



MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

NE NW SEC. 29 T8N R60W 6th P.M.

SHOVELER GOLDENEYE FED 21-16-1HN

ORIGINAL WELLBORE

08 October, 2019

Plan: PROPOSAL #4





Project: WELD COUNTY, COLORADO (NAD 83)
Site: NE NW SEC. 29 T8N R60W 6th P.M.
Well: SHOVELER GOLDENEYE FED 21-16-1HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #4

ANNOTATIONS

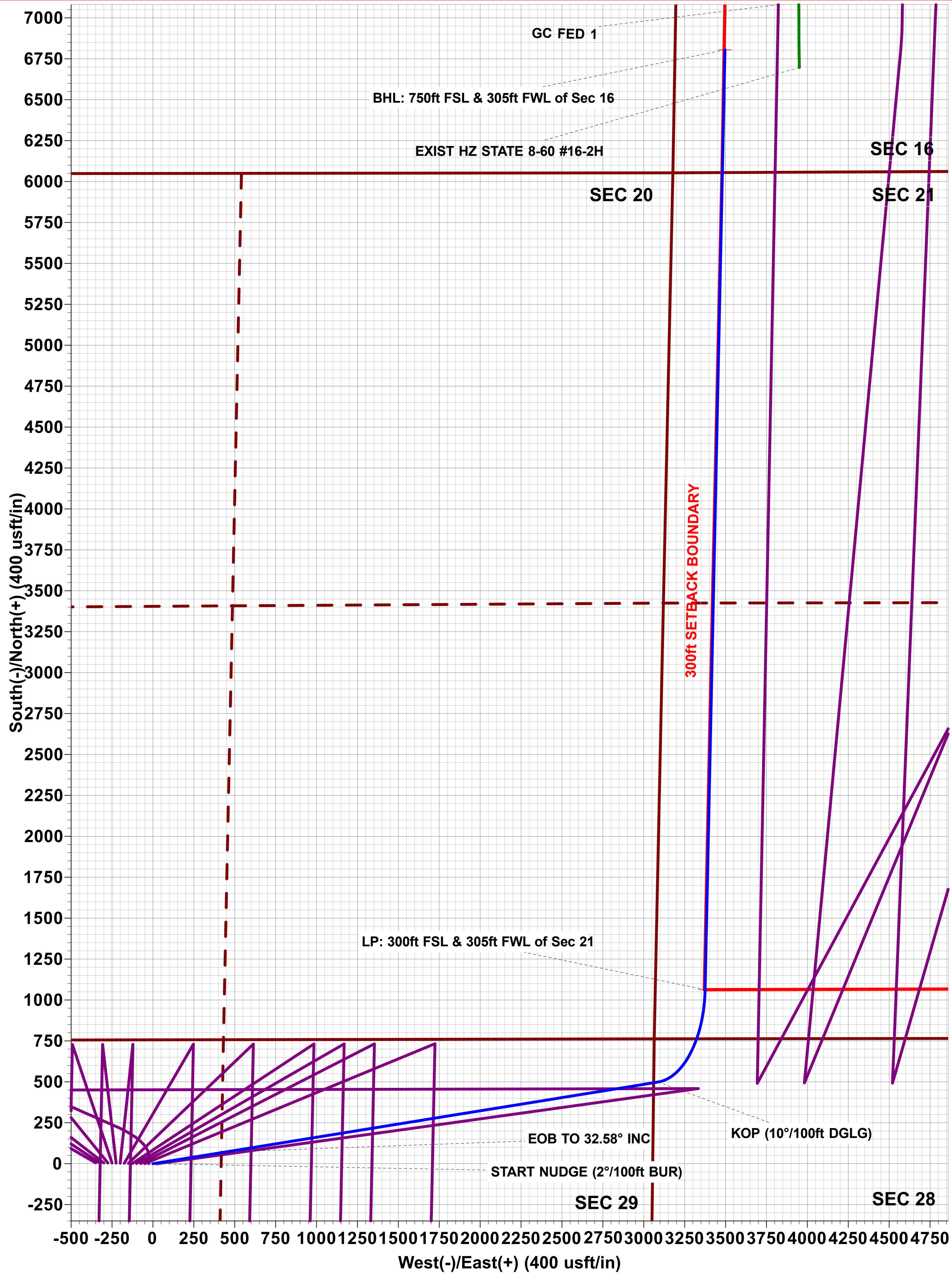
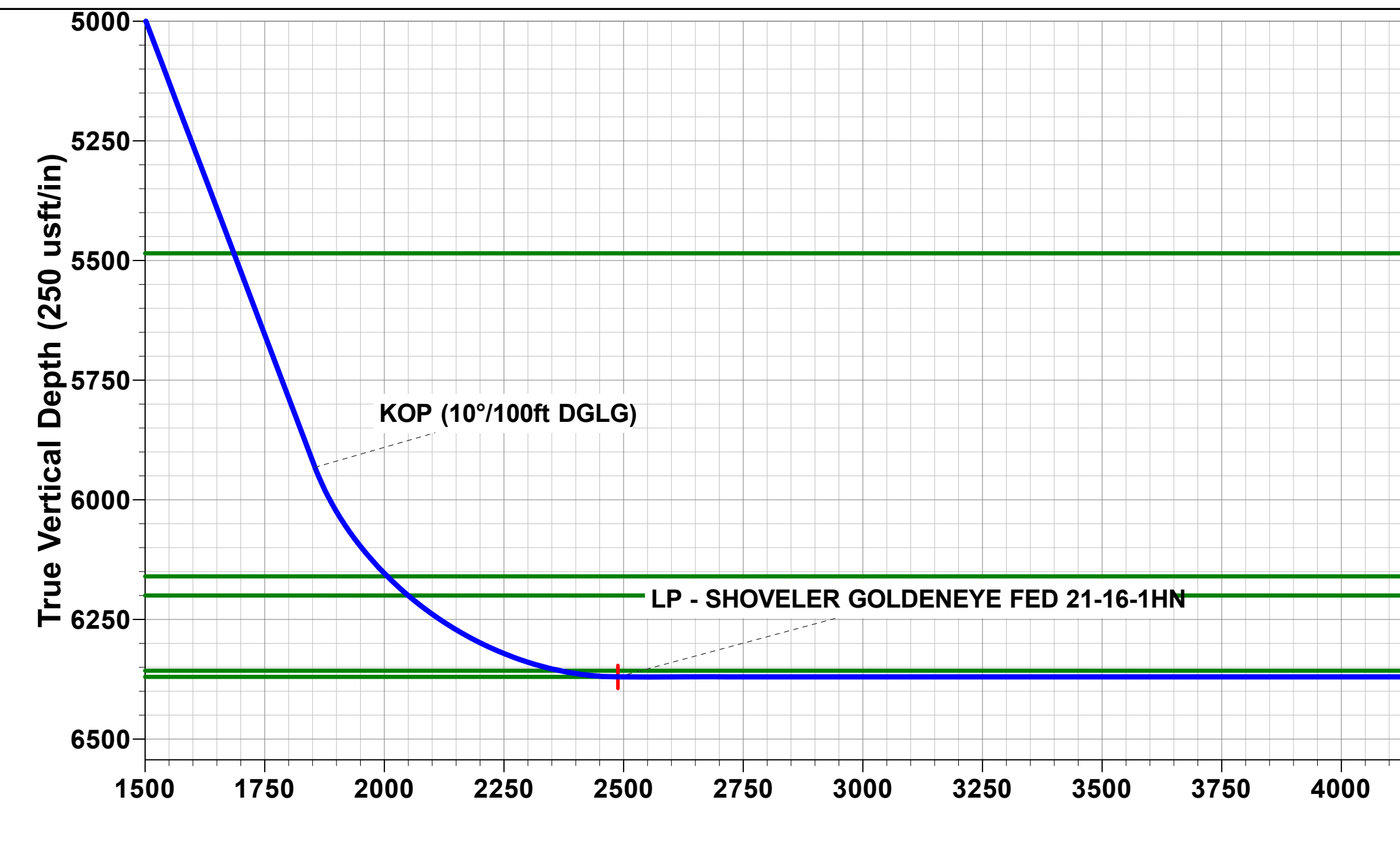
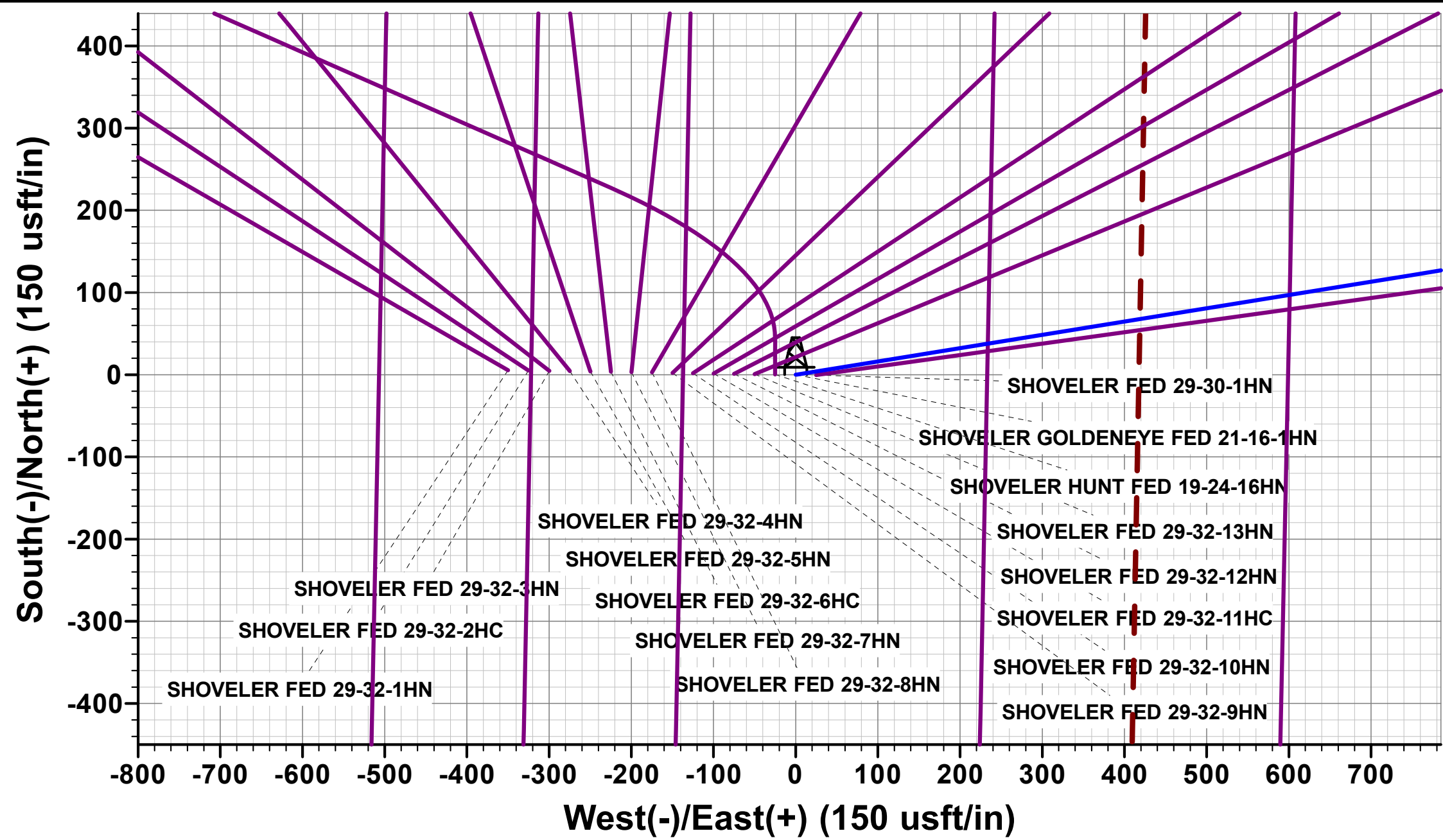
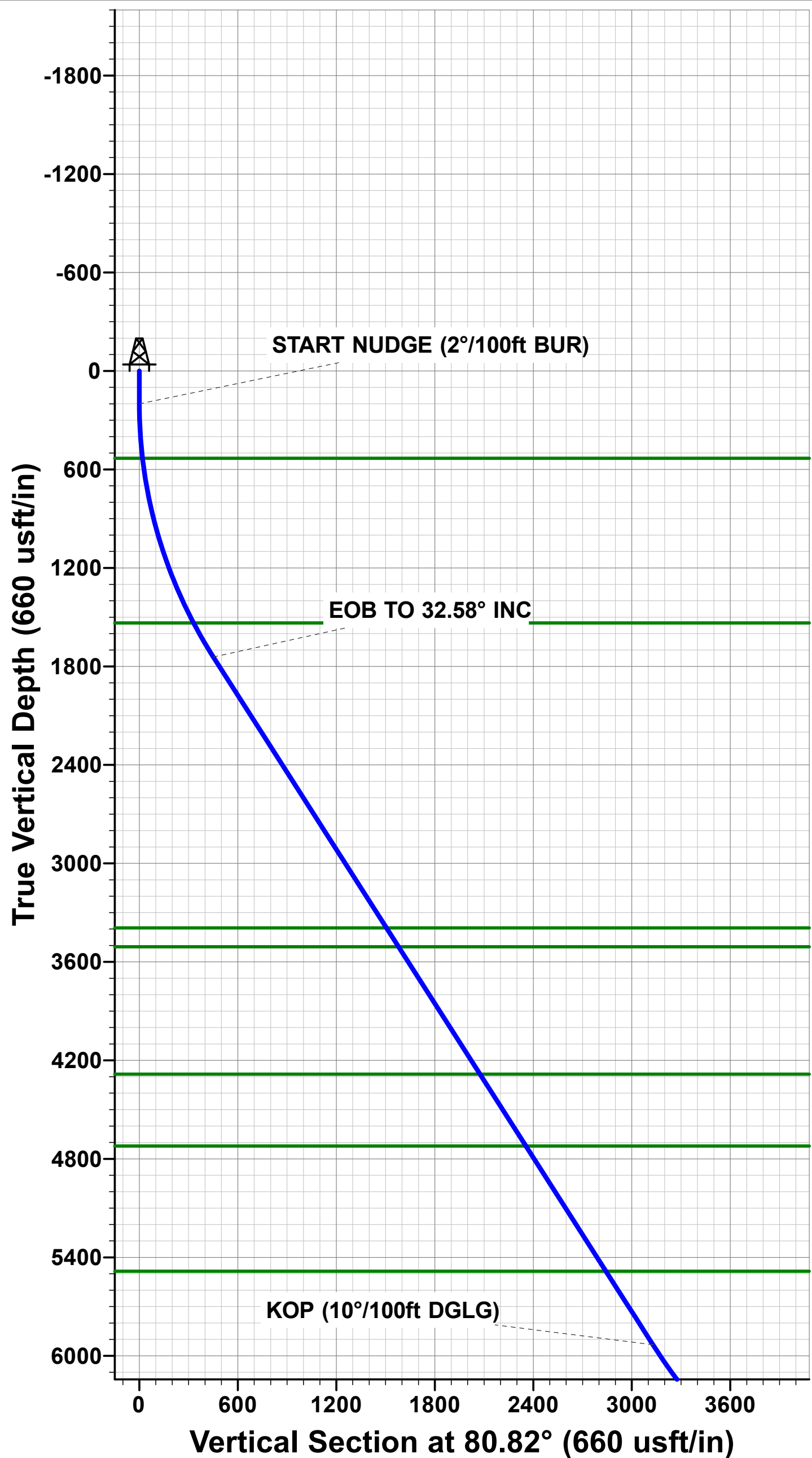
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 757ft FNL & 2222ft FWL of Sec 29
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1829.16	32.58	80.82	1742.76	71.92	445.11	267.40	450.89	EOB TO 32.58° INC
6800.93	32.58	80.82	5932.02	499.02	3088.24	1855.22	3128.30	KOP (10°/100ft DGLG)
7645.21	90.00	1.21	6370.00	1063.34	3375.53	2488.46	3804.37	LP: 300ft FSL & 305ft FWL of Sec 21
13388.31	90.00	1.21	6370.00	6805.16	3496.55	7650.89	9547.47	BHL: 750ft FSL & 305ft FWL of Sec 16

