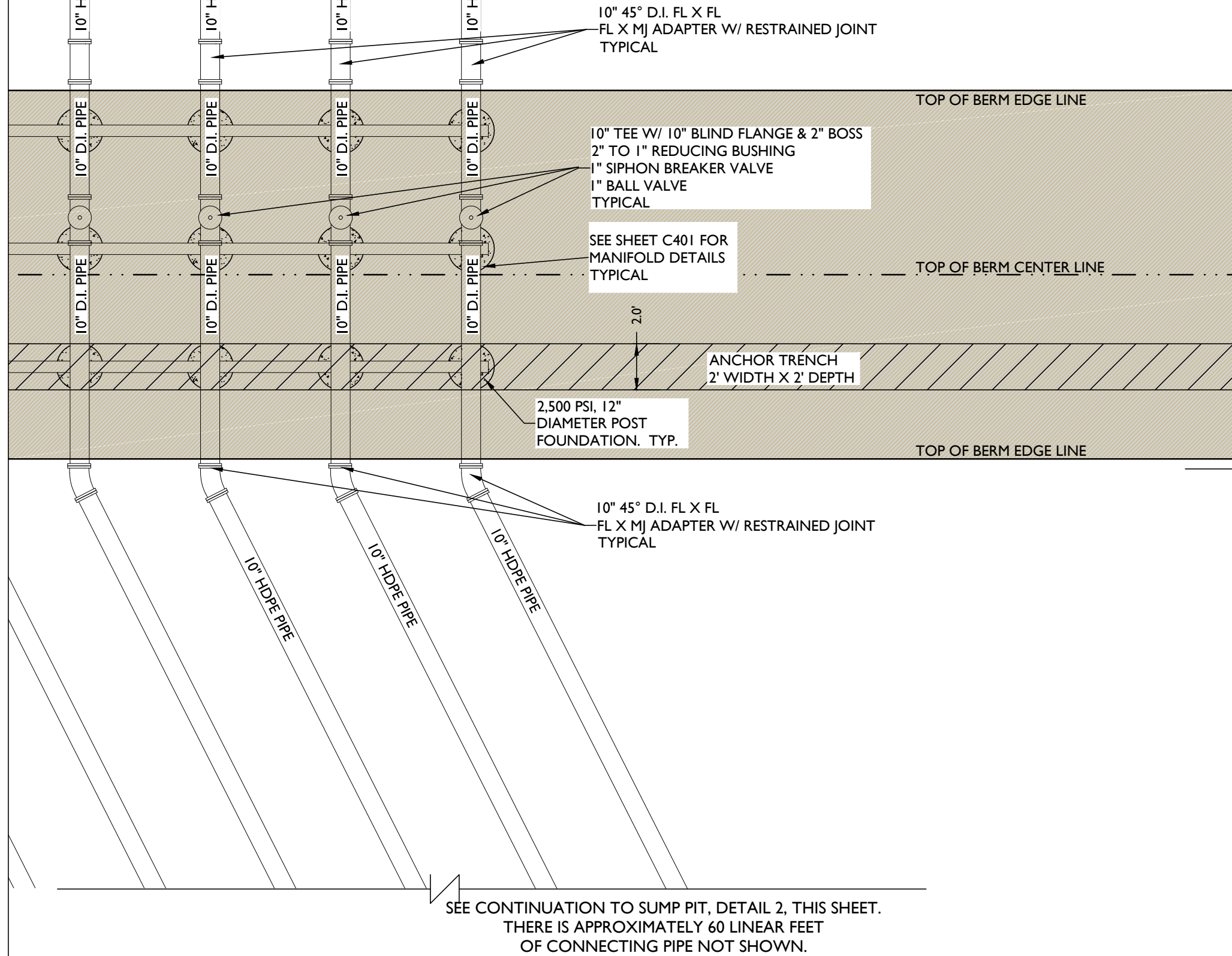
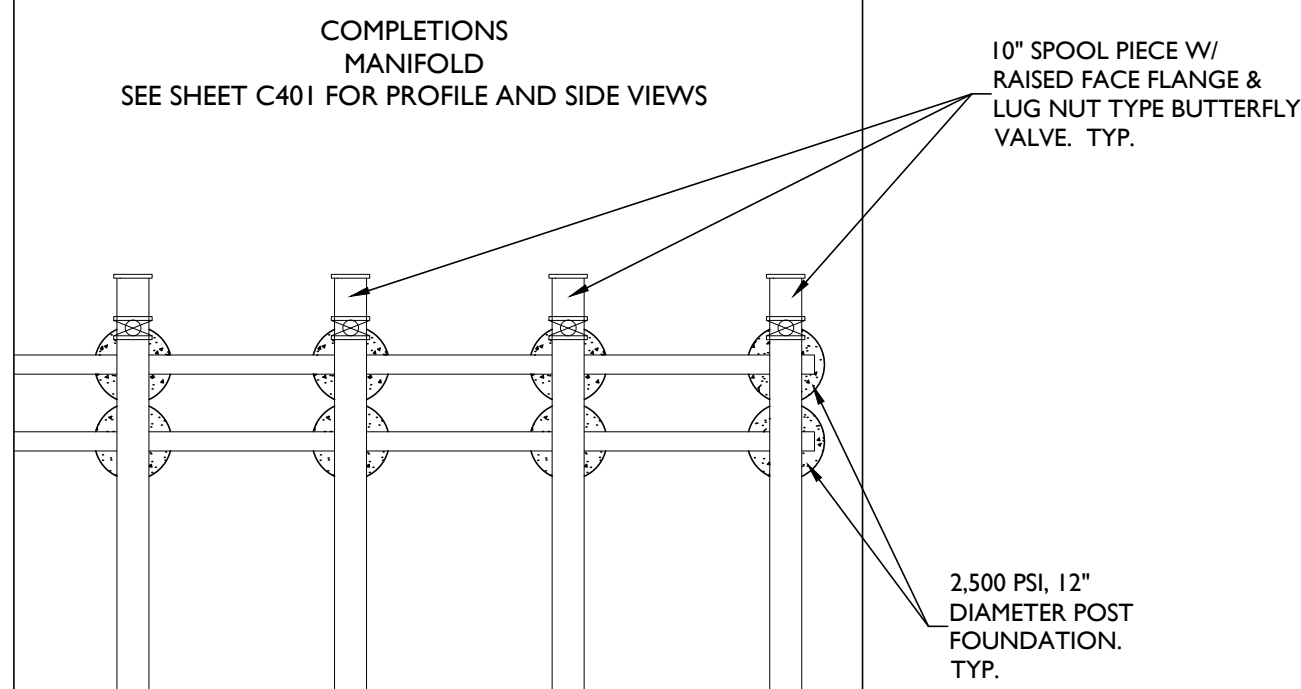


**Appendix 6 – Section 9 Recycling Containment
Engineering Drawings**



Know what's **below**.
Call before you dig.

