

# City of Lorain NEW CONSTRUCTION STANDARD DESIGNS



**City of Lorain  
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**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764.

**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
GENERAL  
INDEX**

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## GENERAL

1. ALL WORK AND MATERIALS FURNISHED SHALL BE IN ACCORDANCE WITH THE PLANS AND THE CURRENT EDITIONS OF THE "STATE OF OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS" AND THE "CITY OF LORAIN STANDARD DESIGNS", SHALL MEET AASHTO M306 STANDARDS AND SHALL BE MADE IN THE USA. CITY PLANS SUPERCEDE ODOT SPECS.
2. 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 LORAIN, 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.
3. ALL DEVELOPMENTS INVOLVING UTILITY IMPROVEMENTS SHALL HAVE DETAILED DESIGN DRAWINGS PREPARED AND SEALED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER OR SURVEYOR. DRAWINGS SHALL BE SIGNED AND DATED BY THE PREPARING ENGINEER OR SURVEYOR OR WILL NOT BE CONSIDERED VALID. ELECTRONIC AS-BUILTS OF ALL IMPROVEMENTS SHALL BE PROVIDED AND SEALED BY A PROFESSIONAL SURVEYOR. AS-BUILT COMPATIBILITY WITH GIS IS REQUIRED.
4. CITY OF LORAIN STANDARD DESIGNS CONSTITUTE A MINIMUM DESIGN STANDARD. SPECIFIC PROJECTS MAY INVOLVE SPECIAL CIRCUMSTANCES WHICH REQUIRE MODIFICATION OF STANDARDS AND ADDITIONAL ENGINEERING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ADDITIONAL DESIGN AND FOR OBTAINING APPROVAL OF ANY STANDARD DESIGNS MODIFICATIONS.
5. PAVEMENT MARKINGS WHICH ARE DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH CITY OF LORAIN, ODOT, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES REQUIREMENTS.
6. DOMESTIC IRON AND STEEL SHALL BE USED FOR ALL CASTINGS, FITTINGS AND STEEL PRODUCTS.
7. ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) WASTE MUST BE DISPOSED OF IN AN OHIO EPA APPROVED C&DD LANDFILL AS REQUIRED BY OHIO REVISED CODE 3714.
8. AT THE END OF EACH DAY THE CONTRACTOR SHALL CLEAN ALL PUBLIC WALKS AND STREETS USED IN CONJUNCTION WITH THE PROJECT TO THE SATISFACTION OF THE ENGINEER.
9. ALL MATERIAL, I.E., MANHOLE FRAMES OR LIDS, FIRE HYDRANTS, INLET FRAMES OR GRATES AND MONUMENT BOXES DIRECTED TO BE SALVAGED SHALL BE DELIVERED ON WOOD PALLETS BY THE CONTRACTOR TO THE CITY OF LORAIN SEWER DEPARTMENT AT 6301 WEST ERIE AVENUE (ACCESS FROM OAK POINT ROAD, BEAR LEFT AT DRIVEWAY SPLIT). FOR EACH ITEM THAT IS TO BE SALVAGED AND NOT DELIVERED TO THE SEWER DEPARTMENT, THERE WILL BE A REASONABLE MONETARY SUM WITHHELD FROM THE CONTRACT PAYMENTS AND CHARGED AGAINST THE CONTRACTOR. CALL (440) 204-2200 TO MAKE ARRANGEMENTS FOR THE MATERIAL DELIVERY.
10. WHEN, FOR ANY REASON, THE WORK IS LEFT UNFINISHED FOR AN EXTENDED PERIOD OF TIME, AS DEFINED BY THE ENGINEERING DEPARTMENT, ALL TRENCHES AND EXCAVATIONS SHALL BE FULLY PROTECTED OR FILLED TO LEAVE THE SITE IN A GOOD AND SAFE CONDITION.
11. A PRECONSTRUCTION CONFERENCE SCHEDULED BY THE ENGINEER SHALL BE HELD PRIOR TO THE START OF ANY WORK.
12. THE ENGINEER SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF THE START OF ANY WORK UNDER THE CONTRACT IN ORDER TO SCHEDULE THE ASSIGNMENT OF AN INSPECTOR FOR THE WORK.
13. ALL SHOP DRAWINGS AND OTHER SUBMITTALS MUST BE CHECKED, APPROVED, AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION TO THE ENGINEER FOR REVIEW.
14. THE CONTRACTOR SHALL PROVIDE A PRECONSTRUCTION VIDEO TAPE SURVEY OF THE ENTIRE PROJECT AREA. ANY DAMAGE DEEMED TO BE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT HIS OWN EXPENSE. ALL COSTS ASSOCIATED FOR THIS WORK, INCLUDING THE VIDEOTAPE SURVEY, SHALL BE INCLUDED IN ITEM 624-MOBILIZATION.
15. EXISTING STREET RIGHT-OF-WAYS SHALL BE CONSIDERED TO BE THE PROJECT LIMITS FOR ALL STREETS IN THE CONTRACT.
16. ALL EXCAVATED MATERIALS SHALL BE DEPOSITED AT AN APPROVED DUMP SITE IN ACCORDANCE WITH ODOT 105.16.
17. FURNISH THE ENGINEER A PROGRESS SCHEDULE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

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 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
9	01/01/2019				
10	06/20/2019	NO. 10 & 15 CHANGED			
10	06/20/2019	PREVIOUS NO. 17 OMITTED			
11	02/04/2020	NO. 1 REVISED			

### STANDARD DESIGNS GENERAL GENERAL NOTES

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**GENERAL, CONT'D**

- 19. THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED "AS DIRECTED BY ENGINEER" (ADBE) UNLESS AUTHORIZED BY THE PROJECT ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE DOCUMENTED AND THE CONTRACTOR SHALL BE PAID IN ACCORDANCE WITH THE CONTRACT UNIT PRICE FOR EACH APPLICABLE BID ITEM.
- 20. STORING CONSTRUCTION EQUIPMENT AND VEHICLES AND/OR STOCKPILING CONSTRUCTION MATERIALS ON PROPERTY, PUBLIC OR PRIVATE, NOT PREVIOUSLY SPECIFIED ON THE PLANS BY THE ENGINEER FOR SUCH PURPOSES SHALL BE PROHIBITED WITHOUT AUTHORIZATION BY THE ENGINEER.
- 21. OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE OF THE HOURS OF 7:00 AM TO 7:00 PM IS PROHIBITED.
- 22. VIOLATION OF ANY CITY ORDINANCE MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER.
- 23. ALL BACKFILL SHALL BE PREMIUM BACKFILL: BACKFILL SHALL BE IN ACCORDANCE WITH THE TRENCH DETAILS SHOWN HEREIN. ALL BACKFILL IN SEWER TRENCHES SHALL BE PLACED IN LAYERS SUFFICIENT TO MEET THE COMPACTION REQUIREMENTS OF 100% MAXIMUM LABORATORY DRY DENSITY PER ASTM D-698 AND THOROUGHLY COMPACTED WITH MACHINE MOUNTED 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. COMPACTION TESTING OF THE BACKFILL MAY BE REQUIRED BY THE CITY. THE CONTRACTOR SHALL PAY FOR ALL LABORATORY TESTING COSTS OF BACKFILL MATERIAL. THE COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS OF WORK. ALL BACKFILL SHALL BE PLACED IN MAXIMUM 12" LIFTS AND COMPACTED.

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NO.	DATE	REVISION	NO.	DATE	REVISION
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7	01/01/2018				
9	01/01/2019				
11	02/04/2020	NO. 19 & 20 REMOVED			

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GN-2.1

## ITEM 614 - MAINTAINING TRAFFIC

1. MAINTAIN THROUGH TRAFFIC AT ALL TIMES IN ACCORDANCE WITH ODOT ITEM 614 AND THE DETAILS AND NOTES ON THE STANDARD CONSTRUCTION DRAWINGS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN PEDESTRIAN, LOCAL ROADWAY AND DRIVEWAY ACCESS AT ALL TIMES. THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY STONE DRIVES/WALKS WITH A MATERIAL WHICH IS APPROVED BY THE ENGINEER. THESE TEMPORARY STONE DRIVES SHALL BE MAINTAINED TO THE SATISFACTION OF THE ENGINEER. COST FOR ALL MATERIALS, LABOR AND EQUIPMENT FOR CONSTRUCTION MAINTENANCE AND SUBSEQUENT REMOVAL SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC.
3. PROVIDE STEEL PLATES ACROSS TRENCHES AS DIRECTED TO PROVIDE TEMPORARY VEHICLE OR PEDESTRIAN ACCESS TO RESIDENCES. ADDITIONAL ACCOMMODATIONS MAY BE REQUIRED TO PROVIDE ACCESSIBILITY FOR VEHICLES OF HANDICAPPED OR OTHER IDENTIFIED RESIDENTS.
4. LANE CLOSURES AND RESTRICTIONS ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL SUBMIT A LANE CLOSURE/TRAFFIC RESTRICTION REQUEST 48 HOURS IN ADVANCE OF ANY PLANNED IMPLEMENTATION SPECIFYING THE LIMITS AND DURATION OF THE WORK. SAID REQUEST SHALL INCLUDE A MAP DEPICTING THE LOCATION OF ALL TRAFFIC CONTROL DEVICES (SIGNS, DRUMS, ETC.). IF PERMITTED, THE ENGINEER WILL APPROVE THE LENGTH AND DURATION OF LANE CLOSURES AND/OR TRAFFIC RESTRICTIONS, WITH THE INTENT OF MINIMIZING THE IMPACT TO THE TRAVELING PUBLIC. THE ENGINEER WILL NOT PERMIT LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME. THE CONTRACTOR IS RESPONSIBLE FOR ERECTING ALL NECESSARY DETOUR SIGNS AND TRAFFIC CONTROL DEVICES. COSTS SHALL BE INCLUDED IN ITEM 614, MAINTENANCE OF TRAFFIC.
5. THE CONTRACTOR SHALL POST SIGNS 24 HOURS IN ADVANCE TO NOTIFY CITIZENS OF THE NEED FOR NO PARKING ON THE STREET DURING CONSTRUCTION HOURS. FAILURE TO PERFORM THIS POSTING, OR NOT TO PERFORM WORK IN THE SPECIFIED TIME OF THE SIGN POSTING, WILL RESULT IN THE CONTRACTOR BEING RESPONSIBLE FOR ALL TOWING FEES AND FINES RESULTING FROM THE FAILURE TO EXECUTE THE WORK AS PER THE SIGN POSTING.
6. FURNISH, ERECT, MAINTAIN, AND SUBSEQUENTLY REMOVE WORK ZONE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), ODOT ITEM 614, THE STANDARD CONSTRUCTION DRAWINGS AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC CONTROL DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.
7. FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS SUCH AS TEMPORARY STRIPING, BARRICADES, LIGHTING, FLAGGERS, AND OTHER SUCH TRAFFIC CONTROL DEVICES IN THE WORK ZONE IN ACCORDANCE WITH ITEM 614-MAINTAINING TRAFFIC SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION.
8. RELOCATE EXISTING TRAFFIC CONTROL DEVICES (SIGNS AND/OR TRAFFIC SIGNALS), LOCATED WITHIN THE WORK AREA, WHICH ARE REQUIRED FOR INTERIM OR PERMANENT TRAFFIC CONTROL, TO POINTS APPROVED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ERECTING ALL NECESSARY DETOUR SIGNS AND TRAFFIC CONTROL DEVICES. COSTS SHALL BE INCLUDED IN ITEM 614-MAINTENANCE OF TRAFFIC.
9. ALL STREET AND TRAFFIC SIGNS REMOVED DURING CONSTRUCTION SHALL BE REINSTALLED AS REQUIRED UPON COMPLETION OF THE PROJECT.
10. 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 ENGINEER AND SHALL BE IN ACCORDANCE WITH ITEM 616 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS. ONLY WATER SHALL BE USED FOR DUST CONTROL NEAR SURFACE WATER AND CATCH BASINS. THE COST FOR THESE OPERATIONS SHALL BE INCLUDED IN ITEM 614-MAINTENANCE OF TRAFFIC.
11. THE PROVISIONS OF THIS SECTION SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF ANY OF HIS LEGAL RESPONSIBILITIES OR LIABILITIES FOR THE SAFETY OF THE PUBLIC. THE CONTRACTOR SHALL INDEMNIFY AND SAVE HARMLESS THE CITY OF LORAIN FROM ANY EXPENSE WHATSOEVER DUE TO HIS OPERATION OVER SAID ROADWAYS.

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NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
9	01/01/2019				
10	06/20/2019	NO. 2 ADDED			
11	02/04/2020	NO. 10 REMOVED			

## STANDARD DESIGNS GENERAL GENERAL NOTES

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# GN-2.2

## ITEM 614 - MAINTAINING TRAFFIC, CONT'D

12. THE CONTRACTOR SHALL CONTACT THE FOLLOWING ENTITIES PRIOR TO CHANGING THE CURRENT TRAFFIC CONFIGURATION:

LORAIN CITY SCHOOLS TRANSPORTATION  
 SHONTEEA FORD  
 CHARLESTON ADMINISTRATION CENTER  
 2601 POLE AVE.  
 LORAIN, OHIO 44052  
 PH: 440-830-4047  
 EMAIL: TFORD@LORAIN.CSD.ORG

FIRST STUDENT  
 BRAD SPRAGUE  
 1800 COLORADO AVE.  
 LORAIN, OHIO 44052  
 PH: 440-288-2222 EXT. 222  
 EMAIL: BRAD.SPRAGUE@FIRSTGROUP.COM

LORAIN COUNTY TRANSIT  
 PAMELA NOVAK  
 226 MIDDLE AVE.  
 ELYRIA, OHIO 44035  
 PH: 440-329-5525  
 EMAIL: PNOVAK@LORAINCOUNTY.US

UNITED STATES POST OFFICE  
 CHARLES HIRSCH  
 3190 COLOADO AVENUE  
 LORAIN, OH 44052  
 PH: 440-288-8593  
 EMAIL: CHARLES.E.HIRSCH@USPS.GOV

REPUBLIC WASTE SERVICES  
 CHUCK ALLOMONG & TJ ROSE  
 PH: 440-458-5191  
 EMAIL: CALLOMONG@REPUBLICSERVICES.COM  
 TROSE2@REPUBLICSERVICES.COM

LORAIN ENGINEERING DEPARTMENT  
 DALE VANDERSOMMEN, PE - CITY ENGINEER  
 200 WEST ERIE AVENUE  
 LORAIN, OHIO 44052  
 PH: 440-204-2003

LORAIN CITY FIRE DEPARTMENT  
 CENTRAL FIRE STATION  
 1350 BROADWAY AVE.  
 LORAIN, OHIO 44052  
 PH: 440-204-2220

LORAIN POLICE DEPARTMENT  
 JAMES MCCANN, CHIEF  
 200 WEST ERIE AVENUE  
 LORAIN, OHIO 44052  
 PH: 440-204-2103

13. CONTRACTOR SHALL PROVIDE ENGINEER WITH A PLAN ON HOW DRIVE ACCESS WILL BE RESTORED AFTER PAVEMENT HAS CURED AND ITS MAINTENANCE. THE COST FOR THIS SHALL BE INCIDENTAL TO ITEM 614-MAINTENANCE OF TRAFFIC.
14. THE CONTRACTOR SHALL NOTIFY EACH RESIDENT OF ANY RESTRICTED ACCESS TO THEIR PROPERTY NO LATER THAN ONE (1) WEEK IN ADVANCE.
15. THE CONTRACTOR SHALL PROVIDE PERSONNEL TO DELIVER CORRESPONDENCE TO THE HOMEOWNERS AS NEEDED TO UPDATE RESIDENTS ON THE PROGRESS OF THE WORK. THE CONTRACTOR WILL PREPARE THIS CORRESPONDENCE AND THE ENGINEER WILL REVIEW AND APPROVE, PRIOR TO DELIVERY.
16. TEMPORARY CARDBOARD NO PARKING IN STREET OR TREELAWN SIGNS SHALL BE UTILIZED DURING CONSTRUCTION, ANY RESIDENT CARS THAT ARE PARKED IN THE TREELAWN (THE AREA BETWEEN THE CURB AND SIDEWALK) OR IN THE STREET WHERE PROHIBITED SHALL BE REPORTED FOR REMOVAL TO THE CITY OF LORAIN POLICE, TRAFFIC DIVISION. ANY CONTRACTOR PARKING ON THE TREELAWN WILL BE DOCUMENTED AND FULL RESTORATION WILL BE REQUIRED AT THE COST OF THE CONTRACTOR.

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1	10/27/2015		11	02/04/2020	POST OFFICE ADDED
7	01/01/2018		11	02/04/2020	PREV. NO. 12 & 14 RMV.
9	01/01/2019				
10	06/20/2019	NO. 17 ADDED			
11	02/04/2020	NO. 14 CHANGED			
11	02/04/2020	POLICE CHIEF UPDATED			

**STANDARD DESIGNS  
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 GENERAL NOTES**

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**GN-2.3**

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**PAVEMENT MARKING**

1. FURNISH AND INSTALL PAVEMENT MARKINGS IN ACCORDANCE WITH ODOT ITEM 640, THE STANDARD CONSTRUCTION DRAWINGS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.

**PROHIBITED CONSTRUCTION ACTIVITIES**

1. DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOODPLAINS, EVEN WITH THE PERMISSION OF THE OWNER.
2. LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS.
3. DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA.
4. DISPOSING OF TREES, BRUSH AND OTHER DEBRIS IN ANY STREAM CORRIDORS, ANY WETLANDS, OR ANY SURFACE WATERS, OR AT UNSPECIFIED LOCATIONS. THE USE OF EXPLOSIVES WITHIN CITY LIMITS, UNLESS A PERMIT IS ISSUED BY THE CITY.
5. INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATIONS OF EQUIPMENT IN ANY STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS OR OUTSIDE THE EASEMENT LIMITS.
6. PUMPING OF SEDIMENT LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, ANY STREAM CORRIDORS, ANY WETLANDS OR STORM SEWERS; ALL SUCH WATER WILL BE PROPERLY FILTERED OR SETTLED TO REMOVE SILT PRIOR TO RELEASE.
7. DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, OR ANY OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS OR INTO NATURAL OR MANMADE CHANNELS LEADING THERETO; PERMANENT OR UNSPECIFIED ALTERATION OF THE LOW LINE OF ANY STREAM.

**RESTORATION**

1. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE REGRADED AND SEEDED AS PER CITY OF LORAIN CODIFIED ORDINANCE 1529, OHIO EPA STORMWATER REGULATIONS, AND ODOT ITEM 832.
2. HYDROSEEDING IS REQUIRED FROM MARCH 1ST THROUGH OCTOBER 30TH.
3. PAY LIMITS FOR TOPSOIL AND SEEDING AND MULCHING SHALL EXTEND FOUR (4) FEET BEHIND BACK OF CURB/EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE. ANY RESTORATION OUTSIDE OF THESE LIMITS IS THE RESPONSIBILITY OF THE CONTRACTOR.

**SIGNS**

1. FURNISH AND ERECT SIGNS IN ACCORDANCE WITH ODOT ITEM 630, THE STANDARD CONSTRUCTION DRAWINGS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.
2. PROPOSED SIGNS SHALL MATCH THE CHARACTERISTICS OF AN EXISTING SIGN IF IT IS TO REMAIN WITHIN THE PROJECT LIMITS UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THIS COORDINATION.

**SURVEY**

1. THE CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS AND BENCHMARKS, PER ODOT 623.
2. MONUMENTS SHALL BE LEFT UNDISTURBED UNTIL THE CITY OF LORAIN ENGINEERING DEPARTMENT HAS CHECKED/VERIFIED THE REFERENCES PROVIDED BY THE CONTRACTOR'S SURVEYOR. IN ALL CASES THE CONTRACTOR SHALL CONTACT THE CITY OF LORAIN ENGINEERING DEPARTMENT AT 440-204-2003 NO LESS THAN TWO (2) WEEKS PRIOR TO THE DISTURBANCE OF ANY EXISTING MONUMENTS.
3. DISTURBED PRIVATE RIGHT-OF-WAY MONUMENTS ON OR OUTSIDE THE PROJECT RIGHT-OF-WAY LIMITS AND NOT ENCLOSED WITHIN A TEMPORARY EASEMENT FOR THE PROJECT SHALL BE RESET OR REPLACED AT THE CONTRACTOR'S EXPENSE. PRIVATE RIGHT-OF-WAY MONUMENTS WITHIN THE PROJECT RIGHT-OF-WAY/TEMPORARY EASEMENTS WHICH ARE UNAVOIDABLY DISPLACED OR DAMAGED DURING THE CONTRACT WORK SHALL BE RESET OR REPLACED ALL AT THE DETERMINATION/DIRECTION OF THE ENGINEER.

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**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764.

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				
10	06/20/2019	NO. 2 ADDED IN RESTORATION			
11	02/04/2020	NO. 3 IN RESTORATION REV.			
11	02/04/2020	PREV. NO. 3 IN SIGNS DELETED			
11	02/04/2020	NO. 1 IN SURVEY REVISED			
11	03/04/2020	RENUMBERED SURVEY NOTES			

<b>STANDARD DESIGNS GENERAL GENERAL NOTES</b>			
CAD FILE: GN-2.4.dwg			SHEET:
DRWN BY: RS	APPRVD BY: DV	ISSUE DATE: 10/27/2015	SCALE: NONE
<b>GN-2.4</b>			

# UNDERGROUND

1. ALL NEW CONDUITS, INLET, CATCH BASINS, AND MANHOLES CONSTRUCTED AS PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE CITY.
2. ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.
3. ALL BACKFILL UNDER OR WITHIN THE ZONE OF INFLUENCE OF ROADS, DRIVES, SIDEWALKS, AND PARKING LOTS SHALL BE GRANULAR BACKFILL PER SPECIFICATIONS.
4. PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS ENCOUNTERED DURING CONSTRUCTION.
5. THE COST FOR ALL ROCK EXCAVATION IS INCLUDED WITH THE PERTINENT BID ITEMS (PIPE, EXCAVATION FOR STRUCTURE, ETC). NO SEPARATE PAYMENT WILL BE MADE FOR ANY ROCK EXCAVATION. IF THE CONTRACTOR WANTS ADDITIONAL INFORMATION, THEY SHOULD COORDINATE WITH THE OWNER ANY BORINGS OR TEST PITS THEY INTEND TO COMPLETE.

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NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				
11	02/10/2020	REMOVED NO. 1-5, 10-11			

## STANDARD DESIGNS GENERAL GENERAL NOTES

CAD FILE: GN-2.5.dwg				SHEET:	
DRWN BY: RS	APPRVD BY: DV	ISSUE DATE: 10/272015	SCALE: NONE		

# GN-2.5

## UNDERGROUND

1. WATER AND SANITARY SERVICES SHALL BE MARKED FOR THEIR LOCATION AT THE RIGHT-OF-WAY WITH A 4x4 TREATED WOOD POST. PLACE POST AT THE END OF THE LINE AND EXTEND VERTICALLY TO 3' MINIMUM ABOVE THE PROPOSED FINISH GRADE. POSTS SHALL BE MARKED FOR EITHER WATER OR SEWER AND SHALL REMAIN IN PLACE UNTIL SUCH TIME THE BUILDING CONNECTIONS ARE MADE.
2. 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 LORAIN ENGINEERING DIVISION.
3. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEANWATER CONNECTIONS TO ANY SANITARY SEWER IS PROHIBITED.
4. DOWNSPOUT AND FOOTER DRAINS SHALL OUTLET INTO THE STORM SEWER, PROTRUDE THROUGH THE CURB OR SHALL DAYLIGHT ONTO THE PROPERTY ONTO SPLASH BLOCKS AND SHALL AT NO TIME BE CONNECTED TO THE SANITARY SEWER.
5. BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY, REPRESENTATIVES OF THE CITY AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE IN WRITING BY THE CITY.
6. ALL NEW CONDUITS, INLET, CATCH BASINS, AND MANHOLES CONSTRUCTED AS PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE CITY.
7. ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.
8. ALL BACKFILL UNDER OR WITHIN THE ZONE OF INFLUENCE OF ROADS, DRIVES, SIDEWALKS, AND PARKING LOTS SHALL BE GRANULAR BACKFILL PER SPECIFICATIONS.
9. PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS ENCOUNTERED DURING CONSTRUCTION.
10. REVIEW OF DRAINAGE FACILITIES: BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY, REPRESENTATIVES OF THE CITY AND THE CONTRACTOR, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE IN WRITING BY THE CITY. ALL NEW CONDUITS, INLET, CATCH BASINS, AND MANHOLES CONSTRUCTED AS PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE CITY. ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S 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 DRAINAGE/CASTING ITEMS.
11. CROSSINGS AND CONNECTIONS 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 UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES AND UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT. IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT OR EXISTING APPURTENANCE TO BE CONNECTED DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS. IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY. PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT CONDUIT ITEM.
12. THE COST FOR ALL ROCK EXCAVATION IS INCLUDED WITH THE PERTINENT BID ITEMS (PIPE, EXCAVATION FOR STRUCTURE, ETC). NO SEPARATE PAYMENT WILL BE MADE FOR ANY ROCK EXCAVATION. IF THE CONTRACTOR WANTS ADDITIONAL INFORMATION, THEY SHOULD COORDINATE WITH THE OWNER ANY BORINGS OR TEST PITS THEY INTEND TO COMPLETE.

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**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
GENERAL  
GENERAL NOTES**

CAD FILE:

GN-2.5.dwg

SHEET:

**GN-2.5**

DRWN BY:  
**RS**

APPRVD BY:  
**DV**

ISSUE DATE:  
**10/27/2015**

SCALE:  
**NONE**

# UTILITIES

- THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

OHIO EDISON CO. NATALIE CAMP 6326 LAKE AVENUE ELYRIA, OH 44035 PH: 440-326-3319 EMAIL: NCAMP@FIRSTENERGYCORP.COM	COLUMBIA GAS CO. ADAM WOODIE 3101 NORTH RIDGE ROAD, EAST LORAIN, OH 44055 PH: 440-240-6144 EMAIL: AWOODIE@NISOURCE.COM
CENTURY TELEPHONE GERONIMO SALES 203 WEST NINTH STREET LORAIN, OH 44052 PH: 440-244-8330 EMAIL: GERONIMO.O.SALES@CENTURYLINK.COM	SPECTRUM MARTIN VAN KUREN 1801 ELYRIA AVENUE LORAIN, OH 44052 PHONE: 216-854-0755 EMAIL: MARTY.VANKUREN@CHARTER.COM
CITY OF LORAIN DEPARTMENT OF UTILITIES 1106 WEST 1ST STREET LORAIN, OH 44052 SEWER - JACK MEYERS PH: 440-204-2726 EMAIL: JACK_MEYERS@CITYOFLORAIN.ORG WATER DISTRIBUTION - JIM MALICK PH: 440-204-2285 EMAIL: JIM_MALICK@CITYOFLORAIN.ORG	OHIO UTILITIES PROTECTION SERVICE PH: 800-362-2764 (OR 811) WWW.OUPS.ORG  WOW CABLE BOB HAMMOND DIRECTOR, PLANT MAINTENANCE PH: 440-606-6262 EMAIL: BOB.HAMMOND@WOWINC.COM
- THE SIZE AND LOCATION, BOTH HORIZONTAL AND VERTICAL, OF THE UNDERGROUND UTILITIES SHOWN IN THE CONTRACT DOCUMENTS HAVE BEEN OBTAINED BY A SEARCH OF AVAILABLE RECORDS AS WELL AS FROM THE UTILITY OWNERS AS REQUIRED BY O.R.C. SECTION 153.64. THE CITY OF LORAIN DOES NOT GUARANTEE THE COMPLETENESS NOR ACCURACY THEREOF. THE CONTRACTOR SHALL VERIFY THE LOCATION OF UTILITIES WITH THE PERTINENT UTILITY OWNER PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING IN PROXIMITY OF UTILITIES.
- SERVICE LINES ARE NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHOULD ASSUME ALL PROPERTIES HAVE WATER, SEWER, AND GAS SERVICE LINES. FIELD VERIFY THE LOCATION OF ALL SERVICES SHOWN AND NOT SHOWN.
- WHERE EXISTING POWER OR TELEPHONE POLES ARE IN CLOSE PROXIMITY TO WORK, THE CONTRACTOR SHALL COORDINATE THE WORK EFFORTS WITH THOSE OF THE UTILITY COMPANIES SUCH THAT THEIR EXISTING FACILITIES CAN BE MAINTAINED AND PROTECTED DURING THE TIME WORK IS OCCURRING ADJACENT TO THE POLE. THE COST AND COORDINATION FOR ANY REQUIRED PROTECTION, SUPPORT OR TEMPORARY RELOCATION OF EXISTING UTILITY POLES, STREET LIGHTS OR TRAFFIC LIGHTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE PROTECTION AND SUPPORT FOR ALL UTILITY POLES, STREET LIGHTS OR TRAFFIC POLES IN THE WORK AREA INCLUDING UTILITY POLES, STREET LIGHTS AND TRAFFIC POLES NOT SPECIFICALLY SHOWN ON THE PLANS TO REQUIRE TEMPORARY SUPPORT AND PROTECTION. DELAYS TO THE CONTRACTOR AS A RESULT OF TIMING OF POLE RELOCATION, SUPPORT OR PROTECTION SHALL NOT BE CONSIDERED COMPENSABLE DELAYS, AS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK IN CONFORMANCE TO THE UTILITY COMPANY'S SCHEDULE.
- IN THE EVENT THAT IT IS NECESSARY, DURING CONSTRUCTION, TO REVISE THE ALIGNMENT OF A PROPOSED PIPE OR LOCATION OF APPURTENANCES DUE TO CONFLICTS WITH EXISTING UTILITIES, THE CONTRACT UNIT PRICE BID FOR THE ITEMS INVOLVED SHALL NOT BE CHANGED EXCEPT IN CASES OF UNUSUALLY LARGE OR EXTENSIVE REVISIONS WHEN IN THE OPINION OF THE ENGINEER, AND INCREASE OR DECREASE IN UNIT PRICE IS JUSTIFIED. ANY CHANGE IN THE UNIT PRICE BID MUST BE MUTUALLY AGREED UPON IN WRITING BEFORE THE WORK IS PERFORMED. OTHERWISE, THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 24 HOURS IN ADVANCE OF INTERRUPTION OF EXISTING WATER OR SEWER SERVICES. EXISTING SERVICES SHALL NOT BE INTERRUPTED FOR MORE THAN 2 HOURS. THE CONTRACTOR WILL BE RESPONSIBLE FOR SHUTTING DOWN ANY EXISTING SERVICES AND FOR NOTIFYING PROPERTY OWNERS OF SERVICE DISRUPTIONS.

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Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
6	06/20/2017				
7	01/01/2018				
9	01/01/2019				
10	06/20/2019				
11	02/04/2020	UPDATED UTILITY CONTACTS			

## STANDARD DESIGNS GENERAL GENERAL NOTES

CAD FILE: GN-2.6.dwg		SHEET:	
DRWN BY: RS	APPRVD BY: DV	ISSUE DATE: 10/27/2015	SCALE: NONE

**GN-2.6**

**GENERAL**

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF LORAIN CODIFIED ORDINANCE 1529, OHIO EPA STORMWATER REGULATIONS, AND ODOT ITEM 832. ALL STORMWATER BEST MANAGEMENT PRACTICES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION. DEVELOPMENT SITES LESS THAN ONE (1) ACRE IN SIZE: ALL CONSTRUCTION ACTIVITY WITHIN THE CITY WITH LESS THAN ONE (1) ACRE IN SIZE OF DISTURBED AREA SHALL BE REQUIRED TO MAINTAIN COMPLIANCE WITH THE FOLLOWING MINIMUM STANDARDS:

1. CONSTRUCTION ENTRANCE: A CONSTRUCTION ENTRANCE INSTALLED AND MAINTAINED TO THE STANDARDS OF THE CURRENT OHIO DEPARTMENT OF NATURAL RESOURCES' RAINWATER AND LAND DEVELOPMENT MANUAL IS REQUIRED AT ALL ACCESS POINTS USED BY VEHICULAR TRAFFIC OR CONSTRUCTION EQUIPMENT.
2. INLET PROTECTION: CITY APPROVED INLET PROTECTION IS REQUIRED ON ALL EXISTING OR PROPOSED STORM SEWER INLETS IN THE VICINITY OF THE CONSTRUCTION SITE THAT MAY RECEIVE SITE RUNOFF.
3. PERIMETER CONTROL: MUST BE INSTALLED AND MAINTAINED ALONG THE EDGE OF THE CONSTRUCTION SITE TO PREVENT OR FILTER SURFACE RUNOFF LEAVING THE CONSTRUCTION SITE. THE TYPE OF PERIMETER CONTROL USED SHALL BE DETERMINED BASED ON SITE AND LOCATION.
4. SITE STABILIZATION: TEMPORARY AND PERMANENT STABILIZATION MUST BE IMPLEMENTED ON ALL SITES PER THE STANDARDS IN THE CURRENT STORM WATER DISCHARGES FROM SMALL AND LARGE CONSTRUCTION ACTIVITIES - OHIO GENERAL NPDES PERMIT.
5. SPILL PREVENTION/CONTAINMENT: ALL SITES SHALL IMPLEMENT MEASURES FOR PREVENTING, CONTROLLING OR CONTAINING SPILLS OF FUEL, LUBRICANTS, TEMPORARY SANITARY TOILETS, OR OTHER POLLUTANTS AND PROTECTION POTENTIAL POLLUTANTS FROM CONTACT WITH PRECIPITATION OR RUNOFF.
6. STAGING AREA AND CONCRETE WASHOUT: ALL SITES MUST HAVE A CONTAINMENT AREA DESIGNATED FOR TRASH DISPOSAL, VEHICLE MAINTENANCE, MATERIAL STORAGE, AND CONCRETE WASHOUT. SHOULD THE USE OF A PREDEFINED BERMED CONTAINMENT AREA OR APPROVED WASHOUT DEVICE BE TECHNICALLY INFEASIBLE DUE TO THE PROJECT SIZE, THE DISPOSAL METHOD AND/OR LOCATION MUST BE PRE-APPROVED BY THE CITY ENGINEER OR HIS/HER DESIGNEE.
7. STREET SWEEPING: ALL PAVED SURFACES AFFECTED BY THE CONSTRUCTION SITE MUST BE SWEEPED AT THE END OF EACH WORK DAY AND DURING THE DAY AS NEEDED WHEN SEDIMENT AND OTHER MATERIALS ARE TRACED OR DISCHARGED INTO THEM. STREET WASHING SHALL BE ALLOWED ONLY AFTER SHOVELING OR SWEEPING HAS REMOVED MOST OF THE SEDIMENT AND APPROVED STORM SEWER INLET PROTECTION IS PROPERLY INSTALLED ,UNLESS END OF SEWER SEDIMENT PONDS EXIST AND ARE PROPERLY FUNCTIONING.

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**City of Lorain**  
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 Phone: (440) 204-2003

**STANDARD DESIGNS  
 EROSION CONTROL  
 GENERAL NOTES**

NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
9	01/01/2019				

CAD FILE: ER-1.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**ER-1.0**

## TEMPORARY SEEDING SPECIFICATIONS

### TEMPORARY SEEDING SPECIES SELECTION

<u>SEEDING DATES</u>	<u>SPECIES</u>	<u>LB./1000 FT2</u>	<u>LB./ACRE</u>
<b>MARCH 1 TO AUGUST 15</b>			
	OATS	3	128 (4 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYEGRASS	1	40
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	ANNUAL RYEGRASS	1.25	55
	PERENNIAL RYEGRASS	3.25	142
	CREEPING RED FESCUE	0.4	17
	KENTUCKY BLUEGRASS	0.4	17
	OATS	3	128 (3 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40

<b>AUGUST 16 TO NOVEMBER 1</b>			
	RYE	3	112 (2 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	WHEAT	3	120 (2 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYE	1	40
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	ANNUAL RYEGRASS	1.25	40
	PERENNIAL RYEGRASS	3.25	40
	CREEPING RED FESCUE	0.4	40
	KENTUCKY BLUEGRASS	0.4	

**NOVEMBER 2 TO FEBRUARY 28**  
USE MULCH ONLY OR DORMANT SEEDING

NOTE: OTHER APPROVED SPECIES MAY BE SUBSTITUTED.

1. STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
2. TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 14 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEEDS WITHIN 7 DAYS AFTER GRADING.
3. THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
4. SOIL AMENDMENTS—TEMPORARY VEGETATION SEEDING RATE SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
5. SEEDING METHOD—SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

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**STANDARD DESIGNS  
 EROSION CONTROL  
 GENERAL NOTES**

CAD FILE: ER-1.1.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**ER-1.1**

TEMPORARY SEEDING SPECIFICATIONS CONT'D.

**MULCHING FOR TEMPORARY SEEDING**

1. APPLICATIONS OF TEMPORARY SEEDING SHALL INCLUDE MULCH, WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDING MADE DURING OPTIMUM SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.

2. MATERIALS: STRAW-IF STRAW IS USED, IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 LBS./1,000 SQ. FT. (2-3 BALES).

HYDROSEEDERS-IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2000 LBS./AC. OR 46 LB./1,000 SQ. FT. OTHER-OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTING APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TON/AC.

3. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING METHODS: MECHANICAL-A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO A LENGTH OF APPROXIMATELY 6 INCHES.

MULCH NETTING-NETTING SHALL BE USED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES. SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TRACK OR EQUIVALENT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.

WOOD-CELLULOSE FIBER-WOOD-CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WT. OF 750 LB./AC. THE WOOD-CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB./100 GAL.

PERMANENT SEEDING SPECIFICATIONS

**SITE PREPARATION**

1. SUBSOILER, PLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.

2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.

3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

**SEEDBED PREPARATION**

1. LIME-AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 100 POUNDS PER 1,000-SQ. FT. OR 2 TONS PER ACRE.

2. FERTILIZER-FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 25 POUNDS PER 1,000-SQ. FT. OR 1000 POUNDS PER ACRE OF A 10-10-10 OR 12-12-12 ANALYSES.

3. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

**SEEDING DATES AND SOIL CONDITIONS**

SEEDING SHOULD BE DONE MARCH 1 TO MAY 31 OR AUGUST 1 TO SEPTEMBER 30. IF SEEDING OCCURS OUTSIDE OF THE ABOVE SPECIFIED DATES, ADDITIONAL MULCH AND IRRIGATION MAY BE REQUIRED TO ENSURE A MINIMUM OF 80% GERMINATION. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING.

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**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
EROSION CONTROL  
GENERAL NOTES**

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DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

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**PERMANENT SEEDING SPECIFICATIONS CONT'D.**

**DORMANT SEEDING**

1. SEEDING SHOULD NOT BE MADE FROM OCTOBER 1 THROUGH NOVEMBER 20. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT PROBABLY WILL NOT BE ABLE TO SURVIVE THE WINTER.
2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":  
FROM OCTOBER 1 THROUGH NOVEMBER 20, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20, AND BEFORE MARCH 15, BROADCAST THE SELECTED SEED MIXTURE. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.

FROM NOVEMBER 20 THROUGH MARCH 15, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED SEED MIXTURE, MULCH AND ANCHOR. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.

APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRO-SEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED.

WHERE FEASIBLE, EXCEPT WHEN A CULTIPACKER TYPE SEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER, OR LIGHT DRAG. ON SLOPING LAND, SEEDING OPERATIONS SHOULD BE ON THE CONTOUR WHERE FEASIBLE.

**MULCHING**

1. MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.
2. MATERIALS  
STRAW-IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2 TONS PER ACRE OR 90 POUNDS (TWO TO THREE BALES) PER 1,000-SQ. FT. THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000-SQ.FT. SECTIONS AND SPREAD TWO 45-LB. BALES OF STRAW IN EACH SECTION.

HYDROSEEDERS-IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE APPLIED AT 2,000 LB./AC. OR 46 LB./1,000 SQ. FT.

OTHER-OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTING OR BLANKETS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS PER ACRE.

3. STRAW AND MULCH ANCHORING METHODS

STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER.

MECHANICAL-A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LEFT LONGER THAN 6 INCHES.

MULCH NETTING-NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.

ASPHALT EMULSION-ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURE OR AT THE RATE OF 160 GALLONS PER ACRE.

SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY BE USED AT RATES SPECIFIED BY THE MANUFACTURER.

WOOD CELLULOSE FIBER-WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 POUNDS CELLULOSE PER 100 GALLONS OF WATER.

**IRRIGATION**

PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH.

IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

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**STANDARD DESIGNS  
EROSION CONTROL  
GENERAL NOTES**

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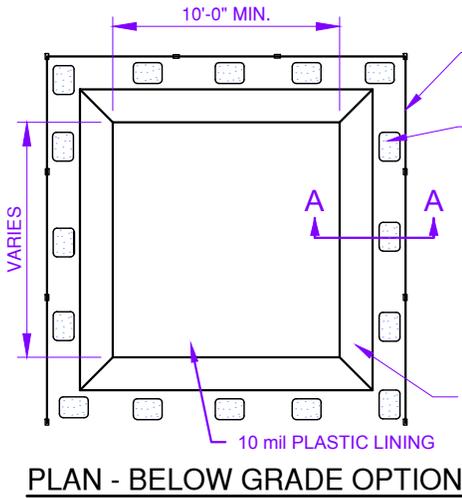
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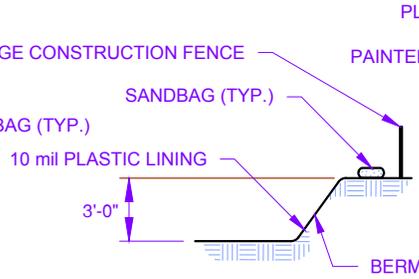
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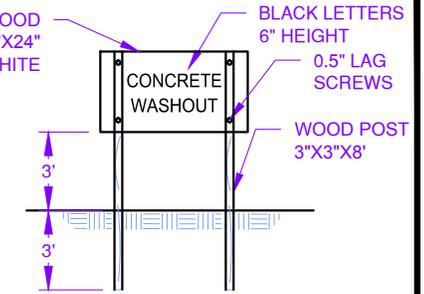
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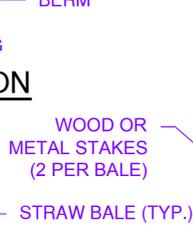
**PLAN - BELOW GRADE OPTION**



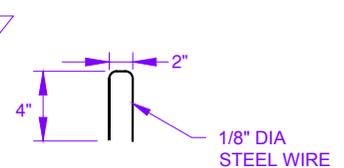
**SECTION A-A**



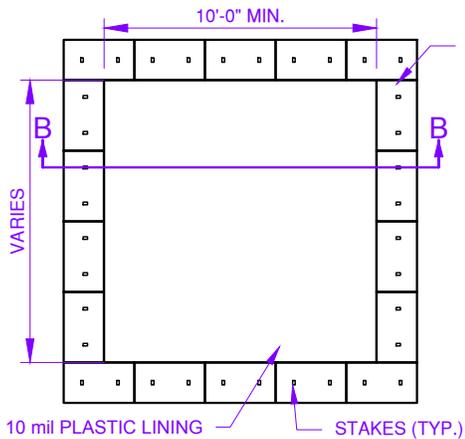
**CONCRETE WASHOUT SIGN DETAIL**



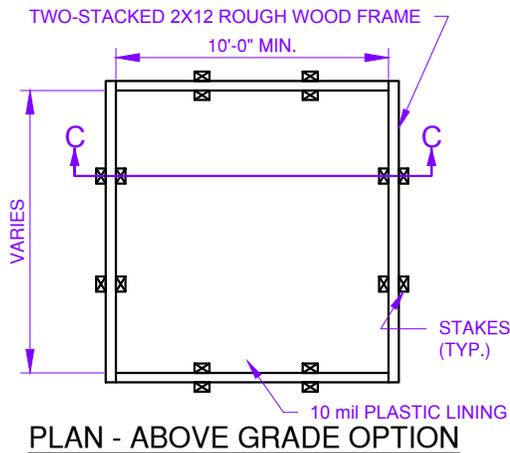
**SECTION B-B**



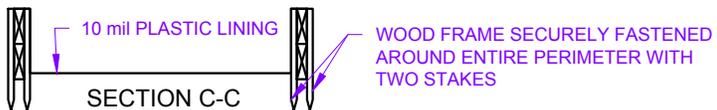
**STAPLE DETAIL**



**PLAN - ABOVE GRADE W/ STRAW BALES OPTION**



**PLAN - ABOVE GRADE OPTION**



**SECTION C-C**

**CONCRETE WASHOUT AREA INSTALLATION NOTES:**

1. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. THE CONCRETE WASHOUT AREA WILL BE CONSTRUCTED ABOVE GRADE OR BELOW GRADE AT THE OPTION OF THE CONTRACTOR. THE ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
3. THE CONCRETE WASHOUT AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. THE WASHOUT AREA MUST BE CLEANED, OR A NEW WASHOUT AREA MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
4. THE CONCRETE WASHOUT SIGN SHALL BE PLACED WITHIN 30' OF THE WASHOUT AREA. ADDITIONAL SIGNS SHOULD BE CONSTRUCTED AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. THE CONCRETE WASHOUT AREA SHALL BE LOCATED A MINIMUM OF 50' FROM STORM DRAIN INLETS, OPEN DISCHARGE FACILITIES, AND WATERCOURSES. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS TO PREVENT DISTURBANCE OR TRACKING. VEHICLE TRACKING CONTROL IS REQUIRED AT CONCRETE WASHOUT ENTRANCE IF ACCESS TO AREA IS OFF PAVEMENT.
6. PLASTIC LINING MATERIAL SHALL BE A MINIMUM OF 10 MIL POLYETHYLENE SHEETING AND SHALL BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
7. WHEN THE CONCRETE WASHOUT AREA IS NO LONGER REQUIRED FOR WORK, THE HARDENED CONCRETE AND MATERIAL USED TO CONSTRUCT WASHOUT AREA SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED WASTE SITE.
8. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE ENGINEER.

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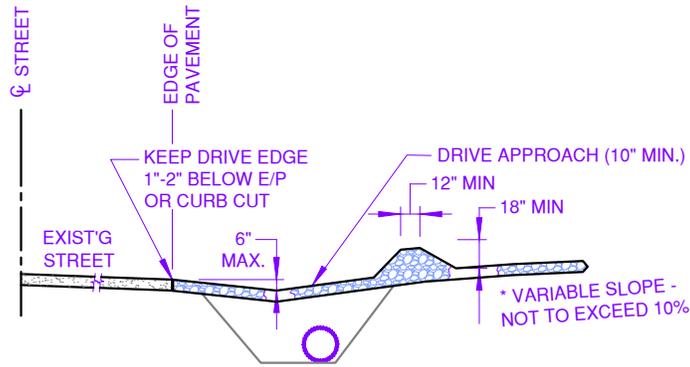
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**STANDARD DESIGNS  
 EROSION CONTROL  
 CONCRETE WASHOUT AREA**

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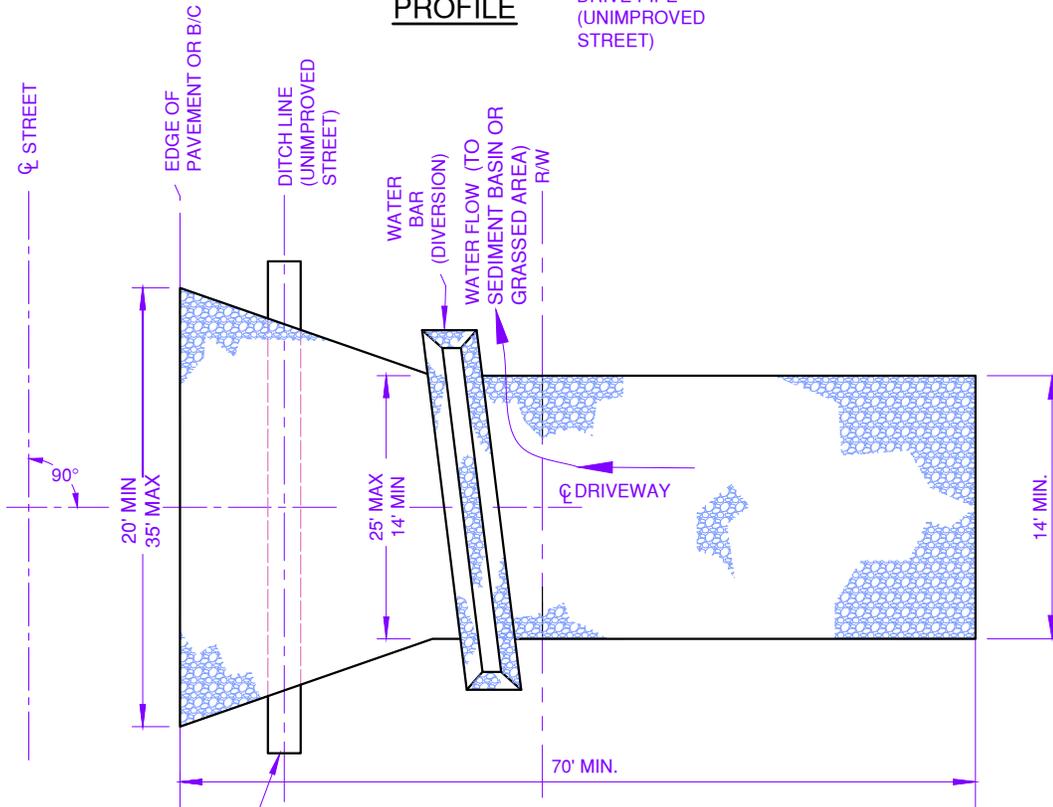
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**PROFILE**

DITCH AND DRIVE PIPE (UNIMPROVED STREET)



**PLAN**

DRIVE PIPE (UNIMPROVED STREET, 12" MIN.)

**NOTES:**

1. CURB CUTS AND DRIVE PIPES SHALL BE CONSTRUCTED PRIOR TO ANY CONSTRUCTION ACTIVITIES TAKING PLACE.
2. TEMPORARY DRIVES SHALL BE COORDINATED WITH PERMANENT DRIVE CONSTRUCTION.
3. STONE FOR CONSTRUCTION DRIVES SHALL MEET THE GRADATION FOR ODOT SIZE NO. 2 COARSE AGGREGATE. MINIMUM THICKNESS SHALL BE 10" FOR NON-RESIDENTIAL SITES, 6" FOR RESIDENTIAL.
4. A GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE ENTIRE DRIVE AREA PRIOR TO PLACING STONE. GEOTEXTILE MATERIAL SHALL MEET ODOT ITEM 712.09 TYPE B REQUIREMENTS.
5. THE CONSTRUCTION DRIVE SHALL BE MAINTAINED BY PERIODICALLY ADDING STONE AS CONDITIONS DEMAND.
6. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THE CONSTRUCTION DRIVE AS MUCH AS POSSIBLE. MUD AND STONES WHICH ARE SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS OR OTHER SURFACES WHERE SEDIMENT CONTROLS WERE NOT ADEQUATE, SHALL BE REMOVED IMMEDIATELY BY SCRAPING OR SWEEPING.

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**STANDARD DESIGNS  
 EROSION CONTROL  
 CONSTRUCTION DRIVE DETAIL**

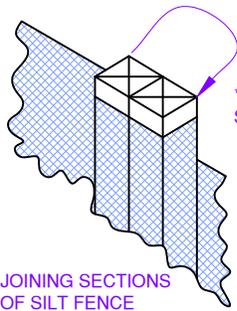
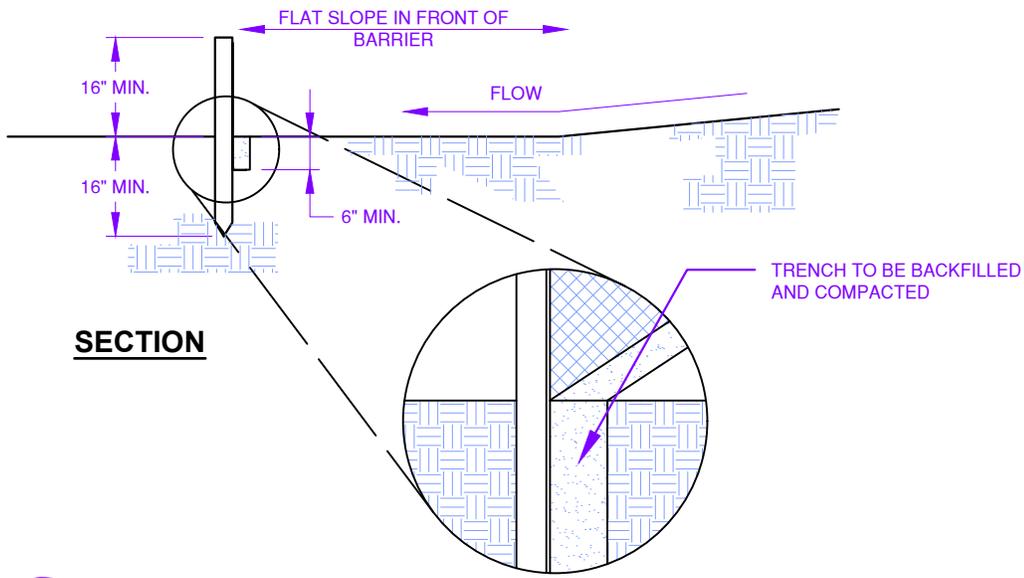
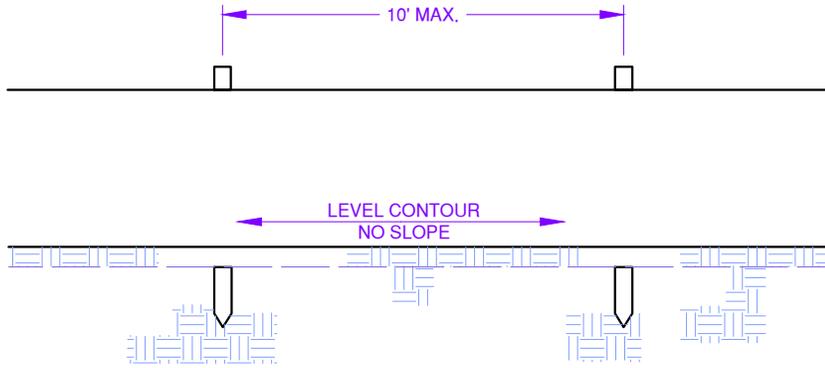
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**STANDARD DESIGNS  
EROSION CONTROL  
SILT FENCE DETAIL**

CAD FILE:  
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DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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## NOTES

1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. ENDS OF THE SILT FENCES SHALL BE BROUGHT UPSLOPE SLIGHTLY SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
4. SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
5. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5' (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.
6. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16" ABOVE THE ORIGINAL GROUND SURFACE.
7. THE SILT FENCE SHALL BE PLACED IN AN EXCAVATED OR SLICED TRENCH CUT A MINIMUM OF 6" DEEP. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
8. THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE. A MINIMUM OF 8" OF GEOTEXTILE MUST BE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6" DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED ON BOTH SIDES OF THE FABRIC.
9. SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6" OVERLAP PRIOR TO DRIVING INTO THE GROUND (SEE DETAIL).
10. MAINTENANCE-SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER THE FABRIC OR AROUND THE FENCE ENDS, OR IN ANY OTHER WAY ALLOWS A CONCENTRATED FLOW DISCHARGE, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE:
  - 1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED
  - 2) ACCUMULATED SEDIMENT SHALL BE REMOVED OR
  - 3) OTHER PRACTICES SHALL BE INSTALLED.
11. SEDIMENT DEPOSITS SHALL BE ROUTINELY REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-HALF OF THE HEIGHT OF THE SILT FENCE.
12. SILT FENCES SHALL BE INSPECTED AFTER EACH RAINFALL AND AT LEAST DAILY DURING A PROLONGED RAINFALL. THE LOCATION OF EXISTING SILT FENCE SHALL BE REVIEWED DAILY TO ENSURE ITS PROPER LOCATION AND EFFECTIVENESS. IF DAMAGED, THE SILT FENCE SHALL BE REPAIRED IMMEDIATELY.

### CRITERIA FOR SILT FENCE MATERIALS:

SILT FENCE FABRIC SHALL MEET THE REQUIREMENTS OF ODOT ITEM 712.09, TYPE C. THE LENGTH OF FENCE POSTS SHALL BE A MINIMUM OF 32". WOOD POSTS WILL BE 2" BY 2". NOMINAL DIMENSIONED HARDWOOD OF SOUND QUALITY. THEY SHALL BE FREE OF KNOTS, SPLITS AND OTHER VISIBLE IMPERFECTIONS, THAT WILL WEAKEN THE POSTS. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10'. POSTS SHALL BE DRIVEN A MINIMUM 16" INTO THE GROUND, WHERE POSSIBLE. IF NOT POSSIBLE, THE POSTS SHALL BE ADEQUATELY SECURED TO PREVENT OVERTURNING THE FENCE DUE TO SEDIMENT/WATER LOADING.

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## STANDARD DESIGNS EROSION CONTROL SILT FENCE DETAIL NOTES

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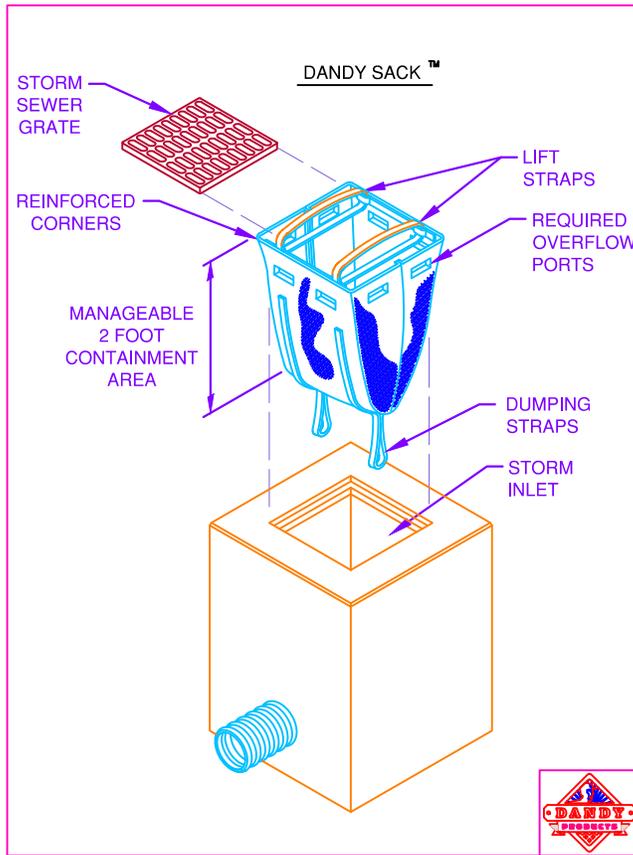
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**NOTE: THE DANDY CURB SACK™ WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:**

**REGULAR FLOW DANDY CURB SACK™ (BLACK)**

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	5506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	1/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	2852 (70)
Permittivity	ASTM D 4491	Sec <sup>-1</sup>	0.90

**HI-FLOW DANDY CURB SACK™ (SAFETY ORANGE)**

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	1/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	5907 (145)
Permittivity	ASTM D 4491	Sec <sup>-1</sup>	2.1

\*NOTE: ALL DANDY SACKS™ CAN BE ORDERED WITH OUR OPTIONAL OIL ABSORBENT PILLOWS

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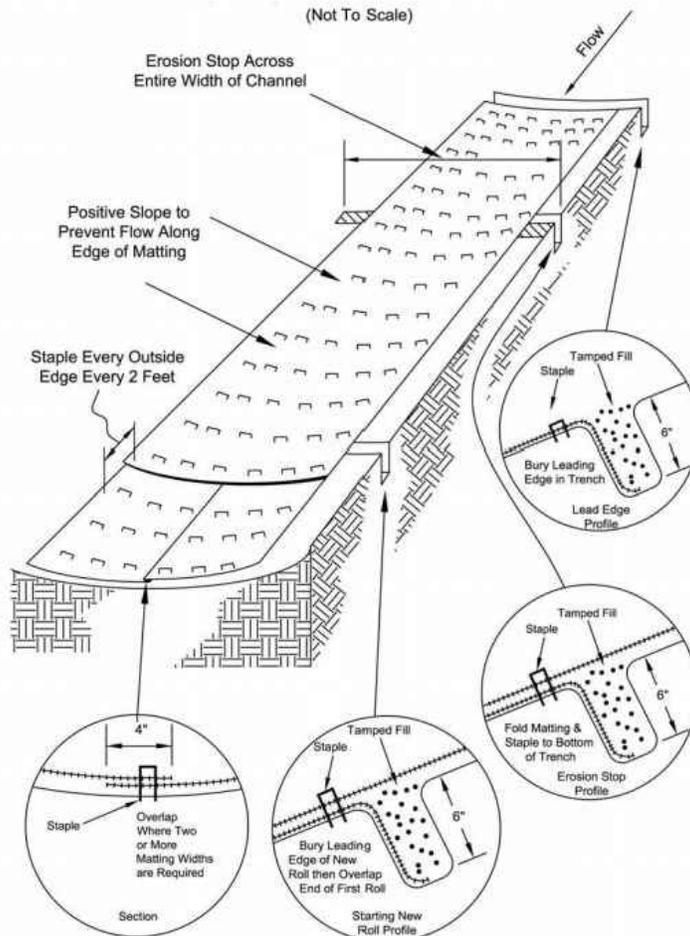
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 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 EROSION CONTROL  
 INLET PROTECTION WITHOUT CURB**

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Specifications  
for  
**Turf Reinforcement Matting**



60 CHAPTER 7 Soil Stabilization

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**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
EROSION CONTROL  
TURF REINFORCEMENT DETAIL**

CAD FILE:  
ER-6.0.dwg

SHEET:

**ER-6.0**

DRWN BY: VAN	APPRVD BY: DV	ISSUE DATE: 07/01/2018	SCALE: NONE
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Specifications  
for  
**Turf Reinforcement Matting**

1. Channel/Slope Soil Preparation Grade and compact area of installation, preparing seedbed by loosening 2"-3" of topsoil above final grade. Incorporate amendments such as lime and fertilizer into soil. Remove all rocks, clods, vegetation or other debris so that installed TRM will have direct contact with the soil surface.
2. Channel/Slope Seeding Apply seed to soil surface prior to installation. All check slots, anchor trenches, and other disturbed areas must be reseeded. Refer to the Permanent Seeding specification for seeding recommendations.

**Slope Installation**

3. Excavate top and bottom trenches (12"x6"). Intermittent erosion check slots (6"x6") may be required based on slope length. Excavate top anchor trench 2' x 3' over crest of the slope.
4. If intermittent erosion check slots are required install TRM in 6"x6" slot at a maximum of 30' centers or the mid point of the slope. TRM should be stapled into trench on 12" centers.
5. Install TRM in top anchor trench, anchor on 12" spacings, backfill and compact soil.
6. Unroll TRM down slope with adjacent rolls overlapped a minimum of 3". Anchor the seam every 18". Lay the TRM loose to maintain direct soil contact, do not pull taught.
7. Overlap roll ends a minimum of 12" with upslope TRM on top for a shingle effect. Begin all new rolls in an erosion check slot if required, double anchor across roll every 12".
8. Install TRM in bottom anchor trench (12"x6"), anchor every 12". Place all other staples throughout slope at 1 to 2.5 per square yard dependant on slope. Refer to manufacturer's anchor guide.

**Channel Installation**

9. Excavate initial anchor trench (12"x6") across the lower end of the project area.
10. Excavate intermittent check slots (6"x6") across the channel at 30' intervals along the channel.
11. Excavate longitudinal channel anchor slots (4"x4") along both sides of the channel to bury the edges. Whenever possible extend the TRM 2'-3' above the crest of channel side slopes.
12. Install TRM in initial anchor trench (downstream) anchor every 12", backfill and compact soil.
13. Roll out TRM beginning in the center of the channel toward the intermittent check slot. Do not pull taught. Unroll adjacent rolls upstream with a 3" minimum overlap (anchor every 18") and up each channel side slope.
14. At top of channel side slopes install TRM in the longitudinal anchor slots, anchor every 18".
15. Install TRM in intermittent check slots. Lay into trench and secure with anchors every 12", backfill with soil and compact.
16. Overlap roll ends a minimum of 12" with upstream TRM on top for a shingling effect. Begin all new rolls in an intermittent check slot, double anchored every 12".
17. Install upstream end in a terminal anchor trench (12"x6"); anchor every 12", backfill and compact.
18. Complete anchoring throughout channel at 2.5 per square yard using suitable ground anchoring devices (U shaped wire staples, metal geotextile pins, plastic stakes, and triangular wooden stakes). Anchors should be of sufficient length to resist pullout. Longer anchors may be required in loose sandy or gravelly soils.

**THESE MEASURES ARE REQUIRED FOR INSTALLATION WITHIN THE CITY OF LORAIN AND ARE TO BE USED WHEN DISTURBED SOILS MAY BE PARTICULARLY DIFFICULT TO STABILIZE, INCLUDING THE FOLLOWING SITUATIONS:**

1. EMBANKMENTS OF ALL STORMWATER MANAGEMENT BASINS BEING CONSTRUCTED WITHIN THE CITY
2. STEEP SLOPES
3. SLOPES WHERE THE EROSION POTENTIAL IS HIGH.
4. SLOPES AND DISTURBED SOILS WHERE MULCH MUST BE ANCHORED.
5. DISTURBED AREAS WHERE PLANTS ARE SLOW TO DEVELOP.
6. CHANNELS WITH FLOWS EXCEEDING 1.0 M/S (3.3 FT/S).
7. CHANNELS TO BE VEGETATED.
8. STOCKPILES.
9. SLOPES ADJACENT TO WATER BODIES

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**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
EROSION CONTROL  
TURF REINFORCEMENT NOTES**

CAD FILE: ER-6.0.dwg				SHEET: <b>ER-6.1</b>	
DRWN BY: VAN	APPRVD BY: DV	ISSUE DATE: 07/01/2018	SCALE: NONE		

NO.	DATE	REVISION	NO.	DATE	REVISION

**FINAL BACKFILL:**

UNDER OR WITHIN ZONE OF INFLUENCE OF PAVEMENT, DRIVEWAYS OR SIDEWALKS - COMPACTED ODOT NO. 8, NO. 9 OR 304 LIMESTONE GRANULAR MATERIAL IN 6" LIFTS NOT UNDER PAVEMENT - COMPACTED SUITABLE EXCAVATED MATERIAL CONTAINING NO REFUSE OR ORGANIC MATERIAL

**INITIAL BACKFILL:**

COMPACTED NO. 8 OR NO. 9 AGGREGATE LIMESTONE, ODOT 703.01 (ASTM D2321, CLASS I MATERIAL)

**HAUNCHING:**

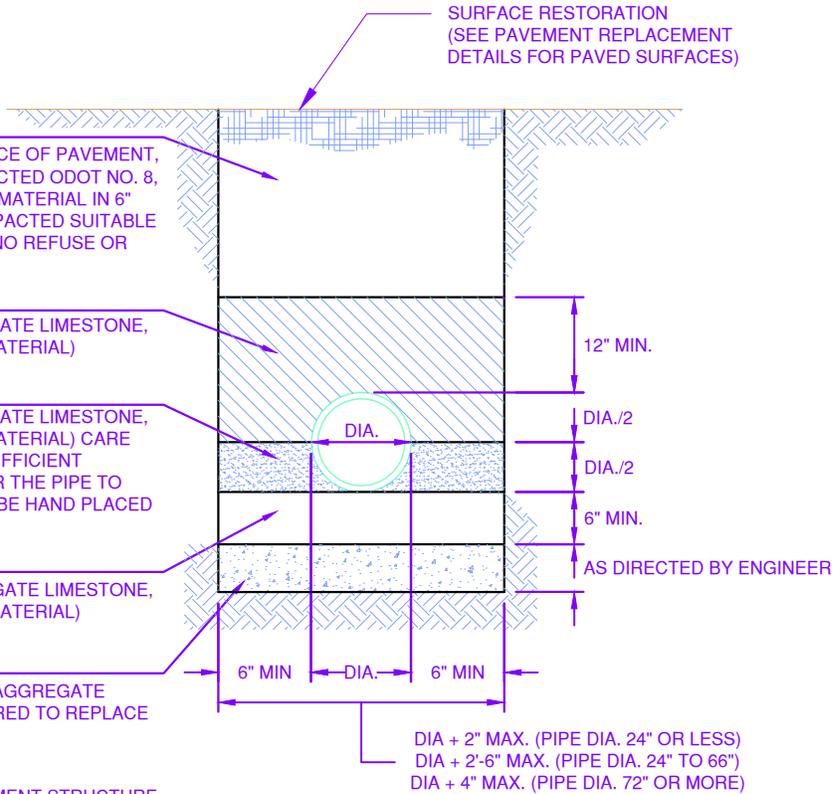
COMPACTED NO. 8 OR NO. 9 AGGREGATE LIMESTONE, ODOT 703.01 (ASTM D2321, CLASS I MATERIAL) CARE MUST BE TAKEN TO ENSURE THAT SUFFICIENT MATERIAL HAS BEEN WORKED UNDER THE PIPE TO PREVENT VOIDS, HAUNCHING SHALL BE HAND PLACED & TAMPED IF DIRECTED

**GRANULAR BEDDING:**

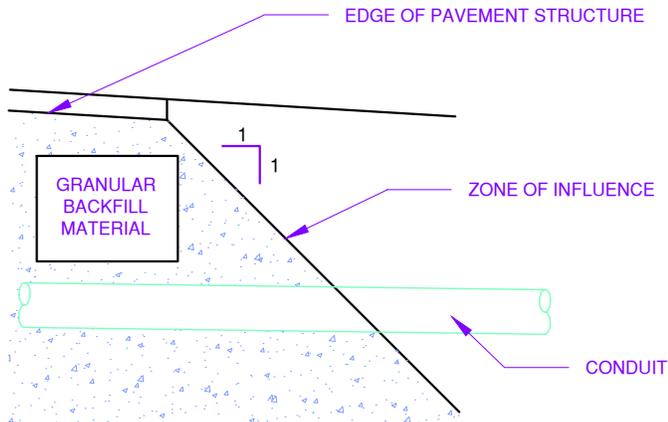
COMPACTED NO. 8 OR NO. 9 AGGREGATE LIMESTONE, ODOT 703.01, (ASTM D2321, CLASS I MATERIAL)

**FOUNDATION AGGREGATE:**

COMPACTED NO. 1 & NO. 2 COARSE AGGREGATE LIMESTONE, ODOT 703.01 (AS REQUIRED TO REPLACE UNSUITABLE SOILS)



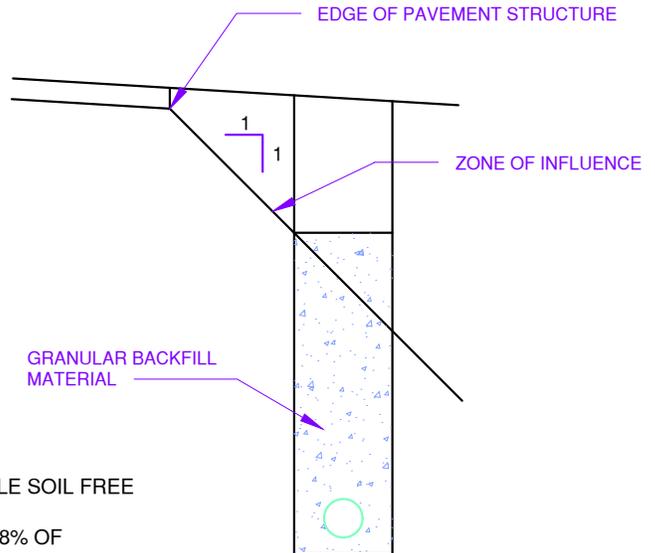
DIA + 2" MAX. (PIPE DIA. 24" OR LESS)  
 DIA + 2'-6" MAX. (PIPE DIA. 24" TO 66")  
 DIA + 4" MAX. (PIPE DIA. 72" OR MORE)



**TRANSVERSE ZONE OF INFLUENCE**

**NOTES:**

1. SUITABLE EXCAVATED MATERIAL SHALL CONSIST OF LOOSE FRIABLE SOIL FREE OF DEBRIS AND COMPACTED IN 6" LIFTS.
2. ALL PIPE BACKFILL SHALL BE TAMPED IN 6' LIFTS COMPACTED TO 98% OF STANDARD PROCTOR DENSITY.
3. ALL TRENCHES THROUGH A STREAM OR WATERWAY SHALL BE APPROVED BY THE CITY ENGINEER BEFORE CONSTRUCTION.
4. CLAY DAMS SHALL BE REQUIRED WHEN AND WHERE NECESSARY PER PLAN OR AS DIRECTED BY THE ENGINEER.
5. REFER TO GN 2.1 - GENERAL NOTE #25 FOR ADDITIONAL BACKFILL GUIDANCE.



