

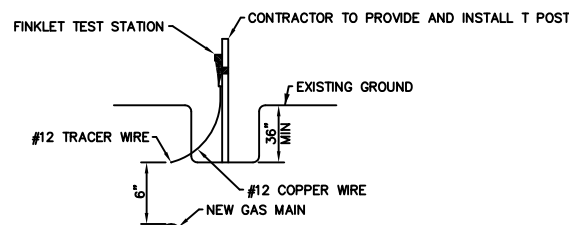
NATURAL GAS GENERAL NOTES:

- CONSTRUCTION OF NATURAL GAS PIPING SYSTEM MUST BE PERFORMED BY AN APPROVED CITY OF TOMBALL CONTRACTOR IN GOOD STANDING WITH THE CITY. ALL PERSONNEL CERTIFICATIONS MUST BE KEPT ON SITE WITH CONSTRUCTION CREW AT ALL TIMES.
- CONTRACTOR MUST BE IN COMPLIANCE WITH CITY OF TOMBALL ANTI-DRUG AND ALCOHOL MISUSE PLAN BY PARTICIPATING IN AN APPROVED DRUG TESTING PROGRAM. PROOF OF TESTING PROTOCOLS IS REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL NATURAL GAS FACILITIES AS PROPOSED IN THIS PLAN SET. ANY DEVIATIONS MUST FIRST BE APPROVED BY THE ENGINEER OF RECORD AND THE CITY OF TOMBALL PUBLIC WORKS DIRECTOR OR DESIGNATED REPRESENTATIVE.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE MEANS, METHODS, SEQUENCE, PROCEDURES, TECHNIQUES AND/OR SCHEDULING OF ALL PORTIONS OF THE GAS WORK ARE PERFORMED SAFELY AND IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS, OSHA REGULATIONS, AND ANY OTHER STANDARDS OR CODES REQUIRED BY ANY OTHER REGULATORY AGENCY.
- SHUT-INS AND/OR SYSTEM TIES ARE THE RESPONSIBILITY OF THE CITY OF TOMBALL. AT GAS REPRESENTATIVE'S DISCRETION, CONTRACTOR MAY BE ALLOWED TO TAP OR SHUT IN EXISTING MAINS, IF CONTRACTOR CAN PROVE COMPETENCY AND MAINTAINS OPERATOR QUALIFICATIONS FOR APPROPRIATE TASKS. THE CITY GAS REPRESENTATIVE MUST BE ON SITE DURING TIE-IN PROCEDURE.
- THE CITY OF TOMBALL GAS REPRESENTATIVE MUST BE CONTACTED AS FOLLOWS:
 - GAS CONSTRUCTION START. CONTRACTOR MUST NOTIFY GAS REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO THE INITIAL START OF ANY NATURAL GAS CONSTRUCTION TO SCHEDULE AN ON SITE MEETING. DURING THIS MEETING, ALL CONTRACTOR PERSONNEL CERTIFICATIONS WILL BE REVIEWED TO CONFIRM ALL CONTRACTOR PERSONNEL MEET CITY OF TOMBALL REQUIREMENTS. DELAYS WILL NOT BE PAID FOR IN THE EVENT GAS CONSTRUCTION CANNOT START DUE TO LACKING CREDENTIALS.
 - BACKFILL. CONTRACTOR MUST NOTIFY GAS REPRESENTATIVE TO COORDINATE A TRENCH INSPECTION PRIOR TO BACKFILLING. SEE TRENCH & BACKFILL REQUIREMENTS FOR MORE INFORMATION.
 - ENCASEMENT. CONTRACTOR MUST ALLOW GAS REPRESENTATIVE TO OBSERVE THE INSTALLATION OF THE CARRIER PIPE AND TO INSPECT ALL CASING END POINTS. SEE MINIMUM ENCASEMENT REQUIREMENTS FOR MORE DETAIL.
 - PRESSURE TEST. CONTRACTOR MUST COORDINATE WITH GAS REPRESENTATIVE PRIOR TO PERFORMING ANY PRESSURE TESTS. PRESSURE CHARTS CAN BE FURNISHED BY EITHER THE CONTRACTOR OR THE CITY; HOWEVER, ALL CHARTS MUST BE INITIALED BY GAS REPRESENTATIVE BEFORE THE PRESSURE TEST BEGINS.
- DRIVEWAYS WILL BE BORED, UNLESS OTHERWISE SPECIFIED IN PLANS OR AS DIRECTED BY GAS REPRESENTATIVE.
- TREES IN OR ADJACENT TO PUBLIC RIGHTS OF WAY WHICH HAVE DRIP LINES EXTENDING INTO PUBLIC RIGHTS OF WAY AND A TRUNK CALIPER OF SIX (6) INCHES OR MORE DETERMINED BY THE CITY OF TOMBALL TO HAVE ENVIRONMENTAL OR AESTHETIC VALUE MUST BE BORED FROM DRIP LINE TO DRIP LINE.
- EXISTING UTILITIES EXPOSED DURING TRENCHING OPERATIONS MUST BE SUPPORTED; CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN IN THE PLANS. ADDITIONALLY, CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES.
- CONTRACTOR MUST VISUALLY INSPECT ALL MATERIAL FOR DAMAGE BEFORE CONSTRUCTION AND PRIOR TO BACKFILLING.
- ALL POLYFUSION MUST BE PERFORMED BY A CERTIFIED OPERATOR. POLYFUSION CERTIFICATION WILL BE CHECKED AT THE CONSTRUCTION KICKOFF MEETING.
- CONTRACTOR IS REQUIRED TO RECORD ALL POLYETHYLENE MATERIAL SPECIFICATIONS ON POLYETHYLENE PIPE LINE DATA CHART (AS SHOWN BELOW).
- CONTRACTOR MUST COMPLETE THE POLYETHYLENE PIPE LINE DATA CHART FOR ALL POLYETHYLENE PIPE INSTALLED IN EACH APPLICABLE SHEET (SEE THE FOLLOWING EXAMPLE):

