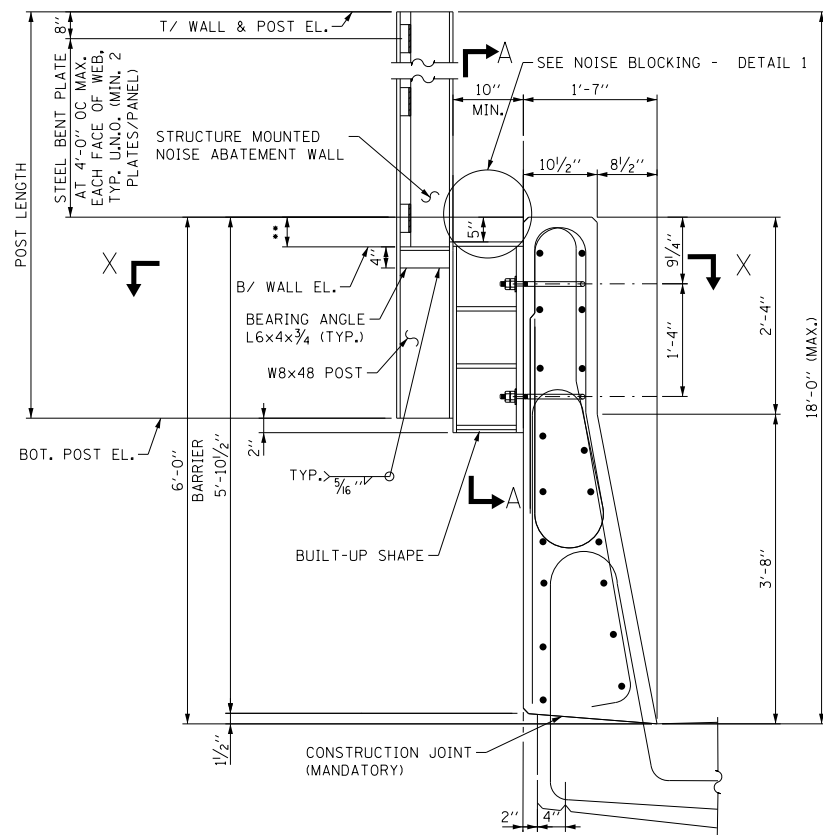


| |
|--|
| Illinois Tollway Standard Drawing Revisions |
|--|

| Section G | | Structural | |
|------------------|---|------------------------------|--|
| Standard | Modification Summary | Effective: 03-01-2023 | |
| G12-04 | STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS | | |
| Sheet 1 | Add spacing of steel plates and minimum number required to Illinois Tollway Constant Slope Barrier - Details, update miscellaneous steel quantities. | | |
| Sheet 2 | Revised Panel Connection to Post Detail from 1"x3.5"x0.25" bent plate to 3/4"x3.5"x0.25" plate and typical lifting insert detail to #4 under 8,000lbs and #6 under 16,000lbs. | | |
| G13-04 | CENTRAL TRI-STATE STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS | | |
| Sheet 1 | Revised dimension from top of post to top bent plate in Illinois Tollway Constant Slope Barrier - Details from 6" to 8", update miscellaneous steel quantities. | | |
| Sheet 2 | Revised Panel Connection to Post Detail from 1"x3.5"x0.25" bent plate to 3/4"x3.5"x0.25" plate and typical lifting insert detail to #4 under 8,000lbs and #6 under 16,000lbs. | | |
| G14-04 | CENTRAL TRI-STATE BUMP-OUT MOUNTED NOISE ABATEMENT WALL DETAILS | | |
| Sheet 1 | Revised dimension from top of post to top bent plate on Side View from 6" to 8", reduced bent plates in Base Plate and Post Detail 1 & 2 to accommodate panel installation and add Note 15 for noise blocking assembly. | | |
| Sheet 2 | Revised typical lifting insert detail to #4 under 8,000lbs and #6 under 16,000lbs and added noise blocking assembly detail. | | |
| G15-04 | NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS | | |
| Sheet 2 | Revised clearance to #6 bars to be centered in the panel. | | |
| | Increase smooth finish from 2" to 1'-2" on back face of unbalanced soil load panel. | | |
| Sheet 3 | Revised typical lifting insert detail to #4 under 8,000lbs and #6 under 16,000lbs and dimension gap in 90° Turn Detail at 1/2" minimum. | | |
| G16-04 | CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS | | |
| Sheet 1 | Remove the 1'-0" minimum dimension to ground line and add 6" minimum dimension from proposed grade to bottom of wall. | | |
| | Increase thickness of bent plate for cohesionless soils to 1/2". | | |
| Sheet 2 | Increase smooth finish from 3/8" to 1'-2" on back face of panel. | | |
| Sheet 3 | Revised typical lifting insert detail to #4 under 8,000lbs and #6 under 16,000lbs and dimension gap in 90° Turn Detail at 1/2" minimum. | | |
| | Revised bent plate from 11.5"x3"x3/8" to 10.5"x3"x3/8" for Structure Mounted Panel to Post Connection Detail. | | |

 New Sheet

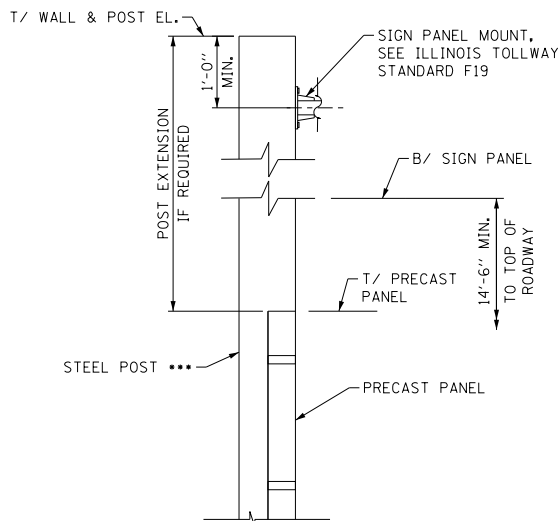
 Retired Standard



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.

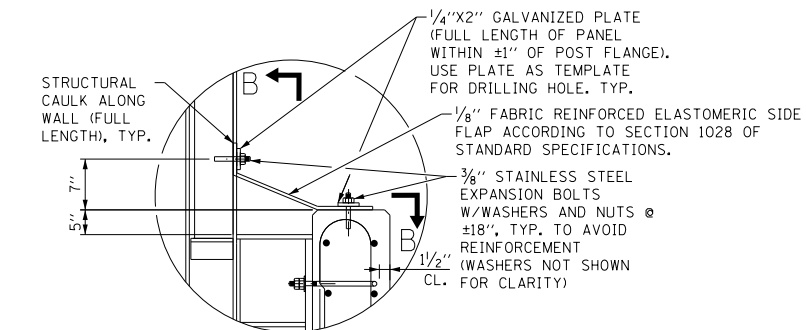


SIGN PANEL MOUNT POST EXTENSION DETAIL

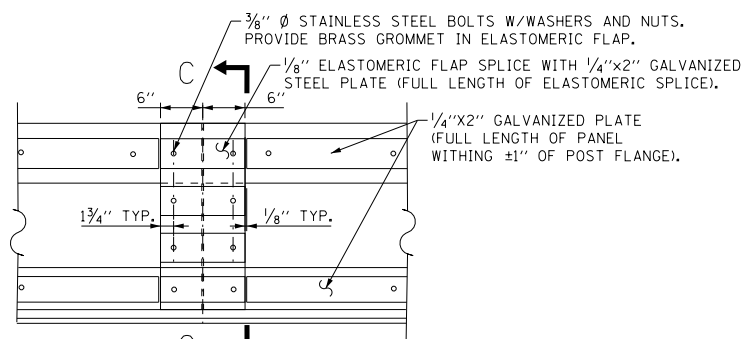
***STEEL POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A 17'-3 1/2" POST WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19

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

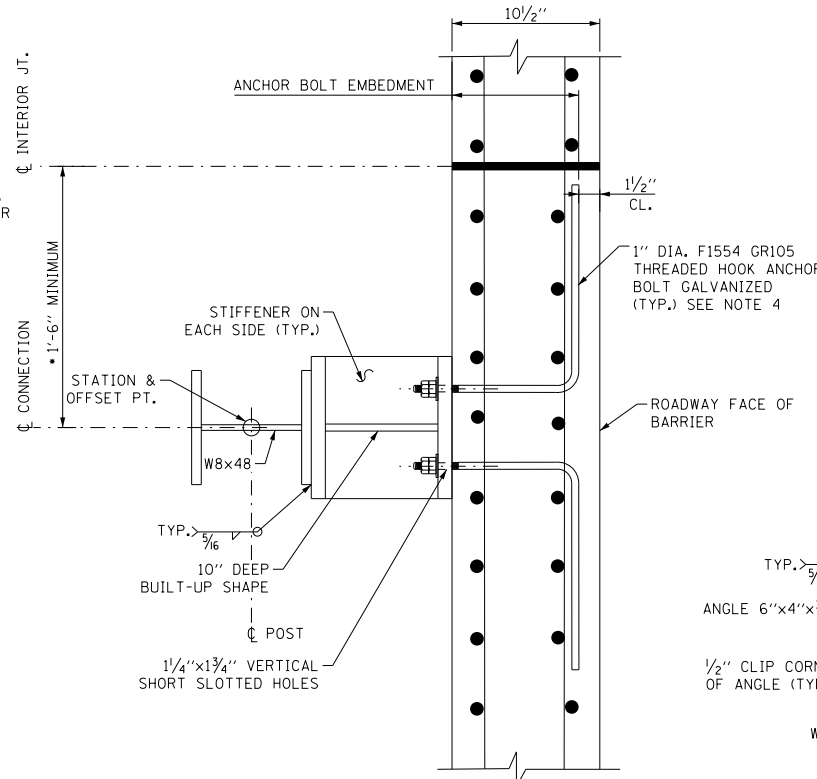
• USE 4'-10" MINIMUM FROM FULL HEIGHT JOINTS ON BRIDGES, OTHERWISE USE 1'-10" MINIMUM FOR END POSTS AND POSTS LOCATED ON APPROACH SLABS OR MOMENT SLABS.



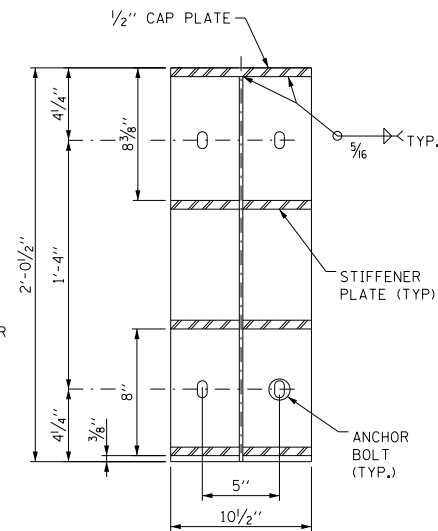
DETAIL 1 NOISE BLOCKING ASSEMBLY



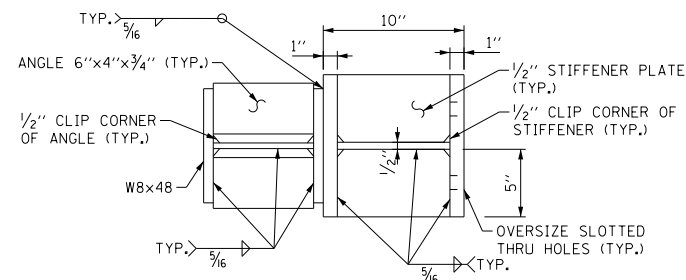
VIEW B-B AT ASSEMBLY SPLICE



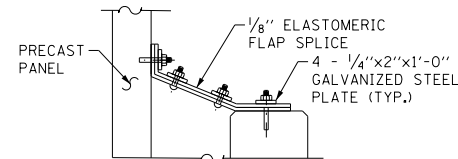
SECTION X-X



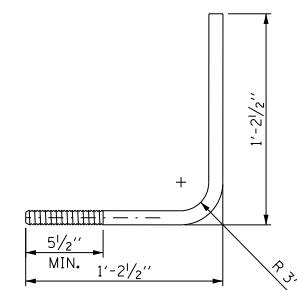
SECTION A-A



BUILT UP SHAPE



SECTION C-C



BENT ANCHOR BOLT

GENERAL NOTES

1. 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.
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.

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) | 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. |

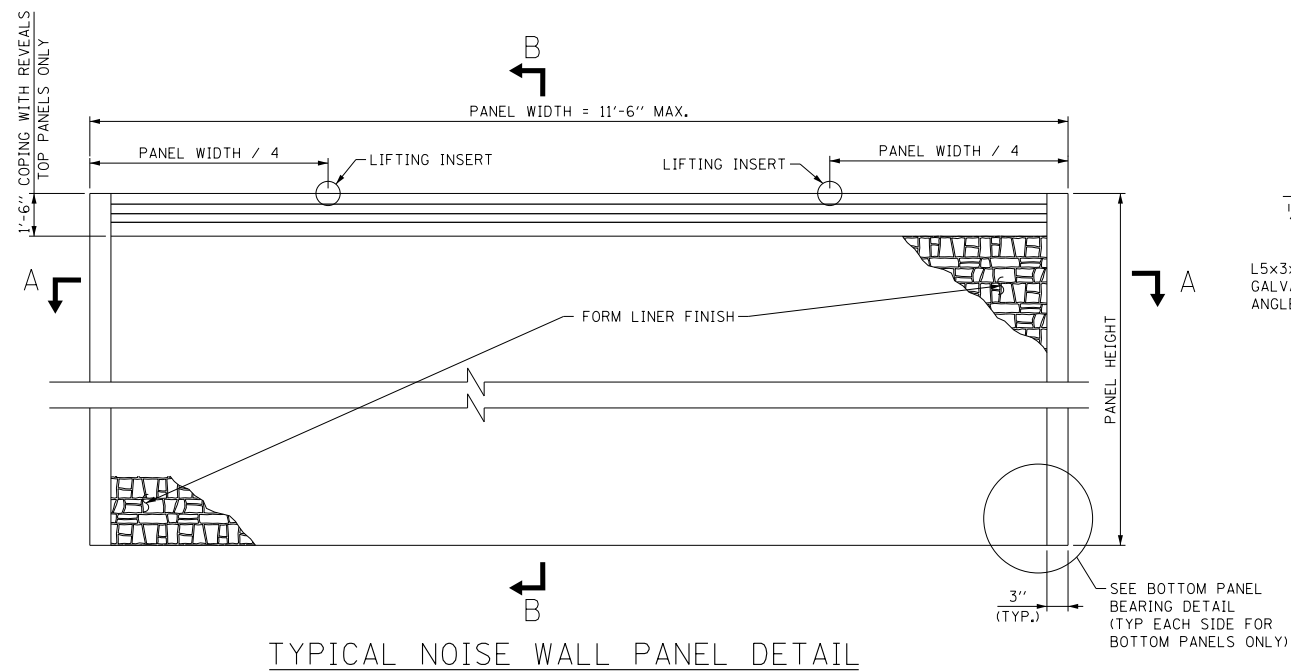


STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS

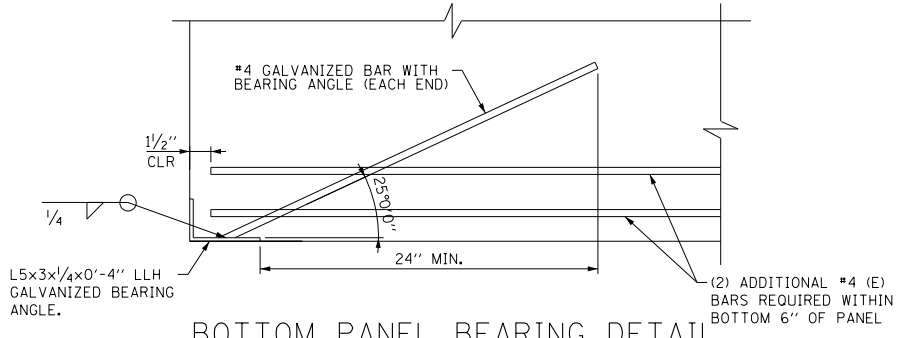
STANDARD G12-04

| DATE | REVISIONS |
|-----------|--|
| 2-23-2023 | ADD STEEL PL. SPA. & MIN. NUMBER, REV. BENT PL., STEEL QUANTITIES AND LIFTING INSERT NOTES |
| 3-01-2022 | UPDATE ERECTION ANCHOR CALLOUT CHANGE BENT PLATE TO 1" AND CLARIFY NOISE BLOCKING PL. LENGTH |

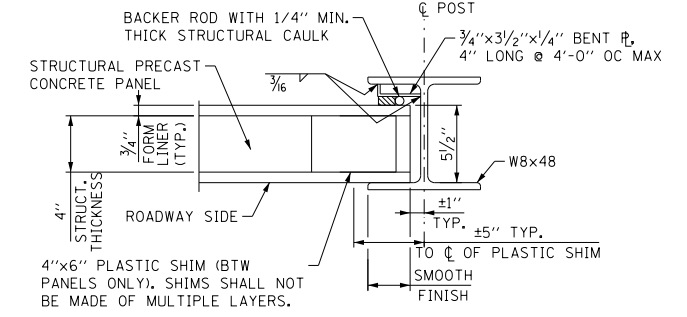
APPROVED BY: *Manar Nashif* CHIEF ENGINEERING OFFICER
 DATE: 03/01/2023



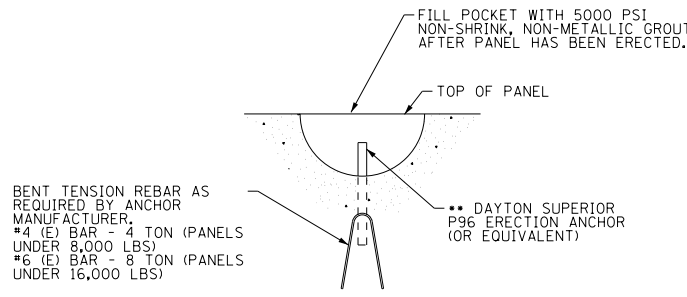
TYPICAL NOISE WALL PANEL DETAIL



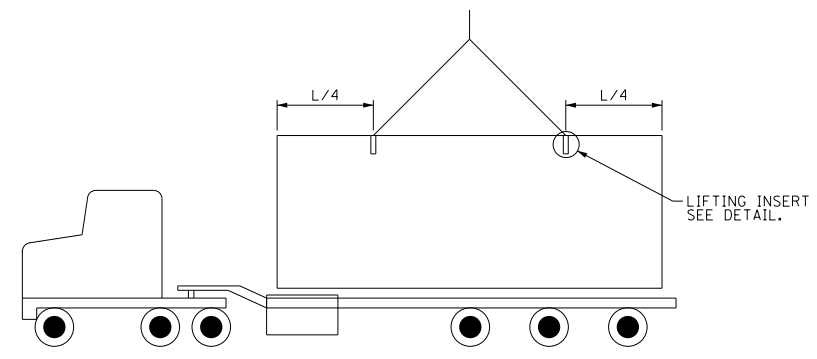
BOTTOM PANEL BEARING DETAIL



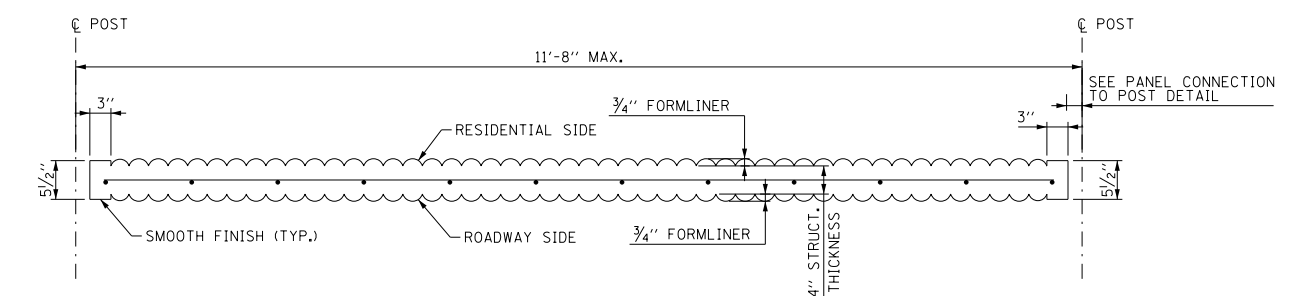
PANEL CONNECTION TO POST DETAIL



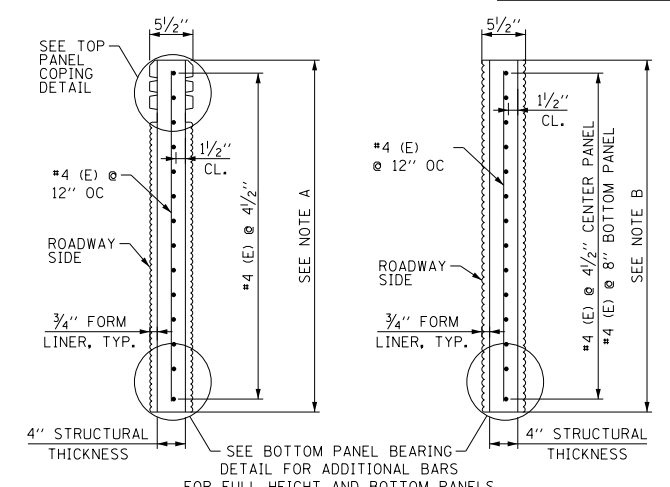
TYPICAL LIFTING INSERT DETAIL



① REMOVE PANELS FROM TRUCK WITH RIGGING.



