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

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

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

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

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Strands Size	f's (ksi)	e,CL (in)	e,End (in)	Tot No. Draped or Debnd	To (in)
1&3	EXT	Tx40		42	1/2	270	13.50	8.17	8	36.5
1&3	INT	Tx40		42	1/2	270	13.50	8.17	8	36.5
2	EXT	Tx54		58	1/2	270	17.77	10.87	10	50.5
2	INT	Tx54		54	1/2	270	18.12	11.90	8	50.5

Span No.	Beam No.	f'ci (psi)	f'c (psi)	Design Stresses Top (psi)	Bot (psi)	Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
1&3	EXT	5097	5097	3080	-3575	4486	0.282	L-R
1&3	INT	5133	5499	3133	-3670	4517	0.283	L-R
2	EXT	5647	5835	3870	-3882	7676	0.331	L-R
2	INT	5525	7024	3893	-3908	7494	0.310	L-R

Span No.	Beam No.	Loc	Dead Load Deflections (ft) Compos Regn 1 (or Key)	Slab	Compos Regn 2	Compos Regn 3	O'Lay	Other	Total
1&3	EXT	1/4		-0.1171			-0.0106	-0.0063	-0.1340
		CL		-0.1643			-0.0149	-0.0089	-0.1880
1&3	INT	1/4		-0.1338			-0.0116	-0.0061	-0.1515
		CL		-0.1878			-0.0163	-0.0085	-0.2126
2	EXT	1/4		-0.1704			-0.0168	-0.0100	-0.1972
		CL		-0.2392			-0.0236	-0.0140	-0.2768
2	INT	1/4		-0.1948			-0.0184	-0.0096	-0.2227
		CL		-0.2734			-0.0258	-0.0135	-0.3126

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

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

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

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

Span No.	Beam No.	Beam Type	Non-Std Pat	Tot No.	Strands 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 Top (psi)	Design Stresses Bot (psi)	Ult Mom Req'd (k-ft)	Camber (ft)	L-R or S-R
1&3	EXT	5347	5347	3301	-3641	4486	0.254	L-R
1&3	INT	5386	5602	3297	-3730	4517	0.255	L-R
2	EXT	5847	5942	4109	-3946	7676	0.301	L-R
2	INT	5483	7150	4063	-3962	7494	0.271	L-R

Span No.	Beam No.	Loc	Dead Load Deflections (ft) Compos Regn 1 (or Key)	Slab	Compos Regn 2	Compos Regn 3	O'Lay	Other	Total
1&3	EXT	1/4		-0.0782			-0.0081	-0.0048	-0.0912
		CL		-0.1098			-0.0114	-0.0068	-0.1279
1&3	INT	1/4		-0.0894			-0.0088	-0.0046	-0.1029
		CL		-0.1255			-0.0124	-0.0065	-0.1444
2	EXT	1/4		-0.1139			-0.0128	-0.0077	-0.1344
		CL		-0.1599			-0.0180	-0.0107	-0.1887
2	INT	1/4		-0.1302			-0.0140	-0.0073	-0.1515
		CL		-0.1827			-0.0197	-0.0103	-0.2127

PSTRS 14 SAMPLE OUTPUT OF LONG RESULTS FOR CEB-FIP 1990 METHOD
(104 DAYS)

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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	485.2	1154.2
Depth (in)	40.00	8.00	48.00
Yb (in)	18.10	44.00	28.99
I (in4)	134990.0	2588.0	326242.5
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	5309.9	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 CEB 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) = 9.46 26.26

	End	Hold-Down	CL	End	CL
Beam Top Stress (psi) =	196.	473.	490.	159.	2630.
Beam Bot Stress (psi) =	3208.	2979.	2965.	2613.	-343.
Conc Strength, Req'd. (psi) =	5347.@	4965.	4942.		5347.@

Calculated Beam Stress at CL, due to Tot External Load (psi) --Top = 3301.
--(w/80%LL)Bot = -3641.
Calculated Slab Stress at CL, due to Unfactored LL (psi) --Top = 965.

