



Sherwood Design Standards (UPDATED 05/05/23)

GENERAL ITEMS

1. All materials to be manufactured domestically unless otherwise noted and approved by the Village.
2. The Standard Warranty on Projects to be 2 years from the date of substantial completion, including landscaping.
3. All lots numbers and/or addresses shall be located on the plans for identification and tie locations.
4. All right of way, roadway and easement widths shall be shown on all plan sheets for reference.
5. Watermain, Storm Sewer and Sanitary Sewer conflicts shall be shown on all plans.
6. Bid advertisements to be submitted to the Village by the prior Thursday at noon for a Wednesday publishing. Published once per week on Wednesdays. Send Microsoft Word version. Ellen Vissers (ellenv@timesvillager.com)

DRAWINGS

1. Drawings to be prepared at 1" = 20' scale on 22" by 34" plan sheets or at 1" = 40' scale on 11" by 17" plan sheets unless otherwise approved by the Village.
2. After the Bid Opening, create a pdf of the "As Bid" plan set include any revised drawings from addendums.
3. After construction is completed and record drawings prepared, provide the Village with a PDF and electronic file of the record drawings. The drawings shall reflect the actual locations, slopes and elevations in the field without strikeouts of the As Bid information.

WATER MAIN

1. Water main pipe material – PVC
 - 4" – 12" AWWA C900, Pressure Class 235, Thickness Class DR 18
 - 12" – 36" AWWA C905, Pressure Class 235, Thickness Class DR 18
2. Elastomeric gaskets conforming to ASTM F477 and Joints ASTM D3139.
3. Water main located in terrace opposite from sanitary sewer.
4. Contractor to request approval from Village to deflect pipe joints or use bends on water main (maximum 1 degree of deflection), if approved, Contractor is responsible if main leaks when pressure tested.
5. Water main lowering
 - a. Design with bends, Contractor to request to deflect pipe. Village/Engineer to review each on a case by case basis.
 - b. Contractor is responsible for deep valve boxes and hydrants, if deflected.
6. Water main minimum cover to be 6.5 feet.
7. Plastic pipe bedding to be 4" below the pipe to 12" above the pipe with ¾" crushed rock.
8. Hydrants shall be Waterous Pacer WB 67-250, color – red (for standard main) and yellow (for transmission main)



9. Hydrant Nozzles – 1- 4 1/2” NST Pumper Nozzle and 2 – 2 1/2” NST Hose Nozzle.
10. Hydrants 5' behind curb and, unless noted otherwise.
11. Hydrant leads to have a 6” valve.
12. Hydrant bury depths shall be shown on plans.
13. Hydrants shall have Hydrant Markers – Rodon Corporation – 5’ long fiberglass shaft with alternating red/white reflective striping. 5/8” dia bolt-on steel flat mounting bracket and MIL SPEC spring mount.
14. Typical Hydrant separation distance to be 400’ based on the layout, variation to be reviewed and approved by the Village.
15. Valves shall conform to AWWA C515 with operating stem to turn counter clockwise to open. Preferred valve manufacturers are Clow or Waterous.
16. Valve boxes shall be cast iron, three piece screw type, on a valve box adaptor manufactured by Adaptor, Inc. or equal (Gate Valve Adaptor or Valve Box Adaptor II). Acceptable manufacturers for valve boxes to be Tyler, Bingham and Taylor, Bibby-Ste. Croix, or equal. A 2” riser shall be placed on the valve box top set to 1/2” below finished pavement grade. If located in a landscaped area, place rim level with finished grade.
17. Valve nut extensions shall be provided for valves deeper than 8 feet.
18. Mainline valves to be placed 3 feet off of fittings unless conditions required otherwise. These conditions are to be reviewed and approved by the Village.
19. Hydrant lead valves to be placed 3’ off the hydrant and fittings if watermain is in roadway. Hydrant lead valve to be placed 3’ off hydrant. If the distance is closer than stated, anchor tees may be required. This will be reviewed by the Village on a case by case basis.
20. All fittings shall be AWWA C153 Short Body Fittings with exterior coating to be fusion bonded epoxy in accordance with AWWA C116.
21. Rubber gasket joints conforming to AWWA C111.
22. All fittings shall be mechanically restrained.
23. Wrap with polyethylene encasement, conforming to AWWA C105, all underground fittings, valves, curb boxes, portions of hydrants below grade, etc.
24. All nuts and bolts below grade shall be 304 stainless steel with an anti-seize mechanism.
25. Water Services shall be DR 9 Polyethylene tubing conforming to AWWA C901 for sizes up to 2”.
26. Service size to be 1.25” inside diameter.
27. Water service corporations/valves/curb stops shall conform to AWWA C800. Acceptable manufactures to be Ford, AY McDonald, or equal. These materials shall meet the EPA No-Lead Brass rule.
28. Curb boxes shall be arch pattern with stainless steel rods and trace wire terminals on the cover. Acceptable manufacturers to be Ford, AY McDonald, or equal.
29. Water service inlet and outlet shall include a compression connection with short stiffeners for polyethylene tubing.
30. Water services installation can use stainless steel 304 saddle and tapped live.
31. Water services to be installed to right of sanitary sewer when looking at lot with the curb stop located at the right of way line.



