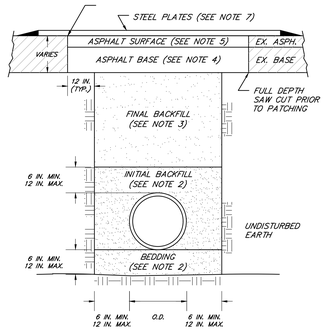
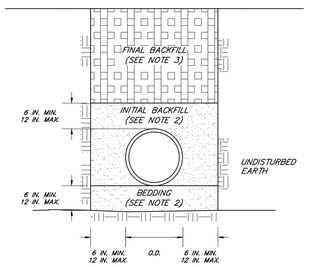


NOTES:

1. THIS DETAIL SHALL BE USED FOR ALL STORM SEWER AND SANITARY SEWER WITHIN PAVEMENT AND WHERE THE TRENCH SHALL BE WITHIN THE 1:1 INFLUENCE LINE OF THE EDGE OF PAVEMENT OR ANY PERMANENT STRUCTURE.
2. BEDDING MATERIAL SHALL BE #8 TO #57 CRUSHED LIMESTONE AGGREGATE AND INITIAL BACKFILL MATERIAL SHALL BE #8 OR #9 CRUSHED LIMESTONE AGGREGATE 6" TO 12" ABOVE THE TOP OF THE PIPE.
3. FINAL BACKFILL MATERIAL SHALL BE ODOT 304 CRUSHED LIMESTONE AGGREGATE TO PAVEMENT SUBGRADE.
4. ASPHALT BASE SHALL BE ODOT ITEM 301 AND ITS THICKNESS SHALL MATCH EX. BASE WITH A MIN. OF 6 IN.
5. ASPHALT SURFACE COARSE SHALL BE ODOT ITEM 448 P.G 64-22 AND ITS THICKNESS SHALL MATCH EX. ASPHALT SURFACE COARSE.
6. ALL JOINTS SHALL BE FILLED WITH HOT APPLIED JOINT SEALER IN ACCORDANCE WITH ODOT ITEM 409.02.
7. STEEL PLATES MUST BE ON-SITE AT ALL TIMES AND SHALL BE ADEQUATE SIZE AND THICKNESS TO SPAN THE OPEN TRENCH. IF PLATES ARE TO BE LEFT OVER NIGHT, ALL EDGES SHALL BE TEMPORARILY RAMPED WITH BITUMINOUS ASPHALT MATERIAL.

STORM & SANITARY SEWER WITHIN PAVEMENT TRENCH DETAIL

N.T.S.

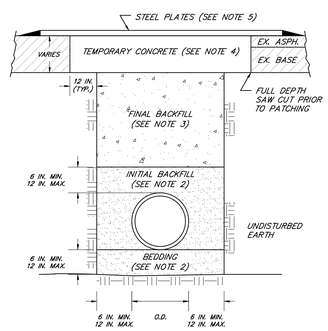


NOTES:

1. THIS DETAIL SHALL BE USED FOR ALL STORM SEWER AND SANITARY SEWER WITHIN PAVEMENT AND WHERE THE TRENCH IS LOCATED OUTSIDE THE 1:1 INFLUENCE LINE OF THE EDGE OF PAVEMENT OR ANY PERMANENT STRUCTURE.
2. BEDDING MATERIAL SHALL BE #8 TO #57 CRUSHED LIMESTONE AGGREGATE AND INITIAL BACKFILL MATERIAL SHALL BE #8 OR #9 CRUSHED LIMESTONE AGGREGATE 6" TO 12" ABOVE THE TOP OF THE PIPE.
3. FINAL BACKFILL MATERIAL SHALL BE SOIL COMPACTED TO 98% MAXIMUM DRY DENSITY.

STORM & SANITARY SEWER OUTSIDE PAVEMENT TRENCH DETAIL

N.T.S.