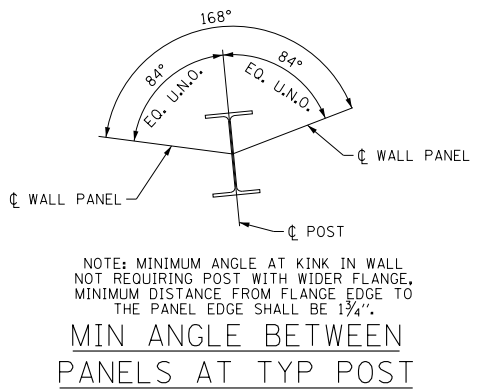
TYPICAL PLAN VIEW THRU NOISE ABATEMENT WALL SECTION A-A



TOP PANEL OR FULL HEIGHT PANEL SECTION B-B
CENTER OR BOTTOM PANEL SECTION B-B

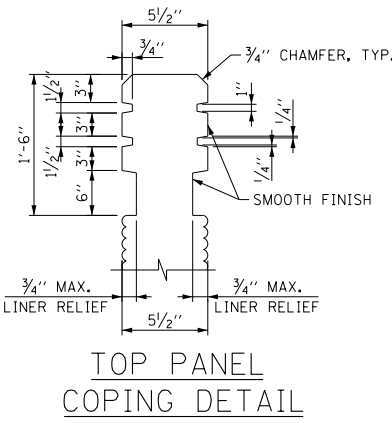
NOTE A
TO ACCOMMODATE VARYING HEIGHT NAW, TOP PANEL HEIGHTS ARE PERMITTED TO BE 4'-0", 5'-0", 6'-0", 7'-0", OR 8'-0". FULL HEIGHT PANELS ARE PERMITTED TO BE 4'-0", 4'-6", 5'-0", 5'-6", 6'-0", 6'-6", 7'-0", 7'-6" OR 8'-0".

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".

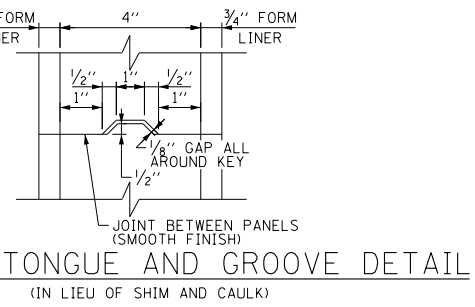


MIN ANGLE BETWEEN PANELS AT TYP POST

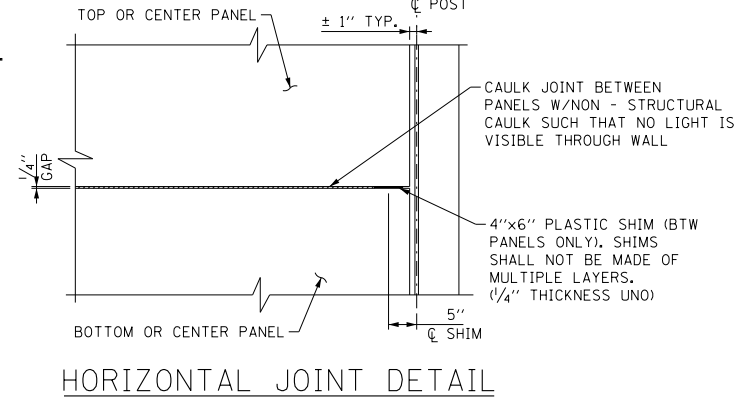
- NOTES:
- STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION AND RECOMMENDATIONS.
 - BACKER ROD: MILE HIGH FOAM PRODUCT SIZED PER BACKER ROD MANUFACTURING, INC OR EQUIVALENT.
 - NON - STRUCTURAL CAULK SEALANT: SIKAFLEX 15 LM PER MANUFACTURERS 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.



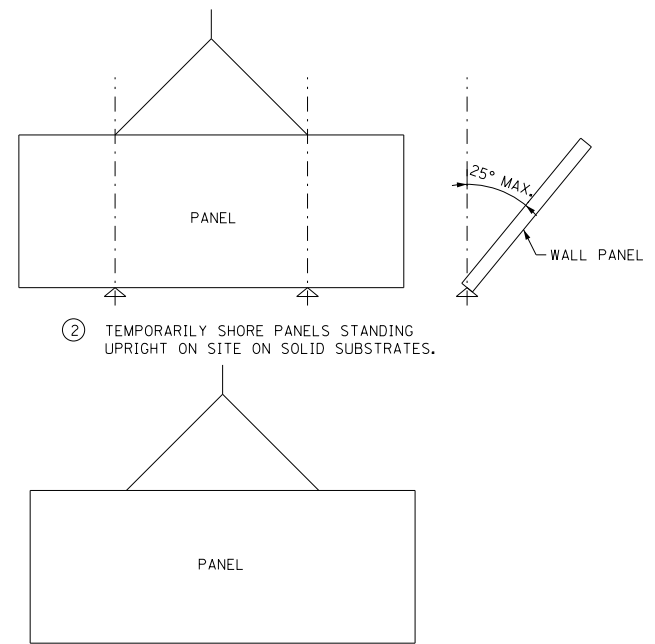
TOP PANEL COPING DETAIL



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

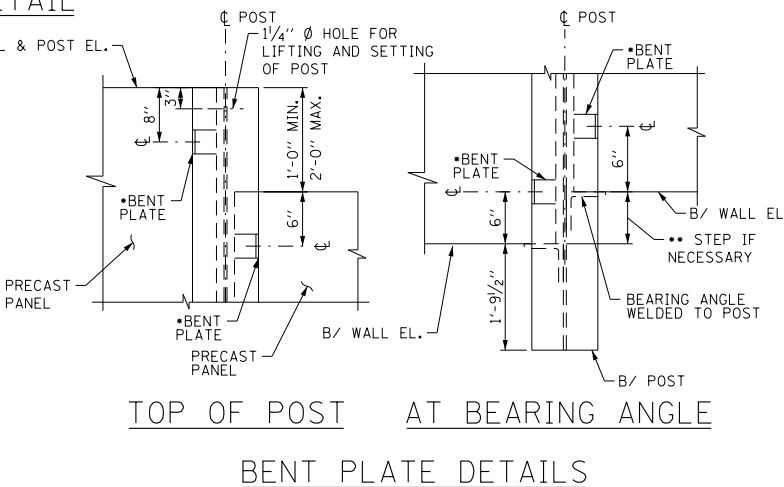


HORIZONTAL JOINT DETAIL



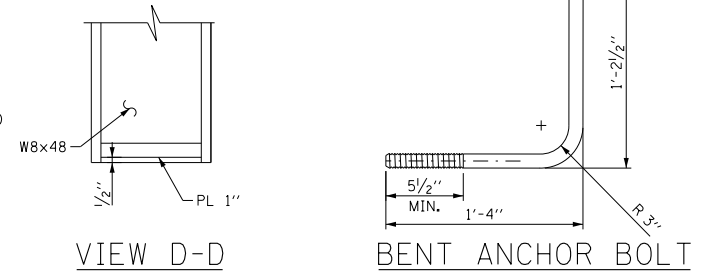
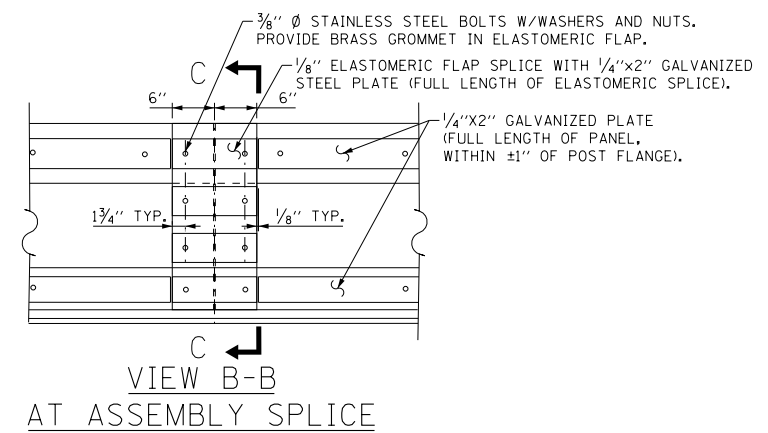
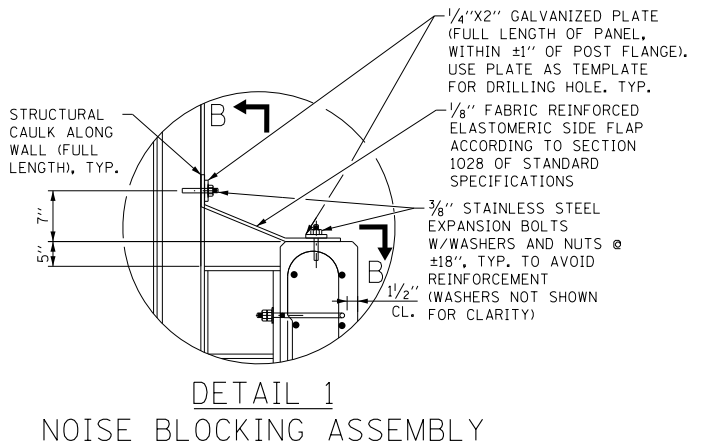
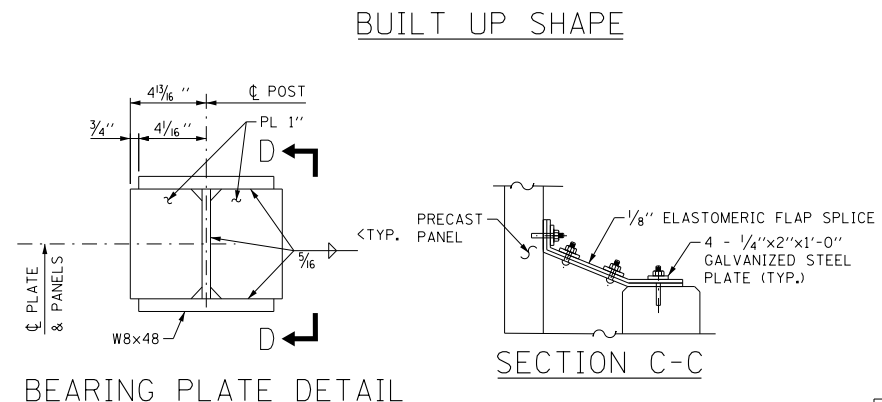
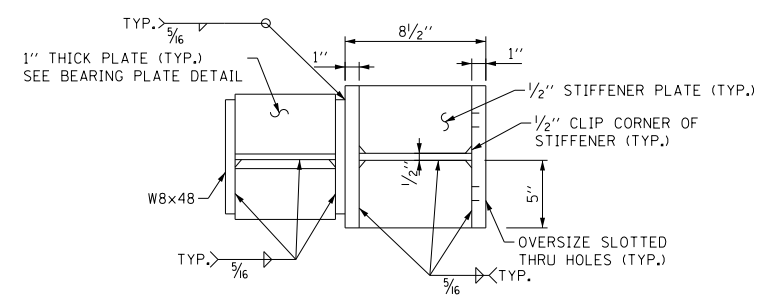
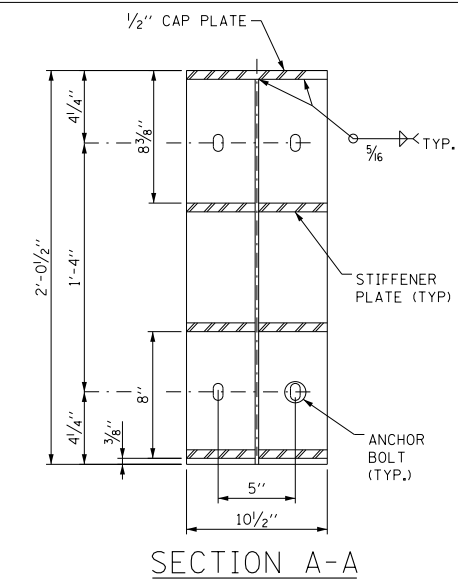
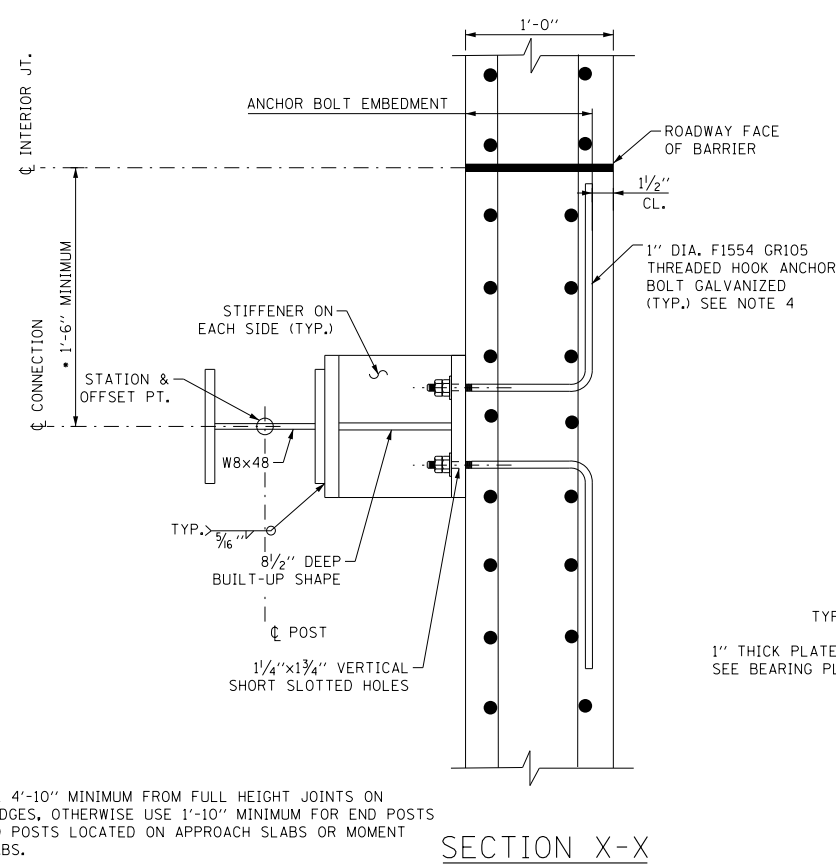
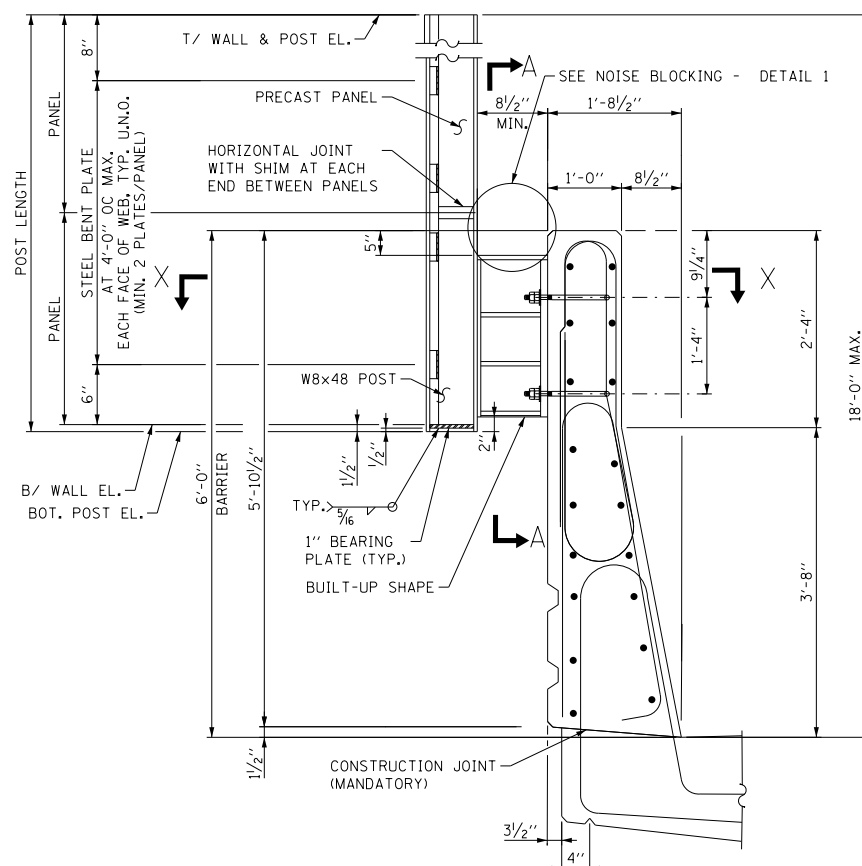
SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

- 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.



TOP OF POST AT BEARING ANGLE BENT PLATE DETAILS





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 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 AND CENTERLINE OF LIGHT POLE IS 4'-7" DESIRABLE AND 3'-7" MINIMUM.

