

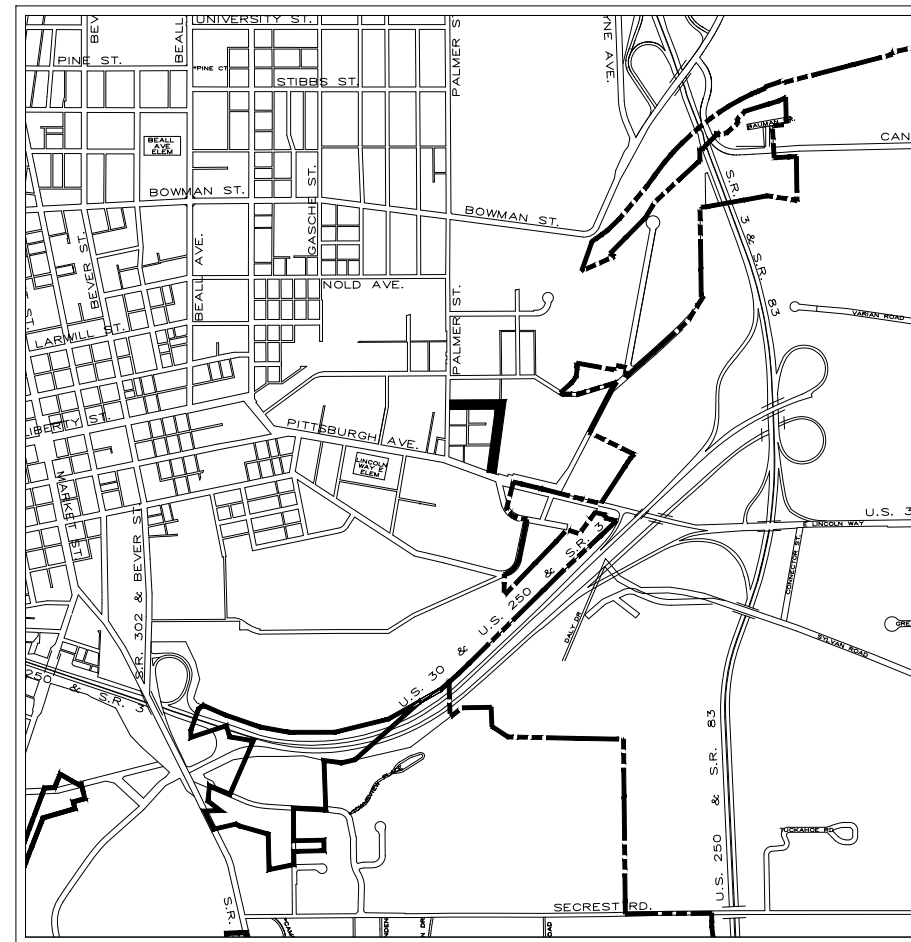
# BILLIAR STREET & BILLIAR ALLEY WATERLINE REPLACEMENT

CITY OF WOOSTER, OHIO  
2024

INDEX OF SHEETS

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ESTIMATED CONSTRUCTION COST = \$300,000



LOCATION MAP



PROJECT LOCATION



SPECIFICATIONS

THE 2023 CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS, AND THE CITY OF WOOSTER ENGINEERING CONSTRUCTION STANDARDS SHALL GOVERN THIS IMPROVEMENT.

DESIGNED John Rice  
JOHN RICE, CITY ENGINEER  
DATE APRIL 8, 2024



PLAN PREPARED BY  
CITY OF WOOSTER  
DIVISION OF ENGINEERING  
538 N. MARKET ST. WOOSTER, OHIO 44691  
PH: (330) 263-5251 FAX: (330) 263-5283



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# GENERAL NOTES

1. UTILITY COMPANIES SHALL BE NOTIFIED PRIOR TO THE START OF CONSTRUCTION SO THAT EACH CAN LOCATE AND/OR PROTECT THEIR UTILITIES. UTILITY COMPANIES FOR THE PROJECT AREA ARE AS FOLLOWS:

ELECTRIC:	AEP OHIO 3755 LONG RD. WOOSTER, OHIO 44691 (330) 202-3078	AEP OHIO 301 CLEVELAND AVE. P.O. BOX 24400 CANTON, OHIO 44701 (330) 438-7061
COMMUNICATIONS:	BRIGHTSPEED 2025 AKRON ROAD WOOSTER, OHIO 44691 (330) 262-1128	OMNI FIBER 4680 PARKWAY DRIVE, SUITE 450 MASON, OHIO 45040 1-844-844-6664
	MCTV 444 WEST MILLTOWN ROAD WOOSTER, OHIO 44691 (330) 345-8114	ZAYO GROUP 1 W. FEDERAL STREET, SUITE 1304 YOUNGSTOWN, OHIO 44503 (330) 237-4987
NATURAL GAS:	ENBRIDGE GAS OHIO 1049 HEYL ROAD WOOSTER, OHIO 44691 (330) 262-4801	ENBRIDGE GAS OHIO 320 SPRINGSIDE DRIVE, SUITE 320 AKRON, OHIO 44333 (330) 664-2409
WATER AND SEWER:	CITY OF WOOSTER 538 NORTH MARKET ST. WOOSTER, OHIO 44691 (330) 263-5200	

- ALL WORK AND MATERIALS FURNISHED SHALL BE IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, THE MOST CURRENT EDITION OF THE "STATE OF OHIO DEPARTMENT OF TRANSPORTATION MATERIALS AND SPECIFICATIONS", THE "CITY OF WOOSTER ENGINEERING CONSTRUCTION STANDARDS", SHALL MEET AASHTO M306 STANDARDS AND SHALL BE MANUFACTURED IN THE USA.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF WOOSTER ENGINEERING DIVISION AT LEAST 48 HOURS IN ADVANCE (TWO WORKING DAYS) OF INITIATION OR STOPPAGE OF WORK. THE ENGINEERING DIVISION WILL BE RESPONSIBLE FOR NOTIFYING PROPERTY OWNERS OF CONSTRUCTION OPERATIONS.
- WORK UNDER THIS CONTRACT SHALL BE LIMITED TO PUBLIC RIGHT-OF-WAY AND EASEMENTS OBTAINED BY THE OWNER AS SHOWN ON THE DRAWINGS. ANY ADDITIONAL CONSTRUCTION EASEMENTS REQUIRED FOR COMPLETION OF WORK UNDER THIS CONTRACT SHALL BE OBTAINED BY THE CONTRACTOR, WHOM SHALL PROVIDE A COPY TO THE CITY.
- THE CONTRACTOR SHALL NOT CUT DOWN, DISTURB OR DAMAGE ANY TREES NOT DESIGNATED FOR REMOVAL DURING THE PROSECUTION OF WORK UNDER THIS CONTRACT. ANY TREES TO REMAIN WHICH DIE WITHIN ONE YEAR OF FINAL ACCEPTANCE OF AND AS A RESULT OF WORK UNDER THIS CONTRACT SHALL BE TOTALLY REMOVED AND REPLACED WITH A 10 FOOT HIGH TREE OF THE SAME TYPE AS THAT BEING REMOVED. THE REPLACEMENT TREE SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF PLANTING.
- WHERE IT IS NECESSARY TO DISTURB LAWNS, DRIVEWAYS, LANDSCAPING, FENCES, SHRUBS, SIGNS, MAILBOXES, ETC., IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RESTORE THE AREA TO A CONDITION AT LEAST AS GOOD AS IT WAS PRIOR TO THE ONSET OF CONSTRUCTION. ROAD SIGNS SHALL BE REMOVED AND REPLACED PER TYPICAL DETAIL WITH NEW HARDWARE SUPPLIED BY THE CITY. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE ITEM(S) NECESSITATING THIS WORK.
- MOBILIZATION AND CONTRACT BOND COSTS SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR AND NO DIRECT PAYMENT OF SUCH COSTS WILL BE MADE UNLESS THESE ARE SEPARATE BID ITEMS IN THE CONTRACT.
- LININGS OF ALL UTILITY PIPING AND STRUCTURES SHALL BE KEPT CLEAN AND FREE OF DEBRIS PRIOR TO AND DURING INSTALLATIONS. THE CONTRACTOR SHALL PROTECT FLOW LINES AND STRUCTURES FROM DEBRIS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL FINAL APPROVAL IS GRANTED BY THE CITY OF WOOSTER ENGINEERING DIVISION.
- THE COST FOR REMOVAL OF EXISTING PIPE REQUIRED FOR INSTALLATION OF PROPOSED PIPING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE OF PIPE BEING INSTALLED. PIPE REMOVED SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ODOT ITEM 202.
- THE BID ITEM FOR REMOVAL OF EXISTING VALVE BOX SHALL INCLUDE: CLOSING THE VALVE, REMOVING THE VALVE BOX 3' BELOW GRADE, SURFACE RESTORATION, SAW CUTTING, PAVEMENT REPAIR, 411 GRANULAR BACKFILL AND ANY INCIDENTALS NECESSARY TO COMPLETE THE ITEM. THE UNIT COST FOR REMOVAL OF EXISTING VALVE BOX SHALL INCLUDE ALL THE REFERENCED ITEMS.
- IN ORDER TO MINIMIZE ADVERSE CONSTRUCTION NOISE IMPACTS, NO POWER OPERATED CONSTRUCTION TYPE DEVICE SHALL BE OPERATED BETWEEN THE HOURS OF 7:00 P.M. TO 7:00 A.M. IN ADDITION, NO POWER-OPERATED CONSTRUCTION TYPE DEVICE SHALL BE OPERATED IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY REQUIRED FOR THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.
- ALL PROPERTY PINS OR MONUMENTS WHICH ARE REMOVED OR DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN THE SAME LOCATION THEY OCCUPIED PRIOR TO CONSTRUCTION. THE COST OF REPLACING PROPERTY PINS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE ITEM(S) NECESSITATING THIS WORK. THIS WORK SHALL BE COMPLETED BY A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF OHIO.
- THE CONTRACTOR SHALL PERFORM THE WORK WITHIN A MOVABLE CONSTRUCTION ZONE, CLOSING THE ROAD WITHIN THE ZONE BUT MAINTAINING ACCESS FOR RESIDENTS AND EMERGENCY VEHICLES. ALL BARRICADING MUST BE PRE-APPROVED BY THE CITY AND SHALL BE IN ACCORDANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND SHALL BE PLACED PER THE MAINTENANCE OF TRAFFIC DETAIL SHEET. THE COST FOR ALL NECESSARY EQUIPMENT, PERSONNEL AND ANY INCIDENTALS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR MAINTAINING TRAFFIC.
- THE CITY OF WOOSTER WILL PROVIDE CONSTRUCTION STAKING. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO (2) WORKING DAY'S NOTICE TO THE ENGINEER OR INSPECTOR PRIOR TO THE DESIRED DATE(S) OF STAKES BEING SET. THE CITY WILL PROVIDE STAKING AS FOLLOWS:  
**WATERLINES:** EVERY 100 FEET ALONG THE WATER MAIN AND AT ALL BENDS, DEFLECTION POINTS, HYDRANTS, TEES, AND VALVES.  
**SEWERS:** AT EACH STRUCTURE WITH A SINGLE OFFSET POINT.  
**PAVEMENT/CURB:** ON BOTH SIDES OF THE STREET EVERY 50 FEET ON TANGENTS, EVERY 25 FEET WITHIN HORIZONTAL AND VERTICAL CURVES, AT THE BEGINNING AND END OF EACH HORIZONTAL AND VERTICAL CURVE, AND AT THE CENTER, BEGINNING, END, AND MIDPOINT OF EACH INTERSECTION RADII.  
ADDITIONAL STAKING THAT IS REQUESTED BY THE CONTRACTOR OR STAKES THAT HAVE BEEN SET AND ARE SUBSEQUENTLY REMOVED OR OTHERWISE DISTURBED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DUST, DIRT AND MUD DUE TO CONSTRUCTION IN THE PROJECT AREA DURING THE LIFE OF THE PROJECT. DUST CONTROL OPERATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT THE TIME, LOCATION AND IN THE AMOUNT ORDERED BY THE CITY, AND SHALL BE IN ACCORDANCE WITH ITEM 616 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE COST FOR THESE OPERATIONS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE ITEM(S) NECESSITATING THIS WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSPORTING AND DISPOSING OF ANY EXCESS EXCAVATED MATERIAL. THE MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH OHIO REVISED CODE CHAPTER 3714 AND/OR ALL OTHER FEDERAL, STATE, AND LOCAL RULES AND REGULATIONS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE ITEM(S) NECESSITATING THIS WORK.
- NOT ALL GAS SERVICE LINES, WATER SERVICE LINES, AND/OR SANITARY SEWER LATERALS ARE SHOWN ON THE DRAWINGS, AND IF SHOWN, ARE ONLY APPROXIMATE. CONTRACTOR SHOULD ASSUME A GAS SERVICE AND SANITARY LATERAL FOR EVERY EXISTING STRUCTURE. GAS SERVICES, WATER SERVICES, AND SANITARY LATERALS WILL BE LOCATED BY THE GAS COMPANY AND CITY AT THE TIME OF CONSTRUCTION. ANY DAMAGES TO THESE LINES SHALL BE REPAIRED AND THAT COST SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE OF PIPE.

