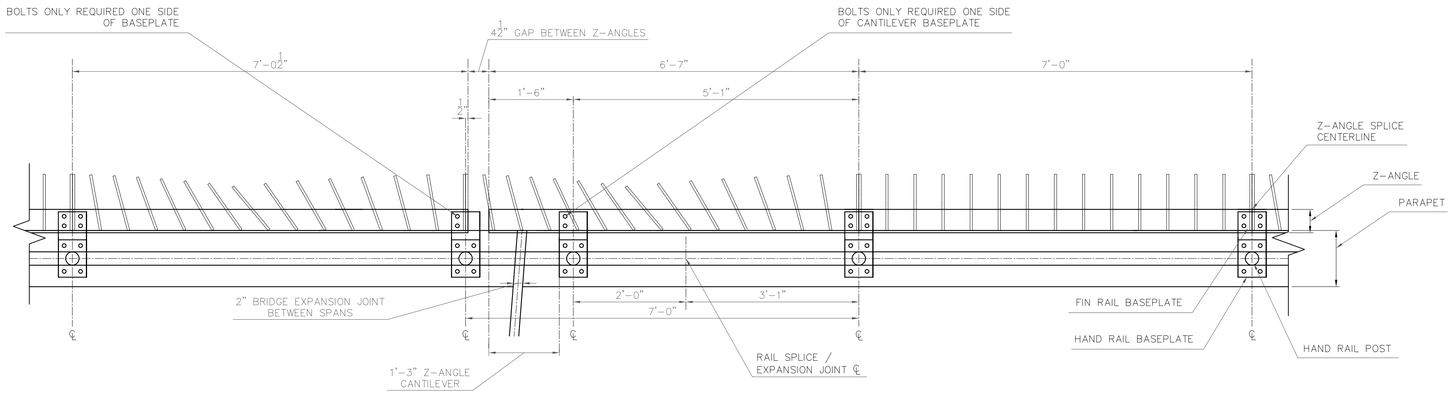
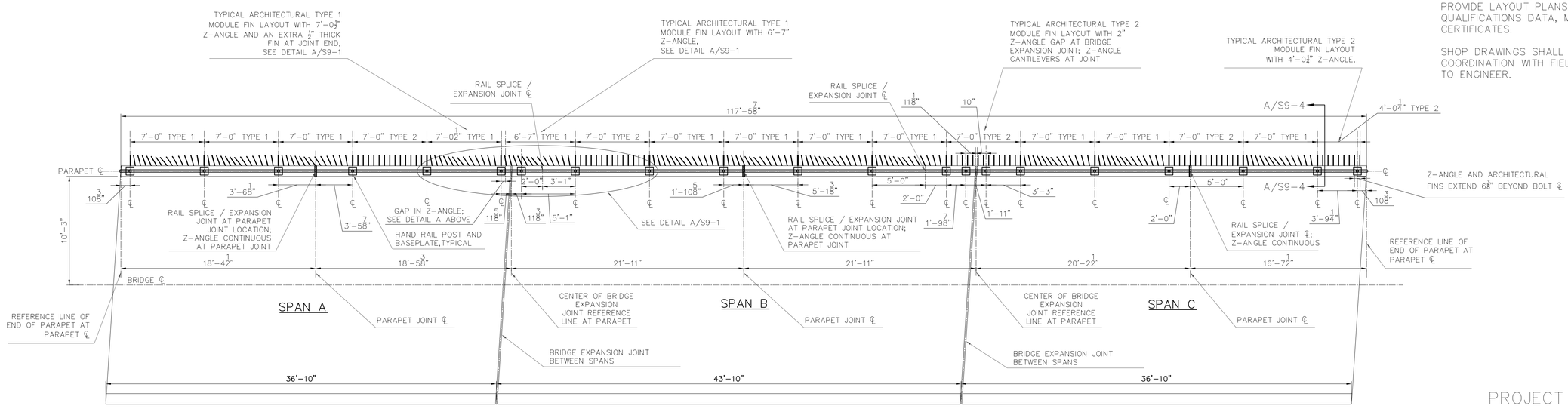
This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

0012DEL_P28



DETAIL A/S9-1



ARCHITECTURAL FINRAIL POST SPACING & FIN MODULE LAYOUT

5TH STREET – SECTION S2 – STATION TRACK 1 BRIDGE

TOTAL BILL OF MATERIAL	
	ARCHITECTURAL FIN RAIL (ALUMINUM HAND RAIL AND FIN ASSEMBLY)
	L.F.
SUPERSTRUCTURE	117.7
TOTAL	117.7

PLAN SHEET NOTES:

REFER TO S9-4 FOR GENERAL ARCHITECTURAL FIN RAILING NOTES.

DESIGNED TO COMPLY WITH NORFOLK SOUTHERN RAILROAD (NSR) SPECIAL PROVISIONS (2017) AND NSR PUBLIC PROJECTS MANUAL (2015).

ALUMINUM PIPE TO BE ASTM B-429, ALLOY 6061-T6 AND BASE PLATE TO BE ASTM B-209, ALLOY 6061-T6.

MISCELLANEOUS METAL COMPONENTS SHALL MEET THE REQUIREMENTS OF ASTM A-36.

CAST-IN-PLACE ANCHOR RODS SHALL CONFORM TO ASTM-276, TYPE 302 OR 304 STAINLESS STEEL AND THREADS SHALL BE ROLLED, NOT CUT.

STAINLESS STEEL BOLTS, CAP SCREWS AND NUTS TO BE ASTM A276, TYPE 304, STAINLESS STEEL WASHERS TO BE ASTM A276, TYPE 302.

CAST-IN-PLACE ANCHOR ROD LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO RAILING FABRICATION.

POST TO BE SET PERPENDICULAR TO TOP OF CURB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.

CERTIFIED MILL REPORTS ARE REQUIRED FOR POST, RAIL, AND FIN MODULES. SHOP INSPECTION IS NOT REQUIRED.

WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE.

THE CENTERLINE OF ANY SPLICE AND/OR EXPANSION JOINT TO BE LOCATED AT LEAST 2'-0" AWAY FROM CENTERLINE OF POST. EXPANSION AND/OR SPLICE JOINTS FOR EACH RAIL OF TWO RAILINGS ARE TO BE PLACED IN THE SAME LOCATION AND IN THE SAME PANEL.

PROVIDE SHOP DRAWINGS FOR ALL ALUMINUM FABRICATIONS; PROVIDE LAYOUT PLANS, SIZES, ELEVATIONS. PROVIDE QUALIFICATIONS DATA, MILL CERTIFICATES, WELDING CERTIFICATES.

