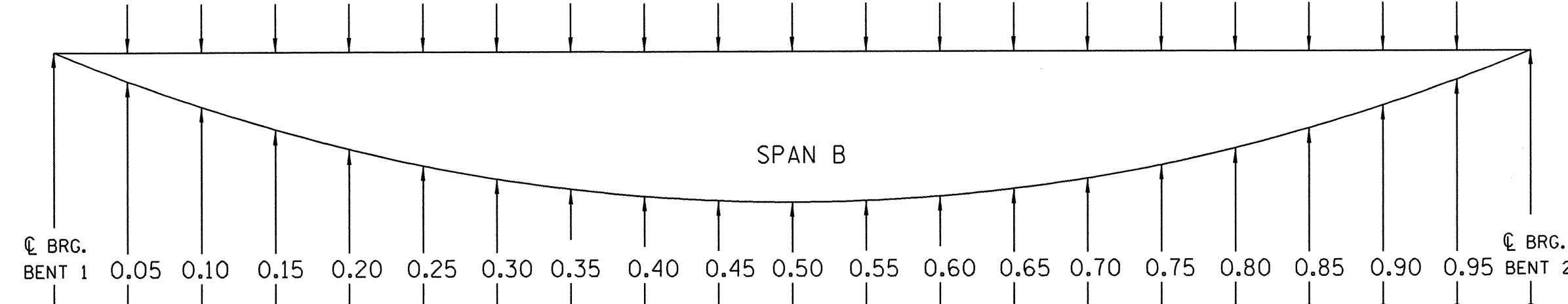
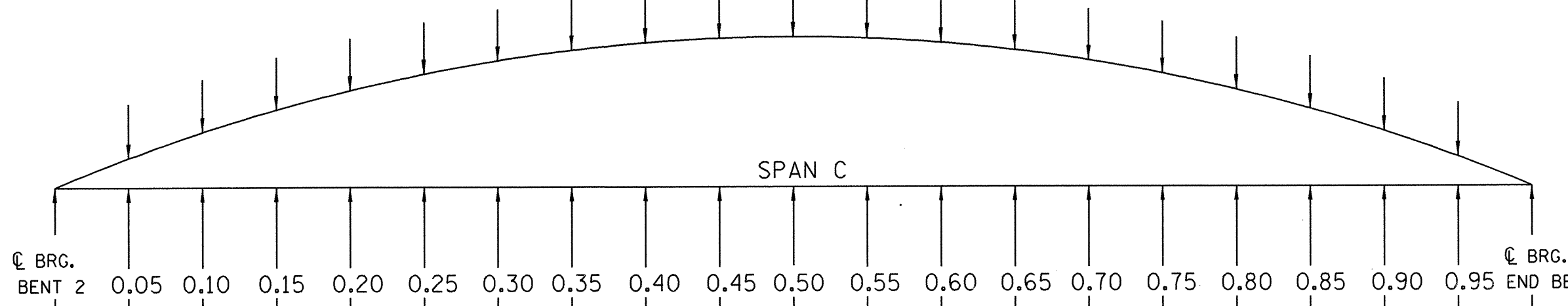


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|------------------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|
| DEFLECTION DUE TO WEIGHT OF STEEL | 0 | .004 | .008 | .011 | .014 | .017 | .019 | .020 | .021 | .022 | .022 | .021 | .020 | .018 | .016 | .013 | .011 | .008 | .005 | .002 | 0 |
| DEFLECTION DUE TO WEIGHT OF SLAB * | 0 | .019 | .037 | .053 | .067 | .079 | .089 | .097 | .101 | .103 | .102 | .099 | .093 | .085 | .075 | .063 | .050 | .036 | .023 | .010 | 0 |
| DEFLECTION DUE TO WEIGHT OF RAIL | 0 | .004 | .007 | .010 | .013 | .015 | .017 | .019 | .020 | .020 | .020 | .019 | .018 | .017 | .015 | .013 | .010 | .007 | .005 | .002 | 0 |
| TOTAL DEAD LOAD DEFLECTION | 0 | .027 | .052 | .074 | .094 | .111 | .125 | .136 | .142 | .145 | .144 | .139 | .131 | .120 | .106 | .089 | .071 | .051 | .033 | .014 | 0 |
| VERTICAL CURVE ORDINATE | 0 | -.008 | -.014 | -.019 | -.023 | -.026 | -.028 | -.028 | -.028 | -.026 | -.023 | -.020 | -.017 | -.015 | -.012 | -.009 | -.006 | -.004 | -.002 | -.001 | 0 |
| REQUIRED CAMBER | 0 | 19 | 38 | 55 | 71 | 85 | 97 | 108 | 114 | 119 | 121 | 119 | 114 | 105 | 94 | 80 | 65 | 47 | 31 | 13 | 0 |

