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09/08/99

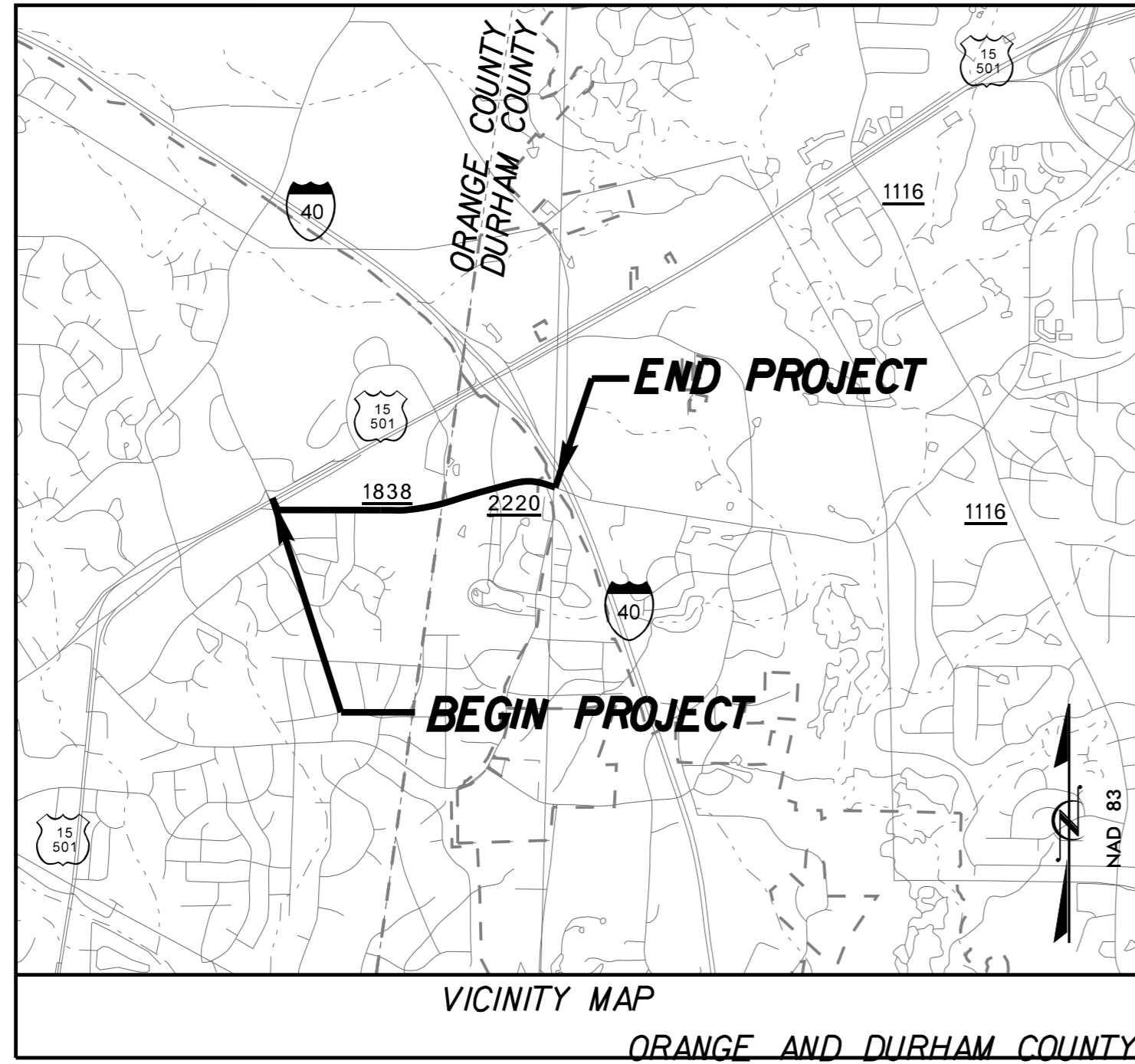
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10/10/2018

TIP PROJECT: EB-4707A

CONTRACT:

See Sheet UC-2 For Conventional Plan Sheet Symbols



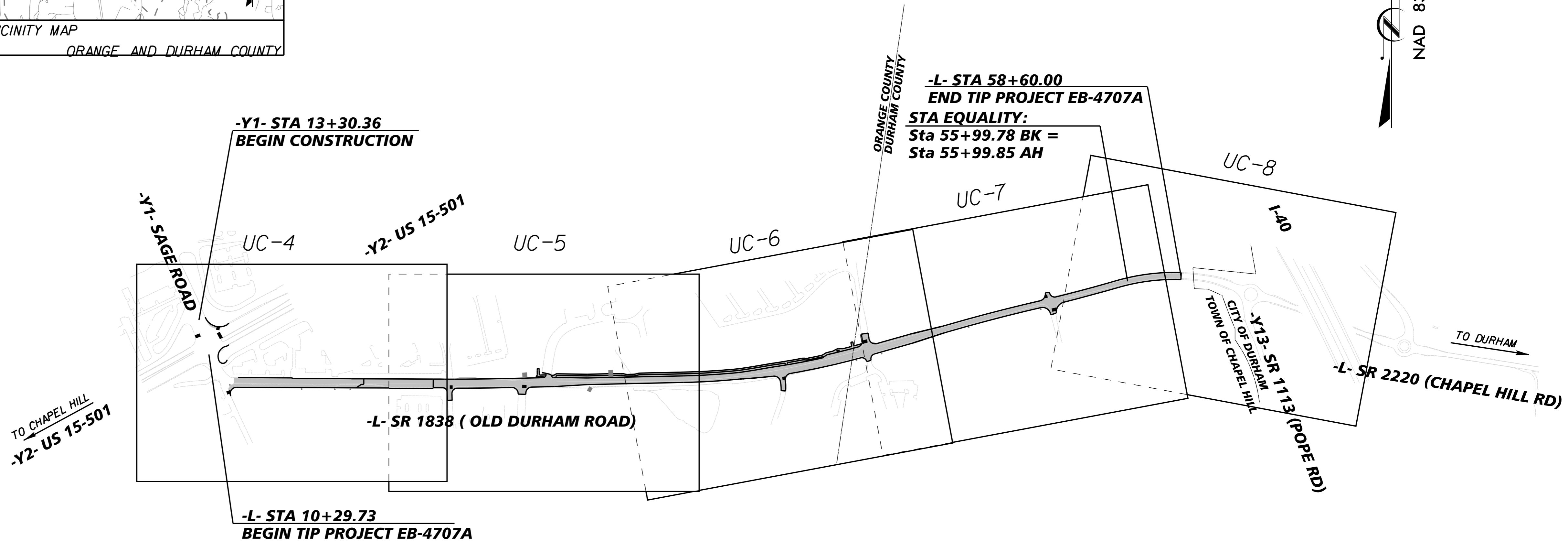
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS DURHAM / ORANGE COUNTY

LOCATION: SR 1838 (OLD DURHAM ROAD)/SR 2220 (CHAPEL HILL ROAD)
FROM US 15-501 IN ORANGE COUNTY
TO SR 1113 (POPE ROAD) IN DURHAM COUNTY

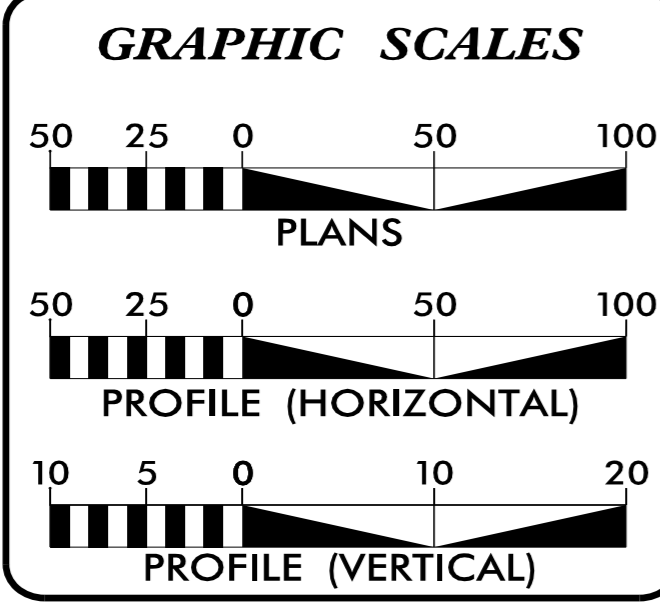
TYPE OF WORK: WATER LINE RELOCATION AND
SEWER LINE RELOCATION

T.I.P. NO.	SHEET NO.
EB-4707A	UC-1



NCDOT CONTACT: MIKE KNEIS, P.E.
DIVISION 5, PROJECT MANAGER
(919) 220-4600

NOTE TO CONTRACTOR: ALL PROPOSED 8", 12", AND 16" WATER
MAINS TO BE RESTRAINED JOINT DI PIPE.



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3D	DETAILS
UC-4 THRU UC-8	UTILITY CONSTRUCTION SHEETS
UC-9 THRU UC-10	PROFILE SHEETS

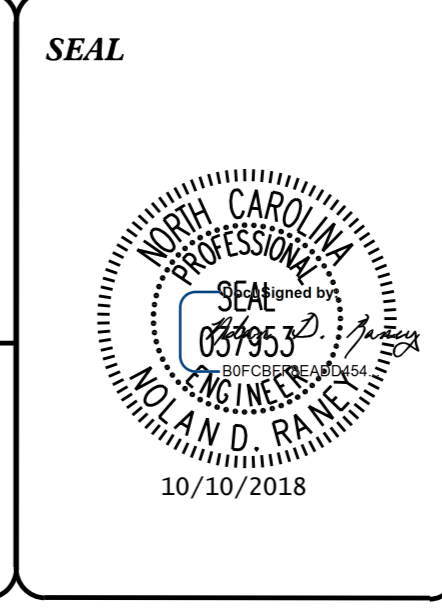
WATER AND SEWER OWNERS ON PROJECT

(1) WATER - OWASA
(2) SANITARY SEWER - OWASA

PLANS PREPARED FOR THE NCDOT BY:

Kimley Horn

Nolan D. Raney, P.E. UTILITIES PROJECT ENGINEER
Cody P. Mangano, EI UTILITIES PROJECT DESIGNER



PREPARED IN THE OFFICE OF:
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Donald Proper DIVISION 5 UTILITIES ENGINEER
Monroe Brown DIVISION 5 UTILITIES COORDINATOR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

NOTE
PAY ITEM

EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

*For Existing Utilities
Utility Line Drawn from Record (Type as Shown)
Designated Utility Line (Type as Shown)

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GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL CODES, AND ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT ITS EXPENSE, UNLESS PREVIOUSLY OBTAINED BY THE OWNER AND PROVIDED AT THE PRECONSTRUCTION CONFERENCE.
2. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER OR THEIR REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS.
4. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND PUBLIC. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAG MEN AND WATCHMEN AS NECESSARY TO ENSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE NCDOT.
5. ALL SANITARY SEWER CONSTRUCTION SHALL CONFORM TO NCEO REGULATIONS, AND TO CURRENT ORANGE WATER & SEWER AUTHORITY REGULATIONS, STANDARDS, AND SPECIFICATIONS.
6. CONTRACTOR SHALL COORDINATE ALL WORK WITH ORANGE WATER & SEWER AUTHORITY.
7. ALL PIPE LENGTHS AND DISTANCES BETWEEN STRUCTURES ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE ALONG A HORIZONTAL PLANE.
8. THE CONTRACTOR SHALL PROVIDE ALL STAKEOUT SURVEY, ANY EXISTING STAKEOUT OR BENCHMARKS SHALL NOT BE RELIED UPON BY THE CONTRACTOR.
9. COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD 83).
10. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY ORANGE WATER & SEWER AUTHORITY PRIOR TO CONSTRUCTION.
11. LOCATIONS OF EXISTING SHOWN UTILITIES ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE SIZE, DEPTH, MATERIAL AND LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION AND TO TAKE WHATEVER STEPS ARE NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THE PLANS; HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE ENGINEER AND THE OWNER ASSUME NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN, PRIOR TO DIGGING ON AND OFF SITE. THE CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED BY "NC 811-800-632-4949". THE CONTRACTOR SHALL CONTACT ANY UTILITY COMPANY WHOSE UTILITIES ARE NOT LOCATED BY "NC 811" FOR EXACT LOCATION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REPLACE ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR TO EXISTING CONDITIONS AT THE CONTRACTOR'S EXPENSE.
12. BURIED DATA, TELEPHONE AND CATV CABLES (FIBER OPTICS AND CONVENTIONAL) ARE KNOWN TO VARY DUE TO INSTALLATION TECHNIQUES. CONTRACTOR SHALL COORDINATE WORK WITH CONFLICTING DATA, TELEPHONE AND CATV CABLES AS NECESSARY FOR INSTALLATION OF THE PROPOSED WATER AND SEWER. UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATION. THE CONTRACTOR SHALL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH UTILITY PROVIDERS ANY ADDITIONAL SUPPORT OF EXISTING UTILITY POLES OR OTHER ITEMS AS REQUIRED FOR TRENCH EXCAVATION. ALL COSTS OF SUCH WORK SHALL BE PAID BY THE CONTRACTOR.
14. THE CONTRACTOR SHALL VERIFY THE VOLTAGES OF ALL ELECTRICAL UTILITIES AND FOLLOW THE APPROPRIATE OSHA STANDARDS WHEN WORKING IN THEIR VICINITY.
15. UNLESS OTHERWISE INDICATED, ALL EXISTING GRADE ELEVATIONS SHOWN ARE ALONG THE PIPE CENTERLINE.
16. OWNERS WILL FURNISH DESCRIPTIONS OF EASEMENTS UPON REQUEST.
17. ALL PAVEMENT CUTS SHALL BE SAWCUT ALONG A CONTINUOUS STRAIGHT LINE AND REPAVED PER THE DETAILS. DECORATIVE CONCRETE SHALL BE CUT TO THE NEAREST JOINT.
18. TRAFFIC ISLANDS, CURBS AND CONCRETE DRIVEWAYS SHALL BE REPLACED TO THE FIRST EXPANSION JOINT BEYOND THE TRENCH EXCAVATION LIMITS AND TO THE FULL WIDTH. TRAFFIC ISLANDS, CURBS AND CONCRETE DRIVEWAYS SHALL MATCH EXISTING.
19. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SHEETING REQUIRED FOR THE INSTALLATION OF THE UTILITY. ALL EXCAVATIONS SHALL BE KEPT WITHIN THE DESIGNATED EASEMENT WIDTHS. EXCAVATION WITHIN PAVED AREAS SHALL BE KEPT TO A MINIMUM. SHEETING SHALL BE INSTALLED AS REQUIRED TO PROTECT EXISTING UTILITIES.
20. PLACED RIP-RAP SHALL HAVE A MINIMUM DEPTH OF 15 TIMES THE MAXIMUM STONE DIAMETER AND SHALL HAVE A LAYER OF TYPE II GEOTEXTILE SEPARATOR PLACED BETWEEN THE SOIL AND STONE.
21. ALL MATERIAL CLEARED AND GRUBBED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK, SUCH AS TREES, VEGETATION, ETC., SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE AT A STATE APPROVED DISPOSAL SITE.
22. IMMEDIATELY PRIOR TO DISTURBANCE, CONTRACTOR SHALL OBTAIN DIGITALLY RECORDED VIDEO OF THE UTILITY ALIGNMENTS INCLUDING EACH DRIVEWAY, SIDEWALK, ETC., TO BE DISTURBED. EACH SHALL BE RESTORED TO ITS ORIGINAL CONDITION OR BETTER. VIDEO SHALL BE SUBMITTED TO ORANGE WATER & SEWER AUTHORITY AND THE ENGINEER PRIOR TO WORK.
23. CONTRACTOR SHALL MAINTAIN A MEANS FOR ACCESS TO EACH PROPERTY AT ALL TIMES.
24. DURING CONSTRUCTION, EMERGENCY VEHICLE APPARATUS ACCESS AND ACCESS TO FIRE HYDRANTS SHALL BE MAINTAINED AT ALL TIMES.
25. ALL CONSTRUCTION SHALL BE LIMITED TO STREET RIGHTS-OF-WAY AND OBTAINED EASEMENTS. REFER TO DETAIL 022210 FOR TRENCH WIDTH REQUIREMENTS. WHERE THE CONTRACTOR DETERMINES THAT ENCROACHMENT ONTO PRIVATE PROPERTY IS NECESSARY AND AN EASEMENT HAS NOT BEEN PROVIDED, THE CONTRACTOR SHALL CONTACT INDIVIDUAL PROPERTY OWNERS AND OBTAIN WRITTEN APPROVAL FOR THAT ENCROACHMENT. SUCH APPROVALS SHALL BE PROVIDED TO THE OWNER AND ENGINEER.
26. CONTRACTOR SHALL NOTIFY HOME OWNERS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION THAT CONSTRUCTION ACTIVITY WILL TAKE PLACE IN THEIR AREA.


27. CONTRACTOR SHALL REMOVE AND REPLACE ALL CONFLICTING MAIL BOXES, CULVERTS, HEADWALLS, ORNAMENTAL STRUCTURES, ETC. WITHIN THE RIGHT OF WAY OR PERMANENT EASEMENT UNLESS OTHERWISE SHOWN ON THE PLANS OR IN THE CONTRACT DOCUMENTS. CONFLICTING TREES WITHIN THE RIGHT OF WAY SHALL BE REMOVED AND NOT REPLANTED.
28. THE CONTRACTOR SHALL INSTALL ALL SIGNS AS REQUIRED BY NCDOT ALONG STATE ROADWAYS AND TOWN OF CHAPEL HILL ALONG TOWN STREETS.
29. LANE AND SHOULDER CLOSURES SHALL BE IN ACCORDANCE WITH ORANGE WATER & SEWER AUTHORITY, TOWN OF CHAPEL HILL AND NCDOT REQUIREMENTS.
30. TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED OR COVERED WITH ROAD PLATES AT THE END OF THE WORK DAY.
31. CONTRACTOR SHALL PATCH ALL ROADWAY PAVEMENT DISTURBANCES BY THE END OF EACH WEEK. TEMPORARY GRAVEL PATCHES SHALL BE PROVIDED DAILY AND MAINTAINED UNTIL PAVEMENT PATCH IS PROVIDED. EROSION CONTROL SHALL BE PROVIDED AS NECESSARY FOR GRAVEL AREAS.
32. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL TOOLS, APPLIANCES, CONSTRUCTION EQUIPMENT AND MACHINERY, AND SURPLUS MATERIALS AND SHALL RESTORE TO ORIGINAL CONDITION ALL PROPERTY NOT DESIGNATED FOR ALTERATION BY THE CONTRACT DOCUMENTS.