SHOP DRAWINGS SHALL BE REVIEWED BY CONTRACTOR FOR COORDINATION WITH FIELD CONDITIONS PRIOR TO SUBMITTAL TO ENGINEER.

PROJECT NO. P-5705BA

MECKLENBURG COUNTY

SHEET 1 OF 7

NORTH CAROLINA PROFESSIONAL SEAL 033610 ENGINEER PAUL ROSENACK
03.23.2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Stantec
STANTEC CONSULTING SERVICES
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27605
LICENSE NO. F-0672

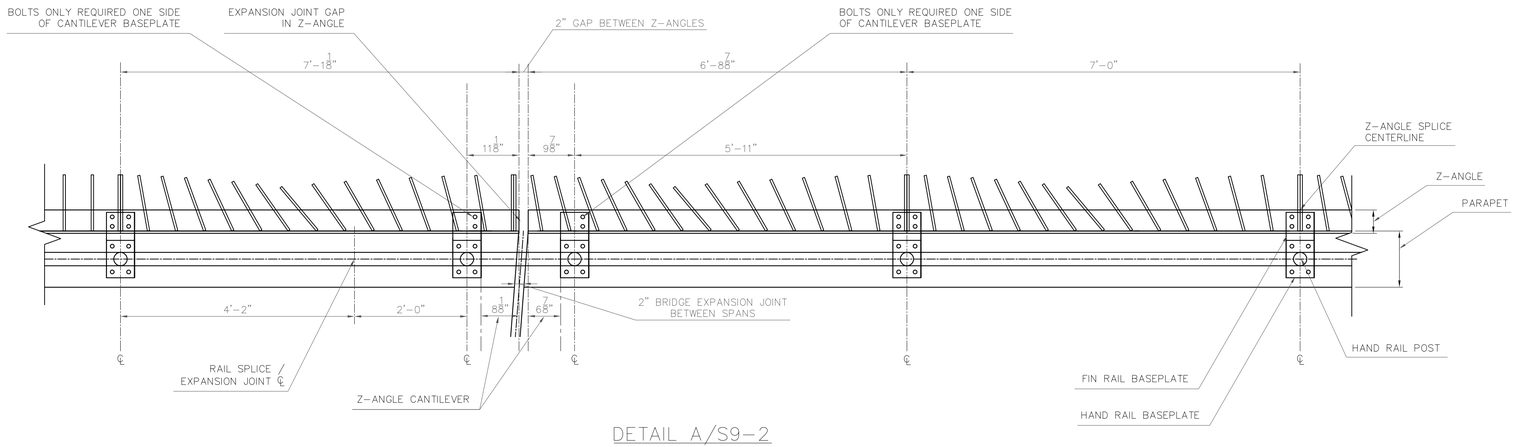
DRAWN BY RSH DATE 3/20/18
CHECKED BY PMR DATE 3/21/18
DWG. NO.1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL FIN RAIL PLANS
5TH STREET-S2-TRACK S1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S9-1
1			3			TOTAL SHEETS
2			4			7

0012DEL_P28



DETAIL A/S9-2

PLAN SHEET NOTES:

REFER TO S9-4 FOR GENERAL ARCHITECTURAL FIN RAILING NOTES.

DESIGNED TO COMPLY WITH NORFOLK SOUTHERN RAILROAD (NSR) SPECIAL PROVISIONS (2017) AND NSR PUBLIC PROJECTS MANUAL (2015).

ALUMINUM PIPE TO BE ASTM B-429, ALLOY 6061-T6 AND BASE PLATE TO BE ASTM B-209, ALLOY 6061-T6.

MISCELLANEOUS METAL COMPONENTS SHALL MEET THE REQUIREMENTS OF ASTM A-36.

CAST-IN-PLACE ANCHOR RODS SHALL CONFORM TO ASTM-276, TYPE 302 OR 304 STAINLESS STEEL AND THREADS SHALL BE ROLLED, NOT CUT.

STAINLESS STEEL BOLTS, CAP SCREWS AND NUTS TO BE ASTM A276, TYPE 304, STAINLESS STEEL WASHERS TO BE ASTM A276, TYPE 302.

CAST-IN-PLACE ANCHOR ROD LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO RAILING FABRICATION.

POST TO BE SET PERPENDICULAR TO TOP OF CURB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.

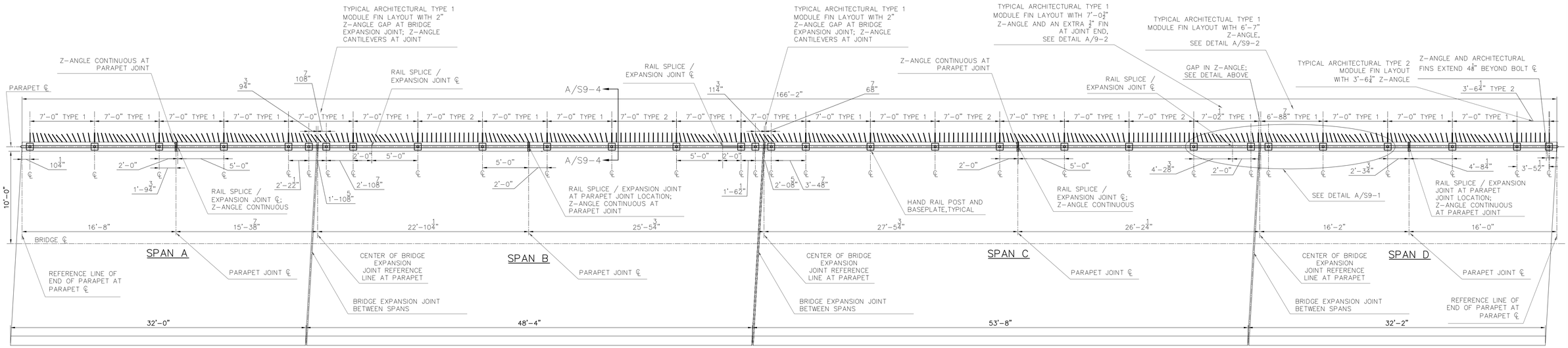
CERTIFIED MILL REPORTS ARE REQUIRED FOR POST, RAIL, AND FIN MODULES. SHOP INSPECTION IS NOT REQUIRED.

WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE.

THE CENTERLINE OF ANY SPLICE AND/OR EXPANSION JOINT TO BE LOCATED AT LEAST 2'-0" AWAY FROM CENTERLINE OF POST. EXPANSION AND/OR SPLICE JOINTS FOR EACH RAIL OF TWO RAILINGS ARE TO BE PLACED IN THE SAME LOCATION AND IN THE SAME PANEL.

