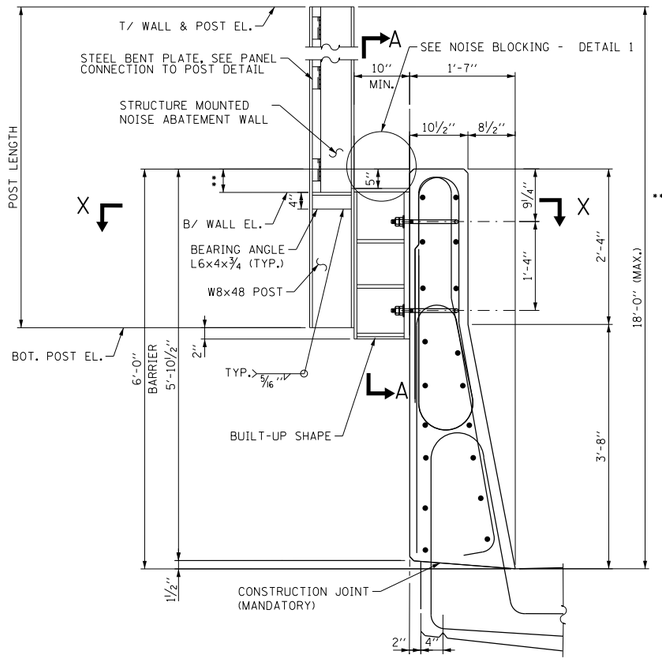
Illinois Tollway Standard Drawing Revisions

Section G	Structural	
	Standard	**Modification Summary** **Effective: 03-01-2021**
	G12	**Structure Mounted Noise Abatement Wall Details**
	Sheet 1	Clarified built up member details in section and show web plate full length as flanges
	Sheet 2	Move top bent plate and add lifting hole to of post. Revise bottom bearing angle to match panel structural thickness.
	G13	**Central Tri-State Structure Mounted Noise Abatement Wall Details**
	Sheet 1	Clarified built up member details in section and show web plate full length as flanges
	Sheet 2	Move top bent plate and add lifting hole to of post. Revise bottom bearing angle to match panel structural thickness.
	G14	**Central Tri-State Bump-Out Mounted Noise Abatement Wall Details**
	Sheet 1	Revised channel plate to 19" with 5" flanges
	Sheet 1	Move top bent plate and add lifting hole to of post
	Sheet 2	Revised clear cover to match G12 and G13 panels
	G15	**Non-Crashworthy Ground Mounted Noise Abatement Wall Details**
	Sheet 1	Move top bent plate and add lifting hole to of post
	Sheet 2	Clarified the 90 degree detail, added dimension C and revised clear cover on 4" panels to 1.5"
	Sheet 2	Revise bottom bearing angle to match panel structural thickness.
	G16	**Crashworthy Ground Mounted Noise Abatement Wall Details**
	Sheet 1	Move top bent plate, add lifting hole to of post and correction to M dimension in table
	Sheet 2	Revise bottom bearing angle to match panel structural thickness.
	Sheet 3	Clarified the 90 degree detail and removed the bent plate table
	Sheet 3	Add 3/4" clip to bearing plate detail

New Sheet Retired Standard

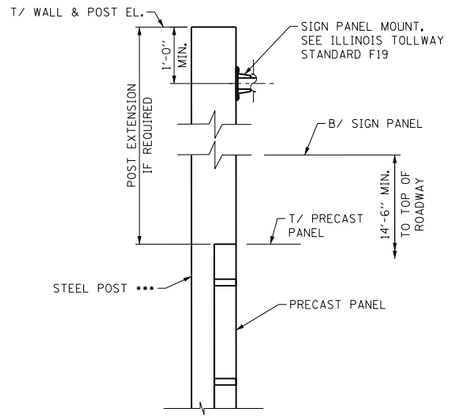


** BEARING SEAT IS 6" MAX. BELOW TOP OF BARRIER OR 3" MAX. ABOVE TOP OF BARRIER.

ILLINOIS TOLLWAY CONSTANT SLOPE BARRIER - DETAILS

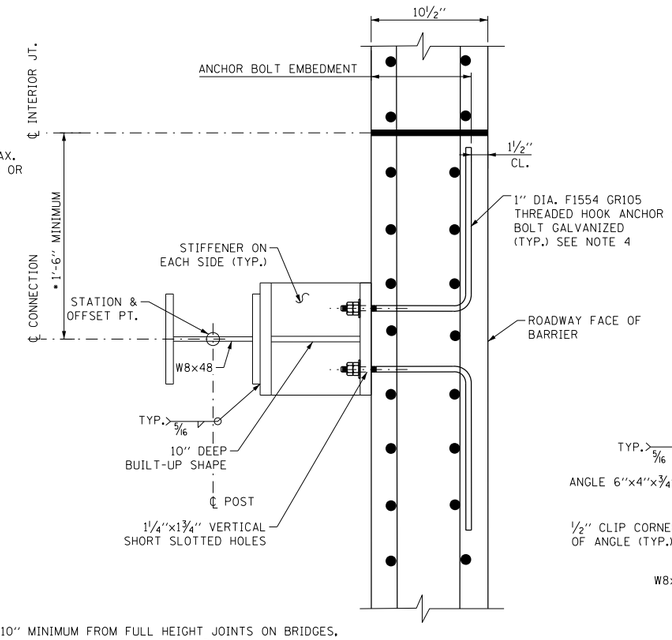
NOTES:

1. STEEL POST MAXIMUM SPACING IS 11'-8".
2. SLIPFORMING OF THE BARRIER IS NOT PERMITTED.
3. REFER TO ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL FOR SHOWN DECK REINFORCEMENT, JOINT DETAILS AND OTHER MISCELLANEOUS DETAILS NOT DETAILED IN THIS STANDARD.
4. 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.
5. MINIMUM DISTANCE BETWEEN CENTERLINE OF POST TO CENTERLINE OF LIGHT POLE IS 4'-7" DESIRABLE AND 3'-7" MINIMUM.



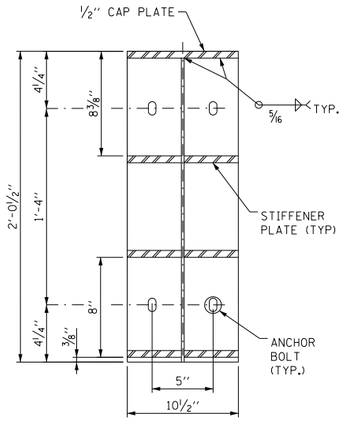
SIGN PANEL MOUNT POST EXTENSION DETAIL

••• STEEL POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A 17'-3½" POST WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19

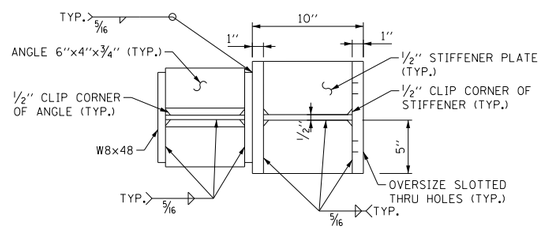


• USE 4'-10" MINIMUM FROM FULL HEIGHT JOINTS ON BRIDGES, OTHERWISE USE 1'-10" MINIMUM FOR END POSTS AND POSTS LOCATED ON APPROACH SLABS OR MOMENT SLABS.

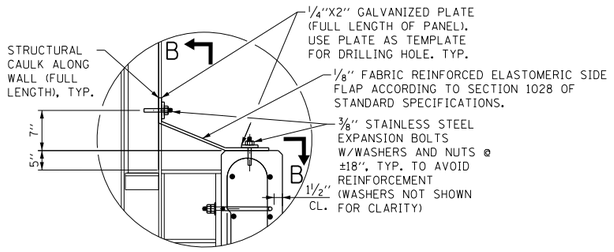
SECTION X-X



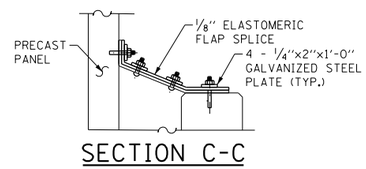
SECTION A-A



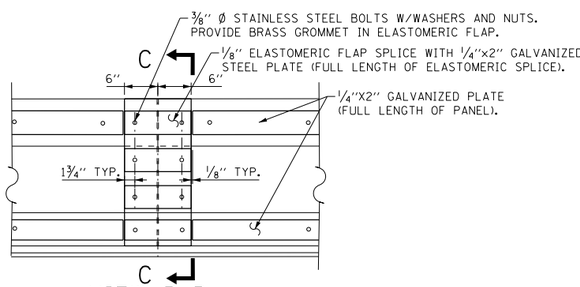
BUILT UP SHAPE



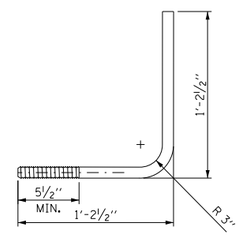
DETAIL 1 NOISE BLOCKING ASSEMBLY



SECTION C-C



VIEW B-B AT ASSEMBLY SPLICE



BENT ANCHOR BOLT

GENERAL NOTES

1. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
2. REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
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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)
fy = 60,000 PSI (REINFORCEMENT)

GRADE 50, Fy = 50,000 PSI, ASTM A709 (AASHTO M270) - STRUCTURAL STEEL POST
GRADE 36, Fy = 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)	32 LBS.
BENT PLATE ALLOWANCE (8 PLATES)	11 LBS.
ANCHOR BOLT ASSEMBLY (4 BOLTS)	26 LBS.
TOTAL	**288 LBS.**
NOISE BLOCKING ASSEMBLY BETWEEN POSTS (2 PLATES)	3.4 PLF
NOISE BLOCKING ASSEMBLY SPLICE (4 PLATES)	7 LBS.

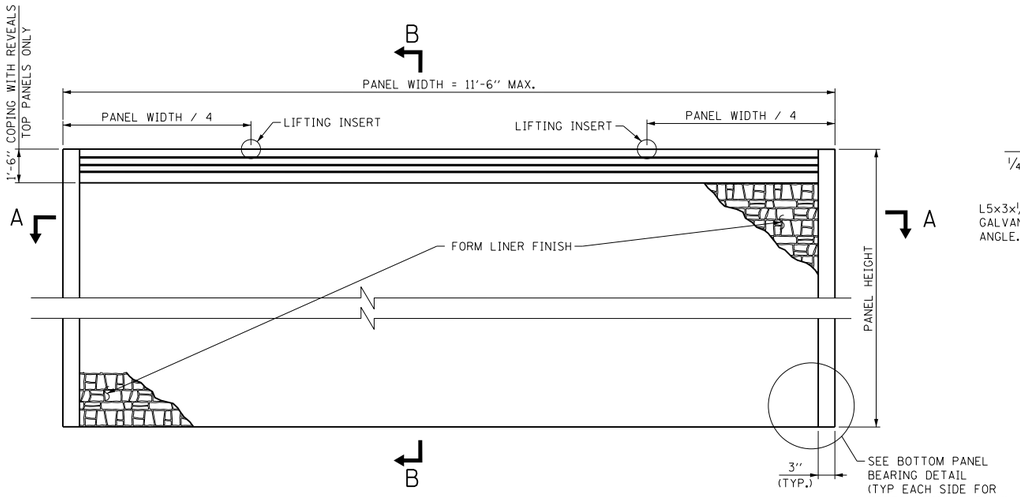
DATE	REVISIONS
7-17-2020	REVISE NOTE 1 AND CLARIFIED NO
	CHAMFER AT HORIZONTAL JOINTS,
	NOTE 10" NAW OFFSET AS MIN.,
	ADD MAX. SEAT LIMITS ABOVE AND
	BELOW BARRIER IN TYP. SECTION,
	REV. CONTRACT. JT. TO INTERIOR JT.,
	HOLE FOR BENT ANCHOR REV. TO 1¼"
	CHANGE 4'-10" SPA. REQUIRE FOR
	BRIDGES ONLY, DIM. FORM LINER ON
	PANEL TO POST DET., ADD DET. FOR
	TONGUE AND GROOVE, REMOVE REVEAL
	CALL OUT AND REVISE NOTE B, INC.
	MIN. ANGLE AT POST AND PANELS,
3-01-2021	MOVE TOP BENT PLATE, ADD
	LIFTING HOLE AND REVISED BEARING
	ANGLE WIDTH

Paul Kovacs
APPROVED ..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER

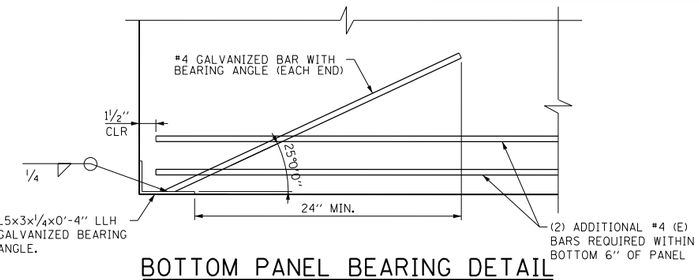
Illinois Tollway

STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS

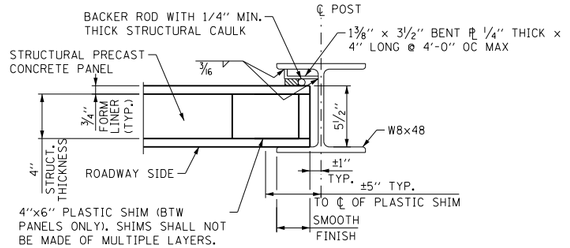
STANDARD G12-02



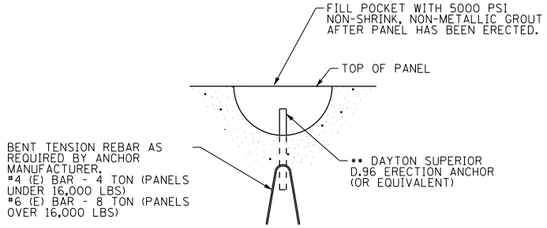
TYPICAL NOISE WALL PANEL DETAIL



BOTTOM PANEL BEARING DETAIL

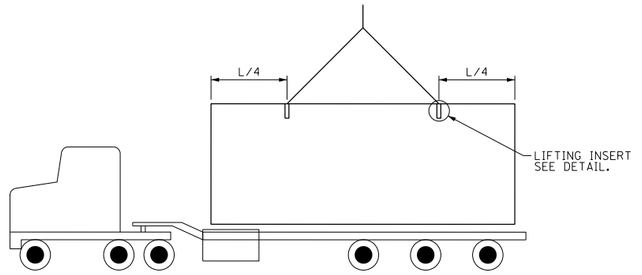


PANEL CONNECTION TO POST DETAIL

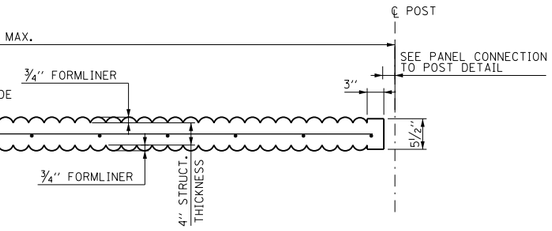


TYPICAL LIFTING INSERT DETAIL

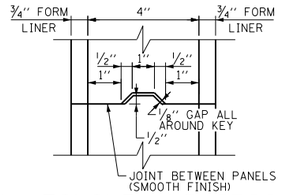
•• ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED



① REMOVE PANELS FROM TRUCK WITH RIGGING.