"@" Denotes controlling stress cases
Initial concrete strength 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
```

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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) AASHTO LRFD	AASHTO 89	Ultimate Horiz Shear Stress (Between Slab and Top of Girder) (psi) AASHTO LRFD
0.00	.000		9.3	****	145.2
2.00	.023	(H/2)	9.3	6.3	139.5
3.22	.037	(CPT)	9.3	6.6	136.0
4.40	.050		9.7	7.5	132.8
8.80	.100		11.4	11.5	120.8
17.60	.200		17.8	13.6	98.0
22.00	.250		23.6	12.1	87.1
26.40	.300		24.0	12.4	76.5
35.20	.400		24.0	15.5	56.2
39.00	.443	(HD)	24.0	18.8	47.8
42.33	.481	(REF)	24.0	21.4	41.1
44.00	.500		24.0	21.4	37.7

"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)= 3504. due to 1.2 Mcr
Ultimate Moment Provided (k-ft) = 5807. Under Reinforced Rect. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.850
Depth of Compressive Stress Block (in): a = 6.07

Stress in Strands at Ultimate (ksi) = 257.5

Maximum Camber (ft) = 0.254 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.0782	-.0081	-.0048	-.0912
at Midspan	-.1098	-.0114	-.0068	-.1279

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

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

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

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

Span (ft)	Location (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
3.22	.037 (CPT)	95.1	95.5	0.0	190.6	38.1	205.6	434.3
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
42.33	.481 (REF)	673.6	676.6	0.0	1350.2	270.0	1379.7	2999.8
44.00	.500	674.6	677.6	0.0	1352.2	270.4	1380.5	3003.0

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

Span (ft)	Location (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
3.22	.037 (CPT)	28.4	28.5	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
42.33	.481 (REF)	1.2	1.2	0.0	2.3	0.5	30.2	33.0

44.00	.500	0.0	0.0	0.0	0.0	0.0	28.0	28.0

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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.	0.
.023	117.	-96.	234.	-193.	10.	-26.	53.	-138.	296.	-357.
.037	185.	-153.	371.	-307.	15.	-41.	83.	-219.	470.	-567.
.050	250.	-206.	500.	-413.	21.	-55.	112.	-295.	633.	-763.
.100	473.	-391.	948.	-783.	39.	-104.	211.	-556.	1198.	-1443.
.200	840.	-695.	1685.	-1392.	70.	-184.	371.	-977.	2126.	-2554.
.250	985.	-814.	1974.	-1632.	82.	-216.	432.	-1136.	2488.	-2984.
.300	1103.	-912.	2211.	-1828.	92.	-242.	479.	-1261.	2782.	-3331.
.400	1261.	-1042.	2527.	-2089.	105.	-277.	542.	-1428.	3175.	-3793.
.443	1296.	-1071.	2598.	-2148.	108.	-285.	555.	-1462.	3262.	-3894.
.481	1311.	-1084.	2629.	-2173.	109.	-288.	559.	-1471.	3297.	-3931.
.500	1313.	-1085.	2632.	-2176.	110.	-288.	559.	-1472.	3301.	-3936.

|--- 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	196.	3208.	159.	2613.	159.	2613.	159.	2613.	159.	2613.
.023	260.	3155.	117.	2648.	233.	2552.	360.	2429.	413.	2291.
.037	297.	3125.	91.	2669.	276.	2516.	477.	2322.	561.	2103.
.050	330.	3097.	66.	2690.	315.	2484.	587.	2222.	699.	1927.
.100	438.	3007.	-28.	2768.	445.	2377.	959.	1881.	1171.	1324.
.200	576.	2894.	-215.	2922.	625.	2228.	1540.	1345.	1911.	369.
.250	606.	2869.	-309.	3000.	676.	2186.	1747.	1152.	2179.	16.
.300	609.	2867.	-403.	3077.	701.	2166.	1901.	1008.	2380.	-254.
.400	536.	2927.	-590.	3232.	671.	2190.	2042.	867.	2585.	-561.

.443	473.	2979.	-671.	3299.	625.	2228.	2036.	867.	2591.	-595.
.481	488.	2967.	-671.	3299.	641.	2215.	2067.	839.	2626.	-633.
.500	490.	2965.	-671.	3299.	642.	2214.	2071.	835.	2630.	-637.

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 CEB 104 DAYS
PROB 1

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

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

Span Loc	Slab Top	Slab Bot
.000	0.	0.
.023	108.	62.
.037	170.	99.
.050	230.	133.
.100	433.	251.
.200	762.	441.
.250	887.	514.
.300	986.	571.
.400	1118.	648.
.443	1146.	663.
.481	1154.	668.
.500	1154.	669.

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

	SH	ELSH	CRC	CRS	Total
Initial		17.176		1.980	19.155
Final	7.250	17.176	24.754	3.998	53.178

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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	554.6	1223.6
Depth (in)	40.00	8.00	48.00
Yb (in)	18.10	44.00	29.84
I (in4)	134990.0	2957.7	341348.6
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	5309.9	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
No County No Section-Job by Date
NUM1 BPS 05/1/2011
90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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) = 8.79 24.69

	End	Hold-Down	CL	End	CL
Beam Top Stress (psi) =	197.	467.	484.	163.	2612.
Beam Bot Stress (psi) =	3232.	3009.	2995.	2669.	-361.
Conc Strength, Req'd. (psi) =	5386.@	5015.	4992.		5602.@

Calculated Beam Stress at CL, due to Tot External Load (psi) --Top = 3297.
--Bot = -3730.
Calculated Slab Stress at CL, due to Unfactored LL (psi) --Top = 663.

"@" 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
```