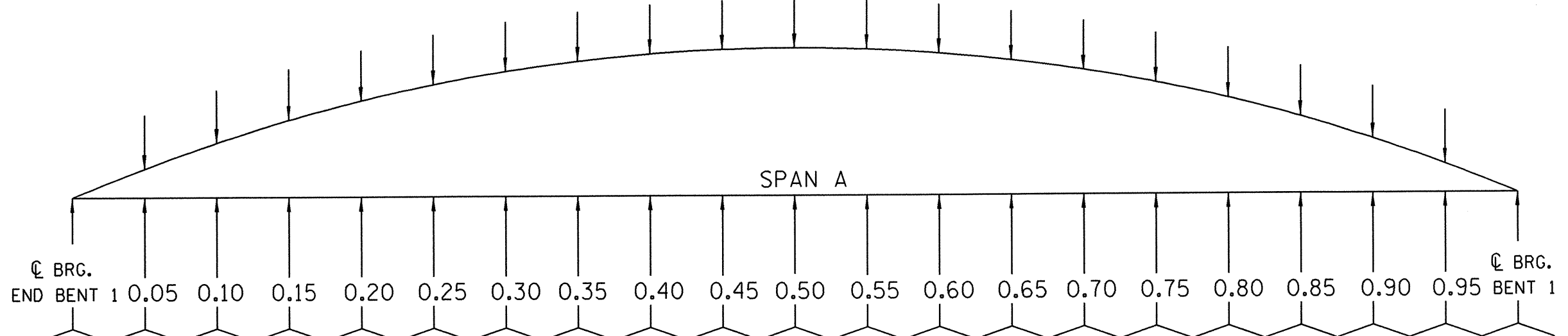


| | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|
| DEFLECTION DUE TO WEIGHT OF STEEL | 0 | -.002 | -.003 | -.004 | -.005 | -.005 | -.006 | -.006 | -.007 | -.007 | -.007 | -.007 | -.007 | -.006 | -.006 | -.005 | -.004 | -.003 | -.002 | 0 | |
| DEFLECTION DUE TO WEIGHT OF SLAB * | 0 | -.007 | -.013 | -.018 | -.022 | -.025 | -.027 | -.029 | -.030 | -.031 | -.031 | -.032 | -.031 | -.030 | -.028 | -.027 | -.024 | -.019 | -.014 | -.008 | 0 |
| DEFLECTION DUE TO WEIGHT OF RAIL | 0 | -.001 | -.002 | -.003 | -.004 | -.004 | -.004 | -.004 | -.004 | -.005 | -.005 | -.005 | -.005 | -.005 | -.004 | -.004 | -.004 | -.003 | .001 | 0 | |
| TOTAL DEAD LOAD DEFLECTION | 0 | -.010 | -.018 | -.025 | -.031 | -.034 | -.037 | -.039 | -.041 | -.042 | -.043 | -.044 | -.043 | -.042 | -.039 | -.037 | -.033 | -.027 | -.020 | -.011 | 0 |
| VERTICAL CURVE ORDINATE | 0 | .003 | .006 | .008 | .010 | .012 | .013 | .014 | .015 | .015 | .016 | .015 | .015 | .014 | .013 | .012 | .010 | .008 | .006 | .003 | 0 |
| REQUIRED CAMBER | 0 | -7 | -12 | -17 | -21 | -22 | -24 | -25 | -26 | -27 | -27 | -29 | -28 | -28 | -26 | -25 | -23 | -19 | -14 | -8 | 0 |