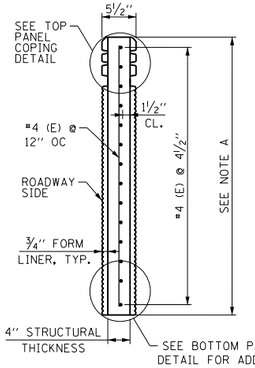


TYPICAL PLAN VIEW THRU NOISE ABATEMENT WALL

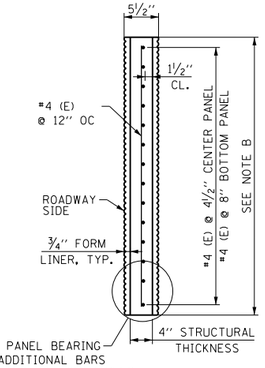


OPTIONAL TONGUE AND GROOVE DETAIL

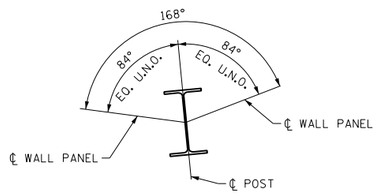
(IN LIEU OF SHIM AND CAULK)



TOP PANEL OR FULL HEIGHT PANEL SECTION B-B

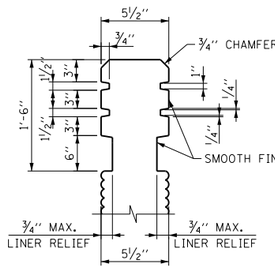


CENTER OR BOTTOM PANEL SECTION B-B

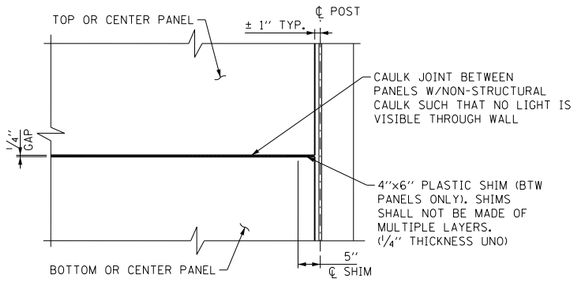


NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE, MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1¾".

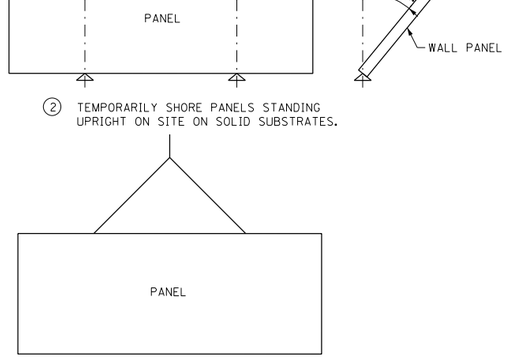
MIN ANGLE BETWEEN PANELS AT TYP POST



TOP PANEL COPING DETAIL



HORIZONTAL JOINT DETAIL



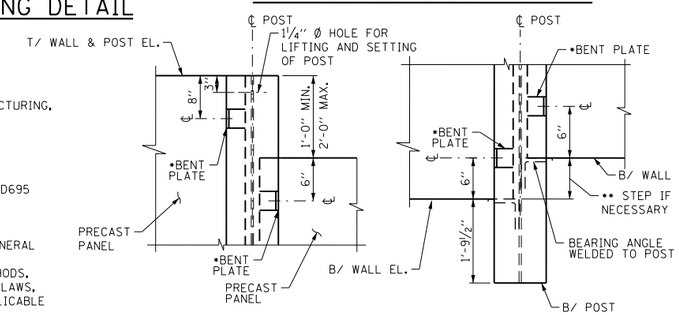
② TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

③ ERECT PANELS BETWEEN POSTS

SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

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.



TOP OF POST AT BEARING ANGLE BENT PLATE DETAILS

• 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.

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".

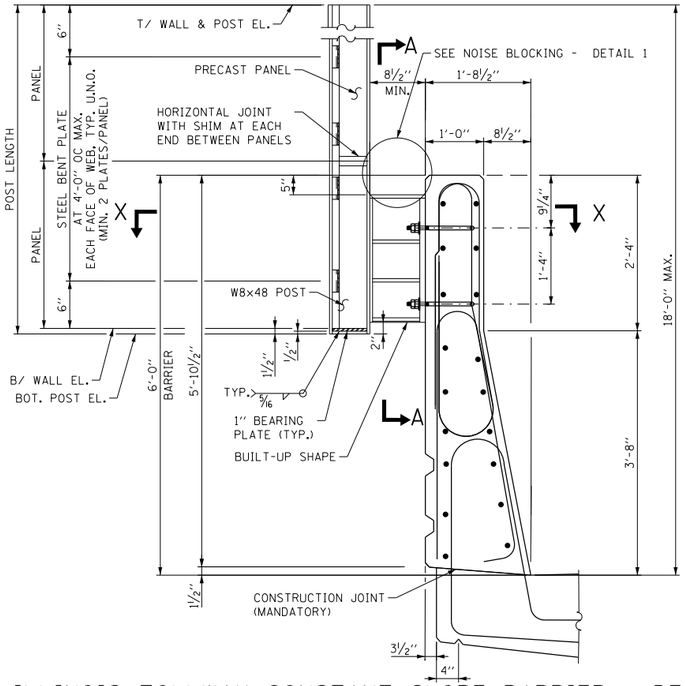
Paul Kovacs
APPROVED ..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER

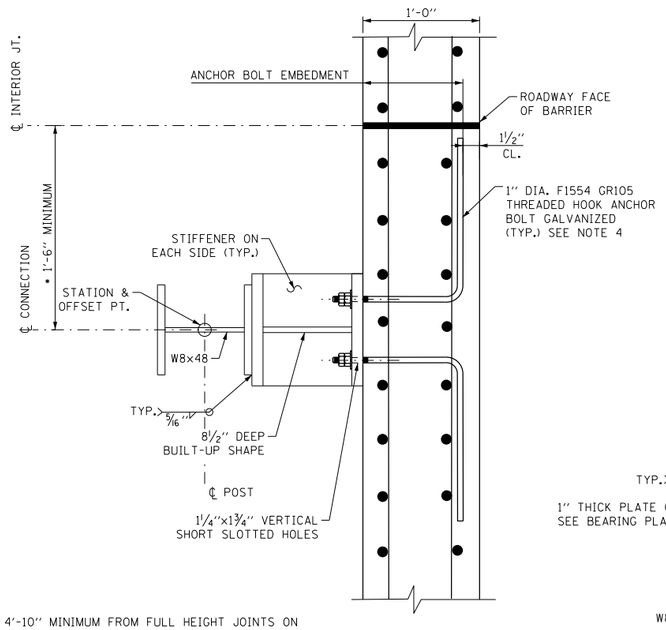
Illinois Tollway

STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G12-02

ILLINOIS TOLLWAY CONSTANT SLOPE BARRIER - DETAILS





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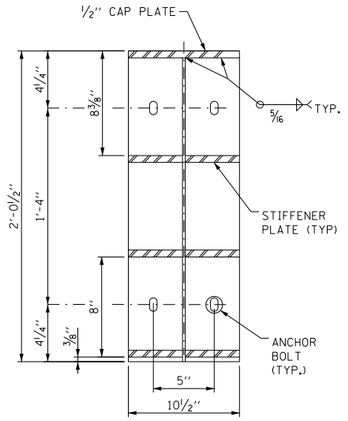
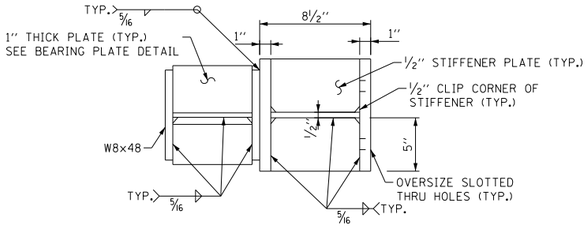
SECTION X-X



SECTION A-A



BUILT UP SHAPE

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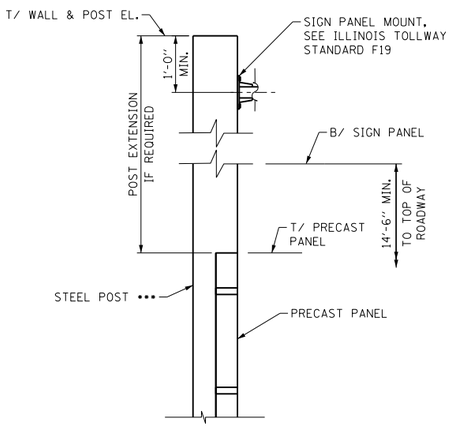

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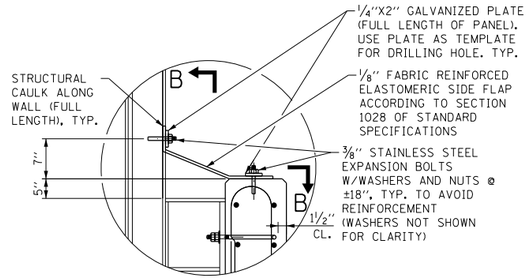
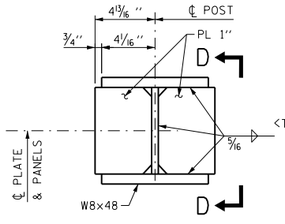
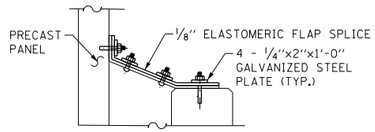


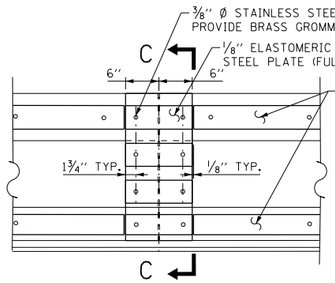
DETAIL 1 NOISE BLOCKING ASSEMBLY



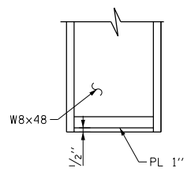
BEARING PLATE DETAIL



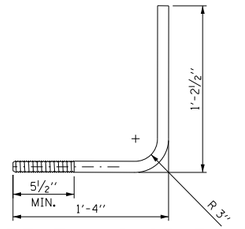
SECTION C-C



VIEW B-B AT ASSEMBLY SPLICE



VIEW D-D



BENT ANCHOR BOLT

MISCELLANEOUS STEEL CONNECTION QUANTITY

DESCRIPTION	WEIGHT
BUILT-UP SHAPE	205 LBS.
BEARING PLATE (2 PIECES)	40 LBS.
BENT PLATE ALLOWANCE (8 PIECES)	14 LBS.
ANCHOR BOLT ASSEMBLY (4 BOLTS)	29 LBS.
TOTAL	**288 LBS.**
NOISE BLOCKING ASSEMBLY BETWEEN POSTS (2 PLATES)	3.4 PLF
NOISE BLOCKING ASSEMBLY SPLICE (4 PLATES)	7 LBS.

