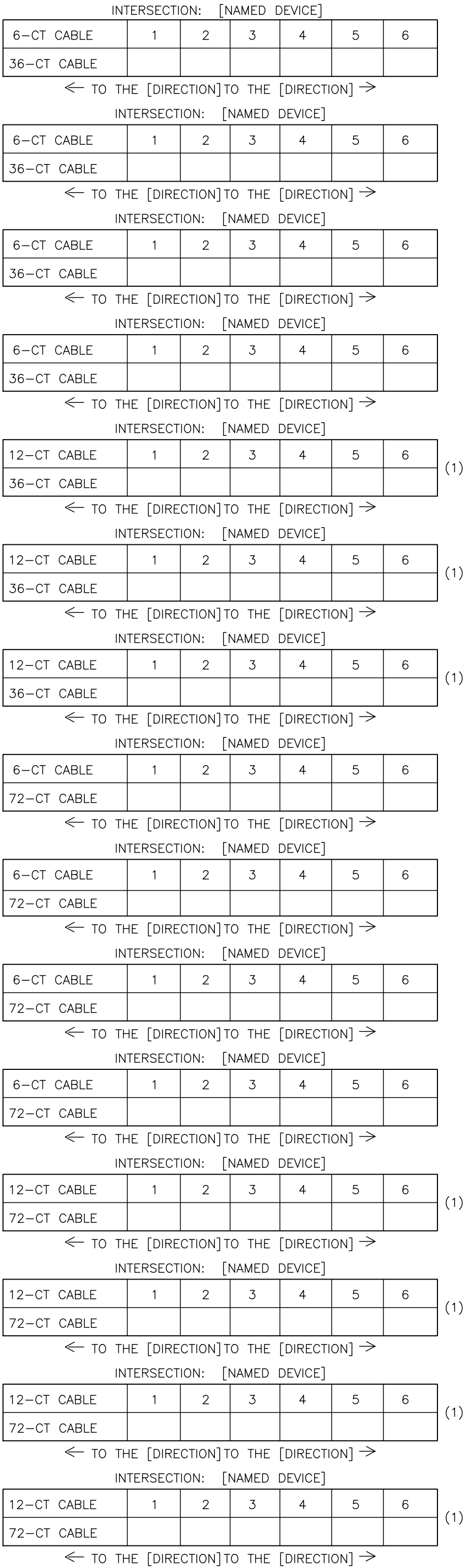


FIBER OPTIC GENERAL NOTES

- ALL MATERIAL SHALL BE FROM THE CITY OF LAWRENCE PRE-APPROVED MATERIALS LIST AVAILABLE AT CITY HALL.
- ALL TRAFFIC CONTROL IN CONJUNCTION WITH THE FIBER OPTIC CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE LAWRENCE TRAFFIC CONTROL HANDBOOK FOR STREET MAINTENANCE AND CONSTRUCTION OPERATIONS, LATEST REVISIONS.
- THE CONTRACTOR SHALL STAKE THE LOCATIONS FOR ALL SERVICE BOXES TO BE INSTALLED. THE STATIONS AND OFFSETS PROVIDED ARE TO THE CENTER OF THE FIBER OPTIC EQUIPMENT. THE CONTRACTOR SHALL PROVIDE ELEVATIONS. IF OBSTRUCTIONS ARE ENCOUNTERED DURING INSTALLATION, THE CONTRACTOR WILL RE-STAKE THOSE LOCATIONS AFFECTED BY THE OBSTRUCTION. THE CITY FIBER OPTIC INSPECTOR SHALL INSPECT THE STAKING PRIOR TO ANY EXCAVATION/CONSTRUCTION.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES, IF SHOWN, ARE AN APPROXIMATE ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES FOR LOCATIONS OF ALL UNDERGROUND LINES PRIOR TO EXCAVATION AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES, WHICH MIGHT OCCUR AS A RESULT OF THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- THE CITY OF LAWRENCE IS ON THE ONE CALL SYSTEM.
- ALL CABLES IN SERVICE BOXES AND POLES SHALL BE IDENTIFIED WITH COLOR-CODED TAPE AS FOLLOWS:  
NORTH CABLE: TAPE COLOR CODE BLUE  
EAST CABLE: TAPE COLOR CODE YELLOW  
SOUTH CABLE: TAPE COLOR CODE PURPLE  
WEST CABLE: TAPE COLOR CODE RED
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING EXISTING EQUIPMENT AS NOTED AND DELIVERING ALL SALVAGEABLE EQUIPMENT TO THE CITY OF LAWRENCE. THE CONTRACTOR SHALL CONTACT THE CITY OF LAWRENCE TRAFFIC DIVISION TO COORDINATE DELIVERY (AT LEAST 24-HOUR ADVANCE NOTICE SHALL BE PROVIDED). ALL RETURNED EQUIPMENT SHALL BE DISASSEMBLED PER THE INSTRUCTIONS OF THE TRAFFIC DIVISION OF THE CITY OF LAWRENCE DEPARTMENT OF MUNICIPAL SERVICES AND OPERATIONS (SEE THIS SHEET). THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR LOSS OF SALVAGEABLE EQUIPMENT.
- ROCK AND SHALE MAY BE ENCOUNTERED AND THUS THE BID ITEMS SHALL REFLECT THE EXTRA WORK NECESSARY TO ACCOMPLISH THE INSTALLATION. NO ADDITIONAL PAYMENTS ("EXTRAS") WILL BE MADE FOR EXCAVATION OF ROCK OR SHALE AND SUITABLE BACKFILL MATERIALS. ALL CONDUIT TRENCHES WITHIN ROCK/SHALE SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND PROPERLY COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONDUIT SHALL BE BORED (BY APPROVED METHODS) IN THOSE AREAS OUTSIDE OF THE STREET IMPROVEMENT LIMITS. NO MORE THAN 3 (THREE) CONDUITS SHALL BE PULLED BACK THROUGH THE SAME BORE UNLESS OTHERWISE APPROVED.
- CONTINUOUS HDPE, SDR-11 (ORANGE) CONDUIT (SIZED PER PLAN) SHALL BE INSTALLED BETWEEN ALL SERVICE BOXES PRIOR TO PAYING WITHIN THE LIMITS OF THE STREET IMPROVEMENTS. CONDUIT SPLICES BETWEEN APPURTENANCES SHALL NOT BE ALLOWED UNLESS FUSION COUPLINGS OR OTHER FUSION METHODS ARE USED. WHEN MORE THAN 1 (ONE) CONDUIT IS INSTALLED, THEY SHALL BE COLORED AS FOLLOWS: SOLID ORANGE, ORANGE WITH WHITE STRIPE, ORANGE WITH BLUE STRIPE.
