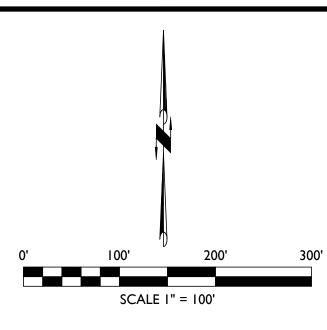
Chevron U.S.A. Inc.

Hayhurst New Mexico T26S R27E Recycling Facility and Containments

Appendix 7 – Section 10 Recycling Containment Engineering Drawings





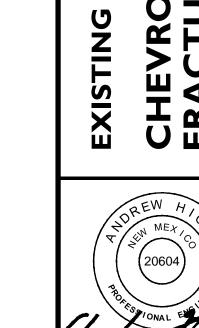
LEGEND

DENOTES EXISTING CONTOUR

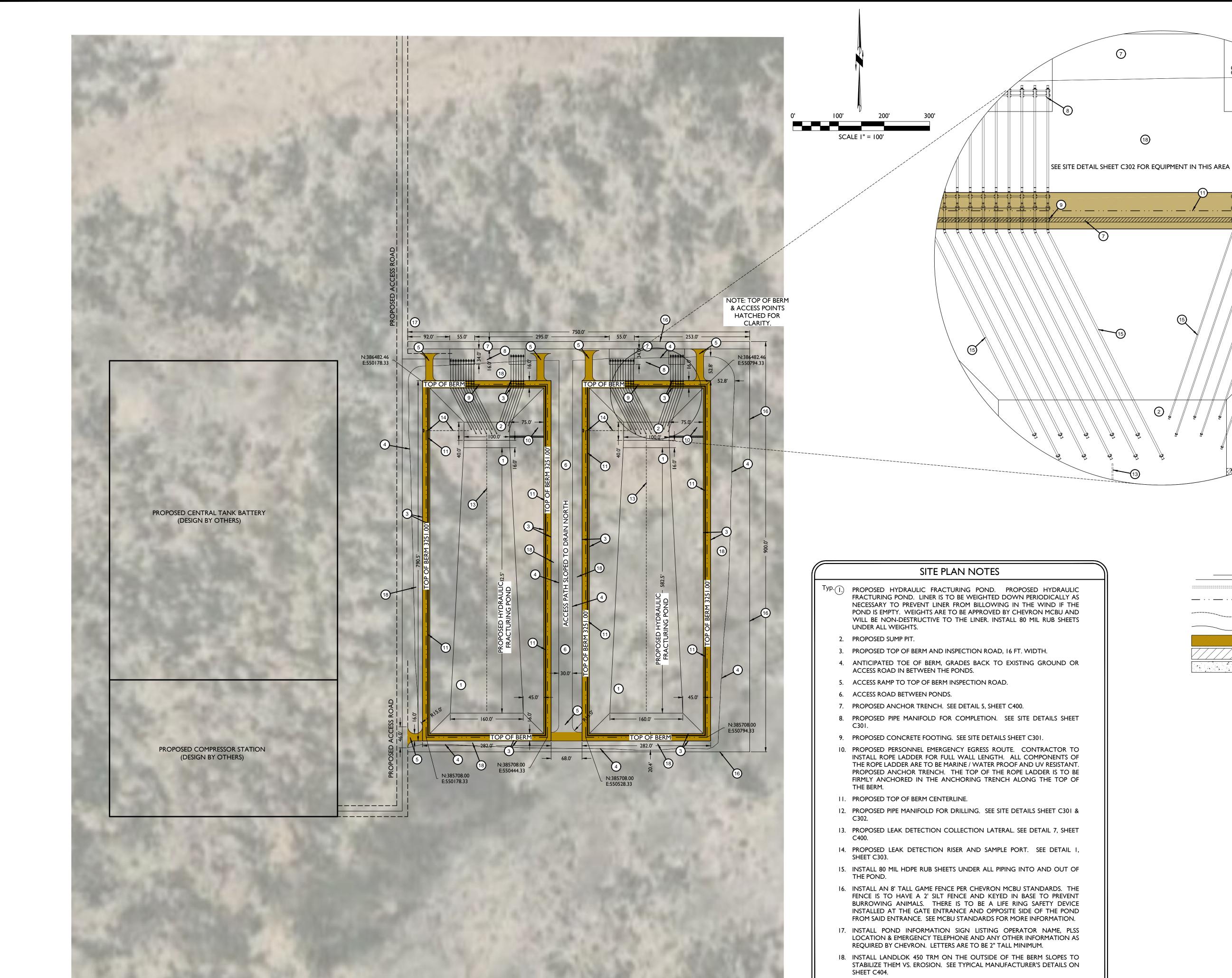
ENGINEER'S NOTES

- 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.
- 2. CONTRACTOR SHOULD VERIFY TOPOGRAPHY PRIOR TO MOBILIZING FOR CONSTRUCTION. BRING ANY MAJOR TOPOGRAPHICAL DIFFERENCES TO THE ATTENTION OF THE ENGINEER IMMEDIATELY FOR CORRECTION. DESIGN IS BASED ON THE PROVIDED INFORMATION, CORRECTIONS BASED ON NEW INFORMATION WILL INCUR ADDITIONAL FEES.
- 3. 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.