| POINT | SPAN | LINE DATA | CONTRACTOR | FUSED BY | DATE INSTALLED |
|-------|------|--|------------|----------|----------------|
| 1 | TO 2 | 2" IPS SDR 11 DRISCOPIPE 8100 GAS PE2406/PE100 CEE ASTM D2513 W1015 R NR 0356 A1-043 072706 COIL 0152 | COMPANY X | JOHN DOE | 04/04/2008 |

- CONTRACTOR IS RESPONSIBLE FOR TESTING ALL NEW FACILITIES IN ACCORDANCE WITH CITY OF TOMBALL STANDARDS. ALL TESTS MUST BE DOCUMENTED BY PRESSURE CHART AND
- MAGNETIC WARNING TAPE AND #12 TRACER WIRE MUST BE INSTALLED ABOVE PIPE INSTALLATIONS ALONG THE TRENCH IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS. TRACER WIRE SHALL BE 6" ABOVE THE PIPE AND MAGNETIC WARNING TAPE SHALL BE 6" ABOVE THE TRACER WIRE. ALL TRACER WIRE CONNECTIONS MUST BE WATER TIGHT. IN THE EVENT MAGNETIC WARNING TAPE IS ALREADY PRESENT IN THE TRENCH, CONTRACTOR MUST STRIP BACK A PORTION OF THE EXISTING TAPE AND TIE THE NEW TAPE INTO THE EXISTING AT VALVE LOCATIONS, TRACER WIRE MUST BE INSTALLED AROUND VALVE STACKS, NOT THROUGH THEM. FOR DETAILED PLACEMENT INFORMATION, SEE TRENCH & BACKFILL REQUIREMENTS AND/OR VALVE STACK REQUIREMENTS.
- ALL VALVES ARE TO BE INSTALLED WITH VALVE BOXES IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS. A SUPPORT MUST BE PLACED IN ACCORDANCE WITH THE VALVE MANUFACTURER SPECIFICATIONS.
- PIPELINE MARKERS ARE TO BE INSTALLED IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS. CONTRACTOR IS REQUIRED TO PLACE MARKERS AT OR NEAR TAPS, TEES, CAPS AND AT 500' INTERVALS ALONG NATURAL GAS MAINS. FINAL PLACEMENT OF PIPELINE MARKERS IS SUBJECT TO FIELD CONDITIONS; CONTRACTOR MUST USE DISCRETION TO ENSURE APPROPRIATE LINE OF SIGHT IS ESTABLISHED WITH PIPELINE MARKERS. GAS REPRESENTATIVE MAY DETERMINE THE NEED FOR ADDITIONAL PIPELINE MARKER INSTALLATIONS.
- TEST STATIONS ARE TO BE INSTALLED AT 1000' INTERVALS OR AS OTHERWISE DIRECTED BY THE PLANS OR THE GAS REPRESENTATIVE.

