

## Brice, Richard

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**From:** Yongqian Lin [YLIN1@dot.state.tx.us]  
**Sent:** Tuesday, May 13, 2008 11:45 AM  
**To:** Tim Bradberry  
**Cc:** Jon Holt  
**Subject:** RE: PG-Super - Houston District comments

**Attachments:** PGSuperTRY1.pgs



PGSuperTRY1.pgs  
(50 KB)

Tim,

Please let Mr. Rick to look at the attached file for a true span that we have designed.

When I run the PGSuper, the following geometric problem was found:  
the computed beam length is different from BGS output, longer on one side of the baseline and shorter on the other side. For example:  
Beam A (C-C BRG length)---69.318' (BGS output) vs. 70.30' (PGSuper output) Beam D (C-C BRG length)---47.614' (BGS output) vs. 47.196' (PGSuper output).

Plus the LLDF is larger, so the total strand number is more from PG Super for Beam A to Beam D design, by comparing with PSTRS14 output.

But for beam E design, the following message was shown:

"PG Super has encountered a problem and needs to close. We are sorry for the inconvenience."

Thanks.

Ken

>>> "Brice, Richard" <BriceR@wsdot.wa.gov> 5/13/2008 10:34 AM >>>  
Ken,

It seems that there is still confusion about skews in PGSuper. I've taken the file you gave me and adjusted the design criteria so that the range of applicability limits are ignored. The file runs and produces an analysis.

The distribution factor criteria that is violated is the limit on the difference in skew angles between the ends of a span.

PGSuper does not assume the centerline of the bridge and the centerline of the alignment are in the same location. You can offset the bridge using the Alignment Offset parameter found in the Bridge Description dialog on the Piers tab. A positive value for alignment offset indicated the centerline of the bridge is to the right of the alignment.

If I'm misunderstanding something, please send me a plan and layout of the actual structure. I want to make sure PGSuper has sufficient geometric modeling capabilities.