UTILITY NOTES:

1. UTILITY SEPARATION REQUIREMENTS:
 - A. DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
 - B. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
 - C. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASUREMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
 - D. 50' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
 - E. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE.
 - F. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
2. MINIMUM PIPE COVER FOR SANITARY SEWER SHALL BE 4 FEET UNLESS DUCTILE IRON PIPE IS USED AND LESS COVER IS SPECIFICALLY APPROVED BY THE ENGINEER OR SHOWN OTHERWISE ON PLANS.
3. THE MINIMUM TRENCH WIDTHS SHALL BE IN STRICT ACCORDANCE WITH THE "TRENCH EXCAVATION LIMITS" AS SHOWN ON THE DRAWINGS.
4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 72 HOUR ADVANCE NOTICE TO ORANGE WATER & SEWER AUTHORITY.
5. RESTRAINED JOINT PIPE JOINTS SHALL BE INSTALLED BETWEEN THE STATIONS INDICATED ON THE DRAWINGS. IF A BEND OR FITTING IS RELOCATED BY THE CONTRACTOR FOR HIS CONVENIENCE THEN THE REQUIRED LENGTH OF RESTRAINED JOINTS SHALL BE MAINTAINED, AT NO ADDITIONAL COST TO THE OWNER. IF ADDITIONAL BENDS OR FITTINGS INSTALLED BY THE CONTRACTOR FOR HIS CONVENIENCE, THEN THE CONTRACTOR SHALL INSTALL THE REQUIRED LENGTH OF RESTRAINING JOINTS AS DETERMINED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.
6. ALL PRESSURIZED FITTINGS SHALL BE RESTRAINED JOINT, UNLESS OTHERWISE SHOWN. A THRUST RESTRAINT PRESSURE OF 350 PSI SHALL BE USED FOR THIS PROJECT.
7. ALL MECHANICAL JOINTS SHALL BE FITTED WITH RESTRAINING TYPE ACCESSORY KITS MEGA-LUG SERIES 100 OR EQUAL. ALL BURIED EXTERIOR PRESSURIZED PIPING SHALL HAVE RESTRAINED JOINTS FOR THRUST PROTECTION UNLESS OTHERWISE SPECIFIED.
8. PIPE ALIGNMENT SHOWN IS BASED ON STANDARD FITTINGS AVAILABLE FOR PC 350 DUCTILE IRON PIPE. JOINT DEFLECTIONS SHALL NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED DEFLECTION. CONTRACTOR SHALL ADJUST PIPELINE ALIGNMENT AND DEFLECT JOINTS AS NECESSARY TO ACCOMMODATE THE STANDARD BENDS SHOWN.
9. DETECTOR TAPE IS REQUIRED FOR ALL BURIED PIPE.
10. ALL MANHOLE COVERS AND VALVE BOX LIDS FOR WATER SHALL READ "WATER", ALL MANHOLE COVERS AND VALVE BOX LIDS FOR SEWER SHALL READ "SEWER".
11. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE OWNER.
12. EXISTING WATER SERVICES SHALL REMAIN IN SERVICE AT ALL TIMES UNTIL THE PROPOSED MAIN IS TESTED AND PHASED INTO SERVICE.
13. ALL WATER SERVICES SHALL BE INSTALLED ACCORDING TO SPECIFICATIONS UNLESS OTHERWISE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL LOCATE AND MAINTAIN EXISTING EXISTING WATER SERVICES PRIOR TO ANY EXCAVATION IN THE AREA. ALL WATER METERS SHALL BE INSTALLED WITHIN 2 FEET OF THE RIGHT OF WAY LINE.

Kimley»Horn

P.O. BOX 33068
RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO. EB-4707A	SHEET NO. UC-3
UTILITY CONSTRUCTION ENGINEER	
	
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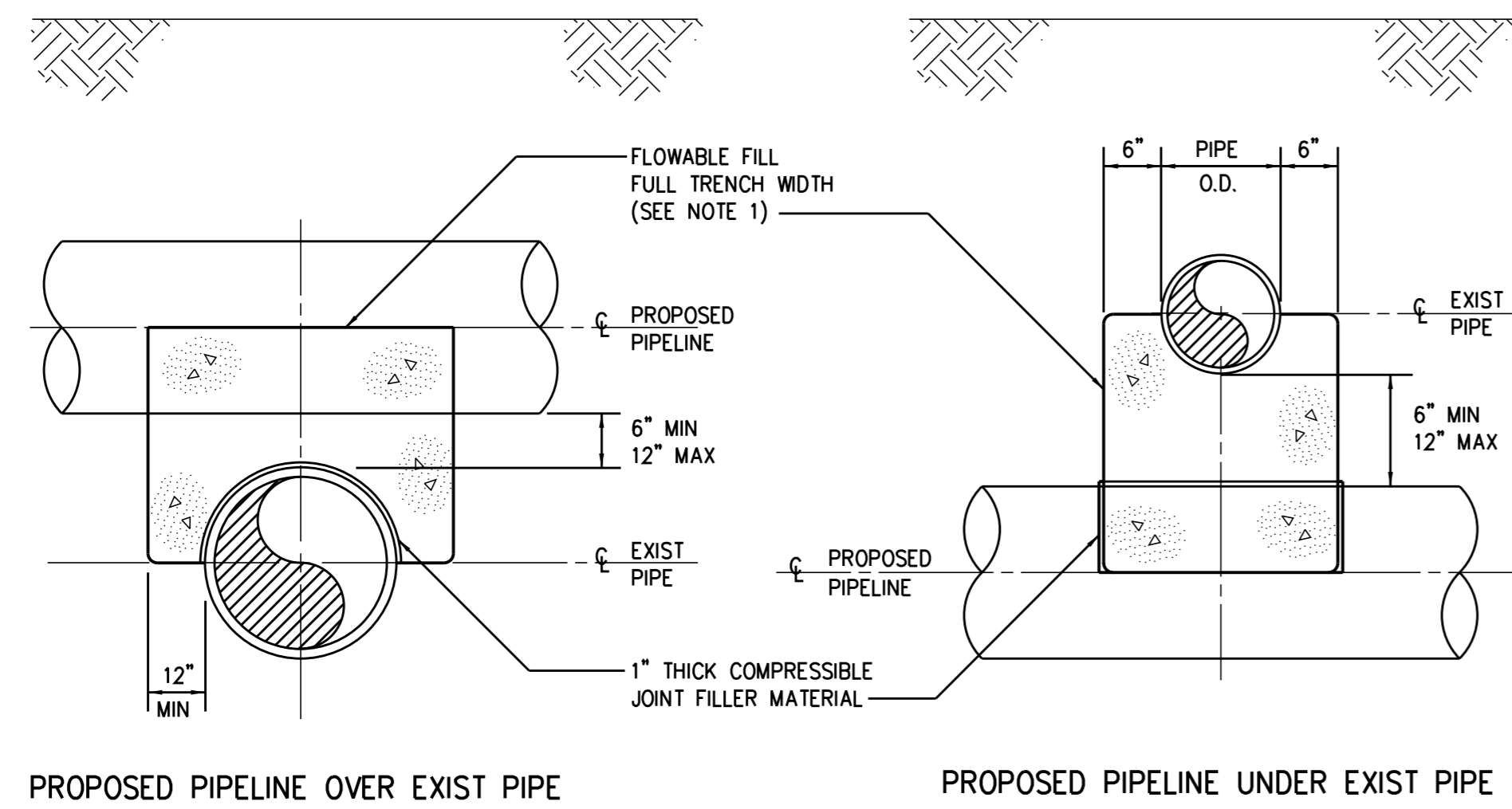
ASBESTOS CEMENT PIPE NOTES:

1. CONTRACTOR SHALL FOLLOW ALL RULES AND REGULATIONS FOR CUTTING, DEMOLISHING, OR DISPOSING OF ASBESTOS CEMENT PIPE.
2. CONTRACTOR SHALL TAKE ANY PRECAUTIONS NECESSARY TO AVOID EXPOSING WORKERS OR THE PUBLIC TO ASBESTOS FIBERS.
3. CONTRACTOR SHALL OBTAIN ALL PERMITS NECESSARY FOR CUTTING, DEMOLISHING, OR DISPOSING OF ASBESTOS CEMENT PIPE.
4. CONTRACTOR SHALL FOLLOW ALL NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES REQUIREMENTS DURING CONSTRUCTION.
5. CONTRACTOR SHALL FOLLOW ALL OSHA ASBESTOS REQUIREMENTS DURING CONSTRUCTION.
6. ALL ASBESTOS PIPE DISPOSAL SHALL CONFORM WITH ALL FEDERAL AND STATE REQUIREMENTS.
7. ASBESTOS PIPE ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE FILL.

CONSTRUCTION SEQUENCE:

1. CONTRACTOR TO VERIFY EXISTING WATERLINE ELEVATION AT POTENTIAL WATERLINE CONFLICT LOCATIONS AS SHOWN ON THE PLANS TO DETERMINE ANTICIPATED CLEARANCES BETWEEN STORM PIPE AND WATERLINE.
2. IF LESS THAN 6' CLEARANCE BETWEEN PROPOSED STORM PIPE AND EXISTING WATERLINE IS ANTICIPATED, THE CONTRACTOR SHALL PROVIDE THE OWNER/ENGINEER WITH A DETAILED WATER INTERRUPTION PLAN FOR APPROVAL AT LEAST SEVEN (7) DAYS PRIOR TO PLANNED INTERRUPTION. AT A MINIMUM, THIS PLAN SHALL ADDRESS THE FOLLOWING:
 - A. SEQUENCE OF CONSTRUCTION OPERATIONS FOR ANY INTERRUPTION(S).
 - B. PROCEDURE FOR FLUSHING AND DISINFECTION OF ALL AFFECTED WATER DISTRIBUTION PIPING AND VALVES.
3. NO INTERRUPTION OF SERVICE WILL BE PERMITTED UNTIL THE FOREGOING PLAN HAS BEEN APPROVED BY THE OWNER/ENGINEER. THE OWNER'S PERSONNEL SHALL OPERATE THE OWNER'S EXISTING FACILITIES INVOLVED IN THE INTERRUPTIONS OF SERVICE.
4. PLANNED SERVICE INTERRUPTIONS SHALL LAST NO LONGER THAN 8 HOURS UNLESS OTHERWISE APPROVED BY THE OWNER/ENGINEER. ALL INTERRUPTIONS OF SERVICES SHALL BE COORDINATED WITH AND SCHEDULED AT TIMES SUITABLE TO THE OWNER.
5. WRITTEN WATER SERVICE INTERRUPTIONS SHALL BE PROVIDED TO ALL AFFECTED USERS AT LEAST 72 HOURS PRIOR TO PLANNED INTERRUPTION.

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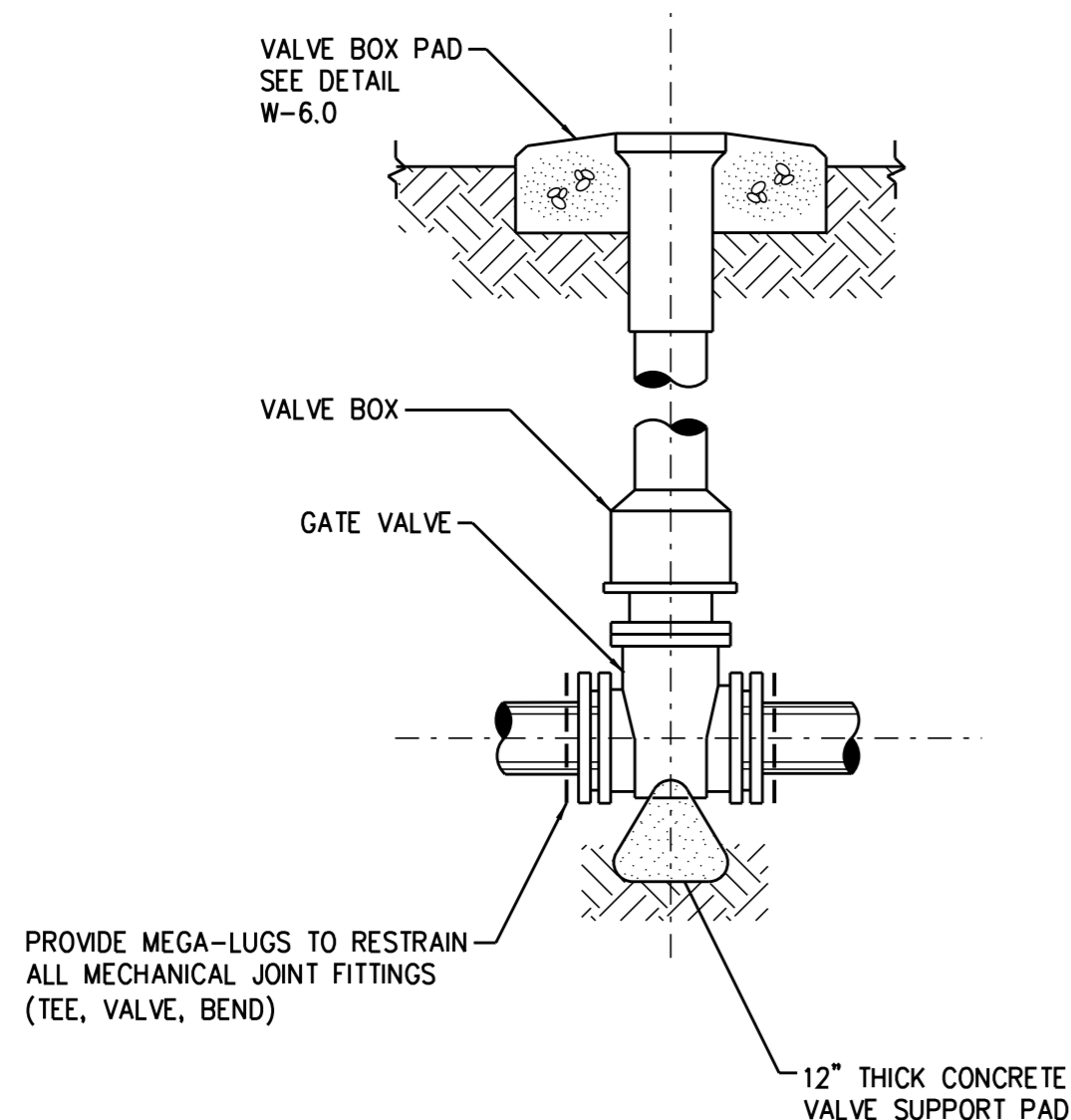
PROPOSED PIPELINE OVER EXIST PIPE
PROPOSED PIPELINE UNDER EXIST PIPE

NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 12"

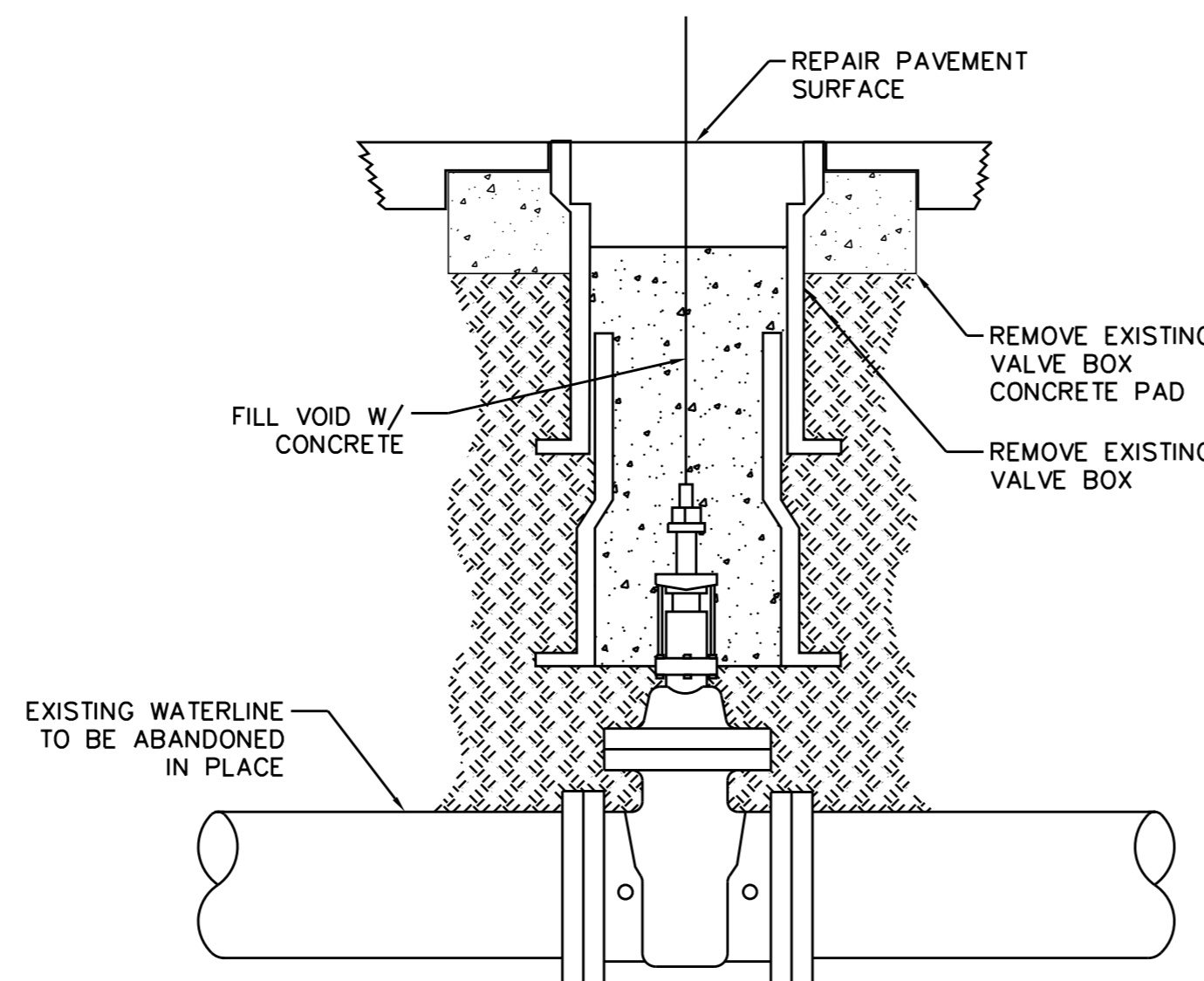
TRENCH EXCAVATION LIMITS		
INTERNAL DIAMETER OF PIPE	W	W
	MAX	MIN
4"-6"	3'-9"	2'-0"
8"-10"	3'-9"	2'-2"
12"	3'-9"	O.D.+2'
14"-16"	4'-2"	O.D.+2'
18"	4'-4"	O.D.+2'
20"-21"	4'-8"	O.D.+2'
24"	4'-11"	O.D.+2'
27"	5'-9"	O.D.+2'
30"	6'-7"	O.D.+2'
36"	7'-4"	O.D.+2'
42"	8'-2"	O.D.+2'
48"	8'-9"	O.D.+2'
54"	9'-4"	O.D.+2'
60"	9'-10"	O.D.+2'
72"	11'-0"	O.D.+2'
78"	11'-8"	O.D.+2'
84"	12'-0"	O.D.+2'
90"	12'-6"	O.D.+2'
96"	13'-0"	O.D.+2'
108"	14'-0"	O.D.+2'
DEPTH OF CUT	S	
	MAXIMUM PAVEMENT REPLACEMENT WIDTH	
0-6'	S=W+4'	
>6-8'	S=W+8'	
>8-10'	S=W+12'	
>10-12'	S=W+16'	
>12-14'	S=W+20'	
>14-16'	S=W+24'	
>16-18'	S=W+28'	
>18'	S=W+32'	

W = TRENCH WIDTH AT BOTTOM OF PIPE. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.

