

|----- Beam Summary -----|

May 1, 2011 Texas Department of Transportation (TxDOT) Page 1
 PSTRS14 Win32 Prestressed Concrete Beam Design/Analysis Ver 4.2

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TX. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 2 DAYS

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		44	1/2	270	13.33	8.24	8	36.5
1&3	INT	Tx40		44	1/2	270	13.33	8.24	8	36.5
2	EXT	Tx54		60	1/2	270	17.61	10.94	10	50.5
2	INT	Tx54		56	1/2	270	17.94	10.80	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5347	5347	3291	-3638	4486	0.255	L-R
1&3	INT	5386	5598	3289	-3727	4517	0.257	L-R
2	EXT	5847	5938	4098	-3943	7676	0.303	L-R
2	INT	5483	7144	4055	-3960	7494	0.273	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4			-0.0796		-0.0082	-0.0049	-0.0926
				CL	-0.1117		-0.0115	-0.0068	-0.1300
1&3	INT	1/4			-0.0909		-0.0089	-0.0047	-0.1045
				CL	-0.1276		-0.0125	-0.0065	-0.1467
2	EXT	1/4			-0.1159		-0.0130	-0.0077	-0.1366
				CL	-0.1626		-0.0182	-0.0109	-0.1917
2	INT	1/4			-0.1324		-0.0142	-0.0074	-0.1540
				CL	-0.1858		-0.0199	-0.0104	-0.2161

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PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TX. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		46	1/2	270	13.17	8.30	8	36.5
1&3	INT	Tx40		44	1/2	270	13.33	8.24	8	36.5
2	EXT	Tx54		62	1/2	270	17.46	11.01	10	50.5
2	INT	Tx54		58	1/2	270	17.77	10.87	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5596	5596	3604	-3732	4486	0.230	L-R
1&3	INT	5386	5729	3527	-3813	4517	0.219	L-R
2	EXT	6047	6086	4425	-4030	7676	0.275	L-R
2	INT	5687	7313	4293	-4035	7494	0.249	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4			-0.0501		-0.0061	-0.0036	-0.0598
				CL	-0.0703		-0.0085	-0.0051	-0.0839
1&3	INT	1/4			-0.0573		-0.0066	-0.0034	-0.0673
				CL	-0.0804		-0.0093	-0.0048	-0.0945
2	EXT	1/4			-0.0730		-0.0096	-0.0057	-0.0883
				CL	-0.1024		-0.0135	-0.0080	-0.1239
2	INT	1/4			-0.0834		-0.0105	-0.0055	-0.0993
				CL	-0.1170		-0.0147	-0.0077	-0.1394

|----- Beam Summary -----|

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PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TX. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 134 DAYS

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		46	1/2	270	13.17	8.30	8	36.5
1&3	INT	Tx40		46	1/2	270	13.17	8.30	8	36.5
2	EXT	Tx54		62	1/2	270	17.46	11.01	10	50.5
2	INT	Tx54		58	1/2	270	17.77	10.87	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5596	5596	3651	-3746	4486	0.226	L-R
1&3	INT	5638	5762	3564	-3826	4517	0.227	L-R
2	EXT	6047	6166	4473	-4043	7676	0.270	L-R
2	INT	5687	7337	4328	-4047	7494	0.245	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4			-0.0470		-0.0058	-0.0035	-0.0563
				CL	-0.0660		-0.0082	-0.0049	-0.0791
1&3	INT	1/4			-0.0538		-0.0063	-0.0033	-0.0634
				CL	-0.0755		-0.0089	-0.0046	-0.0890
2	EXT	1/4			-0.0685		-0.0092	-0.0055	-0.0832
				CL	-0.0961		-0.0129	-0.0077	-0.1168
2	INT	1/4			-0.0783		-0.0101	-0.0052	-0.0936
				CL	-0.1099		-0.0141	-0.0074	-0.1314

|----- Beam Summary -----|

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 PSTRS14 Win32 Prestressed Concrete Beam Design/Analysis Ver 4.2

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TX. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 254 DAYS

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		46	1/2	270	13.17	8.30	8	36.5
1&3	INT	Tx40		46	1/2	270	13.17	8.30	8	36.5
2	EXT	Tx54		62	1/2	270	17.46	11.01	10	50.5
2	INT	Tx54		60	1/2	270	17.61	10.94	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5596	5596	3778	-3783	4486	0.216	L-R
1&3	INT	5638	5816	3662	-3861	4517	0.217	L-R
2	EXT	6047	6379	4601	-4077	7676	0.258	L-R
2	INT	5890	7409	4423	-4076	7494	0.247	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4	-0.0400			-0.0052	-0.0031	-0.0483	
		CL	-0.0561			-0.0073	-0.0044	-0.0678	
1&3	INT	1/4	-0.0457			-0.0057	-0.0030	-0.0544	
		CL	-0.0641			-0.0080	-0.0042	-0.0763	
2	EXT	1/4	-0.0582			-0.0083	-0.0049	-0.0714	
		CL	-0.0817			-0.0116	-0.0069	-0.1002	
2	INT	1/4	-0.0665			-0.0090	-0.0047	-0.0802	
		CL	-0.0933			-0.0127	-0.0066	-0.1126	

|----- Beam Summary -----|

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PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 2 yrs

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		48	1/2	270	13.02	8.35	8	36.5
1&3	INT	Tx40		46	1/2	270	13.17	8.30	8	36.5
2	EXT	Tx54		64	1/2	270	17.26	10.14	12	50.5
2	INT	Tx54		60	1/2	270	17.61	10.94	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5844	5844	3960	-3837	4486	0.215	L-R
1&3	INT	5638	5895	3805	-3911	4517	0.205	L-R
2	EXT	6019	6699	4781	-4125	7676	0.247	L-R
2	INT	5890	7500	4558	-4119	7494	0.234	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4			-0.0319		-0.0045	-0.0027	-0.0391
				CL	-0.0448		-0.0063	-0.0038	-0.0549
1&3	INT	1/4			-0.0365		-0.0049	-0.0026	-0.0440
				CL	-0.0512		-0.0069	-0.0036	-0.0617
2	EXT	1/4			-0.0465		-0.0071	-0.0042	-0.0578
				CL	-0.0652		-0.0100	-0.0059	-0.0811
2	INT	1/4			-0.0531		-0.0078	-0.0041	-0.0649
				CL	-0.0745		-0.0109	-0.0057	-0.0911

|----- Beam Summary -----|

May 3, 2011 Texas Department of Transportation (TxDOT) Page 1
 PSTRS14 Win32 Prestressed Concrete Beam Design/Analysis Ver 4.2