- THE CONDUIT PLACEMENT SHALL BE COORDINATED WITH THE PAVING OPERATION, WHEN APPLICABLE. CONDUIT INSTALLATION AND CONDUIT CONNECTIONS SHALL BE INSPECTED AND APPROVED BY THE CITY INSPECTOR. THE CONTRACTOR SHALL PAY ANY AND ALL EXTRA COSTS OF INSTALLING CONDUITS BY ALTERNATE CONSTRUCTION METHODS AFTER PAVEMENT HAS BEEN PLACED OR FOR ANY DAMAGES TO PAVEMENT THAT MAY OCCUR DURING CONDUIT INSTALLATION. ALL TRENCHES FOR CONDUIT UNDER PROPOSED PAVED SURFACES (DRIVES, STREETS AND SIDEWALKS) SHALL BE BACKFILLED WITH FLOWABLE FILL UNLESS OTHERWISE DIRECTED, TO BELOW THE PROPOSED PAVEMENT SURFACE.
- THE CONDUIT SHALL BE INSTALLED UNDER UNDERDRAIN PIPE CROSSINGS AND UNDER THE UNDERDRAIN BLANKETS. REFER TO THE STREET PLANS FOR UNDERDRAIN PIPE AND BLANKET LOCATIONS AND APPROPRIATE DETAILS, IF APPLICABLE.
- ALL FIBER OPTIC FUSION SPLICES SHALL BE MADE AT AN EXISTING SERVICE BOX MADE IN THE PRESENCE OF THE INSPECTOR FOR APPROVAL.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO MINIMIZE THE DOWNTIME OF THE EXISTING SYSTEMS TO BE MODIFIED. ANY EXISTING FIBER OPTIC SYSTEM SHALL BE MAINTAINED DURING CONSTRUCTION AS LONG AS POSSIBLE UNTIL THE NEW SYSTEM IS INSTALLED AND OPERATING.
- DAMAGE TO ANY EXISTING FIBER OPTIC EQUIPMENT DUE TO THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE EQUIPMENT SHALL BE REPLACED OR REPAIRED (AS DIRECTED BY THE CITY) WITH MATERIALS EQUAL OR BETTER THAN THE EXISTING MATERIAL.
- ALL EXISTING FIBER OPTIC EQUIPMENT IS TO BE USED IN PLACE (U.I.P.) UNLESS OTHERWISE NOTED IN THE PLANS.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF LAWRENCE, DEPARTMENT OF MUNICIPAL SERVICES AND OPERATIONS OF THE EXACT CONSTRUCTION SCHEDULE SO THAT INSPECTION OF THE INSTALLATION CAN BE MADE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UNDERGROUND SPRINKLER SYSTEMS DURING CONSTRUCTION. ALL AFFECTED PIPES OR FITTINGS SHALL BE RESTORED TO ORIGINAL CONDITION AND LOCATION WITH NEW MATERIALS SIMILAR TO EXISTING. ALL RESTORATION WORK SHALL BE ACCEPTABLE TO THE ENGINEER AND PROPERTY OWNER.
- ALL UNPAVED AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THE ORIGINAL CONDITION. UNLESS OTHERWISE DIRECTED, GRASSY AREAS SHALL BE RE-SOODED. CONTRACTOR SHALL USE A POLYMER LUBRICATING AGENT TO FACILITATE CONDUIT BORES UNDER PAVED STREETS. FAILURE TO DO SO WILL RESULT IN A DENIAL TO RETRIEVE BORE HEAD, IN THE CASE OF LOSS, UNDER ANY PAVED STREET BY EXCAVATION METHODS.
- A 10#10 AWG THHN/THWN STRANDED COPPER LOCATING CABLE (RED) SHALL BE INSTALLED IN ALL CONDUITS.
- THE ENDS OF ALL CONDUIT IN SERVICE BOXES SHALL BE PLUGGED WITH AN APPROVED CONDUIT PLUG. REFER TO DETAIL ON PAGE 2 OF THE FIBER OPTICS DETAILS.
- ALL FUSION SPLICES TO BE INSPECTED BY THE CITY OF LAWRENCE.