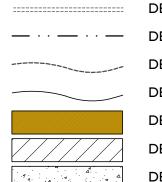




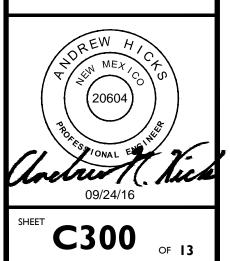
09/24/16 C200 OF 13





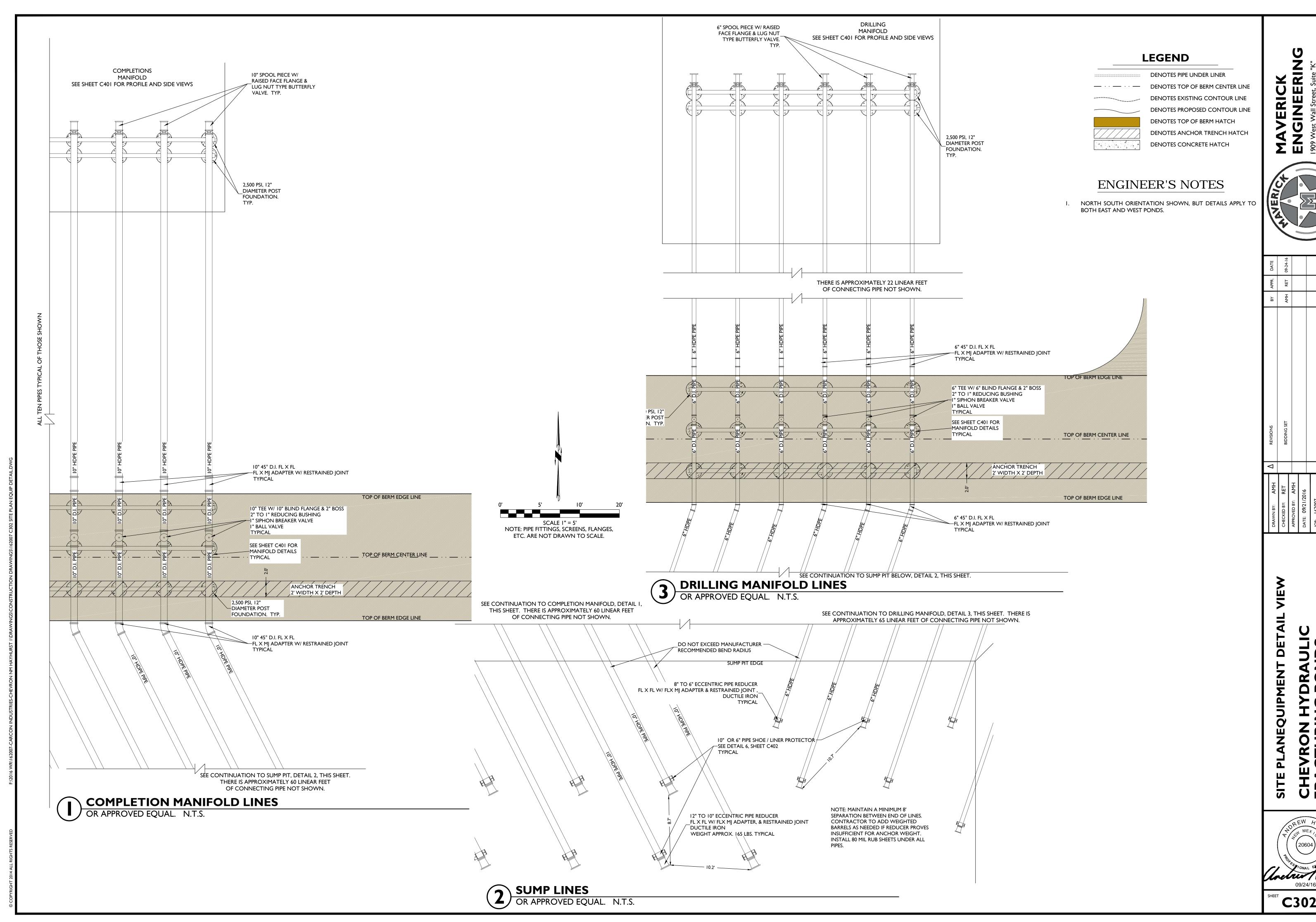


DENOTES PIPE UNDER LINER — · · — · · — DENOTES TOP OF BERM CENTER LINE DENOTES EXISTING CONTOUR LINE DENOTES PROPOSED CONTOUR LINE DENOTES TOP OF BERM HATCH DENOTES ANCHOR TRENCH HATCH DENOTES CONCRETE HATCH



Know what's below.

Call before you dig.