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 5 YEARS

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		48	1/2	270	13.02	8.35	8	36.5
1&3	INT	Tx40		48	1/2	270	13.02	8.35	8	36.5
2	EXT	Tx54		64	1/2	270	17.26	10.14	12	50.5
2	INT	Tx54		60	1/2	270	17.61	10.94	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5844	5844	4060	-3866	4486	0.209	L-R
1&3	INT	5890	5951	3884	-3939	4517	0.210	L-R
2	EXT	6019	6859	4877	-4150	7676	0.241	L-R
2	INT	5890	7549	4631	-4142	7494	0.228	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4			-0.0283		-0.0042	-0.0025	-0.0350
			CL		-0.0397		-0.0058	-0.0035	-0.0491
1&3	INT	1/4			-0.0324		-0.0046	-0.0024	-0.0393
			CL		-0.0454		-0.0064	-0.0033	-0.0551
2	EXT	1/4			-0.0412		-0.0065	-0.0039	-0.0516
			CL		-0.0578		-0.0092	-0.0055	-0.0725
2	INT	1/4			-0.0471		-0.0072	-0.0037	-0.0580
			CL		-0.0661		-0.0101	-0.0052	-0.0814

|----- Beam Summary -----|

May 3, 2011 Texas Department of Transportation (TxDOT) Page 1
 PSTRS14 Win32 Prestressed Concrete Beam Design/Analysis Ver 4.2

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 10 YRS

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Size	Strands f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		48	1/2	270	13.02	8.35	8	36.5
1&3	INT	Tx40		48	1/2	270	13.02	8.35	8	36.5
2	EXT	Tx54		64	1/2	270	17.26	10.14	12	50.5
2	INT	Tx54		62	1/2	270	17.46	11.01	10	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses		Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
				Top (psi)	Bot (psi)			
1&3	EXT	5844	5844	4104	-3879	4486	0.207	L-R
1&3	INT	5890	5971	3919	-3952	4517	0.208	L-R
2	EXT	6019	6930	4919	-4161	7676	0.238	L-R
2	INT	6092	7580	4664	-4152	7494	0.237	L-R

Span No.	Beam No.	Loc	Compos Regn 1 (or Key)	Dead Load Deflections (ft)			O'Lay	Other	Total
				Slab	Compos Regn 2	Compos Regn 3			
1&3	EXT	1/4	-0.0269			-0.0040	-0.0024	-0.0333	
		CL	-0.0377			-0.0056	-0.0034	-0.0467	
1&3	INT	1/4	-0.0307			-0.0044	-0.0023	-0.0374	
		CL	-0.0431			-0.0062	-0.0032	-0.0525	
2	EXT	1/4	-0.0391			-0.0063	-0.0038	-0.0492	
		CL	-0.0549			-0.0088	-0.0053	-0.0690	
2	INT	1/4	-0.0447			-0.0069	-0.0036	-0.0552	
		CL	-0.0627			-0.0097	-0.0051	-0.0775	

PSTRS 14 SAMPLE OUTPUT OF LONG RESULTS FOR DISCHINGER'S METHOD
(104 DAYS)

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = EXT BEAM TYPE = Tx40

|----- Beam, Spec, and Strand Data (* denotes default) -----|

C/C Brng Length (ft)	= 88.00	Strand Size (in)	= 1/2
Beam Spacing (ft)	= 7.00	Strand Type	= 7-Wire *
Slab Thickness (in)	= 8.00		Lo-Rlx *
Composite Slab Width (in)	= 84.00	Strand Area (in2)	= 0.153 *
Haunch Width (in)	= 0.00 *	Strand Ult Strength (ksi)	= 270. *
Haunch Depth at CL (in)	= 0.00 *	E Prestress Steel (ksi)	= 28500. *
Relative Humidity (%)	= 65.	Live Loading	= HL93 *
Init Allow Tens Coeff	= 7.50 *	LL Dist Factor for Moment	= 0.585
Final Allow Tens Coeff	= 6.00 *	LL Dist Factor for shear	= 0.743
		LL Impact Factor	= 1.330 *
Dist CL to Hold-Down (ft)	= 5.00 *	Harped Strands/Row	= 2 *
t, Stress to Transfer (hr)	= 24 *		

|----- Cross Section and Material Properties (* denotes default) -----|

	Beam	Composite Slab	Composite Section
Area (in2)	669.0	310.8	979.8
Depth (in)	40.00	8.00	48.00
Yb (in)	18.10	44.00	26.32
I (in4)	134990.0	1657.8	279011.9
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	8289.4	3834.3 *	
f'c (psi)		4000.0 *	

|----- Shear Data (* denotes default) -----|

Total Eff Web Width (in)	= 7.00 *	Total Stirrup Area (in2)	= 0.392 *
Number of Stirrup Legs	= 2 *	Stirrup Yield Str (ksi)	= 60.00 *
Stirrup Bar Size	= 4 *	Shear Specs = AASHTO LRFD & AASHTO 89	*

|----- Applied Loads -----|

Unif DL on Comp Sec, due to Overlay (klf) = 0.175
Unif DL on Comp Sec, except Overlay (klf) = 0.104

PSF		Highway	Control-	Coded	
No	County	No	Section-Job	by	Date
NUM1				BPS	05/1/2011

90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
PROB 1

SPAN ID = 1&3 BEAM ID = EXT BEAM TYPE = Tx40

|----- Beam Design -----|

--- General Notes ---

1- End final compression extreme, but not allowed to control.
Design based on the AASHTO LRFD specs. (80%LL for final BOTTOM stress ONLY.)

--- Concrete ---

		_____	Release	_____	_____	Final	_____
--	--	-------	---------	-------	-------	-------	-------

Prestress Loss (percent)	=		9.64			27.09	
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		End	Hold-Down	CL	End	CL
Beam Top Stress (psi)	=	192.	471.	488.	155.	2938.
Beam Bot Stress (psi)	=	3357.	3127.	3113.	2709.	-344.

Conc Strength, Req'd. (psi)	=	5596.@	5212.	5188.		5596.@
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Calculated Beam Stress at CL, due to Tot External Load (psi)	--Top	=	3604.
	--(w/80%LL)Bot	=	-3732.
Calculated Slab Stress at CL, due to Unfactored LL (psi)	--Top	=	1287.

