

Village of Romeoville – Village Engineering “Cheat Sheet”

1. Roadway

a. Residential Driveways / Aprons

- i. No residential driveway across public property nor curb cut shall exceed a width of 25 feet, unless otherwise allowed by the Director of Public Works. The curb cut may not exceed 25 feet.
- ii. Min slope is 2% - Max. slope is 8%
- iii. Only one driveway and curb cut are permitted on a residential property. The only exception is for horseshoe driveways on lots wider than 100 feet.
- iv. Only one driveway is permitted on a residential lot. If there are multiple driveways on the property, all driveways other than the proposed driveway must be closed. The areas where a driveway is removed must be replaced with seed or sod.
- v. The driveway must be at least 9 feet wide for the length of the driveway.
- vi. All aprons are to be returned as concrete even if they were asphalt prior to construction
 1. Forming shall be done so that there is a minimum of 11' of depth from the sub-grade.
 2. 6' inches of CA-6 stone sub-base shall be used
 3. 6"x6" #10 wire mesh shall be placed along the entire length of the driveway. If a fiberglass additive is used, the mesh can be eliminated.
 4. Concrete driveways shall be a minimum of 4" thick of 5-bag mix, minimum 4' slump, with a compressive strength of 3500 psi (ACI 318)

b. Curb radii are spelled out in ordinance based on street classifications

c. All exposed curb corners must be rounded with min. 1' radius

d. Detectable Warning Plates

- i. East Jordan Inserts, Heavy Duty Load Rating, Brick Red Powder Coating RAL3016
- ii. For village projects – Public Works has them – contractor needs only to install

e. PW prefers Type 11 with open throat on curb head (East Jordan R-3281-A, or Series 7000)

f. Depressed Curbs

- i. PW does not allow cutting the head of the curb off to create depressed curbs.
- ii. If the curb must be removed – second sawcut after new curb is installed is required 36" into pavement – remove and replace 36" swath in front of curb (36" is for proper compaction tool)

g. Fire, Life, Safety Access

- i. AASHTO B-40 simulates largest fire truck
- ii. 26' drive aisles –min SN = 3.0

- iii. Structure < 30,000 sf – access to 25% of building
 - iv. Structure 30,001 to 80,000 sf, access to 50% of structure
 - v. Structure > 80,001 sf, access to 100% of structure
- h. Parking Stalls
 - i. 18' by 9'-6". Note measurement is specific to edge of pavement and cannot include gutter pan.
- i. Sidewalks
 - i. 5' minimum width - adjacent to the curb, look to extend it by 2' for snow and signage.
 - ii. Residential – 5" (6" at driveways) over 4" aggregate
 - iii. Commercial Industrial – 6" (8" at driveways) over 4" aggregate
- j. Parking Lots – Use B-40 to simulate largest Romeoville fire truck
- k. Utility Coordination
 - i. Water – if the project crosses an old cast iron water main, we need to replace the existing water main with new ductile iron under the roadway – upsize 6" to min 8"
 - ii. Hydrants: Eddy hydrants are to be replaced. EJIW stay if they have break flanges. Waterous stay. All others are to be replaced.
 - iii. Consider adding new water valves if appropriate – Consult with Water Superintendent
 - iv. Replace old valves in boxes with new valves in vaults
 - v. Sanitary – if the project crosses an old clay sanitary sewer, we need to replace the existing sanitary with new PVC sanitary sewer unless it has been lined.
- l. Testing
 - i. A note should be added requiring the developer/contractor to submit all testing results (density, chlorination, vacuum, pressure, etc) to the Village of Romeoville Public Works Department within 48 hours of any onsite testing.