- WHEREVER IN THE CONTRACT DOCUMENTS REFERENCE IS MADE TO THE CONSTRUCTION AND MATERIAL SPECIFICATION OF THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CURRENT EDITION, THE PROVISIONS OF THE REFERENCED ITEM SHALL HAVE THE FULL FORCE AND EFFECT AS IF REPRODUCED HEREIN IN THEIR ENTIRETY. HOWEVER, THE METHOD OF MEASUREMENT, BASIS OF PAYMENT AND PAY ITEMS SHALL BE AS DIRECTED IN THE MATERIAL SPECIFICATIONS OR BID PROPOSAL FORMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THEIR OWN COPY OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. WHERE THE CITY SPECIFICATIONS ARE IN CONFLICT WITH THOSE OF ODOT, THE CITY'S SHALL GOVERN.
- THE CONTRACTOR SHALL SUBMIT A TENTATIVE SCHEDULE OF THE VARIOUS PHASES OF THE WORK TO THE CITY ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. SAID SCHEDULE SHALL BE BROUGHT UP TO DATE WEEKLY.
- WHERE GROUND COVER IS DISTURBED DURING THE CONSTRUCTION, THE CONTRACTOR SHALL INSTALL ALL NECESSARY EROSION CONTROL AND DRAINAGE CONTROL DEVICES IN ACCORDANCE WITH REGULATIONS OF THE CITY OF WOOSTER, ODOT SUPPLEMENTAL SPECIFICATION 832 AND THE OHIO EPA. THESE DEVICES SHALL BE ROUTINELY MONITORED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL SATISFACTORY GROUND COVER HAS BEEN RE-ESTABLISHED. NO WORK SHALL BEGIN UNTIL ALL SUCH DEVICES ARE IN PLACE. COST OF AND PLACEMENT OF ANY NECESSARY EROSION CONTROL DEVICES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE ITEM(S) NECESSITATING THIS WORK.
- ALL CONCRETE AND ASPHALT DRIVEWAY APPROACHES THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AND SHALL MATCH EXISTING DRIVE APPROACH DIMENSIONS. CONCRETE DRIVE APPROACHES SHALL BE REPLACED FROM THE STREET TO THE NEAREST JOINT PAST THE TRENCH AND SHALL BE A MINIMUM OF 6" THICK OR AS SHOWN ON THE DRAWINGS. COST FOR ASPHALT PAVEMENT AND SURFACE RESTORATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE OF PIPE UNLESS SPECIFICALLY PAID FOR ELSEWHERE.
- LIMESTONE AGGREGATE SHALL BE USED IN ALL PORTLAND CEMENT CONCRETE PAVEMENT, CURBS, SIDEWALKS AND IN ASPHALT CONCRETE SURFACE PAVEMENT. RECLAIMED ASPHALT PAVEMENT IS PERMITTED IN THE INTERMEDIATE PAVEMENT AT A RATE NOT TO EXCEED 20% AND IN THE ASPHALT CONCRETE BASE AT A RATE ALLOWED BY THE OHIO DEPARTMENT OF TRANSPORTATION BUT NOT TO EXCEED 30%. RECLAIMED ASPHALT SHINGLES ARE NOT ALLOWED.
- ALL BACKFILL UNDER OR WITHIN 2' OF ROADS, DRIVES, PARKING LOTS, AND SIDEWALKS SHALL BE ODOT ITEM 411 GRANULAR BACKFILL. THE COST OF GRANULAR BACKFILL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE PIPE.
- THE CONTRACTOR SHALL MAINTAIN BACKFILLED TRENCHES IN A USABLE CONDITION. TRENCHES IN PAVED AREAS SHALL BE TEMPORARILY SURFACED WITH ASPHALT PER TEMPORARY PAVEMENT REPLACEMENT DETAILS IF PERMANENT PAVEMENT REPLACEMENT WILL NOT OCCUR WITHIN 5 DAYS. THE COST FOR TEMPORARY PAVEMENT SHALL BE INCLUDED IN THE PER UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE OF PIPE, UNLESS A SEPARATE BID ITEM IS INCLUDED FOR TEMPORARY PAVEMENT.
- WHERE THE PLANS PROVIDE FOR THE PROPOSED PIPE TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING PIPE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE LAYING THE PROPOSED PIPE. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE OF PIPE BEING INSTALLED.
- THE CONTRACTOR SHALL VIDEO THE ENTIRE WORK AREA PRIOR TO CONSTRUCTION. THE VIDEO SHALL BE A DIGITAL COLOR AUDIO-VIDEO CD FOR THE PURPOSE OF PROPER SURFACE RESTORATION OF THE FEATURES ALONG THE ENTIRE LENGTH OF THE PROJECT. ALL WORK AND STORAGE AREAS AND ALL ACCESS ROUTES AND ROADS SHALL ALSO BE VIDEOED. ONE COPY OF THE PRECONSTRUCTION VIDEO CD SHALL BE SUPPLIED TO THE CITY. THE DIGITAL VIDEO SHALL BE PROVIDED ON A CD OR DVD, AND SHALL BE COMPATIBLE WITH STANDARD WINDOWS MEDIA PLAYERS. THE CONSTRUCTION VIDEO SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR AND NO DIRECT PAYMENT OF SUCH COSTS WILL BE MADE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING PAVEMENT MARKINGS DAMAGED DURING CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE CITY OF WOOSTER.
- IF IT IS NECESSARY FOR ANY EXCAVATING TO BE DEWATERED, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO DEWATER SAID EXCAVATION AT NO ADDITIONAL COST TO THE CITY.
- THE COST FOR ROCK EXCAVATION IS INCLUDED WITH THE PERTINENT BID ITEM FOR WHICH IT IS REQUIRED, NO SEPARATE PAYMENT WILL BE MADE FOR ANY ROCK EXCAVATION IF THE CONTRACTOR WANTS ADDITIONAL INFORMATION, THEY SHOULD COORDINATE WITH THE OWNER FOR ANY BORINGS OR TEST PITS THEY INTEND TO COMPLETE.
- WHERE PAVEMENT REMOVAL IS REQUIRED, EITHER AS A BID ITEM OR AS WORK INCIDENTAL TO ANOTHER BID ITEM, ANY INFORMATION ON EXISTING PAVEMENT MATERIAL AND THICKNESS SHOWN ON THE PLANS REPRESENTS THE BEST INFORMATION AVAILABLE, BUT THE ACCURACY OF SUCH INFORMATION IS NOT GUARANTEED. THE CITY WILL NOT BE RESPONSIBLE FOR ANY COSTS DUE TO DIFFERING PAVEMENT MATERIAL AND/OR THICKNESS. IF THE CONTRACTOR WANTS ADDITIONAL INFORMATION, THEY SHOULD COORDINATE WITH THE OWNER FOR ANY PAVEMENT CORINGS THEY INTEND TO COMPLETE.
- NO CONSTRUCTION WORK MAY BE DONE OUTSIDE OF THE HOURS OF 7:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY, OR ON ANY CITY-RECOGNIZED HOLIDAY, WITHOUT THE APPROVAL OF THE CITY ENGINEERING DIVISION.

# WATERLINE NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY EXISTING DRAINAGE TILE OR PIPE DAMAGED DURING THE INSTALLATION OF PROPOSED PIPING INCLUDING BUT NOT LIMITED TO STORM, SANITARY OR GAS, INCLUDING ALL FITTINGS. FITTINGS FOR REPAIR OF STORM AND SANITARY PIPES SHALL BE 5000 SERIES STRONG BACK (RC) COUPLINGS BY FERROCO. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE AND TYPE WATER LINE.
- EXISTING WATER LINES TO BE REMOVED OR ABANDONED IN PLACE MUST BE MAINTAINED IN SERVICE UNTIL THE PROPOSED WATER LINE IS OPERATIONAL AND ALL EXISTING WATER SERVICES HAVE BEEN RECONNECTED TO THE PROPOSED WATER LINE. CONTRACTOR SHALL PROVIDE ALL TEMPORARY PIPING AND VALVES THAT MAY BE REQUIRED.
- EXISTING WATER LINES TO BE ABANDONED IN PLACE SHALL BE PLUGGED WITH AN MJ CAP OR PLUG, AS APPLICABLE. IF THE PIPE END TO BE PLUGGED IS NOT AT A JOINT, SUCH PIPE END SHALL BE SAW CUT TO PROVIDE A SMOOTH END PERPENDICULAR TO THE PIPE. COSTS FOR PLUGGING PIPE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE OF WATER PIPE.
- THE CONTRACTOR SHALL MAINTAIN A MINIMUM COVER OF 5' FOR ALL MAIN WATERLINES AND SERVICE LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL MATERIALS REQUIRED TO MAINTAIN THAT MINIMUM COVER DEPTH.
- IF THE CONTRACTOR CHOOSES TO INSTALL THE WATER SERVICE CONNECTIONS BY EITHER IMPACT MOUND OR PUSH ROD METHOD, THEY SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PAVEMENT, CURBING OR CURBS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE ALL THE TESTING AND DISINFECTION PROCEDURES CALLED FOR ON THE PLANS OR IN THE SPECIFICATIONS.
- ALL WATER SERVICE REPLACEMENTS/RECONNECTIONS SHALL BE COORDINATED WITH THE CITY AND THE SERVICE OWNER TO SCHEDULE SERVICE DISRUPTIONS. TRANSFER OF WATER SERVICES FROM EXISTING WATERLINES TO NEW WATERLINES SHALL BE COMPLETED AS QUICKLY AS POSSIBLE, WITH A MAXIMUM SERVICE DISRUPTION OF 2 HOURS PER SERVICE CONNECTION. ALL EXISTING SERVICE LINES SHALL BE CAPPED PRIOR TO ABANDONMENT.
- THE SYSTEM SHALL BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI AT GROUND LEVEL AT ALL POINTS IN THE DISTRIBUTION SYSTEM UNDER ALL CONDITIONS OF FLOW. THE NORMAL WORKING PRESSURE IN THE DISTRIBUTION SYSTEM SHALL BE AT LEAST 35 PSI.

# PROJECT NOTES

- PAVEMENT REPLACEMENT ON BILLIAR STREET AND BILLIAR ALLEY SHALL CONSIST OF 6" OF ASPHALT CONCRETE BASE WITH 2" OF ASPHALT SURFACE COURSE. PAVEMENT REPLACEMENT ON PITTSBURGH AVENUE AND PALMER STREET SHALL CONSIST OF 8" OF CLASS QC MS CONCRETE BASE WITH 2" OF ASPHALT SURFACE COURSE.
- THE 6" WATERLINE TO THE SOUTH AT THE PITTSBURGH AVENUE AND BILLIAR ALLEY INTERSECTION SERVES THE FIRE AND DOMESTIC WATER AT E-PAK. THE CONTRACTOR SHALL COORDINATE THE SHUTDOWN OF THIS WATERLINE AT LEAST TWO (2) WEEKS IN ADVANCE.
- THE CONTRACTOR IS MADE AWARE OF ANOTHER CITY-SPONSORED PROJECT IN THIS VICINITY, WHICH IS LINING THE SANITARY SEWERS ON BILLIAR ALLEY AND PITTSBURGH AVENUE. THE CONTRACTOR AND SCHEDULE FOR THAT PROJECT ARE TBD. COOPERATION BETWEEN CONTRACTORS IS REQUIRED PER ODOT CMS 105.08.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE AEP SOLUTION CENTER AT 1-800-277-2177 TO COORDINATE ANY POLE OR GUY HOLDS NECESSARY.

## ABBREVIATIONS

A.T.G.	ADJUST TO GRADE	N.I.S.	NOT IN SERVICE
℄	BASELINE	℄	PROPERTY LINE
B.M.	BENCH MARK	PLAST.	PLASTIC PIPE
B/P	BIKE PATH	PROP.	PROPOSED
C.I.	CAST IRON PIPE	PVC	POLYVINYL CHLORIDE PLASTIC PIPE
℄	CENTER LINE	RCF	REINFORCED CONCRETE PIPE
CONC.	CONCRETE	RES.	RESIDENCE
C.P.P.	CORRUGATED PLASTIC PIPE	RL	RIGHT
CMF	CORRUGATED METAL PIPE	R/W	RIGHT OF WAY
CSP	CURB STOP	SAN.	SANITARY
D.I.	DUCTILE IRON PIPE	S/W	SIDEWALK
EOP	EDGE OF PAVEMENT	STA.	STATION
EX., EXIST.	EXISTING	STM.	STORM
F.M.	FORCE MAIN	T.B.A.	TO BE ABANDONED
G/L	GAS LINE	T.B.R.	TO BE REMOVED
HYD.	FIRE HYDRANT	T.B.R.P.	TO BE REPLACED
INV.	INVERT	T.B.R.O.	TO BE RELOCATED BY OTHERS
LAT.	LATERAL	T.B.R.P.O.	TO BE REPLACED BY OTHERS
Lt.	LEFT	VT.	VITRIFIED CLAY PIPE
MH	MANHOLE	W/L	WATER LINE
M.J.	MECHANICAL JOINT	WV	WATER VALVE

## LEGEND

	EXISTING	PROPOSED
CONTOURS	— 1035 —	— 1035 —
GUY WIRE	←	←
HYD.	⊕	⊕
IRON PIN	● <sub>I.P.</sub>	○ <sub>I.P.</sub>
MAIL BOX	MB	
PAPER BOX	EBB	
POWER POLE	⊕	
SANITARY SEWER	---	---
SANITARY MANHOLE	⊙	⊙
STORM CATCH BASIN	⊞	⊞
STORM SEWER	⊞	⊞
STORM MANHOLE	⊙	⊙
TELEPHONE POLE	⊕	
TELEPHONE MANHOLE	⊙	⊙
TREES TO BE REMOVED	⊗	
VALVE	⊗	⊗
WATER LINES	---	---

