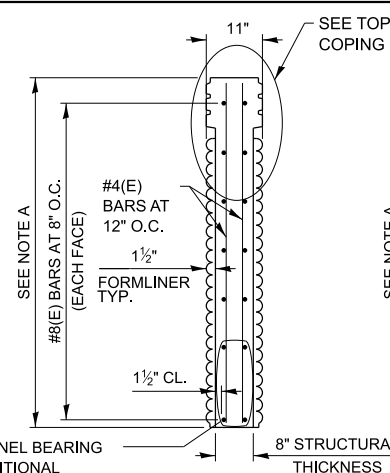
**GROUND MOUNTED PANEL  
(NO TL-4 IMPACT LOAD)**

**SECTION A-A**

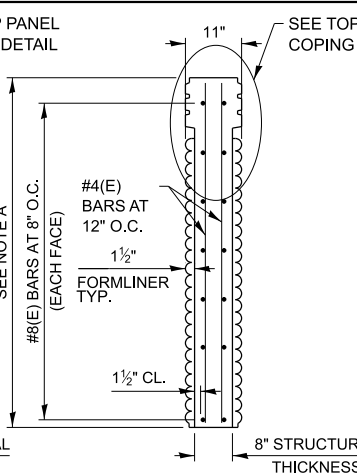
\* 11" FOR TL-4 IMPACT LOAD PANEL OR  
9" FOR NO TL-4 IMPACT LOAD PANEL



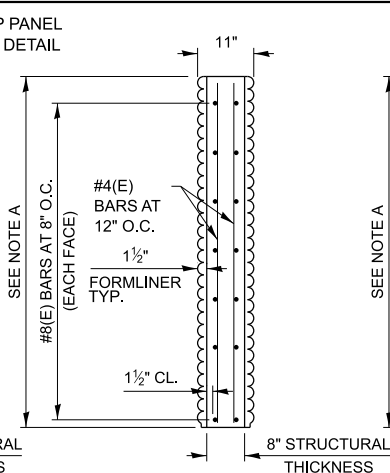
**TOP PANEL COPING DETAIL**



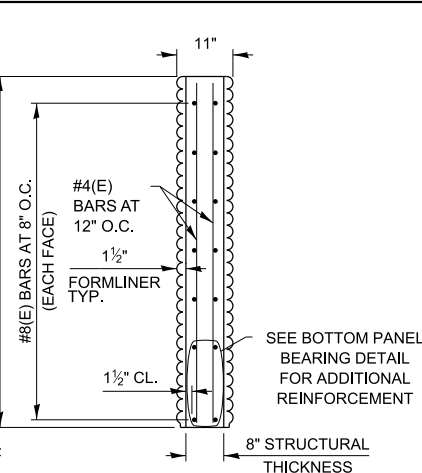
**SECTION B-B  
FULL HEIGHT PANEL  
(TL-4 IMPACT LOAD)**