PROVIDE SHOP DRAWINGS FOR ALL ALUMINUM FABRICATIONS; PROVIDE LAYOUT PLANS, SIZES, ELEVATIONS. PROVIDE QUALIFICATIONS DATA, MILL CERTIFICATES, WELDING CERTIFICATES.

SHOP DRAWINGS SHALL BE REVIEWED BY CONTRACTOR FOR COORDINATION WITH FIELD CONDITIONS PRIOR TO SUBMITTAL TO ENGINEER.



ARCHITECTURAL FINRAIL POST SPACING & FIN MODULE LAYOUT

TRADE STREET – SECTION S4 – STATION TRACK 1 BRIDGE

TOTAL BILL OF MATERIAL	
	ARCHITECTURAL FIN RAIL (ALUMINUM HAND RAIL AND FIN ASSEMBLY)
	L.F.
SUPERSTRUCTURE	166.6
TOTAL	166.6

PROJECT NO. P-5705BA

MECKLENBURG COUNTY

SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTUAL FIN RAIL PLANS
TRADE STREET-S4-TRACK S1

NORTH CAROLINA PROFESSIONAL SEAL 033610 ENGINEER PAUL ROSENACK 03.23.2018

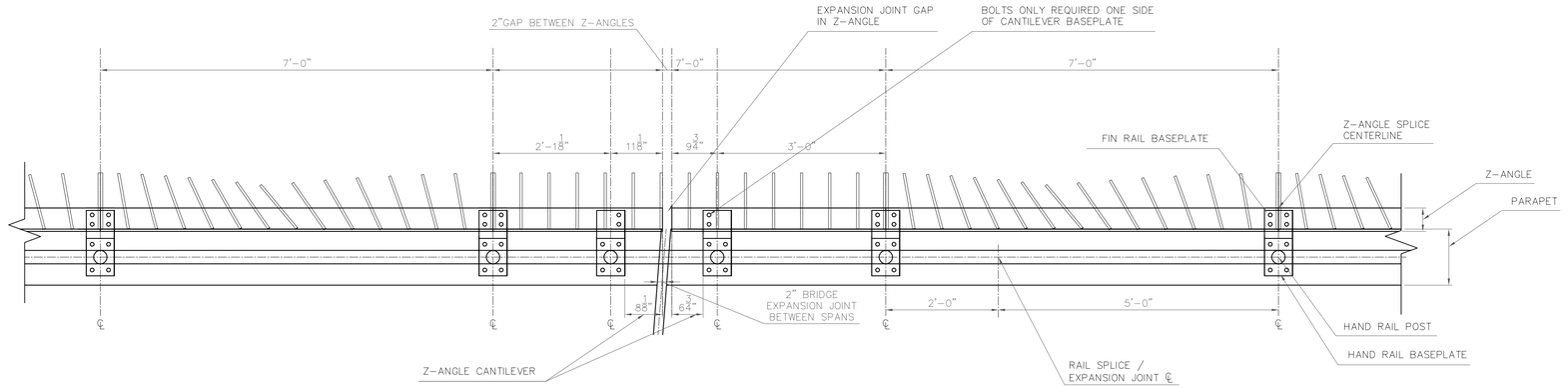
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Stantec
STANTEC CONSULTING SERVICES
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27605
LICENSE NO. F-0672

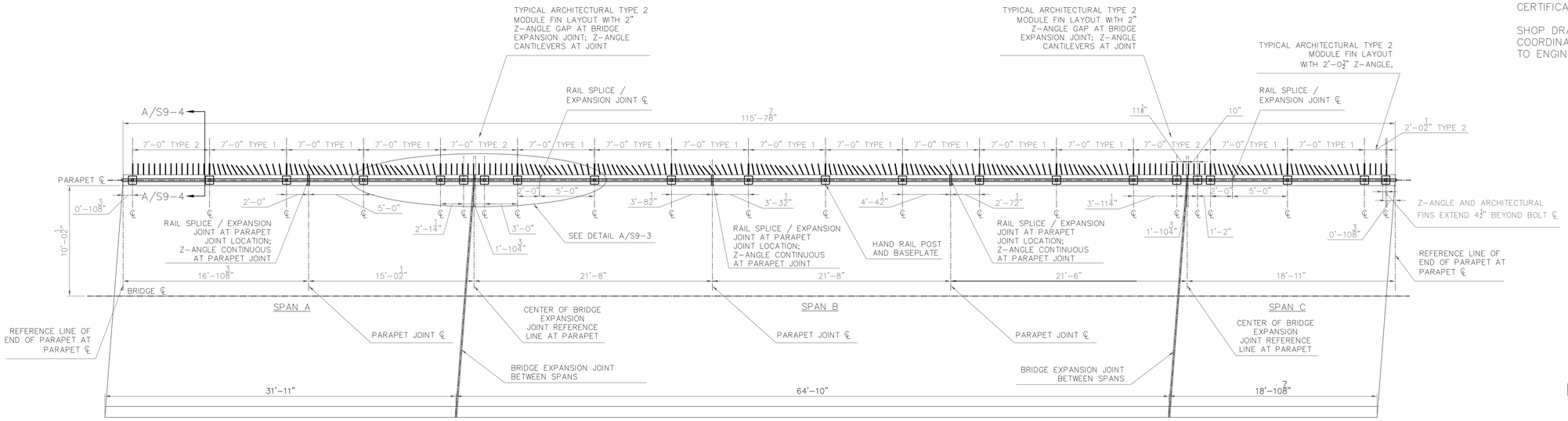
DRAWN BY RSH DATE 3/20/18
CHECKED BY PMR DATE 3/21/18
DWG. NO.2

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S9-2
1			3			TOTAL SHEETS
2			4			7

0012DEL_P28



DETAIL A/S9-3



ARCHITECTURAL FINRAIL POST SPACING & FIN MODULE LAYOUT

4TH STREET – SECTION S6 – STATION TRACK 1 BRIDGE

TOTAL BILL OF MATERIAL	
	ARCHITECTURAL FIN RAIL (ALUMINUM HAND RAIL AND FIN ASSEMBLY)
	L.F.
SUPERSTRUCTURE	116.1
TOTAL	116.1

PLAN SHEET NOTES:

REFER TO S9-4 FOR GENERAL ARCHITECTURAL FIN RAILING NOTES.

DESIGNED TO COMPLY WITH NORFOLK SOUTHERN RAILROAD (NSR) SPECIAL PROVISIONS (2017) AND NSR PUBLIC PROJECTS MANUAL (2015).

ALUMINUM PIPE TO BE ASTM B-429, ALLOY 6061-T6 AND BASE PLATE TO BE ASTM B-209, ALLOY 6061-T6.

