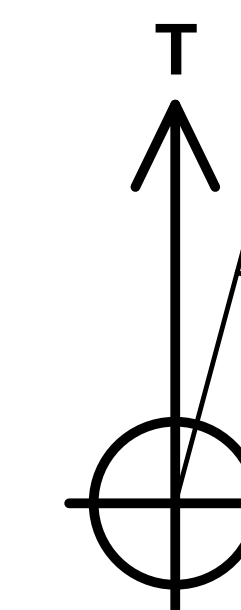




Project: Weld County, CO (NAD83)
Site: Sec.19-T7N-R65W
Well: WAAG 10
Wellbore: Wellbore #1 / Job #1523846
Design: Plan 1 06-25-15
Rig: H&P319



Azimuths to True North
Magnetic North: 8.33°

Magnetic Field
Strength: 52691.1snT
Dip Angle: 67.10°
Date: 6/25/2015
Model: HDGM

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: Colorado Northern Zone

Local Origin: Well WAAG 10, True North

Latitude: 40° 33' 40.932 N
Longitude: 104° 42' 25.056 W

Grid East: 3220341.16
Grid North: 1448333.38
Scale Factor: 1.000

Geomagnetic Model: HDGM
Sample Date: 25-Jun-15
Magnetic Declination: 8.33°
Dip Angle from Horizontal: 67.10°
Magnetic Field Strength: 52691

To convert a Magnetic Direction to a Grid Direction, Add 7.82°
To convert a Magnetic Direction to a True Direction, Add 8.33° East
To convert a True Direction to a Grid Direction, Subtract 0.51°

WELL DETAILS									
	+N/-S	+E/-W	Northing	Ground Level:	4885.00	Latitude	Longitude		
	0.00	0.00	1448333.38	Easting	3220341.16	40° 33' 40.932 N	104° 42' 25.056 W		

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target	Annotation
1	820.00	0.80	165.60	819.94	1.04	2.88	0.00	0.00	-2.75		Tie In to Newsco Survey
2	871.00	0.80	165.60	870.94	0.35	3.06	0.00	0.00	-3.00		PTB, Hold 0.80° Inc @ 165.60° Azm
3	971.00	0.80	165.60	970.93	-1.00	3.41	0.00	0.00	-3.49		Begin 2°/100' Build
4	1285.48	5.75	36.44	1284.92	9.56	13.33	2.00	-134.80	-12.22		Hold 5.75° Inc @ 36.44° Azm
5	6479.52	5.75	36.44	6452.79	428.49	322.63	0.00	0.00	-274.57		Begin 2°/100' Drop
6	6767.22	0.00	0.00	6740.00	440.10	331.20	2.00	180.00	-281.84		Begin Vertical Hold
7	6797.26	0.00	0.00	6770.04	440.10	331.20	0.00	0.00	-281.84		KOP, Begin 10°/100' Build
8	7697.26	90.00	270.80	7343.00	448.10	-241.70	10.00	270.80	288.58		LP, Hold 90.00° Inc @ 270.80° Azm
9	12165.40	90.00	270.80	7343.00	510.49	-4709.41	0.00	0.00	4737.00	BHL_WAAG 10	TD at 12165.40' MD

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
BHL_WAAG 10	7343.00	510.49	-4709.41	1448801.73	3215627.37	40° 33' 45.972 N	104° 43' 26.076 W	Point	
LP_WAAG 10	7343.00	448.11	-241.72	1448779.31	3220095.44	40° 33' 45.360 N	104° 42' 28.188 W	Point	

PROJECT DETAILS: Weld County, CO (NAD83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level