**SECTION B-B  
TOP PANEL  
(TL-4 IMPACT LOAD)**

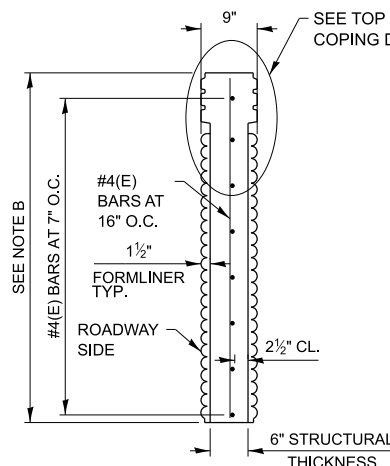


**SECTION B-B  
CENTER PANEL  
(TL-4 IMPACT LOAD)**



**SECTION B-B  
BOTTOM PANEL  
(TL-4 IMPACT LOAD)**

**NOTE A:**  
TO ACCOMMODATE VARYING HEIGHT NAW PANELS ARE  
PERMITTED TO BE 6'-0", 7'-0", 8'-0" OR 9'-0" TALL

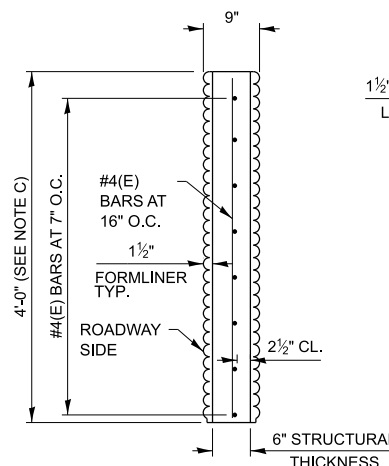


**TOP PANEL  
(NO TL-4 IMPACT LOAD)**

**SECTION B-B**

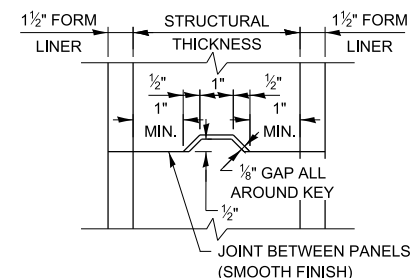
**NOTE B:**  
TO ACCOMMODATE VARYING HEIGHT NAW, TOP PANEL (NO TL-4 IMPACT LOAD)  
IS PERMITTED TO BE 5'-0", 6'-0", 7'-0", 8'-0" OR 9'-0" TALL

**NOTE C:**  
CONTRACTOR MAY INCREASE THE STANDARD PANEL HEIGHTS, MAXIMUM HEIGHT  
OF 9FT, TO MINIMIZE THE NUMBER OF HORIZONTAL JOINTS. CONTRACTOR SHALL  
SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

