

DIGITAL TERRAIN MODEL NOTES:
THE BASIS OF THE DESIGN IS A DIGITAL TERRAIN MODEL (DTM) DERIVED FROM DATA OBTAINED WITH LIGHT EMITTING RADAR (LIDAR) FROM AN AIRCRAFT. THE CONSTRUCTION STAKING OF THE DESIGN IS DONE WITH SURVEY GRADE GLOBAL POSITIONING SURVEY (GPS) EQUIPMENT. THE DTM ELEVATIONS AND GPS ELEVATIONS MAY VARY BY VALUES OF LESS THAN 0.5 FOOT TO 2 FEET. FOR EARTHWORK COMPUTATIONS, THE DTM MODEL IS ACCEPTED AS VALID. DURING CONSTRUCTION STAKING, THE ELEVATION OF THE WELL BORE WILL BE DETERMINED WITH GPS METHODS. THIS ELEVATION WILL BE THE PUBLISHED ELEVATION.

ESTIMATED EARTHWORK QUANTITIES	
PAD TOPSOIL (6" DEPTH)	3,690 C.Y.
ROAD TOPSOIL (3" DPTH)	110 C.Y.
PAD EXCAVATION	23,100 C.Y.
ROAD EXCAVATION	0 C.Y.
PAD EMBANKMENT (10% SHRINK ASSUMED)	12,360 C.Y.
ROAD EMBANKMENT (10% SHRINK ASSUMED)	1,500 C.Y.
WASTE MATERIAL	9,240 C.Y.
TOTAL EARTHWORK VOLUME	26,900 C.Y.

WELL SITE DESIGN AND CONSTRUCTION NOTES:
1. The graded well pad elevation was selected to approximate balance of excavation to embankment and to provide a stockpile of earth for the eventual frac pit reclamation.
2. The approximate volume of the frac pit is 9,280 C.Y. Material for frac pit reclamation will be obtained from the waste material stockpile.
3. Within the computed catch lines, the area of the proposed pad is 4.57 acres and the waste material stockpile area is 0.69 acres. This area does not include the area of the topsoil stockpiles nor the small additional area required for grading machine travel. The estimated area of the disturbance limits as shown is 6.23 acres.

- The Contractor or owner shall collect a representative sample (approximately one cubic foot of soil) from the material used for fill within the footprint of the proposed cuttings pit.
- The representative soil sample shall be taken to an ASTM certified laboratory and tested for Classification, Atterberg Limits, and Proctor in accordance with ASTM procedures.
- Fill material placed on existing grade within the footprint of the proposed cuttings pit and within 50 feet of the proposed cuttings pit shall be placed in loose lifts not exceeding 8 inches in depth and compacted to 95% Standard Proctor in accordance with ASTM D698.

PREPARED BY:
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SUR: AMG 7/08/13 PRI. #: 31A12
DES: SAG 7/01/13 REC: lldr / 85-44
DWN: SAG 7/01/13 FILE: C:\p\Data-v8\Chert\Black Hills E&P\Colo\Mesa
REV: SAG 10/26/14 DWG: 31a12 WF 10-31\Draw\10-31R6_cx6aSite



OWNER
**BLACK HILLS PLATEAU
PRODUCTION COMPANY, LLC**
DENVER, COLORADO

PROJECT
WINTER FLATS 10-31-99AH, 10-31-99BH, 10-31-99CH
& WINTER FLATS 10-31-99DH
NW¼ NE¼, SECTION 10, T. 9 S., R. 99 W.
MESA COUNTY, COLORADO

DRAWING TITLE
EXHIBIT VI-A
DRAWING DESCRIPTION
WELL SITE GRADING PLAN

PROPOSED ROAD CUT-FILL TABLE					
STATION	OFFSET	ELEV.	OFFSET	ELEV.	FILL (+) / CUT (-) / SLOPE
0+34.90	-15.53	6081.12	-13.88	6081.71	0.59 1:5.1
0+34.90	12.29	6080.78	11.17	6081.71	0.93 1:5.1
0+47.37	10.72	6080.99	9.00	6082.19	1.20 1:5.1
0+55.71	-16.21	6081.27	-11.00	6082.51	1.24 1:5.1
1+00.00	-14.45	6081.91	-11.00	6084.20	2.29 1:5.1
1+00.00	12.67	6081.75	9.00	6084.20	2.45 1:5.1
1+50.00	-15.64	6083.01	-11.00	6086.11	3.10 1:5.1
1+50.00	14.04	6082.75	9.00	6086.11	3.36 1:5.1
2+00.00	-16.76	6084.19	-11.00	6088.02	3.83 1:5.1
2+00.00	14.79	6084.16	9.00	6088.20	4.04 1:5.1
2+50.00	-18.10	6085.20	-11.00	6089.93	4.73 1:5.1
2+50.00	14.60	6086.20	9.00	6089.93	3.73 1:5.1
3+00.00	-20.26	6085.67	-11.00	6091.84	6.17 1:5.1
3+00.00	17.80	6085.98	9.00	6091.84	5.86 1:5.1
3+49.06	-21.56	6086.61	-11.00	6093.72	7.11 1:5.1
3+49.06	18.27	6087.51	9.00	6093.72	6.21 1:5.1