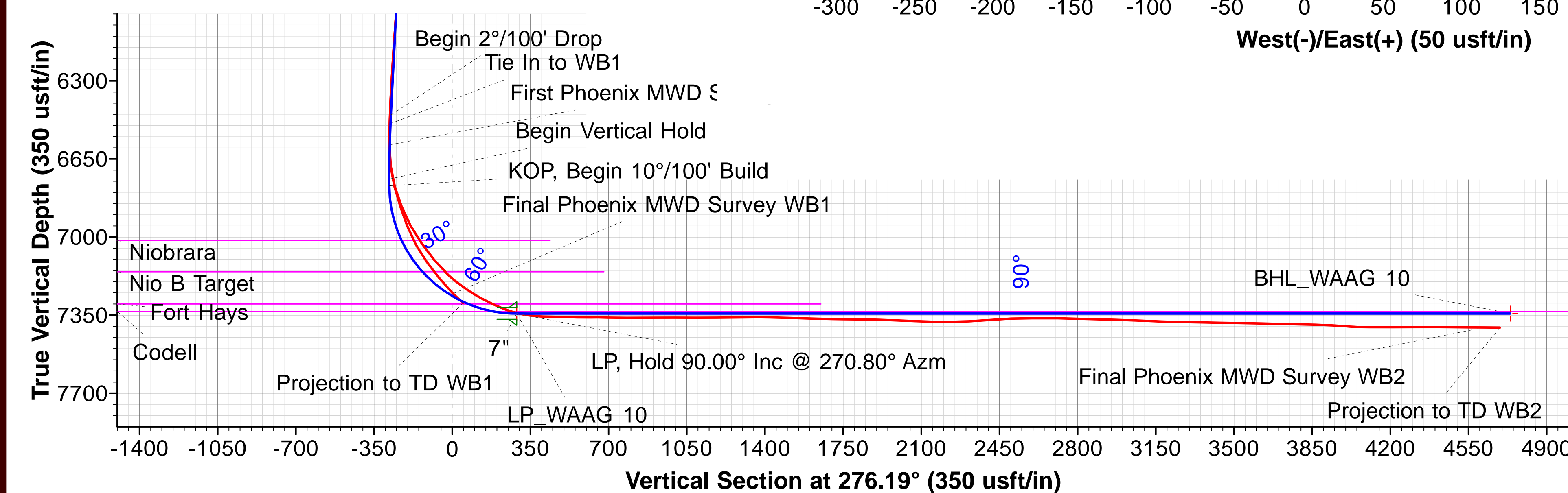
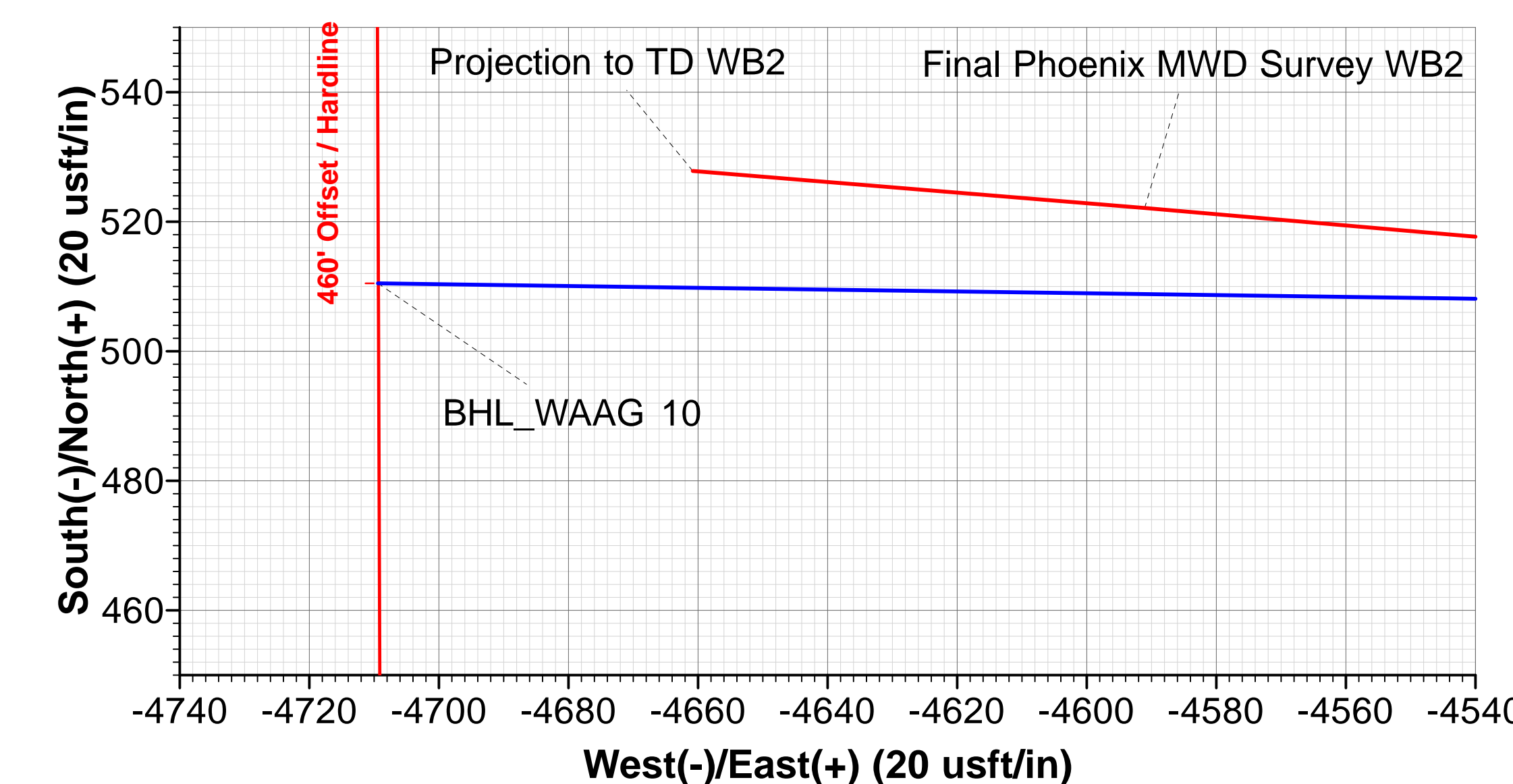