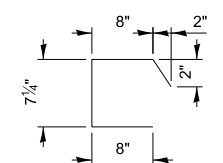


**CENTER PANEL  
(NO TL-4 IMPACT LOAD)**

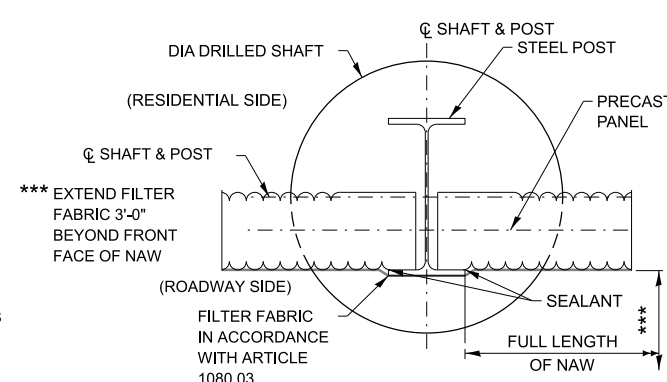
**SECTION B-B**



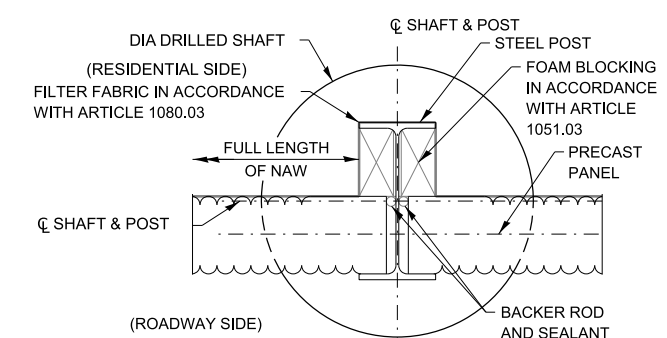
**OPTIONAL TONGUE AND  
GROOVE DETAIL  
(IN LIEU OF SHIM AND CAULK)**



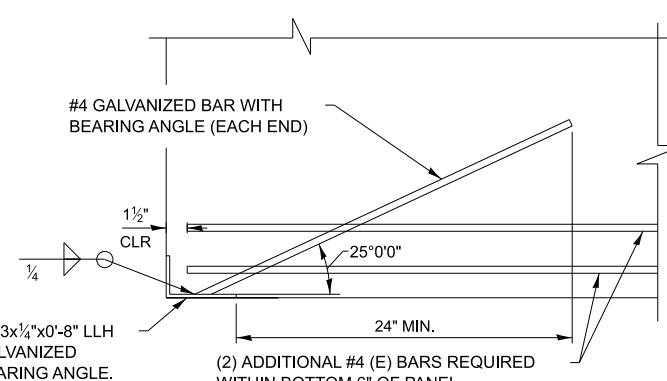
**END BAR DETAIL**



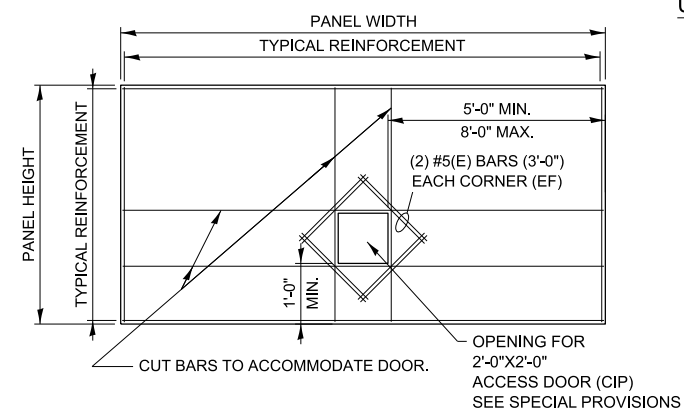
**UNBALANCED SOIL CONDITION 1**



**UNBALANCED SOIL CONDITION 2**



**BOTTOM PANEL BEARING DETAIL**



**FIRE HYDRANT ACCESS OPENING DETAIL**

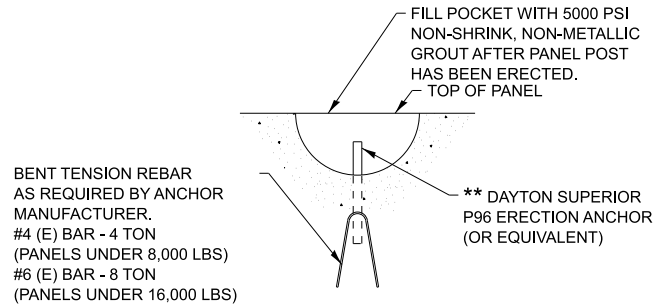
APPROVED BY: *Manar Nashif*  
CHIEF ENGINEERING OFFICER  
DATE: 03/01/2024