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

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

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

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

Span Location (ft)	(10th Pt)	Stirrup Spacing (No. 4, Gr 60) (in) AASHTO 89	AASHTO 89	Ultimate Horiz Shear Stress (Between Slab and Top of Girder) (psi) AASHTO 89
0.00	.000	12.2	12.2	136.6
2.00	.023 (H/2)	12.2	12.2	131.8
4.40	.050	17.2	17.2	126.1
8.80	.100	21.4	21.4	115.5
17.60	.200	21.4	21.4	94.4
22.00	.250	21.4	21.4	83.9
26.40	.300	21.4	21.4	73.4
35.20	.400	21.4	21.4	52.3
39.00	.443 (HD)	21.4	21.4	43.2
44.00	.500	21.4	21.4	31.2

"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)= 3568. 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) = 0.255 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.0894	-.0088	-.0046	-.1029
at Midspan	-.1255	-.0124	-.0065	-.1444

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

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

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

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

Span (ft)	Location (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 (ft)	Location (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

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 104 DAYS
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.	0.
.023	117.	-96.	251.	-207.	9.	-27.	36.	-104.	296.	-339.
.050	250.	-206.	536.	-443.	20.	-59.	76.	-223.	632.	-724.
.100	473.	-391.	1016.	-839.	38.	-111.	143.	-419.	1196.	-1369.
.200	840.	-695.	1805.	-1492.	67.	-198.	249.	-732.	2122.	-2422.
.250	985.	-814.	2116.	-1749.	79.	-232.	289.	-849.	2484.	-2830.
.300	1103.	-912.	2370.	-1958.	88.	-260.	320.	-940.	2778.	-3158.
.400	1261.	-1042.	2708.	-2238.	101.	-297.	361.	-1061.	3170.	-3596.
.443	1296.	-1071.	2784.	-2301.	104.	-305.	369.	-1085.	3258.	-3691.
.500	1313.	-1085.	2821.	-2331.	105.	-309.	371.	-1090.	3297.	-3730.

|--- 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.	2669.	163.	2669.	163.	2669.	163.	2669.
.023	261.	3179.	119.	2704.	236.	2608.	379.	2470.	415.	2365.
.050	331.	3121.	67.	2748.	317.	2541.	623.	2246.	699.	2023.
.100	438.	3032.	-29.	2827.	444.	2436.	1025.	1876.	1168.	1457.
.200	574.	2920.	-220.	2985.	621.	2290.	1653.	1295.	1902.	563.
.250	603.	2896.	-316.	3064.	669.	2250.	1879.	1084.	2168.	234.
.300	605.	2894.	-411.	3143.	692.	2231.	2047.	925.	2367.	-15.
.400	531.	2956.	-603.	3301.	658.	2259.	2206.	766.	2568.	-295.
.443	467.	3009.	-685.	3369.	611.	2298.	2203.	763.	2573.	-322.
.500	484.	2995.	-685.	3369.	628.	2284.	2241.	729.	2612.	-361.