Rick

# Texas Department of Transportation

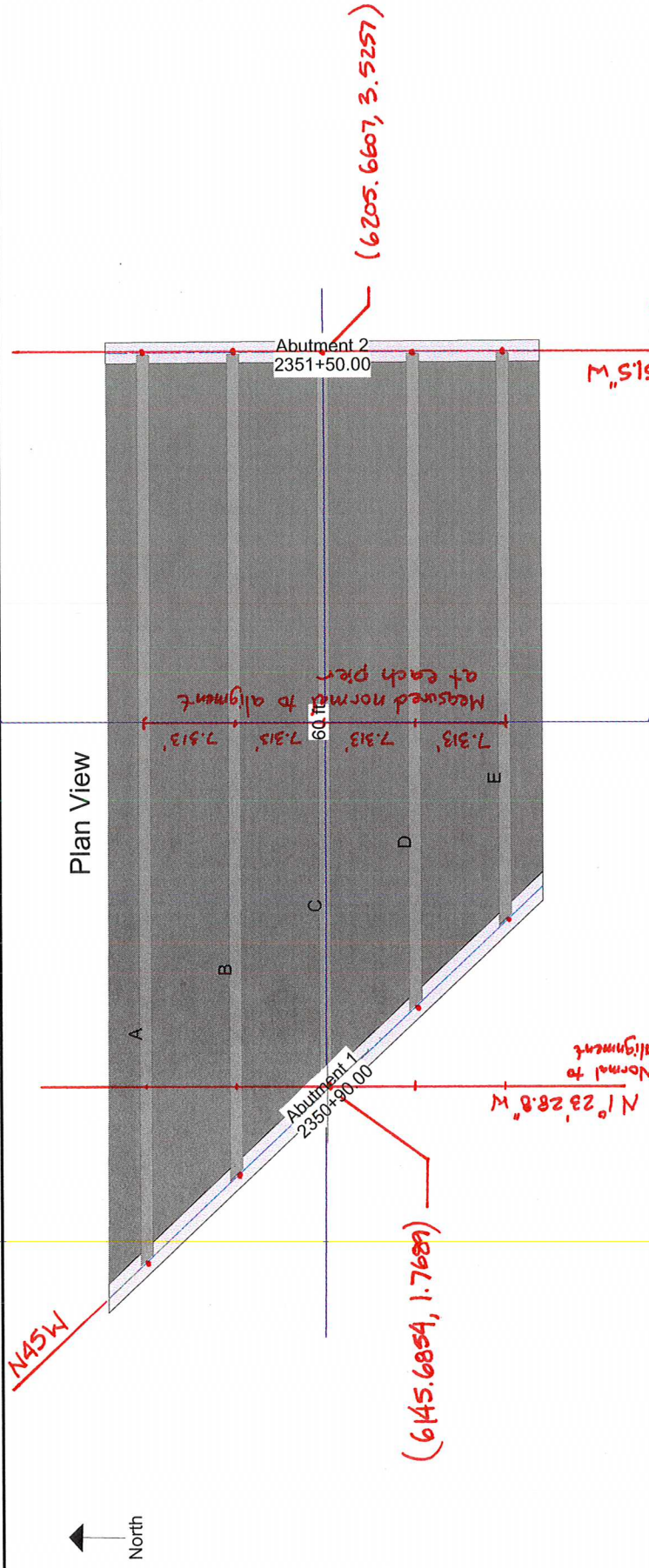
Bridge: HBTRAIL

Job Number: 0271-07-057

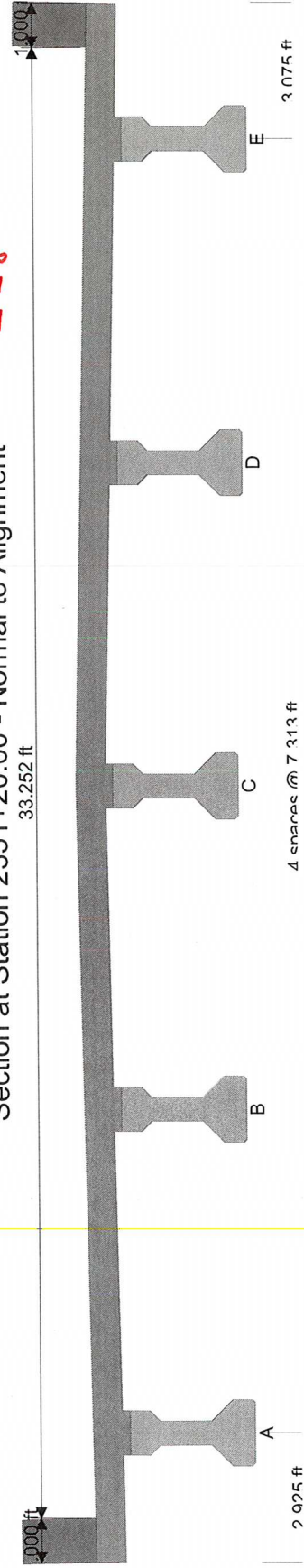
Engineer: kenlin

Date: August 8, 2008 7:37:38 am

Sheet 1 of 1



Section at Station 2351+20.00 - Normal to Alignment





Project	PG Super - HSTRAIL / IH 10EB			Sheet No.	of	Sheets
S.R.	Made By	Check by	Date	Supv		
	RAB		8/4/08			

### CURVE DATA

BACK TANGENT N 90 E

PI 2353+11.28

$\Delta = 7^\circ L$

$R = 6000'$

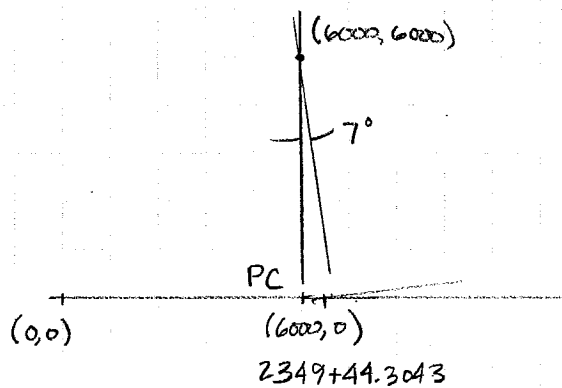
$$T_{\text{TANGENT}} (T) = R \tan \frac{\Delta}{2} = 6000 \tan \frac{7}{2} = 366.9757'$$