GENERAL NOTES

1. 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.
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 "E1" 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.

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. |

SIGN PANEL MOUNT POST EXTENSION DETAIL

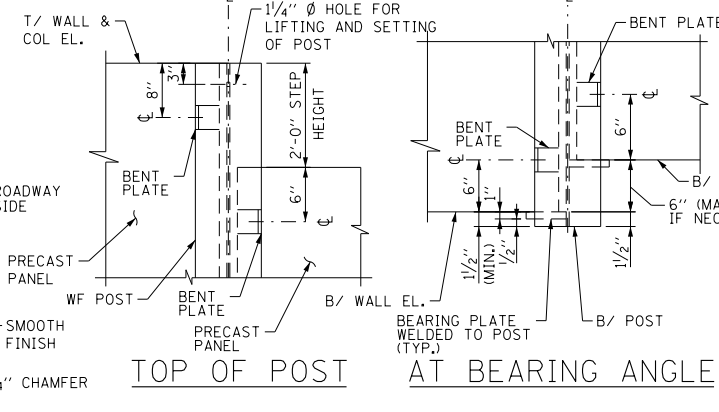
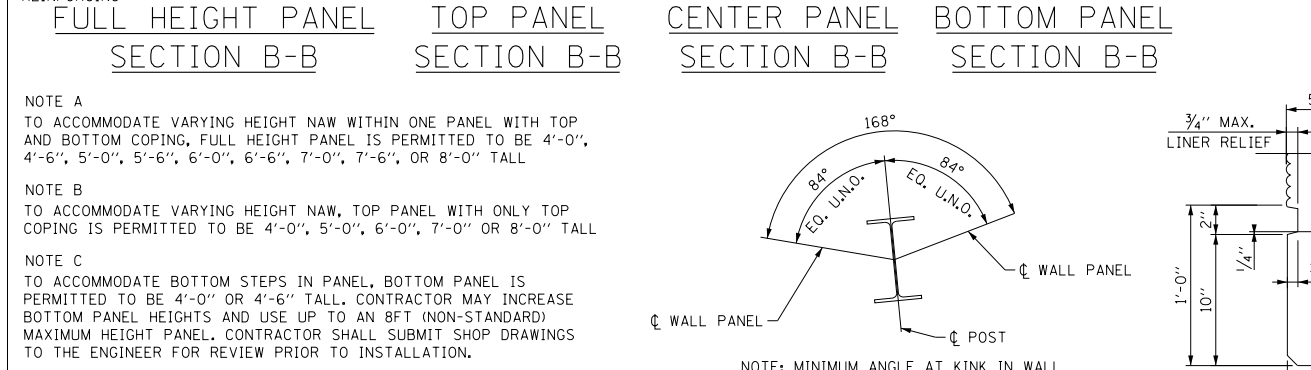
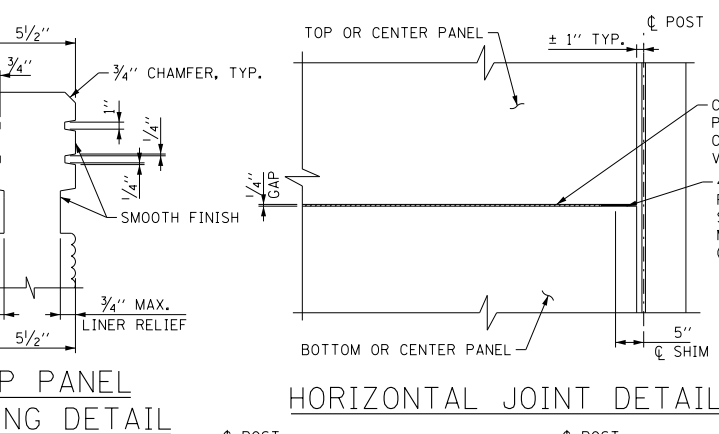
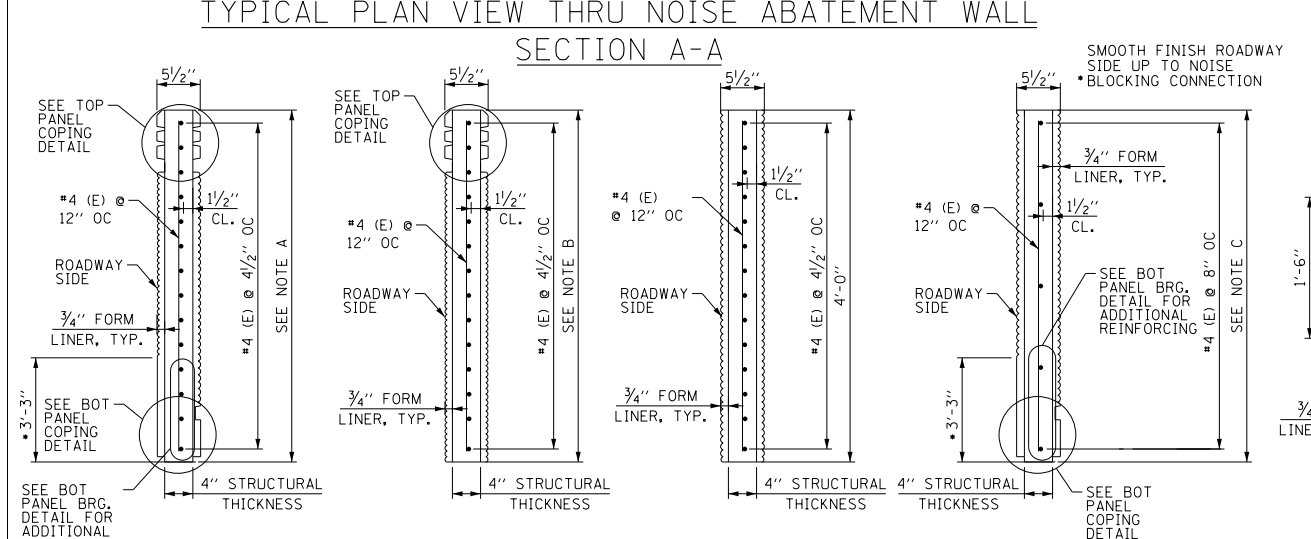
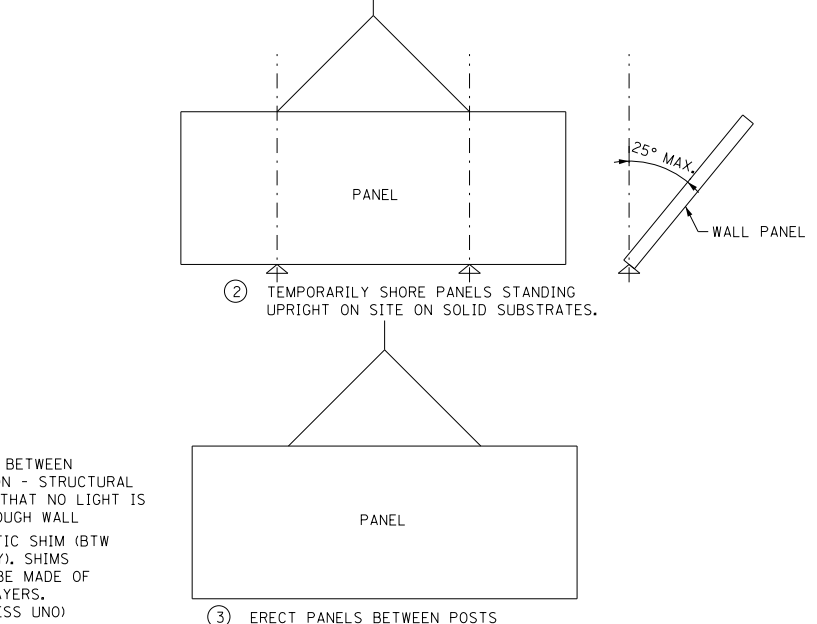
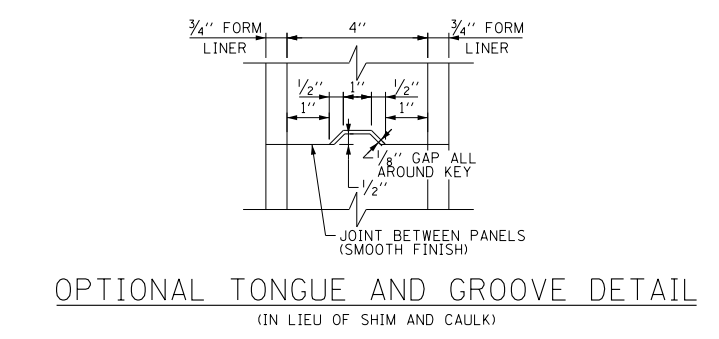
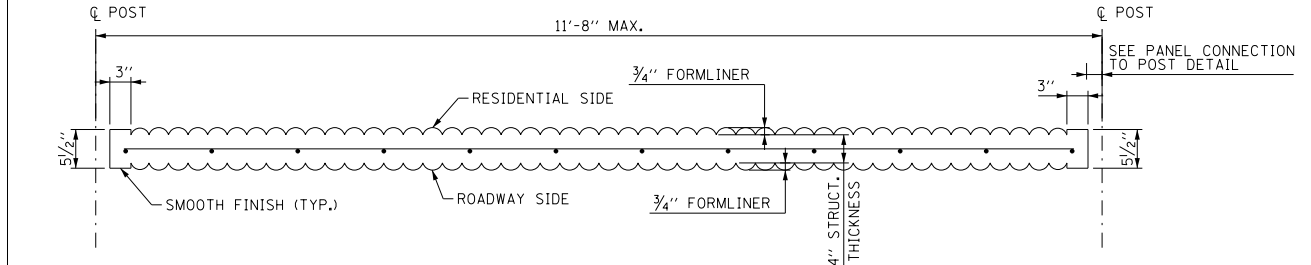
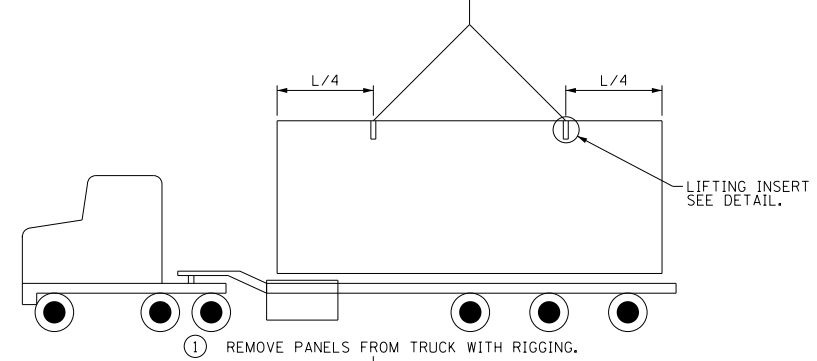
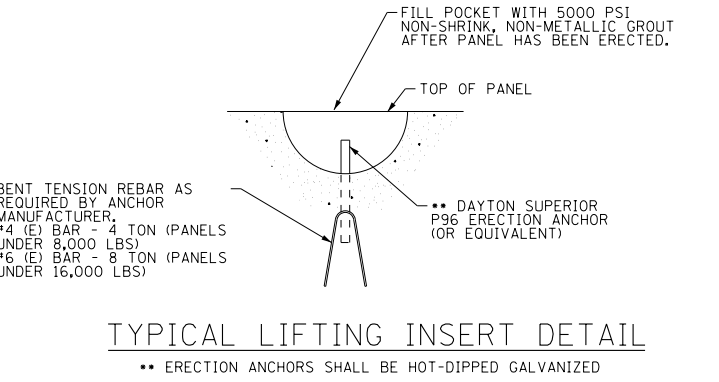
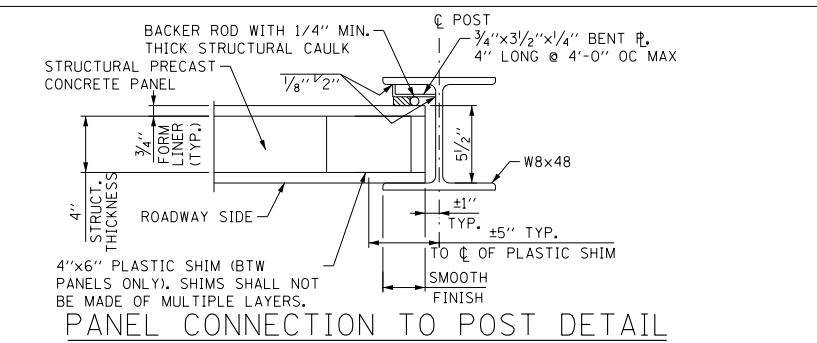
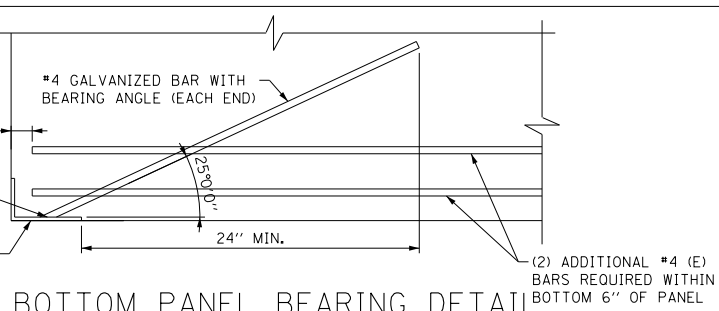
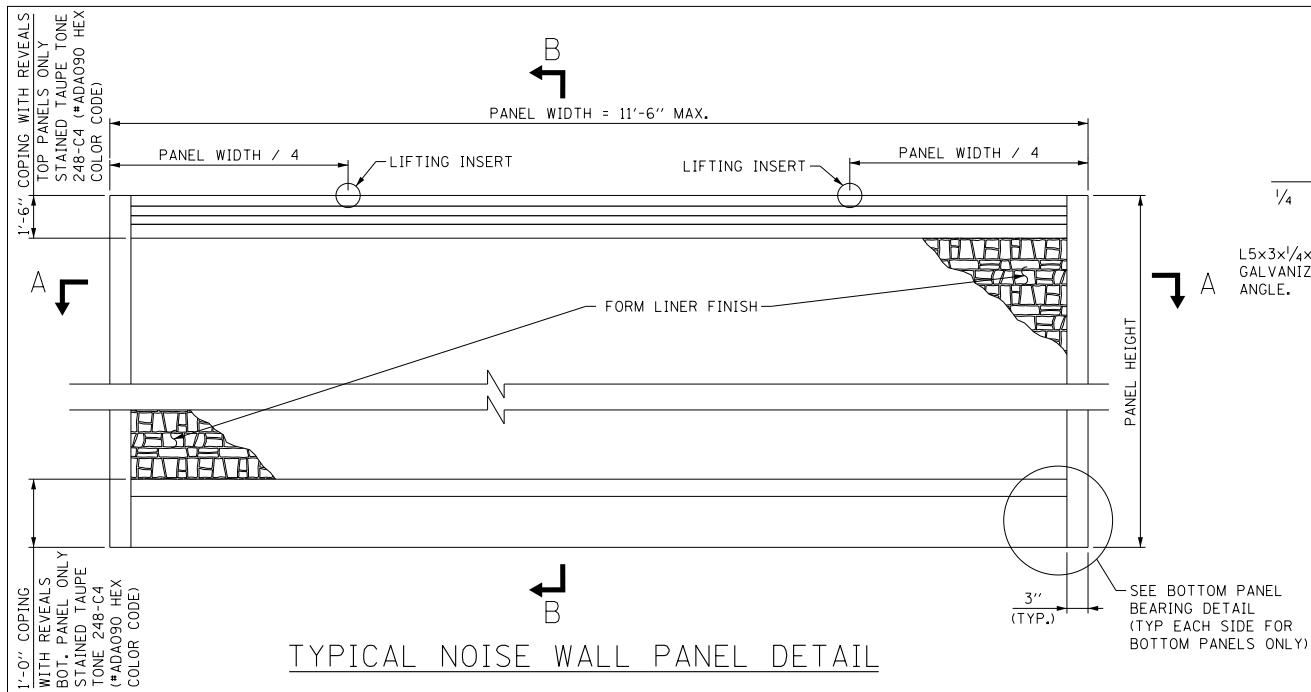
...STEEL POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A 17'-7 1/2" POST WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19

APPROVED BY: *Manar Nashif*
 CHIEF ENGINEERING OFFICER
 DATE: 03/01/2023

| DATE | REVISIONS |
|-----------|--|
| 2-23-2023 | REV. DIM. TO BENT PL., BENT PL. SIZE, CONN. QUANTITIES & UPDATE LIFTING INSERT DETAIL NOTES |
| 3-01-2022 | UPDATE ERECTION ANCHOR CALLOUT CHANGE BENT PLATE TO 1" AND CLARIFY NOISE BLOCKING PL. LENGTH |



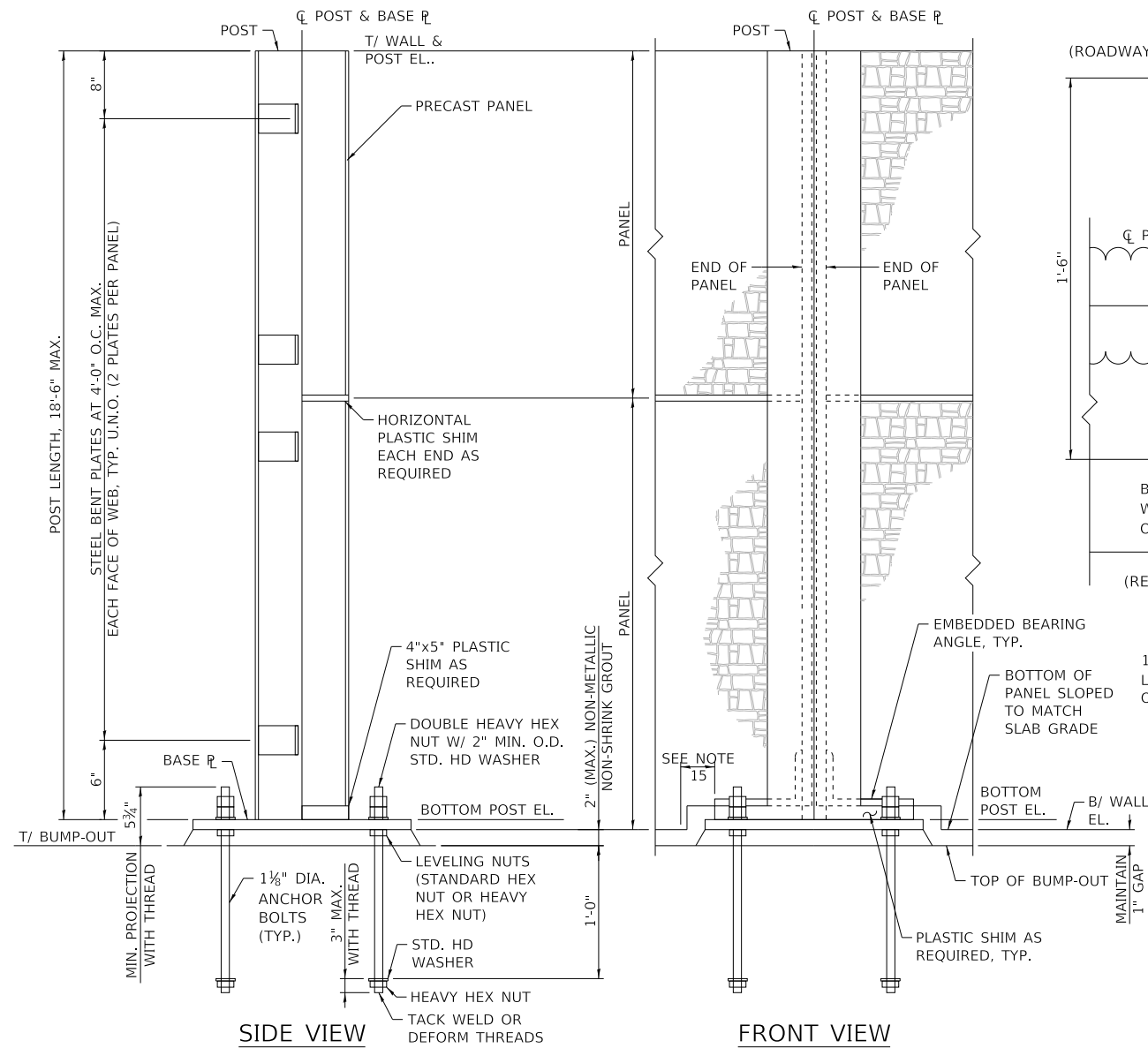
CENTRAL TRI-STATE STRUCTURE MOUNTED NOISE ABATEMENT WALL DETAILS
 STANDARD G13-04



- NOTES:**
- STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL -JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED PER MANUFACTURERS 532S 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 MANUFACTURERS 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.