0222110

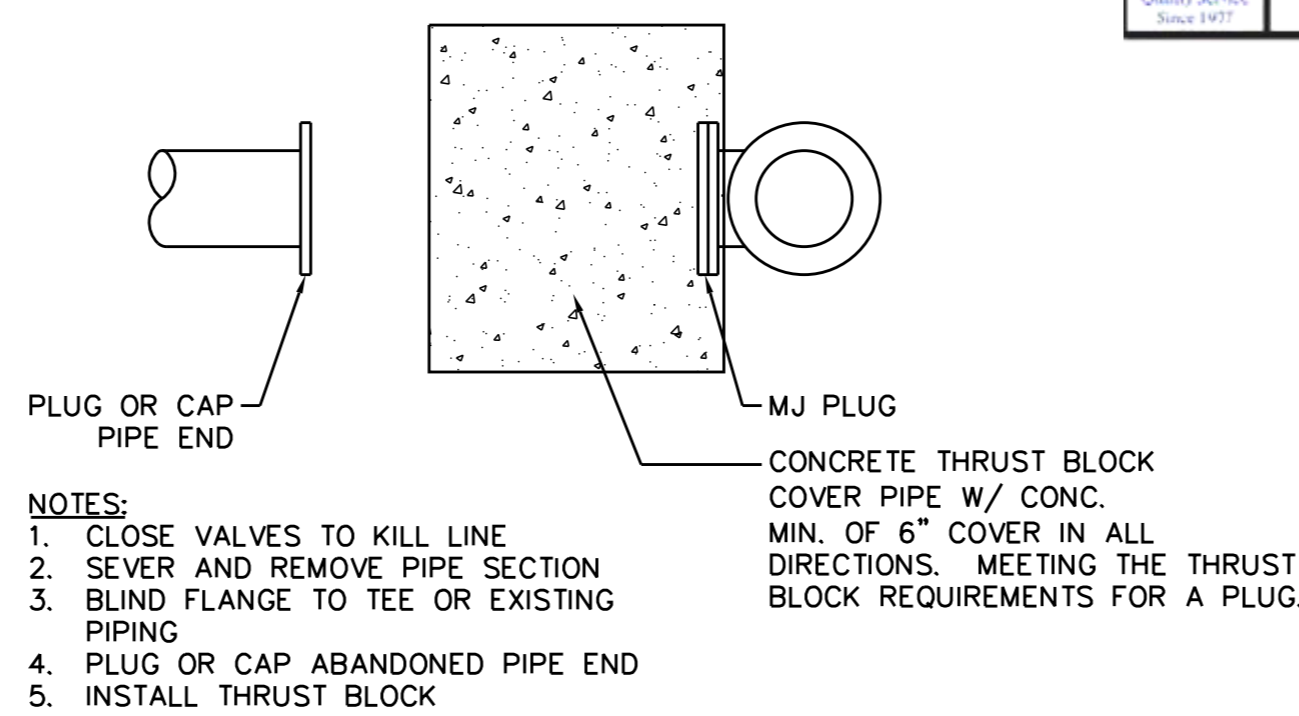


GATE VALVE ASSEMBLY
(FOR 4" THRU 12" VALVES)
0264013

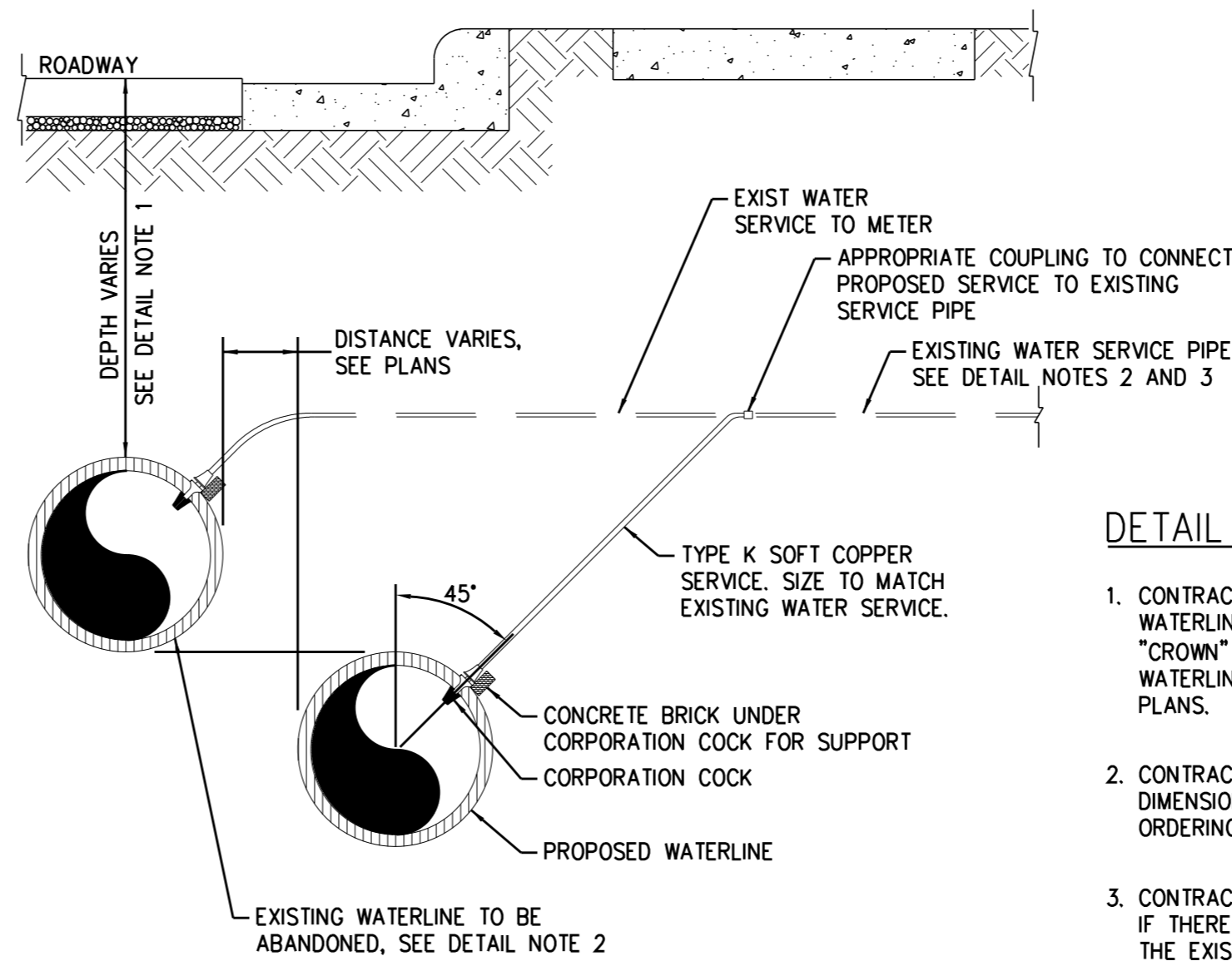


ABANDON EXISTING VALVE IN PLACE
0264014

- NOTES:
1. CLOSE VALVE.
 2. REMOVE UPPER VALVE BOX AND VALVE BOX COVER.
 3. REMOVE EXISTING VALVE NUT.
 4. FILL VOID AROUND VALVE WITH CONCRETE TO WITHIN 6" OF EXISTING GRADE OR PAVEMENT.
 5. AT GRADE REPAIR TO MATCH EXISTING SURFACE.



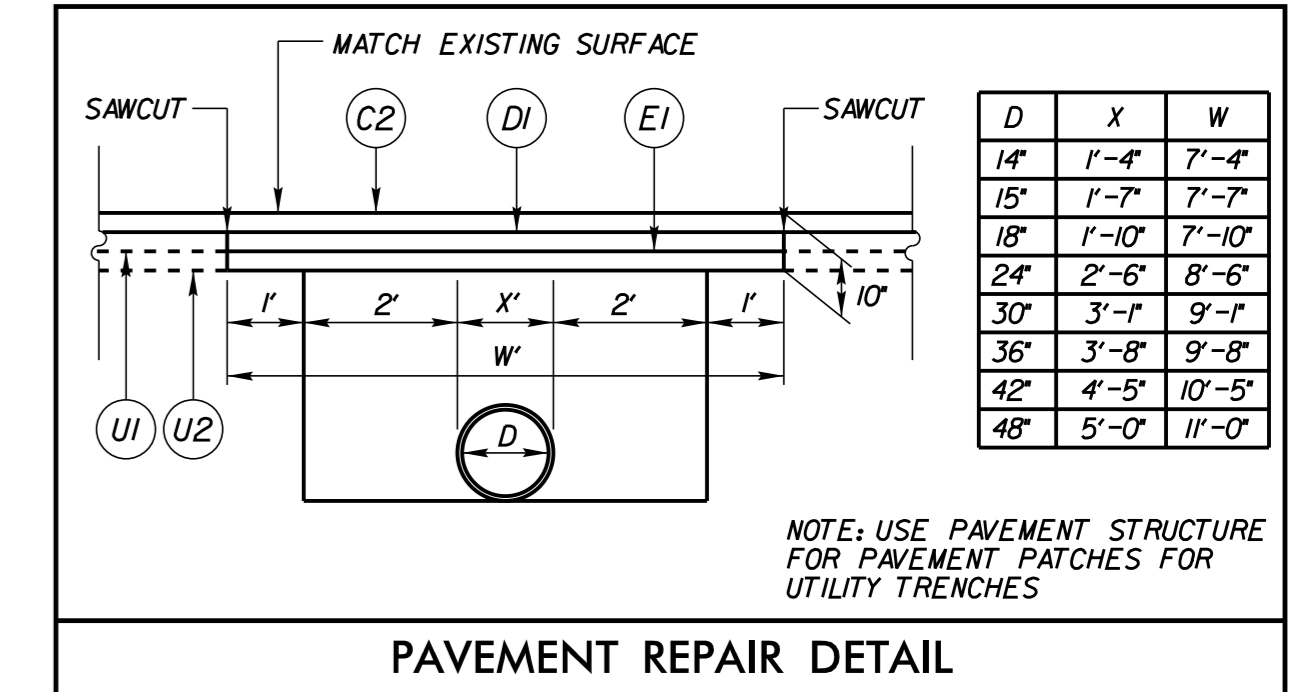
CUT AND CAP EXISTING WATERLINE
0280003



TYPICAL SERVICE CONNECTION
0260121

DETAIL NOTES:

1. CONTRACTOR SHALL VERIFY DEPTH OF EXISTING WATERLINE AND LOCATE PROPOSED WATERLINE "CROWN" AT THE "INVERT" OF THE EXISTING WATERLINE, UNLESS OTHERWISE SHOWN ON THE PLANS.
2. CONTRACTOR SHALL VERIFY EXACT MATERIALS AND DIMENSIONS OF EXISTING WATER SERVICES PRIOR TO ORDERING MATERIALS.
3. CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE EXISTING WATERLINE.

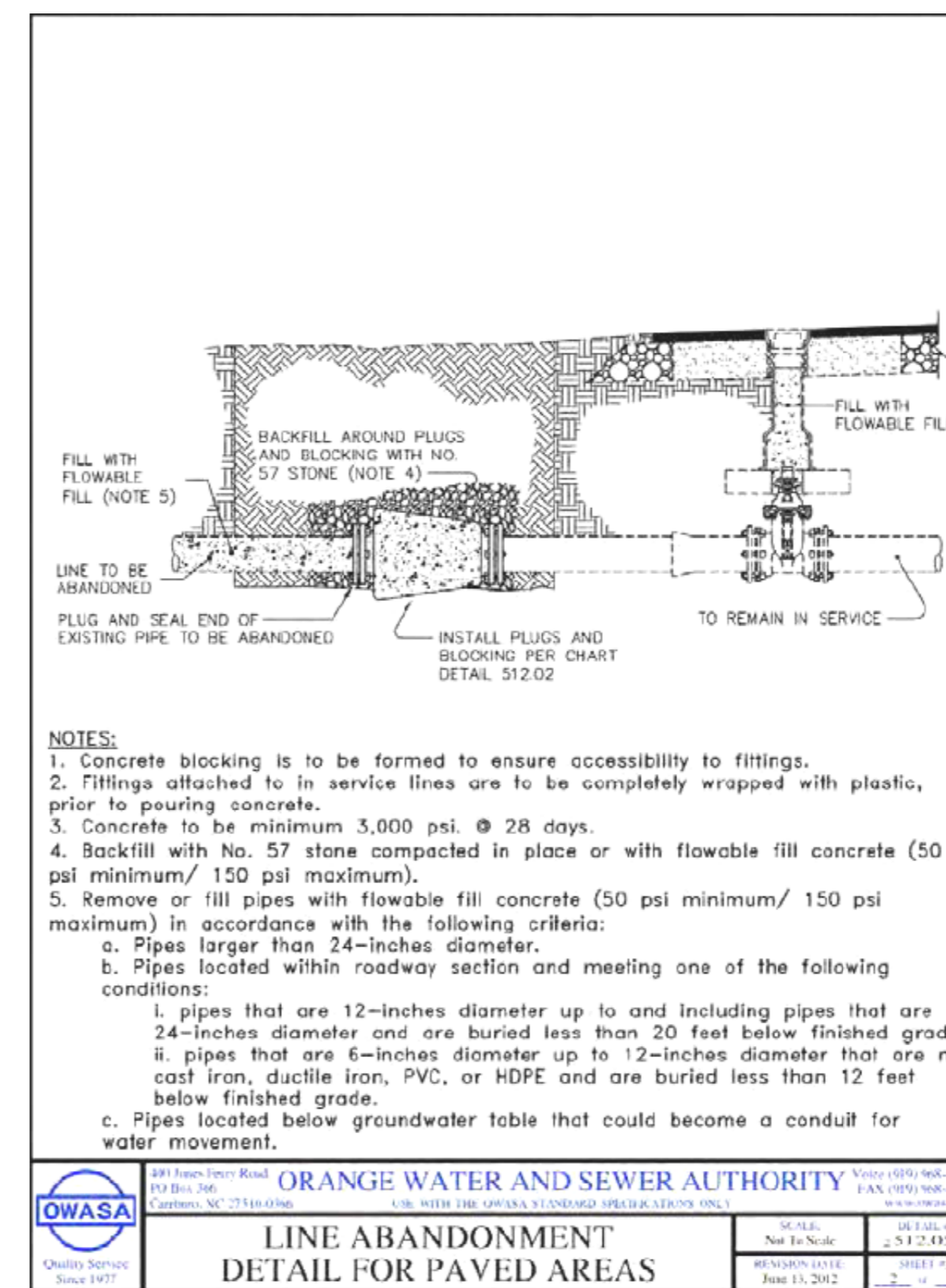


PAVEMENT REPAIR DETAIL

PAVEMENT SCHEDULE

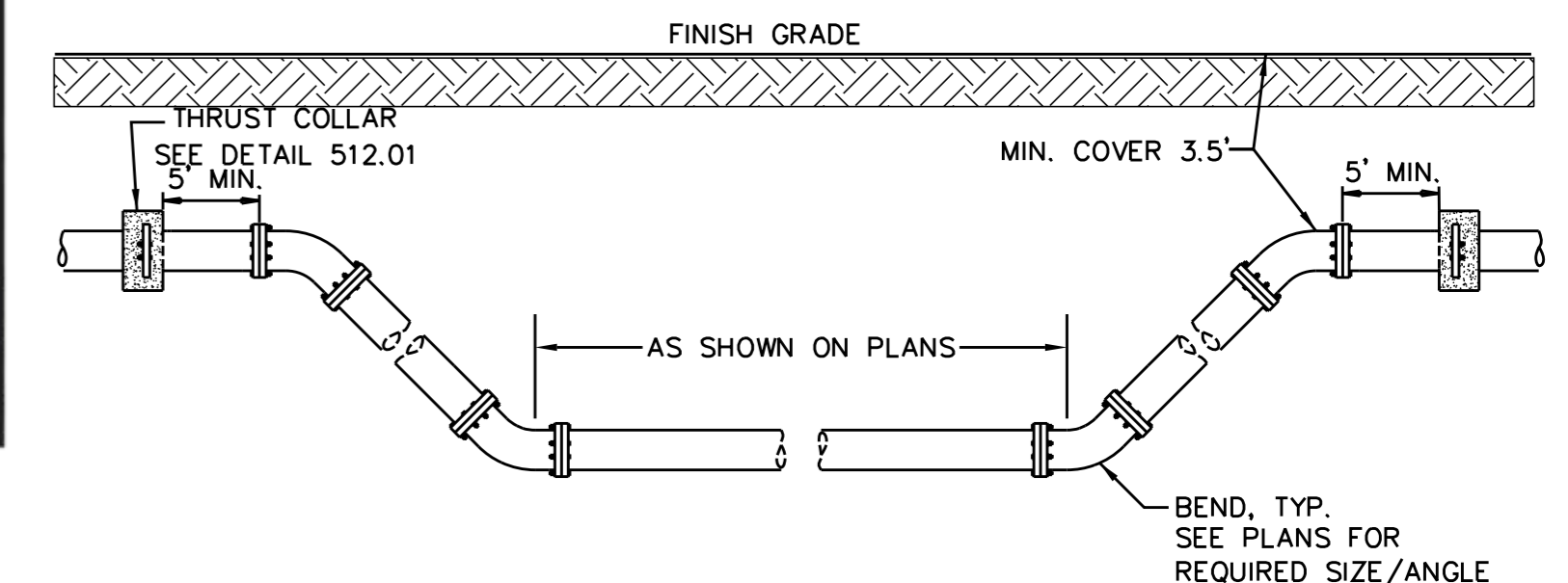
C2	PROPOSED APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E1	PROPOSED APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YARD.
U1	EXISTING ASPHALT PAVEMENT
U2	EXISTING CONCRETE PAVEMENT

- NOTES:
- 1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED
 - 2) SAWCUT AND REMOVE EXIST ASPHALT PAVEMENT AND CONCRETE PAVEMENT TO PROVIDE 1' MINIMUM WIDTH OF FULL DEPTH PAVEMENT
 - 3) PROVIDE FULL DEPTH PAVEMENT ACCORDING TO PAVEMENT REPAIR DETAIL ON SHEET UC-4A FOR UTILITY INSTALLATION. SEE PLANS FOR LOCATIONS OF UTILITY CROSSINGS.



- NOTES:
1. Concrete blocking is to be formed to ensure accessibility to fittings.
 2. Fittings attached to in service lines are to be completely wrapped with plastic, prior to pouring concrete.
 3. Concrete to be minimum 3,000 psi. @ 28 days.
 4. Backfill with No. 57 stone compacted in place or with flowable fill concrete (50 psi minimum/ 150 psi maximum).
 5. Remove or fill pipes with flowable fill concrete (50 psi minimum/ 150 psi maximum) in accordance with the following criteria:
 - a. Pipes larger than 24-inches diameter.
 - b. Pipes located within roadway section and meeting one of the following conditions:
 - i. pipes that are 12-inches diameter up to and including pipes that are 24-inches diameter and are buried less than 20 feet below finished grade.
 - ii. pipes that are 6-inches diameter up to 12-inches diameter that are not cast iron, ductile iron, PVC, or HDPE and are buried less than 12 feet below finished grade.
 - c. Pipes located below groundwater table that could become a conduit for water movement.

OWASA
ORANGE WATER AND SEWER AUTHORITY
LINE ABANDONMENT
DETAIL FOR PAVED AREAS



- NOTES:
1. MEGALUGS OR RESTRAINED JOINT PIPE AND FITTINGS SHALL BE USED FOR ALL PIPE AND FITTINGS.
 2. CONCRETE ENCASED MEGALUGS MAY BE USED IN LIEU OF THRUST COLLARS.
 3. ALL PIPE AND FITTINGS BETWEEN THRUST COLLARS SHALL BE RESTRAINED.

STANDARD VERTICAL BEND
NOT TO SCALE
0222128



NOTES:

- All bronze saddle (Single or double strap for 3/4" and 1")
- If 2 taps are made on each side of the main there shall be a minimum of 18" horizontal separation. Multiple taps on the same side shall have a minimum 18" horizontal separation and staggered a minimum of 1" vertically to prevent damage to the main.