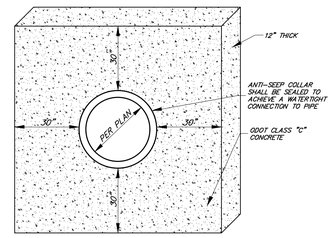


NOTES:

1. THIS DETAIL SHALL BE USED FOR TEMPORARY RESTORATION FOR ALL STORM SEWER AND SANITARY SEWER WITHIN PAVEMENT AND WHERE THE TRENCH SHALL BE WITHIN THE 1:1 INFLUENCE LINE OF THE EDGE OF PAVEMENT OR ANY PERMANENT STRUCTURE WHEN HOT MIX ASPHALT IS NOT AVAILABLE.
2. BEDDING MATERIAL SHALL BE #8 TO #57 CRUSHED LIMESTONE AGGREGATE AND INITIAL BACKFILL MATERIAL SHALL BE #8 OR #9 CRUSHED LIMESTONE AGGREGATE 6" TO 12" ABOVE THE TOP OF THE PIPE.
3. FINAL BACKFILL MATERIAL SHALL BE ODOT 617 LOW STRENGTH MORTAR TO PAVEMENT SUBGRADE.
4. TEMPORARILY INSTALL CLASS C CONCRETE TO A THICKNESS TO MATCH THE EXISTING PAVEMENT THICKNESS, MINIMUM THICKNESS SHALL BE 3".
5. STEEL PLATES MUST BE ON-SITE AT ALL TIMES AND SHALL BE ADEQUATE SIZE AND THICKNESS TO SPAN THE OPEN TRENCH. IF PLATES ARE TO BE LEFT OVER NIGHT, ALL EDGES SHALL BE TEMPORARILY RAMPED WITH BITUMINOUS ASPHALT MATERIAL.

TEMPORARY STORM & SANITARY SEWER WITHIN PAVEMENT TRENCH DETAIL

N.T.S.

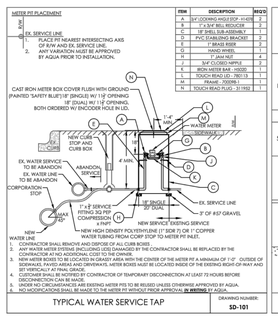


NOTES:

1. ANTI-SEEP COLLAR SHALL BE OF ADEQUATE SIZE TO PREVENT STORMWATER FROM TRAVELING THROUGH THE PIPE TRENCH MATERIAL.
2. CONCRETE MATERIALS SHALL BE PER OHIO DEPARTMENT OF TRANSPORTATION REQUIREMENTS.

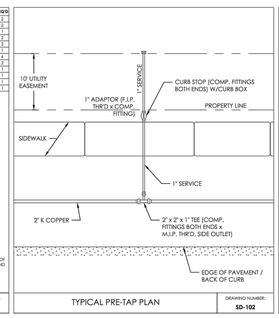
ANTI-SEEP COLLAR DETAIL

N.T.S.



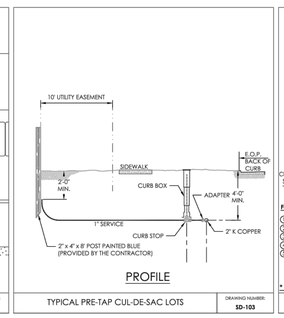
TYPICAL WATER SERVICE TAP

DRAWING NUMBER: SD-101



TYPICAL PRE-TAP PLAN

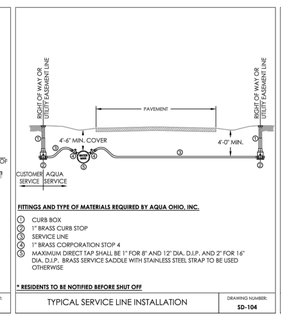
DRAWING NUMBER: SD-102



PROFILE

TYPICAL PRE-TAP CUL-DE-SAC LOTS

DRAWING NUMBER: SD-103



FITTINGS AND TYPE OF MATERIALS REQUIRED BY AQUA OHIO, INC.

1. CURB BOX
2. 1" BRASS CURB STOP
3. SERVICE LINE
4. 1" BRASS CORPORATION STOP 4
5. MAXIMUM DIRECT TAP SHALL BE 1" FOR 8" AND 12" DIA. D.I.P. AND 2" FOR 16" DIA. D.I.P. BRASS SERVICE SADDLE WITH STAINLESS STEEL STRAP TO BE USED OTHERWISE

* RESIDENTS TO BE NOTIFIED BEFORE SHUT OFF

TYPICAL SERVICE LINE INSTALLATION

DRAWING NUMBER: SD-104

- FIELD-LOK GASKETS OR OTHER APPROVED PIPE RESTRAINT SYSTEMS WILL BE USED TO RESTRAIN PIPE, OR WITH PRIOR APPROVAL BY AQUA FOR THE FOLLOWING SITUATIONS:
  1. FOR VERTICAL BENDS IN LIEU OF DEAD-MAN CONCRETE RESTRAINT
  2. FOR VERTICAL AND HORIZONTAL BENDS INSTALLED IN POOR SOIL CONDITIONS
  3. FOR HYDRANTS OR BENDS WITH SLOPING GROUND BEHIND THE POINT OF THRUST