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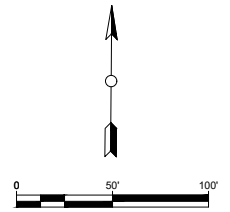
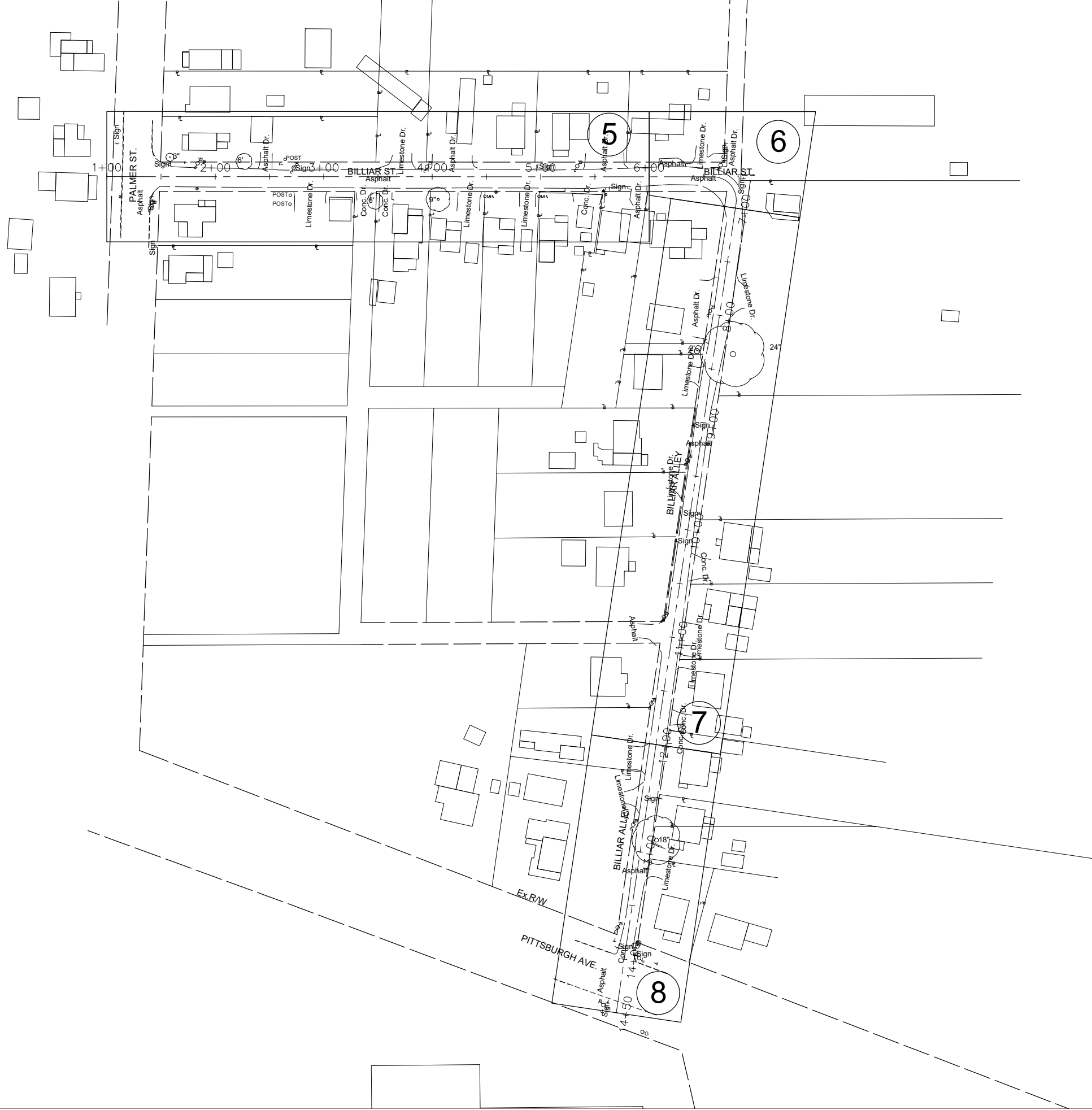
**BILLIAR STREET & BILLIAR ALLEY**  
**WATERLINE REPLACEMENT**  
**GENERAL NOTES, LEGEND, & ABBREVIATIONS**

DRWN BY: CHKO  
 APPROV BY: RVK  
 SLG: JAR  
 DATE: 06/23  
 SCALE: N/A

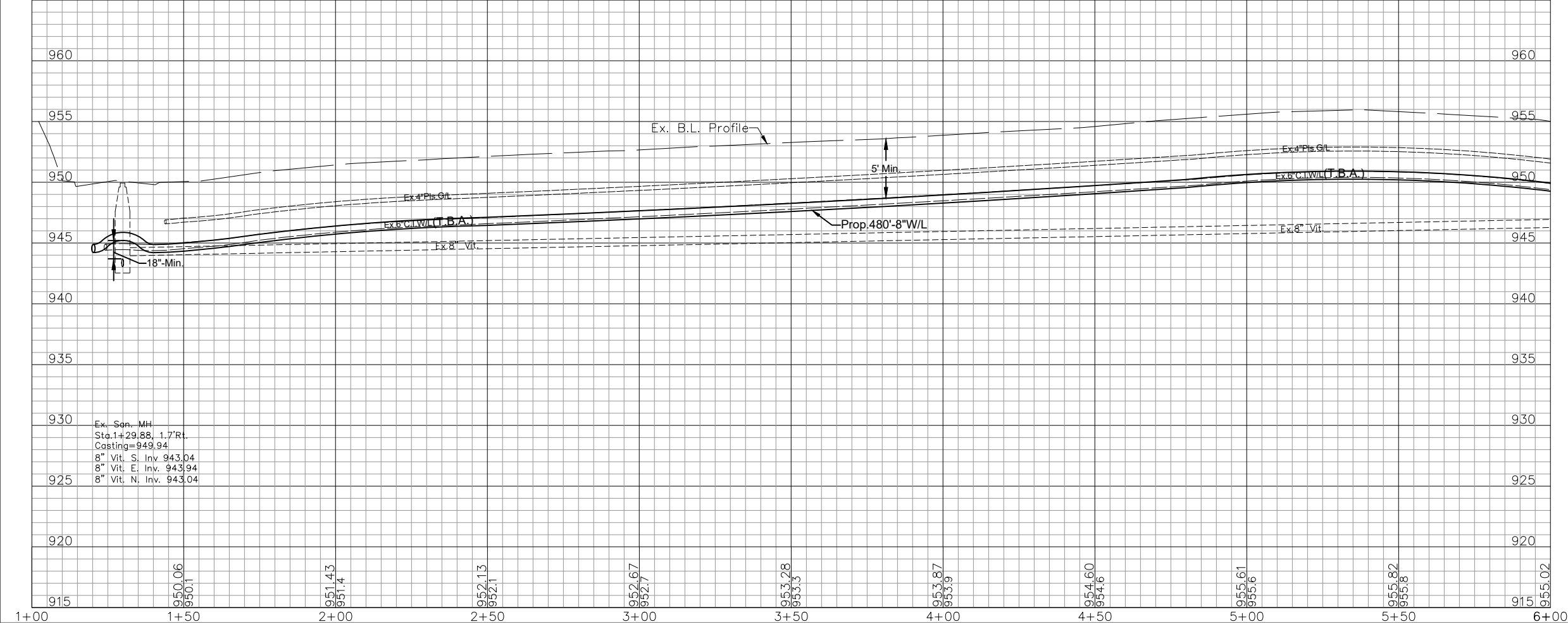
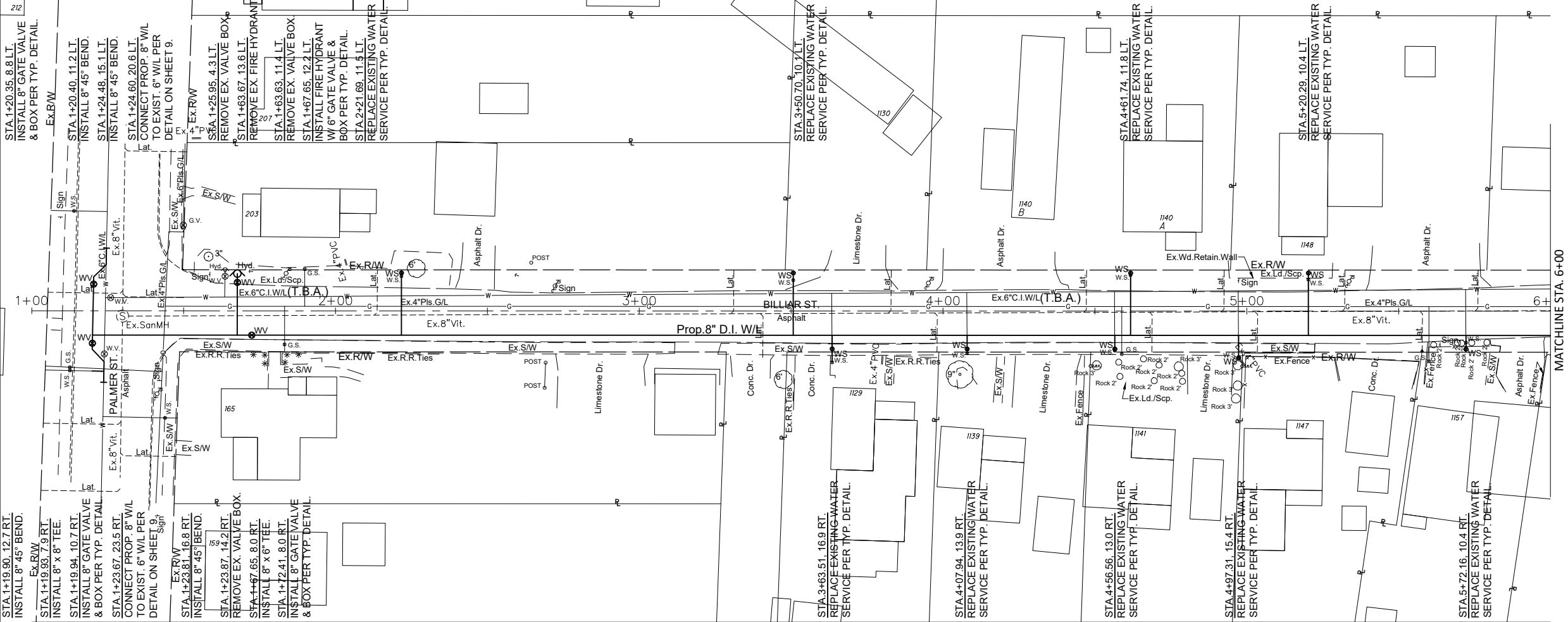
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 2 of 12

SHEET				OFFICE CALCS	BID ITEM	ODOT ITEM	QUANTITY	UNIT	DESCRIPTION
5	6	7	8						
9	2	11	4		1A	202	26	EACH	CURB BOX REMOVED
3	2		5		1B	202	10	EACH	VALVE BOX REMOVED
1	1		1		1C	202	3	EACH	FIRE HYDRANT REMOVED
20	12	12	32		2A	638	76	FT	6" CLASS 52 DUCTILE IRON WATER PIPE & FITTINGS
527	100	500	267		2B	638	1394	FT	8" CLASS 52 DUCTILE IRON WATER PIPE & FITTINGS
1	1	1	2		3A	638	5	EACH	6" GATE VALVE AND BOX
3	1	1	3		3B	638	8	EACH	8" GATE VALVE AND BOX
1	1	1	1		4	638	4	EACH	FIRE HYDRANT
126	31	130	52		5A	638	339	FT	1" COPPER WATER SERVICE LINE
9	2	11	4		5B	638	26	EACH	1" CORPORATION STOP
9	2	11	4		5C	638	26	EACH	1" CURB STOP AND BOX
9	2	11	4		5D	638	26	EACH	1" COUPLING
9	2	11	4		5E	638	26	EACH	TWO BOLT DRESSER COUPLING
					6	614	1	LS	MAINTAINING TRAFFIC
				450	7	SPECIAL	450	SY	TEMPORARY PAVEMENT

CITY OF WOOSTER DIVISION OF ENGINEERING 330 N. MARKET ST., SUITE 200 WOOSTER, OHIO 44691 PH: (419) 249-4511 R. V. KOBLANICK CITY ENGINEER rkoblani@woosterohio.com		DRWN BY SLG	CHKD BY JAR	APPROV BY RVK
		DATE 06/23	SCALE N/A	
<b>BILLIAR STREET &amp; BILLIAR ALLEY WATERLINE REPLACEMENT GENERAL SUMMARY &amp; SUBSUMMARY</b>				
REVISED				
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SHEET		3 of 12		



REVISED	DRWN BY	CHKD BY	APPRVD BY			
1	SLG	JAR	RVK			
2	DATE	05/23	SCALE			
3			N/A			
4	<b>BILLIAR STREET &amp; BILLIAR ALLEY</b> <b>WATERLINE REPLACEMENT</b> <b>PLAN LAYOUT SHEET</b>					
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SHEET				CITY OF WOOSTER DIVISION OF ENGINEERING <small>308 N. MARKET ST.          WOOSTER, OHIO 44691          P.O. BOX 200-0501          WOOSTER, OHIO 44691-0501</small>		
4 of 12				<small>ROBERT V. KOSBARIANSKA CITY ENGINEER</small> <small>robk@cityofwooster.com</small>		