**PARALLEL ZONE OF INFLUENCE**

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**City of Lorain**  
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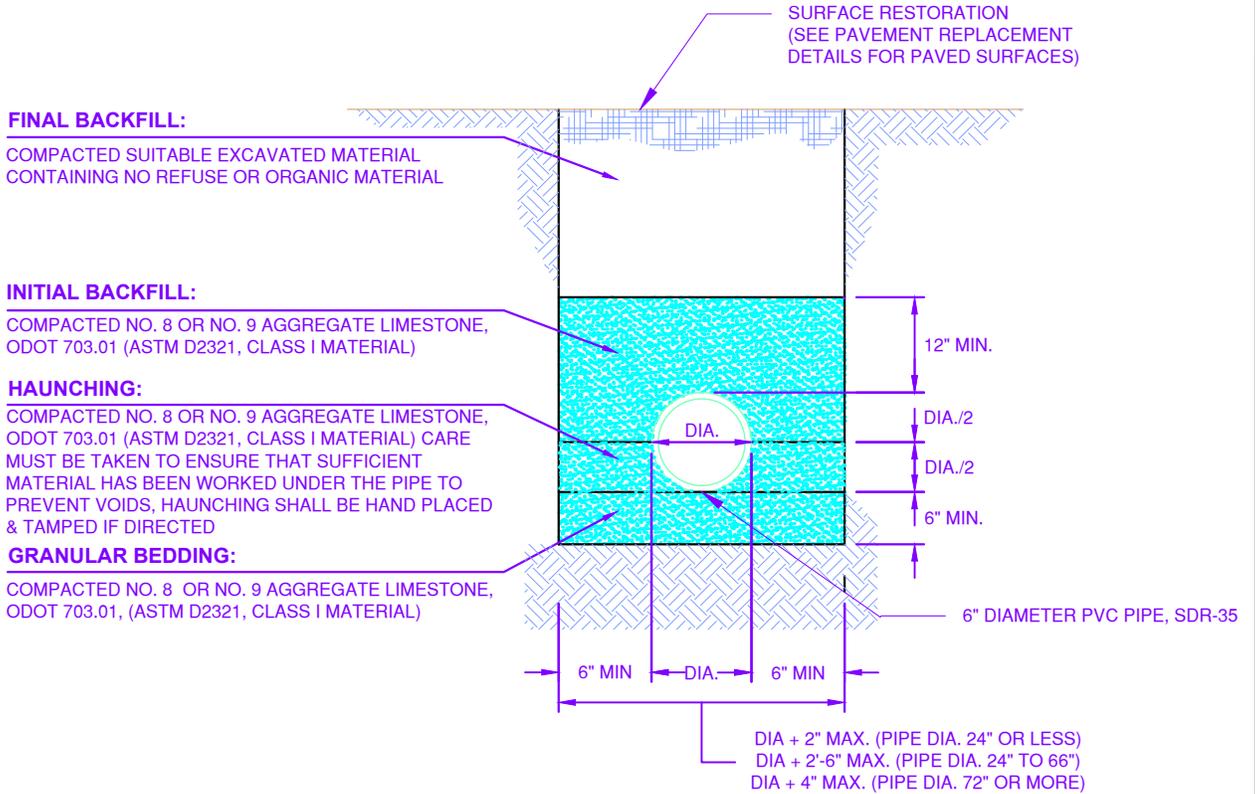
NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018				
8	06/12/2018				
9	01/01/2019				

**STANDARD DESIGNS  
 MISCELLANEOUS  
 ROADWAY TRENCH DETAIL**

CAD FILE: MS-1.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**MS-1.0**

**NOTE: THIS IS FOR WORK OUTSIDE THE ZONE OF INFLUENCE**



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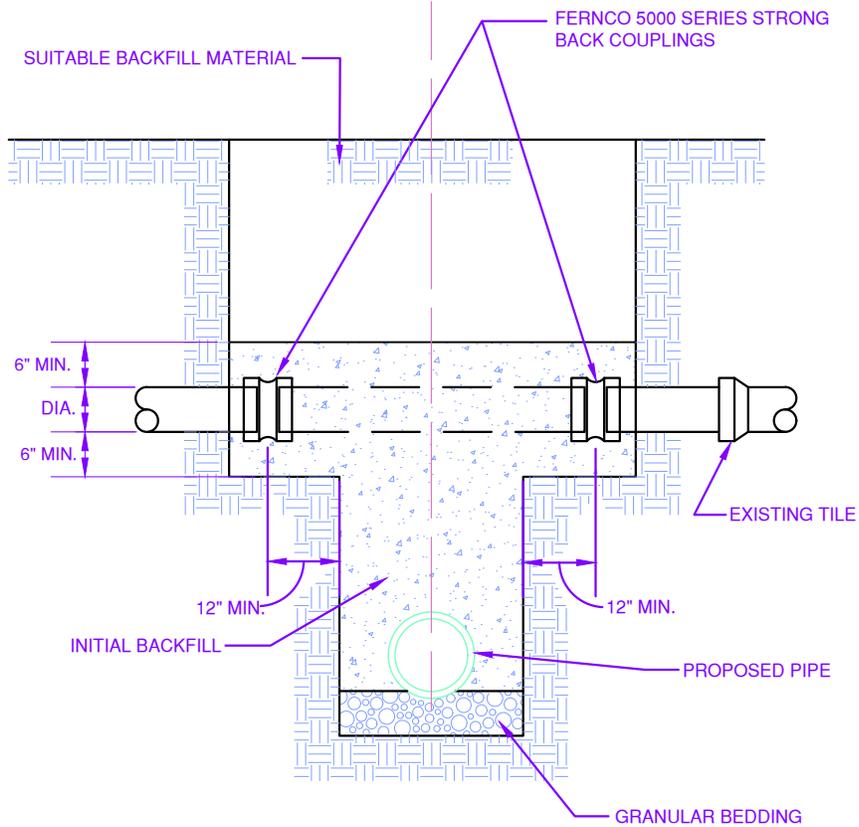
**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
MISCELLANEOUS  
SERVICE LINE TRENCH DETAIL**

CAD FILE: MS-1.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**MS-1.1**

NO.	DATE	REVISION	NO.	DATE	REVISION



**NOTES:**

1. REFER TO MS-1.0 FOR TRENCH DETAIL

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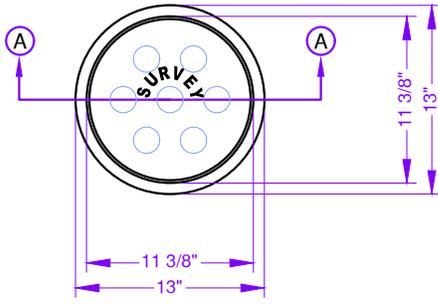
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 MISCELLANEOUS  
 TILE REPAIR DETAIL**

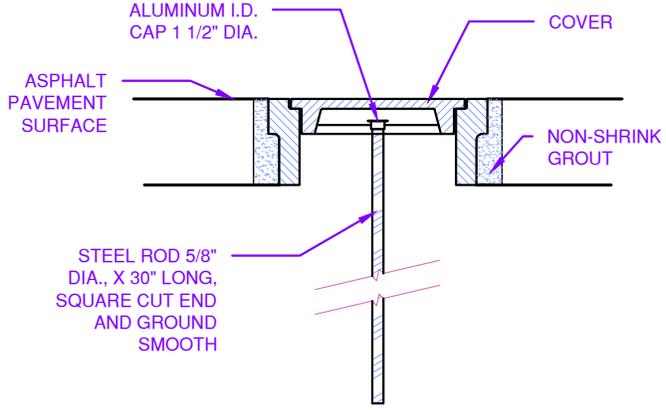
CAD FILE: MS-2.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**MS-2.0**

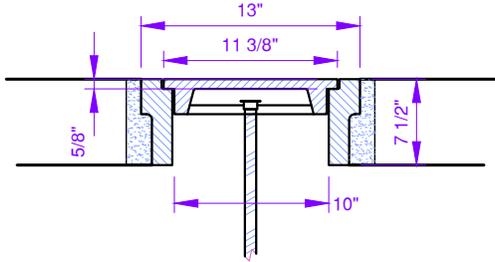
NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				



**TOP VIEW**



**SIDE VIEW**



**SECTION A-A**

**NOTES:**

- ACCEPTABLE MANUFACTURERS AND PRODUCTS ARE:
- EJ CO.  
P.O. BOX 439-301  
EAST JORDAN, MI. 49727  
EJ 1578 11 1/4" DIA.
  - NEENAH: R-1976
  - ALTERNATE PRODUCTS MAY BE SUBMITTED FOR APPROVAL.

**INSTALLATION:**

- CORE OPENING IN PAVEMENT.
- REMOVE DEBRIS AND PREPARE PAVEMENT FOR GROUT PER MANUFACTURERS INSTRUCTIONS.
- COAT PAVEMENT OPENING AND EXTERIOR OF CASTING WITH GROUT.
- INSTALL CASTING AND FINISH FLUSH WITH EXISTING PAVEMENT.
- ANNULAR SPACE BETWEEN CASTING AND PAVEMENT TO BE FILLED WITH NON-SHRINK GROUT PER ODOT 705.20.

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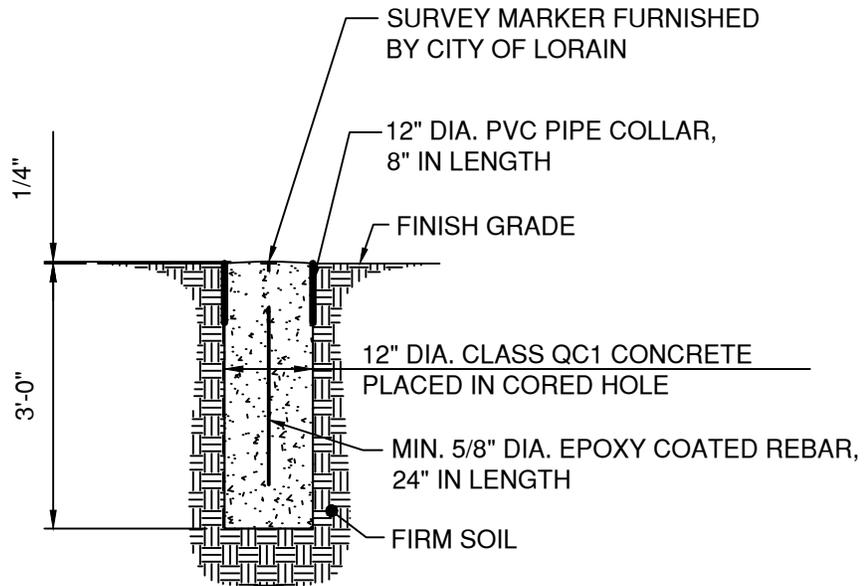
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**City of Lorain**  
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**STANDARD DESIGNS  
MISCELLANEOUS  
MONUMENT BOX ASSEMBLY**

NO.	DATE	REVISION	NO.	DATE	REVISION
10	6/20/2019	FILE PATH ADDED			
11	02/04/2020	NOTES NO. 1 CHANGED			
11	02/04/2020	NOTES NO. 2 ADDED			

CAD FILE: MS-3.0.dwg				SHEET: <b>MS-3.0</b>	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		



**NOTE:**  
 GEODETIC SURVEY MARKER TO BE PLACED ON THE NE CORNER OF THE STREET  
 ON WHICH WORK IS BEING PERFORMED. FINAL LOCATION TO BE DETERMINED BY ENGINEER.

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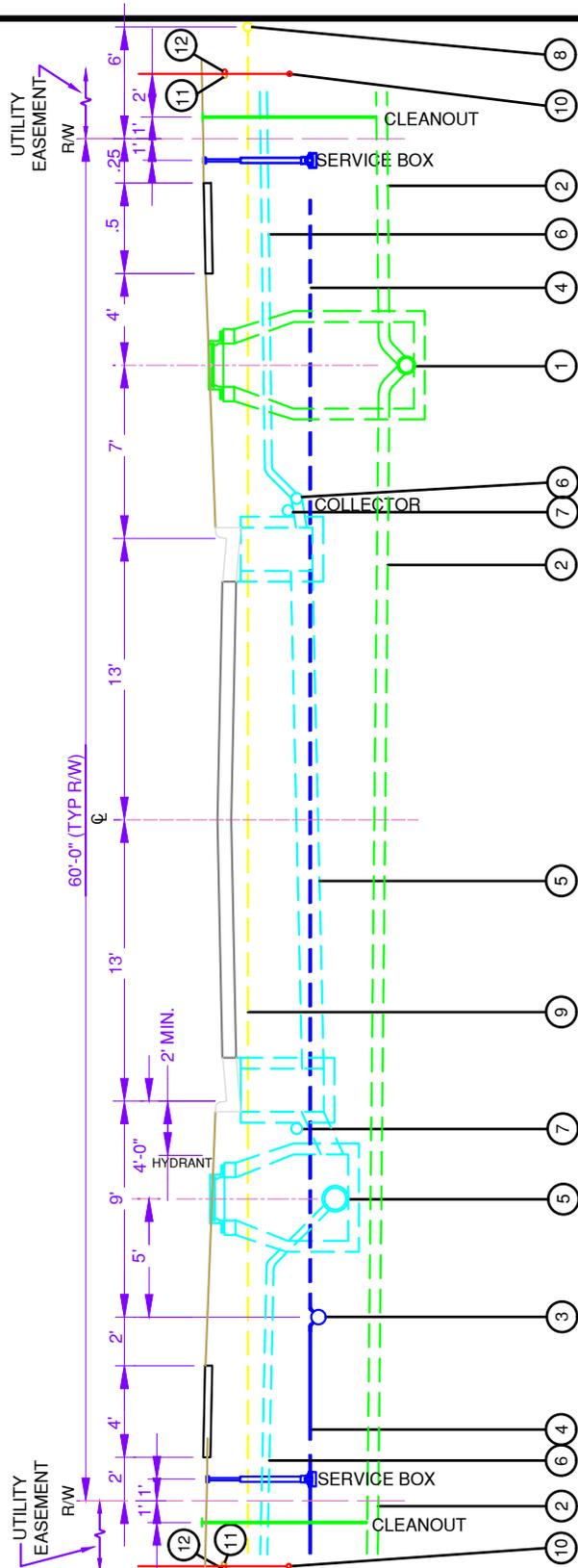
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 MISCELLANEOUS  
 GEODETIC SURVEY MARKER**

CAD FILE: MS-4.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
MS-4.0

NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				



**TYPICAL DEPTH**

**DESCRIPTION**

NO.	DESCRIPTION	TYPICAL DEPTH
1	SS SANITARY SEWER (8" MIN.)	INV. 9'-0" MIN. BELOW CENTERLINE PAVEMENT
2	SS-8 SANITARY LATERAL (6" MIN. @ 1.0%)	INV. 8'-0" BELOW GRADE @ R/W LINE
3	WT WATER MAIN (6" MIN.)	TOP 4'-6" GRADE (MIN.)
4	WT-9 WATER SERVICE LINE (1" MIN.)	TOP 4'-6" BELOW TOP OF CURB
5	ST STORM SEWER (12" MIN.)	TOP 4'-0" BELOW TOP OF CURB
6	ST-13 STORM LATERAL (6" MIN.)	INV. 3'-0" BELOW GRADE @ R/W LINE
7	PV-4 UNDERDRAIN (4" PERF.)	INV. 2'-0" BELOW BOTTOM OF CURB
8	N/A GAS MAIN (PER GAS CO.)	TOP 2'-6" BELOW TOP OF CURB
9	N/A GAS SERVICE (PER GAS CO.)	TOP 2'-6" BELOW TOP OF CURB
10	N/A ELECTRIC SERVICE CONDUIT (PER ELECTRIC CO.)	TOP 4'-0" BELOW GRADE @ R/W LINE
11	N/A TELEPHONE CABLE (PER TELEPHONE CO.)	TOP 1'-0" BELOW GRADE @ R/W LINE
12	N/A CABLE TV CABLE (PER CABLE CO.)	TOP 1'-0" BELOW GRADE @ R/W LINE
13	N/A UTILITY POLE (PER UTILITY CO.)	N/A

**NOTES:**

1. COMPACTION OF TRENCHES IN THE RIGHT-OF-WAY IS REQUIRED ON ALL UTILITIES. UTILITY LOCATIONS SHALL BE ADJUSTED FOR STREETS WITH ADDITIONAL RIGHT OF WAY.
2. THIS DRAWING REPRESENTS TYPICAL UTILITY LOCATIONS FOR RESIDENTIAL.

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NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

STANDARD DESIGNS  
MISCELLANEOUS  
STREET UTILITY LOCATIONS

CAD FILE: MS-5.0.dwg		SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

MS-5.0

**GENERAL**

1. COMPACTION OF TRENCHES IN THE RIGHT-OF-WAY IS REQUIRED FOR ALL UTILITIES. AREAS OF TIGHT EXCAVATION THAT DO NOT ALLOW FOR ODOT APPROVED COMPACTION DEVICES TO BE UTILIZED SHALL BE BACKFILLED WITH LOW STRENGTH MORTAR BACKFILL, TYPE 2 PER CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATION.
2. LIMESTONE SHALL BE USED FOR ALL AGGREGATE SUBBASE, FOR COARSE AGGREGATE IN ALL ASPHALT PAVEMENT SURFACE, AND FOR COARSE AGGREGATE IN CONCRETE.
3. NO VEHICULAR TRAFFIC SHALL BE PERMITTED ON A PREPARED AND APPROVED SUB-GRADE, SUB-BASE, OR PAVEMENT BASE.
4. ALL SAW CUTTING SHALL BE PERFORMED WITH A DIAMOND SAW BLADE AND INCLUDED FOR PAYMENT WITH THE COST OF THE PAVEMENT.
5. ANY ADJACENT FACILITIES DAMAGED AS RESULT OF THE CONTRACTOR'S NEGLIGENCE, AS DETERMINED BY THE ENGINEER, AND WHICH ARE NOT OTHERWISE DESIGNATED FOR REPLACEMENT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. IT IS RECOMMENDED CONTRACTOR VERIFY EXISTING PAVEMENT THICKNESS AND SECTION MAKE-UP PRIOR TO BID.
7. BASE PAVEMENT REPAIRS SHALL BE COMPLETED ONLY IF DIRECTED BY ENGINEER AFTER MILLING OPERATIONS HAVE BEEN COMPLETED. THE ENGINEERING DEPARTMENT WILL MARK BASE REPAIR AREAS WITHIN 72 HOURS, WEATHER DEPENDENT, AFTER THE THE STREET HAS BEEN SWEPT.
8. CONTRACTOR IS RESPONSIBLE FOR THE DEWATERING OF ANY REPAIR AREAS PRIOR TO PLACEMENT OF NEW PAVEMENT (BASE PAVEMENT OR FINISHED PAVEMENT).
9. FURNISH ALL AGGREGATE DIRECTLY TO THE PROJECT FROM AN APPROVED SOURCE. ONLY LIMESTONE AGGREGATE SHALL BE PERMITTED FOR USE.
10. SUBGRADE COMPACTION SHALL BE INCIDENTAL TO AND INCLUDED FOR PAYMENT WITH ITEM 452-DRIVEWAY APRON AND ITEM 608-WALKS, CURB RAMPS, AND STEPS, RESPECTIVELY.
11. ALL BACKFILL UNDER OR WITHIN THE ZONE OF INFLUENCE OF ROADS, DRIVES, SIDEWALKS, AND PARKING LOTS SHALL BE GRANULAR BACKFILL PER SPECIFICATIONS.

**ASPHALT**

1. **GENERAL:** THE MECHANICAL SPREADING AND FINISHING EQUIPMENT SHALL CONSIST OF SELF-POWERED PAVERS, CAPABLE OF SPREADING AND FINISHING THE MIXTURE TO THE LINE, GRADE AND CROWN SET BY THE ENGINEER. THE THICKNESS OF THE COURSES SHALL BE VARIED BY THE CONTRACTOR, AS REQUIRED, SO THAT THE WORK WILL BE COMPLETED WITHIN THE QUANTITY OF MATERIAL SET UP ON THE PLANS AND PROPOSAL. THE ENGINEER, HOWEVER, RESERVES THE RIGHT TO REQUIRE CHANGES IN THE THICKNESS OF COURSES, WHERE, IN HIS OPINION, THE SAME IS REQUIRED TO CAUSE THE WORK TO BE COMPLETED WITHIN THE SAID QUANTITIES. THIS RESERVATION, ON PART OF THE ENGINEER, SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF PROPERLY REGULATING USE OF MATERIALS AS ABOVE SPECIFIED. OVER RUNS IN SAID QUANTITIES WILL ONLY BE CONSIDERED WHERE WRITTEN SUPPLEMENTARY CONTRACTS FOR ADDITIONAL AMOUNT HAVE BEEN AGREED UPON PRIOR TO EXECUTION OF THE WORK. THE GUTTER SHALL BE FINISHED TO THE TRUE GRADE. ANY IRREGULARITIES SHALL BE CORRECTED TO ENSURE PROPER DRAINAGE. A WATER TEST MAY BE USED TO LOCATE SPOTS IN GUTTER REQUIRING CORRECTION.
2. **SEALING GUTTERS AND EDGES:** THE WIDTH OF THE GUTTER OR EDGE SURFACE TO BE SEALED SHALL BE 4" WHERE THE SURFACE IS BOUNDED BY RAISED CURB OR EDGE SEALED WHERE A BERM EXISTS, IN ACCORDANCE WITH ODOT SPECIFICATIONS. THE EDGES OF ALL CASTINGS, FEATHERED EDGES AND WHERE NEW SURFACE MEETS OLD PAVEMENTS SHALL BE PAINTED WITH SUITABLE ASPHALT MATERIAL. THE GUTTER OR EDGE SHALL BE SEALED IMMEDIATELY AFTER THE SURFACE COURSE IS PLACED ON EACH STREET. THE EDGE SEAL IS INTENDED TO FILL ANY VOIDS.

(CONTINUED ON NEXT PAGE)

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**City of Lorain**  
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NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
4	04/18/2017				
9	01/01/2019				
11	02/05/2020	PREV. NO. 4 MOVED TO PV-5.1			
11	02/05/2020	NO. 7 REVISED			
11	02/05/2020	ASPHALT HEADING REV.			

<b>STANDARD DESIGNS PAVEMENT GENERAL NOTES</b>			
CAD FILE: PV-1.0.dwg			SHEET:
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 02/06/2017	SCALE: NONE
<b>PV-1.0</b>			

## ASPHALT, CONT'D

3. CLEANING OF PAVEMENT: THE STREET MUST BE SWEEPED PRIOR TO BASE REPAIR MARK OUTS. CLEANING OF THE PAVEMENT PRIOR TO PAVING SHALL BE ACCOMPLISHED BY A SELF-CONTAINED VACUUM/SWEEPER WITH WATER SPRAYER FOR DUST CONTROL. THIS EQUIPMENT SHALL CLEAN THE PAVEMENT THE DAY OF PAVING TO THE SATISFACTION OF THE INSPECTOR.
4. ASPHALT BINDER PRICE ADJUSTMENT: THE PROVISIONS OF ODOT C&MS 401.20, ASPHALT BINDER PRICE ADJUSTMENT IS NOT PART OF THIS CONTRACT. THE CONTRACTOR SHALL BID ACCORDINGLY.
5. SUBMITTAL OF ASPHALT TICKETS IS REQUIRED FOR PAYMENT OF ASPHALT ITEMS.
6. WARM MIX ASPHALT IS NOT PERMITTED. ONLY HOT MIX SHALL BE USED FOR SURFACE, INTERMEDIATE AND BASE COURSES.
7. ASPHALT TESTING SHALL INCLUDE BATCH PLANT, EXTRACTION/GRADATION AND FIELD TESTING OF ASPHALT INTERMEDIATE AND SURFACE COURSES UNDER THE FOLLOWING AVERAGE DAILY TRAFFIC (ADT) CONDITIONS:  
ALL ADT CONDITIONS - CITY OF LORAIN PROJECT INSPECTOR SHALL PERFORM JMF REVIEW AND TEMPERATURE TESTING  
500>ADT<5000 - AN INDEPENDENT OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CERTIFIED ASPHALT TESTING LABORATORY SHALL PERFORM FIELD DENSITY TESTING  
ADT >5000 - AN INDEPENDENT OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CERTIFIED ASPHALT TESTING LABORATORY SHALL PERFORM FIELD DENSITY TESTING AND CORING.
8. RECLAIMED ASPHALT SHINGLES (RAS) ARE NOT PERMITTED IN ASPHALT PAVEMENT.
9. ITEM 441 - ASPHALT CONCRETE - ASPHALT CONCRETE SURFACE COURSE SHALL NOT EXCEED 10% RECLAIMED ASPHALT CONCRETE PAVEMENT (RAP) BY DRY WEIGHT. TOTAL VIRGIN ASPHALT BINDER CONTENT SHALL CONSIST OF A MINIMUM OF 6% FOR SURFACE COURSE. ALL AGGREGATE IN INTERMEDIATE AND SURFACE COURSE SHALL BE LIMESTONE.

## PORTLAND CEMENT CONCRETE

1. USE CONCRETE MIX CLASS QC-1P FOR ROADWAY PAVEMENT AND QC MS DRIVEWAY APRONS. QC FS SHALL NOT BE USED UNLESS AS DIRECTED BY ENGINEER.
2. SAWED AND HAND-FORMED JOINTS SHALL BE SEALED WITH CMS 705.04 JOINT SEALER.
3. PAVEMENT GUTTER REINFORCING STEEL (#5X30" TIE BAR) SHALL BE INSTALLED IN ACCORDANCE WITH ODOT SCD BP-2.1 AND INCLUDED FOR PAYMENT WITH THE CONCRETE PAVEMENT. CURB SHALL BE POURED INTEGRAL WITH HALF-LANE. CURB AND GUTTER SHALL NOT BE POURED SEPARATELY.
4. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
5. ALL DROPS FOR DRIVEWAY APRONS SHALL BE INCLUDED IN THE COST OF THE CURB.
6. KEYWAYS ARE NOT REQUIRED PER CITY OF LORAIN, ODOT ITEM 452.
7. EXISTING DRIVE APRON REMOVAL/REPLACEMENT- IT IS INTENDED THAT EXISTING DRIVE APRONS REMAIN UNDISTURBED DURING ANY ADJACENT INTEGRAL CONCRETE CURB AND PAVEMENT REMOVAL/REPLACEMENTS. REMOVAL OF ADJACENT INTEGRAL CONCRETE CURB AND PAVEMENT SHALL BE IN A MANNER THAT WILL NOT DISTURB, DAMAGE OR UNDERMINE THE ABUTTING DRIVE APRONS. SAW CUTS ALONG THE BACK OF CURB SHALL BE REQUIRED TO FACILITATE THE CURB AND PAVEMENT REMOVALS. DRIVE APRONS WHICH ARE UNAVOIDABLY DAMAGED DURING THE REMOVAL/REPLACEMENT OF ANY ADJACENT INTEGRAL CONCRETE CURB AND PAVEMENT SHALL BE REPLACED, IN KIND, TO THE NEAREST JOINT OR THE LIMITS ESTABLISHED/DIRECTED BY THE ENGINEER. EXCEPT AS OTHERWISE DIRECTED BY THE ENGINEER, THE CONFIGURATIONS OF ANY REPLACED DRIVE APRON AREAS SHALL CONFORM, AS NEARLY AS POSSIBLE, TO EXISTING CONFIGURATIONS. RESIDENTIAL DRIVES SHALL BE 6" THICK AND COMMERCIAL DRIVES AND ALLEYS SHALL BE 8" THICK. CONCRETE MIX CLASS "QC MS" SHALL BE USED FOR ITEM 452-DRIVEWAY APRON. THE CONTRACTOR SHALL NOTIFY EACH RESIDENT OF ANY RESTRICTED ACCESS TO THEIR PROPERTY NO LATER THAN ONE (1) WEEK IN ADVANCE. ACCESS TO ALL PROPERTY SHALL BE MAINTAINED AT ALL TIMES.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

NOTE 2: BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764.

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015		11	02/05/2020	ASPHALT HEADING REV.
2	02/12/2016		11	02/05/2020	PREV. NO. 6 REMOVED
7	01/01/2018		11	02/19/2020	NO. 3 REVISED
8	07/01/2018		11	03/03/2020	ASPH. TESTING REV.
9	01/01/2019				
10	06/20/2019	NO. 3 REVISED			

## STANDARD DESIGNS PAVEMENT GENERAL NOTES

CAD FILE:  
PV-1.1.dwg

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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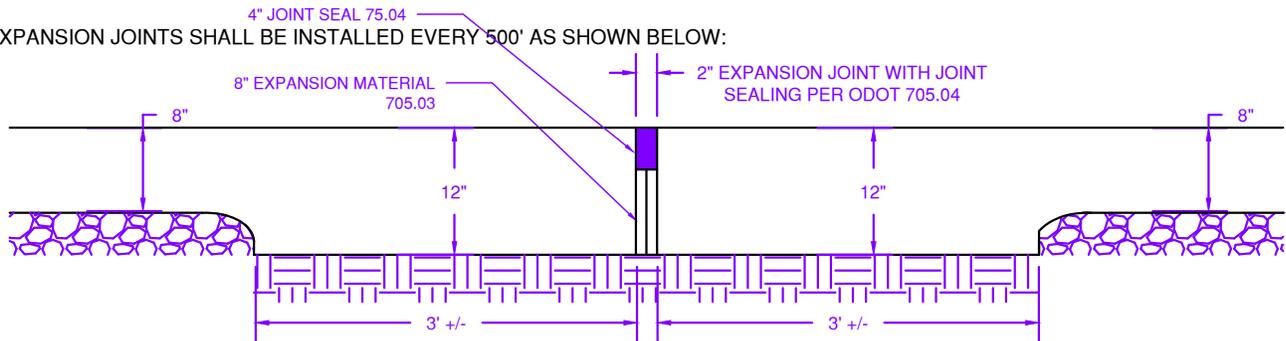
SHEET:

PV-1.1

# PORTLAND CEMENT CONCRETE, CONT'D

8. PARTIAL WIDTH CONSTRUCTION: POSITIVE DRAINAGE WILL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE INTENT OF THE METHOD REQUIRED TO REPLACE THIS PAVEMENT IS TO UTILIZE THE EXISTING ONE HALF OF THE PAVEMENT TO PREVENT DAMAGE TO THE SUB-GRADE BY CONSTRUCTION TRAFFIC AND FOR RESIDENTS TO MAINTAIN REASONABLE PEDESTRIAN ACCESS TO THEIR RESIDENCE. THE CONTRACTOR IS REQUIRED TO KEEP OPEN ONE LANE OF TRAFFIC FOR USE BY RESIDENTS AND BUSINESSES AT ALL TIMES. THE EXISTING PAVEMENT WILL BE SAWED IN THE LONGITUDINAL DIRECTION TO ALLOW FOR HALF WIDTH REMOVAL. THE REMOVAL WIDTH WILL BE DETERMINED BY THE CONTRACTOR TO ALLOW FOR ACCESS FOR THEIR EQUIPMENT. THE REMOVAL AREA THEN IS TO BE EXCAVATED; SUB-GRADE COMPACTED BY APPROVED METHOD AND EQUIPMENT, AND ODOT #304 LIMESTONE PLACED AND COMPACTED, AS DIRECTED. CURB SHALL BE POURED INTEGRAL WITH HALF-LANE. CURB AND GUTTER SHALL NOT BE POURED SEPARATELY. ALL PERIMETER SAWING FOR REMOVAL AGAINST EXISTING PAVEMENT IS TO BE DIAMOND SAWED, OTHER TYPES OF SAWING IS PERMISSIBLE FOR REMOVAL OF INTERIOR MATERIAL TO BE REMOVED LATER. ALL SAWING IS INCIDENTAL TO THE PROJECT.
9. ITEM 499 CONCRETE - GENERAL: CONCRETE MIX DESIGNS SHALL BE LIMITED TO THE FOLLOWING CLASSES:  
QC 1, QC 1-P, QC MS, QC MISC.
10. ITEM 499 - MS CONCRETE FOR LARGE AREAS: THE PROJECT ENGINEER MAY ALLOW MS CONCRETE IN PLACE OF QC1O AS REQUIRED ON THE PROJECT. THE MIX DESIGN FOR THIS WELL GRADED QCMS IS AS FOLLOWS: (WEIGHTS ARE APPROXIMATE)  
 TYPE 1 - 800 LBS  
 WATER - 312 LBS  
 #57 - 1347 LBS  
 #8 - 165 LBS  
 SAND - 1190 LBS  
 AIR - 6%
11. CONCRETE STRENGTH: CLASS QC1 AND QC1P SHALL ATTAIN A MODULUS OF RUPTURE OF 600 POUNDS PER SQUARE INCH (2.8 MPa) WITHIN 5 DAYS. CITY OF LORAIN INSPECTORS WILL PREPARE TWO (2) BEAM SPECIMENS FOR EACH CONCRETE PLACEMENT. THE INSPECTOR WILL TEST ONE (1) BEAM SPECIMEN AFTER 5 DAYS OF CURE. IF THE TESTED BEAM SPECIMEN FAILS TO ATTAIN THE REQUIRED STRENGTH OF 600 PSI WITHIN 5 DAYS, THUS PROHIBITING THE CONCRETE PAVEMENT FROM BEING OPENED TO TRAFFIC, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF 10% OF THE CONTRACT BID ITEM AND ASSOCIATED QUANTITY THAT CONTAINED THE STRENGTH DEFICIENCY. LIQUIDATED DAMAGES WILL INCREASE 10% PER CALENDAR DAY THEREAFTER NOT TO EXCEED 50% OF THE CONTRACT BID ITEM AND ASSOCIATED QUANTITY CONTAINING THE DEFICIENCY. AFTER 5 DAYS, THE CONTRACTOR MAY TAKE POSSESSION OF THE SECOND BEAM SPECIMEN FOR ADDITIONAL TESTING BY AN ODOT PREQUALIFIED LABORATORY AT NO ADDITIONAL COST TO THE CITY. UPON USE OF THE SECOND BEAM SPECIMEN, IF FURTHER SPECIMENS ARE REQUIRED TO TEST CONCRETE STRENGTH THE CONTRACTOR MAY OBTAIN PAVEMENT CORES FROM THE PAVEMENT SECTION CONTAINING THE DEFICIENCY. ALL COSTS RELATED TO ACQUIRING THE PAVEMENT CORES, INCLUDING BUT NOT LIMITED TO REMOVAL, TESTING, REPLACEMENT AND RESTORATION, SHALL BE AT THE COST OF THE CONTRACTOR. IF THE DEFICIENCY REMAINS AFTER TWENTY EIGHT (28) DAYS, THE CONTRACTOR SHALL REMOVE AND REPLACE THE AFFECTED CONCRETE PAVEMENT AT NO ADDITIONAL COST TO THE CITY. THE AFOREMENTIONED CONCRETE STRENGTH REQUIREMENTS AND LIQUIDATED DAMAGES SHALL BE APPLICABLE TO ALL FUTURE REPLACEMENTS OF THE CONCRETE PAVEMENT SECTIONS CONTAINING THE ORIGINAL DEFICIENCIES. IF AT ANY TIME THE CONCRETE STRENGTH REQUIREMENTS ARE SATISFACTORILY MET AND THE CONTRACTOR FAILS TO OPEN THE CONCRETE PAVEMENT TO TRAFFIC BY THE END OF THE WORK DAY, THE CONTRACTOR SHALL INCUR LIQUIDATED DAMAGES AS STATED ABOVE.

13. EXPANSION JOINTS SHALL BE INSTALLED EVERY 500' AS SHOWN BELOW:



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**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764.