NOTE: MEG-A-LUGS OR APPROVED EQUAL SHALL BE USED TO RESTRAIN FITTINGS AND VALVES

- THRUST BLOCKS WILL NORMALLY BE USED FOR ALL HORIZONTAL BENDS. THE CONTRACTOR WILL GET WRITTEN PRIOR APPROVAL FROM AQUA TO SUBSTITUTE A RESTRAINT SYSTEM IN LIEU OF THRUST BLOCKING FOR HORIZONTAL BENDS.
- CONTRACTOR WILL SUPPLY ALL FIELD-LOK GASKETS

LINEAR FEET OF MECHANICAL PIPE RESTRAINT REQUIRED (EITHER SIDE OF FITTING)

PIPE DIA. (IN.)	DEAD END	90°	45°	22.5°	11.25°	VERT. UP	VERT. DOWN	TEE BRANCH
4	36	16	8	0	0	4	16	18
6	60	28	13	0	0	10	24	35
8	108	54	18	0	0	18	36	90
12	162	90	36	18	0	36	72	144
16	214	118	49	23	12	12	21	200
24	304	165	68	33	16	16	30	289

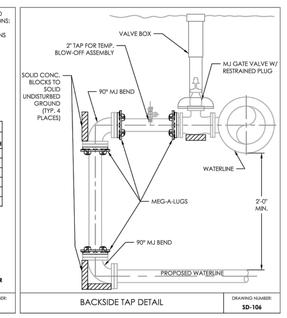
CONSTRUCTION CRITERIA:

1. FOR WORKING AND/OR TEST PRESSURES< 150 PSI.
2. TYPE 2 TRENCH WITH MINIMUM OF 4.0 FT. OF COVER
3. POLYWRAPPED PIPE
4. 18 FT. PIPE LENGTHS
5. FITTINGS RESTRAINED WITH MEG-A-LUGS OR APPROVED EQUAL

NOTE: IF FIELD CONDITIONS DO NOT CONFORM TO THE NOTED CONSTRUCTION CRITERIA, THE CONTRACTOR SHALL GET WRITTEN APPROVAL FROM AQUA FOR THE NUMBER OF RESTRAINED JOINTS.

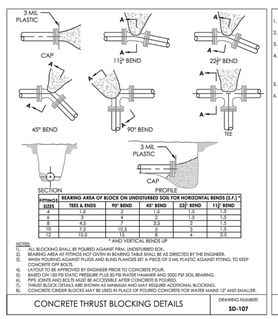
THRUST RESTRAINT WITH FIELD-LOK GASKETS

DRAWING NUMBER: SD-105



BACKSIDE TAP DETAIL

DRAWING NUMBER: SD-106



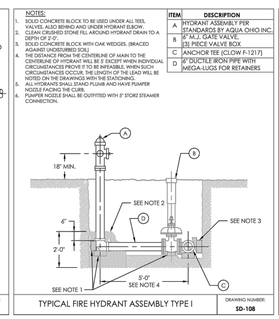
NOTES:
1) ALL BLOCKING SHALL BE POURED AGAINST FIRM, UNDISTURBED SOIL.
2) BEARING AREA AT FITTINGS NOT GIVEN IN BEARING TABLE SHALL BE AS DIRECTED BY THE ENGINEER.
3) WHEN POURING AGAINST PLUGS AND BLIND FLANGES SET A PIECE OF 3 MIL PLASTIC AGAINST FITTING, TO KEEP CONCRETE FROM BONDING.
4) LAYOUT TO BE APPROVED BY ENGINEER PRIOR TO CONCRETE POUR.
5) BASED ON 150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER AND 2000 PSF SOIL BEARING.
6) PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE AFTER CONCRETE IS POURED.
7) THRUST BLOCK DETAILS ARE SHOWN AS MINIMUM AND MAY REQUIRE ADDITIONAL BLOCKING.
8) CONCRETE CINDER BLOCKS MAY BE USED IN PLACE OF POURED CONCRETE FOR WATER MAINS 12" AND SMALLER.