ALL TEN PIPES TYPICAL OF THOSE SHOWN



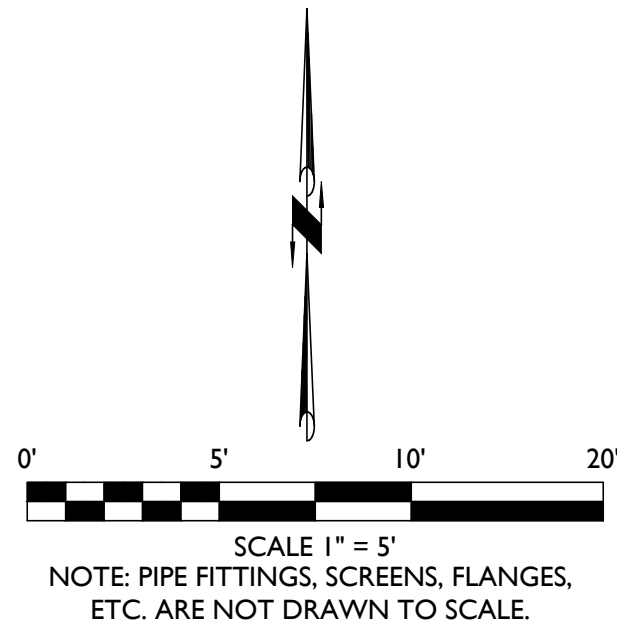
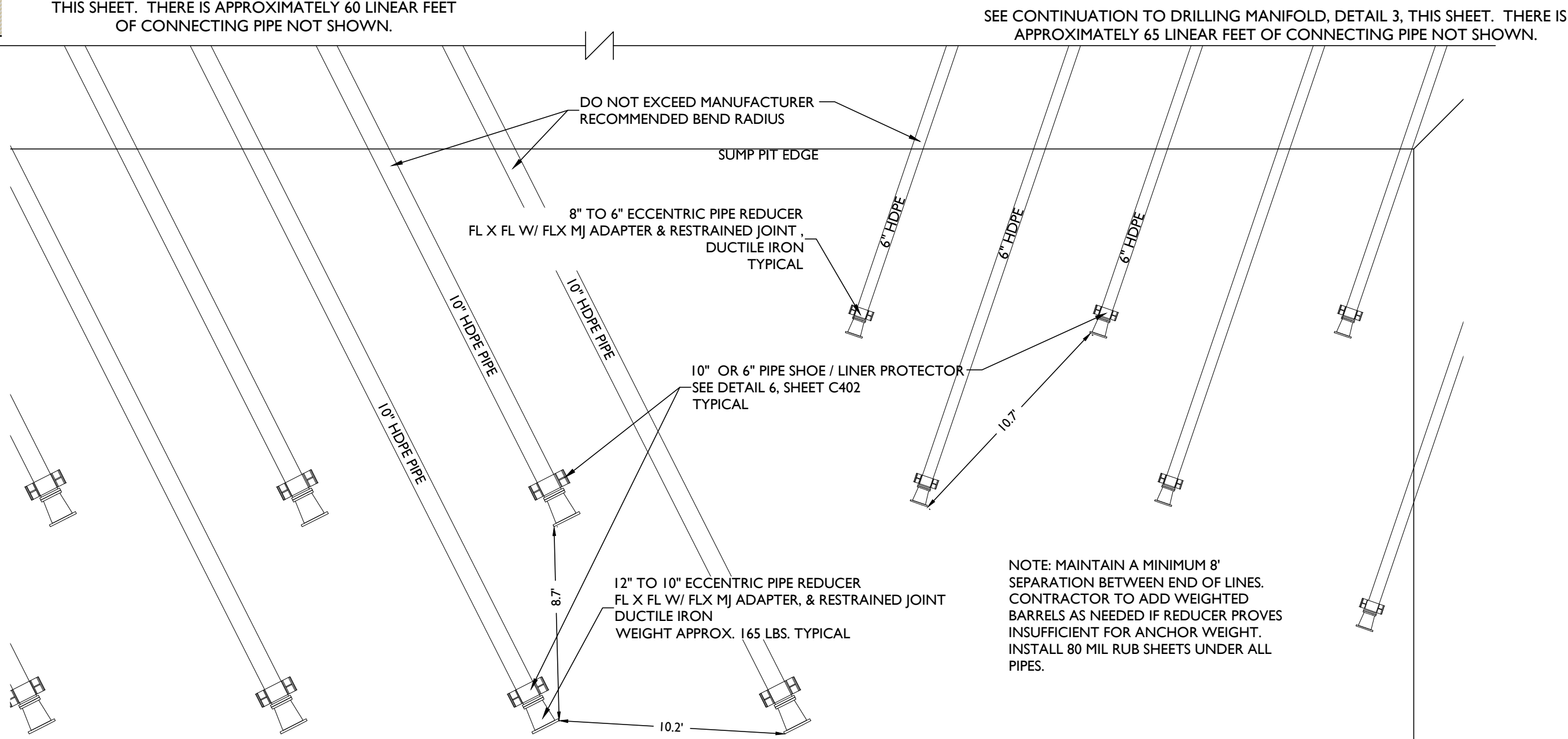
1 COMPLETION MANIFOLD LINES

OR APPROVED EQUAL. N.T.S.

