SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	pclw90-5		
What e_{max} table would you like to use?	0.060 max		
V =	60	mph	(design speed, mph)
Dc =	1.00		(degree of curve of alignment)
Radius =	5,729.58	feet	(radius of curve of alingment)
e_d =	**0.027**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.000		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.000		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**143.8560**	feet	(Superelevation Runoff Length to flat)
L(t) =	**85.2480**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	0.00%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	36	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**215.7840**	feet	(Superelevation Runoff Length to flat)
L(t) =	**127.8720**	feet	(Tangent Runout Length)

P.C. Station	190+45.5803	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	yes
P.T. Station	202+37.4919	Percent of super to achieve at P.T.?	69.65%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	188+64.4283	-0.016
flat =	189+49.6763	0.000
reverse crown =	190+34.9243	0.016
full super =	190+93.5323	0.027

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	201+71.9959	0.027
normal crown =	202+59.9079	0.016
cross slope rotating to =	203+87.7799	0.000

Curve Information

Full super length =	1078.46 ft.	
Slope at PC =	#N/A	
P.C. L(r) =	143.86	
G-value of P.C. L(r) =	222	
P.C. L(t) =	85.25	
G-value of P.C. L(t) =	222	
Slope at PT =	0.0188	
P.T. L(r) =	215.78	
G-value of P.T. L(r) =	222	
Curve length is	19.87	times design speed
time at full super =	12.26	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve						
P.T. part of curve						

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	pclw90-6		
What e_{max} table would you like to use?	0.060 max		
V =	60	mph	(design speed, mph)
Dc =	4.25		(degree of curve of alignment)
Radius =	1,348.14	feet	(radius of curve of alingment)
e_d =	**0.060**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	left		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.875		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening required for WB-62.	**1.125**		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	0.00%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	36	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**479.5200**	feet	(Superelevation Runoff Length to flat)
L(t) =	**127.8720**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	36	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**479.5200**	feet	(Superelevation Runoff Length to flat)
L(t) =	**127.8720**	feet	(Tangent Runout Length)

P.C. Station 209+07.7799

Is there a spiral for this curve? yes — Is the roadway rotating past flat at the P.C. transition? no

What is the length of the spiral? 520.00' — Spiral G-value and corresponding design speed: 241; 65-mph

P.T. Station 222+47.1838

Is there a spiral for this curve? yes — Is the roadway rotating past flat at the P.T. transition? yes

What is the length of the spiral? 520.00' — Spiral G-value and corresponding design speed: 241; 65-mph

Do you want the tangent runout length recalculated to match the g-value of the spiral? yes — New L(t) = 138.8160

P.C. SUPER INFORMATION

	Station	Super Rate
cross slope rotating from =	203+87.7799	0.000
full super =	209+07.7799	-0.060

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	222+47.1838	-0.060
flat =	227+67.1838	0.000
normal crown =	229+05.9998	0.016

Curve Information

Dc =	4°15'0"	
Full super length =	1339.40 ft.	
Slope at PC =	-0.0600	
P.C. Spiral Length =	520.00	
G-value of P.C. Spiral =	241	
Slope at PT =	-0.0600	
P.T. Spiral Length =	520.00	
G-value of P.T. Spiral =	241	
P.T. L(t) =	138.82	
G-value of P.T. L(t) =	241	
Curve length is	22.32	times design speed
time at full super =	15.22	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	207+34.4466	-0.0400	-0.0400	206+47.7799	-0.0300	-0.0400
	209+07.7799	-0.0600	-0.0600	209+07.7799	-0.0600	-0.0100
P.T. part of curve	222+47.1838	-0.0600	-0.0600	222+47.1838	-0.0600	-0.0100
	224+20.5171	-0.0400	-0.0400	225+07.1838	-0.0300	-0.0400

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate
226+00.0902	-0.0193	32.13%	-0.0400	-0.0400

CROSS SLOPE INFORMATION

Super Rate	Station in P.C. Area	Station in P.T. Area
-0.0200	205+61.1132	225+93.9291
-0.0160	205+26.4466	226+28.6036
-0.0300	206+47.7799	225+07.2427