MATCHLINE STA. 6+00

**STA. 1+19.90, 12.7 RT. INSTALL 8" 45° BEND.**

**STA. 1+19.93, 7.9 RT. INSTALL 8" x 8" TEE.**

**STA. 1+19.94, 10.7 RT. INSTALL 8" GATE VALVE & BOX PER TYP. DETAIL.**

**STA. 1+23.87, 23.5 RT. CONNECT PROP. 8" W/L TO EXIST. 6" W/L PER DETAIL ON SHEET 9.**

**STA. 1+23.81, 16.8 RT. INSTALL 8" 45° BEND.**

**STA. 1+23.87, 14.2 RT. REMOVE EX. VALVE BOX.**

**STA. 1+67.65, 8.0 RT. INSTALL 8" x 6" TEE.**

**STA. 1+72.41, 8.0 RT. INSTALL 8" GATE VALVE & BOX PER TYP. DETAIL.**

**STA. 1+20.35, 8.8 LT. INSTALL 8" GATE VALVE & BOX PER TYP. DETAIL.**

**STA. 1+20.40, 11.2 LT. INSTALL 8" 45° BEND.**

**STA. 1+24.48, 15.1 LT. INSTALL 8" 45° BEND.**

**STA. 1+24.60, 20.6 LT. CONNECT PROP. 8" W/L TO EXIST. 6" W/L PER DETAIL ON SHEET 9.**

**STA. 1+25.95, 4.3 LT. REMOVE EX. VALVE BOX.**

**STA. 1+63.67, 13.6 LT. REMOVE EX. FIRE HYDRANT.**

**STA. 1+63.63, 11.4 LT. REMOVE EX. VALVE BOX.**

**STA. 1+67.65, 12.2 LT. INSTALL FIRE HYDRANT W/ 6" GATE VALVE & BOX PER TYP. DETAIL.**

**STA. 2+21.69, 11.5 LT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

**STA. 3+50.70, 10.7 LT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

**STA. 4+61.74, 11.8 LT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

**STA. 5+20.29, 10.4 LT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

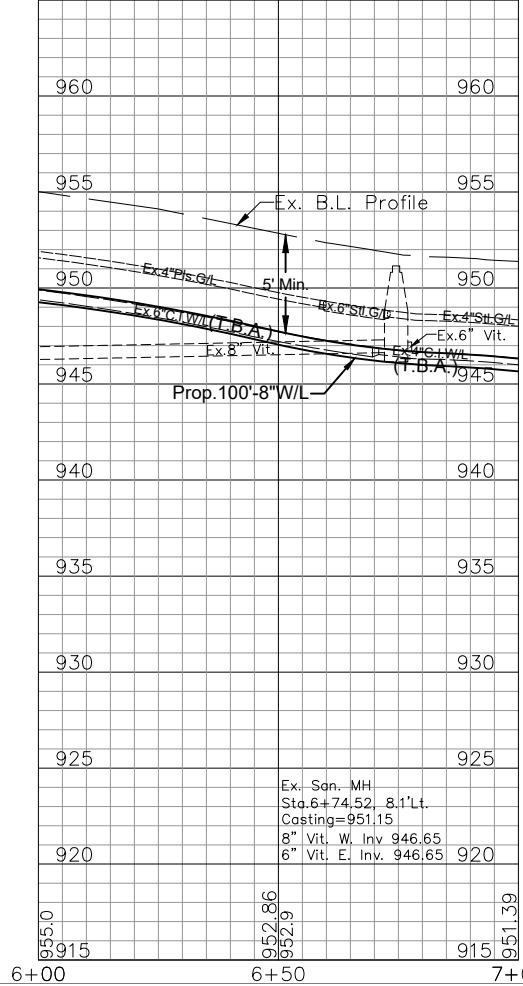
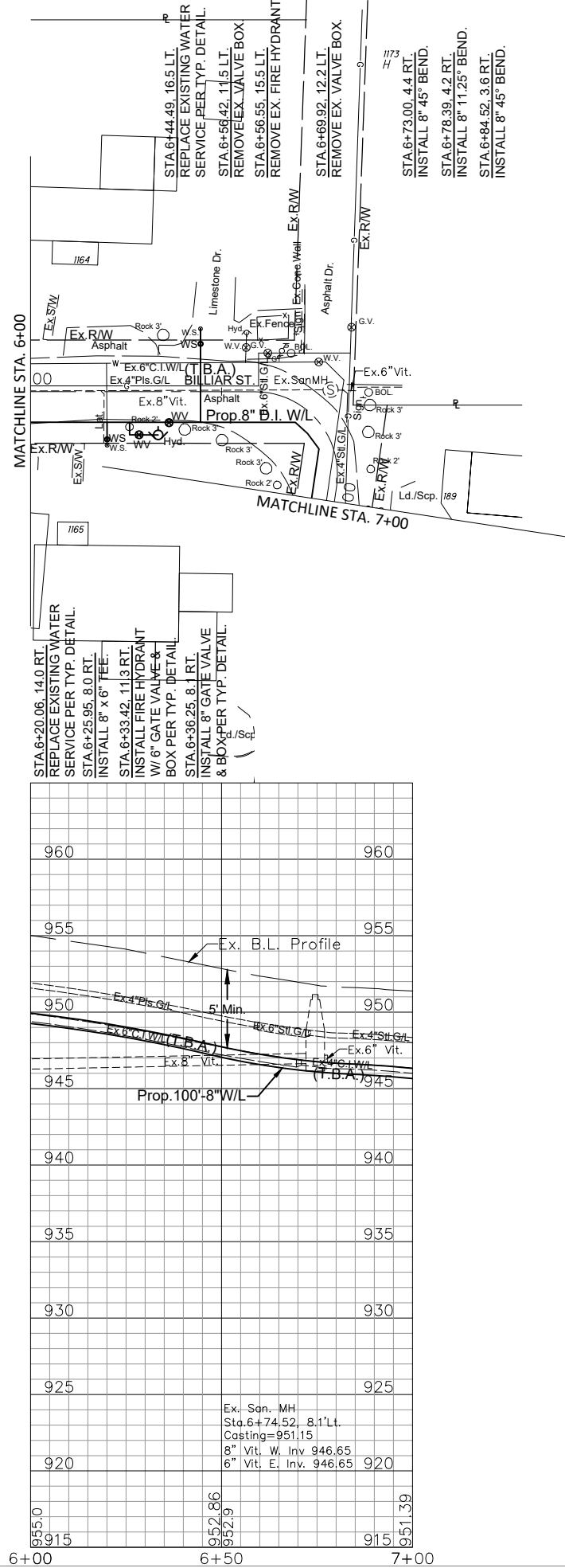
**STA. 3+63.51, 16.9 RT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

**STA. 4+07.94, 13.9 RT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

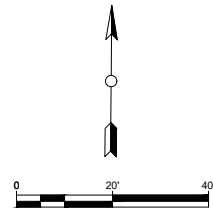
**STA. 4+66.56, 13.0 RT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

**STA. 4+97.31, 15.4 RT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**

**STA. 5+72.16, 10.4 RT. REPLACE EXISTING WATER SERVICE PER TYP. DETAIL.**



Ex. Sen. MH  
 Sta. 6+74.52, 8.1'Lt.  
 Casting=951.15  
 8" Vit. W. Inv. 946.65  
 6" Vit. E. Inv. 946.65



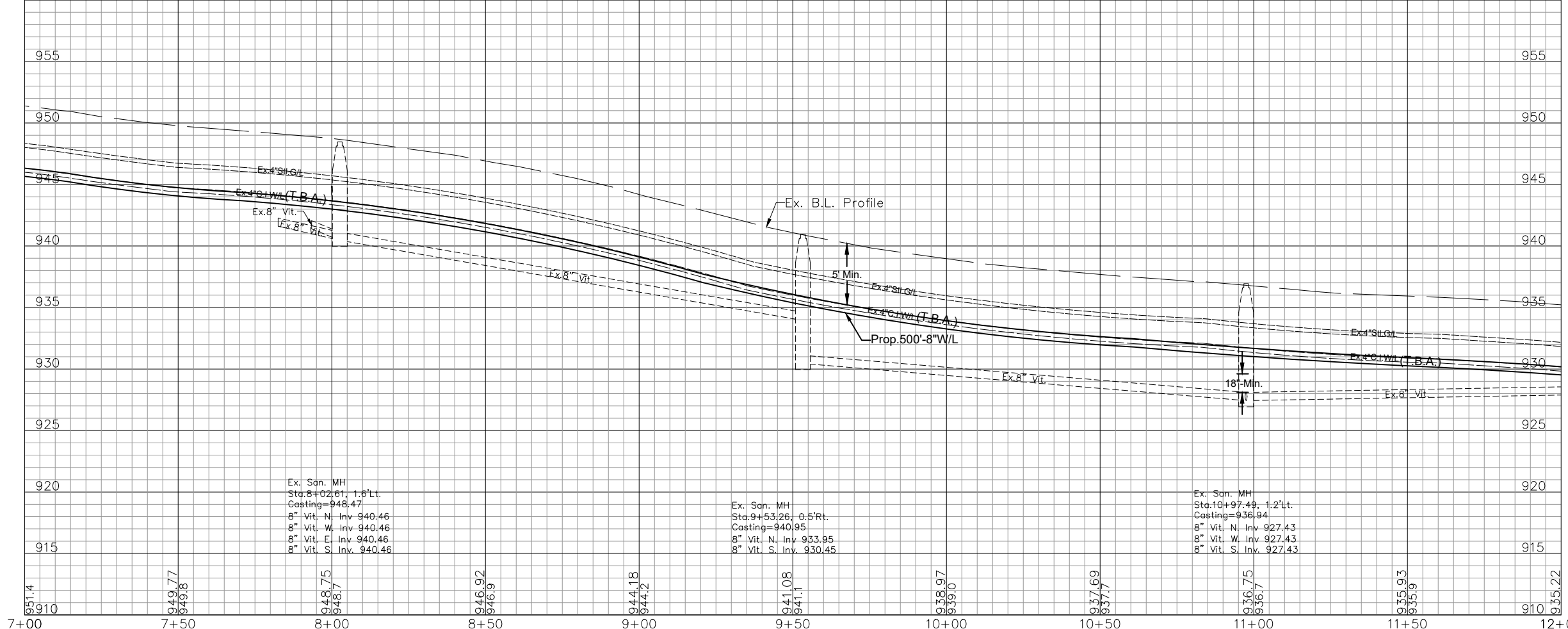
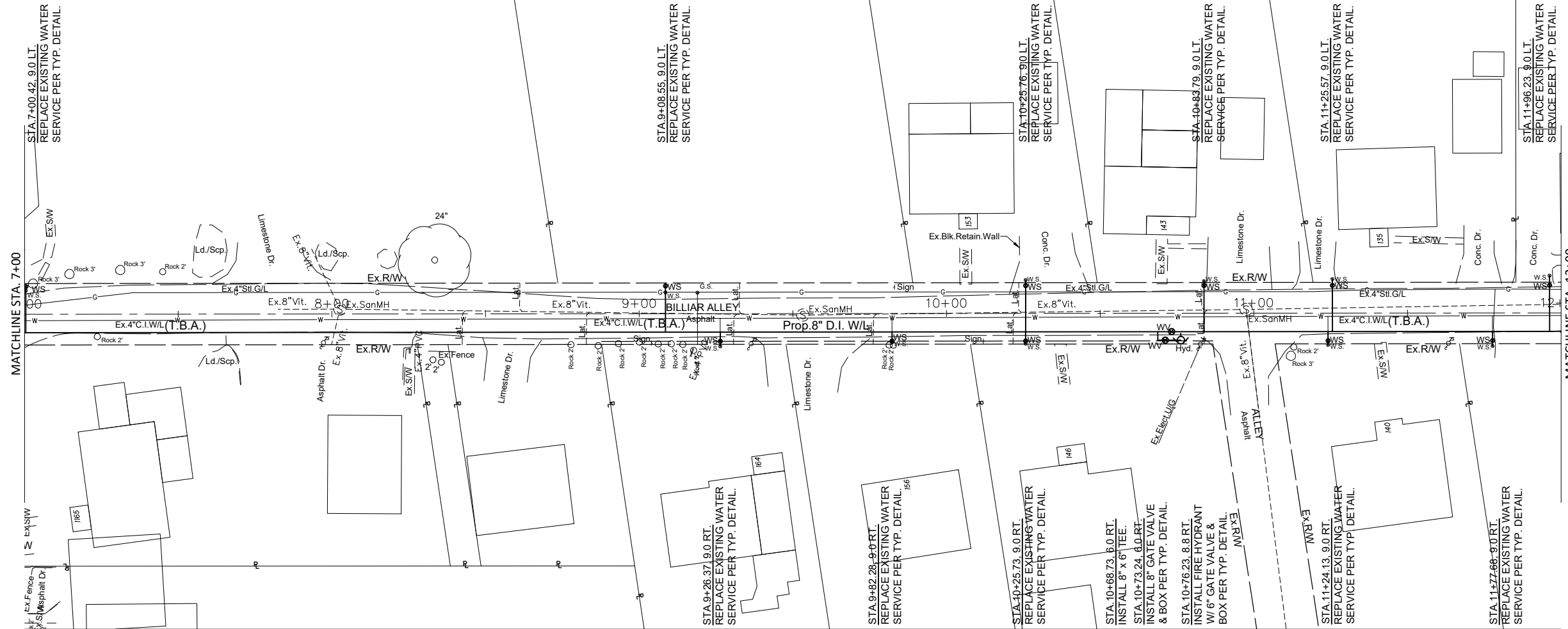
**BILLAR STREET & BILLIAR ALLEY  
 WATERLINE REPLACEMENT  
 STA. 6+00 TO STA. 7+00**

REVISED	
1	01/02/2011
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<b>SHEET</b>	<b>6 of 12</b>

<b>DRWN BY</b>	<b>CHKD BY</b>	<b>APPRVD BY</b>	
SLG	JAR	RVK	
<b>DATE</b>		<b>SCALE</b>	
05/23		N/A	

**CITY OF WOOSTER**  
 DIVISION OF ENGINEERING  
308 N. MARKET ST.  
 WOOSTER, OHIO 44691  
 P.O. BOX 230-0521  
 WOOSTER, OHIO 44691-0521  
 ROBERT V. KOSLARSKI, CITY ENGINEER      rskoslar@ci.wooster.oh.us

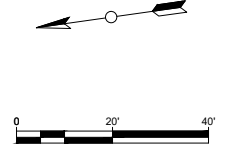
M:\Engineering\ENGINEERING PROJECTS\2023 Projects\Billar Street and Alley Waterline Replacement (2023)\CADD\Billar\Topo.dwg - PP7-7 - Apr 09, 2024 - 9:44am



Ex. San. MH  
Sta. 8+02.61, 1.8'Lt.  
Costing=948.47  
8" Vit. N. Inv. 940.46  
8" Vit. W. Inv. 940.46  
8" Vit. E. Inv. 940.46  
8" Vit. S. Inv. 940.46

Ex. San. MH  
Sta. 9+53.26, 0.5'Rt.  
Costing=940.95  
8" Vit. N. Inv. 933.95  
8" Vit. S. Inv. 930.45

Ex. San. MH  
Sta. 10+97.49, 1.2'Lt.  
Costing=936.94  
8" Vit. N. Inv. 927.43  
8" Vit. W. Inv. 927.43  
8" Vit. S. Inv. 927.43



