

# PHYSICAL DATA

for

FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION

WA FLAP JEFFER 150009(1)  
UNDI ROAD BYPASS IMPROVEMENTS

## **ALIGNMENT DATA**

Proposed horizontal alignments and profile  
grades

# Horizontal Alignment Review Report

Report Created: Monday, February 06, 2023  
Time: 10:21:34 AM

**Project:** Default

**Description:**

**File Name:** P:\F\FHAX00000280\0400CAD\RH\BASES\150009\_HA\_ALG.dgn

**Last Revised:** 2/6/2023 10:16:14

**Note:** All units in this report are in feet unless specified otherwise.

**Alignment Name:** U

**Alignment Description:**

**Alignment Style:** Alignment\Baseline

		<b>Station</b>	<b>Northing</b>	<b>Easting</b>
Element: Linear				
START	( )	150+00.000	340944.33	780383.69
PC	( )	150+45.374	340981.57	780357.76
Tangential Direction:		N34°51'24.4"W		
Tangential Length:		45.374		
Element: Circular				
PC	( )	150+45.374	340981.57	780357.76
HPI	( )	150+70.452	341002.15	780343.42
CC	( )		340467.19	779619.23
PT	( )	150+95.518	341021.89	780327.97
Radius:		900.000		
Delta:		03°11'32.191" Left		
Degree of Curvature (Arc):		06°21'58.312"		
Length:		50.144		
Tangent:		25.079		
Chord:		50.138		
Middle Ordinate:		0.349		
External:		0.349		
Back Tangent Direction:		N34°51'24.4"W		
Back Radial Direction:		N55°08'35.6"E		
Chord Direction:		N36°27'10.5"W		
Ahead Radial Direction:		N51°57'03.4"E		
Ahead Tangent Direction:		N38°02'56.6"W		
Element: Linear				
PT	( )	150+95.518	341021.89	780327.97
PC	( )	151+46.543	341062.08	780296.52
Tangential Direction:		N38°02'56.6"W		
Tangential Length:		51.026		

## Element: Circular

PC	( )	151+46.543	341062.08	780296.52
HPI	( )	151+70.705	341081.10	780281.63
CC	( )		341099.06	780343.77
PT	( )	151+92.483	341105.14	780284.08
Radius:		60.000		
Delta:		43°52'10.159" Right		
Degree of Curvature (Arc):		95°29'34.677"		
Length:		45.940		
Tangent:		24.162		
Chord:		44.826		
Middle Ordinate:		4.343		
External:		4.682		
Back Tangent Direction:		N38°02'56.6"W		
Back Radial Direction:		N51°57'03.4"E		
Chord Direction:		N16°06'51.5"W		
Ahead Radial Direction:		S84°10'46.4"E		
Ahead Tangent Direction:		N05°49'13.6"E		

## Element: Linear

PT	( )	151+92.483	341105.14	780284.08
END	( )	152+12.549	341125.10	780286.11
Tangential Direction:		N05°49'13.6"E		
Tangential Length:		20.066		

# Horizontal Alignment Review Report

Report Created: Monday, February 06, 2023  
Time: 10:22:23 AM

**Project:** Default

**Description:**

**File Name:** P:\F\FHAX00000280\0400CAD\RH\BASES\150009\_HA\_ALG.dgn

**Last Revised:** 2/6/2023 10:16:14

**Note:** All units in this report are in feet unless specified otherwise.

**Alignment Name:** U3

**Alignment Description:**

**Alignment Style:** Alignment\Baseline

		<b>Station</b>	<b>Northing</b>	<b>Easting</b>
Element: Linear				
START	( )	350+00.000	338976.67	786303.05
HPI	( )	350+40.230	338964.33	786341.34
Tangential Direction:		S72°08'27.0"E		
Tangential Length:		40.230		
Element: Linear				
HPI	( )	350+40.230	338964.33	786341.34
HPI	( )	351+03.395	338943.50	786400.97
Tangential Direction:		S70°44'12.1"E		
Tangential Length:		63.164		
Element: Linear				
HPI	( )	351+03.395	338943.50	786400.97
END	( )	352+00.000	338913.43	786492.77
Tangential Direction:		S71°51'59.9"E		
Tangential Length:		96.606		