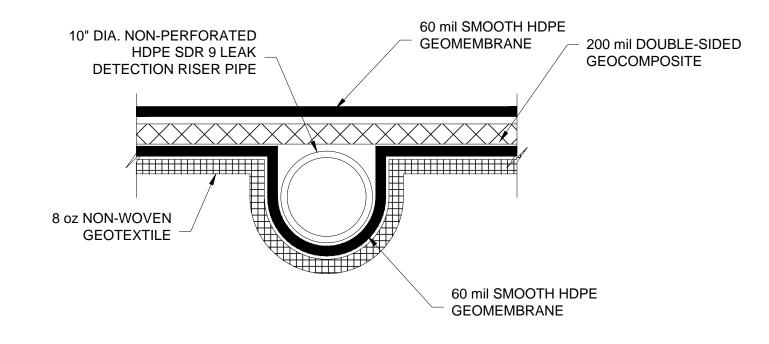
C302 of 13

60 mil SMOOTH HDPE
GEOMEMBRANE

60 mil SMOOTH HDPE
GEOMEMBRANE

60 mil SMOOTH HDPE
GEOMEMBRANE

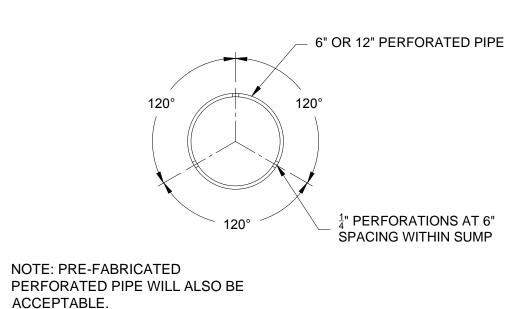
8 oz NON-WOVEN
GEOTEXTILE



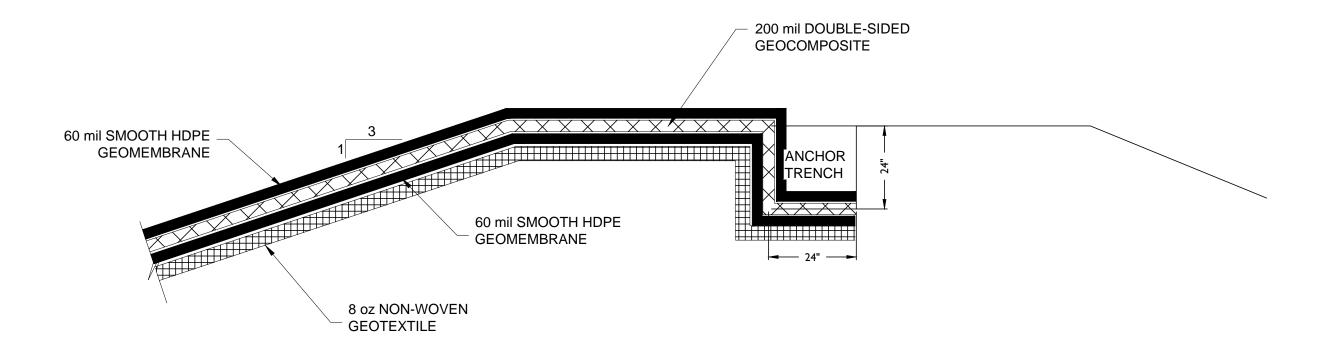
CHEVRON STANDARD BOTTOM LINER
OR APPROVED EQUAL. N.T.S.

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

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

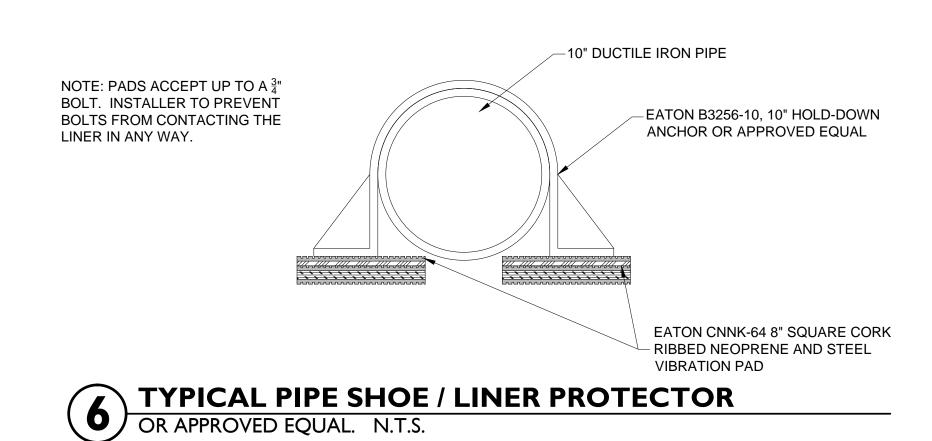


TYPICAL PIPE PERFORATIONS
OR APPROVED EQUAL. N.T.S.



6" DIA. PERFORATED HDPE

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



SDR 9 COLLECTION
LATERAL

200 mil DOUBLE-SIDED
GEOCOMPOSITE

8 oz NON-WOVEN
GEOTEXTILE AROUND
DRAINAGE AGGREGATE

0.20% SLOPE

0.20% SLOPE

0.20% SLOPE

0.20% SLOPE

DRAINAGE AGGREGATE

Omil SMOOTH HDPE
GEOMEMBRANE

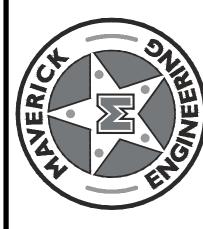
DRAINAGE AGGREGATE

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

ENGINEER'S NOTES

I. DETAILS I 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.

ENGINEERI
1909 West Wall Street, Suite
Midland, Texas 79701 FIF



	·			
DRAWN BY: AMH	∇	REVISIONS	ВУ	¥
CHECKED BY: RET		BIDDING SET	Α Η	~
APPROVED BY: AMH				
DATE: 09/21/2016				
JOB: 162007				

VRON HYDRAULIC CTURING PONDS & HHSO 10

REW HICA 20604

REW HICA

20604

AUCH

09/24/16

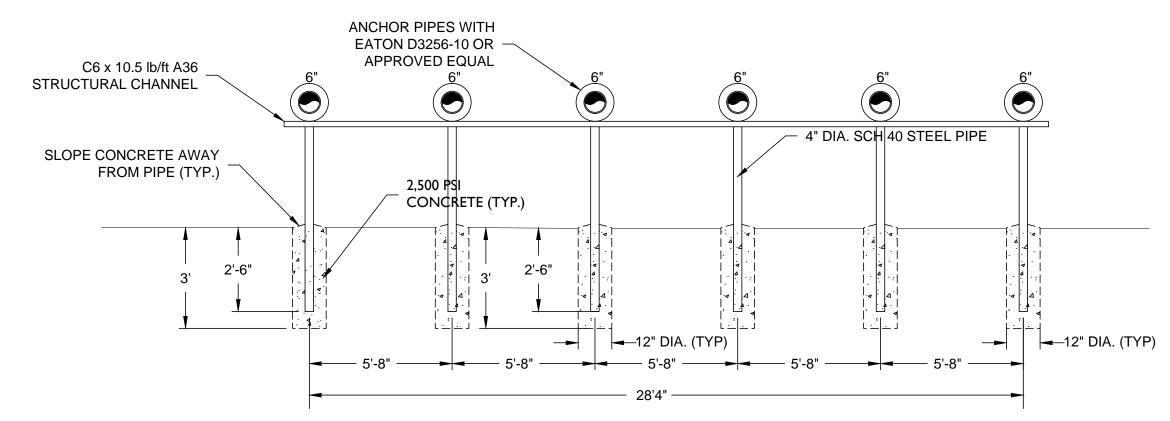
C400 OF 13

TYPICAL COMPLETION MANIFOLD PROFILE VIEW

C6 x 10.5 lb/ft A36 STRUCTURAL CHANNEL 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. 1/4"_______ EXISTING GRADE - 4" DIA. SCH 40 STEEL PIPE 12" DIA. (TYP) 2,500 PSI CONCRETE (TYP.) -

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

OR APPROVED EQUAL. N.T.S.



