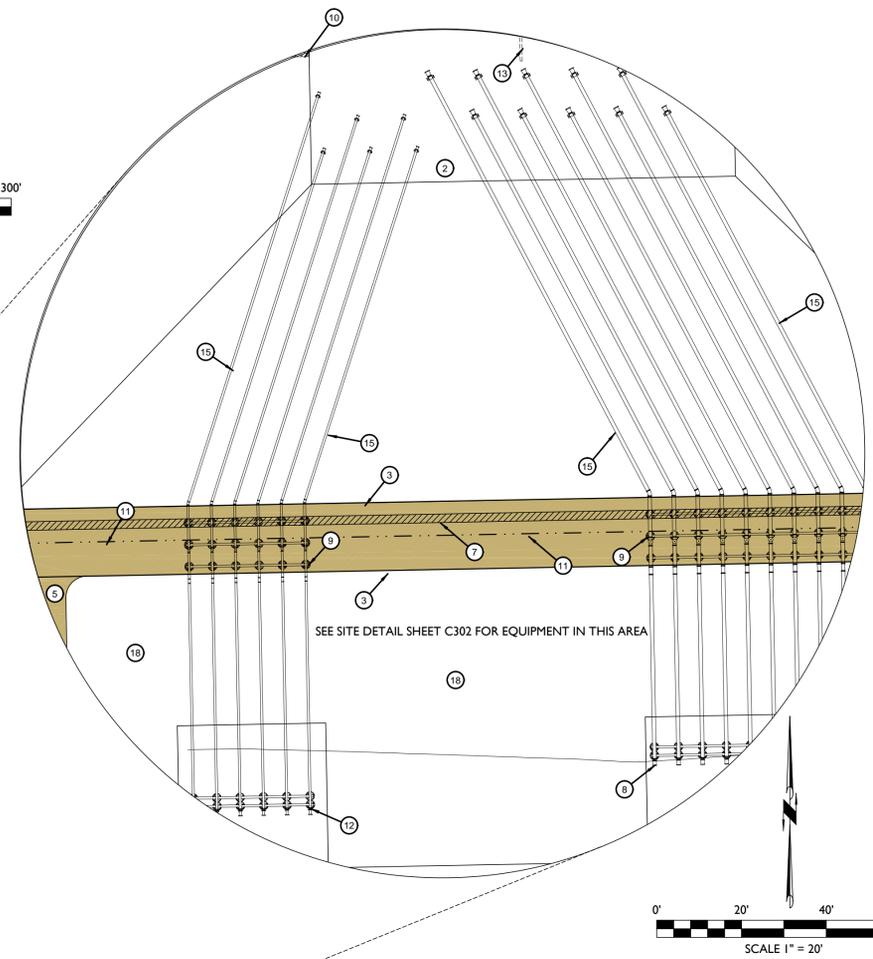
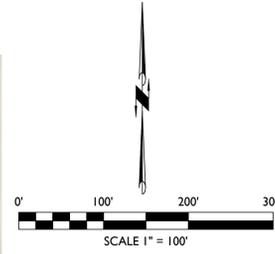
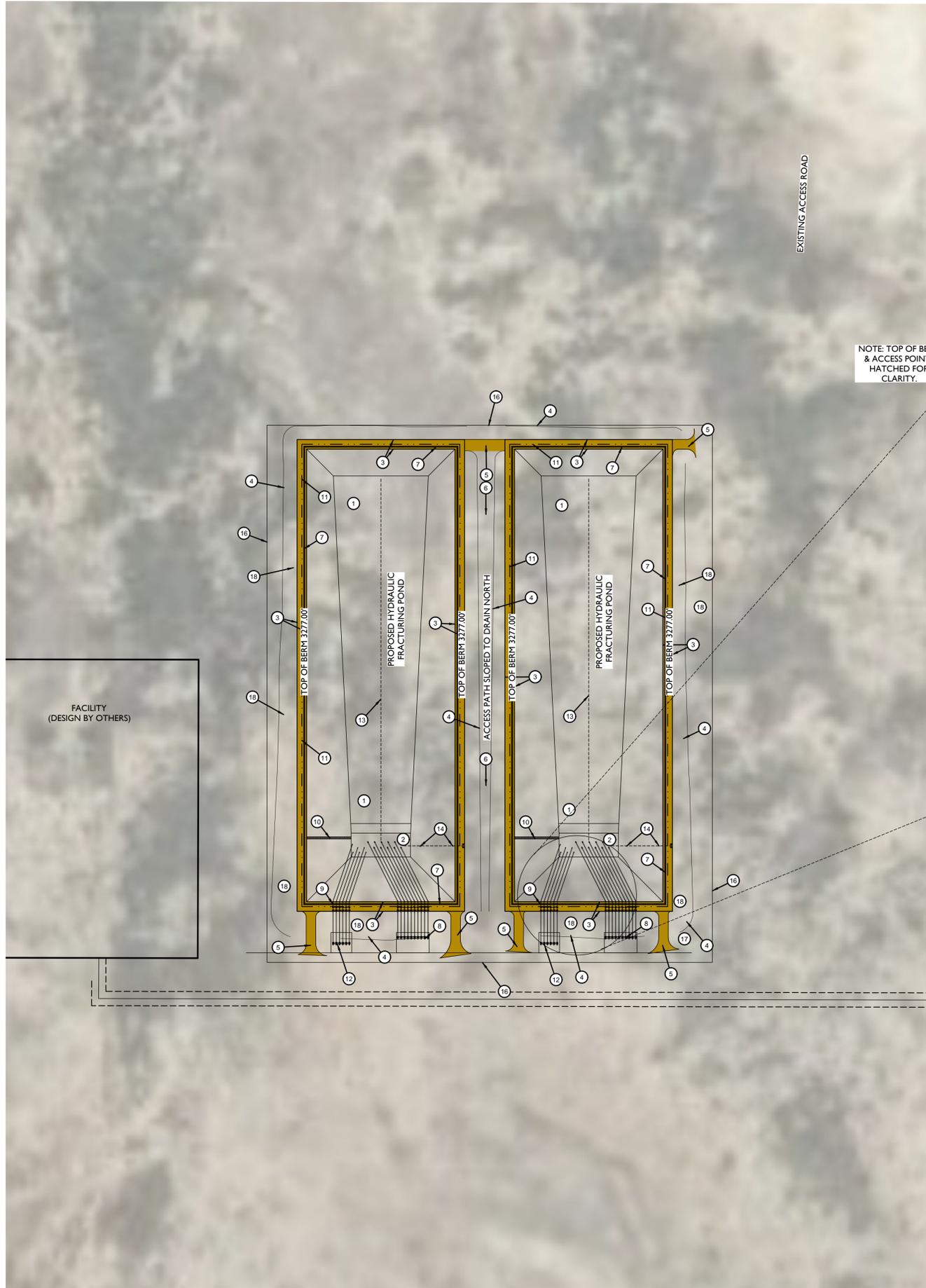


**Appendix 6 – Section 9 Recycling Containment  
Engineering Drawings**





**LEGEND**

- DENOTES PIPE UNDER LINER
- DENOTES TOP OF BERM CENTER LINE
- DENOTES EXISTING CONTOUR LINE
- DENOTES PROPOSED CONTOUR LINE
- DENOTES TOP OF BERM HATCH
- DENOTES ANCHOR TRENCH HATCH
- DENOTES CONCRETE HATCH

