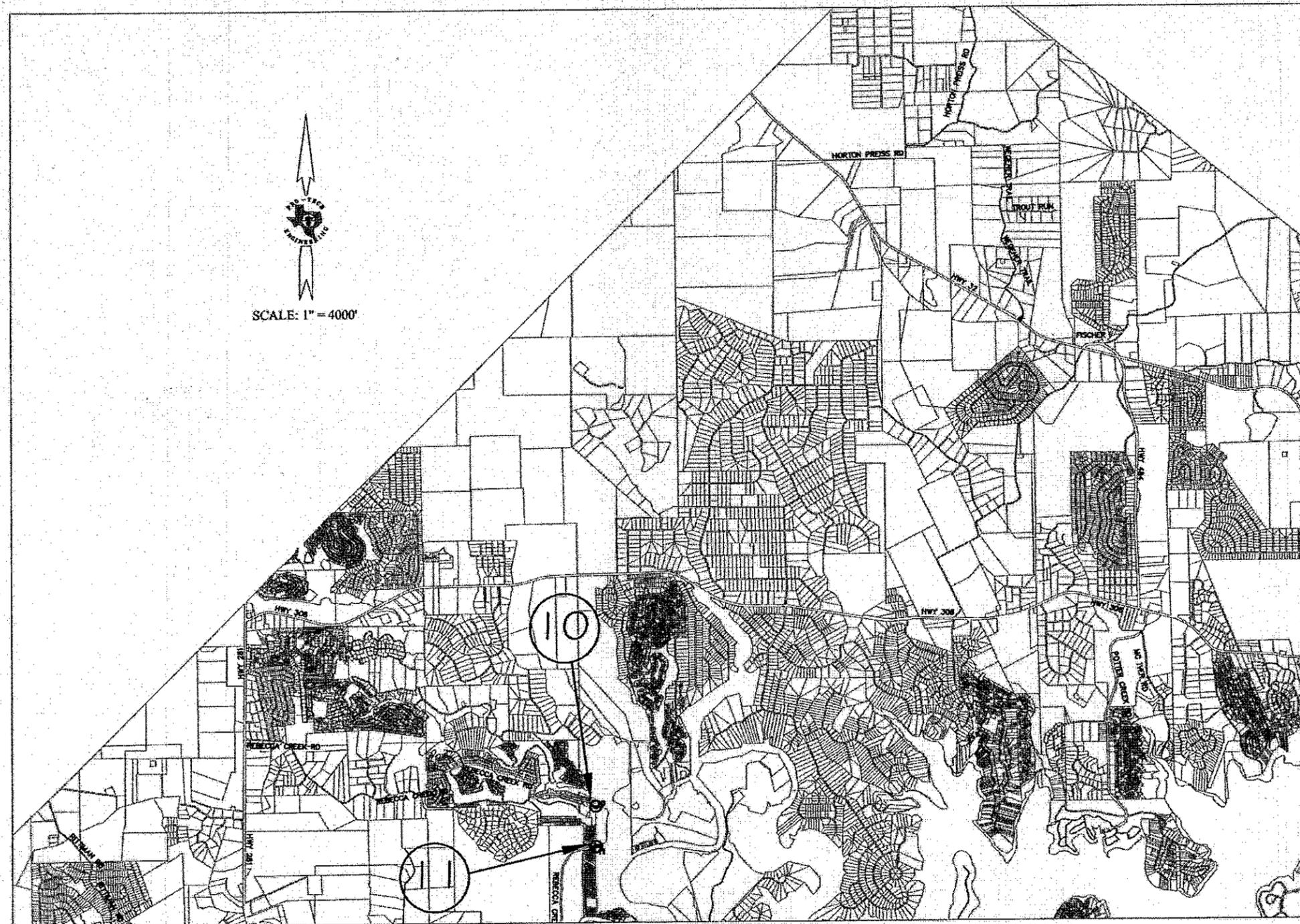


COMAL COUNTY CATTLEGUARD IMPROVEMENTS

Phase 2 Comal County, Texas



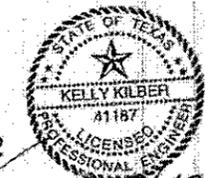
LOCATION MAP

SHEET INDEX

1. COVER SHEET
2. THIS SHEET REMOVED INTENTIONALLY
3. THIS SHEET REMOVED INTENTIONALLY
4. THIS SHEET REMOVED INTENTIONALLY
5. EXISTING SITE CONDITIONS - CATTLEGUARD 10
6. EXISTING SITE CONDITIONS-CG10-PLAN/PROFILE
7. PROPOSED SITE CONDITIONS-CG10-PLAN/PROFILE
8. EXISTING SITE CONDITIONS - CATTLEGUARD 11
9. EXISTING SITE CONDITIONS-CG11-PLAN/PROFILE
10. PROPOSED SITE CONDITIONS-CG11-PLAN/PROFILE
11. CATTLEGUARD DETAILS
12. CONCRETE SPECIFICATIONS & ROAD DETAIL

NOTES:

1. UNDERGROUND UTILITIES MAY EXIST AT EACH SITE. CONTRACTOR TO CONTACT TEXAS 811 FOR UNDERGROUND UTILITY LOCATION AT LEAST 48 HOURS PRIOR TO EXCAVATION.
2. TRAFFIC & EMERGENCY VEHICLE ACCESS TO BE MAINTAINED AT ALL TIMES.
3. LIVESTOCK TO BE RESTRICTED AT ALL TIMES.
4. ALL WORK TO BE AS PER APPLICABLE COMAL COUNTY SPECIFICATIONS.



[Signature]

Kelly Kilber, PE

10/14

Date



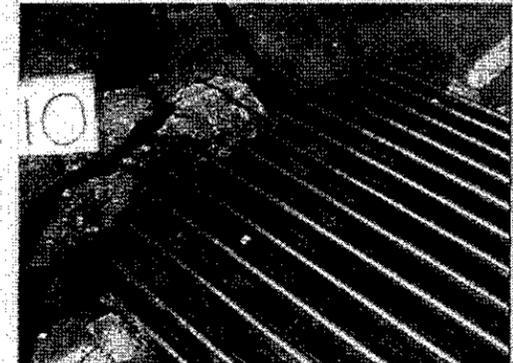
ENGINEERING GROUP

INCORPORATED
Reg. No. F-1501
100 E. San Antonio St., Suite 100
San Marcos, TX. 78666
(512) 353-3335

REVISED: MARCH 18, 2014
OCTOBER 9, 2012



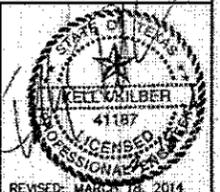
SCALE: 1"=20'