32. Curb boxes located in concrete driveways, sidewalks or pavement shall be encased inside of a 4" valve box riser with cover.
33. Final grade adjustments of valves and curb boxes shall be made by the Contractor after the final landscaping is completed.
34. Tracer wire on all water main, services, and hydrants. Install tracer wire access boxes at hydrants. See attached details. Trace wire at water services shall be terminated at an integral terminal attached to the curb box top. If sanitary sewer and water services are installed in the same trench, connected wires from both facilities to separate terminals in the curb box top. Orient the connections so that the sewer wire is on the side of the sewer lateral (left of the water service when looking at the lot). If sewer and water services are installed in separate trenches, then install one (1) access box for the sewer but connect the wire from the water service to a curb box top with an integral trace wire terminal. Tracer wire color to be blue. Tracer wire is not required to be installed at the valve box locations.
35. The Valvco Sewer Tracer Wire Access Box manufactured by C.P. Test Services-Valvco, Inc., reference: <http://thewaterpartners.com/valvco.html> or The Cathodic Test Box P200 series manufactured by Bingham & Taylor, reference: <http://www.binghamandtaylor.com/cathodic.htm>, Copperhead Snakepit .
36. Field Quality Control Testing to be Pressure and Leakage Testing, Disinfection and Bacteriological Testing and Continuity Testing of tracer wire.
37. Bacteriological Testing to include 2 Bac-T tests and chlorine residual tests. Chlorine residual testing will be completed by Village representative. Provide a minimum of 24 hours notice for chlorine residual testing.
38. Field Record Information - Photographs are to be taken during construction of each fitting prior to placing the poly wrap and should contain an identifier tag in the photographs to include hydrants, valves, fittings, curb stops and corporations with an identifier tag labeling each.
39. Contractor to provide - Adjustable Hydrant Wrenches – 2 each.
40. Contractor to provide - Valve Wrench Keys – 2 each.
41. Contractor to provide - Flexible Curb Box Keys and Wrenches – 2 each.

SANITARY SEWER

1. Sanitary Sewer pipe material - <18" PVC
 - 8" – 15" up to 25 feet deep ASTM D3034, PSM SDR 35
 - 8" - 15" greater than 25 feet deep, ASTM D3034, PSM SDR 26
2. Sanitary Sewer pipe material >18" PVC/RCP
 - PVC 18" – 48", up to 25 feet deep ASTM F679, PS46
 - RCP CL III based on loading/soils
3. Sanitary Sewer elastomeric gaskets conforming to ASTM F477 and Joints ASTM D3212, Solvent weld joints are not permitted.
4. Repair coupling shall be from ABS to PVC shall be Fernco with Stainless Steel Shear Rings. Repairs couplings for like materials shall be the same.
5. Sanitary Services shall be PVC SCH 40 pipe.
6. Service joints shall be solvent weld ASTM D2672.
Forcemain pipe material to be 4" – 12" AWWA C900, Pressure Class 235, Thickness Class DR 18



