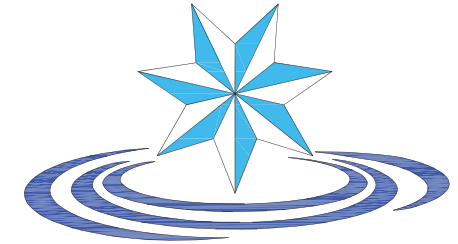




PLANS FOR N 586 Rd Waterline DELAWARE COUNTY RURAL WATER DISTRICT #11

C H E R O K E E N A T I O N
COMMUNITY SERVICES
ENGINEERING & SANITATION FACILITIES CONSTRUCTION



STATE OF OKLAHOMA



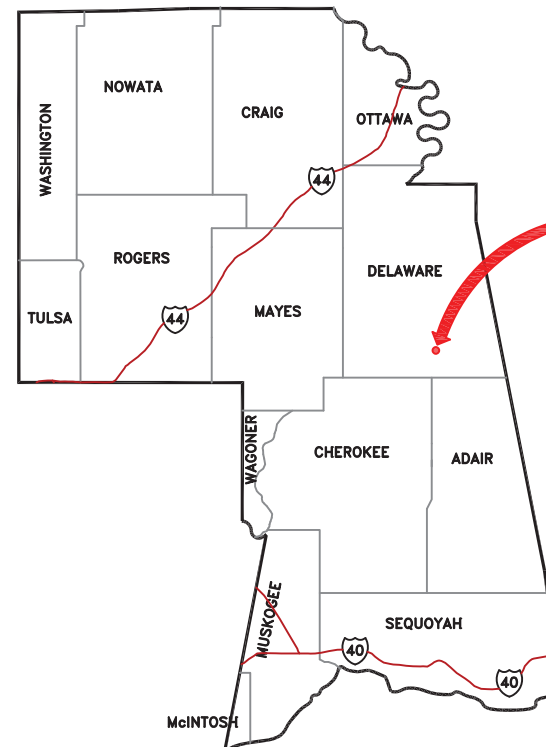
RURAL WATER DISTRICT BOARD OF DIRECTORS

CHAIRMAN...	...CLAYTON WILLIAMS
VICE –CHAIRMAN...	...BILL WELLS
SECRETARY...	...DEREK REYNOLDS
MEMBER...	...BRENT POLLETT
MEMBER...	...JOHN RATCHFORD
MEMBER...	...BOB HUMPHRIES
MEMBER...	...MAX WOLLARD

CONTENTS

SHEET 1 OF 5...	...COVER SHEET
SHEET 2 OF 5...	...LOCATION SHEET
SHEET 3 OF 5...	...PLAN SHEET
SHEET 4 OF 5...	...PLAN SHEET
SHEET 5 OF 5...	...DETAIL SHEET