COMAL COUNTY, TEXAS
CATTLEGUARD REPLACEMENTS
PHASE 2

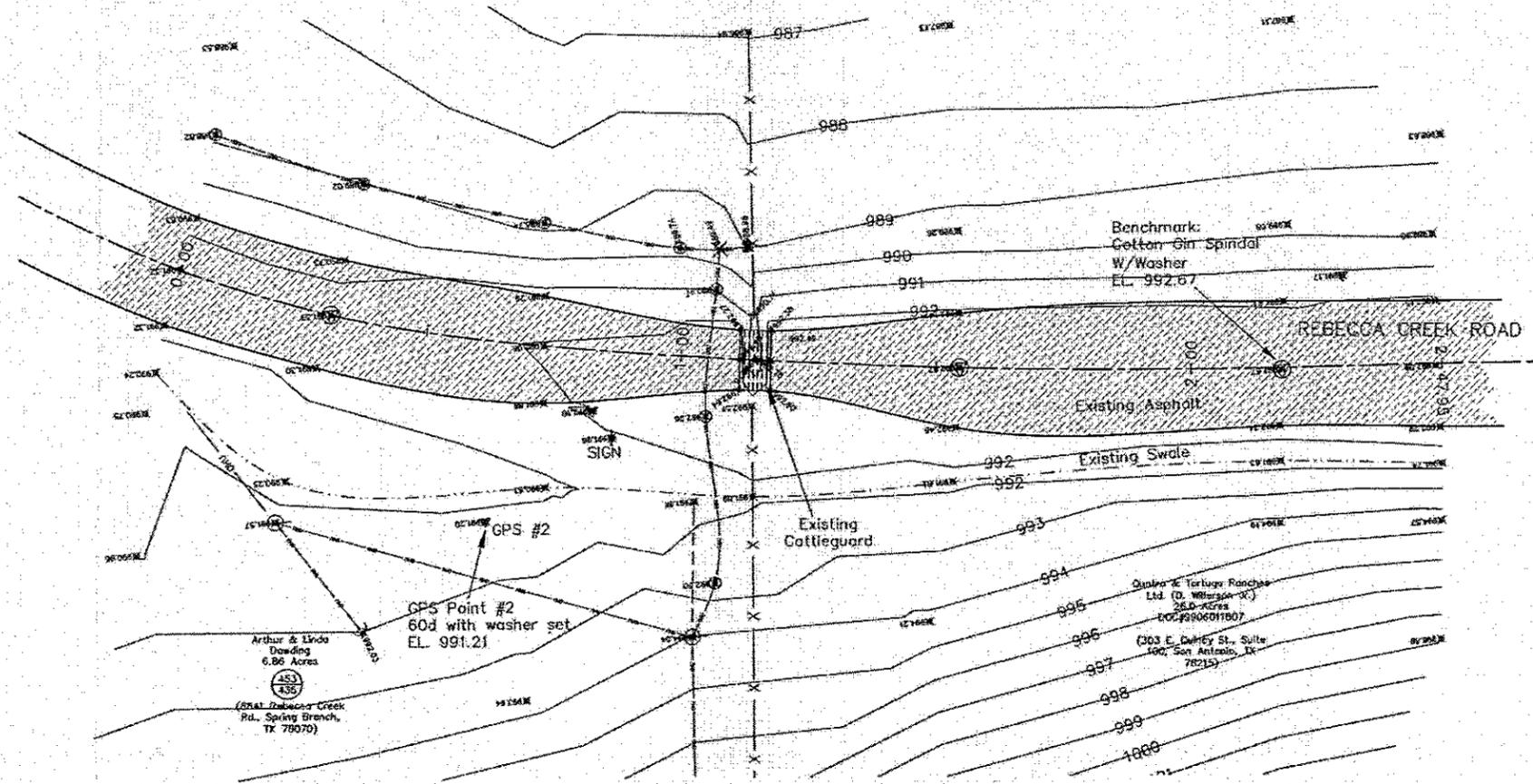
EXISTING SITE CONDITIONS
8841 REBECCA CREEK ROAD
CATTLEGUARD NO.10

PRO-TECH
ENGINEERING GROUP
INCORPORATED
Reg. No. F-1501
100 E. San Antonio St., Suite 100
San Marcos, TX 78668
(512) 353-3335



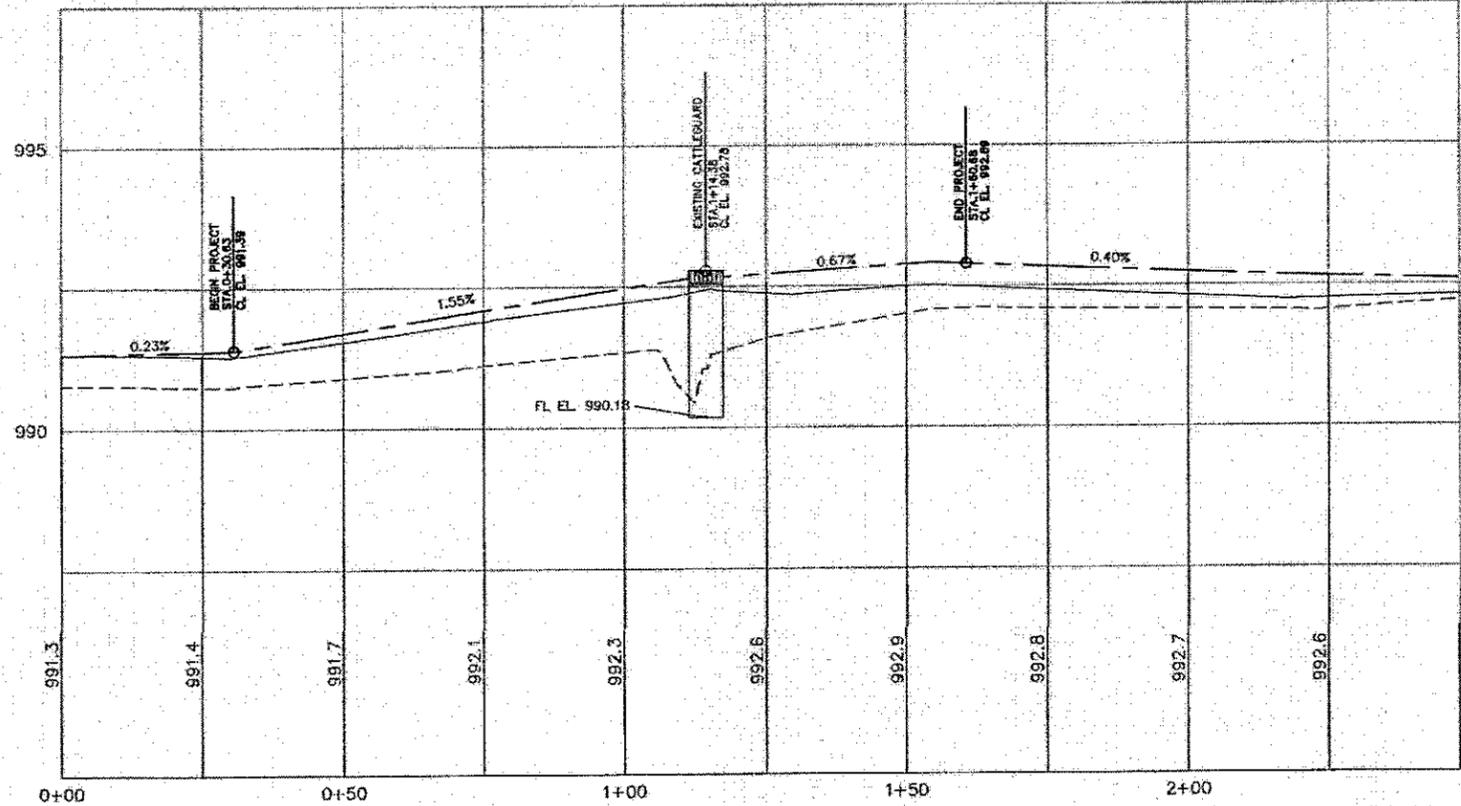
REVISED: MARCH 18, 2014
DATE: OCTOBER 9, 2012

E.O. 14867	SCALE AS SHOWN	SHEET 5 of 12
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LEGEND

- ⊙ IRON STAKE FOUND
- IRON STAKE SET
- ◻ ALUMINUM CAPPED IRON STAKE SET
- ⊞ TELEPHONE PEDESTAL
- △ NAIL SET
- FENCE POST
- x- FENCE LINE
- ⊕ POWER POLE
- OH- OVERHEAD UTILITY LINE
- UG- UNDERGROUND UTILITIES
- ⊖ GUY ANCHOR
- ⊙ COTTON GIN SPINDLE SET
- ⊙ GVTC FLAG
- ⊙ CABLE LINE
- ⊙ PAINT MARK



