

**NOTES**

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 345W STEEL AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 22.23mm DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-10 OF THE STANDARD SPECIFICATIONS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 18 METERS AND WEB PIECE LENGTHS TO 14 METERS. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 4.5 METERS OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 4.5 METERS OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 600mm MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 150mm MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

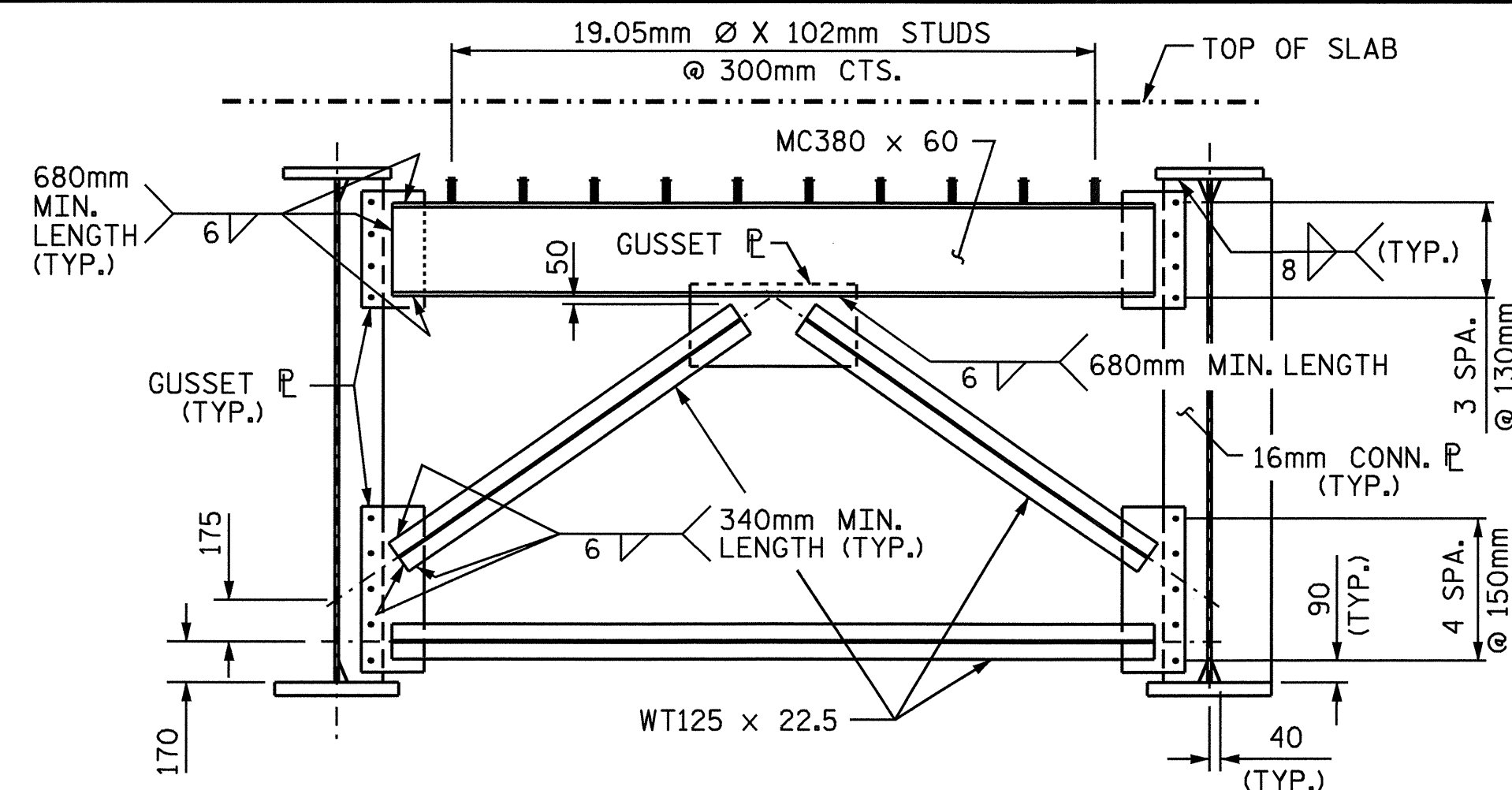
STUDS ON GIRDERS MAY BE SHIFTED UP TO 25mm IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

ENDS OF GIRDERS SHALL BE PLUMB.