$$L = \frac{\pi}{180} (R)(\Delta) = \frac{\pi}{180} (6000)(7) = 733.0383'$$

$$PC = 2353+11.28 - 366.9757 = 2349+44.3043$$

$$PT = 2353+11.28 + 733.0383 = 2356+77.3426$$

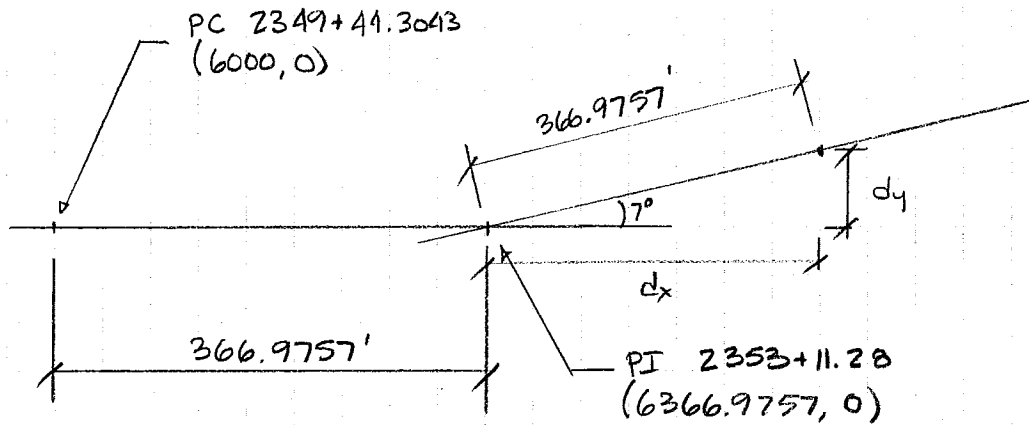
### COORDINATE SYSTEM





Project				Sheet No.	of	Sheets
S.R.	Made By	Check by	Date	Supv		

LOCATE PI & PT



$$dx = 366.9757 \cos 7^\circ = 364.2403$$
$$dy = 366.9757 \sin 7^\circ = 44.7231$$

$$PT \ 2356+77.3426$$
$$(6731.216, 44.7231)$$

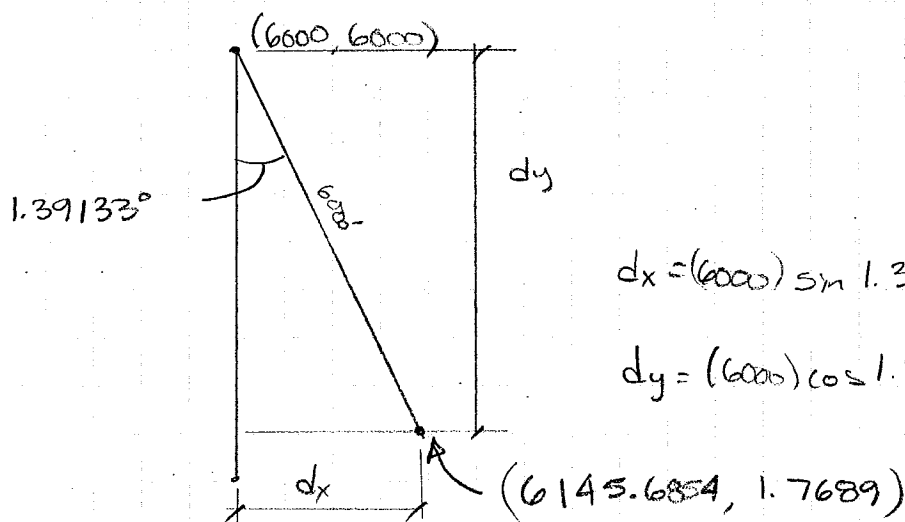


Project				Sheet No.	of	Sheets
S.R.	Made By	Check by	Date	Supv		

### LOCATE INTERSECTION OF PIER 1 & ALIGNMENT

Pier 1 2350+90  
PC 2349+44.3  
d = 145.7'