CL Road Surface Elevation 995.1

29+00 CL Road Stationing

PROFILE DATA

LEGEND

- - - N.G. 11' LT
- - - EXIST. ROAD CL
- - - N.G. 11' RT
- - - DESIGN ROAD CL

**COMAL COUNTY, TEXAS
CATTLEGUARD REPLACEMENTS
PHASE 2**

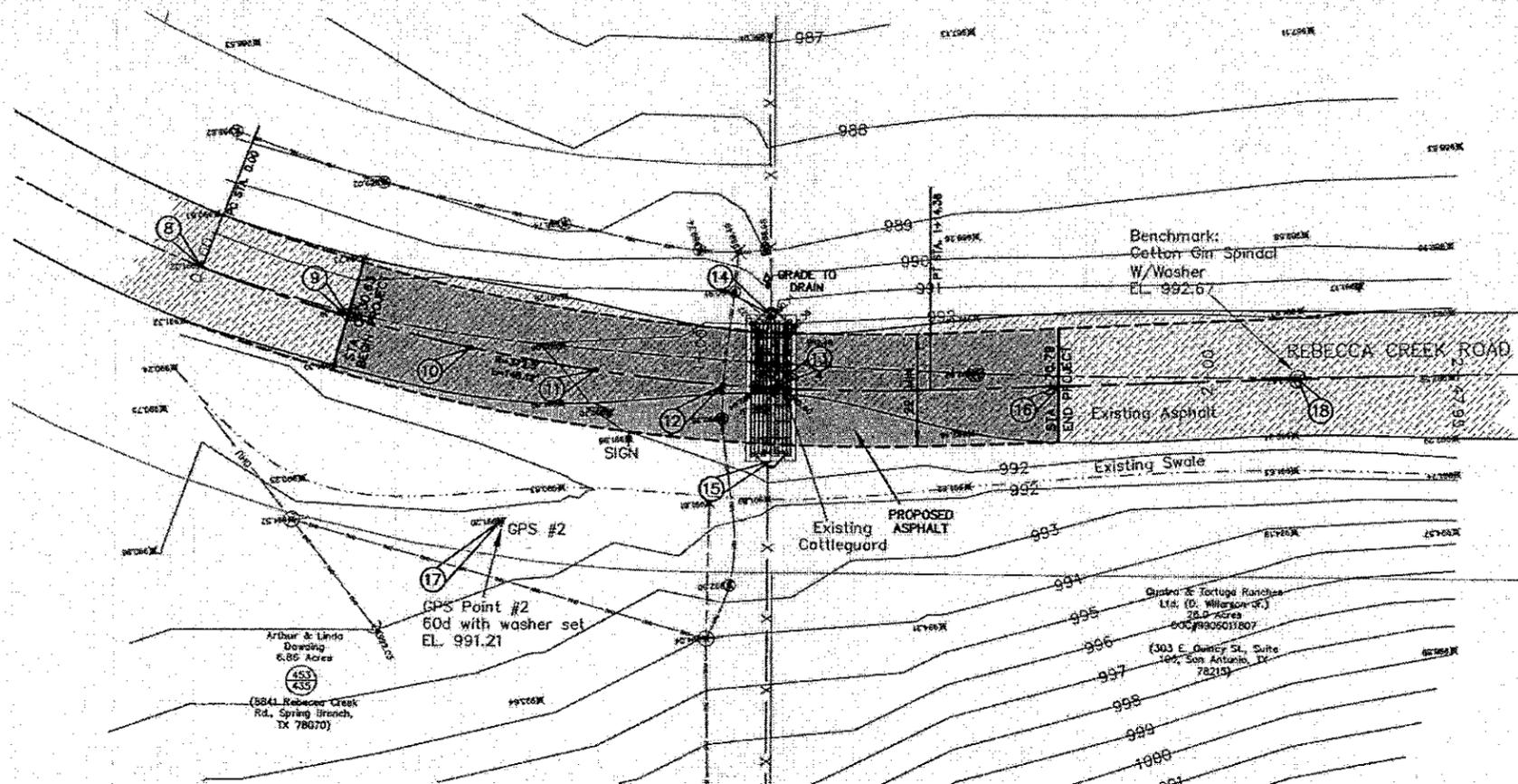
**EXISTING SITE CONDITION PLAN & PROFILE
REBECCA CREEK ROAD-CATTLEGUARD NO.10**

**PRO-TECH
ENGINEERING
GROUP**
INCORPORATED
Eng. No. 7-1981
100 E. San Antonio St., Suite 100
San Marcos, TX 78666
(512) 263-3305

KELLY KILBER
41187
REGISTERED PROFESSIONAL ENGINEER

REVISION: 10/09/2014
DATE: OCTOBER 9, 2012

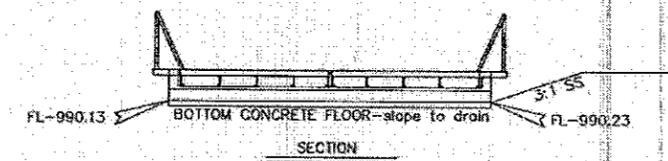
E.O. 14857 SCALE: HOR: 1"=20' VERT: 1"=2' SHEET: 6 OF 12



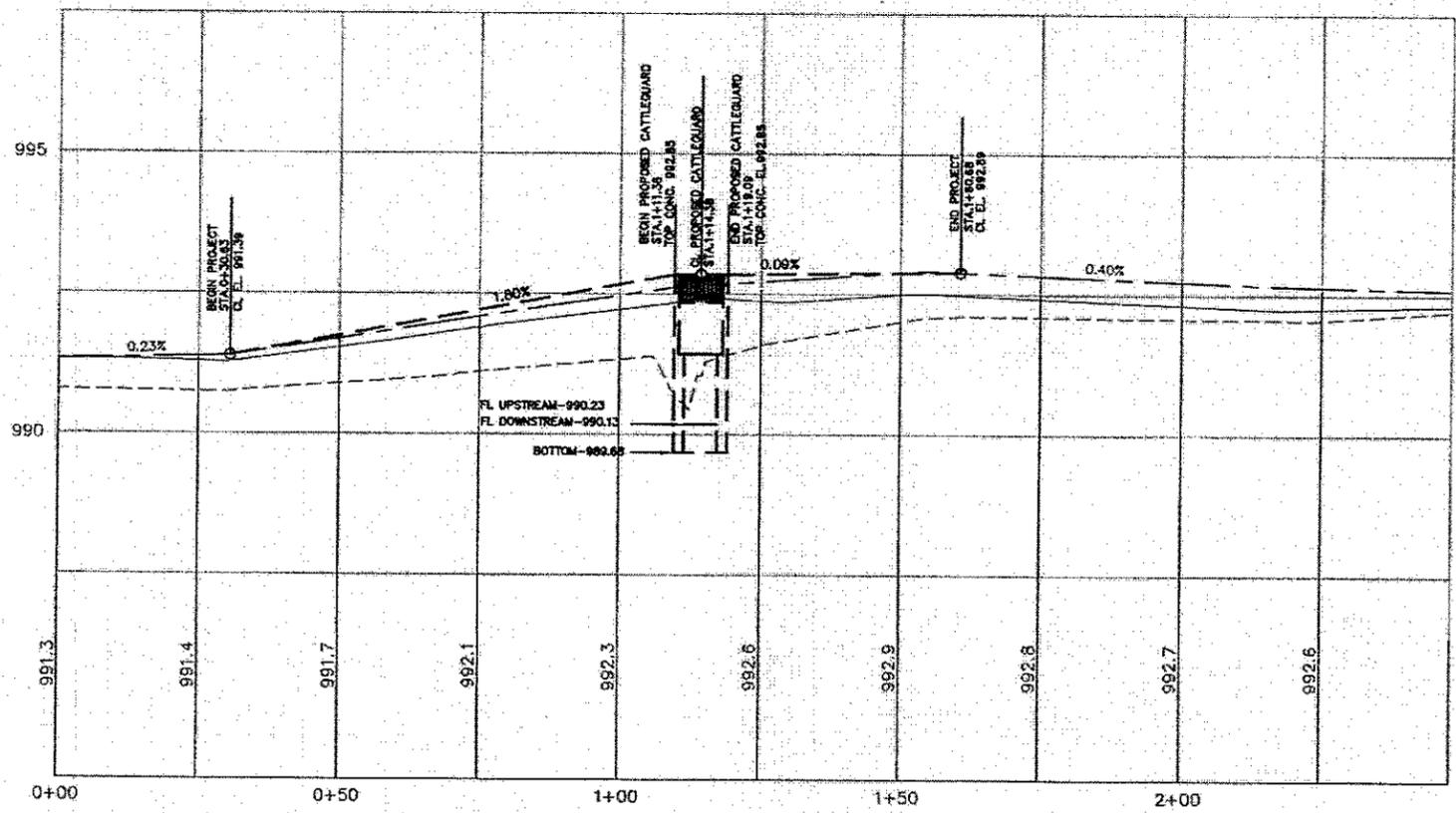
- LEGEND**
- ⊙ IRON STAKE FOUND
 - IRON STAKE SET
 - ⊠ ALUMINUM CAPPED IRON STAKE SET
 - ⊞ TELEPHONE PEDESTAL
 - △ NAIL SET
 - FENCE POST
 - X- FENCE LINE
 - POWER POLE
 - +— OVERHEAD UTILITY LINE
 - UNDERGROUND UTILITIES
 - ⊥ GUY ANCHOR
 - ⊙ COTTON GIN SPINDLE SET
 - ⊙ GVTG FLAG
 - ⊙ CABLE LINE
 - ⊙ PAINT MARK