MISCELLANEOUS METAL COMPONENTS SHALL MEET THE REQUIREMENTS OF ASTM A-36.

CAST-IN-PLACE ANCHOR RODS SHALL CONFORM TO ASTM-276, TYPE 302 OR 304 STAINLESS STEEL AND THREADS SHALL BE ROLLED, NOT CUT.

STAINLESS STEEL BOLTS, CAP SCREWS AND NUTS TO BE ASTM A276, TYPE 304, STAINLESS STEEL WASHERS TO BE ASTM A276, TYPE 302.

CAST-IN-PLACE ANCHOR ROD LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO RAILING FABRICATION.

POST TO BE SET PERPENDICULAR TO TOP OF CURB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.

CERTIFIED MILL REPORTS ARE REQUIRED FOR POST, RAIL, AND FIN MODULES. SHOP INSPECTION IS NOT REQUIRED.

WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE.

THE CENTERLINE OF ANY SPLICE AND/OR EXPANSION JOINT TO BE LOCATED AT LEAST 2'-0" AWAY FROM CENTERLINE OF POST. EXPANSION AND/OR SPLICE JOINTS FOR EACH RAIL OF TWO RAILINGS ARE TO BE PLACED IN THE SAME LOCATION AND IN THE SAME PANEL.

PROVIDE SHOP DRAWINGS FOR ALL ALUMINUM FABRICATIONS; PROVIDE LAYOUT PLANS, SIZES, ELEVATIONS. PROVIDE QUALIFICATIONS DATA, MILL CERTIFICATES, WELDING CERTIFICATES.

SHOP DRAWINGS SHALL BE REVIEWED BY CONTRACTOR FOR COORDINATION WITH FIELD CONDITIONS PRIOR TO SUBMITTAL TO ENGINEER.

PROJECT NO. P-5705BA

MECKLENBURG COUNTY

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL FIN RAIL PLANS
4TH STREET-S6-TRACK S1

NORTH CAROLINA PROFESSIONAL SEAL 033610 ENGINEER PAUL ROSENACK 03.23.2018

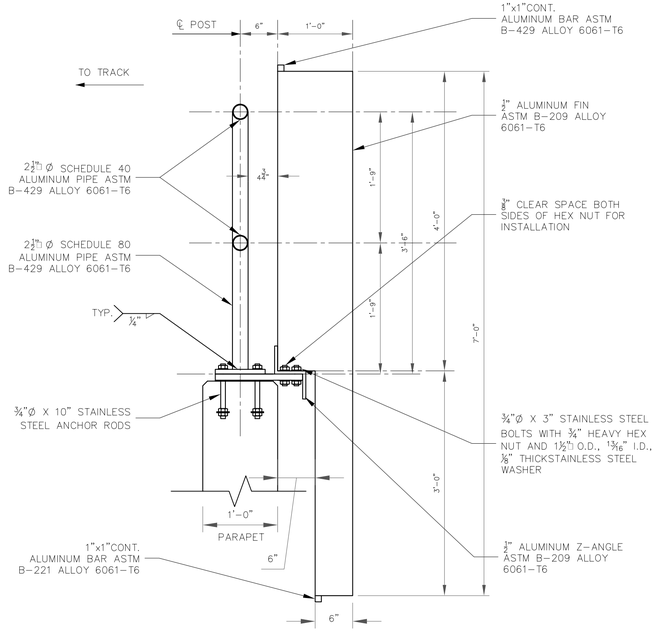
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Stantec
STANTEC CONSULTING SERVICES
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27605
LICENSE NO. F-0672

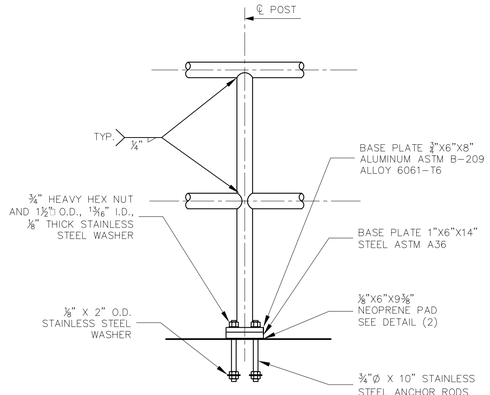
DRAWN BY RSH DATE 3/20/18
CHECKED BY PMR DATE 3/21/18
DWG. NO.3

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S9-3
1			3			TOTAL SHEETS
2			4			7

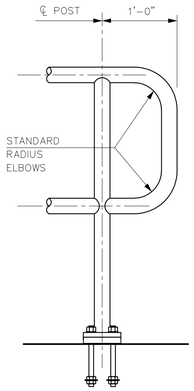
0012DEL_P28



TYPICAL SECTION A/S9-4

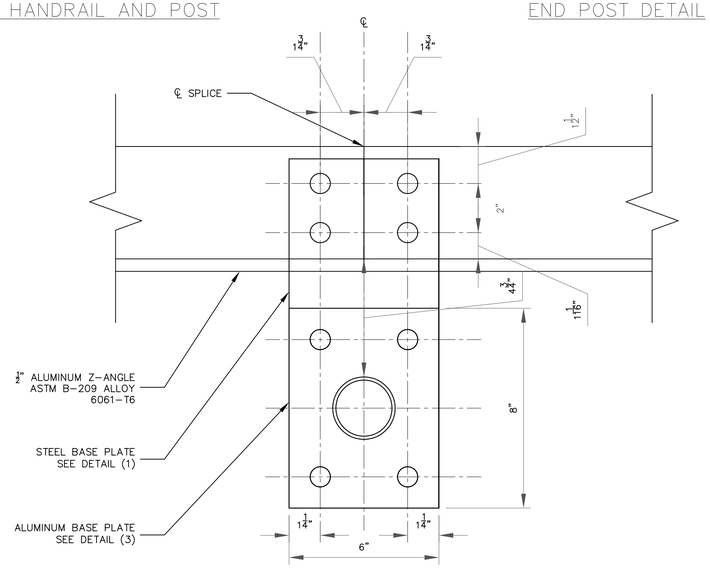


FRONT VIEW
(FROM TRACK)

