

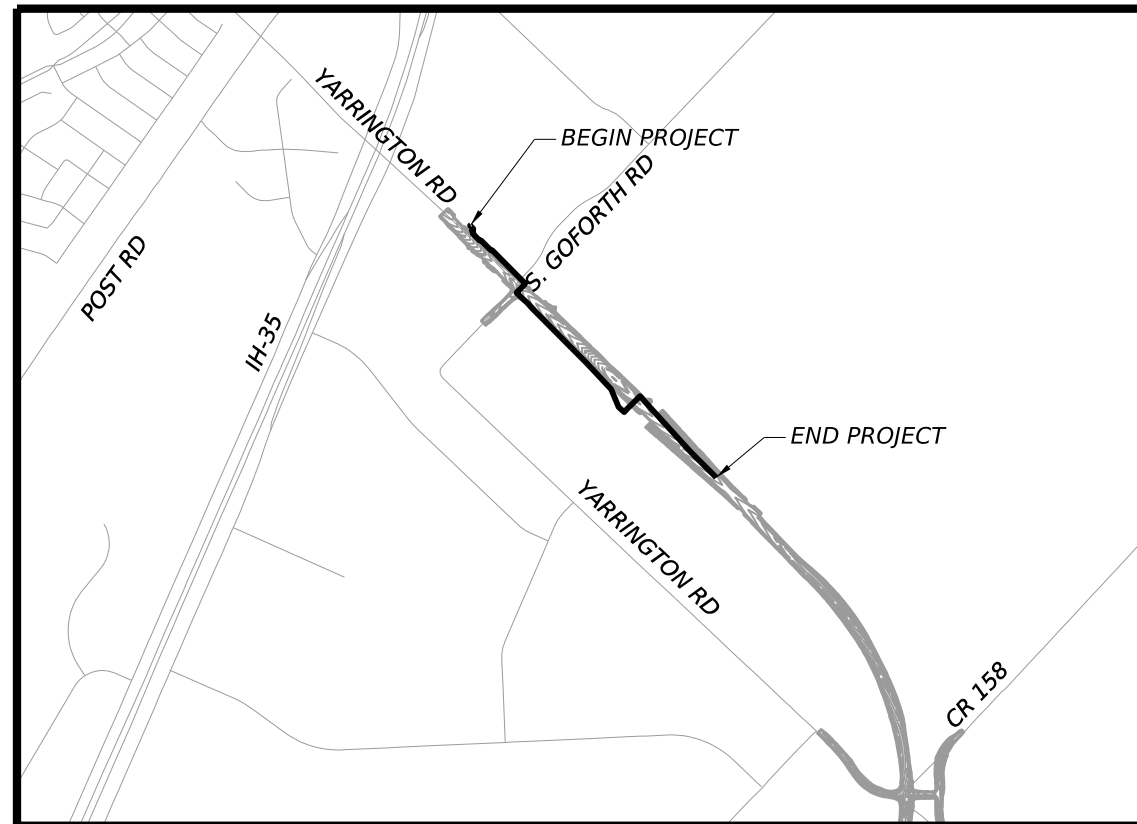
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	CITY OF KYLE WATER NOTES
3	TCEO WATER NOTES
4	QUANTITIES
5	LEGEND & ABBREVIATIONS
6	PROJECT MAP
7	PROJECT LAYOUT
8	EROSION AND SEDIMENTATION CONTROL STA 10+00 TO STA 40+00
9	EROSION AND SEDIMENTATION CONTROL STA 40+00 TO END
10	EROSION AND SEDIMENTATION CONTROL DETAILS
11	PLAN AND PROFILE BEGIN TO STA 14+00
12	PLAN AND PROFILE STA 14+00 TO STA 18+00
13	PLAN AND PROFILE STA 18+00 TO STA 22+00
14	PLAN AND PROFILE STA 22+00 TO STA 26+00
15	PLAN AND PROFILE STA 26+00 TO STA 30+00
16	PLAN AND PROFILE STA 30+00 TO STA 34+00
17	PLAN AND PROFILE STA 34+00 TO STA 38+00
18	PLAN AND PROFILE STA 38+00 TO STA 42+00
19	PLAN AND PROFILE STA 42+00 TO STA 46+00
20	PLAN AND PROFILE STA 46+00 TO STA 50+00
21	PLAN AND PROFILE STA 50+00 TO STA 54+00
22	PLAN AND PROFILE STA 54+00 TO STA 58+00
23	PLAN AND PROFILE STA 58+00 TO END
24	WATER DETAILS
25	WATER DETAILS
26	TxDOT TRAFFIC CONTROL DETAIL 1
27	TxDOT TRAFFIC CONTROL DETAIL 2
28	TxDOT TRAFFIC CONTROL DETAIL 3



CITY OF KYLE F.M. 110 PROPOSED 16" WATERLINE

LOCATION MAP



PROJECT INFORMATION

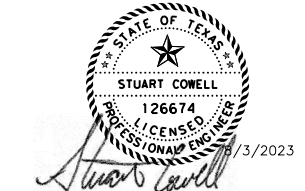
OWNER: LEON BARBA, PE CITY ENGINEER CITY OF KYLE CITY HALL 100 W. CENTER ST KYLE, TX 78640	PROJECT MANAGER: DEREK DANIELS, PE CITY ENGINEER CITY OF KYLE CITY HALL 100 W. CENTER ST KYLE, TX 78640
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TBPE FIRM REGISTRATION: F-1386

CONTACT:
STUART COWELL, P.E.
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SUBMITTED FOR APPROVAL:



8/3/2023

PROJECT MANAGER STUART COWELL LJA ENGINEERING, INC.	DATE
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ALL PROJECT COORDINATES ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83(93)/NAVD88. ALL COORDINATES SHOWN HEREON ARE ADJUSTED TO SURFACE BY MULTIPLYING BY A COMBINED ADJUSTMENT FACTOR OF 1.00011. UNITS: U. S. SURVEY FEET

CITY OF KYLE
GENERAL CONSTRUCTION NOTES
REVISED NOVEMBER 23, 2022

- ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE FOLLOWING REGULATIONS AND SPECIFICATIONS. THE FIRST LISTED WILL HAVE PRIORITY OVER THOSE LISTED BELOW: PERMITS ISSUED FOR PROJECT BY ANY REGULATORY AGENCIES. CITY OF KYLE CONSTRUCTION STANDARDS. PLANS FOR THIS PROJECT.
- PRIOR TO THE BEGINNING OF CONSTRUCTION, THE DEVELOPER SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE. PRE-CONSTRUCTION SHALL BE SCHEDULED WITH THE PW OFFICE, 512-262-3024 AND HELD AT THE PW FACILITY LOCATED AT 520 E RRI50, KYLE, TEXAS. REPRESENTATIVES FROM THE FOLLOWING ORGANIZATIONS SHALL BE INVITED:
CITY OF KYLE STAFF INCLUDING THE DIRECTOR OF PUBLIC WORKS, CITY ENGINEER AND THE PUBLIC WORKS INSPECTOR.
CONTRACTOR.
DESIGN ENGINEER.
ELECTRIC, GAS, PHONE AND CABLE UTILITY REPRESENTATIVES, IF APPROPRIATE.
- PRIOR TO THE BEGINNING OF CONSTRUCTION, ALL PLAN REVIEW AND CONSTRUCTION INSPECTION FEES SHALL BE PAID TO THE CITY OF KYLE AND THE FOLLOWING PERMITS SHALL BE IN PLACE, IF NECESSARY:

TEXAS DEPARTMENT OF TRANSPORTATION, ENTRY ONTO A HIGHWAY.
U.S. CORPS OF ENGINEERS, SECTION 404, FOR CONSTRUCTION IN FLOOD PLAIN.
COMPLIANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) CONSTRUCTION GENERAL PERMIT (TXR150000).
TEXAS DEPARTMENT OF LICENSING AND REGULATION FOR ACCESSIBILITY.
TCEQ FOR SIGNIFICANT WATER AND WASTEWATER FACILITIES, INCLUDING LIFT STATIONS.

- BENCHMARKS FOR THIS PROJECT ARE DESCRIBED AS FOLLOWS:
- THE STREET PAVEMENT THICKNESS IS BASED ON A REPORT BY XXXXXXXXXX DATED MONTH X, 20XX WHICH RECOMMENDS THE FOLLOWING STREET SECTIONS.

STREET CLASSIFICATION	STREET WIDTH	LIME STABILIZATION OF SUBGRADE	BASE THICKNESS	HOT MIX ASPHALT
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- ANY EXISTING PAVEMENT, CURBS, AND/OR SIDEWALKS DAMAGED OR REMOVED SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE BEFORE ACCEPTANCE OF THE SUBDIVISION.
- THE CONTRACTOR SHALL GIVE THE CITY OF KYLE (PHONE NO. 512-262-3024), 48 HOURS NOTICE PRIOR TO CONNECTING TO ANY EXISTING CITY UTILITY LINE.
- SIDEWALKS FRONTING PUBLIC RIGHT-OF-WAY LAND OR INCLUDING ALL SIDEWALK RAMPS REQUIRED BY CITY ORDINANCE SHOWN ON THESE PLANS SHALL BE CONSTRUCTED WITH THIS PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR WARNING AND SAFETY SIGNS, BARRICADES AND TRAFFIC CONTROL DURING CONSTRUCTION. ALL ROAD SIGNAGE SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE CITY OF KYLE FOR THE USE OF ALL WATER FOR CONSTRUCTION.
- ALL FILL OR CUT ON LOTS WHICH IS GREATER THAN TWELVE (12) INCHES SHALL BE SHOWN ON THE PLANS AND SHALL CONFORM TO THE FOLLOWING:

FILL MATERIAL SHALL NOT CONTAIN ANY ROCKS HAVING A MAXIMUM DIMENSION GREATER THAN SIX (6) INCHES.

FILL MATERIAL SHALL HAVE AT LEAST FIFTY PERCENT (50%) PASSING THE NO. 4 SIEVE.

FILL MATERIAL SHALL BE REASONABLY FREE OF ROOTS, TRASH, CONCRETE RUBBLE AND OTHER ORGANIC MATERIAL.

COMPACTION SHALL BE TO NINETY-FIVE PERCENT (95%) OF MAXIMUM LABORATORY DENSITY DETERMINED IN ACCORDANCE WITH THE ASTM D 698. THE MATERIAL SHALL BE WITHIN THREE (3) PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT DURING COMPACTION.

PLACEMENT SHALL BE IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AFTER COMPACTION. EACH COMPACTED LIFT SHOULD BE INSPECTED AND/OR TESTED FOR DENSITY COMPLIANCE BY A GEOTECHNICAL ENGINEER PRIOR TO PLACING THE NEXT LIFT. THE FILL AREA SHOULD EXTEND AT LEAST 24 INCHES (36 INCHES ON FILLS OVER SIX (6) FEET IN HEIGHT) BEYOND THE BACK OF CURB OR FOUNDATION LINE BEFORE SLOPING DOWNWARD ON NOT MORE THAN THREE (3) TO ONE (1) SLOPE TO NATURAL SOIL. BACKSLOPES SHALL BE WELL COMPACTED. MAXIMUM FILL HEIGHTS SHOULD NOT EXCEED TEN (10) FEET WITHOUT ENGINEERING CONSULTATION.

- CONTRACTOR SHALL GIVE CITY INSPECTOR 36 HOURS NOTICE OF THE NEED FOR MATERIALS TESTING. ALL TESTING WILL BE ARRANGED AND PAID FOR BY THE CONTRACTOR. THE CITY SHALL RECEIVE A COPY OF TEST RESULTS.
- CONTRACTOR OR THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND CUT SHEETS FOR PIPE LINES LAID ON GRADE AND ROAD CONSTRUCTION. CUT SHEETS SHALL BE DELIVERED TO THE CITY INSPECTOR 36 HOURS PRIOR TO CONSTRUCTION.
- IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND STABLE OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR.
- IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN EMPLOYEES ARE REQUIRED TO BE IN TRENCHES 4 FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
- NO TREES OVER 6 INCHES IN DIAMETER SHALL BE REMOVED UNLESS DESIGNATED TO BE REMOVED ON THE APPROVED PLANS. ALL TREE LIMBS REMOVED OR TRIMMED SHALL BE VERTICALLY CUT AND DRESSED.

- ALL CONSTRUCTION ACTIVITIES SHALL BE CONFINED TO PROPERTY OWNED BY THE DEVELOPER OR PUBLIC RIGHT-OF-WAY AND EASEMENT UNLESS WRITTEN PERMISSION IS OBTAINED BY THE CONTRACTOR FROM THE PROPERTY OWNER AFFECTED.
- THE CITY OF KYLE DOES NOT ALLOW ANY BLASTING WITHIN THE CITY LIMITS.

TYPICAL SEQUENCE OF CONSTRUCTION

- HOLD PRE-CONSTRUCTION CONFERENCE.
- NO CLEARING OR ROUGH GRADING MAY BE DONE UNTIL THE APPROVED EROSION AND SEDIMENTATION CONTROLS ARE IN PLACE.
- INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND STABILIZATION CONSTRUCTION ENTRANCE, IF REQUIRED, IN THE APPROVED PLANS.
- ROUGH GRADE STREETS.
- INSTALL ALL UTILITIES IN RIGHTS-OF-WAY.
- RE-GRADE AND COMPACT SUBGRADE. MEET WITH CITY INSPECTOR AND/DESIGN ENGINEER TO DETERMINE AREAS OF DIFFERING STREET SECTION THICKNESS OR SUBGRADE PREPARATION IF CALLED FOR IN THE GEOTECHNICAL REPORT.
- ENSURE ALL UNDERGROUND UTILITY CROSSINGS ARE IN PLACE INCLUDING SLEEVES FOR DRY UTILITIES AND INSTALL FIRST COURSE OF BASE.
- INSTALL CURBS, RIP-RAP AND MISCELLANEOUS CONCRETE.
- INSTALL SECOND COURSE OF BASE.
- LAY ASPHALT.
- FINAL GRADE ANY DITCHES AND PARKWAYS.
- REVEGETATE ALL DISTURBED AREAS. DISPOSE OF SPOIL IN AN APPROVED MANNER.
- SCHEDULE A FINAL INSPECTION WITH CITY.
- AFTER ACCEPTANCE OF CONSTRUCTION, TEMPORARY EROSION CONTROLS MAY BE REMOVED.

MINIMUM CRITERIA FOR ACCEPTANCE

- ALL CONSTRUCTION IS COMPLETE INCLUDING DRY UTILITIES AND RESTORATION TO THE CRITERIA.
- ALL CITY OF KYLE FEES PAID AND MAINTENANCE BOND POSTED.
- ALL RECORDS OF CONSTRUCTION TESTING AND RECORD DRAWINGS SHOWING ANY CHANGES DURING CONSTRUCTION PROVIDED TO THE CITY OF KYLE.
- ALL STREET LIGHTING, SIGNS AND PAVEMENT MARKINGS SHALL BE IN PLACE.

WATER AND WASTEWATER NOTES

- PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, DR-14) OR DUCTILE IRON (AWWA C-151, CLASS 350).
- PIPE MATERIAL FOR GRAVITY SEWER SHALL BE SDR-26 PVC IF LOCATED GREATER THAN 9 FEET FROM A WATERLINE, OTHERWISE SHALL BE PRESSURE RATED PIPE.
- BEDDING FOR FLEXIBLE GRAVITY PIPE (I.E. SDR-26 PVC) SHALL CONFORM TO ASTM 2321 CLASS 1 MATERIAL, I.E., 3/4" - 1" CLEAN ANGULAR CRUSHED ROCK.
- CITY INSPECTOR SHALL OBSERVE ALL TAPS TO CITY UTILITY LINES AND PRIOR TO ANY UTILITY RELOCATION.
- CONTRACTOR SHALL DISINFECT AND PRESSURE TEST ALL WATER LINES AND PERFORM LEAK AND DEFLECTION TESTS ON GRAVITY WASTEWATER LINES AT HIS EXPENSE.
- THE CITY INSPECTOR SHALL BE NOTIFIED 36 HOURS PRIOR TO ALL UTILITY LINE TESTING. CONTRACTOR, WITH CITY STAFF PRESENT, IS RESPONSIBLE FOR SAMPLING. CITY STAFF WILL TRANSPORT BACTERIOLOGICAL TEST SAMPLES TO THE STATE DEPARTMENT OF HEALTH. ALL TEST RESULTS, WHETHER PASSING OR FAILING, SHALL BE PROVIDED TO THE CONTRACTOR. MANDREL DEFLECTION TESTING SHALL NOT BE CONDUCTED UNTIL THE PIPES HAVE BEEN BACKFILLED FOR 30 DAYS.
- FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION OR APPROVED EQUAL.
- THE CONTRACTOR SHALL SUBMIT TO THE DESIGN ENGINEER, DESCRIPTIVE INFORMATION FOR MATERIALS TO BE USED ON THE PROJECT FOR REVIEW. A COPY OF THE ACCEPTED MATERIAL SHALL ALSO BE PROVIDED TO THE CITY OF KYLE TEN DAYS PRIOR TO THE INSTALLATION OF UTILITIES.
- PRESSURE TAPS SHALL BE IN ACCORDANCE WITH THE CITY OF KYLE. THE CONTRACTOR SHALL DO ALL EXCAVATION ETC., AND SHALL FURNISH, INSTALL AND AIR TEST THE SLEEVE AND VALVE. A CITY OF KYLE INSPECTOR MUST BE PRESENT WHEN TAP IS MADE. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE DIRECTOR OF PUBLIC WORKS. CONCRETE BLOCKING SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES TWENTY-FOUR (24) HOURS PRIOR TO MAKING THE WET TAP.
- ONE CALL NOTE CONTRACTOR MUST CALL CITY OF KYLE (512-262-3024) FOR LOCATION OF CITY UTILITIES.
- 200 PSI, BLACK, POLYETHYLENE TUBING SHALL BE USED ON WATER SERVICES.
- ALL MANHOLES SHALL BE INTERNALLY COATED TO CITY OF AUSTIN SPECIFICATIONS, INCLUDING THE TIE-IN MANHOLE, UNLESS WAIVED BY THE DIRECTOR OF PUBLIC WORKS.
- ALL PUBLIC MANHOLE COVERS WITHIN THE CITY LIMITS OF KYLE SHALL HAVE THE CITY OF KYLE LOGO.
- ALL GATE VALVE OPERATING NUT OR VALVE EXTENTION NEEDS TO BE 24+ TO FINAL GRADE.

FIRE PREVENTION NOTES

- THE CONTRACTOR SHALL PROVIDE COMPACTED FLEXIBLE BASE PAVEMENT PRIOR TO CONSTRUCTION OF COMBUSTIBLE MATERIALS AS AN "ALL WEATHER DRIVING SURFACE."
- HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE 4 1/2 INCH OPENING AT LEAST EIGHTEEN (18) INCHES ABOVE FINISHED GRADE. THE 4 1/2 INCH OPENING MUST FACE THE DRIVEWAY OR STREET WITH 3' - 6" SETBACK FROM CURBLINE(S). NO OBSERVATION IS ALLOWED WITHIN THREE (3) FEET OF ANY HYDRANT AND THE 4 1/2 INCH OPENING MUST BE TOTALLY UNOBSTRUCTED FROM THE STREET (USE NST THREADS).
- DESIGNATE NO PARKING - FIRE LANE WITH CURB PAINTED RED AND WHITE STENCIL IN "FIRE ZONE / TOW AWAY ZONE" IN LETTERING 3 INCHES IN HEIGHT IN PROXIMITY TO COMMERCIAL, INDUSTRIAL AND PUBLIC STRUCTURES.

EROSION AND SEDIMENTATION CONTROL

- AFTER THE PRECONSTRUCTION MEETING IS HELD, THE CONTRACTOR SHALL INSTALL EROSION/ SEDIMENTATION CONTROLS AND FENCING FOR AREAS OUTSIDE OF THE CONSTRUCTION AREA PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
- THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS, AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.

- PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.
- FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE CITY INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
- PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW:
 - A MINIMUM OF FOUR (4) INCHES OF TOPSOIL SHALL BE PLACED IN ALL DRAINAGE CHANNELS (EXCEPT ROCK), AND BETWEEN THE CURB AND RIGHT-OF-WAY.
 - TRASH, WOOD, BRUSH, STUMPS, ROCKS OVER 1 1/2 INCHES IN SIZE AND OTHER OBJECTIONABLE MATERIAL ENCOUNTERED SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER OR INSPECTOR PRIOR TO BEGINNING OF WORK REQUIRED BY THIS ITEM. GRASS AND OTHER HERBACEOUS PLANT MATERIALS MAY REMAIN. LARGE CLUMPS SHALL BE BROKEN UP.
 - THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS:

BROADCAST SEEDING:

- FROM OCTOBER TO FEBRUARY, SEEDING SHALL BE WITH ONE (1) POUND PER 1,000 SQUARE FEET OF UNHULLED BERMUDA OR THREE (3) POUNDS PER 1,000 SQUARE FEET OF WINTER RYE.
- FROM MARCH TO SEPTEMBER, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF ONE (1) POUND PER 1,000 SQUARE FEET.

FERTILIZER, IF USED, SHALL BE SLOW RELEASE GRANULAR OR PALETTE TYPE, AND SHALL HAVE AN ANALYSIS OF 15-15-15, AND SHALL BE APPLIED AT THE RATE OF ONE (1) POUND PER 1,000 SQUARE FEET, ONCE AT THE TIME OF PLANTING, AND AGAIN ONCE DURING THE TIME OF ESTABLISHMENT.

MULCH TYPE USED SHALL BE STRAW OR HAY APPLIED AT A RATE OF 45 POUNDS PER 1,000 SQUARE FEET.