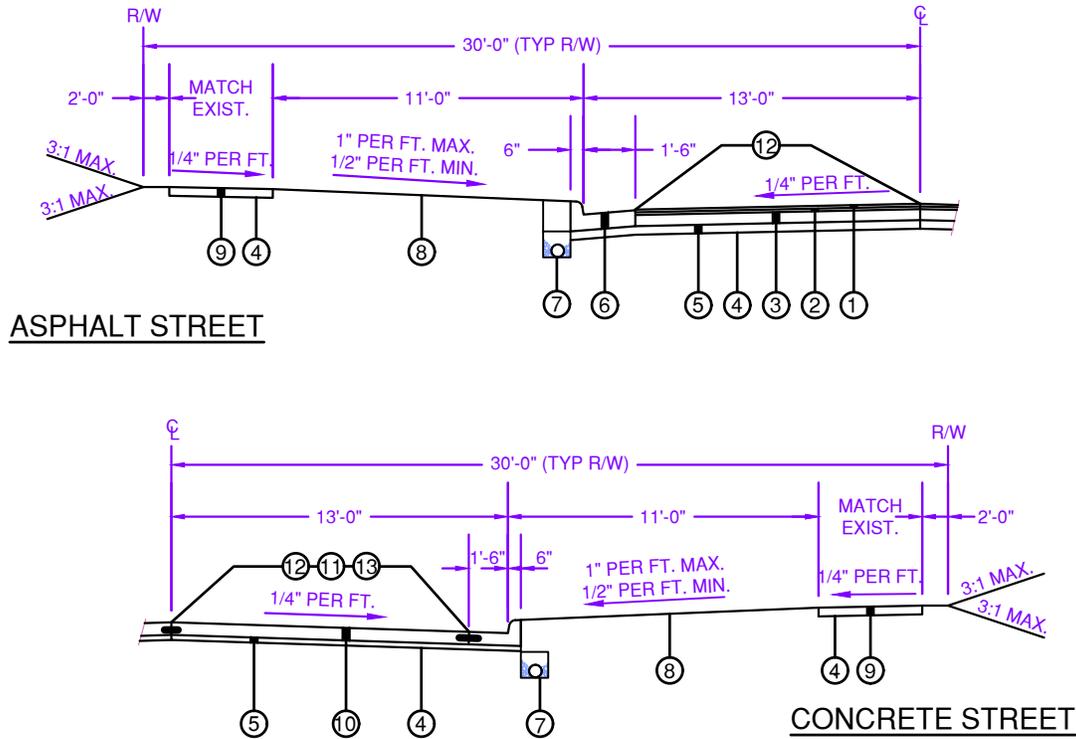
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 PAVEMENT  
 GENERAL NOTES**

NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018		11	03/04/2020	NO. 10 REVISED
8	07/01/2018				
9	01/01/2019				
10	06/20/2019	NO. 11 ADDED			
11	02/19/2020	NO. 8 REVISED			
11	02/21/2020	EXP. JOINT DETAIL REV.			

CAD FILE: PV-1.2.dwg				SHEET:	
DRWN BY: RS	APPRVD BY: DV	ISSUE DATE: 10/27/2015	SCALE: NONE		

**PV-1.2**



**LEGEND**

- |   |          |        |   |   |                    |  |
|---|----------|--------|---|---|--------------------|--|
| ① | ITEM 441 | 1-1/4" | ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22 (10% RAP MAX)       | ⑧ | ITEM 659           | SEEDING AND MULCHING   |
| ② | ITEM 441 | 1-3/4" | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22 (35% RAP MAX.) | ⑨ | ITEM 608           | 4" CONCRETE SIDEWALK 6" DRIVE APPROACH AND 6" SIDEWALK BEHIND APPROACH, 6" CURB RAMPS  |
| ③ | ITEM 301 | 9"     | ASPHALT CONCRETE BASE   | ⑩ | ITEM 452           | 8" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT WITH TYPE 2A INTEGRAL CURB, CLASS QC 1  |
| ④ | ITEM 204 | *      | SUBGRADE COMPACTION AND PROOF ROLLING                                 | ⑪ | ITEM 451.09        | LONGITUDINAL & TRANSVERSE JOINTS PER ODOT SCD BP-2.1 AND 2.2; SAW CUT TRANSVERSE JOINTS ON 15' CENTERS AND AT RE-ENTRY CORNERS; #5 X 30" TIE BAR @ 30" C/C FOR LONGITUDINAL JOINTS |
| ⑤ | SUBBASE: |        |   | ⑫ | ITEM 451.16/705.04 | JOINT SEALING; LONGITUDINAL, TRANSVERSE AND CURB & GUTTER JOINTS; 2" TO 4" BAND WHEN SEALING ASPHALT.  |
|   | ASPHALT  | 4"     | 304 LIMESTONE   | ⑬ | ITEM 451.09        | PAVEMENT GUTTER REINFORCING STEEL; SAW CUT; #5 X 30" TIE BAR @ 30" C/C PER ODOT SCD BP-2.1   |
|   | CONCRETE | 6"     | 304 LIMESTONE   |   |                    |  |
| ⑥ | ITEM 609 | 24"    | COMBINATION CURB & GUTTER; MODIFIED TYPE 2, CLASS QC 1                |   |                    |  |
| ⑦ | ITEM 605 | 4"     | UNDERDRAINS (SEE DETAIL PV-3.0)                                       |   |                    |  |

**NOTES**

\* WHERE GRANULAR FILL IS USED TO REPLACE SOFT SUBBASE AREAS, EXTEND CUT AND GRANULAR TO UNDERDRAIN.

- VERTICAL 6" CURB ROADWAY STANDARDS ARE AS FOLLOWS: TRAVEL LANE = 26' MINIMUM. BOC TO BOC 27' MINIMUM.
- ROLLED 4" CURB ROADWAY STANDARDS ARE AS FOLLOWS: TRAVEL LANE = 26" MINIMUM. BOC TO BOC 27' 4" MINIMUM.
- ADDITIONAL CURB DESIGNS CAN BE FOUND ON PV 5.0 AND PV 5.1.
- CONCRETE SPECIFICATIONS: QC1P: ROADWAY; QCMS: BOXOUTS, DRIVEWAYS, SIDEWALK WITHIN DRIVEWAY; QC1 OR QC MISC: WALK AND CURB RAMPS.

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 PAVEMENT  
 TYPICAL STREET-RESIDENTIAL**

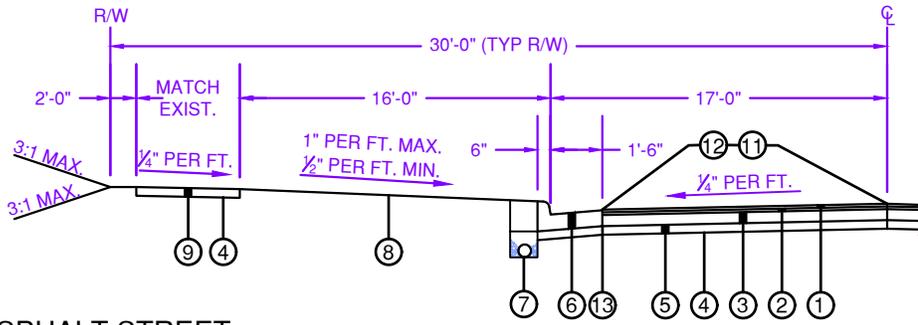
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SHEET:

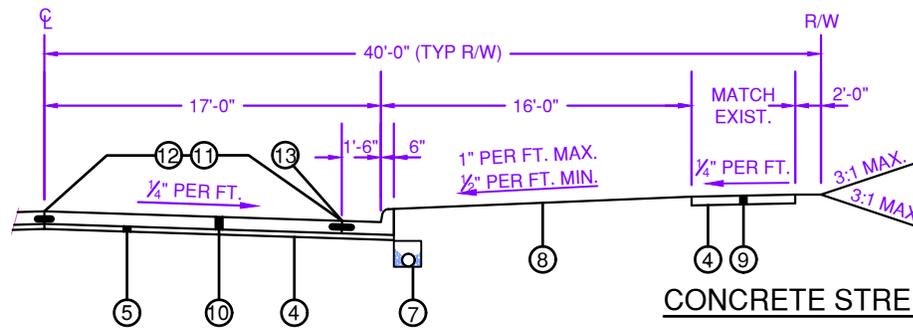
**PV-2.0**

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION
2	02/12/2016		11	03/04/2020	LEGEND NO. 12 REV.
4	04/18/2017				
7	01/01/2018				
10	06/20/2019	NO. 4 CHANGED			
11	02/05/2020	DETAIL NO. 12 REVISED			
11	02/12/2020	SIDEWALK WIDTH REV.			



**ASPHALT STREET**



**CONCRETE STREET**

**LEGEND**

①	ITEM 441	1-1/4"	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22 (10% RAP MAX)	⑧	ITEM 659	SEEDING AND MULCHING
②	ITEM 441	1-3/4"	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22 (35% RAP MAX.)	⑨	ITEM 608	4" CONCRETE SIDEWALK 6" DRIVE APPROACH AND 6" SIDEWALK BEHIND APPROACH, 6" CURB RAMPS
③	ITEM 301	9"	ASPHALT CONCRETE BASE	⑩	ITEM 451	10" REINFORCED CONCRETE PAVEMENT WITH INTEGRAL CURB; TYPE 2A, CLASS QC 1. MIN. REINFORCEMENT WWF 6X6 - W4 X W4 WELDED WIRE MESH OR APPROVED FIBER. LONGITUDINAL & TRANSVERSE JOINTS PER ODOT SCD BP-2.1 AND 2.2; SAW CUT TRANSVERSE JOINTS ON 15' CENTERS AND AT RE-ENTRY CORNERS; #5 X 30" TIE BAR @ 30" C/C FOR LONGITUDINAL JOINTS
④	ITEM 204	*	SUBGRADE COMPACTION AND PROOF ROLLING	⑪	ITEM 451.09	
⑤	SUBBASE:			⑫	ITEM 451.16/705.04	JOINT SEALING; LONGITUDINAL, TRANSVERSE AND CURB & GUTTER JOINTS; 2" TO 4" BAND WHEN SEALING ASPHALT.
	ASPHALT	4"	304 LIMESTONE	⑬	ITEM 451.09	PAVEMENT GUTTER REINFORCING STEEL; SAW CUT; #5 X 30" TIE BAR @ 30" C/C PER ODOT SCD BP-2.1
	CONCRETE	6"	304 LIMESTONE			
⑥	ITEM 609	24"	COMBINATION CURB & GUTTER; MODIFIED TYPE 2, CLASS QC 1			
⑦	ITEM 605	4"	UNDERDRAINS (SEE DETAIL PV-3.0)			

**NOTES**

\* WHERE GRANULAR FILL IS USED TO REPLACE SOFT SUBBASE AREAS, EXTEND CUT AND GRANULAR TO UNDERDRAIN.

- VERTICAL 6" CURB ROADWAY STANDARDS ARE AS FOLLOWS: TRAVEL LANE = 26' MINIMUM. BOC TO BOC 27' MINIMUM.
- ROLLED 4" CURB ROADWAY STANDARDS ARE AS FOLLOWS: TRAVEL LANE = 26' MINIMUM. BOC TO BOC 27' 4" MINIMUM.
- ADDITIONAL CURB DESIGNS CAN BE FOUND ON PV 5.0 AND PV 5.1.
- CONCRETE SPECIFICATIONS: QC1P: ROADWAY; QCMS: BOXOUTS, DRIVEWAYS, SIDEWALK WITHIN DRIVEWAY; QC1 OR QC MISC: WALK AND CURB RAMPS.

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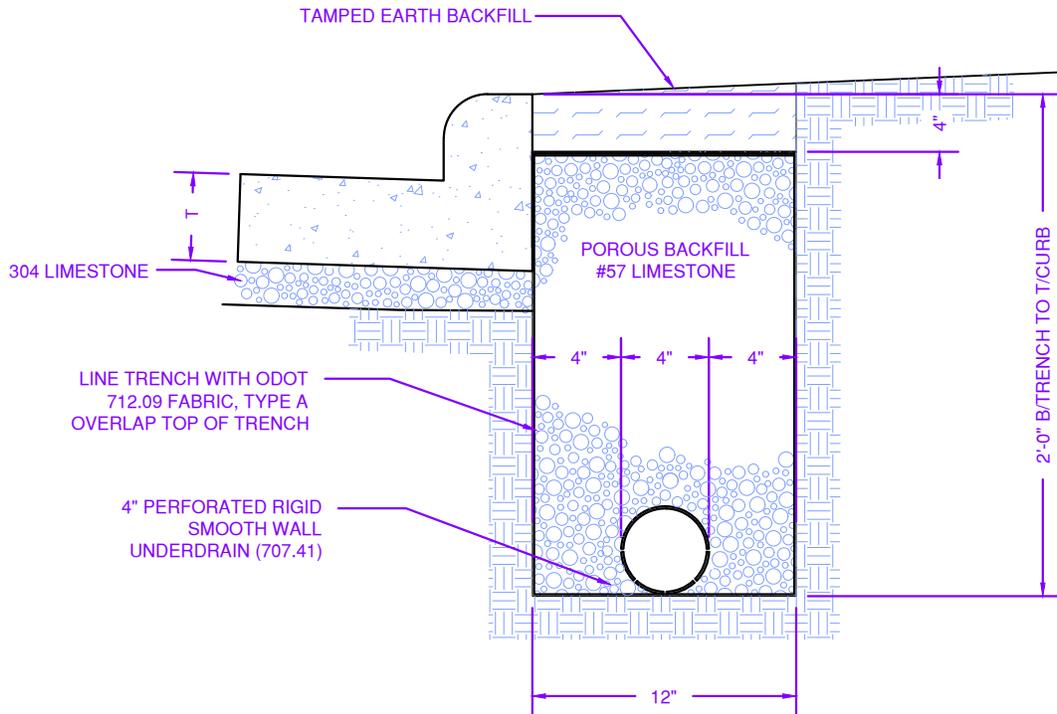
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 PAVEMENT  
 TYPICAL STREET-INDUSTRIAL/COMMERCIAL**

CAD FILE: PV-2.1.dwg		SHEET: <b>PV-2.1</b>	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

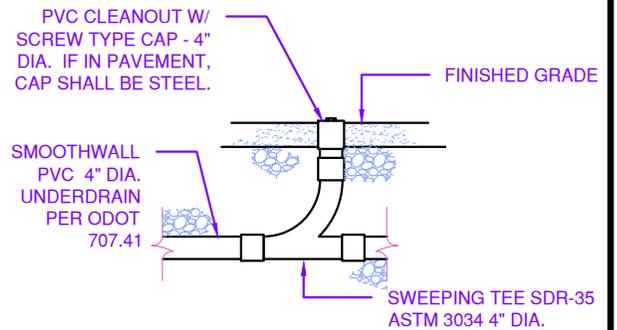
NO.	DATE	REVISION	NO.	DATE	REVISION
2	02/12/2016		11	03/04/2020	LEGEND NO. 12 REV.
4	04/18/2017				
7	01/01/2018				
10	06/20/2019	NO. 4 CHANGED			
11	02/05/2020	DETAIL NO. 12 REVISED			
11	02/12/2020	SIDEWALK WIDTH REV.			

C:\Users\potter\appdata\local\temp\AcPublish\_8864\PV-3.0.dwg - PV-3.0 ~ Feb 12, 2020 - 2:57pm



**NOTES:**

1. UNDERDRAINS ARE REQUIRED FOR ALL CONCRETE ROADWAY CONSTRUCTION, UNLESS APPROVED OTHERWISE, OR MODIFIED, BY THE CITY ENGINEER.
2. UNDERDRAIN PIPING OR TUBING SHALL BE INSTALLED TRUE TO LINE AND GRADE SHOWN ON THE PLANS.
3. NO TRENCHING PERMITTED. COMPACT BOTTOM OF TRENCH.
4. UNDERDRAIN SHALL BE CONNECTED TO INLET/MH STRUCTURE.
5. UNDERDRAIN CLEANOUTS SHALL BE INSTALLED AT THREE HUNDRED (300) FEET INTERVALS, OR AS DIRECTED BY ENGINEER. CLEANOUTS SHALL BE INCLUDED FOR PAYMENT W/ 4" UNDERDRAIN.



**UNDERDRAIN CLEANOUT**

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 PAVEMENT  
 UNDERDRAIN DETAIL**

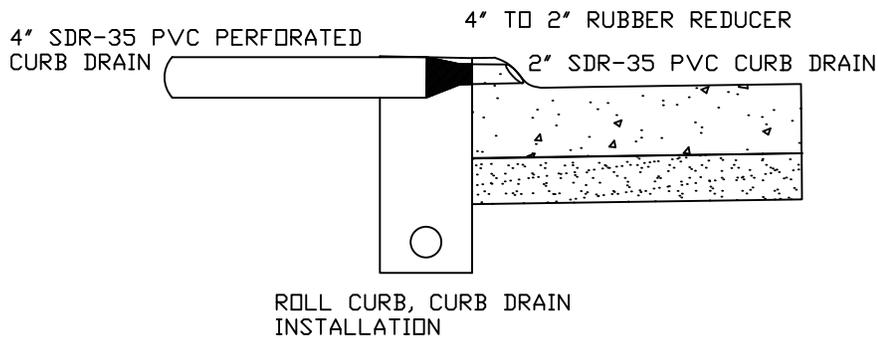
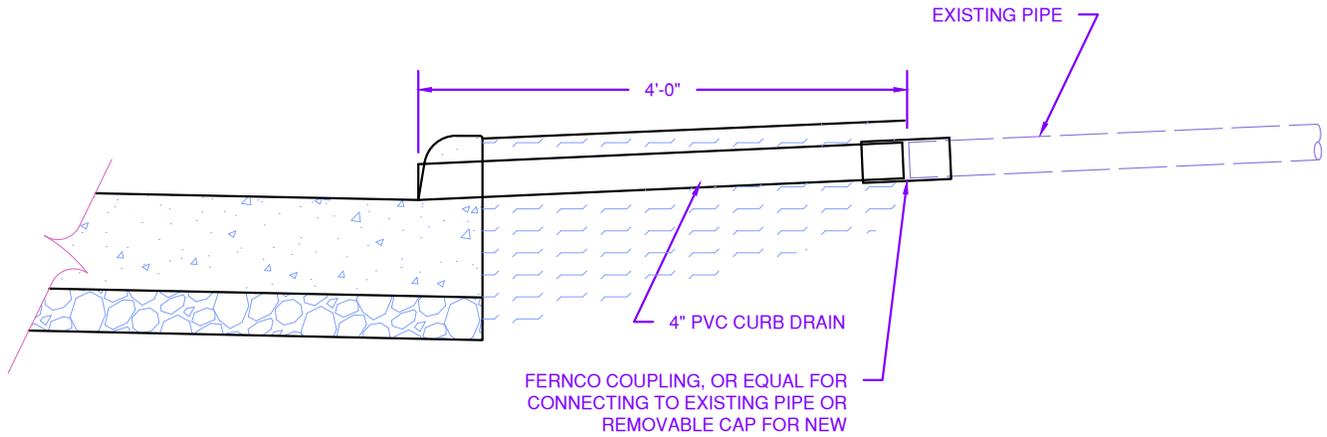
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SHEET:

**PV-3.0**

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION
11	02/05/2020	CLEANOUT DETAIL REV.			
11	02/05/2020	NOTE NO. 1 REV.			
11	02/05/2020	CLEANOUT DETAIL REV.			



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 Phone: (440) 204-2003

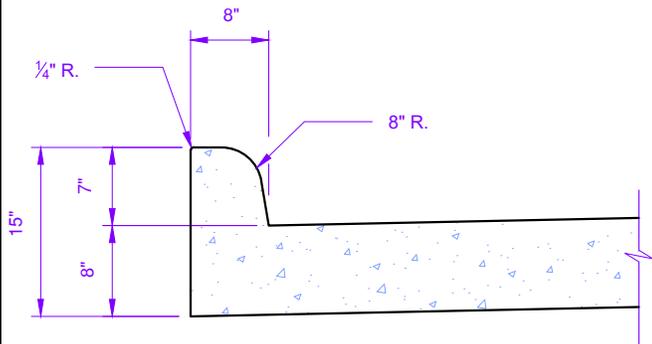
NO.	DATE	REVISION	NO.	DATE	REVISION
10	06/20/2019	ROLL CURB DETAIL ADDED			

**STANDARD DESIGNS  
 PAVEMENT  
 DRAIN THRU CURB DETAIL**

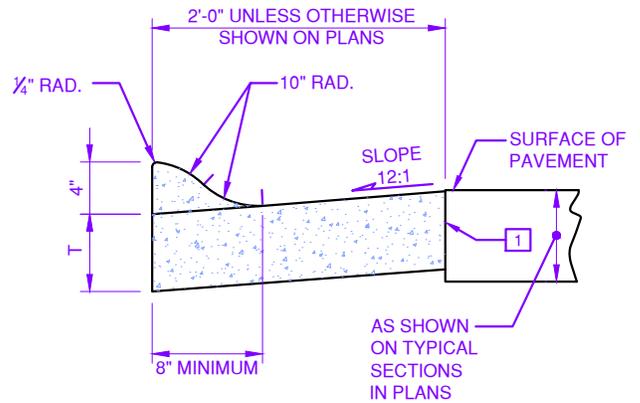
CAD FILE: PV-4.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**PV-4.0**





**MODIFIED TYPE 2-A  
INTEGRAL CURB**

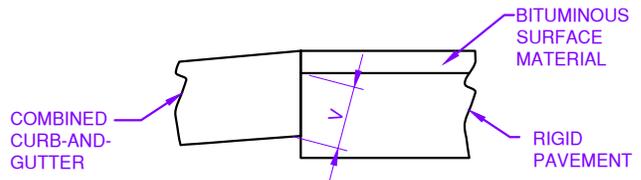


**MODIFIED TYPE 3**

FOR ADDITIONAL CURB DETAILS, SEE ODOT SCD BP-5.1.

**LEGEND**

- 1** BUTT JOINTS SHALL BE PROVIDED BETWEEN COMBINED CURB-AND-GUTTER AND NEW OR EXISTING RIGID PAVEMENTS, WITH TIE BARS OR HOOK BOLTS PROVIDED AT INTERVALS OF 5' [1.5 M]. SEE SCD BP-2.1 FOR DETAILS OF TIE BARS AND HOOK BOLTS. IF THE COMBINED CURB-AND-GUTTER ADJOINS A NEW RIGID BASE OR AN EXISTING RIGID BASE OR PAVEMENT THAT IS TO BE SURFACED WITH BITUMINOUS MATERIAL, A BUTT JOINT SHALL ALSO BE PROVIDED. HOWEVER, TIE BARS OR HOOK BOLTS SHALL BE OMITTED WHEN THE VERTICAL OVERLAP ("V" IN DETAIL RIGHT) BETWEEN THE CURB-AND-GUTTER AND RIGID PAVEMENT IS LESS THAN 7" [175].



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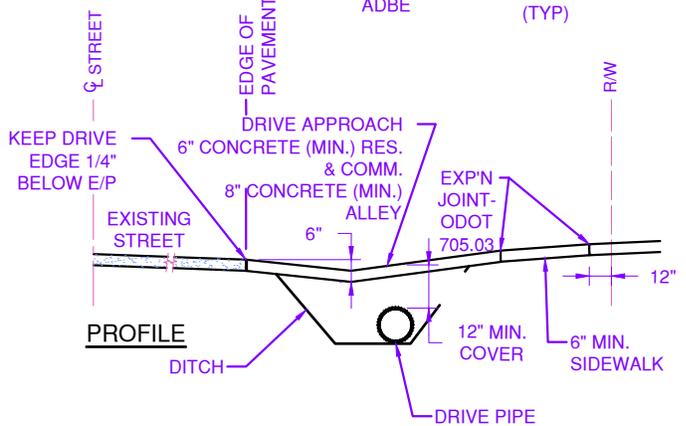
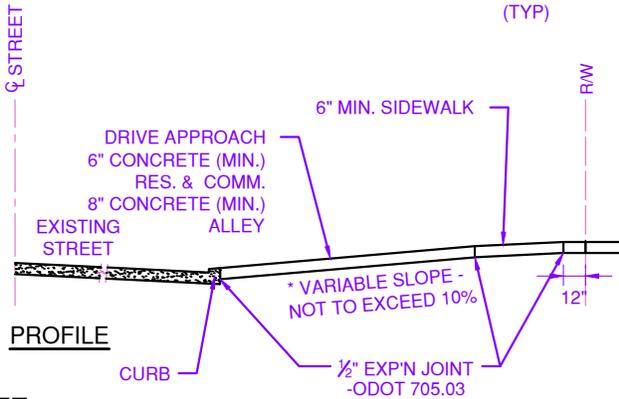
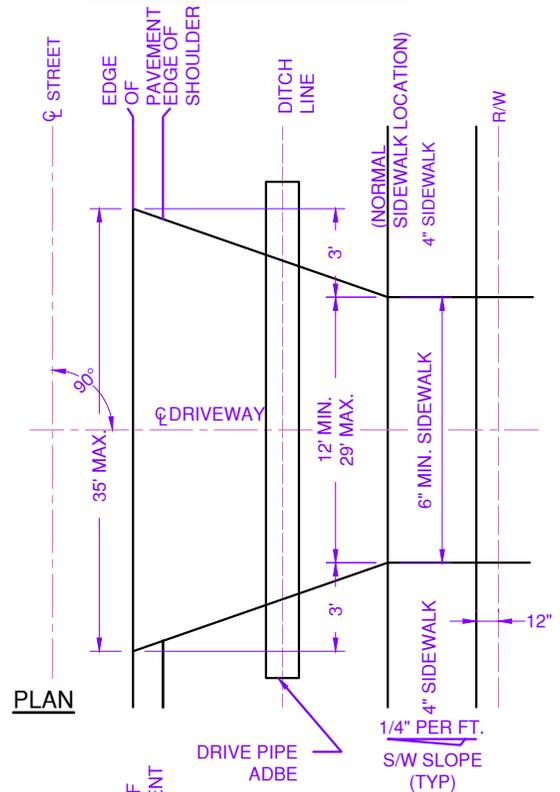
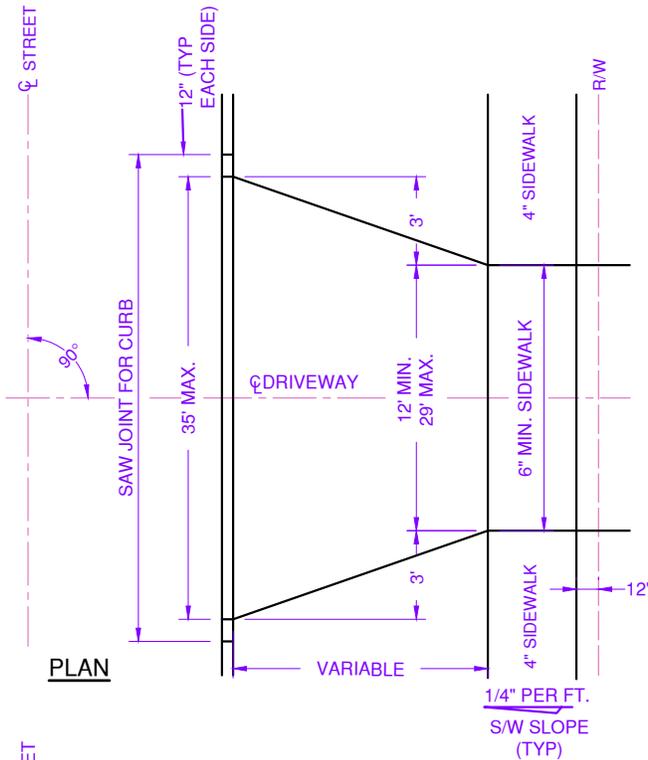
NO.	DATE	REVISION	NO.	DATE	REVISION
1	04/18/2017				
11	02/05/2020	ADDED CURB NOTE			

**STANDARD DESIGNS  
PAVEMENT  
CURB DETAILS**

CAD FILE: PV-5.1.dwg				SHEET: <b>PV-5.1</b>	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

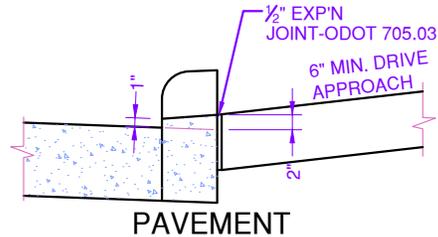
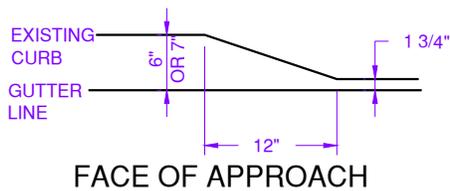
**IMPROVED STREET**

**UNIMPROVED STREET**



**NOTE:**

FOR APRON FINISHING REFER TO PV-12.2 AND ODOT 608.03



**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 PAVEMENT  
 DRIVE APPROACH DETAILS**

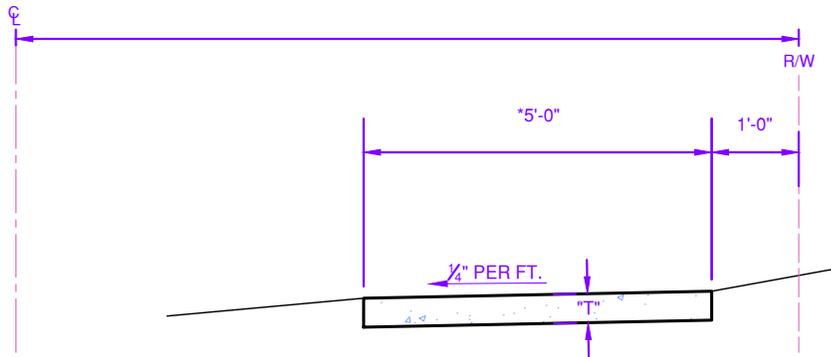
CAD FILE:  
 PV-6.0.dwg

SHEET:

**PV-6.0**

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION
11	02/05/2020	8" ALLEY NOTE ADDED			
11	02/21/2020	DETAILS REV.			



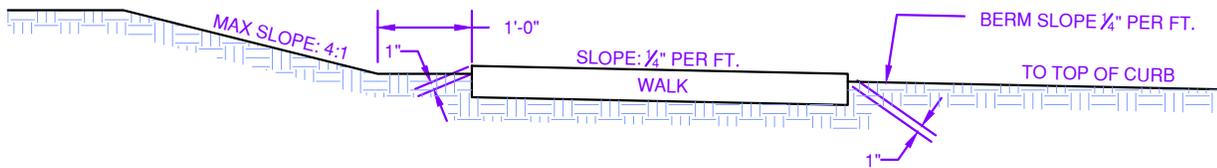
\* UNLESS DRIVE APRONS ARE LESS THAN 200' APART

**STANDARD SIDEWALK RESIDENTIAL/COMMERCIAL**

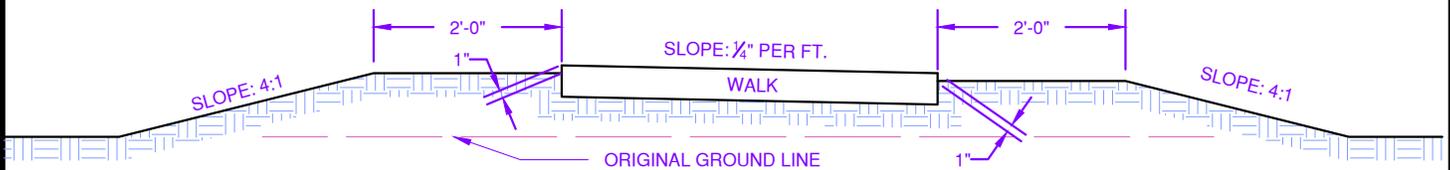
"T" = 4" MIN. FOR STANDARD WALKS  
 "T" = 6" MIN. FOR WALKS ACROSS RES. & COMM. DRIVES  
 "T" = 8" MIN. FOR WALKS ACROSS ALLEYS

**NOTES:**

1. ALL CONCRETE SHALL BE 4000 PSI ODOT CLASS QC MISC WITH AIR-ENTRAINING ADMIXTURE.
2. A "V" SHALL BE TOOLED INTO THE CONCRETE AT EACH WATER CURB BOX LOCATION.
3. SIDEWALK FINISHING - REFER TO PV-12.2
4. FOR ADA RAMPS; REFER TO ODOT B.P.-7.1 FOR PREFERRED CONSTRUCTION PLACEMENT OF PERPENDICULAR CURB RAMPS.



**TYPICAL GRADING SECTION IN CUT**



**TYPICAL GRADING SECTION IN FILL**

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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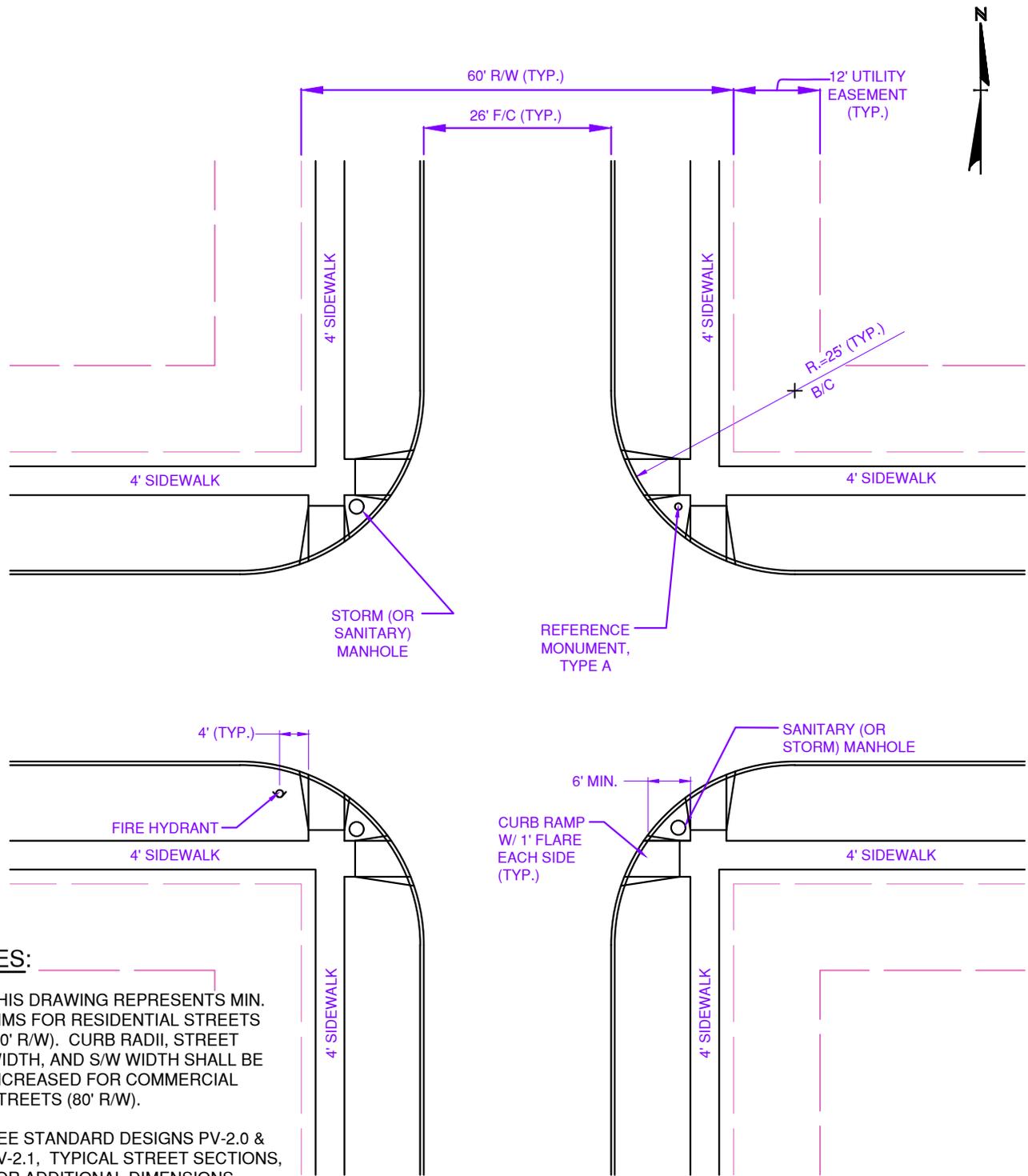
NO.	DATE	REVISION	NO.	DATE	REVISION
10	06/20/2019	NO. 3 ADDED			
11	02/05/2020	ALLEY NOTE ADDED			
11	02/10/2020	ADA RAMP NOTE ADDED			
11	02/21/2020	WALK DETAIL REV.			