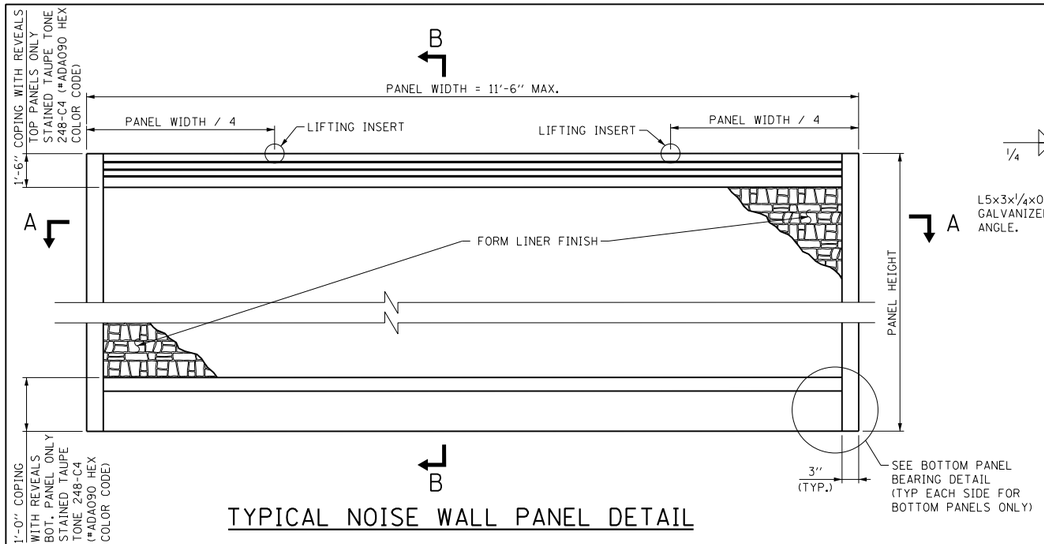
DATE	REVISIONS
7-17-2020	REVISE NOTE 1 AND CLARIFIED NO CHAMFER AT HORIZONTAL JOINTS, NOTED 8.5" NAW OFFSET AS MIN., REV. CONTRACT. JT. TO INTERIOR JT., HOLE FOR BENT ANCHOR REV. TO 1¼", CHANGE 4'-10" SPA. REQUIRE FOR BRIDGES ONLY, DIM. FORM LINE ON PANEL TO POST DET., ADD DET. FOR TONGUE AND GROOVE, REMOVE REVEAL CALL OUT, REVISE NOTE C, INC. MIN. ANGLE AT POST AND PANELS,
3-01-2021	MOVE TOP BENT PLATE, ADD LIFTING HOLE AND REV. BEARING WIDTH ANGLE

Paul Kovacs
APPROVED ..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER

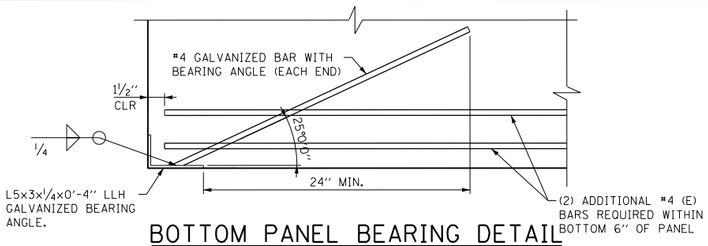
Illinois Tollway

CENTRAL TRI-STATE STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS

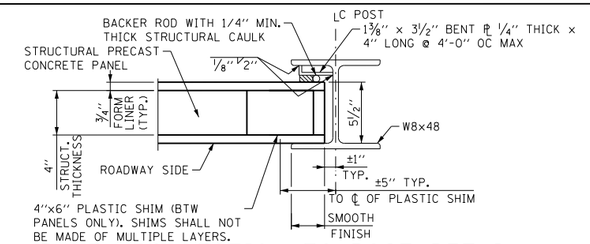
STANDARD G13-02



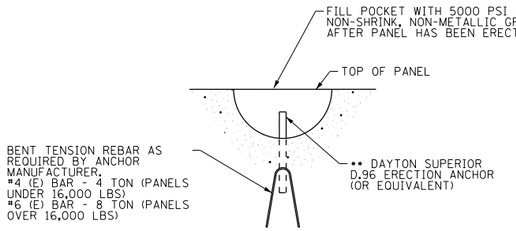
TYPICAL NOISE WALL PANEL DETAIL



BOTTOM PANEL BEARING DETAIL

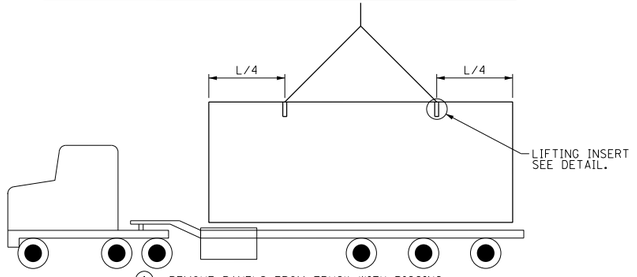


PANEL CONNECTION TO POST DETAIL

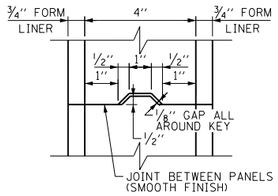


TYPICAL LIFTING INSERT DETAIL

** ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

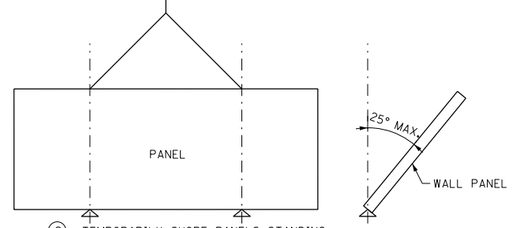


① REMOVE PANELS FROM TRUCK WITH RIGGING.

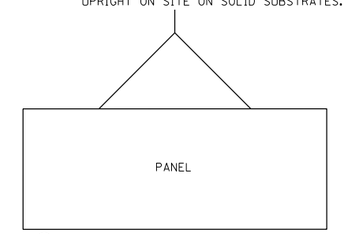


OPTIONAL TONGUE AND GROOVE DETAIL

(IN LIEU OF SHIM AND CAULK)



② TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

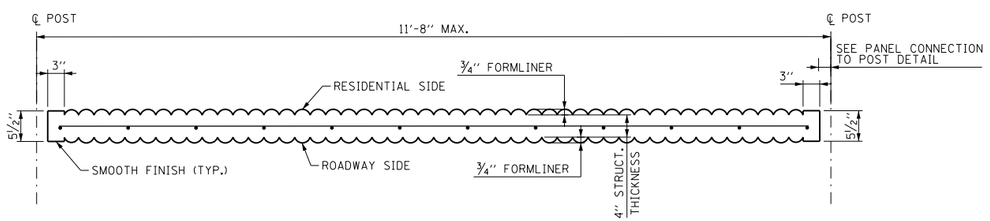


③ ERECT PANELS BETWEEN POSTS

SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

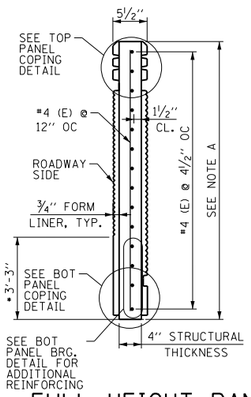
NOTES:

1. STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL -JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED PER MANUFACTURER5*32S 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.

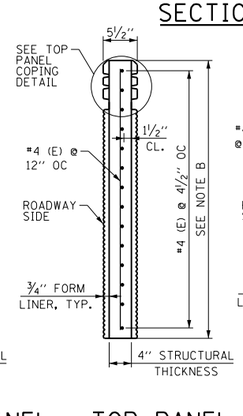


TYPICAL PLAN VIEW THRU NOISE ABATEMENT WALL

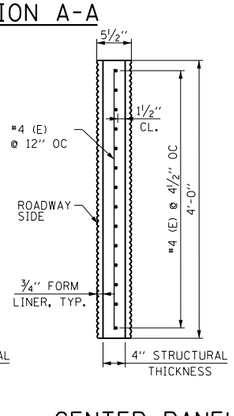
SECTION A-A



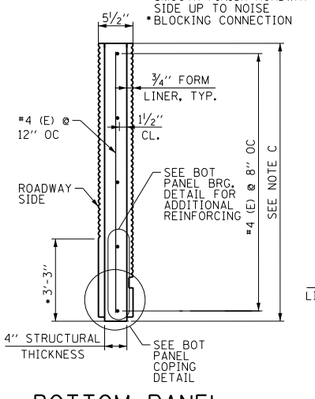
FULL HEIGHT PANEL SECTION B-B



TOP PANEL SECTION B-B



CENTER PANEL SECTION B-B

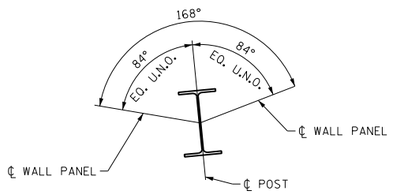


BOTTOM PANEL SECTION B-B

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

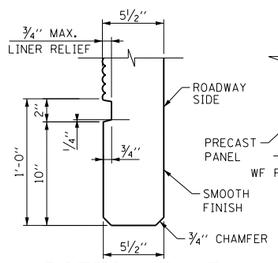
NOTE B
TO ACCOMMODATE VARYING HEIGHT NAW, TOP PANEL WITH ONLY TOP COPING IS PERMITTED TO BE 4'-0", 5'-0", 6'-0", 7'-0" OR 8'-0" TALL

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.

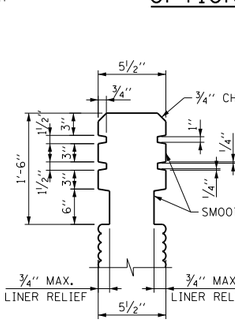


NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE. MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1¾".

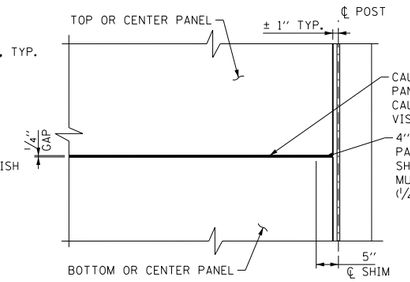
MIN ANGLE BETWEEN PANELS AT TYP POST



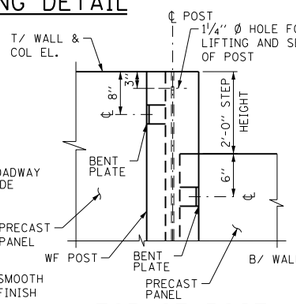
BOTTOM PANEL COPING DETAIL



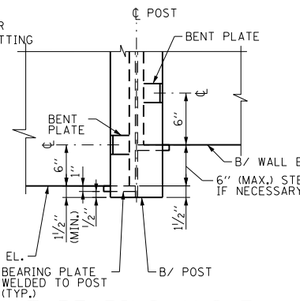
TOP PANEL COPING DETAIL



HORIZONTAL JOINT DETAIL



TOP OF POST



AT BEARING ANGLE

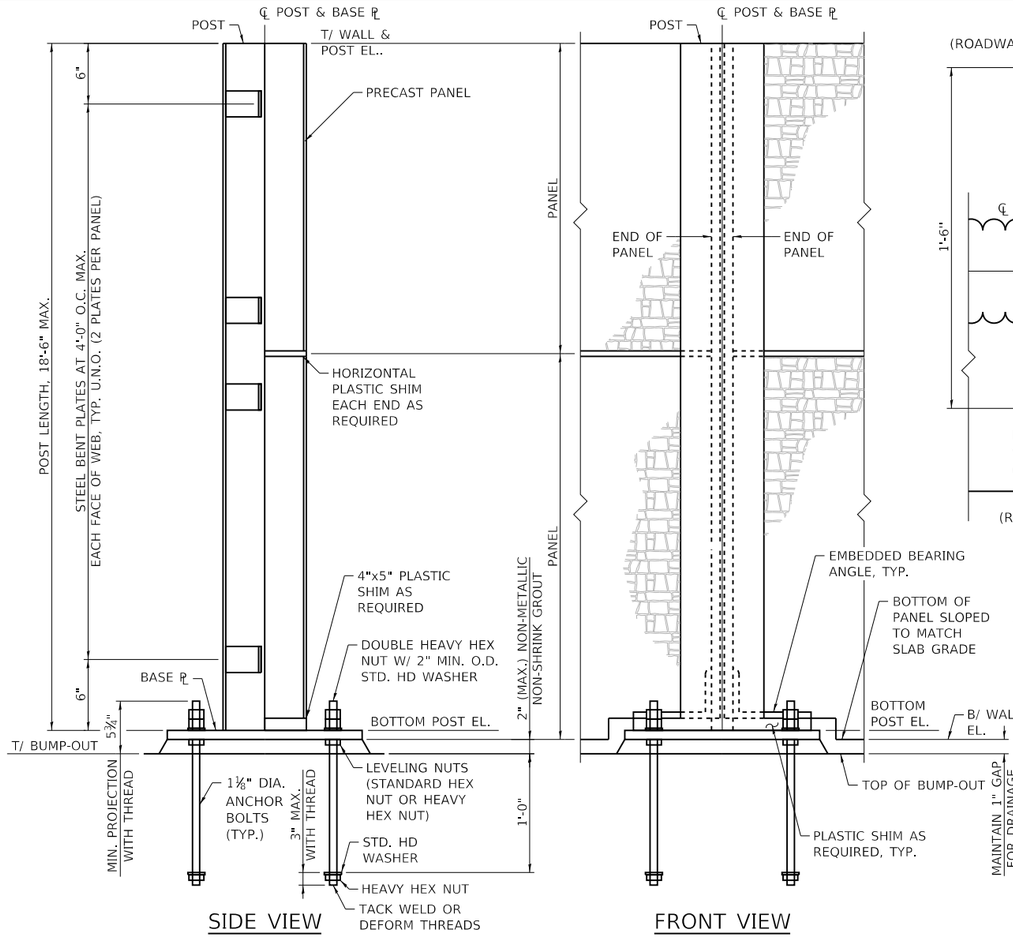
BENT PLATE DETAILS

Paul Kovacs
APPROVED . . . . . DATE 7-17-2020
CHIEF ENGINEERING OFFICER

Illinois Tollway

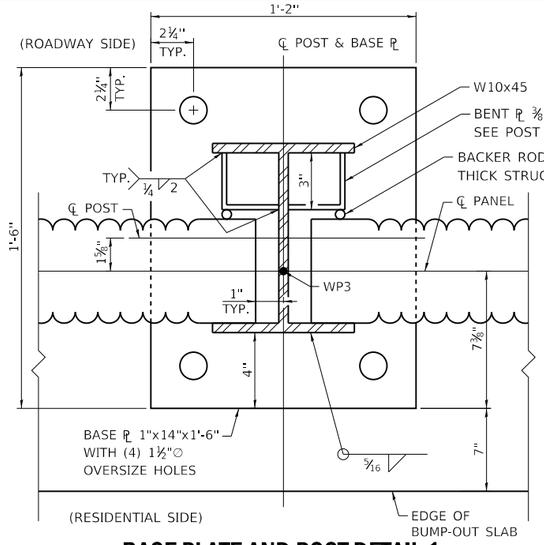
CENTRAL TRI-STATE STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G13-02

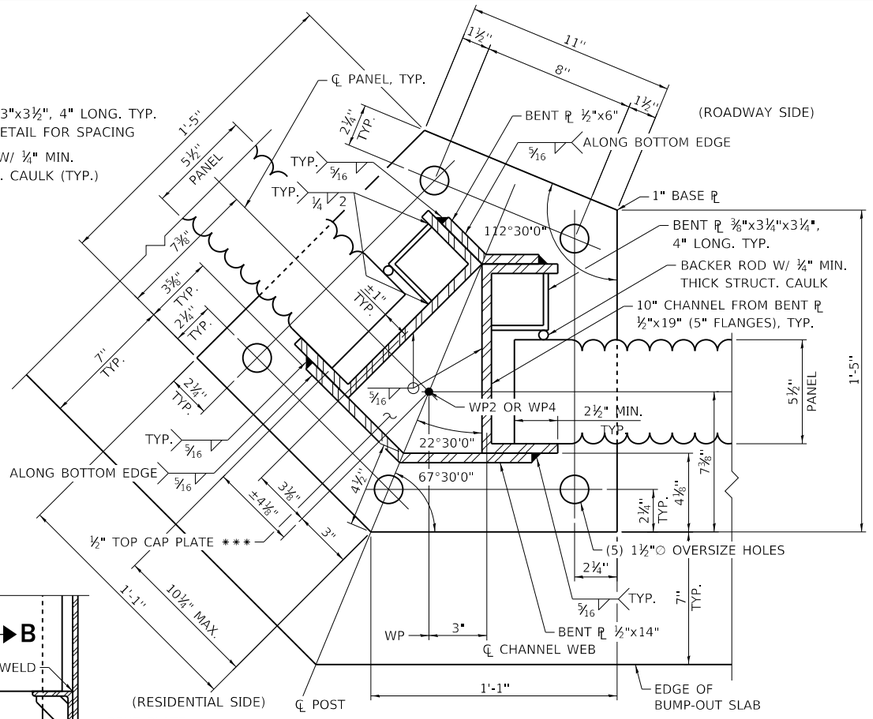


POST DETAIL*

*TYPICAL POST SHOWN, OTHERS SIMILAR

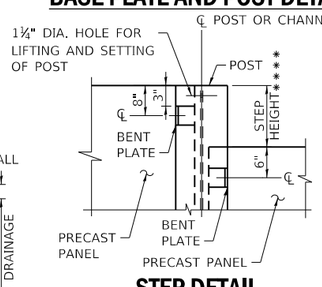


BASE PLATE AND POST DETAIL 1



BASE PLATE AND POST DETAIL 2

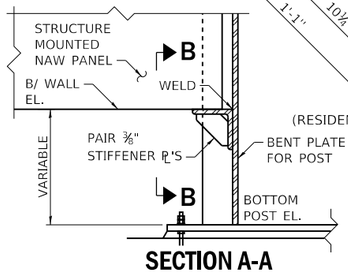
*** TOP CAP PLATE (NOT SHOWN) WELDED ALL AROUND PERIMETER USING ¼" FILLET WELD TO COMPLETELY SEAL POST INTERIOR. SEE DETAIL BELOW.