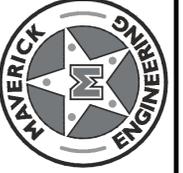
**SITE PLAN NOTES**

- Typ. 1. PROPOSED HYDRAULIC FRACTURING POND. PROPOSED HYDRAULIC FRACTURING POND. LINER IS TO BE WEIGHTED DOWN PERIODICALLY AS NECESSARY TO PREVENT LINER FROM BILLOWING IN THE WIND IF THE POND IS EMPTY. WEIGHTS ARE TO BE APPROVED BY CHEVRON MCBU AND WILL BE NON-DESTRUCTIVE TO THE LINER. INSTALL 80 MIL RUB SHEETS UNDER ALL WEIGHTS.
2. PROPOSED SUMP PIT.
  3. PROPOSED TOP OF BERM AND INSPECTION ROAD, 16 FT. WIDTH.
  4. ANTICIPATED TOE OF BERM, GRADES BACK TO EXISTING GROUND OR ACCESS ROAD IN BETWEEN THE PONDS.
  5. ACCESS RAMP TO TOP OF BERM INSPECTION ROAD.
  6. ACCESS ROAD BETWEEN PONDS.
  7. PROPOSED ANCHOR TRENCH. SEE DETAIL 5, SHEET C400.
  8. PROPOSED PIPE MANIFOLD FOR COMPLETION. SEE SITE DETAILS SHEET C301.
  9. PROPOSED CONCRETE FOOTING. SEE SITE DETAILS SHEET C301.
  10. PROPOSED PERSONNEL EMERGENCY EGRESS ROUTE. CONTRACTOR TO INSTALL ROPE LADDER FOR FULL WALL LENGTH. ALL COMPONENTS OF THE ROPE LADDER ARE TO BE MARINE / WATER PROOF AND UV RESISTANT. PROPOSED ANCHOR TRENCH. THE TOP OF THE ROPE LADDER IS TO BE FIRMLY ANCHORED IN THE ANCHORING TRENCH ALONG THE TOP OF THE BERM.
  11. PROPOSED TOP OF BERM CENTERLINE.
  12. PROPOSED PIPE MANIFOLD FOR DRILLING. SEE SITE DETAILS SHEET C301 & C302.
  13. PROPOSED LEAK DETECTION COLLECTION LATERAL. SEE DETAIL 7, SHEET C400.
  14. PROPOSED LEAK DETECTION RISER AND SAMPLE PORT. SEE DETAIL 1, SHEET C303.
  15. INSTALL 80 MIL HDPE RUB SHEETS UNDER ALL PIPING INTO AND OUT OF THE POND.
  16. INSTALL AN 8' TALL GAME FENCE PER CHEVRON MCBU STANDARDS. THE FENCE IS TO HAVE A 2' SILT FENCE AND KEYED IN BASE TO PREVENT BURROWING ANIMALS. THERE IS TO BE A LIFE RING SAFETY DEVICE INSTALLED AT THE GATE ENTRANCE AND OPPOSITE SIDE OF THE POND FROM SAID ENTRANCE. SEE MCBU STANDARDS FOR MORE INFORMATION.
  17. INSTALL POND INFORMATION SIGN LISTING OPERATOR NAME, PLS LOCATION & EMERGENCY TELEPHONE AND ANY OTHER INFORMATION AS REQUIRED BY CHEVRON. LETTERS ARE TO BE 2" TALL MINIMUM.
  18. INSTALL LANDLOK 450 TRM ON THE OUTSIDE OF THE BERM SLOPES TO STABILIZE THEM VS. EROSION. SEE TYPICAL MANUFACTURER'S DETAILS ON SHEET C404.



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	AMH			AMH	

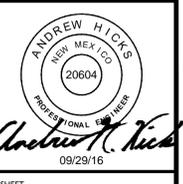
  

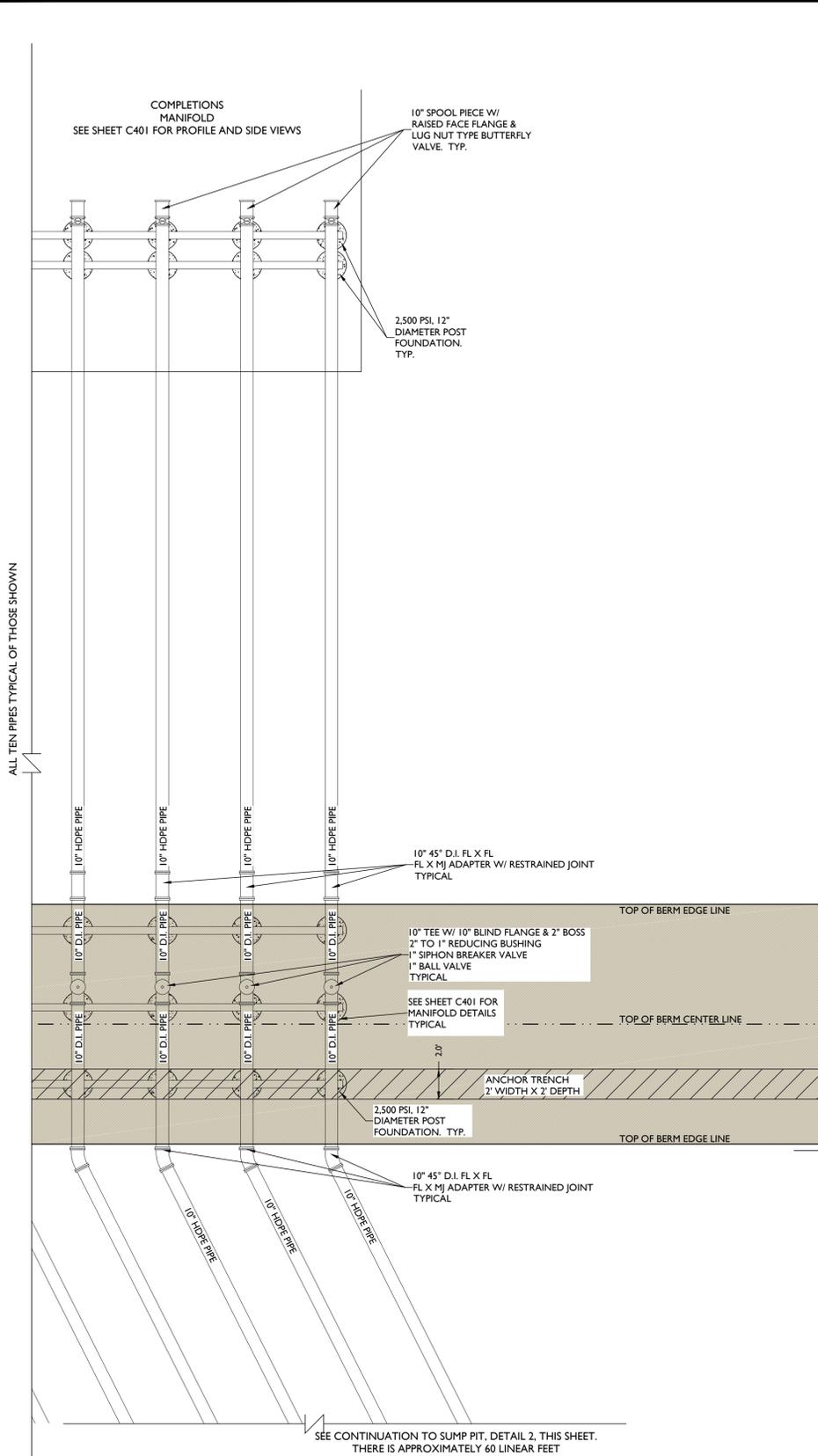
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CLIENT REVISIONS	AMH	09/29/16