APPROVED BY: *Manar Nashif* CHIEF ENGINEERING OFFICER

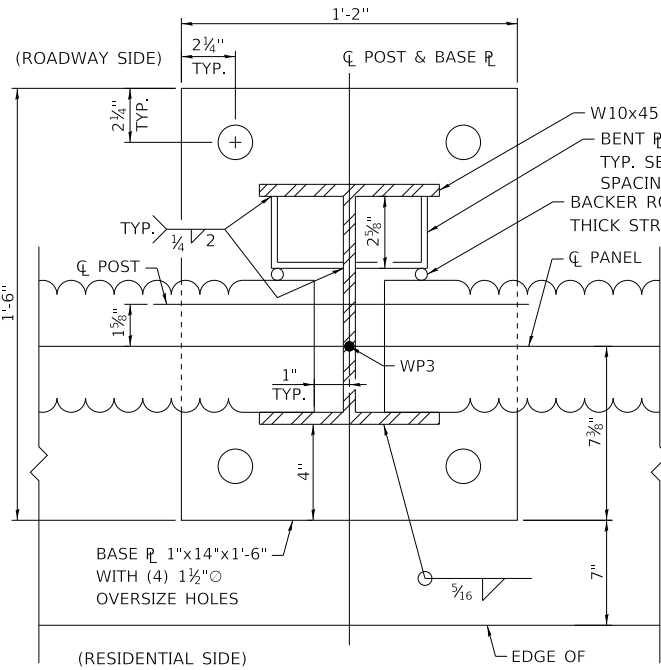
DATE: 03/01/2023



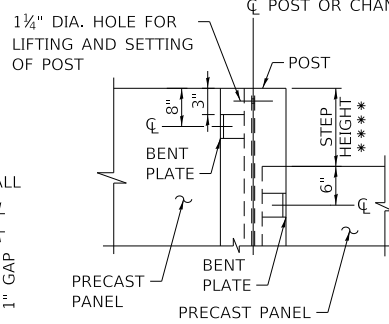
POST DETAIL *
*TYPICAL POST SHOWN, OTHERS SIMILAR

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.
- 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.



BASE PLATE AND POST DETAIL 1



STEP DETAIL
AT BUMP-OUT ONLY
***STEP IN 6" INCREMENTS UP TO 2'-0" IF NECESSARY.

DESIGN STRESSES

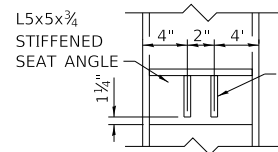
- THE COLOR OF THE STRUCTURAL STEEL FINAL COAT PAINT SHALL MATCH THE COLOR OF THE PRECAST CONCRETE PANEL STAIN OF SHERWIN-WILLIAMS 7633, TAUPE TONE 248-C4 (#ADA090 HEX COLOR CODE).
- STRUCTURAL CAULK - SIKADUR 51 NS FLEXIBLE EPOXY CONTROL -JOINT SEALER / ADHESIVE OR EQUIVALENT. CAULK SHALL BE APPLIED 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: VERS-A-SHIM HIGH IMPACT PLASTIC SHIMS ASTM D792 & D695. SHIMS SHALL NOT BE MADE OF MULTIPLE LAYERS.
- GROUT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1024.02 OF THE STANDARD SPECIFICATIONS. GROUT UNDER POSTS PRIOR TO INSTALLATION OF THE PANELS.
- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ANY PROPOSED HOLES IN THE BUILT-UP POST FOR GALVANIZING AND/OR ERECTION.
- PROVIDE 3" GAP IN NOISE BLOCKING ASSEMBLY AT END POSTS.

DESIGN LOADS

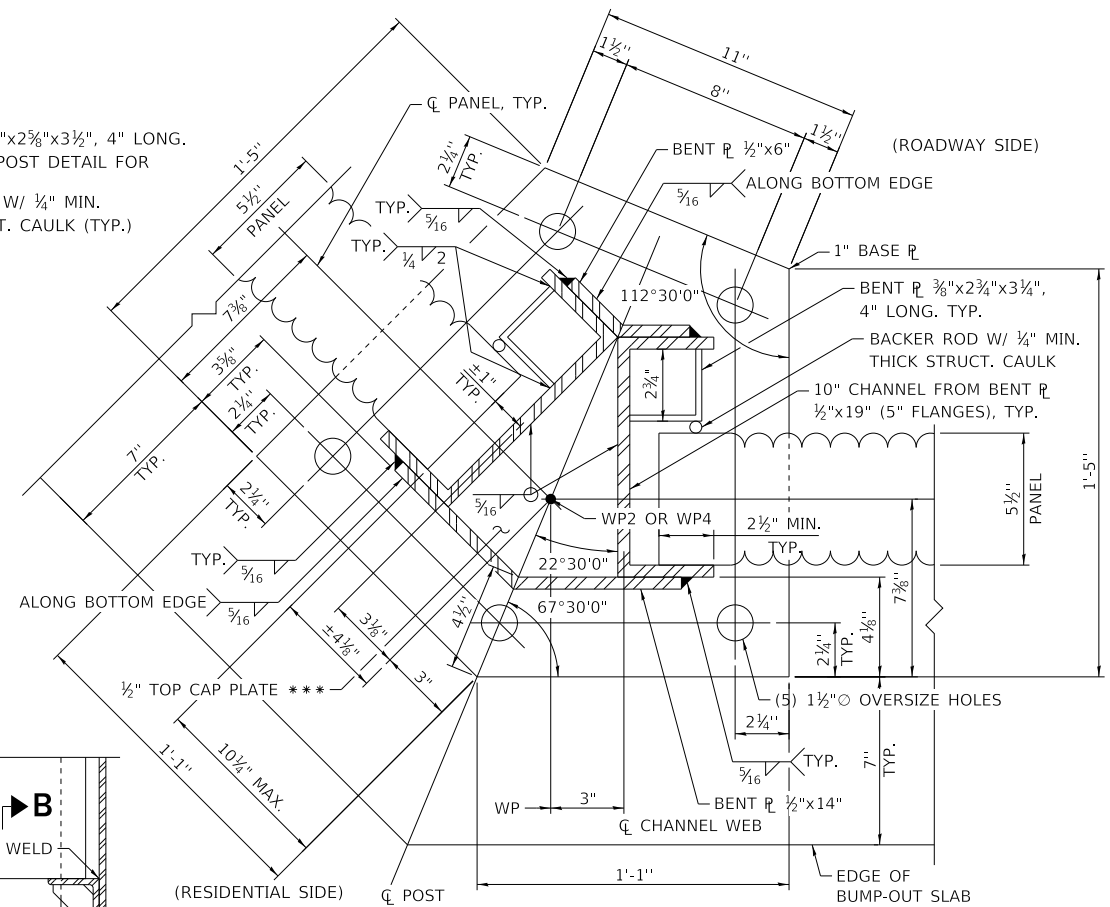
WIND LOAD = 50 PSF (STR. III)
= 15 PSF (SERV I)
DEFLECTION:
PANEL = L/180
POST = H/360

DESIGN SPECIFICATIONS

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

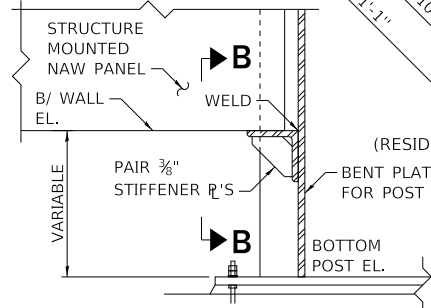


SECTION B-B



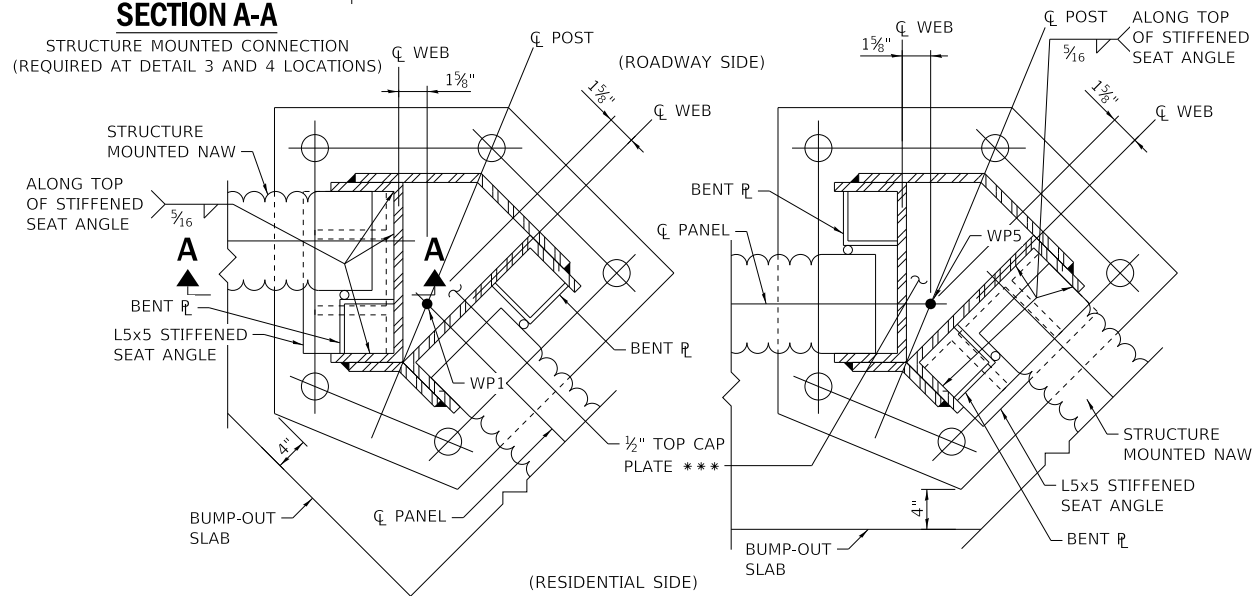
BASE PLATE AND POST DETAIL 2

*** TOP CAP PLATE (NOT SHOWN) WELDED ALL AROUND PERIMETER USING 1/4" FILLET WELD TO COMPLETELY SEAL POST INTERIOR. SEE DETAIL BELOW.



SECTION A-A

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



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.

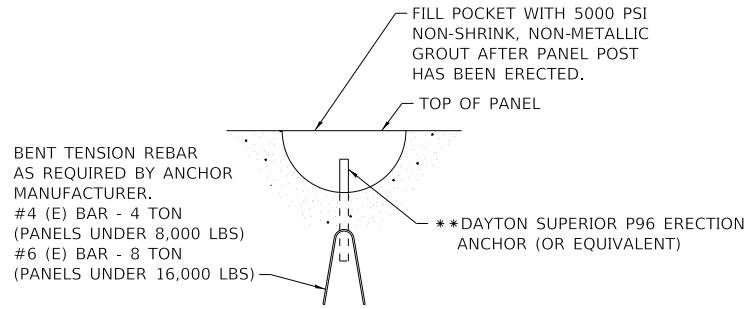
APPROVED BY: *Maman Nashif* CHIEF ENGINEERING OFFICER DATE: 03/01/2023

| DATE | REVISIONS |
|-----------|--|
| 3-01-2023 | REV. DIM. TO BENT PL., REDUCE BENT PL. LEG, REV. LIFTING |
| | INSERT NOTES & ADD NOISE BLOCKING DETAIL |
| 3-01-2022 | UPDATE ERECTION ANCHOR CALLOUT |



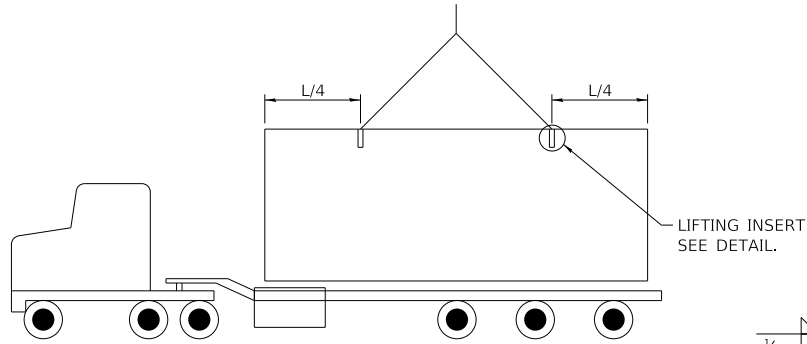
CENTRAL TRI-STATE BUMP-OUT MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G14-04

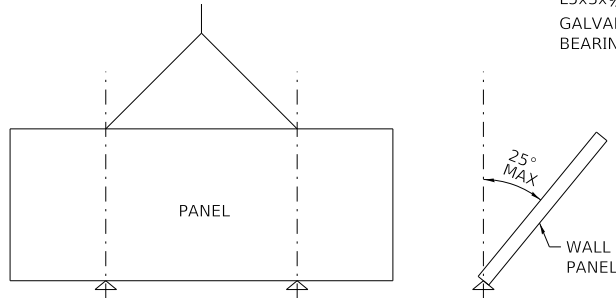


TYPICAL LIFTING INSERT DETAIL

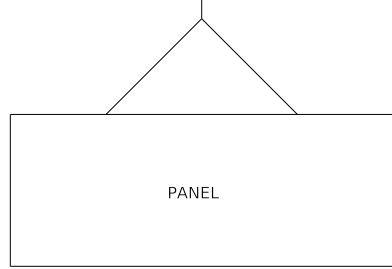
**ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED



① REMOVE PANELS FROM TRUCK WITH RIGGING.



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

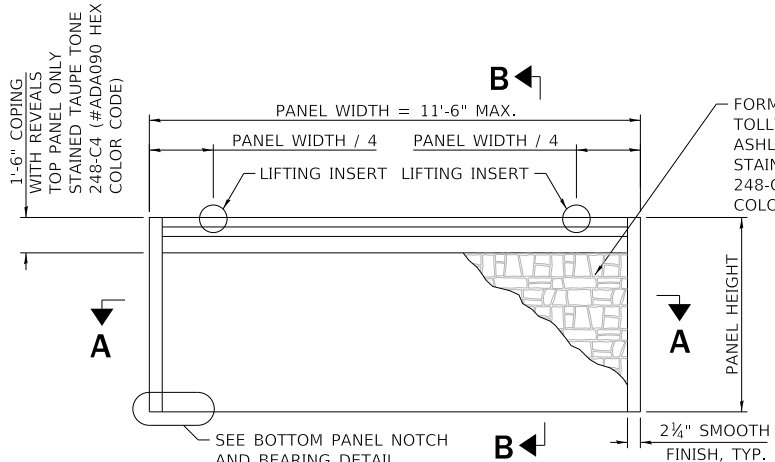


③ ERECT PANELS BETWEEN POSTS

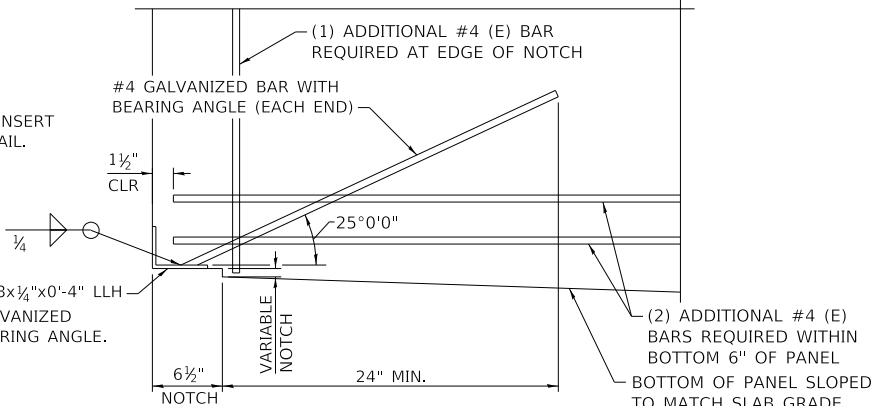
SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

NOTES:

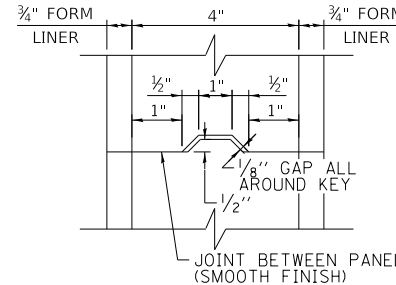
- LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1
- THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR COMPLIANCE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