COORDINATE LIST-TSPCS, SOUTH CENTRAL ZONE, NAD 83

NUMBER	NORTHING	EASTING
8	N 13879110.0723	E 2173657.3264
9	N 13879100.4082	E 2173685.9764
10	N 13879094.5390	E 2173710.3810
11	N 13879090.2280	E 2173735.0395
12	N 13879087.5372	E 2173759.9370
13	N 13879087.0485	E 2173769.3528
14	N 13879101.2775	E 2173769.2622
15	N 13879072.6394	E 2173769.4446
16	N 13879087.6471	E 2173825.8710
17	N 13879060.5848	E 2173716.7236
18	N 13879089.2463	E 2173872.9082



- NOTES:**
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO WORK OUT A TEMPORARY CONSTRUCTION EASEMENT FOR THE WORK ASSOCIATED WITH THIS CROSSING. CONTACT COMAL COUNTY AND QUATRO & TORTUGA RANCHES LTD. (c/o D. WILLERSON JR., 303 E. QUINCY ST., SUITE 100, SAN ANTONIO, TX 78215) TO ARRANGE FOR TEMPORARY CONSTRUCTION EASEMENTS.
 - NO TREES SHALL BE IMPACTED ON THE ADJACENT PROPERTY DURING CONSTRUCTION OF THE TEMPORARY ROAD.
 - TEMPORARY ROAD WILL BE CONSTRUCTED ON THE SOUTH SIDE OF THE ROAD.
 - ALL EXISTING FENCING, GATES, AND GROUND COVER SHALL BE RE-ESTABLISHED BACK TO EXISTING CONDITIONS AFTER CONSTRUCTION IS COMPLETE.



CONTRACTOR TO VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION

CL Road Surface Elevation 998.1

29+00 CL Road Stationing

PROFILE DATA

LEGEND

- - - N.G. 11' LT
- - - EXIST. ROAD CL
- - - N.G. 11' RT
- - - DESIGN ROAD CL

COMAL COUNTY, TEXAS
CATTLEGUARD REPLACEMENTS
PHASE 2

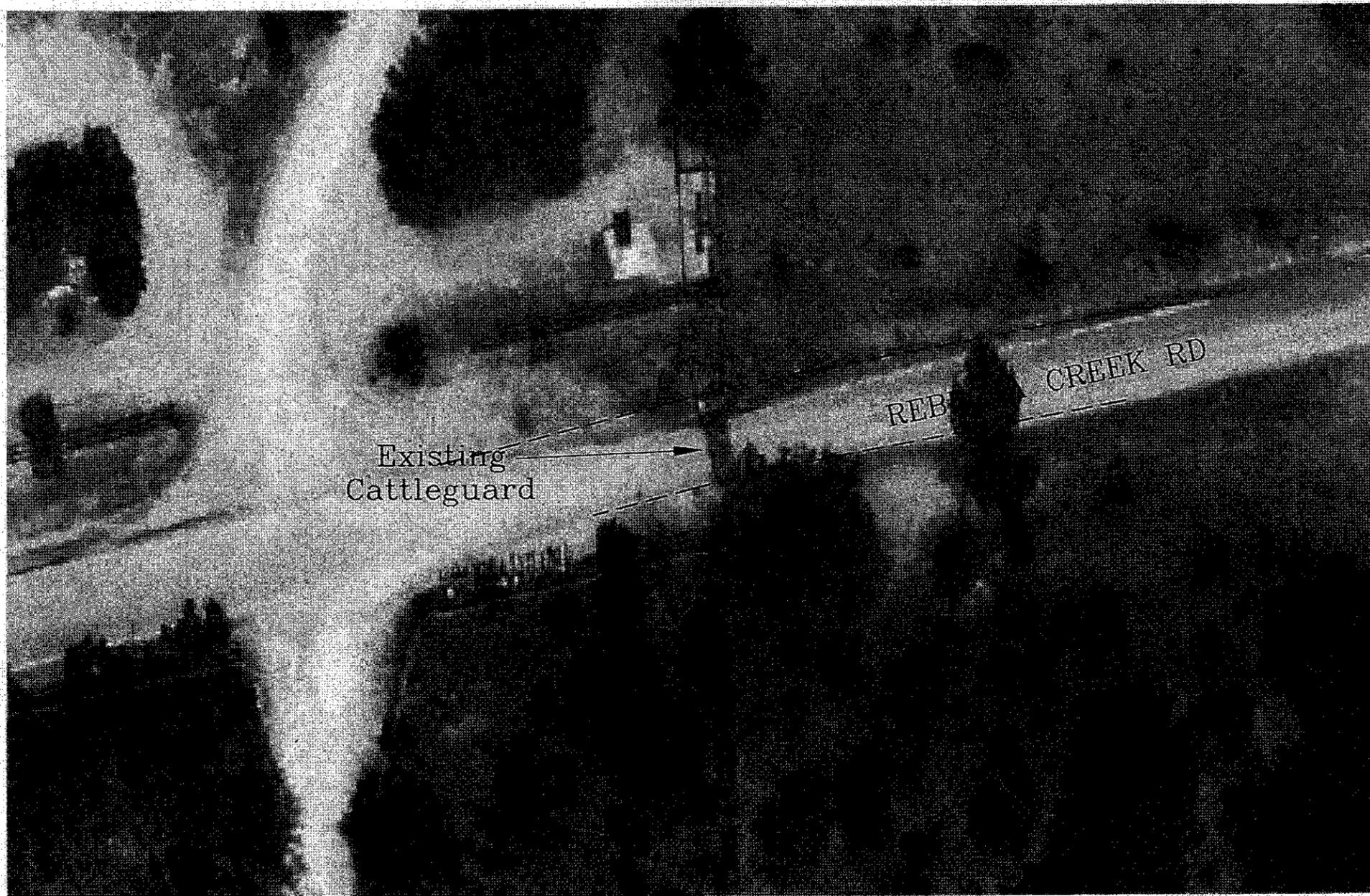
PROPOSED SITE CONDITION PLAN & PROFILE
REBECCA CREEK ROAD-CATTLEGUARD NO.10

PRO-TECH ENGINEERING GROUP
INCORPORATED
Reg. No. P-1581
100 E. San Antonio St., Suite 100
San Marcos, TX 78666
(512) 353-3335

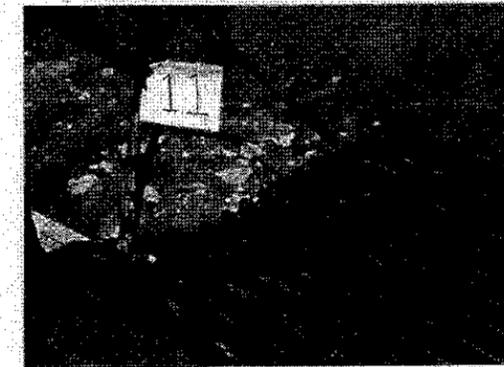
REVISOR: MARCH 16, 2011
DATE: OCTOBER 9, 2012