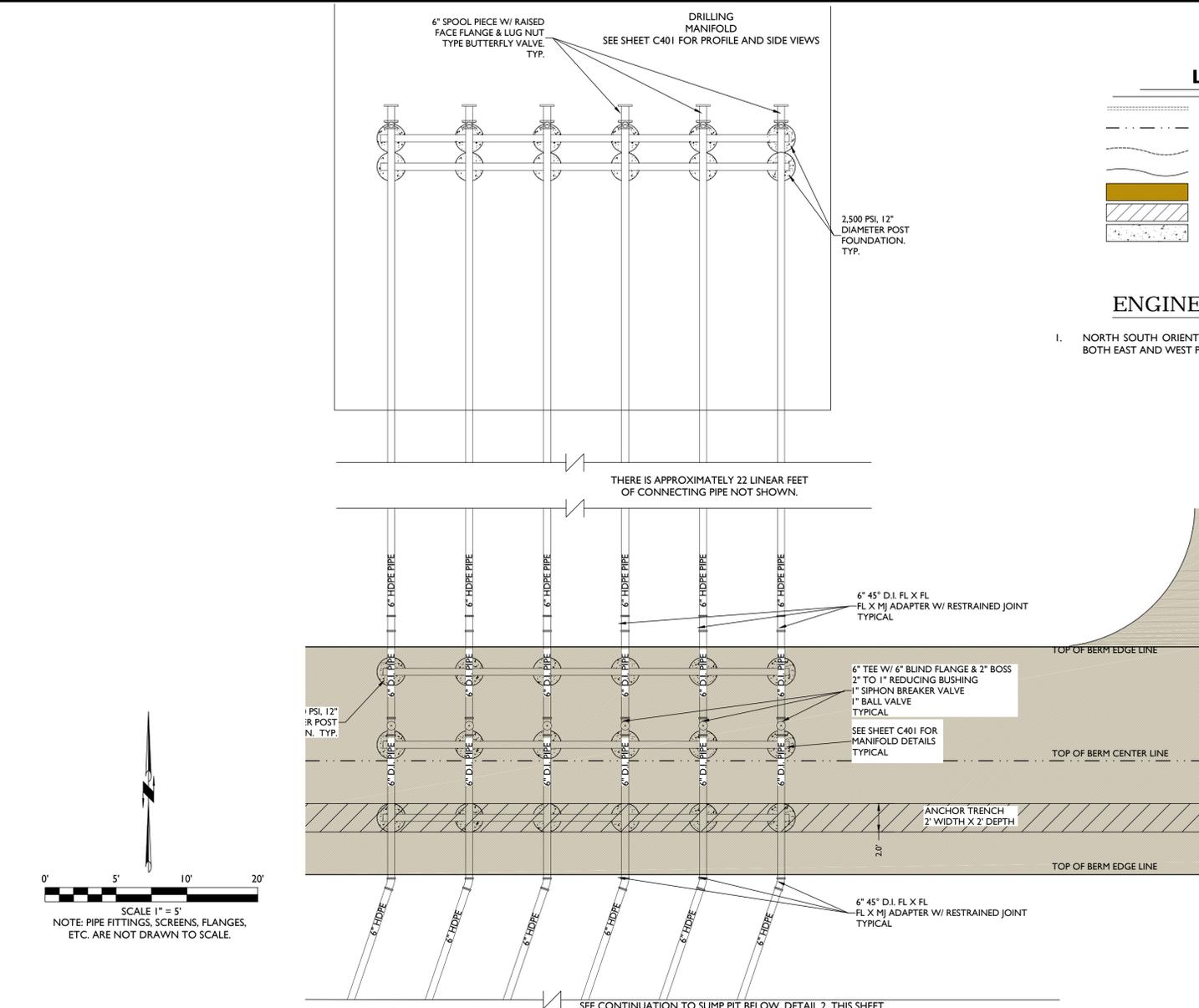
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**SITE PLAN WEST**  
**CHEVRON HYDRAULIC FRACTURING PONDS**  
 HH50 8 & HH50 10  
 EDDY COUNTY, NEW MEXICO

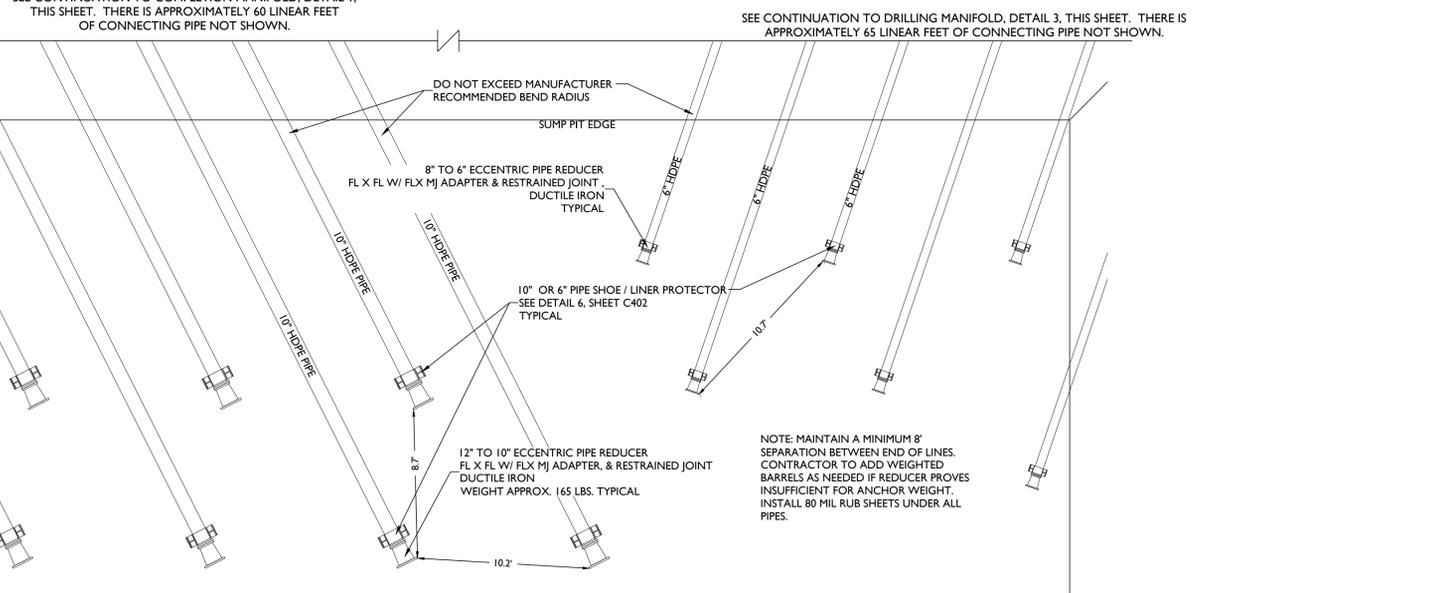




**1 COMPLETION MANIFOLD LINES**  
OR APPROVED EQUAL. N.T.S.



**3 DRILLING MANIFOLD LINES**  
OR APPROVED EQUAL. N.T.S.



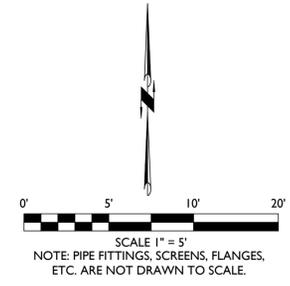
**2 SUMP LINES**  
OR APPROVED EQUAL. N.T.S.