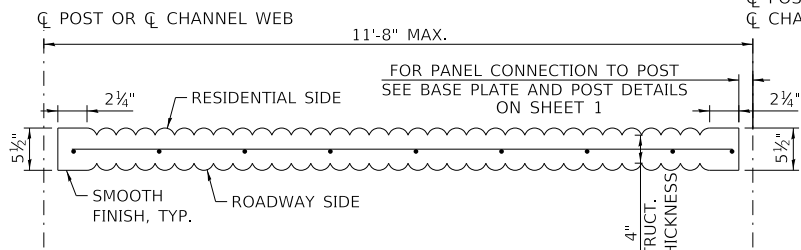
TYPICAL NOISE WALL PANEL DETAIL



BOTTOM PANEL NOTCH AND BEARING DETAIL



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



TYPICAL PLAN VIEW THRU NOISE ABATEMENT WALL

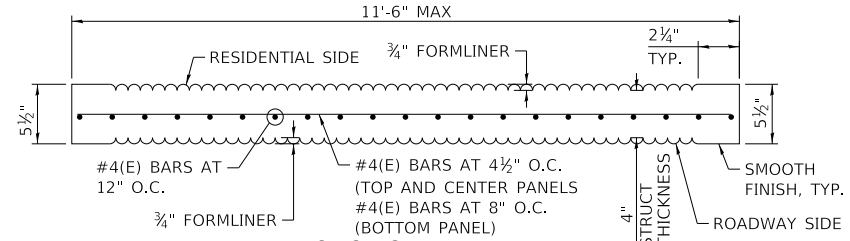
MISCELLANEOUS STEEL QUANTITY

W POST

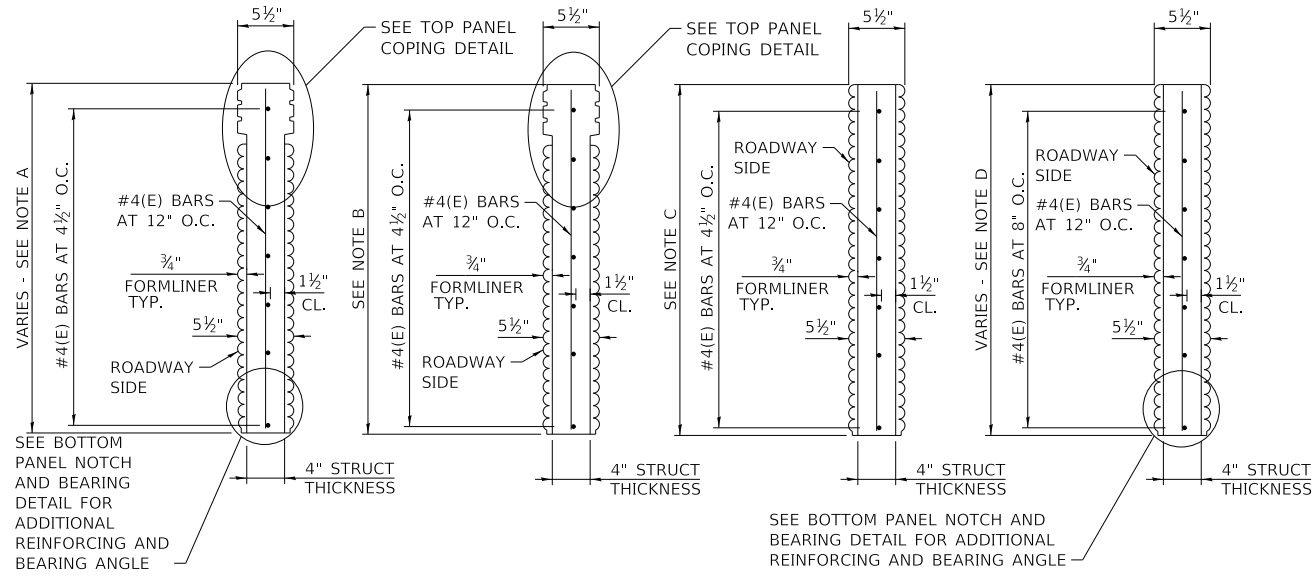
| DESCRIPTION | WEIGHT |
|----------------------------------|----------|
| BASE PLATE | 71 LBS. |
| BENT PLATE ALLOWANCE (16 PIECES) | 44 LBS. |
| ANCHOR BOLT ASSEMBLY (4 EACH) | 32 LBS. |
| TOTAL | 147 LBS. |

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



**SECTION B-B
FULL HEIGHT PANEL**

**SECTION B-B
TOP PANEL**

**SECTION B-B
CENTER PANEL**

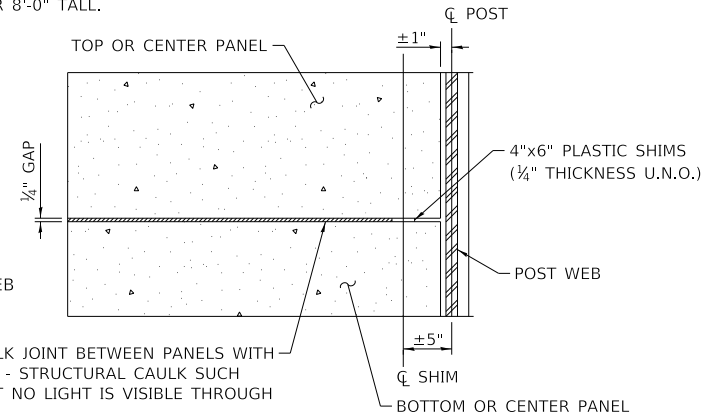
**SECTION B-B
BOTTOM PANEL**

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.

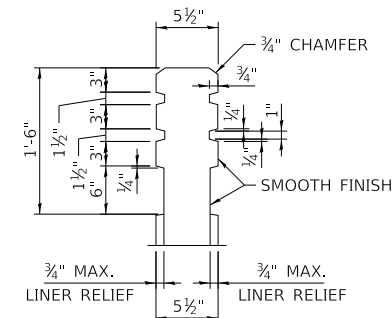
NOTE C
TO ACCOMMODATE VARYING HEIGHT NAW, CENTER PANEL IS PERMITTED TO BE 4'-0" OR 4'-6" TALL. CONTRACTOR MAY INCREASE THE STANDARD CENTER PANEL HEIGHTS, MAXIMUM 8FT, TO MINIMIZE THE NUMBER OF JOINTS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

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.

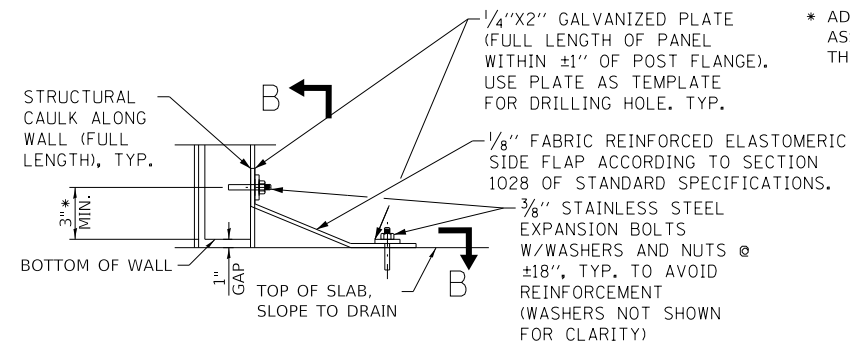


HORIZONTAL JOINT DETAIL

CAULK JOINT BETWEEN PANELS WITH NON-STRUCTURAL CAULK SUCH THAT NO LIGHT IS VISIBLE THROUGH WALL



TOP PANEL COPING DETAIL



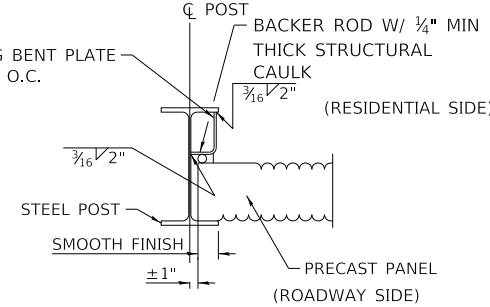
NOISE BLOCKING ASSEMBLY

* ADJUST THE HEIGHT OF THE NOISE BLOCKING ASSEMBLY TO PROVIDE 1% SLOPE TOWARDS THE 3" OPENING AT THE END POSTS.

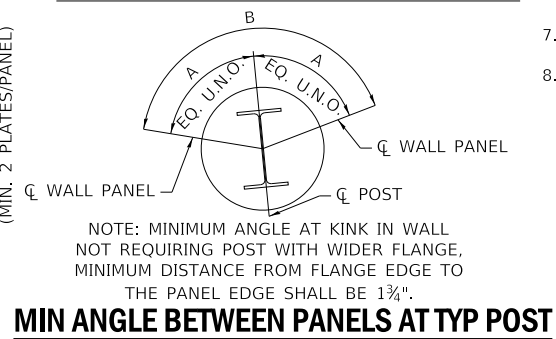


GENERAL NOTES

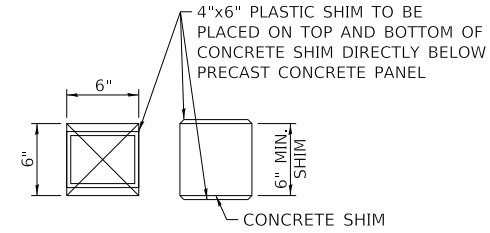
- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" X 45° CHAMFER, EXCEPT WHERE SHOWN OTHERWISE. CHAMFER ON VERTICAL EDGES SHALL BE CONTINUED A MINIMUM OF ONE FOOT BELOW FINISHED GROUND LEVEL. NO CHAMFER WILL BE ALLOWED AT HORIZONTAL JOINTS BETWEEN PANELS.
- REINFORCEMENT BARS, INCLUDING EPOXY-COATED REINFORCEMENT 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.



PANEL TO POST CONNECTION DETAIL

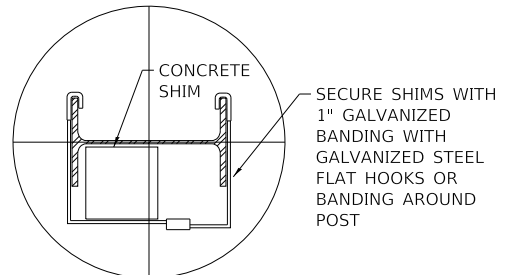


MIN ANGLE BETWEEN PANELS AT TYP POST

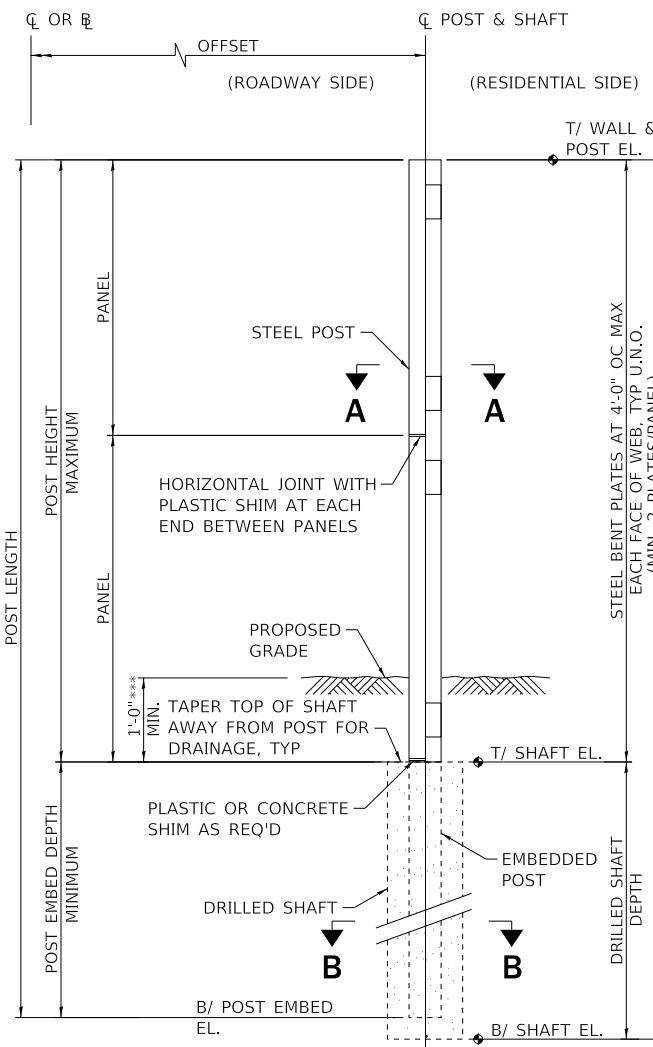


CONCRETE SHIM DETAIL 1

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



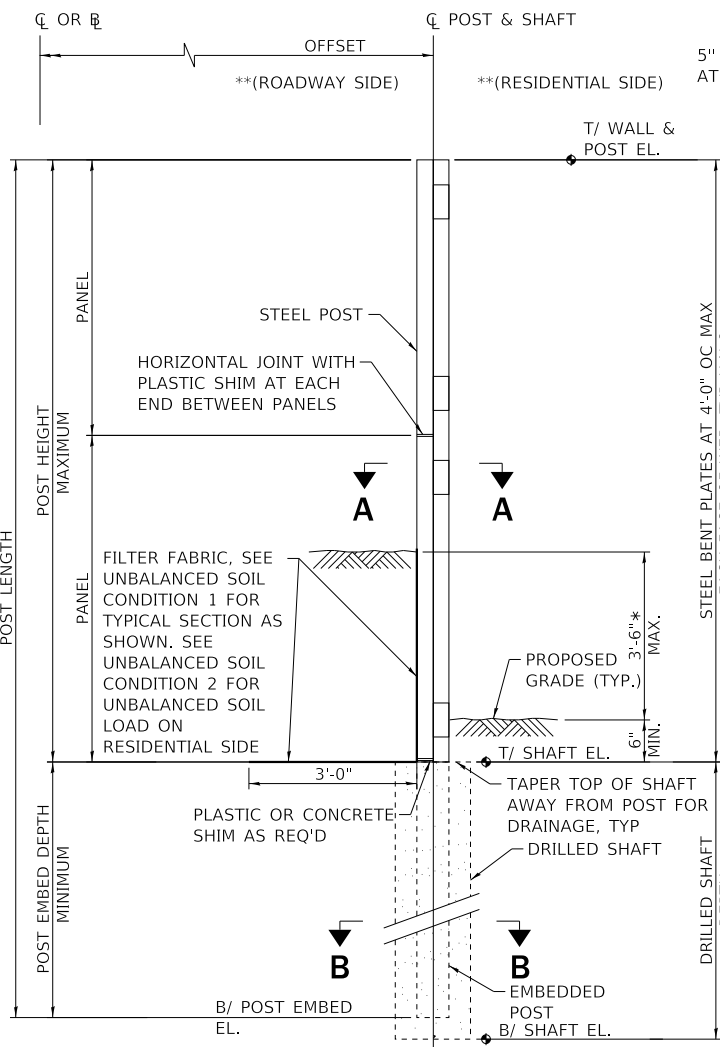
SHIM TO POST CONNECTION DETAIL 2



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.

* 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

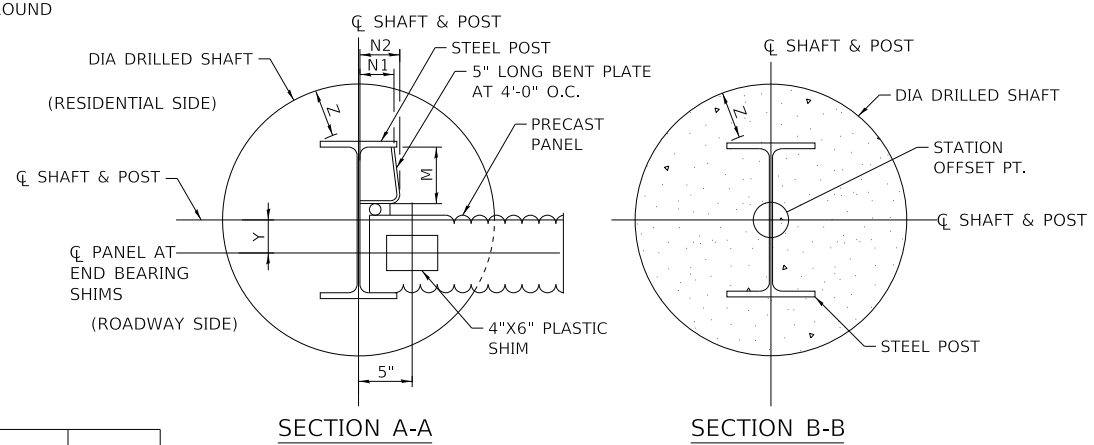
| NAW TYPE | MAX POST HEIGHT | MIN POST EMBED DEPTH | MAX DRILLED SHAFT SPACING | DRILLED SHAFT DEPTH | STEEL POST SIZE | Y | BENT PLATE M x N1 x THICK. | N2 | Z | DIA | A | B |
|------------------------------------|-----------------|----------------------|---------------------------|---------------------|-----------------|--------|----------------------------|--------|--------|-------|-----------|------------|
| NON-CRASHWORTHY GROUND MOUNTED I | 15'-0" | 10'-0" | 20'-0" | 12'-0" | W18X35 | 3 1/2" | 7"x2 3/4"x3/8" | 3 1/2" | 5 1/2" | 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 1/2" | 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 3/8" | 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 | 5 3/8" | 10"x2 3/4"x3/8" | 3 3/8" | 4 1/2" | 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 | 6 13/16" | 12 3/4"x2 1/2"x3/8" | 3 3/8" | 2 1/2" | 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 5/8" | 18 1/2"x4 3/8"x3/8" | 4 3/8" | 5 3/8" | 3'-6" | 85°33'22" | 171°06'44" |

^^ 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



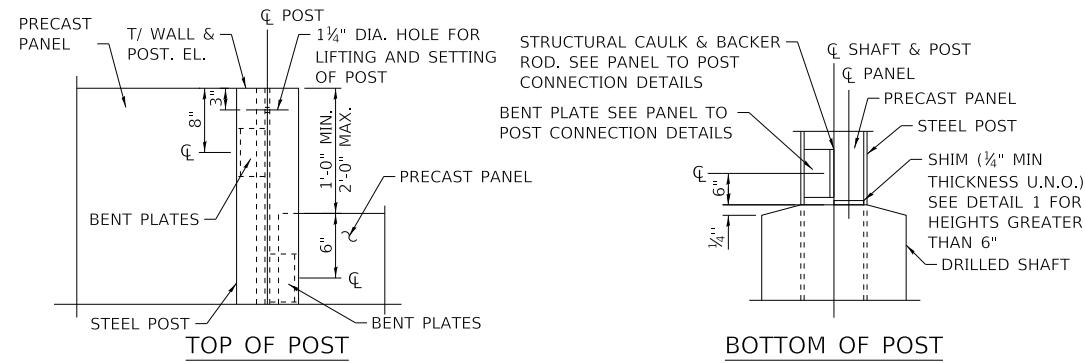
APPROVED BY: *Maha Nashif* CHIEF ENGINEERING OFFICER DATE: 03/01/2023

| DATE | REVISIONS |
|-----------|--|
| 2-23-2023 | REV. LIFTING INSERT NOTES, DIM. GAP IN 90 DEG. TURN DETAIL & INC. SMOOTH DIM. ON BACK FACE TO MATCH ALL PANELS |
| 3-01-2022 | UPDATE ERECTION ANCHOR CALLOUT |