$$\delta = \frac{d}{R} = \frac{145.7'}{6000'} = 0.02428\bar{3}r = 1.39133^\circ = 1^\circ 23' 28.8''$$



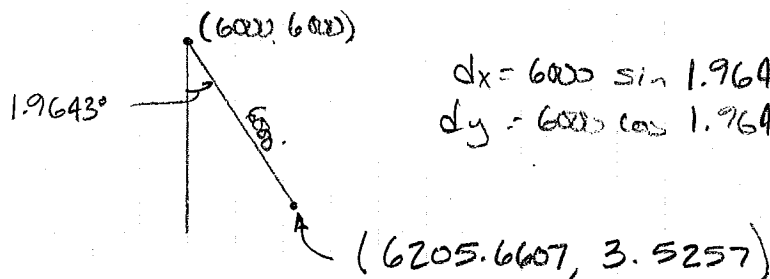
$$dx = (6000) \sin 1.39133 = 145.6854$$

$$dy = (6000) \cos 1.39133 = 5998.2311$$

### LOCATE INTERSECTION OF PIER 2 & ALIGNMENT

PIER 2 2351+50  
PC 2349+44.30

$$d = 205.7 \quad \delta = \frac{205.7}{6000} = 0.03428\bar{3}r = 1.9643^\circ$$



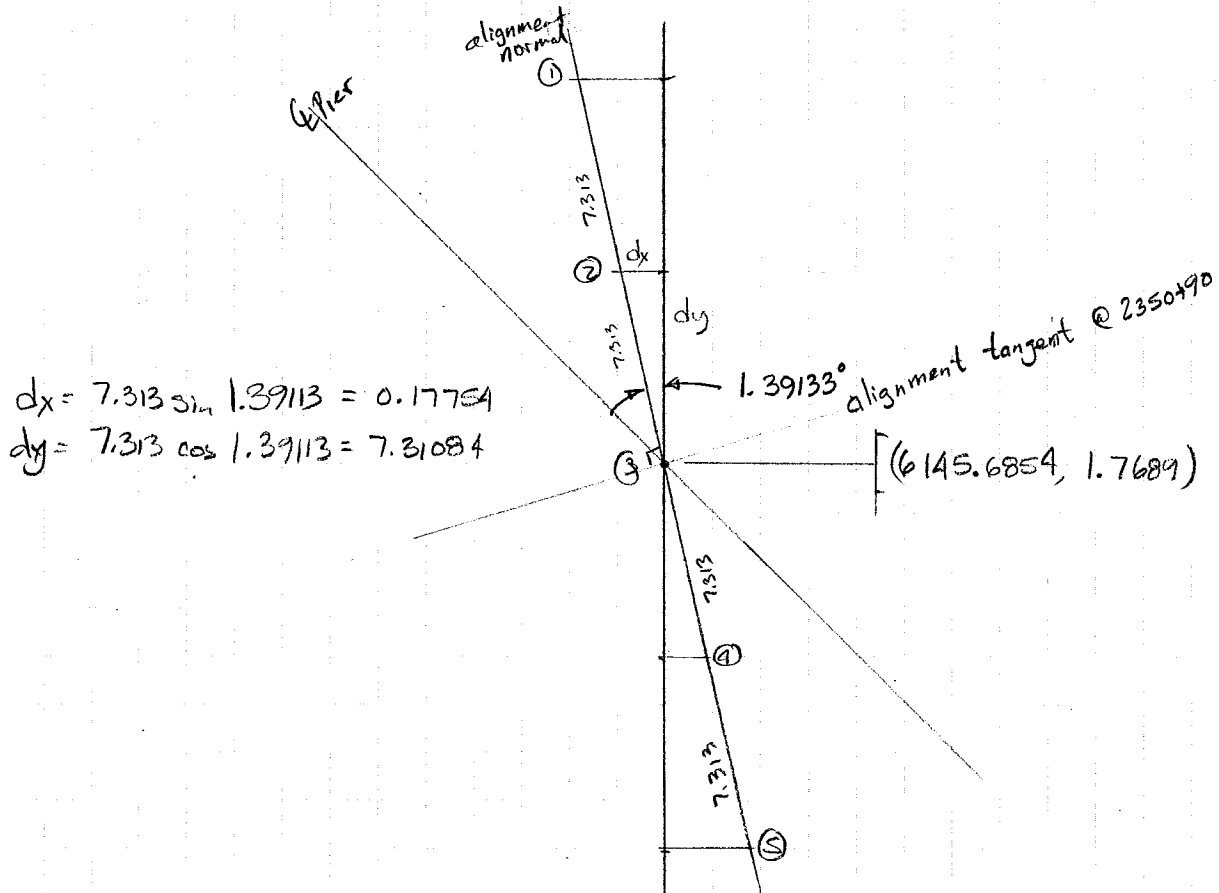
$$dx = 6000 \sin 1.9643 = 205.6607$$

$$dy = 6000 \cos 1.9643 = 5996.4743$$



Project			Sheet No. of Sheets	
S.R.	Made By	Check by	Date	Supv

LOCATE POINTS ALONG LINE DEFINING SPACING @ PIER 1



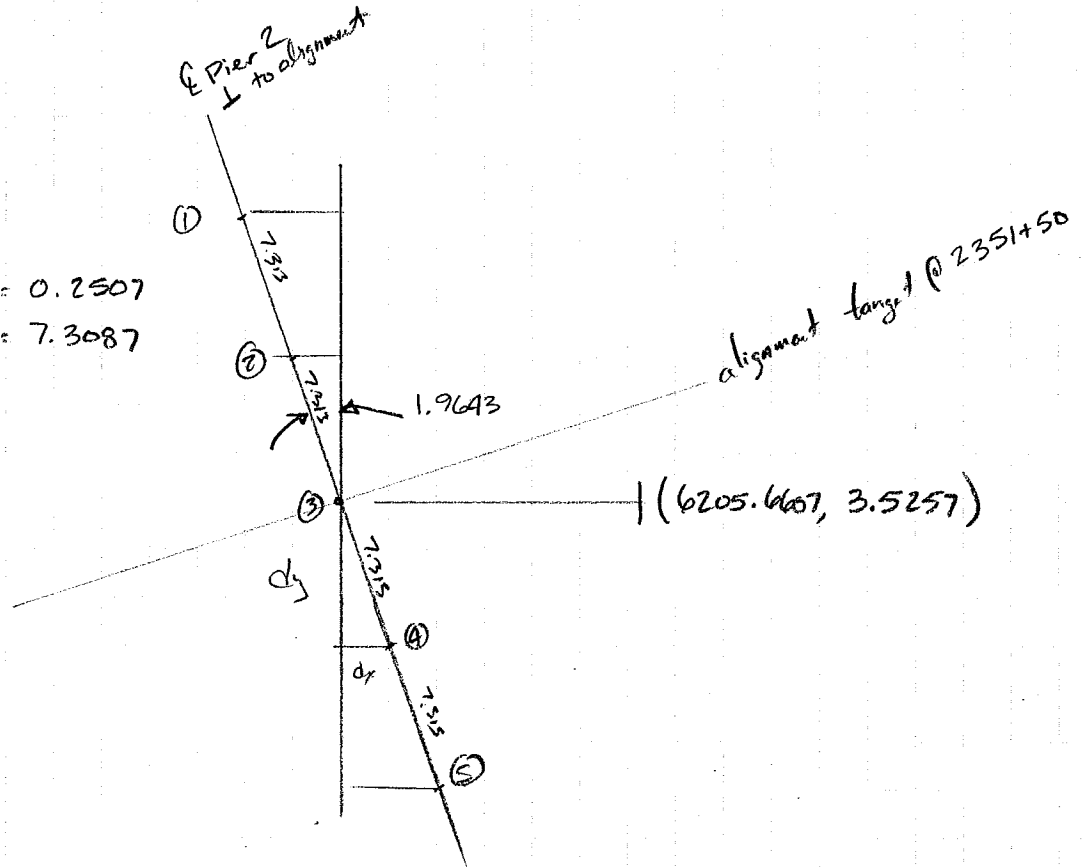
	X	Y
1	6145.3303	16.3904
2	6145.5078	9.0797
3	6145.6854	1.7689
4	6145.8629	-5.5419
5	6146.0405	-12.8528



Project				Sheet No.	of	Sheets
S.R.	Made By	Check by	Date	Supv		

LOCATE POINTS ALONG LINE DEFINING SPACING @ PIER 2

$$dx = 7.313 \sin 1.9643^\circ = 0.2507$$
$$dy = 7.313 \cos 1.9643^\circ = 7.3087$$



	X	Y
1	6205.1593	18.1431
2	6205.41	10.8344
3	6205.6607	3.5257
4	6205.9114	-3.7830
5	6206.1621	-11.0917



Project				Sheet No.	of	Sheets
S.R.	Made By	Check by	Date	Supv		

INTERSECT & GIRDER w/ & PIER 1

PIER 1 Line  $y = mx + b$

$$m = \tan(135^\circ) = -1$$

$$1.7689 = -1(6145.6854) + b$$

$$b = 6147.4543$$

$$y = -1x + 6147.4543$$

Girder line

$$y = mx + b \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

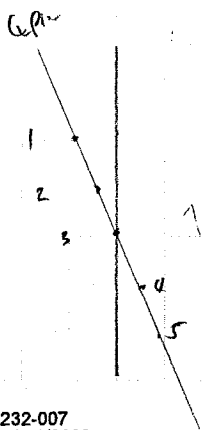
$$y_1 = \left( \frac{y_2 - y_1}{x_2 - x_1} \right) x_1 + b \quad b = y_1 - \left( \frac{y_2 - y_1}{x_2 - x_1} \right) x_1$$

~~Intersect~~

$$m_1x + b_1 = m_2x + b_2$$

$$(m_1 - m_2)x = b_2 - b_1$$

$$x = \frac{(b_2 - b_1)}{(m_1 - m_2)}$$



	x	y
1	6131.4597	15.9846
2	6138.5776	8.8767
3	6145.6854	1.7689
4	6152.7932	-5.3389
5	6159.9011	-12.4468



