

Turnpike:	John Kilpatrick
Mile Post:	126.6
License No:	242 121

OKLAHOMA TURNPIKE AUTHORITY

LICENSE FOR UTILITY CROSSING

This license is executed in the original and three copies this 2 day of March, 2021 by the Oklahoma Turnpike Authority hereinafter called the Authority, Witnesseth.

That the Authority does by these presents, grant to:

Licensee Oklahoma City Water Utilities Trust
 Mailing Address 420 W. Main Street, Ste. 500, OKC, OK 73102
 Telephone 405 - 297-2422

A license to erect, construct, and maintain a 2700 feet along, upon, or across the John Kilpatrick Turnpike for the purpose of transporting, selling, and using Potable Water and shown on the attached drawing(s) and further described as follows: See Attached – Exhibit “A”. Any future maintenance must be approved at least one week in advance with the OTA Turnpike Maintenance Superintendent.

LOCATION FROM NEAREST MILE POST OR BRIDGE STRUCTURE: _____

Legal Description as Followed:

NW Quarter Section 13 Township 13N Range 4W County - Oklahoma

The installation will be made in the following manner:

The installation will be made in the following manner: The waterline will be install with open section trenching within the OTA right of way limits. There will be a section bored under the existing waterway but this will not impact OTA right of way.

Size of line - 20 inch Size of casing - None

Before planning a utility facility on any Authority right-of-way, a license must be obtained, using standard forms furnished by the Authority. All information requested on the form must be supplied. Drawings clearly illustrating work to be performed within the right-of-way and all other utility facilities in the area of this license should be provided with the license application. Each crossing must be represented by an actual profile and cross-section, regardless of the type of utility being installed or its function. The fence on both sides shall be flagged to allow inspection of the proposed crossing.

This license is granted subject to the following conditions, requirements, and covenants, to-wit:

- A) The AASHTO publication “A Policy on the Accommodation of Utilities within the Freeway Rights-of-Way.”
- B) The OTA Turnpike Maintenance Superintendent must be notified when the work is to begin and when it is complete for final inspection. Under no circumstance will any work be done on Authority right-of-way until a license has been obtained. No work will be done on Authority right-of-way on Saturdays, Sundays, Holidays or after dark unless

approved by the OTA Maintenance Superintendent. The OTA Maintenance Superintendent may require a pre-construction conference.

C) One copy of the approved license must be kept at the work site for inspection by the Engineer or his representatives. Licensee is to have an independent inspector from ODOT's list of approved inspectors or an engineer present at all times during construction to insure that installation is made in accordance with plans and specifications approved by the Authority. No deviation from the approved plans and specifications will be made without the written approval of the Authority.

D) The Licensee must agree to hold the Authority harmless for any damage or injury to persons or property caused by or resulting from the construction, maintenance, operation, or repair of his facilities on, under, or over the Authority right-of-way, and must further agree to reimburse the Authority for repair of any damage to Authority facilities caused by the construction, maintenance and/or operation of the facility. The applicant will be responsible for any damage resulting from deviation of the assigned crossing corridor.

E) No driveways, local roads, county roads, ditch liners, structures or surfaced areas will be cut unless approved by the Engineer.

F) All work on the Authority right-of way is to be done in accordance with the current "Standard Specification for Turnpike Construction," which is incorporated herein by reference as if fully set out. At the conclusion of such work, the right-of-way must be cleaned up and left in a presentable condition. Cleanup will include replacing any protective grass cover destroyed by trenching or the operation of any equipment, and correcting any other damage that may have been caused, as directed by the OTA Maintenance Superintendent.

G) The Licensee must furnish all flagmen, lights, barricades, and warning signs during the construction, maintenance, or repair of his facilities on the Authority right-of-way, as required by "The Manual on Uniform Traffic Control Devices."

H) In some cases, the Licensee must post a performance bond in an amount determined by the Engineer. Necessity for such bond will be determined by the Engineer and the bond will be held in his office until the right-of-way is in a presentable condition.

I) Access for constructing a utility will be from outside the Authority right-of-way. Free use of through lanes or ramps by company personnel, machinery, or equipment to reach the work site will not be permitted. When construction equipment must be used within the right-of-way, the owner's plan must designate point of entry and departure of equipment. If deviation from access policy is to be requested, the Engineer should be consulted prior to development of a final plan.

J) When notified to do so by the Authority, the Licensee agrees to make all changes in the facilities on Authority right-of-way within the Authority's established time period at the applicant's own expense. When the Authority needs to make changes in the right-of-way the Licensee shall immediately proceed with relocating the utility lines as directed by the Authority. When notified the utility lines will be relocated at Licensee's own expense.

K) Aerial Facilities - Clearance above the traffic lanes of the highway at all pole line crossings should comply with applicable safety codes, and will not be less than 20 feet. All poles, posts, stubs, fixtures, down guys, wires, and other appurtenances must be kept in good repair at all times, and must be outside the highway right-of-way unless approved by OTA. Facilities located on the highway right-of-way outside the control of access limits must be kept free of weeds and brush within five feet of the installation. All crossings should be as nearly perpendicular as possible. Any deviation must be approved by the Engineer.

L) Underground Facilities - All encased crossings should have casing from right-of-way line to right-of-way line and be sealed at both ends with an approved conduit seal (standard neoprene, rubber and comparable seals will be approved) and vented outside the right-of-way lines. The top of the conduit should be a minimum of 60 inches below the top of pavement, but not less than 30 inches below the bottom of the ditches. The casing must be designed to sustain roadway loadings, contain and divert from the roadway the contents of the carrier pipe, and have a life expectancy equal to or greater than the carrier pipe. The vents should be sized to allow proper release of carrier pipe contents in case of failure. The minimum pipe size for vents is 2 inch nominal, and the vent must extend a minimum of 36 inches above natural ground level. The owner must install identification markers at each right-of-way fence, and should be placed over parallel underground facilities at each change in direction and not more than 1000 foot intervals. The markers may be in the owner's standard design, but must clearly identify the owner stating address, telephone number and emergency contact, size of facility, and must be at least 130 sq. inches in area. They must also be erected at a location plainly visible from within the highway right-of-way.

All underground electric cables crossing a highway must be placed in a conduit and be a minimum of 48 inches below the ditch flow lines. Conduit placed beneath a roadway should be steel. PVC or fiberglass conduit may be used if it is designed to withstand highway loading and is properly protected. Encasement for underground power lines, or similar facilities, should comply with the above requirements for aerial facilities except for the installation of vents, and seals, and the ability to contain and divert. Methods for boring the roadway shall be the same as for any other bored crossing. Encasement for underground communication lines is not required.

Steel Pipelines crossing the OTA right-of-way shall be designed and constructed in accordance with the quality maintained by industry standards. Steel pipelines crossing the right-of-way may be installed without encasement if the installation is in accordance with the following: 1) carrier pipe material within the right-of-way must be superior to the carrier pipe material outside the right-of-way by being of steel at least one grade better and of the same wall thickness, or a minimum of one wall thickness greater and of the same alloy, 2) pipe must be 48 inches below the flow line of drainage ditches and all other highway drainage facilities, and must be properly protected from corrosion. When the construction consists of coated pipe and hard formations are encountered, the pipe being installed in bored or punched holes must be protected to prevent damage, 3) all installations will be made in accordance with the requirements of the Oklahoma Corporation Commission and the Oklahoma Turnpike Authority, and 4) all installation of facilities and repair work in the event of failure will be performed in accordance with the AASHTO publication "A policy on the Accommodation of Utilities of Freeway Rights-of-Way," and more specifically, service will not be rendered from through traffic lanes or ramps.

Water and sanitary sewer lines crossing the OTA right-of-way may be approved without encasement, if cast or ductile iron or material of equal design is used, with the understanding that maintenance in the event of failure will be performed in accordance with the AASHTO publication on Accommodation of Utilities noted above. If a replacement facility becomes necessary, replacement will be made by boring or punching under the roadway or by inserting replacement pipe through the existing pipe, or any other approved method that will prevent disturbance of the highway. HDPE AC, PVC, or equivalent material lines will not be permitted without the use of a steel or equivalent material, conduit. In any case, all conduit shall be sufficient to withstand roadway loadings.

All underground crossings must be installed by boring or punching or other approved methods. The method and equipment for the installation must be approved by the Engineer. When boring beneath a roadway, drilling fluid may be used provided the elevation is a minimum of 5 feet below the subgrade. Sufficient drilling fluid for lubricating the bit is acceptable; however, jetting or pressure flushing of the bore will not be permitted. The alignment of the bore is to be established by drilling a pilot hole before beginning the full size bore. Monitoring shall be accomplished by computer generated bore logs which map the bore path based on information provided by the locating/tracking system. Readings or plots shall be obtained on every drill rod, and shall be provided to the Inspector on a daily basis. Upon completion of the bore applicant will furnish an As-built drawing along with a report of the Monitoring of the drilling fluids during the pilot hole and back reamed hole.

Excess drilling fluids shall be contained at the entry and exit points until recycled or removed from the site. The applicant shall ensure that all drilling fluids are disposed of in a manner acceptable to the appropriate local, state and federal regulations. The applicant's work will be immediately suspended by the inspector whenever drilling fluids seep to the surface other than in the boring entrance or exit pit, or when a paved surface is displaced. The applicant shall then propose a method to prevent further seepage and/or displacement, and shall remove and dispose of any drilling fluid, slurry and soil from the paved surface prior to resuming the boring operation.

When drilling fluid is used, the annular space outside the conduit or carrier pipe is to have grout placed at a minimum of 10 PSI pressure, to insure against cavities beneath the roadbed. No work or equipment will be permitted in medians.

When larger diameter pipe/conduit is placed, construction should be done by either jacking, dry boring, or tunneling. When boring in cohesionless materials, jacking, dry boring, or tunneling shall be done in conjunction with the advancement of a conduit/pipe. When boring in Bentonite Clay or equivalent material, drilling mud shall be required at the ends of the bore for a minimum distance of 1 foot. A natural clay or concrete plug will be acceptable for other bores.

Time to complete a bore shall be kept within the limits of open boring or advancing a conduit that can be properly reamed and cleaned out within one working day. Under no circumstances shall muck or water be left standing inside the bore at the end of a working day, or due to a break-down of equipment of more than eight hours.

Pressure grouting of the voids will be required when the diameter of any bore exceeds the outside diameter of the pipe by 2 inches or more. Other voids that could potentially impact the stability of the overlying pavement shall be grouted or otherwise backfilled, subject to Authority approval. No trenching will be allowed inside the control of access limits unless approved by the Maintenance Superintendent. In the interest of safety, no trenching shall be performed or equipment parked within 30 feet of the edge of the traffic lanes.

M) The Licensee must agree to refrain from disturbing trees, shrubbery, or any part of the landscape without approval of the Maintenance Superintendent. If it becomes necessary to disturb trees or shrubbery, the licensee's intentions must be plainly stated in the application which will include size and kind of trees and shrubs, and disposition during installation.

N) The applicant agrees to comply with all applicable laws and regulations necessary to meet the Oklahoma Department of Environmental Quality (ODEQ) requirement for pollution prevention including discharges from storm water runoff on this site. Further, the Applicant agrees as stipulated in the ODEQ's General Permit to secure a storm water permit with the ODEQ, when required. When required, the Applicant will prepare a storm water management plan for this permitted activity which shall include a location map in the form of plan sheets, specifications and schedule for accomplishing the temporary and permanent erosion control work. The Applicant agrees to have daily operational control of those activities at the site necessary to ensure compliance with plan requirement and permit conditions. The Applicant agrees to file the Notice of Intent (NOI), when required, for a general construction Oklahoma Pollutant Discharge Elimination System (OPDES) permit with ODEQ which authorized discharges of storm water associated with utility activities from the site identified in the document.

O) It is uncertain as to whether there are environmental issues that may affect the strip or segment of land now maintained by the Authority as a Turnpike. Testing to determine the existence or extent of any such issues within the right-of-way of the Turnpike is determined to be both invasive and destructive and may well result in the compromise of the Turnpike structure. Therefore the decision may have been made to leave any such environmental issues in place and to make the use of the described strip or segment of land subject to restrictive covenants, generally filed of record within the County Courthouse. The Applicant is solely responsible for conducting a due diligence review of courthouse records to determine if any restrictive covenants have been filed privately or publicly due to the presence of environmental issues within the Authority's right-of-way. Applicant is, additionally, solely responsible for conducting the research and complying with any and all such restrictive covenants as recorded. Further, the Applicant is solely responsible for the safety of their employees and/or contractors as it relates to their work within the Authority's right-of-way. The strip or segment of land identified as to contain restrictive covenants shall now and hereafter be subject to the restrictive covenants and without the express consent of the Engineer, Engineering Division, there shall be no residential use of the described land; nor shall any activities be allowed which cause or allow for the erosion of the surface soils to expose any underground environmental issues; nor shall ground water to be taken from or used from the described lands; nor shall the drilling of wells on said lands be permitted, unless approved by the Engineer, Engineering Division. Generally, there shall be no excavation below the base material of the road bed.

P) The Applicant agrees to perform a Title Search of existing Authority right-of-way to determine if the area of placement of this facility will occupy right-of-way currently held by easement from the U.S. Department of Interior, Bureau of Indian Affairs or U.S. Army Corps of Engineers. If it is determined that this facility will occupy an easement of this nature, the Applicant will provide a copy of the easement granted by the appropriate U.S. Governmental Agency. The Applicant is solely responsible for this action and will hold the Oklahoma Turnpike Authority harmless for failure on their part to secure the necessary easement.

Q) The Licensee must be familiar with the AASHTO Policy referred to above, particularly that portion which prohibits the installation or future maintenance of a utility facility from through traffic lanes or ramps.

R) The Licensee must agree to hold the Authority harmless for any and all damages that the utility facilities might sustain while occupying Authority right-of-way.

S) The Licensee must agree to notify all owners who have facilities in the area encompassed by this license before beginning any work.

This license may be revoked for noncompliance or failure to begin work within a one year period of date of approval.

PIPELINES

Construction Specifications	Outside R/W	Inside R/W
Steel Alloy/Grade	<u>PVC</u>	<u>PVC</u>
Nominal Diameter	<u>20 inch</u>	<u>20 inch</u>
Wall Thickness or Weight/Ft.	<u>1.433inch</u>	<u>1.433inch</u>
Contents	<u>Potable Water</u>	<u>Potable Water</u>
Test Pressure (PSIG)	<u>235</u>	<u>235</u>
Working Pressure (PSIG)	<u>65</u>	<u>65</u>
Maximum Pressure Pipeline will be Operated (PSIG)	<u>85</u>	<u>85</u>

ELECTRIC

Voltage _____
Conductor Size _____
Type of Structure _____
Ruling Span _____

TELEPHONE

Wires/Pairs _____
Gauge _____
Cable Type _____

Chris Browning
Licensee (President, Owner, or Authorized Agent)
Printed Name Chris Browning
Date 3/2/21



Subscribed and Sworn to before me this 2 day of March, 20 21.

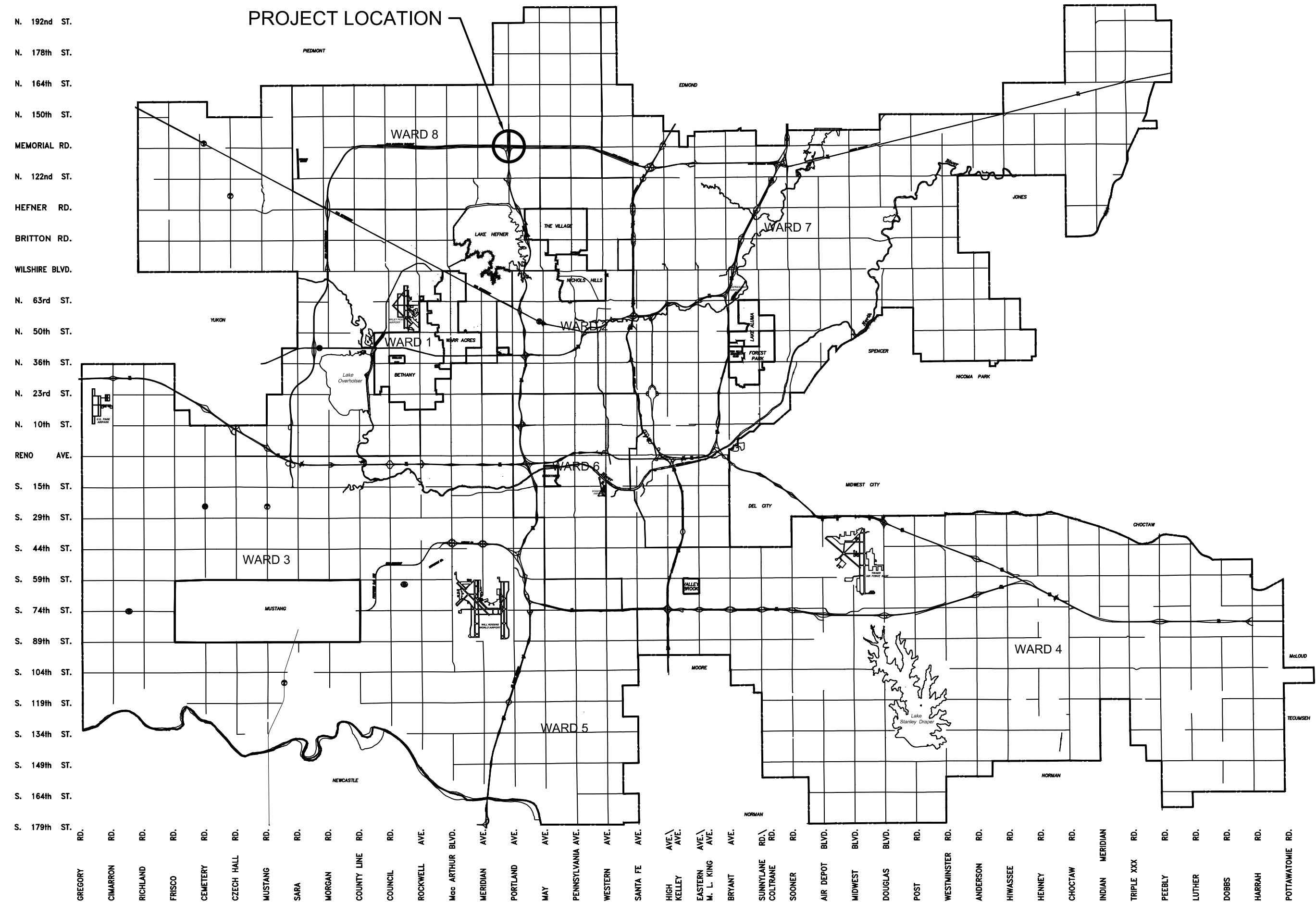
Carl O. Curry
Notary Public

My Commission Expires: 12-14-24

AGREED AND ACCEPTED THIS 9th DAY OF March, 20 21.

Project Engineer
Oklahoma Turnpike Authority
Title Project Engineer
Date 3/9/21

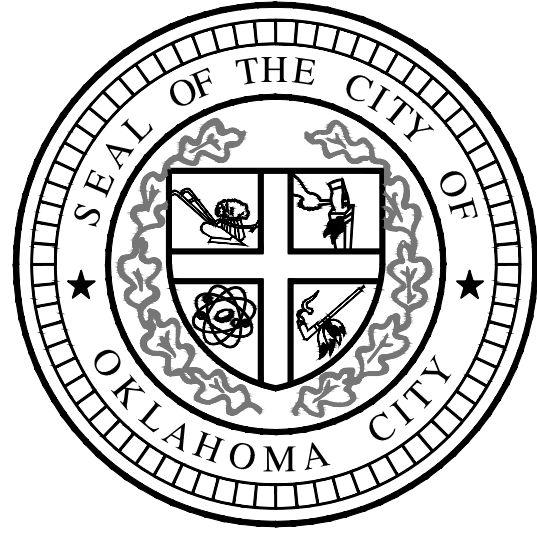
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DATE: Nov 17, 2020 5:38pm XREFS: P_COV_0202135 USER: cwhitaker



100% REVIEW PLANS
NOT FOR CONSTRUCTION
OCWUT PROJECT NO. WC-0982
20" WATERLINE REPLACEMENT

IN THE VICINITY OF

W MEMORIAL ROAD
AT
LAKE HEFNER PARKWAY



The City of
OKLAHOMA CITY

DAVID HOLT, Mayor

COUNCIL MEMBERS:

JAMES GREINER	Ward 1
JAMES COOPER	Ward 2
LARRY MCATEE	Ward 3
TODD STONE	Ward 4
DAVID GREENWELL	Ward 5
JOBETH HAMON	Ward 6
NIKKI NICE	Ward 7
MARK K. STONECIPHER	Ward 8

CRAIG FREEMAN City Manager

ERIC J. WENGER, P.E. City Engineer



OKLAHOMA CITY WATER UTILITIES TRUST
VACANT, Chairman, INDEPENDENT Trustee
JESSICA MARTINEZ-BROOKS, Vice-Chairman, Independent Trustee
LARRY MCATEE, Council Trustee
DAVID HOLT, Mayor Trustee
MARK K. STONECIPHER, Surrogate Trustee
CRAIG FREEMAN, City Manager Trustee
LAURA JOHNSON, Surrogate Trustee
CHRIS BROWNING, P.E., General Manager
FRANCES KERSEY, Secretary

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-3	PAY ITEMS AND GENERAL NOTES
4	STORM WATER MANAGEMENT PLAN
5 - 6	EROSION CONTROL
7	TRAFFIC CONTROL
8 - 11	PLAN AND PROFILE
12 - 13	CIVIL DETAILS
14 - 21	STANDARD OKC DETAILS



ONE CALL UTILITY LOCATION NUMBER

840-5032
1-800-522-6543

This number is to be used for information on the location of all underground utilities. Contact this number and other numbers specified in the plans prior to any excavation.

UTILITIES DEPARTMENT
CAPITAL IMPROVEMENT DESIGN

PREPARED BY

KEVIN LAWRENCE ROOD, P.E. OK PE NO. 16085 DATE

OLSSON, INC. (CA #2483)
11600 BROADWAY EXT., SUITE 300
OKLAHOMA CITY, OK 73114
(405) 242-6600, FAX: (405) 242-6601
OK (2483) PE EXP: 6 / 30 / 2017

olsson

RECOMMENDED FOR APPROVAL

CHRIS BROWING, P.E. DATE
UTILITIES DIRECTOR

ERIC J. WENGER, P.E. DATE
CITY ENGINEER

APPROVED BY THE TRUSTEES AND SIGNED BY THE CHAIRMAN OF THE OKLAHOMA CITY WATER UTILITIES TRUST

CHAIRMAN DATE

SECRETARY DATE

PROJECT NO. WC-0982

GENERAL NOTES:

INTENT

1. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH. CONFLICTS SHALL BE BROUGHT TO THE ENGINEER.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT CITY OF OKLAHOMA CITY STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF PUBLIC IMPROVEMENTS AND PROJECT SPECIFICATIONS.
3. ALL WORK NOT CLASSIFIED AS CONTRACT PAY ITEMS SHALL BE CONSIDERED AS AN INCIDENTAL AND NOT PAID FOR DIRECTLY.
4. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY OF THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.

CONFLICTS

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE PRIOR TO ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS, ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
6. NO PLEA OR IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

FIELD QUALITY CONTROL

7. THE LOCATION OF UNDERGROUND UTILITIES DEPICTED ON THESE DRAWINGS ARE BASED ON VISUAL SURFACE EVIDENCE AND/OR AS-BUILT DRAWINGS PROVIDED BY OTHERS AND, THEREFORE, MAY NOT REPRESENT ALL UTILITIES PRESENT OR THEIR ACTUAL LOCATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR COORDINATING WITH INDIVIDUAL UTILITY OWNERS TO ASCERTAIN THE EXACT LOCATION OF EXISTING UTILITIES AT SPECIFIC POINTS OF CONNECTION AND FOR NOTIFYING THE CALL OKIE ONE CALL SYSTEM PRIOR TO ANY EXCAVATION ON SITE.
8. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING DEPTH OF ALL UTILITIES. NO EXCAVATION WILL BE PERMITTED UNTIL ALL SUCH UTILITIES HAVE BEEN LOCATED AND IDENTIFIED. EXCAVATION MUST BE ACCOMPLISHED WITH EXTREME CARE IN ORDER TO AVOID ANY POSSIBLE DAMAGE TO THE UTILITY. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY AND ALL DAMAGES TO UTILITIES WITHOUT EXPENSE TO THE OWNER.
9. ALL ELEVATIONS SHOWN ON THE CONSTRUCTION DOCUMENTS ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), HORIZONTAL DATUM NAD 83, OKLAHOMA STATE PLANE NORTH - US FOOT, UNLESS OTHERWISE NOTED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION STAKING. THE STAKING MUST BE DONE BY A REGISTERED PROFESSIONAL LAND SURVEYOR, IN THE STATE OF OKLAHOMA, WHICH WILL BE VERIFIED AT PRE-WORK CONFERENCE.
11. THE CONTRACTOR SHALL VERIFY THE FLOW LINE ELEVATIONS OF THE EXISTING WATER MAIN PRIOR TO LAYING ANY NEW PIPE. ALL CROSSINGS AND TIE-ON LOCATIONS SHALL BE EXCAVATED AHEAD OF CONSTRUCTION TO VERIFY THE FLOW LINE OF EXISTING WATER MAINS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN FIELD ELEVATIONS/FLOWLINES AND THESE PLANS PRIOR TO CONSTRUCTION AND MANHOLE FABRICATION.

PERMITTING / PUBLIC NOTICE

12. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE WORK AS SPECIFIED. CONTRACTOR SHALL RECEIVE COPY OF OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) AUTHORIZED PERMIT TO CONSTRUCT AND FLOODPLAIN PERMIT FROM THE CITY OF OKLAHOMA CITY DESIGN ENGINEER PRIOR TO COMMENCEMENT OF WORK.
13. CONTRACTOR SHALL RECEIVE COPY OF OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT) AND OKLAHOMA TURNPIKE AUTHORITY (OTA) PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION
14. ANY WATER MAIN TEMPORARILY TAKEN OUT OF SERVICE FOR MAKING CONNECTIONS AND INSTALLING PLUGS SHALL BE MADE AT LOW DEMAND TIMES. THE CONTRACTOR SHALL PROVIDE SEVEN (7) DAYS NOTICE FOLLOWED BY THREE (3) DAYS, NOT INCLUDING WEEKENDS AND HOLIDAYS, NOTICE TO THE CITY AND THE PROPERTY OWNERS PRIOR TO TAKING ANY WATER MAIN OUT OF SERVICE.
15. THE CONTRACTOR SHALL CONTACT THE CITY OF OKLAHOMA CITY TRAFFIC OPERATIONS AT 405-297-2648 AT LEAST SEVENTY-TWO (72) HOURS, NOT INCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO THE START OF CONSTRUCTION FOR TRAFFIC SIGNAL CONDUIT LOCATION AND FILL OUT AN OUTAGE REQUEST FORM FOR AUTHORIZATION.
16. A WORK ZONE PERMIT MUST BE OBTAINED FROM THE TRAFFIC MANAGEMENT DIVISION AT LEAST TWO (2) WORKING DAYS PRIOR TO THE START OF WORK AND/OR PLACING OR REMOVING ANY BARRICADES OR MODIFYING EXISTING TRAFFIC CONTROL DEVICES. CALL 405-297-2531 TO OBTAIN AN APPLICATION.
17. THE CONTRACTOR SHALL CONTACT LANDOWNERS AT LEAST SEVENTY-TWO (72) HOURS, NOT INCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO IMPACTING INGRESS/EGRESS OR LAND DISTURBANCE.
18. CONTRACTOR SHALL OBTAIN PERMIT FROM OKLAHOMA TURNPIKE AUTHORITY (OTA) FOR CONSTRUCTION ACTIVITY WITHIN OTA RIGHT OF WAY PRIOR TO ANY PROJECT ACTIVITY. CONTRACTOR SHALL CONTACT THE ENGINEERING DIVISION OF OTA (405-425-2983/405-425-7004) TO OBTAIN ALL PERMITS AND PERMISSIONS REQUIRED TO WORK WITHIN OTA RIGHT OF WAY. THE CONTRACTOR IS RESPONSIBLE FOR THE PAYMENT OF ALL FEES AND MEETING ALL REQUIREMENTS TO OBTAIN ALL PERMITS AND OTHER PERMISSIONS REQUIRED TO CONDUCT CONSTRUCTION WORK FROM REGULATORY AGENCIES.

EMERGENCY CONTACT NUMBERS

19. IN CASE OF AN EMERGENCY, IMMEDIATELY CONTACT LOCAL AUTHORITIES AT:

POLICE.....911
OKLAHOMA COUNTY EMERGENCY MANAGEMENT.....405-713-1360

TEMPORARY CONSTRUCTION SITE OFFICE, UTILITIES, PUBLIC CONVENIENCES AND SAFETY

20. CONTRACTOR WILL PROVIDE, SECURE, MAINTAIN, OPERATE, ETC. AN ONSITE CONSTRUCTION OFFICE. CONTRACTOR WILL CONTRACTOR WILL MAINTAIN SITE IN GOOD CONDITION AT ALL TIMES.
21. CONTRACTOR WILL INSTALL NECESSARY PREVENTATIVE STRUCTURES TO KEEP STREETS AND OFFSITE AREAS CLEAN. SOILS, SLUDGE, TRASH AND DEBRIS WILL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF DAILY. LARGE DEBRIS MAY BE STOCKPILED IN A DESIGNATED AREA IF PROPER STRUCTURES AND PRECAUTIONS HAVE BEEN ESTABLISHED RESTRICT DEBRIS FROM LEAVING THE SITE.
22. CONTRACTOR WILL PROVIDE NECESSARY UTILITIES, SUCH AS ELECTRIC, TELEPHONE, WASTE, WATER AND SANITARY SEWER SERVICES.
23. INSTALL A TEMPORARY CONSTRUCTION FENCE ALONG LIMITS OF CONSTRUCTION TO PROTECT THE PUBLIC. THIS ITEM WILL BE CONSIDERED INCIDENTAL AND INCLUDED IN OTHER ITEMS OF WORK.
24. ALL CONSTRUCTION ACTIVITIES WILL BE LIMITED TO WITHIN TEMPORARY CONSTRUCTION FENCE. TEMPORARY FENCE WILL BE ADDED OR RELOCATED TO AREAS PRIOR TO CONSTRUCTION.
25. ALL STORED WORK MATERIALS AND EQUIPMENT WILL BE PLACED IN A MANNER THAT IT DOES NOT CREATE AN INCONVENIENCE TO THE PUBLIC. STREETS, HIGHWAYS, SIDEWALKS, DRIVEWAYS WILL MAINTAIN FREE PASSAGE AT ALL TIMES UNLESS SPECIFIED IN THE PLANS OR MAINTAIN WRITTEN APPROVAL OF SUCH.