PROPOSED LOCAL COORDINATES:

SHL: 757ft FNL & 2222ft FWL Sec 29
HZ LP: 300ft FSL & 305ft FWL Sec 21
BHL: 750ft FSL & 305ft FWL of Sec 16

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP - SHOVELER GOLDENEYE FED 21-16-1HN	6370.00	1063.34	3375.53	40.641355	-104.105209
BHL - SHOVELER GOLDENEYE FED 21-16-1HN	6370.00	6805.16	3496.55	40.657115	-104.104770



Planning Report

Database:	Database 1	Local Co-ordinate Reference:	Well SHOVELER GOLDENEYE FED 21-16-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4973.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4973.00usft
Site:	NE NW SEC. 29 T8N R60W 6th P.M.	North Reference:	True
Well:	SHOVELER GOLDENEYE FED 21-16-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #4		

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	NE NW SEC. 29 T8N R60W 6th P.M.		
Site Position:		Northing:	1,478,416.23 usft
From:	Lat/Long	Easting:	3,383,356.26 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10 ft
		Latitude:	40.638452
		Longitude:	-104.118633
		Grid Convergence:	0.89 °

Well	SHOVELER GOLDENEYE FED 21-16-1HN					
Well Position	+N/-S	-5.47 usft	Northing:	1,478,416.21 usft	Latitude:	40.638437
	+E/-W	349.97 usft	Easting:	3,383,706.27 usft	Longitude:	-104.117372
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,948.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2019-10-08	7.63	67.08	52,316.12554963

Design	PROPOSAL #4				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	6,370.00	0.00	0.00	27.19	

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,973.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	-4,773.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,829.16	32.58	80.82	1,742.76	-3,230.24	71.92	445.11	2.00	2.00	0.00	80.82	
6,800.93	32.58	80.82	5,932.02	959.02	499.02	3,088.24	0.00	0.00	0.00	0.00	
7,645.21	90.00	1.21	6,370.00	1,397.00	1,063.34	3,375.53	10.00	6.80	-9.43	-81.22	LP - SHOVELER G
13,388.31	90.00	1.21	6,370.00	1,397.00	6,805.16	3,496.55	0.00	0.00	0.00	0.00	BHL - SHOVELER

