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**Horizontal Alignment Curve  
Report.**

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**Horizontal Alignment Curve Report.**  
**Project Name: Design and study of alharayq road**

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**Alignment: fidaa alignment**

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**Spiral/Curve Data**

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**Tangent Data**

Length: 152.009 Course: 183-03-56

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**Circular Curve Data**

Delta:	17-36-26	Type:	RIGHT
Radius:	471.738	DOC:	12-08-44
Length:	144.967	Tangent:	73.059
Mid-Ord:	5.558	External:	5.624
Chord:	144.397	Course:	190-52-26
Es:	5.624		

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**Tangent Data**

Length: 56.994 Course: 199-30-03

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**Circular Curve Data**

Delta:	16-44-12	Type:	LEFT
Radius:	190.380	DOC:	30-05-44
Length:	55.611	Tangent:	28.005
Mid-Ord:	2.027	External:	2.049
Chord:	55.414	Course:	189-29-50
Es:	2.049		

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**Tangent Data**

Length: 53.252 Course: 181-34-50

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**Tangent Data**

Length: 34.650 Course: 178-04-15

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**Tangent Data**

Length: 29.556 Course: 178-12-05

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**Tangent Data**

Length: 59.635 Course: 178-51-38

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الملحق رقم (٦)

**Alignment PI Station  
Report**

# Alignment PI Station Report

Project Name: **Design and study of alharayeq road** (major road)

Station Range: Start: 0+000.00, End: 0+586.675

PI Station	Northing	Easting	Distance	Direction
0+000	101507.185	157519.233		
			152.009	183-03-56
0+152.009	101355.393	157511.104		
			73.059	182-04-13
0+225.069	101282.381	157508.464		
			73.059	199-40-39
0+296.976	101213.588	157483.863		
			56.994	199-30-03
0+353.971	101159.863	157464.837		
			28.005	197-51-55
0+381.976	101133.209	157456.246		
			28.005	181-07-44
0+409.582	101105.209	157455.694		
			53.252	181-34-50
0+462.834	101051.977	157454.225		
			34.650	178-04-15
0+497.484	101017.347	157455.392		
			29.556	178-12-05
0+527.040	100987.806	157456.319		
			59.635	178-51-38
0+586.675	100928.182	157457.505		

الملحق رقم (٥)

**Horizontal Alignment Station  
and Curve Report.**

**Horizontal Alignment Station and Curve Report.**  
**Alignment: alignmentfinal(major)**

**Spiral/Curve**

Description	PT Station	Northing	Easting
PI 0+000		101507.185	157519.233

Parameter	Value	Parameter	Value
Length	152.009	Course	183-03-56

Description	PT Station	Northing	Easting
PI	0+152.009	101355.393	157511.104

Parameter	Value	Parameter	Value
Length:	73.059	Course	182-04-13
Delta:	0-59-43		

**Tangent Data**

Description	PT Station	Northing	Easting
0+000	101507.185	157519.233	
	0+152.009	101355.393	157511.104

Parameter	Value	Parameter	Value
Length:	152.009	Course:	183-03-56

Description	PT Station	Northing	Easting
PI 0+225.069	101282.381	157508.464	

Parameter	Value	Parameter	Value
Length:	73.059	Course:	199-40-39
Delta:	17-36-26		

**Circular Curve Data**

Description	PT Station	Northing	Easting
	PC0+152.009	101355.393	157511.104
	RP101372.435	157039.673	
	PT 0+296.976	101213.588	157483.863

Parameter	Value	Parameter	Value
Delta:	17-36-26	Type:	RIGHT

Radius: 471.738 DOC: 12-08-44  
 Length: 144.967 Tangent: 73.059  
 Mid-Ord: 5.558 External: 5.624  
 Chord: 144.397 Course: 190-52-26  
 Es: 5.624

Description	PT Station	Northing	Easting
PI	0+296.976	101213.588	157483.863

Parameter	Value	Parameter	Value
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Length: 56.994 Course: 199-30-03  
 Delta: 0-10-36