TRAFFIC CONTROL

26. ALL BARRICADES, WARNING SIGNS, LIGHTS, TRAFFIC CALMING DEVICES, ETC., FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS WILL CONFORM TO THE LATEST REVISION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT OR REPAIR OF TRAFFIC CONTROL DEVICES DAMAGED DURING CONSTRUCTION.

STORM WATER MANAGEMENT

28. A COPY OF THE EROSION CONTROL SITE PLAN MUST BE ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE INSPECTOR UPON REQUEST.

GENERAL NOTES (continued):

STORM WATER MANAGEMENT CONT.

- CONSTRUCTION ACTIVITIES THAT RESULT IN LAND DISTURBANCE TO EQUAL TO OR GREATER THAN ONE (1) ACRE MUST OBTAIN A PERMIT FOR ODEQ (FORM 605-002a) FOR STORM DISCHARGES FROM CONSTRUCTION ACTIVITIES AND A PERMIT FROM THE CITY OF OKLAHOMA CITY, STORM WATER QUALITY DIVISION. CONTRACTOR IS RESPONSIBLE TO SUBMIT ALL FORMS, FEES AND OBTAIN ALL NECESSARY EARTHWORK PERMITS.
30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR AND/OR REPLACEMENT OF ALL STORMWATER POLLUTION CONTROL DEVICES AS SOON AS PRACTICAL. CONTRACTOR WILL INSPECT ALL DEVICES WITHIN THE SCHEDULE SET IN THE PERMIT. CONTRACTOR WILL REMOVAL AND PROPERLY DISPOSE OF ALL SEDIMENT ALONG DEVICES WHEN SEDIMENT IS ONE-THIRD (1/3) THE HEIGHT OF THE STRUCTURE.
31. CONTRACTOR IS RESPONSIBLE FOR ALL STORMWATER MANAGEMENT TO ADHERE TO FEDERAL, STATE AND LOCAL STANDARDS.
32. SEDIMENT AND EROSION CONTROL MUST BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION. SEDIMENT AND EROSION CONTROL MEASURES, NOTES AND SHEETS ARE INCLUDED IN THE SITE CONSTRUCTION DOCUMENTS AND STORM WATER POLLUTION AND PREVENTION PLANS (SWPPP) WHICH WILL BE PROVIDED BY THE CONTRACTOR.
33. TRENCHING, EXCAVATION AND BACKFILL
34. BEFORE EXCAVATING, CONTRACTOR SHALL MAKE NON-DESTRUCTIVE EXPLORATORY EXCAVATIONS TO LOCATE EXISTING UNDERGROUND UTILITIES AND TO PERMIT REVISIONS TO PLANS IF NECESSARY BECAUSE OF ACTUAL LOCATIONS. THIS ITEM SHALL BE INCLUDED IN OTHER ITEMS OF WORK.
35. GROUNDWATER LEVELS ALONG THIS PROJECT VARY DEPENDING ON THE SEASONAL VARIATIONS AND SUBSURFACE CONDITIONS. ALL DOWATERING SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE COST OF OTHER ITEMS.
36. EXCAVATION AND BACKFILL; THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING OF EXCAVATION WORK OR USE OF A TRENCH BOX IN ORDER TO PROVIDE FOR THE SAFETY OF WORKMAN, AS WELL AS REPRESENTATIVES OF THE CITY AND THE DESIGN ENGINEER.
37. COMPLIANCE TO "TRENCH SAFETY ACT" IS REQUIRED FOR ALL EXCAVATIONS IN EXCESS OF 5 FEET DEEP. CONTRACTOR SHALL COMPLY WITH THE U. S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIONS STANDARDS OSHA 29 CFR 1910.146, "PERMIT-REQUIRED CONFINED SPACES" AND OSHA 29 CFR 1926, "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION". ALL EXCAVATIONS AND SHORING AND SHIELDING SHALL BE DESIGNED BY A STATE OF OKLAHOMA REGISTERED PROFESSIONAL ENGINEER.
38. **OPEN TRENCH NOTE:** DUE TO THE VICINITY OF THE ROADWAY AND PUBLIC ALONG THE CONSTRUCTION LIMITS AND DEPTH OF THE PROPOSED WATERLINE, OPEN TRENCH SECTIONS LONGER THAN FIFTY (50) FEET, AS MEASURED ALONG THE ALIGNMENT, SHALL NOT BE OPEN OVERNIGHT. PROPER OPEN TRENCH PROTECTION WILL BE INSTALLED AT ALL TIMES.
39. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION. SOFT OR SPONGY BEDDING FOR PIPES WILL NOT BE ACCEPTED. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL SATISFACTORY TO THE CITY PER SPEC 213.
40. CONTRACTOR IS RESPONSIBLE FOR ALL PUMPING TO CONTROL SURFACE OR GROUNDWATER ENCOUNTERED TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH. ALL COST FOR PUMPING IS CONSIDERED INCIDENTAL AND BE INCLUDED IN OTHER ITEMS OF WORK.
41. COMPACTION OF TRENCH BACKFILL IN PAVED AREAS SHALL BE 95% STANDARD PROCTOR DENSITY PER STANDARD AND SPECIAL PROVISION.
42. EXISTING TOPSOIL AT ALL AREAS WHICH IS TO BE DISTURBED DURING CONSTRUCTION IS TO BE STRIPPED AND STOCKPILED ONSITE PRIOR TO EXCAVATION. THE STOCKPILE WILL BE LOCATED IN AN AREA TO NOT RESTRICT SURFACE FLOWS AND REDUCE SEDIMENT RUNOFF FROM THE SITE. INSTALLATION OF SEDIMENT CONTROL DEVICES WILL BE NECESSARY. THE STOCKPILED TOPSOIL SHALL BE SPREAD OVER ALL AREAS WHICH ARE SCHEDULED TO BE SEEDED OR SLAB SOD.
43. HYDRANTS SHALL CONFORM TO AWWA STANDARD C502, LATEST REVISION.
44. HYDRANTS SHALL BE AMERICAN DARLING (MODEL 5 1/8" B-84-B), MUELLER CENTURION 200 MODEL A-423, M&H RELIANT MODEL 129, US METROPOLITAN, OR CLOW MEDALLION.
45. WATERLINE
46. SPECIAL WATER MAIN PIPE SHALL BE REQUIRED TO SATISFY MINIMUM HORIZONTAL AND VERTICAL CLEARANCE REQUIREMENTS FROM WATERLINES, WELLS AND PETROLEUM STORAGE TANKS, AS ESTABLISHED BY THE ODEQ.
47. PROVIDE A MINIMUM OF 48" COVER AS PROTECTION TO THE PIPE.
48. LOCATE WATER MAINS AT LEAST 10 FEET HORIZONTAL SEPARATION (EDGE TO EDGE) FROM ANY EXISTING OR PROPOSED SEWER LINES. LOCATE WATER MAINS AT LEAST 5 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED STORM SEWERS, RAW WATER LINES, PETROLEUM PRODUCT LINES, NATURAL GAS LINES, AND OTHER BURIED UTILITY LINES. LOCATE CAST IRON WATER MAINS AT LEAST 10 FEET FROM ANY GASOLINE STORAGE TANKS AND LINES AND PVC WATER MAINS AT LEAST 50 FEET HORIZONTALLY FROM ANY GASOLINE STORAGE TANKS AND LINES. LOCATE WATER MAINS AT LEAST 15 FEET FROM ALL PARTS OF SEPTIC TANKS AND ABSORPTION FIELDS, OR OTHER SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
49. WATERLINES CROSSING SEWER LINES SHALL MEET A MINIMUM VERTICAL SEPARATION (EDGE TO EDGE) OF 24 INCHES. ARRANGE THE PIPE SO THAT THE JOINTS WILL BE EQUIDISTANT FROM THE WATER MAIN. WHERE A WATER MAIN CROSSES UNDER A SEWER, PROVIDE ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.
50. ALL JOINTS WILL BE RESTRAINED IN ACCORDANCE WITH THE PLANS, PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH AWWA STANDARDS.
51. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE INSTALLED WITH POLYETHYLENE ENCASEMENT, THE COST OF WHICH SHALL BE INCLUDED IN THE COST OF THE FITTINGS.
52. DUCTILE IRON PIPE AND FITTINGS SHALL BE MANUFACTURED BY U.S. PIPE AND FOUNDRY CO., GRIFFIN PIPE PRODUCTS CO., AMERICAN CAST IRON PIPE CO., AND MCWANE CAST IRON PIPE COMPANY. DUCTILE IRON FITTINGS MANUFACTURED BY TYPER PIPE, SIGWA, STAR PIPE PRODUCTS, PIPELINE COMPONENTS, INC., AND SIP INDUSTRIES SHALL BE ACCEPTED. TYPE 316 STAINLESS STEEL NUTS AND BOLTS REQUIRED.
53. JOINT RESTRAINT GLAND WILL BE MEGALUG AND MANUFACTURED BY EBAA IRON SALES, INC. P.V.C. - FITTINGS (MEGALUG, SERIES 2000 PV). DIP - FITTINGS (MEGALUG, SERIES 1100), OR APPROVED EQUAL. TYPE 316 STAINLESS STEEL NUTS AND BOLTS REQUIRED OR APPROVED EQUAL.
54. GATE VALVES, BUTTERFLY VALVES, TAPPING VALVES SHALL BE MECHANICAL JOINT AND MANUFACTURED BY AMERICAN CASE IRON COMPANY, MUELLER CO, U.S. PIPE, PRAT, CLOW, M & H OR APPROVED EQUAL. TYPE 316 STAINLESS STEEL NUT AND BOLTS REQUIRED.
55. FINAL CLEAN UP
56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL LANDSCAPING, TREES, AND IRRIGATION SYSTEMS IN AS GOOD OR BETTER CONDITION AS THEY WERE PRIOR TO CONSTRUCTION. THE COST OF THIS WORK IS CONSIDERED INCIDENTAL.
57. ALL P.C. CONCRETE PAVEMENT, CURBS, DRIVEWAYS AND SIDEWALKS DISTURBED BY THIS PROJECT SHALL BE REPLACED WITH HIGH EARLY STRENGTH (HES) CONCRETE, 4000 PSI MIN.
58. ALL CONCRETE DRIVEWAYS TO BE REPLACED SHALL BE REMOVED AND REPLACED FROM THE PAVING GUTTER LINE TO THE JOINT ALONG THE PROPERTY LINE.
59. BEFORE FINAL COMPLETION OF THIS WORK, ALL ROADWAYS, SLOPES, DITCHES, AND BERMS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
60. FENCES, SIGNS, OR OTHER IMPROVEMENTS REQUIRED TO BE DISTURBED OR REMOVED TO PERMIT CONSTRUCTION SHALL BE RESTORED OR REPLACED IN THE SAME LOCATION AND IN A CONDITION AS GOOD OR BETTER THAN PRIOR TO CONSTRUCTION. NO COMPENSATION SHALL BE GIVEN TO THE CONTRACTOR FOR REMOVAL AND REPLACEMENT OF FENCES, SIGNS, OR OTHER IMPROVEMENTS ON PRIVATE PROPERTY. THIS WORK SHALL BE INCLUDED IN OTHER ITEMS OF WORK.
61. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SIDEWALKS AND ACCESSIBLE RAMPS ARE IN COMPLIANCE WITH THE MOST RECENT ADA REGULATIONS AS SPECIFIED BY THE CITY OF OKLAHOMA CITY. CONTRACTOR SHALL NOTIFY THE ENGINEER OR ENGINEER'S DESIGNEE OF ANY DISCREPANCIES BETWEEN DESIGN INFORMATION AND THE ADA REGULATIONS PRIOR TO CONSTRUCTION.

SYSTEM CONNECTION AND CLOSURE INFORMATION

1. INSTALL 20" WATERLINE TO TEMPORARY PLUGS
2. INSTALL AND RESTRAIN TEMPORARY PLUGS
3. CONDUCT TESTING OF NEW WATERLINE
4. OBTAIN APPROVAL OF NEW WATERLINE FROM OWNER
5. SUBMIT OUTAGE REQUEST
6. REMOVE TEMPORARY PLUGS
7. REMOVE NECESSARY SEGMENTS OF EXISTING WATERLINE
8. CONNECT TO EXISTING WATERLINE
9. OPEN CLOSED VALVES
10. BRING NEW WATERLINE INTO OPERATION

PROPOSED ABBREVIATIONS

BP	BENCH MARK
CM	CONTROL POINT
DR	
E	EASTING
EL	ELEVATION
EX	EXISTING
FL	FLOWLINE
FO	FIBER OPTIC
HORIZ	HORIZONTAL
LF	LINEAR FEET
MJ	MECHANICAL JOINT
MH	MAN HOLE
N	NORTHING
OHE	OVER HEAD ELECTRIC
PVC	POLYVINYL CHLORIDE
RCB	
RCP	
RD	RD
STA	STATION
SS	SEWER
VERT	VERTICAL
WC	

PROPOSED LINETYPES

_____ CATV _____	CABLE/TV
_____ FO _____	FIBER OPTIC
_____ P-OH _____	POWER LINE OVERHEAD
_____ SS _____	SEWER
_____ □ _____ □ _____	STOCKADE FENCE
_____ TEL _____	TELEPHONE
_____ W _____	WATER

EXISTING LEGEND

	CONTROL POINT/BENCHMARK
	DECIDUOUS TREE
	ELECTRIC BOX
	ELECTRIC METER
	ELECTRIC RISER
	FIRE HYDRANT
	FLAG POLE
	GRATE INLET
	JUNCTION BOX
	LIGHT POLE
	MAILBOX
	SANITARY SEWER MANHOLE
	SIGN
	TELEPHONE RISER
	TELEVISION RISER
	TRANSFORMER
	WATER VALVE
	YARD LIGHT
----- 1200 -----	CONTOUR LINE
-----	CENTER LINE
-----	PROPERTY LINE
-----	SECTION LINE
-----	EASEMENT LINE
----- □ ----- □ -----	WOOD FENCE
----- X -----	BARBED WIRE FENCE
----- SS -----	SANITARY SEWER LINE
----- FM -----	FORCE MAIN
----- SD -----	STORM SEWER LINE
----- W -----	WATER LINE
----- G -----	UNDERGROUND GAS MAIN
----- P-OH -----	OVERHEAD POWER (OHE)
----- P-UG -----	UNDERGROUND POWER (UGE)
----- TEL -----	UNDERGROUND TELEPHONE LINE (TUG)
----- CATV -----	UNDERGROUND CABLE TELEVISION LINE
----- FO -----	UNDERGROUND FIBER OPTIC LINE (FIBER)
----- T -----	UNDERGROUND TRAFFIC LINE
	TREE MASS
	TREE ROW BUSHES

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USER: cwhitaker

PAY ITEM GENERAL NOTES:

1. COLOR AUDIO/VIDEO RECORDED DIGITALLY ON DVD AND SUPPLIED TO ENGINEER PRIOR TO CONSTRUCTION OPERATIONS BEGINNING AND PRIOR TO APPLICATION OF FINAL PAY. TWO COPIES OF EACH PHASE IS REQUIRED.
2. ALL DEWATERING PERFORMED SHALL BE CONSIDERED INCIDENTAL WORK AND SHALL BE INCLUDED IN THE COST OF PIPE.
3. THE COST OF WATERLINE SHALL INCLUDE, BUT NOT LIMITED TO EXCAVATION, DEWATERING OPERATIONS, EMBEDMENT, COMPACTED BACKFILL, OVER THE PIPE, ALL IN ACCORDANCE WITH THE TYPICAL SECTIONS.
4. EMBEDMENT MATERIAL SHALL BE INSTALLED FOLLOWING THE CONSTRUCTION METHOD AS DESCRIBED IN SECTION 215 OF THE CITY OF OKLAHOMA CITY STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS.
5. RESTRAINED PIPE JOINTS SHALL BE FLEX-RING, LOK-RING OR APPROVED EQUAL. PROVIDING PIPE RESTRAINTS INTO AND OUT OF RESTRAINED FITTINGS.
6. COST OF THRUST BLOCKS IN ACCORDANCE WITH THE CITY STANDARD DETAILS AND THESE PLANS SHALL BE INCLUDED WITH THE COST OF FITTINGS.
7. FITTING RESTRAINT SHALL BE MEGA-LUG, FLEX, LOK OR AN APPROVED EQUAL IN ACCORDANCE WITH CITY OF OKLAHOMA CITY STANDARD SPECIFICATION 524.02.06
8. FIRE HYDRANTS (COMPLETE) SHALL BE FULL COMPENSATION FOR THE PURCHASE AND INSTALLATION OF FIRE HYDRANT FOR CITY OF OKLAHOMA CITY STANDARDS.
9. FIRE HYDRANT RISERS VARY IN LENGTH. COST SHALL INCLUDE RISER LENGTH NECESSARY FROM BEND TO FIRE HYDRANT ELEVATION.
10. BORINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND CITY OF OKLAHOMA CITY STANDARD DETAIL W-18. BORINGS SHALL INCLUDE PIPE SPACERS, FILLING OF THE ANNULAS, BORE & RECEIVING PITS. THE COST OF ALL MATERIAL AND LABOR SHALL BE INCLUDED IN THE COST OF THIS ITEM.
11. STEEL CASING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND CITY OF OKLAHOMA CITY STANDARD DETAIL W-19. THE COST OF ALL MATERIAL AND LABOR SHALL BE INCLUDED IN THE COST OF THIS ITEM.
12. VALVES, VAULTS AND FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS. THE COST OF ALL MATERIAL AND LABOR IN ACCORDANCE WITH THE DETAILS SHALL BE INCLUDED IN THE COST OF THESE ITEMS.
13. BUTTERFLY VALVES SHALL BE DUCTILE IRON ASTM A536, GRADE 65-45-12, AWWA C-500 FLANGE DIMENSIONS AND DRILLING ASNI/ASME B16.1 CLASS 125.
14. TESTING WATER SHALL INCLUDE DISPOSAL OF NEUTRALIZED CHLORINATED WATER.
15. SIDEWALK REMOVAL AND REPLACEMENT SHALL BE IN ACCORDANCE CITY OF OKLAHOMA CITY STANDARD DETAIL D-500. SIDEWALKS SHALL BE RETURNED TO SAME OR BETTER CONDITION AS EXISTED PRIOR TO CONSTRUCTION. COST OF REMOVAL AND REPLACEMENT SHALL INCLUDE CONSTRUCTION AND EXPANSION JOINTS, AND OTHER EXISTING IMPROVEMENTS. LIMITS OF CONCRETE SIDEWALK REMOVAL SHALL BE TO THE CLOSEST JOINT OR APPROVED OF BY THE ENGINEER AND INCLUDE SAW CUTTING. THE LIMITS AND GRADE OF SIDEWALK SHALL BE THE SAME AS EXISTED PRIOR TO CONSTRUCTION.
16. CONSTRUCTION SIGNING AND TRAFFIC CONTROL SHALL INCLUDE BUT NOT LIMITED TO ALL SIGNAGE, PERSONNEL, DEVICES AND STRUCTURES MEETING CITY OF OKLAHOMA CITY AND LATEST M.U.T.C.D. STANDARDS. CONSTRUCTION SIGNING AND TRAFFIC CONTROL SHALL ALSO INCLUDE OPEN TRENCH PROTECTION, PERMIT PREPARATION AND FEES FOR ACTIVITIES AND CLOSURE OF ANY STREET NECESSARY FOR CONSTRUCTION.
17. CONTRACTOR IS RESPONSIBLE FOR SODDING ALL DISTURBED AREAS. SOD QUANTITY HAS BEEN DETERMINED FROM FIVE (5) FEET EACH SIDE OF TRENCH CENTERLINE. ANY DISTURBED AREA OUTSIDE THESE SODDING LIMITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
18. UNDERCUTTING OF SOIL IN THE TRENCH SHALL BE AT THE DISCRETION AND APPROVAL OF THE ENGINEER. MEASUREMENTS OR A SURVEY SHALL BE CONDUCTED PRIOR AND AFTER THE REMOVAL OF THE SOIL TO DETERMINE QUANTITY. ANY UNDERCUTTING PRIOR TO APPROVAL BY THE ENGINEER AND SURVEY WILL BE AT THE CONTRACTOR'S EXPENSE.
19. SEDIMENT AND EROSION CONTROL PAY ITEM INCLUDES BUT NOT LIMITED TO SILT FENCE AND INLET BARRIERS, TEMPORARY CONSTRUCTION ENTRANCES/EXITS, CONCRETE WASHOUTS, PERMITS, SWPPP AND FEES. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, REPAIR, RELOCATION, REPLACEMENT, AND REMOVAL OF ALL EROSION CONTROL DEVICES. THIS SHALL INCLUDE BUT NOT LIMITED TO REMOVAL OF SEDIMENT WHEN IT IS LESS THAN HALF FULL.
20. CLEARING AND GRUBBING SHALL INCLUDE ALL TREE AND SHRUB REMOVAL NECESSARY FOR JOB COMPLETION.
21. CONSTRUCTION IS TO BE COMPLETED WITHIN EXISTING RIGHT OF WAY AND/OR EASEMENT.
22. HYDROSTATIC TESTING, LEAKAGE TESTING, BACTERIOLOGICAL TESTING, AND FLUSHING SHALL BE IN ACCORDANCE WITH ODEQ AND CITY OF OKLAHOMA CITY STANDARDS SHALL BE PAID FOR AS A LUMP SUM. COST FOR RETESTING OF FAILED CONDITIONS SHALL BE AT THE CONTRACTORS' EXPENSE.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION STAKING TO PROPERLY LOCATE THOSE IMPROVEMENTS. ALL CONSTRUCTION STAKING SHALL BE COMPLETED FOR THE LUMP SUM VALUE.
24. CONTRACTOR SHALL REMOVE AND REPLACE FENCE IN KIND AS REQUIRED TO COMPLETE CONSTRUCTION. PRICE PAID PER FOOT OF FENCE REMOVED AND REPLACED IRRESPECTIVE OF FENCE MATERIAL.
25. CONTRACTOR SHALL PROVIDE "RED LINE" DRAWINGS TO THE OWNER ALONG WITH GPS COORDINATES OF UNDERGROUND FEATURES AT THE COMPLETION OF CONSTRUCTION PRIOR TO FINAL PAYMENT.
26. EXISTING 20" WATERLINE IS TO BE ABANDONED IN PLACE. ALL COST ASSOCIATED WITH THE REMOVAL OR ABANDONMENT OF THE WATERLINE SHALL BE INCLUDED IN THE LUMP SUM PRICE.

SUMMARY OF QUANTITIES						
ITEM NO.	SECTION	ITEM DESCRIPTION	NOTE	UNIT	QUANTITY	AS-BUILT
	801	COLOR AUDIO/VIDEO RECORDING PRE-CONST. & POST COST. VIDEO	1	L.SUM	1	
	524	20" RESTRAINED PIPE JOINTS	5	L.F.	480	
	524	20" x 90" BEND WITH RESTRAINED MJ & CONCRETE THRUST BLOCK	6,12	EA.	2	
	524	20" x 45" BEND WITH RESTRAINED MJ & CONCRETE THRUST BLOCK	6,12	EA.	12	
	524	20" x 11.25" BEND WITH RESTRAINED MJ & CONCRETE THRUST BLOCK	6,12	EA.	6	
	524	20" x 20" x 8" TEE WITH RESTRAINED MJ & CONCRETE THRUST BLOCK	6,12	EA.	1	
	524	20" x 20" x 6" TEE WITH RESTRAINED MJ & CONCRETE THRUST BLOCK	6,12	EA.	1	
	524	20" MEGALUG, SERIES 1120	21	EA.	58	
	520	20" BUTTERFLY VALVE, FL-FL JOINTS, ANSI/AWWA C504, CLASS 150	12,13	EA.	3	
	521	20" BUTTERFLY VALVE VAULT	12	EA.	3	
		20" (MJ) SLEEVE		EA.	4	
	524	20" WATERLINE, FINISHED, INSTALLED, COMPLETE IN PLACE	2,3,4,18	L.F.	1,830	
	524	8" WATERLINE, FINISHED, INSTALLED, COMPLETE IN PLACE	2,3,4,18	L.F.	15	
	524	6" WATERLINE, FINISHED & INSTALLED, COMPLETE IN PLACE	2,3,4,18	L.F.	6	
	520	8" GATE VALVE (MJ) & BOX	12	EA.	1	
	524	8" MEGALUG, SERIES 1108	21	EA.	5	
		8" (MJ) SLEEVE		EA.	1	
	520	6" GATE VALVE (MJ) & BOX	12	EA.	1	
	524	6" x 90" BEND RESTRAINED MJ & CONCRETE THRUST BLOCK	6,12	EA.	1	
	524	6" MEGALUG, SERIES 1106	21	EA.	3	
	516	FIRE HYDRANT (COMPLETE)	8	EA.	1	
	516	FIRE HYDRANT RISER	9	EA.	1	
	517	REMOVE EXISTING FIRE HYDRANT		EA.	1	
	528	BORING FOR 28" STEEL PIPE ENCASEMENT	10	L.F.	100	
	528	30" STEEL PIPE ENCASEMENT, NOM WALL THICKNESS 0.375"	11	L.F.	100	
	513	20" WATERLINE, WET CONNECTION		EA.	2	
	513	8" WATERLINE, WET CONNECTION		EA.	1	
	522	HYDROSTATIC PRESSURE TESTING, DISINFECTION, DECHLORINATION & DISPOSAL	14,22	L.SUM	1	
801-00	801	CONSTRUCTION STAKING (CONSTRUCTION SURVEY)	23	L.SUM	1	
802-00	802	CONSTRUCTION SIGNING AND TRAFFIC CONTROL	16	L.SUM	1	
	828	REMOVE AND REPLACE FENCE	24	L.F.	150	
816-02	816	REMOVE AND REPLACE SIDEWALK	15	S.Y.	6	
	801	GPS AS-BUILT	25	L.SUM	1	
840-00	840	SOLID SLAB SODDING	17	S.Y.	18,300	
900-07	900	SEDIMENTS/EROSION CONTROL	19	L.SUM	1	
	810	CLEARING AND GRUBBING	20	L.SUM	1	
		ABANDON EXISTING WATERLINE IN PLACE	26	L.SUM	1	

olsson

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TEL 405.242.6600
www.olsson.com

REGISTERED PROFESSIONAL ENGINEER
KEY: n L
R000
16085
OKLAHOMA
11-20

REV. NO.

DATE

REVISIONS DESCRIPTION

PAY ITEMS

WC-0982 - 20-INCH WATERLINE REPLACEMENT
MEMORIAL ROAD AND LAKE HEFNER PARKWAY

OKLAHOMA CITY, OK

2020

drawn by: C.J.W.
checked by: NFD
approved by: KLR
QA/QC by: ENG
project no.: 020-2135
drawing no.: ABC.DWG
date: 00.00.00

SHEET

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USER: cwhitaker

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: ALIGNMENT IS BETWEEN N PORTLAND AVE AND N MAY AVE
TO NW 122ND ST AND W MEMORIAL ROAD

PROJECT DESCRIPTION: _____
PROJECT INCLUDES CONSTRUCTION OF A 20" WATER MAIN

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
PRIOR TO INITIATING SOIL DISTURBING ACTIVITIES, THE CONTRACTOR WILL INSTALL
PERIMETER TEMPORARY SEDIMENT CONTROLS SPECIFIED. STRIP, STOCKPILE AND
STABILIZE TOPSOIL. CLEAR AND GRUB ONLY IN NECESSARY AREAS, PRESERVING
AS MUCH NATIVE VEGETATION AS POSSIBLE. INSTALL, MAINTAIN AND/OR MOVE
TEMPORARY SEDIMENT ITEMS WITH CONSTRUCTION OPERATIONS AS PRACTICAL. IF
DIRECTED BY THE ENGINEER, PLANT TEMPORARY SEEDING. REPLACE SALVAGED
TOPSOIL AND DEVICES WHEN AN ACCEPTABLE VEGETATIVE COVER (AT LEAST 70%)
HAS BEEN ATTAINED. AS SITE CONDITIONS WARRANT, THE CONTRACTOR MAY
CHOOSE TO MODIFY THE TYPE OR ARRANGEMENT OF SPECIFIED PRACTICES TO
IMPROVE THEIR EFFECTIVENESS AS APPROVED BY ENGINEER. THE CONTRACTOR
WILL MAINTAIN A LOG OF THE DATES OF MAJOR SOIL DISTURBANCE ACTIVITIES,
AND ALSO THE DATES OF INSTALLATION OF EROSION CONTROL MEASURES.

AREA TO BE DISTURBED: 1± ACRES

OFFSITE AREA TO BE DISTURBED: _____
(FOR CONTRACTOR USE)

MAXIMUM ACRES TO BE
DISTURBED AT ANY ONE TIME: _____
(FOR CONTRACTOR USE)

LATITUDE & LONGITUDE
OF CENTER OF PROJECT: LAT: 35°36'24" N, LONG: 97°35'03"W

NAME OF RECEIVING WATERS: DRY CREEK

SENSITIVE WATERS OR WATERSHEDS: YES ☐ NO ☐

303(d) IMPAIRED WATERS: YES ☐ NO ☐

NOTE:
THIS SHEET SHOULD BE USED WITH THE EROSION CONTROL SUMMARIES,
PAY ITEMS, & NOTES.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- _____ TEMPORARY SEEDING
- _____ PERMANENT SODDING, SPRIGGING OR SEEDING
- _____ VEGETATIVE MULCHING
- _____ SOIL RETENTION BLANKET
- _____ PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- _____ STABILIZED CONSTRUCTION EXIT
- X_____ TEMPORARY SILT FENCE
- X_____ TEMPORARY SILT DIKES
- _____ TEMPORARY FIBER LOG
- _____ DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- _____ DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- _____ ROCK FILTER DAMS
- _____ TEMPORARY SLOPE DRAIN
- _____ PAVED DITCH W/ DITCH LINER PROTECTION
- _____ TEMPORARY DIVERSION CHANNELS
- _____ TEMPORARY SEDIMENT BASINS
- _____ TEMPORARY SEDIMENT TRAPS
- _____ TEMPORARY SEDIMENT FILTERS
- _____ TEMPORARY SEDIMENT REMOVAL
- _____ RIP RAP
- _____ INLET SEDIMENT FILTER
- _____ TEMPORARY BRUSH SEDIMENT BARRIERS
- _____ SANDBAG BERMS
- _____ TEMPORARY STREAM CROSSINGS

OFFSITE VEHICLE TRACKING:

- X_____ HAUL ROADS DAMPENED FOR DUST CONTROL
- X_____ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- X_____ EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE QUALIFIED PERSON AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

- ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS S SHOULD BE FERTILIZED, WATERED AND RESEEDED AS NEEDED.
- CONTROL STRUCTURES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION IF DAMAGED. SHALL BE REMOVED FROM STRUCTURES WHEN SEDIMENT REACHES ONE HALF (1/2) THE HEIGHT OF THE STRUCTURE.
- THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF MUD/DIRT ONTO PUBLIC RIGHT-OF-WAY AND ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

WASTE MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:

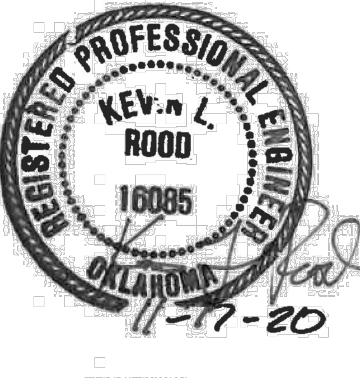
A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, OCTOBER 17, 2022.