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Site:	NE NW SEC. 29 T8N R60W 6th P.M.	North Reference:	True
Well:	SHOVELER GOLDENEYE FED 21-16-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #4		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 757ft FNL & 2222ft FWL of Sec 29										
0.00	0.00	0.00	0.00	4,973.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,873.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
200.00	0.00	0.00	200.00	4,773.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2.00	80.82	299.98	4,673.02	0.28	1.72	1.03	2.00	2.00	0.00
400.00	4.00	80.82	399.84	4,573.16	1.11	6.89	4.14	2.00	2.00	0.00
500.00	6.00	80.82	499.45	4,473.55	2.50	15.49	9.31	2.00	2.00	0.00
Fox Hills Base										
532.75	6.65	80.82	532.00	4,441.00	3.08	19.06	11.45	2.00	2.00	0.00
600.00	8.00	80.82	598.70	4,374.30	4.45	27.52	16.53	2.00	2.00	0.00
700.00	10.00	80.82	697.47	4,275.53	6.94	42.97	25.81	2.00	2.00	0.00
800.00	12.00	80.82	795.62	4,177.38	9.99	61.80	37.13	2.00	2.00	0.00
900.00	14.00	80.82	893.06	4,079.94	13.57	84.01	50.47	2.00	2.00	0.00
1,000.00	16.00	80.82	989.64	3,983.36	17.70	109.56	65.81	2.00	2.00	0.00
1,100.00	18.00	80.82	1,085.27	3,887.73	22.37	138.42	83.15	2.00	2.00	0.00
1,200.00	20.00	80.82	1,179.82	3,793.18	27.56	170.56	102.46	2.00	2.00	0.00
1,300.00	22.00	80.82	1,273.17	3,699.83	33.28	205.93	123.71	2.00	2.00	0.00
1,400.00	24.00	80.82	1,365.21	3,607.79	39.51	244.50	146.88	2.00	2.00	0.00
1,500.00	26.00	80.82	1,455.84	3,517.16	46.25	286.22	171.94	2.00	2.00	0.00
Pierre Shale Top										
1,588.76	27.78	80.82	1,535.00	3,438.00	52.65	325.85	195.75	2.00	2.00	0.00
1,600.00	28.00	80.82	1,544.94	3,428.06	53.49	331.04	198.87	2.00	2.00	0.00
1,700.00	30.00	80.82	1,632.39	3,340.61	61.22	378.89	227.62	2.00	2.00	0.00
1,800.00	32.00	80.82	1,718.11	3,254.89	69.44	429.74	258.16	2.00	2.00	0.00
EOB TO 32.58° INC										
1,829.16	32.58	80.82	1,742.76	3,230.24	71.92	445.11	267.40	2.00	2.00	0.00
1,900.00	32.58	80.82	1,802.45	3,170.55	78.01	482.78	290.02	0.00	0.00	0.00
2,000.00	32.58	80.82	1,886.71	3,086.29	86.60	535.94	321.96	0.00	0.00	0.00
2,100.00	32.58	80.82	1,970.97	3,002.03	95.19	589.10	353.89	0.00	0.00	0.00
2,200.00	32.58	80.82	2,055.23	2,917.77	103.78	642.26	385.83	0.00	0.00	0.00
2,300.00	32.58	80.82	2,139.49	2,833.51	112.37	695.43	417.77	0.00	0.00	0.00
2,400.00	32.58	80.82	2,223.75	2,749.25	120.96	748.59	449.71	0.00	0.00	0.00
2,500.00	32.58	80.82	2,308.01	2,664.99	129.55	801.75	481.64	0.00	0.00	0.00
2,600.00	32.58	80.82	2,392.27	2,580.73	138.14	854.91	513.58	0.00	0.00	0.00
2,700.00	32.58	80.82	2,476.54	2,496.46	146.73	908.08	545.52	0.00	0.00	0.00
2,800.00	32.58	80.82	2,560.80	2,412.20	155.32	961.24	577.45	0.00	0.00	0.00
2,900.00	32.58	80.82	2,645.06	2,327.94	163.91	1,014.40	609.39	0.00	0.00	0.00
3,000.00	32.58	80.82	2,729.32	2,243.68	172.51	1,067.57	641.33	0.00	0.00	0.00
3,100.00	32.58	80.82	2,813.58	2,159.42	181.10	1,120.73	673.26	0.00	0.00	0.00
3,200.00	32.58	80.82	2,897.84	2,075.16	189.69	1,173.89	705.20	0.00	0.00	0.00
3,300.00	32.58	80.82	2,982.10	1,990.90	198.28	1,227.05	737.14	0.00	0.00	0.00
3,400.00	32.58	80.82	3,066.36	1,906.64	206.87	1,280.22	769.07	0.00	0.00	0.00
3,500.00	32.58	80.82	3,150.62	1,822.38	215.46	1,333.38	801.01	0.00	0.00	0.00
3,600.00	32.58	80.82	3,234.89	1,738.11	224.05	1,386.54	832.95	0.00	0.00	0.00
3,700.00	32.58	80.82	3,319.15	1,653.85	232.64	1,439.70	864.88	0.00	0.00	0.00
Richard Sandstone										
3,787.65	32.58	80.82	3,393.00	1,580.00	240.17	1,486.30	892.88	0.00	0.00	0.00
3,800.00	32.58	80.82	3,403.41	1,569.59	241.23	1,492.87	896.82	0.00	0.00	0.00
3,900.00	32.58	80.82	3,487.67	1,485.33	249.82	1,546.03	928.76	0.00	0.00	0.00
Parkman Sandstone										
3,924.13	32.58	80.82	3,508.00	1,465.00	251.89	1,558.86	936.46	0.00	0.00	0.00