2. Water

- a. If the proposed roadway project has existing water that either runs parallel or perpendicular to the road, we need to replace the existing cast iron water main with new ductile iron under the roadway – upsize 6" to min 8". Coordinate early with Water Superintendent.
- b. Watermain Materials
 - i. Ductile Iron, Class 52 only
 - ii. Wrap in polyethylene encasement, Method B
 - iii. 5'-6" burial depth to top of main
 - iv. All joints restrained with megalugs (EBAA Iron) only.
- c. Fire Hydrants
 - i. East Jordan 5BR250 with 6" plain-end shoe with attached 6" resilient wedge mechanical joint valve.
 - ii. Hydrant intervals – not to exceed 300 feet
 - iii. Dead-end hydrants – 6' lead at 100', 8' lead at 150'

- iv. Must include Storz pumper connection along with two 2-1/2" hose connections in commercial, school, and industrial areas (not residential)
 - v. Bollards are required around hydrants in industrial districts and truck courts in commercial districts.
 - d. Siamese fittings (Fire Department Connection) on building must be within 75 of hydrant
 - e. Valve Boxes
 - i. Tyler screw-type C, cast iron, Series 6860 with No. 160 oval base
 - ii. East Jordan screw-type, Series 5860 with #160 base
 - iii. Lids must be marked with "WATER"
 - f. Valve vaults
 - i. All valve vaults shall be a minimum of 5' diameter
 - ii. Frame and cover shall be East Jordan #1022Z3 with embossed 1020A HD "Water" and Village of Romeoville"
 - iii. All joints need to be externally wrapped with MacWrap or equal
 - iv. Rubber gasketed boots are required for all penetrations through the manhole wall
 - v. Internal/External Chimney seals are required.
 - vi. Minimum of two adjusting rings (min 6" adjusting height) and maximum of three rings (max 10" adjusting height). No 1" or 2" concrete rings are allowed. Under paved areas, top ring should be rubber. Use one (1) EJIW Infra-Riser rubber Composite Adjustment Risers (1" to 3" max ht. of stacked risers)
 - g. Valves
 - i. American Flow, East Jordan (Flowmaster), or Clow (C-515)
 - ii. Resilient-Seated Gate Valves for all sizes
 - iii. Maximum spacing of 500 feet on main runs.
 - h. Tapping Sleeves / Pressure Connections
 - i. Pressure connections are not allowed for same size pipes. For this type of situation, a tee must be used.
 - ii. Use 2-piece ductile iron bolted sleeve type with mechanical joints
 - 1. Tyler Union Ductile Iron MJ Tapping Sleeve
 - iii. Use fully ported, resilient wedge gate valves: East Jordan Flowmaster or American Flow
 - iv. All pressure connections shall be contained within 5' diameter concrete vaults – no valve boxes.
 - i. Tapping Saddles / Service Connections
 - i. The following note should be added to private services: "The non-village (private) responsibility for maintenance and repair of the water service starts at the tap on the main, which includes the saddle and corporation stop."
 - ii. One inch (1") taps made on ductile iron pipe shall be direct and shall not require saddles.

- iii. Anything tap larger than 1” shall utilize a stainless steel service saddle equal to Cascade Model CDC2 or equivalent (Ford = FS303) with Water Superintendent’s approval.
 - iv. All taps shall have a minimum of three feet (3’) separation.
 - j. Service lines
 - i. No flared fittings for copper lines – only compression fittings
 - 1. Ford G Style Grip Joint (Pack Joint not accepted)
 - 2. McDonald “T” compression joint (mac-pack not accepted)
 - ii. All copper must be Type K (soft temper) and be continuous (one piece) from the corporation stop to the curb stop and continuous (one piece) from the curb stop to the meter (inside the building). No unions are permitted.
 - iii. All services must be 60 inches deep and cross a minimum of 18 inches below any storm or sanitary sewer.
 - iv. 2” maximum copper service
 - k. Village has special notes for chlorination requirements (attached).
 - i. A note should be added requiring the developer/contractor to submit all testing results (density, chlorination, vacuum, pressure, etc) to the Village of Romeoville Public Works Department within 48 hours of any onsite testing.