CHEROKEE NATION

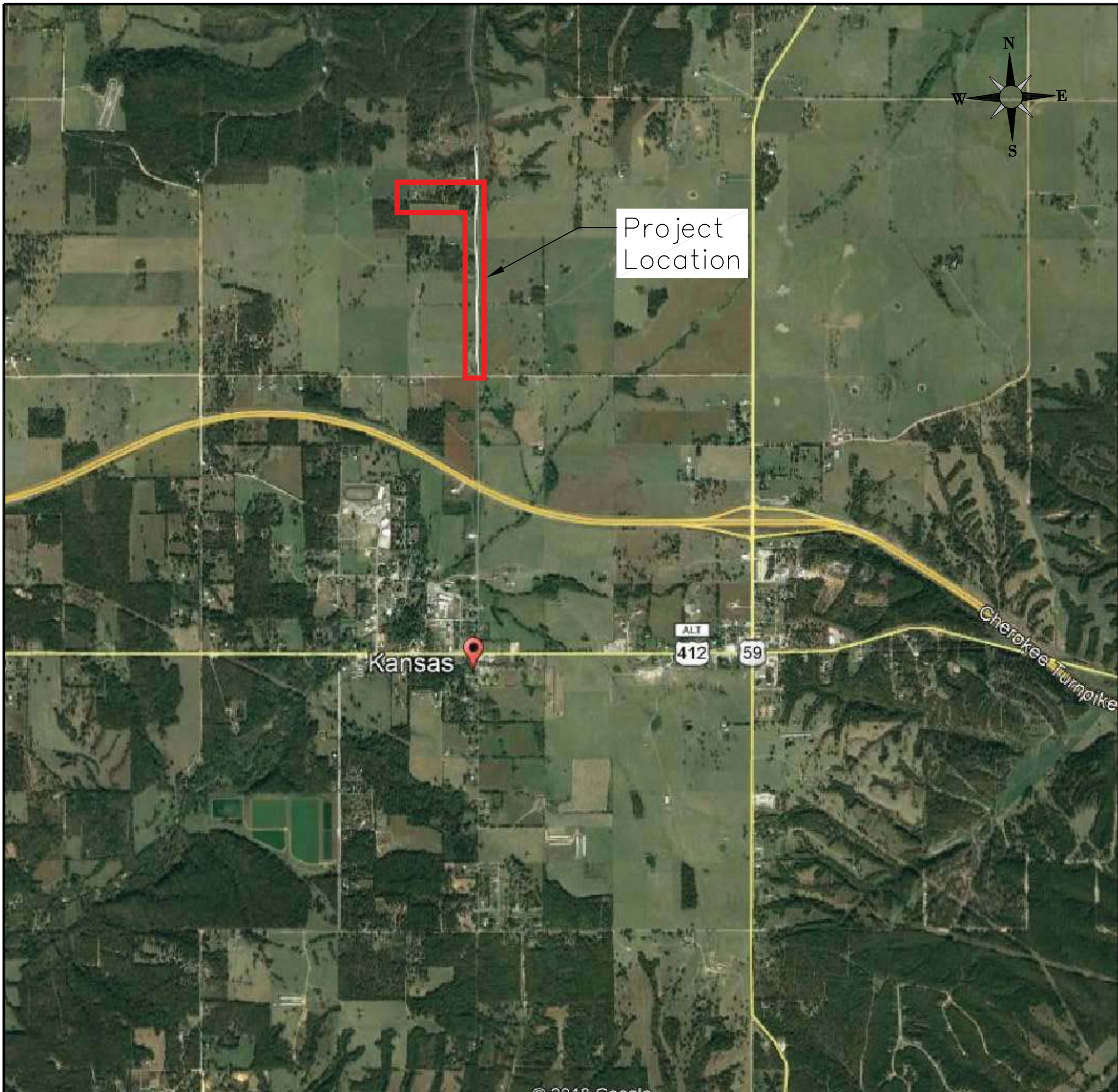


PROJECT
LOCATION



**BEFORE
YOU DIG ...
1-800-522-6543
CALL OKIE**





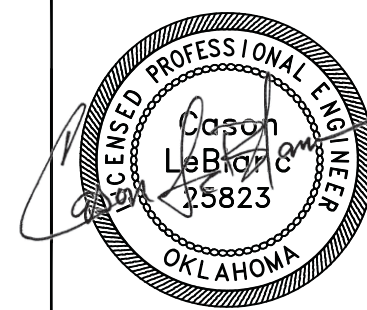
GENERAL NOTES

1. THE CONTRACTOR SHALL CONTACT 'CALL OKIE' AT 1-800-522-6543 AND EACH UTILITY COMPANY PRIOR TO DIGGING TO DETERMINE THE LOCATION OF THEIR FACILITIES. ANY CHANGES IN ALIGNMENT OR GRADE CAUSED BY INTERFERING UTILITIES SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REPAIR OF UTILITIES DAMAGED BY THE CONSTRUCTION.
2. ALL BEDDING, BACKFILLING AND SPECIAL SURFACE CROSSINGS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE DETAILS SHOWN ON PLANS.
3. THE CONTRACTOR SHALL VIDEO ALL PORTIONS OF THE WATER LINE ROUTE AND PHOTOGRAPH THE AREAS SURROUNDING ALL ROAD CROSSINGS PRIOR TO ANY CONSTRUCTION OR CLEARING ACTIVITIES AT THE REQUEST OF THE OWNER OR ENGINEER. THREE COPIES OF THE VIDEO AND PHOTOGRAPH FILES SHALL BE DELIVERED TO THE ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE VIDEOS AND PHOTOGRAPHS WILL BE USED BY THE OWNER AND REPRESENTATIVES OF THE LOCAL GOVERNING BOARD TO CONFIRM THAT THE RIGHT OF WAY RESTORATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS.
4. TOPSOIL SHALL BE REPLACED TO A DEPTH OF 4" OR THE DEPTH OF EXISTING TOPSOIL, WHICHEVER IS GREATER.
5. ALL RESTRAINT JOINTS SHALL BE MIDCO OR APPROVED EQUAL.
6. ENGINEER SHALL PROVIDE BENCHMARK AND HORIZONTAL CONTROL FOR TANK AND PUMP STATION SITES. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION LAYOUT.
7. EXISTING GAS, TELEPHONE AND ELECTRIC LINES ARE NOT SHOWN ON THE PLANS.
8. THE CONTRACTOR SHALL REMOVE AND REINSTALL ALL FENCING AND SIGNAGE REQUIRED TO CONSTRUCT THE PROJECT. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING DURING THE CONSTRUCTION AS REQUIRED FOR SAFETY AND TO PROTECT PRIVATE PROPERTY. NEW FENCING SHALL BE PROVIDED IF THE EXISTING FENCE CANNOT BE REINSTALLED TO ORIGINAL CONDITION. COST TO BE INCLUDED IN COST OF OTHER BID ITEMS.
9. ALL DRIVES AND ROADS SHALL BE REPLACED TO MATCH EXISTING SURFACE TYPE AND DEPTH BUT SHALL HAVE A MINIMUM SURFACE OF 4" OF ODOT TYPE 'A' COMPACTED AGGREGATE BASE.