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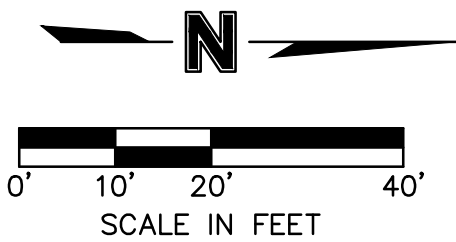
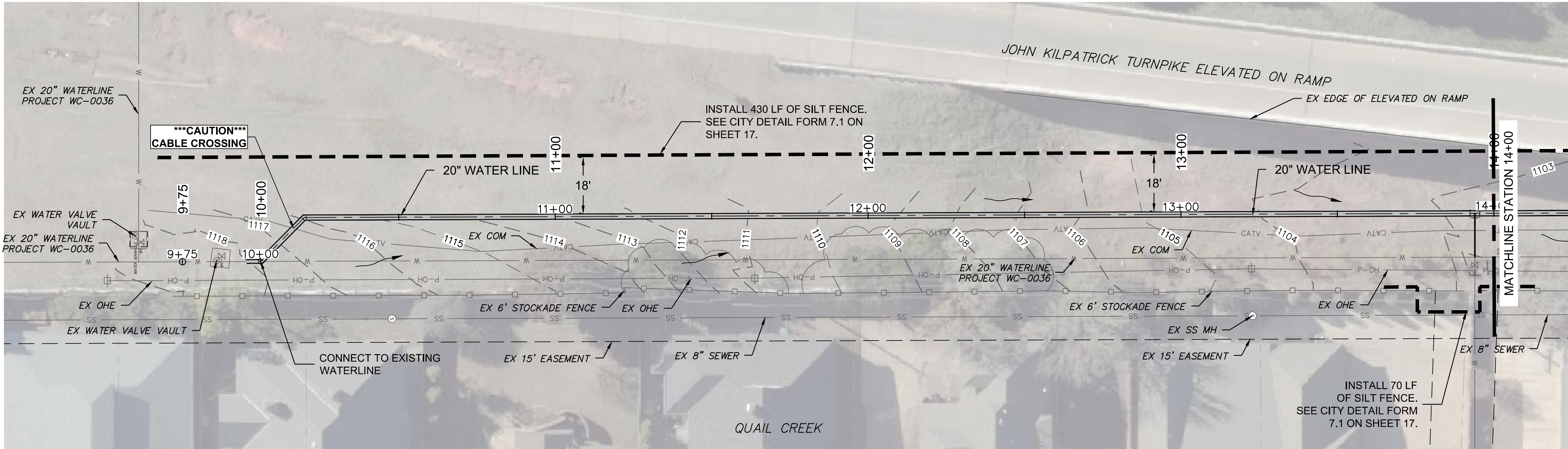
REV. NO.					DATE					REVISIONS DESCRIPTION				

STORM WATER MANAGEMENT PLAN		2020	
WC-0982 - 20-INCH WATERLINE REPLACEMENT MEMORIAL ROAD AND LAKE HEFNER PARKWAY		OKLAHOMA CITY, OK	



drawn by: _____ C/JW
checked by: _____ NED
approved by: _____ KLR
QA/QC by: _____ ENG
project no.: _____ 020-2135
drawing no.: _____ ABC.DWG
date: _____ 00.00.00

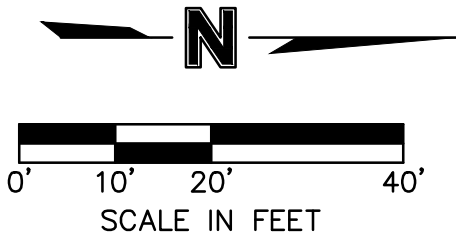
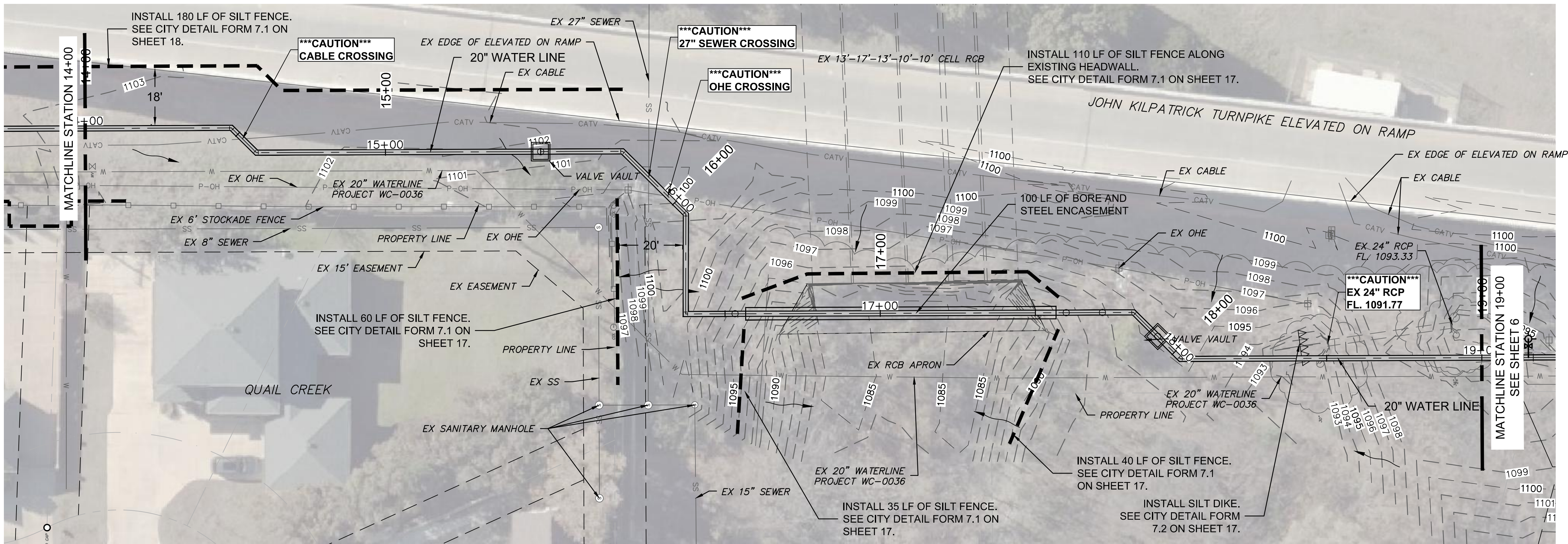
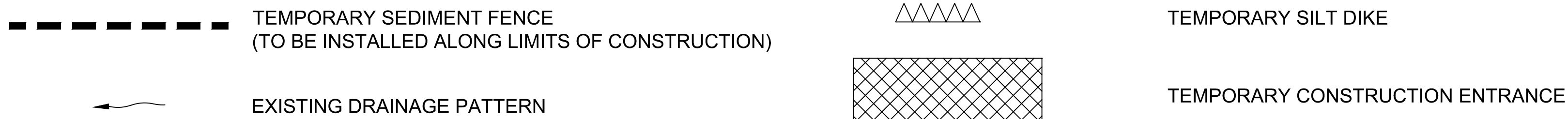
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EROSION CONTROL NOTES:

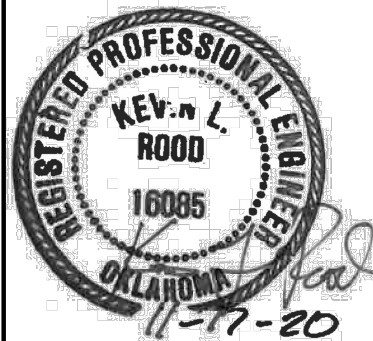
1. CONTRACTOR TO COORDINATE AND INSTALL TEMPORARY CONSTRUCTION ENTRANCE WITHIN PROVIDED EASEMENTS AND RIGHT-OF-WAY.
2. ALL EROSION CONTROL STRUCTURES AND DEVICES SHALL BE INCLUDED IN THE SEDIMENT AND EROSION CONTROL PAY ITEM.
3. PLACE EASTERN SILT FENCE 1 (ONE) FOOT OFF OF PROPERTY LINE OR 6' TALL STOCKADE FENCE.
4. FOLLOWING BACKFILL OF 20" WATERLINE TRENCH, PLACE SOLID SLAB SODDING 5' OFF CENTER EACH WAY.

EROSION CONTROL LEGEND



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EROSION CONTROL

WC-0982 - 20-INCH WATERLINE REPLACEMENT
MEMORIAL ROAD AND LAKE HEFNER PARKWAY

OKLAHOMA CITY, OK

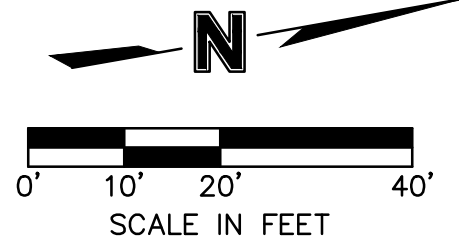
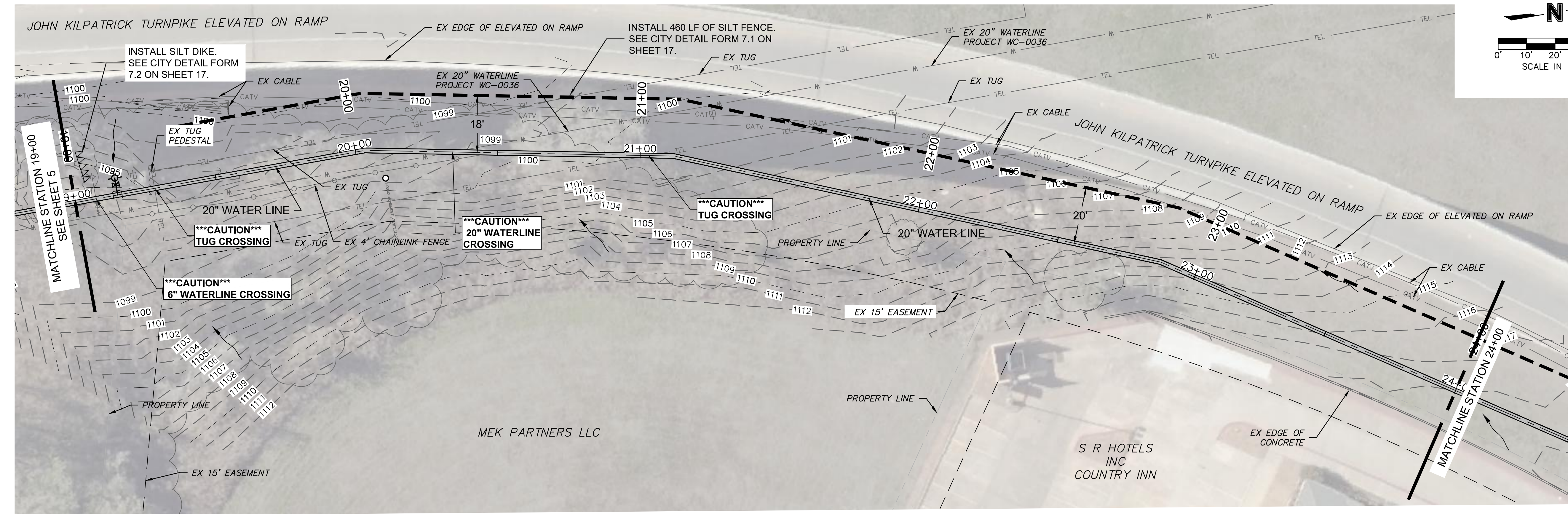
2020

drawn by: C/JW
checked by: NED
approved by: KLR
QA/QC by: ENG
project no.: 020-2135
drawing no.: ABC.DWG
date: 00.00.00

SHEET
5 OF 21

WC-0982 20" WATERLINE

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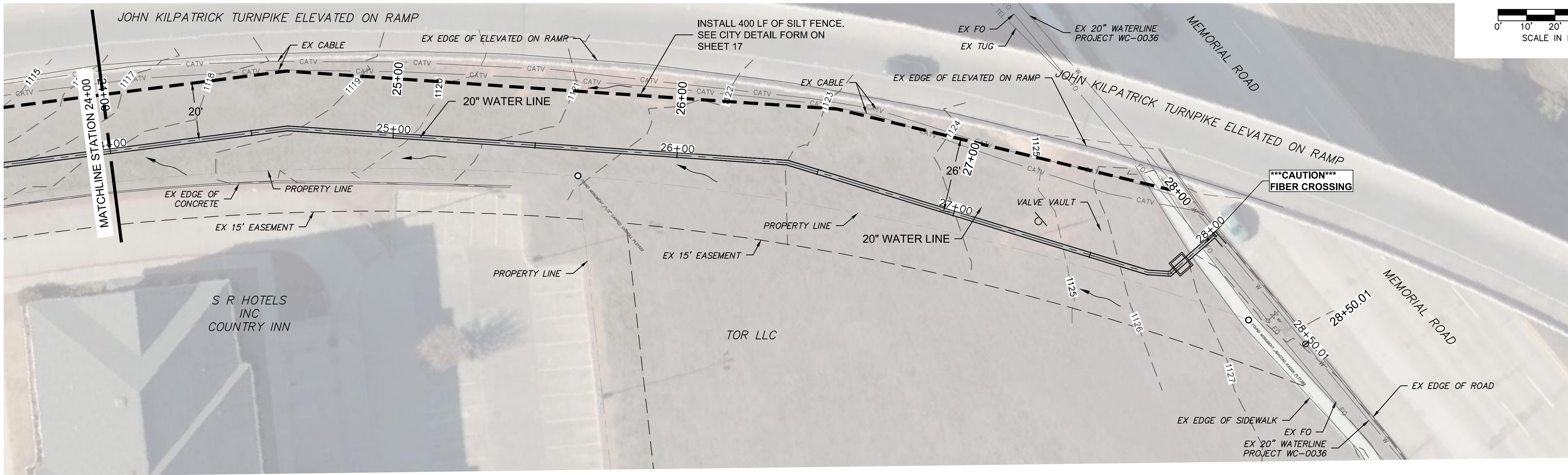
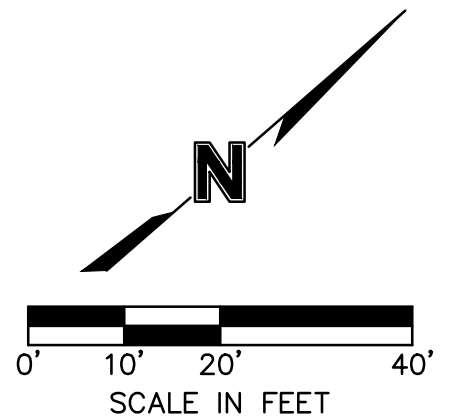


EROSION CONTROL NOTES:

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EROSION CONTROL LEGEND

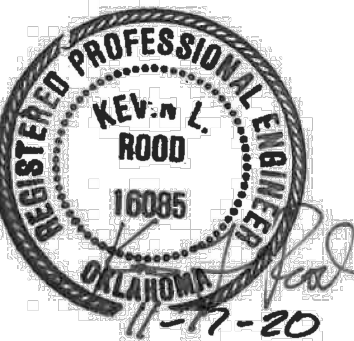
- TEMPORARY SEDIMENT FENCE (TO BE INSTALLED ALONG LIMITS OF CONSTRUCTION)
- EXISTING DRAINAGE PATTERN
- TEMPORARY SILT DIKE
- TEMPORARY CONSTRUCTION ENTRANCE



WC-0982 20" WATERLINE

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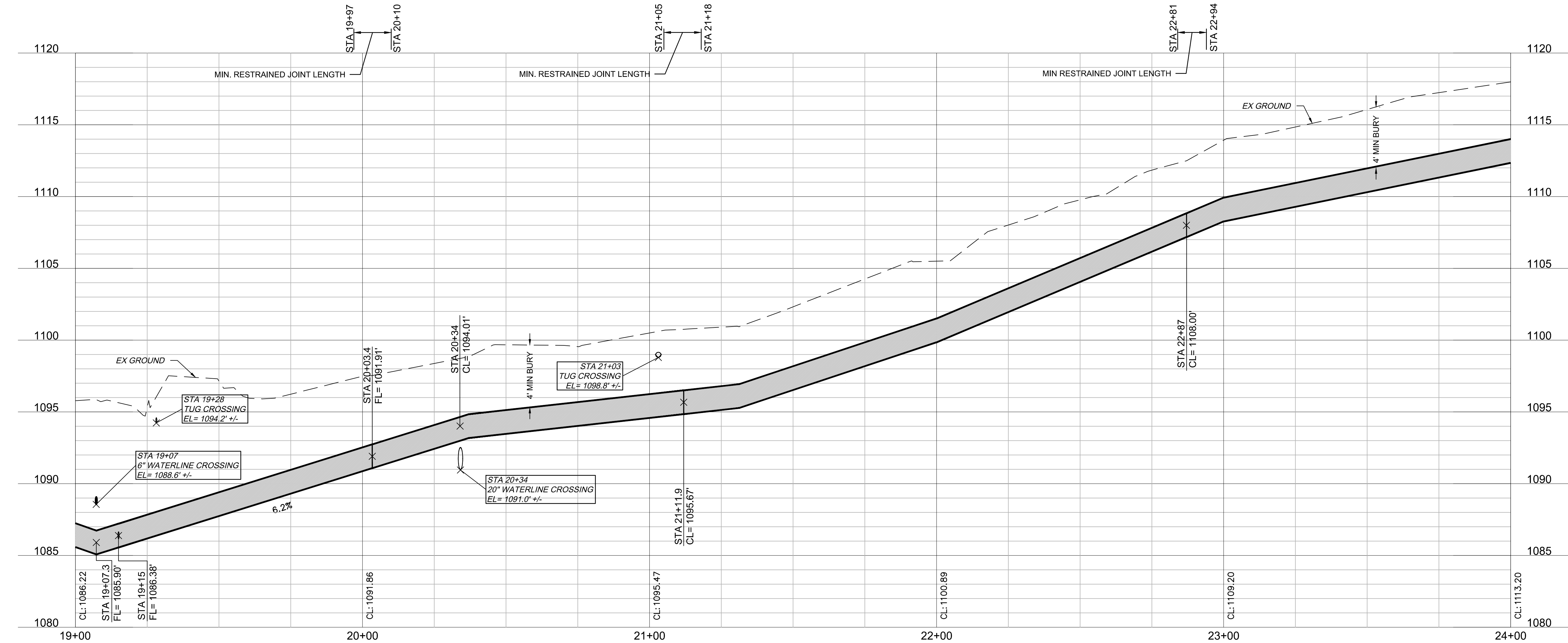
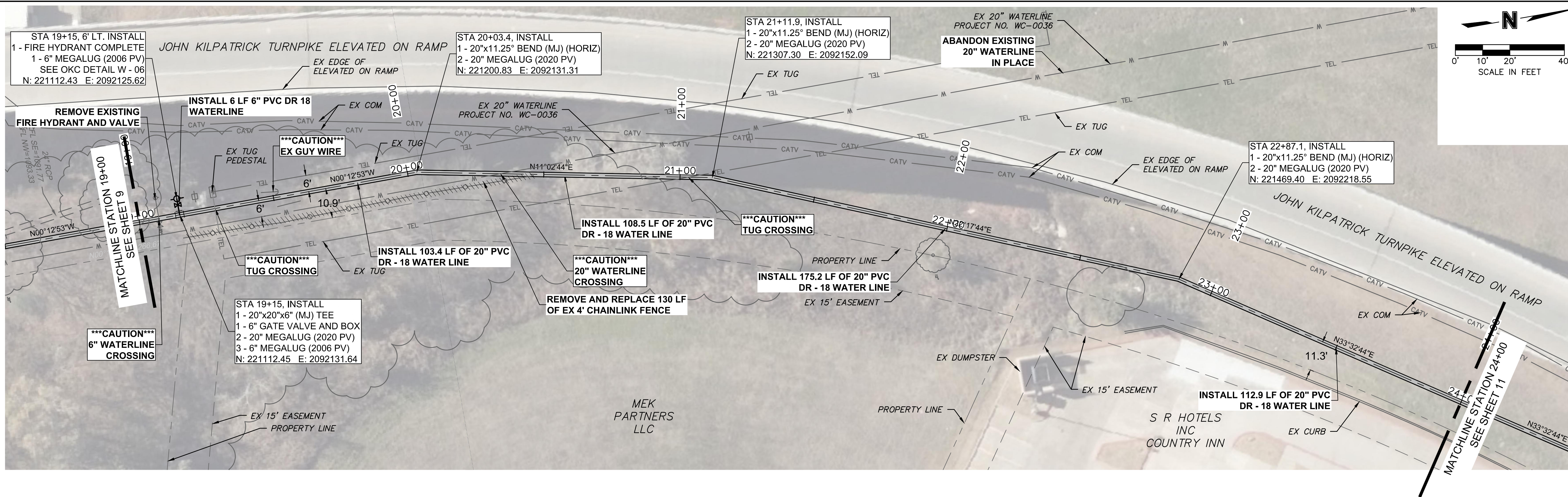


REV. NO.		DATE	REVISIONS DESCRIPTION

EROSION CONTROL		2020
WC-0982 - 20-INCH WATERLINE REPLACEMENT MEMORIAL ROAD AND LAKE HEFNER PARKWAY		
OKLAHOMA CITY, OK		

drawn by: C/JW
checked by: NED
approved by: KLR
QA/QC by: ENG
project no.: 020-2135
drawing no.: ABC.DWG
date: 00.00.00

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USER: cwhitaker
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REV. NO.	DATE	REVISIONS DESCRIPTION

PLAN AND PROFILE 19-24

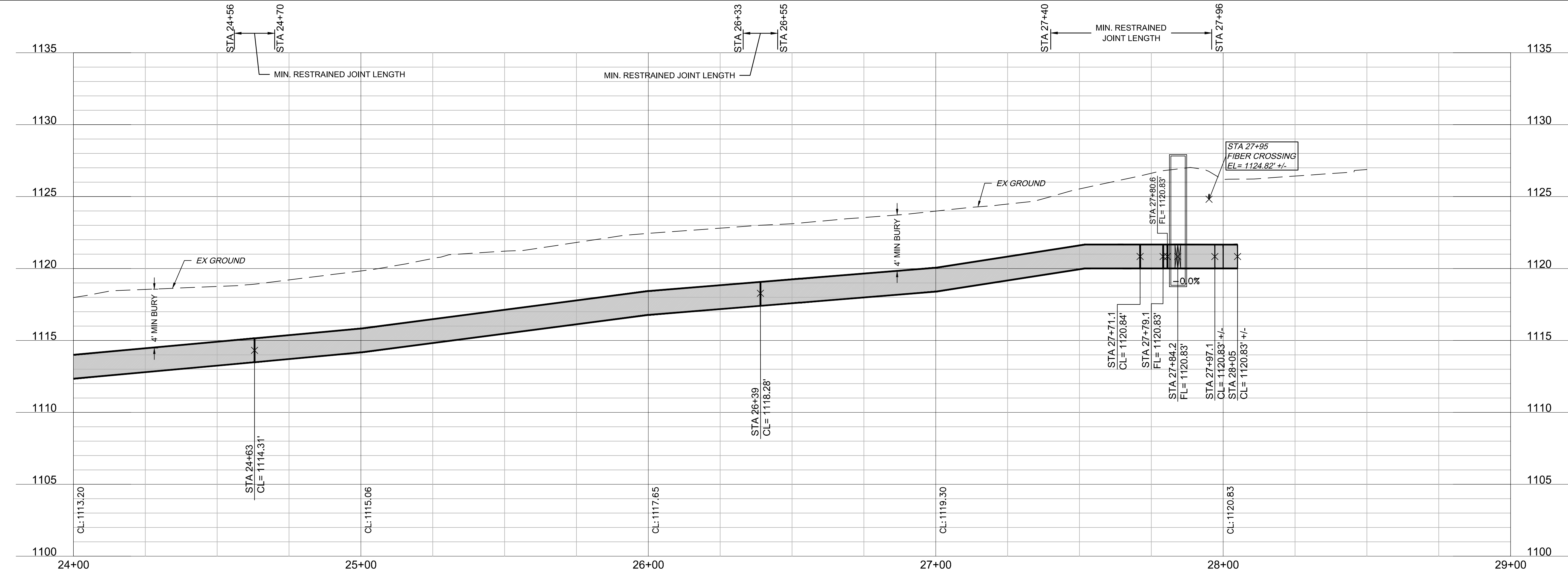
WC-0982 - 20-INCH WATERLINE REPLACEMENT
MEMORIAL ROAD AND LAKE HEFNER PARKWAY

OKLAHOMA CITY, OK

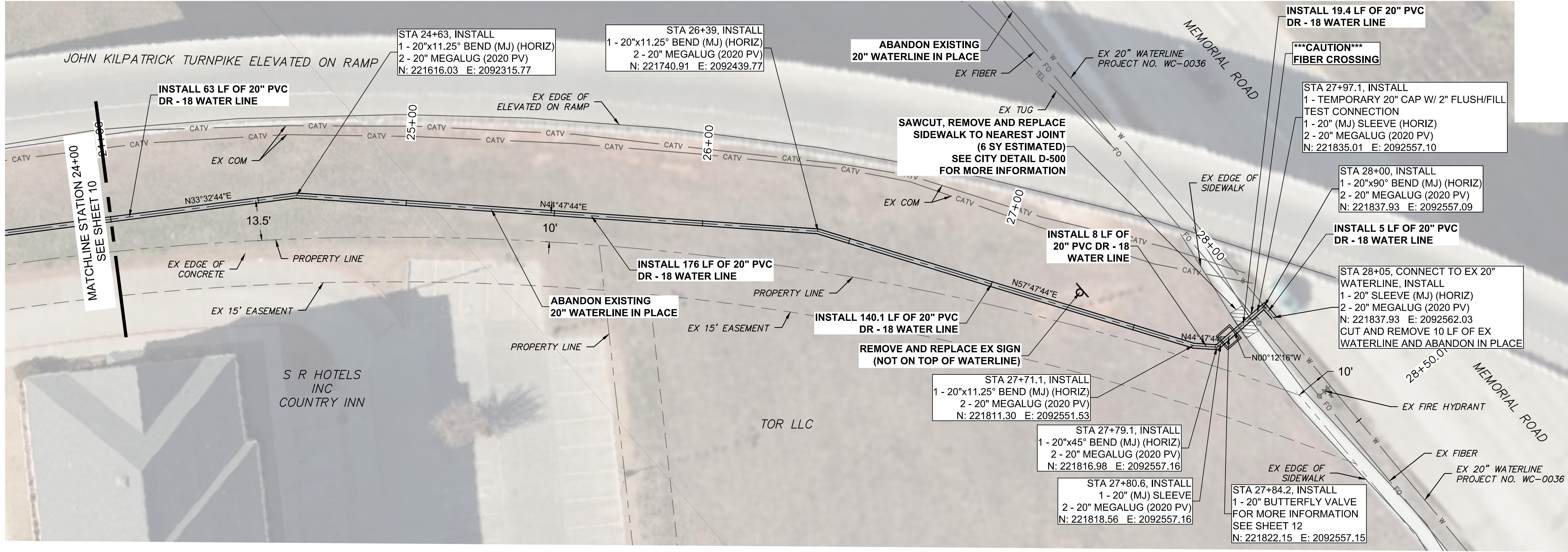
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checked by: NFD
approved by: KLR
QA/QC by: ENG
project no.: 020-2135
drawing no.: ABC.DWG
date: 00.00.00

SHEET
10 OF 21

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WC-0982 20" WATERLINE



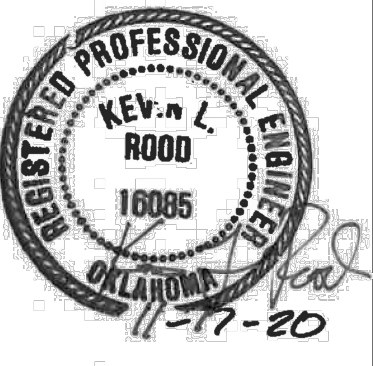
NOTE:
EX VALVE AND VALVE
VAULT APPROXIMATELY
1800 LF TO THE EAST AT
N: 221795.99 E: 2094472.55

PLAN AND RPROFILE 24-28		WC-0982 - 20-INCH WATERLINE REPLACEMENT MEMORIAL ROAD AND LAKE HEFNER PARKWAY	OKLAHOMA CITY, OK	2020	REVISIONS	
REV. NO.	DATE					REVISIONS DESCRIPTION
drawn by: _____		CJW				
checked by: _____		NFD				
approved by: _____		KLR				
QA/QC by: _____		ENG				
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drawing no.: _____		ABC.DWG				
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11 OF 21						