"@" Denotes controlling stress cases
Initial concrete strength controls final concrete strength.

|----- Prestress Steel -----|

No. of Strands, Total	=	46	No. of Draped Strands	=	8
Eccentricity at CL (in)	=	13.17	Yb of Top 2 Draped Strands	=	36.50
Eccentricity at End (in)	=	8.30			

--- Strand Pattern ---

Dist from Bott (in)	=	2.50	4.50	6.50	8.50	30.50	32.50	34.50
Strands/Row at End	=	12	12	10	4	2	2	2
Strands/Row at CL	=	14	14	12	6	0	0	0

Dist from Bott (in)	=	36.50
Strands/Row at End	=	2
Strands/Row at CL	=	0

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = EXT BEAM TYPE = Tx40

|----- Shear -----|

Span Location (ft)	(10th Pt)	Stirrup Spacing (No. 4, Gr 60) (in)		Ultimate Horiz Shear Stress (Between Slab and Top of Girder) (psi)	
		AASHTO LRFD	AASHTO 89	AASHTO LRFD	
0.00	.000	9.3	****	145.5	
2.00	.023 (H/2)	9.3	7.0	139.8	
3.20	.036 (CPT)	9.3	7.5	136.4	
4.40	.050	9.7	8.5	133.2	
8.80	.100	11.5	13.2	121.2	
17.60	.200	18.2	13.5	98.4	
22.00	.250	24.0	12.1	87.5	
26.40	.300	24.0	12.4	76.9	
35.20	.400	24.0	15.6	56.6	
39.00	.443 (HD)	24.0	18.8	48.2	
42.26	.480 (REF)	24.0	21.4	41.5	
44.00	.500	24.0	21.4	37.9	

"H/2" denotes location at half of composite beam depth.
 "CPT" denotes critical shear location from beam end per LRFD 5.8.3.2
 "REF" denotes location at the larger distance of $0.5(dv)(\cot(\theta))$ or dv from mid-span.
 "HD" denotes location at hold-down point.

|----- General -----|

Ultimate Moment Required (k-ft) = 4486. @ due to loading
 Resistant Moment Required (k-ft) = 3502. due to 1.2 Mcr
 Ultimate Moment Provided (k-ft) = 6013. Under Reinforced Rect. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.850
 Depth of Compressive Stress Block (in): a = 6.33

Stress in Strands at Ultimate (ksi) = 256.9

Maximum Camber (ft) = 0.230 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.0501	-.0061	-.0036	-.0598
at Midspan	-.0703	-.0085	-.0051	-.0839

PSF Highway Control- Coded
 No County No Section-Job by Date
 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = EXT BEAM TYPE = Tx40

|----- Summary of Maximum Unfactored Bending Moments (k-ft) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.00 .023 (H/2)	59.9	60.2	0.0	120.1	24.0	129.8	274.0
3.20 .036 (CPT)	94.5	94.9	0.0	189.4	37.9	204.3	431.6
4.40 .050	128.2	128.7	0.0	256.9	51.4	276.9	585.2
8.80 .100	242.8	243.9	0.0	486.8	97.3	521.9	1106.0
17.60 .200	431.7	433.7	0.0	865.4	173.0	916.1	1954.6
22.00 .250	505.9	508.2	0.0	1014.1	202.8	1065.4	2282.3
26.40 .300	566.6	569.2	0.0	1135.8	227.1	1182.8	2545.8
35.20 .400	647.6	650.5	0.0	1298.1	259.5	1339.3	2897.0
39.00 .443 (HD)	665.9	668.8	0.0	1334.7	266.9	1371.3	2972.8
42.26 .480 (REF)	673.5	676.5	0.0	1350.1	269.9	1379.7	2999.7
44.00 .500	674.6	677.6	0.0	1352.2	270.4	1380.5	3003.0

|----- Summary of Maximum Unfactored Shears (kip) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	30.7	30.8	0.0	61.5	12.3	84.5	158.3
2.00 .023 (H/2)	29.3	29.4	0.0	58.7	11.7	82.0	152.4
3.20 .036 (CPT)	28.4	28.6	0.0	57.0	11.4	80.4	148.8
4.40 .050	27.6	27.7	0.0	55.3	11.1	78.9	145.3
8.80 .100	24.5	24.6	0.0	49.2	9.8	73.2	132.2
17.60 .200	18.4	18.5	0.0	36.9	7.4	61.9	106.2
22.00 .250	15.3	15.4	0.0	30.7	6.1	56.3	93.2
26.40 .300	12.3	12.3	0.0	24.6	4.9	50.6	80.1
35.20 .400	6.1	6.2	0.0	12.3	2.5	39.3	54.1
39.00 .443 (HD)	3.5	3.5	0.0	7.0	1.4	34.5	42.8
42.26 .480 (REF)	1.2	1.2	0.0	2.4	0.5	30.3	33.2

44.00 .500

0.0

0.0

0.0

0.0

0.0

28.0

28.0

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 No County No Section-Job by Date
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 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = EXT BEAM TYPE = Tx40

|-- Stresses in Extreme Fibers of BM due to Unfactored External Loads (psi) --|

Span Loc	Beam DL		Total Non-Comp DL		Total Comp DL		LL+I		Total Load	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.
.023	117.	-96.	234.	-193.	14.	-27.	76.	-147.	324.	-367.
.036	184.	-152.	369.	-305.	22.	-43.	120.	-231.	511.	-579.
.050	250.	-206.	500.	-413.	30.	-58.	163.	-313.	693.	-785.
.100	473.	-391.	948.	-783.	57.	-110.	307.	-591.	1312.	-1484.
.200	840.	-695.	1685.	-1392.	102.	-196.	539.	-1037.	2326.	-2625.
.250	985.	-814.	1974.	-1632.	119.	-230.	627.	-1206.	2721.	-3067.
.300	1103.	-912.	2211.	-1828.	134.	-257.	696.	-1339.	3041.	-3423.
.400	1261.	-1042.	2527.	-2089.	153.	-294.	788.	-1516.	3468.	-3898.
.443	1296.	-1071.	2598.	-2148.	157.	-302.	807.	-1552.	3563.	-4002.
.480	1311.	-1084.	2628.	-2172.	159.	-306.	812.	-1562.	3599.	-4039.
.500	1313.	-1085.	2632.	-2176.	159.	-306.	812.	-1562.	3604.	-4044.

|--- Stresses in Extreme Fibers of BM due to Unfactored Loads + PSTR (psi) ---|

Span Loc	Beam + Initial Prestress		Final Prestress		Beam + Final Prestress		Total DL + Final Prestress		Total Load + Final Prestress	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	192.	3357.	155.	2709.	155.	2709.	155.	2709.	155.
.023	256.	3304.	113.	2744.	229.	2647.	361.	2523.	437.	2376.
.036	292.	3274.	87.	2765.	271.	2613.	478.	2417.	599.	2186.
.050	327.	3246.	62.	2786.	312.	2579.	593.	2314.	755.	2001.
.100	435.	3156.	-30.	2862.	442.	2471.	974.	1969.	1282.	1378.
.200	573.	3042.	-216.	3015.	625.	2321.	1571.	1427.	2110.	390.
.250	603.	3018.	-308.	3092.	677.	2278.	1785.	1230.	2412.	25.
.300	606.	3015.	-401.	3168.	702.	2257.	1944.	1084.	2640.	-255.
.400	534.	3074.	-586.	3321.	675.	2279.	2094.	939.	2882.	-577.