E.O. 14867 SCALE: HOR: 1"=20' VERT: 1"=2'

SHEET 7 OF 12



SCALE: 1"=20'



COMAL COUNTY, TEXAS
CATTLEGUARD REPLACEMENTS
PHASE 2

EXISTING SITE CONDITIONS
REBECCA CREEK ROAD AT CAMPFIRE
CATTLEGUARD NO.11

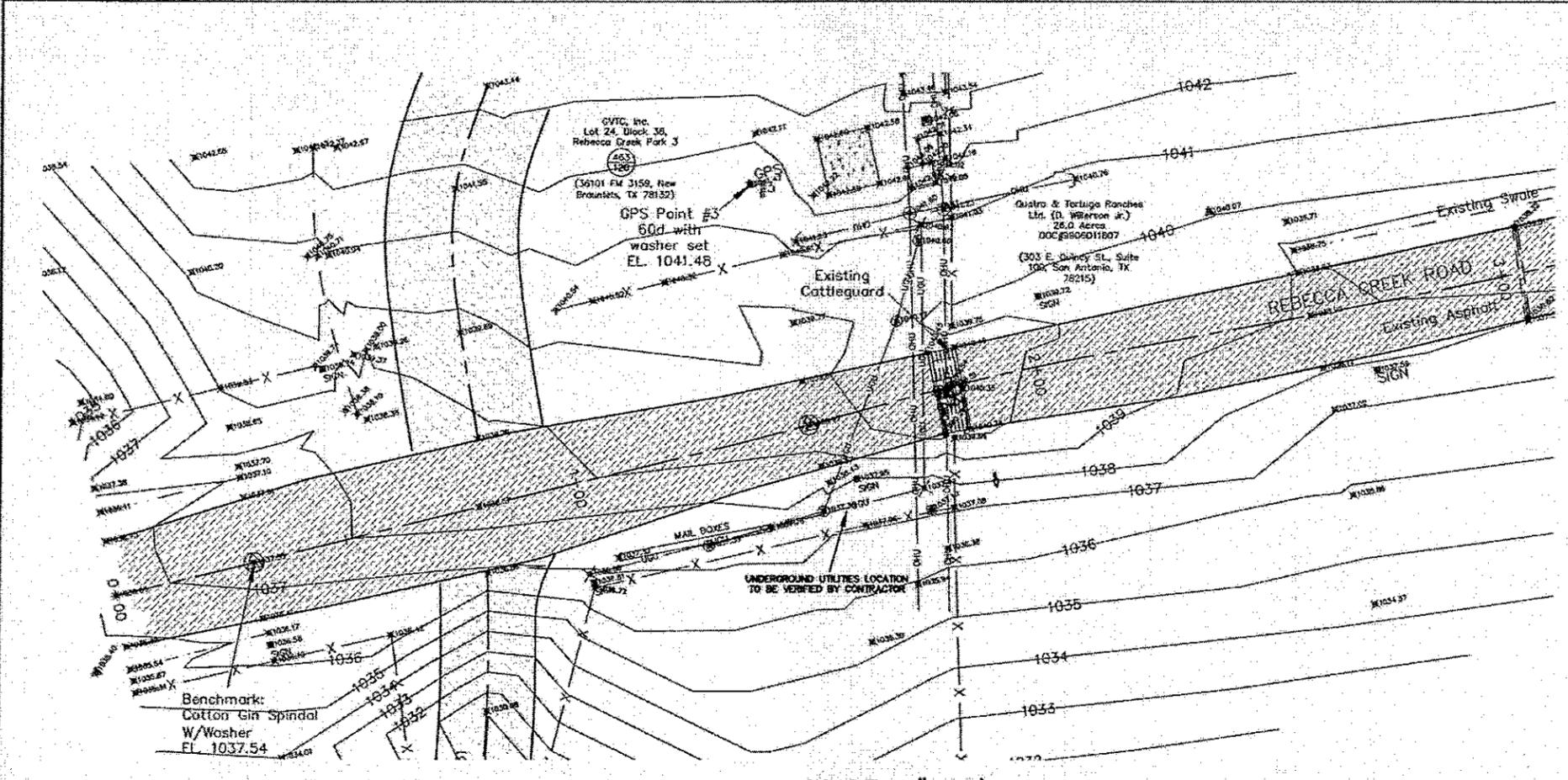
PRO-TECH
ENGINEERING GROUP
INCORPORATED
Reg. No. P-1061
100 E. San Antonio St., Suite 100
San Marcos, TX 78666
(512) 353-3235