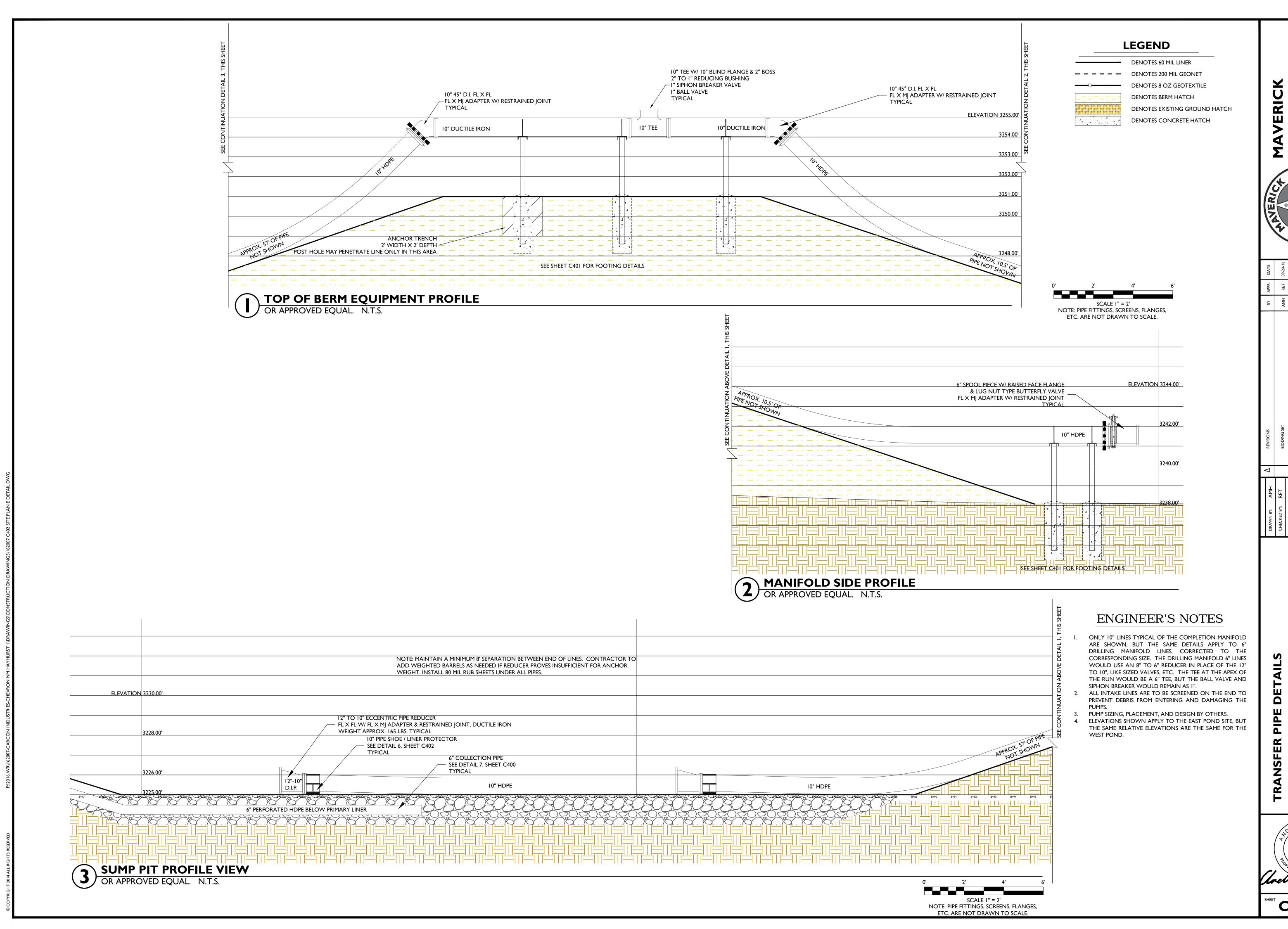
2 TYPICAL DRILLING MANIFOLD PROFILE VIEW OR APPROVED EQUAL. N.T.S.

	٠				
DRAWN BY: AMH	◁	REVISIONS	ВУ	APPR.	_
CHECKED BY: RET		BIDDING SET	ΑMΗ	RET	Ö
APPROVED BY: AMH					
DATE: 09/21/2016					
JOB: 162007					

