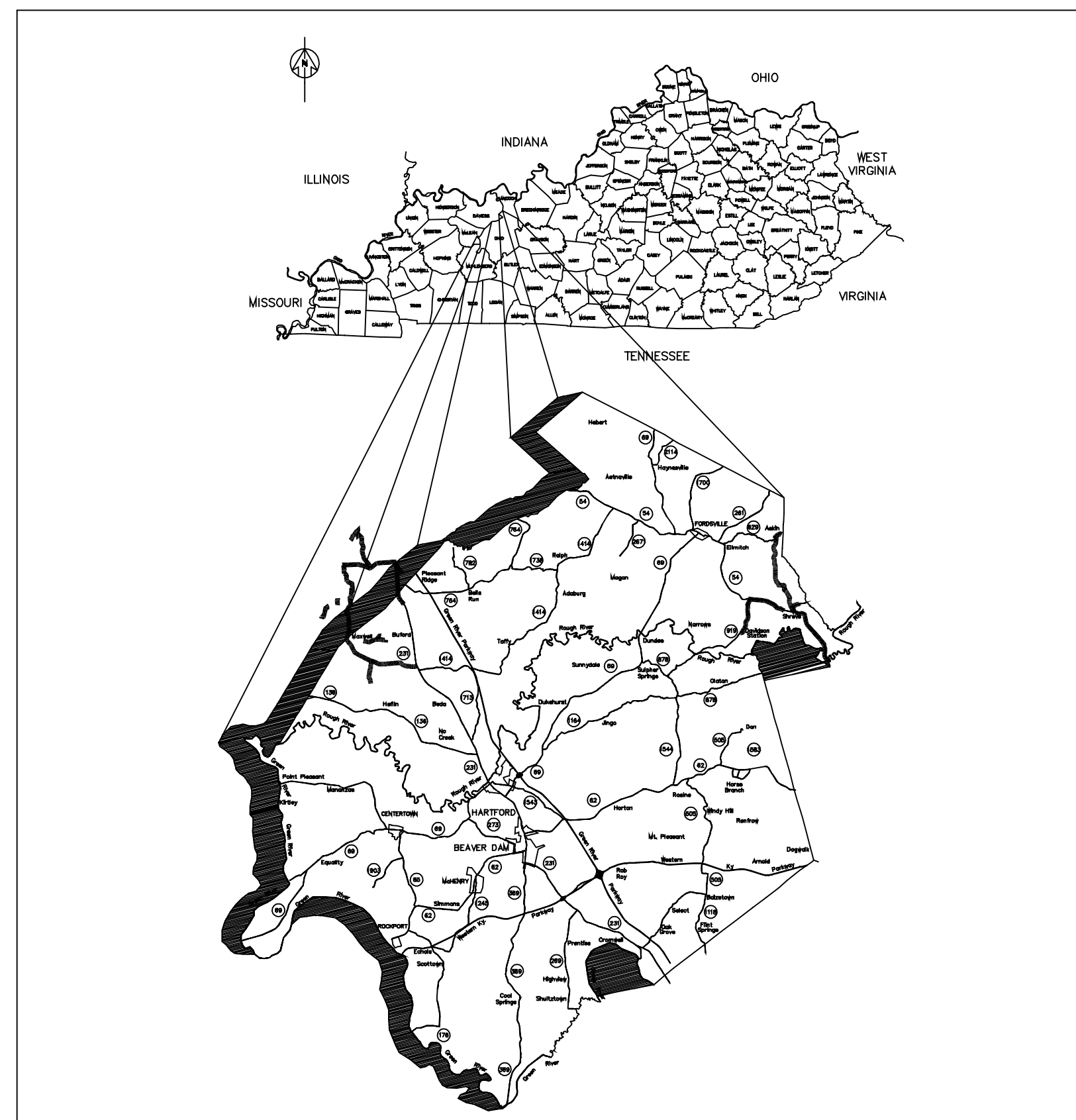


OHIO COUNTY WATER DISTRICT

OHIO COUNTY, KENTUCKY

WATER SYSTEM IMPROVEMENTS SERIES III



LOCATION MAP

COMMISSIONERS

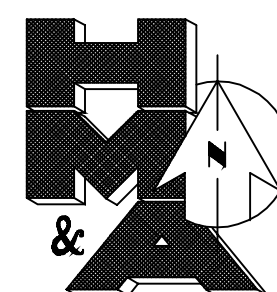
HENRY MORGAN, CHAIRMAN
B.J. DICKENS, SECRETARY
ERNIE WALLACE, TREASURER
BERNARD BALLARD
WAYMON CAMBRON
ANGIE HENRY
GLENDON GILLIM

GENERAL SUPERINTENDENT

WALT BEASLEY

NOVEMBER, 2002

(BID: FEBRUARY, 2003)



HUNTER MARTIN & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
3220 LONE OAK ROAD * PADUCAH KENTUCKY 42003
(502) 554-2737 * FAX (502) 554-2738

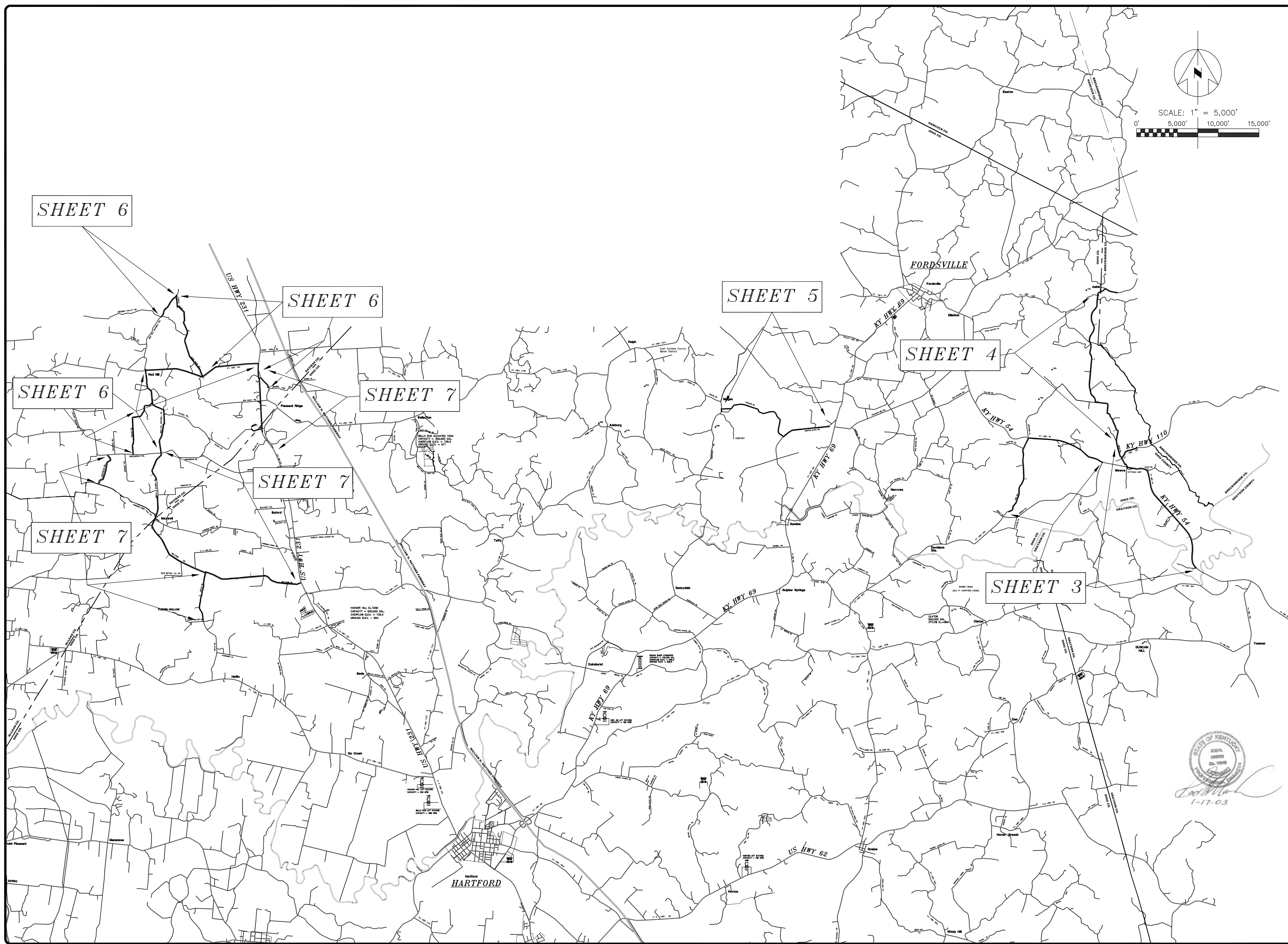
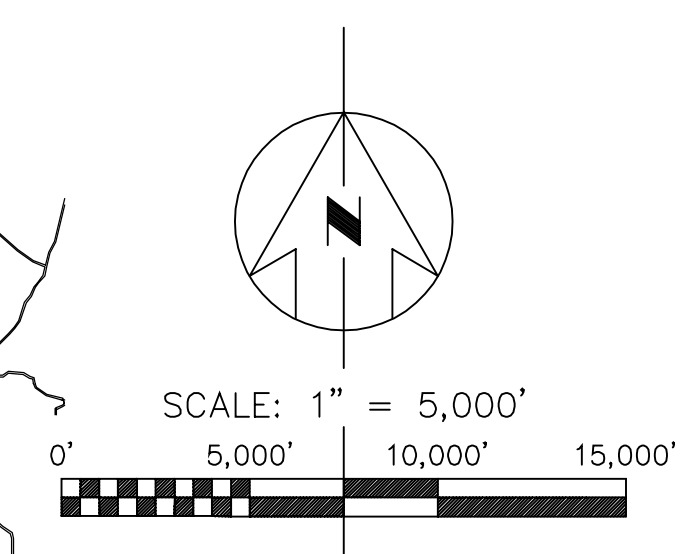