KELLY KILBER
41187
PROFESSIONAL ENGINEER
REVISED: 10-2-2014
DATE: OCTOBER 9, 2012

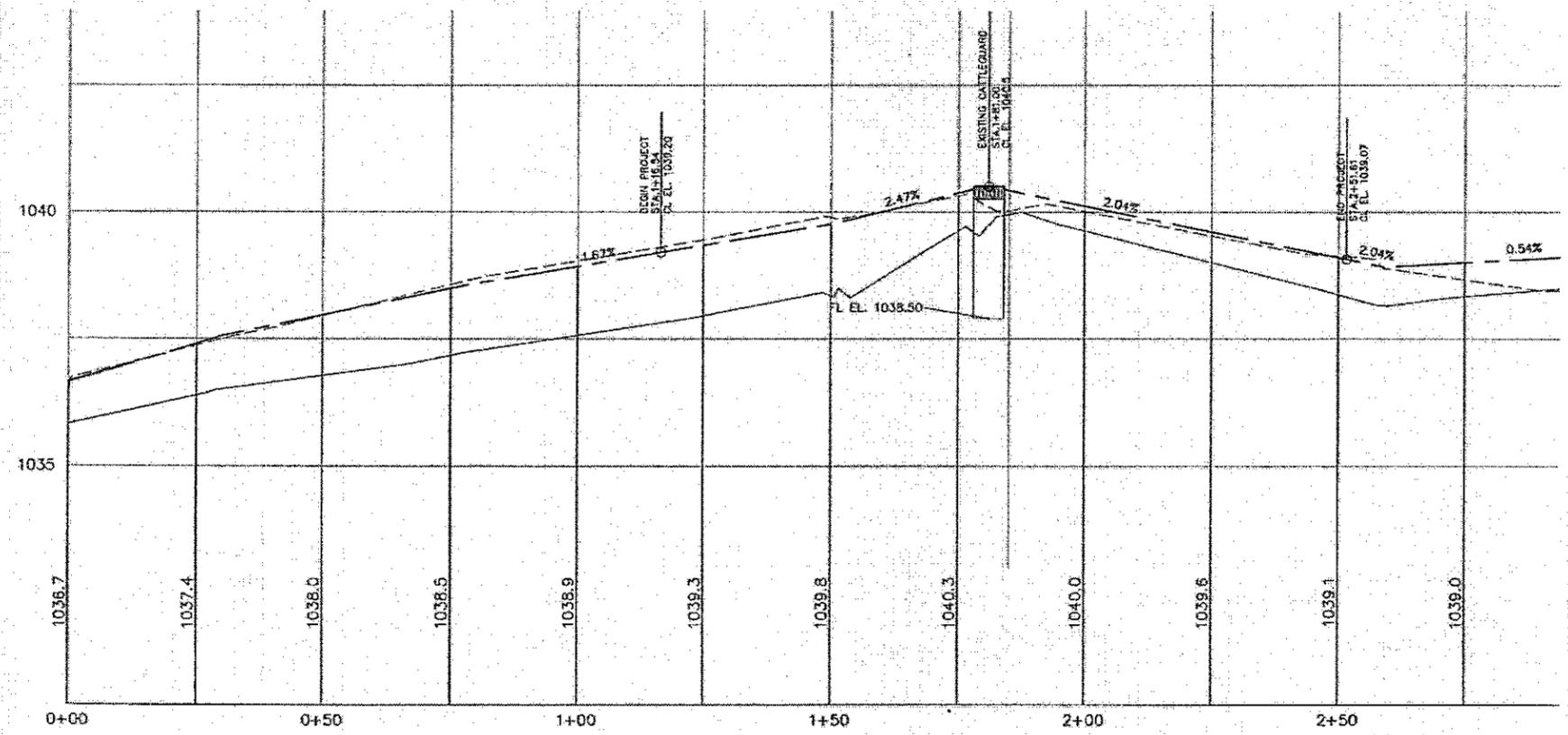


LEGEND

- ⊙ IRON STAKE FOUND
- IRON STAKE SET
- ⊠ ALUMINUM CAPPED IRON STAKE SET
- ⊡ TELEPHONE PEDESTAL
- △ NAIL SET
- FENCE POST
- X- FENCE LINE
- ⊕ POWER POLE
- OH- OVERHEAD UTILITY LINE
- UR- UNDERGROUND UTILITIES
- ⊕ GUY ANCHOR
- ⊙ COTTON GIN SPINDLE SET
- ⊙ CVTC FLAG
- X CABLE LINE PAINT MARK



SCALE: 1"=20'



Cl. Road Surface
Flanbon

28+00
PROFILE DATA

Cl. Road Stationing

LEGEND

- - - N.G. 11' LT
- - - EXIST. ROAD CL
- N.G. 11' RT
- · - · - DESIGN ROAD CL

**COMAL COUNTY, TEXAS
CATTLEGUARD REPLACEMENTS
PHASE 2**

**EXISTING SITE CONDITIONS PLAN & PROFILE
REBECCA CREEK ROAD-CATTLEGUARD NO.11**

**PRO-TECH
ENGINEERING
GROUP**
INCORPORATED
Reg. No. F-1501
100 E. San Antonio St., Suite 100
San Marcos, TX 78668
(512) 383-3335