**LEGEND**

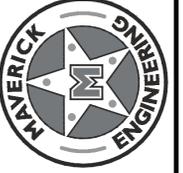
- DENOTES PIPE UNDER LINER
- - - DENOTES TOP OF BERM CENTER LINE
- ~ ~ ~ DENOTES EXISTING CONTOUR LINE
- DENOTES PROPOSED CONTOUR LINE
- DENOTES TOP OF BERM HATCH
- DENOTES ANCHOR TRENCH HATCH
- DENOTES CONCRETE HATCH

**ENGINEER'S NOTES**

1. NORTH SOUTH ORIENTATION SHOWN, BUT DETAILS APPLY TO BOTH EAST AND WEST PONDS.



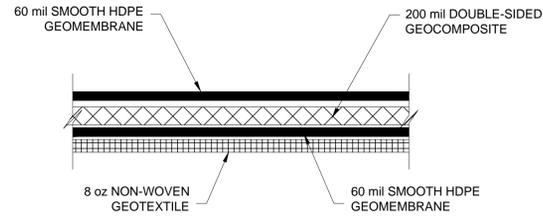
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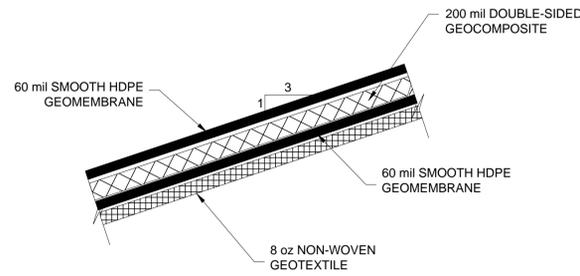
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**SITE PLANE EQUIPMENT DETAIL VIEW**  
**CHEVRON HYDRAULIC FRACTURING PONDS**  
HH50 8 & HH50 10  
EDDY COUNTY, NEW MEXICO

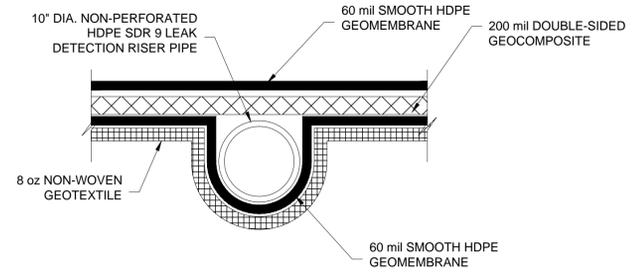
**ANDREW HICKS**  
NEW MEXICO  
20604  
PROFESSIONAL ENGINEER  
09/24/16



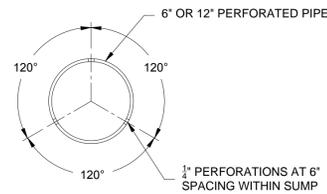
**1 CHEVRON STANDARD BOTTOM LINER**  
OR APPROVED EQUAL. N.T.S.



**2 CHEVRON STANDARD SIDE SLOPE LINER**  
OR APPROVED EQUAL. N.T.S.

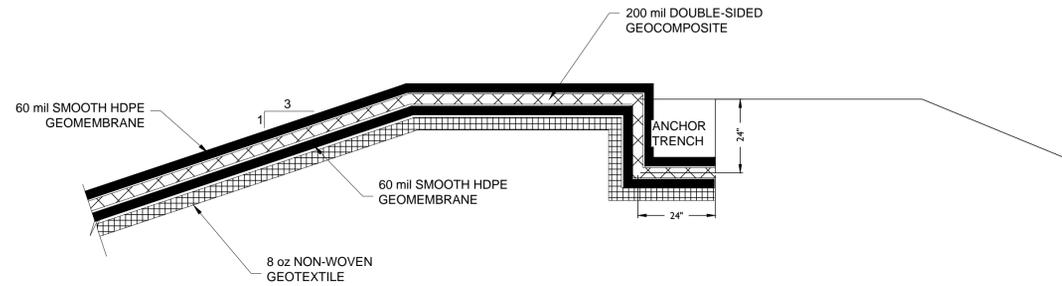


**3 CHEVRON STANDARD SUMP RISER TRENCH**  
OR APPROVED EQUAL. N.T.S.

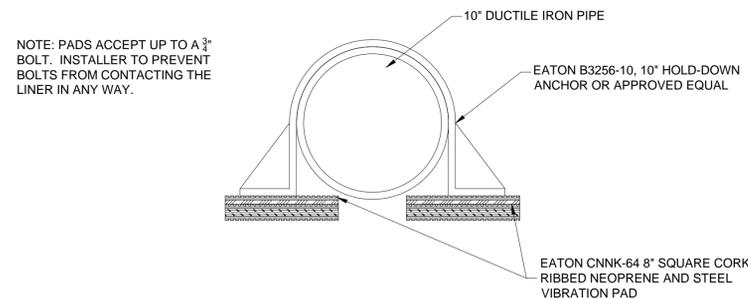


NOTE: PRE-FABRICATED PERFORATED PIPE WILL ALSO BE ACCEPTABLE.

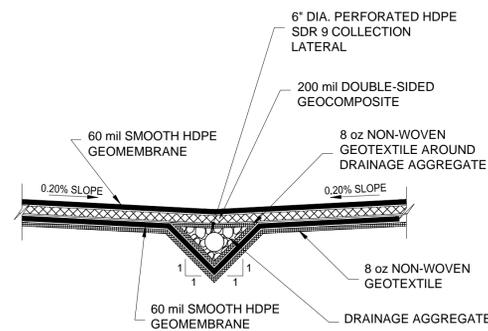
**4 TYPICAL PIPE PERFORATIONS**  
OR APPROVED EQUAL. N.T.S.