SEE CONTINUATION TO COMPLETION MANIFOLD, DETAIL 1, THIS SHEET. THERE IS APPROXIMATELY 60 LINEAR FEET OF CONNECTING PIPE NOT SHOWN.

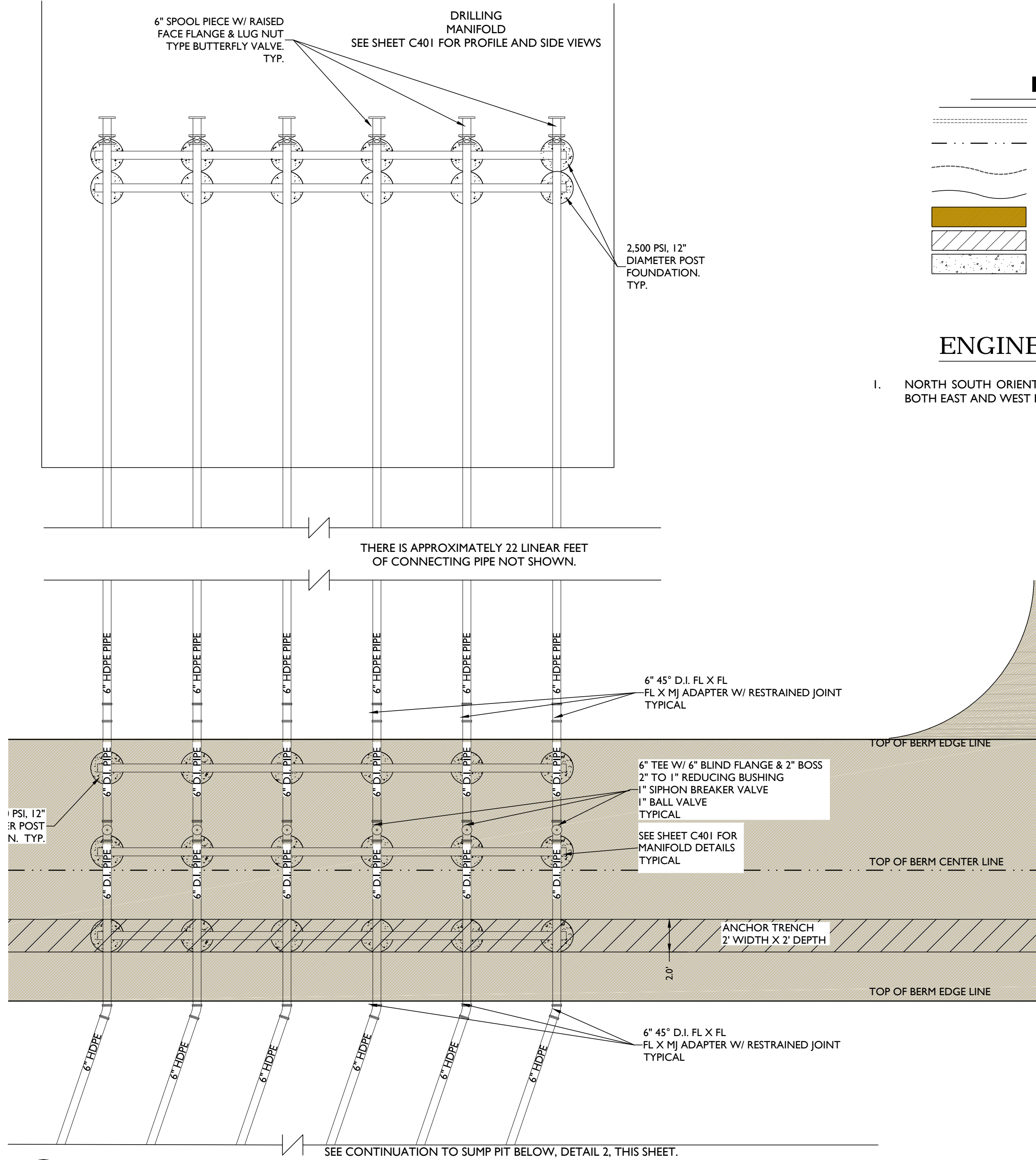
2 SUMP LINES

OR APPROVED EQUAL. N.T.S.



3 DRILLING MANIFOLD 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

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

SITE PLANEQUIPMENT DETAIL VIEW

CHEVRON HYDRAULIC FRACTURING PONDS

HH-50 8 & HH-50 10

EDDY COUNTY, NEW MEXICO

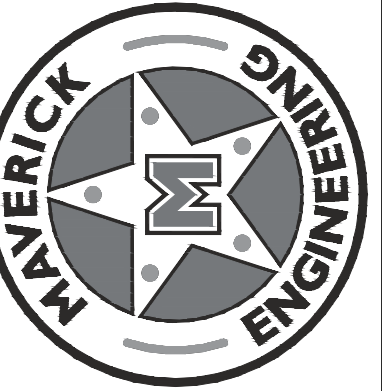


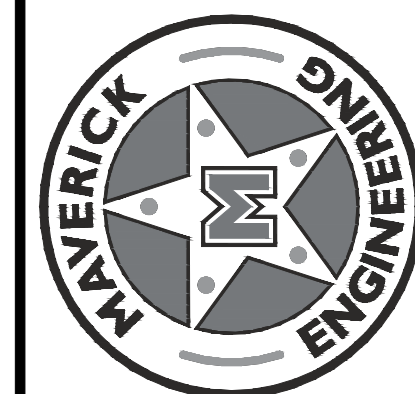
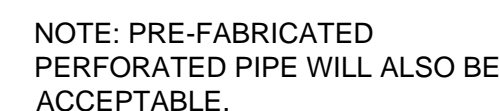
SHEET C302 OF 13