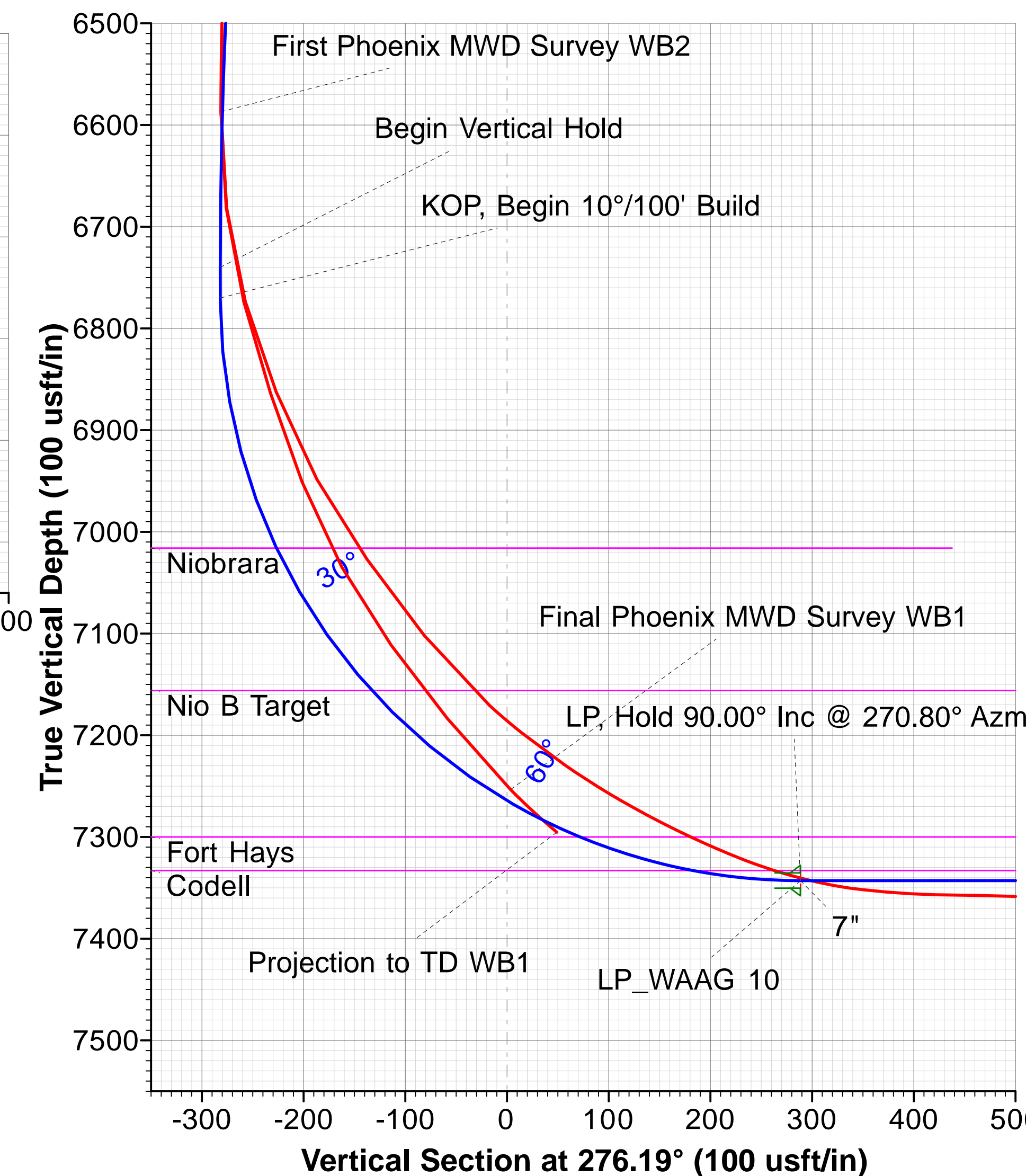
