## CITY OF MASSILLON

## CITY ENGINEER DEPARTMENT STARK COUNTY, OHIO NEOCOM SANITARY SEWER INTERCEPTOR

## PROJECT DESCRIPTION

NEW 18" SANITARY SEWER ALONG THE SOUTH SIDE OF OUTLOT 1054.

## CONVENTIONAL SIGNS

RIGHT OF WAY • • EXISTING: — , PROPOSED: —
COUNTY LINE • • •
TOWNSHIP LINE
CORPORATION LINE
FENCE LINE • • • EXISTING: -X X , PROPOSED: -X X
GUARDRAIL • • • EXISTING: O O , PROPOSED:
MANHOLES • • • • EXISTING: O , PROPOSED: , REHABILITATED
CATCH BASINS • • EXISTING: , PROPOSED: , REHABILITATED:
SIGNS • • • • • 1-POST:
EXISTING POLES POWER: $\phi$ , TELEPHONE $\phi$ , LIGHT $\phi$ , SPAN $\phi$
PROPOSED POLES . POWER: P, TELEPHONE J, LIGHT J, SPAN
EXIST. UTILITIES · VALVE: o, HYDRANT: 点, METERS: W / 题, GUY:

## PERMIT TO INSTALL

SANITARY SEWER PERMIT TO INSTALL (P.T.I.) HAS BEEN RECEIVED FROM THE OHIO ENVIROMENTAL PROTECTION AGENCY THIS \_\_\_\_\_\_\_ DAY OF, \_\_\_\_\_\_\_, 20\_\_\_\_\_.

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## UNDERGROUND UTILITIES TWO WORKING DAYS

DEFORE YOU DIG

CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
TWO WORKING DAYS
BEFORE YOU DIG
1-800-925-0988 (TOLL FREE)
OIL © GAS PRODUCERS UNDERGROUND

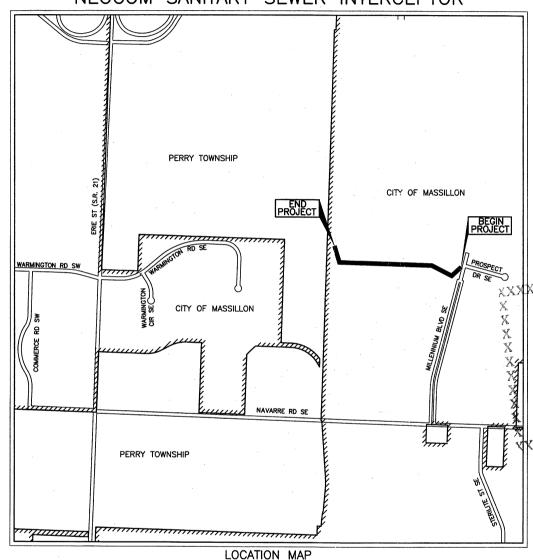
PLAN PREPARED BY:

PROTECTION SERVICE

CITY OF MASSILLON Engineering Department

OWNER:

CITY OF MASSILLON 151 Lincoln Way East Massillon, Ohio 44646



PORTION TO BE IMPROVED

Massillon
Means More!

STREETS \_\_\_

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DIRECTOR OF PUBLIC SAFETY AND SKYICE MICHAEL J. LOUDIANA

8/25/08

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BATE

8.25.08



PAUL MANSON · · · · · · · · · · · · · · · AT LARGE

LARRY SLAGLE · · · · · · · · · · · · · · · · AT LARGE

DAVID HERSHER • • • • • • • • • • • • AT LARGE

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SCALE	500 ONTAL IN FEET
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<i>DATE:</i> JULY, 2008	DATE: JULY, 2008

eoCom Sanitary Sewer Intercep Title Sheet City of Massilon Stark County, Ohio



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## **UTILITIES**

LISTED BELOW ARE ALL KNOWN UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

AT&T 50 W.BOWERY, 6TH FLOOR AKRON, 0H 44308 800–384–8057

AQUA OHIO WATER P.O. BOX 584 MASSILLON, 0H 44648 (330) 833–4156 OHIO EDISON
STARK DIVISION
2600 S. ERIE ST.
MASSILLON, OH 44545
(330) 833–3141

MASSILLON, OH 44648
(330) 833–4134 104 6TH ST. S.W. CANTON, OH 44702 (330) 456-2454 CITY OF MASSILLON SANITARY SEWER 151 LINCOLN WAY EAST MASSILLON, OH 44646 (330) 830-1722 AT&T COMMUNICATIONS 2535 E. 40TH AVE. DENVER, CO 80205-3601 (800) 852-3786

DOMINION EAST OHIO GAS COMPANY 4725 SOUTHWAY ST. S.W. CANTON, OH 44706 (330) 478-3142 NORTHEAST OHIO NATURAL GAS CORP. 9081 S.R. 250 STRASBURG, OH 44680–9766 (330) 878–5589 THE CONTRACTOR SHALL NOTIFY ALL UTILITIES 48 HOURS PRIOR TO WORK.

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE SHOWN AT APPROXIMATE LOCATIONS AND WHERE OBTAINED AS REQUIRED BY SECTION 153.64 O.R.C.

## DATUM ELEVATION

ALL BENCHMARKS ARE BASED ON REFERENCE BENCHMARKS PROVIDED BY THE CITY OF MASSILLON.

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ALL STATIONING SHOWN IS REFERENCED TO THE BASELINE AS SHOWN.

# NOTIFICATION OF SAFETY FORCES AND BUS GARAGES

THE CONTRACTOR SHALL NOTIFY ALL AGENCY LISTED BELOW AT LEAST 48 HOURS IN ADVANCE OF ANY STREET CLOSING OR TRAFFIC CHANGE.

	INAFFIC CHANGE.	AGENCY LISTED BELOW AT		
	MASSILLON SAFETY SERVICE	MASSILLON FIRE	LEAST 48 HOURS IN ADVANCE O	OF ANY STREET
	330-832-4337 HALL	JACKSON FIRE DE-	PERRY TOWNSHIP HALL 330-833-2141	NORTH LAWRENCE FIRE DEPT.
l	330-832-7416	PERRY FIRE DED	330-830-1735 DEPARTMENT	MASSILLON SOLVE
l	PERRY POLICE DEPARTMENT	PERRY SCHOOL	330-497-7440	JACKSON SCHOOL
	SARTA		STARK COUNTY SHEDIFF	0012
	330-454-5333 SUBSUBS		30-3887	TUSCARAWAS SCHOOL BUS GARAGE 330-837-7805

# SUBSURFACE CONDITIONS

IT IS THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO MAKE HIS OWN INVESTIGATION OF SUBSURFACE CONDITIONS PRIOR TO EXPLORATORY EXCAVATION. THE BIDDER SHALL CONTACT THE OWNER AT LEAST 72 HOURS IN ADVANCE OF THE DESIRED INSPECTIONS AND OBTAIN LOCATIONS OF OTHER UTILITIES.