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 CEB 104 DAYS
PROB 1

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

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

Span Loc	Slab Top	Slab Bot
.000	0.	0.
.023	80.	45.
.050	171.	96.
.100	323.	181.
.200	566.	317.
.250	658.	368.
.300	730.	409.
.400	826.	462.
.443	846.	473.
.500	851.	476.

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

	SH	ELSH	CRC	CRS	Total
Initial		16.939		0.870	17.809
Final	7.250	16.939	24.060	1.741	49.989

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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	485.2	1302.2
Depth (in)	54.00	8.00	62.00
Yb (in)	23.51	58.00	36.36
I (in4)	299740.0	2588.0	664469.7
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	5309.9	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	*

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

Unif DL on Comp Sec, due to Overlay (klf)  =  0.175
Unif DL on Comp Sec, except Overlay (klf)  =  0.104
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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 CEB 104 DAYS
PROB 2

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

|-------------------------------- 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) = 9.37 26.42

	End	Hold-Down	CL	End	CL
Beam Top Stress (psi) =	187.	834.	852.	152.	3333.
Beam Bot Stress (psi) =	3508.	3009.	2995.	2848.	-383.
Conc Strength, Req'd. (psi) =	5847.@	5015.	4992.		5942.@

Calculated Beam Stress at CL, due to Tot External Load (psi) --Top = 4109.
--(w/80%LL)Bot = -3946.
Calculated Slab Stress at CL, due to Unfactored LL (psi) --Top = 957.

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

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

No. of Strands, Total = 60 No. of Draped Strands = 10
Eccentricity at CL (in) = 17.61 Yb of Top 2 Draped Strands = 50.50
Eccentricity at End (in) = 10.94

--- 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	4	2	2
Strands/Row at CL =	14	14	14	12	6	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

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

90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 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) AASHTO LRFD	AASHTO 89	Ultimate Horiz Shear Stress (Between Slab and Top of Girder) (psi) AASHTO LRFD
0.00	.000	11.0	****	127.0
2.58	.022 (H/2)	11.0	8.3	122.1
4.48	.038 (CPT)	11.0	9.0	118.6
5.90	.050	11.4	10.8	116.0
11.80	.100	12.0	21.4	105.3
23.60	.200	22.0	17.1	84.9
29.50	.250	24.0	14.5	75.2
35.40	.300	24.0	14.7	65.7
47.20	.400	24.0	18.6	47.7
53.10	.450 (HD)	24.0	21.4	39.0
56.74	.481 (REF)	24.0	21.4	34.1
59.00	.500	24.0	21.4	31.0

"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)= 6165. due to 1.2 Mcr
Ultimate Moment Provided (k-ft) = 10206. Under Reinforced Flgd. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.848
Depth of Compressive Stress Block (in): a = 8.39

Stress in Strands at Ultimate (ksi) = 256.7

Maximum Camber (ft) = 0.301 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.1139	-.0128	-.0077	-.1344
at Midspan	-.1599	-.0180	-.0107	-.1887

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

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

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

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

Span (ft)	Location (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
4.48	.038 (CPT)	216.3	177.9	0.0	394.2	71.0	313.4	778.7
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
56.74	.481 (REF)	1479.1	1216.6	0.0	2695.6	485.4	2066.6	5247.6
59.00	.500	1481.2	1218.3	0.0	2699.6	486.1	2067.5	5253.2

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

Span (ft)	Location (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
4.48	.038 (CPT)	46.4	38.2	0.0	84.6	15.2	88.8	188.5
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
56.74	.481 (REF)	1.9	1.6	0.0	3.5	0.6	32.4	36.5