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	pclw90-7		
What e_{max} table would you like to use?	0.060 max		
V =	60	mph	(design speed, mph)
Dc =	1.00		(degree of curve of alignment)
Radius =	5,729.58	feet	(radius of curve of alingment)
e_d =	**0.027**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	left		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.000		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.000		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**143.8560**	feet	(Superelevation Runoff Length to flat)
L(t) =	**85.2480**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**143.8560**	feet	(Superelevation Runoff Length to flat)
L(t) =	**85.2480**	feet	(Tangent Runout Length)

P.C. Station	248+37.6833	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	yes
P.T. Station	254+93.3637	Percent of super to achieve at P.T.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	yes

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	246+56.5313	0.016
flat =	247+41.7793	0.000
reverse crown =	248+27.0273	-0.016
full super =	248+85.6353	-0.027

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	254+45.4117	-0.027
reverse crown =	255+04.0197	-0.016
flat =	255+89.2677	0.000
normal crown =	256+74.5157	0.016

Curve Information

Dc =	1°0'0"	
Full super length =	559.78 ft.	
Slope at PC =	-0.0180	
P.C. L(r) =	143.86	
G-value of P.C. L(r) =	222	
P.C. L(t) =	85.25	
G-value of P.C. L(t) =	222	
Slope at PT =	-0.0180	
P.T. L(r) =	143.86	
G-value of P.T. L(r) =	222	
P.T. L(t) =	85.25	
G-value of P.T. L(t) =	222	
Curve length is	10.93	times design speed
time at full super =	6.36	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve						
P.T. part of curve						

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate
256+70.0000	0.0152	56.12%	-0.0400	-0.0400
248+27.0000	-0.0160	59.24%	-0.0400	-0.0400

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

SIMPLE CURVE CONFIGURATION

CLEAR SHEET

Designer name:	DCL		
Curve name:	trw90che-1		
What e_{max} table would you like to use?	0.060 max		
V =	60	mph	(design speed, mph)
Radius =	10,520.94	feet	(radius of curve of alingment)
Dc =	0.54		(degree of curve of alignment)
e_d =	**0.016**		(design superelevation rate)
normal crown (e_{NC}) =			
	left		Is the curve to the left or right (in the direction of stationing)?
			Will the dependent geopak shapes be to the left or right of the baseline?
CHECK CURVE WIDENING BY HAND.	#N/A		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
CHECK CURVE WIDENING BY HAND.	#N/A		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
			Divided roadway?

P.C. ROTATION DATA

			From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =		feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =			
b(w) =	#N/A		(adjustment factor for number of lanes rotated)
% =	#N/A		(maximum relative gradient)
G =	#N/A		(maximum relative slope)
L(r) =	**#N/A**	feet	(Superelevation Runoff Length to flat)
L(t) =	**#N/A**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

			To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =		feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =			
b(w) =	#N/A		(adjustment factor for number of lanes rotated)
% =	#N/A		(maximum relative gradient)
G =	#N/A		(maximum relative slope)
L(r) =	**#N/A**	feet	(Superelevation Runoff Length to flat)
L(t) =	**#N/A**	feet	(Tangent Runout Length)

P.C. Station

Is there a spiral for this curve?

Is the roadway rotating past flat at the P.C. transition?

P.T. Station

Is there a spiral for this curve?

Is the roadway rotating past flat at the P.T. transition?

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	#N/A	0.000
full super =	#N/A	0.016

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	#N/A	0.016
normal crown =	#N/A	0.000

Curve Information

Dc =	0°32'40.52"	
Full super length =	#N/A	
Slope at PC =	#N/A	
P.C. L(r) =	#N/A	
G-value of P.C. L(r) =	#N/A	
P.C. L(t) =	#VALUE!	
G-value of P.C. L(t) =	#VALUE!	
Slope at PT =	#N/A	
P.T. L(r) =	#VALUE!	
G-value of P.T. L(r) =	#VALUE!	
P.T. L(t) =	#N/A	
G-value of P.T. L(t) =	#N/A	
Curve length is	0.00	times design speed
time at full super =	#N/A	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve						
P.T. part of curve						