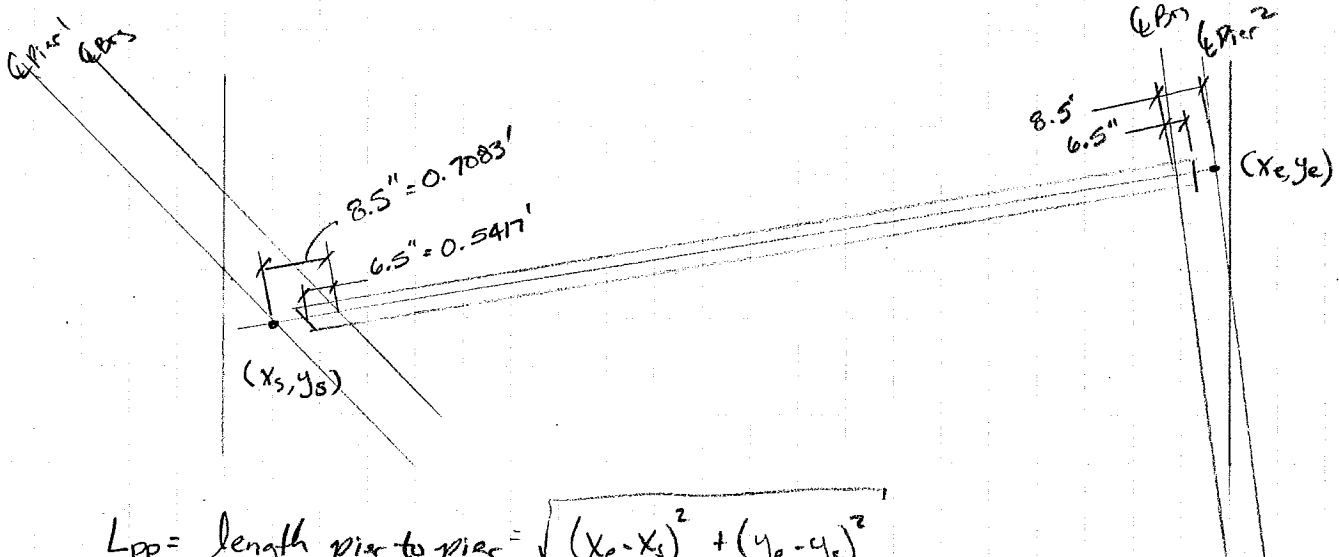


Project				Sheet No. of Sheets	
S.R.	Made By	Check by	Date	Supv	

INTERSECT @ GIRDER w/ @ PIER 2

This is the spacing definition line

GIRDER LENGTH



$$L_{pp} = \text{length pier to pier} = \sqrt{(x_e - x_s)^2 + (y_e - y_s)^2}$$

$$L_{bb} = \text{length brg to brg} = L_{pp} - 2(0.7083')$$

$$L_g = \text{girder length} = L_{bb} + 2(0.5417')$$

	Pier 1		Pier 2		Length		
	X	Y	X	Y	Pier-Pier	Brg-Brg	End-End
A	6131.4590	15.9846	6205.1593	18.1431	73.7319	72.3153	73.3987
B	6138.5776	8.8767	6205.4100	10.8344	66.8611	65.4445	66.5279
C	6145.6854	1.7689	6205.6607	3.5257	60.0010	58.5844	59.6678
D	6152.7932	-5.3389	6205.9114	-3.7830	53.1410	51.7244	52.8078
E	6159.9011	-12.4468	6206.1621	-11.0917	46.2808	44.8642	45.9476



Project				Sheet No.	of	Sheets
S.R.	Made By	Check by	Date	Supv		

COMPARISON w/ PGSUPER

	Brg-Brg			End-End		
	Hand Calc	PGSuper	Diff	Hand Calc	PGSuper	% Diff
A	72.3153	72.303	0.0170%	73.3987	73.387	0.0159%
B	65.4445	65.443	0.0022%	66.5279	66.527	0.0013%
C	58.5844	58.583	0.0024%	59.6678	59.666	0.0031%
D	51.7244	51.723	0.0027%	52.8078	52.806	0.0034%
E	44.8642	44.863	0.0028%	45.9476	45.946	0.0036%

# Details Report

*For*

*Span 1 Girder A*

*August 8, 2008 7:28:56 am*

**PGSuper<sup>TM</sup>**

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*Version 2.1.0.5 BETA - Built on Aug 6 2008*



## Project Properties

Bridge Name	HBTRAIL
Bridge ID	IH10EB
Company	Texas Department of Transportation
Engineer	kenlin
Job Number	0271-07-057
Comments	
File	C:\ARP\PGSuper\Supporting Documents\HandCalculations\TxDOT_Ken_Lin_Geometry_Issue.pgs

## Library Usage

Master Library Publisher : Published on Local Network

Master Library File : C:\ARP\PGSuper\WSDOT.lbr

Master Library Date Stamp : July 15, 2008 8:35:59 am

Library	Entry	Source
Connections	8.5" w/ 2" offset (Pier)	Project Library
Girders	TYPE B	Project Library
Traffic Barriers	C203	Project Library
Project Criteria	TxDOT 2004	Project Library