59.00	.500	0.0	0.0	0.0	0.0	0.0	29.9	29.9

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

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

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.	0.
.022	155.	-119.	282.	-218.	13.	-27.	59.	-121.	354.	-366.
.038	264.	-204.	481.	-371.	23.	-47.	100.	-206.	604.	-624.
.050	344.	-265.	626.	-483.	29.	-61.	130.	-268.	785.	-811.
.100	651.	-502.	1186.	-915.	56.	-115.	245.	-505.	1487.	-1535.
.200	1157.	-892.	2109.	-1626.	99.	-204.	432.	-891.	2640.	-2721.
.250	1356.	-1046.	2471.	-1906.	116.	-239.	504.	-1038.	3091.	-3183.
.300	1519.	-1171.	2768.	-2134.	130.	-268.	561.	-1156.	3459.	-3559.
.400	1736.	-1338.	3163.	-2439.	149.	-306.	637.	-1313.	3949.	-4059.
.450	1790.	-1380.	3262.	-2515.	153.	-316.	655.	-1350.	4070.	-4181.
.481	1805.	-1392.	3290.	-2537.	155.	-319.	658.	-1357.	4103.	-4213.
.500	1808.	-1394.	3295.	-2541.	155.	-319.	659.	-1358.	4109.	-4218.

|--- 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	187.	3508.	152.	2848.	152.	2848.	152.	2848.	152.	2848.
.022	286.	3432.	106.	2883.	261.	2764.	402.	2638.	461.	2517.
.038	354.	3379.	73.	2909.	337.	2705.	577.	2491.	677.	2285.
.050	403.	3341.	49.	2928.	392.	2663.	704.	2384.	834.	2117.
.100	584.	3202.	-55.	3007.	596.	2505.	1187.	1978.	1433.	1472.
.200	836.	3008.	-261.	3166.	896.	2274.	1947.	1336.	2379.	445.
.250	908.	2952.	-364.	3246.	992.	2200.	2224.	1101.	2727.	62.
.300	944.	2925.	-467.	3325.	1052.	2154.	2431.	923.	2992.	-233.
.400	907.	2953.	-673.	3484.	1063.	2146.	2639.	738.	3276.	-575.

.450	834.	3009.	-776.	3563.	1014.	2183.	2640.	732.	3294.	-618.
.481	850.	2997.	-776.	3563.	1029.	2171.	2669.	708.	3327.	-650.
.500	852.	2995.	-776.	3563.	1032.	2169.	2674.	703.	3333.	-654.

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

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

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

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

Span Loc	Slab Top	Slab Bot
.000	0.	0.
.022	104.	72.
.038	178.	122.
.050	231.	159.
.100	437.	301.
.200	772.	531.
.250	901.	620.
.300	1004.	691.
.400	1142.	786.
.450	1174.	808.
.481	1182.	813.
.500	1182.	813.

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

	SH	ELSH	CRC	CRS	Total
Initial		16.987		1.980	18.967
Final	7.250	16.987	25.273	3.990	53.500

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

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

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	554.6	1371.6
Depth (in)	54.00	8.00	62.00
Yb (in)	23.51	58.00	37.46
I (in4)	299740.0	2957.7	695656.0
Unit Wt (pcf)	150.0 *	150.0 *	
E (ksi)	5309.9	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
No County No Section-Job by Date
NUM1 BPS 05/1/2011
90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 104 DAYS
PROB 2

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

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

The final concrete strengths based on the AASHTO 95 specs.

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

Prestress Loss (percent) = 8.44 23.34

	End	Hold-Down	CL	End	CL
Beam Top Stress (psi) =	200.	836.	854.	167.	3264.
Beam Bot Stress (psi) =	3290.	2800.	2786.	2754.	-463.
Conc Strength, Req'd. (psi) =	5483.@	4666.	4643.		7150.@

Calculated Beam Stress at CL, due to Tot External Load (psi) --Top = 4063.
--Bot = -3962.
Calculated Slab Stress at CL, due to Unfactored LL (psi) --Top = 600.