QUANTITIES ARE INDICATED FOR COMPARISON OF BIDS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY QUANTITIES ORDERS ARE PLACED. MATERIALS REJECTED DUE TO INCOMPATIBILITY BETWEEN ORDERED QUANTITIES AND FIELD CONDITIONS SHALL BE REPLACED.

AT THE CONTRACTOR'S EXPENSE.

ALL CONSTRUCTION IS TO BE ACCORDING TO THE CITY OF MASSILLON SPECIFICATIONS AND STANDARDS, AND THE LATEST EDITION OF THE STATE OF ORIGINAL STANDARDS, THE MORE STRINGENT STANDARD WILL SPECIFICATIONS. WHEN A CONFLICT ARISES BETWEEN THE CITY OF SHALL FOLLOW ALL OSHA AND ADA REGULATIONS AND REQUIREMENTS.

ANY EXISTING WATER LINE, SANITARY SEWER, STORM SEWER, GAS LINE OR OTHER UTILITY IN OR OUTSIDE OF THE CONSTRUCTION LIMITS, DAMAGED DURING CONSTRUCTION OF THE PROPOSED PROJECT, WILL BE REPLACED AT THE CONTRACTORS EXPENSE.

THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH A 24 HOUR PHONE NUMBER WHERE THE CONTRACTOR SHALL BE AVAILABLE FOR EMERGENCIES. CONDITIONS OF WORK

ALL WORK PERFORMED UNDER THIS CONTRACT SHALL COMPLY WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ACT, STATE, COUNTY, AND CITY OF MASSILLON LAWS AND REGULATIONS. ALL WORK, AT ALL TIMES SHALL BE SUBJECT TO OBSERVATION BY THE CITY OF MASSILLON. ALL ELECTRICAL WORK SHALL COMPLY WITH THE CONDITIONS OF THE CONTRACT DOCUMENTS, OHIO EPA, AND STANDARDS OF FEDERAL CODES.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES TO THE PROJECT SITE. ADJACENT ROADS SHALL BE MAINTAINED AND KEPT CLEAN OF MUD AND OTHER DEBRIS THAT MAY BE CAUSED BY TRAFFIC CURRENT CITY OF MASSILLON RULES AND REGULATIONS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL. TRAFFIC CONTROL SHALL FOLLOWED

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND MAINTAIN FACILITIES FOR A CONSTRUCTION OFFICE, EMPLOYEE PARKING, AND EMPLOYEE SANITARY FACILITIES. ON STREET PARKING WILL NOT BE PERMITTED. THE CONTRACTOR SHALL PROVIDE FOR THE LAWFUL

## EXISTING DATA

EACH CONTRACTOR SHALL VISIT THE SITE PERSONALLY TO ASCERTAIN THE NATURE OF THE WORK AND BECOME THOROUGHLY FAMILIARIZED WITH

EXISTING STRUCTURES, GRADES, PIPING, ETC. ARE INDICATED IN APPROXIMATE LOCATION ON THE PLAN. INFORMATION SHOWN IS NOT GUARANTEED TO BE CORRECT AND COMPLETE. THE DATA SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE EXISTENCE OF FACILITIES ABOVE OR BELOW GROUND, WHICH MAY NOT BE SHOWN, WILL NOT BE A BASIS FOR A CLAIM FOR EXTRA WORK.

EXISTING UNDERGROUND UTILITIES SHOWN ARE RECORDS PROVIDED BY UTILITY COMPANIES AND ARE APPROXIMATE ONLY. SERVICE LATERALS ARE IT IS THE RESPONSIBILITY OF CONTRACTOR TO NOTIFY THE CITY, PRIOR TO BID OPENING OF NON-CONFORMING OR CONFLICTING INFORMATION.

THE CONTRACTOR SHALL PERFORM WORK AS TO NOT DISTURB, DAMAGE OR DESTROY ANY TELEPHONE OR POWER POLES, SIGNS, LANDSCAPING ITEMS, ETC., ANY ITEM DAMAGED OR DESTROYED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AND ANY ITEM DISTURBED OR IN REQUIRED BEFORE ANY OF THE ABOVE ITEMS ARE PERFORMED.

AND RESET AT THE CONTRACTOR'S EXPENSE, PRIOR ENGINEER APPROVAL IS

ALL EXCAVATED MATERIAL AND ALL MATERIAL USED IN CONSTRUCTION OF THE WORK SHALL BE PILED AND STORED IN A MANNER THAT WILL LEAVE DRIVEWAYS OR OTHER CONTROLS UNOBSTRUCTED AND ACCESSIBLE WHILE THE WORK IS TO BE COMPLETED. SATISFACTORY PROVISIONS SHALL BE MADE FOR STREET DAINAGE, AND ACCESSIBLE WATERCOURSES SHALL NOT BE OBSTRUCTED. DURING THE PROGRESS SHALL BE MADE FOR STREET DRAINAGE, AND NATURAL TRIMMED UP AND MAINTAINED IN A NEAT MANNER. ALL EXCAVATED WASTE MATERIAL PILES SHALL BE KEPT SITE, AS DIRECTED BY THE ENGINEER. THE WASTE SITE IS TO BE PROVIDED BY THE KIND ALL BE REMOVED FROM THE PROJECT OF THE WORK, ALL EXCAVATED WASTE MATERIAL PILES SHALL BE KEPT PERMITTING SUCH AND HOLDING THE CITY HARMLESS.

FOR SANITARY SEWER INSTALLED, TESTED, AND ACCEPTED UP TO MAY 15TH OF ANY CALENDER YEAR, RESTORATION SHALL BE COMPLETED BY JUNE 30th OF THAT YEAR. FOR INSTALLATION OF SANITARY SEWER TESTED AND ACCEPTED FROM MAY 15th TO SEPTEMBER 30th OF ANY CALENDER YEAR, ROYEMBER 15TH OF ANY CALENDER YEAR, FOR SANITARY SEWER INSTALLED, TESTED, AND ACCEPTED AFTER MAY 15th OF THE NEXT CALENDER YEAR. PAVEMENT CROSSINGS WILL RECEIVE TYPE C PAVEMENT REPLACEMENT WITH FULL WIDTH PAVEMENT OVERLAY.