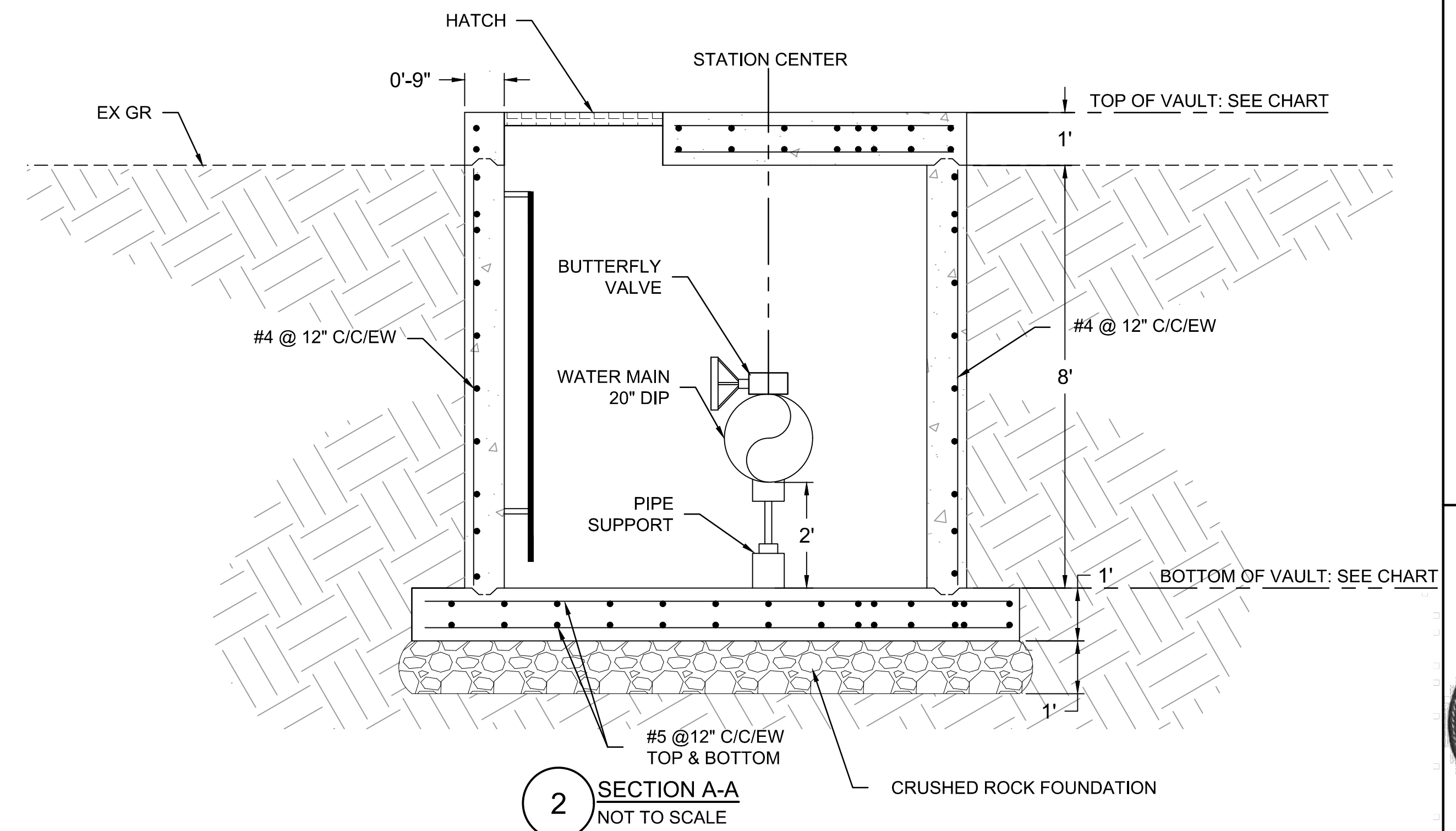
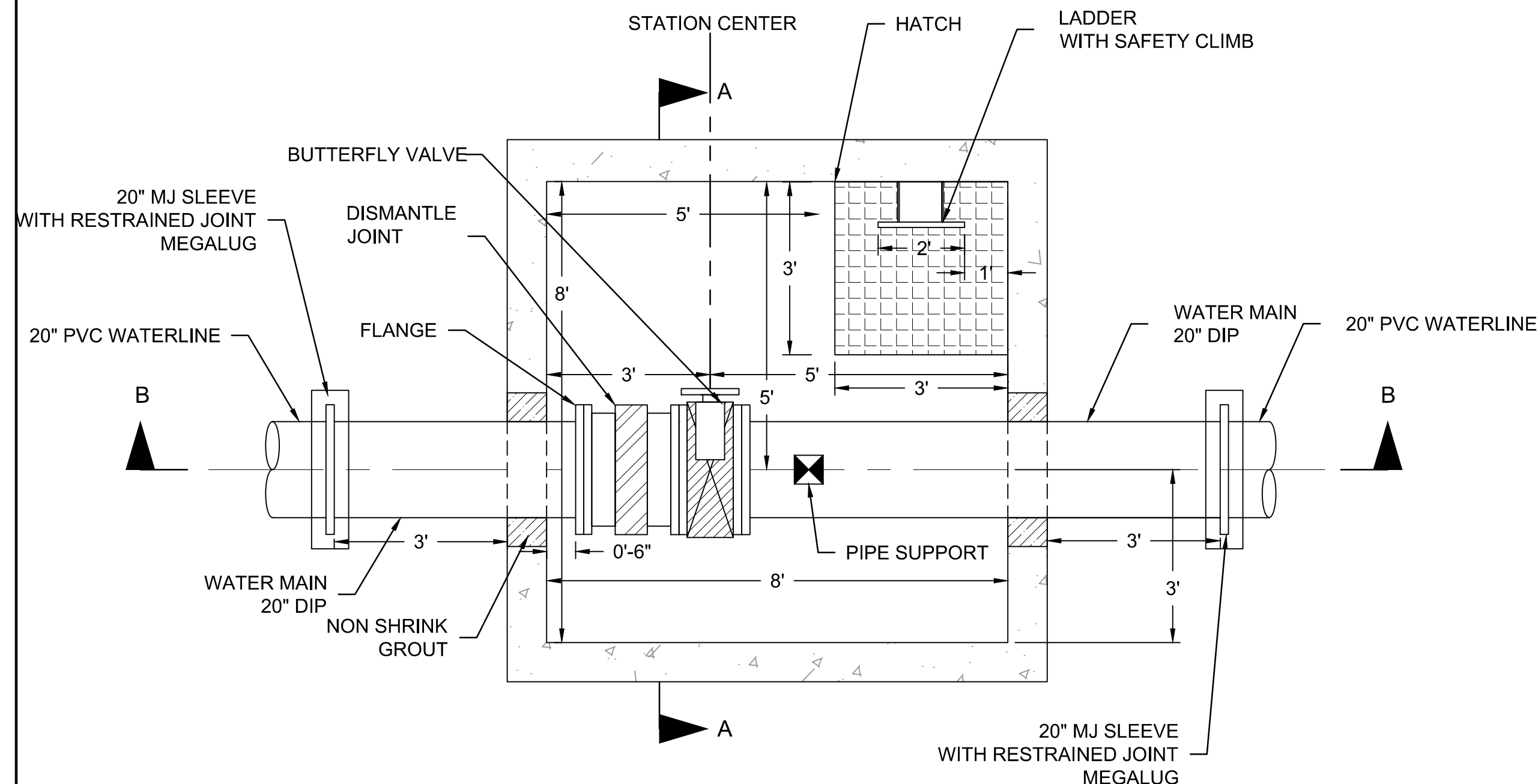
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checked by: NED
approved by: KLR
QA/QC by: ENG
project no.: 020-2135
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date: 00.00.00

PLAN AND RPROFILE 24-28
WC-0982 - 20-INCH WATERLINE REPLACEMENT
MEMORIAL ROAD AND LAKE HEFNER PARKWAY
OKLAHOMA CITY, OK

REVISIONS		
REV. NO.	DATE	REVISIONS DESCRIPTION

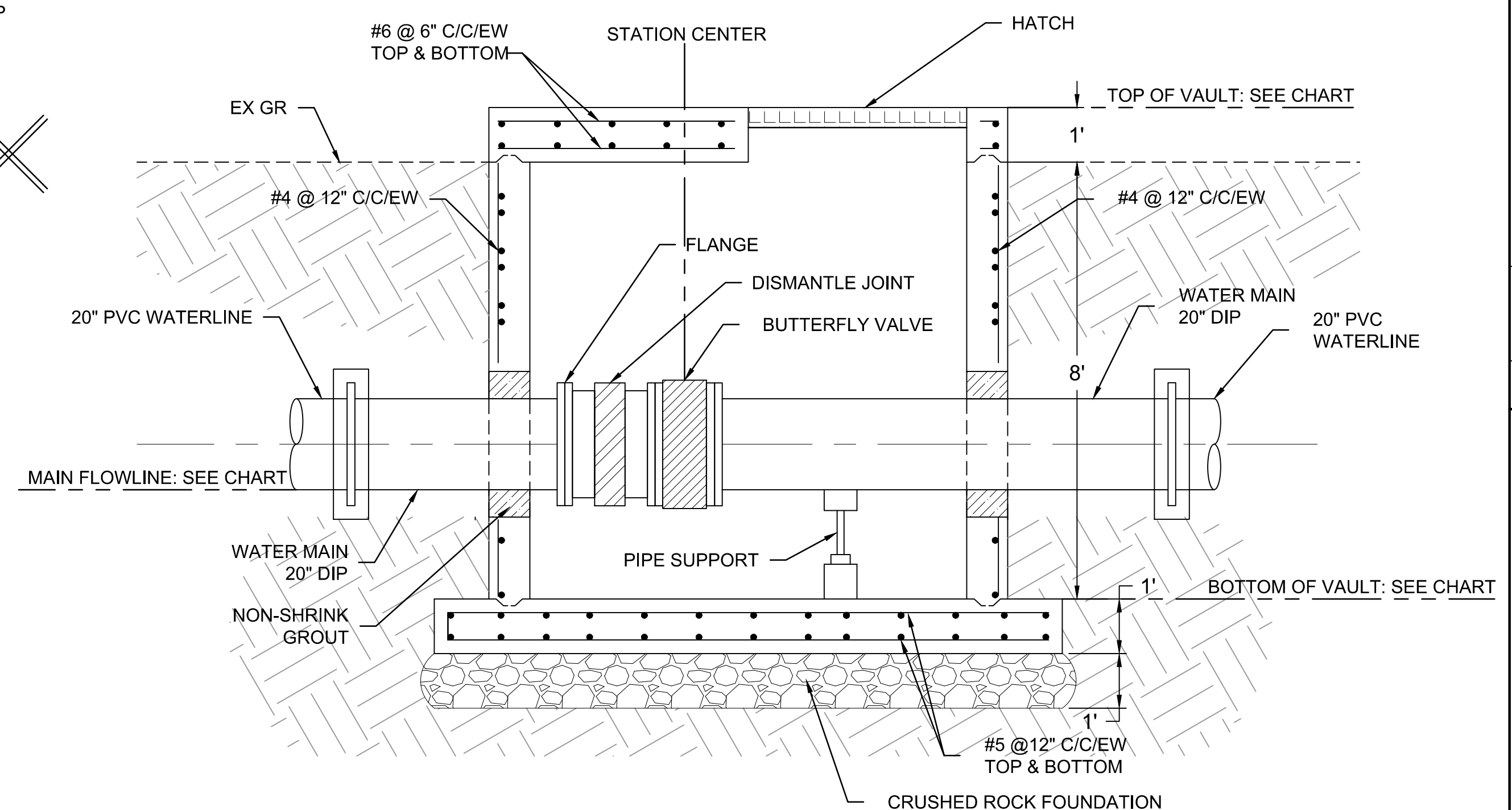
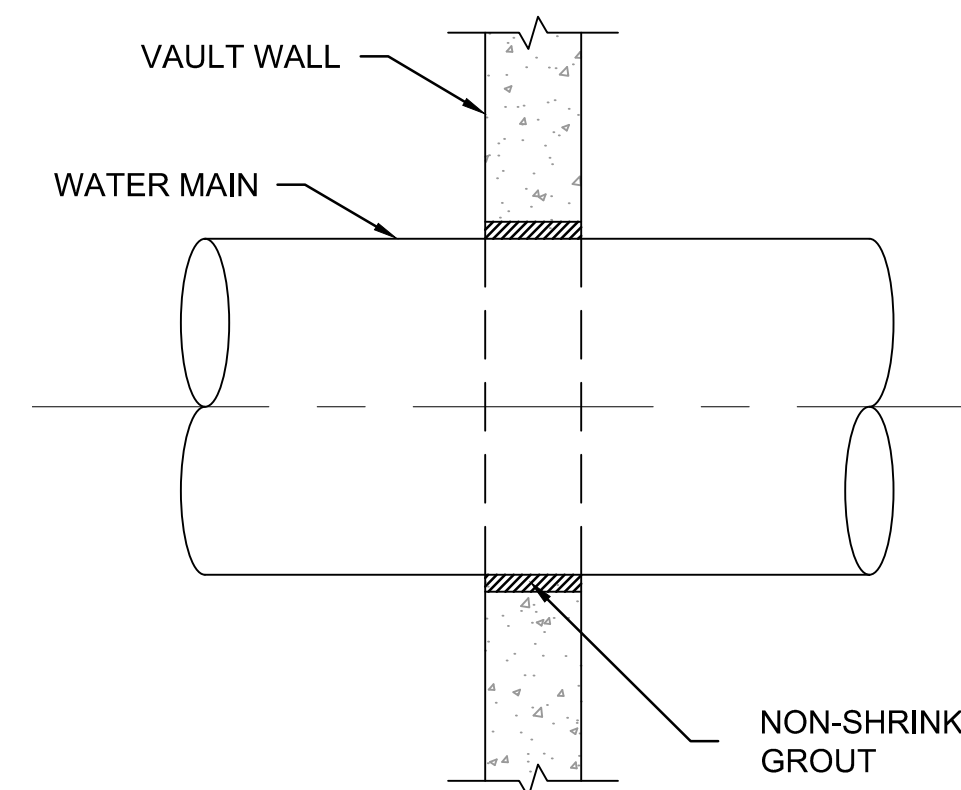
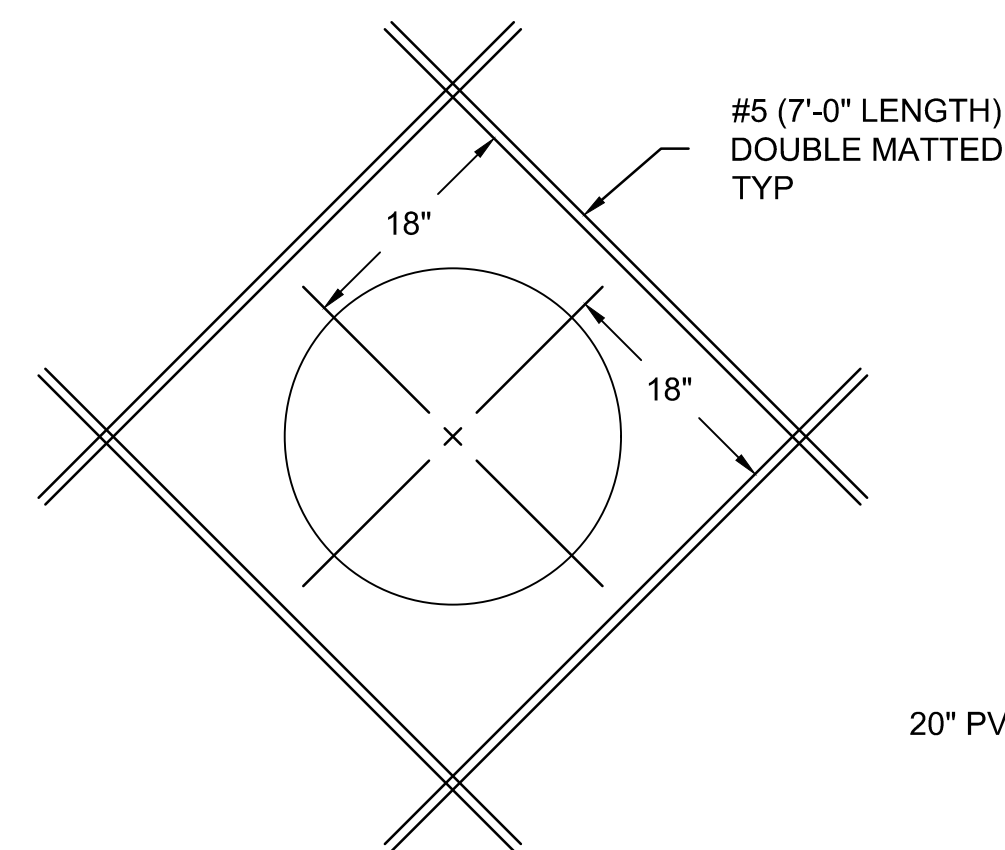
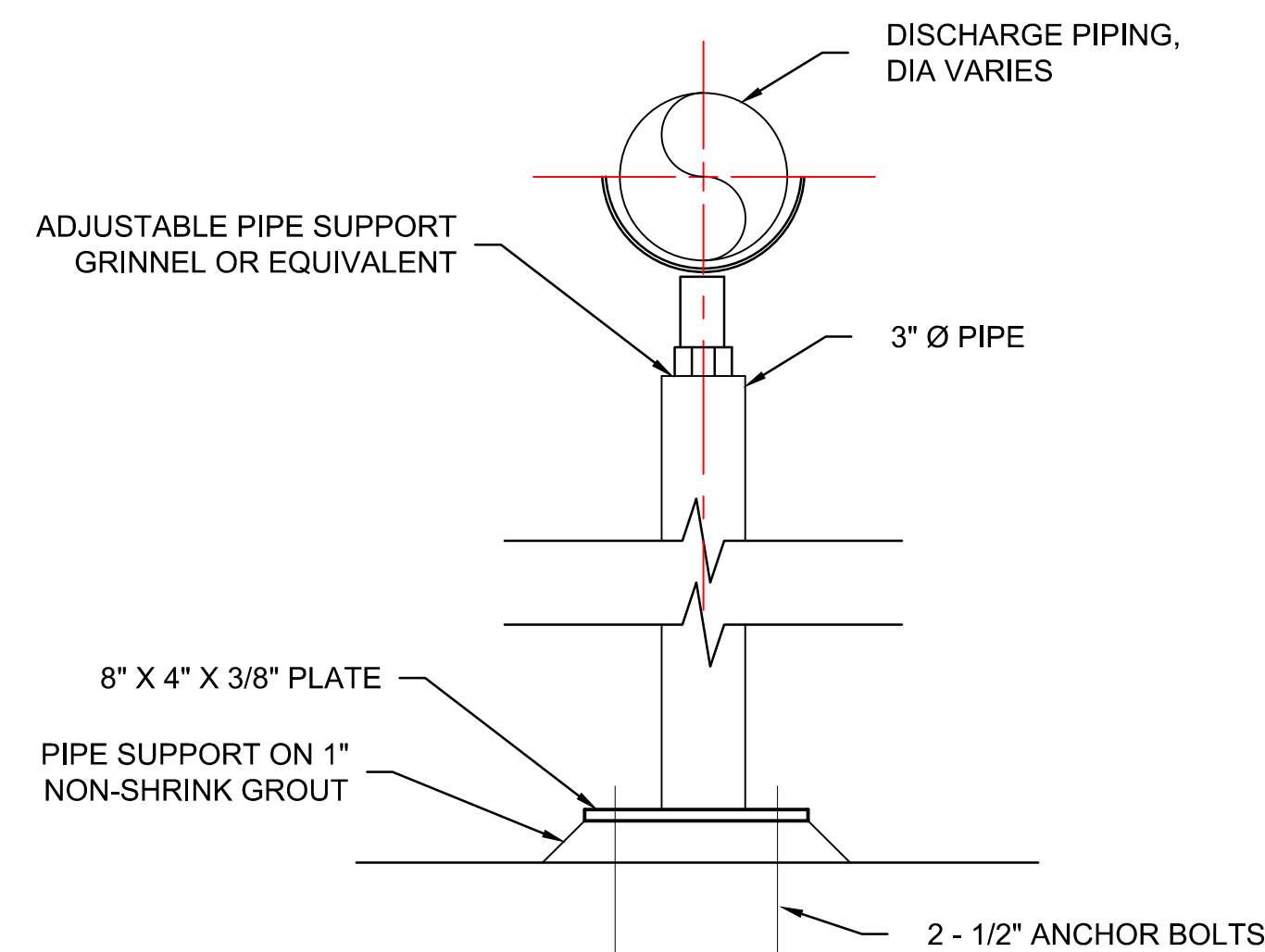


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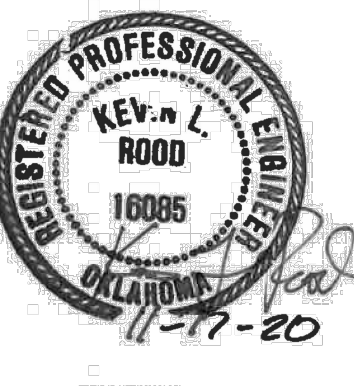


- VALVE VAULT GENERAL NOTES:

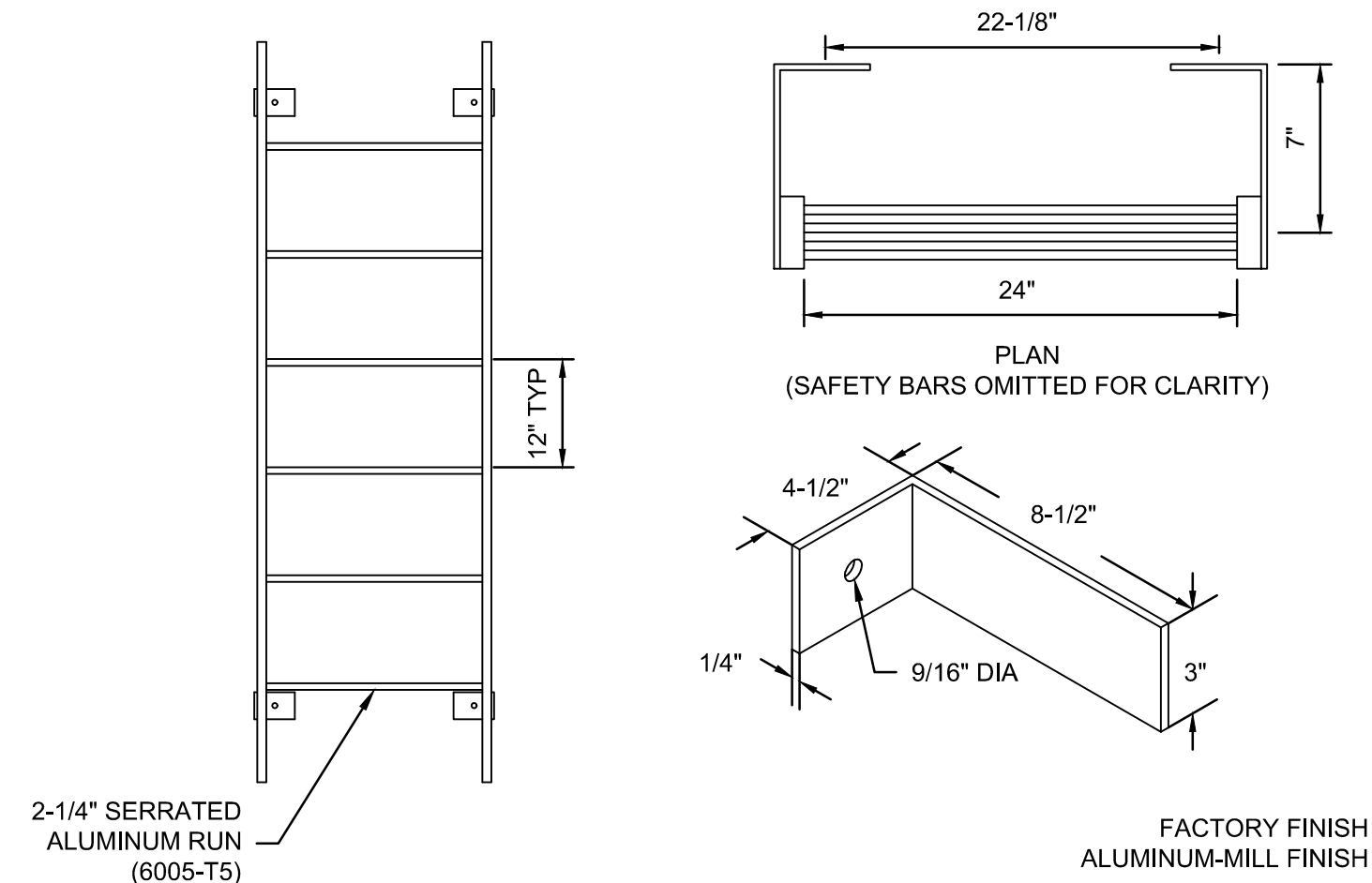
- VAULT ACCESS HATCH SHALL BE ALUMINUM, RATED FOR 300 POUNDS PER SQUARE FOOT AND MUST BE MANUFACTURED BY BILCO COMPANY OR HALLIDAY PRODUCTS. ALL ATTACHING HARDWARE, AUTO LOCK, HINGES, SLAM LOC WITH REMOVABLE KEY, COMPRESSION SPRING ASSIST SHALL BE 316 STAINLESS STEEL. DOORS SHALL HAVE BUILT IN FALL PROTECTION.
- ACCESS LADDER SHALL BE BILCO COMPANY LADDER-UP SAFETY POST, TYPE LU-3 STAINLESS STEEL TYPE 304 OR EQUAL. INSTALL NON-SKID RUNGS @ 12-INCH CENTERS. LADDER TO BE ANCHORED TO TOP, MID-SPAN AND BOTTOM OF VAULT. LADDER SHALL BE ACCESSIBLE FROM ACCESS MANHOLE.
- ALL MANHOLE FRAMES, COVERS & REMOVABLE SECTIONS MUST HAVE SEALER GASKETS.
- MANHOLE RINGS, LIDS AND VENT PIPES TO BE PAINTED INTERNATIONAL ORANGE.
- FLANGES, BOLTS & NUTS SHALL NOT BE EMBEDDED IN CONCRETE AT PIPE SUPPORTS.
- CONCRETE SHALL HAVE A MINIMUM 7 DAY COMPRESSIVE STRENGTH OF 3,500 PSI (HIGH EARLY STRENGTH)
- REINFORCING STEEL SHALL MEET ASTM SPECIFICATION A 615, GRADE 60, EPOXY COATED AND SHALL HAVE A MINIMUM CLEARANCE OF 2" FROM THE INSIDE FACE OF THE WALL.
- BUTTERFLY VALVE FACE SHALL FACE INTO THE DIRECTION OF FLOW WHEN CLOSED (TOWARDS PRECEDING ALIGNMENT STATIONS).
- COMPACT BACKFILL TO 95% STANDARD PROCTOR DENSITY IN 6-INCH LIFTS.
- SLOPE VAULT FLOOR TOWARDS SUMP ($\frac{1}{4}$ " PER 1').



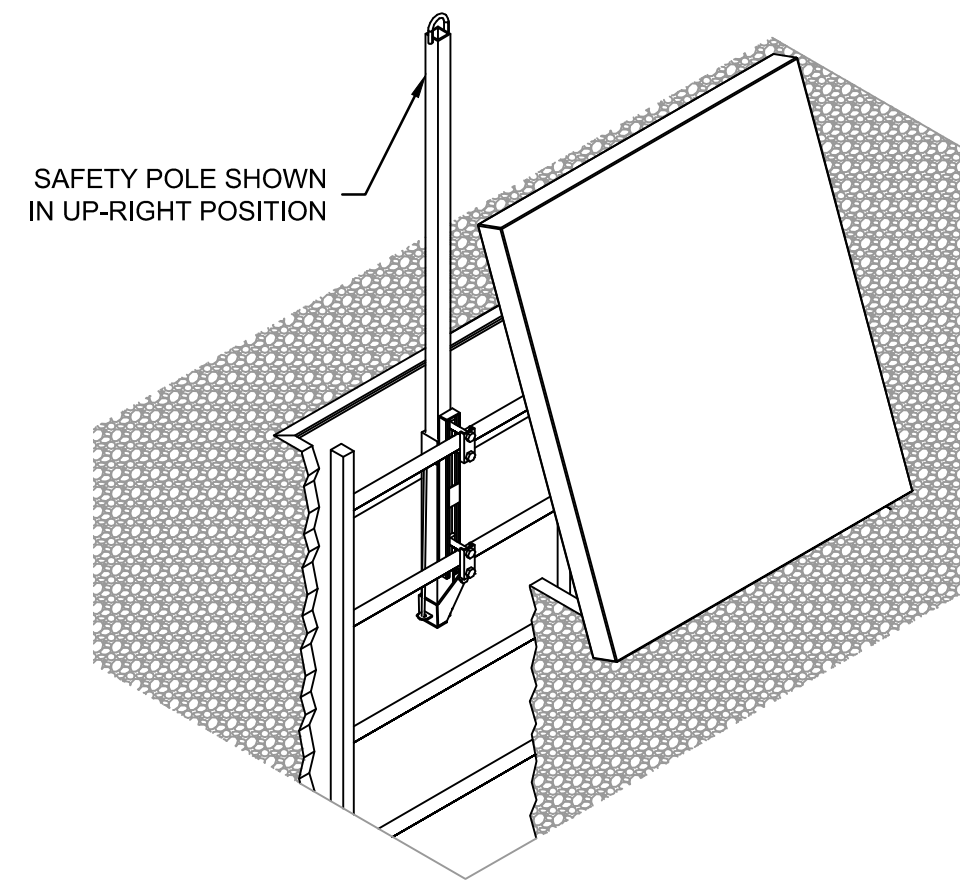
VALVE VAULT LOCATIONS			
STATION	FLOW LINE	BOTTOM ELEVATION	TOP ELEVATION
STA 15+50	1096.13'	1094.13'	1102.49'
STA 17+92.6	1088.15'	1086.15'	1095.5'
STA 27+84.2	1120.83'	1118.83'	1127.91'

[illegible]

CIVIL DETAILS	
WC-0982 - 20-INCH WATERLINE REPLACEMENT MEMORIAL ROAD AND LAKE HEFNER PARKWAY	
OKLAHOMA CITY, OK	2020



7 LADDER DETAIL
NOT TO SCALE



8 LADDER/SAFETY POLE DETAIL
NOT TO SCALE

[illegible]

STORM WATER MANAGEMENT EROSION AND SEDIMENT CONTROL NOTES

GENERAL NOTES

The following are requirements to be followed by the Contractor during all phases of the project. Please note that this construction will be accomplished under the provisions of the National Pollutant Discharge Elimination System (NPDES) of the U.S. Environmental Protection Agency (EPA). A Storm Water Pollution Prevention Plan (SWP3) must be prepared for this project in conformance with EPA regulations (Code of Federal Regulations (CFR) 40, Part 122) and Oklahoma Department of Environmental Quality (ODEQ) General Permit (OKR-10). The Contractor will be responsible for compliance with the OPDES permit and the SWP3, as well as with all provisions of the plans and specifications. It will also be the Contractor's responsibility to prevent soil or sediment loss from the construction site. The Contractor shall not leave the site until all erosion control, sediment control, and storm water management practices are in place; have been inspected and found satisfactory; and all temporary practices have been properly removed.

STORM WATER MANAGEMENT

The project must be designed to provide positive post-construction control of storm water runoff from the site [using gutters, curbs, inlets, piping, and outlets to the receiving stream]. The erosion and sediment control measures discussed below will also provide some temporary storm water controls. During the course of construction, the contractor will install and maintain storm water controls in the sequence specified herein to provide comprehensive management of storm water for a project of this nature.

EROSION AND SEDIMENT CONTROL

The project must be designed to minimize adverse off-site effects of soil erosion and resulting sediment loss through the use of proper construction techniques; and by installing both temporary and permanent management practices. All soil-disturbing activities performed by the Contractor will be accomplished in such manner as to prevent loss of sediment from the construction site during rainfall events. To accomplish this, the following specific steps will be taken during construction:

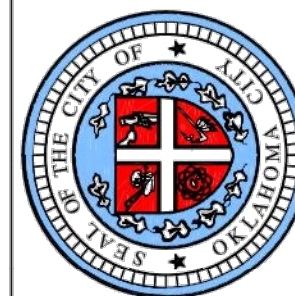
- 1 Immediately after mobilization but prior to initiation any soil-disturbing activities, the Contractor will install all specified perimeter controls on the site. These practices have been designed to trap all sediment produced during soil-disturbing activities, and to prevent off-site damage. It is recognized that some site preparation may be required to properly install these practices.
- 2 The recommended sequence for the installation and removal of erosion and sediment control measures is as follows:
perimeter control measures (silt barriers and fencing) installed at designated areas; cleaning of street during construction; site grading (including temporary slope stabilization) as needed; installation of utilities; building construction; paving; final grading; installation of sod or vegetative materials; building construction; paving; final grading; installation of sod or vegetative materials; removal of temporary practices and perimeter controls; and site cleanup.
- 3 During all soil-disturbing activities, the Contractor will take appropriate steps using accepted construction methods to minimize exposure of unprotected soil and other construction materials to rainfall. Particular care must be exercised when dealing with topsoil stockpiles, fill material, or soil on slopes. The Contractor will maintain a date log of all soil disturbance activities or major grading operations, and of all management practice or control measure installations.