AT THE CONTRACTOR'S OPTION, THE DIAPHRAGM WITH THE WELDED GUSSET PLATES MAY BE USED IN LIEU OF THE DIAPHRAGM WITH BOLTED ANGLES AT NO ADDITIONAL COST TO THE DEPARTMENT.

BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLTS.

CURVATURE OF STEEL GIRDER MAY BE ACCOMPLISHED BY CUTTING PLATES TO REQUIRED CURVATURE OR BY HEAT TREATMENT. SEE SPECIAL PROVISIONS FOR HEAT CURVING GIRDERS FOR BRIDGES.

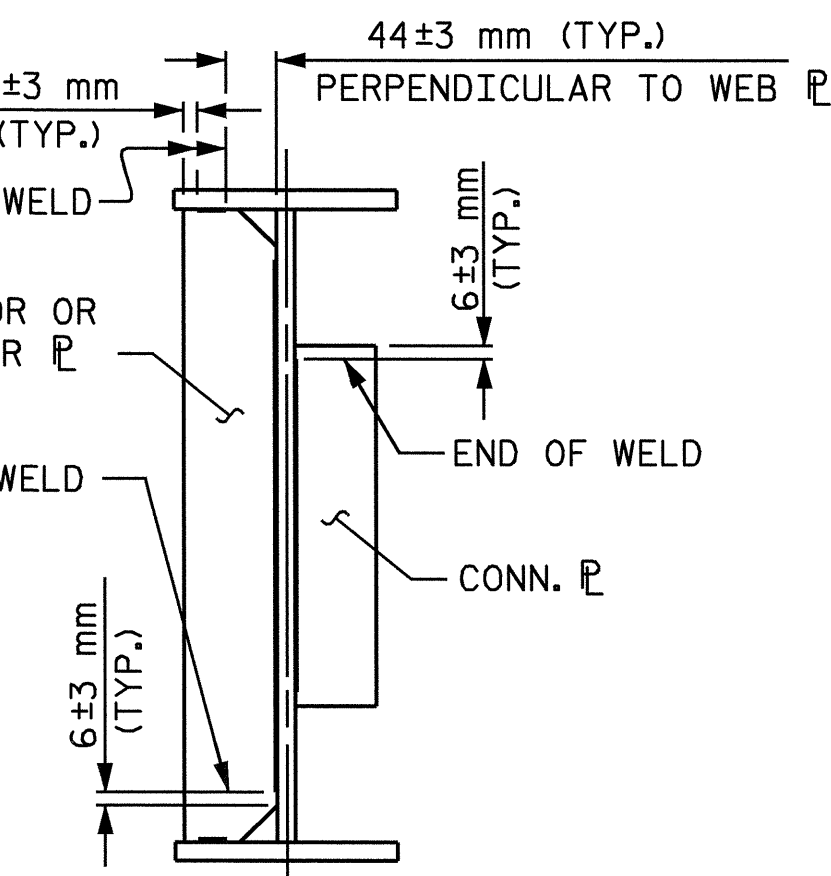


**TYPICAL END BENT DIAPHRAGM (D1)**

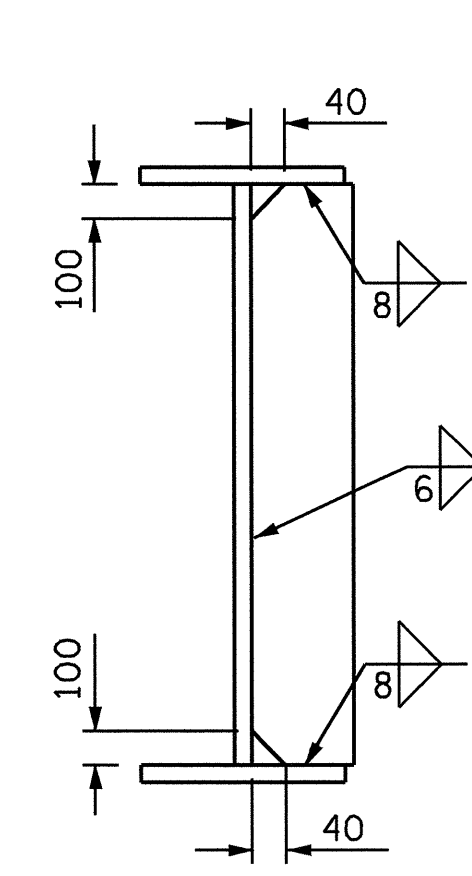
**BEARING STIFFENER/ CONNECTOR PLATE**

**BEARING STIFFENER**

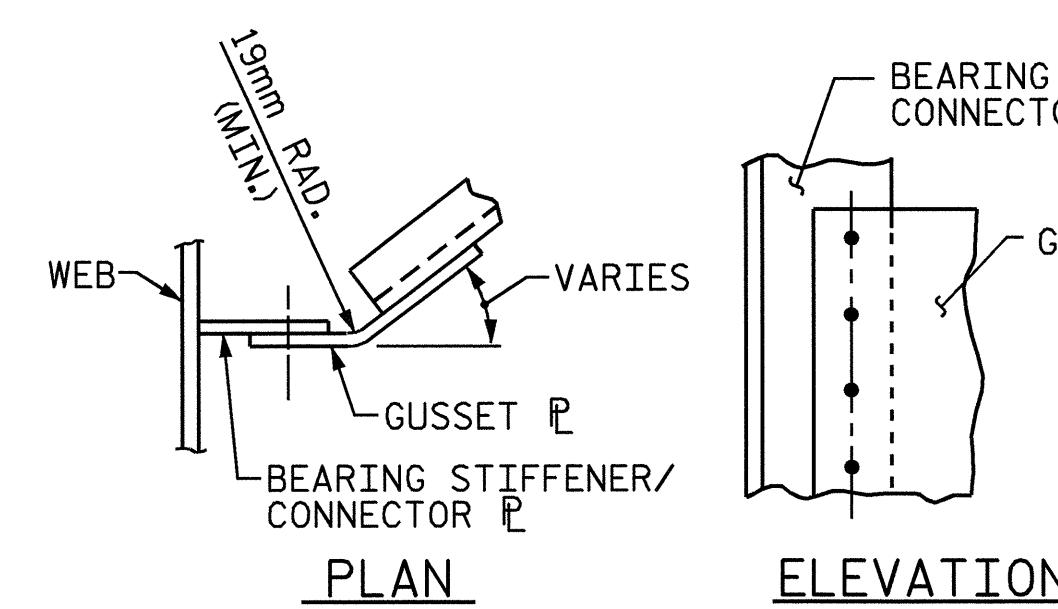
**INTERMEDIATE STIFFENER**



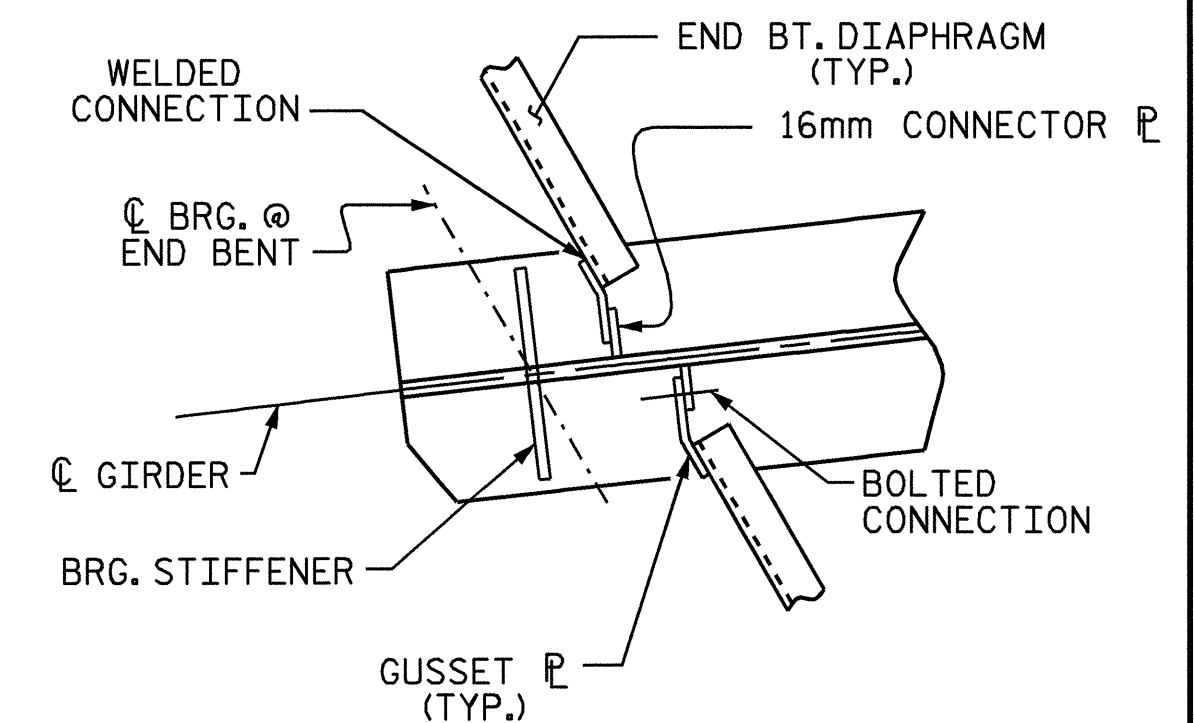
**TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS**