CONCRETE THRUST BLOCKING DETAILS

DRAWING NUMBER: SD-107

NOTES:
1. SOLID CONCRETE BLOCK TO BE USED UNDER ALL TEES, VALVES, ALSO BEHIND AND UNDER HYDRANT ELBOW.
2. CLEAN CRUSHED STONE FILL AROUND HYDRANT DRAIN TO A DEPTH OF 6".
3. SOLID CONCRETE BLOCK WITH OAK WEDGES. (BRACED AGAINST UNDISTURBED SOIL)
4. THE DISTANCE FROM THE CENTERLINE OF MAIN TO THE CENTERLINE OF HYDRANT WILL BE 5' EXCEPT WHEN INDIVIDUAL CIRCUMSTANCES OCCUR. THE LENGTH OF THE LEAD WILL BE NOTED ON THE DRAWINGS WITH THE STATIONING.
5. ALL HYDRANTS SHALL STAND PLUMB AND HAVE PUMPER NOZZLE FACING THE CURB.
6. PUMPER NOZZLE SHALL BE OUTFITTED WITH 5" STORZ STREAMER CONNECTION.

ITEM	DESCRIPTION
A	HYDRANT ASSEMBLY PER STANDARDS BY AQUA OHIO INC.
B	6" M.J. GATE VALVE. (3) PIECE VALVE BOX
C	ANCHOR TEE (CLOW F-1217)
D	6" DUCTILE IRON PIPE WITH MEGA-LUGS FOR RETAINERS

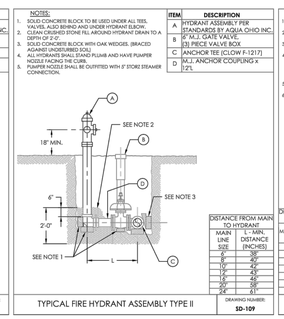


TYPICAL FIRE HYDRANT ASSEMBLY TYPE I

DRAWING NUMBER: SD-108

NOTES:
1. SOLID CONCRETE BLOCK TO BE USED UNDER ALL TEES, VALVES, ALSO BEHIND AND UNDER HYDRANT ELBOW.
2. CLEAN CRUSHED STONE FILL AROUND HYDRANT DRAIN TO A DEPTH OF 6".
3. SOLID CONCRETE BLOCK WITH OAK WEDGES. (BRACED AGAINST UNDISTURBED SOIL)
4. ALL HYDRANTS SHALL STAND PLUMB AND HAVE PUMPER NOZZLE FACING THE CURB.
5. PUMPER NOZZLE SHALL BE OUTFITTED WITH 5" STORZ STREAMER CONNECTION.

ITEM	DESCRIPTION
A	HYDRANT ASSEMBLY PER STANDARDS BY AQUA OHIO INC.
B	6" M.J. GATE VALVE. (3) PIECE VALVE BOX
C	ANCHOR TEE (CLOW F-1217)
D	M.J. ANCHOR COUPLING x 12"L



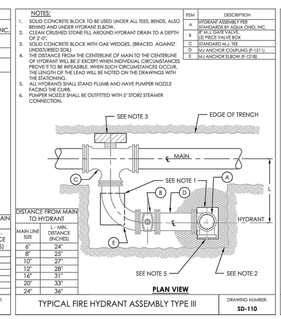
DISTANCE FROM MAIN TO HYDRANT	
MAIN LINE SIZE	L - MIN. DISTANCE (INCHES)
6"	24"
8"	25"
10"	27"
12"	28"
16"	31"
20"	33"
24"	36"

TYPICAL FIRE HYDRANT ASSEMBLY TYPE II

DRAWING NUMBER: SD-109

NOTES:
1. SOLID CONCRETE BLOCK TO BE USED UNDER ALL TEES, VALVES, ALSO BEHIND AND UNDER HYDRANT ELBOW.
2. CLEAN CRUSHED STONE FILL AROUND HYDRANT DRAIN TO A DEPTH OF 6".
3. SOLID CONCRETE BLOCK WITH OAK WEDGES. (BRACED AGAINST UNDISTURBED SOIL)
4. THE DISTANCE FROM THE CENTERLINE OF MAIN TO THE CENTERLINE OF HYDRANT WILL BE 5' EXCEPT WHEN INDIVIDUAL CIRCUMSTANCES OCCUR. THE LENGTH OF THE LEAD WILL BE NOTED ON THE DRAWINGS WITH THE STATIONING.
5. ALL HYDRANTS SHALL STAND PLUMB AND HAVE PUMPER NOZZLE FACING THE CURB.
6. PUMPER NOZZLE SHALL BE OUTFITTED WITH 5" STORZ STREAMER CONNECTION.