**CRASHWORTHY GROUND  
MOUNTED NOISE ABATEMENT  
WALL DETAILS**

VERSION: 2024-03 STANDARD: G16-05 SHEET: 2 OF 3





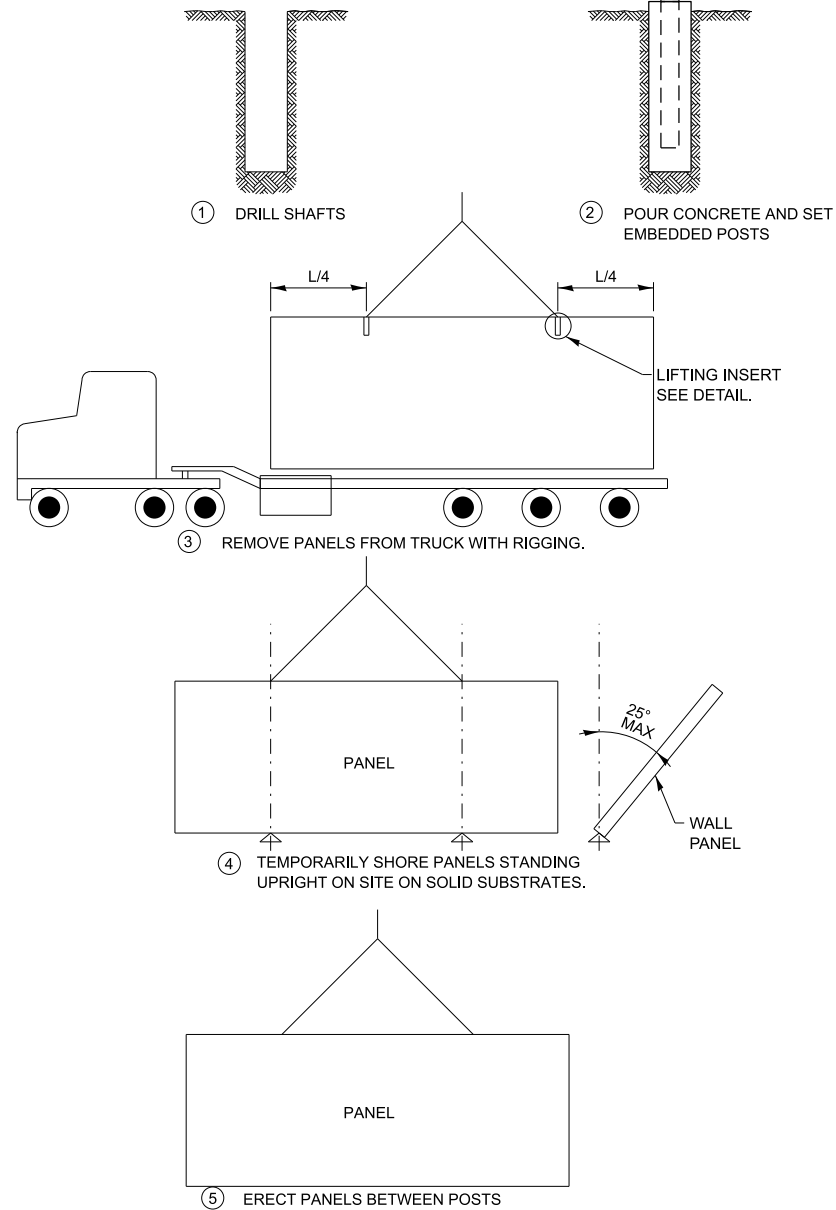
TYPICAL LIFTING INSERT DETAIL

\*\* ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

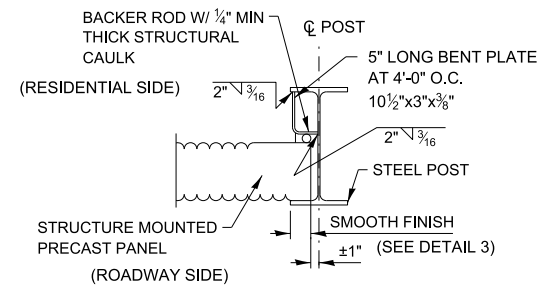
NOTES:

1. LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1

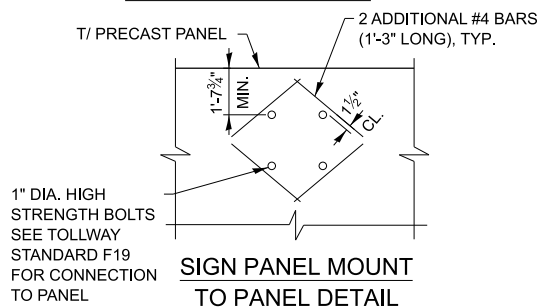
2. THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.