CONTRACTOR TO REPLACE ALL PAVEMENT MARKINGS, WITH THE COST TO BE INCLUDED IN THE UNIT PRICE BID FOR PAVEMENT.

CONTRACTOR TO USE HOT APPLIED JOINT CRACK SEALER ON ASPHALT PAVEMENT AT ALL ENDS AND INTERSECTIONS.

ALL TRENCHES IN ROAD RIGHT OF WAY WILL RECEIVE FULL DEPTH PREMIUM GRANULAR BACKFILL.

PAYMENT FOR THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT ITEM.

THE CONTRACTOR IS REQUIRED TO COOPERATE WITH EACH RESPECTIVE UTILITY OWNER FOR THE REMOVAL AND RELOCATION OF ANY AND ALL

CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT. THIS WORK IS TO BE UNDER ITEM 623 CONSTRUCTION STAKING.

# CROSSING OR CONNECTING TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND PROPOSED CONDUIT.

PROPOSED CONDUIT.

OF THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LIAY THE

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN OF AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM. ITEM 659, TOPSOIL, SEEDING AND MULCHING

ITEM 659 SHALL BE APPLIED TO ALL EXPOSED SOIL AREAS DISTURBED DURING CONSTRUCTION. SUCH AS SPECIFIED IN ITEM 659 AND IS NOT LIMITED TO JUST TOPSOIL, SEEDING AND MULCHING.
THE CITY SHALL APPROVE SEED MIX PRIOR TO CONSTRUCTION TO BE USED THROUGH OUT CONSTRUCTION LIMITS. PROPOSED MIX SHALL BE SUBMITTED IN WRITING PRIOR TO ANY CONSTRUCTION. ALL ABOVE SAID WORK SHALL BE PAID FOR UNDER:

# REVIEW OF SANITARY AND DRAINAGE FACILITIES

AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK SHALL BE COMPLETED BEFORE AND AFTER WORK HAS COMMENCED. FINAL ACCEPTANCE BY THE CITY OF MASSILLON WILL NOT OCCUR UNTIL AFTER SAID INSPECTION. THE SHALL BE KEPT IN WRITING BY THE CITY OF MASSILLON.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BT THE CITY OF MASSILLON.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

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## **EROSION CONTROL**

THE CONTRACTOR SHALL PREPARE AND SUBMIT A STORM WATER POLLUTION CONTROL PLAN TO THE CITY OF MASSILLON ENGINEER TO BE FORWARDED TO THE APPROPRIATE PERMITTING AGENCIES. SAID PLAN MUST COMPLY WITH THE MOST CURRENT RULES AND REGULATIONS OF THE CITY OF MASSILLON.

## SANITARY SEWER SPECIFICATIONS

SANITARY SEWER CONSTRUCTION PROPOSED FOR THIS PROJECT SHALL CONFORM TO THE LATEST CITY OF MASSILLON STANDARD CONSTRUCTION AND MATERIALS SPECIFICATIONS, TEN STATE STANDARDS, AND THE LATEST EDITION OF THE ODOT CMS, OR MODIFIED BY THE CONTRACT DRAWINGS. IF A CONFLICT ARISES BETWEEN SAID STANDARDS IT SHALL BE AT THE DISCREATION OF THE CITY ENGINEER AS TO WHICH STANDARD SHALL GOVERN. THE PROJECT CONTRACT DRAWINGS SHALL GOVERN UNLESS NOTED OTHERWISE.

SANITARY GRAVITY SEWER PIPE AND FITTINGS SHALL BE PVC SDR 35 CONFORMING TO ASTM D-3034 UNLESS OTHERWISE NOTED. PVC COMPOUNDS SHALL CONFORM TO ASTM D-1784 PVC PIPE AND FITTINGS SHALL HAVE BELL AND SPIGOT TYPE JOINTS CONFORMING TO ASTM D-3212 AND GASKETS CONFORMING TO ASTM F-477

BACKFILL IN SEWER TRENCHES SHALL BE PLACED IN LAYERS SUFFICIENT TO MEET THE COMPACTION REQUIREMENT OF 100% OF MAXIMUM LABORATORY DRY DENSITY PER ASTM D-698 AND THOROUGHLY COMPACTED WITH MACHINE MOUNDED COMPACTION EQUIPMENT. THE PLACING OF BACKFILL MATERIAL SHALL BE CONTINUED UNTIL THE TRENCH IS ENTIRELY FILLED AND COMPACTED TO THE GRADE CALLED FOR ON THE CONTRACT DRAWINGS. EXCAVATED MATERIAL CONFORMING TO ODOT ITEM 203 SHALL BE USED FOR BACKFILLING EXISTING STRUCTURES (AFTER REMOVAL) ONLY. CRUSHED GRAVEL CONFORMING TO GRADATION REQUIREMENTS OF ODOT ITEM 304 AS SHOWN IN ODOT TABLE 703-1 SHALL BE USED FOR BACKFILLING ALL SEWER TRENCHES, AREAS SHOWN ON THE PLANS AND AS DIRECTED BY THE CITY ENGINEER. FLOODING, JETTING, OR PUDDLING OF BACKFILL MATERIAL WILL NOT BE PERMITTED. COMPACTION TESTING OF THE BACKFILL BY A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR.

SANITARY SEWERS SHALL BE AIR TESTED FOR LEAKAGE AND MANDREL TESTED FOR DEFLECTION. THE MAXIMUM ALLOWABLE PIPE DEFLECTION SHALL BE 5%.

PRIOR TO FINAL PAYMENT FOR AND ACCEPTANCE OF SANITARY SEWER INSTALLATION THE RESULTS OF THE AIR PRESSURE TESTS, TELEVISION TESTS AND MADREL TESTS SHALL BE FORWARDED TO THE CITY ENGINEER.

## DEFLECTION TESTING

MAXIMUM ALLOWABLE PIPE DEFLECTION (REDUCTION IN VERTICAL INSIDE DIAMETER) SHALL BE 5%. DEFLECTION TESTS OF PIPE SHALL BE PERFORMED NOT SOONER THAN 30 DAYS AFTER THE BACKFILL HAS BEEN PLACED AND BEFORE FINAL ACCEPTANCE. LOCATIONS WITH EXCESS DEFLECTION SHALL BE EXCAVATED AND REPAIRED BY RE—BEDDING OR REPLACEMENT OF THE PIPE AT THE CONTRACTOR'S EXPENSE. DEVICES FOR TESTING INCLUDE A DEFLECTIONETER METER, OR PROPERLY SIZED "60, NO—GO" MANDREL OR SEWER BALL. THE DEFLECTION TESTING MUST BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES. FOR THE PURPOSE OF DEFLECTION MEASUREMENTS, THE BASE INSIDE PIPE DIAMETERS WITHOUT DEFLECTION ARE PROVIDED IN TABLE A. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE APPLIED TO THE BASE INSIDE DIAMETER IN DETERMINING THE MINIMUM PERMISSIBLE DIAMETER. IT MUST BE EMPHASIZED THAT TO INSURE ACCURATE TESTING, THE LINES MUST BE THOROUGHLY CLEANED.