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90che-2		
What e_{max} table would you like to use?	0.060 max		
V =	50	mph	(design speed, mph)
Dc =	3.25		(degree of curve of alignment)
Radius =	1,762.95	feet	(radius of curve of alingment)
e_d =	**0.047**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.563		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.813		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	60		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.45		(maximum relative gradient)
G =	222		(maximum relative slope)
L(r) =	**165.1680**	feet	(Superelevation Runoff Length to flat)
L(t) =	**56.8320**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	50		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.5		(maximum relative gradient)
G =	200		(maximum relative slope)
L(r) =	**148.8000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**51.2000**	feet	(Tangent Runout Length)

P.C. Station	403+90.7048	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	409+60.6412	Percent of super to achieve at P.T.?	52.34%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	yes

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	403+37.4248	0.016
full super =	404+45.7608	0.047

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	408+89.7230	0.047
reverse crown =	409+87.3230	0.016
flat =	410+38.5230	0.000
normal crown =	410+89.7230	-0.016

Curve Information

Dc =	3°15'0"	
Full super length =	443.96 ft.	
Slope at PC =	0.0310	
P.C. L(r) =	108.34	
G-value of P.C. L(r) =	222	
Slope at PT =	0.0243	
P.T. L(r) =	148.80	
G-value of P.T. L(r) =	200	
P.T. L(t) =	51.20	
G-value of P.T. L(t) =	200	
Curve length is	11.40	times design speed
time at full super =	6.05	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	403+87.1528	0.0300	-0.0400	404+22.6728	0.0400	-0.0400
	404+45.7608	0.0465	-0.0235	404+45.7608	0.0465	-0.0465
P.T. part of curve	408+89.7230	0.0465	-0.0235	408+89.7230	0.0465	-0.0465
	409+42.5230	0.0300	-0.0400	409+10.5230	0.0400	-0.0400

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate
407+07.0500	0.0465	100.00%	-0.0235	-0.0465

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90che-3		
What e_{max} table would you like to use?	0.060 max		
V =	45	mph	(design speed, mph)
Dc =	6.00		(degree of curve of alignment)
Radius =	954.93	feet	(radius of curve of alingment)
e_d =	**0.055**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	left		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening required for WB-50.	**1.000**		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening required for WB-62.	**1.250**		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	50		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.5		(maximum relative gradient)
G =	200		(maximum relative slope)
L(r) =	**176.0000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**51.2000**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**162.8000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**47.3600**	feet	(Tangent Runout Length)

P.C. Station	411+30.6413	Percent of super to achieve at P.C.?	52.34%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no

P.T. Station	415+04.1954	Percent of super to achieve at P.T.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	yes

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	410+89.7230	-0.016
full super =	412+14.5230	-0.055

Curve Information

Dc =	6°0'0"
Full super length =	235.41 ft.
Slope at PC =	-0.0288
P.C. L(r) =	124.80
G-value of P.C. L(r) =	200

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	414+49.9287	-0.055
reverse crown =	415+65.3687	-0.016
flat =	416+12.7287	0.000
normal crown =	416+60.0887	0.016

Slope at PT =	-0.0367	
P.T. L(r) =	162.80	
G-value of P.T. L(r) =	185	
P.T. L(t) =	47.36	
G-value of P.T. L(t) =	185	
Curve length is	8.30	times design speed
time at full super =	3.57	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	411+66.5230	-0.0400	-0.0400	411+34.5230	-0.0300	-0.0400
	412+14.5230	-0.0550	-0.0550	412+14.5230	-0.0550	-0.0150
P.T. part of curve	414+49.9287	-0.0550	-0.0550	414+49.9287	-0.0550	-0.0150
	414+94.3287	-0.0400	-0.0400	415+23.9287	-0.0300	-0.0400

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90che-4		
What e_{max} table would you like to use?	0.060 max		
V =	45	mph	(design speed, mph)
Dc =	4.00		(degree of curve of alignment)
Radius =	1,432.39	feet	(radius of curve of alingment)
e_d =	**0.046**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.500		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.750		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**136.1600**	feet	(Superelevation Runoff Length to flat)
L(t) =	**47.3600**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**136.1600**	feet	(Superelevation Runoff Length to flat)
L(t) =	**47.3600**	feet	(Tangent Runout Length)

P.C. Station	418+46.6112	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	422+66.1735	Percent of super to achieve at P.T.?	50.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	418+03.1979	0.016
full super =	418+91.9979	0.046

