
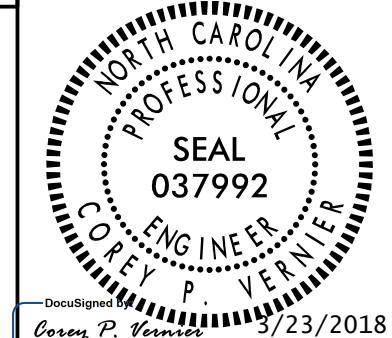
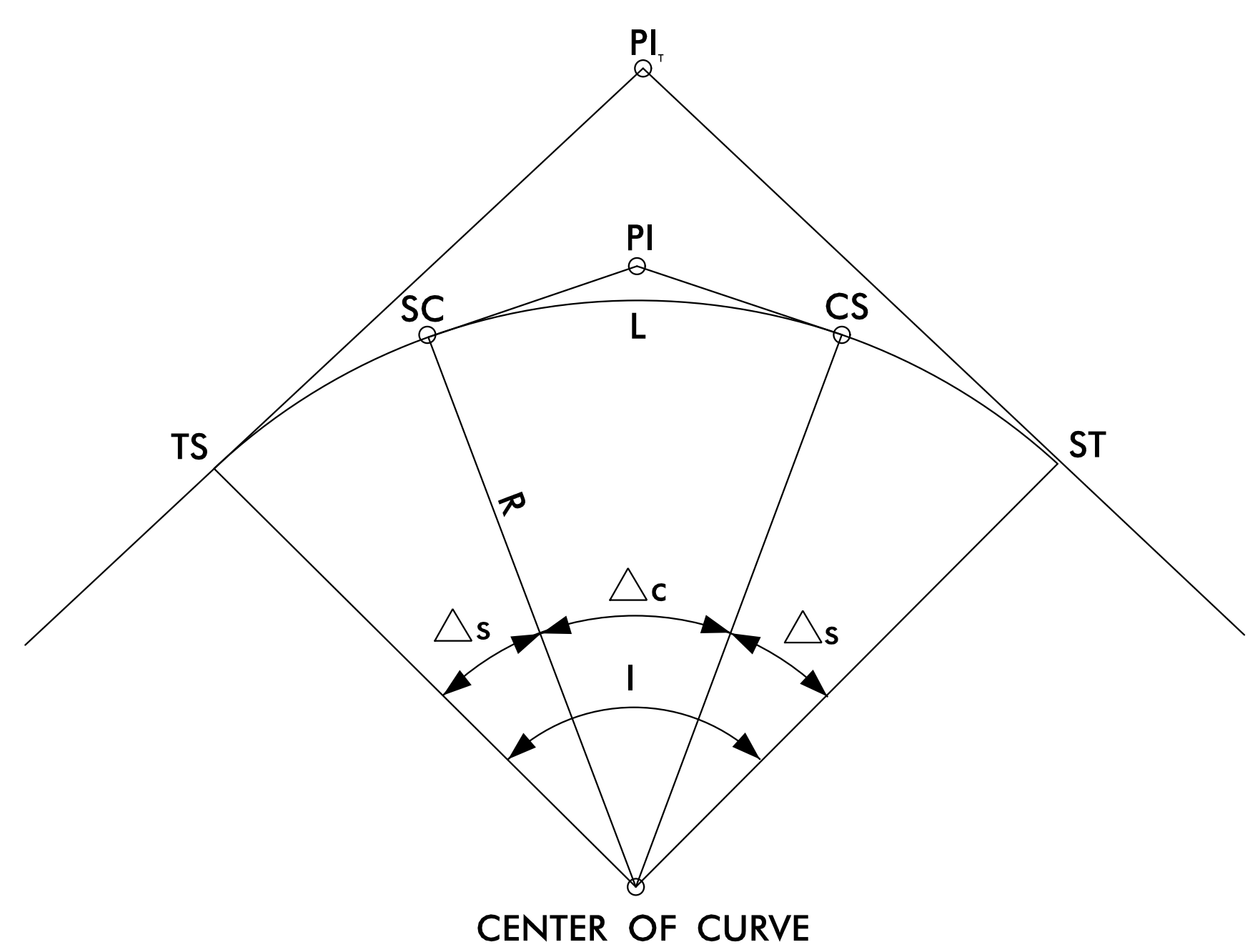