7. Service wyes shall be factory in line wyes for PVC Pipe material.
8. When tapping a lateral into existing PVC sanitary sewer, the lateral shall be installed into a cut-in inline wye. The spot repair to accommodate the cut-in inline wye shall be completed with a PVC repair coupling.
9. When tapping a lateral into existing or new concrete sanitary sewer, the lateral shall be installed into an Inserta-Tee or approved equal.
10. When tapping a lateral into existing ABS sanitary sewer, the lateral shall be installed into a saddle wye.
11. Forcemain elastomeric gaskets conforming to ASTM F477 and Joints ASTM D3139.
12. Sanitary sewer located in terrace opposite from water main.
13. Sanitary sewer laterals shall be at a depth of 10' at the property line unless conditions preclude that depth. Review with then Village. Laterals can end at the right of way line or 12' Utility Easement line.
14. Native backfill shall be used.
15. Plastic pipe bedding to be 4" below the pipe to 12" above the pipe with $\frac{3}{4}$ " crushed stone.
16. Concrete pipe bedding to be 4" below pipe to 1/6 of outside diameter with $\frac{3}{4}$ " crushed stone.
17. Manhole base sections shall be an integral monolithic bottom extending a minimum 6" beyond the riser section and shall be constructed on a 6" base of $\frac{3}{4}$ " aggregate base material. Manhole shall be a minimum of 6' height from the top of casting to the flow line.
18. Manhole castings shall be Type 1 Frame and Cover Neenah Foundry R-1500. When manhole adjustment is limited, provide Type 2 Frame and Cover Neenah Foundry R-1689.
19. Provide Bolt Down Frame and Cover Neenah R1916-C with stainless steel bolts where shown on drawings.
20. Manhole barrel sections to be constructed with a butyl rubber joint sealant rope type configuration. Material to be Conseal CS-102 Butyl Rubber Sealant for all Precast Structures or equal. Strips to be 1 1/4" size applied along the outside edge of the joint.
21. Manhole adjusting ring numbers to be minimized by utilizing thicker units with the top ring to be a 1" – 2" "finishing" ring. A maximum height of 12" of rings is allowed. The adjusting rings shall be plastic (EPP or HDPE) with the top adjustment ring on sanitary manholes shall be a "finishing" ring tapered to fit the cross slope of the roadway. Manhole rings and casting to be sealed between rings per manufacturers recommendations.
22. Manhole pipe connections shall use A-Lok or Z-Lok connectors.
23. All Sanitary Manholes and Lift Stations to be constructed with a butyl wrap at each joint located on the outside of the manhole in addition to the butyl rubber sealant as listed above. Butyl Rubber wrap to be a minimum 6" in width.
24. Contractor to record with the Owner, elevations of all mainline stubs on sanitary sewer.
25. Tracer wire on all sanitary sewer main, force main and sewer laterals. Access for tracer wire for sanitary sewer mains and force mains shall be at access boxes or water service curb boxes. Install tracer wire access boxes for sewer services if water service is not constructed in the same trench. If sanitary sewer and water services are installed in the same trench, connected wires from both facilities to separate terminals in the curb box



- top. Orient the connections so that the sewer wire is on the side of the sewer lateral (left of the water service when looking at the lot). If sewer and water services are installed in separate trenches, then install one (1) access box for the sewer but connect the wire from the water service to a curb box top with an integral trace wire terminal. Tracer wire color to be green.
26. The Valvco Sewer Tracer Wire Access Box manufactured by C.P. Test Services-Valvco, Inc., reference: <http://thewaterpartners.com/valvco.html> or The Cathodic Test Box P200 series manufactured by Bingham & Taylor, reference: <http://www.binghamandtaylor.com/cathodic.htm>, Copperhead Snakepit.
 27. Field Quality Control Testing to be Pressure and Leakage Testing for pressure mains, low pressure tests for gravity pipes, Lamping, Televising with a video, Deflection (Mandrel) Testing and Continuity Testing of tracer wire. All testing shall be provided in a report or form to the Village/Engineer.
 28. All sanitary sewers are to be cleaned prior to the televising.
 29. Field Record Information - Photographs are to be taken during construction of each fitting prior to placing the poly wrap and should contain an identifier tag in the photograph to include laterals, risers, wyes and manholes.
 30. Contractor to provide - Manhole Hooks – 2 each.