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	421+98.0935	0.046
normal crown =	422+86.8935	0.016

Curve Information

Dc =	4'0'0''	
Full super length =	306.10 ft.	
Slope at PC =	0.0307	
P.C. L(r) =	88.80	
G-value of P.C. L(r) =	185	
Slope at PT =	0.0230	
P.T. L(r) =	88.80	
G-value of P.T. L(r) =	185	
Curve length is	9.32	times design speed
time at full super =	4.64	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	418+44.6379	0.0300	-0.0400	418+74.2379	0.0400	-0.0400
	418+91.9979	0.0460	-0.0240	418+91.9979	0.0460	-0.0460
P.T. part of curve	421+98.0935	0.0460	-0.0240	421+98.0935	0.0460	-0.0460
	422+45.4535	0.0300	-0.0400	422+15.8535	0.0400	-0.0400

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

STATION QUERY

Super Rate	Station in P.C. Area	Station in P.T. Area
0.0200	418+15.0379	422+75.0535

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90che-5		
What e_{max} table would you like to use?	0.060 max		
V =	30	mph	(design speed, mph)
Dc =	4.75		(degree of curve of alignment)
Radius =	1,206.23	feet	(radius of curve of alingment)
e_d =	**0.032**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	left		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.688		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.938		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	35		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.62		(maximum relative gradient)
G =	161		(maximum relative slope)
L(r) =	**123.6480**	feet	(Superelevation Runoff Length to flat)
L(t) =	**61.8240**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	0.84%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	30		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.66		(maximum relative gradient)
G =	152		(maximum relative slope)
L(r) =	**116.7360**	feet	(Superelevation Runoff Length to flat)
L(t) =	**58.3680**	feet	(Tangent Runout Length)

P.C. Station	426+64.7771	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	yes
P.T. Station	429+44.0224	Percent of super to achieve at P.T.?	50.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	yes

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	425+20.5211	0.016
flat =	425+82.3451	0.000
reverse crown =	426+44.1691	-0.016
full super =	427+05.9931	-0.032

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	428+85.6544	-0.032
reverse crown =	429+44.0224	-0.016
flat =	430+02.3904	0.000
cross slope rotating to =	430+33.0336	0.008

Curve Information

Dc =	4°45'0"	
Full super length =	179.66 ft.	
Slope at PC =	-0.0213	
P.C. L(r) =	123.65	
G-value of P.C. L(r) =	161	
P.C. L(t) =	61.82	
G-value of P.C. L(t) =	161	
Slope at PT =	-0.0160	
P.T. L(r) =	116.74	
G-value of P.T. L(r) =	152	
P.T. L(t) =	30.64	
G-value of P.T. L(t) =	152	
Curve length is	9.31	times design speed
time at full super =	4.08	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve				426+98.2651	-0.0300	-0.0400
				427+05.9931	-0.0320	-0.0380
P.T. part of curve				428+85.6544	-0.0320	-0.0380
				428+92.9504	-0.0300	-0.0400

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate
430+17.3797	0.0041	12.84%	-0.0400	-0.0400

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90e24-1		
What e_{max} table would you like to use?	0.060 max		
V =	45	mph	(design speed, mph)
Radius =	1,420.39	feet	(radius of curve of alingment)
Dc =	4.03		(degree of curve of alignment)
e_d =	0.046		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.508		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.758		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**136.7602**	feet	(Superelevation Runoff Length to flat)
L(t) =	**47.3600**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	2.00%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**136.7602**	feet	(Superelevation Runoff Length to flat)
L(t) =	**47.3600**	feet	(Tangent Runout Length)

P.C. Station	602+44.9912	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	606+61.0386	Percent of super to achieve at P.T.?	50.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	602+01.1778	0.016
full super =	602+90.5779	0.046

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	605+92.6585	0.046
cross slope rotating to =	606+70.2187	0.020