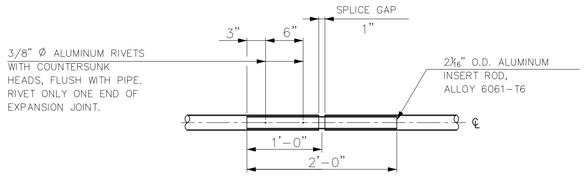


ALUMINUM HANDRAIL AND POST

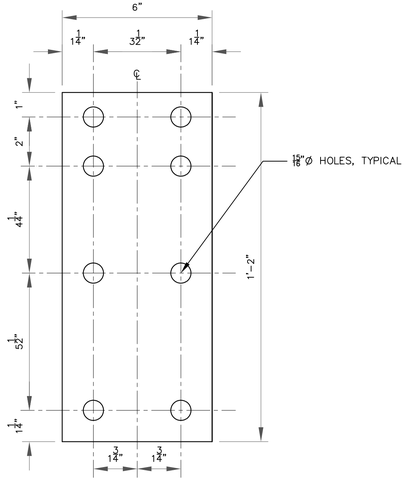
END POST DETAIL



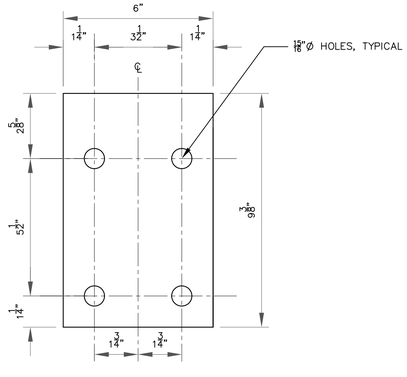
Z-ANGLE SPLICE AT POST



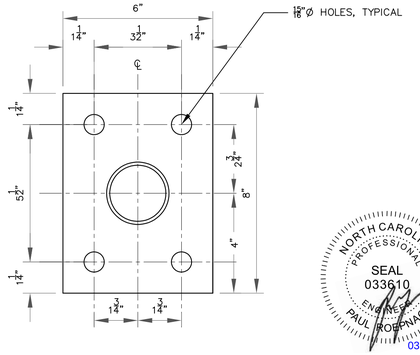
EXPANSION JOINT DETAIL



(1) STEEL BASE PLATE DETAIL



(2) BEARING PAD DETAIL



(3) ALUMINUM BASE PLATE DETAIL

NORTH CAROLINA PROFESSIONAL SEAL 033610 ENGINEER PAUL ROSEPACK
03.23.2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL ARCHITECTURAL FIN RAIL NOTES:

JOINTS IN RAILING (SPLICE GAP) SHALL BE LOCATED AS SHOWN IN POST SPACING PLAN.

ALUMINUM PIPE TO BE ASTM B-429, ALLOY 6061-T6, PLATE AND SHEET TO BE ASTM B-209, ALLOY 6061-T6, AND EXTRUSIONS TO BE ASTM B-221, ALLOY 6063-T6.

STAINLESS STEEL BOLTS, CAP SCREWS, AND NUTS TO BE ASTM A-276 TYPE 304. STAINLESS STEEL WASHERS TO BE ASTM A-276 TYPE 302.

POSTS TO BE SET PERPENDICULAR TO TOP OF PARAPET AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE BRIDGE.

AFTER ANCHOR ROD NUTS HAVE BEEN TIGHTENED, THREADS SHALL BE NICKED TO LOCK NUTS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURES THE CONTRACTOR MAY AT HIS OPTION HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

STEEL ANCHOR PLATES SHALL CONFORM TO ASTM SPECIFICATION A36.

ANCHOR RODS SHALL CONFORM TO ASTM SPECIFICATION A276 TYPE 302 OR 304, STAINLESS STEEL AND THREADS SHALL BE ROLLED, NOT CUT.

UPPER ANCHOR ROD NUTS SHALL BE HEAVY HEX NUTS, PER ASTM A276 TYPE 302 OR 304 STAINLESS STEEL.

LOWER ANCHOR ROD NUTS SHALL BE HEAVY STEEL HEX NUTS, PER ASTM A563.

CAST-IN-PLACE ANCHOR ROD LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO RAILING FABRICATION.

WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS D.12/D1.2M "STRUCTURAL WELDING CODE – ALUMINUM".

PROVIDE SHOP DRAWINGS FOR ALL ALUMINUM FABRICATIONS; PROVIDE LAYOUT PLANS, SIZES, ELEVATIONS. PROVIDE QUALIFICATIONS DATA, MILL CERTIFICATES, WELDING CERTIFICATES.

SHOP DRAWINGS SHALL BE REVIEWED BY CONTRACTOR FOR COORDINATION WITH FIELD CONDITIONS PRIOR TO SUBMITTAL TO ENGINEER.

CONTRACTOR SHALL PROVIDE FIELD MEASUREMENTS: VERIFY ACTUAL LOCATIONS OF PARAPETS AND OTHER CONSTRUCTION CONTIGUOUS WITH METAL FABRICATIONS BY FIELD MEASUREMENTS BEFORE FABRICATION.

REFER TO ARCHITECTURAL DRAWING AND SPECIFICATIONS FOR ALUMINUM COATING AND COLORS.