C401

ENGINEER'S NOTES

I. DETAILS I 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.



THE LEGISLAND OF THE PARTY OF T

AMH RET 09-24-16

ECKED BY: RET BIDDING SET AMH

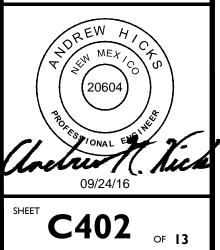
ROVED BY: AMH

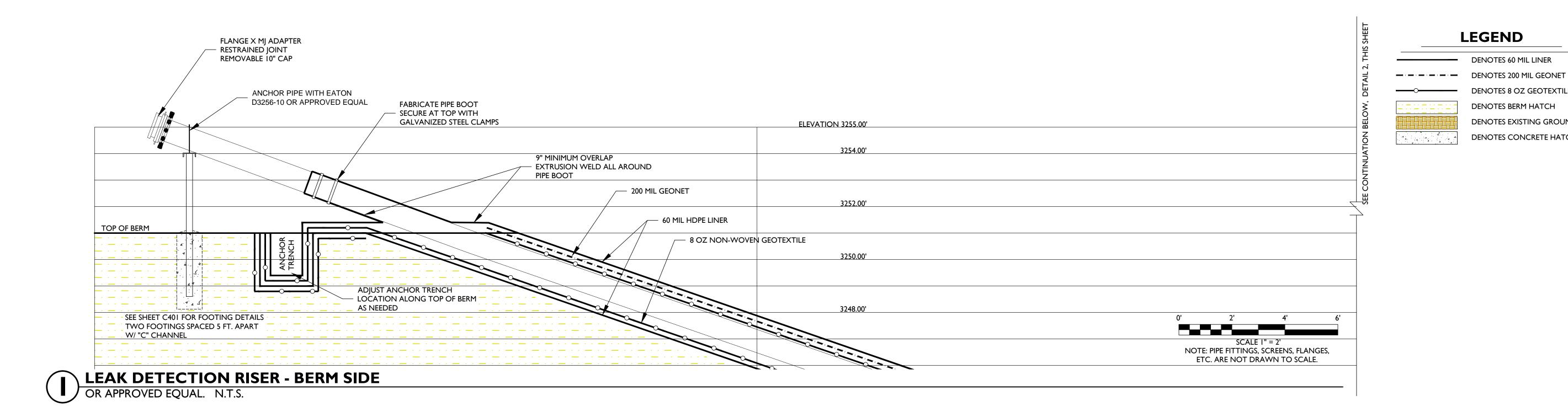
TE: 09/21/2016

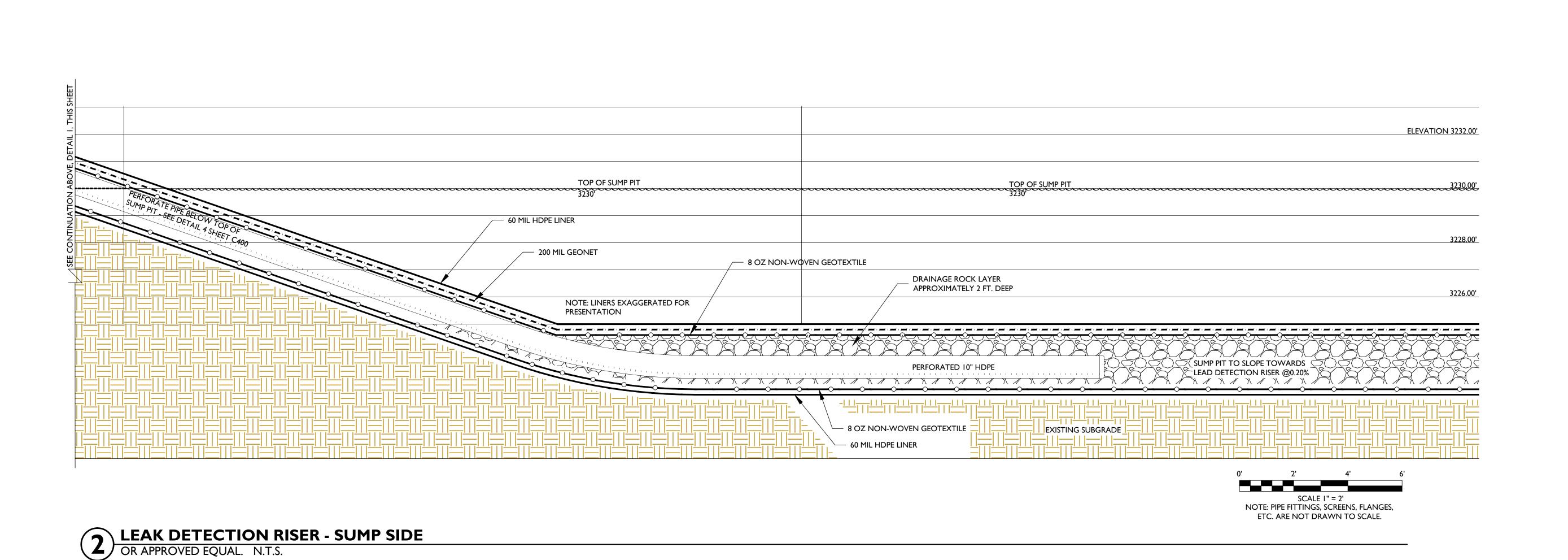
: 162007

PIPE DETAILS
N HYDRAULIC
RING PONDS

CHEVRON HYD
FRACTURING P







ADDENDA SUMMARY

I. 9/29/16 LINER DETAILS CHANGED TO REFLECT CORRECT LAYERS.

ENGINEER'S NOTES