PART	MANUFACTURER MODEL / Cat. No.
SADDLE	FORD / 101B SERIES OR 202B SERIES MUELLER / BR1B OR BR2B
CORP. STOP	FORD / F800 SERIES MUELLER / H-15000 SERIES

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/09		
REVISION DATE	REVISION	SHEET #	TOTAL #
October, 2011		1	1

NOTES:

- Concrete shall 3000 P.S.I.
- Reinforcing bars shall be deformed bars, and tied together.
- Trench bottom width in vicinity of thrust block(s) installation shall be the minimum width for placement of pipe (Max trench width = pipe O.D. + 2 Ft.)
- Backfill and compact in 6" layers.
- Place thrust collar on one full joint of pipe.
- Lost joint of pipe with thrust collar to be mechanical joint pipe.
- Place wedge action restrainer gland joint restraint 4 feet from plug end of pipe.

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/08		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		1	2

NOTES:

- A MEG-A-LUG SERIES 1100 or FORD WEDGE ACTION RESTRAINER GLAND UFR SERIES 1400 MECHANICAL JOINT RESTRAINT SHALL BE PLACED ON DIP, CONCRETE & REINFORCEMENT STEEL SHALL ALSO BE AS SHOWN ON SHEET 1 of 2.

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/08		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		2	2

NOTES:

- Use heavy duty traffic lid marked "WATER".

Provide 1" earth cushion between bottom of concrete brick and valve. Do not let valve box or brick rest on valve assembly. - Typical all valves.

PART	MANUFACTURER MODEL / Cat. No.
VALVE BOX & VALVE CAP	CHARLOTTE PIPE / UTL-273 TYLER PIPE CO / 6850
DEBRIS CAP	MILLER SUPPLY CO / DC-590 OR APPROVED EQUAL

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/08		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		1	1

NOTES:

- Concrete to be minimum 3,000 PSI @ 28 days.

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/09		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		1	1

NOTES:

- Hydrants to be placed with pumper nozzle facing the street or as otherwise directed by OWASA.
- Hydrants to be installed with a minimum of 12" and 0 maximum of 18" above top of guardrail. Center of hydrant to be a minimum of 3 feet from guardrail.
- Fire hydrant to be oiled & greased and cap to be sprayed (Non-petroleum based) after installation.
- Do not locate hydrants in sidewalks or block pedestrian flow.

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/08		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		1	2

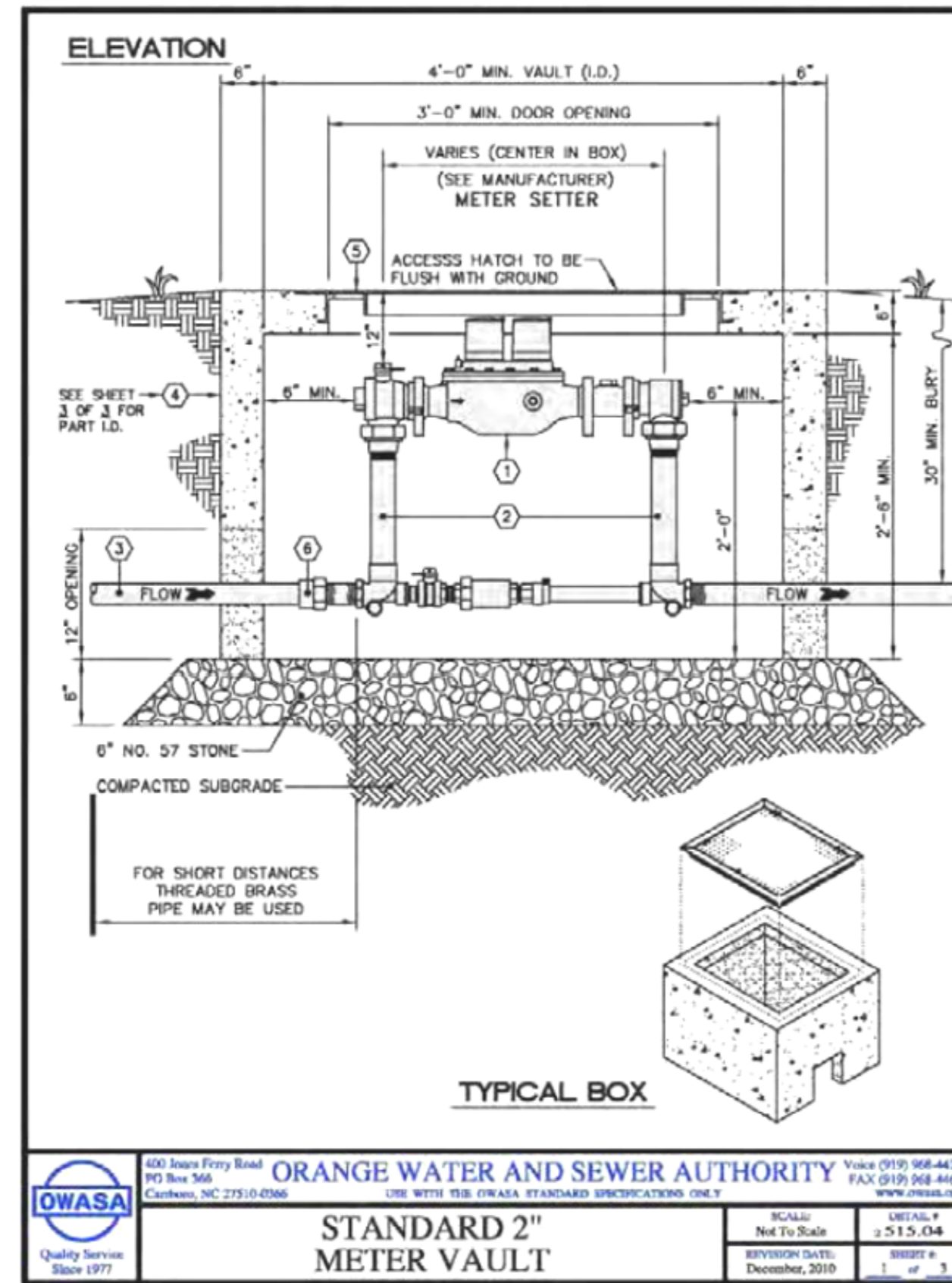
NOTES:

- Bronze service saddles shall be used on all service connections. Direct taps shall be made only as directed by an OWASA representative. Use tapping detail 512.06.
- Omitted.
- If installation is for stub-out meter, meter should be purchased from OWASA.
- Meter must be level across meter connections.
- Substitution requires approval by OWASA's Director of Engineering.

SCALE	DATE	BY	CHKD.
Not To Scale	2/12/08		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		2	2

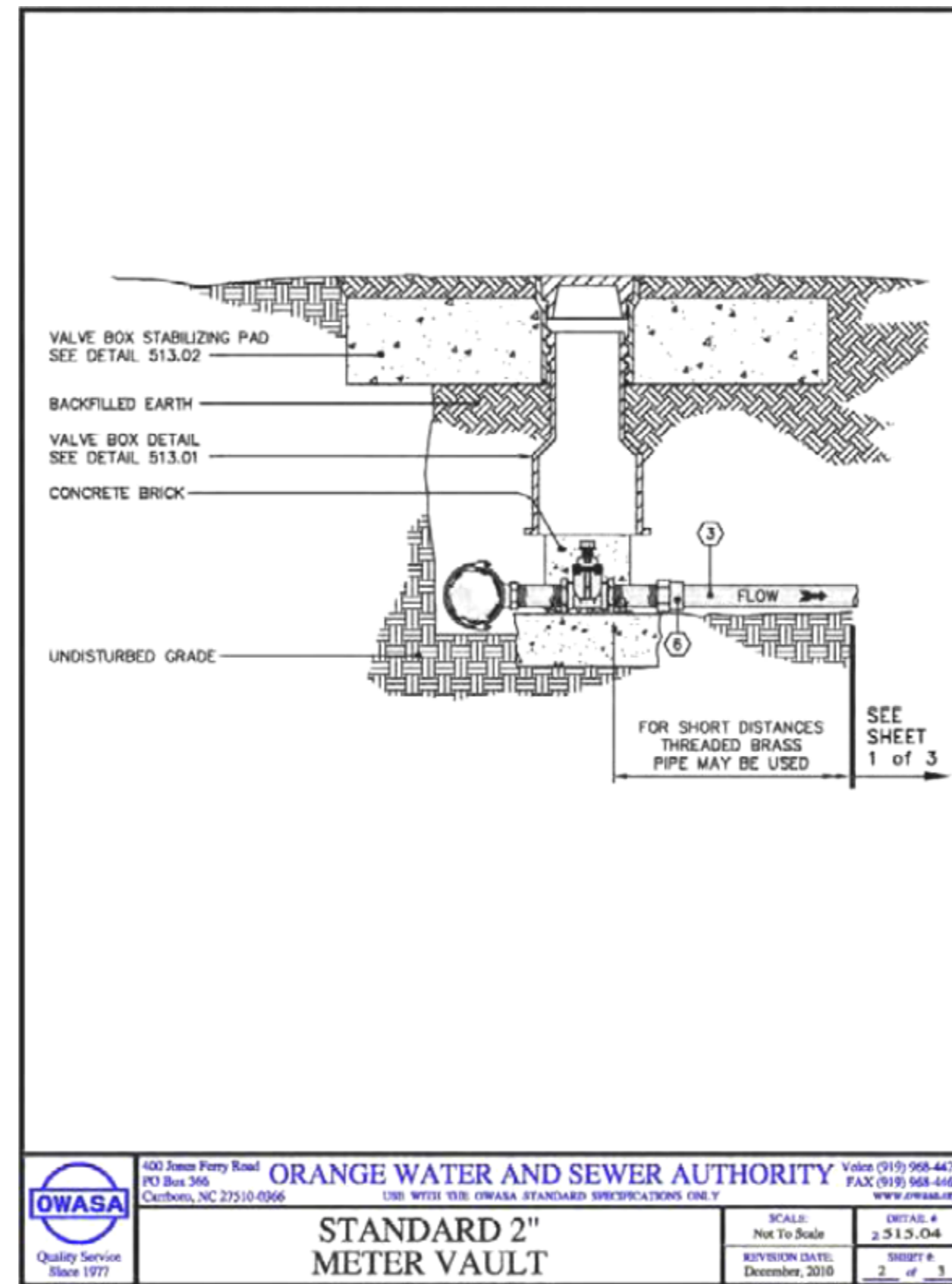
SCALE	DATE	BY	CHKD.
Not To Scale	2/12/08		
REVISION DATE	REVISION	SHEET #	TOTAL #
August 15, 2003		2	2

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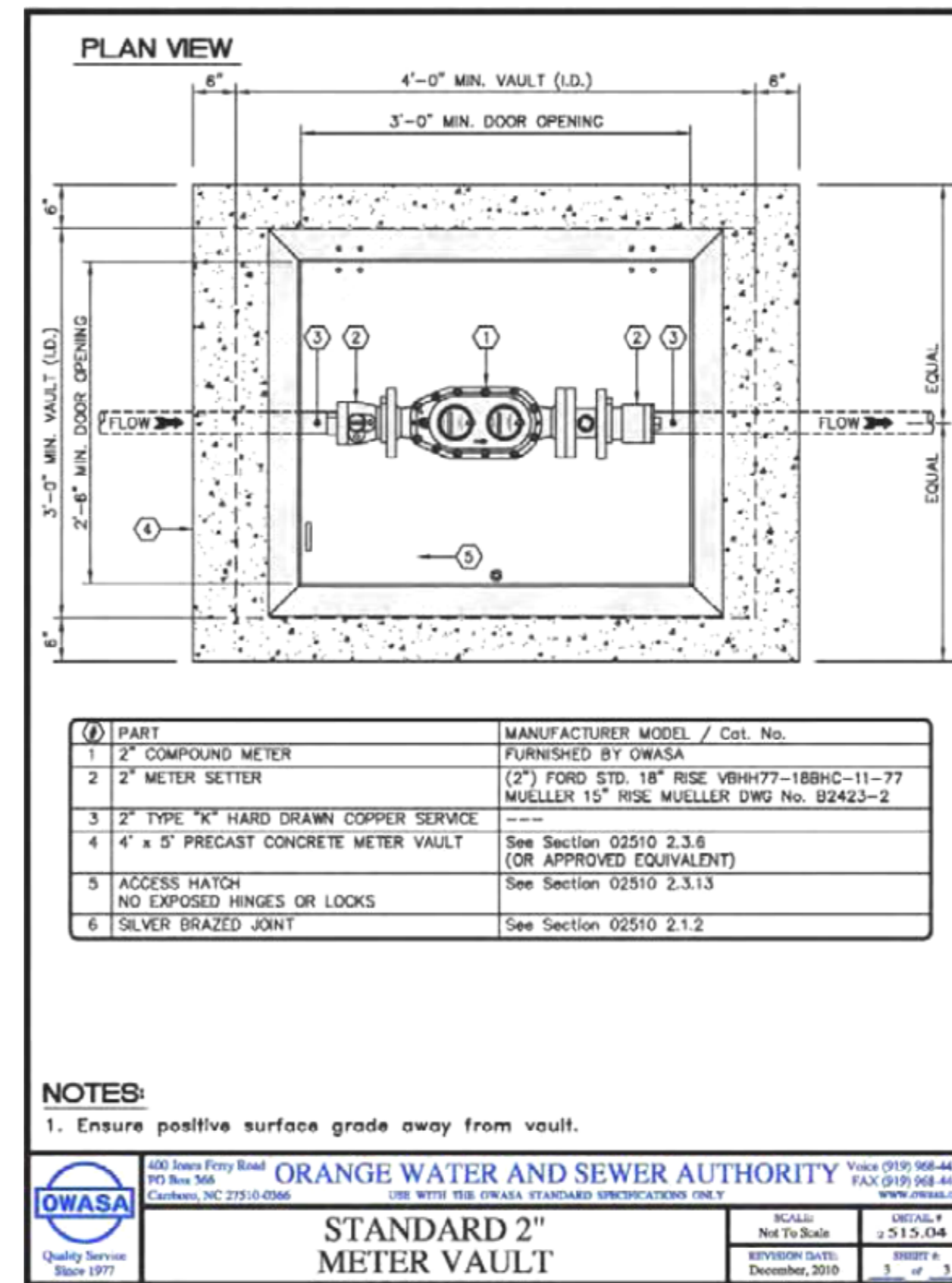
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

STANDARD 2" METER VAULT
SCALE: Not To Scale, DETAIL # 532.06
REVISION DATE: December, 2010, SHEET # 1 of 3



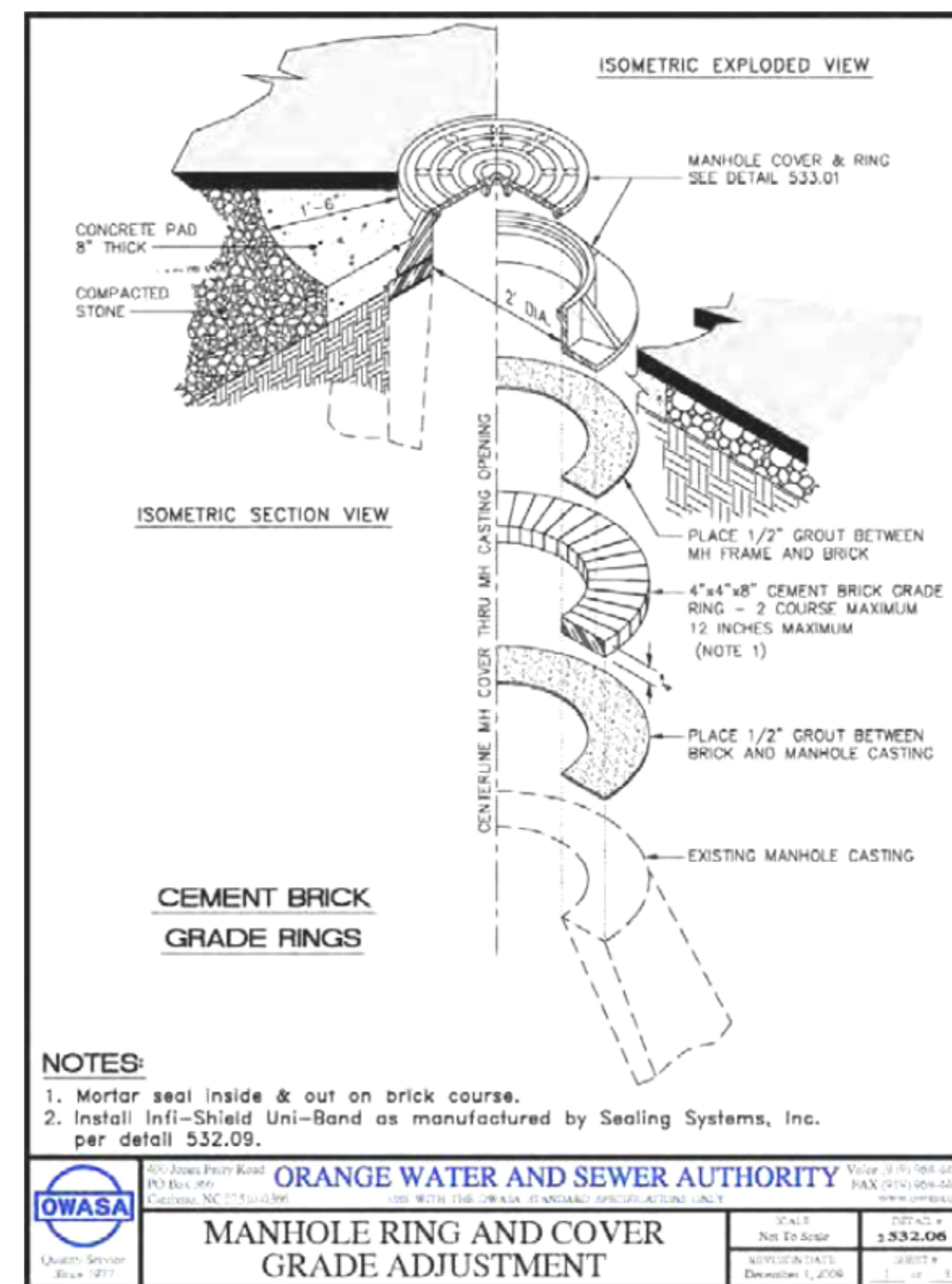
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

STANDARD 2" METER VAULT
SCALE: Not To Scale, DETAIL # 532.06
REVISION DATE: December, 2010, SHEET # 2 of 3