PSC CASE NO. 2003-00034
EXHIBIT 10A

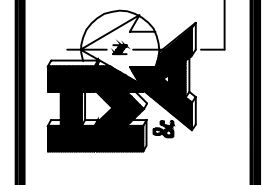
INDEX

SHEET	TITLE
1	COVER
2	OVERALL MAP
3 - 7	PLANS
8	WATER SYSTEM STANDARDS

SET NO. _____



HUNTER MARTIN & ASSOCIATES, INC.
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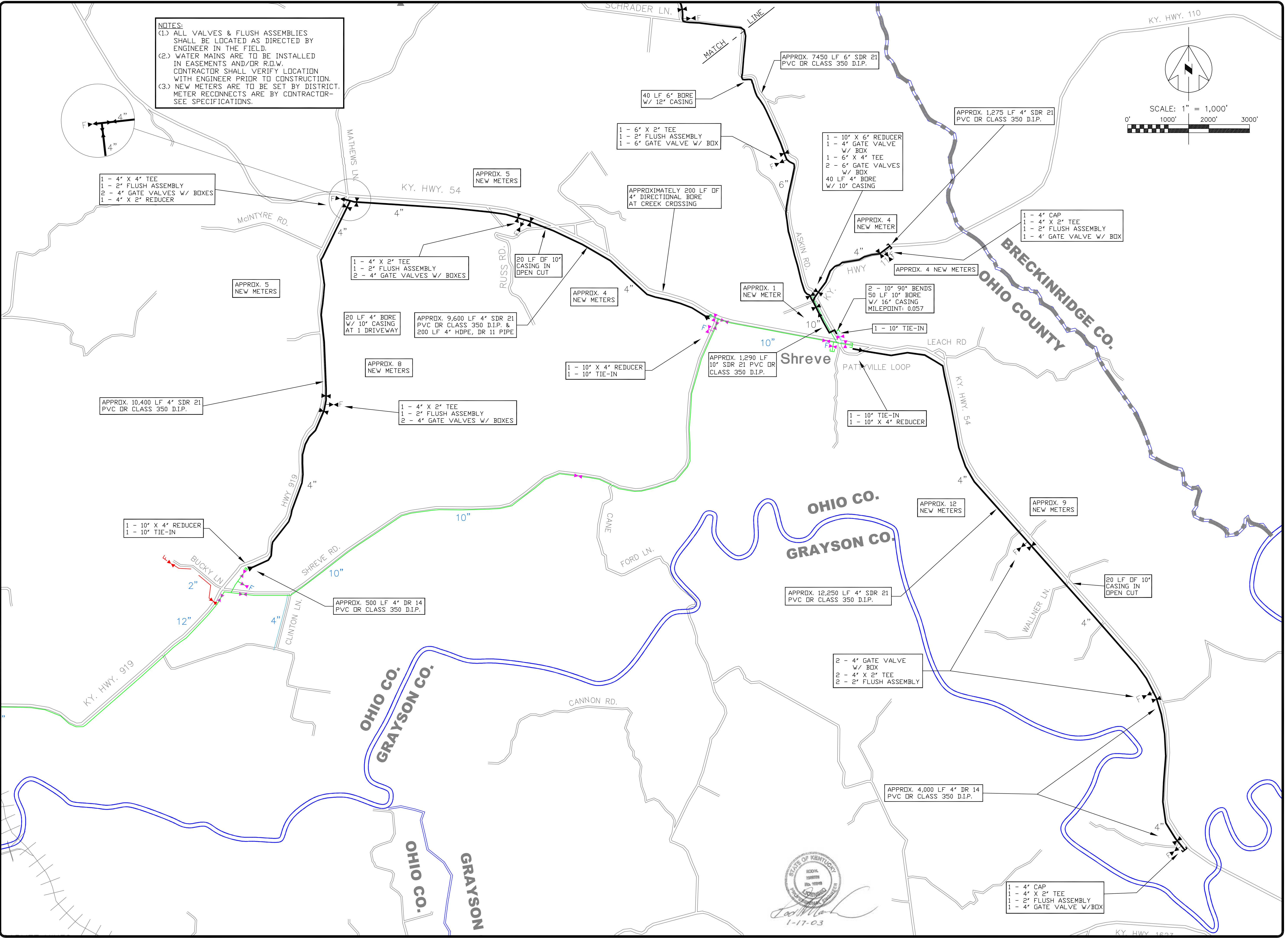
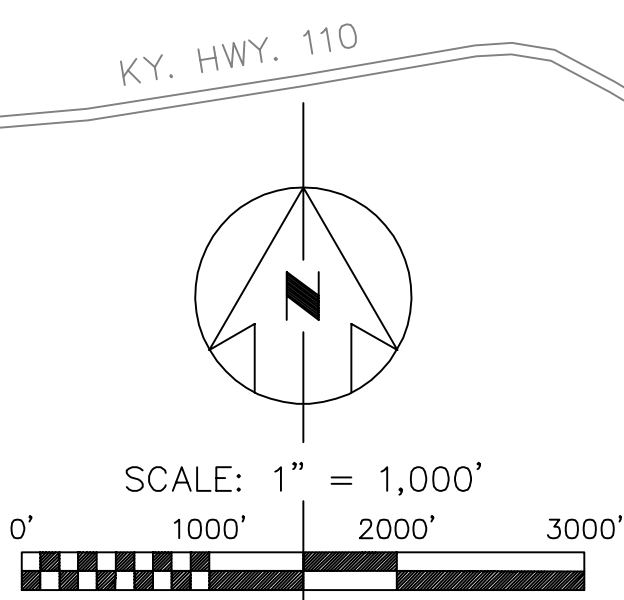


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Checked by: RM
File: SERIII-SH2
Date: 10/01/02
Revised:

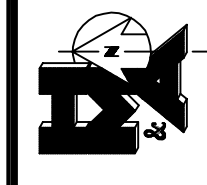
WATER SYSTEM IMPROVEMENTS
SERIES III
OHIO COUNTY WATER DISTRICT

STATE OF KENTUCKY
100th
JAN 17 2003
1-17-03

NOTES:
 (1.) ALL VALVES & FLUSH ASSEMBLIES SHALL BE LOCATED AS DIRECTED BY ENGINEER IN THE FIELD.
 (2.) WATER MAINS ARE TO BE INSTALLED IN EASEMENTS AND/OR R.O.W. CONTRACTOR SHALL VERIFY LOCATION WITH ENGINEER PRIOR TO CONSTRUCTION.
 (3.) NEW METERS ARE TO BE SET BY DISTRICT. METER RECONNECTS ARE BY CONTRACTOR-SEE SPECIFICATIONS.



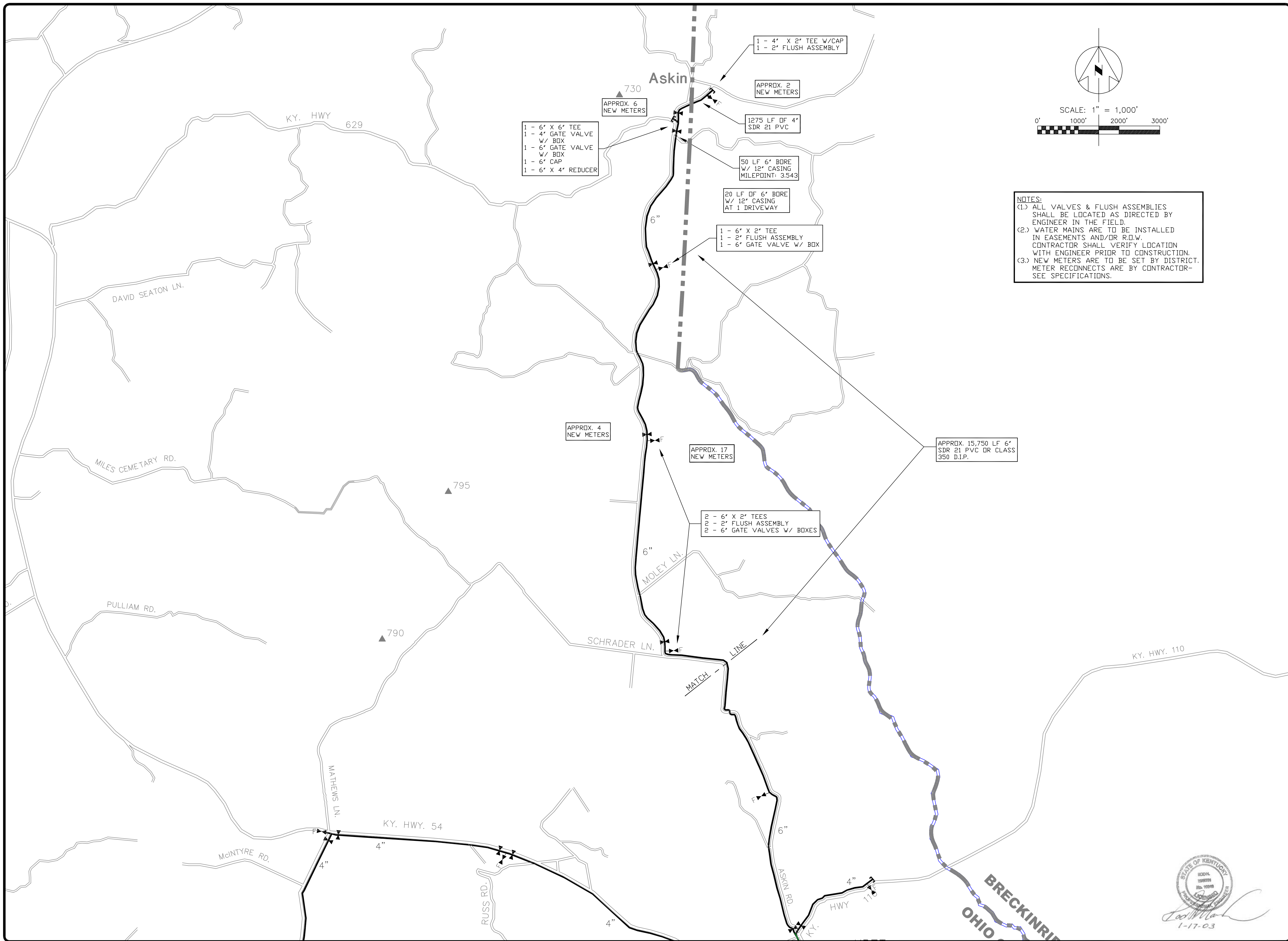
HUNTER MARTIN & ASSOCIATES, INC.
 ENGINEERS & SURVEYORS
 3220 LOBBY OAK ROAD
 PADUCAH, KENTUCKY 42003
 (270) 554-2737 • FAX (270) 554-2728



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 File: SERIII-SH3
 Date: 10/01/02
 Revised: 01/06/03