HYDRAULIC SEEDING:

- FROM OCTOBER TO FEBRUARY, SEEDING SHALL BE WITH ONE (1) POUND PER 1,000 SQUARE FEET OF UNHULLED BERMUDA, OR THREE (3) POUNDS PER 1,000 SQUARE FEET OF WINTER RYE.
- FROM MARCH TO SEPTEMBER, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF ONE (1) POUND PER 1,000 SQUARE FEET.

FERTILIZER, IF USED, SHALL BE A WATER SOLUBLE FERTILIZER WITH AN ANALYSIS OF 15-15-15 AT A RATE OF 1.5 POUNDS PER 1,000 SQUARE FEET.

MULCH TYPE SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1,000 SQUARE FEET, WITH A SOIL TACKIFIER AT A RATE OF 1.4 POUNDS PER 1,000 SQUARE FEET.

- THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK TO A DEPTH OF SIX (6) INCHES. THE IRRIGATION SHALL OCCUR AT 10-DAY INTERVALS DURING THE FIRST TWO (2) MONTHS. RAINFALL OCCURRENCES OF 1/2 INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR TEN (10) DAYS.
- RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 INCH HIGH WITH 85% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 20 SQUARE FEET EXIST.
- A SOIL RETENTION BLANKET SHALL BE PLACED ON ALL SLOPES EQUAL TO OR GREATER THAN 3:1. ALL SOIL RETENTION BLANKETS MUST BE LISTED ON THE TXDOT APPROVED PRODUCTS LIST OR APPROVED BY THE CITY.

REPRESENTATIVE:

DESIGN ENGINEER REPRESENTATIVE RESPONSIBLE FOR PLAN CHANGES.

NAME: STUART COWELL, P.E.

ADDRESS:
2700 LAFRONTERA, STE 150
ROUND ROCK, TX 78681

PHONE: 512-439-4717

CITY OF KYLE:

DIRECTOR OF PUBLIC WORKS:
HARPER WILDER
(512) 262-3024 ext. 4002

CITY ENGINEER:
LEON BARBA, P.E.
(512) 262-3958

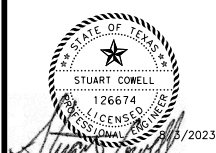
LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.



Know what's below. Call before you dig.

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DESIGNED BY: SC
DRAWN BY: SC
CHECKED BY: SC
APPROVED BY:



FM 110 WATER LINE

LJA Engineering, Inc.

2700 LAFRONTERA BLVD.
SUITE 150
ROUND ROCK, TEXAS 78735



Phone 512.767.7300
Fax 512.439.4716
FRN-F-1386

CITY OF KYLE
GENERAL NOTES

JOB NUMBER: 2173-2206

SCALE:
HORIZONTAL: NA
VERTICAL: NA

1 OF 1

SHEET NO. 2

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES
FEBRUARY 2019

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS.
2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI 290.44(A)(1)
3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS 290.44(A)(2).
4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY 290.44(A)(3).
5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR 290.44(E)(4)(B).
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE 290.44(A)(4).
7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT 290.44(B).
8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT 290.44(D)(1).
9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION 290.44(F)(1).
10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASUREMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED 290.44(F)(2).
11. PURSUANT TO 30 TAC 15#64290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC 290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE:

$$Q = \frac{LD\sqrt{P}}{148,000}$$

WHERE:

Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC 290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE:

$$L = \frac{SD\sqrt{P}}{148,000}$$

WHERE:

L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET 290.44(E)(1)-(4).

13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASUREMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT 290.44(E)(5).
14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION 290.44(E)(6).
15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE 290.44(E)(7).
16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS 290.44(E)(8).
17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER 290.44(F)(3).
18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

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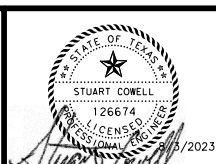
LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.



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FM 110 WATER LINE

LJA Engineering, Inc.

2700 LA FRONTERA BLVD.
SUITE 150
ROUND ROCK, TEXAS 78735



Phone 512.767.7300
Fax 512.439.4716
FRN-F-1386

TCEQ NOTES

JOB NUMBER: 2173-2206
SCALE:
HORIZONTAL: NA
VERTICAL: NA
1 OF 1
SHEET NO. 3

SUMMARY OF WATERLINE UTILITY ITEMS

WATER P&P SHEET NO.	LOCATION	360S-A	501S	501S	501S-OC	509S-1	510-AW16DIA	510-AWRJ16DIA	510-AWFH6DIA	510-KW	510-MW	510-RP
		SAWCUT/REMOVE / REPLACE EXIST CONCRETE PAVEMENT (6" TX360 CL P)	ENCASEMENT PIPE 32 IN DIA STEEL (BORE)	ADDITIVE ALTERNATE: ENCASEMENT PIPE 32 IN DIA STEEL (BORE) (AS DIRECTED BY ENGINEER / CITY)	ENCASEMENT PIPE 32 IN DIA STEEL (OPEN CUT)	TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS (ALL DEPTHS)	PIPE, 16 IN DIA PVC C900 DR14 (ALL DEPTHS) INCLUDING EXCAVATION AND BACKFILL	RESTRAINED PIPE, 16 IN DIA PVC C900 DR14 (ALL DEPTHS), INCLUDING EXCAVATION AND BACKFILL	PIPE, 6 IN DIA DI CL 350, FIRE HYDRANT LEADS (ALL DEPTHS), INCLUDING EXCAVATION AND BACKFILL	DUCTILE IRON FITTINGS	WATER MAIN TESTING & DISINFECTION	REMOVE EXIST PIPE
UNIT		SY	LF	LF	LF	LF	LF	LF	LF	TN	LF	LF
ENVIRONMENTAL AND SURFACE RESTORATION												
8	ENV STA 10+00 TO STA 40+00	82										
9	ENV STA 40+00 TO END	40										
FM 110 WATER LINE												
11	BEGIN TO STA 14+00		93	1		307.0	86.6	313.4		1.6	400	10
12	STA 14+00 TO STA 18+00			45		405.0		400	5	0.3	400	
13	STA 18+00 TO STA 22+00		91.0	58		316.0		400	7	0.7	400	
14	STA 22+00 TO STA 26+00		47.5			368.5		411	5	0.5	411	
15	STA 26+00 TO STA 30+00					407.0		400	7	0.3	400	
16	STA 30+00 TO STA 34+00					405.0		400	5	0.3	400	
17	STA 34+00 TO STA 38+00			60	25	407.0		400	7	0.3	400	
18	STA 38+00 TO STA 42+00					406.0		400	6	0.4	400	
19	STA 42+00 TO STA 46+00		161	50		244.0		400	5	0.8	400	
20	STA 46+00 TO STA 50+00		10			405.0		410	5	0.7	410	
21	STA 50+00 TO STA 54+00					407.0		400	7	0.3	400	
22	STA 54+00 TO STA 58+00					407.0		400	7	0.3	400	
23	STA 58+00 TO STA 62+00			37.5	20	331.0		326	5	0.7	326	
PROJECT TOTALS		122	402.5	251.5	45	4,815.5	86.6	5,060.4	71	7.0	5147	10

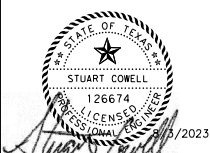
SUMMARY OF WATERLINE UTILITY ITEMS

WATER P&P SHEET NO.	LOCATION	510-JW16	510-JW12	511S-R	511S-A6	511S-A12	511S-A16	511S-B	511S-F	604S-D	642S	648S	700S-TM	803S-MO
		CONNECT TO EXISTING 16" WATER MAIN	CONNECT TO EXISTING 12" WATER MAIN	REMOVE EXISTING VALVE (GATE)(16")	GATE VALVE, RESILIENT SEAT, AWWA, 6 IN	GATE VALVE, RESILIENT SEAT, AWWA, 12 IN	GATE VALVE, RESILIENT SEAT, AWWA, 16 IN	FIRE HYDRANT	COMBO AIR/VAC RELEASE VALVE (2")	HYDROMULCH SEEDING INCLUDING RE-SEEDING AND WATERING	SILT FENCE (INSTALL, MAINTAIN AND REMOVE)	BIODEG EROSN CONT LOGS (INSTALL, MAINTAIN AND REMOVE)(12")	MOBILIZATION, BONDS & INSURANCE	BARRICADES, SIGNS, & TRAFFIC HANDLING
UNIT		EA	EA	EA	EA	EA	EA	EA	EA	SY	LF	LF	LS	MO
ENVIRONMENTAL AND SURFACE RESTORATION														
8	ENV STA 10+00 TO STA 40+00									2946.4	2435	160		
9	ENV STA 40+00 TO END									2380	2092	92		
FM 110 WATER LINE														
11	BEGIN TO STA 14+00	1		1			4							
12	STA 14+00 TO STA 18+00				1			1						
13	STA 18+00 TO STA 22+00		1		1	1	1	1						
14	STA 22+00 TO STA 26+00				1		2	1						
15	STA 26+00 TO STA 30+00				1			1						
16	STA 30+00 TO STA 34+00				1		1	1						
17	STA 34+00 TO STA 38+00				1			1						
18	STA 38+00 TO STA 42+00				1		1	1	2					
19	STA 42+00 TO STA 46+00				1		3	1						
20	STA 46+00 TO STA 50+00				1		3	1						
21	STA 50+00 TO STA 54+00				1		1	1						
22	STA 54+00 TO STA 58+00				1			1						
23	STA 58+00 TO STA 62+00				1		1	1						
PROJECT TOTALS		1	1	1	12	1	17	12	2	5,326.4	4,527	252	1	6

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FM 110 WATER LINE

LJA Engineering, Inc.
 2700 LA FRONTERA BLVD.
 SUITE 150
 ROUND ROCK, TEXAS 78735



SUMMARY OF WATER LINE QUANTITIES

JOB NUMBER: 2173-2206
 SCALE: NA
 HORIZONTAL: NA
 VERTICAL: NA
 1 OF 1
 SHEET NO. 4

EXIST FEATURES

- COK 12" WL — W1-12"-D — W1-12"-D — W1-12"-D — W1-12"-D —
- GBRA 12" WL — W2-12"-D — W2-12"-D — W2-12"-D — W2-12"-D —
- GBRA 30" WL — W2-30"-D — W2-30"-D — W2-30"-D — W2-30"-D —
- COSM 12" WL — W3-12"-D — W3-12"-D — W3-12"-D — W3-12"-D —
- CENTRYLINK OH TELECOM — OT6-D — OT6-D — OT6-D — OT6-D — OT6-D —
- TCW OH TELECOM — OT2-D — OT2-D — OT2-D — OT2-D — OT2-D —
- PEC OH ELECTRIC — OE1-C — OE1-C — OE1-C — OE1-C —
- FENCELINE — [] — [] — [] — [] — [] —
- RIGHT OF WAY — - - - - -
- OH TELECOM — OT3-D — OT3-D — OT3-D — OT3-D — OT3-D —
- LRCA OH ELECTRIC TRANS HV — OE2-C — OE2-C — OE2-C — OE2-C —
- ENTERPRISE GAS — G1-C — G1-C — G1-C — G1-C — G1-C —
- EDGE OF PAVEMENT — EOP — EOP — EOP — EOP — EOP —

- FIRE HYDRANT
- WATER VALVE
- WATER VAULT
- CULVERT
- BORE LOCATION
- RIPRAP
- UTILITY POLE

PROP FEATURES

- WATERLINE
- LIMITS OF CONSTRUCTION
- FIRE HYDRANT
- GATE VALVE
- DI TEE
- DI BEND
- STL CASING
- DI REDUCER
- DI CAP
- BORE PIT
- CONCRETE PAVEMENT
- HYDROMULC/ SEEDING

ABBREVIATIONS

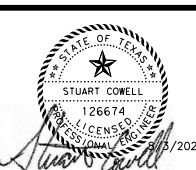
±	APPROXIMATELY	CIP	CAST IN PLACE	FL	FLOWLINE	NO	NUMBER	RT	RIGHT	WV	WATER VALVE
@	AT	CL	CENTERLINE	FLR	FLOOR	OD	OUTSIDE DIAMETER	S	SCHEDULE	WW	WASTEWATER
Δ	DEFLECTION	CLSM	CONTROLLED LOW-STRENGTH MATERIAL	FOC	FIBER OPTIC CABLE; FACE OF CURB	OH	OVERHEAD	SCHED,SCH	SCHEDULE	YD	YARD
°	DEGREE	CMP	CORRUGATED METAL PIPE	FT	FEET, FOOT	PC	POINT OF CURVATURE	SF	SQUARE FOOT; SILT FENCE		
=	EQUALS	CO	CLEANOUT			PI	POINT OF HORIZONTAL INTERSECTION	SPEC	SPECIFICATIONS		
'	FEET, FOOT	COA	CITY OF AUSTIN	GAL	GALLON(-S)	P/L	PIPELINE	SPL	STANDARD PRODUCT LIST		
"	INCH(-ES)	COSM	CITY OF SAN MARCOS	GALV	GALVANIZED	PL	PROPERTY LINE	SO	SQUARE		
#	NUMBER	CONC	CONCRETE	HDPE	HIGH DENSITY POLYETHYLENE	PP	POWER POLE	SS	STAINLESS STEEL		
%	PERCENT	CONST	CONSTRUCT	HMAC	HOT MIX ASPHALIC CONCRETE	PR	PRESSURE RATED	ST	STREET		
ABND	ABANDON	COORD	COORDINATE	HORZ	HORIZONTAL	PROP	PROPERTY; PROPOSED	STA	STATION		
AC	ACRE	CU	CUBIC FEET	ID	INSIDE DIAMETER; IDENTIFICATION	PSI	POUNDS PER SQUARE INCH	STD	STANDARD		
ADJ	ADJUST(-ED, -MENT, -ABLE)	CULV	CULVERT	IN	INCH(-ES)	PT	POINT; POINT OF TANGENCY	SY	SQUARE YARD		
ADWF	AVERAGE DRY WEATHER FLOW	CY	CUBIC YARD	INV	INVERT	PUE	PUBLIC UTILITY EASEMENT	TCEO	TEXAS COMMISSION		
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE	DIP	DUCTILE IRON PIPE	JT	JOINT	PVC	POLYVINYL CHLORIDE	ON ENVIRONMETAL QUALITY			
APPROX	APPROXIMATE (-E, -LY)	DI	DUCTILE IRON	LF	LINEAR FEET	PVI	POINT OF VERTICAL INTERSECTION	TEL	TELEPHONE		
ARV	AIR RELEASE VALVE	DIA	DIAMETER	LEN	LENGTH	PVMT	PAVEMENT	TELE	TELECOMMUNICATION		
ASPH	ASPHALT	DTB	DITCH BOTTOM	LOC	LOCATION; LIMITS OF CONSTRUCTION	PWWF	PEAK WET WEATHER FLOW	TOB	TOP OF BANK		
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	DTT	DITCH TOP	LT	LEFT	Q	FLOW OR DISCHARGE	TOP	TOP OF PIPE		
AVG	AVERAGE	DG	DOWN GUY	MFR	MANUFACTURER	R	RADIUS	VCP	VITRIFIED CLAY PIPE		
AWU	AUSTIN WATER UTILITY	EA	EACH	MH	MANHOLE	RCP	REINFORCED CONCRETE PIPE	VERT	VERTICAL		
AWWA	AMERICAN WATERWORKS ASSOCIATION	ELEC	ELECTRIC	MIN	MINIMUM	RD	ROAD	VF	VERTICAL FOOT		
BLDG	BUILDING	ELEV	ELEVATION	MISC	MISCELLANEOUS	REINF	REINFORCED	VPI	VERTICAL POINT OF INTERSECTION		
BL	BUILDING LINE	ENCASE	ENCASEMENT	MJ	MECHANICAL JOINT	RJ	RESTRAINED JOINT	W	WEST		
BOC	BACK OF CURB	EP,EOP	EDGE OF PAVEMENT	N	NORTH	ROW	RIGHT-OF-WAY	W/	WITH		
BM	BENCH MARK	ESMT	EASMENT	NTS	NOT TO SCALE	RMV	REMOVE	WL	WATERLINE		
CARV	COMBINATION AIR-VACCUUM RELEASE VALVE	EXIST	EXISTING	N/A	NOT APPLICABLE	REQD	REQUIRED	WM	WATER METER		
CF	CUBIC FOOT	EXP	EXPOSED			REQT	REQUIREMENT	WT	WATERTIGHT		
CI	CAST IRON	FEN	FENCE								
		FH	FIRE HYDRANT								

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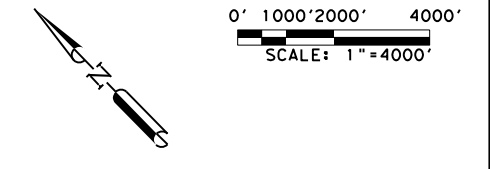


FM 110 WATER LINE

LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

LEGEND & ABBREVIATIONS

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: NA VERTICAL: NA
 1 OF 1
 SHEET NO. 5

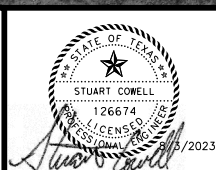


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FM 110 WATER LINE

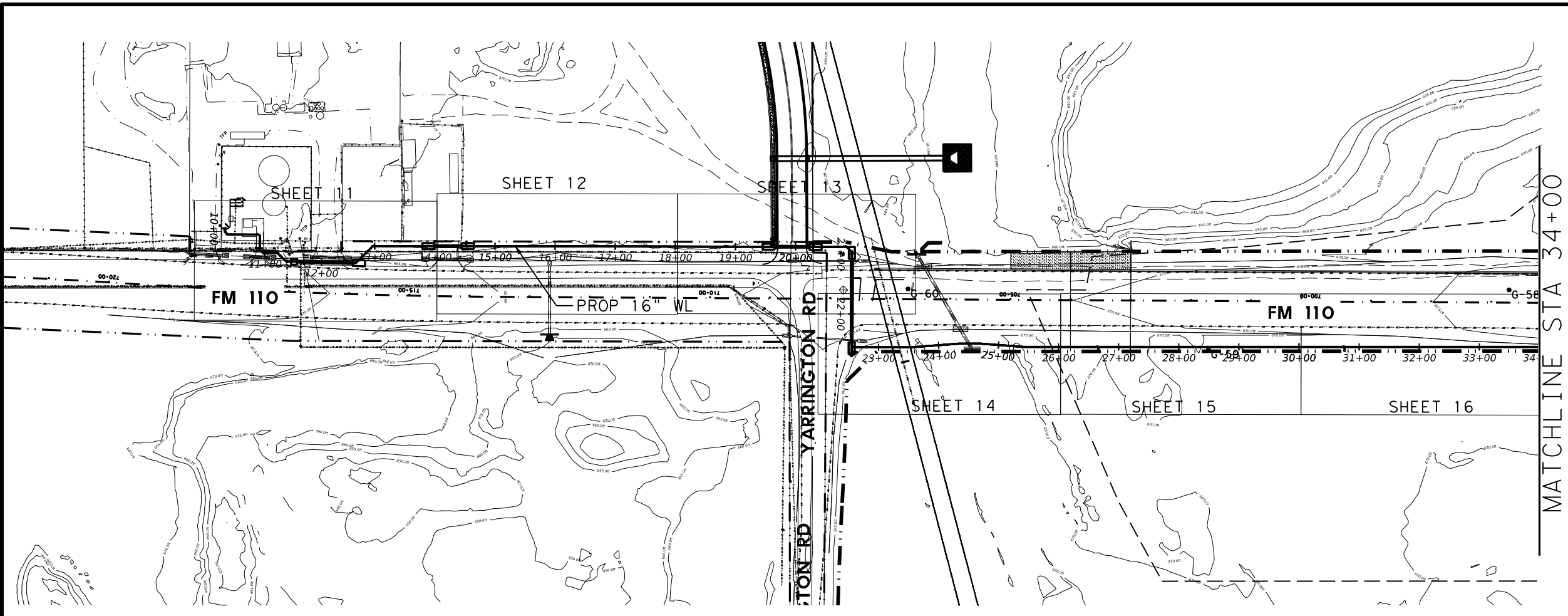
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PROJECT MAP

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: " = 4000' VERTICAL: NA
 1 OF 1
 SHEET NO. 6

100% SUBMITTAL

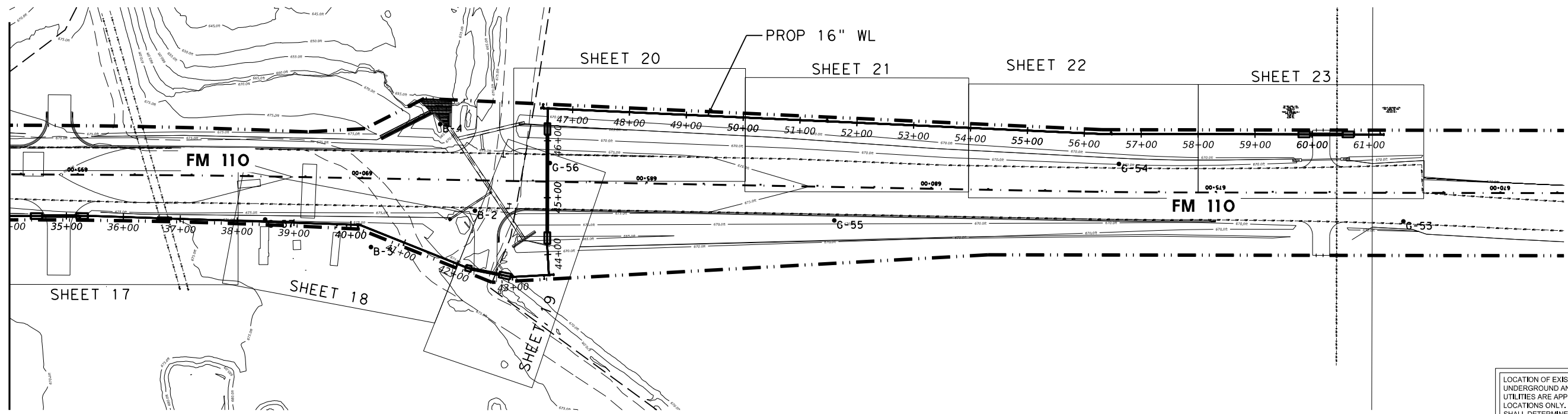
0' 50' 100' 200'
SCALE: 1"=200'