**CONNECTOR PLATE**



**GUSSET PLATE DETAILS**



**CONNECTOR PLATE DETAIL**

(EACH END SIMILAR)

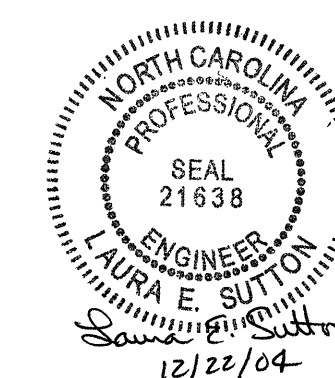
PROJECT NO. R-0977A  
CHEROKEE COUNTY  
 STATION: 68+58.000-LREV-

SHEET 4 OF 6

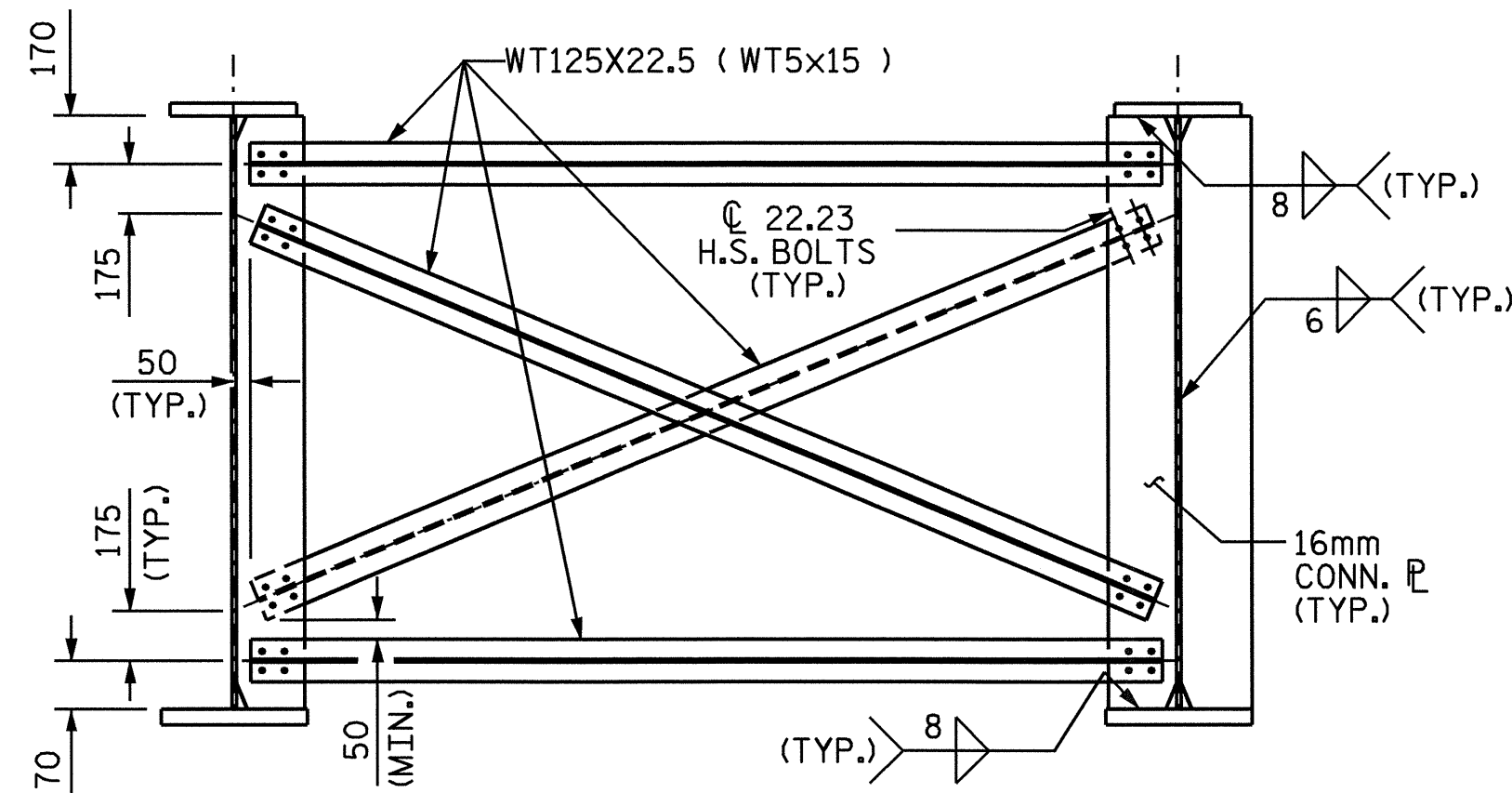
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 STRUCTURAL  
 STEEL DETAILS