DROP FIBER CABLE SPLICE DETAILS

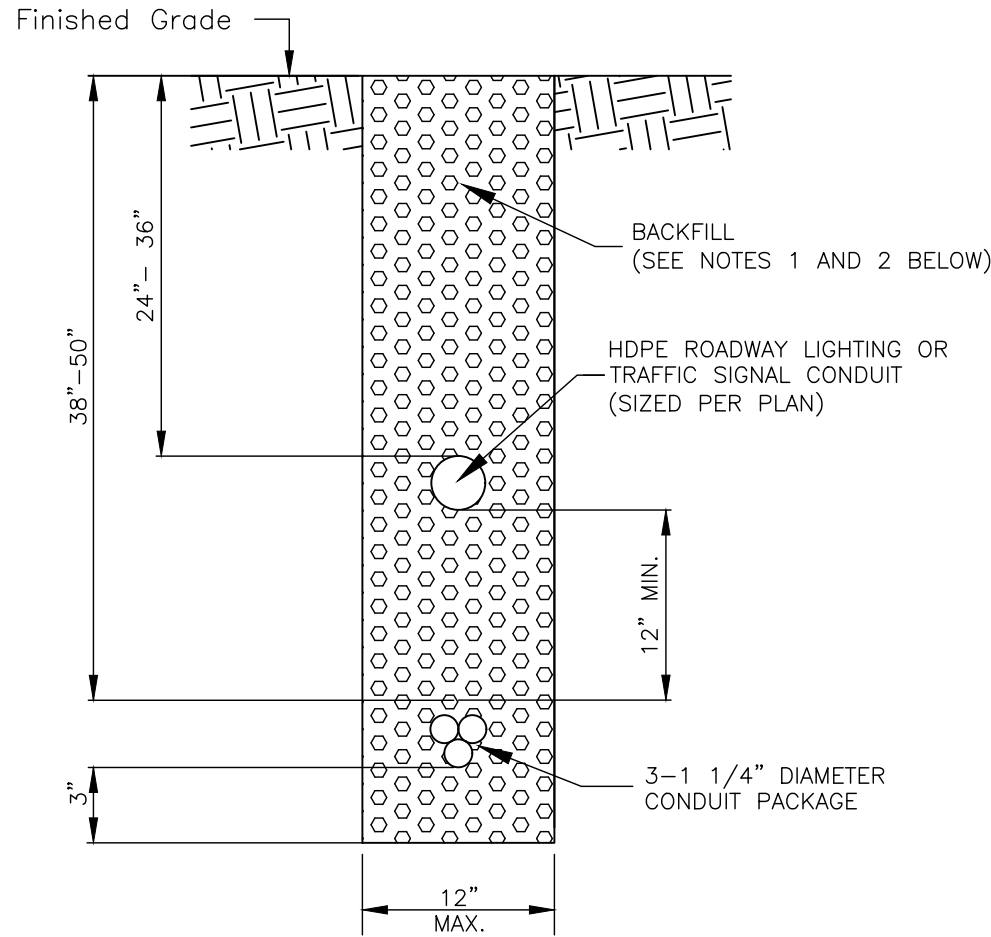




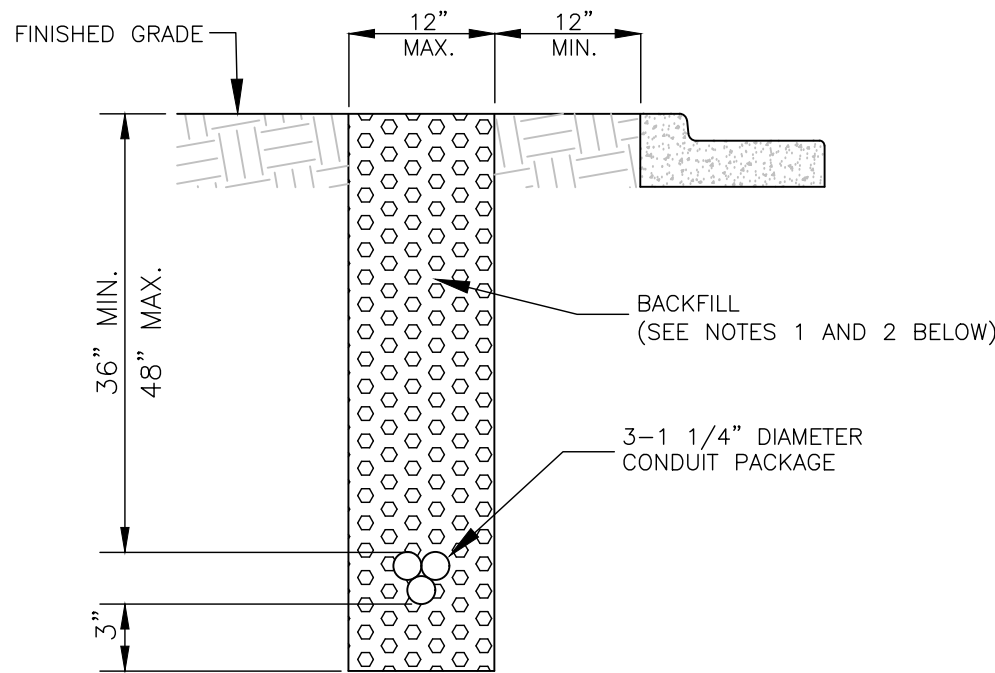
CONDUIT MARKING DETAIL NOTES:

- CONDUIT UNDER ALL ROADWAY SURFACES SHALL BE PLACED A MINIMUM OF 4'-0" BELOW THE BOTTOM OF PAVEMENT AND SHALL EXTEND TO A JUNCTION BOX OR SERVICE BOX. THE CONDUIT SHALL BE INSTALLED TO DRAIN. ALL ENDS SHALL BE CAPPED IF NOT USED. AN ALUMINUM MARKER SHALL BE PLACED IN THE TOP OF THE CURB DIRECTLY OVER THE CONDUIT. ALUMINUM MARKERS WILL BE FURNISHED BY THE CITY OF LAWRENCE.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF LAWRENCE, DEPARTMENT OF MUNICIPAL SERVICES AND OPERATIONS, TRAFFIC SERVICES DIVISION, FOR INSPECTION OF THE CONDUIT INSTALLATION BY THE STREETLIGHTING INSPECTOR, BY CALLING (785)832-3035, AT LEAST 24 HOURS NOTICE SHALL BE PROVIDED. THE CONDUIT SHALL NOT BE COVERED SO AS TO ENSURE PROPER DEPTH, CORRECT CONDUIT MATERIAL, AND PROPER CONDUIT END TREATMENT AS DESCRIBED ABOVE.

CONDUIT MARKING DETAIL



TRENCH W/MULTIPLE CONDUITS IN UNPAVED AREAS



TRENCHING IN UNPAVED AREAS

TRENCHING DETAILS

NOTES:

- ALL TRENCHES FOR CONDUIT UNDER PROPOSED PAVED SURFACES SHALL BE BACKFILLED WITH FLOWABLE FILL.
- BACKFILL IN UNPAVED AREAS SHALL BE EARTH OR AB-3 AND FREE OF RUBBLE AND ROCK. CONDUITS SHALL BE PITCHED TO DRAIN.