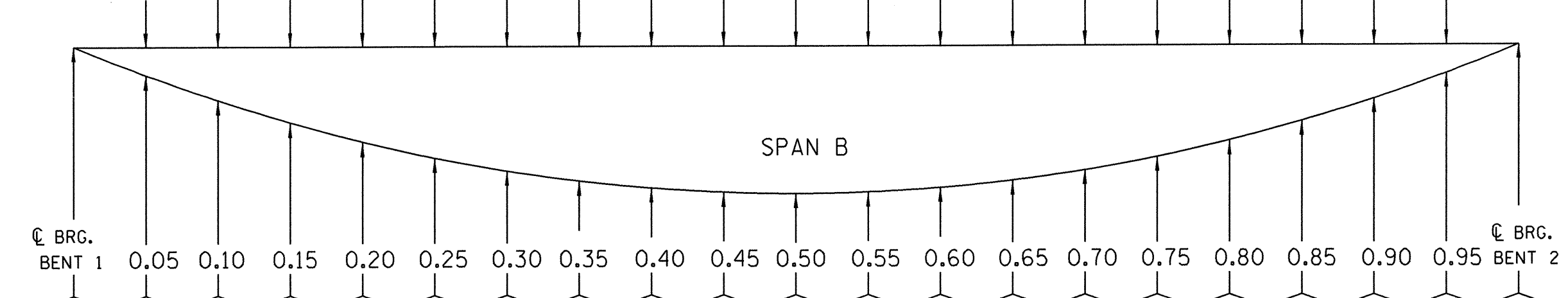


| | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|
| DEFLECTION DUE TO WEIGHT OF STEEL | 0 | .003 | .006 | .009 | .013 | .016 | .019 | .022 | .024 | .026 | .027 | .027 | .026 | .025 | .023 | .021 | .018 | .014 | .010 | .005 | 0 |
| DEFLECTION DUE TO WEIGHT OF SLAB * | 0 | .012 | .026 | .042 | .059 | .074 | .088 | .101 | .111 | .118 | .122 | .123 | .121 | .116 | .107 | .095 | .080 | .063 | .044 | .022 | 0 |
| DEFLECTION DUE TO WEIGHT OF RAIL | 0 | .003 | .006 | .009 | .012 | .015 | .018 | .020 | .022 | .023 | .024 | .024 | .023 | .022 | .020 | .018 | .015 | .012 | .008 | .004 | 0 |
| TOTAL DEAD LOAD DEFLECTION | 0 | .018 | .038 | .060 | .084 | .105 | .125 | .143 | .157 | .167 | .173 | .174 | .170 | .163 | .150 | .134 | .113 | .089 | .062 | .031 | 0 |
| VERTICAL CURVE ORDINATE | 0 | .006 | .011 | .015 | .019 | .022 | .025 | .027 | .028 | .029 | .029 | .028 | .027 | .025 | .022 | .019 | .015 | .010 | .005 | 0 | |
| REQUIRED CAMBER | 0 | 24 | 49 | 75 | 103 | 127 | 150 | 170 | 185 | 196 | 202 | 203 | 198 | 190 | 175 | 156 | 132 | 104 | 72 | 36 | 0 |