**5 CHEVRON STANDARD LINER ANCHOR**  
OR APPROVED EQUAL. N.T.S.



**6 TYPICAL PIPE SHOE / LINER PROTECTOR**  
OR APPROVED EQUAL. N.T.S.



**7 TYPICAL COLLECTION TRENCH**  
OR APPROVED EQUAL. N.T.S.

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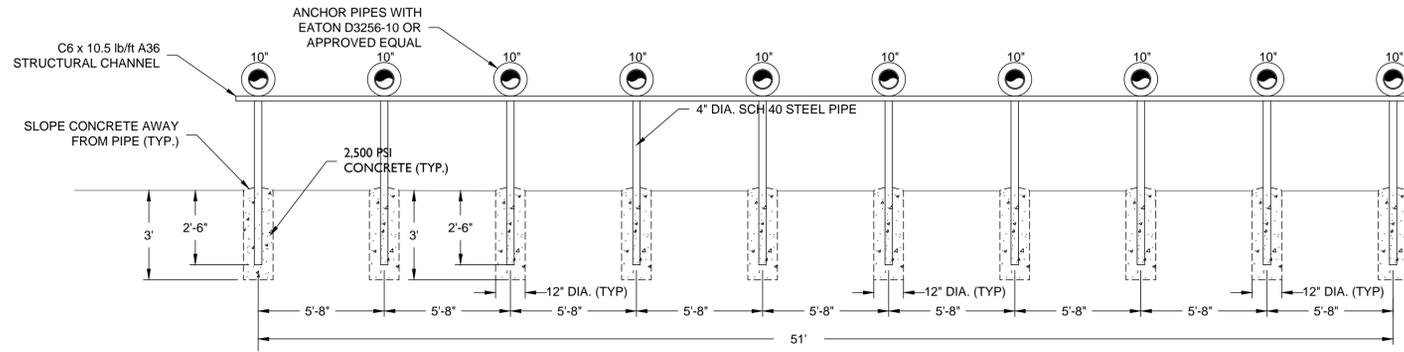
**LINER DETAILS**  
**CHEVRON HYDRAULIC FRACTURING PONDS**  
HH50 8 & HH50 10  
EDDY COUNTY, NEW MEXICO

**ANDREW HICKS**  
NEW MEXICO  
20604  
PROFESSIONAL ENGINEER

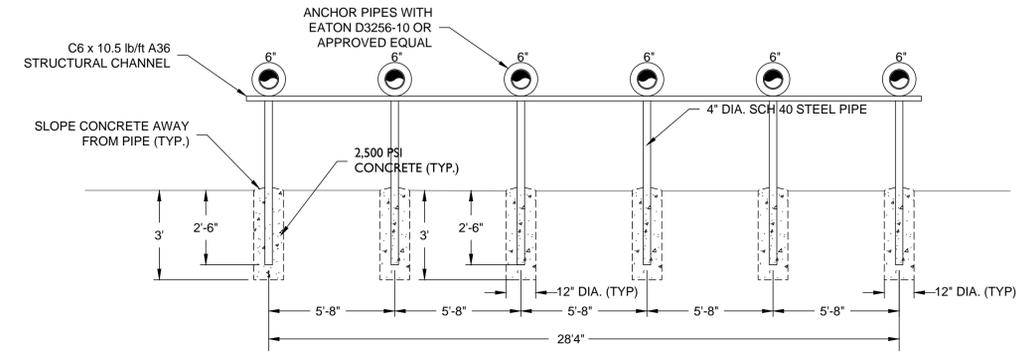
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SHEET **C400** OF 13

**ENGINEER'S NOTES**

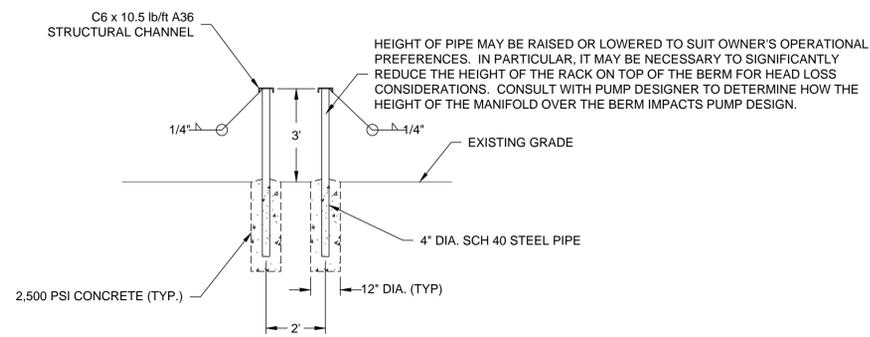
1. DETAILS 1 THROUGH 5 & 7 ARE AS PROVIDED TO MAVERICK ENGINEERING AS CHEVRON STANDARD DETAILS. THE DETAILS HAVE BEEN RENUMBERED AND ARRANGED FOR PRESENTATION. ANY SIGNIFICANT MODIFICATIONS WILL BE NOTED AS RECOMMENDED MODIFICATIONS TO THE STANDARD DETAIL.



**1 TYPICAL COMPLETION MANIFOLD PROFILE VIEW**  
OR APPROVED EQUAL. N.T.S.



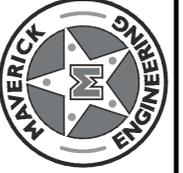
**2 TYPICAL DRILLING MANIFOLD PROFILE VIEW**  
OR APPROVED EQUAL. N.T.S.



**3 TYPICAL PIPE MANIFOLD SIDE VIEW**  
OR APPROVED EQUAL. N.T.S.

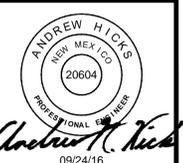
HEIGHT OF PIPE MAY BE RAISED OR LOWERED TO SUIT OWNER'S OPERATIONAL PREFERENCES. IN PARTICULAR, IT MAY BE NECESSARY TO SIGNIFICANTLY REDUCE THE HEIGHT OF THE RACK ON TOP OF THE BERM FOR HEAD LOSS CONSIDERATIONS. CONSULT WITH PUMP DESIGNER TO DETERMINE HOW THE HEIGHT OF THE MANIFOLD OVER THE BERM IMPACTS PUMP DESIGN.

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**MANIFOLD DETAILS**  
**CHEVRON HYDRAULIC FRACTURING PONDS**  
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EDDY COUNTY, NEW MEXICO