**STANDARD DESIGNS  
 PAVEMENT  
 SIDEWALK DETAIL**

CAD FILE: PV-7.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**PV-7.0**





**NOTES:**

1. THIS DRAWING REPRESENTS MIN. DIMS FOR RESIDENTIAL STREETS (60' R/W). CURB RADII, STREET WIDTH, AND S/W WIDTH SHALL BE INCREASED FOR COMMERCIAL STREETS (80' R/W).
2. SEE STANDARD DESIGNS PV-2.0 & PV-2.1, TYPICAL STREET SECTIONS, FOR ADDITIONAL DIMENSIONS.
3. SEE ODOT SCD BP-7.1 FOR CURB RAMP DETAILS.

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 200 West Erie Avenue Lorain, Ohio 44052  
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**STANDARD DESIGNS  
 PAVEMENT  
 INTERSECTION DETAIL**

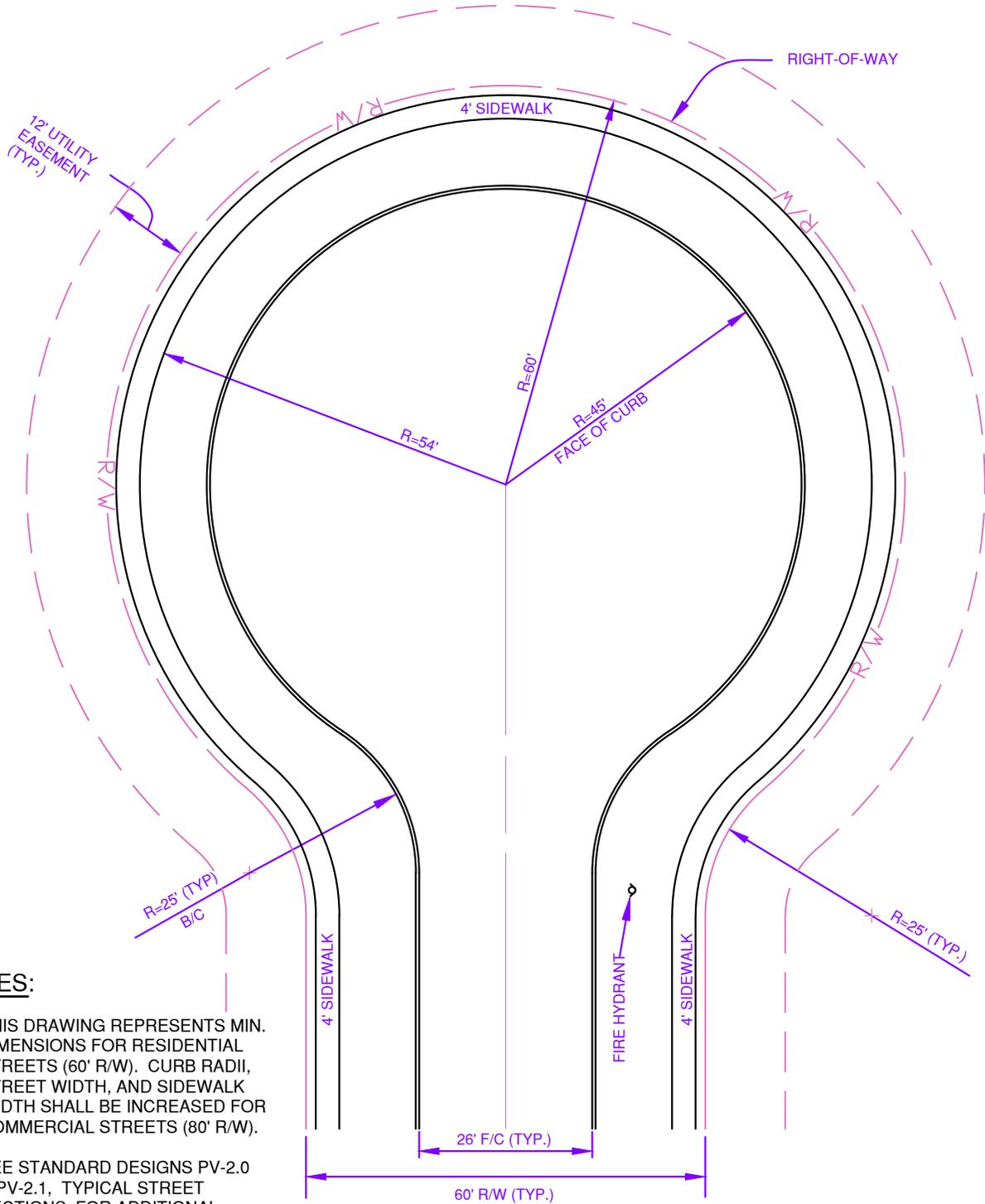
CAD FILE:  
 PV-9.0.dwg

SHEET:

PV-9.0

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION



**NOTES:**

1. THIS DRAWING REPRESENTS MIN. DIMENSIONS FOR RESIDENTIAL STREETS (60' R/W). CURB RADIUS, STREET WIDTH, AND SIDEWALK WIDTH SHALL BE INCREASED FOR COMMERCIAL STREETS (80' R/W).
2. SEE STANDARD DESIGNS PV-2.0 & PV-2.1, TYPICAL STREET SECTIONS, FOR ADDITIONAL DIMENSIONS.

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**STANDARD DESIGNS  
 PAVEMENT  
 CUL-DE-SAC DETAIL**

CAD FILE:

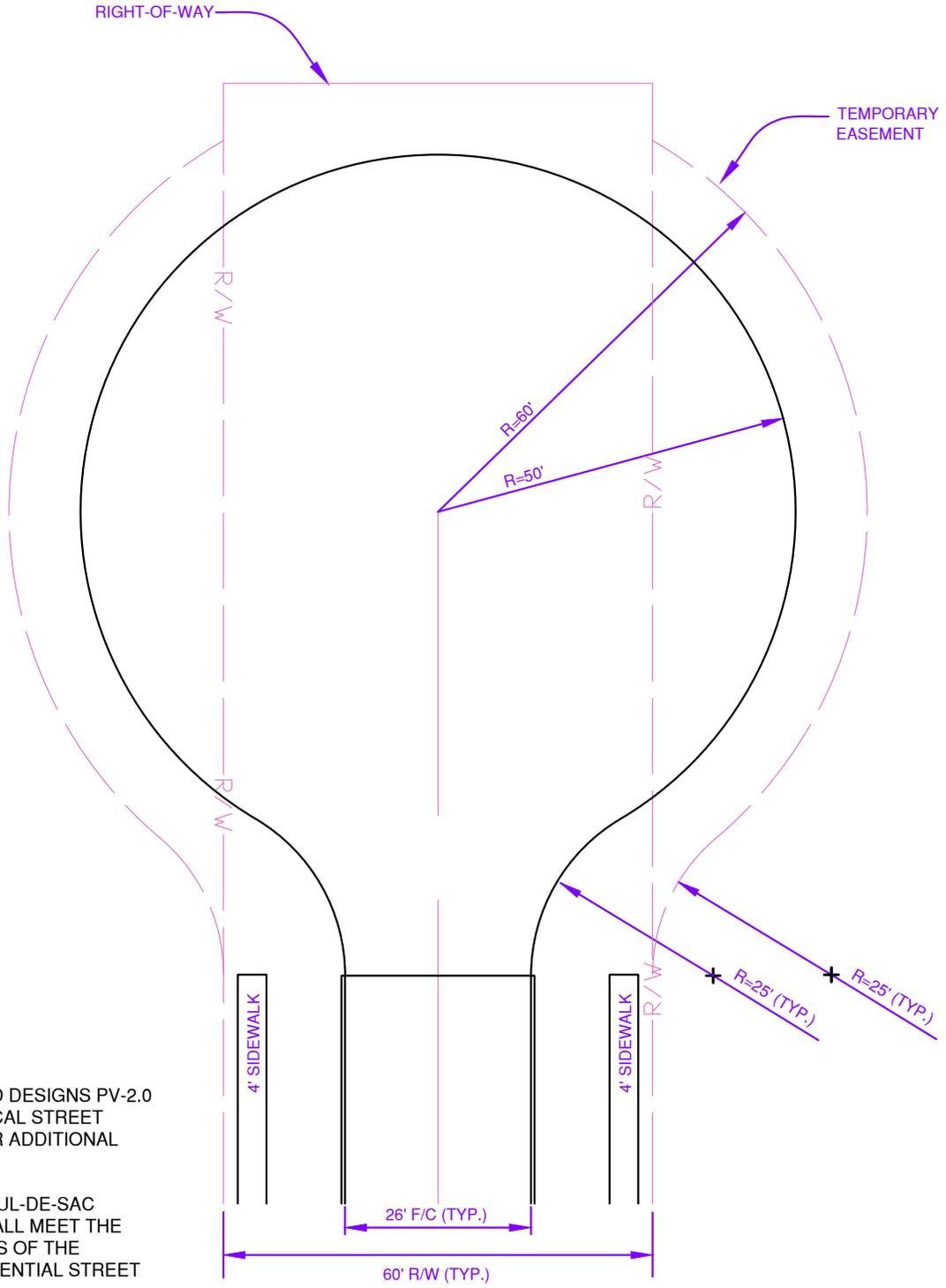
PV-10.0.dwg

SHEET:

**PV-10.0**

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION



**NOTES:**

1. SEE STANDARD DESIGNS PV-2.0 & PV-2.1, TYPICAL STREET SECTIONS, FOR ADDITIONAL DIMENSIONS.
2. TEMPORARY CUL-DE-SAC PAVEMENT SHALL MEET THE REQUIREMENTS OF THE TYPICAL RESIDENTIAL STREET SECTION.

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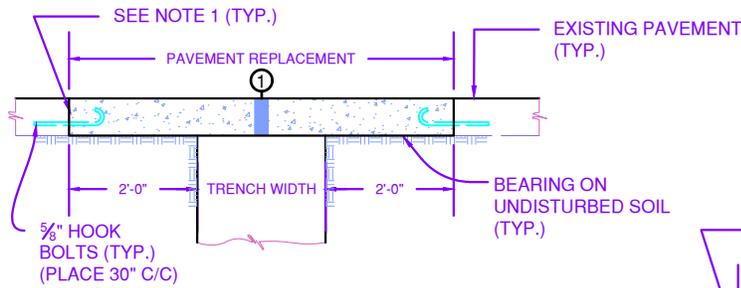
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 PAVEMENT  
 TEMPORARY TURN-AROUND DETAIL**

CAD FILE: PV-11.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

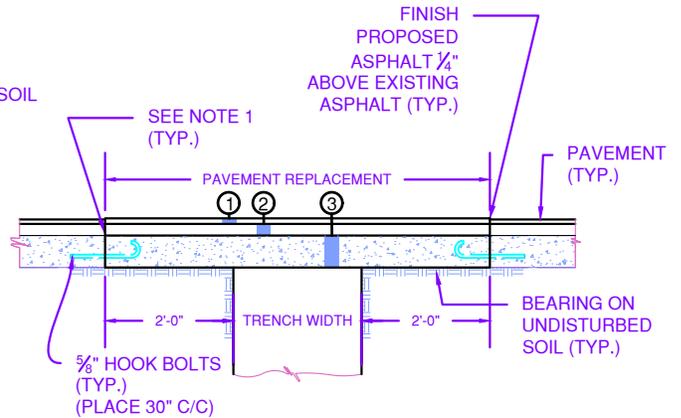
SHEET:  
**PV-11.0**

NO.	DATE	REVISION	NO.	DATE	REVISION



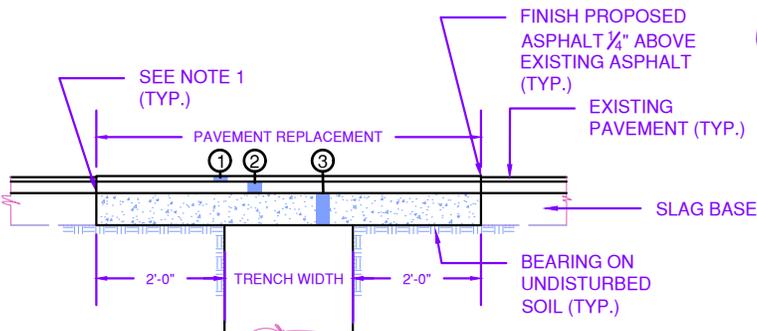
- ① 8" - ITEM 452 PLAIN PORTLAND CEMENT CONCRETE PAVEMENT (LIMESTONE AGGREGATE), CLASS QC 1

**PORTLAND CEMENT CONCRETE**



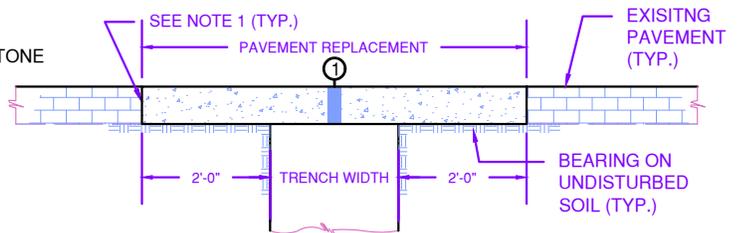
- ① 1.25" - ITEM 441 ASPHALT CONCRETE SURFACE, TYPE 1 (LIMESTONE AGGREGATE)
- ② 1.75" - ITEM 441 ASPHALT CONCRETE INTERMEDIATE, TYPE 2
- ③ 8" - ITEM 305 PORTLAND CEMENT CONCRETE BASE (LIMESTONE AGGREGATE), CLASS QC 1

**CONCRETE BASE WITH ASPHALT SURFACE**



- ① 1.25" - ITEM 441 ASPHALT CONCRETE SURFACE, TYPE 1 (LIMESTONE AGGREGATE)
- ② 1.75" - ITEM 441 ASPHALT CONCRETE INTERMEDIATE, TYPE 2
- ③ 8" - ITEM 305 PORTLAND CEMENT CONCRETE BASE (LIMESTONE AGGREGATE), CLASS QC 1

**SLAG BASE WITH ASPHALT SURFACE**

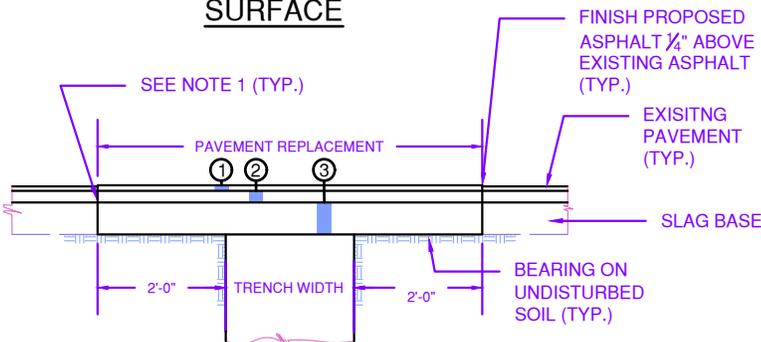


- ① 8" - ITEM 452 PLAIN PORTLAND CEMENT CONCRETE PAVEMENT (LIMESTONE AGGREGATE), CLASS QC 1

**BRICK PAVEMENT**

**NOTE:**

1. EXISTING PAVEMENT SHALL BE SAW CUT WITH DIAMOND BLADE TO PROVIDE A SUBSTANTIALLY VERTICAL AND STRAIGHT JOINT.



- ① 1.25" - ITEM 441 ASPHALT CONCRETE SURFACE, TYPE 1 (LIMESTONE AGGREGATE)
- ② 1.75" - ITEM 441 ASPHALT CONCRETE INTERMEDIATE, TYPE 2
- ③ 8" - ITEM 301 ASPHALT CONCRETE BASE

**ASPHALT SURFACE WITH ASPHALT BASE**

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**STANDARD DESIGNS  
PAVEMENT  
REPLACEMENT DETAIL**

CAD FILE:  
PV-12.0.dwg

SHEET:

PV-12.0

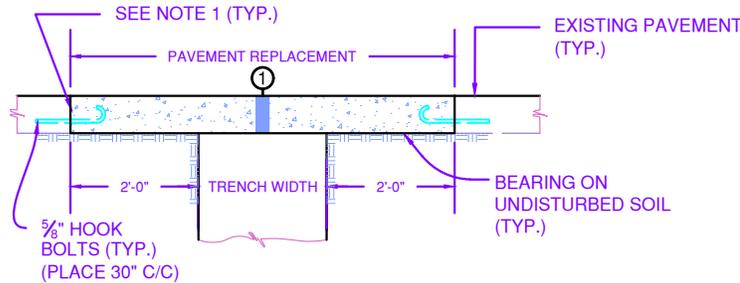
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018				
9	01/01/2019				

## TYPICAL PAVEMENT REPLACEMENT DETAILS

### REPLACEMENT NOTES:

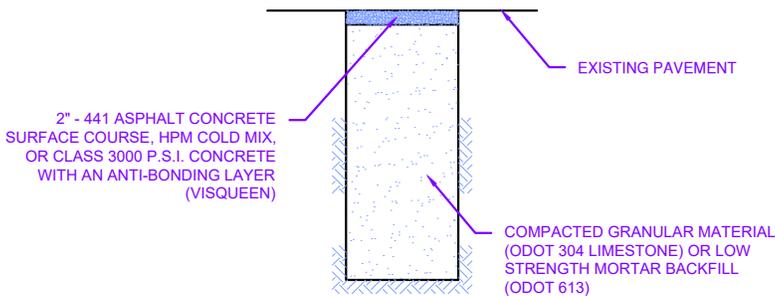
1. THE EXISTING PAVEMENT SHALL BE DIAMOND BLADE SAW CUT AT A DISTANCE OF 2' FROM THE UTILITY TRENCH TO PROVIDE A SUBSTANTIALLY VERTICAL AND STRAIGHT JOINT BETWEEN THE EXISTING AND REPLACEMENT PAVEMENT.
2. ALL PAVEMENT AND SIDEWALK REPLACEMENT DETAILS SHOWN REPRESENT THE MINIMUM ACCEPTABLE REPAIR. IF EXISTING SURFACES EXCEED THESE DETAILS, THEN REPAIRED SURFACES SHALL MATCH THE EXISTING.
3. ALL EDGES OF PATCHED AREAS TO BE SEALED USING ITEM 451.16/705.04.
4. ALL CURB REPLACEMENT TO BE INCLUDED W/ PAVEMENT REPLACEMENT.
5. HOOK BOLTS SHALL BE EPOXY COATED.
6. THE EXISTING LONGITUDINAL AND TRANSVERSE JOINTS SHALL DETERMINE THE AREA OF PAVEMENT REPLACEMENT REQUIRED. WHENEVER A PROPOSED SAW CUT IS DISTANT LESS THEN FIVE (5) FT. FROM A LONGITUDINAL AND/OR A TRANSVERSE JOINT, THE PAVEMENT SHALL BE REPLACED TO THE EXISTING JOINT AND LIMITS OF ALL DESIGNATED BY THE ENGINEER IN THE FIELD.
7. ALL CONCRETE FOR STREETS AND CURBS SHALL BE ODOT CLASS QC1P.



① 8" - ITEM 452 PLAIN PORTLAND CEMENT CONCRETE PAVEMENT (LIMESTONE AGGREGATE), CLASS QC 1

### REPLACEMENT DETAIL

### TEMPORARY PAVEMENT DETAIL



### TEMPORARY REPLACEMENT NOTES:

1. TEMPORARY PAVEMENT SHALL BE INSTALLED WHENEVER THE PERMANENT PAVEMENT WILL NOT BE INSTALLED WITHIN 14 DAYS OF PAVEMENT REMOVAL.
2. TEMPORARY PAVEMENT PATCHES SHALL BE MAINTAINED IN A DRIVABLE CONDITION.
3. TEMPORARY PAVEMENT PATCHES SHALL BE REPLACED WITH PERMANENT PAVEMENT RESTORATION AS SOON AS POSSIBLE.
4. TEMPORARY CONCRETE SHALL USE NO. 8 STONE.

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200 West Erie Avenue Lorain, Ohio 44052  
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## STANDARD DESIGNS PAVEMENT REPLACEMENT DETAIL

CAD FILE:  
PV-12.1.dwg

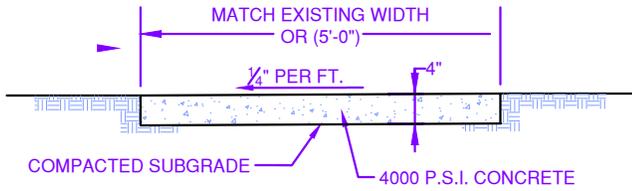
SHEET:

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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# PV-12.1

NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018				
10	06/20/2019	NO. 7 CHANGED			
11	02/06/2020	REPL. DETAIL CHANGED			
11	02/06/2020	REPL. NOTE NO. 1 REV.			

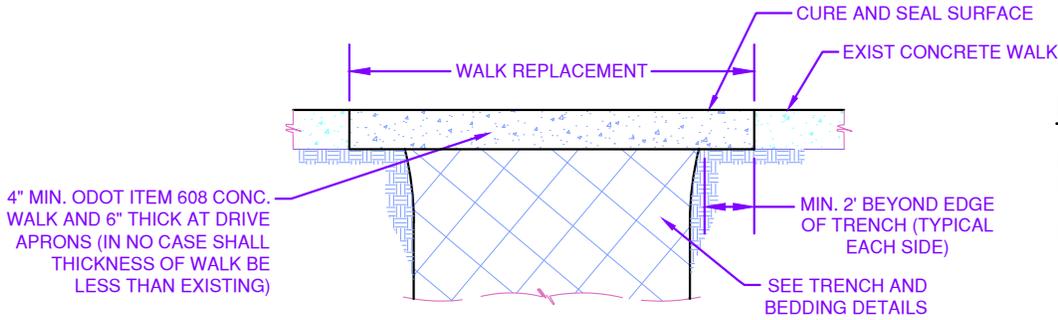
**TYPICAL SIDEWALK DETAIL**



**NOTE:**

WALK TO BE DIVIDED INTO EQUALLY SPACED BLOCKS AT APPROXIMATELY 5' INTERVALS. EXPANSION JOINT FILLER 1/2" THICK SHALL BE INSTALLED BETWEEN WALK AND ANY FIXED STRUCTURE EXTENDING FOR THE FULL DEPTH OF THE SIDEWALK. THE EXPANSION JOINT FILLER SHALL BE 1" THICK WHERE WALK IS INSTALLED AGAINST BACK OF CURB. SEE PV-7.

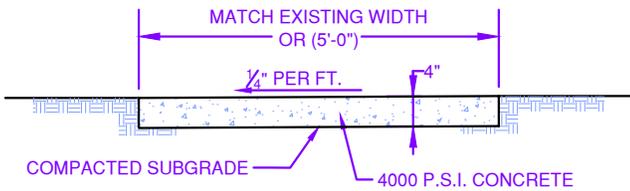
**SIDEWALK REPLACEMENT**



**NOTE:**

EXISTING WALK SHALL BE REMOVED IN FULL SLABS AND REPLACED TO MAINTAIN THE EXISTING JOINT PATTERN.

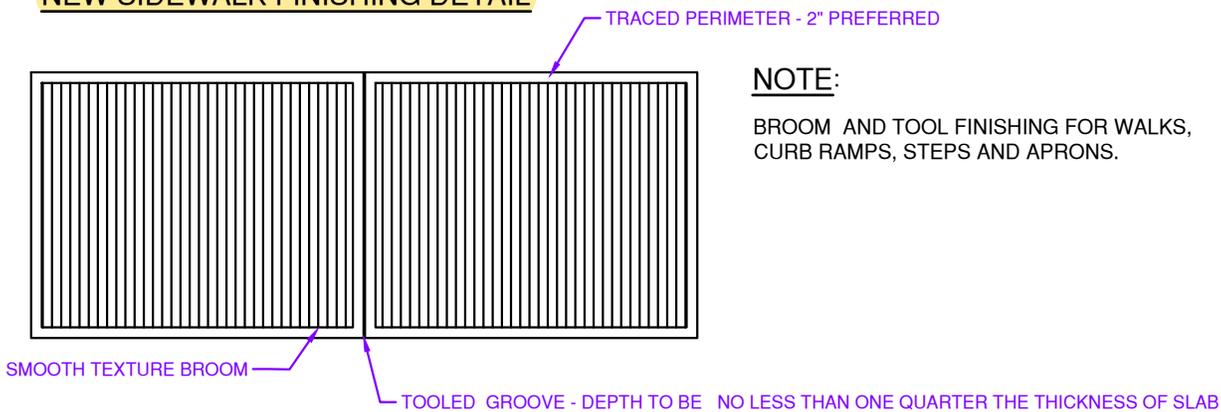
**NEW SIDEWALK DETAIL**



**NOTE:**

TOOL CONTROL JOINTS @ 5'-0" O.C. SURFACE FINISH WILL BE A SMOOTH TEXTURE BROOM PERPENDICULAR TO WALK FLOW WITH RE-TRACED PERIMETER USING AN APPROVED EDGING TOOL WITH A RADIUS OF ONE-QUARTER INCH AND INTERIOR JOINTS USING AN APPROVED GROOVING TOOL TO A DEPTH OF NOT LESS THAN ONE-QUARTER THE THICKNESS OF THE SLAB. REFER TO ODOT 608.03 C, PLACING AND FINISHING FOR WALKS, CURB RAMPS, STEPS AND APRONS.

**NEW SIDEWALK FINISHING DETAIL**



**NOTE:**

BROOM AND TOOL FINISHING FOR WALKS, CURB RAMPS, STEPS AND APRONS.

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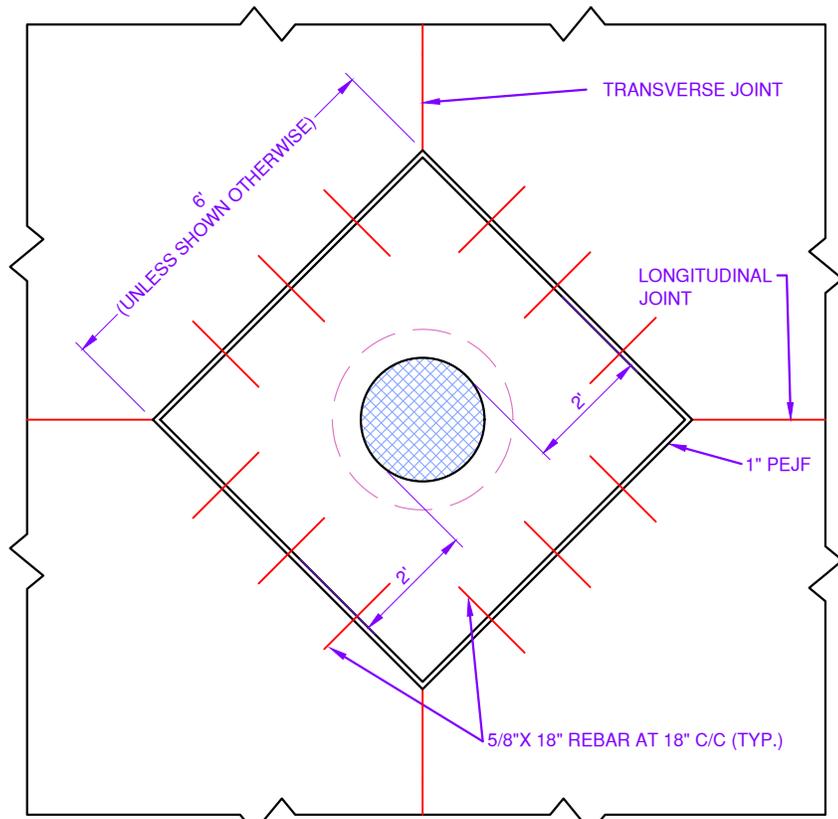
**City of Lorain**  
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**STANDARD DESIGNS  
 SIDEWALK  
 REPLACEMENT DETAIL**

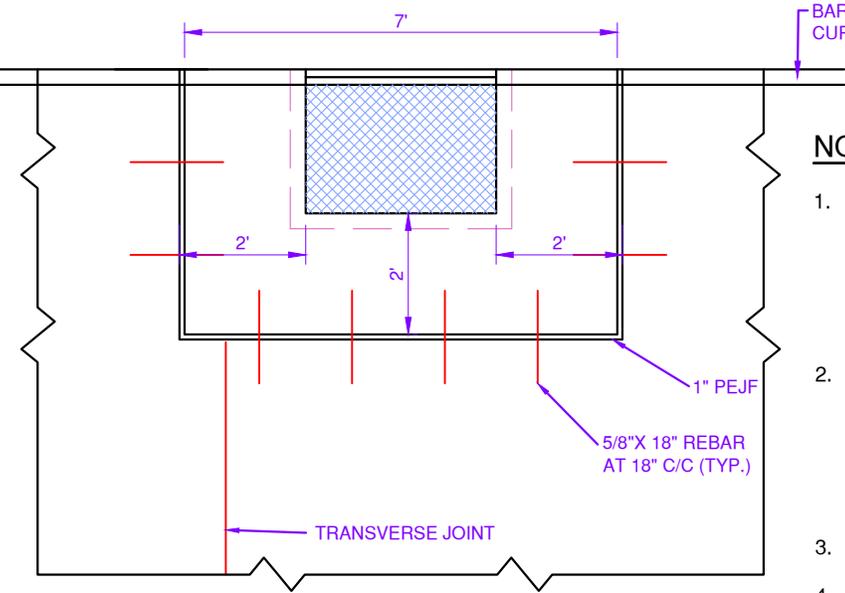
CAD FILE: PV-12.2.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**PV-12.2**

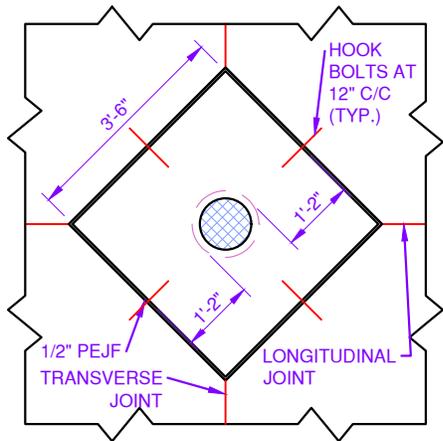
NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				
11	02/06/2020	NEW WALK DETAIL REV.			
11	02/21/2020	NEW WALK NOTE REV.			
11	09/24/2020	NEW FINISHING DETAIL			



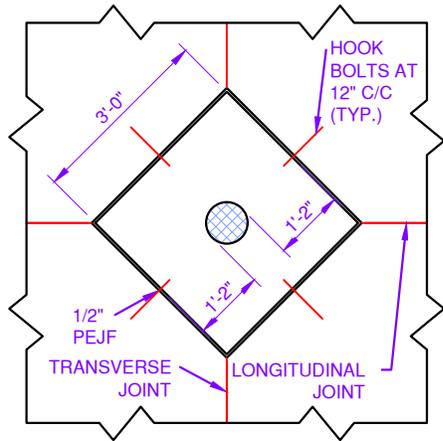
**MANHOLE BLOCKOUT**



**CATCH BASIN BLOCKOUT**



**MONUMENT BLOCKOUT**



**WATER VALVE BLOCKOUT**

**NOTES:**

1. THE FOLLOWING CASTINGS ARE RECOMMENDED FOR USE: EJIW MANHOLE 1715, EJIW CATCH BASIN 7035 WITH M2 GRATE AND T1 BACK, EJIW MONUMENT BOX 1578, EJIW WATER VALVE 8560 OR APPROVED EQUALS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INVENTORY AND CONFIRM THE NUMBER AND TYPES OF CASTINGS REQUIRED BEFORE ORDERING.
2. BLOCKOUTS FOR STRUCTURES OCCURRING IN CONCRETE PAVEMENT SHALL BE INCLUDED FOR PAYMENT WITH CONCRETE PAVEMENT. WHEN BLOCKOUT IS ADJACENT TO ASPHALT CONCRETE PAVEMENT, OMIT THE DOWELS AND THE COST SHALL BE INCLUDED WITH STRUCTURE ADJUSTMENT OR RECONSTRUCTION.
3. MIX DESIGN QC MS SHALL BE USED FOR PLACEMENT OF BLOCKOUTS.
4. MONUMENT AND WATER VALVE BLOCKOUTS SHALL INCLUDE HOOK BOLTS TWELVE (12) INCHES ON CENTER FOR EACH SIDE OF THE BLOCKOUT.
5. CONCRETE BLOCKOUTS SHALL BE PLACED AT FINISH GRADE OF THE ROADWAY SURFACE.

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**STANDARD DESIGNS  
 PAVEMENT  
 BLOCKOUT DETAILS**

CAD FILE: PV-13.0.dwg		SHEET: <b>PV-13.0</b>	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				

**GRAVITY SEWER**

**MAIN PIPE:** 8" MINIMUM SDR27 PVC, ASTM D3034; JOINTS ASTM D3212. 8" MINIMUM DUCTILE IRON PIPE, CLASS 52, AWWA C151. CEMENT LINED, AWWA C104. AIR TEST REQUIRED ON ALL MAINS AND LATERALS. A 5% DEFLECTION TEST WITH AN APPROVED MANDREL SHALL BE MADE AFTER 30 DAYS. MINIMUM REQUIRED SLOPE SHALL NOT BE LESS THAN 0.40% FOR 8" PIPE OR FULL FLOW VELOCITY OF 2 FPS FOR LARGER PIPES.

**LATERALS:** 6" MINIMUM PVC, SAME SPECIFICATIONS AS FOR MAIN PIPE.  
 WYE OR TEE TYPE FITTINGS AT MAIN PIPE FOR NEW SEWER MAIN INSTALLATIONS AND KOR-N-TEE MEETING ASTM C923, FOR EXISTING SEWER MAIN INSTALLATIONS SEE SS-5.0 AND SS-5.1.  
 FERNCO 5000 SERIES STRONG BACK COUPLINGS ARE APPROVED FOR BUILDING SEWER CONNECTIONS. A NEOPRENE O-RING (DOUGHNUT) MAY BE USED AS AN ALTERNATIVE, WITH THE 4" PIPE INSIDE THE 6" PIPE A MINIMUM OF 18".  
GLUED JOINTS UNDERGROUND ARE PROHIBITED.  
 90° BENDS ARE NOT PERMITTED. USE TWO 45° FITTINGS WITH A MINIMUM 24" STRAIGHT PIPE IN BETWEEN FITTINGS.  
 6" CLEAN-OUT, OF SAME MATERIAL, IS REQUIRED EVERY 100' MAXIMUM.  
 1.00% MINIMUM SLOPE, OR AS APPROVED BY THE CITY ENGINEER.  
 INSTALL CLEANOUT ON EACH LATERAL, SEE SS-6.0 OR SS-7.0.

**MANHOLE PIPE CONNECTORS:**

PVC PLASTIC PIPE CONNECTORS TO MANHOLES SHALL BE RUBBER SLEEVES W/ STAINLESS STEEL BANDING, CAST-IN RUBBER COMPRESSION GASKETS, OR FIELD INSTALLED RUBBER COMPRESSION GASKETS W/ GROUT COLLAR MEETING ASTM C923.

**SANITARY FORCE MAIN**

**PRESSURE PIPE:** PVC PLASTIC, ASTM D2241, SDR21.  
 RUBBER GASKETED JOINTS, ASTM D3139.  
 HYDROSTATIC LEAKAGE TEST REQUIRED ON ALL FORCE MAINS.

**FITTINGS:** DUCTILE IRON, CEMENT LINED, FULL BODY OR COMPACT, MECHANICAL JOINT, AWWA C110 OR C153, AWWA C111 JOINTS WITH 316 STAINLESS STEEL BOLTS. ALL FITTINGS SHALL BE POLYETHYLENE ENCASED, AWWA C105.

**THRUST RESTRAINT:**

EBAA IRON SERIES 1600 FOR PIPE JOINTS AND EBAA IRON SERIES 2000 PV FOR MECH. JOINTS. (STAINLESS STEEL BOLTS)

**TRACER TAPE:**

REEF INDUSTRIES, INC. TERRA TAPE SENTRY LINE 1350, 3" WIDE, GREEN METALIZED FOIL TAPE IMPRINTED W/ BLACK LETTERING "CAUTION BURIED SEWER LINE".