10. THE CONTRACTOR SHALL PREPARE A 'STORMWATER PREVENTION PLAN' AND EROSION CONTROL MEASURES TO AVOID SILT FROM LEAVING THE JOB SITE. COST TO BE INCLUDED IN COST OF OTHER BID ITEMS.
11. ANY DAMAGE TO THE ROADWAY, PAVEMENT, DRIVEWAYS, SIDEWALKS, YARDS OR FIELDS CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
12. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE, FEDERAL, STATE AND LOCAL LAWS GOVERNING SAFETY, HEALTH AND SANITATION. THE CONTRACTOR SHALL PROVIDE ALL SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT AND TAKE ANY OTHER ACTION TO PROTECT PROPERTY AND PERSONS IN THE PERFORMANCE OF THE WORK.
13. TRAFFIC CONTROL: THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE BOARD OF COUNTY COMMISSIONERS TO ESTABLISH, INSTALL, MAINTAIN AND OPERATE COMPLETE, ADEQUATE AND SAFE TRAFFIC CONTROL DURING THE ENTIRE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL PLACE TRAFFIC CONTROL FLAGMEN, BARRICADES AND OTHER DEVICES WITHIN THE VICINITY OF THE CONSTRUCTION AS REQUIRED BY THE MANUAL OF UNIFORM TRAFFIC CONTROL. COST OF TRAFFIC CONTROL TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
14. ITEMS INCLUDED IN THIS CONTRACT BY NOT INCLUDED IN THE PROPOSAL SHALL BE CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
15. BID ITEMS INCLUDED IN THE BID SCHEDULE SHALL INCLUDE ALL WORK SHOWN ON THE PLANS AND REQUIRED BY THE SPECIFICATIONS IF THERE ARE CONFLICTS BETWEEN THE PAY ITEMS IN THE BID SCHEDULE AND THE SPECIFICATIONS, THE BID PROPOSAL SHALL GOVERN.
16. THE CONTRACTOR SHALL FIELD VERIFY ELEVATION OF ALL EXISTING UTILITY CROSSINGS BY EXCAVATING 100 FEET IN ADVANCE OF WATER LINE CONSTRUCTION.
17. STREETS AND ROADS SHALL BE KEPT OPEN FOR LOCAL TRAFFIC AT ALL TIMES UNLESS APPROVED BY THE LOCAL GOVERNING BOARD.
18. PIPE WILL BE PAID FOR BASED ON THE HORIZONTAL MEASUREMENT.
19. THE CONTRACTOR SHALL CONTACT THE LAND OWNERS WHOSE PROPERTY ACCESS WILL BE DISTRIBUTED BY THE CONSTRUCTION TO REVIEW AND SCHEDULE DRIVEWAY CUTS, PROTECTION OF CATTLE AND FENCE REMOVAL AND REPLACEMENT.
20. LINE TESTING AND STERILIZATION