.443	471.	3127.	-666.	3387.	630.	2316.	2089.	938.	2896.	-614.
.480	486.	3115.	-666.	3387.	645.	2304.	2121.	910.	2933.	-652.
.500	488.	3113.	-666.	3387.	647.	2302.	2125.	906.	2938.	-657.

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90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = EXT BEAM TYPE = Tx40

|----- Total Stresses in Composite Regions (psi) -----|

Span Loc	Slab	
	Top	Bot
.000	0.	0.
.023	143.	91.
.036	226.	143.
.050	306.	193.
.100	577.	364.
.200	1016.	641.
.250	1183.	746.
.300	1315.	830.
.400	1491.	941.
.443	1528.	964.
.480	1538.	971.
.500	1540.	972.

|----- Prestress Losses (ksi) -----|

	SH	ELSH	CRC	CRS	Total
Initial		17.540		1.980	19.520
Final	7.250	17.540	26.201	3.868	54.859

PSF Highway Control- Coded
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 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = INT BEAM TYPE = Tx40

|----- Beam, Spec, and Strand Data (* denotes default) -----|

C/C Brng Length (ft)	= 88.00	Strand Size (in)	= 1/2
Beam Spacing (ft)	= 8.00	Strand Type	= 7-Wire *
Slab Thickness (in)	= 8.00		Lo-Rlx *
Composite Slab Width (in)	= 96.00	Strand Area (in2)	= 0.153 *
Haunch Width (in)	= 0.00 *	Strand Ult Strength (ksi)	= 270. *
Haunch Depth at CL (in)	= 0.00 *	E Prestress Steel (ksi)	= 28000. *
Relative Humidity (%)	= 65.	Live Loading	= HS20 *
Init Allow Tens Coeff	= 7.50 *	LL Dist Factor	= 0.643
Final Allow Tens Coeff	= 6.00 *	LL Impact Factor	= 1.235 *
		Harped Strands/Row	= 2 *
		Dist CL to Hold-Down (ft)	= 5.00 *

|----- Cross Section and Material Properties (* denotes default) -----|

	Beam	Composite Slab	Composite Section
Area (in2)	669.0	355.2	1024.2
Depth (in)	40.00	8.00	48.00
Yb (in)	18.10	44.00	27.08
I (in4)	134990.0	1894.6	292532.7
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	8289.4	3834.3 *	
f'c (psi)		4000.0 *	

|----- Shear Data (* denotes default) -----|

Total Eff Web Width (in)	= 7.00 *	Total Stirrup Area (in2)	= 0.392 *
Number of Stirrup Legs	= 2 *	Stirrup Yield Str (ksi)	= 60.00 *
Stirrup Bar Size	= 4 *	Shear Specs = AASHTO 89 & AASHTO 89	*

|----- Applied Loads -----|

Unif DL on Comp Sec, due to Overlay (klf) = 0.200
Unif DL on Comp Sec, except Overlay (klf) = 0.104

PSF		Highway	Control-	Coded	
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90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
PROB 1

SPAN ID = 1&3 BEAM ID = INT BEAM TYPE = Tx40

|----- Beam Design -----|

--- General Notes ---

1- End final compression extreme, but not allowed to control.
The final concrete strengths based on the AASHTO 95 specs.

--- Concrete ---		_____ Release _____	_____ Final _____
Prestress Loss (percent)	=	8.80	24.65

		End	Hold-Down	CL	End	CL
Beam Top Stress (psi)	=	197.	467.	484.	163.	2842.
Beam Bot Stress (psi)	=	3232.	3009.	2995.	2670.	-442.

Conc Strength, Req'd. (psi) = 5386.@ 5015. 4991. 5729.@

Calculated Beam Stress at CL, due to Tot External Load (psi)	--Top =	3527.
	--Bot =	-3813.
Calculated Slab Stress at CL, due to Unfactored LL (psi)	--Top =	891.

"@" Denotes controlling stress cases
Load case PS + total DL controls final concrete strength

|----- Prestress Steel -----|

No. of Strands, Total	=	44	No. of Draped Strands	=	8
Eccentricity at CL (in)	=	13.33	Yb of Top 2 Draped Strands	=	36.50
Eccentricity at End (in)	=	8.24			

--- Strand Pattern ---

Dist from Bott (in)	=	2.50	4.50	6.50	8.50	30.50	32.50	34.50
Strands/Row at End	=	12	12	10	2	2	2	2
Strands/Row at CL	=	14	14	12	4	0	0	0

Dist from Bott (in)	=	36.50
Strands/Row at End	=	2
Strands/Row at CL	=	0

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 PROB 1

SPAN ID = 1&3 BEAM ID = INT BEAM TYPE = Tx40

|----- Shear -----|

Span Location		Stirrup Spacing		Ultimate Horiz Shear Stress
(ft)	(10th Pt)	(No. 4, Gr 60)	(in)	(Between Slab and Top of Girder)
		AASHTO 89	AASHTO 89	(psi)
				AASHTO 89
0.00	.000	14.7	14.7	122.0
2.00	.023 (H/2)	14.7	14.7	117.7
4.40	.050	21.4	21.4	112.6
8.80	.100	21.4	21.4	103.1
17.60	.200	21.4	21.4	84.3
22.00	.250	21.4	21.4	74.9
26.40	.300	21.4	21.4	65.5
35.20	.400	21.4	21.4	46.7
39.00	.443 (HD)	21.4	21.4	38.5
44.00	.500	21.4	21.4	27.8

"H/2" denotes location at half of composite beam depth.
 "HD" denotes location at hold-down point.