3. Sanitary

- a. Village requires submission of recorded video inspections of all public sanitary sewers.
- b. Manholes
 - i. Frame and cover shall be east Jordan 1022Z3 embossed with “Sanitary” and Village of Romeoville”
 - ii. All joints need to be externally wrapped with MacWrap or equal
 - iii. Rubber gasketed boots are required for the main at the manhole wall
 - iv. External Chimney seals are required.
 - v. Internal Chimney Seals shall be Envirolastic AR350 or Raven 581 Brush Grade, a 100% solids, fluid applied polyuria elastomer repair material as applied per the following:

For surface preparation, surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 7 days and no frost or wet conditions can be present during installation. Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. After ensuring that all surfaces are clean the chimney seal coating material shall be applied evenly by spraying over the entire chimney seal area including the frame joint area and the vertical riser of the manhole cone including all extensions to the chimney area. Application shall be made in accordance with manufacturer’s recommendations and film shall be applied at a wet mils spreading rate of between 100 to 125 mils. The final internal chimney seal shall pass visual inspection and be completely free of pinholes or voids.
- c. Inspection Manholes are required for commercial/industrial buildings
 - i. All commercial and industrial users are required to install and maintain at all times at the user’s expense a 5’-diameter monitoring manhole

which must be installed downstream of all confluences in the building sewer and prior to discharge into the public sewer. The user shall install one monitoring manhole for each connection to the public sewer. Each monitoring manhole shall be situated on the user's premises and be easily accessible to authorized representatives of the Village twenty-four (24) hours per day, seven (7) days per week and shall be located within dedicated easements. Monitoring manholes may not be installed in locations which may prevent the Village from accessing the manhole even temporarily. The monitoring manhole shall be located on the building sewer at a point where there are no changes in slope or alignment for at least 15 pipe diameters upstream and downstream from the manhole. The sanitary sewer and manhole shall be designed and constructed to give average velocities, when flowing full, of not less than 2.0 feet per second, based on Manning's formula using an "n" value of 0.013, though the manhole and for a distance of at least 15 pipe diameters upstream and downstream from the manhole. Please see 35 IAC 370.320(c)(1) for ideal sanitary sewer slopes. No other pipes may intersect the monitoring manhole. In addition, a minimum 15' wide utility easement must be provided to allow Village staff access to the monitoring manhole.

- d. Village has special notes for sanitary sewer/manhole testing
- e. Sizes
 - i. Public mains – min 8" with 0.4% slope
 - ii. Service lines – min 6" with 1% slope
- f. Min cover is 5' – but can use insulation if no other option
- g. Testing
 - i. A note should be added requiring the developer/contractor to submit all testing results (density, chlorination, vacuum, pressure, etc) to the Village of Romeoville Public Works Department within 48 hours of any onsite testing.

4. Grading

- a. Grassed areas: desirable = 2% / min = 1.5%
- b. Curbs: desirable = 0.5% / min 0.4%
- c. Paved areas: desirable = 0.5% / min 0.4%

5. Storm

- a. RCP only for public utilities
 - i. Alternate pipe materials will be allowed on private developments – See section 158.030(A)(5)(b) for specific requirements
- b. Joints must be flexible gasket o-rings per ASTM C361, ASTM C443, and ASTM C1619
- c. Village requires submission of recorded video inspections of all public storm sewer.
 - i. A note should be added requiring the developer/contractor to submit all testing results (density, chlorination, vacuum, pressure, etc) to the Village of Romeoville Public Works Department within 48 hours of any onsite testing.

- d. For closed lids - Frame and cover shall be east Jordan 1022Z3 embossed with “Storm” and Village of Romeoville”
 - e. Ponding Depth = 9” over grate on roadways
 - f. Roof Drains must be tied into storm sewer (include in calcs)
 - i. First segment can be less than 12” and plastic
 - ii. Avoid blind connections – include cleanouts
6. Restoration
- a. Parkways are generally to be restored with seed/blanket
 - b. Only in specific cases will we use sod

Village of Romeoville - Minimum chlorination standards:

- a. Gas chlorine must be used for disinfection.
- b. The chlorination contractor must call 815-886-1870 a minimum of 24-hours in advance to schedule chlorination.
- c. Only Village of Romeoville employees shall operate water system valves and turn on/off sampling whips while samples are being collected.
- d. All chlorination and safety equipment must meet or exceed the standards and recommendations set by The Chlorine Institute, Inc.
- e. The chlorinator must be a licensed plumber or certified Illinois water operator with a minimum of 5 years experience working with chlorine disinfection of water supply lines.
- f. The chlorination contractor must have two people present to chlorinate. One to monitor the cylinder and one to monitor in the field.
- g. The chlorination contractor must be bonded and insured, and have proof of both on file with the Village.
- h. The chlorination contractor must have updated 24-hour emergency phone numbers on file with the Village.
- i. The chlorination contractor must comply with state and federal regulations regarding transportation and handling of chlorine cylinders:
 - Shipping and emergency papers for every job location
 - Proof of insurance for hauling and handling chlorine gas
 - Commercial driver's license with Hazmat endorsement and medical card
 - Copy of Emergency Response Guidebook in vehicle
 - Hazmat certificate of registration
 - Hazardous materials placard displayed on vehicle
 - Cylinder strapped upright in truck
- j. Under no circumstances will chlorine contractors be allowed to apply heat to the chlorine cylinder (i.e. hot baths, propane torches, etc.). While the cylinder is being used it must be in a vertical position, as well as being affixed to a solid object.
- k. Prior to chlorination, the chlorination contractor must provide a detailed written chlorination and flushing plan to the Village for review and written approval.
- l. At any time, the Village or its authorized representative may ask for proof of any or all of the above information. Please contact the Village of Romeoville Public Works Department (815-886-1870) with any questions.

Final Acceptance and Testing of Sanitary Sewer

Before final acceptance, the sanitary sewers shall be tested in accordance with Section 31-1.11 of the “Standard Specifications for Water and Sewer Main Construction in Illinois”. Specifically, all pipelines constructed of flexible materials shall be subject to air exfiltration tests, televising test, and deflection test. The deflection test shall be performed no sooner than thirty (30) days of the backfilling operation and shall consist of measuring the pipe for vertical ring deflection. Maximum ring deflection of the pipeline under load shall be limited to five (5) percent of the internal pipe diameter. All pipe exceeding this deflection shall be considered to have reached the limit of its serviceability and shall be re-laid or replaced by the developer. Deflection testing shall be accomplished by pulling a mandrel, sphere, or pin-type “go / no-go” device, with a diameter equal to ninety-five (95) percent of the undeflected inside diameter of the flexible pipe, through the pipeline. In addition, all sanitary sewer having a diameter of eight (8) inches or greater shall be televised. Copies of all video tapes must be submitted to the Village of Romeoville.

Final Testing of Sanitary Sewer Manholes

Vacuum Testing shall be carried out immediately after assembly and prior to backfilling of manholes that are up to seventy-two (72) inches in diameter. All lift holes shall be plugged with a non-shrink grout, or rubber plug. The manhole frame and adjusting rings and chimney seals shall be in place before testing. No grout shall be placed in the horizontal joints. All pipes entering the manhole shall be plugged, taking care to securely brace the plugs from being drawn into the manhole with the vacuum testing. Vacuum testing shall test all manholes for leakage. A vacuum of ten (10) inches of mercury shall be placed on the manhole and the time measured for the vacuum to drop to nine (9) inches of mercury. The vacuum drop shall not exceed the requirements shown in Table 1 of ASTM C1244-02. If testing fails, developer shall seal all leaks and retest until acceptable. The testing shall be completed prior to backfilling (whenever possible) so that any leaks can be found and fixed externally, and to give the horizontal manhole joints an opportunity to tighten.

Flow Monitoring prior to Acceptance *(For significant developer projects)*

The developer will be required to monitor the flowrate from the site for a period of two months (encompassing at least two major storm events) to identify any excessive inflow/infiltration occurring in the system. The data must be submitted to the Village of Romeoville prior to acceptance of the public improvements.