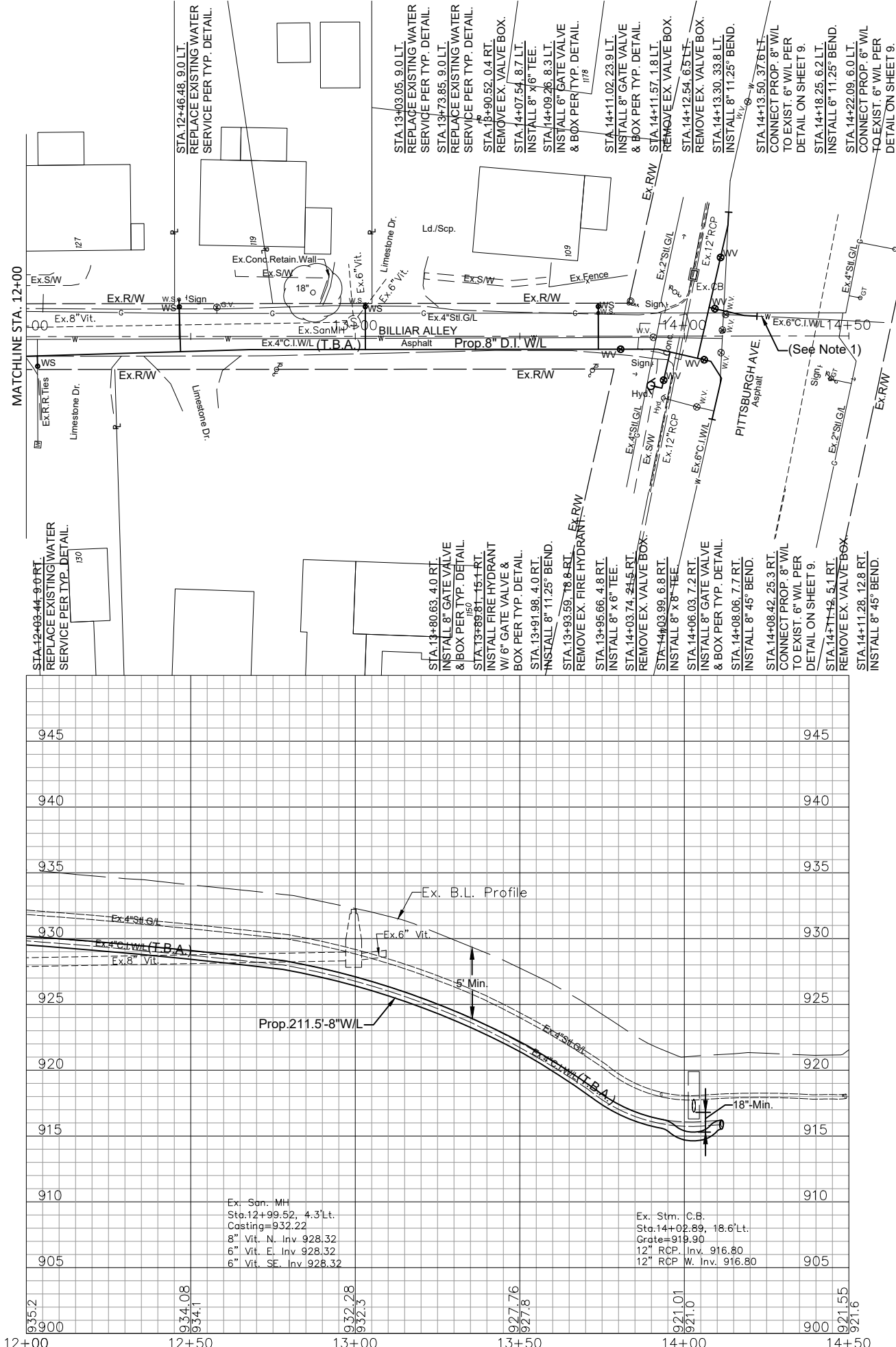
**BILLIAR STREET & BILLIAR ALLEY  
WATERLINE REPLACEMENT  
STA. 7+00 TO STA. 12+00**

REVISION	DATE	BY	APPROVED BY
1	01/02/2011	SLG	JAR
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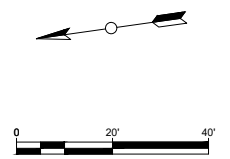
CITY OF WOOSTER  
DIVISION OF ENGINEERING  
308 N. MARKET ST.  
WOOSTER, OHIO 44691  
TEL: (330) 266-3331  
FAX: (330) 266-3333  
www.ci.wooster.oh.us

DRWN BY: SLG  
CHKD BY: JAR  
APPRD BY: RVK  
DATE: 05/23  
SCALE: N/A

SHEET 7 of 12



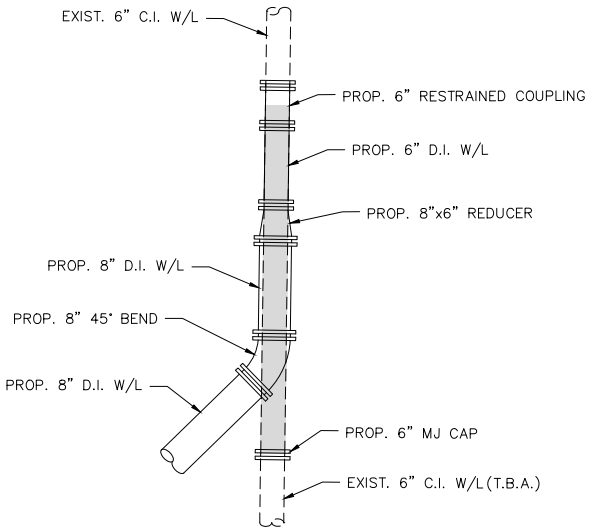
**NOTES:**  
 1. THE 6" WATERLINE TO THE SOUTH AT THE PITTSBURGH AVENUE AND BILLIAR ALLEY INTERSECTION SERVES THE FIRE AND DOMESTIC WATER AT E-PAK. THE CONTRACTOR SHALL COORDINATE THE SHUTDOWN OF THIS WATERLINE AT LEAST TWO (2) WEEKS IN ADVANCE.



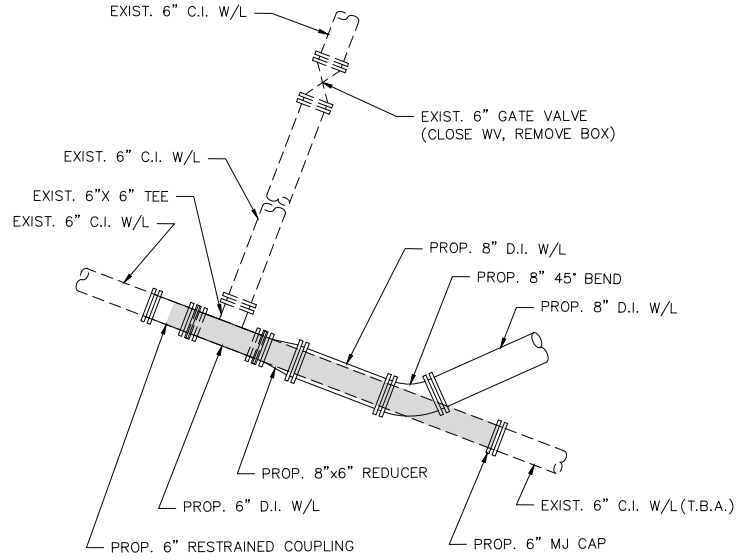
		<b>CITY OF WOOSTER</b> DIVISION OF ENGINEERING <small>338 N. MARKET ST. WOOSTER, OHIO 44691                  TEL: (330) 266-5551 FAX: (330) 266-5553                  ROBERT V. KOSLAROSKI, CITY ENGINEER</small>		DRWN BY: SLG CHKD BY: JAR APPROVD BY: RVK DATE: 05/23 SCALE: N/A
<b>BILLIAR STREET &amp; BILLIAR ALLEY</b> <b>WATERLINE REPLACEMENT</b> <b>STA. 12+00 TO STA. 14+50</b>				
REVISED 1 01/02/2011 2 3 4 5 6 7 8 9 10 SHEET <b>8 of 12</b>				



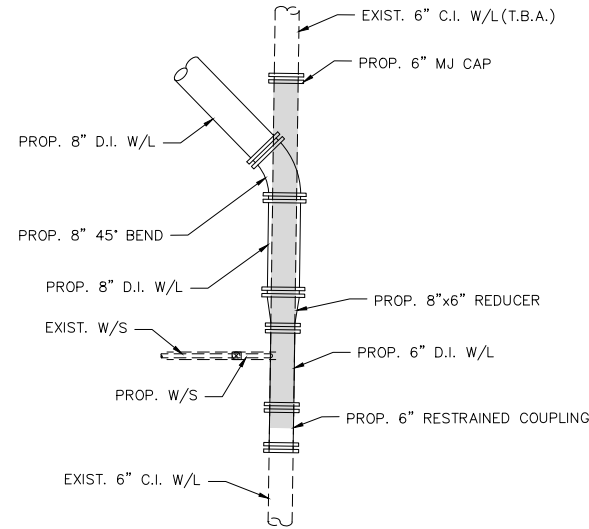
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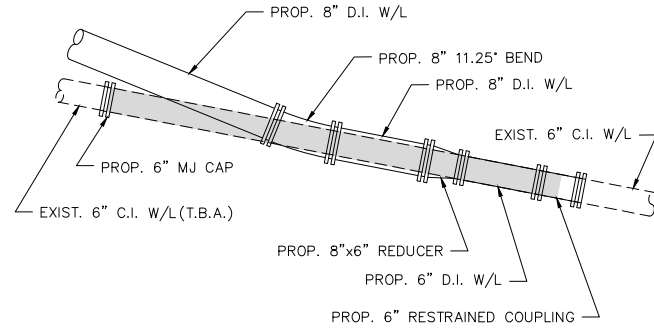
PALMER ST. (NORTH)  
STA. 1+25, 20.6' LT.



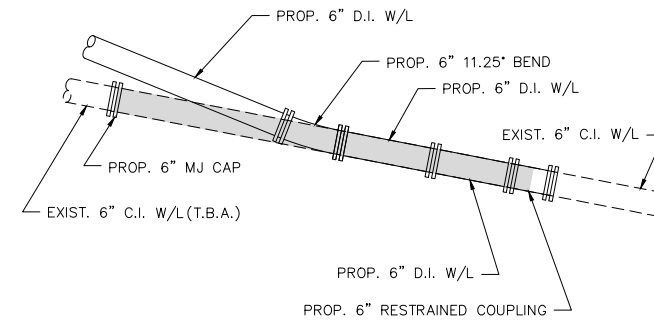
PITTSBURGH AVE. (WEST)  
STA. 14+08, 25.3' RT.



PALMER ST. (SOUTH)  
STA. 1+23, 23.5' RT.



PITTSBURGH AVE. (EAST)  
STA. 14+13, 33.8' LT.