TABLE A
INSIDE DIAMETERS FOR DEFLECTION MEASUREMENTS
OF ASTM D 3034 SDR 35 / SDR 21 PVC SEWER PIPE

SIZE	SDR	AVG. O.D.	t	1.06t or t'	AVG. I.D.	TOLERANCE	BASE I.D.	DEFLECTION MANDREL
6"	35	6.275	0.241	0.255	5.764	0.102	5.662	5.38
8"	35	8.400	0.323	0.342	7.715	0.127	7.588	7.21
10"	35	10.500	0.404	0.428	9.644	0.153	9.491	9.02

## TELEVISION TESTING

ALL SANITARY SEWERS, 8-INCH DIAMETER AND LARGER, MUST PASS AN INTERNAL TELEVISION INSPECTION. THE CONTRACTOR SHALL PROVIDE COMPLETE INTERNAL INSPECTION VIDEOTAPE TO THE CITY OF MASSILLON ENGINEERING DEPARTMENT. THE VIDEOTAPING PROCEDURE SHALL BE IN ACCORDANCE WITH CITY OF MASSILLON ENGINEERING DEPARTMENT STANDARDS.

## LEAKAGE TESTS

LEAKAGE TESTS SHALL BE SPECIFIED. THIS MAY INCLUDE APPROPRIATE WATER OR LOW PRESSURE AIR TESTING. THE TESTING METHODS SELECTED SHOULD TAKE INTO CONSIDERATION THE RANGE IN GROUNDWATER ELEVATIONS DURING THE TEST AND ANTICIPATED DURING THE DESIGN LIFE OT THE SEWER COMPLETED AND ACCEPTED.

# WATER (HYDROSTATIC) TEST

THE LEAKAGE EXFILTRATION OR INFILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY [9L/(MM OF PIPE DIAMETER KM D)] FOR ANY SECTION OF THE SYSTEM. AN EXFILTRATION OR INFILTRATION TEST SHALL BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET (0.6 M).

## AIR TESTING AS PER ASTM F1417

AIR TESTING WILL BE CONDUCTED AS THE PROJECT IS BEING INSTALLED. AT NO TIME WILL MORE THAN 900 FEET OF PIPE BE INSTALLED BEFORE AIR TESTING IS PERFORMED. SEWAGE WILL NOT BE DIVERTED TO ANY SECTION OF PIPE, REGARDLESS OF LENGTH, UNTIL ALL TESTING IS COMPLETED AND ACCEPTED.

AFTER BACKFILLING A MANHOLE TO MANHOLE REACH OF SANITARY SEWER LINE, THE CONTRACTOR SHALL, AT HIS EXPENSE, CONDUCT THE LINE ACCEPTANCE TESTS. THE TESTS SHALL BE PERFORMED ACCORDING TO THE STATED PROCEDURES AND UNDER THE SUPERVISION OF THE CITY ENGINEER OR HIS REPRESENTATIVE.

EQUIPMENT USED SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS AND BE APPROVED BY THE ENGINEER:

- 1. PNEUMATIC PLUGS SHALL HAVE A SEALING LENGTH EQUAL TO OR A GREATER THAN THE DIAMETER OF THE PIPE BEING INSPECTED.
  2. PNEUMATIC PLUGS SHALL RESIST INTERNAL TEST PRESSURES WITHOUT REQUIRED EXTERNAL BRACING OR BLOCKING.
- 3. ALL AIR USED SHALL PASS THROUGH A SINGLE CONTROL PANEL.
  4. THREE INDIVIDUAL HOSES SHALL BE USED FOR THE FOLLOWING CONNECTIONS:
  - . INDIVIDUAL HOSES SHALL BE USED FOR THE FOLLOWING CONNECTIONS:

    a. FROM CONTROL PANEL TO PNEUMATIC PLUGS FOR INFLATION.
  - b. FROM CONTROL PANEL TO SEALED LINE FOR INTRODUCING THE LOW PRESSURE AIR.
  - c. FROM SEALED LINE TO CONTROL PANEL FOR CONTINUALLY MONITORING AIR PRESSURE RISE IN THE SEALED LINE.

TEST EQUIPMENT TESTING PROCEDURES SHALL BE AS FOLLOWS:
ALL PNEUMATIC PLUGS SHALL BE SEAL TESTED BEFORE BEING USED IN THE ACTUAL TEST INSTALLATION. ONE LENGTH OF PIPE SHALL BE LAID ON THE GROUND AN SEALED AT BOTH ENDS WITH THE PNEUMATIC PLUGS TO BE CHECKED. THE SEALED PIPE SHALL BE PRESSURED TO 5 PSIG. THE PLUGS MUST HOLD AGAINST THIS PRESSURE WITHOUT HAVING TO BE BRACED.

AFTER A MANHOLE TO MANHOLE REACH OF PIPE HAS BEEN BACKFILLED AND CLEANED, AND THE PNEUMATIC PLUGS ARE CHECKED BY THE ABOVE PROCEDURE, THE PLUGS SHALL BE PLACED IN THE LINE AT EACH MANHOLE. LOW PRESSURE AIR SHALL BE SLOWLY INTRODUCED INTO THIS SEALED LINE UNTIL THE INTERNAL AIR PRESSURE REACHES APPROXIMATELY 4 PSIG.