**TRACER WIRE:**

COPPERHEAD STEEL CORE COPPER CLAD STRANDED #8 AWG WITH 30 MIL. HIGH DENSITY POLYETHYLENE COATING. GREEN IN COLOR WITH APPROVED MOISTURE TIGHT SPLICE KITS.

**SANITARY SEWER INSTALLATION**

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

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NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018				
9	01/01/2019				

**STANDARD DESIGNS  
 SANITARY SEWER  
 GENERAL NOTES-CONSTRUCTION**

CAD FILE: SS-1.0.dwg			SHEET: <b>SS-1.0</b>		
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

GRAVITY LEAKAGE TESTING

1. LEAKAGE TESTING OF ALL NEW SANITARY SEWERS SHALL BE PERFORMED USING THE LOW PRESSURE AIR TEST METHOD, PER ASTM F1417.
2. TESTING SHALL NOT BE PERFORMED UNTIL ALL LATERALS REQUIRED ON THE LINE TO BE TESTED HAVE BEEN INSTALLED.
3. THE ENDS OF THE SEWER SECTION TO BE TESTED SHALL BE CLOSED AT THE UPSTREAM AND DOWNSTREAM MANHOLES WITH AIRTIGHT BULKHEADS OR PLUGS.
4. AIR SHALL BE ADDED TO THE SEWER BY MEANS OF AN AIR PUMP UNTIL A PRESSURE OF APPROXIMATELY 4 PSI GREATER THAN THE EXTERNAL WATER PRESSURE EXISTS WITHIN THE SEWER.
5. THE AIR LINE SHALL BE VALVED CLOSED AND THE PRESSURE SHALL BE ALLOWED TO STABILIZE FOR A PERIOD OF AT LEAST 2 MINUTES.
6. AFTER THE STABILIZATION PERIOD, THE PRESSURE IN THE LINE SHALL BE REDUCED TO 3.5 PSI GREATER THAN THE EXTERNAL WATER PRESSURE AND THE TIME SHALL BE MEASURED FOR THE PRESSURE IN THE SEWER TO DROP FROM 3.5 TO 2.5 PSI GREATER THAN THE EXTERNAL WATER PRESSURE.
7. THE PERMISSIBLE TIME FOR THE SPECIFIED PRESSURE DROP SHALL BE GREATER THAN THE SUM OF THE TIMES FOR THE VARIOUS PIPE SIZES AND LENGTHS IN THE SECTION BEING TESTED AS DETERMINED IN THE FOLLOWING TABLE:

PIPE DIA. (IN.)	MIN. TIME (MIN:S)	LENGTH FOR MIN. TIME (FT.)	TIME FOR LONGER LENGTH (S)	SPECIFICATION TIME FOR LENGTH (L) SHOWN, (MIN:S)							
				100 FT.	150 FT.	200 FT.	250 FT.	300 FT.	350 FT.	400 FT.	450 FT.
4	3:46	597	0.360 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	7:34	7:38	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	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:48	91:10	102:33
27	25:30	88	17.306 L	28:51	43:18	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	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.766 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

8. FAILURES SHALL BE FOUND AND CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
9. THE CONTRACTOR SHALL PERFORM ALL TESTING IN THE PRESENCE OF THE CITY ENGINEER OR REPRESENTATIVE, AND SHALL SUPPLY ALL NECESSARY EQUIPMENT FOR PERFORMING THE REQUIRED LOW PRESSURE AIR TESTING.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.G.P.U.P.S. @ (800) 925-0988.

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 SANITARY SEWER  
 GENERAL NOTES-SEWER TESTING**

CAD FILE:  
 SS-2.0.dwg  
 DRWN BY: EA    APPRVD BY: DV    ISSUE DATE: 08/19/2015    SCALE: NONE

SHEET:  
**SS-2.0**

NO.	DATE	REVISION	NO.	DATE	REVISION



**CONSTRUCTION**

1. SANITARY MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C1244.
2. MANHOLES SHALL BE IN ACCORDANCE WITH ODOT SCD MH-1.1, MH-3.1, MH-1.2 OR MH-1.3 AND SHALL BE INCLUDED FOR PAYMENT WITH ITEM 611.
3. ALL NEW MANHOLES SHALL BE 48" MINIMUM INSIDE DIAMETER, PRE-CAST CONCRETE CONFORMING TO ASTM C478. PRE-CAST BASES SHALL BE 6" MINIMUM. RECOMMEND A CONCRETE MIX ADDITIVE FOR WATER PROOFING AND H2S PROTECTION SUCH AS PENETRON, ODOT APPROVED.
4. NEW MANHOLES PLACED OVER EXISTING SEWER LINES, REFERRED TO AS DOGHOUSE MANHOLES, SHALL HAVE CAST-IN-PLACE CONCRETE BASES WITH REINFORCEMENT; REBAR #4@12" O/C EACH WAY. BASES SHALL BE CLASS QC1 CONCRETE WITH A MINIMUM THICKNESS OF 10".
5. MANHOLES WITH PRE-CAST CONCRETE BASES SHALL BE PLACED ON A COMPACTED GRAVEL BED OF NO.57 AGGREGATE, HAVING A MINIMUM THICKNESS OF 3".
6. RUBBER O-RING GASKETS SHALL BE USED BETWEEN PRE-CAST MANHOLE SECTIONS, MEETING ASTM C443. APPLY MASTIC TAR STRIP BETWEEN SECTIONS.
7. ALL PIPING THROUGH SANITARY MANHOLE WALLS SHALL BE SEALED WITH A GASKET EMBEDDED IN THE PRE-CAST, OR BY A NEOPRENE BOOT, OR BY ANOTHER METHOD FIRST APPROVED BY THE CITY ENGINEER AND MEETING ASTM C923.
8. THE CENTERLINE OF THE MANHOLE SHALL BE LOCATED OVER THE CENTERLINE OF THE MAIN SEWER, WHENEVER POSSIBLE.
9. MANHOLE STEPS MAY BE REINFORCED POLYPROPYLENE PLASTIC, 16" O/C MAXIMUM AND IN PROPER ALIGNMENT.
10. THE FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE MANHOLE.
11. GRADE ADJUSTMENT RINGS SHALL BE PRE-CAST CONCRETE ONLY AND CONFORMING TO ASTM C478 GRADE RINGS. A MAXIMUM 12" OF ADJUSTMENT RINGS MAY BE USED FOR CONCRETE STRUCTURES. ONLY MASONRY CLAY-SOLID BRICK (ASTM C-32, GRADE S.S.) SHALL BE USED FOR EXISTING STRUCTURE ADJUSTMENTS.
12. SANITARY MANHOLE CASTINGS IN OR NEAR WATERWAYS AND DITCHES SHALL BE FITTED WITH A MANHOLE INFILTRATION PROTECTION DEVICE, THE COST OF WHICH SHALL BE INCLUDED IN THE PRICE OF THE MANHOLE. RECOMMEND AN EXTERNAL WRAP SEAL FOR CASTING AND CHIMNEY SEAL AND AT MANHOLE JOINTS SUCH AS WRAPIDSEAL.
13. MANHOLES LOCATED WITHIN THE SLOPE OF A DITCH SHALL BE INSTALLED SO THE STEPS ARE ON THE OPPOSITE SIDE OF MANHOLE FROM THE DITCH OR FLOW LINE. CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR CORRECT ORIENTATION OF STEPS.

**CASTINGS**

1. APPROVED MANHOLE FRAMES AND LIDS ARE EAST JORDAN #1715 OR EQUAL; OR NEENAH R-1782.
2. FRAMES SHALL BE SET LEVEL, EXCEPT SET TO GRADE WHEN WITHIN THE PAVEMENT. LIDS SHALL BE FITTED AND FINISHED TO PROVIDE A FIRM AND EVEN SEAT IN THE FRAME.
3. FRAMES AND LIDS SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
4. THE FRAME SHALL BE SET ON A MASTIC STRIP AROUND IT'S PERIMETER AND MORTARED TO THE SEAT OF THE CONCRETE STRUCTURE.
5. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE CITY ENGINEER PRIOR TO PROCUREMENT. REFER TO ST-3.0.
6. ALL LIDS SHALL BE CAST WITH THE WORDS "SANITARY"; USE CITY OF LORAIN MANHOLE COVERS..
7. ALL CASTINGS AND LIDS SHALL MEET OR EXCEED ODOT H20 LOADING AND AASHTO M306 REQUIREMENTS.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018	01/01/2018			
11	02/10/2020	NO. 1, 5 & 6 REVISED			
11	02/10/2020	OLD NO. 7 REMOVED			

**STANDARD DESIGNS  
 SANITARY SEWER  
 GENERAL NOTES-MANHOLES**

CAD FILE: SS-3.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**SS-3.0**

CONSTRUCTION

1. THE FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE MANHOLE.
2. GRADE ADJUSTMENT RINGS SHALL BE PRE-CAST CONCRETE ONLY AND CONFORMING TO ASTM C478 GRADE RINGS. A MAXIMUM 12" OF ADJUSTMENT RINGS MAY BE USED FOR CONCRETE STRUCTURES. ONLY MASONRY CLAY-SOLID BRICK (ASTM C-32, GRADE S.S.) SHALL BE USED FOR EXISTING STRUCTURE ADJUSTMENTS.
3. SANITARY MANHOLE CASTINGS IN OR NEAR WATERWAYS AND DITCHES SHALL BE FITTED WITH A MANHOLE INFILTRATION PROTECTION DEVICE, THE COST OF WHICH SHALL BE INCLUDED IN THE PRICE OF THE MANHOLE. RECOMMEND AN EXTERNAL WRAP SEAL FOR CASTING AND CHIMNEY SEAL AND AT MANHOLE JOINTS SUCH AS WRAPIDSEAL.

CASTINGS

1. APPROVED MANHOLE FRAMES AND LIDS ARE EAST JORDAN #1715 OR EQUAL; OR NEENAH R-1782.
2. FRAMES SHALL BE SET LEVEL, EXCEPT SET TO GRADE WHEN WITHIN THE PAVEMENT. LIDS SHALL BE FITTED AND FINISHED TO PROVIDE A FIRM AND EVEN SEAT IN THE FRAME.
3. FRAMES AND LIDS SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
4. THE FRAME SHALL BE SET ON A MASTIC STRIP AROUND IT'S PERIMETER AND MORTARED TO THE SEAT OF THE CONCRETE STRUCTURE.
5. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE CITY ENGINEER PRIOR TO PROCUREMENT. REFER TO ST-3.0.
6. ALL LIDS SHALL BE CAST WITH THE WORDS "SANITARY"; USE CITY OF LORAIN MANHOLE COVERS..
7. ALL CASTINGS AND LIDS SHALL MEET OR EXCEED ODOT H20 LOADING AND AASHTO M306 REQUIREMENTS.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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NO.	DATE	REVISION	NO.	DATE	REVISION
7	01/01/2018	01/01/2018			
11	02/10/2020	NO. 1, 5 & 6 REVISED			
11	02/10/2020	OLD NO. 7 REMOVED			
11	02/10/2020	OLD NO. 1-9 & 13 REM.			

**STANDARD DESIGNS  
 SANITARY SEWER  
 GENERAL NOTES-MANHOLES**

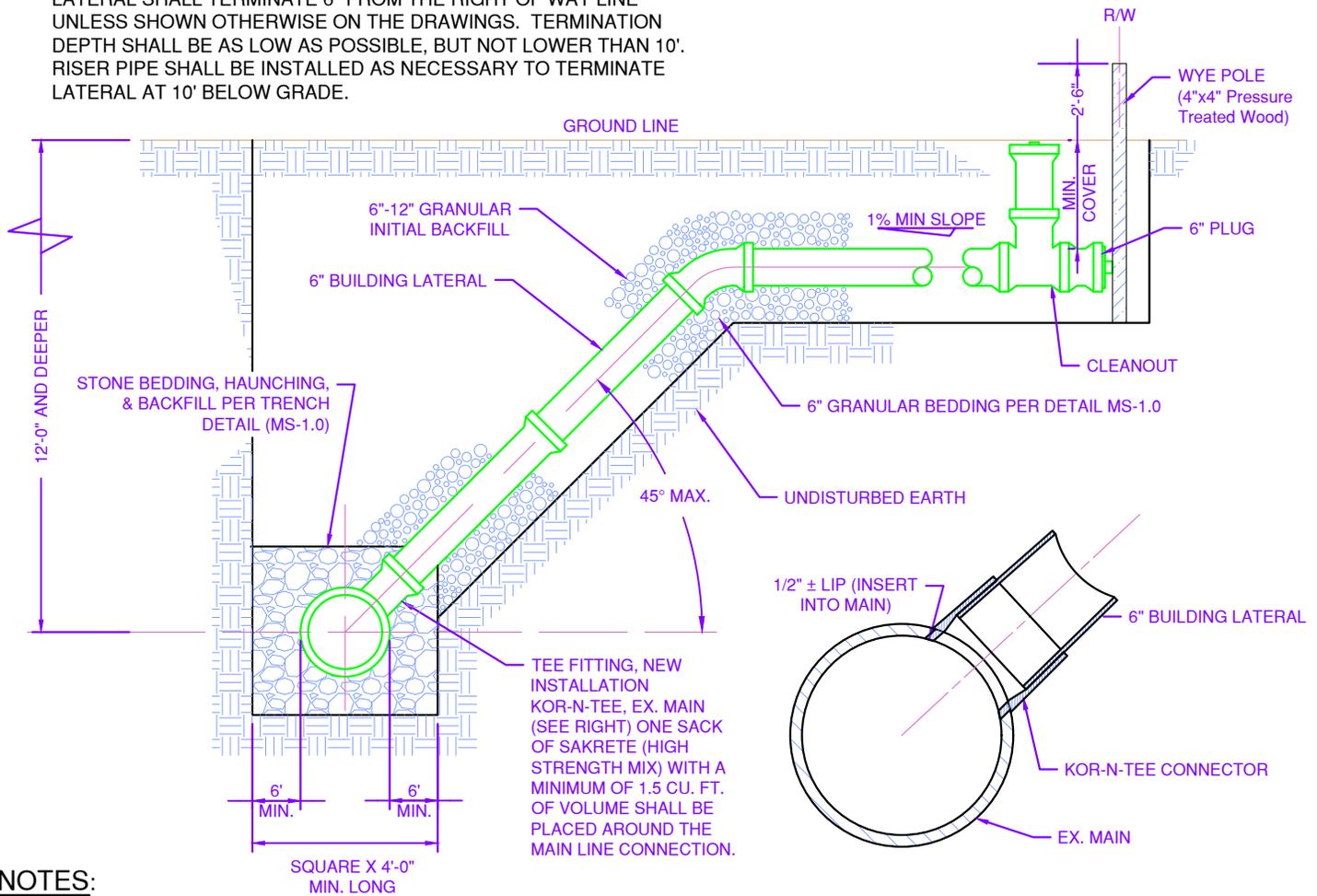
CAD FILE: SS-3.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**SS-3.0**



**LATERAL TERMINATION NOTE:**

LATERAL SHALL TERMINATE 6" FROM THE RIGHT OF WAY LINE UNLESS SHOWN OTHERWISE ON THE DRAWINGS. TERMINATION DEPTH SHALL BE AS LOW AS POSSIBLE, BUT NOT LOWER THAN 10'. RISER PIPE SHALL BE INSTALLED AS NECESSARY TO TERMINATE LATERAL AT 10' BELOW GRADE.



**NOTES:**

- HOLES IN EXISTING MAINS FOR INSTALLATION OF TEES SHALL BE CORE DRILLED USING HOLESAWS OR CORING MACHINES TO ENSURE A CLEAN, ROUND, SMOOTH HOLE.
- THE TEST TEE RISER SECTION SHALL BE INSTALLED WHEN THE CONNECTION IS EXTENDED TO THE BUILDING.
- THE TEST PLUG SHALL BE YELLOW IN COLOR AND JOINED BY MEANS OF AN INTEGRAL BELL WITH A ELASTOMERIC GASKET JOINT AND BE APPROVED BY THE ENGINEER.
- A PIECE OF FERROUS MATERIAL HAVING A VOLUME OF 1.5 CUBIC INCHES SHALL BE PLACE OVER THE TOP OF THE TEST PLUG AND BACKFILLED WITH 6" TO 12" OF TOPSOIL. ANY TEST PLUG LOCATED IN A PAVED AREA SHALL BE APPROVED BY THE CITY ENGINEER BEFORE CONSTRUCTION IS TO BEGIN.
- ACCORDING TO ORDINANCE NO. 42-80 (PASSED 4-21-80) ARTICLE 913.036 SEWER CONNECTION INSPECTION, "THE APPLICANT FOR THE BUILDING SEWER PERMIT SHALL NOTIFY THE DIRECTOR OF UTILITIES AND THE CITY ENGINEER OR THEIR REPRESENTATIVES WHEN THE BUILDING SEWER IS READY FOR INSPECTION AND CONNECTION TO THE PUBLIC SEWER. ALL EXTERIOR FOUNDATION DRAINS, ROOF DOWNSPOUTS, AREAWAY DRAINS, BUILDING DRAINS OR BUILDINGS SEWERS SHALL BE EXPOSED AND NOT BACKFILLED SO THAT ALL PIPING AND CONNECTIONS CAN BE INSPECTED. ANY PERSON FILLING THE TRENCHES PREVIOUS TO INSPECTION SHALL BE REQUIRED TO RE-EXCAVATE THE TRENCHES AT HIS OWN EXPENSE BEFORE INSPECTION, APPROVAL AND CONNECTION TO THE PUBLIC SEWER CAN BE MADE. THE CONNECTION SHALL BE MADE UNDER THE SUPERVISION OF THE DIRECTOR OF UTILITIES OR THE CITY ENGINEER OR THEIR REPRESENTATIVES."

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 SANITARY SEWER  
 STANDARD LATERAL CONNECTION**

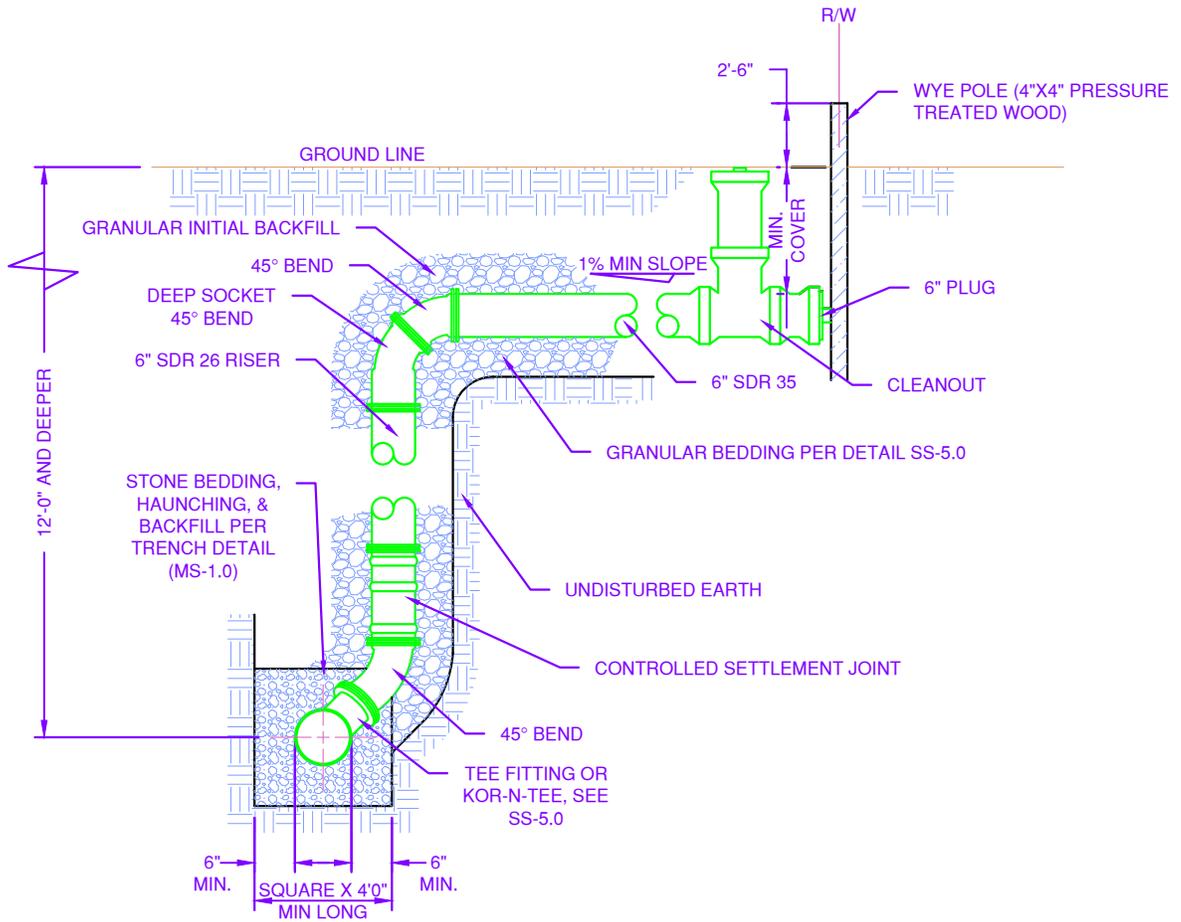
CAD FILE:  
 SS-5.0.dwg

SHEET:

**SS-5.0**

DRWN BY: EA    APPRVD BY: DV    ISSUE DATE: 08/19/2015    SCALE: NONE

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**NOTES:**

DEEP BURIAL RISERS FOR SEWERS SHALL CONTAIN A CONTROLLED SETTLEMENT JOINT, A VERTICAL RISER ADAPTER, AND A DEEP SOCKET FITTING, SDR 26 PIPE AND OTHER SDR 26 FITTINGS AS REQUIRED FOR DIRECTIONAL AND TRANSITIONAL CONNECTION. CONTROLLED SETTLEMENT JOINTS USED IN A DEEP BURIAL RISER SYSTEM SHALL PROVIDE A MINIMUM OF 5-1/2" OF AXIAL MOVEMENT WHEN FORCES OF 500 POUNDS OR GREATER ARE APPLIED AND SHALL BE FABRICATED FROM PIPE WHICH WAS MANUFACTURED TO ASTM D3034 SPECIFICATIONS. A MOLDED SDR 26 VERTICAL RISER ADAPTER SHALL BE INSTALLED BETWEEN THE CONTROLLED SETTLEMENT JOINT AND THE BOTTOM DIRECTIONAL TRANSITION MOLDED FITTING, AS PER PLASTIC TRENDS TECHNICAL BULLETIN FORM #1060. A MOLDED SDR 26 DEEP SOCKET SEWER FITTING SHALL BE USED WHERE AVAILABLE AT THE TOP OF EACH RISER ASSEMBLY. SDR 26 DEEP SOCKET FITTINGS SHALL PROVIDE A MINIMUM SOCKET DEPTH OF 6-1/2" BELOW THE FITTING GASKET RACE. ALL FITTINGS USED IN THE DEEP BURIAL RISER SYSTEM SHALL BE SDR 26 AND MOLDED WHERE AVAILABLE IN ACCORDANCE WITH ASTM D3034 AND F1336. MOLDED FITTING GASKETS SHALL COMPLY WITH ASTM F913 OR F477. MOLDED FITTING GASKETS SHALL BE LOCKED FIRMLY IN POSITION WITH A GREEN COLOR-CODED RING FOR EASY IDENTIFICATION AND TO PREVENT DISPLACEMENT. MOLDED FITTING GASKET JOINTS SHALL BE LISTED BY NSF AS COMPLYING WITH THE 200 PSI REQUIREMENTS OF ASTM D 3212. SDR 26 MOLDED FITTINGS SHALL BE LISTED BY NSF. MOLDED FITTINGS SHALL BE INJECTION MOLDED FROM VIRGIN PVC COMPOUND HAVING A MINIMUM CELL CLASSIFICATION OF 12454 IN ACCORDANCE WITH, AND CERTIFIED BY NSF, TO MEET ASTM D 1784. DEEP BURIAL RISER SYSTEMS FOR SEWERS SHALL BE ASSEMBLED PER PLASTIC TRENDS' RECOMMENDED SPECIFICATIONS, BULLETIN FORM #1090.

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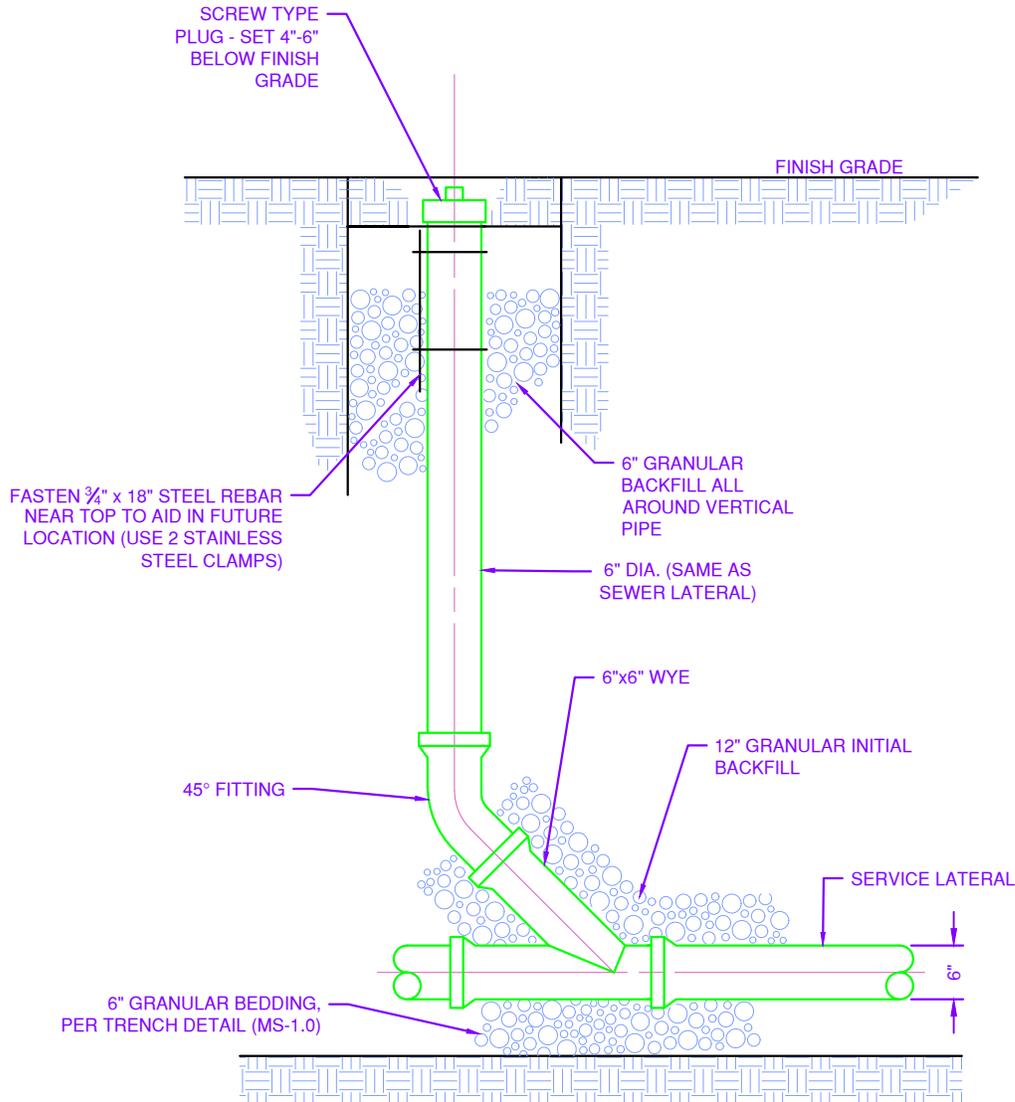
**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.G.P.U.P.S. @ (800) 925-0988.

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 SANITARY SEWER  
 DEEP LATERAL CONNECTION**

CAD FILE: SS-5.1.dwg				SHEET: <b>SS-5.1</b>	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

NO.	DATE	REVISION	NO.	DATE	REVISION



**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**City of Lorain**  
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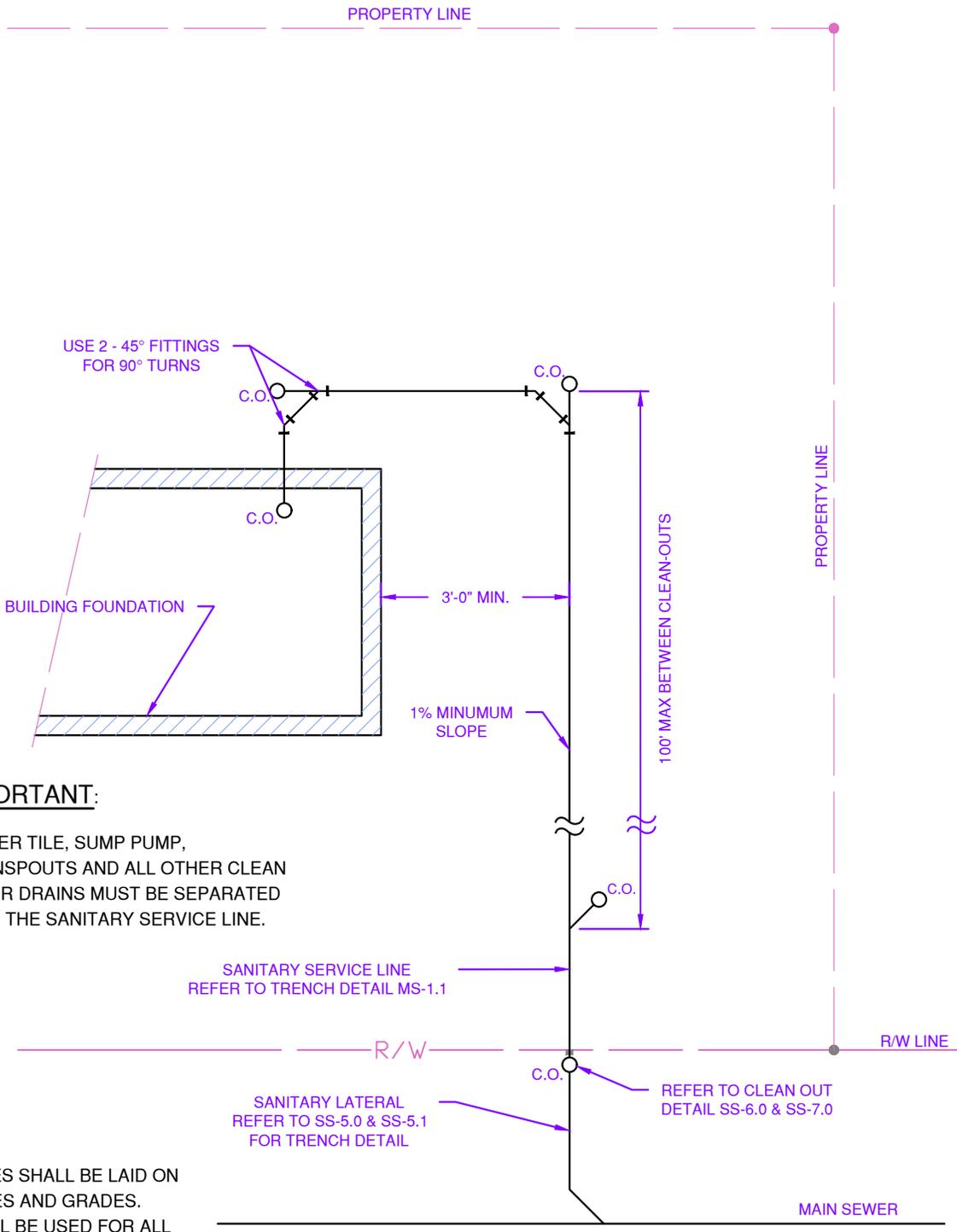
**STANDARD DESIGNS  
 SANITARY SEWER  
 CLEANOUT DETAIL - IN GRASS**

CAD FILE: SS-6.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**SS-6.0**

NO.	DATE	REVISION	NO.	DATE	REVISION





**IMPORTANT:**

FOOTER TILE, SUMP PUMP, DOWNSPOUTS AND ALL OTHER CLEAN WATER DRAINS MUST BE SEPARATED FROM THE SANITARY SERVICE LINE.

**NOTE:**

SANITARY LINES SHALL BE LAID ON STRAIGHT LINES AND GRADES. FITTINGS SHALL BE USED FOR ALL CHANGES IN LINE AND GRADE.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**STANDARD DESIGNS  
 SANITARY SEWER  
 TYPICAL LATERAL & SERVICE LINE PLAN**

CAD FILE: SS-8.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**SS-8.0**

NO.	DATE	REVISION	NO.	DATE	REVISION
1	06/23/20	ADDED TRENCH DETAIL REF.			
		ADDED SLOPE NOTE			
		CHANGED DETAIL NAME			



# STORM SEWER

1. STORM PIPE: THE MINIMUM SIZE STORM SEWER PIPE SHALL BE 12" DIAMETER. ALL STORM SEWER SHALL BE PLACED PER THE TYPICAL DETAILS. WHERE STORM AND SANITARY SEWERS CROSS, ALIGN JOINTS EQUIDISTANT FROM THE CROSS AND EXTEND PREMIUM, GASKETED JOINTS 10' IN EACH DIRECTION.
2. STORM PIPE MATERIAL: 12" AND 15" PIPE SHALL CONFORM TO ODOT 611, MATERIAL SPECS AS FOLLOWS: REINFORCED CONCRETE PIPE -ODOT 706.02, ASTM C14-2, W/ GASKETED JOINTS PER ASTM C361 OR C443. 18" AND LARGER PIPE SHALL CONFORM TO ODOT 611, MATERIAL SPECS AS FOLLOWS: REINFORCED CONCRETE SEWER PIPE - ODOT 706.02, ASTM C76, CLASS 3, 4 OR 5 BASED ON LOADING CONDITIONS, WITH GASKETED JOINTS PER ASTM C361 OR C443. COVER OVER STORM PIPES SHALL BE PER ODOT L&D VOLUME 2 SECTION 1104.2.
3. MANHOLE PIPE CONNECTIONS: STORM SEWER PIPE CONNECTIONS TO MANHOLES SHALL BE MADE WITH CLASS C CONCRETE COLLAR SEALS, A MIN. 6" THICK AROUND THE PIPE.
4. DRIVE PIPE: RCP UNDER DRIVES AT UNIMPROVED ROADS. MINIMUM 12" DIAMETER PIPE, OR AS APPROVED BY THE CITY ENGINEER. MINIMUM 12" COVER, OR AS APPROVED BY THE CITY ENGINEER.
5. HEADWALLS: POURED IN PLACE, REINFORCED CONCRETE OR PRECAST CONCRETE, PER ODOT SCD HW-2.2 OR HW-1.1 AND ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS, ITEM 602.
6. ROCK CHANNEL PROTECTION: TYPE A, B, OR C ROCK OR STONE, WITH FILTER FABRIC, PER ODOT CONSTRUCTION & MATERIAL SPECS ITEM 601; OF THE SIZE, THICKNESS AND LENGTH AS SPECIFIED IN FIGURE 1107-1 "ROCK CHANNEL PROTECTION AT CULVERT AND STORM SEWER OUTLETS", ODOT LOCATION AND DESIGN MANUAL VOL. 2 - DRAINAGE DESIGN. ROCK CHANNEL PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER THE INSTALLATION OF THE PERTINENT STORM STRUCTURE OR HEADWALL.
7. ITEM 611 - PIPE CULVERTS, SEWERS, DRAINS, AND DRAINAGE STRUCTURES - THE FOLLOWING SECTIONS SHALL BE EXCLUDED:
  - 611.04.B - INSTALLATION PLAN
  - 611.04.C - CONSTRUCTION INSPECTION FORMS
  - 611.04.D - PERFORMANCE REPORT
  - 611.12 - PERFORMANCE INSPECTION
  - 611.13 - CONDUIT EVALUATION
  - 611.14 - DRAINAGE STRUCTURE EVALUATION
8. REFER TO GN 2.1 - GENERAL NOTE #25 FOR ADDITIONAL BACKFILL GUIDANCE.

## NOTE:

LIFT HOLES IN REINFORCED CONCRETE PIPE SHALL BE PLUGGED WITH CEMENT/CONCRETE PLUGS PRIOR TO BACKFILL.