 - a. ALL LINES SHALL BE TESTED AND STERILIZED IN ACCORDANCE WITH THE MOST RECENT AWWA STANDARDS. WATER TO BE PROVIDED BY THE OWNER FROM THE EXISTING SYSTEM. WATER FOR FLUSHING, TESTING AND STERILIZATION SHALL BE METERED AND PAID FOR BY CONTRACTOR.
 - b. EXISTING VALVE SHALL BE OPERATED BY THE OWNER. THE CONTRACTOR SHALL PROVIDE VALVES, FITTINGS, PUMPS, ETC. REQUIRED FOR THE FLUSHING, TESTING AND STERILIZATION OF THE LINES.
 - c. THE CONTRACTOR SHALL REMOVE AIR FROM LINES TO SATISFACTION OF THE ENGINEER / OWNER. FINAL PAYMENT WILL NOT BE APPROVED UNTIL THE OWNER IS SATISFIED THAT NEW LINES ARE FREE FROM AIR AND FLOWING AT FULL CAPACITY.
21. ALL CONNECTIONS OF POLYETHYLENE PIPE TO VALVES, FITTINGS OR TIE-INS TO EXISTING LINES SHALL BE RESTRAINED USING M/JPE ADAPTER KIT BY INDEPENDENCE PRODUCTS, INC. OR APPROVED EQUAL.
22. THE NEW BARBED WIRE FENCE PAY ITEM SHALL ONLY BE USED WITH THE CONCURRENCE OF THE ENGINEER WHEN SPACE, SOIL CONDITIONS (I.E. ROCK) OR EXISTING UTILITIES REQUIRE THE REMOVAL OF THE EXISTING FENCE. BID PRICE SHALL INCLUDE REMOVAL AND DISPOSAL OF EXISTING FENCE.
23. CONTRACTOR SHALL VERIFY OWNER TO RECEIVE A METER SETTING WITH THE DISTRICT MANAGER AND CONSULT WITH THE DISTRICT MANAGER REGARDING LOCATION OF EACH METER SETTING.
24. SEPARATION REQUIREMENTS
 - a. WATER MAINS SHALL BE AT LEAST 10' HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWER LINES.
 - b. WATER MAINS SHALL BE AT LEAST 5' HORIZONTALLY FROM ANY EXISTING OR PROPOSED STORM SEWERS, RAW WATER LINES, PETROLEUM PRODUCT LINES, NATURAL GAS LINES, AND OTHER BURIED UTILITY LINES.
 - c. CAST IRON WATER LINES SHALL BE AT LEAST 10' HORIZONTALLY FROM ANY GASOLINE STORAGE TANK AND LINES; PVC WATER LINES SHALL BE AT LEAST 50' HORIZONTALLY FROM ANY GASOLINE STORAGE TANK AND LINES.
 - d. WATER LINES SHALL BE AT LEAST 15' HORIZONTALLY FROM ALL PARTS OF SEPTIC TANKS AND ABSORPTION FIELDS OR OTHER SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
 - e. WATER LINES SHALL HAVE A 2' VERTICAL SEPARATION BETWEEN WATER LINES AND ANY EXISTING OR PROPOSED STORM SEWERS, RAW WATER LINES, PETROLEUM PRODUCT LINES, NATURAL GAS LINES, AND OTHER BURIED UTILITIES.