AT LEAST TWO MINUTES SHALL BE ALLOWED FOR THE AIR PRESSURE TO STABILIZE. WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE 3.5 PSIG, THE AIR HOSE FROM THE CONTROL PANEL TO THE AIR SUPPLY SHALL BE DISCONNECTED. THE PORTION OF THE LINE BEING TESTED SHALL BE TERMED "ACCEPTABLE" IF THE TIME REQUIRED IN MINUTES FOR THE PRESSURE TO DECREASE FROM 3.5 TO 2.5 PSIG (GREATER THEN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE) SHALL NOT BE LESS THAN THE TIME SHOWN FOR THE GIVEN DIAMETERS IN THE FOLLOWING TABLE:

PIPE DIAMETER	MINIMUM TIME	LENGTH FOR	TIME FOR	SPECIFICATION TIME LENGTH (L) SHOWN, MINUTES								
IN.	MINUTES	MINUTES TIME, FT.	LENGTH,	100 FT.	150 FT.	200 FT.	250 FT.	300 FT.	350 FT.	400 FT.	450 FT.	
4	3: 46	597	0.380 L	3: 46	3: 46	3: 46	3: 46	3: 46	3: 46	3: 46	3: 46	
6	5: 40	398	0.854 L	5: 40	5: 40	5: 40	5: 40	5: 40	5: 40	5: 42	6: 24	
8	7: 34	298	1.520 L	7: 34	7: 34	7: 34	7: 36	7: 36	8: 52	10:08	11: 24	
10	9: 26	239	2.374 L	9: 26	9: 26	9: 26	9:53	11:52	13: 51	15: 49	17: 48	
12	11: 20	198	3.416 L	11: 20	11: 20	11: 24	14:15	17:05	19: 56	22: 47	25: 38	
15	14:10	159	6.342 L	14:10	14:10	17: 46	22:15	26: 42	31: 09	35: 36	40: 04	
18	17:0	133	7.692 L	17:00	19:13	25: 38	32:09	38: 27	44: 52	51:16	57: 41	
21	19:50	114	10.470 L	19: 50	26:10	36: 54	43: 37	52: 21	81: 00	69: 48	78: 31	
24	22: 40	99	13.674 L	22: 47	34:11	45: 34	56: 58	68: 22	79: 46	91:10	102: 33	
27	25: 30	88	17.306 L	28: 51	43:16	57: 41	72:07	86: 32	100:57	115: 22	129: 48	
30	28: 20	80	21.366 L	35: 37	53: 25	71:13	89:02	106:50	124: 38	142: 26	160:15	
33	31:10	72	25.852 L	49: 05	64: 38	86:10	107: 43	129:16	150: 43	172: 21	193: 53	
36	34:00	66	30.768 L	51:17	76: 55	102: 34	128:12	153: 50	170: 29	205: 07	230: 46	

IN AREAS WHERE GROUND WATER IS KNOWN TO EXIST, THE CONTRACTOR SHALL INSTALL A 1/2 INCH DIAMETER CAPPED PIPE NIPPLE APPROXIMATELY 10 INCHES LONG, THROUGH THE MANHOLE WALL ON TOP OF ONE OF THE SANITARY SEWER LINES ENTERING THE MANHOLE. THIS SHALL BE DONE AT THE TIME THE SANITARY SEWER LINE IS INSTALLED. IMMEDIATELY PRIOR TO THE PERFORMANCE OF THE LINE ACCEPTABILITY TEST, THE GROUND WATER SHALL BE DETERMINED BY REMOVING THE PIPE CAP, BLOWING AIR THROUGH THE PIPE NIPPLE IN THE GROUND SO AS TO CLEAR IT, AND THEN CONNECTING A CLEAR PLASTIC TUBE TO THE NIPPLE. THE PLASTIC TUBE SHALL BE VERTICAL AND A MEASUREMENT OF THE HEIGHT, IN FEET OF WATER OVER THE INVERT OF THE PIPE, SHALL BE TAKEN AFTER THE WATER HAS STOPPED RISING IN THIS PLASTIC TUBE. AIR TEST PRESSURE IS TO BE INCREASED BY 0.433 PSI FOR EACH FOOT THE GROUND WATER IS ABOVE THE INVERT OF THE SEWER LINE BEING TESTED. THE ALLOWABLE DROP OF ONE POUND AND THE TIMING OF THE TEST REMAIN THE SAME.

IF A LINE ACCEPTABILITY TEST IS BEING CONDUCTED ON MORE THAN ONE MANHOLE REACH OF PIPE, THE ENTIRE SECTION BEING TESTED SHALL MEET THE LINE ACCEPTABILITY REQUIREMENTS AS IF ONLY ONE (1) OF THE MANHOLE REACHES IN THE SECTION WERE BEING TESTED.

## NEGATIVE AIR PRESSURE (VACUUM) TESTING OF MANHOLES AS PER ASTM C-1244

PREPARATION OF THE MANHOLE:

- A. ALL LIFT HOLES SHALL BE PLUGGED.
- B. ALL PIPES ENTERING THE MANHOLE SHALL BE TEMPORARILY PLUGGED, TAKING CARE TO SECURELY BRACE THE PIPES AND PLUGS TO PREVENT THEM FROM BEING DRAWN INTO THE MANHOLE.

## PROCEDURE:

- THE TEST HEAD SHALL BE PLACED AT THE TOP OF THE MANHOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. A VACUUM OF 10 IN. OF MERCURY SHALL BE DRAWN ON THE MANHOLE, THE VALVE ON THE VACUUM LINE OF THE TEST HEAD CLOSED, AND THE VACUUM PUMP SHUT OFF. THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 IN OF MERCURY.
- C. THE MANHOLE SHALL PASS IF THE TIME FOR THE VACUUM READING TO DROP FROM 10 IN. OF MERCURY TO 9 IN. OF MERCURY MEETS OR EXCEEDS THE VALUES INDICATED IN TABLE BELOW.

			MUMININ	TEST TI	IMES FOR	R MANHO	DLES		
DEPTH (FT)				DIAM	ETER, IN	•			
	30	33	36	42	48	54	60	66	72
				TIME, IN	N SECON	DS			
8 10 12 14 16 18 20 22 24 26 28 30	11 14 17 20 22 25 28 31 33 36 39 42	12 15 18 21 24 27 33 36 39 42 45	14 18 21 25 39 32 35 39 42 46 49 53	17 21 25 30 34 38 42 46 51 55 63	20 25 35 45 45 55 69 74	23 29 35 41 46 52 53 64 75 81 87	26 33 46 59 65 78 85 91 98	29 36 43 51 58 65 79 87 94 101 108	33 41 49 57 67 73 89 105 113 121

## WORKING AREA

NO EXCAVATION WITH SIDE SLOPES STEEPER THAN 2:1 AND/OR DEEPER THAN 2' WILL BE PERMITTED. OPEN CASTINGS AND PIPES SHALL BE LEFT SECURED WHEN THE SITE IS UNATTENDED BY THE CONTRACTOR. THE CONTRACTOR SHALL SECURE ALL SUCH EXCAVATIONS, OPEN CASTINGS AND PIPES AGAINST UNAUTHORIZED ENTRY COVERING WITH STEEL PLATES, TEMPORARY BACK FILLING, FENCING AND SECURITY SERVICES SHALL BE INCLUDED IN THE PRICE BID FOR THE WORK.