Time to create report 0 seconds

## Span Data

Strand Eccentricity Table

### Strand Eccentricity

Location from End of Girder (ft)	Location from Left Support (ft)	Straight Strand Eccentricity (in)	Harped Strand Eccentricity (in)	Strand Eccentricity (in)	Avg Harped Strand Slope (1:n)	Max Harped Strand Slope (1:n)
(0.0L <sub>g</sub> ) 0.000		11.502	-3.070	7.130	27.1657	27.1657
	(FoS)(0.0L <sub>s</sub> ) 0.000	11.502	-2.831	7.202	27.1657	27.1657
(H) 2.833		11.502	-1.818	7.506	27.1657	27.1657
	(H) 2.833	11.502	-1.579	7.577	27.1657	27.1657
	(1.5H) 4.250	11.502	-0.953	7.765	27.1657	27.1657
(0.1L <sub>g</sub> ) 7.339		11.502	0.172	8.103	27.1657	27.1657
	(0.1L <sub>s</sub> ) 7.230	11.502	0.363	8.160	27.1657	27.1657
(0.2L <sub>g</sub> ) 14.677		11.502	3.414	9.075	27.1657	27.1657
	(0.2L <sub>s</sub> ) 14.461	11.502	3.557	9.118	27.1657	27.1657
(0.3L <sub>g</sub> ) 22.016		11.502	6.655	10.048	27.1657	27.1657
	(0.3L <sub>s</sub> ) 21.691	11.502	6.751	10.076	27.1657	27.1657
(0.4L <sub>g</sub> ) 29.355		11.502	9.897	11.020	27.1657	27.1657
	(0.4L <sub>s</sub> ) 28.921	11.502	9.945	11.035	27.1657	27.1657
(HP) 31.693	(HP) 31.152	11.502	10.930	11.330	27.1657	27.1657
(0.5L <sub>g</sub> ) 36.693	(0.5L <sub>s</sub> ) 36.152	11.502	10.930	11.330	∞	∞
(HP) 41.693	(HP) 41.152	11.502	10.930	11.330	27.1657	27.1657
	(0.6L <sub>s</sub> ) 43.382	11.502	9.945	11.035	27.1657	27.1657
(0.6L <sub>g</sub> ) 44.032		11.502	9.897	11.020	27.1657	27.1657
	(0.7L <sub>s</sub> ) 50.612	11.502	6.751	10.076	27.1657	27.1657
(0.7L <sub>g</sub> ) 51.371		11.502	6.655	10.048	27.1657	27.1657
	(0.8L <sub>s</sub> ) 57.843	11.502	3.557	9.118	27.1657	27.1657
(0.8L <sub>g</sub> ) 58.709		11.502	3.414	9.075	27.1657	27.1657
	(0.9L <sub>s</sub> ) 65.073	11.502	0.363	8.160	27.1657	27.1657
(0.9L <sub>g</sub> ) 66.048		11.502	0.172	8.103	27.1657	27.1657
	(1.5H) 68.053	11.502	-0.953	7.765	27.1657	27.1657
	(H) 69.470	11.502	-1.579	7.577	27.1657	27.1657
(H) 70.553		11.502	-1.818	7.506	27.1657	27.1657
	(FoS)(1.0L <sub>s</sub> ) 72.303	11.502	-2.831	7.202	27.1657	27.1657
(1.0L <sub>g</sub> ) 73.387		11.502	-3.070	7.130	27.1657	27.1657

Girder Length = 73.387 ft

Span Length = 72.303 ft (CL Bearing to CL Bearing)

# Details Report

*For*

*Span 1 Girder B*

*August 8, 2008 7:30:27 am*

**PGSuper<sup>TM</sup>**

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*Version 2.1.0.5 BETA - Built on Aug 6 2008*



## Project Properties

Bridge Name	HBTRAIL
Bridge ID	IH10EB
Company	Texas Department of Transportation
Engineer	kenlin
Job Number	0271-07-057
Comments	
File	C:\ARP\PGSuper\Supporting Documents\HandCalculations\TxDOT_Ken_Lin_Geometry_Issue.pgs

## Library Usage

Master Library Publisher : Published on Local Network

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Master Library Date Stamp : July 15, 2008 8:35:59 am

Library	Entry	Source
Connections	8.5" w/ 2" offset (Pier)	Project Library
Girders	TYPE B	Project Library
Traffic Barriers	C203	Project Library
Project Criteria	TxDOT 2004	Project Library



Time to create report 0 seconds

**Span Data**

Strand Eccentricity Table

**Strand Eccentricity**

Location from End of Girder (ft)	Location from Left Support (ft)	Straight Strand Eccentricity (in)	Harped Strand Eccentricity (in)	Strand Eccentricity (in)	Avg Harped Strand Slope (1:n)	Max Harped Strand Slope (1:n)
(0.0L <sub>g</sub> ) 0.000		-	-	0.000	-	-
	(FoS)(0.0L <sub>s</sub> ) 0.000	-	-	0.000	-	-
(PSXFR) 2.500	(PSXFR) 1.958	-	-	0.000	-	-
(H) 2.833		-	-	0.000	-	-
	(H) 2.833	-	-	0.000	-	-
	(1.5H) 4.250	-	-	0.000	-	-
(0.1L <sub>g</sub> ) 6.653		-	-	0.000	-	-
	(0.1L <sub>s</sub> ) 6.544	-	-	0.000	-	-
(0.2L <sub>g</sub> ) 13.305		-	-	0.000	-	-
	(0.2L <sub>s</sub> ) 13.089	-	-	0.000	-	-
(0.3L <sub>g</sub> ) 19.958		-	-	0.000	-	-
	(0.3L <sub>s</sub> ) 19.633	-	-	0.000	-	-
(0.4L <sub>g</sub> ) 26.611		-	-	0.000	-	-
	(0.4L <sub>s</sub> ) 26.177	-	-	0.000	-	-
(HP) 28.263	(HP) 27.722	-	-	0.000	-	-
(0.5L <sub>g</sub> ) 33.263	(0.5L <sub>s</sub> ) 32.722	-	-	0.000	-	-
(HP) 38.263	(HP) 37.722	-	-	0.000	-	-
	(0.6L <sub>s</sub> ) 39.266	-	-	0.000	-	-
(0.6L <sub>g</sub> ) 39.916		-	-	0.000	-	-
	(0.7L <sub>s</sub> ) 45.810	-	-	0.000	-	-
(0.7L <sub>g</sub> ) 46.569		-	-	0.000	-	-
	(0.8L <sub>s</sub> ) 52.355	-	-	0.000	-	-
(0.8L <sub>g</sub> ) 53.221		-	-	0.000	-	-
	(0.9L <sub>s</sub> ) 58.899	-	-	0.000	-	-
(0.9L <sub>g</sub> ) 59.874		-	-	0.000	-	-
	(1.5H) 61.193	-	-	0.000	-	-
	(H) 62.610	-	-	0.000	-	-
(H) 63.693		-	-	0.000	-	-
(PSXFR) 64.027	(PSXFR) 63.485	-	-	0.000	-	-
	(FoS)(1.0L <sub>s</sub> ) 65.443	-	-	0.000	-	-
(1.0L <sub>g</sub> ) 66.527		-	-	0.000	-	-