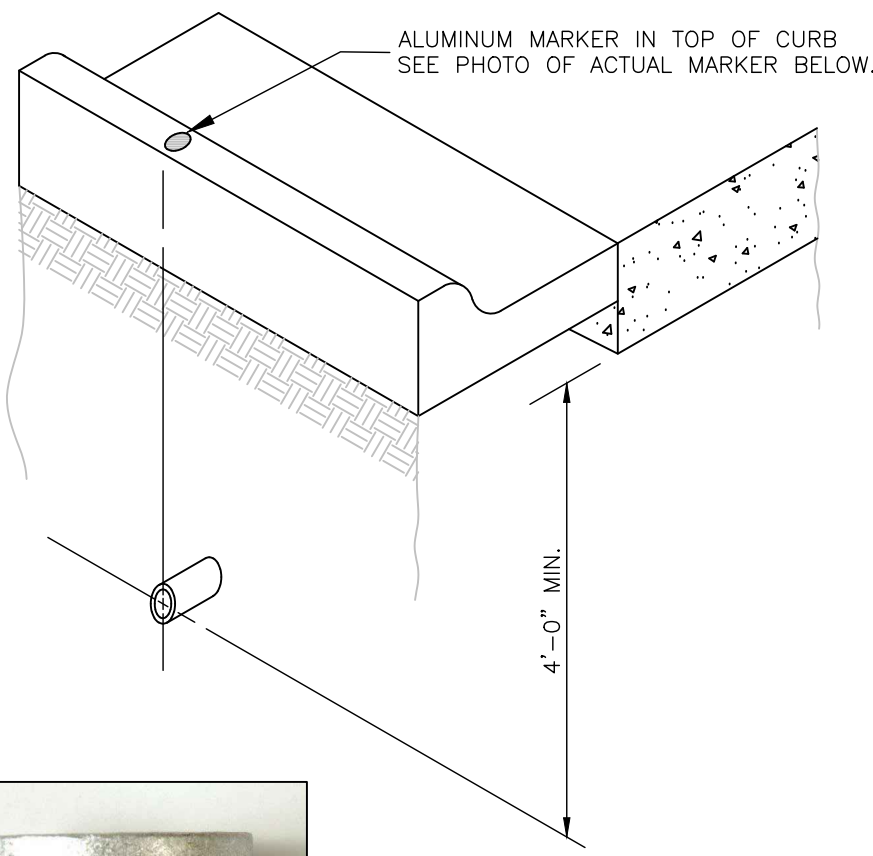
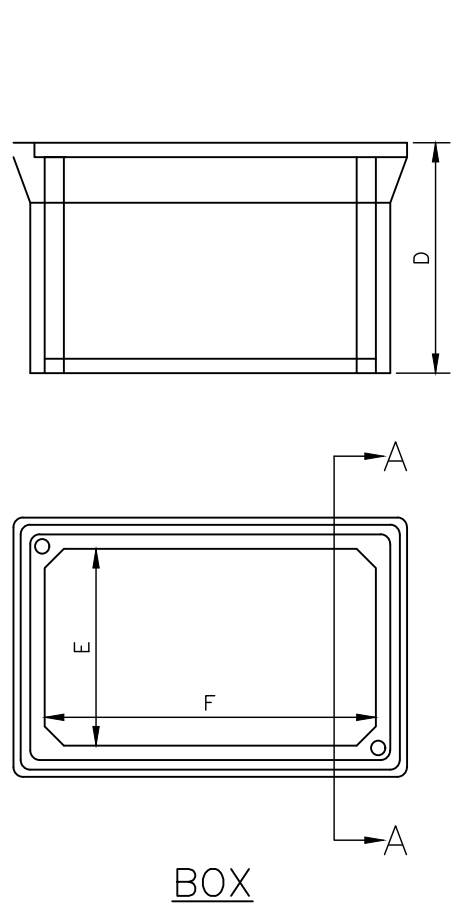
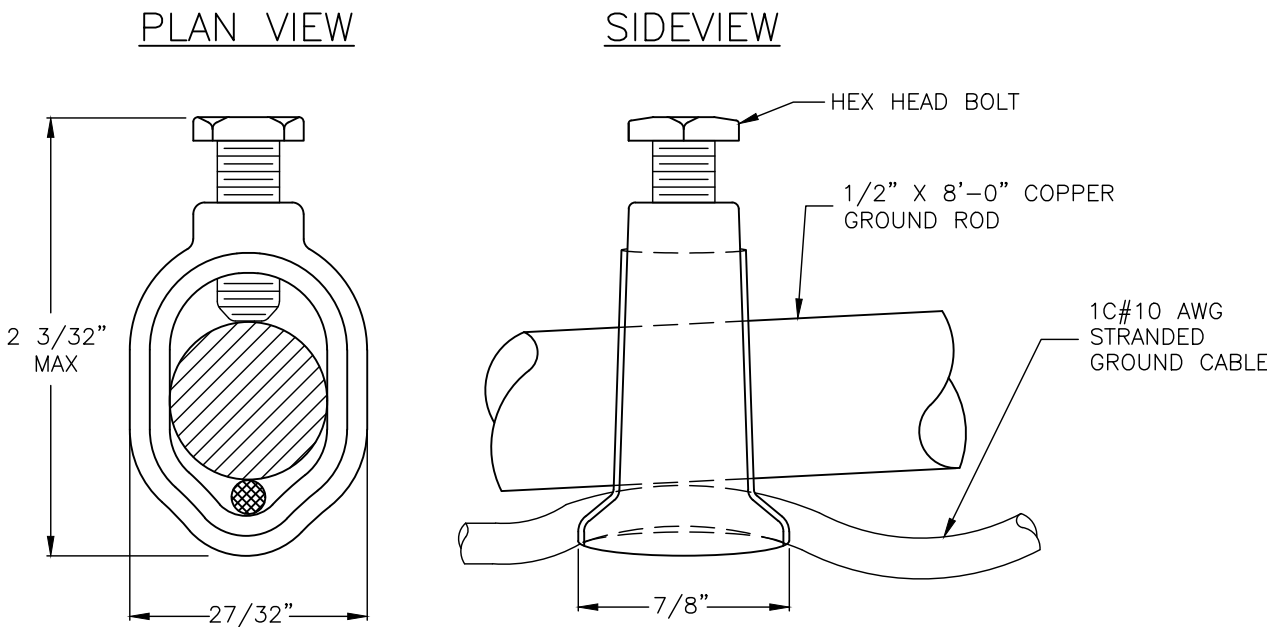