## FINAL APPROVAL

PRIOR TO THE PROJECT COMMENCING AND AFTER THE FINAL INVOICE IS SUBMITTED. A VIDEO TAPE WILL BE MADE BY THE CONTRACTOR AND SUBMITTED TO THE CITY ENGINEER BEFORE FINAL ACCEPTANCE OF THE PROJECT. ANY DISCREPANCIES WILL BE RESOLVED PRIOR TO FINAL PAYMENT. AS BUILT DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR ON SITE WITH ANY CORRECTIONS BEING RED LINED ON MYLAR DRAWINGS AND SUBMITTED TO THE CITY IN A CLEAR AND LEGIBLE MANNER PRIOR TO THE FINAL INVOICE BEING PAID.

COST OF THIS WORK SHALL BE INCLUDED IN ITEM 623 CONSTRUCTION STAKING

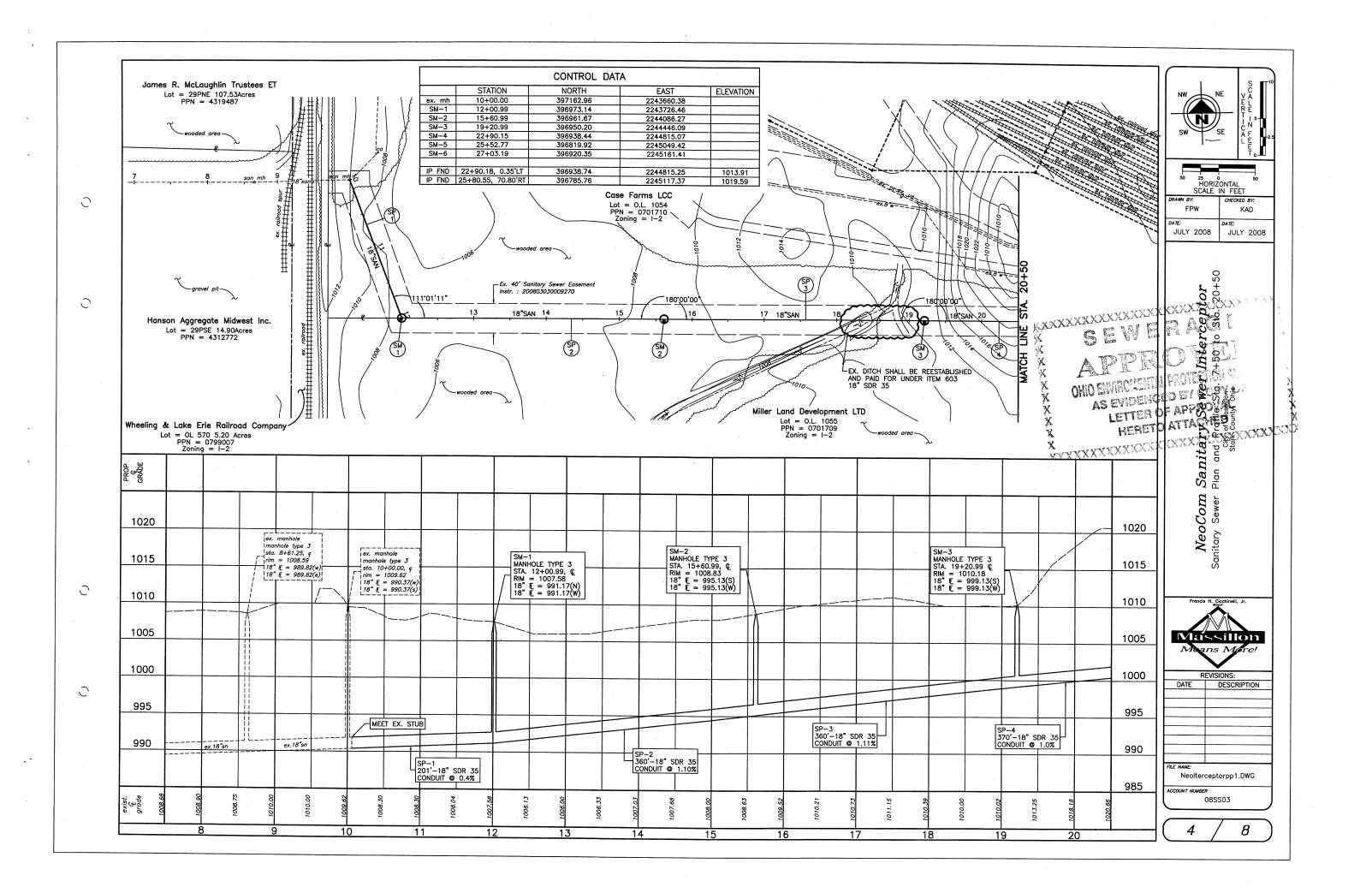
## CLEAN WATER STATEMENT

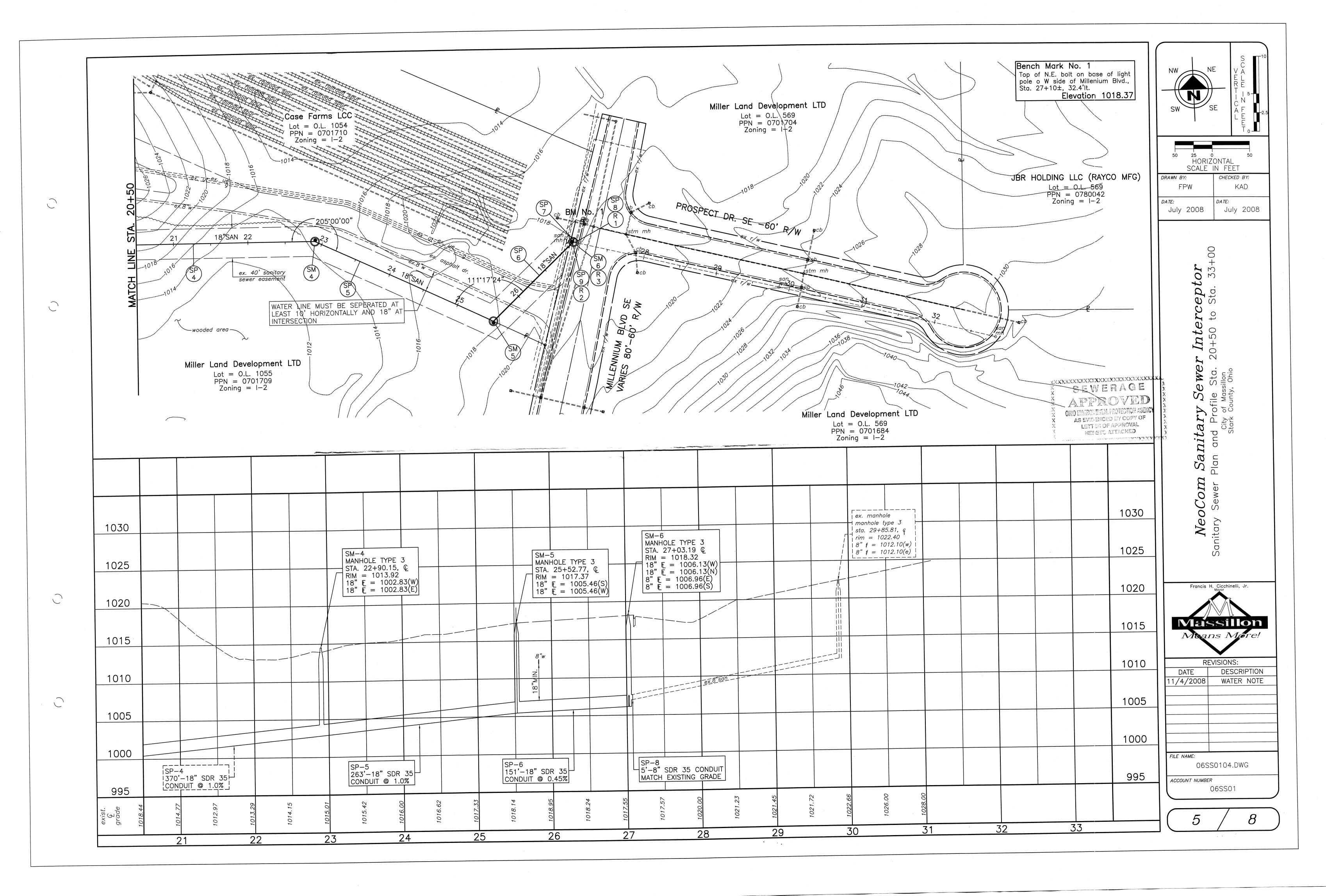
ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.