Curve Information

Dc =	4°2'1.66"	
Full super length =	302.08 ft.	
Slope at PC =	0.0308	
P.C. L(r) =	89.40	
G-value of P.C. L(r) =	185	
Slope at PT =	0.0231	
P.T. L(r) =	77.56	
G-value of P.T. L(r) =	185	
Curve length is	9.25	times design speed
time at full super =	4.58	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	602+42.6178	0.0300	-0.0400	602+72.2178	0.0400	-0.0400
	602+90.5779	0.0462	-0.0238	602+90.5779	0.0462	-0.0462
P.T. part of curve	605+92.6585	0.0462	-0.0238	605+92.6585	0.0462	-0.0462
	606+40.6187	0.0300	-0.0400	606+11.0187	0.0400	-0.0400

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90e24-2		
What e_{max} table would you like to use?	0.060 max		
V =	35	mph	(design speed, mph)
Dc =	8.00		(degree of curve of alignment)
Radius =	716.20	feet	(radius of curve of alingment)
e_d =	**0.048**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening required for WB-50.	**1.250**		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening required for WB-62.	**1.750**		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	2.00%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	40		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.58		(maximum relative gradient)
G =	172		(maximum relative slope)
L(r) =	**132.0960**	feet	(Superelevation Runoff Length to flat)
L(t) =	**44.0320**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	5.50%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	35		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.62		(maximum relative gradient)
G =	161		(maximum relative slope)
L(r) =	**123.6480**	feet	(Superelevation Runoff Length to flat)
L(t) =	**41.2160**	feet	(Tangent Runout Length)

P.C. Station	607+53.9652	Percent of super to achieve at P.C.?	50.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	609+35.9496	Percent of super to achieve at P.T.?	100.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
cross slope rotating from =	607+42.9572	0.020
full super =	608+20.0132	0.048

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	609+35.9496	0.048
cross slope rotating to =	609+53.9816	0.055

Curve Information

Dc =	8°0'0"	
Full super length =	115.94 ft.	
Slope at PC =	0.0240	
P.C. L(r) =	77.06	
G-value of P.C. L(r) =	172	
Slope at PT =	0.0480	
P.T. L(r) =	18.03	
G-value of P.T. L(r) =	161	
Curve length is	5.20	times design speed
time at full super =	2.26	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	607+70.4772	0.0300	-0.0400	607+97.9972	0.0400	-0.0400
	608+20.0132	0.0480	-0.0220	608+20.0132	0.0480	-0.0480
P.T. part of curve	609+35.9496	0.0480	-0.0220	609+35.9496	0.0480	-0.0480
	609+17.9176	0.0550	-0.0150	609+17.9176	0.0550	-0.0550

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate
609+38.0700	0.0488	101.71%	-0.0212	-0.0488

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trw90e24-3		
What e_{max} table would you like to use?	0.060 max		
V =	25	mph	(design speed, mph)
Dc =	25.00		(degree of curve of alignment)
Radius =	229.18	feet	(radius of curve of alingment)
e_d =	**0.055**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.000		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.000		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	4.80%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	35		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.62		(maximum relative gradient)
G =	161		(maximum relative slope)
L(r) =	**141.6800**	feet	(Superelevation Runoff Length to flat)
L(t) =	**41.2160**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.00%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	25		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.7		(maximum relative gradient)
G =	143		(maximum relative slope)
L(r) =	**125.8400**	feet	(Superelevation Runoff Length to flat)
L(t) =	**36.6080**	feet	(Tangent Runout Length)

P.C. Station	609+35.9496	Percent of super to achieve at P.C.?	87.27%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	612+32.4286	Percent of super to achieve at P.T.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
cross slope rotating from =	609+35.9496	0.048
full super =	609+53.9816	0.055

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	611+90.4819	0.055
normal crown =	612+79.7139	0.016
cross slope rotating to =	612+93.4419	0.010

Curve Information

Dc =	25°0'0"	
Full super length =	236.50 ft.	
Slope at PC =	0.0480	
P.C. L(r) =	18.03	
G-value of P.C. L(r) =	161	
Slope at PT =	0.0367	
P.T. L(r) =	102.96	
G-value of P.T. L(r) =	143	
Curve length is	11.86	times design speed
time at full super =	6.45	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	609+35.9496	0.0480	-0.0220	609+35.9496	0.0480	-0.0480
	609+53.9816	0.0550	-0.0150	609+53.9816	0.0550	-0.0550
P.T. part of curve	611+90.4819	0.0550	-0.0150	611+90.4819	0.0550	-0.0550
	612+47.6819	0.0300	-0.0400	612+24.8019	0.0400	-0.0400