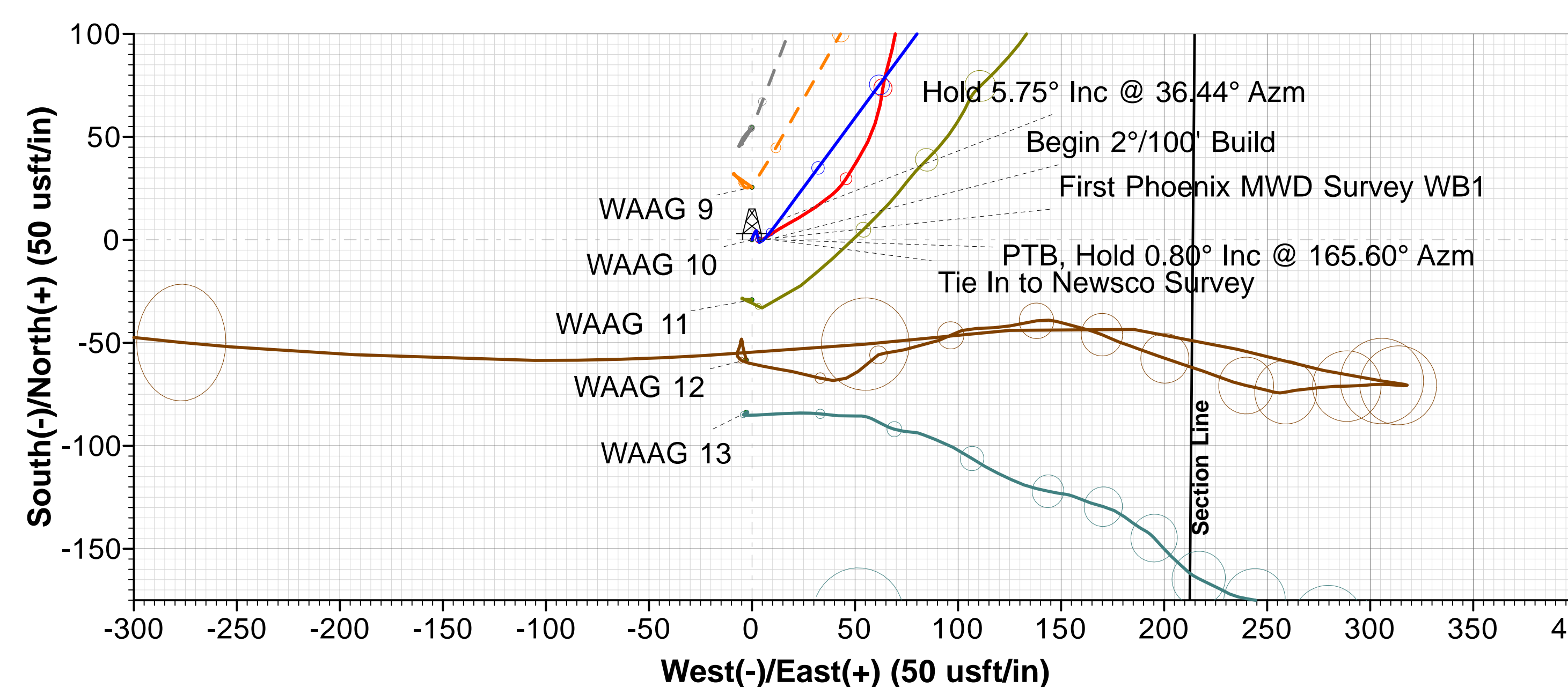
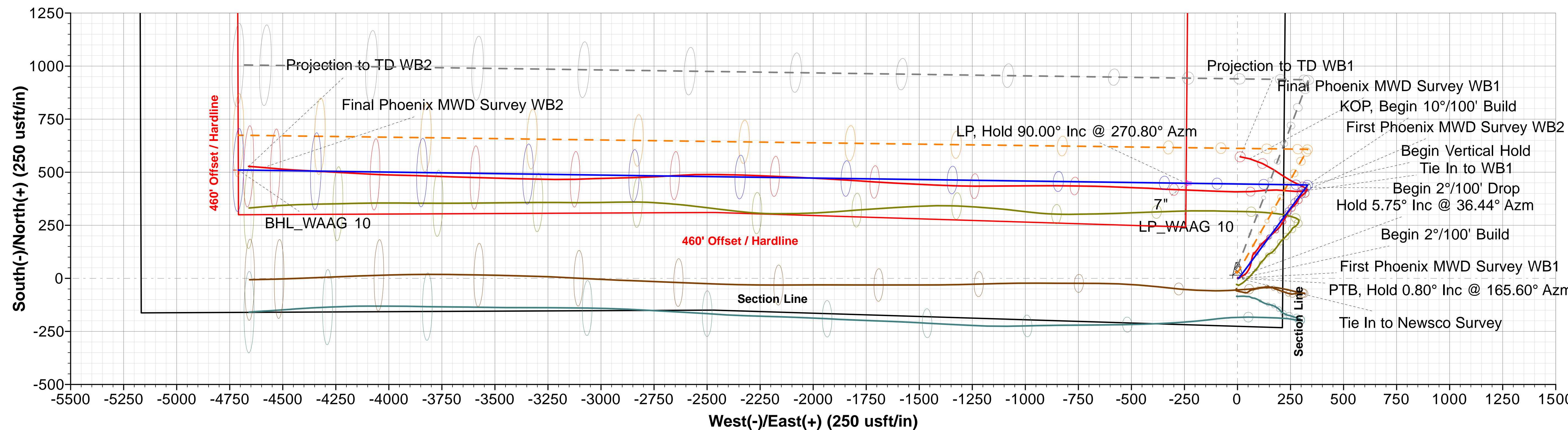