MATCHLINE STA 34+00

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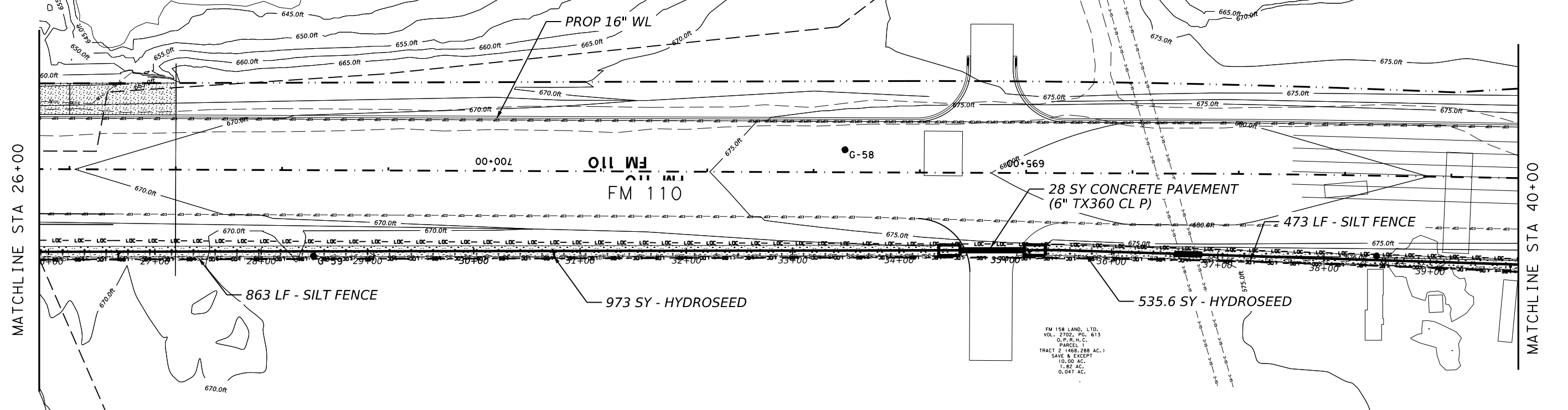
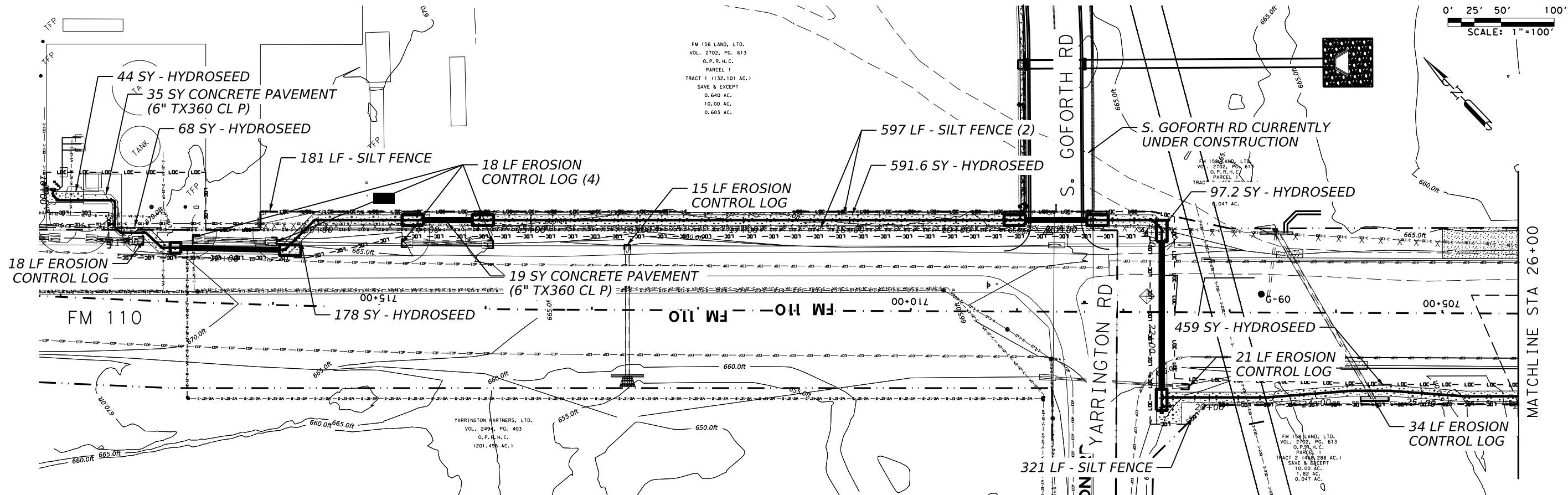
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PROJECT UTILITY LAYOUT

JOB NUMBER: 2173-2206
SCALE: HORIZONTAL 1" = 200'
VERTICAL: NA
1 OF 1
SHEET NO. 7

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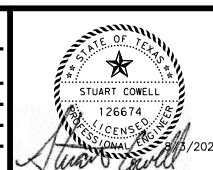
ALL PROJECT COORDINATES ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83(93)/NAVD88. ALL COORDINATES SHOWN HEREON ARE ADJUSTED TO SURFACE BY MULTIPLYING BY A COMBINED ADJUSTMENT FACTOR OF 1.00011. UNITS: U.S. SURVEY FEET

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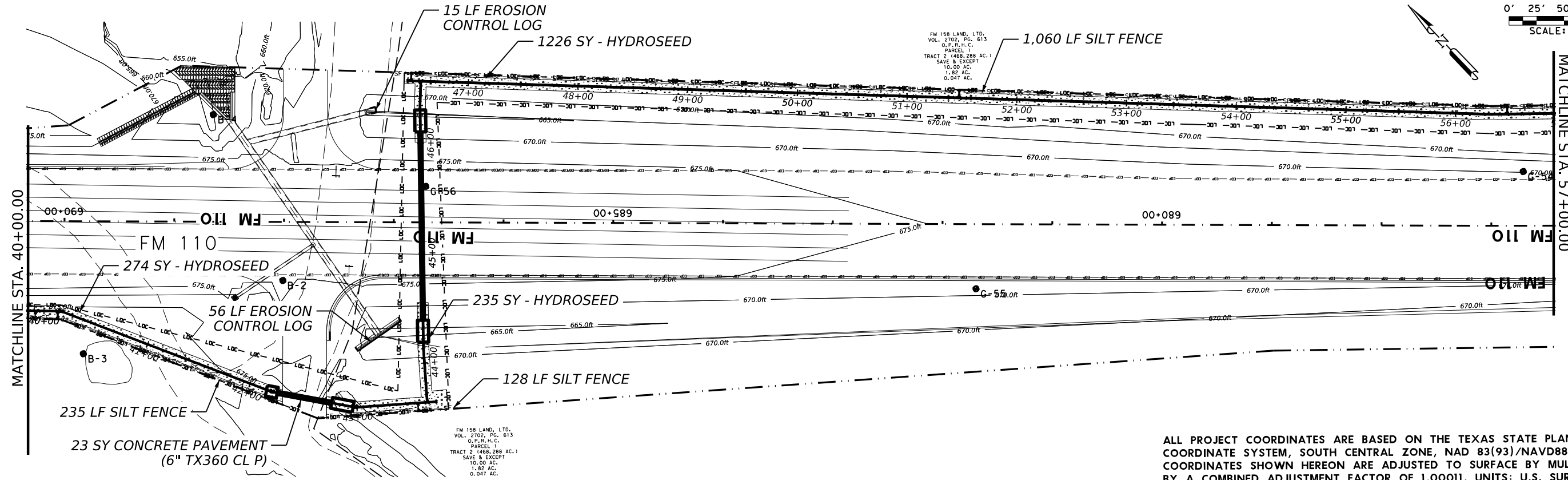
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ENVIRONMENTAL & RESTORATION
 STA 10+00 TO STA 40+00

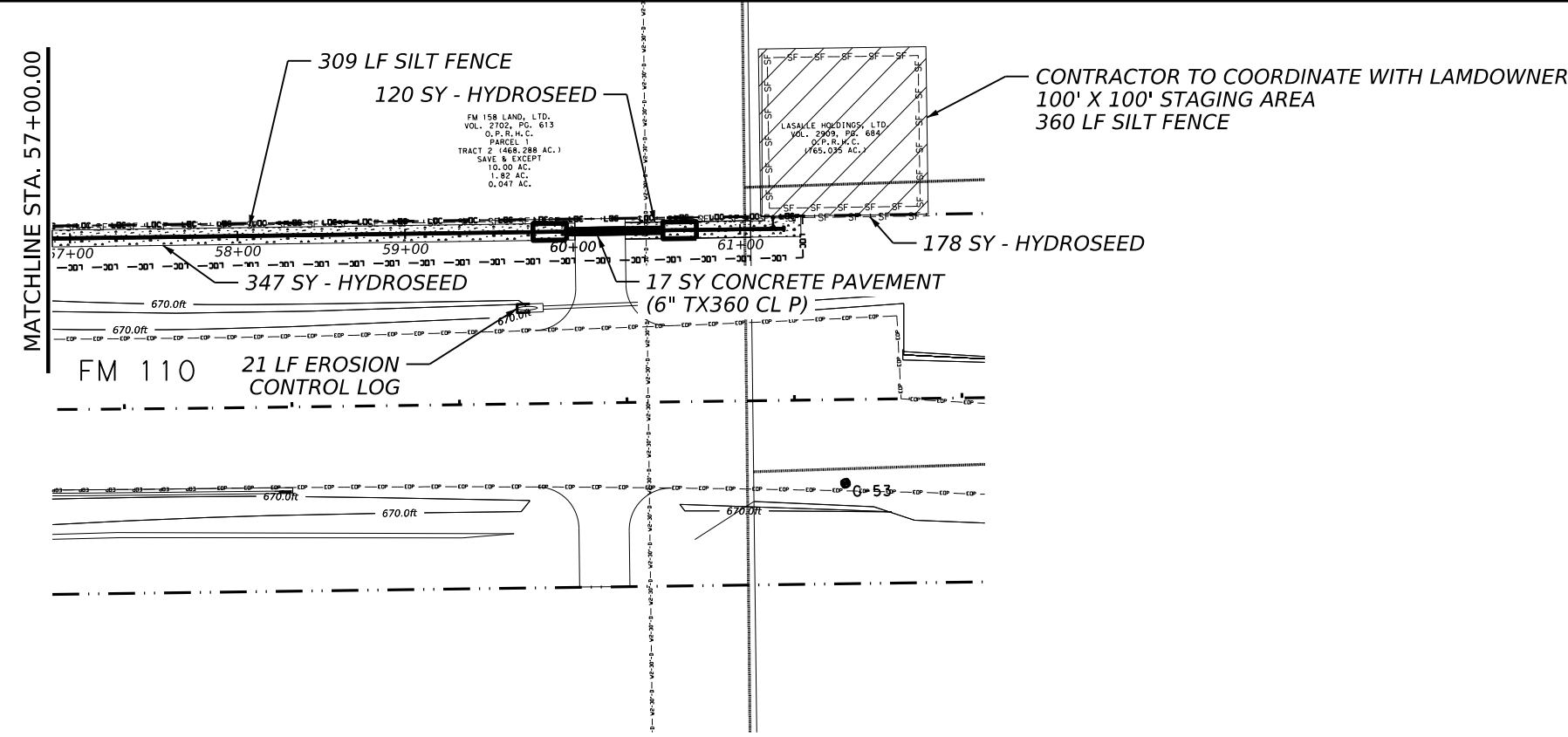
JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL 1" = 100'
 VERTICAL: NA
 1 OF 2
 SHEET NO. 8

100% SUBMITTAL

0' 25' 50' 100'
SCALE: 1"=100'



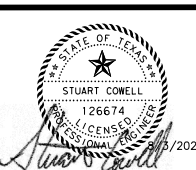
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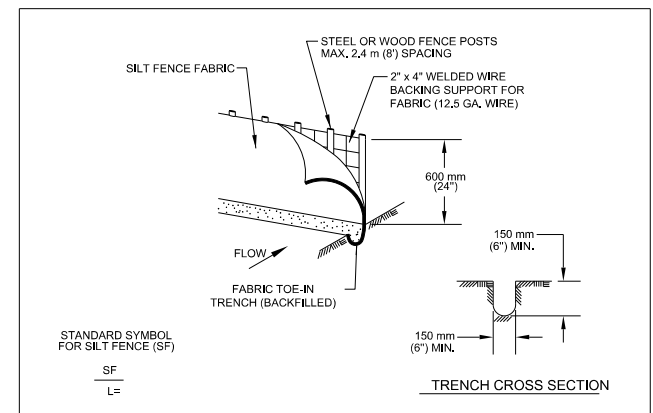
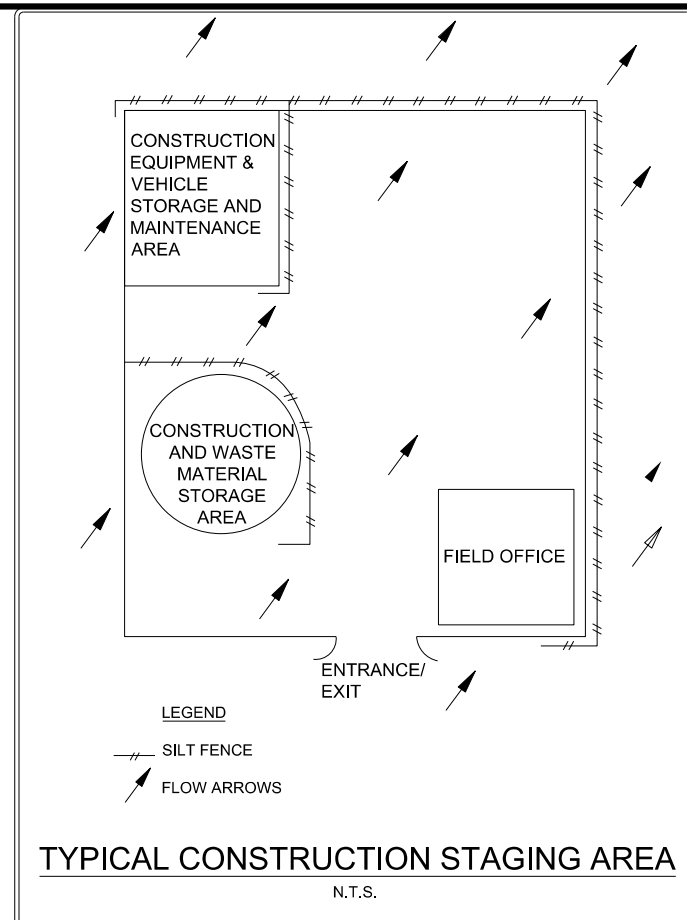
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ROUND ROCK, TEXAS 78735



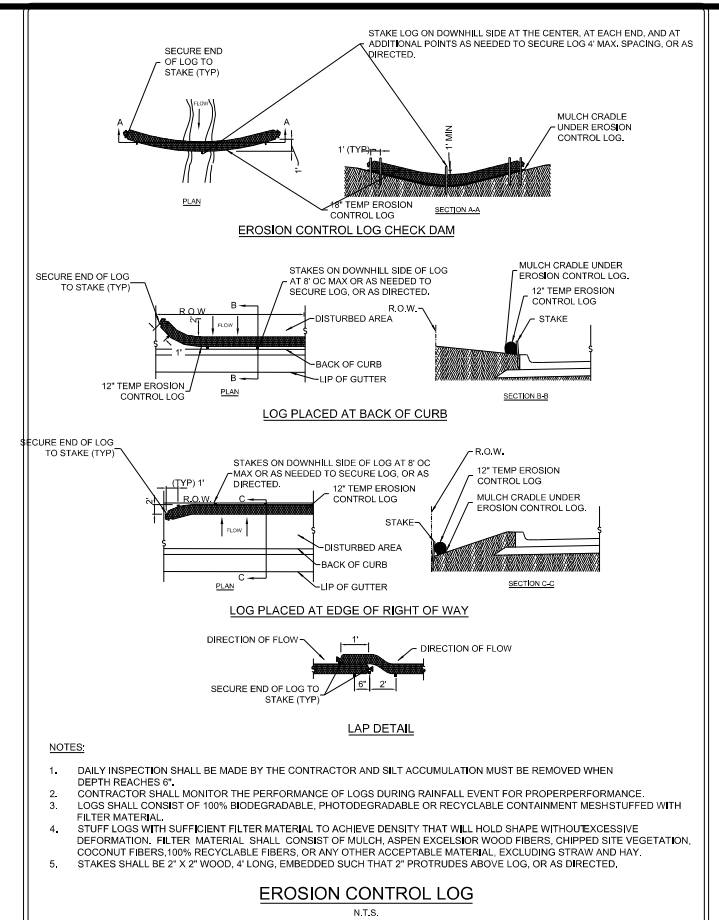
ENVIRONMENTAL & RESTORATION
STA 40+00 TO END

JOB NUMBER: 2173-2206
SCALE: HORIZONTAL 1" = 100'
VERTICAL: NA
2 OF 2
SHEET NO. 9



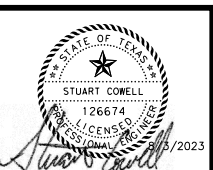
1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 INCHES) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 INCHES) DEEP AND 150 mm (6 INCHES) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 INCHES). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS	09/01/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



REVISIONS			
NO.	DESCRIPTION	BY	DATE

DESIGNED BY: SC
DRAWN BY: SC
CHECKED BY: SC
APPROVED BY: _____



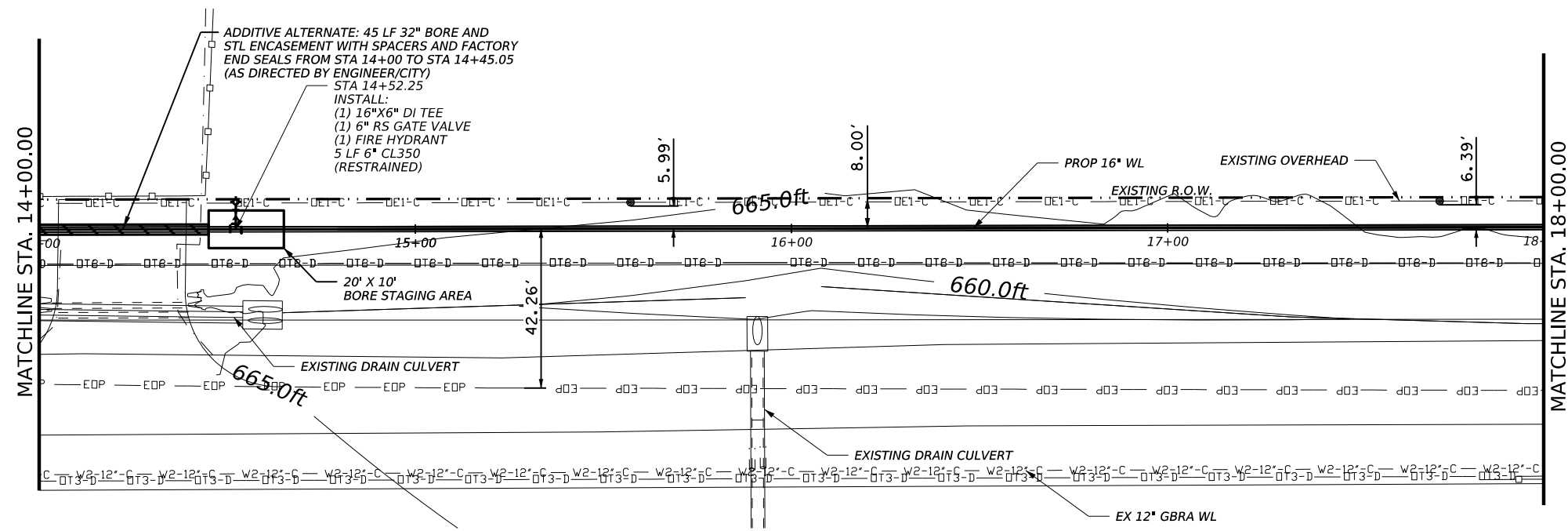
FM 110 WATER LINE

LJA Engineering, Inc.
2700 LA FRONTERA BLVD. Phone 512.767.7300
SUITE 150 Fax 512.439.4716
ROUND ROCK, TEXAS 78735 FRN-F-1386

