GENERAL: THIS DRAWING PROVIDES DESIGN AND CONSTRUCTION DETAILS. THE PROJECT PLANS FOR EACH STRUCTURE SHALL PROVIDE THE NECESSARY ADDITIONAL RAILING DIMENSIONS INCLUDING PARAPET LENGTHS, POST SPACING, REINFORCING STEEL LIST, ESTIMATED QUANTITIES AND ANY OTHER PERTINENT INFORMATION INCLUDING SPECIAL NOTES AND DETAILS.

DESIGN SPECIFICATIONS: "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996, INCLUDING THE 1997 INTERIM SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA: CONCRETE - CLASS S OR HIGH PERFORMANCE f'c=4500 PSI, REINFORCING STEEL ASTM A615, A616 OR A617 GRADE 60 Fy = 60,000 PSI. SHAPED STRUCTURAL TUBING ASTM A500 GRADE B Fy = 46 KSI. BASE PLATES, POST CAPS AND THE INNER SLEEVE SPLICE PLATES SHALL BE ASTM A36 Fy = 36 KSI.

TUBE SPLICES ARE TO BE LOCATED SO THAT EACH TUBE SEGMENT SHALL BE CONNECTED TO NOT LESS THAN TWO POSTS.

MATERIAL: SHAPED STRUCTURAL TUBING SHALL BE AS PER ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) ITEM 707.10. REINFORCING STEEL SHALL BE AS PER ITEM 709.00. STEEL FOR PLATES SHALL BE AS PER ITEM 711.01.

GALVANIZING: ALL SHAPED STRUCTURAL TUBES, PLATES, HARDWARE AND ACCESSORIES SHALL BE GALVANIZED IN ACCORDANCE WITH CMS 711.02.

HORIZONTAL CURVATURE: THIS STANDARD IS APPLICABLE TO STRUCTURES HAVING A RAILING CURVATURE RADIUS OF 20 FEET OR MORE. FOR A RADIUS OF LESS THAN 20 FEET, THE DESIGN SHALL BE SPECIAL. FOR STRUCTURES ON CURVATURES OF 3° OR MORE, SHAPED STRUCTURAL TUBING MAY BE FURNISHED STRAIGHT AND FORCED INTO POSITION IN THE FIELD AND THE TUBE SEGMENTS ARE TO BE ATTACHED TO NO MORE THAN 3 POSTS.

CONTROL JOINTS FOR CONCRETE PARAPETS: THE JOINTS SHALL BE CONSTRUCTED BY SAWING 1 INCH DEEP ALONG THE PERIMETER OF THE PARAPET AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE.

THE USE OF AN EDGE GUIDE, FENCE OR JIG IS REQUIRED TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH.

THE PERIMETER OF THE CONTROL JOINT SHALL BE SEALED WITH A CAULKING MATERIAL TO A MINIMUM DEPTH OF 1 INCH CONFORMING TO FEDERAL SPECIFICATION TT-S-00227E. THE BOTTOM 1/2 INCH OF BOTH THE INSIDE AND OUTSIDE FACES OF THE PARAPET SHOULD BE LEFT UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

JOINTS SHALL BE PLACED AT A MINIMUM OF 6 FEET AND MAXIMUM OF 10 FEET ON CENTERS. SAWCUTS SHALL NOT BE CONSTRUCTED CLOSER THAN 1'-2" FROM THE CENTER OF THE POSTS.

VERTICAL REINFORCING STEEL SHALL CLEAR THE CONTROL JOINTS BY 3 INCHES MINIMUM. CLEARANCE SHALL BE OBTAINED BY FIELD ADJUSTMENT OF THE CONTROL JOINT LOCATION OR REINFORCING STEEL SPACING.

FOR BRIDGE TERMINAL ASSEMBLY DETAILS NOT SHOWN, SEE STANDARD CONSTRUCTION DRAWING GR-3.1. ONLY A TYPE 1 ASSEMBLY IS TO BE USED.

ALL EXPOSED STRUCTURAL TUBING ENDS AND POST CAP EDGES SHALL BE ROUNDED PRIOR TO GALVANIZING.

METHOD OF MEASUREMENT: CONCRETE ABOVE THE UPPER SURFACE OF THE SIDEWALK, REINFORCING STEEL, SAWCUTS, CAULKING COMPOUND, ANCHOR BOLTS, HEX NUTS, WASHERS, STEEL PLATES, POSTS, TUBE RAILING, POST CAPS, BOLTS, CAP SCREWS, HEX NUTS, WASHERS AND OTHER HARDWARE ARE TO BE INCLUDED AND PAID, PER LINEAR FOOT, WITH ITEM 517, "RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)." THE LENGTH FOR PAYMENT SHALL BE THE LENGTH OF RAILING MEASURED BETWEEN ENDS OF THE CONCRETE PARAPET.