|----- General -----|

Ultimate Moment Required (k-ft) = 4517. @ due to loading
 Resistant Moment Required (k-ft) = 3475. due to 1.2 Mcr
 Ultimate Moment Provided (k-ft) = 5912. Under Reinforced Rect. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.850
 Depth of Compressive Stress Block (in): a = 5.37
 Stress in Strands at Ultimate (ksi) = 260.3

Maximum Camber (ft) = 0.219 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.0573	-.0066	-.0034	-.0673
at Midspan	-.0804	-.0093	-.0048	-.0945

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 PROB 1

SPAN ID = 1&3 BEAM ID = INT BEAM TYPE = Tx40

|----- Summary of Maximum Unfactored Bending Moments (k-ft) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.00 .023 (H/2)	59.9	68.8	0.0	128.7	26.2	99.6	254.5
4.40 .050	128.2	147.1	0.0	275.3	56.0	212.3	543.5
8.80 .100	242.8	278.8	0.0	521.6	106.0	399.4	1027.1
17.60 .200	431.7	495.6	0.0	927.3	188.5	698.2	1814.0
22.00 .250	505.9	580.8	0.0	1086.7	220.9	809.8	2117.5
26.40 .300	566.6	650.5	0.0	1217.1	247.4	896.3	2360.9
35.20 .400	647.6	743.4	0.0	1391.0	282.8	1011.7	2685.5
39.00 .443 (HD)	665.9	764.4	0.0	1430.3	290.8	1034.2	2755.2
44.00 .500	674.6	774.4	0.0	1449.0	294.6	1038.8	2782.4

|----- Summary of Maximum Unfactored Shears (kip) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	30.7	35.2	0.0	65.9	13.4	51.1	130.4
2.00 .023 (H/2)	29.3	33.6	0.0	62.9	12.8	49.8	125.5
4.40 .050	27.6	31.7	0.0	59.3	12.1	48.2	119.6
8.80 .100	24.5	28.2	0.0	52.7	10.7	45.4	108.8
17.60 .200	18.4	21.1	0.0	39.5	8.0	39.7	87.2
22.00 .250	15.3	17.6	0.0	32.9	6.7	36.8	76.4
26.40 .300	12.3	14.1	0.0	26.3	5.4	34.0	65.7
35.20 .400	6.1	7.0	0.0	13.2	2.7	28.2	44.1
39.00 .443 (HD)	3.5	4.0	0.0	7.5	1.5	25.8	34.8
44.00 .500	0.0	0.0	0.0	0.0	0.0	22.5	22.5

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 PROB 1

SPAN ID = 1&3 BEAM ID = INT BEAM TYPE = Tx40

|-- Stresses in Extreme Fibers of BM due to Unfactored External Loads (psi) --|

Span Loc	Beam DL		Total Non-Comp DL		Total Comp DL		LL+I		Total Load	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.
.023	117.	-96.	251.	-207.	14.	-29.	53.	-111.	317.	-347.
.050	250.	-206.	536.	-443.	30.	-62.	112.	-236.	678.	-741.
.100	473.	-391.	1016.	-839.	56.	-118.	212.	-444.	1283.	-1401.
.200	840.	-695.	1805.	-1492.	100.	-209.	370.	-776.	2275.	-2477.
.250	985.	-814.	2116.	-1749.	117.	-245.	429.	-900.	2662.	-2894.
.300	1103.	-912.	2370.	-1958.	131.	-275.	475.	-996.	2976.	-3229.
.400	1261.	-1042.	2708.	-2238.	150.	-314.	536.	-1124.	3394.	-3676.
.443	1296.	-1071.	2784.	-2301.	154.	-323.	548.	-1149.	3487.	-3773.
.500	1313.	-1085.	2821.	-2331.	156.	-327.	550.	-1154.	3527.	-3813.

|--- Stresses in Extreme Fibers of BM due to Unfactored Loads + PSTR (psi) ---|

Span Loc	Beam + Initial Prestress		Final Prestress		Beam + Final Prestress		Total DL + Final Prestress		Total Load + Final Prestress	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	197.	3232.	163.	2670.	163.	2670.	163.	2670.	163.
.023	261.	3179.	119.	2706.	236.	2609.	384.	2469.	437.	2359.
.050	331.	3121.	67.	2749.	317.	2543.	633.	2244.	745.	2008.
.100	438.	3032.	-29.	2828.	444.	2437.	1043.	1871.	1255.	1427.
.200	574.	2920.	-220.	2986.	621.	2291.	1685.	1285.	2055.	509.
.250	603.	2896.	-316.	3065.	669.	2251.	1917.	1071.	2346.	172.
.300	605.	2894.	-411.	3144.	692.	2233.	2089.	911.	2564.	-85.
.400	531.	2956.	-603.	3303.	658.	2261.	2255.	750.	2791.	-374.
.443	467.	3009.	-685.	3371.	611.	2299.	2253.	747.	2801.	-402.
.500	484.	2995.	-685.	3371.	628.	2285.	2291.	712.	2842.	-442.

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 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 1

SPAN ID = 1&3 BEAM ID = INT BEAM TYPE = Tx40

|----- Total Stresses in Composite Regions (psi) -----|

Span Loc	Slab	
	Top	Bot
.000	0.	0.
.023	108.	67.
.050	230.	142.
.100	434.	268.
.200	761.	470.
.250	884.	546.
.300	981.	606.
.400	1111.	686.
.443	1137.	702.
.500	1144.	707.

|----- Prestress Losses (ksi) -----|

	SH	ELSH	CRC	CRS	Total
Initial		16.939		0.872	17.811
Final	7.250	16.939	23.989	1.744	49.922

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 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 2