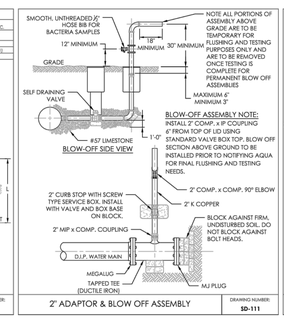
ITEM	DESCRIPTION
A	HYDRANT ASSEMBLY PER STANDARDS BY AQUA OHIO, INC.
B	(3) PIECE VALVE BOX
C	STANDARD M.J. TEE
D	M.J. ANCHOR COUPLING (F-1213)
E	M.J. ANCHOR ELBOW (F-1218)



DISTANCE FROM MAIN TO HYDRANT	
MAIN LINE SIZE	L - MIN. DISTANCE (INCHES)
6"	24"
8"	25"
10"	27"
12"	28"
16"	31"
20"	33"
24"	36"

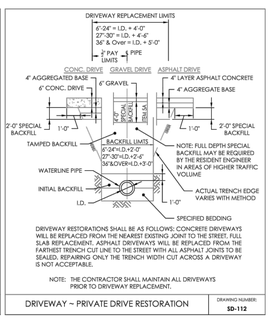
TYPICAL FIRE HYDRANT ASSEMBLY TYPE III

DRAWING NUMBER: SD-110



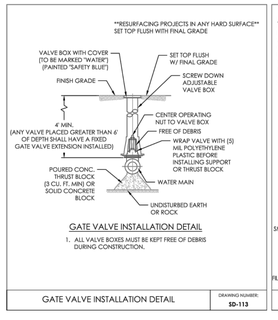
2" ADAPTOR & BLOW OFF ASSEMBLY

DRAWING NUMBER: SD-111



DRIVEWAY ~ PRIVATE DRIVE RESTORATION

DRAWING NUMBER: SD-112



GATE VALVE INSTALLATION DETAIL

1. ALL VALVE BOXES MUST BE KEPT FREE OF DEBRIS DURING CONSTRUCTION.

GATE VALVE INSTALLATION DETAIL

DRAWING NUMBER: SD-113

~PIPE CROSSING DATA SHEET~

PIPE DATA	CARRIER PIPE	CASING PIPE
MATERIAL	DUCTILE IRON	STEEL
PROCESS OF MANUFACTURE	SPIN CAST	ELECTRIC
WELD SPECIFICATION	ANSI/AC21.51	ASTM A53
GRADE OF CLASS	SEE SPEC.	GRADE B TEST
PRESSURE	SEE SPEC.	35,000 PSI, YIELD
TYPE OF JOINT	PUSH ON FIELD LOK RUBBER GASKET	WELDED
TYPE OF COATING	ASPHALTIC PRIMER	NONE
CATHODIC PROTECTION	NONE	NONE
SEAL AT END OF CASING	N/A	MOLDED SYN. RUBBER END SEAL
METHOD OF INSTALLATION	PUSH ON SKIDS	JACK AND BORE

CASING PIPE SIZING

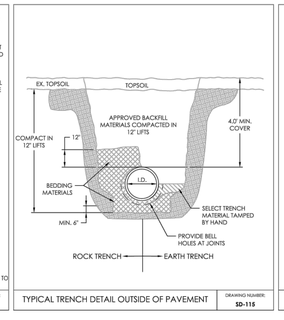
WATER MAIN SIZE	NOMINAL SIZE OF CASING PIPE	OUTSIDE DIAMETER	INSIDE DIAMETER	WALL THICKNESS (MIN.)	WEIGHT PER FOOT
6"	16"	16.000	15.250	0.375	62.64
8"	18"	18.000	17.250	0.375	70.65
12"	24"	24.000	23.000	0.500	125.61
16"	30"	30.000	29.000	0.500	157.68
20"	36"	36.000	35.000	0.500	189.75
24"	42"	42.000	41.000	0.500	221.82
30"	48"	48.000	47.000	0.500	253.89
36"	54"	54.000	53.000	0.500	285.96
42"	60"	60.000	59.000	0.500	318.03

SMITH-BLAIR CASING SPACERS @ 1/3 POINTS EACH PIPE LENGTH (2 PER LENGTH) (NOTE: AS AN ALTERNATIVE, P.S.I. OR CALICADE CASING SPACERS MAY BE USED)
STEEL CASING
D.I.P. WATER LINE POLYWRAPPED

FILL CASING PIPE WITH SAND AFTER CARRIER PIPE IS IN PLACE. ENDS TO BE CLOSED OFF SUFFICIENTLY TO RETAIN THE SAND. FIELD-LOK GASKETS TO BE USED AT ALL PIPE JOINTS WITHIN CASING PIPE.