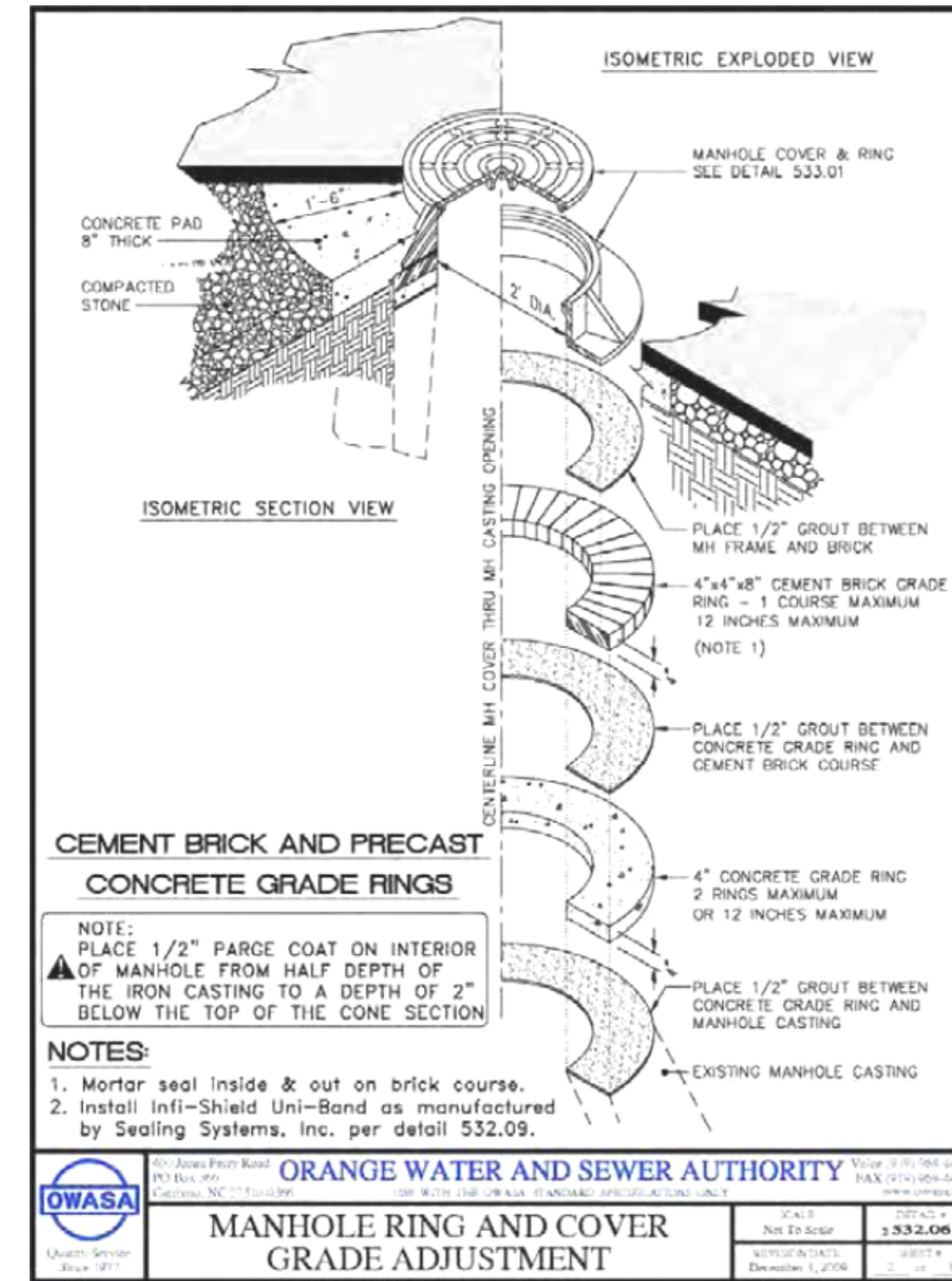
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

STANDARD 2" METER VAULT
SCALE: Not To Scale, DETAIL # 532.06
REVISION DATE: December, 2010, SHEET # 3 of 3



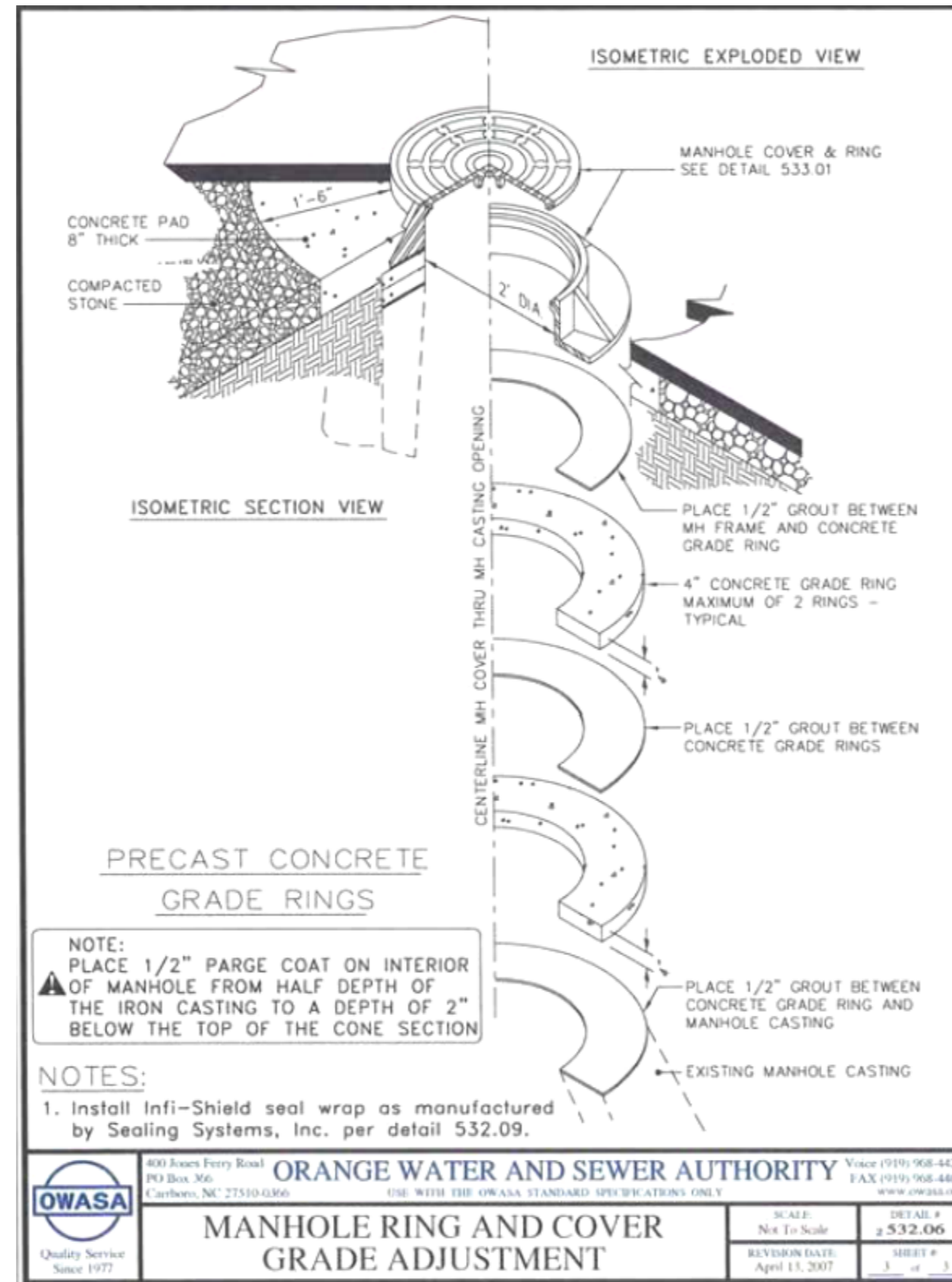
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

MANHOLE RING AND COVER GRADE ADJUSTMENT
SCALE: Not To Scale, DETAIL # 532.06
REVISION DATE: December, 2010, SHEET # 1 of 1



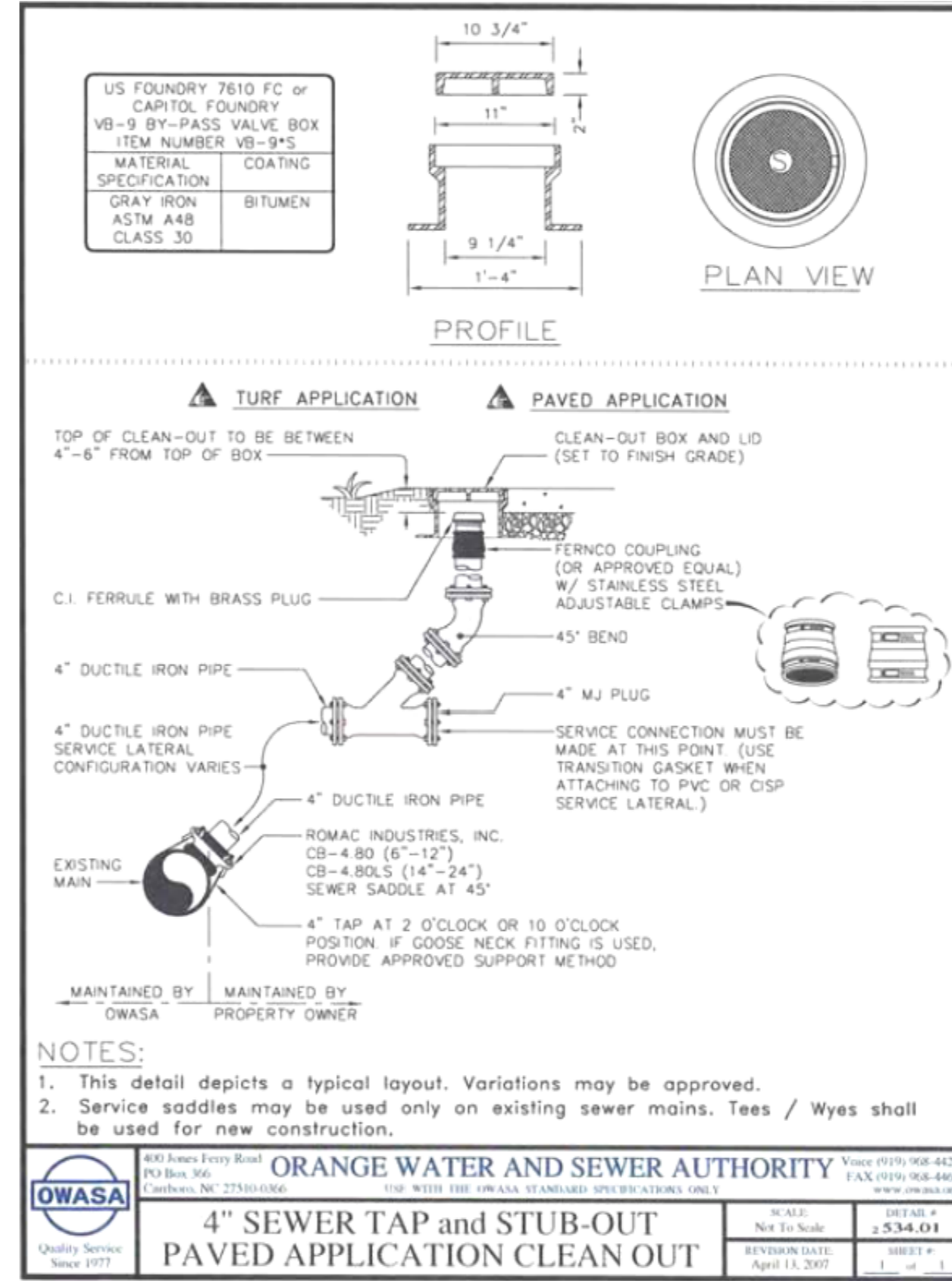
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

MANHOLE RING AND COVER GRADE ADJUSTMENT
SCALE: Not To Scale, DETAIL # 532.06
REVISION DATE: December, 2010, SHEET # 1 of 1



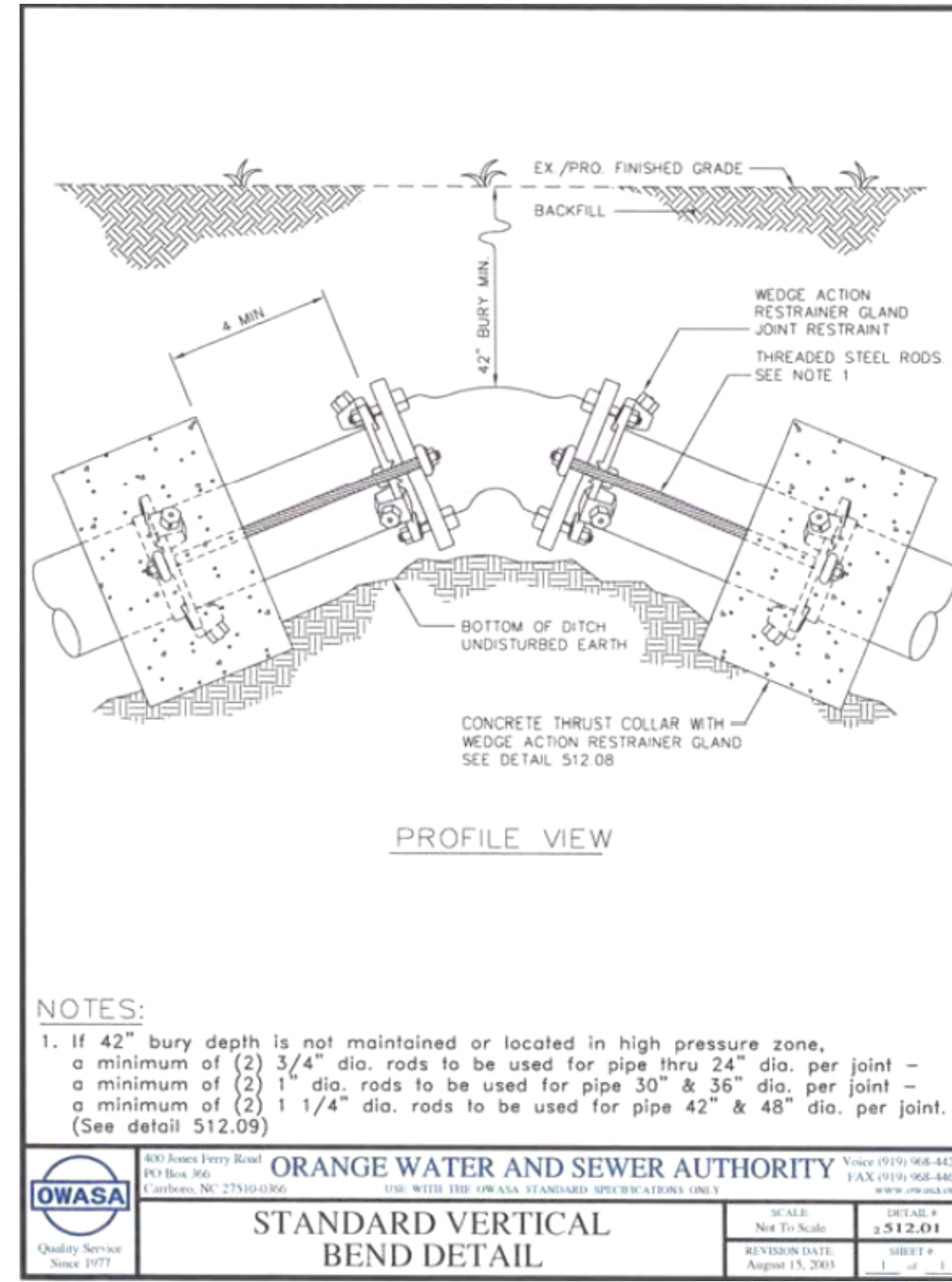
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

MANHOLE RING AND COVER GRADE ADJUSTMENT
SCALE: Not To Scale, DETAIL # 532.06
REVISION DATE: April 13, 2007, SHEET # 1 of 1



ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

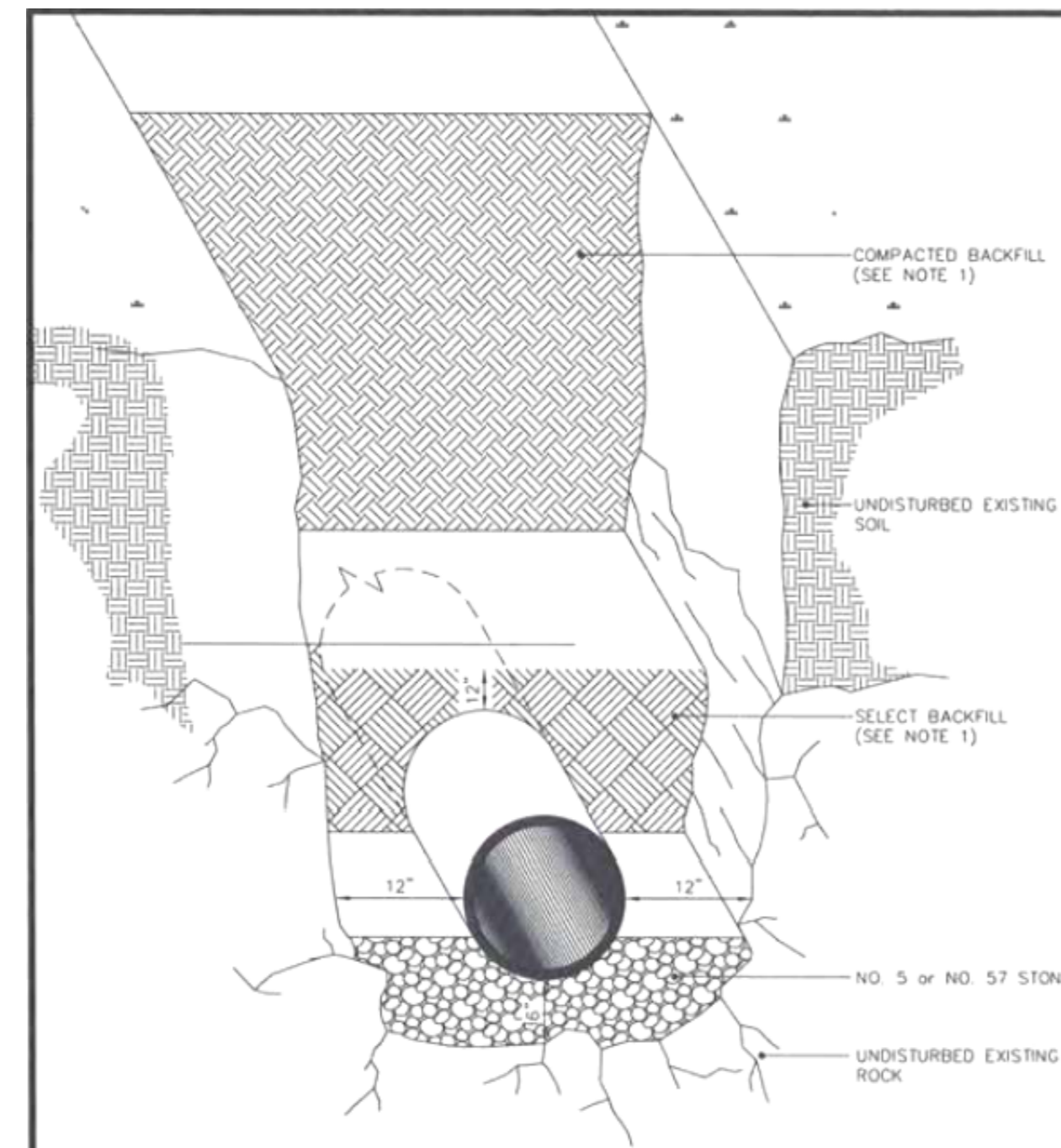
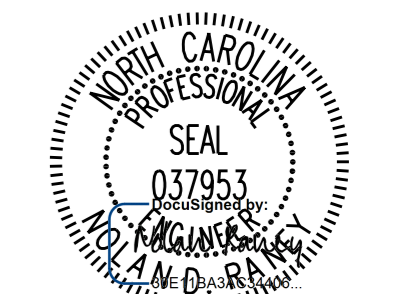
4" SEWER TAP and STUB-OUT PAVED APPLICATION CLEAN OUT
SCALE: Not To Scale, DETAIL # 534.01
REVISION DATE: April 13, 2007, SHEET # 1 of 1



ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, PO Box 366, Cary, NC 27510-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, Website: www.owasa.org