STORM SEWER

1. Minimum storm sewer diameter for mainline and catch basin leads to be 12" diameter.
2. Storm Sewer pipe material – 8" - 10" - PVC
 - 8" – 10" up to 25 feet deep ASTM D3034, PSM SDR35
 - 8" - 10" greater than 25 feet deep, ASTM D3034, PSM SDR 26
3. Storm Sewer pipe material 12" – 15" – PVC or RCP
 - 12" – 15" up to 25 feet deep ASTM D3034, PSM SDR35
 - 12" - 15" greater than 25 feet deep, ASTM D3034, PSM SDR 26
 - RCP CL III based on loading/soils
4. Storm Sewer pipe material 18" and greater - RCP.
 - RCP CL III based on loading/soils.
5. Storm Sewer elastomeric gaskets conforming to ASTM F477 and Joints ASTM D3212, Solvent weld joints are not permitted.
6. Repair coupling shall be from ABS to PVC shall be Fernco with Stainless Steel Shear Rings. Repairs couplings for like materials shall be the same.
7. Storm Services 4" – 6" shall be PVC SCH 40 pipe.
8. Service joints shall be solvent weld ASTM D2672.
9. Storm sewer location (typical) – centerline of road.
10. Native backfill shall be used.
11. Storm Sewer services typically are located at the property line with one lateral to the storm sewer and a double wye at the end for each lot. Laterals can end at the right of way line or 12' Utility Easement line.
12. Storm Sewer wyes branches.
 - a. pipe size of 15" or less – use factory in-line wye with the material the same as the pipe.
 - b. all pipe size - RCP, core-drill w/ expandable gasket to be an Inserta-Tee or approved equal.



13. Plastic pipe bedding to be 4" below the pipe to 12" above the pipe with $\frac{3}{4}$ " crushed rock.
14. Concrete pipe bedding to be 4" below pipe to 1/6 of outside diameter with $\frac{3}{4}$ " crushed rock
15. Manhole base sections shall be an integral monolithic bottom extending a minimum 6" beyond the riser section and shall be constructed on a 6" base of $\frac{3}{4}$ " aggregate base material.
16. Manhole shall be a minimum of 6' height from the top of casting to the top of the base section.
17. Manhole castings shall be Type 1 Frame and Cover Neenah Foundry R-1500. When manhole adjustment is limited, provide Type 2 Frame and Cover Neenah Foundry R-1689.
18. Provide Bolt Down Frame and Cover Neenah R1916-C with stainless steel bolts where shown on drawings.
19. Catch Basins shall be Type 11 Frame and Box with Type "L" grate except at sags, provide a Type "C" grate Neenah Foundry R-3067. At driveways, provide a grated plate 7009 instead of the box.
20. Catch basins to have a Type R grate with the Neenah R-3000-A EnviroNotice Plate – "Dump No Waste – Drains to Fresh Water".
21. Catch basins to be Type "A" (2' x 3') in roadway, Type C-2 (30" diameter) in side/backyards unless a yard drain is approved by the Village.
22. Catch Basins shall be a minimum of 6' height from the top of casting to the top of the base section. Catch Basins to have a 12" min./18" max. sump installed.
23. Catch Basins to be over excavated a minimum of 24" for visual awareness to allow for backfilling with unwashed stone material and mechanically compaction.
24. Manhole/Catch Basin barrel sections to be constructed with a butyl rubber joint sealant rope type configuration. Material to be Con Seal CS-102 Butyl Rubber Sealant for all Precast Structures or equal. Strips to be 1 1/4" size applied along the outside edge of the joint.
25. Manhole/Catch Basin adjusting ring numbers to be minimized by utilizing thicker units with the top ring to be a 1" – 2" "finishing" ring. A maximum height of 12" of rings is allowed. The adjusting rings shall be plastic (EPP or HDPE) with the top adjustment ring on sanitary manholes shall be a "finishing" ring tapered to fit the cross slope of the roadway. Manhole/Catch Basin rings and casting to be sealed between rings per manufacturers recommendations.
26. Manhole/Catch Basin pipe connections shall use a non-shrink grout.
27. All catch basins shall have proper inlet protection installed to prevent any soil erosion into the catch basin during construction. Inlet Protection must be installed to protect the back of the catch basin. Inlet Protection shall remain until the site is 70% vegetated.
28. Tracer wire on all storm sewer laterals. No tracer wire on storm sewer main straight in alignment between manholes. Non-typical alignments of storm sewer (i.e. bends, deflections) to be determined by the Owner/Engineer. Install tracer wire access boxes for sewer services. On new services, the tracer wire shall be installed from the main to the property line. At a double wye, two separate wires shall be extended from the main to the end of the lateral and installed as described above. Tracer wire color to be brown.