**WATER SYSTEM IMPROVEMENTS
 SERIES III**
 OHIO COUNTY WATER DISTRICT

STATE OF KENTUCKY
 2009
 1-17-03



1 - 6" X 6" TEE
 1 - 4" GATE VALVE W/ BOX
 1 - 6" GATE VALVE W/ BOX
 1 - 6" CAP
 1 - 6" X 4" REDUCER

APPROX. 6 NEW METERS

1 - 4" X 2" TEE W/CAP
 1 - 2" FLUSH ASSEMBLY

APPROX. 2 NEW METERS

1275 LF OF 4" SDR 21 PVC

50 LF 6" BORE W/ 12" CASING MILEPOINT: 3.543

20 LF OF 6" BORE W/ 12" CASING AT 1 DRIVEWAY

1 - 6" X 2" TEE
 1 - 2" FLUSH ASSEMBLY
 1 - 6" GATE VALVE W/ BOX

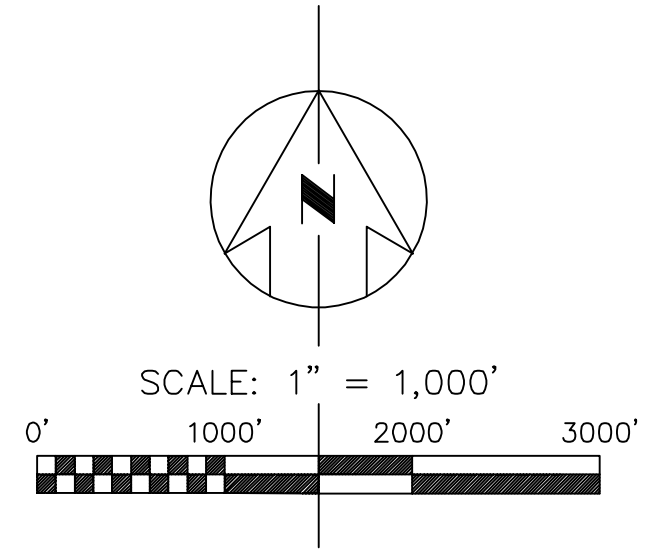
APPROX. 4 NEW METERS

APPROX. 17 NEW METERS

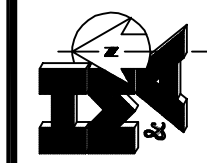
APPROX. 15,750 LF 6" SDR 21 PVC OR CLASS 350 D.I.P.

2 - 6" X 2" TEES
 2 - 2" FLUSH ASSEMBLY
 2 - 6" GATE VALVES W/ BOXES

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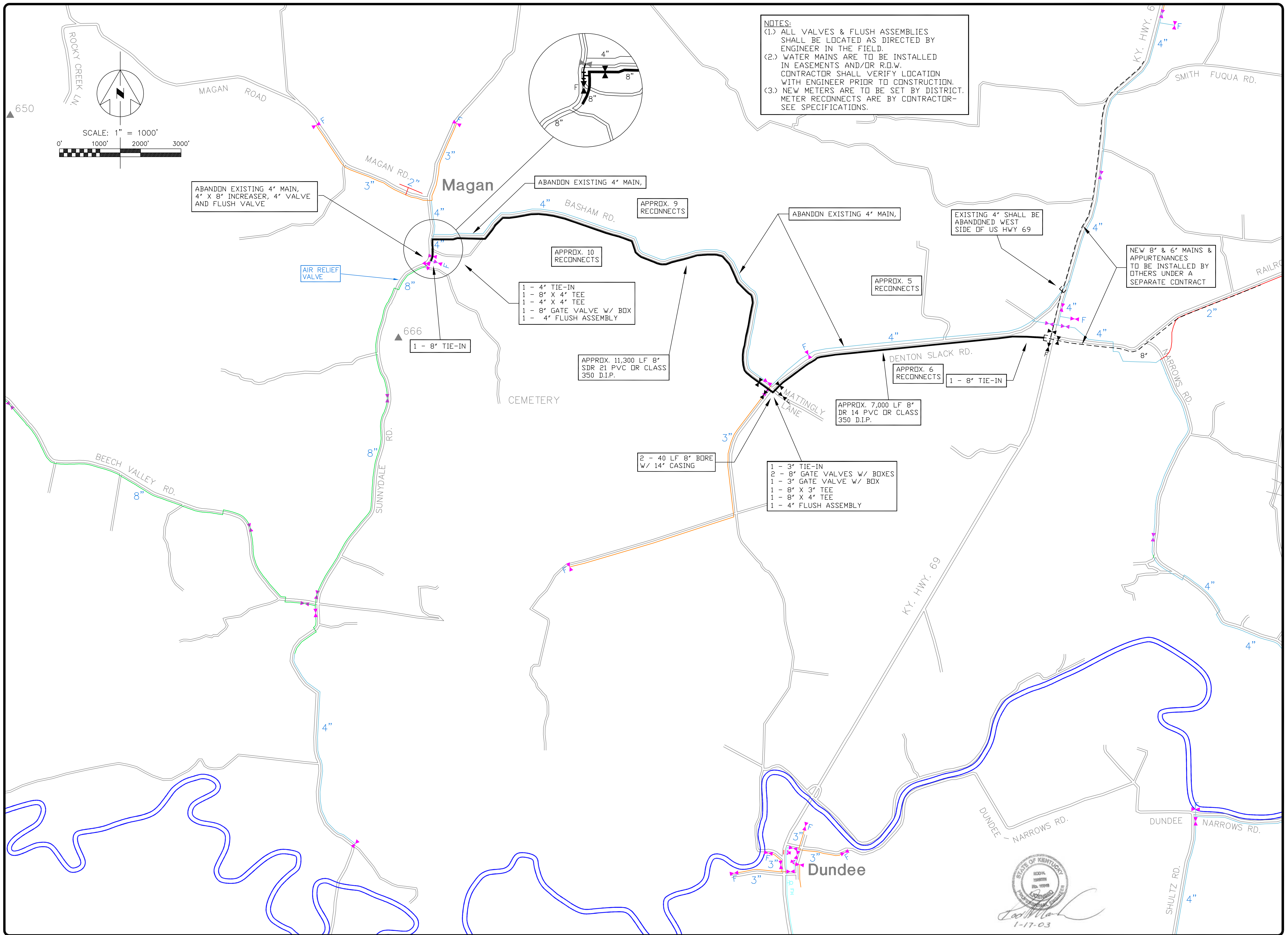
HUNTER MARTIN & ASSOCIATES, INC.
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 Checked by: RM
 File: SERIII-SH4
 Date: 10/01/02
 Revised: 01/06/03

**WATER SYSTEM IMPROVEMENTS
 SERIES III
 OHIO COUNTY WATER DISTRICT**

STATE OF KENTUCKY
 1-17-03
David M. ...



NOTES:
 (1) ALL VALVES & FLUSH ASSEMBLIES SHALL BE LOCATED AS DIRECTED BY ENGINEER IN THE FIELD.
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ABANDON EXISTING 4" MAIN, 4" X 8" INCREASER, 4" VALVE AND FLUSH VALVE

ABANDON EXISTING 4" MAIN,

APPROX. 9 RECONNECTS

ABANDON EXISTING 4" MAIN,

APPROX. 5 RECONNECTS

EXISTING 4" SHALL BE ABANDONED WEST SIDE OF US HWY 69

NEW 8" & 6" MAINS & APPURTENANCES TO BE INSTALLED BY OTHERS UNDER A SEPARATE CONTRACT

AIR RELIEF VALVE

APPROX. 10 RECONNECTS

- 1 - 4" TIE-IN
- 1 - 8" X 4" TEE
- 1 - 4" X 4" TEE
- 1 - 8" GATE VALVE W/ BDX
- 1 - 4" FLUSH ASSEMBLY

APPROX. 11,300 LF 8" SDR 21 PVC DR CLASS 350 D.I.P.

DENTON SLACK RD.

APPROX. 6 RECONNECTS

1 - 8" TIE-IN

APPROX. 7,000 LF 8" DR 14 PVC DR CLASS 350 D.I.P.

- 1 - 3" TIE-IN
- 2 - 8" GATE VALVES W/ BDXES
- 1 - 3" GATE VALVE W/ BDX
- 1 - 8" X 3" TEE
- 1 - 8" X 4" TEE
- 1 - 4" FLUSH ASSEMBLY