DELAWARE COUNTY
KANSAS QUADRANGLE
SECTION 12
TOWNSHIP 20 NORTH
RANGE 23 EAST

PROPOSED	LEGEND	EXISTING
	Gate Valve	
	Air Relief Valve	
	GV w/ Flush Hydrant	
	Water Line	
	Proposed Crossing	

G=Gravel
A=Asphalt
C=Concrete
B=Bore



LOCATION SHEET
N 586 Rd W/L
DELAWARE COUNTY RWD #11
CHEROKEE NATION
Drawn By: JC Drawn: 11.05.19
Chek'd By: Cason LeBlanc
Scale: NTS Project#: OK19W02
SHEET NO. 2 of 5



STA 0+00
 Beginning 4" DR11 HDPE
 Open Cut Road (30' x 8" HDPE Casing)
 Connect to Existing 10" HDPE
 Install 10" x 4" MJ Tee
 Install 4" MJ Gate Valve



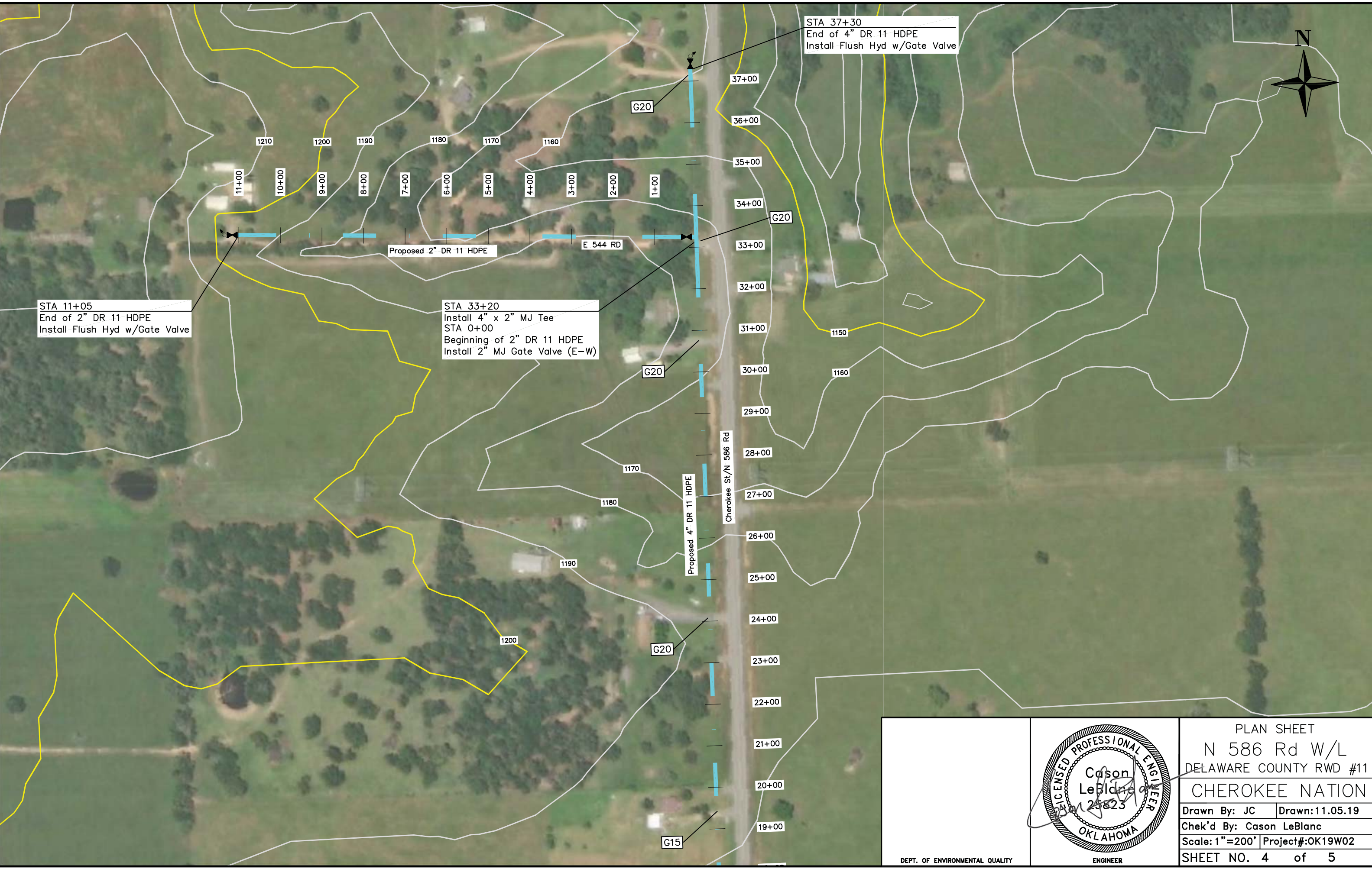
PLAN SHEET
 N 586 Rd W/L
 DELAWARE COUNTY RWD #11
CHEROKEE NATION
 Drawn By: JC | Drawn: 11.05.19
 Chek'd By: Cason LeBlanc
 Scale: 1"=200' | Project#: OK19W02
 SHEET NO. 3 of 5



STA 37+30
End of 4" DR 11 HDPE
Install Flush Hyd w/Gate Valve

STA 11+05
End of 2" DR 11 HDPE
Install Flush Hyd w/Gate Valve

STA 33+20
Install 4" x 2" MJ Tee
STA 0+00
Beginning of 2" DR 11 HDPE
Install 2" MJ Gate Valve (E-W)