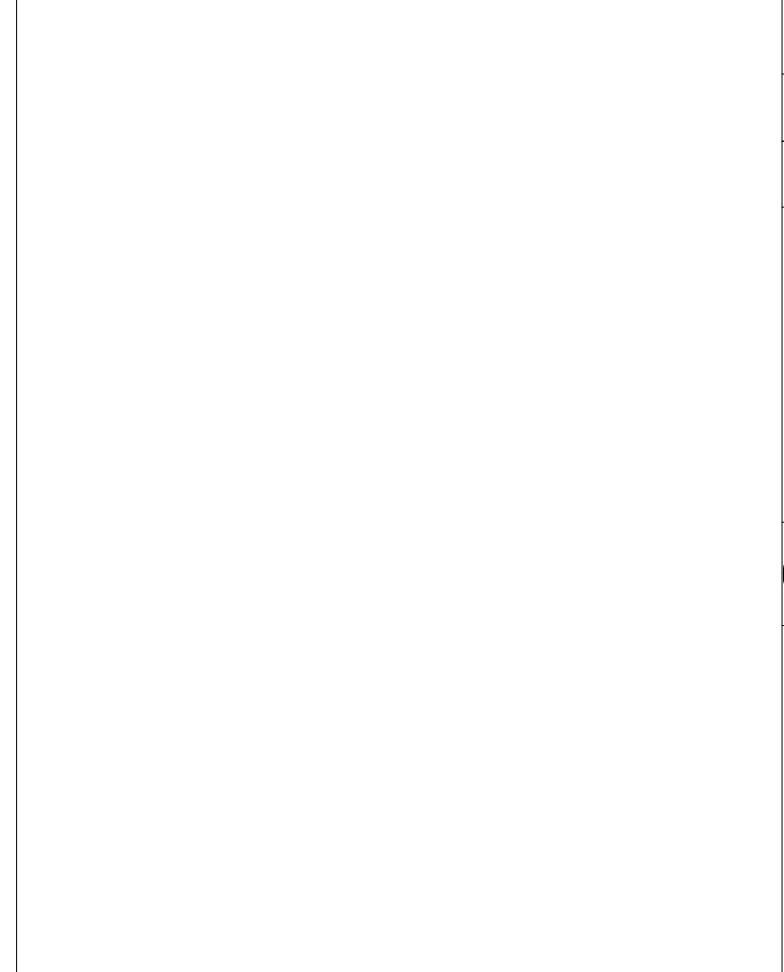
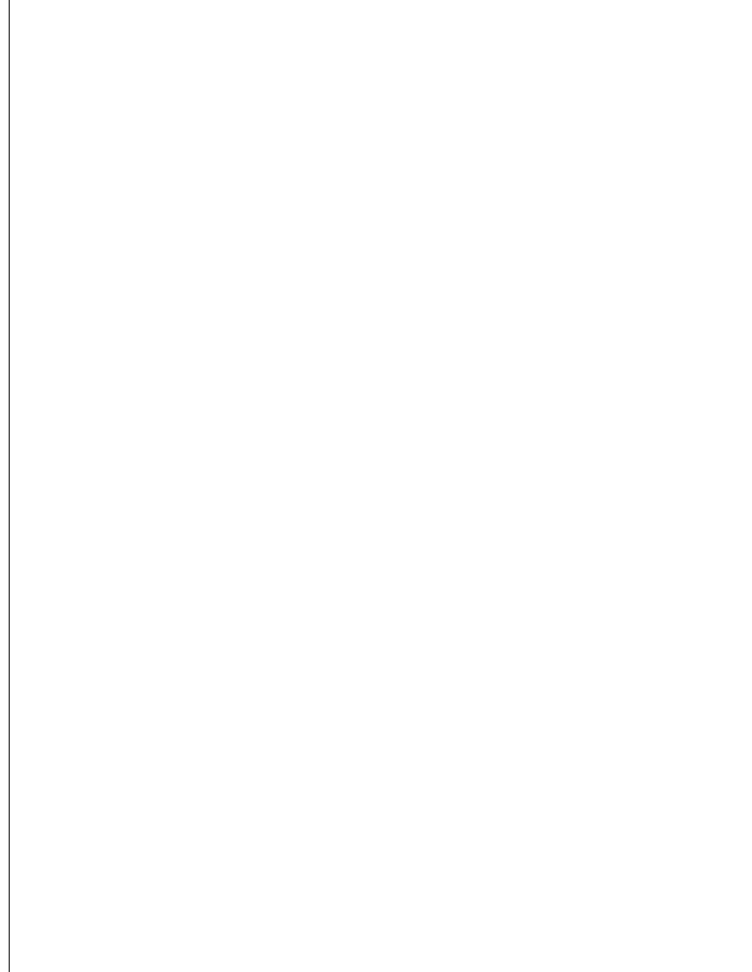
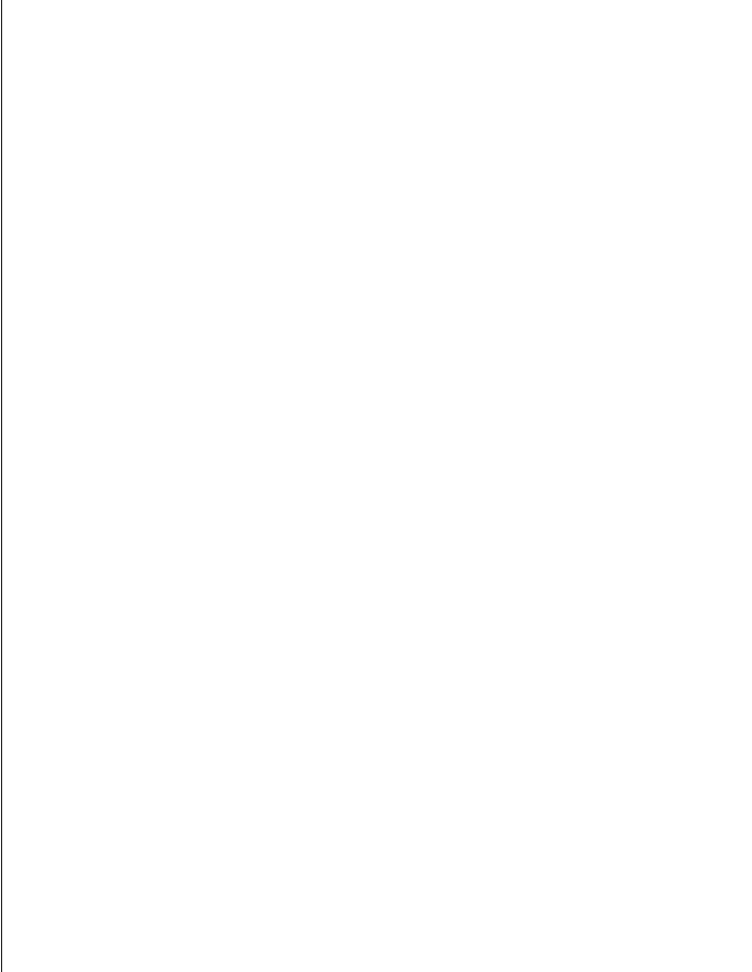
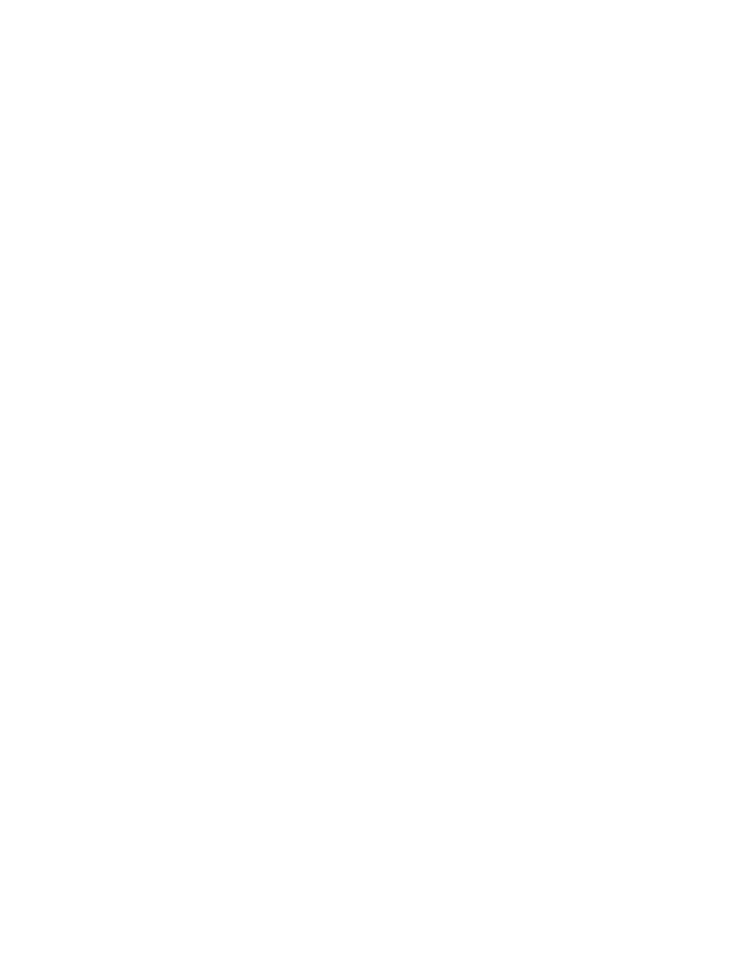
PITTSBURGH AVE. (SOUTH)  
STA. 14+13.50, 37.6' LT.

**LEGEND**  
 SHADING INDICATES PIPING TO BE REMOVED.

**NOTES:**  
 1. RESTRAIN ALL JOINTS.  
 2. RESTRAINED COUPLINGS SHALL BE HYMAX GRIP OR APPROVED EQUAL.

	<b>CITY OF WOOSTER</b> DIVISION OF ENGINEERING <small>230 N. MARKET ST. WOOSTER, OHIO 44691                  TEL: (330) 249-1001                  ROBERT V. KOBLAROSKI CITY ENGINEER</small>	DRWN BY: SLG CHKD BY: JAR APPROVD BY: RVK DATE: 05/23 SCALE: N/A
<b>BILLIAR STREET &amp; BILLIAR ALLEY</b> <b>WATERLINE REPLACEMENT</b> <b>CONNECTION DETAILS</b>		
REVISED 1 01/09/2011 2 3 4 5 6 7 8 9 10 SHEET 9 of 12		

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**WATERLINE CONSTRUCTION**

- MAIN LINES:** DUCTILE IRON PIPE, CLASS 52, AWWA C151, CEMENT LINED, AWWA C104, RUBBER GASKETED JOINTS, AWWA C111, 6" MINIMUM DIAMETER FOR DISTRIBUTION LINE.
- TAPPING SLEEVE:** TAPPING SLEEVE SHALL BE SMITH-BLAIR STYLE 665 (STAINLESS STEEL) OR MUELLER H-304L (STAINLESS STEEL WITH STAINLESS STEEL FLANGE AND MJ OUTLET FOR STANDARD GATE VALVE). ALL TAPS SHALL BE MADE BY THE CONTRACTOR UNDER THE SUPERVISION OF AUTHORIZED CITY PERSONNEL, AND IN ACCORDANCE WITH CITY STANDARDS.
- BEDDING:** 6" MINIMUM OF ODOT #8 OR #67 GRAVEL. LIMESTONE IS NOT PERMITTED.
- BACKFILL:** 5'-0" MINIMUM COVER ON MAIN LINE.
- MAIN LINE VALVES:** MUELLER A-2361 OR EJ FLOWMASTER, WITH 304 STAINLESS STEEL FASTENERS, CLOSE LEFT, RESILIENT WEDGE, MECHANICAL JOINT.
- VALVE BOX:** EJ 8560 SERIES THREE PIECE SCREW TYPE BOX, 6800 VALVE BOX DROP LID. (SEE WT-8.0)
- FITTINGS:** DUCTILE IRON, MECHANICAL JOINT, AWWA C153 WITH 304 STAINLESS STEEL NUTS AND BOLTS.
- THRUST RESTRAINT:** FIELD LOCK GASKETS, MJ FIELD LOK OR MECHANICAL JOINTS W/ EBAA IRON SERIES 1100 RESTRAINTS (STAINLESS STEEL NUTS AND BOLTS).
- HYDRANTS:** MUELLER SUPER CENTURION 250 A-423, EJ WATERMASTER 5CD250, OR KENNEDY GUARDIAN K61-D, 5'-0" BURY, OPEN LEFT, WITH 304 STAINLESS STEEL NUTS AND BOLTS. NATIONAL STANDARD FIRE HOSE THREAD OUTLETS. PUBLIC HYDRANTS SHALL BE PAINTED SAFETY YELLOW AND PRIVATE HYDRANTS SHALL BE PAINTED INTERNATIONAL RED.

**WATERLINE INSTALLATION**

- 1) WATERLINES SHALL BE INSTALLED TO MAINTAIN THE FOLLOWING MINIMUM ISOLATION DISTANCES FROM EXISTING AND PROPOSED SEWERS:  
VERTICAL ISOLATION = 18 INCHES  
HORIZONTAL ISOLATION = 10 FEET
- 2) ALL HYDRANTS AND VALVES SHALL BE LOCATED OUTSIDE OF THE DITCH LINE AND DRAINAGE SWALES WHEREVER POSSIBLE.
- 3) NOT USED.
- 4) A MINIMUM OF 35 PSI SHALL BE MAINTAINED IN ALL WATER MAINS AND SERVICES DURING NORMAL OPERATING CONDITIONS.
- 5) BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
- 6) CONCRETE BLOCKING SHALL ONLY BE USED WHEN INDICATED ON THE DRAWINGS. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SIZE OF DUCTILE IRON PIPE AND FITTINGS.
- 7) WATERLINES SHALL BE INSTALLED WITH A MINIMUM COVER MEASURED BELOW EXISTING GRADE OR BELOW LEVEL OF EDGE OF ADJACENT PAVEMENT, WHICHEVER RESULTS IN THE LOWER ELEVATION. MINIMUM COVER SHALL BE 5 FEET UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

**WATERMAIN TESTING & DISINFECTION**

- A. PRESSURE TESTING:**
  - 1) PRESSURE TESTING OF ALL NEW WATER MAINS SHALL BE IN ACCORDANCE WITH CURRENT AWWA C-600 STANDARDS AND REGULATIONS.
  - 2) AFTER EXPPELLING ALL TRAPPED AIR IN THE LINE, THE TEST PRESSURE SHALL BE 150 PSI OR 50% ABOVE THE NORMAL OPERATING PRESSURE, WHICHEVER IS GREATER.
  - 3) DURATION OF THE LEAKAGE TEST SHALL NOT BE LESS THAN 2 HOURS UNDER PRESSURE. ALLOWABLE LEAKAGE SHALL NOT EXCEED 10.49 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF PIPE PER 24 HOUR PERIOD.
  - 4) PRIVATE WATERLINES CONNECTED TO SPRINKLER SYSTEMS, STANDPIPE SYSTEMS, OR FIRE HYDRANTS SHALL BE TESTED AT 200 PSI MINIMUM FOR 2 HOURS IN THE PRESENCE OF THE CITY FIRE CHIEF OR REPRESENTATIVE.
  - 5) TESTING OF THE WATERLINE SHALL BE MADE AFTER ALL CORPORATION VALVES AND CURB STOP VALVES HAVE BEEN INSTALLED. THE CORPORATION (TAPPING) VALVES SHALL BE LEFT OPEN AND THE CURB STOP VALVES SHALL REMAIN CLOSED DURING THE TESTING.
  - 6) THE CONTRACTOR SHALL PERFORM ALL TESTING IN THE PRESENCE OF THE CITY ENGINEER OR REPRESENTATIVE, EXCEPT FIRELINE TESTING AS NOTED ABOVE.
  - 7) FAILURES SHALL BE FOUND AND CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
- B. DISINFECTION PROCEDURES:**
  - 1) ALL NEW MAINS OR SECTIONS OF MAINS ARE REQUIRED TO HAVE 1" TAPS WITHIN 50' OF THE INFLUENT END, EVERY 500' TO 700', AND AT THE END OF THE MAIN. EACH TAP IS REQUIRED TO HAVE A BRONZE STANDARD HOSE BIBB (OR SIMILAR) FOR THE PURPOSE OF STERILIZATION AND COLLECTION OF SAMPLES. A TEST HOSE BIBB CAN BE INCORPORATED INTO A FLUSHING ASSEMBLY IF APPROVED. CHLORINE OR BACTERIA TESTING WILL NOT BE PERMITTED FROM A FIRE HYDRANT. WATER PLANT PERSONNEL WILL HAVE FINAL APPROVAL OF THE LOCATION OF ALL CHLORINE AND BACTERIA TESTING TAPS.
  - 2) ANY NEW LINE LESS THAN 100' IN LENGTH MAY REQUIRE ONLY ONE TAP TO BE PLACED AT THE EFFLUENT END OF THE LINE, WITH APPROVAL OF WATER PLANT PERSONNEL.
  - 3) A RESIDUAL OF 50 MG/L OR GREATER OF CHLORINE MUST BE PRESENT AT THE INFLUENT, AT THE DESIGNATED TAPS, AND AT THE END OF THE MAIN OR BRANCH. THE CONTRACTOR SHALL NOTIFY THE WATER PLANT PERSONNEL AT 330-263-5286 OR THE CITY INSPECTOR AT 330-263-5251 TO HAVE THE HIGH CHLORINE RESIDUAL LEVEL CHECKED.
  - 4) AFTER 24 HOURS, WATER PLANT PERSONNEL OR THE CITY INSPECTOR WILL AGAIN CHECK THE DESIGNATED TAPS TO SEE IF THE REQUIRED 50 MG/L CHLORINE RESIDUAL IS STILL PRESENT. IF IT IS NOT PRESENT, RECHLORINATION WILL BE NECESSARY. (THE CITY INSPECTOR WILL REQUIRE THE PRESSURE TEST TO BE COMPLETED PRIOR TO THE FLUSHING OF THE CHLORINE FROM THE NEW MAIN.)
  - 5) THE NEW MAIN CAN THEN BE FLUSHED TO BRING THE CHLORINE LEVEL BACK TO NORMAL CITY WATER. THE LEVEL WILL BE CHECKED BY WATER PLANT PERSONNEL TO SEE IF ADDITIONAL FLUSHING IS NECESSARY.
  - 6) BACTERIA SAMPLES WILL BE TAKEN AT THE EARLIEST CONVENIENT TIME BY WATER PLANT PERSONNEL, AFTER 24 HOURS, ANOTHER BACTERIA SAMPLE WILL BE TAKEN FROM THE SAME LOCATION(S). THE NEW MAIN INFLUENT VALVES ARE TO REMAIN CLOSED UNTIL ALL BACTERIA TESTING RESULTS ARE ACQUIRED. IT IS REQUIRED THAT ALL BACTERIA SAMPLES BE NEGATIVE.
  - 7) WHEN ALL OF THE ABOVE REQUIREMENTS ARE MET, THE CORPORATION STOPS INSTALLED ONLY FOR TESTING AND/OR SAMPLING MUST BE REMOVED AND BRASS PLUGS INSERTED. THE CITY INSPECTOR MUST WITNESS THIS. THE NEW MAIN WILL THEN BE ACCEPTED FOR USE.
  - 8) ALL WATERMAIN DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA C-651.