DATE	09-24-16
BY	APH
APPROVED	
REVISIONS	
Δ	
DRAWN BY	AMH
CHECKED BY	RET
APPROVED BY	AMH
DATE	09/21/2016
JOB	162007

MAVERICK ENGINEERING

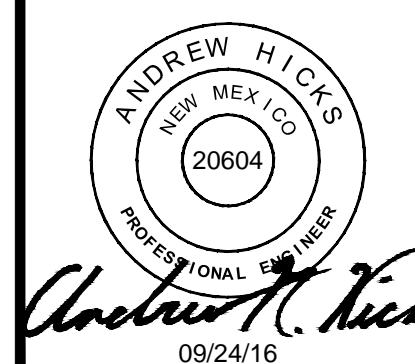
1905 West Wall Street, Suite 1K
Midland, Texas 79701
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com





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CHECKED BY: RET	BIDDING SET	AMH	RET	09-24-16
APPROVED BY: AMH				
DATE 09/21/2016				
JOB: 162007				

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



SHEET **C400** OF 13

ENGINEER'S NOTES

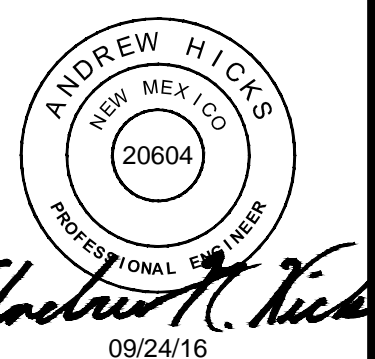
- I. DETAILS 1 THROUGH 5 & 7 ARE AS PROVIDED TO MAVERICK ENGINEERING AS CHEVRON STANDARD DETAILS. THE DETAILS HAVE BEEN RENUMBERED AND ARRANGED FOR PRESENTATION. ANY SIGNIFICANT MODIFICATIONS WILL BE NOTED AS RECOMMENDED MODIFICATIONS TO THE STANDARD DETAIL.