G20

37+00

36+00

35+00

34+00

33+00

32+00

31+00

30+00

29+00

28+00

27+00

26+00

25+00

24+00

23+00

22+00

21+00

20+00

19+00

Proposed 4" DR 11 HDPE

Cherokee St/N 586 Rd

E 544 RD

1170

1180

1190

1200

11+00

10+00

9+00

8+00

7+00

6+00

5+00

4+00

3+00

2+00

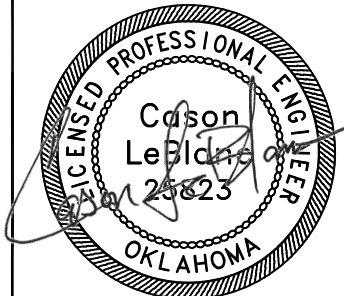
1+00

G20

G20

G20

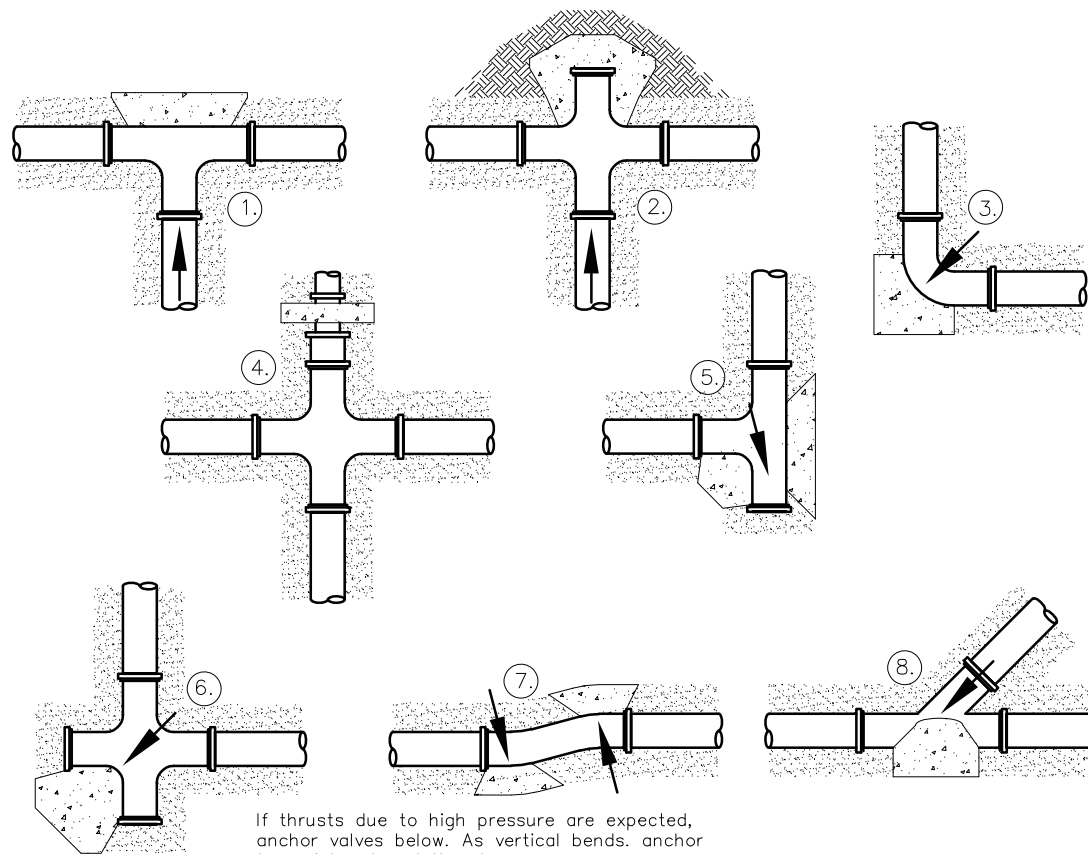
G15



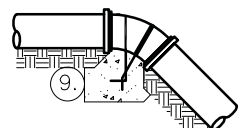
PLAN SHEET
N 586 Rd W/L
DELAWARE COUNTY RWD #11
CHEROKEE NATION
Drawn By: JC | Drawn: 11.05.19
Chek'd By: Cason LeBlanc
Scale: 1"=200' | Project#: OK19W02
SHEET NO. 4 of 5

DEPT. OF ENVIRONMENTAL QUALITY

ENGINEER

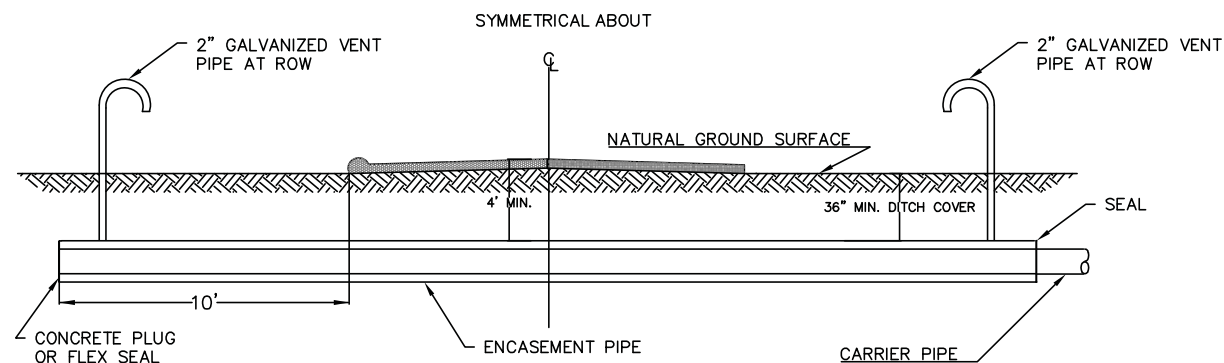


If thrusts due to high pressure are expected, anchor valves below. As vertical bends, anchor to resist outward thrusts.