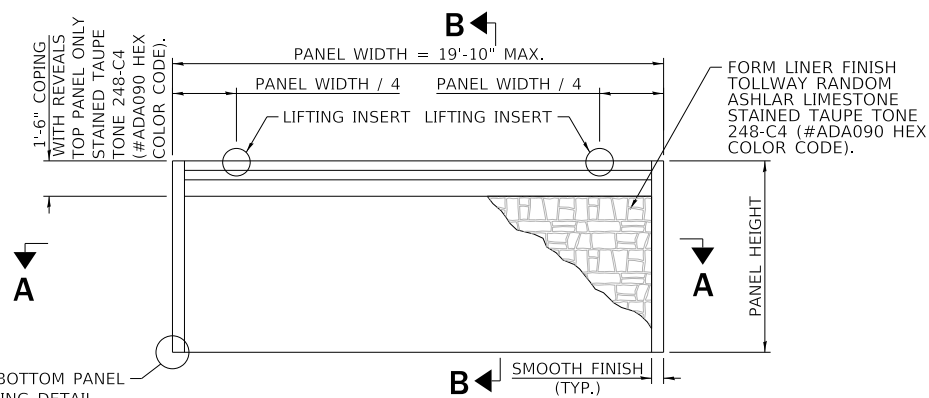
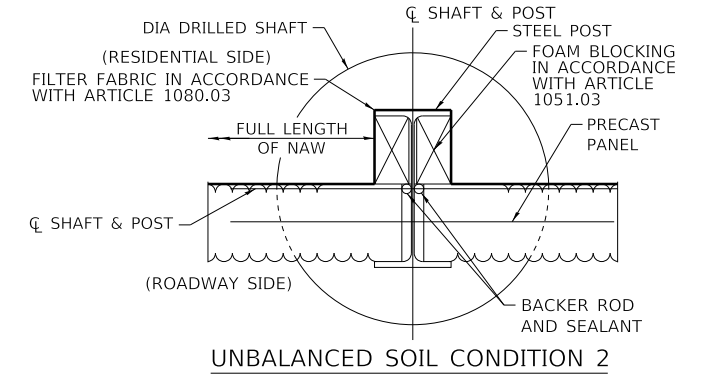
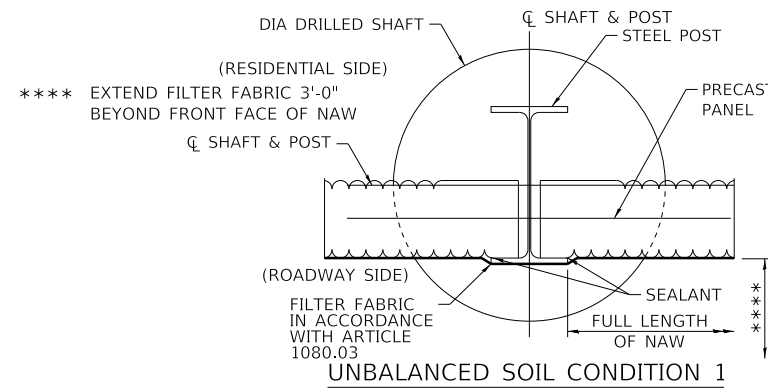
Illinois Tollway

NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G15-04

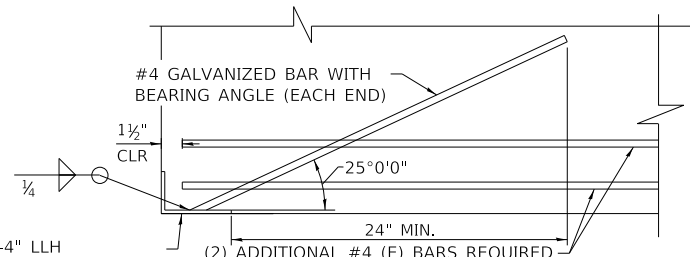


BENT PLATE DETAILS



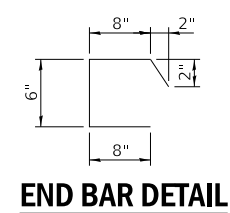
TYPICAL NOISE WALL PANEL DETAIL

SEE BOTTOM PANEL BEARING DETAIL (TYPICAL EACH SIDE), FOR BOTTOM PANELS ONLY

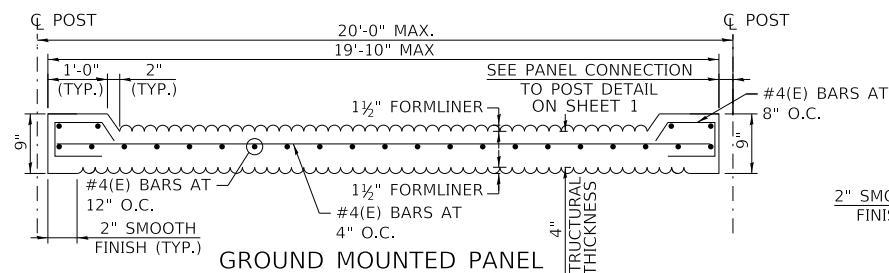


BOTTOM PANEL BEARING DETAIL

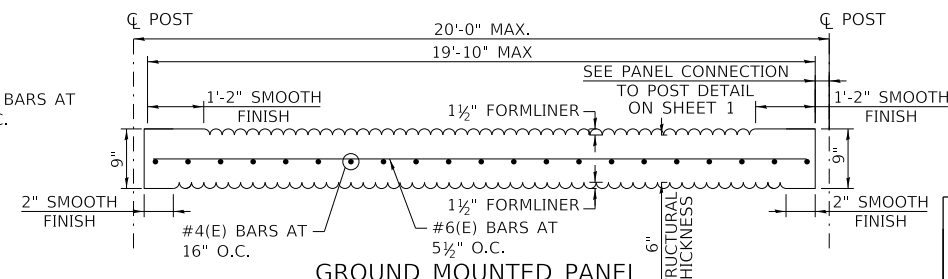
L5x3x3/4"x0'-4" LLH (4IN. STRUCT. THICK PANEL)
L5x3x3/4"x0'-6" LLH (6IN. STRUCT. THICK PANEL)
GALVANIZED BEARING ANGLE.



END BAR DETAIL

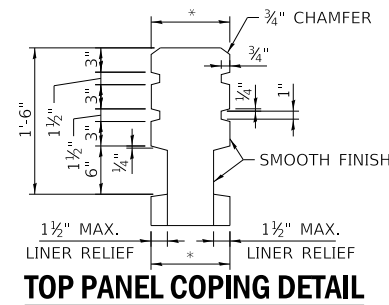


SECTION A-A



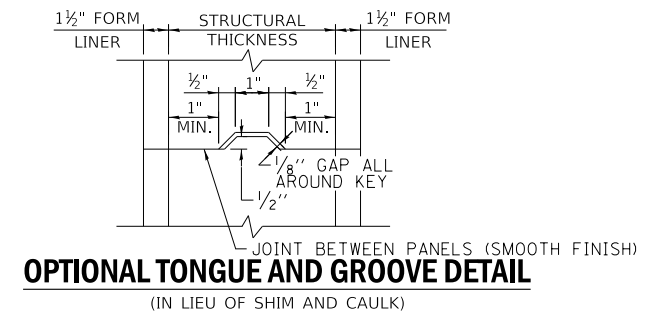
SECTION A-A

* 9" FOR UNBALANCED SOIL LOADS OR 7" FOR ALL OTHER CONDITIONS



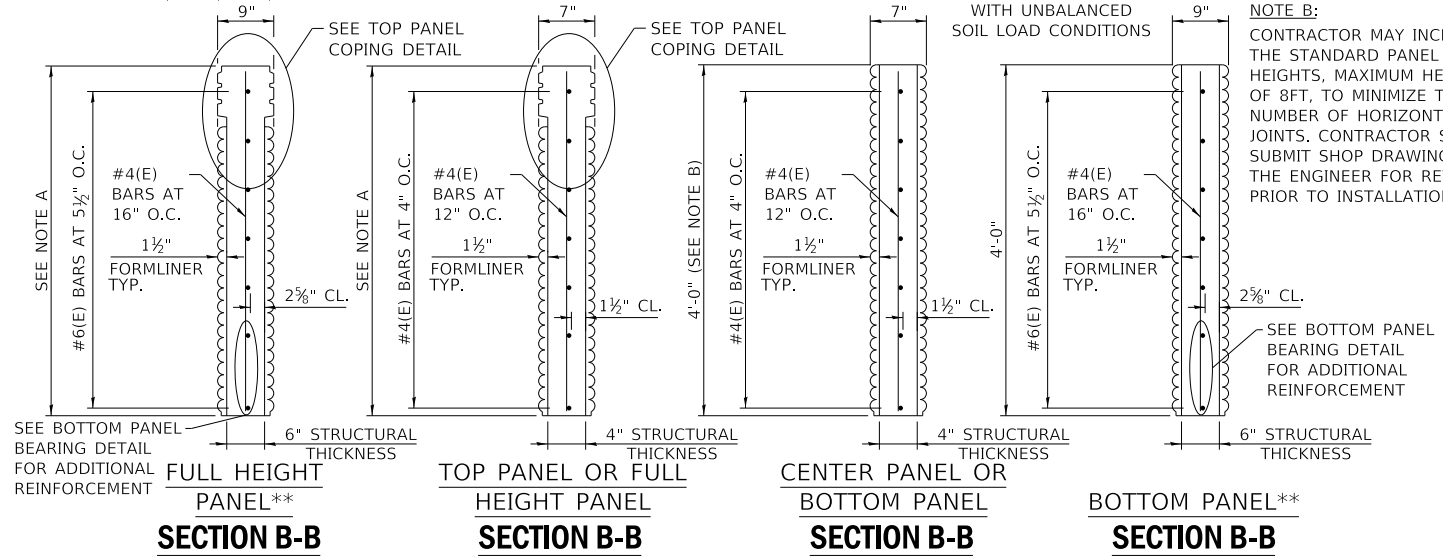
TOP PANEL COPING DETAIL

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)

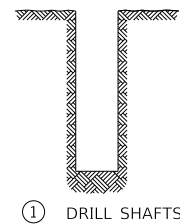


NOTE B:
CONTRACTOR MAY INCREASE THE STANDARD PANEL HEIGHTS, MAXIMUM HEIGHT OF 8FT, TO MINIMIZE THE NUMBER OF HORIZONTAL JOINTS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

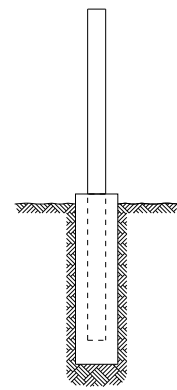
** USE PANELS ONLY WITH UNBALANCED SOIL LOAD CONDITIONS

SEE BOTTOM PANEL BEARING DETAIL FOR ADDITIONAL REINFORCEMENT

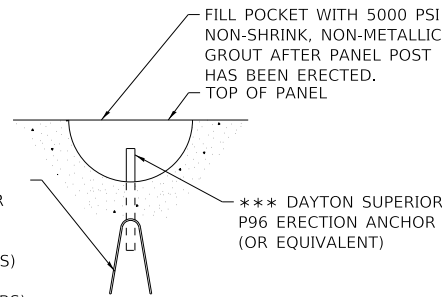




① DRILL SHAFTS



② POUR CONCRETE AND SET EMBEDDED POSTS

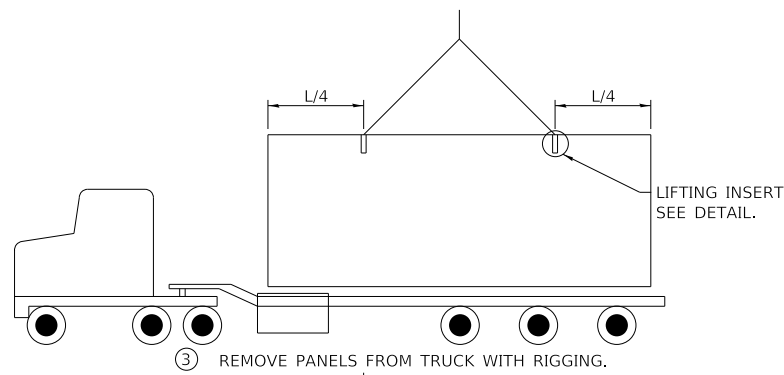


TYPICAL LIFTING INSERT DETAIL

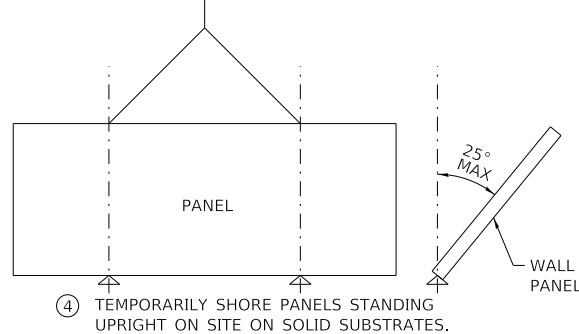
*** ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

NOTES:

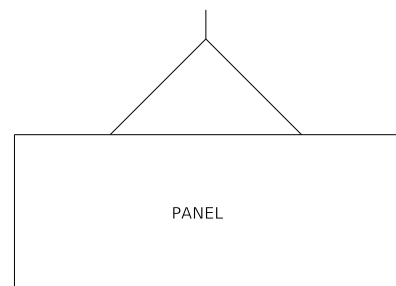
1. LIFTING INSERTS SHALL HAVE A FACTOR OF SAFETY OF 4:1
2. THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR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



③ REMOVE PANELS FROM TRUCK WITH RIGGING.

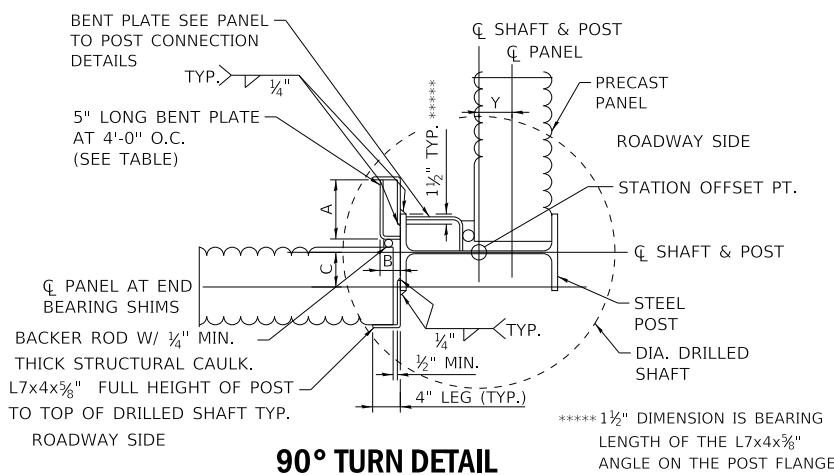


④ TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

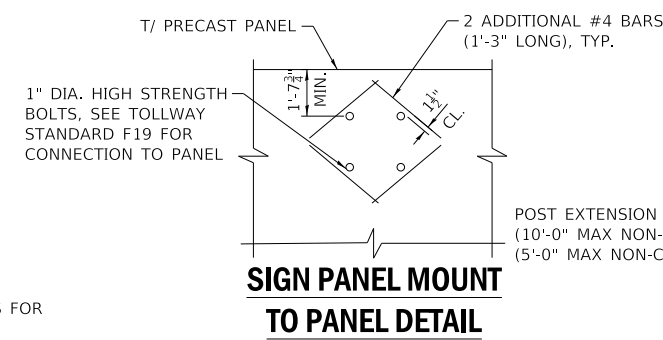


⑤ ERECT PANELS BETWEEN POSTS

SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

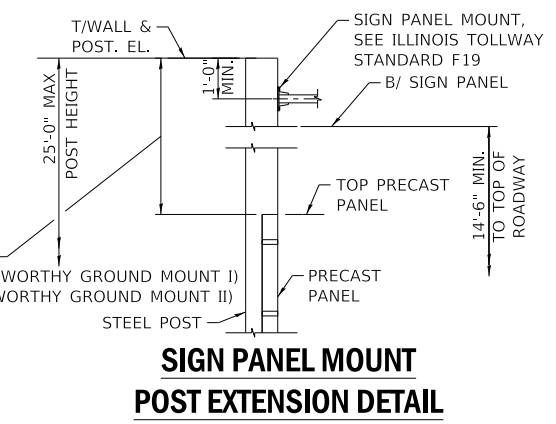


90° TURN DETAIL



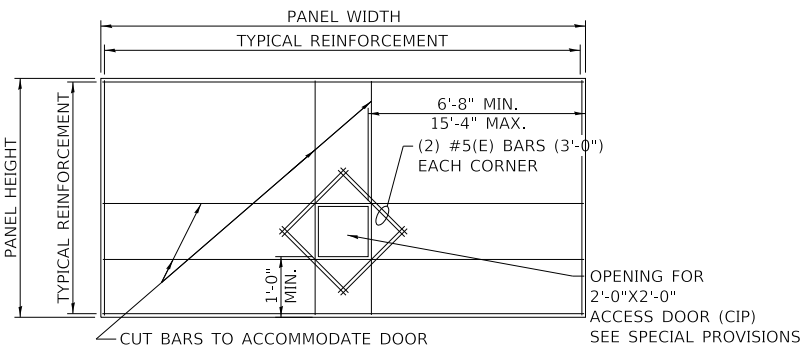
SIGN PANEL MOUNT TO PANEL DETAIL

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".