STEP DETAIL

AT BUMP-OUT ONLY

****STEP IN 6" INCREMENTS UP TO 2'-0" IF NECESSARY.



SECTION A-A

STRUCTURE MOUNTED CONNECTION (REQUIRED AT DETAIL 3 AND 4 LOCATIONS)

GENERAL NOTES

1. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
2. REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
3. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
4. REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
5. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
6. CONSTRUCTION CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
7. STRUCTURAL STEEL SHALL BE PAINTED USING A TOLLWAY APPROVED TWO-COAT PAINT SYSTEM MANUFACTURED BY IDOT APPROVED PRODUCERS. THE FIRST COAT SHALL BE EPOXY POLYAMIDE MEETING THE REQUIREMENTS OF ARTICLE 1008.05 (d) OF THE STANDARD SPECIFICATIONS. THE SECOND COAT SHALL BE ALIPHATIC URETHANE MEETING THE REQUIREMENTS OF ARTICLE 1008.05 (e) OF THE STANDARD SPECIFICATIONS. THE PAINT SYSTEM SHALL BE APPLIED ACCORDING TO THE APPLICABLE PORTIONS OF SECTION 506 AND THE GALVANIZE AND PAINT MANUFACTURER'S RECOMMENDATIONS.
8. THE COLOR OF THE STRUCTURAL STEEL FINAL COAT PAINT SHALL MATCH THE COLOR OF THE PRECAST CONCRETE PANEL STAIN OF SHERWIN-WILLIAMS 7633, TAUPE TONE 248-C4 (#ADA090 HEX COLOR CODE).
9. STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL -JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS.
10. BACKER ROD: MILE HIGH FOAM PRODUCT SIZED PER BACKER ROD MANUFACTURING, INC OR EQUIVALENT.
11. NON -STRUCTURAL CAULK SEALANT: SIKAFLEX 15 LM PER MANUFACTURER'S STANDARD OR EQUIVALENT.
12. SHIMS: VERS-A-SHIM HIGH IMPACT PLASTIC SHIMS ASTM D792 & D695. SHIMS SHALL NOT BE MADE OF MULTIPLE LAYERS.
13. GROUT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1024.02 OF THE STANDARD SPECIFICATIONS. GROUT UNDER POSTS PRIOR TO INSTALLATION OF THE PANELS.
14. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ANY PROPOSED HOLES IN THE BUILT-UP POST FOR GALVANIZING AND/OR ERECTION.

DESIGN LOADS

WIND LOAD = 50 PSF (STR. III)
= 15 PSF (SERV I)

DEFLECTION:
PANEL = L/180
POST = H/360

DESIGN SPECIFICATIONS

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

DESIGN STRESSES

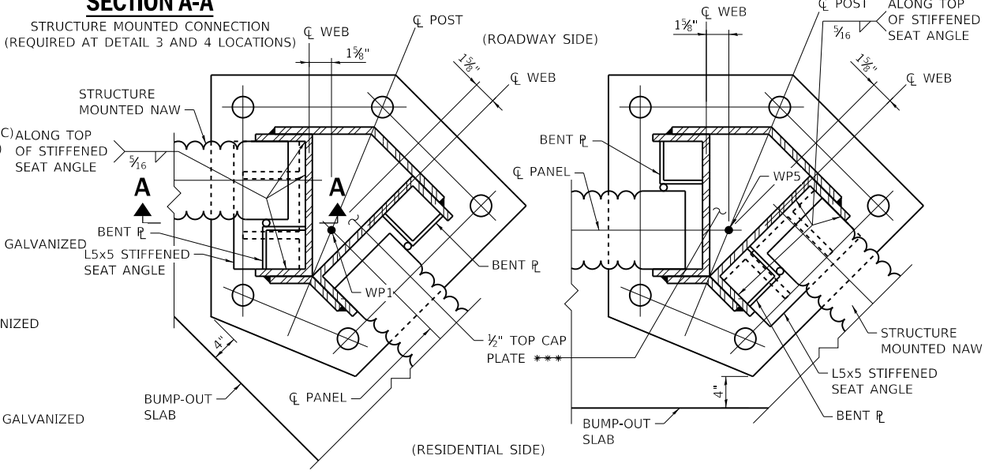
PRECAST CONCRETE:
f'c = 5,000 PSI AT 28 DAYS (CLASS PC)
f'c = 3,500 PSI AT 5 DAYS (SHIPPING)
DENSITY = 150 PCF

STEEL POST:
ASTM A709 (AASHTO M270)
GRADE 50, fy = 50 KSI
ALL STEEL POSTS TO BE HOT DIPPED GALVANIZED

BENT PLATE AND BEARING ANGLES:
ASTM A709 (AASHTO M270)
GRADE 50, fy = 50 KSI U.N.O.
ALL STEEL TO BE HOT DIPPED GALVANIZED

ANCHOR BOLT ASSEMBLY:
BOLT: ASTM F1554, GRADE 105
HEAVY HEX NUTS: ASTM A563, DH3
HARDENED WASHERS: ASTM F436
ASSEMBLY PIECES SHALL BE HOT-DIP GALVANIZED

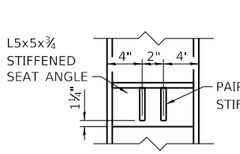
REINFORCING STEEL:
ASTM A709 (AASHTO M270)
fy = 60,000 PSI (EPOXY COATED)



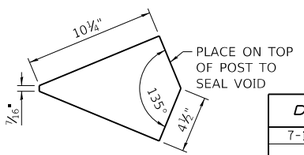
BASE PLATE AND POST DETAIL 3**

BASE PLATE AND POST DETAIL 4**

**BASE PLATE AND POST DETAILS 3 AND 4 ARE SIMILAR TO BASE PLATE AND POST DETAIL 2, EXCEPT AS NOTED.



SECTION B-B



TOP CAP PLATE

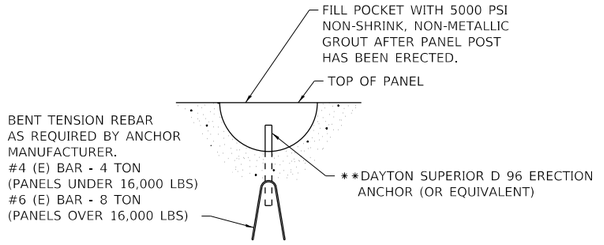
Paul Kovacs
APPROVED..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER

DATE	REVISIONS
7-17-2020	REVISE NOTE 1, ADD TONGUE AND
	GROOVE DETAIL AND REVISE NOTE C
3-01-2021	REVISE CHANNEL PL. TO 19'' WITH
	5'' FLANGES AND CLARIFIED CL. DIM.
	MOVE TOP BENT PLATE AND ADD
	LIFTING HOLE TO TOP OF POST

Illinois Tollway

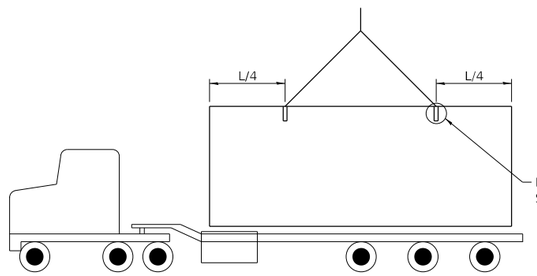
CENTRAL TRI-STATE BUMP-OUT MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G14-02

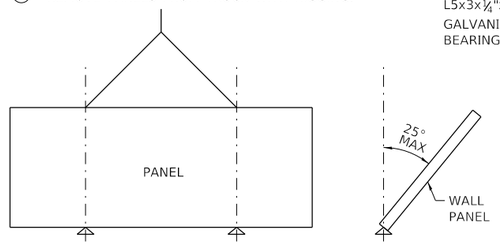


TYPICAL LIFTING INSERT DETAIL

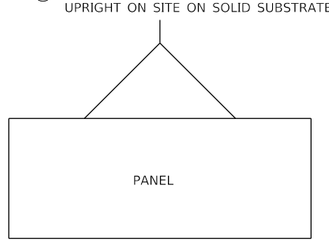
**ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED



① REMOVE PANELS FROM TRUCK WITH RIGGING.



② TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.



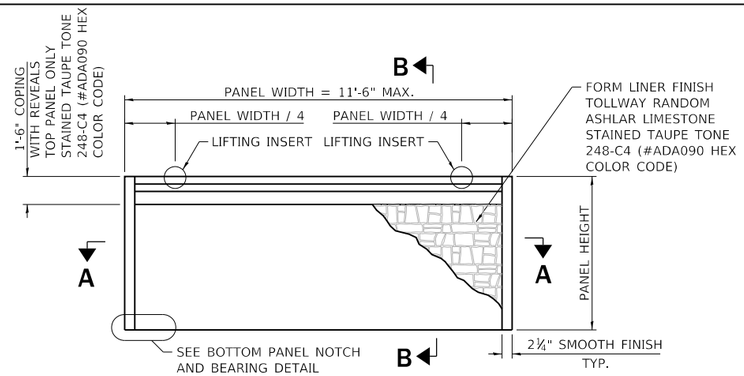
③ ERECT PANELS BETWEEN POSTS

SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

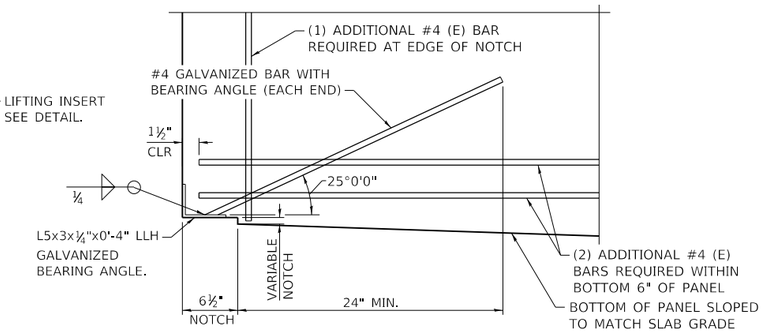
NOTES:
1. LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1

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.

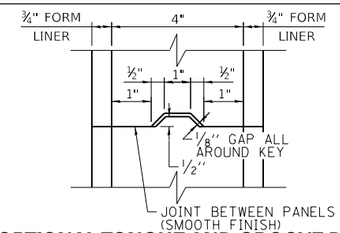
Paul Kovacs
APPROVED..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER



TYPICAL NOISE WALL PANEL DETAIL

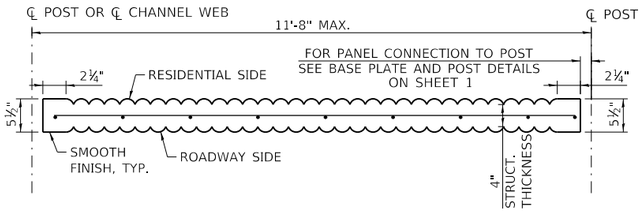


BOTTOM PANEL NOTCH AND BEARING DETAIL



OPTIONAL TONGUE AND GROOVE DETAIL

(IN LIEU OF SHIM AND CAULK)



TYPICAL PLAN VIEW THRU NOISE ABATEMENT WALL

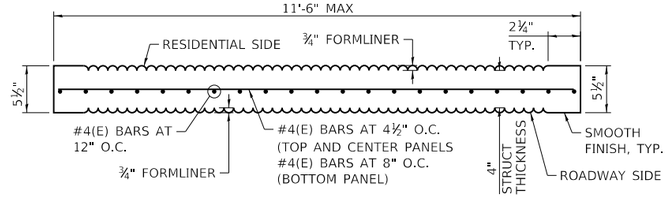
MISCELLANEOUS STEEL QUANTITY

W POST

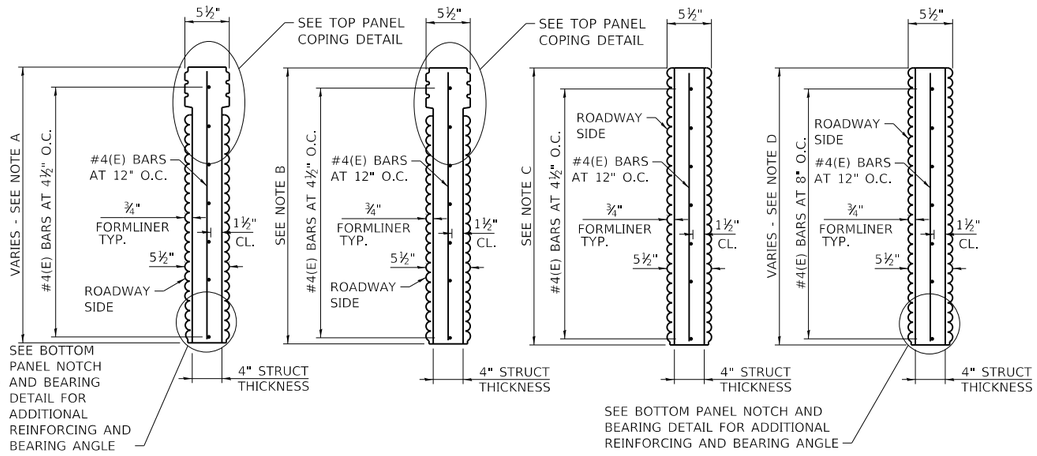
DESCRIPTION	WEIGHT
BASE PLATE	71 LBS.
BENT PLATE ALLOWANCE (16 PIECES)	44 LBS.
ANCHOR BOLT ASSEMBLY (4 EACH)	32 LBS.
TOTAL	147 LBS.