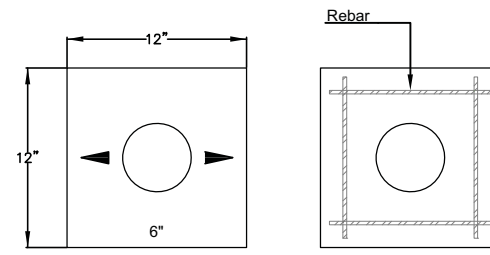
THRUST RESTRAINT
NTS

1. Through line connection, tee
2. Through line connection, cross used as tee.
3. Direction change, tee elbow.
4. Change line size, reducer.
5. Direction change, tee used as elbow.
6. Direction change, cross used as elbow.
7. Direction change.
8. Through line connection, wye.
9. Direction change vertical, bend anchor.



ROAD CROSSING
NOT TO SCALE

- NOTE:
1. ENCASUREMENT PIPE WILL NORMALLY TERMINATE AT TOE OF SLOPE IN FILL SECTION OF HIGHWAY
 2. ENCASUREMENT PIPE SHALL NORMALLY BE TWICE THE DIAMETER OF THE CARRIER PIPE UNLESS OTHERWISE SHOWN.
 3. OPEN CUT DITCH WILL NORMALLY TERMINATE 10' FROM EDGE OF PAVING

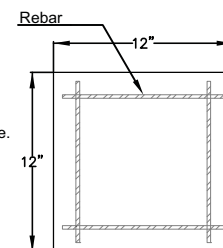


Valve Box Pad
2' by 2' by 3.5"

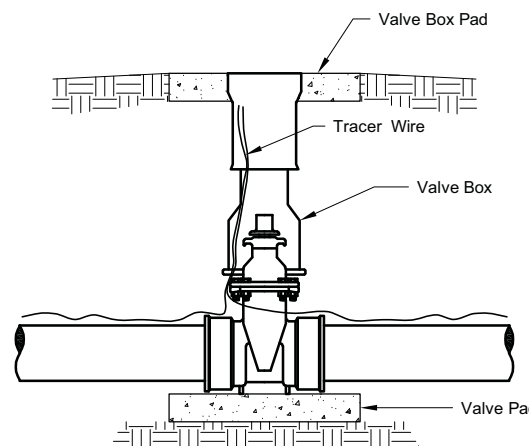
NOTES:

1. Install 3/8" min. rebar as shown.
2. Mark valve size on valve box pad.
3. Mark pipe alignment on valve box pad.
4. Valve pad may be precast or cast-in-place.
5. Inscribed arrows mark the water flow direction.

VALVE PAD DETAIL
NTS

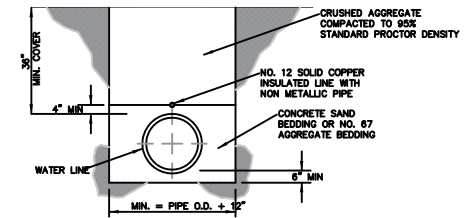


Valve Pad
12" by 12" by 3.5"

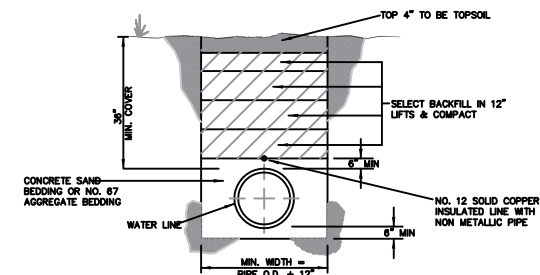


GATE VALVE DETAIL
with Push On-Ends
NTS

- NOTES:
1. Center Valve Box Over Valve Stem
 2. Set Lid of Valve Box Flash with Finish Grade