# Horizontal Alignment Review Report

Report Created: Monday, February 06, 2023  
Time: 10:20:58 AM

**Project:** Default

**Description:**

**File Name:** P:\F\FHAX00000280\0400CAD\RH\BASES\150009\_HA\_ALG.dgn

**Last Revised:** 2/6/2023 10:16:14

**Note:** All units in this report are in feet unless specified otherwise.

**Alignment Name:** UB\_1

**Alignment Description:**

**Alignment Style:** Alignment\Baseline

		<b>Station</b>	<b>Northing</b>	<b>Easting</b>
Element: Linear				
START	( )	100+00.000	341164.79	779948.45
PC	( )	100+57.042	341158.82	780005.18
Tangential Direction:		S83°59'14.9"E		
Tangential Length:		57.042		
Element: Circular				
PC	( )	100+57.042	341158.82	780005.18
HPI	( )	101+24.132	341151.79	780071.90
CC	( )		336822.80	779548.49
PRC	( )	101+91.213	341142.72	780138.38
Radius:		4360.000		
Delta:		01°45'47.406" Right		
Degree of Curvature (Arc):		01°18'50.844"		
Length:		134.171		
Tangent:		67.091		
Chord:		134.165		
Middle Ordinate:		0.516		
External:		0.516		
Back Tangent Direction:		S83°59'14.9"E		
Back Radial Direction:		S06°00'45.1"W		
Chord Direction:		S83°06'21.2"E		
Ahead Radial Direction:		S07°46'32.5"W		
Ahead Tangent Direction:		S82°13'27.5"E		
Element: Circular				
PRC	( )	101+91.213	341142.72	780138.38
HPI	( )	103+61.829	341119.63	780307.42
CC	( )		345462.63	780728.26
PT	( )	105+32.272	341109.83	780477.76

Radius:	4360.000			
Delta:	04°28'55.009" Left			
Degree of Curvature (Arc):	01°18'50.844"			
Length:	341.060			
Tangent:	170.617			
Chord:	340.973			
Middle Ordinate:	3.334			
External:	3.337			
Back Tangent Direction:	S82°13'27.5"E			
Back Radial Direction:	S07°46'32.5"W			
Chord Direction:	S84°27'55.0"E			
Ahead Radial Direction:	S03°17'37.5"W			
Ahead Tangent Direction:	S86°42'22.5"E			
Element: Linear				
PT ( )	105+32.272	341109.83	780477.76	
HPI ( )	105+63.969	341108.01	780509.40	
Tangential Direction:	S86°42'22.5"E			
Tangential Length:	31.697			
Element: Linear				
HPI ( )	105+63.969	341108.01	780509.40	
PC ( )	106+20.340	341104.77	780565.68	
Tangential Direction:	S86°42'22.5"E			
Tangential Length:	56.370			
Element: Circular				
PC ( )	106+20.340	341104.77	780565.68	
HPI ( )	106+38.208	341103.74	780583.52	
CC ( )		343101.46	780680.59	
PT ( )	106+56.076	341103.03	780601.37	
Radius:	2000.000			
Delta:	01°01'25.557" Left			
Degree of Curvature (Arc):	02°51'53.240"			
Length:	35.736			
Tangent:	17.869			
Chord:	35.736			
Middle Ordinate:	0.080			
External:	0.080			
Back Tangent Direction:	S86°42'22.5"E			
Back Radial Direction:	S03°17'37.5"W			
Chord Direction:	S87°13'05.3"E			
Ahead Radial Direction:	S02°16'11.9"W			
Ahead Tangent Direction:	S87°43'48.1"E			
Element: Linear				
PT ( )	106+56.076	341103.03	780601.37	