BUILT-UP POST

DESCRIPTION	WEIGHT
BASE PLATE	95 LBS.
TOP CAP PLATE	7 LBS.
BENT PLATE ALLOWANCE (16 PIECES)	44 LBS.
ANCHOR BOLT ASSEMBLY (5 EACH)	39 LBS.
STRUCTURE MOUNTED CONNECTION	21 LBS.
TOTAL	206 LBS.



SECTION A-A



FULL HEIGHT PANEL
SECTION B-B

TOP PANEL
SECTION B-B

CENTER PANEL
SECTION B-B

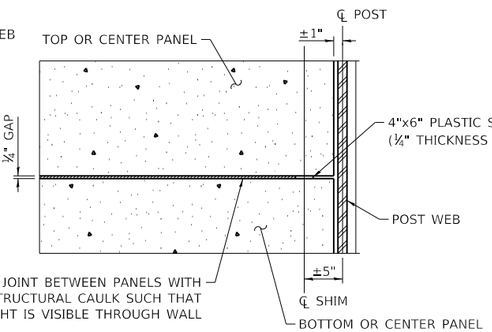
BOTTOM PANEL
SECTION B-B

NOTE A
TO ACCOMMODATE VARYING SLAB GRADES, FULL HEIGHT PANEL WILL VARY TO FOLLOW SLOPE ON BUMP-OUT SLAB AND TO MAINTAIN A 1" GAP.

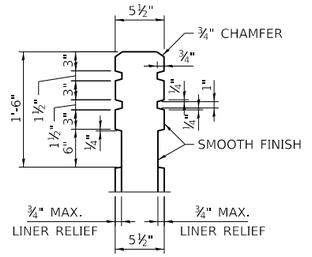
NOTE B
TO ACCOMMODATE VARYING HEIGHT NAW, TOP PANEL IS PERMITTED TO BE 4'-0", 5'-0", 6'-0", 7'-0" OR 8'-0" TALL.

NOTE C
TO ACCOMMODATE VARYING HEIGHT NAW, CENTER PANEL IS PERMITTED TO BE 4'-0" OR 4'-6" TALL. CONTRACTOR MAY INCREASE THE STANDARD CENTER PANEL HEIGHTS, MAXIMUM 8FT, TO MINIMIZE THE NUMBER OF JOINTS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

NOTE D
TO ACCOMMODATE VARYING SLAB GRADES, BOTTOM PANEL HEIGHT WILL VARY TO FOLLOW SLOPE ON BUMP-OUT SLAB AND TO MAINTAIN A 1" GAP. PANEL HEIGHT SHOULD NOT EXTEND ABOVE BOTTOM OF STRUCTURE MOUNTED BOTTOM PANEL.



HORIZONTAL JOINT DETAIL

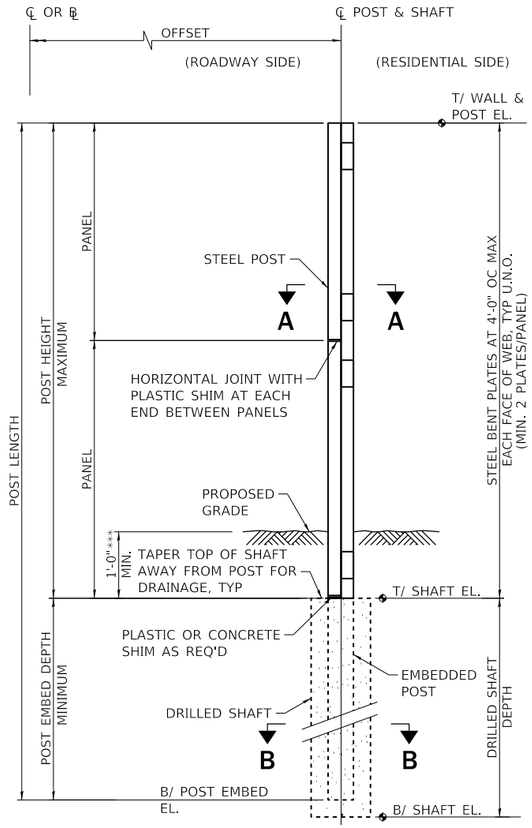


TOP PANEL COPING DETAIL

Illinois Tollway

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

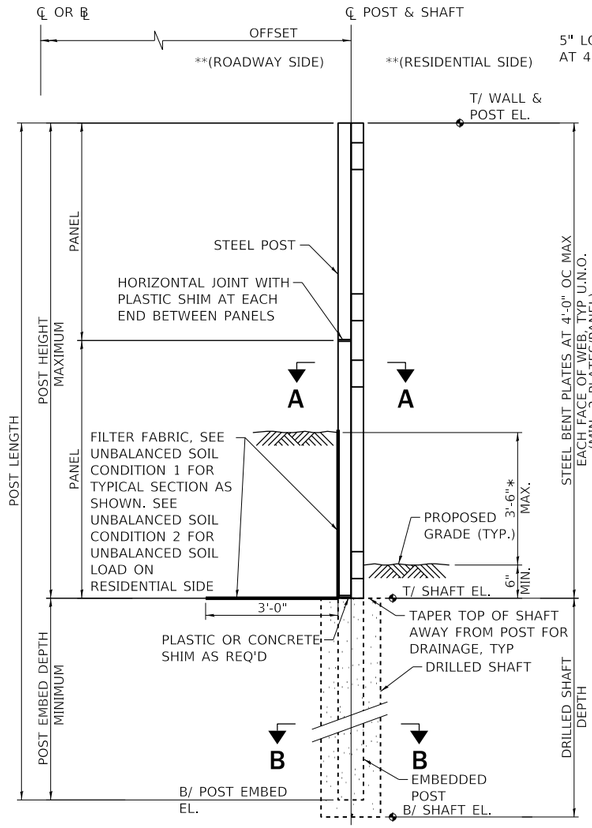
STANDARD G14-02



TYPICAL CROSS SECTION

(BALANCED SOIL LOAD)

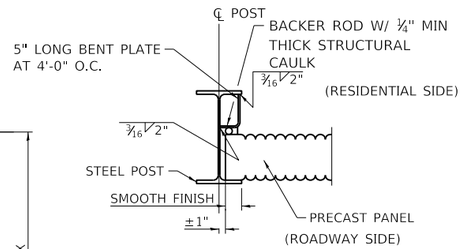
*** BALANCED SOIL CONDITION CAN ACCOMMODATE UP TO A 9" UNBALANCED SOIL LOAD



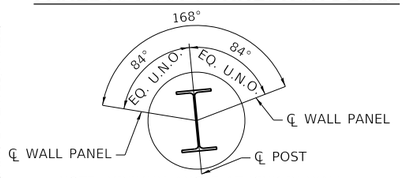
TYPICAL CROSS SECTION

(UNBALANCED SOIL LOAD)

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

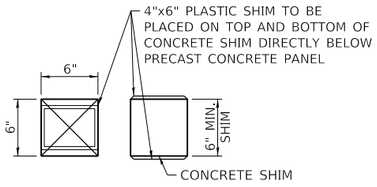


PANEL TO POST CONNECTION DETAIL



NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE, MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1¾".

MIN ANGLE BETWEEN PANELS AT TYP POST

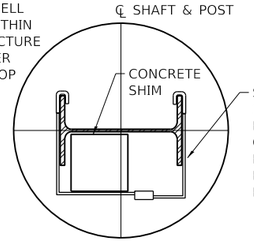


CONCRETE SHIM DETAIL

1

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

* UNBALANCED SOIL LOAD VARIES 9" (MIN.) AND 3'-6" (MAX.) WHEN NAW IS PLACED WELL 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.



SHIM TO POST CONNECTION DETAIL 2

GENERAL NOTES

1. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" 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.
2. REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
3. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
4. REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
5. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
6. CONSTRUCTION CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
7. END POSTS SHALL HAVE NO BENT PLATES ON EXPOSE SIDE.
8. THE FOUNDATION DETAILS SHOWN 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. WHEN OTHER CONDITIONS ARE INDICATED, THE FOUNDATION DIMENSIONS SHOWN SHALL BE INCLUDED IN THE PLANS AND THE FOUNDATION DIMENSIONS SHOWN SHALL BE THE RESULT OF THE SITE SPECIFIC DESIGNS. 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. 8TH EDITION DATED SEPTEMBER 2017.

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'c = 5,000 PSI AT 28 DAYS (CLASS PC)
f'c = 3,500 PSI AT 5 DAYS (SHIPPING)
DENSITY = 150 PCF

FOUNDATION CONCRETE CLASS SI:
f'c = 3,500 PSI AT 14 DAYS PER SECTION 1020 OF IDOT STANDARD SPECIFICATIONS.

STEEL POSTS:
ASTM A709 (AASHTO M270)
GRADE 50, fy = 50 KSI
ALL STEEL POSTS SHALL BE HOT-DIP GALVANIZED

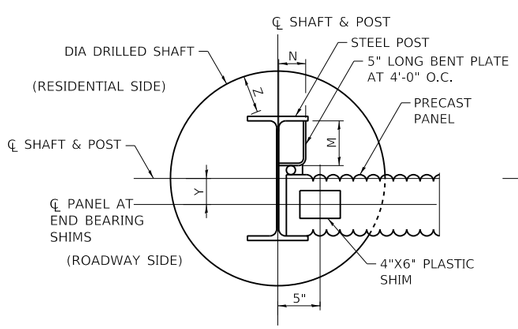
BENT PLATE AND BEARING ANGLES:
ASTM A709 (AASHTO M270)
GRADE 36, fy = 36 KSI U.N.O.
ALL STEEL SHALL BE HOT-DIP GALVANIZED

REINFORCING STEEL:
fy = 60,000 PSI (EPOXY COATED)

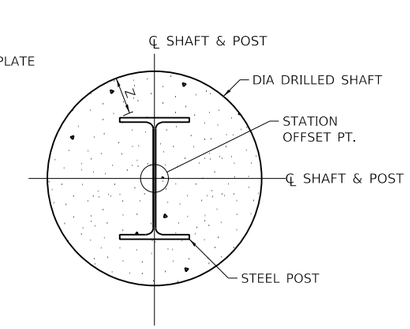
POST & DRILLED SHAFT DESIGN

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
NON-CRASHWORTHY GROUND MOUNTED I	15'-0"	10'-0"	20'-0"	12'-0"	W18X35**	3 15/16"	7"x2⅜"x⅜"	5⅜"	2'-6"
NON-CRASHWORTHY GROUND MOUNTED II	20'-0"	12'-0"	20'-0"	16'-0"	W21X50**	5⅜"	10"x2¾"x⅜"	4⅛"	2'-6"
NON-CRASHWORTHY GROUND MOUNTED III	25'-0"	12'-6"	20'-0"	15'-0"	W21X68	5⅜"	10"x3½"x⅜"	6⅜"	3'-0"
NON-CRASHWORTHY GROUND MOUNTED IV	28'-0"	13'-6"	20'-0"	15'-6"	W21X83	5⅜"	10"x3½"x⅜"	9½"	3'-6"

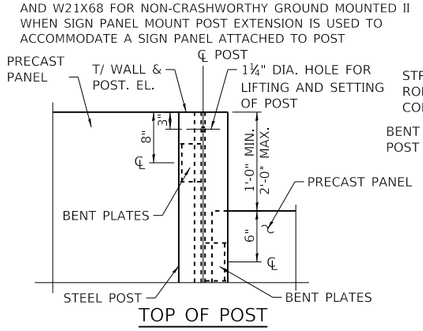
** USE W18x65 FOR NON-CRASHWORTHY GROUND MOUNTED I AND W21X68 FOR NON-CRASHWORTHY GROUND MOUNTED II WHEN SIGN PANEL MOUNT POST EXTENSION IS USED TO ACCOMMODATE A SIGN PANEL ATTACHED TO POST