- 4 If, during the course of construction, any area of soil (including stockpiles) remains exposed for more than fourteen calendar days without suitable erosion control, then temporary stabilization measures should be installed unless soil-disturbing activities are planned on such areas within an additional seven calendar days. Suitable temporary stabilization measures are perimeter controls and silt barriers (such as rock bags, sand bags, and silt fencing) along all side-slope and down-slope borders of the disturbed area. Note that perimeter controls alone may not be successful; movement of large amounts of sediment produced by heavy rain on exposed soil could overwhelm such measures.


- 5 At the Contractor's discretion, additional temporary erosion control practices (such as rock bags, sand bag barriers, and silt fences) may be installed along any down-slope of side-slope perimeter of a soil-disturbed area to prevent sediment movement. Anchored erosion control matting, mulches, or other acceptable methods may also be installed to stabilize any unprotected slopes during construction, and hold them to the appropriate grade.

As site conditions warrant, the Contractor may also choose to modify the type or arrangement of specified practices to improve their effectiveness. As with any other project changes, the Contractor must present all proposed modifications to the Project Engineer for approval prior to installation.

- 6 The Contractor will inspect all specified practices at least once every fourteen calendar days, and after all rainfall events to insure that each specified practice remains intact. Any damage noted during such inspections shall be repaired promptly to restore the practice to original specifications. The Contractor will be responsible for maintenance of all erosion and sediment control practices as specified in the plans, including periodic regrading, and final grading after removal of all such practices.
- 7 When water is used for dust control or to promote vegetation, the Contractor will prevent the escape of this water and any sediment it may carry from the construction site.
- 8 Care must be exercised to prevent excessive off-site tracking of mud or sediment by construction vehicles. In addition to the specified gravel entrance, properly graveled transition areas should be established at all temporary site exits to assist in mud removal from departing vehicles. The Contractor shall be responsible for cleaning the street daily, or as directed by the City, when mud is tracked onto the street from the construction site.
- 9 During the site cleanup prior to the possession date, each temporary practice will be completely removed and the area finished to the appropriate post-project condition. This involves final grading, and installation of sod or grass seed on all bare soil areas. A minimum vegetation density of seventy percent, or an equivalent sediment stabilization measure (geotextiles, mulches, or gabions), is required until vegetation is established.



The City of
Oklahoma City
Public Works Department
Engineering Division

APPROVED BY:  DATE: 01-29-13
ERIC J. WENGER, P.E.
CITY ENGINEER

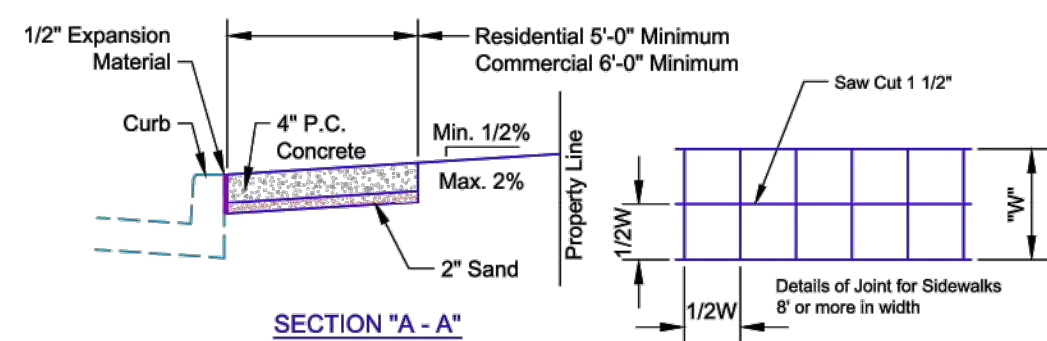
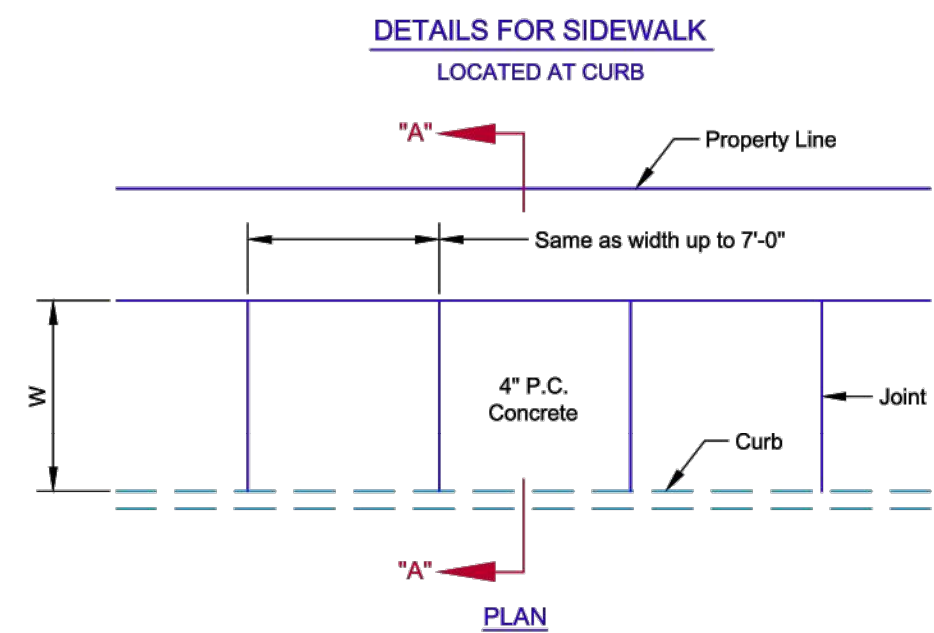
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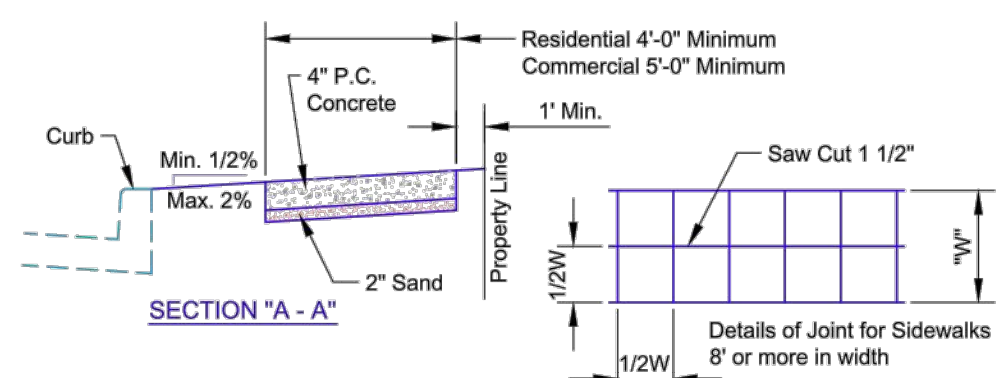
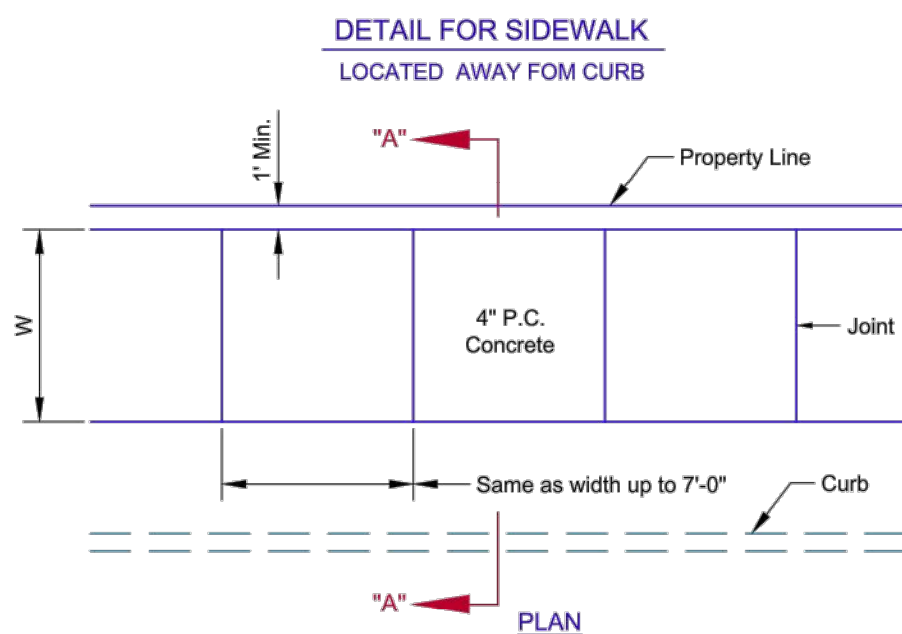
STORM WATER EROSION AND SEDIMENT CONTROL PROCEDURES

Drawing Number
D-010

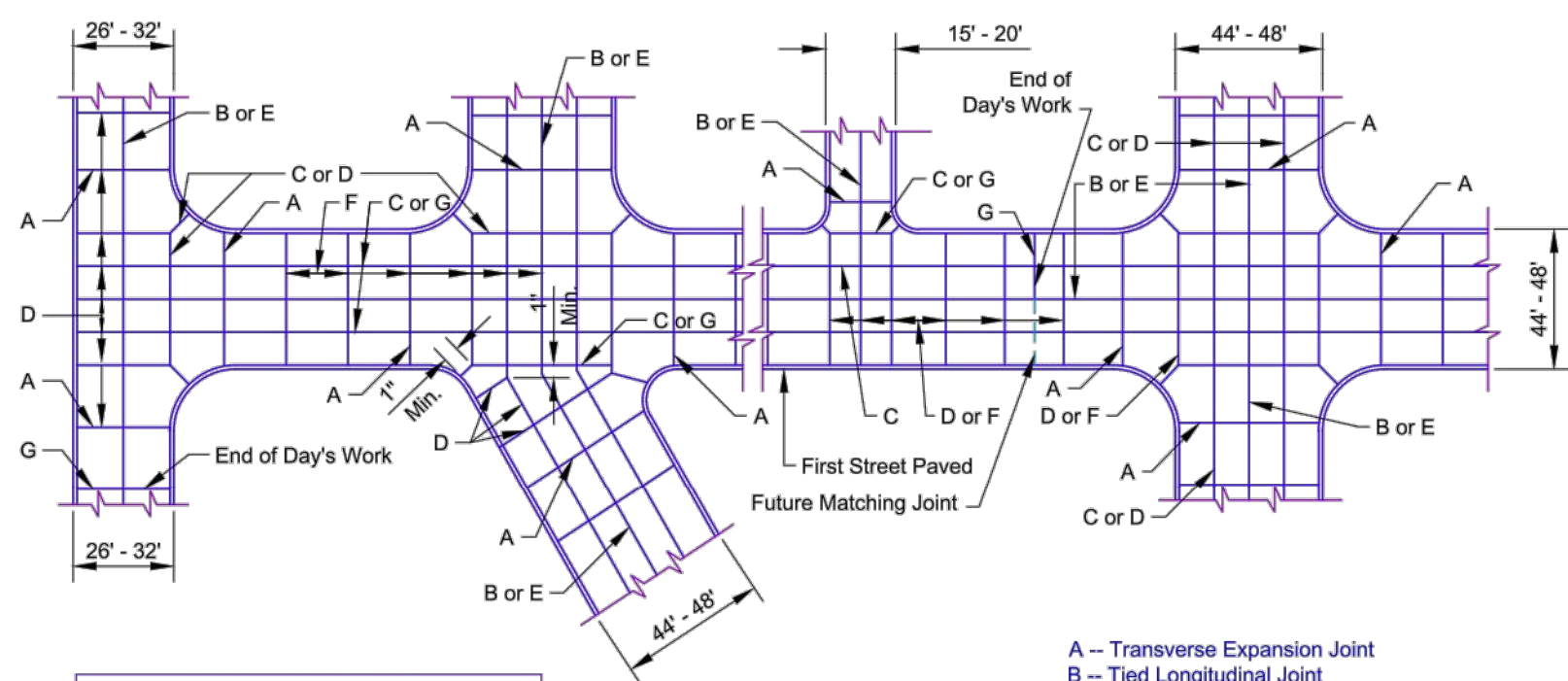
CITY DETAILS		REV. NO.	DATE	REVISIONS DESCRIPTION
WC-0982 - 20-INCH WATERLINE REPLACEMENT MEMORIAL ROAD AND LAKE HEFNER PARKWAY				
OKLAHOMA CITY, OK		2020		
drawn by: C-JW				
checked by: NFD				
approved by: KLR				
CAI/C by: ENG				
project no.: 020-2135				
drawing no.: ABC DWG				
date: 00.00.00				
		REVISIONS		



- NOTES:
1. 1/2" x 4" premolded expansion material around Power Poles or other structures in walk with at least 36" of clear travel space.
 2. Expansion Joints maximum distance = 100', use 1/2" x 4" premolded expansion material.
 3. Contraction Joints maximum distance = 7', saw cut 1 1/2" deep and fill with sealant.
 4. Saw cut joints within 24 hours.
 5. Use 1/2" x 4" premolded expansion joint at curb and at adjacent Property Lines.
 6. All joints to be sealed. Premolded expansion material to be removed to a depth of 1/2" prior to applying sealant.

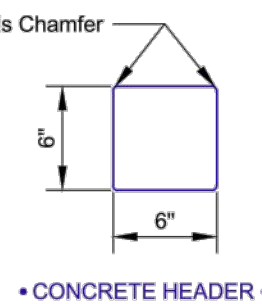
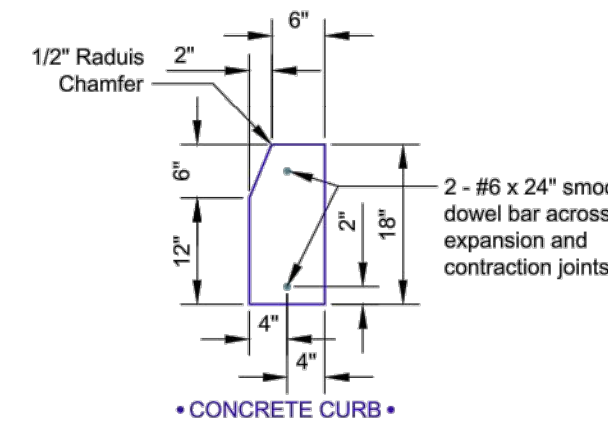
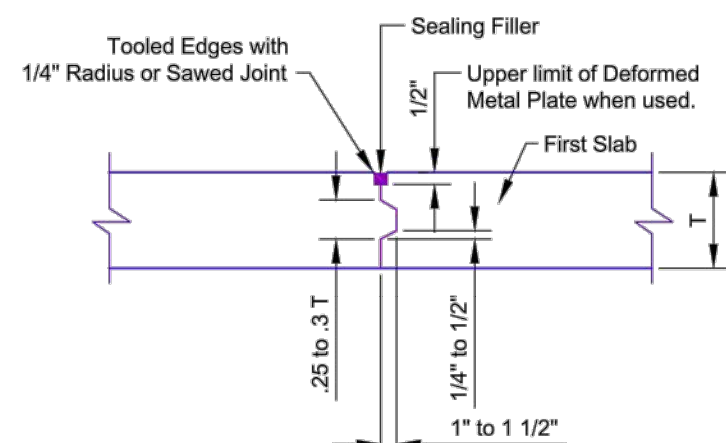
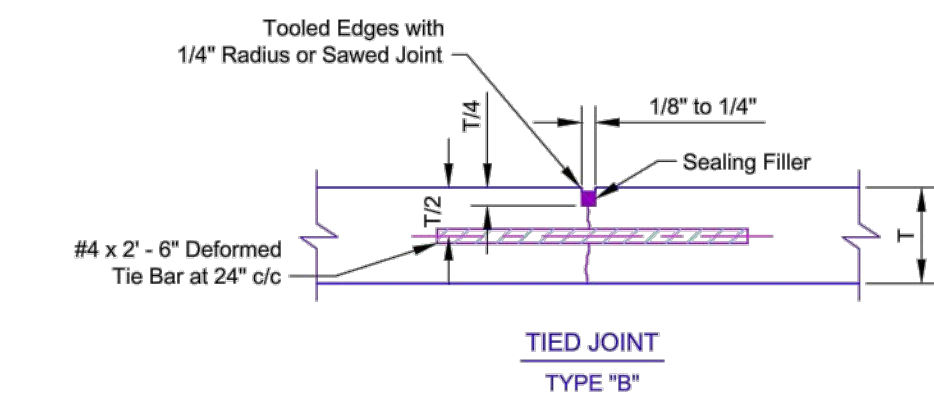
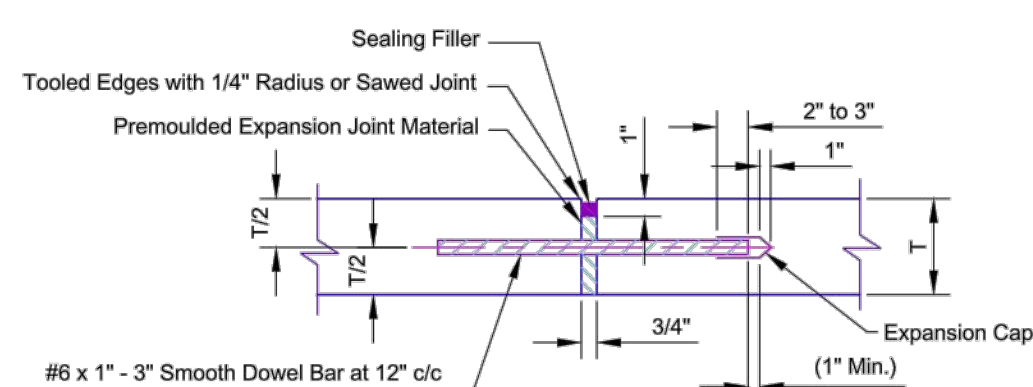


- NOTES:
1. 1/2" x 4" premolded expansion material around Power Poles or other structures in walk with at least 36" of clear travel space.
 2. Expansion Joints maximum distance = 100', use 1/2" x 4" premolded expansion material.
 3. Contraction Joints maximum distance = 7', saw cut 1 1/2" deep and fill with sealant.
 4. Saw cut joints within 24 hours.
 5. All joints to be sealed. Premolded expansion material to be removed to a depth of 1/2" prior to applying sealant.

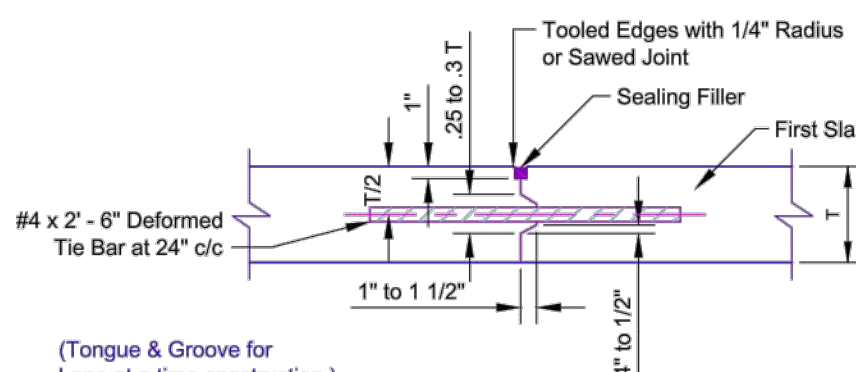
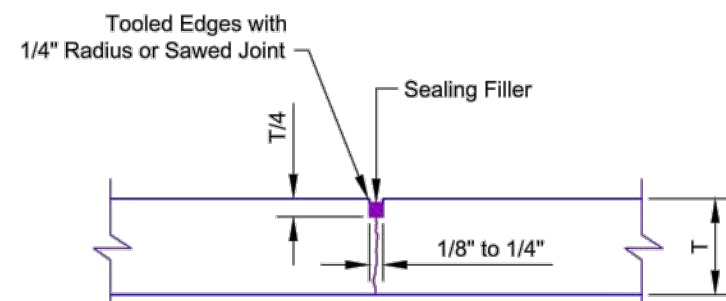


CROWN SCHEDULE		
FULL WIDTH	To 33' with 6" Curb	32' & over with 8" Curbs
	2 1/2"	4"

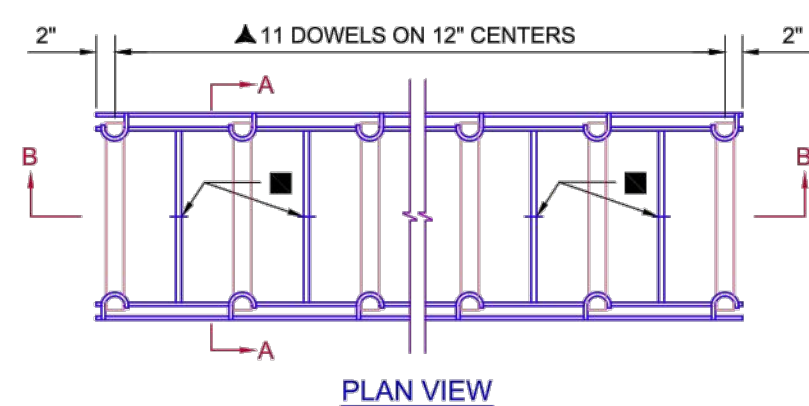
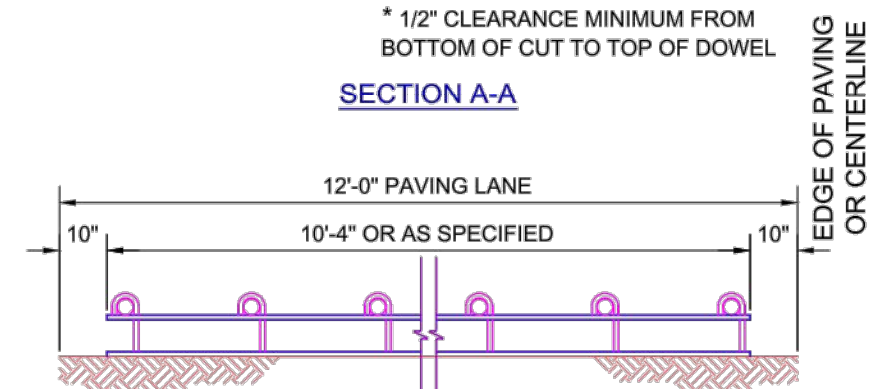
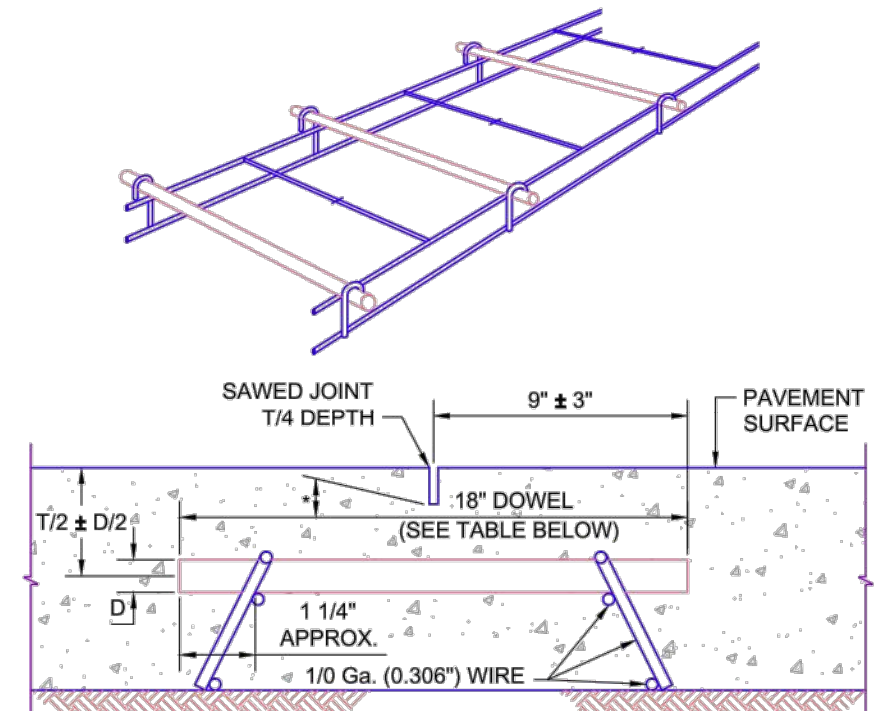
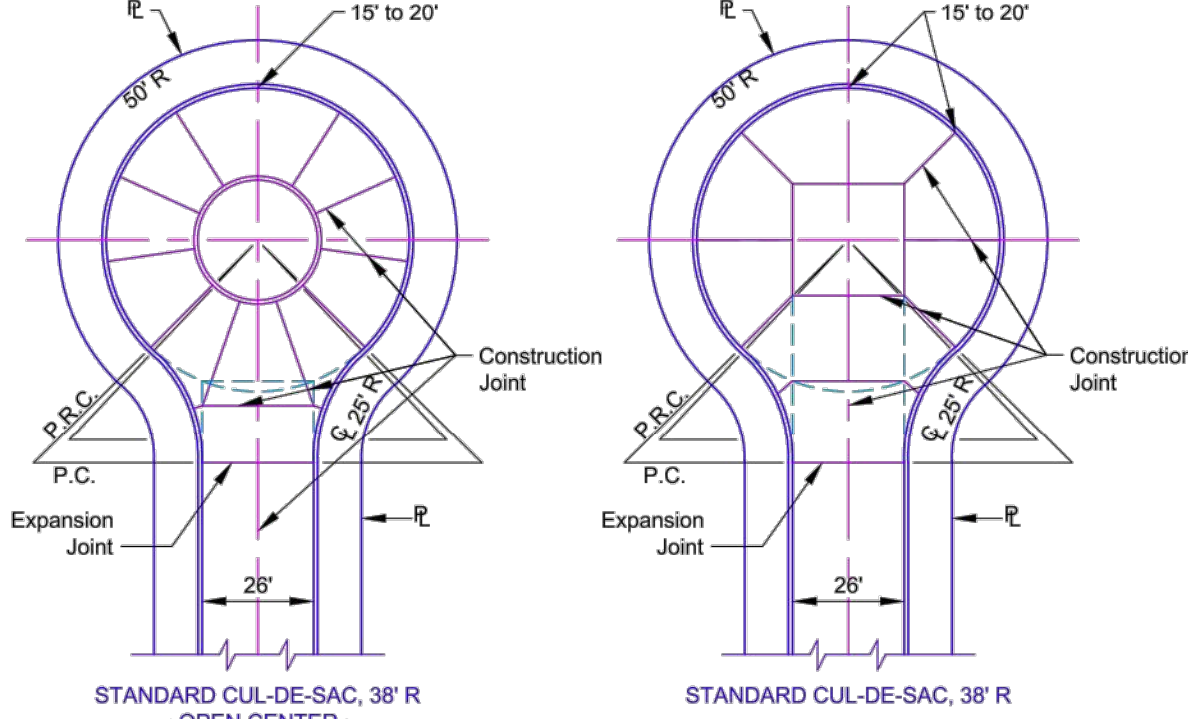
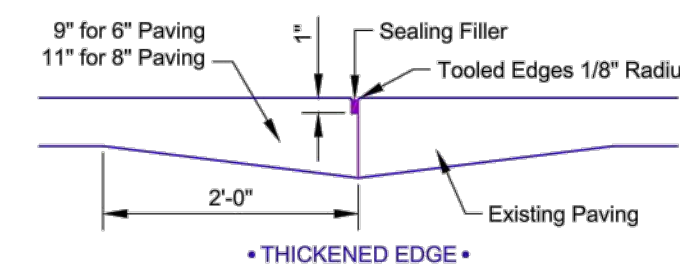
A -- Transverse Expansion Joint
B -- Tied Longitudinal Joint
C -- Tongue & Groove Construction Joint
D -- Contraction Joint
E -- Longitudinal Construction Joint
F -- Doweled Contraction Joint
G -- Doweled Construction Joint



MISCELLANEOUS DETAILS



- NOTES:
- Smooth Dowel Bars across Expansion Joints shall be provided with Expansion Caps, and coated with Asphalt or Grease, (Type A & G).
- Grooves in Joints may be formed by: (1) temporary embedment of a suitable Mandrel, (2) installation of a thin strip of premolded Joint Filler Material, (3) sawing the Pavement after the Concrete has hardened.