STANDARD VERTICAL BEND DETAIL
SCALE: Not To Scale, DETAIL # 512.01
REVISION DATE: August 13, 2003, SHEET # 1 of 1

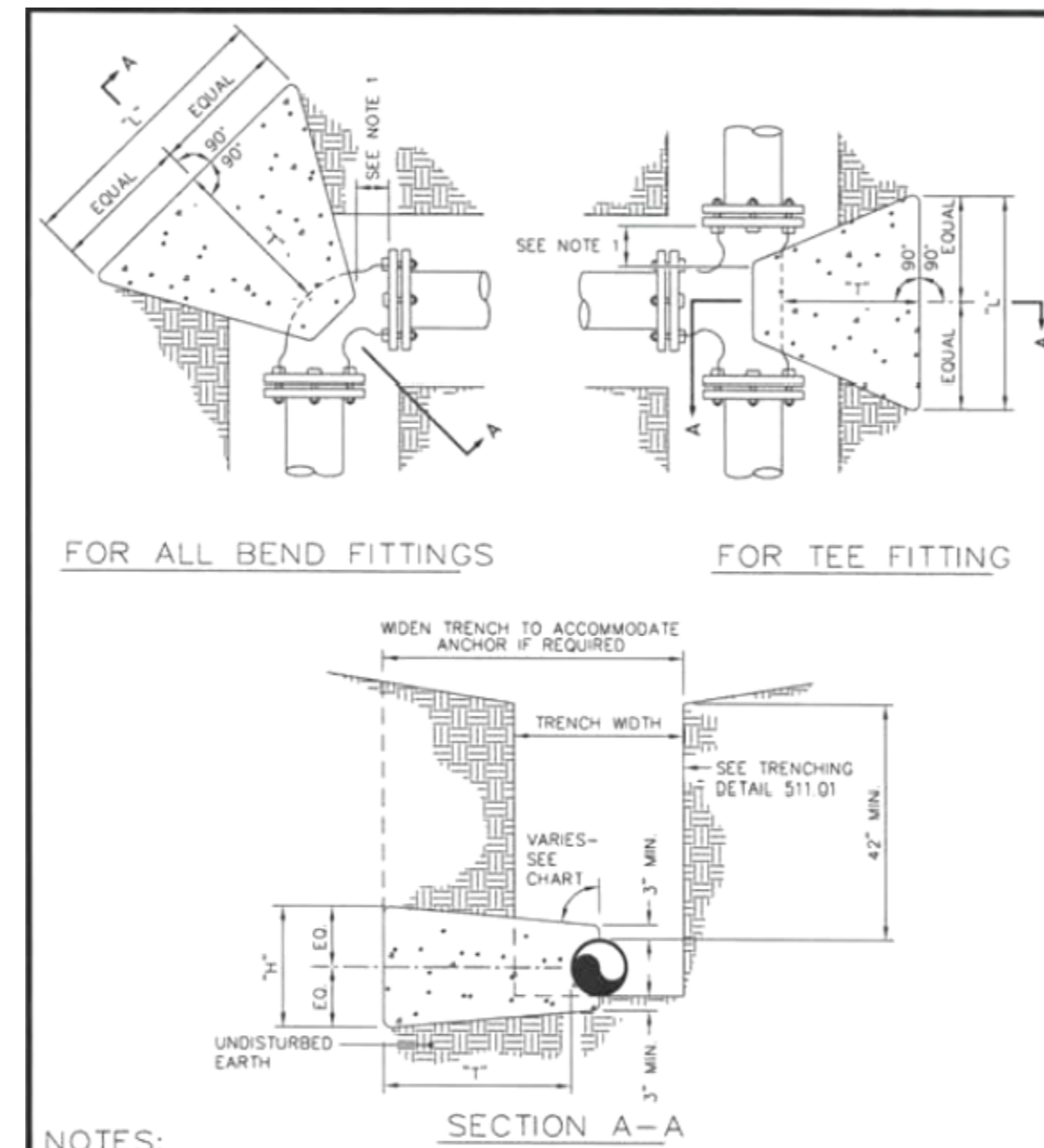
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- NOTES:**
- See specification section 02275 Trenching, Backfilling, and Compaction of Utilities for backfill and compaction requirements.

ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, P.O. Box 366, Cary, NC 27513-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, www.owasa.org

DETAIL of ROCK EXCAVATION
SCALE: Not To Scale, DETAIL # 2512.01
REVISION DATE: August 15, 2001, SHEET # 1 of 1



- NOTES:**
- Concrete blocking is to be formed to ensure accessibility to fittings and poured against undisturbed earth.
 - Fittings are to be completely wrapped with plastic, prior to pouring concrete.
 - Concrete to be minimum 3,000 psi, @ 28 days.

ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, P.O. Box 366, Cary, NC 27513-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, www.owasa.org

BLOCKING DETAIL for HORIZONTAL BENDS AND TEE
SCALE: Not To Scale, DETAIL # 2512.02
REVISION DATE: August 15, 2001, SHEET # 1 of 1

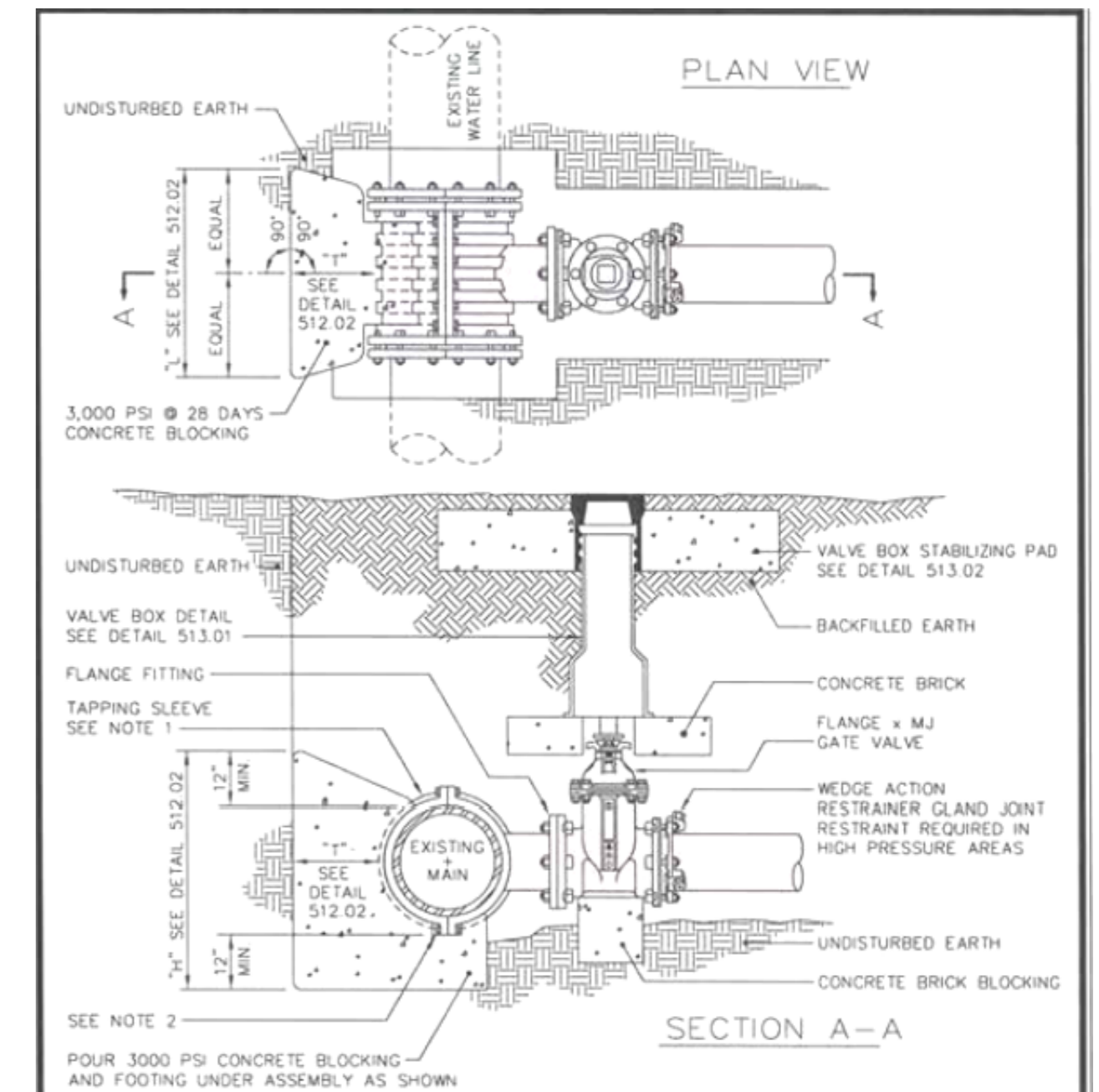
TEST PRESSURE = 250 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (FL.)			VOLUME CONCRETE CU. YD.
		"L"	"H"	"T"	
4 INCHES	11 1/4"	1.00	1.00	1.00	0.04
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.50	1.50	2.50	0.15
6 INCHES	TEE / PLUG	1.50	1.50	2.00	0.12
	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.50	1.50	2.50	0.15
8 INCHES	90"	2.00	2.00	2.50	0.23
	TEE / PLUG	2.00	2.00	2.00	0.19
	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
10 INCHES	45"	2.00	1.50	2.50	0.19
	90"	3.00	2.00	3.00	0.39
	TEE / PLUG	3.00	2.00	2.50	0.32
	11 1/4"	2.00	2.00	3.00	0.28
12 INCHES	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.50	2.00	2.50	0.28
	90"	4.00	2.50	3.00	0.61
	TEE / PLUG	4.00	2.50	2.50	0.51
14 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.50	2.00	3.00	0.44
	45"	4.50	2.75	3.00	0.74
	90"	6.00	3.50	3.50	1.43
16 INCHES	TEE / PLUG	8.00	4.50	4.00	2.74
	11 1/4"	2.50	2.00	3.00	0.33
	22 1/2"	4.00	2.50	3.00	0.61
	45"	6.00	3.50	3.50	1.43
18 INCHES	90"	8.00	4.50	4.00	2.74
	TEE / PLUG	8.00	4.50	3.50	2.40

- CHART NOTES:**
- If blocking excavation is in lightly compacted fill areas, or in areas where boulders or stumps have been removed, blocking size must be re-sized for the specific location/circumstance by a NC licensed Professional Engineer.
 - Blocking sizes shown in these tables assume the following:
 - Blocking is constructed in residual soils as shown in detail
 - Soil bearing pressure = 2000 psf
 - Velocity of flow = 15 fps
 - This detail not applicable to reducing bends.
 - Neither the weight of the concrete blocking nor friction between concrete blocking and soil was added into blocking sizes computation. Therefore, blocking size is conservative.

ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, P.O. Box 366, Cary, NC 27513-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, www.owasa.org

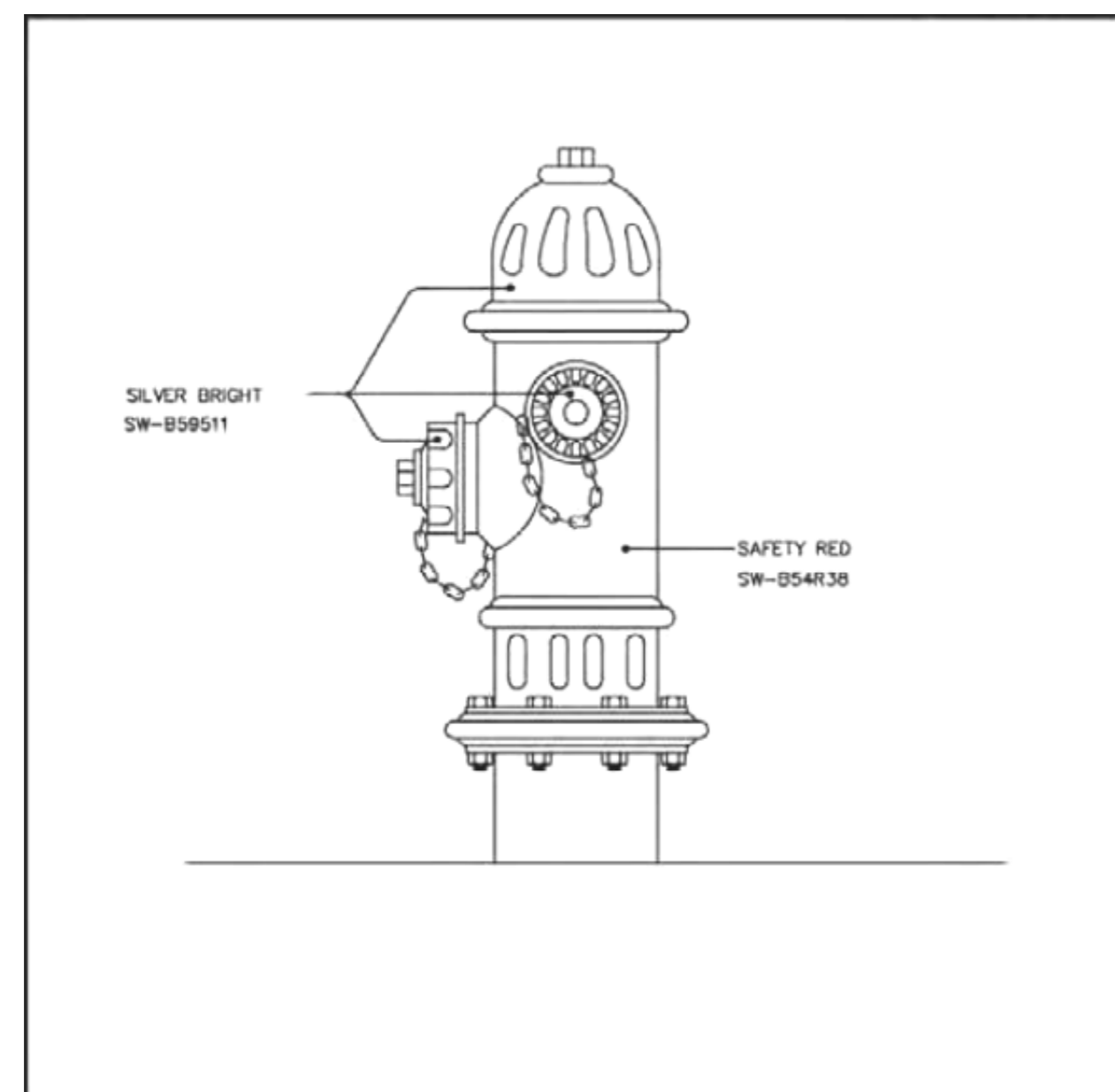
BLOCKING DETAIL for HORIZONTAL BENDS AND TEE
SCALE: Not To Scale, DETAIL # 2512.02
REVISION DATE: August 15, 2001, SHEET # 1 of 1



- NOTES:**
- Concrete blocking is to be formed to ensure accessibility to fittings and poured against undisturbed earth.
 - Fittings are to be completely wrapped with plastic, prior to pouring concrete.
 - Concrete to be minimum 3,000 psi, @ 28 days.
 - Taps onto in-service mains by OWASA personnel only.

ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, P.O. Box 366, Cary, NC 27513-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, www.owasa.org

4" to 12" STANDARD TAPPING SLEEVE and VALVE ASSEMBLY
SCALE: Not To Scale, DETAIL # 2512.04
REVISION DATE: August 15, 2001, SHEET # 1 of 1



- NOTES:**
- Use sherwin-williams industrial enamel or equal.
 - Paint colors are applicable to the following locations:
 - Town of Carrboro
 - Town of Chapel Hill
 - Durham County
 - Orange County
 - University of North Carolina

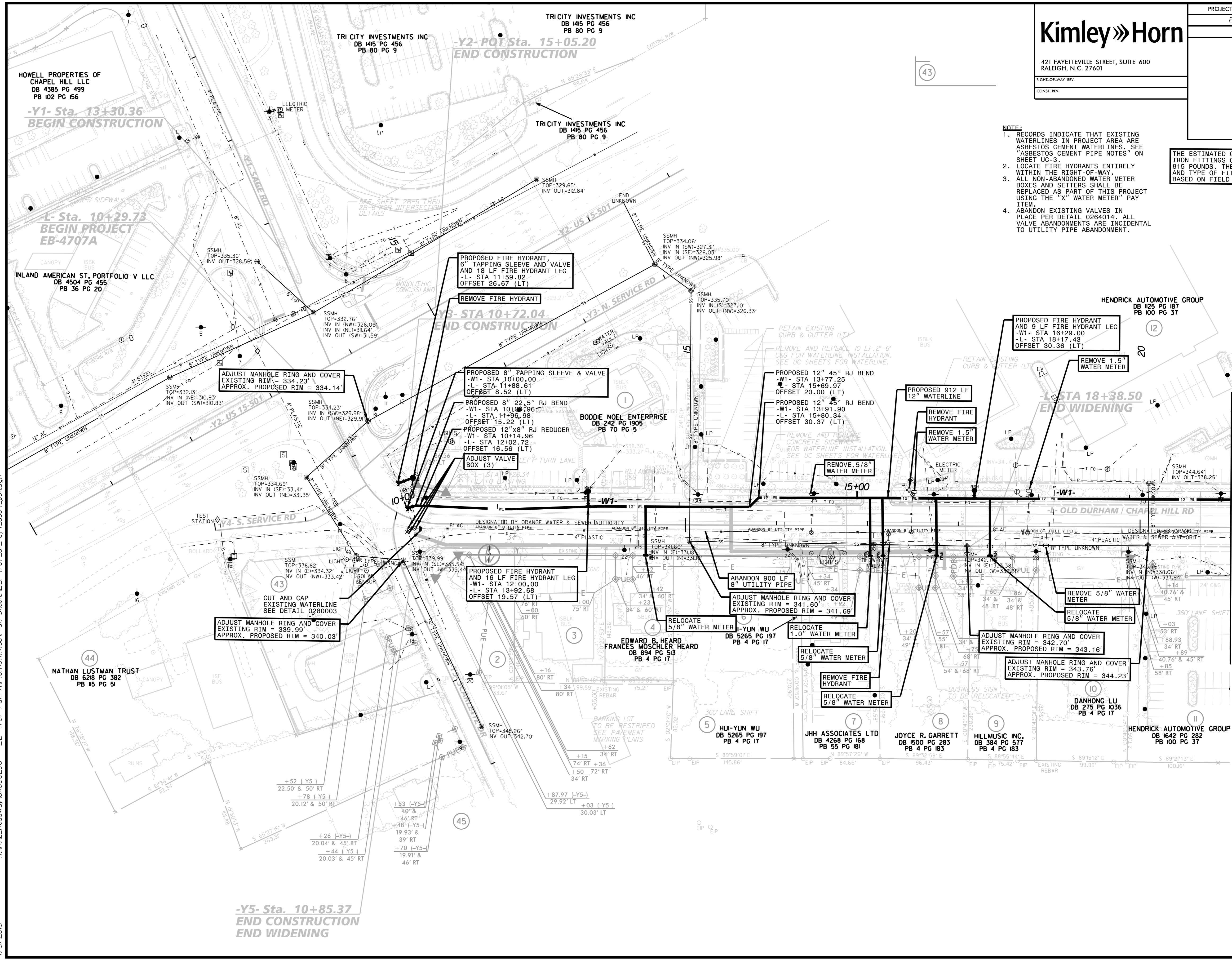
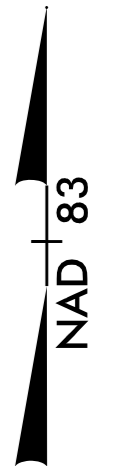
ORANGE WATER AND SEWER AUTHORITY
400 Jones Ferry Road, P.O. Box 366, Cary, NC 27513-0366
Voice: (919) 968-4421, Fax: (919) 968-4464, www.owasa.org

FIRE HYDRANT PAINTING SPECIFICATIONS
SCALE: Not To Scale, DETAIL # 2514.01
REVISION DATE: August 27, 2000, SHEET # 1 of 1

PROJECT REFERENCE NO.	SHEET NO.
EB-4707A	UC-4
RW SHEET NO.	
UTILITY CONSTRUCTION ENGINEER	

- NOTE:**
- RECORDS INDICATE THAT EXISTING WATERLINES IN PROJECT AREA ARE ASBESTOS CEMENT WATERLINES. SEE "ASBESTOS CEMENT PIPE NOTES" ON SHEET UC-3.
 - LOCATE FIRE HYDRANTS ENTIRELY WITHIN THE RIGHT-OF-WAY.
 - ALL NON-ABANDONED WATER METER BOXES AND SETTERS SHALL BE REPLACED AS PART OF THIS PROJECT USING THE "X" WATER METER" PAY ITEM.
 - ABANDON EXISTING VALVES IN PLACE PER DETAIL 0264014. ALL VALVE ABANDONMENTS ARE INCIDENTAL TO UTILITY PIPE ABANDONMENT.