ELEVATIONS SHOWN APPLY TO THE EAST POND SITE, BUT THE SAME RELATIVE ELEVATIONS ARE THE SAME FOR THE

DENOTES 60 MIL LINER

DENOTES 8 OZ GEOTEXTILE

DENOTES CONCRETE HATCH

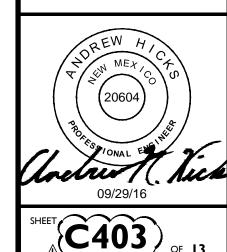
DENOTES EXISTING GROUND HATCH

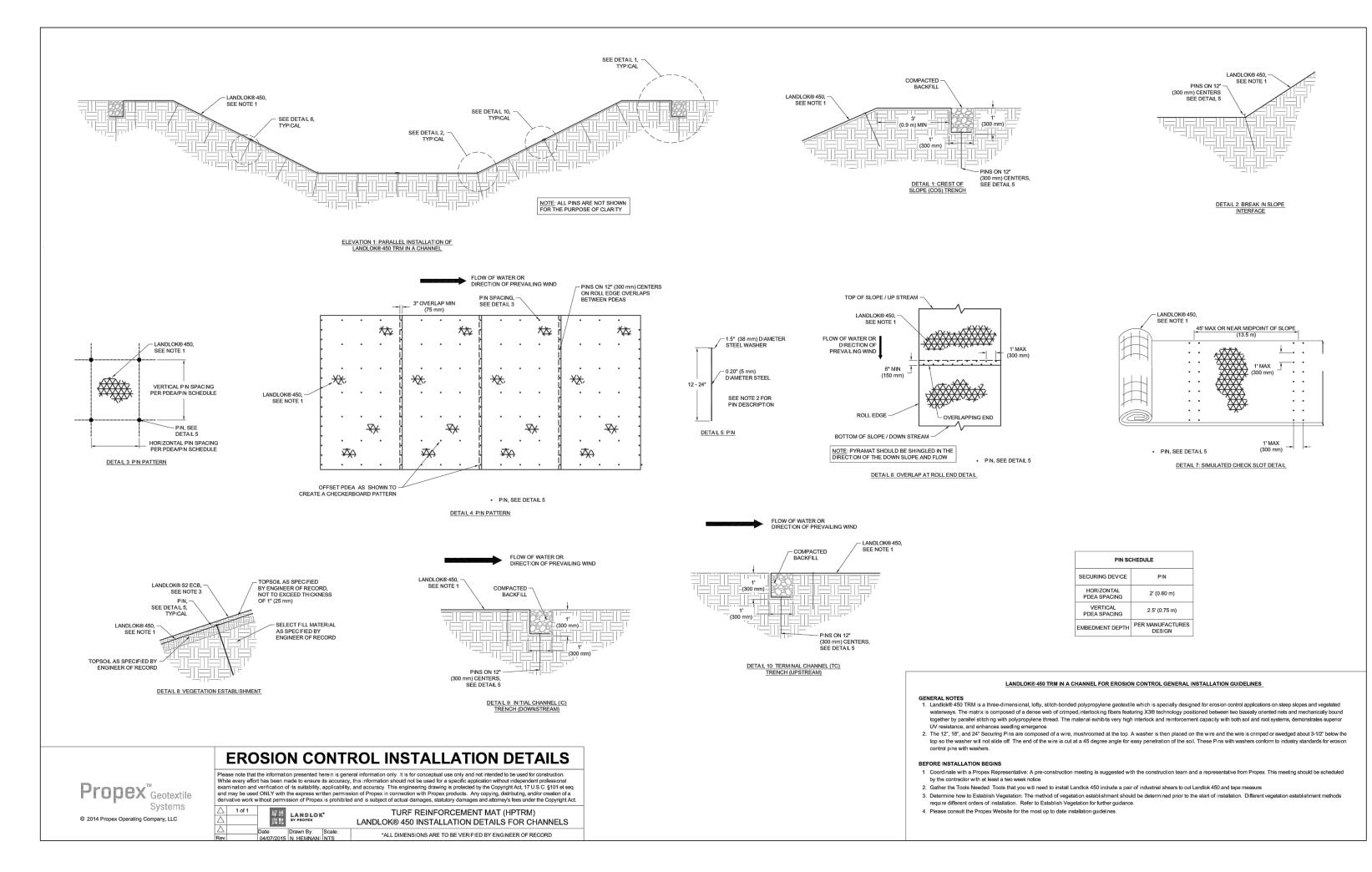
DENOTES BERM HATCH

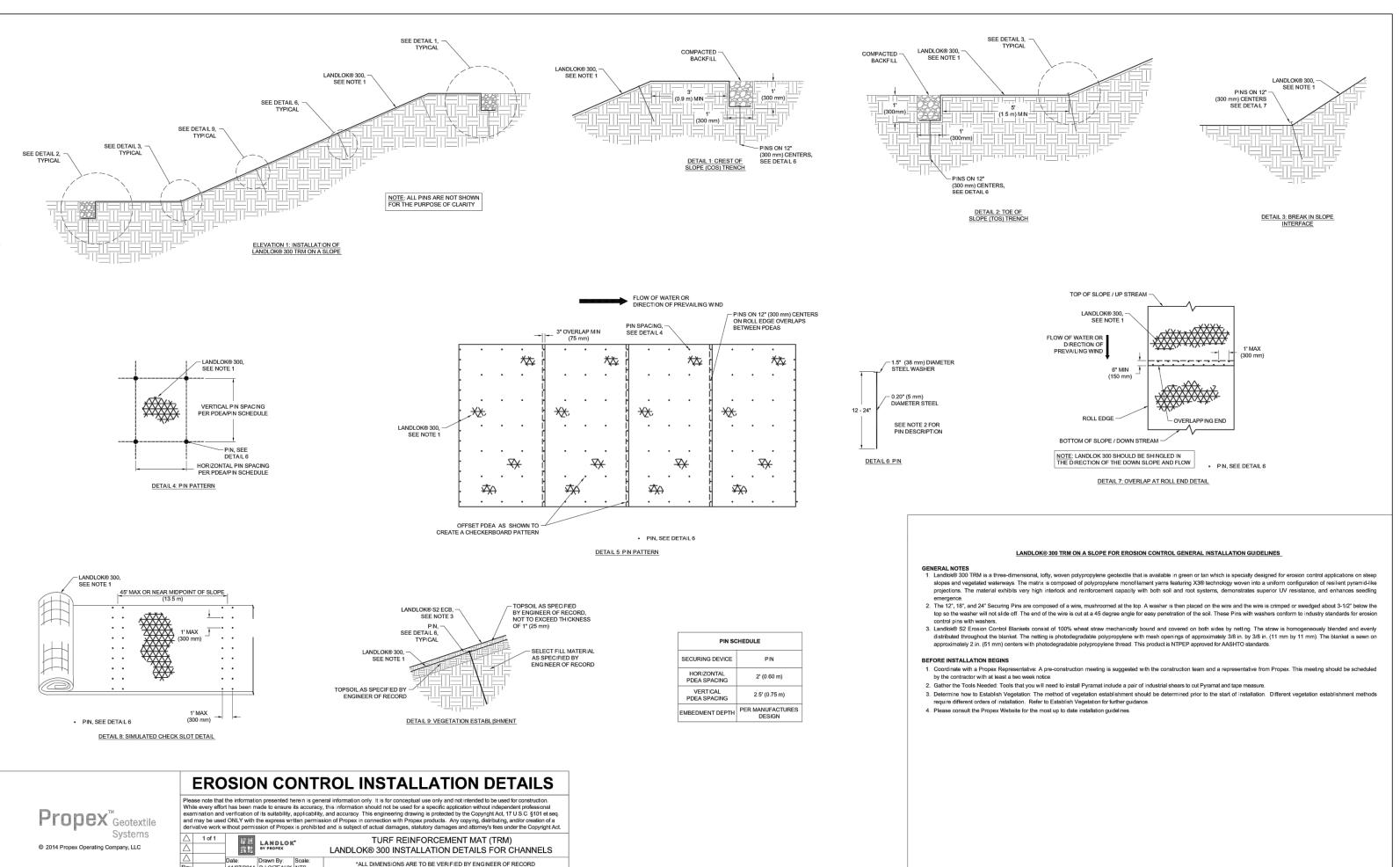




REVISIONS		BIDDING SET		CLIENT REVISIONS		
<	1		<	$\langle \Gamma \rangle$		
	DRAWN BY: AMH	CHECKED BY: RET	APPROVED BY: AMH	DATE: 09/21/2016	JOB: 162007	