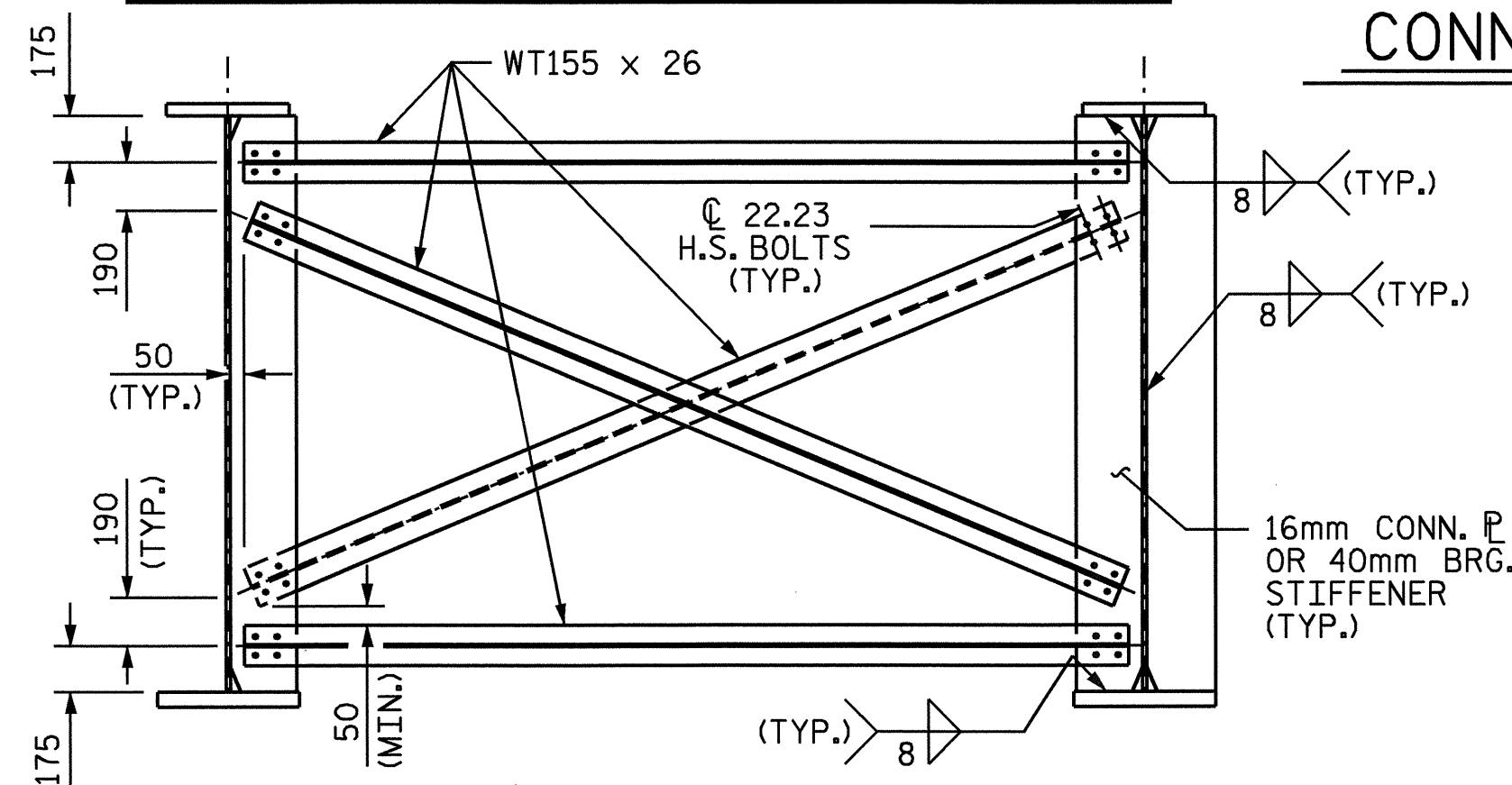
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-191
1			3			TOTAL SHEETS
2			4			230