2 - 40 LF 8" BORE W/ 14" CASING

HUNTER MARTIN & ASSOCIATES, INC.
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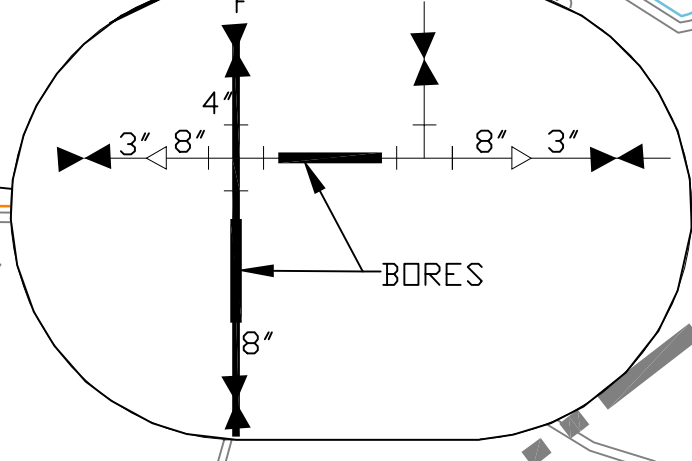
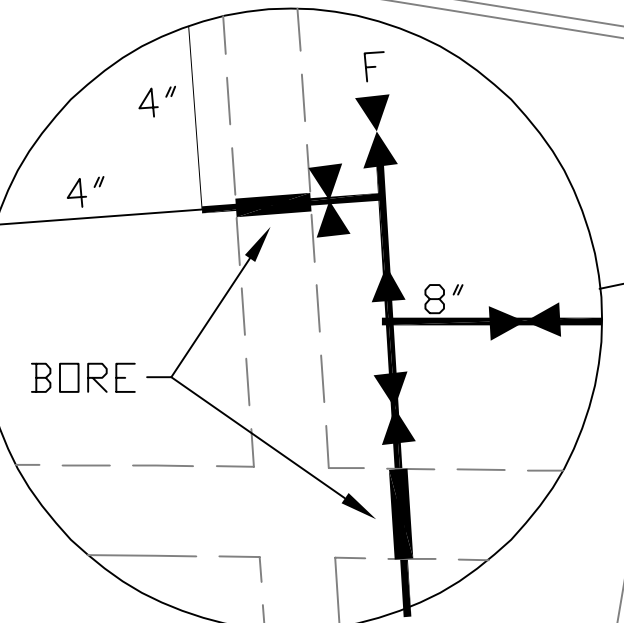
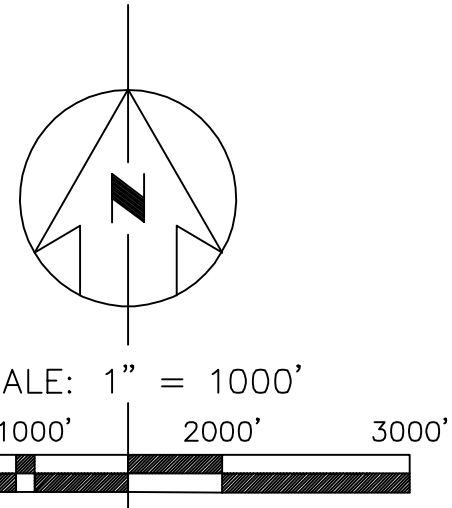
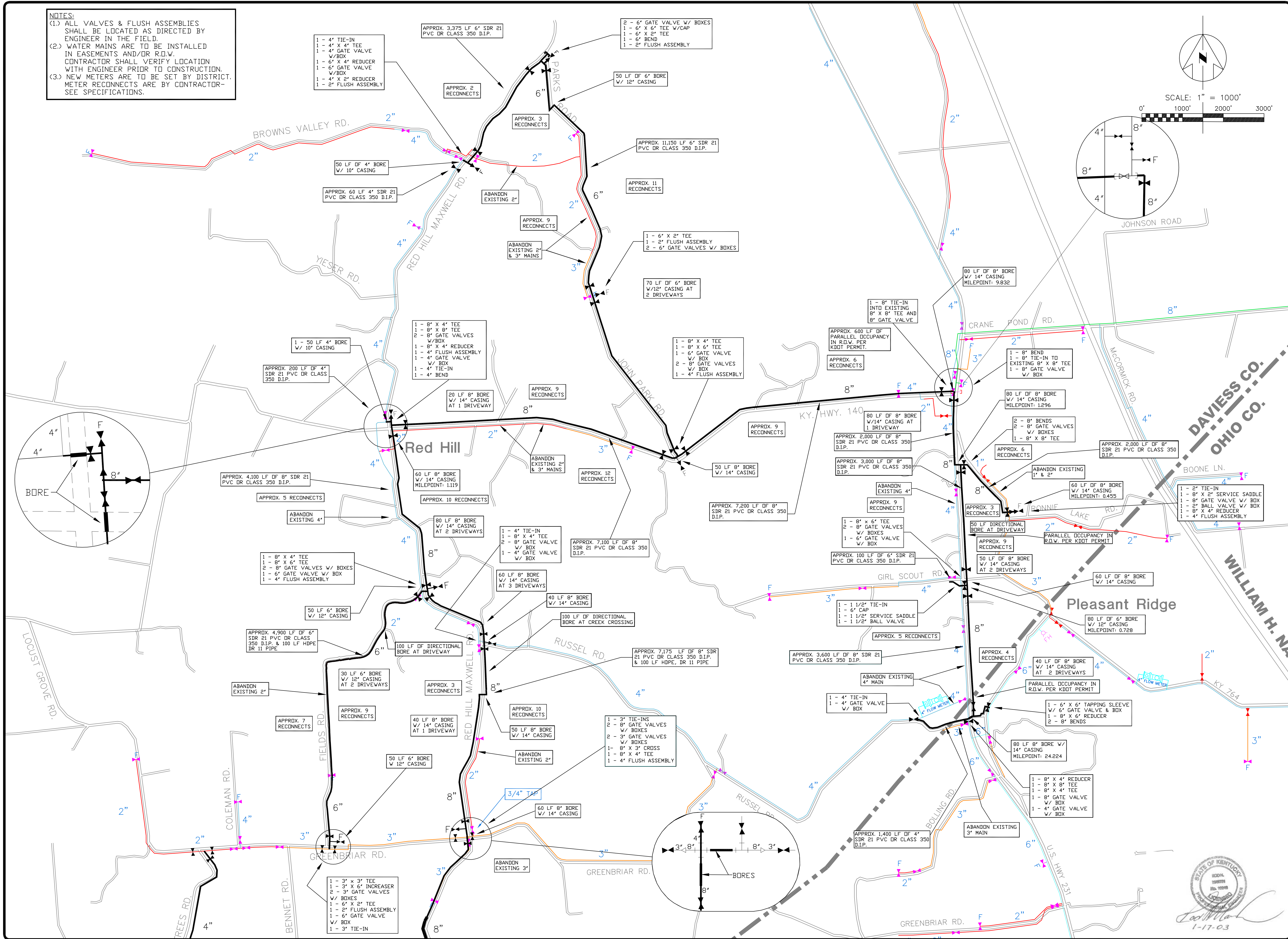


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 File: SERIII-SH5
 Date: 10/01/02
 Revised: 01/06/03

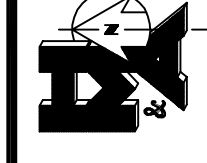
**WATER SYSTEM IMPROVEMENTS
 SERIES III
 OHIO COUNTY WATER DISTRICT**

STATE OF KENTUCKY
 2004
 10000
 1-17-03

NOTES:
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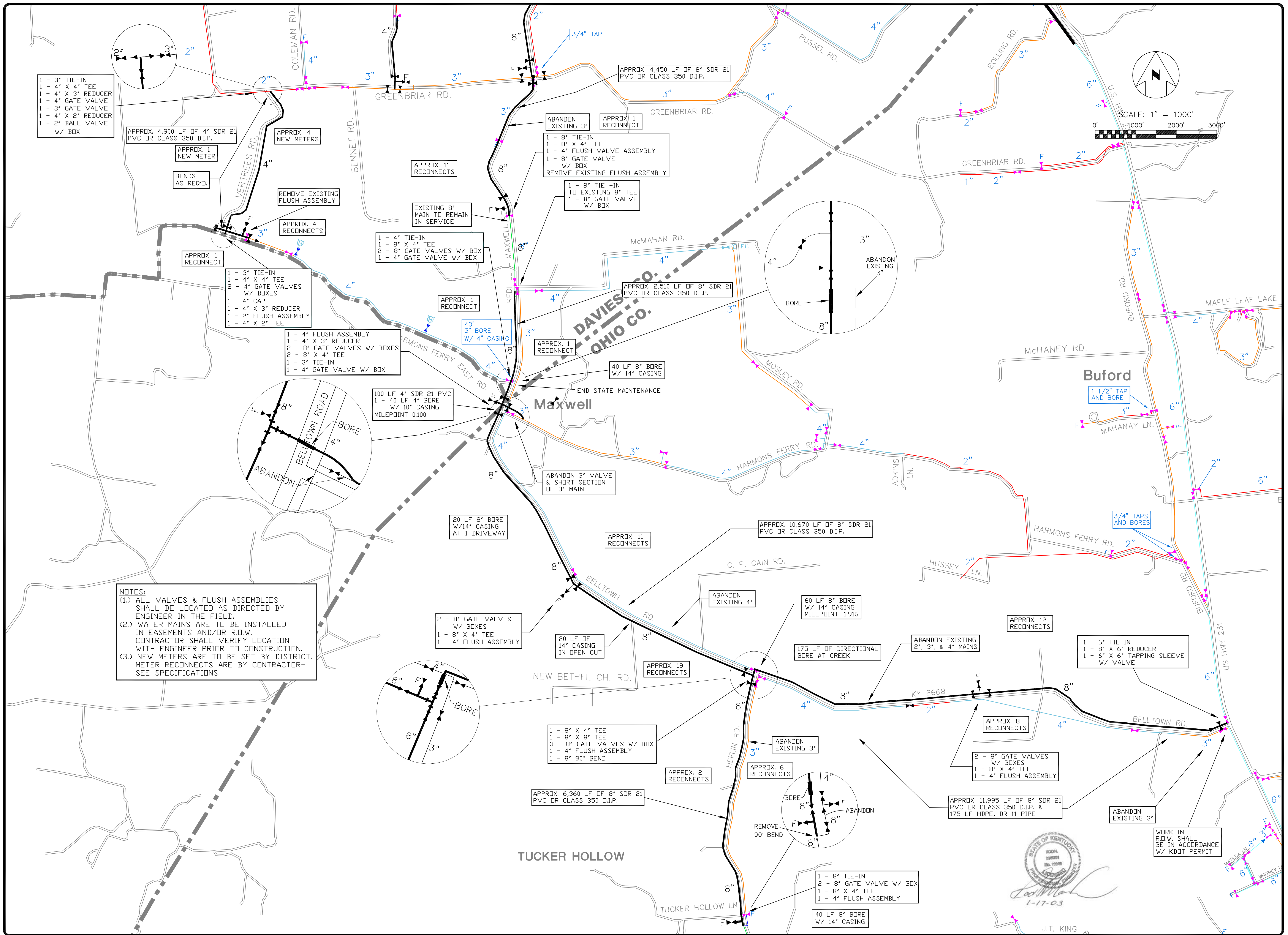
HUNTER MARTIN & ASSOCIATES, INC.
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 File: SER111-SH6
 Date: 10/01/02
 Revised: 1/06/03

**WATER SYSTEM IMPROVEMENTS
 SERIES III**
 OHIO COUNTY WATER DISTRICT





NOTES:
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STATE OF KENTUCKY
 100th
 J.T. KING
 1-17-03

HUNTER MARTIN & ASSOCIATES, INC.
 ENGINEERS & SURVEYORS
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 PADUCAH, KENTUCKY 42003
 (270) 554-2737 • FAX (270) 554-2728