PC	( )	107+65.848	341098.69	780711.06
Tangential Direction:		S87°43'48.1"E		
Tangential Length:		109.772		
Element: Circular				
PC	( )	107+65.848	341098.69	780711.06
HPI	( )	107+91.137	341097.52	780736.32
CC	( )		341897.83	780748.00
PT	( )	108+16.410	341097.95	780761.61
Radius:		800.000		
Delta:		03°37'16.430" Left		
Degree of Curvature (Arc):		07°09'43.101"		
Length:		50.562		
Tangent:		25.289		
Chord:		50.554		
Middle Ordinate:		0.399		
External:		0.400		
Back Tangent Direction:		S87°21'12.8"E		
Back Radial Direction:		S02°38'47.2"W		
Chord Direction:		S89°09'51.0"E		
Ahead Radial Direction:		S00°58'29.2"E		
Ahead Tangent Direction:		N89°01'30.8"E		
Element: Linear				
PT	( )	108+16.410	341097.95	780761.61
PC	( )	108+99.263	341099.36	780844.45
Tangential Direction:		N89°01'30.8"E		
Tangential Length:		82.853		
Element: Circular				
PC	( )	108+99.263	341099.36	780844.45
HPI	( )	109+76.237	341100.67	780921.41
CC	( )		341299.33	780841.05
PT	( )	110+46.221	341153.24	780977.64
Radius:		200.000		
Delta:		42°06'01.364" Left		
Degree of Curvature (Arc):		28°38'52.403"		
Length:		146.958		
Tangent:		76.974		
Chord:		143.674		
Middle Ordinate:		13.347		
External:		14.301		
Back Tangent Direction:		N89°01'30.8"E		
Back Radial Direction:		S00°58'29.2"E		
Chord Direction:		N67°58'30.1"E		
Ahead Radial Direction:		S43°04'30.6"E		
Ahead Tangent Direction:		N46°55'29.4"E		

## Element: Linear

PT	( )	110+46.221	341153.24	780977.64
PC	( )	111+00.883	341190.57	781017.57
Tangential Direction:		N46°55'29.4"E		
Tangential Length:		54.662		

## Element: Circular

PC	( )	111+00.883	341190.57	781017.57
HPI	( )	111+45.551	341221.08	781050.20
CC	( )		341482.75	780744.38
PT	( )	111+89.850	341258.03	781075.29
Radius:		400.000		
Delta:		12°44'36.786" Left		
Degree of Curvature (Arc):		14°19'26.202"		
Length:		88.967		
Tangent:		44.668		
Chord:		88.784		
Middle Ordinate:		2.471		
External:		2.486		
Back Tangent Direction:		N46°55'29.4"E		
Back Radial Direction:		S43°04'30.6"E		
Chord Direction:		N40°33'11.0"E		
Ahead Radial Direction:		S55°49'07.3"E		
Ahead Tangent Direction:		N34°10'52.7"E		

## Element: Linear

PT	( )	111+89.850	341258.03	781075.29
PC	( )	114+05.326	341436.28	781196.35
Tangential Direction:		N34°10'52.7"E		
Tangential Length:		215.476		

## Element: Circular

PC	( )	114+05.326	341436.28	781196.35
HPI	( )	114+54.195	341476.71	781223.80
CC	( )		340593.56	782437.24
PT	( )	115+03.030	341515.27	781253.83
Radius:		1500.000		
Delta:		03°43'55.202" Right		
Degree of Curvature (Arc):		03°49'10.987"		
Length:		97.704		
Tangent:		48.869		
Chord:		97.686		
Middle Ordinate:		0.795		
External:		0.796		
Back Tangent Direction:		N34°10'52.7"E		
Back Radial Direction:		S55°49'07.3"E		



Chord Direction:		N36°02'50.3"E		
Ahead Radial Direction:		S52°05'12.1"E		
Ahead Tangent Direction:		N37°54'47.9"E		
Element: Linear				
PT	( )	115+03.030	341515.27	781253.83
PC	( )	116+04.662	341595.45	781316.28
Tangential Direction:		N37°54'47.9"E		
Tangential Length:		101.632		
Element: Circular				
PC	( )	116+04.662	341595.45	781316.28
HPI	( )	116+35.061	341619.43	781334.96
CC	( )		342209.92	780527.34
PT	( )	116+65.441	341644.50	781352.15
Radius:		1000.000		
Delta:		03°28'56.435" Left		
Degree of Curvature (Arc):		05°43'46.481"		
Length:		60.778		
Tangent:		30.399		
Chord:		60.769		
Middle Ordinate:		0.462		
External:		0.462		
Back Tangent Direction:		N37°54'47.9"E		
Back Radial Direction:		S52°05'12.1"E		
Chord Direction:		N36°10'19.6"E		
Ahead Radial Direction:		S55°34'08.6"E		
Ahead Tangent Direction:		N34°25'51.4"E		
Element: Linear				
PT	( )	116+65.441	341644.50	781352.15
PC	( )	117+12.766	341683.54	781378.91
Tangential Direction:		N34°25'51.4"E		
Tangential Length:		47.325		
Element: Circular				
PC	( )	117+12.766	341683.54	781378.91
HPI	( )	117+52.924	341716.66	781401.61
CC	( )		341570.46	781543.87
PT	( )	117+92.028	341738.45	781435.34
Radius:		200.000		
Delta:		22°42'24.674" Right		
Degree of Curvature (Arc):		28°38'52.403"		
Length:		79.262		
Tangent:		40.158		
Chord:		78.744		
Middle Ordinate:		3.914		