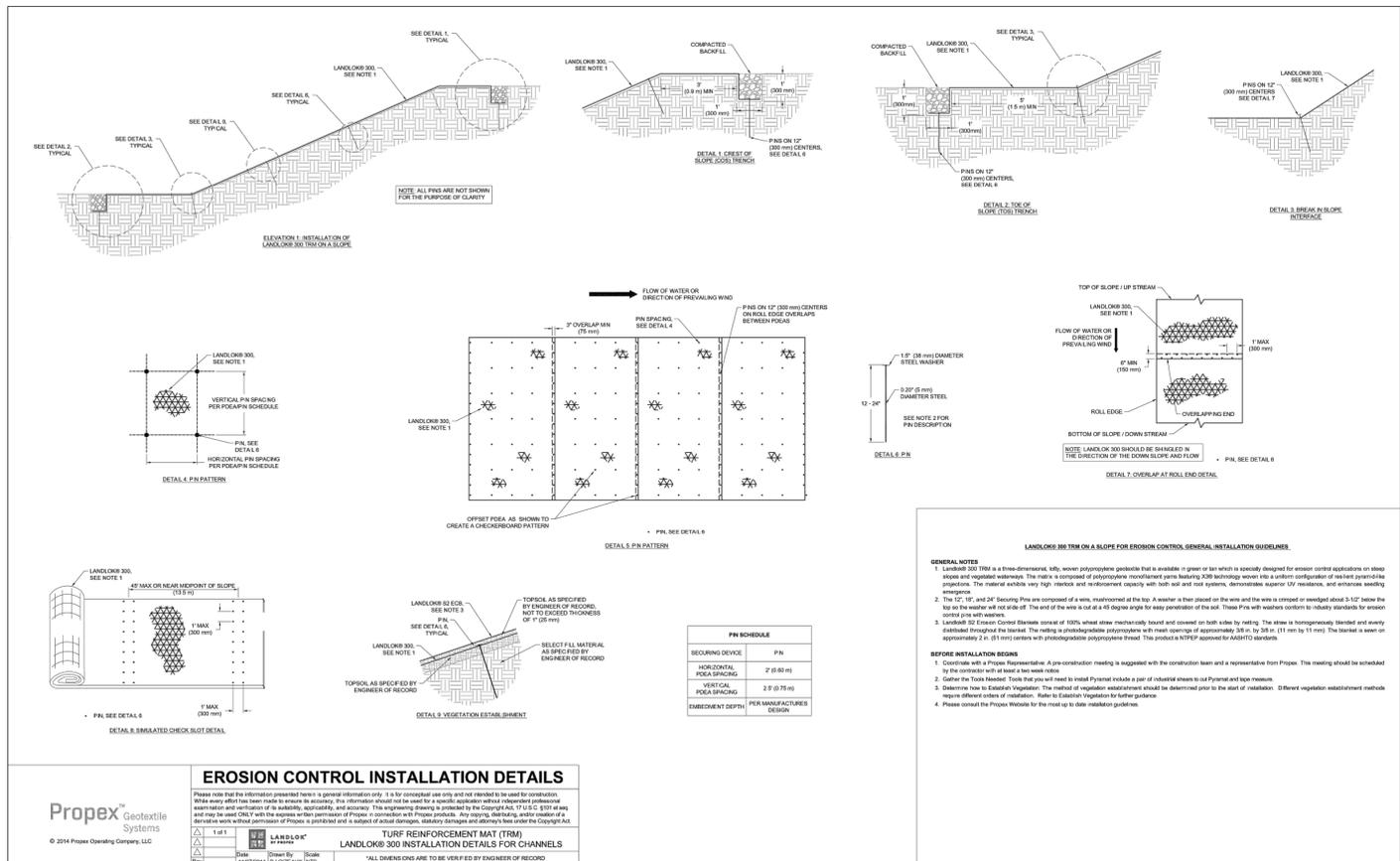
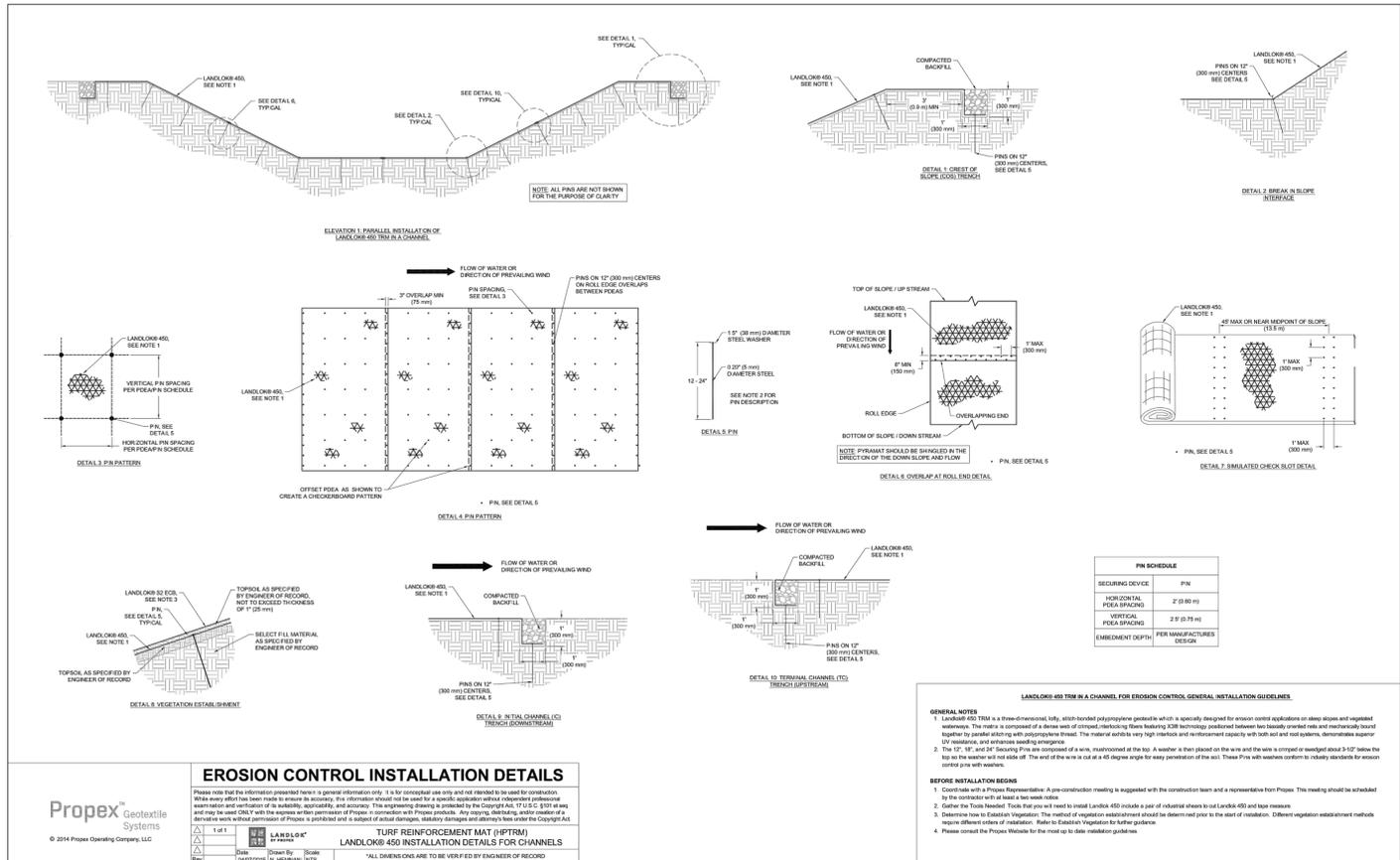


**ENGINEER'S NOTES**

1. DETAILS 1 THROUGH 3 ARE AS PROVIDED TO MAVERICK ENGINEERING AS CHEVRON STANDARD DETAILS. THE DETAILS HAVE BEEN RENUMBERED AND ARRANGED FOR PRESENTATION. ANY SIGNIFICANT MODIFICATIONS WILL BE NOTED AS RECOMMENDED MODIFICATIONS TO THE STANDARD DETAIL.







**ENGINEER'S NOTES**

- THE TWO DETAILS SHOWN ARE AS PROVIDED BY THE MANUFACTURER. ENGINEERING SEAL IS ONLY APPLIED TO SHOW THAT THESE DETAILS HAVE BEEN ADOPTED AS AN INTEGRAL PART OF THE PLAN SET. MAVERICK ASSUMES NO RESPONSIBILITY FOR THE DESIGN OF THESE DETAILS.