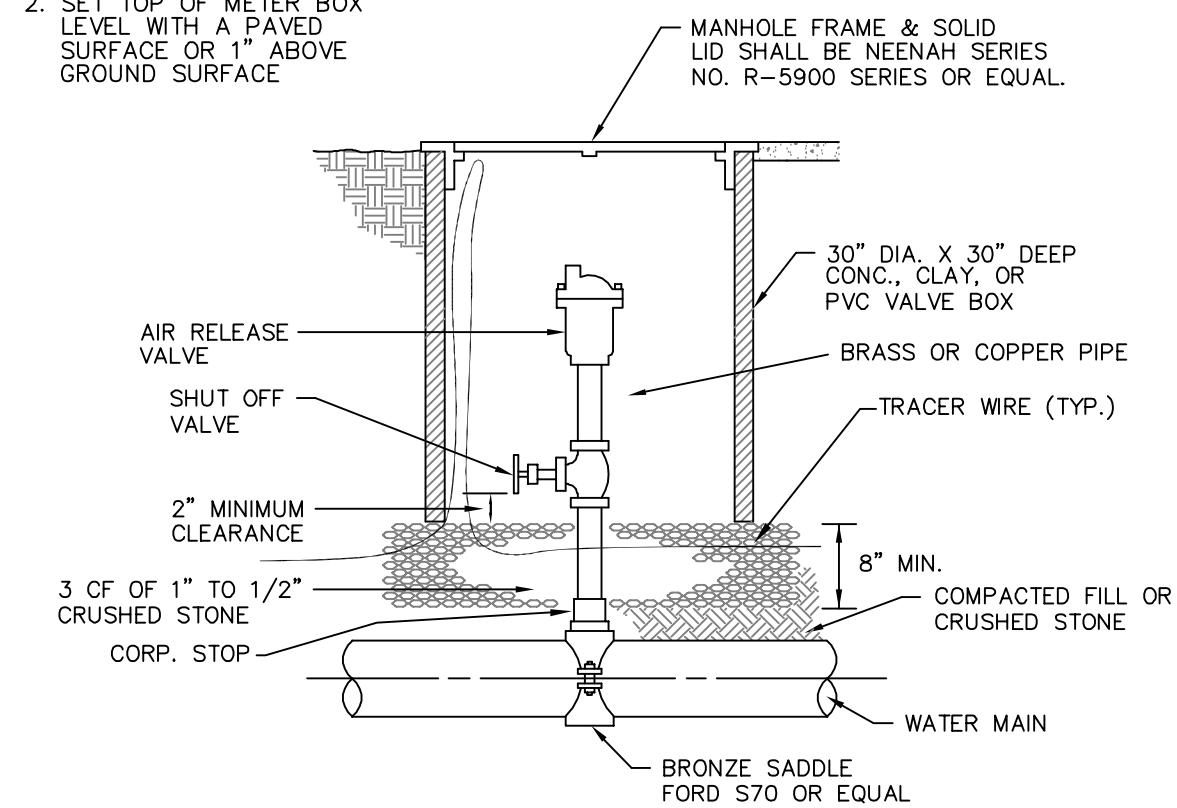
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 File: SERIII-SH7
 Date: 10/01/02
 Revised: 1/06/03

**WATER SYSTEM IMPROVEMENTS
 SERIES III**
OHIO COUNTY WATER DISTRICT

Sheet
7

NOTES:

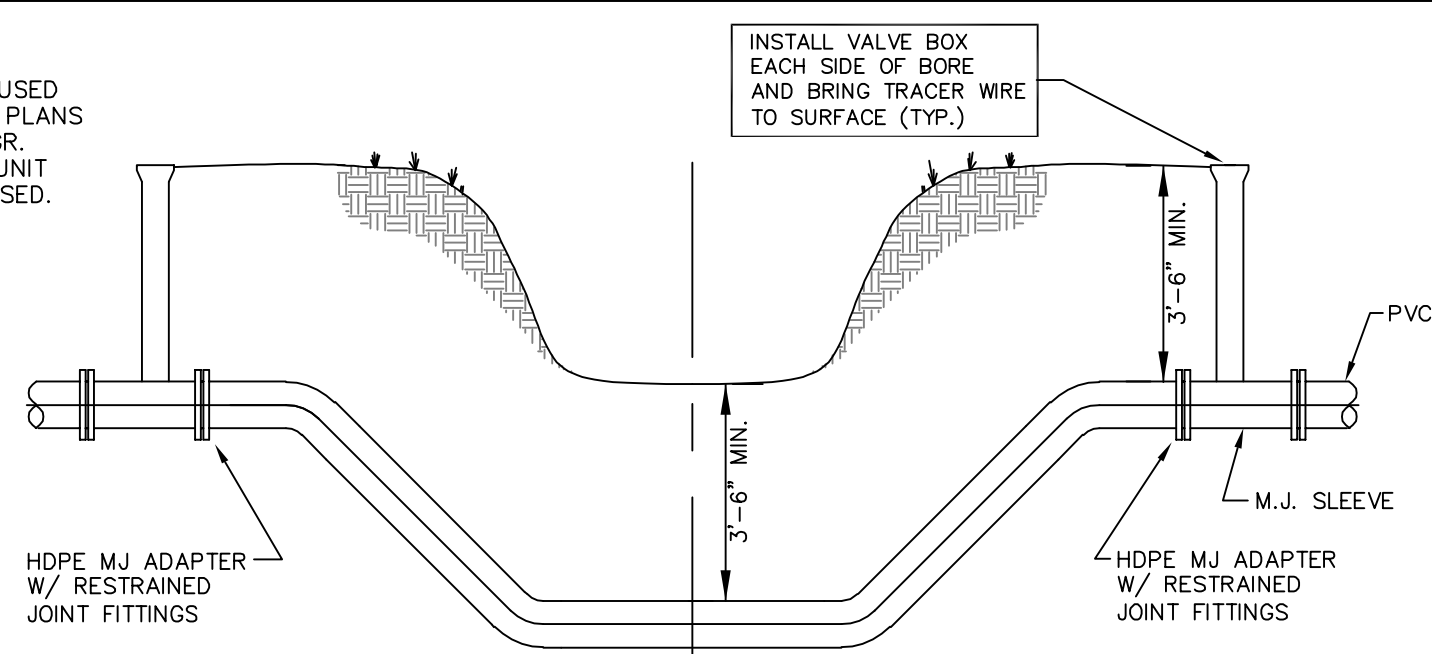
1. SET MARKER POST AT VALVE
2. SET TOP OF METER BOX LEVEL WITH A PAVED SURFACE OR 1" ABOVE GROUND SURFACE



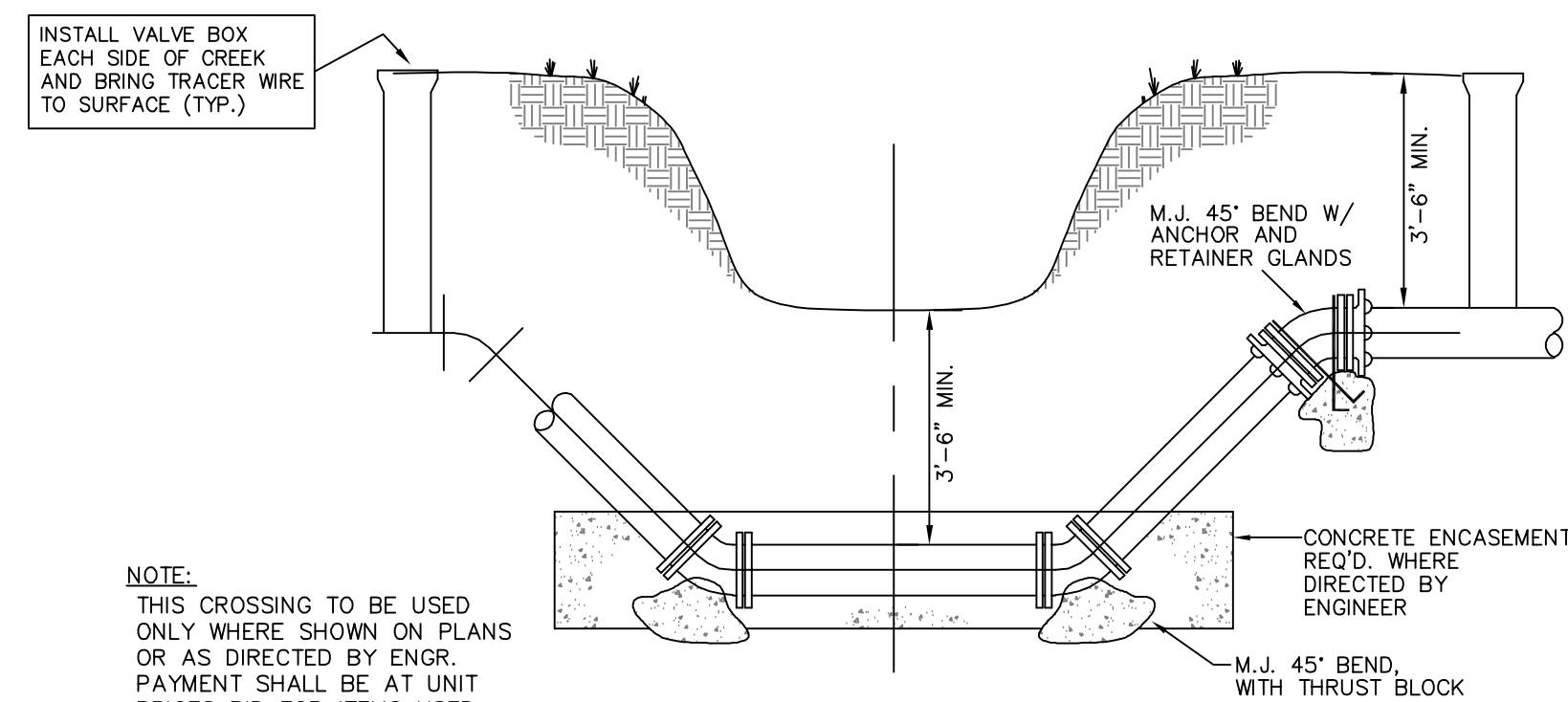
AIR RELEASE VALVE INSTALLATION
(VALVE SIZE PER PLANS)
NOT TO SCALE

NOTE:

THIS TYPE BORE TO BE USED ONLY WHERE SHOWN ON PLANS OR AS DIRECTED BY ENGR. PAYMENT SHALL BE AT UNIT PRICES BID FOR ITEMS USED.