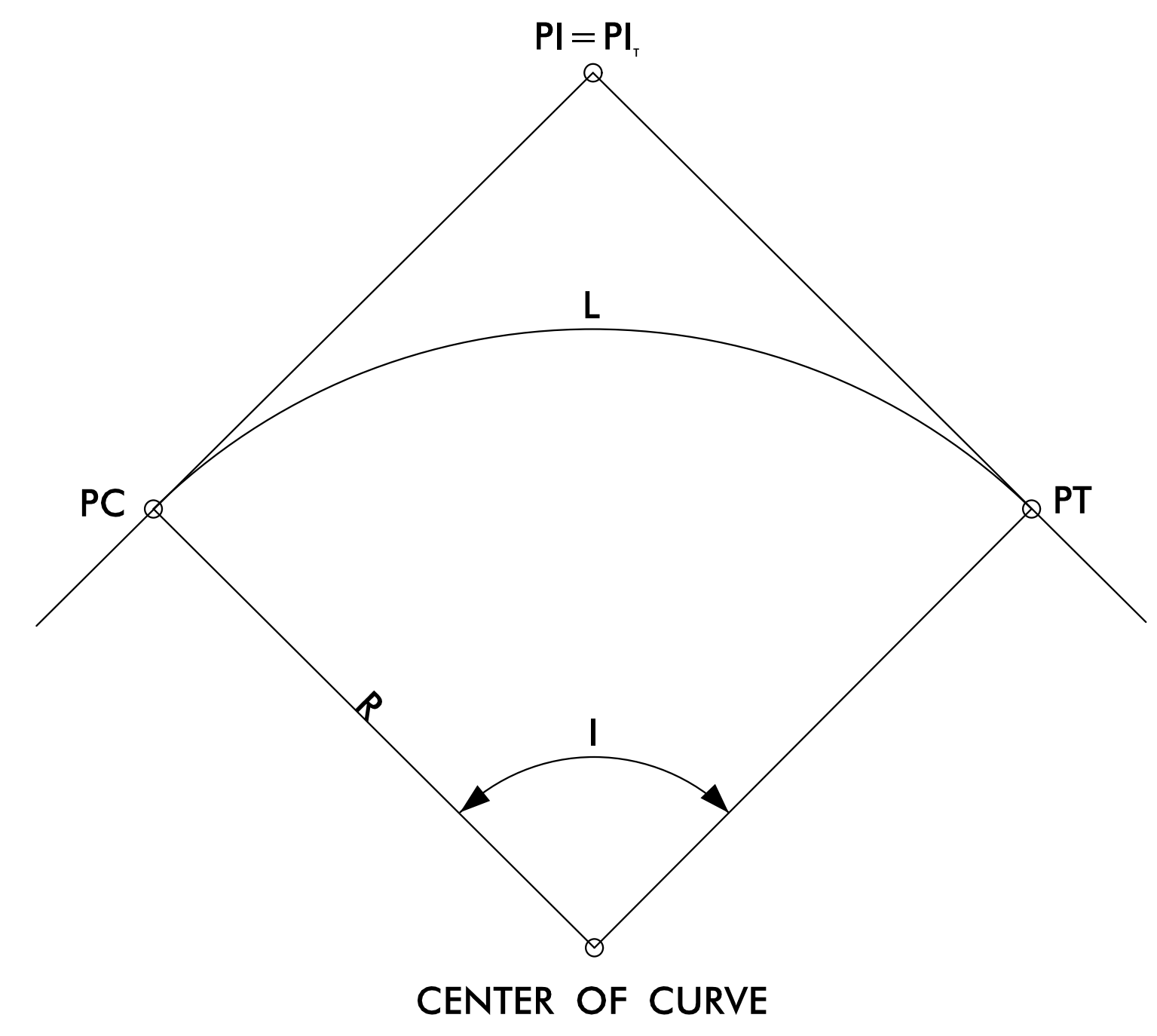