Girder Length = 66.527 ft

Span Length = 65.443 ft (CL Bearing to CL Bearing)

# Details Report

*For*

*Span 1 Girder C*

*August 8, 2008 7:31:32 am*

**PGSuper<sup>TM</sup>**

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*Version 2.1.0.5 BETA - Built on Aug 6 2008*



## Project Properties

Bridge Name	HBTRAIL
Bridge ID	IH10EB
Company	Texas Department of Transportation
Engineer	kenlin
Job Number	0271-07-057
Comments	
File	C:\ARP\PGSuper\Supporting Documents\HandCalculations\TxDOT_Ken_Lin_Geometry_Issue.pgs

## Library Usage

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Library	Entry	Source
Connections	8.5" w/ 2" offset (Pier)	Project Library
Girders	TYPE B	Project Library
Traffic Barriers	C203	Project Library
Project Criteria	TxDOT 2004	Project Library



Time to create report 0 seconds

**Span Data**

Strand Eccentricity Table

**Strand Eccentricity**

Location from End of Girder (ft)	Location from Left Support (ft)	Straight Strand Eccentricity (in)	Harped Strand Eccentricity (in)	Strand Eccentricity (in)	Avg Harped Strand Slope (1:n)	Max Harped Strand Slope (1:n)
(0.0L <sub>g</sub> ) 0.000		-	-	0.000	-	-
	(FoS)(0.0L <sub>s</sub> ) 0.000	-	-	0.000	-	-
(PSXFR) 2.500	(PSXFR) 1.958	-	-	0.000	-	-
(H) 2.833		-	-	0.000	-	-
	(H) 2.833	-	-	0.000	-	-
	(1.5H) 4.250	-	-	0.000	-	-
(0.1L <sub>g</sub> ) 5.967		-	-	0.000	-	-
	(0.1L <sub>s</sub> ) 5.858	-	-	0.000	-	-
(0.2L <sub>g</sub> ) 11.933		-	-	0.000	-	-
	(0.2L <sub>s</sub> ) 11.717	-	-	0.000	-	-
(0.3L <sub>g</sub> ) 17.900		-	-	0.000	-	-
	(0.3L <sub>s</sub> ) 17.575	-	-	0.000	-	-
(0.4L <sub>g</sub> ) 23.867		-	-	0.000	-	-
	(0.4L <sub>s</sub> ) 23.433	-	-	0.000	-	-
(HP) 24.833	(HP) 24.292	-	-	0.000	-	-
(0.5L <sub>g</sub> ) 29.833	(0.5L <sub>s</sub> ) 29.292	-	-	0.000	-	-
(HP) 34.833	(HP) 34.292	-	-	0.000	-	-
	(0.6L <sub>s</sub> ) 35.150	-	-	0.000	-	-
(0.6L <sub>g</sub> ) 35.800		-	-	0.000	-	-
	(0.7L <sub>s</sub> ) 41.008	-	-	0.000	-	-
(0.7L <sub>g</sub> ) 41.766		-	-	0.000	-	-
	(0.8L <sub>s</sub> ) 46.866	-	-	0.000	-	-
(0.8L <sub>g</sub> ) 47.733		-	-	0.000	-	-
	(0.9L <sub>s</sub> ) 52.725	-	-	0.000	-	-
(0.9L <sub>g</sub> ) 53.700		-	-	0.000	-	-
	(1.5H) 54.333	-	-	0.000	-	-
	(H) 55.750	-	-	0.000	-	-
(H) 56.833		-	-	0.000	-	-
(PSXFR) 57.166	(PSXFR) 56.625	-	-	0.000	-	-
	(FoS)(1.0L <sub>s</sub> ) 58.583	-	-	0.000	-	-
(1.0L <sub>g</sub> ) 59.666		-	-	0.000	-	-

Girder Length = 59.666 ft

Span Length = 58.583 ft (CL Bearing to CL Bearing)

# Details Report

*For*

*Span 1 Girder D*

*August 8, 2008 7:32:09 am*

**PGSuper<sup>TM</sup>**

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*Version 2.1.0.5 BETA - Built on Aug 6 2008*



## Project Properties

Bridge Name	HBTRAIL
Bridge ID	IH10EB
Company	Texas Department of Transportation
Engineer	kenlin
Job Number	0271-07-057
Comments	
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**Span Data**