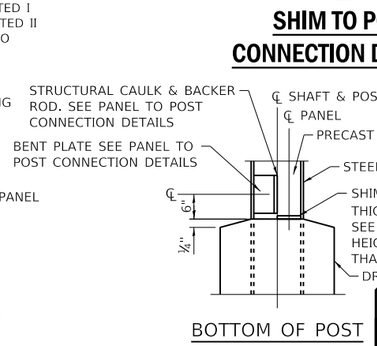
SECTION A-A



SECTION B-B



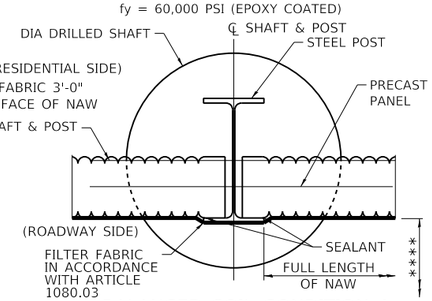
TOP OF POST



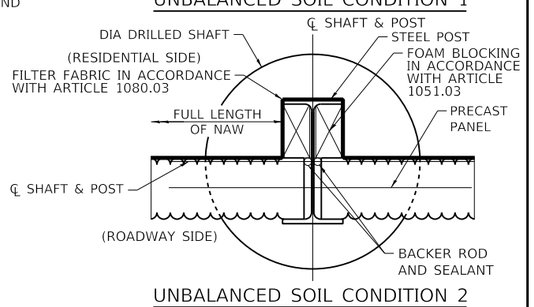
BOTTOM OF POST

BENT PLATE DETAILS

**** EXTEND FILTER FABRIC 3'-0" BEYOND FRONT FACE OF NAW



UNBALANCED SOIL CONDITION 1



UNBALANCED SOIL CONDITION 2

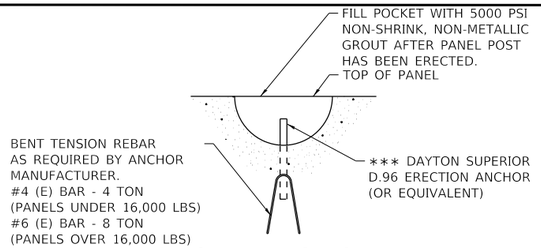
DATE	REVISIONS
7-17-2020	REVISE NOTE 1, ADD FILTER FABRIC DET., ADD
	NOTE THAT TYP. SECT. ACCOMODATES 9"
	UNBALANCED SOIL, REV. CONC. SHIMS TO 6"
	MIN., INC. MIN. ANGLE BETW. POST AND PANEL
	REMOVE REDUNDANT DIS. IN SECT. B-B.
	CLARIFY 1.5" DIM. IN 90 DEG. DET., ADD
	TONGUE AND GROOVE DET., ADD NOTE B
3-01-2021	CLARIFIED 90 DEG. DET., ADDED DIM. C.
	REVISED CL. ON 4" PANELS TO 1.5", MOVE
	TOP BENT PLATE, ADD LIFTING HOLE AND REV.
	BEARING WIDTH ANGLE

Illinois Tollway

NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G15-02

Paul Kovacs
APPROVED ..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER

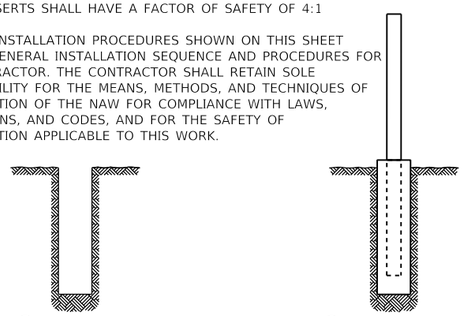


TYPICAL LIFTING INSERT DETAIL

*** ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

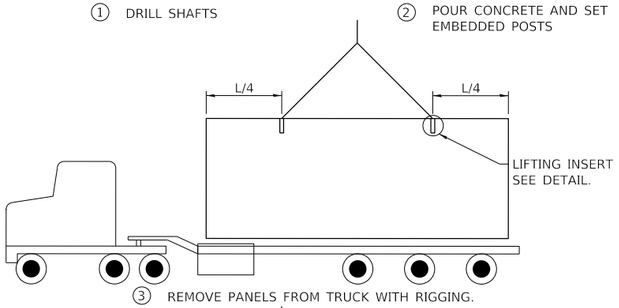
NOTES:

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.

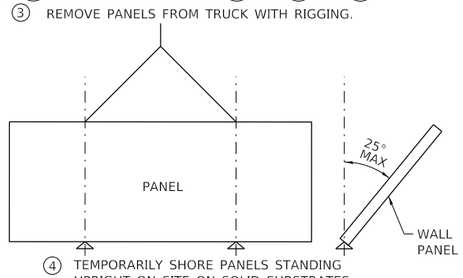


① DRILL SHAFTS

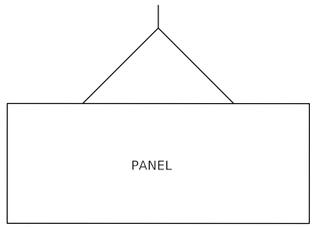
② POUR CONCRETE AND SET EMBEDDED POSTS



③ REMOVE PANELS FROM TRUCK WITH RIGGING.

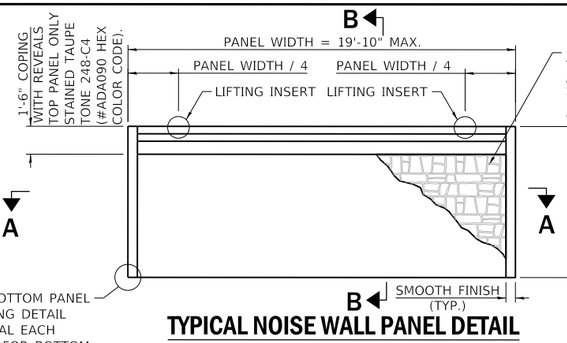


④ TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

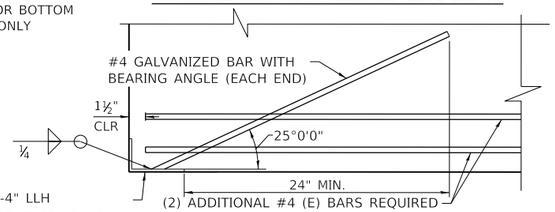


⑤ ERECT PANELS BETWEEN POSTS

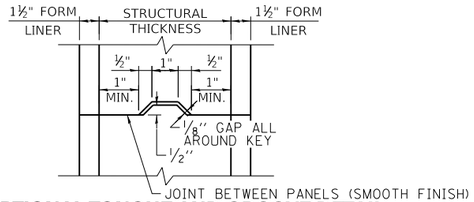
SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE



TYPICAL NOISE WALL PANEL DETAIL

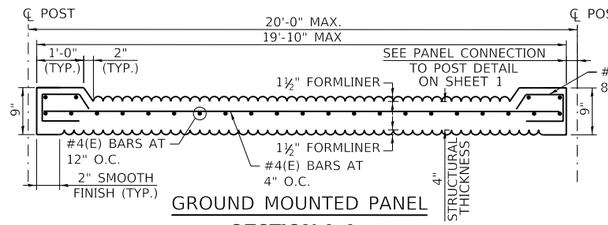


BOTTOM PANEL BEARING DETAIL



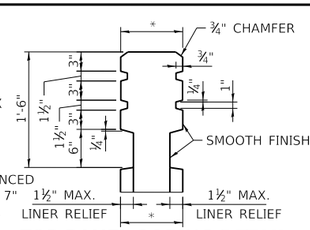
OPTIONAL TONGUE AND GROOVE DETAIL

(IN LIEU OF SHIM AND CAULK)

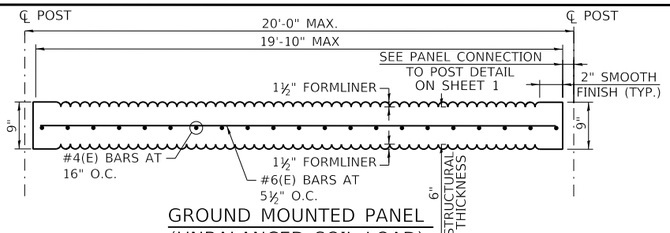


GROUND MOUNTED PANEL

SECTION A-A



TOP PANEL COPING DETAIL

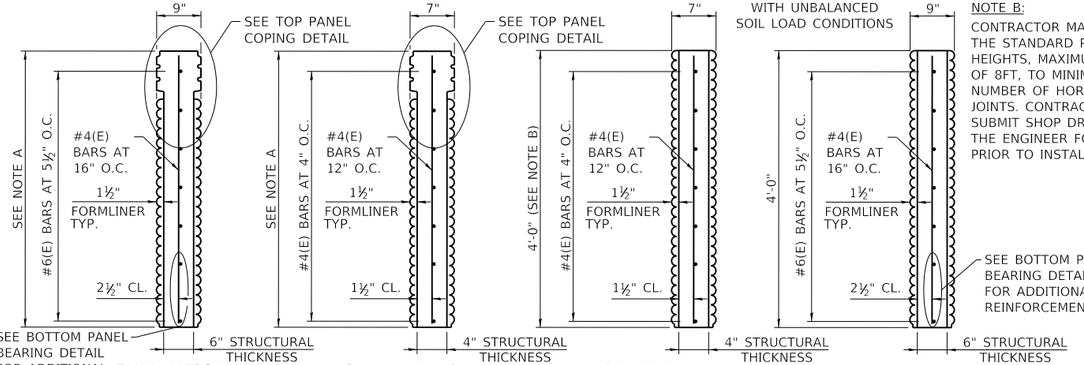


GROUND MOUNTED PANEL
(UNBALANCED SOIL LOAD)

SECTION A-A

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

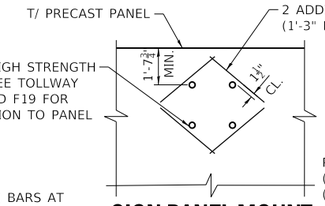


FULL HEIGHT PANEL** — TOP PANEL OR FULL HEIGHT PANEL — CENTER PANEL OR BOTTOM PANEL — BOTTOM PANEL**

SECTION B-B

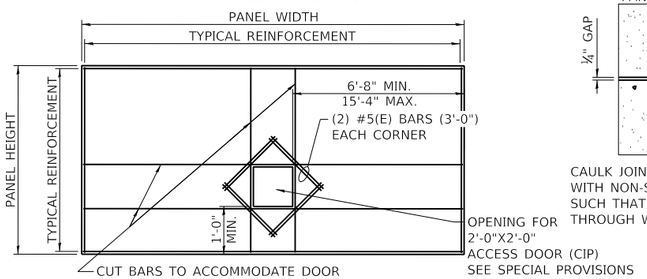
NOTE B:

CONTRACTOR MAY INCREASE THE STANDARD PANEL HEIGHTS, MAXIMUM HEIGHT OF 8FT, TO MINIMIZE THE NUMBER OF HORIZONTAL JOINTS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

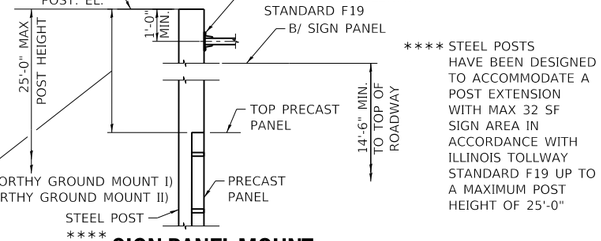


SIGN PANEL MOUNT TO PANEL DETAIL

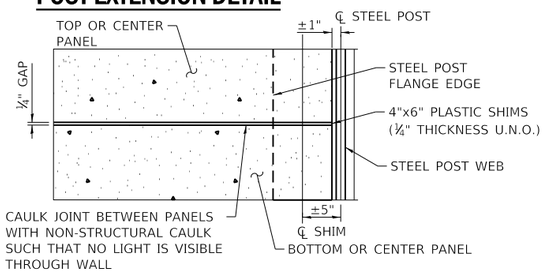
PRECAST PANELS HAVE BEEN DESIGNED TO ACCOMMODATE SIGN PANEL MOUNTED WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19. MIN. PANEL HEIGHT SUPPORTING SIGN SHALL BE 5'-0".



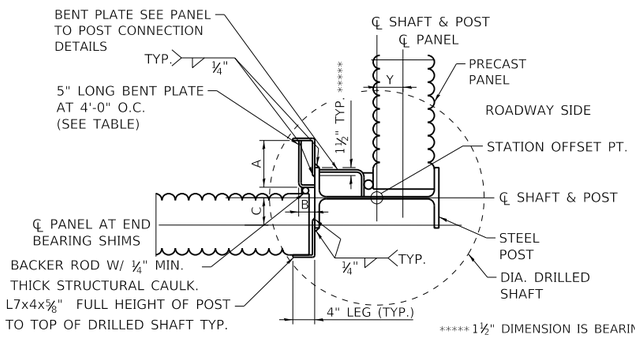
FIRE HYDRANT ACCESS OPENING DETAIL



SIGN PANEL MOUNT POST EXTENSION DETAIL



HORIZONTAL JOINT DETAIL

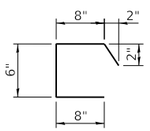


90° TURN DETAIL

***** 1½" DIMENSION IS BEARING LENGTH OF THE L7x4x⅝" ANGLE ON THE POST FLANGE

90° TURN BENT PLATE TABLE

NAW TYPE	BENT PLATE A x B x THICK.	DIM. C
NON-CRASHWORTHY GROUND MOUNTED I	6"x3"x⅜"	3⅜"
NON-CRASHWORTHY GROUND MOUNTED II	6½"x3"x⅜"	3⅝"
NON-CRASHWORTHY GROUND MOUNTED III	8½"x3"x⅜"	4½"
NON-CRASHWORTHY GROUND MOUNTED IV	8½"x3"x⅜"	4⁹⁄₁₆"



END BAR DETAIL

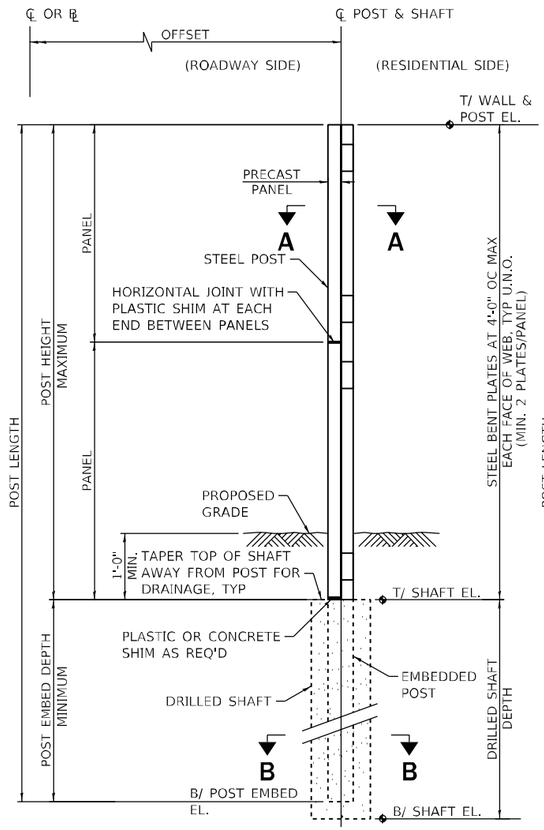
Paul Kovacs
APPROVED ..... DATE 7-17-2020
CHIEF ENGINEERING OFFICER