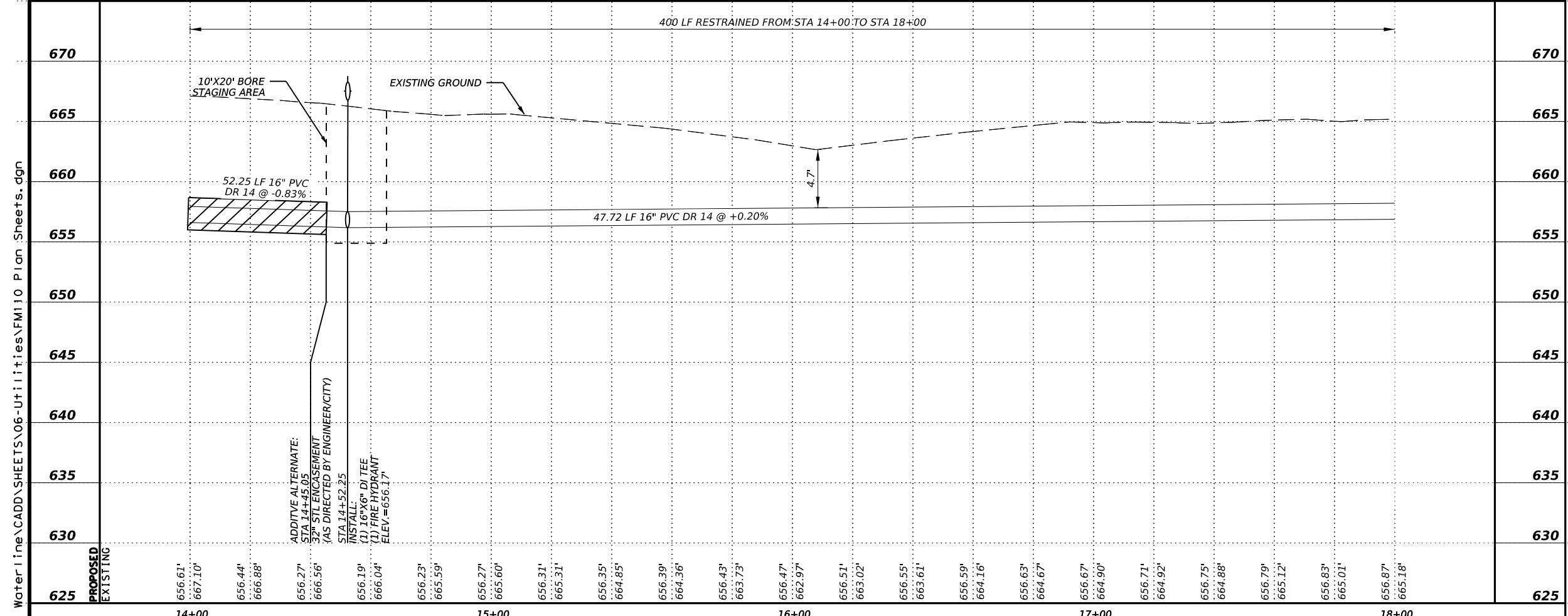
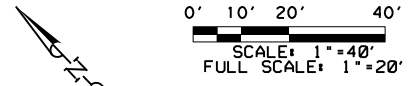
ENVIRONMENTAL & RESTORATION
DETAILS

JOB NUMBER: 2173-2206
SCALE: NA
HORIZONTAL: NA
VERTICAL: NA
1 OF 1
SHEET NO. 10

100% SUBMITTAL



- NOTES:
1. THE DEPTHS AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES OCCASIONED BY THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 2. THE CONTRACTOR WILL POTHOLE EXISTING UTILITIES EVERY 100FT TO VERIFY DEPTH IS NOT IN CONFLICT WITH PROPOSED ALIGNMENT.
 3. CONTRACTOR TO MAINTAIN 48" OF COVER OVER THE PROPOSED UTILITY AND 24" OF VERTICAL AND HORIZONTAL CLEARANCE FROM ALL EXISTING UTILITIES.
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 5. BRACE POWER POLES AS REQUIRED FOR UTILITY INSTALLATION.
 6. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONTROL OF GROUNDWATER AND SURFACE WATER AS NECESSARY FOR THE CONSTRUCTION OF THIS PROJECT. NO DIRECT PAYMENT WILL BE MADE FOR THE CONTROL OF SURFACE OR GROUNDWATER.
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 8. CONTRACTOR WILL PROVIDE TRACER WIRE TEST STATION ALONG THE WATER LINE ALIGNMENT NOT TO EXCEED 1,000' PER CITY OF KYLE PIPELINE EMBEDMENT DETAIL. SUBSIDIARY TO THE PIPE BID ITEM (NO DIRECT PAY).



ADDITIVE ALTERNATE:
STA 14+45.05
32" STL ENCASEMENT
(AS DIRECTED BY ENGINEER/CITY)
STA 14+52.25
INSTALL:
(1) 16"X6" DI TEE
(1) FIRE HYDRANT
ELEV.=656.17'

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

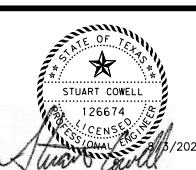


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FM110 Water Line\CADD\SHEETS\06-Utilities\FM110 Plan Sheets.dgn

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: _____
DESIGNED BY: SC
DRAWN BY: SC
CHECKED BY: SC
APPROVED BY: _____

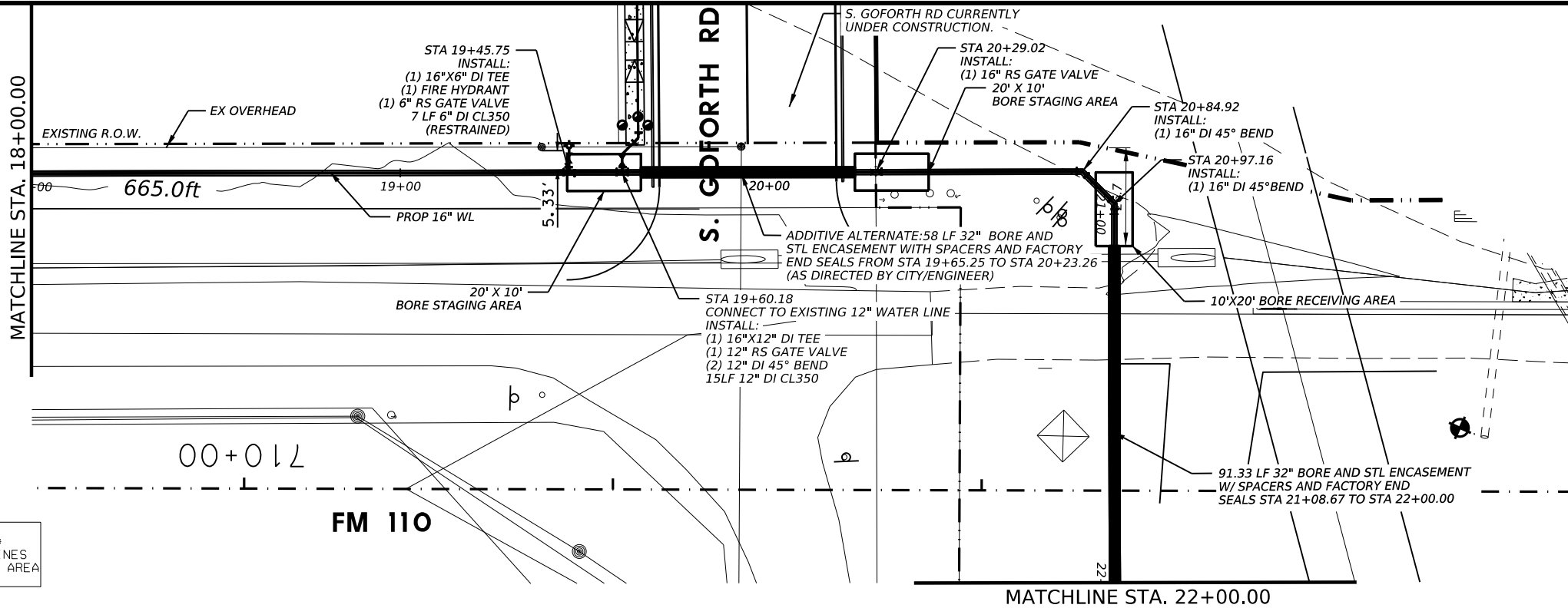


FM 110 WATER LINE

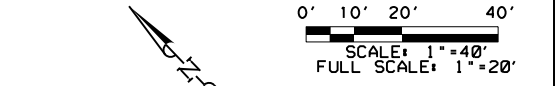
LJA Engineering, Inc.
2700 LA FRONTERA BLVD. SUITE 150 ROUND ROCK, TEXAS 78735
Phone 512.767.7300 Fax 512.439.4716 FRN-F-1386

PROPOSED WATER LINE A
STA 14+00 TO STA 18+00

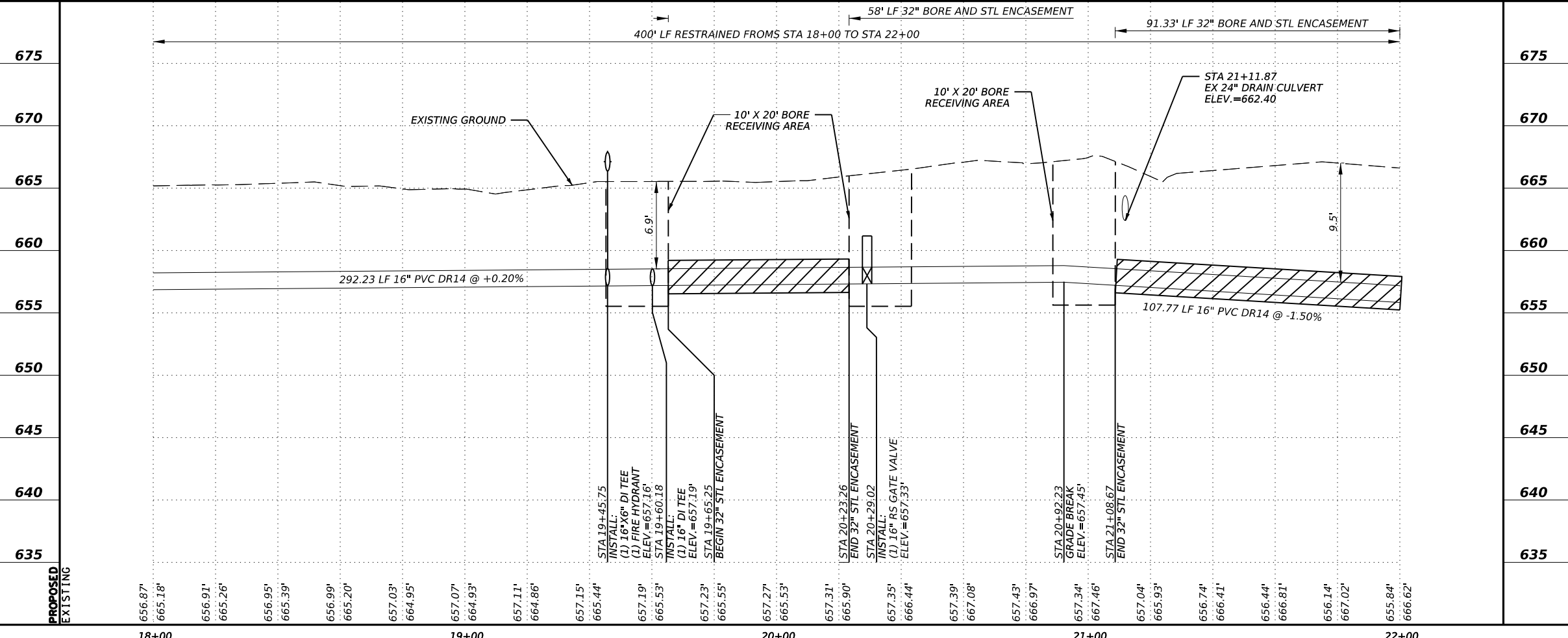
JOB NUMBER: 2173-2206
SCALE: HORIZONTAL: 1" = 40' VERTICAL: 1" = 10'
2 OF 13
SHEET NO. 12



****CAUTION****
OH ELECTRIC LINES
IN CONSTRUCTION AREA



- NOTES:
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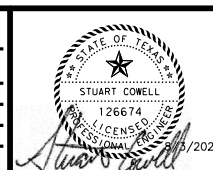


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REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: _____
 DESIGNED BY: SC
 DRAWN BY: SC
 CHECKED BY: SC
 APPROVED BY: _____

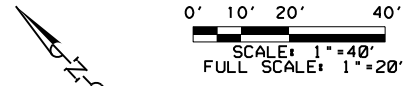


FM 110 WATER LINE

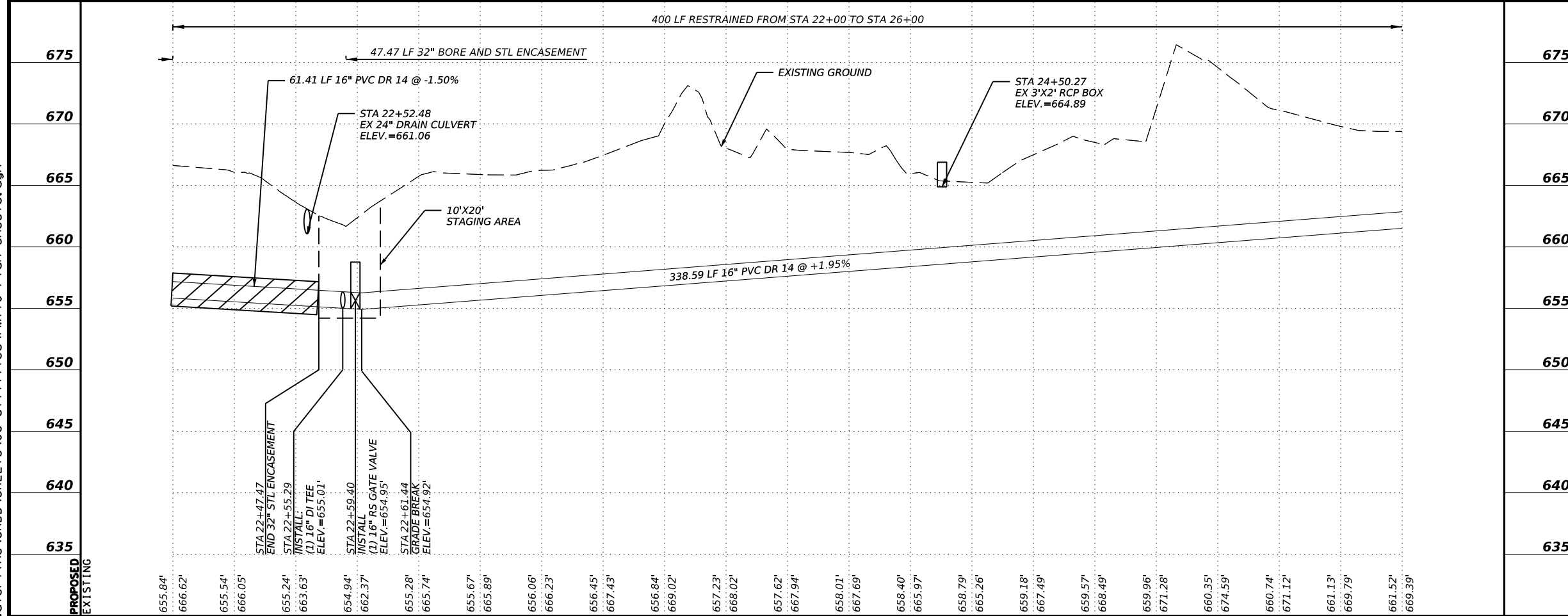
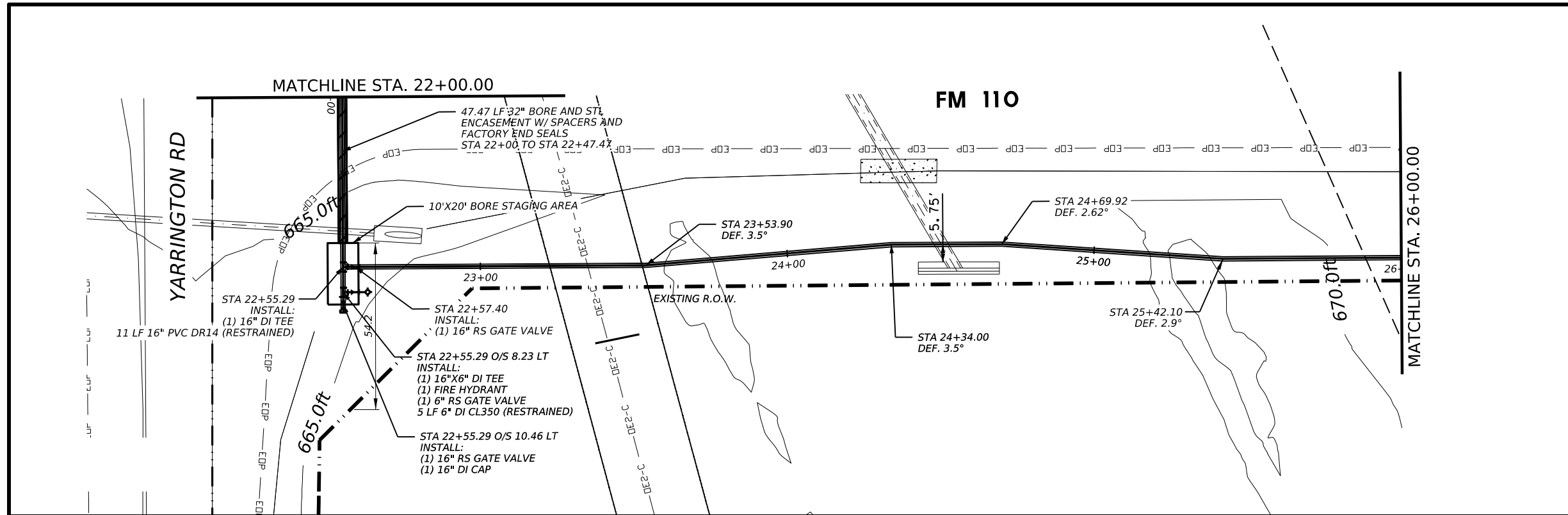
LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

PROPOSED WATER LINE A
 STA 18+00 TO STA 22+00

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40' VERTICAL: 1" = 10'
 3 OF 13
 SHEET NO. 13



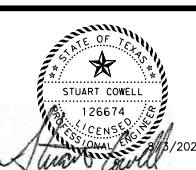
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PROPOSED	EXISTING	22+00	23+00	24+00	25+00	26+00
655.84'	655.84'	655.84'	655.67'	658.01'	659.57'	660.35'
666.62'	666.62'	666.62'	666.89'	667.69'	668.49'	671.12'
655.54'	655.54'	655.28'	655.06'	658.40'	659.96'	660.74'
666.05'	666.05'	665.74'	666.23'	665.97'	671.28'	661.13'
655.24'	655.24'	662.37'	656.06'	658.79'	660.35'	661.52'
666.63'	666.63'	662.37'	666.23'	665.26'	674.59'	669.79'
654.94'	654.94'	662.37'	656.45'	659.18'	660.35'	661.52'
662.37'	662.37'	662.37'	667.43'	667.49'	660.35'	661.52'
655.28'	655.28'	662.37'	667.43'	667.49'	660.35'	661.52'
665.74'	665.74'	662.37'	669.02'	667.69'	668.49'	669.79'
655.67'	655.67'	662.37'	669.02'	667.69'	668.49'	669.79'
666.89'	666.89'	662.37'	669.02'	667.69'	668.49'	669.79'
656.06'	656.06'	662.37'	669.02'	667.69'	668.49'	669.79'
666.23'	666.23'	662.37'	669.02'	667.69'	668.49'	669.79'
656.45'	656.45'	662.37'	669.02'	667.69'	668.49'	669.79'
667.43'	667.43'	662.37'	669.02'	667.69'	668.49'	669.79'
656.84'	656.84'	662.37'	669.02'	667.69'	668.49'	669.79'
669.02'	669.02'	662.37'	669.02'	667.69'	668.49'	669.79'
657.23'	657.23'	662.37'	669.02'	667.69'	668.49'	669.79'
668.02'	668.02'	662.37'	669.02'	667.69'	668.49'	669.79'
657.62'	657.62'	662.37'	669.02'	667.69'	668.49'	669.79'
667.94'	667.94'	662.37'	669.02'	667.69'	668.49'	669.79'
658.01'	658.01'	662.37'	669.02'	667.69'	668.49'	669.79'
667.69'	667.69'	662.37'	669.02'	667.69'	668.49'	669.79'
658.40'	658.40'	662.37'	669.02'	667.69'	668.49'	669.79'
665.97'	665.97'	662.37'	669.02'	667.69'	668.49'	669.79'
658.79'	658.79'	662.37'	669.02'	667.69'	668.49'	669.79'
665.26'	665.26'	662.37'	669.02'	667.69'	668.49'	669.79'
659.18'	659.18'	662.37'	669.02'	667.69'	668.49'	669.79'
667.49'	667.49'	662.37'	669.02'	667.69'	668.49'	669.79'
659.57'	659.57'	662.37'	669.02'	667.69'	668.49'	669.79'
668.49'	668.49'	662.37'	669.02'	667.69'	668.49'	669.79'
659.96'	659.96'	662.37'	669.02'	667.69'	668.49'	669.79'
671.28'	671.28'	662.37'	669.02'	667.69'	668.49'	669.79'
660.35'	660.35'	662.37'	669.02'	667.69'	668.49'	669.79'
674.59'	674.59'	662.37'	669.02'	667.69'	668.49'	669.79'
660.74'	660.74'	662.37'	669.02'	667.69'	668.49'	669.79'
671.12'	671.12'	662.37'	669.02'	667.69'	668.49'	669.79'
661.13'	661.13'	662.37'	669.02'	667.69'	668.49'	669.79'
669.79'	669.79'	662.37'	669.02'	667.69'	668.49'	669.79'
661.52'	661.52'	662.37'	669.02'	667.69'	668.49'	669.79'
669.39'	669.39'	662.37'	669.02'	667.69'	668.49'	669.79'

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: _____
 DESIGNED BY: SC
 DRAWN BY: SC
 CHECKED BY: SC
 APPROVED BY: _____