29. The Valvco Sewer Tracer Wire Access Box manufactured by C.P. Test Services-Valvco, Inc., reference: <http://thewaterpartners.com/valvco.html> or The Cathodic Test Box P200 series manufactured by Bingham & Taylor, reference: <http://www.binghamandtaylor.com/cathodic.htm>, Copperhead Snakepit Village reviewing a combination box for curb stop and tracer wires with the next update.
30. Field Quality Control Testing to be Continuity Testing of tracer wire. All testing shall be provided in a report or form to the Village/Engineer.
31. Contractor to record with the Owner, elevations of all mainline stubs on storm sewer.
32. Field Record Information - Photographs are to be taken during construction of each fitting prior to placing the poly wrap and should contain an identifier tag in the photograph to include catch basins, wyes, laterals and manholes.
33. If not part of a sanitary sewer project, Contractor to provide - Manhole Hooks – 2 each.
34. Culverts crossing Village owned streets shall be reinforced concrete pipe.

STREETS/CURB AND GUTTER

1. Typical residential street - 32' back to back, B/O/C = 17' off of property line for 66' ROW.
 - a. Residential Streets Typical Section
 - i. 1-3/4 inches asphalt surface
 - ii. 1-3/4 inches asphalt binder
 - iii. 6 inches of 1 ¼ inch crushed aggregate base course
 - iv. 6 inches of 3 inch breaker run
 - b. Asphalt Driveway Typical Section:
 - i. 2 inches asphalt surface
 - ii. 12 inches of 1 ¼ inch crushed aggregate base course
 - c. Concrete Driveway Typical Section:
 - i. 6 inches of concrete
 - ii. 6 inches of 1 ¼ crushed aggregate base course
 - iii. Concrete driveway widths shall conform to Village Code.
2. Typical asphalt trail – 8' wide, 1' wide aggregate shoulder, 10' wide base course
 - a. Asphalt Trail Typical Section:
 - i. 2 inches asphalt surface
 - ii. 12 inches of 1 ¼ inch crushed aggregate base course
3. Typical Sections can change based on the soil conditions of the area. Changes are to be requested to be reviewed by the Village.
4. Roadway base course shall extend 2' beyond back of curb.
5. Temporary cul-de-sacs at the ends of roadways shall be paved per the Village typical section.
6. Manhole rims and valve box covers are to be adjusted to be constructed approximately 1/2" below the final asphalt surface.
7. Standard intersection radius in residential area is 20.00' to back of curb and gutter, or as otherwise determined during design.
8. Minimum of 0.40 % grade on curb and gutter.
9. Roadway cross slope to be 2%.
10. Provide liquid membrane-forming curing compounds composed of a blend of boiled linseed oil and high viscosity, heavy bodies linseed oil emulsified in a water solution conforming to AASHTO M 148, Type 2, Class B.



11. Pavement mixes: Binder shall be 4 LT 58-28S.
Surface shall be 4 LT 58-28S.
12. Curb and gutter shall be 30" barrier.
13. Curb reinforcement at all lateral trenches (20 foot length), also 10 feet length each way of inlets, or as designated by Owner. Dowel reinforcement into existing curb at all point repairs and tie-ins.
14. Handicap ramp locations, designed or future, shall be included in all Projects that include pedestrian crossings at roadways. Review locations with the Village.
15. Curb ramps shall be WisDOT Type 2, 3, or 4. WisDOT Type 1 curb ramps shall only be used with Village approval.
16. Detectable warning fields shall have a natural finish.
17. Any pavement markings shall be with epoxy paint with glass beads.