SHEET 2 OF 2

Illinois Tollway

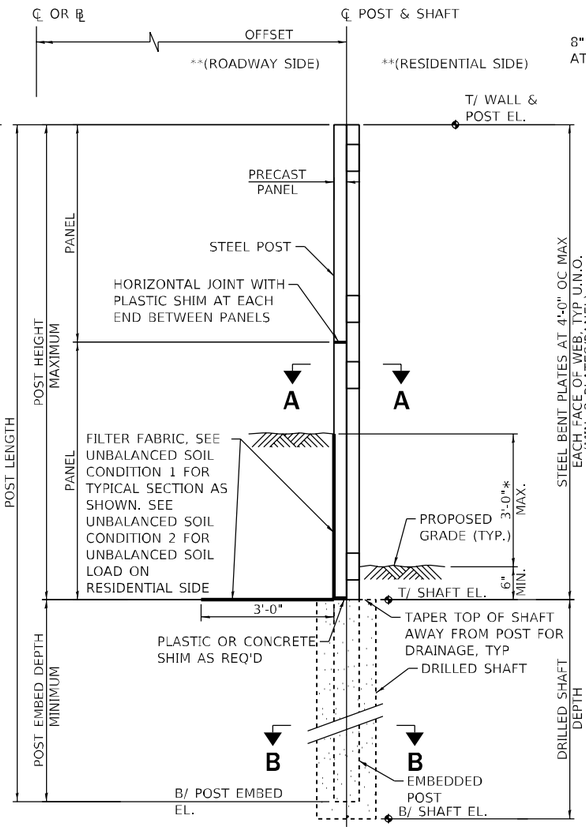
NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G15-02



TYPICAL CROSS SECTION

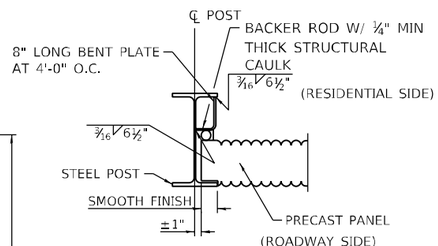
(BALANCED SOIL LOAD)



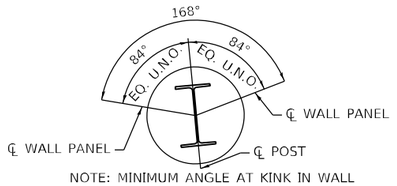
TYPICAL CROSS SECTION

(UNBALANCED SOIL LOAD)

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

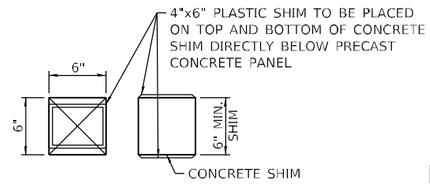


PANEL TO POST CONNECTION DETAIL



NOTE: MINIMUM ANGLE AT KINK IN WALL NOT REQUIRING POST WITH WIDER FLANGE, MINIMUM DISTANCE FROM FLANGE EDGE TO THE PANEL EDGE SHALL BE 1¾".

MIN ANGLE BETWEEN PANELS AT TYP POST

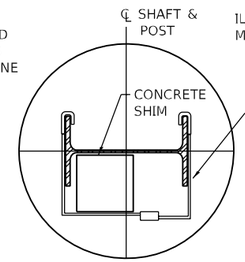


CONCRETE SHIM DETAIL

DETAIL 1

SHIMS TO BE SECURED TO THE POST SEE DETAIL 2

* 3'-0" IS MAX. UNBALANCED SOIL LOAD WHEN NAW IS PLACED INSIDE CLEAR ZONE TO MAINTAIN TL-4 TEST LEVEL.



SHIM TO POST CONNECTION DETAIL 2

GENERAL NOTES

1. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" 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.
2. REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT BARS, SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 (ASTM A706), GRADE 60, DEFORMED BARS.
3. REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.
4. REINFORCEMENT BAR BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
5. REINFORCEMENT BAR BENDING DIMENSIONS ARE OUT TO OUT.
6. CONSTRUCTION CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES SHOWN ARE FOR INFORMATION ONLY.
7. END POSTS SHALL HAVE NO BENT PLATES ON EXPOSE SIDE.
8. THE FOUNDATION DETAILS SHOWN 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. WHEN OTHER CONDITIONS ARE INDICATED, THE FOUNDATION DIMENSIONS SHOWN SHALL BE INCLUDED IN THE PLANS AND THE FOUNDATION DIMENSIONS SHOWN SHALL BE THE RESULT OF THE SITE SPECIFIC DESIGNS. 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 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'c = 5,000 PSI AT 28 DAYS (CLASS PC)
f'c = 3,500 PSI AT 5 DAYS (SHIPPING)
DENSITY = 150 PCF

FOUNDATION CONCRETE CLASS SI:
f'c = 3,500 PSI AT 14 DAYS PER SECTION 1020 OF IDOT STANDARD SPECIFICATIONS.

STEEL POSTS:
ASTM A709 (AASHTO M270)
GRADE 50, fy = 50 KSI
ALL STEEL POSTS SHALL BE HOT-DIP GALVANIZED

BENT PLATE AND BEARING ANGLES:
ASTM A709 (AASHTO M270)
GRADE 36, fy = 36 KSI U.N.O.
ALL STEEL SHALL BE HOT-DIP GALVANIZED

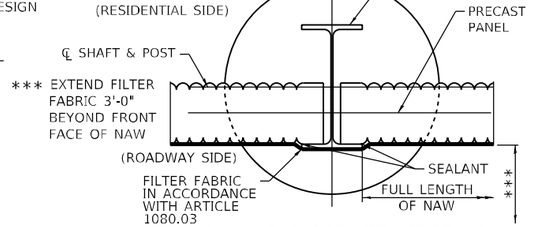
REINFORCING STEEL:
fy = 60,000 PSI (EPOXY COATED)

DESIGN SPECIFICATIONS

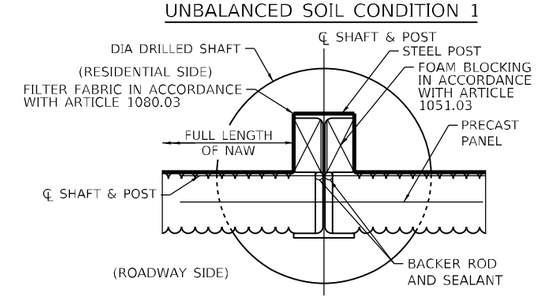
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. 8TH EDITION DATED SEPTEMBER 2017.

ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL, LATEST EDITION

ILLINOIS TOLLWAY GEOTECHNICAL MANUAL, LATEST EDITION



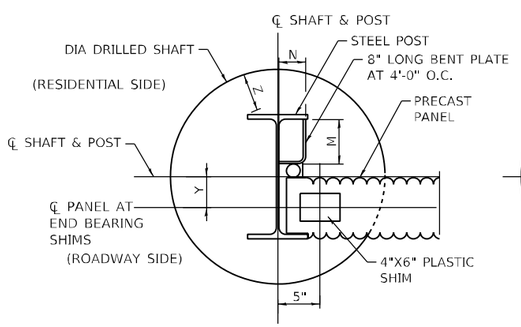
UNBALANCED SOIL CONDITION 1



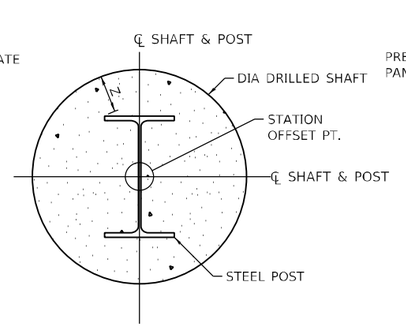
UNBALANCED SOIL CONDITION 2

POST & DRILLED SHAFT DESIGN

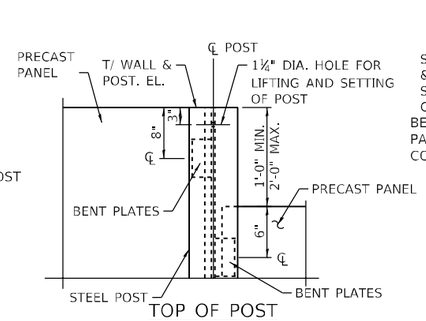
NAW TYPE	MAX POST HEIGHT	MIN POST EMBED DEPTH	MAX DRILLED SHAFT SPACING	DRILLED SHAFT DEPTH	STEEL POST SIZE	Y	BENT PLATE M x N x THICK.	Z	DIA
CRASHWORTHY GROUND MOUNTED I	15'-0"	16'-6"	15'-0"	18'-6"	W21x68	5 1/16"	8½"x3½"x½"	6⅜"	3'-0"
CRASHWORTHY GROUND MOUNTED II	20'-0"	16'-6"	15'-0"	18'-6"	W21x68	5 1/16"	8½"x3½"x½"	6⅜"	3'-0"
CRASHWORTHY GROUND MOUNTED III	25'-0"	16'-6"	15'-0"	18'-6"	W21x68	5 1/16"	8½"x3½"x½"	6⅜"	3'-0"
CRASHWORTHY GROUND MOUNTED IV	28'-0"	16'-6"	15'-0"	19'-0"	W21x68	5 1/16"	8½"x3½"x½"	6⅜"	3'-0"



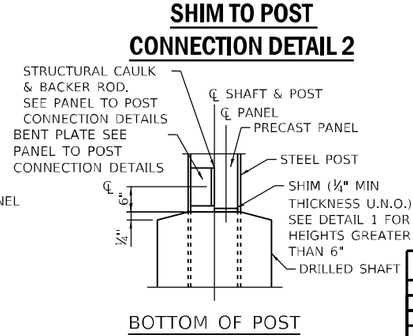
SECTION A-A



SECTION B-B



TOP OF POST



BOTTOM OF POST

BENT PLATE DETAILS

DATE	REVISIONS
7-17-2020	REV. NOTE 1, ADD FILTER FABRIC DET., REV. CONC. SHIMS TO 6" MIN., INC. MIN. ANGLE BETW. POST AND PANEL, REMOVE REDUNDANT DIMS. IN. SECT. B-B, REV. END BAR SPACING TO 14" IN SECT. A-A, CLARIFY 1" DIM. IN 90 DEG. DET., REV. POST SIZE IN POST EXTENSION DET, ADD TONGUE AND GROOVE DET. AND ADDED NOTE C
3-01-2021	CLARIFED 90 DEG. DET., REMOVE BENT PL. TABLE, MOVE TOP BENT PL., ADD LIFTING HOLE, CHANGE M DIM., REVISE BEARING ANGLE WIDTH AND ADD BRG. PL. CLIP DIM.

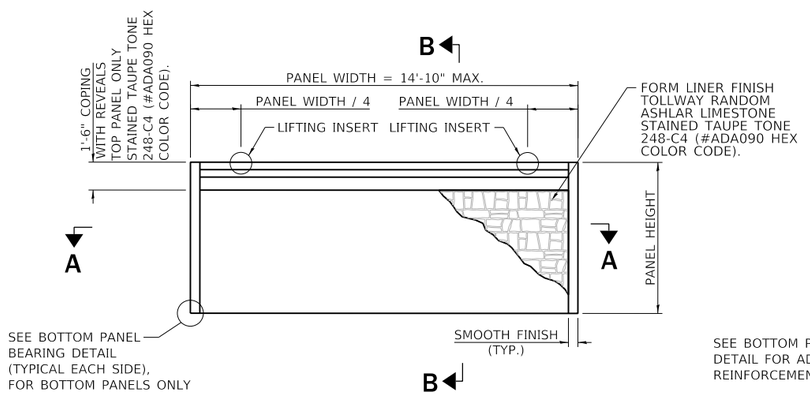
Illinois Tollway

CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

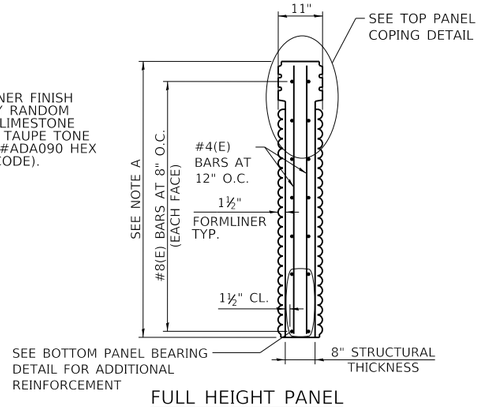
STANDARD G16-02

SHEET 1 OF 3

Paul Kovacs
APPROVED. . . . . DATE 7-17-2020
CHIEF ENGINEERING OFFICER

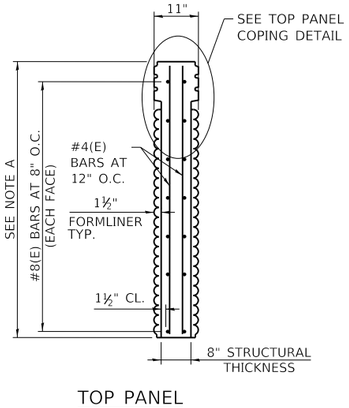


TYPICAL NOISE WALL PANEL DETAIL



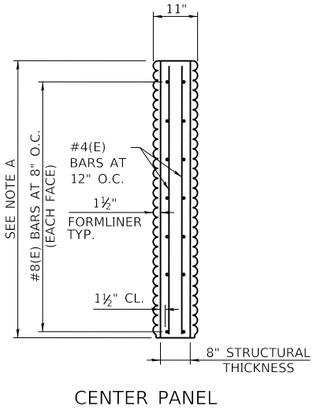
FULL HEIGHT PANEL
(TL-4 IMPACT LOAD)

SECTION B-B



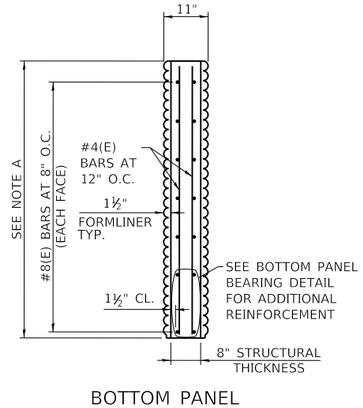
TOP PANEL
(TL-4 IMPACT LOAD)