FM 110 WATER LINE

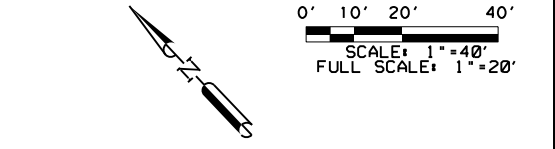
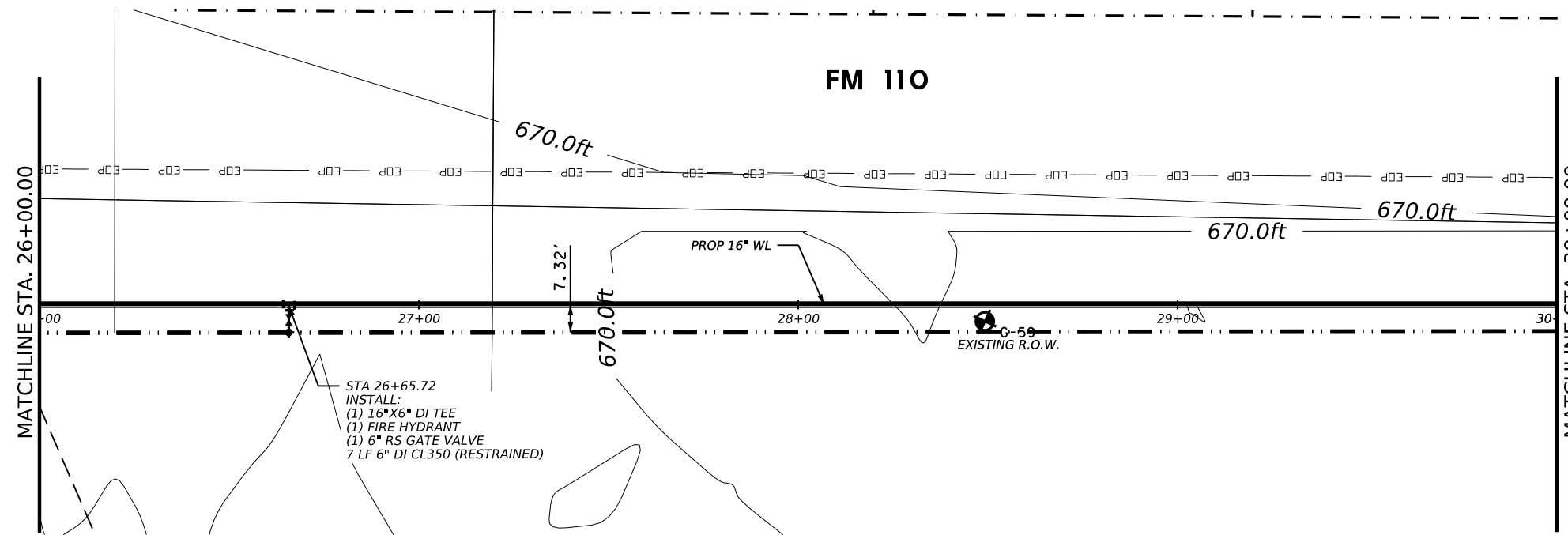
LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

PROPOSED WATER LINE A
 STA 22+00 TO STA 26+00

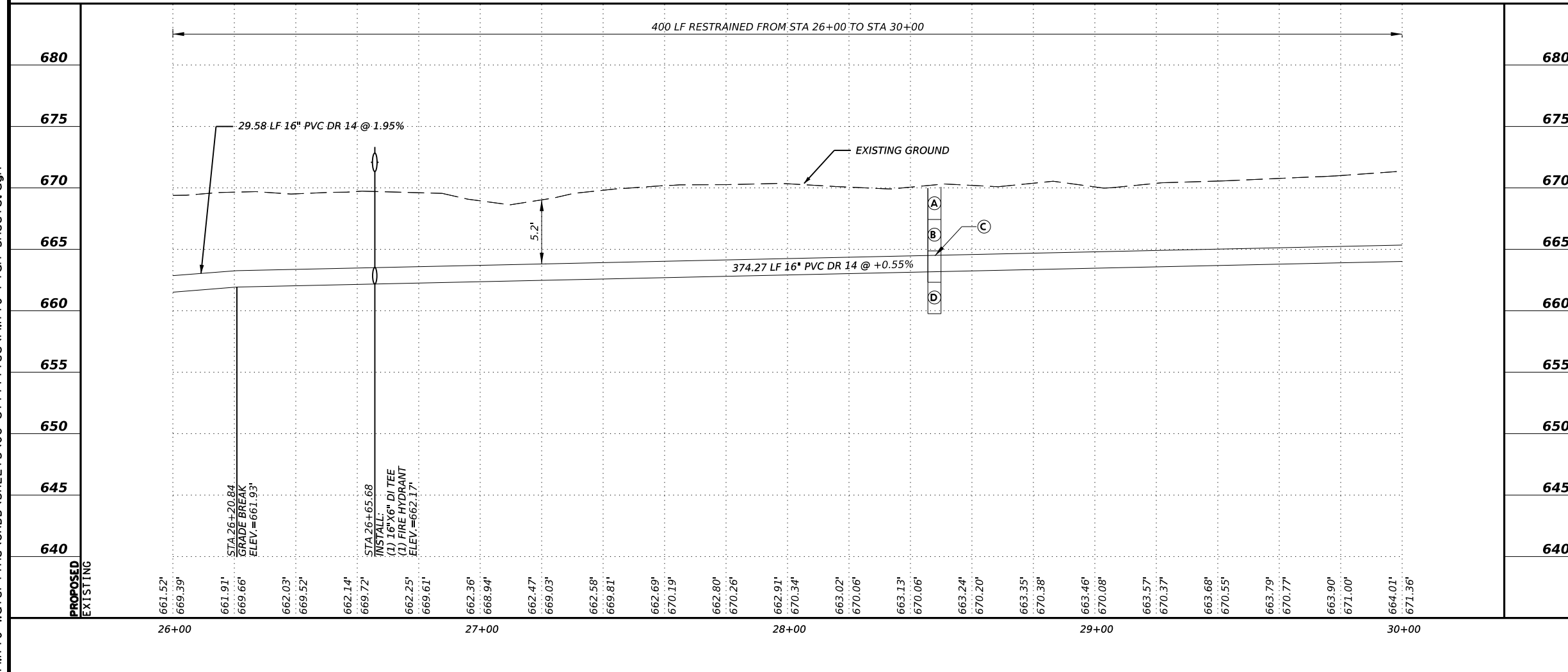
JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 10'
 4 OF 13
 SHEET NO. 14

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.





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- (A) REDDISH BROWN, CLAYEY GRAVEL WITH SAND
 - (B) REDDISH BROWN, SANDY FAT CLAY
 - (C) DARK BROWN, FAT CLAY
 - (D) TAN, FAT CLAY

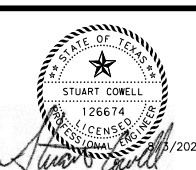


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811
Know what's below.
Call before you dig.

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: _____
 DESIGNED BY: SC
 DRAWN BY: SC
 CHECKED BY: SC
 APPROVED BY: _____

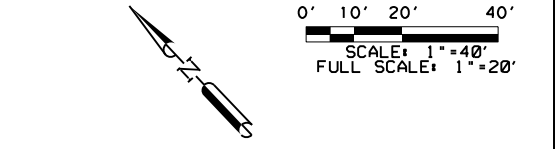
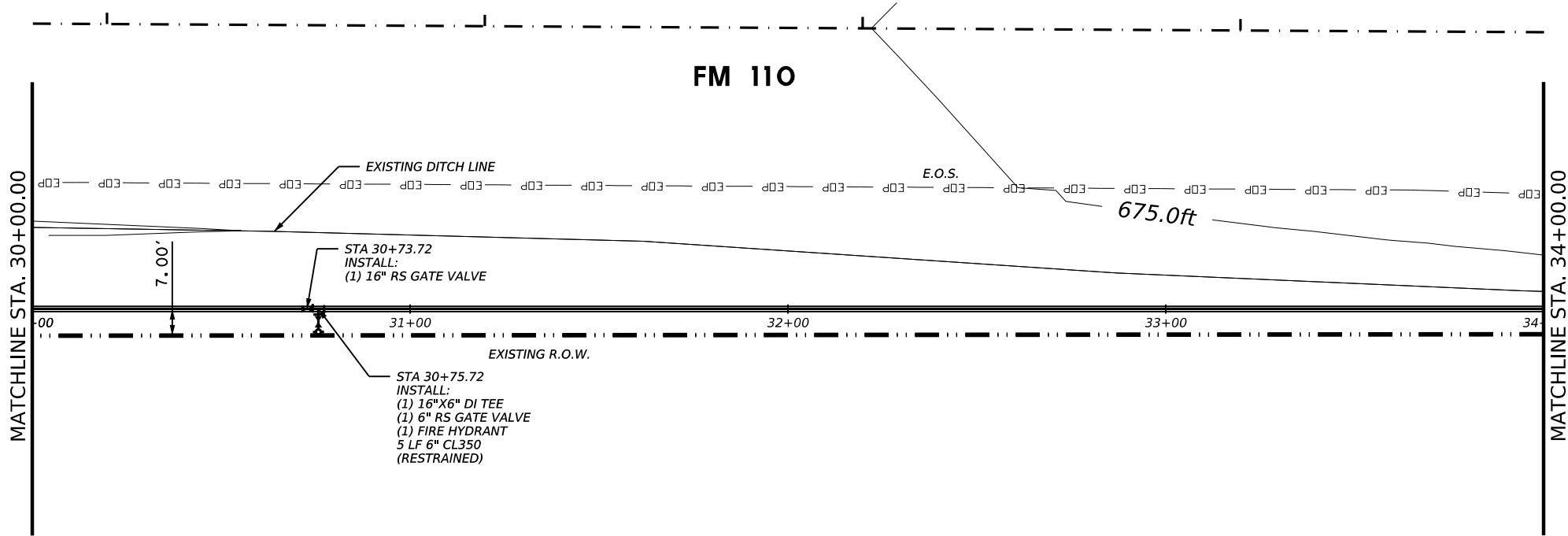


FM 110 WATER LINE

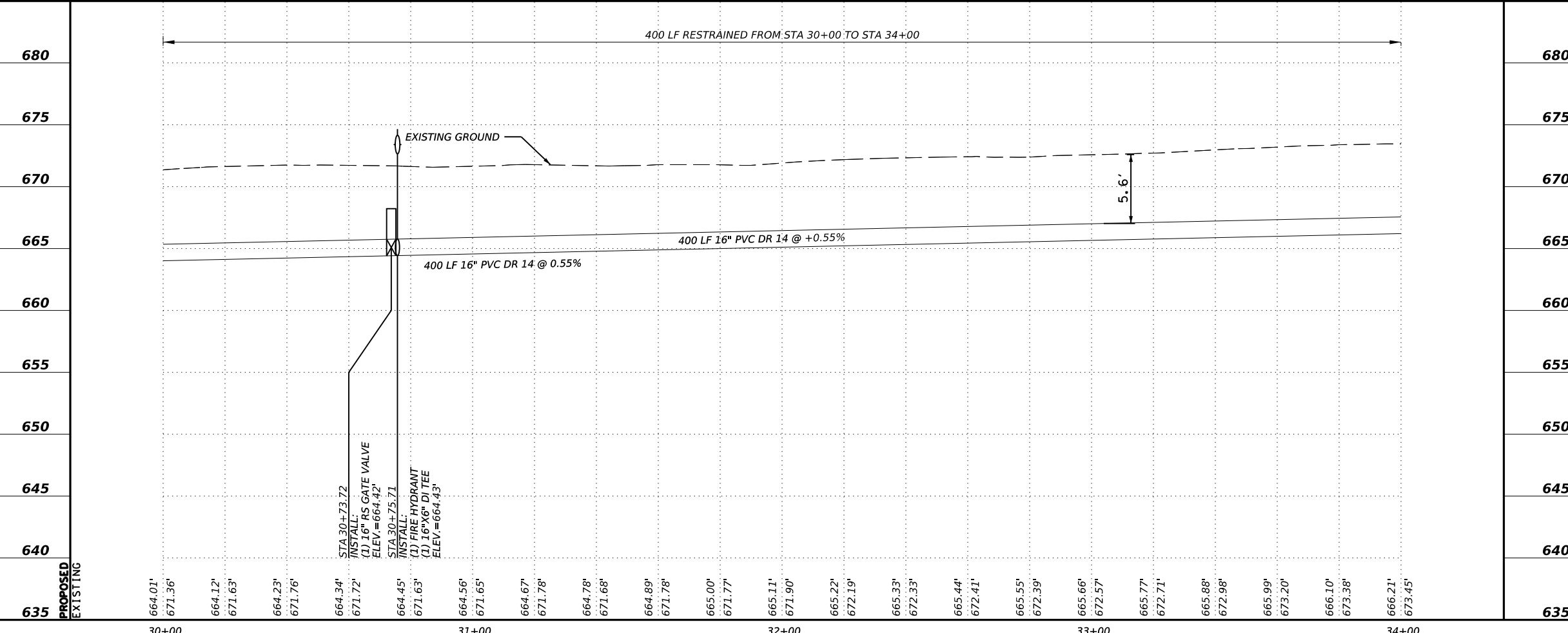
LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

PROPOSED WATER LINE A
 STA 26+00 TO STA 30+00

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40' VERTICAL: 1" = 10'
 5 OF 13
 SHEET NO. 15



- NOTES:
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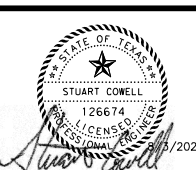


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REVISIONS			
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DATE: _____
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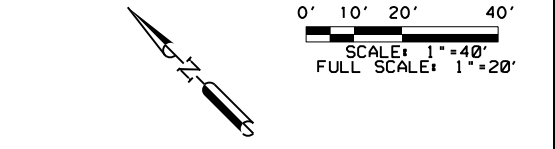
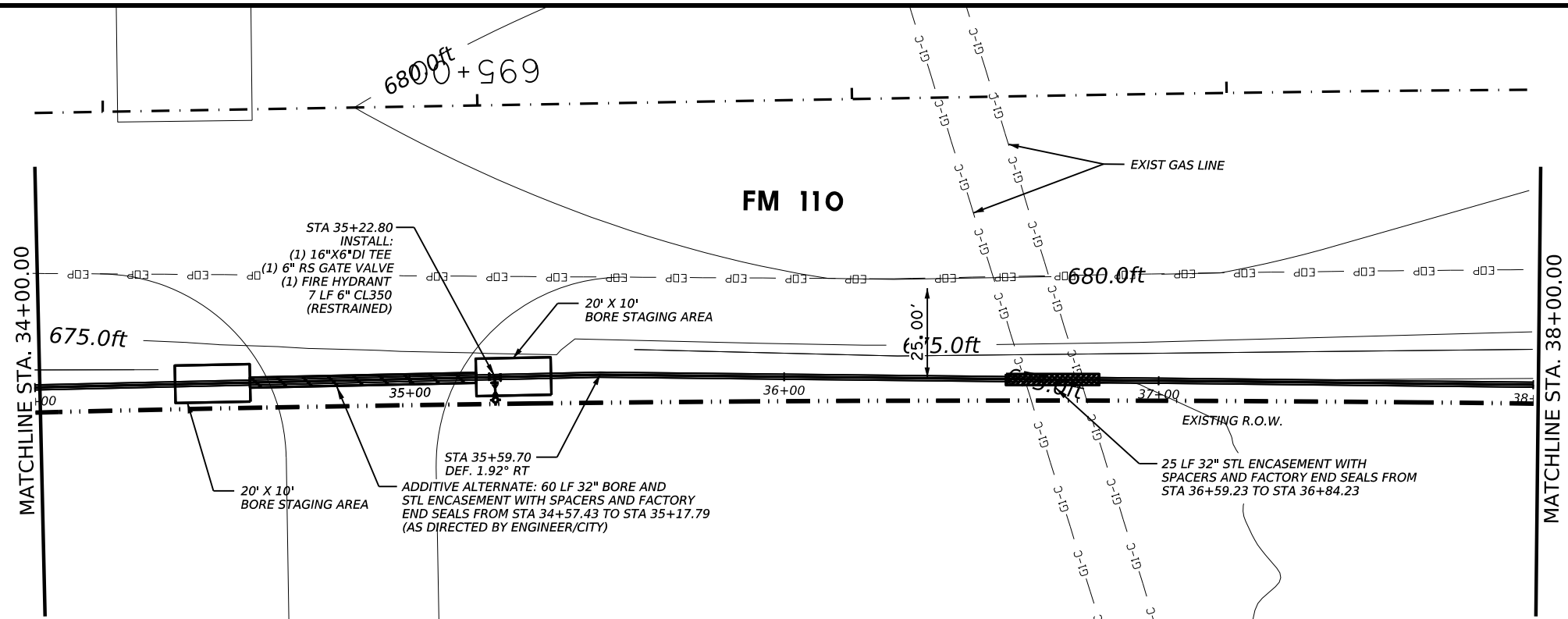


FM 110 WATER LINE

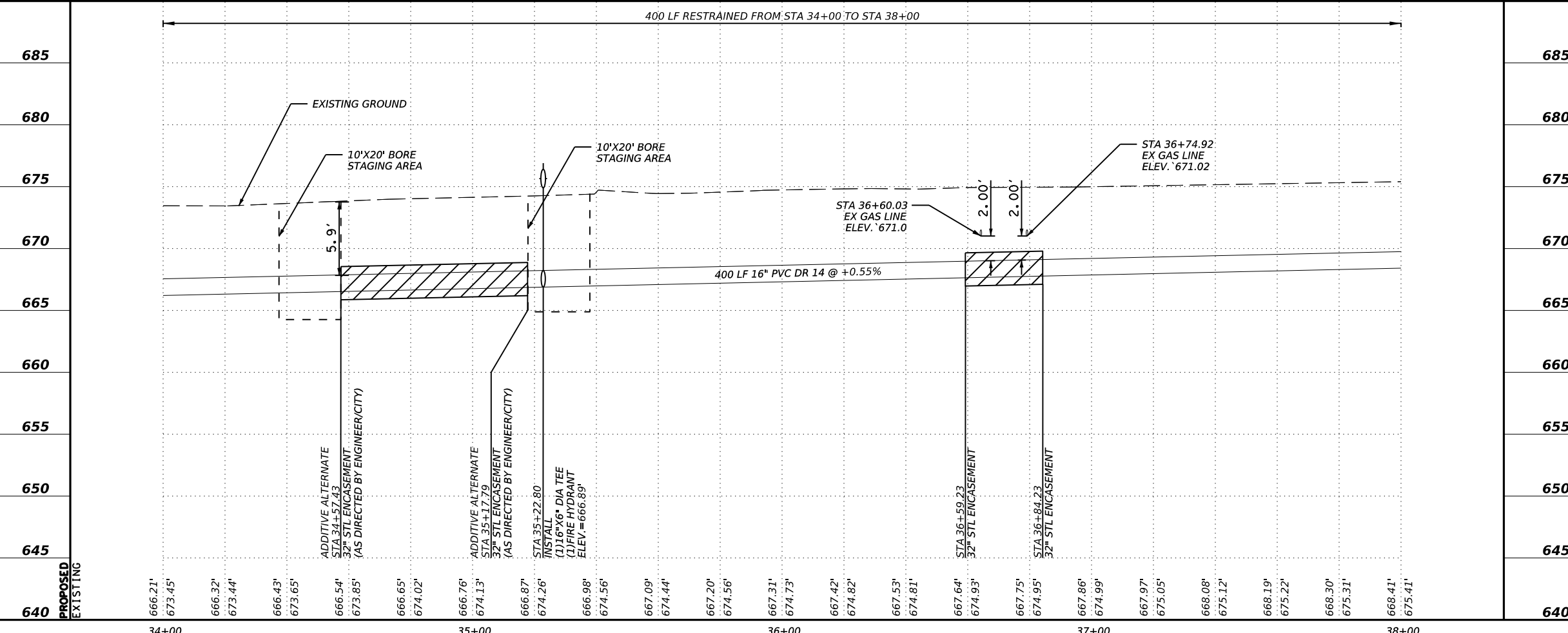
LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

PROPOSED WATER LINE A
 STA 30+00 TO STA 34+00

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 10'
 6 OF 13
 SHEET NO. 16



- NOTES:
1. THE DEPTHS AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES OCCASIONED BY THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 2. THE CONTRACTOR WILL POTHOLE EXISTING UTILITIES EVERY 100FT TO VERIFY DEPTH IS NOT IN CONFLICT WITH PROPOSED ALIGNMENT.
 3. CONTRACTOR TO MAINTAIN 48" OF COVER OVER THE PROPOSED UTILITY AND 24" OF VERTICAL AND HORIZONTAL CLEARANCE FROM ALL EXISTING UTILITIES.
 4. ALL WATERLINE BENDS, FITTINGS AND VALVES TO BE RESTRAINED AND THRUST BLOCKED. ALL BRANCH CONNECTIONS WILL HAVE THE VALVE BOLTED TO THE MAINS BY METHODS OF FLANGE OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANGE OR SWIVEL TEES, WHEN CALLED OUT ON PLANS BY DESIGN ENGINEER.
 5. BRACE POWER POLES AS REQUIRED FOR UTILITY INSTALLATION.
 6. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONTROL OF GROUNDWATER AND SURFACE WATER AS NECESSARY FOR THE CONSTRUCTION OF THIS PROJECT. NO DIRECT PAYMENT WILL BE MADE FOR THE CONTROL OF SURFACE OR GROUNDWATER.
 7. ANY SIGNIFICANT DEVIATION FROM THE PLAN ALIGNMENT WILL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. FIELD MODIFICATION WILL BE APPROVED PRIOR TO PROCEEDING WITH CONSTRUCTION.
 8. CONTRACTOR WILL PROVIDE TRACER WIRE TEST STATION ALONG THE WATER LINE ALIGNMENT NOT TO EXCEED 1,000' PER CITY OF KYLE PIPELINE EMBEDMENT DETAIL. SUBSIDIARY TO THE PIPE BID ITEM (NO DIRECT PAY).

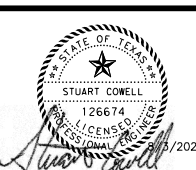


LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.



REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: _____
 DESIGNED BY: SC
 DRAWN BY: SC
 CHECKED BY: SC
 APPROVED BY: _____

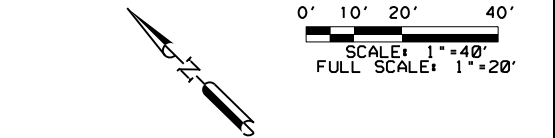
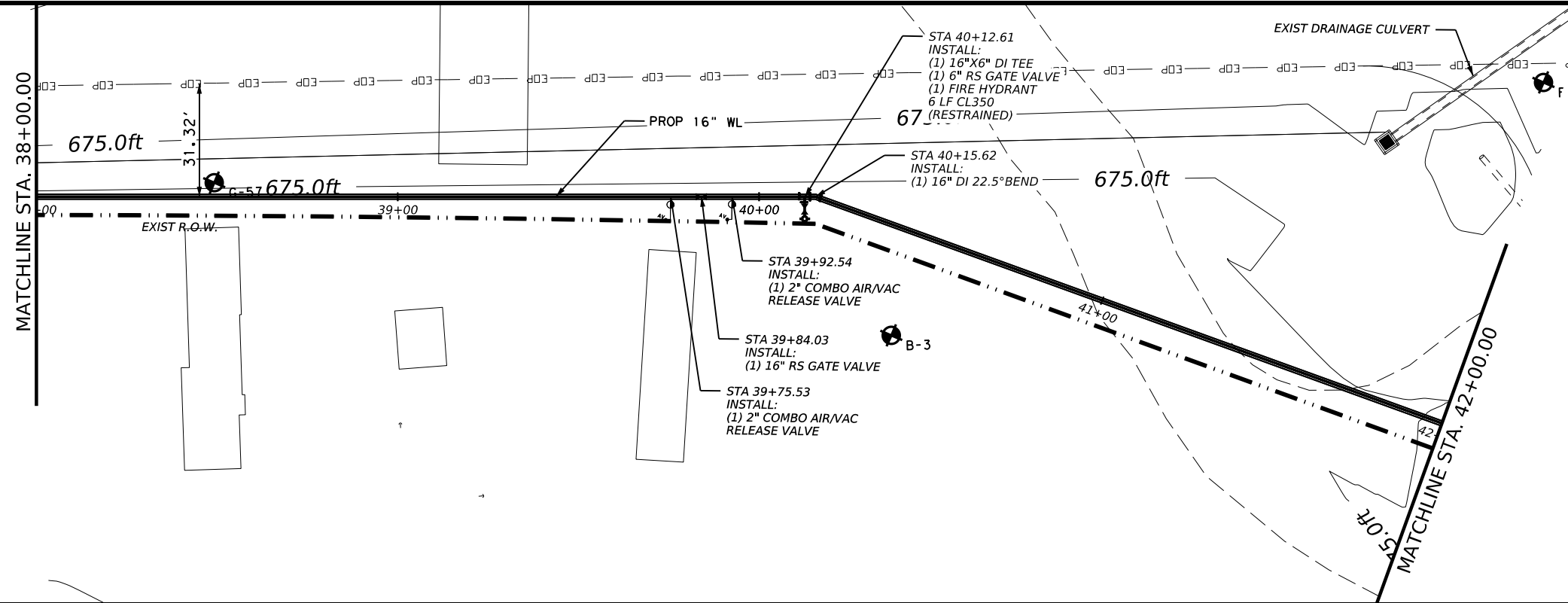


FM 110 WATER LINE

LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

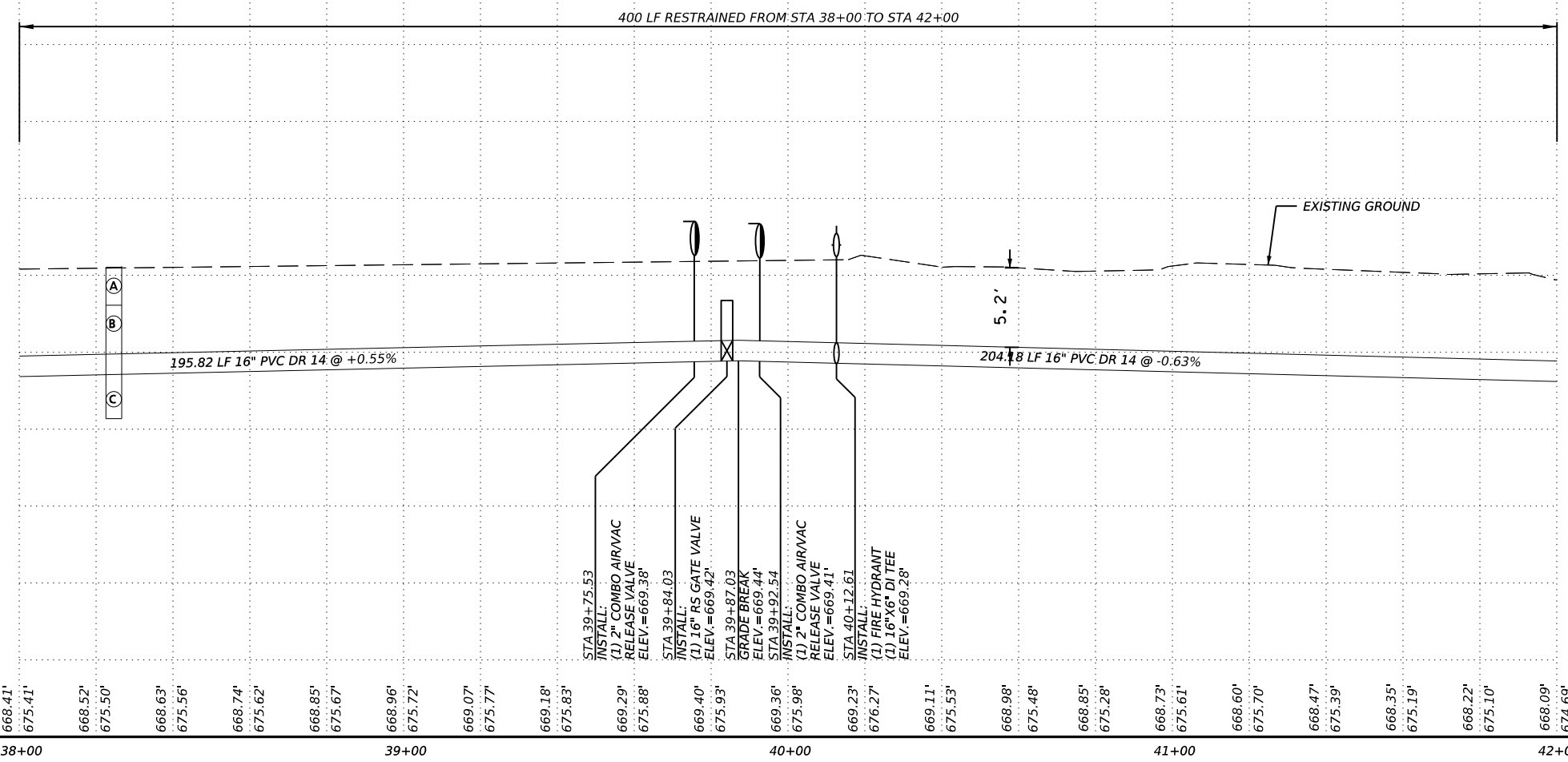
PROPOSED WATER LINE A
 STA 34+00 TO STA 38+00

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40' VERTICAL: 1" = 10'
 7 OF 13
 SHEET NO. 17



- NOTES:
1. THE DEPTHS AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES OCCASIONED BY THE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
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- (A) TAN, SANDY FAT CLAY WITH GRAVEL
- (B) REDDISH BROWN, SANDY LEAN CLAY
- (C) REDDISH BROWN, CLAYEY SAND

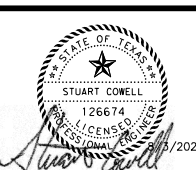


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DATE: _____
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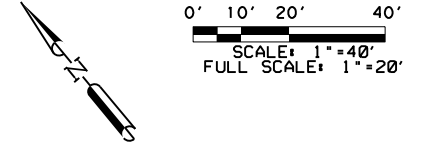
FM 110 WATER LINE

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 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

PROPOSED WATER LINE A
 STA 38+00 TO STA 42+00

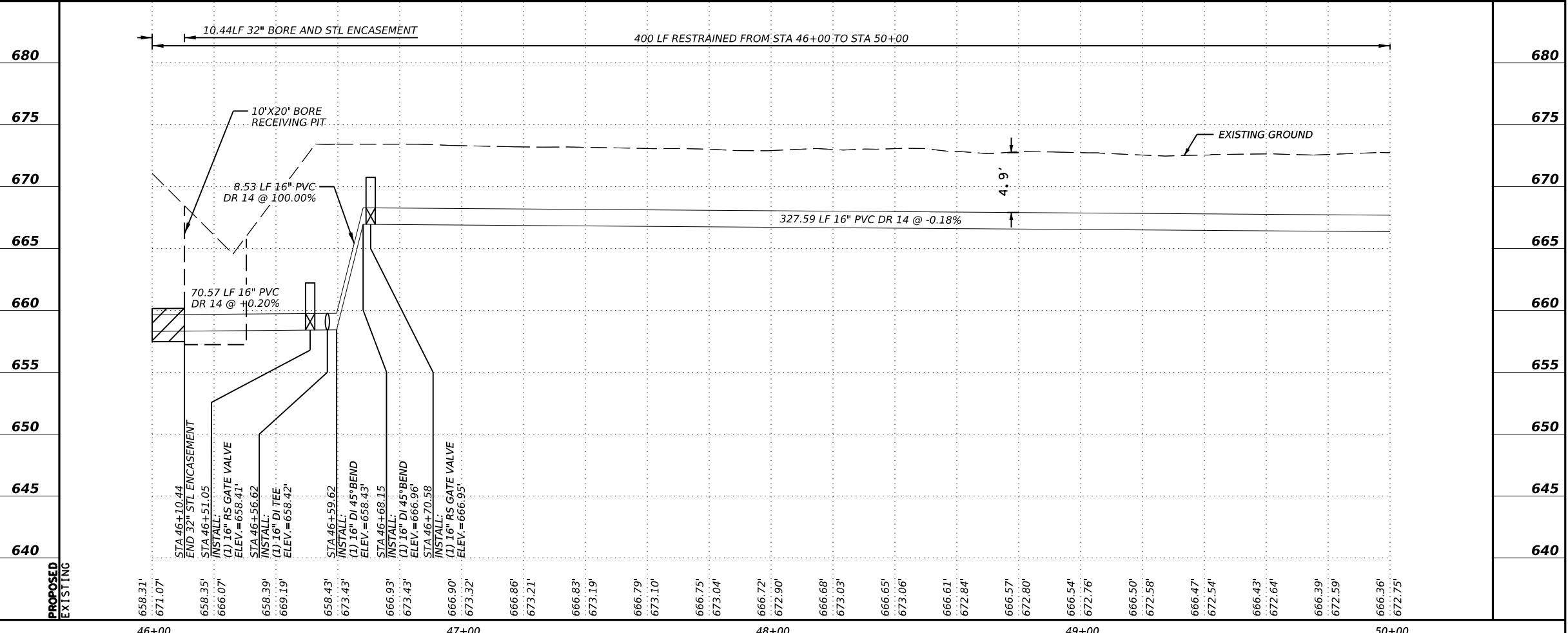
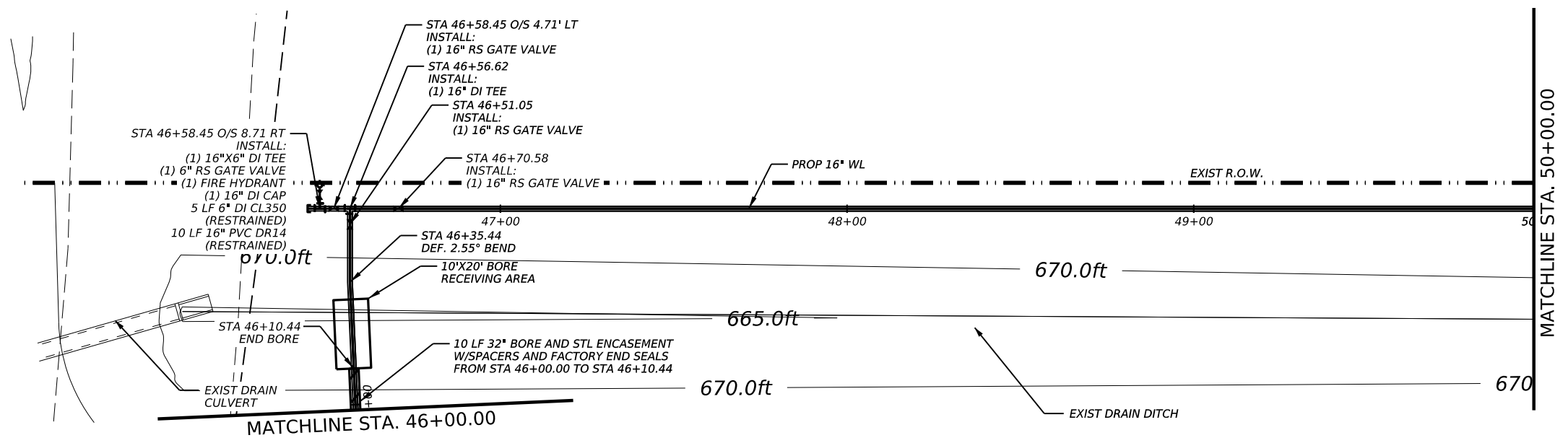
JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 10'
 8 OF 13
 SHEET NO. 18

100% SUBMITTAL



NOTES:

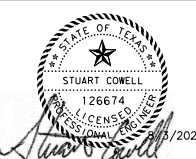
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REVISIONS			
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DATE: _____
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 APPROVED BY: _____



FM 110 WATER LINE

LJA Engineering, Inc.
 2700 LA FRONTERA BLVD.
 SUITE 150
 ROUND ROCK, TEXAS 78735

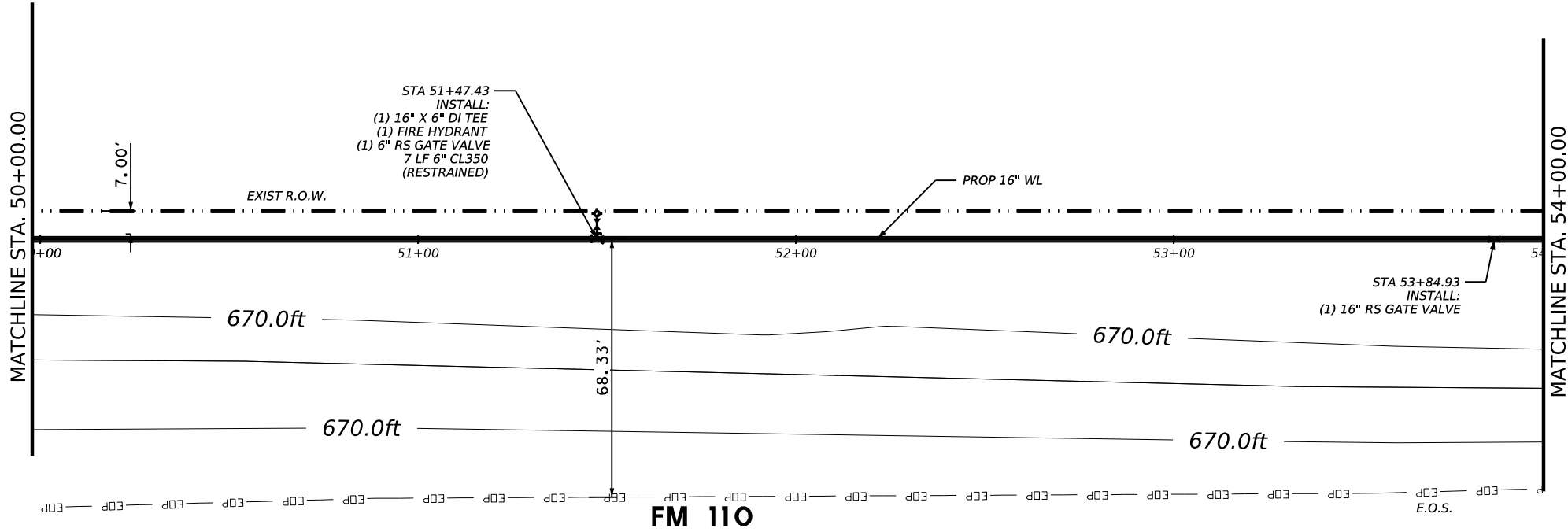
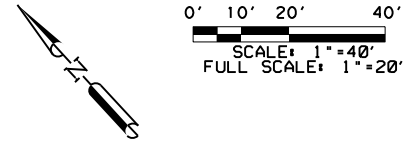


PROPOSED WATER LINE A
 STA 46+00 TO STA 50+00

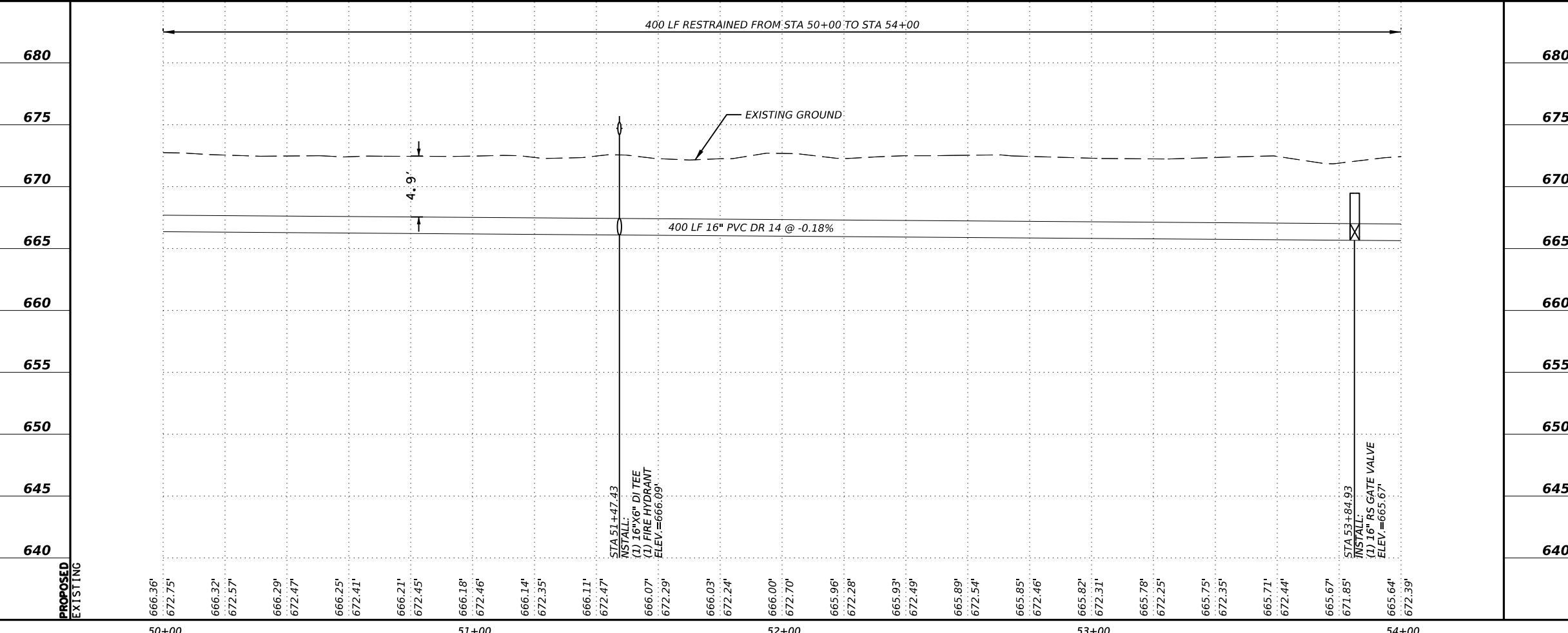
811
 Know what's below.
 Call before you dig.

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40' VERTICAL: 1" = 10'
 10 OF 13
 SHEET NO. 20

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.



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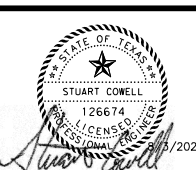
PROPOSED	666.36'	672.75'	666.32'	672.57'	666.29'	672.47'	666.25'	672.41'	666.21'	672.45'	666.18'	672.46'	666.14'	672.35'	666.11'	672.47'	666.07'	672.29'	666.03'	672.24'	666.00'	672.70'	665.96'	672.28'	665.93'	672.49'	665.89'	672.54'	665.85'	672.46'	665.82'	672.31'	665.78'	672.25'	665.75'	672.35'	665.71'	672.44'	665.67'	671.85'	665.64'	672.39'	
EXISTING	50+00		51+00		52+00		53+00		54+00																																		

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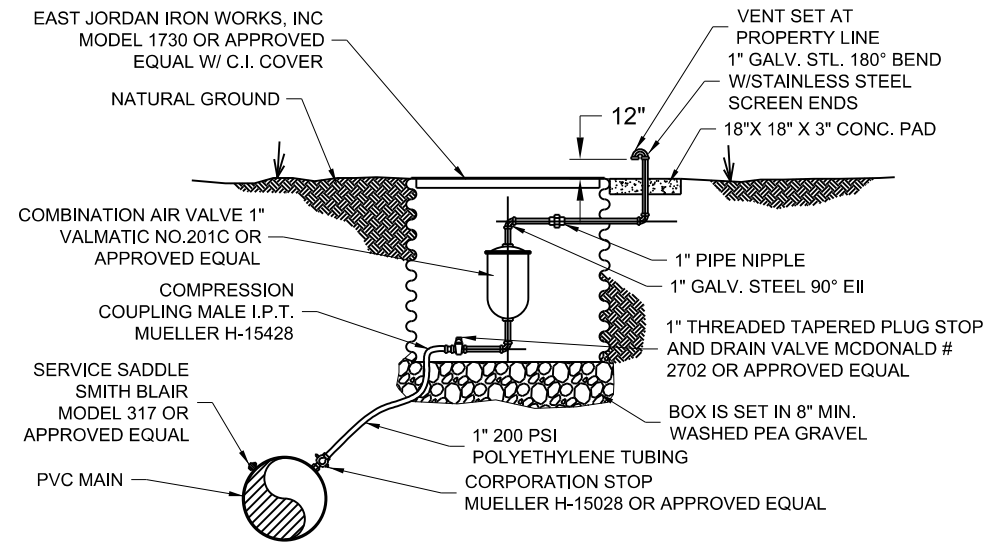


FM 110 WATER LINE

LJA Engineering, Inc.
 2700 LA FRONTERA BLVD. Phone 512.767.7300
 SUITE 150 Fax 512.439.4716
 ROUND ROCK, TEXAS 78735 FRN-F-1386

PROPOSED WATER LINE A
 STA 50+00 TO STA 54+00

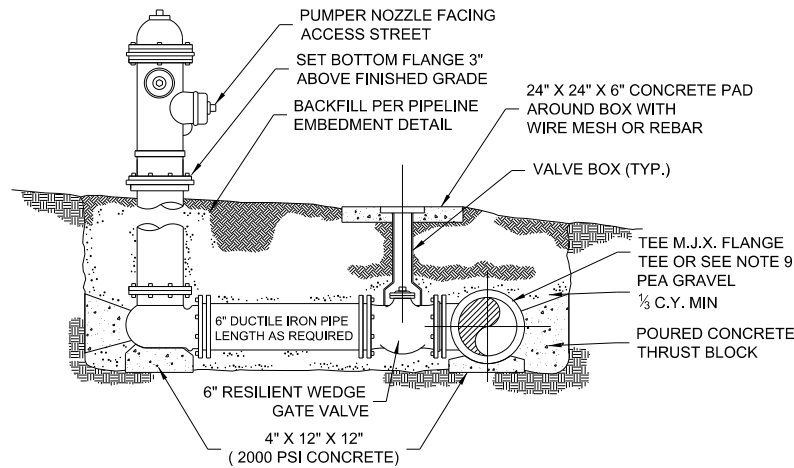
JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: 1" = 40' VERTICAL: 1" = 10'
 11 OF 13
 SHEET NO. 21



- NOTES:
1. COMBINATION AIR VALVES SHALL BE LOCATED AS PER PLANS AT THE HIGHEST POINT OF THE LINE.