GENERAL NOTES  
WATERLINE

GENERAL NOTES  
WATERLINE

GENERAL NOTES  
WATERLINE TESTING

DRWN BY	CHKD BY	APPRVD BY
SLG	JAR	RVK
DATE	06/23	SCALE
		N/A

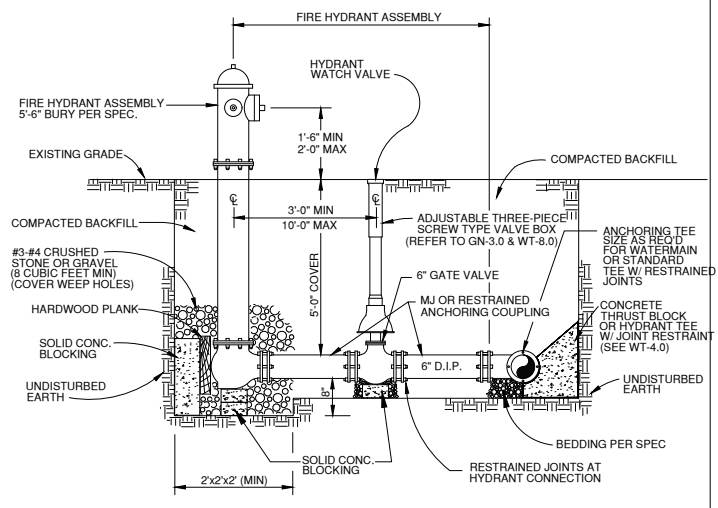
CITY OF WOOSTER  
DIVISION OF ENGINEERING  
330 ALBION ST., WOOSTER, OHIO 44691  
PH: (330) 263-5251  
FAX: (330) 263-5251  
rvooster@woosterohio.com



BILLIAR STREET & BILLIAR ALLEY  
WATERLINE REPLACEMENT  
MISCELLANEOUS DETAILS

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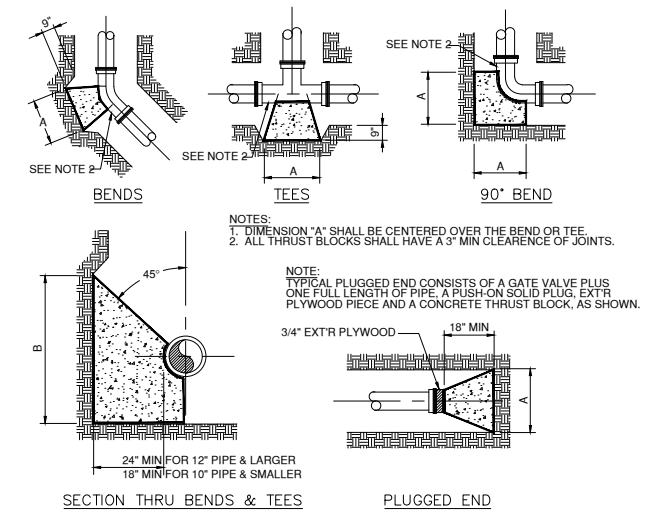
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**FIRE HYDRANT ASSEMBLY DETAIL**

- NOTES:**
- CENTER OF THE FIRE HYDRANT SHALL BE LOCATED BETWEEN 2'-0" AND 10'-0" FROM THE BACK OF THE CURB.
  - A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE FIRE HYDRANT.

**FIRE HYDRANT ASSEMBLY**



**THRUST BLOCK AREA SCHEDULE**

SQUARE FEET (SF) OF CLASS C CONC REQ'D AGAINST UNDISTURBED EARTH  
MINIMUM A & B DIMENSIONS FOR THRUST BLOCK DETAILS

PIPE SIZE	BENDS	PIPE DIAMETER				
		6"	8"	10"	12"	16"
BENDS	A	10"	14"	20"	24"	36"
	B	24"	28"	30"	36"	40"
TEES	A	12"	18"	27"	32"	47"
	B	24"	28"	30"	36"	40"
PLUGS	A	12"	18"	27"	32"	47"
	B	24"	28"	30"	36"	40"
90° BEND	A	18"	24"	20"	22"	31"
	B	30"	28"	30"	36"	40"

**NOTE:** PLACE 6 MIL VISQUEEN BETWEEN PIPE AND CONC.

**THRUST BLOCK DETAILS**

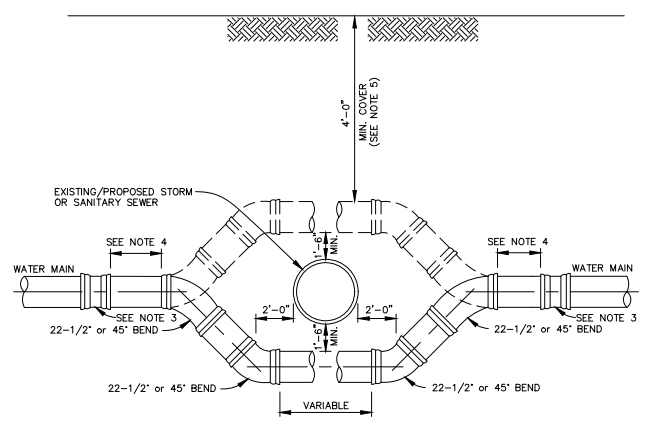
**TABLE FOR RESTRAINED PIPES**

LENGTH OF PIPE RESTRAINED IN EACH DIRECTION FROM  $\phi$  OF FITTING

FITTING TYPE	DUCTILE IRON PIPE DIAMETER				
	6"	8"	10"	12"	16"
90° BEND	13'	17'	20'	24'	30'
45° BEND	5'	7'	8'	10'	13'
22-1/2° BEND	3'	3'	4'	5'	6'
11-1/4° BEND	1'	2'	2'	2'	3'
VALVE OR PLUG	20'	26'	32'	38'	49'
REDUCER	10'	11'	19'	27'	41'
TEE	18'	24'	29'	35'	47'

- NOTES:**
- RESTRAINED LENGTHS IN TABLE ARE MINIMUM VALUES.
  - AT HIGH POINTS ALONG WATERMAIN WHERE INDICATED ON DRAWINGS, ANCHORING TEE SHALL BE SET AT 45° ANGLE UPWARDS AND CONNECTED TO 6" 45° BEND. WATERMAIN SHALL BE LOWERED TO PROVIDE COVER AS SPECIFIED.
  - ALL JOINTS WITHIN THE SPECIFIED LENGTH SHALL BE RESTRAINED. LENGTH OF RESTRAINT FOR TEES APPLIES TO BRANCH, ASSUMING JOINTS ON RUN ARE RESTRAINED AND CONNECTED TO A MINIMUM OF 1' OF PIPE IN EACH DIRECTION WITHOUT JOINTS.

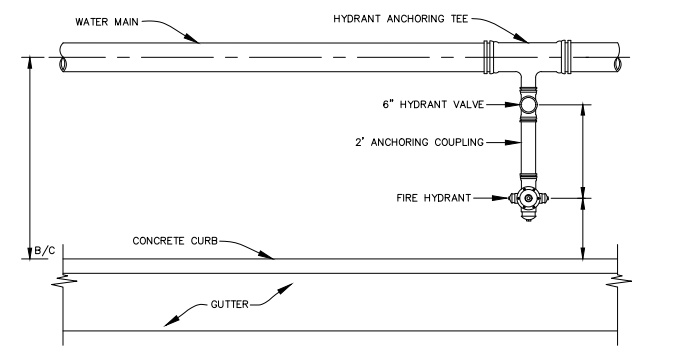
**RESTRAINED PIPE JOINT TABLE**



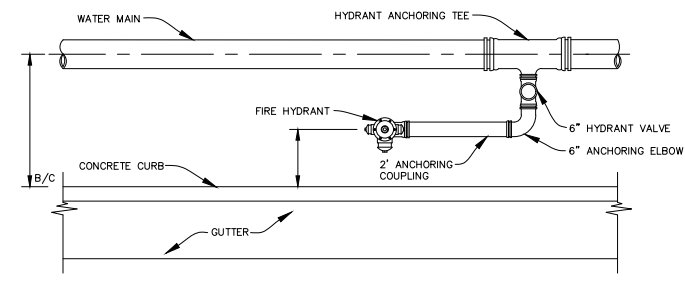
**WATER MAIN OFFSET**  
N.T.S.

- NOTES:**
- ALL JOINTS SHALL BE RESTRAINED.
  - ALL FASTENERS SHALL BE STAINLESS STEEL.
  - SOLID SLEEVES SHALL BE USED IF THE EXISTING WATER MAIN IS DUCTILE IRON; OTHERWISE, HYMAX GRIP (OR EQUAL) RESTRAINED COUPLINGS SHALL BE USED.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING IN THE FIELD THAT THE LENGTH OF RESTRAINED PIPE ON BOTH SIDES OF THE BENDS IS MET AND IF IT ISN'T REPLACING THIS PORTION OF THE WATER MAIN AT NO ADDITIONAL COST TO THE OWNER.
  - IF ANY PORTION OF THE WATER MAIN BEING OFFSET IS LESS THAN 4' COVER, CONTACT THE ENGINEER TO DETERMINE IF ADDITIONAL LENGTH OF RESTRAINED PIPE IS NEEDED.

**WATER MAIN OFFSET DETAIL**



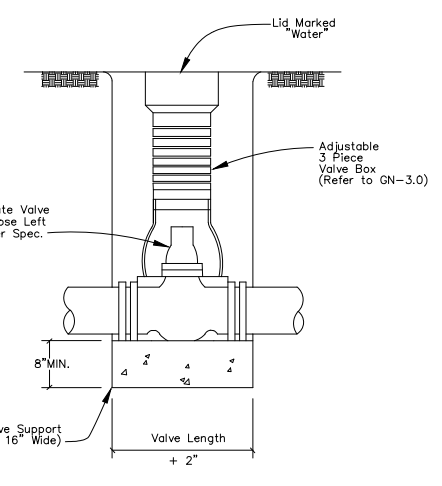
**NORMAL HYDRANT SETTING**  
PLAN VIEW



**ALTERNATE HYDRANT SETTING**  
PLAN VIEW

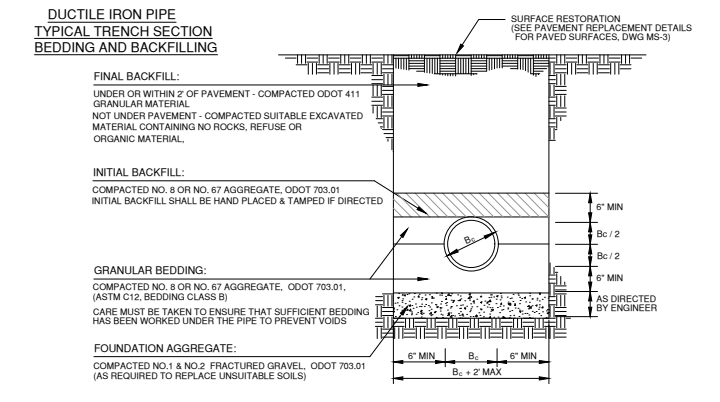
- NOTE:**
- A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE FIRE HYDRANT.

**ALTERNATE FIRE HYDRANT SETTINGS**



- NOTES:**
- Valves shall be set so that operating shaft is plumb.

**VALVE SETTING DETAIL**



- NOTES:**
- NO LIMESTONE AGGREGATE.
  - PAVEMENT INCLUDES DRIVEWAYS AND SIDEWALKS.