PROJECT NO. P-5705BA

MECKLENBURG COUNTY

SHEET 4 OF 7

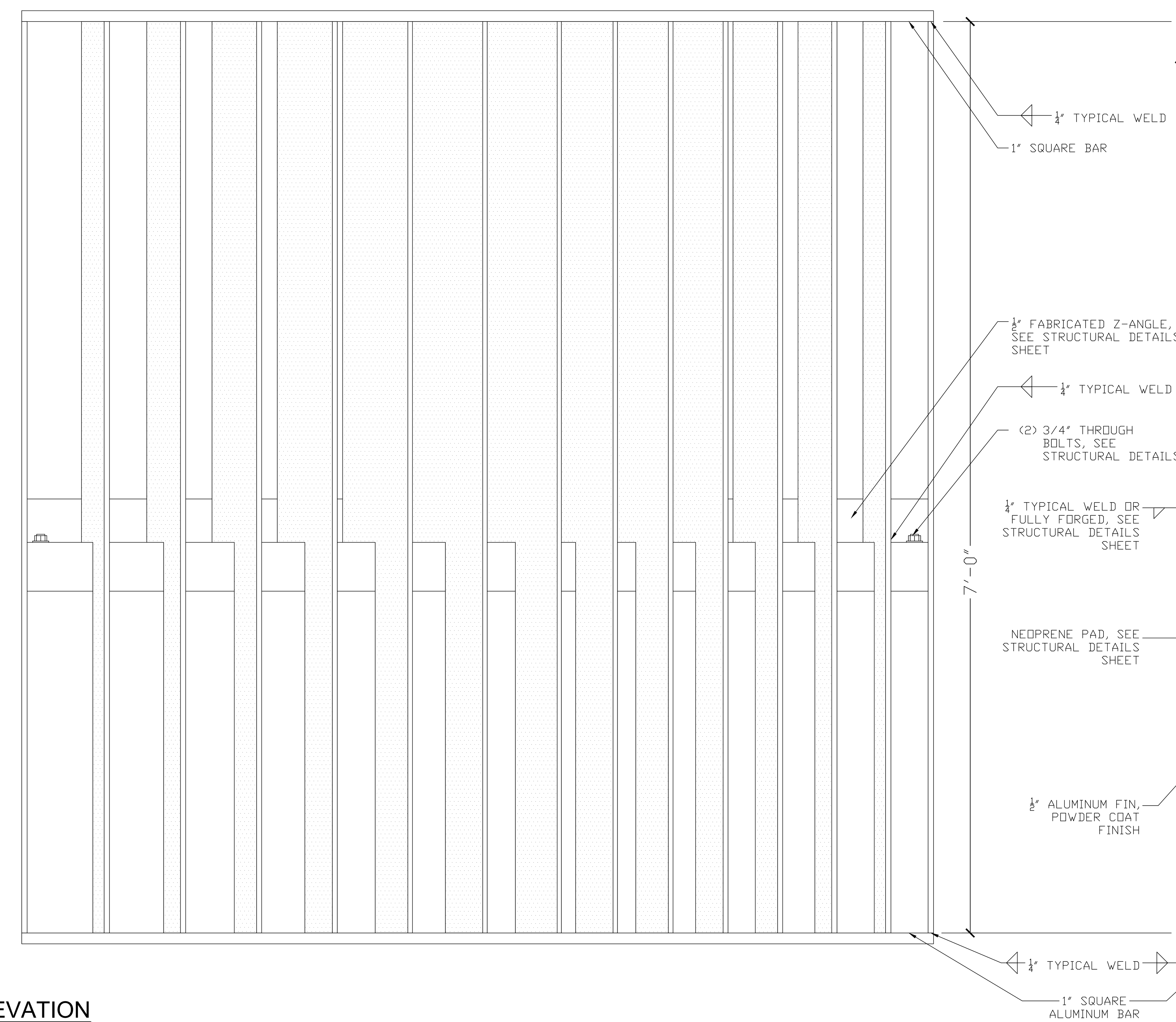
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ARCHITECTURAL FIN RAIL DETAILS

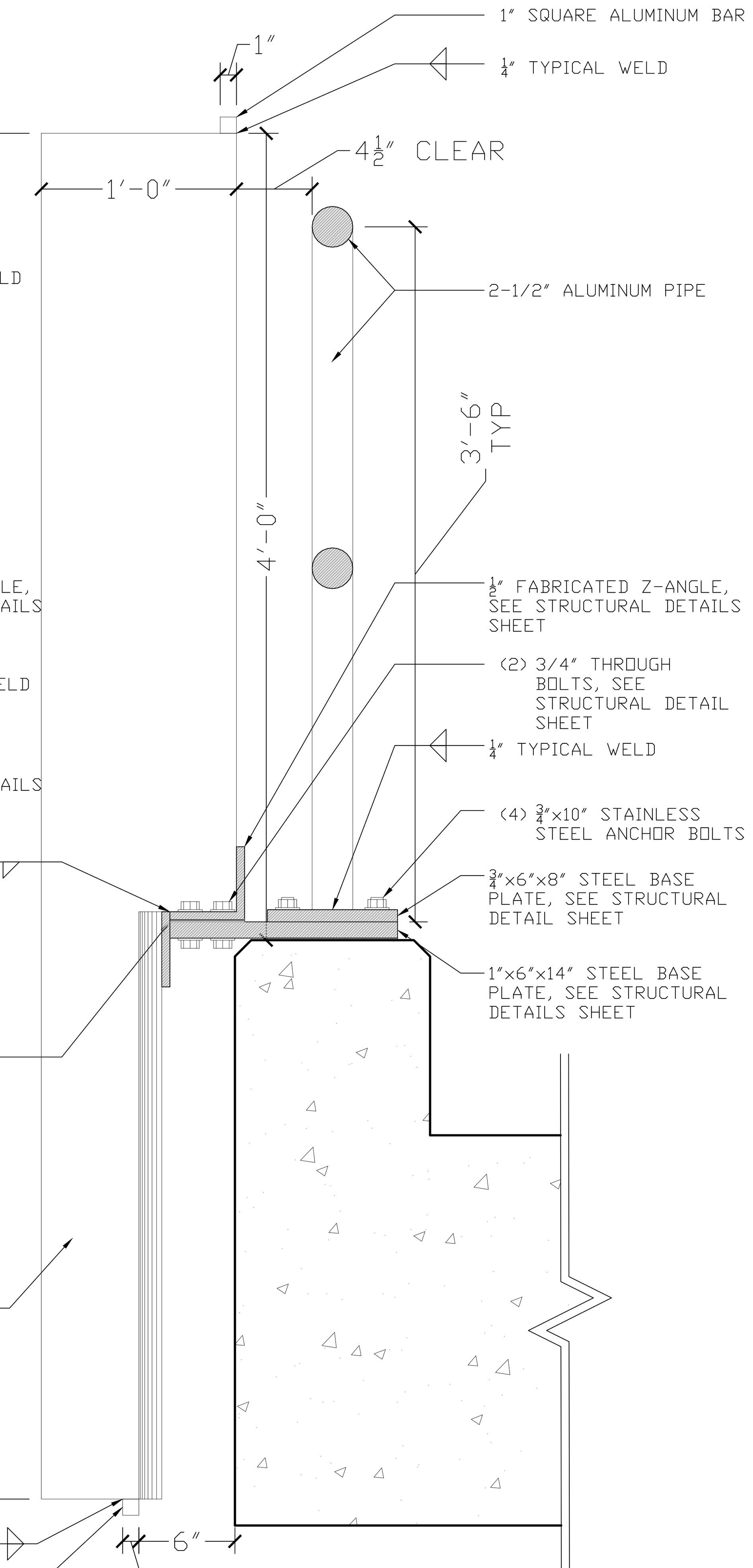
Stantec
STANTEC CONSULTING SERVICES
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27605
LICENSE NO. F-0672

DRAWN BY RSH DATE 3/20/18
CHECKED BY PMR DATE 3/21/18
DWG. NO.4

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S9-4
1			3			TOTAL SHEETS
2			4			7