ENGINEER'S NOTES

I. 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.

ENGINEERING
1909 West Wall Street, Suite "K"
Midland, Texas 79701 FIRM: F-



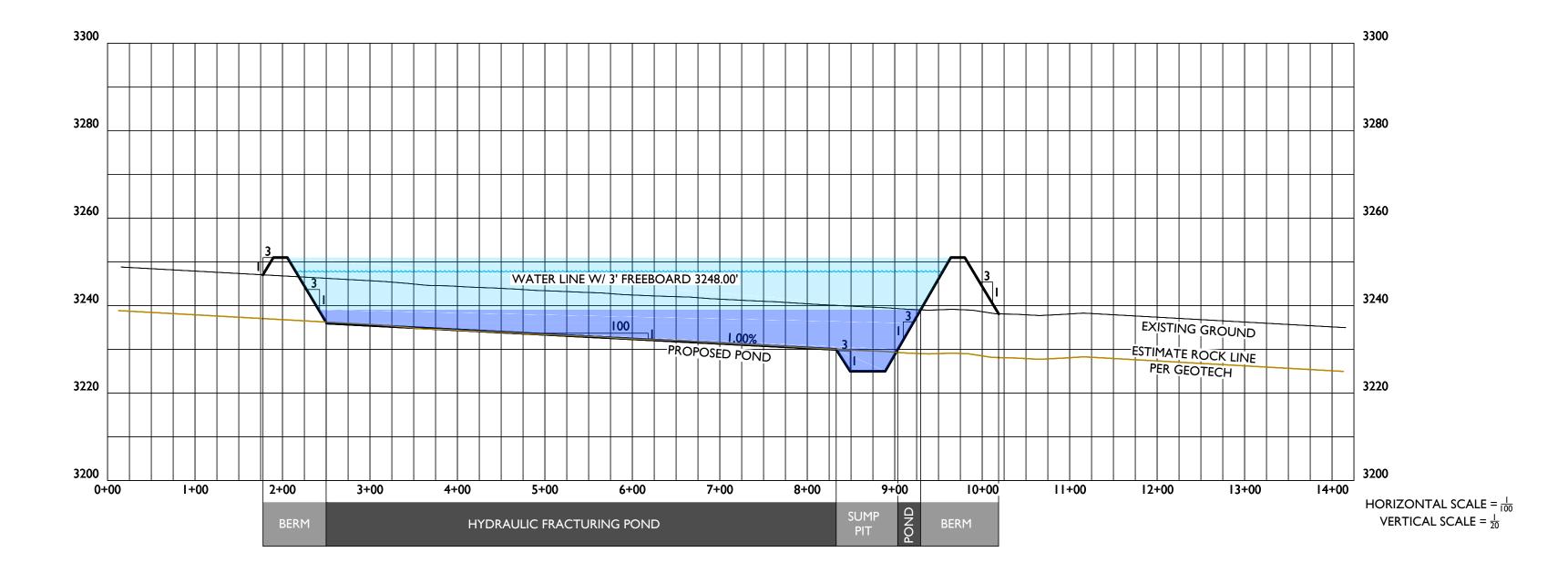
√N BY: AMH	\Box	REVISIONS	ВУ	APPR. DATE	DATE
KED BY: RET		BIDDING SET	ΑMΗ	AMH RET	09-24-16
очер ву: АМН					
09/21/2016					
162007					