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NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
7	01/01/2018				
10	06/20/2019	NO. 2 CHANGED			

## STANDARD DESIGNS STORM SEWER GENERAL NOTES

CAD FILE: ST-1.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

ST-1.0

**A. CONSTRUCTION:**

1. MANHOLES SHALL BE IN ACCORDANCE WITH ODOT SCD MH-1.1, MH-1.2, MH-1.3 OR MH-3.1 AND SHALL BE INCLUDED FOR PAYMENT WITH ITEM 611.
2. ALL NEW MANHOLES SHALL BE 48" MINIMUM INSIDE DIAMETER, PRE-CAST CONCRETE CONFORMING TO ASTM C478. PRE-CAST BASES SHALL BE 6" MINIMUM.
3. NEW MANHOLES PLACED OVER EXISTING SEWER LINES, REFERRED TO AS DOGHOUSE MANHOLES, SHALL HAVE CAST-IN-PLACE CONCRETE BASES WITH REINFORCEMENT; REBAR #4@12" O/C EACH WAY. BASES SHALL BE CLASS QC1 CONCRETE WITH A MINIMUM THICKNESS OF 10".
4. MANHOLES WITH PRE-CAST CONCRETE BASES SHALL BE PLACED ON A COMPACTED GRAVEL BED OF NO. 57 AGGREGATE, HAVING A MINIMUM THICKNESS OF 3".
5. RUBBER O-RING GASKETS SHALL BE USED BETWEEN PRE-CAST MANHOLE SECTIONS, MEETING ASTM C443. APPLY MASTIC TAR STRIP BETWEEN SECTIONS.
6. THE CENTERLINE OF THE MANHOLE SHALL BE LOCATED OVER THE CENTERLINE OF THE MAIN SEWER, WHENEVER POSSIBLE.
7. MANHOLE STEPS MAY BE REINFORCED POLYPROPYLENE PLASTIC, 16" O/C MAXIMUM AND IN PROPER ALIGNMENT.
8. THE FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE MANHOLE.
9. GRADE ADJUSTMENT RINGS SHALL BE PRE-CAST CONCRETE ONLY AND CONFORMING TO ASTM C478 GRADE RINGS. A MAXIMUM 12" OF ADJUSTMENT RINGS MAY BE USED FOR CONCRETE STRUCTURES. ONLY MASONRY CLAY-SOLID BRICK (ASTM C-32, GRADE S.S.) SHALL BE USED FOR EXISTING STRUCTURE ADJUSTMENTS.
10. MANHOLES LOCATED WITHIN THE SLOPE OF A DITCH SHALL BE INSTALLED SO THE STEPS ARE ON THE OPPOSITE SIDE OF MANHOLE FROM THE DITCH OR FLOW LINE. CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR CORRECT ORIENTATION OF STEPS.

**B. CASTINGS:**

1. APPROVED MANHOLE FRAMES AND LIDS ARE EAST JORDAN #1715 OR EQUAL. 1710Z MAY BE SUBSTITUTED; OR NEENAH R-1782.
2. FRAMES SHALL BE SET LEVEL, EXCEPT SET TO GRADE WHEN WITHIN THE PAVEMENT. LIDS SHALL BE FITTED AND FINISHED TO PROVIDE A FIRM AND EVEN SEAT IN THE FRAME.
3. FRAMES AND LIDS SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
4. THE FRAME SHALL BE SET ON A MASTIC STRIP AROUND IT'S PERIMETER AND MORTARED TO THE SEAT OF THE CONCRETE STRUCTURE.
5. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE CITY ENGINEER PRIOR TO PROCUREMENT.
6. ALL LIDS SHALL BE CAST WITH THE WORDS "STORM"; USE CITY OF LORAIN MANHOLE COVERS.
7. ALL CASTINGS AND LIDS SHALL MEET OR EXCEED ODOT H20 LOADING AND AASHTO M306 REQUIREMENTS.

**C. PAYMENT:**

1. PAYMENT SHALL BE FOR THE MANHOLE COMPLETE IN PLACE, EXCAVATION AND BACKFILL INCLUDED.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764.

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 STORM SEWER  
 GENERAL NOTES-MANHOLES**

CAD FILE: ST-2.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

**ST-2.0**

NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				
11	02/10/2020	CASTINGS NO. 1 & 6 REV.			
11	02/10/2020	CAST. OLD NO. 7 REM.			

**A. CONSTRUCTION:**

1. THE FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE MANHOLE.
2. GRADE ADJUSTMENT RINGS SHALL BE PRE-CAST CONCRETE ONLY AND CONFORMING TO ASTM C478 GRADE RINGS. A MAXIMUM 12" OF ADJUSTMENT RINGS MAY BE USED FOR CONCRETE STRUCTURES. ONLY MASONRY CLAY-SOLID BRICK (ASTM C-32, GRADE S.S.) SHALL BE USED FOR EXISTING STRUCTURE ADJUSTMENTS.
3. MANHOLES LOCATED WITHIN THE SLOPE OF A DITCH SHALL BE INSTALLED SO THE STEPS ARE ON THE OPPOSITE SIDE OF MANHOLE FROM THE DITCH OR FLOW LINE. CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR CORRECT ORIENTATION OF STEPS.

**B. CASTINGS:**

1. APPROVED MANHOLE FRAMES AND LIDS ARE EAST JORDAN #1715 OR EQUAL. 1710Z MAY BE SUBSTITUTED; OR NEENAH R-1782.
2. FRAMES SHALL BE SET LEVEL, EXCEPT SET TO GRADE WHEN WITHIN THE PAVEMENT. LIDS SHALL BE FITTED AND FINISHED TO PROVIDE A FIRM AND EVEN SEAT IN THE FRAME.
3. FRAMES AND LIDS SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
4. THE FRAME SHALL BE SET ON A MASTIC STRIP AROUND IT'S PERIMETER AND MORTARED TO THE SEAT OF THE CONCRETE STRUCTURE.
5. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE CITY ENGINEER PRIOR TO PROCUREMENT.
6. ALL LIDS SHALL BE CAST WITH THE WORDS "STORM"; USE CITY OF LORAIN MANHOLE COVERS.
7. ALL CASTINGS AND LIDS SHALL MEET OR EXCEED ODOT H20 LOADING AND AASHTO M306 REQUIREMENTS.

**C. PAYMENT:**

1. PAYMENT SHALL BE FOR THE MANHOLE COMPLETE IN PLACE, EXCAVATION AND BACKFILL INCLUDED.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**STANDARD DESIGNS  
 STORM SEWER  
 GENERAL NOTES-MANHOLES**

CAD FILE: ST-2.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

ST-2.0

NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				
11	02/10/2020	CASTINGS NO. 1 & 6 REV.			
11	02/10/2020	CAST. OLD NO. 7 REM.			
11	02/10/2020	CONST. OLD NO. 1-7 REM.			

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**A. CONSTRUCTION:**

1. CATCH BASINS SHALL BE IN ACCORDANCE WITH ODOT SCD CB-2.2 OR CB-2.1 AND SHALL BE INCLUDED FOR PAYMENT WITH ITEM 611.
2. INLETS AND CATCH BASINS MAY BE CAST-IN-PLACE OR PRE-CAST CONCRETE. CAST-IN-PLACE CONCRETE SHALL BE CLASS QC1. REINFORCED PRE-CAST CONCRETE SHALL BE AS SPECIFIED.
3. MINIMUM WALL THICKNESS OF CAST-IN-PLACE INLETS AND BASINS SHALL BE 8". MINIMUM WALL THICKNESS OF PRE-CAST INLETS AND BASINS SHALL BE 6".
4. MINIMUM THICKNESS FOR BASES OF INLETS AND BASINS SHALL BE 6", CAST-IN-PLACE AND PRE-CAST.
5. CATCH BASINS & INLETS WITH PRE-CAST CONCRETE BASES SHALL BE PLACED ON A COMPACTED GRAVEL BED OF NO. 57 AGGREGATE, HAVING A MINIMUM THICKNESS OF 3".
6. CONCRETE BLOCK IS NOT PERMITTED MATERIALS FOR THE CONSTRUCTION OR MODIFICATION OF INLETS AND CATCH BASINS; ONLY MASONRY CLAY-SOLID BRICK (ASTM C-32, GRADE S. S.) SHALL BE USED.
7. FRAMES SHALL BE SET EVEN AND FLUSH WITH THE INTERIOR WALLS OF THE INLETS AND BASINS.
8. DOUBLE INLETS SHALL BE LOCATED AT ALL SAG VERTICAL CURVES. UNDERDRAINS SHALL DRAIN TO THE SIDES, SOLID PIPE SHALL BE PROVIDED A MINIMUM OF 10' FROM THE WALLS, OR AS DIRECTED BY THE CITY ENGINEER.
9. INVERTS SHALL BE FORMED IN ALL INLET AND BASIN STRUCTURES TO PROVIDE POSITIVE FLOW. USE CLASS QC1 CONCRETE TO FORM INVERTS.
10. ALL PIPING THROUGH CATCH BASIN WALLS SHALL BE SEALED WITH A CLASS QC1 CONCRETE COLLAR A MIN. OF 6" THICK.

**B. CASTINGS:**

1. APPROVED FRAMES/GRATES FOR BASINS AND INLETS ARE SHOWN BELOW:

STRUCTURE TYPE	NEENAH		EJ		BACK
	FRAME	GRATE	FRAME	GRATE	
SINGLE CURB INLET (MOD. NO. 3A CB)	R-3246-CL	C	7035	M2	T1-BARRIER CURB T2-ROLL CURB OR DRIVE APRON
DOUBLE CURB INLET (MOD. NO. 3 CB)			7036	M2	T1-BARRIER CURB T2-ROLL CURB OR DRIVE APRON
SINGLE CURB INLET (< 3'X2'3")	R-3030	A	7010 7020	M1 M2	T1-BARRIER CURB T4-ROLL CURB

NOTE: 7010 ALTERNATE IS 7020, M2, T1-BARRIER

2. ALL GRATES WITHIN THE PAVEMENT SHALL BE BICYCLE-SAFE AND SET CORRECTLY WITH THE DIRECTION OF WATER FLOW.
3. THE FRAME AND GRATE SHALL BE FITTED AND FINISHED TO PROVIDE A FIRM AND EVEN SEAT IN THE FRAME.
4. BASINS AND INLETS SHALL BE PLACED TRUE TO LINE AND GRADE, PER PLAN.
5. THE FRAMES AND GRATES SHALL BE FITTED, MATCHED AND MARKED PRIOR TO DELIVERY TO THE PROJECT.
6. ANY SUBSTITUTIONS OF EQUAL QUALITY AND DIMENSIONS SHALL FIRST BE APPROVED BY THE CITY ENGINEER PRIOR TO PROCUREMENT.
7. ALL FRAMES AND GRATES SHALL MEET OR EXCEED AASHTO M306.
8. ALL CASTINGS SHALL HAVE THE WORDS "DUMP NO WASTE" AND "DRAINS TO WATERWAY" ALONG WITH A FISH LOGO CAST INTO THE GRATE AND/OR CURB BOX.

**C. PAYMENT:**

1. THE PAVEMENT BLOCK-OUT SHALL BE PLACED AFTER THE CASTING HAS BEEN SET, BUT WILL BE PAID FOR AS THOUGH PART OF THE CONCRETE PAVEMENT.
2. NO DEDUCTION SHALL BE MADE IN QUANTITIES OF PAVEMENT BECAUSE OF THE CASTING.

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**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764.

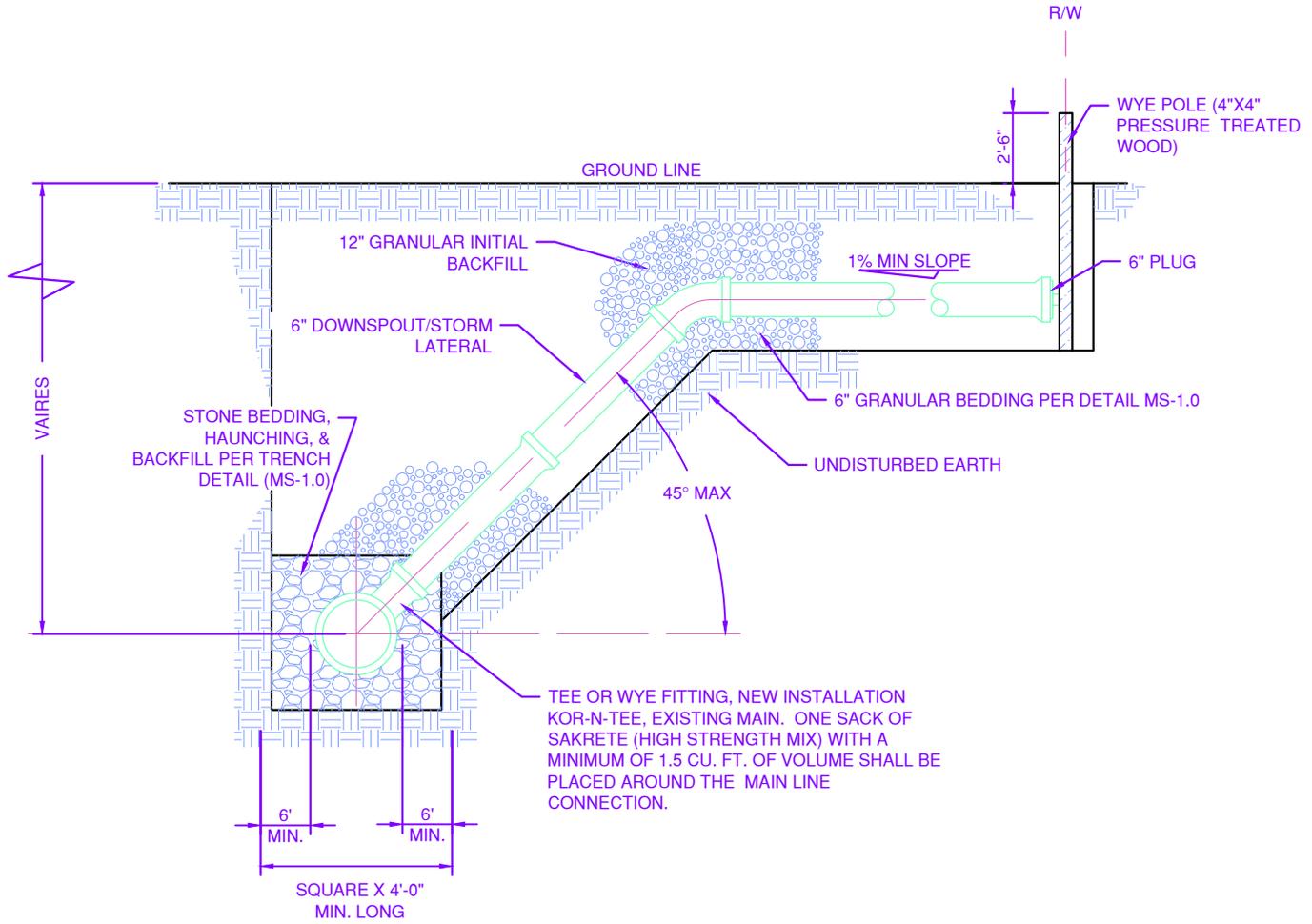
**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
STORM SEWER  
GENERAL NOTES-CATCH BASINS & INLETS**

CAD FILE: ST-3.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

ST-3.0

NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019				
11	02/07/2020	CONST. NO. 6 REV.			
11	02/07/2020	CASTINGS CHART REV.			
11	02/07/2020	CASTINGS NO. 7 REV.			



**NOTE:**

Holes in existing mains for installation of tees shall be core drilled using holesaws or coring machines to ensure a clean, round, smooth hole.

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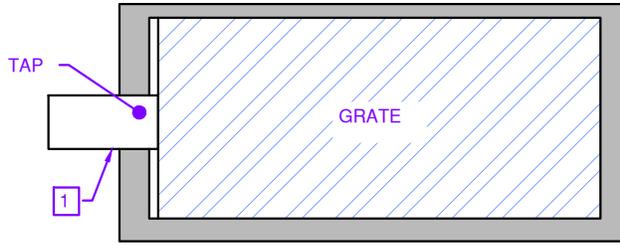
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 STORM SEWER  
 LATERAL DETAIL**

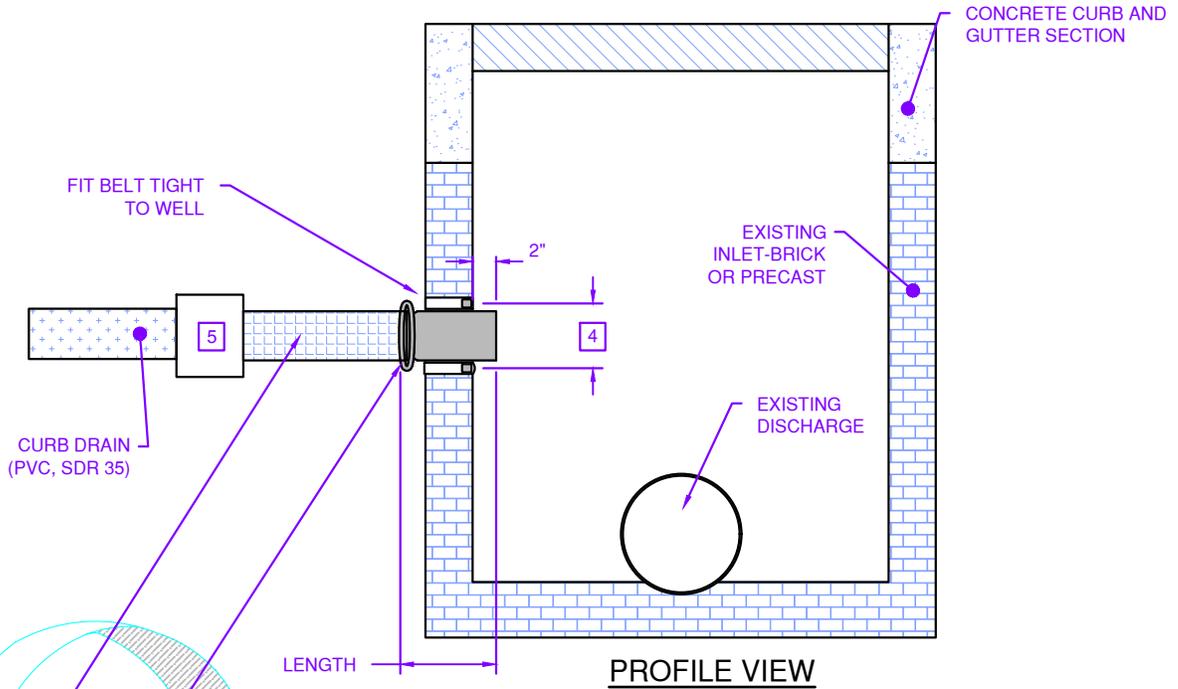
CAD FILE: ST-4.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**ST-4.0**

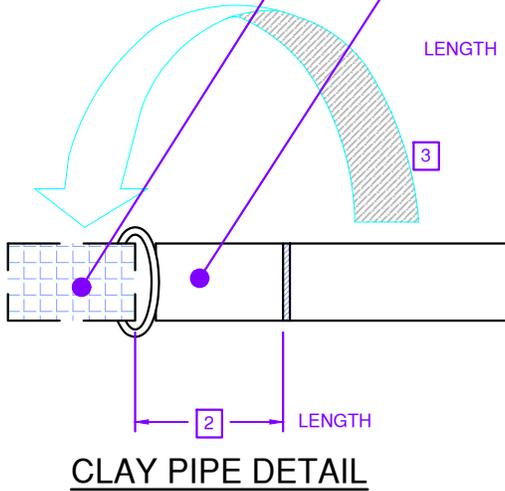
NO.	DATE	REVISION	NO.	DATE	REVISION



**PLAN VIEW**



**PROFILE VIEW**



**CLAY PIPE DETAIL**

**LEGEND**

- 1** CORE OR SAW CUT WALL OF INLET.
- 2** SAW CUT CLAY PIPE THE WALL THICKNESS OF INLET PLUS TWO INCH PROTRUSION INTO INLET.
- 3** PLACE REMAINING PORTION OF CLAY BARREL INTO BELL OF CLAY TILE.
- 4** GROUT INTO SAWED CUT OR CORED OPENING IN INLET.
- 5** FERNCO CLAY TO CURB DRAIN PIPE CONNECTION. CONCRETE COLLAR MAY BE USED IN LIEU OF FERNCO WITH APPROVAL OF THE ENGINEER.

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NO.	DATE	REVISION	NO.	DATE	REVISION

**STANDARD DESIGNS  
 STORM SEWER  
 INLET TAP**

CAD FILE: ST-5.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**ST-5.0**

**GENERAL - MATERIAL**

**NOTE:** ALL MATERIALS SHALL BE "LEAD FREE" PER SAFE DRINKING WATER ACT.

1. **MAIN LINES:** PVC PLASTIC, AWWA C909, PRESSURE CLASS 235. RUBBER GASKETED JOINTS, AWWA C111. 6" MINIMUM DIAMETER FOR DISTRIBUTION LINE.
2. **FITTINGS:** DUCTILE IRON, CEMENT LINED, FULL OR COMPACT BODY, MECHANICAL JOINT, AWWA C110 OR C153 WITH 316 STAINLESS STEEL BOLTS. ALL FITTINGS SHALL BE POLYETHYLENE ENCASED, AWWA C105.
3. **THRUST RESTRAINT:** MECH. JOINTS W/ EBAA IRON SERIES 19MJ AND PIPE JOINTS WITH EBAA IRON SERIES 1900 RESTRAINERS (STAINLESS STEEL BOLTS).
4. **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.
5. **BACKFILL:** 4'-6" MINIMUM COVER ON MAIN LINE. REFER TO GN 2.1 - GENERAL NOTE #25 FOR ADDITIONAL BACKFILL GUIDANCE.
6. **MAIN LINE VALVES:** MUELLER A-2360 WITH 316 STAINLESS STEEL FASTENERS, OPEN LEFT, RESILIENT WEDGE, MECHANICAL JOINT. MAIN LINE OFFSETS LOCATED AT 7' OR GREATER DEPTH SHALL HAVE VALVES LOCATED ON EITHER SIDE OF OFFSET; VALVE EXTENSIONS SHALL BE UTILIZED SO THAT VALVE KEY REQUIRED FOR O&M IS MAXIMUM 5'. ALSO, NO TAPS MAY BE MADE BETWEEN VALVES ON AN OFFSET.
7. **INSERTION VALVES:** TEAM INSERT VALVE WITH STAINLESS STEEL FASTENERS. ONE CUBIC YARD OF ODOT 613 LOW STRENGTH MORTAR SHALL BE INSTALLED AROUND THE INSERTION VALVE PRIOR TO CLOSING THE VALVE. INSERTION VALVES SHALL NOT BE INSTALLED WITHIN 6 FEET OF AN EXISTING JOINT.
8. **TEMPORARY LINESTOPS:** DUCTILE IRON OR STAINLESS STEEL TAPPING SLEEVES WITH STAINLESS STEEL FASTENERS WITH SHUT OFF WEDGE VALVE BY HYDROSTOP, EZ VALVE OR APPROVED EQUAL. ONE CUBIC YARD OF ODOT 613 LOW STRENGTH MORTAR SHALL BE INSTALLED AROUND THE LINE STOP PRIOR TO CLOSING THE VALVE. LINESTOPS SHALL NOT BE INSTALLED WITHIN 6 FEET OF AN EXISTING JOINT.
9. **VALVE BOX:** EAST JORDAN IRON WORKS 8560 SERIES THREE PIECE WITH DROP LID.
10. **HYDRANTS:** MUELLER SUPER CENTURION 250; A-423, 5'-0" BURY, TWO 2-1/2" NST HOSE OUTLETS AND ONE 5" STORZ OUTLET, OPEN LEFT, WITH 316 STAINLESS STEEL BOLTS. HYDRANTS SHALL BE PAINTED RED BARRELS AND WHITE DOMES.
11. **COPPER SERVICE:** TYPE K COPPER, 1" MINIMUM.
12. **HIGH DENSITY POLYETHYLENE SERVICE:** POLYFLEX TUBING (CTS) WITH 200 WITH 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. TRACER WIRE SHALL BE INSTALLED CHECK CONDUCTIVITY, 2" MINIMUM.
13. **CURB STOP:** MUELLER H-15204 1" MINIMUM FOR COPPER OR MUELLER H-15209 2" MINIMUM FOR HDPE.
14. **CURB BOX:** MUELLER H-10334 CURB BOX, 60"; 89376 LID, BRASS MACHINE THREADS. MUELLER H-10336 CURB BOX FOR 1-1/2" AND 2" SERVICES.
15. **CORPORATION STOP:** MUELLER B-1500 WITH AWWA TAPER INLET THREADS, 1" MINIMUM.
16. **COUPLING:** MUELLER H-15400 UNION, STRAIGHT THREE PART, FOR COPPER OR MUELLER H-15403 FOR HDPE. SMITH-BLAIR, INC. 400 SERIES BETWEEN NEW COPPER AND EXISTING GALVANIZED WATER SERVICE.
17. **BRASS PLUGS:** MUELLER H-10033 1" BRASS PLUGS, WHEN NECESSARY.
18. **SERVICE SADDLE:** MUELLER BR-2-B SERIES WITH AWWA TAPER OUTLET THREADS.
19. **TRACER TAPE:** NYLON REINFORCED METALIZED FOIL CORE LAMINATED BETWEEN TWO LAYERS OF INERT PLASTIC FILM. 3" WIDE BY 8 MILS. THICK WITH WARNING MESSAGE "CAUTION WATERLINE BURIED BELOW" REPEATED EVERY 30'. REEF INDUSTRIES TERRA TAPE SENTRY LINE 1350 OR APPROVED EQUAL.
20. **TRACER WIRE:** COPPERHEAD STEEL CORE COPPER CLAD REINFORCED #12 AWG WITH 30 MIL. HIGH DENSITY POLYETHYLENE COATING. BLUE IN COLOR WITH APPROVED MOISTURE TIGHT SPLICE KITS.

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
5	05/12/2017				
7	01/01/2018				

**STANDARD DESIGNS  
 WATERLINE  
 GENERAL NOTES**

CAD FILE: WT-1.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

WT-1.0

**GENERAL - MATERIAL**

1. VALVE BOX: EAST JORDAN IRON WORKS 8560 SERIES THREE PIECE WITH DROP LID.

NOTE 1: THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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NO.	DATE	REVISION	NO.	DATE	REVISION
1	10/27/2015				
5	05/12/2017				
7	01/01/2018				
11	02/10/2020	OLD NO. 1-8 & 10-20 REM.			

**STANDARD DESIGNS  
 WATERLINE  
 GENERAL NOTES**

CAD FILE: WT-1.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**WT-1.0**

## GENERAL

1. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE EXISTING MAIN AND SERVICE CONNECTIONS DURING CONSTRUCTION. ANY BREAKS IN THE MAIN OR CONNECTIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT DURING THE ENTIRE TIME THE EXISTING MAIN IS IN SERVICE.
2. THE LOCATION AND ELEVATION OF EXISTING SANITARY AND STORM SEWER TAPS ARE UNKNOWN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS TO PROVIDE EIGHTEEN (18) INCHES OF VERTICAL CLEARANCE FOR PERPENDICULAR SANITARY SEWER CONNECTIONS AND TWELVE (12) INCHES OF CLEARANCE FOR STORM SEWER CONNECTIONS.
3. WATER LINES SHALL BE INSTALLED WITH A MINIMUM COVER OF 4'-6" FEET BELOW EXISTING GRADE OR 4'-6" FEET BELOW LEVEL OF EDGE OF ADJACENT PAVEMENT WHICHEVER RESULTS IN THE LOWER ELEVATION.
4. A MINIMUM OF 35 PSI SHALL BE MAINTAINED TO THE CURB STOPS DURING NORMAL OPERATING CONDITIONS.
5. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
6. THE CONTRACTOR SHALL PERFORM PRESSURE TEST, CHLORINATION OF LINE, CHLORINATION TESTS, AND DISINFECTION TESTS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY TEMPORARY CONNECTIONS FOR THE REQUIRED TESTING. THE CONTRACTOR SHALL PROVIDE TEMPORARY CAPS OR PLUGS ON THE PROPOSED WATERLINE AS NECESSARY FOR TESTING. PRESSURE TESTS SHALL BE UNDER THE SUPERVISION OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
7. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO OPEN AND CLOSE WATER VALVES.
8. FIRE HYDRANTS THAT ARE LOCATED WITHIN 10 FEET OF A STORM OR SANITARY SEWER SHALL HAVE THE HYDRANT DRAINS PLUGGED.
9. WATERLINE PIPE AND FITTING JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE RESTRAINED JOINT TABLE.
10. PRIOR TO FINAL WALK-THROUGH, THE CONTRACTOR SHALL VERIFY THAT ALL GATE VALVES AND CURB STOPS ARE OPERABLE AND IN THE CORRECT OPEN OR CLOSED POSITION BY PHYSICALLY CHECKING ALL VALVES IN THE PRESENCE OF THE ENGINEER'S REPRESENTATIVE WITH A VALVE WRENCH.
11. ALL WATERLINES TO BE ABANDONED IN PLACE SHALL BE PLUGGED AND FILLED.
12. WATERLINES SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 18 INCHES AND 10 FEET HORIZONTAL SEPARATION FROM ANY SANITARY SEWER OR STORM SEWER.
13. THE CONTRACTOR SHALL REMOVE ALL ABANDONED CASTINGS FOR MANHOLES, METERS AND VALVES TO A MINIMUM OF ONE (1) FOOT BELOW GRADE AND FILL THE STRUCTURE WITH COMPACTED SAND OR LOW STRENGTH MORTAR (LSM). IF THE CASTING IS IN A PAVED AREA THE PAVEMENT SHALL BE REMOVED 1'-6" BEYOND THE CASTING AND REPLACED ACCORDING TO THE PAVEMENT REPLACEMENT STANDARD DETAILS.
14. THE CONTRACTOR SHALL REMOVE EXISTING HYDRANT AND HYDRANT VALVE ASSEMBLIES IN ONE PIECE, PALLETIZE AND DELIVER TO THE CITY'S WATER DISTRIBUTION STORAGE AREA FOR DISASSEMBLY BY CITY WORKERS. AFTER THE HYDRANT ASSEMBLY IS REMOVED THE REMAINING LINE TO THE MAIN SHALL BE PLUGGED.
15. CONTRACTOR SHALL PERFORM THE CONSTRUCTION USING THE FOLLOWING SEQUENCE OF CONSTRUCTION FOR EACH PROJECT AREA:
  - 15.1. INSTALL PROPOSED WATERLINES, VALVES, HYDRANTS, SERVICE TAP ASSEMBLIES, CURB STOPS AND WATER SERVICE PIPE.
  - 15.2. PRESSURE TEST THE WATERLINE IN ACCORDANCE WITH AWWA C-600.
  - 15.3. DISINFECT THE WATERLINE IN ACCORDANCE WITH AWWA C-651.
  - 15.4. CHARGE THE NEWLY INSTALLED WATERLINE AND SWITCH OVER SERVICES FROM THE OLD WATERLINE TO THE NEW WATERLINE. FOR EACH SERVICE SWITCHOVER, THE SERVICE SHALL BE SWITCHED FROM A CHARGED OLD WATERLINE TO A CHARGED NEW WATERLINE.
  - 15.5. MAKE RECONNECTION OF THE NEW WATERLINE IN ACCORDANCE WITH AWWA C-651, SECTION 9. DISCONNECT AND ABANDON THE OLD WATERLINE.
  - 15.6. COMPLETE SURFACE RESTORATION.
16. WINTER FLUSHING OF WATER MAINS: THE CONTRACTOR SHALL PROVIDE MEASURES TO PREVENT WATER FLUSHED FROM WATER MAINS FROM FREEZING AND ACCUMULATING IN PAVED AREAS.

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**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

## STANDARD DESIGNS WATERLINE GENERAL NOTES

CAD FILE:

WT-1.1.dwg

SHEET:

WT-1.1

DRWN BY:

EA

APPRVD BY:

DV

ISSUE DATE:

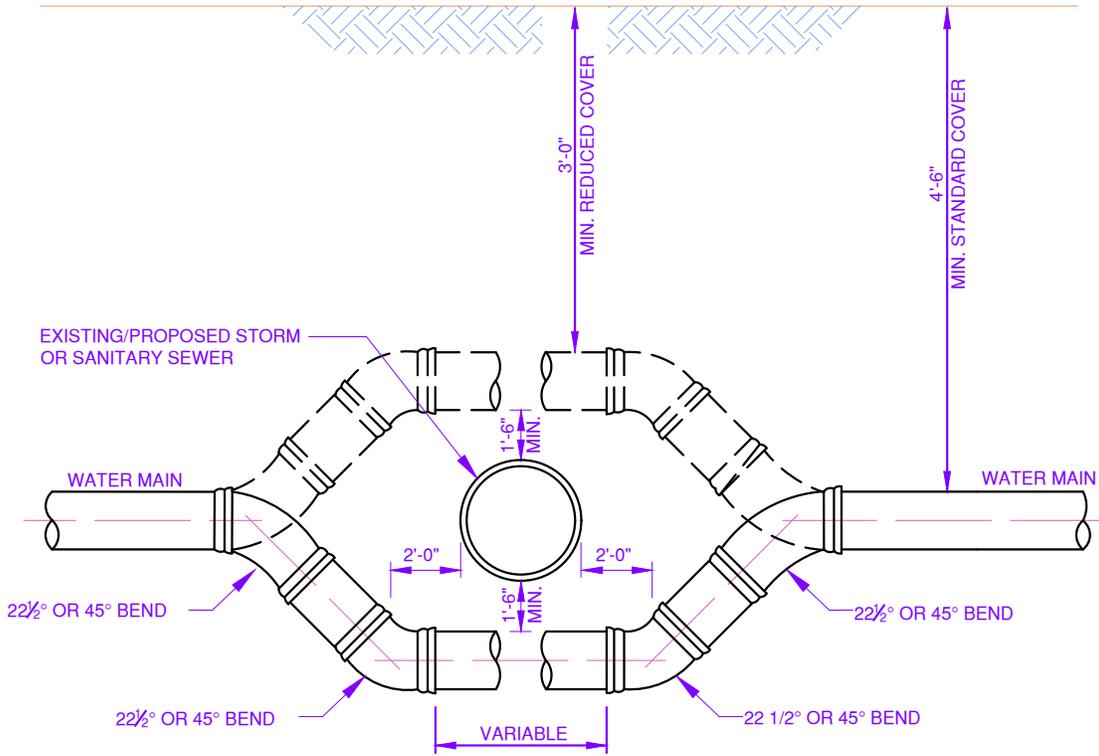
08/19/2015

SCALE:

NONE

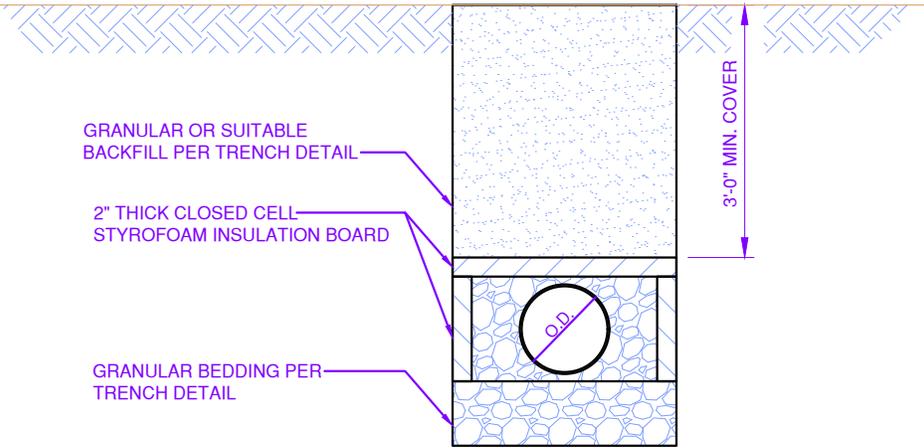






**NOTES:**

1. ALL JOINTS SHALL BE RESTRAINED.
2. REDUCED COVER LOCATION MAY BE PERMITTED WHERE GOING UNDER A PIPE WILL RESULT IN AN EXCESSIVE DEPTH AND MUST BE APPROVED BY THE CITY ENGINEER.
3. MAIN LINE OFFSETS LOCATED AT 7' OR GREATER DEPTH SHALL HAVE VALVES LOCATED ON EITHER SIDE OF OFFSET; VALVE EXTENSIONS SHALL BE UTILIZED SO THAT VALVE KEY REQUIRED FOR O&M IS MAXIMUM 5' IN LENGTH. ALSO, NO TAPS SHALL BE MADE BETWEEN VALVES ON AN OFFSET.