Planning Report

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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4973.00usft
Site:	NE NW SEC. 29 T8N R60W 6th P.M.	North Reference:	True
Well:	SHOVELER GOLDENEYE FED 21-16-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #4		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,000.00	32.58	80.82	3,571.93	1,401.07	258.41	1,599.19	960.70	0.00	0.00	0.00
4,100.00	32.58	80.82	3,656.19	1,316.81	267.00	1,652.36	992.63	0.00	0.00	0.00
4,200.00	32.58	80.82	3,740.45	1,232.55	275.59	1,705.52	1,024.57	0.00	0.00	0.00
4,300.00	32.58	80.82	3,824.71	1,148.29	284.18	1,758.68	1,056.51	0.00	0.00	0.00
4,400.00	32.58	80.82	3,908.97	1,064.03	292.77	1,811.84	1,088.44	0.00	0.00	0.00
4,500.00	32.58	80.82	3,993.23	979.77	301.36	1,865.01	1,120.38	0.00	0.00	0.00
4,600.00	32.58	80.82	4,077.50	895.50	309.95	1,918.17	1,152.32	0.00	0.00	0.00
4,700.00	32.58	80.82	4,161.76	811.24	318.54	1,971.33	1,184.25	0.00	0.00	0.00
4,800.00	32.58	80.82	4,246.02	726.98	327.13	2,024.49	1,216.19	0.00	0.00	0.00
Sussex Sandstone										
4,845.08	32.58	80.82	4,284.00	689.00	331.01	2,048.46	1,230.59	0.00	0.00	0.00
4,900.00	32.58	80.82	4,330.28	642.72	335.72	2,077.66	1,248.13	0.00	0.00	0.00
5,000.00	32.58	80.82	4,414.54	558.46	344.31	2,130.82	1,280.06	0.00	0.00	0.00
5,100.00	32.58	80.82	4,498.80	474.20	352.90	2,183.98	1,312.00	0.00	0.00	0.00
5,200.00	32.58	80.82	4,583.06	389.94	361.49	2,237.15	1,343.94	0.00	0.00	0.00
5,300.00	32.58	80.82	4,667.32	305.68	370.09	2,290.31	1,375.87	0.00	0.00	0.00
Shannon Sandstone										
5,364.89	32.58	80.82	4,722.00	251.00	375.66	2,324.81	1,396.60	0.00	0.00	0.00
5,400.00	32.58	80.82	4,751.58	221.42	378.68	2,343.47	1,407.81	0.00	0.00	0.00
5,500.00	32.58	80.82	4,835.85	137.15	387.27	2,396.63	1,439.75	0.00	0.00	0.00
5,600.00	32.58	80.82	4,920.11	52.89	395.86	2,449.80	1,471.69	0.00	0.00	0.00
5,700.00	32.58	80.82	5,004.37	-31.37	404.45	2,502.96	1,503.62	0.00	0.00	0.00
5,800.00	32.58	80.82	5,088.63	-115.63	413.04	2,556.12	1,535.56	0.00	0.00	0.00
5,900.00	32.58	80.82	5,172.89	-199.89	421.63	2,609.29	1,567.50	0.00	0.00	0.00
6,000.00	32.58	80.82	5,257.15	-284.15	430.22	2,662.45	1,599.43	0.00	0.00	0.00
6,100.00	32.58	80.82	5,341.41	-368.41	438.81	2,715.61	1,631.37	0.00	0.00	0.00
6,200.00	32.58	80.82	5,425.67	-452.67	447.40	2,768.77	1,663.31	0.00	0.00	0.00
TeePee Buttes										
6,270.41	32.58	80.82	5,485.00	-512.00	453.45	2,806.20	1,685.79	0.00	0.00	0.00
6,300.00	32.58	80.82	5,509.93	-536.93	455.99	2,821.94	1,695.24	0.00	0.00	0.00
6,400.00	32.58	80.82	5,594.20	-621.20	464.58	2,875.10	1,727.18	0.00	0.00	0.00
6,500.00	32.58	80.82	5,678.46	-705.46	473.17	2,928.26	1,759.12	0.00	0.00	0.00
6,600.00	32.58	80.82	5,762.72	-789.72	481.76	2,981.42	1,791.05	0.00	0.00	0.00
6,700.00	32.58	80.82	5,846.98	-873.98	490.35	3,034.59	1,822.99	0.00	0.00	0.00
6,800.00	32.58	80.82	5,931.24	-958.24	498.94	3,087.75	1,854.93	0.00	0.00	0.00
KOP (10°/100ft DGLG)										
6,800.93	32.58	80.82	5,932.02	-959.02	499.02	3,088.24	1,855.22	0.00	0.00	0.00
6,900.00	35.32	63.72	6,014.38	-1,041.38	516.00	3,140.39	1,894.16	10.00	2.77	-17.26
7,000.00	40.16	49.37	6,093.59	-1,120.59	549.89	3,190.91	1,947.38	10.00	4.83	-14.35
Sharon Springs										
7,090.68	45.79	38.91	6,160.00	-1,187.00	594.30	3,233.60	2,006.40	10.00	6.21	-11.53
7,100.00	46.42	37.96	6,166.46	-1,193.46	599.57	3,237.77	2,012.99	10.00	6.74	-10.25
Niobrara Top										
7,150.28	49.93	33.13	6,200.00	-1,227.00	630.06	3,259.50	2,050.04	10.00	6.99	-9.60
7,200.00	53.59	28.83	6,230.78	-1,257.78	663.53	3,279.56	2,088.99	10.00	7.35	-8.64
7,300.00	61.33	21.31	6,284.59	-1,311.59	739.84	3,315.00	2,173.06	10.00	7.74	-7.52
7,400.00	69.43	14.85	6,326.25	-1,353.25	826.18	3,343.02	2,262.65	10.00	8.10	-6.46
7,500.00	77.74	9.06	6,354.50	-1,381.50	919.92	3,362.76	2,355.05	10.00	8.32	-5.80
Niobrara B2 Chalk Target Top										
7,512.27	78.77	8.38	6,357.00	-1,384.00	931.79	3,364.58	2,366.44	10.00	8.39	-5.55
7,600.00	86.17	3.62	6,368.49	-1,395.49	1,018.21	3,373.63	2,447.44	10.00	8.43	-5.42
LP: 300ft FSL & 305ft FWL of Sec 21 - Niobrara B2 Chalk Target Center										