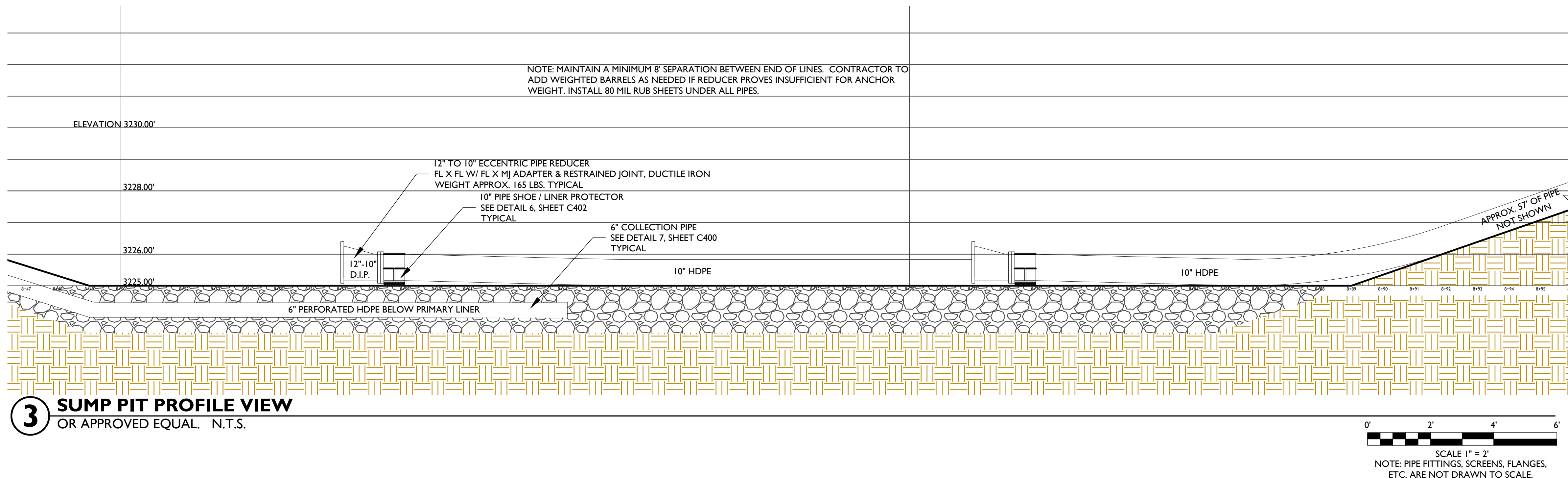
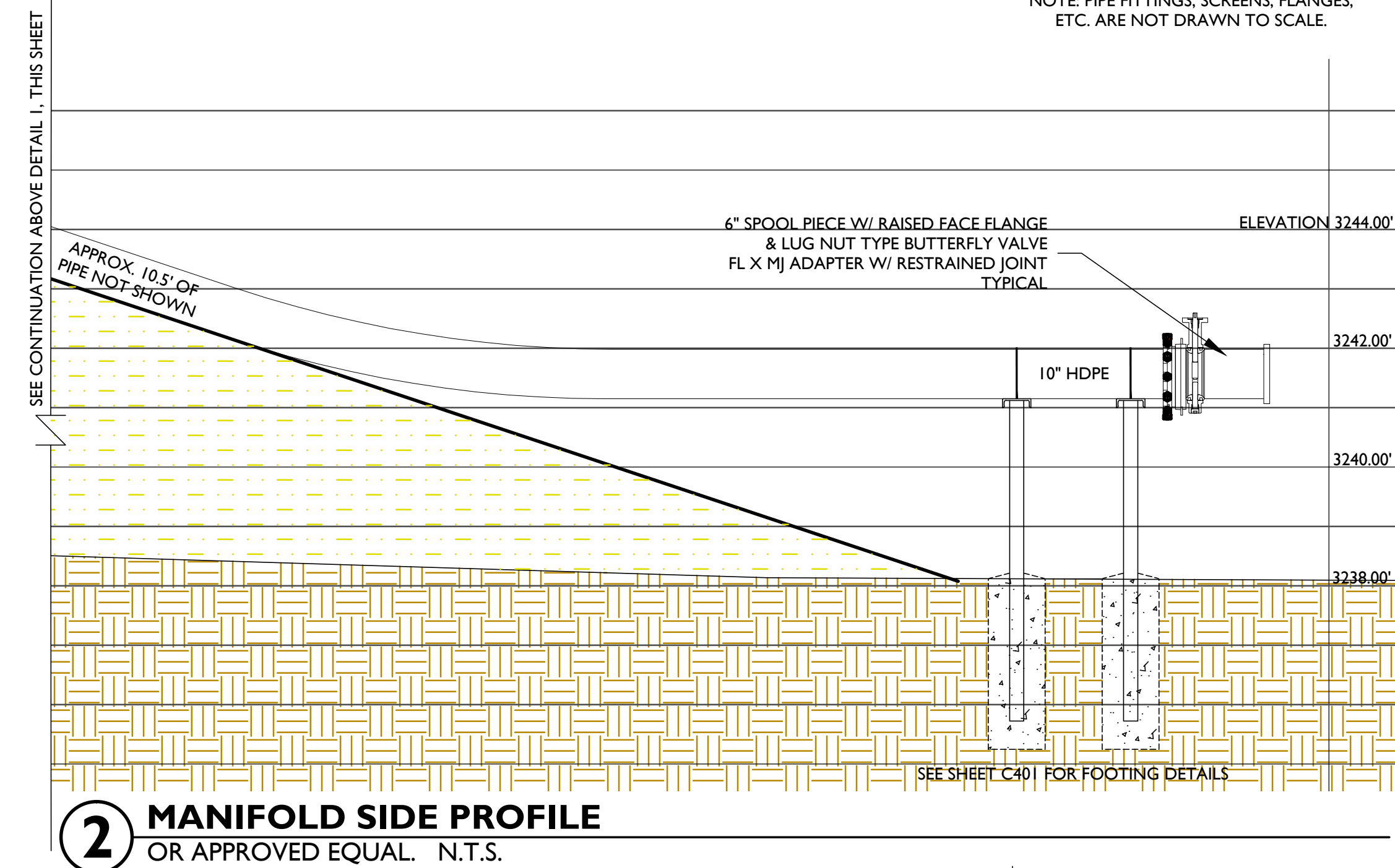
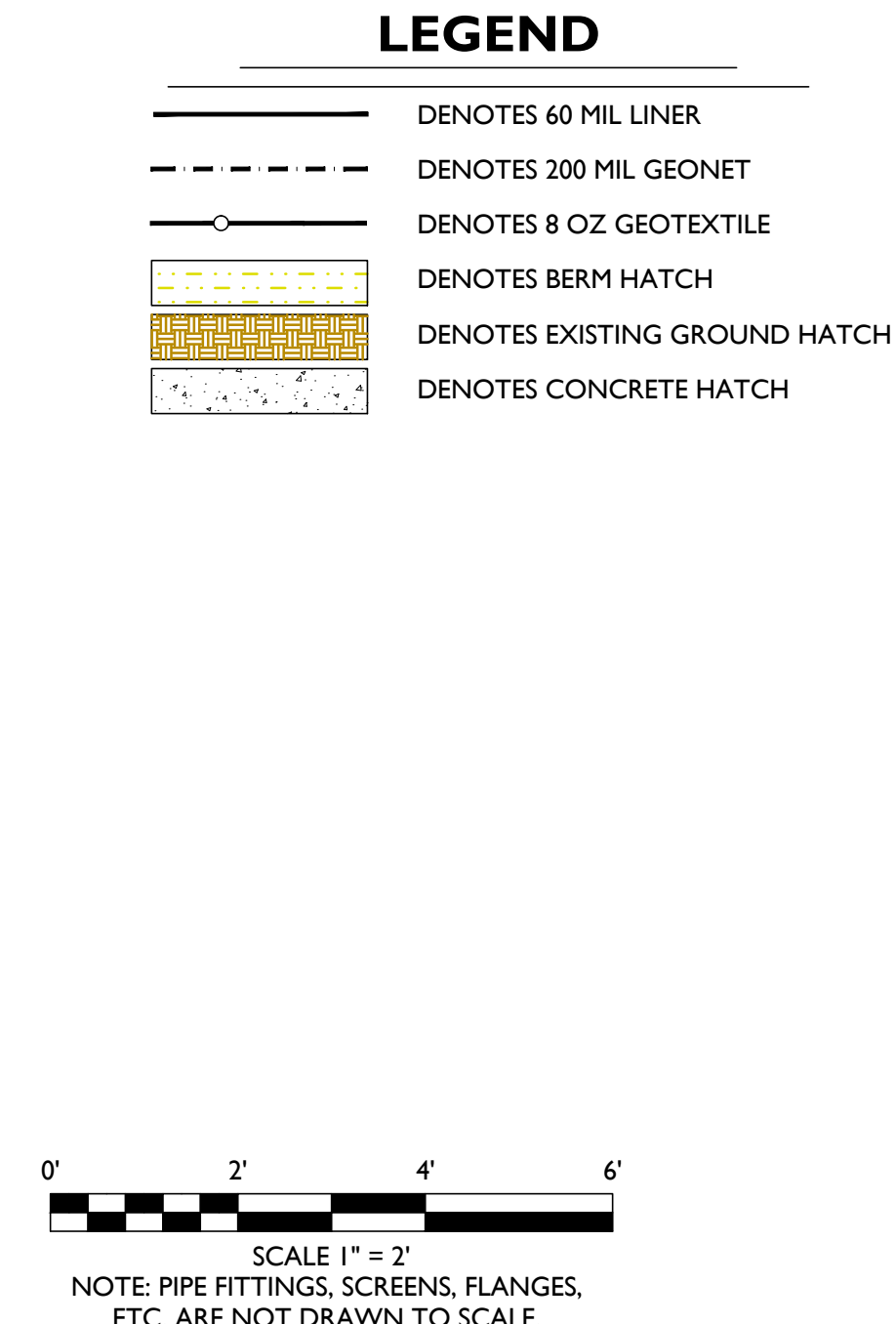
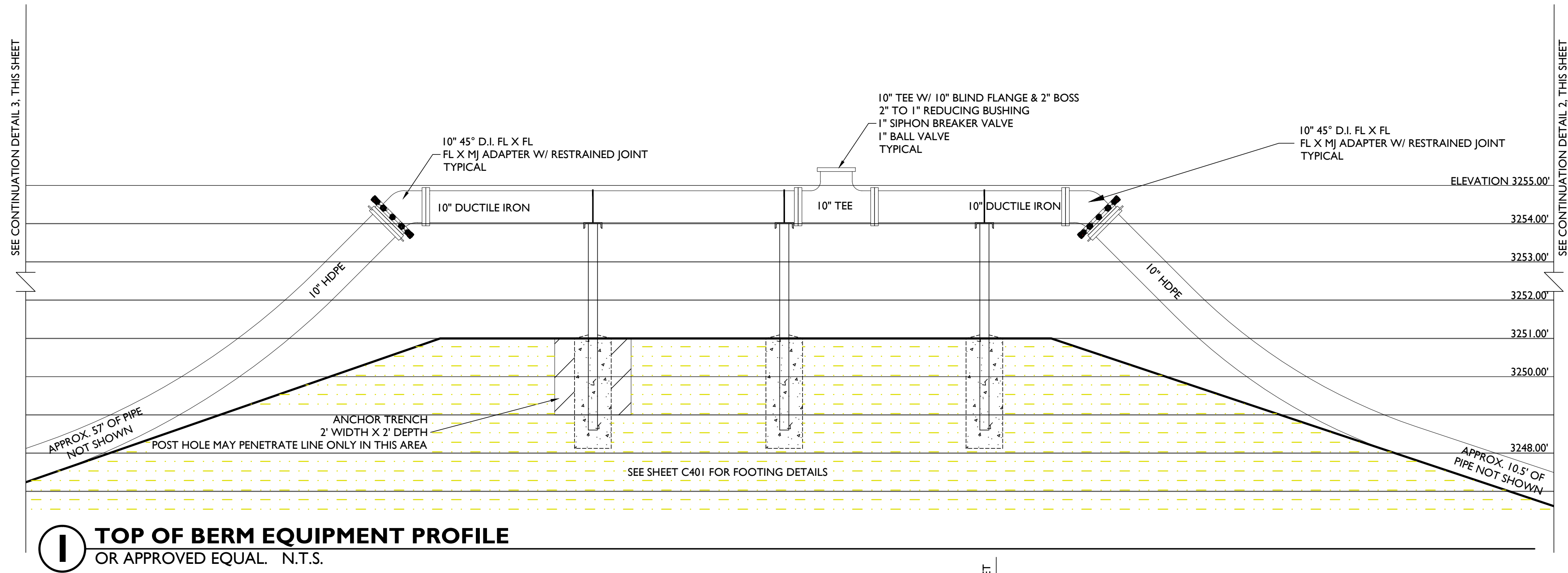