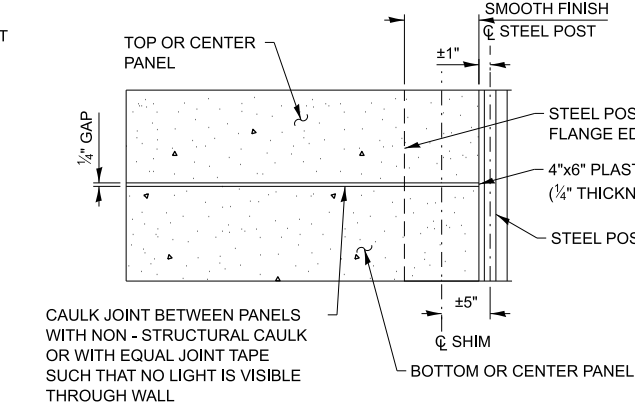
SUGGESTED TYPICAL NOISE ABATEMENT WALL  
INSTALLATION SEQUENCE AND PROCEDURE



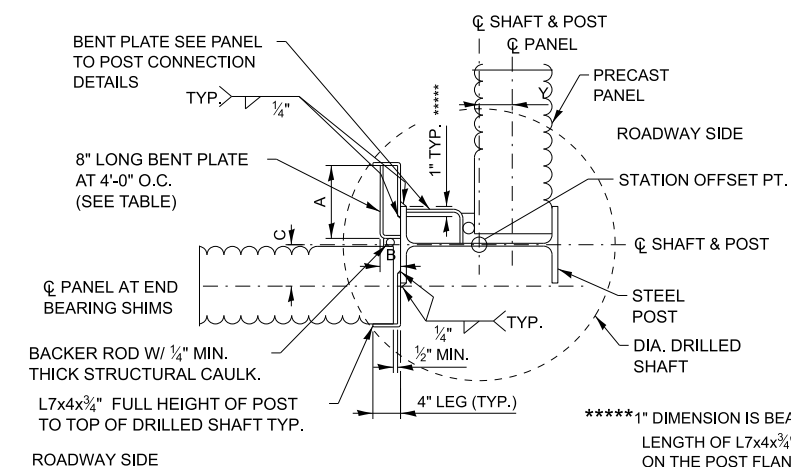
STRUCTURE MOUNTED PANEL TO POST  
CONNECTION DETAIL



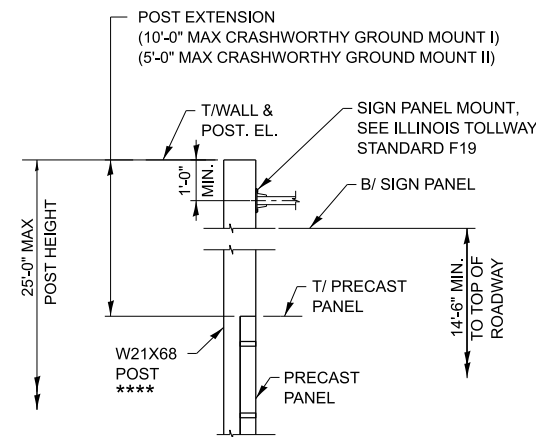
\*\*\* PRECAST PANELS HAVE BEEN DESIGNED TO ACCOMMODATE SIGN PANEL MOUNT WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19. MIN. PANEL HEIGHT SUPPORTING SIGN SHALL BE 5'-0".