REVISOR: MARCH 18, 2014
DATE: OCTOBER 9, 2012

E.O. 14867 SCALE: HOR: 1"=20' VERT: 1"=2' SHEET: 9 of 12

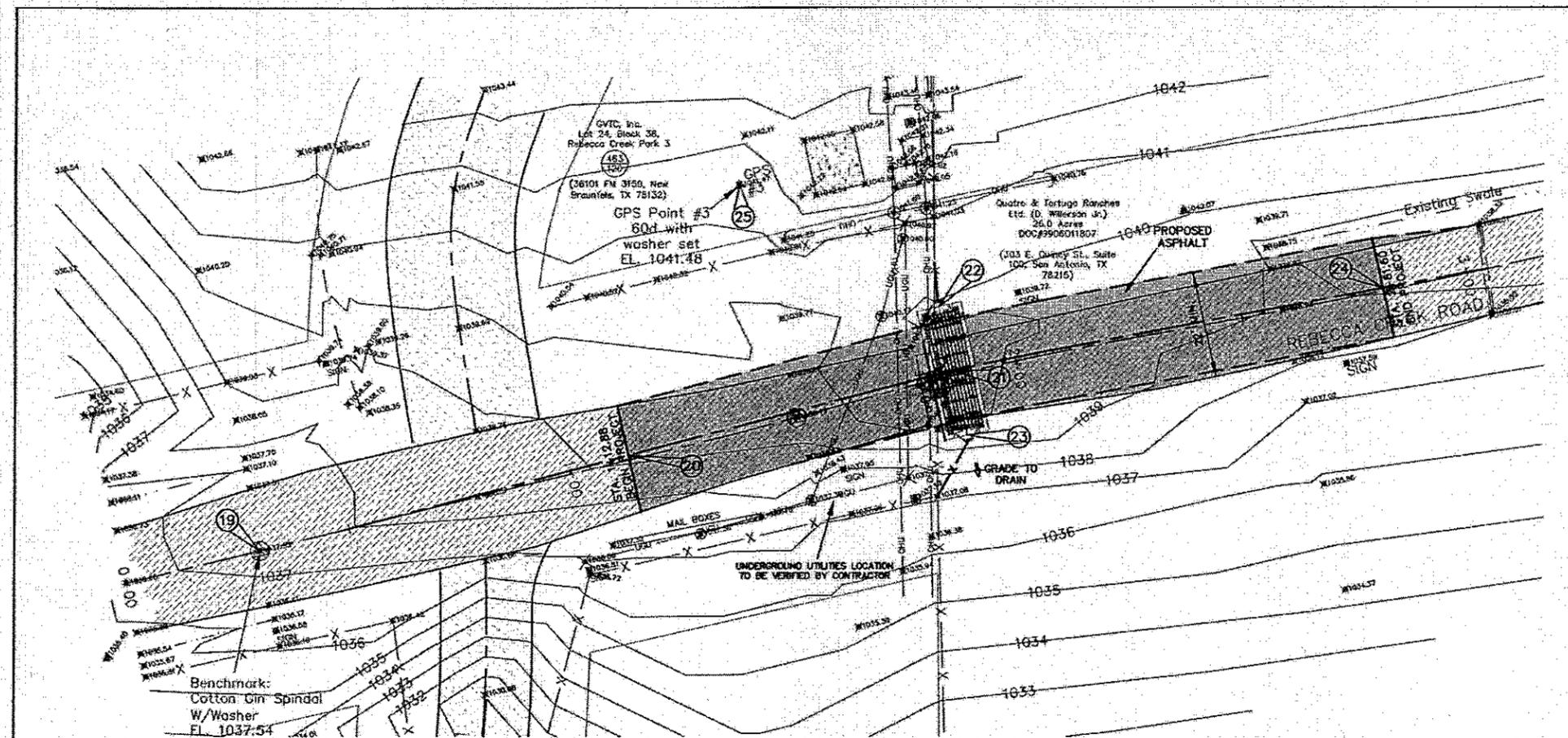


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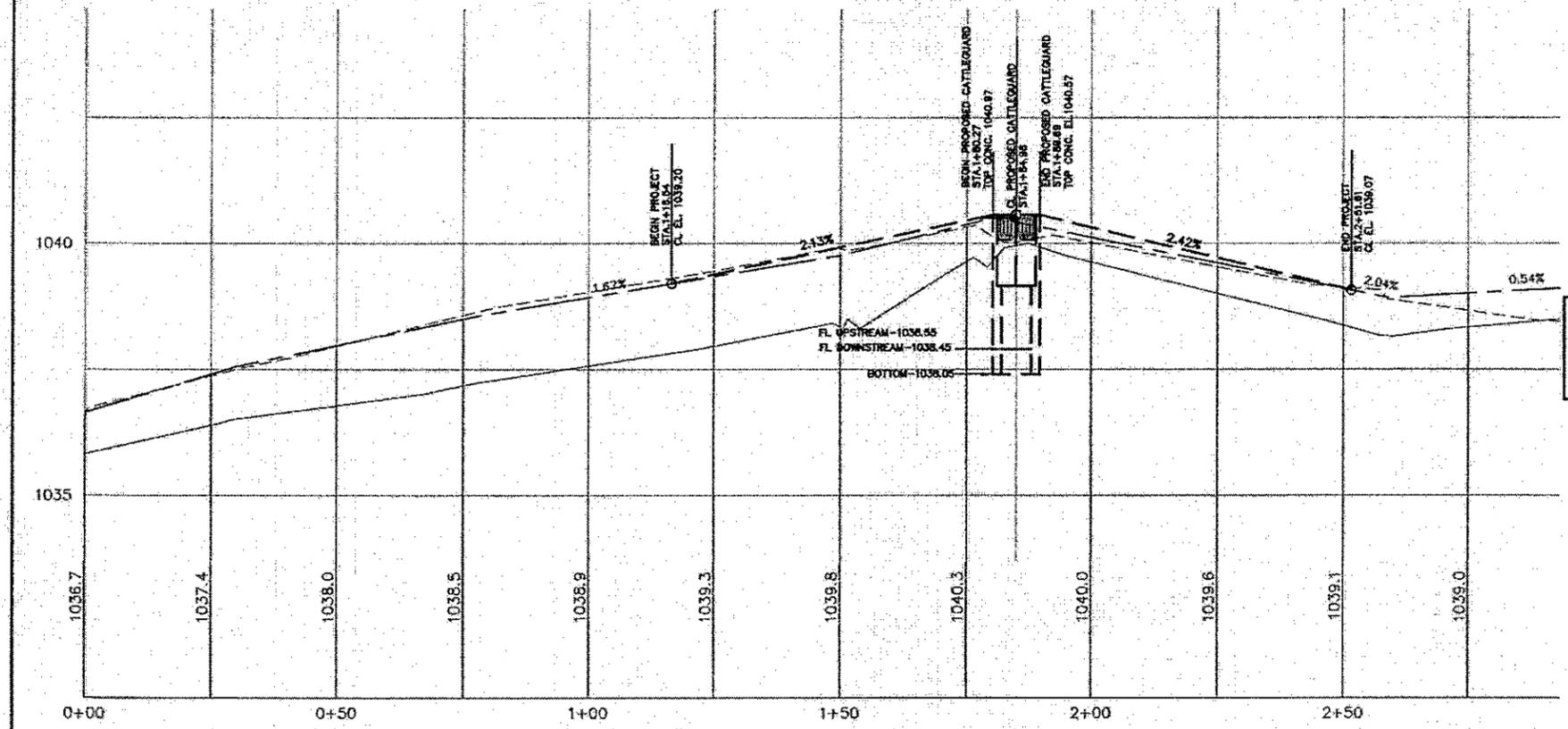
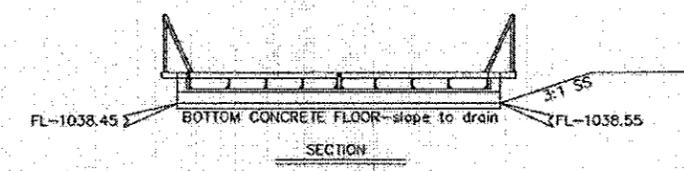
- ⊙ IRON STAKE FOUND
- IRON STAKE SET
- ⊠ ALUMINUM CAPPED IRON STAKE SET
- ⊞ TELEPHONE PEDESTAL
- △ NAIL SET
- FENCE POST
- - - FENCE LINE
- ⊕ POWER POLE
- - - OVERHEAD UTILITY LINE
- - - UNDERGROUND UTILITIES
- ⊖ CUY ANCHOR
- ⊙ COTTON GIN SPINDLE SET
- ⊙ GVIC FLAG
- ⊗ CABLE LINE PAINT MARK

COORDINATE LIST-TSPCS, SOUTH CENTRAL ZONE, NAD 83

NUMBER	NORTHING	EASTING
19	N 13876939.3058	E 2173635.7014
20	N 13876960.1671	E 2173716.0169
21	N 13876978.4946	E 2173786.7553
22	N 13876992.4367	E 2173783.5751
23	N 13876964.5133	E 2173789.9355
24	N 13876996.4288	E 2173880.7053
25	N 13876995.6577	E 2173740.1073



SCALE: 1"=20'



NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO WORK OUT A TEMPORARY CONSTRUCTION EASEMENT FOR THE WORK ASSOCIATED WITH THIS CROSSING. CONTACT COMAL COUNTY AND QUATRO & TORTUGA RANCHES LTD. (c/o D. WILLERSON JR., 303 E. QUINCY ST., SUITE 100, SAN ANTONIO, TX 78215) TO ARRANGE FOR TEMPORARY CONSTRUCTION EASEMENTS.
2. NO TREES SHALL BE IMPACTED ON THE ADJACENT PROPERTY DURING CONSTRUCTION OF THE TEMPORARY ROAD.
3. TEMPORARY ROAD WILL BE CONSTRUCTED ON THE NORTH SIDE OF THE ROAD.
4. ALL EXISTING FENCING, GATES, AND GROUND COVER SHALL BE RE-ESTABLISHED BACK TO EXISTING CONDITIONS AFTER CONSTRUCTION IS COMPLETE.

CONTRACTOR TO VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION

Cl. Road Surface Elevation

29+00 Cl. Road Stationing

LEGEND

- - - N.G. 11' LT
- - - EXIST. ROAD CL
- - - N.G. 11' RT
- - - DESIGN ROAD CL

COMAL COUNTY, TEXAS
CATTLEGUARD REPLACEMENTS
PHASE 2

PROPOSED SITE CONDITIONS PLAN & PROFILE
REBECCA CREEK ROAD-CATTLEGUARD NO.11

PRO-TECH ENGINEERING GROUP
INCORPORATED
Reg. No. F-1501
100 E. San Antonio St., Suite 100
San Antonio, TX 78205
(512) 353-3335

JELLY KILBER
41187
LICENSED PROFESSIONAL ENGINEER

REVISED: MARCH 18, 2014
DATE: OCTOBER 9, 2012

E.O. 14857 SCALE: HOR: 1"=20' VERT: 1"=2' SHEET 10 OF 12

CONCRETE/REINFORCING:

CR-1 USE OF DIFFERENT CLASSES OF CONCRETE SHALL BE AS SHOWN BELOW. CONCRETE BATCH DESIGN (S) SHALL BE PROPORTIONED AND PRODUCED IN ACCORDANCE WITH A.C.I. 318 AND A.C.I. 301.

F'C = 4000 PSI MINIMUM - ALL CONCRETE

CR-2 REINFORCING BARS SHALL CONFORM TO THE FOLLOWING A.S.T.M. SPECIFICATIONS:

ALL BAR REINFORCING - A-615, GRADE 60

CR-3 ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT THE SPECIFIC APPROVAL OF THE STRUCTURE ENGINEER.

CR-4 MINIMUM CONCRETE CLEAR COVER SHALL BE:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER	2"

CR-5 BAR SUPPORT ACCESSORIES SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, EXCEPT THAT BEAM REINFORCING SHALL BE SUPPORTED ON BEAM BOLSTERS SPACED NOT MORE THAN 4 FEET ON CENTER. WHEN THE CONCRETE SURFACE WILL BE EXPOSED TO VIEW AND/OR WEATHER, THE PORTIONS OF ALL BAR SUPPORTS WITHIN 1/2" OF THE CONCRETE SURFACE SHALL BE NONCORROSIVE OR PROTECTED AGAINST CORROSION.

CR-6 WHERE ADHESIVE ANCHORS (ADH. ANCH.) ARE SHOWN, THEY SHALL CONSIST OF STEEL ALL-THREAD ANCHOR ROD, NUT WASHER, AND ADHESIVE MATERIALS. ANCHORS SHALL BE MANUFACTURED FROM SAE GRADE 2, MEETING THE REQUIREMENTS OF A.S.T.M. A36. ANCHOR RODS SHALL HAVE ROLLED THREADS AND SHALL BE FURNISHED WITH CHAMFERED ENDS OR WITH A 45 DEGREE CHISEL POINT ON ONE END TO ALLOW FOR EASY INSERTION INTO THE ADHESIVE-FILLED HOLE. THE ADHESIVE SHALL BE FORMULATED TO INCLUDE RESIN, HARDENER CEMENT AND WATER TO PROVIDE OPTIMAL CURING SPEED AS WELL AS HIGH STRENGTH AND STIFFNESS. ADHESIVE SHALL BE FURNISHED IN SIDE BY SIDE REFILL PACKS WHICH KEEP SEPARATE COMPONENT A AND COMPONENT B. ANCHORS SHALL BE INSTALLED USING MINIMUM DEPTHS, EDGE DISTANCES, SPACING (UNLESS NOTED OTHERWISE), AND INSTALLATION PROCEDURES AS RECOMMENDED BY THE MANUFACTURER. DO NOT APPLY LOAD TO ANCHOR UNTIL ADHESIVE HAS CURED IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER. ACCEPTABLE ADHESIVE ANCHORS ARE HILTI HY 150 INJECTION ADHESIVE ANCHORS.