I. DETAILS 1 THROUGH 3 ARE AS PROVIDED TO MAVERICK ENGINEERING AS CHEVRON STANDARD DETAILS. THE DETAILS HAVE BEEN RENUMBERED AND ARRANGED FOR PRESENTATION. ANY SIGNIFICANT MODIFICATIONS WILL BE NOTED AS RECOMMENDED MODIFICATIONS TO THE STANDARD DETAIL.

[illegible]

**CHEVRON HYDRAULIC
FRACTURING PONDS**
HHSO 8 & HHSO 10
EDDY COUNTY, NEW MEXICO





- ENGINEER'S NOTES**
- ONLY 10" LINES TYPICAL OF THE COMPLETION MANIFOLD ARE SHOWN, BUT THE SAME DETAILS APPLY TO 6" DRILLING MANIFOLD LINES, CORRECTED TO THE CORRESPONDING SIZE. THE DRILLING MANIFOLD 6" LINES WOULD USE AN 8" TO 6" REDUCER IN PLACE OF THE 12" TO 10", LIKE SIZED VALVES, ETC. THE TEE AT THE APEX OF THE RUN WOULD BE A 6" TEE, BUT THE BALL VALVE AND SIPHON BREAKER WOULD REMAIN AS 1".
 - ALL INTAKE LINES ARE TO BE SCREENED ON THE END TO PREVENT DEBRIS FROM ENTERING AND DAMAGING THE PUMPS.
 - PUMP SIZING, PLACEMENT, AND DESIGN BY OTHERS.
 - ELEVATIONS SHOWN APPLY TO THE EAST POND SITE, BUT THE SAME RELATIVE ELEVATIONS ARE THE SAME FOR THE WEST POND.

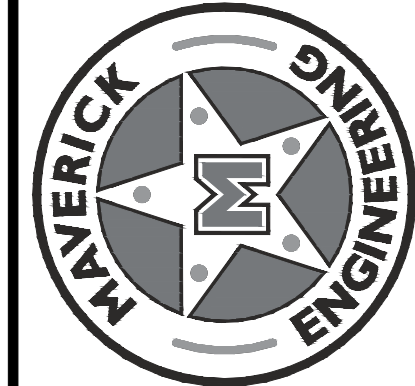
TRANSFER PIPE DETAILS
**CHEVRON HYDRAULIC
FRACTURING PONDS**
HH-50 8 & HH-50 10
EDDY COUNTY, NEW MEXICO

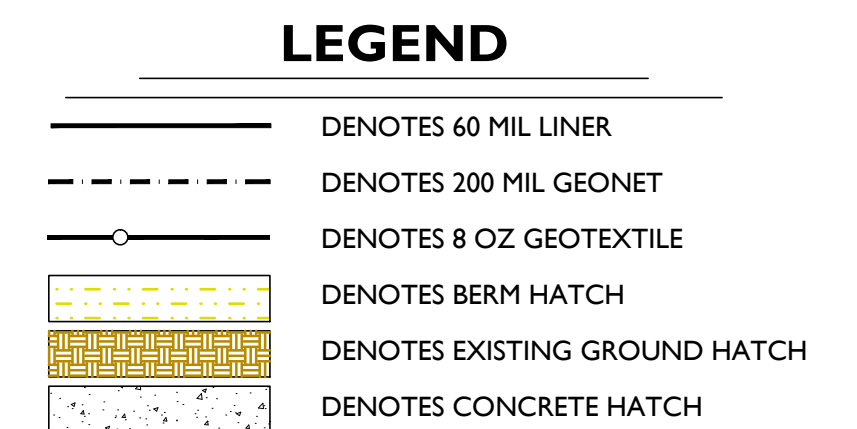
ANDREW HICKS
NEW MEXICO
20604
PROFESSIONAL ENGINEER
09/24/16