HORIZONTAL JOINT DETAIL

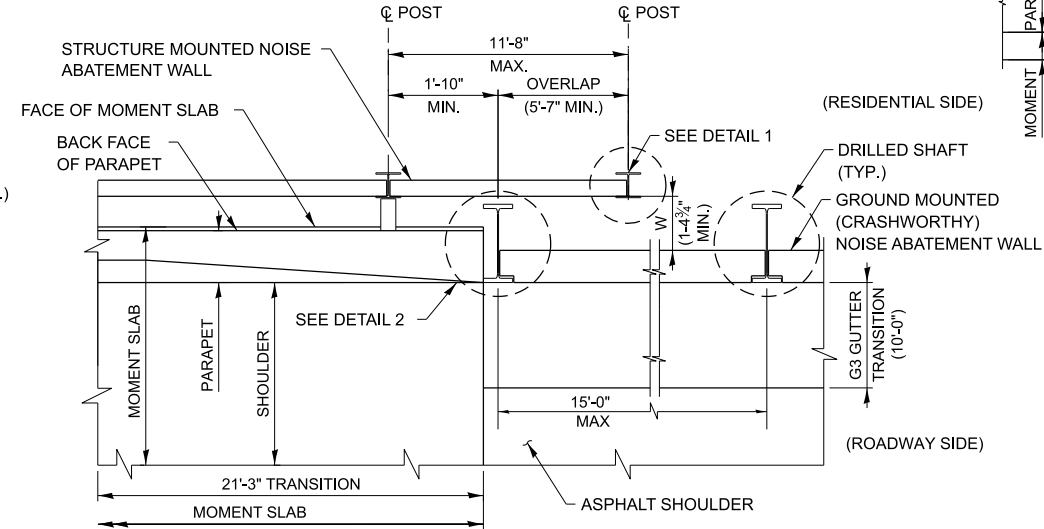


90° TURN DETAIL



SIGN PANEL MOUNT  
POST EXTENSION DETAIL

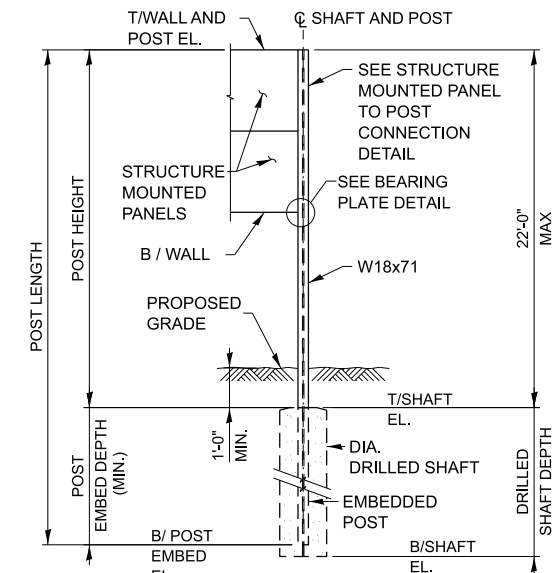
\*\*\*\*W18X71 POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A POST EXTENSION WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19 UP TO A MAXIMUM POST HEIGHT OF 25'-0"



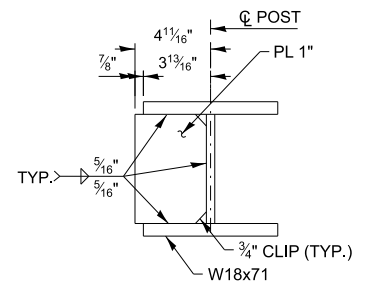
NAW TRANSITION DETAIL  
PLAN

90° TURN BENT PLATE TABLE

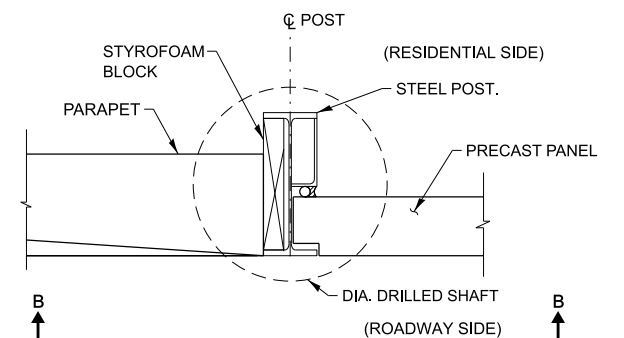
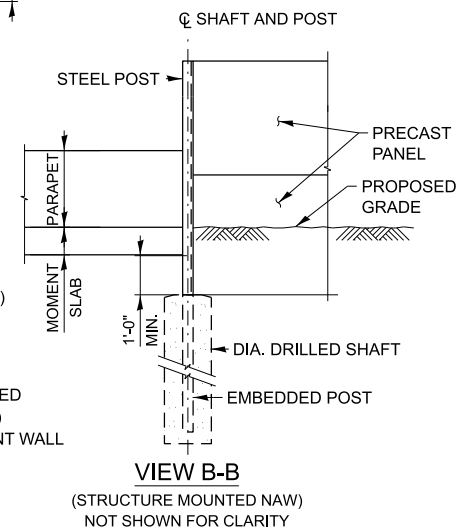
STEEL POST TYPE	BENT PLATE A x B x THICK.	DIM. C
W21x68	7 3/4"x3"x 3/8"	4 5/8"
W27x84	9 1/2"x3"x 3/8"	5 1/2"



DETAIL 1



BEARING PLATE DETAIL



DETAIL 2  
CRASHWORTHY GROUND MOUNTED NAW  
TRANSITION TO PARAPET



CRASHWORTHY GROUND  
MOUNTED NOISE ABATEMENT  
WALL DETAILS

APPROVED BY:

Manar Nashif

DATE:

03/01/2024