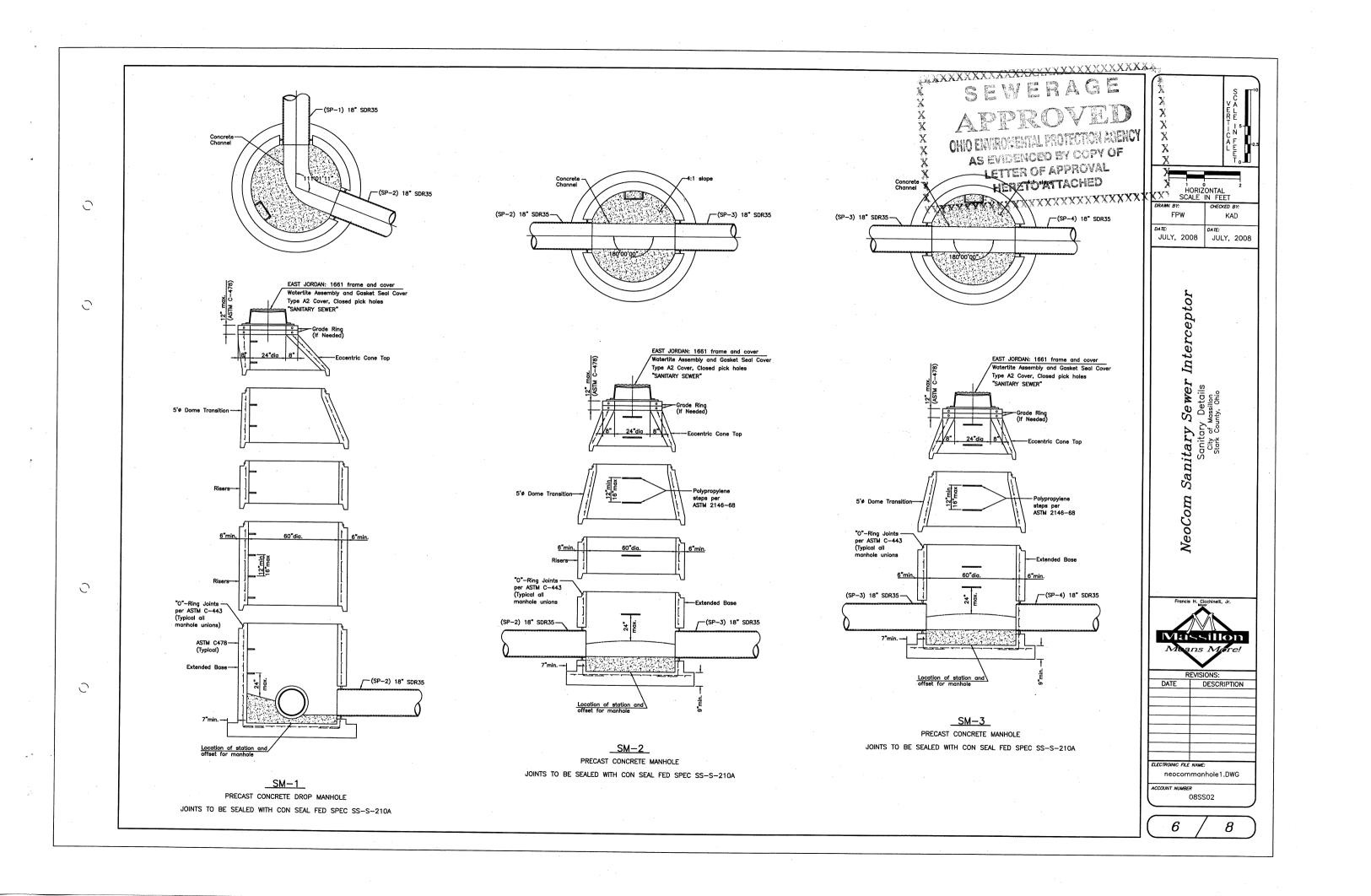
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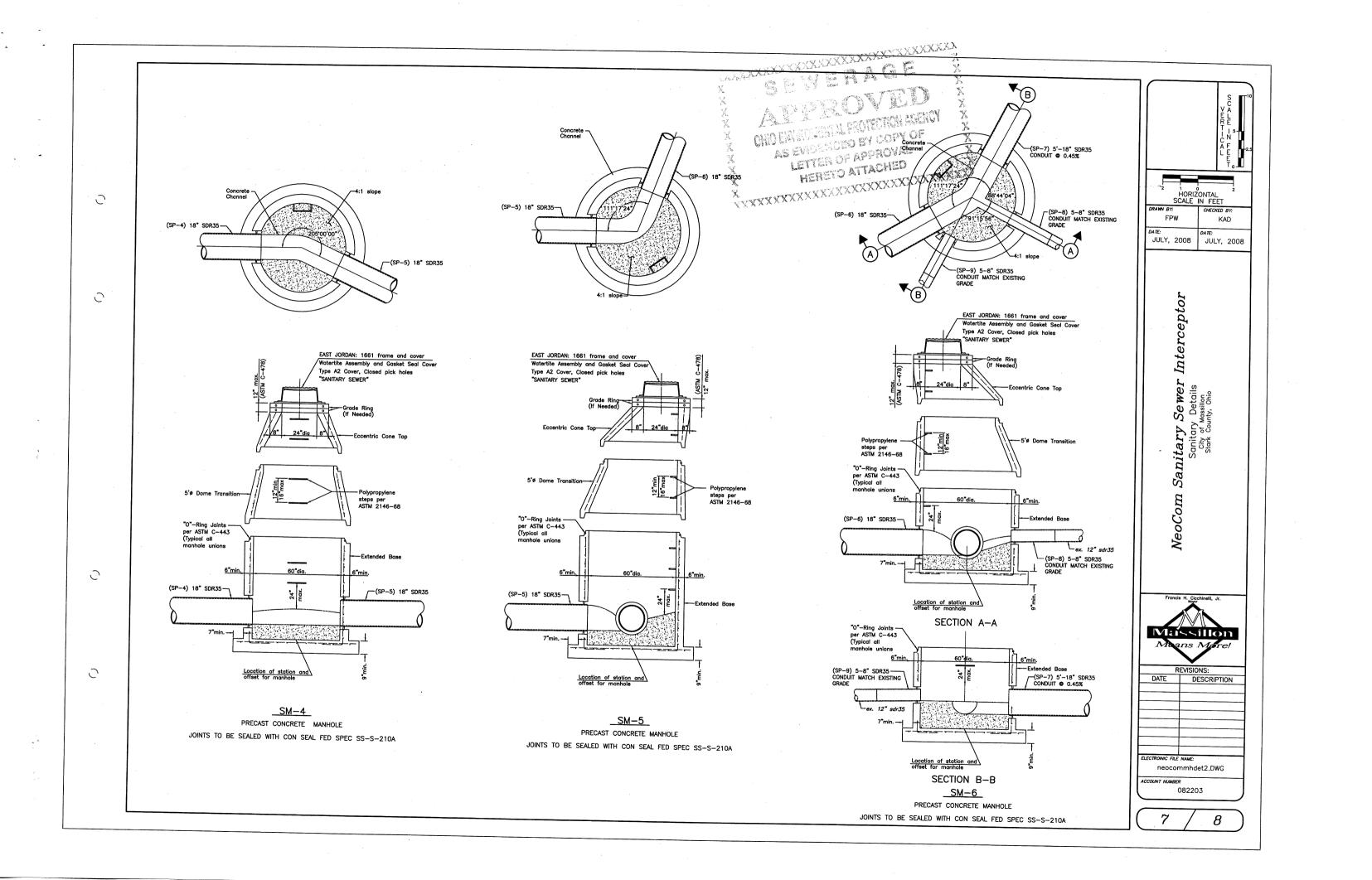
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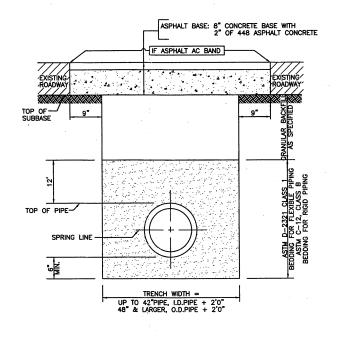
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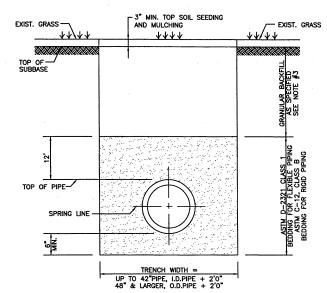