CROSS SLOPE QUERY

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate
609+38.0700	0.0488	88.77%	-0.0212	-0.0488

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trsupw90-1		
What e_{max} table would you like to use?	0.060 max		
V =	30	mph	(design speed, mph)
Dc =	4.00		(degree of curve of alignment)
Radius =	1,432.39	feet	(radius of curve of alingment)
e_d =	**0.028**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	left		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.500		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.750		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	0.30%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	30		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.66		(maximum relative gradient)
G =	152		(maximum relative slope)
L(r) =	**102.1440**	feet	(Superelevation Runoff Length to flat)
L(t) =	**58.3680**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**124.3200**	feet	(Superelevation Runoff Length to flat)
L(t) =	**71.0400**	feet	(Tangent Runout Length)

P.C. Station	502+17.3316	Percent of super to achieve at P.C.?	70.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	yes
P.T. Station	503+91.5591	Percent of super to achieve at P.T.?	68.84%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	yes

P.C. SUPER INFORMATION

	Station	Super Rate
cross slope rotating from =	501+34.8868	0.003
flat =	501+45.8308	0.000
reverse crown =	502+04.1988	-0.016
full super =	502+47.9748	-0.028

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	503+52.8252	-0.028
reverse crown =	504+06.1052	-0.016
flat =	504+77.1452	0.000
normal crown =	505+48.1852	0.016

Curve Information

Dc =	4°0'0"	
Full super length =	104.85 ft.	
Slope at PC =	-0.0196	
P.C. L(r) =	102.14	
G-value of P.C. L(r) =	152	
P.C. L(t) =	10.94	
G-value of P.C. L(t) =	152	
Slope at PT =	-0.0193	
P.T. L(r) =	124.32	
G-value of P.T. L(r) =	185	
P.T. L(t) =	71.04	
G-value of P.T. L(t) =	185	
Curve length is	5.81	times design speed
time at full super =	2.38	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve						
P.T. part of curve						

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trsupw90-2		
What e_{max} table would you like to use?	0.060 max		
V =	45	mph	(design speed, mph)
Dc =	3.00		(degree of curve of alignment)
Radius =	1,909.86	feet	(radius of curve of alingment)
e_d =	**0.039**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.500		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.750		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	45		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.54		(maximum relative gradient)
G =	185		(maximum relative slope)
L(r) =	**173.1600**	feet	(Superelevation Runoff Length to flat)
L(t) =	**71.0400**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	16	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	50		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.5		(maximum relative gradient)
G =	200		(maximum relative slope)
L(r) =	**124.8000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**51.2000**	feet	(Tangent Runout Length)

P.C. Station	505+96.3537	Percent of super to achieve at P.C.?	68.84%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	507+75.3039		
Is there a spiral for this curve?	yes	Is the roadway rotating past flat at the P.T. transition?	no
What is the length of the spiral?	200.00'	Spiral G-value and corresponding design speed:	543; 70-mph

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	505+48.1852	0.016
full super =	506+50.3052	0.039

Curve Information

Dc =	3°0'0"
Full super length =	125.00 ft.
Slope at PC =	0.0268
P.C. L(r) =	102.12
G-value of P.C. L(r) =	185

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	507+75.3039	0.039
normal crown =	509+75.3039	0.016

Slope at PT =	0.0390	
P.T. Spiral Length =	200.00	
G-value of P.T. Spiral =	543	
Curve length is	3.98	times design speed
time at full super =	1.89	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate
P.C. part of curve	506+10.3452	0.0300	-0.0400
	506+50.3052	0.0390	-0.0310
P.T. part of curve	507+75.3039	0.0390	-0.0310
	508+21.4577	0.0300	-0.0400

Station	Mainline Super Rate	Right Shoulder Super Rate

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trchew90-2		
What e_{max} table would you like to use?	0.060 max		
V =	30	mph	(design speed, mph)
Dc =	24.75		(degree of curve of alignment)
Radius =	231.50	feet	(radius of curve of alingment)
e_d =	**0.060**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening required for WB-50.	**3.708**		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening required for WB-62.	**5.187**		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	2.00%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	30		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.66		(maximum relative gradient)
G =	152		(maximum relative slope)
L(r) =	**218.8800**	feet	(Superelevation Runoff Length to flat)
L(t) =	**58.3680**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	3.00%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	50		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.5		(maximum relative gradient)
G =	200		(maximum relative slope)
L(r) =	**288.0000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**76.8000**	feet	(Tangent Runout Length)