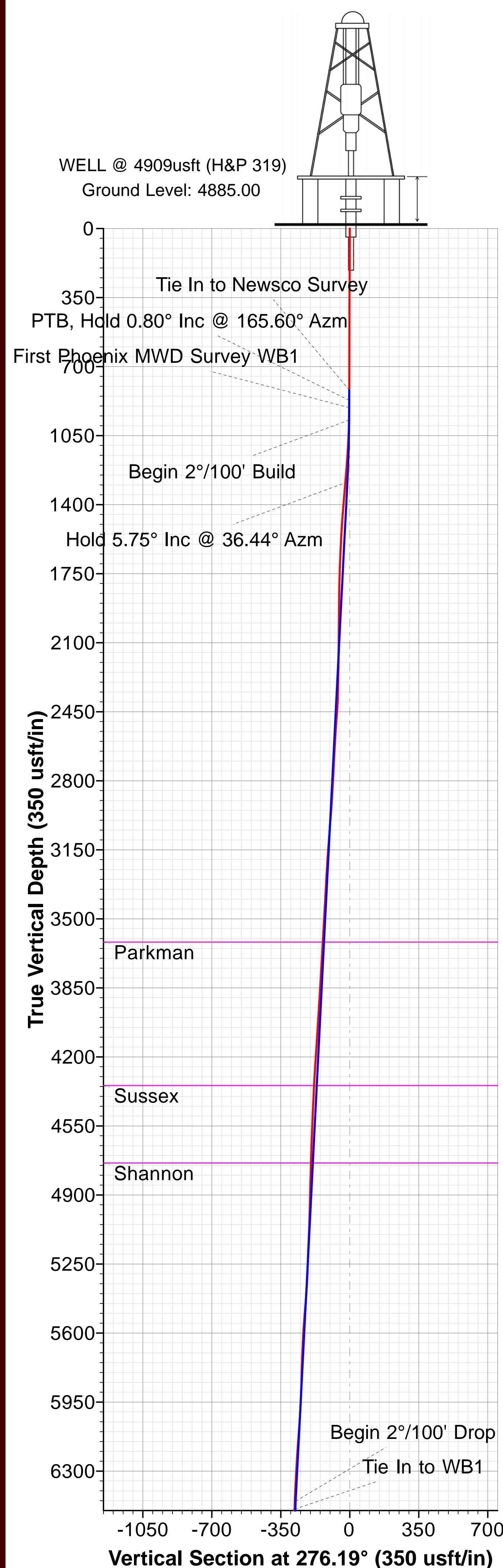
SITE DETAILS: Sec.19-T7N-R65W