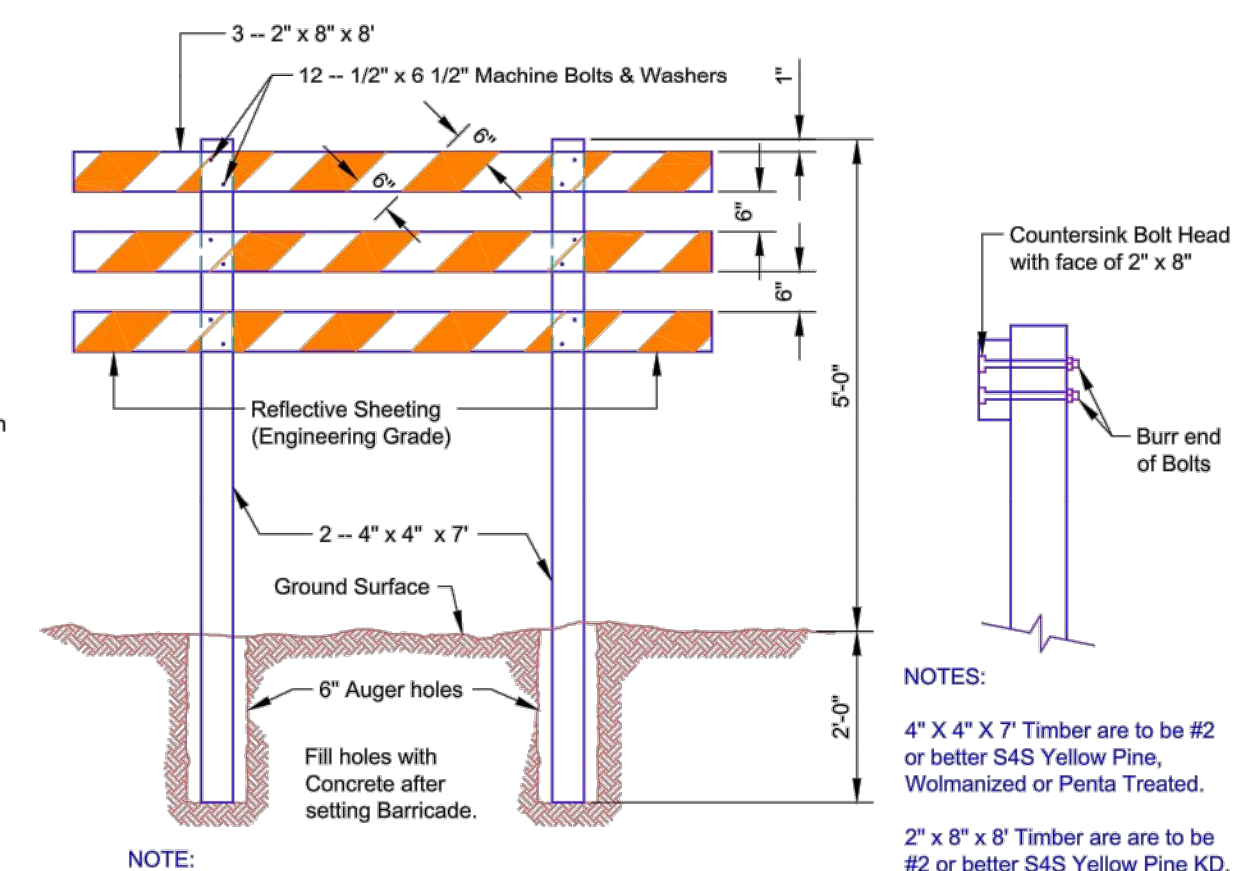


DOWEL BARS			
▲ SPACING & SIZE DATA			
(T) SLAB DEPTH	DOWEL DIA.	TOTAL DOWEL LENGTH	C/C DOWEL SPACING
6" - 7"	3/4"	15"	12"
8" - 11"	1 1/4"	18"	12"
12" - 16"	1 1/2"	18"	12"

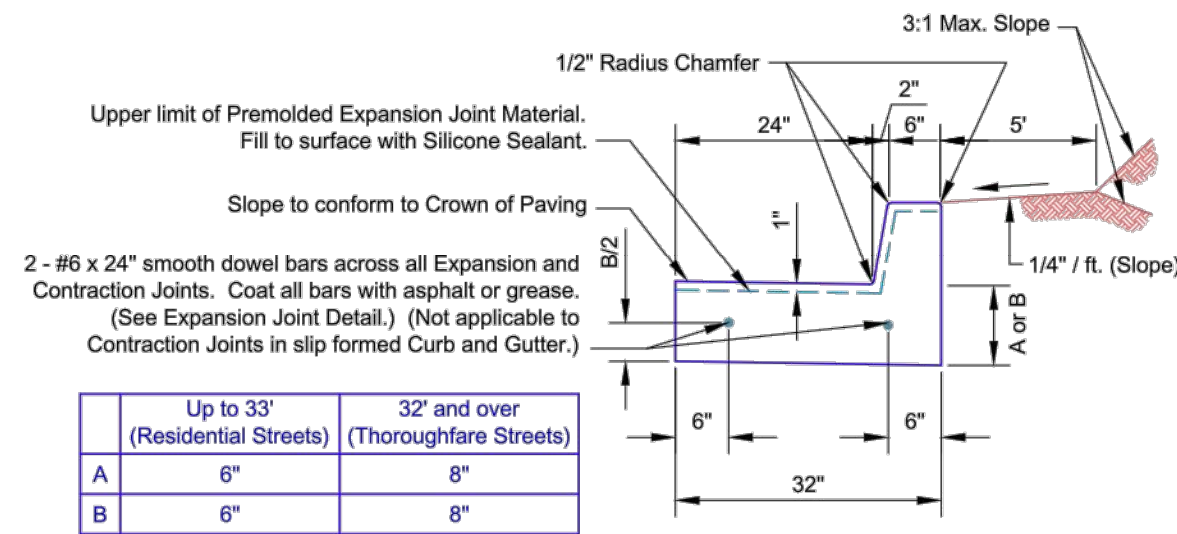
SPACER: FOUR EA. 7 GAGE (0.177") WIRES PER UNIT, NOTCHED @ MIDPOINT OF WIRE SPACER IN FIELD AFTER PLACEMENT REGULAR DOWELS GREASED

DOWELED CONTRACTION JOINT DETAILS TYPE "F" (ALT TYPE "D")

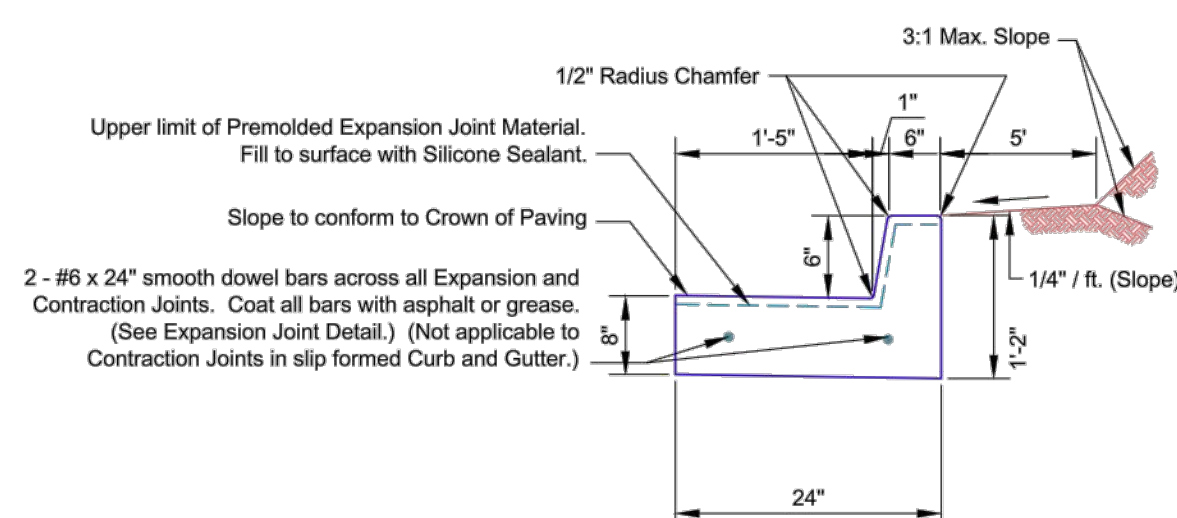
- NOTES:
- Type "F" to be used for continuous pours only.
Do not use for headers at days end stopping point.



- NOTES:
- 4" x 4" x 7' Timber are to be #2 or better S4S Yellow Pine, Wolmanized or Penta Treated.
- 2" x 8" x 8' Timber are to be #2 or better S4S Yellow Pine KD.

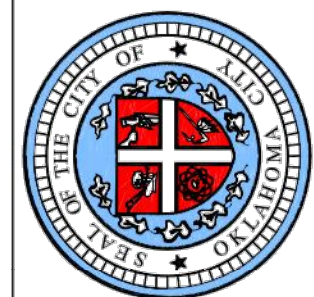


- NOTE: Maximum spacing of 1/2" Expansion Joints to be 100' c/c with Contraction Joints 15' - 20' apart to match Driveway Returns. (Expansion Joint spacing, not applicable to slip formed Curb and Gutter.)



- NOTE: Maximum spacing of 1/2" Expansion Joints to be 100' c/c with Contraction Joints 15' - 20' apart to match Driveway Returns. (Expansion Joint spacing, not applicable to slip formed Curb and Gutter.)

The City of
Oklahoma City
Public Works Department
Engineering Division



APPROVED BY: DATE: 02-07-13
CITY ENGINEER
DRAWN: VSC DATE: 02-07-13

**STANDARD TYPICAL SECTIONS
MISCELLANEOUS DETAILS**

Drawing Number
D-500

REVISIONS

REV. NO.

DATE

REVISIONS DESCRIPTION

CITY DETAILS

WC-0982 - 20-INCH WATERLINE REPLACEMENT
MEMORIAL ROAD AND LAKE HEFNER PARKWAY

2020

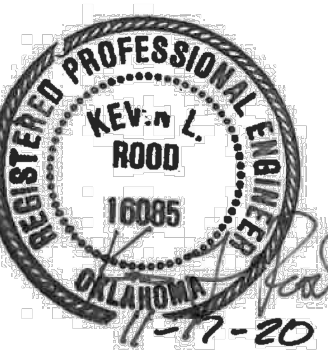
OKLAHOMA CITY, OK

drawn by: CJW
checked by: NFD
approved by: KLR
QA/QC by: ENG
project no.: 020-2135
drawing no.: ABC.DWG
date: 00.00.00

SHEET
15 OF 21

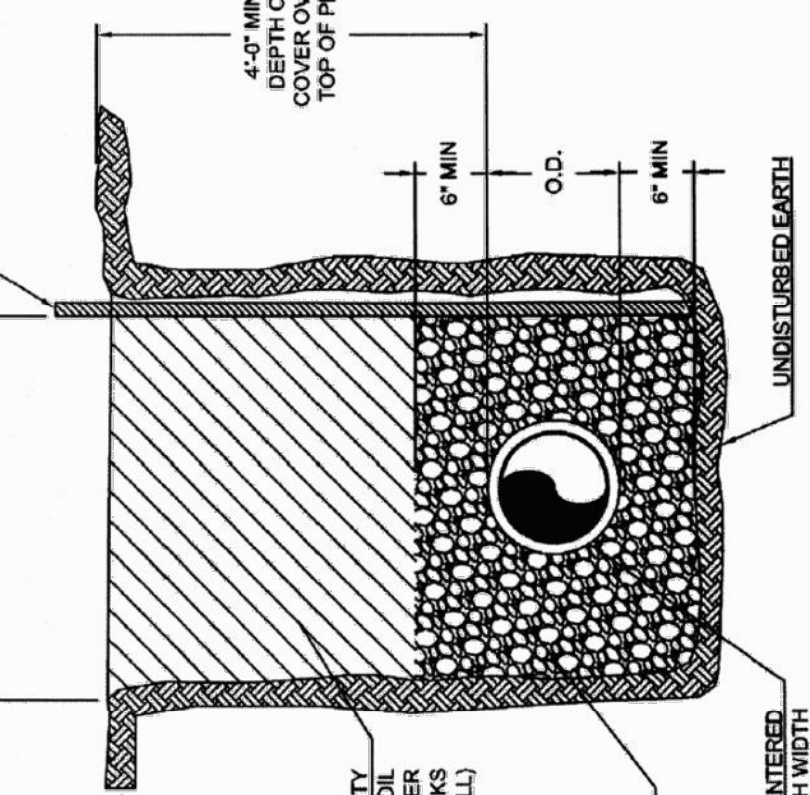
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Oklahoma City, OK 73114
TEL 405-242-8600
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WATER STANDARD DETAIL

Pipe Nominal Size (Inches)	Minimum Trench Width (Feet)	Maximum Trench Width (Feet)
48	7.00	10.00
54	8.00	10.50
60	9.00	11.00
66	9.75	11.50
72	10.50	12.00
78	10.50	12.50
84	11.00	13.00
90	11.50	13.50



STEEL PIPE $\geq 48"$

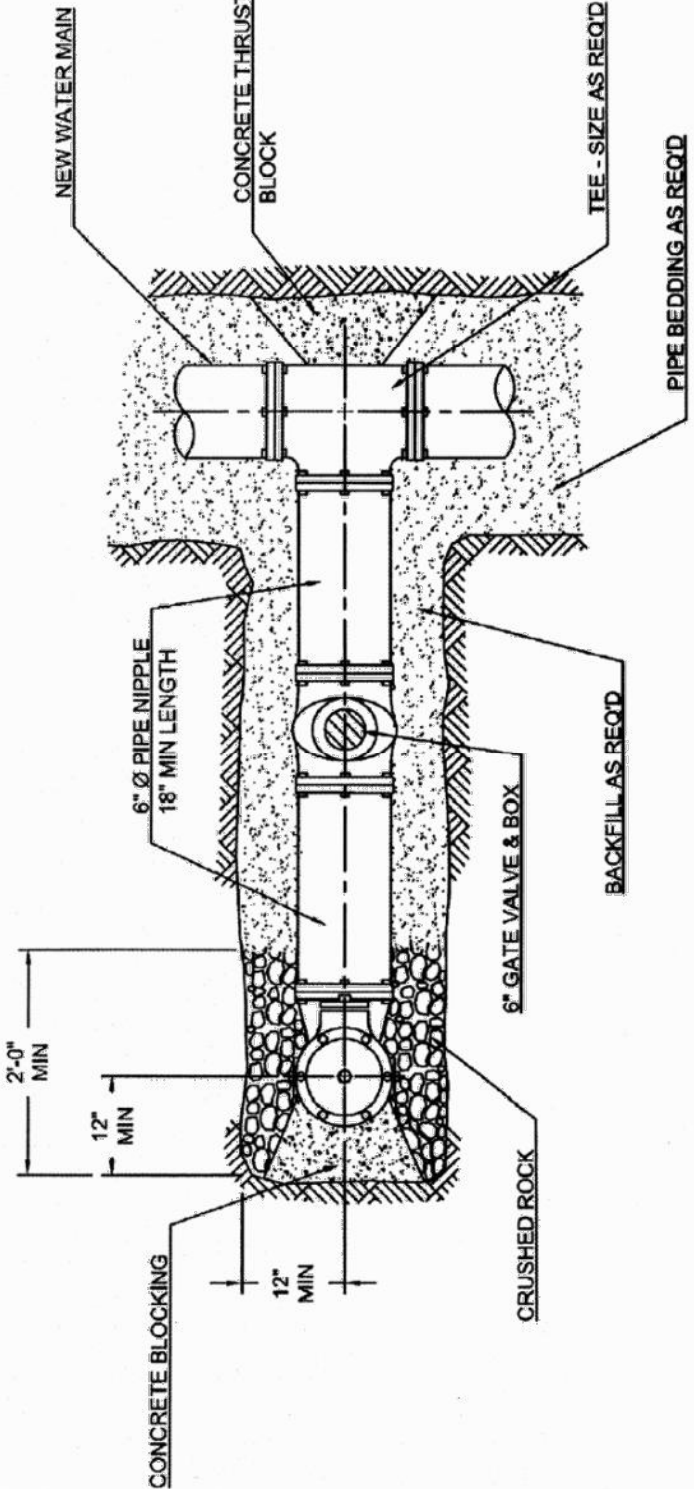
- NOTE:
1. EMBEDMENT MATERIAL TO BE FREE FROM REFUSE, ORGANIC MATERIAL, COBBLES, BOULDERS, LARGE ROCKS OR STONES.

BEDDING & TRENCHING DETAILS - STEEL PIPE

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 11/03/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-04
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL



PLAN VIEW

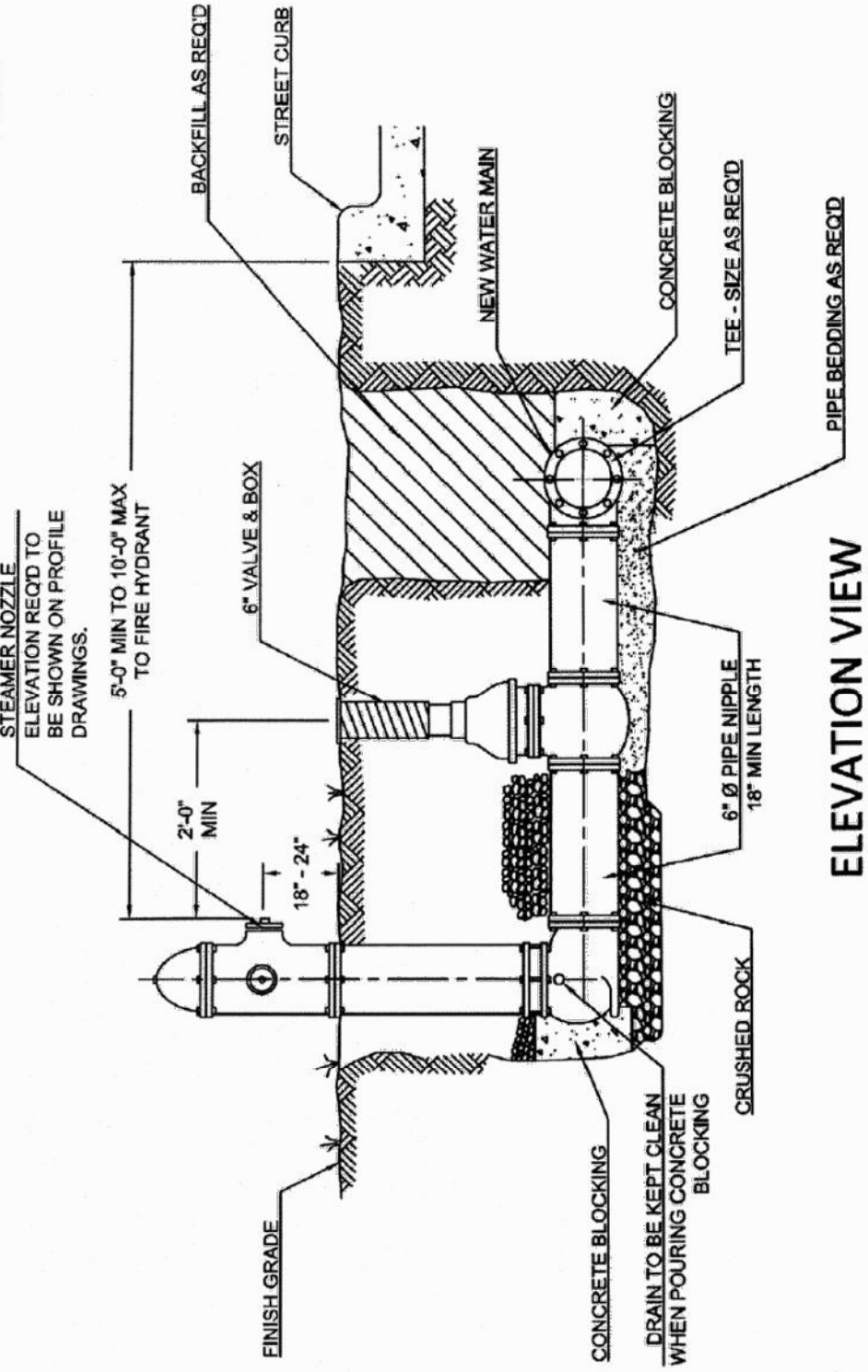
- NOTE:
1. HYDRANT COLOR IS AS FOLLOWS:
(a) "INTERNATIONAL ORANGE" (SW 4081) FOR PUBLIC
(b) "SAFETY RED" (SW 4082) FOR PRIVATE
2. ALL VALVES & VALVE BOXES ARE TO BE INSTALLED OUTSIDE EXISTING OR PROPOSED ADA RAMPS.

FIRE HYDRANT INSTALLATION ON NEW MAIN

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 8/7/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-05
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL



ELEVATION VIEW

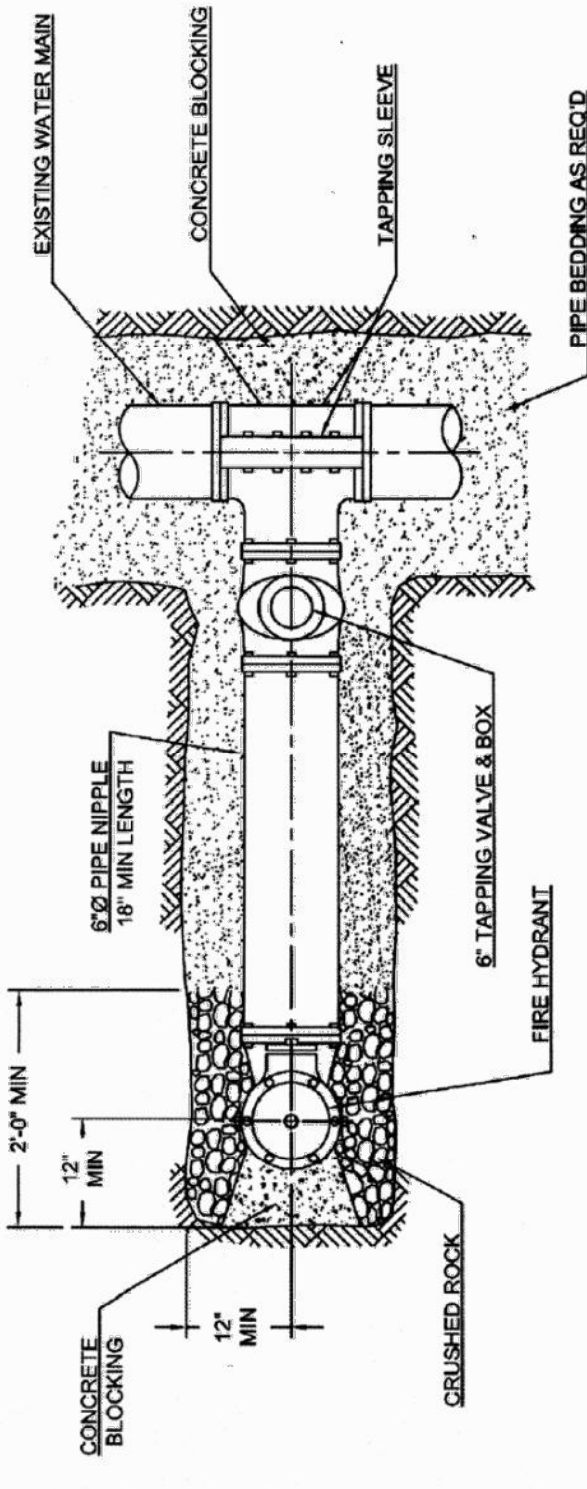
- NOTE:
1. HYDRANT COLOR IS AS FOLLOWS:
(a) "INTERNATIONAL ORANGE" (SW 4081) FOR PUBLIC
(b) "SAFETY RED" (SW 4082) FOR PRIVATE
2. ALL VALVES & VALVE BOXES ARE TO BE INSTALLED OUTSIDE EXISTING OR PROPOSED ADA RAMPS.

FIRE HYDRANT INSTALLATION ON NEW MAIN

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 8/7/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-06
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL



PLAN VIEW

- NOTE:
1. HYDRANT COLOR IS AS FOLLOWS:
(a) "INTERNATIONAL ORANGE" (SW 4081) FOR PUBLIC
(b) "SAFETY RED" (SW 4082) FOR PRIVATE
2. SEE DETAIL W-43 & W-44 FOR THRUST BLOCK SIZING.
3. ALL VALVES & VALVE BOXES ARE TO BE INSTALLED OUTSIDE EXISTING OR PROPOSED ADA RAMPS.

FIRE HYDRANT INSTALLATION ON EXISTING MAIN

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 8/7/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-07
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL

DRAWING NUMBER	ISSUED DATE
W-01	6/13/14
W-02	6/13/14
W-03	6/13/14
W-04	6/13/14
W-05	6/13/14
W-06	6/13/14
W-07	6/13/14
W-08	6/13/14
W-09	6/13/14
W-10	10/30/14
W-11	6/13/14
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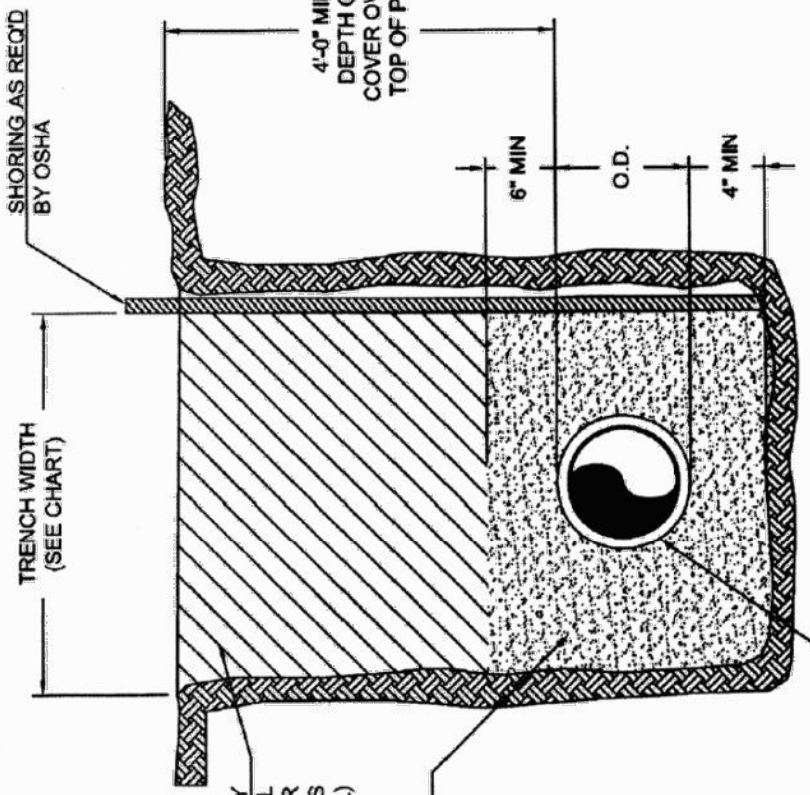
WATER STANDARD DETAIL INDEX

10/30/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 10/30/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 10/30/14	W-00
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL

Pipe Nominal Size (Inches)	Minimum Trench Width (Feet)	Maximum Trench Width (Feet)
≤ 12	3.00	5.00
16	3.25	5.00
20	3.75	5.25



PVC PIPE

- NOTE:
1. EMBEDMENT MATERIAL SHALL BE SAND TO BE READY WORKED UNDER THE SIDES OF THE TRENCH. IT SHALL BE FREE FROM REFUSE, ORGANIC MATERIAL, COBBLES, BOULDERS, LARGE ROCKS OR STONES.
2. SEE DETAIL W-13 FOR TRACER WIRE INSTALLATION.

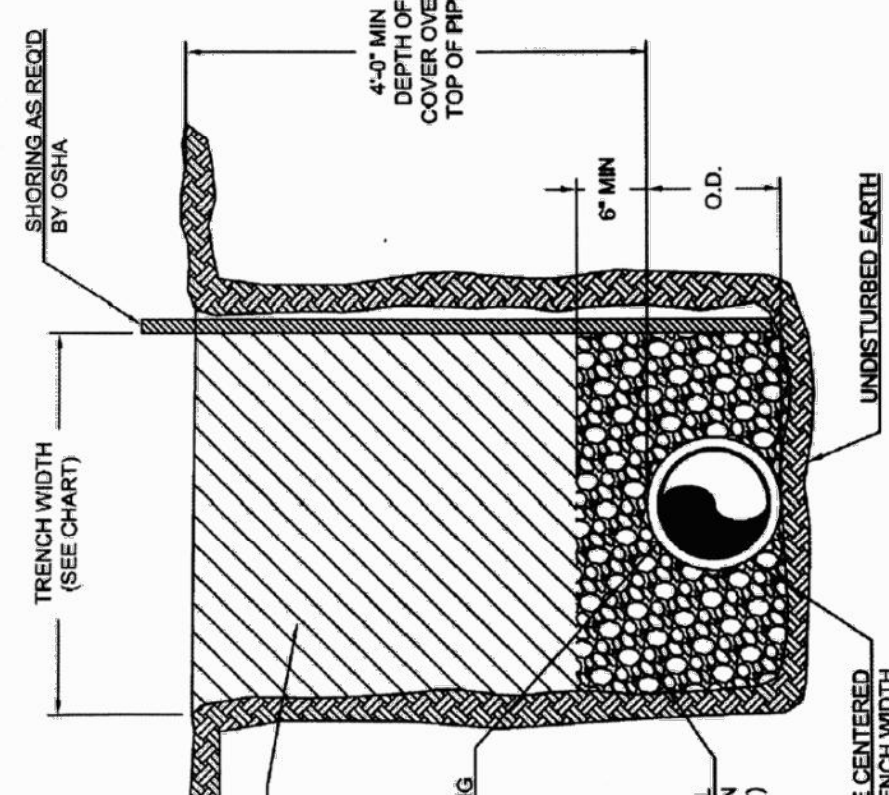
BEDDING & TRENCHING DETAILS - PVC PIPE

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 8/7/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-01
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL

Pipe Nominal Size (Inches)	Minimum Trench Width (Feet)	Maximum Trench Width (Feet)
≤ 12	3.00	5.00



DUCTILE IRON PIPE $\leq 12"$

- NOTE:
1. EMBEDMENT MATERIAL TO BE FREE FROM REFUSE, ORGANIC MATERIAL, COBBLES, BOULDERS, LARGE ROCKS OR STONES.

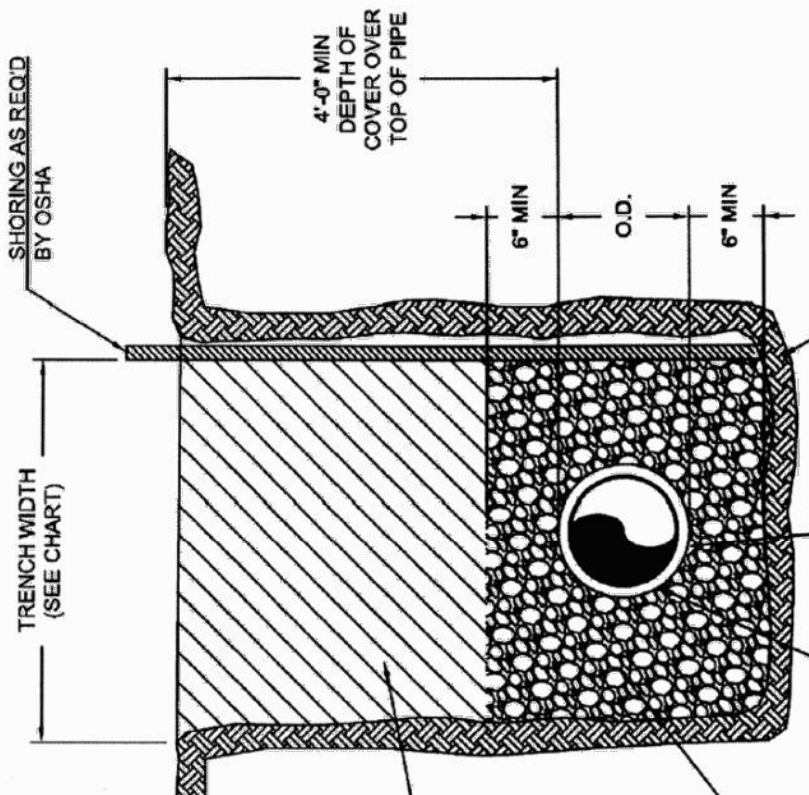
BEDDING & TRENCHING DETAILS - DIP $\leq 12"$

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 8/7/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-02
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAIL

Pipe Nominal Size (Inches)	Minimum Trench Width (Feet)	Maximum Trench Width (Feet)
16	3.25	5.00
20	3.75	5.50
24	4.00	6.00
30	4.50	6.75
36	5.25	9.00
42	6.25	9.50
48	7.00	10.00
54	8.00	10.50
60	9.00	11.00



DUCTILE IRON PIPE $> 12"$

- NOTE:
1. EMBEDMENT MATERIAL TO BE FREE FROM REFUSE, ORGANIC MATERIAL, COBBLES, BOULDERS, LARGE ROCKS OR STONES.