DATE	BY	DATE	BY
09-24-16	AMH	RET	AMH
	AMH	RET	AMH

REVISIONS

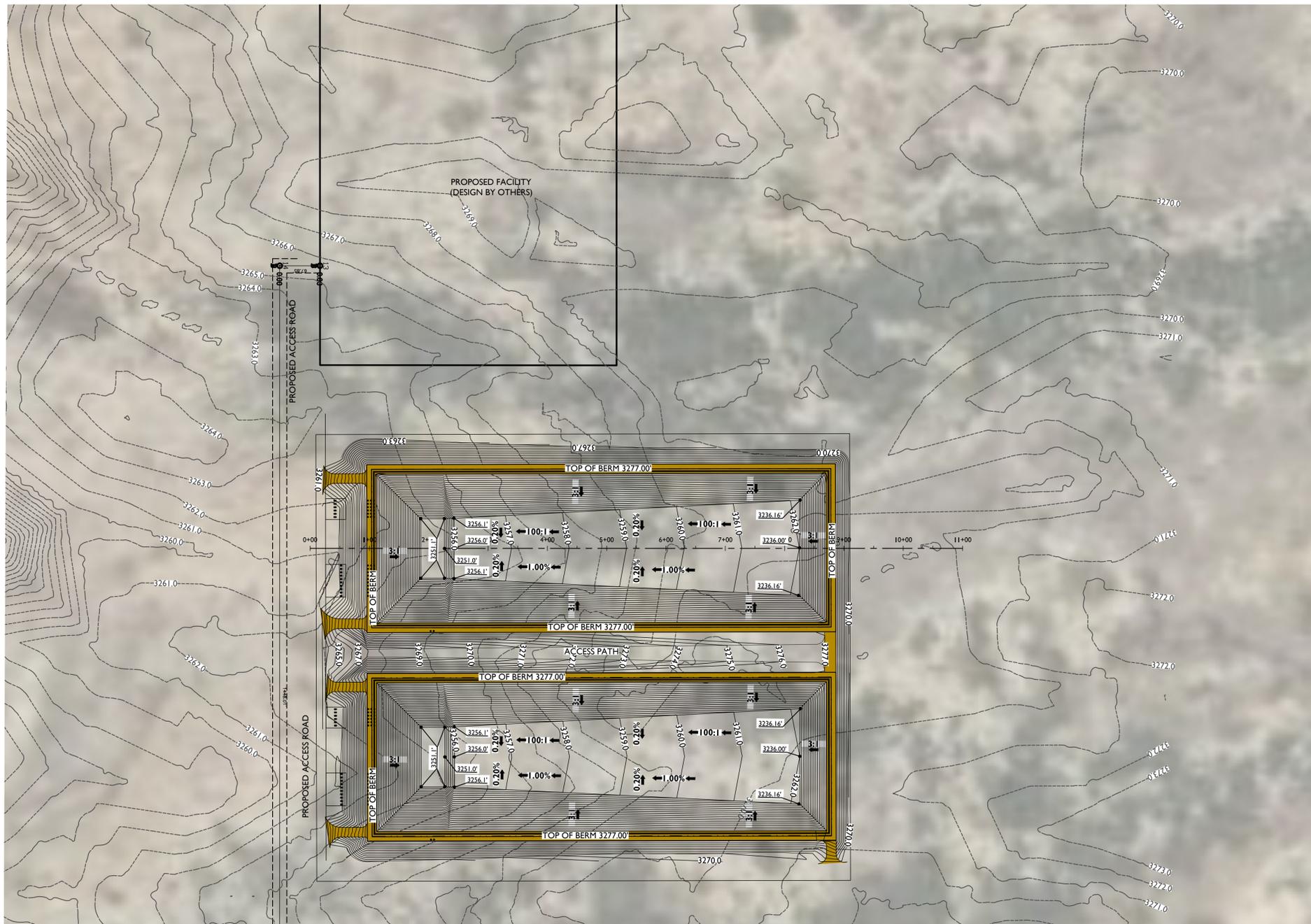
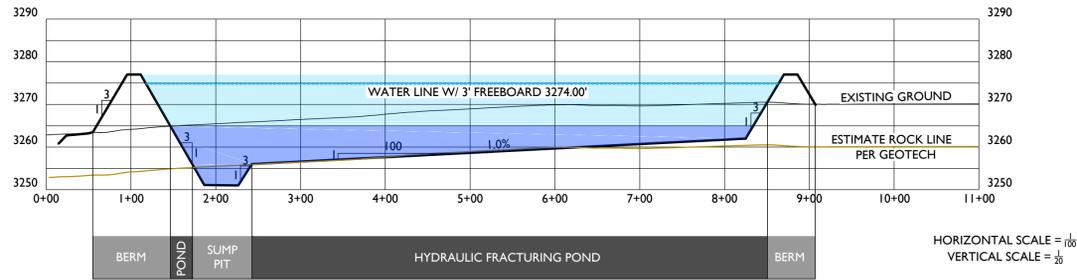
NO.	DESCRIPTION	DATE
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### POND STAGE STORAGE FOR EACH POND

Water Elev	Storage(BoW)	Storage(AcreFt)	(C.Y.)	(C.F.)	Area(Acre)
3251.00	0.000	0.00000	0.0	0.0	0.078
3252.00	729.383	0.09402	151.7	4095.3	0.110
3253.00	1663.96	0.21449	346.0	9343.0	0.131
3254.00	2766.34	0.35659	575.3	15532.9	0.153
3255.00	4045.98	0.52154	841.4	22718.2	0.177
3256.00	5512.34	0.71056	1146.4	30952.2	0.201
3257.00	7973.88	1.02786	1658.3	44773.6	0.449
3258.00	12582.80	1.62197	2616.8	70652.9	0.745
3259.00	19630.20	2.53040	4082.4	110224.1	1.078
3260.00	29404.20	3.79030	6115.0	165105.6	1.448
3261.00	42193.10	5.43884	8774.7	236915.7	1.855
3262.00	58285.10	7.51315	12121.2	327272.7	2.300
3263.00	76804.20	9.90032	15972.5	431257.9	2.451
3264.00	96302.50	12.41372	20027.5	540741.6	2.576
3265.00	116781.00	15.05348	24286.3	655729.6	2.703
3266.00	138252.00	17.82119	28751.5	776291.0	2.832
3267.00	160728	20.71843	33425.7	902494.8	2.963
3268.00	184222.00	23.74679	38311.5	1034410.1	3.094
3269.00	208744.00	26.90785	43411.3	1172105.9	3.228
3270.00	234308.00	30.20320	48727.8	1315651.3	3.363
3271.00	260927.00	33.63442	54263.5	1465115.4	3.500
3272.00	286612.00	37.20310	60021.0	1620567.2	3.638
3273.00	317376.00	40.91083	66002.8	1782075.8	3.778
3274.00	347230.00	44.75919	72211.5	1949710.2	3.919
3275.00	378188.00	48.74976	78649.6	2123539.5	4.062
3276.00	410262.00	52.88413	85319.7	2303632.7	4.207
3277.00	443463.00	57.16389	92224.4	2490059.0	4.353