**REDUCED COVER TRENCH DETAIL**

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

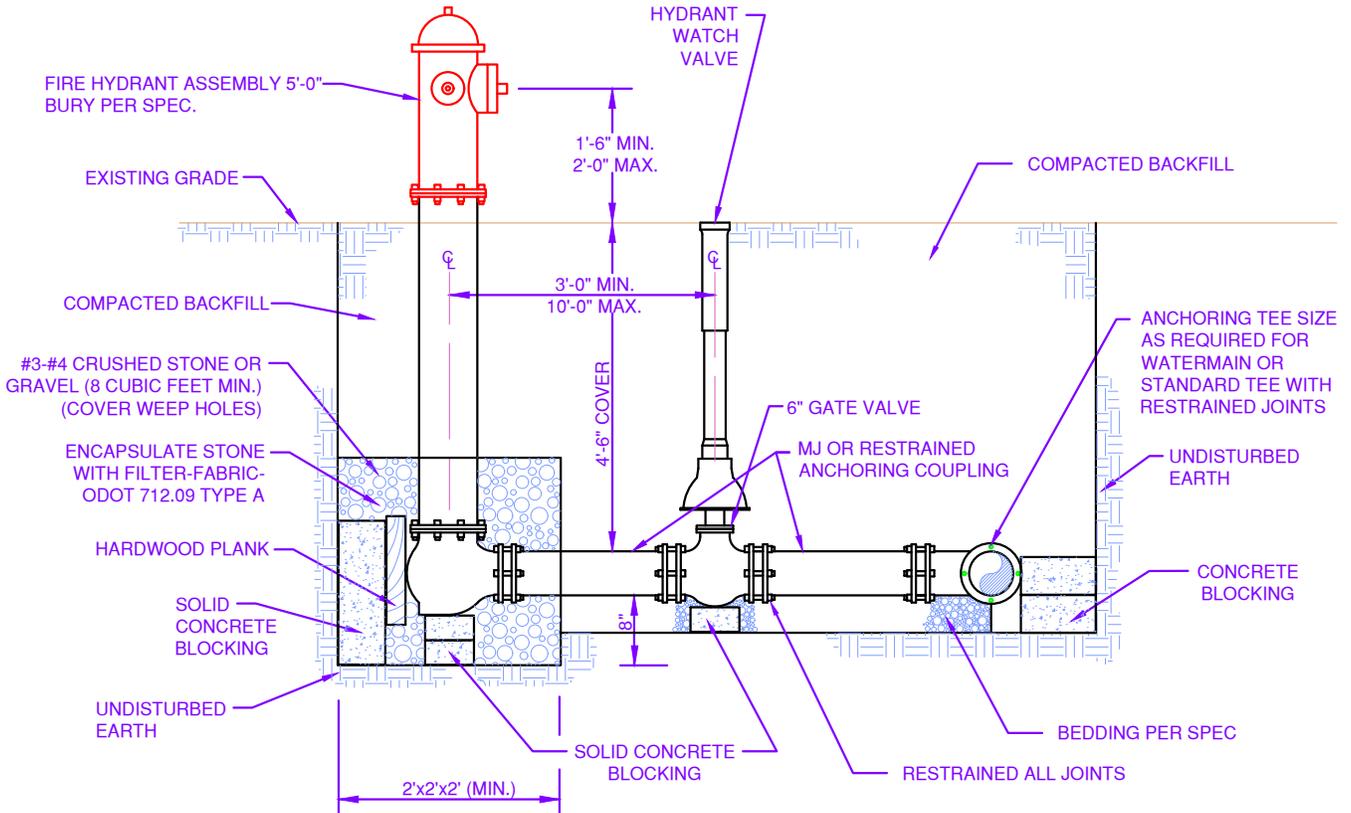
**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.G.P.U.P.S. @ (800) 925-0988.

**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

NO.	DATE	REVISION	NO.	DATE	REVISION
5	05/12/2017				

**STANDARD DESIGNS  
 WATERLINE  
 OFFSET DETAIL**

CAD FILE: WT-4.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE	<b>WT-4.0</b>	



**NOTES:**

FIRE HYDRANT LOCATED NOT MORE THAN 10' FROM FACE OF CURB.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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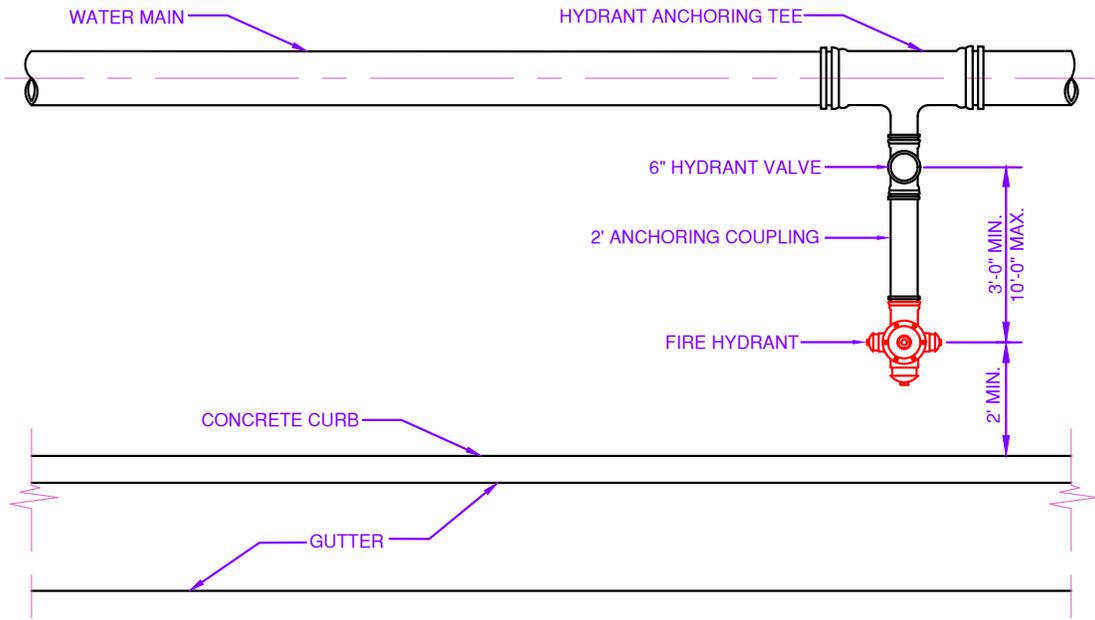
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 WATERLINE  
 FIRE HYDRANT ASSEMBLY**

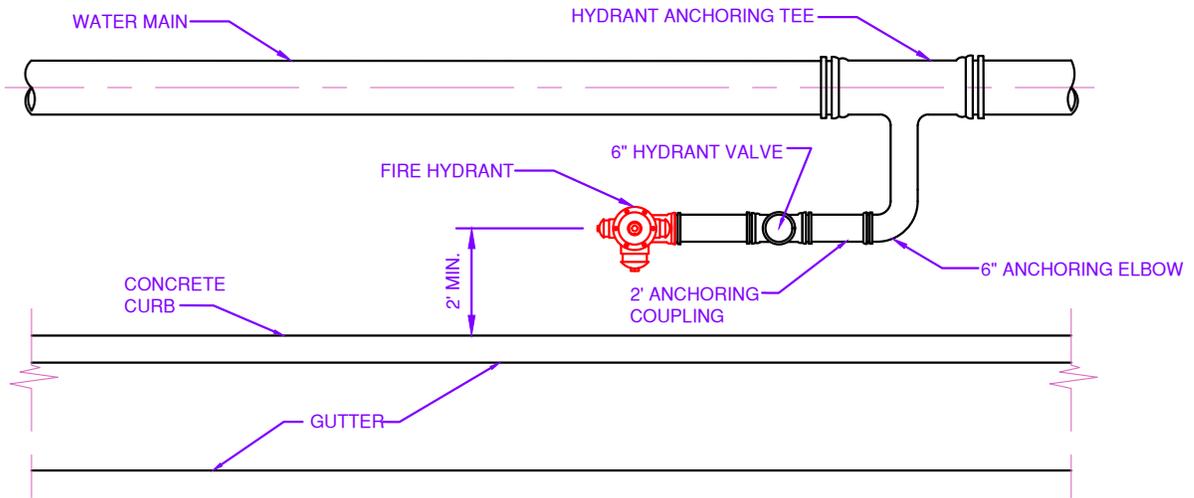
CAD FILE: WT-5.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**WT-5.0**

NO.	DATE	REVISION	NO.	DATE	REVISION



**NORMAL HYDRANT SETTING**  
PLAN VIEW



**ALTERNATE HYDRANT SETTING**  
PLAN VIEW

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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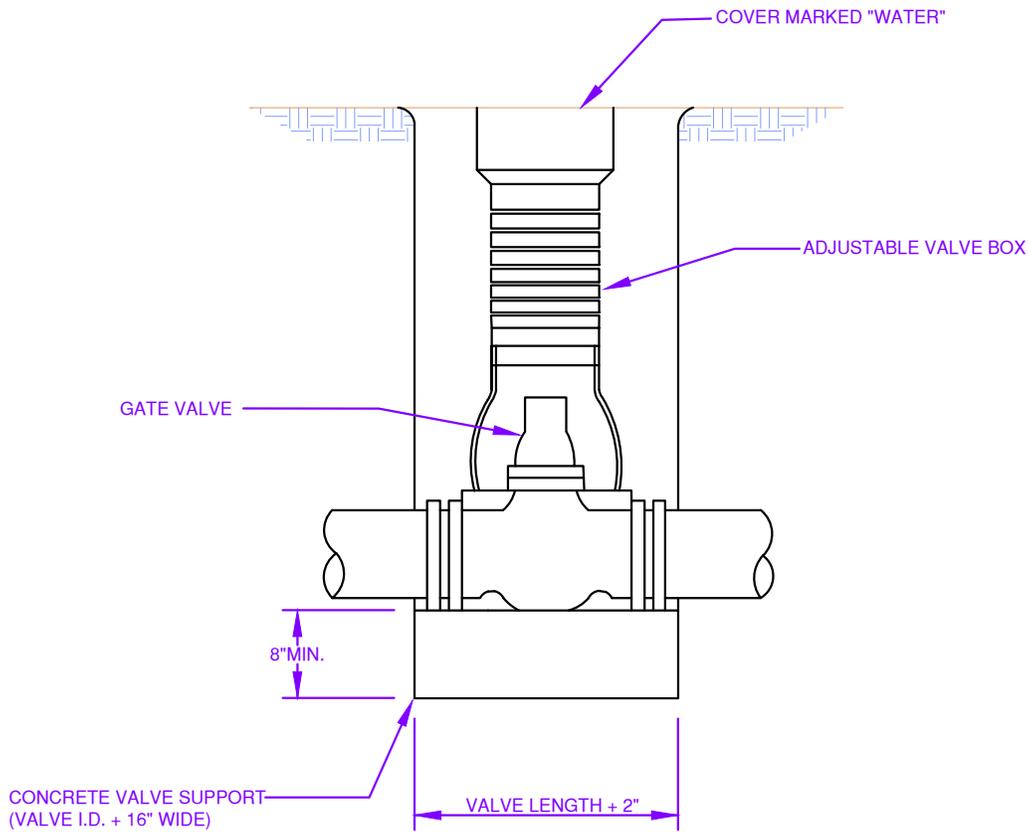
**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS  
WATERLINE  
FIRE HYDRANT SETTINGS**

CAD FILE: WT-6.0.dwg				SHEET:	
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE		

**WT-6.0**

NO.	DATE	REVISION	NO.	DATE	REVISION



**NOTES:**

1. VALVES SHALL BE SET SO THAT OPERATING SHAFT IS PLUMB.
2. MAIN LINE OFFSETS LOCATED AT 7' OR GREATER DEPTH SHALL HAVE VALVES LOCATED ON EITHER SIDE OF OFFSET; VALVE EXTENSIONS SHALL BE UTILIZED SO THAT VALVE KEY REQUIRED FOR O&M IS MAXIMUM 5' LENGTH. ALSO, NO TAPS SHALL BE MADE BETWEEN VALVES ON AN OFFSET.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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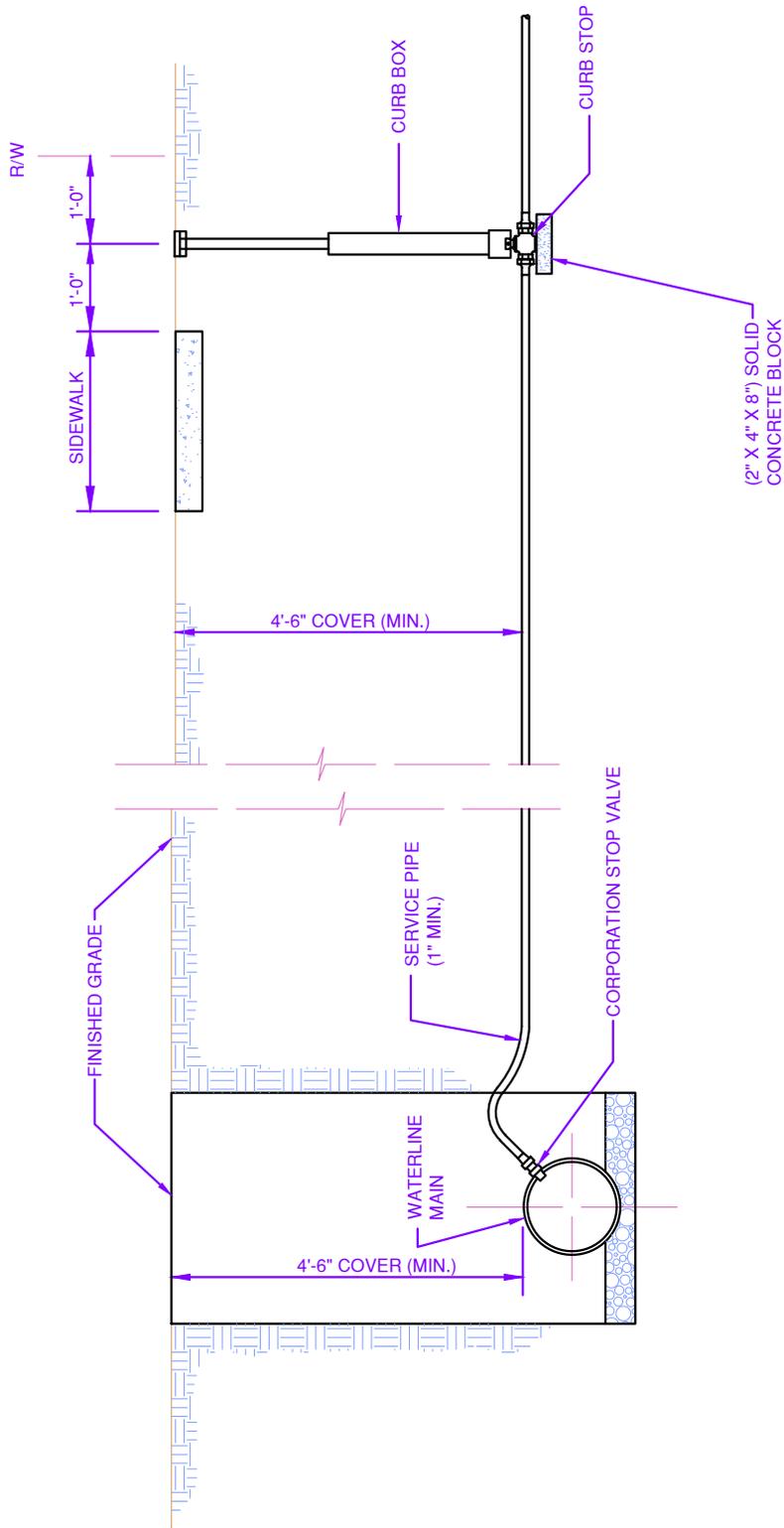
**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 WATERLINE  
 VALVE SETTING DETAIL**

CAD FILE: WT-7.0.dwg			
DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE

SHEET:  
**WT-7.0**

NO.	DATE	REVISION	NO.	DATE	REVISION
5	05/12/2017				



**NOTES:**

1. A "V" SHALL BE TOOLED INTO THE CONCRETE AT EACH WATER CURB BOX LOCATION.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
 Phone: (440) 204-2003

**STANDARD DESIGNS  
 WATERLINE  
 WATER SERVICE CONNECTION**

CAD FILE:  
 WT-8.0.dwg

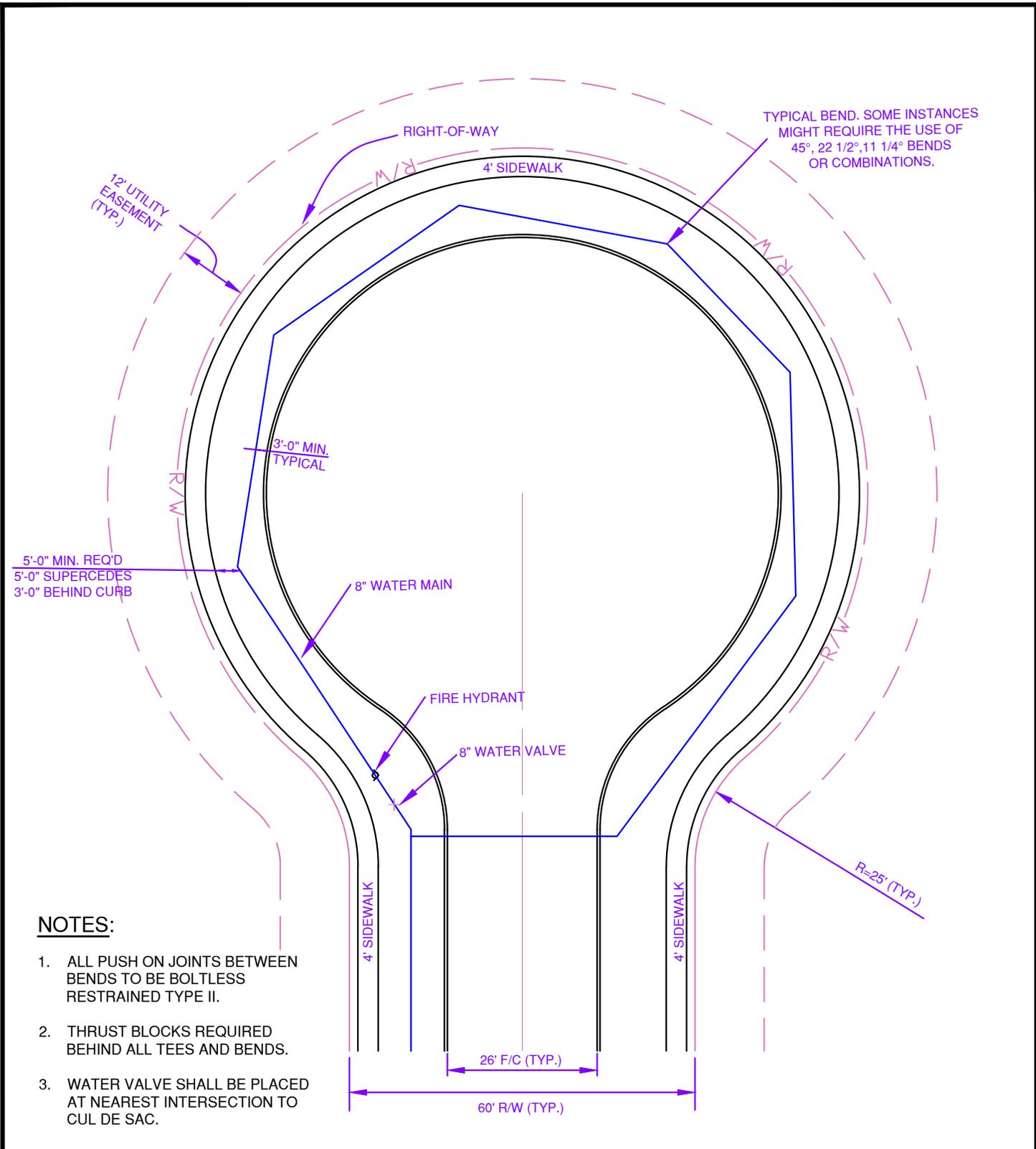
SHEET:

**WT-8.0**

DRWN BY: EA	APPRVD BY: DV	ISSUE DATE: 08/19/2015	SCALE: NONE
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NO.	DATE	REVISION	NO.	DATE	REVISION

C:\Users\newsome\appdata\local\temp\AcPublish\_1712\WT-9.0.dwg - WT-9.0 ~ May 22, 2017 - 9:46am



**NOTES:**

1. ALL PUSH ON JOINTS BETWEEN BENDS TO BE BOLTLESS RESTRAINED TYPE II.
2. THRUST BLOCKS REQUIRED BEHIND ALL TEES AND BENDS.
3. WATER VALVE SHALL BE PLACED AT NEAREST INTERSECTION TO CUL DE SAC.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

**NOTE 2:** BEFORE ANY EXCAVATING, CALL THE FOLLOWING NUMBERS AT LEAST 48 HOURS IN ADVANCE: O.U.P.S. @ (800) 362-2764 AND O.G.P.U.P.S. @ (800) 925-0988.

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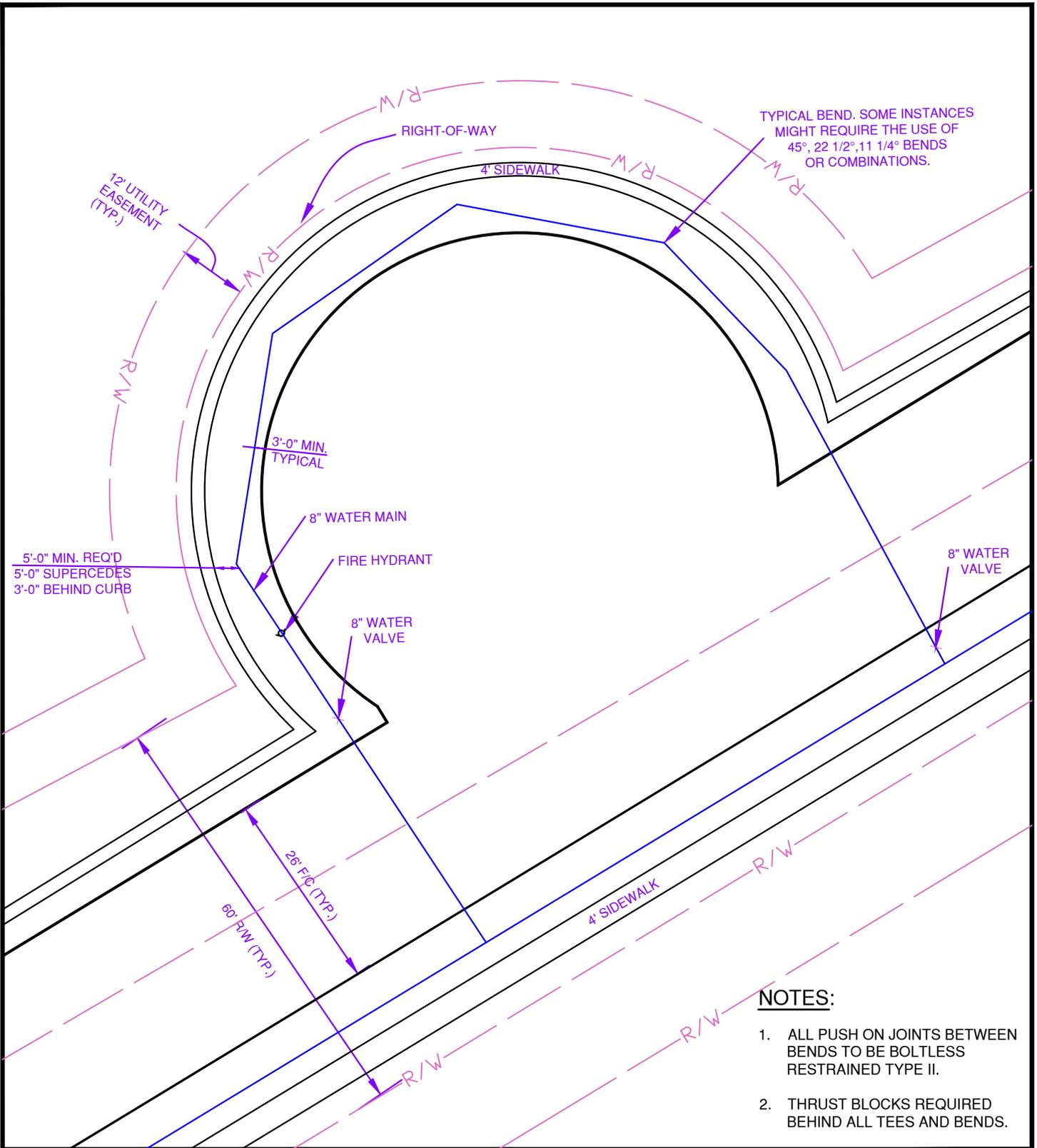
NO.	DATE	REVISION	NO.	DATE	REVISION

**STANDARD DESIGNS  
 WATER LINE  
 CUL-DE-SAC HYDRANT/LOOP SCHEMATIC**

CAD FILE: WT-9.0.dwg

DRWN BY: VAN	APPRVD BY: DV	ISSUE DATE: 05/05/2017	SCALE: NONE
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SHEET:  
**WT-9.0**



**NOTES:**

1. ALL PUSH ON JOINTS BETWEEN BENDS TO BE BOLTLESS RESTRAINED TYPE II.
2. THRUST BLOCKS REQUIRED BEHIND ALL TEES AND BENDS.

**NOTE 1:** THIS DETAIL IS VALID ONLY WHEN USED AS PRESENTED HERE, WITHOUT CHANGES, AND IN CONJUNCTION WITH ANY GENERAL NOTES AND/OR OTHER DETAILS WHICH MAY APPLY. ANY CHANGES TO THIS DETAIL SHALL FIRST BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER.

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**City of Lorain**  
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 Phone: (440) 204-2003

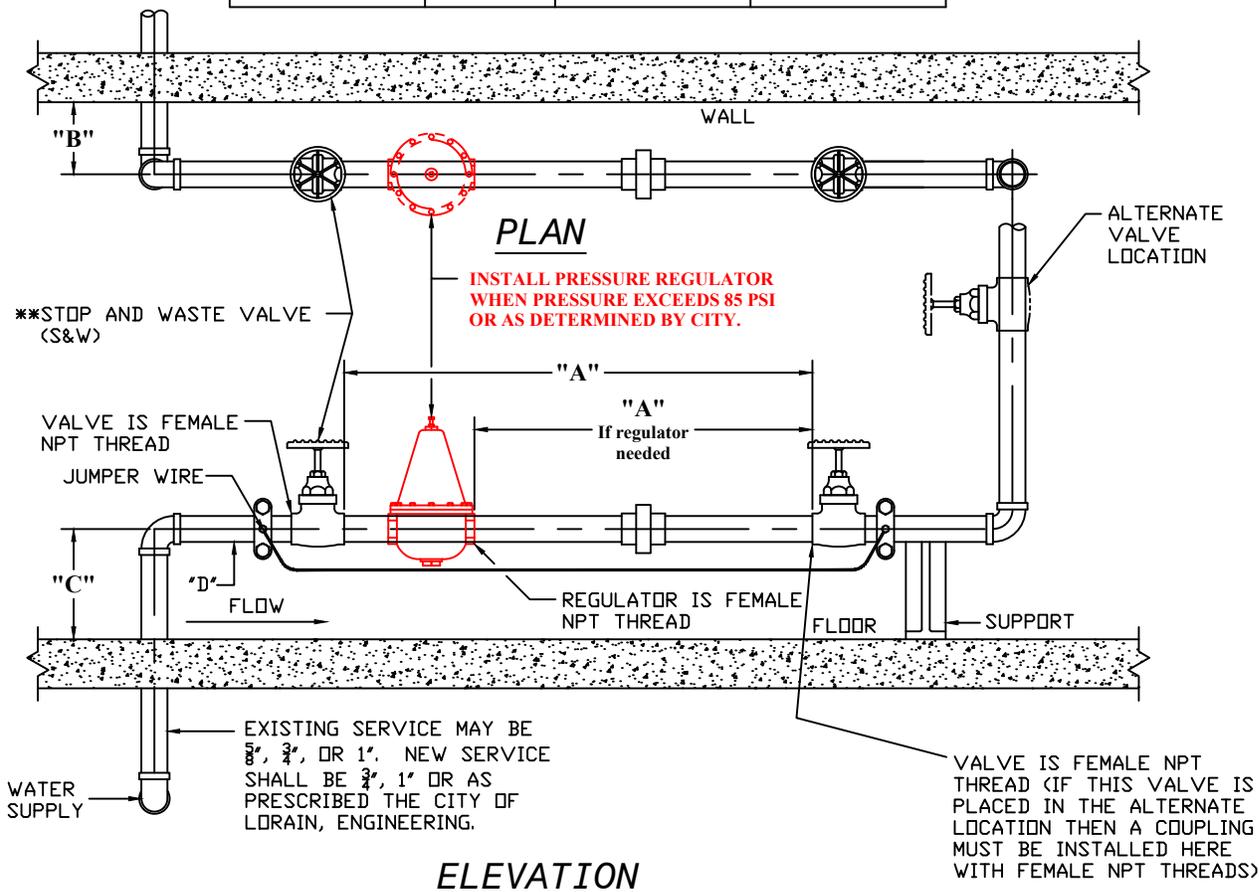
**STANDARD DESIGNS  
 WATER LINE  
 BUMP OUT HYDRANT/LOOP SCHEMATIC**

NO.	DATE	REVISION	NO.	DATE	REVISION

CAD FILE: WT-10.0.dwg			SHEET: <b>WT-10.0</b>		
DRWN BY: VAN	APPRVD BY: DV	ISSUE DATE: 05/05/2017	SCALE: NONE		

**NOTE:** ALL MATERIALS SHALL BE "LEAD FREE" PER SAFE DRINKING WATER ACT.

METER SIZE	"A"	"B"	"C"
5/8"	12 1/4"	6" MIN. 12" MAX.	24" MIN. 36" MAX.
3/4"	14"		
1"	16"		



- NOTES:**
- IF METER SIZE IS REDUCED FROM THE INCOMING LINE SIZE, THE APPROPRIATE REDUCTION SHOULD TAKE PLACE AT OR UPSTREAM OF POINT "D".
  - METER SETTING SHALL BE PLACED IN AN UNOBSTRUCTED AREA. METER SETTINGS MAY NOT BE INSTALLED IN CRAWL SPACES.
  - BALL VALVES MAY BE USED IN PLACE OF STOP AND WASTE VALVES.
  - IF PROPERTY RECEIVING WATER SERVICE HAS MORE THAN 2 UNITS OR AN IRRIGATION SYSTEM, AN APPROVED BACKFLOW PREVENTION DEVICE IS REQUIRED. FOR TYPE AND MODEL OF BACKFLOW DEVICE REQUIRED, CONTACT THE BACKFLOW UNIT OF WATER DISTRIBUTION AT 440-204-2285.
  - NEW METER INSTALLATIONS SHALL BE RADIO FREQUENCY TRANSMITTED AND DO NOT REQUIRE A COMMUNICATION WIRE BETWEEN THE METER AND ENDPOINT DEVICE ON OUTSIDE OF HOUSE.
  - WHEN REQUIRED BY THE CITY, A 3 CONDUCTOR, 22 GAUGE WIRE SHALL BE INSTALLED IS TO BE INSTALLED BETWEEN THE METER AND ENDPOINT DEVICE ON OUTSIDE OF HOUSE.

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**City of Lorain**  
 200 West Erie Avenue Lorain, Ohio 44052  
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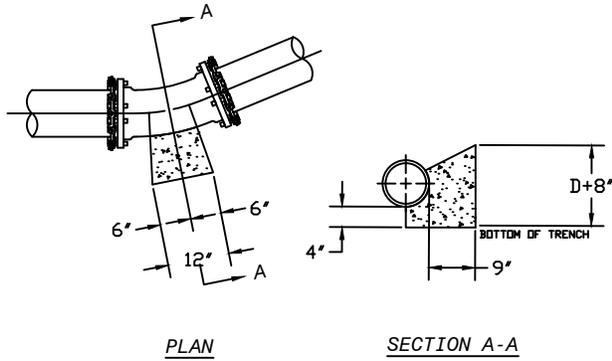
**STANDARD DESIGNS  
 WATER  
 Meter Settings for 5/8" & 3/4" & 1" Meters**

CAD FILE:  
 WT-M01.dwg

SHEET:

**WT-11.0**

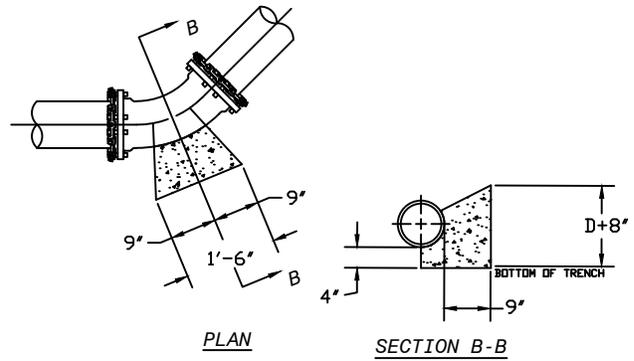
DRWN BY: GS    APPRVD BY: DV    ISSUE DATE: 08/9/2018    SCALE: NONE



PLAN

SECTION A-A

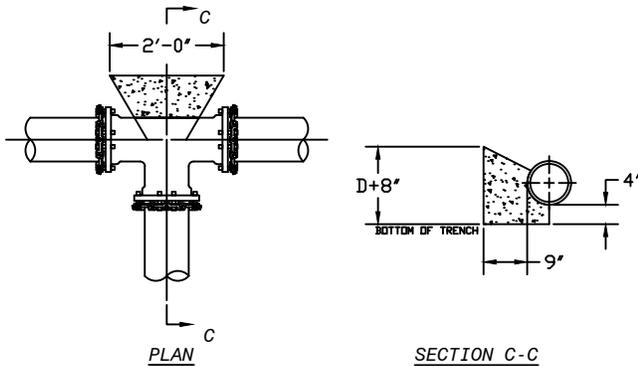
22-1/2 DEGREE BEND



PLAN

SECTION B-B

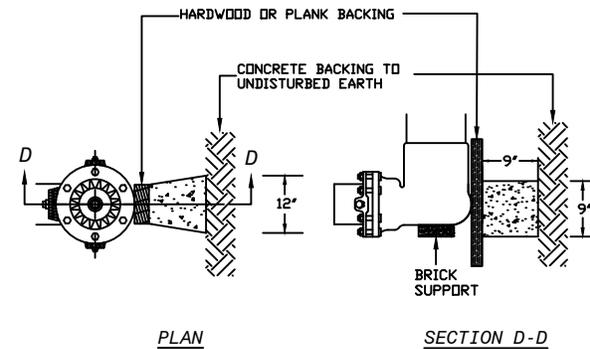
45 DEGREE BEND



PLAN

SECTION C-C

TEES AND TAP SLEEVES



PLAN

SECTION D-D

HYDRANTS

- NOT TO SCALE -  
D = PIPE DIAMETER

NOTE 1: ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO UNDISTURBED EARTH.

NOTE 2: ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS QC 1 HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.

NOTE 3: DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.

NOTE 4: USE FORMS WHEN POURING CONCRETE TO MAINTAIN SHAPE AND DIMENSIONS OF THRUST BLOCKS.

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**City of Lorain**  
200 West Erie Avenue Lorain, Ohio 44052  
Phone: (440) 204-2003

**STANDARD DESIGNS**  
**WATER**  
Thrust Blocks: Pipe 16" in diameter or less

CAD FILE:  
WT-12.dwg

SHEET:

**WT-12.0**

DRWN BY: GS  
APPRVD BY: DV  
ISSUE DATE: 08/9/2018  
SCALE: NONE

NO.	DATE	REVISION	NO.	DATE	REVISION
9	01/01/2019	NEW DETAIL			