TRENCH DETAIL WITHIN ROADWAY / DRIVEWAY

# TRENCH DETAIL OUTSIDE OF ROADWAY

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			OPEN (	CUT D	ETAIL				
					202	202	603	603	604
SHEET No.	T REF. STATION		_, ,   , , , , , , , , , , , , , , ,	SIDE	PIPE REMOVED	MANHOLE REMOVED	8" SDR 35	18" SDR 35	SANITARY MANHOLE
		FROM	TO	1	LF	EACH	L.F.	L.F.	EACH
5	R-1	27+03.19	TO	CL	5				
5	R-2	27+03.19	TO	RT	5				
5	R-3	27+0	3.19	CL		1			
4	SP-1	10+00	12+00.99	CL				201	
4	SP-2	12+00.99	15+60.99	CL				360	
4	SP-3	15+60.99	19+20.99	CL				360	
4	SP-4	19+20.99	22+90.15	CL				370	
5	SP-5	22+90.15	25+52.77	CL				263	
5	SP-6	25+52.77	27+03.19	CL				151	
5	SP-7	27+03.19	27+03.19	CL/LT				5	
5	SP-8	27+03.19	27+08.19	CL			5		
5	SP-9	27+03.19	26+98.94	CL/RT			5		
4	SM-1	12+0	00.99	CL					1
4	SM-2	15+6	0.99	CL					. 1
4	SM-3	19+2	20.99	CL					1
5	SM-4	22+9	90.15	CL					1
5	SM-5	25+	52.77	CL	L				1
5	SM-6	27+0	03.19	CL					1
			L						
то	TALS CA	ARRIED TO GE	NERAL SUMMA	RY	10	1	10	1710	6

				GENERA	L SUMM	ARY	X
		SHEET N	NUMBER	ITEM	GRAND	UNIT	DESCRIPTION
3	8			""	TOTAL	0.111	BESSIAI HOIT
							ROADWAY
LUMP				 201spec	LUMP	LUMP	CLEARING AND GRUBBING
	10			202	10	LF	PIPE REMOVED
	1			202	11	LF	MANHOLE REMOVED
						,	EROSION CONTROL
LUMP				659	LUMP	LUMP	TOPSOIL, SEEDING AND MULCHING
							SANITARY
	10			 603	10	LF	8" SDR 35
	1710			 603	1710	LF	18" SDR 35
	6			604	6	EACH	PRECAST SANITARY MANHOLE
LUMP				623	LUMP	LUMP	CONSTRUCTION STAKING
LUMP				 624	LUMP	LUMP	MOBILIZATION

HORIZONTAL SCALE IN FEET KAD DATE: DATE: JULY, 2008 NeoCom Sanitary Sewer

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Stark County, Onio DATE DESCRIPTION Neocomqua.DWG 08SS02 8

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