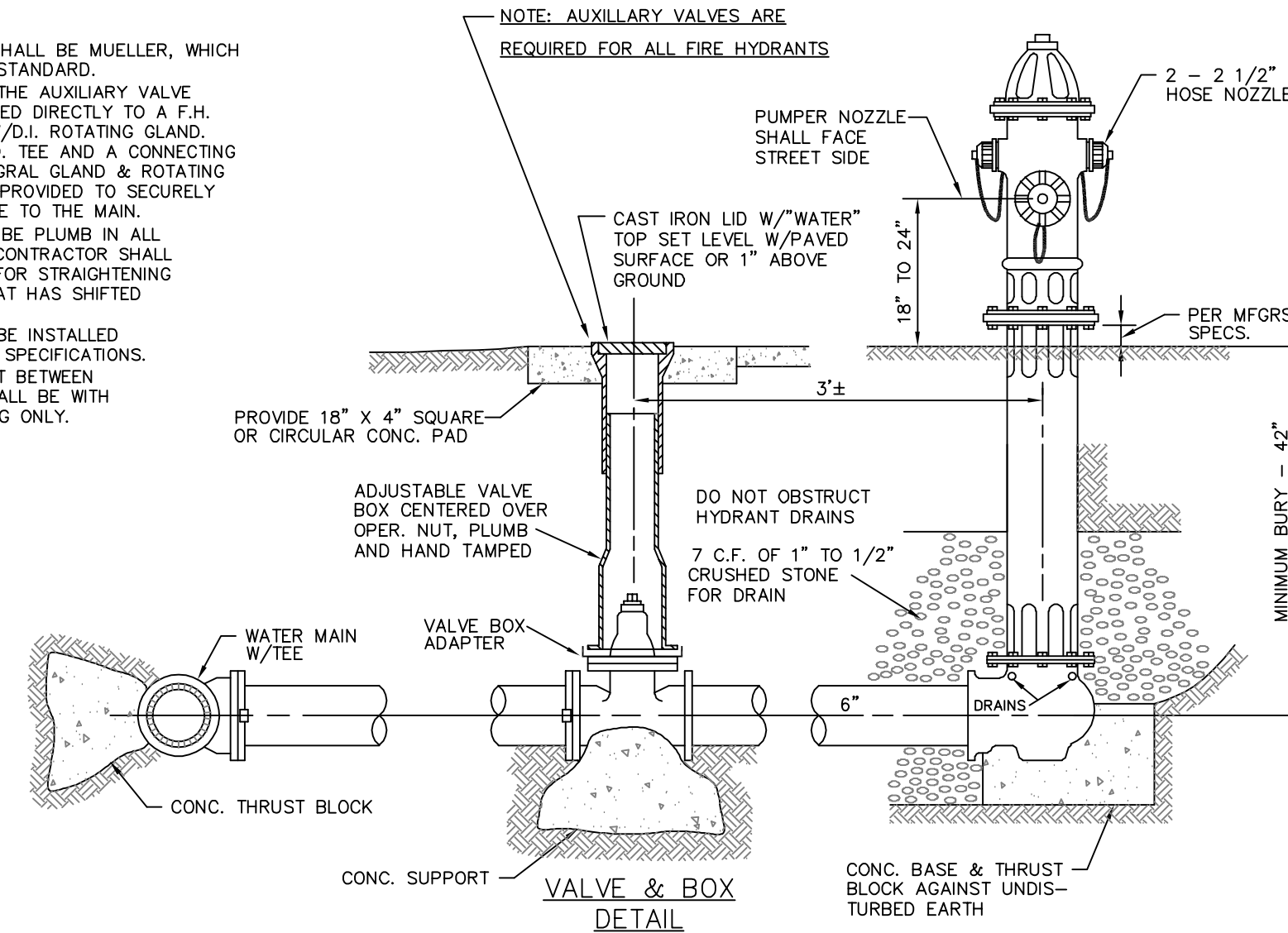
DIRECTIONAL BORE WITH HDPE PIPE



CREEK CROSSING WITH DUCTILE IRON PIPE AND BENDS

NOTES:

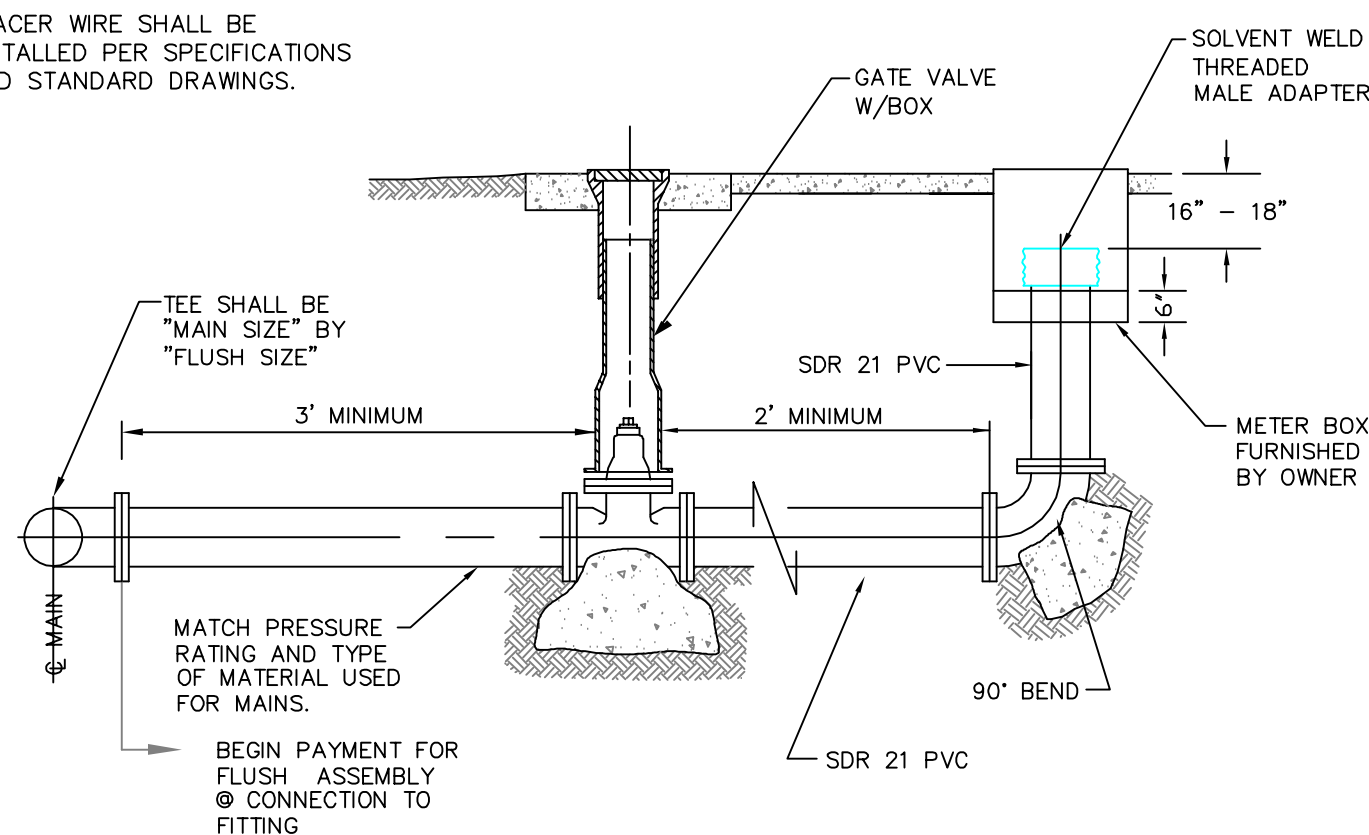
1. FIRE HYDRANTS SHALL BE MUELLER, WHICH IS THE OWNER'S STANDARD.
2. WHERE POSSIBLE THE AUXILIARY VALVE SHALL BE ATTACHED DIRECTLY TO A F.H. ANCHORING TEE W/D.I. ROTATING GLAND. OTHERWISE, A STD. TEE AND A CONNECTING PIECE W/D.I. INTEGRAL GLAND & ROTATING GLAND SHALL BE PROVIDED TO SECURELY FASTEN THE VALVE TO THE MAIN.
3. HYDRANTS SHALL BE PLUMB IN ALL DIRECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STRAIGHTENING ANY HYDRANT THAT HAS SHIFTED DURING SETTING.
4. TRACER WIRE TO BE INSTALLED PER STD DWGS & SPECIFICATIONS.
5. THRUST RESTRAINT BETWEEN FIRE HYDRANT SHALL BE WITH CONCRETE BLOCKING ONLY.



FIRE HYDRANT AND VALVE INSTALLATION

NOTE:

1. PAYMENT SHALL BE AT UNIT PRICE BID FOR FLUSH ASSEMBLY AND SHALL INCLUDE ALL ITEMS SHOWN HERE.
2. ALL FITTINGS SHALL HAVE MECHANICAL JOINT RESTRAINING GLANDS AND SHALL BE BLOCKED WITH CONCRETE.
3. SET MARKER POST AT VALVE.
4. TRACER WIRE SHALL BE INSTALLED PER SPECIFICATIONS AND STANDARD DRAWINGS.



FLUSH ASSEMBLY
NOT TO SCALE

FLUSH ASSEMBLY SIZES:

MAIN SIZE:	UP TO 6"	2" FLUSH ASSEMBLY
GREATER THAN	6" MAIN	4" FLUSH ASSEMBLY

NOTES:

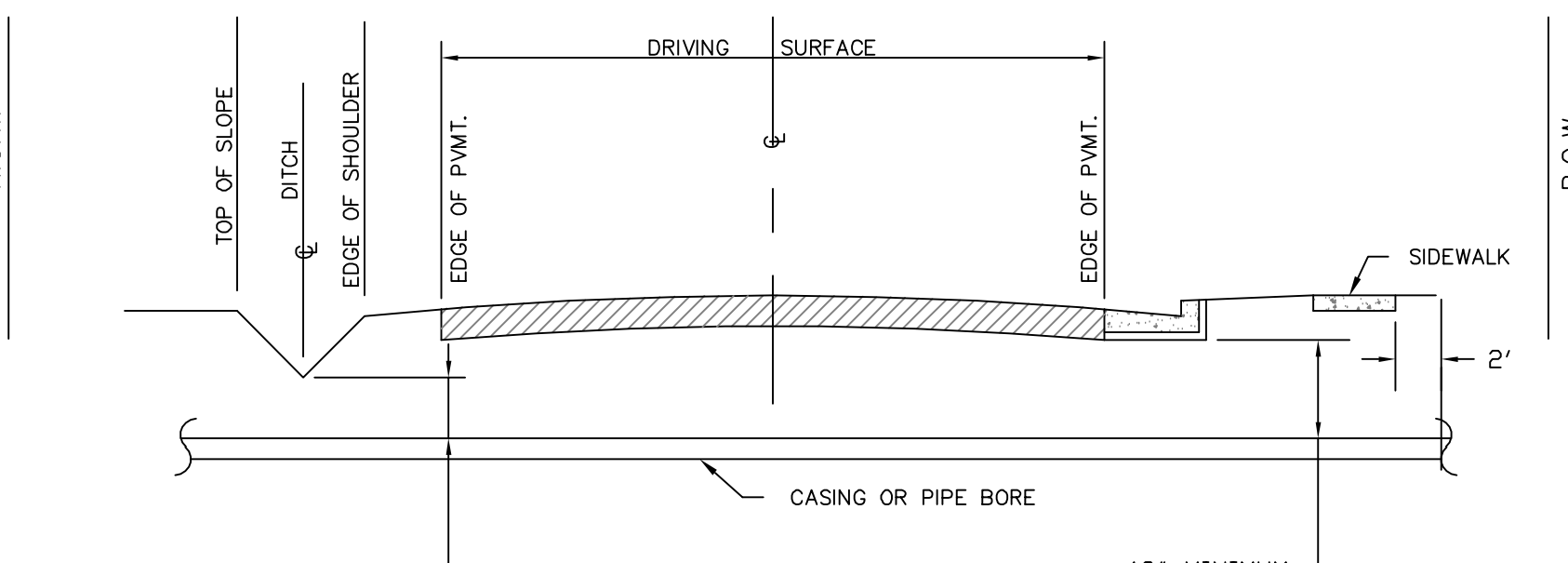
1. ALL WORK WITHIN ROW SHALL BE IN ACCORDANCE WITH THE PERMIT.
2. CASING IS REQ'D. ON ALL MAINS OVER 2".
3. BORE PITS SHALL BE BACKFILLED & COMPACTED.
4. SEED & STRAW ALL AREAS DISTURBED BY WORK.
5. ALL DRAINAGE DITCHES SHALL BE LEFT OPEN.
6. CARRIER PIPE SHALL BE INSTALLED WITH SKIDS PER THE SPECIFICATIONS.
7. SEAL THE ENDS OF CASING PER THE SPECS.
8. NO JOINTS UNDER PAVEMENT WITHOUT CASING.