PHOTO OF ACTUAL MARKER

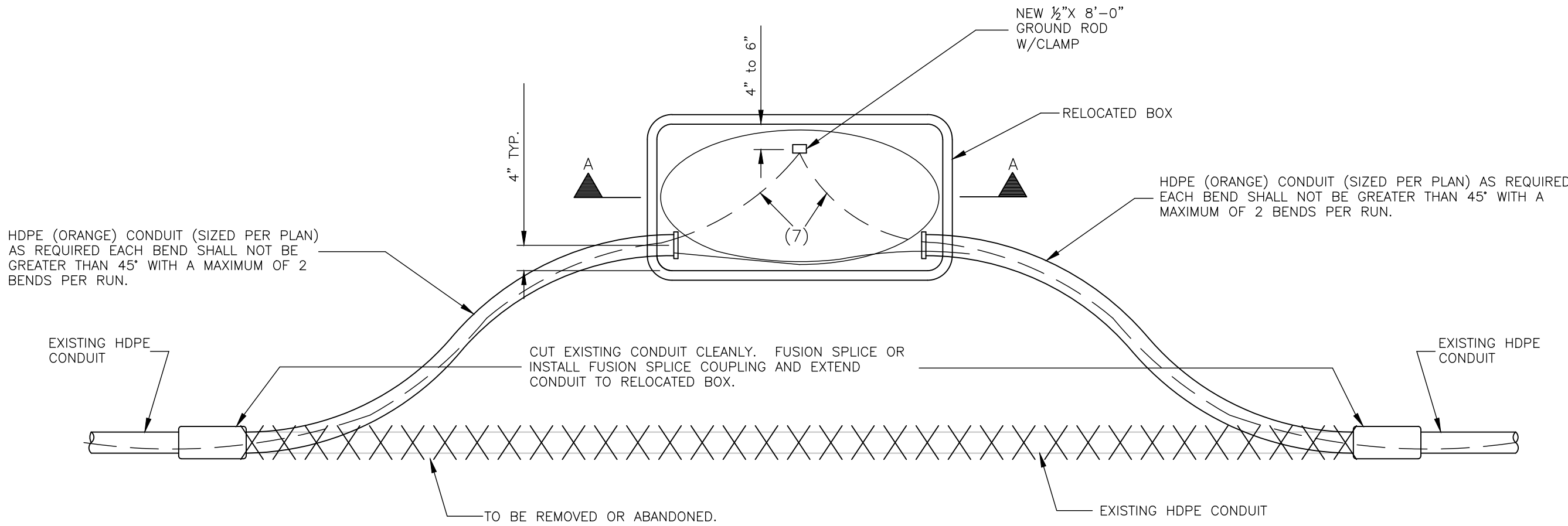


BOX TYPE	APPROXIMATE DIMENSIONS (INCHES)					
	A	B	C	D	E	F
TYPE 1 FIBER	35 5/8	24	3	36	22 1/4	33 7/8
TYPE 2 FIBER (8)	47 5/8	30 1/8	3	36	28 1/8	45 5/8