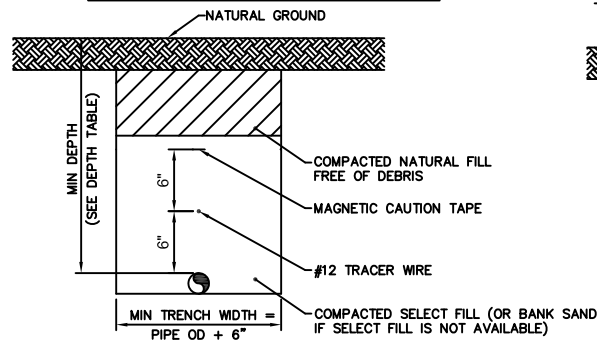
TEST STATION REQUIREMENTS



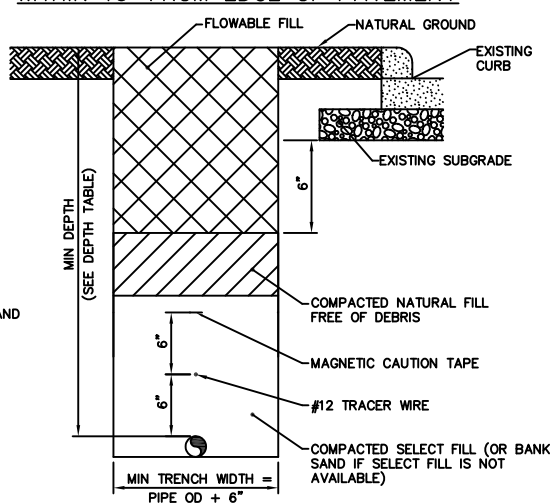
- NOTES:
- #1 ZINC ANODES ARE TO BE PLACED AT 500' INTERVALS WITH A 12 GAUGE (#12) COPPER WIRE CONNECTING THE ANODE TO THE TRACER WIRE. EVERY OTHER ANODE MUST BE CONNECTED TO A TEST STATION.

TRENCH & BACKFILL REQUIREMENTS

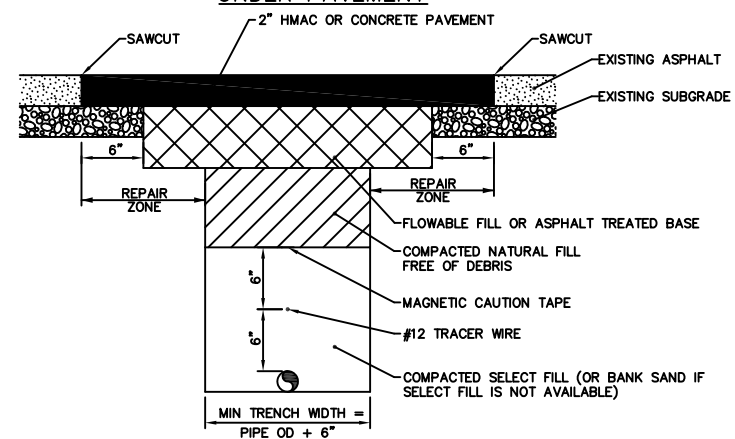
BASIC TRENCH REQUIREMENTS



WITHIN 10' FROM EDGE OF PAVEMENT



UNDER PAVEMENT



DEPTH TABLE

| LOCATION CONDITION | MINIMUM DEPTH FROM EXISTING GROUND TO TOP OF PIPE |
|--------------------|---|
| EASEMENT | 30" |
| BELOW DITCH | 24" |
| IP IN TXDOT ROW | 48" |
| HP IN TXDOT ROW | 60" |

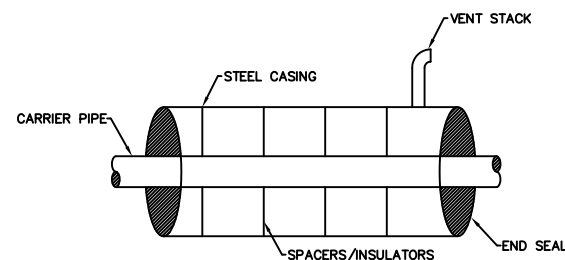
NOTES:

- CONTRACTOR MUST COMPLY WITH OSHA SPECIFICATIONS ON TRENCHING, BACKFILLING, EXCAVATION AND SHORING REQUIREMENTS.
- THE BOTTOM OF THE TRENCH MUST BE VOID OF ANY ROCKS GREATER THAN 0.5" DIAMETER AND OTHER DEBRIS CAPABLE OF DAMAGING THE SURFACE OF THE PIPE.
- A MINIMUM TWELVE INCHES (12") BANK SAND (OR OTHER APPROVED SELECT FILL) BEDDING MUST BE PLACED OVER THE NEW MAIN PRIOR TO THE COMPACTED BACKFILL.
- CONTRACTOR IS RESPONSIBLE FOR INSTALLING A CONTINUOUS LENGTH TWELVE GAUGE (#12) TRACER WIRE AT A MINIMUM SIX INCHES (6") ABOVE ALL NEW POLYETHYLENE MAINS. FOR CONNECTIONS TO EXISTING MAINS WHERE AN EXISTING TRACER WIRE IS ALREADY IN PLACE, CONTRACTOR IS RESPONSIBLE FOR STRIPING BACK AN APPROPRIATE LENGTH OF THE EXISTING TRACER WIRE AND MAKING A WATERPROOF CONNECTION TO WITH THE NEW TRACER WIRE. ANY JOINTS MUST BE TAPED.
- CONTRACTOR MUST INSTALL A MAGNETIC WARNING TAPE 6" ABOVE THE TRACER WIRE. CONTRACTOR MUST TIE THE NEW WARNING TAPE TO ANY EXISTING WARNING TAPE.
- BACKFILL PLACED OVER BEDDING MUST BE FREE OF ROCKS GREATER THAN 0.5" DIAMETER.
- ALL PIPE INSTALLED IN A TRENCH MUST UTILIZE A SNAKING METHOD.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE PRESENCE OF THE GAS REPRESENTATIVE WHEN ITEMS 2-8 ABOVE ARE ADDRESSED DURING CONSTRUCTION.
- DEPTH TABLE PROVIDES MINIMUM DEPTH REQUIREMENTS FOR FINAL TOP OF PIPE DEPTH OF COVER. CONTRACTOR MUST REFER TO THIS TABLE FOR ALL INSTALLATIONS WHERE ELEVATIONS AND/OR PROFILES HAVE NOT BEEN PROVIDED.
- SERVICES ARE TO BE INSTALLED WITH A MINIMUM DEPTH OF 12" INSIDE PRIVATE PROPERTY AND 18" IN PUBLIC RIGHTS OF WAY.
- ALL DEVIATIONS TO ANY OF THE ABOVE REQUIREMENTS AND/OR ILLUSTRATIONS MUST BE APPROVED BY THE GAS REPRESENTATIVE.
- REPAIR ZONE = 12" MINIMUM OR 6" BEYOND UNDISTURBED CONDITION (WHICHEVER IS GREATER)
- FOR CONDITIONS UNDER CONCRETE PAVEMENT, CONTRACTOR MUST REPAIR TO NEAREST JOINT UNLESS OTHERWISE SPECIFIED IN PLANS OR AS DIRECTED BY GAS REPRESENTATIVE.

ENCASEMENT REQUIREMENTS

NOTES:

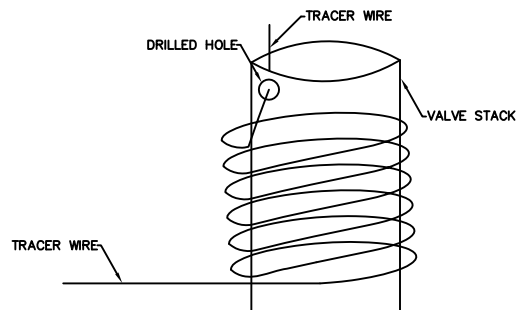
- UNLESS OTHERWISE DIRECTED IN PLANS OR BY GAS REPRESENTATIVE, MINIMUM CASING SIZE = 2" + CARRIER PIPE SIZE
- CASING PIPE MUST BE CAPPED PRIOR TO INSTALLING CARRIER PIPE TO ENSURE THE ABSENCE OF ANY DEBRIS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE GAS REPRESENTATIVE TO INSPECT THE REMOVAL OF THE CAPS PRIOR TO INSTALLING THE CARRIER PIPE.
- CONTRACTOR MUST INSTALL CASING SPACERS/INSULATORS TO ENSURE CARRIER PIPE IS ISOLATED FROM CASING PIPE AND SECURELY ANCHOR LONG SECTIONS OF CARRIER POLYETHYLENE PIPE PRIOR TO PULLING INTO CASING PIPE TO ENSURE EACH JOINT WILL SUSTAIN LONGITUDINAL PULLOUT.
- CASING ENDS ARE TO BE SECURED WITH WATER TIGHT CASING END SEALS.
- UNLESS OTHERWISE SPECIFIED IN PLANS OR BY GAS REPRESENTATIVE, PIPE LINE MARKERS AND VENT STACKS ARE TO BE INSTALLED AT ALL CASING END POINTS IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS AND AS SPECIFIED BY THE MANUFACTURER SPECIFICATIONS.