SPAN ID = 2 BEAM ID = EXT BEAM TYPE = Tx54

|----- Beam, Spec, and Strand Data (* denotes default) -----|

C/C Brng Length (ft)	= 118.00	Strand Size (in)	= 1/2
Beam Spacing (ft)	= 7.00	Strand Type	= 7-Wire *
Slab Thickness (in)	= 8.00		Lo-Rlx *
Composite Slab Width (in)	= 84.00	Strand Area (in2)	= 0.153 *
Haunch Width (in)	= 0.00 *	Strand Ult Strength (ksi)	= 270. *
Haunch Depth at CL (in)	= 0.00 *	E Prestress Steel (ksi)	= 28500. *
Relative Humidity (%)	= 65.	Live Loading	= HL93 *
Init Allow Tens Coeff	= 7.50 *	LL Dist Factor for Moment	= 0.579
Final Allow Tens Coeff	= 6.00 *	LL Dist Factor for shear	= 0.743
		LL Impact Factor	= 1.330 *
Dist CL to Hold-Down (ft)	= 5.90 *	Harped Strands/Row	= 2 *
t, Stress to Transfer (hr)	= 24 *		

|----- Cross Section and Material Properties (* denotes default) -----|

	Beam	Composite Slab	Composite Section
Area (in2)	817.0	310.8	1127.8
Depth (in)	54.00	8.00	62.00
Yb (in)	23.51	58.00	33.02
I (in4)	299740.0	1657.8	569247.2
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	8289.4	3834.3 *	
f'c (psi)		4000.0 *	

|----- Shear Data (* denotes default) -----|

Total Eff Web Width (in)	= 7.00 *	Total Stirrup Area (in2)	= 0.392 *
Number of Stirrup Legs	= 2 *	Stirrup Yield Str (ksi)	= 60.00 *
Stirrup Bar Size	= 4 *	Shear Specs = AASHTO LRFD & AASHTO 89	*

|----- Applied Loads -----|

Unif DL on Comp Sec, due to Overlay (klf) = 0.175

Unif DL on Comp Sec, except Overlay (klf) = 0.104

Dist from Bott (in)	=	46.50	48.50	50.50
Strands/Row at End	=	2	2	2
Strands/Row at CL	=	0	0	0

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 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 2

SPAN ID = 2 BEAM ID = EXT BEAM TYPE = Tx54

|----- Shear -----|

Span Location (ft) (10th Pt)	Stirrup Spacing (No. 4, Gr 60) (in)		Ultimate Horiz Shear Stress (Between Slab and Top of Girder) (psi)	
	AASHTO LRFD	AASHTO 89	AASHTO LRFD	
0.00 .000	10.7	****	126.8	
2.58 .022 (H/2)	10.7	9.6	122.0	
4.38 .037 (CPT)	10.7	10.5	118.7	
5.90 .050	11.1	12.6	115.9	
11.80 .100	12.0	21.4	105.2	
23.60 .200	22.0	16.6	85.0	
29.50 .250	24.0	14.3	75.3	
35.40 .300	24.0	14.5	65.8	
47.20 .400	24.0	18.5	47.8	
53.10 .450 (HD)	24.0	21.4	39.1	
56.59 .480 (REF)	24.0	21.4	34.4	
59.00 .500	24.0	21.4	31.1	

"H/2" denotes location at half of composite beam depth.
 "CPT" denotes critical shear location from beam end per LRFD 5.8.3.2
 "REF" denotes location at the larger distance of
 0.5(dv)(cot(theta)) or dv from mid-span.
 "HD" denotes location at hold-down point.

|----- General -----|

Ultimate Moment Required (k-ft) = 7676. @ due to loading
 Resistant Moment Required (k-ft) = 6129. due to 1.2 Mcr
 Ultimate Moment Provided (k-ft) = 10462. Under Reinforced Flgd. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.846
 Depth of Compressive Stress Block (in): a = 8.77

Stress in Strands at Ultimate (ksi) = 256.0

Maximum Camber (ft) = 0.275 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.0730	-.0096	-.0057	-.0883
at Midspan	-.1024	-.0135	-.0080	-.1239

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 NUM1 BPS 05/1/2011
 90' & 120' SPANS, TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD DISCHINGER 104 DAYS
 PROB 2

SPAN ID = 2 BEAM ID = EXT BEAM TYPE = Tx54

|----- Summary of Maximum Unfactored Bending Moments (k-ft) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.58 .022 (H/2)	126.9	104.4	0.0	231.2	41.6	184.0	456.9
4.38 .037 (CPT)	211.6	174.1	0.0	385.7	69.5	306.7	761.9
5.90 .050	281.4	231.5	0.0	512.9	92.4	407.4	1012.7
11.80 .100	533.2	438.6	0.0	971.9	175.0	769.3	1916.1
23.60 .200	948.0	779.7	0.0	1727.7	311.1	1356.1	3394.9
29.50 .250	1110.9	913.8	0.0	2024.7	364.6	1581.1	3970.4
35.40 .300	1244.2	1023.4	0.0	2267.7	408.3	1760.4	4436.4
47.20 .400	1422.0	1169.6	0.0	2591.6	466.7	1999.6	5057.9
53.10 .450 (HD)	1466.4	1206.2	0.0	2672.6	481.3	2055.1	5209.0
56.59 .480 (REF)	1478.8	1216.3	0.0	2695.1	485.3	2066.5	5246.9
59.00 .500	1481.2	1218.3	0.0	2699.6	486.1	2067.5	5253.2

|----- Summary of Maximum Unfactored Shears (kip) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	50.2	41.3	0.0	91.5	16.5	93.6	201.6
2.58 .022 (H/2)	48.0	39.5	0.0	87.5	15.8	90.8	194.1
4.38 .037 (CPT)	46.5	38.2	0.0	84.7	15.3	88.9	188.8
5.90 .050	45.2	37.2	0.0	82.4	14.8	87.2	184.4
11.80 .100	40.2	33.0	0.0	73.2	13.2	80.9	167.2
23.60 .200	30.1	24.8	0.0	54.9	9.9	68.1	132.9
29.50 .250	25.1	20.6	0.0	45.8	8.2	61.8	115.8
35.40 .300	20.1	16.5	0.0	36.6	6.6	55.4	98.6
47.20 .400	10.0	8.3	0.0	18.3	3.3	42.7	64.3
53.10 .450 (HD)	5.0	4.1	0.0	9.2	1.6	36.3	47.1
56.59 .480 (REF)	2.0	1.7	0.0	3.7	0.7	32.5	36.9

59.00 .500

0.0

0.0

0.0

0.0

0.0

29.9

29.9

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SPAN ID = 2 BEAM ID = EXT BEAM TYPE = Tx54

|-- Stresses in Extreme Fibers of BM due to Unfactored External Loads (psi) --|

Span Loc	Beam DL		Total Non-Comp DL		Total Comp DL		LL+I		Total Load	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.
.022	155.	-119.	282.	-218.	18.	-29.	81.	-128.	382.	-375.
.037	258.	-199.	471.	-363.	31.	-48.	136.	-213.	637.	-625.
.050	344.	-265.	626.	-483.	41.	-64.	180.	-284.	847.	-831.
.100	651.	-502.	1186.	-915.	77.	-122.	340.	-535.	1604.	-1572.
.200	1157.	-892.	2109.	-1626.	138.	-217.	600.	-944.	2846.	-2787.
.250	1356.	-1046.	2471.	-1906.	161.	-254.	699.	-1100.	3332.	-3260.
.300	1519.	-1171.	2768.	-2134.	181.	-284.	779.	-1225.	3727.	-3644.
.400	1736.	-1338.	3163.	-2439.	206.	-325.	885.	-1392.	4254.	-4156.
.450	1790.	-1380.	3262.	-2515.	213.	-335.	909.	-1430.	4384.	-4281.
.480	1805.	-1392.	3290.	-2537.	215.	-338.	914.	-1438.	4419.	-4313.
.500	1808.	-1394.	3295.	-2541.	215.	-338.	915.	-1439.	4425.	-4318.