External:	3.992			
Back Tangent Direction:	N34°25'51.4"E			
Back Radial Direction:	S55°34'08.6"E			
Chord Direction:	N45°47'03.8"E			
Ahead Radial Direction:	S32°51'43.9"E			
Ahead Tangent Direction:	N57°08'16.1"E			
Element: Linear				
PT	( )	117+92.028	341738.45	781435.34
PC	( )	120+41.734	341873.95	781645.09
Tangential Direction:		N57°08'16.1"E		
Tangential Length:		249.706		
Element: Circular				
PC	( )	120+41.734	341873.95	781645.09
HPI	( )	121+53.408	341934.54	781738.90
CC	( )		341033.97	782187.71
PT	( )	122+64.160	341972.95	781843.76
Radius:		1000.000		
Delta:		12°44'38.628" Right		
Degree of Curvature (Arc):		05°43'46.481"		
Length:		222.426		
Tangent:		111.674		
Chord:		221.968		
Middle Ordinate:		6.178		
External:		6.216		
Back Tangent Direction:		N57°08'16.1"E		
Back Radial Direction:		S32°51'43.9"E		
Chord Direction:		N63°30'35.4"E		
Ahead Radial Direction:		S20°07'05.3"E		
Ahead Tangent Direction:		N69°52'54.7"E		
Element: Linear				
PT	( )	122+64.160	341972.95	781843.76
PC	( )	123+91.521	342016.76	781963.35
Tangential Direction:		N69°52'54.7"E		
Tangential Length:		127.361		
Element: Circular				
PC	( )	123+91.521	342016.76	781963.35
HPI	( )	124+24.214	342028.01	781994.04
CC	( )		342204.56	781894.55
PT	( )	124+56.334	342048.44	782019.56
Radius:		200.000		
Delta:		18°34'02.969" Left		
Degree of Curvature (Arc):		28°38'52.403"		
Length:		64.813		

Tangent:		32.693		
Chord:		64.530		
Middle Ordinate:		2.620		
External:		2.654		
Back Tangent Direction:		N69°52'54.7"E		
Back Radial Direction:		S20°07'05.3"E		
Chord Direction:		N60°35'53.2"E		
Ahead Radial Direction:		S38°41'08.2"E		
Ahead Tangent Direction:		N51°18'51.8"E		
Element: Linear				
PT	( )	124+56.334	342048.44	782019.56
PC	( )	125+05.803	342079.36	782058.18
Tangential Direction:		N51°18'51.8"E		
Tangential Length:		49.469		
Element: Circular				
PC	( )	125+05.803	342079.36	782058.18
HPI	( )	125+31.207	342095.24	782078.01
CC	( )		342235.48	781933.17
PT	( )	125+56.341	342115.57	782093.24
Radius:		200.000		
Delta:		14°28'41.627" Left		
Degree of Curvature (Arc):		28°38'52.403"		
Length:		50.539		
Tangent:		25.405		
Chord:		50.404		
Middle Ordinate:		1.594		
External:		1.607		
Back Tangent Direction:		N51°18'51.8"E		
Back Radial Direction:		S38°41'08.2"E		
Chord Direction:		N44°04'30.9"E		
Ahead Radial Direction:		S53°09'49.9"E		
Ahead Tangent Direction:		N36°50'10.1"E		
Element: Linear				
PT	( )	125+56.341	342115.57	782093.24
HPI	( )	125+64.208	342121.87	782097.96
Tangential Direction:		N36°50'10.1"E		
Tangential Length:		7.867		
Element: Linear				
HPI	( )	125+64.208	342121.87	782097.96
PC	( )	125+76.866	342132.00	782105.54
Tangential Direction:		N36°50'10.1"E		
Tangential Length:		12.658		
Element: Circular				