BEDDING & TRENCHING DETAILS - DIP $> 12"$

06/13/14 DATE	APPROVED BY: ERIC J. WENGER, P.E., CITY ENGINEER	DATE: 8/7/14	APPROVED BY: MARSHA W. SLAUGHTER, P.E., UTILITIES DIRECTOR	DATE: 8/7/14	W-03
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OKLAHOMA CITY UTILITIES DEPARTMENT

WATER STANDARD DETAILS

DATE:	11/07/14
DRAWN BY:	JDS
CHECKED BY:	MWS/EJW

SCALE:
AS SHOWN

SHEET NUMBER
W-STD-01

The City of
Oklahoma City
Utilities Department
Engineering Division



CITY DETAILS

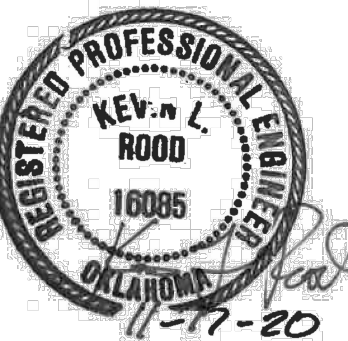
WC-0982 - 20-INCH WATERLINE REPLACEMENT
MEMORIAL ROAD AND LAKE HEFNER PARKWAY

OKLAHOMA CITY, OK

2020

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION
1	11/07/14	STD DRAWING W-00 MODIFIED

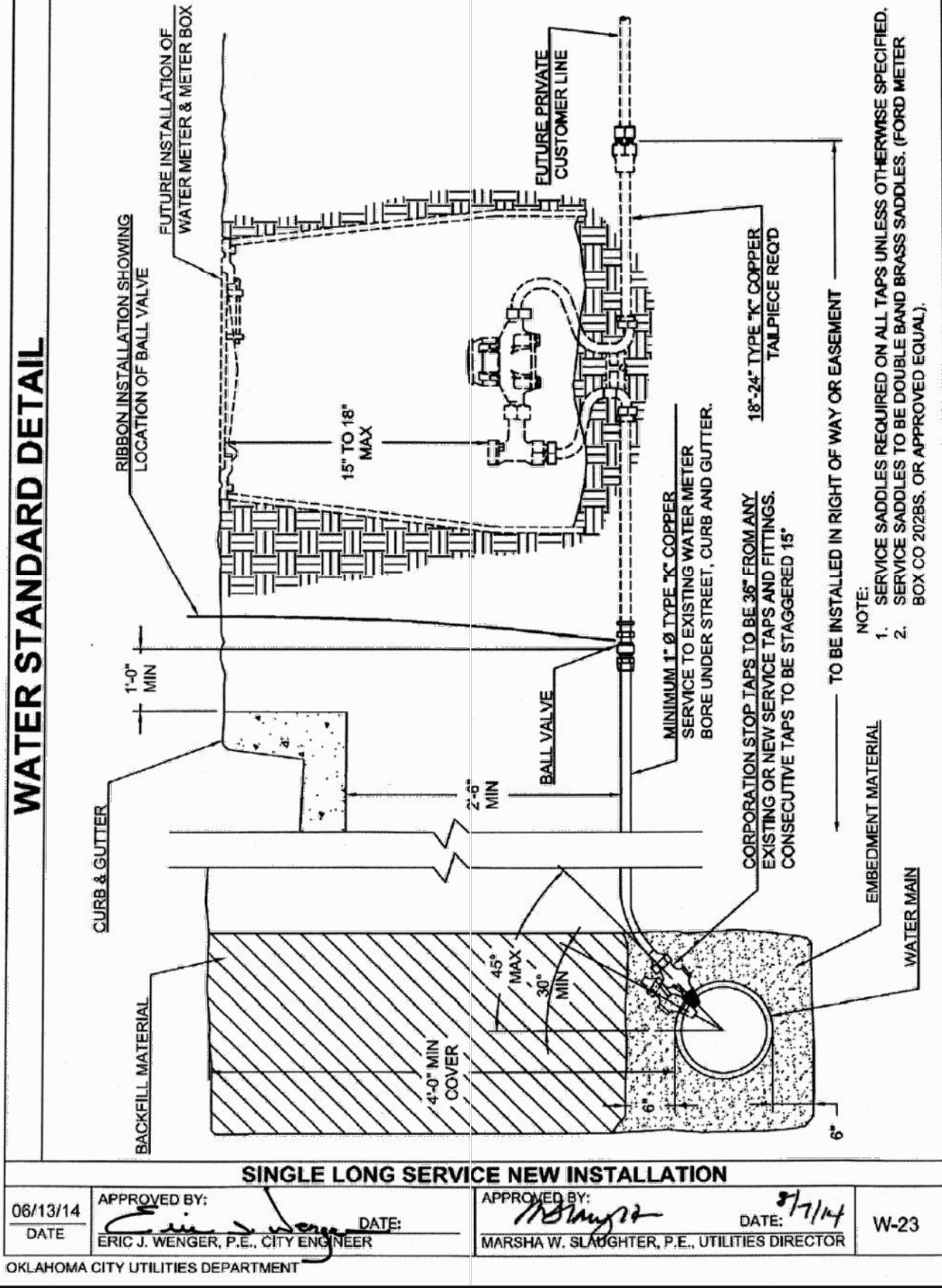
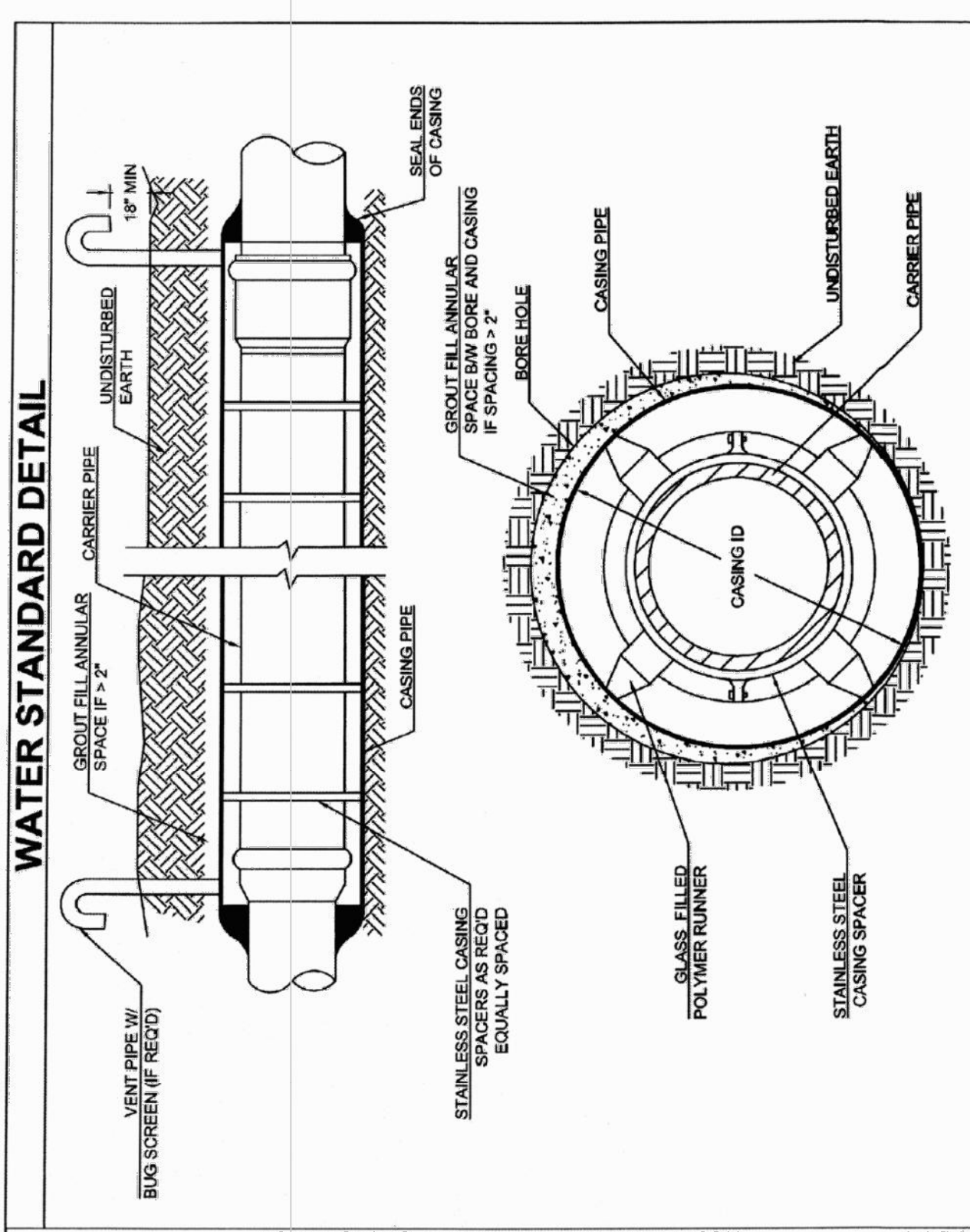
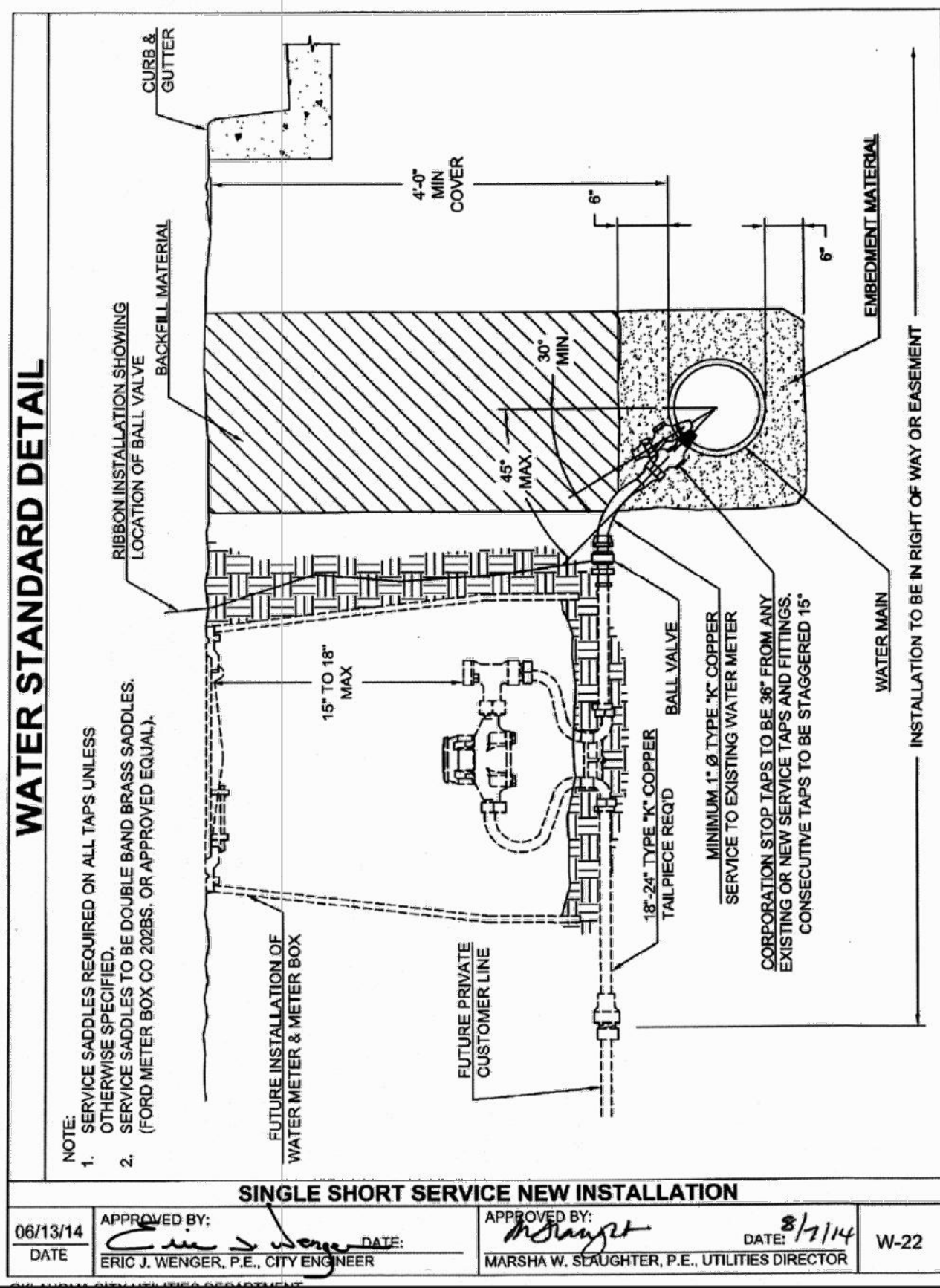
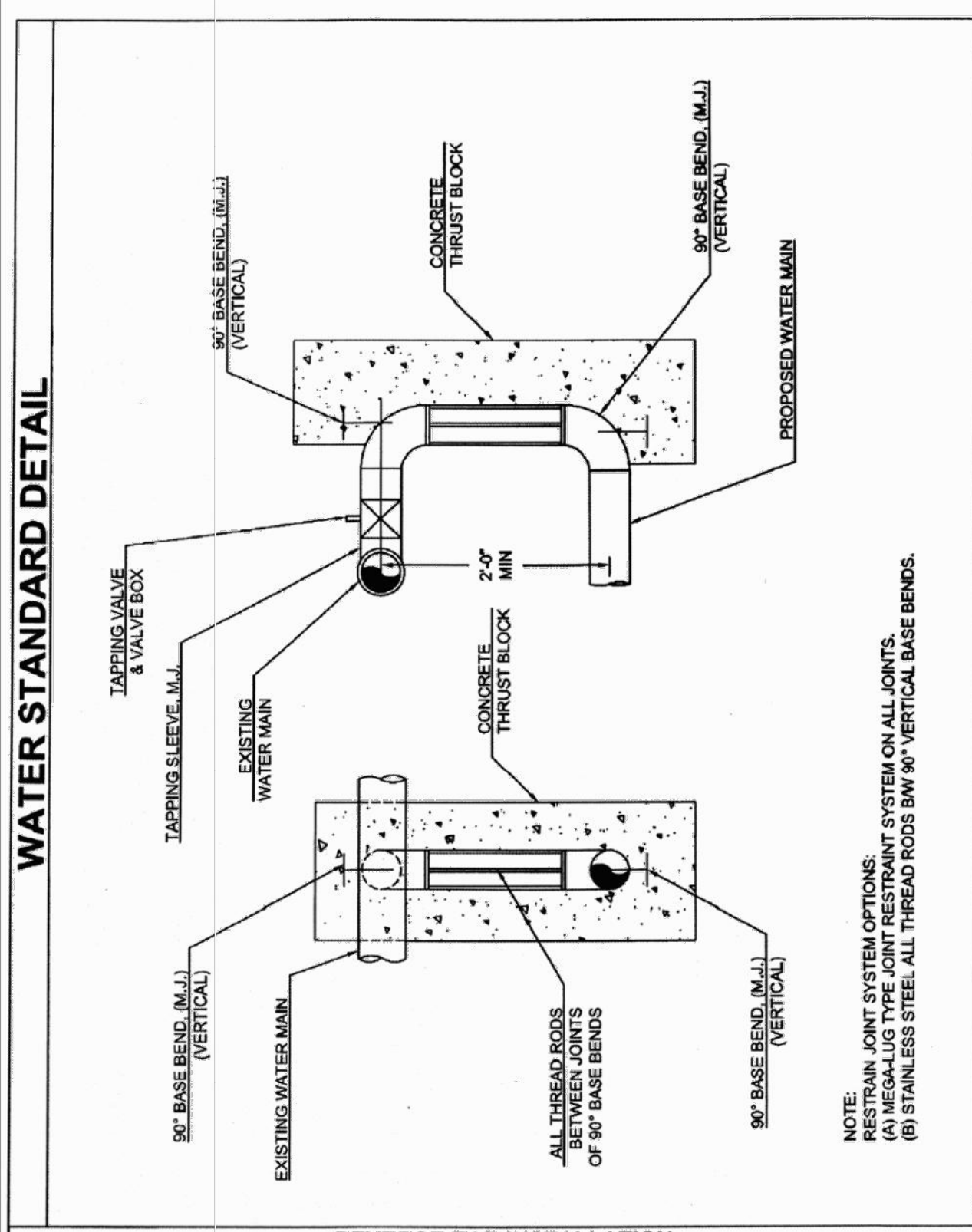
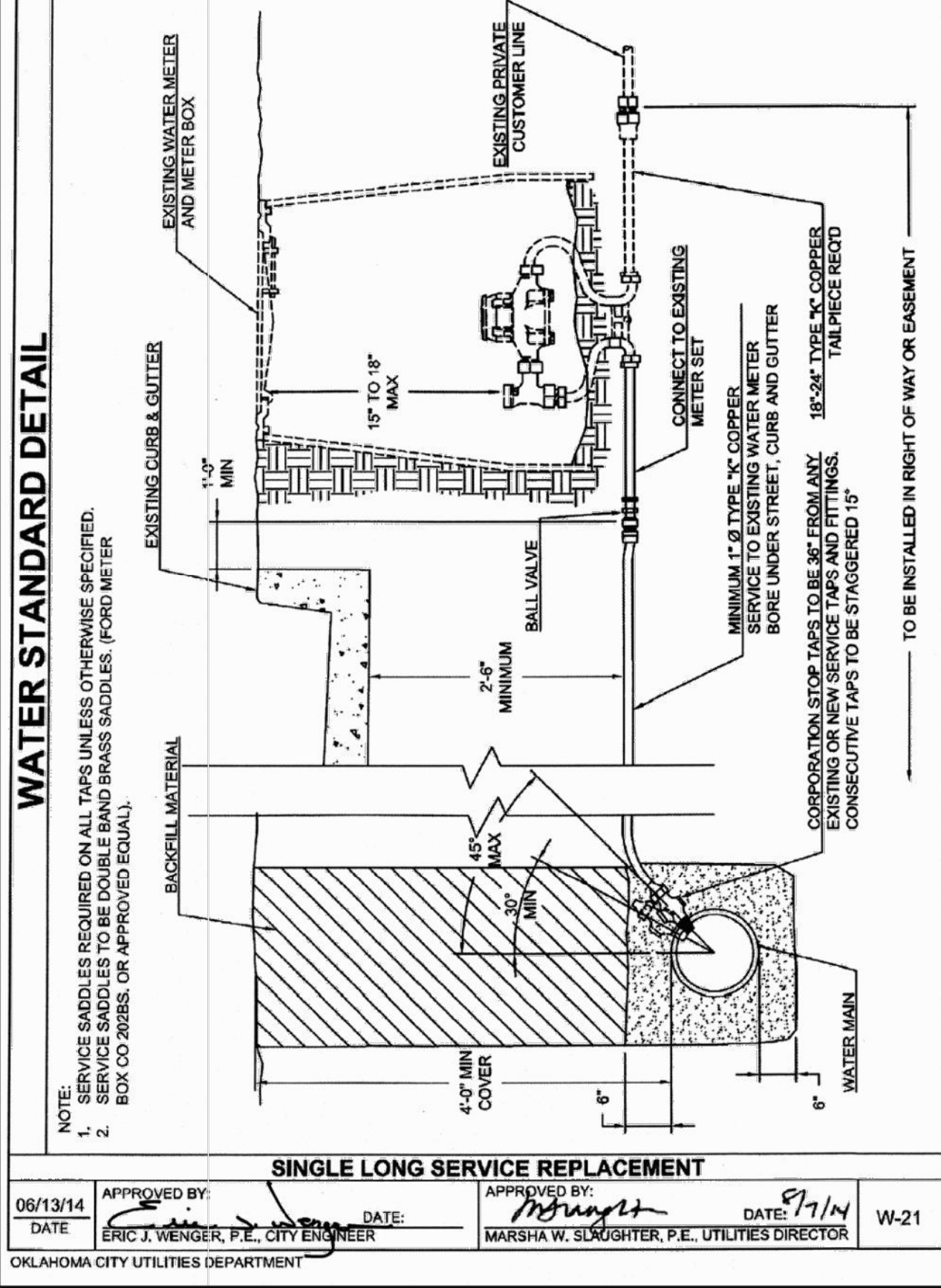
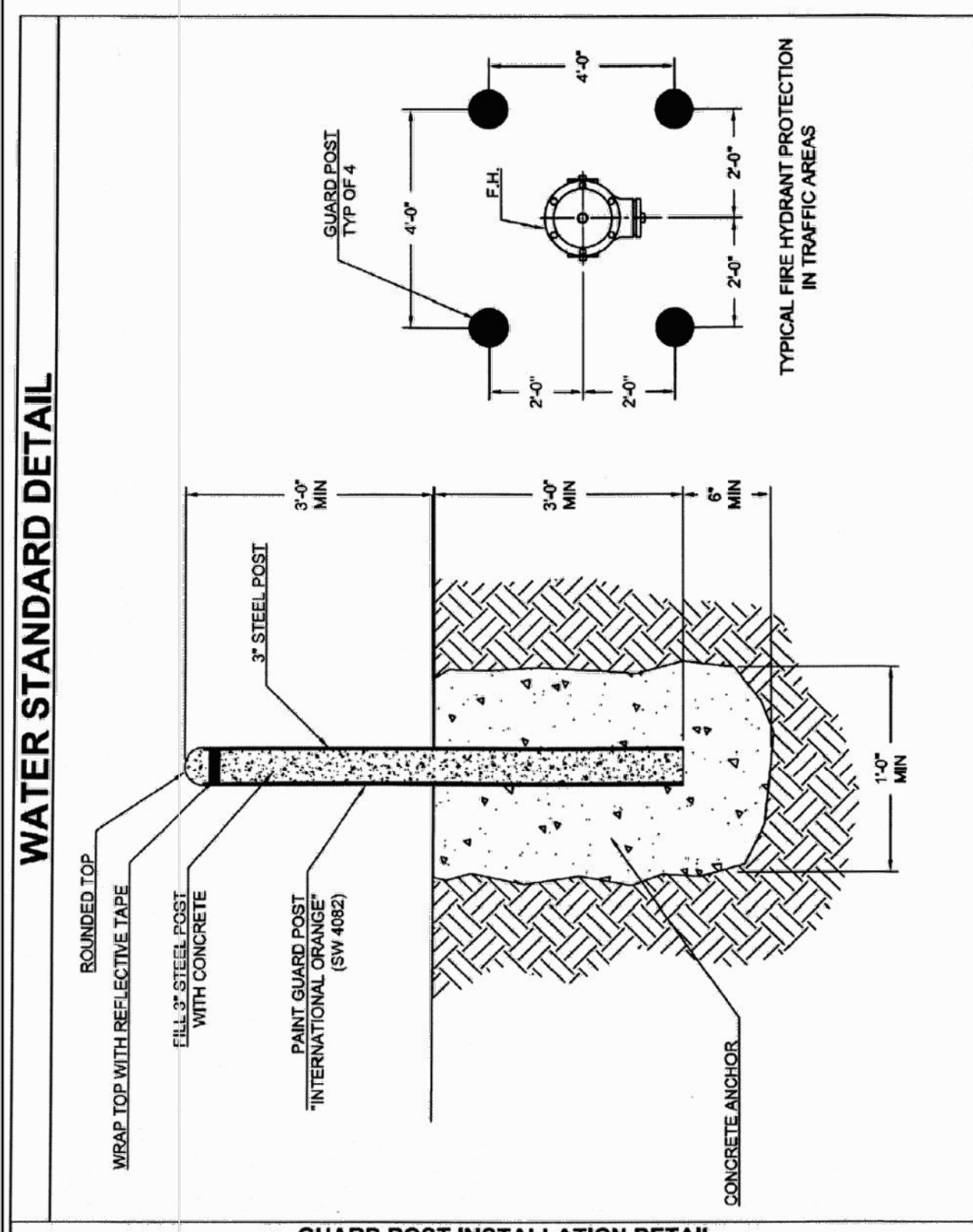
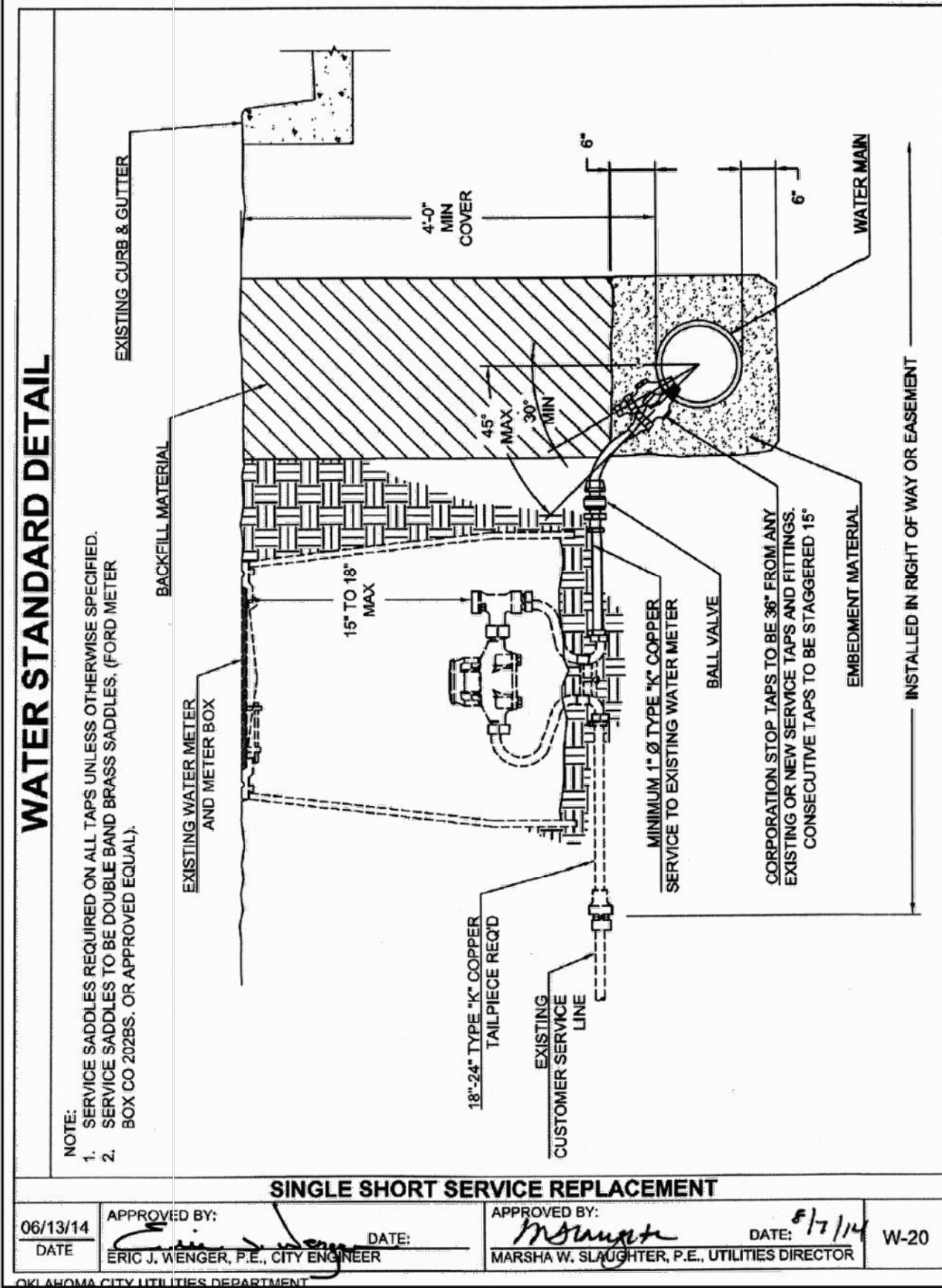


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Oklahoma City, OK 73114

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WATER STANDARD DETAIL

NOTE:
SEALED CASING ENDS - NEOPRENE RUBBER END SEALS REQUIRED
PLUGGED PIPE ENDS - BOTH ENDS OF THE CASING PIPE SHALL BE PLUGGED WITH A NON-SHRINK GROUT OR CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI. EACH END OF THE CASING PIPE SHALL BE A MINIMUM 18" LONG. GROUT OR CONCRETE SHALL NOT EXCEED THE PIPE MANUFACTURER'S RECOMMENDATIONS.
VENT PIPES - VENT PIPES SHALL BE INSTALLED ON BOTH ENDS OF CASING FOR BORINGS THAT CROSS ODOT ROADS AND RAILROAD CROSSINGS. VENTS SHALL BE 2" DIA. FOR CASING SIZES < 36". VENTS SHALL BE 4" DIA. FOR CASING SIZES > 36". VENTS SHALL BE 6" DIA. BEND TO POINT TOWARDS THE GROUND AND SHALL BE PAINTED INTERNATIONAL ORANGE. BUG SCREEN SHALL BE INCLUDED ON THE OPEN END OF VENT PIPE.
CASING PIPE SIZE - STEEL CASING PIPE SHALL HAVE THE FOLLOWING MINIMUM DIAMETERS: SEE TABLE 1
CASING PIPE THICKNESS - STEEL CASING PIPE SHALL HAVE THE FOLLOWING MINIMUM THICKNESSES IN INCHES. FOR THE INDICATED MAXIMUM DEPTH OF COVER(S), IN FEET: SEE TABLE 2
CASING MATERIAL - STEEL CASING PIPE SHALL CONFORM WITH ASTM A-134, STANDARD SPECIFICATION FOR ELECTRIC-FUSION (ARC) - WELDED STEEL PIPE (SPS) AND OVERSIZED STEEL PIPE SHALL BE NEW, MINIMUM TENSILE STRENGTH AND MINIMUM THIRTY-FIVE THOUSAND (35,000 PSI) POUNDS PER SQUARE INCH YIELD STRENGTH

**TABLE 1
RECOMMENDED CASING SIZING**

PIPE NOMINAL SIZE (INCHES)	SUGGESTED CASING PIPE NOMINAL SIZE (INCHES)	PIPE SUGGESTED CASING NOMINAL SIZE (INCHES)
4	8 TO 10	20
6	10 TO 12	24
8	14 TO 16	30
10	16 TO 18	36
12	18 TO 20	42
16	20 TO 22	48
18	24 TO 26	

**TABLE 2
CASING PIPE THICKNESS**

Under Highway	Under Railroad
Wall Thickness (inches)	Union Pacific Wall Thickness (inches)
≤ 12	0.1880
12 TO 16	0.2500
16 TO 20	0.3125
20 TO 24	0.3750
24 TO 28	0.4375
28 TO 32	0.5000
32 TO 36	0.5625
36 TO 40	0.6250
40 TO 44	0.6875
44 TO 48	0.7500