# HORIZONTAL CURVE GEOMETRY SHEET

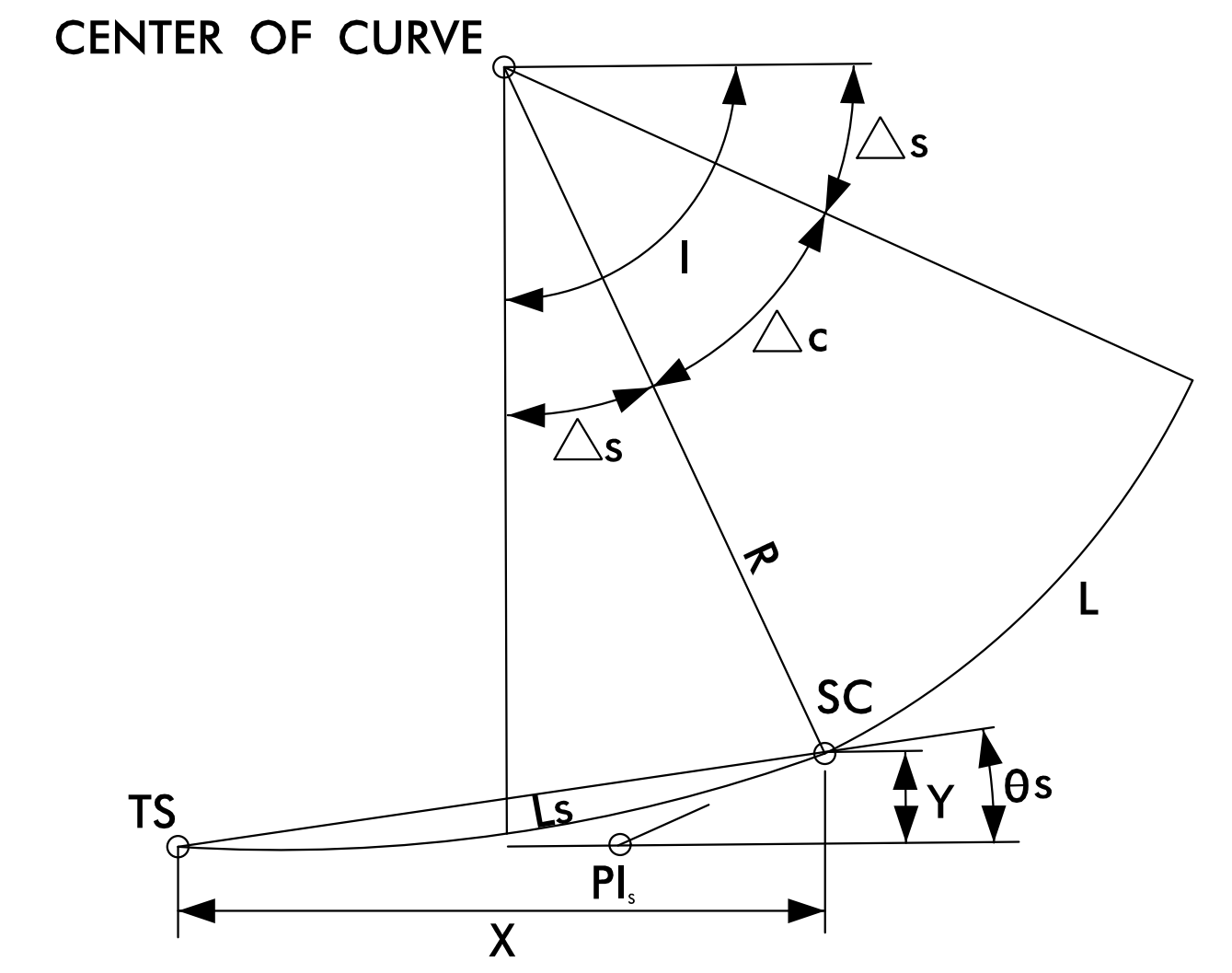
 HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554	PROJECT REFERENCE NO.	SHEET NO.
	P-5705BA	2H
DATE: MARCH 16, 2018	RW SHEET NO.	
RAILROAD DESIGN ENGINEER		
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037992 COREY P. VERMA 5/23/2018		