PC	( )	125+76.866	342132.00	782105.54
HPI	( )	125+84.208	342137.88	782109.95
CC	( )		341952.14	782345.65
PT	( )	125+91.547	342143.53	782114.63
Radius:		300.000		
Delta:		02°48'14.036" Right		
Degree of Curvature (Arc):		19°05'54.935"		
Length:		14.681		
Tangent:		7.342		
Chord:		14.680		
Middle Ordinate:		0.090		
External:		0.090		
Back Tangent Direction:		N36°50'10.1"E		
Back Radial Direction:		S53°09'49.9"E		
Chord Direction:		N38°14'17.1"E		
Ahead Radial Direction:		S50°21'35.8"E		
Ahead Tangent Direction:		N39°38'24.2"E		
Element: Linear				
PT	( )	125+91.547	342143.53	782114.63
PC	( )	127+11.580	342235.96	782191.21
Tangential Direction:		N39°38'24.2"E		
Tangential Length:		120.033		
Element: Circular				
PC	( )	127+11.580	342235.96	782191.21
HPI	( )	128+12.112	342313.38	782255.34
CC	( )		342181.74	782256.66
PT	( )	128+59.296	342237.27	782321.02
Radius:		85.000		
Delta:		99°34'14.051" Right		
Degree of Curvature (Arc):		67°24'24.478"		
Length:		147.716		
Tangent:		100.532		
Chord:		129.817		
Middle Ordinate:		30.119		
External:		46.649		
Back Tangent Direction:		N39°38'24.2"E		
Back Radial Direction:		S50°21'35.8"E		
Chord Direction:		N89°25'31.2"E		
Ahead Radial Direction:		S49°12'38.2"W		
Ahead Tangent Direction:		S40°47'21.8"E		
Element: Linear				
PT	( )	128+59.296	342237.27	782321.02
END	( )	130+72.297	342076.00	782460.17
Tangential Direction:		S40°47'21.8"E		

Tangential Length: 213.000

# Horizontal Alignment Review Report

Report Created: Monday, February 06, 2023  
Time: 10:22:00 AM

**Project:** Default

**Description:**

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**Last Revised:** 2/6/2023 10:16:14

**Note:** All units in this report are in feet unless specified otherwise.

**Alignment Name:** UB\_3

**Alignment Description:**

**Alignment Style:** Alignment\Baseline

		<b>Station</b>	<b>Northing</b>	<b>Easting</b>
Element: Linear				
START	( )	300+00.000	339453.72	786816.92
PC	( )	300+71.042	339396.41	786774.93
Tangential Direction:		S36°13'23.9"W		
Tangential Length:		71.042		
Element: Circular				
PC	( )	300+71.042	339396.41	786774.93
HPI	( )	300+90.698	339380.55	786763.32
CC	( )		338805.47	787581.65
PT	( )	301+10.350	339364.25	786752.34
Radius:		1000.000		
Delta:		02°15'07.897" Left		
Degree of Curvature (Arc):		05°43'46.481"		
Length:		39.308		
Tangent:		19.657		
Chord:		39.306		
Middle Ordinate:		0.193		
External:		0.193		
Back Tangent Direction:		S36°13'23.9"W		
Back Radial Direction:		N53°46'36.1"W		
Chord Direction:		S35°05'50.0"W		
Ahead Radial Direction:		N56°01'44.0"W		
Ahead Tangent Direction:		S33°58'16.0"W		
Element: Linear				
PT	( )	301+10.350	339364.25	786752.34
PC	( )	303+68.988	339149.76	786607.81
Tangential Direction:		S33°58'16.0"W		
Tangential Length:		258.638		

## Element: Circular

PC	( )	303+68.988	339149.76	786607.81
HPI	( )	304+44.328	339087.28	786565.72
CC	( )		339401.20	786234.62
PT	( )	305+18.284	339041.91	786505.56
Radius:		450.000		
Delta:		19°00'31.948" Right		
Degree of Curvature (Arc):		12°43'56.624"		
Length:		149.295		
Tangent:		75.340		
Chord:		148.612		
Middle Ordinate:		6.177		
External:		6.263		
Back Tangent Direction:		S33°58'16.0"W		
Back Radial Direction:		N56°01'44.0"W		
Chord Direction:		S43°28'32.0"W		
Ahead Radial Direction:		N37°01'12.0"W		
Ahead Tangent Direction:		S52°58'48.0"W		