Site Centre Northing: 1450756.06
Easting: 3219612.83

Positional Uncertainty: 0.00
Convergence: 0.51
Local North: True

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3618.00	3630.38	Parkman	0.00	276.19
4345.00	4361.06	Sussex	0.00	276.19
4738.00	4756.05	Shannon	0.00	276.19
7016.00	7051.48	Niobrara	0.00	276.19
7156.00	7220.73	Nio B Target	0.00	276.19
7300.00	7473.87	Fort Hays	0.00	276.19
7333.00	7590.06	Codell	0.00	276.19



LEGEND

- WAAG 10, Wellbore #2 / Job# 1523846, Surveys (H&P 319) V0
- WAAG 10, Wellbore #1 / Job #1523846, Surveys (H&P 319) V0
- WAAG 11, Wellbore #1 / Job #1523847, Surveys (H&P 319) V0
- WAAG 8, Wellbore #1 / Job #1523844, Plan 1 06-25-15 V0
- WAAG 8, Wellbore #1 / Job #1523844, Surveys (H&P 319) V0
- WAAG 13, Wellbore #1 / Job #1523849, Surveys (H&P 319) V0
- WAAG 12, Wellbore #1 / Job #1523848, Surveys (H&P 319) V0
- WAAG 9, Wellbore #1 / Job #1523845, Surveys (H&P 319) V0
- Plan 1 06-25-15