**WATERLINE TRENCH DETAIL**

**BILLIAR STREET & BILLIAR ALLEY**  
**WATERLINE REPLACEMENT**  
**MISCELLANEOUS DETAILS**

DRWN BY: SLG  
 CHKD BY: JAR  
 APPRVD BY: RVK  
 DATE: 06/23  
 SCALE: N/A

CITY OF WOOSTER  
 DIVISION OF ENGINEERING  
 330 N. MARKET ST.  
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 CITY ENGINEER  
 rkoslar@woosterohio.com

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 SHEET 11 of 12

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**WATER SERVICE CONSTRUCTION**

**BACKFILL:**  
5'-0" MINIMUM COVER.

**COPPER SERVICE:**  
TYPE K COPPER, 1" MINIMUM.

**HIGH DENSITY POLYETHYLENE SERVICE:**  
POLYFLEX TUBING (CTS) WITH 200 PSI RATING AND CONFORMING TO ASTM D2737, AWWA C901, AND NSF STANDARDS 14 AND 61. STAINLESS STEEL SLEEVES SHALL BE USED AT EACH CONNECTION POINT. AWG #12 SOLID COPPER TRACER WIRE SHALL BE INSTALLED ALONG WITH POLYFLEX, CHECK CONDUCTIVITY.

**SINGLE FAMILY RESIDENTIAL METER VAULT (PE SERVICE):**  
MUELLER THERMAL COIL METER BOX #200CS1548FSBSN WITH LID #311954 OR A.Y. McDONALD COIL PIT SETTER #790-148QFPF 440x15, #90L15X900 LID. METER VAULTS FOR OTHER APPLICATIONS SHALL BE REVIEWED ON A CASE-BY-CASE BASIS.

**CURB STOP:**  
MUELLER H-15209N OR B-25209N, A.Y. McDONALD 7610Q 1" MINIMUM, OR APPROVED EQUAL BY FORD FOR 2" AND UNDER.

**CURB BOX:**  
MUELLER H-10334 CURB BOX, 60" 88055 SS ROD, 23" 89376 LID OR A.Y. McDONALD 5607 CURB BOX, 60" 5860 SS ROD, 23" 5907 LID, BRASS MACHINES THREAD, MUELLER H-10386 CURB BOX W/SS ROD FOR 1-1/2" AND 2" SERVICES.

**CORPORATION STOP:**  
MUELLER B-25008N OR A.Y. McDONALD 74701BQ, 1" MINIMUM OR APPROVED EQUAL FOR 2" AND UNDER.

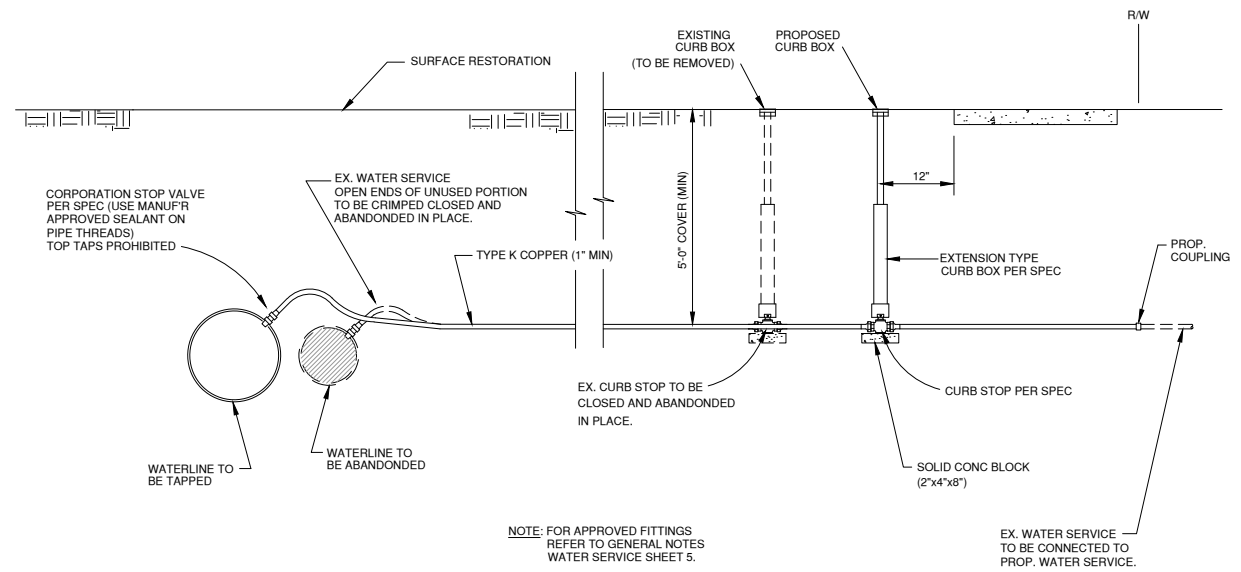
**COUPLING:**  
MUELLER H-15071N OR A.Y. McDONALD 74755Q (COMPRESSION X FLARE COUPLING); MUELLER H-15403N OR A.Y. McDONALD 74758Q (COMPRESSION X COMPRESSION COUPLING).

**TWO BOLT COUPLING:**  
SMITH-BLAIR, INC. 400 SERIES BETWEEN NEW COPPER AND EXISTING GALVANIZED WATER SERVICE.

**BRASS PLUGS:**  
MUELLER H-10033N OR H-10034N OR A.Y. McDONALD 73206, 1" BRASS PLUGS, WHEN NECESSARY.

**SERVICE SADDLE:**  
MUELLER BRJS SERIES OR A.Y. McDONALD 3825 AWWA WHEN NECESSARY FOR SERVICES LARGER THAN 1".

**NOTES:**  
1. FOR MAINLINE WATERLINE CONSTRUCTION STANDARDS SEE SHEET GN-38.

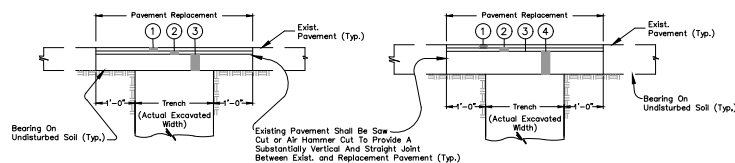


**NOTE:** FOR APPROVED FITTINGS REFER TO GENERAL NOTES WATER SERVICE SHEET 5.

**WATER SERVICE MATERIALS**

**TYPICAL WATER SERVICE REPLACEMENT**

**PAVEMENT REPLACEMENT OVER UTILITY TRENCH**

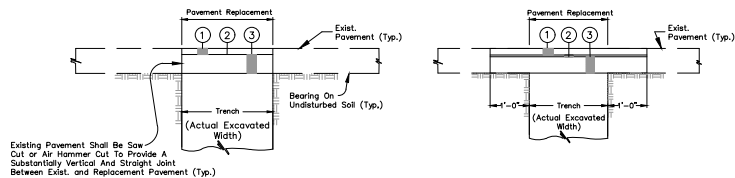


- ① 1 1/4" - Item 441 Asphalt Concrete Surface Course, Type 1, Medium Duty
- ② 1 3/4" - Item 441 Asphalt Concrete Intermediate Course, Type 2, Medium Duty
- ③ 1" - Item 301 Bituminous Aggregate Base (Placed in 2 Equal Layers)
- ① 1 1/4" - Item 441 Asphalt Concrete Surface Course, Type 1, Medium Duty
- ② 1 3/4" - Item 441 Asphalt Concrete Intermediate Course, Type 2, Medium Duty
- ③ Item 407 Tack Coat (0.1 Gal. Bituminous Material Per Sq. Yd.)
- ④ 6" - Item 305 Portland Cement Concrete Base (MS Concrete)

**FULL DEPTH ASPHALT SURFACE**  
N.T.S.

**ASPHALT SURFACE ON CONCRETE OR BRICK BASE**  
N.T.S.

**ASPHALT SURFACE MULTI-USE PATH**  
Shall Be The Same Asphalt Surface And Intermediate Courses As The Full Depth Asphalt Surface. Replace Item 301 With 6" Of Item 411 (6" Of Item 411 At Drives).



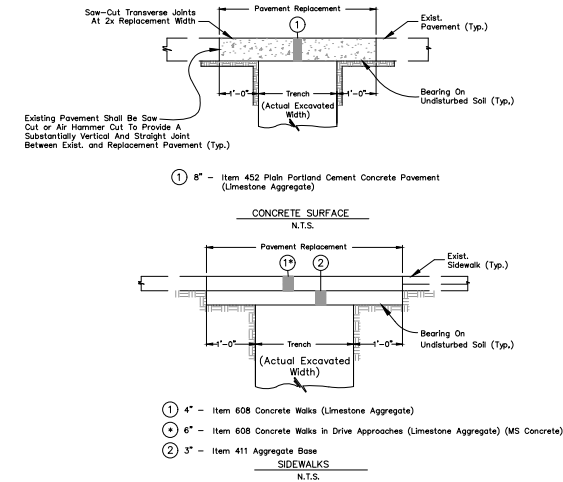
- ① 1 1/4" - Item 441 Asphalt Concrete Surface Course, Type 1, Medium Duty
- ② Item 408 Prime Coat (0.5 Gal. Bituminous Material Per Sq. Yd.)
- ③ 6" - Item 411 Aggregate Base
- ① Reold or Replacement Bricks
- ② 1" - Item 703.06 Sand Cushion
- ③ 6" - Item 305 Portland Cement Concrete Base (MS Concrete)

**ASPHALT OR CHIP & SEAL SURFACE ON AGGREGATE BASE**  
N.T.S.

**BRICK PAVEMENT**  
N.T.S.

**PAVEMENT REPLACEMENT DETAILS**

**PAVEMENT REPLACEMENT OVER UTILITY TRENCH, CONT'D**



**CONCRETE SURFACE**  
N.T.S.

**CONCRETE SURFACE**  
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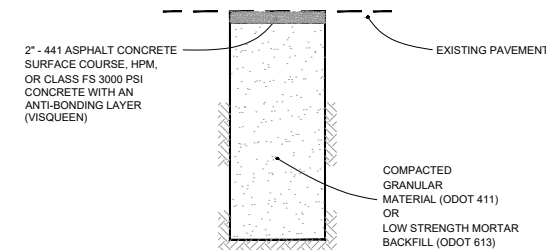
**PAVEMENT REPLACEMENT OVER UTILITY TRENCH - NOTES:**

1. All Pavement And Sidewalk Replacement Details Shown Represent The Minimum Acceptable Repair. If Existing Surfaces Exceed These Details, Then Repaired Surfaces Shall Match The Existing.
2. All Joints Between Existing Curb Or Pavement And The Pavement Replacement Surface Shall Be Sealed With Crafcro Roadsealer 515.
3. Pavement Replacement Quantities Approved For Payment Shall Be Calculated Based On The Trench Width Shown On The Utility Trench Detail.
4. Pavement Replacement Shall Include Restoration or Replacement of All Damaged Pavement Markings.
5. Limestone Aggregate Shall Be Used In Surface Course Of Asphalt And All Concrete Used For Pavement Replacement.
6. Tack Coat Shall Be Placed On All Surfaces To Receive Asphalt Concrete.

- ① 2" - Item 411 Stabilized Crushed Aggregate (Limestone, Slag, Gravel Or Cinders To Match Existing.)
- ② 4" - Item 411 Aggregate Base

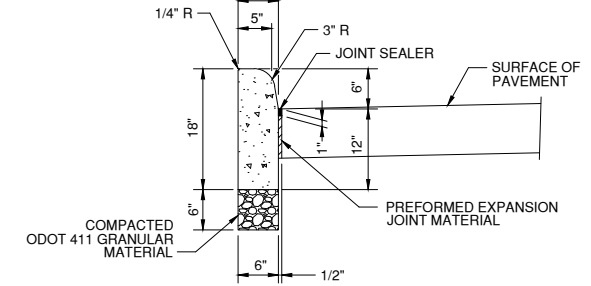
**CRUSHED AGGREGATE SURFACE**  
N.T.S.

**PAVEMENT REPLACEMENT DETAILS**



- NOTE 1:** TEMPORARY PAVEMENT PATCHES SHALL BE MAINTAINED IN A DRIVABLE CONDITION.
- NOTE 2:** TEMPORARY PAVEMENT PATCHES SHALL BE REPLACED WITH PERMANENT PAVEMENT RESTORATION AS SOON AS POSSIBLE.
- NOTE 3:** GRAVEL PAVEMENT PATCHES SHALL BE USED FOR A MAXIMUM OF 1 WEEK, AFTER WHICH TEMPORARY PAVEMENT OR PERMANENT RESTORATION SHALL BE PERFORMED.
- NOTE 4:** TEMPORARY CONCRETE SHALL USE NO. 8 STONE.

**TEMPORARY PAVEMENT REPLACEMENT DETAIL**



- NOTES:**
- 1. COST PER LINEAR FOOT OF TYPE 6 CONCRETE CURB SHALL INCLUDE EXCAVATION AND GRANULAR MATERIAL.
- 2. PREFORMED EXPANSION JOINT MATERIAL IS NOT REQUIRED WHERE CURB IS ADJACENT TO ASPHALT PAVEMENT.

**TYPE 6 CURB**

**CURB DETAIL**

<p><b>CITY OF WOOSTER</b> DIVISION OF ENGINEERING</p>	<p>DRWN BY: SLG CHKD BY: JAR APPROV BY: RVK</p>	<p>DATE: 06/23</p>	<p>SCALE: N/A</p>																														
<p><b>BILLIAR STREET &amp; BILLIAR ALLEY</b> <b>WATERLINE REPLACEMENT</b> <b>MISCELLANEOUS DETAILS</b></p>																																	
<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 15%;">06/06/2024</td> <td style="width: 80%;"> </td> </tr> <tr> <td>2</td> <td> </td> <td> </td> </tr> <tr> <td>3</td> <td> </td> <td> </td> </tr> <tr> <td>4</td> <td> </td> <td> </td> </tr> <tr> <td>5</td> <td> </td> <td> </td> </tr> <tr> <td>6</td> <td> </td> <td> </td> </tr> <tr> <td>7</td> <td> </td> <td> </td> </tr> <tr> <td>8</td> <td> </td> <td> </td> </tr> <tr> <td>9</td> <td> </td> <td> </td> </tr> <tr> <td>10</td> <td> </td> <td> </td> </tr> </table>				1	06/06/2024		2			3			4			5			6			7			8			9			10		
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