UNDER STREET, DRIVEWAY OR SIDEWALK

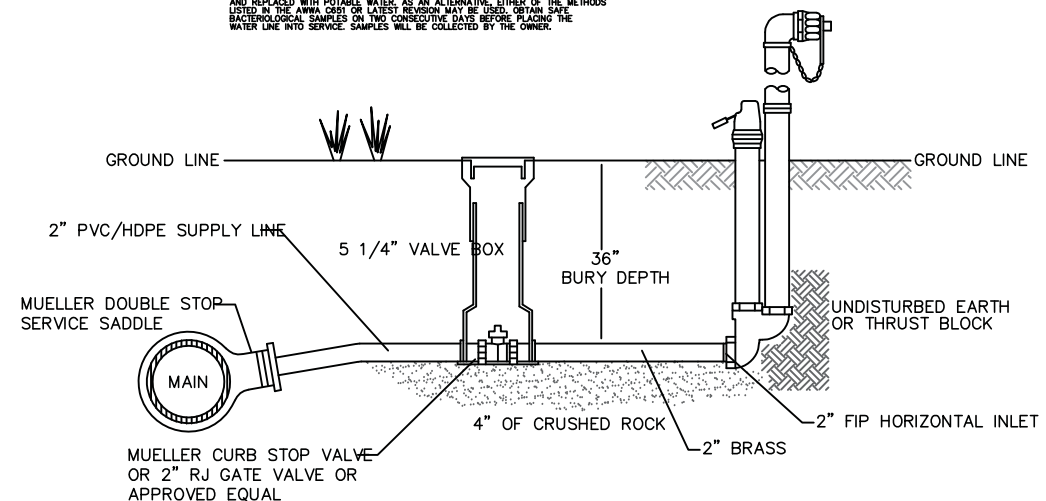


OPEN AREAS

WATER LINE BEDDING DETAIL

GENERAL NOTES:

1. POLYETHYLENE PIPE SHALL BE DR-9 OR DR-11 AS SHOWN ON THE PLANS.
2. PVC PIPE SHALL BE SDR21 CLASS 200.
3. FITTINGS SHALL BE DUCTILE IRON.
4. WOOD RESTRAINTS SHALL BE USED ON ALL FITTINGS AND COST INCLUDED IN PRICE OF PIPE.
5. ALL BEDDING, BACKFILLING AND SPECIAL SURFACE CROSSINGS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE DETAILS SHOWN ON THIS SHEET.
6. ROCKS IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST 15 FEET FROM ALL PARTS OF SEPTIC TANKS AND ABSORPTION FIELDS OR OTHER SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
7. PROVIDE PE PIPE ANCHORS AT 2000 FT ON CENTER AND ENCASE IN CONCRETE. INCLUDE ANCHORS IN THE COST OF BEDDING FOR PIPE.
8. POLYETHYLENE PIPE SHALL BE ALLOWED TO COOL OVERNIGHT IN THE TRENCH TO ALLOW SHRINKAGE PRIOR TO MAKING TE-INS IN ORDER TO PREVENT PULL-OUTS.
9. WATER MAINS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY SEWER LINES, 6 FEET FROM STORM SEWERS, RAW WATER LINES, PETROLEUM PRODUCT LINES, NATURAL GAS LINES AND OTHER BURIED UTILITY LINES, 50 FEET FROM ANY GASOLINE STORAGE TANKS AND LINES AND AT LEAST 15 FEET FROM ALL PARTS OF SEPTIC TANKS AND ABSORPTION FIELDS OR OTHER SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
10. DISINFECTION: ALL NEW OR REPAIRED POTABLE WATER MAINS SHALL BE DISINFECTED WITH 30 TO 100 PARTS PER MILLION OF CHLORINE. CHLORINE SHALL BE ALLOWED TO STAY IN SOLUTION FOR AT LEAST 24 HOURS AND DEVELOP A RESIDUAL OF AT LEAST 2 PARTS PER MILLION. SPENT SOLUTION SHALL BE FLUSHED AND REPLACED WITH POTABLE WATER. AS AN ALTERNATIVE, THE METHODS LISTED IN THE AWWA COST OF WATER TREATMENT MANUAL MAY BE USED. OBTAIN BACTERIOLOGICAL SAMPLES ON TWO CONSECUTIVE DATES BEFORE PLACING THE WATER LINE INTO SERVICE. SAMPLES WILL BE COLLECTED BY THE OWNER.



FLUSH HYDRANT DETAIL

NTS

POST HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH A 3' BURY. THESE HYDRANTS WILL BE FURNISHED WITH A 2" FIP HORIZONTAL INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN LEFT. BRONZE OPERATING MECHANISM AND ALUMINUM PLUNGER DESIGN, AND BE SERVICEABLE FROM ABOVE GRADE WITH NO DIGGING. THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NST. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE AS MANUFACTURED BY KUPFERLE FOUNDRY CO. ST. LOUIS, MO. OR APPROVED EQUAL.

DEPT. OF ENVIRONMENTAL QUALITY		DETAIL SHEET	
		N 586 Rd W/L	
		DELAWARE COUNTY RWD #11	
		CHEROKEE NATION	
		Drawn By: JC	Drawn: 11.05.19
		Chek'd By: Cason LeBlanc	
		Scale: NS	Project #: OK19W02
		SHEET NO. 5 of 5	