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Design:	PROPOSAL #4		

Planned Survey										
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7,645.21	90.00	1.21	6,370.00	-1,397.00	1,063.34	3,375.53	2,488.46	10.00	8.46	-5.33
7,700.00	90.00	1.21	6,370.00	-1,397.00	1,118.12	3,376.68	2,537.71	0.00	0.00	0.00
7,800.00	90.00	1.21	6,370.00	-1,397.00	1,218.10	3,378.79	2,627.60	0.00	0.00	0.00
7,900.00	90.00	1.21	6,370.00	-1,397.00	1,318.07	3,380.90	2,717.48	0.00	0.00	0.00
8,000.00	90.00	1.21	6,370.00	-1,397.00	1,418.05	3,383.01	2,807.37	0.00	0.00	0.00
8,100.00	90.00	1.21	6,370.00	-1,397.00	1,518.03	3,385.11	2,897.26	0.00	0.00	0.00
8,200.00	90.00	1.21	6,370.00	-1,397.00	1,618.01	3,387.22	2,987.15	0.00	0.00	0.00
8,300.00	90.00	1.21	6,370.00	-1,397.00	1,717.98	3,389.33	3,077.04	0.00	0.00	0.00
8,400.00	90.00	1.21	6,370.00	-1,397.00	1,817.96	3,391.43	3,166.93	0.00	0.00	0.00
8,500.00	90.00	1.21	6,370.00	-1,397.00	1,917.94	3,393.54	3,256.82	0.00	0.00	0.00
8,600.00	90.00	1.21	6,370.00	-1,397.00	2,017.92	3,395.65	3,346.71	0.00	0.00	0.00
8,700.00	90.00	1.21	6,370.00	-1,397.00	2,117.90	3,397.76	3,436.60	0.00	0.00	0.00
8,800.00	90.00	1.21	6,370.00	-1,397.00	2,217.87	3,399.86	3,526.49	0.00	0.00	0.00
8,900.00	90.00	1.21	6,370.00	-1,397.00	2,317.85	3,401.97	3,616.38	0.00	0.00	0.00
9,000.00	90.00	1.21	6,370.00	-1,397.00	2,417.83	3,404.08	3,706.27	0.00	0.00	0.00
9,100.00	90.00	1.21	6,370.00	-1,397.00	2,517.81	3,406.18	3,796.16	0.00	0.00	0.00
9,200.00	90.00	1.21	6,370.00	-1,397.00	2,617.78	3,408.29	3,886.05	0.00	0.00	0.00
9,300.00	90.00	1.21	6,370.00	-1,397.00	2,717.76	3,410.40	3,975.94	0.00	0.00	0.00
9,400.00	90.00	1.21	6,370.00	-1,397.00	2,817.74	3,412.51	4,065.82	0.00	0.00	0.00
9,500.00	90.00	1.21	6,370.00	-1,397.00	2,917.72	3,414.61	4,155.71	0.00	0.00	0.00
9,600.00	90.00	1.21	6,370.00	-1,397.00	3,017.70	3,416.72	4,245.60	0.00	0.00	0.00
9,700.00	90.00	1.21	6,370.00	-1,397.00	3,117.67	3,418.83	4,335.49	0.00	0.00	0.00
9,800.00	90.00	1.21	6,370.00	-1,397.00	3,217.65	3,420.93	4,425.38	0.00	0.00	0.00
9,900.00	90.00	1.21	6,370.00	-1,397.00	3,317.63	3,423.04	4,515.27	0.00	0.00	0.00
10,000.00	90.00	1.21	6,370.00	-1,397.00	3,417.61	3,425.15	4,605.16	0.00	0.00	0.00
10,100.00	90.00	1.21	6,370.00	-1,397.00	3,517.58	3,427.26	4,695.05	0.00	0.00	0.00
10,200.00	90.00	1.21	6,370.00	-1,397.00	3,617.56	3,429.36	4,784.94	0.00	0.00	0.00
10,300.00	90.00	1.21	6,370.00	-1,397.00	3,717.54	3,431.47	4,874.83	0.00	0.00	0.00
10,400.00	90.00	1.21	6,370.00	-1,397.00	3,817.52	3,433.58	4,964.72	0.00	0.00	0.00
10,500.00	90.00	1.21	6,370.00	-1,397.00	3,917.50	3,435.68	5,054.61	0.00	0.00	0.00
10,600.00	90.00	1.21	6,370.00	-1,397.00	4,017.47	3,437.79	5,144.50	0.00	0.00	0.00
10,700.00	90.00	1.21	6,370.00	-1,397.00	4,117.45	3,439.90	5,234.39	0.00	0.00	0.00
10,800.00	90.00	1.21	6,370.00	-1,397.00	4,217.43	3,442.01	5,324.27	0.00	0.00	0.00
10,900.00	90.00	1.21	6,370.00	-1,397.00	4,317.41	3,444.11	5,414.16	0.00	0.00	0.00
11,000.00	90.00	1.21	6,370.00	-1,397.00	4,417.38	3,446.22	5,504.05	0.00	0.00	0.00
11,100.00	90.00	1.21	6,370.00	-1,397.00	4,517.36	3,448.33	5,593.94	0.00	0.00	0.00
11,200.00	90.00	1.21	6,370.00	-1,397.00	4,617.34	3,450.44	5,683.83	0.00	0.00	0.00
11,300.00	90.00	1.21	6,370.00	-1,397.00	4,717.32	3,452.54	5,773.72	0.00	0.00	0.00
11,400.00	90.00	1.21	6,370.00	-1,397.00	4,817.30	3,454.65	5,863.61	0.00	0.00	0.00
11,500.00	90.00	1.21	6,370.00	-1,397.00	4,917.27	3,456.76	5,953.50	0.00	0.00	0.00
11,600.00	90.00	1.21	6,370.00	-1,397.00	5,017.25	3,458.86	6,043.39	0.00	0.00	0.00
11,700.00	90.00	1.21	6,370.00	-1,397.00	5,117.23	3,460.97	6,133.28	0.00	0.00	0.00
11,800.00	90.00	1.21	6,370.00	-1,397.00	5,217.21	3,463.08	6,223.17	0.00	0.00	0.00
11,900.00	90.00	1.21	6,370.00	-1,397.00	5,317.19	3,465.19	6,313.06	0.00	0.00	0.00
12,000.00	90.00	1.21	6,370.00	-1,397.00	5,417.16	3,467.29	6,402.95	0.00	0.00	0.00
12,100.00	90.00	1.21	6,370.00	-1,397.00	5,517.14	3,469.40	6,492.84	0.00	0.00	0.00
12,200.00	90.00	1.21	6,370.00	-1,397.00	5,617.12	3,471.51	6,582.73	0.00	0.00	0.00
12,300.00	90.00	1.21	6,370.00	-1,397.00	5,717.10	3,473.61	6,672.61	0.00	0.00	0.00
12,400.00	90.00	1.21	6,370.00	-1,397.00	5,817.07	3,475.72	6,762.50	0.00	0.00	0.00
12,500.00	90.00	1.21	6,370.00	-1,397.00	5,917.05	3,477.83	6,852.39	0.00	0.00	0.00
12,600.00	90.00	1.21	6,370.00	-1,397.00	6,017.03	3,479.94	6,942.28	0.00	0.00	0.00
12,700.00	90.00	1.21	6,370.00	-1,397.00	6,117.01	3,482.04	7,032.17	0.00	0.00	0.00
12,800.00	90.00	1.21	6,370.00	-1,397.00	6,216.99	3,484.15	7,122.06	0.00	0.00	0.00