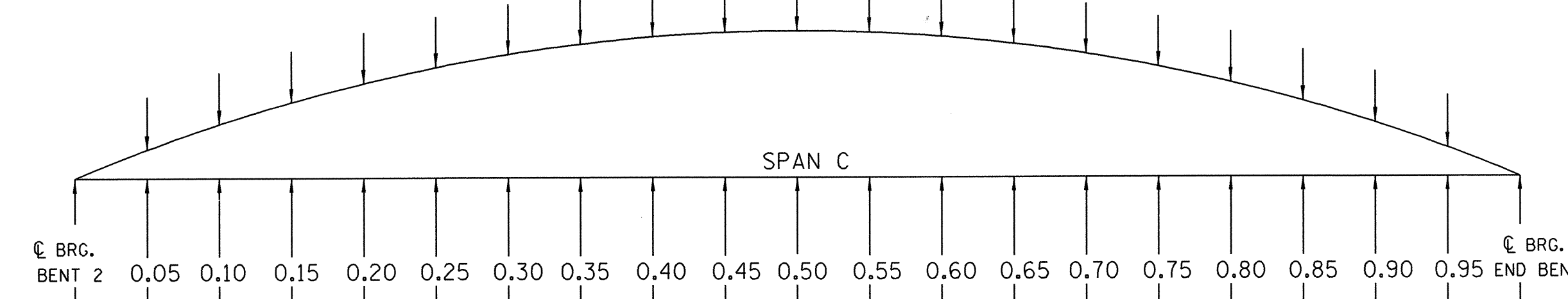
GIRDER 3



| | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|---|
| DEFLECTION DUE TO WEIGHT OF STEEL | 0 | .004 | .008 | .011 | .014 | .017 | .019 | .020 | .021 | .022 | .022 | .021 | .020 | .018 | .016 | .013 | .011 | .008 | .005 | .002 | 0 |
| DEFLECTION DUE TO WEIGHT OF SLAB * | 0 | .017 | .033 | .047 | .060 | .071 | .079 | .086 | .090 | .092 | .091 | .088 | .083 | .075 | .066 | .056 | .044 | .032 | .020 | .009 | 0 |
| DEFLECTION DUE TO WEIGHT OF RAIL | 0 | .004 | .007 | .010 | .013 | .016 | .018 | .019 | .020 | .020 | .020 | .019 | .017 | .015 | .013 | .010 | .008 | .005 | .002 | 0 | |
| TOTAL DEAD LOAD DEFLECTION | 0 | .025 | .048 | .068 | .087 | .104 | .116 | .125 | .131 | .134 | .133 | .129 | .122 | .110 | .097 | .082 | .065 | .048 | .030 | .013 | 0 |
| VERTICAL CURVE ORDINATE | 0 | -.007 | -.013 | -.018 | -.022 | -.024 | -.025 | -.025 | -.024 | -.022 | -.019 | -.017 | -.014 | -.012 | -.009 | -.007 | -.004 | -.002 | -.001 | .000 | 0 |
| REQUIRED CAMBER | 0 | 18 | 35 | 50 | 65 | 80 | 91 | 100 | 107 | 112 | 114 | 112 | 108 | 98 | 88 | 75 | 61 | 46 | 29 | 13 | 0 |



| | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|---|
| DEFLECTION DUE TO WEIGHT OF STEEL | 0 | -.002 | -.003 | -.004 | -.005 | -.005 | -.006 | -.006 | -.007 | -.007 | -.007 | -.007 | -.007 | -.006 | -.006 | -.005 | -.004 | -.003 | -.002 | 0 | |
| DEFLECTION DUE TO WEIGHT OF SLAB * | 0 | -.006 | -.011 | -.016 | -.019 | -.022 | -.024 | -.026 | -.027 | -.028 | -.028 | -.028 | -.027 | -.026 | -.024 | -.021 | -.017 | -.012 | -.007 | 0 | |
| DEFLECTION DUE TO WEIGHT OF RAIL | 0 | -.001 | -.002 | -.003 | -.004 | -.004 | -.004 | -.004 | -.005 | -.005 | -.005 | -.005 | -.005 | -.005 | -.005 | -.004 | -.004 | -.003 | -.002 | 0 | |
| TOTAL DEAD LOAD DEFLECTION | 0 | -.009 | -.016 | -.023 | -.028 | -.031 | -.034 | -.036 | -.039 | -.040 | -.040 | -.040 | -.039 | -.037 | -.035 | -.030 | -.025 | -.018 | -.011 | 0 | |
| VERTICAL CURVE ORDINATE | 0 | .003 | .006 | .008 | .010 | .012 | .013 | .014 | .015 | .015 | .016 | .015 | .015 | .014 | .013 | .012 | .010 | .008 | .006 | .003 | 0 |
| REQUIRED CAMBER | 0 | -6 | -10 | -15 | -18 | -19 | -21 | -22 | -24 | -25 | -24 | -25 | -25 | -25 | -24 | -23 | -20 | -17 | -12 | -8 | 0 |



| | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|
| DEFLECTION DUE TO WEIGHT OF STEEL | 0 | .003 | .006 | .009 | .013 | .016 | .019 | .022 | .024 | .026 | .027 | .027 | .026 | .025 | .023 | .021 | .018 | .014 | .010 | .005 | 0 |
| DEFLECTION DUE TO WEIGHT OF SLAB * | 0 | .011 | .024 | .038 | .052 | .066 | .079 | .090 | .098 | .105 | .109 | .110 | .108 | .103 | .095 | .085 | .072 | .056 | .039 | .020 | 0 |
| DEFLECTION DUE TO WEIGHT OF RAIL | 0 | .003 | .006 | .009 | .012 | .016 | .018 | .021 | .022 | .024 | .024 | .025 | .024 | .023 | .021 | .019 | .016 | .012 | .009 | .004 | 0 |
| TOTAL DEAD LOAD DEFLECTION | 0 | .017 | .036 | .056 | .077 | .098 | .116 | .133 | .144 | .155 | .160 | .162 | .158 | .151 | .139 | .125 | .106 | .082 | .058 | .029 | 0 |
| VERTICAL CURVE ORDINATE | 0 | .006 | .011 | .015 | .019 | .022 | .025 | .027 | .028 | .029 | .029 | .028 | .026 | .024 | .022 | .018 | .014 | .010 | .005 | 0 | |
| REQUIRED CAMBER | 0 | 23 | 47 | 71 | 96 | 120 | 141 | 160 | 172 | 184 | 189 | 191 | 186 | 177 | 163 | 147 | 124 | 96 | 68 | 34 | 0 |

GIRDER 4

SCHMATIC CAMBER ORDINATES

* INCLUDES SLAB, BUILDUPS AND STAY-IN-PLACE FORMS.

DEFLECTIONS ARE IN METERS AT TWENTIETH POINTS BETWEEN BEARINGS, REQUIRED CAMBER VALUES ARE IN MILLIMETERS.

SLOPE FOR THE ZERO CAMBER BASE LINE VARIES.

PROJECT NO. R-2552AA
 WAKE / JOHNSTON COUNTY
 STATION: 19+25.877 -I1Y1- P.O.T.

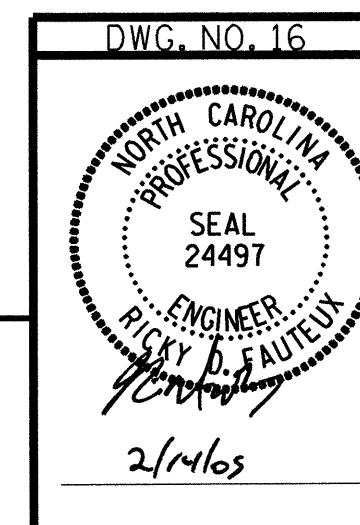
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 GIRDER CAMBER DETAILS

JANUARY 2005

| | | | | | | |
|-----|-----|-------|-----|-----|-------|------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | SHEET NO. |
| 1 | | | 3 | | | S-16 |
| 2 | | | 4 | | | TOTAL SHEETS 429 |



RUMMEL, KLEPPER & KAHL, LLP
 consulting engineers
 5800 FARINGDON PLACE - SUITE 105
 RALEIGH, NORTH CAROLINA 27609-3960

G:\COMMONS\304046\BRIDGE\SITE\1\DN\FINAL\R2552AA_SD_DL_01.DGN

DRAWN BY: B. PARRISH DATE: 01/05
 CHECKED BY: R. D. FAUTEUX DATE: 01/05