CR-7 REINFORCING SUPPLIER SHALL PROVIDE COMPLETE PLACEMENT AND FABRICATING DRAWINGS FOR ALL REINFORCING INCLUDING THE LOCATION AND SIZE OF ALL ACCESSORIES AND SUPPORTS.

ALTERNATE FINISH:

In lieu of providing a galvanized finish as specified on Sheet 11 of 12 herein, the Cattle Guard may be painted in accordance with Kelly Moore Paints Manufacturer's Standard Specification, Division 9 - Finishes, Section 09910 or approved equal, at the discretion of Comal County.

CR-8 CONCRETE. MIX DESIGN SHALL MEET THE FOLLOWING REQUIREMENTS:

- CEMENT TYPE: ASTM C150, TYPE I OR III
- FLY ASH: ASTM C618, TYPE C OR F (20% OF CEMENT CONTENT BY WT. MAX)-SINGLE SOURCE REQUIRED
- AGGREGATES: ASTM C33
- AIR CONTENT: ASTM C260, 2 TO 4%
- SLUMP LIMITS: NO LESS THAN 3", NOT MORE THAN 5".

GENERAL CONTRACTOR IS TO SUBMIT WRITTEN REPORT FOR THE PROPOSED MIX DESIGN AT LEAST 7 DAYS PRIOR TO START OF CONCRETE WORK.

CR-9 ALL ITEMS EMBEDDED IN CONCRETE SHALL BE TIED AND SECURED PRIOR TO PLACEMENT OF CONCRETE.

CR-10 MECHANICAL VIBRATOR (USED AT 18" INTERVALS MAXIMUM), HAND RODDING AND TAMPING SHALL BE USED TO CONSOLIDATE CONCRETE AND TO INSURE THAT CONCRETE IS WORKED AROUND REINFORCEMENT, OTHER EMBEDDED ITEMS AND INTO FORMS.

CR-11 DO NOT PLACE CONCRETE WHEN THE AMBIENT TEMPERATURE IS EXPECTED TO BE 90 DEGREES °F OR ABOVE AND/OR 40 DEGREES °F OR BELOW, FOR THE FIRST THREE HOURS AFTER PLACEMENT.

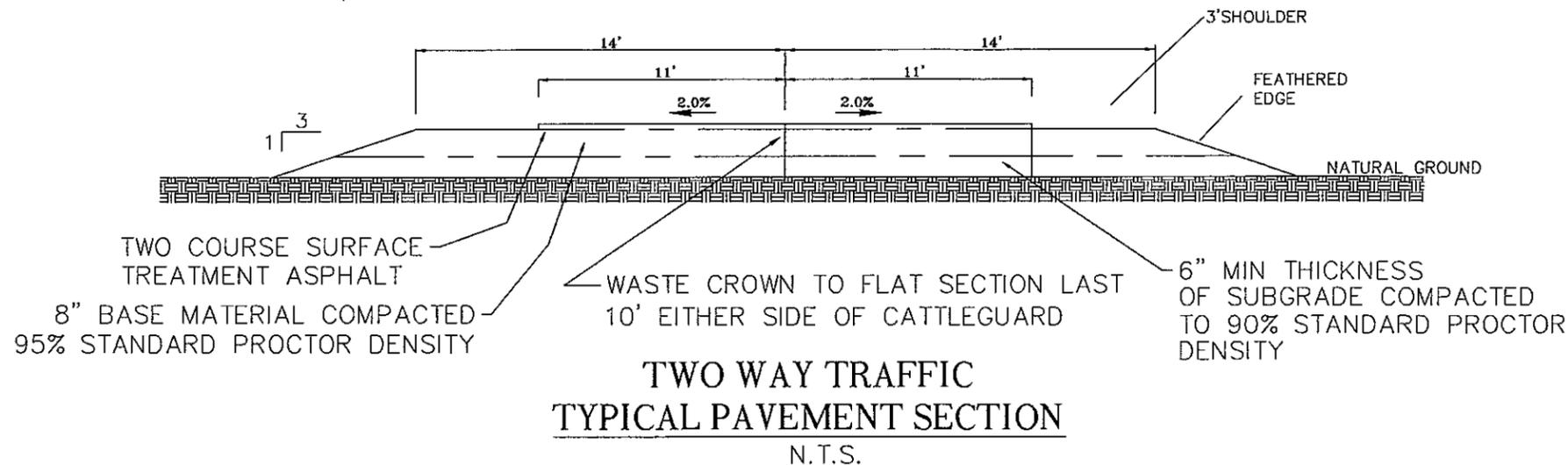
CR-12 ALL SLABS AND EXPOSED SURFACES SHALL BE CURED USING A LIQUID-TYPE MEMBRANE CURING COMPOUND COMPLYING WITH ASTM C309, TYPE I, CLASS A. MOISTURE LOSS NOT MORE THAN 0.55 KG/M2 IN 72 HOURS WHEN APPLIED AT 200 SQ. FT./GAL. AND TESTED IN ACCORDANCE WITH ASTM C156. CURING COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT USE MEMBRANE CURING COMPOUNDS ON SURFACES TO BE COVERED WITH FINISH MATERIALS/COATINGS APPLIED DIRECTLY TO CONCRETE. IF LIQUID TYPE CURING COMPOUND IS NOT USED PROVIDE OTHER MEANS OF CURING SUBJECT TO REVIEW BY THE STRUCTURAL ENGINEER.

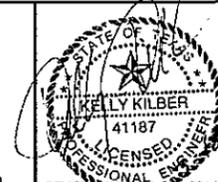
CR-13 GENERAL CONTRACTOR SHALL EMPLOY A TESTING LABORATORY TO PERFORM SAMPLING AND TESTING DURING CONCRETE PLACEMENT AS FOLLOWS:

- AGGREGATES ASTM, C33, ONE TEST THE FIRST DAY
- COMPRESSIVE STRENGTH: ASTM C39, ONE SET OF 5 CYLINDERS, FOR EACH 150 CUBIC YARDS OF CONCRETE OR FOR EACH 5000 SQUARE FEET OF SURFACE AREA FOR SLABS. TWO CYLINDERS TESTED AT 7 DAYS, TWO TESTED AT 28 DAYS, REMAINING ONE TO BE TESTED AT 56 DAYS IF NECESSARY.
- AIR CONTENT ASTM C173, A MINIMUM OF ONE TEST PER DAY
- SLUMP ASTM C143, AT LEAST TWO TESTS SHALL BE MADE RANDOMLY DURING EACH DAY OF PLACEMENT.

TESTING REQUIREMENTS MAY BE WAIVED BY THE STRUCTURAL ENGINEER FOR QUANTITIES OF CONCRETE LESS THAN 50 CU. YDS. IF FIELD EXPERIENCE INDICATES EVIDENCE OF SATISFACTORY STRENGTH. IN SUCH CASES, GENERAL CONTRACTOR SHALL REQUEST THE WAIVE FROM THE STRUCTURAL ENGINEER AT LEAST SEVEN (7) DAYS PRIOR TO THE START OF CONCRETE WORK.

CR-14 ALL FOOTINGS AND SLABS ON GRADE MUST HAVE THEIR PERIMETERS HARDFORMED. USE OF EXCAVATION EDGES AS FORMS IS NOT ACCEPTABLE.



<p>COMAL COUNTY, TEXAS CATTLEGUARD REPLACEMENTS PHASE 2</p>	
<p>ROAD SECTION & CONCRETE SPECIFICATIONS</p>	
 <p>PRO-TECH ENGINEERING GROUP INCORPORATED Reg. No. P-1501 100 E. San Antonio St., Suite 100 San Marcos, TX 78666 (512) 353-3335</p>	 <p>REVISION: 10-10-2014 DATE: OCTOBER 9, 2012</p>
E.O. 14867	SCALE: NTS
SHEET 12 OF 12	