Strand Eccentricity Table

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(0.0L <sub>g</sub> ) 0.000		-	-	0.000	-	-
	(FoS)(0.0L <sub>s</sub> ) 0.000	-	-	0.000	-	-
(PSXFR) 2.500	(PSXFR) 1.958	-	-	0.000	-	-
(H) 2.833		-	-	0.000	-	-
	(H) 2.833	-	-	0.000	-	-
	(1.5H) 4.250	-	-	0.000	-	-
(0.1L <sub>g</sub> ) 5.281		-	-	0.000	-	-
	(0.1L <sub>s</sub> ) 5.172	-	-	0.000	-	-
(0.2L <sub>g</sub> ) 10.561		-	-	0.000	-	-
	(0.2L <sub>s</sub> ) 10.345	-	-	0.000	-	-
(0.3L <sub>g</sub> ) 15.842		-	-	0.000	-	-
	(0.3L <sub>s</sub> ) 15.517	-	-	0.000	-	-
(0.4L <sub>g</sub> ) 21.123		-	-	0.000	-	-
	(0.4L <sub>s</sub> ) 20.689	-	-	0.000	-	-
(HP) 21.403	(HP) 20.861	-	-	0.000	-	-
(0.5L <sub>g</sub> ) 26.403	(0.5L <sub>s</sub> ) 25.861	-	-	0.000	-	-
(HP) 31.403	(HP) 30.861	-	-	0.000	-	-
	(0.6L <sub>s</sub> ) 31.034	-	-	0.000	-	-
(0.6L <sub>g</sub> ) 31.684		-	-	0.000	-	-
	(0.7L <sub>s</sub> ) 36.206	-	-	0.000	-	-
(0.7L <sub>g</sub> ) 36.964		-	-	0.000	-	-
	(0.8L <sub>s</sub> ) 41.378	-	-	0.000	-	-
(0.8L <sub>g</sub> ) 42.245		-	-	0.000	-	-
	(0.9L <sub>s</sub> ) 46.551	-	-	0.000	-	-
(0.9L <sub>g</sub> ) 47.526		-	-	0.000	-	-
	(1.5H) 47.473	-	-	0.000	-	-
	(H) 48.890	-	-	0.000	-	-
(H) 49.973		-	-	0.000	-	-
(PSXFR) 50.306	(PSXFR) 49.765	-	-	0.000	-	-
	(FoS)(1.0L <sub>s</sub> ) 51.723	-	-	0.000	-	-
(1.0L <sub>g</sub> ) 52.806		-	-	0.000	-	-



Girder Length = 52.806 ft

Span Length = 51.723 ft (CL Bearing to CL Bearing)

# Details Report

*For*

*Span 1 Girder E*

*August 8, 2008 7:32:52 am*

**PGSuper<sup>TM</sup>**

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*Version 2.1.0.5 BETA - Built on Aug 6 2008*



## Project Properties

Bridge Name	HBTRAIL
Bridge ID	IH10EB
Company	Texas Department of Transportation
Engineer	kenlin
Job Number	0271-07-057
Comments	
File	C:\ARP\PGSuper\Supporting Documents\HandCalculations\TxDOT_Ken_Lin_Geometry_Issue.pgs

## Library Usage

Master Library Publisher : Published on Local Network

Master Library File : C:\ARP\PGSuper\WSDOT.lbr

Master Library Date Stamp : July 15, 2008 8:35:59 am

Library	Entry	Source
Connections	8.5" w/ 2" offset (Pier)	Project Library
Girders	TYPE B	Project Library
Traffic Barriers	C203	Project Library
Project Criteria	TxDOT 2004	Project Library



Time to create report 0 seconds

**Span Data**

Strand Eccentricity Table

**Strand Eccentricity**

Location from End of Girder (ft)	Location from Left Support (ft)	Straight Strand Eccentricity (in)	Harped Strand Eccentricity (in)	Strand Eccentricity (in)	Avg Harped Strand Slope (1:n)	Max Harped Strand Slope (1:n)
(0.0L <sub>g</sub> ) 0.000		-	-	0.000	-	-
	(FoS)(0.0L <sub>s</sub> ) 0.000	-	-	0.000	-	-
(PSXFR) 2.500	(PSXFR) 1.958	-	-	0.000	-	-
(H) 2.833		-	-	0.000	-	-
	(H) 2.833	-	-	0.000	-	-
(0.1L <sub>g</sub> ) 4.595		-	-	0.000	-	-
	(1.5H) 4.250	-	-	0.000	-	-
	(0.1L <sub>s</sub> ) 4.486	-	-	0.000	-	-
(0.2L <sub>g</sub> ) 9.189		-	-	0.000	-	-
	(0.2L <sub>s</sub> ) 8.973	-	-	0.000	-	-
(0.3L <sub>g</sub> ) 13.784		-	-	0.000	-	-
	(0.3L <sub>s</sub> ) 13.459	-	-	0.000	-	-
(HP) 17.973	(HP) 17.431	-	-	0.000	-	-
(0.4L <sub>g</sub> ) 18.378		-	-	0.000	-	-
	(0.4L <sub>s</sub> ) 17.945	-	-	0.000	-	-
(0.5L <sub>g</sub> ) 22.973	(0.5L <sub>s</sub> ) 22.431	-	-	0.000	-	-
	(0.6L <sub>s</sub> ) 26.918	-	-	0.000	-	-
(0.6L <sub>g</sub> ) 27.568		-	-	0.000	-	-
(HP) 27.973	(HP) 27.431	-	-	0.000	-	-
	(0.7L <sub>s</sub> ) 31.404	-	-	0.000	-	-
(0.7L <sub>g</sub> ) 32.162		-	-	0.000	-	-
	(0.8L <sub>s</sub> ) 35.890	-	-	0.000	-	-
(0.8L <sub>g</sub> ) 36.757		-	-	0.000	-	-
	(0.9L <sub>s</sub> ) 40.377	-	-	0.000	-	-
	(1.5H) 40.613	-	-	0.000	-	-
(0.9L <sub>g</sub> ) 41.352		-	-	0.000	-	-
	(H) 42.029	-	-	0.000	-	-
(H) 43.113		-	-	0.000	-	-
(PSXFR) 43.446	(PSXFR) 42.904	-	-	0.000	-	-
	(FoS)(1.0L <sub>s</sub> ) 44.863	-	-	0.000	-	-
(1.0L <sub>g</sub> ) 45.946		-	-	0.000	-	-

Girder Length = 45.946 ft

Span Length = 44.863 ft (CL Bearing to CL Bearing)