P.C. Station	807+96.2472	Percent of super to achieve at P.C.?	50.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	810+32.6596		
Is there a spiral for this curve?	yes	Is the roadway rotating past flat at the P.T. transition?	no
What is the length of the spiral?	150.00'	Spiral G-value and corresponding design speed:	208; 50-mph

P.C. SUPER INFORMATION

	Station	Super Rate
cross slope rotating from =	807+59.7672	0.020
full super =	809+05.6872	0.060

Curve Information

Dc =	24°45'0"	
Full super length =	126.97 ft.	
Slope at PC =	0.0300	
P.C. L(r) =	145.92	
G-value of P.C. L(r) =	152	
Slope at PT =	0.0600	
P.T. Spiral Length =	150.00	
G-value of P.T. Spiral =	208	
Curve length is	7.88	times design speed
time at full super =	2.89	seconds

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	810+32.6596	0.060
cross slope rotating to =	811+82.6596	0.030

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	807+96.2472	0.0300	-0.0400	808+32.7272	0.0400	-0.0400
	809+05.6872	0.0600	-0.0100	809+05.6872	0.0600	-0.0600
P.T. part of curve	810+32.6596	0.0600	-0.0100	810+32.6596	0.0600	-0.0600
	811+07.6596	0.0300	-0.0400	810+82.6596	0.0400	-0.0400

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trchew90-3		
What e_{max} table would you like to use?	0.060 MAX		
V =	45	mph	(design speed, mph)
Dc =	2.00		(degree of curve of alignment)
Radius =	2,864.79	feet	(radius of curve of alingment)
e_d =	**0.030**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	left		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.250		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.500		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	3.00%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	50		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.5		(maximum relative gradient)
G =	200		(maximum relative slope)
L(r) =	**144.0000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**76.8000**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	3.00%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	24	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	50		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.5		(maximum relative gradient)
G =	200		(maximum relative slope)
L(r) =	**144.0000**	feet	(Superelevation Runoff Length to flat)
L(t) =	**76.8000**	feet	(Tangent Runout Length)

P.C. Station	811+82.6596	Percent of super to achieve at P.C.?	100.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	815+75.0704	Percent of super to achieve at P.T.?	100.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
cross slope rotating from =	811+82.6596	0.030
full super =	811+82.6596	0.030

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	815+75.0704	0.030
cross slope rotating to =	815+75.0704	0.030

Curve Information

Dc =	2°0'0"
Full super length =	392.41 ft.
Slope at PC =	0.0300
P.C. L(r) =	0.00
G-value of P.C. L(r) =	#DIV/0!
Slope at PT =	0.0300
P.T. L(r) =	0.00
G-value of P.T. L(r) =	#DIV/0!
Curve length is	8.72 times design speed
time at full super =	5.95 seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve	811+82.6596	0.0300	-0.0400			
P.T. part of curve	815+75.0704	0.0300	-0.0400			

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trsmid-1		
What e_{max} table would you like to use?	0.040 max		
V =	25	mph	(design speed, mph)
Dc =	30.00		(degree of curve of alignment)
Radius =	190.99	feet	(radius of curve of alingment)
e_d =	**0.016**		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	left		Is the curve to the left or right (in the direction of stationing)?
	right		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.000		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.000		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	13	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	25		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.7		(maximum relative gradient)
G =	143		(maximum relative slope)
L(r) =	**29.7440**	feet	(Superelevation Runoff Length to flat)
L(t) =	**29.7440**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	13	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	25		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.7		(maximum relative gradient)
G =	143		(maximum relative slope)
L(r) =	**29.7440**	feet	(Superelevation Runoff Length to flat)
L(t) =	**29.7440**	feet	(Tangent Runout Length)

P.C. Station	50+74.9841	Percent of super to achieve at P.C.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	yes
P.T. Station	52+24.9883	Percent of super to achieve at P.T.?	100.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	no