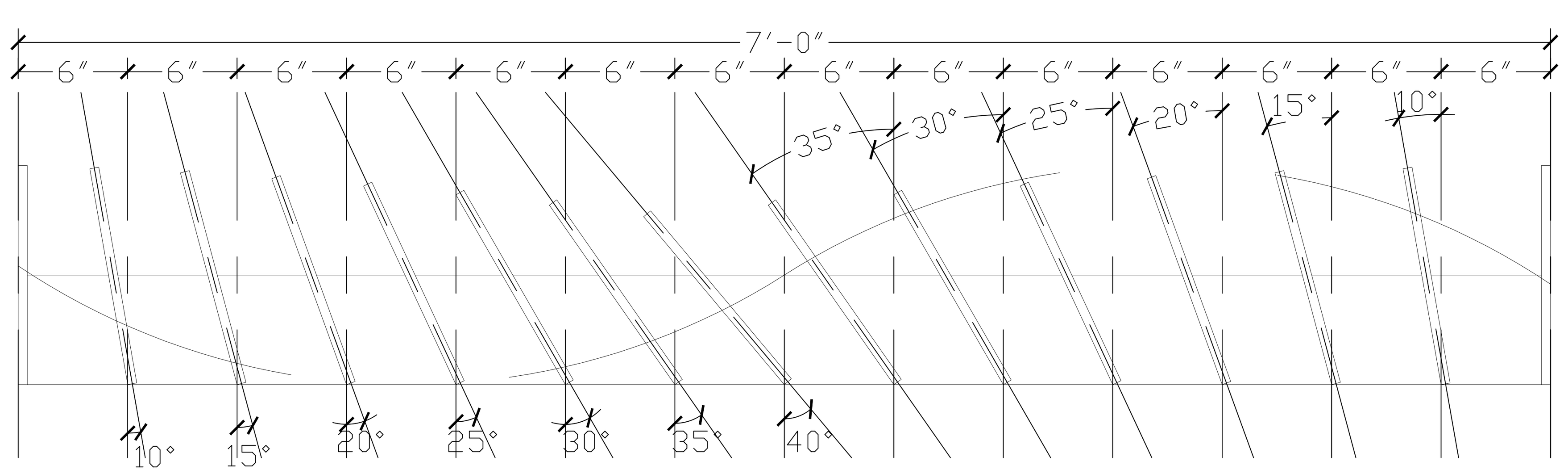


1 ELEVATION
SCALE: 1-1/2"=1'-0



3 SECTION
SCALE: 1-1/2"=1'-0

REFER TO SHEETS S9-1 – S9-4 FOR ALL FIN RAIL ASSEMBLY SIZES AND EXACT LOCATIONS



2 PLAN
SCALE: 1-1/2"=1'-0

PROJECT NO. P-5705BA
MECKLENBURG COUNTY
STATION:

SHEET 5 of 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ALUMINUM FIN RAILING MODULE – TYPE 1

CORPORATE SEAL

WAGNER MURRAY
601 S. CEDAR STREET, SUITE 101
CHARLOTTE, NC 28207
704.372.8603

Stantec
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27606-3394
(919) 851-6866 FAX (919) 851-7024
LICENSE # F-0672