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

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

No. of Strands, Total = 56 No. of Draped Strands = 10
Eccentricity at CL (in) = 17.94 Yb of Top 2 Draped Strands = 50.50
Eccentricity at End (in) = 10.80

--- 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	0	2	2
Strands/Row at CL =	14	14	14	12	2	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				

PSF No	County	Highway No	Control-Section-Job	Coded by	Date
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90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 104 DAYS
PROB 2

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

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

Span Location (ft)	(10th Pt)		Stirrup Spacing (No. 4, Gr 60) (in) AASHTO 89	AASHTO 89	Ultimate Horiz Shear Stress (Between Slab and Top of Girder) (psi) AASHTO 89
0.00	.000		21.4	21.4	118.4
2.58	.022	(H/2)	21.4	21.4	114.2
5.90	.050		21.4	21.4	108.8
11.80	.100		21.4	21.4	99.3
23.60	.200		21.4	21.4	80.2
29.50	.250		21.4	21.4	70.6
35.40	.300		21.4	21.4	61.1
47.20	.400		21.4	21.4	42.0
53.10	.450	(HD)	21.4	21.4	32.5
59.00	.500		21.4	21.4	22.9

"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)= 6102. due to 1.2 Mcr
Ultimate Moment Provided (k-ft) = 9847. Under Reinforced Rect. Sect.

"@" Denotes controlling case

Concrete Strength Factor: Beta1 = 0.850
Depth of Compressive Stress Block (in): a = 6.84
Stress in Strands at Ultimate (ksi) = 260.5

Maximum Camber (ft) = 0.271 upward is positive

Dead Load Deflection (ft)

	Slab	O'lay	Other	Total Defl
at 1/4 Point	-.1302	-.0140	-.0073	-.1515
at Midspan	-.1827	-.0197	-.0103	-.2127

PSF No | County | Highway No | Control-Section-Job | Coded by | Date
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90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 104 DAYS
PROB 2

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

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

Span (ft)	Location (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 (ft)	Location (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

PSF No | County | Highway No | Control-Section-Job | Coded by | Date
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90' & 120' SPANS,TY. TX40 & TX. 54 BMS , DESIGN AASHTO LRFD CEB 104 DAYS
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.	0.
.022	155.	-119.	300.	-232.	13.	-29.	37.	-83.	350.	-344.
.050	344.	-265.	666.	-514.	29.	-65.	81.	-183.	776.	-762.
.100	651.	-502.	1263.	-974.	54.	-123.	153.	-346.	1470.	-1442.
.200	1157.	-892.	2245.	-1731.	97.	-219.	268.	-607.	2610.	-2557.
.250	1356.	-1046.	2631.	-2029.	113.	-257.	312.	-706.	3056.	-2991.
.300	1519.	-1171.	2946.	-2272.	127.	-287.	346.	-784.	3420.	-3344.
.400	1736.	-1338.	3367.	-2597.	145.	-329.	392.	-888.	3905.	-3813.
.450	1790.	-1380.	3473.	-2678.	150.	-339.	403.	-911.	4025.	-3928.
.500	1808.	-1394.	3508.	-2705.	151.	-342.	404.	-915.	4063.	-3962.

|--- 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	200.	3290.	167.	2754.	167.	2754.	167.	2754.	167.	2754.
.022	299.	3214.	120.	2790.	275.	2671.	434.	2529.	470.	2447.
.050	415.	3124.	60.	2837.	404.	2572.	755.	2258.	836.	2075.
.100	594.	2986.	-47.	2920.	604.	2418.	1270.	1823.	1422.	1477.
.200	844.	2793.	-262.	3085.	895.	2193.	2080.	1135.	2348.	528.
.250	915.	2739.	-370.	3168.	987.	2123.	2375.	883.	2687.	177.
.300	949.	2712.	-477.	3251.	1042.	2080.	2597.	692.	2943.	-93.
.400	910.	2742.	-692.	3417.	1044.	2078.	2821.	492.	3213.	-397.
.450	836.	2800.	-799.	3499.	991.	2119.	2823.	483.	3226.	-429.
.500	854.	2786.	-799.	3499.	1009.	2105.	2860.	452.	3264.	-463.

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 CEB 104 DAYS
PROB 2

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

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

Span Loc	Slab Top	Slab Bot
.000	0.	0.
.022	73.	50.
.050	163.	110.
.100	307.	207.
.200	541.	365.
.250	631.	425.
.300	702.	473.
.400	797.	537.
.450	819.	552.
.500	824.	555.

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

	SH	ELSH	CRC	CRS	Total
Initial		16.118		0.964	17.082
Final	7.250	16.118	21.971	1.927	47.266