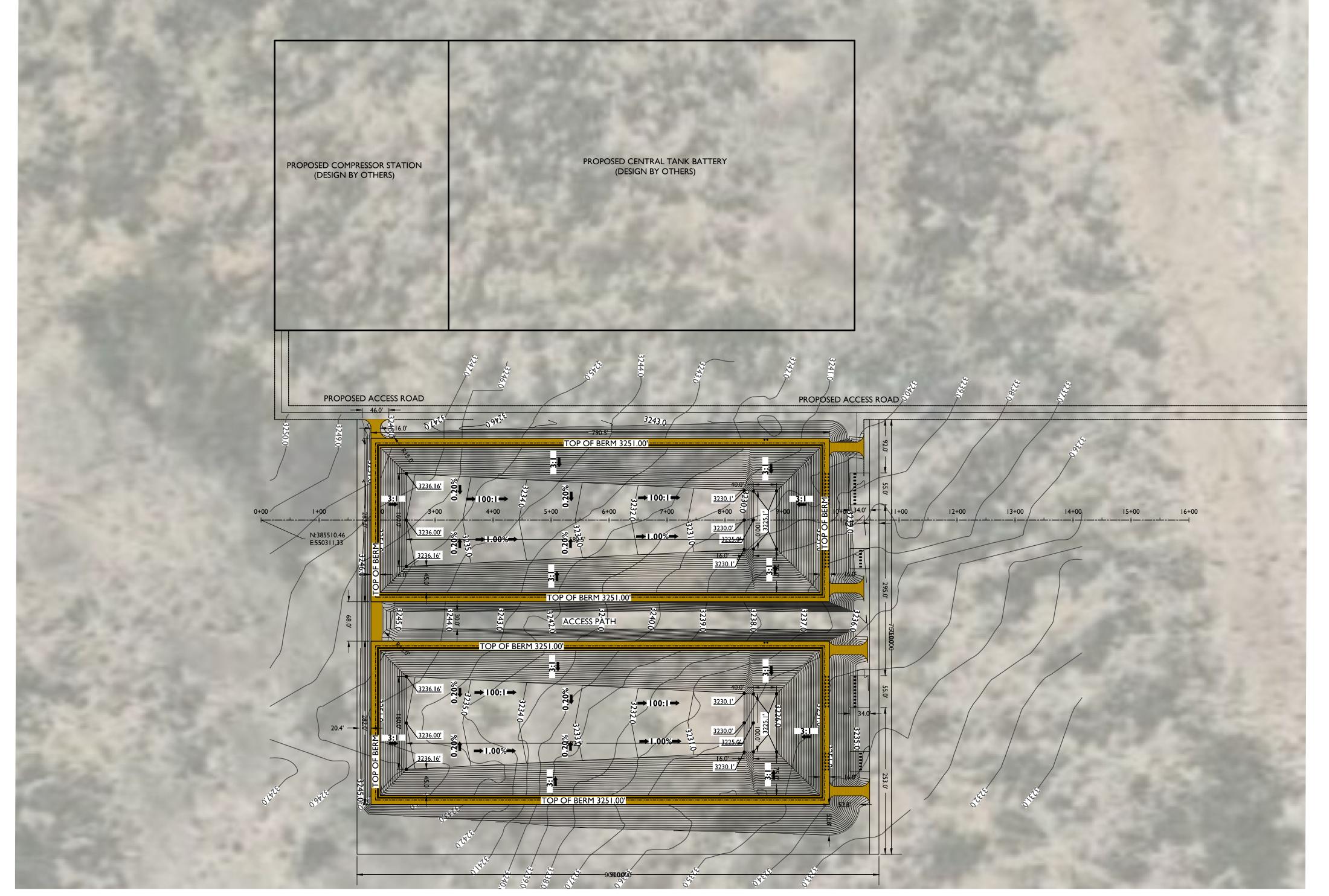
STABILIZATION DETAIL

VRON HYDRAULIC
CTURING PONDS

C404 of 13







POND STAGE STORAGE FOR EACH POND

Water Elev	Storago(RoM)	Storago(AcroEt)	(C V)	(CE)	Λr00(/	\cro\
3225.00	Storage(BoW) 0.0000	Storage(AcreFt) 0.00000	(C.Y.) 0.0	(C.F.) 0.0	Area(<i>A</i> 0.092	noi <i>e)</i>
3225.00	788.653	0.10166	164.0	4428.3	0.092	>
3227.00	1736.11	0.10100	361.1	9748.4	0.112	ш Ó Ш
						UM 36 E 1. Y
3228.00	2851.900	0.36762	593.1	16013.3	0.155	3,18 2AL
3229.00	4145.27	0.53434	862.1	23276.0	0.179	SUB-GRADE VOLUME 5.567CRE FEET - 43,186 BOW SHOWN GRAPHICALLY LEFT
3230.00	5625.84	0.72519	1170.0	31589.2	0.203	₽₩₩
3231.00	8196.53	1.05656	1704.6	46023.7	0.466	8.5.
3232.00	12947.68	1.66900	2692.6	72701.4	0.765	유민
3233.00	20169.4	2.59991	4194.5	113252.0	1.103	St. 795 70V
3234.00	30152.2	3.88672	6270.6	169305.3	1.477	S.1.
3235.00	43186.1	5.56683	8981.2	242491.1	1.889	
3236.00	59561.3	7.67766	12386.6	334439.0	2.339	≥⊢
3237.00	78181.6	10.07788	16259.0	438992.3	2.462	BOW
3238.00	97749.3	12.60222	20331.6	548952.9	2.587	~ .
3239.00	118323.0	15.25227	24607.0	664388.7	2.713	OLUME - 385,932 HCALLY
3240.00	139869.0	18.02957	29087.7	785368.0	2.841	10 ± − 1
3241.00	162414.0	20.93569	33776.2	911958.6	2.971	BREACH VOLUME CRE FEET - 385,935 VN GRAPHICALLY
3242.00	185970.0	23.97219	38675.1	1044228.7	3.102	GR GR
3243.00	210550.0	27.14064	43786.9	1182246.3	3.235	S.R.
3244.00	236166.0	30.44259	9114.1	1326079.4	3.369	O A A
3245.00	262830.0	33.87962	54659.1	1475796.1	3.505	9.7.9 SH
3246.00	290553.0	37.45327	60424.6	1631464.4	3.642	4
3247.00	319349.0	41.16512	66413.1	1793152.4	3.781	
3248.00	349228.0	45.01672	72627.0	1960928.1	3.922	3' FREEBOARD
3249.00	380204.0	49.00963	79068.9	2134859.6	4.064	
3250.00	412289.0	53.14543	85741.3	2315014.9	4.208	
3251.00	4454943.0	57.42567	92646.7	2501462.0	4.353	
	- 10 10 10					

POND STORAGE VOLUME SUMMARY PER POND

TOTAL POND CAPACITY =	BARRELS OF WATER 445,943	ACRE FEE 57.43
VOLUME @ 3248' = (3' FREEBOARD)	349,228	45.02
BREACH VOLUME =	385.932	49.75

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

THE VOLUMES BELOW DO NOT INCLUDE A SHRINK OR SWELL FACTOR. THIS IS ALMOST IMPOSSIBLE TO MODEL, BUT WE EXPECT THE IMPORT VOLUME TO BE SLIGHTLY LESS DUE TO SWELL FACTOR FROM DISTURBING AND PROCESSING THE NATIVE MATERIAL.

Cut volume: 1,874,333.6 C.F., 69,419.76 C.Y.

Area in Cut: 282,295.3 S.F., 6.48 Acres

Area in Fill: 311,112.3 S.F., 7.14 Acres
Total inclusion area: 593,407.6 S.F., 13.62 Acres

Average Cut Depth: 6.64 feet Average Fill Depth: 6.32 feet Cut to Fill ratio: 0.95

Cut to Fill ratio: 0.95
Import Volume: 3,445.9 C.Y.
Elevation Change To Reach Balance: -0.157
Volume Change Per .1 ft: 2,197.8 C.Y.

Cut (C.Y.) / Area (acres): 5095.86 Fill (C.Y.) / Area (acres): 5348.82

Max Cut: 15.744 at 550261.329,386359.463

Max Fill: 17.103 at 550802.329,386490.463

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.
- 3. 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.
- 4. 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 COMPL.Y WITH ALL OSHA, FEDERAL AND STATE SAFETY GUIDELINES. MAVERICK WILL HAVE NO CONTROL OVER OR RESPONSIBILITY FOR JOB SITE SAFETY.

BERM CONSTRUCTION

- I. BERMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH CHEVRON MCBU STANDARDS AND THE GEOTECHNICAL RECOMMENDATIONS PROVIDED IN THE GEOTECH REPORT PREPARED BY LOI ENGINEERS, BERNARDINO OLAGUE, 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.
- 2. 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.

 5. 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



AVERICK
IGINEERIN



	<				
АМН	∇	REVISIONS	ВҮ	APPR.	DATE
RET		BIDDING SET	АМН		RET 09-24-16
АМН					
91					

ARON HYDRAULIC TURING PONDS

20604

REW HICK

WEXING

20604

20604

109/24/16

C500 OF 13