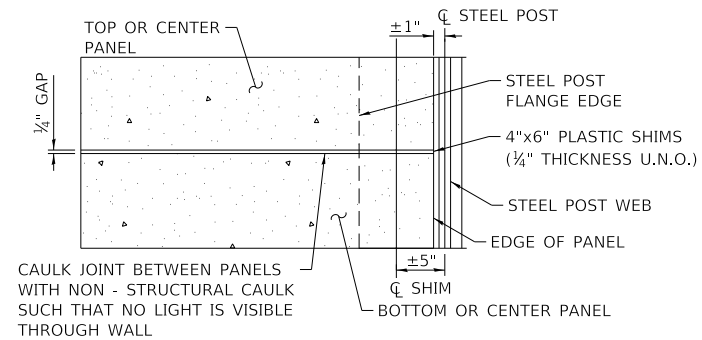


SIGN PANEL MOUNT POST EXTENSION DETAIL

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"



FIRE HYDRANT ACCESS OPENING DETAIL



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 3/8" |
| 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 3/16" |

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 3/8" |
| NON-CRASHWORTHY GROUND MOUNTED II | 7"x3"x3/8" | 3 3/8" |
| NON-CRASHWORTHY GROUND MOUNTED III | 10"x3"x3/8" | 5 3/8" |
| NON-CRASHWORTHY GROUND MOUNTED IV | 10 1/4"x3"x3/8" | 5 1/16" |



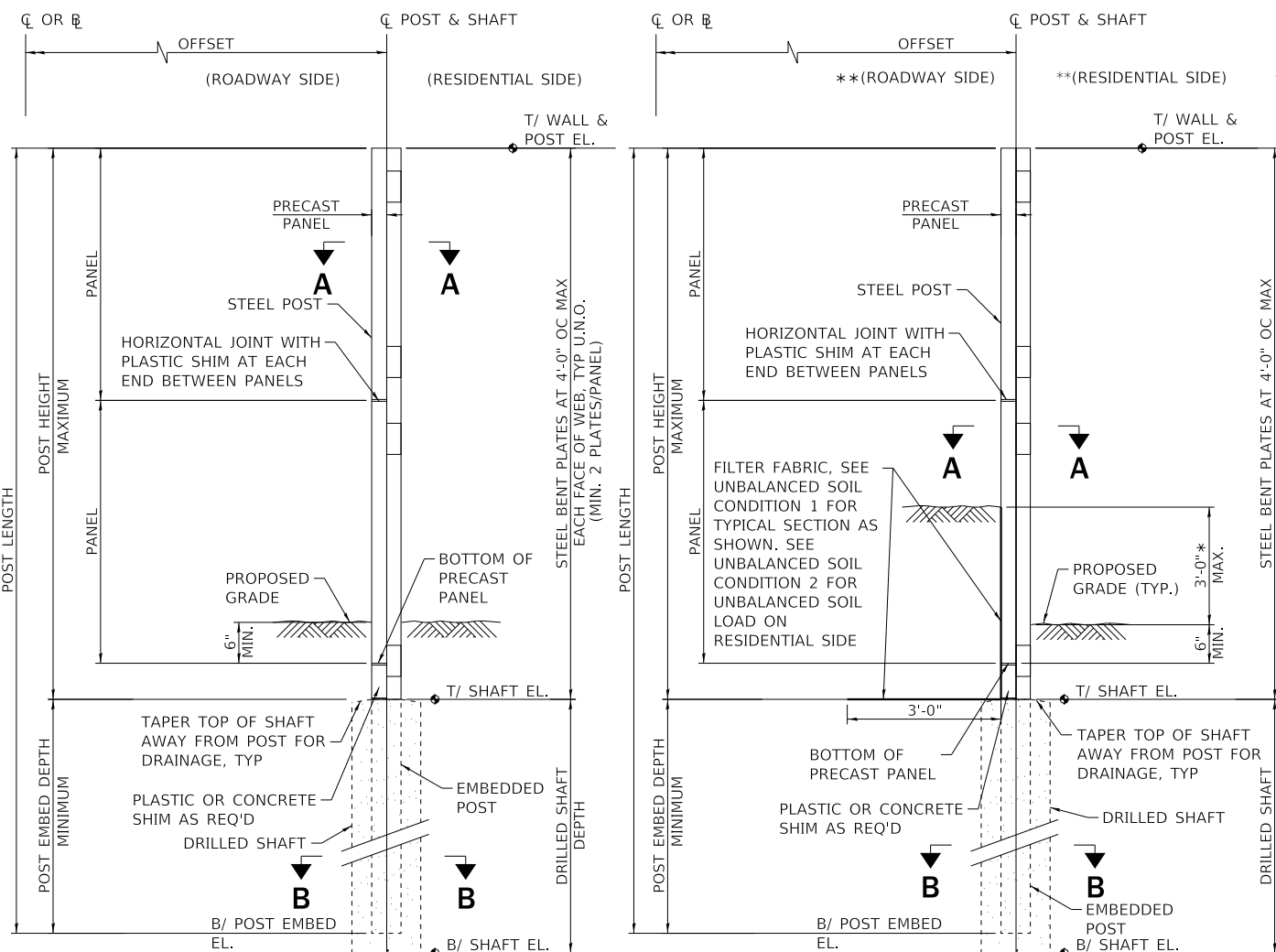
NON-CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G15-04

APPROVED BY: *Mamun Nasir* CHIEF ENGINEERING OFFICER
DATE: 03/01/2023

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.

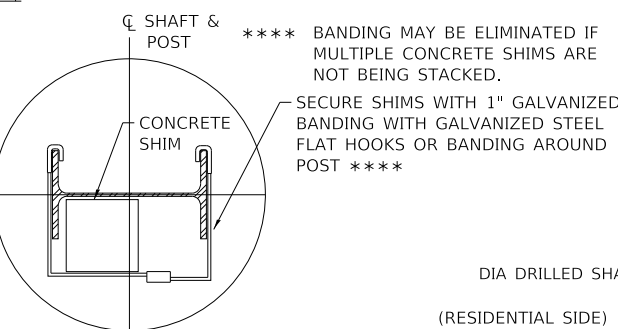


TYPICAL CROSS SECTION
(BALANCED SOIL LOAD)

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.

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



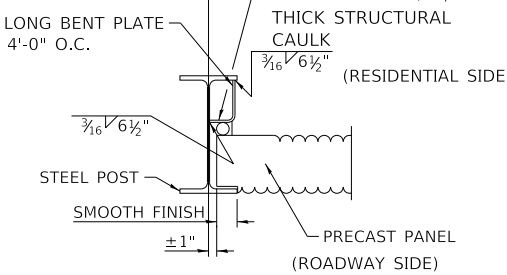
SHIM TO POST CONNECTION DETAIL 2

POST & DRILLED SHAFT DESIGN FOR COHESIVE SOILS

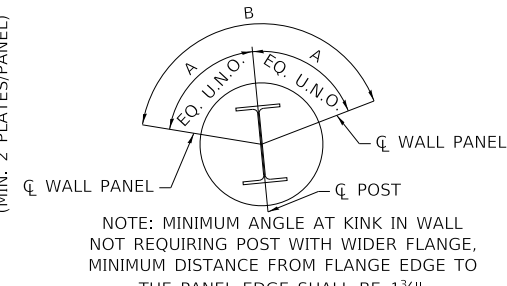
| NAW TYPE | MAX POST HEIGHT | MIN POST EMBED DEPTH | MAX DRILLED SHAFT SPACING | DRILLED SHAFT DEPTH | STEEL POST SIZE | Y | BENT PLATE M x N x THICK. | Z | DIA | A | B |
|----------------------------|-----------------|----------------------|---------------------------|---------------------|-----------------|---------|---------------------------|--------|------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

POST & DRILLED SHAFT DESIGN FOR COHESIONLESS SOILS

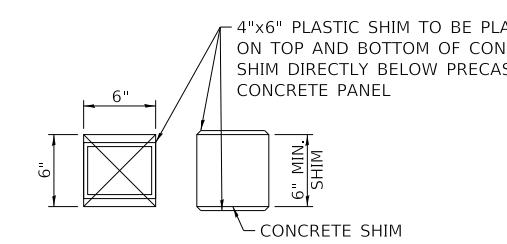
| NAW TYPE | MAX POST HEIGHT | MIN POST EMBED DEPTH | | | MAX DRILLED SHAFT SPACING | DRILLED SHAFT DEPTH | | | STEEL POST SIZE | Y | BENT PLATE M x N x THICK. | Z | DIA | A | B |
|----------------------------|-----------------|----------------------|-------------|----------|---------------------------|---------------------|-------------|----------|-----------------|---------|---------------------------|--------|-------|-----------|------------|
| | | 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 1/16" | 14 1/2"x4 3/8"x 1/2" | 3 3/4" | 3'-0" | 86°25'25" | 172°50'50" |



PANEL TO POST CONNECTION DETAIL



MIN ANGLE BETWEEN PANELS AT TOP POST



CONCRETE SHIM DETAIL 1

SHIMS TO BE SECURED TO THE POST SEE DETAIL 2

DESIGN LOADS

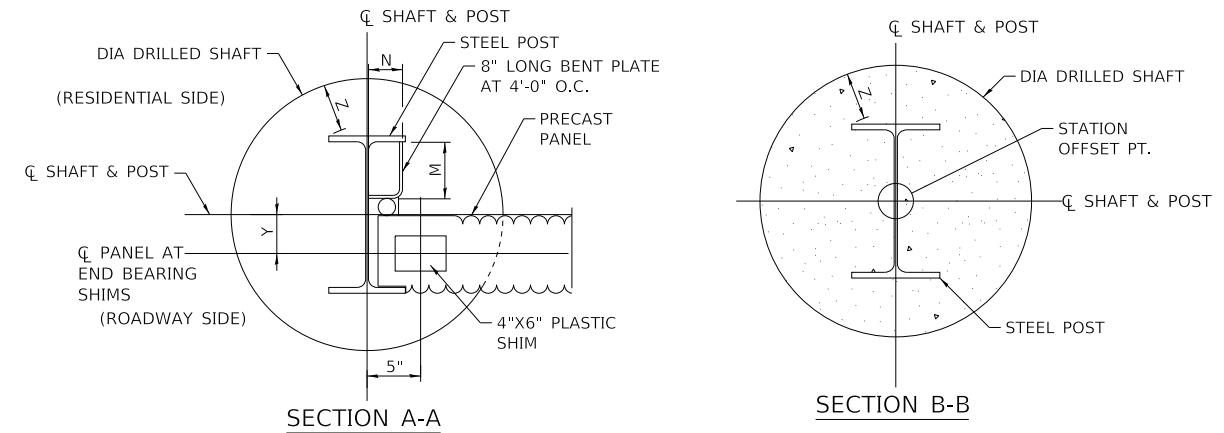
- CRASHWORTHY GROUND MOUNTED**
- WIND LOAD = 35 PSF (STR. III)
 - = 15 PSF (SERV I)
- RETAINED EARTH:**
- HORIZONTAL SOIL LOAD = 120 PCF
 - LIVE LOAD SURCHARGE = 2FT
- TL-4 VEHICLE COLLISION LOADING:**
- 54 KIP APPLIED AT 6'-0" ABOVE ROADWAY PAVEMENT
 - SECONDARY IMPACT (NO TL-4 IMPACT): 4 KIP APPLIED 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_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, f_y = 50 KSI
 - ALL STEEL POSTS SHALL BE HOT - DIP GALVANIZED
- BENT PLATE AND BEARING ANGLES:**
- ASTM A709 (AASHTO M270)
 - GRADE 36, f_y = 36 KSI U.N.O.
 - ALL STEEL SHALL BE HOT - DIP GALVANIZED
- REINFORCING STEEL:**
- f_y = 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



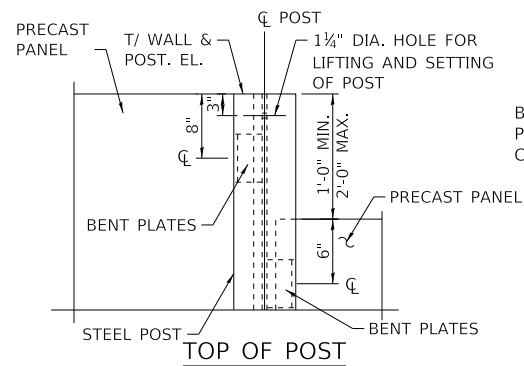
APPROVED BY: *Maman Nashif*
CHIEF ENGINEERING OFFICER
DATE: 03/01/2023

| DATE | REVISIONS |
|-----------|---|
| 2-23-2023 | REM. 1FT MIN. DIM. TO GROUND, ADD 6" MIN. DIM. TO PANEL, INC. COHEHESIONLESS PL. TO 1/2", REV. LIFT. INSERT NOTE, DIM. GAP IN 90 DEG. DET., INC. SMOOTH DIM. ON BACK FACE TO MATCH ALL PANELS |

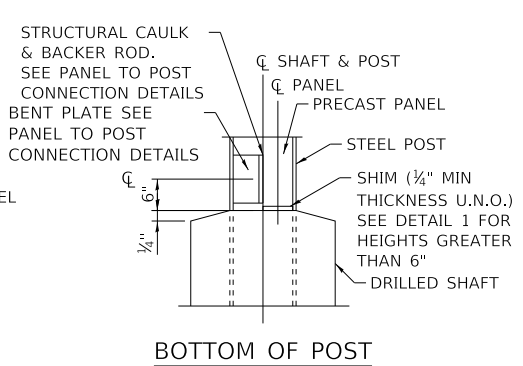
Illinois Tollway

CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

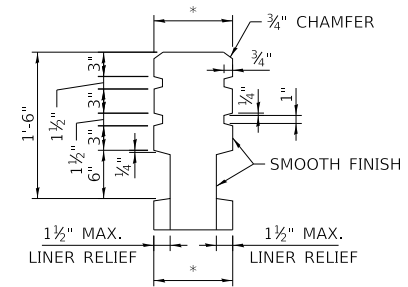
STANDARD G16-04



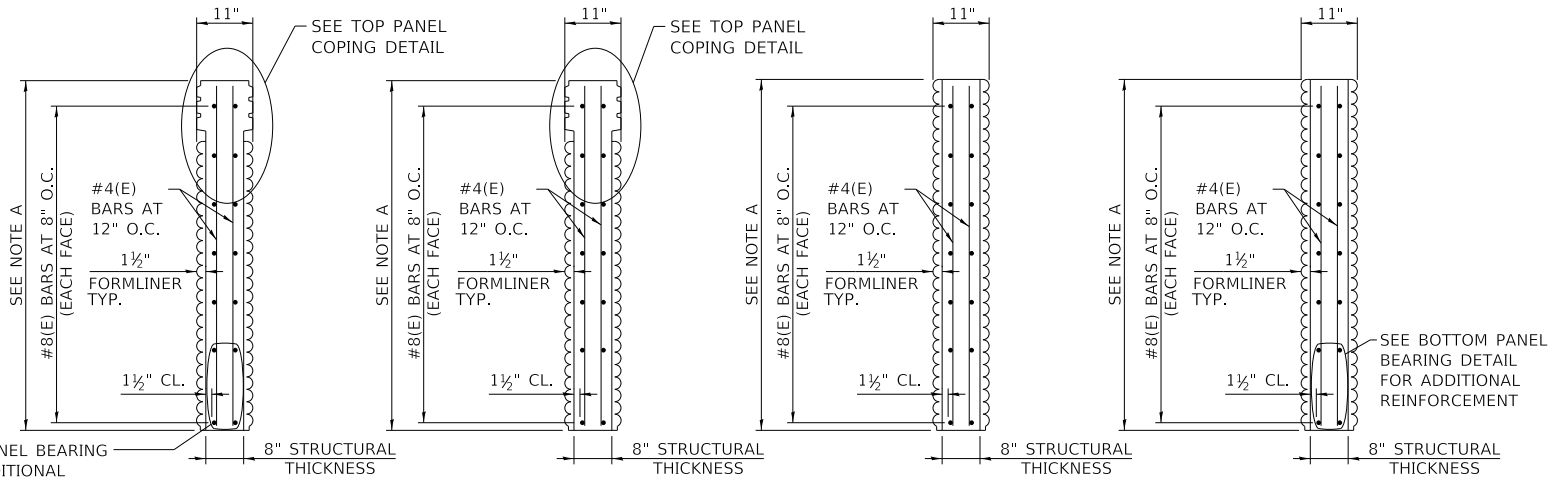
BENT PLATE DETAILS



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

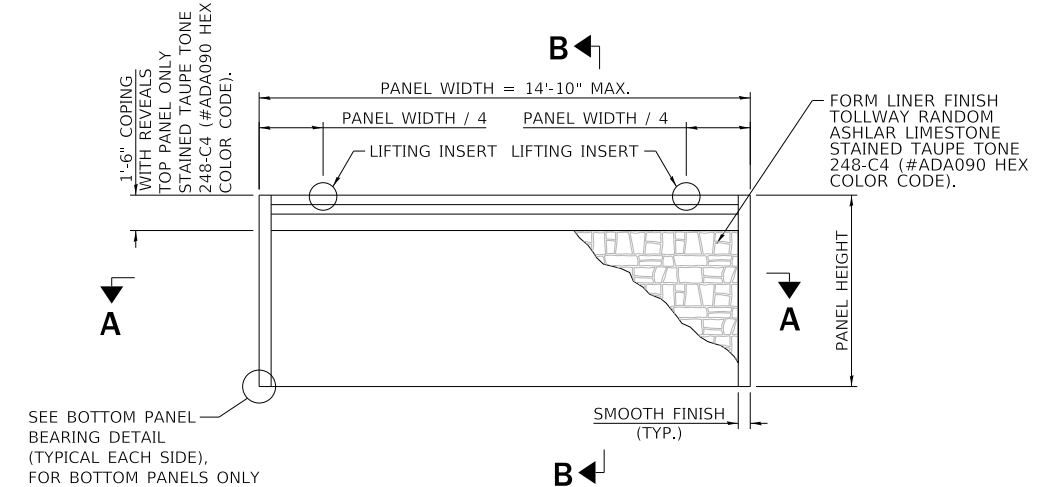


TOP PANEL COPING DETAIL

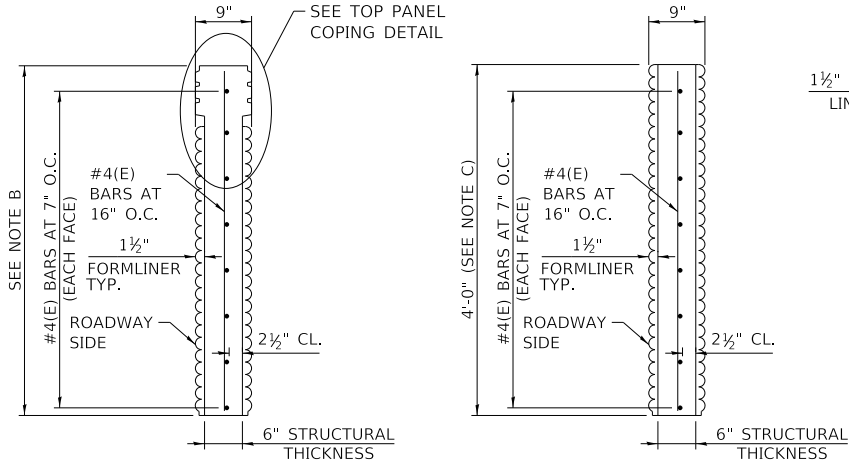


SECTION B-B
SECTION B-B
SECTION B-B
SECTION B-B

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



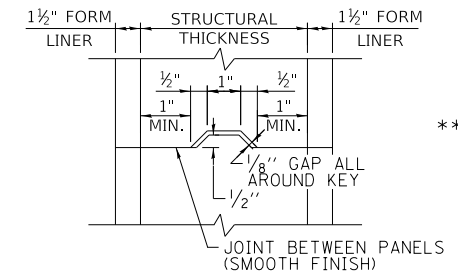
TYPICAL NOISE WALL PANEL DETAIL



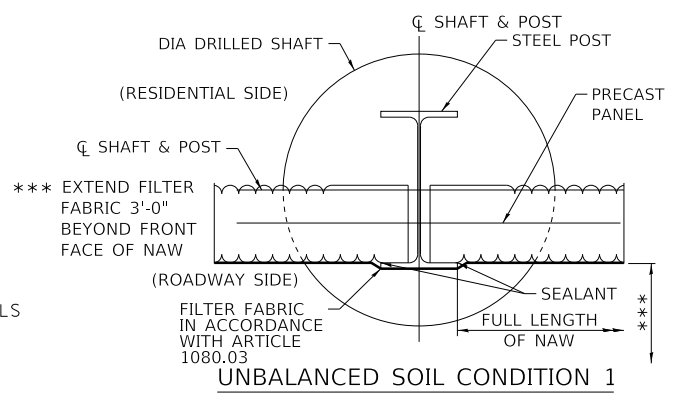
SECTION B-B
SECTION B-B

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

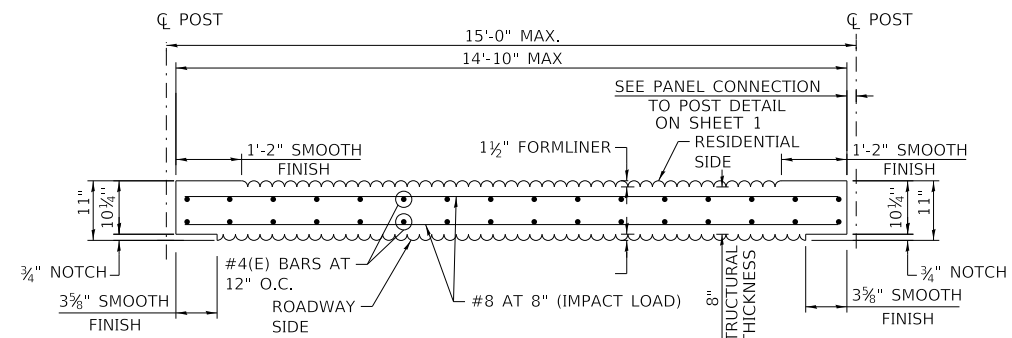
NOTE C:
 CONTRACTOR MAY INCREASE THE STANDARD PANEL HEIGHTS, MAXIMUM HEIGHT OF 9FT, TO MINIMIZE THE NUMBER OF HORIZONTAL JOINTS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.