THE ESTIMATED QUANTITY OF DUCTILE IRON FITTINGS ON THIS PLAN SHEET IS 815 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



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1/9/2019

PROJECT REFERENCE NO.	SHEET NO.
EB-4707A	UC-5
RW SHEET NO.	
UTILITY CONSTRUCTION ENGINEER	

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, N.C. 27601

RIGHT-OF-WAY REV.
CONST. REV.

- NOTE:**
- RECORDS INDICATE THAT EXISTING WATERLINES IN PROJECT AREA ARE ASBESTOS CEMENT WATERLINES. SEE "ASBESTOS CEMENT PIPE NOTES" ON SHEET UC-3.
 - LOCATE FIRE HYDRANTS ENTIRELY WITHIN THE RIGHT-OF-WAY.
 - RECORDS INDICATE AN EXISTING 5/8" WATER METER AT PROPERTY 16. CONTRACTOR SHALL VERIFY THE LOCATION, SIZE, AND FUNCTIONALITY OF WATER METER.
 - ALL NON-ABANDONED WATER METER BOXES AND SETTERS SHALL BE REPLACED AS PART OF THIS PROJECT USING THE "X" WATER METER" PAY ITEM.
 - ABANDON EXISTING VALVES IN PLACE PER DETAIL 0264014. ALL VALVE ABANDONMENTS ARE INCIDENTAL TO UTILITY PIPE ABANDONMENT.

THE ESTIMATED QUANTITY OF DUCTILE IRON FITTINGS ON THIS PLAN SHEET IS 2,025 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

HENDRICK AUTOMOTIVE GROUP
DB 125 PG 187
PB 100 PG 37

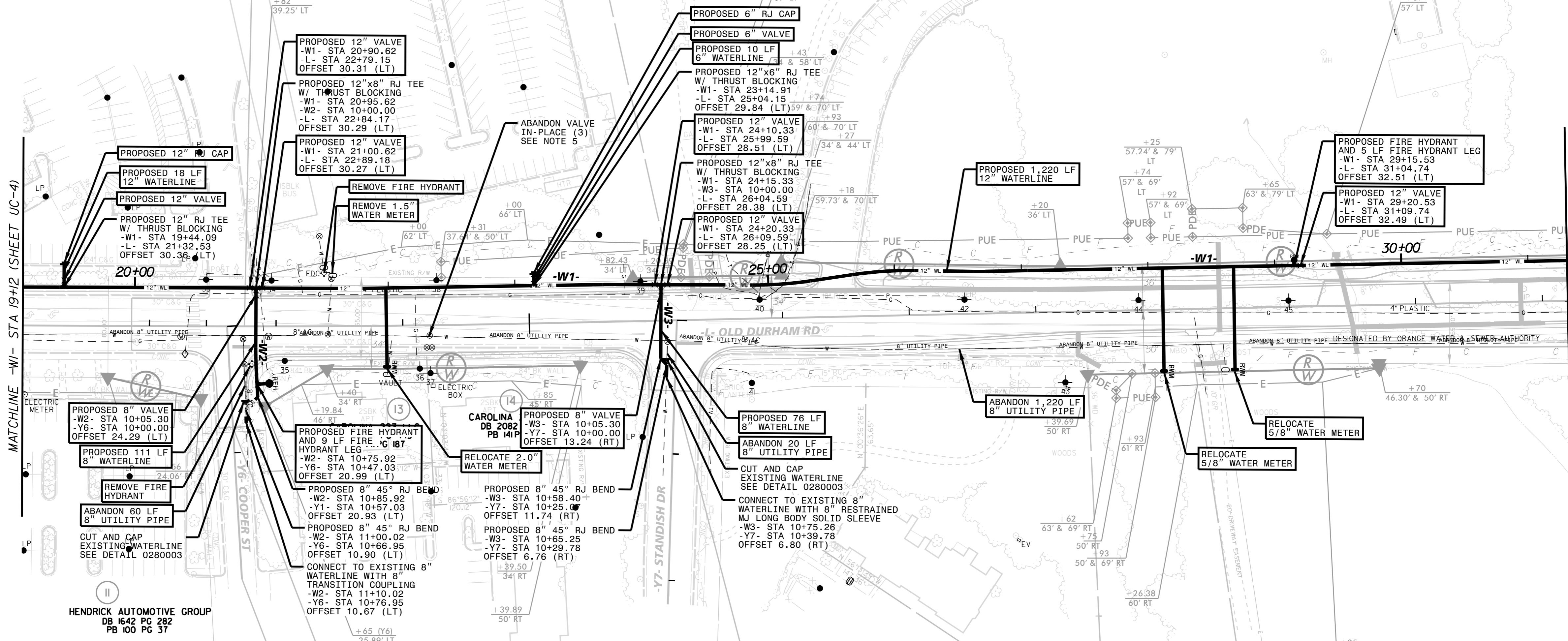
12

CORUM LLC
DB 2368 PG 327
PB 56 PG 83

15

30

**-L- STA 22+75.00
BEGIN WIDENING**



MATCHLINE -W1- STA 19+12 (SHEET UC-4)

MATCHLINE -W1- STA 31+30 (SHEET UC-6)

PROPOSED 8" VALVE
-W2- STA 10+05.30
-Y6- STA 10+00.00
OFFSET 24.29 (LT)

PROPOSED 111 LF
8" WATERLINE

REMOVE FIRE HYDRANT

ABANDON 60 LF
8" UTILITY PIPE

CUT AND CAP
EXISTING WATERLINE
SEE DETAIL 0280003

HENDRICK AUTOMOTIVE GROUP
DB 1642 PG 282
PB 100 PG 37

PROPOSED 8" VALVE
AND 9 LF FIRE
HYDRANT LEG
-W2- STA 10+75.92
-Y6- STA 10+47.03
OFFSET 20.99 (LT)

PROPOSED 8" 45° RJ BEND
-W2- STA 10+85.92
-Y1- STA 10+57.03
OFFSET 20.93 (LT)

PROPOSED 8" 45° RJ BEND
-W2- STA 11+00.02
-Y6- STA 10+66.95
OFFSET 10.90 (LT)

CONNECT TO EXISTING 8"
WATERLINE WITH 8"
TRANSITION COUPLING
-W2- STA 11+10.02
-Y6- STA 10+76.95
OFFSET 10.67 (LT)

RELOCATE 2.0"
WATER METER

RELOCATE 5/8"
WATER METER

RELOCATE 5/8"
WATER METER

RELOCATE 5/8"
WATER METER

PROPOSED 8" VALVE
-W3- STA 10+05.30
-Y7- STA 10+00.00
OFFSET 13.24 (RT)

PROPOSED 8" 45° RJ BEND
-W3- STA 10+58.40
-Y7- STA 10+25.00
OFFSET 11.74 (RT)

PROPOSED 8" 45° RJ BEND
-W3- STA 10+65.25
-Y7- STA 10+29.78
OFFSET 6.76 (RT)

CONNECT TO EXISTING 8"
WATERLINE WITH 8"
RESTRAINED
MJ LONG BODY SOLID SLEEVE
-W3- STA 10+75.26
-Y7- STA 10+39.78
OFFSET 6.80 (RT)

RELOCATE 2.0"
WATER METER

RELOCATE 5/8"
WATER METER

RELOCATE 5/8"
WATER METER

RELOCATE 5/8"
WATER METER

PROPOSED 76 LF
8" WATERLINE

ABANDON 20 LF
8" UTILITY PIPE

CUT AND CAP
EXISTING WATERLINE
SEE DETAIL 0280003

CONNECT TO EXISTING 8"
WATERLINE WITH 8"
RESTRAINED
MJ LONG BODY SOLID SLEEVE
-W3- STA 10+75.26
-Y7- STA 10+39.78
OFFSET 6.80 (RT)

RELOCATE 2.0"
WATER METER

RELOCATE 5/8"
WATER METER

RELOCATE 5/8"
WATER METER

RELOCATE 5/8"
WATER METER

PROPOSED 1,220 LF
12" WATERLINE

PROPOSED 12" VALVE
-W1- STA 24+15.33
-W3- STA 10+00.00
-L- STA 26+04.59
OFFSET 28.38 (LT)

PROPOSED 12" VALVE
-W1- STA 24+20.33
-L- STA 26+09.59
OFFSET 28.25 (LT)

PROPOSED 12" VALVE
-W1- STA 24+10.33
-L- STA 25+04.15
OFFSET 28.51 (LT)

PROPOSED 12" VALVE
-W1- STA 23+14.91
-L- STA 25+04.15
OFFSET 29.84 (LT)

PROPOSED 12" x8" RJ TEE
W/ THRUST BLOCKING
-W1- STA 20+95.62
-W2- STA 10+00.00
-L- STA 22+84.17
OFFSET 30.29 (LT)

PROPOSED 12" x8" RJ TEE
W/ THRUST BLOCKING
-W1- STA 20+90.62
-L- STA 22+79.15
OFFSET 30.31 (LT)

PROPOSED 12" VALVE
-W1- STA 21+00.62
-L- STA 22+89.18
OFFSET 30.27 (LT)

PROPOSED 6" VALVE

PROPOSED 6" RJ CAP

PROPOSED 10 LF
6" WATERLINE

PROPOSED 6" VALVE

PROPOSED 6" RJ CAP

PROPOSED 10 LF
6" WATERLINE

PROPOSED 6" VALVE

PROPOSED 6" RJ CAP

PROPOSED 12" VALVE
-W1- STA 29+15.53
-L- STA 31+04.74
OFFSET 32.51 (LT)

PROPOSED 12" VALVE
-W1- STA 29+20.53
-L- STA 31+09.74
OFFSET 32.49 (LT)

PROPOSED 12" VALVE
-W1- STA 29+15.53
-L- STA 31+04.74
OFFSET 32.51 (LT)

PROPOSED 12" VALVE
-W1- STA 29+20.53
-L- STA 31+09.74
OFFSET 32.49 (LT)

PROPOSED 12" VALVE
-W1- STA 29+15.53
-L- STA 31+04.74
OFFSET 32.51 (LT)

PROPOSED 12" VALVE
-W1- STA 29+20.53
-L- STA 31+09.74
OFFSET 32.49 (LT)

PROPOSED 12" VALVE
-W1- STA 29+15.53
-L- STA 31+04.74
OFFSET 32.51 (LT)

PROPOSED 12" VALVE
-W1- STA 29+20.53
-L- STA 31+09.74
OFFSET 32.49 (LT)

S 89°44'37" E
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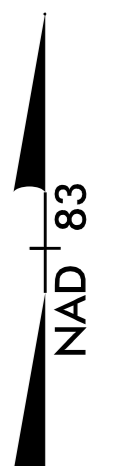
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1/9/2019

HENDRICK AUTOMOTIVE GROUP
DB 1642 PG 282
PB 100 PG 37


CAROLINA
DB 2082
PB 141P

STANDISH TOWNHOMES
HOMEOWNERS ASSOC INC
DB 1471 PG 294
PB 73 PG 72

STANDISH TOWNHOMES
HOMEOWNERS ASSOC INC
DB 1635 PG 406
PB 73 PG 151

CLYDE LEE MYERS
DB 08-E-197
PB 76 PG 129

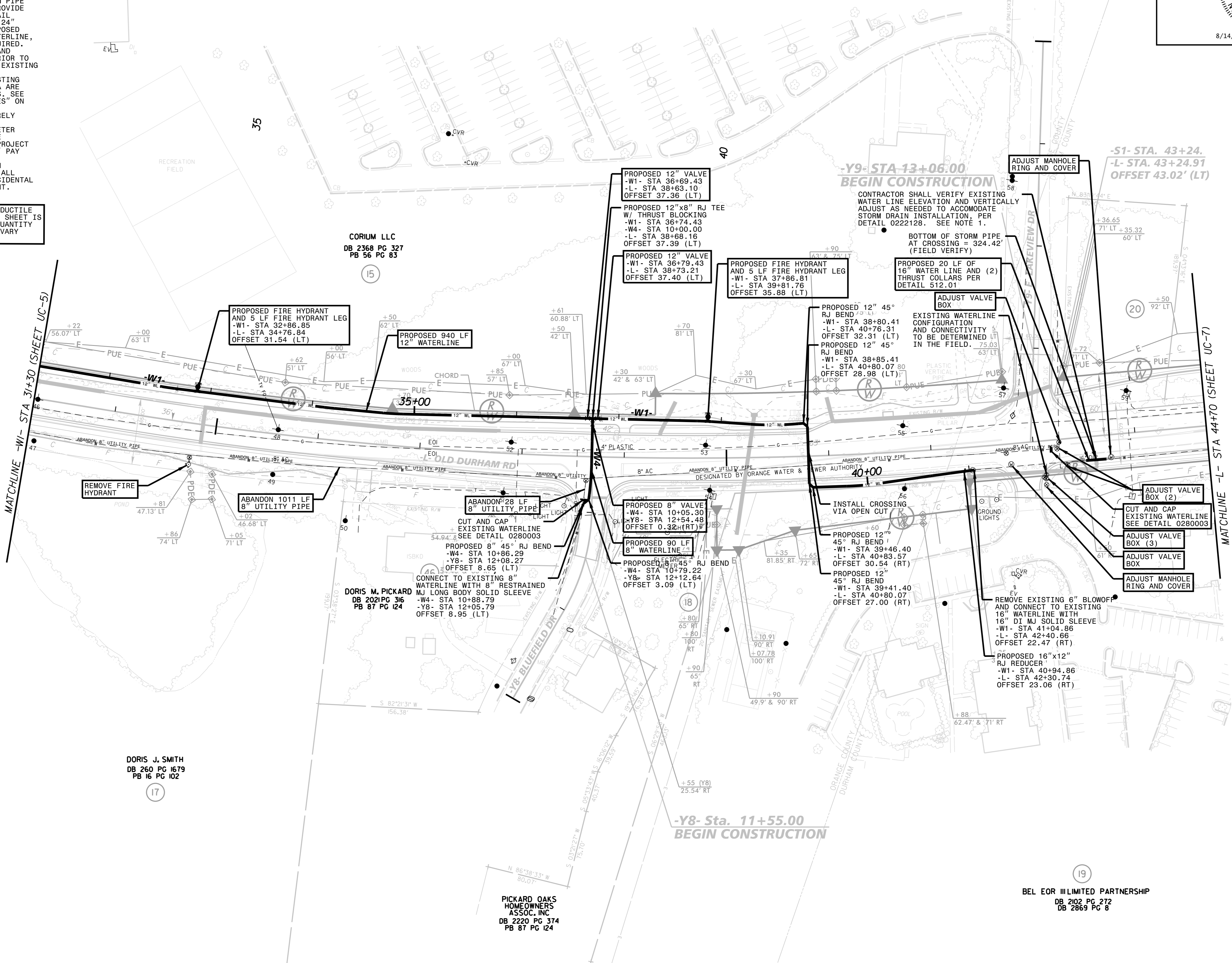
DORIS J. SMITH
DB 260 PG 1679
PB 16 PG 102

PROJECT REFERENCE NO.	SHEET NO.
EB-4707A	UC-6
RW SHEET NO.	
UTILITY CONSTRUCTION ENGINEER	
	
8/14/2018 2:01:05 PM EDT	

Kimley»Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, N.C. 27601
 RIGHT-OF-WAY REV.
 CONST. REV.

- NOTE:
- CONTRACTOR SHALL VERIFY EXISTING WATERLINE ELEVATION IN RELATION TO PROPOSED STORM PIPE INSTALLATION. INVESTIGATION SHALL BE INCIDENTAL TO STORM PIPE INSTALLATION. IF LESS THAN 6" CLEARANCE BETWEEN PROPOSED STORM AND EXISTING WATERLINE, RELOCATE WATERLINE AS SHOWN ON THE PLANS. IF BETWEEN 6" AND 24" CLEARANCE BETWEEN THE PROPOSED STORM PIPE AND EXISTING WATERLINE, PROVIDE PIPELINE CROSSING PER DETAIL 0222118. IF GREATER THAN 24" CLEARANCE BETWEEN THE PROPOSED STORM PIPE AND EXISTING WATERLINE, NO ADDITIONAL WORK IS REQUIRED.
 - CONTRACTOR SHALL INSTALL AND TEST PROPOSED WATERLINE PRIOR TO CUTTING AND CONNECTING TO EXISTING WATERLINE.
 - RECORDS INDICATE THAT EXISTING WATERLINES IN PROJECT AREA ARE ASBESTOS CEMENT WATERLINES. SEE "ASBESTOS CEMENT PIPE NOTES" ON SHEET UC-3.
 - LOCATE FIRE HYDRANTS ENTIRELY WITHIN THE RIGHT-OF-WAY.
 - ALL NON-ABANDONED WATER METER BOXES AND SETTERS SHALL BE REPLACED AS PART OF THIS PROJECT USING THE "X" WATER METER" PAY ITEM.
 - ABANDON EXISTING VALVES IN PLACE PER DETAIL 0264014. ALL VALVE ABANDONMENTS ARE INCIDENTAL TO UTILITY PIPE ABANDONMENT.

THE ESTIMATED QUANTITY OF DUCTILE IRON FITTINGS ON THIS PLAN SHEET IS 3,260 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



20 HULDA J. CHEEK HEIRS
 DB 127 PG 278
 PB 34 PG 17

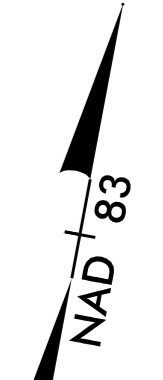
CORIUM LLC
 DB 2368 PG 327
 PB 56 PG 83

DORIS M. PICKARD
 DB 2021 PG 316
 PB 87 PG 124

DORIS J. SMITH
 DB 260 PG 1679
 PB 16 PG 102

PICKARD OAKS HOMEOWNERS ASSOC. INC.
 DB 2220 PG 374
 PB 87 PG 124

BEL EOR ILLUMINATED PARTNERSHIP
 DB 2102 PG 272
 DB 2869 PG 8



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- NOTE:
- CONTRACTOR SHALL VERIFY EXISTING WATERLINE ELEVATION IN RELATION TO PROPOSED STORM PIPE INSTALLATION. INVESTIGATION SHALL BE INCIDENTAL TO STORM PIPE INSTALLATION. IF LESS THAN 6" CLEARANCE BETWEEN PROPOSED STORM AND EXISTING WATERLINE, RELOCATE WATERLINE AS SHOWN ON THE PLANS. IF BETWEEN 6" AND 24" CLEARANCE BETWEEN THE PROPOSED STORM PIPE AND EXISTING WATERLINE, PROVIDE PIPELINE CROSSING PER DETAIL 0222118. IF GREATER THAN 24" CLEARANCE BETWEEN THE PROPOSED STORM PIPE AND EXISTING WATERLINE, NO ADDITIONAL WORK IS REQUIRED.
 - CONTRACTOR SHALL INSTALL AND TEST PROPOSED WATERLINE PRIOR TO CUTTING AND CONNECTING TO EXISTING WATERLINE.
 - ALL NON-ABANDONED WATER METER BOXES AND SETTERS SHALL BE REPLACED AS PART OF THIS PROJECT USING THE "X" WATER METER" PAY ITEM.
 - CONTRACTOR SHALL INSTALL 4" DIP SANITARY SEWER SERVICE 5' MINIMUM FROM EXISTING SEWER EASEMENT BOUNDARY. PRIOR TO INSTALLATION, CONTRACTOR SHALL VERIFY EXISTING AND PROPOSED SERVICE GRADES AND DEPTH TO ENSURE THAT MINIMUM SLOPES (1/4-INCH PER FOOT) AND DEPTH (36-INCH MINIMUM COVER) ARE MET.
 - AS PART OF THIS CONTRACT, AN ON-SITE SEWER SERVICE ON PARCEL 38 FROM THE RESIDENCE TO THE PROPOSED CLEANOUT SHALL BE INSTALLED BY A LICENSED PLUMBER. ANY NECESSARY PLUMBING PERMITS SHALL BE OBTAINED BY THE PLUMBER PRIOR TO COMPLETING THIS WORK.
 - CONTRACTOR SHALL VERIFY EXISTING VALVES AND ABANDON BOTH VALVES. VALVE ABANDONMENT IS INCIDENTAL TO ABANDONED UTILITY PIPE.