## Element: Linear

PT	( )	305+18.284	339041.91	786505.56
PC	( )	306+07.559	338988.16	786434.28
Tangential Direction:		S52°58'48.0"W		
Tangential Length:		89.275		

## Element: Circular

PC	( )	306+07.559	338988.16	786434.28
HPI	( )	306+23.270	338978.70	786421.74
CC	( )		338908.32	786494.49
PT	( )	306+38.727	338965.85	786412.70
Radius:		100.000		
Delta:		17°51'28.681" Left		
Degree of Curvature (Arc):		57°17'44.806"		
Length:		31.168		
Tangent:		15.711		
Chord:		31.042		
Middle Ordinate:		1.212		
External:		1.227		
Back Tangent Direction:		S52°58'48.0"W		
Back Radial Direction:		N37°01'12.0"W		
Chord Direction:		S44°03'03.7"W		
Ahead Radial Direction:		N54°52'40.7"W		
Ahead Tangent Direction:		S35°07'19.3"W		

## Element: Linear

PT	( )	306+38.727	338965.85	786412.70
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END	( )	306+64.693	338944.61	786397.76
Tangential Direction:		S35°07'19.3"W		
Tangential Length:		25.966		



# Vertical Alignment Review Report

Report Created: Friday, February 10, 2023  
Time: 12:22:59 AM

**Project:** Default

**Description:**

**File Name:** P:\F\FHAX00000280\0400CAD\RH\BASES\150009\_HA\_ALG.dgn

**Last Revised:** 2/10/2023 00:20:04

**Note:** All units in this report are in feet unless specified otherwise.

**Horizontal Alignment:** UB\_1

**Horizontal Description:**

**Horizontal Style:** Alignment\Baseline

**Vertical Alignment:** v\_UB1-Site 1

**Vertical Description:**

**Vertical Style:** Alignment\Baseline

	<b>Station</b>	<b>Elevation</b>
Element: Linear		
START	100+00.000	232.50
VPC	100+50.000	232.61
Tangent Grade:	0.2%	
Tangent Length:	50.000	
Element: Symmetrical Parabola		
VPC	100+50.000	232.61
VPI	101+45.000	232.81
VPT	102+40.000	236.66
Length:	190.000	
Entrance Grade:	0.2%	
Exit Grade:	4.0%	
$r = 100 * (g_2 - g_1) / L$ :	2.016	
$K = L / (g_2 - g_1)$ :	49.597	
Middle Ordinate:	0.910	
Element: Linear		
VPT	102+40.000	236.66
VPC	102+80.003	238.28
Tangent Grade:	4.0%	
Tangent Length:	40.003	
Element: Symmetrical Parabola		
VPC	102+80.003	238.28
VPI	103+30.002	240.30
VPT	103+80.000	240.93

**Horizontal Alignment:** UB\_1**Horizontal Description:****Horizontal Style:** Alignment\Baseline

Length:	99.997
Entrance Grade:	4.0%
Exit Grade:	1.3%
$r = 100 * (g2 - g1) / L$ :	-2.782
$K = L / (g2 - g1)$ :	35.951
Middle Ordinate:	-0.348

## Element: Linear

VPT	103+80.000	240.93
VPC	104+42.992	241.73
Tangent Grade:	1.3%	
Tangent Length:	62.992	

## Element: Symmetrical Parabola

VPC	104+42.992	241.73
VPI	105+00.000	242.45
VPT	105+57.008	244.50
Length:	114.016	
Entrance Grade:	1.3%	
Exit Grade:	3.6%	
$r = 100 * (g2 - g1) / L$ :	2.041	
$K = L / (g2 - g1)$ :	49.000	
Middle Ordinate:	0.332	

## Element: Linear

VPT	105+57.008	244.50
END	105+63.969	244.75
Tangent Grade:	3.6%	
Tangent Length:	6.961	