Description	PT Station	Northing	Easting
	PI0+353.971	101159.863	157464.837

Parameter	Value	Parameter	Value
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Length 28.005 Course: 197-51-55  
 Delta: 1-38-08

**Tangent Data**

Description	PT Station	Northing	Easting
0+296.976	101213.588	157483.863	
	0+462.834	101051.977	157454.225

Parameter	Value	Parameter	Value
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Length: 56.994 Course: 199-30-03

Description	PT Station	Northing	Easting
PI	0+381.976	101133.209	157456.246

Parameter	Value	Parameter	Value
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Length 28.005 Course: 181-07-44  
 Delta: 16-44-12

**Circular Curve Data**

Description	PT Station	Northing	Easting
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PC 0+353.971 101159.863 157464.837  
 RP 101101.458 157646.037  
 PT 0+409.582 101105.209 157455.694

Parameter	Value	Parameter	Value
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Delta: 16-44-12 Type: LEFT  
 Radius: 190.380 DOC: 30-05-44  
 Length: 55.611 Tangent: 28.005  
 Mid-Ord: 2.027 External: 2.049  
 Chord: 55.414 Course: 189-29-50  
 Es: 2.049

Description	PT Station	Northing	Easting
PI 0+409.582	101105.209	157455.694	

Parameter	Value	Parameter	Value
Length:	28.005	Course:	181-07-44
Delta:	16-44-12		

Description	PT Station	Northing	Easting
PI	0+409.582	101105.209	157455.694

Parameter	Value	Parameter	Value
Length:	53.252	Course:	181-34-50
Delta:	0-27-07		

**Tangent Data**

Description	PT Station	Northing	Easting
PI	0+462.834	101051.977	157454.225

Parameter	Value	Parameter	Value
Length:	34.650	Course:	178-04-15
Delta:	3-30-35		

**Tangent Data**

Description	PT Station	Northing	Easting
0+409.582	101105.209	157455.694	
	0+462.834	101051.977	157454.225

Parameter	Value	Parameter	Value
Length:	53.252	Course:	181-34-50

Description	PT Station	Northing	Easting
PI	0+497.484	101017.347	157455.392

Parameter	Value	Parameter	Value
Length:	29.556	Course:	178-12-05
Delta:	0-07-50		

**Tangent Data**

Description	PT Station	Northing	Easting
0+462.834	101051.977	157454.225	
0+497.484	101017.347	157455.392	

Parameter	Value	Parameter	Value
Length:	34.650	Course:	178-04-15



Description	PT Station	Northing	Easting
PI 0+527.040	100987.806	157456.319	

Parameter	Value	Parameter	Value
Length:	59.635	Course:	178-51-38
Delta:	0-39-32		

**Tangent Data**

Description	PT Station	Northing	Easting
0+497.484	101017.347	157455.392	
0+527.040	100987.806	157456.319	

Parameter	Value	Parameter	Value
Length:	29.556	Course:	178-12-05

Description	PT Station	Northing	Easting
PI 0+586.675	100928.182	157457.505	

**Tangent Data**

Description	PT Station	Northing	Easting
0+527.040	100987.806	157456.319	
0+586.675	100928.182	157457.505	

Parameter	Value	Parameter	Value
Length:	59.635	Course:	178-51-38

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**Vertical Alignment  
Report  
Vertical Curves**

# Vertical Alignment Report

## Vertical Curves

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Project: **Design and study of al-harayeq road**

### Horizontal Alignment Information

Name: fidaa aligment  
Station Range: 0+000 to 0+586.675  
Station Equations: None

### **Vertical Alignment: Center FG**

#### Vertical Curve Information: (sag curve)

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PVC Station:	0+262.681	Elevation:	867.205
PVI Station:	0+307.681	Elevation:	864.083
PVT Station:	0+352.681	Elevation:	861.394
Grade in (%):	-6.938	Grade out (%):	-5.976
Change (%):	0.962	K:	93.582
Curve Length:	90.000		
Headlight Distance:	Infinite		