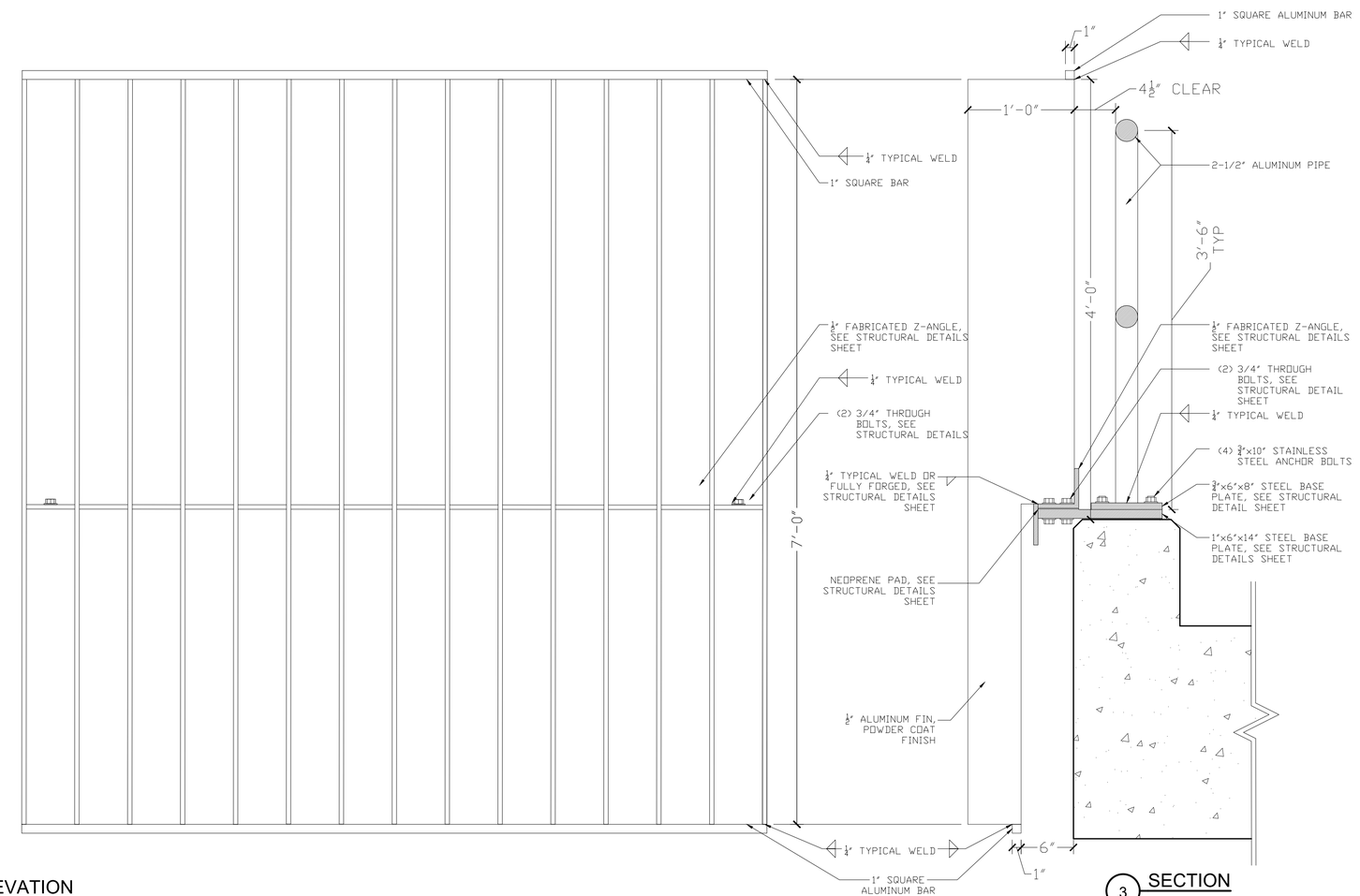
DRAWN BY JDW DATE
CHECKED BY DKW DATE

DWG. NO. 5

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

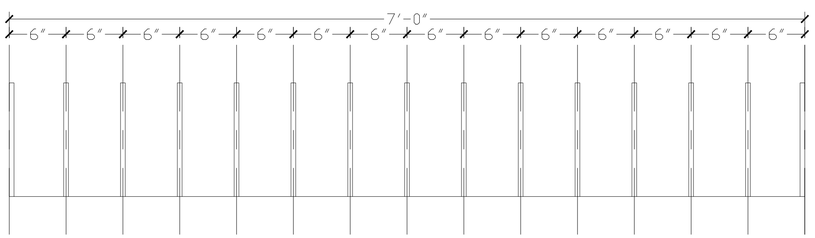
SHEET NO. S9-5
TOTAL SHEETS 7

0012DEL_P28



1 ELEVATION
SCALE: 1-1/2"=1'-0

3 SECTION
SCALE: 1-1/2"=1'-0



2 PLAN
SCALE: 1-1/2"=1'-0

REFER TO SHEETS S9–1 – S9–4 FOR ALL FIN RAIL ASSEMBLY SIZES AND EXACT LOCATIONS

PROJECT NO. P–5705BA

MECKLENBURG COUNTY

STATION:

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ALUMINUM FIN RAILING MODULE – TYPE 2

CORPORATE SEAL

WAGNER MURRAY ARCHITECTS, P.A. CHARLOTTE, N.C. SEAL 1218

WAGNER MURRAY
601 S. CEDAR STREET, SUITE 101
CHARLOTTE, NC 28207
704.372.8603

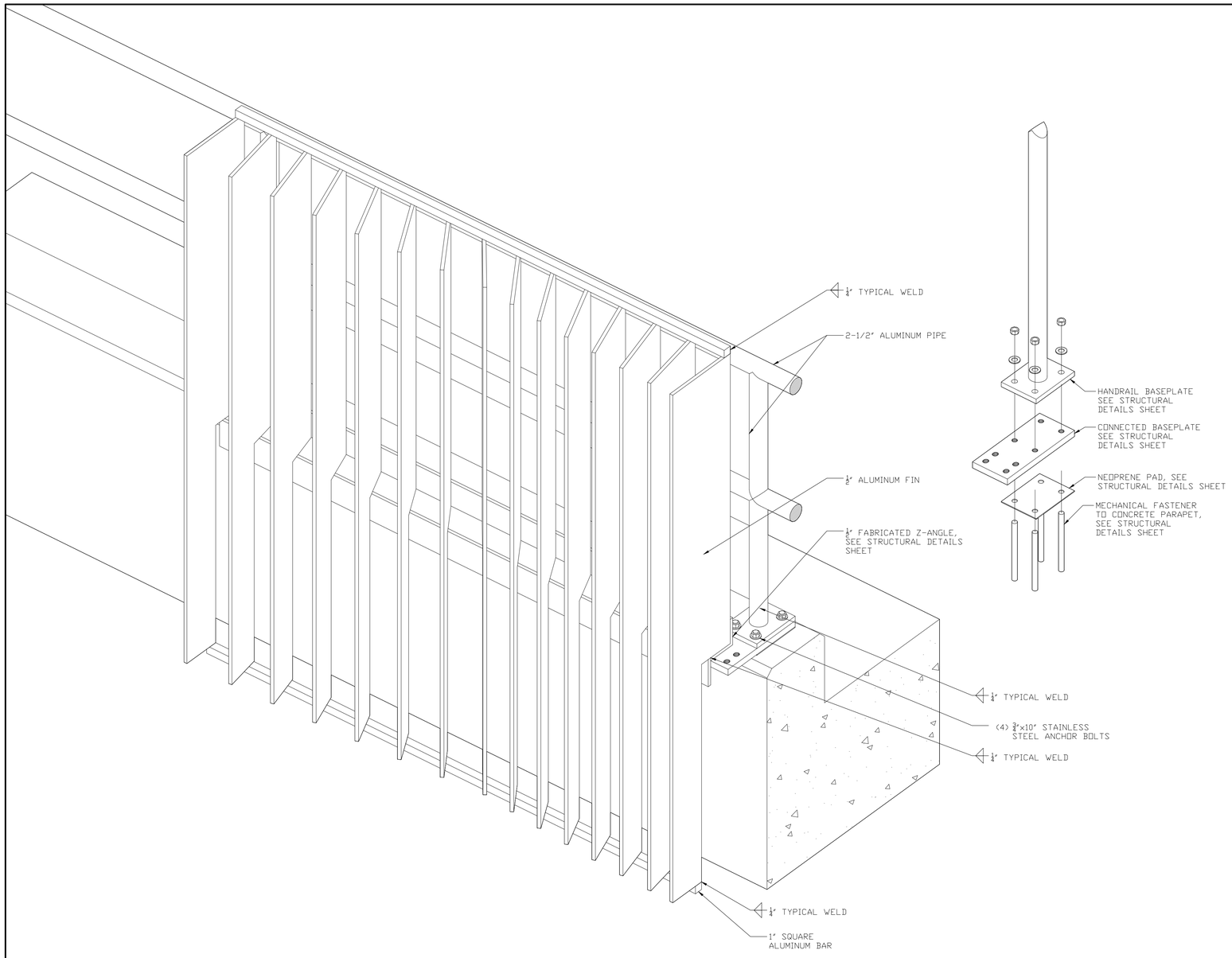
Stantec
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27606-3394
(919) 851-6866 FAX (919) 851-7024
LICENSE # F-0672

DRAWN BY JDW DATE
CHECKED BY DKW DATE

DWG. NO. 6

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S9–6
1			3			TOTAL SHEETS
2			4			7

0012DEL_P28



REFER TO SHEETS S9–1 – S9–4 FOR ALL FIN RAIL ASSEMBLY SIZES AND EXACT LOCATIONS

1 AXONOMETRIC ASSEMBLY DIAGRAM
SCALE: 1-1/2"=1'-0

PROJECT NO. P–5705BA
MECKLENBURG COUNTY
STATION:

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ALUMINUM FIN ASSEMBLY DIAGRAM

CORPORATE SEAL
WAGNER MURRAY ARCHITECTURE DESIGN P.A. CHARLOTTE NORTH CAROLINA
SEAL 215

WAGNER MURRAY
601 S. CEDAR STREET, SUITE 101
CHARLOTTE, NC 28207
704.372.8603

Stantec
801 JONES FRANKLIN RD, STE 300
RALEIGH, NC 27606-3394
(919) 851-6866 FAX (919) 851-7024
LICENSE # F-0672

DRAWN BY JDW DATE
CHECKED BY DKW DATE
DWG. NO. 7

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S9–7
1			3			TOTAL SHEETS
2			4			7