SHEET **C402** OF 13

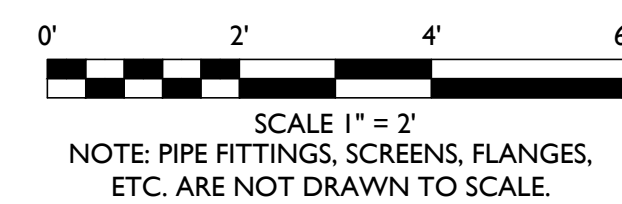
DATE	09/24/16
BY	APH
APPR.	
RET.	
REVISIONS	
Δ	
DRAWN BY: AMH	RET.
CHECKED BY: AMH	RET.
APPROVED BY: AMH	RET.
DATE: 09/21/2016	
JOB: 162007	

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SEE CONTINUATION BELOW. DETAIL 2. THIS SHEET



ENGINEER'S NOTES

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

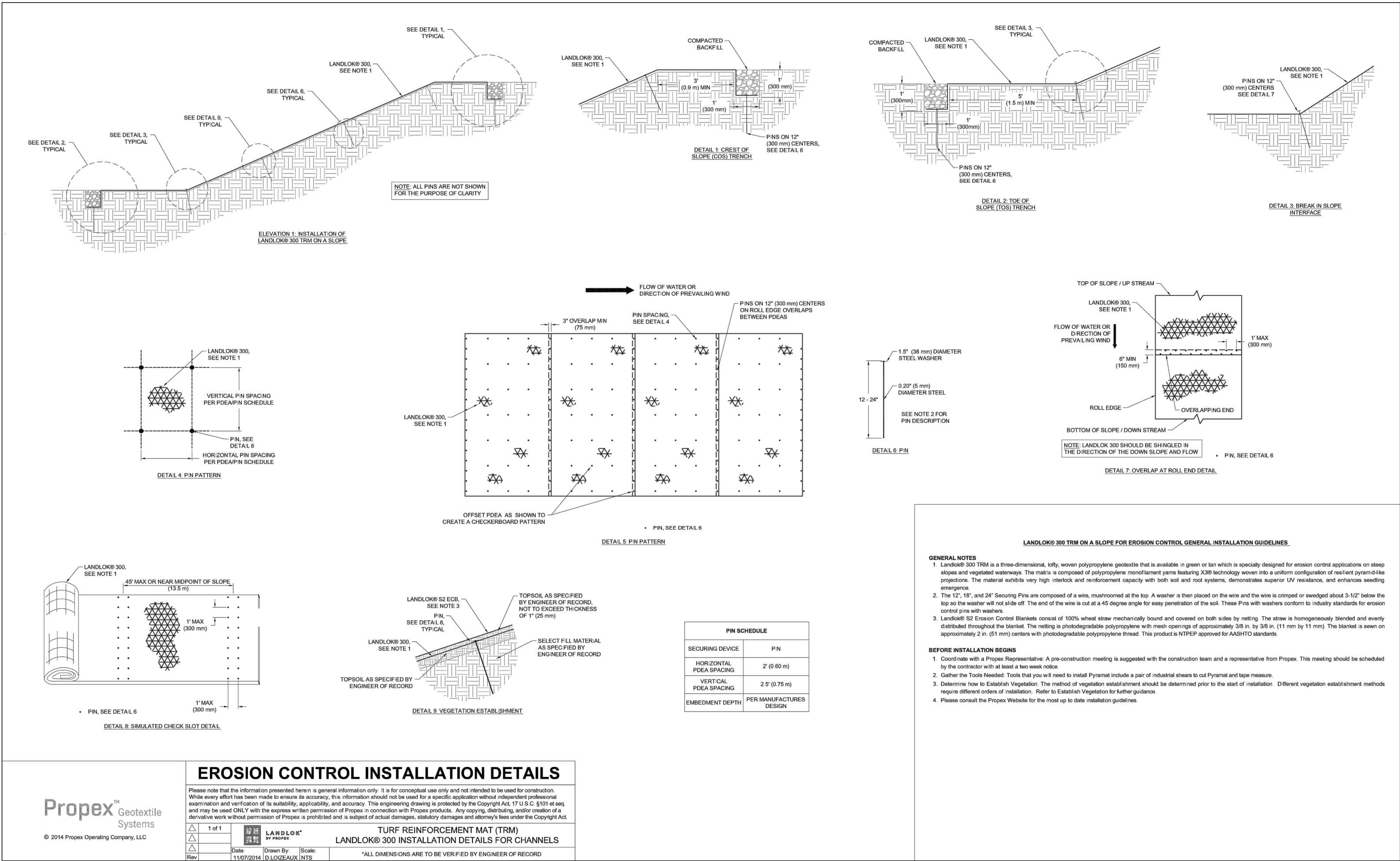
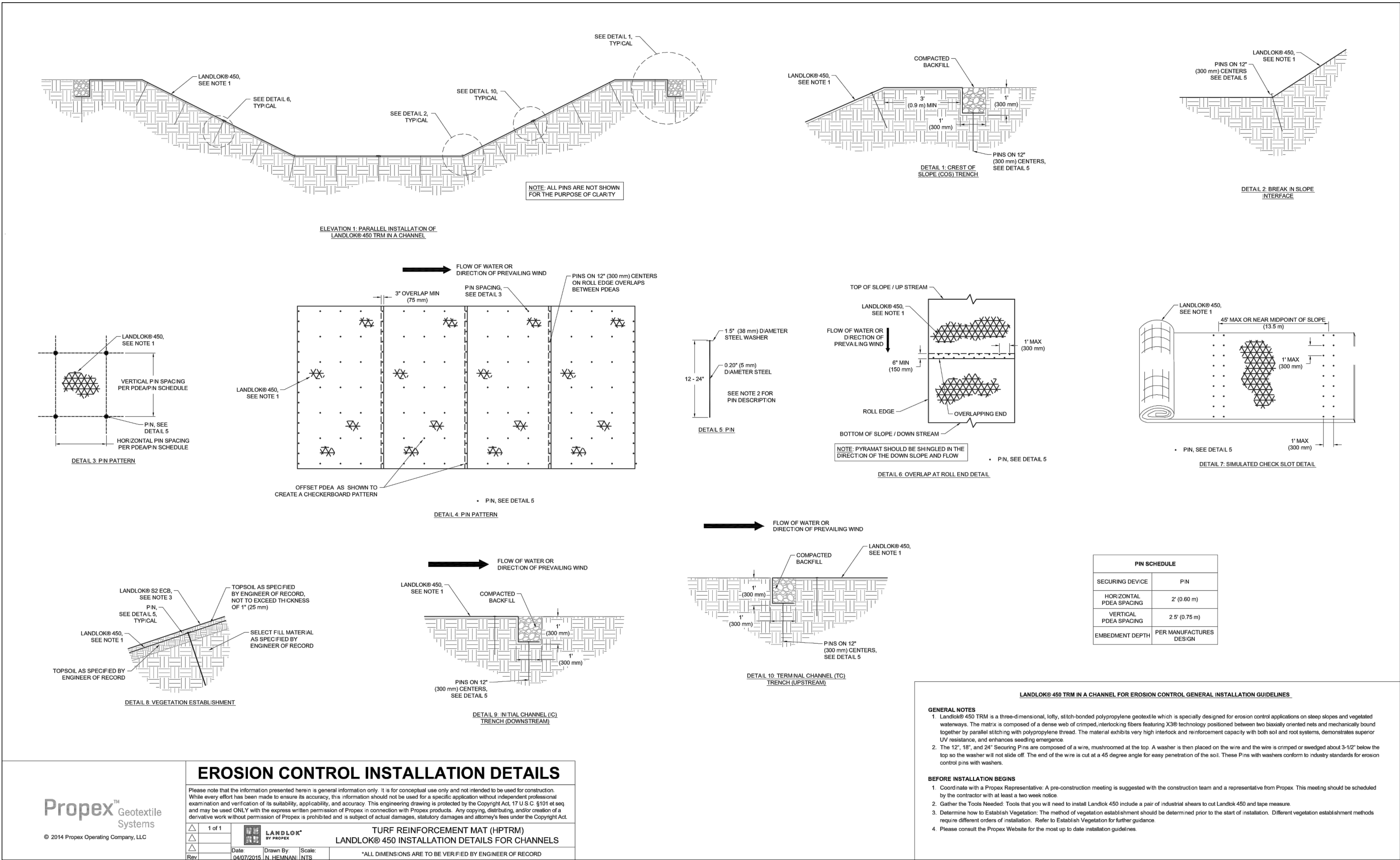
I. ELEVATIONS SHOWN APPLY TO THE EAST POND SITE, BUT THE SAME RELATIVE ELEVATIONS ARE THE SAME FOR THE WEST POND.