|--- Stresses in Extreme Fibers of BM due to Unfactored Loads + PSTR (psi) ---|

Span Loc	Beam + Initial Prestress		Final Prestress		Beam + Final Prestress		Total DL + Final Prestress		Total Load + Final Prestress	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	181.	3628.	146.	2923.	146.	2923.	146.	2923.	146.
.022	280.	3552.	101.	2958.	256.	2838.	402.	2711.	483.	2583.
.037	345.	3501.	70.	2982.	328.	2782.	571.	2570.	707.	2357.
.050	398.	3461.	44.	3002.	387.	2737.	711.	2455.	891.	2171.
.100	578.	3322.	-59.	3081.	592.	2579.	1205.	2044.	1545.	1509.
.200	831.	3127.	-263.	3238.	894.	2346.	1984.	1395.	2584.	452.
.250	903.	3071.	-365.	3317.	991.	2271.	2268.	1157.	2967.	57.
.300	939.	3043.	-467.	3396.	1052.	2225.	2482.	977.	3260.	-248.
.400	903.	3072.	-671.	3553.	1065.	2215.	2699.	789.	3583.	-603.

.450	830.	3127.	-773.	3632.	1017.	2252.	2702.	781.	3611.	-649.
.480	845.	3116.	-773.	3632.	1032.	2240.	2731.	757.	3645.	-681.
.500	848.	3114.	-773.	3632.	1035.	2238.	2737.	753.	3652.	-686.

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|----- Total Stresses in Composite Regions (psi) -----|

Span Loc	Slab	
	Top	Bot
.000	0.	0.
.022	138.	100.
.037	230.	166.
.050	305.	221.
.100	577.	418.
.200	1019.	738.
.250	1189.	861.
.300	1325.	959.
.400	1507.	1091.
.450	1550.	1122.
.480	1559.	1129.
.500	1560.	1130.

|----- Prestress Losses (ksi) -----|

	SH	ELSH	CRC	CRS	Total
Initial		17.302		1.980	19.282
Final	7.250	17.302	26.448	3.882	54.882

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SPAN ID = 2 BEAM ID = INT BEAM TYPE = Tx54

|----- Beam, Spec, and Strand Data (* denotes default) -----|

C/C Brng Length (ft)	= 118.00	Strand Size (in)	= 1/2
Beam Spacing (ft)	= 8.00	Strand Type	= 7-Wire *
Slab Thickness (in)	= 8.00		Lo-Rlx *
Composite Slab Width (in)	= 96.00	Strand Area (in2)	= 0.153 *
Haunch Width (in)	= 0.00 *	Strand Ult Strength (ksi)	= 270. *
Haunch Depth at CL (in)	= 0.00 *	E Prestress Steel (ksi)	= 28000. *
Relative Humidity (%)	= 65.	Live Loading	= HS20 *
Init Allow Tens Coeff	= 7.50 *	LL Dist Factor	= 0.636
Final Allow Tens Coeff	= 6.00 *	LL Impact Factor	= 1.206 *
		Harped Strands/Row	= 2 *
		Dist CL to Hold-Down (ft)	= 5.90 *

|----- Cross Section and Material Properties (* denotes default) -----|

	Beam	Composite Slab	Composite Section
Area (in2)	817.0	355.2	1172.2
Depth (in)	54.00	8.00	62.00
Yb (in)	23.51	58.00	33.96
I (in4)	299740.0	1894.6	596152.5
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	8289.4	3834.3 *	
f'c (psi)		4000.0 *	

|----- Shear Data (* denotes default) -----|

Total Eff Web Width (in)	= 7.00 *	Total Stirrup Area (in2)	= 0.392 *
Number of Stirrup Legs	= 2 *	Stirrup Yield Str (ksi)	= 60.00 *
Stirrup Bar Size	= 4 *	Shear Specs = AASHTO 89 & AASHTO 89	*

|----- Applied Loads -----|

Unif DL on Comp Sec, due to Overlay (klf) = 0.200
Unif DL on Comp Sec, except Overlay (klf) = 0.104

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|----- Beam Design -----|

The final concrete strengths based on the AASHTO 95 specs.

--- Concrete ---		_____	Release	_____	_____	Final	_____
Prestress Loss (percent)	=		8.57			24.05	
		End	Hold-Down	CL	End		CL
Beam Top Stress (psi)	=	194.	831.	850.	161.		3496.
Beam Bot Stress (psi)	=	3412.	2920.	2906.	2834.		-463.
Conc Strength, Req'd. (psi)	=	5687.@	4867.	4844.			7313.@
Calculated Beam Stress at CL, due to Tot External Load (psi)	--Top	=	4293.				
	--Bot	=	-4035.				
Calculated Slab Stress at CL, due to Unfactored LL (psi)	--Top	=	800.				

"@" Denotes controlling stress cases
 Load case PS + total DL controls final concrete strength

|----- Prestress Steel -----|

No. of Strands, Total = 58 No. of Draped Strands = 10
 Eccentricity at CL (in) = 17.77 Yb of Top 2 Draped Strands = 50.50
 Eccentricity at End (in) = 10.87

--- Strand Pattern ---

Dist from Bott (in)	=	2.50	4.50	6.50	8.50	10.50	42.50	44.50
Strands/Row at End	=	12	12	12	10	2	2	2
Strands/Row at CL	=	14	14	14	12	4	0	0
Dist from Bott (in)	=	46.50	48.50	50.50				
Strands/Row at End	=	2	2	2				
Strands/Row at CL	=	0	0	0				