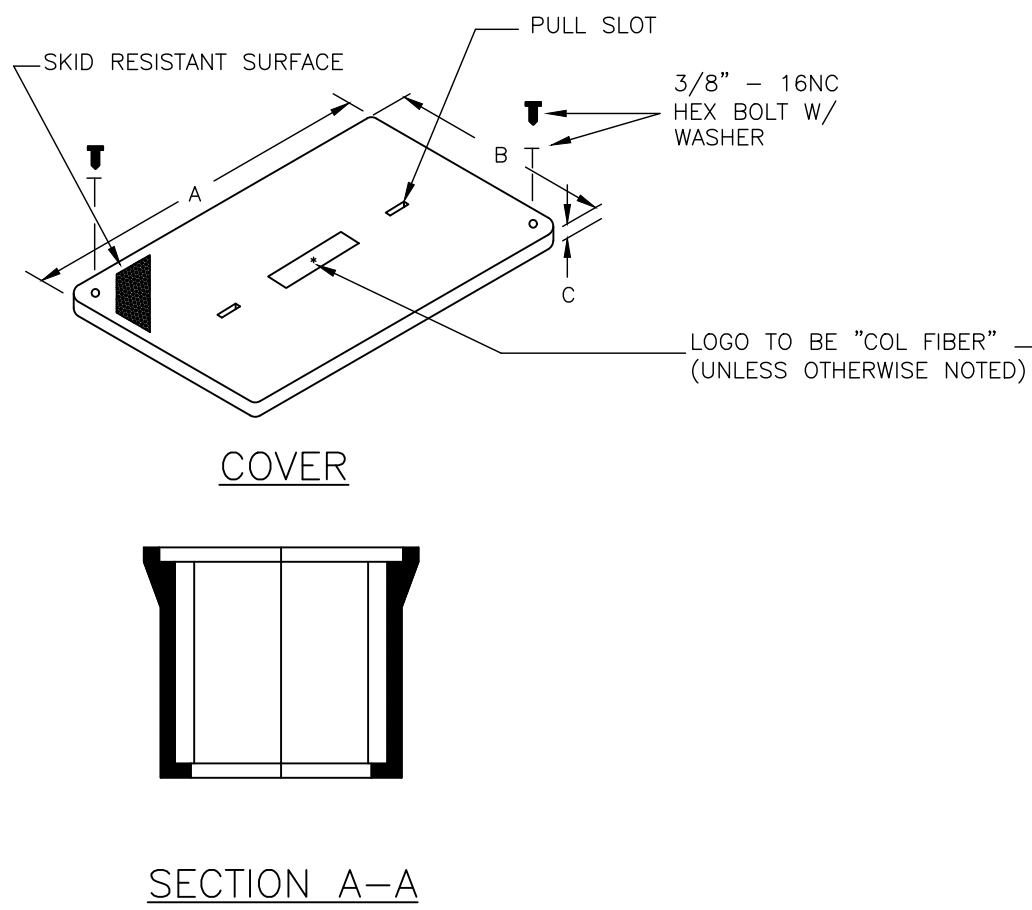
FIBERGLASS REINFORCED POLYMER CONCRETE FIBER OPTIC SERVICE BOX DETAILS



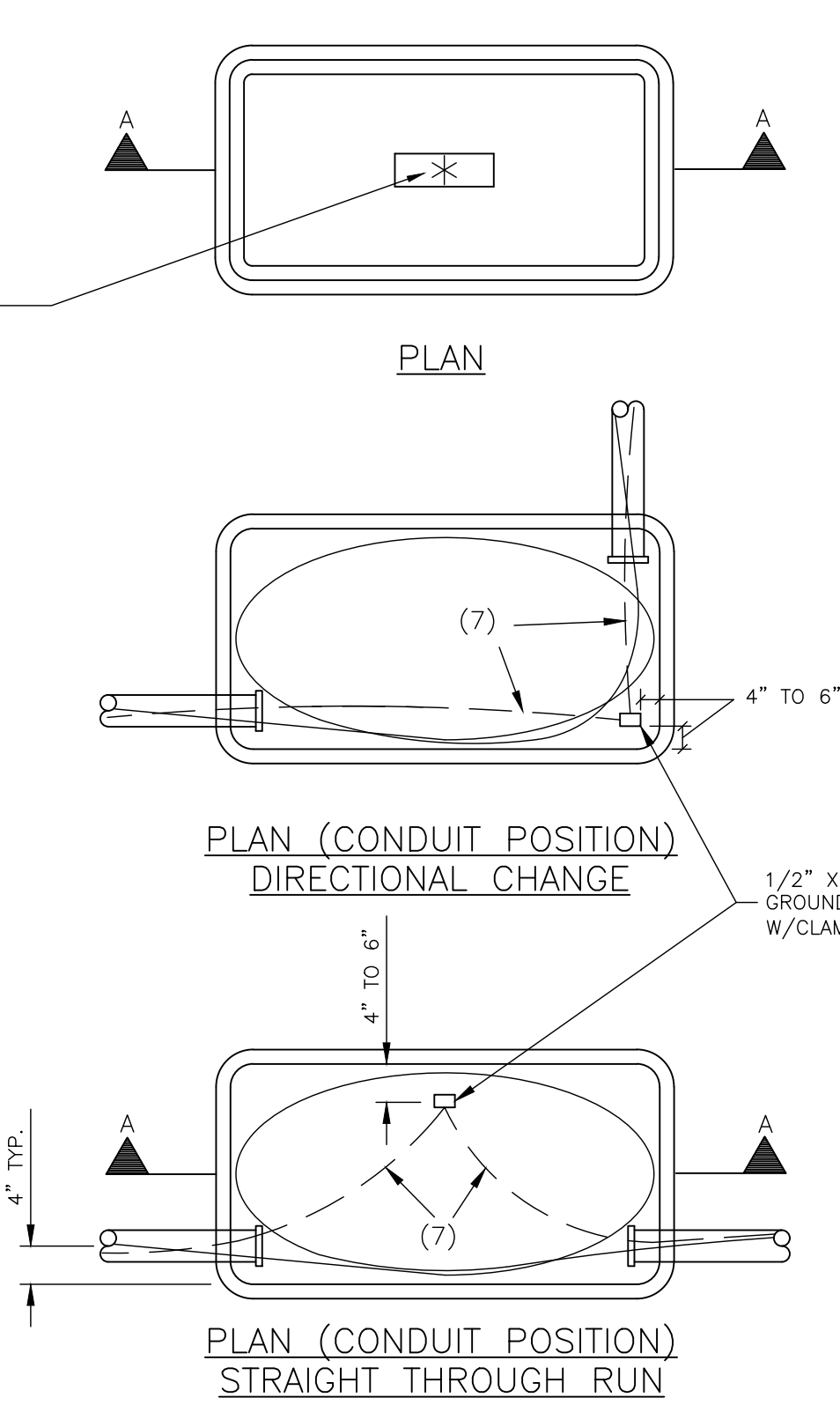
GROUND ROD CLAMP CONNECTION DETAIL



PLAN (CONDUIT POSITION) RELOCATED BOX INSTALLATION DETAIL



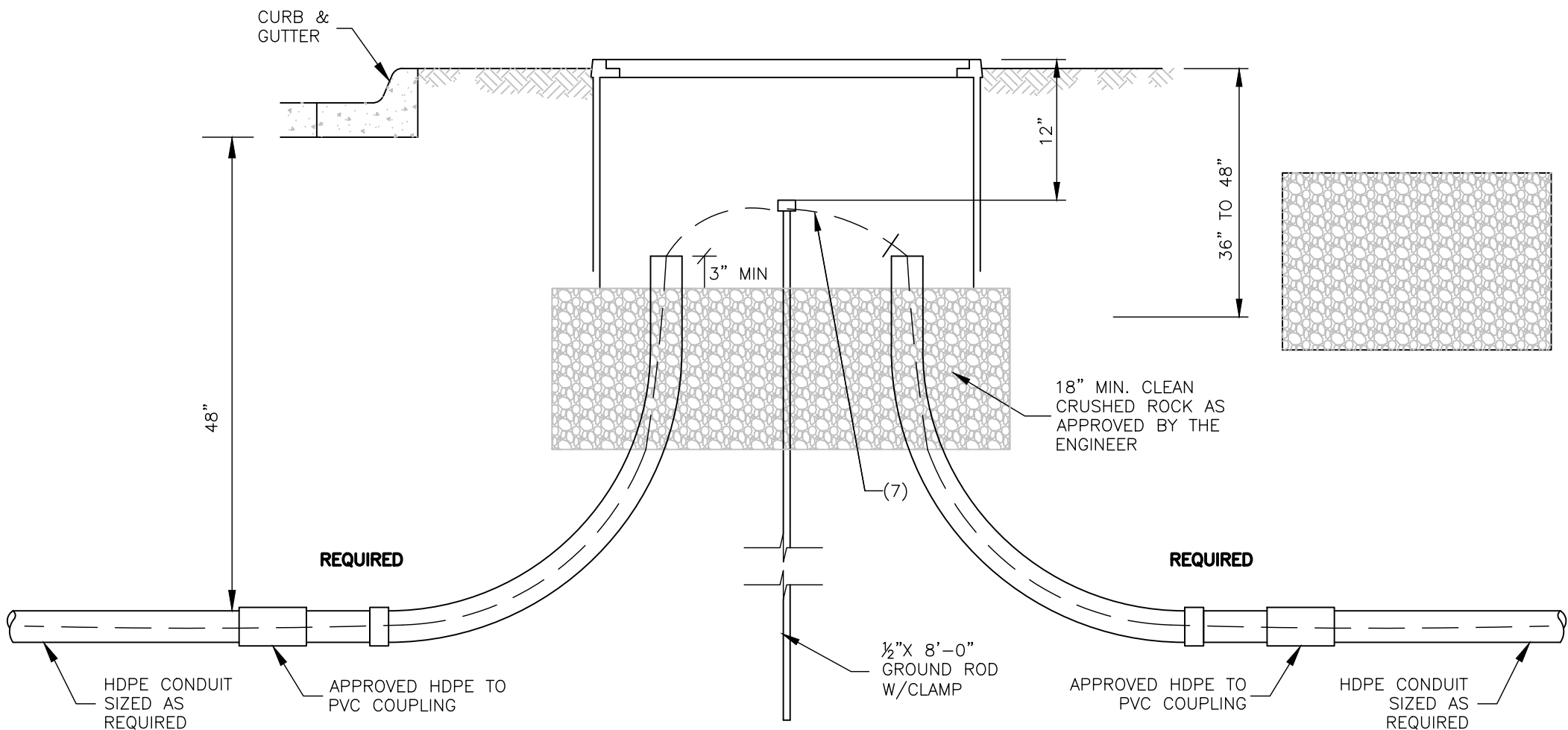
SECTION A-A



PLAN (CONDUIT POSITION) STRAIGHT THROUGH RUN



PHOTO OF ACTUAL PLUG/CAP



SECTION A-A

INITIAL BOX INSTALLATION DETAIL

2024 EDITION

SHEET \_\_\_\_ OF \_\_\_\_

DATE	BY	REVISION
04-01-24	LJM	REPLACES ALL PREVIOUS VERSIONS OF FIBER OPTIC DETAILS
04-01-23	LJM	REPLACES ALL PREVIOUS VERSIONS OF FIBER OPTIC DETAILS