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	50+25.4108	-0.016
flat =	50+55.1548	0.000
reverse crown =	50+84.8988	0.016
full super =	50+84.8988	0.016

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	52+24.9883	0.016
normal crown =	52+24.9883	0.016

Curve Information

Full super length =	140.09 ft.	
Slope at PC =	0.0160	
P.C. L(r) =	29.74	
G-value of P.C. L(r) =	143	
P.C. L(t) =	29.74	
G-value of P.C. L(t) =	143	
Slope at PT =	0.0160	
P.T. L(r) =	0.00	
G-value of P.T. L(r) =	#DIV/0!	
Curve length is	6.00	times design speed
time at full super =	3.82	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve						
P.T. part of curve						

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate

SUPERELEVATION TRANSITION LENGTH

ODOT L&D VOL. 1 - FIGURES 202-7E, 202-8E, 202-9E, FIGURE 202-10E, FIGURE 301-5B AND FIGURE 301-5C

CLEAR SHEET

SIMPLE CURVE CONFIGURATION

Designer name:	DCL		
Curve name:	trsmid-2		
What e_{max} table would you like to use?	0.040 max		
V =	25	mph	(design speed, mph)
Radius =	190.99	feet	(radius of curve of alingment)
Dc =	30.00		(degree of curve of alignment)
e_d =	0.016		(design superelevation rate)
normal crown (e_{NC}) =	0.016		
	right		Is the curve to the left or right (in the direction of stationing)?
	right		Will the dependent geopak shapes be to the left or right of the baseline?
Curve widening NOT required for WB-50.	0.000		feet of pavement widening per lane (for 12' lane and WB-50 design vehicle; L&D Fig. 301-5b)
Curve widening NOT required for WB-62.	0.000		feet of pavement widening per lane (for 12' lane and WB-62 design vehicle; L&D Fig. 301-5c)
	yes		Divided roadway?

P.C. ROTATION DATA

	1.60%		From what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PC =	13	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PC transition =	25		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.7		(maximum relative gradient)
G =	143		(maximum relative slope)
L(r) =	**29.7440**	feet	(Superelevation Runoff Length to flat)
L(t) =	**29.7440**	feet	(Tangent Runout Length)

P.T. ROTATION DATA

	1.60%		To what cross slope is the roadway being rotated? (i.e. 1.6% for NC, etc.)
Width of rotating pavement @ PT =	13	feet	(do not include curve widening, gore areas or entrance and exit lanes)
Design speed of PT transition =	25		
b(w) =	1		(adjustment factor for number of lanes rotated)
% =	0.7		(maximum relative gradient)
G =	143		(maximum relative slope)
L(r) =	**29.7440**	feet	(Superelevation Runoff Length to flat)
L(t) =	**29.7440**	feet	(Tangent Runout Length)

P.C. Station	53+24.6507	Percent of super to achieve at P.C.?	100.00%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.C. transition?	no
P.T. Station	54+65.3401	Percent of super to achieve at P.T.?	66.67%
Is there a spiral for this curve?	no	Is the roadway rotating past flat at the P.T. transition?	yes

P.C. SUPER INFORMATION

	Station	Super Rate
normal crown =	53+24.6507	-0.016
full super =	53+24.6507	-0.016

P.T. SUPER INFORMATION

	Station	Super Rate
full super =	54+55.4254	-0.016
reverse crown =	54+55.4254	-0.016
flat =	54+85.1694	0.000
normal crown =	55+14.9134	0.016

Curve Information

Full super length =	130.77 ft.	
Slope at PC =	-0.0160	
P.C. L(r) =	0.00	
G-value of P.C. L(r) =	#DIV/0!	
Slope at PT =	#DIV/0!	
P.T. L(r) =	29.74	
G-value of P.T. L(r) =	143	
P.T. L(t) =	29.74	
G-value of P.T. L(t) =	143	
Curve length is	5.63	times design speed
time at full super =	3.57	seconds

SHOULDER INFORMATION FOR CURVE

	Station	Mainline Super Rate	Left Shoulder Super Rate	Station	Mainline Super Rate	Right Shoulder Super Rate
P.C. part of curve						
P.T. part of curve						

STATION INFORMATION

Station	Super Rate	% of e(d) Achieved	Left Shoulder Super Rate	Right Shoulder Super Rate