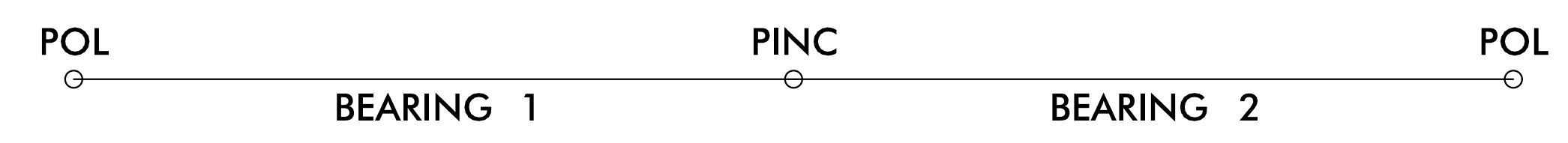
**FIGURE A**  
CIRCULAR CURVE WITH SPIRAL TRANSITION CURVES



**FIGURE B**  
SIMPLE CIRCULAR CURVE



**FIGURE C**  
SPIRAL TRANSITION CURVE



**FIGURE D**  
DEFLECTION BETWEEN TANGENTS

- |                |                                     |                 |  |
|----------------|-------------------------------------|-----------------|--|
| R              | RADIUS OF CURVATURE                 | PI <sub>c</sub> | POINT OF INTERSECTION (CIRCULAR CURVE) |
| D <sub>c</sub> | DEGREE OF CURVATURE (CHORD DEFINED) | PI <sub>t</sub> | POINT OF INTERSECTION (TANGENT)        |
| L              | LENGTH OF CURVE (CHORD DEFINED)     | PI <sub>s</sub> | POINT OF INTERSECTION (SPIRAL)         |
| I              | TOTAL INTERSECTION ANGLE            | PC              | TANGENT TO CIRCULAR CURVE              |
| Δ <sub>c</sub> | CURVE ANGLE                         | PT              | CIRCULAR CURVE TO TANGENT              |
| Δ <sub>s</sub> | SPIRAL ANGLE                        | TS              | TANGENT TO SPIRAL                      |
| θ <sub>s</sub> | SPIRAL DEFLECTION                   | SC              | SPIRAL TO CIRCULAR CURVE               |
| L <sub>s</sub> | LENGTH OF SPIRAL                    | CS              | CIRCULAR CURVE TO SPIRAL               |
| X              | SPIRAL TANGENT LENGTH TO OFFSET     | ST              | SPIRAL TO TANGENT                      |
| Y              | SPIRAL TANGENT OFFSET               | PINC            | POINT OF INTERSECTION NO CURVE         |

69  
68  
67  
66  
65  
64  
63  
62  
61  
60  
59  
58  
57  
56  
55  
54  
53  
52  
51  
50  
49  
48  
47  
46  
45  
44  
43  
42  
41  
40  
39  
38  
37  
36  
35  
34  
33  
32  
31  
30  
29  
28  
27  
26  
25  
24  
23  
22  
21  
20  
19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1