SECTION B-B



CENTER PANEL
(TL-4 IMPACT LOAD)

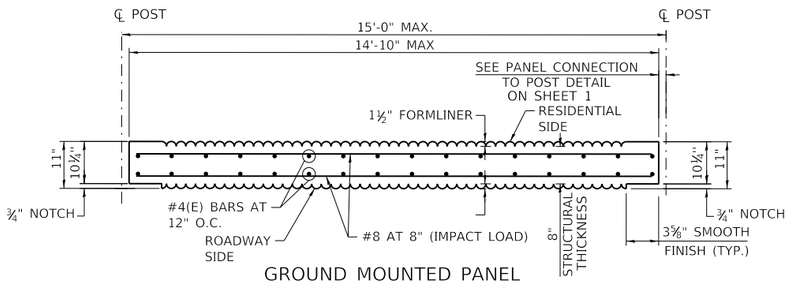
SECTION B-B



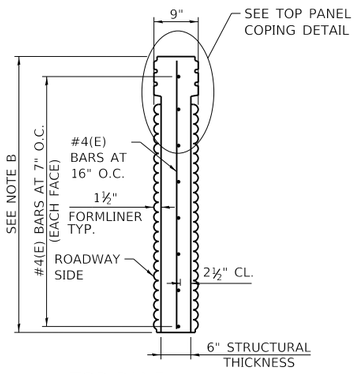
BOTTOM PANEL
(TL-4 IMPACT LOAD)

SECTION B-B

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

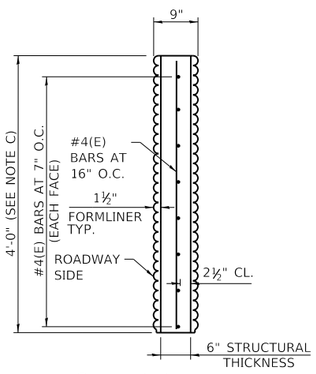


GROUND MOUNTED PANEL
(TL-4 IMPACT LOAD)



TOP PANEL
(NO TL-4 IMPACT LOAD)

SECTION B-B

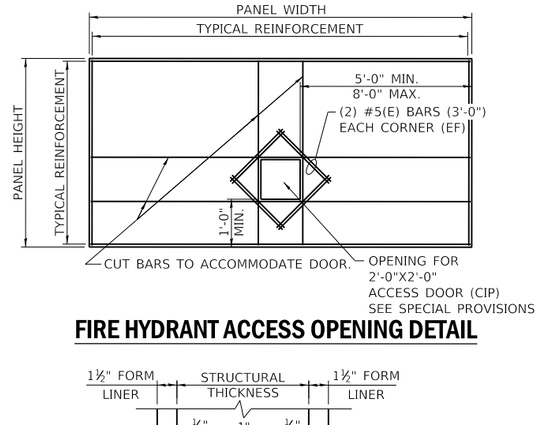


CENTER PANEL
(NO TL-4 IMPACT LOAD)

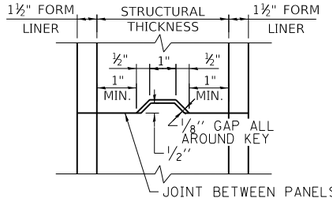
SECTION B-B

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.

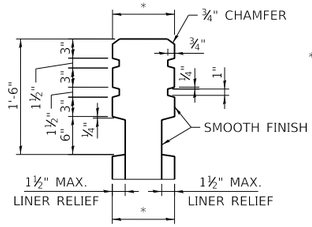


FIRE HYDRANT ACCESS OPENING DETAIL



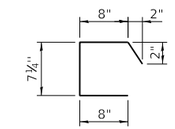
OPTIONAL TONGUE AND GROOVE DETAIL

(IN LIEU OF SHIM AND CAULK)

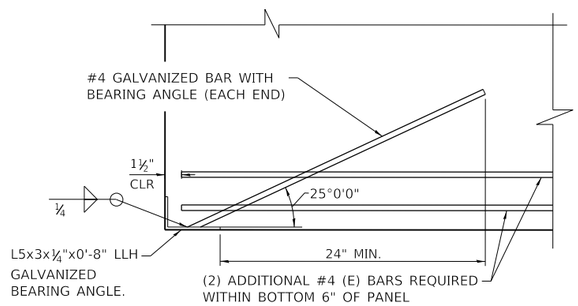


* 11" FOR TL-4 IMPACT LOAD PANEL OR 9" FOR NO TL-4 IMPACT LOAD PANEL

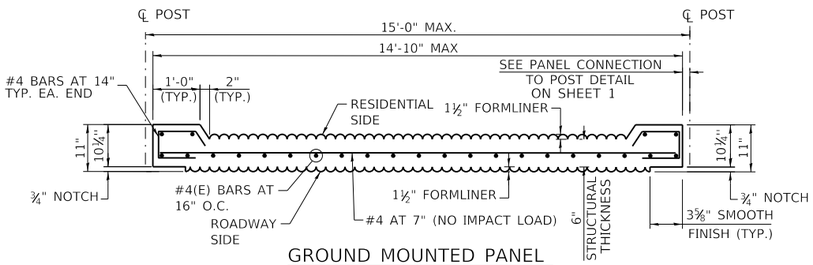
TOP PANEL COPING DETAIL



END BAR DETAIL



BOTTOM PANEL BEARING DETAIL



GROUND MOUNTED PANEL
(NO TL-4 IMPACT LOAD)

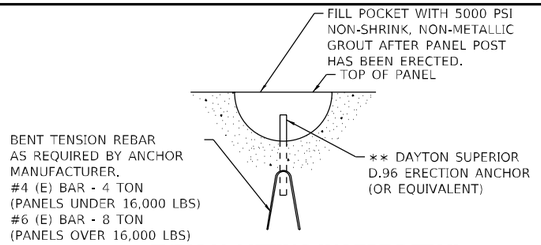
SECTION A-A

APPROVED Paul Kovacs DATE 7-17-2020
CHIEF ENGINEERING OFFICER

Illinois Tollway

CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G16-02

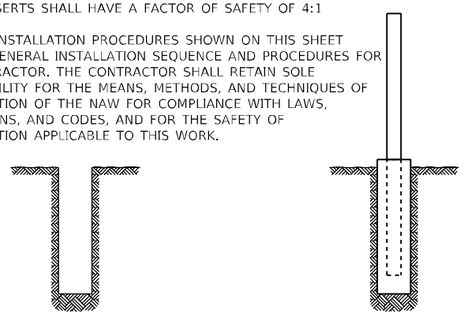


TYPICAL LIFTING INSERT DETAIL

** ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

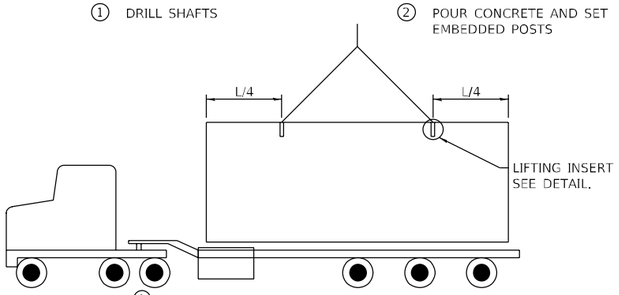
NOTES:

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.

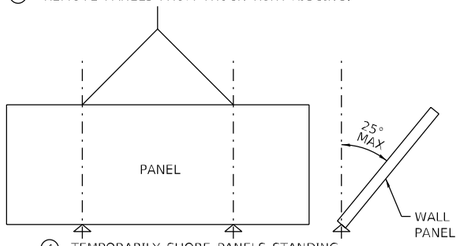


① DRILL SHAFTS

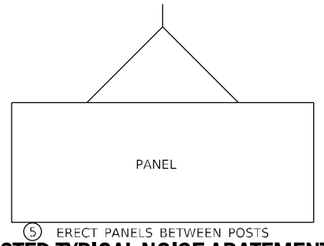
② POUR CONCRETE AND SET EMBEDDED POSTS



③ REMOVE PANELS FROM TRUCK WITH RIGGING.

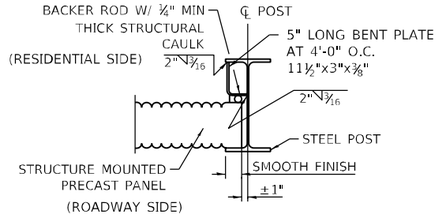


④ TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

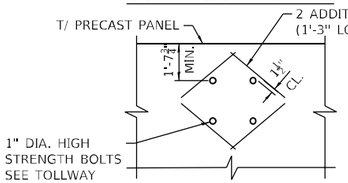


⑤ ERECT PANELS BETWEEN POSTS

SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

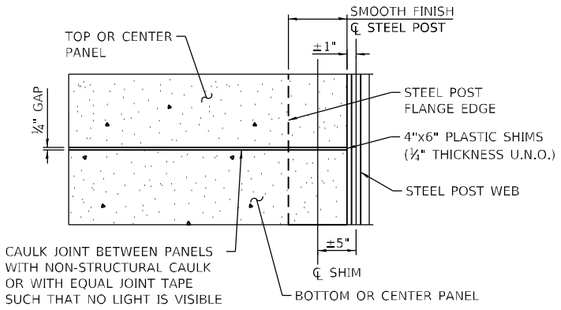


STRUCTURE MOUNTED PANEL TO POST CONNECTION DETAIL

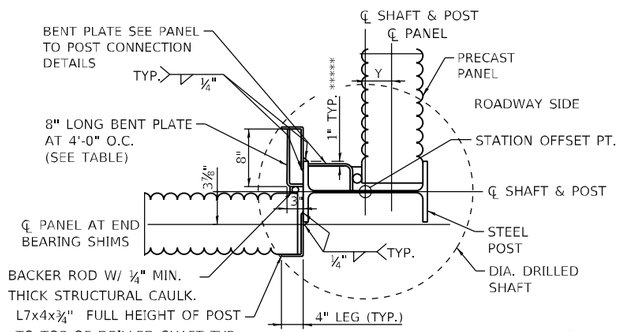


SIGN PANEL MOUNT TO PANEL DETAIL

*** 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".

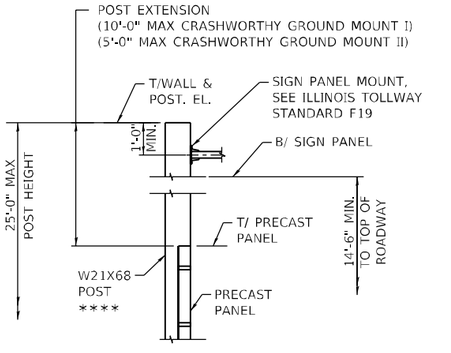


HORIZONTAL JOINT DETAIL



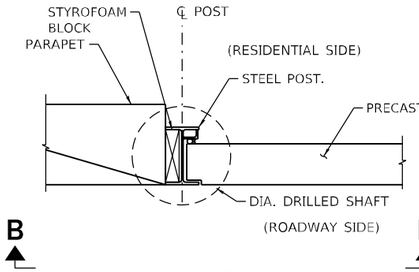
***** 1" DIMENSION IS BEARING LENGTH OF L7x4x¾" ANGLE ON THE POST FLANGE

90° TURN DETAIL



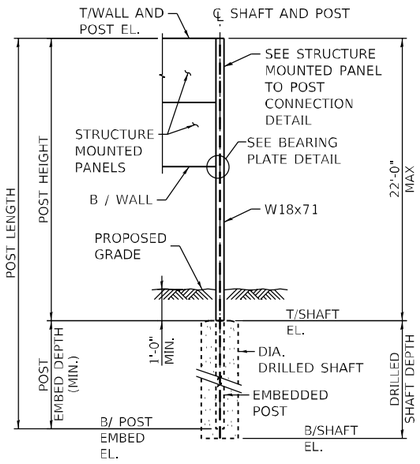
SIGN PANEL MOUNT POST EXTENSION DETAIL

**** 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"

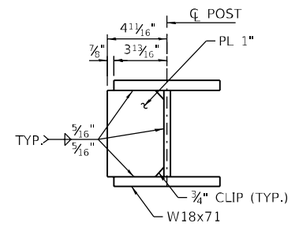


DETAIL 2

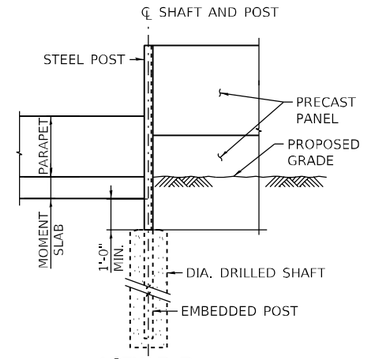
CRASHWORTHY GROUND MOUNTED NAW TRANSITION TO PARAPET



DETAIL 1

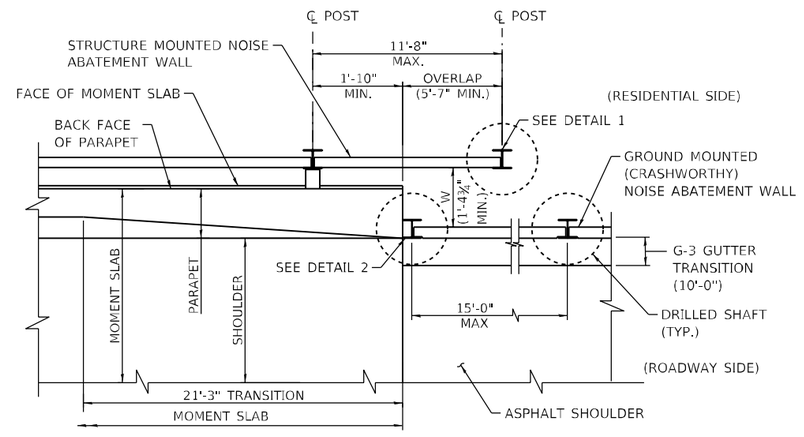


BEARING PLATE DETAIL



VIEW B-B

(STRUCTURE MOUNTED NAW) NOT SHOWN FOR CLARITY



NAW TRANSITION DETAIL PLAN

Paul Kovacs
APPROVED. . . . . DATE 7-17-2020
CHIEF ENGINEERING OFFICER

Illinois Tollway

CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G16-02