# Vertical Alignment Review Report

Report Created: Friday, February 10, 2023  
Time: 12:27:54 AM

**Project:** Default

**Description:**

**File Name:** P:\F\FHAX00000280\0400CAD\RH\BASES\150009\_HA\_ALG.dgn

**Last Revised:** 2/10/2023 00:24:08

**Note:** All units in this report are in feet unless specified otherwise.

**Horizontal Alignment:** UB\_1

**Horizontal Description:**

**Horizontal Style:** Alignment\Baseline

**Vertical Alignment:** v\_UB1-Site 2

**Vertical Description:**

**Vertical Style:** Alignment\Baseline

	<b>Station</b>	<b>Elevation</b>
Element: Linear		
START	125+64.208	464.45
VPC	125+70.208	465.20
Tangent Grade:	1:8.00	
Tangent Length:	6.000	
Element: Symmetrical Parabola		
VPC	125+70.208	465.20
VPI	126+00.208	468.95
VPT	126+30.208	472.09
Length:	60.000	
Entrance Grade:	1:8.00	
Exit Grade:	10.5%	
$r = 100 * (g2 - g1) / L$ :	-3.408	
$K = L / (g2 - g1)$ :	29.343	
Middle Ordinate:	-0.153	
Element: Linear		
VPT	126+30.208	472.09
VPC	126+59.208	475.12
Tangent Grade:	10.5%	
Tangent Length:	29.000	
Element: Symmetrical Parabola		
VPC	126+59.208	475.12
VPI	126+99.208	479.30
VPT	127+39.208	486.46

**Horizontal Alignment:** UB\_1**Horizontal Description:****Horizontal Style:** Alignment\Baseline

Length:	80.000
Entrance Grade:	10.5%
Exit Grade:	1:5.59
$r = 100 * (g2 - g1) / L$ :	9.305
$K = l / (g2 - g1)$ :	10.747
Middle Ordinate:	0.744

## Element: Linear

VPT	127+39.208	486.46
VPC	127+64.208	490.93
Tangent Grade:	1:5.59	
Tangent Length:	25.000	

## Element: Symmetrical Parabola

VPC	127+64.208	490.93
VPI	128+04.208	498.09
VPT	128+44.208	503.49
Length:	80.000	
Entrance Grade:	1:5.59	
Exit Grade:	1:7.41	
$r = 100 * (g2 - g1) / L$ :	-5.499	
$K = l / (g2 - g1)$ :	18.186	
Middle Ordinate:	-0.440	

## Element: Linear

VPT	128+44.208	503.49
VPC	129+30.208	515.10
Tangent Grade:	1:7.41	
Tangent Length:	86.000	

## Element: Symmetrical Parabola

VPC	129+30.208	515.10
VPI	129+85.208	522.53
VPT	130+40.208	527.14
Length:	110.000	
Entrance Grade:	1:7.41	
Exit Grade:	8.4%	
$r = 100 * (g2 - g1) / L$ :	-4.650	
$K = l / (g2 - g1)$ :	21.507	
Middle Ordinate:	-0.703	

## Element: Linear

VPT	130+40.208	527.14
END	130+72.297	529.83

**Horizontal Alignment:** UB\_1

**Horizontal Description:**

**Horizontal Style:** Alignment\Baseline

Tangent Grade: 8.4%

Tangent Length: 32.089

# Vertical Alignment Review Report

Report Created: Friday, February 10, 2023  
Time: 12:16:57 AM

**Project:** Default

**Description:**

**File Name:** P:\F\FHAX00000280\0400CAD\RH\BASES\150009\_HA\_ALG.dgn

**Last Revised:** 2/10/2023 00:12:53

**Note:** All units in this report are in feet unless specified otherwise.

**Horizontal Alignment:** U

**Horizontal Description:**

**Horizontal Style:** Alignment\Baseline

**Vertical Alignment:** v\_U1-Site 1

**Vertical Description:**

**Vertical Style:** Alignment\Baseline

	<b>Station</b>	<b>Elevation</b>
Element: Linear		
START	151+23.000	240.28
VPC	151+32.355	240.01
Tangent Grade:	-2.9%	
Tangent Length:	9.355	
Element: Symmetrical Parabola		
VPC	151+32.355	240.01
VPI	151+57.355	239.29
VPT	151+82.355	239.68
VLP	151+64.826	239.54
Length:	50.000	
Entrance Grade:	-2.9%	
Exit Grade:	1.6%	
$r = 100 * (g2 - g1) / L$ :	8.953	
$K = L / (g2 - g1)$ :	11.169	
Middle Ordinate:	0.280	
Element: Linear		
VPT	151+82.355	239.68
END	152+00.550	239.96
Tangent Grade:	1.6%	
Tangent Length:	18.195	