COMBINATION AIR VALVE DETAIL

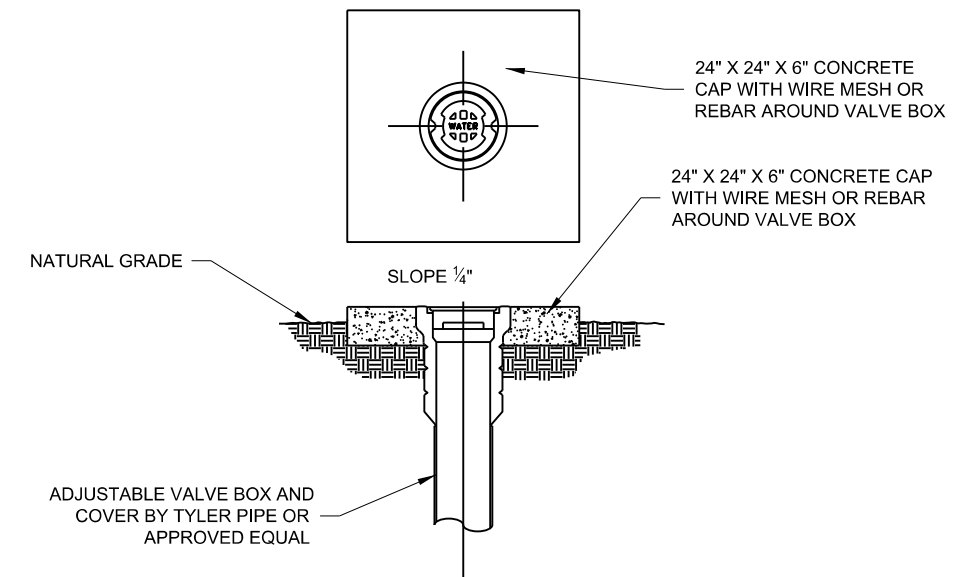
N.T.S.



- NOTES:
1. A 3 FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED.
 2. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN UNLESS APPROVED BY CITY ENGINEER OR PUBLIC WORKS DIRECTOR .
 3. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
 4. ALL FIRE HYDRANT EXTERIOR SHALL BE FACTORY PRIMED AND PAINTED RED USING A HIGH GRADE ENAMEL.
 5. BELL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
 6. FOR ACCEPTABLE FIRE HYDRANTS SEE CITY OF AUSTIN STANDARD PRODUCT LIST.
 7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL POLYETHYLENE FILM.
 8. ENSURE ALL BOLTS ARE UNOBSTRUCTED BY CONCRETE.
 9. M.J.X. SWIVEL MAY BE REQUIRED BASED ON PROJECT SPECIFIC SITE CONDITION.
 10. PRIVATELY OWNED AND MAINTAINED FIRE HYDRANTS SHALL BE PAINTED SILVER.

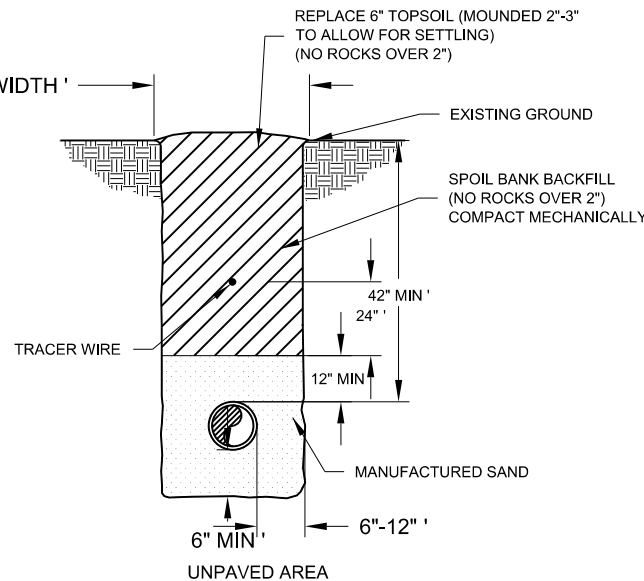
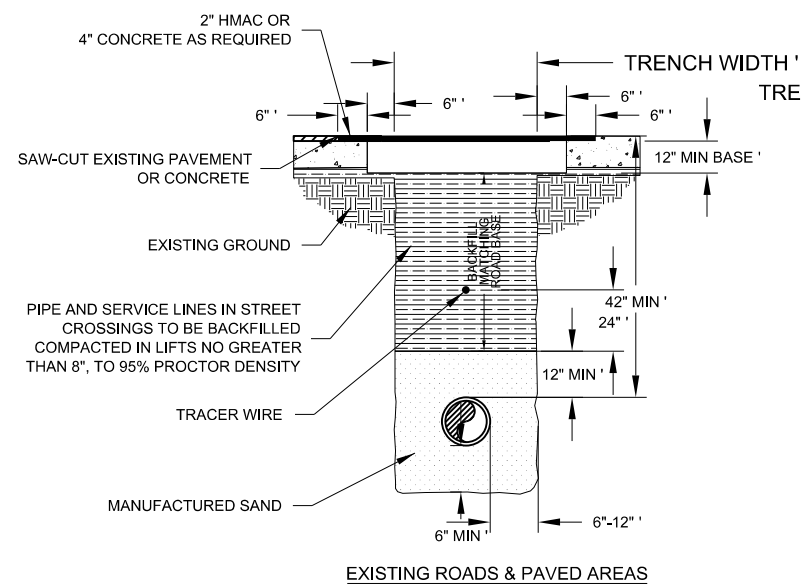
FIRE HYDRANT ASSEMBLY DETAIL

N.T.S.



GATE VALVE & BOX DETAILS

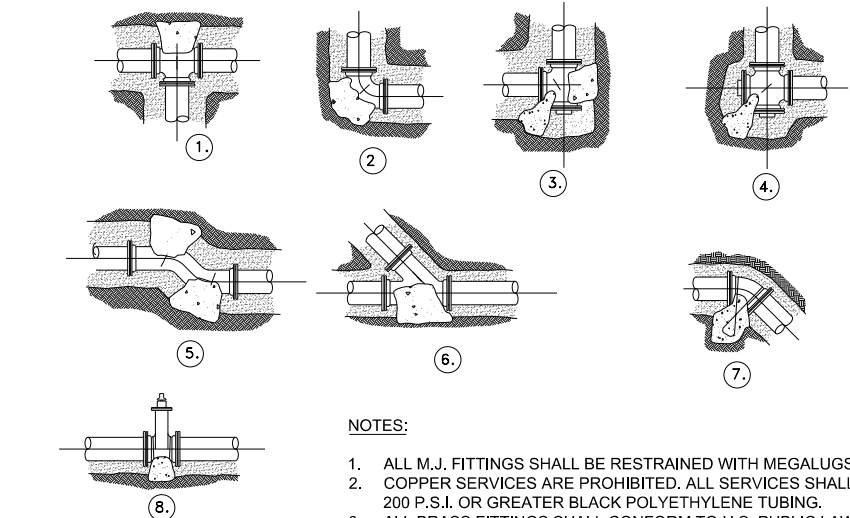
N.T.S.



PIPELINE EMBEDMENT DETAIL

N.T.S.

- NOTES:
1. MINIMUM DEPTH SHOULD BE 42" IN EXISTING OR PLANNED STREETS, ROADS OR OTHER TRAFFIC AREAS.
 2. ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EQUAL TO EXISTING BASE THICKNESS PLUS 3", BUT IN NO CASE LESS THAN 12".
 3. PRESSURE RATING OF THE PIPES TO BEC 900 FOR PIPE SIZE UPTO 12" AND C 905 FOR PIPE SIZE GREATER THAN 12".
 4. TRACER WIRE (CCS 12-AWG) SHALL BE INSTALLED ON ALL WATER LINE, RECLAIMED WATERLINES AND WASTEWATER FORCE MAINS. TRACER WIRE TEST STATIONS (COPPERHEAD SNAKEPIT MODEL SD14"2T-SW) SHALL ALSO BE INSTALLED AT INTERVALS NOT TO EXCEED 1,000'. PLEASE CONTACT THE CITY OF KYLE PUBLIC WORKS DEPT FOR DETAILS AND SEPCIFICATIONS.



NOTES:

1. THRU LINE CONNECTION, TEE
2. DIRECTIONAL CHANGE, ELBOW
3. DIRECTIONAL CHANGE, TEE USED AS ELBOW
4. DIRECTIONAL CHANGE, CROSS USED AS ELBOW
5. DIRECTIONAL CHANGE
6. THRU LINE CONNECTION
7. DIRECTION CHANGE VERTICAL, BEND ANCHOR
8. VALVE ANCHOR

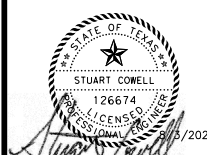
THRUST BLOCKING DETAILS

N.T.S.

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REVISIONS			
NO.	DESCRIPTION	BY	DATE

DESIGNED BY: SC
 DRAWN BY: SC
 CHECKED BY: SC
 APPROVED BY: _____



FM 110 WATER LINE

LJA Engineering, Inc.

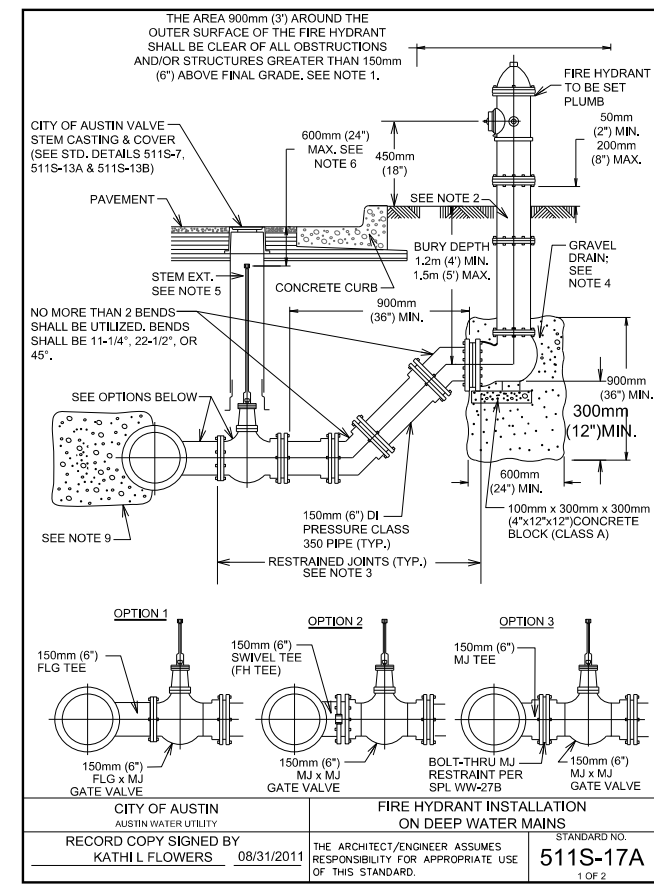
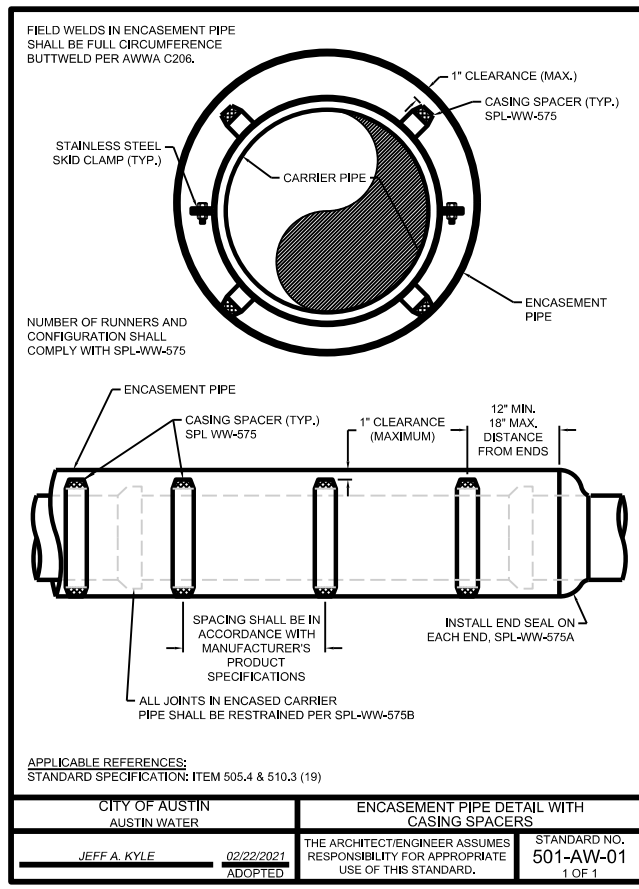
2700 LA FRONTERA BLVD.
 SUITE 150
 ROUND ROCK, TEXAS 78735



Phone 512.767.7300
 Fax 512.439.4716
 FRN-F-1386

WATER
 DETAILS

JOB NUMBER:
 2173-2206
 SCALE:
 HORIZONTAL: NA
 VERTICAL: NA
 1 OF 1
 SHEET NO. 24



NOTES:

- DIMENSION FROM GUTTER FACE OF CURB TO OUTERMOST PART OF ANY NOZZLE CAP SHALL BE NOT LESS THAN 0.9m (3'), NOR MORE THAN 1.8m (6'), NO PART OF A HYDRANT OR ITS NOZZLE CAPS SHALL BE WITHIN 150mm (6") OF ANY SIDEWALK OR PEDESTRIAN RAMP. ANY FIRE HYDRANT PLACED NEAR A STREET CORNER SHALL BE LOCATED OUTSIDE THE CURVE RADIUS AND A MINIMUM OF 1.2m (4') FROM RAMP.
- ONE BARREL EXTENSION NOT EXCEEDING 600 mm (2') LENGTH MAY BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT IN ORDER TO MEET THE REQUIRED BURY DEPTH OF 1.2m TO 1.5m (4' TO 5'). BREAK AWAY BOLTS (SHOE TYPES) SHALL BE PROPERLY SPACED AND PLACED.
- FIRE LINE SHALL HAVE ALL JOINTS RESTRAINED FROM MAIN TO FIRE HYDRANT. JOINTS SHOWN MAY VARY. SEE SPL-WW-27, WW-27A, AND WW-27B FOR RESTRAINT OPTIONS.
- BELOW EACH HYDRANT, A DRAINAGE PIT 0.8m (2') IN DIAMETER AND 0.3m (1') DEEP SHALL BE EXCAVATED AND FILLED WITH COMPACTED COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND UNDER AND AROUND THE BOWL OF THE HYDRANT, AND TO A LEVEL 150mm (6") ABOVE THE HYDRANT DRAIN OPENING (SEE STD. SPEC. 510). THE HYDRANT DRAINAGE PIT SHALL NOT BE CONNECTED TO A SANITARY SEWER. THE DRAIN GRAVEL SHALL BE COVERED WITH FILTER FABRIC TO PREVENT BLOCKAGE OF VOIDS IN THE GRAVEL BY MIGRATION OF BACKFILL MATERIAL. THE BOWL OF EACH HYDRANT SHALL BE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH TAKING CARE NOT TO OBSTRUCT THE HYDRANT DRAIN HOLES. IF THE HYDRANT LEAD IS NOT RESTRAINED TO THE MAIN.
- WELD SOCKET 64mm x 51mm (2-1/2" x 2") TO 25mm (1") SCH. 40 ROUND STEM EXTENSION. FIT ON OPERATING NUT. USE SCH. 80 ROUND STEM EXTENSION FOR LENGTHS OVER 3m (10'). VALVE STEM EXTENSIONS SHALL CONSIST OF A SINGLE PIECE OF REQUIRED LENGTH WITH A SOCKET ON ONE END AND A NUT ON THE OTHER.
- VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 0.9 m (3') DEEP FROM FINISHED GRADE. VALVE STEM EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 450 AND 600 mm (18" AND 24") FROM FINISHED GRADE.
- FOR FIRE HYDRANT LEADS AT A MAIN OUTLET LARGER THAN 150mm (6") DIAMETER, OUTLET SHALL BE FLANGED AND A FLANGE x FLANGE REDUCER SHALL BE INSTALLED DIRECTLY ON THE OUTLET.
- WRAP 8 mil POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS.
- THRUST BLOCKING REQUIRED FOR PIPE SIZE & SOIL CONDITION (SEE STD. DETAIL 510-6)

CITY OF AUSTIN AUSTIN WATER UTILITY	FIRE HYDRANT INSTALLATION ON DEEP WATER MAINS	STANDARD NO. 511S-17A
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

REVISIONS			
NO.	DESCRIPTION	BY	DATE

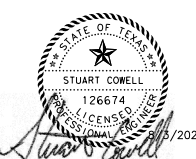
DATE: _____

DESIGNED BY: SC

DRAWN BY: SC

CHECKED BY: SC

APPROVED BY: _____



FM 110 WATER LINE

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2700 LA FRONTERA BLVD.
SUITE 150
ROUND ROCK, TEXAS 78735



WATER
DETAILS

JOB NUMBER:
2173-2206

SCALE:
HORIZONTAL: NA
VERTICAL: NA

1 OF 1

SHEET NO. 25

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:
1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs.

WORKER SAFETY NOTES:
1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ANSI American National Standard for High-Visibility Apparel, or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure.

Table with 2 columns: Document Name, URL. Includes 'COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)', 'DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)', 'MATERIAL PRODUCER LIST (MPL)', 'ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"', 'STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)', 'TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)', 'TRAFFIC ENGINEERING STANDARD SHEETS'.

Sheet 1 of 12. Barricade and Construction General Notes and Requirements. BC111-21. Texas Department of Transportation. Traffic Safety Division Standard.

Typical Location of Crossroad Signs, Typical Construction Warning Sign Size and Spacing, CSJ Limits at T-Intersection, Work Areas in Multiple Locations Within CSJ Limits, Sample Layout of Signing for Work Beginning at the CSJ Limits, Sample Layout of Signing for Work Beginning Downstream of the CSJ Limits. Includes diagrams and tables.

Typical Application of Work Zone Speed Limit Signs. Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed. Includes diagrams and tables.