Planning Report

Database:	Database 1	Local Co-ordinate Reference:	Well SHOVELER GOLDENEYE FED 21-16-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4973.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4973.00usft
Site:	NE NW SEC. 29 T8N R60W 6th P.M.	North Reference:	True
Well:	SHOVELER GOLDENEYE FED 21-16-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #4		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,900.00	90.00	1.21	6,370.00	-1,397.00	6,316.96	3,486.26	7,211.95	0.00	0.00	0.00
13,000.00	90.00	1.21	6,370.00	-1,397.00	6,416.94	3,488.36	7,301.84	0.00	0.00	0.00
13,100.00	90.00	1.21	6,370.00	-1,397.00	6,516.92	3,490.47	7,391.73	0.00	0.00	0.00
13,200.00	90.00	1.21	6,370.00	-1,397.00	6,616.90	3,492.58	7,481.62	0.00	0.00	0.00
13,300.00	90.00	1.21	6,370.00	-1,397.00	6,716.87	3,494.69	7,571.51	0.00	0.00	0.00
BHL: 750ft FSL & 305ft FWL of Sec 16										
13,388.31	90.00	1.21	6,370.00	-1,397.00	6,805.16	3,496.55	7,650.89	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
532.75	532.00	Fox Hills Base				
1,588.76	1,535.00	Pierre Shale Top				
3,787.65	3,393.00	Richard Sandstone				
3,924.13	3,508.00	Parkman Sandstone				
4,845.08	4,284.00	Sussex Sandstone				
5,364.89	4,722.00	Shannon Sandstone				
6,270.41	5,485.00	TeePee Buttes				
7,090.68	6,160.00	Sharon Springs				
7,150.28	6,200.00	Niobrara Top				
7,512.27	6,357.00	Niobrara B2 Chalk Target Top				
7,645.21	6,370.00	Niobrara B2 Chalk Target Center				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 757ft FNL & 2222ft FWL of Sec 29
200.00	200.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,829.16	1,742.76	71.92	445.11	EOB TO 32.58° INC
6,800.93	5,932.02	499.02	3,088.24	KOP (10°/100ft DGLG)
7,645.21	6,370.00	1,063.34	3,375.53	LP: 300ft FSL & 305ft FWL of Sec 21
13,388.31	6,370.00	6,805.16	3,496.55	BHL: 750ft FSL & 305ft FWL of Sec 16