RURAL SECTION

1. LIMIT OF OPEN CUT IS 5' FROM PVMT.

IMPROVED SECTION

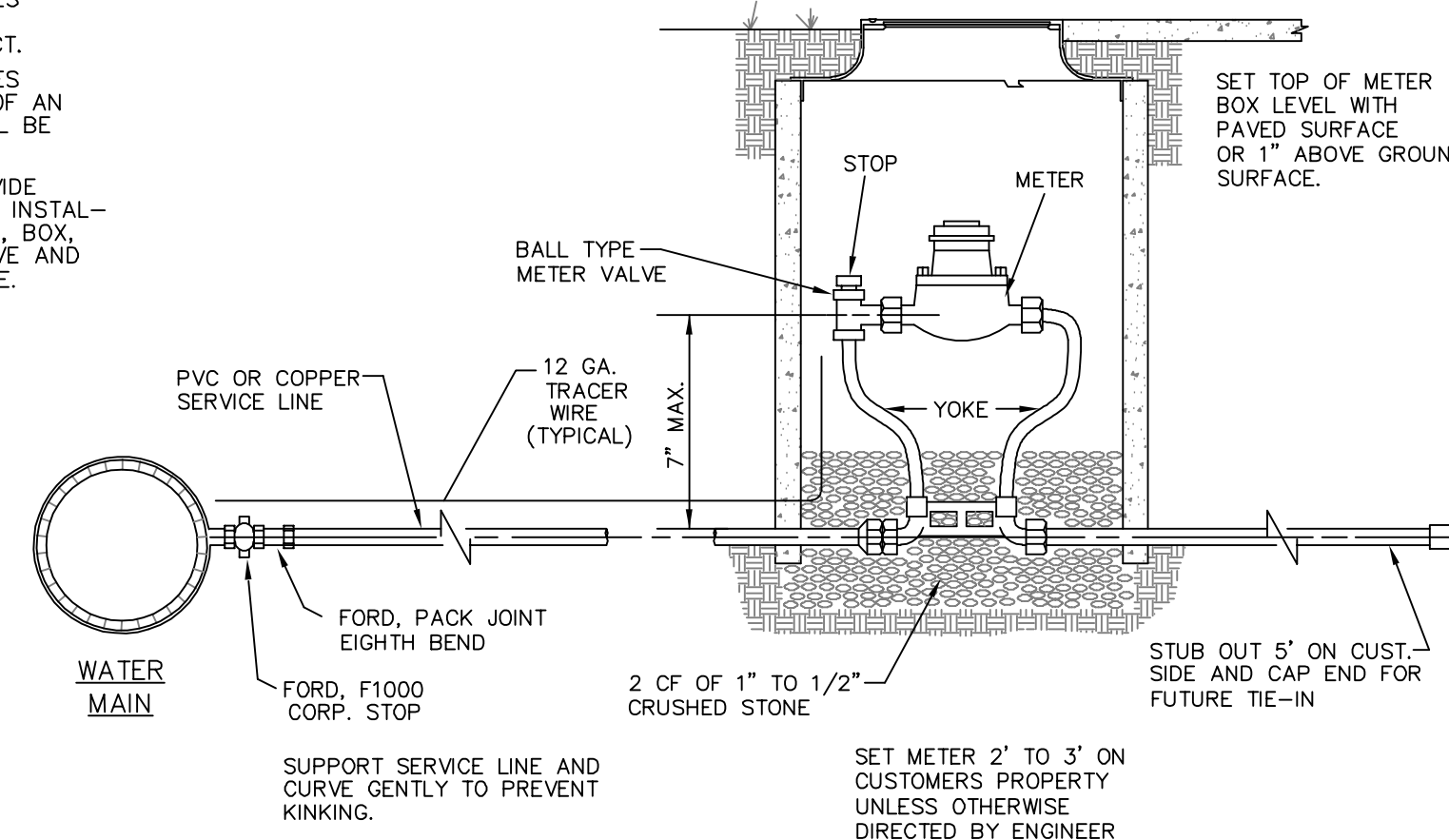
1. LIMIT OF OPEN CUT IS 5' FROM PVMT. OR CURB AND 2' FROM SIDEWALK.



HIGHWAY OR ROAD CROSSING
NOT TO SCALE

NOTES:

1. WIRE TRACER IN SERVICE LINE TRENCH SHALL BE CONNECTED TO TRACER WIRE IN TRENCH OF WATER MAIN.
2. METERS AND SERVICE LINES SET FOR NEW CUSTOMERS SHALL BE BY THE DISTRICT.
3. METERS AND SERVICE LINES SET FOR RECONNECTION OF AN EXISTING CUSTOMER SHALL BE BY THE CONTRACTOR.
4. THE DISTRICT SHALL PROVIDE TO THE CONTRACTOR FOR INSTALLATION, THE METER, YOKE, BOX, PRESSURE REDUCING VALVE AND CUSTOMER CUT OFF VALVE.
5. THE CONTRACTOR SHALL RECORD THE SERIAL NUMBER OF EACH METER SET W/ REFERENCE TO THE SERVICE ADDRESS.



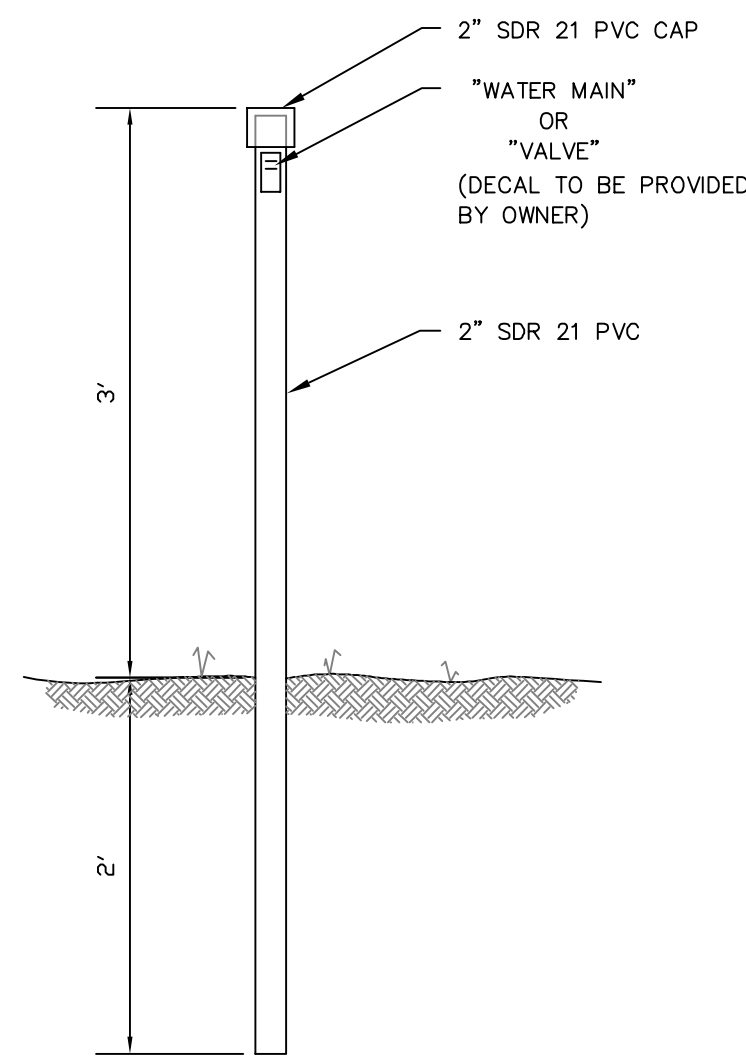
SERVICE CONNECTION DETAILS AND METER SETTING
NOT TO SCALE