THE ESTIMATED QUANTITY OF DUCTILE IRON FITTINGS ON THIS PLAN SHEET IS 3,660 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

32
MICHELLE HODGSON
DB 4895 PG 25
PB 168 PG 151

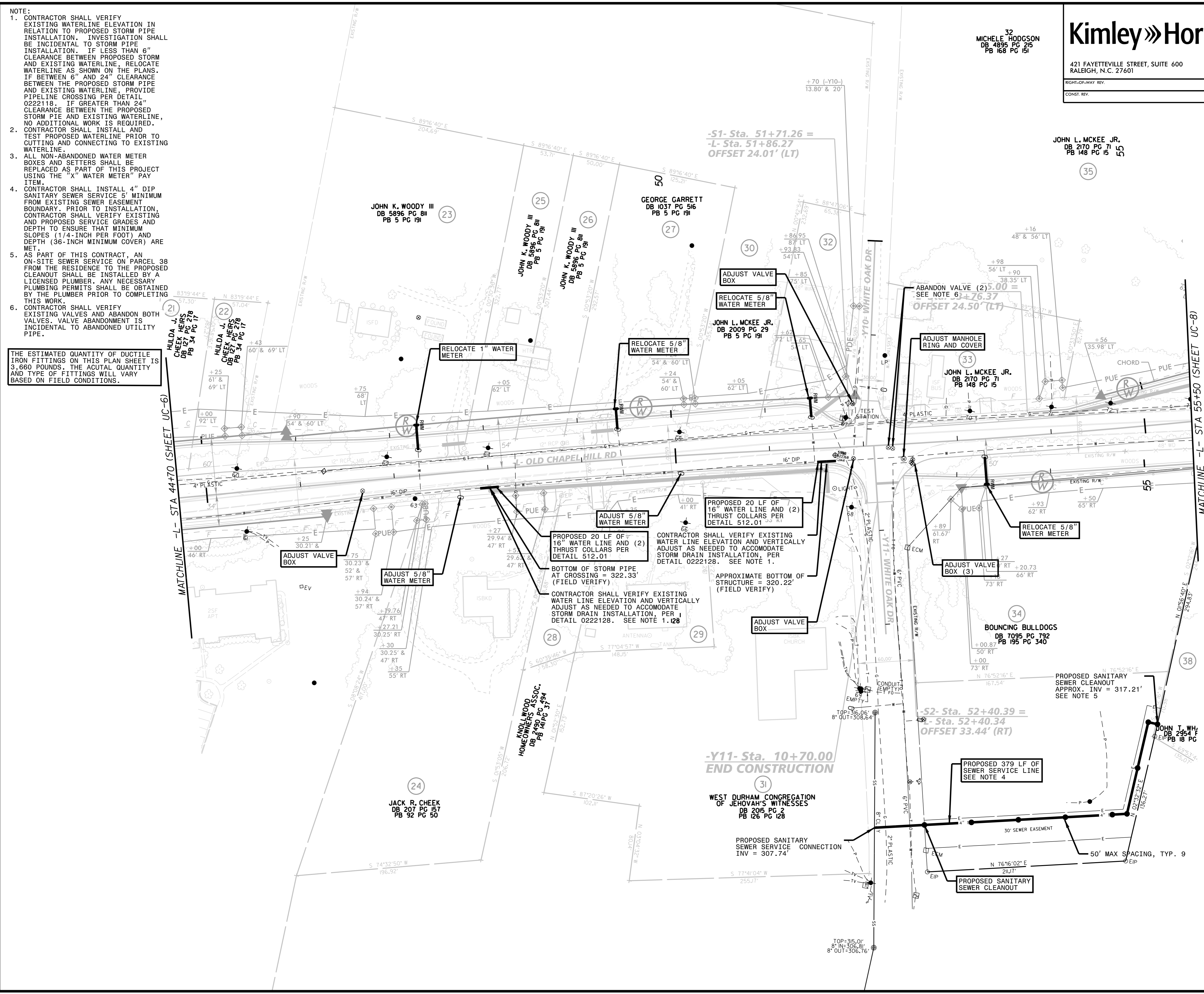
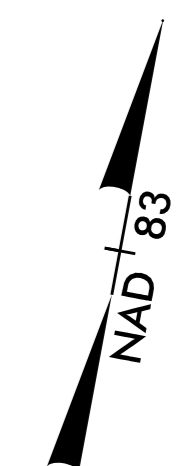
Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, N.C. 27601

RIGHT-OF-WAY REV.
CONST. REV.

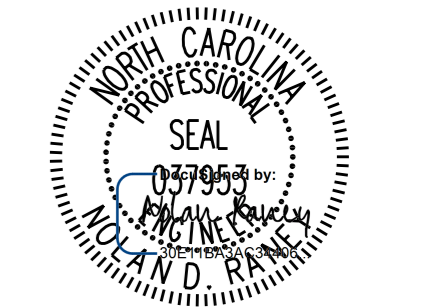
JOHN L. MCKEE JR.
DB 2170 PG 71
PB 148 PG 151

PROJECT REFERENCE NO. EB-4707A	SHEET NO. UC-7
RW SHEET NO.	
UTILITY CONSTRUCTION ENGINEER	
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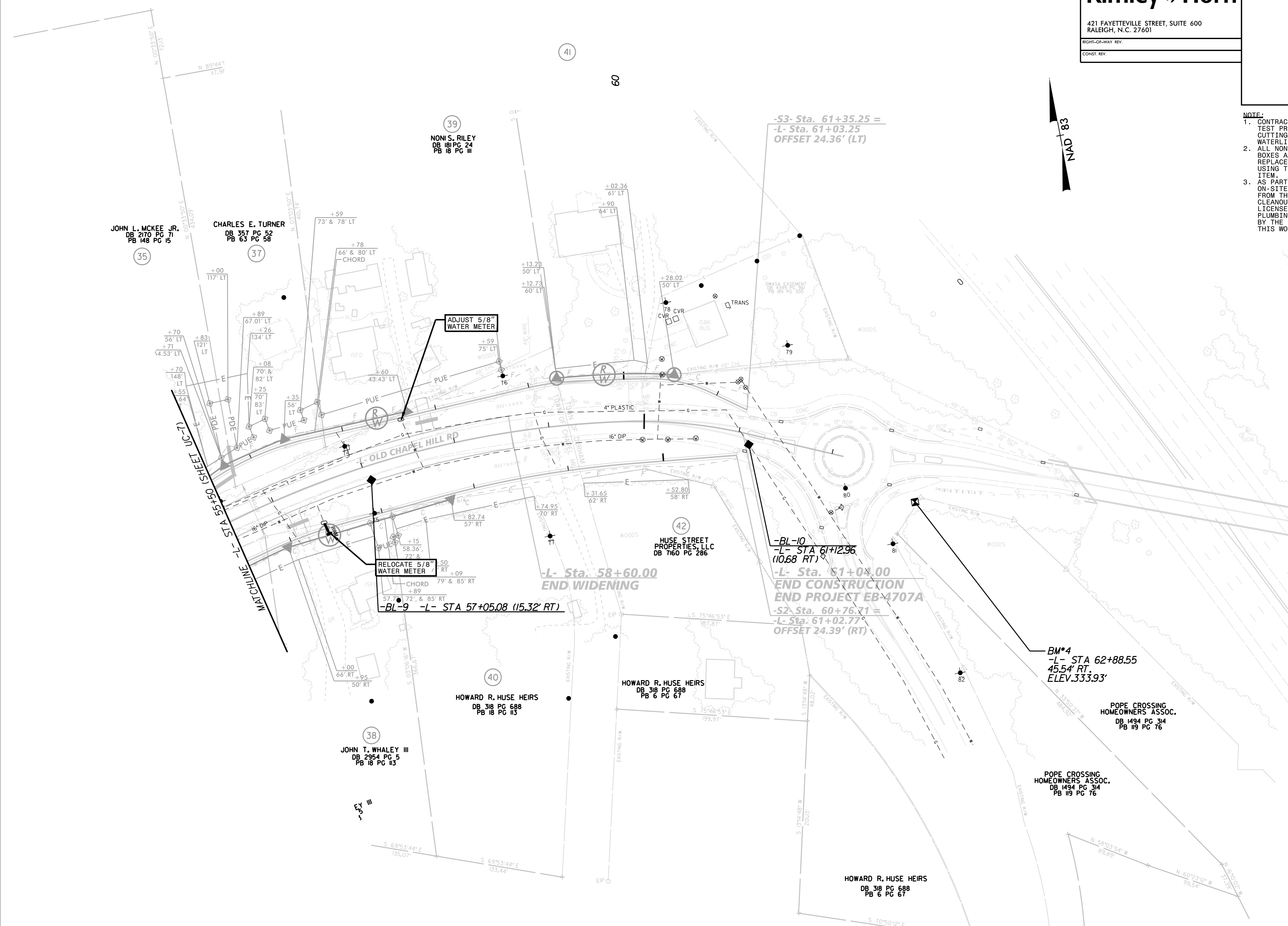
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NOTE:

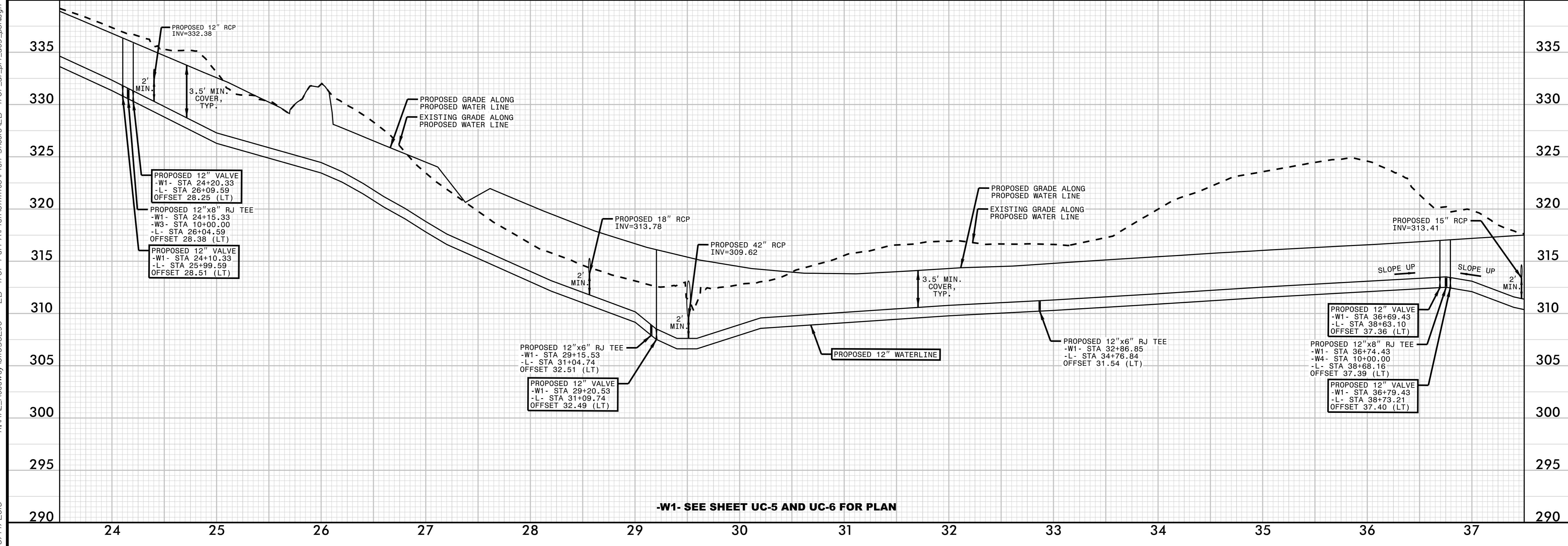
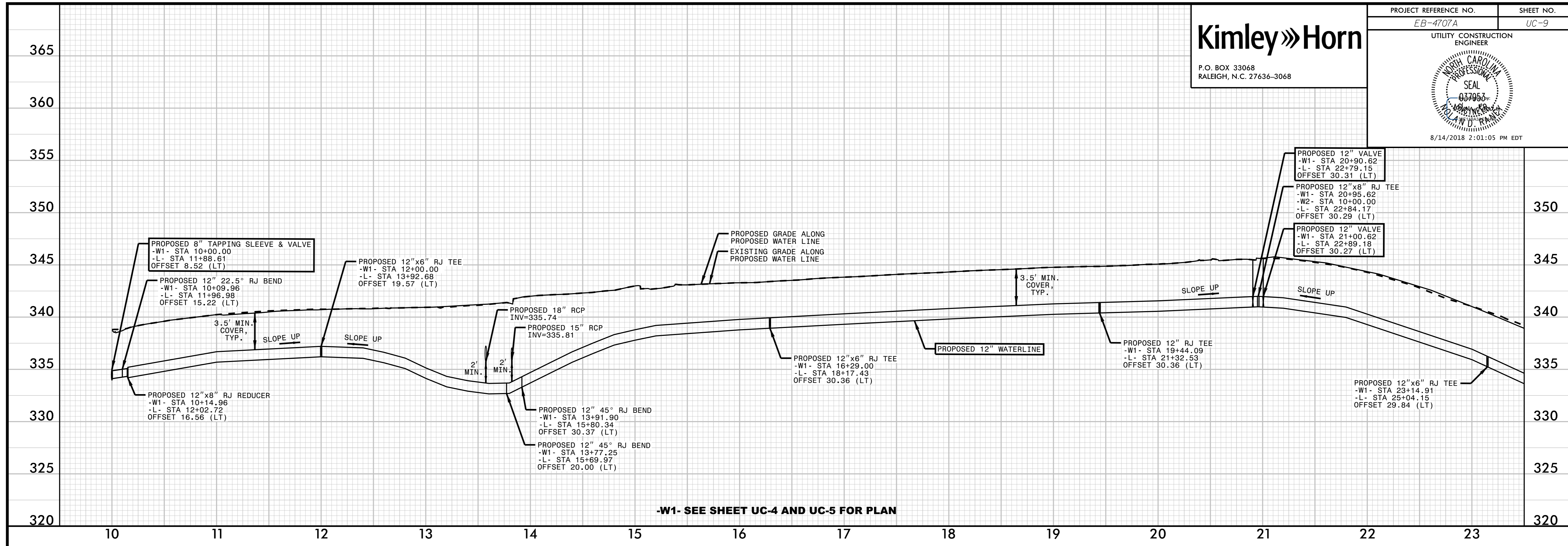
- CONTRACTOR SHALL INSTALL AND TEST PROPOSED WATERLINE PRIOR TO CUTTING AND CONNECTING TO EXISTING WATERLINE.
- ALL NON-ABANDONED WATER METER BOXES AND SETTERS SHALL BE REPLACED AS PART OF THIS PROJECT USING THE "X" WATER METER" PAY ITEM.
- AS PART OF THIS CONTRACT, AN ON-SITE SEWER SERVICE ON PARCEL 38 FROM THE RESIDENCE TO THE PROPOSED CLEANOUT SHALL BE INSTALLED BY A LICENSED PLUMBER. ANY NECESSARY PLUMBING PERMITS SHALL BE OBTAINED BY THE PLUMBER PRIOR TO COMPLETING THIS WORK.




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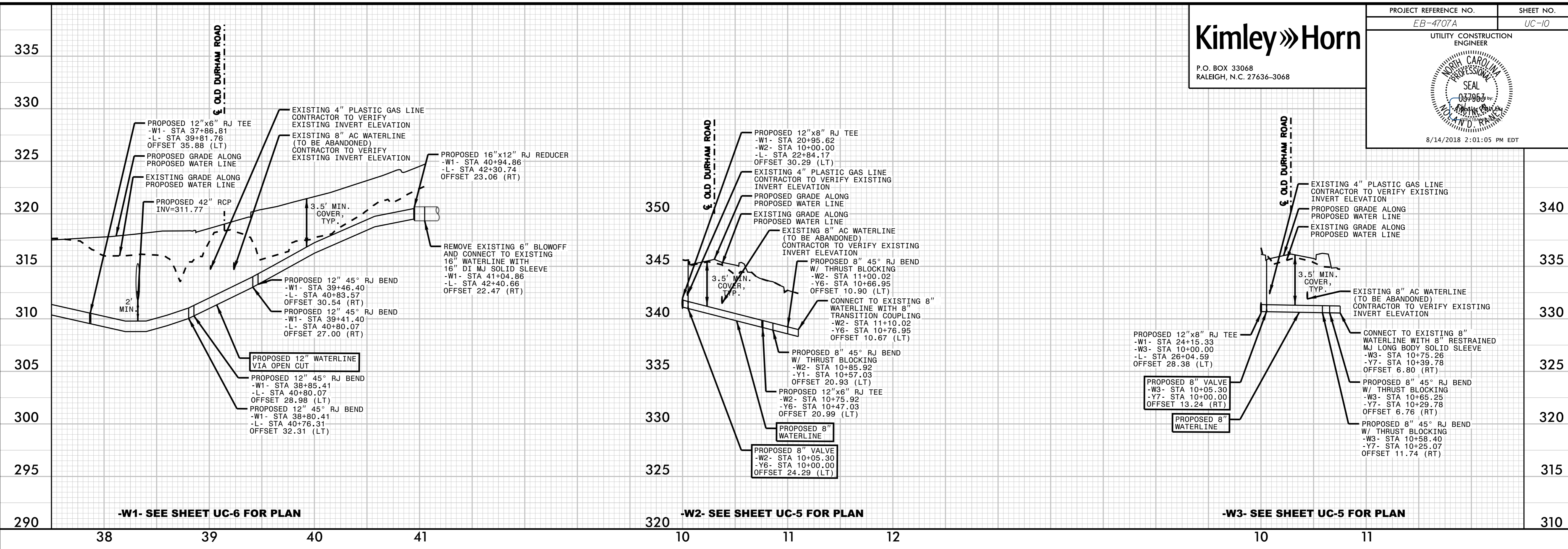


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PROJECT REFERENCE NO. EB-4707A	SHEET NO. UC-10
UTILITY CONSTRUCTION ENGINEER	
	
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