SUB-GRADE VOLUME  
15.05348 ACRE FEET - 116,781 BOW  
SHOWN GRAPHICALLY LEFT

BREACH VOLUME  
42.11 ACRE FEET -  
326,681 BOW  
SHOWN  
GRAPHICALLY LEFT

3' FREEBOARD

### POND STORAGE VOLUME SUMMARY PER POND

	BARRELS OF WATER	ACRE FEET
TOTAL POND CAPACITY =	443,463	57.16
VOLUME @ 3274' = (3' FREEBOARD)	347,230	44.76
BREACH VOLUME =	326,681	42.11

### CUT / FILL VOLUME SUMMARY FOR TOTAL SITE (BOTH PONDS)

THE VOLUMES BELOW DO NOT INCLUDE A SHRINK OR SWELL FACTOR. CONTRACTOR TO SEGREGATE DESIRABLE MATERIAL FROM "STRATUM A" FOR IMPORT TO EAST SITE. THIS SITE HAS BEEN INTENTIONALLY LEFT SHOWING A SIGNIFICANT EXPORT AMOUNT DUE TO THE UNRELIABILITY OF THE SURVEY PROVIDED. IT IS THE ENGINEER'S INTENT TO AVOID AN IMPORT SITUATION. REMAINING MATERIAL MAY BE STOCKPILED AS NOTED BELOW IN BERM CONSTRUCTION NOTES.

Cut volume: 2,171,111.8 C.F., 80,411.55 C.Y.  
Fill volume: 1,834,087.7 C.F., 67,929.18 C.Y.

Area in Cut: 293,146.0 S.F., 6.73 Acres  
Area in Fill: 322,539.7 S.F., 7.40 Acres  
Total inclusion area: 616,080.3 S.F., 14.14 Acres

Average Cut Depth: 7.41 feet  
Average Fill Depth: 5.69 feet  
Cut to Fill ratio: 1:1.18  
Export Volume: 12,482.4 C.Y. LESS 3,000 FOR EAST SITE & STOCKPILE AGAINST BERM  
Elevation Change To Reach Balance: 0.547  
Volume Change Per .1 ft: 2,281.8 C.Y.

Cut (C.Y.) / Area (acres): 5685.50  
Fill (C.Y.) / Area (acres): 4802.94

Max Cut: 16.379 at 542161.766,382715.825  
Max Fill: 15.556 at 541635.634,382574.834

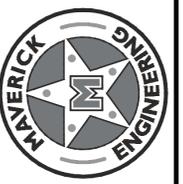
### ENGINEER'S NOTES

- AERIAL IMAGES HAVE BEEN GEODETICALLY PLACED WITH THE AID OF CARLSON SOFTWARE. THESE IMAGES ARE PLACED AS CLOSE AS PRACTICAL, BUT THE AERIAL IS NOT SUFFICIENT FOR EXACT MEASUREMENTS. THE CONTRACTOR SHOULD USE GREAT CAUTION IF SOMETHING IS TO BE MEASURED OR SCALED FROM THE AERIAL IMAGE. MAVERICK ENGINEERING WILL NOT BE HELD ACCOUNTABLE FOR VARIATIONS BETWEEN THE AERIAL AND ACTUAL EXISTING CONDITIONS OR MEASUREMENTS MADE FROM THE AERIAL IMAGE.
- CONTOUR DATA IS BASED ON A RELATIVE LASER LEVEL SURVEY, GENERALLY SET TO ELEVATION TO MATCH THE FENSTERMAKER SURVEYS. PROPOSED PAD LOCATIONS ARE BASED ON PROVIDED SURFACE USE PLAT SURVEYS BY FENSTERMAKER. IT WILL BE CRITICAL FOR THE CONTRACTOR TO VERIFY TOPOGRAPHY AND SET UP THEIR OWN VERTICAL CONTROL. THE TOPOGRAPHY PROVIDED FOR THIS PROJECT SHOULD NOT BE CONSIDERED RELIABLE.
- THE CONTRACTOR IS TO HIRE A COMPETENT AND WELL QUALIFIED GEOTECHNICAL LAB TO PERFORM CONSTRUCTION MONITORING. IT IS SUGGESTED TO HIRE THE SAME LAB THAT PERFORMED THE GEOTECHNICAL INVESTIGATIONS. THIS MATERIAL WILL NOT PROPERLY ACHIEVE DENSITY IF NOT MIXED PROPERLY. A LAB TECHNICIAN SHOULD BE ON SITE TO MAKE SURE THE BERM MATERIAL HAS THE CORRECT PROPERTIES.
- IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SAFETY ON SITE. THIS INCLUDES EXCAVATION SAFETY MEASURES, TRAFFIC SAFETY CONTROL, ETC. THE CONTRACTOR IS TO COMPLY WITH ALL OSHA, FEDERAL AND STATE SAFETY GUIDELINES. MAVERICK WILL HAVE NO CONTROL OVER OR RESPONSIBILITY FOR JOB SITE SAFETY.

### BERM CONSTRUCTION

- BERMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH CHEVRON MCBU STANDARDS AND THE GEOTECHNICAL RECOMMENDATIONS PROVIDED IN THE GEOTECH REPORT PREPARED BY LOI ENGINEERS, BERARDINO OLACUE, P.E., DATED 9/6/2016. THIS REPORT IS INCLUDED IN THE PROJECT SPECIFICATIONS. PER AN UPDATE, THE EXISTING NATIVE MATERIAL MAY BE MIXED AT A PROPORTION OF 30% STRATUM A TO 70% STRATUM B. THE REPORT LISTS A 50% SPLIT, BUT FURTHER TESTING HAS YIELDED THE NEW PROPORTION.
- BERMS ARE TO BE CONSTRUCTED IN NO MORE THAN 8' LOOSE LIFTS PER THE GEOTECH REPORT.
- EACH LIFT IS TO ACHIEVE 95% COMPACTION PER ASTM D 1557 WITHIN +/- 3% OF OPTIMUM MOISTURE.
- AN INDEPENDENT LAB OR OWNER REPRESENTATIVE MUST BE ON SITE TO VERIFY BERM CONSTRUCTION IS WITHIN COMPLIANCE WITH THE GEOTECHNICAL RECOMMENDATIONS. MAVERICK ENGINEERING HAS NOT PERFORMED A STRUCTURAL ANALYSIS ON THIS BERM.
- EXCESS MATERIAL MAY BE STOCKPILED AGAINST THE SIDES OF THE BERMS AT A 4:1 SLOPE. CONTRACTOR IS TO SEGREGATE "STRATUM A" DESIRABLE MATERIALS FROM THE WEST SITE FOR IMPORT TO THE EAST SITE. EXCESS MATERIAL MAY ALSO BE PLACED IN BETWEEN THE TWO PONDS ON BOTH SITES WITH THE OWNER'S CONSENT. POSITIVE DRAINAGE MUST BE MAINTAINED.

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09-29-16 <td>AMH <td>CLIENT REVISIONS</td> </td>	AMH <td>CLIENT REVISIONS</td>	CLIENT REVISIONS

DATE	BY	REVISIONS
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160007 <td></td> <td></td>		

**GRADING PLAN WEST**  
**CHEVRON HYDRAULIC FRACTURING PONDS**  
HH-50 B & HH-50 I  
EDDY COUNTY, NEW MEXICO