DISTRIBUTION SYSTEM NOTES

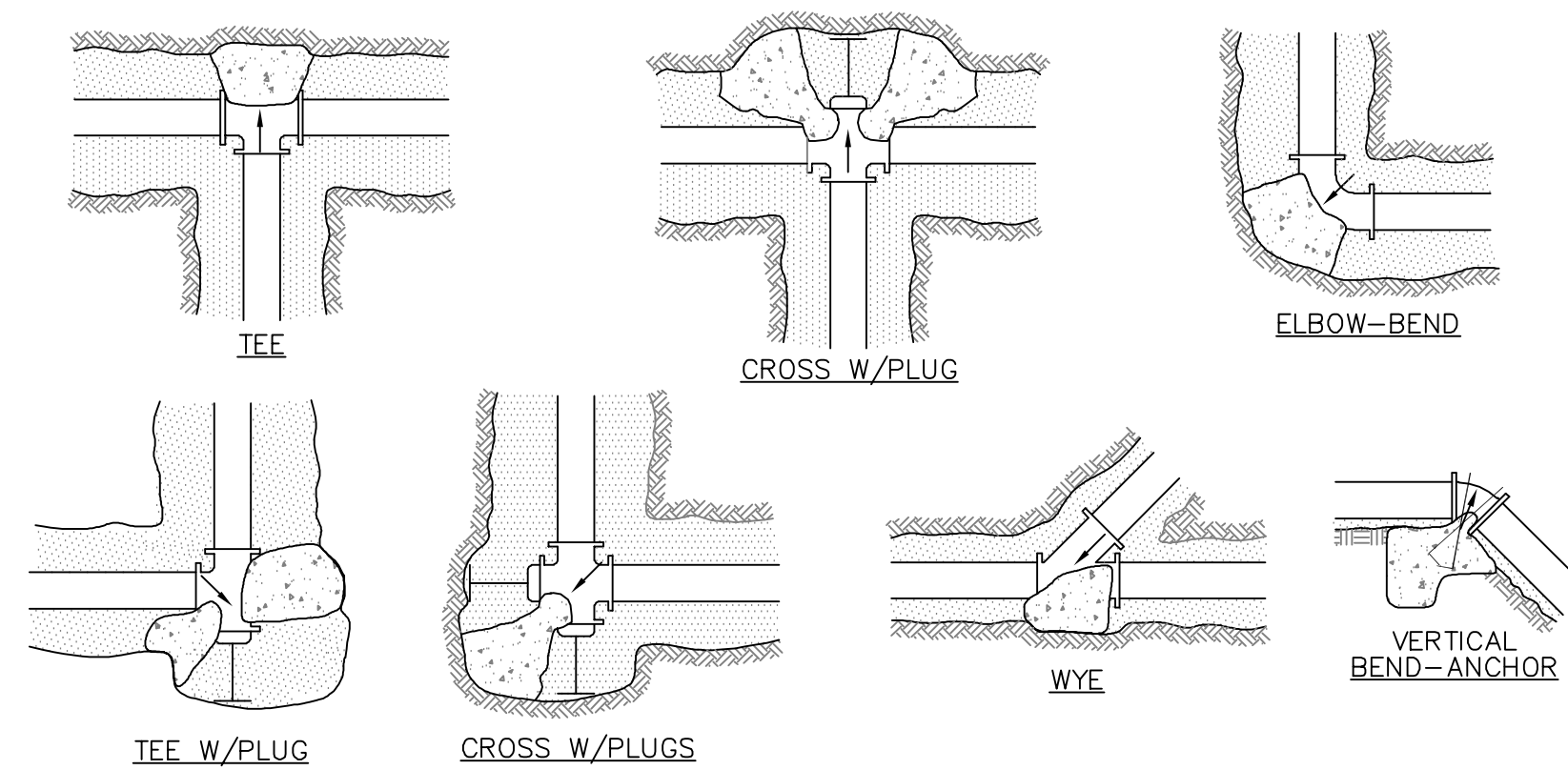
1. ALL NEW MAINS SHALL BE SDR 21, CLASS 200 PVC OR AS SHOWN ON THE PLANS.
2. 12 GA. TRACER WIRE SHALL BE PLACED IN THE WATER MAIN TRENCH AND SHALL BE CONNECTED TO ALL VALVES AND FITTINGS TO ASSURE CONDUCTIVITY.
3. VALVES AND MAINS SHALL BE LOCATED WITH MARKER POSTS PER DETAIL.
4. ALL FITTINGS, 4" AND LARGER, SHALL BE DUCTILE IRON, MECHANICAL JOINT.
5. VALVES SHALL BE LOCATED ADJACENT TO THE FITTINGS IN THE BRANCHES AS SHOWN ON THE PLANS.
6. THE LENGTH OF MAINS SHOWN ARE APPROXIMATE AND MAY BE MORE OR LESS TO FIT THE FIELD CONDITIONS.
7. MAINS ADJACENT TO A ROAD CUT SECTION SHALL BE LAID DEEPER AND/OR LOCATED TO PREVENT RELOCATION OR DAMAGE BY FUTURE EXCAVATION OF BANK. SEE SPECS.
8. ALL MAINS AND SERVICE LINES TO BE ABANDONED SHALL BE DISCONNECTED FROM THE LIVE MAINS AND THE LIVE MAINS SHALL BE SEALED AND BLOCKED AS SPECIFIED.
9. HIGHWAY (STATE AND FEDERAL) AND RAILROAD CROSSINGS SHALL BE MADE WITH A BORE AND CASING AS SHOWN ON THE PLANS AND PER THE RESPECTIVE PERMIT.
10. THE DESCRIPTIONS AND LOCATIONS OF EXISTING WATER MAINS AND OTHER UTILITIES ARE FROM RECORDS AND HERESAY EVIDENCE ONLY. THE EXACT LOCATION, PROTECTION AND REPAIR (IF DAMAGED) SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
11. THERE ARE EXISTING TELEPHONE, ELECTRIC, NATURAL GAS LINES AND POSSIBLE OTHER UTILITIES. THE CONTRACTOR SHALL CONTACT THE OWNER OF EACH UTILITY FOR ASSISTANCE IN LOCATION AND PROTECTION. THE EXACT LOCATION, PROTECTION AND REPAIR (IF DAMAGED) SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS OF EASMENTS.

NOTES:

1. MARKER SHALL BE LOCATED ADJACENT TO NEW VALVES AND DIRECTLY ABOVE NEW WATER MAINS AT BOTH SIDES OF HIGHWAY, RAILROAD AND CREEK CROSSINGS. MARKERS SHALL ALSO BE PLACED ALONG NEW MAINS AT A MINIMUM SPACING OF APPROXIMATELY 300' AND AT ALL PROPERTY BARRIERS (FENCES, ETC.) AND AS DIRECTED BY ENGINEER.
2. THE APPROPRIATE DECAL ("WATER MAIN" OR "VALVE") SHALL BE PROVIDED BY OWNER AND APPLIED TO THE 2" POST BY THE CONTRACTOR. THE DECAL SHALL BE LOCATED DIRECTLY BELOW THE PVC CAP AND SHALL FACE NEAREST ROADWAY FOR EASY RECOGNITION.
3. PAYMENT SHALL BE AT UNIT PRICE BID FOR EACH MARKER POST



MARKER POST DETAIL
NOT TO SCALE



- NOTES:**
1. ARROWS SHOW DIRECTION OF THRUST.
 2. BLOCKING SHALL BEAR AGAINST UNDISTURBED EARTH.
 3. BRACE PLUGS AGAINST UNDISTURBED EARTH.
 4. THRUST BLOCKS SHALL BE 2500 P.S.I. (5 BAG MIX) CONCRETE.
 5. CONCRETE SHALL NOT OBSTRUCT FITTING CONNECTIONS.
 6. TWO METHODS OF THRUST RESTRAINT SHALL BE PROVIDED FOR ALL FITTINGS. THESE SHALL BE BY MECHANICAL JOINT RESTRAINING GLAND AND CONCRETE BLOCKING.
 7. FITTINGS SHALL BE COVERED W/ PLASTIC PRIOR TO PLACEMENT OF CONCRETE.

BEARING STRENGTH OF SOILS

Soils and Safe Bearing Loads	Lbs. Sq. Ft.
Sound Stone	10,000
Crushed Gravel and Sand (difficult to pick)	4,000
Coarse and fine compact Sand	3,000
Medium Clay - Can be spaded	2,000
Soft Clay	1,000
Muck	0

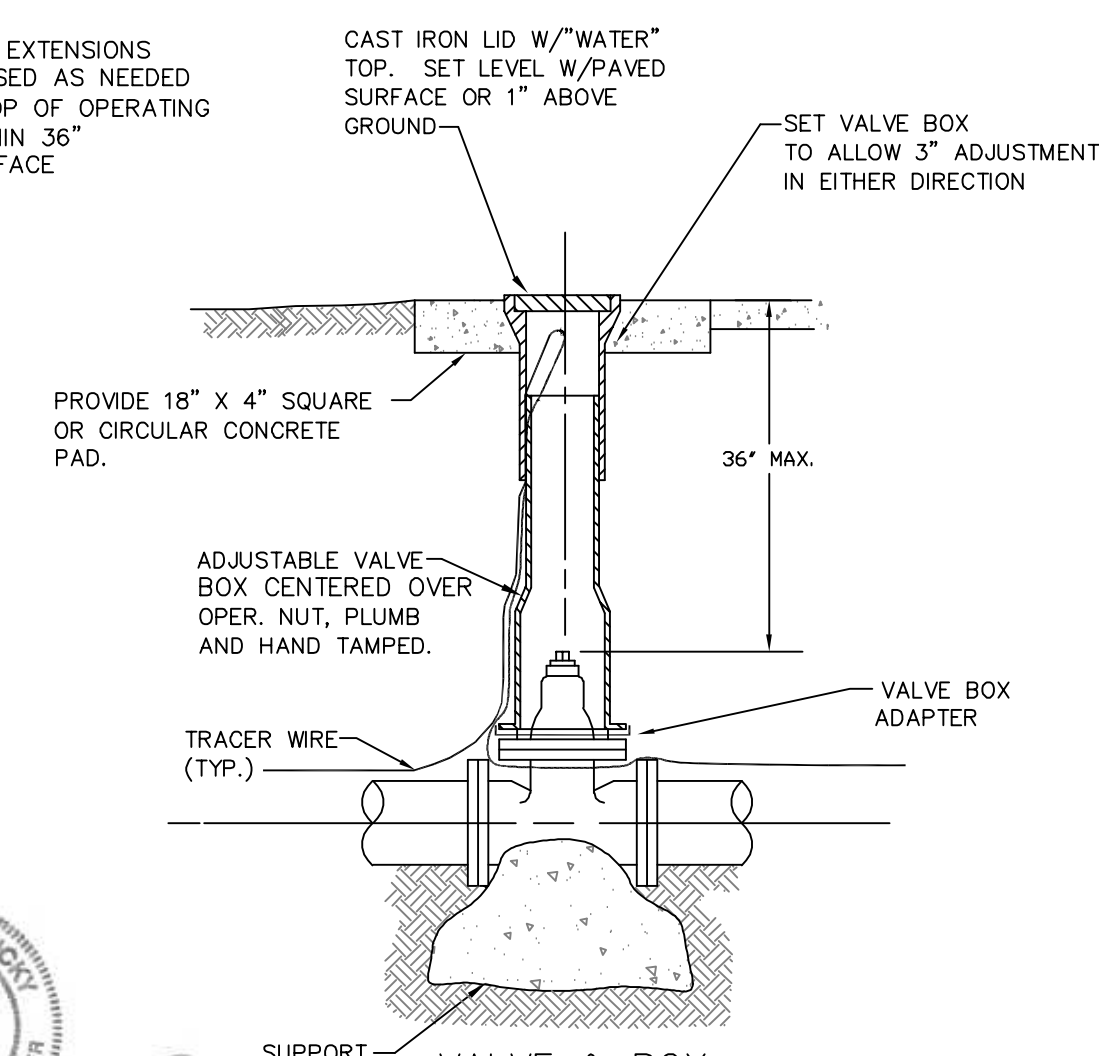
THRUST BLOCKING DETAILS
NOT TO SCALE

THRUST PER POUND OF WATER PRESSURE

Pipe Size	Dist End	90° Elbow	45° Elbow	12 1/2" Elbow
4	20	40	27	20
6	39	60	34	19
8	48	100	56	31
10	110	160	89	48
12	155	220	120	62
14	210	350	168	87
16	270	400	225	121
18	380	500	280	145
20	480	670	370	190
24	690	970	530	270

NOTES:

1. SET MARKER POST AT VALVES
2. VALVES SHALL BE MUELLER OR M&H UNLESS SHOWN OTHERWISE.
3. VALVE STEM EXTENSIONS SHALL BE USED AS NEEDED TO BRING TOP OF OPERATING NUT TO WITHIN 36" OF THE SURFACE



VALVE INSTALLATION
NOT TO SCALE