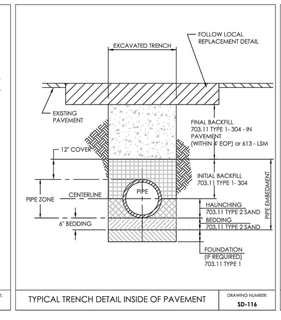
CASING PIPE DETAIL

DRAWING NUMBER: SD-114



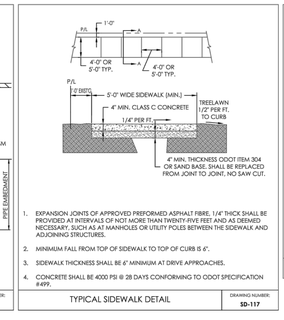
TYPICAL TRENCH DETAIL OUTSIDE OF PAVEMENT

DRAWING NUMBER: SD-115



TYPICAL TRENCH DETAIL INSIDE OF PAVEMENT

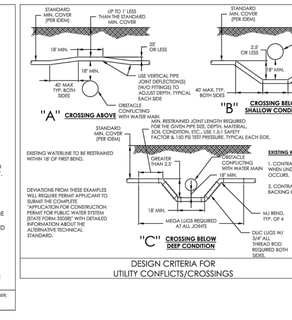
DRAWING NUMBER: SD-116



1. EXPANSION JOINTS OF APPROVED PREFORMED ASPHALT FIBRE. 1/4" THICK SHALL BE PROVIDED AT INTERVALS OF NOT MORE THAN TWENTY-FIVE FEET AND AS DEEMED NECESSARY, SUCH AS AT MANHOLES OR UTILITY POLES BETWEEN THE SIDEWALK AND ADJOINING STRUCTURES.
2. MINIMUM FALL FROM TOP OF SIDEWALK TO TOP OF CURB IS 6".
3. SIDEWALK THICKNESS SHALL BE 6" MINIMUM AT DRIVE APPROACHES.
4. CONCRETE SHALL BE 4000 PSI @ 28 DAYS CONFORMING TO ODOT SPECIFICATION #499.

TYPICAL SIDEWALK DETAIL

DRAWING NUMBER: SD-117



DESIGN CRITERIA FOR UTILITY CONFLICTS/CROSSINGS

DRAWING NUMBER: SD-118

DESIGNED:	J. ZEIGLER	DATE:	OCTOBER, 2016
DRAWN:	J. ZEIGLER	DATE:	OCTOBER, 2016

N.T.S

AQUA

PREPARED BY:
SERVICE CENTER - ENGINEERING DEPT.
6650 SOUTH AVE., BOARDMAN OHIO 44512

TYPICAL WATER LINE DETAILS
AQUA OHIO, INC.

7
9

– PLAN PREPARED BY –
LEWS LAND PROFESSIONALS INC.
LEWIS LAND PROFESSIONALS
CIVIL ENGINEERING LAND SURVEYING
8691 WADSWORTH ROAD SUITE 100
WADSWORTH, OH 44281 (330) 335-8232

OHIO811.org Before You Dig

22-071 UTILITY DETAILS.DWG

PROJECT NO 2203-1

ARCHITECTURAL VISION GROUP, LTD
ARCHITECTS • PLANNERS
23850 SPERRY DRIVE CLEVELAND, OHIO 44145

PROFESSIONAL SEAL:

CONSULTANT:
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Civil Engineering & Land Surveying
8691 WADSWORTH ROAD
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FX (330) 335-0242
WWW.LANDPROSINC.COM

MASSILON CITY SCHOOL
WEST SIDE CAMPUS
250 29th St NW, Massillon, OH 44647

MARK	DESCRIPTION	DATE
	PLAN REVIEW & ESP SUBMISSION	03-30-23

ISSUED AS: ADDENDUM, SPECIFICATIONS

PROJECT NO	2203-1
DRAWN BY	
CHECKED BY	
DATE	09