VALVE STACK REQUIREMENTS

NOTES:

- ALL VALVES ARE TO BE INSTALLED WITH VALVE BOXES IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS.
- CONTRACTOR MUST INSTALL A SUPPORT IN ACCORDANCE WITH VALVE MANUFACTURER SPECIFICATIONS.
- TRACER WIRE MUST BE INSTALLED AROUND VALVE STACK AS SHOWN IN ABOVE ILLUSTRATION. WIRE MUST BE WRAPPED ALONG OUTSIDE OF VALVE STACK AND INSERTED THROUGH DRILLED HOLE NEAR TOP OF VALVE STACK.



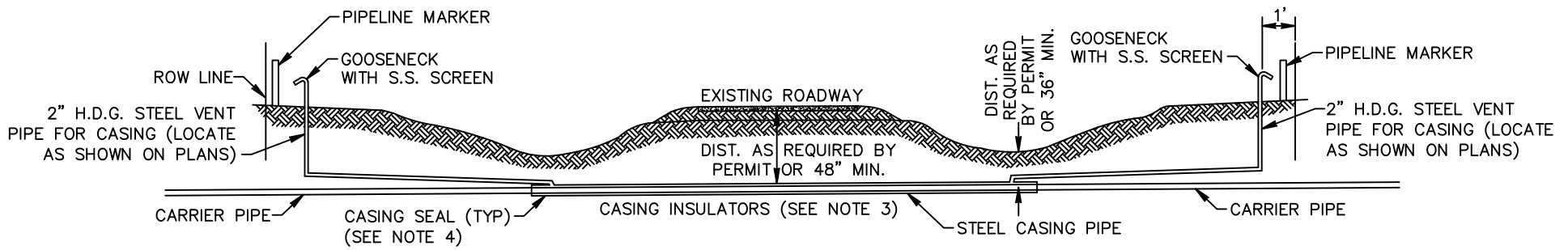
CITY OF TOMBALL
ENGINEERING & PLANNING DEPARTMENT

NATURAL GAS
SYSTEM REQUIREMENTS

APPROVED BY COT:

ENGINEERING & PLANNING DEPARTMENT
EFFECTIVE JULY 1, 2010

SHEET 001 OF 001 DWG NO: COT GAS-01



1. MINIMUM COVER ON ALL CASING PIPE AND CARRIER PIPE WITHIN ALL ROAD RIGHT-OF-WAYS SHALL BE A MINIMUM OF 36" AT THE LOWEST POINT OF THE CROSSING (TYPICALLY AT CENTERLINE OF ROADSIDE DITCH).
2. LENGTH OF THE BORES VARY FOR EACH ROADWAY CROSSING AND SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLAN SHEETS.
3. PROVIDE AND INSTALL CASING SPACERS/INSULATORS ON ALL CARRIER PIPE INSIDE CASING. THE CASING INSULATORS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SHOWN IN SPECIFICATIONS.
4. PROVIDE AND INSTALL CASING END SEAL ON ALL CASING PIPE THAT IS INSTALLED BY BORE OR OPEN CUT. CASING END SEALS SHALL BE PIPELINE SEAL AND INSULATOR, INC. MODEL NO. C OR PRE-APPROVED EQUAL AND SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.
5. VENT PIPES SHALL BE 2" DIAMETER, SCHEDULE 40 HOT DIPPED GALVANIZED STEEL PIPE. PROVIDE AND INSTALL A 2" GOOSENECK WITH STAINLESS STEEL SCREEN ON VENT PIPES.
6. LOCATE WIRE TO BE CONNECTED TO STEEL CASING, TO CARRIER PIPE, AND CONNECTED TO THE VENT PIPE ABOVE GROUND.

NOT TO SCALE

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|---|--------------------|
| CITY OF TOMBALL | |
| ENGINEERING & PLANNING DEPARTMENT | |
| TYPICAL PIPELINE INSTALLED IN CASING (BY BORE OR OPEN CUT) | |
| APPROVED BY COT: | |
| ENGINEERING & PLANNING DEPARTMENT EFFECTIVE JULY 1, 2010 | |
| SHEET 001 OF 001 | DWG NO: COT GAS-02 |