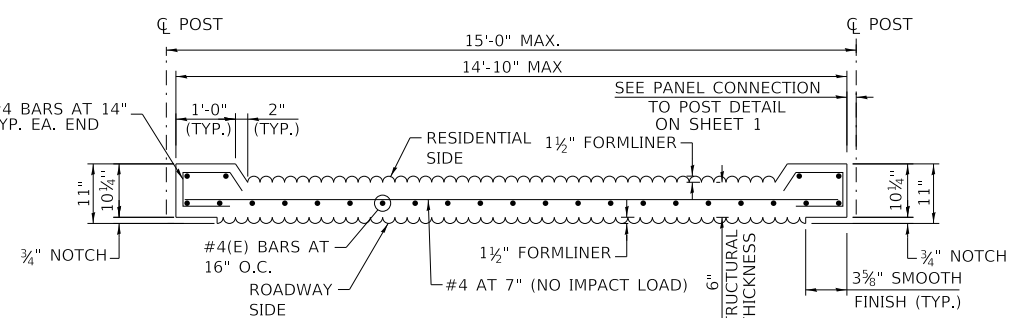
OPTIONAL TONGUE AND GROOVE DETAIL
 (IN LIEU OF SHIM AND CAULK)



UNBALANCED SOIL CONDITION 1

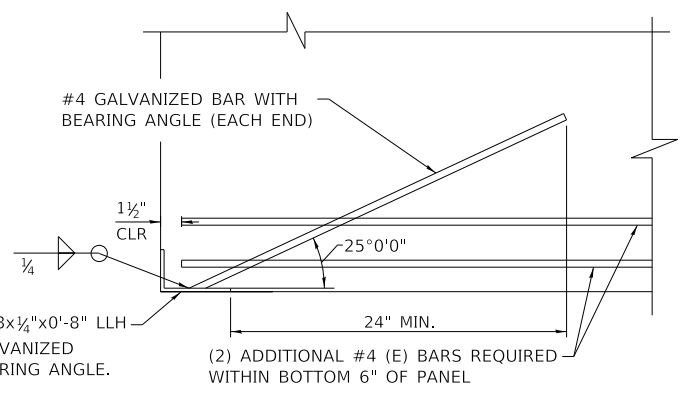


GROUND MOUNTED PANEL (TL-4 IMPACT LOAD)

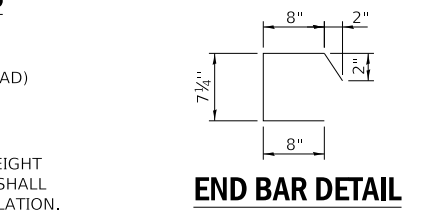


GROUND MOUNTED PANEL (NO TL-4 IMPACT LOAD)

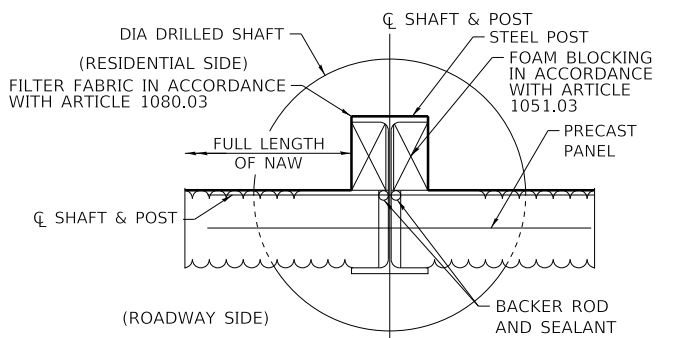
SECTION A-A



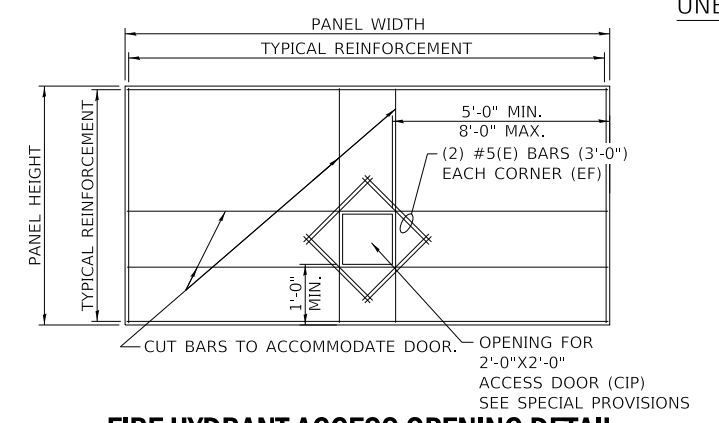
BOTTOM PANEL BEARING DETAIL



END BAR DETAIL



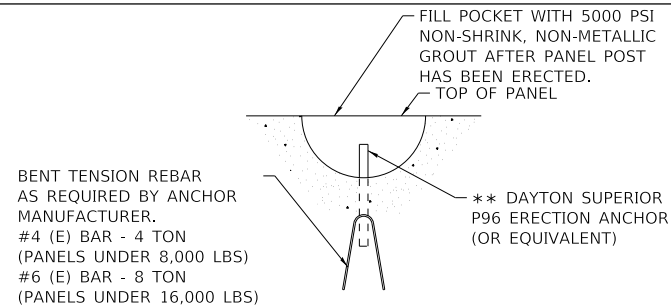
UNBALANCED SOIL CONDITION 2



FIRE HYDRANT ACCESS OPENING DETAIL

APPROVED BY: *Mona Nashif* CHIEF ENGINEERING OFFICER
 DATE: 03/01/2023

Illinois Tollway
 CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS
 STANDARD G16-04

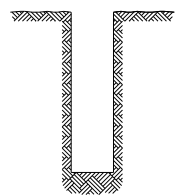


TYPICAL LIFTING INSERT DETAIL

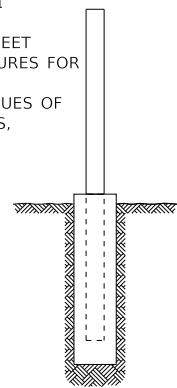
** ERECTION ANCHORS SHALL BE HOT-DIPPED GALVANIZED

NOTES:

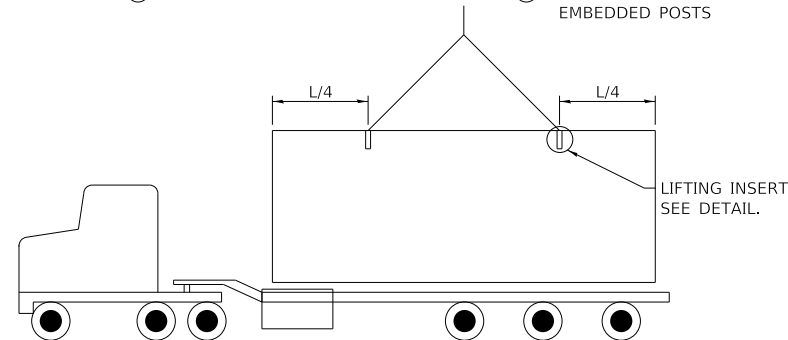
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2. THE NAW INSTALLATION PROCEDURES SHOWN ON THIS SHEET PROVIDE GENERAL INSTALLATION SEQUENCE AND PROCEDURES FOR THE CONTRACTOR. THE CONTRACTOR SHALL RETAIN SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE NAW FOR COMPLIANCE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



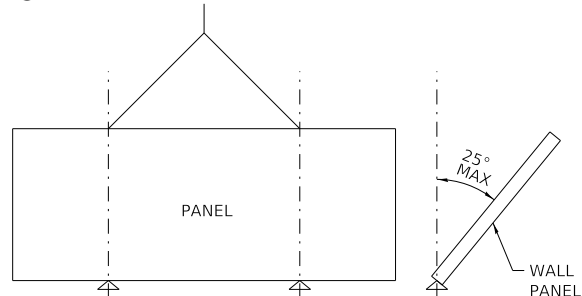
① DRILL SHAFTS



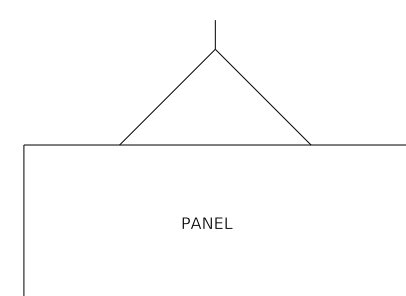
② POUR CONCRETE AND SET EMBEDDED POSTS



③ REMOVE PANELS FROM TRUCK WITH RIGGING.

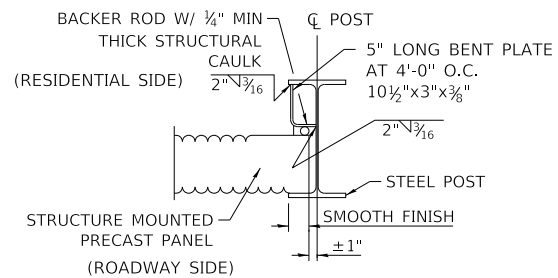


④ TEMPORARILY SHORE PANELS STANDING UPRIGHT ON SITE ON SOLID SUBSTRATES.

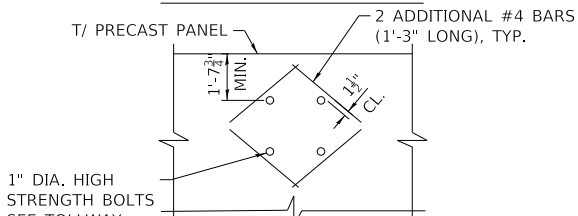


⑤ ERECT PANELS BETWEEN POSTS

SUGGESTED TYPICAL NOISE ABATEMENT WALL INSTALLATION SEQUENCE AND PROCEDURE

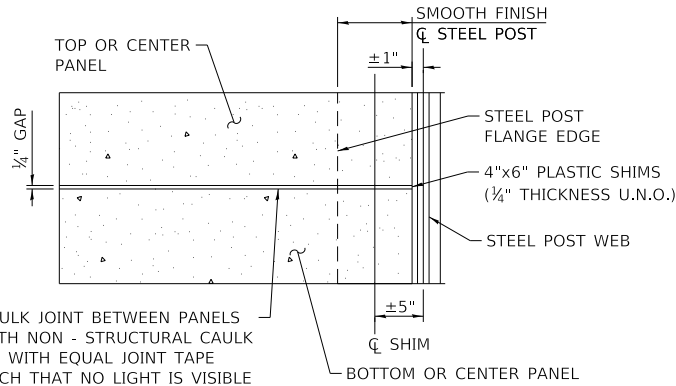


STRUCTURE MOUNTED PANEL TO POST CONNECTION DETAIL



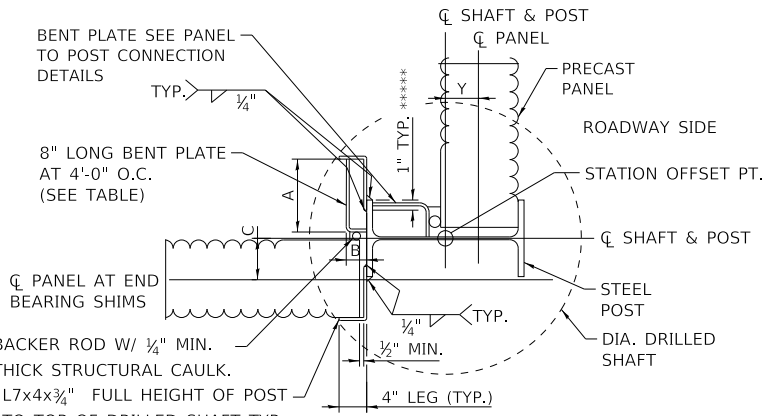
SIGN PANEL MOUNT TO PANEL DETAIL

*** 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".



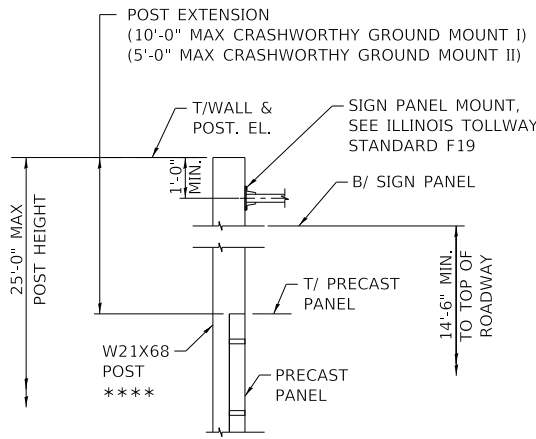
HORIZONTAL JOINT DETAIL

CAULK JOINT BETWEEN PANELS WITH NON-STRUCTURAL CAULK OR WITH EQUAL JOINT TAPE SUCH THAT NO LIGHT IS VISIBLE THROUGH WALL



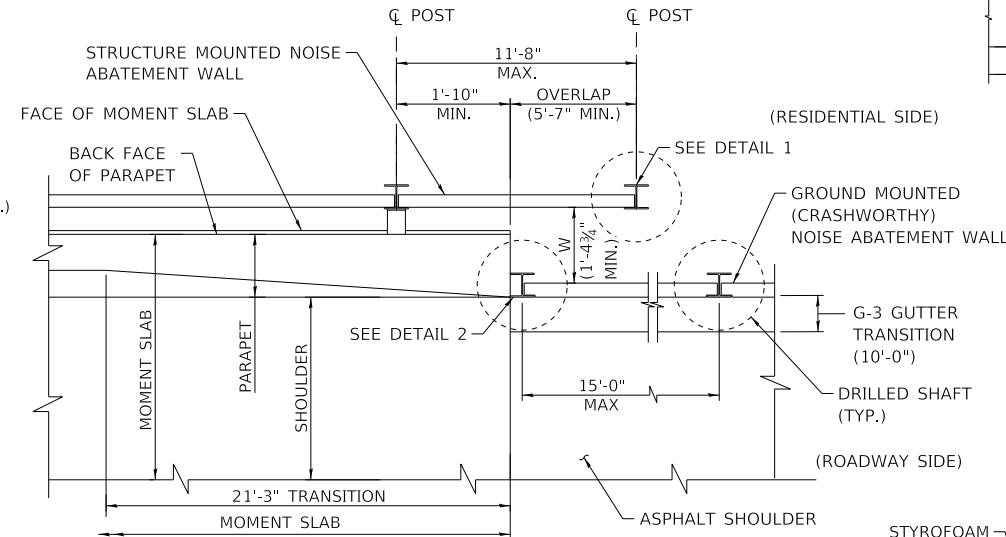
90° TURN DETAIL

***** 1" DIMENSION IS BEARING LENGTH OF L7x4x3/4" ANGLE ON THE POST FLANGE



SIGN PANEL MOUNT POST EXTENSION DETAIL

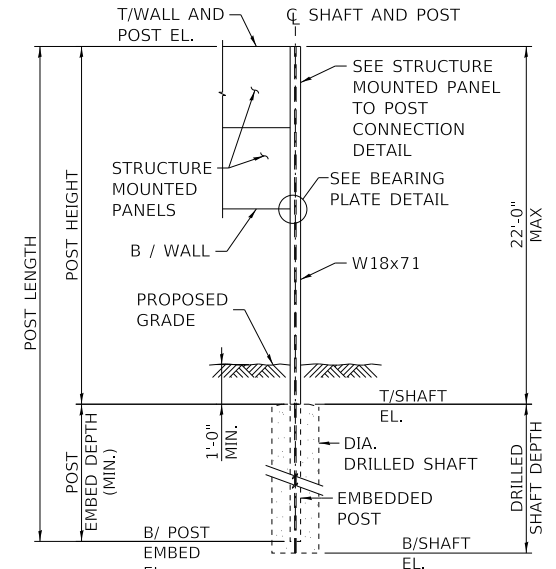
**** W18x71 POSTS HAVE BEEN DESIGNED TO ACCOMMODATE A POST EXTENSION WITH MAX 32 SF SIGN AREA IN ACCORDANCE WITH ILLINOIS TOLLWAY STANDARD F19 UP TO A MAXIMUM POST HEIGHT OF 25'-0"



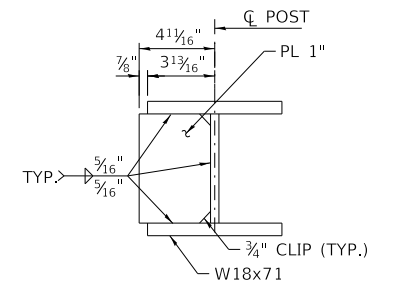
NAW TRANSITION DETAIL PLAN

90° TURN BENT PLATE TABLE

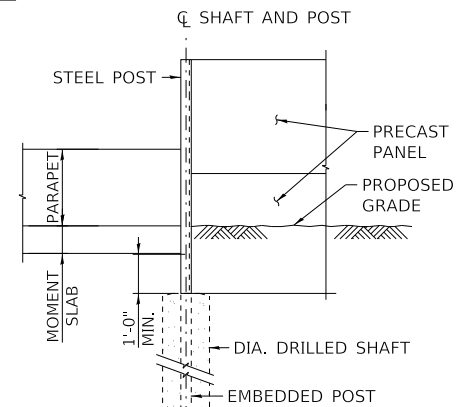
| STEEL POST TYPE | BENT PLATE A x B x THICK. | DIM. C |
|-----------------|---------------------------|--------|
| W21x68 | 7 3/4" x 3" x 3/8" | 4 5/8" |
| W27x84 | 9 1/2" x 3" x 3/8" | 5 1/2" |



DETAIL 1

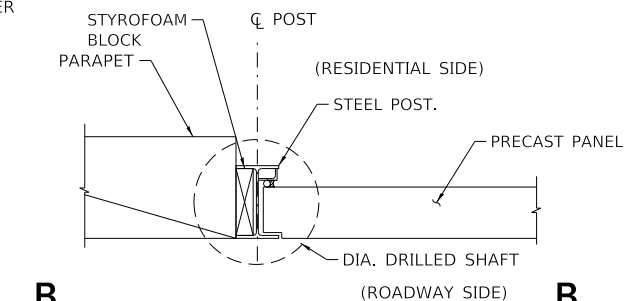


BEARING PLATE DETAIL



VIEW B-B

(STRUCTURE MOUNTED NAW) NOT SHOWN FOR CLARITY



DETAIL 2

CRASHWORTHY GROUND MOUNTED NAW TRANSITION TO PARAPET



CRASHWORTHY GROUND MOUNTED NOISE ABATEMENT WALL DETAILS

STANDARD G16-04

APPROVED BY: *Manar Nashif* CHIEF ENGINEERING OFFICER
DATE: 03/01/2023