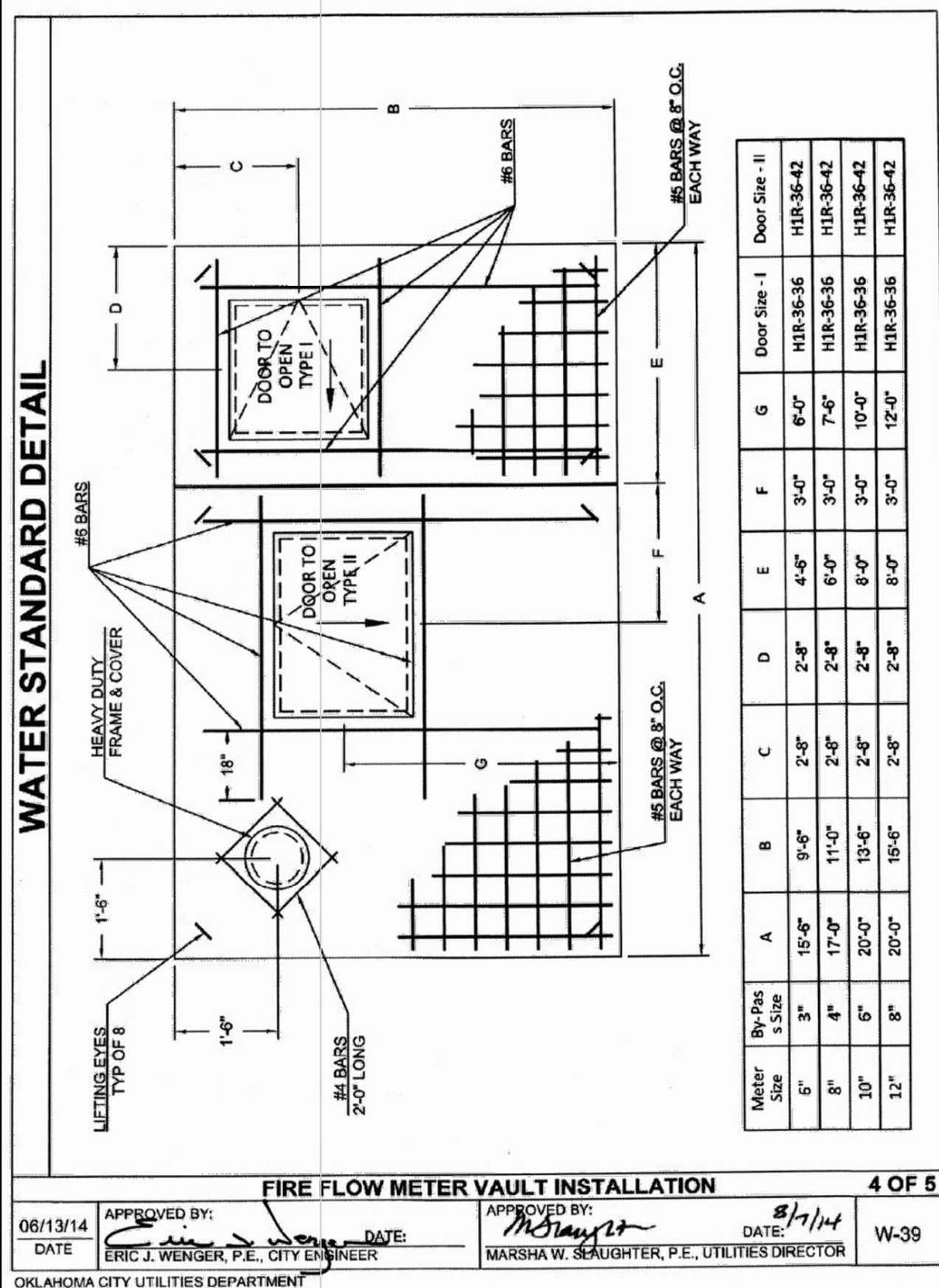
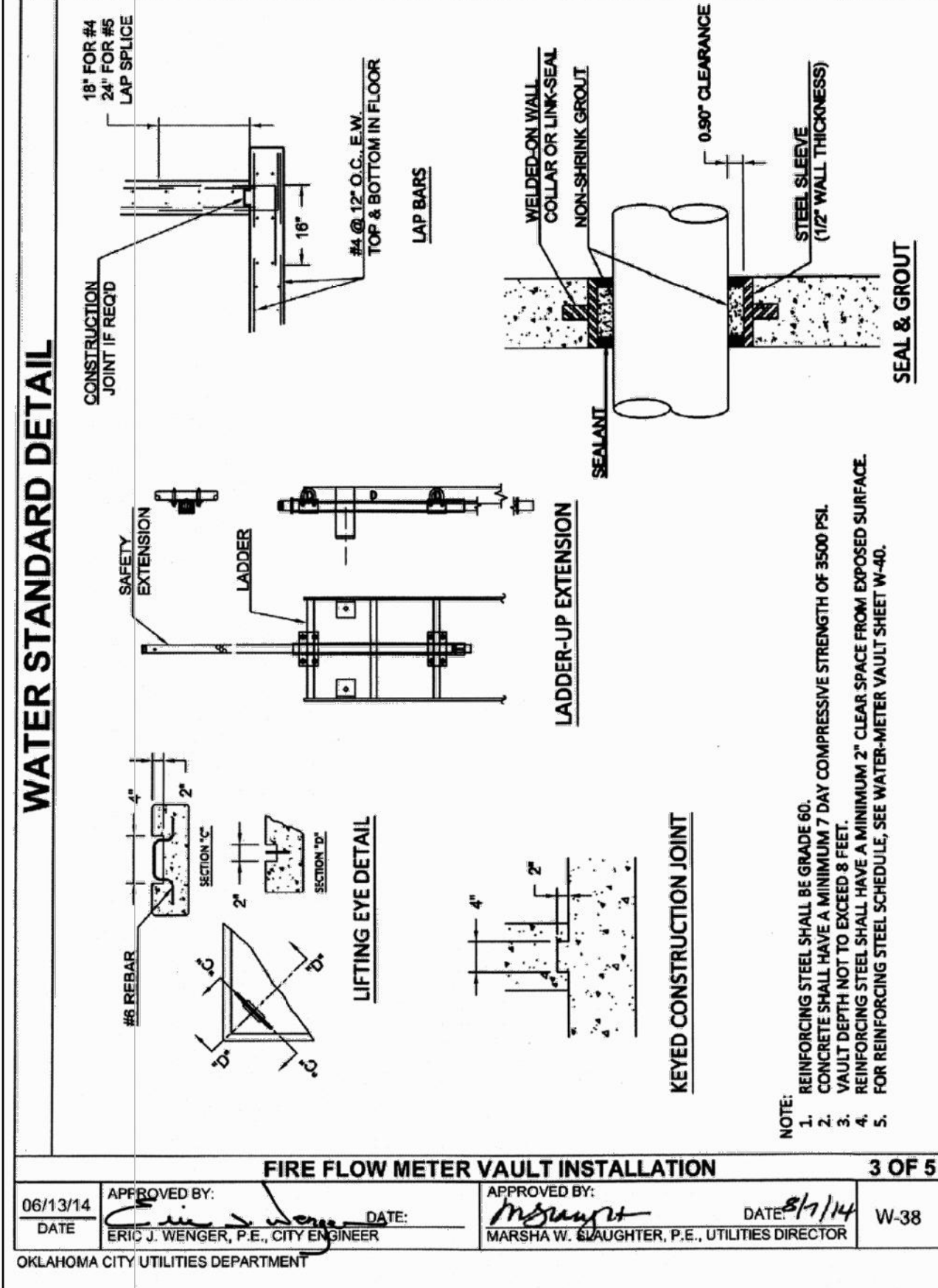
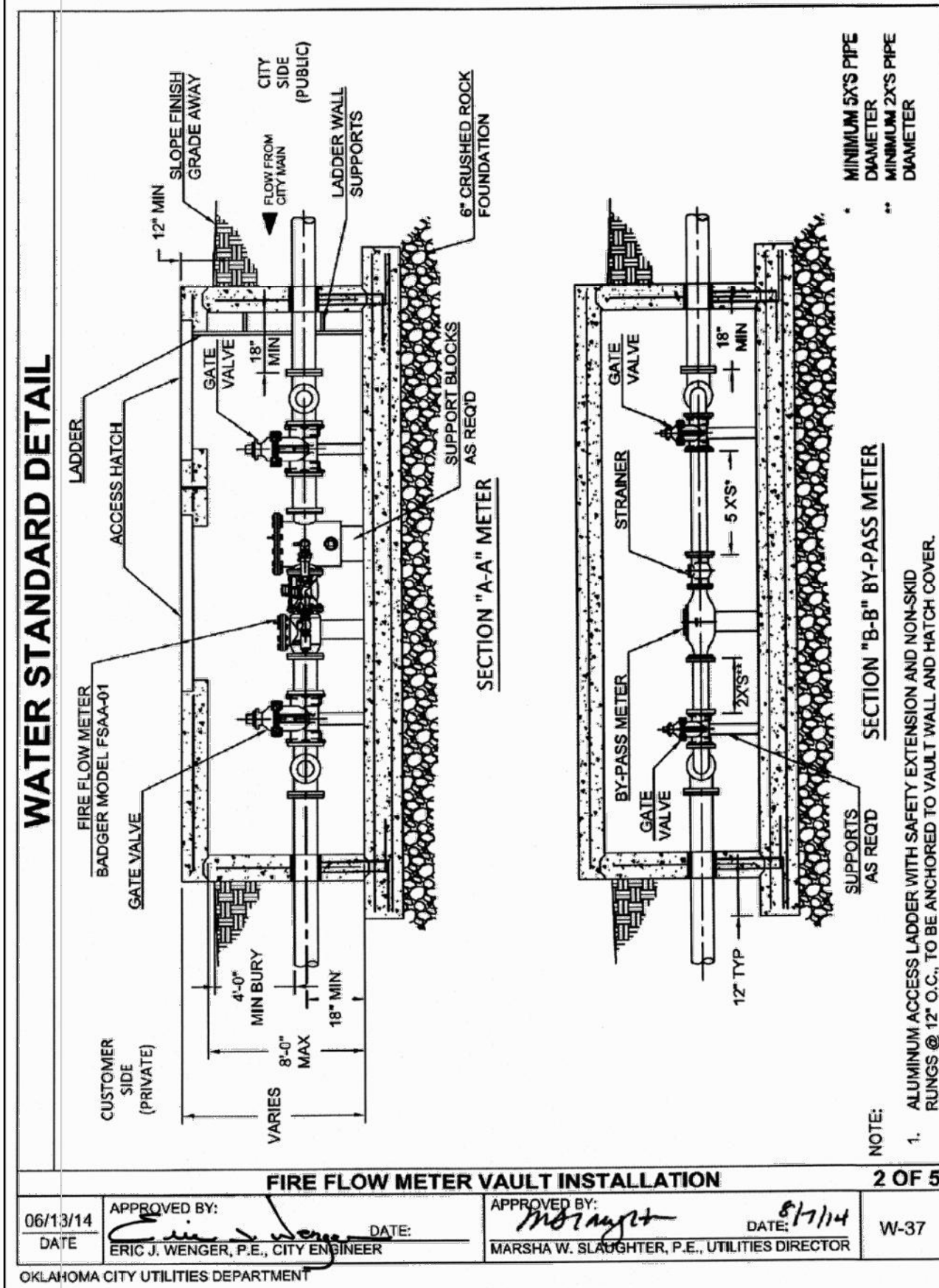
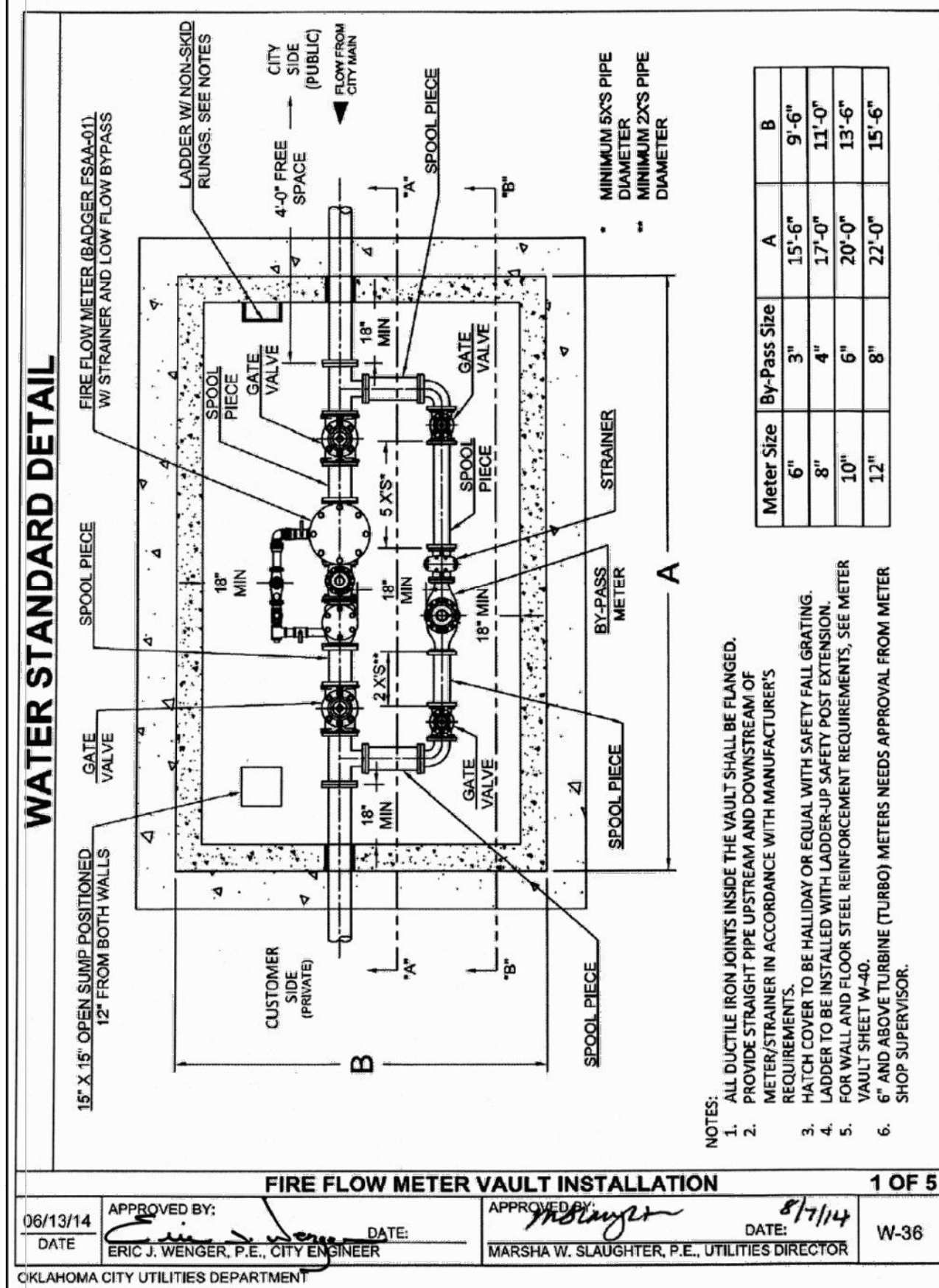
WATER STANDARD DETAILS

DATE: 08/07/14
DRAWN BY: JDS
CHECKED BY: MWS/EJW

SCALE:
AS SHOWN

SHEET NUMBER
W-STD-03

The City of Oklahoma City
Utilities Department
Engineering Division



DATE:	08/07/14
DRAWN BY:	JDS
CHECKED BY:	MWS/EJV

<p><u>SCALE:</u></p> <p>AS SHOWN</p>

<p><u>SHEET NUMBER</u></p> <p>W-STD-05</p>
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drawn by: _____ CJW
checked by: _____ NFD
approved by: _____ KLR
QA/QC by: _____ ENG
project no.: _____ 020-21355
drawing no.: _____ ABC.DWG
date: _____ 00.00.00



The City of
Oklahoma City
Utilities Department
Engineering Division

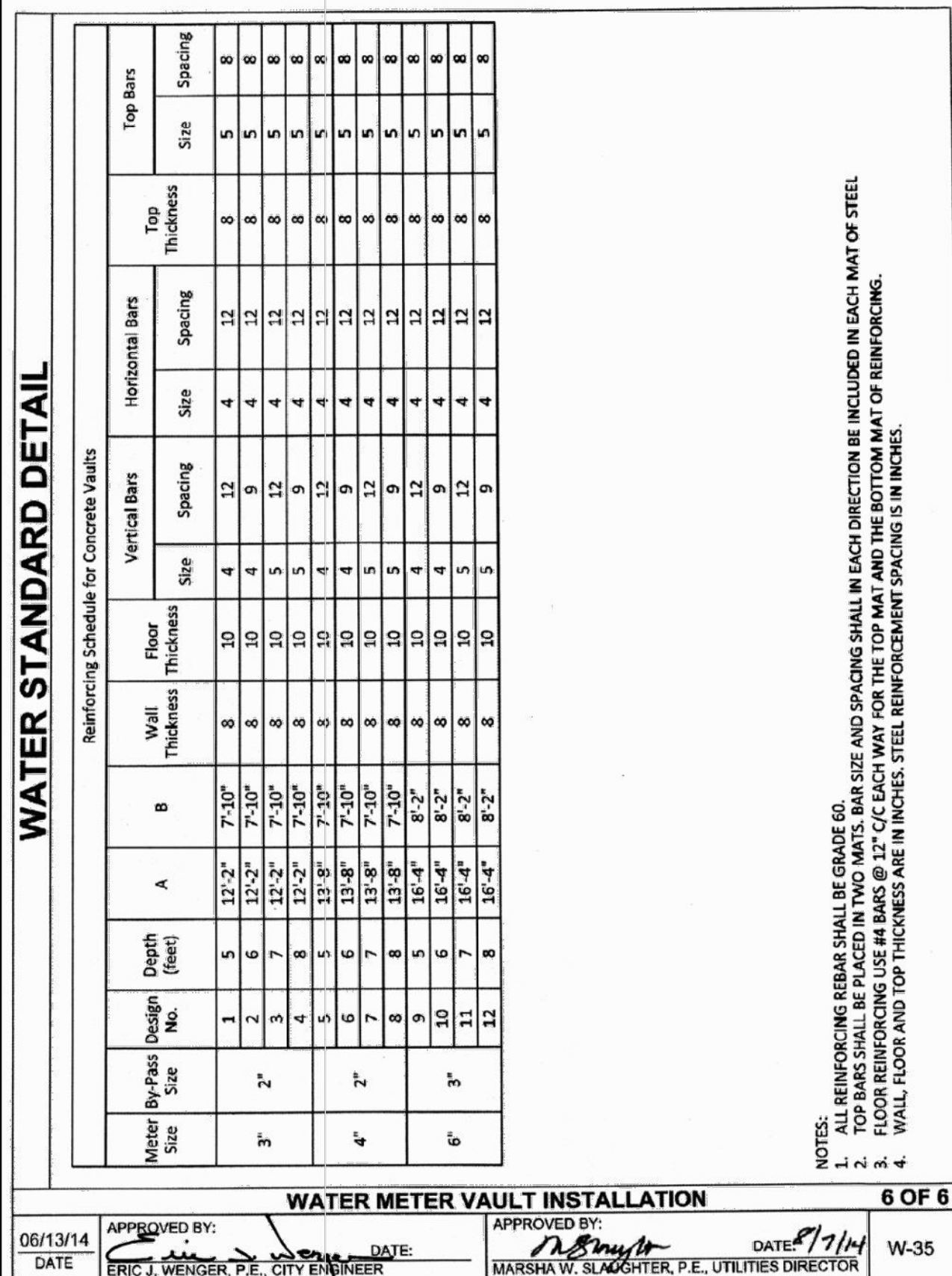
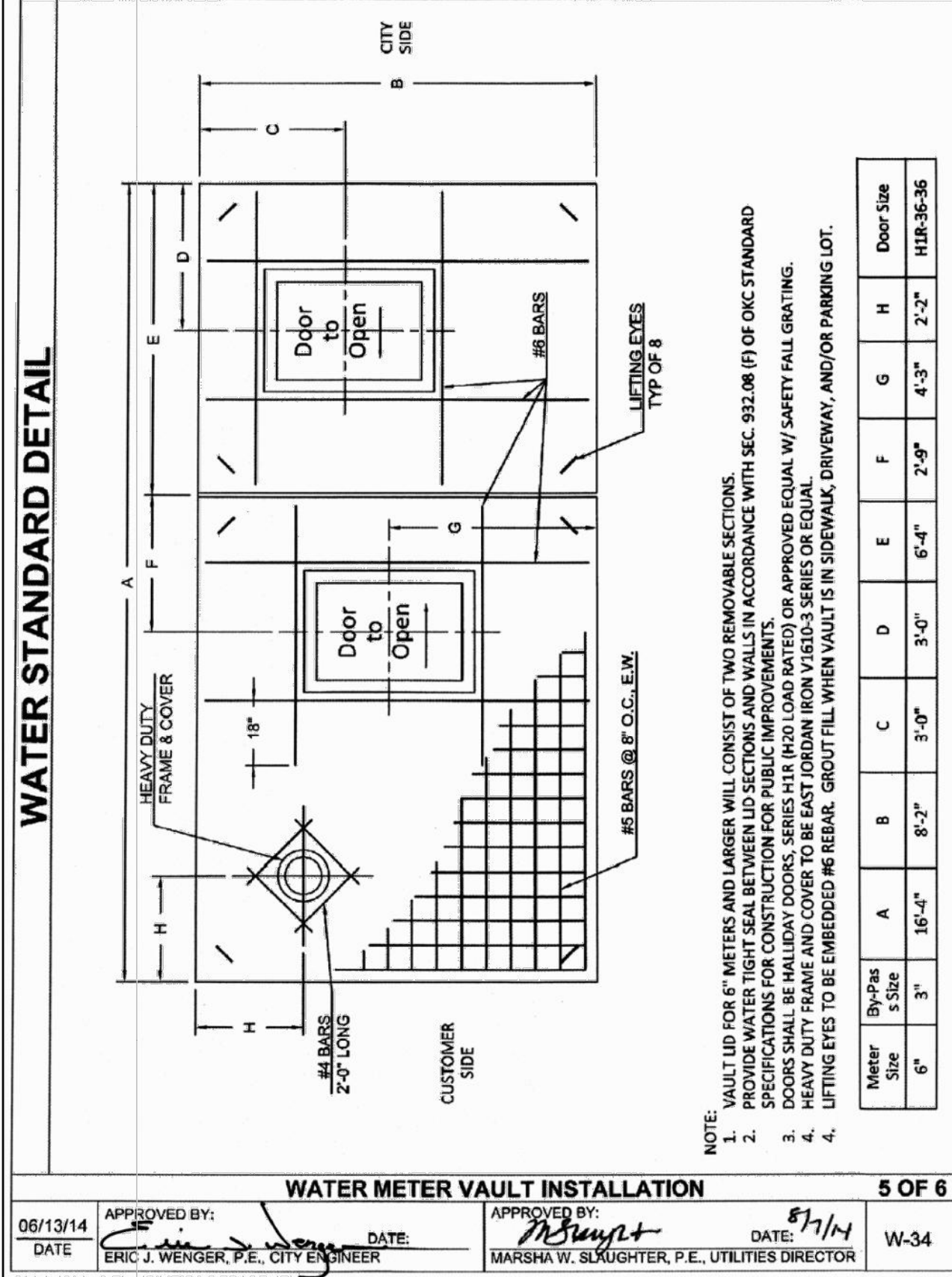
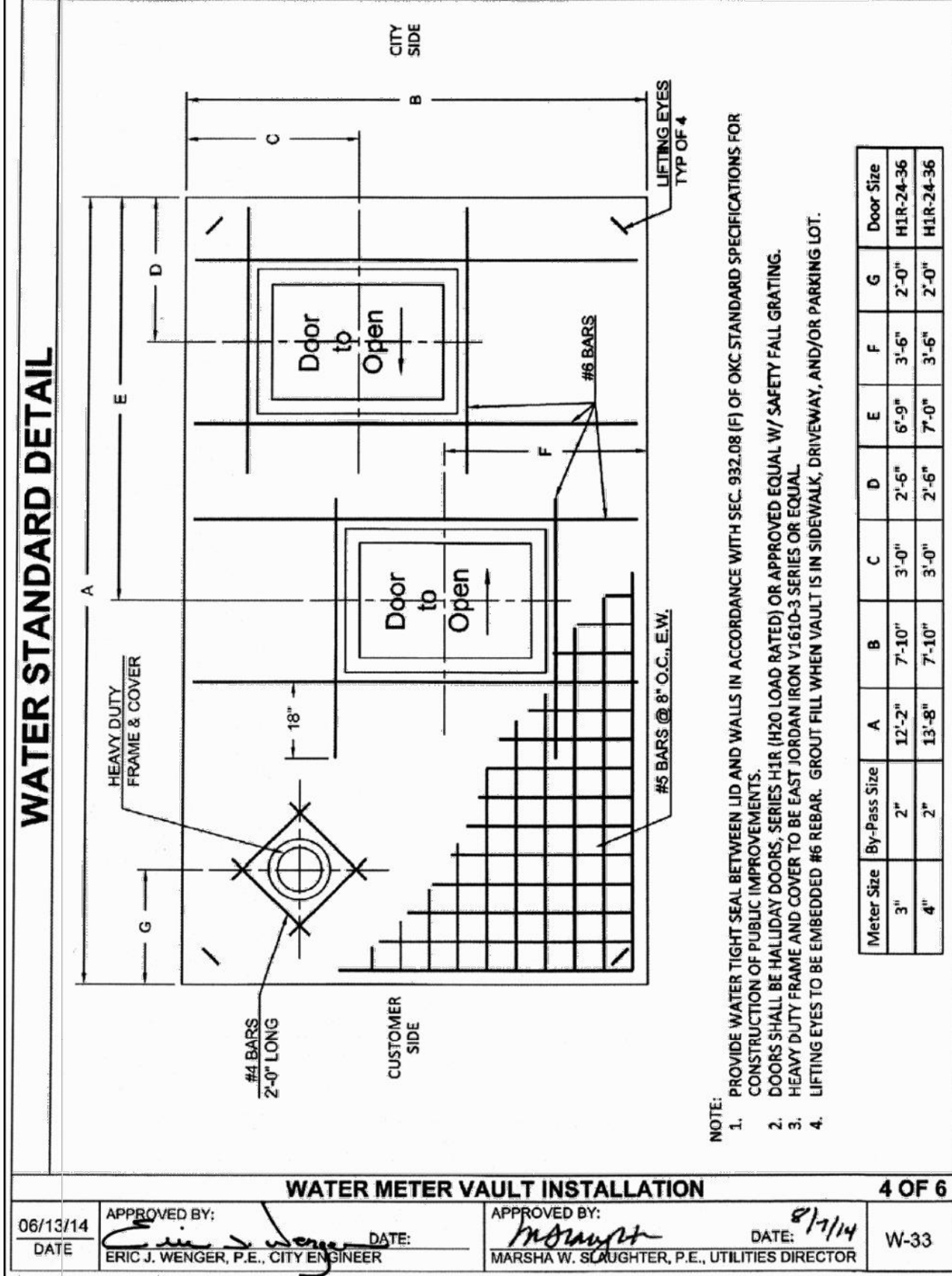
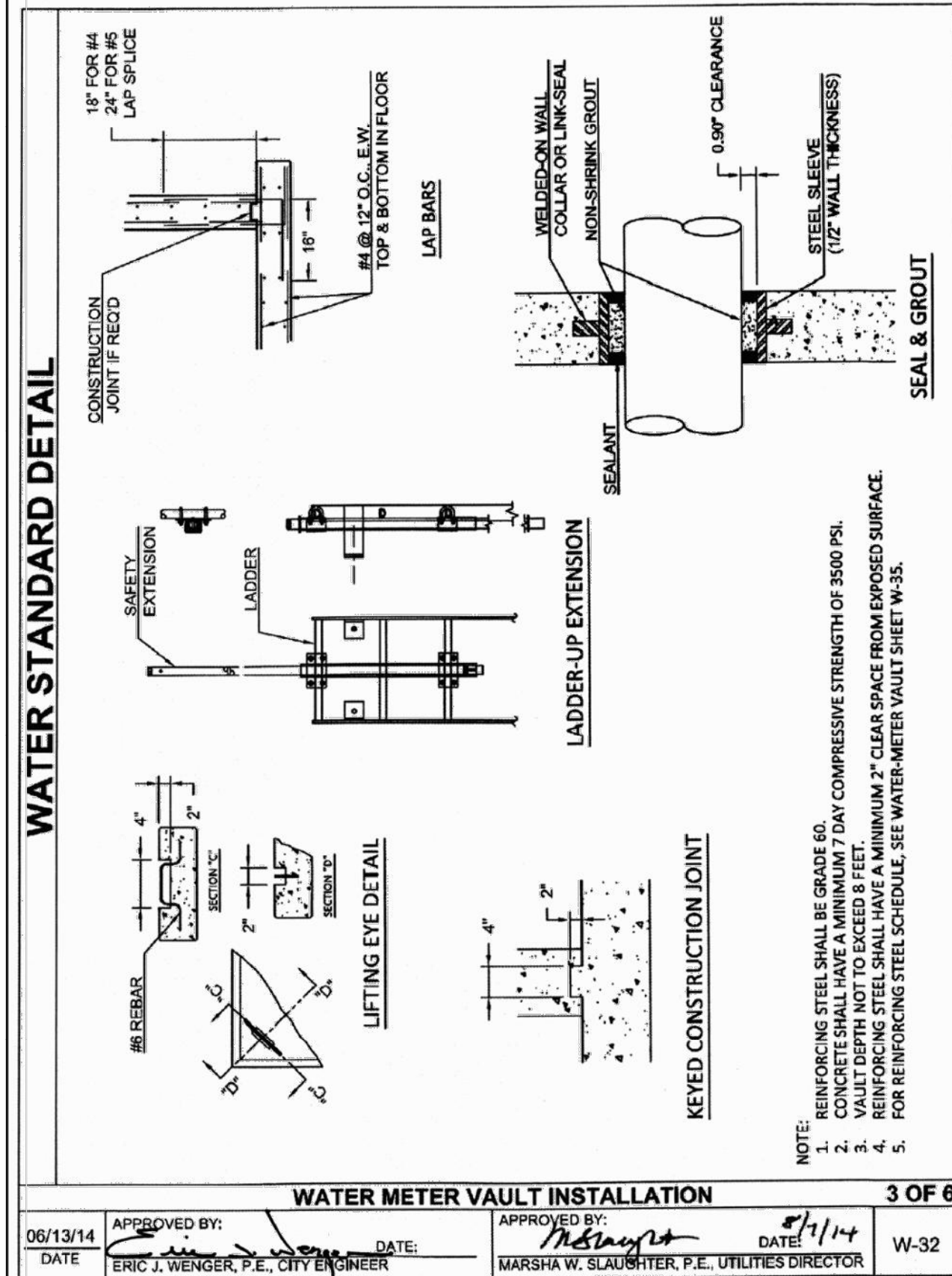


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[illegible][illegible]

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