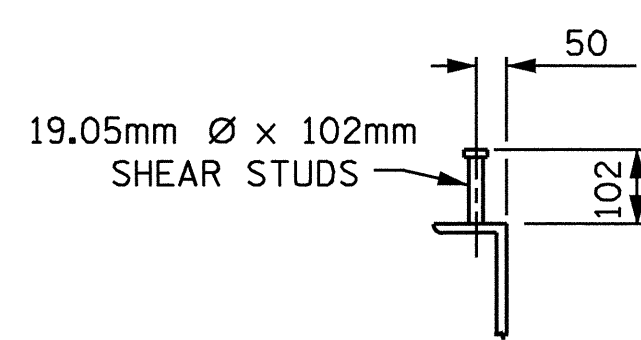
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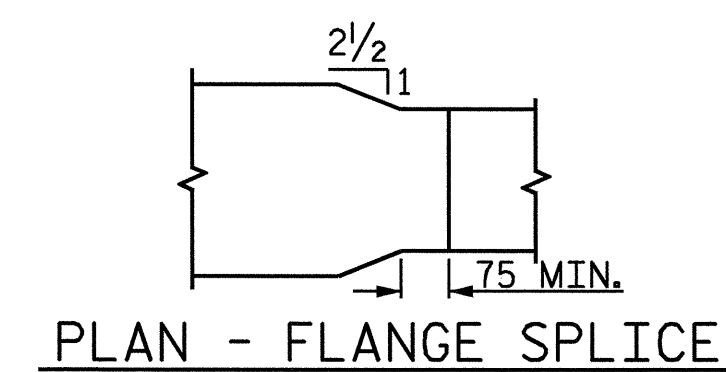
**TYPICAL INTERMEDIATE DIAPHRAGM (D2)**