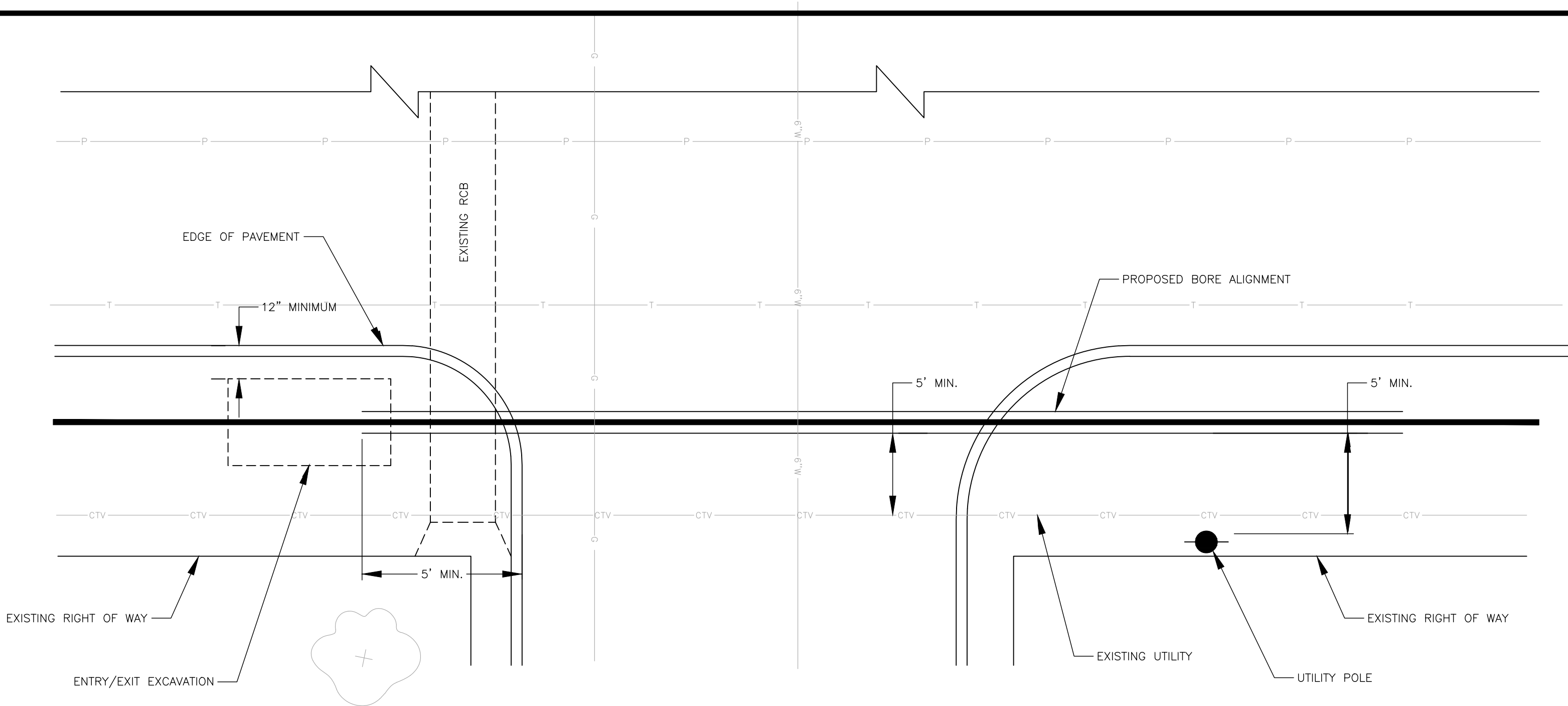


STANDARD DETAILS FOR FIBER OPTIC BOXES AND CONDUIT

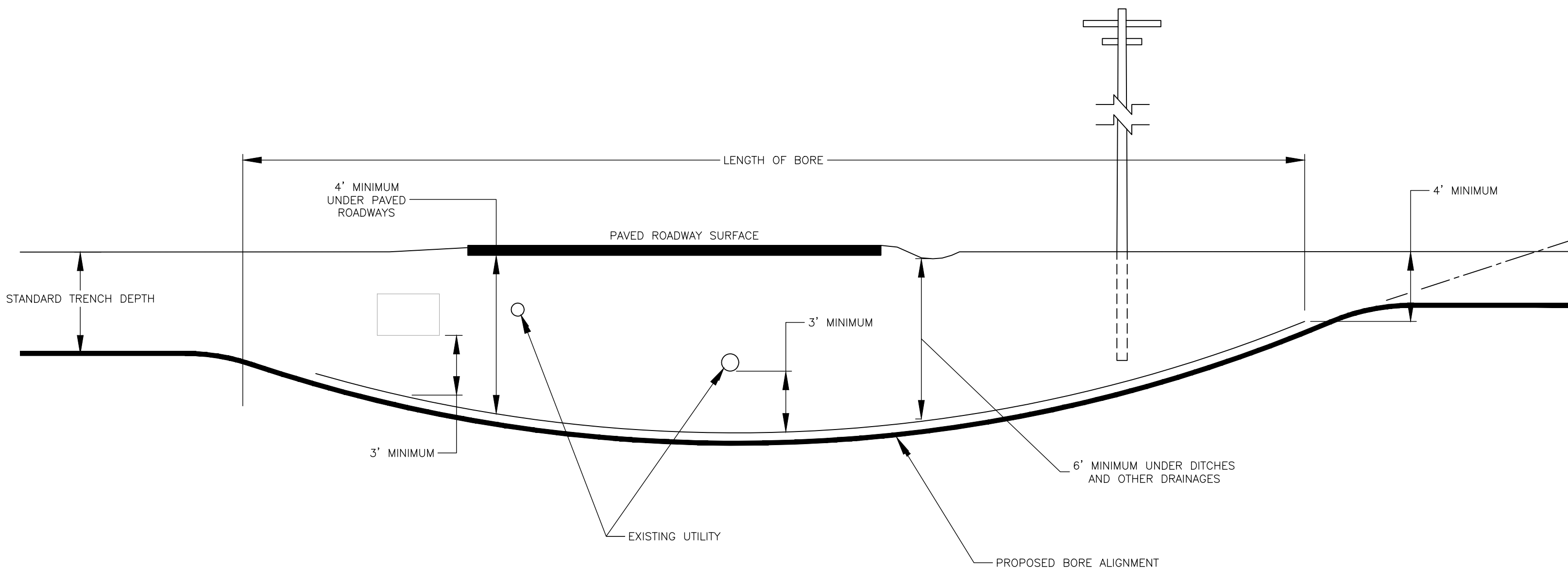
2 OF 4

DAVID P. CRONIN  
CITY ENGINEER

CRAIG S. OWENS  
CITY MANAGER



HORIZONTAL MINIMUM CLEARANCES  
N.T.S.



VERTICAL MINIMUM CLEARANCES  
N.T.S.

HORIZONTAL DIRECTIONAL DRILLING INSTALLATION

- HDD Installation Notes:
1. CITY OF LAWRENCE CODE AND CITY OF LAWRENCE DESIGN AND CONSTRUCTION STANDARDS ARE INCORPORATED, EXCEPT AS OTHERWISE NOTED.
  2. THE PERMITTEE SHALL BE RESPONSIBLE FOR NOTIFICATION OF ONE-CALL SERVICES AND COORDINATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
  3. DRILLING FLUIDS SHALL BE CONTAINED AND REMOVED IMMEDIATELY UPON BORE COMPLETION.
  4. ALL CONSTRUCTION MATERIALS SHALL BE REMOVED FROM THE SITE PRIOR TO RESTORATION OF DISTURBED AREAS.
  5. ALL RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE MANUAL OF INFRASTRUCTURE STANDARDS FOR RIGHT-OF-WAY RESTORATION. IN RESTORING THE RIGHT-OF-WAY, THE PERMITTEE GUARANTEES ITS WORK AND SHALL MAINTAIN IT FOR 24 MONTHS FOLLOWING ITS COMPLETION.
  6. EXCAVATIONS UNDER PAVED SURFACES SHALL BE RESTORED IN COMPLIANCE WITH THE CITY OF LAWRENCE STANDARD DETAILS FOR STREET TRENCHING.