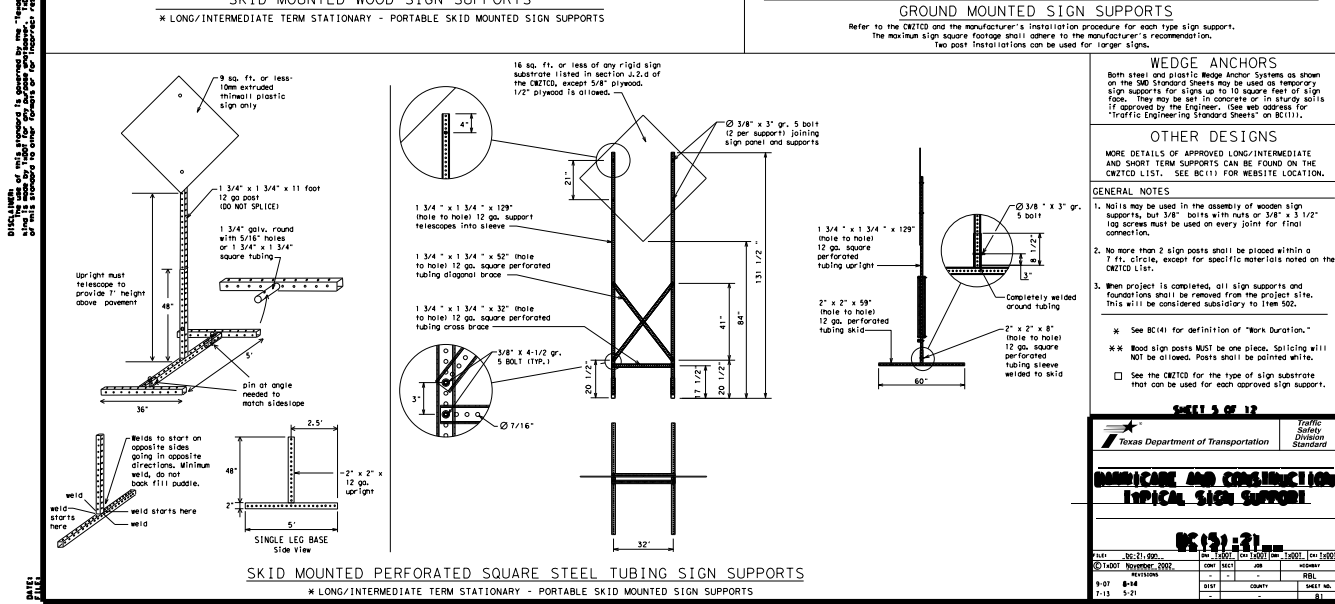
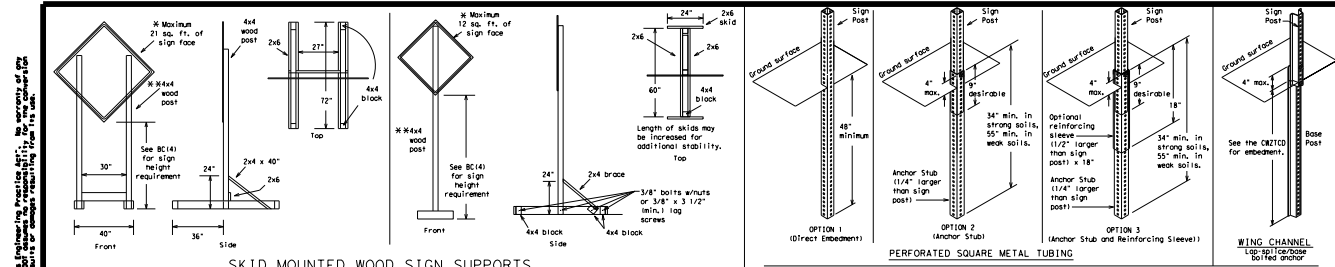
Typical Minimum Clearances for Long Term and Intermediate Term Signs, Attachment for Sign Supports, Sign Mounting Height, Sign Support Requirements for Maintaining Permanent Signs Within the Project Limits. Includes diagrams and tables.

REVISIONS table with columns: NO., DESCRIPTION, BY, DATE.

DESIGNED BY: SC
DRAWN BY: SC
CHECKED BY: SC
APPROVED BY: [Signature]

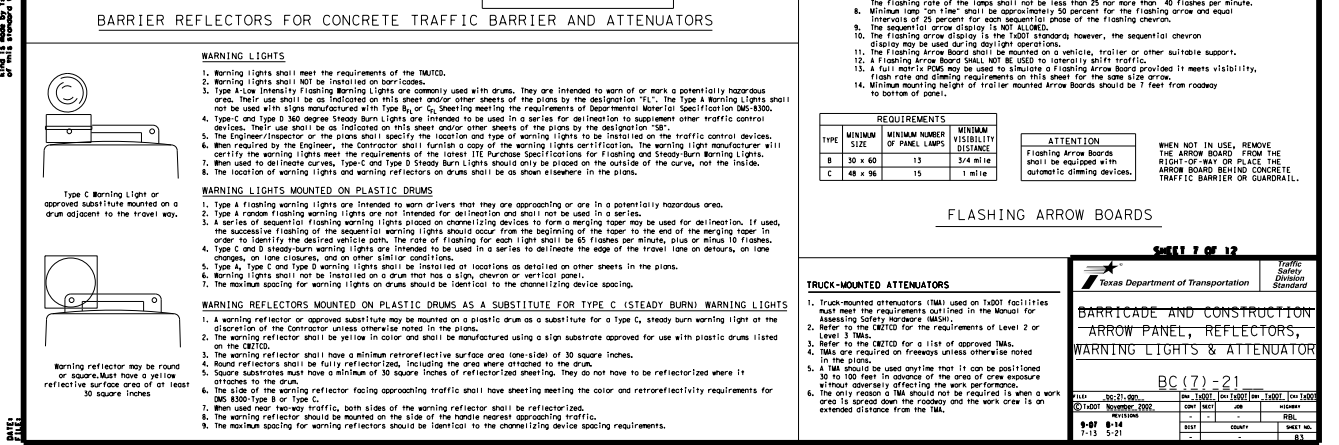
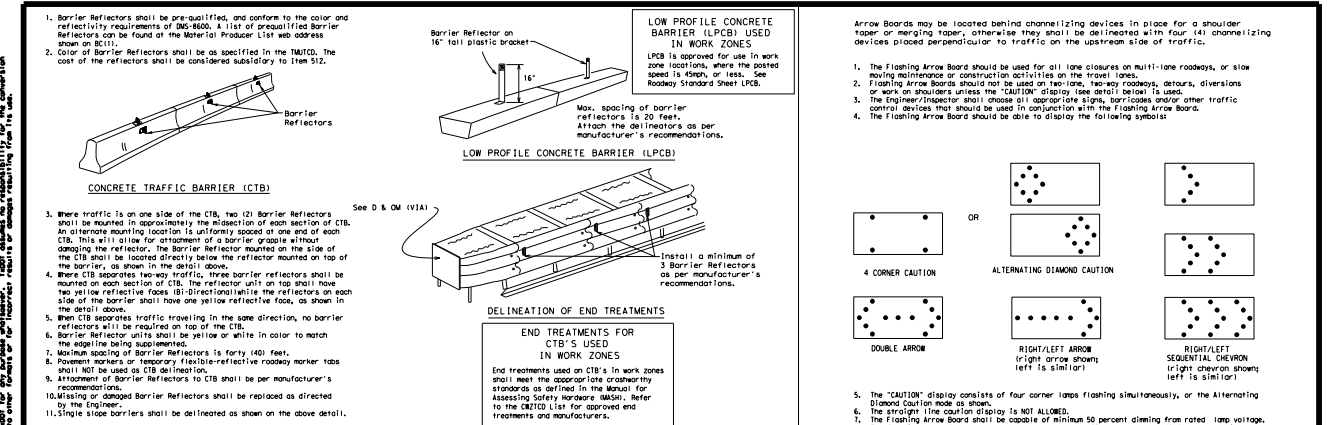


Project Information: FM 110 Water Line, LJA Engineering, Inc., 2700 LA Frontera Blvd., Suite 150, Round Rock, Texas 78735. Phone 512.767.7300, Fax 512.439.4716. Job Number: 2173-2206. Scale: Horizontal: NA, Vertical: NA. Sheet No. 26.



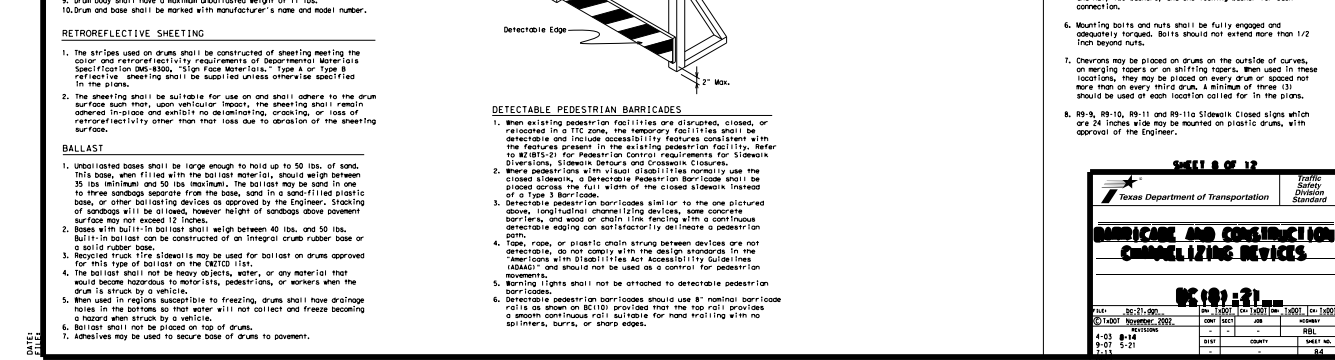
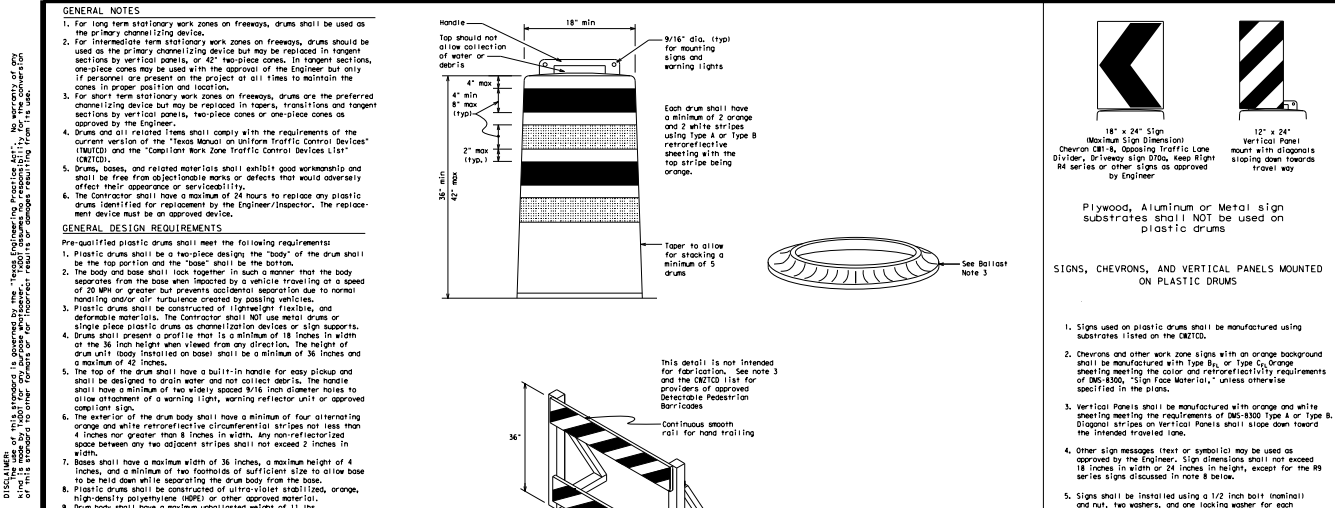
BC(12)-21

DATE	BY	DESCRIPTION	REV	DATE	BY	DESCRIPTION
8-03	B-04	REVISED	1			
8-13	5-21	REVISED	2			



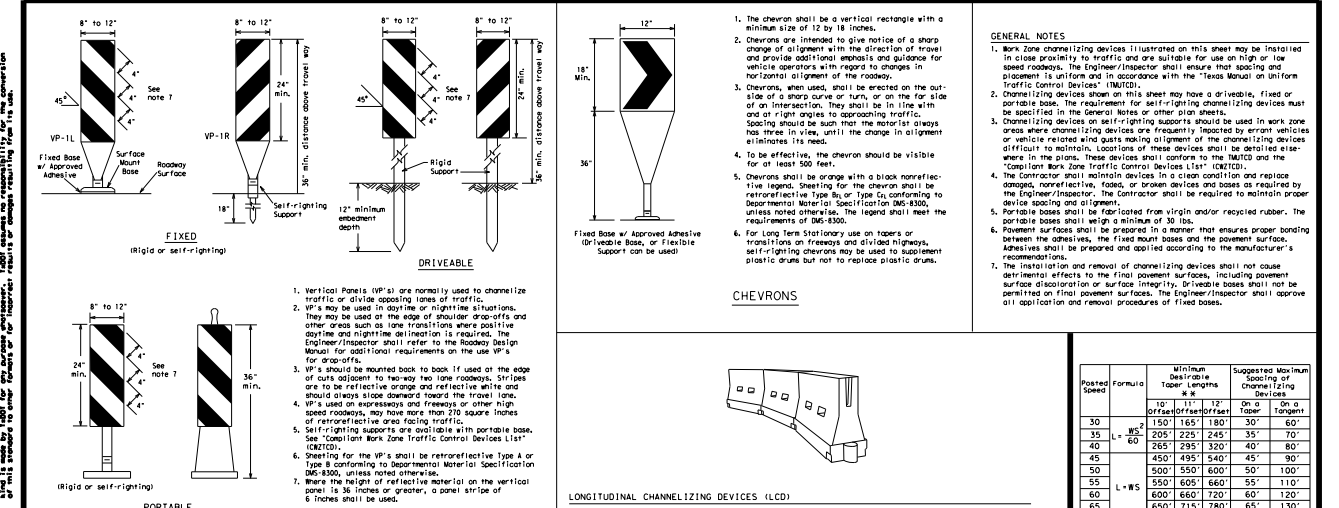
BC(13)-21

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8-13	5-21	REVISED	2			



BC(14)-21

DATE	BY	DESCRIPTION	REV	DATE	BY	DESCRIPTION
8-03	B-04	REVISED	1			
8-13	5-21	REVISED	2			



BC(15)-21

DATE	BY	DESCRIPTION	REV	DATE	BY	DESCRIPTION
8-03	B-04	REVISED	1			
8-13	5-21	REVISED	2			

REVISIONS

NO.	DESCRIPTION	BY	DATE

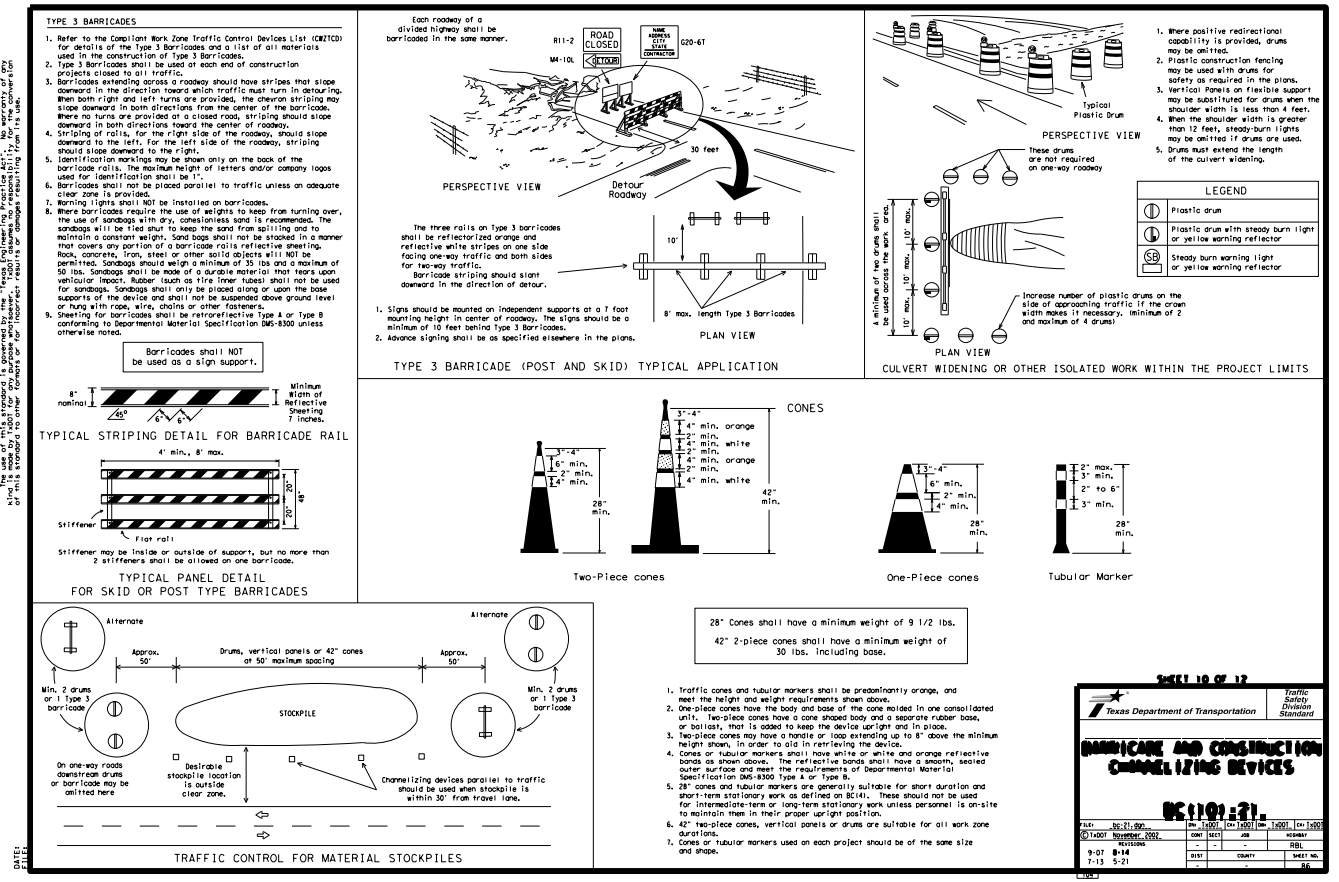
DESIGNED BY: SC
 DRAWN BY: SC
 CHECKED BY: SC
 APPROVED BY: SC

LJA Engineering, Inc.
 2700 LA FRONTERA BLVD.
 SUITE 150
 ROUND ROCK, TEXAS 78735
 Phone 512.767.7300
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 FRN-F-1386

TXDOT DETAILS

FM 110 WATER LINE

JOB NUMBER: 2173-2206
 SCALE: HORIZONTAL: NA
 VERTICAL: NA
 SHEET NO. 27



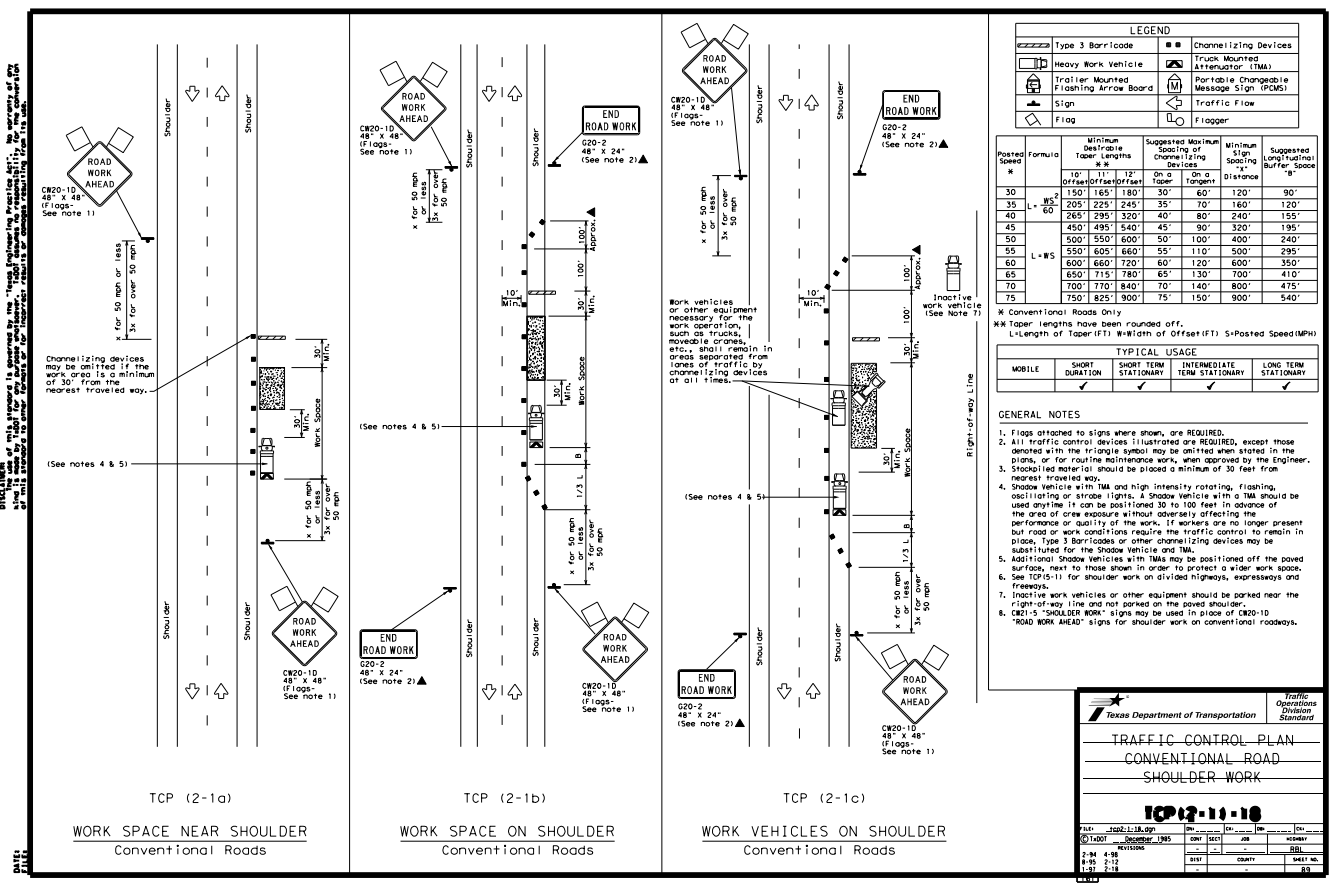
TEXAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLAN

CONVENTIONAL ROAD SHOULDER WORK

TCP 12-11-10

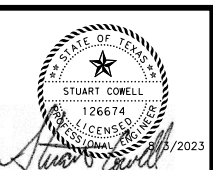
DATE	BY	REVISION	DESCRIPTION
8-07-14	RLB	1	ISSUED
7-13-21	RLB	2	REVISED



REVISIONS

NO.	DESCRIPTION	BY	DATE

DESIGNED BY: SC
DRAWN BY: SC
CHECKED BY: SC
APPROVED BY:



FM 110 WATER LINE

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TXDOT DETAILS

JOB NUMBER: 2173-2206
SCALE: HORIZONTAL: NA
VERTICAL: NA
1 OF 1
SHEET NO. 28