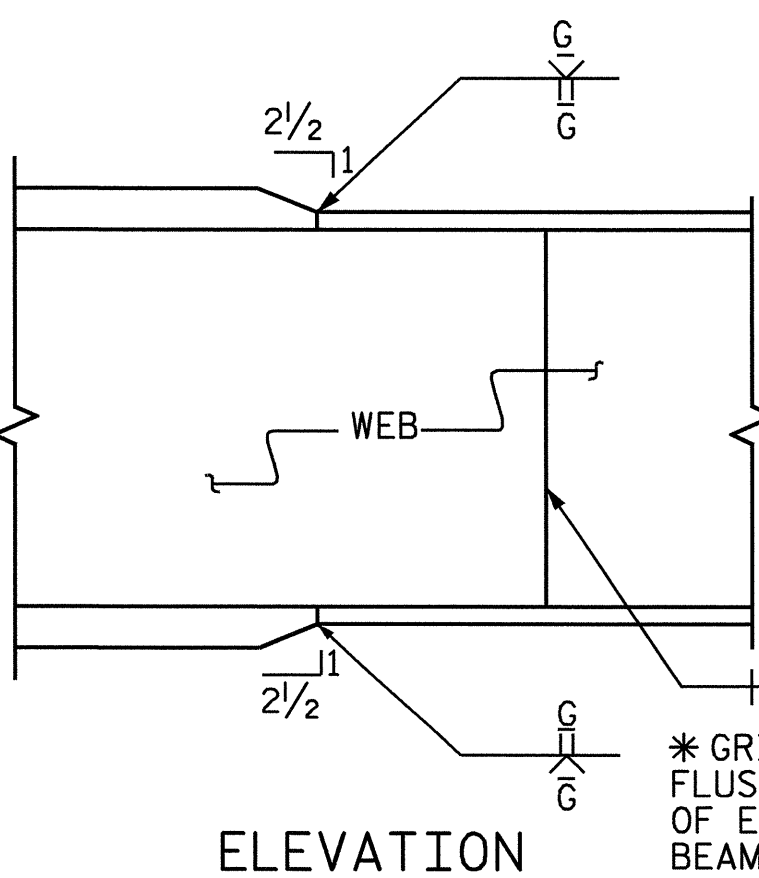
**BENT DIAPHRAGMS @ INTERIOR BENTS (D3)**



**SHEAR STUD DETAILS**

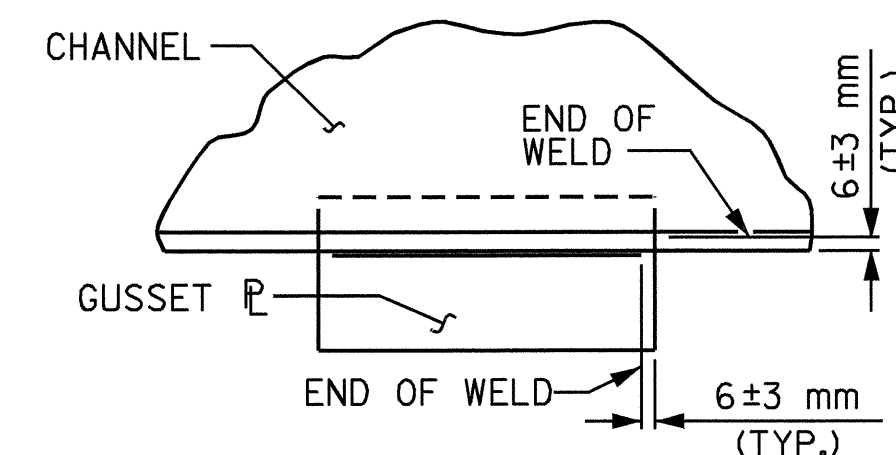


**PLAN - FLANGE SPLICE**

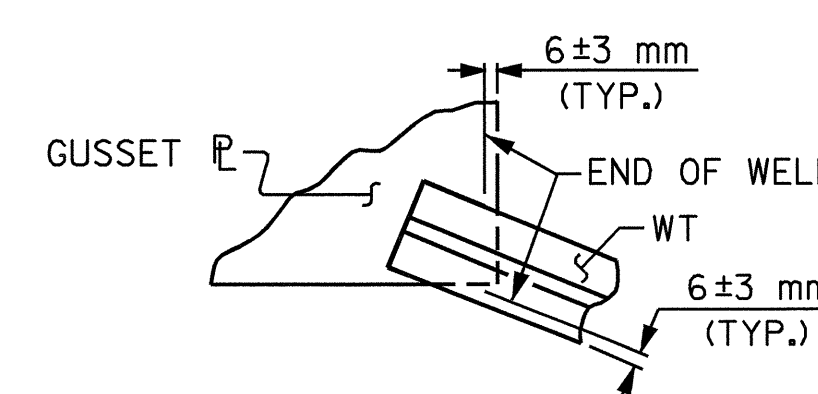


**TYPICAL FLANGE AND WEB BUTT JOINT**

\* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR BEAMS/GIRDERS



**TYPICAL GUSSET PLATE CONNECTION**



**TYPICAL "TEE" TO GUSSET PLATE CONNECTION**

**WELD TERMINATION DETAILS**

DRAWN BY : B.N.BARODAWALA DATE : 10-18-04  
 CHECKED BY : MIKE ALLEN DATE : 12-04

21-DEC-2004 15:18  
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