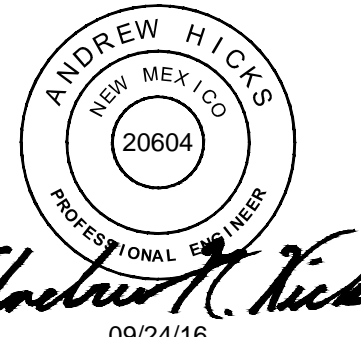
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ENGINEER'S NOTES

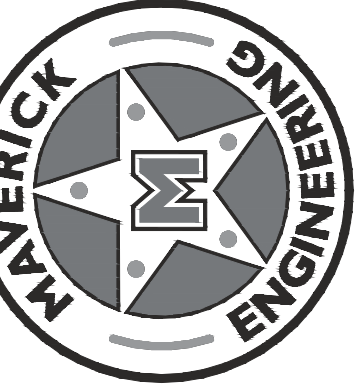
1. THE TWO DETAILS SHOWN ARE AS PROVIDED BY THE MANUFACTURER. ENGINEERING SEAL IS ONLY APPLIED TO SHOW THAT THESE DETAILS HAVE BEEN ADOPTED AS AN INTEGRAL PART OF THE PLAN SET. MAVERICK ASSUMES NO RESPONSIBILITY FOR THE DESIGN OF THESE DETAILS.



BERM STABILIZATION DETAILS
CHEVRON HYDRAULIC
FRACTURING PONDS
HH-SO 8 & HH-SO 10
EDDY COUNTY, NEW MEXICO



MAVERICK ENGINEERING
1909 West Wall Street, Suite 1K
Midland, Texas 79701
Tel: (432) 262-0999 Fax: (432) 262-0989
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REVISIONS	DATE	BY	DATE	BY
1	09/24/16	AMH		
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CHECKED BY:	RET
APPROVED BY:	AMH
DATE:	09/21/2016
JOB:	162007



326,681 BOW
SHOWN

TOTAL POND CAPACITY =	BARRELS OF WATER 443,463	ACRE FEET 57.16
VOLUME @ 327' = (3' FREEBOARD)	347,230	44.76
BREACH VOLUME =	326,681	42.11

THE VOLUMES BELOW DO NOT INCLUDE A SHRINK OR SWELL FACTOR. CONTRACTOR SEGREGATE DESIRABLE MATERIAL FROM "STRATUM A" FOR IMPORT TO EAST SITE. THIS SITE HAS BEEN INTENTIONALLY LEFT SHOWING A SIGNIFICANT EXPORT AMOUNT DUE TO 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 B CONSTRUCTION NOTES.

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: 1.18
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

1. 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. 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 COMPLY WITH ALL OSHA, FEDERAL AND STATE SAFETY GUIDELINES. MAVERICK WILL HAVE NO CONTROL OVER OR RESPONSIBILITY FOR JOB SITE SAFETY.

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

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



SHEET **C501** OF 13