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|----- Shear -----|

Span Location		Stirrup Spacing		Ultimate Horiz Shear Stress
(ft)	(10th Pt)	(No. 4, Gr 60)	(in)	(Between Slab and Top of Girder)
		AASHTO 89	AASHTO 89	(psi)
				AASHTO 89
0.00	.000	21.4	21.4	103.5
2.58	.022 (H/2)	21.4	21.4	99.9
5.90	.050	21.4	21.4	95.2
11.80	.100	21.4	21.4	86.8
23.60	.200	21.4	21.4	70.1
29.50	.250	21.4	21.4	61.8
35.40	.300	21.4	21.4	53.4
47.20	.400	21.4	21.4	36.7
53.10	.450 (HD)	21.4	21.4	28.4
59.00	.500	21.4	21.4	20.0

"H/2" denotes location at half of composite beam depth.
 "HD" denotes location at hold-down point.

|----- General -----|

Ultimate Moment Required (k-ft) = 7494. @ due to loading
 Resistant Moment Required (k-ft) = 6097. due to 1.2 Mcr
 Ultimate Moment Provided (k-ft) = 10129. Under Reinforced Rect. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.850
 Depth of Compressive Stress Block (in): a = 7.07
 Stress in Strands at Ultimate (ksi) = 260.1

Maximum Camber (ft) = 0.249 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.0834	-.0105	-.0055	-.0993
at Midspan	-.1170	-.0147	-.0077	-.1394

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SPAN ID = 2 BEAM ID = INT BEAM TYPE = Tx54

|----- Summary of Maximum Unfactored Bending Moments (k-ft) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.58 .022 (H/2)	126.9	119.3	0.0	246.1	45.4	128.2	419.7
5.90 .050	281.4	264.6	0.0	546.0	100.6	283.7	930.3
11.80 .100	533.2	501.3	0.0	1034.5	190.7	534.8	1760.0
23.60 .200	948.0	891.1	0.0	1839.1	339.0	939.4	3117.5
29.50 .250	1110.9	1044.3	0.0	2155.2	397.2	1092.8	3645.2
35.40 .300	1244.2	1169.6	0.0	2413.9	444.9	1213.6	4072.4
47.20 .400	1422.0	1336.7	0.0	2758.7	508.4	1374.7	4641.9
53.10 .450 (HD)	1466.4	1378.5	0.0	2844.9	524.3	1410.7	4779.9
59.00 .500	1481.2	1392.4	0.0	2873.6	529.6	1416.6	4819.9

|----- Summary of Maximum Unfactored Shears (kip) -----|

Span Location (ft) (10th Pt)	Beam DL	Slab DL	Non-Comp DL	Total Non-Comp DL	Total Comp DL	LL+I	Total Load
0.00 .000	50.2	47.2	0.0	97.4	18.0	50.8	166.2
2.58 .022 (H/2)	48.0	45.1	0.0	93.1	17.2	49.6	160.0
5.90 .050	45.2	42.5	0.0	87.7	16.2	48.1	151.9
11.80 .100	40.2	37.8	0.0	77.9	14.4	45.3	137.6
23.60 .200	30.1	28.3	0.0	58.4	10.8	39.8	109.0
29.50 .250	25.1	23.6	0.0	48.7	9.0	37.0	94.7
35.40 .300	20.1	18.9	0.0	39.0	7.2	34.3	80.4
47.20 .400	10.0	9.4	0.0	19.5	3.6	28.8	51.8
53.10 .450 (HD)	5.0	4.7	0.0	9.7	1.8	26.0	37.5
59.00 .500	0.0	0.0	0.0	0.0	0.0	23.2	23.2

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 PROB 2

SPAN ID = 2 BEAM ID = INT BEAM TYPE = Tx54

|-- Stresses in Extreme Fibers of BM due to Unfactored External Loads (psi) --|

Span Loc	Beam DL		Total Non-Comp DL		Total Comp DL		LL+I		Total Load	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	0.	0.	0.	0.	0.	0.	0.	0.	0.
.022	155.	-119.	300.	-232.	18.	-31.	52.	-88.	370.	-350.
.050	344.	-265.	666.	-514.	41.	-69.	114.	-194.	821.	-777.
.100	651.	-502.	1263.	-974.	77.	-130.	216.	-366.	1555.	-1470.
.200	1157.	-892.	2245.	-1731.	137.	-232.	379.	-642.	2761.	-2605.
.250	1356.	-1046.	2631.	-2029.	160.	-272.	441.	-747.	3232.	-3047.
.300	1519.	-1171.	2946.	-2272.	179.	-304.	490.	-830.	3615.	-3406.
.400	1736.	-1338.	3367.	-2597.	205.	-348.	554.	-940.	4127.	-3884.
.450	1790.	-1380.	3473.	-2678.	211.	-358.	569.	-964.	4253.	-4000.
.500	1808.	-1394.	3508.	-2705.	214.	-362.	571.	-968.	4293.	-4035.

|--- Stresses in Extreme Fibers of BM due to Unfactored Loads + PSTR (psi) ---|

Span Loc	Beam + Initial Prestress		Final Prestress		Beam + Final Prestress		Total DL + Final Prestress		Total Load + Final Prestress	
	Top	Bot	Top	Bot	Top	Bot	Top	Bot	Top	Bot
	.000	194.	3412.	161.	2834.	161.	2834.	161.	2834.	161.
.022	293.	3336.	115.	2870.	269.	2751.	433.	2607.	485.	2520.
.050	409.	3246.	55.	2916.	398.	2651.	762.	2334.	876.	2140.
.100	589.	3108.	-52.	2998.	599.	2496.	1288.	1894.	1504.	1529.
.200	839.	2915.	-264.	3162.	893.	2270.	2117.	1200.	2496.	557.
.250	910.	2860.	-371.	3244.	985.	2199.	2420.	944.	2861.	197.
.300	944.	2833.	-477.	3326.	1042.	2155.	2649.	750.	3138.	-79.
.400	905.	2863.	-690.	3490.	1046.	2152.	2883.	546.	3437.	-393.
.450	831.	2920.	-796.	3573.	994.	2192.	2888.	536.	3457.	-428.
.500	850.	2906.	-796.	3573.	1012.	2178.	2925.	506.	3496.	-463.

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SPAN ID = 2 BEAM ID = INT BEAM TYPE = Tx54

|----- Total Stresses in Composite Regions (psi) -----|

Span Loc	Slab	
	Top	Bot
.000	0.	0.
.022	98.	70.
.050	217.	155.
.100	409.	293.
.200	721.	516.
.250	841.	601.
.300	936.	669.
.400	1063.	760.
.450	1092.	780.
.500	1098.	785.

|----- Prestress Losses (ksi) -----|

	SH	ELSH	CRC	CRS	Total
Initial		16.444		0.917	17.361
Final	7.250	16.444	23.178	1.834	48.706