DESIGNER NOTES: THIS STANDARD IS INTENDED FOR USE WHEN THE APPROACH ROADWAY SECTION CONTAINS A SIDEWALK AND THE APPROACH RAILING IS ON THE OUTSIDE OF THE SIDEWALK. IF THE APPROACH RAILING IS LOCATED AT THE FACE OF THE CURB, THE APPROACH RAILING SHALL RUN CONTINUOUSLY ACROSS THE FULL LENGTH OF THE BRIDGE. IF THE APPROACH ROADWAY SECTION HAS NO SIDEWALK, THE THICKNESS TRANSITION SHALL NOT BE PLACED ON THE SUPERSTRUCTURE AND SHOULD BE PREFERABLY PLACED OFF OF THE APPROACH SLAB. IF THE APPROACH RAILING IS OF A DEFLECTOR PARAPET TYPE LOCATED OUTSIDE OF THE SIDEWALK, THE TRANSITION BETWEEN THE TWO DIFFERENT TYPES OF RAILING IS TO BE PLACED ON THE APPROACH SLAB AND REQUIRES A SPECIAL DESIGN WHICH IS TO BE FULLY DETAILED IN THE STRUCTURE PORTIONS OF THE PLANS.

THE MINIMUM WIDTH OF SIDEWALK ON THE BRIDGE IS 5 FEET AND THE SIDEWALK HEIGHT SHALL BE 8 INCHES.

FASTENERS: FASTENERS SHAL CONFORM TO THE FOLLOWING:

THE ANCHOR BOLTS, HEX NUTS AND WASHERS SHALL CONFORM TO CMS 711.09 (ASTM A325).

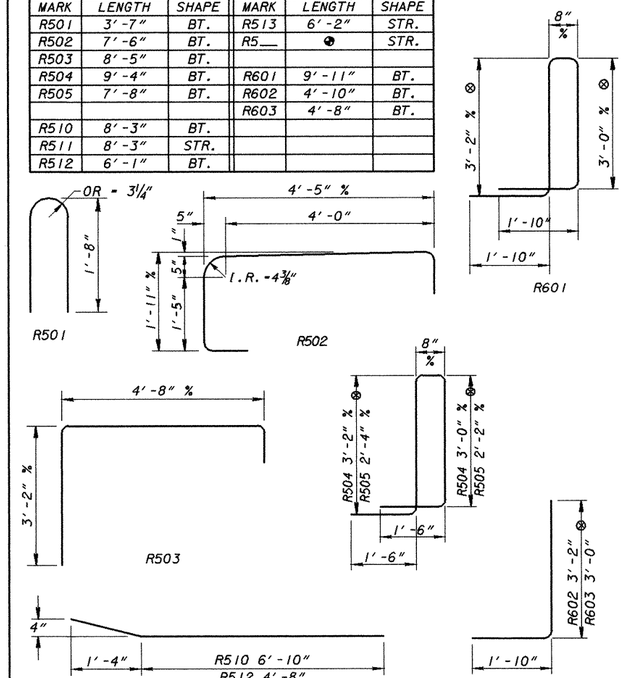
THE HORIZONTAL RAIL TO POST CONNECTION BOLTS AND HEX NUTS SHALL CONFORM TO CMS 711.10 AND TO AASHTO M180. THE RECTANGULAR BEAM WAHSERS IN AASHTO M 180 ARE NOT TO BE USED. THE WASHERS SHALL CONFORM TO ASTM F 436, TYPE 1.

THE HEX CAP SCREWS (BOLTS), HEX NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

REINFORCING BAR LIST

MARK	LENGTH	SHAPE	MARK	LENGTH	SHAPE
R501	3'-7"	BT.	R513	6'-2"	STR.
R502	7'-6"	BT.	R5__	⊗	STR.
R503	8'-5"	BT.			
R504	9'-4"	BT.	R601	9'-11"	BT.
R505	7'-8"	BT.	R602	4'-10"	BT.
			R603	4'-8"	BT.
R510	8'-3"	BT.			
R511	8'-3"	STR.			
R512	6'-1"	BT.			

⊗ SEE PROJECT PLANS



FIELD BEND BARS WHERE NECESSARY.
INCLUDE BENDING DIAGRAMS ON PROJECT PLANS.

⊗ DESIGNER TO VERIFY VERTICAL LEG LENGTHS ARE ADEQUATE. LENGTH AS LISTED IS BASED ON A CURB HEIGHT OF 8", WITH NO ALLOWANCE FOR CROSS-SLOPE.

DESIGN AGENCY: OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Brad Fogwell — ADMINISTRATOR
12-29-98 — DATE

REVISIONS	DESIGNED	DETAILED	CHECKED	REVIEWED
	JS/SDS	SAM	SDS/SAM	WTL

STANDARD
BRIDGE SIDEWALK RAILING WITH CONCRETE PARAPETS

BR-2-98

3/3